ROTORAMA

DJI O4 Air Unit

Digital video transmitter with camera for FPV drones
User Manual



Read this entire manual before installation and first use, especially the safety instructions and chapter 7 on operation in the Czech Republic. Keep this manual for future reference.

Based on the original DJI O4 Air Unit Series User Manual v1.0 (2025.01).

Contents

1. Safety Instructions

2. Product Overview

2.1 Overview

2.2 Dimensions

2.3 Specifications

3. Installation

3.3 Installation and Connection

4. Preparation Before Use

4.1 Activation

4.4 Linking

5. Usage

5.1 Video Recording

5.2 Setting Transmission Power

5.3 Setting Operating Channel

5.4 Racing Mode

5.5 Canvas Mode (OSD from the Flight Controller)

5.6 Image Stabilization (EIS) – Troubleshooting

6. Maintenance and Service

7. Operation in the Czech Republic and Regulations

8. Information for the EU and Czech Market

9. Warranty and rights arising from defective performance

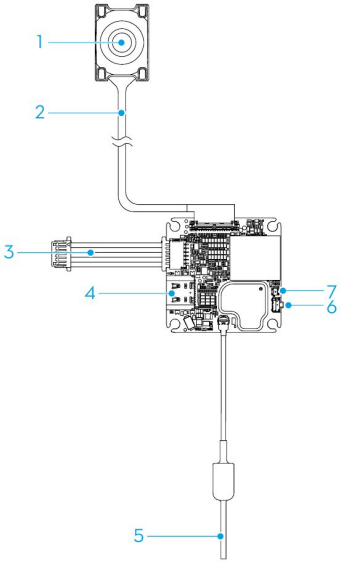
1. Safety Instructions

Read this entire manual carefully before installation and first use. Incorrect installation may cause abnormal performance or even damage to the air unit.

- The air unit becomes hot during and after operation. **DO NOT touch the air unit before it cools down.** The metal shell of the video transmission module becomes hot after being powered on, so it should not be installed in a position that is easily accessible or held by hand.
- DO NOT use the air unit for an extended period in high-temperature environments with poor ventilation. Otherwise, the air unit may overheat and enter low-power mode, which will affect the performance.
- Make sure that the external power supply for the air unit meets the specification (power supply voltage **3.7–13.2 V**). Failure to do so may result in malfunction or damage to the unit.
- DO NOT connect the power cable directly to the power GND cable or plug/unplug the cables when the air unit is powered on. Otherwise, the unit may be damaged.
- DO NOT power on the air unit without the antenna connected.
- DO NOT obstruct or twist the antenna of the air unit. Otherwise, video transmission may be affected or blocked.
- Keep the electronic devices as far away from each other as possible during installation to minimize electromagnetic interference.
- Make sure that all connections are secure and all parts are working properly.
- Make sure that there are no other transmitting devices in the surrounding area that may cause interference. DO NOT use the same frequency band as other devices.
- A protective compound (dispensing) is applied to certain electronic components of the video transmission module. DO NOT tamper with these areas. Otherwise, flight safety may be compromised.
- Make sure you fully understand and abide by local laws and regulations before using this product (see chapter 7).
- This product is not intended for children. It may only be used by persons aged 14 and over.

2. Product Overview

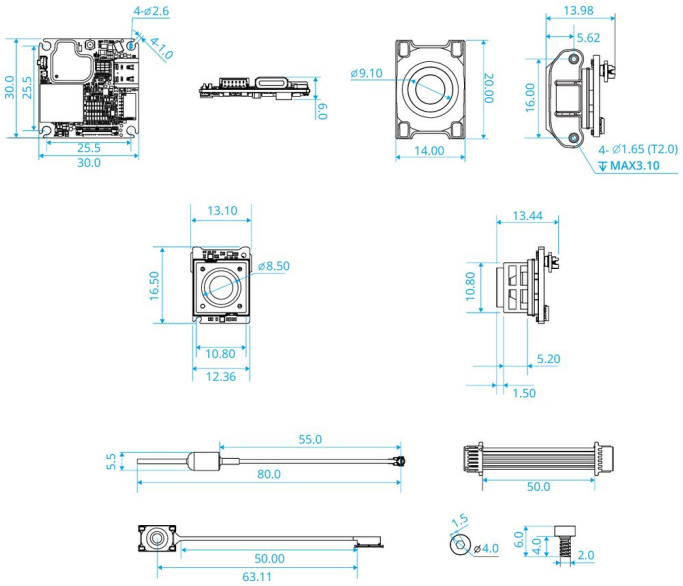
2.1 Overview



① Camera Module	⑤ Antenna
② Coaxial Cable	⑥ Link Button
③ 3-in-1 Cable	⑦ Linking Status Indicator
④ USB-C Port	

2.2 Dimensions

Product and mounting hole dimensions are shown (unit: mm). Maintain enough space for installation. Choose screw length based on the aircraft frame thickness – the screws included with the camera can only be used for frames thicker than 2 mm.



2.3 Specifications

Weight	approx. 5.1 g (without camera), approx. 8.2 g (with camera), approx. 9.2 g (with camera and lens holder); antenna approx. 0.75 g
Video transmission module dimensions	30 × 30 × 6 mm
Camera dimensions	13.44 × 12.36 × 16.50 mm
Cable length	coaxial 50 mm, 3-in-1 cable 50 mm, antenna 80 mm
Power supply voltage	3.7–13.2 V
Operating temperature	−10 °C to 40 °C
Image sensor	1/2″ CMOS
Lens	FOV 117.6°, equivalent focal length 14 mm, f/2.8
Storage	23 GB internal storage (microSD card not supported)
Antennas	1 (1T1R)
Frequency bands	5170–5250 MHz, 5725–5850 MHz
Transmitter power (e.i.r.p., CE)	5.1 GHz: < 23 dBm 5.8 GHz: < 14 dBm

Available frequency bands and power levels vary by country – see chapters 5.2 and 7.

3. Installation

3.1 Important Notice

- **DO NOT apply pressure to or bend** the base of the coaxial cable. Improper operation will result in image interruption or quality degradation.
- The standby time from cold start for the O4 Air Unit is **2.5 minutes**.*

** Measured under idle conditions in an open environment at 25 °C, for reference only. Restricted by its cooling conditions, extra ventilation and heat dissipation measures are necessary when installing the air unit. The installation method affects heat dissipation.*

The video transmission module applies different temperature control strategies according to the standby and flight states:

- **On the ground (standby state):** the protection system will be activated to automatically shut down the air unit after overheating. When used with the DJI FPV Remote Controller 2, the goggles will prompt an overheating alert and restrict takeoff if the RF module exceeds a certain temperature.
- **In flight:** there will be a prompt alert after overheating and the video recording will end. If the air unit continues to overheat, the video transmission quality will be reduced to improve heat dissipation.

3.2 Installation Guidelines

- DO NOT expose the video transmission module and camera module during usage to avoid accidental contact and potential burns. Make sure to install the air unit inside the aircraft body and in a well-ventilated location (such as near the air intake or exhaust) to prevent overheating, which may cause video transmission interruption.
- Recommended installation practices that are effective for ventilation and heat dissipation:

① Mount the air unit in a position close to the propellers (distance between the air unit module and the propellers within 1 cm) so that the downwash can be effectively utilized.

② Use a heat conductive material to connect the frame and the video transmission module. This will dissipate heat to the carbon plate and the other metal components of the frame, thereby extending the operating time.

③ DO NOT install the air unit in an enclosed area.

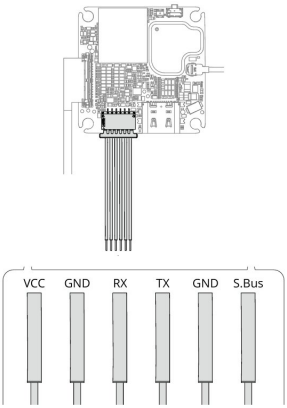
Recommended installation practices for the antennas:

- The antenna should maintain a distance of at least **5 cm** from the video transmission module, camera module, metal structural parts, and carbon fiber structural parts.
- Make sure that the antenna extends out of the aircraft frame and is not obstructed by any structural parts. After installation, confirm that the antenna is clearly visible from both the front and rear of the aircraft.

3.3 Installation and Connection

- Operate with caution. Be careful not to scratch any components on the surface of the circuit board.
- DO NOT overtighten the screws to avoid stripping.

① Connect the 3-in-1 cable to the flight controller (FC) following the wiring sequence in the table. If using soldering, prepare a soldering iron and solder by yourself. Ensure the solder joints are firm and there are no short circuits or open circuits.

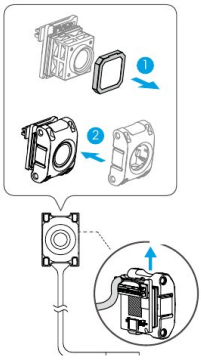


3-in-1 cable connector on the video transmission module

Pin	Color	Function
VCC	Red	Power 3.7–13.2 V
GND	Black	Power GND
RX	White	UART_RX (connects to flight controller OSD TX, 0–3.3 V)
TX	Gray	UART_TX (connects to flight controller OSD RX, 0–3.3 V)
GND	Brown	Signal GND
S.Bus	Yellow	DJI HDL (connects to flight controller S.Bus, 0–3.3 V)

② Install the video transmission module with screws.

③ There are directional requirements for the camera installation – distinguish the upward direction according to the figure (the blue arrow indicates the side that must face up when installing). Install the camera module with the screws. Properly route the coaxial cable to avoid conflicts with other cables.



Camera orientation when installing and fitting the camera into the holder (① ②)

④ Secure the antenna. Make sure the antenna extends out of the aircraft frame and is not obstructed by any structural parts. It should be at least 5 cm away from the video transmission and camera modules, and as far as possible from metal and carbon fiber structural parts.

▶ Recommendations

- It is recommended to install M2 flight controller damping balls on the screw holes of the video transmission module.
- If using a 1S battery as the power supply, try to minimize the voltage drop – for example, use short cables to ensure the voltage of the video transmission module port is greater than 3.7 V.
- If using BEC power supply, ensure that the BEC output power is at least **10 W (e.g., 5 V / 2 A)**.

4. Preparation Before Use

4.1 Activation

Make sure to activate the device before using for the first time. Otherwise, some functions will be unavailable.

- If the air unit is not activated, its transmission power will be limited (≤ 20 mW), and the menu screen of the connected goggles cannot be operated.
- If the goggles are not activated, only linking is available and the menu screen cannot be operated. Additionally, the device will also be set in the public channel and cannot be set to other channels after linking. Note that the public channel is easily prone to interference from other transmission devices.

① Visit www.dji.com/o4-air-unit/downloads to download DJI Assistant 2 (Consumer Drones Series).

② Power on the video transmission module, and connect it to a computer via the USB-C port.

③ Launch DJI Assistant 2 and log in with a DJI account.

④ Select and activate the device according to the onscreen prompts.

4.2 Firmware Update

① Launch DJI Assistant 2, select the product, and click the firmware update button on the left side.

② Select the firmware version.

③ Wait for the firmware to download. The firmware update will start automatically.

④ Restart each device after the firmware updates are complete.

- It is recommended to detach the propellers to avoid danger caused by accidental motor startup.
- Visit www.dji.com/o4-air-unit to check supported DJI goggles and remote controllers.

4.3 Goggles Home Screen and Menu

Get familiar with the goggles interface and functions before using. Visit the goggles official website for detailed usage information.

4.4 Linking

Make sure that all devices have been updated to the latest firmware versions before linking. The following example shows how to link the DJI Goggles 3 and DJI FPV Remote Controller 3.



A: Linking Goggles and the Air Unit

① Power on the air unit, the goggles, and the remote controller. Enter the goggles menu, select *Status*, and click the upper right corner to select the product.

② Make sure the linking status indicator of the air unit is red. Press the link button once – the linking status indicator blinks red. Press the link button on the goggles; the goggles will start to beep continually.

③ Once linking is successful, the linking status indicator of the air unit turns solid green, and the goggles stop beeping and display the live view.

▶ B: Linking Goggles and Remote Controller



① Activate the linking status on both the goggles and the remote controller. The goggles start to beep continually; the remote controller also starts to beep and its battery level LEDs blink in sequence.

② Once linking is successful, the goggles will stop beeping and display the live view, and the remote controller will stop beeping.

The linking order may vary with different models of goggles and remote controllers.

5. Usage

5.1 Video Recording

Make sure the air unit, the goggles, and the remote controller are connected. Once a microSD card is inserted into the goggles and *Record With* is set to *Both*, while the aircraft is recording video, the goggles will simultaneously record the flight live view displayed on the screen and store it on the microSD card of the goggles.

The air unit and goggles will stop recording when the motors stop. The recording will also automatically stop when the following occurs:

▶ **Air Unit**

- The storage is full or an error occurs during recording.
- The air unit enters low-power mode because its temperature is too high.
- The aircraft is on the ground and awaiting takeoff – the automatic low-power mode is enabled by default and the air unit cannot start recording.

▶ **Goggles**

- The microSD card is full or an error occurs during recording.
- The transmission signal is lost, or the live view is exited.
- The live view source is changed, such as switching between *Player* and *Audience* mode.
- The goggles switch to Real View during recording.

Powering off the device or removing the microSD card during recording will result in a corrupted video file, which cannot be played. Insert the microSD card into the device again, and the device will attempt to recover the corrupted video file automatically after powering on. DO NOT disconnect the power during the recovery process.

5.2 Setting Transmission Power

The transmission power can be set in the goggles menu: select *Transmission* → *Transmission Power*, and then select *Auto* or *Manual* according to the actual situation. After selecting a fixed transmission power level, you can use the *Transmission Power Fine-Tuning* feature in the transmission menu. This allows for adjustments of up to ±6 levels, with each level adjusting by 0.5 dB.

The maximum available transmission power levels are 25 mW, 50 mW, 100 mW, 200 mW, 400 mW, and 700 mW.

- As regulations vary by country and region, the available transmission power levels are different.

The user is responsible for the transmission power setting. In the Czech Republic and the EU, the limits stated in chapter 7 apply – higher power levels are intended for countries with different regulations.

5.3 Setting Operating Channel

① Enter the goggles menu, go to *Transmission* → *Channel Mode*.

② Select between *Auto* and *Manual* mode based on actual needs.

Auto: the device will automatically select the channel with optimal signal strength in the range of 5.170–5.250 GHz or 5.725–5.850 GHz.
Manual: the channel can be manually selected from the following bandwidths:

Bandwidth	Channel and the Corresponding Central Frequency
40 MHz	Channel 1: 5794.5 MHz
	Channel 1: 5768.5 MHz
20 MHz	Channel 2: 5789.5 MHz
	Channel 3: 5814.5 MHz
	Channel 1: 5768.5 MHz
10 MHz	Channel 2: 5789.5 MHz
	Channel 3: 5814.5 MHz

Power on and connect the air unit to a computer and run DJI Assistant 2 (Consumer Drones Series). The air unit will update to the radio mode of the current region automatically. When the goggles or remote controller are connected to the air unit, the region of their radio modes will also update automatically.

- Only manual mode is available when in racing mode.
- When used with certain models of goggles (such as DJI Goggles 3), a channel bandwidth of 60 MHz is also available, corresponding to a center frequency of 5794.5 MHz.

Make sure you fully understand and abide by local laws and regulations before using this product. Some channels may not be available in some countries due to regulatory restrictions.

5.4 Racing Mode

Racing mode is supported when used with the **DJI Goggles 3** and **DJI Goggles N3**. Go to the *Transmission* menu of the goggles to enable or disable this feature. Once racing mode is enabled, the related settings will be automatically adjusted as follows:

- The channel can only be set manually, with a maximum of 8 racing channels available.
- The bandwidth can be set to either 20 MHz or 40 MHz.
- The video resolution is automatically set to 1080p@100fps (4:3) and cannot be manually adjusted.

- The anti-interference feature is disabled, and the transmission bitrate is reduced for minimum transmission latency.

Due to regulatory restrictions, the maximum number of supported racing channels varies by country and region. Use racing mode in an appropriate area, as the anti-interference capability is disabled in this mode. When flying multiple aircraft simultaneously, allocate racing channels in advance and control transmission power to avoid interference.

5.5 Canvas Mode (OSD from the Flight Controller)

Canvas Mode enables the flight controller to display OSD elements (such as battery voltage and flight distance) on the screen of the goggles. You can use the Betaflight Configurator software to configure which OSD elements to display and their positions on the screen. Canvas Mode is compatible with Betaflight Configurator 4.3.0 and later; configuration steps vary depending on the software version – refer to the configuration guide for the version you use. Below are the basic configuration steps:

① **Hardware connection:** connect the UART RX port of the air unit to one of the UART TX serial ports of the flight controller (UART4 is used as an example).

② **UART configuration:** open Betaflight Configurator and select *Ports*. Turn on the *MSP* switch for the corresponding serial port (UART4) and set the baud rate to 115200. Click *Save and Reboot*. If Betaflight Configurator 4.4.0 or later is used, set *Peripherals* to *MSP + Displayport* and skip step ③.

③ **CLI configuration:** select *CLI* and execute the following commands:

- Set osd_displayport_device to MSP: **set osd_displayport_device = MSP**
- Specify the MSP serial port number, which equals the UART TX serial port number minus 1 (3 in this example): **set displayport_msp_serial = 3**
- Save and exit: **save**

5.6 Image Stabilization (EIS) – Troubleshooting

▶ **Issues**

- Video image shakes when RockSteady is enabled.
- Mechanical vibration at certain frequencies results in abnormal EIS (electronic image stabilization) performance.

▶ **Causes**

- **IMU resonance:** the default ESC PWM control frequency is 24 kHz, and the camera IMU frequency is around 24 to 30 kHz. Without effective vibration absorption, motor vibrations can transfer to the camera IMU, causing resonance due to frequency overlap. The resonance will affect the IMU data accuracy and the performance of video stabilization.* As a result, the processed video image shakes, but the live view in the goggles is not affected. Usually, frames with TPU or vibration absorbing rubber are not prone to the IMU resonance issue.

- **Rolling shutter effect:** if it appears in both the live view and the video image, it is usually because the propeller vibration (frequency of approximately a few hundred Hz) is transmitted to the camera through the aircraft frame.

** Video stabilization includes the built-in EIS function of the air unit and the video stabilization function provided by third-party software.*

▶ Step 1: Troubleshoot the IMU resonance issue

① **Preparation:** remove the propellers from the aircraft. Make sure that the camera is securely mounted and the aircraft is placed stationary on the ground. Then, enable RockSteady and start recording.

② **Run a test:** Arm (start the motors) and slowly push the throttle to the full position. Observe the live view in the goggles. If the live view is not shaking, stop the motors and end the recording. Otherwise, check the camera and make sure it is securely mounted.

③ **Check the recording:** export and play the recorded video. If the video image shakes, the issue is most likely caused by the resonance between the frame and the camera IMU. Change the ESC PWM control frequency to 48 kHz or 96 kHz and test again. If the video image still shakes, apply a softer vibration absorbing structure between the camera and the aircraft frame (due to the low weight of the air unit, a sufficiently soft structure is required). Repeat the test until the video image does not shake.

▶ Step 2: Troubleshoot the rolling shutter effect issue

① Replace the propellers if there is any damage. Then, fly the aircraft and start recording with RockSteady enabled.

② Check the video image after the flight. If there is no rolling shutter effect, the troubleshooting process is complete. Otherwise, adjust the vibration absorbing structure between the camera and the aircraft frame, or the tightness of the screws that fasten the camera to the aircraft frame.

If the issue persists after attempting all the above methods, contact technical support.

6. Maintenance and Service

6.1 Parts Replacement

Watch the manufacturer's tutorial videos on parts replacement at www.dji.com/o4-air-unit/video. The videos there also demonstrate how to use the product safely.

6.2 Service and Support

Claims for defects and warranty repairs should be made with the seller from whom you purchased the product (see chapter 9). Visit www.dji.com/support to learn more about the manufacturer's after-sales service and support. DJI Assistant 2 (Consumer Drones Series) and the latest manufacturer documents can be downloaded at www.dji.com/o4-air-unit/downloads.

7. Operation in the Czech Republic and Regulations

7.1 Applicable Law

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, geographical zones, mandatory insurance, permitted frequency bands and maximum transmission power. The information in this chapter describes the situation in the Czech Republic. **If you operate a drone in another country, you must comply with the regulations of the country in which you are flying.**

7.2 Frequency Bands and Transmission Power in the Czech Republic

The product transmits in two frequency bands. In the Czech Republic, the following conditions of the general authorizations issued by the Czech Telecommunication Office (ČTÚ) apply to them:

Band	Max. product power (CE)	Czech limit	Conditions
5170–5250 MHz	< 23 dBm e.i.r.p.	200 mW e.i.r.p.	VO-R/12/11.2021-11; UAS must not be operated in the 5150–5170 MHz sub-band
5725–5850 MHz	< 14 dBm e.i.r.p.	25 mW e.i.r.p.	VO-R/10/05.2025-5, band k

- **The user is responsible for the transmission power setting.** Power levels above these limits that can be set in the goggles are not permitted in the Czech Republic – in particular, the maximum permitted power in the 5.8 GHz band is **25 mW e.i.r.p.**
- The radio mode of the air unit is set automatically according to the region after connecting to DJI Assistant 2 (chapter 5.3). Use the air unit in the radio mode valid for the country in which you are flying.
- DO NOT connect amplifiers or antennas with a higher gain than the original antenna to the air unit, and DO NOT modify the air unit electrically or mechanically – the limits apply to the complete transmitter and antenna assembly.
- Outside the Czech Republic, the frequencies and limits of the respective country apply.

7.3 Simplified EU Declaration of Conformity

Hereby, SZ DJI TECHNOLOGY CO., LTD. declares that the radio equipment type DJI O4 Air Unit (DF3L2904) is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.dji.com/euro-compliance

7.4 Manufacturer

Manufacturer	SZ DJI TECHNOLOGY CO., LTD.
Address	Lobby of T2, DJI Sky City, No. 53 Xianyuan Road, Xili Community, Xili Street, Nanshan District, Shenzhen, China
E-mail	support@dji.com
EU contact address	DJI GmbH, Industriestrasse 12, 97618 Niederlauer, Germany

The importer and responsible person in the EU is Beryko s.r.o. – see chapter 8.1.

7.5 Operating a Drone with This Air Unit

A drone with a built-in camera is subject to Implementing Regulation (EU) 2019/947. A drone built from individual components is usually a *privately built unmanned aircraft system* operated in the open category. In particular:

- **Operator registration:** a drone equipped with a camera (a sensor able to capture personal data) requires operator registration regardless of its weight – in the Czech Republic with the Civil Aviation Authority of the Czech Republic (ÚCL, www.caa.gov.cz). Display the registration number on the drone.
- **Observer for FPV flights:** the pilot must maintain visual line of sight. When flying with goggles, an observer must be present beside the pilot, keeping the drone in direct visual sight and in clear communication with the pilot.
- Observe the operational limitations of the open category (including a maximum flight height of 120 m and no flying over assemblies of people) and familiarize yourself with the geographical zones at the flight location.
- We recommend liability insurance for drone operation even where it is not mandatory.

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	Beryko s.r.o.
Company ID (IČO)	028 52 152
VAT ID (DIČ)	CZ02852152
Registered office	Pod Vinicemi 931/2, 301 00 Plzeň, Czech Republic
Website	www.beryko.cz

8.2 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.
- **Product identification:** the type designation (DJI O4 Air Unit) and the serial number are given on the product or its packaging; the firmware version can be checked in DJI Assistant 2 (Chapter 4.2).

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 seller, Rotorama, s.r.o., 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 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.