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› **PEMENOL** /

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PEMENOL 10632

PEMENOL DC DC Step Down Module User Manual

Model: 10632

Brand: PEMENOL

1. INTRODUCTION

The PEMENOL DC DC Step Down Module is a highly efficient voltage converter designed to provide a stable 5V DC output from a wider input voltage range. These compact modules are ideal for various electronic projects, DIY applications, and embedded systems requiring a regulated 5V power supply. Each module features a fixed 5V output and high conversion efficiency, making them a reliable choice for power management.



Image 1.1: A set of three PEMENOL DC DC Step Down Modules, showcasing their compact size and design.

2. SPECIFICATIONS

This section details the technical specifications of the PEMENOL DC DC Step Down Module.

Parameter	Value
Input Voltage	7-26V DC
Output Voltage	5V (Fixed)
Output Current	3A (Maximum), long-term operation below 1.6A
Efficiency	96% (Maximum), (Input - Output \geq 2V). Higher voltage difference leads to higher efficiency.
Output Ripple	<30mV
Operating Temperature	-40°C to 85°C
Dimensions (L x W x H)	22.3 x 17 x 4.2 mm

Parameter	Value
Model Number	10632

EIN/AUS Kennzeichen

2 Paare Ein/Aus-Schnittstellen

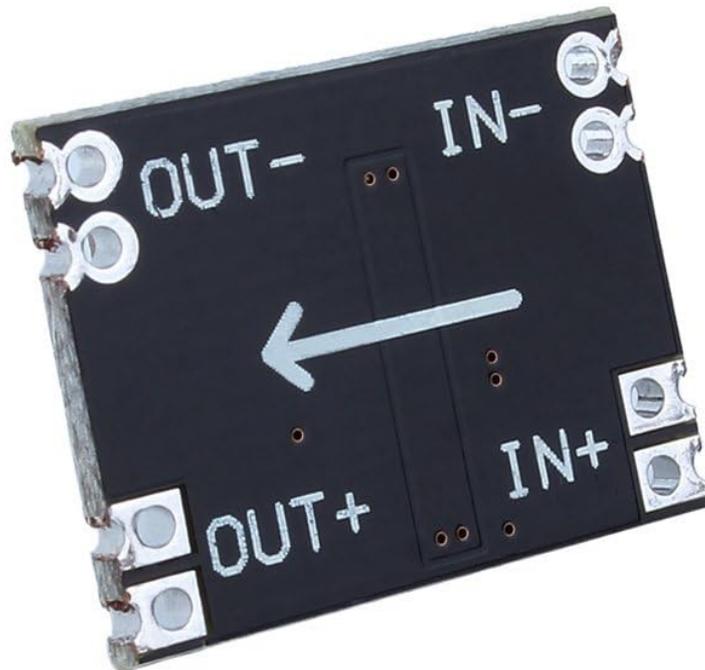


Image 2.1: Visual representation of the module's specifications, including input/output voltage, current, efficiency, ripple, and operating temperature.

Mini Größe

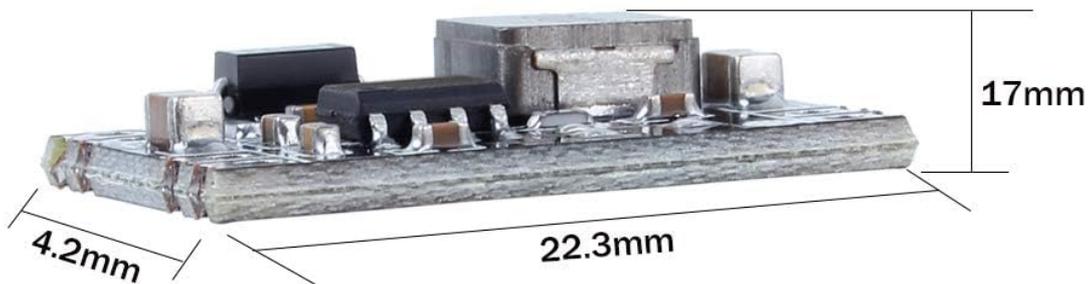


Image 2.2: Diagram illustrating the compact dimensions of the module: 22.3mm length, 17mm width, and 4.2mm height.

3. SETUP AND INSTALLATION

Proper setup is crucial for the safe and effective operation of the module. Please follow these guidelines:

- **Polarity Check:** Before connecting any power, always verify that the negative and positive terminals (IN- and IN+, OUT- and OUT+) are correctly identified and attached. Incorrect polarity can damage the module and connected devices.
- **Input Voltage Limit:** The input voltage must not exceed 28V DC. Exceeding this limit can cause irreversible damage to the module.
- **Connections:** The module features two pairs of input/output interfaces, designed for easy soldering. Connect your DC power source to the IN+ (positive input) and IN- (negative input) terminals. Connect your load to the OUT+ (positive output) and OUT- (negative output) terminals.
- **Soldering:** The module's design, similar to a stamp, facilitates easy soldering for secure connections. Ensure good solder joints for reliable performance.

Mehrere Details

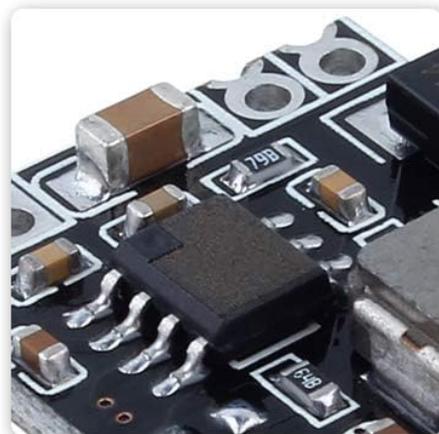
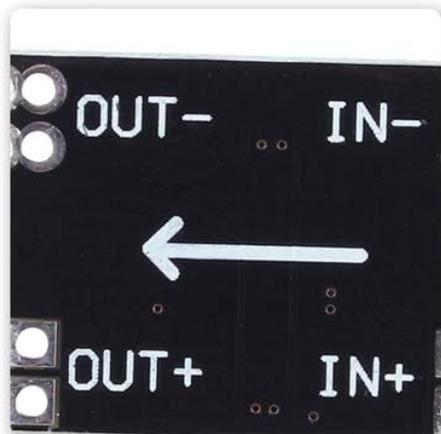
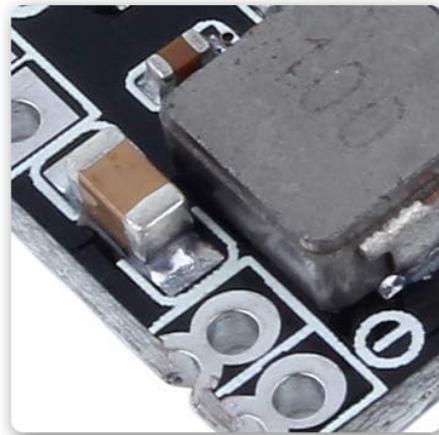
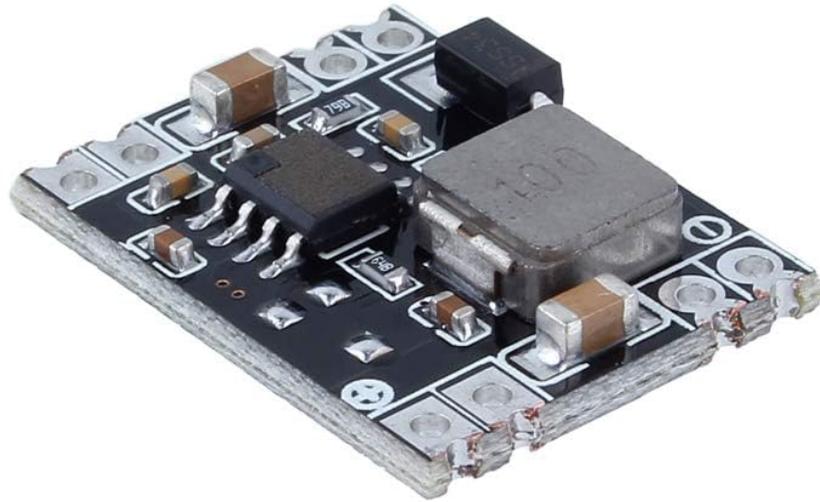


Image 3.1: Clear markings for input (IN+, IN-) and output (OUT+, OUT-) terminals on the module, indicating proper connection points.

Spezifikation



Eingangsspannung:	DC 7 -26V
Ausgangsspannung:	5V (feste Spannung)
Ausgangsstrom:	3A (Maximum), mit langer Betriebsdauer unter 1.6A
Ausgangswelligkeit:	< 30mV
Betriebsspannung:	-40 ° C ~ 85 ° C
Wirkungsgrad :	96% (max), (Eingang - Ausgang \geq 2V). Je größer die Spannungsdifferenz ist, desto höher ist der Wirkungsgrad

Image 3.2: A detailed close-up of the module's components, showing the inductor, capacitors, and integrated circuits, which are crucial for its step-down function.

4. OPERATING INSTRUCTIONS

Once properly installed, the PEMENOL DC DC Step Down Module operates automatically to convert the input voltage to a stable 5V output.

- **Power On:** Apply a DC input voltage between 7V and 26V to the IN+ and IN- terminals. The module will immediately begin converting the voltage.
- **Output Monitoring:** The module provides a fixed 5V output. Ensure your connected load is compatible with this voltage.
- **Current Limits:** While the module can handle a maximum output current of 3A, for prolonged operation and optimal performance, the output current should be kept below 1.6A. Exceeding this limit for extended periods may lead to reduced efficiency or overheating.
- **Efficiency Considerations:** The module achieves up to 96% efficiency. Higher efficiency is observed when the difference between the input and output voltage is greater than or equal to 2V.

5. MAINTENANCE

The PEMENOL DC DC Step Down Module is designed for long-term, reliable operation with minimal maintenance. Follow these general guidelines:

- **Keep Clean:** Ensure the module is free from dust, dirt, and moisture. Use a soft, dry brush or cloth for cleaning if necessary.
- **Environmental Conditions:** Operate the module within its specified temperature range (-40°C to 85°C). Avoid exposing it to extreme temperatures, high humidity, or corrosive environments.
- **Ventilation:** While compact, ensure adequate airflow around the module, especially if operating at higher currents, to prevent heat buildup.
- **Physical Inspection:** Periodically inspect the module for any signs of physical damage, loose connections, or discoloration that might indicate overheating.

6. TROUBLESHOOTING

If you encounter issues with your PEMENOL DC DC Step Down Module, consider the following troubleshooting steps:

- **No Output Voltage:**
 - Verify the input voltage is within the 7-26V range.
 - Check all connections for correct polarity (IN+/IN-, OUT+/OUT-).
 - Ensure all solder joints are secure and free from cold joints or shorts.
 - Confirm that the input power source is active and providing sufficient current.
- **Module Overheating:**
 - Check if the output current exceeds the recommended 1.6A for prolonged periods. Reduce the load if necessary.
 - Ensure there is adequate ventilation around the module.
 - Verify that the input voltage is not excessively high, leading to greater power dissipation.
- **Unstable Output Voltage / High Ripple:**
 - Ensure the input power source is stable and free from excessive noise.
 - Check for any loose connections or poor solder joints.
 - Verify that the load is not drawing current beyond the module's capabilities.
- **Module Damage:**
 - The most common causes of damage are incorrect input polarity or input voltage exceeding 28V. Always double-check connections before applying power.

7. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the documentation provided at the time of purchase or contact your seller directly. PEMENOL products typically come with a standard manufacturer's warranty against defects in materials and workmanship.

When contacting support, please be prepared to provide your product model number (10632) and a detailed description of the issue you are experiencing.

