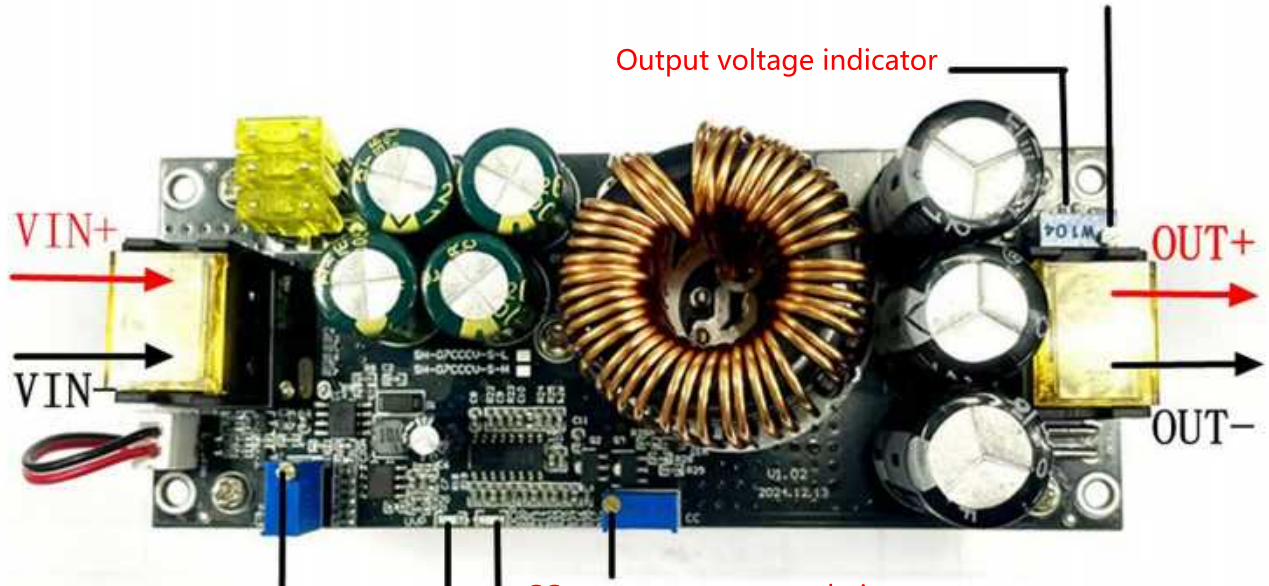
1200W/1800W Boost Module User Manual

Wiring diagram and function diagram

1200W/1800W boost power supply wiring and function diagram



Instructions for use:

1. IN is input, OUT is output. The CV potentiometer turns clockwise to adjust the voltage to a high level, and counterclockwise to adjust the voltage to a low level (this power supply is a boost power supply, which can only boost, not reduce. The output voltage can only be higher than the input voltage).
2. The UVP potentiometer is an input undervoltage protection adjustment potentiometer. Turn clockwise to increase the protection voltage. Turn counterclockwise to reduce the protection voltage. The adjustment range is 10-50V. The undervoltage protection indicator will light up during undervoltage protection. At this time, the power supply does not work, does not boost, and the output voltage is approximately equal to the input voltage.
3. The CC potentiometer is for output current adjustment. Turn clockwise to increase the current, and counterclockwise to reduce the current. To adjust the output current, a constant current load (battery, high-power LED lamp) must be connected. They are all constant current loads. If a constant voltage load is connected, the output current must be greater than the current required by the load, otherwise the output voltage will decrease. Connecting a constant voltage load can adjust the output current to the maximum. The power supply will provide as much current as the load requires, but it cannot exceed the current that the power supply can withstand.

Parameter information:

Product name: 1200W/1800W boost power module
Input voltage:
Type A: DC 14-60V
Type B: DC 14-85V
Type C: DC 14-85V
Output voltage:
Type A: DC 14-90V (±5V)
Type B: DC 14-120V (±5V), output 120V, input voltage must be above 20V
Type C: DC 14-90V (±5V)
Input current: 1200W-20A (Max), 1800W-40A (Max)
Fan start temperature: 40 degrees
Input reverse protection: Yes
Typical efficiency (small input-output voltage difference means higher efficiency): 90%-96%
1200W boost module size (including fan): 130*52*62mm
1800W boost module size (including fan): 130*52*70mm
Note: Try not to use the highest or lowest input and output voltages, and the operating current cannot exceed the maximum input current of the power supply

Note:

1. Don't rush to power on when you receive the boost power supply. Before powering on, first understand the input and output terminals of the power supply and the functions of the positive and negative poles and each potentiometer.
2. After powering on, adjust the output voltage and input undervoltage protection at no load (adjust undervoltage protection method: if the "UVP" light is not on at this time, turn the UVP potentiometer clockwise to turn on the "UVP" light, and then turn it counterclockwise twice to turn off the UVP indicator light. If the UVP indicator light is on when the power is turned on, turn the UVP potentiometer counterclockwise to turn off the UVP indicator, and then turn it 2 more times after turning it off. The voltage at the undervoltage protection point at this time is about 2-3V lower than the input voltage. When the input voltage is reduced, the power supply will not work to prevent the switch tube from breaking down when it is half-conducting. It is very important to adjust the undervoltage protection to prevent the switch tube from breaking down
3. Please power on the module before connecting the load during use, which is especially important when used at high power.
4. Try to avoid the upper and lower voltage limits when inputting to avoid voltage fluctuations that may damage the power module.
5. It is strictly forbidden to adjust the current by short-circuiting the output.
6. This is a non-isolated power supply. Two or more power modules cannot be used in series and in parallel at the same time. Series connection will cause output short circuit, and parallel connection will cause the output current to not flow evenly (no matter how many power supplies are connected in parallel, only one power supply will bear all the loads, which will cause the power supply to overload and damage the switch tube).
7. It is not suitable for use with a small input and output voltage difference. For example, if the input is 1 2V, the no-load voltage is adjusted to 14.2V to charge a 12V battery. According to the constant current charging characteristics, the current remains unchanged, and the voltage changes with the load. If the battery voltage is only 11V at this time, the output voltage of the power supply will be pulled down to 11V by the battery. The output voltage of the power supply is lower than the input power supply, which is equivalent to short-circuiting the output voltage for the boost power supply. It will cause the current to be out of control. Burn out the switch tube MOS and fuse. (12V input is recommended to charge batteries above 24V, and when input is 24V, it is recommended to charge batteries above 36V, and so on.
8. Do not use the maximum power and current. Leave 25%
9. Some laptops have identification functions and cannot be charged and used. This is not a quality problem, but the laptop refuses non-original chargers.
10. Some friends will use it to boost the speed of electric bicycles. It is recommended to use it for electric vehicles below 500W, with an input voltage of more than 36V, and the boost voltage should not exceed 10V, because the voltage is increased, the power will also increase, and the motor is an inductive load, which will go uphill at the moment of startup. When the electric vehicle is heavily loaded, the required power will be very large.
11. The fan is temperature-controlled, and the radiator temperature will reach about 40 degrees before it turns on.
12. It is strictly forbidden to charge supercapacitors.

Special Notes:

The power supply has constant voltage and constant current functions. The constant voltage and constant current also change according to the load and the regulated output current.

Constant current range: The input voltage of the module should be less than the battery's discharge cut-off voltage, and the output voltage should be less than the battery's charge cut-off voltage. Do not use resistive loads or inductive loads to adjust the current. These are constant voltage loads. Only by adjusting the output voltage can the output current be changed. (Voltage divided by resistance equals current. If the voltage remains unchanged and the load resistance remains unchanged, the output current cannot be changed.)
For battery charging, it is recommended to discharge the battery voltage first, adjust the output voltage of the power supply to the battery's cut-off voltage, and then adjust the current to the minimum (the smaller the resistance between pins 1 and 3 of the CC potentiometer, the smaller the output current). Then connect an ammeter in series to adjust the current to the required current. As the battery voltage increases, the current will decrease until the battery is fully charged and the current is zero.

Note on power:

Taking 1800W boost as an example, since the boost power supply has a limit of 40A input working current, there is no 1800W when the input voltage is low. For example, the input voltage is 12V, 12V*40A=480W, plus the loss of the power conversion process, when the input is 12V, the maximum output is about 440W, and the power supply is not recommended to work at full load. It is recommended not to exceed 360W when the input is 12V. To achieve the maximum power of the power supply, the input voltage must reach 48V or more.
For the input power supply power selection, it must be greater than 1.5 times the load. For example, if the output is connected to a 500W load, then the input power supply must be a 750W power supply.

