



Stereo 3

User manuel



BEFORE USE

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

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

Environment:

- Do not use the Stereo 3 on public roads, particularly near motor vehicles or animals, whether domestic or wild.
- Do not use the Stereo 3 in rough environments that prevent it from flying 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 plants, radar stations, mobile base stations, and broadcast towers.

Operations:

- The Stereo 3 has moving parts. Stay away from the machine when it is powered on (risk of cuts).
- Do not manually rotate the camera head, as this may damage the cable harness.
- Make sure that the batteries in the device and the radio control are fully charged.
- Familiarize 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 could 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 authorized 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 the 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 severely shocked or 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:

By using this product, you confirm that you have read, understood, and accepted the terms and conditions set forth herein. EXCEPT AS EXPRESSLY PROVIDED IN MULTINNOV'S AFTER-SALES SERVICE POLICIES, THE PRODUCT AND ALL OF ITS MATERIALS, AS WELL AS ALL CONTENT AVAILABLE THROUGH THE PRODUCT ARE PROVIDED "AS IS" AND "AS AVAILABLE," WITHOUT WARRANTY OR CONDITION OF ANY KIND. YOU ASSUME ALL RISKS FOR ANY DAMAGE RESULTING FROM YOUR ACCESS TO THE PRODUCT, PRODUCT ACCESSORIES, AND ANY MATERIALS, OR YOUR USE OF THESE ITEMS. YOU UNDERSTAND AND AGREE THAT YOU USE THE PRODUCT AT YOUR SOLE DISCRETION AND RISK, AND THAT YOU ARE SOLELY RESPONSIBLE FOR ANY INJURY, DEATH, DAMAGE TO ANY PROPERTY, OR LOSS OF DATA RESULTING FROM YOUR USE OF THE PRODUCT OR YOUR INABILITY TO USE IT. SOME JURISDICTIONS MAY NOT ALLOW THE EXCLUSION OF WARRANTIES, AND YOUR RIGHTS MAY VARY FROM JURISDICTION TO JURISDICTION. Multinnov disclaims all liability for damage, injury, or problems arising directly or indirectly from the use of this product. The user agrees to comply with safety instructions and legal practices, including, but not limited to, those set forth in these safety instructions.

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01

PREPARING THE DEVICE



Charging batteries

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). (Diagram on page ...)



GENERAL INFORMATION STEREO BATTERIES 3

Charge	Absolute minimum	Minimum operation	Nominal	Maximal
1 Cellule (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. Configure the charging settings 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 settings have been verified, start the charge by selecting the 'Start Task' option, 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.

Assembly of the carbon cage

CARBON CAGE

When replacing the hoops on your carbon cage, please carefully follow the steps below to ensure correct and secure assembly.

Position two hoops at opposite ends, then insert them between the upper and lower strapping.



Then attach two more hoops to the opposite ends.



Insert the four hoops into the remaining notches to complete the assembly.



Installation of propellers

PROPELLER CHANGE

When replacing the propellers, refer to the specific instructions and carefully follow the steps indicated to ensure safe and optimal operation.

Place the Stereo 3 upside down on a stable surface, then carefully unscrew the top screw.



Place your hand under the propeller and push firmly upwards, while maintaining pressure on the motor shaft to keep the dome in position.



Refit the new propeller in the same direction as shown in the photo.



Scan this QR code to access the propeller assembly video. <https://youtu.be/wZMNEcusST4>



Battery placement

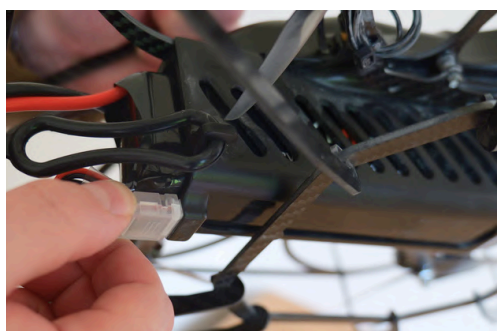
BATTERY INSTALLATION

To install the battery in its compartment, please carefully follow the steps below, without omitting any.

Insert the battery in the direction shown in the photo.



Connect the balancing plug, which is electrically inert, ensuring that it is correctly oriented and that the connector is not forced.



Tighten the elastic by gently pulling the tab downwards to prevent contact with the propellers.



Connect the drone's yellow XT60 plug, ensuring that it is correctly aligned and securely engaged to guarantee a safe electrical connection and prevent any risk of accidental disconnection.



Internal storage

SSD HARD DRIVE

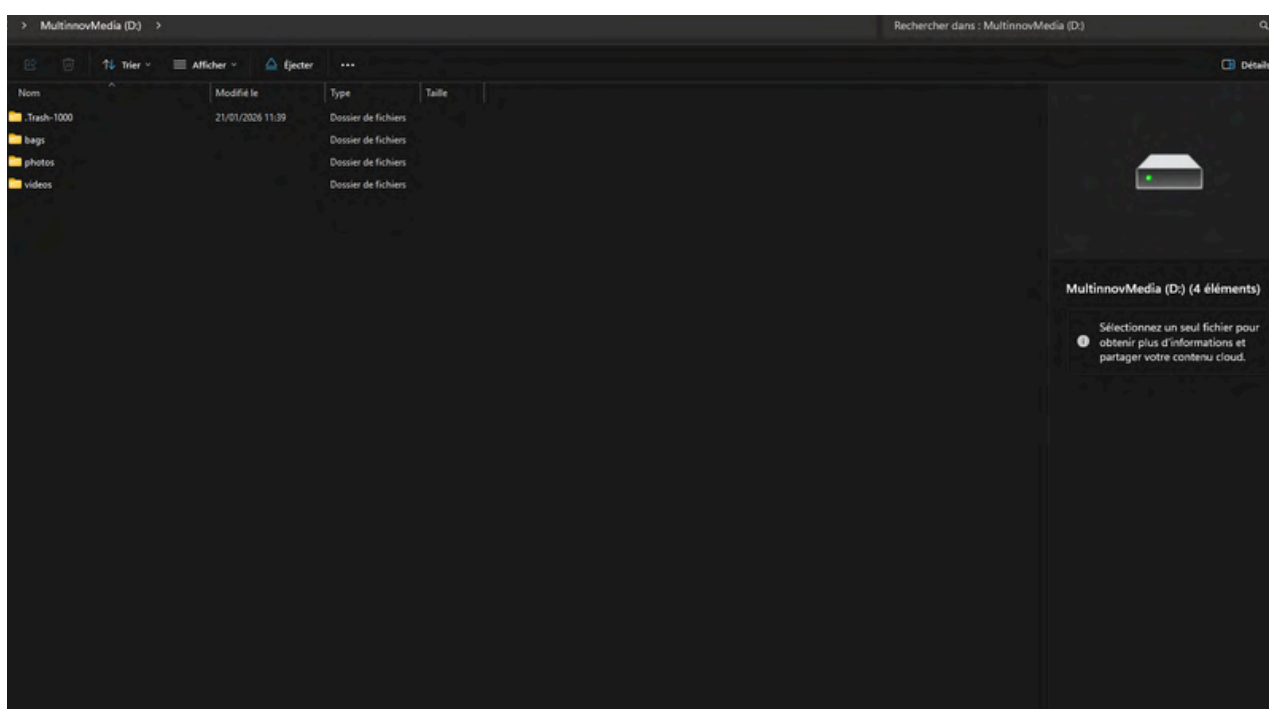
To access the videos captured by the camera, insert a battery into the drone and turn it on, then connect the Stereo 3 to a computer using the USB-C cable via the SSD port located on the side of the drone.

Do not arm the drone while the USB cable is connected.



Please connect the USB-C cable to the port identified in the photo to ensure connection to the system.

Once connected, the Multinnov Media disc will be automatically detected by your PC, allowing you to access the Photos and Videos folders.



A full-page background image of a worker in a white helmet with a headlamp and an orange safety vest. The worker is holding a handheld electronic device with a screen displaying a graph. The vest has 'Multinnov' and 'edf' logos. The scene is dimly lit, with the headlamp providing a focused light on the worker's face and the device.

02

RADIOCONTROL OPERATION

Radiocontrol operation

HANDLING OF THE RADIOCONTROL



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

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

To ensure the equipment works properly, first switch on the radio control, then open the Multinnov app on it. Finally, connect the battery to your Stereo 3, strictly following this order.

1. Omnidirectional antenna
2. Directional antenna
4. Joystick steering control
5. Radiocontrol power button
6. Assisted mode button
7. Manual mode button
8. Joystick controls power and orientation
9. Camera rotation wheel
10. Dual-camera view

Always restart the QGC application after each battery change.

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.

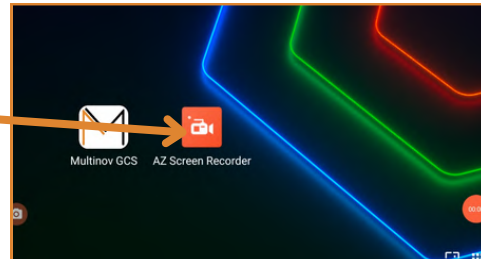


5.

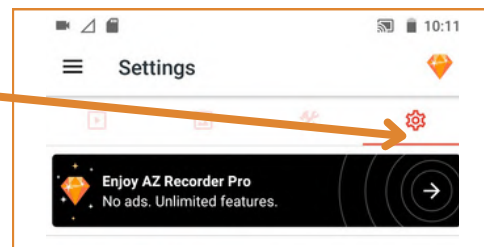
1. Press and hold the power button to turn on the screen.
2. Press and hold the "photo" icon, then drag it to the bottom of the screen for easier use in line with the video icon.
3. To start the video recording function, first tap the "video" icon and then tap the camera icon.
4. Once selected, the icon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

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

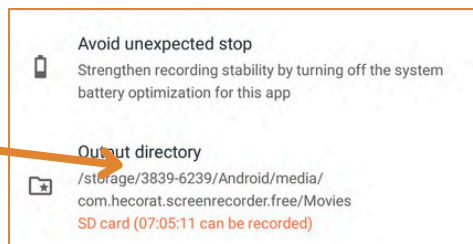
Click on the AZ Screen Recorder app. The remote control will automatically switch to portrait mode.



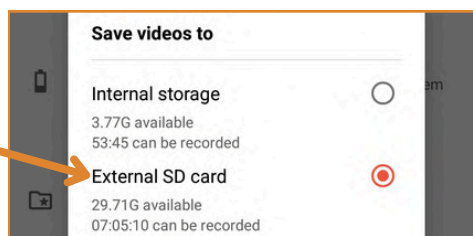
Cliquez sur l'icône Paramètres dans le menu Settings.



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

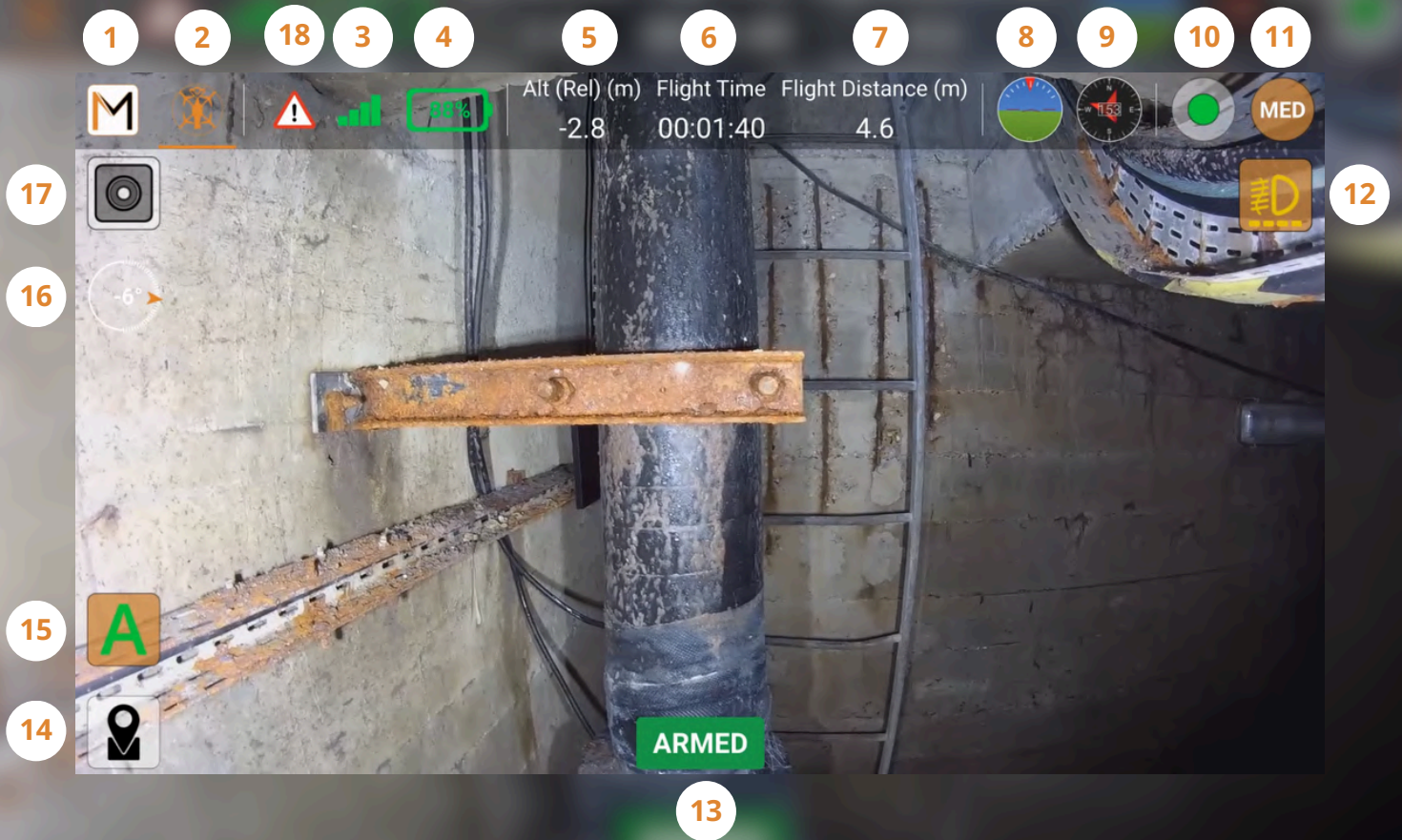


Select External SD Card, tick the box 'I have read carefully', then click 'OK, I understand'.



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

MULTINNOV GCS APPLICATION



- 01. Multinnov parameter
- 02. Camera view return
- 03. RSSI signal
- 04. Machine battery level
- 05. Altimetry
- 06. Flight time
- 07. Distance travelled
- 08. Artificial horizon

- 09. Compass
- 10. Trusted witnesses
- 11. Speed mode
- 12. Lighting settings
- 13. Arm/disarm
- 14. Map
- 15. Flight mode
- 16. Camera angle indicator
- 17. Photo and video capture button
- 18. QGC message console

03

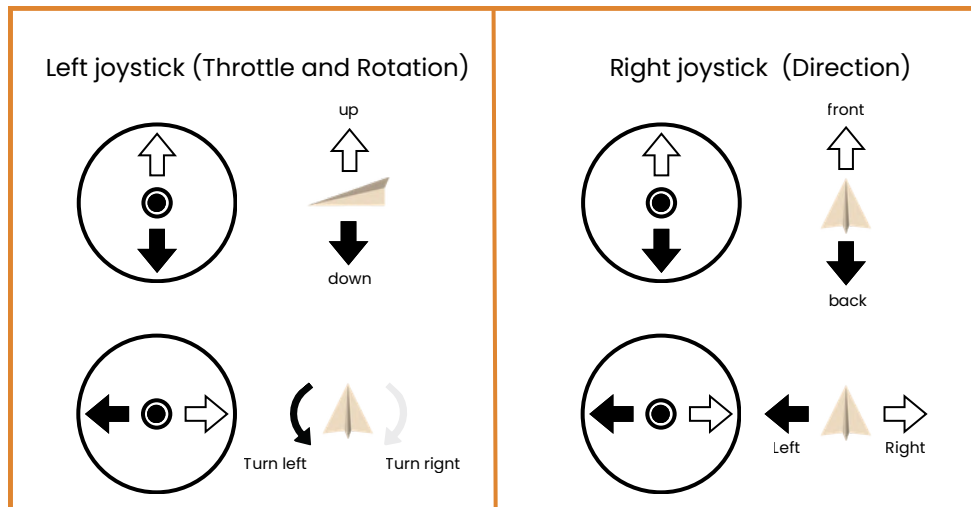
CONTROL AND FEATURES

M
TÉLÉPILOTE

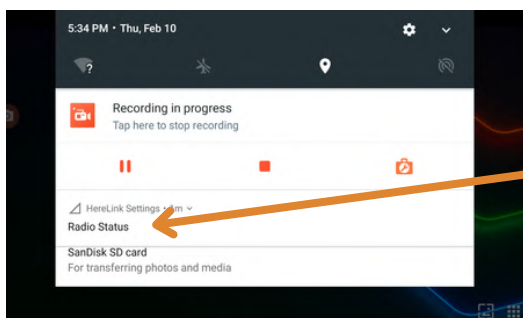
Control and features

MACHINE CONTROL

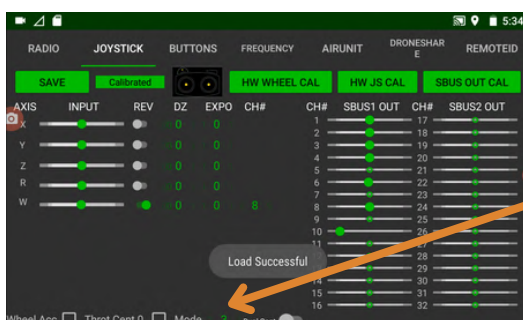
The machine is controlled via joysticks, allowing for simple and precise handling. Each movement activates a specific function to ensure efficient control.



PS: The drone is configured in Flight Mode 2 by default.
You can change your drone's flight mode by following the procedure below.



Click the 'Radio Status' button to access the flight mode settings.



Slide the numbers to set your preferred flight mode.

FLIGHT MODES

The Stereo 3 uses two odometric cameras to stabilise the drone. When these cameras are active, the drone flies in Assisted mode, similar to a GPS-enabled drone.

If the cameras are not in use, the drone switches to Manual mode: it automatically maintains its attitude, while altitude is controlled by a barometer. In confined environments, however, air turbulence can cause slight variations in altitude maintenance.



In 'Assisted' mode, the Stereo3 provides automatic stabilisation and actively maintains its position in space.



In 'Manual' mode, the device stabilises its pitch and altitude. When a loss of stabilisation is detected, the corresponding process is automatically restarted. Assisted mode is reactivated as soon as environmental conditions permit.

STABILISATION

The performance of camera stabilisation is assessed in real time and communicated to the user by means of an icon displaying three distinct levels.



The environment in which the drone operates provides optimal conditions for stabilisation. Using 'Assisted' mode is therefore recommended.



The cameras are experiencing some difficulties, but stabilised flight remains possible. However, any further deterioration in the environment must be monitored. In this context, it is recommended that an alternative route be considered.



The environment is too homogeneous for the cameras to provide reliable stabilisation. The drone will then automatically switch to 'Manual' mode. If this situation persists, the visual indicator will turn grey.

The drone automatically adjusts its flight mode based on the tracking quality of the stabilisation cameras, in order to simplify and secure piloting.

However, it is possible to force Manual mode by pressing button A.

To return to normal operation in Assisted mode, press button B.

PHOTOS ET VIDEOS

To capture photos or record videos, follow these steps:

To capture a photo with the Stereo 3 camera, press 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

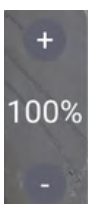
You can adjust the intensity of the LEDs according to your needs to optimise visibility and lighting. The following steps will guide you through the configuration process.



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



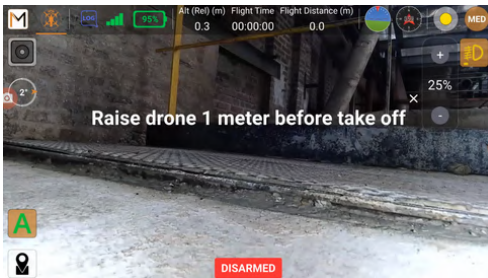
Press the '-' button to reduce the brightness of your LED panels.



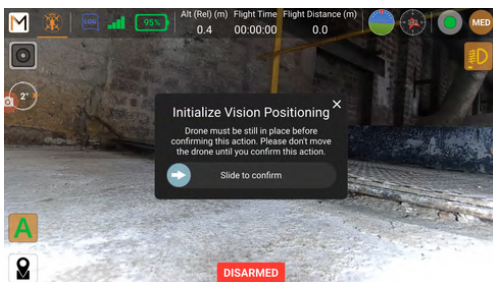
You can adjust the lighting on your Stereo 3 to 4 levels of intensity, ranging from 0 to 100% in increments of 25%.

TAKE-OFF

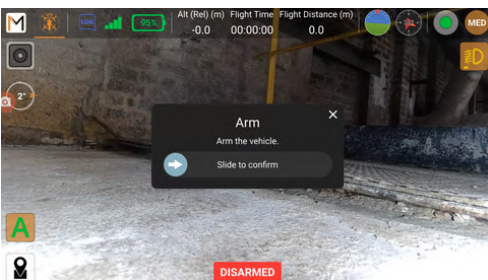
1. Place the battery in the drone.
2. Switch on the radio control and the Multinnov application.
3. Place the drone on a flat surface with no obstacles around it.
4. Connect the XT60 plug to the drone
5. Switch on the LEDs until they illuminate the area, allowing stabilisation to initialise.



6. When the drone displays a yellow dot (at the same time as the video feed), pick up the drone and lift it about 1 metre until the stabilisation dot at the top right of the screen turns green.



7. Press the disarmed button and slide the arrow 'Slide to confirm'.



8. Press 'Disarmed' again, slide the arrow to arm the engines, and gently push the throttle joystick upwards to take off.

Do not allow more than 30 seconds to elapse between the appearance of the green indicator (drone initialization and camera return) and takeoff.

If, during the execution of the checklist, an item shows an anomaly or does not function correctly, the entire procedure must be interrupted.

Disconnect and then reconnect the drone, and restart the checklist from the beginning by restarting the Multinnov application.

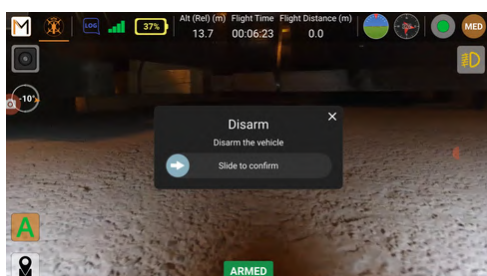
IN FLIGHT

When in contact with a wall, it is strictly forbidden to increase the throttle.

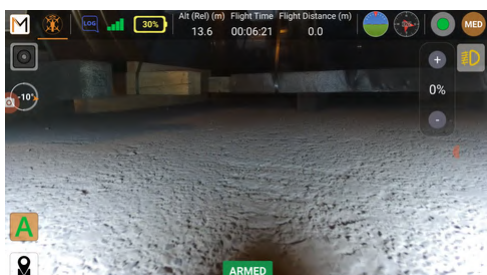
It is possible to disengage by applying a brief impulse of control in the opposite direction to the wall, while gently reducing the throttle.

LANDING

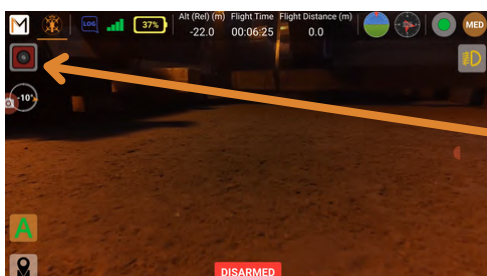
1. Bring the drone back to the ground using the radio control in its landing zone.
When the drone touches the ground, reduce the throttle.



2. Press 'Armed' then slide the menu to disarm the drone.



3. On the ground, the cooling system is inactive, which exposes the LED panels to a risk of overheating. Be sure to set them to a maximum of 50% or switch them off once the drone has landed.



4. It is essential to stop all recordings after the drone has landed, as well as the recordings from AZ Screen Recorder.

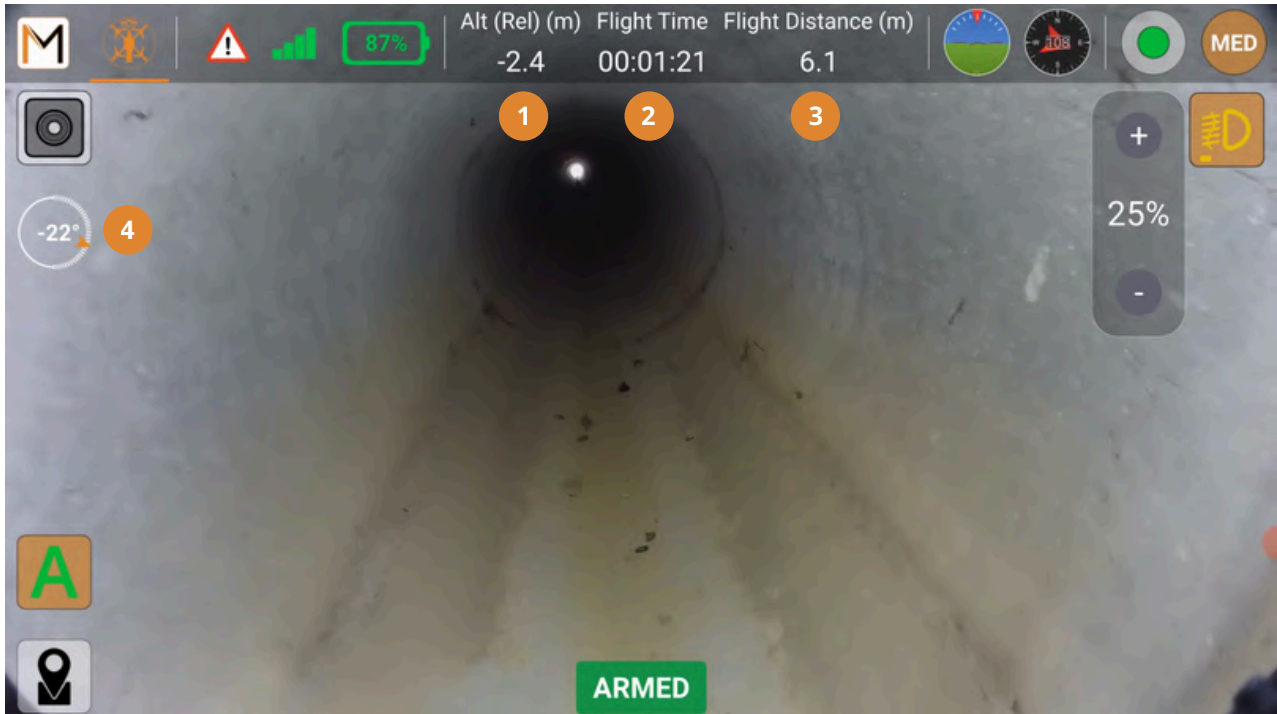
5. Disconnect the battery and remove it from its compartment.
6. Close the GCS application on the radio control via the 'Application overview' menu.

04

MEASURING TOOLS



Measuring tools



1 ALTIMETER

The Stereo 3 is equipped with an altimeter that measures and displays the drone's relative altitude in relation to its starting point. This feature allows you to accurately determine the drone's current height, which is essential for maintaining safe flight and avoiding obstacles.

2 STOPWATCH

When the Stereo 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 replaced.

3 FLIGHT DISTANCE

The Stereo 3 incorporates a distance counter that displays the number of metres travelled since the start of the mission in real time. This measurement allows you to accurately track the drone's total movement throughout the flight.

4 CAMERA ANGLE INDICATOR

The radio control has an indicator that shows the camera's tilt angle in real time during flight. This measurement tool instantly displays the camera's orientation, making framing easier and providing more precise control during the mission.

A background image showing construction workers at night. One worker in the foreground is wearing a high-visibility orange safety vest and dark pants, holding a tablet. Another worker in the background is also wearing a high-visibility vest and holding a smartphone. The scene is illuminated by artificial light, creating strong highlights and shadows on the pavement.

05

ACCESSORIES AND EQUIPMENT



Accessories and equipment

RANGE EXTENDER

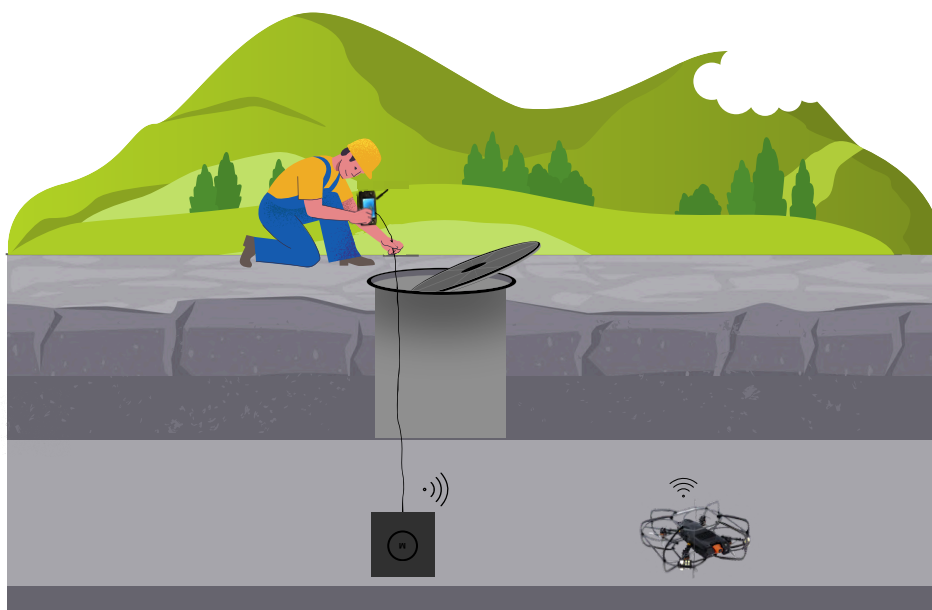
It works by maintaining RF signal continuity when obstacles such as walls or unfavourable geometry threaten to attenuate or cut off transmission.

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.



ADDITIONAL SCREEN

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

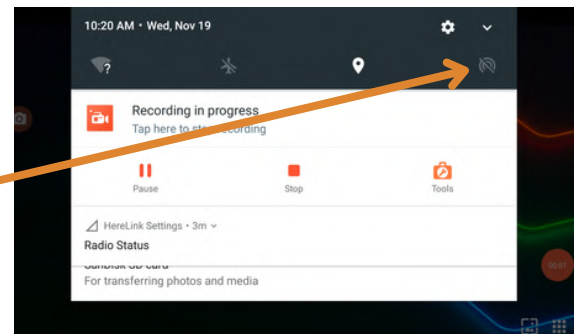
This screen will display the video feed received by the control radio, which can be particularly useful for a second operator. This operator will be able to monitor the mission and view elements that the remote pilot cannot see directly.

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

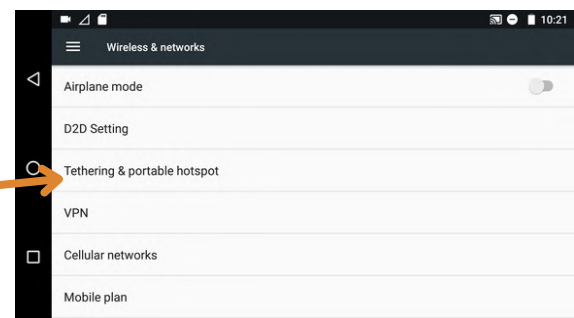
Remote control settings :

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

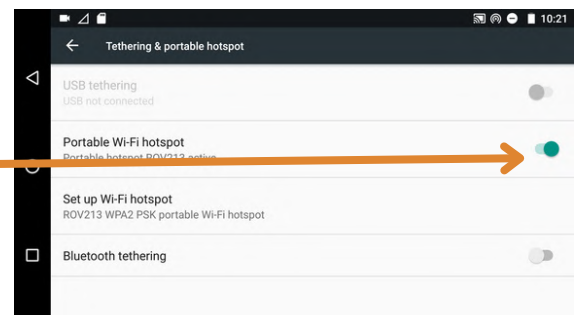
Once the menu is open, long press the connection sharing icon.



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



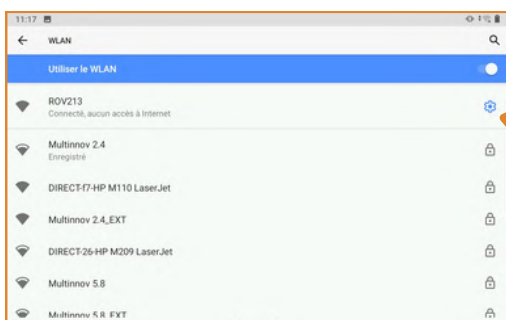
Enable the Portable Wi-Fi Hotspot option, which will activate connection sharing and transmit the video stream to your tablet.



tablet settings :

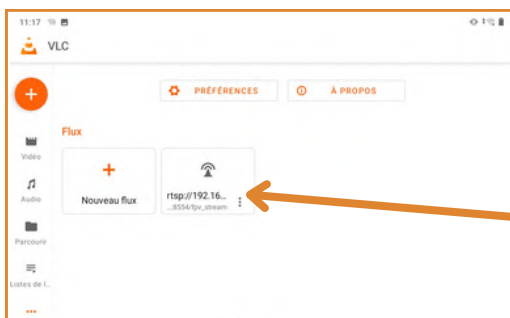


From your tablet's home screen, go to the Settings menu.



Once in the Settings menu, go to Network & 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 app.

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 be displayed.

Plusieurs médias ne peuvent être lus

If this message reappears in the VLC stream window, feel free to restart the application.

06

TECHNICAL SPECIFICATIONS



technical specifications

All the essential specifications you need to understand the performance of the Stereo 3 at a glance.

CONFIGURATION	Quadrirotor
ENGINES	4 motors - 1950kv
PROPELLERS	4 three-bladed 5-inch propellers
WEIGHT	1300 g in flight
DIMENSIONS	34 / 33 / 15 cm L x W x H
MATERIALS	Carbon, SLA
OPERATING TEMPERATURES	-20°C to +40°C
STABILIZATION	Stereoscopic camera
OPERATING FREQUENCIES	2 400 to 2483 Mhz
STANDARDS	CE / SRR / FCC / MIC
OPERATIONAL STANDARDS	IN84 (CNPE - emissions <50mW)
LIGHTING	13 000 lumens
BATTERY TYPE	LIPO
CHARGING TIME	1 hour
FLIGHT MODES	Assisted / Manual
SOUND LEVEL	80 db (A)

Camera

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

SENSOR	4K Sony IMX 477 / 12.3 MP
VIDEO FORMAT	MP4
PHOTO FORMAT	JPG
VIDEO RESOLUTION	3840/2160 - 25 fps
PHOTO RESOLUTION	3840/2160
VIDEO STREAMING	1920/1080 - 30 fps
FOV	88° diagonal / 75° horizontal
LENS	2.1 mm - focus
ISO	Automatic management
FILE BACKUP	Hard drive 100 go

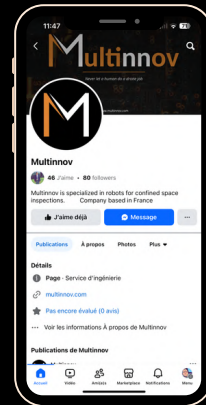
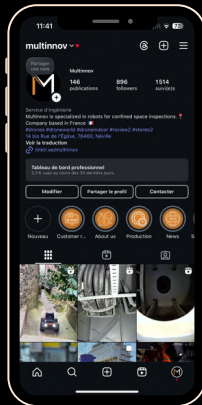
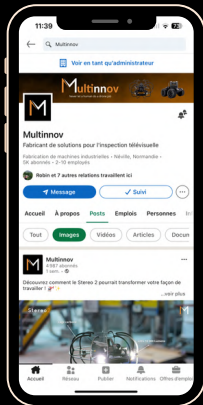
Radio control

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

OPERATING FREQUENCIES	2 400 à 2483 Mhz
STANDARDS	CE / SRR / FCC / MIC
OPERATING STANDARD	IN84 (CNPE - Emissions <50mW)
RADIO LINK	Duplex
OUTDOOR RANGE	12 km (CE) / 20 km (FCC)
RANGE IN CONFINED SPACE	up to 500m
RADIO DIMENSIONS	5.46-inch touchscreen
WEIGHT	520 g
OPERATING TEMPERATURE	-20°C to +40°C
BATTERY	4950 mAh battery / USB charging
SENSITIVITY RECEPTION	-120 dBm
ANTENNAS	1 Omnidirectional / 1 directional

Multinnov

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