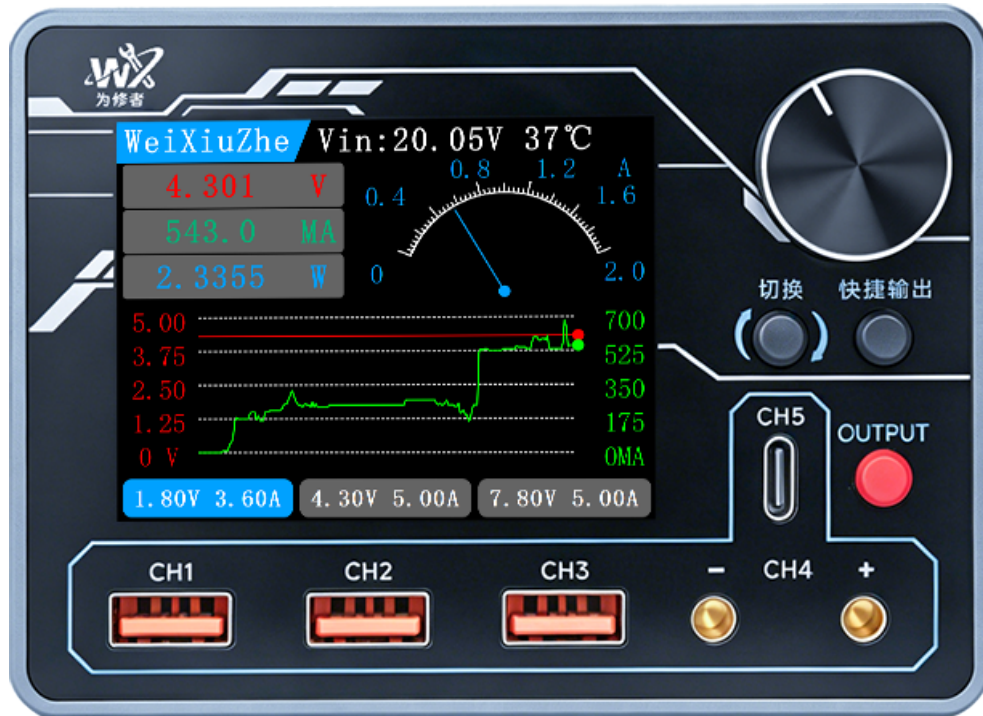




PTV1

PD Intelligent Adjustable Power Supply

User Manual



Version 1.0 / July 2026 / PTV1-MAN-001

Please read this manual carefully before operation

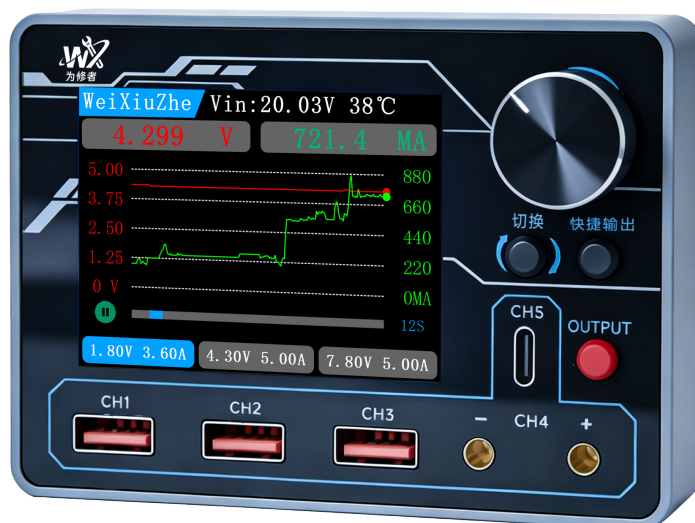
version information

Version No	Date	Revision Content	Reviser
V1.0	July 2026	Initial Release	-
V1.1	-	-	-
V1.2	-	-	-

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1.Product Overview



1.1 Product Introduction

PTV1 PD Intelligent Adjustable Power Supply is a portable DC regulated power supply integrated with high-precision voltage regulation, multi-mode display and intelligent protection. Powered via PD/QC fast charging protocol, it delivers wide-range adjustable output from 0.1V to 13V. Equipped with a high-definition color LCD screen, it supports digital, analog meter and waveform display modes, ideal for electronics repair, lab testing, DIY maker projects and more.

1.2 Product Features

- PD/QC fast charging input compatible, input voltage: 5V~22V DC
- Normal Mode: 0.1V~13V, overcurrent alarm 0.1A~5A
- Boost High-Current Mode: 0.1V~5V, transient alarm current 0.1A~7.8A
- Multiple display modes: digital, waveform, analog meter, combined all-in-one screen
- One-click recall for saved voltage & current presets
- Burn-in mode with timer & constant current aging test
- 5 parallel output channels, compatible with mainstream phone test cables
- PC software: screen mirroring, waveform logging, remote parameter control
- Multi-protection: overvoltage, overcurrent, overtemperature, short-circuit
- Compact portable design with durable metal chassis

1.3 Application Scenarios

- ★ Repair & debugging of smartphones, tablets and precision electronics
- ★ Circuit board testing & hardware fault diagnosis
- ★ Laboratory teaching and scientific research
- ★ Production line long-term aging & burn-in testing
- ★ DIY electronics and maker R&D projects

2.Appearance & Interfaces

2.1 Interface Labeling

The figure below shows the overall appearance of the PTV1 product and the positions of each interface.

①②③④⑤⑥ in the figure are the serial-number labels for each interface/component.



2.2 Interface Function Description

The functions of interfaces/components corresponding to each number are shown in the table below:

No.	Name	Function Description
①	LCD Screen	High-definition color screen for V/A/P and operation interface
②	Button Zone	Switch button, Quick Preset button, red OUTPUT enable button
③	Encoder Knob	Rotate to adjust values; short press confirm; long press pause waveform
④	CH1~CH5 Output Channels	5 parallel ports for all kinds of device test cables
⑤	PC USB-C Port	Connect PC via data cable for mirroring & remote control
⑥	PD Input USB-C Port	Connect PD fast charger to power the unit

3. Technical Specifications

3.1 Input Parameters

No.	Spec
Input Port	USB-C (Mark ⑥ PD Power-Supply Interface)
Input Voltage	5V-22V DC
Fast Charging Protocols	PD / BC1.2 / QC2.0 & AFC Protocols
Recommended Charger Power	PD Charger of 65W or higher

3.2 Output Specs (Normal Mode)

No.	Spec
Output Voltage	0.1V-13V (continuously adjustable)
Max Output Current	0-5A
Overcurrent Alarm	0.1A-5A (configurable)
Voltage Resolution	1mV
Current Resolution	0.1mA

3.3 Output Specs (Boost High-Current Mode)

No.	Spec
Output Voltage	0.1V - 5V
Transient Alarm Current	0.1A - 7.8A
Application	Repair & test requiring large transient current
Access	Long press red ② OUTPUT button on main screen

3.4 Burn-In Mode Specs

No.	Spec
Output Voltage	0.1V ~ 4.7V
Constant Current	2A ~ 6A
Single Burn Duration	1S ~ 60S adjustable
Cycle Interval	0S ~ 60S adjustable
Application	Product aging & stability verification

3.5 Physical Specs

No.	Spec
Display	High-Definition Color LCD Display
Housing	Metal Housing
Output Channels	5-Channel Parallel (Mark ④, CH1-CH5)
Communication Port	USB-C (Mark ⑤, PC Communication Interface)
Power Input Port	USB-C (Mark ⑥, PD Power-Supply Interface)
Cooling	Natural Heat Dissipation

4.Operation Guide

4.1 Button Functions

The body key area (Mark ② area) contains three main keys. The functions of each key are as follows:



Keys	Operation Mode	Function Description
Toggle Key	Short Press	Switch display modes on power interface (cycle sequentially: digital display, curve, pointer, mixed)
Toggle Key	Long Press	Return to previous-level menu
Quick-Output Key	Short Press	Quickly switch preset output voltage/current values on power interface
Quick-Output Key	Long Press	Save currently set voltage/current values to quick-output bar
Red OUTPUT Key	Short Press	Enable / disable DC output
Red OUTPUT Key	Long Press	Switch operating modes under adjustable power supply mode (Normal Mode / Turbo Mode)
Black Knob	Rotate Left / Right	Adjust value or direction
Black Knob	Short Press (Push)	Confirm current selection / enter settings
Black Knob	Long Press (Under Curve Interface)	Pause / resume curve waveform refresh; rotate knob to review historical waveforms

4.2 Encoder Knob Operation

Mark ③ black knob is the core control component of this unit, supporting the following operation modes:



Rotate: Adjust voltage value, current value, menu options, etc.

Short-press: Confirm operation, enter sub-menu

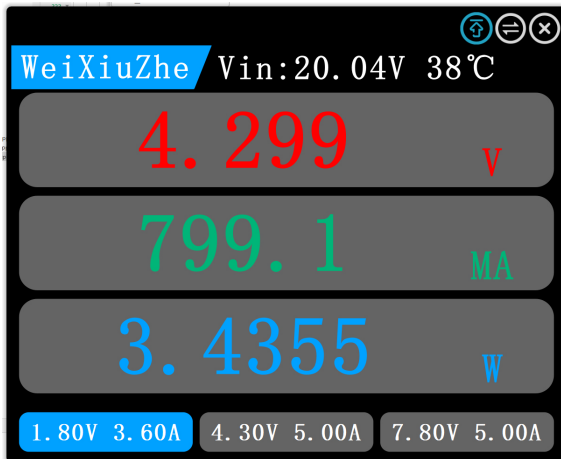
Long-press (on curve interface): Pause waveform refresh; rotate to review historical data

Quick rotate: Rapidly adjust values (with acceleration effect)

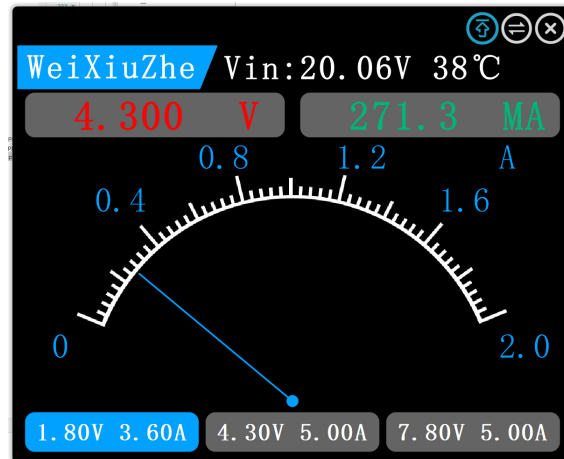
4.3 Display Mode Switch

On the adjustable power supply interface, short-press the switch key to cycle through the following four display modes:

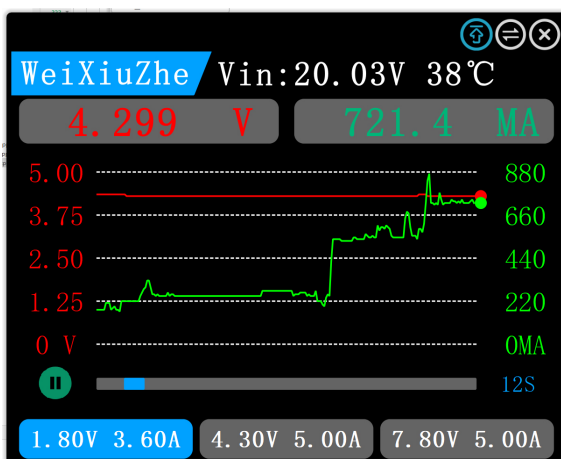
Digital Display Interface



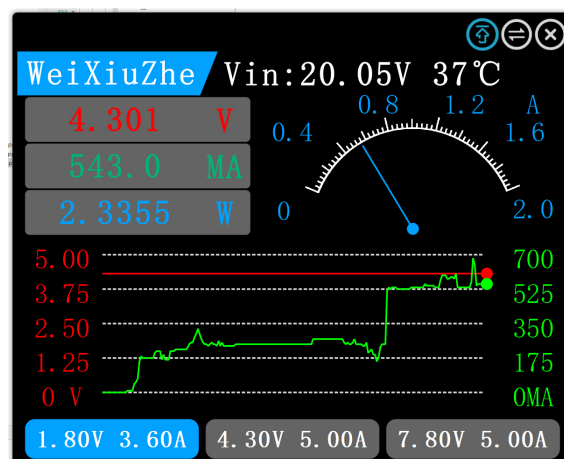
Meter-needle Interface



Curve Interface



Digital + Meter-needle + Curve (Mixed Interface)



4.4 Quick Output Preset

Quick-output function allows users to pre-set frequently-used voltage/current combinations for one-key recall, improving repair efficiency.

1. 80V 3. 60A 4. 30V 5. 00A 7. 80V 5. 00A

Save Quick-output Parameters (Two Methods)

Method 1: After setting the voltage/current values on the adjustable power supply interface, long-press the Quick-output key to save directly.

Method 2: Enter [Settings Interface] > [Quick Settings], and pre-set the voltage and current values for each gear in the menu.

Call Quick-output: On the power supply interface, short-press the Quick-output key to cycle through each preset gear.

4.5 Working Mode Switch

PTV1 provides three working modes to adapt to different repair and debugging scenarios:

Mode	Access Method	Output Range	Application Scenarios
Normal Mode	Default startup	0.1V-13V / 0.1-5A Alarm	Daily maintenance, circuit testing
Turbo Mode	Long-press the red OUTPUT key	0.1V-5V / 0.1-7.8A Transient	High-current demand scenarios
Burning-in Mode	Enter via menu switching	0.1V-4.7V / 2-6A Constant-Current	Aging test, stability verification

5.Display Modes Detailed

5.1 Main Interface

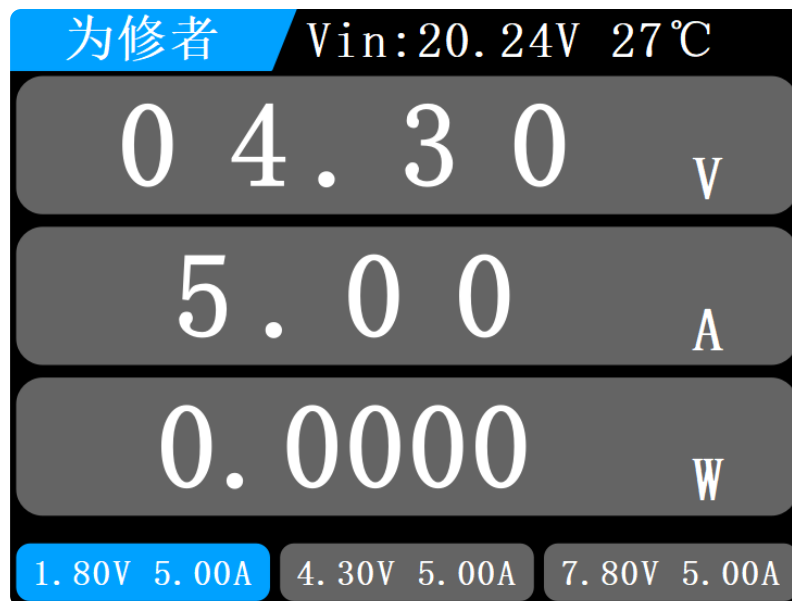
The main interface clearly displays core information such as current output voltage, current, power and working mode, and provides one-click-access operation entries.



Main unit+Main interface

5.2 Digital Readout Interface

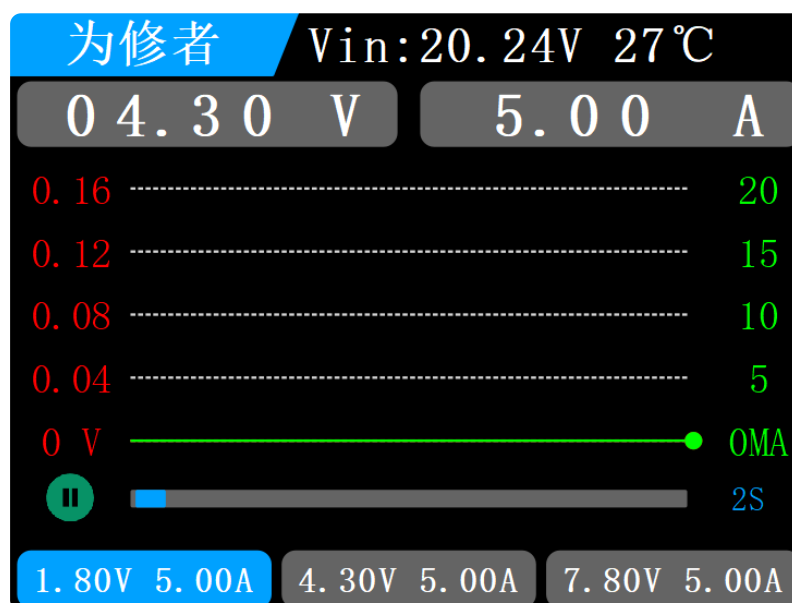
It accurately displays the current voltage and current values with large-size digital characters for clear and intuitive readings.



Digital Display Interface

5.3 Waveform Curve Interface

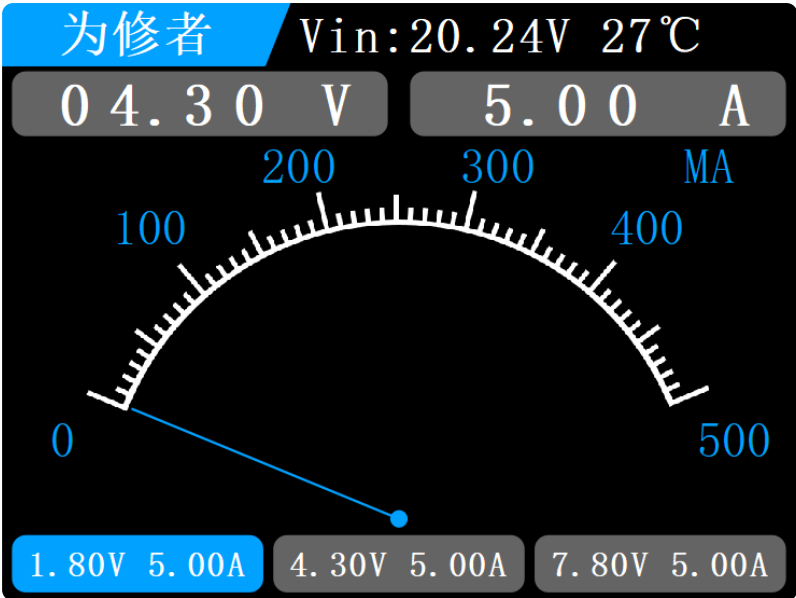
It displays the time-varying trends of voltage and current via real-time waveform curves, similar to the function of a basic oscilloscope. Long-press the black knob to pause waveform refresh; rotate the knob to review historical curve data.



Curve Interface

5.4 Analog Meter Interface

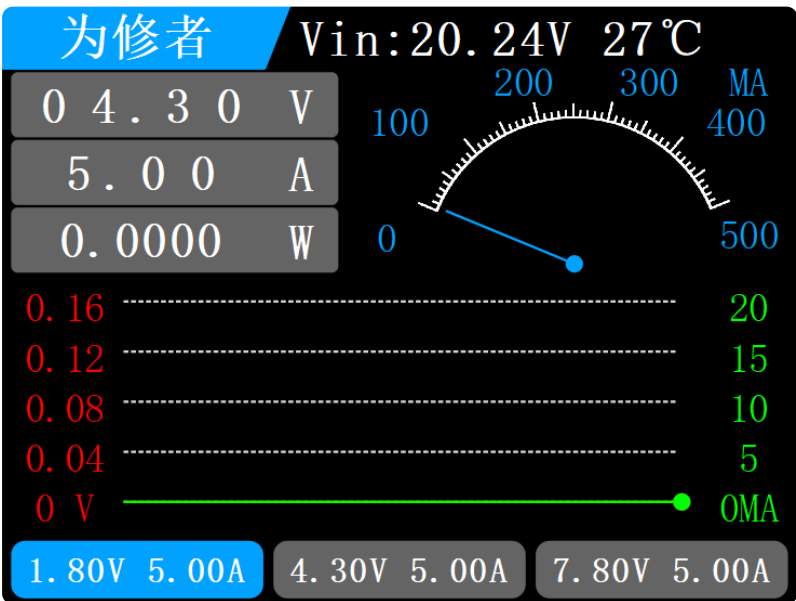
It simulates the appearance of traditional pointer-type voltmeter and ammeter, and indicates the current output values in real time through a virtual pointer dial. The dynamically swinging pointer facilitates observation of transient current changes, suitable for users accustomed to traditional-style instruments.



Meter-needle Interface

5.5 Combined All-In-One Interface

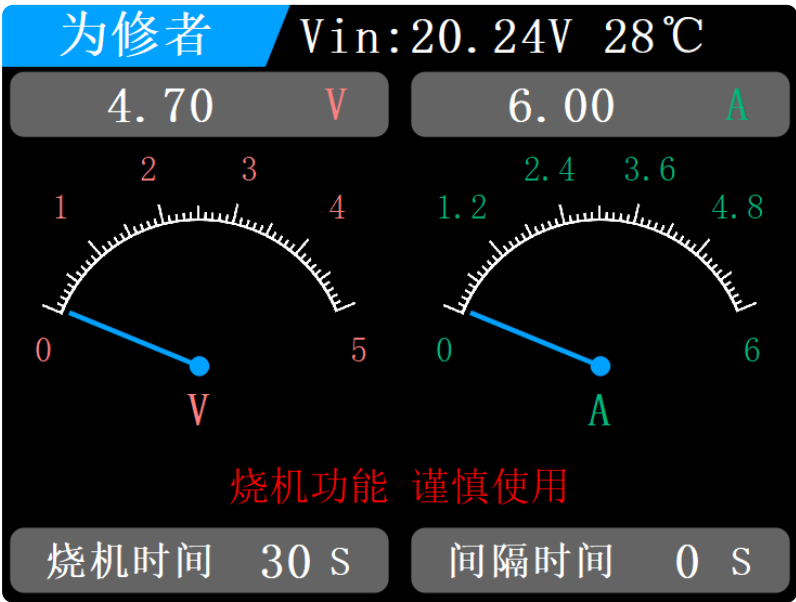
It integrates three display modes: digital readout, pointer meter and waveform curve within a single interface, presenting all information on one screen: the upper section shows precise voltage/current values in digits, the middle section provides real-time indication via a virtual pointer dial, and the lower section dynamically displays waveform curves. It features the highest information density and is suitable for advanced users and professional debugging scenarios.



Digital + Meter-needle + Curve (Mixed Interface)

5.6 Burn-In Mode Interface

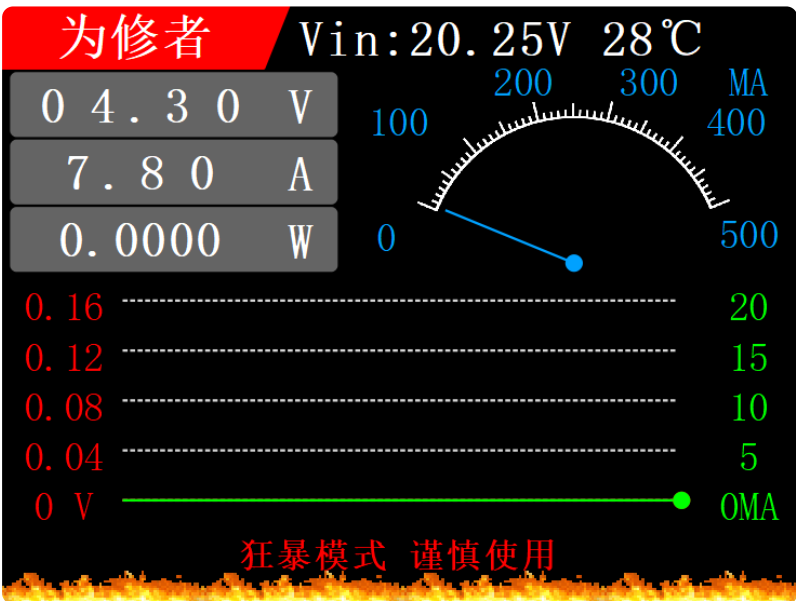
Burning-in Mode is specially designed for equipment aging tests. It supports setting output voltage (0.1-4.7V), constant current (2-6A), continuous burning-in duration (1-60S) and interval time (0-60S). It can be used for automated cyclic aging tests to verify the long-term operating stability of circuits.



Burning-in Mode Interface

5.7 Boost High-Current Mode Interface

Turbo Mode extends the upper limit of current output based on Normal Mode, with alarm transient current up to 7.8A. It applies to special repair and debugging scenarios requiring high-current transient response. Long-press the red OUTPUT key on the adjustable power supply interface to enter this mode.(Note: The maximum output voltage of Turbo Mode is only 5V. Use with caution for non-high-current scenarios.)



Turbo Mode Interface

6.System Settings

PTV1 provides abundant system-setting options. Users can enter the settings interface via the menu to perform personalized configuration of the device.

6.1 Quick Preset Settings

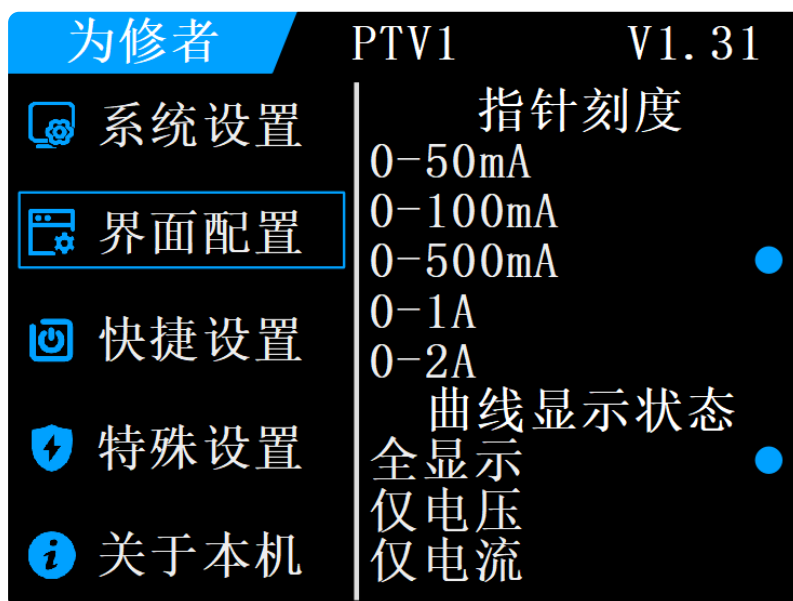
In the Quick Settings Interface, users may pre-set multiple groups of frequently-used output voltage and alarm current values. After configuration is completed, short-press the Quick-output key on the power supply interface for quick switching and recall.



Quick Settings Interface

6.2 Display Preference Config

Display Configuration allows users to customize display preferences.



Display Configuration Interface

6.3 Global System Settings

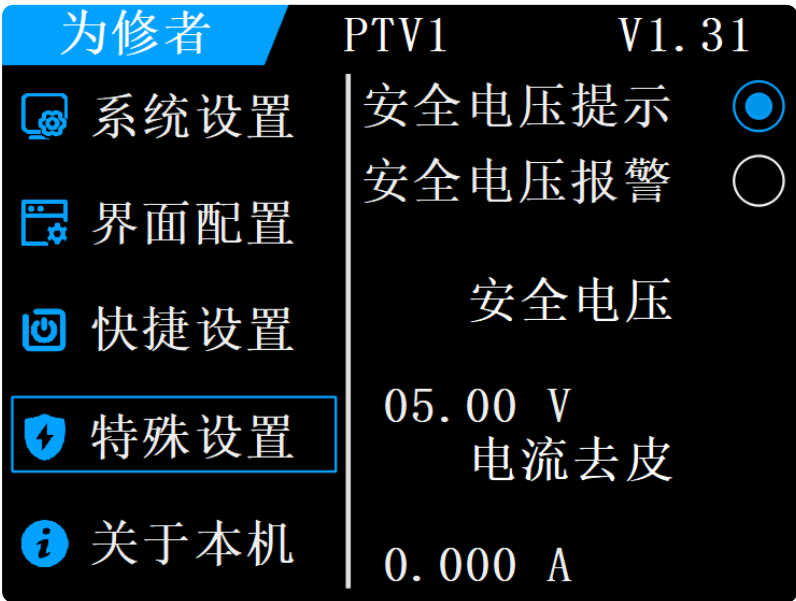
System Settings include configuration of basic device parameters such as language selection, buzzer on/off, and auto-sleep time.



System Settings Interface

6.4 Advanced Special Settings

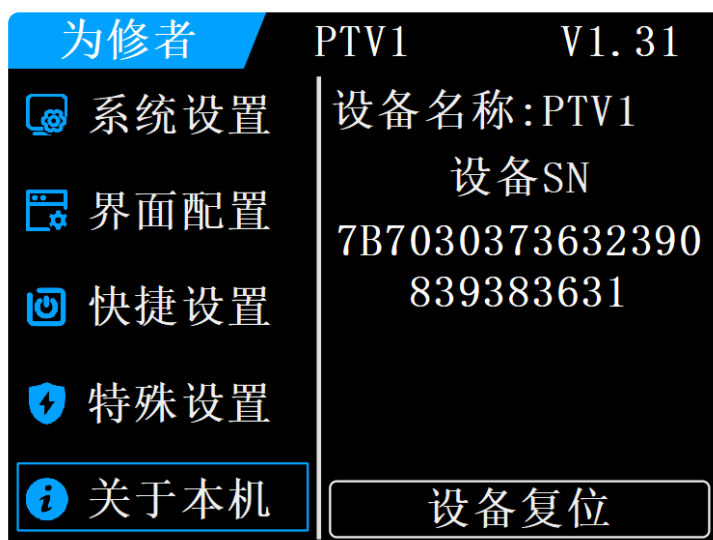
Special Settings contain several advanced function options, such as alarm configuration and current tare.



Special Settings Interface

6.5 Device Info

View basic information including device model, firmware version, serial number and others.



About Device Interface

7. PC Upper Computer Software

PTV1 supports connection to a computer via the ⑤ USB-C data port. When used with the dedicated PC-Host software, advanced functions such as remote control, data screen-casting and waveform recording can be realized. Connect the ⑤ PC port to your computer with a USB-C data cable, then launch the PC-Host software to get started.

7.1 Screen Mirroring

It mirrors the device screen to the PC in real time, facilitating observation and operation demonstration on a large-size display. Suitable for scenarios such as teaching, training and video recording.



PC-Host Device Screen-casting Interface

7.2 Waveform Logging & Recording

It records and displays voltage/current variation curves in real time, supports data export and playback analysis, facilitating fault troubleshooting and performance evaluation.



PC-Host Curve Recording Interface

7.3 PC Software Config

Device parameters including output voltage/current, quick presets and protection thresholds can be directly configured via the PC-Host software for more convenient and efficient operation.



PC-Host Settings Interface

8.Safety Instructions

 **Warning: Non-compliance may cause equipment damage or personal injury**

1. Please power the device with a qualified charger compliant with PD/QC fast-charge protocols (connect to Mark ⑥ PD Power-Supply Interface). A power rating of 65W or higher is recommended.
2. Do not operate this device in humid, high-temperature or dusty environments.
3. Ensure adequate ventilation during device operation and keep cooling vents unobstructed.
4. Do not disassemble the device housing. There are no user-serviceable parts inside.
5. Turn off the output when the device is not in use.
6. In case of device abnormalities (smoke, strange odor, abnormal noise), cut off power immediately and contact after-sales service.
7. Keep the device out of reach of children.
8. When using burn-in mode, ensure the load stays within the rated range; avoid unattended long-duration operation.

9.Troubleshooting

Fault Phenomenon	Possible Causes	Inspection and Handling Methods
Device fails to power on	Charger not connected or incompatible with PD/QC protocols	Check whether the charger for port ⑥ supports PD/QC protocols; replace with a qualified charger
Device fails to power on	USB-C cable does not support power supply	Replace the USB-C data cable
No output voltage	Output not enabled via the OUTPUT button	Short-press the red OUTPUT button in Area ② to enable output
No output voltage	Protection mechanism has been triggered	Check whether the load is short-circuited or overloaded; restart after troubleshooting
Unstable voltage/current reading	Poor load contact	Check whether the CH1-CH5 wiring of port ④ is securely connected
Output voltage is lower than the set value	Over-heavy load triggers over-current protection	Check the current requirement of the load and confirm it is within the rated range
No response when adjusting the knob	System freeze	Restart the device and try again
Abnormal screen display	Internal device fault	Try restoring factory settings; contact after-sales service if the problem persists
Failed to connect to PC Host	Incompatible data cable or driver issue	Replace the USB-C data cable for port ⑤, make sure it supports data transmission
Waveform stays static on the curve interface	Waveform is paused	Short-press the black knob of Area ③ to resume waveform refresh

10.Maintenance & Care

1. Clean the Mark ① display screen and unit surface with a dry cloth or slightly damp soft cloth. Do not use organic solvents such as alcohol or gasoline.
2. Keep Mark ④ output interfaces and Mark ⑤, ⑥ USB-C interfaces clean to prevent poor contact caused by dust ingress.
3. When not in use for an extended period, store the device in a dry and well-ventilated place. Avoid direct sunlight, high-temperature and humid environments.
4. Prevent the device from dropping or heavy impact to avoid damage to internal components.
5. Mark ⑤ and ⑥ USB-C interfaces are high-frequency-use components. Insert and unplug in vertical orientation; avoid lateral force.
6. Use the original packaging or suitable cushioning materials for transportation to prevent damage from collision.

11.Packing List

No.	Name	Quantity	Remarks
1	PD Intelligent Adjustable Power Supply Main Unit (PTV1)	1pc(s)	-
2	USB-C Data Cable (PD Power Supply)	1pc(s)	For power supply to Port ⑥
3	Certificate of Conformity	1pc(s)	-



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Disclaimer: Specifications subject to update without prior notice; actual product functions prevail