BLITZ E55

4-in-1 electronic speed controller (ESC) · 2–6S · 55 A
BLHeli_32 firmware · iFlight



Read the entire manual before installation and first connection, in particular the safety instructions in Chapter 1. Keep this manual for future reference.

Rotorama, s.r.o. · www.rotorama.com

Contents

1. Safety instructions

2. Product description

2.1 Intended use

2.2 Parts overview

2.3 Package contents

2.4 Specifications

3. Installation and wiring

3.1 What else you need

3.2 Mechanical installation

3.3 Connecting the motors

3.4 Signal connector and FC connection

3.5 Power supply and capacitor

3.6 Electromagnetic compatibility

4. Commissioning and setup

4.1 First power-up

4.2 Betaflight settings

4.3 Checking motor order and direction

4.4 BLHeli_32 configuration

5. Operation, maintenance and troubleshooting

5.1 During operation

5.2 Maintenance and storage

5.3 Troubleshooting

6. Information for the EU and Czech Market

7. Warranty and rights arising from defective performance

1. Safety instructions

1.1 Before you start

The BLITZ E55 is an electronic speed controller (ESC) designed to be built into an FPV drone. Installation requires soldering and basic knowledge of electronics and of flight controller (FC) setup. If you are unsure, have the installation carried out by an experienced modeller.

- This product is not a toy. It is not intended for children; keep it out of their reach.
- Use it only within the supply voltage and current ranges given in Chapter 2.4.
- Do not make any modifications to the ESC that are not described by the manufacturer. Mechanical damage, overheating or modifications to the board may cause a fire.
- The person who assembled and operates the finished drone is responsible for its safe operation. Observe the regulations for unmanned aircraft that apply in the country where you fly.

1.2 Electrical safety and Li-Po batteries

- Before connecting the battery, always check the **polarity** of the power lead (+ / −). Reverse polarity or a short circuit will destroy the ESC immediately and may cause a fire.
- For the first connection of the battery, we strongly recommend using **short-circuit protection** (a so-called smoke stopper) or a bench power supply with current limiting.
- Solder only with the battery disconnected. Make sure that no solder balls or wire strands remain on the board that could bridge neighbouring pads.
- Charge Li-Po batteries only with a suitable charger, under supervision and on a non-flammable surface. Do not use a damaged, swollen or overheated battery.
- A fully charged Li-Po cell has 4.20 V, a LiHV cell 4.35 V. End the flight at 3.5 V per cell at the latest; for storage, leave the battery at 3.8 V per cell.
- Disconnect the battery after every flight or test. Never leave a connected battery unattended.

1.3 Motor tests and propellers

- Keep the **propellers removed** during all wiring, setup and bench tests of the motors.
- Rotating propellers can cause serious injury. Fit the propellers only after verifying the motor order and direction of rotation (Chapter 4.3).
- The ESC heats up during operation. After a flight, do not touch it or its transistors until they have cooled down.

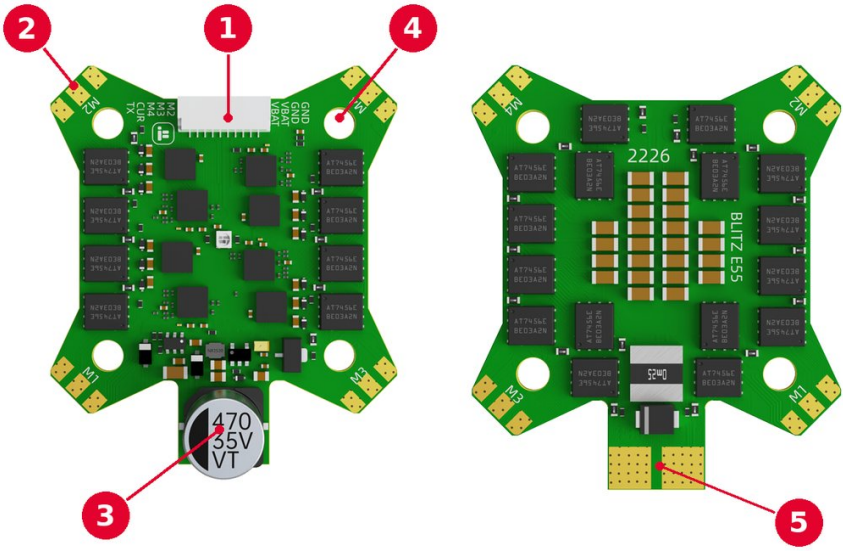
2. Product description

2.1 Intended use

The iFlight BLITZ E55 is a quad electronic speed controller (4-in-1 ESC) for brushless motors. One board with a mounting hole pattern of 30.5 × 30.5 mm carries four speed controllers which, following the commands of the flight controller (FC), control the speed of the four motors of a quadcopter. The ESC is powered by a 2–6S Li-Po battery and runs BLHeli_32 firmware.

The board includes a current sensor whose output is connected to the FC. The ESC **has no built-in voltage regulator (BEC)** – it supplies the flight controller with battery voltage via the signal connector, and the FC generates its low voltages itself.

2.2 Parts overview



Left: side with the signal connector, right: side with the power pads (manufacturer's illustrative renders)

① Signal connector – connection to the flight controller (pinout see Chapter 3.4).

② Motor solder pads M1–M4 – three pads in each corner for the three motor wires.

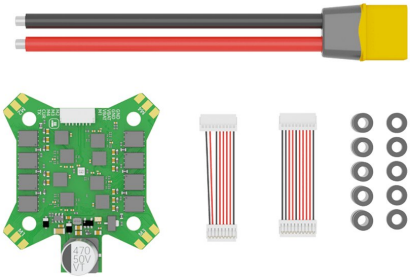
③ Electrolytic capacitor on the power input.

④ Mounting holes 30.5 × 30.5 mm, diameter 4 mm.

⑤ Solder pads for the battery power lead (+ / −).

2.3 Package contents

- 1 × BLITZ E55 4-in-1 2–6S ESC
- power lead and signal cables for connection to the flight controller



Package contents according to the manufacturer's photo

※ The manufacturer's photo of the package contents also shows rubber grommets and a power lead terminated with an XT60 connector; the manufacturer's text packing list does not list them separately. The battery, flight controller, motors and propellers are **not** included.

2.4 Specifications

Parameter	Value
Manufacturer	iFlight
Designation	BLITZ E55 4-in-1 ESC
Power input	Li-Po 2–6S (7–26 V)
Continuous current	55 A
Burst current	65 A
Processor (MCU)	G071
Firmware	BLHeli_32
Firmware target	IFLIGHT_BLITZ_G2 / IFLIGHT_BLITZ_G3
Supported protocols	DShot150, DShot300, DShot600, MultiShot, OneShot
Current sensor	yes, scale 200
BEC (voltage regulator)	no
Mounting holes	30.5 × 30.5 mm, Ø 4 mm
Weight	15.3 g

3. Installation and wiring

3.1 What else you need

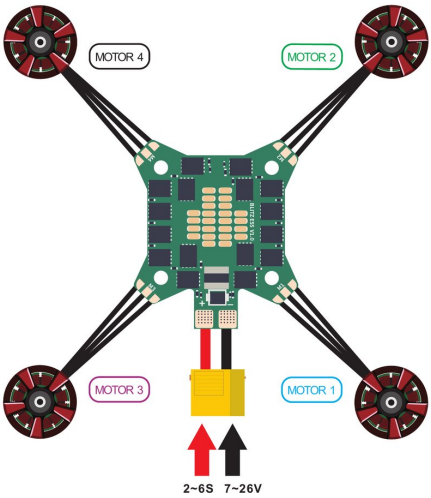
- a drone frame with a 30.5 × 30.5 mm mounting hole pattern and suitable screws,
- a flight controller (FC) with a signal connector compatible with the ESC pinout (Chapter 3.4),
- four brushless motors and propellers matching the size of the drone and the battery voltage,
- a 2–6S Li-Po battery with a connector matching the power lead,
- a soldering iron powerful enough for thick wires, solder and flux,
- a computer with Betaflight Configurator, and a Windows computer for the BLHeliSuite32Test configuration program (Chapter 4.4).

3.2 Mechanical installation

- Mount the ESC in the frame using the 30.5 × 30.5 mm mounting holes. Do not tighten the board hard against a carbon frame – carbon is conductive and the frame edges may damage pads or components.
- Place spacers between the ESC and the flight controller so that the boards and components do not touch each other.
- Ensure airflow around the ESC; the transistors heat up under load.
- Secure capacitor ③ so that it cannot vibrate freely and its leads cannot break off in a crash.

3.3 Connecting the motors

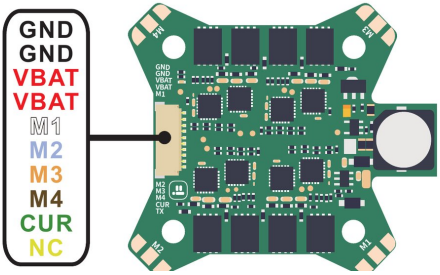
Solder the wires of each motor to the three pads in the corresponding corner of the board (M1–M4). The order of the three motor wires only determines the direction of rotation – it can be changed later in software (Chapter 4.3), so there is no need to re-solder the wires. Shorten the wires to the required length and make sure they do not touch the frame or neighbouring pads.



Manufacturer's wiring diagram – position of motors 1–4 and 2–6S, 7–26 V power input

The motor layout in the diagram corresponds to the default Betaflight motor order for an X-configuration quadcopter: motor 1 rear right, motor 2 front right, motor 3 rear left, motor 4 front left (the power lead points to the rear).

3.4 Signal connector and FC connection



Signal connector pinout according to the manufacturer

Pin	Signal	Function
1, 2	GND	ground
3, 4	VBAT	battery voltage to power the FC
5–8	M1–M4	control signals for motors 1–4
9	CUR	current sensor output
10	NC	not connected according to the manufacturer's diagram

The pin assignment of signal connectors differs between manufacturers. Before connecting, compare the pinout of the connector on your flight controller with the table above. A wrong cable may feed battery voltage to the signal inputs of the FC and destroy it.

※ On the board photos, pin 10 is labelled TX, but the manufacturer's diagram lists it as NC (not connected).

3.5 Power supply and capacitor

- Solder the power lead to pads ⑤ with the correct polarity (+ / −). The joints must be shiny and the solder must wet both the pad and the wire completely.
- The capacitor on the power input suppresses the voltage spikes generated by the motors and ESCs during operation. Do not operate the drone without it.
- The manufacturer advises: when using this ESC in **7–10 inch** drones, add an **additional capacitor** to prevent overloading the capacitor fitted on the ESC.

※ A fully charged 6S LiHV battery (6 × 4.35 V = 26.1 V) exceeds the 7–26 V range specified by the manufacturer. For 6S operation, use Li-Po batteries (fully charged 6 × 4.20 V = 25.2 V).

3.6 Electromagnetic compatibility

The ESC switches high currents rapidly and can therefore emit electromagnetic interference. To reduce interference with the receiver, video transmitter and camera:

- keep the power lead and motor wires as short as possible and do not form loops,
- place the receiver and video transmitter antennas as far as possible from the ESC and the power wires,
- do not omit the capacitor on the power input (Chapter 3.5).

4. Commissioning and setup

4.1 First power-up

① Remove the propellers.

② Check the power polarity once more and make sure there are no short circuits between the pads.

③ Connect the battery through short-circuit protection (smoke stopper).

④ After connection, the motors beep – this is how the ESCs signal power-up. If any motor does not beep, the ESC heats up or smoke appears, disconnect the battery immediately and check the wiring.

4.2 Betaflight settings

Connect the flight controller to the computer and set the following in Betaflight Configurator:

- on the *Motors* tab (in some versions *Configuration*), the ESC protocol – DShot150, DShot300, DShot600, MultiShot and OneShot are supported,
- on the *Power & Battery* tab, in the *Amperage Meter* section, the current meter source ADC (onboard sensor), **Scale 200** and **Offset 0**.



Current sensor setting in Betaflight according to the manufacturer: Scale 200, Offset 0

※ Verify the current measurement – e.g. by comparing the consumed capacity shown after a flight with the capacity the charger puts back into the battery. If there is a larger difference, adjust the *Scale* value.

4.3 Checking motor order and direction

① The propellers must be removed. Connect the battery and connect the FC to the computer.

② On the *Motors* tab, confirm the warning and spin up the individual motors one at a time at low speed.

③ Check that the motor in the correct position spins up, according to Chapter 3.3. If not, remap the motor outputs (in Betaflight using the *Motor direction / reorder* function or the *resource* command in the CLI).

④ Check the direction of rotation according to the FC setting (default *Props in* or reversed *Props out*). The direction of individual motors can be reversed in Betaflight or in BLHeliSuite32Test (parameter *Motor Direction*).

⑤ Fit the propellers only after verifying the order and direction.

4.4 BLHeli_32 configuration

The BLHeliSuite32 program is no longer available. The manufacturer states: since the BLHeli_32 configuration tool has been closed due to regulatory issues, download the **BLHeliSuite32Test** program from the *Download* tab on the ESC product page at shop.iflight.com to adjust the parameters of this ESC.

① On a Windows computer, extract the downloaded archive and run BLHeliSuite32Test.

② Connect the flight controller via USB and connect the battery (propellers removed). The program communicates with the ESCs through the FC (passthrough).

③ Read the ESC settings, adjust the required parameters and write them to all four ESCs.

④ Before writing, note down or save the original settings.

Flash only firmware intended for this ESC's target (IFLIGHT_BLITZ_G2 / IFLIGHT_BLITZ_G3). Flashing the firmware of a different ESC may damage it irreversibly. Do not interrupt a firmware update by disconnecting the power.

5. Operation, maintenance and troubleshooting

5.1 During operation

- Before every flight, connect a fully charged battery and check the mounting of the ESC, the capacitor and all wires.
- Choose motors and propellers so that the current drawn does not exceed 55 A continuous per speed controller. The burst current of 65 A is short-term only.
- After the first flights, check the temperature of the ESC. If it is very hot after a flight, use smaller propellers or a lower voltage, or improve cooling.
- End the flight at 3.5 V per cell at the latest.

5.2 Maintenance and storage

- After a crash, inspect the board, solder joints, capacitor and wire insulation. Do not use a damaged ESC.
- Protect the ESC from moisture, water, dust and conductive contamination (carbon dust, metal swarf).
- Store in a dry place at room temperature, out of the reach of children.

5.3 Troubleshooting

Problem	Possible cause and solution
Motor does not beep after connecting the battery	Broken or cold solder joint on the motor pads; check the soldering. Check the signal cable between the ESC and the FC.
Motors beep repeatedly and Arm (motor start) is not possible	The FC is not sending a signal or the wrong protocol is set. Check the protocol on the *Motors* tab and the cable to the FC.
Motor spins in the wrong direction	Change the direction of rotation in Betaflight or in BLHeliSuite32Test (Chapter 4.3).
A different motor spins than expected	The output order does not match the motor layout; remap the outputs (Chapter 4.3).
Motor starts jerkily or stutters	Cold solder joint on one of the motor wires, damaged motor or wire. Check all three wires.
Current reading in the OSD is wrong	Check *Scale 200* and *Offset 0*; fine-tune the value if necessary (Chapter 4.2).
Video interference or RC signal dropouts	See Chapter 3.6 – reroute the wires, move the antennas away and check the capacitor.
BLHeliSuite32Test does not connect	Both the battery and USB must be connected. Close Betaflight Configurator, which may be holding the serial port.

6. Information for the EU and Czech Market

6.1 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

6.2 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 (BLITZ E55) is printed on the circuit board of the ESC; the firmware version is displayed by the BLHeliSuite32Test configuration program once the ESC is connected.

6.3 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.

7. Warranty and rights arising from defective performance

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 6.1.
- 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.