

BEC-X Regulator

User manual



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1. Product overview

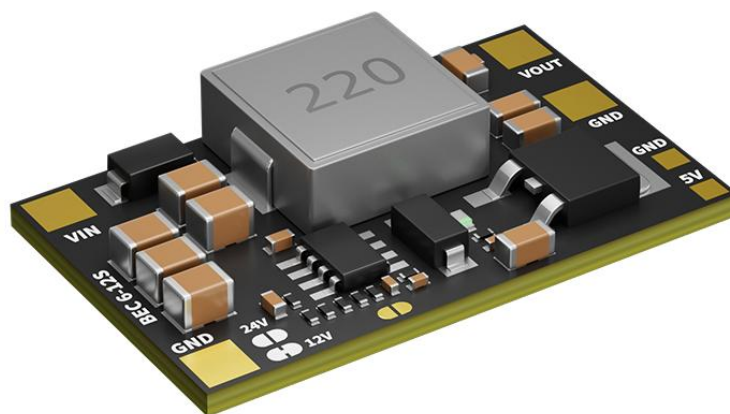


Fig.1. BEC-X Regulator

The Pilotix BEC-X (SKU 8900) is a voltage regulator that powers your onboard electronics from a LiPo battery. It works with 6-12S batteries and gives you two power outputs: a fixed 5V output for things like your flight controller or receiver, and a 12V/24V output for higher-power devices like lights or a gimbal. The 12V/24V output is set to 24V by default, but you can switch it to 12V by soldering a small jumper on the board.

2. Wiring guide

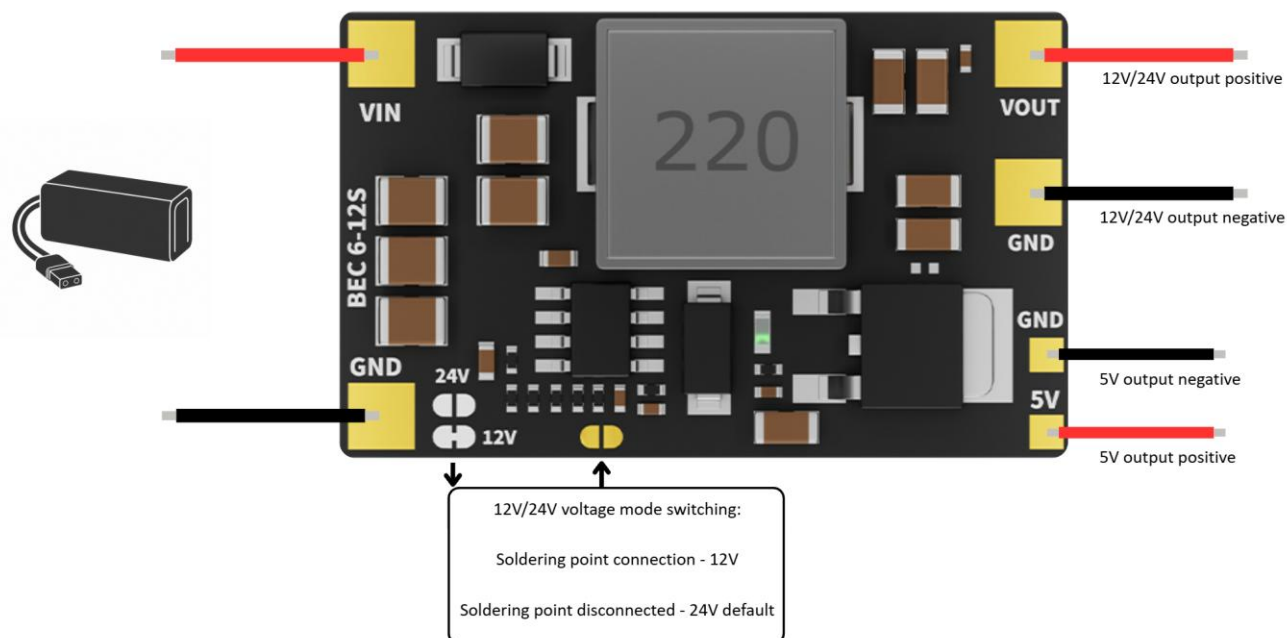


Fig.2. Wiring diagram

Connect the battery to the VIN (positive) and GND (negative) input pads; the input accepts a 6-12S LiPo (22.2-50.4 V).

The 5 V output pads supply a fixed, non-switchable rail for peripherals such as the flight controller and receiver.

The VOUT/GND output pads supply the switchable 12 V/24 V rail: the board ships with this rail set to 24 V by default. To change it to 12 V, bridge the dedicated solder jumper pads next to the "12V"/"24V" markings on the board with a drop of solder; leave the pads unbridged to keep the 24 V default. Before connecting a load, confirm the required voltage matches the jumper setting - connecting a 12 V-rated load while the board is set to 24 V will damage the load.

3. Safety & usage rules

- Voltage jumper check: Before connecting any load, verify the position of the 12V/24V solder jumper. The default is 24V; if your load is rated for 12V, connecting it before bridging the jumper will result in instant hardware failure.
- Smoke stopper: Always use a current-limiting "smoke stopper" during the first power-up after wiring. This is your only line of defense against a short circuit caused by a solder bridge or a crossed connection.
- Polarity: Ensure the VIN and GND pads are wired correctly on both the input and output sides. The module does not have reverse polarity protection; swapping plus and minus will destroy the board immediately.
- Secure mounting: Mount the regulator firmly and route input and output wires so they are not under tension. Vibration and repeated flexing of the wires can fatigue the solder joints on the pads over time.
- Airflow: The onboard switching regulator generates heat, especially when sustaining high current on the 12V/24V rail. Mount the module where it gets airflow, and avoid enclosing it tightly against other components.
- Solder quality: Use high-quality leaded or lead-free solder with flux. "Cold" solder joints (dull, grainy appearance) can fail under vibration or high current load and are a common cause of intermittent output.
- Bench cooling: Do not leave the module powered by a battery on your workbench under sustained load for more than 2-3 minutes without airflow. The regulator can reach temperatures over 80°C very quickly under high current.

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