SML-88 系列使用说明书

SML-88 Series User Manual

一、产品和接口图片

Product and Interface Images

- 接收器探头
- RJ11（电话线）
- 同轴线接口
- 网线测线接口
- USB线接口
- 网线寻线接口
- USB BNC RJ11
- 灵敏度旋钮
- power
- 开关
- Network Cable Tester
- 远端同轴线接口
- 远端USB线接口
- 远端网线接口
- 远端电话线接口

二、产品介绍

Product Introduction

SML-88 系列线缆测试仪是杉木林公司针对市场需求精心研发的一系列多功能 LCD 测试仪产品，主要用于网线、电话线、同轴电缆和其他金属线缆的连通、寻线和长度测试。

The SML-88 series cable tester is a series of multifunctional LCD testers developed by ShamuLin Company to meet market demands. It is mainly used for continuity, wire scanning, and length testing of network cables, telephone lines, coaxial cables, and other metal cables.

2.1 产品功能
Product Features

型号 功能	SML-8828	SML-8868
1、通断测试	√	√
2、长度测试	网线长度	√
3、断点测试	网线断点	√
4、寻线测试	√	√
5、电量显示	√	√
6、自检自调	√	√
7、背光时间可调	√	√
8、关机时间可调	√	√

Model Function	SML-8828	SML-8868
1、Open/Short Test	√	√
2、Length Test	Network cable length	√
3、Breakpoint Test	Network cable breakpoint	√
4、Wire Scanning Test	√	√
5、Battery Level Display	√	√
6、Self-test and Auto-adjustment	√	√
7、Adjustable Backlight Time	√	√

8、Adjustable Shutdown Time		√	√

1、通断测试：测试线缆的开路、短路、跳线、反接、交叉、配对等；

2、长度测试：测量线缆长度；

3、断点测试：测量线缆断点的长度；

4、寻线测试：通过音频信号，在线堆中找寻待测是线，可交换机带电寻线；

5、电量显示：用四格电池符号显示当前电量；

6、自检自调：自动检测调节各种测试情形，对电池容量及环境温度变化自动补充；

7、背光时间可调：可以根据自己的需求调节背光时间；

8、关机时间可调：可以根据自己的需求选择关机时间。

1. Open/Short Test: Tests cable for open circuit, short circuit, cross, reverse, crossover, pairing, etc.

2. Length Test: Measures cable length.

3. Breakpoint Test: Measures the length of a cable breakpoint.

4. Wire Scanning Test: Locates the cable under test in a bundle using an audio signal, supports live wire scanning with a switch.

5. Battery Level Display: Shows current battery level with a four-level battery symbol.

6. Self-test and Auto-adjustment: Automatically detects and adjusts various test situations, compensates for battery capacity and environmental temperature changes.

7. Adjustable Backlight Time: Allows adjustment of backlight duration as per user's preference.

8. Adjustable Shutdown Time: Allows selection of shutdown time as per user's preference.

2.2 产品配件
Product Accessories

在您拿到杉木林 88 系列产品后，请检查下各个标准配件是否齐全。

型号 \ 功能	SML-8828	SML-8868
1、测试仪主机	√	√
2、寻线器	√	√
3、远端副机	√	√

4、鳄鱼夹适配线	√	√
5、9V 叠层电池	√	√
6、工具包	√	√
7、彩盒	√	√
8、说明书	√	√

仪器配件：1、测试仪主机；2、寻线器；3、远端副机；4、鳄鱼夹适配线；5、9V 叠层电池；6、工具包；7、彩盒；8、说明书。

Instrument Accessories: 1. Main Tester; 2. Wire Scanner; 3. Remote Sub-machine; 4. Alligator Clip Adapter; 5. 9V Layered Battery; 6. Tool Kit; 7. Color Box; 8. User Manual.

2.3 技术参数
Technical Specifications

名称	杉木林 88 系列
显示	LCD 点阵 128x64
电源	9V 叠层电池
包装	工作包+彩盒
工作环境温度	-10℃~+60℃
工作环境湿度	10%~70%
材质	ABS
总包装尺寸	270*180*70mm
总重量	450g
线缆测试参数	
可测试线材连通	5E、6E 双绞网线、电话线、同轴线、USB 线以及其他金属线
端口	RJ45、RJ11、USB、BNC
可测试线材长度	5E、6E 双绞网线、电话线、同轴线、USB 线以及其他金属线
测量线材长度	≤1200 米
寻线长度	≤1500 米
寻线优势	支持华为交换机带电寻线，支持四芯网线和屏蔽线带电寻线。

Name	SML 88 Series
Display	LCD Dot Matrix 128x64
Power Supply	9V Layered Battery
Packaging	Work Bag + Color Box
Operating Temperature	-10℃~+60℃
Operating Humidity	10%~70%
Material	ABS
Package Dimensions	270*180*70mm
Total Weight	450g
Cable Testing Parameters	
Cable Testing Parameters	5E、6E twisted pair network cables, telephone lines, coaxial cables, USB

	cables, and other metal wires
Ports	RJ45、RJ11、USB、BNC
Testable Cable Lengths	5E、6E twisted pair network cables, telephone lines, coaxial cables, USB cables, and other metal wires
Measured Cable Length	≤1200 meters
Scanning Length	≤1500 meters
Scanning Advantages	Supports live wire scanning with Huawei switches, supports live wire scanning for four-core network cables and shielded cables.

三、操作说明

Operation Instructions

按主机"ON/OFF"开机，3 秒以后显示主菜单。

Press the "ON/OFF" button on the main tester to power on. The main menu will be displayed after

3 seconds.

3.1 线缆接线方式

Cable Connection Methods

3.1.1 双绞线

Twisted Pair Cable

1、M-S 方法：待测线缆两端分别接入主机的 M 和 S 端口；

2、M-R 方法：待测线缆两端分别接入主机的 M 端口和副机的 RJ45 端口；

3、Open 方法：待测线缆一端接入主机的 M 端口，另一端无需连接。

1. M-S Method: Connect one end of the cable to the "M" port of the main unit and the other end to the "S" port.

2. M-R Method: Connect one end of the cable to the "M" port of the main unit and the other end to the RJ45 port of the sub-machine.

3. Open Method: Connect one end of the cable to the "M" port of the main unit, and the other end does not need to be connected.

3.1.2 电话线
Telephone Line

1、RJ11-RJ11 方法：待测线缆两端分别接入主机和副机的 RJ11 端口；

2、Open 方法：待测线缆一端接入主机的 RJ11 端口，另一端无需连接。

1. RJ11-RJ11 Method: Connect one end of the cable to the RJ11 port of the main unit and the other end to the RJ11 port of the sub-machine.

2. Open Method: Connect one end of the cable to the RJ11 port of the main unit, and the other end does not need to be connected.

3.1.3 同轴线
Coaxial Cable

1、BNC-BNC 方法：待测线缆两端分别接入主机和副机的 BNC 端口；

2、Open 方法：待测线缆一端接入主机的 BNC 端口，另一端无需连接。

1. BNC-BNC Method: Connect one end of the cable to the BNC port of the main unit and the other end to the BNC port of the sub-machine.
2. Open Method: Connect one end of the cable to the BNC port of the main unit, and the other end does not need to be connected.

3.1.4 USB 线
USB Cable

1、USB-USB 方法：待测线缆两端分别接入主机和副机的 USB 端口；
2、Open 方法：待测线缆一端接入主机的 USB 端口，另一端无需连接。

1. USB-USB Method: Connect one end of the cable to the USB port of the main unit and the other end to the USB port of the sub-machine.
2. Open Method: Connect one end of the cable to the USB port of the main unit, and the other end does not need to be connected.

3.2 线缆连通测试
Cable Continuity Test

开机后，按上下键选择"连通测试"，按"ENTER"进入连通测试后，按上下键选择待测线缆类型："双绞线"、"电话线"、"USB 线"或"同轴电缆"。

After turning on the device, use the up and down keys to select "Continuity Test" from the main menu. Press "ENTER" to enter the continuity test, then use the up and down keys to select the cable type: "Twisted Pair Cable," "Telephone Line," "USB Cable," or "Coaxial Cable."

将双绞线按照 M-S 方法或 M-R 方法连接好，选择"双绞线"选项，按"ENTER"开始测试。

For twisted pair cables, follow the M-S or M-R method to connect the cable. Select the "Twisted Pair Cable" option and press "ENTER" to start the test.

将电话线按照 RJ11-RJ11 方法连接好，选择"电话线"选项，按"ENTER"开始测试。

For telephone lines, follow the RJ11-RJ11 method to connect the cable. Select the "Telephone Line" option and press "ENTER" to start the test.

将同轴线按照 BNC-BNC 方法连接好，选择"同轴电缆"选项，按"ENTER"开始测试。

For coaxial cables, follow the BNC-BNC method to connect the cable. Select the "Coaxial Cable" option and press "ENTER" to start the test.
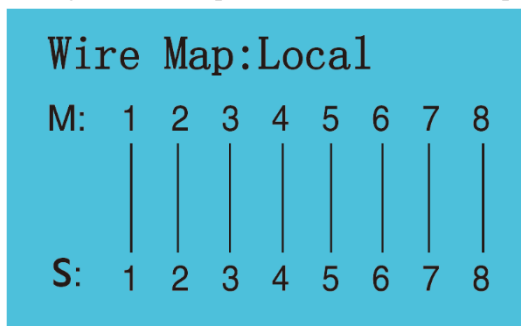
将 USB 线按照 USB-USB 方法连接好，选择"USB 线"选项，按"ENTER"开始测试。

For USB cables, follow the USB-USB method to connect the cable. Select the "USB Cable" option and press "ENTER" to start the test.
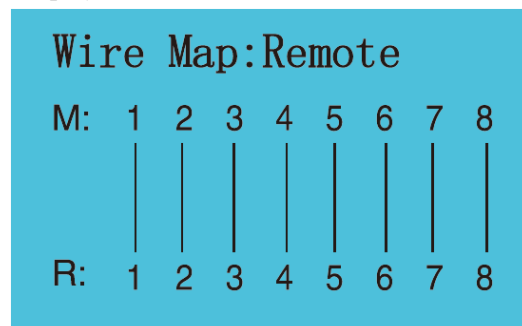
Main Menu	Mapping
➡ 1.Wire mapping 2.Length Test 3.Cable Scanning	➡ RJ45 RJ11 USB
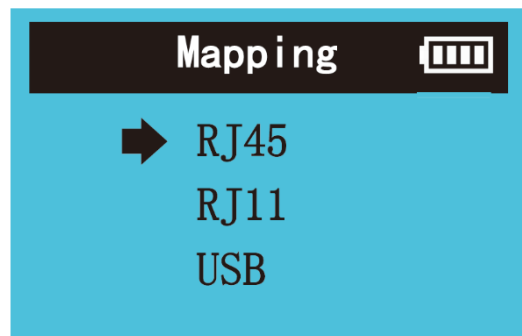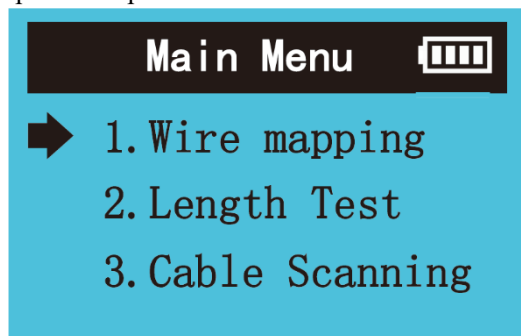
以双绞线测试为例显示如下：

Taking the twisted pair cable test as an example, the display will show:

Wire Map:Local	Wire Map:Remote
M: 1 2 3 4 5 6 7 8 S: 1 2 3 4 5 6 7 8	M: 1 2 3 4 5 6 7 8 R: 1 2 3 4 5 6 7 8

M-S 方式测试结果：正常	M-R 方式测试结果：正常
M-S Test Result: Normal	M-R Test Result: Normal

```
Wire Map:Remote
M:  X   X   3   4   5   6   7   8
    |   |   |   |   |   |   |   |
R:  1   2   3   4   5   6   7   8
```
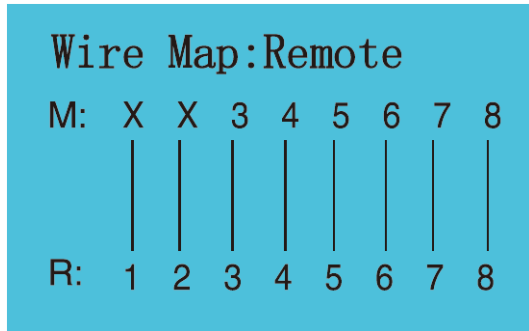
M 端 12 位置开路
Open Circuit at Position 12 of M

```
Wire Map:Remote
M:  X   2   3   4   5   6   7   8
    |   |   |   |   |   |   |   |
R:  X   2   3   4   5   6   7   8
```
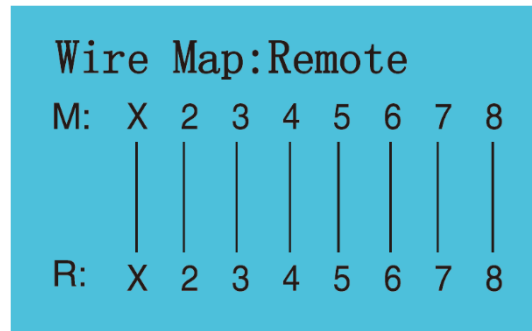
线缆 1 位置中部开路
Open Circuit in the Middle of Cable 1

```
Short mapping:

  1  2  3  4  5  6  7  8
        |__|__|
```
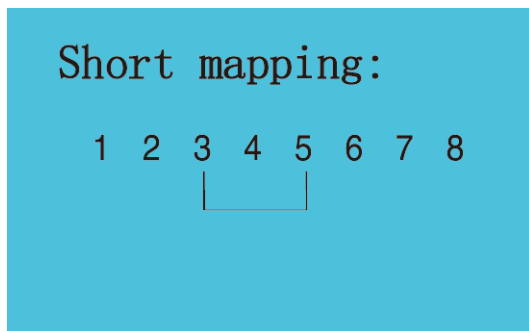
位置 3 和 5 处短路
Short Circuit at Positions 3 and 5

```
⚠  Cable open or
   too short
```
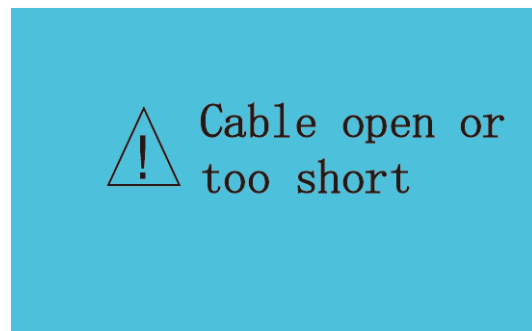
线缆未接好或过短
Cable not properly connected or too short

```
Short mapping:

  1  2  3  4  5  6  7  8
  |__|__|__|__|__|__|__|
```
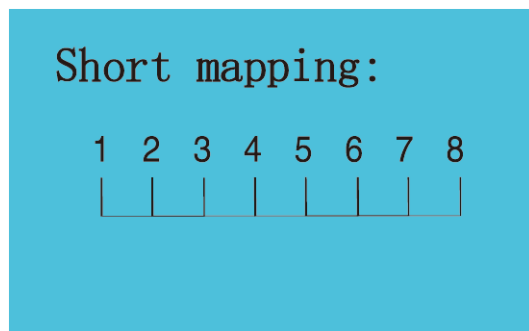
交换机该端口状况良好
The port of the switch is in good condition.

```
Short mapping:

  1  2  3  4  5  6  7  8
  |__|__|__|__|__|
```
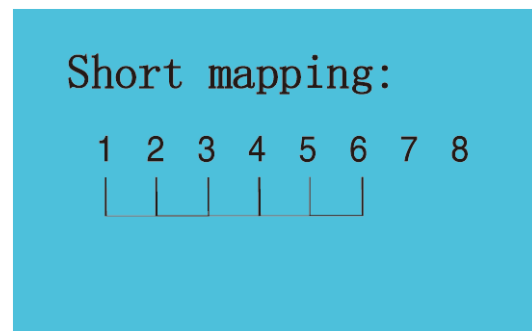
交换机该端口 7 号和 8 号线断路
The port 7 and 8 of the switch have a cable break.

3.3 线缆长度测试
Cable Length Testing

在主菜单界面按上下键选择"长度测试"，按"ENTER"进入长度测试后，按上下键选择待测线缆类型："双绞线"、"电话线"、"USB 线" 或"同轴电缆"。

On the main menu screen, use the up and down arrow keys to select "Length Testing," and press "ENTER" to enter the length testing mode. Then, use the up and down arrow keys to choose the type of cable to be tested: "Twisted Pair," "Telephone Line," "USB Cable," or "Coaxial Cable."

将双绞线按照 M-S 方法、M-R 方法或 Open 方法连接好，选择"双绞线"选项，按"ENTER"开始测试。

For testing a twisted pair cable, follow the M-S method, M-R method, or Open method to connect it properly. Select the "Twisted Pair" option and press "ENTER" to start the test.

将电话线按照 RJ11-RJ11 方法或 Open 方法连接好，选择"电话线"选项，按"ENTER"开始测试。

For testing a telephone line, follow the RJ11-RJ11 method or Open method to connect it properly. Select the "Telephone Line" option and press "ENTER" to start the test.

将同轴线按照 BNC-BNC 方法或 Open 方法连接好，选择"同轴电缆"选项，按"ENTER"开始测试。

For testing a coaxial cable, follow the BNC-BNC method or Open method to connect it properly. Select the "Coaxial Cable" option and press "ENTER" to start the test.

将 USB 线按照 USB-USB 方法或 Open 方法连接好，选择"USB 线"选项，按"ENTER"开始测试。

For testing a USB cable, follow the USB-USB method or Open method to connect it properly. Select the "USB Cable" option and press "ENTER" to start the test.
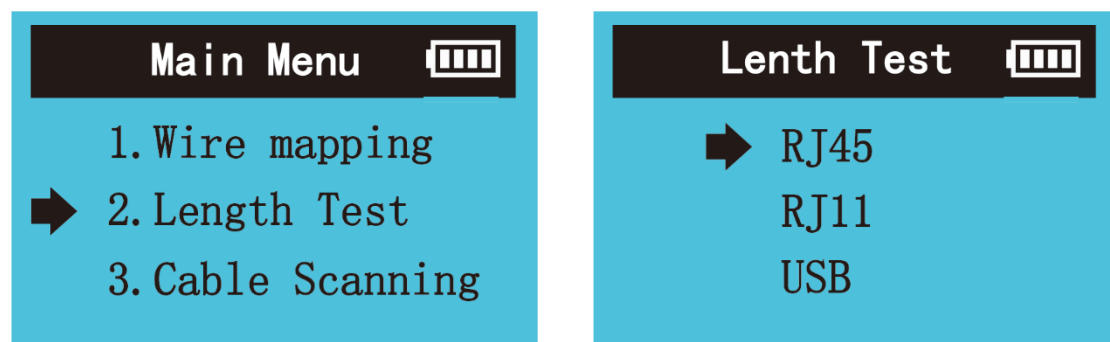
以网线测试为例显示如下：
As an example, let's consider the case of testing a network cable:

```
1 2  M-S      99.9m
3 6  M-S     100.1m
4 5  M-S      99.8m
7 8  M-S     100.1m
```

M-S 测试方式结果：正常

M-S test method result: Normal

```
1 2  M-R      99.9m
3 6  M-R     100.1m
4 5  M-R      99.8m
7 8  M-R     100.1m
```

M-R 测试方式结果：正常

M-R test method result: Normal

```
1 2  Open     99.9m
3 6  Open    100.1m
4 5  Open     99.8m
7 8  Open    100.1m
```

Open 测试方式结果：正常

Open test method result: Normal.

```
1 2  Open     99.9m
 3   Open     40.1m
 6   Open     99.0m
4 5  Open     99.8m
```

此线缆第 3 芯在 40m 处断掉

The third core of this cable is broken at a distance of 40 meters.

```
Short mapping:

1 2 3 4 5 6 7 8
    |_____|
```

线芯 3 和 5 处短路

There is a short circuit at positions 3 and 5 of the wire core.

说明：如图所示，"M-S""M-R""开路"后面对应的数字即为当前测试线缆的长度。

Note: As shown in the figure, the numbers following "M-S," "M-R," and "open circuit" indicate the current length of the test cable.

3.4 线缆参数校准与调取
Cable Parameter Calibration and Retrieval

线缆参数的校对与调取的背景：由于市面上线缆的材质很多都是非标线材，直接测试时由于线材不同的原因会导致测试长度的结果会有一定的误差，为了保证线缆长度的精确度，实际测试前会要求用同材质的线缆进行校准。

Background for cable parameter calibration and retrieval: Due to the fact that many cables available on the market are non-standard, direct testing may result in certain errors in the measured length due to different cable materials. In order to ensure the accuracy of cable length, it is necessary

to calibrate with cables of the same material before conducting actual tests.

按上下键选择"线缆长度校准"，按"ENTER"进入线缆长度校准测试后，按上下键选择待测线缆类型："双绞线"或"电话线"（注：同轴线或其他两芯线也使用电话线选项测试）。
Select "Cable Length Calibration" using the up and down keys, and press "ENTER" to enter the cable length calibration test. Use the up and down keys to select the type of cable to be tested: "Twisted Pair" or "Telephone Line" (Note: Coaxial cables or other two-core cables can also be tested using the telephone line option).
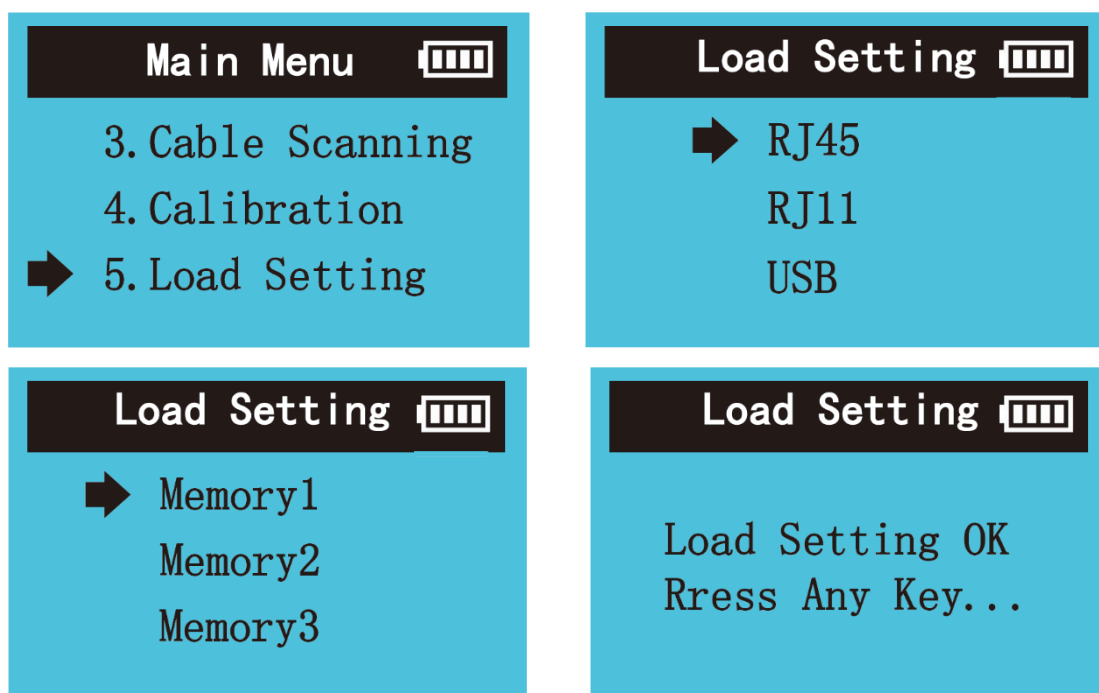
校准方法：用一根与待测线缆相同材质且已知长度（10 米或 10 米以上）的线缆进行参数校准测试。按上下键将测试结果调整到已知长度线缆的实际长度，然后按"ENTER"保存至存储单元（1、2 或 3）。
Calibration method: Use a cable of the same material as the cable to be tested and with a known length (10 meters or more) for parameter calibration testing. Adjust the test result to the actual length of the known length cable using the up and down keys, then press "ENTER" to save it to the storage unit (1, 2, or 3).
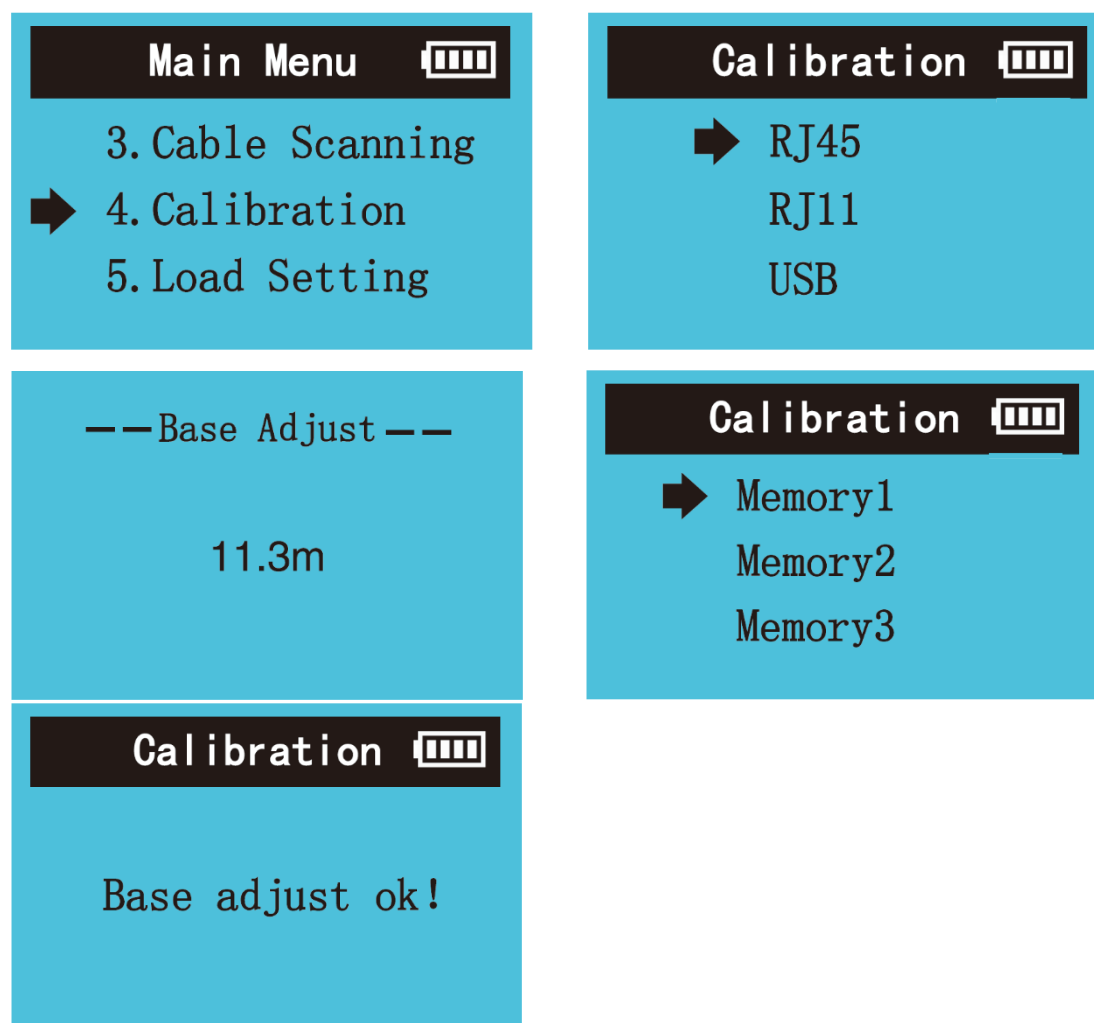
参数保存成功后，在"线缆参数调取"选项中调取出存储单元（1、2 或 3）中已存好的参数。调取成功后再进行待测线缆的长度测试，测试结果会更精确。

After successfully saving the parameters, retrieve the stored parameters from the storage unit (1, 2, or 3) using the "Retrieve Cable Parameters" option. Once successfully retrieved, proceed with the length testing of the cable to be measured, and the test results will be more accurate.

```
Main Menu    [IIII]
  3. Cable Scanning
  4. Calibration
➡ 5. Load Setting
```

```
Load Setting [IIII]
  ➡ RJ45
    RJ11
    USB
```

```
Load Setting [IIII]
  ➡ Memory1
    Memory2
    Memory3
```

```
Load Setting [IIII]

  Load Setting OK
  Rress Any Key...
```

3.5 线缆寻线测试
Cable Scanning Test

寻线优势：支持华为交换机带电寻线，支持四芯网线和屏蔽线带电寻线。
Advantages of cable scanning: Supports live scanning with Huawei switches, supports live scanning of four-core network cables and shielded cables.

    双绞线：双绞线一端接入主机的 S 端口，另一端不接或接至交换机；
Twisted Pair: One end of the twisted pair is connected to the S port of the host, while the other end is either not connected or connected to the switch.

    电话线：电话线一端接入主机的 RJ11 端口，另一端不接；（注：其他两芯线也使用电话线选项测试）
Telephone Line: One end of the telephone line is connected to the RJ11 port of the host, while the other end is not connected. (Note: The other two-core cables also use the telephone line option for testing.)

    同轴线：同轴线一端接入主机的 BNC 端口，另一端不接。
    Coaxial Cable: One end of the coaxial cable is connected to the BNC port of the host, while the other end is not connected.

    网线寻线：分为抗干扰寻线和普通寻线，抗干扰寻线为无噪音寻线方式，支持华为交换机带电寻线，支持四芯网线和屏蔽线带电寻线。普通寻线为有电流声，支持一般交换机带电
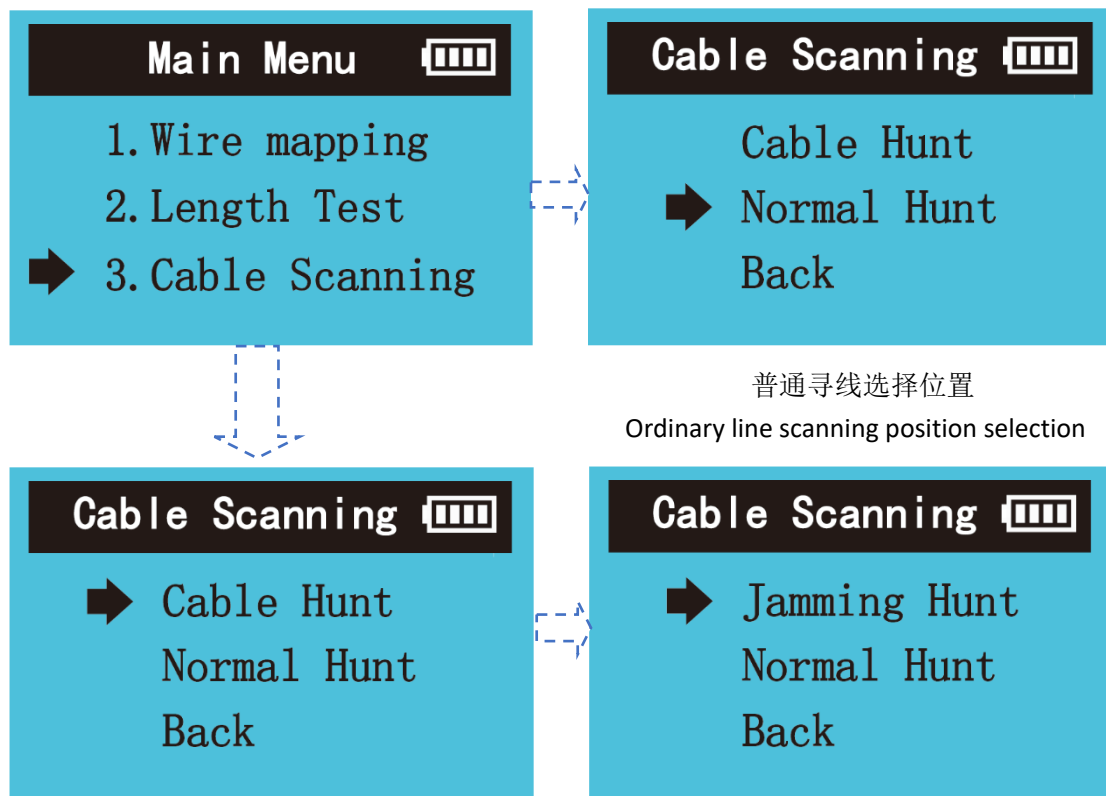
Network Cable Scanning: There are two types - anti-interference scanning and normal scanning. Anti-interference scanning is a noiseless scanning method that supports live scanning with Huawei switches, and supports live scanning of four-core network cables and shielded cables. Normal scanning produces an audible current sound and supports live scanning with general switches.

普通寻线：电话线等两芯线寻线使用此寻线方式，寻线有电流声，寻线距离达 1500 米。

Normal Scanning: This scanning method is used for two-core cables such as telephone lines. The scanning produces an audible current sound and can trace up to 1500 meters.

在主菜单界面按上下键选择"线缆寻线"，按"ENTER"进入寻线测试后，再按上下键选择寻线模式"网线寻线"、"普通寻线"，选择自己需要的寻线方式，然后插上待寻线线缆，打开寻线器电源开关，指示灯长亮，开始寻线，手持寻线感应器测试待测线缆另一端，调节寻线感应器灵敏度，贴近线缆时发出"嘟嘟"提示音的线就是要寻的线缆。

To perform cable scanning, select "Cable Scanning" from the main menu using the up and down keys, and press "ENTER" to enter the scanning test. Then use the up and down keys to select the scanning mode: "Network Cable Scanning" or "Normal Scanning". Choose the scanning method you need, and then plug in the cable to be scanned. Turn on the power switch of the scanning device, and the indicator light will stay on, indicating that the scanning has started. Use the handheld scanning sensor to test the other end of the cable being scanned, adjust the sensitivity of the scanning sensor, and the cable that produces a "beep" sound when the sensor is close to it is the cable being scanned.

普通寻线选择位置
Ordinary line scanning position selection

网线寻线选择位置

Choose the location for cable line scanning.　　　Anti-interference line scanning position

selection

抗干扰寻线选择位置

Cable Scanning

Scan...

网线寻线选择位置

Choose the location for cable line scanning.　　　Anti-interference line scanning position

selection

抗干扰寻线选择位置