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› Teyleten Robot 100W 6A DC-DC Buck Converter Instruction Manual

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INSTRUCTION MANUAL

1. Introduction

This manual provides essential information for the safe and effective use of your Teyleten Robot 100W 6A DC-DC Buck Converter. A DC-DC buck converter is a power electronic circuit that steps down a DC voltage from its input (higher voltage) to its output (lower voltage). This module utilizes synchronous rectification technology, which employs special power MOSFETs with extremely low on-state resistance to replace traditional rectifier diodes. This approach significantly reduces rectification losses, thereby improving the overall conversion efficiency and minimizing heat generation within the power supply.

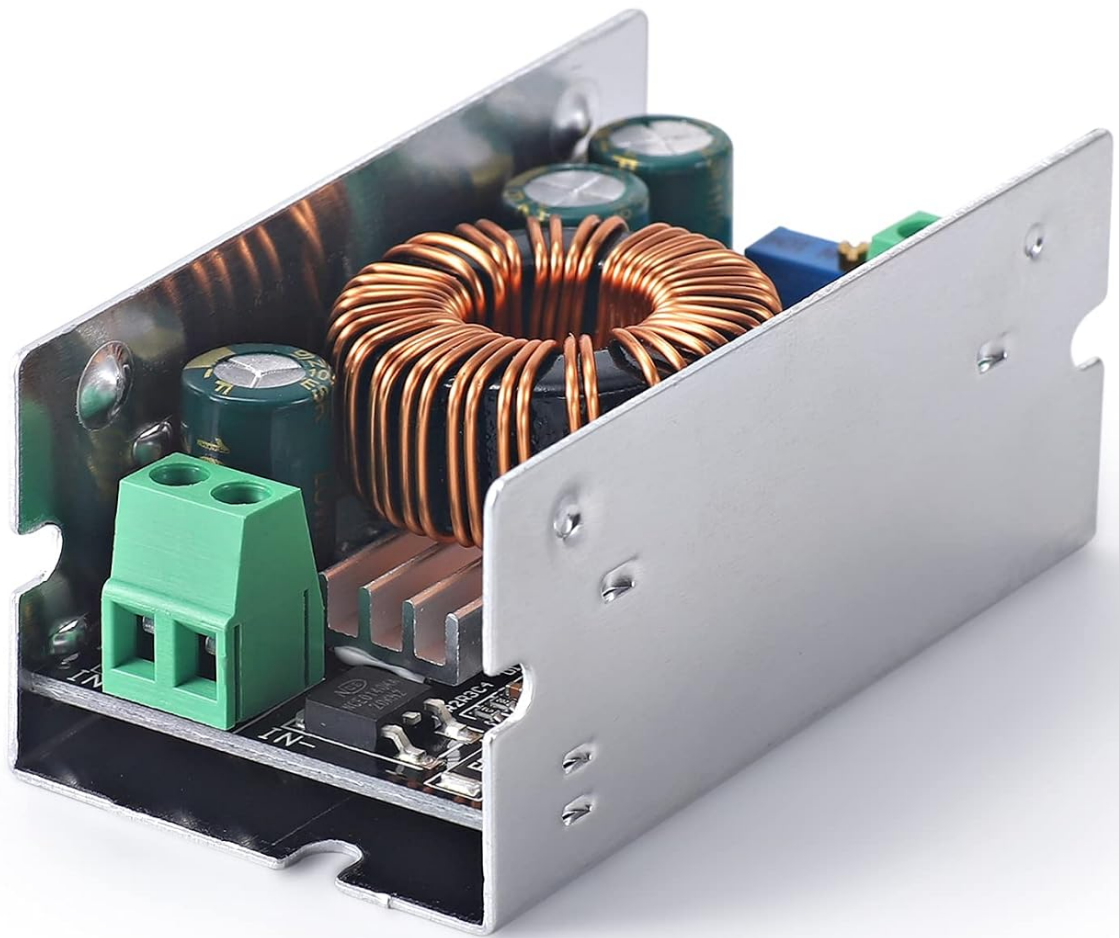


Figure 1: Overview of the Teyleten Robot 100W 6A DC-DC Buck Converter module.

2. Key Features

- **Module Nature:** Synchronous rectification non-isolated buck module.
- **Input Voltage Range:** 10-90VDC.
- **Output Voltage Range:** 1.5-60VDC (Input voltage must be higher than output voltage).
- **Maximum Output Current:** 6A.
- **Maximum Power:** 100W (Maximum current 6A at low voltage output; 100W at high voltage output).
- **Working Frequency:** 180KHz.
- **Conversion Efficiency:** Up to 97.5% (typical value).
- **Input Anti-Reverse Connection:** Yes, for enhanced protection.
- **Compact Design:** Aluminum shell size of 70mm * 38mm * 31mm.
- **Adjustable Output:** Features a multi-turn potentiometer for precise voltage adjustment.

3. Setup and Installation

Before connecting the module, ensure all power sources are disconnected. Observe proper polarity to prevent damage to the module and connected devices. This module is designed for PCB mounting, but can be used in various applications with appropriate insulation and enclosure.

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+ (positive) and IN- (negative) terminals. Ensure the input voltage is within the 10-90VDC range and is higher than your desired output voltage.
3. **Connect Load:** Connect your load device to the OUT+ (positive) and OUT- (negative) terminals.
4. **Verify Connections:** Double-check all connections for correct polarity and secure contact.
5. **Initial Voltage Adjustment:** Before applying full power to your load, it is recommended to pre-adjust the output voltage. Connect a voltmeter to the output terminals and proceed to the 'Operation' section for adjustment instructions.



Figure 2: Terminal connections for input and output.

4. Operation

The output voltage of the buck converter is adjustable via a multi-turn potentiometer. This allows for precise setting of the desired output voltage.

1. **Apply Input Power:** With the load disconnected or a dummy load attached, apply power to the input terminals.
2. **Monitor Output Voltage:** Use a multimeter to measure the voltage across the output terminals (OUT+ and OUT-).
3. **Adjust Output Voltage:** Carefully turn the blue potentiometer (variable resistor) using a small screwdriver. Turning clockwise typically increases the voltage, while turning counter-clockwise decreases it. Note that the potentiometer may require several turns (at least 20 turns) to show a significant change in voltage. Adjust until the desired output voltage (between 1.5VDC and 60VDC) is achieved.
4. **Connect Load:** Once the output voltage is set, disconnect the input power, connect your actual load, and then reapply input power.

Important Considerations:

- The input voltage must always be higher than the desired output voltage for the buck converter to function correctly.
- Ensure the total power consumption of your load does not exceed 100W and the current does not exceed 6A.
- The module's LED indicator will illuminate when power is applied, even if the output voltage is not stable or regulated due to insufficient input voltage.



Figure 3: Location of the voltage adjustment potentiometer.

5. Maintenance

The Teyleten Robot DC-DC Buck Converter is designed for reliable operation with minimal maintenance. To ensure longevity and optimal performance:

- **Keep Clean:** Periodically inspect the module for dust or debris accumulation, especially around the heatsink and components. Clean gently with a soft, dry brush or compressed air.
- **Environmental Conditions:** Operate the module within its specified temperature range. Avoid exposure to excessive moisture, corrosive environments, or extreme temperatures (especially sub-freezing conditions, which may affect startup stability).
- **Secure Connections:** Ensure all input and output wiring connections remain secure and free from corrosion.
- **Ventilation:** If enclosed, ensure adequate ventilation to prevent overheating, especially when operating at higher power levels.

6. Troubleshooting

Problem	Possible Cause	Solution
No output voltage / LED off	No input power; incorrect input polarity; faulty module.	Check input power supply and connections. Verify input polarity. If issues persist, the module may be faulty.
Output voltage unstable or incorrect	Input voltage too low; potentiometer not adjusted correctly; excessive load.	Ensure input voltage is at least 1.5-2V higher than desired output. Adjust potentiometer carefully (may require many turns). Reduce load if exceeding 100W/6A.
Module shuts down or fails in cold temperatures	Operating outside specified temperature range.	Ensure the module is operated in an environment above freezing temperatures. Consider insulation or heating for cold environments.
Module gets excessively hot	Overload; insufficient ventilation.	Reduce load to stay within 100W/6A limits. Ensure adequate airflow around the module, especially the heatsink.
Coil touching aluminum cover (potential short circuit)	Manufacturing defect or physical damage.	Immediately disconnect power. Do not use the module. Contact Teyleten Robot support for assistance or replacement.

7. Technical Specifications

Parameter	Value
Brand	Teyleten Robot
Model	100W 6A DC-DC Buck Converter
Input Voltage	10-90VDC
Output Voltage	1.5-60VDC
Max Output Current	6A
Max Power	100W
Working Frequency	180 KHz
Conversion Efficiency	97.5% (typical)
Input Anti-Reverse Connection	Yes
Product Dimensions (L x W x H)	70mm x 38mm x 31mm (2.76"D x 1.22"W x 1.22"H)
Weight	70g
Mounting Type	PCB Mount

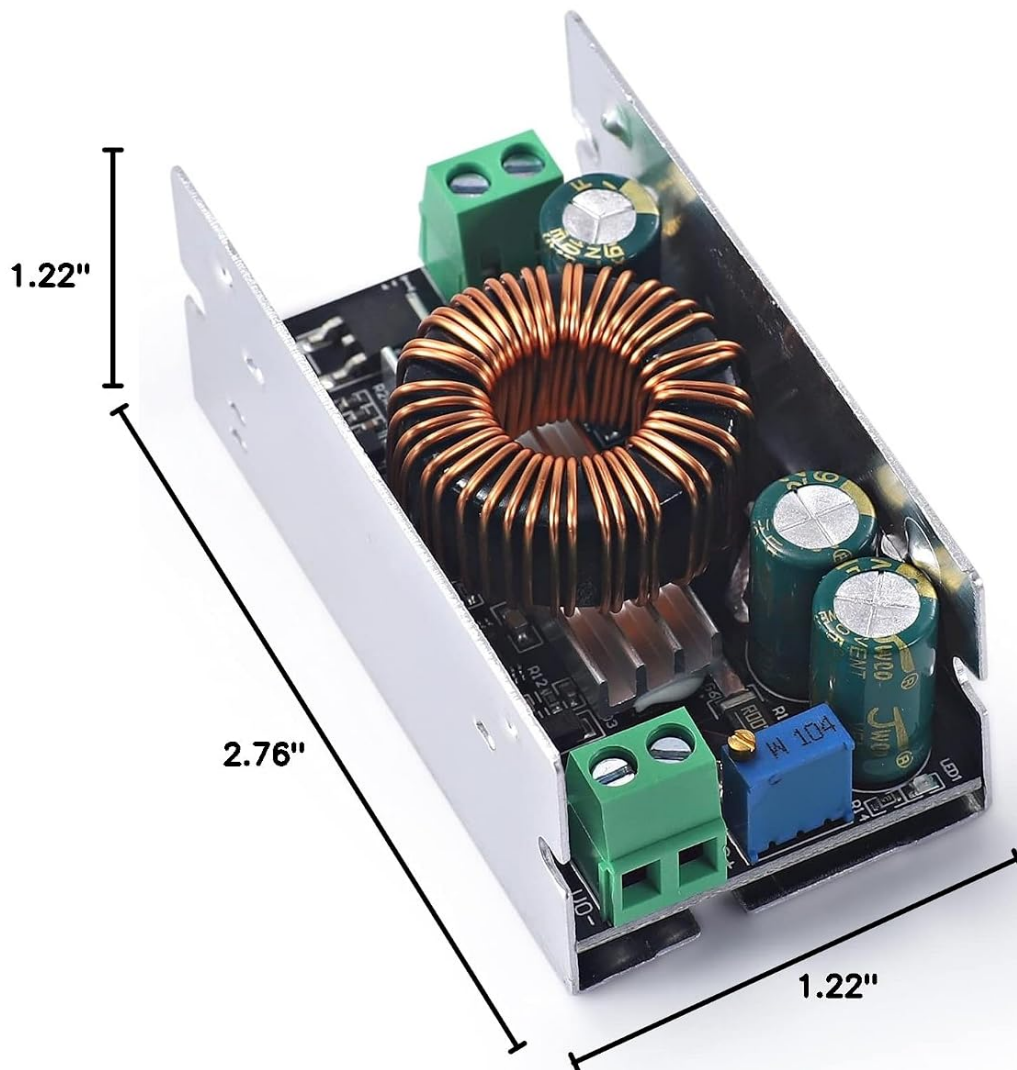


Figure 4: Product dimensions.

8. Warranty Information

Specific warranty details for the Teyleten Robot 100W 6A DC-DC Buck Converter are not provided in the product information. For warranty inquiries or claims, please retain your proof of purchase and contact the seller or manufacturer directly.

9. Support

For technical support, troubleshooting assistance, or any questions regarding your Teyleten Robot 100W 6A DC-DC Buck Converter, please contact Teyleten Robot customer service. You can often find contact information through the retailer where you purchased the product or by visiting the official Teyleten Robot store page on Amazon:

[Visit the Teyleten Robot Store](#)

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

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After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question