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DROK 200735_JPN

DROK Buck-Boost Converter Module User Manual

Model: 200735_JPN | Brand: DROK

1. Introduction and Overview

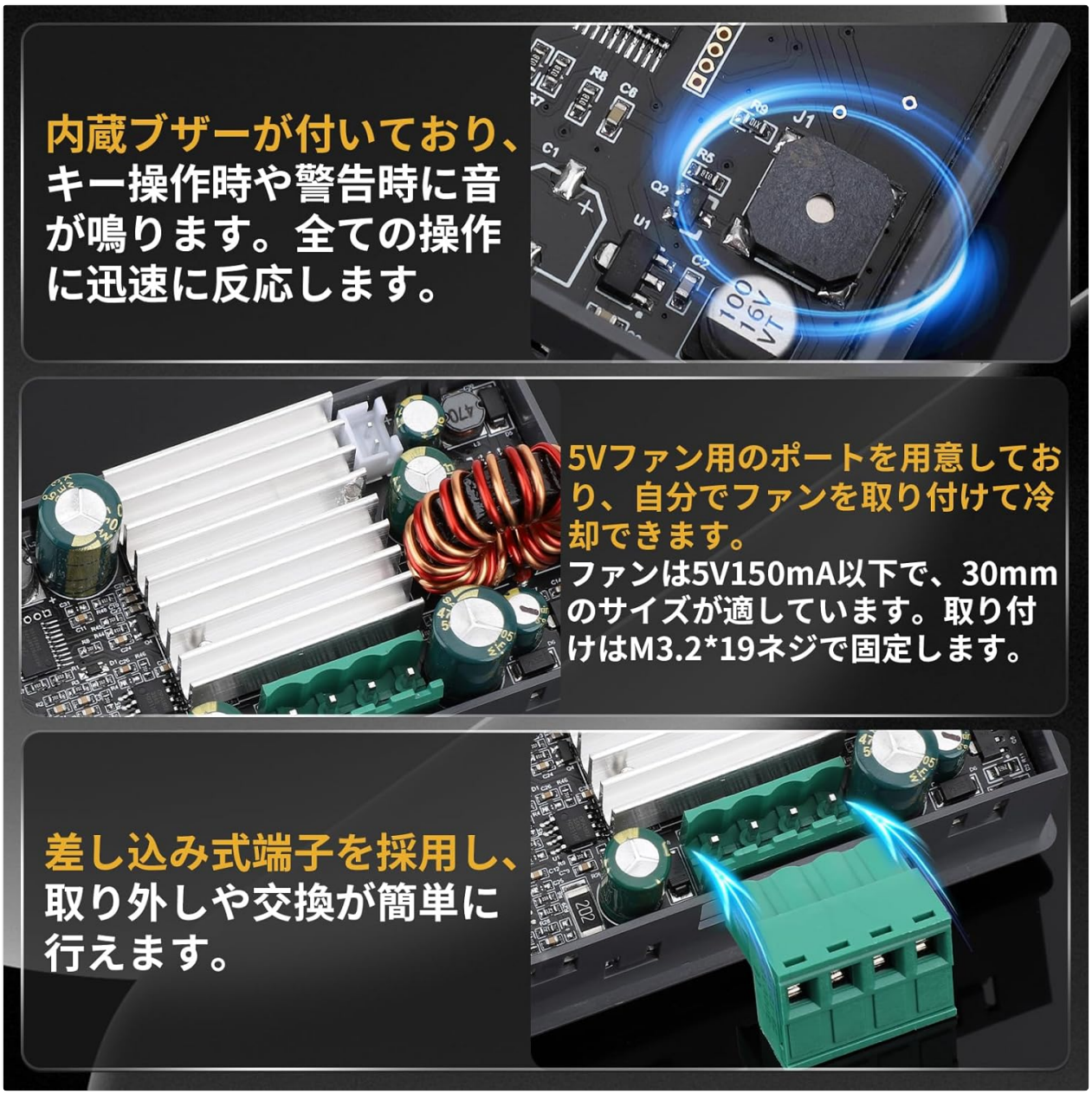
This DROK Buck-Boost Converter is a versatile DC-DC voltage regulator module designed to provide stable power in various applications. It features an adjustable output voltage from 0.5V to 36V and an adjustable output current from 0A to 4.5A, with a maximum output power of 40W. The module includes an LCD display for real-time monitoring of voltage and current, a 5V fan port for enhanced cooling, and multiple protection features to ensure safe and reliable operation. This manual provides essential information for the proper setup, operation, and maintenance of your converter module.

Front view of the DROK Buck-Boost Converter module, highlighting the LCD screen which displays output voltage, current, and power. Control buttons for M/T, V-SET, I-SET, and OK/↓ are visible on the left, and a rotary encoder with a green ON/OFF button is on the right.

2. Product Features

- **Wide Input/Output Range:** Input voltage DC 6-36V, output voltage DC 0.5-36V.
- **Adjustable Output:** Output current 0-4.5A, output power up to 40W.
- **LCD Display:** Real-time display of input/output voltage, current, power, capacity, energy, time, and temperature.
- **Enhanced Cooling:** Includes a 5V fan port for optional fan installation (30mm fan compatible).
- **Multi-functional Interface:** Built-in buzzer for key operation feedback and warning alerts.
- **Multiple Protection Features:** Anti-reverse input protection, backflow protection, low input voltage protection (LVP), overvoltage protection (OVP), overcurrent protection (OCP), overtemperature protection (OTP), and overpower protection (OPP).
- **Memory Function:** Stores up to 11 groups of settings.

3. Specifications



A table detailing the technical parameters of the converter, including input/output ranges, accuracy, and physical dimensions.

Parameter	Value
Input Voltage Range	DC 6-36V
Output Voltage Range	DC 0.5-36V
Output Current Range	0-4.5A
Output Power	40W (Max)
Voltage Display Accuracy	±0.3% + 3 digits
Current Display Accuracy	±0.5% + 3 digits
Voltage Resolution	0.01V
Current Resolution	0.001A

Parameter	Value
Conversion Efficiency	Approx. 88%
Memory Storage	11 Groups
Buzzer	Built-in
Screen Size	36 x 29 mm
Product Dimensions (L x W x H)	83 x 48 x 29.4 mm
Product Weight	103 g
Manufacturer	DROKING
Item Part Number	200735_JPN

4. Safety Information and Protection Features

The DROK Buck-Boost Converter is equipped with multiple protection mechanisms to ensure safe operation. Understanding these features is crucial for preventing damage to the module and connected devices.

- **Anti-Reverse Input Protection:** Prevents damage if input polarity is accidentally reversed.
- **Backflow Protection:** Prevents current from flowing back into the input source from the output.
- **Low Input Voltage Protection (LVP):** Automatically cuts off output if the input voltage drops below a set threshold, protecting the input power source.
- **Overvoltage Protection (OVP):** Shuts down output if the output voltage exceeds a preset limit.
- **Overcurrent Protection (OCP):** Disables output if the output current surpasses a configured maximum.
- **Overtemperature Protection (OTP):** Activates if the module's internal temperature becomes too high, preventing thermal damage.
- **Overpower Protection (OPP):** Limits or shuts down output if the total output power exceeds the specified maximum.

Always ensure proper wiring and adhere to the specified voltage and current limits to maintain safety and optimal performance.

This image demonstrates various display modes of the LCD screen and highlights the multiple protection features, including Anti-reverse, Undervoltage, Overcurrent, Overtemperature, Backflow, Overvoltage, and Overpower protection.

5. Setup and Installation

Follow these steps for proper installation of the converter module:

1. **Wiring:** Connect your DC input power source to the 'IN' terminals and your load to the 'OUT' terminals. Ensure correct polarity (positive to positive, negative to negative) to avoid issues, although the module has anti-reverse protection. The plug-in terminals facilitate easy and secure connections.
2. **Mounting:** The module has mounting holes. Refer to the dimensions diagram for precise placement.
3. **Optional Fan Installation:** For applications requiring higher power or extended operation, a 5V cooling fan (30mm size, 5V/150mA max) can be installed using the dedicated 5V fan port. The fan can be secured with M3.2*19 screws.
4. **Power On:** Once wired, apply power to the input terminals. The LCD screen should illuminate.

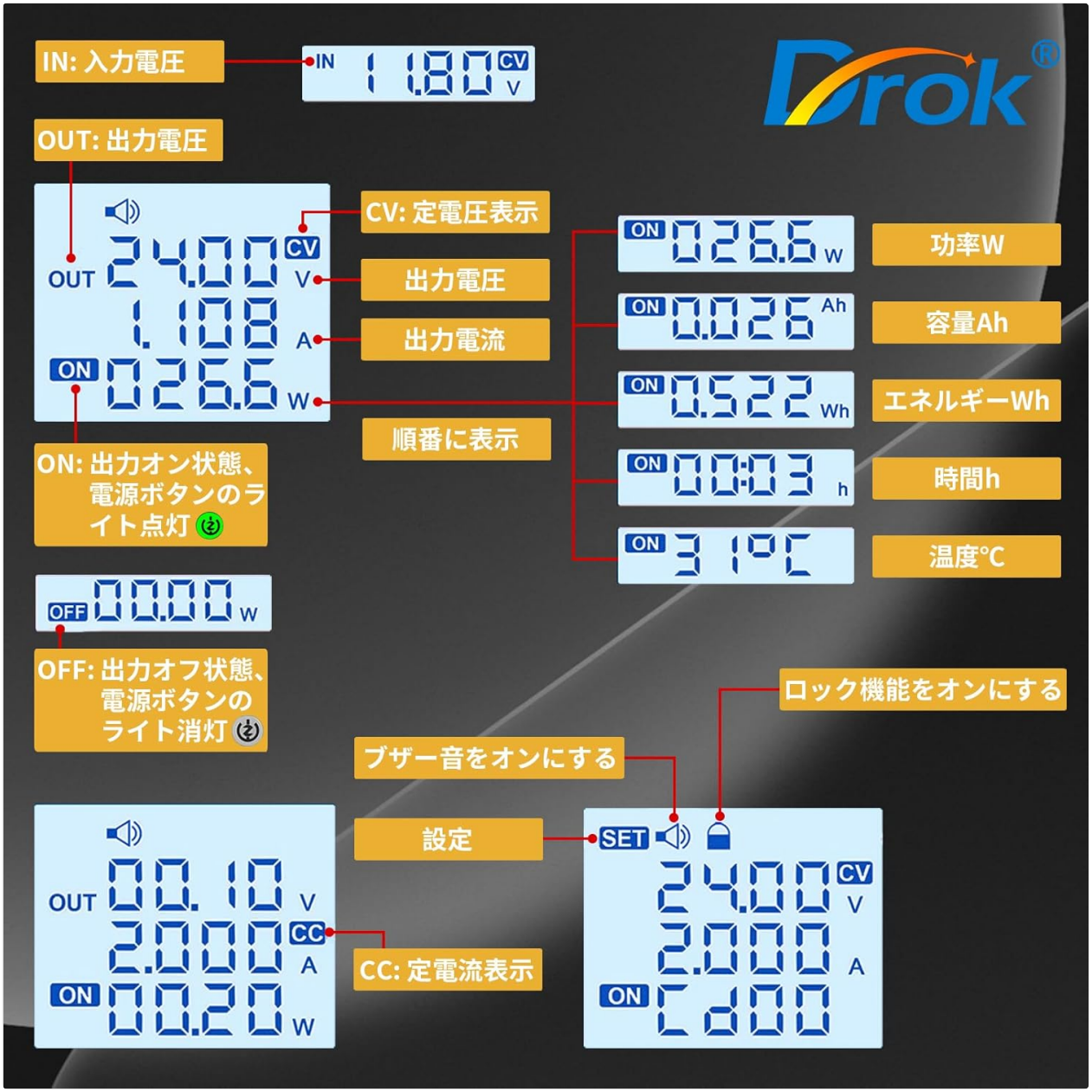
This image illustrates the physical dimensions of the converter module and provides various views, including a detailed diagram of the mounting hole dimensions.

Detailed view of the converter's internal components, including the built-in buzzer, the 5V fan port, and the convenient plug-in terminals for easy installation and replacement of wiring.

6. Operation

The module features an intuitive interface with buttons and a rotary encoder for control.

6.1 Button Functions



An illustration of the control buttons and their functions on the DROK Buck-Boost Converter.

- **M/↑ Button:**
  - Short Press: Toggle between input voltage and output voltage display.
  - Long Press: Enable/disable the lock function for settings.
- **V-SET Button:** Used for setting the output voltage.
- **I-SET Button:** Used for setting the output current limit.
- **OK/↓ Button:**
  - Short Press: Cycle through display modes for output power (W), capacity (Ah), energy (Wh), time (h), and temperature (°C).
  - Long Press: Enter or exit the advanced setting menu.
- **Rotary Encoder:**
  - Turn Left: Decrease the selected value.
  - Turn Right: Increase the selected value.
- **Green ON/OFF Button:**

- Short Press: Turn the output ON or OFF.
- Long Press: Enter sleep mode (shutdown).

6.2 Basic Operation

1. **Set Output Voltage:** Press the **V-SET** button. Use the rotary encoder to adjust the desired output voltage. Press **V-SET** again or **OK**/↓ to confirm.
2. **Set Output Current Limit:** Press the **I-SET** button. Use the rotary encoder to adjust the maximum output current. Press **I-SET** again or **OK**/↓ to confirm.
3. **Turn Output ON/OFF:** Short press the **Green ON/OFF** button to enable or disable the output. The display will show 'ON' or 'OFF' accordingly.
4. **Monitor Parameters:** Short press the **OK**/↓ button to cycle through various output parameters displayed on the LCD, such as power (W), accumulated capacity (Ah), accumulated energy (Wh), operation time (h), and internal temperature (°C).

This image illustrates the various display modes of the LCD screen, showing input/output voltage, current, power, and other parameters, along with Constant Voltage (CV) and Constant Current (CC) indicators.

7. Configuration Menu (Advanced Settings)

To access the advanced configuration menu, long press the**OK**/↓ button. Use the **V-SET** button to navigate through the different setting parameters (cd00 to cd10 or other indicators). Use the rotary encoder to adjust values. Short press **OK**/↓ to confirm a setting or move to the next digit/parameter.

- **OUP (Over Voltage Protection):** Sets the maximum allowable output voltage. If the output voltage exceeds this value, the output will be shut off. Default is 37V. Ensure this is set higher than your desired operating output voltage.
- **OCP (Over Current Protection):** Sets the maximum allowable output current. If the output current exceeds this value, the output will be shut off.
- **LUP (Low Input Voltage Protection):** Sets the minimum allowable input voltage. If the input voltage drops below this value, the output will be shut off to protect the input power source.
- **OPP (Over Power Protection):** Sets the maximum allowable output power in Watts. If the output power exceeds this value, the output will be shut off.
- **OAH (Output Amp-Hour Limit):** Sets a limit for accumulated output Amp-hours. If the total Ah exceeds this value, the output will be shut off. To disable, set to '---'.
- **OPH (Output Watt-Hour Limit):** Sets a limit for accumulated output Watt-hours. If the total Wh exceeds this value, the output will be shut off.
- **OHP (Output Time Limit):** Sets a maximum operation time for the output. If the time exceeds this value, the output will be shut off.
- **OTP (Over Temperature Protection):** Sets the maximum internal operating temperature. If the module's temperature exceeds this value, the output will be shut off.
- **PON (Power On Output State):** Configures whether the output is ON or OFF automatically when input power is applied to the module.
- **ADD (Address):** This parameter is typically for communication functions not present in this model (zk-sk40/zk-sk90). Factory default is 001.
- **Backlight Brightness:** Adjusts the brightness of the LCD screen backlight.
- **SLP (Screen Sleep Time):** Sets the duration (in seconds, max 60) after which the screen display will turn off if no activity is detected. To disable screen sleep, short press the **Green ON/OFF** button until '---' is displayed.
- **BEEP:** Toggles the buzzer sound ON or OFF for key presses and warnings.
- **Zero (Current Calibration):** Used for calibrating the current reading under no-load conditions.
- **FRD (Factory Reset):** Resets all settings to factory defaults. To perform a factory reset, long press the **Green ON/OFF** button until 'FRD' flashes and then stops. Note that some specific settings, like SLP, might not fully revert to factory defaults.
- **CALV (Voltage Calibration):** Allows for calibration of the voltage measurement.
- **CALI (Current Calibration):** Allows for calibration of the current measurement.

8. Maintenance

To ensure the longevity and reliable operation of your DROK Buck-Boost Converter, follow these maintenance guidelines:

- **Keep Clean:** Regularly clean the module with a soft, dry cloth to prevent dust accumulation, especially on the heatsinks and display.
- **Ensure Ventilation:** Operate the module in a well-ventilated area. If a fan is installed, ensure it is free from obstructions.
- **Avoid Moisture:** Protect the module from moisture, humidity, and corrosive environments.

- **Inspect Connections:** Periodically check all wiring connections to ensure they are secure and free from damage.

9. Troubleshooting

If you encounter issues with your converter module, consider the following:

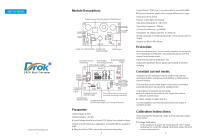
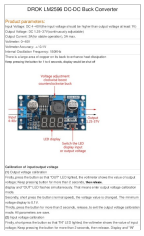
- **No Display/No Power:**
  - Check input power source and connections. Ensure input voltage is within the 6-36V range.
  - Verify correct input polarity.
- **Output Not Turning ON:**
  - Short press the **Green ON/OFF** button to ensure the output is enabled.
  - Check if any protection features (OVP, OCP, LVP, OPP, OTP) are active. The display may show a warning. Adjust settings or reduce load if necessary.
  - Ensure the input voltage meets the LUP setting.
- **Output Voltage/Current Incorrect:**
  - Verify the V-SET and I-SET values are correctly configured.
  - Consider performing voltage (CALV) and current (CALI) calibration if readings appear inaccurate.
- **Buzzer Sounds Continuously:**
  - This indicates a warning or protection activation. Check the display for error messages related to OVP, OCP, LVP, OPP, OTP, OAH, OPH, or OHP.
  - Address the underlying cause (e.g., reduce load, increase input voltage, check temperature).
- **Screen Goes Blank:**
  - Check the SLP (Screen Sleep Time) setting in the configuration menu. Disable it if you prefer the screen to remain on.

10. Warranty and Support

This product is manufactured by DROKING. For warranty information, technical support, or service inquiries, please refer to the documentation provided at the time of purchase or contact your retailer. Keep your purchase receipt as proof of purchase.

Related Documents - 200735_JPN

	DROK 200651 30V 4A 35W DC-DC Buck Boost Converter User Manual User manual for the DROK 200651 30V 4A 35W DC-DC Buck Boost Converter. Covers working interface, parameters, protection features, operating instructions for setting voltage, current, and other parameters, lock function, and size specifications.

	[DROK Buck Converter User Manual and Specifications] Comprehensive guide to the DROK Buck Converter, detailing its module description, parameters, protections, constant current mode, calibration, display settings, USB output, and important cautions. Includes technical specifications and troubleshooting Q&A.
	[DROK Boost Converter 200150 User Manual] This document provides a detailed introduction and operating instructions for the DROK Boost Converter 200150, covering display functions, simple mode, and fully functional mode operations, including parameter saving, loading, and input voltage protection settings.
	[DC 5-32V to 1.25-20V Boost Buck Converter (090747) - Specifications and Guide] 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.
	[DROK DC Adjustable Boost Converter Module 6-30V to 7-32V 5A User Guide] This guide provides detailed information on the DROK DC Adjustable Boost Converter Module, including its parameters, protections, display modes, and voltage calibration. Learn how to use this 5A, 60W (max) module for various voltage conversion needs.
	[DROK LM2596 DC-DC Buck Converter: Specifications and Calibration Guide] Comprehensive details and step-by-step instructions for the DROK LM2596 DC-DC Buck Converter, covering product parameters, voltage calibration, and operational features.