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FNIRSI DC-6006L

FNIRSI DC-6006L Programmable DC Buck Power Supply User Manual

Model: DC-6006L | Brand: FNIRSI

1. Introduction

The FNIRSI DC-6006L is a single-channel programmable DC buck power supply converter designed for precision and reliability. This compact digital pulse device offers stable performance, simple operation, and a range of protective features, making it suitable for various electronic applications.

2. Key Features

- Equipped with a 1.46-inch high-definition LCD display.
- Versatile input interfaces: two banana head interfaces, 5.5/2.1mm jack, and USB-C port.
- Provides stable, accurate, safe, and efficient output.
- Display can be rotated, allowing for horizontal or vertical device placement.
- Intelligent temperature control: Real-time monitoring of device temperature and power. The cooling fan automatically activates when temperature exceeds 40°C or output current exceeds 2A, and deactivates when conditions fall below these thresholds.
- PC connection control capability.
- Comprehensive protection mechanisms: Input anti-reverse connection, adjustable Over Voltage Protection (OVP), Over Current Protection (OCP), Over Power Protection (OPP), Over Temperature Protection (OTP), and Overtime Protection (OHP).

3. Package Contents

Please check the package for the following items:

- FNIRSI DC-6006L DC Power Supply — 1 unit
- USB Cable — 1 unit

Note: Package contents and appearance may vary slightly from those presented. Please confirm with your vendor if specific items are critical.

4. Safety Information

Always observe the following safety precautions to prevent injury or damage to the device:

- Ensure the input voltage is within the specified range (6V-70V).
- Do not exceed the maximum output voltage (60V), current (6A), or power (360W).
- Always ensure that the input voltage is at least 1.1 times higher than the desired output voltage for proper buck conversion.
- Avoid short circuits at the output terminals.
- Operate the device in a well-ventilated area to prevent overheating.
- Do not expose the device to moisture or extreme temperatures.
- Disconnect power before making any connections or disconnections.

5. Product Overview

The FNIRSI DC-6006L features a clear LCD display and intuitive controls for easy operation. Below are images illustrating the device's components and interfaces.



Figure 5.1: Front-angled view of the FNIRSI DC-6006L, highlighting the color LCD, rotary encoder, control buttons, and output terminals.



Figure 5.2: Top-down view of the device, illustrating the layout of the 1.46-inch LCD screen, rotary knob, navigation buttons, and power switch.



Figure 5.3: Side-angled view, detailing the input interfaces such as banana jacks, 5.5/2.1mm jack, and USB-C port, along with the output terminals.



Figure 5.4: The FNIRSI DC-6006L unit alongside its included protective carrying case and USB cable, demonstrating the complete package.

6. Setup

Follow these steps to set up your FNIRSI DC-6006L power supply:

1. **Connect Input Power:** Connect a DC power source (6V-70V) to one of the input interfaces. You can use the banana head interfaces, the 5.5/2.1mm jack, or the USB-C port. Ensure the input voltage is stable and within the specified range.
2. **Power On:** Press the "ON/OFF" button to power on the device. The LCD display will illuminate.
3. **Initial Check:** Observe the display to ensure it powers on correctly and shows default or last-used settings.
4. **Positioning:** The device can be placed horizontally or vertically. The display orientation can be adjusted in the settings if needed.

7. Operating Instructions

This section details how to operate the FNIRSI DC-6006L to achieve desired output voltage and current.

7.1. Setting Output Voltage and Current

1. **Access Settings:** Use the navigation buttons (likely arrows or dedicated menu buttons) to select the voltage or current setting area on the display.
2. **Adjust Values:** Rotate the rotary encoder knob to adjust the desired voltage or current value. Press the knob to confirm or switch between digit adjustment.
3. **Enable Output:** Once the desired voltage and current limits are set, press the output ON/OFF button (separate from the device power button, usually labeled "ON/OFF" near the output terminals) to enable the output. The display will show the actual output voltage and current.
4. **Disable Output:** Press the output ON/OFF button again to disable the output.

7.2. Understanding Display Indicators

The 1.46-inch LCD displays various parameters:

- **Set Voltage/Current:** The target voltage and current limits you have configured.
- **Output Voltage/Current:** The actual voltage and current being delivered to the load.
- **Output Power:** The real-time power consumption (Voltage x Current).
- **Temperature:** Internal device temperature, relevant for intelligent fan control.
- **Protection Status:** Indicators for OVP, OCP, OPP, OTP, OHP, and input anti-reverse protection.
- **CV/CC Mode:** Indicates whether the power supply is operating in Constant Voltage (CV) or Constant Current (CC) mode.

7.3. PC Connection Control

The FNIRSI DC-6006L supports PC connection for remote control and monitoring. Refer to the official FNIRSI website or included software documentation for detailed instructions on installing drivers and using the PC software.

8. Maintenance

To ensure the longevity and optimal performance of your FNIRSI DC-6006L, follow these maintenance guidelines:

- **Cleaning:** Use a soft, dry cloth to clean the exterior of the device. Do not use abrasive cleaners or solvents. Ensure the device is powered off and disconnected from all power sources before cleaning.
- **Ventilation:** Keep the ventilation openings clear of dust and obstructions to ensure proper airflow for the intelligent cooling fan.
- **Storage:** When not in use for extended periods, store the device in a cool, dry place, away from direct sunlight and extreme temperatures. Use the provided protective case for added safety.
- **Inspection:** Periodically inspect cables and connectors for any signs of wear or damage. Replace damaged components immediately.

9. Troubleshooting

This section addresses common issues you might encounter with the FNIRSI DC-6006L.

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Device does not power on.	No input power; input voltage too low/high; faulty cable.	Check input power source and connections. Ensure input voltage is within 6V-70V. Try a different input cable.
No output voltage/current.	Output not enabled; OVP/OCP/OPP triggered; incorrect settings.	Press the output ON/OFF button. Check for protection indicators on the display. Verify voltage/current settings are appropriate for the load. Ensure input voltage is > 1.1 * output voltage.
Fan runs constantly or loudly.	High internal temperature; high output current; blocked ventilation.	This is normal if the device is under heavy load or in a warm environment. Ensure ventilation openings are clear. Reduce load if possible.
Display is dim or flickering.	Low input voltage; internal fault.	Check input voltage stability. If the problem persists, contact support.

10. Specifications

Parameter	Value
Input Voltage	6V - 70V
Output Voltage	0V - 60V (Note: Input Voltage > 1.1 * Output Voltage)
Output Current	0A - 6A
Output Power	0W - 360W
Voltage Resolution	0.01V
Voltage Accuracy	±0.3% + 3 digits
Current Resolution	0.001A
Current Accuracy	±0.5% + 5 digits
Output Ripple	100mV (peak-to-peak)
Display	1.46 inch LCD
Dimensions	102 x 88 x 38 mm
Weight	250g

11. Warranty and Support

FNIRSI products are designed for reliability and performance. For warranty information, technical support, or service inquiries, please refer to the documentation included with your purchase or visit the official FNIRSI website. Please note that additional customs clearance charges may apply for products shipped from certain regions.
For further assistance, you may contact your point of purchase or the manufacturer directly.

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