

Aideepen 011722

Aideepen 1200W 20A DC-DC Boost Converter User Manual

Model: 011722 | Brand: Aideepen

1. INTRODUCTION

This manual provides essential instructions for the safe and effective use of your Aideepen 1200W 20A DC-DC Boost Converter. This module is designed to step up a DC input voltage to a higher DC output voltage, offering adjustable voltage and current control for various applications.

Key Features:

- Input Overcurrent Protection: Safeguards against excessive input current.
- Short Circuit Protection: Prevents damage from output short circuits.
- Input Reverse Connection Protection: Protects the module from incorrect input polarity.
- Low Battery Protection: Automatically shuts off or reduces output to prevent over-discharge of the input battery.
- Robust Design: Features 7 electrolytic capacitors and a 33mm high-power iron-silicon-aluminum magnetic ring to prevent over-temperature magnetic saturation under high current conditions.
- Efficient Heat Dissipation: Includes an aluminum radiator on the back and reserved fan mounting holes for enhanced cooling.
- Adjustable Output: Output voltage (12-80V) and current (0.5-20A MAX) are adjustable.

2. SPECIFICATIONS

Parameter	Value
Brand	Aideepen
Model	011722
Power Source	DC
Mounting Type	Chassis Mount

Current Rating	20 Amps
Input Voltage Range	DC 8-60V
Output Voltage Range	DC 12-83V (Adjustable)
Input Current	0.5-20A (MAX)
Maximum Output Power	1200W (Requires fan cooling if exceeding 15A)
Item Weight	6.4 Ounces
Minimum Frequency	150 KHz
Maximum Frequency	150 KHz

3. PRODUCT OVERVIEW

Familiarize yourself with the components and connections of the boost converter module.

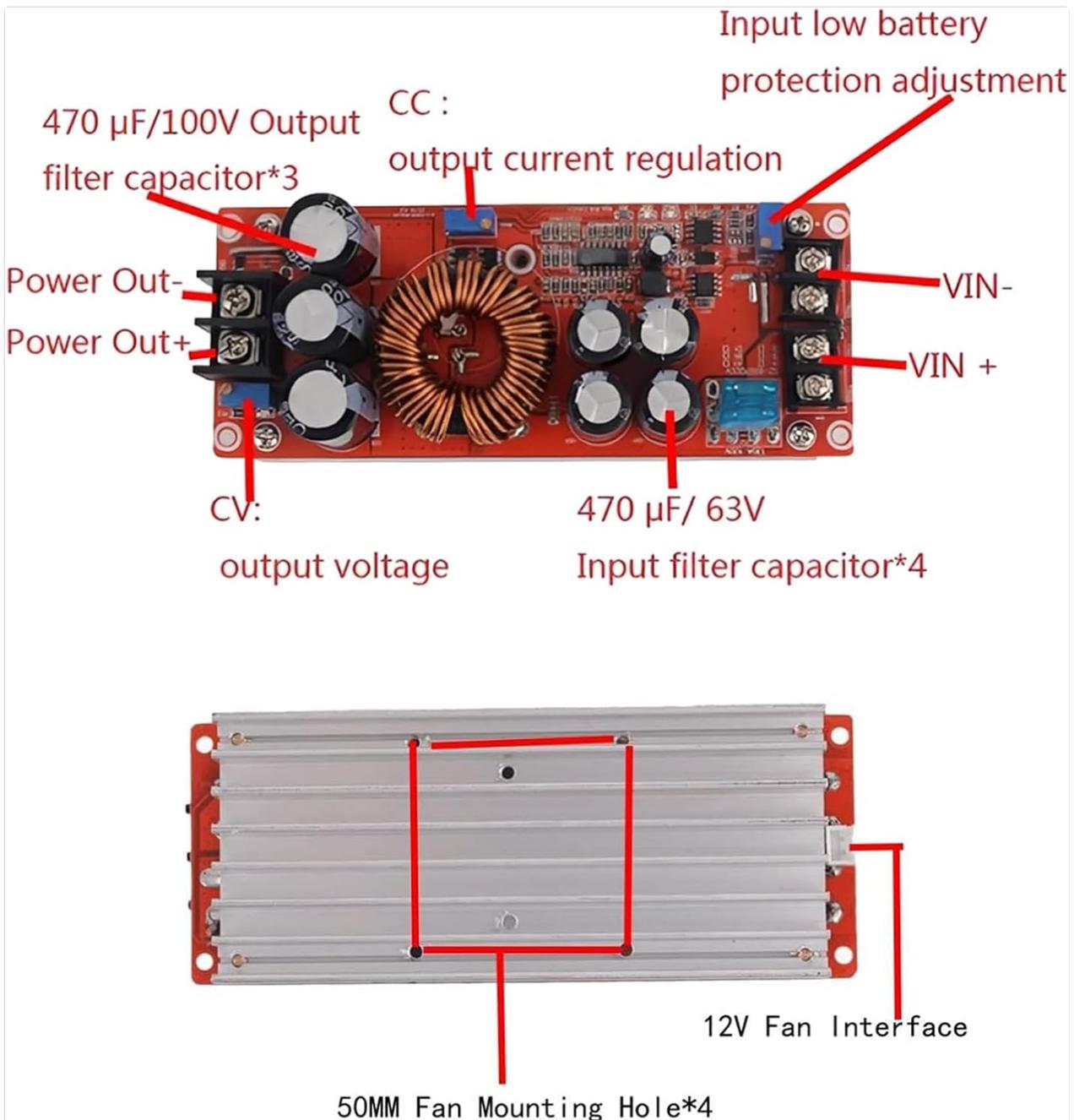


Figure 1: Top view of the Aideepen 1200W 20A DC-DC Boost Converter with key components labeled. This includes the VIN+ and VIN- input terminals, Power Out+ and Power Out- output terminals, CV (output voltage) adjustment potentiometer, CC (output current regulation) adjustment potentiometer, and Input low battery protection adjustment. Also visible are the 470 μ F/100V output filter capacitors and 470 μ F/63V input filter capacitors.

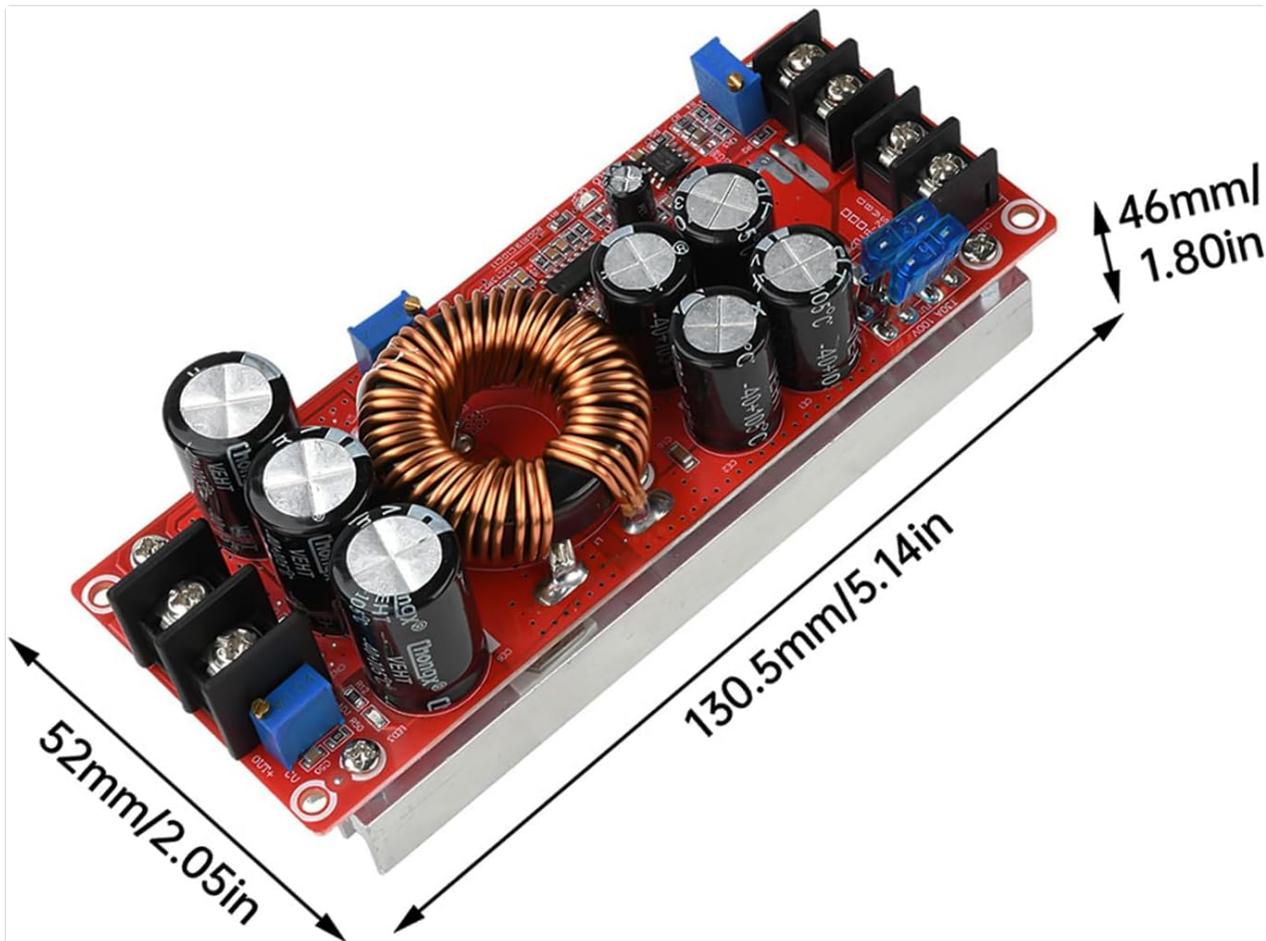


Figure 2: Side view of the converter module showing its dimensions: approximately 130.5mm (5.14in) in length, 52mm (2.05in) in width, and 46mm (1.80in) in height.

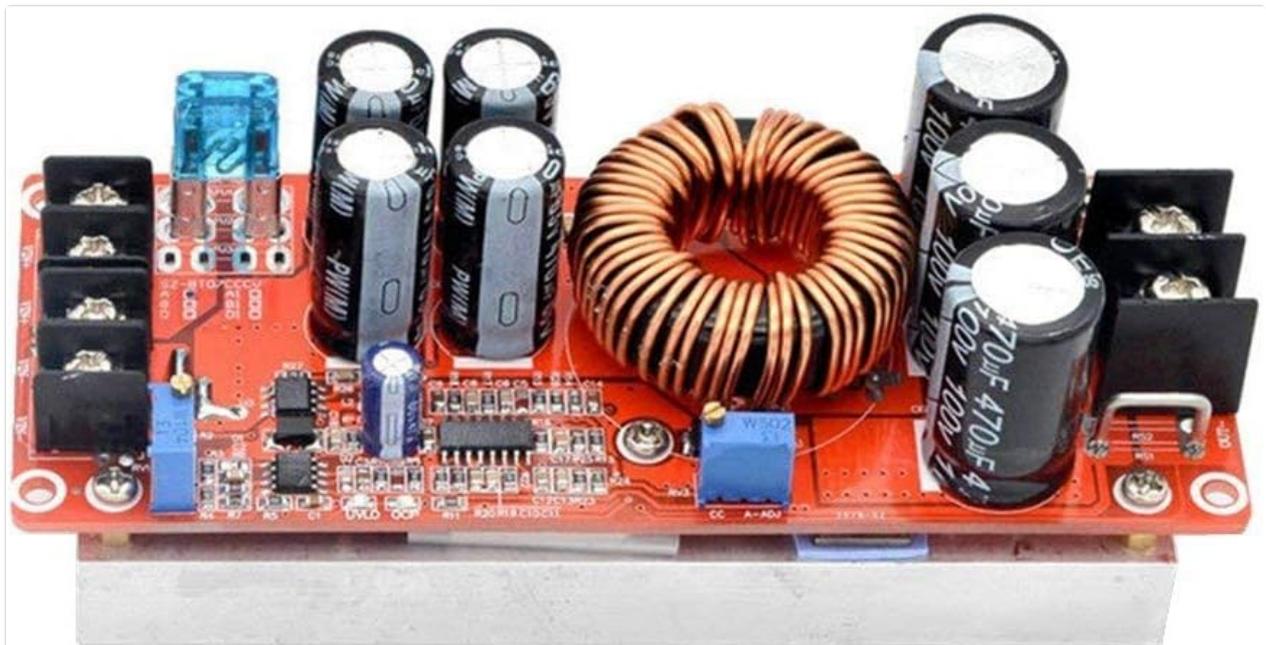


Figure 3: Bottom view of the module, highlighting the aluminum heatsink and the 50mm fan mounting holes, along with a 12V fan interface.

4. SETUP INSTRUCTIONS

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

1. **Connect Input Power:** Connect your DC power source (8-60V) to the VIN+ (positive) and VIN- (negative) terminals. Ensure correct polarity to prevent damage.
2. **Connect Output Load:** Connect your load to the Power Out+ (positive) and Power Out- (negative) terminals.
3. **Initial Adjustment (No Load):** Before connecting a critical load, it is recommended to adjust the output voltage. Turn the CV (output voltage) potentiometer clockwise to increase voltage or counter-clockwise to decrease it. Use a multimeter to monitor the output voltage.
4. **Current Adjustment (With Load):** Once the desired output voltage is set, connect your load. Turn the CC (output current regulation) potentiometer counter-clockwise to set the minimum current, then slowly turn it clockwise to increase the current to your desired level. **Note:** Do not use a short-circuit output method to adjust current.
5. **Low Battery Protection Adjustment:** The input low battery protection adjustment potentiometer allows you to set the minimum input voltage at which the module will reduce or cut off output. Turning it in one direction will lower the protection value, while turning it in the other will raise it. Adjust this to prevent over-discharging your input battery.
6. **Cooling:** For continuous operation at currents exceeding 15A or in enclosed spaces, it is highly recommended to install an external fan to the reserved fan mounting holes and connect it to the 12V fan interface.

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Video 1: This video demonstrates the physical adjustments for current, low voltage input protection, and output voltage on the Aideepen 1200W 20A DC-DC Boost Converter. It shows the location of the potentiometers and how they are turned to modify settings. The video also highlights the importance of cooling, especially when operating at higher currents, and mentions that the fan port is directly connected to the input power, meaning the fan will run continuously when the module is powered.

5. OPERATING INSTRUCTIONS

Once the module is set up, operate it according to your application's requirements:

- **Voltage Adjustment (CV):** The blue potentiometer labeled 'CV' controls the output voltage. Turn it clockwise to increase the output voltage and counter-clockwise to decrease it.
- **Current Adjustment (CC):** The blue potentiometer labeled 'CC' controls the output current limit. Turn it clockwise to increase the current limit and counter-clockwise to decrease it. When adjusting, ensure a load is connected.
- **Input Low Battery Protection:** Adjust the dedicated potentiometer to set the desired low voltage cutoff for your input source. This prevents deep discharge of batteries.
- **Power Output:** The maximum output power is 1200W. For example, with a 12V input, the maximum output current is 20A ($12V * 20A = 240W$). With a 60V input, the maximum output current is 20A ($60V * 20A = 1200W$).

6. MAINTENANCE

To ensure longevity and optimal performance of your boost converter:

- **Keep Clean:** Regularly clean the module, especially the heatsink, to prevent dust buildup which can

impede cooling.

- **Ventilation:** Ensure adequate airflow around the module. If operating in an enclosed space or at high loads, consider adding an external fan.
- **Connections:** Periodically check all input and output connections to ensure they are secure and free from corrosion.
- **Environmental Conditions:** Operate the module within its specified temperature and humidity ranges. Avoid exposure to moisture or extreme temperatures.

7. TROUBLESHOOTING

Refer to the table below for common issues and their potential solutions:



Question	Solution
Enter short circuit	It may be the short circuit of the switch tube. need replace the switch tube
The current cannot be adjusted.	It may be that the load is wrong. Must be connected to a constant current load, such as LED lights and batteries
The voltage and current cannot be adjusted.	Check whether it is low -battery protection. When UVLO lamp extinguished the power will be work
Unstable output	Check whether the current is adjusted to the minimum or low -voltage protection.
It is not a stable output voltage, and the input voltage changes greatly. Not available.	This is a boost power supply, which can only rise and regulate. The output voltage can only be higher than the input voltage.
The project runs well for the first time when the load is connected to the output. But the second melting input fuse.	There may be two problems with fuse melting: 1. Output short circuit; 2. The load is too large. You need to change the fuse.
Once I connect the fan to the connector, the device stop working. There is no higher voltage at the output end. The fan is just heating up and not rotating.	First check whether the fan power is too large or the quality of the fan itself is problematic. The external fan current cannot exceed 0.1A, the voltage is 12V.
Use it to drive a 150W 36V LED. At first, the 4S lithium battery worked well, but about 5 minutes later, the LED was extinguished, the two fuses were burned. After the fuse was replaced, it burned immediately. No Output.	You need to replace the switch tube.
Regardless of whether the voltage is 5 volts or 32 volts, each fuse in it will pop up.	Check if the switch is broken

Figure 4: Troubleshooting guide with common questions and solutions for the boost converter.

Question	Solution
Enter short circuit	It may be a short circuit of the switch tube; replace the switch tube.
The current cannot be adjusted.	The load may be incorrect. Must be connected to a constant current load, such as LED lights and batteries.
The voltage and current cannot be adjusted.	Check whether the low-battery protection (UVLO) light is extinguished. The power will work only after it is off.
Unstable output	This is a boost power supply, which can only rise and regulate. The output voltage can only be higher than the input voltage. Not applicable if input voltage changes greatly.

<p>The project runs well for the first time when the load is connected to the output. But the second melting input fuse.</p>	<p>There may be two problems with fuse melting: 1. Output short circuit. 2. The load is too large. You need to change the fuse.</p>
<p>Once I connect the fan to the connector, the device stops working. There is no higher voltage at the output end. The fan is just heating up and not rotating.</p>	<p>First check whether the fan power is too large or the quality of the fan itself is problematic. The external fan current cannot exceed 0.1A, the voltage is 12V.</p>
<p>Use it to drive a 150W 36V LED. At first, the 4S lithium battery worked well, but about 5 minutes later, the LED was extinguished, the two fuses were burned. After the fuse was replaced, it burned immediately. No Output.</p>	<p>You need to replace the switch tube.</p>
<p>Regardless of whether the voltage is 5 volts or 32 volts, each fuse in it will pop up.</p>	<p>Check if the switch is broken.</p>

8. WARRANTY AND SUPPORT

Each product purchased from Aideepen includes 24 months of service. If you encounter any quality issues with your item, you are eligible for a new replacement. For further assistance or inquiries, please contact Aideepen customer support.