



Flylens 85 O4 Wide 2S

FPV drone

DJI O4 Wide digital video transmission · ExpressLRS 2.4
GHz receiver



Read this entire manual before first use, especially chapter 1 (Safety instructions) and chapter 3 (Legal requirements for operation). Keep this manual for future reference.

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1. Safety instructions

1.1 Before you start

The Flywoo Flylens 85 O4 Wide 2S is an FPV drone — an electrically powered unmanned aircraft with digital video transmission and video recording. **It is not a toy.** It is not intended for children and is not suitable for persons under 14 years of age. Keep it out of the reach of children.

- Read this entire manual before your first flight. Incorrect operation may cause injury, property damage or a breach of the law.
- Fly only where the law permits it, and only at such a distance from people, animals and property that no damage can occur if you lose control.
- Never fly under the influence of alcohol, medication or other substances that impair your attention.
- Do not modify the drone in any way that affects its safety or its transmitted radio parameters. Do not remove the propeller guards.
- The pilot is responsible for every flight. This responsibility cannot be transferred to the manufacturer or the seller.

1.2 Spinning propellers and mechanical hazards

Spinning propellers can cause cuts. Always disconnect the battery first before handling the drone in any way.

- The propeller guards reduce the risk of injury but do not eliminate it completely. Do not touch the drone until the propellers have come to a complete stop.
- Never hold the drone in your hand while the motors are running (Arm state). Keep the drone away from your face, eyes and unprotected skin.
- Test the motors only with the propellers removed, or with the drone resting firmly on a surface and with people at a safe distance of at least 3 m.
- Replace cracked, chipped or deformed propellers immediately. A damaged propeller may break apart in flight.
- Before flying, check that the propellers are pushed fully home and that the guards are not cracked.

1.3 Li-Po and LiHV batteries

The battery is not included. The drone is designed for two-cell (2S) Li-Po or LiHV batteries. An incorrect cell count will damage the drone's electronics and may cause a fire.

Battery state	Li-Po 2S	LiHV 2S
Fully charged	8.4 V (4.20 V/cell)	8.7 V (4.35 V/cell)
End the flight	7.0 V (3.5 V/cell)	7.0 V (3.5 V/cell)
Storage	7.6 V (3.8 V/cell)	7.6 V (3.8 V/cell)

- Charge only with a charger designed for the given cell type. A LiHV battery charged in Li-Po mode will not reach its full capacity; a Li-Po battery charged in LiHV mode will be overcharged and may catch fire.
- Charge under supervision, on a non-flammable surface and preferably in a fireproof bag. Never charge unattended or overnight.
- Never charge a swollen, damaged, wet or deeply discharged battery. Never puncture, short-circuit or deform a battery, and never throw it into a fire.
- Charge and store the battery at normal room temperature. Let a hot battery cool down after a flight first.
- If you will not be using the drone for a longer period, bring the batteries to a storage voltage of 3.8 V per cell (7.6 V for 2S).
- Always insert a **fully charged** battery before flying.
- Do not use water to extinguish a burning battery. Use dry sand or a fire extinguisher and ventilate the area.
- Do not send a damaged or swollen battery by post or courier — contact the seller and agree on how to proceed. Hand it in at a battery collection point.

1.4 Operating environment

The drone is designed for flying indoors and outdoors in good weather. It is neither waterproof nor dustproof.

- Do not fly in rain, snow or fog, or over water. Moisture will damage the electronics, and such damage is not a product defect.
- Do not fly in strong wind. Wind can easily carry a lightweight drone away, even out of your sight.
- The video transmitter gets very hot during operation. Do not leave the drone powered on without flying — without airflow, the video transmitter will overheat and shut down.
- After a flight, do not touch the video transmitter or the motors until they have cooled down.
- According to the manufacturer DJI, the operating temperature of the video transmitter is -10°C to 40°C . Battery capacity drops significantly in the cold; expect shorter flights in freezing temperatures.

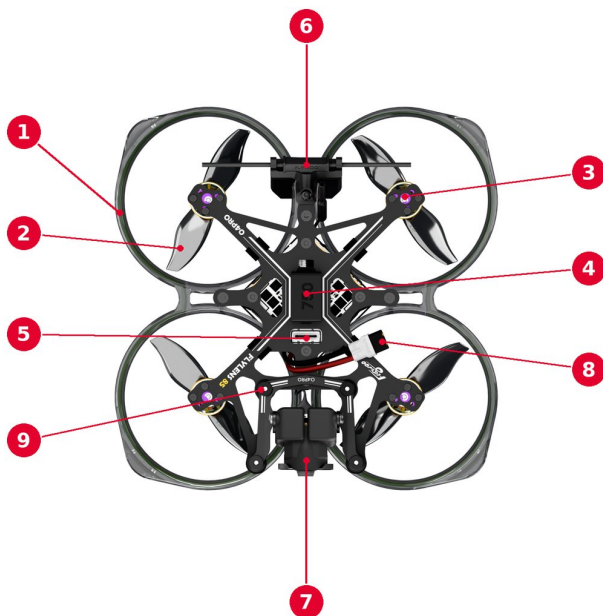
2. Product description

2.1 Package contents

- 1× Flylens 85 DJI O4 Wide 2S drone with ExpressLRS 2.4 GHz receiver
- 1× USB-C data cable for the DJI O4 Air Unit, 90° angled
- 1× TPU battery mount for 2S 550 mAh
- 1× TPU battery mount for 2S 750 mAh
- 1× TPU battery mount for 2S 1000 mAh
- 1× ND filter for the DJI O4 Wide lens
- 8× 2015 propellers, two-blade
- 1× screwdriver
- 1× hardware kit

The battery, charger, RC radio transmitter and FPV goggles are not included.

2.2 Parts overview

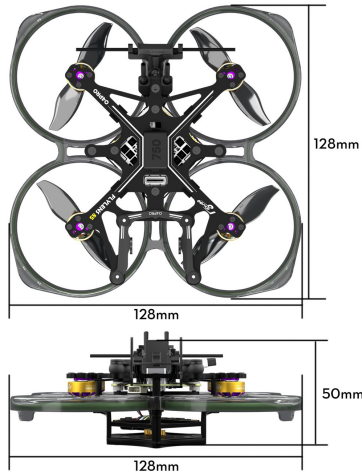


Top view. The camera faces forward — downward in the picture.

- ① Propeller guard (duct) made of PC+
- ② 2015 propeller, two-blade, 2" diameter
- ③ Flywoo ROBO 1003 14800 Kv motor

- ④ TPU battery mount (750 mAh size shown)
- ⑤ Flight controller USB-C port
- ⑥ Antenna mount
- ⑦ DJI O4 Wide camera
- ⑧ Power lead with XT30 connector
- ⑨ Camera damping platform (CNC)

The frame consists of an upper and a lower part held together by just four screws. The transmitter module of the video transmitter sits in the lower part of the drone in a PC housing that protects it and improves its cooling. The propellers run in an inverted configuration (reverse thrust). The propeller guards carry a blue LED strip.



Drone dimensions according to the manufacturer's drawing (shown without the camera).

2.3 Specifications

Model	Flylens 85 DJI O4 Wide 2S Whoop FPV Drone
Manufacturer code	FW19005293
Version	with ExpressLRS 2.4 GHz receiver
Dimensions (L × W × H)	128 × 128 × 50 mm
Weight without battery	75.3 g
Frame	Flylens 85 O4 Pro
Carbon plate	2 mm thick
Camera damping platform (CNC)	1 mm thick

Propeller guard material	PC+ (injection-molded polycarbonate)
Flight controller and ESCs	Flywoo GOKU F405 HD 1-2S 12A ELRS AIO V2
Motors	Flywoo ROBO 1003 14800 Kv
Propellers	Gemfan Durable 2015, two-blade, 1.5 mm shaft
Video transmitter and camera	DJI O4 Wide Air Unit
Video transmission antenna	Flywoo 5.8G Light, 3 dBi, u.FL connector
Receiver	ExpressLRS 2.4 GHz, integrated
Lighting	Flywoo Flexible LED, blue strip with 3.3 V regulator
Power connector	XT30 (Flywoo XT30UP)
Battery	2S Li-Po or LiHV, 550-1000 mAh
Flight time according to the manufacturer	approx. 6 min 30 s with a 750 mAh battery, approx. 8 min with a 1000 mAh battery
Operating temperature	-10 °C to 40 °C (video transmitter)

Flight times are stated by the manufacturer; the 8 minutes figure applies to the Flywoo 2S 1000 mAh LiHV battery. Actual flight time depends on flying style, temperature and battery condition.

2.4 Flight controller, ESCs and receiver

The drone uses an all-in-one (AIO) board that combines the flight controller (FC), a 4-in-1 electronic speed controller (ESC) and an ExpressLRS receiver.

Board	Flywoo GOKU F405 HD 1-2S 12A ELRS AIO V2
Processor	STM32F405 (BGA package)
Gyroscope	ICM42688-P
Barometer	DPS310 / SPL06
Blackbox memory	8 MB
Current sensor	yes, integrated
Voltage regulators (BEC)	5 V / 2 A and 9 V / 2 A
Electronic speed controllers	12 A, 4-in-1, BLHeli_S, Bluejay firmware from the factory
Supported ESC protocols	DShot150, DShot300, DShot600, Oneshot125, Oneshot42, Multishot
Receiver	ExpressLRS 2.4 GHz (ESP8285, SX1280), serial, CRSF protocol on UART1
Receiver refresh rate	25-500 Hz
Flight controller firmware	Betaflight, target FLYWOOF405S_AIO
INAV firmware	target FLYWOOF405HD

The motors are connected to the board with plugs, so replacing them requires no soldering. A dedicated 9 V / 2 A regulator powers the digital video transmitter and prevents it from dropping out when the battery voltage sags.

✳ **The 9 V supply can be switched off with a switch assigned to the USER2 mode in Betaflight. This protects the video transmitter from overheating when the drone sits powered on without flying (chapter 5.7).**

Further serial ports and an I2C bus are intended by the manufacturer for an optional GPS module (UART4) and compass (I2C); the frame has a dedicated GPS bay. The GPS module is not included.

2.5 Video transmitter and camera

Video transmission and recording are handled by the DJI O4 Wide Air Unit, a wide-angle version of the DJI O4 Air Unit: instead of a 117.6° lens it has a 159° lens, well suited to tight spaces. The data in this chapter are provided by DJI.

Sensor	1/2" CMOS
Field of view (FOV)	159°
Recording resolution	up to 4K/60 fps, MP4 format, bitrate up to 100 Mbps
Internal storage	23 GB; the unit does not support microSD cards
Live view in goggles	1080p/100 fps, bitrate up to 60 Mbps
Lowest latency	20 ms (DJI Goggles 3, Racing mode), 24 ms (DJI Goggles N3), 35 ms (DJI Goggles 2 and Integra)
Stabilization	RockSteady 3.0+, or off for Gyroflow
Input voltage	3.7–13.2 V
Weight	approx. 13.3 g including camera

The unit is designed for DJI Goggles 3 or DJI Goggles N3. With DJI Goggles 2 or DJI Integra, Racing mode is not available and latency is higher; goggles from other manufacturers are not supported. The link supports Canvas mode, i.e. the flight controller OSD is shown in the goggles. The drone is controlled with an ExpressLRS 2.4 GHz radio transmitter.

✳ **With the O4 Wide unit, RockSteady stabilization may show jitter in some shots (e.g. in turns); Gyroflow works without limitations. The camera sits on a damping platform — after a crash, check that the dampers are not torn.**

3. Legal requirements for operation in the Czech Republic and the EU

3.1 The law of the country where you fly applies

Regulations (EU) 2019/947 and 2019/945 apply in all member states of the European Union, but national implementing rules differ from country to country — registration portals, minimum pilot age, UAS geographical zones, mandatory insurance, permitted frequency bands and maximum transmit power. The information in this chapter describes the situation in the Czech Republic as of the date of issue of this manual (10/2026). If you operate the drone in another country, you must follow the regulations of the country in which you fly. Regulations change — up-to-date information is available at www.caa.gov.cz (Civil Aviation Authority of the Czech Republic, ÚCL) and www.ctu.gov.cz (Czech Telecommunication Office, ČTÚ).

3.2 Drone classification and category of operation

The Flylens 85 O4 Wide 2S is a privately built unmanned aircraft (UAS) within the meaning of Article 2(16) of Regulation (EU) 2019/947. It is equipped with a camera and does not carry a C0 to C4 class identification label under Regulation (EU) 2019/945.

► Subcategory A3

The maximum speed of the drone exceeds 19 m/s (68.4 km/h). It therefore does not meet the conditions of subcategory A1 for privately built unmanned aircraft, which requires a maximum take-off mass of less than 250 g **and** a maximum operating speed of less than 19 m/s (point UAS.OPEN.020(5)(a) of Regulation 2019/947).

In the open category, the drone can be operated in **subcategory A3**, which is intended, among others, for privately built unmanned aircraft with a maximum take-off mass of less than 25 kg (point UAS.OPEN.040(4)(a)). The following applies in subcategory A3:

- Fly only in an area where it is reasonably expected that no uninvolved persons will be endangered.
- Keep a horizontal distance of at least **150 m** from residential, commercial, industrial and recreational areas.
- The pilot must have completed the online training and test for subcategories A1/A3 (chapter 3.3).

Subcategory A2 is intended only for class C2 drones and is not available for this drone.

✳ **EASA has proposed (Opinion No. 06/2026) changing the rules for privately built drones and for drones with a take-off mass above 100 g. As of the date of issue of this manual, the change had not been adopted — check www.caa.gov.cz for the current status.**

According to the EASA interpretation (GM1 to Article 1 of Regulation 2019/947), the EU drone rules do not apply to flights inside buildings from which the drone cannot escape into outdoor airspace. Fly there only with the consent of the owner or manager of the premises and with due regard for the people present.

Outside the open category, the drone can also be operated:

- within a model aircraft club or association holding an authorisation from the ÚCL (Article 16 of Regulation 2019/947), under the conditions of that authorisation,
- on the basis of an operational authorisation in the specific category issued by the ÚCL.

3.3 Operator registration and pilot competency

- The drone is equipped with a camera and is not a toy. Its operator (usually the owner) must therefore **register**, even though the drone weighs less than 250 g (Article 14(5) of Regulation 2019/947). Registration is done with the aviation authority of the country of residence — in the Czech Republic on the **dron.caa.gov.cz** portal — and is valid in all EU member states.
- Display the operator registration number on the drone so that it is legible at least on the ground. A QR code may also be used; on a small drone, placing it in an accessible battery compartment is acceptable.
- For privately built unmanned aircraft with a maximum take-off mass of less than 250 g, Regulation 2019/947 does not set a minimum age for the remote pilot (Article 9(2)). This product is intended only for persons aged 14 and over.
- The pilot must be familiar with this manual and must have completed the free **online training and test for subcategories A1/A3** at dron.caa.gov.cz (point UAS.OPEN.040(3) of Regulation 2019/947). The test has 40 questions; at least 75 % correct answers are required to pass. The certificate is valid for 5 years.

3.4 Operational limitations

During operation, observe in particular the following rules:

- Keep the drone no higher than 120 m above the closest point of the earth's surface.
- Keep the drone in direct visual line of sight at all times; when flying with goggles, within the sight of a UA observer (chapter 3.5).
- Never fly over uninvolved persons or over assemblies of people (events, crowded beaches and parks, shopping streets).

- Do not fly near emergency response operations. Do not carry any objects and do not drop anything.
- At night, the drone must have a green flashing light switched on. The drone's blue LED strip does not meet this requirement.
- Before every flight, check the UAS geographical zones on the **dronemap.gov.cz** map. Restricted and prohibited areas include, among others, the surroundings of airports, national parks and protected landscape areas, and energy and military facilities.
- Land as soon as another aircraft approaches or if the flight endangers people, animals or property.

3.5 Flying with FPV goggles

When flying with goggles, you cannot see the drone directly. The rules allow this only if a UA observer stands next to you, watching the drone with the naked eye (without binoculars) and monitoring the surrounding airspace and obstacles. You must be in immediate contact with the observer, and the drone must not fly farther than the observer can clearly see it. You, as the pilot, are always responsible for the safety of the flight.

3.6 Radio frequencies and transmit power

The drone contains the following radio transmitters:

Transmitter	Frequencies	Max. power (manufacturer data, CE)
DJI O4 Wide Air Unit video transmitter	5170–5250 MHz	< 23 dBm e.i.r.p.
	5725–5850 MHz	< 14 dBm e.i.r.p.
ExpressLRS receiver (telemetry)	2400–2483.5 MHz	–

The video transmitter data are published by the manufacturer DJI for CE mode. The manufacturer does not publish the maximum transmit power of the ExpressLRS receiver; this value is stated in the EU declaration of conformity, which is available from the importer (chapter 8.1).

Conditions of operation in the Czech Republic under the ČTÚ general authorisations:

Band	Limit in the Czech Republic	Authorisation
2400–2483.5 MHz (receiver and radio transmitter)	100 mW e.i.r.p.	VO-R/12/11.2021-11
5170–5250 MHz (video transmitter)	200 mW e.i.r.p.	VO-R/12/11.2021-11
5725–5875 MHz (video transmitter)	25 mW e.i.r.p.	VO-R/10/05.2025-5

- Unmanned aircraft systems must not be operated in the 5150–5170 MHz range in the Czech Republic. The video transmitter does not use this range.
- The e.i.r.p. limit includes the antenna gain. Operate the equipment only with the antenna specified by the manufacturer, without additional amplifiers and without modifications.
- The user is responsible for the power setting. When connected to DJI Assistant 2, the video transmitter switches to the radio mode for the region (chapter 5.2).

Switching the video transmitter to FCC mode increases the transmit power above the permitted limit and is a breach of the conditions of the general authorisation in the Czech Republic. Always use the mode that corresponds to the country in which you fly.

Restriction on putting into service under Article 10(10) of Directive 2014/53/EU: in the Czech Republic, the video transmitter may be operated without an individual authorisation only in the bands and at the power levels given in the table above. Similar restrictions apply in other EU member states — check them with the national telecommunications authority.

3.7 Personal data protection and insurance

- The drone's camera records its surroundings. You may capture, and in particular publish, a person's likeness or expressions of their privacy only with their consent (§ 84–86 of the Czech Civil Code). The GDPR exemption for purely personal or household activities does not apply to publishing a recording on the internet — follow recommendation No. 01/2024 of the Czech Office for Personal Data Protection (ÚOOÚ).
- In the Czech Republic, liability insurance is required by law, among other cases, for operation in the specific category; members of an authorised association are exempt from this obligation (§ 54d of Act No. 49/1997 Coll.). For a drone up to 0.91 kg, the minimum limit is CZK 2,000,000 per insured event (§ 16n of Decree No. 108/1997 Coll.). Even where insurance is not mandatory, we recommend taking it out. You are liable for damage caused by operating the drone under the Civil Code.

4. Preparing for the first flight

4.1 What else you need

The drone is supplied assembled and with a built-in receiver, but without controls and without a power source. To fly, you need:

- An RC radio transmitter with a 2.4 GHz ExpressLRS transmitter module. The receiver in the drone communicates using the CRSF protocol. A radio transmitter using a different system (FrSky, TBS Crossfire, DJI) will not work with this drone.
- DJI FPV goggles — Goggles 3, Goggles N3, Goggles 2 or Integra.
- 2S Li-Po or LiHV batteries with a capacity of 550, 750 or 1000 mAh and an XT30 connector.
- A charger for 2S batteries with LiHV mode support, if you use LiHV batteries.
- A computer with Betaflight Configurator and with DJI Assistant 2 (FPV Series) for activating and updating the video transmitter.

✱ **A 1000 mAh battery gives the longest flight time, but makes the drone heavier and less agile. For indoor flying, a 550 or 750 mAh battery is usually more pleasant.**

4.2 Choosing and connecting the battery

The package includes three TPU battery mounts — for 550, 750 and 1000 mAh capacities. Fit the one that matches your battery; a loosely seated battery will shift in flight and change the center of gravity. The mount has one spare mounting hole at the front and one at the rear, which can be used to move the battery position and thus the center of gravity.

- ① Place the disconnected drone on a flat surface and fit the matching battery mount.
- ② Slide a **fully charged** battery into the mount so that its lead points towards the drone's power connector.
- ③ Check that neither the battery nor its lead protrudes into the path of the propellers.
- ④ Connect the XT30 connector. The drone powers on immediately.

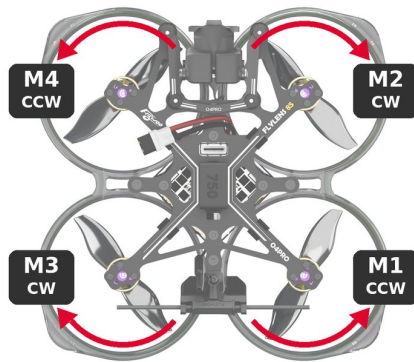
Connect the battery as the very last step of preparation — after switching on the radio transmitter and goggles, after fitting the propellers and after everyone has moved away from the drone.

- Always disconnect the connector by pulling on the connector body, never on the wires.
- Never connect a battery with more cells than 2S. The drone's electronics are designed for a voltage of 1–2 cells.

- Always disconnect the battery after flying. A connected battery keeps discharging even when the drone is idle and can be damaged by deep discharge.

4.3 Fitting the propellers

The 2015 propellers are pressed onto the 1.5 mm motor shaft; no nut is used. The package contains eight propellers — four rotating clockwise (CW) and four counterclockwise (CCW). The propellers on adjacent motors must spin in opposite directions, otherwise the drone will not take off.



Motor rotation directions viewed from above. The camera faces up in the picture.

Motor	Position on the drone	Direction of rotation
M1	rear right	counterclockwise (CCW)
M2	front right	clockwise (CW)
M3	rear left	clockwise (CW)
M4	front left	counterclockwise (CCW)

This layout corresponds to the manufacturer's diagram for the Flylens 85 drone. Always fit a new propeller the same way as the one you are replacing, and before the first flight verify the direction of rotation in Betaflight Configurator on the **Motors** tab — with the propellers removed (chapter 5.6).

- ① Disconnect the battery.
- ② Place the propeller on the shaft and press it evenly all the way down. While doing so, hold the motor by its base, not by the bell.
- ③ Check that the propeller sits perpendicular to the shaft and does not rub against the propeller guard.

- ④ To remove a propeller, pull it off evenly along the axis of the shaft. Do not lever it sideways — the shaft bends easily.

An incorrectly fitted propeller will cause the drone to flip over when throttle is applied.

4.4 Camera filter

The package includes an ND filter for the DJI O4 Wide lens. The filter reduces the amount of light reaching the sensor, allowing the camera to use a longer exposure time. The footage then looks smoother, without the choppy motion caused by very short exposures in bright sunlight.

- Fit the filter when flying in bright daylight.
- At dusk, indoors and at night, remove the filter — otherwise the image will be dark and noisy.
- Fit and remove the filter carefully, perpendicular to the lens. Hold it by the edge so that you do not leave fingerprints on the optics.
- Clean the filter only with a soft lens cloth. Do not use solvents.

4.5 LED strip

The blue LED strip on the propeller guards improves the drone's visibility at dusk. The strip is powered by a dedicated 3.3 V regulator that is switched on and off from the radio transmitter — the manufacturer uses the **USER1** mode in Betaflight for this.

- Assign a switch for the LEDs on the *Modes* tab to the USER1 mode (chapter 5.7).
- The LED strip can be replaced, for example with a strip of a different color: after removing the bottom plate of the frame, disconnect the strip's power connector, take the strip out and plug the new one into the same connector.

5. Setup

5.1 Connecting to a computer

The drone has two separate USB-C ports: one on the flight controller (on the top side, see chapter 2.2) and one on the video transmitter. Each serves a different purpose and they are not interchangeable.

Port	Use
Flight controller port	configuration in Betaflight Configurator, firmware updates for the flight controller, ESCs and receiver
Video transmitter port	activation and updating of the DJI O4 Wide unit in DJI Assistant 2, downloading recorded video

Always remove the propellers before connecting to a computer.

Use the included angled USB-C cable for the video transmitter. Only the flight controller is powered via USB; the motors and the video transmitter need the battery.

5.2 Activating the video transmitter

The DJI O4 Wide unit must be activated before first use. Without activation, the transmit power is limited (to a maximum of 20 mW) and the goggles menu cannot be operated.

- ① Download DJI Assistant 2 (FPV Series) from www.dji.com/o4-air-unit/downloads.
- ② Connect the battery to the drone and connect the video transmitter's USB-C port to the computer.
- ③ Launch DJI Assistant 2 and log in with your DJI account.
- ④ Select the device and complete the activation by following the on-screen instructions.

The same program is used to update the unit and to switch it to the radio mode for your region. Then restart all devices.

5.3 Binding the ExpressLRS receiver

The receiver and the transmitter module in the radio transmitter should run the same ExpressLRS firmware version, otherwise binding may fail (for updates, see chapter 5.8).

- ① Put the receiver into bind mode: connect and disconnect the drone's power (battery or USB cable) three times in a row.
- ② The receiver LED starts flashing rapidly with a double blink — the receiver is in bind mode.
- ③ Put the radio transmitter into bind mode as well (select *Bind* in the ExpressLRS menu).
- ④ When the receiver LED stays solid, binding is complete.

After binding, check in Betaflight Configurator on the *Receiver* tab that all channels move in the correct direction. A detailed ExpressLRS guide is available on the project website www.expresslrs.org.

5.4 Pairing the video transmitter with the goggles

Before pairing, update the goggles, the DJI remote controller (if you use one to operate the goggles) and the video transmitter to the latest firmware.

- ① Power on the video transmitter (by connecting the battery) and the goggles.
- ② In the goggles menu, select *Status* and choose the corresponding product in the upper right corner.
- ③ Check that the pairing LED on the video transmitter is solid red. Press the pairing button once — the LED starts flashing red.
- ④ Press the pairing button on the goggles. The goggles start beeping repeatedly.
- ⑤ When pairing is successful, the LED on the video transmitter turns green, the goggles stop beeping and display the camera image. The order of steps may differ slightly for different goggles.

❖ **Do not bend, cover or twist the video transmission antenna. A damaged or kinked antenna significantly reduces range.**

5.5 Accelerometer calibration

Perform the calibration before the first flight and again after every crash or any work on the frame.

- ① Remove the propellers and connect the drone to the computer.
- ② Place the drone on a level surface — ideally one checked with a spirit level.
- ③ In Betaflight Configurator, open the *Setup* tab and select *Calibrate Accelerometer*.
- ④ Do not move the drone during calibration.

If the calibration is performed on a tilted surface, the drone will drift sideways on its own in Angle mode.

5.6 Checking the motors and propellers

Perform the following check only with the propellers removed.

- ① Remove the propellers, connect the drone to the computer and to the battery.
- ② In Betaflight Configurator, open the *Motors* tab and confirm the safety warning.
- ③ Spin up motors M1 to M4 one at a time at the lowest speed and verify that each rotates in the direction given in the table in chapter 4.3.
- ④ If a direction is wrong, reverse it in ESC Configurator.
- ⑤ Listen for any grinding or rubbing from the motor. A bearing damaged in a crash can be heard even at low speed.

5.7 Arm, Disarm, switches and failsafe

Arm means starting the motors, **Disarm** means stopping them. The switches are assigned at the factory, but the assignment may not match your radio transmitter. After binding, always check them on the *Modes* tab in Betaflight Configurator.

- ① Open the *Modes* tab.
- ② For the ARM mode, flip the switch on the radio transmitter that you want to use and verify that the indicator moves into the yellow range. Assign Arm to a switch, never to a button.
- ③ Check or set the other modes in the same way — in particular USER1 (LED strip) and USER2 (switching off power to the video transmitter, see below).
- ④ Save the settings and test that the drone arms and disarms with the propellers removed.

► Switching off power to the video transmitter (USER2)

The USER2 mode can switch off the entire 9 V supply, and with it the video transmitter — protecting it from overheating between flights. On the *Modes* tab, select *Add Range* for USER2, flip the chosen switch and save the settings.

► Failsafe

- Failsafe is the drone's response to signal loss. The drone has no GPS module, so automatic return is not possible.
- We recommend the *Drop* setting, i.e. stopping the motors immediately. The drone falls on the spot, but will not keep flying out of sight.
- Test the function on the ground: with the propellers removed, arm the drone and switch off the radio transmitter. The motors must stop immediately.

5.8 Firmware updates

Update the firmware only if you have a reason to. Before updating, always back up the configuration with the *diff all* command in the *CLI* console.

Component	Procedure
Flight controller	Betaflight, target FLYWOOF405S_AIO
Alternative firmware	INAV, target FLYWOOF405HD
ESCs	ESC Configurator; Bluejay firmware. Do not flash the 96 kHz variant and do not flash repeatedly in quick succession — risk of motor idle errors or board damage.
Receiver	ExpressLRS Configurator, target FLYWOO 2.4Ghz EL24P, method BetaflightPassthrough; do not connect Betaflight Configurator at the same time
Video transmitter	DJI Assistant 2 (FPV Series)

Default configuration (CLI dump) for download:

flywoo.net/pages/flylens-85-drone-download-center

6. Flying

6.1 Pre-flight check

- ① Inspect the drone. The frame, propeller guards and propellers must not be cracked. Replace any damaged parts.
- ② Check that the propellers are pushed fully home and have the correct direction of rotation.
- ③ Check that the motor and frame screws are tight.
- ④ Insert a **fully charged** battery and check its voltage: 8.4 V for 2S Li-Po, 8.7 V for 2S LiHV.
- ⑤ Switch on the radio transmitter. Check that the Arm switch is in the off position and the throttle stick is fully down.
- ⑥ Switch on the goggles, connect the battery and check that the drone has connected to the radio transmitter.
- ⑦ Check the image in the goggles — look for interference, dropouts and dirt on the lens.
- ⑧ Check the battery voltage and signal strength in the OSD.
- ⑨ Move to a safe distance of at least 3 m; only then arm the drone and briefly check the motor response.
- ⑩ Check that there are no uninvolved persons or animals in the flight area.

Do not leave the drone powered on on the ground for long. According to the manufacturer DJI, the video transmitter lasts only about 2.5 minutes in standby without airflow before it shuts down due to overheating. Video recording also cannot be started on the ground.

6.2 Take-off and basic control

Practice your first flights in a spacious room or outdoors in calm conditions, ideally over a soft surface. Only try flying with FPV goggles once you can safely control the drone in direct line of sight.

- Place the drone on a flat surface with the camera facing away from you and step back.
- After arming, smoothly add throttle until the drone rises to a height of about half a meter. Applying throttle abruptly leads to an uncontrolled take-off.
- In enclosed spaces, keep a distance of at least one drone width from walls, the ceiling and the floor. Turbulence near obstacles tosses the drone around.
- The drone has no GPS module or position hold. It will not stay in place without input from the pilot.
- If you are flying for the first time, use Angle mode, in which the drone levels itself automatically.

Because of the wide-angle lens, obstacles appear farther away in the image than they really are. During your first flights, leave a larger margin than the image suggests.

6.3 Monitoring voltage and ending the flight

Monitor the battery voltage in the OSD throughout the flight. Deep discharge will permanently damage the battery.

- If the voltage drops below 7.0 V (3.5 V per cell), end the flight and land.
- Voltage sags briefly under load and recovers when you reduce throttle. What matters is the value during steady flight, not a brief dip during acceleration.
- We recommend landing with a small reserve — the last tenths of a volt drop very quickly.
- After landing, disarm the drone and disconnect the battery. Let a hot battery cool down before charging.

6.4 Finding the drone after a crash

The drone has no GPS module. After a crash, use the last image from the camera as a guide.

- Remember the last view before the signal was lost and the direction in which the drone was flying.
- If the drone remains powered, the image in the goggles often returns after a while as you get closer.
- If you cannot find the drone before the battery runs out, search the area systematically. A dark drone is practically invisible in grass.
- Once you find the drone, disconnect the battery first, and only then inspect it.

7. Maintenance and troubleshooting

7.1 After every flight

- Disconnect the battery and let both the drone and the battery cool down.
- Remove dirt and hair wound around the motor shafts — they increase motor drag and shorten motor life.
- Hold the propellers up to the light to check them — look for hairline cracks near the hub.
- Check the dampers of the camera platform. A torn damper shows up as shaky footage.
- Check that the screws are tight. Vibration gradually loosens screws.
- Clean the drone with a dry brush or compressed air. Do not use water or solvents.

7.2 Replacing the propellers and propeller guard

Propellers are a consumable part. Replace them whenever they are damaged, and as a precaution after a harder crash, even if no damage is visible.

- Spare 2015 propellers are supplied in sets of eight — four CW and four CCW.
- The upper and lower parts of the frame are held together by four screws; once they are loosened, the frame separates and parts can be replaced.
- Replace a cracked guard — the crack spreads with vibration and a broken-off piece can hit the propeller.
- When reassembling, make sure no wire is pinched between the frame parts.
- Tighten the screws gently — threads in both plastic and carbon strip easily.

7.3 Replacing a motor

The motors are connected to the board with plugs, so replacement requires no soldering.

- ① Disconnect the battery and remove the propeller from the motor being replaced.
- ② Unscrew the motor from the frame arm (three M1.4 screws).
- ③ Unplug the motor connector from the board. Pull on the connector body, not on the wires.
- ④ Connect the new motor, screw it in place and route its wires the same way as the original.
- ⑤ Before fitting the propeller, verify the direction of rotation as described in chapter 5.6.

*** Use only the screws supplied with the motor. A longer screw may damage the windings inside the motor.**

7.4 Storage

- Store the drone dry, in a clean environment and at room temperature.
- Store the batteries separately from the drone, at a storage voltage of 3.8 V per cell (7.6 V for 2S), in a non-flammable container.
- Check the condition of the batteries at least once every three months and top them up as needed.

7.5 Troubleshooting

Problem	Possible cause	Solution
The drone cannot be armed	The Arm switch is not assigned or is in the wrong position	Check the <i>Modes</i> tab in Betaflight
	The throttle stick is not fully down	Adjust the trims and endpoints on the radio transmitter
	The drone is not level	Place the drone on a level surface; if necessary, calibrate the accelerometer
	Low battery voltage	Insert a fully charged battery
The radio transmitter does not connect to the drone	Not bound	Repeat the procedure in chapter 5.3
	Different firmware versions on the transmitter and receiver	Match the firmware using ExpressLRS Configurator
	Not paired	Repeat the procedure in chapter 5.4
No image in the goggles	The unit is not activated	Activate it as described in chapter 5.2
	Power to the video transmitter is switched off by a switch	Check the USER2 mode switch
	The video transmitter overheated while sitting on the ground	Disconnect the battery and let it cool down
The drone flips over when throttle is applied	CW and CCW propellers swapped or wrong motor direction	Check as described in chapters 4.3 and 5.6
Footage is shaky	Damaged camera platform dampers	Replace the dampers
	Damaged or unbalanced propeller	Replace the whole set of propellers

Problem	Possible cause	Solution
Short flight time	Worn-out battery	Measure the internal resistance; retire the battery
	Dirty or damaged motor bearing	Clean the motors; replace a damaged one
The LED strip does not light up	USER1 mode is off	Check the USER1 mode switch

If you cannot solve the problem, contact the seller from whom you purchased the product. The importer's contact details are given in chapter 8.1.

8. Information for the EU and Czech Market

8.1 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

8.2 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@rotorama.cz.
- **Product identification:** the type designation is Flylens 85 DJI O4 Wide 2S Whoop FPV Drone, manufacturer code FW19005293. Due to the size of the product, the designation is given on the packaging and in this documentation.

► Simplified EU declaration of conformity

Hereby, FLYWOO declares that the radio equipment type Flylens 85 DJI O4 Wide 2S Whoop FPV Drone is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available from the importer at the address stated above.

8.3 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>.

9. 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 8.1.
- 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.