# EV800D

5.8 GHz analogue FPV goggles with DVR
User manual



**Read the entire manual carefully before first use, especially the safety instructions. The product is intended for persons aged 14 and over. This is not a toy.**

*Rotorama, s.r.o. · www.rotorama.com*

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# 1. Safety instructions

## 1.1 General instructions

Read the entire instruction manual to become familiar with the features of the product before operating. Keep this manual and pass it on together with the product.

- **Age recommendation: over 14 years old.** Using any near-eye displays on children under 14 can cause eye development problems. **This is not a toy.**
- The goggles completely block your view of the surroundings. Do not use them while walking, driving or during any other activity that requires you to watch your surroundings.
- Stop using the goggles immediately if you experience eye strain, headache, nausea or dizziness. Take regular breaks during longer use.
- Persons prone to epileptic seizures or sensitive to flashing light should consult a doctor before use.
- Please avoid wet or humid environments.
- Do not leave the goggles with the lenses facing direct sunlight. The lenses can focus sunlight onto the display and damage it permanently.
- Do not disassemble or modify the product and protect it from falls.

## 1.2 Built-in battery

The goggles contain a built-in 3.7 V / 2000 mAh Li-ion polymer battery. Improper handling may cause overheating or fire.

- Please use a standard USB charger. **The charging voltage can only be 5 V.**
- Never leave the goggles charging unattended. Charge on a non-flammable surface, away from flammable materials and out of the reach of children.
- If the goggles become unusually hot, deform, swell or give off an odour, disconnect the charger immediately and stop using them.
- Do not expose the product to high temperatures, fire or direct sunlight.
- Do not remove the battery or open the device. During longer storage, recharge the battery from time to time so that it does not fully discharge.

## 1.3 Flying with goggles

- Wearing the goggles, you cannot see the drone or the surrounding airspace. In the open category, therefore, fly with goggles **only with an observer** standing next to you, who keeps the drone in direct sight without optical aids and warns you of hazards.
- The pilot is always responsible for the safety of the flight. The frequency and power of the video transmitter on the drone must comply with the regulations of the country in which you fly (Chapter 7).

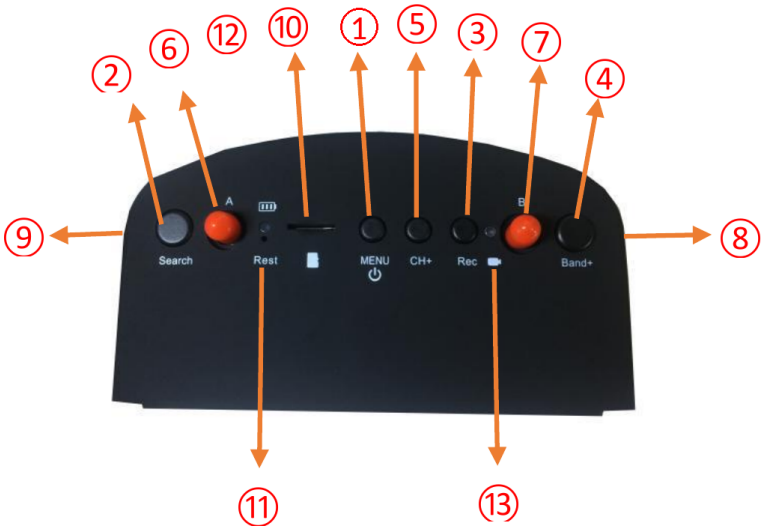
# 2. Product description

## 2.1 Features

The EV800D are analogue FPV goggles with a 5-inch display, a built-in 5.8 GHz receiver and video recording (DVR).

- With DVR, you can record videos anytime and anywhere.
- Low power consumption.
- Double antenna reception to make the signal more stable.
- Auto-searching – one-key frequency search.
- 5-inch 800 × 480 dot high-brightness LCD screen.
- Built-in super-sensitive 5.8 GHz 40-channel receiver, including RaceBand.
- Built-in 3.7 V / 2000 mAh high-capacity Li-ion polymer battery.
- Universal USB charging interface.
- Real-time video return, very low time delay.
- Bilingual menu supporting Chinese and English.
- Supports external video signal input.
- Supports audio signal output (you can connect headphones).

## 2.2 Controls and connectors




*Top side of the goggles*

① **Key 1** (MENU): short press – into MENU mode; long press (more than 2 s) – power ON/OFF.

② **Key 2** (Search): short press – auto-searching; long press (more than 1.5 s) – into AV mode.

③ **Key 3** (Rec): short press – start or stop recording.

④ **Key 4** (Band+): short press – Band+ (changes bands A–B–E–F–R circularly).

⑤ **Key 5** (CH+): short press – Channel+ (changes channels 1–2–3–4–5–6–7–8 circularly).

⑥ **Antenna port A:** RP-SMA male.

⑦ **Antenna port B:** RP-SMA male.

⑧ **AV jack:** audio signal output (RF receiving mode) or video signal input (AV mode).

⑨ **Micro-USB charging port:** supports DC 5 V only.

⑩ **Card slot:** used for inserting the memory card (microSD/TF).

⑪ **RESET:** power reset.

⑫ **Charging indicator:** red while charging, green when fully charged.

⑬ **REC indicator:** shows the different working states of the DVR module.

# 3. Specifications

| Parameter | Value |
|---|---|
| Name | 5.8G FPV Goggles |
| Screen | 5" LCD, 800 × 480, display ratio 16:9 |
| View angle | 6 o'clock |
| Brightness | 300 cd/m² with high-brightness LED backlight |
| Video delay | less than 20 ms |
| Lens | 2.8× Fresnel lens, 92 % transparency, no light distortion |
| Antenna | 2× RP-SMA male |
| USB | to charge the battery |
| AV jack | external video signal input or internal audio signal output |
| Card slot | TF card (microSD), up to 64 GB, C10 recommended |
| REC size | VGA / D1 / HD, selectable |
| REC sound | ON / OFF, selectable |
| REC time | OFF / 3 min / 5 min / 10 min, selectable |
| Frame rate | 30 frames per second |
| Compression / file | MJPEG / AVI |
| Languages | English and Chinese |
| Power adapter | DC 5 V / 2 A (USB interface) |
| Battery | Li-ion polymer 3.7 V / 2000 mAh |
| Working time | approx. 2.5 h with DVR module ON,<br>approx. 3.5 h with DVR module OFF (per full charge) |
| Operating current | normal mode 400 mA, record mode 620 mA (at 3.7 V) |
| Charge current | max. 500 mA |
| Dimensions | 180 × 140 × 84 mm |
| Weight | 393 g (with headband, antennas not included) |

**※ Video input from the AV port cannot be recorded.**

## 3.1 Frequency table (MHz)

The receiver has 40 channels in five bands of eight channels each. Band R is RaceBand.

| Band | CH1 | CH2 | CH3 | CH4 | CH5 | CH6 | CH7 | CH8 |
|---|---|---|---|---|---|---|---|---|
| A | 5865 | 5845 | 5825 | 5805 | 5785 | 5765 | 5745 | 5725 |
| B | 5733 | 5752 | 5771 | 5790 | 5809 | 5828 | 5847 | 5866 |
| E | 5705 | 5685 | 5665 | 5645 | 5885 | 5905 | 5925 | 5945 |
| F | 5740 | 5760 | 5780 | 5800 | 5820 | 5840 | 5860 | 5880 |
| R | 5658 | 5695 | 5732 | 5769 | 5806 | 5843 | 5880 | 5917 |

## 3.2 Dimensions




*Dimensions without antennas and headband*

# 4. Getting started

## 4.1 Charging

Fully charge the goggles before first use.

① Connect the micro-USB port ⑨ of the goggles to a standard 5 V USB charger (recommended adapter DC 5 V / 2 A).

② While charging, the charging indicator ⑫ is red.

③ When fully charged, the indicator turns green. Disconnect the charger.

**※ The micro-USB port supports DC 5 V only. A higher voltage will damage the goggles.**

## 4.2 Antennas

Screw the antennas onto ports A ⑥ and B ⑦ (RP-SMA male) and tighten them gently by hand only. The receiver uses both antennas at the same time – always connect both.

## 4.3 Power on and channel setting

① Switch the goggles on with a long press of Key 1 ① (more than 2 s). Switch them off the same way.

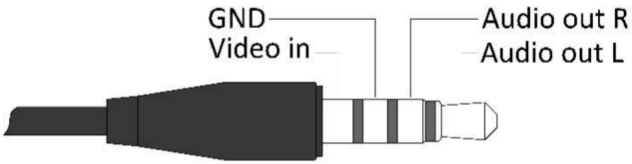
② Switch on the video transmitter on the drone.

③ Short-press Key 2 ② to start auto-searching. If several pilots are flying, make sure you are watching the video from your own drone.

④ The channel can also be set manually: select the band (A–B–E–F–R) with Key 4 ④ and the channel (1–8) with Key 5 ⑤ to match the video transmitter.

## 4.4 AV jack

The four-pole AV jack ⑧ is used as an audio output or as an external video signal input.




*AV port pin assignment*

- **Audio output:** in RF receiving mode, headphones can be connected to the AV jack.
- **Video input:** a long press of Key 2 ② (more than 1.5 s) switches the goggles to AV mode and the external video signal from the AV jack is displayed.
- Audio output and video input cannot work at the same time. Video input from the AV port cannot be recorded.

# 5. Menu and DVR

## 5.1 Menu instructions

In normal mode, press Key 1 ① to enter MENU mode. In MENU mode, the keys have the following functions:

| Key | Function in MENU mode |
|---|---|
| Key 1 ① | scroll options bar |
| Key 2 ② | auto-searching |
| Key 3 ③ | invalid (no function) |
| Key 4 ④ | enter / value + |
| Key 5 ⑤ | enter / value − |

## 5.2 Recording

For recording, insert a microSD (TF) memory card of up to 64 GB into the card slot ⑩; a C10 card is recommended. Insert and remove the card only with the goggles switched off.

- Short-press Key 3 ③ to start or stop recording. The REC indicator ⑬ shows the working state of the DVR module.
- REC size (VGA / D1 / HD), REC sound (ON / OFF) and REC time (OFF / 3 / 5 / 10 min) are selectable.
- Recordings are saved as AVI files (MJPEG compression) at 30 frames per second.
- With the DVR module ON, the working time per charge is shorter (approx. 2.5 h instead of approx. 3.5 h).

## 5.3 Playback instructions

In MENU mode, select the *DVR* option bar to enter DVR mode. In DVR mode, the keys have the following functions:

| Key | Function in DVR mode |
|---|---|
| Key 1 ① | return / quit playback mode |
| Key 2 ② | delete current file |
| Key 3 ③ | play / pause |
| Key 4 ④ | forward selection of video / fast forward (when video is playing) |
| Key 5 ⑤ | backward selection of video / fast rewind (when video is playing) |

# 6. Maintenance and troubleshooting

## 6.1 Maintenance

- Clean the lenses only with a dry, soft microfibre cloth. Do not use solvents or aggressive cleaning agents.
- Store the goggles in a dry place, in a box or case that protects the lenses from scratches and sunlight.
- Unscrew the antennas before transport to avoid damaging the connectors.

## 6.2 Troubleshooting

**▶ The goggles do not switch on**

- Charge the battery (the indicator ⑫ is red while charging).
- Hold Key 1 ① for more than 2 s.
- Press the RESET button ⑪ (power reset) and switch the goggles on again.

**▶ No picture or only noise**

- Check that the video transmitter on the drone is switched on and transmits in the 5.8 GHz band.
- Start auto-searching with Key 2 ② or manually set the same band and channel as on the transmitter.
- Check that the goggles are not in AV mode (long press of Key 2 ②).
- Check that both antennas are connected.

**▶ The picture is disturbed or drops out**

- Select another channel if another video transmitter is operating nearby.
- Check the antennas on the goggles and on the drone.
- Reduce the distance and do not fly behind obstacles.

**▶ Recording does not work**

- Check that a microSD card of up to 64 GB is inserted; a C10 card is recommended.
- Video from the AV port cannot be recorded.

**▶ No sound in the headphones**

- Audio is only available in RF receiving mode, not in AV mode.
- The video transmitter must transmit audio.

**▶ The goggles do not charge**

- Use a standard 5 V USB charger and a working micro-USB cable.
- If the indicator ⑫ does not light up, contact your dealer.

# 7. Radio data and use in the Czech Republic

## 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 – permitted frequency bands, maximum transmission power and rules for operating drones. The information in this chapter describes the situation in the Czech Republic. If you use the product in another country, you must comply with the regulations of the country in which you operate it.

## 7.2 Radio data of the goggles

| | |
|---|---|
| Type of equipment | analogue video receiver |
| Receiving frequency range | 5645–5945 MHz, 40 channels |
| Transmitted power | the goggles do not transmit, receive only |

The goggles are a receiver only and do not require an authorisation for use in the Czech Republic. The rules apply to the **video transmitter (VTX)** on the drone you use with the goggles.

## 7.3 Video transmitter in the Czech Republic

Under general authorisation No. VO-R/10 of the Czech Telecommunication Office (ČTÚ), a video transmitter may operate in the Czech Republic without an individual authorisation in the **5725–5875 MHz** band with a maximum power of **25 mW e.i.r.p.**

- The user is responsible for the channel and power settings of the video transmitter.
- Channels outside this band – **the whole band E**, channel **F8** and channels **R1, R2, R7 and R8** – must not be used by the transmitter in the Czech Republic without an individual authorisation. The goggles can still receive them.
- Channels at the edges of the band (e.g. A8 – 5725 MHz) lie partly outside the permitted band with part of the transmitted signal.
- Outside the Czech Republic, the frequencies and power limits of the respective country apply.

## 7.4 Drone operation

Drone operation is governed by Regulation (EU) 2019/947 and the rules of the Czech Civil Aviation Authority (www.caa.gov.cz). In the open category, the pilot may fly with goggles only with an unmanned aircraft observer standing next to them and keeping the drone in direct sight without optical aids.

# 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.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 or at the e-mail address info@rotorama.cz.
- **Product identification:** the type designation (EV800D) is given on the product or on its packaging.

## 8.3 Disposal of electrical equipment and batteries



- 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 product contains a built-in rechargeable battery. Where possible, hand it over together with the device – do not dispose of the battery in mixed waste or in fire.
- 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.