ROTORAMA

BEC 2-13S 5V 5A

5 V / 5 A voltage converter for 2–13S input
User manual



Read this manual carefully before installation and keep it for future reference.

www.rotorama.com

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1. Product description

1.1 What it is for

The BEC 2-13S 5V 5A is a small switching (step-down) voltage converter that produces a regulated **5 V** supply for on-board electronics from the flight battery voltage. It is useful where the power outputs of the flight controller (FC) are not sufficient, or where a 5 V device needs its own supply – for example a receiver, video transmitter (VTX), camera, LEDs, a servo or other accessories powered from 5 V.

The converter accepts input voltages from **2S to 13S (8–55 V)** and delivers up to **5 A**. Thanks to its wide input range it can be used in small models as well as in large multirotors and airplanes with high-voltage batteries. It is connected by soldering directly to the pads on the board.

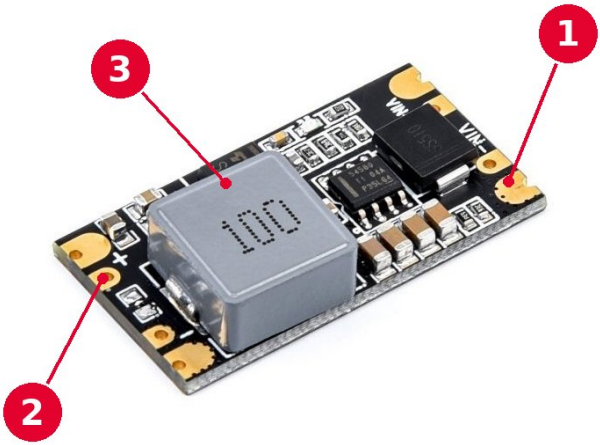


BEC 2-13S 5V 5A

1.2 Technical data and package contents

Product designation	BEC 2-13S 5V 5A
Type	BEC – switching voltage converter (step-down)
Input voltage	2–13S (8–55 V)
Output voltage	5 V
Current rating	5 A
Connection	solder pads VIN+ / VIN− (input) and + / − (output)
Package contents	1× BEC
Not included	wires, connectors, heat-shrink tubing, battery, powered devices

1.3 Parts overview



Top view

① Input – pads **VIN+** and **VIN−** for connection to the battery voltage.

② Output – pads **+** and **−** supplying 5 V to the powered devices.

③ Converter inductor – it heats up during operation; do not cover it or load it mechanically.

2. Use

2.1 Before you start

For installation you will need:

- a soldering iron and solder for electronics,
- wires with a cross-section suitable for the current they will carry (up to 5 A on the output),
- heat-shrink tubing or other insulation for the board,
- a multimeter to check polarity and output voltage.

2.2 Choosing the input voltage

The input voltage must stay within **8–55 V** at all times during operation. When choosing a battery, take into account the voltage of both a fully charged and a discharged battery:

- **13S Li-Po** reaches 54.6 V when fully charged (4.20 V/cell) – still within range.
- **13S LiHV** reaches 56.55 V when fully charged (4.35 V/cell) – **exceeds 55 V, do not use it**.
- **2S Li-Po** reaches 8.4 V when fully charged; below 4.0 V/cell (8.0 V) the voltage is already below the lower limit of the range.

※ Exceeding the maximum input voltage will destroy the converter and may also damage the connected devices.

2.3 Wiring

① Disconnect the battery. Never solder on a powered circuit.

② Solder the input wires: positive (+) to the **VIN+** pad, negative (−) to the **VIN−** pad. The input is usually connected to the battery power pads on the flight controller, ESC or power distribution board.

③ Solder the output wires to the **+** and **−** pads and route them to the powered device.

④ Check the polarity against the markings on the board. Swapping input and output or reversing the polarity will destroy the converter.

⑤ Insulate the board so that it cannot touch the carbon frame or any other conductive parts.

2.4 Check before connecting devices

Before connecting the powered devices for the first time, verify that the converter works:

① Keep the output wires disconnected from the devices for now and insulated so that they cannot touch each other.

② Connect the battery, preferably through a current limiter (smoke stopper).

③ Measure the output voltage with a multimeter – it must correspond to 5 V.

④ Disconnect the battery and only then connect the powered devices.

2.5 Load and placement

- The total current of all devices connected to the output must not exceed **5 A**.
- Connect only devices designed for a 5 V supply to the output.
- The converter heats up under load. Place it where air can flow around it and do not wrap it in foam or a thick layer of insulation.
- Mount the board so that it cannot move and the wires are not stressed by pulling or vibration.

3. Safety instructions and troubleshooting

3.1 Safety instructions

- The product is intended for modellers with basic knowledge of electronics and soldering. Not suitable for children.
- Always carry out all wiring and modifications with the battery disconnected.
- Li-Po batteries can deliver a very high short-circuit current. A short circuit may cause burns, fire or destruction of the electronics.
- Protect the board from moisture, water, dust and conductive debris (metal filings, carbon dust).
- The converter gets hot during operation – do not touch it immediately after switching off.
- Do not continue to use a converter that is mechanically damaged, overheated or has been short-circuited.

3.2 Troubleshooting

Problem	Possible cause and solution
No voltage at the output	Check the battery connection, the polarity and the solder joints on the VIN+ / VIN− pads. Make sure the input voltage is within 8–55 V.
Powered device restarts or switches off	The current drawn by the connected devices may exceed 5 A, or the input voltage drops below 8 V (discharged 2S battery). Reduce the load or use a battery with more cells.
Converter is very hot	Reduce the load, ensure air can flow around the board and check that the output is not short-circuited.
Interference in video or receiver	Route the wires along the shortest path, twist the positive and negative wire together and place the converter further away from the antennas.

4. Information for the EU and Czech Market

4.1 Importer and responsible person in the EU

The product is placed on the European Union market by the importer stated below, who is at the same time the responsible person within the meaning of Article 16 of Regulation (EU) 2023/988 of the European Parliament and of the Council on general product safety (GPSR).

Importer / responsible person in the EU	Rotorama, s.r.o.
Company ID (IČO)	051 57 692
VAT ID (DIČ)	CZ05157692
Registered office	Okrajová 1351, 674 01 Třebíč, Czech Republic
E-mail	info@rotorama.cz
Phone	+420 252 252 098
Website	www.rotorama.com

4.2 Product conformity

CE

- The product bears the **CE** marking and complies with the requirements of the applicable European Union harmonisation legislation.
- A copy of the **EU Declaration of Conformity** is available from the importer at the address stated above or at the e-mail address info@rotorama.cz.
- **Product identification:** the type designation (BEC 2-13S 5V 5A) is given in this manual and on the proof of purchase.

4.3 Disposal of electrical equipment



- The crossed-out wheeled bin symbol on the product, its packaging or in the documentation means that at the end of its service life the product **must not be disposed of together with mixed municipal waste**.
- Hand it over at a take-back point for electrical equipment – at a collection yard, at a take-back point of a collective system, or at the retailer when purchasing a new equivalent product. Take-back is free of charge for the end user.
- The obligations under Act No. 542/2020 Coll., on end-of-life products, are fulfilled by the importer through a collective take-back system.
- Proper disposal helps prevent negative impacts on the environment and human health and contributes to the reuse of secondary raw materials.

Through its contractual partner **ASEKOL a.s.**, the company ensures the take-back of waste electrical equipment from households and the separate collection of waste electrical equipment, batteries and accumulators in accordance with the applicable legislation. The customer is entitled to hand over old electrical equipment or a battery or accumulator at any collection point of the above contractual partner. The addresses of these take-back points are listed at www.asekol.cz, www.ecobat.cz and also https://visoh2.mzp.cz/RegistrMistZO/RegistrMistZOPublic/MapaMistZpetOdberu.

5. Warranty and rights arising from defective performance

5.1 Rights of the buyer under Czech law

The rights and obligations of the contracting parties are governed by Czech law, in particular by Act No. 89/2012 Coll., the Civil Code, and Act No. 634/1992 Coll., on consumer protection.

- The seller is liable to the buyer for the product being free of defects on receipt. If the buyer is a consumer, a defect may be notified **within two years of receipt** of the product (Section 2165 of the Civil Code).
- If a defect appears within **one year** of receipt, the product is deemed to have been defective already at the time of receipt (Section 2161(5) of the Civil Code).
- When purchasing online, a consumer has the right to **withdraw from the contract within 14 days** of receiving the goods without giving a reason (Section 1829 of the Civil Code).
- Claims should be made with the retailer from whom you purchased the product. The importer's contact details are given in Chapter 4.1.
- The competent body for out-of-court settlement of consumer disputes is the **Czech Trade Inspection Authority**, Štěpánská 796/44, 110 00 Prague 1, www.coi.cz.