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Walfront Programmable Adjustable Regulated Power Supply Module

Walfront Programmable Adjustable Regulated Power Supply Module

Model: DC-DC Buck Boost Converter Regulator

1. INTRODUCTION

Thank you for choosing the Walfront Programmable Adjustable Regulated Power Supply Module. This versatile DC-DC buck-boost converter is designed for electronic equipment, mechanical engineering, and motor applications, offering precise and adjustable voltage and current output. This manual provides essential information for the safe and effective operation of your module.

Please read this manual thoroughly before operating the device and keep it for future reference.

2. SAFETY INFORMATION

To ensure safe operation and prevent damage to the module or connected equipment, please observe the following precautions:

- **Input/Output Short Circuit:** The module input IN- must not be short-circuited with output OUT-, otherwise the constant current function will fail.
- **Power Supply Capacity:** Always ensure that the power of the input power supply is greater than the power required by the output load.
- **Input Voltage for Full Load:** If the module is to output at full load, the input voltage must be above 8V. When the input voltage is 5V, the output power is approximately 15W.
- **Current Limitation:** The maximum current value of the module is 4A, provided that it is limited by the maximum output power. For example, when the output is 17V, the current should not be greater than 2A.
- **Heat Dissipation:** When using this module over 3A or 35W, it is crucial to strengthen heat dissipation to prevent overheating.
- **Under-Voltage Protection:** The module has an input under-voltage protection function, default is about 4.8V (adjustable). When the input voltage drops below this value, the output will automatically disconnect. Be aware of voltage drop on input wires, especially with large input currents.
- **Reverse Polarity Protection:** The input terminal features anti-reverse protection; reverse connection will not burn the module.
- **Output Anti-Backflow:** The output terminal has anti-backflow protection, eliminating the need for an external anti-backflow diode when charging batteries.

3. PRODUCT OVERVIEW

The Walfront Power Module is a highly efficient and stable DC-DC converter with programmable features. It allows for precise adjustment of output voltage and current, making it suitable for a wide range of applications.



Figure 3.1: Walfront Power Module. This image shows the compact design of the power module, featuring a digital display for voltage and current readings, along with control buttons for adjustment and mode selection. The module includes input and output terminals for connection.

Key Features:

- **Precise & Fast Adjustment:** Numerical control adjustment for precise and fast voltage (0.5-30V) and current (0-4A) regulation.
- **Input Terminal Anti-Reverse Protection:** Prevents damage from incorrect input polarity.
- **Low Output Ripple:** Features π -type filtering for clean output.
- **Output Anti-Backflow Protection:** Safe for battery charging without external diodes.
- **Stable Performance:** Equipped with multiple software protection mechanisms and a thicker heat sink for enhanced stability.
- **Automatic Protection:** Automatically shuts off output if operating parameters exceed protection thresholds.

4. SETUP

Follow these steps for initial setup of your power module:

1. **Identify Terminals:** Locate the input (IN+ / IN-) and output (OUT+ / OUT-) terminals on the module.
2. **Connect Input Power:** Connect your DC power source to the IN+ and IN- terminals. Ensure the input voltage is within the specified range (DC 5.5-30V or 6.0-36V depending on model variant). Observe polarity.
3. **Connect Load:** Connect your electronic equipment or load to the OUT+ and OUT- terminals. Ensure the load's power requirements do not exceed the module's output capabilities.
4. **Verify Connections:** Double-check all connections to ensure they are secure and correctly polarized before applying power.

5. OPERATING INSTRUCTIONS

The module features numerical control for precise adjustment of output voltage and current.

5.1. Power On/Off

- Apply input power to turn on the module. The display will illuminate.
- Remove input power to turn off the module.

5.2. Adjusting Output Voltage and Current

Specific button functions may vary slightly by model variant (4KX/5KX), but generally involve dedicated buttons for voltage and current adjustment, and possibly a mode button to switch between setting modes.

- Use the designated voltage adjustment buttons (e.g., UP/DOWN arrows or rotary encoder) to set the desired output voltage (0.5-30V or 0.6-36V).
- Use the designated current adjustment buttons to set the desired output current limit (0-4A or 0-5A). This acts as a constant current limit.

- The digital display will show the current output voltage and current.

5.3. Calibration Notes

- **Voltage Calibration:** To ensure accuracy, voltage calibration should be performed with a voltage above 12V.
- **Current Calibration:** To ensure accuracy, current calibration should be performed with a current above 1A.

6. MAINTENANCE

The Walfront Power Module is designed for reliable operation with minimal maintenance. Follow these guidelines to ensure its longevity:

- **Cleaning:** Keep the module clean and free from dust and debris. Use a soft, dry cloth for cleaning. Do not use liquid cleaners or solvents.
- **Ventilation:** Ensure adequate airflow around the module, especially when operating at higher power levels, to facilitate heat dissipation. Do not block ventilation holes.
- **Storage:** When not in use for extended periods, store the module in a cool, dry place away from direct sunlight and extreme temperatures.
- **Heat Sink:** Periodically check the heat sink for any accumulation of dust that might impede heat dissipation. Clean gently if necessary.

7. TROUBLESHOOTING

If you encounter issues with your power module, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
No output voltage/current	Input power not connected or insufficient; Under-voltage protection activated; Output short-circuited.	Check input power supply; Ensure input voltage is above 4.8V; Check for short circuits at output.
Constant current function fails	Input IN- short-circuited with output OUT-.	Ensure IN- and OUT- are not short-circuited.
Module overheats	Operating above 3A or 35W without sufficient cooling; Insufficient ventilation.	Strengthen heat dissipation (e.g., add fan); Ensure adequate airflow around the module.
Output power lower than expected	Input voltage too low for desired output; Output current limited by power.	Increase input voltage (above 8V for full load); Ensure output current does not exceed power limits (e.g., 2A at 17V).

8. SPECIFICATIONS

Technical specifications for the Walfront Power Module:

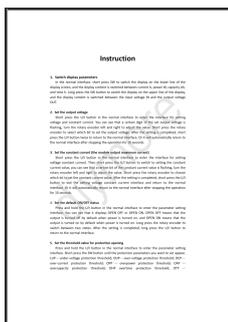
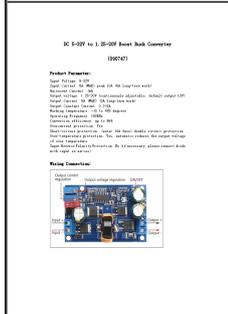
Parameter	Value
Item Type	Power Module
Material	ABS

Parameter	Value
Input Voltage	DC 5.5-30V (4KX) / DC 6.0-36V (5KX)
Output Voltage	DC 0.5-30V (4KX) / DC 0.6-36V (5KX)
Output Current	0-4A (4KX) / 0-5A (5KX)
Output Power	35W (4KX) / 80W (5KX)
Voltage Display Resolution	0.01V
Current Display Resolution	0.001A
Conversion Efficiency	About 88%
Purpose	Change the Voltage
Compatibility	For Electronic Equipment, Mechanical Engineering, Motors

9. WARRANTY AND SUPPORT

Specific warranty information for this product is not provided in the available data. For warranty claims or technical support, please contact your retailer or the manufacturer, Walfront, directly through their official channels. Please have your purchase details and product model information ready when contacting support.

Related Documents - Programmable Adjustable Regulated Power Supply Module

	<p>Operating Instructions for Diymore Adjustable Voltage Regulator</p> <p>Detailed operating instructions and parameter settings for the Diymore Adjustable Voltage Regulator DC Buck Boost Converter, covering voltage and current adjustment, protection settings, and calibration.</p>
	<p>DC 5-32V to 1.25-20V Boost Buck Converter (090747) - Specifications and Guide</p> <p>Detailed technical specifications, wiring instructions, and application notes for the Drok DC 5-32V to 1.25-20V Boost Buck Converter (Model 090747). Learn about input/output parameters, protections, and how to connect and adjust the device for various electronic projects.</p>
	<p>Droking 200488 USB Buck Boost Converter: Technical Specification and User Guide</p> <p>Comprehensive technical specification and user guide for the Droking 200488 USB Buck Boost Converter. Details its PER, VAH, and PWM modes, parameters, protections, wiring diagrams, and interface operations.</p>

 <p>High Precision All Functions Small Size</p> <p>Adjustable power supply constant voltage and current voltage rise and fall module</p> <p>Stable performance Multi screen HD Clear intuitive Easy operation</p> <p>30V output voltage 5A output current 80W output power 100E storage</p> <p>• There is no communication version of this product. • This product is adjustable power supply of DC voltage rise and fall. Please read the instructions before use. Do not connect AC or exceed the allowable input voltage range.</p>	<p>WZ3605E CNC DC Power Supply Module: Adjustable Voltage and Current</p> <p>Discover the WZ3605E, a high-precision CNC DC power supply module with an HD color screen. It offers adjustable constant voltage and current (CV/CC), multiple protection features, and data storage capabilities, making it ideal for electronics enthusiasts and professionals.</p>
 <p>Warm Tip</p> <ul style="list-style-type: none"> ⊗ The load connected to the output of the power conditioner should not exceed the maximum load power listed. ⊗ Do not reverse the polarity of the wiring. Otherwise the power supply will be burned out. ⊗ If there are multiple output lines, do not combine loads. ⊗ Use a cable large enough to meet voltage drops. ⊗ Leave room for the power supply to ensure long-term stable operation. <p>The converter can operate between -40° and 85°C. The converter is automatically protected when the case temperature exceeds 85°. When using this power supply, it should be placed in an environment with air circulation and as much cooling space as possible to extend its service life.</p>	<p>DC DC Converter Regulator Installation and Usage Guide</p> <p>Comprehensive guide for DC DC converter regulators, covering installation, wiring with quick connect terminals, operating temperature limits, and essential usage tips for golf carts and club cars.</p>
	<p>Sinilink XY6506/XY6509 DC Buck Power Supply: User Manual and Technical Specifications</p> <p>Comprehensive guide to the Sinilink XY6506 and XY6509 DC buck power supplies, detailing product parameters, UI functions, system settings, protection mechanisms, and MODBUS-RTU communication protocol.</p>