WANLUTECH MT-6510

WANLUTECH MT-6510 OTDR Fiber Optic Tester User Manual

Model: MT-6510 1310/1550nm 28/26dB

1. Introduction

The WANLUTECH MT-6510 is a multi-functional testing device designed for fiber optic, CCTV, and network cable installations and maintenance. It integrates various testing capabilities including Optical Time Domain Reflectometer (OTDR), Optical Power Meter (OPM), Visual Fault Locator (VFL), Light Source (LS), Optical Loss Test (OLS), Event Map, IP Camera Test, HD Coaxial Camera Test, RJ45 Cable TDR Test, PoE, and Network Test Tools. This manual provides detailed instructions for the safe and effective operation of the device.

2. Safety Information

- **Laser Safety:** Do not look directly into the optical ports (OTDR/LS, VFL) when the device is active. Laser radiation can cause eye damage.
- **Battery Safety:** Ensure the battery is correctly installed. Remove the insulating paper piece before first use. Use only the provided charger and battery.
- **Electrical Safety:** Avoid exposing the device to moisture or extreme temperatures. Do not attempt to open or repair the device yourself.
- **General Handling:** Handle the device with care to prevent physical damage. Keep the device and accessories out of reach of children.

3. Package Contents

Verify that all items are present in the package:

- WANLUTECH MT-6510 OTDR Fiber Optic Tester
- Digital Cable Tracer
- Tool Bag

- OTDR Test Report
- Accessories (power adapter, various cables, optical connectors)

Image 3.1: The MT-6510 tester with its complete set of accessories, including various cables, adapters, and a carrying case.

4. Product Overview and Components

The MT-6510 features a 5.4-inch IPS touchscreen and various ports for connectivity and testing. Familiarize yourself with the device layout:

Image 4.1: Detailed view of the MT-6510 tester's rear and side panels, highlighting ports such as DC power input/output, HDMI input, VGA input, RS485, LAN, PoE, OTDR/LS, VFL, OPM, and audio in/out. The image also shows the protective rubber sleeve and the battery compartment.

- **Front Panel:** 5.4-inch IPS touchscreen display, navigation buttons, power button.
- **Top Panel:** OTDR/LS port, VFL port, OPM port.
- **Rear Panel:** DC 5V/2A power output, LED lamp, LAN2 & PoE & RJ45 TDR port, PSE in, AHD TVI CVI in, DC 12V/3A output, DC 24V/2A output, DC 12V input, HDMI input, Audio in/out, RS485 port, UTP Cable Test/Scan port, VGA input.

5. Setup

5.1 Initial Battery Preparation

Before using the tester for the first time, open the battery cover and remove the paper piece isolating the battery. This ensures proper electrical contact and allows the device to power on and charge.

5.2 Powering On/Off

Press and hold the power button located on the device to turn it on or off. The device will boot up to the main menu interface.

5.3 Charging the Device

Connect the provided power adapter to the DC 12V input port on the device and plug it into a power outlet. The charging indicator will show the charging status.

6. Operating Instructions

6.1 OTDR Functions

The OTDR function is used for testing fiber optic cables. It offers two primary modes: Quick Setup and Parameters Set.

Image 6.1.1: Screenshots illustrating the 'Quick Setup' mode for rapid configuration of OTDR tests and the 'Parameters Set' mode for advanced, precise adjustments of test parameters.

- **Quick Setup Mode:** Allows for rapid configuration of wavelength, distance range, pulse width, and measurement duration. Ideal for quick assessments.
- **Parameters Set Mode:** Provides advanced control for professional technicians to set wavelength, distance range, pulse width, measurement mode, IOR, non-reflection threshold, end threshold, and other parameters for more accurate curve results.
- **Event Map:** Visualizes fiber optic link inspection results, showing information like link length, connector types, fusion points, and break points in a graphical format.

Image 6.1.2: The Event Map interface displaying a visual representation of fiber optic link events and the Threshold Setting menu for defining pass/fail criteria for link attenuation and connection points.

- **Multi-track Analysis:** Display up to four curves simultaneously for comprehensive analysis, aiding in the detection of short-distance nodes with small pulse widths and longer test distances with large pulse widths.

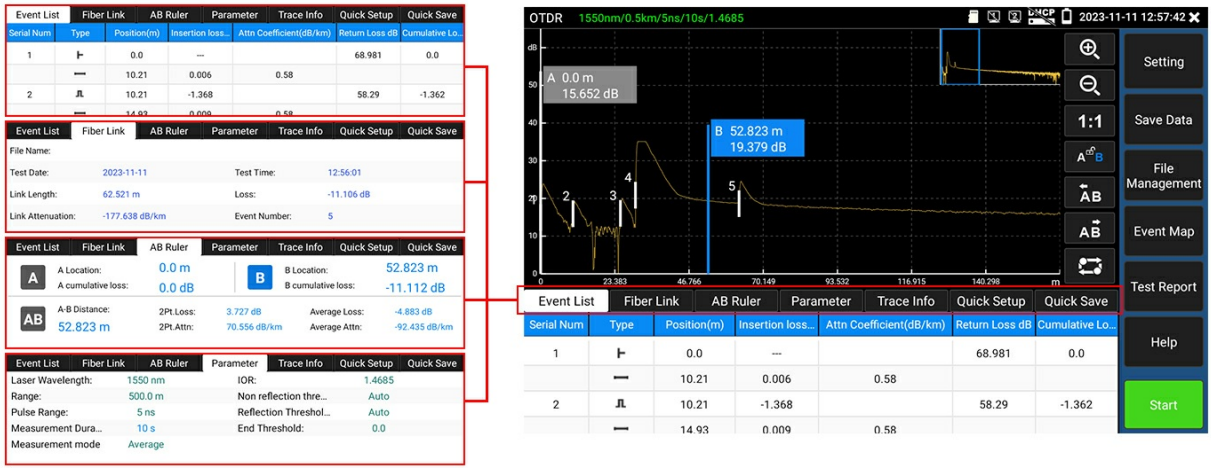


Image 6.1.3: The multi-track analysis screen showing four distinct OTDR curves, allowing for comparative evaluation of fiber performance.

- **File Management:** Save test reports and curves in EXCEL and PDF formats. Manage saved files, including opening, deleting, and copying.

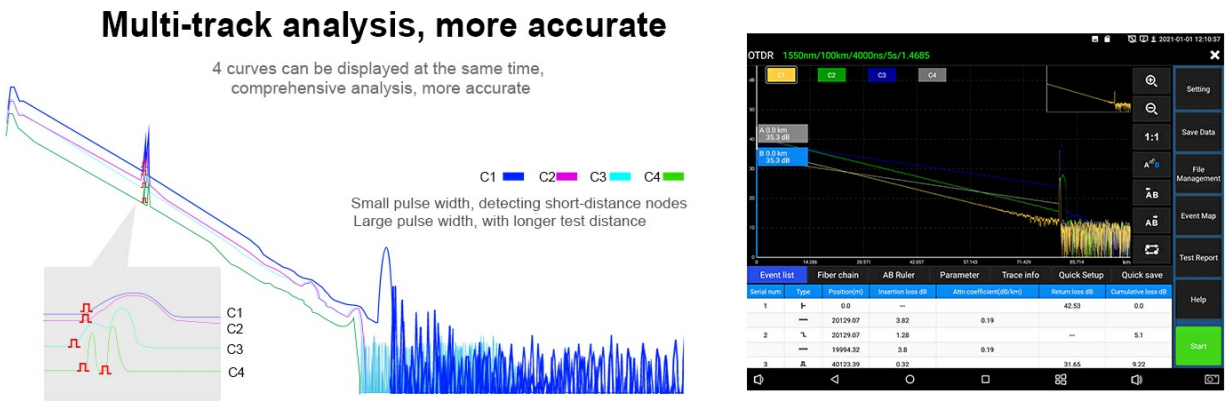


Image 6.1.4: Screenshots demonstrating the generation of test reports and the interface for managing saved OTDR files, including options for file format and naming.

6.2 Optical Test Functions

- **Optical Power Meter (OPM):** Connect to the OPM port to measure optical power linearly or non-linearly. Supports calibrated wavelengths: 850/1300/1310/1490/1550/1625nm.

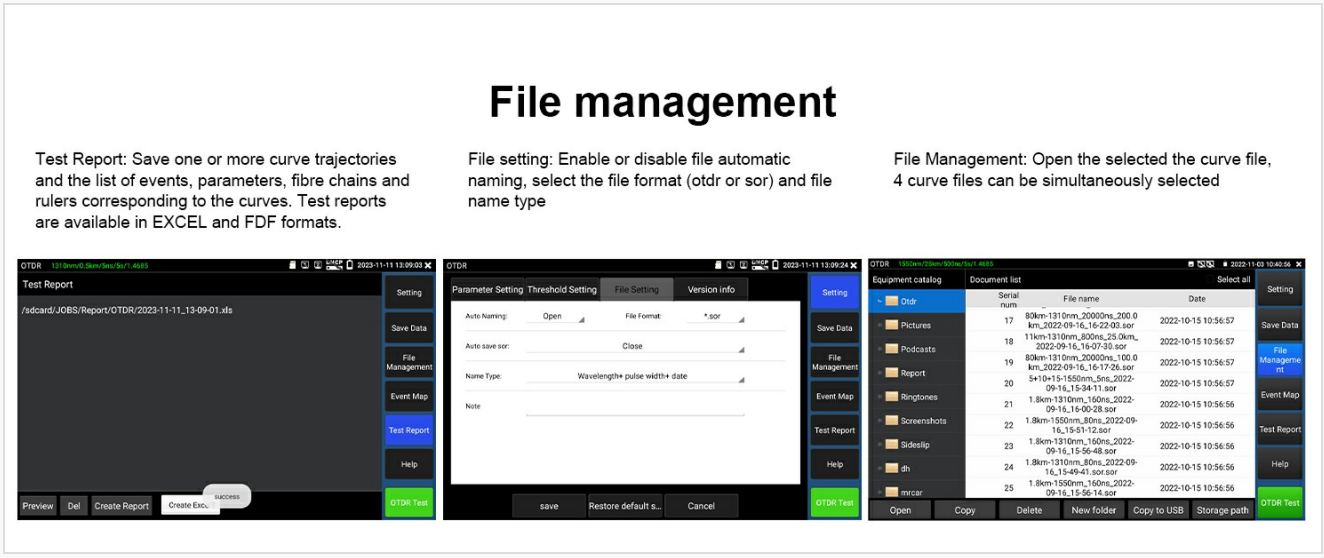


Image 6.2.1: The OPM interface showing a power reading in dBm and options to select different calibrated wavelengths for measurement.

- **Visual Fault Locator (VFL):** Used to determine fiber continuity and fault location. Features a 650nm wavelength laser with a maximum test range of 8KM.

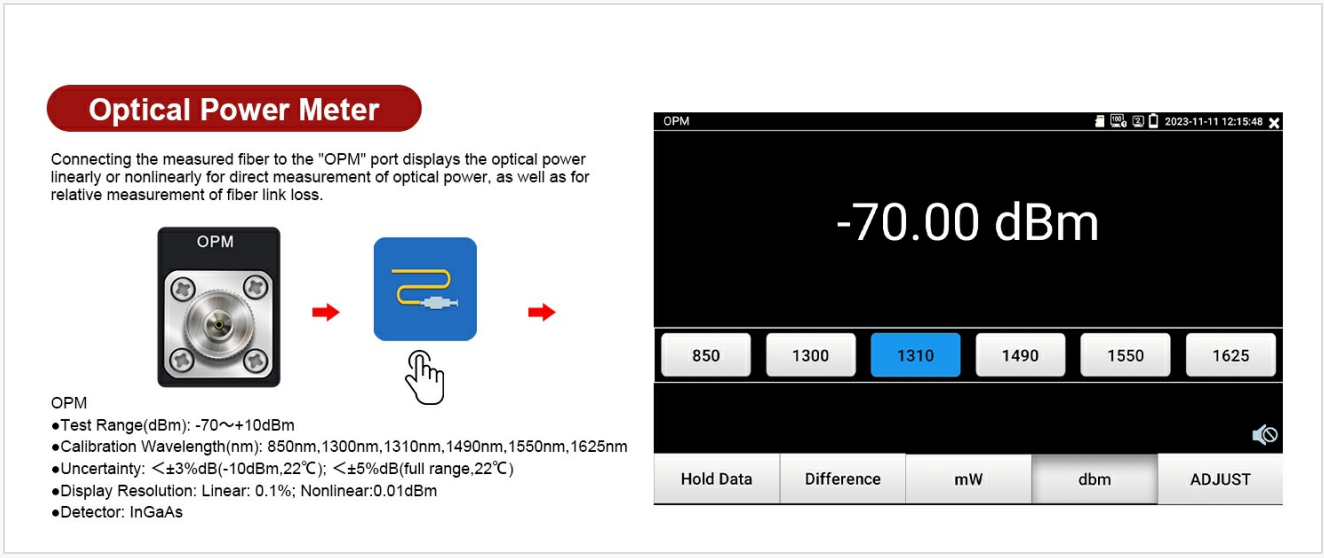


Image 6.2.2: The VFL screen displaying a laser safety warning and controls for activating the 650nm laser in steady or evasive modes.

- **Optical Loss Test (OLS):** Measures the insertion loss of optical passive devices. Connect the OTDR/LS port and OPM port with a short fiber optic patch cable, then click "Start Test."

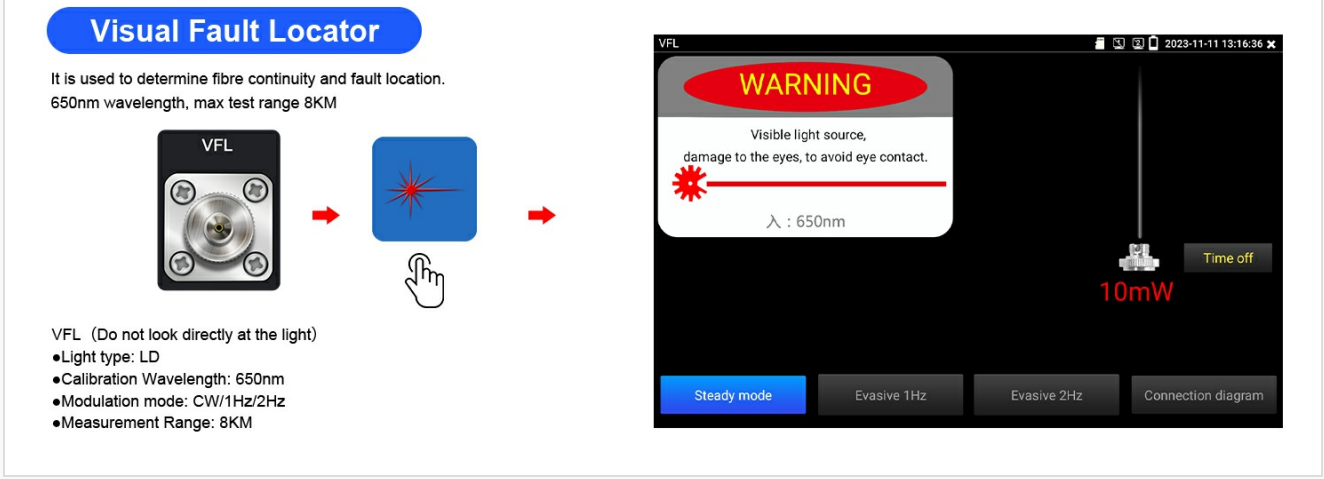


Image 6.2.3: The OLS interface showing the connection diagram for testing optical loss and the display of optical power and relative power measurements.

- **Light Source (LS):** Connect to the OTDR/LS port. Used for engineering and maintenance of optical communication and CATV fiber. Supports CW/270 Hz/330 Hz/1 kHz/2 kHz modes.

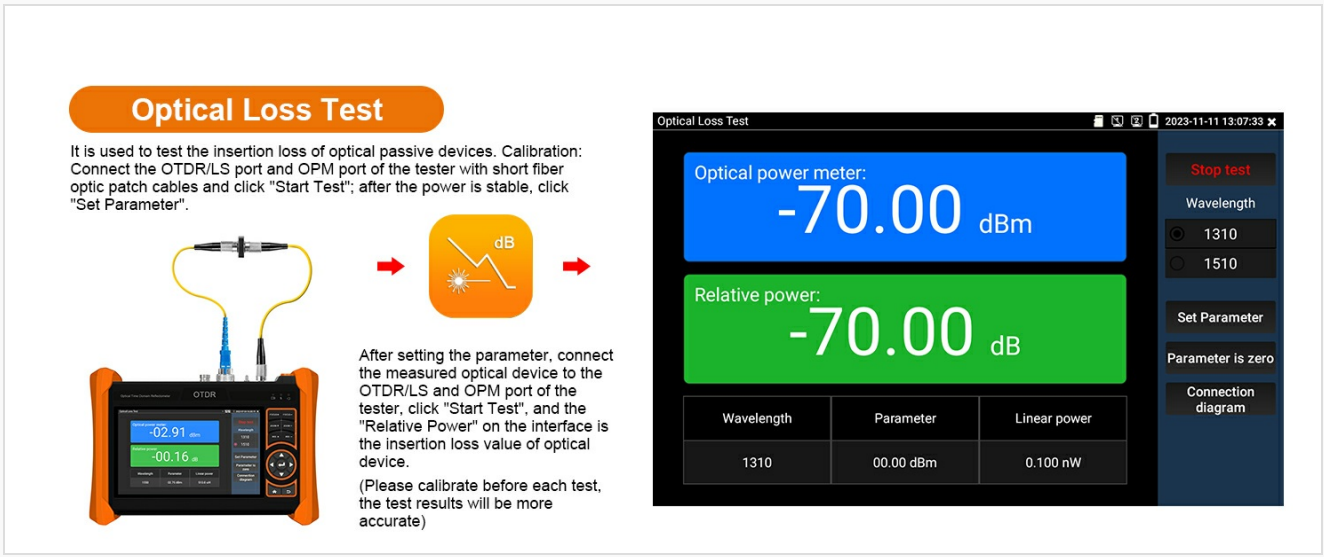


Image 6.2.4: The Light Source interface, showing options to select wavelength (1310nm/1550nm), mode (CW, 270Hz, 330Hz, 1kHz, 2kHz), and adjust power output.

6.3 CCTV Camera Test Functions

- **IP Camera Test (IPC Test):** Supports testing up to 4K 12MP IP cameras. Provides power information, IP discovery, and various test tools.

Image 6.3.1: The IPC Test screen displaying network information, PoE and DC 12V power details, and options for ONVIF and other test tools.

- **IP Discovery & ONVIF:** Automatically searches for IP addresses in the network segment and adjusts the tester's local IP. ONVIF allows automatic login, live video display, test report creation, and channel name modification.

IPC Test

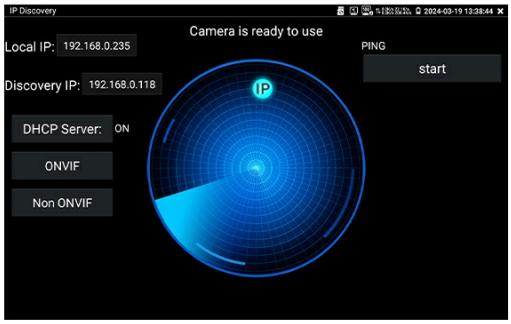
Integrated IP camera test, PoE and camera test tool function in one app, can view the network information, the power and voltage of PoE and DC 12V, also can go to ONVIF function and test tool functions.

Image 6.3.2: The IP Discovery function scanning for devices and the ONVIF interface showing live camera feed and login status.

- **HIK / DH Camera Test:** Supports batch activation of Hikvision and Dahua cameras, modification of IP addresses, passwords, and other settings.

IP Discovery

Automatically search for all network segment IP addresses connected to the tester and automatically modify the tester's local IP address to be in the same network segment as the camera.



ONVIF

Automatically log in and display images, live video, create test reports, modify IP, modify channel name.

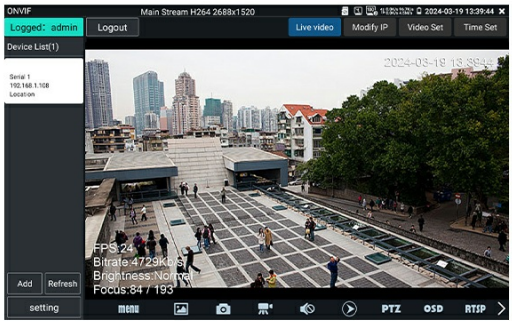


Image 6.3.3: The HIK/DH Camera Test screen showing a list of detected cameras with options to enable, modify channel, modify network, modify password, and perform factory reset.

- **HD Coaxial 4.0 Test:** Supports testing up to 8MP AHD/TVI/CVI/CVBS cameras. Features UTC control, OSD menu, screenshot, video recording, and playback.

Light Source

Connecting optical fiber to "OTDR/LS" port. It is used to engineering and maintenance of optical fiber communication and CATV, fiber parameter setting, the production and research of optical components. Mode CW/270 Hz/330 Hz/1 kHz/2 kHz)

LS
- Light type: FP-LD
- Wavelength: 1310/1550nm
- Mode: CW/270 Hz/330 Hz/1 kHz/2 kHz
- Stability: CW, ±0.2dB/15min(tested after 15min)

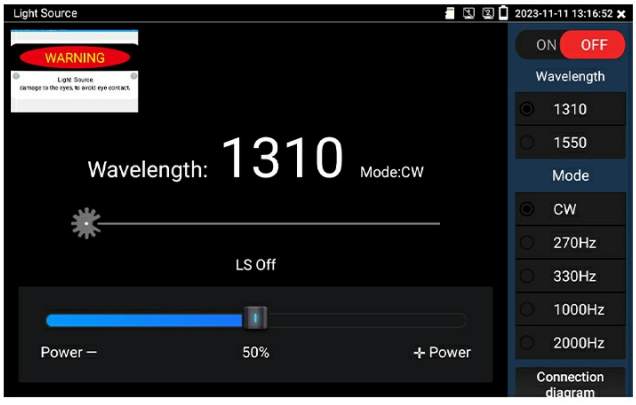


Image 6.3.4: The HD Coaxial 4.0 Test screen showing resolution comparison table for various camera types and the CVBS & HD Camera interface with UTC control and OSD menu options.

6.4 Cable Test Functions

- **RJ45 Cable TDR Test:** Tests the open and short status of network cables and measures cable length up to 600M.

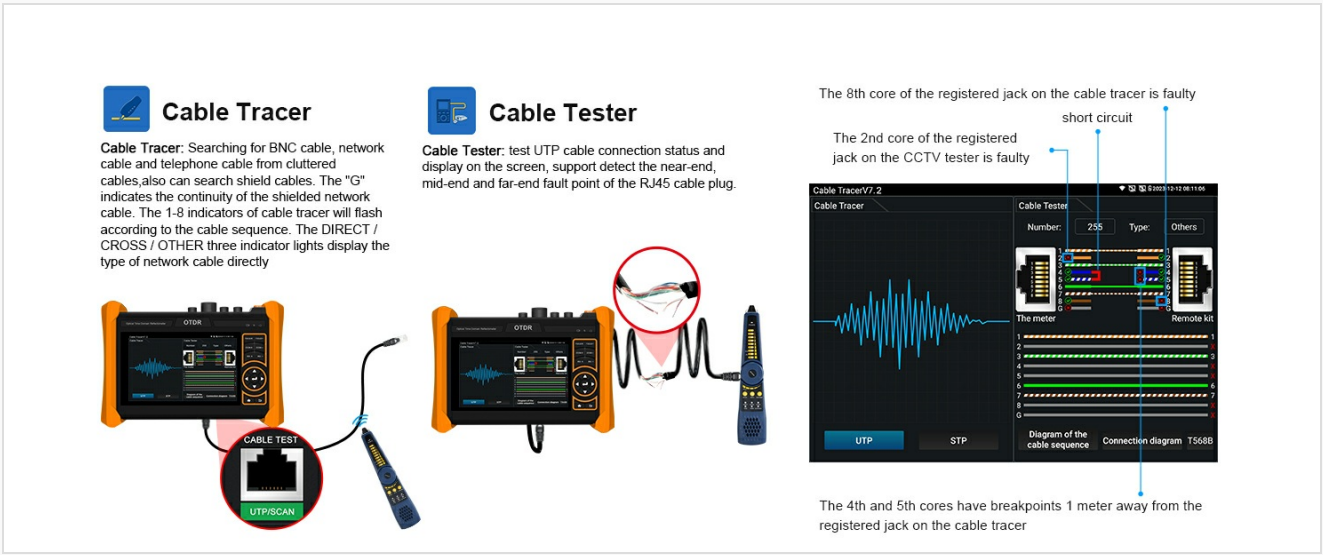


Image 6.4.1: The RJ45 Cable TDR Test screen displaying the status of each wire pair (open/short) and measured cable length, along with a graphical representation of the cable sequence.

- **Cable Tracer:** Searches for BNC, network, and telephone cables from cluttered bundles.
- **UTP Cable Tester:** Tests UTP cable connection status, detecting near-end, mid-end, and far-end fault points of the RJ45 cable plug.

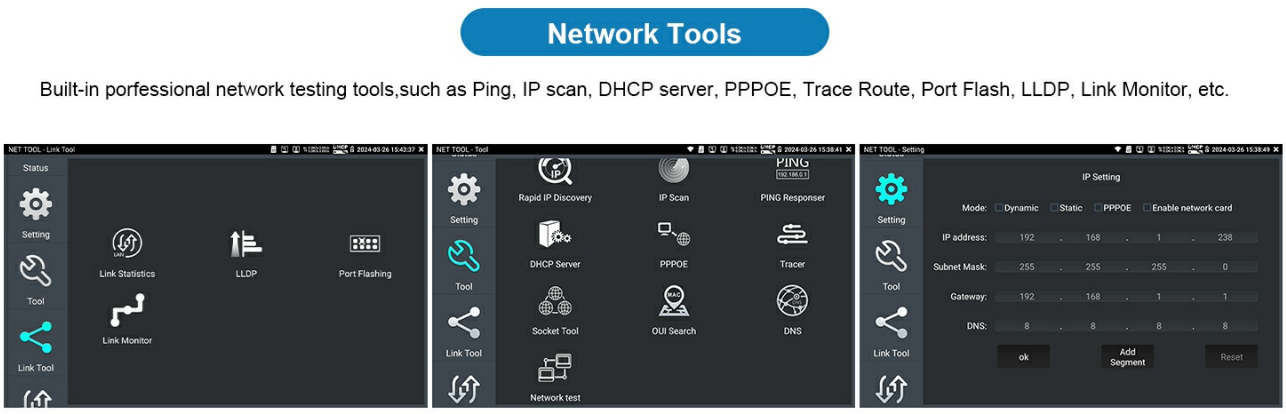


Image 6.4.2: Illustrations of the Cable Tracer in use for identifying cables and the Cable Tester interface showing connection status and fault locations for UTP cables.

- **Cable Length Test:** Measures the breakpoint position (open circuit status) for BNC, RJ45, and RJ11 cables, up to 3000 meters.

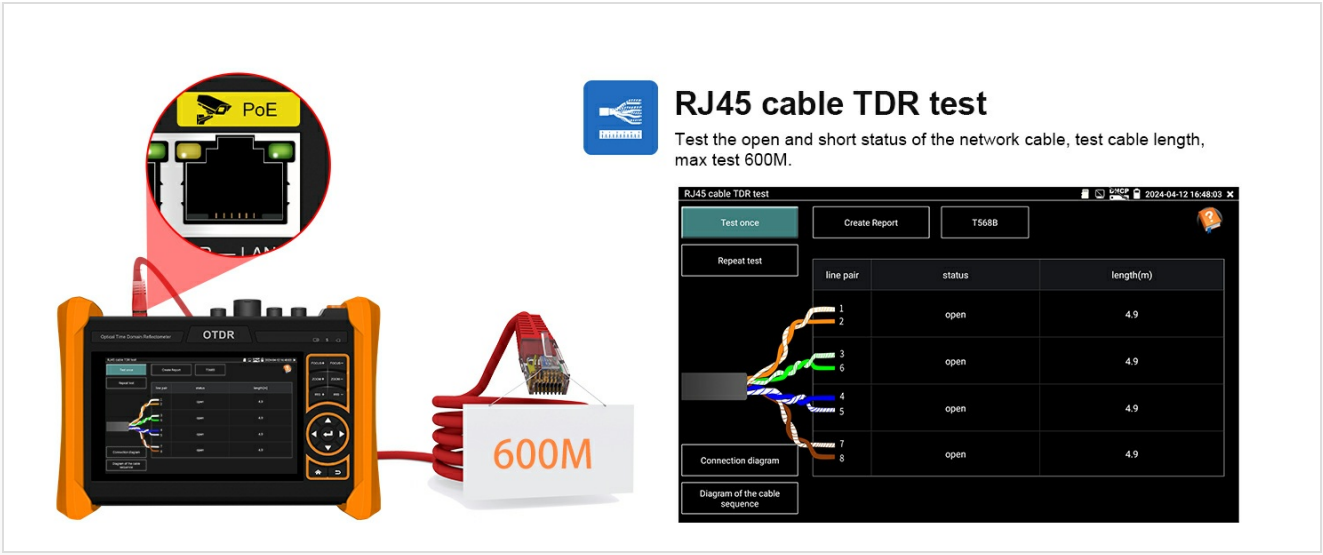


Image 6.4.3: The Cable Length Test screen displaying the measured length and status (open) for each wire in a UTP cable, with options to calibrate and repeat tests.

- **Cable Tracer + Electroscope:** Quickly detects near-end, mid-end, and fault points of RJ45 cables. Includes non-contact electroscope for safe live wire identification.

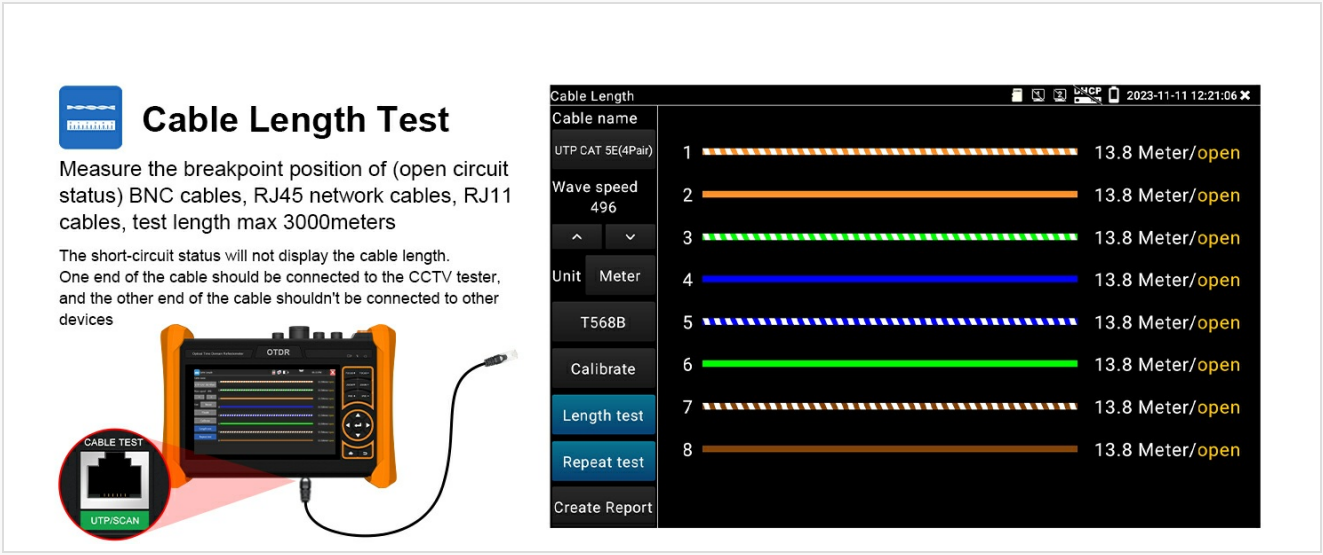


Image 6.4.4: Visual representation of the Cable Tracer and Electroscope features, demonstrating cable tracing, result verification, non-contact electroscope for live wire detection, and intelligent identification of neutral and live wires.

6.5 Network Test Tools

The device includes professional network testing tools:

- Ping
- IP Scan
- DHCP Server
- PPPOE
- Trace Route
- Port Flash
- LLDP
- Link Monitor

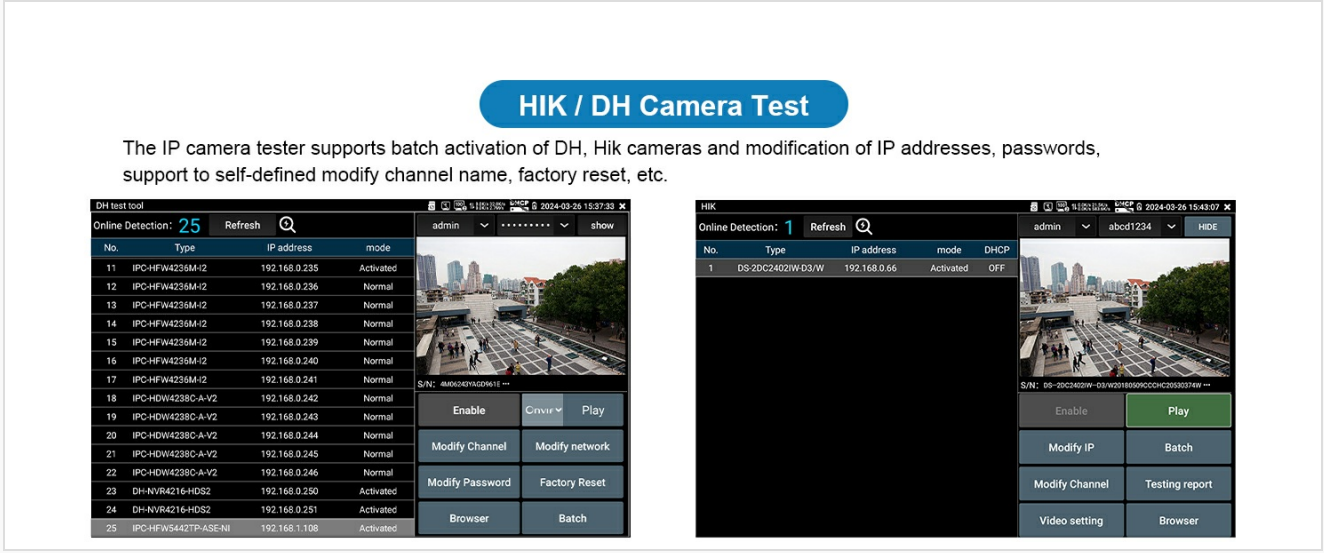


Image 6.5.1: Screenshots of various network tools available on the MT-6510, including Link Monitor, LLDP, Port Flashing, Ping, IP Scan, DHCP Server, PPPOE, and Trace Route.

6.6 Power Functions

- **PoE Power Output:** Supports IEEE802.3af/at, max 48V, power output 25.5W. Note: The network cable connected to the PoE power output port (LAN port) must be a straight-through cable and cannot be short-circuited.
- **Power Management:** Checks real-time voltage, power, and status of power output and input ports.

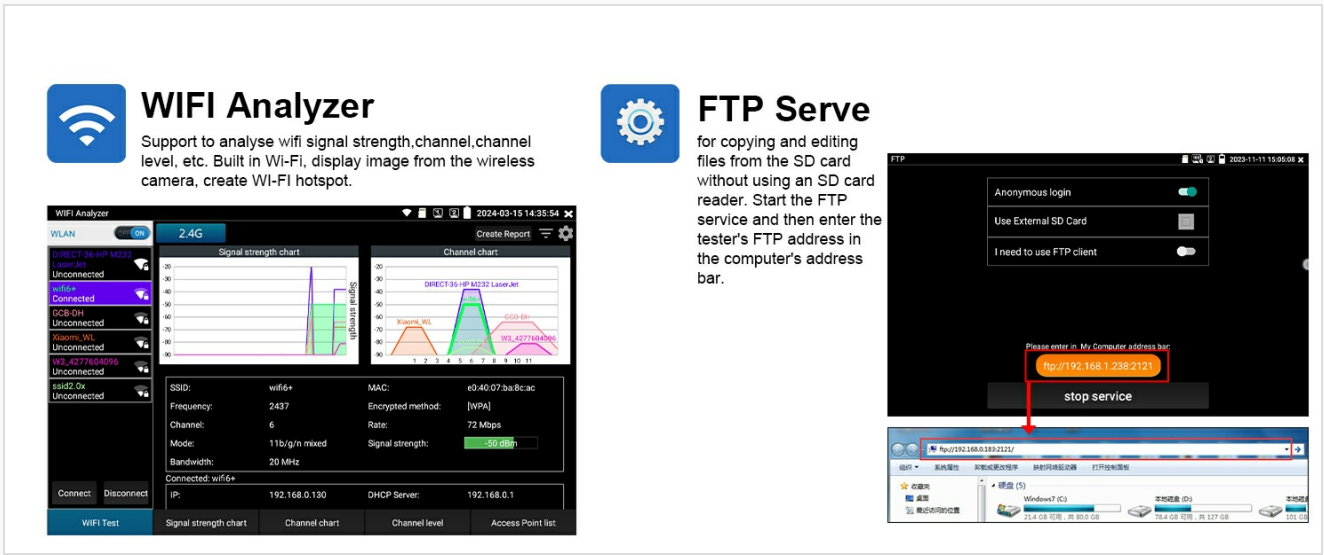


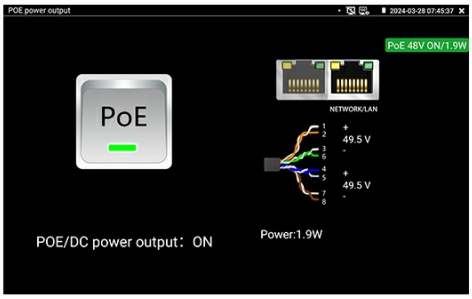
Image 6.6.1: The PoE Power Output screen showing active PoE status and the Power Management interface displaying input/output power, voltage, and status for various power ports.

- **PoE Detection:** Measures PoE switch or PSE power supply voltage and cable connection status.
- **12V Load Detection:** Before testing, connect the 12V power adapter to the DC12V/IN connector and the 12V adapter cable to the DC12V/3A/OUT connector. The interface displays real-time voltage, power, and current parameters.

PoE Power Output

Support PoE IEEE802.3af/at , max 48V, power output 25.5W

(Please note that the network cable connected to the PoE power output port (LAN port) of the tester must be a straight-through cable and cannot be short circuited)



Power Management

Support to check the real-time voltage, power, status of Power output and power input port

Image 6.6.2: The PoE Detection screen showing the protocol and power input details, and the 12V Load Detection screen displaying a real-time graph of voltage, power, and current.

6.7 Display and Input

- **HDMI Input:** Supports max 4K 30 FPS. The CCTV tester can function as a display for HDMI sources.
- **VGA Input:** Supports max 1280x1024P 60FPS. The CCTV tester can function as a display for VGA sources.

PoE Detection

Measurement PoE switch or PSE power supply voltage and cable connection status
(the power supply port of PoE switch and PSE power supply equipment must be connected to the PSE IN port of the cctv tester)

12V Load Detection

Before testing, connect the 12V power adapter to the DC12V/IN connector of the instrument, and use the 12V adapter cable to connect the camera to the DC12V3A/OUT connector of the instrument.
The curve in the interface shows the real-time voltage, power and current parameters of the 12V power adapter.
Plugging and unplugging the power adapter or power adapter, the camera is not stable, the curve will appear obvious fluctuations

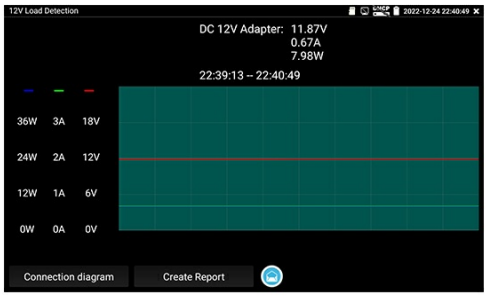


Image 6.7.1: Illustrations showing the MT-6510 connected as a display via HDMI input for DVR/NVR and via VGA input for other video sources.

- **5.4-inch IPS Touchscreen:** The device features a high-resolution (1920x1152) touchscreen for intuitive operation.

Image 6.7.2: The device's 5.4-inch IPS touchscreen display and an illustration of its internal components, including a 1.2GHz 4-core CPU, 1GB RAM, and 8GB FLASH (eMMC).

6.8 Software and Connectivity

- **TesterPlay (Screen Projection):** Supports displaying the tester's screen on a PC or mobile phone simultaneously. Install the "TesterPlay" app on Android or use VLC player on PC to receive screen information.

Image 6.8.1: The TesterPlay interface showing a QR code for mobile app download and illustrating simultaneous screen display on the tester, PC, and Android mobile phone.

- **WiFi Analyzer:** Supports analyzing WiFi signal strength, channel level, and creating WiFi hotspots.
- **FTP Serve:** Allows copying and editing files from the SD card without using an SD card reader. Start the FTP service and enter the tester's FTP address in a computer's address bar.

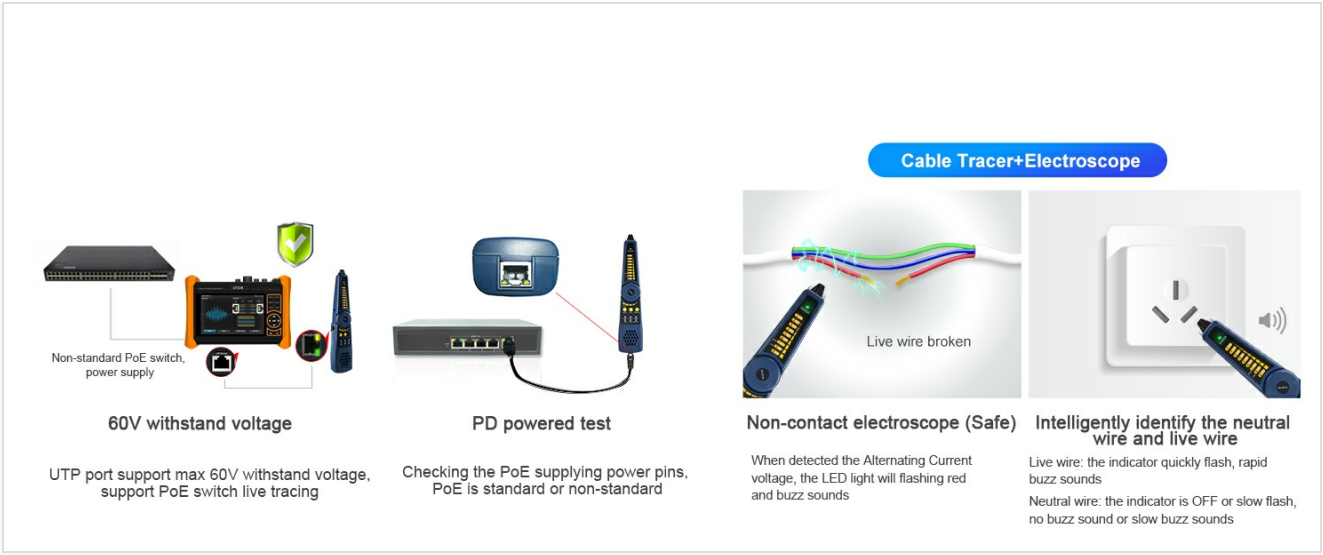


Image 6.8.2: The WiFi Analyzer screen displaying signal strength and channel information, and the FTP Serve screen showing how to access files from a computer.

7. Maintenance

- **Cleaning:** Use a soft, dry cloth to clean the device's exterior. For the screen, use a screen-specific cleaning solution and cloth. Keep optical ports clean and free of dust.
- **Storage:** Store the device in its protective tool bag in a cool, dry place away from direct sunlight and extreme temperatures.
- **Battery Care:** For prolonged storage, ensure the battery is partially charged (around 50%). Recharge periodically if not in use for extended periods to maintain battery health.
- **Software Updates:** Check the manufacturer's website for any available software or firmware updates to ensure optimal performance and access to new features.

8. Troubleshooting

- **Device not powering on:** Ensure the battery insulating paper is removed and the battery is charged. Connect to the power adapter to check if it powers on.
- **Inaccurate OTDR readings:** Verify that optical connectors are clean. Check that test parameters (wavelength, IOR, pulse width) are correctly set for the fiber type being tested.
- **Camera not detected during IPC Test:** Ensure the camera is powered on and correctly connected to the LAN port. Verify network settings (IP address, subnet mask) for compatibility.
- **Cable TDR test issues:** Ensure the cable is properly connected and not damaged. Check for open or short circuits as indicated by the test results.
- **Touchscreen unresponsive:** Restart the device. If the issue persists, contact customer support.

9. Specifications

Feature	Specification
Model Number	MT-6510
OTDR Wavelength	1310nm/1550nm

OTDR Dynamic Range	28dB/26dB
Display	5.4" IPS Touch Screen, 1920x1152 Resolution
Optical Power Meter (OPM) Calibrated Wavelengths	850/1300/1310/1490/1550/1625nm
Visual Fault Locator (VFL) Wavelength	650nm, Max Test Range 8KM
Light Source (LS) Modes	CW/270 Hz/330 Hz/1 kHz/2 kHz
IP Camera Test Support	Max 4K 12MP
HD Coaxial Camera Support	Max 8MP AHD/TVI/CVI/CVBS
RJ45 Cable TDR Test Range	Max 600M
PoE Support	IEEE802.3af/at, Max 48V, 30W Output
HDMI Input	Max 4K 30 FPS
VGA Input	Max 1280x1024P 60FPS
Power Output	DC24V/2A, DC12V/3A, DC5V/2A
Battery	1 Lithium Ion battery (included)
Dimensions	12.6 x 11.42 x 3.54 inches
Weight	4.85 Pounds

10. Warranty and Support

For any questions or technical support, please contact WANLUTECH customer service. You can typically find support options through your purchase platform or the manufacturer's official website. Please refer to your purchase documentation for specific warranty details.
To contact support:

- Find your order on your Amazon account, view order details, and click 'get product support' to message us.
- You can find "WANGLU TESTER" on the product detail page, click on it and then message us.

The manufacturer aims to respond to inquiries within 12 hours.

Related Documents - MT-6510

	WANLUTECH Multi-function Tester Quick Guide Comprehensive quick guide for the WANLUTECH Multi-function Tester, covering OTDR functions, IP camera testing, laser source, optical power meter, visual fault locator, and various cable tests. Includes detailed operation, settings, specifications, and safety information for professional fiber optic and network technicians.
	WANLUTECH 8K IP Camera Tester (K15 Series) User Manual Comprehensive user manual for the WANLUTECH 8K IP Camera Tester (K15 Series). Covers installation, operation, and testing of IP, HD analog (8MP TVI/CVI/AHD/EX-SDI/SDI/CVBS), 8K H.265/4K H.264 cameras, network diagnostics, SFP, OPM, VFL, DMM, and more. Essential for CCTV and network installers.
	LT-300S Multi-function Network Cable Tester User Manual User manual for the WANLUTECH LT-300S Multi-function Network Cable Tester, detailing its features, interface, instructions for cable tracing, UTP/continuity testing, length measurement, port flashing, PoE detection, and optional optical power meter and visual fault locator functions.
	Pro'sKit MT-7615/MT-7616 4-in-1 Fiber Optical Power Multimeter User Manual User manual for Pro'sKit MT-7615 and MT-7616 4-in-1 Fiber Optical Power Multimeters, detailing device operation, safety precautions, maintenance, troubleshooting, and technical specifications.