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ALIENTEK C2 Lite

ALIENTEK C2 Lite USB Tester User Manual

Model: C2 Lite

1. Introduction

Thank you for choosing the ALIENTEK C2 Lite USB Tester. This device is a precise digital voltmeter and charging power detector designed for monitoring USB chargers, power banks, and cables. It features a 16-bit ADC chip for accurate measurements and supports various fast charging protocols. This manual provides essential information for the safe and effective use of your device.



Image 1.1: The ALIENTEK C2 Lite USB Tester displaying real-time measurement data.

2. What's in the Box

Upon unpacking your ALIENTEK C2 Lite USB Tester, please ensure all the following components are present:

- ALIENTEK C2 Lite USB Tester
- Tempered Glass Screen Protector
- Instruction Manual Card
- Tinplate Packaging Box



Image 2.1: All items included in the ALIENTEK C2 Lite product package.

3. Setup and Basic Operation

3.1 Device Overview

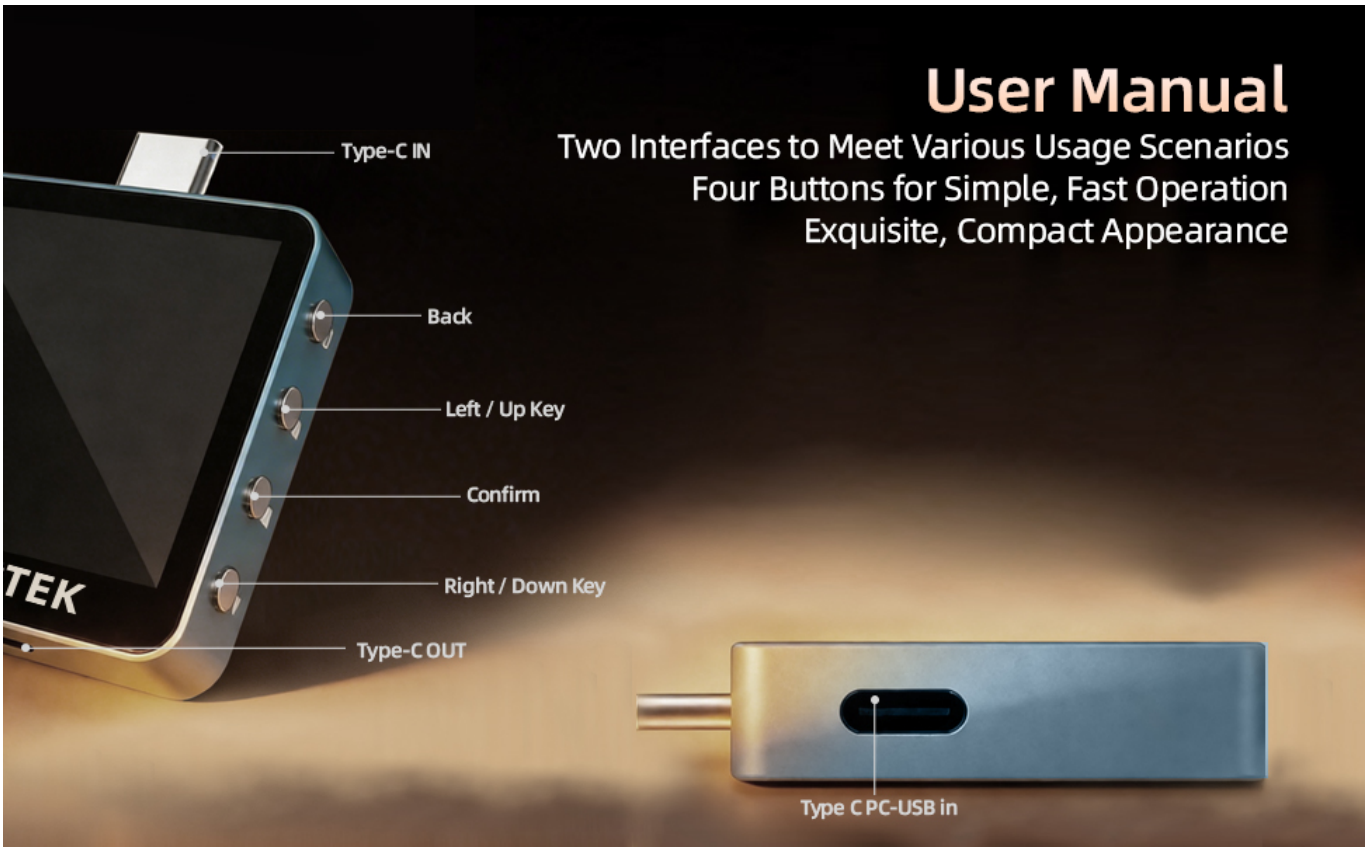


Image 3.1: Overview of the ALIENTEK C2 Lite interfaces and control buttons.

The C2 Lite features two Type-C interfaces for connection and four buttons for navigation and control:

- **Type-C IN:** Connect to the power source (charger, power bank).
- **Type-C OUT:** Connect to the device being charged/tested.
- **Type C PC-USB in:** For connecting to a computer (C2 Lite does not support PC software features).
- **Buttons:** Back, Left/Up Key, Confirm, Right/Down Key for menu navigation and function selection.

3.2 Initial Power-On

To power on the C2 Lite, connect the Type-C IN port to a USB power source (e.g., a charger or power bank). The device will automatically power on and display the main measurement interface. If the monitored voltage is below 3.6V, connect the device to a PC USB port for power supply.

4. Operating Instructions

4.1 Basic Measurement

The main screen displays real-time basic measurement parameters including voltage (V), current (A), power (W), D+ and D- voltages, C1 and C2 voltages, and temperature. It also monitors the current fast charging protocol type. Data obtained is for reference only, and monitor mode requires the powered device to request protocols.

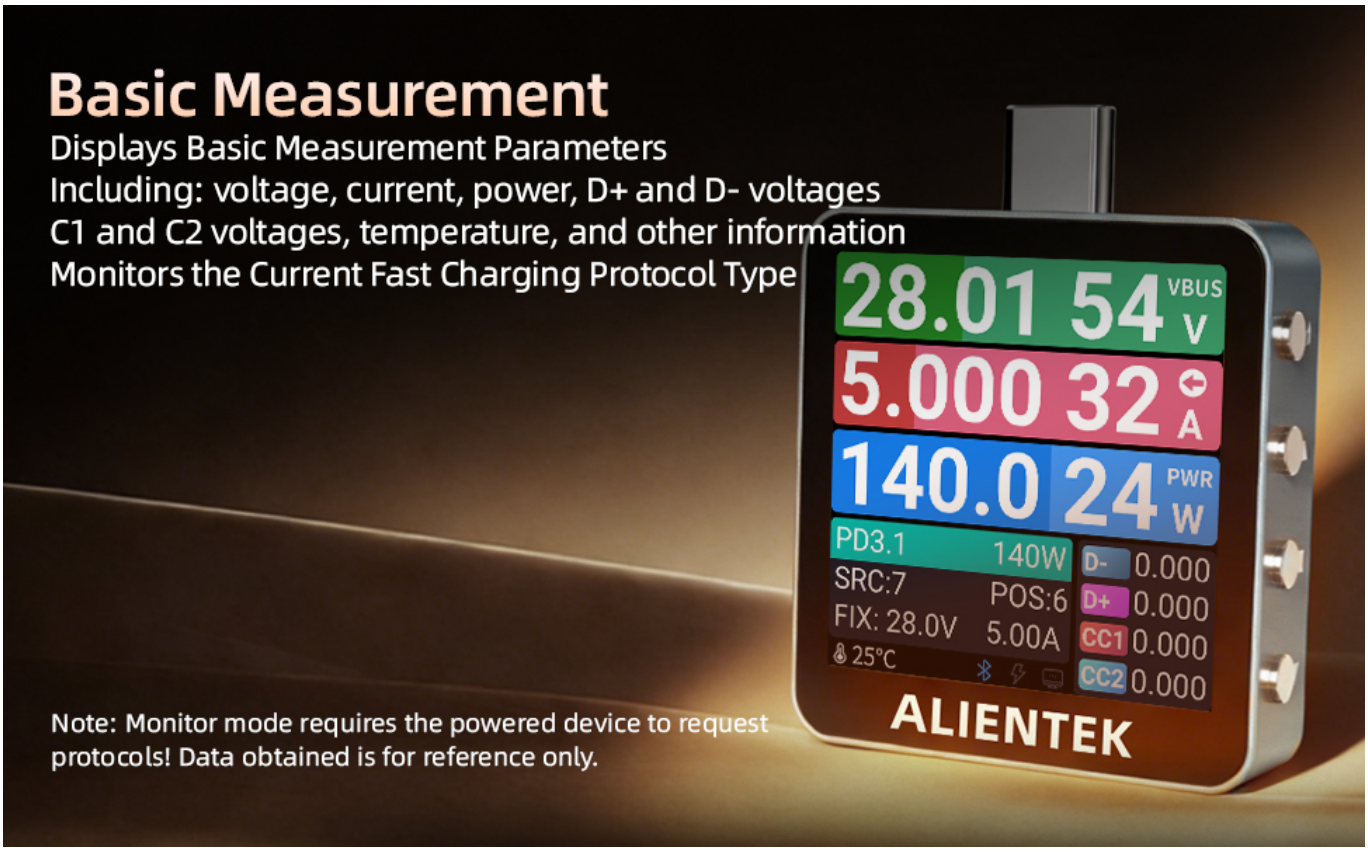


Image 4.1: Basic measurement interface of the C2 Lite USB Tester.

4.2 Multi-Protocol Fast Charging Detection & Triggering

The C2 Lite supports automatic detection and manual triggering for various fast charging protocols. This allows you to verify charger capabilities and test device performance.

- **Supported Protocols:** QC2.0/3.0/4+/5.0, PD2.0/3.0/3.1/3.2, Huawei FCP/SCP, Samsung AFC, UFCS, MTK-PE, VIVO VFCP, OPPO-VOOC/SVOOC.
- **Automatic Detection:** Automatically identifies the fast charging protocols supported by the power supply device.
- **Manual Triggering:** Manually select a fast charging protocol and its corresponding trigger voltage to test the power supply device's performance.

Warning: Automatic detection and manual triggering modes may involve high voltage. Do not connect any electrical equipment that is not rated for these voltages; otherwise, damage may occur.

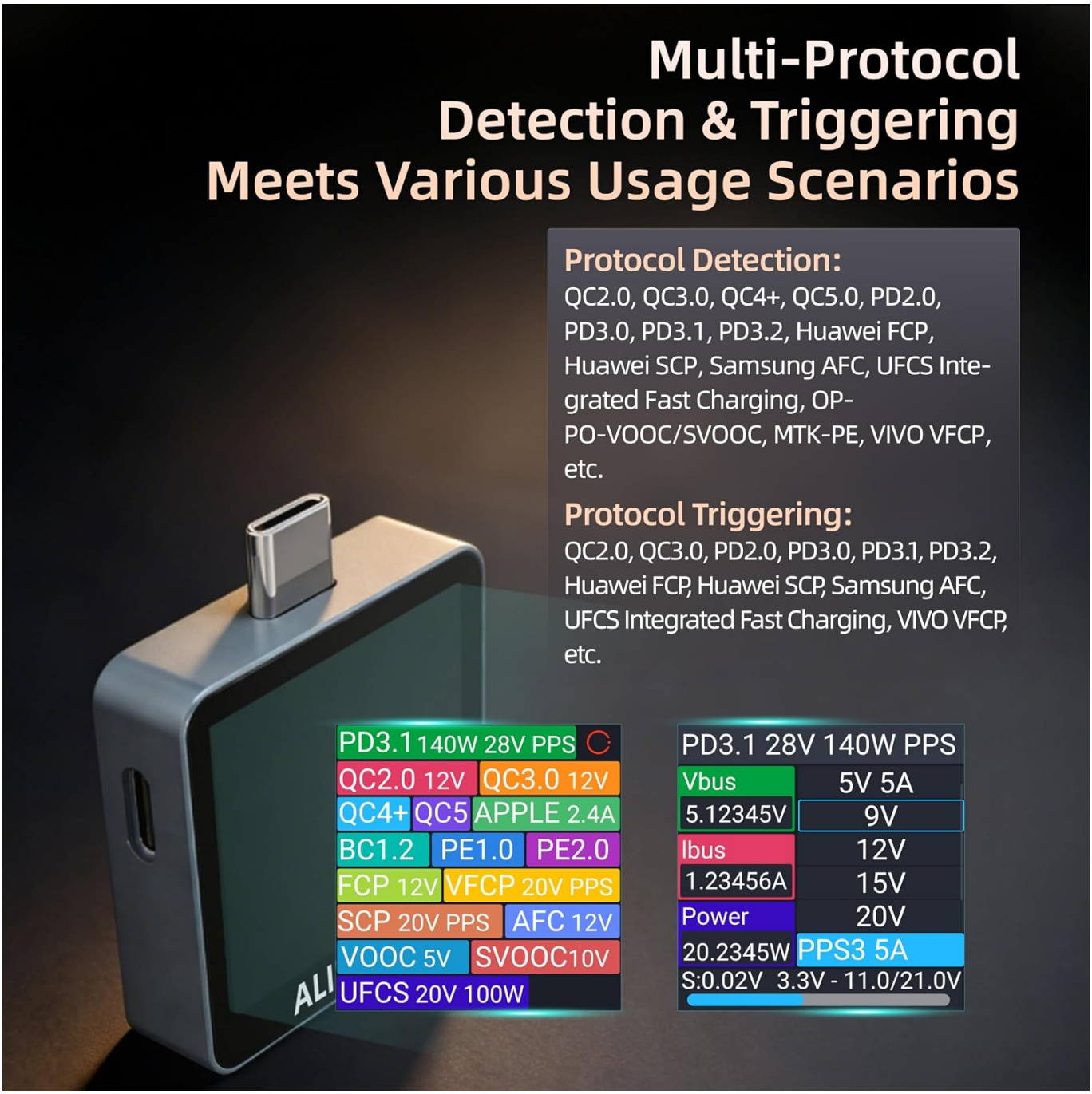


Image 4.2: Multi-protocol detection and triggering capabilities.



Image 4.3: Diversified functions for automatic detection and manual triggering.

4.3 Ripple Measurement

The C2 Lite can measure ripple up to a 2M sampling rate, displaying the peak-to-peak value (Vp-p). This function assists in evaluating the ripple quality of the power supply voltage, which is crucial for stable power delivery.

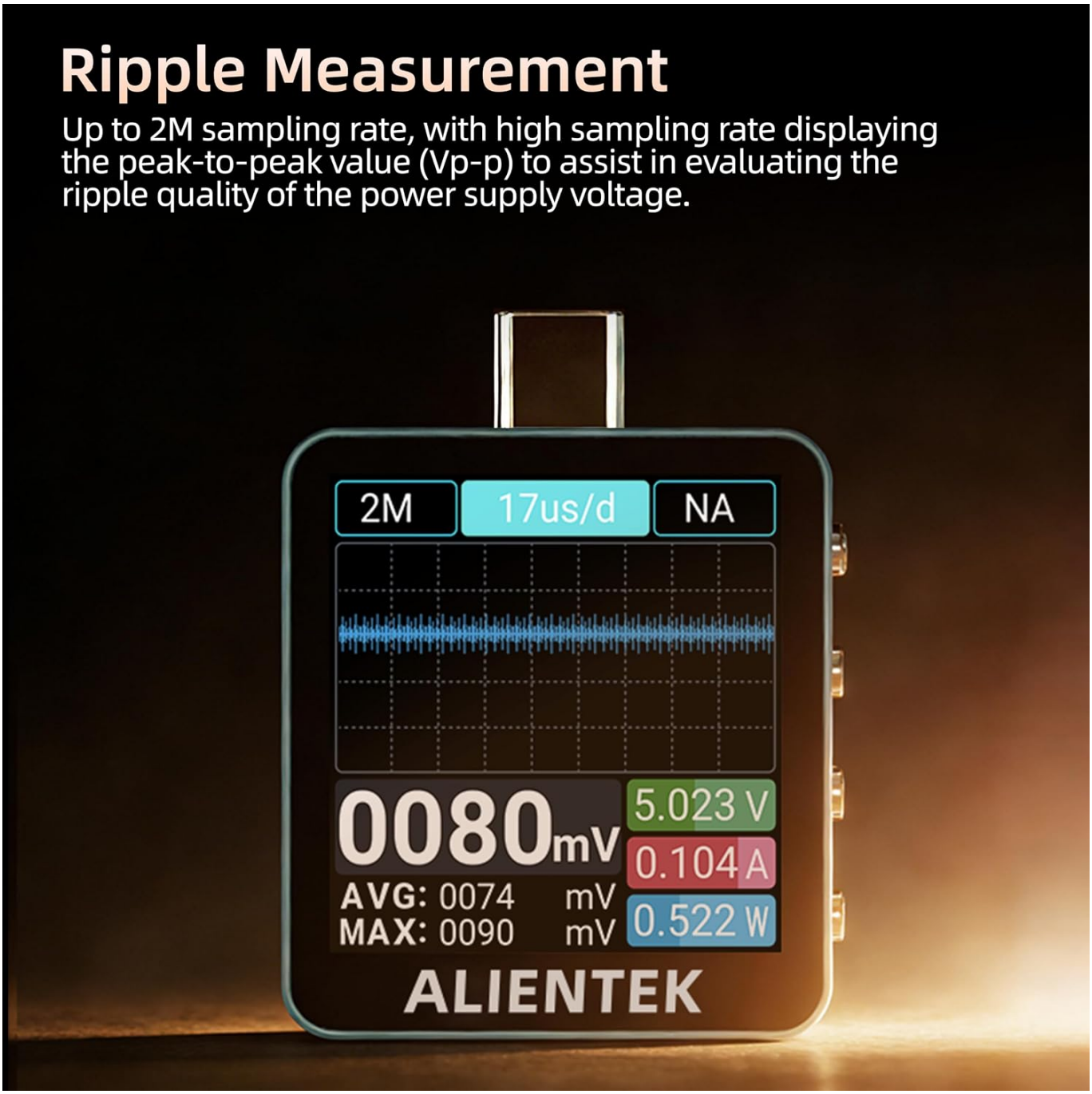


Image 4.4: Ripple measurement interface showing voltage waveform.

4.4 Cable Detection and Wire Resistance Measurement

The device supports reading E-Marker chip information from cables, including Thunderbolt 5, to understand the cable's capabilities (e.g., data transfer rate, power delivery). It also measures wire resistance using the voltage drop method, allowing for easy detection of a cable's internal resistance.

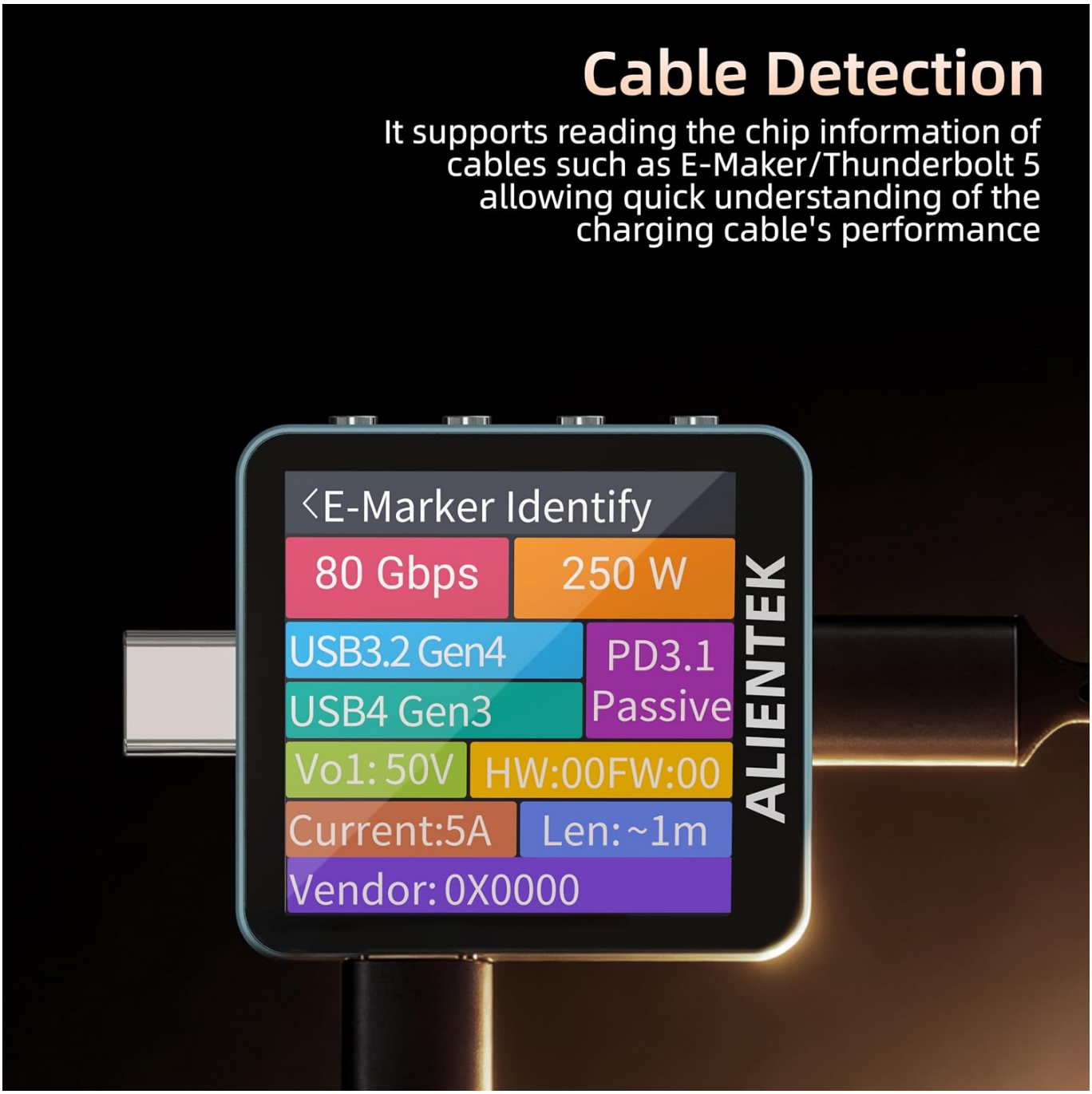


Image 4.5: Cable detection displaying E-Marker information.



Image 4.6: Wire resistance measurement interface.

4.5 Apple Charger SN Reading

The C2 Lite supports reading the Serial Number (SN) code of Apple chargers. This feature allows users to verify the authenticity of their Apple charging devices.



Image 4.7: Apple Charger SN code reading function.

4.6 Offline Data Logging

The device supports two groups of offline data logging, each capable of storing up to 10,000 data points. This feature can be used to estimate the battery capacity of mobile phones, tablets, and power banks. The calculation method for capacity estimation is provided on the device interface.

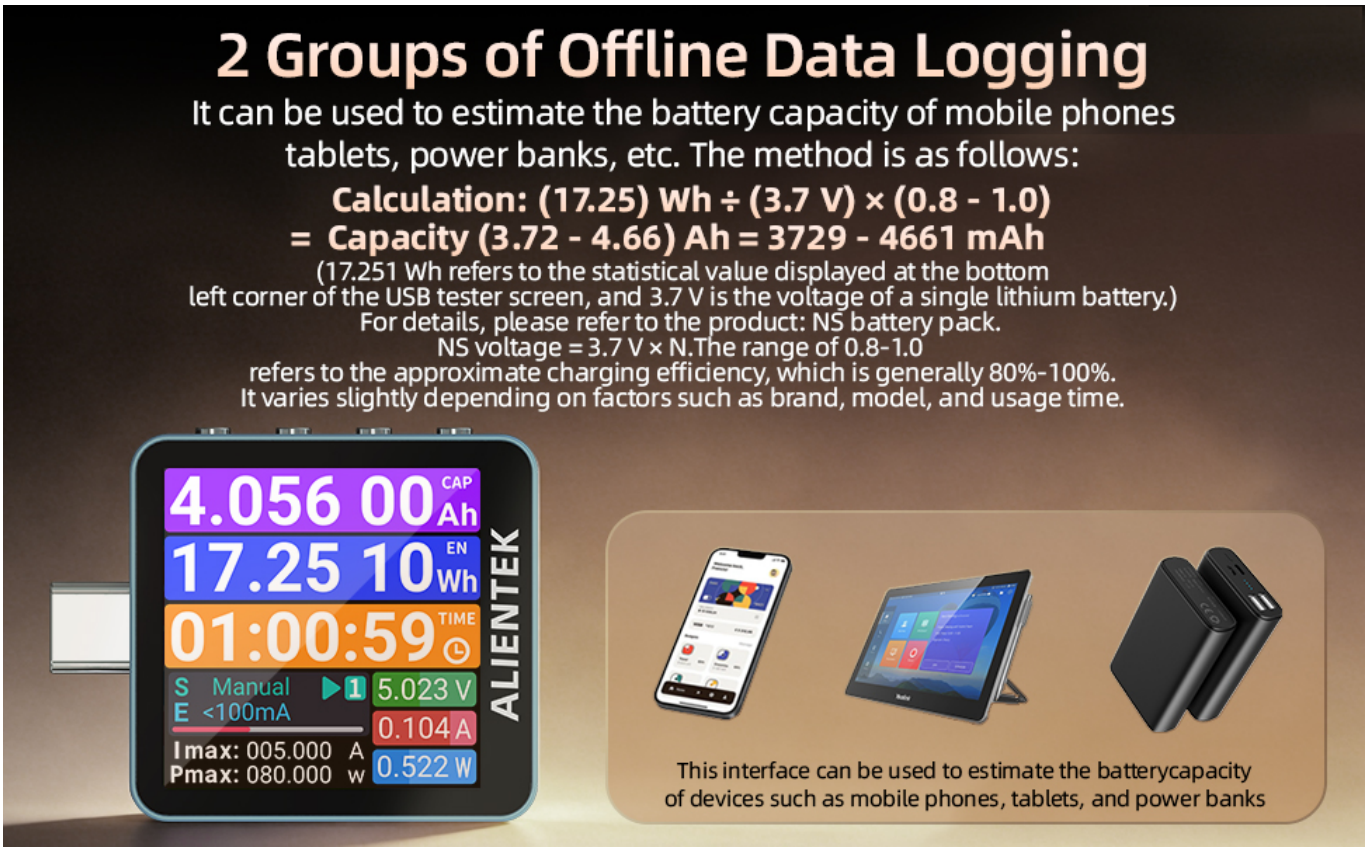


Image 4.8: Offline data logging interface for battery capacity estimation.

4.7 Power Bank Mode

The Power Bank Mode provides an intermittent dummy load to keep fast-charging devices active even under low load conditions, preventing them from dropping out of fast charge mode.

4.8 PC Software (C2 Lite Limitation)

While the C2 Pro model supports connection to PC software for advanced features like 1kHz data acquisition, waveform viewing, protocol triggering, and firmware updates, the **C2 Lite model does not support these PC software functions**

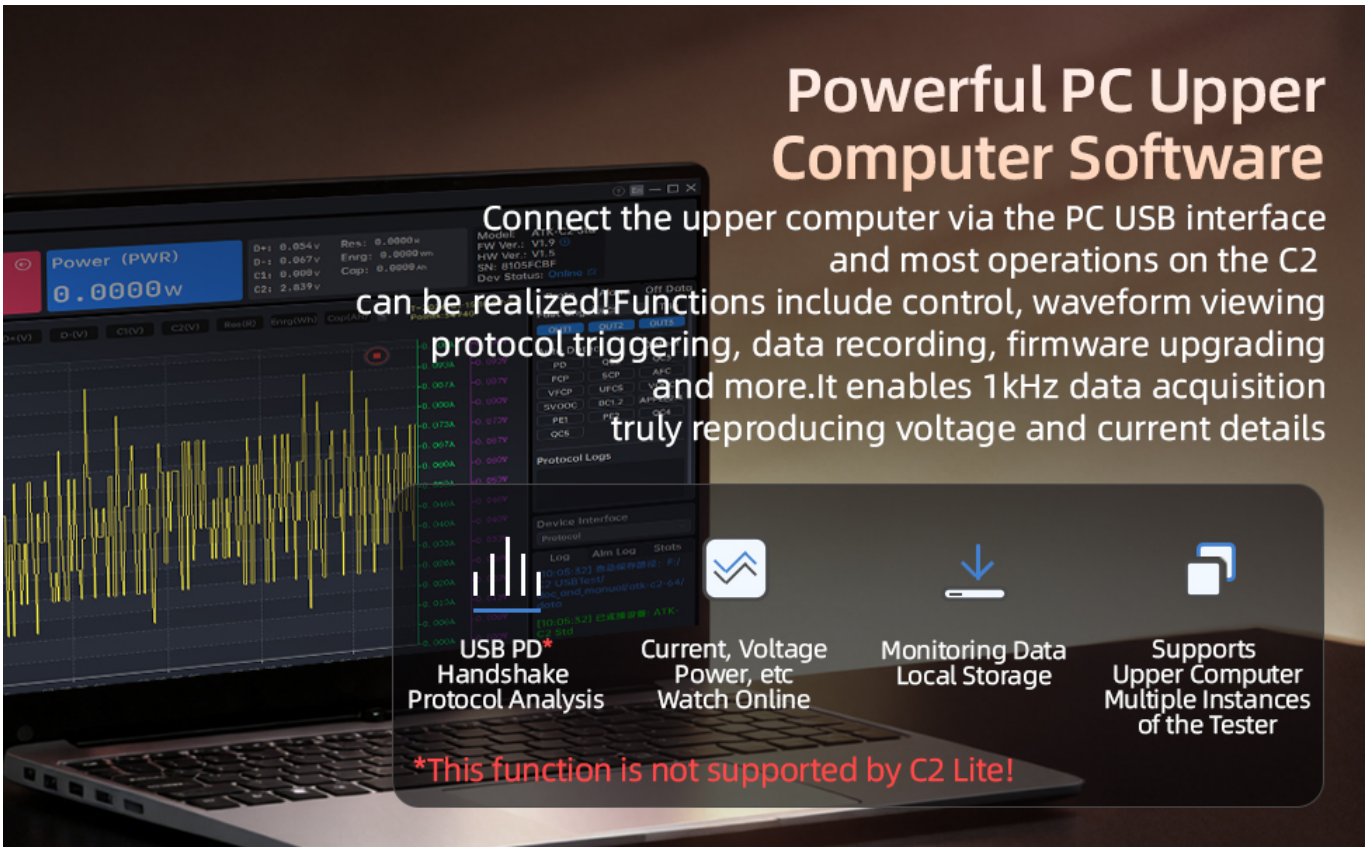


Image 4.9: Illustration of PC software capabilities (not supported by C2 Lite).

4.9 Product Demonstration Video

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Video 4.1: An official ALIENTEK video demonstrating the C2 USB Tester's functions, including real-time voltage, current, and power monitoring during device charging.

5. Maintenance

To ensure the longevity and optimal performance of your ALIENTEK C2 Lite USB Tester, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to clean the device. Avoid using abrasive cleaners or solvents that could damage the screen or casing.
- **Storage:** Store the tester in a cool, dry place away from direct sunlight and extreme temperatures.
- **Handling:** Handle the device with care to prevent physical damage. Avoid dropping or subjecting it to strong impacts.
- **Screen Protection:** Utilize the provided tempered glass screen protector to prevent scratches and damage to the display.

6. Troubleshooting

If you encounter issues with your ALIENTEK C2 Lite USB Tester, refer to the following common troubleshooting steps:

- **Device Not Powering On:** Ensure the Type-C IN port is securely connected to a functional USB power source. If the voltage is very low, try connecting it to a PC USB port for power.
- **Inaccurate Readings:** Verify that all connections are secure. Ensure the cables used are in good condition. High resistance cables can affect readings.

- **Fast Charging Not Detected:** Confirm that both the charger and the device being charged support the fast charging protocol. Some protocols require specific cables.
- **Screen Issues:** If the screen is unresponsive or displays incorrectly, try disconnecting and reconnecting the power source.

For further assistance, please contact ALIENTEK customer support.

7. Specifications

The following table outlines the key specifications for the ALIENTEK C2 Lite USB Tester:



	Detailed Functions	C2 Lite	C2 Pro	Accuracy
Measure-ment Function	ADC	16-bit	20-bit	/
	Monitored Voltage	0-36V	0-48V	±(1.0‰+2)
	Monitored Current	0-7A	0-7A (Peak 10A)	±(1.0‰+3)
	Monitored Power	0-240W	0-240W	±(1.0‰+2)
	D+/D- Voltage	0-3.3V	0-3.3V	±(1.0%+2)
	C1/C2 Voltage	0-2.8V	0-2.8V	±(1.0%+2)
	Capacity	0-9999.9Ah	0-9999.9Ah	/
	Energy	0-9999.9Wh	0-9999.9Wh	/
	Statistical Time	99h 59m 59s	99h 59m 59s	/
	Wire Resistance	0-999.9Ω	0-999.9Ω	/
Special Functions	Bluetooth	/	Support	
	Upper Computer PD Packet Capture	/	Support	
	Gravity Sensing	Support	Support	
	Apple Charger SN Code Reading	Support	Support	

Image 7.1: Detailed specifications for the C2 Lite and C2 Pro models.

ALIENTEK C2 Lite USB Tester Specifications

Feature	Specification

Feature	Specification
Model	C2 Lite
ADC	16-bit
Monitored Voltage	0-36V
Monitored Current	0-7A
Monitored Power	0-240W
D+/D- Voltage	0-3.3V
C1/C2 Voltage	0-2.8V
Capacity Measurement	0-9999.9Ah
Energy Measurement	0-9999.9Wh
Statistical Time	99h 59m 59s
Wire Resistance	0-999.9Ω
Gravity Sensing	Supported
Apple Charger SN Reading	Supported
Screen Size	1.54-inch IPS
Screen LCD Resolution	240x240
Product Dimensions	1.476 in × 1.378 in × 0.362 in
Net Weight	0.0386 lb (approx. 17.5g)
Power Source	Battery Powered (via USB connection)
Minimum Operating Voltage	5 volts
Maximum Operating Voltage	750 volts (for multimeter function, not direct USB input)
Upper Temperature Rating	40 °C
Measurement Type	Multimeter
Compatible Devices	USB C devices
Certification	CE

8. Warranty and Support

For information regarding product warranty, technical support, or service, please refer to the official ALIENTEK store or contact their customer service directly.

Visit the ALIENTEK Store for more products and support resources.

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