



Roview3

User manual



BEFORE USE

Ensure that you fully understand and comply with the rules and laws governing the use of drones.

The Multinnov Roviev 3 is a drone for professional use and must not be used by persons under the age of 18.

Environment:

- Do not use the Roviev2 on public roads, particularly near motor vehicles or animals, whether domestic or wild.
- Do not use the device in environments where the temperature is below -20°C (-4°F) or above +45°C (113°F).
- Do not use the Roviev2 in rough environments that prevent it from operating properly or pose a risk of the equipment falling.
- Do not use the device near areas with magnetic or radio interference, including Wi-Fi access points, routers, Bluetooth devices, high-voltage power lines, large power stations, radar stations, mobile base stations and broadcasting towers.

Operations:

- The Roviev 2 has moving parts (camera head, wheels). Keep away from the machine when it is powered on (risk of pinching).
- Do not turn the camera head manually, as this may damage the cable harness.
- Ensure that the batteries in the device and the radio control are fully charged.
- Familiarise yourself with the selected modes and all warnings and safety features.

Battery safety notice:

- Do not allow liquids to come into contact with the batteries. Do not leave the batteries covered in moisture or in the rain.
 - Do not drop the batteries in water. Failure to do so may result in an explosion or fire.
 - Do not use batteries other than those supplied by Multinnov. It is recommended that you use the chargers supplied by Multinnov.
 - Do not use batteries that are swollen, damaged or leaking. In such cases, contact Multinnov or an authorised dealer.
 - Batteries must be used at temperatures between -20 and 45°C. High temperatures may cause an explosion or fire. Low temperatures will reduce battery performance.
 - Do not disassemble or puncture the battery in any way.
 - Battery electrolytes are extremely corrosive. If electrolytes come into contact with your skin or eyes, immediately wash the affected area with water and seek medical attention.
 - Keep batteries out of the reach of children and pets.
 - Do not use a battery if it has been subjected to a significant impact or if it has been dropped.
 - If the battery catches fire, extinguish the fire using sand or a dry powder fire extinguisher.
 - Do not recharge the battery immediately after use. The battery temperature may be too high and could severely damage the battery. Allow the battery to return to room temperature before charging.
- Charge the flight battery within a temperature range of 5 to 40 °C (41 to 104 °F). The ideal charging temperature range is 22 to 28 °C (72 to 82 °F). Charging the battery within the ideal temperature range can extend its life.
- Do not leave the battery near a heat source such as a boiler or radiator.
 - Do not leave the battery inside a vehicle in hot weather.
 - Do not store the battery for an extended period of time if it is completely discharged. Excessive discharge of the battery may permanently damage the battery cells.

Disclaimer:

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SUMMARY

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01

PREPARATION OF THE DEVICE



Battery charging

RADIO CONTROL:

Before each mission, check the battery charge status.

To recharge the radio control, connect the USB cable to the 'USB Port' (see orange arrow).



GENERAL INFORMATION ROVIEW 3 BATTERIES

Charge	Absolute minimum	Min. operating voltage	Minimal	Maximal
1 Cell (1S)	3.0 V	3.5 V	3.7 V	4.2 V
Total (4S)	12.0 V	13.5 V	14.8 V	16.8 V

NB: If the battery reaches a voltage outside its operating range, it must not be used under any circumstances. Dispose of it in the appropriate recycling bins after neutralising it.

BATTERY RECHARGING



1. Connect the charger to the power source.
2. Connect the battery balancing plug (white plug) to the balancing plug.
3. Connect the battery to the charger by plugging the XT60 plug (yellow plug) into the connector.
4. Set the charging parameters to 'LiPo' mode and set the charging current to 5.0 A by accessing the various menus using the 'Enter/Settings' button.
5. Once the parameters have been checked, start charging by selecting the 'Start Task' option and then pressing the 'Enter/Settings' button.

NB: The charging process takes place in two phases: initially, charging takes place at a constant current (A) until the maximum voltage is reached. Then, charging continues at a constant voltage (V); the current then gradually decreases until the battery is fully charged. The transition between the two phases is entirely automatic and requires no intervention. An audible signal indicates the end of the charging cycle.

Wheel assembly

WHEEL INSTALLATION

Align the wheel with the axle, then adjust it in the direction of the screws so that it fits easily without forcing.



Next, insert the screw into the centre of the wheel, then tighten firmly until the wheel is securely held in place.



Battery placement

BATTERY INSTALLATION

Insert the battery into the compartment provided, ensuring it is positioned correctly for a proper fit.



Plug the balancing plug into its designated socket, ensuring that it is inserted correctly.



Plug the power plug into its designated socket, ensuring that it is connected in the correct direction.



Installing the SD card

INSTALLING THE SD CARD

Unscrew the cap on the turret to easily access the SD card slot.



Insert the SD card into the slot, following the direction indicated on the cap for correct alignment.



02

OPERATION RADIO CONTROL



Fonctionnement radiocommande

GETTING STARTED WITH THE RADIO CONTROL



Do not update the radio control if an update is offered.

If necessary, or if you have any questions, please contact our customer service department before performing any operation.

To ensure the equipment functions correctly, first switch on the radio control, then open the Multinnov application on it. Finally, connect the battery to your Review 3, strictly following this order.

1. Directional antenna
2. Omnidirectional antenna
3. Camera control joystick
4. Direction control joystick
5. Radio control power button

AZ SCREEN RECORDER APPLICATION

To get started, below you will find a guide to getting started with the radio control, as well as an overview of its main features, including video recording and photo taking. This guide will help you understand and use each control effectively from the very first time you use it.



1.



2.



3.



4.

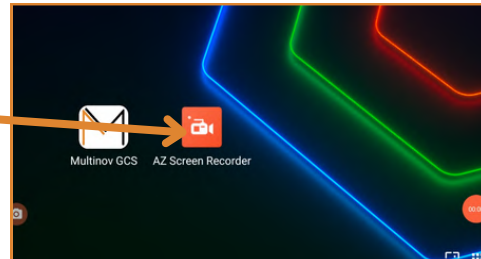


5.

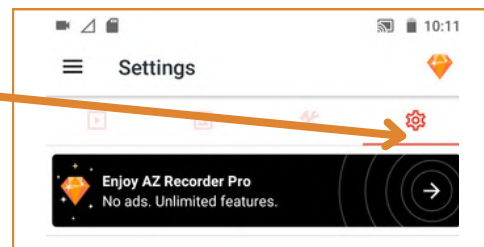
1. Press and hold the power button to turn on the screen.
2. Press and hold the 'photo' icon, then drag it to the bottom of the screen to make it easier to use in line with the video icon.
3. To capture a photo of your screen, tap the 'photo' icon.
4. To start the video recording function, first tap the 'video' icon and then tap the camera icon.
5. Once selected, the icon allows you to start or stop recording as needed.

If you change your SD card, please follow the instructions below to avoid any unpleasant surprises during inspections.

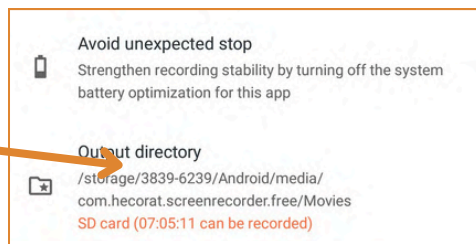
Click on the AZ Screen Recorder app. The remote control will automatically switch to portrait mode.



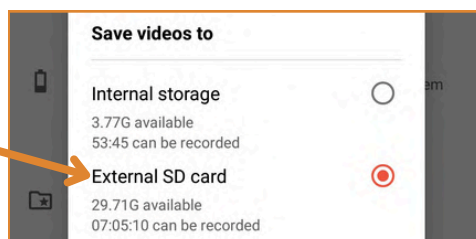
Click on the Settings icon in the Settings menu.



Scroll down to the Stability Options section and click on Output Directory.



Select External SD Card, tick the box 'I have read carefully', then click 'OK, I understand'.



Once these steps have been completed, your SD card is correctly configured and you can start recording your future inspections with Review 3.

MULTINNOV GCS APPLICATION



- | | |
|--|---------------------------------------|
| 01. Increase LED lighting level | 09. Measurement cross settings |
| 02. Decrease LED lighting level | 10. RSSI signal |
| 03. Forward and reverse (camera refocusing) | 11. Distance travelled |
| 04. Machine battery level | 12. Elevation |
| 05. Horizontal orientation angle | 13. Operating time |
| 06. Measurement cross scale | 14. Measurement laser |
| 07. Vertical orientation angle | 15. Machine inclination |
| 08. Take photos and videos | 16. Artificial horizon compass |



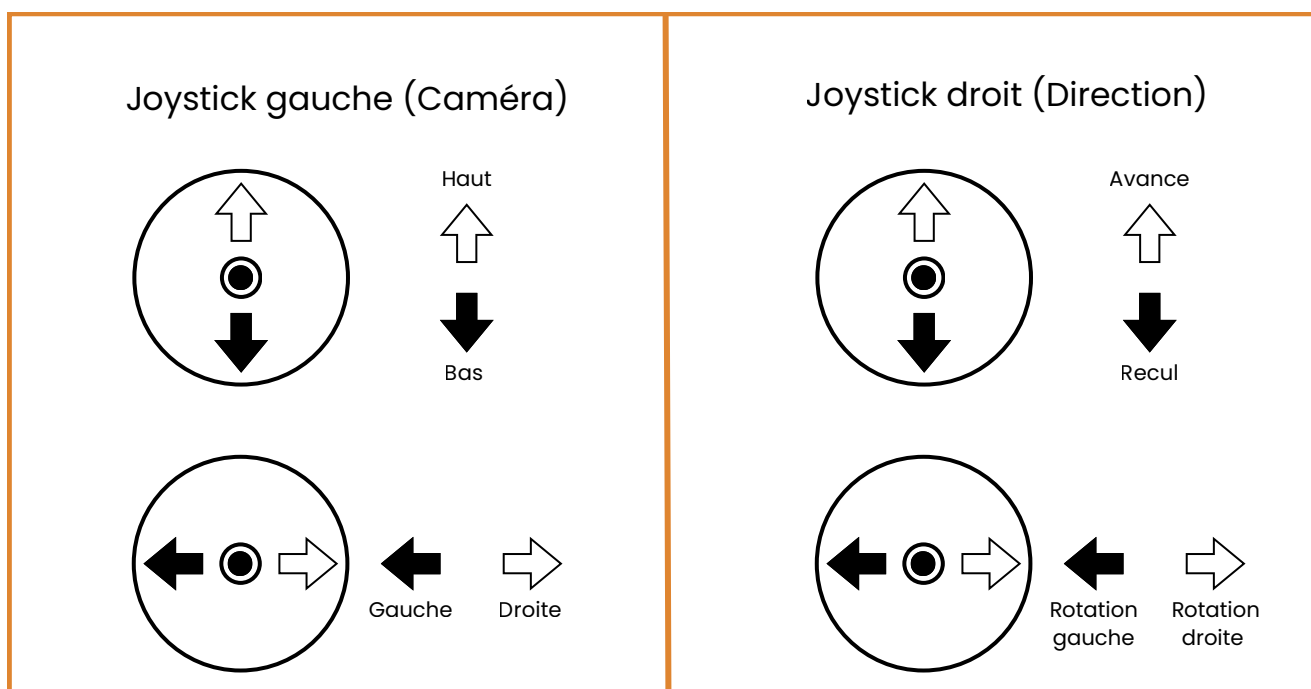
03

CONTROL AND FEATURES

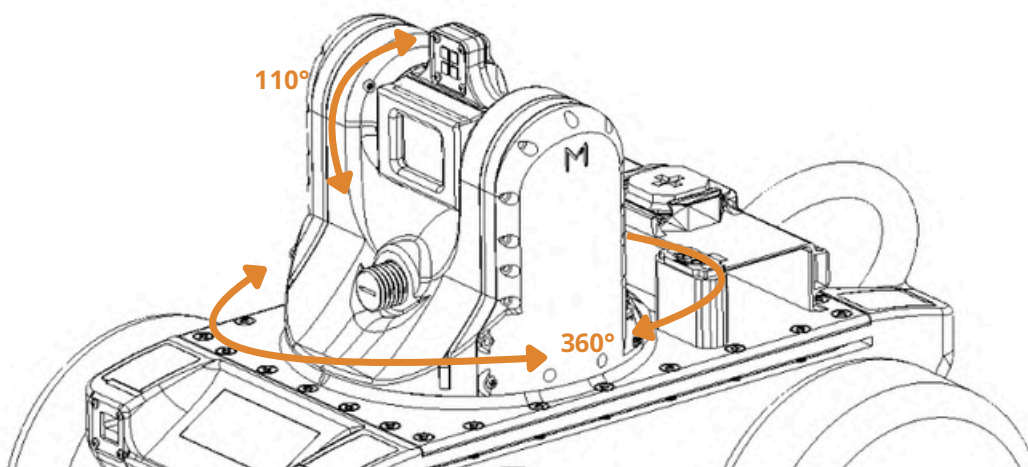
Control and features

MACHINE CONTROL

The machine is controlled via joysticks, allowing for simple and precise handling. Each movement activates a specific function to ensure efficient control.



When rotating on the spot, ensure that the joystick remains perfectly aligned with the horizontal axis.



THE TURRET

Before use, please note: the turret is equipped with physical stops. Do not force it to rotate by hand to avoid any risk of damage.



This is the default forward view (Front F). This icon indicates the forward direction of travel.



This is the rear view (Reverse R). This icon indicates reverse gear.

For both modes, a short press automatically centres the turret in the selected view mode. A long press switches between the two view modes.

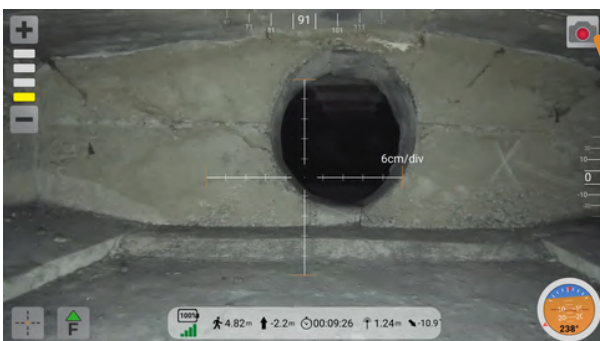
The distance is calculated according to the active view mode: in forward mode, the distance is added normally; in reverse mode, the distance travelled is subtracted from the distance already covered.

PHOTOGRAPHS AND VIDEOS

To capture photos or record videos, follow these steps:



To capture a photo with the Roving 3 camera, tap the camera icon once.



To start recording video, press and hold the camera icon. A red dot will flash to indicate that recording has started.

LED ADJUSTMENT

You can adjust the intensity of the LEDs according to your needs to optimise visibility and lighting. The following steps will guide you through the configuration process.



Press the “+” button to increase the brightness of your LED panels.



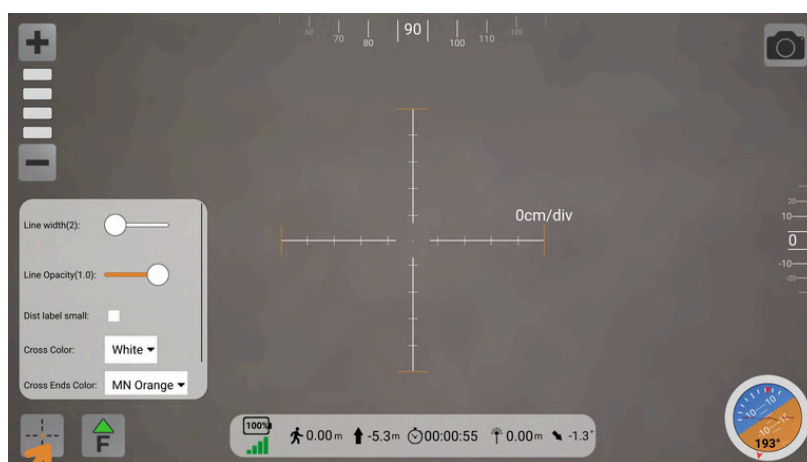
Press the “-” button to reduce the brightness of your LED panels.



You can adjust the brightness of your Roviev 3 to four different levels, ranging from 0 to 100 per cent in increments of 25 per cent.

MIR CONFIGURATION

You can customise your measuring cross by accessing the configuration page, where you can adjust its settings according to your preferences.



For the crosshairs, a short press allows you to show or hide them, while a long press gives you access to the detailed crosshair settings.

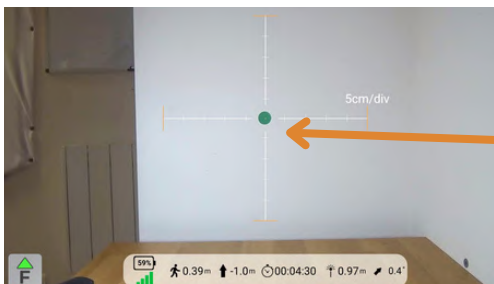
TURRET CALIBRATION



**In its original configuration, the turret is correctly centred.
Calibration is only required if the turret is found to be offset or misaligned.**



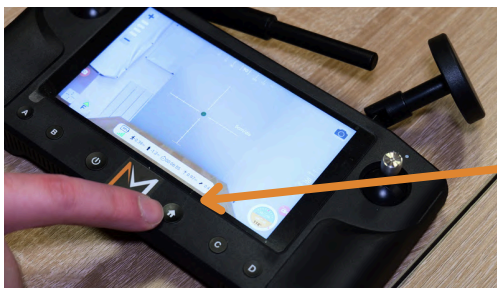
Ensure that the turret is indeed misaligned. To do this, press the turret centring button. If no change is observed, proceed to the following steps.



Use the joysticks to centre the turret, using the visual markers on the machine as a guide.



Use this mark as a reference to precisely centre the turret.



Press 1s the 'Home' button to set the new centre of the turret, as shown in the photo.

04

MEASURING TOOLS



Measuring tools

HORIZON AND COMPASS

The artificial horizon indicates the tilt of the Roview 3 on the X and Y axes. It shows the ground in orange and provides a clear view of the Roview's orientation from a distance, without having to refer directly to the camera.



The Roview 3 is capable of simulating a compass, indicating its orientation based on its initial position at start-up. The compass indicates the orientation of the Roview using a red arrow rotating around the artificial horizon.



An alert signals the stability limit set at 30° on each axis to prevent the rover from tipping over. The critical limit is set at 45°.

TURRET AND CAMERA ORIENTATION

The vertical axis (7), see next image, corresponds to the camera's angle of orientation. It ranges from 90 to -20°.

The horizontal axis (5), see following image, corresponds to the angle of orientation of the turret. The angle starts at 0° on the left and increases clockwise to 360° when the turret completes a full rotation.





1 ODOMETER

The Roviev 3 measures the distance travelled using encoders built into its motors. The value increases when the Roviev 3 moves forward and decreases when it moves backward. You can reset the measurement by double-clicking on the value.

2 ALTIMETER

The Roviev 3 features an altimeter that allows you to check your altitude relative to your starting point. You can reset the value to set a new zero level by quickly pressing the altitude measurement button twice.

3 STOPWATCH

When the Roviev 3 is connected, a timer automatically starts to indicate the duration of the mission. The time is displayed in Hours:Minutes:Seconds format in the grey box at the bottom of the screen. The timer is reset each time the battery is changed.

4 TELEMETER

The head of the Roviev 3 is equipped with a laser rangefinder that targets the centre of the measurement crosshair, allowing the distance between the observed object and the camera to be determined.

5 TILT METER

The Roview 3 is equipped with sensors that measure its inclination. The slope indicator can be reset by double-clicking on the measurement to set the current level. The zero level is initialised when the machine is started. Ensure that you start your Roview 3 on a flat surface.

6 MEASURING ROD

The measuring sight located in the centre of the screen allows you to assess the size of the object positioned in this area.

This measurement is reliable for any object located between 10 cm and 13 m away. It is carried out using the graduated scale displayed on the right of the sight, which indicates the value corresponding to one division.

In the example shown, the object is 65 cm away (distance verified with a laser rangefinder) and the scale is set to 3 cm per division, as shown by the orange indication.

To determine the size of the object, simply count the number of visible divisions and multiply this number by the value on the scale.





05

ACCESSORIES AND EQUIPMENT

Accessories and equipment

RANGE EXTENDER

It works by maintaining RF signal continuity when obstacles such as walls or unfavourable geometry threaten to attenuate or cut off transmission.

It can be used in any type of environment, including pipes, tunnels and manholes.

To proceed with installation, remove the right antenna from the radio, then connect the range extender plug as shown below:



It is important to orient the range extender correctly in relation to your inspection trajectory.

The side with the M logo must be positioned in the same direction as the machine, while the metal side corresponds to the signal transmitter/receiver.



ADDITIONAL SCREEN

It is possible to connect an additional screen to obtain a second view of the mission.

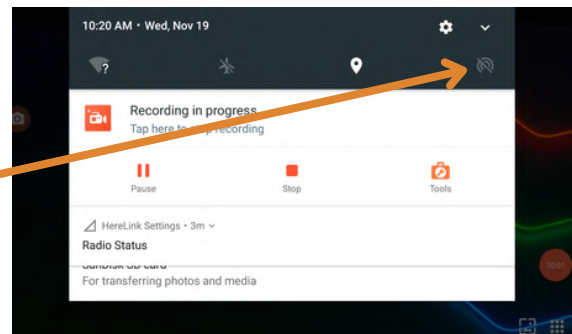
This screen will display the video feed received by the control radio, which can be particularly useful for a second operator. This operator will be able to monitor the mission and view elements that the remote pilot cannot see directly.

To benefit from a second view of the mission, follow the steps below to connect an additional screen correctly.

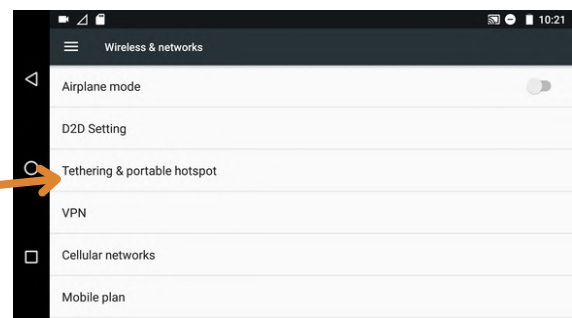
Radio control settings:

Open the drop-down menu at the top of the home screen.

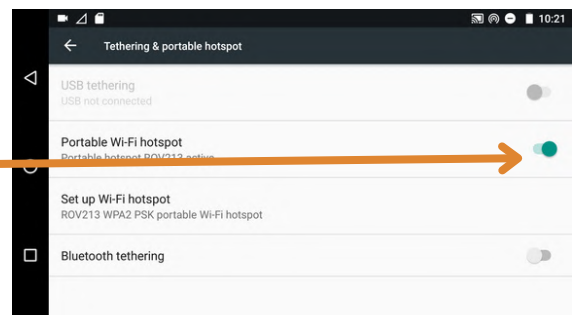
Once the menu is open, press and hold the connection sharing icon.



Once you have pressed and held, this window will open. Then click on Tethering & Portable Hotspot.



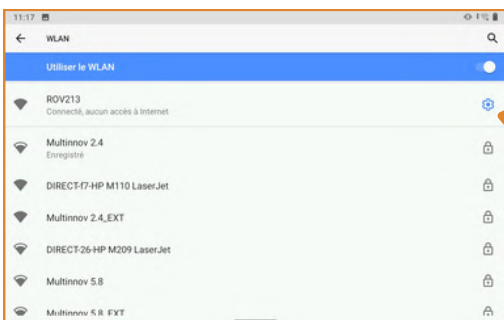
Enable the Portable Wi-Fi Hotspot option, which will activate connection sharing and transmit the video stream to your tablet.



Tablet settings:

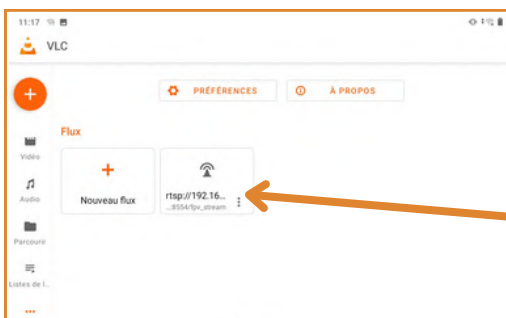


From your tablet's home screen, go to the Settings menu.



Once in the Settings menu, go to Network and Internet, then WLAN.

Select the Roviev network (ROV...) displayed in the list and connect to the network offered to you.



Once you have completed the previous steps, return to the home screen and open the VLC application.

Select the RTSP stream. If it does not appear in the list, you can add it manually by entering the following address:

`rtsp://192.168.43.1:8554/fpv_stream`



Then click on the RTSP stream, wait a few moments, and your video feedback will appear.

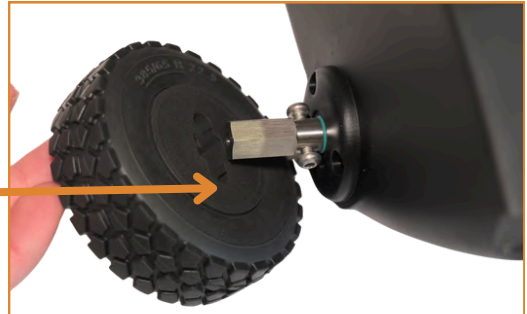
Plusieurs médias ne peuvent être lus

If this message reappears in the VLC stream window, please restart the application.

400 MM WHEEL

To install your 400 mm wheels, please follow the instructions below carefully. Following these steps will ensure that your wheels are fitted securely and optimally, thus ensuring that your equipment functions properly.

Align the wheel with the screws so that it fits correctly.



Once the wheel is correctly positioned, insert the screw and tighten it securely.



WHEEL BLADES

Align the blades inside the wheel and place the screw in the axle.



Using the spanner supplied with the blades, tighten the screw to hold the blade in place.



Use outside of water may damage the blades.

06

TECHNICAL SPECIFICATIONS



Technical specifications

All the essential technical information about the Roviev 3 is gathered here to give you a complete overview of its capabilities.

CONFIGURATION	Fixed steering - differential rotation
ENGINES	4 motors - 100 rpm
AUTONOMY	Over 2 hours
WEIGHT	5.6 kg
DIMENSIONS	42.5 / 35 / 32cm L x l x H
MATERIALS	SLA resin (shell) - Aluminium
OPERATING TEMPERATURES	-20°C to +40°C
SECURITY	Rollover warning from 30°.
FREQUENCY OF USE	2400 to 2483 MHz
EMC	2.4ghz 20dbm (CE)
TOTAL POWER	16 000 lumens
BATTERY TYPE	LIPO
CHARGING TIME	1 hour
VOLTAGE	14.8V (4S)
CAPACITY	5000 mah

Camera

The technical specifications of the Roviev 3 camera are detailed here to highlight its main features.

SENSOR	4K Sony IMX 117 / 12MP
VIDEO FORMAT	MP4
PHOTO FORMAT	JPG
VIDEO RESOLUTION	3840/2160 - 30 fps
PHOTO RESOLUTION	3840/2160
VIDEO STREAMING	1920/1080 - 30 fps
FOV	110° diagonal / 90° horizontal
LENS	2.1 mm - focus
ISO	automatic management
FILE BACKUP	micro SD card
SUPPORTED SD CARDS	32 - 128 Go (suggested capabilities) U3
SUPPORTED FORMATS	FAT 32

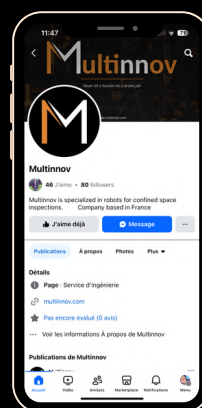
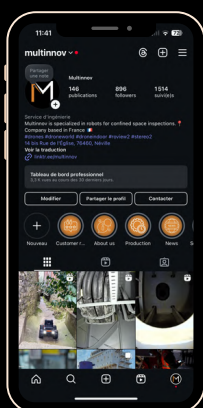
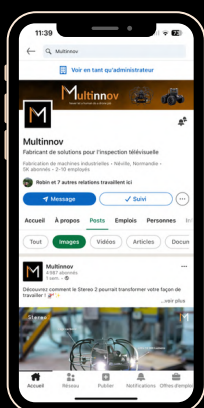
Radio control

This section presents the main technical specifications of the Roviev 3 radio control, allowing you to fully understand its features and performance.

OPERATING FREQUENCIES	2 400 to 2483 Mhz
STANDARDS	CE / SRR / FCC / MIC
OPERATIONAL STANDARDS	IN84 (CNPE - emissions <50mW)
CEM	2.4 GHz
RADIO LINK	Duplex
OUTDOOR RANGE	12 km (CE) / 20 km (FCC)
CONFINED SPACES RANGE	Up to 1000 m
RADIO DIMENSIONS	5.46-inch touchscreen
WEIGHT	520 g
OPERATING TEMPERATURE	-20°C to +40°C
BATTERY	Lipo 4950 mAh / USB charging
RECEPTION SENSITIVITY	-120 dBm
ANTENNAS	1 Omnidirectional / 1 directional

Multinnov

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