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Hilitand Hilitandpeyz1st3ar

Hilitand 48V 10A DC to DC Boost Converter Module User Manual

1. Introduction

This manual provides detailed instructions for the installation, operation, maintenance, and troubleshooting of the Hilitand 48V 10A DC to DC Boost Converter Module. This module is designed to efficiently convert a lower DC input voltage (9-30V) to a stable 48V DC output, providing a maximum current of 10A and power of 480W. Its robust design and protective features ensure reliable performance in various applications.

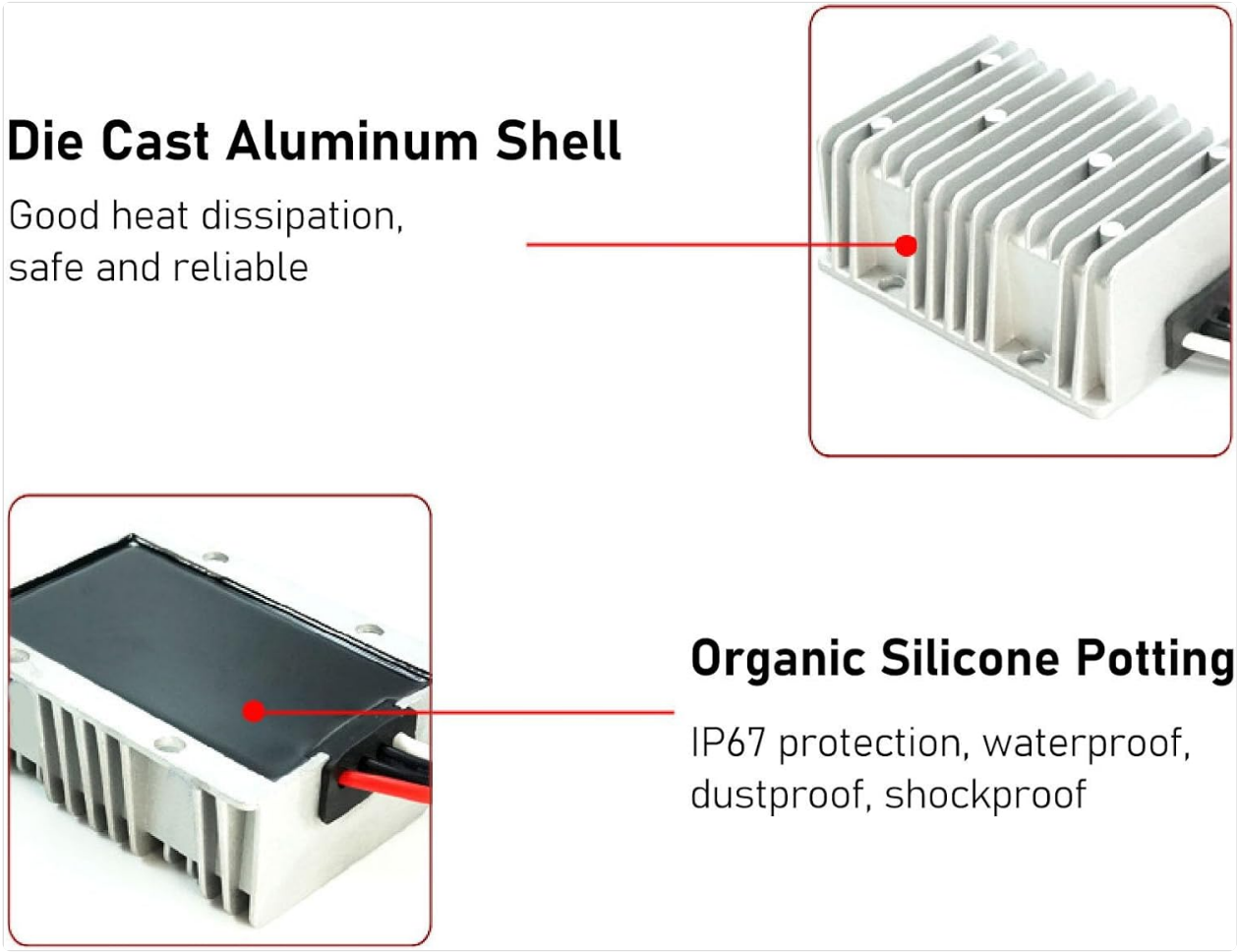

Image 1.1: Overview of the Hilitand 48V 10A DC to DC Boost Converter Module.

2. Product Features

- **High Performance:** Utilizes excellent components and synchronous voltage regulator technology for low heat generation, ample power delivery, and stable operation.
- **Wide Application Range:** Suitable for diverse environments including vehicles, security systems, hospital equipment, telecommunication devices, LED strips, motors, and more.
- **Durable Construction:** Features a fully sealed, die-cast aluminum case with organic silicone potting, providing IP67 protection against shock, dust, and water.
- **Easy Installation:** Designed for straightforward installation by connecting wiring and securing the module to the appropriate equipment.
- **Comprehensive Protection:** Incorporates multiple safeguards including over voltage, under voltage, overload, overheat, and short circuit protection for safe and reliable use.

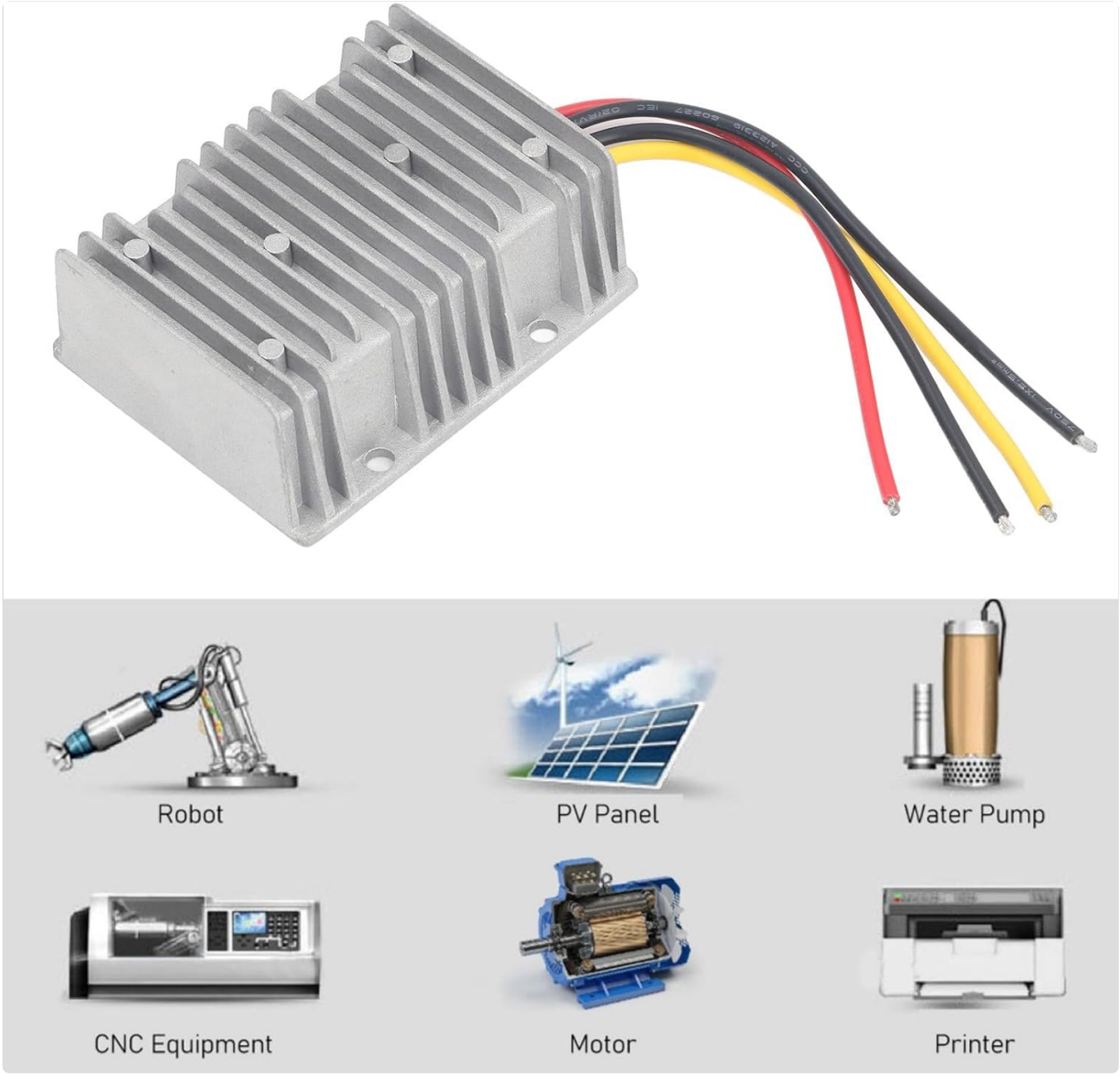

Image 2.1: Examples of applications for the boost converter, including robotics, PV panels, and water pumps.

Image 2.2: Additional application examples such as power amplifiers, test instruments, office equipment, and signal devices.

3. Setup and Installation

The Hilitand DC to DC Boost Converter Module is designed for easy installation. Follow these steps for proper setup:

1. **Wiring Connections:** Identify the input and output terminals on the converter. The input wires are typically red (+) and black (-) for the source voltage (9-30V). The output wires are typically yellow (+) and black (-) for the 48V load.
2. **Polarity:** Ensure that the positive and negative poles of the input and output are connected correctly. **Reversing polarity may damage the converter.**
3. **Fuse Recommendation:** It is highly recommended to install a suitable fuse at the input terminal to protect the converter and connected equipment from overcurrent conditions.
4. **Mounting:** Secure the converter module to a stable surface using appropriate fasteners. Ensure adequate ventilation around the module, although its sealed design provides good heat dissipation.

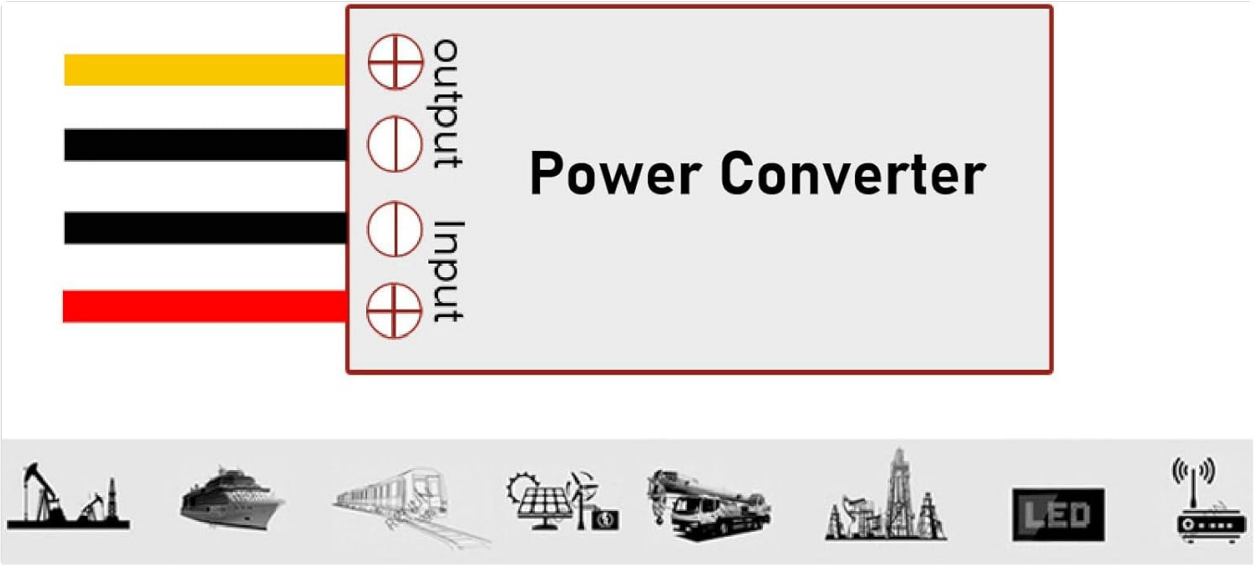

Image 3.1: Wiring diagram illustrating input and output connections for the power converter.

Image 3.2: Close-up view of the input (IN) and output (OUT) labels on the converter, showing Red/Black for input and Yellow/Black for output.

4. Operating Instructions

To ensure optimal performance and longevity of your boost converter, observe the following operating guidelines:

- **Input Voltage Range:** The converter operates with an input voltage between 9V and 30V. Ensure your power source provides voltage within this range.
- **Voltage Difference:** For the converter to maintain its specified output voltage, the input voltage must be

at least 2V higher than the desired output voltage. If the voltage difference is less than 2V, the output voltage may decrease, but this will not damage the converter.

- **Load Current:** The input current supplied to the converter must be equal to or greater than the power required by the connected load equipment. For example, if the load requires 100W, the input power must be at least 100W.
- **Current Margin:** Do not exceed the maximum current capacity of the converter (10A). It is advisable to leave some margin for the converter's current capacity to ensure stable operation and achieve the highest conversion efficiency.
- **No-Load Operation:** When no load is connected, the internal chip operates in a light load mode, and the output voltage may fluctuate slightly within a certain range. This is normal behavior.

5. Maintenance

The Hilitand DC to DC Boost Converter Module is designed for minimal maintenance due to its robust and fully sealed construction.

- **Cleaning:** Periodically clean the exterior of the module with a dry, soft cloth to remove dust and debris. Avoid using harsh chemicals or abrasive materials.
- **Environmental Protection:** The IP67 rating ensures the module is protected against dust ingress and temporary immersion in water. However, avoid prolonged submersion or exposure to extreme conditions beyond its operating temperature range (-20°C to 80°C).
- **Inspection:** Occasionally inspect the wiring connections to ensure they remain secure and free from damage.

No internal user-serviceable parts are present. Do not attempt to open the sealed case, as this will void any warranty and may damage the unit.

6. Troubleshooting

The converter module includes several intelligent protection features to ensure safe operation. If you encounter issues, refer to the following:

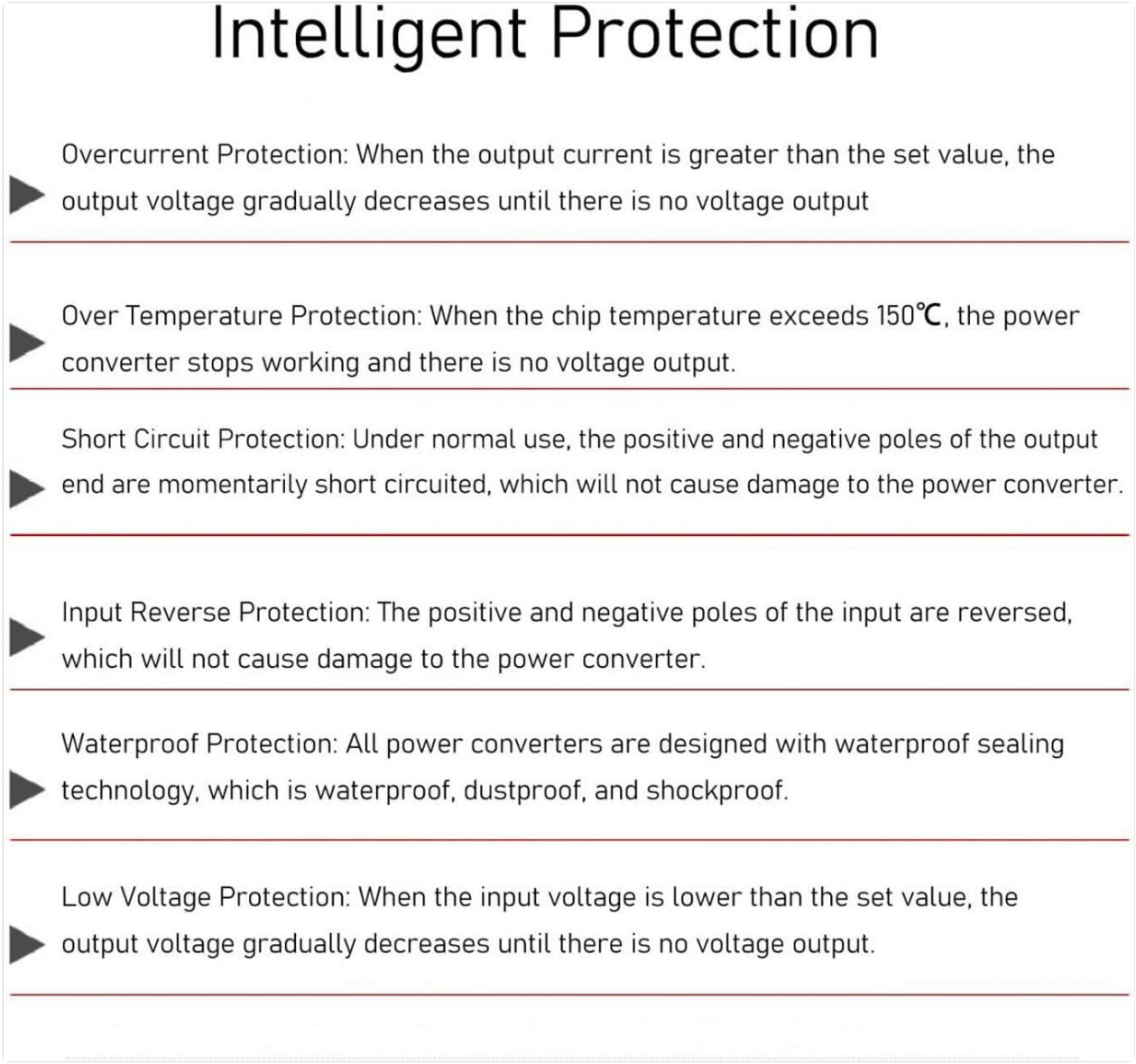

Image 6.1: Diagram detailing the intelligent protection features of the converter.

- **Overcurrent Protection:** If the output current exceeds the set value, the output voltage will gradually decrease until there is no voltage output.
  Action: *Reduce the load or ensure the load current does not exceed 10A.*
- **Over Temperature Protection:** If the internal chip temperature exceeds 150°C, the power converter will stop working, resulting in no voltage output.
  Action: *Disconnect power, allow the unit to cool down, and ensure adequate ventilation. Check if the load is too high.*
- **Short Circuit Protection:** Under normal use, momentary short circuits at the output end will not cause damage to the power converter.
  Action: *Remove the short circuit. The converter should resume normal operation once the short is cleared.*
- **Input Reverse Protection:** If the positive and negative poles of the input are reversed, the converter is designed to prevent damage.
  Action: *Correct the input wiring polarity immediately.*
- **Low Voltage Protection:** If the input voltage drops below the set minimum value, the output voltage will gradually decrease until there is no output.
  Action: *Ensure the input voltage source is stable and within the 9-30V operating range.*

If the issue persists after checking these points, contact customer support.

7. Specifications

Parameter	Value
Item Type	DC to DC Boost Converter Module
Material	Die Cast Aluminum, Resin
Input Voltage	12V/24V (9-30V)
Output Current	10A
Output Voltage	48V
Output Power	480W
Operating Temperature	-20°C to 80°C
Proof Level	IP67
Package Dimensions	6.69 x 4.72 x 1.57 inches
Item Weight	15.9 ounces
Model Number	Hilitandpeyz1st3ar
Manufacturer	Hilitand

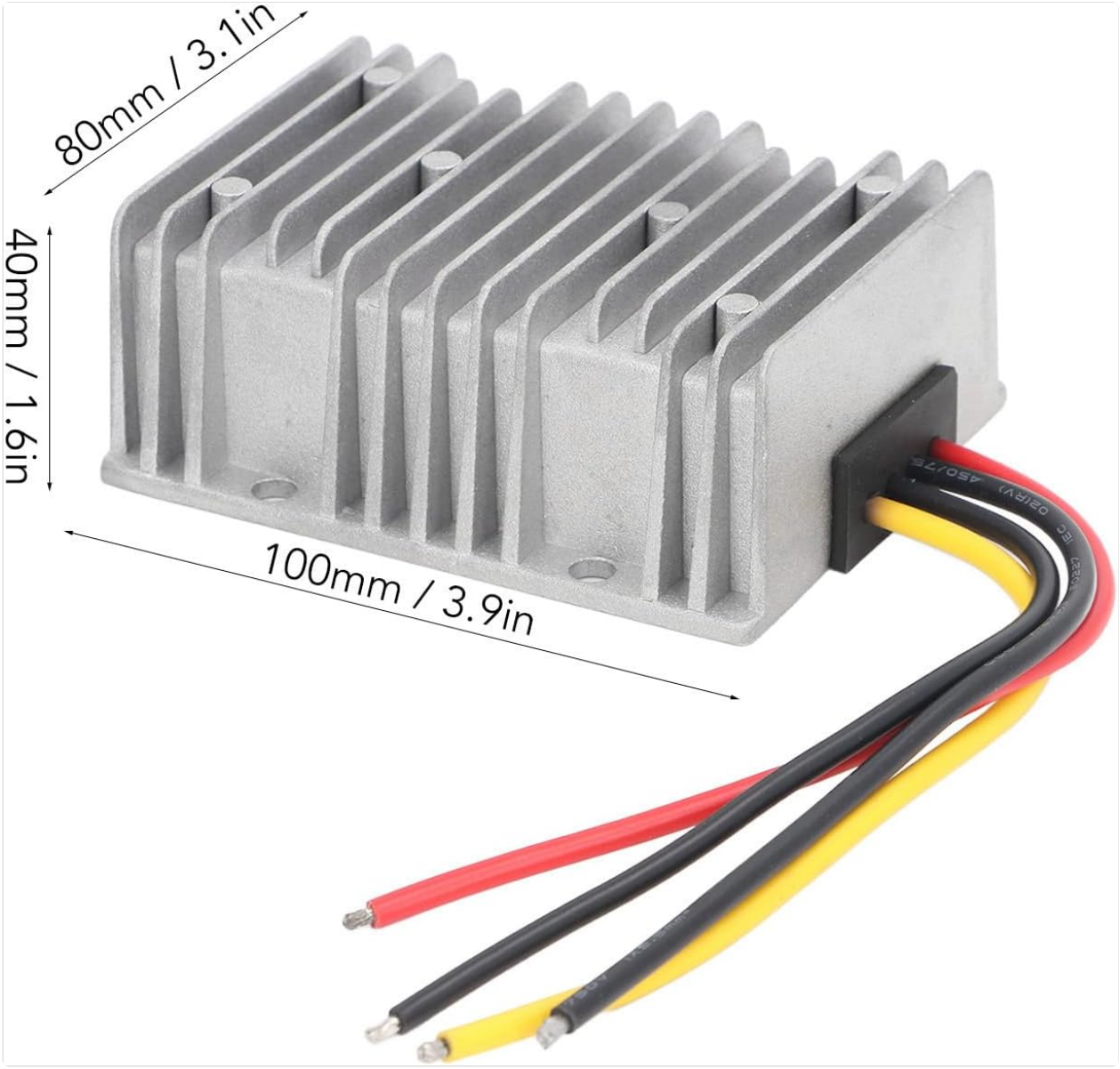

Image 7.1: Diagram showing the dimensions of the converter module (100mm x 80mm x 40mm).

8. Warranty Information

This Hilitand product is covered by a standard manufacturer's warranty. For specific details regarding warranty duration, coverage, and claims process, please refer to the product packaging or contact the seller directly. Keep your proof of purchase for warranty purposes.

9. Customer Support

If you have any questions, require technical assistance, or encounter issues not covered in this manual, please contact Hilitand customer support or the authorized seller from whom you purchased the product. Provide your model number (Hilitandpeyz1st3ar) and a detailed description of the issue for faster service.