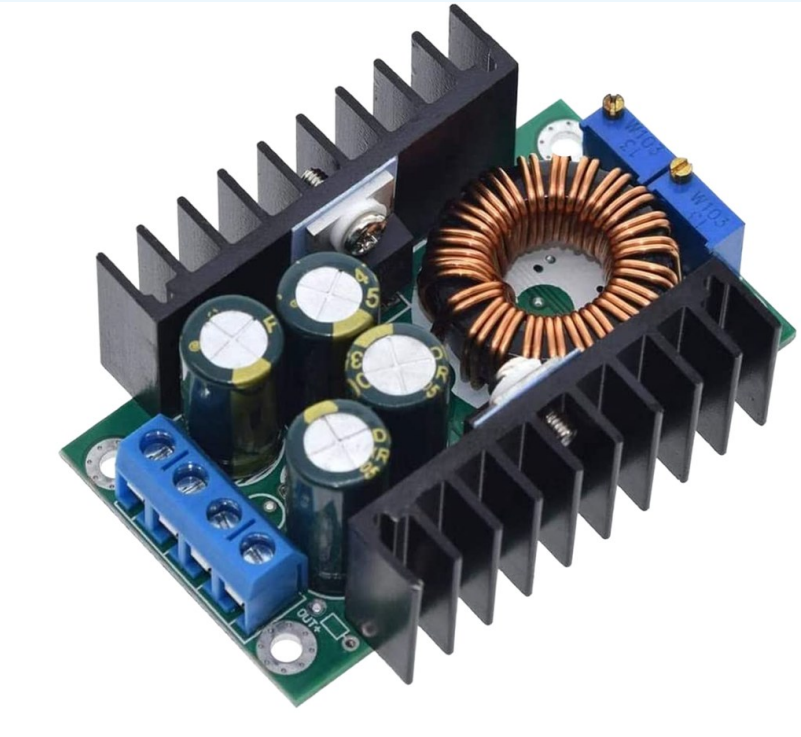
DIGITAL USER GUIDE

Step-down power, set up right.

amiciSmart 300 W DC-DC buck converter with constant voltage (CV) and constant current (CC) · SKU 1xDC-BUCK-300



300 W

Input **5–40 V DC**
Output **1.2–35 V** adjustable
Up to **12 A** (9 A continuous)
CV and CC trimmers

For DIY power supplies, LED drivers and project power from a higher DC voltage.

Step-down only. The output is always lower than the input. Set the output with a multimeter **before** you connect your load.

Check polarity every time. Reverse-polarity protection is not stated for this module. Connecting the supply the wrong way round can destroy it. The heatsinks can get hot under load.

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This guide is based on the module instruction manual and the product listing. Where they differ, the source of each value is given on the Specifications page.

01 · SAFETY

Before you connect anything

Low-voltage DC module: simple to use, but polarity, current and heat matter

Use a DC supply within 5–40 V

Connect only a DC source between 5 V and 40 V. Never connect mains (AC) power to this module.

Polarity

Connect + to IN+ and − to IN−. Reverse-polarity protection is not stated for this module, so check twice before switching on.

Set the voltage before connecting the load

Adjust and measure the output with a multimeter with no load connected. Then connect your device. A wrong setting can damage what you connect.

Stay within the ratings

Maximum 300 W and 12 A, whichever comes first. For continuous use keep the output current at or below 9 A.

Heat

The heatsinks can get hot. Allow free air flow around the module. If the power transistor goes above about 65 °C, add a cooling fan (listing guidance). Do not touch the heatsinks during or just after heavy use.

Batteries

If you charge a battery, set the voltage and current to the battery maker's charge values. Lithium batteries need a suitable battery management system (BMS).

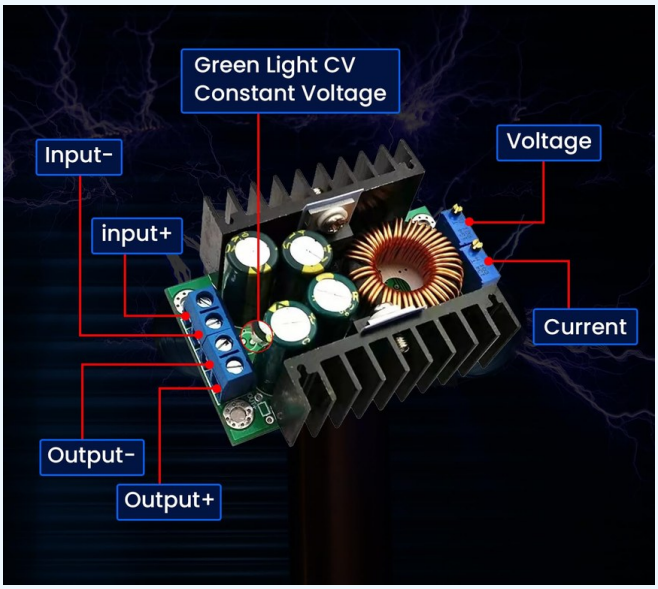
Work safely

Switch off the input supply before changing any wiring. Mount the module on an insulating surface, away from metal parts that could short the board.

02 · OVERVIEW

Know the module

Terminals and trimmers as labelled on the product images



Screw terminals

Four screw terminals, in order: **IN+**, **IN−**, **OUT−**, **OUT+**. Check the marks printed on your board next to the terminals before wiring.

CV trimmer (voltage)

The trimmer nearest the **input** sets the output voltage.

CC trimmer (current)

The trimmer nearest the **output** sets the output current limit.



Turning the trimmers

Turn **clockwise** to **increase**, **anticlockwise** to **decrease**. They are multi-turn trimmers, so several turns may be needed for a visible change.

Indicator

A green light shows constant-voltage (CV) operation (listing image).

Images: product listing. Top, terminal and trimmer labels. Bottom, the terminal block with the IN+ mark printed on the board.

03 · WIRING

Input and output connections

Switch off the supply before wiring

Terminal	Connect to
IN+	Positive (+) of the DC supply, 5–40 V
IN−	Negative (−) of the DC supply
OUT−	Negative (−) of the load
OUT+	Positive (+) of the load

1 · Prepare the wires

Use wire rated for the current you will draw, with the ends stripped neatly. Thin wire gets hot and drops voltage at high current.

2 · Connect the input

With the supply off, connect supply + to IN+ and supply − to IN−. Tighten the screws firmly.

3 · Set the output first

Switch on with no load and set the output voltage (page 6). Switch off again.

4 · Connect the load

Connect load + to OUT+ and load − to OUT−. Check the polarity, then switch on.

5 · Check under load

Measure the output voltage with the load running and check the heatsink temperature during the first minutes.

04 · VOLTAGE (CV)

Setting the output voltage

From the instruction manual. Use a multimeter to watch the voltage.

Steps

1. Connect the input supply (page 5). Leave the output disconnected.
2. Connect a multimeter, set to DC volts, to OUT+ and OUT−.
3. Turn the CV trimmer (nearest the input) **clockwise to increase** or **anticlockwise to decrease** the voltage.
4. Stop at the voltage your load needs, then switch off and connect the load.

Output range

Adjustable from 1.2 V to 35 V. The output must always be lower than the input voltage, so a higher output needs a higher input.

Output stays equal to the input?

If the output cannot be adjusted and always equals the input voltage, turn the voltage trimmer **anticlockwise 20 turns or more** until it starts to respond (instruction manual).

Current limit as well

If the output drops when the load is connected, the current limit may be set too low. Turn the CC trimmer clockwise a little (page 7), staying within the ratings.

05 · CURRENT (CC)

Current limit and LED driving

Constant-current LED driver steps from the instruction manual

Before you start

Find the operating current and the maximum operating voltage of the LED (or LED string) you want to drive, from its datasheet.

LED driver setup

1. With the CV trimmer, set the output voltage to about **5 V**.
2. With the CC trimmer (nearest the output), set the current to the **operating current** of your LED, using a multimeter.
3. With the CV trimmer, raise the output voltage to the **maximum operating voltage** of the LED.
4. Connect the LED and test.

How it works

When the load tries to draw more than the set current, the module lowers its output voltage to hold the current at the CC setting. Below that current it holds the CV voltage.

Limits

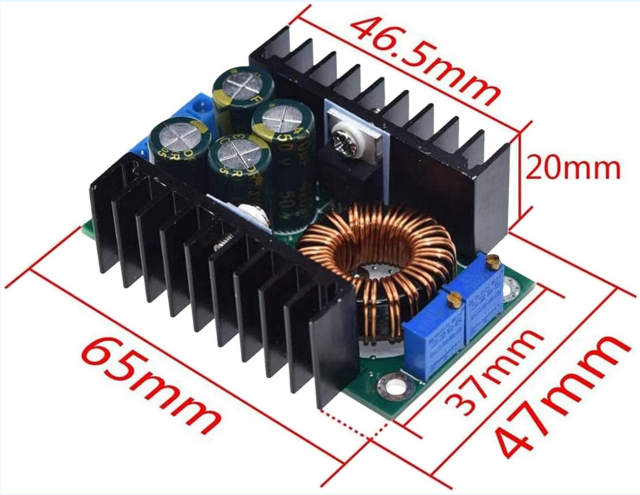
Do not set more than 12 A, and keep continuous current at or below 9 A. Watch the heatsink temperature at high current.

06 · SPECIFICATIONS

Ratings and dimensions

Values from the instruction manual unless marked (listing)

Parameter	Value
Input voltage	5–40 V DC
Output voltage	1.2–35 V, continuously adjustable (always below input)
Output current	Up to 12 A; 9 A continuous (listing)
Output power	Max 300 W
Conversion efficiency	Up to 95 %
Switching frequency	300 kHz
No-load current	Typical 20 mA
Load regulation	± 1 %
Voltage regulation	± 1 %
Control	CV and CC multi-turn trimmers
Connections	4 screw terminals: IN+, IN−, OUT−, OUT+ (listing images)
Cooling	Two heatsinks; add a fan if the power transistor exceeds about 65 °C (listing)



Approximate dimensions in millimetres (listing image). Reverse-polarity protection, input fuse and IP rating are not stated, so none are claimed.

07 · TROUBLESHOOTING

If something is not right

Switch off the supply before changing wiring

What you see	Possible cause	Next step
No output	No input, loose terminal, reversed input	Check the supply and polarity at IN+ / IN−. Tighten the screws.
Output equals input and does not change	Voltage trimmer at end of travel	Turn the CV trimmer anticlockwise 20 turns or more (instruction manual).
Output drops when load connected	Current limit (CC) set too low, or load above rating	Raise the CC setting a little, staying within 9 A continuous / 12 A max.
Output cannot reach the voltage set	Input voltage too low	The output must be below the input. Use a higher input voltage (max 40 V).
Module gets very hot	High current, poor air flow	Reduce the load, improve air flow or add a fan if the power transistor is above about 65 °C.
Load voltage lower than at module	Thin or long output wires	Use thicker, shorter wires.

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

Contact support

Product page