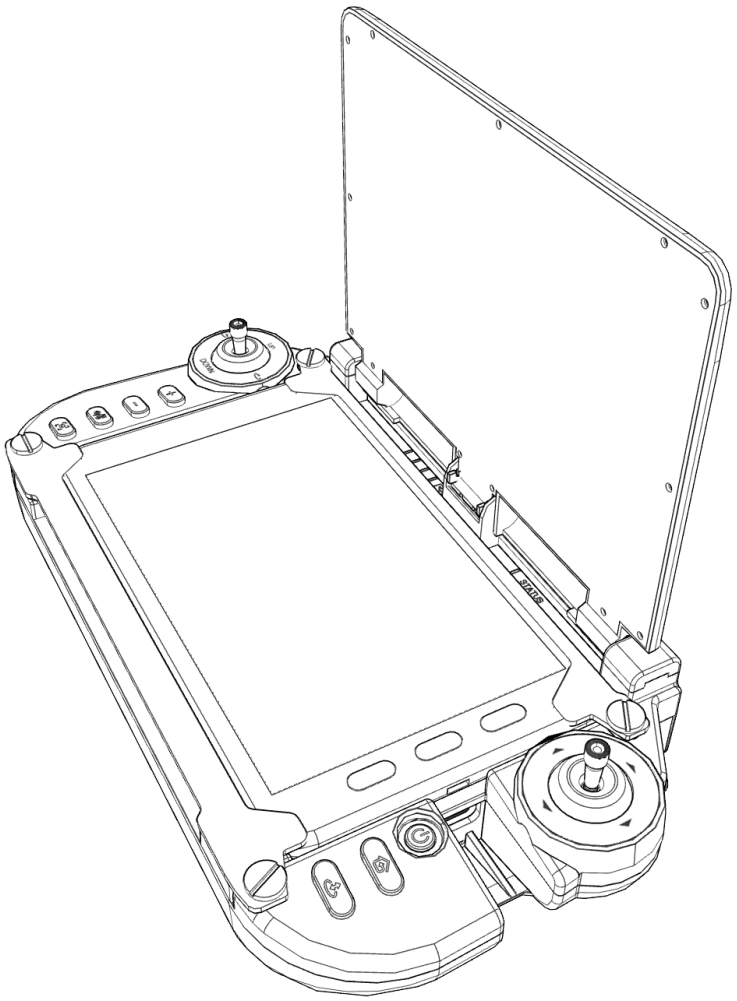
SKYCONTROLLER UKR & FreeFlight 8

User Guide



Version: 8.3.3.0
Updated: December 12th, 2025

Parrot

1. Documentation changelog

This section details the major changes to Parrot's technical documentation since version 8.3.2.0 released on November 14th, 2025.

What changed	Where
Quick settings subchapter updated.	Page 59
Stream sharing subchapter updated.	Page 87

1.1. Ecosystem versions

This section details the software versions for the full ecosystem available at the time of writing this user guide:

Ecosystem element	Software version
Application	8.3.3
Controller	8.3.3

2. Using this guide

Parrot recommends that you read the following user guide thoroughly before your first flight. This user guide completes the ANAFI UKR documentation, which also includes the:

- Skycontroller UKR and FreeFlight 8 release notes – available upon request.

Read the Flight Safety Guide to have complementary information about safety, operational limitations for use and maintenance of the ecosystem. Always verify that you are using the latest version of the user guide.

This guide is specific to a single controller configuration, consisting of:

- The Parrot Skycontroller UKR.
- The FreeFlight 8 flight application.

Read entirely at least once. It answers most questions that most users may encounter when they use Skycontroller UKR and FreeFlight 8.

Keep it for reference and stay alert for updates. Updates are mandatory and must be systematically performed prior to any flight to ensure maximum performance and safety.

The Table of contents, starting on page 4, is active. Click a title to access the corresponding section.

This user guide has no index. the keyboard shortcut **Ctrl + F** (Windows) or **Command + F** (Mac) to browse all occurrences of any keyword (*flight*, *settings*, *obstacle avoidance, gimbal*, *photo*, *ISO*, etc)

3. Table of contents

Parrot

4. Foreword

4.1. Skycontroller UKR ecosystem and variants

In the following pages, the word *ecosystem* refers to the controller (Skycontroller UKR) and the FreeFlight 8 flying app. The word *device* refers to the tablet on which FreeFlight 8 is installed.

This user guide documents the Skycontroller UKR, and Skycontroller UKR Mission which can be used with 4 Parrot aircraft ecosystem variants:

- ANAFI UKR
- ANAFI UKR GOV
- ANAFI UKR XLR
- ANAFI UKR Mission

Screenshots throughout this guide may differ from the user's FreeFlight 8 application interface due to individual variant configurations.

4.2. Skycontroller UKR smart battery

The Skycontroller UKR battery enters a **Wintering mode** when not in use for ten consecutive days. Users must connect a charger to the Skycontroller USB-C charging port to wake the battery up and charge it completely before you fly for the first time.

4.3. HDMI

The Skycontroller UKR is equipped with an HDMI port, which enables you to stream images to a screen or to HDMI goggles. Parrot recommends using a certified HDMI cable (not included in the box) to connect external pieces of equipment to the Skycontroller UKR.

4.4. Technical support

Parrot strongly recommends that you use your Parrot.CLOUD account to allow Parrot to store your flight data. Sharing your data, even anonymously, enables us to improve our products. It also directly benefits all identifiable users in case they need to contact Parrot support teams.

CAUTION: If you do not share flight data / logs for the purposes of receiving support, you limit your ability to receive technical support, warranty, or both from Parrot.

5. Technical specifications

GROUND CONTROL STATION

- Size folded: 171 x 302 x 77 mm (6.7 x 11.9 x 3.0")
- Size unfolded: 171 x 302 x 215 mm (6.7 x 11.9 x 8.5")
- UKR Mass: 1,765 g (3.89 lb)
- UKR Mission Mass: 1,450 g (3.2 lb)
- UKR GOV Mass: 1,765 g (3.89 lb)
- UKR XLR Mass: 1,765 g (3.89 lb)
- Battery capacity: 10,000 mAh
- Battery voltage (nominal): 7.2 V
- Battery charging duration: 2 h (2 h 30 min with tablet)
- Battery life: 4 h 30 min[1]
- Connectivity:
  - USB-C port
  - USB-A port
  - HDMI port
  - Ethernet port
- IP53: Rain and dust resistant
- Operating temperature: -36 °C to 50 °C (-33 °F to 122 °F)

MARS RANGER

- Size folded: 170 x 240 x 50 mm (6.7 x 9.4 x 2.0 ")
- Size unfolded: 170 x 240 x 200 mm (6.7 x 9.4 x 7.9 ")
- Mass: 1,200 g (2.65 lb)
- Battery capacity: 10,000 mAh
- Battery voltage (nominal): 7.2 V
- Battery charging duration: 2 h
- Battery life: 4 h 30 min[1]
- Connectivity:
  - USB-C port
  - Ethernet port
- IP53: Rain and dust resistant
- Operating temperature: -36 °C to 50 °C (-33 °F to 122 °F)

CYBERSECURITY

- Zero data shared without user consent
- TAA & NDAA compliant
- Blue sUAS program approved
- Manage your data privately between drone and device OR share anonymous data on secured European servers
- MicroSD card AES-XTS encryption with a 512-bit key
- Digitally signed firmware
- Compliant with FIPS140-2

RADIO LINK

- MARS (ANAFI UKR & ANAFI UKR XLR only):
  - Over 1.5 GHz bandwidth:
    - spread across 8 bands 1.8 – 5 GHz (ANAFI UKR)
    - spread across 10 bands 1.8 – 5.85 GHz (ANAFI UKR XLR)
  - TX & RX differentiated frequencies
  - Radio-jamming resistance through Frequency hopping
  - Direct video stream resolution: 1080p 30 fps
  - AES 256 encryption: packet and radio level
- Wi-Fi (ANAFI UKR GOV only):
  - Wi-Fi 802.11ax
  - Direct video stream resolution: 1080p 30 fps
  - AES 256 encryption: Packet and radio level
  - Operating frequencies: 2.4 GHz, 5GHz UNII-1, & UNII-3
- LoRa:
  - Activates when main link is lost
  - AES 128 and ChaCha20 encryption
  - Frequency bands: EU - 863 to 870 MHz, US - 902 to 928 MHz
- Cellular (ANAFI UKR GOV & ANAFI UKR XLR only):
  - Cellular connectivity: 5G NR with 4G LTE fallback
  - AES 256 encryption: Packet level
  - Seamless switching[2]:
    - 5G / Wi-Fi
    - 5G /MARS
  - Flies Beyond Visual Line of Sight

[1] Extreme temperatures, or suboptimal conditions may affect battery autonomy.
[2] Radio link switching depends on individual configurations.

DIMENSIONS

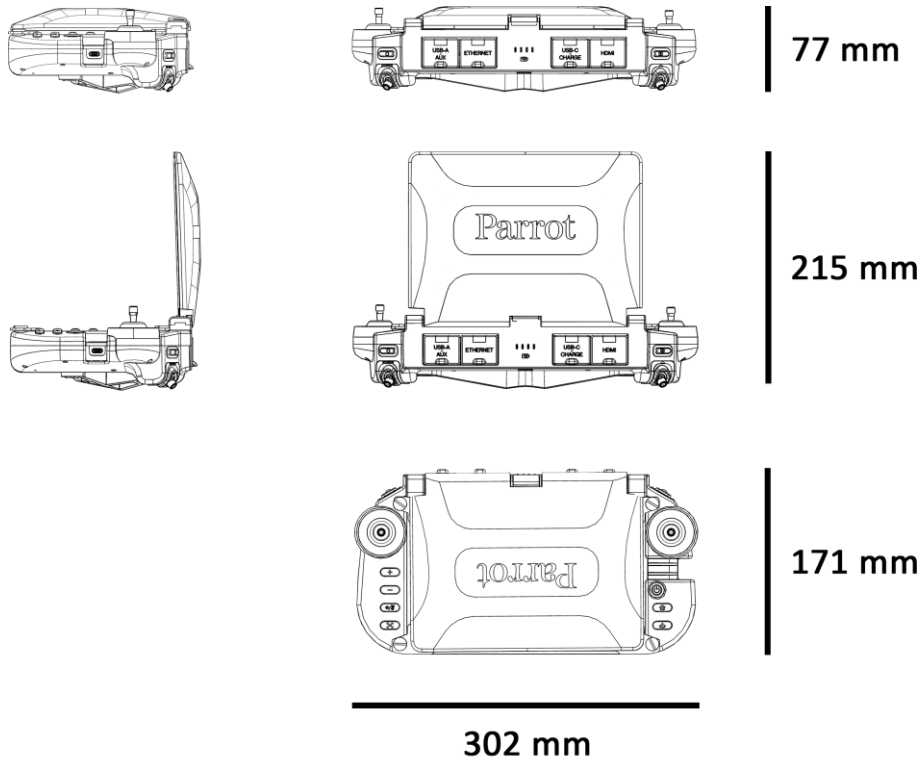


Figure 1: Skycontroller UKR dimensions

Images not to scale

6. Pre-flight checklist

6.1. Transport & handling

- Always transport the Skycontroller UKR safely in the relevant location in the hard case.
- Protect the battery from extreme temperature, both low and high. Try to keep the battery as close as possible to ambient temperatures.
- Always keep the hard case with the Skycontroller UKR and device in dry places.

6.2. Equipment

- Ensure that you download the latest version of FreeFlight 8, and that your Skycontroller UKR is up to date with the latest version of firmware.

IMPORTANT: Updates are mandatory and must be performed systematically prior to any flight to ensure maximum performance and safety.

- Ensure that the Skycontroller UKR battery is fully charged.

7. Getting started

1. Open the Skycontroller UKR's **USB-C CHARGE** cover to expose the USB-C charging port.

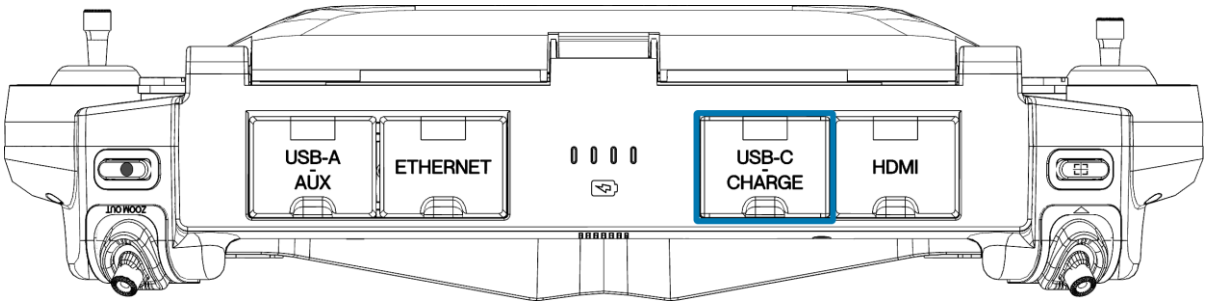


Figure 2: Skycontroller UKR rear view with interface ports closed

2. Connect Skycontroller UKR to the enclosed USB-PD charger with one of the enclosed USB-C to USB-C cables.
3. Wait until the entire ecosystem is fully charged.
4. Press and hold the ⏻ **Power** button on the integrated tablet in Skycontroller UKR for 3 seconds.
5. Press and hold the ⏻ **Power** button on Skycontroller UKR for 2 seconds.

The Skycontroller UKR's status LED flashes white to indicate that the controller is booting.

Refer to *chapter 8. Skycontroller UKR* for more information.

The fully secure piloting software of Skycontroller UKR, FreeFlight 8, guarantees the integrity of data exchanges for the full ecosystem, and manages updates (piloting software, drone, remote control).

FreeFlight 8 is preinstalled on Skycontroller UKR's tablet and launches automatically when Skycontroller UKR is powered on.

Skycontroller UKR tablet displays FreeFlight 8's homepage.

NOTE: FreeFlight 8 requires Android 14, or later.

Refer to *chapter 11. FreeFlight 8* for more information.

6. Pair Skycontroller UKR to your aircraft.

Refer to *chapter 8.4. Pairing the aircraft to a Skycontroller UKR* for more information.

7. Check for ecosystem updates to ensure maximum performance and safety. Refer to *chapter 13.13. Software* for more information.

IMPORTANT: Regularly refer to the Skycontroller UKR Release Notes available upon request, to ensure that you have the latest versions of the controller firmware, and FreeFlight 8 App.

8. Calibrate Skycontroller UKR if required. Follow the instructions on your Skycontroller UKR's screen.

All systems are ready for flight.

9. Ensure that your flying zone is safe and clear.
10. Stay at least 2 m (6 ft) from the aircraft, press **Take-off/land** to start the flight operation.

8. Skycontroller UKR

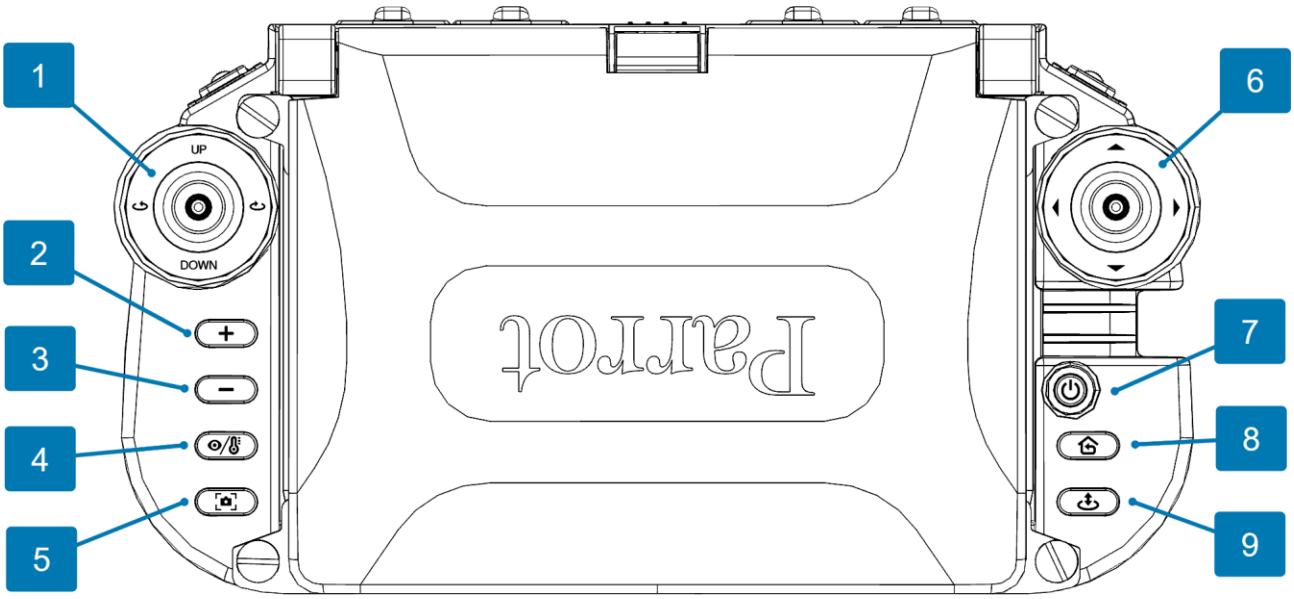


Figure 3: Skycontroller UKR top view closed

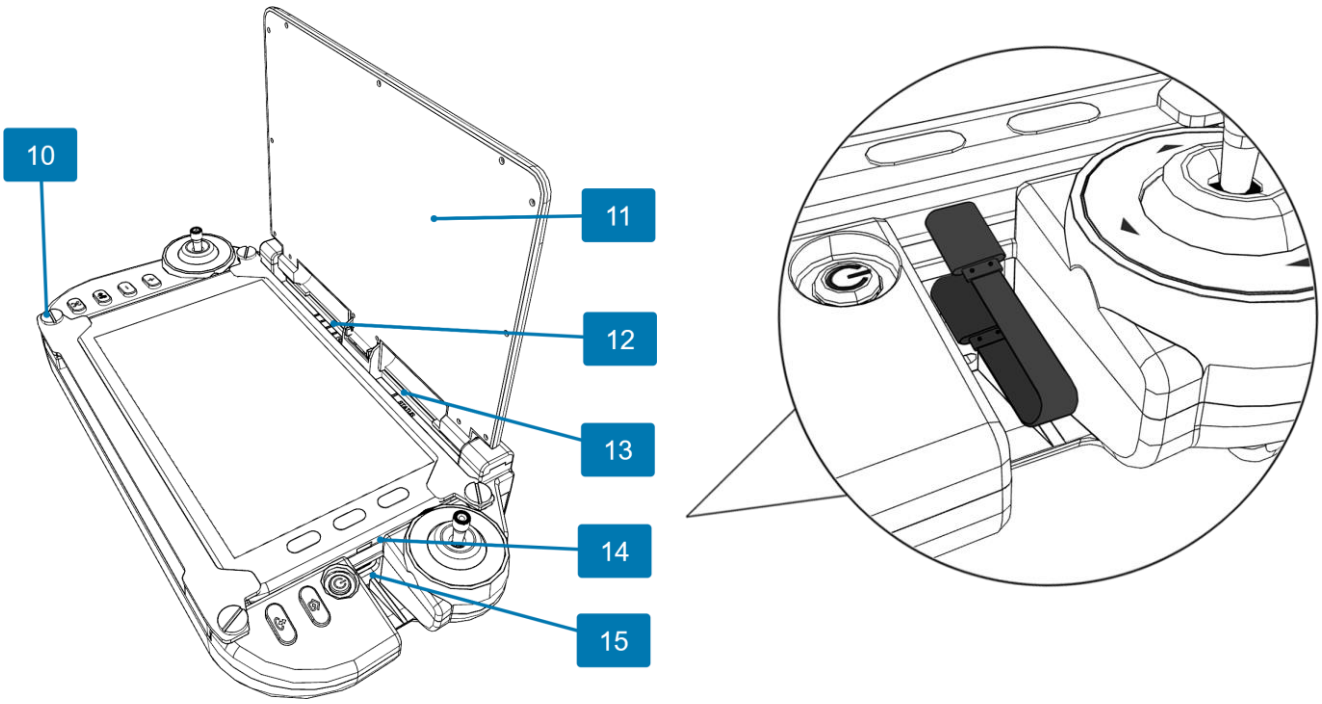


Figure 4: Skycontroller UKR open, showing USB-C to USB-C cable

1. Left joystick
2. **+ EV** button
3. **– EV** button
4. **Thermal camera activation** button
5. **Screenshot** button
6. Right joystick
7. **Power** button
8. **RTH** (Return to Home) button
9. **Take-off / Land** button
10. Device retaining screw (1 of 4)
11. Antenna
12. Skycontroller UKR battery status LEDs
13. Top charge level LED indicators
14. Tablet USB-C port
15. USB-C Device connection port
16. USB-C to USB-C cable

NOTE: The USB-C to USB-C cable which connects the tablet to Skycontroller UKR comes preinstalled.

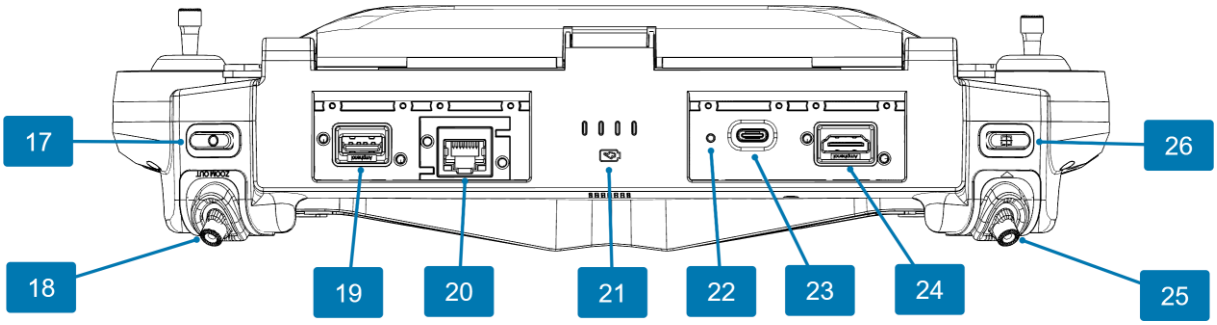


Figure 5: Skycontroller UKR rear view, plastic covers removed

17. Shutter (photo) or Start / Stop recording
18. Right trigger (Zoom)
19. USB-A port
20. Ethernet port
21. Rear Charge level LED indicators
22. Factory reset button
23. USB-C charging port
24. HDMI port
25. Left trigger (gimbal tilt)
26. Reset camera (Zoom and gimbal tilt)

NOTE: Nos. 19, 20, 22, 23, and 24 (*Figure 5*) are underneath the 4 plastic covers on Skycontroller UKR. The plastic covers are not shown in the image above for clarity.

The device on Skycontroller UKR is held in place by 2 brackets and 4 screws (*No. 10 in Figure 4*). The device can be removed or replaced by unscrewing the screws and lifting the device out of Skycontroller UKR.

WARNING: If you press **Take-Off/Land**, **RTH**, and **Shutter** simultaneously, the EMERGENCY MODE on the aircraft activates immediately. EMERGENCY MODE instantly cuts power to all motors on the aircraft, which causes the drone to fall from the sky.

The Skycontroller UKR battery charging time is 2 hours.

4 LEDs show the charging status.

The LEDs turn off when charging is complete.

Press and hold the **Power** button (*No. 7 in Figure 4*) for 2 seconds to turn on the Skycontroller UKR.

The 4 green LEDs turn on one after the other.

Press and hold the tablet's **Power** button to turn on the tablet.

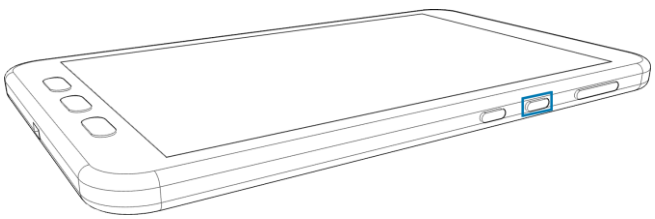


Figure 6: Skycontroller UKR's Android tablet showing the power button

8.1. Connectivity

Skycontroller UKR has the following connectors:

- USB-A port (*No. 19 in Figure 5*) – used for drone/controller pairing
- Ethernet port (*No. 20 in Figure 5*) – used for remote antenna connection, webserver access
- USB-C charging port (*No. 23 in Figure 5*) – used for charging
- HDMI port (*No. 24 in Figure 5*) – used for video output

8.2. HDMI video output

Use an HDMI-to-HDMI cable to connect the Skycontroller UKR to an external screen (or VR goggles). The screen displays the aircrafts's video stream.

NOTE: External screens only display the drone's video stream, and none of the additional information provided by FreeFlight 8. Operators can watch the drone's view on an external screen, while they navigate FreeFlight 8 menus (settings or dashboard) on the device associated to the Skycontroller UKR.

TIP: Use a certified HDMI-to-HDMI cable (not included in the box) to connect external pieces of equipment to the Skycontroller UKR. Uncertified cables may lead to display issues.

8.3. LED status indicator color codes

When the Skycontroller UKR is powered on, its status LED indicator (*No. 13 in Figure 4*) and its charging LED (*No. 12 in Figure 4, No. 21 in Figure 5*) provide an instant visual indication:

Status LED indicator colors and behavior		
	White Flashing	Controller is booting
	Red Flashing	Power-off button is pressed
	Red Steady	Power-off button held for 2 seconds, controller will power-off
	White Fade	Controller is booted, no active drone
	White/Blue Fade	Controller is trying to connect to a drone
	Blue Steady	Controller is connected to a drone
	Green Fade	Controller is connected to a drone by USB cable and is in pairing state
	Magenta Fade	Controller has lost MARS connection and is trying to connect on the backup radio link
	Magenta Steady	Controller has lost MARS connection and is receiving drone telemetry through backup radio

8.4. Pairing the aircraft to a Skycontroller UKR

The aircraft must be paired with the Skycontroller UKR in order to connect. After the aircraft and controller are paired, they remember each other. Follow this procedure to pair an aircraft and a controller for the first time, and to restore the lost pairing between an aircraft and a controller.

1. Power on the aircraft.
2. Press ⏻ **Power** on the Skycontroller UKR.
3. When both the aircraft and Skycontroller UKR have booted, connect the aircraft and the controller with a USB cable (USB-A connection to the USB-A port under the controller's plastic cover, USB-C connection to the drone).

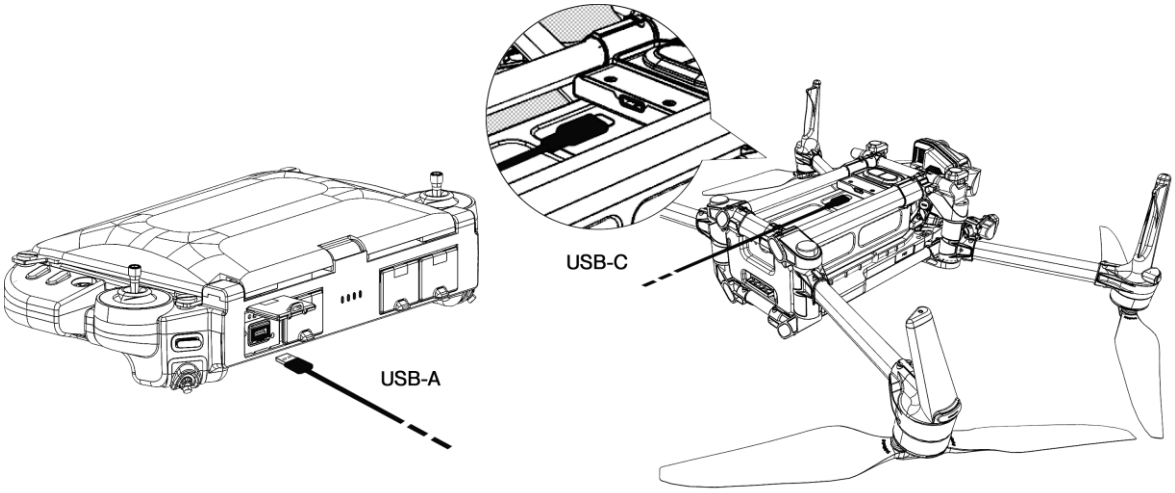


Figure 7: Pairing the drone with the controller

NOTE: Ensure that you connect the aircraft via the USB-C port on the underside of the drone, not the USB-C port on the battery.

The Skycontroller UKR status LED blinks green to indicate it acknowledges the aircraft, and to establish pairing protocols.

4. Wait for synchronization between Skycontroller UKR and the aircraft.

The status LED turns solid blue when the aircraft and the controller are connected, and FreeFlight 8 displays a message **Pairing successful**.

Figure 8: Pairing successful

5. Verify that the left trigger of the Skycontroller UKR activates the aircraft's gimbal to ensure the synchronization is complete.
6. Disconnect the USB cable between Skycontroller UKR and aircraft.

8.5. Remote antenna feature with a second Skycontroller UKR

Skycontroller UKR's remote antenna feature allows the drone pilot to be in one location and a remote antenna to be in a second location. This feature requires:

- A main (piloting) Skycontroller UKR used to pilot the drone
- An RJ45 ethernet cable up to 100 m (328 ft) long (minimum classification Cat5)
- A second (remote antenna) Skycontroller UKR

This allows the drone pilot to control the drone indoors, or in a vehicle for example, with an external antenna fixed outdoors for optimal radio link performance. The remote antenna Skycontroller UKR can be powered ON and powered OFF remotely via the main (piloting) Skycontroller UKR.

Follow this procedure to connect the remote antenna Skycontroller UKR:

1. Ensure that the main Skycontroller UKR and the remote antenna Skycontroller UKR are powered off.
2. Connect the main Skycontroller UKR and the remote antenna Skycontroller UKR via an RJ45 cable.

NOTE: The RJ45 ethernet cable must be at least Cat5 and must not exceed 100 m (328 ft) in length.

3. Power on the main Skycontroller UKR.
4. Activate the **Use remote antenna** setting in FreeFlight 8 settings. Refer to *chapter 13.16.1. Remote antenna* for more information.

The MARS link radio of the main Skycontroller UKR disconnects. The remote antenna Skycontroller UKR powers on.

NOTE: The remote antenna Skycontroller UKR status LED remains switched off

5. Wait several seconds before the status LED of the main Skycontroller UKR turns solid blue.

The main Skycontroller UKR now uses the MARS link radio and the LoRa of the remote antenna Skycontroller UKR.

NOTE: When using a second Skycontroller UKR as a remote antenna, the tablet is not required for the remote Skycontroller UKR.

The remote antenna Skycontroller UKR can be attached to a tripod using a standard UNC ¼" screw. An additional accessory (MARS Orbiter) is available which rotates the remote Skycontroller UKR on a tripod to ensure that it always faces the aircraft's direction. Refer to *chapter 15. Accessories* for more information.

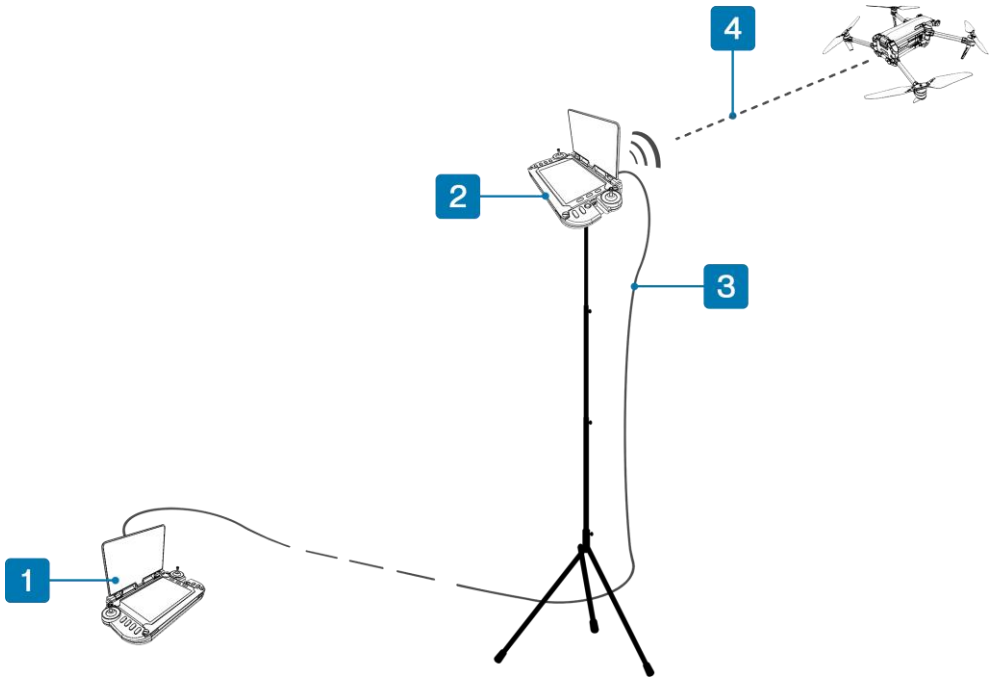


Figure 9: Skycontroller UKR used as a remote antenna

1. Main (piloting) Skycontroller UKR
2. Remote Skycontroller UKR
3. Cat5 RJ45 ethernet cable
4. MARS radio link

9. Skycontroller UKR Mission

The ANAFI UKR mission pack includes a Skycontroller UKR Mission. Skycontroller UKR Mission is a Skycontroller UKR without a radio or antenna. It is designed to be connected with a remote antenna.

Skycontroller UKR's remote antenna feature allows the drone pilot to control the drone from indoors with an external antenna fixed outdoors for optimal radio link performance. The remote antenna Skycontroller UKR can be powered ON and powered OFF remotely via the main (piloting) Skycontroller UKR.

This feature requires:

- A main (piloting) Skycontroller UKR or Skycontroller UKR Mission used to pilot the drone.
- An RJ45 ethernet cable up to 100 m (328 ft) long (minimum classification Cat5).
- A second Skycontroller UKR or MARS Ranger acting as the remote antenna

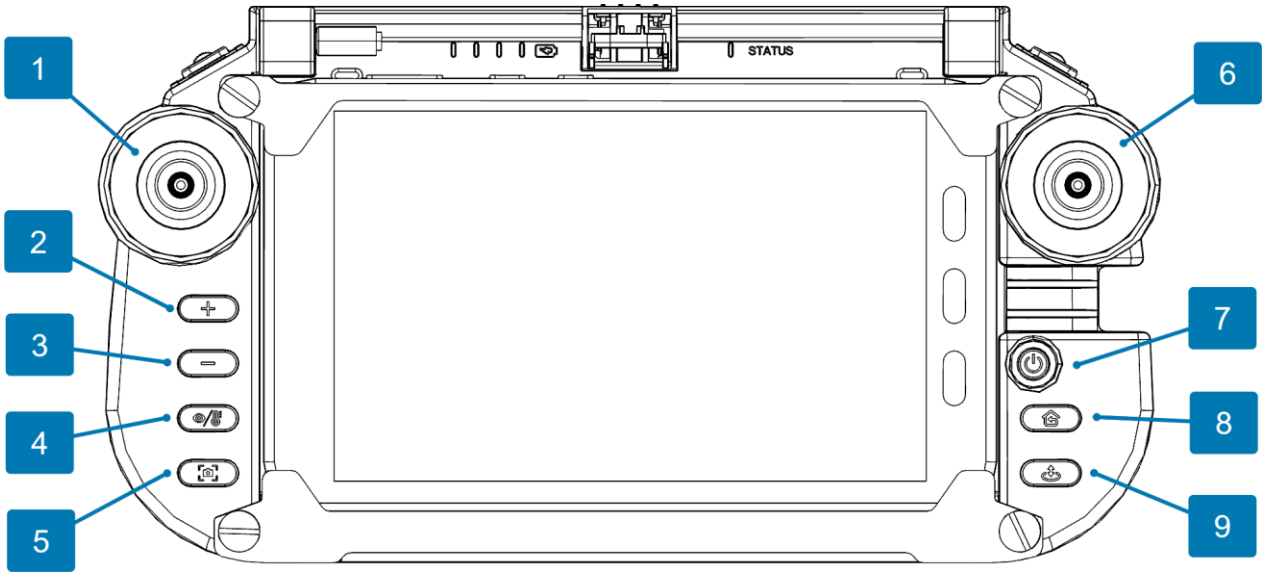


Figure 10: Skycontroller UKR Mission top view

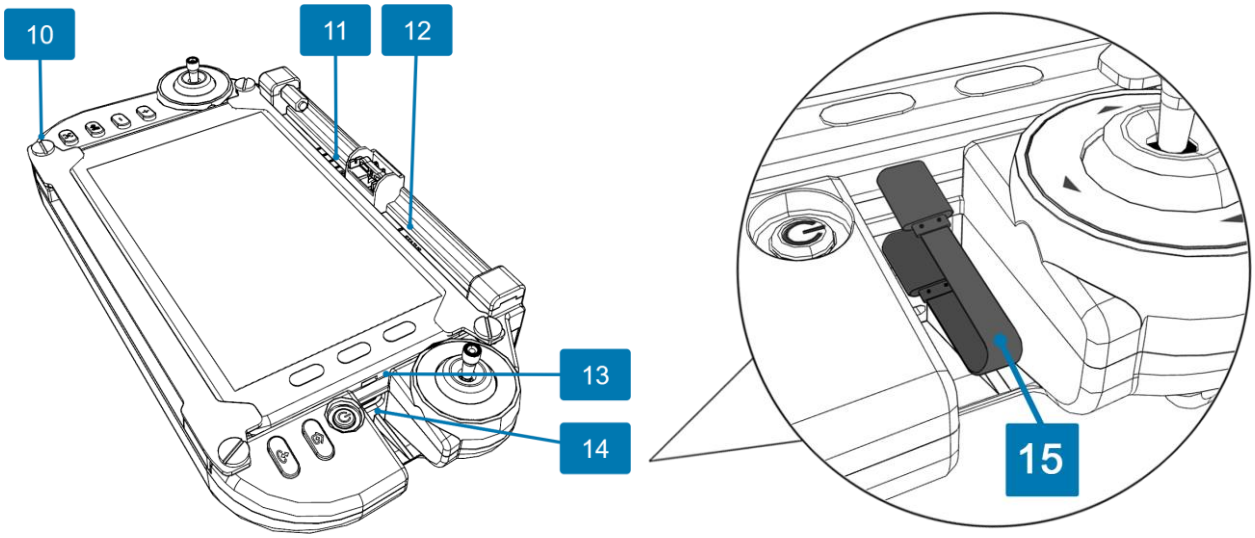


Figure 11: Skycontroller UKR Mission, showing USB-C to USB-C cable

1. Left joystick
2. **+ EV** button
3. **– EV** button
4. **Thermal camera activation** button
5. **Screenshot** button
6. Right joystick
7. **Power** button
8. **RTH** (Return to Home) button
9. **Take-off / Land** button
10. Device retaining screw (1 of 4)
11. Skycontroller UKR battery status LEDs
12. Top charge level LED indicators
13. Tablet USB-C port
14. USB-C Device connection port
15. USB-C to USB-C cable

NOTE: The USB-C to USB-C cable which connects the tablet to Skycontroller UKR Mission comes preinstalled.

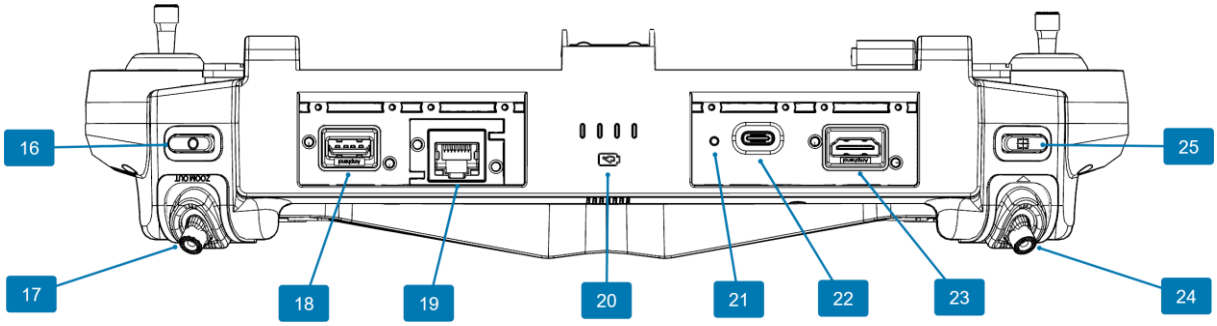


Figure 12: Skycontroller UKR Mission rear view, plastic covers removed

16. Shutter (photo) or Start / Stop recording
17. Right trigger (Zoom)
18. USB-A port
19. Ethernet port
20. Rear Charge level LED indicators
21. Factory reset button
22. USB-C charging port
23. HDMI port
24. Left trigger (gimbal tilt)
25. Reset camera (Zoom and gimbal tilt)

NOTE: Nos. 18, 19, 21, 22, and 23 (*Figure 12*) are underneath the 4 plastic covers on Skycontroller UKR. The plastic covers are not shown in the image above for clarity covers on Skycontroller UKR Mission.

The device on Skycontroller UKR Mission is held in place by 2 brackets and 4 screws (*No. 10 in Figure 11*). The device can be removed or replaced by unscrewing the screws and lifting the device out of Skycontroller UKR Mission.

WARNING: If you press **Take-Off/Land**, **RTH**, and **Shutter** simultaneously, the EMERGENCY MODE on the aircraft activates immediately. EMERGENCY MODE instantly cuts power to all motors on the aircraft, which causes the drone to fall from the sky.

The Skycontroller UKR Mission battery charging time is 2 hours.

4 LEDs show the charging status.

The LEDs turn off when charging is complete.

Press and hold the **Power** button (*No. 7 in Figure 10*) for 2 seconds to turn on the Skycontroller UKR Mission.

The 4 green LEDs turn on one after the other.

Press and hold the tablet's **Power** button to turn on the tablet.

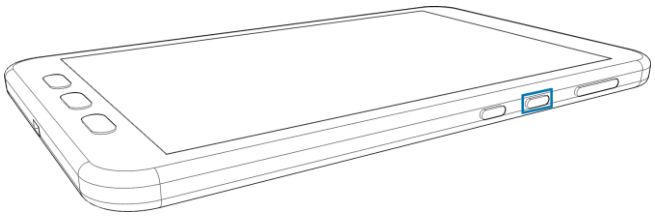


Figure 13: Skycontroller UKR Mission's Android tablet showing the power button

9.1. Connectivity

Skycontroller UKR Mission has the following connectors:

- USB-A port (*No. 18 in Figure 12*) – used for drone/controller pairing, drone update
- Ethernet port (*No. 19 in Figure 12* – used for remote antenna connection, webserver access
- USB-C charging port (*No. 22 in Figure 12*) – used for charging
- HDMI port (*No. 23 in Figure 12*) – used for video output

MARS Ranger has the following connectors:

- Ethernet port (*No. 5 in Figure 16*) – used for remote antenna connection, webserver access.
- USB-C charging port (*No. 8 in Figure 16*) – used for charging.

9.2. HDMI video output

Skycontroller UKR Mission has the same HDMI video output feature as a standard Skycontroller UKR. Refer to *chapter 8.2. HDMI video output* for more information.

9.3. LED status indicator color codes

Skycontroller UKR Mission and MARS RANGER have the same LED status indicator feature as a standard Skycontroller UKR. Refer to *chapter 8.3. LED status indicator color codes* for more information.

9.4. MARS Ranger

MARS Ranger is a dedicated remote antenna system based on Skycontroller UKR without the piloting interface (MARS Ranger does not include a tablet, the FreeFlight 8 application, or the piloting buttons).

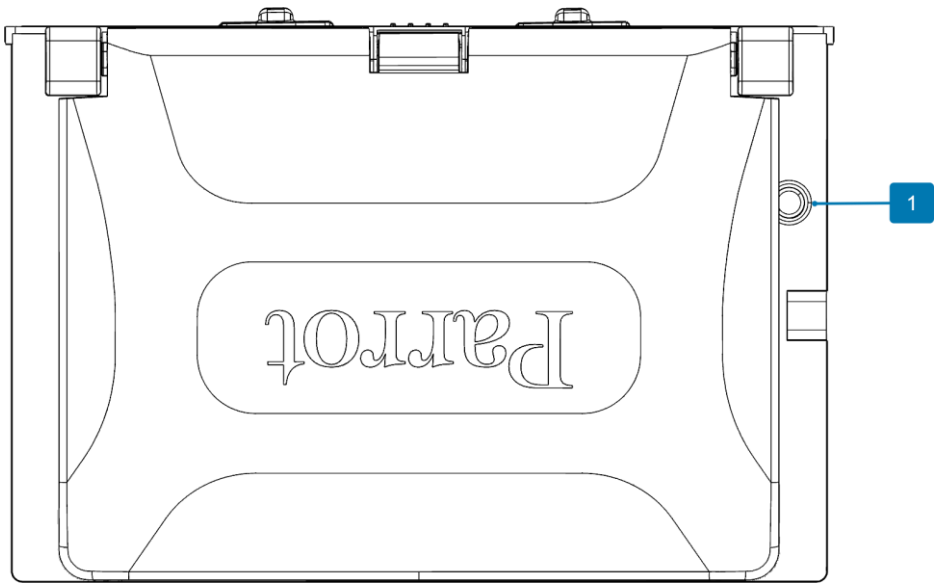


Figure 14: MARS Ranger

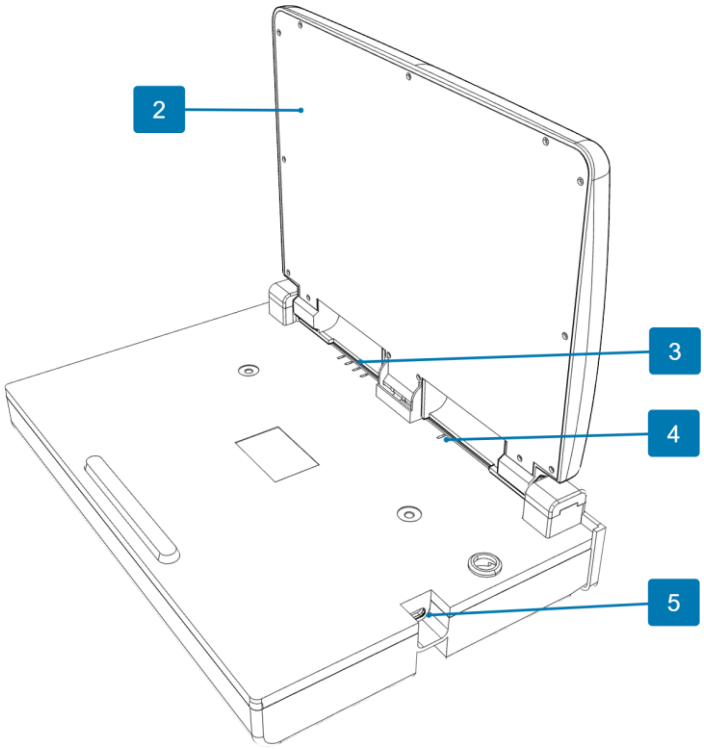


Figure 15: MARS Ranger open

1. **Power** button
2. Antenna
3. MARS Ranger battery status LEDs
4. Top charge level LED indicators
5. USB-C port

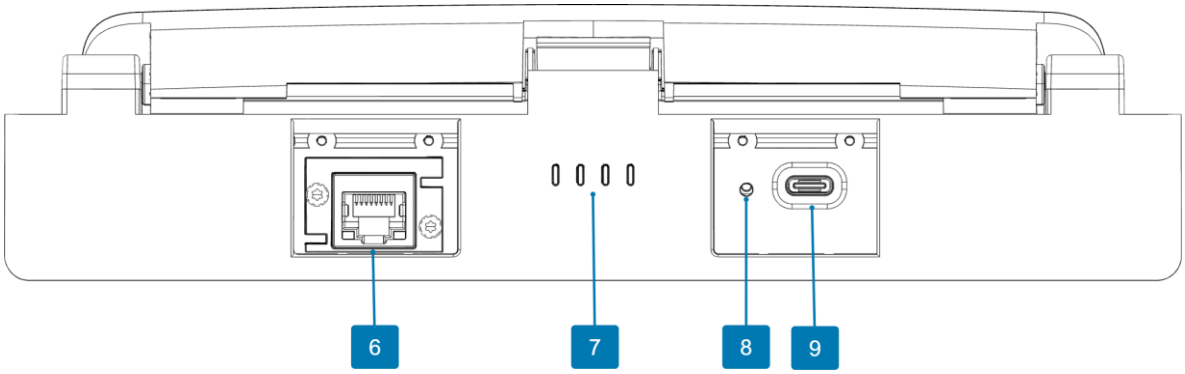


Figure 16: MARS Ranger rear view, plastic covers removed

6. Ethernet port
7. Rear Charge level LED indicators
8. Factory reset button
9. USB-C charging port

NOTE: Numbers 5, 7, and 8 (*Figure 16*) are underneath the 2 plastic covers on MARS Ranger. The plastic covers are not shown in the image above for clarity.

When the **Use Remote Antenna** toggle is set to **Yes** in FreeFlight 8, MARS Ranger turns on automatically if it has been activated in the previous 3 hours. Refer to *chapter 13.16.1 Remote Antenna* for more information.

If MARS Ranger has not been activated in the previous 3 hours, it goes into deep sleep mode and must be re-activated so that auto power on is enabled again.

To activate MARS Ranger, perform 1 of the following actions:

- A long press on MARS Ranger's power button to power on MARS Ranger.
- A short press on MARS Ranger's power button to enable Wake-on-Lan.
- Connect MARS Ranger via USB-C to a charger.

9.5. Pairing the aircraft to a Skycontroller UKR Mission

Skycontroller UKR Mission and MARS Ranger allow the drone pilot to be in one location and the MARS Ranger remote antenna to be in a second location. This feature requires:

- A Skycontroller UKR Mission used to pilot the drone.
- The RJ45 ethernet cable provided.
- A MARS Ranger.

This allows the drone pilot to control the drone indoors, or in a vehicle for example, with the MARS Ranger fixed outdoors for optimal radio link performance. MARS Ranger can be powered ON and powered OFF remotely via Skycontroller UKR Mission.

The aircraft must be paired with the Skycontroller UKR Mission in order to connect. After the aircraft and controller are paired, they remember each other. Follow this procedure to pair an aircraft and a controller for the first time, and to restore the lost pairing between an aircraft and a controller.

1. Ensure that the MARS Ranger is activated (refer to *chapter 9.4 MARS Ranger* for more information)
2. Connect the Skycontroller UKR Mission and the MARS Ranger via the provided RJ45 cable.
3. Power on the Skycontroller UKR Mission.

The MARS Ranger automatically powers on; the MARS Ranger status LED is switched off.

4. Power on the aircraft.
5. Connect the aircraft and the Skycontroller UKR Mission with a USB cable (USB-A connection to the USB-A port under the Skycontroller UKR Mission plastic cover, USB-C connection to the drone).

NOTE: Ensure that you connect ANAFI UKR via the USB-C port on the underside of the drone, not the USB-C port on the battery

The Skycontroller UKR Mission status LED blinks green to indicate it acknowledges the aircraft, and to establish pairing protocols.

6. Wait for synchronization between Skycontroller UKR Mission and the aircraft.

The status LED turns solid blue when the aircraft and the Skycontroller UKR Mission are connected, and FreeFlight 8 displays a message **Pairing successful**.

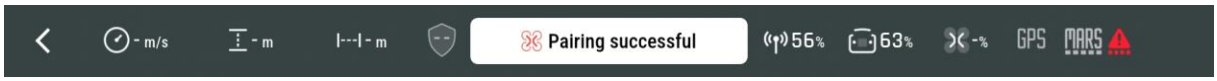
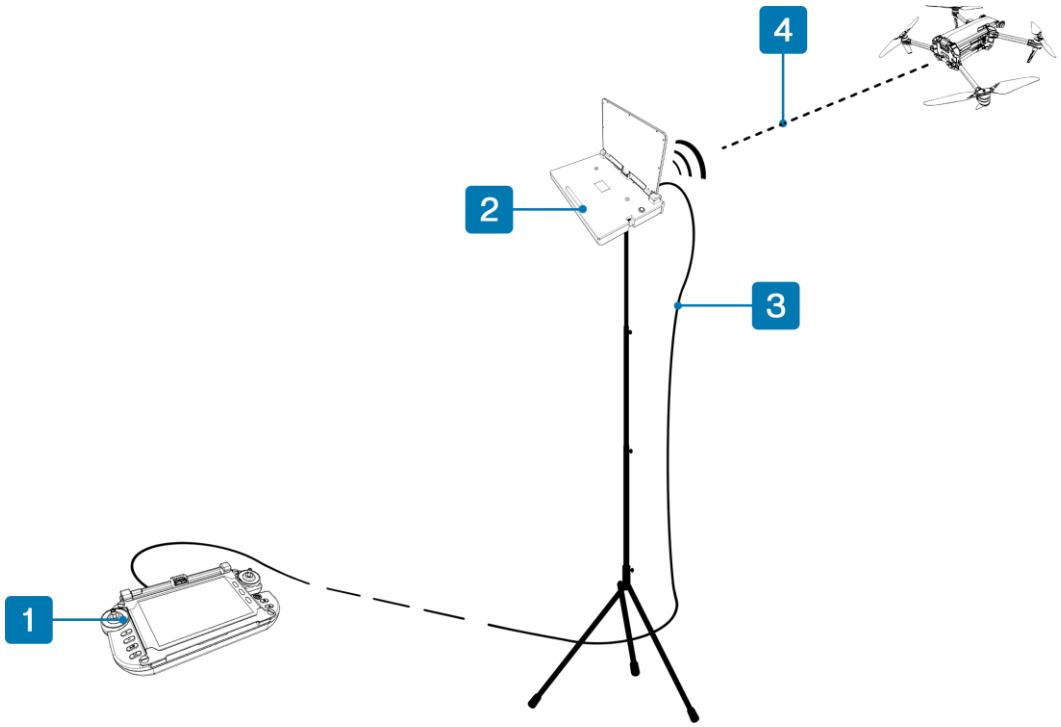


Figure 17: Pairing successful

7. Verify that the left trigger of the Skycontroller UKR Mission activates the aircraft's gimbal to ensure the synchronization is complete.

8. Disconnect the USB cable between Skycontroller UKR Mission and aircraft

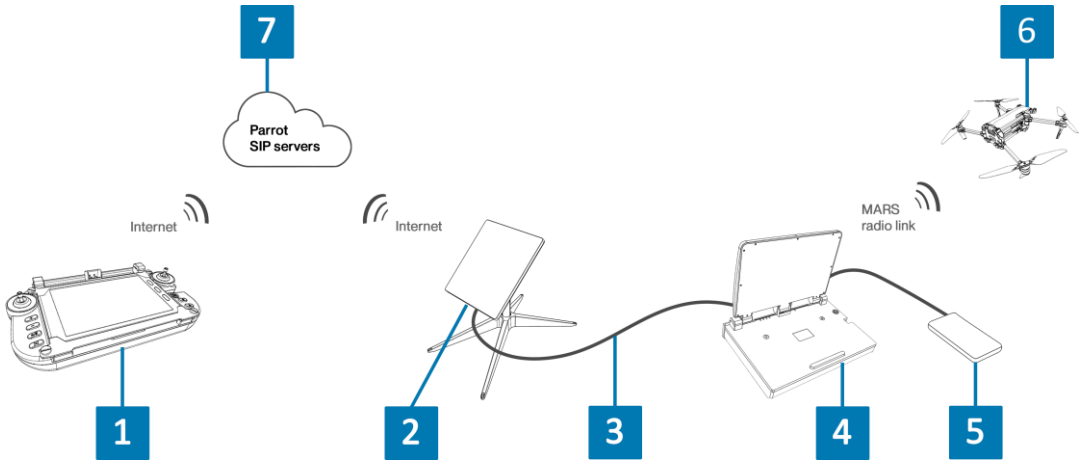
The MARS Ranger can be attached to a tripod using a standard UNC ¼" screw. An additional accessory (MARS Orbiter) is available which rotates the MARS Ranger on a tripod to ensure that it always faces the aircraft's direction. Refer to *chapter 15. Accessories* for more information.



1. Skycontroller UKR Mission
2. Remote MARS Ranger
3. Cat5 RJ45 ethernet cable
4. MARS radio link

9.6. Cloud antenna

The Skycontroller UKR Mission can remotely connect to the MARS Ranger via an internet network, eliminating the need for an Ethernet cable.



1. Skycontroller UKR Mission
2. Starlink mini
3. Ethernet cable
4. MARS Ranger
5. Power bank
6. ANAFI UKR
7. Parrot SIP servers

9.6.1. Prerequisites

The cloud antenna feature requires:

- An internet connection on the tablet connected to Skycontroller UKR Mission.
- A MARS Ranger paired at least once with a FreeFlight 8 user account. To pair the MARS Ranger:
    a. Power on MARS Ranger.
    b. Connect the tablet running FreeFlight 8 to the MARS Ranger via the USB-C port.

NOTE: The FreeFlight 8 account can be a Parrot cloud account or an anonymous account.

- An aircraft paired at least once with the Skycontroller UKR Mission. Refer to *chapter 9.5 Pairing the aircraft to a Skycontroller UKR Mission* for more information.

After the initial pairing:

1. Switch off MARS Ranger.
2. Connect MARS Ranger to a power bank via the USB-C charging port.
3. Connect the MARS Ranger to the internet.

NOTE: You can use a Starlink system to connect MARS Ranger to the internet.

MARS Ranger registers with the Parrot server as soon as it connects to the internet.

After MARS Ranger registers with the Parrot server, it becomes visible as a cloud antenna on the FreeFlight 8 **Remote Antenna** screen under **Select your remote antenna**.

4. Tap on the cloud antenna.

The cloud antenna connects after a few seconds:

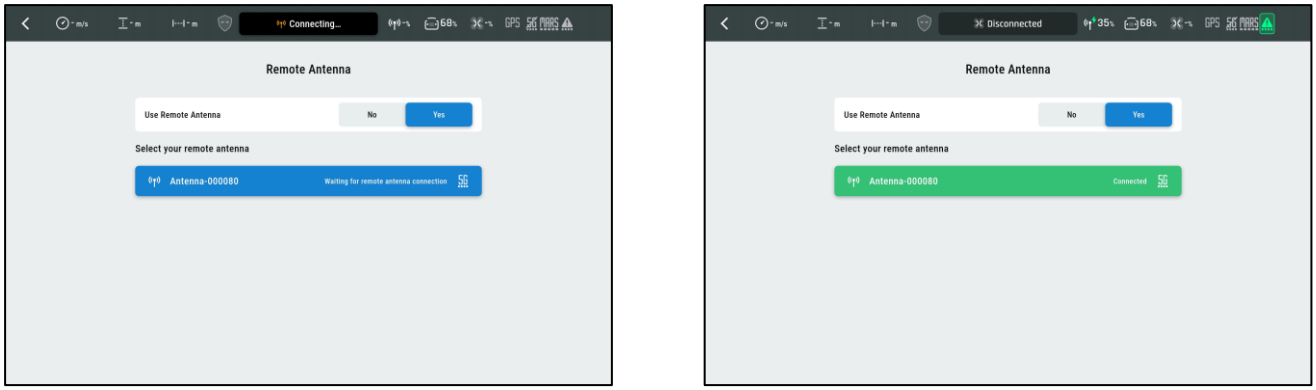


Figure 18: Cloud antenna connection

After the cloud antenna connects to FreeFlight 8, the battery level of the cloud antenna displays in the FreeFlight 8 top bar.

10. Piloting

The user has 2 options for taking off: ground take-off or hand launch.

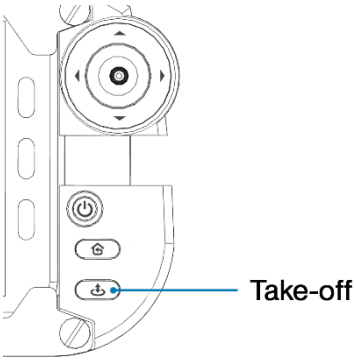
10.1. Ground Take-off

1. Turn on the drone and the controller.
2. Position the drone on a flat, even, and clear surface.

For optimal performance, Parrot recommends that you use the launch pad for ground take-off.

The video stream of the camera is visible on the tablet.

3. Press the **Take-off / Land** button on Skycontroller UKR.
4. The drone takes off and hovers 1 m / 3 ft above the take-off point.



10.2. Hand launch

Hand launch is enabled by default in FreeFlight 8. However, it can be disabled from the RTH and Safety settings page (Refer to *chapter 13.5. RTH and Safety* for more information).

You can perform the hand launch procedure alone. However, Parrot recommends that you work as a team of 2 people.

WARNING: Do not attempt a hand launch procedure if FreeFlight 8 does not display the **Handlaunch AVAILABLE** interface. Do not obstruct the downward facing camera, or any of the sensors underneath the drone.

Pay attention to the wind direction and speed. Do not face the wind. Keep yourself at a safe distance from the drone considering the possibility of drifting with the wind.

1. Power on the drone.
2. Position the drone on your flat, open hand.

The **Handlaunch AVAILABLE** interface opens on FreeFlight 8.

3. Press **Take-off / Land** on the Skycontroller UKR, or tap **Start** on the FreeFlight 8 **Handlaunch** interface.

The Hand launch **STARTING** message appears on FreeFlight 8. The drone's propellers start to rotate slowly, and a 3-second countdown timer starts with a hand animation. When the timer reaches 0, the message **LAUNCH** appears.

NOTE: You can abort the hand launch procedure at any time before you launch the drone by tapping **Stop**.

4. Throw the drone up and forward with your open hand. Aim for 1 meter in front of you.

The drone becomes airborne. It stabilizes and waits for commands from the pilot.

CAUTION: Certain environments are not suitable for ground take-off, and so the hand launch procedure must be used. Use hand launch in the following environments:

- Sandy environments
- Wet or snowy ground
- Tall grass

10.3. Flying

Flying is controlled with the joysticks. Skycontroller UKR has 2 button configurations. Mode 2 is the default configuration.

Left joystick (mode 2)

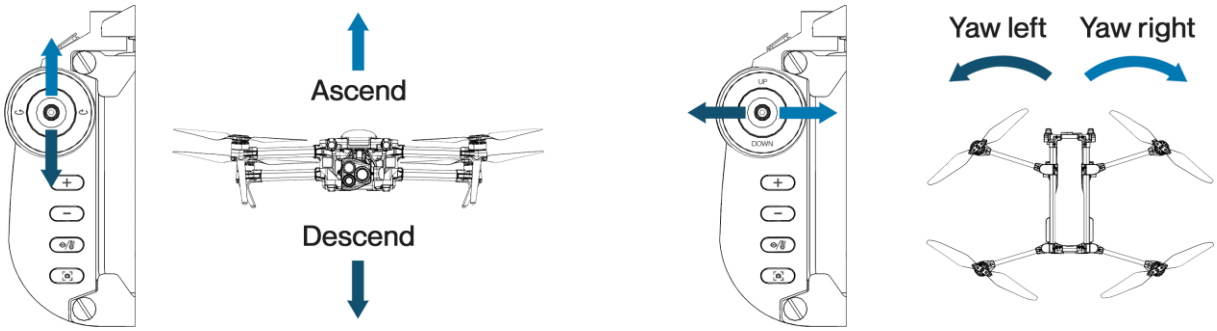


Figure 19: Left joystick

Right joystick (mode 2)

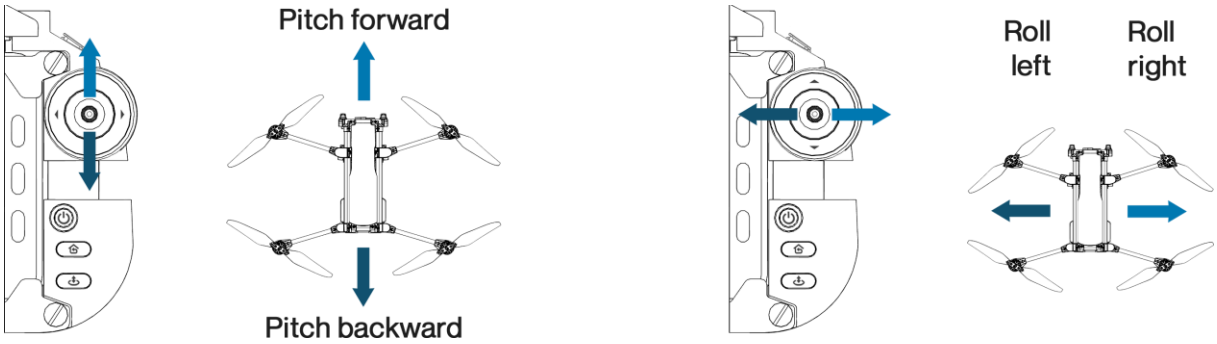


Figure 20: Right joystick

For more information on how to change the button configuration mode, refer to *chapter 13.16. Controller*.

10.4. Gimbal controls

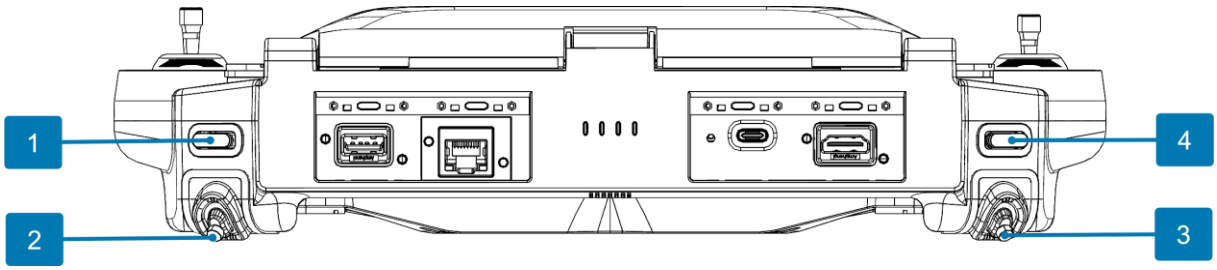


Figure 21: Gimbal and camera controls

1. **Shutter**:
   - In **Video** mode: stop and start recording.
   - In **Photo** mode: take a picture.
2. **Zoom**:
   - From x1 to x35
3. **Gimbal tilt:**
   - From 90° to -90°
4. **Reset camera**:
   - Reset the zoom to x1.
   - Place the gimbal horizontally.

10.4.1. Advanced zoom controls

You can control the zoom using short or long full-tilt presses on the zoom joystick (*No. 2 in Figure 21*):

- Short full-tilt press (less than 0.4 seconds): skips up or down to the closest zoom level preset
- Long full-tilt press (more than 0.4 seconds): skips up or down to the extreme zoom level preset

The available zoom level presets are:

- x1 – minimum zoom of the wide-angle camera
- x1.9 – minimum zoom of the thermal camera (available in Thermal mode only)
- x5.4 – minimum zoom of the telephoto camera
- x35 – maximum zoom of the telephoto camera

10.5. Landing

Press the **Take-off / Land** button at any altitude to land the drone.

Press the **Take-off / Land** button a second time to abort the landing process at any time during the landing.

Alternatively, the user can also land the drone by flying the drone to minimum altitude (35 cm /1.15 ft above the ground) and maintaining the left joystick in the down direction for 3 seconds.

An animation is displayed in the FreeFlight 8 HUD during the landing phase:

10.6. Hand Landing

In some environments such as sand, snow or tall grass, it is preferable to land in the pilot's hand rather than on the ground.

The Hand Landing procedure initiates if the aircraft detects a hand during the landing phase. The aircraft software runs a vision algorithm on the bottom stereo camera images to detect a hand.

The procedure to initiate a hand land is described below:

1. Fly the aircraft at least 1 m (3 ft) directly over your open hand, with your arm extended.
2. Press **Take-off / Land**.
3. If necessary, the aircraft rotates to align perfectly with your hand.
4. The aircraft slowly and safely lands on your hand

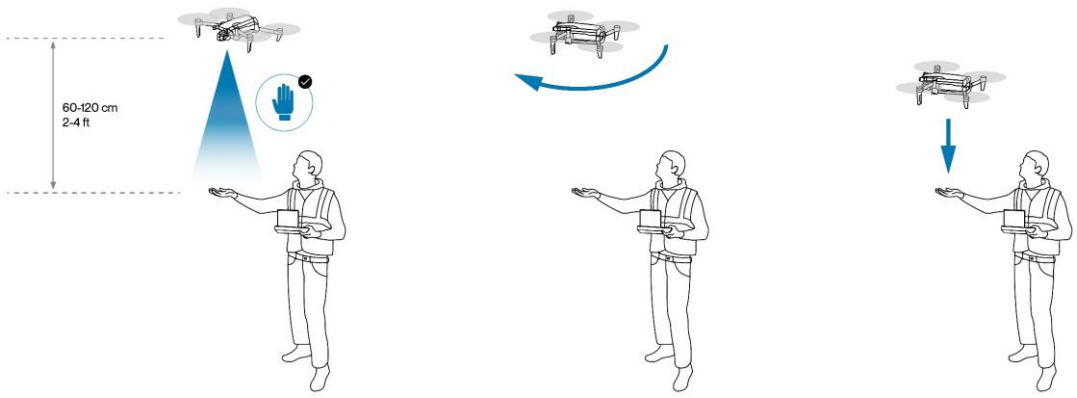


Figure 22: Hand landing procedure

NOTE: During a landing procedure, if the aircraft is still flying at more than 100 cm (3 ft) from your hand, you can extend your arm under the aircraft, with your hand open. The aircraft recognizes your hand and proceeds with the hand landing described above.

You can perform the hand landing procedure alone. However, Parrot recommends that you work as a team of 2 people.

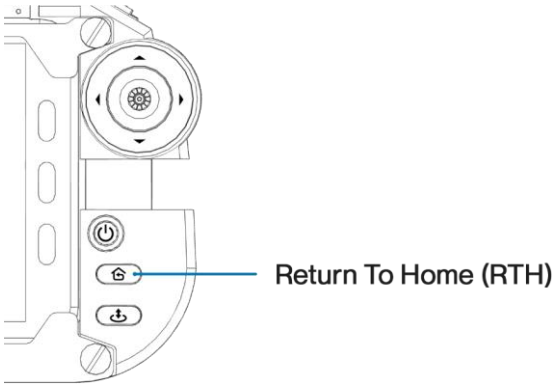
Do not attempt a hand landing in wind strong enough to make the aircraft fight to hold its hovering position.

Let the aircraft do the work. Do not forcefully grab the aircraft while it is hovering.

Pay attention to the wind direction and speed. Keep yourself at a safe distance from the drone considering the possibility of drifting with the wind.

10.7. Return to Home

Return to Home is an important safety function. At any time, the pilot can request the aircraft to reach its home position by pressing the controller **Return to Home** button.



3 options are available in FreeFlight 8 setting for the home position:

1. Take-off position
2. Pilot position
3. Custom position defined by the pilot

Refer to *chapter 13.5. RTH and Safety* for more information.

When the return to home procedure is underway, press the **Return to Home** button again to cancel the procedure.

On the FreeFlight 8 display:

- A return to home reminder blinks in the center of the display.
- The return path is shown on the map.
- Tap **Stop** to cancel the Return to Home procedure.

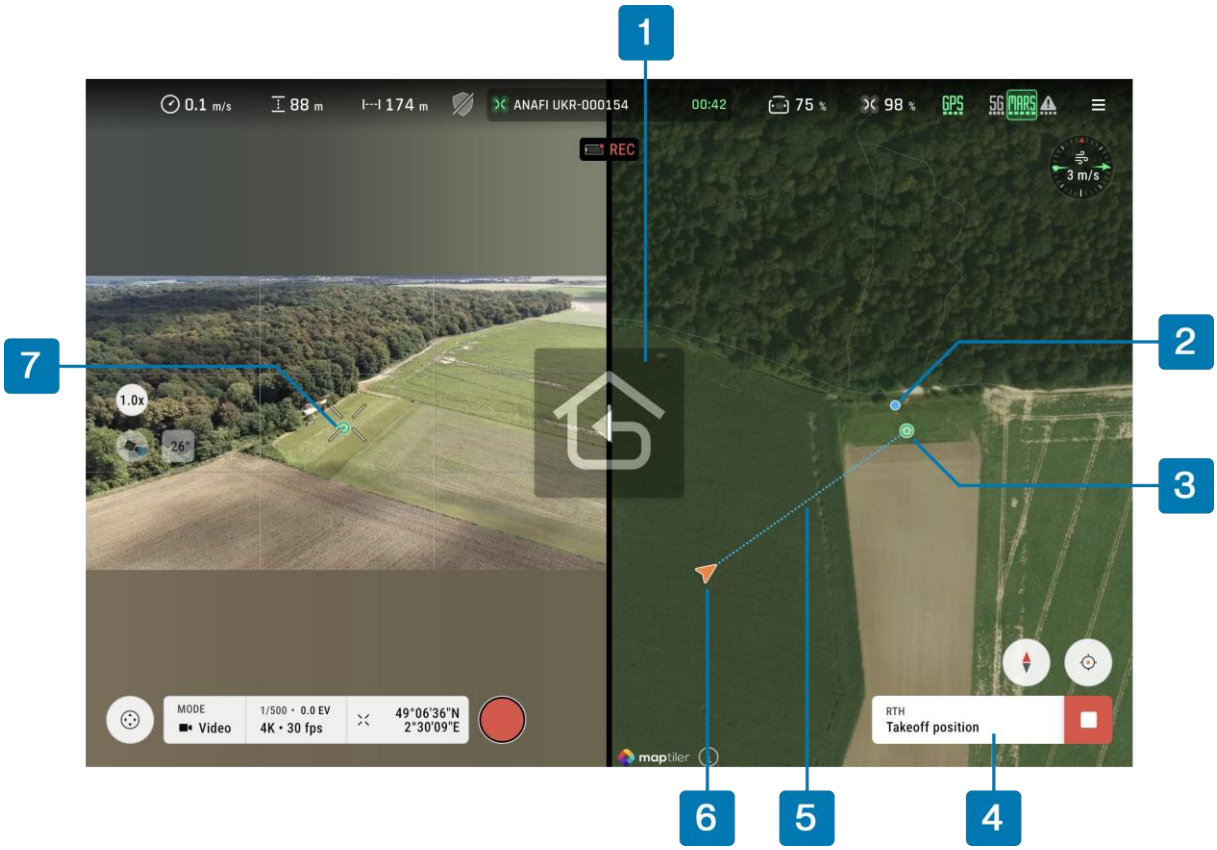


Figure 23: Return to Home in progress

1. RTH animation
2. Map view Skycontroller UKR position
3. Map view Home position
4. RTH action bar with Stop button
5. RTH return path
6. Aircraft position
7. Streaming view Home position

11. FreeFlight 8

The FreeFlight 8 HUD (heads-up display) allows the user to control all aircraft features from the Skycontroller UKR screen.

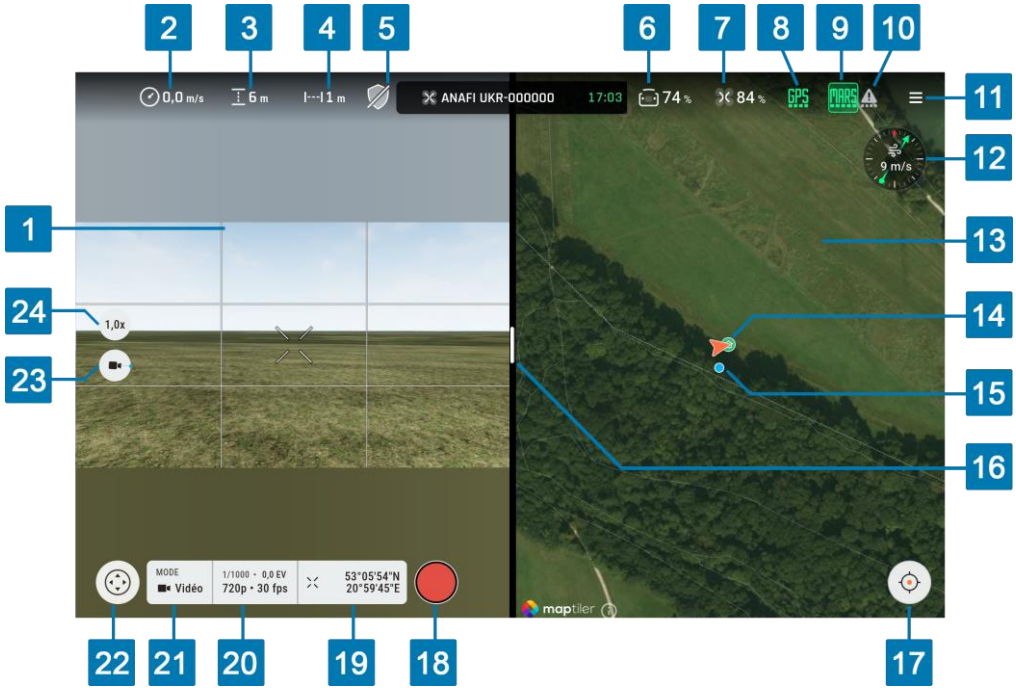


Figure 24: FreeFlight 8 main HUD

1. Streaming view
2. Ground speed
3. Altitude above take-off
4. Distance to home
5. Obstacle avoidance status
6. Controller battery level
7. Drone battery level
8. Navigation status
9. MARS main radio status*
10. LoRa backup radio status
11. Settings
12. Wind speed and direction
13. Map view
14. Home point
15. Skycontroller UKR position
16. Split view slider
17. Map center toggle
18. Recording status
19. Cursor on Target
20. Exposure adjustments
21. Image **MODE**
22. Flight mode selector
23. Gimbal pitch
24. Zoom level

The main view of FreeFlight 8 displays all the information and controls for every phase of flight.

The status bar at the top of the screen permanently shows the most important telemetry data.

** Available icons depend on individual configurations.*

The flight screen is split into two parts:

- the Streaming view (*No. 1 in Figure* 24),
- the Map view (*No. 13 in Figure* 24).

Drag the Split view slider (*No. 16 in Figure* 24) to the left or to the right to adjust the size of the streaming view and the map view.

At the bottom of the main flight view, users can select the flight mode (*No. 22 in Figure* 24), configure imaging modes (*No. 21 in Figure* 24), and center the map view (*No. 17 in Figure* 24).

Obstacle avoidance status:

	OA disabled by user
	OA enabled by user and engaged by supervisor
	OA enabled by user and disengaged by supervisor

Navigation status:

	GNSS navigation (21 satellites or more)
	GNSS navigation (14-20 satellites)
	GNSS navigation (10-13 satellites)
	GNSS navigation (9 satellites or less)
	Optical navigation
	Aero navigation

MARS (Military Adaptive Radio System) main radio status:

	Connected
	Disconnected

Wi-Fi main radio status:

	Connected
	Connection degraded
	Connection poor
	Disconnected

Cellular radio main radio status:

	Connected
	Connection degraded
	Connection poor
	Disconnected

LoRa backup radio status:

	Backup radio not in use
	Backup radio configuration error
	Backup radio configured but no packet is exchanged
	Controller and drone are exchanging packets

FLIGHT MODES	IMAGING MODES
Piloting	Video
Tracking	Photo
Touch & Fly	Timelapse
Flight Plan	GPS lapse

11.1. Cursor on Target

Cursor On Target displays the absolute coordinates of the point at the center of the streaming view. This function works with or without GPS.

When **Cursor On Target** is activated, click on the widget in the bottom bar to display detailed information about the target coordinates and distance to the drone.

The coordinates system can be changed in the Interface settings (Refer to *chapter 13.10. Interface* for more information).

In addition to the point coordinates, both the relative vertical and horizontal distance between the drone and the center point are also displayed.

The center point is shown in the map view.

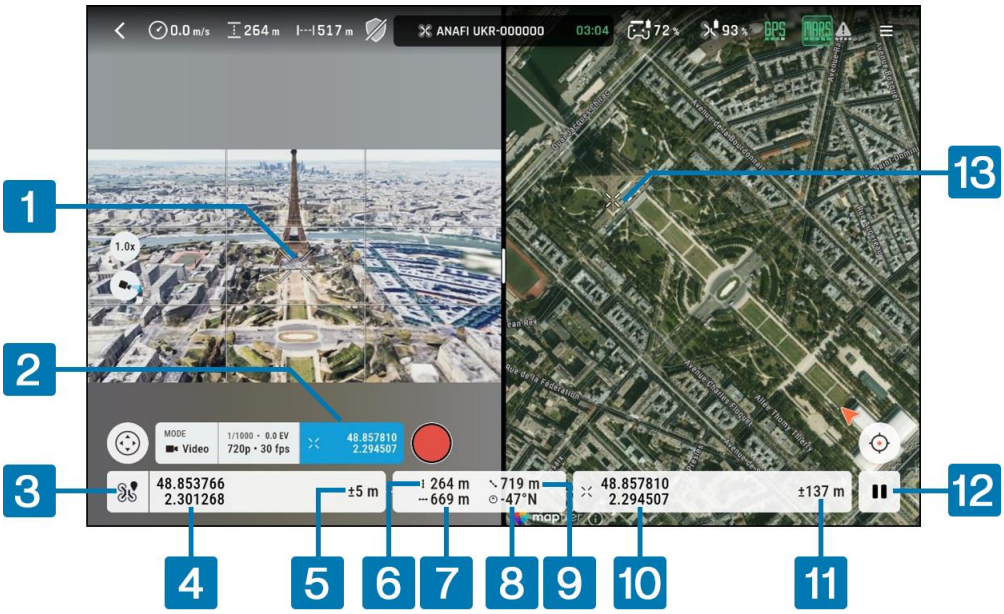


Figure 25: Cursor On Target

1. CoT Reticle
2. Target coordinates
3. Aircraft/GCS coordinates toggle
4. Drone coordinates
5. Drone position accuracy
6. Drone vertical distance to target
7. Drone horizontal distance to target
8. Drone diagonal distance to target
9. Azimuth in relation to North
10. Target coordinates
11. Target position accuracy
12. Freeze coordinate updates
13. CoT reticle in map view

NOTE: The Cursor on Target feature is available in Video mode and in JPEG Rect photo mode but is not available in JPEG Wide photo mode. Refer to *chapter 11.2. Video and photo modes* for more information about imaging modes.

Press and hold on the coordinates (Nos. 4 and 10 in *Figure 25*) to share the displayed data to third party apps.

11.2. Image mode

Figure 26: Video and photo modes

Four imaging modes can be configured in the bottom bar:

- **Video**
  - The user can configure the video resolution and video framerate:

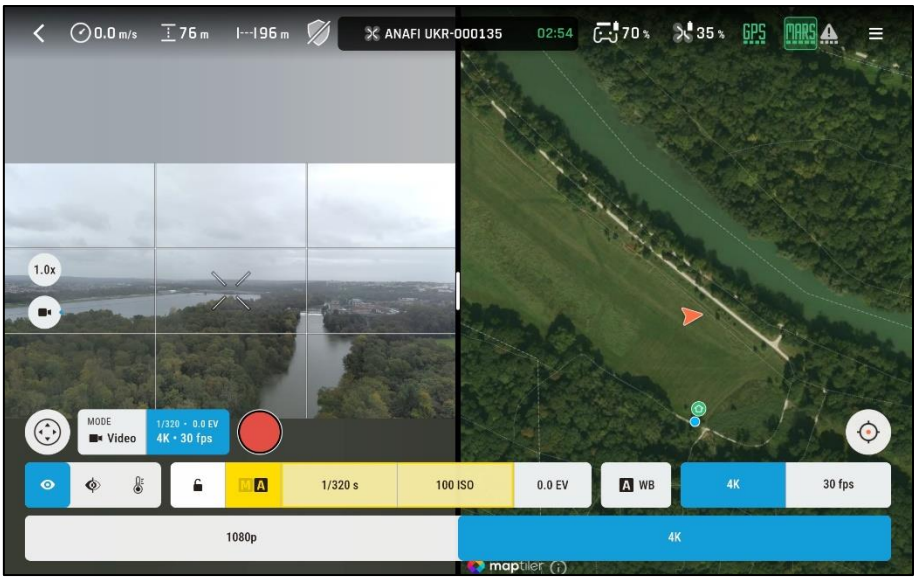


Figure 27: Video resolution configuration

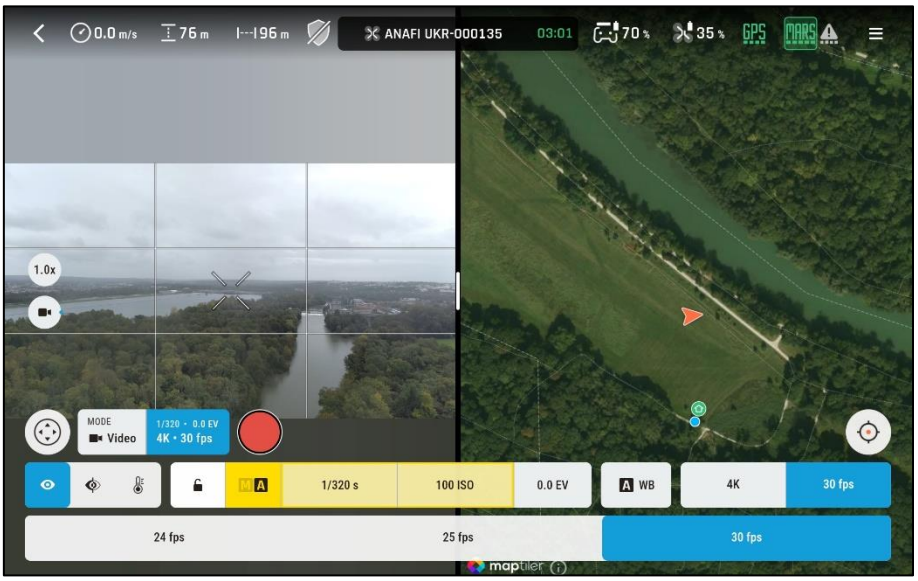


Figure 28: video framerate configuration

- **Photo** single
  - Photo resolution is fixed to 21 MP on the aircraft
  - You can configure the photo file format, 4 formats are available:
    - **JPEG RECT:** a rectilinear image encoded in a jpeg file format is recorded on the drone media storage
    - **JPEG WIDE**
    - **DNG+JPEG RECT**
    - **DNG+JPEG WIDE**

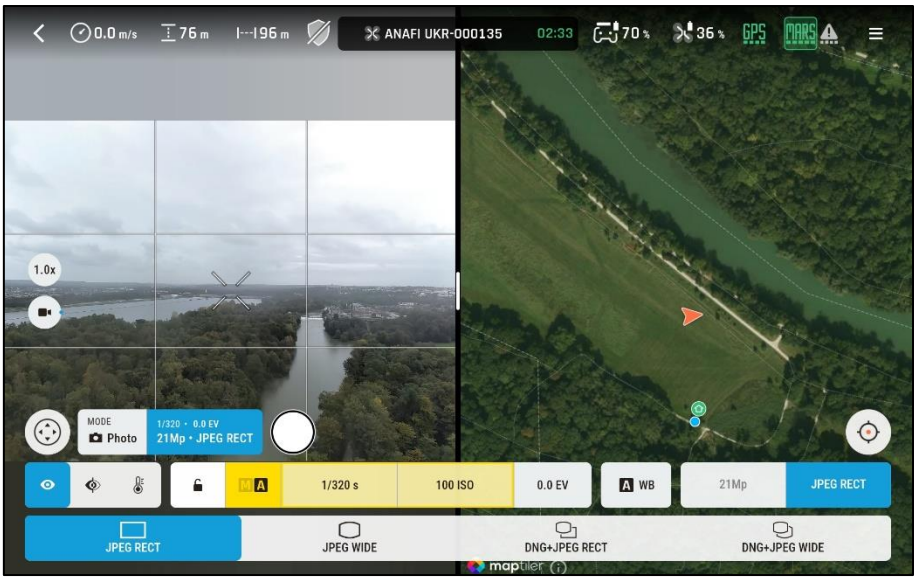


Figure 29: photo file format configuration

- **Timelapse**
  - One photo per time interval (from 1 s to 60 s)

Figure 30: Timelapse period

- **GPS lapse**
  - One photo per distance interval (from 0.5 m to 200 m / 2 ft to 656 ft)

Figure 31: GPS lapse distance

11.3. Exposure adjustments

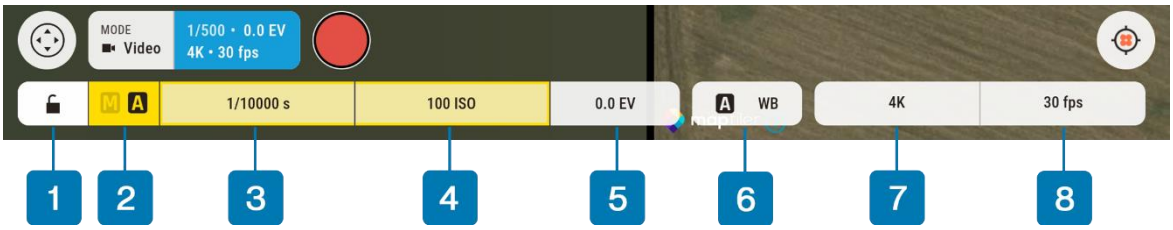


Figure 32: Automatic exposure

1. **Lock/Unlock** exposure toggle
2. **Manual/Auto** exposure toggle
3. **Shutter** speed
4. **ISO** value
5. **EV** correction
6. **White Balance**
7. Photo/Video **resolution**
8. Video **framerate**

The user can control **Image exposure** manually or automatically.

11.3.1. Auto exposure mode

Shutter speed and **ISO** are selected automatically. In **Auto** exposure mode, the user can configure EV correction from **-3.0EV** to **+3.0EV**:

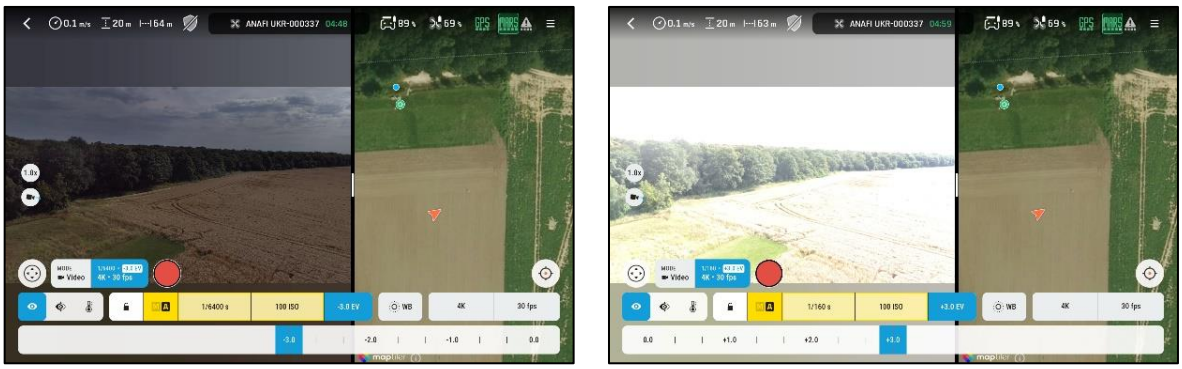


Figure 33: Imaging - Exposure correction -3EV to +3EV

Parrot

There are two methods to lock the exposure:

- Tap the **Lock** on the left-hand side of the screen.
- A long-press gesture anywhere in the streaming view:

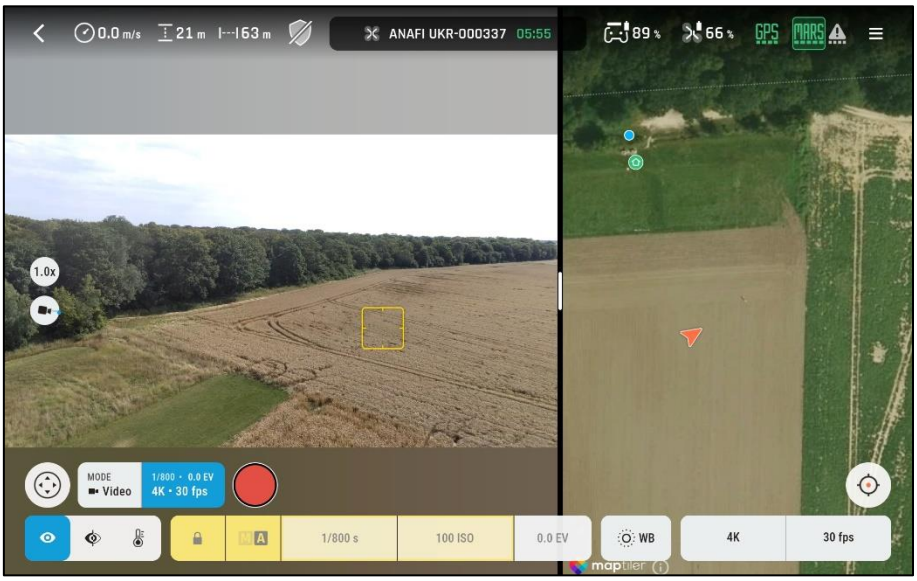


Figure 34: Exposure lock by a long touch on a Region of Interest (ROI) in the streaming view

When the exposure is locked, a message displays in the HUD:

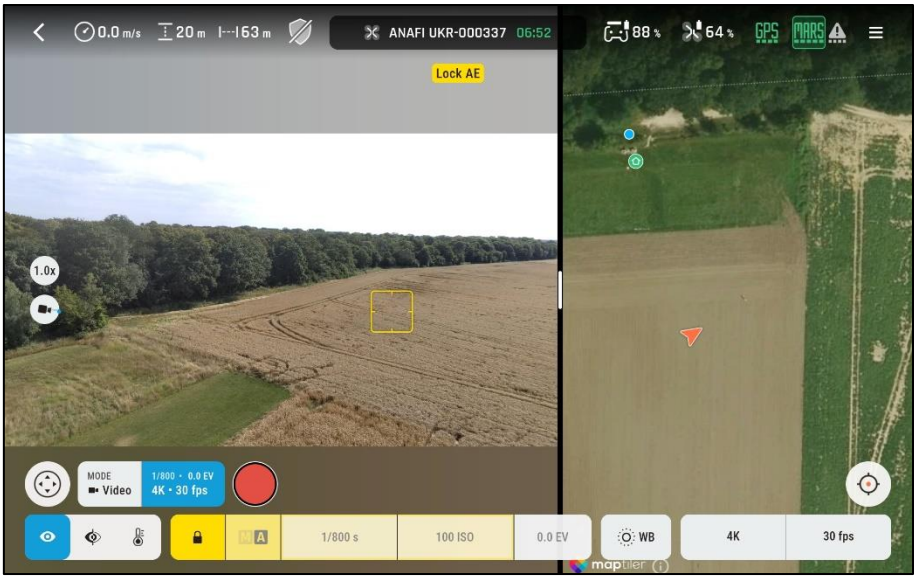


Figure 35: Lock AE message in the HUD

11.3.2. Manual exposure mode

Tap the **Manual**/**Auto** selector button to switch to **Manual** exposure mode.

In **Manual** exposure mode, the user configures both shutter speed and ISO value manually:

The user can configure the shutter speed from **1/10000 s** to **1/25 s**

The user can configure the ISO value from **100 ISO** to **12800 ISO**

11.4. White balance

The user can control **White Balance** automatically or manually:

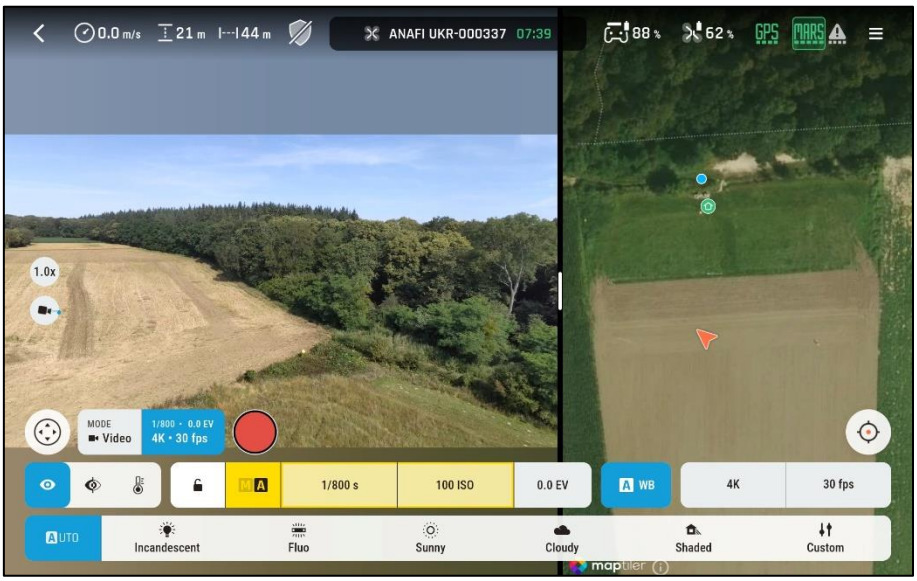


Figure 36: White balance automatic mode

Parrot

5 predefined modes are available:

- **Incandescent**
- **Fluo**
- **Sunny**
- **Cloudy**
- **Shaded**

In **Manual** mode the user directly selects the color temperature:

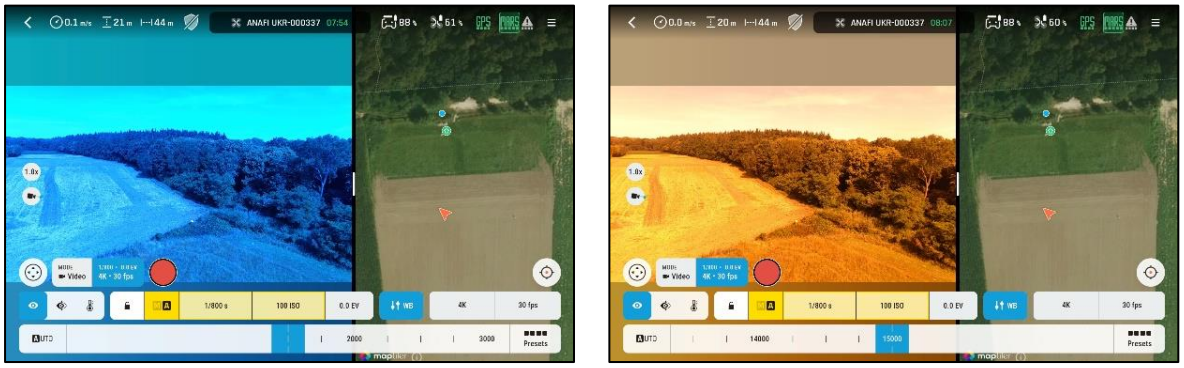


Figure 37: Manual white balance adjustment

11.5. Thermal camera

Activate **Thermal** mode through a dedicated button on the Skycontroller UKR, refer to *chapter 8. Skycontroller UKR* for more information.

Alternatively, activate the Thermal camera via the streaming view, and choose between **Thermal blending** mode, and **Thermal only** mode.

11.5.1. Control the blending

Two blending modes are available:

- **Relative**: blending is done on the full scene temperature range.

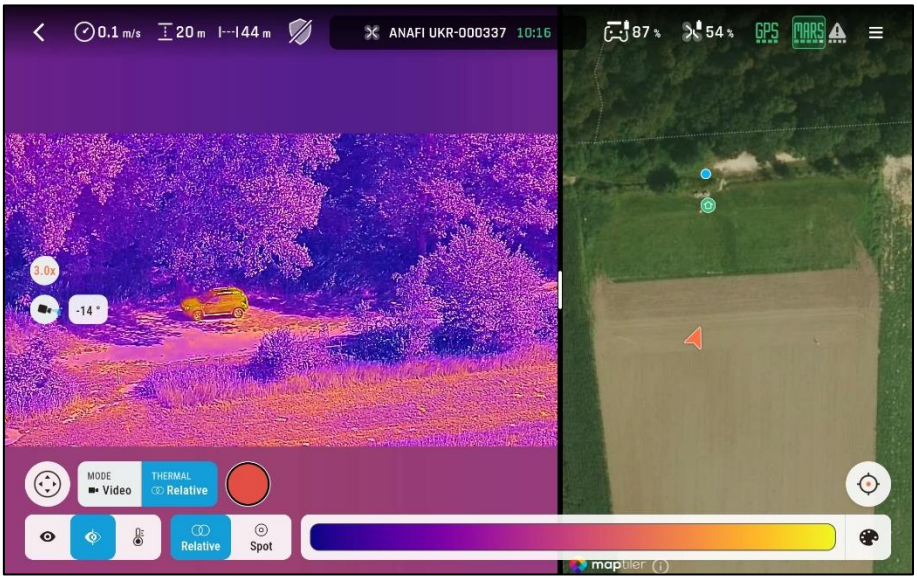


Figure 38: Thermal relative mode

- **Spot**: Thermal is displayed on a portion of the scene temperature range only.
  - Either the lowest or highest temperature pixels can be colorized:

Figure 39: Thermal spot mode, highest temperature

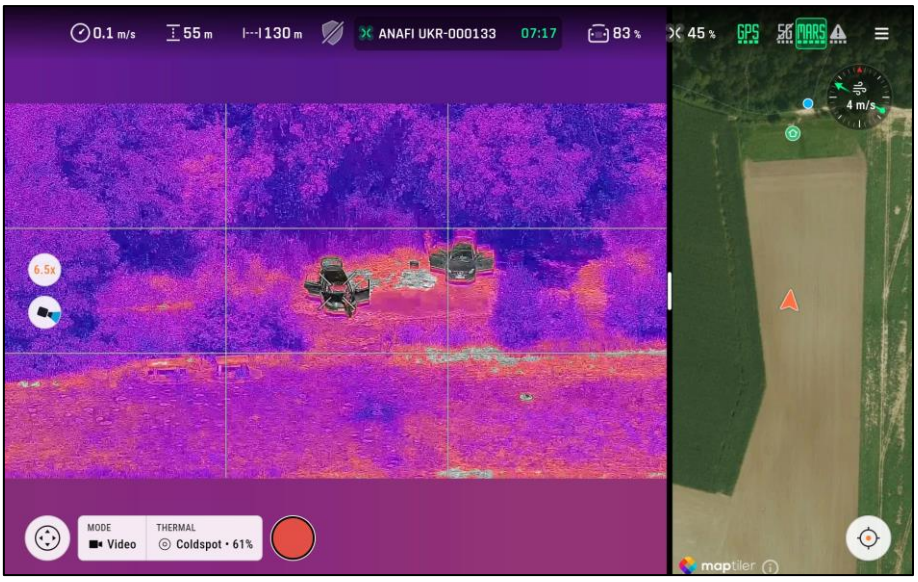
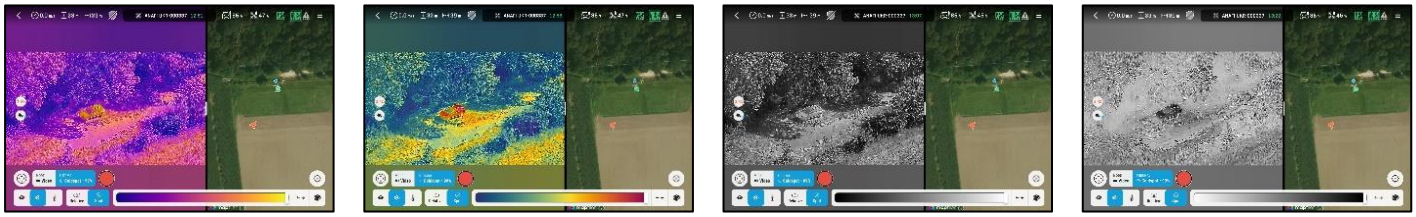


Figure 40: Thermal spot mode, lowest temperature

In each blending mode, four colorization palettes are available:



Fusion | Rainbow | White hot | Black hot

Figure 41: Thermal colorization palettes

Configure **Visible only** by tapping the **Eye** tile:

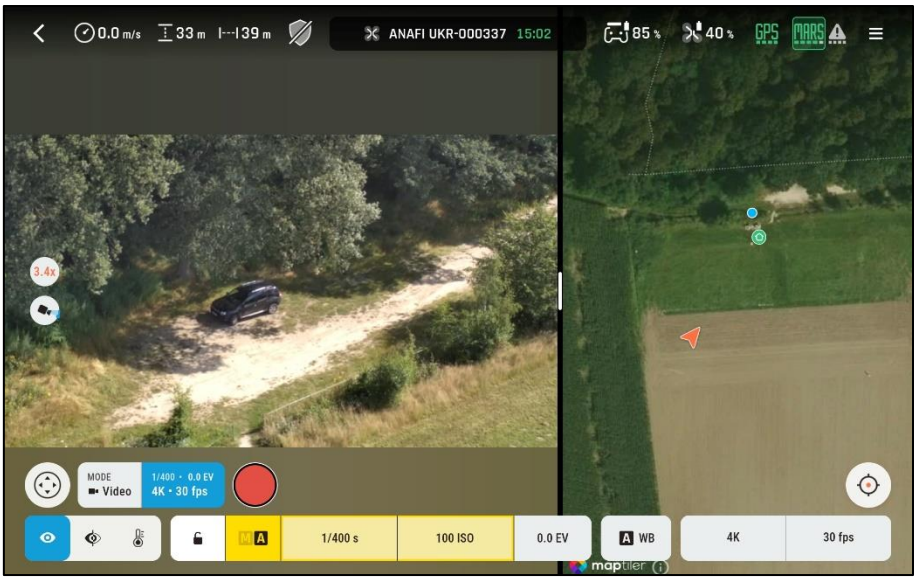


Figure 42: Visible only mode

The user can also configure **Thermal only** mode. In thermal only mode there is no blending of visible image with thermal image. Only the thermal image is displayed:

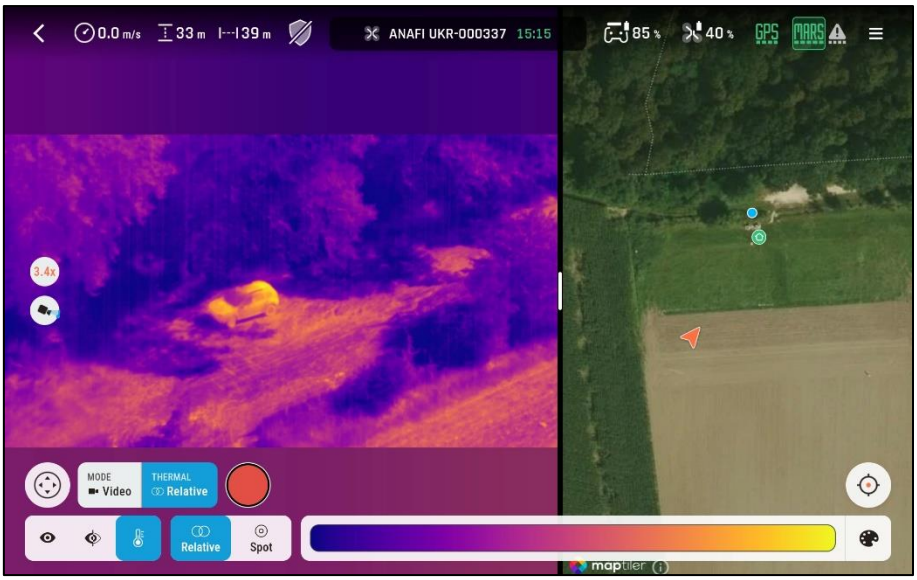
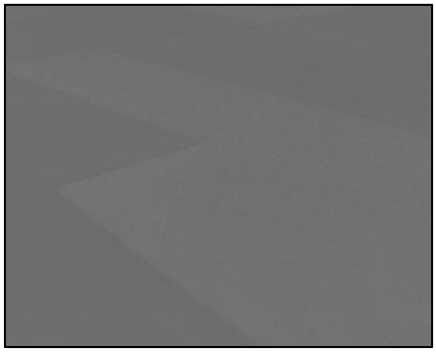
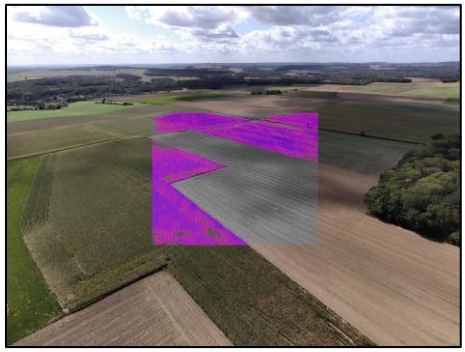


Figure 43: Thermal only mode

11.5.2. Thermal photo

Each time the aircraft takes a thermal picture, it creates three files:

JPG – Visible Image	PNG – Raw Thermal Image	JPG – Blended Thermal + Visible Image
		

1. JPG – Visible Image
    - A full visible-light image with complete metadata.
2. PNG – Raw Thermal Image
    - A raw 16-bit image from the thermal sensor.
    - This image has low contrast because it is not normalized to 8-bit.
    - Do not use this image directly. It must be processed separately, like a DNG raw image in visible-light photography.
3. JPG – Blended Thermal + Visible Image
    - A combined thermal and visible image, based on the selected blending setting.
    - Includes complete metadata and additional thermal data.
    - Recommended for thermal mapping and analysis.

12. Flight modes

The **Flight modes** button gives access to 4 different flying modes:

- **Piloting**: Manual piloting with joysticks.
- **Tracking**: Lock the gimbal onto a target.
- **Touch & Fly**: Fly the drone on the map.
- **Flight Plan**: Autonomous flight through way points.

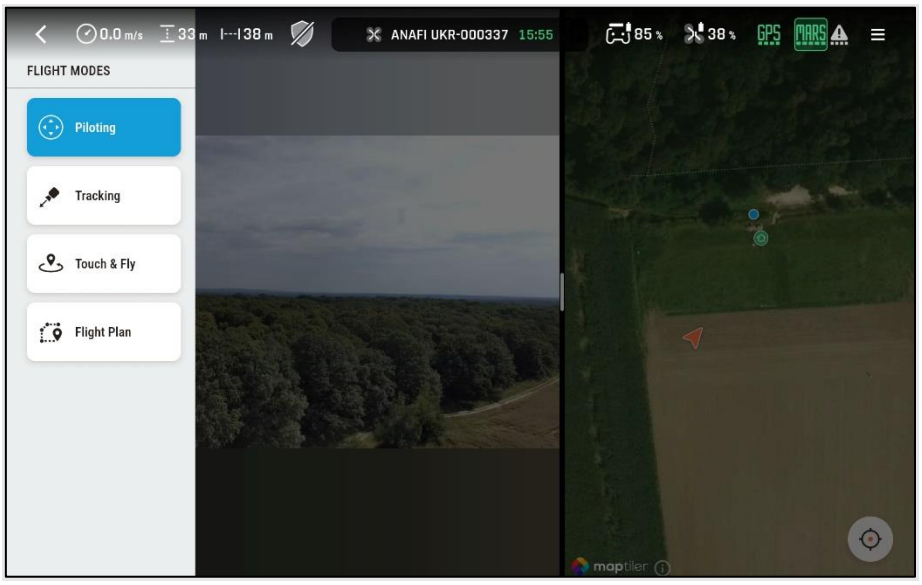


Figure 44: Flight modes

12.1. Piloting

Manual flight mode as described in *chapter 10. Piloting*.

During flight, a visual indicator appears on the aircraft icon when the Skycontroller UKR's right joystick is pushed forward, while the left joystick is in neutral position (in joystick configuration mode 2). This icon confirms that the command sent to the drone is a pitch forward only command.

	Regular aircraft icon
	Aircraft during direct pitch forward flight

12.2. Tracking

Tracking mode allows the user to track a selected target, and to fly the drone relative to that target, keeping the target in the center of the frame. The following table briefly describes the different statuses and the corresponding drone behavior. Refer to the following chapter for more detail.

Rectangle color	Target status	Aircraft behavior
Yellow	Automatic target suggestions	Manual piloting
Blue	Manual target selection	Manual piloting
Green	Target is defined and tracked	Piloting and gimbal relative to target
Orange	Target is lost and searched for	Piloting relative to the center of the frame and gimbal is manually piloted
Purple	Tracking is paused	Manual piloting

12.2.1. Target selection

A neural network searches for people and vehicles in the image.

Target suggestions appear within a yellow rectangle. Examples of tracking suggestion selected by the artificial intelligence algorithm can include:

- People
- Vehicles (cars, motorbikes, boats)
- Animals

Tap a target in a yellow rectangle to select it.

Alternatively, manually select a target by drawing a rectangle in the image:

Figure 45: tracking target suggestion

Figure 46: Manual selection of a target

12.2.2. Target tracking

A green rectangle in the image indicates that the target is being tracked:

Figure 47: Target tracking

The drone gimbal tracks the target.

The piloting of the drone is relative to the tracked target. The flight commands are relative to the target. If the user moves forward and the target moves to the side the drone will make a curve.

If the drone loses the target, the rectangle turns orange. The algorithm searches for the target while predicting its position for several seconds. It then focuses the search at the center of the frame. The user can change the camera orientation, to facilitate the target redetection. For example, if the target disappears behind a wall, the pilot can move the camera's focus to the end of the wall and the tracking restarts as soon as the target reappears.

If a yaw or tilt piloting command is sent while a target is being tracked, then the tracking enters the "Pause" mode. The rectangle around the target turns purple in color:

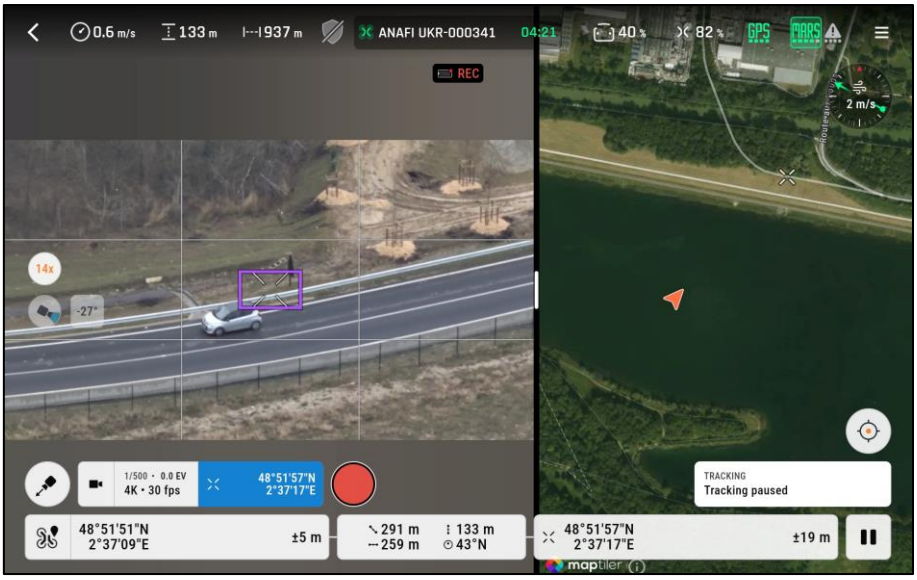


Figure 48: Tracking paused by pitch or yaw piloting command

The "Pause" mode is maintained as long as the yaw piloting command is received by the drone. As soon as the yaw piloting command stops, the drone enters the "Searching" mode and looks for a target.
The "Pause" mode is designed to allow the pilot to assist the tracking algorithm. For instance, if the tracker starts to follow another target than the expected one, the pilot can switch back to the expected one using this Pause mode.

To end the target tracking, press the **Stop** button (white with red background). The target suggestions reappear, and the drone returns to manual piloting behavior.

Tracking is compatible with the Cursor on Target function.

- A reticle points at the target in both the streaming view and the map view
- Target coordinates are displayed in the bottom bar.

For more information, refer to *chapter 13.14.5. Cursor on Target calibration*.

Tracking is compatible with the thermal camera display. If the thermal mode is on, the target tracking will use both visible and thermal data at the thermal image framerate.

Figure 49: Tracking and Cursor on Target

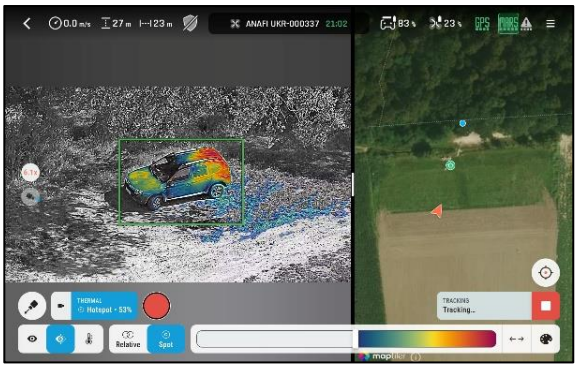


Figure 50: Tracking in thermal mode

NOTE: Any change on the thermal UI configuration (through the slider for instance), has no effect on the tracking algorithm performance.

12.3. Touch & Fly

Touch & Fly is a flying mode in which you can fly the drone towards a waypoint.

12.3.1. Fly to a waypoint

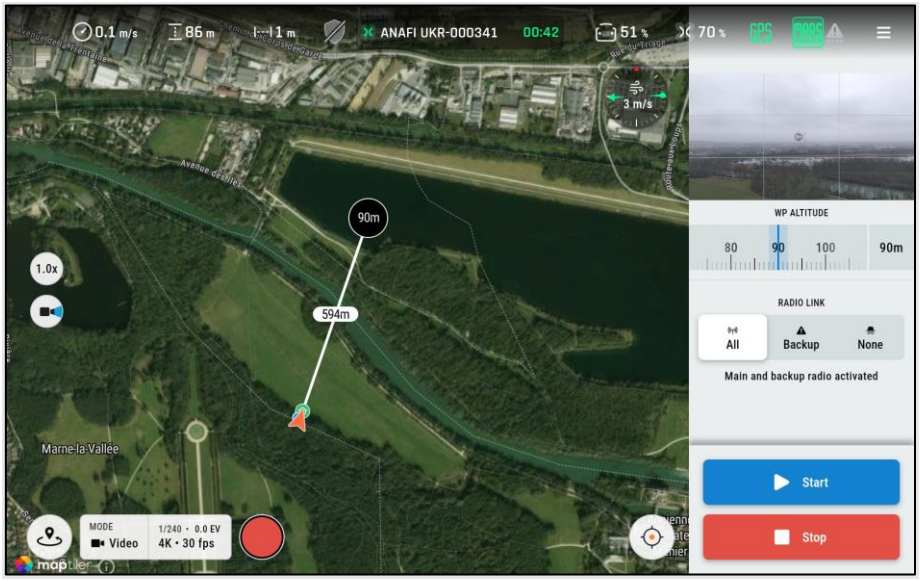


Figure 51: Set a waypoint in the map

Tap in the map view to set a waypoint (WP) at a given location.

The distance between the drone and the waypoint is indicated.

If the drone is flying the waypoint altitude initializes at the drone's current altitude. If the drone is grounded the waypoint altitude initializes at 20 m.

The user can manually edit the waypoint altitude (relative to the takeoff point). Either move the altitude slider, or tap the button on the right side to open a virtual keyboard:

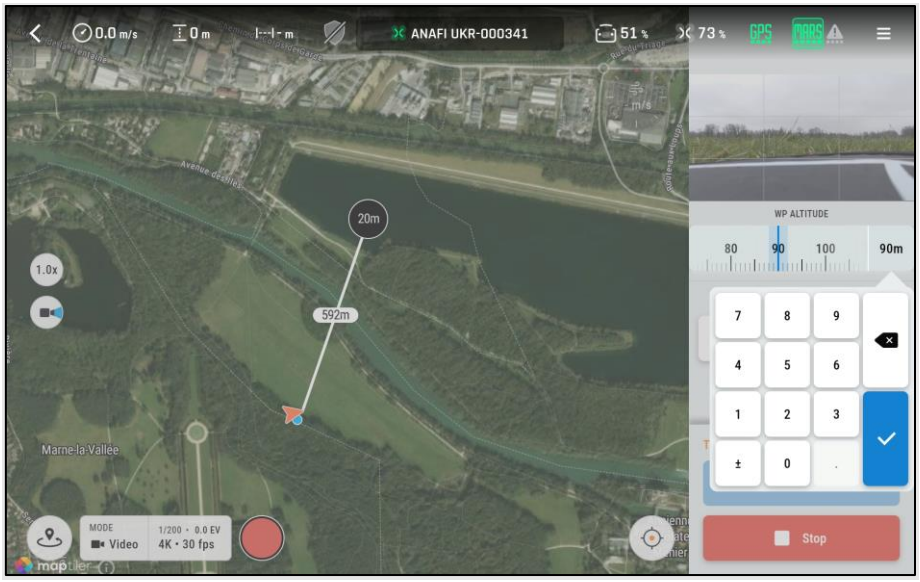


Figure 52: Edit WP altitude with the virtual keyboard

The user can set the radio link used on the trajectory towards the waypoint.

Three options are available for the radio link:

- **All**: The user receives the video feed during the flight.
- **Backup**: The user receives only basic telemetry.
- **None**: Radio silence mode, the drone does not transmit any radio signal.

After reaching the waypoint in Backup radio or silence mode the drone will restore the MARS radio link.

Tap the **Start** button to fly the drone towards the waypoint.

Parameter name	Unit	Range	Default value
WP ALTITUDE	m (or ft)	-100 m to 1000 m / -328 ft to 3,281	Current drone altitude
RADIO LINK		**All, Backup,** or **None**	All

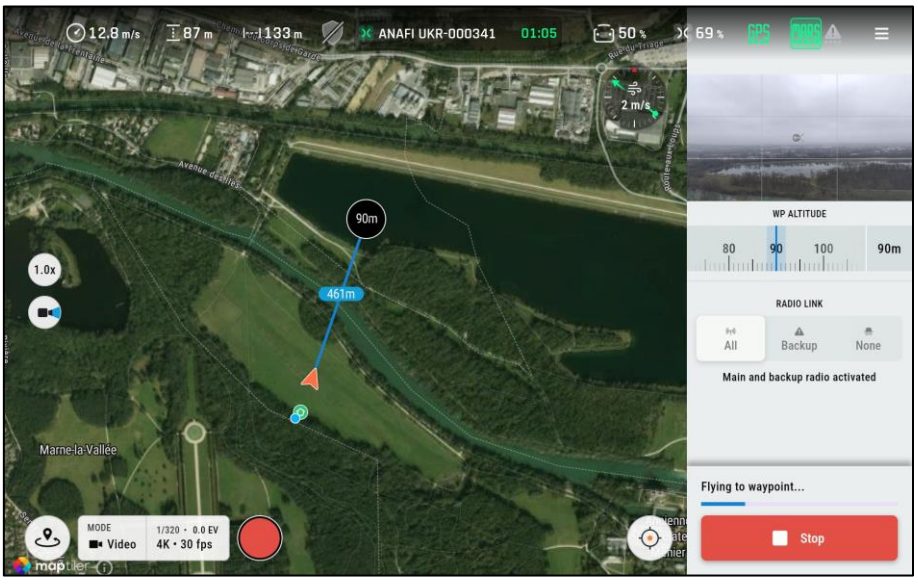


Figure 53: Fly towards a waypoint

The drone flies to the waypoint at the optimal speed. The optimal speed is estimated by the drone software in order to minimize battery energy consumption.

The pilot can reduce the drone speed during the flight towards the waypoint. The speed reduction can be commanded with a negative pitch command, which converges linearly to zero as the stick moves to the lowest location. The speed dynamically adapts to the stick position. Positive pitch commands have no effect on the speed.

12.3.2. Set a waypoint in the streaming view

The user can set a waypoint through a short tap in the streaming view.

The waypoint is positioned at a distance of 500 m / 1640 ft from the drone in the direction defined by the user.

The waypoint can be moved horizontally in the streaming view:

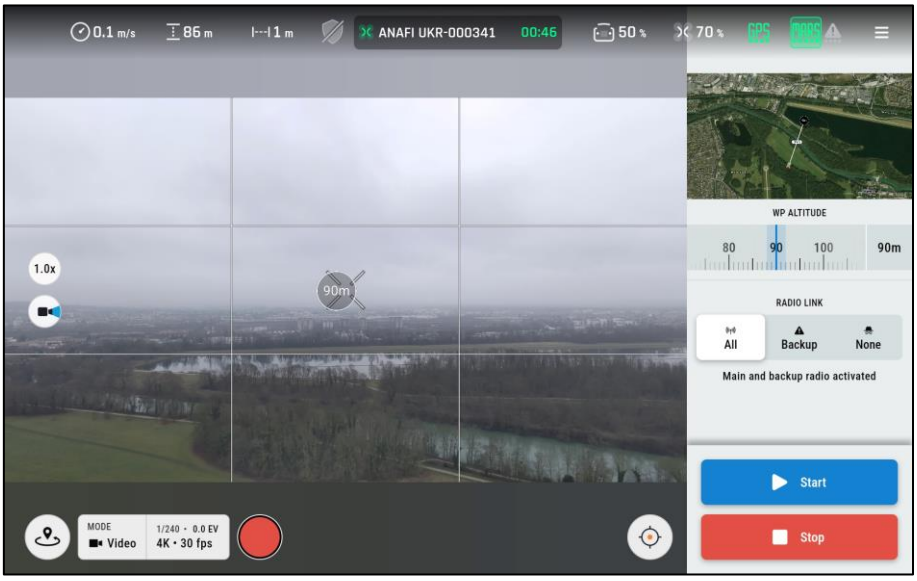


Figure 54: Move a waypoint in the streaming view

12.4. Flight plan

12.4.1. Creating a flight plan

FreeFlight 8 prompts the user to create a new project when entering the **Flight Plan** piloting mode without any existing Flight Plan project stored locally:

Figure 55: Create your new project

12.4.2. Flight Plan HUD

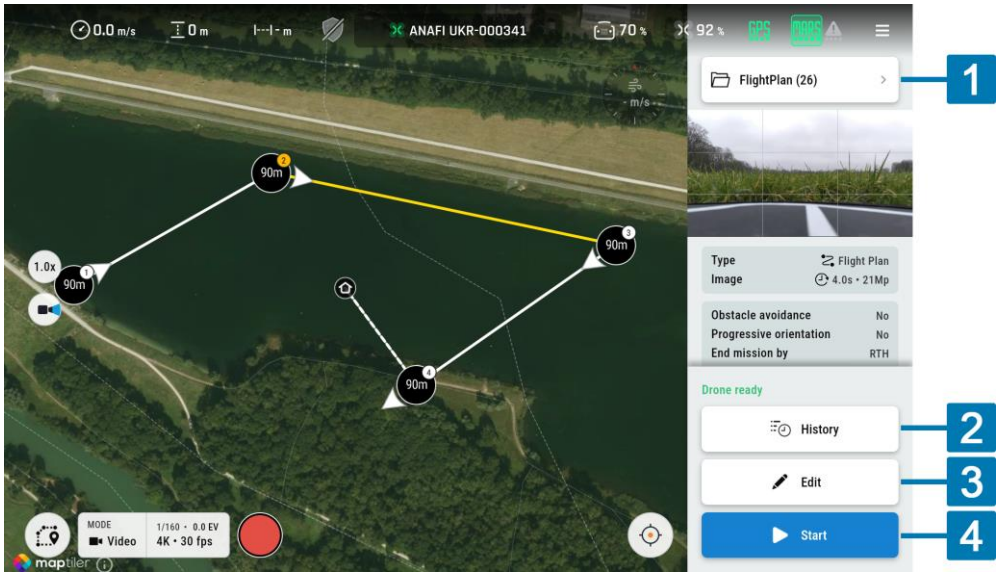


Figure 56: Project name button

1. **Project name** button
2. **History** of the project executions
3. **Edit** the project
4. **Start** a project execution

Tap the **Project name** button to open the **Projects** screen.

The **Projects** screen lists all projects synchronized with the current Parrot account.

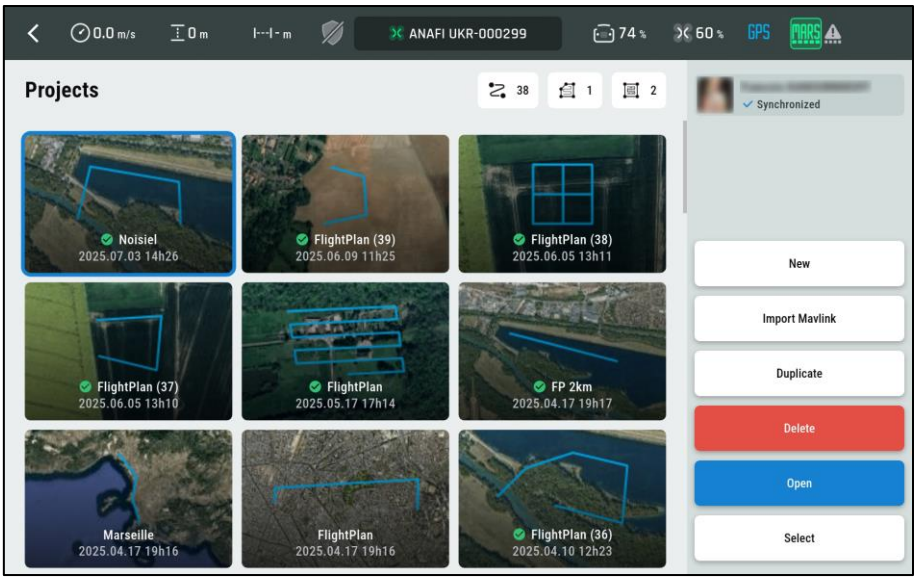


Figure 57: Projects screen

From the **Projects** screen, users can:

- Create a **New** project.
- **Import Mavlink**.
- **Duplicate** a project.
- **Delete** a selected project.
- **Open** an already created project.
- Enter **Select** mode to select multiple projects for deletion.

Import Mavlink allows users to import a Mavlink file into FreeFlight 8. That Mavlink file may have been generated with software such as Mission Planner. After it has been imported the FlightPlan can be edited into FreeFlight 8 and it can be executed on the drone.

12.4.3. Flight plan editor

Tap the screen to create a waypoint:

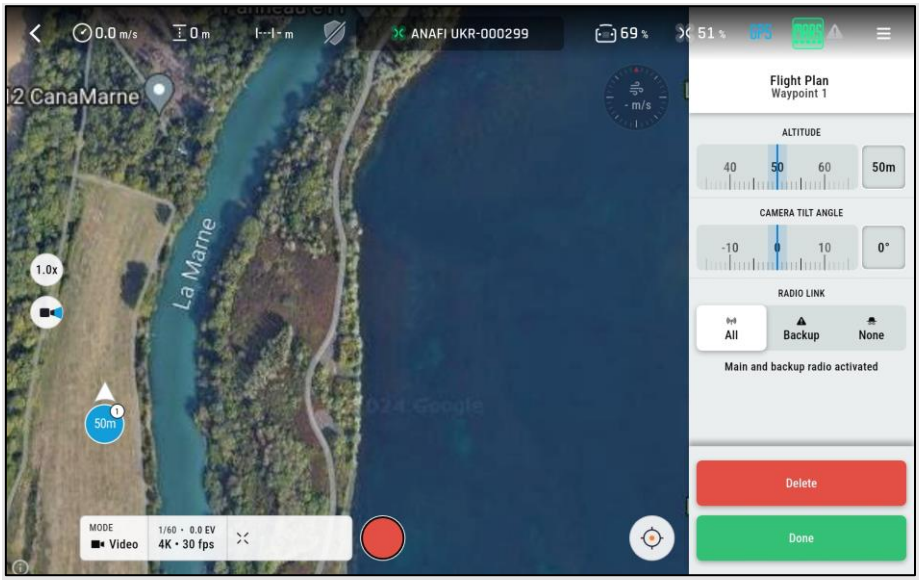


Figure 58: Edit first waypoint

Drag and drop the waypoint to move it.

Modify the drone orientation by a single tap on the waypoint to select it and then rotate the white arrow around the waypoint.

Edit the waypoint parameters:

Parameter name	Description	Unit	Range	Default value
ALTITUDE	WP altitude in ATO reference	m (or ft)	**-100m** to **1000m**	50m
CAMERA TILT ANGLE	Negative when oriented downwards	Degree	**-90°** to **90°**	0°
RADIO LINK	Selects used radio link(s)		**All, Backup,** or **None**	All

Three options are available for the radio link:

- **All**: The user receives the video feed during the flight.
- **Backup**: The user receives only basic telemetry.
- **None**: Radio silence mode, the drone does not transmit any radio signal.

The radio option will be applied on the segment between the selected WP and the next one.

The segment between two waypoints is represented in a different color depending on the radio link setting:

All: segment is white **Backup**: segment is yellow **None**: segment is red

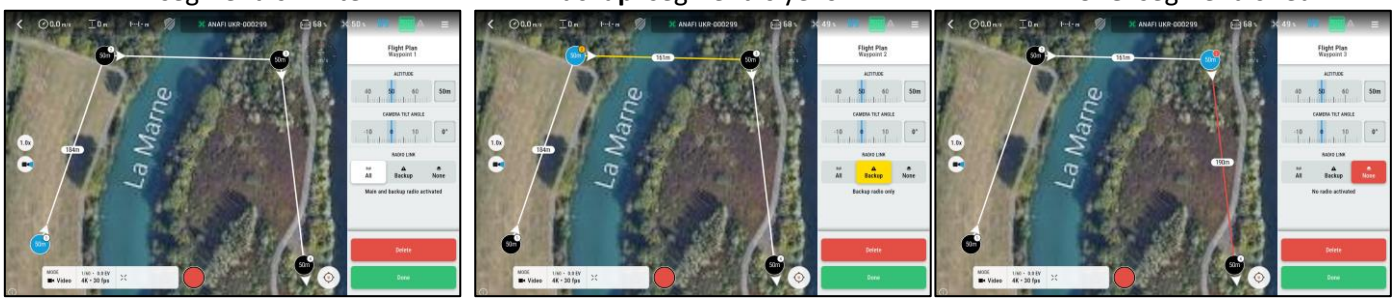


Figure 59: Color of the segment function of WP radio link setting

The radio option configured on the latest WP will be applied during the Return to home.

Add more waypoints in the flight plan by a short touch on the screen. The new waypoint inherits the properties of the previous waypoint.

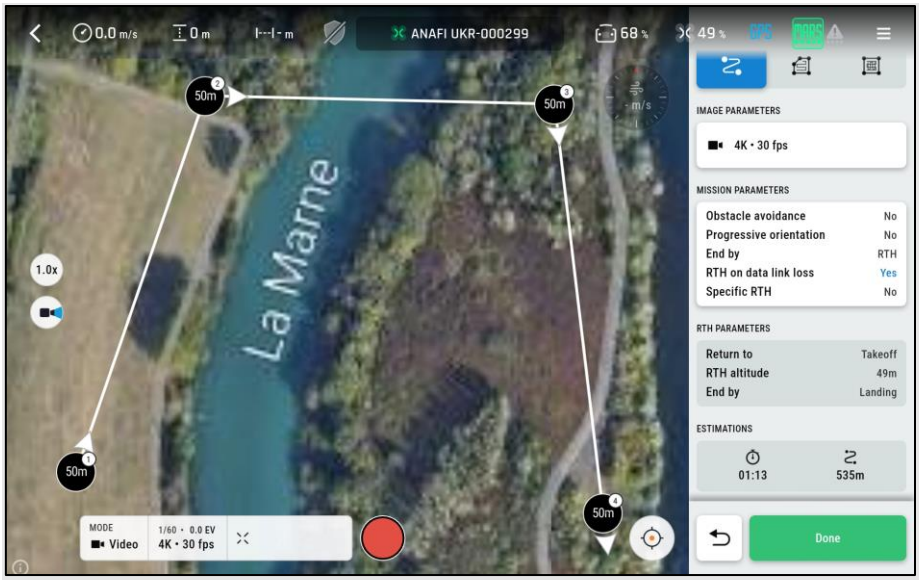


Figure 60: Add more waypoints in the flight plan

Edit the segment between two waypoints:

- Tap the segment to select it, the segment turns blue.
- Tap **+ Add** to insert a waypoint in the middle of the segment:

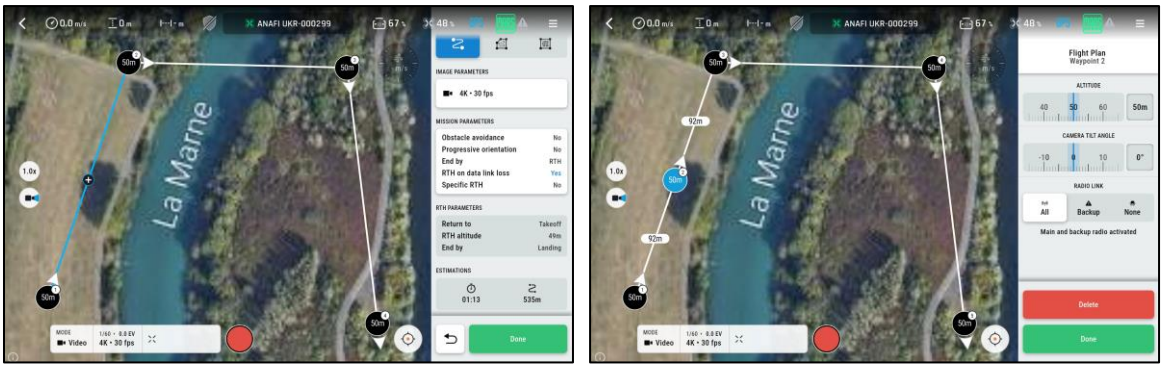


Figure 61: Insert a waypoint on a segment

Parrot

Create a Point of Interest by a long touch in the map view:

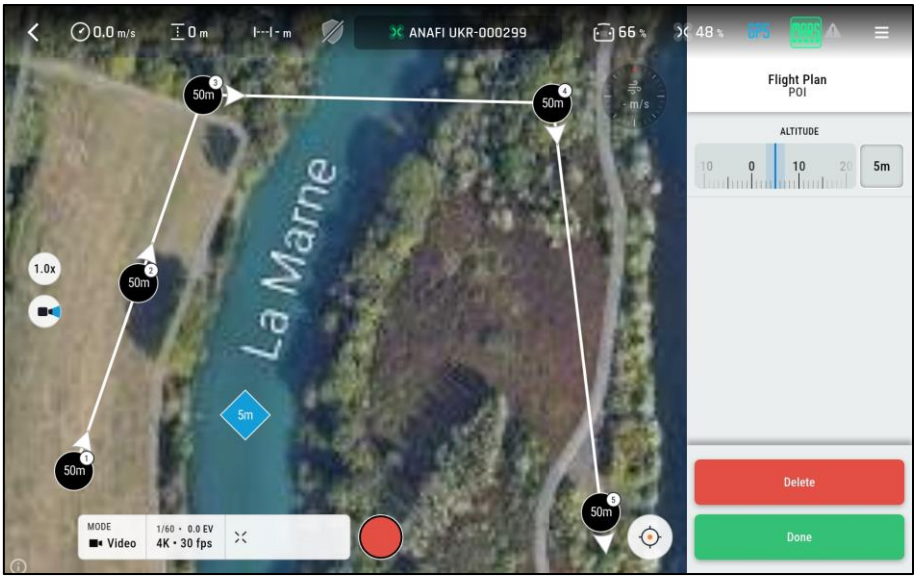


Figure 62: Add a POI in the flight plan

- POI only has 1 altitude parameter:

Parameter name	Description	Unit	Range	Default value
ALTITUDE	POI altitude in ATO reference	m (or ft)	-100 to 1,000 m, -300 to 3,500 ft	5 m / 16 ft

- Single tap on a POI to select it. The selected POI appears in blue.
- When a POI is selected, any new waypoint is associated with that POI
- When a POI is selected, tap a waypoint to assign the WP to the selected POI:

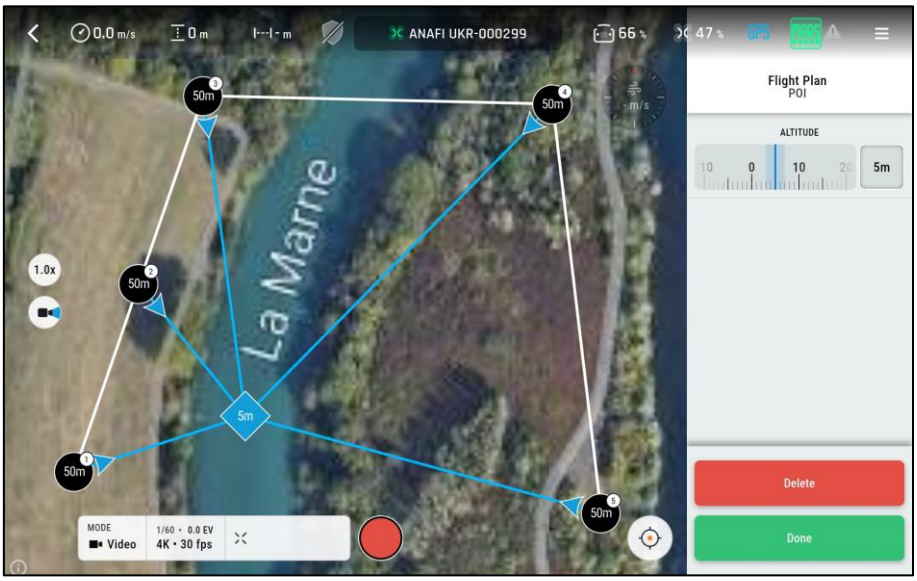


Figure 63: Assign a POI to one or more waypoints

12.4.4. Photogrammetry simple grid editor

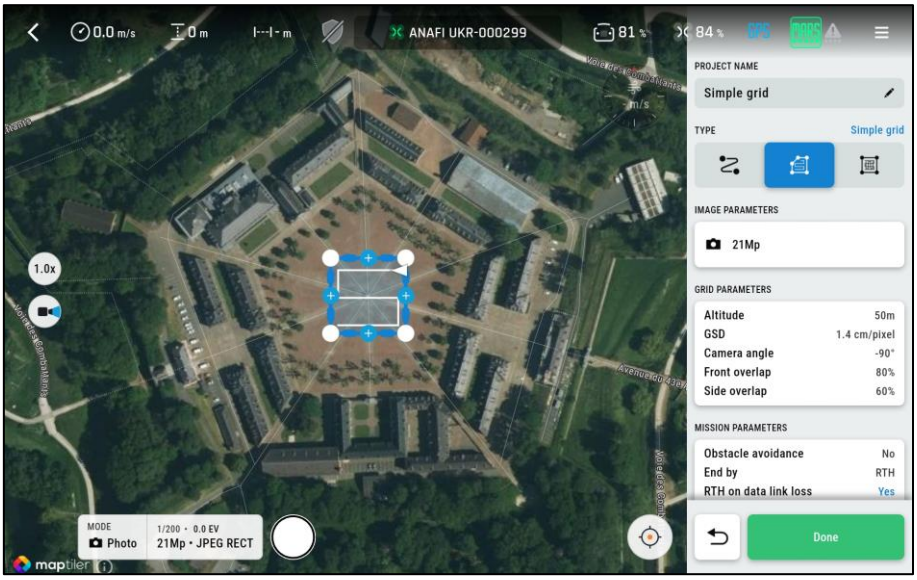


Figure 64: Photogrammetry simple grid

Create the grid by scrolling the map and touch it at the desired mission location.

The simple grid will be created in the form of a square of 50m on each side.

The drone trajectory is marked by the solid white line. The starting point of the trajectory is marked by the white arrow.

Users can adjust the mission trajectory through various actions:

- Move the whole mission in any direction
- Rotate the whole mission
- Move a segment (solid blue line)
- Move a mission corner (white dot)
- Add a mission waypoint (sign +)

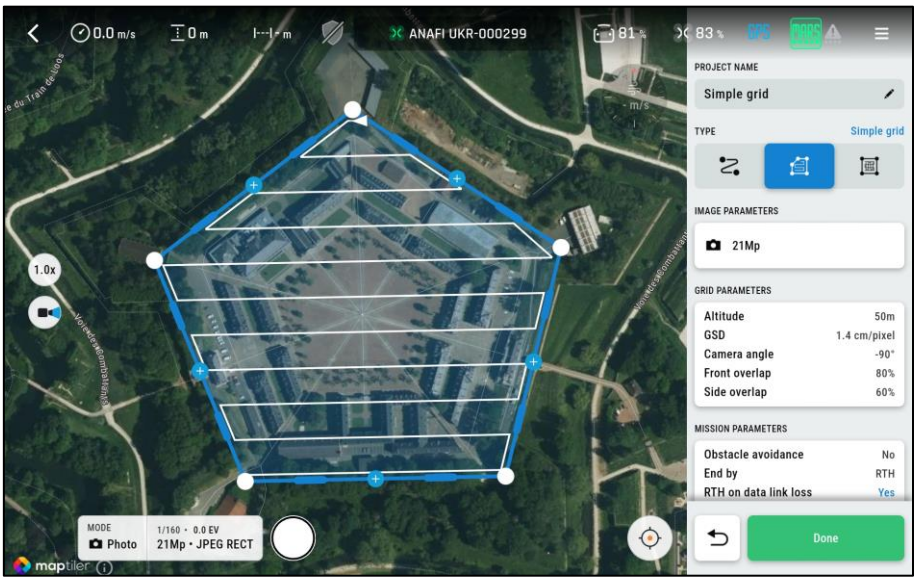


Figure 65: Simple grid after edition is completed

12.4.5. Photogrammetry double grid editor

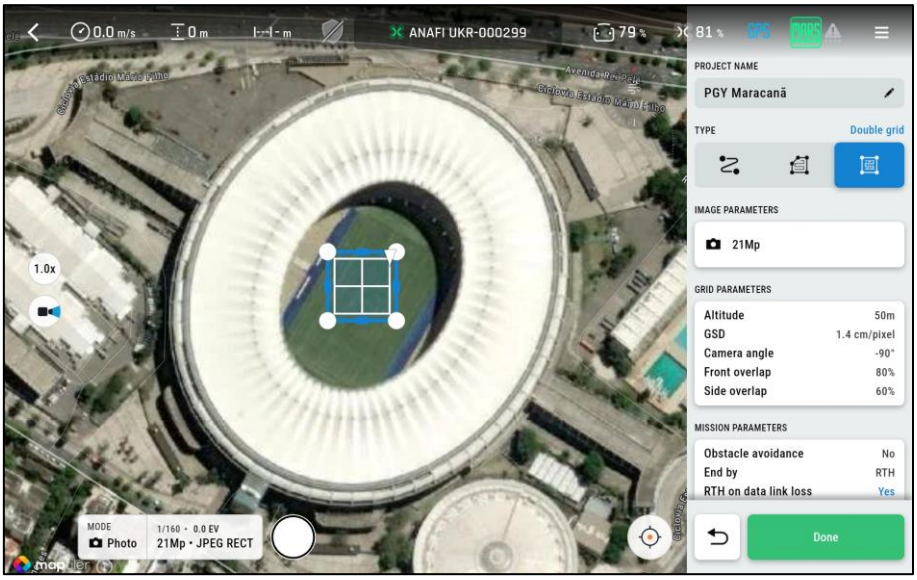


Figure 66: Photogrammetry double grid editor

Create the grid by scrolling the map and touch it at the desired mission location.

The double grid will be created in the form of a square of 50m on each side.

The drone trajectory is marked by the solid white line. The starting point of the trajectory is marked by the white arrow.

User can adjust the mission trajectory through various actions:

- Move the whole mission in any direction
- Rotate the whole mission
- Translate a segment
- Move a mission corner (white dot)

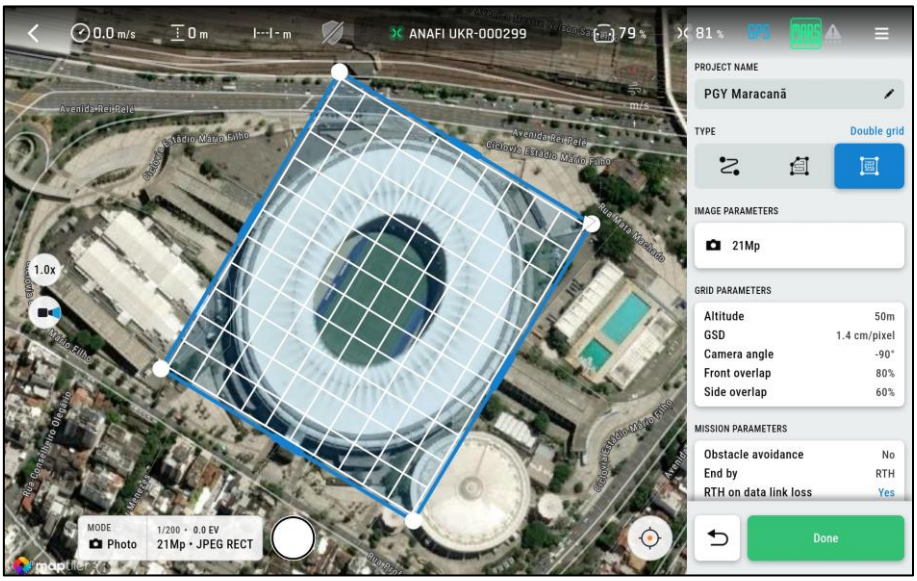


Figure 67: Double grid after edition is completed

12.4.6. Flight plan parameters

Users can edit Flight Plan imaging, mission and custom RTH parameters.

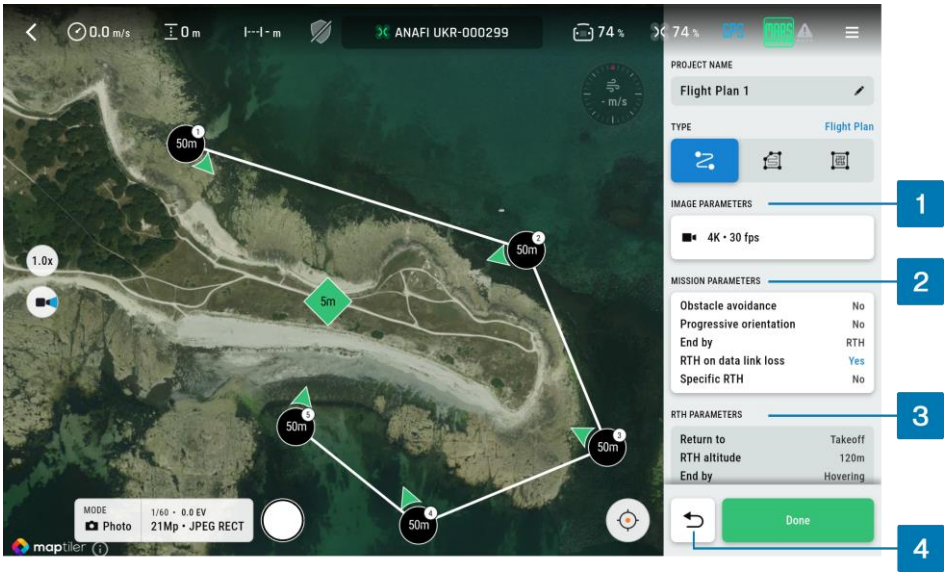


Figure 68: Flight plan parameters

1. **IMAGE PARAMETERS**
2. **MISSION PARAMETERS**
3. Custom **RTH PARAMETERS**
4. **Undo** button

12.4.6.1. Image parameters

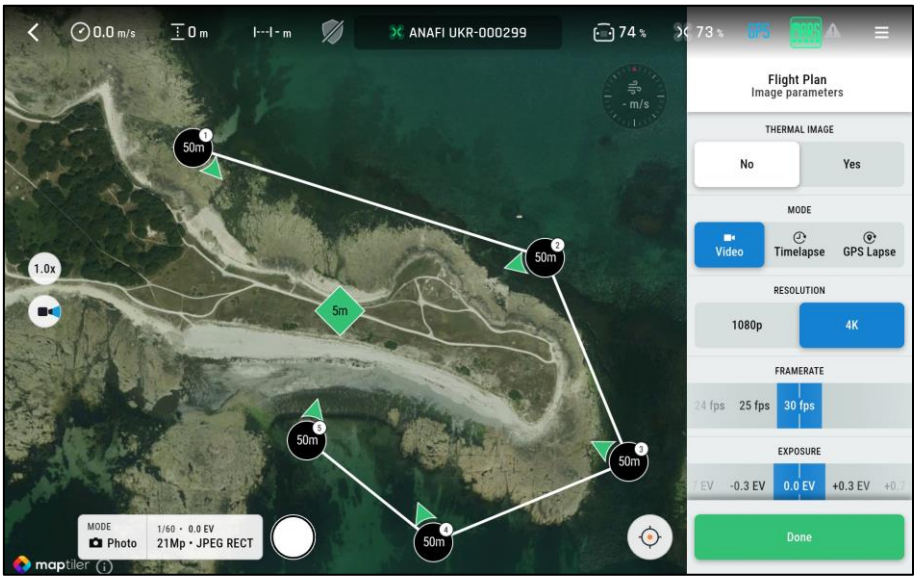


Figure 69: Flight plan imaging parameters

Parameter name	Description	Range	Default value
THERMAL IMAGE	Thermal imaging mode configuration	**Yes / No**	No
MODE	Configure imaging mode	**Video / Timelapse / GPS Lapse**	Video
RESOLUTION	Configure video resolution (video mode only)	**1080p / 4K**	4K
FRAMERATE	Configure video framerate (video mode only)	**24 / 25 / 30 / 48 / 50 / 60 fps**	30 fps
EXPOSURE	Configure exposure correction	**-3.0** to **+3.0 EV**	0.0 EV
WHITE BALANCE	Configure white balance	**Auto / Sunny / Cloudy**	Auto
Timelapse period	Delay between 2 photos (timelapse mode)	1 to 60 seconds	2 seconds
GPS Lapse distance	Distance between 2 photos (gpslapse mode)	0.5 to 200 m	10 m
Photo resolution	Photo resolution (photo mode only)	21 MP	21 MP

12.4.6.2. Mission parameters

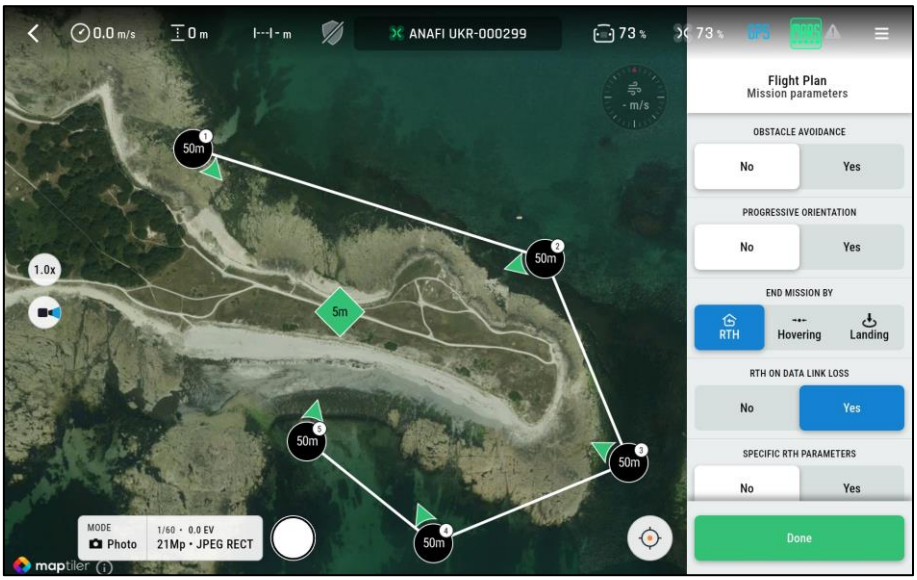


Figure 70: Mission parameters

Parameter name	Description	Range	Default value
OBSTACLE AVOIDANCE	Enable/Disable obstacle avoidance	**Yes / No**	No
PROGRESSIVE ORIENTATION	Yaw angle management between 2 waypoints	**Yes / No**	No
END MISSION BY	Set the drone behavior at the end of the flight plan	**RTH / Hovering / Landing**	RTH
RTH ON DATA LINK LOSS	Set the drone behavior when a radio link disconnection occurs	**Yes / No**	Yes
SPECIFIC RTH PARAMETERS	Apply specific RTH parameters for the flight plan's final RTH	**Yes / No**	No

12.4.6.3. Custom RTH parameters

If the user sets the **Custom RTH parameters** to **Yes**, he can edit RTH parameters specific to that flight plan:

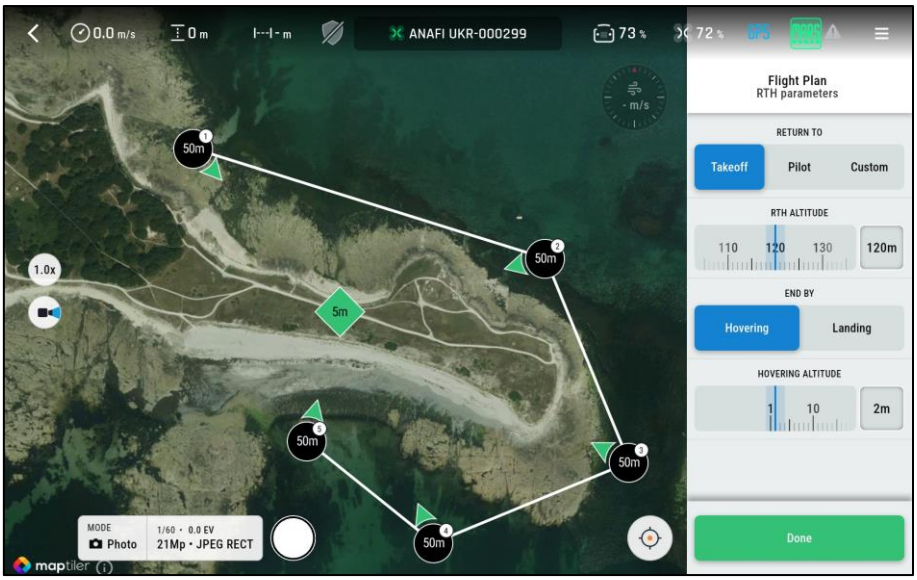


Figure 71: Custom RTH parameters

Parameter name	Description	Range	Default value
RETURN TO	Set the RTH final destination	**Take-off / Pilot / Custom**	Take-off
RTH ALTITUDE	Set the RTH minimum altitude	**1 m to 500 m**	120 m
END BY	Set the drone behavior at the end of the RTH	**Hovering / Landing**	Hovering
HOVERING ALTITUDE	Set the drone hovering altitude (End by hovering only)	**1 m to 500 m**	2 m

NOTE: Hovering altitude setting cannot be set at a higher value than RTH altitude setting.

12.4.6.4. Grid parameters

In the case of a Photogrammetry simple or double grid project type, **GRID** parameters are available:

Parameter name	Description	Range	Default value
ALTITUDE	Drone altitude (ATO reference)	**3 m to 500 m**	50 m
CAMERA ANGLE	Negative when oriented downwards	**-90 ° to 0 °**	-90 °
FRONT OVERLAP	Overlap between 2 pictures on a segment	**20 % to 90 %**	80 %
SIDE OVERLAP	Overlap between pictures of 2 segments	**20 % to 90 %**	60 %

Ground Sampling Distance (GSD) is displayed in the Grid parameters. It is a read-only value which depends on the Altitude and Camera angle grid parameters.

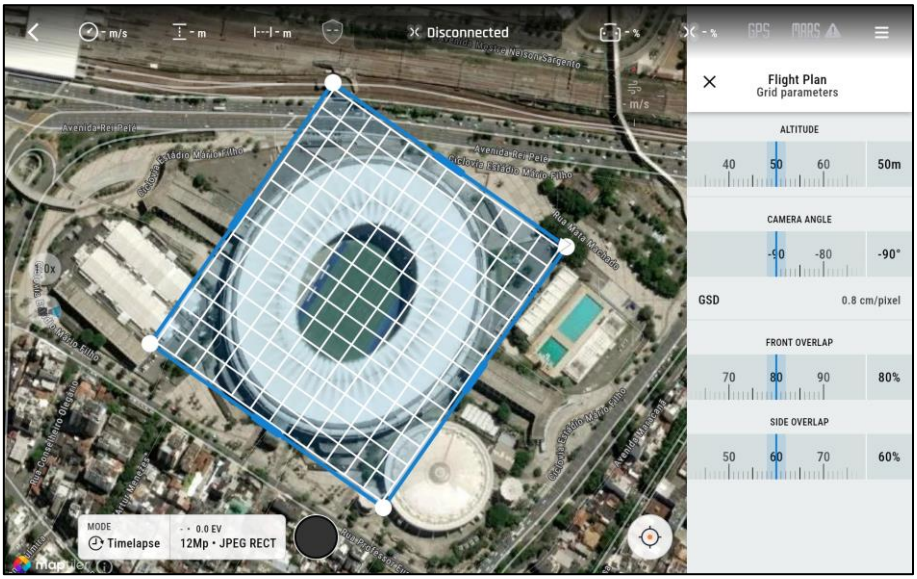


Figure 72: Photogrammetry grid parameters

12.4.7. Executing a flight plan

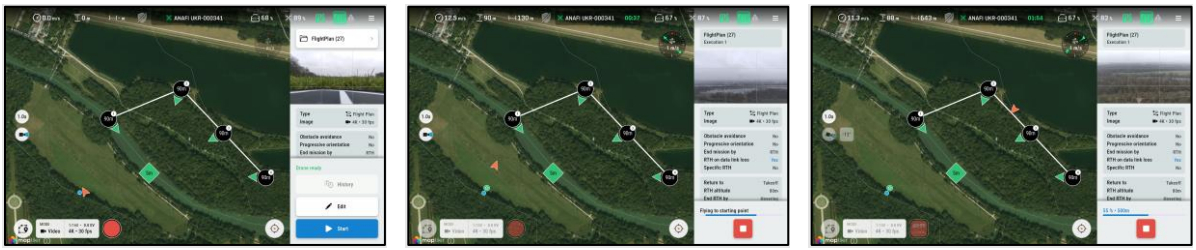


Figure 73: Executing a flight plan

Tap **Start** to launch the flight plan execution.

The drone performs the **Flying to starting point**. The drone is shown on the map.

NOTE: The drone flies at the altitude defined in the **RTH altitude** setting while reaching the first waypoint. Refer to *chapter 13.5. RTH and safety* for more information

The drone travels from waypoint to waypoint until the drone reaches the final waypoint.

The user can stop the flight plan and pilot the drone manually at any time.

12.4.8. Project history

You can access to all the executions of a project by clicking on the **History** button in the Flight Plan HUD:

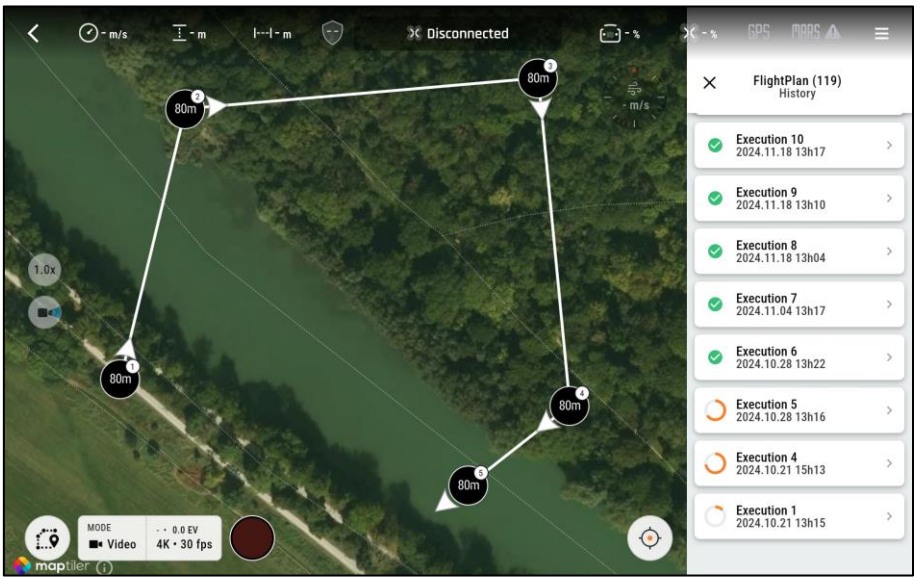


Figure 74: Project history

All the executions of a project are listed in the project **History**.

Executions completed are tagged with a green tick. Executions interrupted before their end are tagged with an orange progress bar.

You can access the details of an execution by clicking on it in the list:

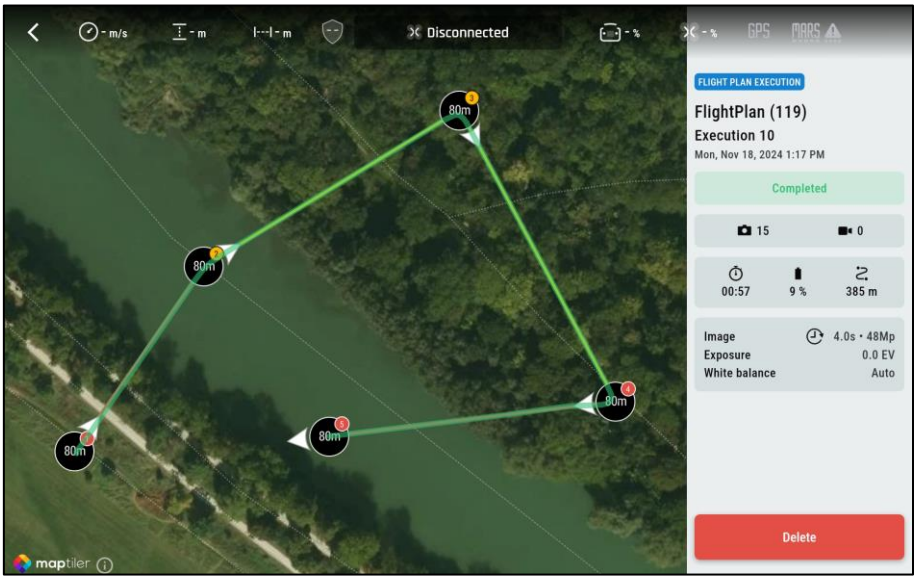


Figure 75: Details of a project execution

In case the execution was not completed, you can resume it to where it was interrupted:

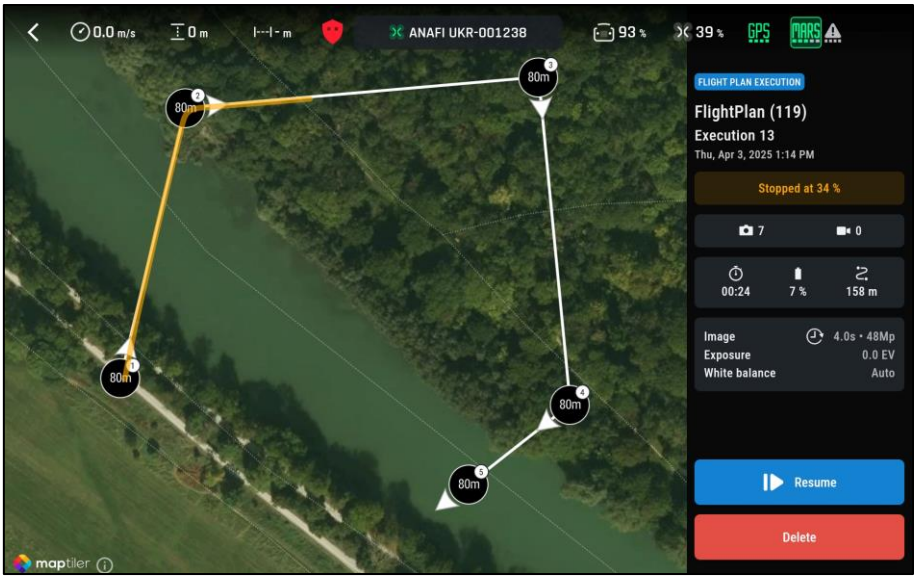


Figure 76: Resuming an execution which was interrupted

13. Settings

Settings are available via the menu button on the top, right-hand side of the screen.

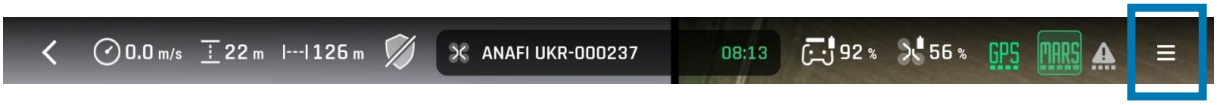


Figure 77: FreeFlight 8 top menu bar

13.1. Quick settings

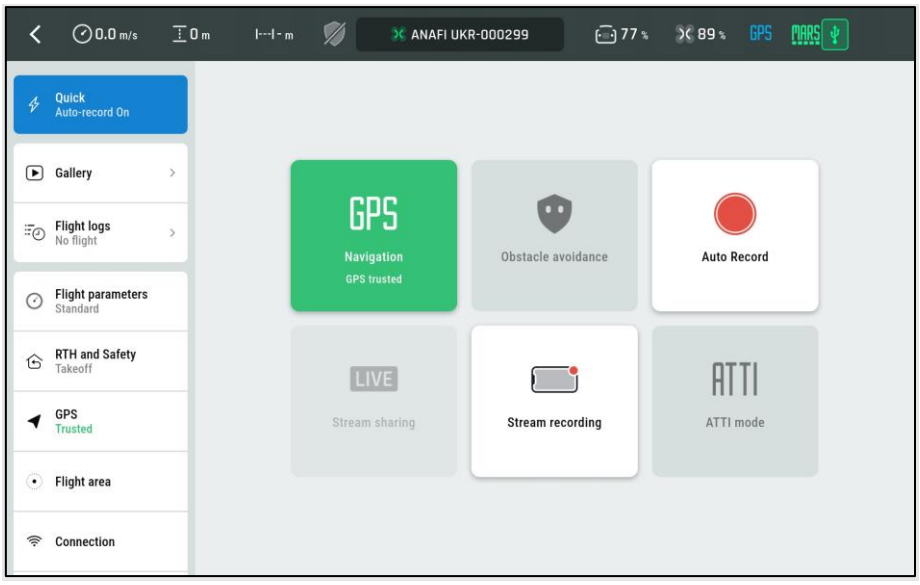


Figure 78: Settings – Quick

13.1.1. GPS

Tap the **GPS** tile to toggle the GPS navigation on and off. Refer to *chapter 13.6.1. GPS navigation* for more information.

13.1.2. Obstacle Avoidance

Tap the **Obstacle avoidance** tile to toggle the obstacle avoidance on and off.

When the user enables the Obstacle avoidance feature, the supervision starts and the system evaluates environmental conditions, the aircraft's altitude and operational status to determine when to activate or deactivate obstacle avoidance functions. This intelligent control allows the aircraft to engage obstacle avoidance only when truly necessary, balancing safety with flight performance.

Visual feedback is provided through the obstacle avoidance pictogram in status bar:

	OA disabled by user
	OA enabled by user and engaged by supervisor
	OA enabled by user and disengaged by supervisor

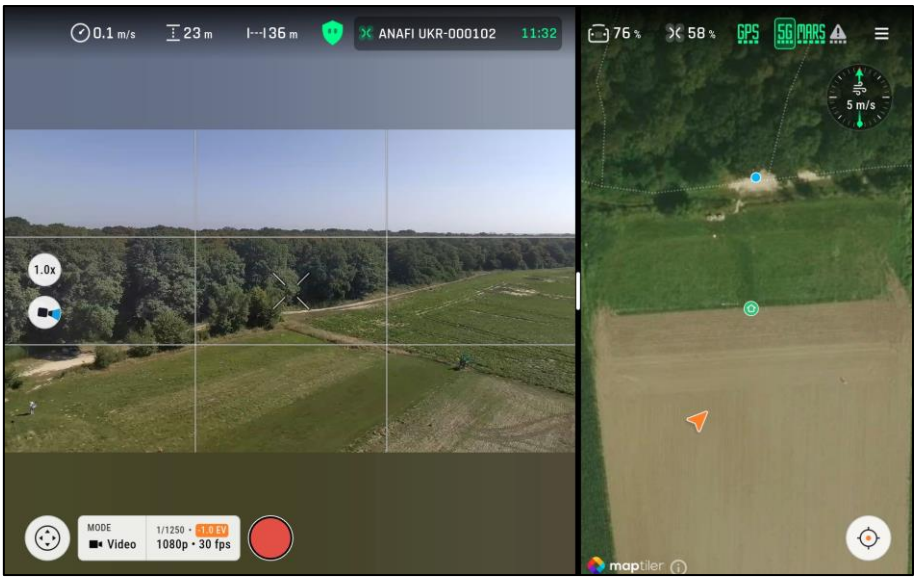


Figure 79: Drone able to detect obstacles

13.1.3. Auto Record

Tap the **Auto Record** tile to activate video recording automatically when the drone takes off.

13.1.4. Stream sharing

Tap the **Stream sharing** tile to broadcast the video stream to an RTMP server (Refer to *chapter 13.12. Stream sharing* for more information).

WARNING: To activate **Stream sharing** through **Quick** settings, you must have set a valid URL in the **Stream sharing** setting page.

13.1.5. Stream recording

Stream recording is enabled by default. Tap the **Stream recording** tile to stop recording the video stream on the tablet (Refer to *chapter 13.12. Stream sharing* for more information).

13.1.6. ATTI mode

ATTI mode (Attitude mode) stabilizes the aircraft's altitude, but does not hold its Horizontal position. ATTI mode does not use GPS, cameras, or obstacle avoidance to fly or hold position. In ATTI mode, the aircraft can drift with wind as there is no wind compensation, and the pilot must control all horizontal movement.

WARNING: In ATTI mode, the aircraft cannot hold its position or stop automatically, and there is no optimal speed. ATTI mode must only be used by experienced pilots, during extreme conditions. ATTI mode requires extreme care. The pilot has absolute control and is responsible for their decisions and outcomes.

ATTI mode is available in Manual flight mode, and during Optical navigation flight, it does not apply to autonomous flight modes such as RTH or Flight Plan. ANAFI UKR enables ATTI mode automatically during Optical navigation flight if the required conditions for Optical navigation flight are not respected. Refer to *chapter 13.6.2 Optical navigation* for more information.

Select **ATTI mode** when the aircraft behaves erratically, for example due to spoofing.

In ATTI mode, the aircraft is more sensitive to environmental conditions. Wind and other environmental factors can cause the aircraft to drift.

CAUTION: ATTI mode may require higher than normal battery current. This may cause the battery state of charge (SOC) to decrease faster than normal and trigger low-battery procedures such as RTH or autolanding. Avoid using ATTI mode when the battery SOC is below 30%.

13.2. Gallery

Manage the media recorded on the drone or on the device in the **Gallery**.

Medias can be displayed in the FreeFlight 8 application. They also can be downloaded locally on the device.

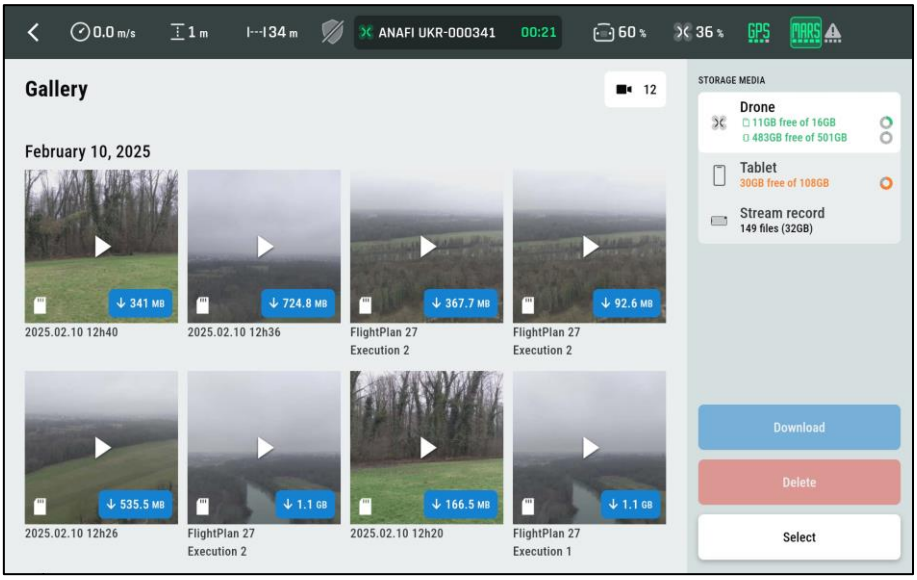


Figure 80: Settings - Gallery

13.3. Flight logs

Flight logs are available through the **Settings/Flight logs** page.

Flight logs are always downloaded locally on the device unless the sharing option is configured to **Private mode**. Flight logs are downloaded immediately after the drone has landed.

Flight logs show the data of previous flights.

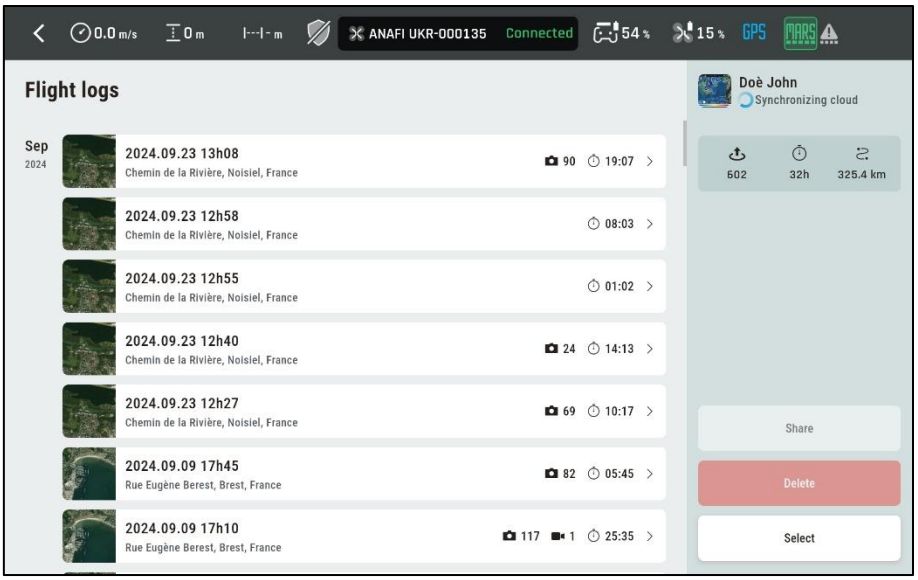


Figure 81: Settings - Flight logs

Tap a flight in the **Flight Logs** list to view the flight path between the take-off and the landing point, and the location of media recorded during the flight:

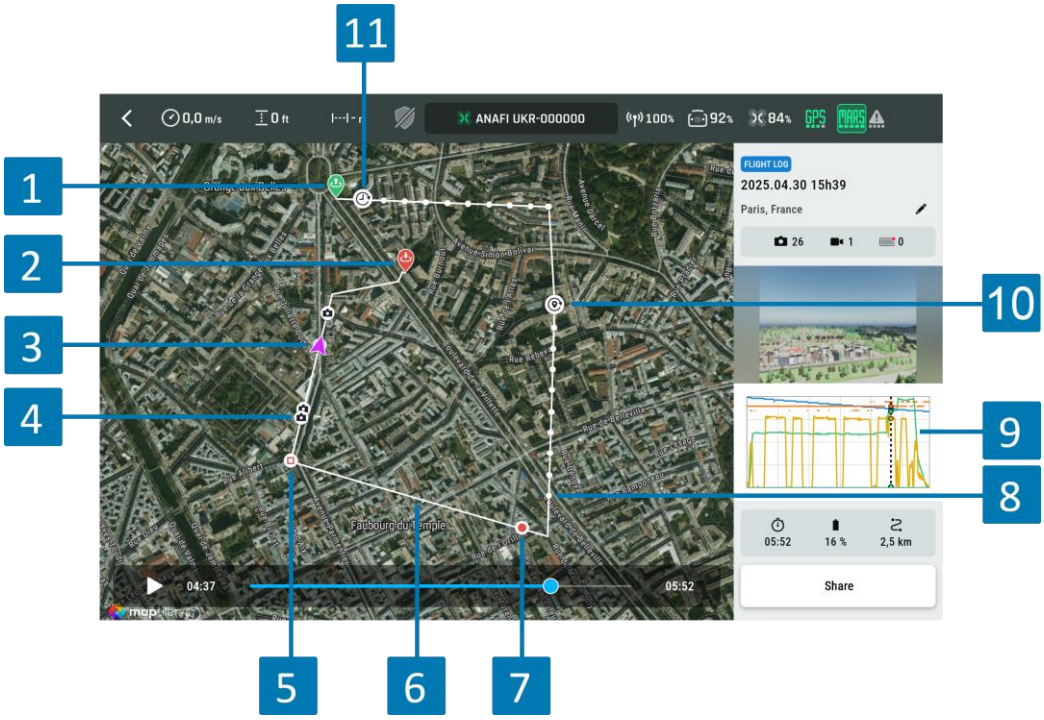


Figure 82: Flight log details

1. Take-off location
2. Landing location
3. Drone location
4. Photo location
5. Stop recording location
6. Flight path
7. Start recording location
8. GPS lapse/Timelapse photo
9. Flight log graph preview
10. GPS lapse start location
11. Timelapse start location

Tap the Flight log graph preview or media preview on the side panel to display the graphs or media in the main view:

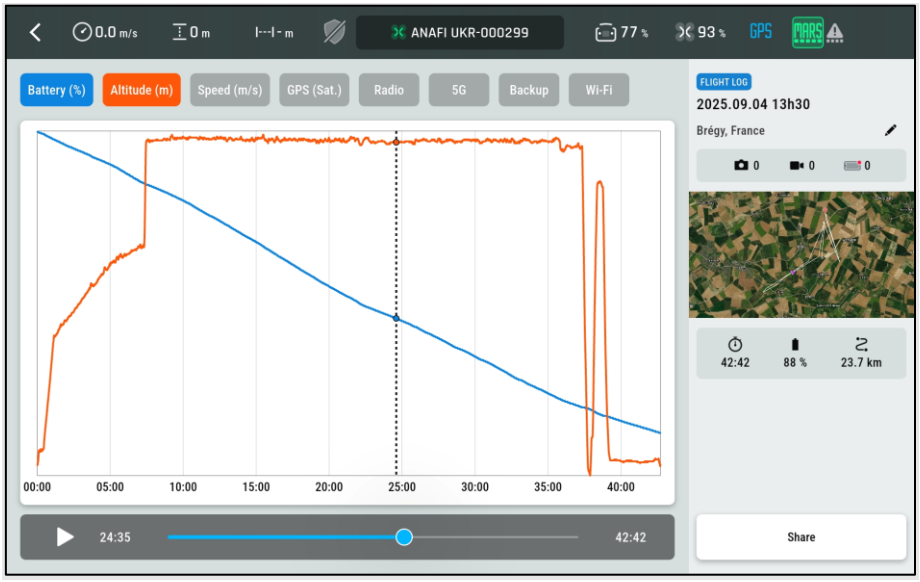


Figure 83: Flight log graphs

The main flight parameters are displayed in the top bar. **Battery (%)** and **Altitude (m)** are selected and displayed on the graph by default. Users can select and deselect the main flight parameters to display more detail on the graph:

Parameter	Line color	Details displayed
Battery (%)	Blue	Battery life percentage as a function of time
Altitude (m)	Orange	Aircraft altitude as a function of time
Speed (m/s)	Yellow	Aircraft airspeed as a function of time
GPS (Sat.)	Green	Number of GNSS satellites used for the fix as a function of time
Radio	Orange	Radio link bitrate as a function of time
Mars	Turquoise	Rx & Tx frequencies, and RSSI as a function of time
5G	Purple	RSSI as a function of time
Backup	Light orange	RSSI as a function of time
Wi-Fi	Pink	RSSI as a function of time

NOTE: Available radios depend on individual configurations.

Use the slider at the bottom of the screen to display the details at specific times during the flight.

Medias are also replayed synchronously with the flight log:

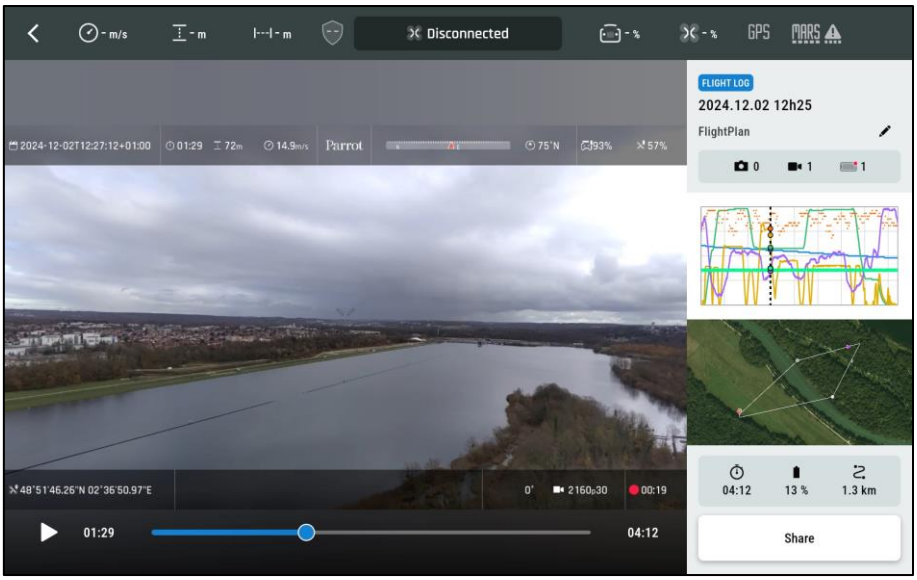


Figure 84: Medias replay

If a stream recording is associated with the flight then it will be replayed in priority even though medias (videos or photos) recorded by the drone during that flight are also available.

Tap **Share** to build and share a flight report document in PDF format.

An archive containing the flight report in PDF format and the GUTMA log file (Global UTM Association) in both json and csv formats is created. The archive can optionally be encrypted. It can be shared with any application (Gmail, Outlook, etc.) installed on the device.

The GUTMA log file is compliant with the flight logging exchange protocol. That protocol is open to public comments and contributions. The protocol's purpose is to harmonize flight telemetry data logs (such as GPS location, speed, battery voltage…). Logs can then be used by UAV pilots, third-party drone management software providers, governments, and authorities interested in using these data.

The log file is saved as a JSON (JavaScript Object Notation) file which is also an open standard file format.

You can combine and share multiple flight logs into one single PDF document. Start selecting a flight log either by long click on one of them or clicking on the **Select** button. Then select up to ten flights and click **Share**.

To share multiple logs:

1. press and hold on a log,
2. tap each individual log you want to share.

Users can also generate a single PDF document including up to 10 flight logs by selecting the flights in the flight log list and tapping **Share**.

13.4. Flight parameters

Flight parameters allows the user to program the flight behavior of the drone.

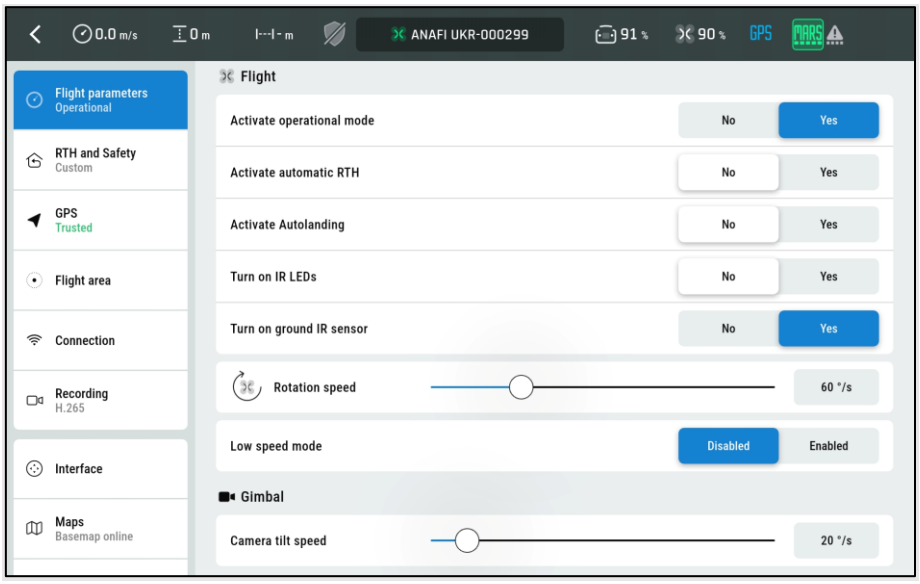


Figure 85: Flight parameters

Users can toggle between 2 flight modes: **Standard mode**, and **Operational mode**.

WARNING: Operational mode must only be activated by experienced pilots, and only during emergencies. Safety features are disabled by default, and visible LEDs are switched off. All sensors and checks performed by the aircraft that block take off are disabled, including alerts about battery charge level, damaged parts etc.

- **Standard mode**
  - Safety features are enabled.
  - Visible LEDs are switched on.
- **Operational mode**
  - **Activate automatic RTH - users can configure Critical RTH.**
  - **Activate Autolanding** - users can configure autolanding safety features.
  - **Turn on IR LEDs** - users can control infrared LEDs.
  - **Turn on ground IR sensor** - users can switch off the ToF infrared sensor.

WARNING: Disabling the ground IR sensor (ToF) can significantly impact the drone's behavior, especially when the drone flies at low altitude below 8 m. Flying with the ground IR sensor (ToF) sensor disabled must only be used by experienced pilots and requires extreme care. Parrot strongly recommends that you do not fly at high-speed close to or just above the ground.

	Automatic RTH	Autolanding	IR LEDs	Ground IR sensor	Safety features	Visible LEDs
Standard mode	Enabled	Enabled	Switched off	Switched on	Enabled	Switched on
Operational mode	Configurable	Configurable	Configurable	Configurable	Disabled	Switched off

- **Rotation speed**: Use the slider to configure the yaw speed from **10°/s** to **200°/s**. The default value is **60°/s**.
- **Low speed mode**: Tap **Enabled** to limit the drone speed to 3m/s in manual piloting modes.
- **Camera tilt speed:** Use the slider to configure the camera tilt speed from **1°/s** to **180 °/s**. The Default value is **20°/s**.

13.5. RTH and Safety

The **RTH and Safety** page allows the user to configure the **Return to Home (RTH)** and **Security** parameters:

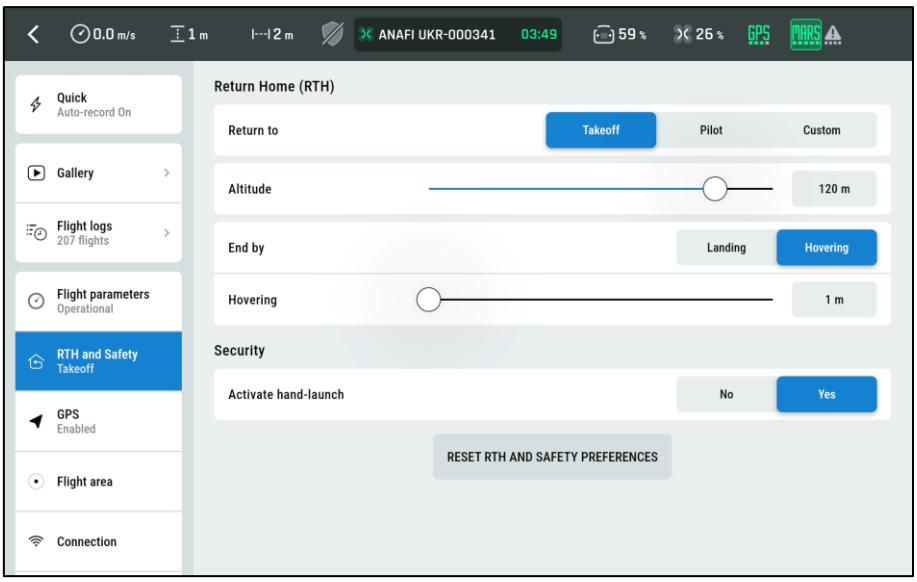


Figure 86: Settings - RTH and safety

13.5.1. Return Home (RTH)

Return to:

- **Takeoff**: This is the GPS position of the drone at take-off. When the GPS is not available at take-off, the home position is set to the controller position.
- **Pilot**: This is the controller GPS position.
- **Custom**: Home position is defined by the user. To define the Custom position:
    1. Tap **Define position.**
    2. Drag and drop the home icon, or tap anywhere in the map to set the custom home at the desired location.
    3. Tap **Define** to validate the custom home position.

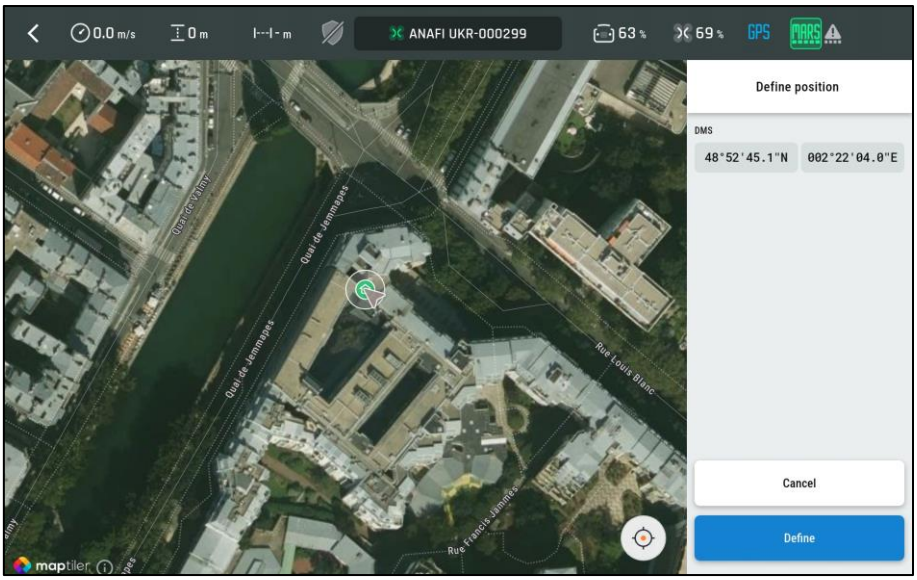


Figure 87: RTH - Define custom home position

Altitude:

- This is the minimal Return to Home altitude. It can be set from **1 m** to **500 m** (default value **120 m**). The drone remains at its current altitude if it is higher than the "Minimal return altitude."

End by:

- **Landing**: The drone lands on the ground.
- **Hovering**: The drone hovers on top of the home point at the **Hovering** altitude described below.

Hovering:

- This is the altitude at which the drone will hover when End by is set to **Hovering.** It can be set from **1 m** to **150 m**.

NOTE: Hovering altitude cannot be set at a value higher than the RTH altitude value.

13.5.2. Security

Activate hand-launch:

- **No**: Hand-launch functionality disabled.
- **Yes**: Hand-launch functionality enabled.

It may be helpful to disable hand-launch functionality in certain situations, for example to take off the drone from the deck of a boat or from a moving vehicle.

13.5.3. Drone RTH trajectory

The trajectory that the aircraft follows during the RTH depends on:

- the RTH and Safety settings,
- the aircraft position when the RTH is initiated,
- the aircraft altitude when the RTH is initiated.

13.5.3.1. Case 1

If the drone is at a horizontal distance lower than 5 m from the Home position at the moment the RTH is initiated, then the aircraft does not move horizontally. It adjusts its altitude depending on the **End by** and **Hovering** settings.

If the aircraft is at a horizontal distance higher than 5 m from the Home position at the moment the RTH is initiated, then the aircraft flies autonomously to reach the Home position.

If the aircraft is flying at an altitude higher than the RTH altitude setting, it flies straight towards the point located on top of the Home position at an altitude equals to RTH altitude setting (Refer to *Figure 88* below)

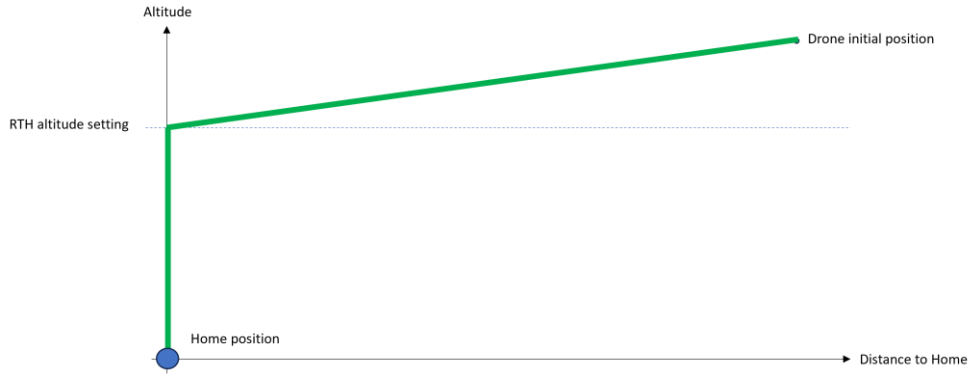


Figure 88: aircraft flies at an altitude higher than the RTH altitude setting

13.5.3.2. Case 2

If the aircraft is flying at an altitude lower than the RTH altitude setting, it first flies upwards to reach the RTH altitude, and then flies horizontally to reach the Home position (Refer to *Figure 89* below)

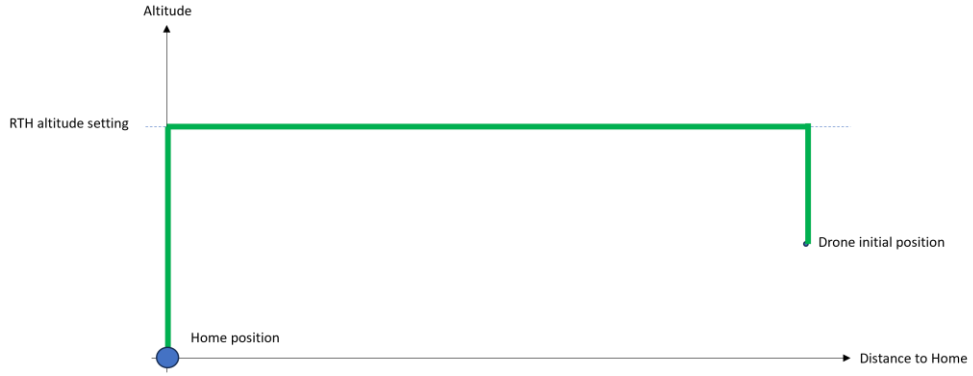


Figure 89: aircraft flies at an altitude lower than the RTH altitude setting

13.5.3.3. Case 3

If the distance to Home is less than half of the RTH altitude setting, the RTH trajectory is modified so that the aircraft avoids flying at high altitude at a short distance from its Home position (case 3 and case 4 in the diagram below)

- Altitude > (distance / 2)

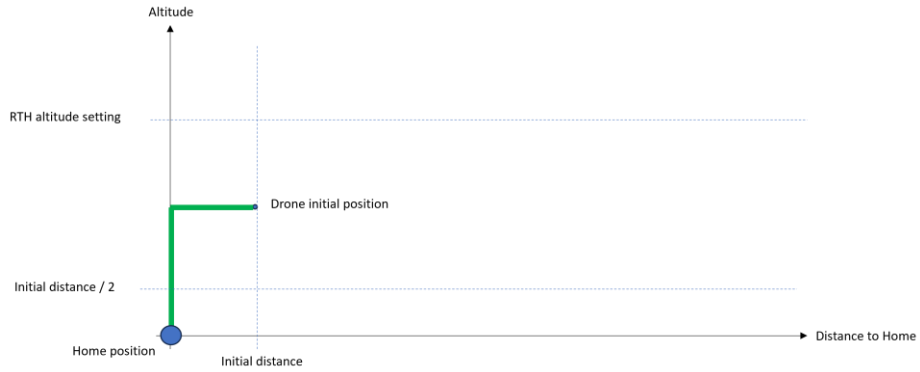


Figure 90: distance to Home is less than half of the RTH altitude setting

13.5.3.4. Case 4

- Altitude < (distance / 2)

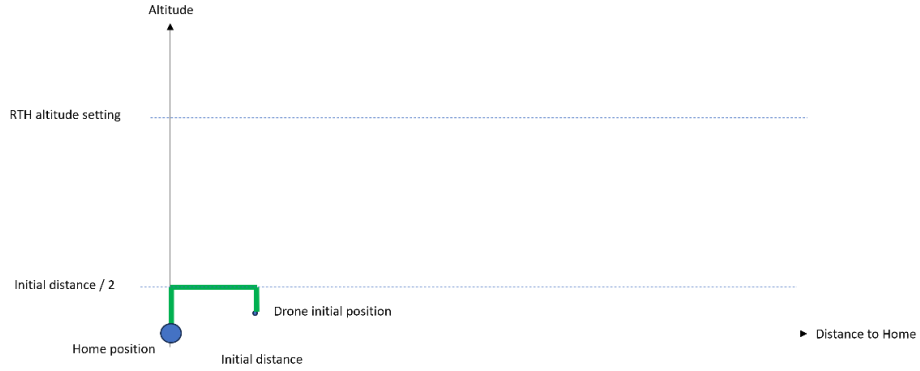


Figure 91: distance to Home is more than half of the RTH altitude setting

Figure 92 below shows a summary of all 4 RTH trajectory cases.

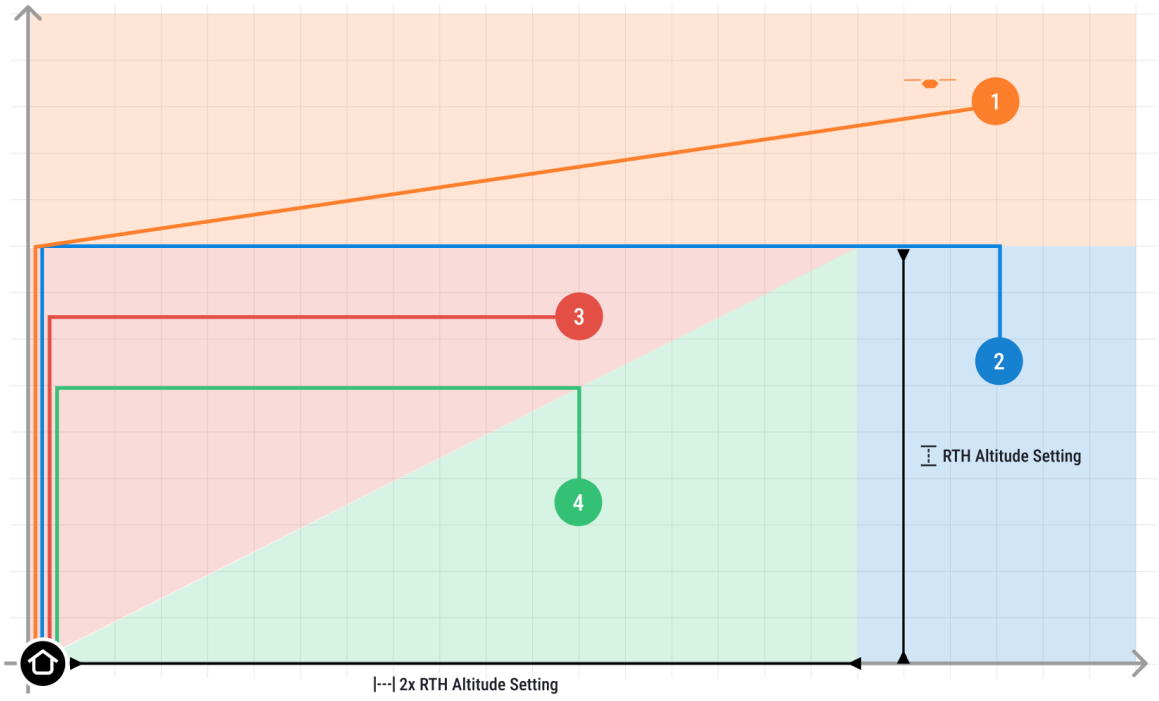


Figure 92: Summary of all RTH trajectories

13.6. GPS

Tap the **GPS** tile to open the **Navigation Settings** screen.

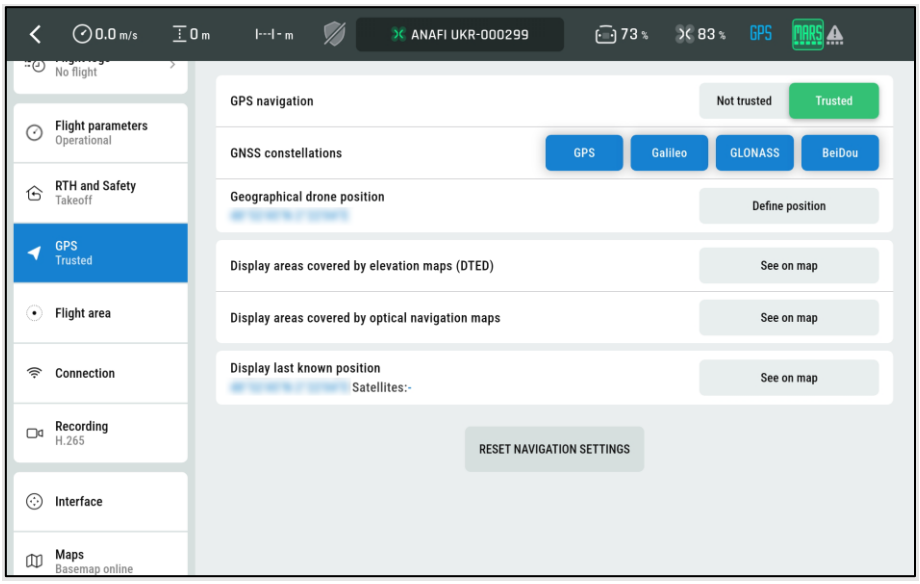


Figure 93: Settings – GPS

13.6.1. GPS navigation

GNSS (Global Navigation Satellite System) refers to constellations of satellites that provide signals used for navigation and positioning. FreeFlight 8 allows the aircraft to choose from multiple navigation systems.

Beside **GPS navigation**, the user can toggle between two settings.

Tap **Trusted** to enable GNSS services which allows the GNSS receiver to acquire satellite signals.

Tap **Not trusted** to disable GNSS services which prevents the GNSS receiver from acquiring satellite signals.

This setting is valuable for ensuring maximum stealth capability and complete immunity to GNSS jamming/spoofing attacks.

When the drone flies in an environment at risk of GNSS jamming/spoofing, disabling this setting ensures that the drone navigation algorithm is not impacted by the attack.

When **GPS navigation** is **Trusted**, a GNSS quality algorithm constantly monitors the GNSS quality. It automatically and instantly switches autopilot mode to GNSS-denied flight whenever GNSS is considered:

- Lost,
- Spoofed,
- Jammed

13.6.2. Optical navigation

Optical navigation is enabled when the user selects **Not trusted** for **GPS navigation** or when a GNSS jamming/spoofing attack has been detected.

The **GPS** pictogram in the FreeFlight telemetry bar turns blue when optical navigation is enabled.

For optimal performance, optical navigation requires:

- The drone to fly at an altitude between 100 m and 500 m above ground level (best performance is achieved at 350 m)
- Optical Navigation maps uploaded to the drone.
- DTED maps uploaded to the drone (mandatory when flying in areas with variations in elevation over 20 m).
- Flight above textured ground.

NOTE: The drone can drift if all the conditions above are not respected.

The ANAFI UKR user guide details how to generate optical navigation maps and DTED maps, and how to install them onto a drone.

CAUTION: Optical navigation enhances flight stability using vision-based technology. For optimal performance, ensure the drone flies over well-contrasted terrain. Surfaces with low contrast, such as snowy fields without distinct features, may reduce accuracy. For best results, avoid flying in clouds, heavy fog, or low-light conditions.

The GNSS denied algorithm estimates the geo-coordinates using a neural network that detects roads, borders (fields, lake, sea), and all structural elements visible from high altitude. To maximize the performance, Parrot advises adapting the flight path to fly above recognizable features such as roads, field crossings etc. and avoiding flight over terrain with repetitive patterns.

The following image shows 5 similar tree lines, which can be considered as a repetitive pattern:

1. Drone start point
2. Optimal flight path
3. Repetitive pattern tree line (1 of 5)
4. Drone end point
5. Sub optimal flight path

To avoid miscalculations, the algorithm does not recalibrate when flying over a straight road with no identifiable features to determine the exact position.

13.6.3. GNSS Constellations

The user can select the satellite constellations in order to avoid using constellations that are known (or potentially known) to be spoofed/jammed.

Beside **Constellations**, select the constellations that you want to be used by the GNSS receiver to estimate the position:

- **GPS** - developed by the United States (Global Positioning System)
- **GLONASS** – Developed by Russia (Global Navigation Satellite System)
- **Galileo** – Developed by the European Union
- **BeiDou** – Developed by China

WARNING: When GNSS is disabled, the user must manually define the position of the drone.

13.6.4. Geographical Drone position

When **GPS navigation** is **Not trusted**, the user must set the initial geographical position of the drone before take-off.

To manually set the drone position, on the **Positioning Preferences** screen beside **Geographical drone position**, tap **Define position.**

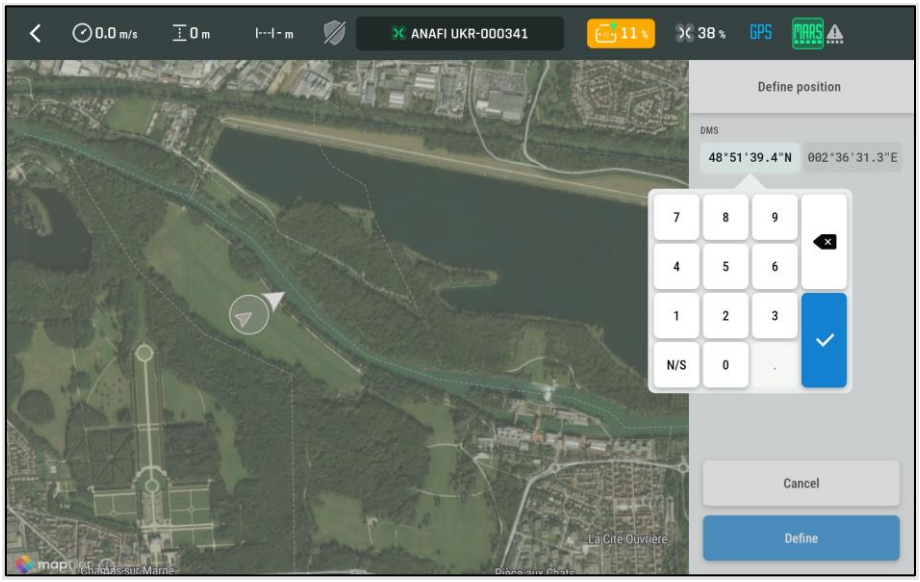


Figure 94: Define initial drone position and orientation

The user must define:

- the initial position of the drone on the map – move the pictogram on the map or edit the coordinates with the virtual keyboard.
- the initial orientation of the drone on the map - rotate the arrow around the pictogram.

13.6.5. Display last known position

If the user loses sight of the drone, FreeFlight 8 records the coordinates of the drone's last known position.

Tap **See on map** to open the map and see the drone's last known position.

13.6.6. Display area covered by elevation maps (DTED)

Tap **See on map** to check the perimeter covered by terrain elevation (DTED) maps:

- DTED2 (spacing of 30m): green overlay
- DTED1 (spacing of 90m): orange overlay
- DTED0 (spacing of 900m): white overlay

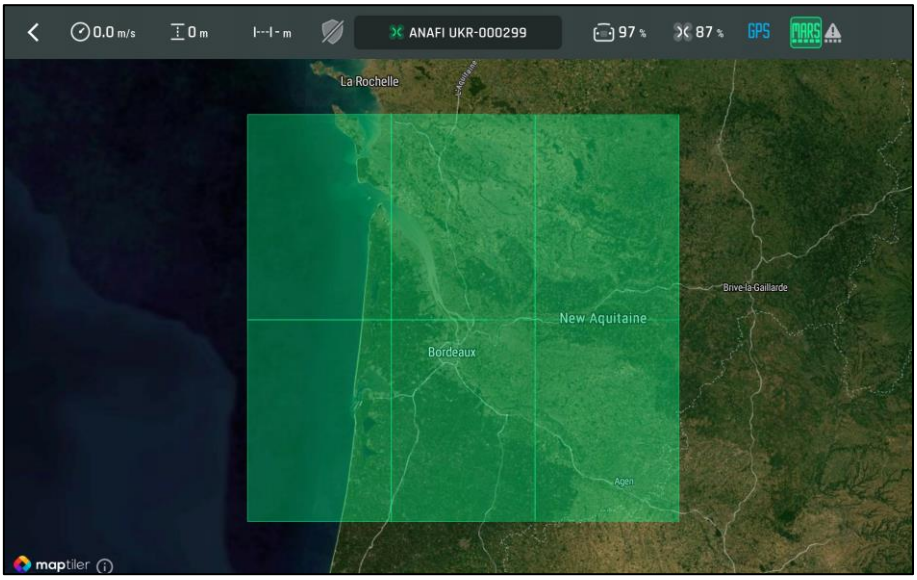


Figure 95: DTED1 map with green overlay

13.6.7. Display areas covered by optical navigation maps

Tap **See on map** to check the perimeter covered by optical navigation maps:

Optical Navigation maps stored on the drone have a blue overlay:

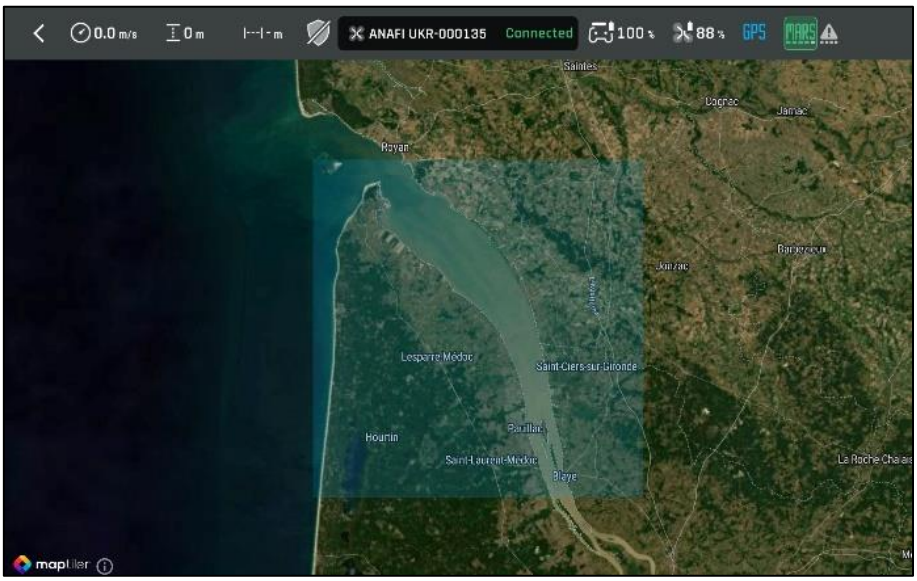


Figure 96: Optical navigation map with blue overlay

13.7. Flight area

Geocage and geoawareness are disabled by default but can be activated any time.

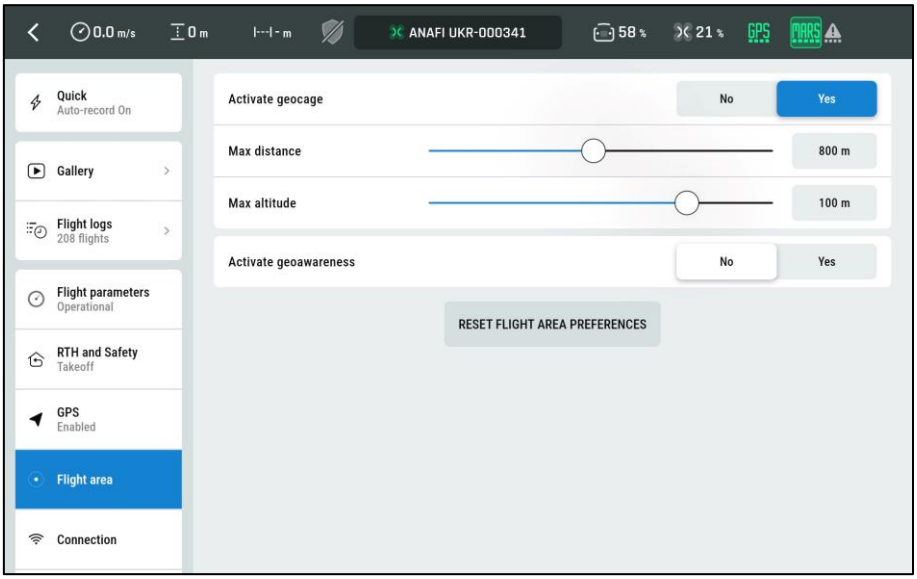


Figure 97: Settings - Flight area

13.7.1. Geocage

Geocage is defined as a cylinder centered on the drone take-off position.

Maximum horizontal distance and Maximum altitude are defined by the user according to the range described below:

	Min	Max
Geocage Max distance	10m	15km
Geocage Max altitude	10m	1000m

The drone is not allowed to fly outside from the geocage cylinder volume in manual piloting modes. If the drone reaches the limit of the geocage in manual piloting modes it will be blocked. An alert will be displayed.

The geocage volume is displayed in the FreeFlight 8 map:

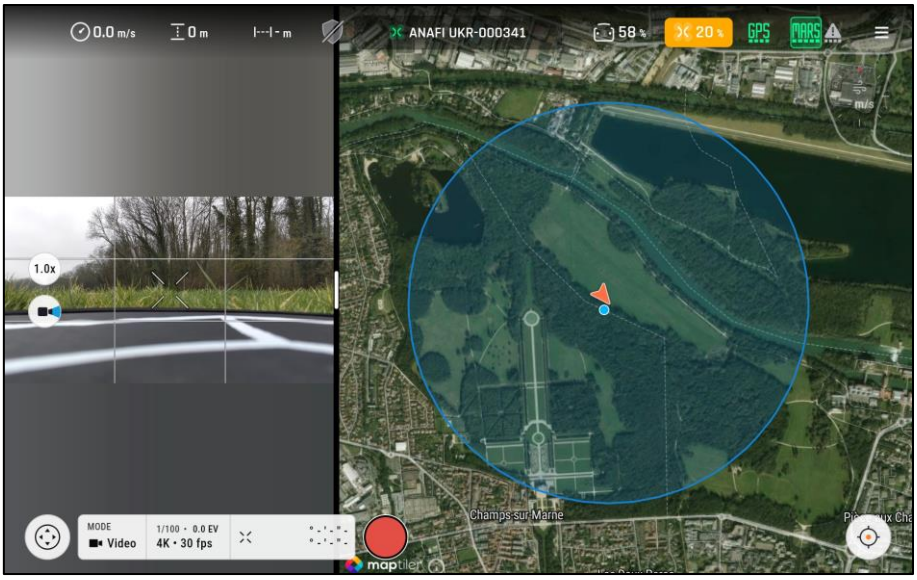


Figure 98: Geocage volume in FreeFlight 8 map

NOTE: the geocage does not apply to autonomous flying modes (Flight plan or Touch & Fly)

13.7.2. Geoawareness

Geoawareness helps the pilot to make sure the drone is flying in an area in which it is allowed by local regulations. Geoawareness is only informational, the flight is not blocked but an alarm raises when the drone is flying into a regulated zone.

When geoawareness is activated No Fly Zones will be displayed in FreeFlight 8 map:

Figure 99: No Fly Zones

No Fly Zones are displayed in FreeFlight 8 map by different colors:

- Red: flight is not allowed by regulation
- Orange: flight is allowed up to a given altitude above ground (ATO reference)
- Yellow: flight is regulated, and altitude limits are defined in AMSL reference

An alert will be displayed in the HUD in 4 situations:

1. The drone is flying inside a No Fly Zone
2. The drone is about to enter a No Fly Zone
3. The drone is flying less than 16m above or below a No Fly Zone
4. The drone is flying below a No Fly Zone

NOTE: No Fly Zones displayed in FreeFlight 8 are stored on a database on a Parrot server. Therefore, the Geoawareness feature needs an internet connection on the tablet to be operational.

13.8. Connection

The **Connection** setting provides access to the frequency settings for:

- **MARS radio** (Military Adaptive Radio System)
- **Cellular**
- **Wi-Fi**
- **LoRa backup radio**

NOTE: Available radios, and radio tabs in the **Connection** settings page, depend on individual system configuration.

13.8.1. MARS radio

Tap the **MARS radio** tab to access the MARS radio options.

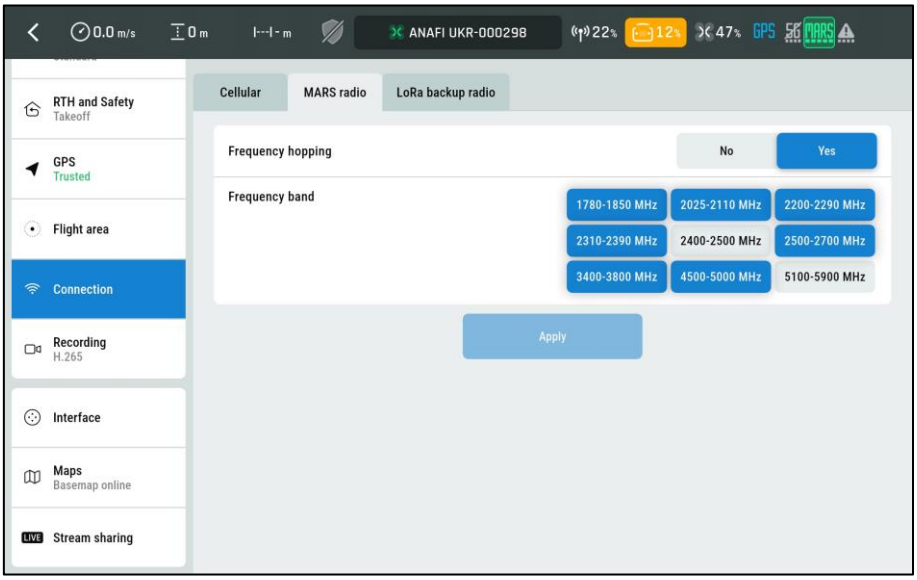


Figure 100: MARS radio tab in Settings/Connection

MARS radio can be used in fixed band or frequency hopping band.

Frequency hopping:

- **No** - The **Frequency band,** and the **Channel** inside the selected band are available.
- **Yes** - Only the **Frequency band** is available, it is not possible to select the **Channel**.

The algorithm regularly and randomly switches from one band to another within the selected bands, making the system resistant to radio link jamming.

In addition to the high-rate frequency hopping mechanism every 400 ms on single or multiple bands, the drone actively monitors in-band interference and automatically switches channels or frequency bands to find the best-performing frequencies (commonly known as Adaptative Frequency Hopping).

Frequency band (MHz)	Channel range	Number of channels
1780-1850	106 to 168	63
2025-2110	177 to 254	78
2200-2290	263 to 345	83
2310-2390	354 to 426	73
2400-2500 [1]	435 to 527	93
2500-2700	536 to 728	193
3400-3800	737 to 1129	393
4500-5000	1138 to 1630	493
5100-5900 [2]	1639 to 2431	793

NOTE: Available bands depend on system configuration.

[1] The **2400-2500 MHz** frequency bands are available for all configurations.

[2] The **5100-5900 MHz** frequency bands are available for XLR configurations.

NOTE: The **MARS Radio** tab in **Settings / Connection** displays 9 frequency band buttons, but the **5100–5900 MHz** button contains two bands merged into one.

Other bands depend on individual configurations. For more information on specific configurations, refer to *chapter 13.19. Certificates*.

13.8.2. Cellular

Tap the **Cellular** tab to access the 5G options.

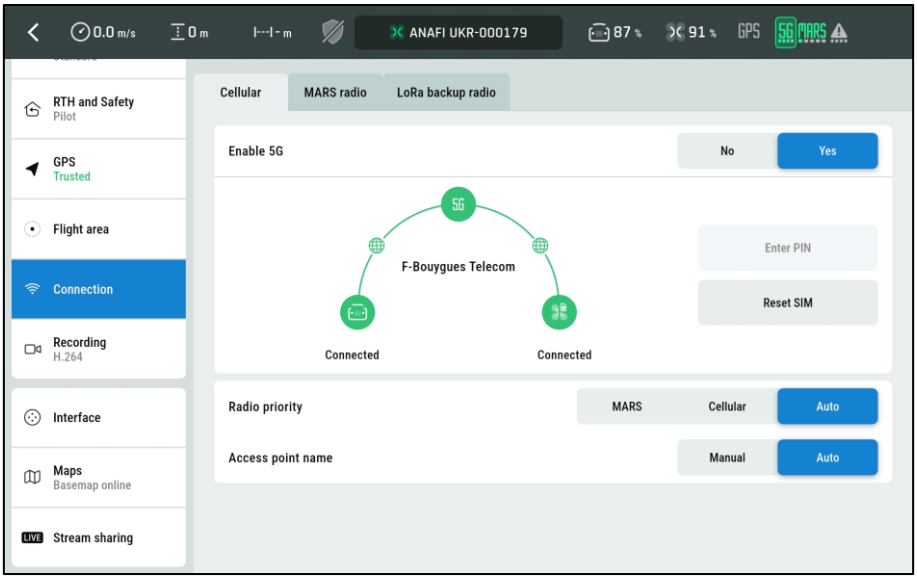


Figure 101: Cellular tab in Settings/Connection

5G connectivity requires the tablet running FreeFlight 8 to be connected to the internet.

5G connectivity requires a nano SIM card inserted into the aircraft.

To connect the tablet and the aircraft through the internet network, you need first to establish a connection using the alternative main radio link (MARS or WiFi depending on your product

configuration). If the SIM card is inserted into the aircraft you will be prompted to enter the PIN code into FreeFlight 8:

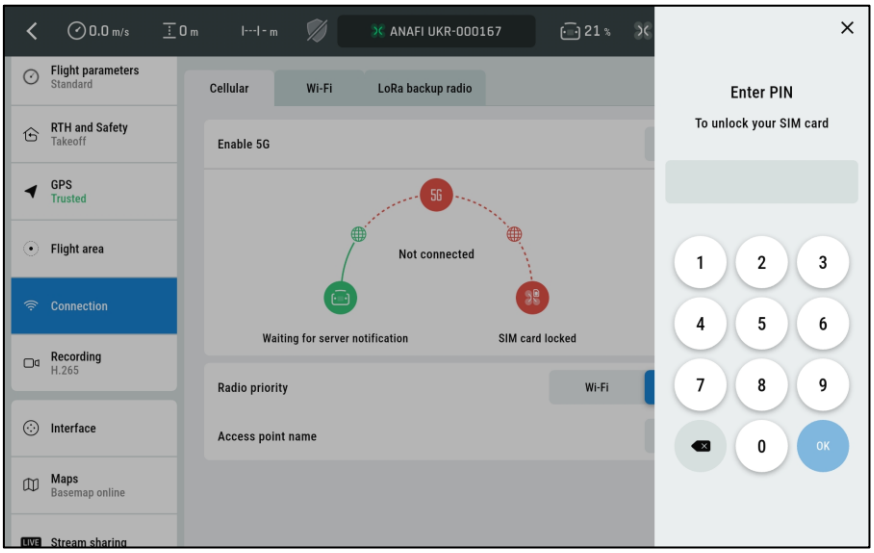


Figure 102: Enter SIM card PIN code

After you have entered the PIN code once, it will be persistently saved by the drone software and you won't have to type it again.

If you select **Reset SIM** from this interface and then **confirm**, the PIN code persistently saved into the drone software will be erased. The drone reboots and you will be prompted to enter the PIN code again.

NOTE: 5G connection and in flight 5G data sharing may generate a charge, according to the 5G data plan associated with your nano SIM card.

There are 3 options for **Radio priority**:

- **Wi-Fi** (or **MARS** depending on the product configuration) - Relies on the Wi-Fi (or MARS) radio link as long as it is available.
- **Cellular** - relies on the 5G network as long as it is available.
- **Auto** - The drone manages the network connection.

The **Access point name** (APN) is the configuration that the drone uses to connect to the mobile data network:

- **Manual** - The user enters the APN values from the mobile network provider.
- **Auto** - The drone uses the default APN settings from the nano SIM card.

13.8.3. Wi-Fi

Tap the **Wi-Fi** tab to access the Wi-Fi options.

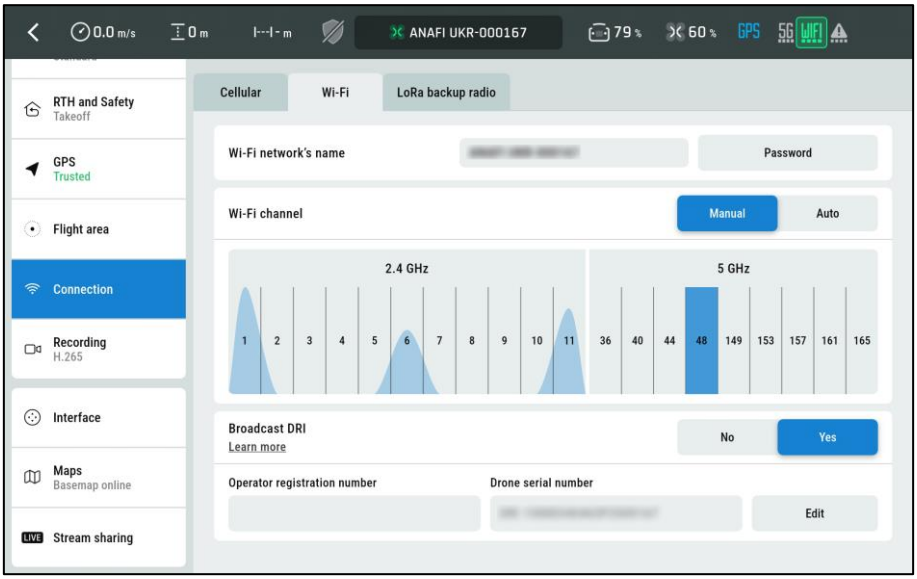


Figure 103: Wi-Fi tab in Settings/Connection

Enter the **Wi-Fi network's name** in the text field.

Tap **Password** to define the Wi-Fi key shared by the aircraft and the Skycontroller UKR. Parrot defines a unique random password for each aircraft and Skycontroller UKR package, but Parrot highly recommends the pilot to define a personal password. The password must be robust: 10 characters long or more and using at least 3 types of characters among uppercase, lowercase, digits, and special characters. The security of the ecosystem and data depends on the security of this password.

There are 2 options for **Wi-Fi channel** selection mode:

- **Manual** – The user selects a channel.
  - Use the **2.4 GHz** band for longer-range flights.
  - Use the **5GHz** band for better signal stability and high-quality video streaming.
- **Auto** – The drone automatically selects a channel.

Tap **Yes** beside **Broadcast DRI** to transmit the following information directly from the aircraft:

- Unique aircraft ID (serial number and operator registration number)
- Aircraft's current position, altitude, velocity
- Position of the Skycontroller UKR (takeoff location)
- Time stamp
- Emergency status (if applicable)

The DRI electronic signal is compliant with both European & American drone regulations.

IMPORTANT: According to European for open category or American drone regulation, ensure that the DRI function is activated during in-flight operation. For additional information, consult the regulations in force.

13.8.4. LoRa backup radio

Tap the **LoRa backup radio** tab to access the LoRa radio options.

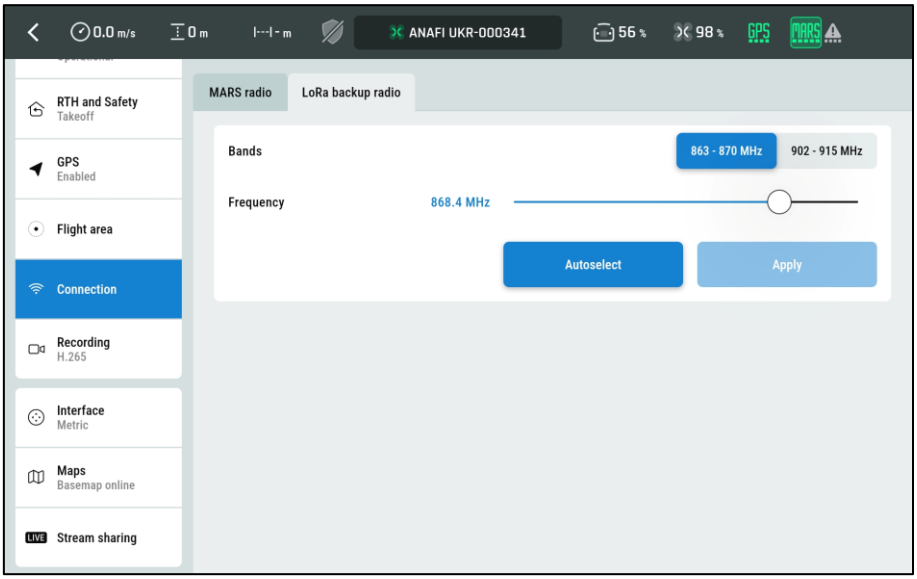


Figure 104: LoRa backup radio tab in Settings/Connection

The user can select the **LoRa backup radio** frequency manually or automatically.

For manual configuration:

1. Beside **Bands**, tap either:
    - **863 – 870 MHz** or;
    - **902 – 915 MHz**.
2. Use the **Frequency** slider to select the channel frequency inside the selected band.

For automatic configuration:

1. Tap **Autoselect**

The LoRa frequency is selected automatically.

NOTE: Available bands depend on system configuration.

When using the LoRa backup datalink, operation from the pilot is limited to manual piloting commands and RTH / landing function. The drone provides a limited dataset of telemetry including position, heading, altitude, battery level, flight state. The video stream from the drone is not available.

13.9. Recording

The **Recording** setting group is dedicated to recording options:

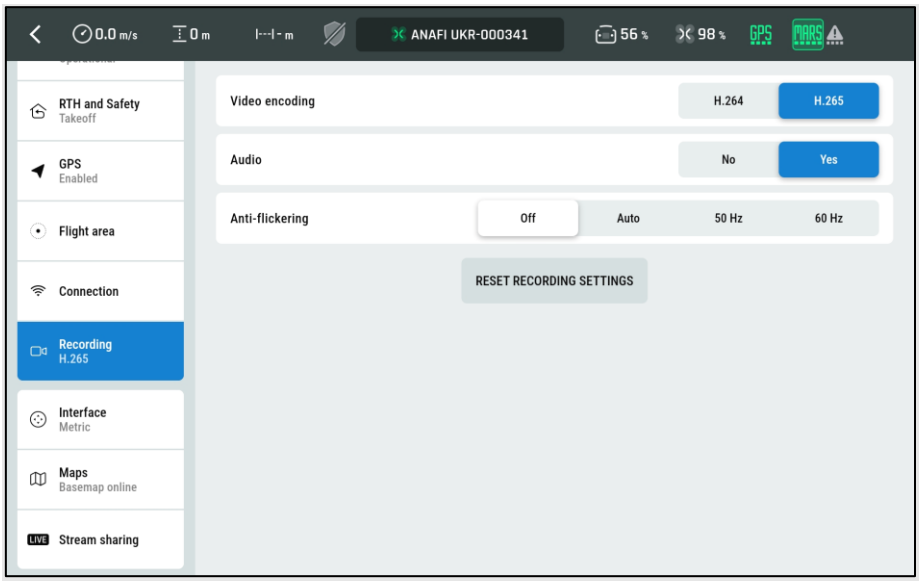


Figure 105: Settings – Recording

13.9.1. Video encoding

- **H.264**
- **H.265**

Parrot recommends using the more recent **H.265** encoding which has a higher compression efficiency with a better compression rate and better quality.

13.9.2. Audio

- **No** - No audio track is recorded with the videos.
- **Yes** - An audio track is recorded with the videos.

13.9.3. Anti flickering

- **Off** - No anti-flicker compensation. The camera uses any shutter speed it chooses, which can cause flicker in artificial lighting. Fine for daylight shooting.
- **Auto** - The drone detects the lighting frequency automatically (using sensors or scene analysis) and sets shutter speeds to avoid flickering.
- **50 Hz** - Locks the camera's shutter timing to match 50 cycles per second lighting.
- **60 Hz** - Locks the shutter to match 60 cycles per second lighting.

13.10. Interface

The **Interface** settings group is dedicated to the FreeFlight 8 display.

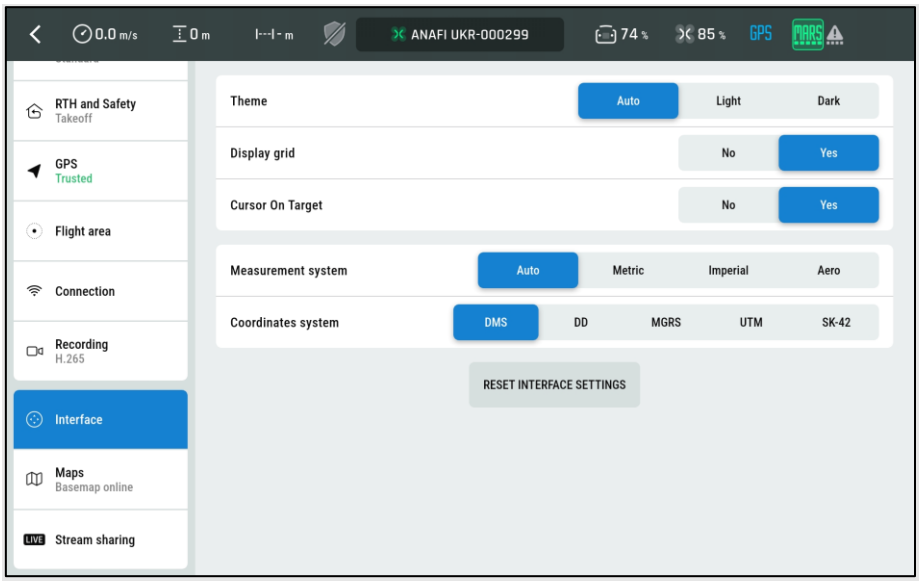


Figure 106: Settings - Interface

13.10.1. Theme

- **Auto** - FreeFlight 8 applies the device's setting.
- **Light** - Dark text/icons on a white background, better in bright environments.
- **Dark** - Light text/icons on a black background, better in dark environments.

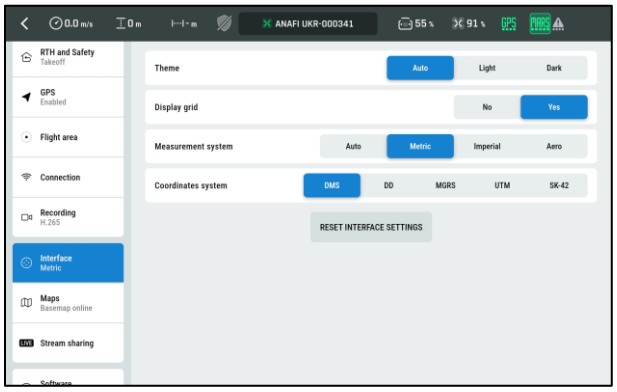


Figure 107: Light theme

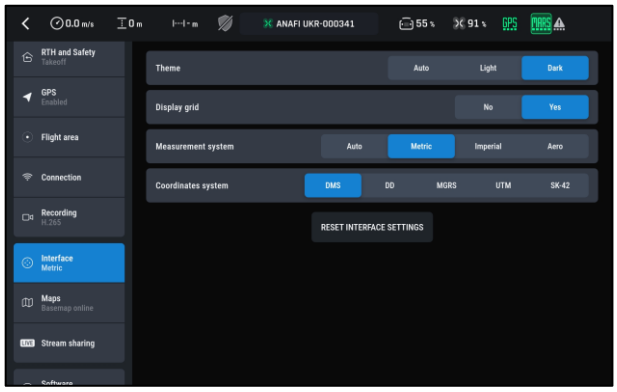


Figure 108: Dark theme

13.10.2. Cursor On Target

- **No** – Cursor On Target is disabled.
- **Yes** – Cursor On Target is enabled.

Cursor o Target is enabled by default.

Refer to *chapter 11.1 Cursor On Target* for more information on how to use the Cursor On Target feature.

13.10.3. Display grid

- **No** - No grid is displayed in the streaming view.
- **Yes** - A 3x3 grid is displayed as an overlay on in the streaming view.

13.10.4. Measurement system

- **Auto** - FreeFlight 8 applies the device's setting.
- **Metric** - Displays drone/wind speed in m/s, and distances/altitude in m.
- **Imperial** - Displays drone/wind speed in mph, and distances/altitude in ft.
- **Aero** - Displays drone/wind speed in m/s, altitude in ft, and distance in m.

13.10.5. Coordinates system

- **DMS** - Degrees, Minutes, Seconds.
- **DD** - Decimal Degrees.
- **MGRS** - Military Grid Reference System.
- **UTM** - Universal Transverse Mercator.
- **SK-42** - Soviet Geodetic Datum 1942.

13.11. Maps

The **Maps** page is dedicated to configuring the information displayed in the FreeFlight 8 map view:

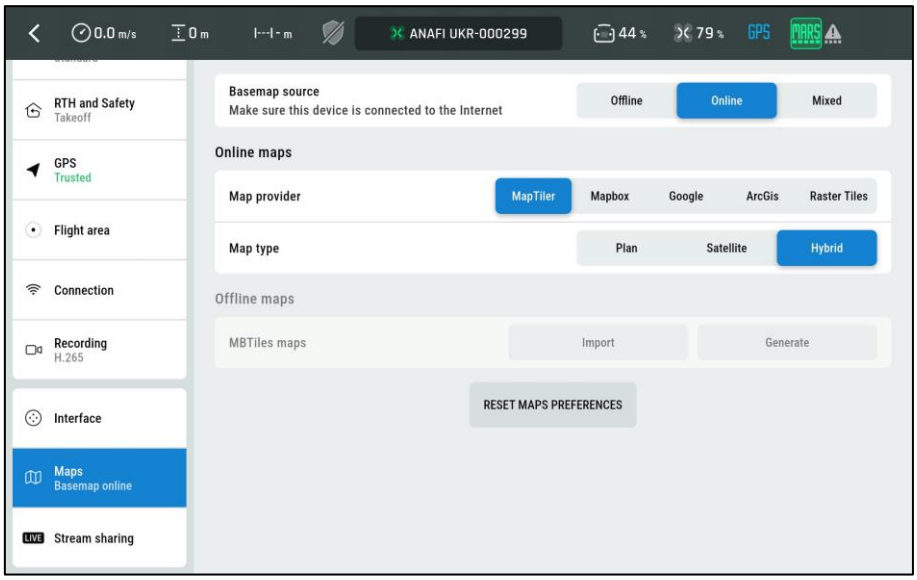


Figure 109: Settings – Maps

Users have 3 options for the **Basemap source**:

- **Offline**
- **Online** (default option)
- **Mixed**

13.11.1. Online maps

Online maps require an internet connection on the tablet. Basemap tiles are downloaded from the basemap provider server.

By default, FreeFlight 8 uses a **MapTiler**© license for the online **Map provider**, but **Mapbox**, **Google**, **ArcGIS**, and **Raster Tiles** are also available.

If the user chooses an alternative Map provider, an additional **Access token** text field appears:

Map provider	Additional text field	**Access token** required
MapBox©	**Enter the Access token**	Access token
Google©	**Enter the API Key**	API key
ArcGIS©	**Enter the Access token**	Access token
Raster Tiles	**Custom URL**	Enter a URL to download basemap tiles.

IMPORTANT: The user must determine the most suitable Map provider, subscribe to the appropriate license and comply with the terms and conditions of the license. It is the user's responsibility to ensure they have the correct licenses and/or subscriptions. Refer to chapter 18 Appendix 3 disclaimer, Section 8 *Third-party licenses for online and offline maps*.

13.11.2. Offline maps

Offline maps can be used without an internet connection to the tablet. **Offline maps** mode requires at least one MBTiles package to be imported into FreeFlight 8.

There are 2 methods to create an MBTiles package for offline maps:

- Via FreeFlight 8
- Via an open-source tool

13.11.2.1. Offline maps generation via FreeFlight 8

To create **MBtiles maps** via FreeFlight 8:

1. For the **Basemap source**, tap **Offline.**

The **Offline maps** menu becomes available.

2. Tap **Generate**

The map generation screen opens:

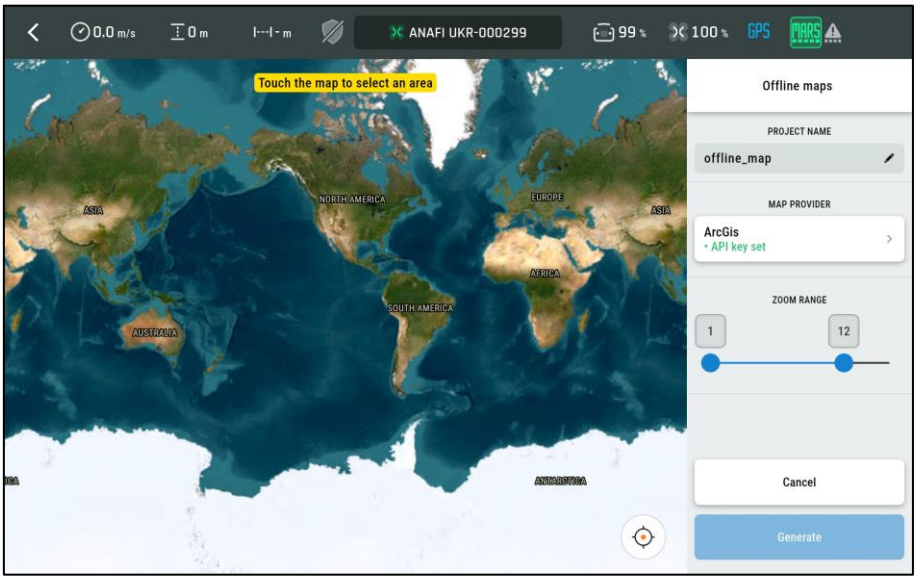


Figure 110: Offline map generation

3. In the **Offline maps** menu (on the right), tap the text field and enter a **PROJECT NAME**.
4. Under **MAP PROVIDER**, tap the drop-down menu and select a map provider.

5. Enter one of the following:
    a. An **ACCESS TOKEN** (for **MapTiler**, **MapBox**, or **ArcGis**),
    b. A **MAP TILES API KEY** (for **Google**), or
    c. A **CUSTOM URL** (for **Raster Tiles**).

NOTE: A token or key is required to display a map on the map generation screen. If **API key missing** shows under the **MAP PROVIDER**, the map workspace shows a dark background with a square grid overlay.

6. Use the **ZOOM RANGE** slider to define the map zoom levels:

FreeFlight 8 uses a double-ended slider to select the minimum and maximum zoom levels to include in the map.

- The **minimum zoom level** (left slider handle) determines how much of the map is visible when zoomed out. Lower levels (e.g., 1 or 2) show larger areas with less detail.
- The **maximum zoom level** (right slider handle) defines the level of detail available when zoomed in. Higher levels (up to 16) show more detail (e.g., fields, roads, or buildings).

7. Use 2 fingers to zoom to the area of interest on the map.
8. Tap the map.

A blue Area of Interest grid appears on the map:

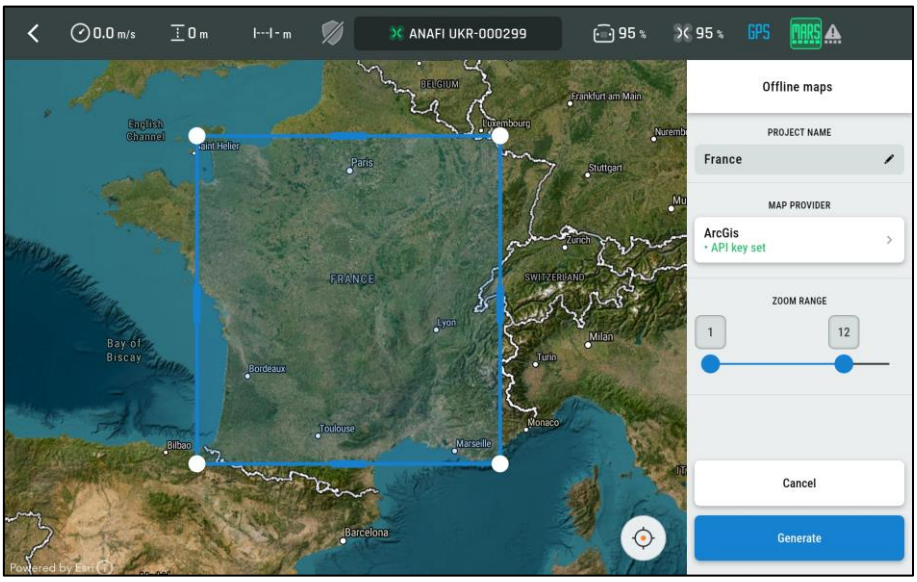


Figure 111: Blue Area of Interest grid - ArcGis MAP PROVIDER

The user can:

- Drag the grid to a different location,
- Drag the white circular corners, or the blue bars on each side to resize the grid.

9. Tap **Generate** to start generating the map:

The map generation process starts. A progress bar indicates the number of tiles generated.

10. Tap **Stop** at any time to cancel the map generation process.

The larger the blue grid the user creates in step 8, the longer FreeFlight 8 requires to create the map.

When the map generation process is complete, FreeFlight 8 displays **Generation successful**.

11. Tap **Done**
12. Tap **< Back** in the top bar to return to the **Maps** settings screen.

If you tap **< Back** before the map generation process completes, the process continues on the **Maps** settings screen. A progress bar appears in the **Offline maps** menu, under **MBTiles maps**.

13. (Optional) Tap the **Trash** can icon to delete the map.

NOTE: Offline maps created via FreeFlight 8 contain satellite images only. They do not include place names, streets, or other labels.

13.11.2.2. Offline maps generation via an open-source tool

To create **MBtiles maps** via an open-source tool such as QGIS:

1. Follow the QGIS online documentation to learn how to create an MBTiles package.
2. Copy the MBTiles package onto a microSD card,
3. Insert the microSD Card into the tablet,
4. Open FreeFlight 8 to import the offline map,
5. Navigate to the **Maps** setting,
6. Under **Offline maps**, tap **Import.**

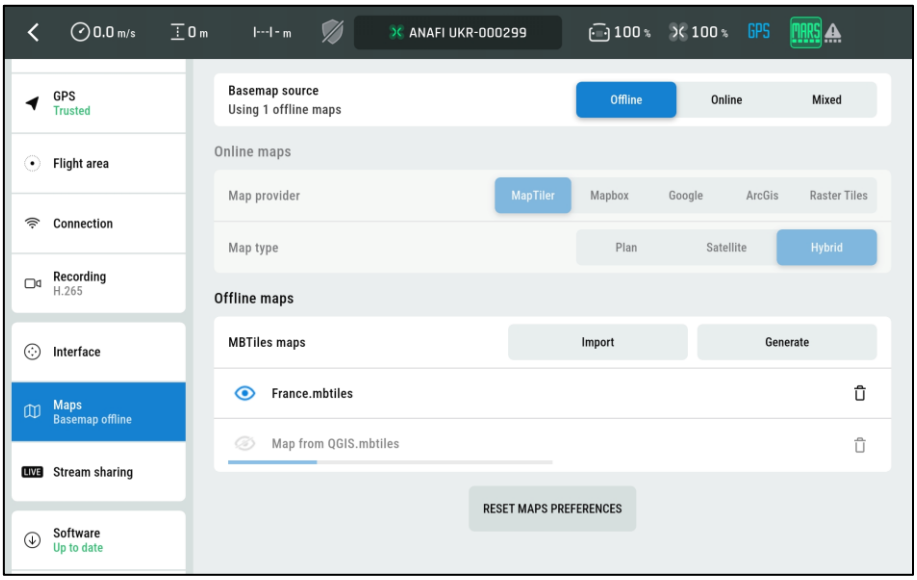


Figure 112: MBTiles package importation in progress

NOTE: For the import procedure to be successful, the available space on the storage media must be larger than the size of the *.mbtiles package to be imported. For example, in order to import a *.mbtiles package of 100 GB from a microSD card, you need a 256 GB or 512 GB microSD card, but 128 GB microSD card is not enough.

An alternative procedure is to copy the *.mbtiles package directly on the microSD card in the *Android/data/com.parrot.freeflight8/files/OfflineMaps* directory, insert the microSD card into the

tablet and launch FreeFlight 8 application. The *.mbtiles package is then directly imported into FreeFlight 8 without any additional user action.

IMPORTANT: The choice of the tool to generate *.mbtiles package is the sole responsibility of the user. The user must determine the most suitable tool, which may not be QGIS, and comply with the terms and conditions of the applicable license. Refer to chapter 18 Appendix 3 disclaimer, Section 8 *Third-party licenses for online and offline maps.*

13.11.3. Mixed maps

In **Mixed** mode both offline and online maps are displayed simultaneously. Offline maps are displayed on top of online maps.

13.12. Stream sharing

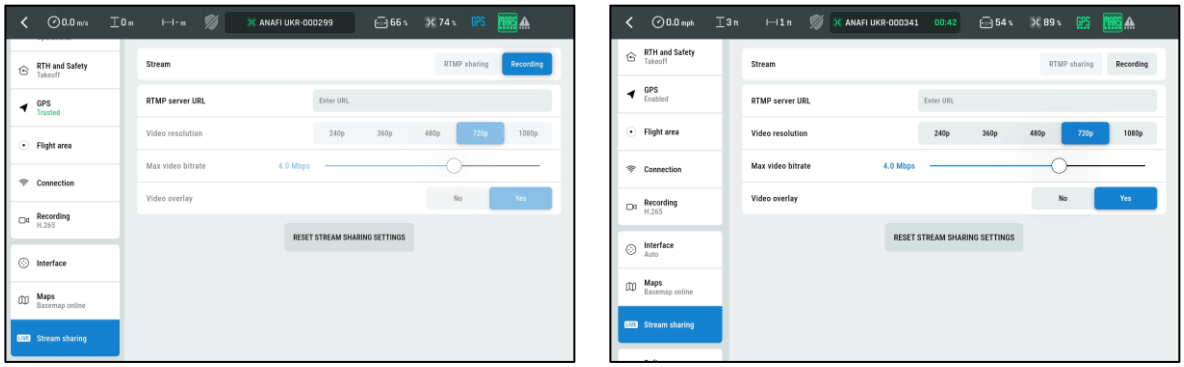


Figure 113: Settings – stream sharing with recording enabled vs disabled

The **Stream sharing** setting group is dedicated to streaming options:

- Stream **Recording** allows the user to record the video stream on the tablet. Stream recording is enabled by default. Recordings are saved in the internal memory of the device, with the following file path:

  /Internal storage/DCIM/Parrot/Recordings/

  Recordings are also visible in the gallery.

- **RTMP stream sharing** allows the user to stream via the tablet's internet access (Wi-Fi or cellular data) the video stream to an RTMP server.
  - Enter the **RTMP server URL**
- Set up the
  - **Video resolution**: **240p**, **360p**, **480p**, **720p** or **1080p** (default value is **720p**)
  - **Max video bitrate** (default value depends on the chosen resolution)
  - Enable the **Video overlay** for telemetry information.

13.12.1. How to set up an RTMP stream sharing

To set up an RTMP stream sharing session, you must configure a third-party stream ingest session with the provider of your choice.

This feature has been successfully tested with Wowza Video and YouTube Live. It may also work with other providers.

NOTE: Before you start a streaming session in FreeFlight 8, you must configure the settings with the third-party provider. When you stop the RTMP stream sharing session on FreeFlight 8, the third-party provider terminates the streaming session on its side.

Before you restart the RTMP stream sharing session on FreeFlight 8, you must check the third-party provider user interface to ensure that the stream sharing session is still live, and restart the session from the third-party provider side if necessary. FreeFlight 8 does not detect if the RTMP stream sharing session times-out on the third-party provider side.

For YouTube Live:

1. Choose the **encoder** streaming method.
2. Enter the following URL in FreeFlight 8:

server URL + '/' + *the stream key*

(e.g. "rtmp://a.rtmp.youtube.com/live2/xxxx-xxxx-xxxx-xxxx-xxxx").

For Wowza Video:

1. Choose the **RTMP** stream type **push stream** and **push to Wowza Video**.
2. Select **Disable authentication on the video source**.
3. Enter the following URL in FreeFlight 8:

primary server URL + '/' + *the stream name*.

The **LIVE** icon in FreeFlight 8's HUD indicates that stream sharing is currently in progress.

RTMP URLs contain a private stream key and should not be shared. The public viewers HTTP URL that can be shared is available in the third-party provider configuration. The supported protocols are RTMP (*rtmp://*) and RTMPS i.e. RTMP over TLS (*rtmps://*).

WARNING: The RTMP stream offers no guarantee of stream confidentiality. When confidentiality is required, use the RTMPS protocol. Remember to stop the stream sharing in FreeFlight 8 when you no longer require it.

13.13. Software

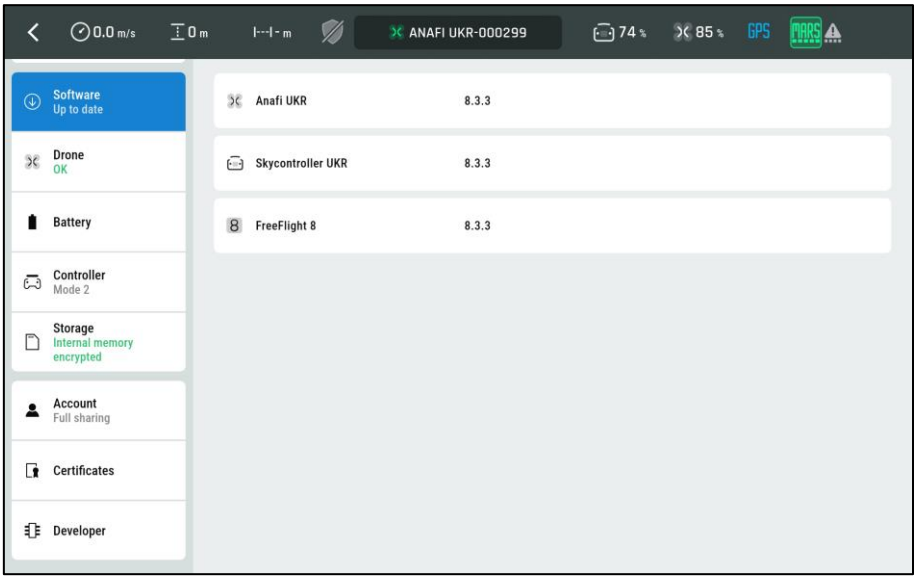


Figure 114: Settings - Software

The **Software** page indicates the firmware versions installed on both the drone and the controller. It also indicates the FreeFlight 8 application version installed on the device.

Through this screen, you can update the drone firmware, the controller firmware and the FreeFlight 8 application.

13.13.1. Online drone firmware update by FreeFlight 8

FreeFlight 8 checks for firmware updates when the device is connected to the internet. If a new version is available, the update is suggested on this page.

In order to update the drone firmware, click the install button on the FreeFlight 8 **Software** screen.

13.13.2. Controller firmware update by FreeFlight 8

FreeFlight 8 checks for controller firmware updates when the device is connected to the internet. If a new version is available, the update is suggested on this page.

In order to update the controller firmware, click the install button on the FreeFlight 8 **Software** screen:

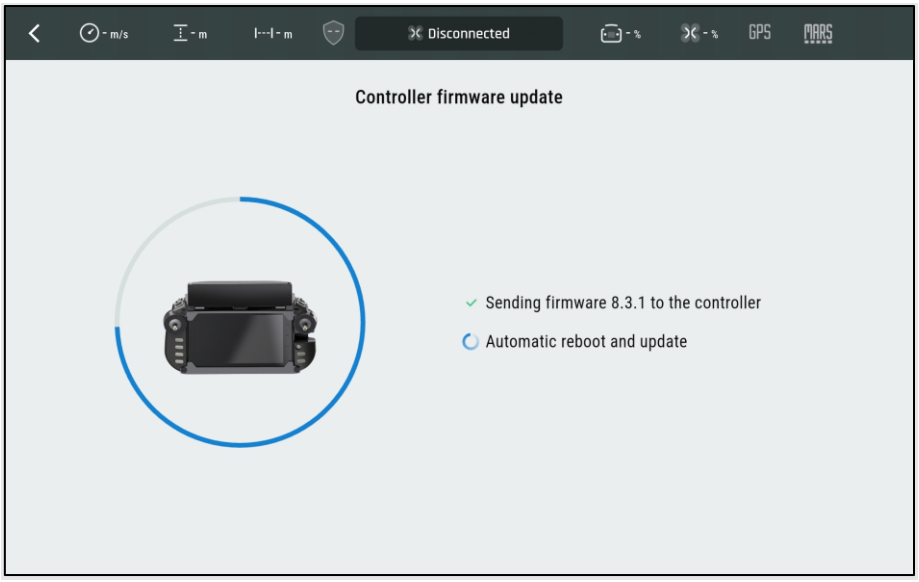


Figure 115: Controller firmware update

13.13.3. Offline controller firmware update

If the device is to be operated strictly offline, an alternative offline update procedure is available. Your Parrot reseller can provide the update file to be saved on and executed on the device.

Perform an offline update via the webserver feature. To access the webserver, connect Skycontroller UKR to a computer with an Ethernet (RJ45) cable.

On the webserver:

1. Click on the **UPDATE** tab
2. Select the update file

13.13.4. FreeFlight 8 update

If the device is connected to the internet, FreeFlight 8 application may suggest to update the current version installed on the device with the latest one available on Parrot update server:

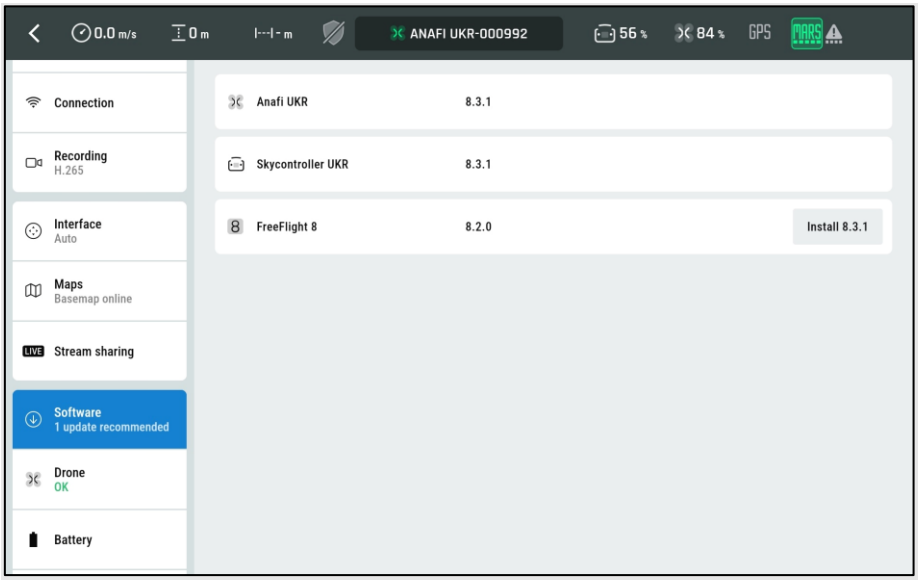


Figure 116: Invitation to update FreeFlight 8

First the new version will be downloaded from the Parrot update server:

Figure 117: FreeFlight 8 download in progress

After the download is completed, you will be prompted by the Android system to authorize the application update:

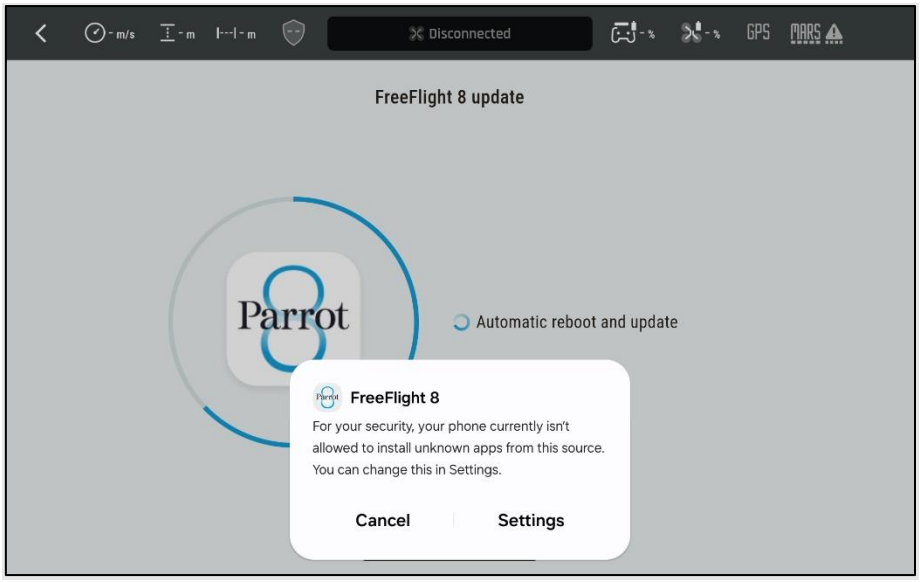


Figure 118: FreeFlight 8 update authorization

If the device is to be operated strictly offline, an alternative offline update procedure is available. Your Parrot reseller can provide .apk files to be saved and executed on the device to install a newer version of FreeFlight 8 embedding the latest drone and controller firmwares.

13.14. Drone

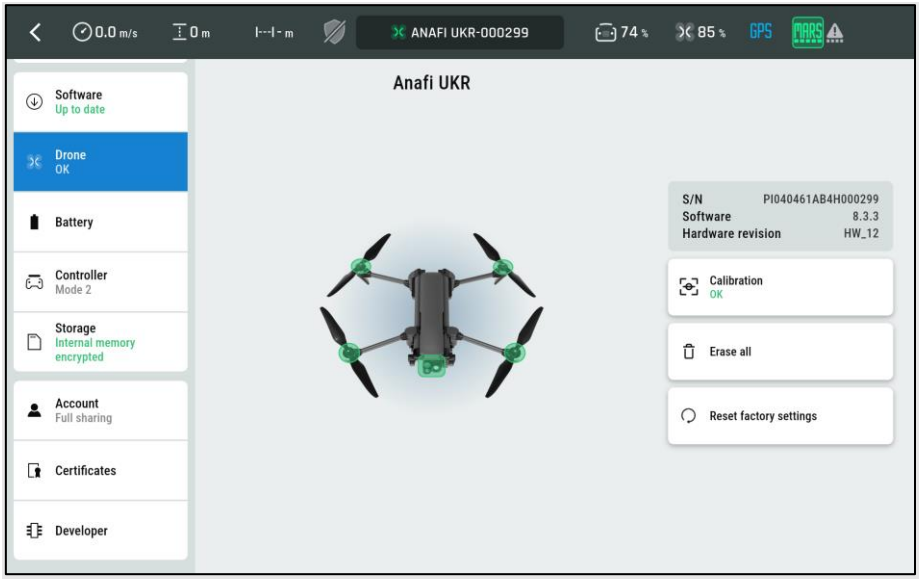


Figure 119: Settings - Drone

Drone information displays the motors and gimbal status.

The status in the **Calibration** tile notifies if any calibration is required.

Tap **Erase all** to erase all media and logs.

Tap Reset factory settings to revert the aircrafts's most recent firmware to its original state.

13.14.1. Calibrations menu

The **calibrations** screen shows the calibration status of:

- The **Gimbal**
- The **Magnetometer**
- The **Thermal** camera
- **Cursor On Target**
- **Horizon**
- **Cameras alignment**

When a calibration process is required, the corresponding tile is highlighted in red.

When a calibration process is recommended, the corresponding tile is highlighted in orange.

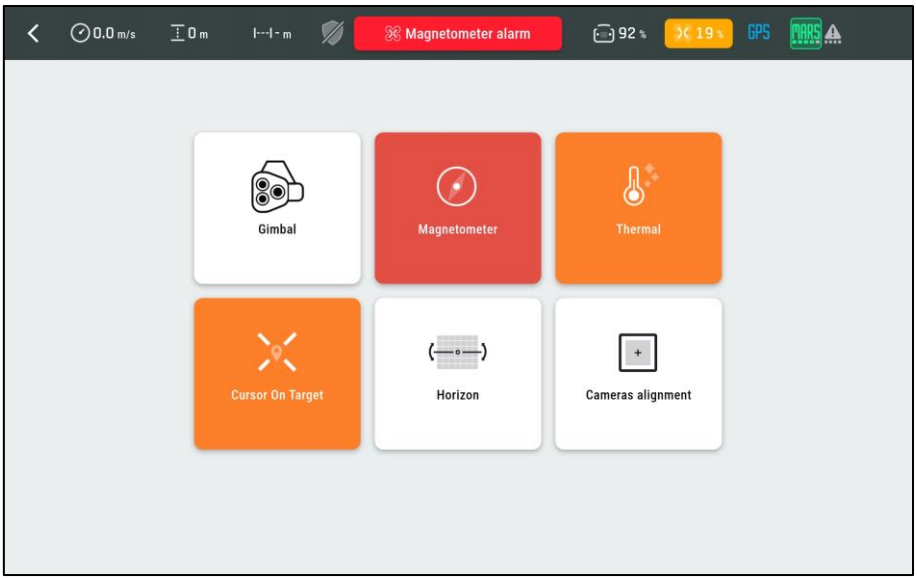


Figure 120: Calibration menu screen

IMPORTANT: ANAFI UKR's warranty is void if you fly the drone without the required calibrations.

13.14.2. Gimbal calibration

Gimbal calibration allows the user to initialize the gimbal calibration and evaluate the hall effect motors offsets to improve gimbal control.

If the Gimbal is not calibrated, the calibration button appears in red in the **Calibration** menu.

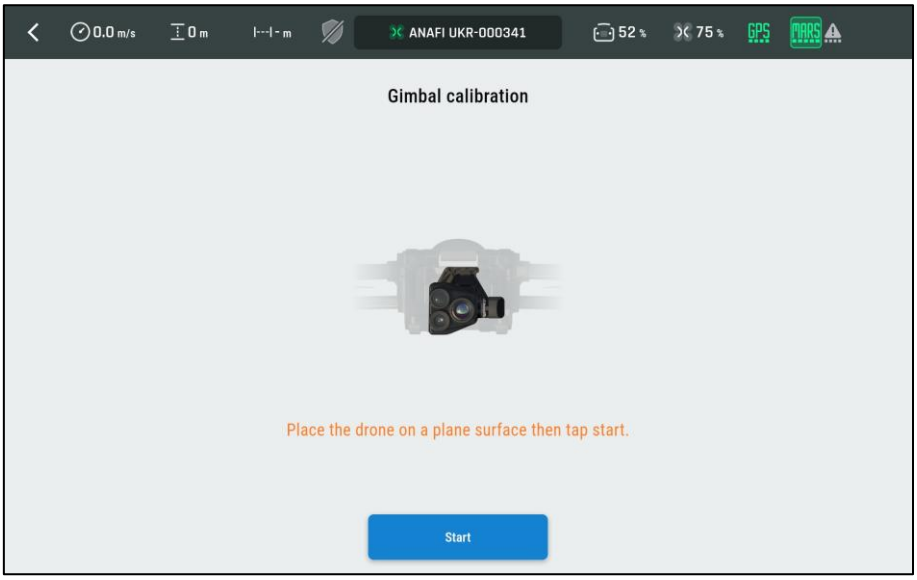


Figure 121: Gimbal calibration

Place the drone on a plane surface and then press the **Start** button.

The gimbal calibration process time is 30 seconds.

13.14.3. Magnetometer calibration

Magnetometer calibration allows the user to calibrate the magnetometer sensor on the drone.

If the drone magnetometer becomes uncalibrated, the magnetometer button appears in red in the **Calibration** menu.

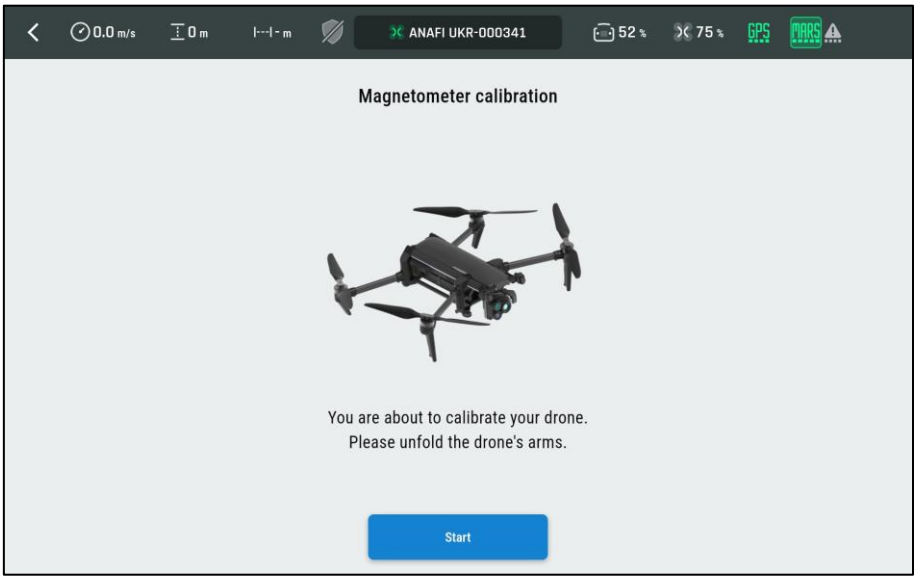


Figure 122: Magnetometer calibration

Unfold the drone's arms and press the **Start** button. Follow the onscreen instructions; rotate the drone around all 3 axes:

- **Z-axis (Yaw)**
- **Y-axis (pitch)**
- **X-axis (Roll)**

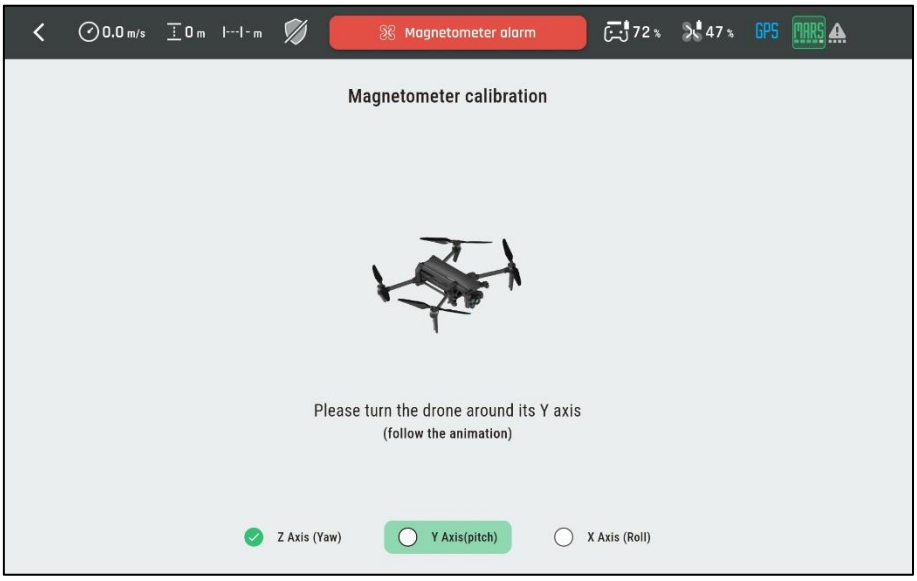


Figure 123: Magnetometer calibration

13.14.4. Thermal calibration

Thermal calibration allows the user to correct any non-uniformity error on the thermal sensor.

Perform thermal calibration regularly to maintain optimum thermal imaging quality. Parrot recommends repeating this calibration every 7 days.

In FreeFlight 8, the thermal calibration tile turns orange when the last thermal calibration was performed more than 7 days ago.

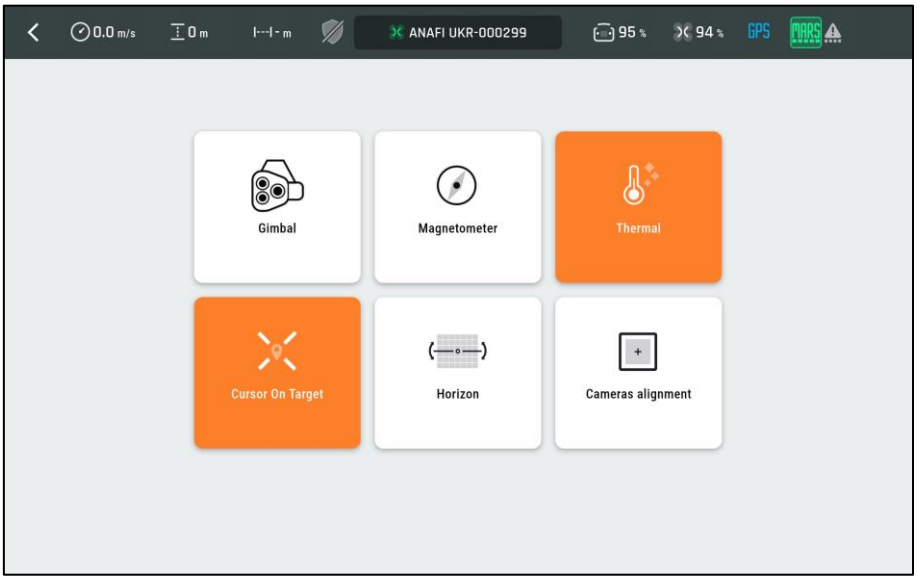


Figure 124: Thermal calibration recommended

1. Tap the **Thermal** tile.
2. Tap **Start**.

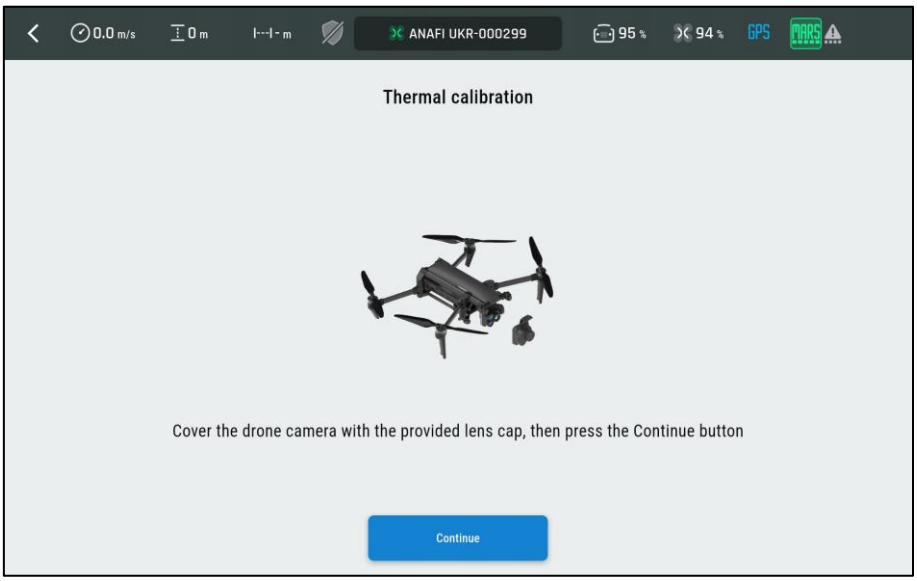


Figure 125: Place the cover before starting gimbal calibration

3. Cover the drone camera with the provided lens cap
4. Tap **Continue** when the cover is in place:

The thermal calibration has 2 steps:

A. **Thermal sensor heating**. The thermal sensor must be activated for 90 seconds before it is ready to calibrate:

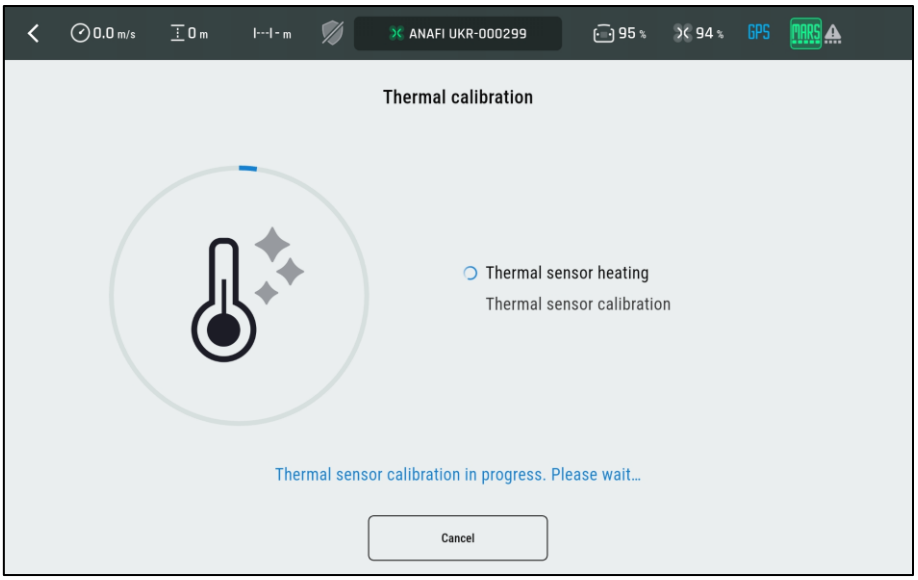


Figure 126: thermal sensor heating

B. **Thermal sensor calibration**. This step lasts for 8 seconds:

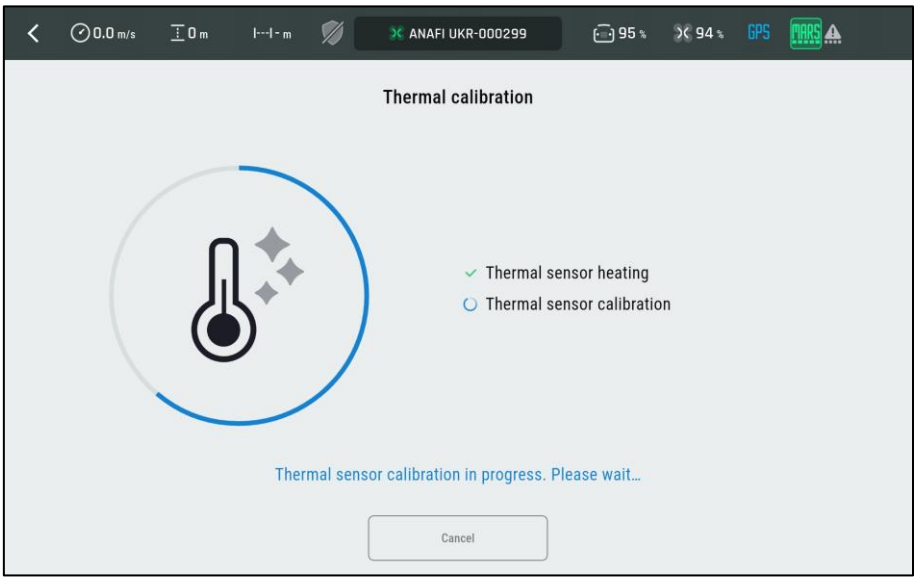


Figure 127: Thermal sensor calibration

5. Remove the lens cap
6. Tap **Quit**.

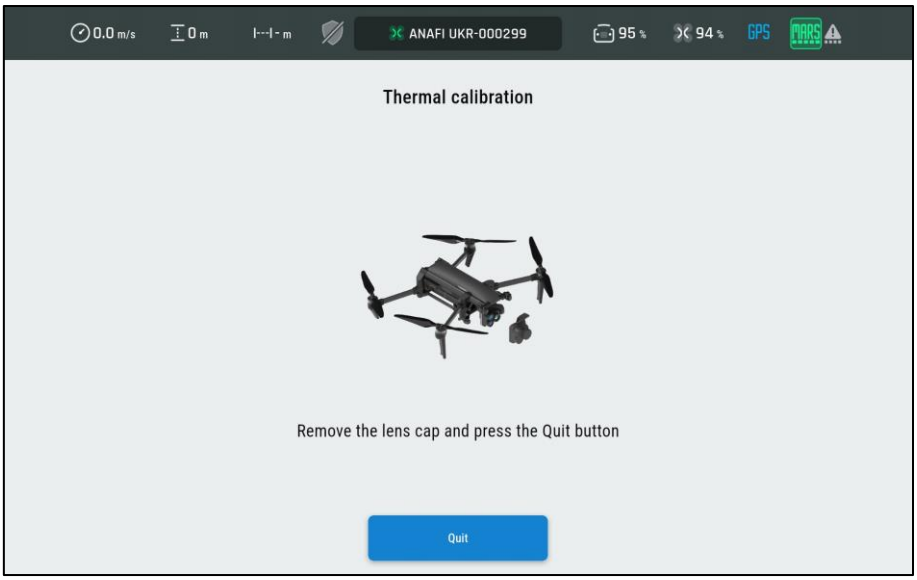


Figure 128: Thermal sensor calibration complete

13.14.5. Cursor on Target calibration

The **Cursor on Target calibration** allows the user to evaluate and compensate offsets on the gimbal angle estimation that impact the accuracy of the Cursor on Target functionality.

Cursor on Target calibration is recommended when you need to use the Cursor on Target feature after the drone has been stored for some time.

The Cursor on Target calibration process requires the Android **Location** service to be enabled in the Android tablet **Settings**.

Improve the location measurement accuracy by aiming at a known point (the Skycontroller UKR), the drone evaluates the biases of its position/orientation sensors and applies these corrections to the CoT measurements.

NOTE: Cursor on Target feature is available in Video mode and in JPEG Rect photo mode but is not available in JPEG Wide photo mode. Refer to *chapter 11.2. Video and photo modes* for more information about imaging modes.

Follow this procedure to calibrate Cursor on Target:

1. Enable the **Location** feature on the Android device (**Settings** > **Location**).

The blue pictogram is visible in the FreeFlight 8 map view when the Android Location service is enabled.

2. Tap the **Cursor on Target** button in the Calibration menu.
3. **Take off** the drone.

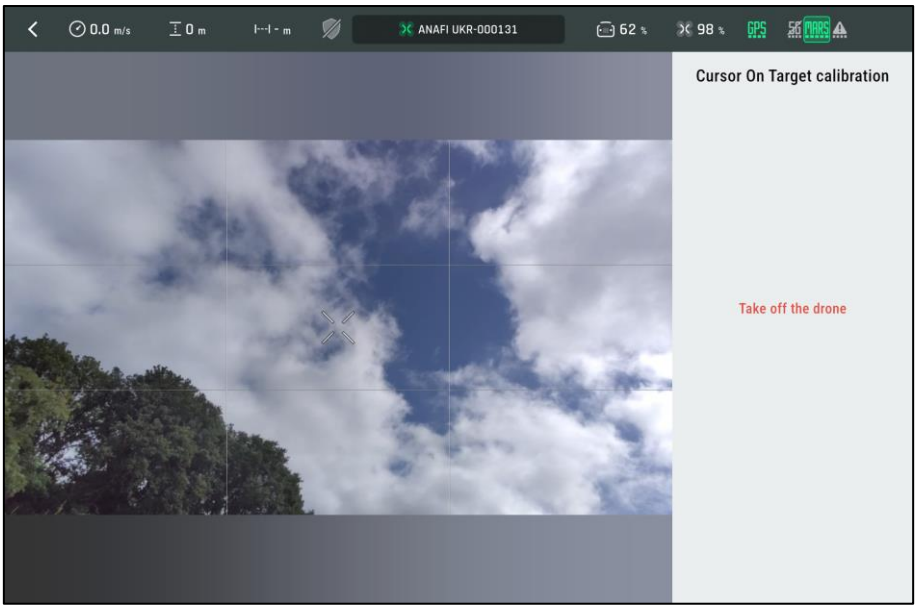


Figure 129: Cursor on Target calibration interface

For optimal calibration accuracy take off the drone from a position very close to the pilot. The pilot must stay close to the drone's take-off position during the calibration process.

4. **Fly the drone 300 m away** (984 ft) and at an altitude of 100 m (328 ft):

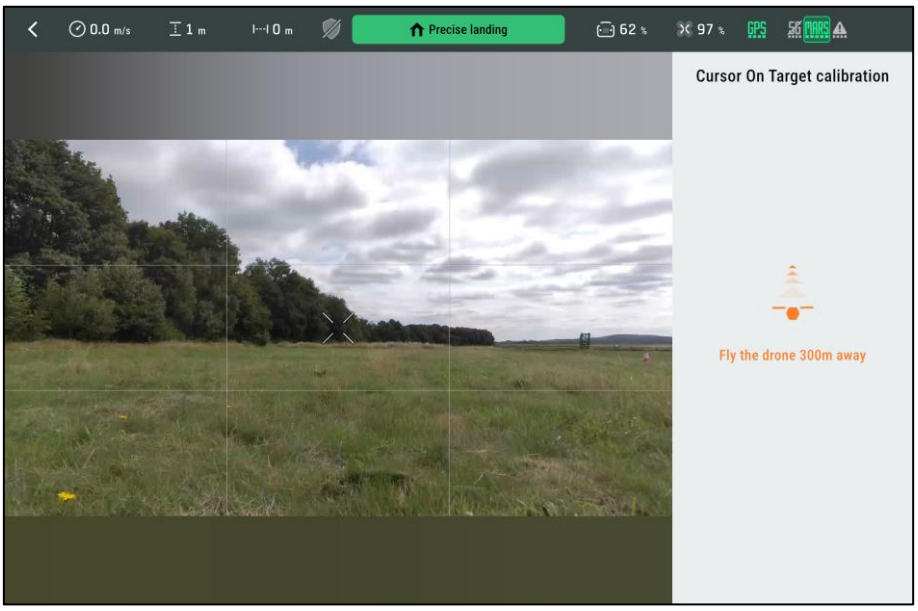


Figure 130: Cursor on Target calibration – fly the drone 300 m away

5. When the drone reaches the optimal position, tap **Start**.

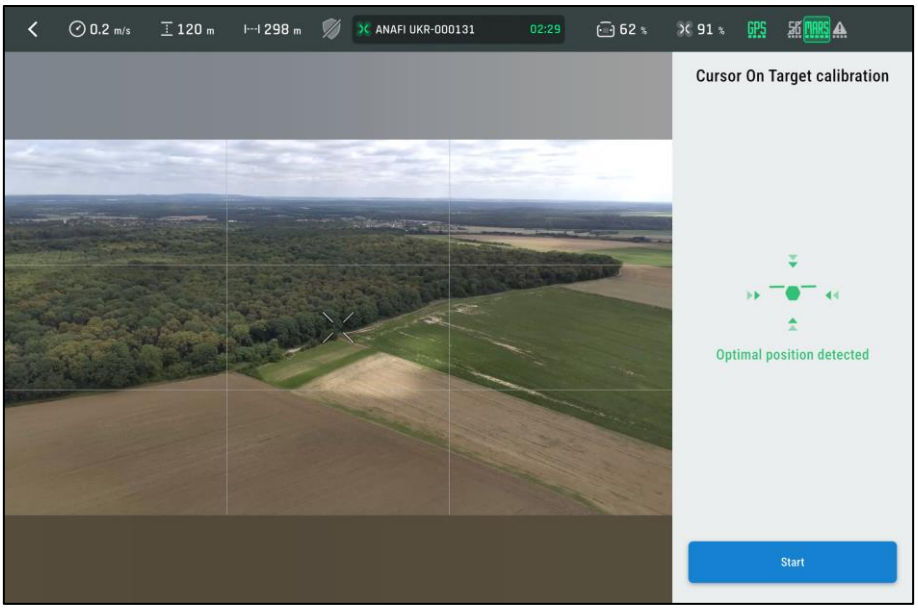


Figure 131: Optimal position detected

The aircraft automatically rotates toward the pilot and adjusts the gimbal tilt angle. However, it does not precisely center the pilot in the image.

6. Zoom in to better aim at the pilot.
7. Manually adjust the aircraft yaw and gimbal tilt to perfectly center the pilot in the video stream.

Aiming accuracy directly influences the accuracy of the Cursor on Target measurements.

8. Tap **Calibrate**:

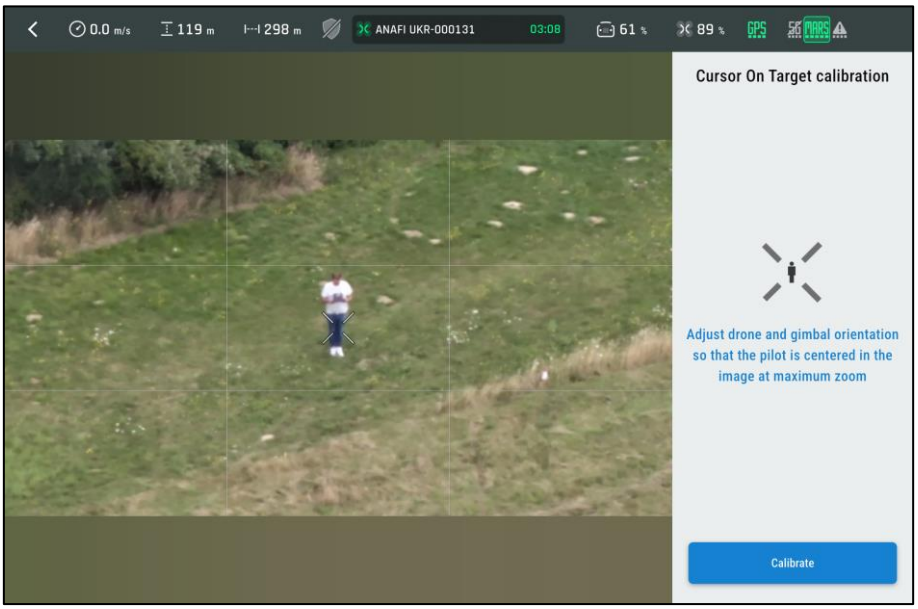


Figure 132: Cursor on Target – Calibrate

A message confirms the status of the calibration.

9. Tap **Close**:

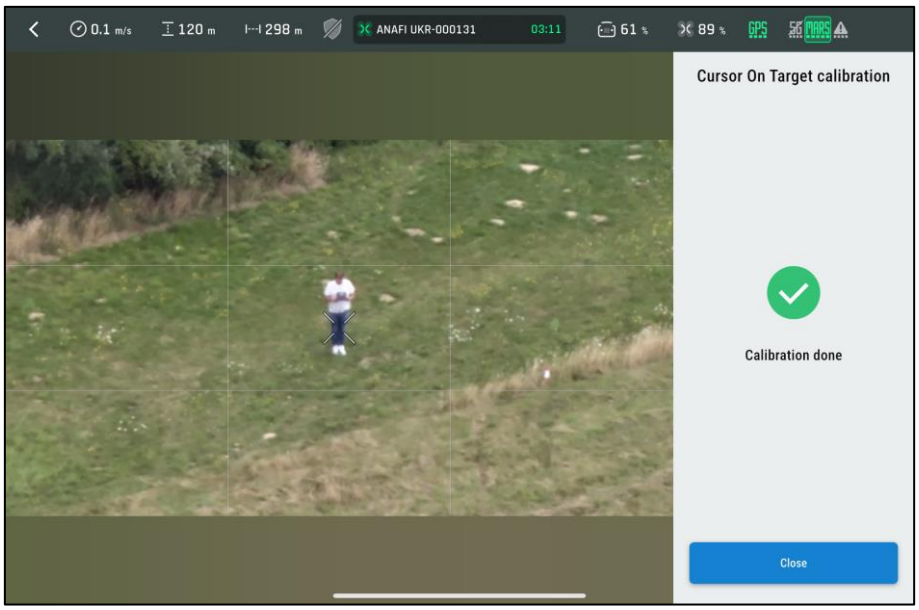


Figure 133: Curson on Target - Calibration done

NOTE: The pilot can only perform the calibration in the green zone, shown in Figure 134. If the calibration is launched in an area outside of the green zone, FreeFlight 8 displays a message to inform you that the aircraft is outside the calibration zone.

The minimum required distance, and minimum required altitude result in a gimbal angle between 17° and 60°.

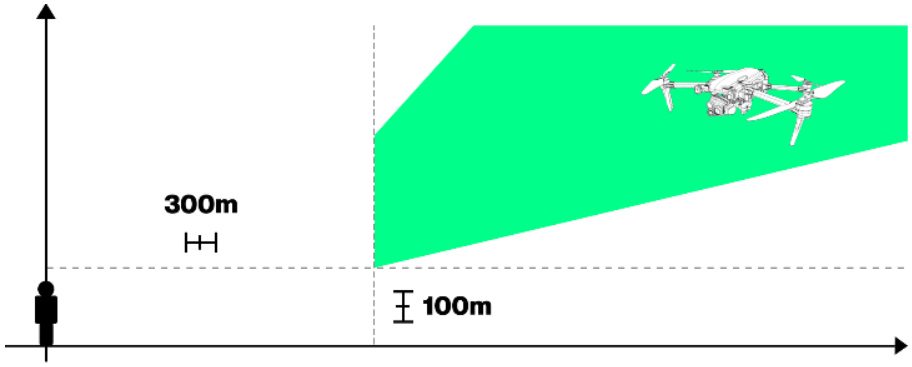


Figure 134: Calibration zone

WARNING: The aircraft cannot detect a bad calibration. You must aim at the pilot/Skycontroller UKR correctly. The accuracy indicator does not consider the aiming error since it considers the calibration to be correct.

13.14.6. Horizon calibration

Horizon calibration allows the user to correct any angular error on the roll gimbal axis. If you notice the horizon line is not perfectly horizontal in the streaming view, you can compensate the error with the horizon calibration:

Figure 135: Horizon calibration

13.14.7. Cameras alignment

The thermal camera is factory-calibrated to align with the visible camera for distant objects (typically beyond 100 m). However, external impacts (such as drops, collisions etc.) can cause slight misalignment. This may result in poor image overlap in thermal blending mode, especially when using high zoom levels.

To correct this, the user can adjust the thermal alignment on both the X and Y axes. This adjustment can also optimize alignment for close-range targets (under 20 m) instead of distant ones.

To start the camera alignment procedure:

1. Tap the **Cameras alignment** tile.

The camera alignment screen opens:

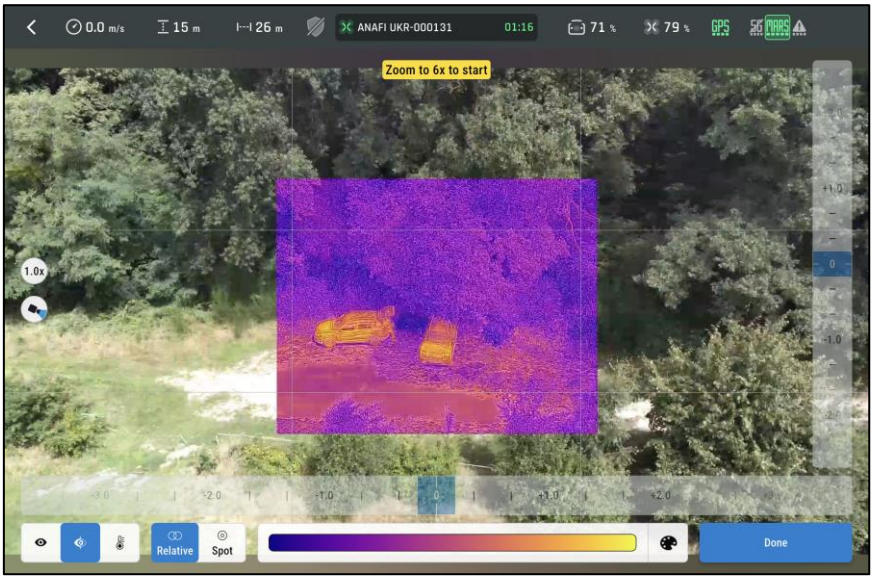


Figure 136: Cameras alignment screen

Relative mode is selected by default, but the user can also perform the camera alignment in **Spot** mode.

2. Zoom to at least 6x to start the alignment process.

The X-axis and Y-axis sliders become available.

3. Use the sliders to align the thermal camera image with the visible camera image.
    - Adjust the X-axis to move the thermal image left or right.
    - Adjust the Y-axis to move the thermal image up or down.

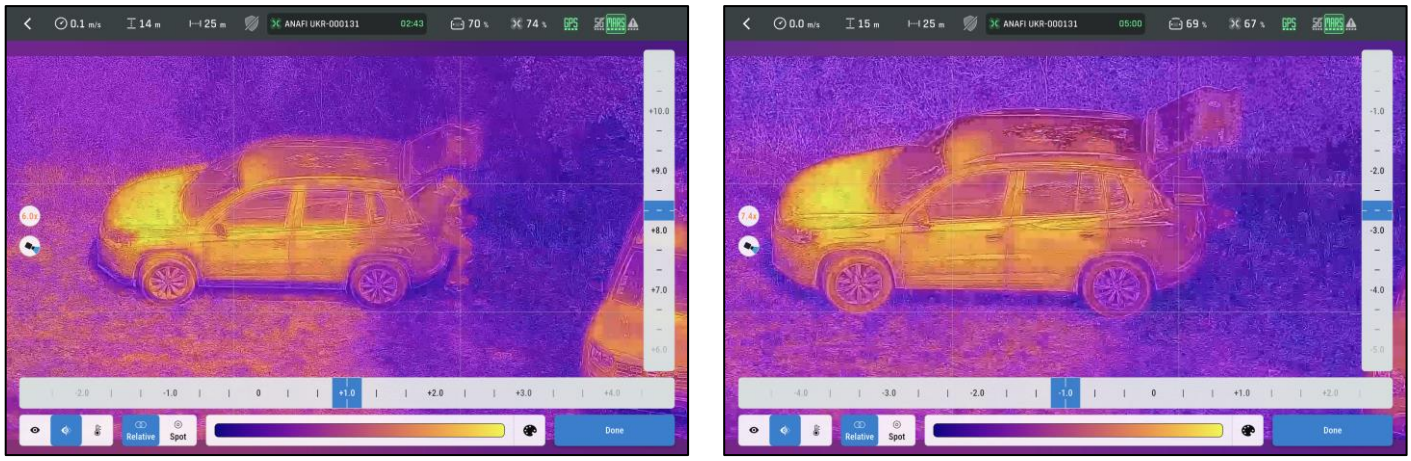


Figure 137: Unaligned thermal camera (left) vs aligned thermal camera (right)

4. Tap **Done** to confirm the alignment.

13.15. Battery

The **Battery information** page indicates:

- Individual **cell voltage** (**mV**)
- Battery State Of Charge (**%**)
- Battery temperature (**°C**)
- Battery serial number **S/N**
- **Software** version
- **Hardware revision**
- **Configuration Date** (DD/MM/YYYY)
- **Total Capacity** (**mAh**)
- **State of health** (**%**)
- Number of charging **Cycles**
- Total **Voltage** (**V**)

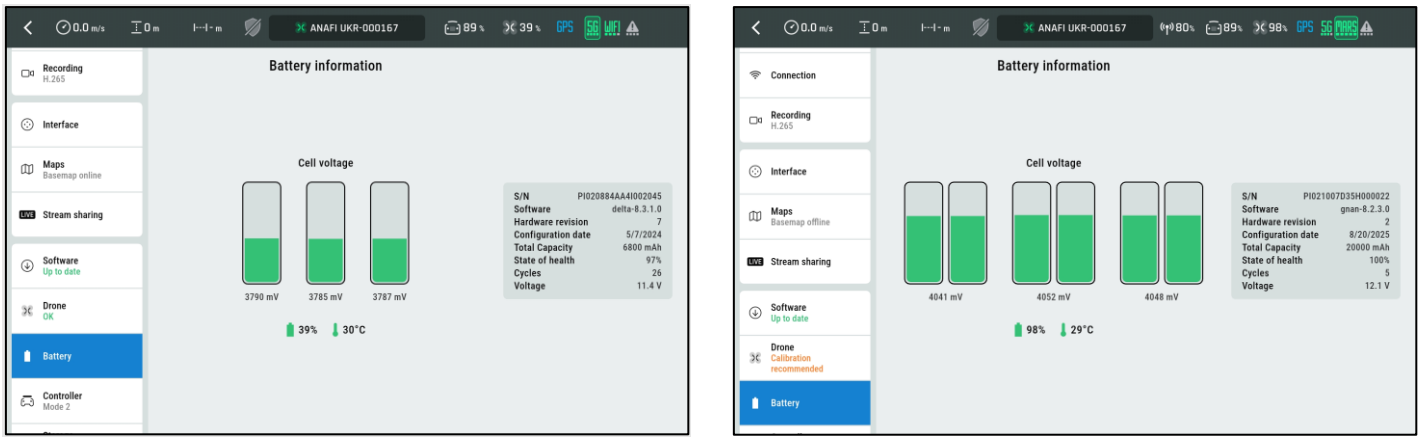


Figure 138: Settings / Battery. Standard battery (left), XLR battery (right)

13.16. Controller

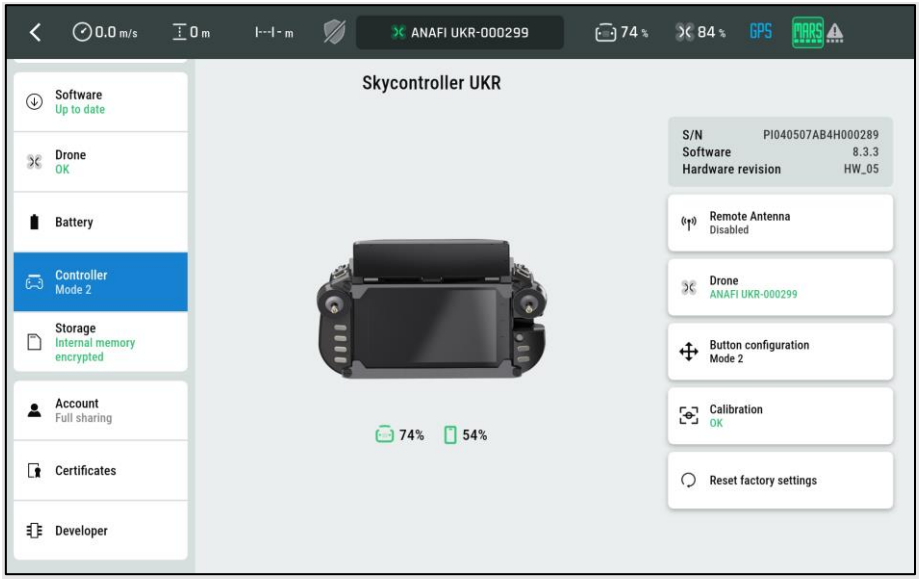


Figure 139: Settings - Controller

The **Controller** information page displays the state of the controller.

13.16.1. Remote Antenna

The **Remote antenna** page allows the user to activate and deactivate the Remote Antenna feature. For more information on setting up this feature, refer to *chapter 8.5. Remote antenna feature with a second Skycontroller UKR*.

Ensure that both Skycontroller UKRs are linked via the RJ45 cable to use the feature properly.

Select **Remote Antenna** from the main Skycontroller UKR in the FreeFlight 8 settings.

Tap **Yes** beside **Use Remote Antenna** setting:

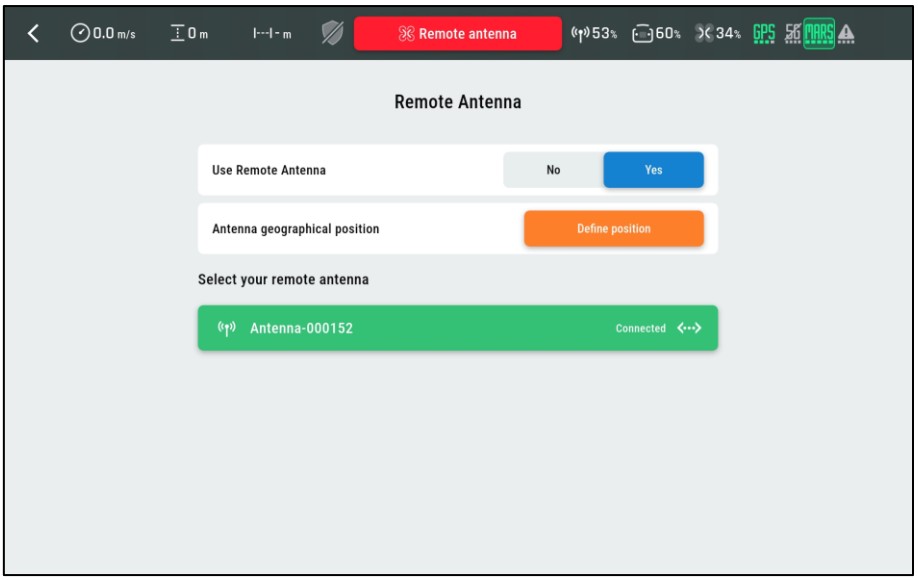


Figure 140: Remote Antenna configuration

The main radio link radio of the main Skycontroller UKR disconnects.

The remote antenna powers on.

NOTE: the remote antenna status LED remains switched off.

Wait several seconds for the status LED of the main Skycontroller UKR to turn solid blue.

The main Skycontroller UKR now uses the MARS link radio and the LoRa of the Remote antenna.

Under **Select your remote antenna**, tap your remote antenna from the list.

Beside **Antenna geographical position**, tap **Define position** to open the **Define position** screen and manually define the position of the remote antenna:

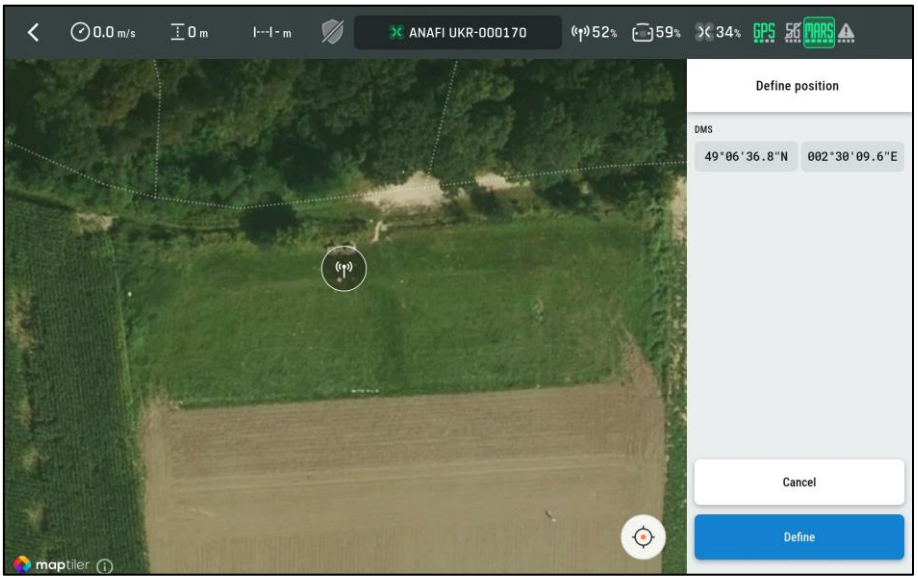


Figure 141: Define remote antenna position

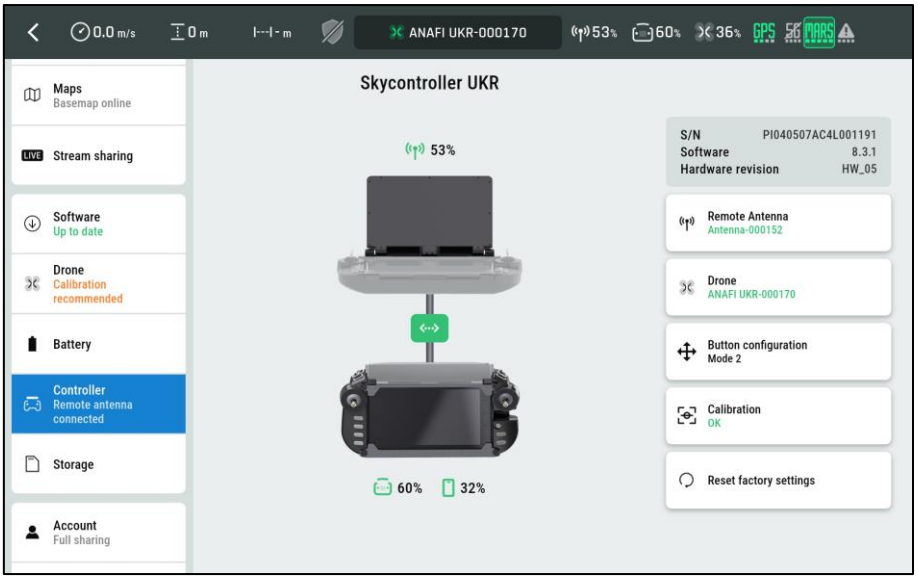


Figure 142: Remote antenna pairing successful

13.16.2. Select the active drone

By clicking on the **Drone** button, you can select the drone to which the controller connects.

That drone is highlighted in blue in the list:

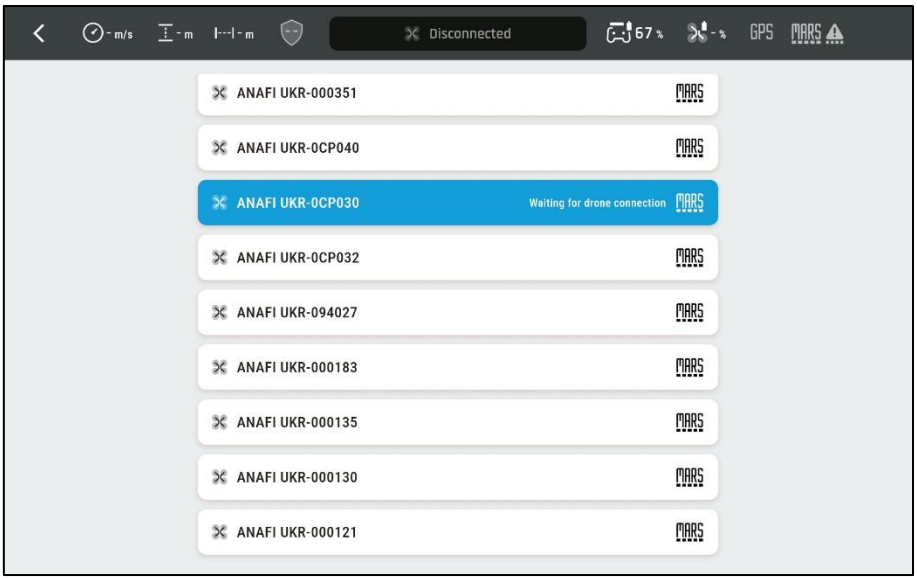


Figure 143: Controller is trying to connect to the active drone

When the controller connects to that drone, the drone is highlighted in green:

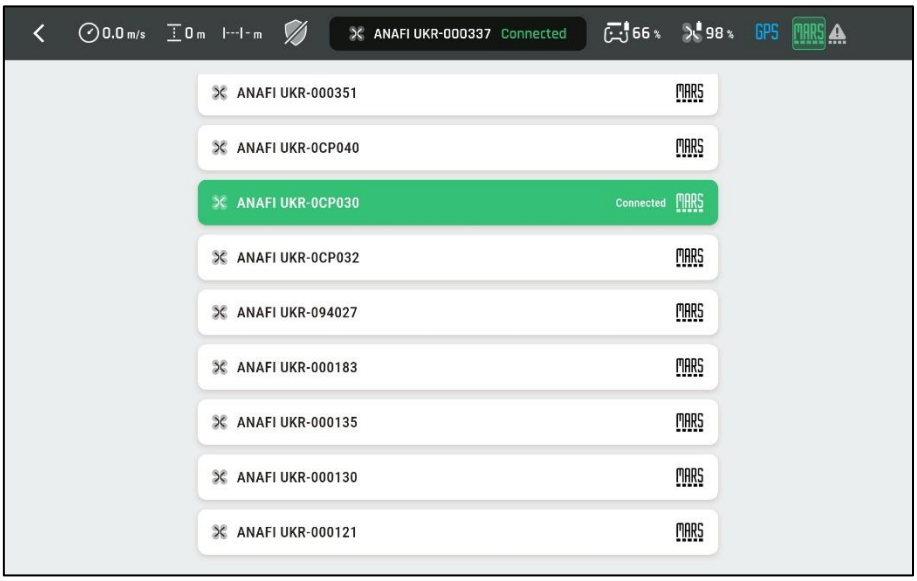


Figure 144: Controller is connected to the active drone

The user can change the active drone at any time by clicking on it in the drone list.

13.16.3. Button configuration

The **Button configuration** page allows the user to configure the controller joysticks and the controller buttons:

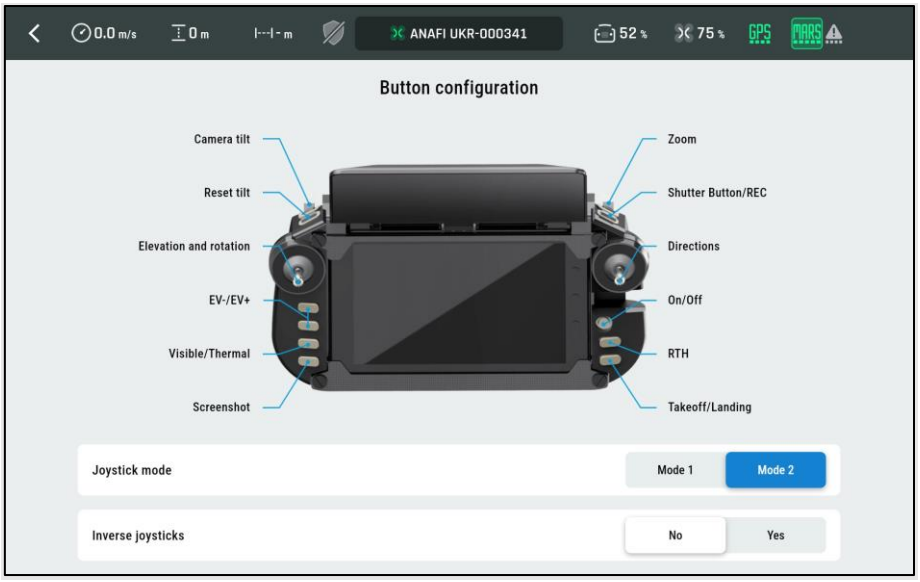


Figure 145: Controller button configuration

13.16.4. Calibration

Magnetometer or Joysticks calibration can be launched from the **Calibration** button:

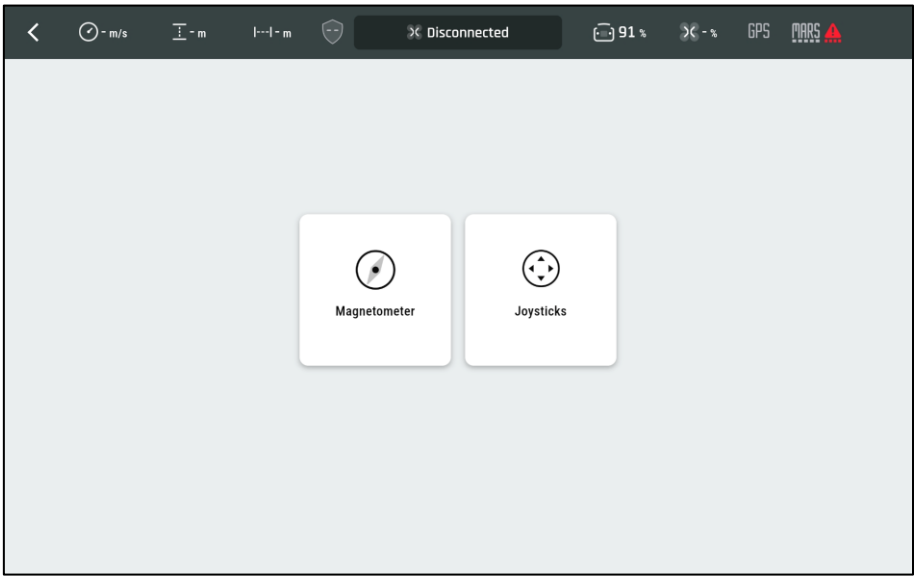


Figure 146: Controller calibration

The **Magnetometer calibration** page allows the user to calibrate the controller magnetometer at any time. Follow the onscreen instructions; rotate the controller around all 3 axes:

- **Z-axis (Yaw)**
- **Y-axis (pitch)**
- **X-axis (Roll)**

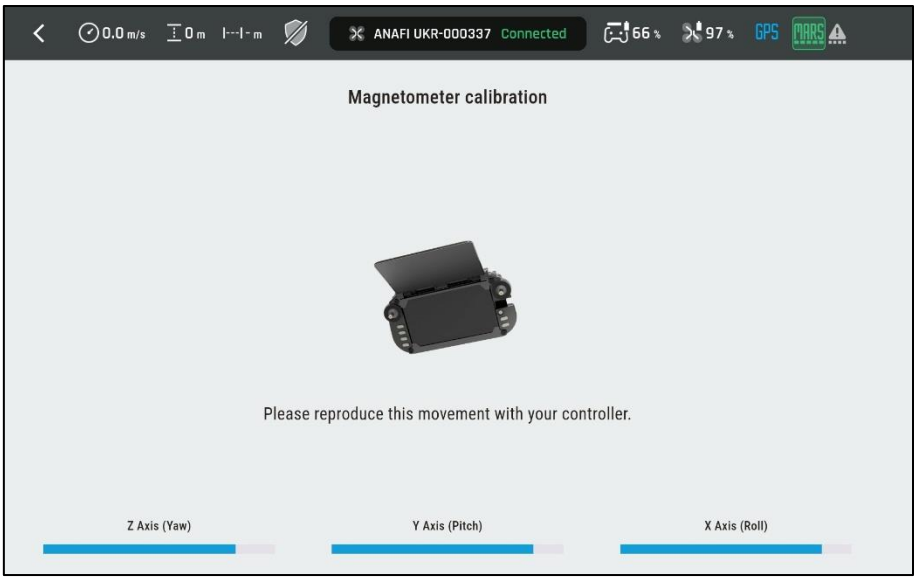


Figure 147: Controller magnetometer calibration

The Joysticks calibration allows the user to calibrate the controller joysticks. The goal is to calibrate both the neutral position of both joysticks and the angular range of both joysticks in all directions.

NOTE: If the joysticks happen to be uncalibrated, a popup will inform the user:

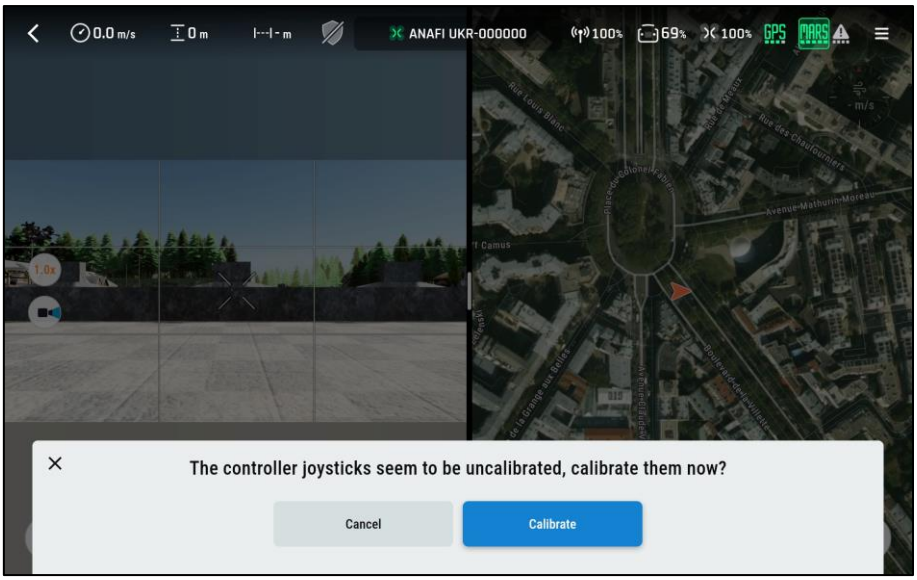


Figure 148: Uncalibrated joysticks popup alert

The joysticks calibration process is split in two steps.

In the first step the user must release both controller joysticks to their neutral position and then click on **Start** button.

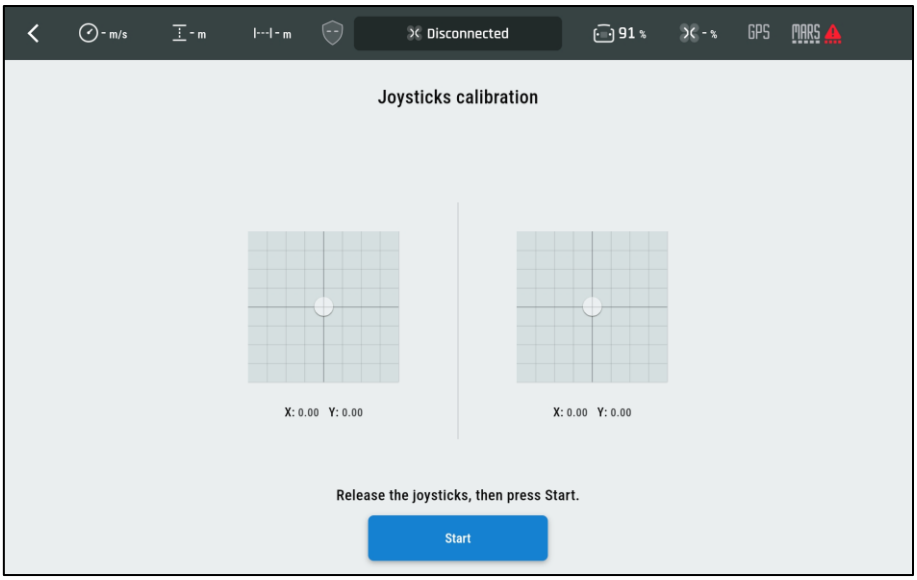


Figure 149: Joysticks neutral position calibration

WARNING: Do not touch the joysticks before you tap **Start**, otherwise the neutral zone will be incorrectly calibrated.

In the second step the user must push both joysticks to their maximum value in all directions and then click on the **Continue** button:

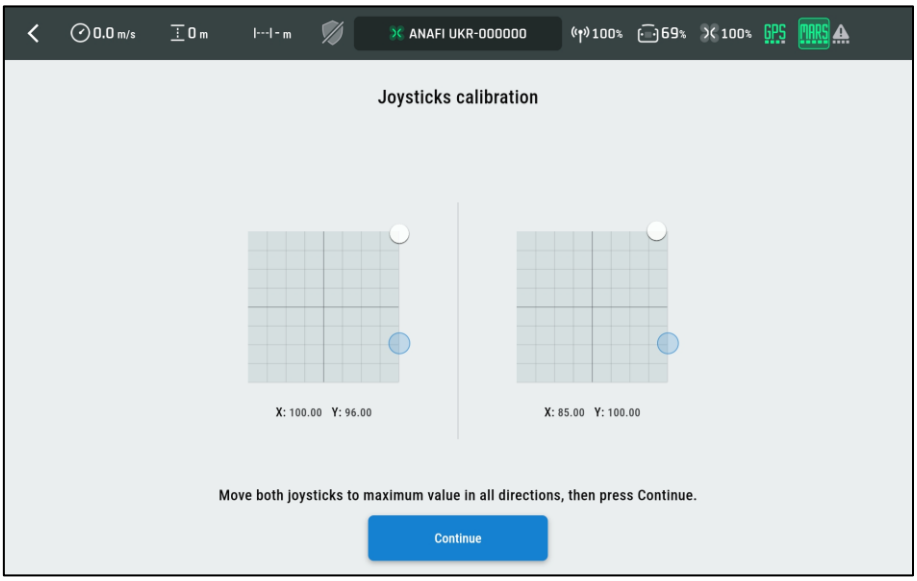


Figure 150: Joysticks angular range calibration

WARNING: The user must push both joysticks to their maximum value in all directions otherwise an error message appears:

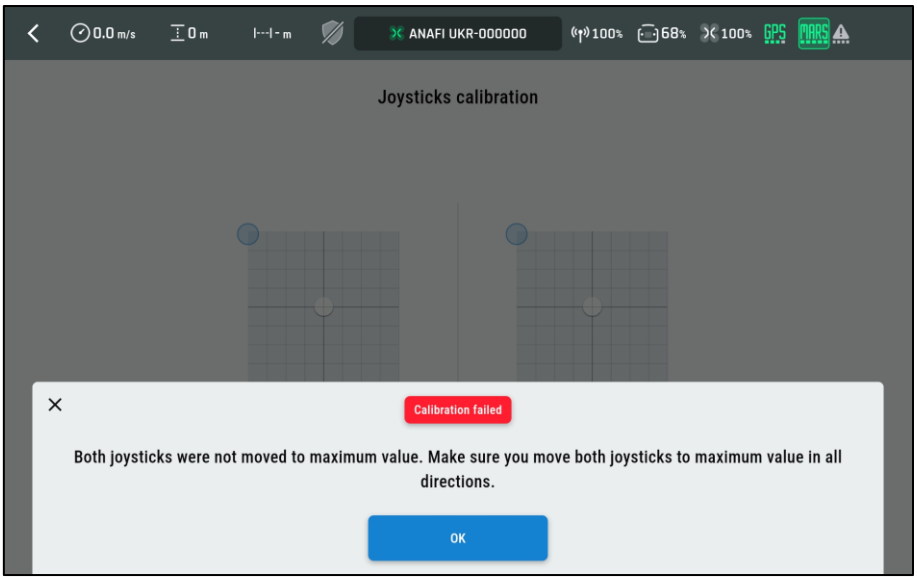


Figure 151: Calibration failed popup

13.17. Storage

The **Storage** page allows the user to encrypt and format the drone microSD card and/or internal memory.

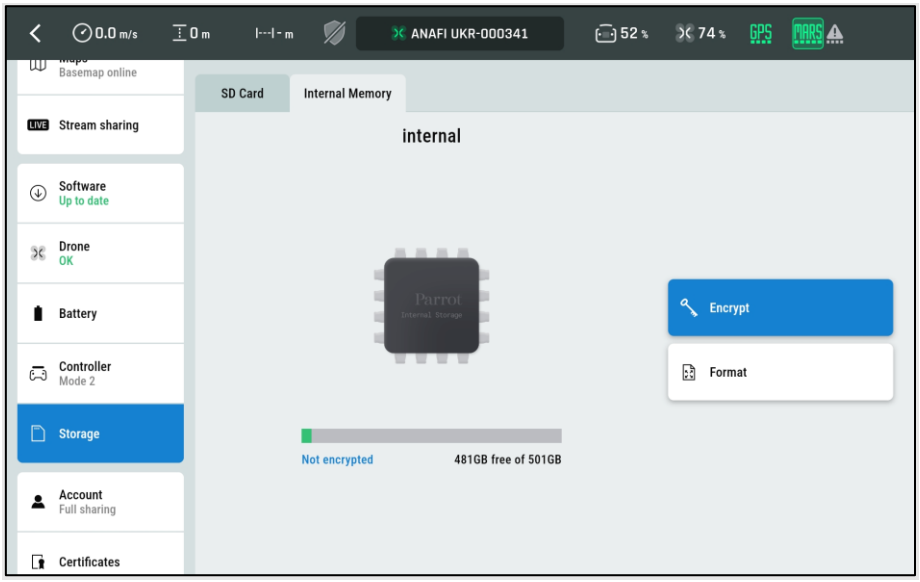


Figure 152: Settings – Storage

If you decide to encrypt a storage support (microSD card or internal memory) you will be prompted to enter a password. That password will be persistently stored in the FreeFlight 8 application and associated with the drone serial number as an Encryption profile.

WARNING: Encrypting the microSD card or internal memory implies formatting of the storage support and thus the loss of all data stored on that support.

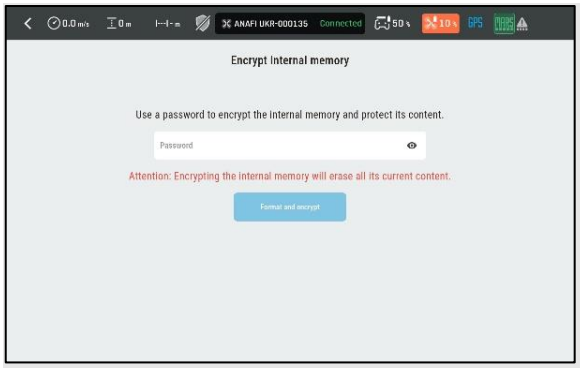


Figure 153: Format and encrypt internal memory

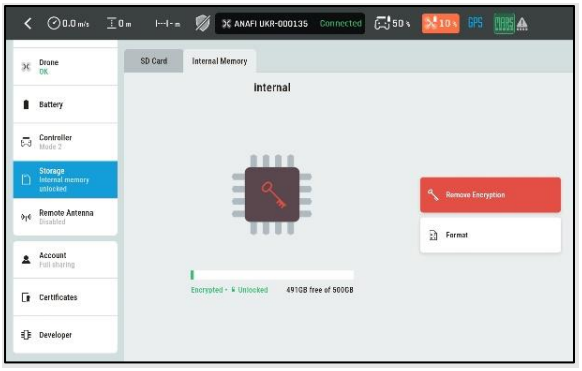


Figure 154: Remove encryption

The storage support (microSD Card or internal memory) is unreadable as long as it has not been unlocked with associated Encryption profile. As the encryption profile is stored in the FreeFlight8 application, the storage support will be automatically unlocked as soon as FreeFlight 8 gets connected to the drone.

In case a PC is connected to the drone by USB and if some storage support is encrypted, then a popup will be displayed into FreeFlight 8 application so that the user can enter the password to unlock the storage support:

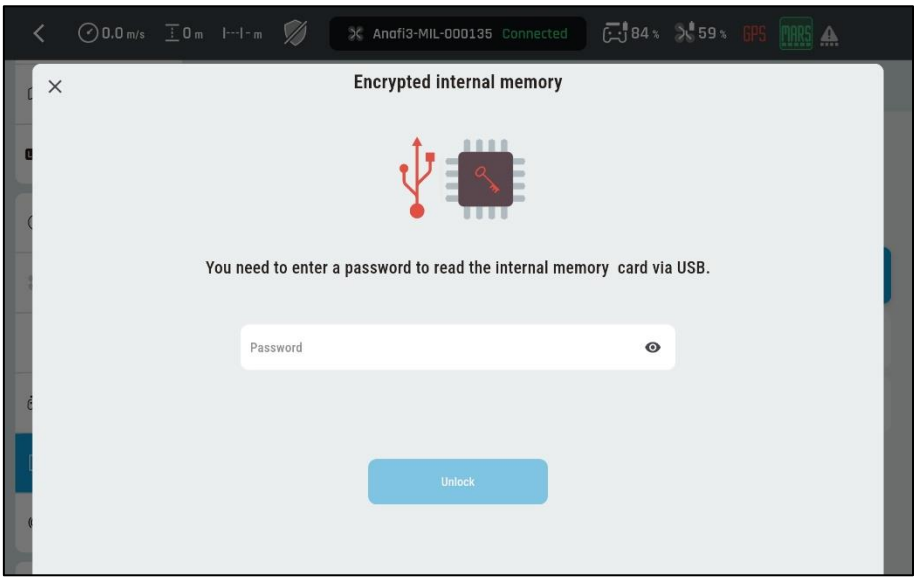


Figure 155: Unlock an encrypted storage support

MicroSD card and internal memory passwords are stored in the FreeFlight 8 application used to encrypt the storage. If you connect to the drone with another instance of FreeFlight 8 then the one used to encrypt the storage (another tablet or same tablet but after FreeFlight 8 uninstallation), then the password is not stored into the FreeFlight 8 application, and the storage cannot be automatically unlocked. You will have to unlock the storage by entering the password manually through the **Unlock** button:

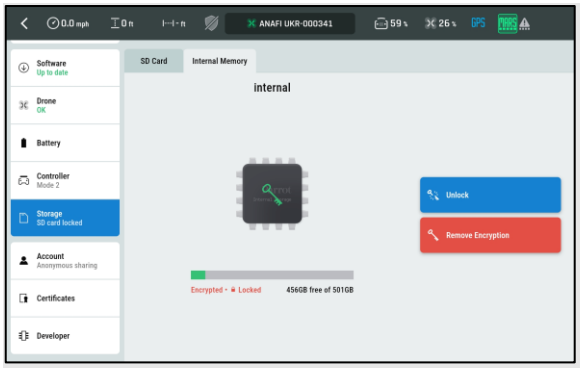


Figure 156: SD card locked

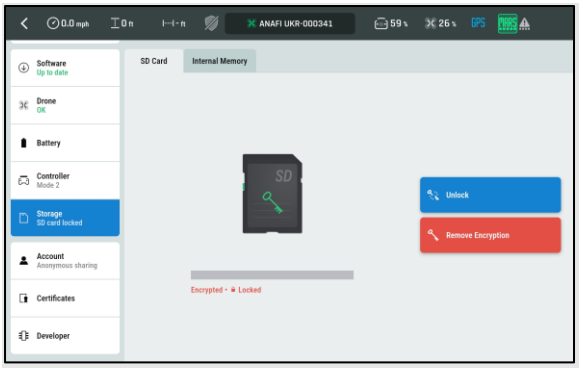


Figure 157: Internal memory locked

You can also remove the encryption through the **Remove encryption** button. If you do that the storage will be formatted and its contents will be lost.

If the drone storage media is locked then media recording is not possible. The shutter button in FreeFlight 8 HUD does not operate, an error message is displayed if you try to start a recording:

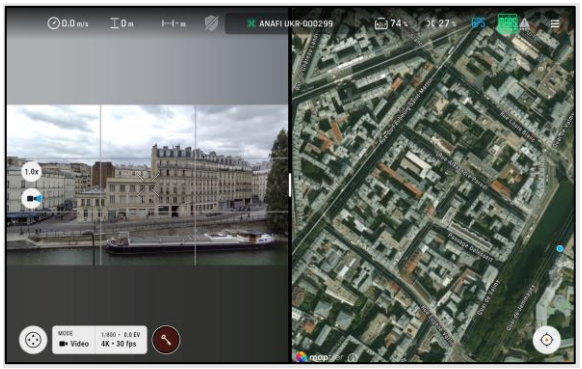


Figure 158: shutter button locked

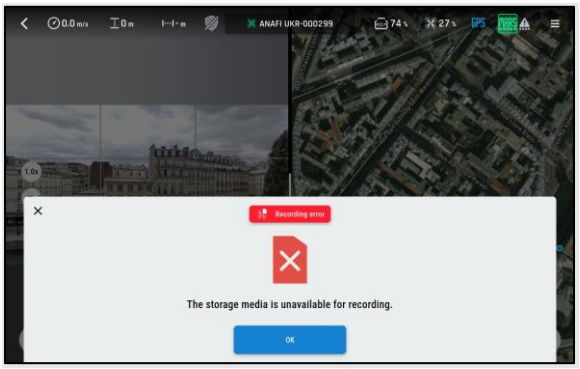


Figure 159: storage unavailable for recording

13.18. Account

The **Account** screen allows users to manage Parrot cloud account and data confidentiality.

Tap **Create account** to create a Parrot Cloud account or tap **Login** to connect to a Parrot cloud account:

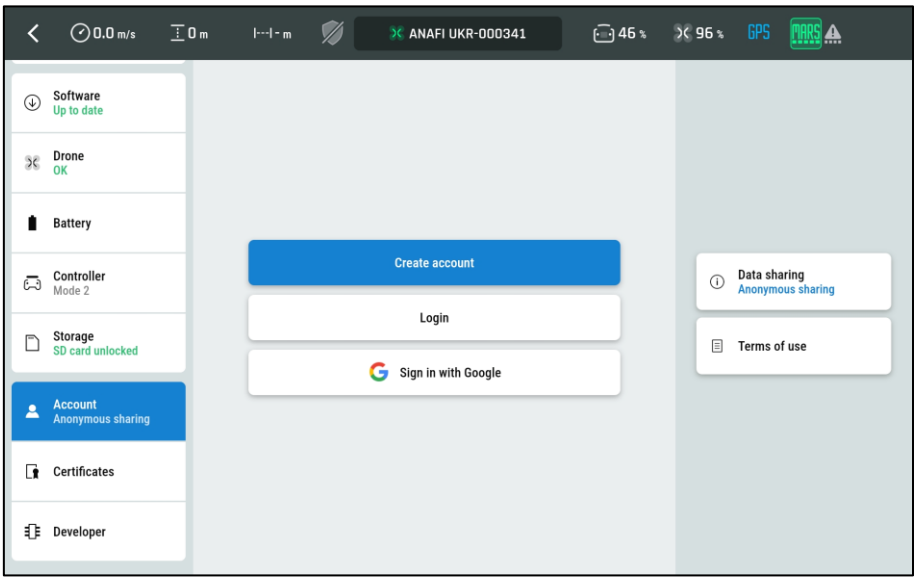


Figure 160: Settings - Account

Once you are logged in you can edit your Parrot cloud account through the Edit button:

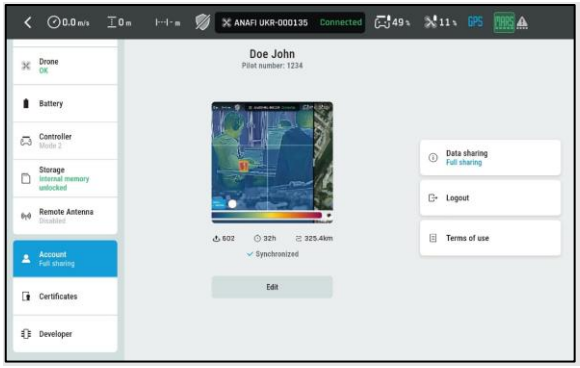


Figure 161: Logged in Parrot cloud account

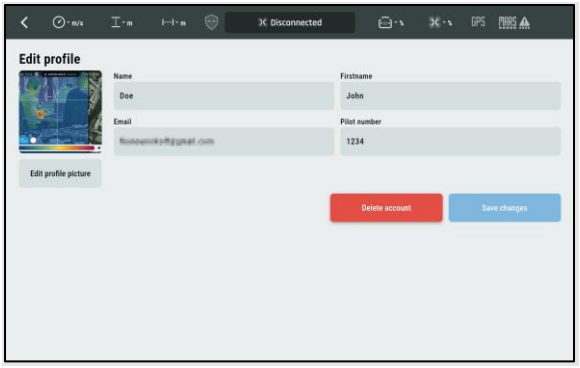


Figure 162: Edit Parrot cloud account

13.18.1. Security

You can choose if you want to share your data with Parrot or if you want to fly the drone in private mode through the **Data sharing** tile. In private mode absolutely no data is shared with Parrot.

3 data confidentiality modes are available depending if you are logged or not to a Parrot cloud account, and depending on the data sharing mode you have selected:

1. Full sharing mode
2. Anonymous sharing mode
3. Private mode

Anonymous sharing is enabled by default.

	Private mode	Sharing mode
Logged to a Parrot cloud account	No log generated on the drone	Full sharing: • Logs are generated on the drone • Logs are synchronized on Parrot cloud
Anonymous user	No log generated on the drone	Anonymous sharing: • Logs are generated on the drone • Logs are synchronized on the tablet

When there is no screen lock activated on the device, FreeFlight 8 does not allow data sharing. Only **Private mode** is allowed when no screen lock is activated:

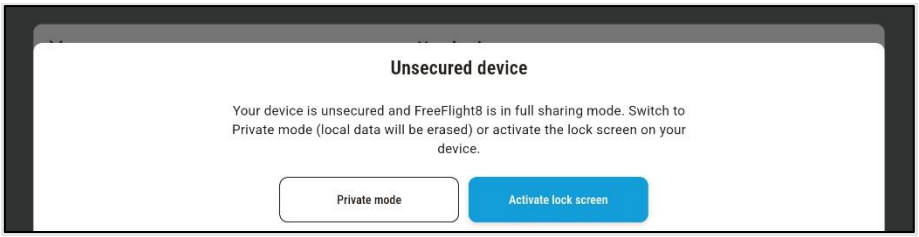


Figure 163: Activate screen lock for data sharing

13.18.2. Full sharing

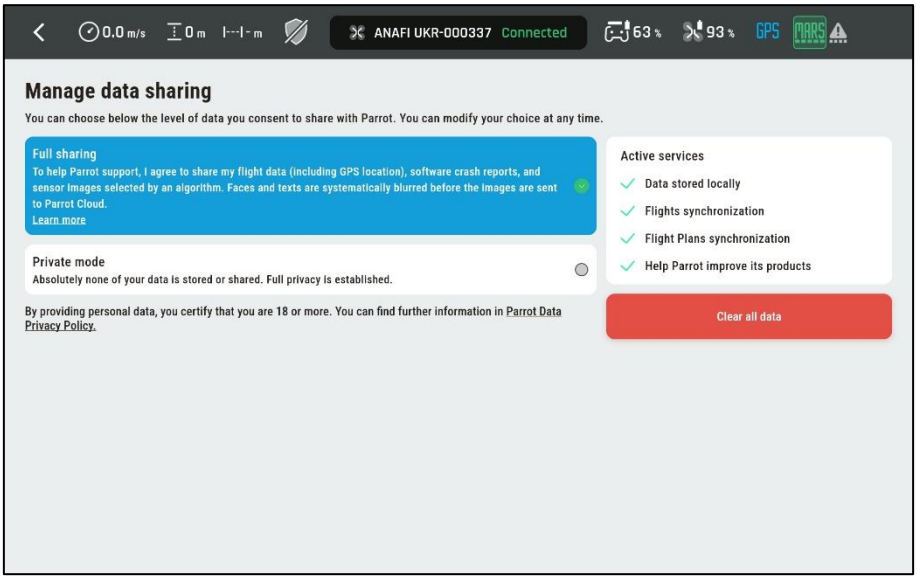


Figure 164: Full data sharing

Full sharing mode is available when the user is logged on his Parrot cloud account.

In full sharing mode the drone generates log files (FDR-Lite log files). Those files are downloaded by FreeFlight 8 on the terminal immediately after the flight.

FDR-Lite log files are converted into standard GUTMA files and synchronized on Parrot cloud.

In full sharing mode, Flight plans projects are also synchronized on Parrot cloud.

Parrot Servers respect GDPR. All data are anonymized. When users close their account, all data are erased.

CAUTION: If you do not share flight data / logs for the purposes of receiving support, you limit your ability to receive technical support, warranty, or both from Parrot.

13.18.3. Anonymous sharing

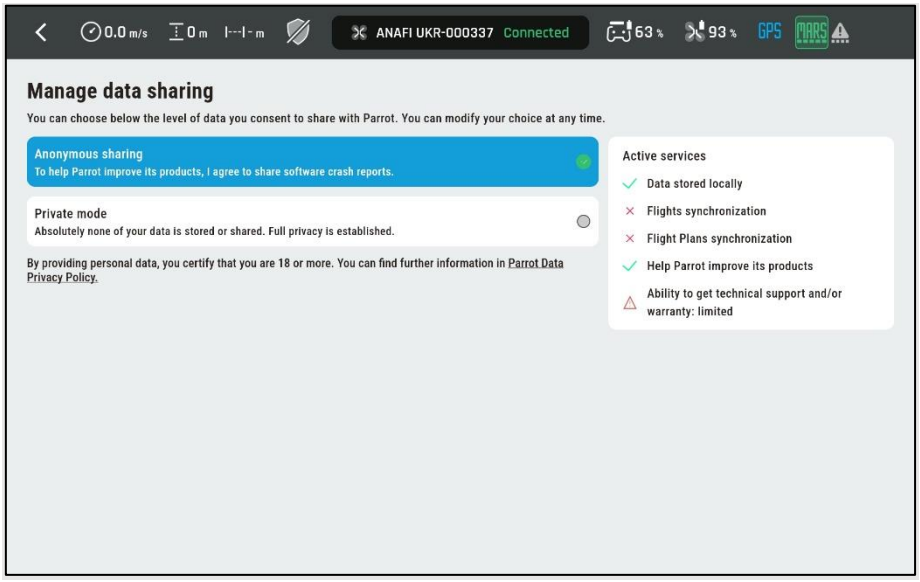


Figure 165: Anonymous data sharing

Anonymous sharing mode is available when the user is not logged on any Parrot cloud account.

Although no data is synchronized on Parrot cloud, the drone generates FDR-Lite log files and GUTMA flight logs are stored locally on the device. Encrypted log files are sent to Parrot for debug purposes.

13.18.4. Private mode

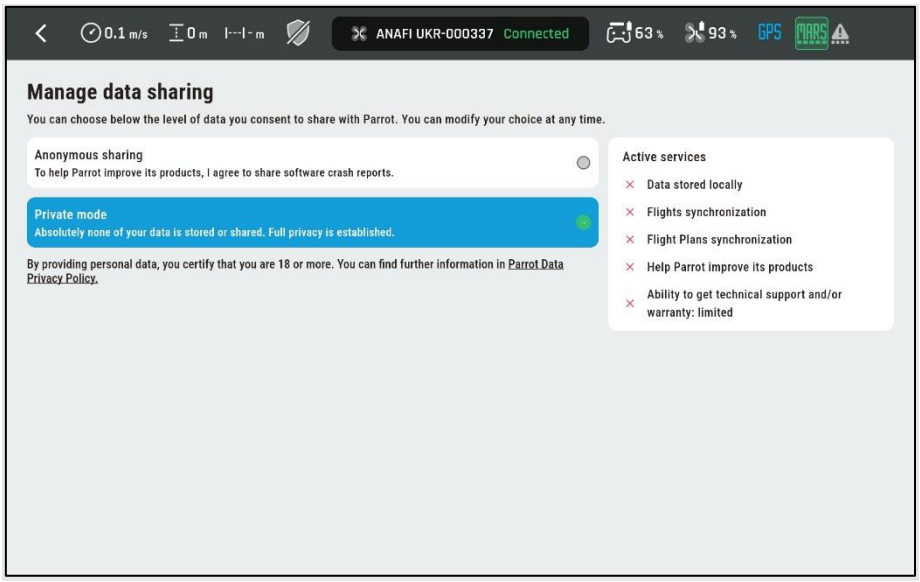


Figure 166: Private mode

In private mode the drone does not generate any FDR-lite log file.

No GUTMA flight log file is stored on the device, no GUTMA log file can be synchronized on Parrot cloud. In private mode Flight Plan projects are not synchronized on Parrot cloud.

CAUTION: If you do not share flight data / logs for the purposes of receiving support, you limit your ability to receive technical support, warranty, or both from Parrot.

13.19. Certificates

The **Certificates** setting page is only applicable to approved users.

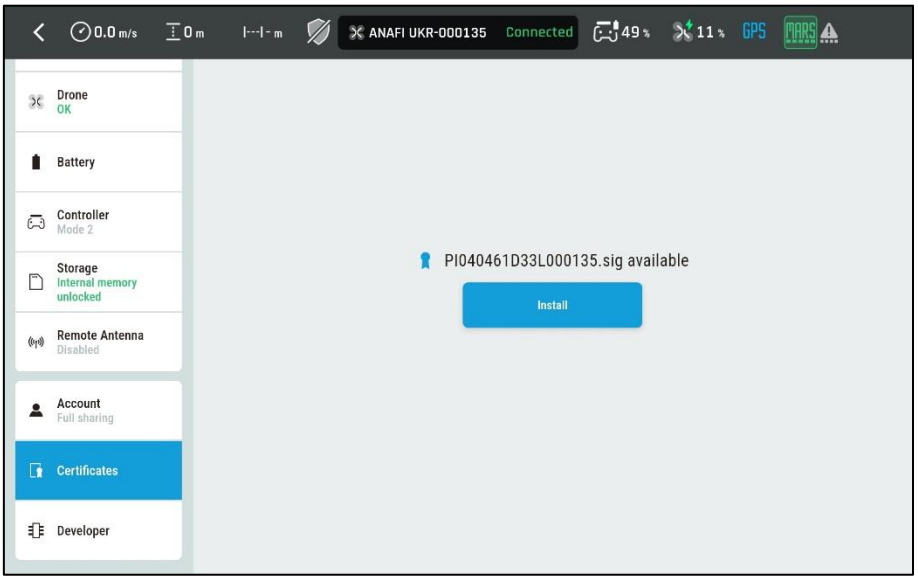


Figure 167: Settings - Certificates

13.20. Developer

The **Developer** setting page is reserved for developer purposes.

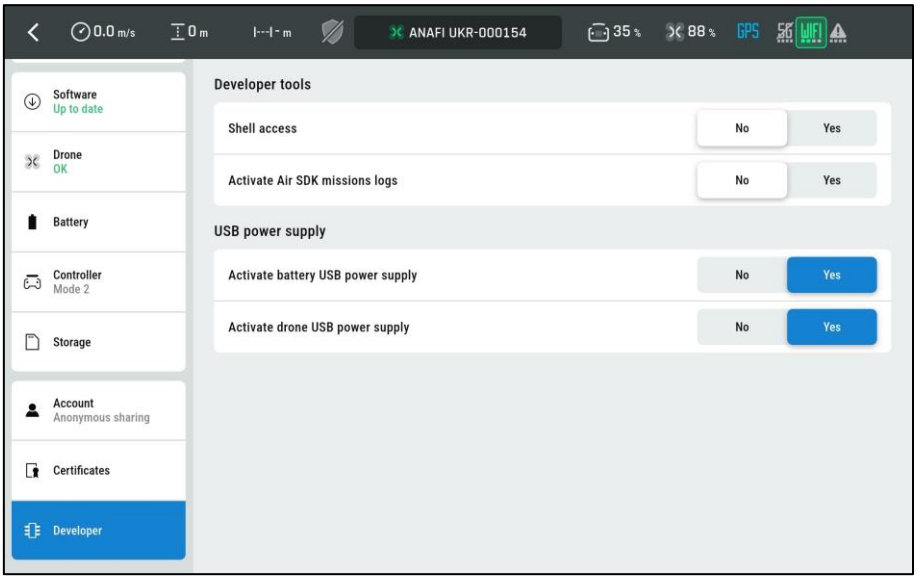


Figure 168: Settings – Developer

An ADB **Shell access** can be enabled on the drone to ease the debugging of the Air SDK mission software running on the drone.

Additionally, **mission logs** can be enabled and stored on the drone.

USB power supply

You can control the power supply of the battery USB-C port and the aircraft USB-C port.

Specification	Aircraft USB C port	Battery USB C port
Max power output	5 V, 2 A (10 W max)	5 V, 3 A (15 W max)
Data output	Supported	Not supported
Temperature limitation	None	Power output blocked when battery internal gauge temperature reaches 80 °C

14. Maintenance and troubleshooting

This section describes basics procedures to maintain your drone and troubleshoot most issues you may encounter using Skycontroller UKR. In addition, drone and controller reset procedures can be useful before a change of operator or operating structure.

14.1. Skycontroller UKR hard reset

To hard reset the Skycontroller UKR, ensure that it is not connected to any drone, or the drone will initiate a take-off sequence.

Press and hold the controller's **Take-off/Land**, **Camera reset,** and **Shutter** buttons for 15 seconds, then release the 3 buttons.

NOTE: The LED starts flashing after 10 seconds, but you must hold the buttons for an additional 5 seconds.

The Skycontroller reboots. The reset is successful.

The same procedure can be performed safely, even with a drone connected, through the **Reset** button of the Skycontroller page, in FreeFlight 8.

WARNING: When the Skycontroller UKR reboots, the connection between the drone and controller is lost, and all previous pairings, calibrations, and logs are deleted.

NOTE: Skycontroller UKR also features a reset button. The reset button only forces the Skycontroller to reboot. It is not a hard reset. For more information, refer to *chapter 8. Skycontroller UKR.*

14.2. FreeFlight 8 device hard reset

To perform a hard reset to the Samsung galaxy tablet:

1. Power off the tablet.
2. Press and hold the **Volume Up** and **Power** buttons simultaneously until the Samsung logo appears on the screen.
3. Release the buttons to enter the Recovery Menu.
4. Use the volume buttons to navigate to **Wipe Data/Factory Reset.**
5. Press the Power button to select.
6. Use the volume buttons to navigate to **Factory data reset.**
7. Press the Power button to select.

After several seconds, the system reboots.

CAUTION: A factory reset erases all personal data on the device, including the FreeFlight 8 application and any media you recorded via FreeFlight 8. Ensure you back up important files before proceeding.

14.3. Webserver

Skycontroller UKR has a webserver feature. This feature allows the user to access additional information, and additional options for the controller.

Access to the webserver requires:

- A computer
- An internet browser
- An Ethernet cable

To access the Skycontroller UKR webserver:

1. Power on Skycontroller UKR.
2. Connect Skycontroller UKR to a computer with an Ethernet cable (or with an Ethernet to USB-A adaptor cable).
3. Open a web browser on your computer.
4. In the browser's address bar, enter the following IP address:

192.168.53.1

IMPORTANT: Ensure that the browser does not add *https://* before the IP address. Using *http://* is sufficient.

The webserver interface opens:

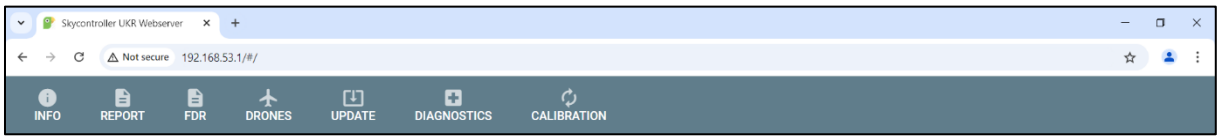


Figure 169: Webserver tabs

Click 1 of the 7 tabs to display additional information about Skycontroller UKR, or have additional options:

- **INFO**
- **REPORT**
- **FDR**
- **DRONES**
- **UPDATE**
- **DIAGNOSTICS**
- **CALIBRATION**

14.3.1. Ecosystem logs for technical support

You must provide Parrot with the drone and controller logs to receive technical support. For more information, contact sav@parrot.com.

Follow this procedure to download the Skycontroller UKR logs:

1. Open Skycontroller UKR's webserver.
2. Click the **FDR** tab.
3. Under the **Actions** column, click **download** for each file.
4. Send all the files to Parrot.

14.3.2. Joystick calibration

If you experience any unstable or unexpected behavior from the aircraft, you may need to calibrate the Skycontroller UKR joysticks.

Follow this procedure to calibrate the Skycontroller UKR joysticks:

1. Open Skycontroller UKR's webserver.
2. Click the **CALIBRATION** tab.
3. Click **Start calibration.**
4. Ensure that the joysticks are in the default position.
5. Click **Next.**
6. Move every joystick to their limits.

7. Move every slider to their limits.
8. Click **Next.**
9. Push the left stick up to the maximum limit position and simultaneously press **Next** on the webserver.
10. Push the left stick to the right to the maximum limit and simultaneously press **Next** on the webserver.
11. Push the right stick up to the maximum limit and simultaneously press **Next** on the webserver.
12. Push the right stick to the right to the maximum limit and simultaneously press **Next** on the webserver.

The calibration is complete.

14.4. Aircraft end of service life

Refer to the flight safety guide manual (available upon request) to find complementary information on how to recycle this product.

The carry box is made of plastic, they can be disposed of in a recycle bin.

All the electronic devices (Skycontroller UKR, smart battery) must be returned to a collection point (e.g. stores, recycling center) to be recycled. It is indicated by the following logos:

15. Accessories

The following accessories are available for Skycontroller UKR.

15.1. Open-source 3D printable accessories

Contact Parrot or your Parrot reseller to obtain the CAD files for the following accessories:

15.1.1. Power bank holder for Skycontroller UKR

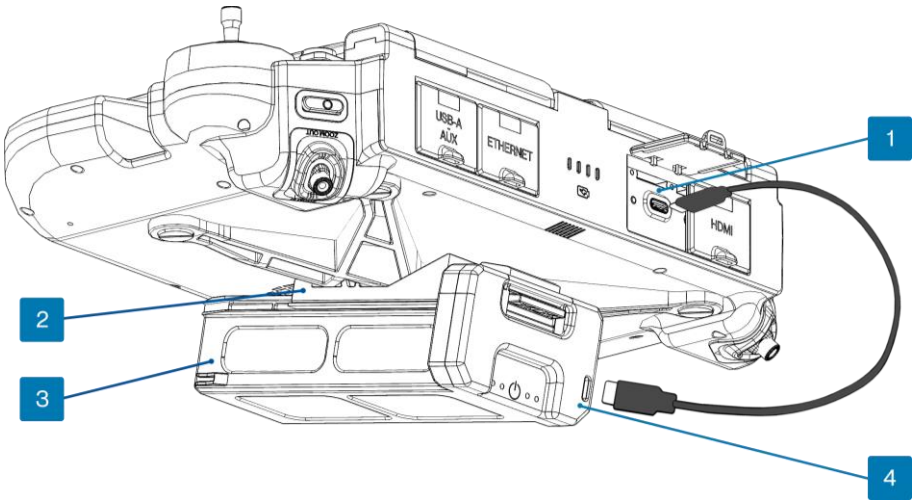


Figure 170: Power bank holder accessory

1. Skycontroller UKR USB-C charging port
2. Power bank holder
3. Smart LiPo battery
4. Smart LiPo battery charge port

15.2. Proprietary accessories

15.2.1. MARS Orbiter

MARS Orbiter is a small, motorized box that attaches to the underside of the remote Skycontroller UKR, or MARS Ranger. When mounted on a tripod, MARS Orbiter rotates the remote Skycontroller UKR to ensure that it always faces the aircraft's direction.

Technical specifications	
Dimensions	207 x 107 x 55 mm (8.1 × 4.2 × 2.2")
Mass	525 g
Tripod interface	Standard UNC ¼" screw
Rotation speed	1 RPM
Max slew rate	6°/s
Ingress Protection (IP) rating	IP53

15.2.1.1. Installation procedure

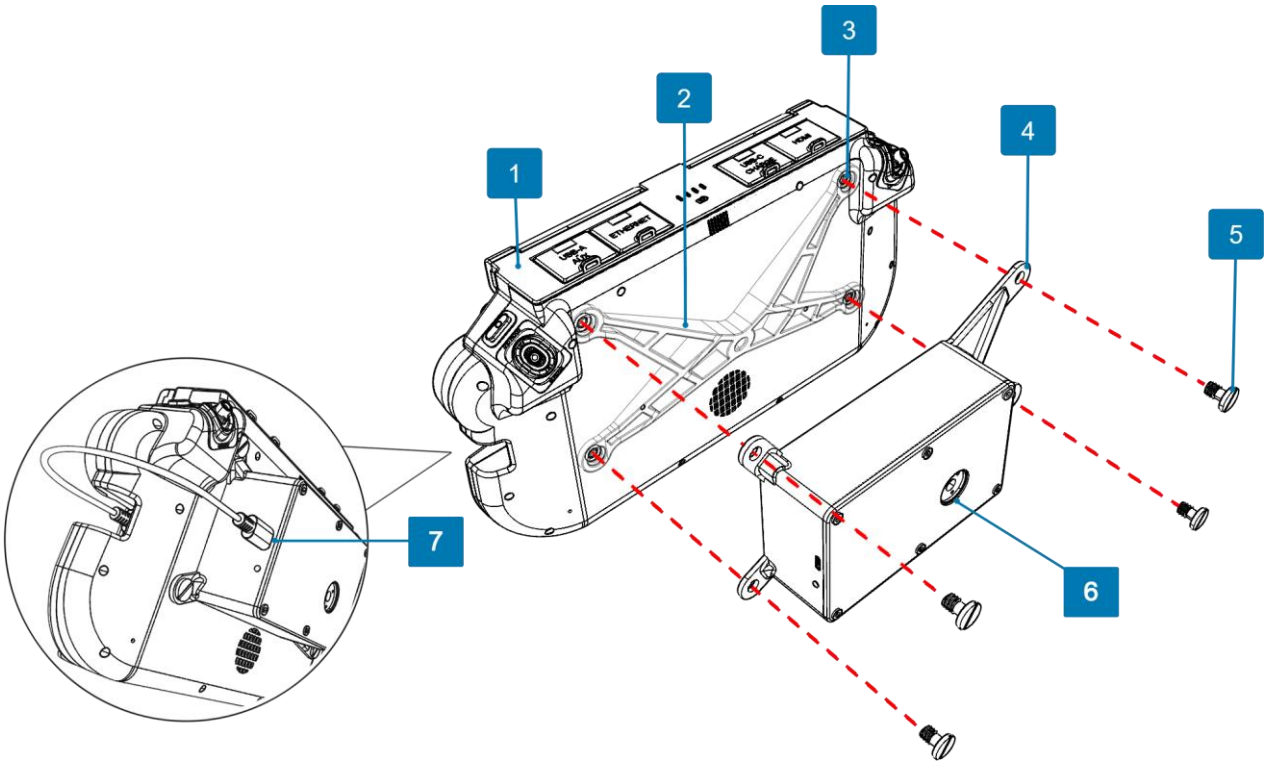


Figure 171: MARS Orbiter installation procedure

1. Remote Skycontroller UKR
2. Tripod bracket
3. Locating holes
4. MARS Orbiter
5. Screws (1 of 4)
6. Tripod interface
7. USB-C to USB-C cable

To mount the MARS Orbiter on the remote Skycontroller UKR:

1. Remove the tripod bracket from the Skycontroller UKR.
2. Place the MARS Orbiter on the back of the remote Skycontroller UKR.
3. Secure the MARS Orbiter in place with the 4 screws.
4. Mount the MARS Orbiter to a 3rd party tripod.

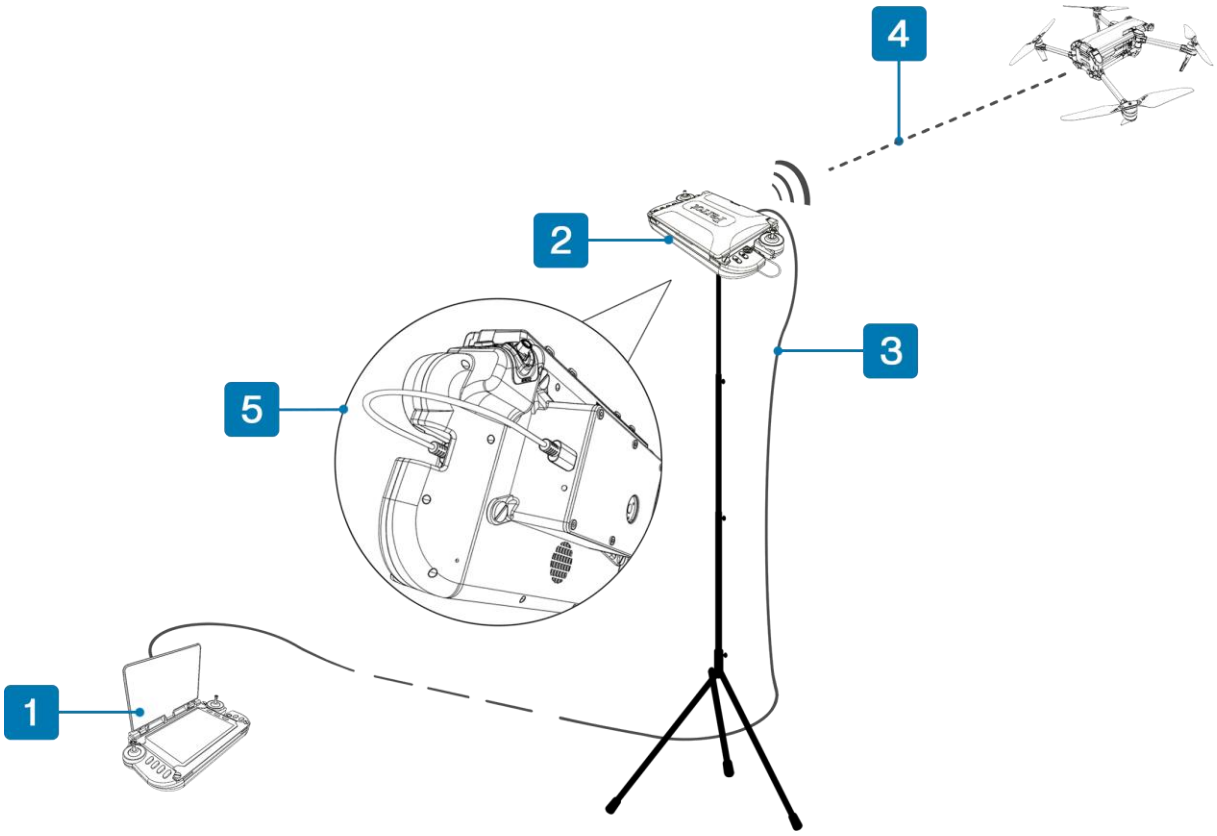


Figure 172: MARS Orbiter mounted on a remote Skycontroller UKR

1. Main (piloting) Skycontroller UKR
2. Remote Skycontroller UKR
3. Cat5 RJ45 ethernet cable
4. MARS radio link
5. MARS Orbiter on remote Skycontroller UKR

5. Connect the Remote Skycontroller UKR to the main (piloting) Skycontroller UKR with a Cat5 RJ45 ethernet cable.
6. Connect the MARS Orbiter to the Skycontroller UKR tablet port with a USB-C to USB-C cable.

MARS Orbiter powers on automatically when you connect it to the remote Skycontroller UKR with the USB-C cable.

The calibration process starts automatically. After 3 seconds, MARS Orbiter makes 1 full counterclockwise rotation lasting 15 seconds, and then 1 full clockwise rotation lasting 15 seconds.

During operation, the MARS Orbiter LED changes color to show different states. The table below shows all LED indications and their meanings:

White	Powered on, awaiting calibration
Blue	Calibration underway
Green	Orbiter functioning
Red	Motor stall detected

CAUTION: The pilot must pay attention to the Ethernet cable between the Piloting Skycontroller UKR and the remote Skycontroller UKR. If the pilot flies ANAFI UKR in circles around the remote Skycontroller UKR, as MARS Orbiter rotates, the ethernet cable can become wrapped around the tripod. This results in a motor stall in MARS Orbiter.

15.3. 3rd party accessories

The following accessories are available from 3rd parties:

- Harness for Skycontroller UKR: brand Mobilis, ref. 001024

Figure 173: Mobilis harness with Skycontroller UKR

- Anti-glare filter for the tablet: brand Brotect, ref. 1952729
- Tripod for Skycontroller UKR:
    - Brand: K&F Concept, ref. KF09.116
    - Brand: K&F Concept, ref. K234 A0

16. Appendix 1: Operational Checklist

This operational checklist applies to ANAFI UKR (a quadcopter with foldable arms, and a removable battery) paired with Skycontroller UKR. Certain elements in the following checklist may not apply to your individual configuration.

16.1. Software update & calibration

Aircraft	Software up to date
Skycontroller UKR	Software up to date
Tablet	Software up to date
FreeFlight 8	Software up to date
Aircraft gimbal calibration	OK
Aircraft magnetometer calibration	OK
Aircraft thermal calibration	OK
Aircraft Cursor on Target calibration	OK
Aircraft horizon calibration	OK
Aircraft thermal/visible image calibration	OK
Skycontroller UKR magnetometer calibration	OK
Skycontroller UKR joystick calibration	OK

IMPORTANT: Parrot strongly recommends that you regularly refer to the Release Notes Skycontroller UKR available upon request, to ensure that you have the latest versions of the drone and controller firmware, and FreeFlight 8 App.

16.2. Skycontroller UKR & Aircraft off

Aircraft	Removed from case
Aircraft arms	Unfolded, locked
Aircraft gimbal protective cover	Removed
Aircraft propellers	Intact, free, fully screwed on.
Aircraft battery	No swelling, locking tab **FULLY UP**, 100% charged.
Aircraft battery LEDs	4 x OK
Aircraft battery temp	Within operational range
Skycontroller UKR battery	100% charged.
Skycontroller UKR battery LEDs	4 x OK
Tablet battery	OK, 100% charged.

16.3. Skycontroller UKR & Aircraft on

Aircraft	On, gimbal stabilization OK
Skycontroller UKR	On, antenna unfolded
Skycontroller UKR / Aircraft radio link	Main radio link connection solid green in FreeFlight 8
Tablet	On
Tablet / Skycontroller UKR USB connection	USB-C cable correctly inserted
FreeFlight 8	launched
System connected	Solid blue LED on Skycontroller UKR
Image feed & telemetry	Live video feed
Mission Mode	Set
Quick settings menu	Verify GPS, obstacle avoidance, Auto record, CoT set
Flight parameters	Set to Standard
RTH and safety	Set
GPS	Verified (enabled)
Flight area	Set

Connection	Radio configured
Max altitude/Max distance	Set
Geocage	Set if needed
Geoawareness	Activate if needed
Image settings	Set
Skycontroller UKR button configuration	Joysticks inverse / Default, button mode configured
Map on FreeFlight 8	OK, offline map uploaded if required
GNSS settings	Set
Global reactivity	Set
Camera tilt speed	Set
Inclination	Set
Vertical speed	Set
Rotation speed	Set
Final check	All systems ‘green’

16.4. Before Take-off

Weather / Wind	Checked and OK
Take-off Zone	Clear
Aircraft status	In the green
Propellers	No obstructions in propeller arc
Take-off/Land command	Take-off

16.5. After Take-off

Precise Home	Set
Right joystick	Pitch and roll confirmed
Left joystick	Yaw and altitude confirmed
Gimbal trigger	Up and down
Zoom trigger	In and out
Video	Clear and visible
Connection	MARS radio link confirmed

16.6. Before landing

Weather / Wind	Checked and OK
Landing Zone	Clear
Aircraft status	Check
Take-off/Land command	Land

16.7. After landing

Check motors are stopped	OK
Aircraft status	OK, no alarms
Skycontroller UKR	Off, stored away
Tablet	Off
Aircraft battery	Off
Aircraft	Check drone/gimbal/propellers
Aircraft	Install gimbal protective cover
Aircraft arms	Folded
Aircraft system	Stored away

17. Appendix 2: System data

PRODUCT	TYPE OF FILES	PATH	DATA PROTECTION
DRONE	Recorded media	internal/DCIM/	Storage encryption possible via FreeFlight 8
	Drone full logs	log/FDR/	File encrypted
	Drone light logs	log/fdr-lite/	File encrypted
	Sensor images (FCR)	log/FCR/	None
	User GPS Denied maps	internal/maps/	None
	User Elevation (DTED) maps	internal/terrain/	None
DRONE SD CARD	Recorded media	DCIM/	Storage encryption possible via FreeFlight 8
CONTROLLER	Controller full logs	logs/	File encrypted
ANDROID DEVICE	Media Gallery Thumbnails	Android/data/com.parrot.freeflight8/cache/thumbnails/	Android device can be password protected
	Media downloaded from drone memory	DCIM/Parrot/Medias/<drone_serial>/Flights/<date_time>/	Android device can be password protected
	Stream recordings	DCIM/Parrot/Recordings/<date_time>/	Android device can be password protected
	Screenshots	DCIM/Screenshots/	Android device can be password protected
	User Offline maps	Android/data/com.parrot.freeflight8/files/OfflineMaps/	Android device can be password protected

18. Appendix 3: Disclaimer

1. ANAFI UKR IS NOT A TOY and must not be used or handled by persons under the age of 18 years.

2. BEFORE USING ANAFI UKR:

   (A) CAREFULLY READ the user guide and all information and documentation available upon request. Documentation is subject to change and may be updated at any time and without prior notice (hereinafter referred to as "Parrot Documentation"). SPECIAL ATTENTION must be given to the paragraphs marked: **WARNING, CAUTION, IMPORTANT**.

   (B) Ensure that the complete drone ecosystem is up-to-date. Parrot regularly releases firmware updates for:

   - FreeFlight 8
   - ANAFI UKR
   - Smart Battery
   - Skycontroller UKR

Updates add new features, improve stability, and performance of the complete system. Updates are mandatory and must be systematically performed prior to any flight to ensure maximum performance and safety. Flying with a non-up-to-date system may impact warranty rights and jeopardize safety requirements.

Due to continuous improvement, the screenshots in this user guide may differ to the user interface you see on the FreeFlight 8 version installed on your Skycontroller UKR. The most up-to-date version of the user guide is available on request.

   (C) ENSURE YOU ARE AWARE OF THE REGULATIONS APPLICABLE TO THE USE OF DRONES AND THEIR ACCESSORIES (hereinafter referred to as "Applicable Regulations");

   (D) REMEMBER that ANAFI UKR may expose others and yourself to EQUIPMENT DAMAGE, PERSONAL INJURY, OR BOTH, which could result in serious harm or death.

3. All Parrot drones must always be used with genuine Parrot smart batteries. Non-genuine batteries are forbidden, and their use will void the warranty, and impact safety requirements.

4. All Parrot drone systems include a charger. This is the only recommended chargers to use to charge your Parrot drone's Smart Battery and Skycontroller UKR. Other generic USB chargers may be used provided that they are certified according to the country of use and have the applicable rating/specification. Performance and warranty are only guaranteed when using a genuine charger included in the Parrot drone system. Parrot takes no responsibility (warranty or safety) for third party USB chargers being used with a Parrot system.

5. Videos and photos promoted and advertised by Parrot Drones SAS and its affiliates have been made by and with experienced professionals and drone pilots. IN CASE OF DOUBT RELATING TO THE USE OF YOUR ANAFI UKR DRONE AND ITS ACCESSORIES, ALWAYS REFER TO THE MOST RECENT VERSION OF THE PARROT DOCUMENTATION.

6. Ensure that all calibrations are performed.

IMPORTANT: ANAFI UKR's warranty is void if you fly the drone without the required calibrations.

7. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, PARROT DRONES SAS, ITS SUBSIDIARIES, AND THEIR RESPECTIVE DISTRIBUTORS AND RESELLERS SHALL NOT BE LIABLE FOR ANY DAMAGES ARISING FROM, OR IN CONNECTION WITH NON-COMPLIANCE OF PARROT DOCUMENTATION OR THE APPLICABLE REGULATIONS BY YOURSELF OR ANY PERSON USING YOUR ANAFI UKR.

WARNING: Avoid touching the motors immediately after flight. ANAFI UKR's motors may become hot after a full flight, and touching the motors may result in burns. Allow the motors to cool down before touching.

8. Third-party licenses for online and offline maps

The choice of the map provider is the sole responsibility of the user and may depend on various factors such as the flight mission, the country, the provider's terms and conditions, the available budget, etc. The user must determine the most suitable map provider, subscribe to the appropriate license and comply with the terms and conditions of the license.

By default, FreeFlight 8 uses a MapTiler© license as the online map provider. By using MapTiler services, software, or map content ("MapTiler Services"), you agree to be bound by the following terms which may be updated from time to time: https://www.maptiler.com/terms/

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To use other maps or MBTiles package, you must subscribe to a license and/or obtain a token from the selected map provider, which may imply extra cost. Certain Map providers may prohibit specific use cases or countries. You must read the applicable terms and conditions carefully. To obtain advice or a legal opinion on a particular situation, consult a licensed legal professional in your jurisdiction.

Offline maps mode requires at least one MBTiles package to be imported into FreeFlight 8. MBTiles packages can be generated with a tool of your choice.

You may generate MBTiles package with QGIS, an Open-Source Geographic Information System. copyright © 2004 - 2020 QGIS Development Team. https://www.qgis.org

QGIS is released under the GNU General Public License (GPL). Developing QGIS under this license means (inter alia) that you can inspect and modify the source code. You will receive a full copy of the license with your copy of QGIS, and you can also find it in *Appendix A: GNU General Public License*. Please read all requirements implied by a GPL license carefully, including legal consequences on derivative works. https://qgis.org/resources/hub/.

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