User Manual

C2 Multifunctional **USB** Tester User Manual

High-performance **USB** tester

Zhengdian Atom

Guangzhou Xingyi Electronic Technology Co., Ltd.

Revision History

Version	date	reason
V1.00	First published on 2025/09/23	

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Thank you for purchasing this product. To help you better understand its features and operation,

We recommend that you read this manual carefully before using it.

Important Notes (Must Read)

1. When using the fast charging trigger function (automatic detection, manual trigger), please do not connect any other devices (such as computers, mobile phones, etc.).

(This applies to mobile phones, tablets, etc.). Otherwise, high voltage may damage your device, and our company will not be responsible!

Note: Except for the Type-C PC computer interface on the side opposite the buttons, the other interfaces are connected in approximately parallel. If high voltage is

applied to any interface, all interfaces will output high voltage. If any electrical equipment is connected under these conditions, it may be burned out! **Do not connect

them haphazardly!**

2. Type-C power input/output measurement port, input voltage must not exceed 36V (C2 Lite and C2)/48V (C2 Pro)!

3. The input voltage of the USB Type-C interface on the PC connection must not exceed 5.5V! 4. When

measuring high power operation, the C2 tester will generate some heat, which is normal. 5. The button is a touch-sensitive side button;

please do not press it forcefully to avoid damaging the button. 6. Some fast charging protocols may cause the device to

power off/restart (brief black screen) when tricked; this is normal. 7. After enabling power bank mode, a dummy load may cause intermittent changes

in the monitored voltage/current; this is normal. 8. Some fast charging adapters/power banks may stop supplying power when the load current is low (approximately

<100mA).

At this point, you can use the C2's power bank mode to provide a dummy load and maintain power supply.

9. If the instrument is connected to a USB-C charger via a preamplifier port, and there is no USB-C cable connected to a device in the output stage, it will not receive power. To

power on the instrument in this way, press and hold the right button to power on. If power is not received when using the female connector as the preamplifier, try flipping

the USB-C cable and then pressing and holding the right button again.

1. Characteristic parameters

The C2 Multifunctional USB Tester is a newly launched product from Guangzhou Xingyi Electronics Technology Co., Ltd. (Zhengdian Atom).

This high-performance USB tester has the following main features:

ÿ Two direct-access Type-C USB 3.0 male and female connectors for better fast charging measurement. ÿ Precise measurement

using high-precision alloy sampling resistors and a 16/20-bit ADC chip[1], with a maximum sampling rate of 1KSPS. ÿ Powerful performance using a high-conductivity

copper connector, supporting 3.6 ~ 36V/48V input voltage and a maximum current of 7A[2].

Feature-rich, supporting detection and triggering of various fast charging protocols such as PD/QC/SCP/UFCS, ripple, line resistance, and data.

Recording, host computer PD packet capture, wire core identification, Apple charger SN reading, etc.

The display is exquisite, featuring a 1.54-inch 240*240 high-definition IPS screen for richer content display.

Supports 3D gravity direction sensing

Compact size, CNC machined shell, unibody molding, exquisite and beautiful, easy to carry.

A powerful host computer that can be used across platforms. Future versions with Bluetooth support will include a mobile Bluetooth app.

Note 1 & Note 2: C2/C2 Lite is a 16-bit ADC with a maximum voltage of 36V. C2 Pro is a 20-bit ADC with a maximum short-time peak current of 10A.

The maximum voltage is 48V.

The detailed specifications of the C2 multi-functional USB tester are shown in the table below:

project	illustrate
Basic parameters	Product Model: C2 Screen size: 1.54-inch IPS high-definition large screen LCD resolution: 240*240; Product dimensions: 37.5mm*35mm*9.2mm; Net weight: 17.5g
Interface features	TYPE C IN/OUT: 7A, supports USB 3.0 TYPE C USB PC: Used only for communication with the host computer; no measurement function.
Measurement system	ADC resolution: 16-bit/20- bit Sampling resistor: High-precision alloy resistor Measurement speed: 1kHz (Max) 2 Voltage range: 0 ~ 28V Current range: 0 ~ 7A
Fast charging protocol	BC1.2 Detection QC2.0 and QC3.0 detection and triggering of QC4+ and QC5.0 detection. PD2.0, PD3.0, PD3.1, PD3.2 detection and triggering Huawei FCP and SCP detection and triggering Samsung AFC detection and triggering MTK PE testing VOOC and SVOOC detection VIVO VFCP Detection and Triggering Apple 2.4A Testing UFCS Integrated Fast Charging Detection and Triggering Xiaomi proprietary PD detection and triggering
tool	Line resistance measurement E-Marker cable chip reading Apple charger serial number reading
Ripple	Supports a maximum sampling rate of 2 MHz for measuring charging adapter ripple and evaluating charging adapter performance.
Data Records	Number of records: 10,000, maximum support for 3 sets of data records Recording speed (local): 0.1 Sa/s, 0.5 Sa/s, 1 Sa/s, 5 Sa/s, etc. Recording speed (host computer): 2 Sa/ s, 200 Sa/s, 500 Sa/s, 1000 Sa/s, etc. Recording start threshold can be set (local). Recording modes: Manual mode, automatic threshold mode.
Host computer software	Uses WinUSB driverless design (Win7 and above), plug and play.

	It is feature-rich and can realize full function control and measurement of the tester.
	Excellent interactive experience, more convenient to use.
	Real-time curve plotting (voltage, current, power, energy, resistance, D+/D-, C1/C2)
	Programmable maximum acquisition speed of 1000 times/
	second ; supports host computer PD packet capture, supporting millions of PD packets, comparable to professional PD packet capture.
	instrument
	Supports online data logging and storage (unlimited points).
	Supports offline data reading and curve plotting
	Support firmware upgrade
	Supports logging functionality
	Supports multiple language settings
	Supports multiple platforms, including Windows, MAC, and
Other functions	Ubuntu. Supports 360-degree gravity sensing to adjust screen orientation, meeting various usage scenarios.
	Supports power bank mode
	Screen dims and goes to sleep
	Bluetooth function

Note 1: C2 Lite/C2 is 16-bit, C2 Pro is 20-bit.

Note 2: This speed can only be achieved by having the host computer collect and record data in online mode.

Note 3: When using the host computer online mode for recording, a maximum recording speed of 1KSa/S can be achieved.

Table 1.1 C2 Detailed Specifications

The hardware measurement parameters of the C2 multi-functional USB tester are shown in the table below:

Detailed features	C2 Lite	C2 Std	C2 Pro	accuracy
ADC	0 - 36V1	0 - 36V1	0 - 48V1	±(1.0‰+2)
Monitoring voltage	0 - 36V1	0 - 36V1	0 - 48V1	±(1.0‰+2)
Monitoring current	0 - 7A	0 - 7A	0 - 7A (short-term peak value) 10A)	±(1.0‰+3)
Monitoring power	0 - 240W	0 - 240W	0 - 240W	±(1.0‰+2)
D+/D- voltage	0 - 3.3V	0 - 3.3V	0 - 3.3V	±(1.0%+2)
C1/C2 voltage and	0 - 2.8V	0 - 2.8V	0 - 2.8V	±(1.0%+2)
temperature monitoring	/	/	Optional support	±(5%+2)
capacity	0-9999.9Ah	0-9999.9Ah	0-9999.9Ah	
energy	0-9999.9Wh	0-9999.9Wh	0-9999.9Wh	
Statistical time	99 hours 59 minutes 59 seconds	99 hours 59 minutes 59 seconds	99 hours 59 minutes 59 seconds	
Line resistance	0-999.9 ohms	0-999.9 ohms	0-999.9 ohms	
Bluetooth	/	/	support	
Packet capture by host computer PD	/	support	support	
Gravity sensor supported, Apple charger		Support!	support	
code reading supported		Support!	support	

Note 1: When measuring values less than 3.6, please connect the device to a PC via USB for power supply. Also, be careful not to input values exceeding the range when connecting to the device.

A USB tester is required; otherwise, the device may be damaged.

Table 1.2 Technical Specifications

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2. Quick Start

2.1 Data Preparation

Before using the C2 multi-functional USB tester, in addition to familiarizing yourself with the tester's human-computer interaction method through the next two subsections,

Some necessary preparations still need to be made:

(1) When using it with a host computer, you need to download the C2 multi-functional USB tester data package, which contains configuration software. The link to obtain it is as follows: http://

www.openedv.com/docs/tool/USB/C2.html (2) For first-time users, please read the following document.
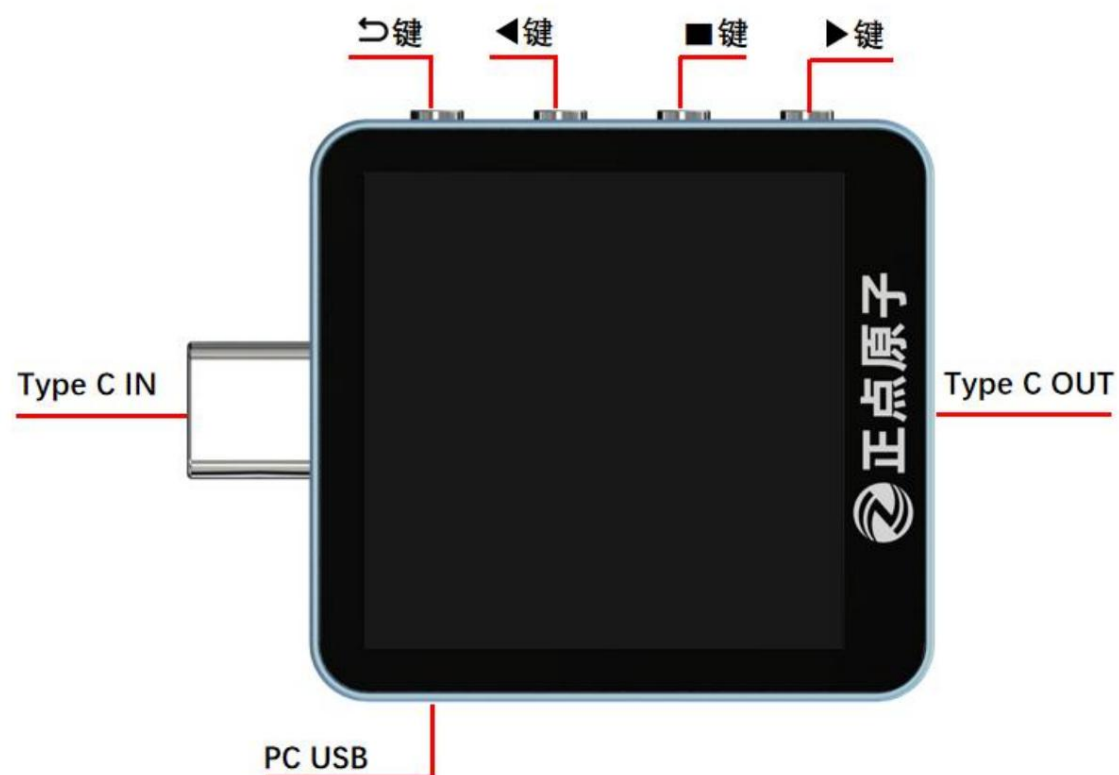
2.2 Appearance Description

Figure 2.1 Appearance of C2 Multifunctional USB Tester

Type C IN interface: Type C USB 3.0 input interface, maximum 7A current input; Type C OUT interface: Type C USB 3.0 output

interface, maximum 7A current output.

PC USB interface: Communication interface between device and computer (WinUSB communication)

2.3 Button Functions

ÿ key, short press: left/up; long press: subtract; ÿ key, short press: confirm/

select; long press: different on different screens; ÿ key, short press: right/down; long press: add.

Short press: Back; Long press: Different screens may have different effects.

The C2 multi-functional USB tester's human-machine interface is achieved through buttons. The ÿ button/ÿ button can slide the screen or navigate up and down.

Use left and right to select; short press the middle ÿ button to confirm, which performs different functions on different screens; long press the button to return to the previous menu.

2.4 Functional Description

2.4.1 Main Interface

After the tester is powered on, it defaults to the main interface, which includes 6 function options: basic measurement, ripple measurement, and digital measurement.

According to records, protocols, tools, and settings. As shown in Figure 2.2:

Figure 2.2 Main Interface

Short press: ÿ key, toggle function icons. Short press: ÿ key,

enter. Short press: ÿ key, toggle function

icons.

2.4.2 Basic Measurement Interface

The basic measurement interface displays the most basic measurement parameters, including voltage, current, power, etc., as shown in the figure below.

Show.

Figure 2.2 Basic measurement interface

Interface Overview:

ÿ Currently monitored fast charging protocol type; if none, display as --NA-- 3. ÿ Currently monitored total fast charging

power supply voltage level/currently requested level index, total power; if none, display as --NA--. ÿ Currently requested level type and voltage/current information. ÿ Current direction

indicator icon: Forward current (input to output): ÿ, Reverse current (output to input):

ÿ. ÿ Displays the current USB D+/D- voltage value. ÿ Displays the current USB C1/C2 voltage value. ÿ Currently monitored voltage: Real-time display of the currently monitored

voltage value, unit: volts (V). ÿ Currently monitored current: Real-time display of

the currently monitored current value, unit: amperes (A). ÿ Currently monitored

power: Real-time display of the currently monitored power value, unit: watts (W). ÿ Dummy load enabled icon.

Note 1: During protocol monitoring, due to the large variety of fast charging types and the similar characteristics of some fast charging protocols, there may be a certain probability

of misjudging or failing to identify the monitored fast charging protocols. The overall accuracy of the judgment is approximately: PD > QC2 > QC3 > BC1.2 > APPLE 2.4A > VOOC >

FCP > SCP > AFC > VFCP > UFCS.

Operation

Instructions: Short press: ÿ button, to switch screen orientation when gravity sensor is not in use.

Long press: ÿ button, to lock/unlock screen orientation. When the lock icon is displayed, screen orientation cannot be changed manually or using gravity

sensor.

Short press: ÿ key, no response. Short

press: ÿ key, switch upload frequency. Short press: key, return

to the previous level.

2.4.3 Ripple Measurement Interface

The waveform display interface is used to display the ripple size and frequency (reserved implementation) corresponding to the voltage level of the current
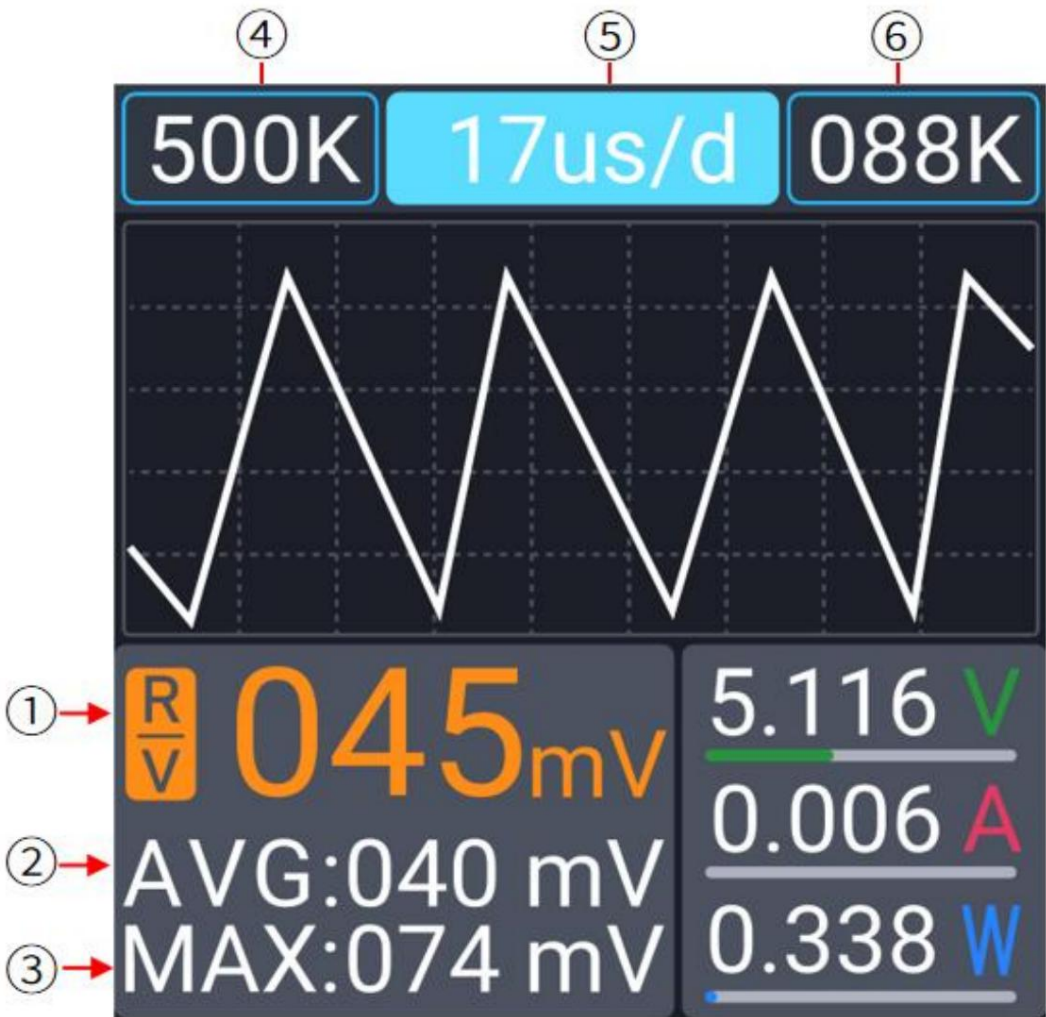
device , as shown in the figure below.

Figure 2.3 Ripple measurement interface

Interface Description:

1. Real-time value of the monitored voltage ripple at the current sampling rate. 2.

Average value of the monitored voltage ripple at the current sampling rate. 3. Maximum

value of the monitored voltage ripple at the current sampling rate. 4. Sampling rate of

the monitored voltage ripple. ÿ Time scale, currently 17µs/div

(divisions). ÿ Ripple period frequency corresponding to the monitored voltage at

the current sampling rate (reserved implementation).

Operation

Instructions: Short press: ÿ key to switch ADC sampling rate.

Short press: ÿ key to pause waveform display. Short

press: ÿ key to switch ADC sampling rate. Short press: key to

return to the previous level.

2.4.4 Data Recording Interface

The data logging interface is used to record the amount of electricity/energy flowing into the device from the power source offline. It supports a maximum of 3 sets of data

records, as shown in the figure below.

Figure 2.4 Data recording interface

Interface Overview:

1. Current recording group, recording group start conditions. 2.

Start/pause symbol, recording group end conditions. 3. Maximum

current and maximum power recorded in the current recording group. 4. Current real-

time monitored voltage, current, and power. 5. Recording time for

the current recording group. 6. Energy recorded in

the current recording group (Wh). 7. Capacity recorded in the current

recording group (Ah). 8. Recording progress bar; when it is full and

can no longer record, the progress bar turns completely red.

After recording begins, the offline data time-period curves need to be imported into the host computer to be viewed. Note that only the recorded voltage and current curves are uploaded offline; Wh waveform data is not uploaded or is incorrect. The offline data is saved as a CSV file via the host computer. Before deleting a group, you can manually record the Wh corresponding to that offline data recording group.

The capacity in mAh (mAh) in the above diagram represents the cumulative current (mA) per hour. For example, discharging at 1000mA for 1 hour equals 1000mAh, which is also equal to 1Ah.

Energy in mWh represents the cumulative voltage (V) multiplied by the current (mA) per hour. For example, a 10V output with a 1000mA load equals 10W, meaning 10000mWh is obtained after discharging for 1 hour, which is equivalent to 10Wh. In household electricity meter units, this is equivalent to 0.01 kilowatt-hours (kWh), and 1 kWh equals 1000Wh.

This interface can be used to assess the battery capacity of mobile phones, tablets, and power banks. For example, if a single charge consumes 17.251Wh (17251.00mWh), and the internal lithium battery pack of the mobile phone or tablet operates at 3.7V, and the charging efficiency is generally estimated at 90%, then the battery capacity of the mobile phone or tablet is approximately 17.251Wh / 3.7V * 0.9 = 4.196Ah

Operation

Instructions: Short press: ÿ key, recording has not started, directly switch data recording groups. After recording starts, a pop-up window will prompt you to switch recording groups. Short press: ÿ key, start/stop data

recording. Short press: ÿ key, recording has not started, directly switch data recording groups. After recording starts, a pop-up window will prompt you to switch recording groups. Short press: key, return to the previous level.

2.4.5 Fast Charging Protocol Test Interface

1. Automatic detection interface

On the main interface, click the [Protocol] icon to enter the automatic detection and trigger selection interface. Select the [Automatic Detect Protocol] option. A pop-up window will remind you to unplug all external load devices. Then click [OK] to start the automatic detection, as shown in the figure below.

Figure 2.6 Entering the automatic detection interface

After the test is complete, to view the fast charging protocols and detailed parameters supported by the power supply equipment, you can do so on the automatic test completion screen.

Use the left/right keys to switch between the detected protocols and then click OK, as shown in the image below.
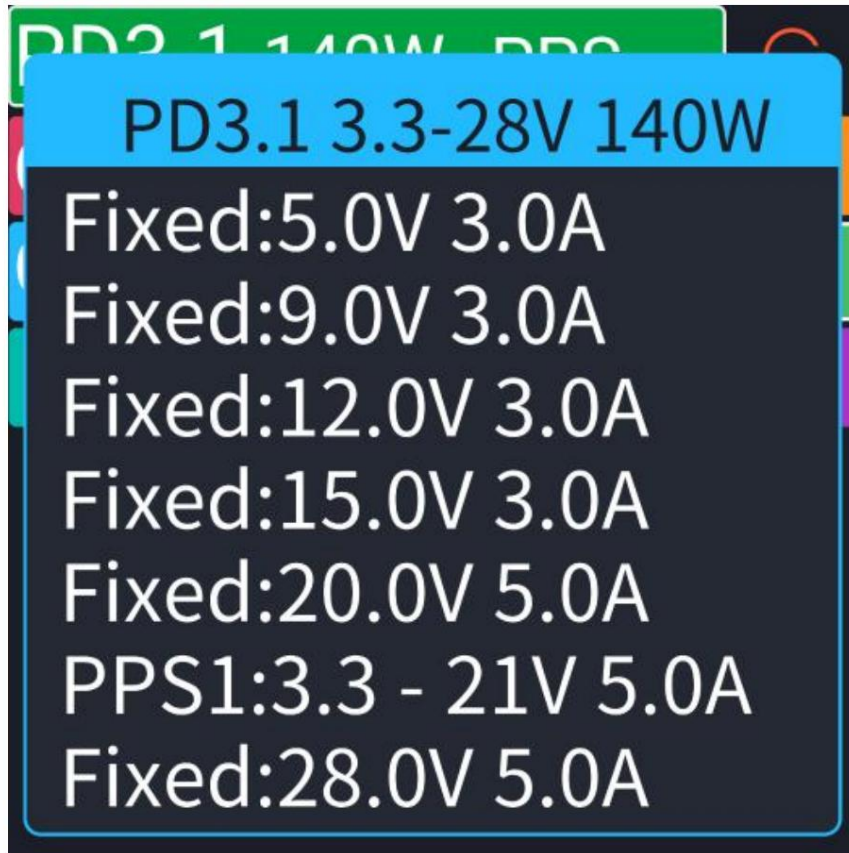
Figure 2.7 Automatic Co-operation Detection Details Interface

Instructions: During

automatic detection: Short press: key

to return to the previous level. Long press: key to return to

the main interface.

 After automatic detection is complete:

Short press: ÿ key to switch to the previous protocol result. Short press: ÿ key to switch

to the next protocol result. Short press: ÿ key to view the details of the selected

protocol result.

Note: During automatic fast charging protocol detection, various high voltages may be triggered. Please do not connect any electrical devices to prevent high voltage damage to the equipment

or fire. We will not be responsible for any equipment damage caused by such actions. Also, if a power outage occurs during the detection of some fast charging protocols and the detection cannot be

completed, you can connect to **a USB PC** port to maintain power and complete the detection.

2. Manually trigger interface

The manual trigger interface is used to manually select the fast charging protocol and corresponding trigger voltage. After successful protocol triggering, the charging can be adjusted via buttons.

Each protocol and supported voltage can be manually triggered for voltage adjustment.

This article uses PD protocol triggering as an example. On the main interface, click the [Protocol] icon to enter the automatic detection and trigger selection interface, select the [PD] option, and

a pop-up window will remind you to unplug all external load devices. Then click [OK].

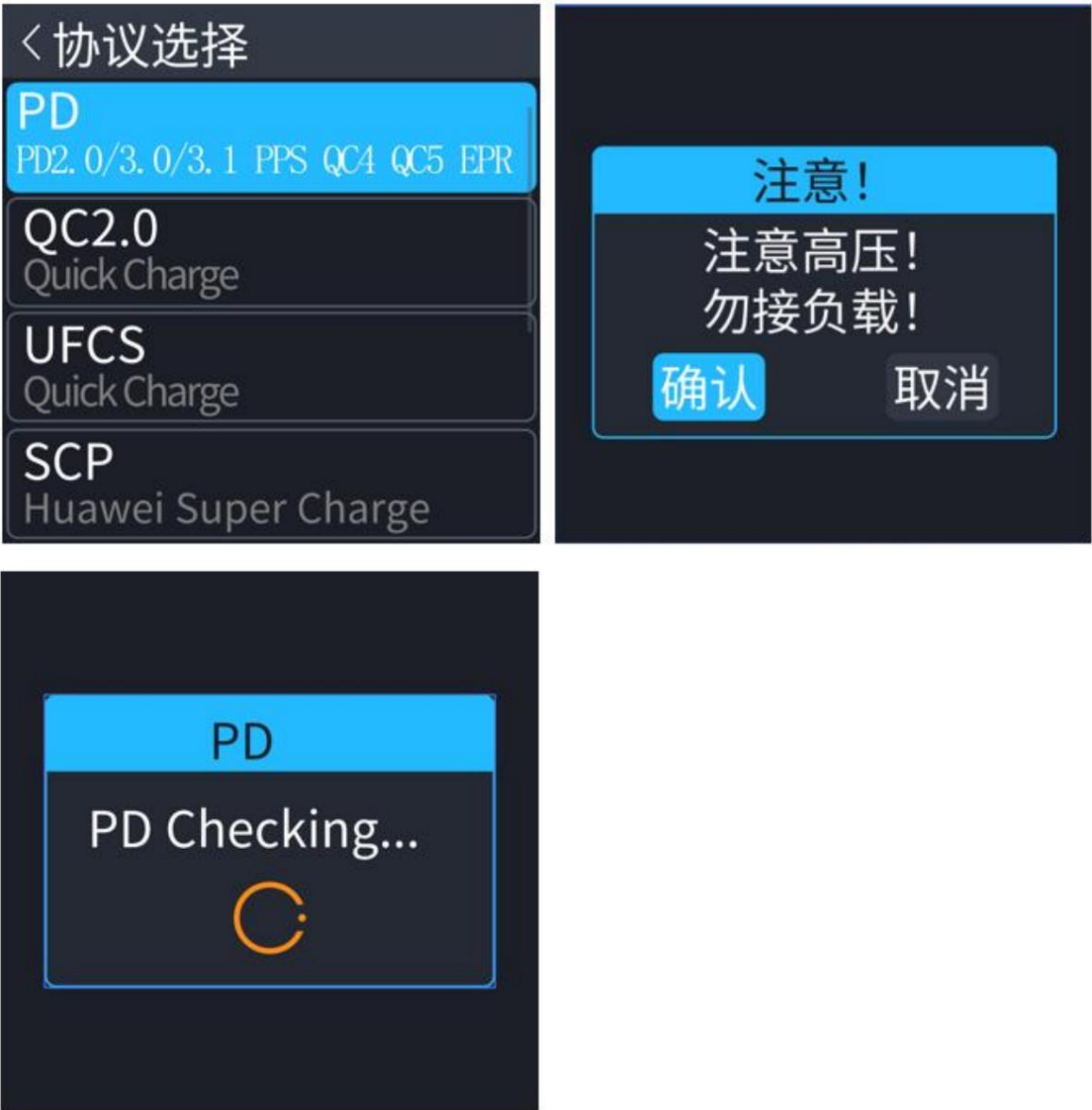Automatic detection then begins, as shown in the image below.

Figure 2.8 Manual trigger interface for PD protocol

If the agreement is successfully triggered, you will be taken to the details page of the agreement, as shown in the image below.
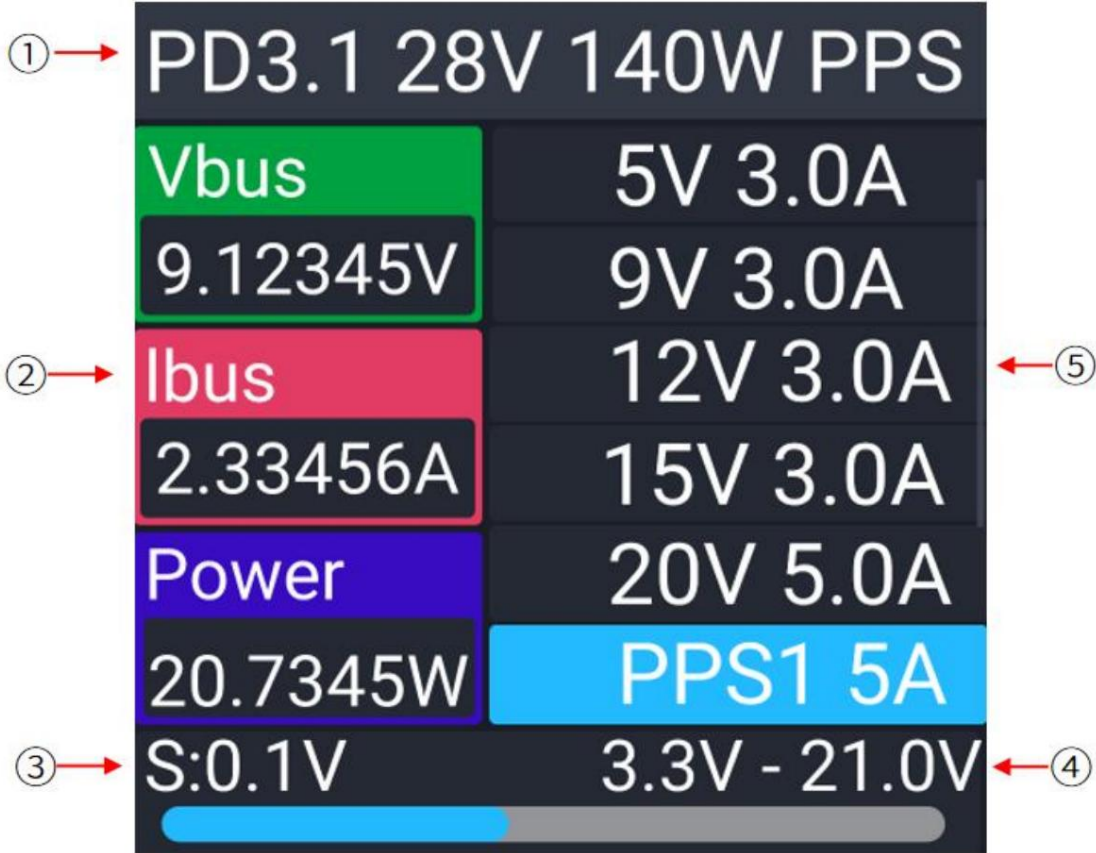
Figure 2.9 PD Protocol Manual Trigger Voltage Regulation Interface

Interface

Overview: ÿ The currently triggered protocol type and its parameter range

information. ÿ The currently monitored real-time voltage,

current, and power. ÿ The current protocol's PPS step voltage adjustment step

value is 0.1V. ÿ The current protocol's PPS step voltage adjustment range is 3.3

to 21.0V. ÿ The voltage and current information corresponding to the current protocol, including fixed and PPS levels . If you select the protocol

level using the ÿ/ÿ keys and then press the ÿ key in the middle to confirm, the real-time voltage value will be close to the level value, indicating

that the tested device supports this fast charging method.

Operation

Instructions: While

triggering: Short press: key to return to the

previous level. Long press: key to return to

the main interface. After successful

triggering, voltage selection: Short press: ÿ key to cycle up the selected

voltage. Short press: ÿ key to cycle down the selected voltage. Short

press: ÿ key to trigger the currently selected voltage.

Note: Manually triggering different fast charging protocols may result in various high voltages. Please do not connect any electrical

equipment to prevent high voltage damage or fire. We are not responsible for any equipment damage caused by such actions! Also, while in use...

When the fast charging protocol is activated, if a power outage prevents the activation from being completed, you can connect it to **a USB PC** port to maintain power and complete the

activation.

2.4.6 Tool Interface

1. Apple Power Matching Device Identification Interface

The Apple charger identification system reads the charger's information (primarily the serial number) and displays it on the screen. The serial number is then used to verify

authenticity by entering it into Apple's official website. Alternatively, navigate to the main interface -> [Tools] icon -> [Apple] option to enter the Apple charger identification interface.

Successful identification will appear as shown in the image below.

Figure 2.10 Apple charger recognition interface

Interface Overview:

ÿ The maximum possible charging power of the current Apple charger. ÿ The manufacturer's

VID and ID for the current Apple charger. ÿ The serial number (SN) of the current

Apple charger, used to verify authenticity on the Apple website. ÿ The hardware and firmware versions of the

current Apple charger.

Instructions: While

Apple charger recognition is in progress: Briefly

press the key to return to the previous screen.

After Apple charger recognition is

successful: Briefly press the key to return to the previous screen.

2. E-Marker Recognition Interface

    The E-Marker identification function reads the chip information of the E-Marker cable and displays it on the screen. Connect the C-type connector to the C-type

female port of the tester, and then navigate to the main interface -> [Tools] icon option -> [E-Marker] option to enter the E-Marker cable identification interface.

Successful identification will appear as shown in the image below.

Figure 2.10 E-Marker Recognition Interface

Interface

Overview: ÿ Transmission speed of the current cable

type. ÿ Manufacturer VID of the current cable type. ÿ

Approximate length of the current cable type. ÿ E-Marker

of the currently detected cable type. ÿ Power specification of the current cable

type.

Instructions: While

cable identification is in progress: Briefly press

the key to return to the previous level. After successful

cable identification: Briefly press the

ÿ key to bring up the cable message box. Briefly press the key to

return to the previous level.

When testing E-marker cables, please note: Avoid using the Type-C power supply for the measurement port (recommended: use a PC USB Type-C power supply instead), as this may

cause detection errors. Also, if one side cannot be detected, manually flip it over to try the other side.

3. Line resistance measurement interface

The line resistance measurement interface is used to measure the internal resistance (i.e., line resistance) of power supply lines. It uses the differential pressure method. You will need to provide your own power supply line.

Electrical equipment (the power supply equipment must not have line compensation function, otherwise there will be no voltage difference; most fast charging heads have line compensation

function, but it is recommended to use a regular head) is used for auxiliary measurement. The line resistance measured by this method is only an estimate and is for reference only.

This test requires at least the following: 1 cable under test and 1 power supply device (supporting output current of 500mA or more).

Follow these steps: Main interface ÿ [Tools] icon ÿ [Line Resistance Measurement] to enter the line resistance measurement interface, as shown in the image below:


Figure 2.12 Wire resistance measurement interface

After entering the interface, follow these steps to start the test.

1. Connect C2 to the power supply using the cable under test. 2. Click the ÿ button

to start the measurement. An animation will indicate that the measurement is in progress. 3. Wait for the

measurement result. A successful measurement will display the current internal resistance of the cable on the screen.

Operating

Instructions: After entering the line resistance

measurement interface: Briefly press the : key to return

to the previous level. Briefly press the : ÿ key to start

measuring line resistance. After

cable identification is complete: Briefly press the : key to

return to the previous level. Briefly press the : ÿ key to restart the measurement.

2.4.7 Settings Interface

To access the settings interface, navigate to the main interface and then select the "Settings" icon, as shown in the image below.

Figure 2.13 Settings Interface

1. Data Recording Settings Interface

In the settings interface shown above, select the data recording option and press briefly to enter the data recording settings interface. The data recording settings are shown in the table below.

Functions	Explanation	Operation method	Adjustable range
Save interval setting specifies	the interval for recording offline data in this group.	Short press of the middle button ÿ left and right button	interval adjustment 50ms-120s

Start Rule Setting: Short press the middle button to set the start rule for this group of offline data records -> Use the left and right buttons to adjust between manual and threshold start.			
The termination rule setting is used to adjust the termination rule for this group of offline data records. A short press of the middle button followed by the left and right buttons allows for manual/threshold termination.			
View all data records in the data list. Delete all data. Delete information for all group records.		Short press of the middle button	
		Short press of the middle button	

Table 2.4.4.1 Data Recording Settings Options

After setting the data recording rules for this group, you can return to the data recording interface on the main screen to start offline recording.

2. Accessibility settings interface

In the settings interface shown above, select the accessibility option and press briefly to enter the accessibility settings interface.

The settings are shown in the table below.

Functions	Explanation	Operation method	Adjustable range
Power bank mode	Activating this mode intermittently switches on a dummy load to simulate... To prevent low current drain from the power bank, the device's power consumption should be monitored. It is recommended to use the basic measurement interface when the voltage is 5V. (Start a dummy load)	Short press of the middle button to turn on	
Load conduction interval	In power bank mode, how many seconds does it take for the circuit to be activated? Dummy load (dummy load current: 300-550mA)	Short press of the middle button ÿ left and right buttons adjust for 1-10 seconds	

Table 2.4.4.2 Accessibility Settings Options

3. Language settings interface

In the settings interface shown above, select the language settings option and press briefly to enter the language settings interface.

The items are shown in the table below.

Functions	Explanation	Operation method	Adjustable range
Language settings interface displays the language		Left and right buttons -> Short press of the middle button	Simplified Chinese English

Table 2.4.4.3 Language Setting Options

4. Screen settings interface

In the Settings interface shown above, select the Screen settings option and press briefly to enter the screen settings interface.

The settings are shown in the table below.

Functions	Explanation	Operation method	Adjustable range
Backlight brightness setting: Default brightness of the backlight display.		Short press the middle button -> Use the left and right buttons to adjust from 3% to 100%.	

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The screen brightness is adjusted by short-pressing the screen dark button and then using the left and right buttons.			0 to 30 minutes (0 means not enabled)
3D gravity sensing	Once turned on, the screen will automatically rotate based on the gravity sensor. Screen. When this option is not enabled, it can be viewed in the basic settings. Manually press the ÿ key on the measurement interface to switch the screen display orientation .	Short press of left mouse button	

Table 2.4.4.4 Display Direction Options

5. Theme settings interface

In the settings interface shown above, select the theme settings option and press briefly to enter the theme settings interface. The theme settings are shown in the table below.

Functions	Explanation	Operation method
Switch between different selected theme colors		Adjust with left and right buttons -> Short press of the middle button

Table 2.4.4.5 Topic Options

6. Boot screen settings

In the Settings interface shown above, select the Startup Screen option and press briefly to enter the Startup Screen settings. The Startup Screen settings are shown in the table below.

Functions	Explanation	Operation method
Main interface Basic measurement interface Ripple measurement interface Recording interface Protocol Interface	What screen appears after powering on?	Adjust with left and right buttons -> Short press of the middle button

Table 2.4.4.6 Boot Screen Settings Options

7. Other settings interface

In the settings interface shown above, select the other option and press briefly to enter the other settings interface. Other settings are shown in the table below.

Functions	Explanation	Operation method
Bluetooth switch	The version that supports Bluetooth can be enabled to use Bluetooth. Dental function and mobile Bluetooth APP	Short press of the middle button

Once the logo interface is enabled, the boot logo will be displayed first.		Short press of the middle button
Once the virtual E-Marker is enabled, the machine can simulate a short press of the middle button on the E-Marker line.		
Factory reset	Restore factory default parameters, including data records. The group will also be deleted.	Short press of the middle button
The user manual displays a QR code for scanning.		Short press of the middle button

Table 2.4.4.6 Other Settings Options

8. About the interface

In the Settings interface shown above, select the About option and press briefly to enter the system information interface. (System information related items...)

As shown in the table below.

Functions	Explanation	Operation method
about	A short press of the middle mouse button displays information such as the current manufacturer and software/hardware version.	

Table 2.4.4.7 About System Information Options

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3. Instructions for use of the host computer

3.1 C2 Multifunctional USB Tester: Automatic Driver Installation by Computer

When the C2 multi-functional USB tester is first connected to the computer via a Type-C USB cable, the computer will automatically install the driver (Windows 7 and above). Please wait for the driver installation to complete before using it with the host computer. The automatic driver installation process is shown in the image below.
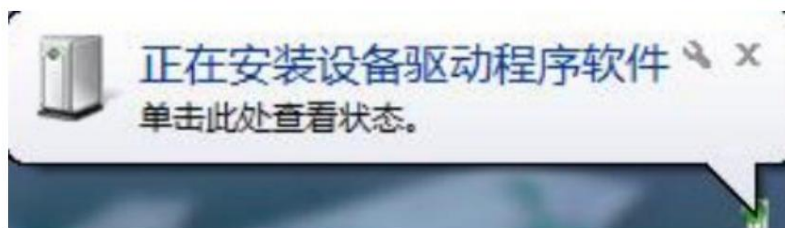

Figure 3.1 The USB driver will be automatically installed when the computer is first connected.

The driver is integrated into the computer's operating system and does not require additional provision. After the driver installation is complete, an ATK C2 USB device will appear in the Universal Serial Bus device list in the computer's Device Manager. The hardware ID information page will be [image of the device's name/details].

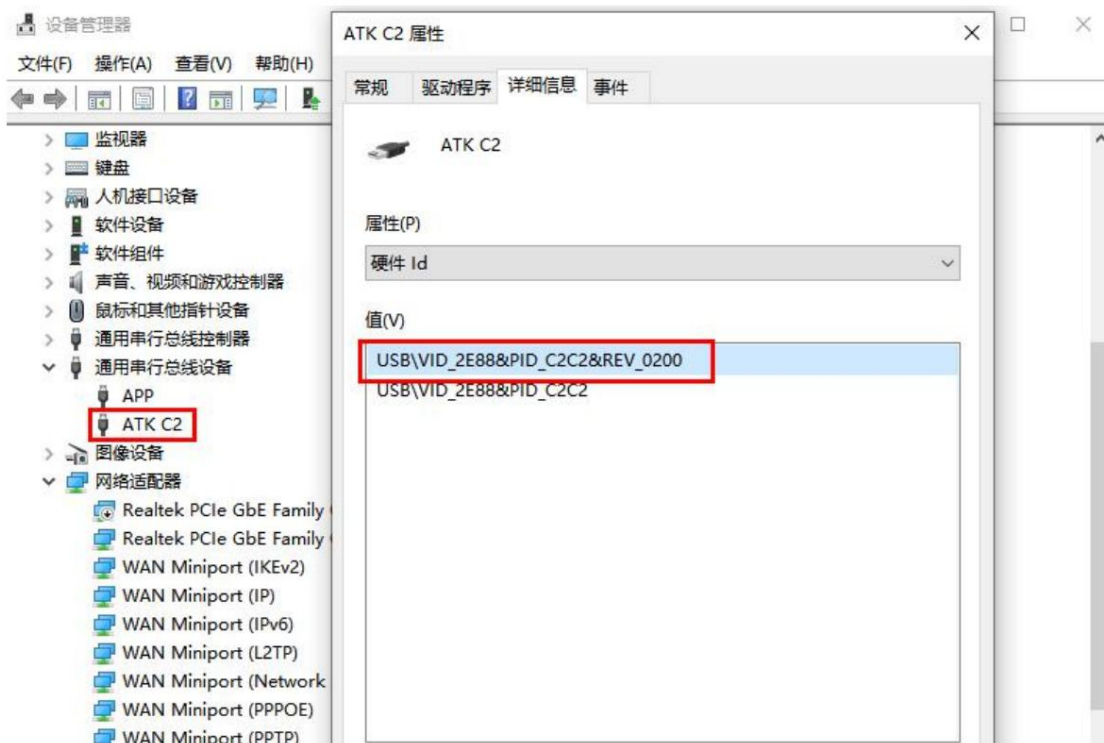"VID_2E88&PID_C2C2", as shown in the figure below.

Figure 3.2 USB WinUSB device

3.2 Install the host computer software

ATK-C host computer software is a powerful software tool designed specifically for C++ tables by the ALIENTEK team.

The software supports the following operating systems:

ÿ Windows: Win7 and above ÿ Linux: Ubuntu

20.04 and above ÿ Mac: OS 10.14 and above The ATK-C software

has the following system requirements: ÿ CPU:

Minimum 3.0 GHz dual-core, 4.0 GHz or higher recommended

ÿ Memory: 2GB or more ÿ GPU: Unlimited ÿ Hard Disk: 300MB or more ÿ USB: USB

2.0 or higher Note: If your computer

configuration is lower than

the above requirements, software

performance may be affected!

Select the corresponding installation package based on your computer system, and double-click the downloaded installation file. The path is "C2 Multifunctional".

USB tester data package/configuration software. Open the installer and follow the prompts to install.

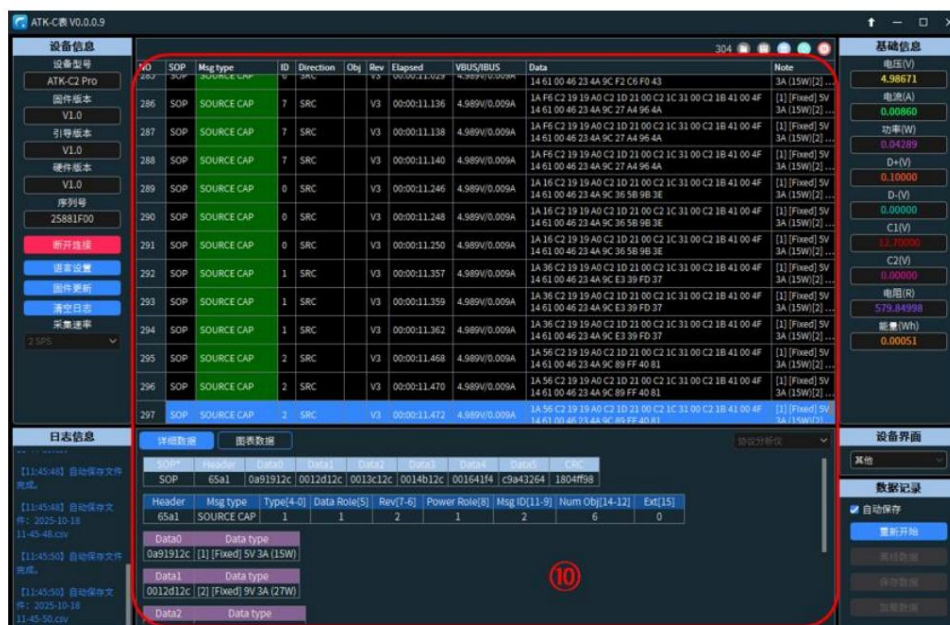### 3.3 Description of host computer functions
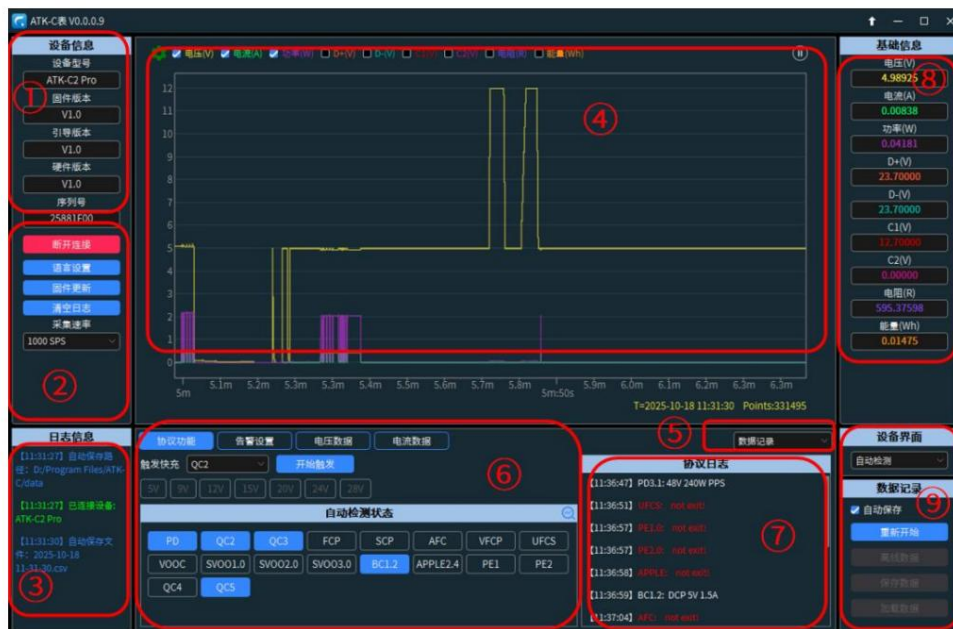
Figure 3.3 Main interface of the host computer

Interface

Overview: ÿ Device Information Display: Displays the model and version of the lower-level device (USB

tester). ÿ Device/Upper-Level Device Function Control

1. Connect/Disconnect Device Control/Display: Controls and displays the connection/disconnection between the host

computer and the USB tester. 2. Language Settings: Sets the

display language of the host computer. 3. Firmware Update: Updates the version

and functions of the lower-level APP. 4. Clear Log: Clears the print log

information of the host computer. 5. Frequency: Sets

the data upload frequency. ÿ Log Information: Auxiliary information printed during host

computer operation. ÿ Waveform Display: Allows selection of waveform types, zoom and drag viewing, and displays detailed waveform values when the

mouse hovers over them. The upper right button pauses/resumes waveform display. ÿ

Data Logger & Protocol Analyzer Switch: Allows selection between data logging and protocol analysis. When protocol analysis is selected, the host computer

can perform PD packet capture display. ÿ Function

Control Bar: Allows selection of protocol triggering, alarm settings, voltage data statistics, current data statistics, etc. Under the protocol triggering control bar,

the host computer triggers various voltage and automatic detection buttons: highlighted indicates detection or triggering of the corresponding protocol.

ÿ Fast Charging Operation Related Transmission Printing

Information. ÿ Voltage and Current Display: The lower-level machine only uploads voltage and current information

for calculation and display. ÿ Display

Interface and Data Recording: 1. Settings Interface: Real-time display/control of the USB tester's

function interface. 2. Automatic Saving: Saves the voltage and current data acquired by the upper-level machine

as a CSV data table. 3. Restart: Clears waveforms and historical voltage and current data, and re-displays and

records. 4. Offline Data: Acquires offline recorded data from the USB tester and displays each set of offline data as a waveform. 5. Save Data: Saves

all currently received voltage

and current data as a CSV data table or SQLite database file. 6. Load Data: Reads previously saved online/online data files (CSV or SQLite database

files) for

waveform processing.

The display

shows the packet capture data. ÿ The protocol analyzer PD packet capture display supports millions, even tens of millions, of packet captures.

3.3.1 Host Computer Waveform Scaling Rules

Hovering the mouse over the waveform display area on the host computer allows you to zoom in and out of the waveform using the scroll wheel. You can also zoom in and out on the vertical axis.

The waveform is outdated; you can zoom in and out, as shown in the image below:

3.3.2 Observe the power supply voltage ripple on the host computer waveform.

If you need to observe quality parameters such as power supply voltage ripple, you can select only the voltage waveform curve to display on the host computer, leaving other options unchecked,

and set the sampling frequency to the highest sampling frequency of 1000Hz. This way, the host computer can use the peak-to-peak value Vp-p from the voltage data statistics to assist in analyzing the

power supply voltage ripple, as shown in the figure below:

3.4 Updating firmware using the host computer

The C2 host computer firmware update supports two upgrade methods: local mode and remote mode. Local

mode: Users need to obtain the latest firmware from Zhengdian Atomic and then follow the steps shown in the image below to upgrade. Remote mode:

The

software automatically obtains the latest firmware from the server and displays the firmware version; no manual download is required. Other operations are

the same as in local mode. The

remote mode upgrade process is shown in the image

below: Short press the key to return to the previous level.

Figure 3.4 Host computer upgrade interface

Instructions for use:

Upgrades can be performed via a single click on the host computer. If the single-click upgrade fails, you can first press the power button on the tester to power it on.

After entering upgrade mode, wait for the host computer to successfully recognize the device, as shown in the following figure:

Then follow these steps to operate the host computer:

ÿ Click the "Firmware Update" option on the host computer. A pop-up upgrade window will appear; select

"Remote." ÿ Click the "Start Upgrade" option in the host computer upgrade window. The tester will then switch to upgrade mode and display the upgrade

interface. Wait for the host computer to recognize that the slave device is in upgrade mode.

ÿ Once recognized successfully, the firmware will automatically update if it is correct.

Note: If the remote online upgrade fails or is difficult to complete for some reason, you can contact our company to obtain the local firmware. Then, select local

mode for the upgrade, choose "Open File," select the firmware to be upgraded, and finally click "Start Upgrade" to perform a local upgrade.

3.5 Firmware Update Notes

If an update fails, causing the device to malfunction or display a black screen, press and hold the tester button while powering on.

Then connect it to the PC USB port and power it back on. After the host computer recognizes it again, try the above operation to upgrade the firmware again.

4. Warranty Terms

I. Service Period

Guangzhou Xingyi Electronics Technology Co., Ltd. promises the good quality of its products. If the machine malfunctions under normal use within 7 days

from the date of sale, the customer can choose to return the product or have it repaired (returns are only allowed if the product does not affect resale). A one-year

warranty is provided (excluding damage

caused by human error). II. The purchase date is based on the date on the purchase invoice or receipt issued by the seller. For online purchases, the

transaction screenshot shall prevail. III. Free warranty service will not be

provided for the following situations: (1) Damage caused by human error, unauthorized

modification, or repair. (2) Damage caused by exceeding the product's operating range.

5. Other

1. Purchase

link: Tmall: https://zhengdianyuanzi.tmall.com

Taobao: https://openedv.taobao.com

2. Download

Module: Download address: http://www.openedv.com/docs/tool/USB/C2.html

3. Technical Support

Company website : www.alientek.com

Technical forum : http://www.openedv.com/forum.php Online teaching :

www.yuanzige.com Bilibili video : https://

space.bilibili.com/394620890 Fax: 020-36773971 Tel: 020-38271790