Multi-function Network Cable Tester User Manual

- Thank you for purchasing the multi-function cable tester. Please read the user manual carefully before use and operate it correctly.
- To ensure the safe use of this instrument, please read the "Safety Precautions" section in the user manual carefully.
- After reading the manual, please keep it in a safe place for future reference.
- Do not damage the warranty certificate or the warranty seal on the device.
- If you encounter any issues during use or if the device is damaged, please contact our technical support department.

-Safety Precautions-

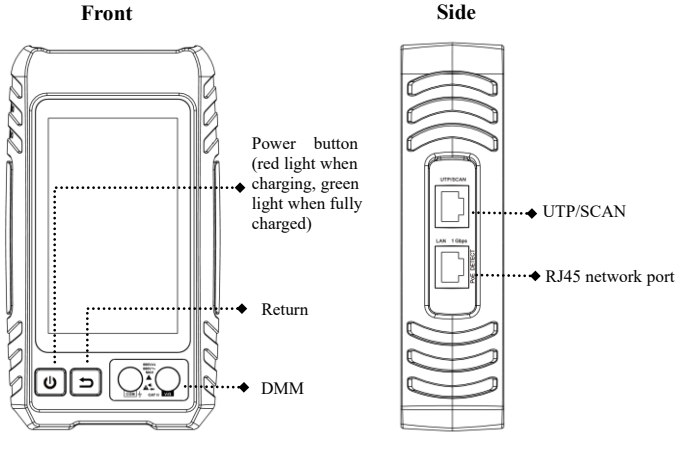
- When using this device, please comply with local electrical regulations. Avoid using it in places where electrical devices are prohibited, such as hospitals and gas stations.
- Use only the accessories provided by the manufacturer to avoid damage caused by uncertified accessories.
- Do not place the device in humid, dusty, or high-temperature (above 50°C) environments.
- Avoid operating communication lines during thunderstorms to prevent lightning strikes and ensure personal safety.
- The accessories provided with this device are only for use with this device. Do not use them for other purposes to avoid accidents.
- Avoid severe collisions or shaking during transportation and use to prevent damage to the components.
- Do not use the device in environments containing flammable gases.
- When using the red light source, do not look directly into the light, as it may cause permanent eye damage. When not in use, turn off the red light source and cover it with a protective cap.
- Do not disassemble or repair the device by yourself. If disassembly is necessary, please contact our technical support team

-About-

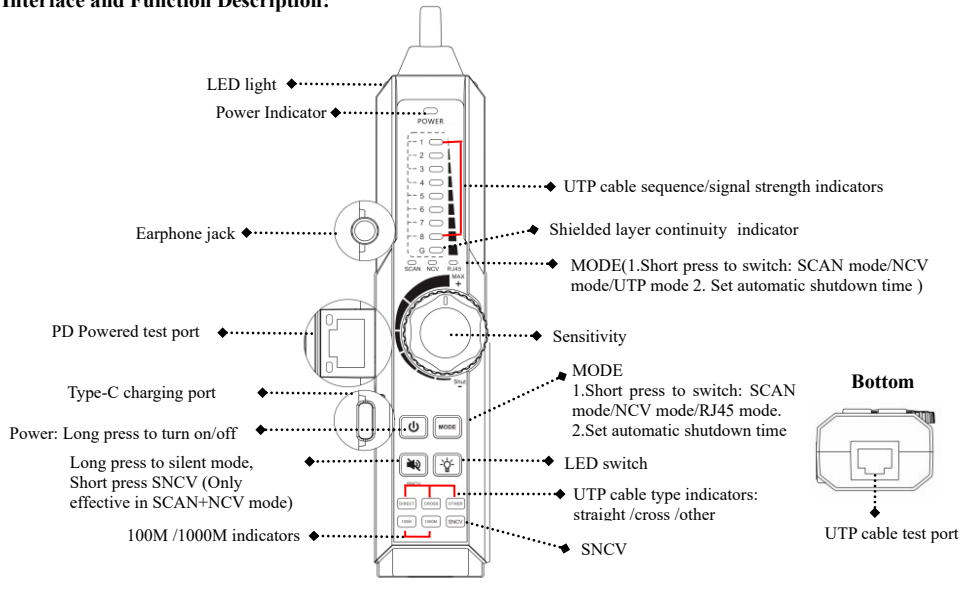
The Multifunction network cable tester is for optical fiber, optical communication detection, security monitoring, network detection, and integrated wiring development. Its touch screen design, which can be used with one hand, and simple operation, makes it an excellent assistance for site construction, maintenance, and repair.

Function / Model (optional)	Model 1	Model 2	Model 3	Model 4
Network Cable sequence, length and short circuit test, network cable quality detection, cable tracer, PoE++ detection, link speed, port flashing, IP exploration, duplicate address scanning, Ping, route tracing, LLDP/CDP, PPPOE	√	√	√	√
VFL	×	√	√	√
OPM	×	√	√	√
DMM	×	×	√	√
TDR	×	×	×	√
LEVEL METER	×	×	×	√

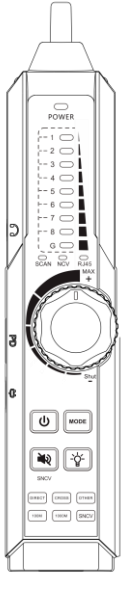
Emitter Interfaces and Functions:



Receiver Interface and Function Description:



- Receiver Operation-



Mode Selection: The default mode is SCAN. Press the MODE button to switch between modes in the following order: SCAN to NCV to RJ45 to SCAN + NCV.

PD powered detection: The PD interface at the bottom of the receiver is connected to the POE switch or the power supply device, and the indicator light is on, indicating that there is POE voltage output. 1236,4578 Two indicator lights indicate that the cable pair is powered. When both indicators are on, it indicates that both pairs are powered.

SNCV strength signal scan: When the receiver is in "SCAN + NCV" mode, press the "SNCV/Silent" key to increase scan sensitivity. This can be used to trace plastic water pipes or high-voltage wires inside walls (not effective for iron pipes)

Note: This function only works in " SCAN + NCV " mode.

- Receiver Operation-

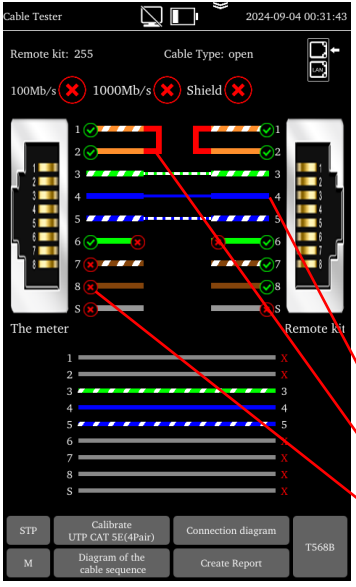
Continuity Test: In RJ45 mode, connect the network cable to the “UTP” port of the Receiver. The "1-8, S" indicator light being on indicates that the RJ45 connector is properly crimped. The indicator light being off means that the corresponding pin of the RJ45 connector is abnormal.

The Receiver automatic shutdown setting: In the shutdown state, press and hold the receiver MODE button, then press the power button to turn on and enter the shutdown time setting mode. In this mode, the "straight, Cross, Other" and sequence indicator lights flash.

Press the MODE button to modify the shutdown time. One line sequence indicator light represents 10 minutes. If the 1-3 indicator lights are on, it indicates that the current automatic shutdown time is set to 30 minutes, which can be set to 10-90 minutes. If all indicator lights are not on, it means automatic shutdown is turned off.

After setting up, press the power button to save and exit the setting mode.

-Cable Test-



Combines Cable continuity test, length test, and RJ45 connector crimping test.

The Remote kit is No. 255 by default, which can be customized

Connect the LAN cable or telephone cable to the RJ45 port of the Emitter; if the other end of the cable doesn't connect to any device, it can test the cable connector crimping and cable length. If the other end connects to the UTP port of the Receiver, it can test the cable's continuity and sequence.

Length Test: Tests the length and line pairs of the cable.

RJ45 Connector Crimping Test: Tests the status of the RJ45 connector

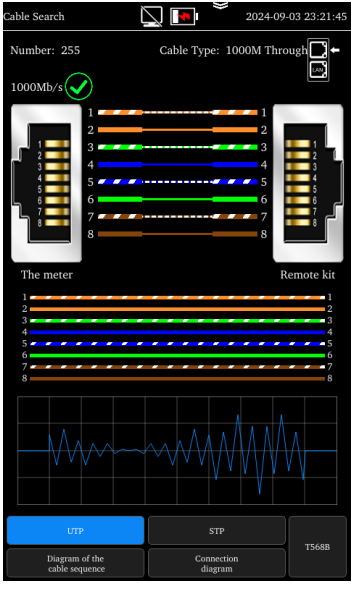
Cable continuity and sequence Test: Tests the cable sequence and continuity

Wire 3 is properly connected.

Wires 1 and 2 are short-circuited.

Wire 8 has a faulty RJ45 connector or a break within 1 meter.

-Cable Search-



Connect the cable to Tester's UTP/SCAN port.

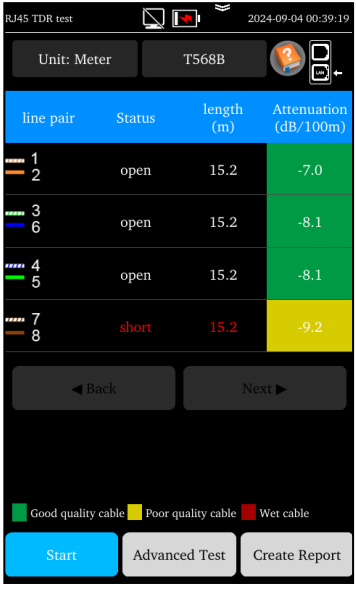
Connect the other end of the cable to the "UTP" port of the Receiver; the cable type, sequence, continuity, etc, test results will be displayed on the Tester.

Supports UTP mode and STP mode.

UTP mode is used for searching for the normal network cable or other cables. STP mode is used for searching the shielded network cable.

The 1-8 indicators of the Receiver will flash according to the cable sequence. The DIRECT / CROSS / OTHER lights indicate the type of network cable directly.

The "G" indicates the continuity of the shielded cable.



-RJ45 TDR test-

Connect the cable to the Tester's LAN port.

Start: Test cable status, length, and attenuation. The max test length is 180 meters.

Status: After linking up, the screen displays "online", if not linked up or open circuit, the screen displays "open circuit", if the cable pair is a short circuit, the screen displays "short circuit"

Advanced Test: Test cable pair status, length, attenuation, reflectivity, impedance, skew, and other parameters.

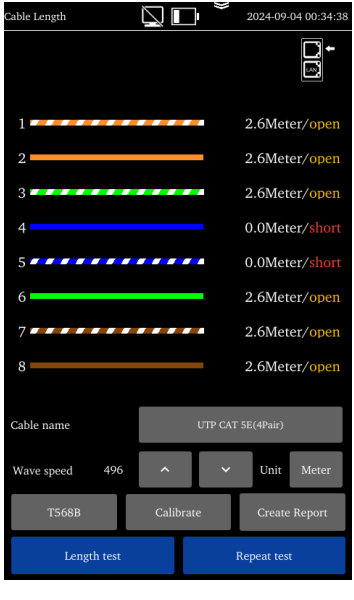
Attenuation reflectivity: After linking up, if the reflectivity value is 0, it is the best quality communication

Impedance: After link up, if the impedance value is 100Ω, it is the best quality communication, the range is generally in 85-135Ω.

Skew: After 1000M link up, when skew value is 0ns, it is the best quality communication, if over 50ns, will cause a Bit Error Rate in the transmission.

Cable quality test: Green is good quality cable, Yellow is Poor quality cable, Red is water poured cable, the attenuation value will be displayed when cable is over 10 meters.

-Cable Length-



Connect the cable to Tester's UTP/SCAN port.

Cable type: BNC cable, Network cable,RVV control cable, Telephone line and TVVB cable, etc.

BNC cable testing requires the use of an RJ45-to-BNC adapter.

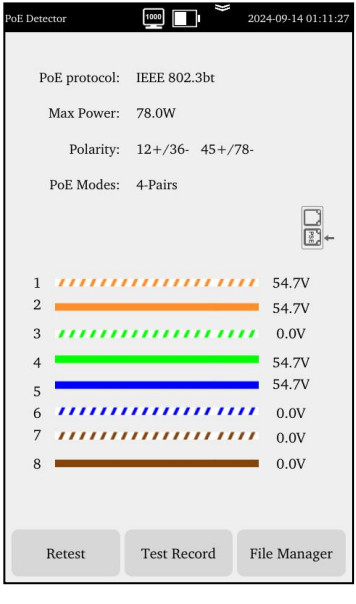
Copper core cable testing requires the use of alligator clips to connect two copper cores.

Length test: Single testing of cable length

Repeat test: Continuous testing of cable length

It will not display the cable length if the cable is in short-circuit.

Note: Please don't connect the cable to any device, as this may result in incorrect measurement results.



-PoE Detector-

Connect the cable to the Tester's LAN port.

PoE Protocol: Detects whether the connected POE power supply device is standard or non-standard POE, supporting IEEE 802.3af/at/bt detection.

Max Power: The maximum power supported by the POE power supply device.

Polarity: Detects which wire pairs (1236, 4578, or 12345678) are used for power supply and the polarity of the pairs.

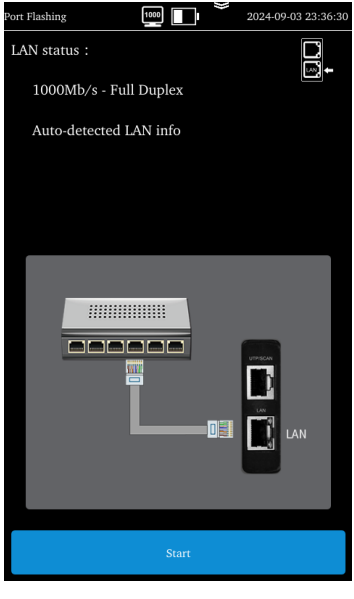
PoE Modes: Mid-span, End-span, or 4-Pairs.

Clear: Clears the data in the test records.

Save: Saves the data in the test records as a CSV file, including test time, POE protocol, power pairs, voltage, and power.

File Manager: View and manage saved CSV test report files.

-Port Flashing-



Connect the cable to the Tester's LAN port.

Click "Start". The Tester sends a unique signal to make the connected LAN port of the switch flash.

If the Tester and PoE switch are connected well, the LAN port of the PoE switch flashes at a special frequency. If not, don't have any changes on the LAN port.

Application:

The tester will send special signals to make the connected LAN port flicker at a special frequency, which will enable the installers to easily and quickly find the connected Ethernet cable. This function can prevent mistaken insertion or disconnection of non-corresponding cables to artificially interrupt the network connection.

-IP Discovery-

Connect the cable to Tester's LAN port.

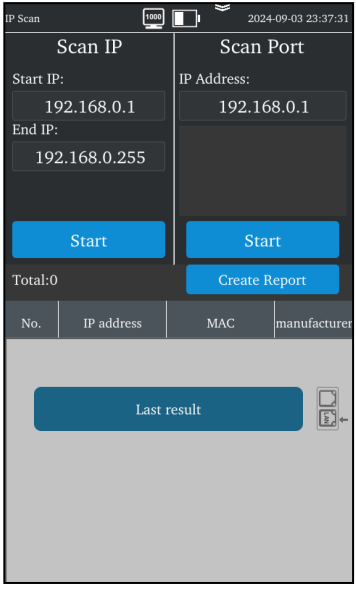
Click "Start Scan" to search the entire network segment for the IP addresses of IP cameras or other devices connected to the Tester.

Click "Scanning" to stop the scan.

If there is an IP conflict, it will be displayed in red.

The scan is real-time and continuously updates IP information and the total number of online devices.

-IP Scan-



It is used for quickly find the IP address of the IP camera or other device connected to the Tester, supporting scanning MAC address, camera manufacturer, and IP conflicts.

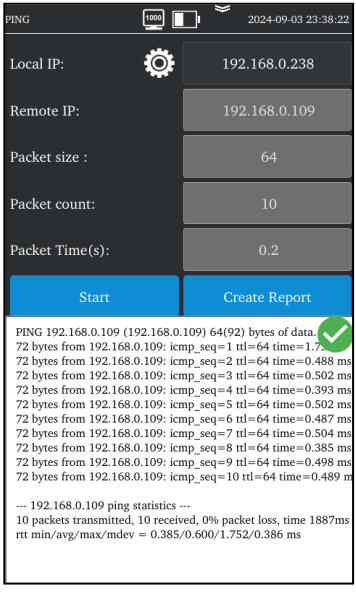
Set the Start IP and End IP, and click the "Start" button to scan the IP address.

If there is an IP conflict, it will be displayed in red.

Click "Last Result" to display the list of IP addresses in the last search.

In the "Scan Port " option, set the IP address, and click the "Start" button to start the IP port scan. It will show the port numbers supported by the tested device and how many ports are available for communication.

-PING-



It is used for testing if the connected IP camera or other network device's Ethernet port is working normally and if the IP address set is correct.

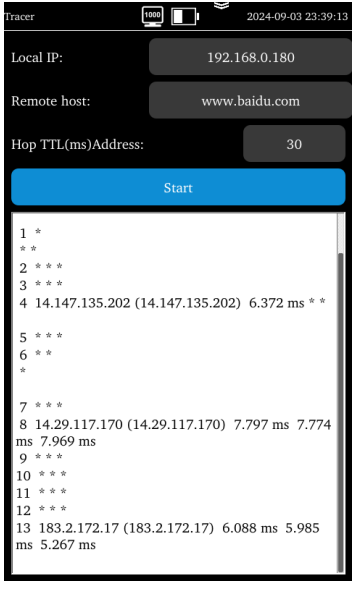
Connect the cable to the Tester’s LAN port, set the Local IP, Remote IP, Packet size, Packet count, and Packet Time, then press "Start " to begin testing.

: Ping packets are normal

: Packet loss

: Ping failure

-Tracer-

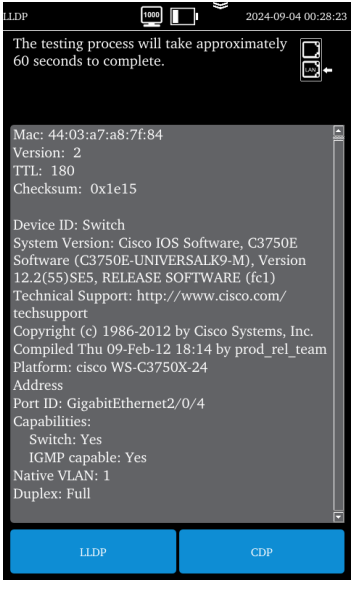


Connect the cable to Tester's LAN port.

It is used to determine the path of the IP packet access target.

Input tracking IP address or domain name in the “Remote Host”. Set maximum hop count, normally default is 30. Click "Start" to trace the goal address.

Note: Trace route testing results only for reference, for accurate test route tracking, Please use a professional Ethernet tester.



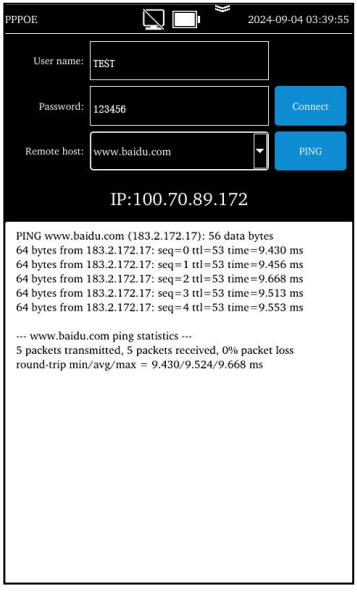
-LLDP/CDP-

Connect the cable to the Tester's LAN port.

Used to detect the main capabilities, management addresses, device identification, interface identification, and other information of switches and other devices.

Note: If used for switch detection, the switch needs to support LLDP protocol or CDP protocol.

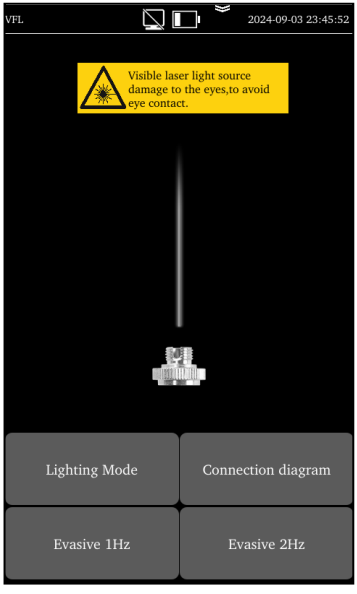
-PPPOE-



Connect the cable to the Tester's LAN port.

Used to detect whether broadband PPPOE dialing is normal.

Connect the network cable to the LAN port of tester, enter the username and password, click “Connect” to dial. After the dialing is successful, click “PING” to detect the internet



-Visual fault locator-（optional）

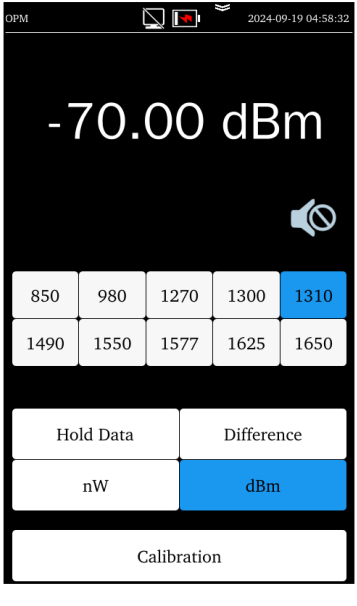
It is used to determine the continuity of optical fibers and locate faults

Steady mode: red laser source emits steady

Evasive mode: Click "Evasive 1Hz" and "Evasive 2Hz", to enter pulse mode, red laser source emits at a certain frequency.

Timing mode: timer of turning off can be selected

Warning: Avoid looking directly at the laser output port, laser will cause damage to human eyes!



-Optical power meter-

Connect the measured optical fiber to the
power can be displayed linearly or nonlin
measurement of optical power and relativ
link loss.

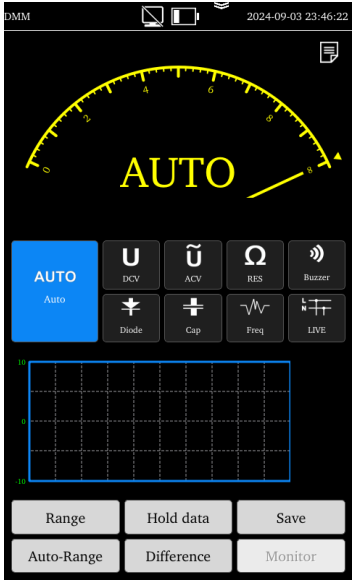
Integrated with ten calibration wavelen
1300nm , 1310nm , 1490nm, 1550nm, 1577

Hold date: Lock the display data

Difference: Save current value, and then
measured value and current value. nW and

Calibration: When the measured value err
performed.

-Digital Multimeter-（optional）



In Auto mode, it automatically identifies DC voltage/AC voltage/ resistance/buzzer. When selecting the voltage/resistance gear, the maximum and minimum values of this test will be recorded.

Range Selection: Select the test range of the corresponding gear.

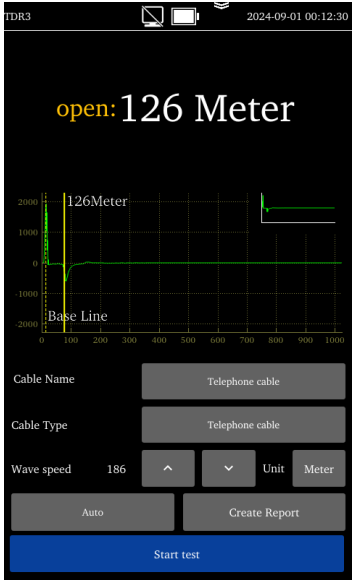
Hold data: Lock the displayed value for convenient reading. The displayed value is green.

Difference Measurement: The instrument automatically stores the current value and then displays the difference between the new measured and this value. The displayed value is blue.

Auto Range: The multimeter will automatically adjust the range according to input signal or the range of measured component. If the measurement exceeds the current range, the range will automatically switched in auto-range mode.

Save Mode: Click Save to enter the recording mode and record the real time measurement. The data will be saved when clicking again or exiting the application. The saved data can be viewed by clicking the upper right corner .

Monitor Mode: When the measured value is greater than or less than the set threshold, the tester will emit a beeping alarm, and the meter will also indicate.



-TDR Cable Test-（optional）

Connect the tested cable to the BNC interface of the tester.

Cable length, breakpoints, and short circuit measurement

For copper core cables, the two copper cores need to be clamped separately with the instrument's special alligator clip wire.

Cable Types: Supports BNC cable, network cable, RVV control cable, Telephone line, and TVVB cable, etc.

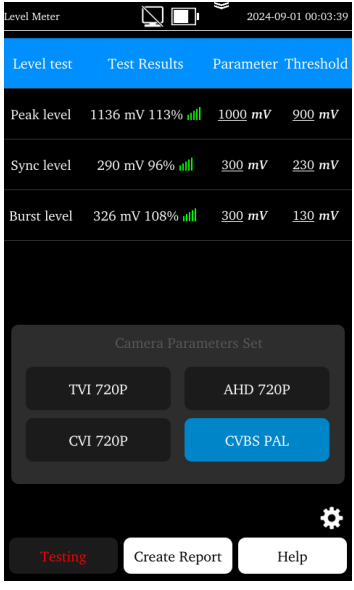
Curve trajectory analysis:

The inflection point in the curve is the breakpoint or short-circuit position of the tested cable.

Short circuit: The curve rises after the inflection point

Open circuit: The curve falls after the inflection point

Note: The tested cable must not be connected to any equipment, otherwise, it may cause damage to the tester or the connected equipment.



-Level Meter-（optional）

In "Camera Parameter Setting", select the camera type and resolution that are consistent with the connected camera. After setting the parameters, click "Start".

The tester will detect and display the peak video level, sync level, and burst level in real-time.

Parameter and Threshold Function and Editing:

When it is close to the reference value, it indicates good picture quality. When it is close to or below the threshold, video noise will appear, and the picture quality will be poor.

Click the Parameter or Threshold to pop up the editing interface. After modification, click "OK" to save the changes.

Click ⚙ to reset the reference and threshold values for all camera types and resolutions.

Create Report: supports generating and viewing test reports.

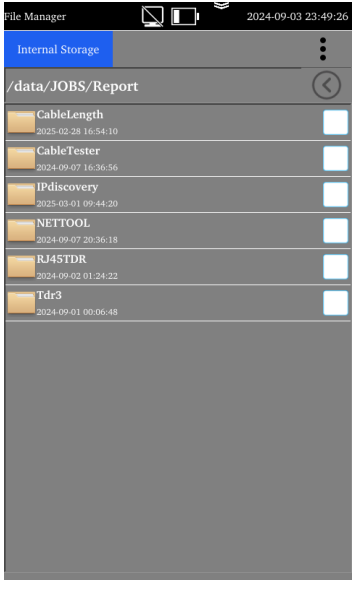
-FTP Server-

Used to export test reports and other files from the machine, or copy update files into the machine's memory without the need for an SD card or card reader.

Usage method:

The tester and PC device are connected to the same LAN and IP is set to the same network segment. After starting the service, enter the ftp address displayed by the tester in "My Computer" address bar of the PC device (such as ftp://192.168.0.184:2121).

-File Manager-



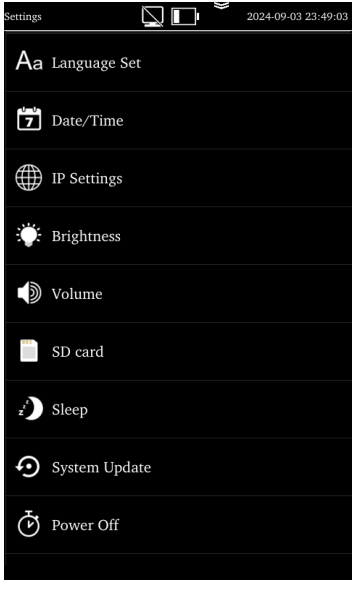
It is used to view the report and picture.

Click "File Management" to enter the internal storage file management interface. Check the white box to delete, copy, or cut files or folders.

/data/JOBS/Report: Save generated test report.

/data/screenshot: Save screenshot and pictures.

-Settings-



Language Set: Simplified Chinese, Traditional Chinese, English and other languages can be selected.

Date / Time: Set the date and time of the tester.

IP Settings: Set the IP address, subnet mask, and gateway address of the tester. (Only available in models with network function)

Brightness: Adjust the backlight brightness.

Volume: Set the speaker volume.

SD card: View internal SD card capacity and usage.

Sleep: Set to 1 minute/2 minutes/5 minutes/10 minutes/30 minutes/Never, automatic sleep.

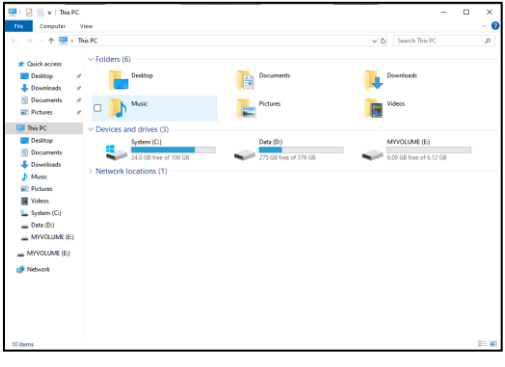
System Update: Local or online update.

Power Off: Set automatic shutdown after a certain period of sleep.

Versions information: View application version information.

Screen Switch: Switch between horizontal and vertical display, which requires a shutdown and restart to take effect.

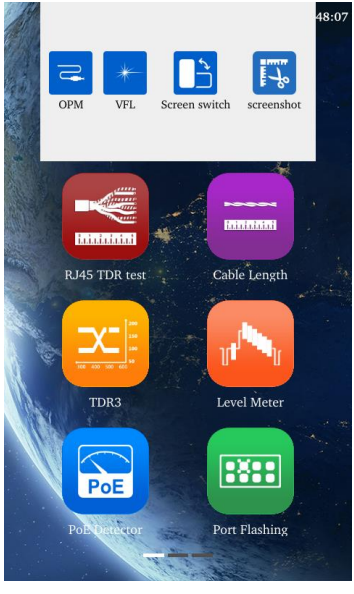
-Data Transfer-



You can view the internal storage of the device and quickly transfer test data through the Type-C interface (also the DC5V 2A charging interface), supporting various file types such as images and PDF documents.

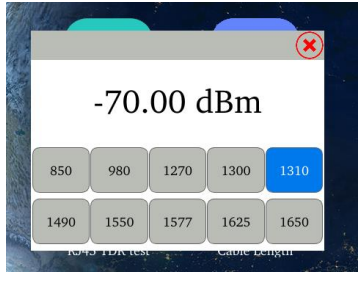
Usage:

Connect one end of the Type-C cable to the tester and the other end to the computer USB port. The default device name is "MWOLUME".



-Dropdown Menu-

Pull down the arrow at the top of the interface to enter the dropdown menu. Click the "OPM" or "VFL" icon to use the optical power meter or visual fault locator function in a small window at the same time.



Screen Switch: Click the "Screen Switch" icon to switch between horizontal and vertical display. It requires a shutdown and restart to take effect.

Screenshot: Click the "Screenshot" icon to take a screenshot of the current interface.

-Technical Specifications-

Model	Network cable Tester 【*】Optional	
Screen & Display	4 inch IPS touch screen, 800*480 resolution	
Cable Tracing/Wire Mapping/Continuity Test	**Transmit Signal**	Digital signal (decisively rejects noise and false signals)
	Cable Types	Supports RJ45 twisted pair, RJ11 telephone cable, BNC video cable, and low-voltage metal cables.
	UTP Cable Test	Tests any two or more wires in a network cable. The screen displays the connection sequence, 1000/100M, and cable number. The receiver is identified through indicators.
	Continuity Test	Emitter: Minimum recognition length of 10cm
		Receiver: Minimum recognition length of 1m

	Short Circuit Detection	Supports network cable short circuit detection
Length Measurement	Measures opens of network cables,the maximum measurement length up to 3000 meters, Accuracy: Cable length x 3% ± 1m	
RJ45 cable TDR test	RJ45 cable TDR test and cable quality test, to test cable pair status, length, attenuation reflectivity, impedance, skew, and other parameters. Maximum measurable length 180 meters	
Port Flashing	Quickly locates ports connected to Ethernet switches and other devices.	
PoE Testing	Supports IEEE802.3BT/AT/AF and non-standard protocol detection. Displays power supply voltage, power supply pins, and pin polarity.	
Network tool	IP discovery, IP address scan, PING test, switch port LLDP/CDP detection, switch port flashing, PPPOE dial-up, FTP server, etc.	

Optical Power Meter * （optional）	Wavelength (nm): 850/980/1270/1300/1310/1490/1550/1577/1625/1650nm. Power range (dBm): -70 to +6 dBm
Visual fault locator * （optional）	Emits visible red laser to detect fiber optic line breaks, cracks, bends, and other faults.
TDR cable test *(Optional)	BNC cable, network cable, telephone cable, RVV cable, and elevator cable, cat 5/6 cable's length and short circuit. measurement range 1.2 km
Level meter*(Optional)	Measures the peak level, sync level, and burst level of video signals
Multi-meter specifications*	
DC voltage	Range: 60mV/600mV/6V/60V/600V; Counts: ±6000; Minimum resolution: 0.01m VAccuracy: 0.01-600 Vaccuracy±(0.6%+4)/600V-1000 Vaccuracy±(0.8%+10)
AC voltage	Range: 60mV/600mV/6V/60V/600V; Counts: ± 6000; Minimum resolution: 0.01mV;

	Accuracy: 0.01-600 Vaccuracy±(1.2%+4)/600V-750 Vaccuracy±(1.2%+10)
Resistance	Range: 600Ω/6KΩ/60KΩ/600KΩ/6MΩ/60MΩ; Counts: 0~6000; Minimum resolution: 0.1Ω; Accuracy: 0.1-6 Maccuracy±(0.8%+10)/6M-60 Maccuracy±(2.5%+4)
Capacitance	Range: 6nF/60nF/600nF/6uF/60uF/600uF/6mF/60mF; Counts: 0~6000; Minimum resolution: 1pF; Accuracy: 1nF-6000u Faccuracy±(3.5%+20)/6000uF-60000u Faccuracy±(5%+4)
Frequency Test	Range: 6Hz/60Hz/600Hz/6KHz/60KHz/600KHz/6MHz; Counts: 0~6000; Minimum resolution: 0.001Hz; Accuracy: 1-6MHzaccuracy±(0.1%+3)
Live Wire Detection (LIVE)	Supported
Diode	Range: 3V; Counts: 0~3000; Minimum resolution: 1mV; Accuracy: ±1.2%+20
Continuity	Range: 50Ω; Counts: 0~500; Minimum resolution: 0.1Ω; Accuracy: ±1.2%+20

Power		
Battery Power	**Emitter**	3.7V 4000mAh lithium-ion rechargeable battery (working time about 6 hours)
	Receiver	3.7V 2000mAh lithium-ion rechargeable battery (working time about 12 hours)
Working Environment and Specifications		
Operating Temperature	-10℃---+50℃	
Operating Humidity	30%-90%	
Dimensions	Emitter	154mm x 86mm x 40mm / 0.3Kg
	Receiver	218mm x 48mm x 32mm / 0.15Kg

The data above is only for reference and any change of them will not be informed in advance. For more detailed technical inquiries, please feel free to call the Technical Department of our company.