多功能网线测试仪

Multifunctional network cable tester

产品手册

Product Manuals

目　　录

CATALOG

安全须知

　　本产品采用IEC1010条款设计(国际电工委员会颁布的安全标准)，使用之前请先阅读安全注意事项及技术指标。

　　测量任何大于36V请仔细阅读产品技术指标内容，只有具有万用表功能的产品，在遵循安全操作要求的前提下，可以测量超过36V以上的交流/直流电压及电流。

　　不具万用表功能的产品，切不可以测量大于36V电压（POE设备除外），否则将有电击危险；

　　1、36V以下的电压为安全电压，在测高于36V直流、25V交流电压时，要检查表笔是否接触可靠，是否正确连接，是否绝缘良好等，以避免被电击；

　　2、产品长度测量时，网线的另一端不能连接设备，否则可能损坏设备，其他网络接口支持最大60V正常工作；

　　3、测量电压时，请勿输入超过直流1000V或交流750V有效值的极限电压；测量电流时，请勿输入超过10A的电流；

　　4、更换功能和量程时，表笔应离开测试点；

　　5、选择正确的功能和量程，谨防误操作，该系列仪表虽然有全量程保护功能，但为了安全起见，仍请您多加注意；

　　6、本产品有红色激光发出，请勿照射眼睛；

⚠ 警 告 ⚠

　　1、请勿使用已损坏的产品，使用前先检查测试仪；若仪表工作失常请勿使用，仪表的保护可能已经遭到破坏；

　　2、请勿超量程使用否则会造成人员伤害和设备损坏；

　　3、雷雨天使用该仪器注意防雷电，以免线路感应到雷电造成人员伤害和设备损坏；

　　4、产品不宜在高温高湿、易燃易爆和强磁场的环境下　放或使用；超过6个月不使用时，请将电池充满电取出　放，以免发生锂电池过放造成锂电池损坏；

　　5、产品不能连接查找（寻线）已经接通了强电的线缆（比如家里的电线），否则会造成人员伤害和设备损坏。

　　6、万用表功能操作需严格遵照万用表使用规程，除万用表笔外，其他接口不能连接强电，否则有人员伤害和设备损坏风险。

　　7、注意电池使用情况，当屏幕显示出现低电压符号时，应及时充电；

特 性

1. 多达11项专业功能设计、一机在手工程无忧；
2. 网线长度测量，最长达600米
3. 强大的网线分析功能：断路、短路、交叉以水晶头压接测试
4. 专业的多功能万用表，显示达60000位（仅升级款有）
5. 6dBm到-70dBm光功率计设计
6. 红色激光发射功能，光纤传输距离约达10KM
7. 数字寻线功能设计无噪音
8. 创新工程核算功能，可保留多达100条长度记录及核算网络成本
9. 默认4国语言设计更符合用户使用需求
10. 主机/寻线器可充电锂电供电更环保

简 介

　　本产品是一款用于网络、通信线路安装、工程维护人员的实用工具，主要功能包括多功能网线测试仪（线缆寻线、长度测量、POE测试、端口闪烁、水晶头压接QC测试)和万用表及光功率计&VFL为一体，是在长期工程实践经验的基础上，创新开发的一款综合测试仪表。

　　产品具有寻线传输距离远、声音清晰；长度测量快速准确；万用表功能高精度等特点。

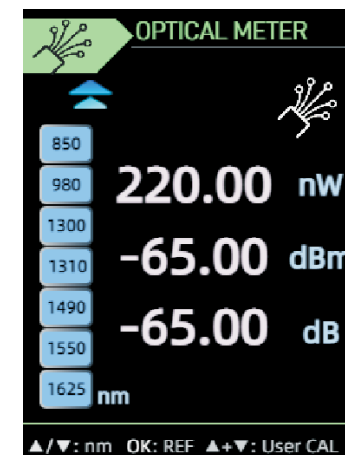　　产品由信号发射器和寻线器及相应的适配线组成。它是计算机网络线缆、电信网络通讯线缆、视频网络线缆等各种金属线路施工工程和日常维护过程中查找线缆的必备工具。

产品介绍

光功率测量接口
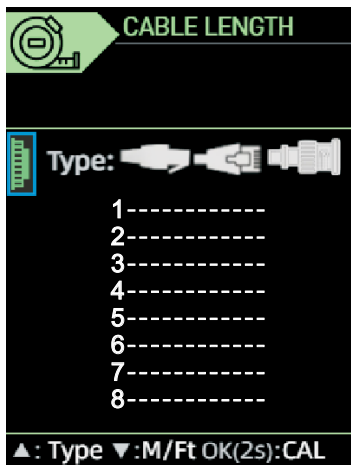红色激光发射接口
USB充电接口
TEST/SCAN/QC网线寻线、对线ID通断功能接口
照明灯
SCAN/NCV感应区

OPM　VLF
OPTICAL WIRE TRACKER

长度测量接口
显示区
端闪接口
按键区
输入插孔（基础款没有）

OPTICAL METER
850 980 1300 1310 1490 1550 1625 nm
220.00 nW
-65.00 dBm
-65.00 dB
▲/▼: nm OK: REF ▲+▼: User CAL
/// High Quality Good Service

CE 10A MAX COM VΩ⊣⊢•)))⊶
FUSED MAX 10sec EACH 15min
MAX 750 AC 1000V DC

主机

功能LED
灵敏度LED
SCAN选择
NCV选择
灵敏度调节
照明灯关长按电源
SCAN验证灯
对线连接口

SCAN NCV ⏻
SCAN
NCV
RECEIVER
STATE RJ45

POE设备测试接口

接收器

产品操作

功能选择（Function）

功能选择
长度　对线　寻线
压线　光功率　红光
端闪　POE测试　远端ID
万用表　核算　设置

　　产品开机后将进入此窗口，窗口列出产品全部功能；
　　单击或长按▲/▼键选择功能，单击OK键进入功能；

功能操作窗口

　　产品每一个功能都有特定的操作窗口，窗口会提示测试线缆的连接位置以及操作；
　　功能操作窗口中，点击返回键，回到主功能选择窗口（Function）

OPTICAL METER
850 980 1300 1310 1490 1550 1625 nm
220.00 nW
-65.00 dBm
-65.00 dB
▲/▼: nm OK: REF ▲+▼: User CAL

长度测量（LENGTH）

本功能可以测量各种线缆(两芯以上），包括网线、电话线、同轴视频线；测量时线路的另一端必须悬空，不能连接任何设备；否则可能直接烧坏产品；

单击▼ 键，选择不同类型的连线：8芯网\4芯网线\电话线\视频线；

长度测量精度为2%±1M,测量非标准线时，需先进行用户校准，方能保证精度。

⚠ 警 告

长度测量连接是专用接口，此接口连接POE或其他带电设备，将可能直接烧毁产品！

长度校准（CAL）

不同线缆的导通率不同，它与国家标准线缆存在差异，从而测量结果也会有偏差，为准确测量各种线缆，本产品设计了用户自行校准功能。

操作方法如下：

一：进入长度测量功能并按▲选择相应的线缆类型，连接已知长度线缆到接口，按下 OK 键2秒，产品进入用户自校准功能模式，此时屏幕显示CAL和闪烁显示数据，用户可单击▲或▼ 键,调整测量结果和实际长度一致；确定无误后按下 OK 键2秒,产品保存校准值，按其他键则退出校准模式，并且不保存校准数据。校准后续测量，将得到更准确的结果；

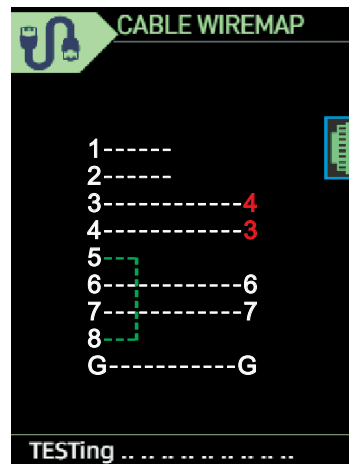二：开机选择长度功能，按下 OK 键2秒，不做任何调整，再次按下 OK 键2秒，清除用户校准数据，产品恢复出厂设置；

三：校准时，所用参考线，长度不能少于5米；

对线（WIREMAP）

此功能可测试线缆的开路、线序、短路、交叉等连接特性。

将网线插入主机，另一端插入接收器的"RJ45"插座，（约5秒后）主机会将测试结果如下图显示，从而判定线路的连接状 。

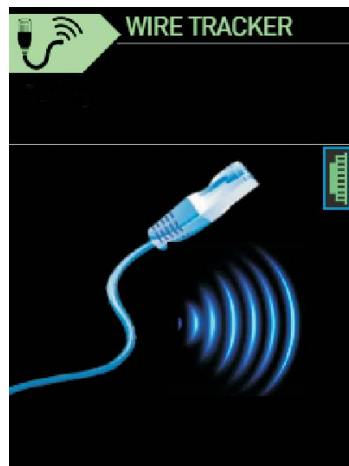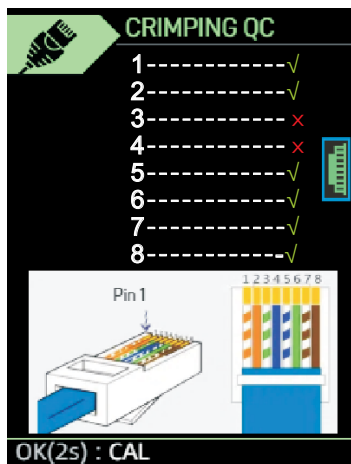

正常

开路（1.2）/交叉(3.4)
短路(5.8)/正常(6.7.G)

寻线（SCAN）

本功能可以在众多线对中快速寻找出所需要的目标线路。将待测线路的一端（例如网络线、电话线及能通过鳄鱼夹转接的视频信号线）接入主机相应接口中， 打开接收器电源并选择SCAN功能，在待测线中的另一端（例如线路终端、电话系统的配线架、接线盒、计算机网络的集线器端）周围侦听接收器喇叭所发出的"嘟嘟"声。 比较"嘟嘟"声的大小，最响的线路即为目标线路。

可将找到的线路，连接到接口器的RJ45接口，STATE 灯亮起即可进一步确定目标线缆正确。

水晶头单端压接（QC）

此功能可能测试线缆压接好坏，需要先开机选择功能，等屏幕上的CAL SETUP自校准完成；

按接口指示将线缆插入主机，线缆另一端不能接入任何设备。插入或拔出测试电缆，结果会自动更新。

√表示水晶头压接正常，X表示失败。

*注意：本功能测试网线水晶头是否压接正常，并不能测试线序好坏，测试线序请用对线功能；
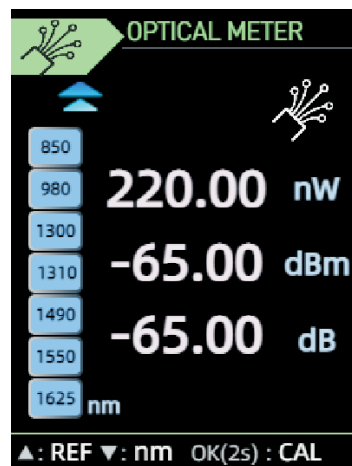
水晶头压接测试，网线长度需大于20cm，否则可能误判。

光功率测量（OPM）

光功率计可测试光信号功率和衰减值。

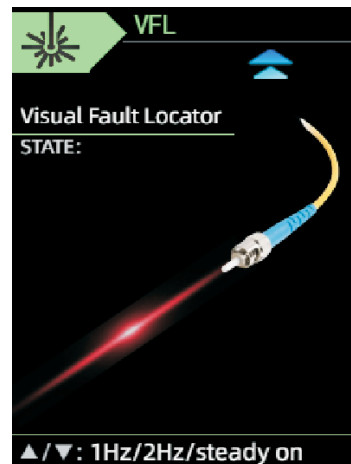按▼选择波长，可选：850nm、1300nm、1310nm、1490nm、1550nm、1625nm。

单击▲键可打开/关闭REF功能用于测试衰减值；单击▲进入REF功能时，产品自动保存当前光功率值，然后产品开始测量REF功能，产品将上次测量结果与当前测量结果进行比较，从而了解器件测试的衰减值。

单击OK键，产品HOLD当时测量结果；

输入一个标准信号（已知功率值），按下OK键2秒，用户可校准光功率计，显示"CAL"，按▲/▼键进行调整（或不调整恢复出厂值），再按OK键2s保存校准结果。

红光笔（VFL）

此功能可发出红色激光，将激光连接到光纤中，用户可以在光纤的另一端观察发光点，从而在众多光纤中定位目标；
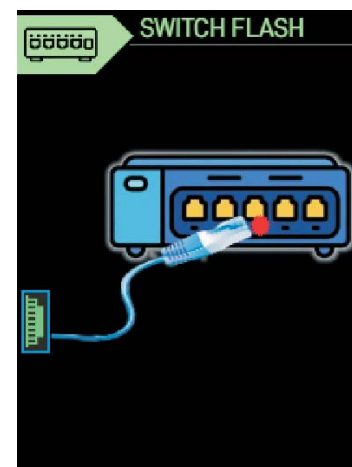
单击▲/▼键可切换不同发光频率（1Hz/2Hz/长亮）

端口闪烁（FLASH）

此功能可实现驱动网络交换机LED闪烁，从而确定目标线缆的具体端口；

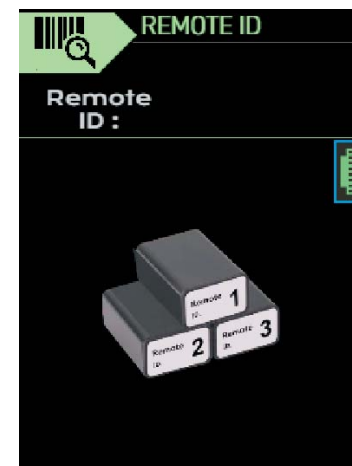网线两端分别插入主机和交换机端口，交换机会在本产品的信号驱动下，端口相应LED灯会间隔3s左右闪烁，用户可通过观察交换机上LED确定目标；

适用于10M/100M/1000M交换机。

远端对线（ID）

选择远端对线（ID）识别功能；网线一端连接ID标识器（选配件），另一端连接到主机，主机会适时测试并显示相应的ID号，从而准确判断远端网线的序号；

* 远端对线（ID）为选配功能；

PoE测量（POE）
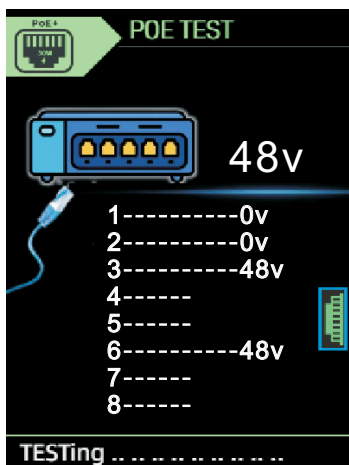
产品的PoE电压测量功能，能够对PoE供电设备的供电进行测量分析，测试POE设备的基本状况，包括供电电压、供电线路的正负。

网线插入主机插座，另一端接入PoE供电设备，产品将检测设备根据需要进入相应的通讯后将检测结果显示；对非标准PoE则直接测量并显示供电电压。

注意：连接PoE设备，几秒后可以显示结果，如果30秒后没有显示结果，那么连接的设备可能不是PoE设备。POE实际输出电压会与标称有一定差异，这是正常的

万用表（DMM）

产品万用表具有多功能和60000位读数特点，功能和精度都可媲美专业万用表。

产品具有交流电压、直流电压、电流电流、直流电流、通断蜂鸣、二极管、电阻、电容、频率功能；

产品会自动检测直流电流和交流电流，用户无需选择。

NCV电压感应功能是通过寻线器实现；

*此功能仅升级款有

核算（ACCOUNT）

产品核算功能是专为网络布线功能造价核算创新开发的；

产品可以记录最多100条网线长度及根据单价计算出相应的总造价；

单击OK键保存数据，▲或▼键选择数据；同时按上键和下键保持3秒则清除数据；

单击电源键选择单价和单位调整，选择调整位后，▲/▼键调整相应的参数。

设置（SETUP）

产品SETUP功能，用户可选择语言、屏幕亮度、自动关机时间、打开/关闭声音和产品正面的光亮字符；

▲/▼键选择设置项目，OK键切换设置内容；

技术指标

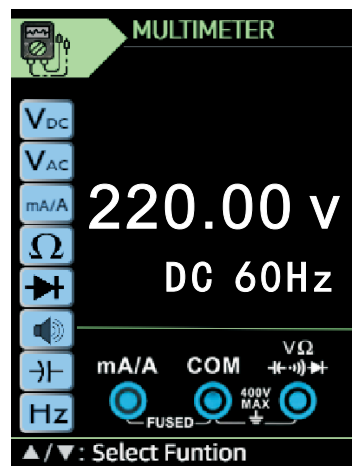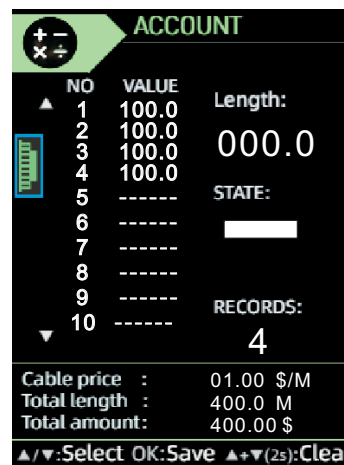| 基本功能	基础款	升级款
长度测量	√	√
	网线（600M)/电话线(400M)/同轴线(400M)	
数字寻线	√	√
对 线	正常/短路/断线/交叉	
水晶头压线	√	√
光 功 率	mW/uW/nW/-70.00~6.00 dBm	
红光功能	10mW(约10kM),长开/闪烁(1Hz/2Hz)/关	
交换机端闪	10M/100M/1000M	
POE设备测试	标准/非标POE、电压值/极性	
ID对线功能	可选配1~15	
工程核算	存储记录100/单价/金额	
万用表功能	(60000位显示)	
直流电压	600.00mV~1000V(±0.5%+0.3)	
交流电压	600.00mV~750V(±0.8%+0.5)	
直流电流	600.00mA~10A(±1%+0.4)	
交流电流	600.00mA~10A(±1%+0.5)	
电 阻	600.00Ω~60 MΩ(±1%+0.6)	
电 容	6.0000nF~60 MF(±2%+0.6)	
频 率	6.0000Hz~6 MHZ(±1%+0.1)	
通断蜂鸣	< 10Ω蜂鸣	
二 极 管	√	
保险丝规格	CE 5*20MM 10A/1000V	
其 他	3.2寸240*320点阵屏彩屏、双锂电池供电、长度自校准功能 白光手电筒功能、NCV电场感应、 数字寻线灵敏度可调、低电压检测	
包 装	彩盒/说明书/工具包/RJ45线/鳄鱼夹/充电线/表笔(仅升级款有) 主机187*86*34mm/寻线器197*47*36mm	
电源规格	主机1500mA.H/寻线器800mA.H/可充电锂电(带保护电路) 需要采用5V/2A/10W或以上充电器充电(不标配)	

*ID为选配功能件　*上述指标是功能最佳指标

QC PASS

合格证

检验合格

Safety Tips

This product is designed according to IEC1010（safety standard issued by the International Electrotechnical Commission）. Please read the safety precautions and technical indicators before use. Please read the product technical specifications carefully before measuring any voltage greater than 36V. Only products with multimeter functions can measure AC/DC voltage and current greater than 36V under the premise of complying with safety operation requirements.

Products without multimeter function must not measure voltages greater than 36V（except for POE devices）, otherwise there will be a risk of electric shock;

1. Voltages below 36V are safe voltages. When measuring voltages higher than 36V DC or 25V AC, check whether the test leads are in reliable contact, correctly connected, and well insulated to avoid electric shock.

2. When measuring the product length, the other end of the network cable cannot be connected to the device, otherwise the device may be damaged. Other network interfaces support a maximum of 60V for normal operation;

3. When measuring voltage, do not input a voltage exceeding the effective value of 1000V DC or 750V AC; when measuring current, do not input a current exceeding 10A;

4. When changing the function and range, the test lead should be away from the test point;

5. Choose the correct function and range, and be careful to avoid misoperation. Although this series of instruments has full-range protection function, for the sake of safety, please still pay more attention;

6. This product emits red laser, please do not expose it to eyes;

Characteristic

1. With up to 11 professional functions, you can enjoy worry-free engineering with this machine;
2. Network cable length measurement, up to 600 meters
3. Powerful network cable analysis function: open circuit, short circuit, crossover and crystal head crimping test
4. Professional multifunctional multimeter, display up to 60,000 digits (only available in upgraded models)
5. Design of 6dBm to -70dBm optical power meter
6. Red laser emission function, optical fiber transmission distance is about 10KM
7. Digital line-finding function design is noise-free
8. Innovative engineering accounting function, which can keep up to 100 length records and calculate network costs
9. The default 4-language design better meets user needs
10. The host and line finder can be powered by rechargeable lithium batteries, which is more environmentally friendly

Introduction

   This product is a practical tool for network, communication line installation, and engineering maintenance personnel. Its main functions include a multi-function network cable tester (cable tracing, length measurement, POE test, port flashing, crystal head crimping QC test), multimeter, optical power meter, and VFL. It is a comprehensive test instrument innovatively developed based on long-term engineering practice experience.

   The product has the characteristics of long transmission distance, clear sound, fast and accurate length measurement and high precision of multimeter function.

   The product consists of a signal transmitter, a cable finder and corresponding adapter cables. It is an essential tool for finding cables during construction projects and daily maintenance of various metal lines such as computer network cables, telecommunication network cables, and video network cables.

Product Introduction

TEST/SCAN/QC
TEST/QC/ID interface

Optical Power interface

Red laser interface

Lighting

SCAN/NCV sensing area

charging port

Function LED

Sensitivity LED

Length interface

Display Area

Flash interface

Keypad

Input jack

Basic model no

OPTICAL WIRE TRACKER

OPM   VLF

OPTICAL METER

850
980
1300
1310
1490
1550
1625 nm

220.00 nW
-65.00 dBm
-65.00 dB

▲/▼: nm   OK: REF   ▲+▼: User CAL

High Quality Good Service

OK

10A MAX   COM   VΩ⊣⊢•)) ⊶
FUSED
MAX 10sec
EACH 15min   MAX 750 AC 1000V DC

POE test interface

SCAN
NCV

SCAN

NCV

RECEIVER

STATE   PASS

SCAN sele
NCV Sele

Sensitivity adjustment

Light off
Press 2S
Power on/off

SCAN verification

Rj45 port

HOST

RECEIVER

## Function selection（Function）

After the product is turned on, this window will appear, and the window lists all the functions of the product;

Single-click or long-press the ▲/▼ key to select a function, and click the OK key to enter the function;

Function operation window

Each function of the product has a specific operation window, which will prompt the connection location and operation of the test cable;

In the function operation window, click the return key to return to the main function selection window（Function）
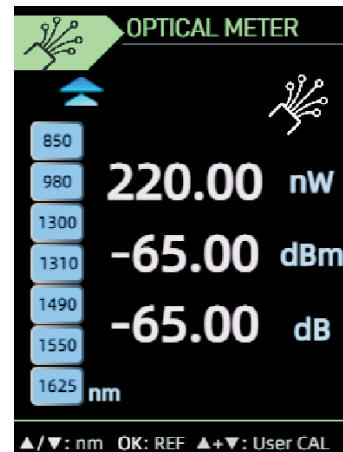
Length measurement（LENGTH）

This function can measure various cables（more than two cores）, including network cables, telephone cables, and coaxial video cables. When measuring, the other end of the line must be suspended and cannot be connected to any device; otherwise, the product may be burned directly.

Click the ▼ button to select different types of connections：8 -core Ethernet \4-core Ethernet\telephone line\video line;

The length measurement accuracy is 2% 1M. When measuring non-standard lines, user calibration is required to ensure accuracy.

Length calibration（CAL）

Different cables have different conductivity, which is different from the national standard cables, so the measurement results will also be biased. In order to accurately measure various cables, this product is designed with a user self-calibration function. Here's how to do it:

1：Enter the length measurement function and press ▲ to select the corresponding cable type, connect the cable of known length to the interface, press OK for 2 seconds, the product enters the user self-calibration function mode, the screen displays CAL and flashes the display data, the user can click ▲ or ▼ to adjust the measurement result to be consistent with the actual length; after confirming that it is correct, press OK for 2 seconds, the product saves the calibration value, press other keys to exit the calibration mode, and do not save the calibration data. Calibration of subsequent measurements will get more accurate results;

2. Turn on the machine and select the length function. Press the OK button for 2 seconds without making any adjustments. Press the OK button again for 2 seconds to clear the user calibration data and restore the product to factory settings.

3. During calibration, the reference line used must be at least 5 meters long;
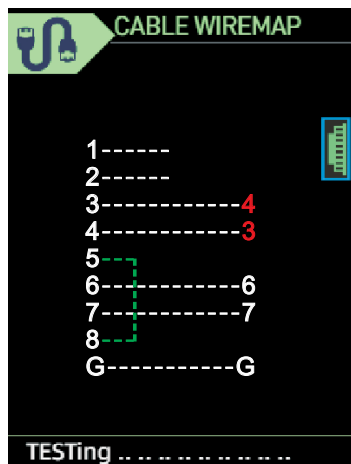
CABLE WIREMAP（WIREMAP）

This function can test the open circuit, line sequence, short circuit, cross and other connection characteristics of the cable. Plug the network cable into the host and the other end into the "RJ45" socket of the receiver.（After about 5 seconds）the host will display the test results as shown below to determine the connection status of the line.

Open（1.2）/Cross（3.4）
Short（5.8）/Normal（6.7.G

WIRE TRACKER（SCAN）
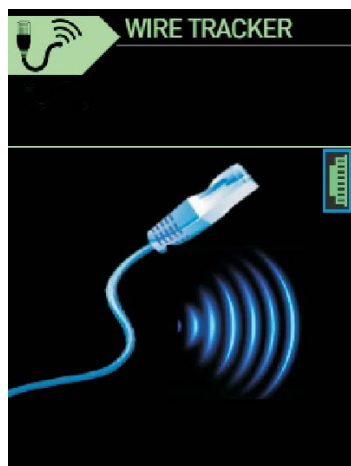
This function can quickly find the target line among many line pairs. Connect one end of the line（such as network line, telephone line and video signal line that can be transferred by alligator clip）to the host, the receiver select the SCAN function, and listen to the "beep" sound emitted by the receiver speaker around the other end of the line to be tested(such as line terminal telephone system distribution frame, junction box, computer network hub end). Compare the size of the "beep" sound, and the line with the loudest sound is the target line.

The found line can be connected to the RJ45 interface of the interface device, and the STATE light will light up to further confirm that the target cable is correct.

Crystal plug crimping（QC）
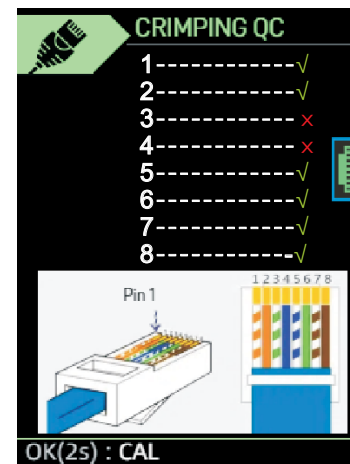
This function may test the quality of cable crimping. You need to turn on the machine and select the function first, and wait for the CAL SETUP self-calibration on the screen to complete;

Insert the cable into the host according to the interface instructions. Do not connect any device to the other end of the cable. Insert or unplug the test cable , and the results will be automatically updated.

√ indicates that the crimping of the crystal connector is normal, and X indicates failure.

*Note：This function tests whether the network cable crystal head is crimped normally, and cannot test the line sequence. To test the line sequence, please use the line alignment function;

For the crystal head crimping test, the network cable length must be greater than 20cm, otherwise it may be misjudged.

Optical Power (OPM)

Optical power meter can test the optical signal power and attenuation value.

Click ▼ to select wavelength;

Click ▲ to turn on/off the REF function for testing the attenuation value.

Click OK, and the product will hold the current measurement result.

Input a standard signal（known power value）, press the OK button for 2 seconds, the user can calibrate the optical power meter, the display will show "CAL", Click or press 2s ▲/▼ button to adjust（or reset factory value without adjustment）, and then press the OK button for 2 seconds to save the calibration result.
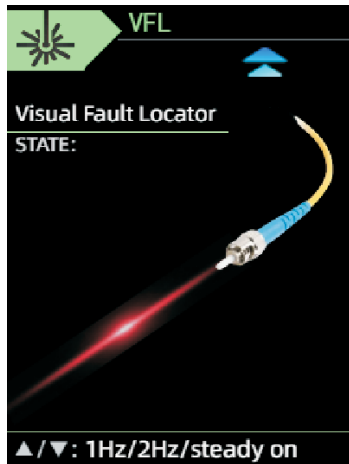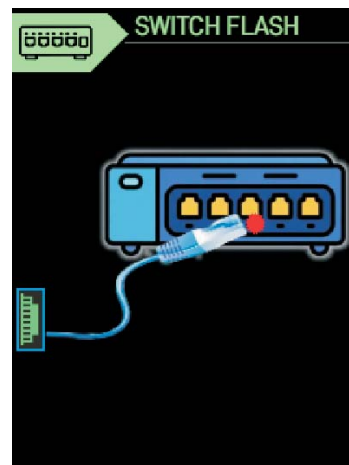
Red light pen（VFL）

This function can emit a red laser. By connecting the laser to the optical fiber, the user can observe the luminous point at the other end of the optical fiber to locate the target among many optical fibers.

Click the ▲/▼ key to switch between different

Port flash（FLASH）

This function can drive the network switch LED to flash, so as to determine the specific port of the target cable;
Insert both ends of the network cable into the host and switch ports respectively. Driven by the signal of this product, the corresponding LED lights of the switch ports will flash at intervals of about 3 seconds. Users can determine the target by observing the LED on the switch.

Remote ID（ID）

Select the remote line (ID) identification function; connect one end of the network cable to the ID identifier (optional accessory) and the other end to the host. The host will test and display the corresponding ID number in a timely manner, so as to accurately determine the serial number of the remote network cable;

    * Remote ID is an optional function;
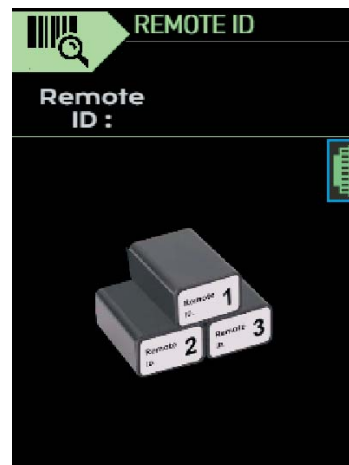
PoE Measurement（PoE）

The PoE voltage measurement function of the product can measure and analyze the power supply of PoE power supply equipment and test the basic conditions of POE equipment, including the power supply voltage and the positive and negative of the power supply line.

Plug the network cable into the host socket and connect the other end to the PoE power supply device. The product will detect the device and enter the corresponding communication as needed and then display the test results; for non-standard PoE, it will directly measure and display the power supply voltage.
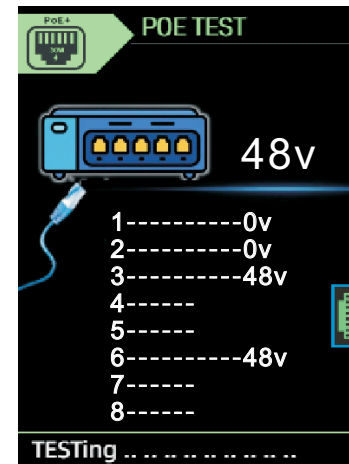
Note: connecting a PoE device, the result will be displayed . If the result is not display after 30 seconds, the connected device may not be a PoE device. The actual output voltage of POE will be different from the nominal voltage, which is normal.

Multimeter（DMM）

The product multimeter has multi-functions and 60,000-digit readings, and its functions and accuracy are comparable to professional multimeters.
The product has AC voltage, DCV, ACV, A, on-off buzzer, diode, resistance, capacitance, and frequency functions;
The product will automatically detect DC current and AC current, and the user does not need to select.
The NCV voltage sensing function is achieved through the line finder;
    *This feature is only available on upgraded models

Product Operation

Accounting（ACCOUNT）

ACCOUNT

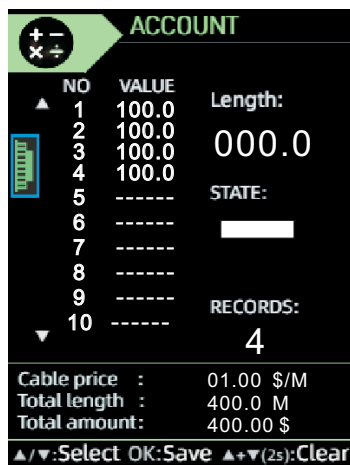| NO	VALUE	
1	100.0	Length:
2	100.0	
3	100.0	000.0
4	100.0	
5	------	STATE:
6	------	
7	------	
8	------	
9	------	RECORDS:
10	------	4

Cable price : 01.00 $/M
Total length : 400.0 M
Total amount: 400.00 $

▲/▼:Select OK:Save ▲+▼(2s):Clear
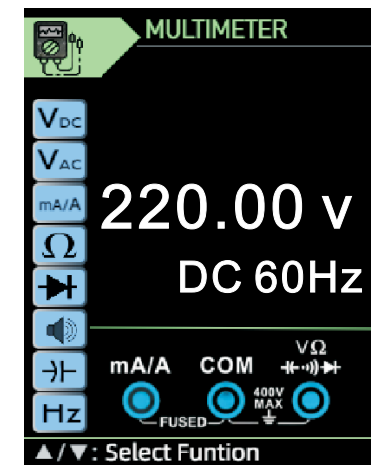
The product accounting function is innovatively developed for cost accounting of network cabling functions;

The product can record the length of up to 100 network cables and calculate the corresponding total cost based on the unit price; Click OK to save data, press ▲ or ▼ to select data; press the up and down keys simultaneously for 2 seconds to clear data;

Click the power button to select the unit price and unit adjustment. After selecting the adjustment position, use the ▲/▼ keys to adjust the corresponding parameters.

SETUP（SETUP）

Product SETUP function, users can select language, screen brightness, automatic shutdown time, turn on/off sound and bright characters on the front of the product;

Use the ▲/▼ keys to select the setting item, and the OK key to switch the setting content;

SETUP

language:	中文
亮度：	100%
自动休眠：	永不
声音：	开
灯光：	开

恢复出厂设置

关于

▲/▼ : Select OK: Set

SPECIFICATIONS

Functions	Basic	Upgrade
Cable Length	Network cable (600M)/telephone line (400M) coaxial cable (400M)	
Digital Tracing	√	√
Cable Mapping	Normal/Open/Short/Cross	
QC.crimping	√	√
OPM	mW/uW/nW/-70.00~6.00 dBm	
VFL	10mW（about 10kM),ON/1Hz/2Hz/OFF	
FLASH	10M/100M/1000M	
POE TEST	Voltage/polarity	
Remote ID	Optional functions ID1~15	
ACCOUNT	Storage record 100/unit price/amount	
DMM	√（60000COUNT)	
DCV	600.00mV~1000V(±0.5%+0.3)	
ACV	600.00mV~750V(±0.8%+0.5)	
DCA	600.00mA~10A(±1%+0.4)	
ACA	600.00mA~10A(±1%+0.5)	
R	600.00Ω~60 MΩ(±1%+0.6)	
CAP	6.0000nF~60 MF(±2%+0.6)	
Hz	6.0000Hz~6 MHZ(±1%+0.1)	
Continulty	< 10Ω蜂鸣	
Diode	√	
FLUSE	CE 5*20MM 10A/1000V	
OTHER	3.2-inch 240*320 dot matrix color screen, dual lithium battery, power supply, length self-calibration function, flashlight, NCV, adjustable sensitivity, low voltage detection	
Package	Color box/manual/tool kit/RJ45 cable/USB cable alligator clip cable/test lead (only for ET638)	
Host	1500mA.H(host)/800mA.H(receiver)/ rechargeable lithium battery,(with protection circuit) Charging requires a 5V/2A/10W charger or above (not included)	

*Indicators are the best indicators of function

QC PASS

QUALIFICATION CERTIFICATE