Cobra SD

Analog FPV goggles with 5.8 GHz diversity receiver
User manual



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

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1. Safety instructions

1.1 General principles

- The Cobra SD goggles are designed to receive and display analog video from FPV models (drones, aircraft, cars) in the 5.8 GHz band. Do not use them for any other purpose.
- The goggles are not a toy. They are not intended for children without adult supervision.
- Do not open or modify the goggles. There are no user-serviceable parts inside.
- Do not use the goggles if the housing, a cable or a connector is damaged.
- Never use the goggles while walking, cycling or driving a vehicle – they completely block your view of the surroundings.

1.2 Health and eyesight

- Take regular breaks during prolonged use. If you experience eye strain, nausea, dizziness or a headache, remove the goggles immediately.
- Persons prone to epileptic seizures or photosensitive reactions should only use the goggles after consulting a doctor.
- The goggles can be worn over prescription glasses. Take care not to scratch the optics.
- **Do not expose the optics to direct sunlight.** The optics concentrate sunlight onto the display and can damage it permanently. Never leave the goggles in the sun with the optics facing up.

1.3 Li-ion and LiPo batteries

The goggles are powered by one 18650 Li-ion cell inserted in the battery bay or by an external 2S–6S LiPo battery. No battery is included in the package.

- Use only undamaged cells and batteries. Do not use a cell with a torn wrapper or a dent, or a swollen LiPo battery; dispose of it properly.
- Always insert the 18650 cell with the correct polarity according to the marking in the battery bay. Do not insert any other type of cell.
- Never leave charging unattended. Charge on a non-flammable surface, away from flammable materials.
- Protect batteries from short circuits, mechanical damage, water and temperatures above 60 °C. Never throw them into fire.
- Do not charge LiPo batteries above 4.20 V/cell. For storage, leave them charged to 3.8 V/cell.
- If the goggles will not be used for a longer period, remove the 18650 cell and disconnect the external battery.

1.4 Operating environment

- The goggles are not waterproof. Protect them from rain, moisture, dust and sand.
- Do not cover the vents and the fan – they dissipate heat and prevent the optics from fogging.
- Do not leave the goggles in a closed car or near a heat source.
- When moving the goggles from a cold to a warm environment, let them acclimatise before switching on so that no moisture condenses inside.

2. Product description

The Skyzone Cobra SD are box-style analog FPV goggles with an LCD display and a 5.8 GHz diversity receiver. According to the manufacturer, they are the diversity version of the Cobra S goggles. The display image is viewed through newly designed optics without a Fresnel lens. All settings can be changed by rolling the shuttle wheel without taking off the goggles.

2.1 Package contents

Item	Qty
Cobra SD FPV goggles	1×
Receiver module (diversity)	1×
Head strap	1×
Power cable	1×
Head tracker cable	1×
5.8 GHz antenna	2×
Audio/video (A/V) cable	1×
USB-C cable	1×
Manufacturer's manual	1×

※ The package does not include an 18650 cell, a LiPo battery, a microSD memory card or a charging adapter.

2.2 Parts description

Controls on the top of the goggles (top view, front side with the receiver module at the top):

① Left shuttle wheel

② Left button

③ Power button

④ M button

⑤ Right shuttle wheel

⑥ Receiver module with two antenna connectors



Top view



Connectors and slot on the bottom of the goggles

Marking	Function
HDMI IN	HDMI input – displays video from an external source
A/V	analog audio/video input and output (A/V cable included)
SD CARD	microSD memory card slot for recording (DVR)
DC IN	power input for an external 2S–6S LiPo battery
HT OUT	head tracker output (head tracker cable included)
USB-C	USB power and charging, firmware update

2.3 Technical data

Model	Skyzone Cobra SD
Type	analog box-style FPV goggles
Display	LCD, 800 × 480 px
Aspect ratio	16:9
Receiver	5.8 GHz, diversity, removable module
Antennas	2× 5.8 GHz antenna
Recording (DVR)	MJPEG, 25/30 fps, to microSD card
Power supply	1× 18650 Li-ion cell / USB-C / DC from a 2S–6S LiPo battery
Power consumption	DC 12 V: 0.59 A; USB 5 V: 1.4 A
18650 cell charging	via USB or DC input
Inputs and outputs	HDMI IN, A/V, HT OUT, DC IN, USB-C, microSD slot
Menu language	Chinese, English
Weight	332 g

※ The manufacturer does not specify the dimensions, field of view or maximum memory card capacity for the Cobra SD. These values are therefore not given in this manual.

3. Legal conditions of use in the Czech Republic and the EU

3.1 The law of the country of use applies

Regulations (EU) 2019/947 and 2019/945 apply in all EU member states, but national implementing rules differ from country to country – registration portals, minimum pilot age, geographical zones, mandatory insurance, permitted frequency bands and maximum transmit power. The information in this chapter describes the situation in the Czech Republic. If you use the goggles and your model in another country, you must follow the regulations of the country in which you fly.

3.2 The goggles as a receiver and video transmitter frequencies

- The Cobra SD goggles contain only a 5.8 GHz **receiver** – they do not transmit any radio signal themselves.
- The receiver can also tune channels outside the band permitted for transmission in the Czech Republic. You are responsible for the frequency and power at which the video transmitter (VTX) in your model transmits.
- In the Czech Republic, under ČTÚ general authorisation No. VO-R/10/07.2021-8, a video transmitter may operate in the **5725–5875 MHz** band with a maximum power of **25 mW e.i.r.p.**, without protection against interference. Do not use channels outside this band in the Czech Republic.
- Outside the Czech Republic, the frequencies and limits of the respective country apply.

3.3 Flying with FPV goggles

- In the open category, the drone must be kept within visual line of sight (VLOS). A pilot wearing FPV goggles cannot maintain it alone and therefore needs an **unmanned aircraft observer** standing next to them, watching the drone with the naked eye and in direct contact with the pilot (Art. 4 of Regulation (EU) 2019/947, GM1 UAS.OPEN.060).
- Even when flying with an observer, the pilot remains responsible for the safety of the flight.
- Observe the rules on operator registration, pilot competency, flight height and geographical zones. For the Czech Republic, you will find them on the website of the Civil Aviation Authority (www.caa.gov.cz).

4. Preparation for use

4.1 What else you need

- an 18650 Li-ion cell or a 2S–6S LiPo battery with a power cable,
- a microSD memory card if you want to record video,
- a model with a 5.8 GHz analog video transmitter.

4.2 Antennas and receiver module

① Check that the receiver module is inserted in the front bay of the goggles.

② Screw both 5.8 GHz antennas onto the antenna connectors of the module. Tighten by hand only.

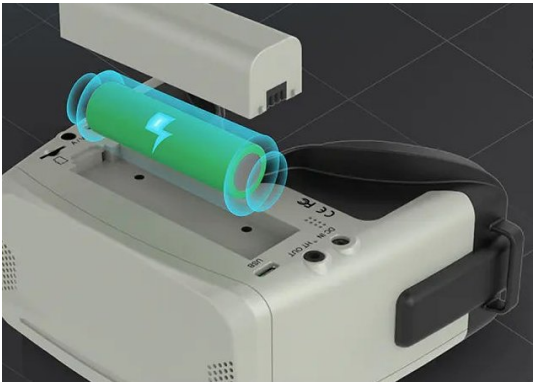
③ Position the antennas so that they point upwards and are angled away from each other.

※ Always use the goggles with both antennas connected – without antennas, reception is very weak.

4.3 Power supply

The goggles can be powered in three ways:

- **18650 cell** – insert it into the battery bay on the bottom of the goggles with the correct polarity and close the bay with the cover.
- **2S–6S LiPo battery** – connect it to the **DC IN** input using the supplied power cable.
- **USB** – connect a 5 V source to the **USB-C** connector with a USB-C cable.



Battery bay for the 18650 cell on the bottom of the goggles

※ Before use, insert a fully charged 18650 cell or a fully charged LiPo battery (4.20 V/cell).

4.4 Charging the 18650 cell

The goggles have a built-in charging circuit. The 18650 cell in the bay is charged when the goggles are connected to USB-C or powered via the DC IN input.

- Use a good-quality cable and a 5 V USB source. For firmware updates, the manufacturer explicitly requires a USB-C cable without PD support.
- Never leave charging unattended. If the goggles or the cell become excessively hot, stop charging immediately.

4.5 Switching on and putting on the goggles

① Switch the goggles on with the power button ③.

② Put on the goggles and adjust the strap so that they sit firmly and comfortably.

③ Switch on the model and tune to the channel of its video transmitter (chapter 5.3).

④ When finished, switch off the model first, then the goggles.

5. Controls and menu

5.1 Controls

The goggles are operated with the shuttle wheels and the buttons on the top (see the figure in chapter 2.2). Roll the wheel to move through menu items and change values; press the wheel to confirm a selection. According to the manufacturer, all settings can be changed just by rolling the wheel without taking off the goggles.

5.2 Menu structure

The menu is available in Chinese or English; switch the language in the system menu (*Language* item). The main menu contains the following sections:

Section	Content
Head tracking	head tracker settings (chapter 6.3)
Image	display image settings
DVR	video recording (chapter 6.1)
Display	on-screen information
System	system menu (chapter 5.4)

5.3 Finding a channel

On the receiving screen (SCAN), the goggles show the current frequency in MHz (*Frequency*), the band (*Band*), channel 1–8 (*Channel*), the signal strength (*RSSI*) and the signal spectrum across the band.

① Switch on the model and check the band and channel on which its video transmitter is transmitting.

② Set the same band and channel in the goggles, or let the goggles scan the band and select the channel with the strongest signal.

③ Check that the image is clear and the RSSI value is high.

※ No other pilot may transmit on the same channel at the same time. Agree on channel allocation before flying.

5.4 System menu

Item	Meaning
Power supply	power supply settings
Voltage Calibration	calibration of the displayed voltage
RSSI Calibration	calibration of the signal strength indicator
Language	menu language (Chinese / English)
Fan speed	fan speed

Item	Meaning
Rotary switch	shuttle wheel settings
Beeps	audible signals
Factory settings	restore factory settings
DVR FW upgrade	firmware update of the recording module
Firmware version	firmware and hardware version of the goggles

6. Recording, inputs and head tracker

6.1 Video recording (DVR)

- The goggles record the received video in MJPEG format (25/30 fps) to a microSD memory card in the **SD CARD** slot.
- Insert and remove the card only when the goggles are switched off.
- Recording is controlled in the *DVR* section of the menu.
- Always stop recording before switching off the goggles or disconnecting the power – otherwise the last file may not be saved correctly.

6.2 HDMI and A/V inputs

- The **HDMI IN** input can be used to feed video from an external source into the goggles, for example from a computer or a digital system receiver.
- The **A/V** connector is used to connect an analog audio/video signal with the supplied A/V cable.

6.3 Head tracker

The goggles have a built-in head tracker that senses head movement. The head tracker signal is available at the **HT OUT** output; connect it to your radio with the supplied head tracker cable. The settings are in the *Head tracking* section of the menu. For setting up the input on your radio, see your radio's manual.

7. Firmware and maintenance

7.1 Firmware update

Firmware for the Cobra SD goggles can be downloaded from the manufacturer's website www.skyzonefpv.com/pages/download. The receiver module cannot be updated and therefore has no USB-C connector.

※ The goggles exist in several hardware versions. Before updating, check the version under Firmware version (FW1 starting with V1, V2 or V3). Firmware for a different version may disable recording or the menu.

① Download the firmware for the Cobra SD and unzip it. It usually contains two files: file A (goggles firmware) and file B (menu).

② Connect the goggles to the computer with a USB-C cable without PD support. The 18650 cell does not need to be inserted.

③ Hold down the left shuttle wheel ① and press the power button ③.

④ A new removable drive appears on the computer – you can release the wheel.

⑤ Copy files A and B to this drive. The goggles update while the files are being copied.

⑥ When copying is complete, eject the drive and restart the goggles.

7.2 Maintenance and storage

- Clean the optics only with a dry microfibre cloth. Do not use solvents or alcohol.
- Keep the foam face padding clean and dry.
- Store the goggles in a dry place, without the 18650 cell and without a connected battery, protected from dust and direct sunlight. Unscrew the antennas for transport.

7.3 Troubleshooting

Problem	Cause and solution
The goggles do not switch on	Discharged or incorrectly inserted 18650 cell – check the polarity, charge the cell or use another power source.
No image, only noise	The goggles and the video transmitter are not on the same channel – tune the channel (chapter 5.3). Check the antennas on the goggles and on the model.
Image interference	Weak signal or interference from another pilot – reduce the distance, check the antennas, change the channel.
Recording does not work	microSD card missing or faulty – replace or format the card.
Fogged optics	Temperature difference – let the goggles acclimatise, switch on the fan.

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 (Cobra SD) is given on the product; the firmware version can be found in the system menu under *Firmware version*.

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.