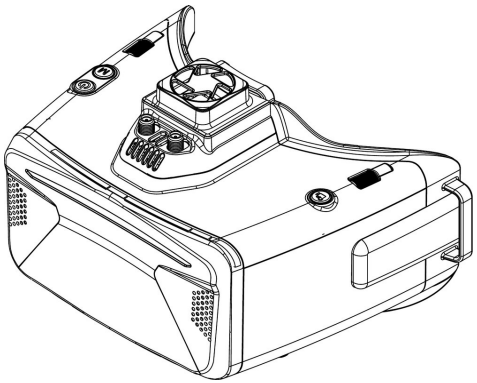
Cobra X V4

Analog FPV goggles with SteadyView V2 receiver
User manual



Do not expose the goggle lens to direct sunlight – the screen will burn in permanently.

www.rotorama.com

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1. Safety instructions

1.1 General

- Read the entire manual before first use and keep it for future reference.
- **Never expose the goggle lens to direct sunlight.** The lens focuses the light onto the screen and the screen will burn in permanently. Always put the goggles down lens-side down or store them in a case.
- Do not use the goggles while walking, driving a vehicle or doing anything else that requires watching your surroundings.
- Protect the goggles from moisture, dust, drops and high temperatures. Do not disassemble them.
- If you feel nausea, dizziness or eye strain, take the goggles off.

1.2 Batteries and power supply

- The goggles can be powered by one 18650 Li-Ion cell (not included), by an external 2S–6S LiPo battery via the DC port, or via USB-C. The supply voltage on the DC port must be within 6.5–25.2 V.
- Use undamaged batteries only. Do not use or charge a swollen, punctured or otherwise damaged battery.
- When inserting the 18650 cell, observe the polarity marked in the battery bay.
- **Do not charge the battery unattended.** Charge on a non-flammable surface, away from flammable materials.
- Do not short-circuit or puncture the battery and do not throw it into fire.

1.3 Operation and regulations

The rules for operating unmanned aircraft are laid down by Regulations (EU) 2019/947 and 2019/945. They apply in all EU member states, but the national implementing rules differ from country to country – registration portals, minimum pilot age, geographical zones, mandatory insurance, permitted frequency bands and maximum transmitting power. The information in this manual describes the situation in the Czech Republic. If you operate your model in another country, you must follow the regulations of the country in which you fly.

- When flying with FPV goggles, an **observer** must stand next to the pilot and keep the model in direct visual line of sight.
- The goggles contain a video receiver only and do not transmit. The user is responsible for the frequency and power of the video transmitter (VTX) in the model. In the Czech Republic, the 5725–5875 MHz band with a maximum of 25 mW e.i.r.p. is available for FPV under the general authorisation.
- Some of the receivable channels (e.g. band L and part of band E) lie outside the 5725–5875 MHz band – in the Czech Republic you must not operate a video transmitter on them without a special licence.

2. Product description

2.1 Introduction

The SKYZONE Cobra X V4 is an analog FPV goggle with a 1280 × 720 high-resolution LCD screen. The screen has vivid colours and high luminance, so the pilot can see more details while flying. The **SteadyView V2** receiver merges two signals into one, avoiding image tearing and rolling when the signal is weak and making the image more stable and clear in challenging conditions.

The goggles can be worn over prescription glasses. The new OS offers 10 languages, and with the shuttle wheels and the new user interface all settings can be changed without taking the goggles off. The goggles are powered by one 18650 cell or a 2S–6S LiPo battery; USB charging and DC charging make the goggles simple to use in the field.

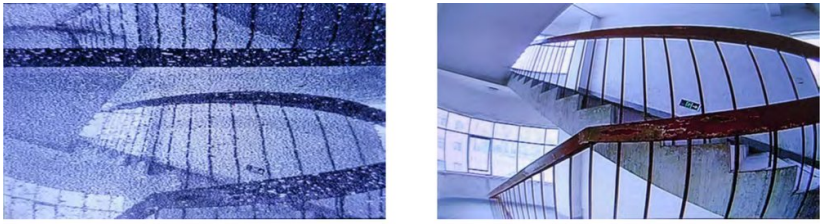


Image with a weak signal: conventional diversity receiver (left) and SteadyView V2 (right)

2.2 Specifications

Parameter	Value
Model	COBRA X V4
Colour versions	black, white
Screen	LCD
Resolution	1280 × 720
FOV (diagonal)	50°
Aspect ratio	4:3 / 16:9 (default 16:9)
Receiver	5.8 GHz, 48 channels, SteadyView V2
Receiver sensitivity	−93 dBm ± 1 dBm
Antenna connectors	2× SMA-K, 50 Ω
Menu languages	10 languages
Power supply	1× 18650 cell / DC 6.5–25.2 V / USB ≤ 5 V

Parameter	Value
Power consumption	0.63 A at 12 V; 1.5 A at 5 V
DVR	H.264, 60 fps, MOV, 6 Mbps; SD card up to 128 GB
Head tracker	3-axis accelerometer, 3-axis gyroscope
Dimensions	122 × 165 × 100 mm
Weight	332 g

2.3 Band and channel table

Channel frequencies in MHz:

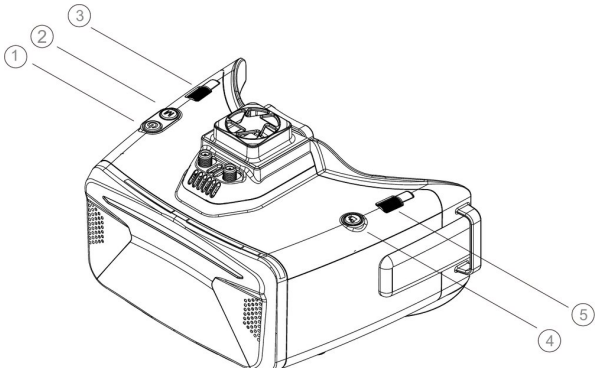
Band	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
A	5865	5845	5825	5805	5785	5765	5745	5725
B	5733	5752	5771	5790	5809	5828	5847	5866
E	5705	5685	5665	5645	5885	5905	5925	5945
F	5740	5760	5780	5800	5820	5840	5860	5880
R	5658	5695	5732	5769	5806	5843	5880	5917
L	5362	5399	5436	5473	5510	5547	5584	5621

2.4 Package contents

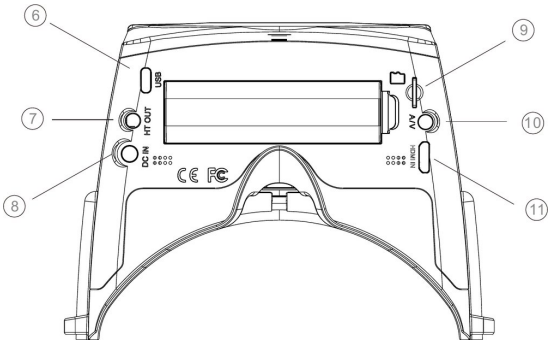
- 1× Cobra X V4 goggles
- 1× receiver module
- 1× head strap
- 1× power cable
- 1× head tracker cable
- 2× 5.8 GHz whip antenna, 2 dB
- 1× video/audio cable
- 1× USB-C cable
- 1× manufacturer's user manual

※ The 18650 cell, external battery and SD card are **not** included.

2.5 Controls and connectors

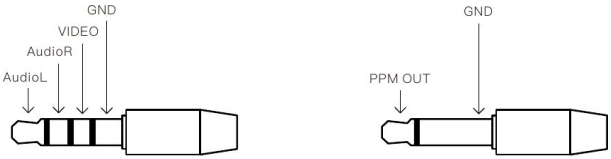


Top side of the goggles



Front side of the goggles with battery bay and connectors

① Power / fan	② System menu / head tracker reset
③ Channel / band / search (right wheel)	④ Record / delete
⑤ Mode menu (left wheel)	⑥ USB-C port
⑦ 3.5 mm head tracker port	⑧ DC port (5.5 × 2.1 mm)
⑨ SD card slot	⑩ AV input / output
(11) HDMI input	



AV jack pin-out (left) and head tracker jack pin-out (right)

3. Getting started

3.1 Quick start

① Install the receiver module and the antennas.

② Insert the 18650 cell into the battery bay, or connect an external 2S–6S LiPo battery to the DC port using the power cable.

③ Hold the power button ① to turn the goggles on.

3.2 Band and channel setting

① Press the right wheel, then roll it to change the channel. Press the wheel again to switch to band setting, then roll the wheel to change the band.

② If the wheel is not operated for 3 seconds, the goggles quit the RF setting mode.

③ Hold the right wheel to open the search menu. Press the wheel to start the auto search – after searching all frequencies, the receiver will tune to the strongest signal. Roll the right wheel to select the channel manually; short press the right wheel to quit the search.

Some cameras on the market do not follow the standard NTSC/PAL signal, which confuses the receiver in Mix mode. This causes a dark image, colour distortion or a rolling image. In that case, switch to Diversity mode in the system menu.

※ The auto search may not always find the channel accurately – select it manually if necessary.

3.3 Mode menu

Short press the left wheel to open the mode menu.

- **RF normal** – normal reception on all 48 channels.
- **RF Racing** – the receiver works on RaceBand only.
- **RF Third-Party** – mode for a third-party external receiver. The goggle buttons cannot control it and the goggle OSD cannot read its band and channel.
- **AVIN** – analog video input; NTSC/PAL is switched automatically. The receiver module is turned off automatically to save power.
- **HDMI IN** – HDMI input; the receiver module and the video recording module are turned off automatically to save power. The recognised resolution is shown on the screen automatically.
- **Playback** – playback of DVR files.

3.4 Signal finder

Install a patch antenna on the receiver and long press the left wheel to enable the signal finder function (long press again to disable it). The buzzer rate follows the signal strength (RSSI) – the stronger the signal, the faster the buzzer beeps.

3.5 Playback

- In playback mode, roll the right wheel to choose a recording; short press the right wheel to play or pause it.
- Use the left wheel to adjust the volume.
- During playback, roll the right wheel to fast forward or fast rewind.
- Press the right button to quit playback and the left button to delete the recording.

4. Settings

Short press the right button to open or close the settings menu. Roll the right wheel to navigate and press the wheel to select.

4.1 Head tracking

- The head tracking button is on the right side of the goggles.
- The gyro requires an initialisation time. After power-on, keep the goggles horizontal and still for as long as possible. The initialisation is complete when the goggles beep.
- Hold the head tracker button to reset the PPM signal to the centre; the goggles beep when the button is pressed.
- The head tracker signal is output as PPM on the 3.5 mm port ⑦.

※ Disabling the head tracker in the menu skips the gyro initialisation and speeds up the boot time.

4.2 Image

- The image menu offers the Standard, Bright, Vivid and Soft presets and 3 user profiles.
- In user profiles 1/2/3 you can adjust brightness, contrast, saturation, hue and sharpness to suit the environment. The 4 presets cannot be changed.
- Brightness can also be adjusted by rolling the wheel.

4.3 Display

- The aspect ratio can be switched between 4:3 and 16:9; the default is 16:9.
- The signal strength (RSSI) icon can be shown as icon + percentage, icon only, percentage only, or disabled; its vertical position can also be adjusted.
- The screen luminance has 3 levels, default is level 2. Set a high level only if the image is dim.

4.4 DVR

- The left button starts and stops recording.
- The built-in DVR uses H.264 encoding. A Class 10 SD card is recommended, cards up to 128 GB are supported.
- The SD card must be formatted to FAT32; it can be formatted in the system menu using *Format SD*.
- Recording works in both RF mode and AV IN mode.
- By default, video and sound are recorded; sound recording can be turned off in the system menu.

- **Automatic recording** – when enabled, recording starts as soon as a video signal is detected. It can be stopped manually with the record button.
- **Auto&Follow** – the DVR starts recording when the video signal is present and stops 30 s after the signal is lost; when the signal returns, it records again.
- **Follow** – start recording manually with the button; the DVR stops 30 s after the signal is lost and starts again automatically when it returns. Press the button again to stop recording manually and save SD card space.
- **Cyclic recording** – overwriting of the oldest recordings when the card is full (on/off).
- Recordings are automatically split into files of 5, 10, 20 or 30 minutes; the default length is 30 minutes.
- If the power is disconnected during recording, the recording will be damaged. After entering playback mode, the goggles automatically check the last recording and repair it if necessary.

4.5 System menu

- **Power supply** – choose the battery type (2S–6S) so that the goggles show the real battery status.
- **Voltage calibration** – adjustment range ±0.9 V. Measure the loaded battery voltage with a multimeter and use the wheel to adjust the OSD value to match it.
- **RSSI calibration** – turn off the video transmitter (VTX) and turn on the goggles; there must be snow on the screen. In the system menu select *RSSI calibration → Low* and confirm; the goggles beep twice. Then turn on the VTX on the same channel as the goggles at a distance of 2 m, select *High* and confirm; the goggles beep four times.
- **Language** – English, French, German, Russian, Italian, Portuguese, Spanish, Chinese, Japanese, Korean.
- **RF Mode** – choose Diversity or Mix mode. Image rolling with cameras that do not follow the NTSC/PAL standard is solved by Diversity mode.
- **Fan** – the built-in fan prevents fogging and dissipates heat. Press the power button ① to start or stop the fan; its speed (and thus noise) can be set in the menu.
- **Control swap** – the functions of the wheel and buttons can be moved from the left side to the right side (for left-handed users). When enabled, everything this manual says about the left side applies to the right side and vice versa.
- **Factory Reset** – restores all factory settings.
- **DVR FW upgrade** – DVR firmware upgrade from the SD card.
- **Firmware version** – shows the goggle and DVR firmware versions and the serial number.

5. Power supply and charging

- The goggles have an integrated charging module. The 18650 cell inside the goggles can be charged via USB-C as well as via the DC port.
- When the goggles are powered via the DC port, the external power also charges the internal 18650 cell.
- **For safety, do not charge the battery unattended.**
- The battery bay has a protection circuit. If you remove the cell while the goggles are on, it enters protection status. To quit protection, charge the cell via the DC cable or the USB cable.
- Connect an external 2S–6S LiPo battery to the DC port ⑧ using the power cable. Set the matching battery type in the system menu.

6. Firmware update

The latest firmware for the goggles, DVR and receiver is available on the manufacturer's website www.skyzonefpv.com in the Download section.

6.1 Goggles

① Connect the goggles to the computer with the USB-C cable. No external power is needed, the USB cable powers the goggles.

② Hold the left wheel and turn on the goggles, then release the wheel. The computer automatically installs the driver and shows a new removable storage.

③ Copy the firmware file to this storage (not to the SD card). The goggles install the update while copying – when the copying is done, the upgrade is complete.

※ Even when the controls are swapped, the left wheel is used to start the update.

6.2 DVR

① Format an SD card to FAT32.

② Copy the DVR firmware to it, insert it into the goggles and turn them on.

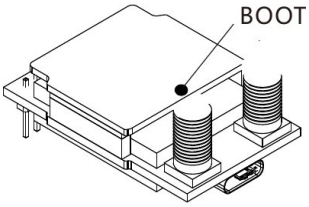
③ In the system menu choose *DVR FW upgrade*.

6.3 Receiver

① Take the receiver module out of the goggles. Hold the BOOT button while connecting the module to the computer.

② The computer automatically installs the driver and shows a new removable storage.

③ Copy the firmware file to this storage. When the copying is done, the upgrade is complete.



BOOT button on the receiver module

7. Maintenance and troubleshooting

Maintenance and storage

- Clean the lens with a dry microfibre cloth only, without solvents.
- Store the goggles in a dry place with the lens protected from sunlight.
- Remove the 18650 cell from the battery bay before long-term storage.

Problem	Solution
Dark image, colour distortion or rolling image	The camera does not follow the NTSC/PAL standard. Switch *RF Mode* to Diversity in the system menu.
Auto search did not find the right channel	Select the channel manually by rolling the right wheel (section 3.2).
Goggles do not turn on after replacing the 18650 cell	The battery bay is in protection status. Connect the DC or USB cable and charge the cell (chapter 5).
Battery indicator does not match reality	Set the battery type and calibrate the voltage if necessary (section 4.5).
Signal strength (RSSI) is shown incorrectly	Perform the RSSI calibration (section 4.5).
Goggles boot slowly	Disable the head tracker to skip the gyro initialisation (section 4.1).
Recording damaged after power loss	Enter playback mode – the goggles repair the last recording automatically (section 4.4).
Fogged image	Start the fan by pressing the power button ①.

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 X V4) is marked on the product; the serial number and the firmware versions of the goggles and the DVR are shown 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.