ALIENTEK DP100

ALIENTEK DP100 DC Power Supply User Manual

Model: DP100

1. Introduction

The ALIENTEK DP100 is a compact, high-performance DC power supply designed for various applications including laboratory testing, electronics prototyping, and field repairs. It offers adjustable voltage and current output with high precision and multiple protection features, making it suitable for sensitive electronic devices. This manual provides detailed instructions for the safe and effective use of your DP100 power supply.

2. Safety Information

Please read and understand all safety instructions before operating the device. Failure to follow these instructions may result in electric shock, fire, or damage to the device or connected equipment.

- **Power Source:** Use only compatible power sources (5-32V DC) that support PD 2.0/3.0 & QC 3.0 fast charging protocols via USB-C, or a suitable DC power adapter.
- **Connection Order:** Always connect the USB-C power input to the supply before connecting any DC jack inputs.
- **Output Connections:** Ensure all output connections are secure and correct before applying power to your load.
- **Overload Protection:** The device includes hardware over-voltage, over-current, over-temperature, and reverse-polarity protections. If a short circuit or fault is detected, the output will be instantly cut off to prevent damage.
- **Environment:** Operate the device in a dry, well-ventilated area. Avoid exposure to moisture, extreme temperatures, or corrosive environments.
- **Maintenance:** Do not attempt to disassemble or repair the unit yourself. Refer all servicing to qualified personnel.

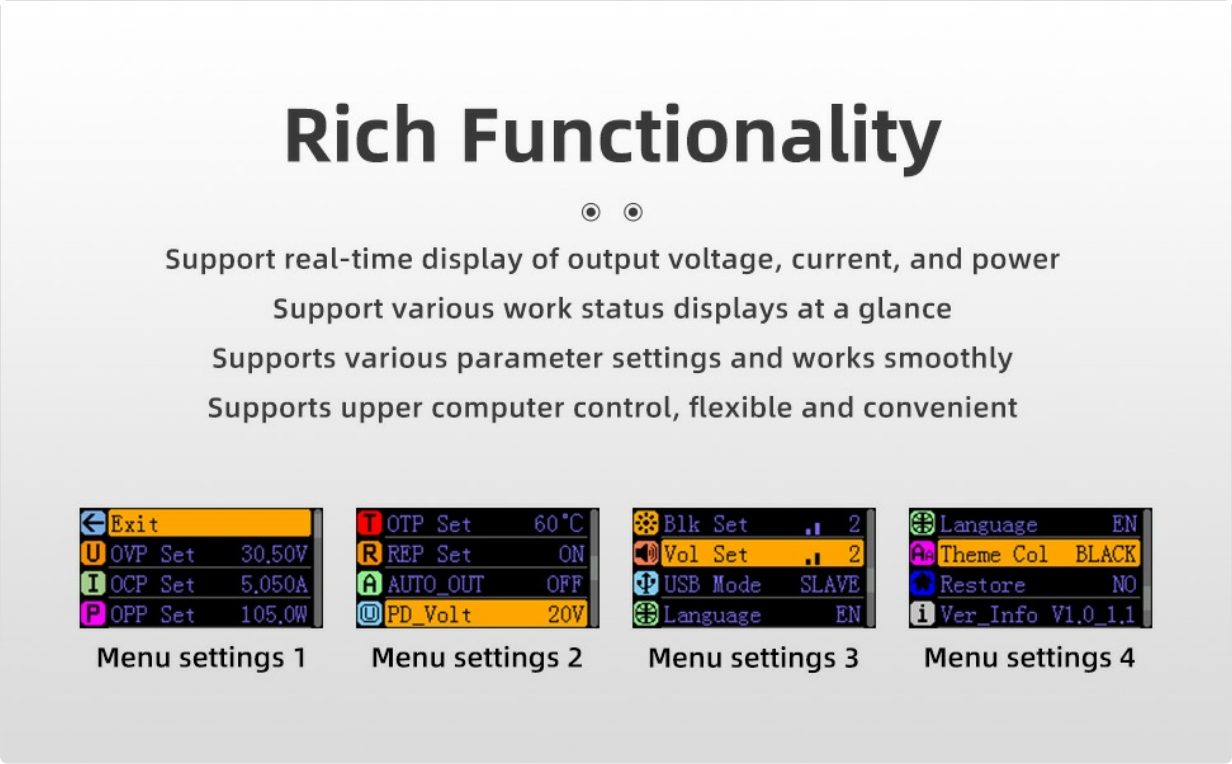

Figure 2.1: Intelligent Multi-Layer Protections. The output indicator light changes brightness based on voltage/current, providing a quick visual check.

3. Product Overview

The ALIENTEK DP100 is a highly portable and precise DC power supply. Key features include:

- **Ultra-Portable Design:** Weighing only 95g, it is designed for portability, powered by USB-C (PD 2.0/3.0 & QC 3.0) or DC adapters.
- **Pro-Level Precision:** Delivers 0-30V / 0-5A output with 0.01V and 0.001A resolution, and ultra-low ripple (< 10mVp-p).
- **Intelligent Protections:** Features hardware over-voltage, over-current, over-temperature, and reverse-polarity protection with smart anti-burn logic.
- **Preset Modes:** Stores up to 10 frequently used voltage/current combinations for quick recall.
- **PC Software & Mouse Control:** USB connectivity for advanced control, data logging, and sequence output via Windows PC software, and direct USB mouse control.
- **High Efficiency:** Up to 97% efficiency at 100W output, ensuring cool and quiet operation.

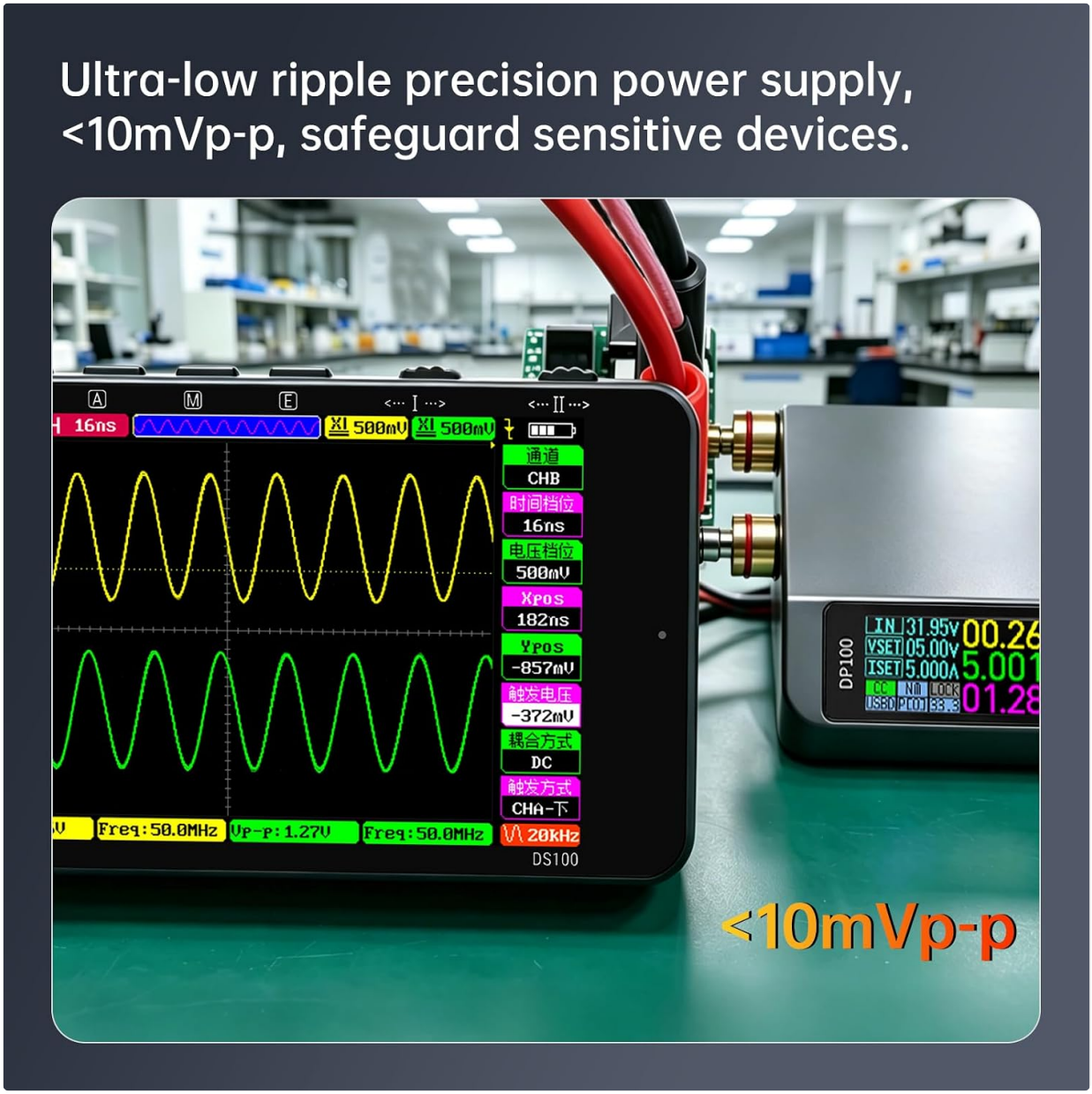

Figure 3.1: DP100 Component Overview and Dimensions. (1) 4.0mm banana plug interface Negative, (2) 4.0mm banana plug interface Positive, (3) 0.96-inch high-definition IPS screen, (4) Left button, (5) Middle button, (6) Right button, (7) Adjustment wheel, (8) USB-A interface, (9) Type-C power supply interface.

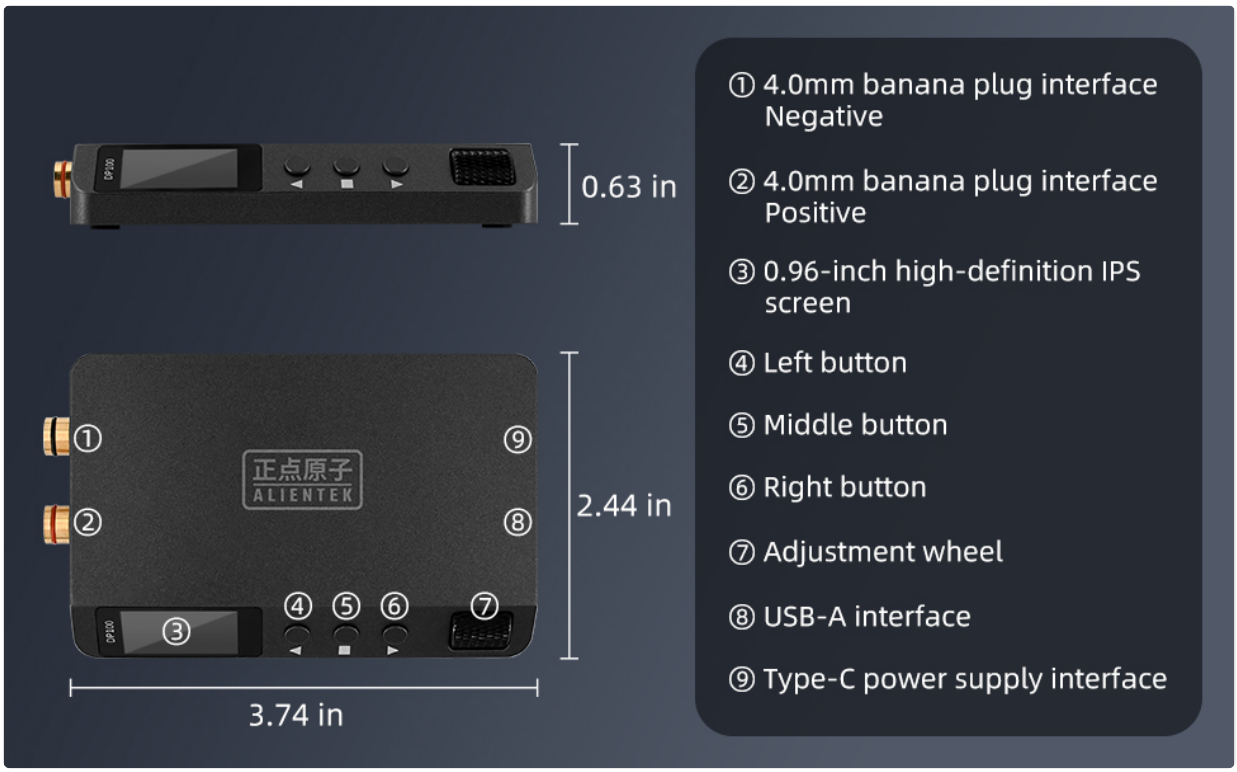

Figure 3.2: Ultra-low ripple precision output, safeguarding sensitive devices.

Figure 3.3: High Efficiency Output with Low Heat. The DP100 achieves up to 97% efficiency at 100W full load output.

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Video 3.1: This video demonstrates the usage scenarios and function descriptions of the ALIENTEK DP100 DC power supply, showcasing its versatility and features in action.

4. Setup

Follow these steps to set up your ALIENTEK DP100 DC Power Supply:

1. **Power Input:** Connect a compatible power source to the Type-C power supply interface (9) on the DP100.

The device supports 5-32V wide-range input and PD 2.0/3.0 & QC 3.0 fast charging protocols. You can use a phone charger, power bank, or laptop adapter. If using a DC jack adapter, ensure the USB-C cable is connected first.

2. **Output Connections:** Connect your load to the 4.0mm banana plug interfaces (1) Negative and (2) Positive. Ensure correct polarity.
3. **Power On:** The device will power on automatically once a valid power input is detected. The IPS screen (3) will display the current status.
4. **Initial Check:** Before connecting sensitive equipment, verify the output voltage and current settings are at their minimum or desired safe levels.

5. Operating Instructions

The DP100 features an intuitive interface for setting voltage and current, navigating menus, and monitoring output.

5.1. Basic Controls

- **Adjustment Wheel (7):** Used to adjust values (voltage, current, menu options). Rotate to change values.
- **Left, Middle, Right Buttons (4, 5, 6):** Used for menu navigation, selection, and confirmation. Specific functions may vary depending on the active menu.

5.2. Setting Voltage and Current

The DP100 offers continuously adjustable output with high resolution:

- **Output Voltage:** 0-30.00V, with a resolution of 0.01V. Accuracy is 0.1% ± 5mV.
- **Output Current:** 0-5.000A, with a resolution of 0.001A. Accuracy is 0.1% ± 3mA.

Use the adjustment wheel and buttons to navigate to the voltage (VSET) and current (ISET) settings on the display. Rotate the wheel to change the desired value, and press a button (typically the middle button) to confirm or move to the next digit.

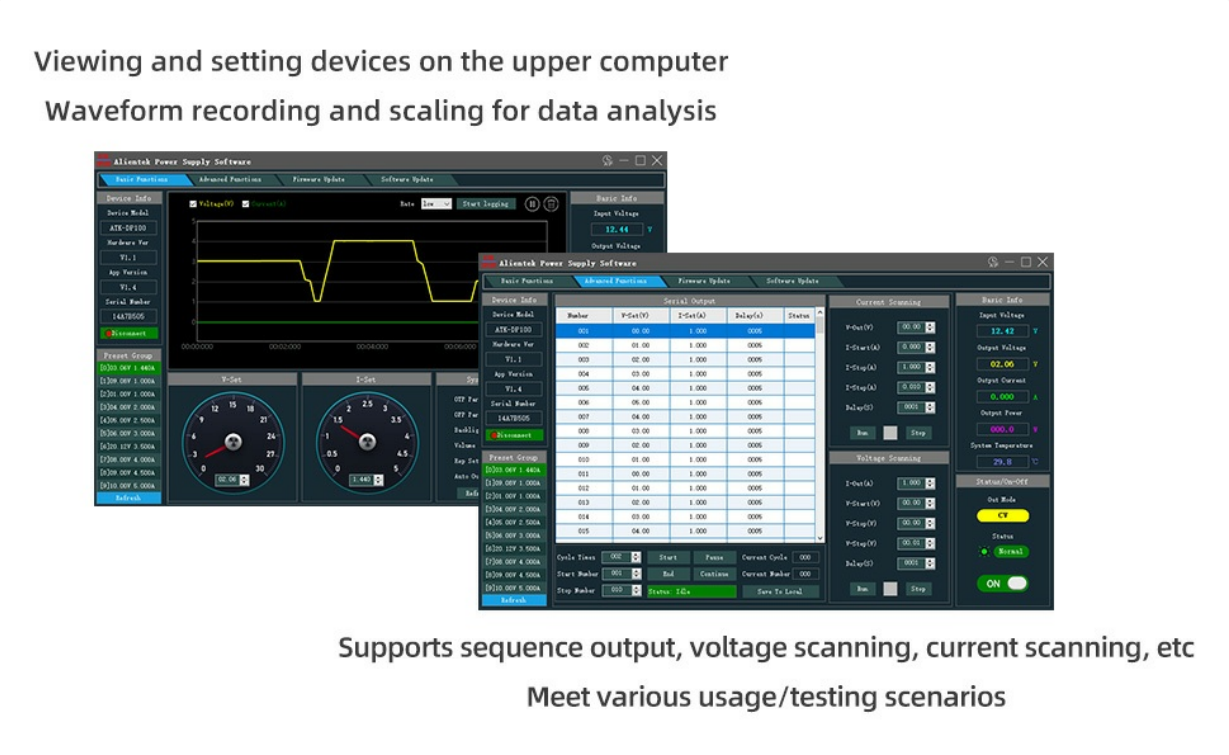

Figure 5.1: Voltage and Current Regulation Diagrams. The display shows input voltage (IN), set voltage (VSET), set current (ISET), and actual output values.

5.3. Display and Menu Navigation

The 0.96-inch high-definition IPS screen provides real-time display of output voltage, current, and power, along with various work status indicators. The display panel has a 50° golden angle design for easy observation.

Figure 5.2: Rich Display and Humanized Operation. The screen provides detailed information and is angled for optimal viewing.

The device supports various parameter settings accessible through its menu system. Use the buttons to navigate through menu options and the adjustment wheel to change settings.

Model	DP100	Input Voltage	DC 5.00V~32.00V
Input Interface	Type C	Input Current	DC 0.1A~7.0A
Output Interface	4.0mm Banana jack	Output Voltage	DC 00.00~30.00V
Communication Interface	USB-A	Output Current	DC 0.000~5.000A
Weight	95g	Output Power	100W Max
Dimensions	100.4*62.2*17.2mm	Full Load Efficiency	≤97%(30V,3.33A)
Screen	0.96' 160*80 IPS LCD	Setting Resolution(V/C)	10mV、1mA
Input Protection	REP / UVP	Setting Accuracy(V/C)	0.1%±5mV、0.1%±3mA
Output Protection	OVP / OCP / OPP / OTP / REP	Readback Resolution(V/C)	0.01V、0.001A
Output Mode	CC/CV	Readback Accuracy(V/C)	0.1%±10mV、0.1%±5mA
Ripple Voltage	≤2mVrms，10mVp-p	Load Regulation(V/C)	0.05%±5mV、0.1%±3mA
Ripple Current	≤1mArms，3mAp-p	Power Regulation(V/C)	0.05%±5mV、0.1%±3mA

Figure 5.3: Rich Functionality Menu Settings. The menus allow configuration of various parameters such as Over-Voltage Protection (OVP), Over-Current Protection (OCP), Over-Power Protection (OPP), Over-Temperature Protection (OTP), Reverse Polarity Protection (REP), Auto Output, PD Voltage, backlight settings, volume, USB mode, language, theme, and device information.

6. Advanced Features

6.1. Preset Modes

The DP100 allows you to store up to 10 frequently used voltage/current combinations. These presets can be recalled with a single click, streamlining repetitive tasks.

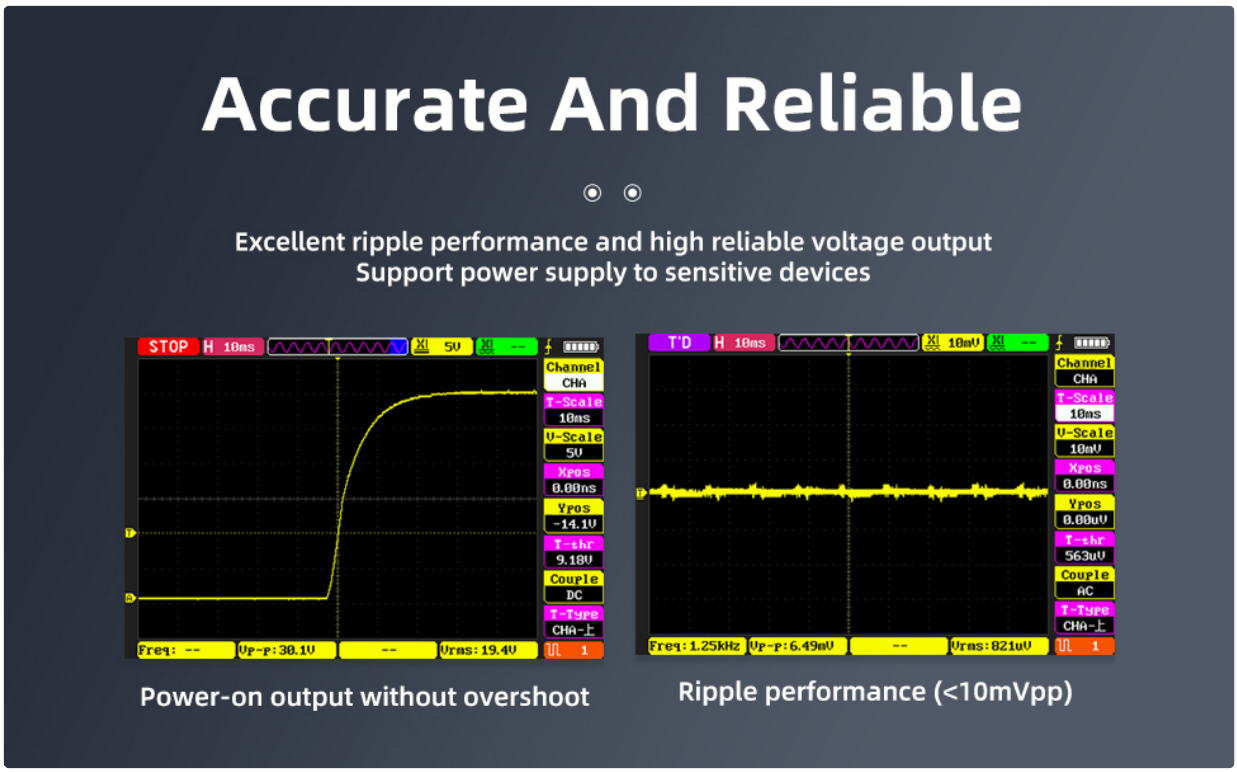

Figure 6.1: Preset Output Quick Call Out. Use the button and roller for adjustment, or recall one of the 10 built-in preset outputs.

6.2. PC Software and Mouse Control

Connect the DP100 to a Windows PC via USB to utilize the free software for advanced control, data logging, and sequence output. This feature is ideal for automated testing and production environments. Additionally, the device supports direct USB mouse control for effortless adjustments on the unit itself.

7. Maintenance

To ensure the longevity and optimal performance of your ALIENTEK DP100, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the device. Do not use abrasive cleaners or solvents.
- **Storage:** Store the device in a cool, dry place away from direct sunlight and extreme temperatures.
- **Handling:** Avoid dropping or subjecting the device to strong impacts.
- **Ventilation:** Ensure that the ventilation openings are not blocked during operation to prevent overheating.

8. Troubleshooting

If you encounter issues with your DP100, refer to the following common troubleshooting steps:

- **No Power:** Ensure the USB-C power input is securely connected and the power source is functional and compatible (5-32V). Try a different power adapter or USB-C cable.
- **No Output:** Check if the output is enabled. Verify that the voltage and current settings are not set to zero. The device's intelligent protection logic may have cut off output due to a short circuit, over-voltage, over-current, or over-temperature condition. Disconnect the load, check for faults, and re-enable output.

- **Incorrect Output:** Verify your voltage and current settings. Ensure your load is properly connected and not drawing excessive current.
- **Device Crash/Freeze:** In rare cases, accidental short circuits or extreme conditions might cause the device to temporarily freeze. Disconnect power, wait a few seconds, and reconnect. The built-in protection mechanisms are designed to prevent permanent damage.
- **PC Software Connection Issues:** Ensure the USB cable is properly connected between the DP100 and your PC. Check device drivers and software settings.

If problems persist, contact ALIENTEK customer support for assistance.

9. Specifications

Feature	Specification
Model	DP100
Input Voltage	DC 5.00V~32.00V
Input Current	DC 0.1A~7.0A
Input Interface	Type C
Output Voltage	DC 00.00~30.00V
Output Current	DC 0.000~5.000A
Output Power	100W Max
Output Interface	4.0mm Banana Jack
Communication Interface	USB-A
Weight	95g
Dimensions	100.4 × 62.2 × 17.2 mm (3.95 x 2.45 x 0.68 inches)
Screen	0.96" 160*80 IPS LCD
Full Load Efficiency	≤97% (30V, 3.33A)
Setting Resolution (V/C)	10mV, 1mA
Setting Accuracy (V/C)	0.1% ± 5mV, 0.1% ± 3mA
Readback Resolution (V/C)	0.01V, 0.001A
Readback Accuracy (V/C)	0.1% ± 10mV, 0.1% ± 5mA
Load Regulation (V/C)	0.05% ± 5mV, 0.1% ± 3mA
Power Regulation (V/C)	0.05% ± 5mV, 0.1% ± 3mA

Feature	Specification
Output Mode	CC/CV (Constant Current/Constant Voltage)
Ripple Voltage	≤2mVrms, 10mVp-p
Ripple Current	≤1mArms, 3mAp-p
Input Protection	REP / UVP (Reverse Polarity / Under Voltage Protection)
Output Protection	OVP / OCP / OPP / OTP / REP (Over Voltage / Over Current / Over Power / Over Temperature / Reverse Polarity Protection)

10. What's in the Box

The ALIENTEK DP100 package includes:

- 1 x ALIENTEK DP100 DC Power Supply
- 1 x Zipper bag
- 1 x USB Type-C cable

11. Warranty and Support

For warranty information and technical support, please refer to the documentation provided with your purchase or contact the ALIENTEK customer service directly through their official website or the retailer where the product was purchased.