



Meteor65 Pro II O4

Tiny whoop FPV drone with DJI O4 Wide digital video transmission

1S variant with ExpressLRS 2.4 GHz receiver



Read this entire manual before your first flight, in particular the safety instructions.

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1. Safety instructions

1.1 Before you start

- This product is not a toy and is not intended for children. Flying a drone requires concentration and basic knowledge of its operation.
- Before your first flight, read this entire manual and the enclosed DJI manufacturer's manual for the O4 Air Unit.
- Familiarising yourself with the manufacturer's instructions is a legal condition for operating this drone; operate the drone only in accordance with the legal regulations of the country in which you fly.

1.2 Spinning propellers and mechanical hazards

- Spinning propellers can cause injury. Never bring your hands or face close to the drone while the motors are armed.
- The protective duct reduces the risk of injury but does not eliminate it completely.
- Always disconnect the battery before any handling of the drone (replacing propellers, cleaning, carrying).

1.3 Li-Po and LiHV batteries

- Use only a charger designed for lithium-polymer batteries. The recommended LAVA II 1S 480 mAh battery is a **LiHV** type — it charges to 4.35 V per cell; a standard Li-Po cell charges to 4.20 V.
- Never charge the battery unattended and never charge it near flammable materials.
- Do not use batteries that are swollen, deformed or otherwise damaged.
- Do not disassemble, short-circuit or crush the battery, and do not throw it into fire.
- Do not store a fully charged battery for more than 3 days; for long-term storage keep the voltage at around 3.8 V per cell.
- End the flight no later than when the voltage drops to **3.5 V per cell** — deep discharge damages the battery irreversibly.

Follow the Li-Po battery safety guidelines available at www.rotorama.cz.

1.4 Operating environment

- The drone is designed primarily for flying indoors or outdoors in calm weather. It is a very light aircraft and does not have enough power reserve in wind.
- Do not fly in rain and do not expose the electronics to moisture.
- The DJI O4 transmission unit gets hot during operation — do not touch it until it cools down, and do not leave the drone powered on the ground for long.

2. Product description

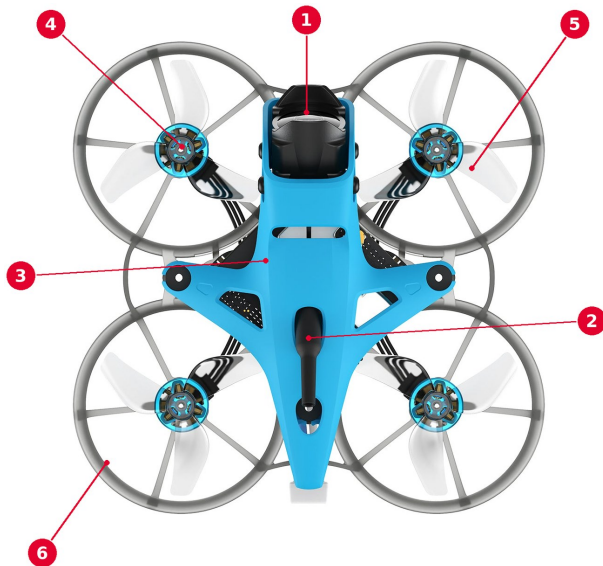
The **BetaFPV Meteor65 Pro II O4** is a miniature FPV drone of the “tiny whoop” category with ducted propellers, **DJI O4 Wide** digital video transmission and a built-in **ExpressLRS 2.4 GHz** receiver. It is designed for flying by camera view (FPV) indoors and outdoors in calm weather. This manual applies to the **DJI O4 Wide / ELRS 2.4 GHz** variant.

2.1 Package contents

- 1× Meteor65 Pro II O4 drone (with the DJI O4 Wide unit installed)
- 4× spare Gemfan 1409 propeller
- 2× spare canopy shock-absorbing ball (8.8 mm)
- 1× USB-C to SH1.0 adapter (for connecting to a computer)
- 1× SH1.0 4-pin cable
- 4× M1.4×3 screw
- 1× DJI manufacturer's manual for the O4 Air Unit

The battery, charger, radio transmitter and FPV goggles are not included — see Chapter 3.1.

2.2 Parts overview



Meteor65 Pro II O4 — top view

- ① DJI O4 Wide camera (tilt 15–35°)
- ② 5.8 GHz video transmitter antenna
- ③ Canopy II mounted on four shock-absorbing balls
- ④ 0802 Freestyle motor (2026)
- ⑤ Three-blade Gemfan 1409 propeller
- ⑥ Protective duct of the Meteor65 Pro II frame

On the underside of the frame there is a battery slot (16.1 × 6.3 mm) with a **BT2.0** power connector. The flight controller with the receiver is located under the canopy.

2.3 Technical specifications

Motor-to-motor diagonal	70 mm
Frame	Meteor65 Pro II (PP material), 91.4 × 91.4 × 15.4 mm
Canopy	Canopy II for O4 Air Unit (PP material)
Motors	0802 Freestyle (2026), 22000KV
Propellers	Gemfan 1409, three-blade, 35 mm diameter, 0.9" pitch, 1.0 mm shaft
Flight controller	Matrix 1S 3IN1 HD (STM32G473 MCU, BMI270 gyroscope)
Speed controllers (ESC)	12 A continuous, 18 A peak, Bluejay firmware, DSHOT300
Receiver	built-in ExpressLRS 2.4 GHz (serial, CRSF protocol)
Video transmitter	DJI O4 Wide Air Unit, 5.8 GHz band
Camera	DJI O4 Wide, 159° FOV, recording up to 4K/60 fps*
Power supply	1S LiHV / Li-Po, BT2.0 connector
Recommended battery	LAVA II 1S 480 mAh LiHV (95C, BT2.0)
Flight time	approx. 4 minutes (with the LAVA II 1S 480 mAh battery)
Weight	36.2 g without battery

* Camera and video transmission figures are stated by the drone manufacturer BetaFPV and by the unit manufacturer DJI.

2.4 Flight controller (FC) and receiver

Flight is handled by the **Matrix 1S 3IN1 HD** board, developed for 1S whoops with digital video transmission. It combines the flight controller (FC), the speed controllers (ESC) and the ExpressLRS receiver on a single board. The board is fitted with a voltage and current sensor and 16 MB of blackbox memory (flight data logging). It has no analog OSD chip — telemetry data is rendered into the image digitally by the DJI unit.

- The 5 V/3 A BEC powers the video transmitter; according to the manufacturer, it maintains a stable power supply for the video transmission even during short battery voltage drops.
- The motors are connected with JST1.25 connectors — replacing a motor requires no soldering.
- The USB port (SH1.0 4-pin) is used to connect to a computer via the included USB-C adapter.
- **ExpressLRS (ELRS)** is an open-source RC system with long range, low latency and a high update rate. The built-in receiver communicates with the flight controller using the CRSF protocol.

2.5 Video transmitter and camera

Video transmission is provided by the **DJI O4 Wide Air Unit** with a wide-angle camera (159° field of view). According to the manufacturer, it records video at up to 4K/60 fps and transmits the image with very low latency. The unit is mounted in the Canopy II, which is connected to the frame by four shock-absorbing balls that reduce the transfer of vibrations into the footage.

- DJI FPV goggles are required to receive the video (see 3.1). The unit does not work with analog goggles or with the Walksnail and HDZero systems.
- For O4 series units, DJI states the operating bands 5.170–5.250 GHz and 5.725–5.850 GHz.
- The unit has no memory card slot — recordings are stored in the built-in memory.

✳ **BetaFPV randomly tests some O4 Wide units before shipment — a unit delivered already activated has passed the manufacturer's outgoing inspection and this is not a defect.**

3. Preparing for the first flight

3.1 What else you need

- **DJI FPV goggles** — DJI states compatibility of the O4 series units with DJI Goggles 3, DJI Goggles N3, DJI Goggles 2 and DJI Goggles Integra.
- **A radio transmitter with ExpressLRS 2.4 GHz** — e.g. the BetaFPV LiteRadio 2 SE/3/4 series or another radio with an ELRS module.
- **A 1S battery with a BT2.0 connector** — the recommended battery is the LAVA II 1S 480 mAh LiHV.
- **A charger for 1S LiHV batteries with a BT2.0 connector** — e.g. the BetaFPV BT2.0 Battery Charger V2 (charges to 4.35 V at 1 A).

3.2 Choosing and connecting the battery

Insert a **fully charged** 1S battery with a BT2.0 connector into the slot on the underside of the frame so that the cable points towards the connector on the board. Slide the battery into the slot (16.1 mm wide) and plug the connector in firmly. After connecting the battery, place the drone on a flat surface and do not move it for a few seconds — the gyroscope calibrates at start-up.



LAVA II 1S battery in the slot on the underside of the frame

- A fully charged LiHV cell has a voltage of 4.35 V, a standard Li-Po cell 4.20 V.
- End the flight no later than at 3.5 V (see 5.3).
- For storage, charge the battery to approx. 3.8 V.

3.3 Installing and replacing propellers

- The propellers are factory-installed. Spare Gemfan 1409 propellers are pushed onto the 1.0 mm motor shaft by pressing straight down on the propeller hub; support the motor with a finger from below so that you do not strain the bearings or the frame.
- Always install a new propeller **with the same orientation** as the original one — the propellers on different positions spin in different directions. The direction of rotation of each motor can be checked in Betaflight Configurator on the *Motors* tab (with the other propellers removed, see 4.5).
- Replace damaged or bent propellers immediately — they are the most common cause of vibrations in the footage.

3.4 Adjusting the camera angle

The camera can be tilted in its canopy mount in the range of **15-35°**. Choose a smaller angle for slow indoor flying and a larger angle for faster flight. Set the angle before the flight — it cannot be changed in flight.

4. Setup

4.1 Connecting to a computer

The drone is configured with **Betaflight Configurator** (free for Windows, macOS and Linux). It connects to a computer with the included USB-C to SH1.0 adapter plugged into the USB port on the flight controller. The flight controller is factory-configured (PID profile for the GF 1409 propellers, channel mapping, telemetry) — nothing needs to be changed in the configuration for the first flight.

Always remove the propellers when working at the computer with the battery connected — the motors may spin up unexpectedly.

4.2 Binding the receiver

- ① Connect and disconnect the battery three times in a row (each time about one second after connecting).
- ② After the third connection, the receiver LED double-blinks rapidly — the receiver is in binding mode.
- ③ Start binding on your radio — select *Bind* in the ExpressLRS menu (ELRS Lua script).
- ④ Once the receiver LED is solid, the bind is complete.
 - The radio and the receiver must run the same major version of the ExpressLRS firmware, otherwise binding will fail.
 - An unbound receiver switches to Wi-Fi mode after 60 seconds — in that case, disconnect the battery and start again.
 - If the LED blinks three times after binding, disable the *Model Match* function in the ELRS menu on your radio and bind again.

4.3 Activating and linking the video transmitter

The DJI O4 unit must be **activated** before first use. An unactivated unit has limited transmission power and the goggles menu cannot be fully operated. Procedure according to DJI:

- ① Install *DJI Assistant 2 (Consumer Series)* from dji.com on your computer.
- ② Connect the battery to the drone and connect the unit to the computer with a USB-C cable (the connector is on the transmission module under the canopy).
- ③ Log in with a DJI account and activate the unit following the on-screen instructions.
- ④ Linking with the goggles: press the link button on the unit (the LED blinks red) and then on the goggles; after linking, the image appears in the goggles.

The detailed linking procedure, channel selection and recording settings are described in the enclosed DJI manual. Keep the transmission power at the levels permitted in your country.

4.4 Accelerometer calibration

Place the drone on a level surface, connect it to Betaflight Configurator and click *Calibrate Accelerometer* on the *Setup* tab. Calibration is required for the self-levelling modes (Angle, Horizon) to work correctly. The drone is calibrated at the factory; repeat the calibration if the drone drifts to one side in Angle mode.

4.5 Checking motors and propellers

With the **propellers removed**, you can spin up individual motors on the *Motors* tab in Betaflight Configurator after confirming the safety warning, and verify each motor's direction against the diagram on the tab. The motors use the DSHOT300 protocol with bidirectional communication (RPM filtering) and Bluejay firmware.

4.6 Arm, Disarm and failsafe

- **Arm** (motors on) is factory-mapped to the **AUX1** channel switch. Before arming, place the drone on the ground and keep the throttle at minimum.
- **Disarm** (motors off) with the same switch immediately after landing or after a crash.
- The **AUX2** channel carries the factory flight modes *Angle* (self-levelling, for beginners) and *Horizon*; the third switch position is the acro mode without stabilisation.
- The **AUX3** channel carries the *Flip Over After Crash* (“turtle”) function for righting a drone lying on its back.
- The **AUX4** channel carries the beeper (see 5.4).
- **Failsafe:** if the radio signal is lost, the drone switches the motors off. Fly so that you always have a signal range reserve.

The actual switch layout depends on your radio settings. Before the first flight, verify the Arm/Disarm function and the flight modes on the *Modes* tab in Betaflight Configurator.

4.7 Firmware updates

- **Betaflight:** the factory firmware uses the **BETAFPVG473** target. The current firmware and factory configuration (CLI dump) are published by BetaFPV in the article “CLI for Meteor65 Pro II O4” at support.betafpv.com. Back up your configuration before flashing (CLI command *diff all*).
- **The ExpressLRS receiver** is updated with ExpressLRS Configurator via Betaflight passthrough (target *BETAFPV 2.4GHz AIO RX*) or via its Wi-Fi interface.
- **The DJI O4 unit** is updated with DJI Assistant 2 (see 4.3).
- Flight controllers ship with either a BMI270 or an ICM42688P gyroscope — verify the type (CLI command *status*) before flashing; firmware for the wrong gyroscope will render the drone inoperable.

5. Flying

5.1 Pre-flight check

- The propellers are undamaged and firmly seated, the protective duct is not cracked.
- The camera and the video transmitter antenna are undamaged and the antenna is not bent over the canopy.
- The battery is **fully charged**, undamaged and firmly seated in the slot.
- The radio is on, bound and the throttle is at minimum; the flight mode matches the intended flight.
- The goggles show a stable image and the OSD displays the battery voltage.
- There are no people in the immediate vicinity of the take-off point; outdoors you have an observer maintaining visual contact with the drone and you have checked the geographical zones.

5.2 Take-off and basic control

Place the drone on a flat surface with its tail towards you, arm it and take off with a smooth throttle increase to a height of about one metre. For your first flights we recommend the *Angle* mode, in which the drone levels itself when the stick is centred. The controls are sensitive — make small, smooth stick movements. We recommend that new pilots practise their first flights in a spacious interior without obstacles and people.

5.3 Monitoring the voltage and ending the flight

Monitor the battery voltage in the goggles OSD. End the flight no later than when the voltage drops to **3.5 V** — flying further deeply discharges the battery and permanently reduces its capacity. The flight time with the recommended battery is approximately 4 minutes; motor power drops noticeably as the voltage decreases. After landing, disarm and disconnect the battery.

5.4 Finding the drone after a crash

- Flipping the **AUX4** channel activates the beeper — the drone emits tones using its motors even when disarmed after a crash.
- If the radio signal is lost, the drone starts beeping automatically.
- If the drone is lying on its back, try the *Flip Over After Crash* function on the AUX3 channel: with a short movement of the pitch/roll stick the drone flips back over. Then switch the function off and take off normally.

6. Maintenance and troubleshooting

6.1 After every flight

- Disconnect and remove the battery; never store it connected to the drone.
- Check the propellers, the protective duct and the canopy shock-absorbing balls; remove hair and dirt from the motors.
- Let the transmission unit cool down before storing the drone.

6.2 Replacing propellers and frame parts

- Pull the propeller off the shaft by the hub (not by the blades) and install the new one as described in 3.3.
- The frame and the canopy are made of flexible plastic (PP) and are available as spare parts, as are the shock-absorbing balls (2 spares are included) and the included M1.4×3 screws.
- Spare parts are available at www.rotorاما.cz.

6.3 Replacing a motor

The 0802 Freestyle (2026) motors are connected to the board with JST1.25 connectors and fastened to the frame with three M1.4×3 screws — replacement requires no soldering. After replacing, verify the motor's direction of rotation on the *Motors* tab (4.5).

6.4 Storage

- Store the drone in a dry place at room temperature, out of direct sunlight.
- Store batteries at a storage voltage of approx. 3.8 V per cell, ideally in a fireproof container.
- Before longer storage, clean the drone and check that no dirt remains in the frame.

6.5 Troubleshooting

Problem	Possible cause	Solution
The receiver will not bind with the radio	Different major ELRS firmware version; binding not completed within 60 s	Update the receiver and the radio to the same ELRS version; repeat procedure 4.2
Motors will not arm	Discharged battery; drone not level; no radio signal	Charge the battery; place the drone on a flat surface; check the bind and the Arm switch
No image in the goggles	O4 unit not linked or not activated; unit overheated	Perform procedure 4.3; let the unit cool down and do not leave the drone powered on the ground for long
Shaky image ("jello")	Damaged propeller; loose canopy shock-absorbing balls	Replace the propellers; check the seating of the balls and the canopy
Short flight time, weak performance	Worn, cold or poorly charged battery	Use a fully charged battery in good condition; keep batteries warm in winter
The drone does not respond after a crash	Failsafe after signal loss; loose battery	Move closer with the radio; check the BT2.0 connector and arm again

7. Information for the EU and Czech Market

7.1 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@rotorاما.cz
Phone	+420 252 252 098
Website	www.rotorاما.cz

7.2 Product conformity



- 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@rotorاما.cz.
- **Product identification:** the type designation (Meteor65 Pro II O4) and production information are given on the product packaging.

7.3 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>.

8. 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 7.1.
- 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.