Acxico B09BFK2LCG

Acxico DC-DC 8-32V to 45-390V High Voltage Boost Converter ZVS Step-up Booster Module User Manual

1. Introduction

This manual provides essential information for the safe and effective use of the Acxico DC-DC 8-32V to 45-390V High Voltage Boost Converter ZVS Step-up Booster Module. Please read these instructions carefully before installation and operation to ensure proper functionality and to prevent damage to the module or connected equipment.

2. Safety Information

WARNING: This module generates high voltage (up to 390V). Improper handling can result in severe injury or death. Always exercise extreme caution when working with high voltage circuits.

- Ensure all power is disconnected before making any connections or adjustments.
- Use appropriate insulation and safety equipment.
- Do not touch exposed terminals or components when the module is powered.
- Verify correct wiring polarity before applying power. Reverse polarity can damage the module (non-self-healing fuse).
- Ensure adequate heat dissipation, especially during high power operation, to prevent overheating.
- This module is intended for experienced users familiar with electronics and high voltage safety procedures.

3. Product Overview

The Acxico DC-DC Boost Converter is a non-isolated step-up module designed to convert a lower DC input voltage (8-32V) into a higher, continuously adjustable DC output voltage (45-390V). It features built-in protection mechanisms for short circuit, over current, and over voltage conditions.

Key Features:

- Non-isolated step-up module.

- Wide input voltage range: 8V to 32V DC.
- Adjustable output voltage: +45V to 390V DC.
- Maximum output power: 40W (Peak 70W).
- Operating frequency: 75 KHz.
- Protection features: Short circuit, over current, over voltage, and input reverse polarity (fuse protected).
- Compact design with integrated heatsink.

Component Identification:

Figure 1: Top view of the Acxico DC-DC Boost Converter module. This image highlights the input terminals (8-32V), output terminals (+45-390V), the output voltage regulation potentiometer, and fan connectors. The large transformer and heatsink are also visible.

Refer to Figure 1 for the location of key components:

- **8~32V Input Terminals:** Connect your DC power source here. Observe polarity.
- **+45~390V Output Terminals:** Connect your load here. Observe polarity.
- **Output Voltage Regulation:** A multi-turn potentiometer used to adjust the output voltage.
- **Fan Connectors:** For connecting an external cooling fan if additional heat dissipation is required.

- **Heatsink:** Integrated for thermal management.

4. Specifications

Parameter	Value
Module Properties	Non-isolated step-up module
Input Voltage	8V to 32V DC (Default 10V-32V)
Output Voltage	+45V to 390V DC (Continuously adjustable, default ±50V)
Input Current	5A Max
Output Current	0.2A Max (Dependent on input/output voltage difference)
Output Power	40W (Peak 70W)
Quiescent Current	15mA (Increases with higher output voltage)
Operating Frequency	75 KHz
Conversion Efficiency	Up to 88% (Dependent on input/output voltage and current)
Working Temperature	-40°C to +85°C
Short Circuit Protection	Yes
Over Current Protection	Yes (Output voltage reduced if input current exceeds 4.5A)
Over Voltage Protection	Yes (Output voltage reduced if output voltage exceeds 410V)
Input Reverse Polarity Protection	Yes (Non-self-healing fuse, avoid reverse connection)
Dimensions (L x W x H)	60 x 50 x 20 mm (2.36 x 1.97 x 0.79 inches)
Weight	Approximately 60g (0.13 lbs)

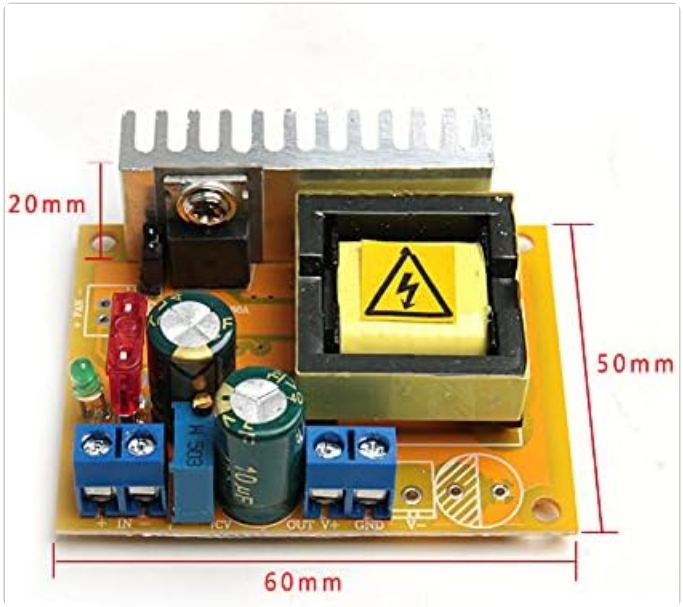

Figure 2: Dimensions of the Acxico DC-DC Boost Converter module, showing its length (60mm), width (50mm), and height (20mm).

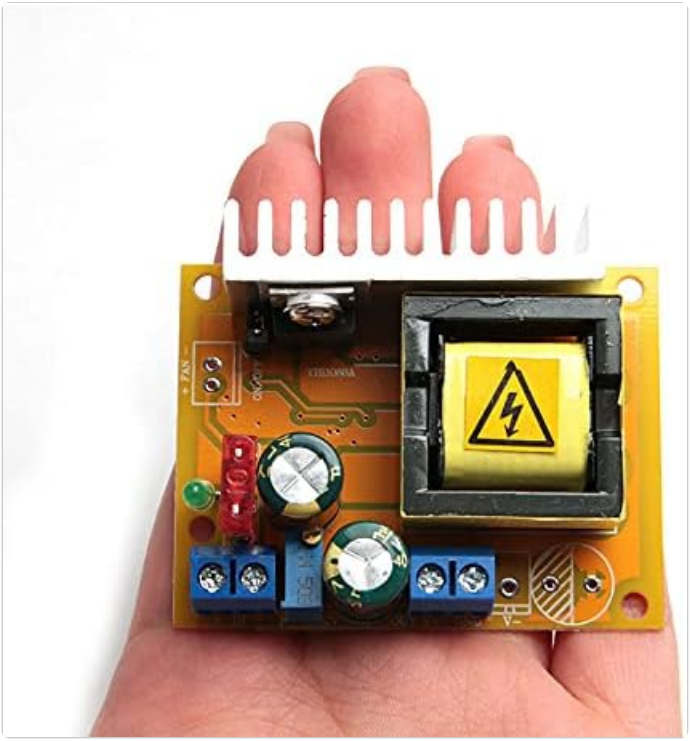

Figure 3: The Acxico DC-DC Boost Converter module held in a hand, illustrating its compact and portable size.

5. Setup

Follow these steps to set up your Acxico DC-DC Boost Converter module:

1. **Prepare Your Workspace:** Ensure you have a clean, dry, and well-lit area. Gather all necessary tools, including a small screwdriver for the terminal blocks.
2. **Identify Terminals:** Locate the input (8~32V) and output (+45~390V) screw terminals on the module as shown in Figure 1.
3. **Input Connection:**
    - Connect your DC power source (8V to 32V) to the input terminals.
    - Ensure correct polarity: connect the positive (+) terminal of your power source to the '+' input terminal on the module, and the negative (-) terminal to the '-' input terminal.
    - Tighten the screw terminals securely to prevent loose connections.
4. **Output Connection:**
    - Connect your load (the device requiring high voltage) to the output terminals.
    - Ensure correct polarity: connect the positive (+) terminal of your load to the '+' output terminal on the module, and the negative (-) terminal to the '-' output terminal (GND).
    - Tighten the screw terminals securely.
5. **Heat Dissipation:** The module includes an integrated heatsink. For continuous operation at higher power levels or in environments with high ambient temperatures, consider connecting an external cooling fan to the designated fan connectors to enhance heat dissipation.
6. **Initial Voltage Adjustment (Optional but Recommended):** Before connecting a sensitive load, it is recommended to power the module and adjust the output voltage to a safe, low level using the voltage regulation potentiometer. Use a multimeter to measure the output voltage.

6. Operating Instructions

Once the module is correctly wired and safety precautions are observed, you can begin operation:

1. **Apply Input Power:** Connect your DC power source to the input terminals. The module should power on.
2. **Adjust Output Voltage:** Use a small screwdriver to carefully turn the multi-turn potentiometer labeled "Output Voltage Regulation" (refer to Figure 1).
    - Turn clockwise to increase the output voltage.
    - Turn counter-clockwise to decrease the output voltage.
    - Continuously monitor the output voltage with a multimeter while adjusting to reach your desired voltage between +45V and 390V.
3. **Monitor Performance:** Observe the module's temperature during operation. If it becomes excessively hot, reduce the load or improve heat dissipation.
4. **Power Down:** To turn off the module, disconnect the input power source.

Typical Applications:

- High voltage power supply for electronic devices.
- Capacitor charging circuits.
- Experimental setups requiring adjustable high DC voltage.
- Specialized applications such as pressure testing or pest control devices.

7. Maintenance

The Acxico Boost Converter module is designed for reliable operation with minimal maintenance. However, following these guidelines can prolong its lifespan:

- **Keep Clean:** Ensure the module is free from dust, dirt, and moisture. Use a soft, dry brush or compressed air to clean the heatsink and PCB periodically.
- **Thermal Management:** Regularly check that the heatsink is not obstructed. If operating in high-temperature environments or at peak power, ensure any connected cooling fan is functioning correctly.
- **Inspect Connections:** Periodically check all wiring connections for tightness and signs of wear or corrosion.
- **Storage:** When not in use, store the module in a dry, cool environment, away from direct sunlight and corrosive substances.

8. Troubleshooting

If you encounter issues with your module, refer to the following common problems and solutions:

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
No output voltage / Module not powering on	◦ No input power. ◦ Incorrect input voltage. ◦ Reverse input polarity (blown fuse). ◦ Loose connections.	◦ Verify input power source is connected and active. ◦ Ensure input voltage is within 8V-32V range. ◦ Check input polarity. If fuse is blown due to reverse polarity, it is non-self-healing and requires replacement. ◦ Tighten all input and output connections.
Output voltage is lower than expected or fluctuates	◦ Output voltage potentiometer not adjusted correctly. ◦ Over current protection activated. ◦ Over voltage protection activated. ◦ Input power source unable to supply sufficient current.	◦ Adjust the output voltage potentiometer carefully while monitoring with a multimeter. ◦ Reduce the load current. If input current exceeds 4.5A, the output voltage will be reduced. ◦ Ensure output voltage does not exceed 410V. If it does, the module will reduce the output voltage. ◦ Use a power supply capable of providing at least 5A at the input voltage.
Module overheating	◦ Excessive load. ◦ Insufficient heat dissipation. ◦ High ambient temperature.	◦ Reduce the output load to stay within the 40W (70W peak) power limit. ◦ Ensure proper airflow around the module. Consider adding an external cooling fan to the fan connectors. ◦ Operate the module in a cooler environment if possible.

9. Support

For any questions or issues not covered in this manual, please contact Acxico customer support. When contacting support, please provide details about your setup, the problem encountered, and any troubleshooting steps you have already taken. Providing pictures of your setup can also be helpful.

We appreciate your purchase and are committed to providing assistance.