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Teyleten Robot 10Pcs

Teyleten Robot 3A Mini DC-DC Buck Step Down Converter Module User Manual

Model: 10Pcs

1. INTRODUCTION

This manual provides essential information for the safe and effective use of the Teyleten Robot 3A Mini DC-DC Buck Step Down Converter Module. This module is designed to efficiently convert a higher DC input voltage to a stable 3.3V DC output voltage. Please read these instructions carefully before installation and operation.

2. PRODUCT OVERVIEW

The Teyleten Robot 3A Mini DC-DC Buck Step Down Converter Module is a compact and efficient power conversion solution. It is suitable for various electronic projects requiring a stable 3.3V power supply from a higher voltage source.

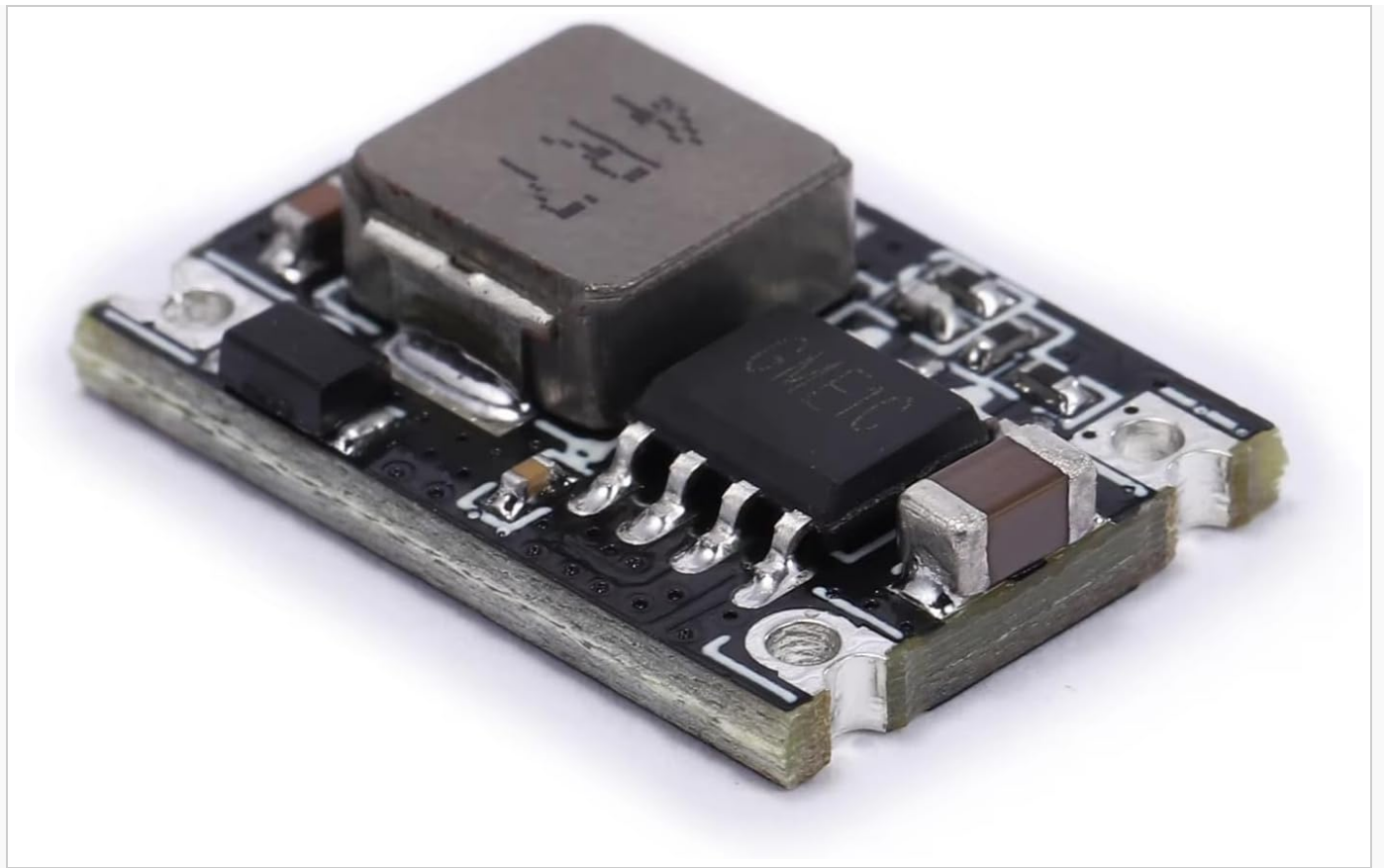


Figure 1: Front view of the Teyleten Robot 3A Mini DC-DC Buck Step Down Converter Module. This image displays the compact design, including the main inductor coil and the integrated circuit responsible for voltage regulation.

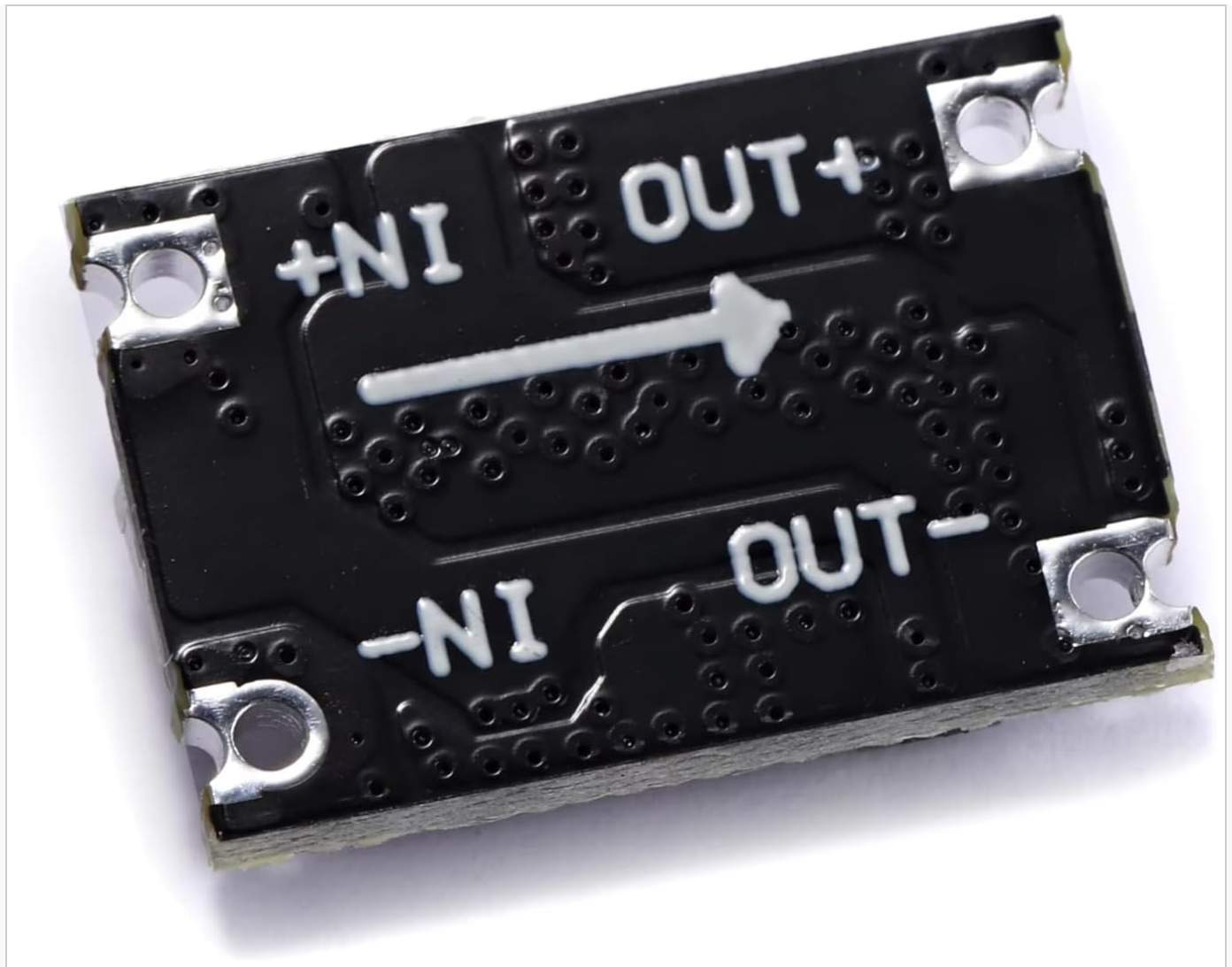


Figure 2: Back view of the Teyleten Robot 3A Mini DC-DC Buck Step Down Converter Module. This image clearly shows the labeled input terminals (+IN, -IN) and output terminals (OUT+, OUT-) for easy connection.

3. SPECIFICATIONS

Feature	Value
Input Voltage	4.5V ~ 30V (Input must be greater than output; recommended within 28V)
Output Voltage	3.3V
Output Current	3A (maximum peak 4A); without heat dissipation within 2A
Conversion Efficiency	96% (maximum)
Output Ripple	<30mA
Output Accuracy	±0.1V
No-load Current	1mA
Operating Temperature	-20°C ~ +85°C
Operating Humidity	20% ~ 90%
Item Weight	16 g

4. SETUP

Follow these steps to correctly set up your DC-DC buck converter module:

1. **Identify Terminals:** Locate the input terminals (+IN, -IN) and output terminals (OUT+, OUT-) on the module. Refer to Figure 2 for visual identification.
2. **Input Connection:** Connect your DC power source to the input terminals. Ensure the positive (+) terminal of your power source is connected to +IN and the negative (-) terminal to -IN. The input voltage must be between 4.5V and 30V, and always higher than the desired 3.3V output. For optimal performance and longevity, it is recommended to keep the input voltage within 28V.
3. **Output Connection:** Connect your load (the device requiring 3.3V) to the output terminals. Ensure the positive (+) terminal of your load is connected to OUT+ and the negative (-) terminal to OUT-.
4. **Verify Polarity:** Double-check all connections for correct polarity before applying power. Incorrect polarity can damage the module and connected devices.
5. **Power On:** Once all connections are secure and verified, apply power to the input. The module will automatically regulate the output to 3.3V.

Caution: Exceeding the maximum input voltage of 30V or reversing polarity can cause permanent damage to the module and connected components.

5. OPERATING INSTRUCTIONS

The Teyleten Robot DC-DC Buck Converter Module operates automatically once power is applied to its input terminals. It provides a stable 3.3V output as long as the input voltage is within the specified range (4.5V-30V) and higher than the output voltage.

- **Current Limits:** The module can supply up to 3A of continuous current, with a peak of 4A. If the current draw exceeds 2A, additional heat dissipation measures (e.g., a heatsink) may be required to prevent overheating and ensure stable operation.
- **Voltage Drop:** Ensure the input voltage is always sufficiently higher than 3.3V for proper regulation. A minimum voltage difference is required for the buck converter to function correctly.
- **Environmental Conditions:** Operate the module within the specified temperature and humidity ranges to ensure optimal performance and longevity.

6. MAINTENANCE

The Teyleten Robot DC-DC Buck Converter Module is designed for reliable operation with minimal maintenance. Observe the following guidelines:

- **Keep Clean:** Ensure the module is free from dust, dirt, and moisture. Use a soft, dry brush or compressed air for cleaning if necessary.
- **Avoid Physical Stress:** Handle the module carefully to prevent physical damage to components or solder joints.
- **Ventilation:** If operating at higher currents (above 2A), ensure adequate airflow around the module to dissipate heat.
- **Storage:** Store the module in a dry, non-condensing environment when not in use.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
No output voltage	- No input power - Incorrect input polarity - Input voltage too low (below 4.5V) - Module damaged	- Verify input power supply is active. - Check input connections for correct polarity (+IN to positive, -IN to negative). - Ensure input voltage is within 4.5V-30V. - Replace module if damaged.
Output voltage unstable or incorrect	- Input voltage fluctuating or too high/low - Output current exceeds 2A without heat dissipation - Module overheating	- Ensure stable input voltage within 4.5V-30V. Note that some power sources, like 24V LFP batteries with chargers, can exceed 28V, potentially causing the module to cut out. Keep input below 28V for consistent operation. - Reduce load current or add a heatsink if current exceeds 2A. - Ensure adequate ventilation.
Module gets excessively hot	- Output current too high - Insufficient ventilation	- Reduce load current or add a heatsink. - Improve airflow around the module.

8. WARRANTY AND SUPPORT

Teyleten Robot products are manufactured to high-quality standards. For specific warranty information, please refer to the documentation provided at the time of purchase or contact your retailer. For technical support or inquiries, please visit the official Teyleten Robot website or contact their customer service department.

Note: Damage resulting from improper installation, incorrect voltage application, or exceeding specified operating conditions is not covered under warranty.

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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.

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