



Air Camera

BETA FPV · analog FPV micro camera
Variants 16:9 (FOV 173°) and 4:3 (FOV 141°)



Read this entire manual carefully before installation and first use, and keep it for future reference.

User manual · Rotorama, s.r.o.

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1. Safety instructions

1.1 General instructions

- The Air Camera is an analog FPV camera designed to be built into small FPV drones. It is not a toy – installation requires basic knowledge of electronics and experience with connecting components.
- The product contains small parts. Keep it out of the reach of children – risk of inhalation or swallowing.
- Always **disconnect the battery** and remove the propellers before doing any work on the drone.
- Read this manual carefully before installation and keep it for future reference.
- Protect the camera from water, moisture, condensation and dust.
- The electronics are sensitive to static electricity. Hold the camera by the edges of the board and do not touch the components.
- Do not point the lens directly at the sun for extended periods – this may damage the image sensor.
- The camera and the flight controller heat up during operation. Let them cool down after the flight before touching them.
- Do not modify or repair the camera. Tampering with the board is not a product defect and may result in the loss of your rights arising from defective performance.

1.2 Power supply and wiring

- Power the camera only with DC voltage in the range of **DC 5-12 V**. A higher voltage will permanently damage the camera.
- Do not connect the camera directly to the battery. Power it from the flight controller (FC) output intended for the camera.
- Incorrect wire order, reverse polarity or a short circuit can damage both the camera and the flight controller. Always check the wiring before powering up for the first time.
- Insert and remove the connector straight, without force. Never pull on the wires.

2. Product description

2.1 Package contents

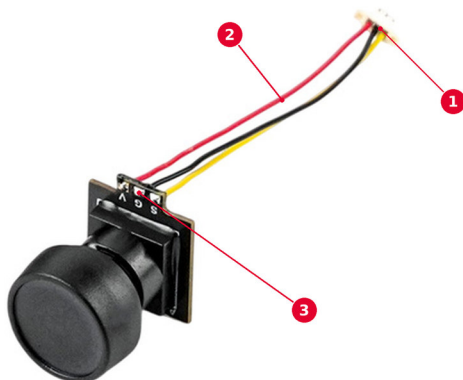
- 1× Air Camera with an attached 40 mm cable terminated with a JST 0.8 mm connector
- ※ The canopy, flight controller, screws and FPV goggles are not included.

2.2 Parts overview



Front view

- ① Glass lens
- ② Printed circuit board with type designation (Air Camera V1.0)
- ③ Solder pads S, G, V – cable connection point

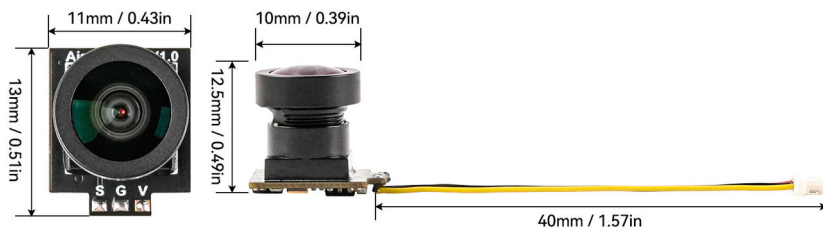


Camera with attached cable

- ① JST 0.8 mm connector
- ② 40 mm cable
- ③ Cable connection to pads S, G, V

2.3 Specifications

Parameter	Value
Image sensor	1/4.5" CMOS
Field of view (FOV)	173° (16:9) / 141° (4:3)
Horizontal resolution	600 TVL
Signal system	NTSC (16:9 / 4:3)
Signal-to-noise ratio (S/N)	40.59 dB
Electronic shutter	automatic
Automatic gain control (AGC)	automatic
Lens	glass, 10 mm diameter
Power supply	DC 5–12 V
Current draw	60 mA at 5 V
Connector	JST 0.8 mm, cable length 40 mm
Dimensions (W × H × D)	11 × 13 × 12.5 mm
Weight	1.48 g



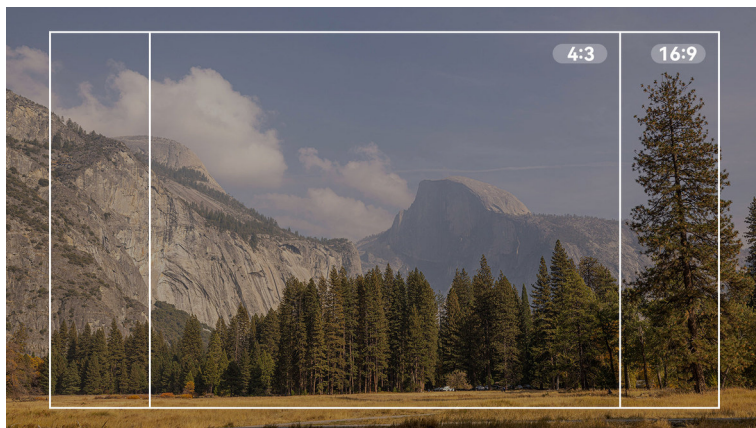
Camera dimensions according to the manufacturer (mm / inches)

2.4 16:9 and 4:3 variants

The camera is made in two variants that differ in aspect ratio and field of view. The aspect ratio is determined by the variant you purchased – the manufacturer does not specify any way to switch it on the camera. Both variants have the same appearance, dimensions and wiring.

Variant	Manufacturer code (SKU)	Field of view
16:9	01060023_1	173°
4:3	01060023_2	141°

According to the manufacturer, the 16:9 variant shows a 33% wider horizontal view than the classic 4:3 variant.



Comparison of the 4:3 and 16:9 view (manufacturer's illustration)

If you use the 16:9 variant, your FPV goggles or monitor must support the 16:9 aspect ratio. Otherwise the image may appear distorted.

3. Installation

3.1 What else you need

- **A flight controller (FC) with an analog video transmitter (VTX) and OSD.** The manufacturer recommends the BETA FPV Matrix 1S 5IN1 II or Matrix 1S 5IN1 flight controllers.
- **A canopy** for a camera with a 10 mm lens diameter. The manufacturer recommends the BETA FPV Air II Canopy.
- **A drone frame** – the manufacturer recommends the camera for Air and Meteor series drones.
- **Analog FPV goggles or a monitor** receiving in the band of the video transmitter. For the 16:9 variant, with support for the 16:9 aspect ratio.
- **A computer** with Betaflight Configurator.

3.2 Connecting to the flight controller

- ① Disconnect the drone battery.
- ② Locate the camera connector on the flight controller. On the Matrix 1S 5IN1 II and Matrix 1S 5IN1 flight controllers it is labelled **CAM IN**.
- ③ Insert the camera's JST 0.8 mm connector into the flight controller connector – straight, without force, all the way in.
- ④ Route the cable so that it is not tensioned, does not touch the propellers and is not pinched between the frame and the canopy.

If you use a different flight controller, check the wire order in the connector against its documentation before powering up for the first time. Incorrect wiring can damage both the camera and the flight controller.

3.3 Mounting in the canopy

According to the manufacturer, the Air II Canopy is designed for cameras with a lens diameter of 9–10 mm; the Air Camera has a 10 mm lens. The camera tilt can be set in the canopy from 15° to 45° in 10° steps (15°, 25°, 35°, 45°).



*Air Camera in the Air II
Canopy (canopy not
included)*

- ① Insert the camera, lens first, into the canopy ring.
- ② Select the camera tilt using the holes in the canopy.
- ③ Fasten the camera and the canopy with the screws supplied with the canopy according to its instructions. Do not overtighten the screws – the plastic canopy may be damaged.
- ④ Check that nothing covers the lens and that the propellers do not reach into the camera's field of view.

► **Choosing the camera tilt**

- A lower camera tilt suits slower indoor flying and beginners.
- A higher tilt suits faster flying – the drone is tilted more during fast forward flight, so the camera still points forward.
- After changing the tilt, check the canopy screws again.

4. Betaflight settings

The camera outputs video in the **NTSC** standard. The video standard set for the flight controller's OSD must match the camera signal.

① Connect the flight controller to the computer and start Betaflight Configurator.

② On the *OSD* tab, set *Video Format* to **NTSC** (or *Auto*) and save.

For the Matrix 1S 5IN1 II flight controller, the manufacturer states: if the OSD is not displayed, enter the following commands on the *CLI* tab:

```
set osd_displayport_device = MAX7456
set vcd_video_system = NTSC
save
```

※ Betaflight has no aspect ratio setting for analog video. For the 16:9 variant, set the 16:9 aspect ratio in your FPV goggles or monitor.

5. Getting started

An antenna must be connected to the video transmitter before the battery is connected. Otherwise, according to the flight controller manufacturer, set the transmitter power to 0 to prevent damage.

- ① Remove the propellers.
- ② Check the camera wiring and make sure there is no short circuit.
- ③ If the lens has a protective cap, remove it.
- ④ Switch on the FPV goggles and tune them to the video transmitter channel.
- ⑤ Connect the battery and check that both the camera image and the OSD are displayed.
- ⑥ Check that the image is not rotated, distorted or out of focus. If it is, follow Chapter 7.

6. Maintenance and storage

► Cleaning the lens

- Clean the lens with a soft, dry microfibre cloth.
- Do not use solvents, alcohol or abrasive cleaners.

► Inspection after a crash

- Check the lens, camera board, cable and connector – look for cracks, bent pads and damaged insulation.
- Check that the camera sits firmly in the canopy and that the tilt has not changed.
- Replace a damaged cable or connector before the next flight.

► Storage

- Store the camera in a dry, dust-free place, ideally in its original packaging.
- Protect it from direct sunlight and heat sources.

7. Troubleshooting

Problem	Cause and solution
Black image, OSD is displayed	Most likely a problem with the camera or its connection. Disconnect the battery, unplug the camera connector, plug it back in and check the cable. If the problem persists, the camera may be defective – contact the seller.
Black image without OSD	A problem between the flight controller, video transmitter and goggles. Check that the goggles and the video transmitter are on the same channel and band and that the antenna is connected. If the problem persists, contact the seller of the flight controller.
OSD missing or scrambled	The OSD video standard does not match the camera signal. Set <i>Video Format</i> to NTSC (Chapter 4), or enter the CLI commands given there.
Image stretched or squeezed	The aspect ratio of the goggles does not match the camera variant. For the 16:9 variant, set the 16:9 aspect ratio in the goggles. If the goggles do not allow this, the distortion cannot be removed.
Image hazy or blurred	Dirty lens or moisture condensation. Clean the lens as described in Chapter 6; after bringing the camera in from the cold, let it acclimatise.
Stripes or dropouts in the image	Loose connector or damaged cable. Check the wiring and route the cable as far as possible from the motor wires.

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

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@rotorاما.cz.
- **Product identification:** the type designation (Air Camera) is printed on the camera's printed circuit board (Air Camera V1.0) and stated on the packaging; the variant is identified by the manufacturer code – 01060023_1 (16:9), 01060023_2 (4:3).

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.