

DROK 090010

DROK Waterproof DC Buck Converter (Model 090010) Instruction Manual

INTRODUCTION

This manual provides comprehensive instructions for the installation, operation, and maintenance of the DROK Waterproof DC Buck Converter, Model 090010. This device is designed to efficiently convert a higher DC input voltage (8-22V) to a lower, adjustable DC output voltage (3-15V) with a maximum current of 3A. Its waterproof and robust design makes it suitable for various applications, including automotive, motor, and general electronic projects.

PRODUCT OVERVIEW

The DROK Waterproof DC Buck Converter features a compact design with an aluminum alloy case, offering durability and protection against environmental factors. Key features include:

- **Synchronous Rectification Technology:** Ensures high conversion efficiency and stable performance.
- **Adjustable Output Voltage:** A built-in potentiometer allows for precise adjustment of the output voltage.
- **Robust Construction:** Fully sealed, waterproof, anti-shock, anti-humidity, and dust-proof for enhanced durability.
- **Integrated Protections:** Includes reversed-connection protection, over-current protection, over-heating protection, and over-voltage protection for safe operation.



Front view of the DROK DC Buck Converter, showing the input (IN) and output (OUT) terminals. Red and black wires are for input, yellow and black for output.



Diagram illustrating the physical dimensions of the buck converter: 50mm (1.97in) length, 25mm (0.98in) width, and 20mm (0.79in) height.



Close-up view of the potentiometer (blue screw) located on the side of the converter, used for adjusting the output voltage.

SPECIFICATIONS

Feature	Detail
Input Voltage Range	DC 8-22V
Output Voltage Range	DC 3-15V (Adjustable)
Maximum Output Current	3 Amps
Conversion Efficiency	Up to 95% (Synchronous Rectification)
Protection Features	Reversed-connection, Over-current, Over-heating, Over-voltage
Dimensions (L x W x H)	1.3 x 0.98 x 0.79 inches (33 x 25 x 20 mm)
Weight	0.01 ounces (approximately 0.28 grams)
Enclosure Material	Aluminum Alloy
Certifications	CE, RoHS, UL

SETUP AND INSTALLATION

Before installation, ensure all power sources are disconnected to prevent electrical shock or damage to the device. The buck converter has clearly marked input and output wires.

- 1. Identify Wires:**
 - **Input (IN):** Red wire for positive (+), Black wire for negative (-). Connect these to your DC power source (8-22V).
 - **Output (OUT):** Yellow wire for positive (+), Black wire for negative (-). Connect these to your load device (3-15V).
- 2. Wiring Connections:** Securely connect the input wires to your power source and the output wires to your load. Ensure correct polarity to avoid damage. The device includes reversed-connection protection, but proper wiring is always recommended.
- 3. Mounting:** The compact design allows for flexible mounting. Ensure the converter is placed in a location that allows for adequate heat dissipation, especially during prolonged operation or high loads.
- 4. Initial Voltage Adjustment:** Before connecting the load, it is recommended to adjust the output voltage to the desired level.

WARNING: Do not connect your load before adjusting the output voltage. Incorrect voltage can damage your device.

Connect the input power source to the converter.

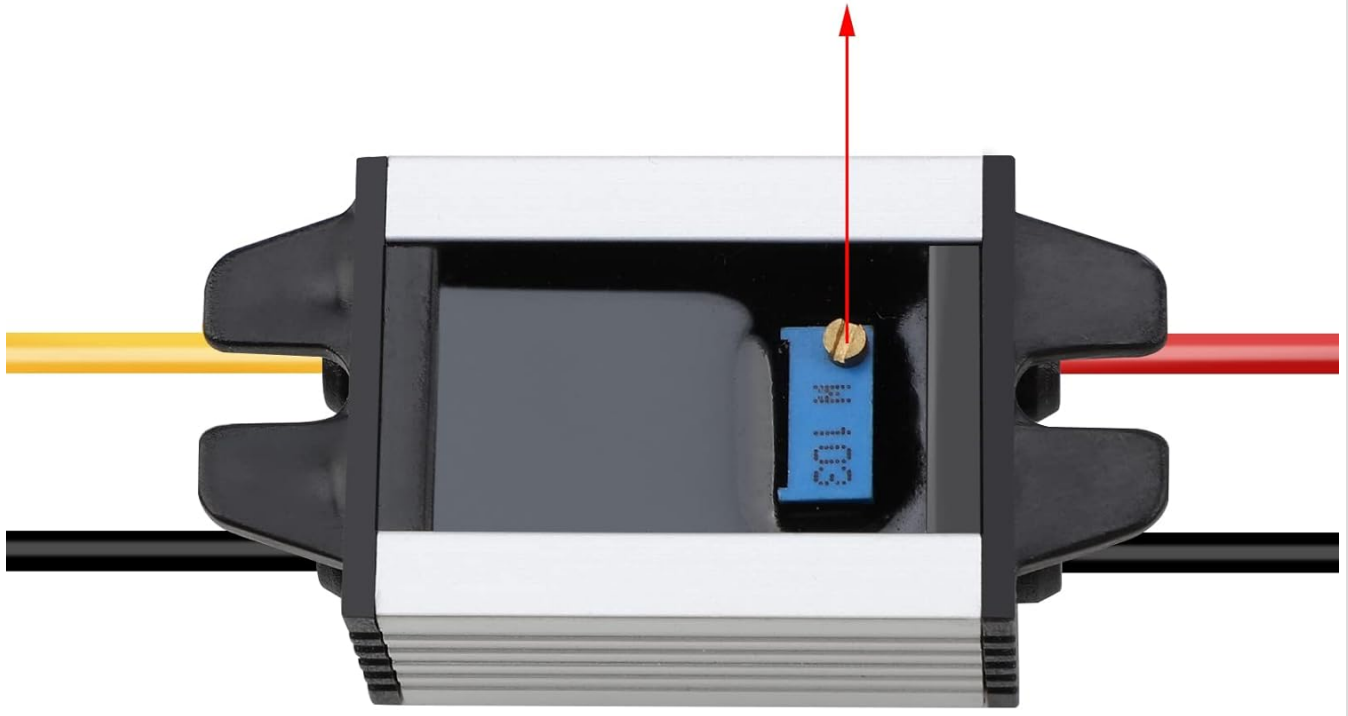
Use a multimeter to measure the voltage across the output (yellow and black) wires.

Locate the small blue potentiometer screw on the side of the converter.

Using a small screwdriver, carefully turn the potentiometer clockwise to increase the output voltage or counter-clockwise to decrease it until the desired voltage (between 3V and 15V) is achieved.

- 5. Connect Load:** Once the output voltage is set, disconnect the input power, connect your load device to the output wires, and then reapply power.

Voltage Regulation



The buck converter showing its input (red and black) and output (yellow and black) wires, ready for connection.



A small screwdriver is used to turn the blue potentiometer screw for precise output voltage adjustment.

Once properly installed and the output voltage adjusted, the DROK Waterproof DC Buck Converter operates automatically. It will maintain the set output voltage as long as the input voltage is within the specified range (8-22V) and the load current does not exceed 3A.

- **Monitoring:** Periodically check the output voltage with a multimeter if precise voltage is critical for your application.
- **Load Considerations:** Ensure the connected load does not draw more than 3A. Exceeding this limit may trigger over-current protection or damage the converter.
- **Environmental Conditions:** While waterproof, avoid prolonged submersion or exposure to extreme temperatures beyond its operational limits to ensure longevity.

Your browser does not support the video tag.

This video demonstrates the DROK 090010 Buck Converter's voltage adjustment process using a multimeter and screwdriver, followed by a demonstration of its waterproof capability while powering a small motor.

MAINTENANCE

The DROK Waterproof DC Buck Converter is designed for minimal maintenance due to its sealed and robust construction.

- **Cleaning:** If necessary, gently wipe the exterior with a dry or slightly damp cloth. Do not use harsh chemicals or abrasive materials.
- **Inspection:** Periodically inspect the wiring connections for any signs of wear, corrosion, or loose connections. Ensure the converter is free from physical damage.
- **Heat Dissipation:** Ensure the area around the converter remains clear to allow for proper heat dissipation. While the case acts as a heat sink, restricted airflow can lead to overheating under heavy loads.

TROUBLESHOOTING

If you encounter issues with your DROK Waterproof DC Buck Converter, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
No output voltage or unstable output.	<ul style="list-style-type: none">• Incorrect input voltage.• Loose or incorrect wiring connections.• Output voltage set too low or too high (outside 3-15V).• Overload condition (current exceeds 3A).• Overheating.	<ul style="list-style-type: none">• Verify input voltage is within 8-22V.• Check all wiring for secure connections and correct polarity.• Adjust the potentiometer to the desired output voltage using a multimeter.• Reduce the load current or ensure it does not exceed 3A.• Allow the unit to cool down. Ensure adequate ventilation.
Converter gets excessively hot.	<ul style="list-style-type: none">• High load current.• Insufficient ventilation.• Large difference between input and output voltage.	<ul style="list-style-type: none">• Ensure load current is within specifications (max 3A).• Provide better airflow around the converter.• Consider using a converter with a higher current rating if your application requires it.

Output voltage drops under load.	<ul style="list-style-type: none">• Load current exceeds converter's capacity.• Poor input power supply regulation.	<ul style="list-style-type: none">• Verify load current does not exceed 3A.• Ensure your input power supply can provide stable voltage and sufficient current.
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WARRANTY AND SUPPORT

DROK products are designed for reliability and performance. For specific warranty information and technical support, please refer to the official DROK website or contact their customer service directly. Keep your purchase receipt as proof of purchase for any warranty claims.

For further assistance, visit the [DROK Store on Amazon](#).