XYBERVU

VeloScope

User manual

V1.2

Support

https://www.xybervu.com/support

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1. Introduction

The Radar E-Mirror is an intelligent rear-view system designed specifically for bicycles, combining radar detection with video recording. Through a wired connection, it provides real-time display of rear-view footage, significantly enhancing riding safety.

⚠️ WARNING: This device is designed to enhance situational awareness. It is not a substitute for cyclist attentiveness or sound judgment. Always remain aware of your environment and ride safely. Ignoring these instructions could result in serious injury or death.

2. Package Contents

① Front Display Unit
② Rear Radar Taillight Camera
③ Mount for Front Display Unit (compatible with Garmin mount interface)
④ Mount and Installation Hardware for Rear Radar Taillight Camera (compatible with Garmin and GoPro mount interfaces)
⑤ Dedicated Data & Power Cable (special specification)
⑥ Charging & Firmware Update Cable (special specification)
⑦ Straps
⑧ Quick Start Guide

⚠️ WARNING: The monitor unit is quite heavy. Please carefully evaluate the strength and stability of the connection mount when using a commercially available compatible connection mount.

3. Device Overview

The Radar E-Mirror includes:

1. Rear Radar Taillight Camera:

① Camera Lens	High-resolution night-vision camera
② Taillight Mode Button	Short press to switch lighting modes (Low Bright / High Bright / Daytime Flash / Night Flash / Off)
③ Data & Radar Upgrade Port	Connects to the dedicated data & power cable (special specification) / charging & firmware update cable (special specification)
④ Mount Interface	Connects to the radar taillight camera Mount (Compatible with Garmin bike computer and taillight mounts)
⑤ Radar Antenna Surface	Area for radar signal transmission and reception
⑥ Taillight	Red LED rear light

⚠ WARNING: When using a standard commercially available USB Type-C cable, it can charge the front display unit but does not support any data transmission.

2. Front Display Unit:

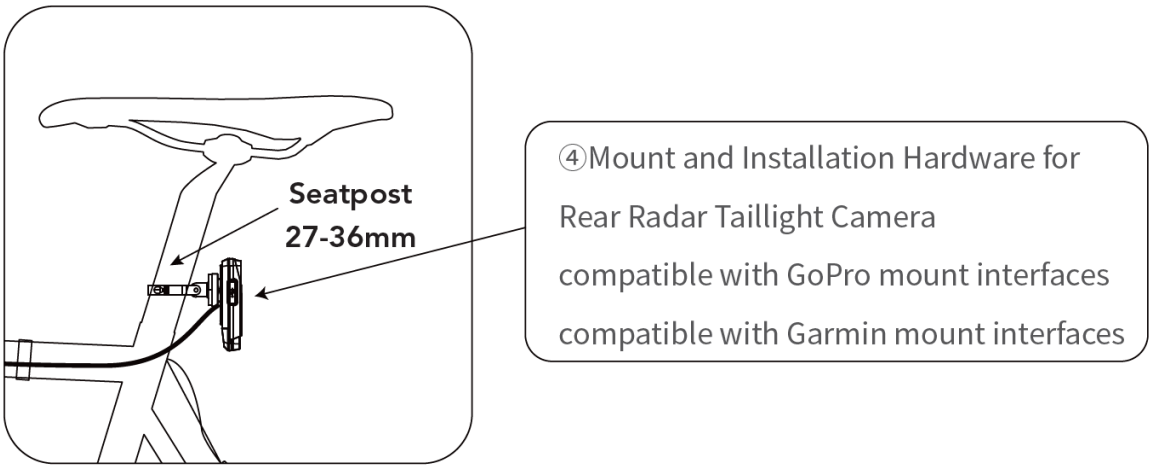
① Settings Button	1. Short press to enter the settings menu 2. Long press during recording to immediately save and lock the video/audio file
② Up Button	1. Short press to switch lighting modes (Low Bright / High Bright / Daytime Flash / Night Flash / Off) 2. In the settings menu, short press to move between items
③ Down Button	1. Short press to enable or disable the buzzer 2. In the settings menu, short press to move between items.
④ Power Button	1. Long press for 3 seconds to power on/off 2. In the settings menu, short press to enter the selected item
⑤ Force Shutdown Button	Insert a pin into the hole and short press to force shutdown
⑥ Memory Card Slot	Supports MicroSD cards, up to 256GB
⑦ Buzzer / Microphone	Waterproof buzzer and microphone location
⑧ Mount Interface	Connects to the front display unit mount (compatible with Garmin mount interface)
⑨ Light Sensor	When screen brightness is set to Auto, the light sensor adjusts the screen brightness based on ambient light conditions
⑩ Data / Charging Port	Connects to the dedicated data & power cable (special specification) / charging & firmware-update cable (special specification)

⚠️ WARNING: When using a standard commercially available USB Type-C cable, it can charge the front display unit but does not support any data transmission.

4. Installation

1. Mount the Radar Taillight Camera onto the Seatpost.

・Use item ④ Mount and Installation Hardware for Rear Radar Taillight Camera to secure the radar taillight camera onto the seatpost. Ensure the area in front of the radar taillight camera remains clear to avoid obstructing the radar signal or the camera's field of view.



・Supports seatpost diameters from 27–36 mm. Install the appropriate number of foam pads according to the seatpost size.

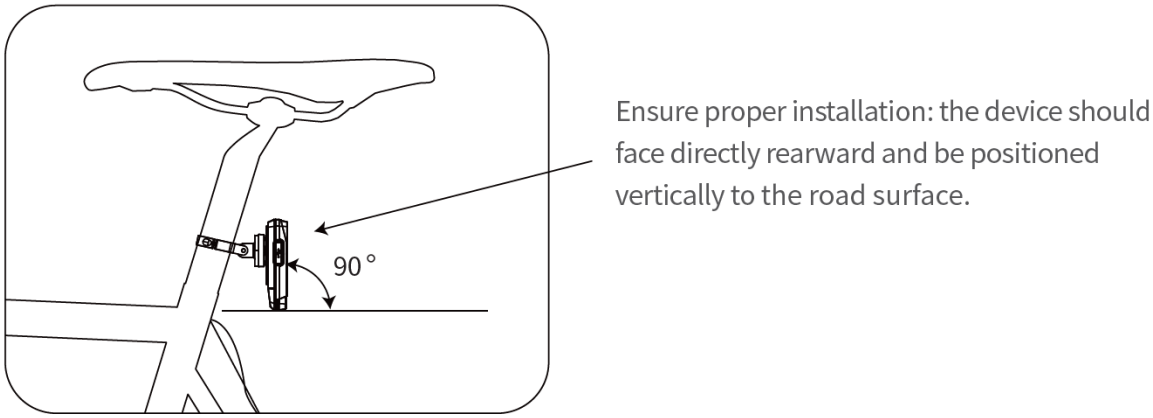
・The front end of the mount supports the standard GoPro connector and is compatible with Garmin bike computer and taillight mounting interfaces.

・For optimal detection performance, it is recommended to mount the radar taillight camera at a height of 600 mm to 1200 mm above the ground.

・Ensure proper installation: the device should face directly rearward and be positioned vertically to the road surface.

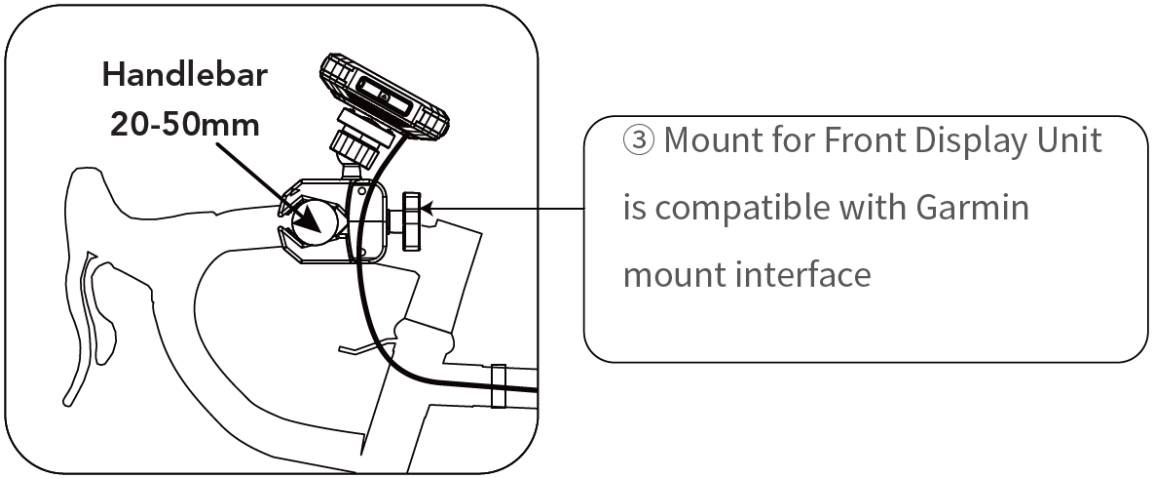
・Make sure there are no obstructions in front of the radar tail light camera.

⚠ WARNING: Perform a riding test in a safe environment.



2. Munt the Front Display Unit

・Use item ③ Mount for Front Display Unit Mount to secure the front display unit in a location where the rider can safely view the display while riding.

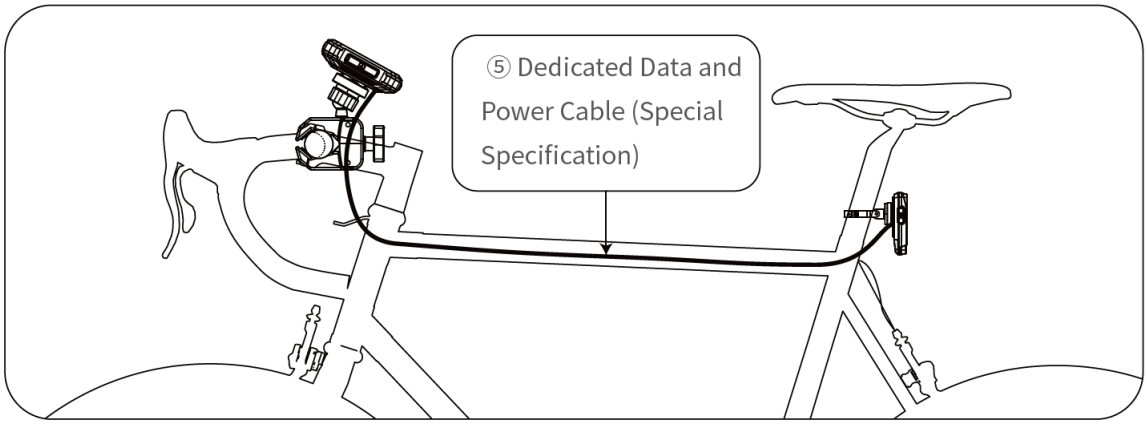


・The mount is four-way adjustable. Users can adjust it to the most suitable viewing angle.

⚠ WARNING: The monitor unit is quite heavy. Please carefully evaluate the strength and stability of the connection mount when using a commercially available compatible connection mount.

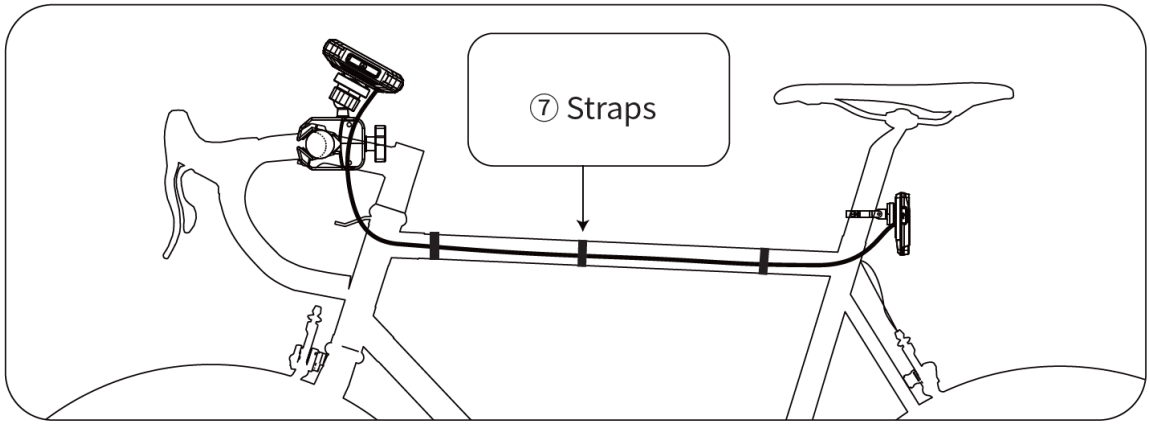
3. Connecting the Radar Taillight Camera and the Front Display Unit

Use the ⑤ Dedicated Data and Power Cable (Special Specification) to connect the Radar Taillight Camera to the Front Display Unit.



⚠ WARNING: Do not use a standard off-the-shelf USB Type-C cable. When using a standard commercially available USB Type-C cable, it can charge the front display unit but does not support any data transmission.

4. Securing the Cable. Use the ⑦ Straps to secure the cable and prevent interference.



⚠️ WARNING: When securing the cable, please ensure the routing of the cable does not interfere with riding safety. Specifically, ensure there is no interference when the cable is not connected to both the Radar Taillight Camera and the Front Display Unit, to prevent potential hazards.

5. Powering On. Power on the device and confirm that the display is functioning correctly.

5. Operating Instructions

1. Starting the System

・Press and hold the power button on the Front Display Unit for 3 seconds to start the system. The rear view image will appear on the display.

2. Confirming the Taillight Mode

・Short press the Up button on the Front Display Unit to cycle through the rear taillight modes. The current taillight mode icon can be confirmed on the display.

・Taillight Mode and Intensity

Mode	Brightness	Default Flash Pattern	Flash Pattern Upon Vehicle Approach
Low Bright	8 lm	None	Rapid Flash
High Bright	20 lm	None	Rapid Flash
Daytime Flash	65 lm	Gentle Flash	Rapid Flash
Night Flash	20 lm	Gentle Flash	Rapid Flash
Off	None	None	Rapid Flash

3. Confirming the Buzzer Status

・Short press the Down button on the Front Display Unit to toggle the buzzer on or off. The buzzer status icon can be confirmed on the display.

・When the buzzer is ON, it will emit a warning sound when the radar detects a vehicle approaching from the rear. (On ; Off)

4. Brake Light

・When braking is detected, the light will illuminate at 65 lm for 3 seconds to alert the rear. The Front Display Unit will show an icon indicating the brake light is activated.

(The brake light function is activated by an acceleration sensor sensing a decrease in speed. It may also be triggered by large potholes even without actual braking.) (Brake light active icon)

5. If Video and Audio Recording is Desired

・If the memory card is inserted, recording will start automatically upon power-on. When the memory card is inserted, recording starts automatically upon power-on.

⚠ WARNING: Some jurisdictions may prohibit or regulate the recording of video, audio, or photographs, or may require that all parties be informed of the recording and provide consent. It is the user's responsibility to know and comply with all applicable laws, regulations, and restrictions in the areas where this device is used.

・Video and Audio Recording Status

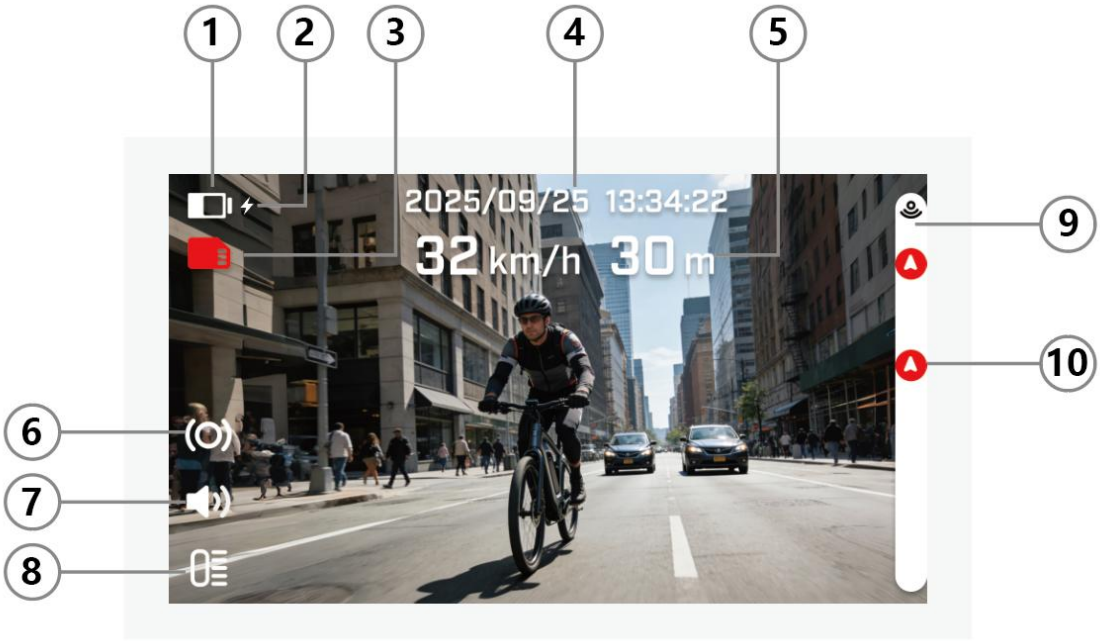
Micro SD Card Inserted	Card Space Full	Loop recording set	Currently Recording
x	-	x	X
x	-	v	x
v	V	x	x

v	X	x	v
v	X	v	v
v	V	v	v

(Recording will automatically stop during the following operations: accessing Playback Options, formatting the MicroSD card, performing a System Reset, toggling camera settings, adjusting video length, or powering the device on/off.)

・Real-time File Locking: Press and hold to instantly lock the currently recording video and audio file. Locked files will not be deleted during Cyclic record.

6. Front Display Unit Icon Explanation



① Battery Level Indicator
② Charging Status Indicator
③ Memory Card and Recording Status Indicator
④ Date and Time Display
⑤ Relative Speed and Distance of Vehicle Approaching from the Rear (Closest Vehicle)
⑥ Brake Light Indicator
⑦ Buzzer ON/OFF Indicator
⑧ Taillight Mode Indicator
⑨ Schematic Display of Radar Detection Distance of Rear Approaching Vehicle
⑩ Schematic Display of Radar Detection Position of Rear Approaching Vehicle

7. Shutting Down the Device

• Press and hold the power button on the Front Display Unit for 3 seconds to shut down the device.

6. Radar Detection and Warning

⚠️ WARNING: This device is designed to enhance situational awareness. It is not a substitute for cyclist attentiveness or sound judgment. Always remain aware of your environment and ride safely. Ignoring these instructions could result in serious injury or death.

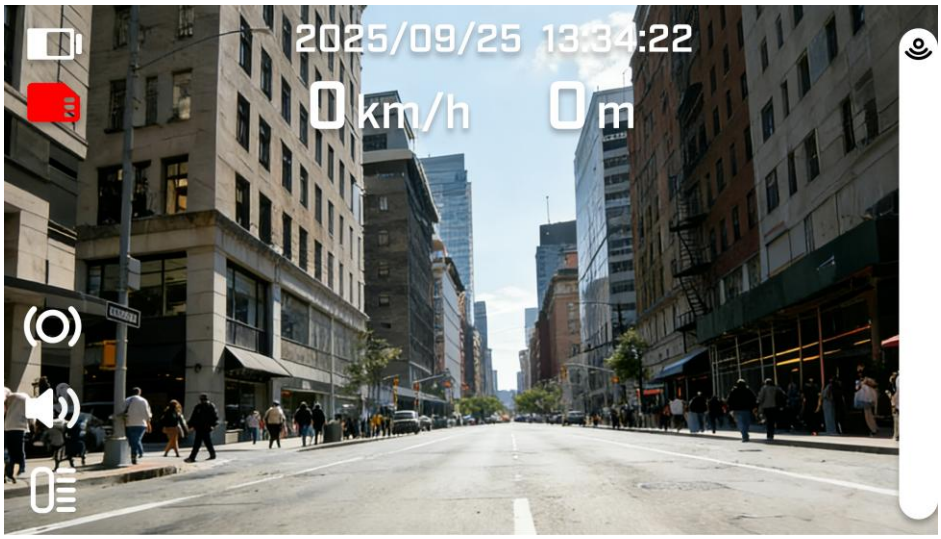
• The radar can detect approaching vehicles from the rear at a maximum distance of approximately 190 meters.

• The radar can detect approaching vehicles traveling at speeds between 10 and 100 km/h. (The radar cannot detect vehicles moving at the same speed as the bicycle.)

• It can track a maximum of 8 vehicles simultaneously.

Warning Status:

• No Vehicle Detected



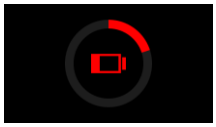
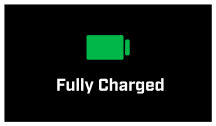
• Vehicle Approaching

7. Charging the Device

⚠️ Lithium Battery Warning

• Do not throw the battery into fire or expose it to heat.
• Do not short-circuit, crush, or disassemble the battery.
• Use only the specified charger. Do not overcharge or over-discharge.
• Stop using the battery if it overheats, swells, or leaks.
• To prevent corrosion, completely wipe dry the cable/charging cable port, dust cap, and surrounding area before charging.
• The device cannot be charged outside the permitted temperature range. (Charging Temperature Range: -10°C~50°C)

1. Pull open the dust cap covering the cable/charging cable port.
2. Plug the Charging & Firmware Update Cable (special specification) into the Data / Charging Port.
3. Plug the Charging & Upgrade Cable (Special Specification) into an AC adapter (5V/2A) or the USB Port of a computer.
4. Plug the AC adapter (5V/2A) into a standard wall outlet.
5. Charge the device fully (Charging from below 10% to full capacity takes approximately 4–6 hours).
6. Once charging is complete, remove the Charging & Upgrade Cable (Special Specification) and close the dust cap.

Battery Type	Built-in Rechargeable Lithium-ion Polymer Battery			
Battery Performance	**10+ hours.** (Based on Taillight High Bright Mode, Screen Always-On Mode, Screen Brightness Level 3, 1-minute video length and loop recording.)			
Operating Temperature Range	-10°C~50°C			
Charging Temperature Range	-10°C~50°C			
Changing Icon (Power off)				
Battery Level	0~10%	10~20%	20~40%	40~60%
Changing Icon (Power off)				
Battery Level	60~80%	80~99%	100%	

Screen Mode	Brightness Level	Taillight Mode	Radar Detection	Recording	Battery Life
Smart Mode	1	Off	On	Off	20 hrs
Always On	1	Low Bright	On	Off	14 hrs
Always On	3	High Bright	On	On	10 hrs

8. Recording Playback

The device transmits video to the front display unit via a wired connection.

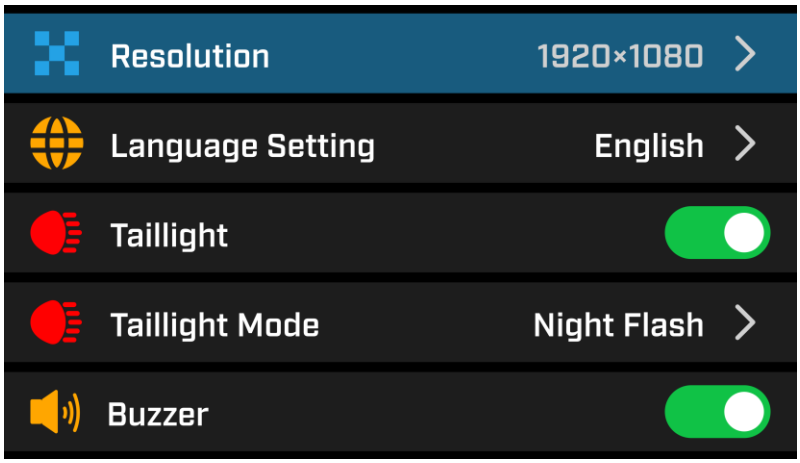
If a micro SD card is inserted, the system will automatically begin recording video and audio upon power-on and save the files to the micro SD card.

Video Resolution: Up to 1080p
Storage Medium: micro SD (8–256GB, Class 10 or higher).

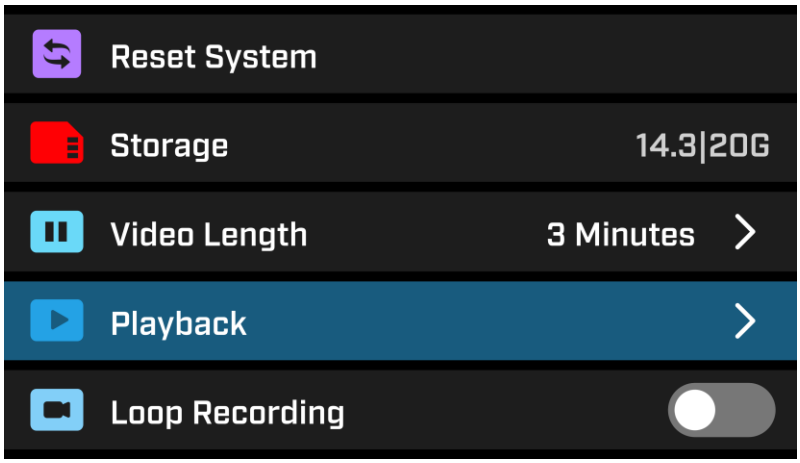
⚠️ WARNING: Some jurisdictions may prohibit or regulate the recording of video, audio, or photographs, or may require that all parties be informed of the recording and provide consent. It is the user's responsibility to know and comply with all applicable laws, regulations, and restrictions in the areas where this device is used.

You can insert the memory card into your computer to view, transfer, and delete videos. (Videos are stored in the "VIDEO" folder.)

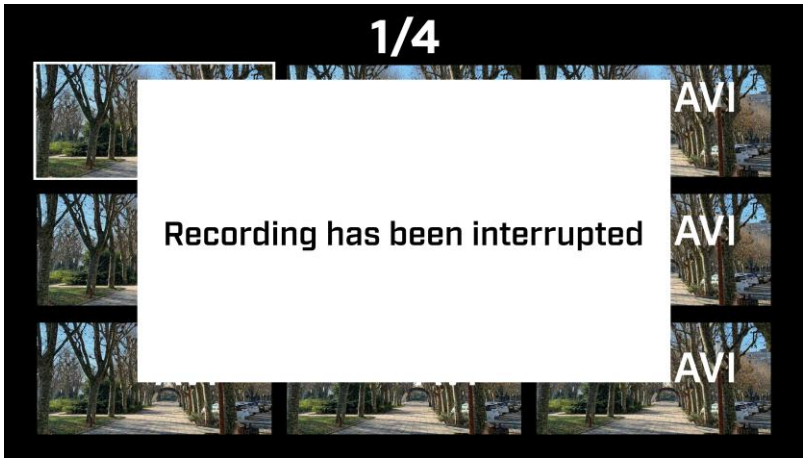
You can also use the Front Display Unit to view and delete videos:
1. Short press the Settings Button to enter the settings options list.



2. Short press the Up or Down Button to select the Playback option.



3. Short press the Power Button to confirm and enter the Playback.
4. Recording will stop and the video list will appear.



5. Short press the Up or Down Button to select the desired video.

6. Short press the Power Button to confirm the selected video; the video will now be enlarged on the screen.

7. Short press the Power Button to Play/Pause the video.

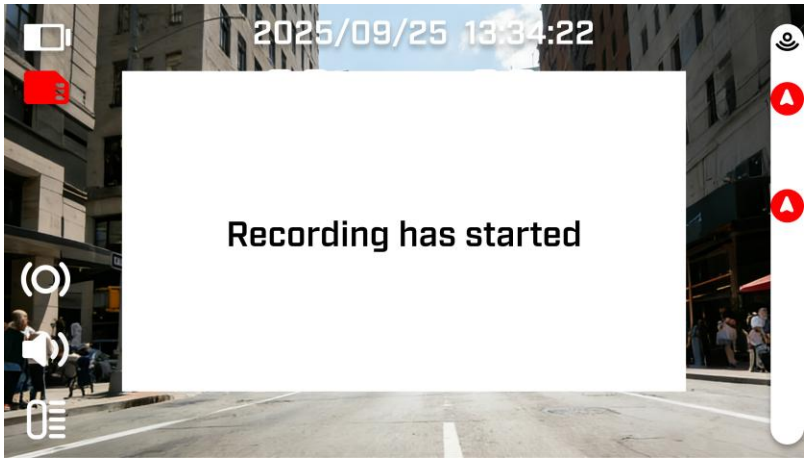
8. Short press the Up or Down Button to skip to the previous or next video.

9. Press and hold the Settings button to enter the Video Files menu, where you can perform operations such as Delete and Lock.

11. Short press the Settings Button to exit and re-enter the video list.

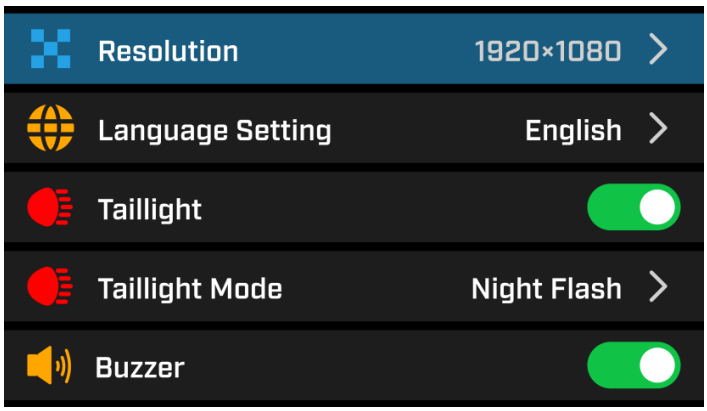
12. While in the video list, short press the Settings Button to return to the settings options list.

13. Short press the Settings button to return to the home screen and resume recording.



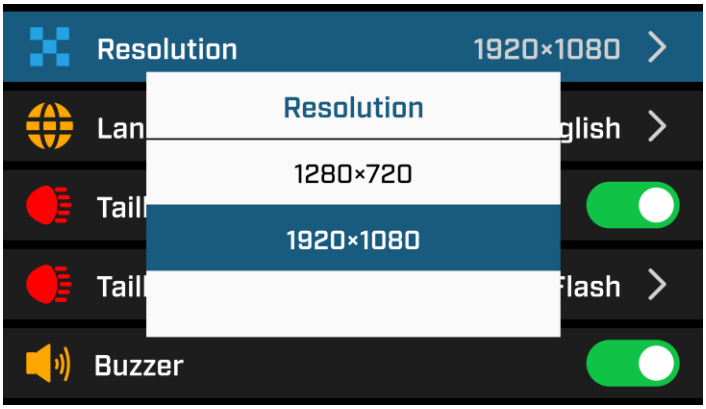
9. On-Screen Display (OSD) Menu Instructions

Short press the Settings Button to enter the Settings Options List.



1. Resolution

   Available resolutions include 1920x1080 and 1280x720.



2. Language Setting

   Multiple languages are available for selection.

3. Taillight On/Off

   Options: On / Off.

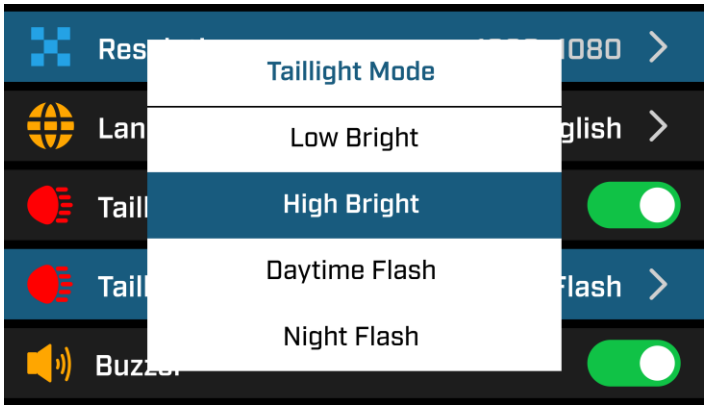
   The selected item will be indicated on the main interface.

	On				Off
Settings UI Icons					
	Low Bright	High Bright	Daytime Flash	Night Flash	Off
Main Interface Display Icons					

4. Taillight Mode

   Available lighting modes include Low Bright, High Bright, Daytime Flash, and Night Flash.

   The selected item will be indicated on the main interface.



	Low Bright	High Bright	Daytime Flash	Night Flash
Main Interface Display Icons				

5. Buzzer On/Off

   Options: On / Off.

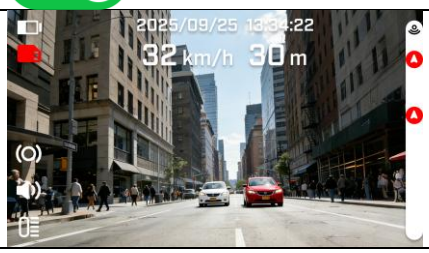
   The selected item will be indicated on the main interface.

	On	Off
Settings UI Icons		
Main Interface Display Icons		

6. Camera On/Off

   Options: On / Off.

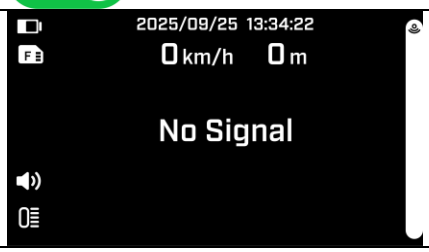
   Once selected, the main interface will enable or disable the live video display.

	On	Off
Settings UI Icons		
Main Interface Display		

7. Radar detection On/Off

   Options: On / Off.

   Once selected, the main interface will show or hide the radar indicator along with speed/distance display.

	On	Off
Settings UI Icons		
Main Interface Display		

8. Radar Indicator

   Select between 'Left' and 'Right' placement. Once selected, the radar indicator will be displayed on either the left or right side of the main interface.

	Right	Left
Main Interface Display		

9. Speed/Distance On/Off

   Options: On / Off.

   Once selected, the main interface will show or hide the speed/distance display.

	On	Off
Settings UI Icons		
Main Interface Display		

10. Screen Mode

    Mode Selection: You can choose between Always-On Mode and Smart Mode.

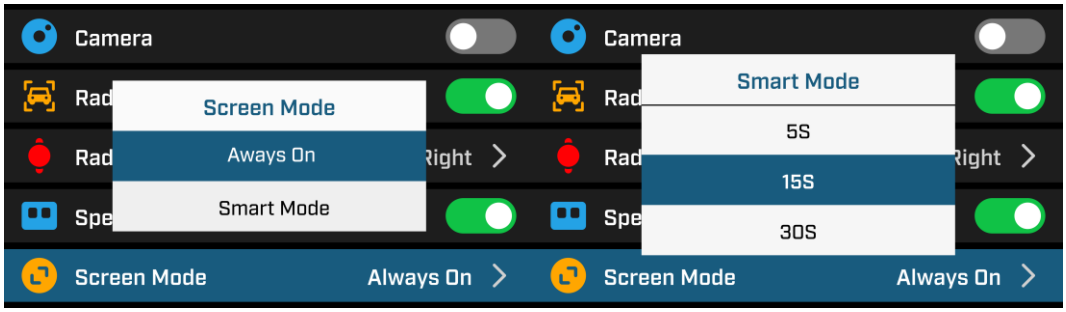
    *Smart Mode：

    Screen Off: When the radar detects no approaching vehicles, the screen will automatically turn off after a set duration.

    Screen On: The screen will automatically light up when the radar detects an approaching vehicle from behind.

    Duration Options: You can set the screen-on duration to 5 seconds, 15 seconds, or 30 seconds.

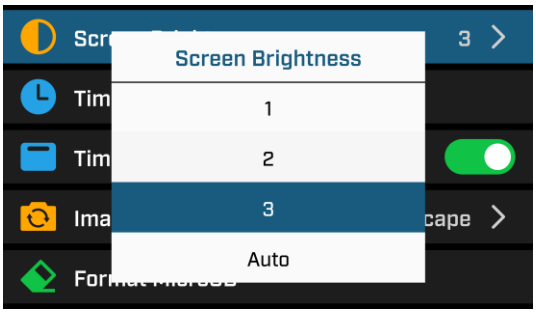
    Manual Wake-up: If the system has turned off the screen due to no traffic, short-pressing any button will manually wake up the screen.



11. Screen Brightness

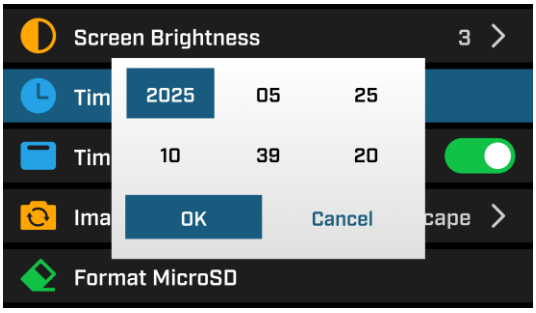
    Selectable levels include 1, 2, 3, and Auto.

    Auto Mode: The screen brightness will automatically adjust based on the ambient light conditions.



12. Time Setting

Allows you to set the current date and time.



13. Time Display On/Off

Options: On / Off.

Once selected, the Date and Time will be shown or hidden on the main interface.

	On	Off
Settings UI Icons		
Main Interface Display		

14. Image Rotation

Select between Landscape and Portrait orientation.

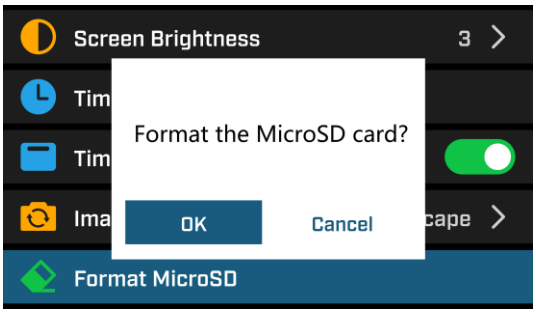
Once selected, the main interface will display the video in the chosen format.

	Landscape	Portrait
Main Interface Display		

15. Format MicroSD

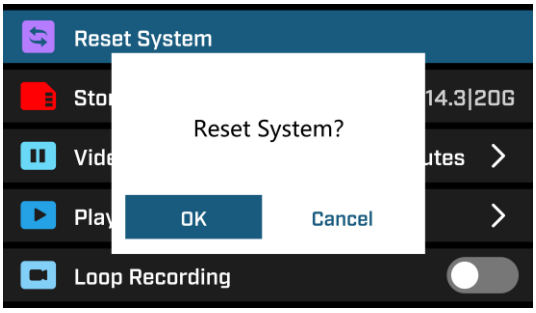
You can format the microSD card through the settings menu.

We recommend formatting the card upon insertion to ensure optimal video recording performance.



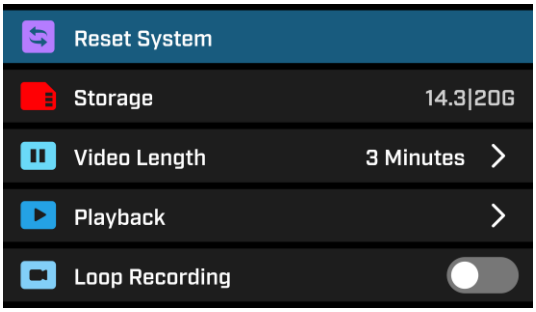
16. Reset System

    Allows you to perform a system reset.

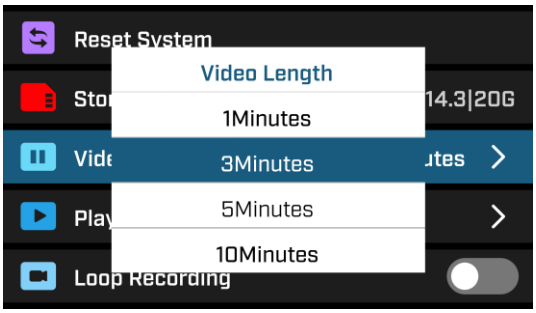


17. Storage

    Storage Info: Available / Total Capacity



18. Video Length: You can choose from 1 minute, 3 minutes, 5 minutes, or 10 minutes.



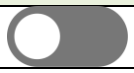
19. Playback

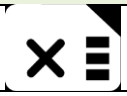
    Please refer to Section 8: Playback.

20. Loop recording On/Off

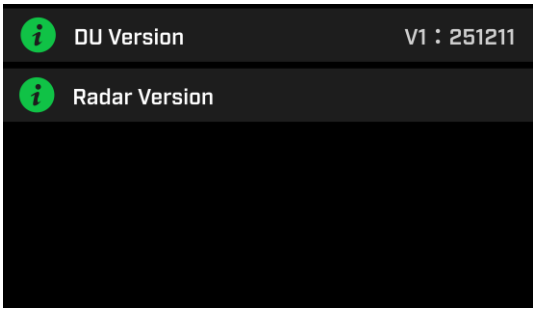
    Options: On / Off.

    The selected item will be indicated on the main interface.

	On	Off
Settings UI Icons		

	No Card	Card Mounted	Recording	Card Full	Loop Recording
Main Interface Display Icons					

21. DU Version
    Displays the current firmware version of the Display Unit.
22. Radar Version
    Displays the current firmware version of the Radar.



10. Maintenance

• Keep the camera lens clean.
• The water resistance rating is IP56; do not immerse the device in water for long periods or leave it exposed to rain outdoors for extended durations.
• When removing the Front Display Unit or the Radar Taillight Camera, please use the protective cap attached to the Type-C cable to cover the cable connector.
• Avoid high temperatures and chemical solvents.
• Please use a 5V/2A USB charger for charging.

11. Technical Specifications

Front Display Unit:

Feature	Specification
Dimensions	123.2 × 81.2 × 23.35 mm
Display	4.3 inch IPS LCD
Battery Type	Lithium Battery
Battery Capacity	7000 mAh
Power Input	DC 5V/2A (USB-C)
Operating Temperature	-10°C~50°C
Charging Temperature	-10°C~50°C
Storage	micro SD (8–256GB) (Not included)
Water Resistance Rating	IP56
Weight	Approx. 235g

Rear Radar Taillight Camera:

Feature	Specification
Dimensions	97 × 36.28 × 22.5 mm
Radar Frequency	24 GHz
Radar Detection Distance	Up to 190 meters
Max. Radar Target Count	8 simultaneous objects
Taillight Viewing Angle	220°
Taillight Visible Distance	1.6 kilometers
Taillight Max. Brightness	65 lm
Camera Minimum Illumination	0.1 Lux
Camera Video Resolution	Up to 1080p
Operating Temperature	-10°C~50°C
Water Resistance Rating	IP56
Weight	Approx. 40g

Mounts and Cables:

Item	Specification
Mount - Main Front Display Unit	Applicable pipe diameter: 20.0~50.0mm
Mount - Radar Taillight Camera	Applicable pipe diameter: 27.0~36.0mm
Dedicated Data & Power Cable	Cable length: 2 meters
Charging & Firmware Update Cable	Cable length: 1 meter

12. Troubleshooting

⚠️ WARNING: If data transmission is interrupted or abnormal, please find a safe location to check the device. Failure to do so may result in serious injury or death.

- No image on the screen → Check the power supply and cables.
- No radar detection → Ensure the radar taillight camera is not obstructed.
- Memory card full → Replace the memory card or delete old files.