Phoenix 2 Pro

RunCam · analog FPV camera
User Manual



Read the safety instructions in Chapter 1 before connecting the camera and keep this manual for future reference.

www.rotorama.com

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1. Safety instructions

The camera is an electronic component intended for installation in an FPV drone or model. Incorrect wiring can permanently damage the camera and other electronics. Observe the following instructions:

- Carry out all wiring and soldering **only with the battery disconnected** and USB power disconnected.
- The camera's supply voltage is **5–36 V DC**. Do not connect the camera to a higher voltage, and check the **polarity** of the power wires (red = plus, black = GND) before connecting the battery for the first time.
- Make sure that stripped wire ends and solder joints do not touch conductive parts of the frame (a carbon frame is conductive) or other components – risk of short circuit.
- Do not touch the lens glass with your fingers and do not point the camera directly at the sun for long periods.
- Protect the camera from water, moisture, dust and impacts. The camera is not waterproof.
- Keep the camera out of the reach of children. It contains small parts (screws) that can be swallowed.
- Do not open or modify the product. Damage caused by incorrect wiring, overvoltage or mechanical intervention is not covered by the rights arising from defective performance.

※ When operating a drone in which the camera is installed, comply with the regulations on the operation of unmanned aircraft in force in the country where you fly.

2. Product description

2.1 What the camera is for

The RunCam Phoenix 2 Pro is an analog FPV camera in the micro format (19 × 19 mm) with a 1/2.8" Starlight CMOS sensor and a horizontal resolution of 1500TVL. The camera image is transmitted via an analog video transmitter (VTX) to FPV goggles or a monitor.

The camera supports both NTSC and PAL video systems and both 4:3 and 16:9 screen formats. Image settings (exposure, white balance, colour or black-and-white mode, sharpness, contrast, image mirroring and more) are made in the camera menu, which is controlled with an OSD key-press board connected to the camera cable.

2.2 Package contents

Qty	Item
1×	RunCam Phoenix 2 Pro camera
1×	camera cable
1×	screw set

※ The OSD key-press board for menu control and the video transmitter are not included.

2.3 Parameters

Parameter	Value	
Model	RunCam Phoenix 2 Pro	
Image Sensor	1/2.8" Starlight CMOS Sensor	
Horizontal Resolution	1500TVL	
Lens	FOV D: 128° H: 97° V: 72°	FOV D: 112° H: 97° V: 54°
Screen Format	4:3	16:9
Mirror/Flip	Available	
Signal System	NTSC/PAL	
Shutter	Rolling Shutter	
Sensitivity	15000 mV/Lux•s	
WDR	Global WDR	
Day/Night	Color/BW	

Parameter	Value	
Menu Control	Cable Control (OSD key-press board)	
Power	DC 5–36 V	
Current	220 mA @ 5 V	120 mA @ 12 V
Housing Material	ABS	
Net Weight	7.5 g	
Dimensions	19 × 19 × 27 mm	

Field of view and screen format: the left column applies to the 4:3 format, the right column to 16:9 (D = diagonal, H = horizontal, V = vertical).

3. Wiring

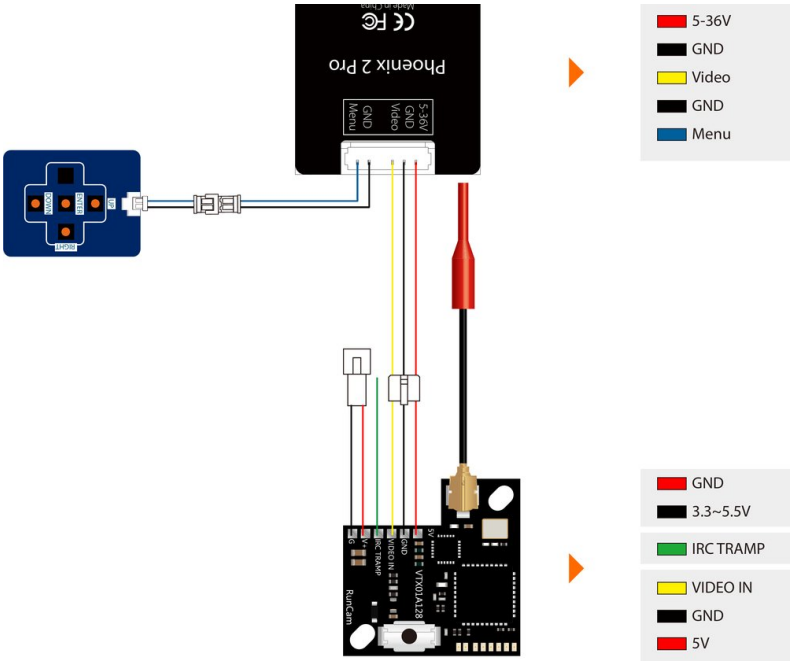
3.1 Camera wires

The camera has a five-pin connector on its back. The wire functions are printed on the camera label:

Wire	Colour	Connection
5–36V	red	camera power (+), 5–36 V DC
GND	black	power ground
Video	yellow	video output – to the video input of the video transmitter (VTX) or of a flight controller (FC) with OSD
GND	black	ground (for video / OSD key-press board)
Menu	blue	menu control – to the OSD key-press board

- Connect the camera power to an output whose voltage is within the **5–36 V** range (e.g. the 5 V output of the video transmitter or of the flight controller).
- The **Menu** and **GND** wires are used to connect the OSD key-press board, which opens and controls the camera menu. The board is not included.
- Once the menu has been set, the OSD key-press board can be disconnected; the camera works without it.

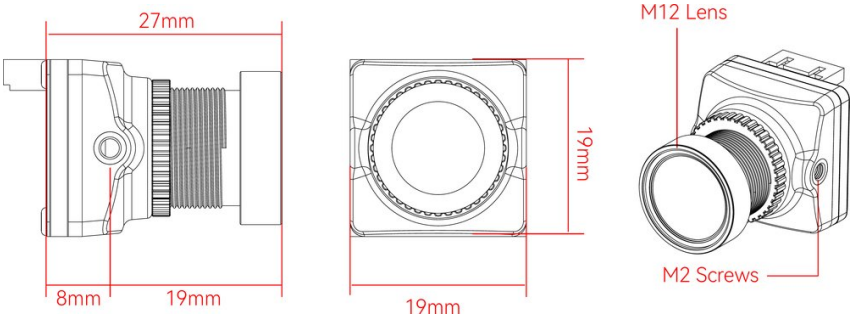
3.2 Wiring example



Wiring example from the manufacturer's manual: top – Phoenix 2 Pro camera (wires 5–36V, GND, Video, GND, Menu); left – OSD key-press board connected to the Menu and GND wires; bottom – RunCam TX200 video transmitter (not included).

In the figure, the camera is powered from the **5V** output of the RunCam TX200 video transmitter, ground is connected to **GND** and the yellow video wire to the transmitter's **VIDEO IN** input. When using a different video transmitter or flight controller, follow the pin description in its manual.

4. Dimensions & installation



Camera dimensions in mm. M12 Lens = lens with M12 thread, M2 Screws = mounting holes for M2 screws.

- The front of the camera measures **19 × 19 mm**; the overall length including the lens is **27 mm**.
- The camera is mounted with **M2 screws** into the side holes. The axis of the mounting holes is 8 mm from the rear face and 19 mm from the front of the lens.
- Position the camera so that the lens is protected by the frame structure and the cable is neither taut nor pinched.
- Tighten the screws gently – overtightening may damage the ABS housing.
- The lens has an M12 thread.

5. Camera menu

5.1 Menu control

The camera menu is displayed in the camera image (in the goggles or on the monitor) and is controlled with the OSD key-press board connected to the **Menu** and **GND** wires. The board has direction buttons and a centre **ENTER** button.

- Items marked with the ↵ symbol open a submenu.
- Values shown between the ◀ ▶ arrows are changed by toggling.
- The *RETURN* item returns from a submenu to the main menu.
- Select *SAVE EXIT* to save changes and leave the menu.

※ Item names are given as the camera displays them with the English menu language. The values in the “Value in manual” column are taken from the menu illustrations in the manufacturer's manual.

5.2 Main menu (MAIN MENU)

Item	Meaning
AE	exposure – EXPOSURE submenu (Chapter 5.3)
WB	white balance (Chapter 5.4)
DAY NIGHT	colour / black-and-white mode (Chapter 5.5)
IMAGE ENHANCE	image enhancement (Chapter 5.6)
VIDEO SETTING	video system, screen format and mirroring (Chapter 5.7)
LANGUAGE	menu language – default ENGLISH
RESET	restore factory settings
SAVE EXIT	save changes and leave the menu
EXIT	leave the menu

Available menu languages: English, Simplified Chinese, Traditional Chinese, Russian, Spanish, Italian, French, Polish, Portuguese and Japanese.

5.3 Exposure (AE → EXPOSURE)

Item	Value in manual	Meaning / options
BRIGHTNESS	12	image brightness
EXPOSURE MODE	GLOBE	exposure metering mode: GLOBE (global) / BLC (backlight compensation)
BLC	8	backlight compensation level
RETURN	–	return to the main menu

5.4 White balance (WB)

Item	Value in manual	Meaning / options
MODE	ATW	ATW (automatic white balance) / MWB (manual white balance)
RETURN	–	return to the main menu

5.5 Day/night (DAY NIGHT)

Item	Value in manual	Meaning / options
MODE	COLOR	COLOR (colour image) / BW (black-and-white image)
RETURN	–	return to the main menu

5.6 Image enhancement (IMAGE ENHANCE)

Item	Value in manual	Meaning / options
CONTRAST	AUTO	contrast: AUTO / MANUAL
SHARPNESS	AUTO	sharpness: AUTO / MANUAL
COLOR GAIN	AUTO	colour gain: AUTO / MANUAL
3DNR	AUTO	3D noise reduction
RETURN	–	return to the main menu

5.7 Video settings (VIDEO SETTING)

Item	Value in manual	Meaning / options
VIDEO STANDARD	NTSC	video system: NTSC / PAL
IMAGE RATIO	4:3	screen format: 4:3 / 16:9
HORIZONTAL INVERTED	CLOSE	horizontal mirroring (CLOSE = off)
VERTICAL INVERTED	CLOSE	vertical flip (CLOSE = off)
RETURN	–	return to the main menu

Set the video system and screen format to match your FPV goggles or monitor. If the camera is mounted upside down, rotate the image by switching on both *HORIZONTAL INVERTED* and *VERTICAL INVERTED*.

6. Maintenance and storage

- Clean the lens glass with a soft microfibre cloth or an optical cleaning agent. Do not use solvents.
- After a crash, check the housing, lens, cable and connector. Replace a damaged cable.
- Protect the camera from moisture; after flying in damp conditions let it dry thoroughly before further use.
- Store in a dry place away from direct sunlight and heat sources.

7. Troubleshooting

Problem	Possible cause and solution
No image	Check the power supply (polarity, voltage 5–36 V), the connection of the yellow video wire to the video input of the VTX or FC, and that the video transmitter channel matches the receiver in the goggles.
Image is black-and-white or flickers	In the *DAY NIGHT* menu set *MODE* to *COLOR*. Check that the camera video system (NTSC/PAL) matches the setting of the goggles or the flight controller OSD.
Image is stretched or squeezed	In the *VIDEO SETTING* menu set *IMAGE RATIO* according to the screen format of the goggles or monitor.
Image is mirrored or upside down	Adjust *HORIZONTAL INVERTED* and *VERTICAL INVERTED* in the *VIDEO SETTING* menu.
Menu not displayed / not responding	Check the connection of the OSD key-press board to the Menu and GND wires.
Settings were not saved	Leave the menu using *SAVE EXIT*.
Blurred or hazy image	Clean the lens glass; check that the lens is not damaged.
Interference or lines in the image	Check the quality of joints and grounding. Route the video wire as far as possible from the power wires of the motors and electronic speed controllers (ESC).

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

CE

- The product bears the **CE** marking and complies with the requirements of the applicable European Union harmonisation legislation.
- A copy of the **EU Declaration of Conformity** is available from the importer at the address stated above or at the e-mail address info@rotorama.cz.
- **Product identification:** the type designation (Phoenix 2 Pro) is given on the back of the camera.

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.