# RunCam IPC 5MP 10X Optical Zoom

5 MP network camera module with 10× optical zoom
User manual



**Read the safety instructions in chapter 1 before installation. The product is intended for technically skilled users and integrators.**

*Importer: Rotorama, s.r.o. · www.rotorama.com*

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# 1. Safety instructions

## 1.1 Before you start

The camera module is an **OEM component** intended for installation into your own equipment – a camera system, robot, drone or a measuring and monitoring assembly. Putting it into operation requires knowledge of computer networking (IP addresses, RTSP, ONVIF) and basic experience with wiring electronics.

- Read this entire manual before installation and keep it for future reference.
- This product is not a toy. It is intended for persons aged 14 and over; keep it out of the reach of children and keep small parts (connectors, cables) away from small children.
- Do not make any modifications to the module that are not described in this manual. Any intervention in the circuit board or the lens is not a product defect and may result in the loss of rights arising from defective performance.

## 1.2 Power supply and electrical safety

- Power the module only from a stabilised **12 V DC** supply with safety extra-low voltage (SELV), for example a quality mains adapter with a 5.5 × 2.5 mm connector. A higher voltage will irreversibly damage the module.
- When powering through the connectors on the board (CN1, CN2, CN12), follow the wiring given in the table in chapter 2.3. Swapping the DC 12 V and GND pins may destroy the module.
- Connect and disconnect all connectors **only with the power disconnected**.
- The board is sensitive to static electricity. Discharge yourself by touching a grounded object before handling and hold the module by the board edges or by the housing.
- Use only a power supply bearing the CE marking. On a drone or robot, power the module via a stabilised converter (BEC) with a 12 V DC output – never directly from a battery with a higher voltage.
- Route power and data cables so that they are not under tension, do not rub against sharp edges and cannot get into moving parts of the equipment.

## 1.3 Operating environment

- The module is neither waterproof nor dustproof. Protect it from water, moisture, condensation, dust and aggressive fumes. For outdoor use, install it in a suitable enclosure.
- The module heats up during operation. Do not cover the heat sink or the housing and ensure air flow.
- Do not expose the lens to direct sunlight or strong light sources (laser, welding arc) – the image sensor may be damaged.

- Do not force the lens to turn and do not press on its moving parts; zoom and focus are motor-driven.

## 1.4 Electromagnetic compatibility

To prevent the module from interfering with nearby equipment and from being disturbed itself, observe the following measures when installing it:

- Use a shielded network cable for the network connection and keep all cables as short as possible.
- Route data and power cables as far as possible from power wiring – on a drone especially from the electronic speed controllers (ESC), motor wires and the battery.
- Install a module without housing into an enclosure, preferably a metal one connected to the ground (GND) of the equipment.

## 1.5 Network security

- The camera is a network device. After the first login, **change the default access password** to a strong and unique one.
- Do not connect the camera directly to the public internet (via port forwarding). For remote access, use a VPN or a separate network.
- Update the firmware only with files originating from the manufacturer.
- Before handing the camera over to another user, delete stored recordings and access credentials.

# 2. Product description

## 2.1 Package contents

- 1× camera module IPC 5MP 10X Optical Zoom Lens Module

A power supply, network cable, memory card and clock backup cell are not included.

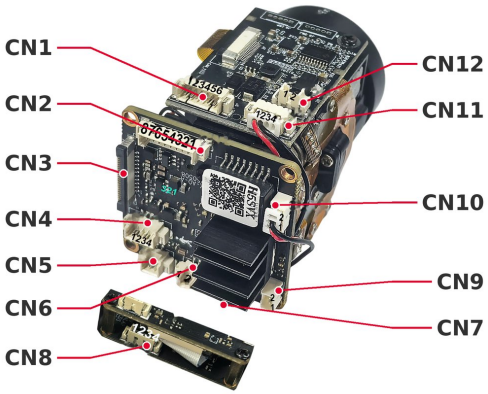
## 2.2 Technical data

| | |
|---|---|
| Designation | IPC 5MP 10X Optical Zoom Lens Module (RunCam, code zoomcam10) |
| Resolution | 5 MP |
| Max. video resolution | 5 MP at 25 fps |
| Optical zoom | 10× |
| Field of view at 1× | horizontal 61.5°, vertical 35°, diagonal 69.5° |
| Field of view at 10× | horizontal 7°, vertical 3.97°, diagonal 7.95° |
| Protocols | ONVIF, RTSP |
| Remote control | HiEasy app, network-based control |
| Serial control | Sony VISCA and Pelco-D, 9600 Bd (connector CN1) |
| Network interface | Ethernet, RJ45 connector |
| Power supply | 12 V DC, 5.5 × 2.5 mm connector |
| Dimensions | 74 × 60 × 49.5 mm |
| Weight | 159 g |

※ Data stated by the manufacturer RunCam. Further parameters (sensor type, focal length, codec, power consumption, operating temperature) are not published by the manufacturer.

## 2.3 Connectors and interfaces

The module is connected to the network and to power via an RJ45 connector and a 5.5 × 2.5 mm power connector. In addition, connectors for extended functions are brought out on the module board. The pin assignment is taken from the manufacturer's documentation.




*Location of connectors CN1–CN12*

| Connector | Function | Pins |
|---|---|---|
| CN1 | Serial port + power | 1 C-TX, 2 C-RX (Sony VISCA, 9600 Bd)<br>3 D-TX, 4 D-RX (Pelco-D, 9600 Bd, pan/tilt)<br>5 GND, 6 DC 12 V |
| CN2 | Power + LAN | 1 Reset, 2 LED+, 3 RX−, 4 RX+, 5 TX−, 6 TX+, 7 GND, 8 DC 12 V |
| CN3 | SD card board | slot for the flat cable (FPC) of the SD card board |
| CN4 | Alarm | 1 alarm out, 2 GND, 3 alarm in |
| CN5 | Microphone | 1 MIC−, 2 MIC+ |
| CN6 | Speaker | 1 Speaker+, 2 Speaker− |
| CN7 | Audio out | 1 Audio−, 2 Audio+ |
| CN8 | Lighting + alarm | 1 IR LED, 2 CDS, 3 alarm, 4 white LED |
| CN9 | RTC clock battery (3.3 V) | 1 BAT−, 2 BAT+ |
| CN10 | AF interface | 1 GND, 2 AF-RX, 3 AF-TX |
| CN11 | Auxiliary interface | 1 RX, 2 TX, 3 D/N, 4 I/O |
| CN12 | Power | 1 DC 12 V, 2 GND |

# 3. Installation and wiring

## 3.1 What else you need

- a stabilised 12 V DC power supply with a 5.5 × 2.5 mm connector,
- a network cable with RJ45 connectors and a switch, router or computer with a network port,
- software for receiving the image: a network video recorder (NVR) or video management software (VMS) with ONVIF support, or a player with RTSP support,
- the **HiEasy** app for control from a mobile phone,
- the manufacturer's developer documentation for integration into your own equipment (chapter 4.5).

## 3.2 Mechanical mounting

- Mount the module firmly and without stress so that it does not vibrate during operation – at high zoom, every shake shows up as a blurred image.
- On a drone or other moving equipment, use vibration damping.
- Leave free space in front of the lens and around the heat sink; secure the cables against being pulled out.

## 3.3 Connecting to the network and power

① Make sure the power supply is disconnected from the mains.

② Connect the module with an RJ45 network cable to a switch, router or directly to a computer.

③ Plug in the 12 V DC power connector and only then plug the power supply into the socket.

④ Wait until the camera has finished starting up and continue by finding it on the network (chapter 4).

**Power the module through one path only – either via the power connector or via the DC 12 V pins on the board.**

# 4. Putting into operation

## 4.1 Finding the camera on the network

The camera supports the **ONVIF** protocol. Network video recorders (NVR) and video management software (VMS) that support ONVIF can discover it on the local network and add it automatically.

- The computer or NVR must be on the same subnet as the camera.
- The default IP address, login credentials and ports of the camera are given in the manufacturer's developer documentation (chapter 4.5).
- After the first login, change the default password (chapter 1.5).

## 4.2 Video streaming via RTSP

For integration into your own system or for a quick check of the image, the video can be received via **RTSP** – in any player or program that supports RTSP. The exact format of the stream address (rtsp://...) is given in the manufacturer's developer documentation.

## 4.3 HiEasy app

The camera can be controlled remotely from the **HiEasy** mobile app (hieasy.app). According to the manufacturer, the availability of zoom control and other functions depends on how the camera is integrated.

## 4.4 Zoom control

The optical zoom (1× to 10×) can be controlled over the network, from the HiEasy app or via the serial interface on connector CN1 (chapter 5.1). Unlike digital zoom, optical zoom does not reduce the resolution.

## 4.5 Developer documentation

For integration, the manufacturer provides developer documentation (ONVIF, RTSP and control interfaces). The link to it and the access credentials can be found in the manufacturer's FAQ article:

support.runcam.com – IPC 5MP 10X Optical Zoom Module – FAQ

# 5. Extended interfaces on the board

The connectors described in this chapter are used to integrate the module into your own equipment. The manufacturer only states their pin assignment (chapter 2.3); electrical parameters and the command set can be found in the developer documentation. Make all connections only with the power disconnected.

## 5.1 Serial control – Sony VISCA and Pelco-D

- **CN1, pins 1 and 2** (C-TX, C-RX): camera control via the Sony VISCA protocol, 9600 Bd.
- **CN1, pins 3 and 4** (D-TX, D-RX): Pelco-D protocol, 9600 Bd, for controlling a pan/tilt head.
- Always connect TX of one side to RX of the other side, plus a common GND.
- Before connecting, verify that the voltage levels of the control electronics match the module's interface – an unsuitable connection can irreversibly damage the interface.

## 5.2 Alarm and lighting

- **CN4** – alarm input and output for connecting sensors or signalling devices.
- **CN8** – connection of the lighting board: IR LED, white LED, CDS and alarm.

## 5.3 Audio

- **CN5** – microphone, **CN6** – speaker, **CN7** – audio output.

## 5.4 Memory card and real-time clock

- **CN3** – slot for the flat cable (FPC) of the SD card board.
- **CN9** – connection of a 3.3 V backup cell for the real-time clock (RTC). The cell is not included; observe the BAT+ and BAT− polarity when connecting it.
- Keep coin cells out of the reach of children. Swallowing one can cause serious internal injuries – seek medical help immediately.
- Do not dispose of a used cell with mixed household waste – hand it in at a battery collection point.

# 6. Maintenance

## 6.1 Cleaning

- Clean the lens only with a dry microfibre cloth or a lens brush. Do not use solvents or abrasive agents.
- Remove dust from the board and heat sink with a dry brush or compressed air – always with the power disconnected.

## 6.2 Storage

- Store in a dry, dust-free place, ideally in an antistatic bag and the original packaging.
- Protect the lens from impacts and scratches.

# 7. Troubleshooting

| Problem | Possible cause and solution |
|---|---|
| The camera cannot be found on the network | Check the 12 V DC power supply and the network cable. The computer or NVR must be on the same subnet as the camera. Verify that the software supports ONVIF. |
| The camera is found, but no image is displayed | Check the login credentials and the format of the RTSP address according to the developer documentation. Verify that communication is not blocked by a firewall. |
| The image is choppy or delayed | Check the quality of the network cable and the network load; reduce the resolution or bit rate in the stream settings. |
| The zoom does not respond | Zoom control depends on the integration. With serial control, check the TX/RX wiring, the common ground, the protocol (VISCA / Pelco-D) and the 9600 Bd speed. |
| The image is blurred | Clean the lens. Mount the module more firmly – at high zoom, every shake shows up. |
| The module overheats | Ensure free air flow around the heat sink and verify that the supply voltage is 12 V DC. |

# 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 (IPC 5MP 10X Optical Zoom Lens Module, code zoomcam10) is given on the product or on its packaging.

## 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.