

Step up DC power, safely.

amiciSmart 1200 W, 20 A DC-DC boost (step-up) converter · SKU 1xDC-DC-20A



1200 W

Input **8–60 V DC**

Output **12–80 V** adjustable

Up to **20 A**

CV and CC adjustment

For e-bike, solar, LED and other DC projects that need a higher voltage.

Step-up only. This module raises voltage; it cannot lower a higher voltage. Set the output with a multimeter **before** connecting the load.

DC only, high current. Never connect AC. Above 15 A, improve cooling. Never get the module wet, and never open, modify or repair it. Output voltages up to 80 V can give a dangerous shock.

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This guide is based on the module instruction manual and its labelled images.

Before you connect anything

Notes from the instruction manual

Step-up only

The module only increases voltage. It cannot be used to reduce a higher voltage to a lower voltage.

DC only

The module is designed for DC voltage, not alternating (AC) voltage. Wrong connections, short circuits, exceeding the input voltage or insufficient cooling will damage the module and void the warranty.

Input voltage

The input supply must be above 8 V and must not exceed 60 V DC. Check polarity before switching on.

High voltage at the output

The output can be set up to 80 V DC. Voltages above about 60 V DC can give a dangerous shock. In a boost converter the input voltage also reaches the output when the module is not boosting, so treat the output as live whenever the input is connected.

Water and repairs

Never get the module wet. Never attempt to open, modify or repair any part of the module.

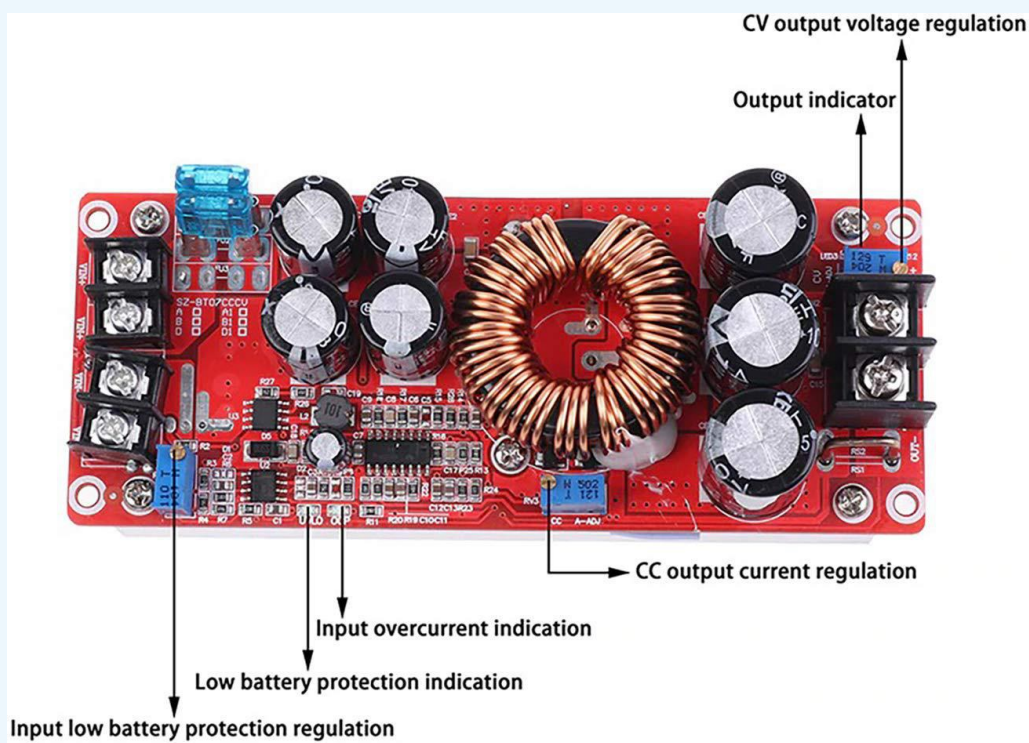
Current and heat

Maximum 20 A. Above 15 A, improve heat dissipation, for example with a 50 mm 12 V fan on the heatsink (page 5).

02 · OVERVIEW

Know the module

Adjusters and indicators as labelled in the instruction manual



Terminals

Input: two **VIN+** and two **VIN-** screws. Output: **OUT+** and **OUT-**. Check the marks printed on your board.

Three adjusters

CV output voltage, **CC** output current and **input low-battery protection**.

Indicators

Output indicator, input over-current indication and low-battery protection indication.

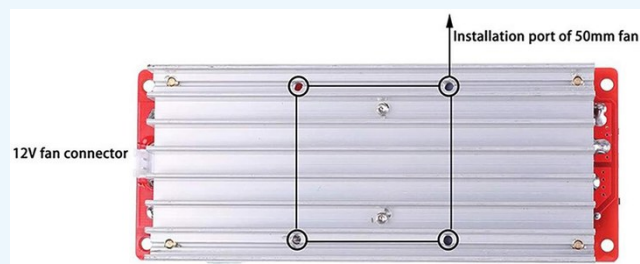
Cooling

Metal heatsink with a 12 V fan connector and mounting holes for a 50 mm fan.

03 · INSTALLATION

Mounting, cooling and wiring

Switch off and disconnect the source before wiring



Left: input and output terminals. Right: 12 V fan connector and 50 mm fan mounting port (instruction manual).

Terminal	Connect to
VIN+	Positive (+) of the DC source, 8–60 V
VIN–	Negative (–) of the DC source
OUT+	Positive (+) of the load
OUT–	Negative (–) of the load

Steps

1. Mount with four 3 mm screws on a non-flammable surface with free air flow around the heatsink.
2. Use cable rated for at least 20 A with good crimped or soldered ends. Use both VIN+ and both VIN– screws.
3. With the source off, connect VIN+ and VIN–. Switch on with no load and set the output voltage (page 6).
4. Switch off, connect the load to OUT+ and OUT–, check polarity, then switch on and watch the temperature.

04 · ADJUSTMENT

Setting voltage and current

Use a multimeter. Turn the adjusters slowly.

Output voltage (CV)

1. Power the module with no load connected.
2. Measure the output (OUT+ / OUT–) with a multimeter set to DC volts.
3. Turn the **CV output voltage** adjuster to set 12–80 V. The output must be higher than the input.
4. Check the reading again before connecting the load.

Output current (CC)

1. Connect the load, for example a battery or LED.
2. Turn the **CC output current** adjuster to limit the current, up to 20 A maximum.
3. Check the current with a meter in series with the load.

Available current depends on the step-up

The greater the difference between input and output voltage, the smaller the output current the module can deliver (instruction manual). The 1200 W limit is reached before 20 A at high output voltages.

Multi-turn adjusters

The adjusters are multi-turn trimmers. Use a small screwdriver and keep checking with the multimeter.

Low-voltage protection and charging

Protect the battery that powers the module

Input low-battery protection

The **input low-battery protection** adjuster sets the input voltage at which the module stops, to protect a source battery. The low-battery protection indication lights when it operates. The adjustment range is not stated, so set and check it with a variable supply or by measuring.

Choosing the setting

Set it to the lowest safe voltage of your source battery from its maker's data. Do not set it below the battery's minimum voltage.

Charging a battery

1. With no battery connected, set the output voltage to the battery maker's full-charge voltage.
2. Connect the battery and set the charge current with the CC adjuster, within the battery's limit and 20 A.
3. Watch the battery and the module temperature.

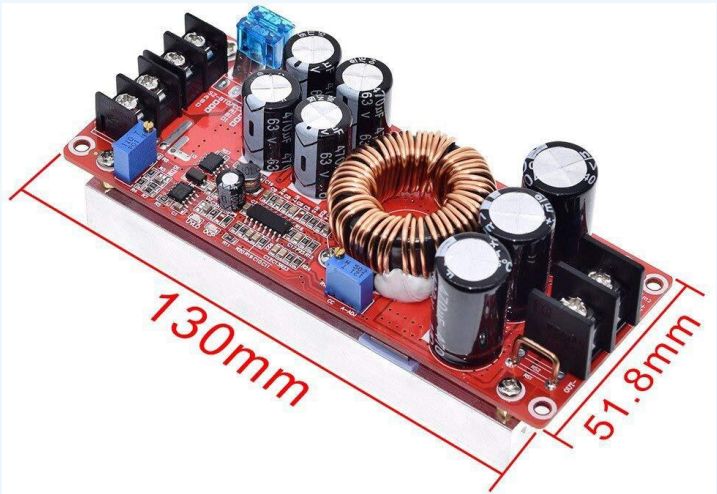
Battery voltage must be above the input

Only charge a battery whose voltage is always higher than the input voltage. If the battery is lower than the input, current flows from the input to the battery without control. Lithium batteries need a suitable BMS.

Ratings and dimensions

Values from the instruction manual and its images

Parameter	Value
Type	DC-DC boost (step-up) converter
Input voltage	8–60 V DC (must be above 8 V)
Input current	20 A
Output voltage	12–80 V, continuously adjustable (above input)
Output current	20 A max; above 15 A improve heat dissipation
Output power	1200 W
Adjustment	CV voltage, CC current, input low-battery protection
Cooling	Heatsink; 12 V fan connector, 50 mm fan mount
Mounting	Four 3 mm screws
Size	About 130 × 51.8 mm (image below)



Efficiency, IP rating and reverse-polarity protection are not stated in the instruction manual, so none are claimed.

07 · TROUBLESHOOTING

If something is not right

Switch off the source before changing wiring

What you see	Possible cause	Next step
No output, or output equals input	Input below 8 V or below the low-battery setting	Check the input voltage and the low-battery indication.
Over-current indication lights	Load too heavy for the step-up ratio	Reduce the load or the step-up ratio.
Output cannot reach the set voltage	Output set lower than the input, or load too heavy	Set the output above the input. Reduce the load.
Module very hot	Above 15 A, high step-up, poor air flow	Fit a 50 mm 12 V fan, improve air flow, reduce the load.
Nothing works	Wrong connection, blown fuse or damage	Switch off and check the wiring. Contact support. Do not open or repair the module.

Still unsure? Contact amiciKart support with a photo of your wiring and the voltages you measured.

[Contact support](#)

[Product page](#)