Cornis Drone - User Manual

Wind Turbine Inspection Application

Cornis

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User Manual

Version 1.0

Welcome to the Cornis Drone User Manual

This comprehensive guide will help you master wind turbine inspections using the Cornis Drone application. Designed as a reference document, it complements your training and serves as an ongoing resource for successful drone operations.

Scan this QR code to access the online version

Or visit: https://drone-training.cornis.fr/documentation/

Contents

1   Getting Started

1.1   About This Manual

This user manual is designed to be:

- **A Reference Document**: Quick access to procedures and settings
- **A Training Companion**: Detailed explanations to complement your hands-on training
- **An Ongoing Resource**: Support for continuous improvement and troubleshooting

> **Info**
>
> This manual assumes you have completed the initial Cornis Drone training. If you need additional support, please contact a Cornis via the contact page.

1.2   Application Installation

Installing the Cornis Drone application is straightforward and takes just a few minutes.

Installation Steps:

1. **Connect** your remote controller to Wi-Fi
2. **Open** the web browser on the remote controller
3. **Navigate** to the provided installation link
4. **Click** the install button and wait for completion
5. **Launch** the application from your home screen

Once installed, you'll need to authenticate with your Cornis account credentials. A successful login indicates you're ready to begin inspections.

> **Info**
>
> Keep your login credentials secure. Each pilot should use their own account for proper activity tracking and accountability.

2   Mission Preparation

Proper preparation is essential for safe and successful drone inspections. This chapter covers everything you need to set up before taking flight.

2.1   Creating an Inspection Campaign

Every inspection must be linked to a specific campaign that defines the inspection parameters and target turbines.

2.1.1   Campaign Setup Process

What is a Campaign?

An inspection campaign is a structured project that includes:

- **Inspection type**: Blade inspection or tower inspection
- **Turbine list**: Specific turbines to be inspected
- **GPS coordinates**: Precise location data for each turbine
- **Time frame**: Campaign duration and deadlines

2.1.2   Requesting a New Campaign

To create a campaign, contact Cornis with the following information:

1. **Wind farm name**
2. **List of turbines** (with turbine identifiers)
3. **GPS coordinates** for each turbine
4. **Inspection type** (blades, tower, or both)

2.1.3   Downloading Campaigns

Once your campaign is created:

1. Open the Cornis Drone app
2. Tap the **sync button** (top right of home screen)
3. Wait for the campaign download to complete
4. Verify the campaign details before proceeding
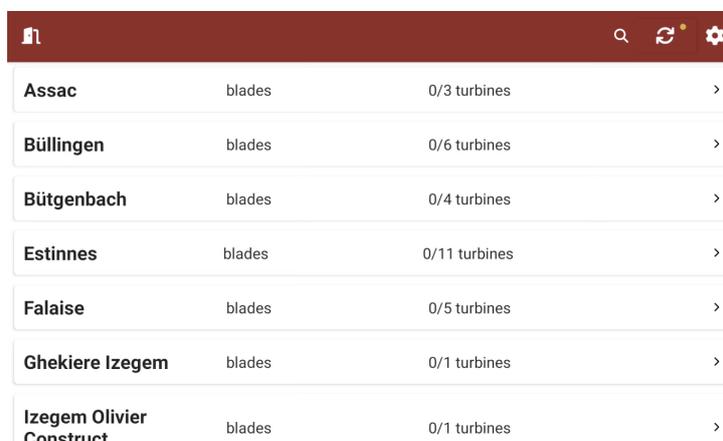
Campaign selection screen

2.2   Regulatory Compliance

You are personally responsible for ensuring compliance with all applicable aviation regulations.

2.2.1   Checking Airspace Restrictions

Before any flight operation, you must verify:

- Local aviation regulations and restrictions
- Required authorizations and permits
- No-fly zones and restricted areas
- Notification requirements for local authorities

2.2.2   Recommended Resources

For operations in France:

- **Geoportail**: Official airspace restrictions map
- **Mach7 Drone**: Simplified regulatory compliance tool

2.2.3   DJI GeoFencing System

DJI enforces manufacturer-level flight restrictions in certain areas. Always check the **DJI Flysafe Geo Map** before planning your mission.
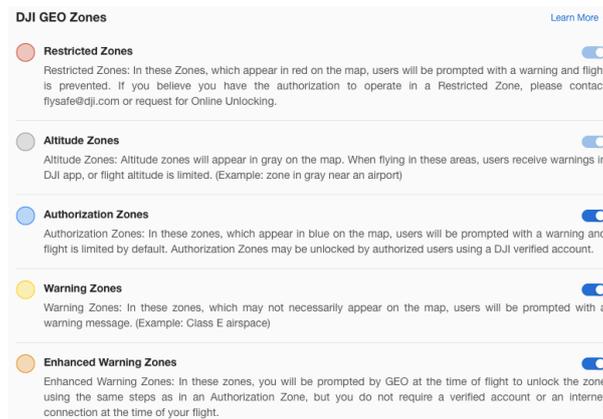
DJI Geo Zone categories

Some zones may require:

- Account verification
- Self-unlocking via DJI app
- Special authorization requests

> **Warning**
>
> Never attempt to fly in restricted zones without proper authorization. Violations can result in legal penalties and equipment confiscation.

2.3   Weather Assessment

Weather conditions directly impact flight safety and image quality. Always conduct a thorough weather check.

2.3.1   When to Check Weather

- **Day before inspection**: Initial planning and go/no-go decision
- **Morning of inspection**: Final weather verification
- **On-site**: Real-time conditions assessment

2.3.2   Mandatory Weather Constraints

The following conditions **must** be met for safe operations:

Parameter	Requirement
Rain	None (0%)
Fog	Clear visibility required
Wind Speed	M300/M350: max 12 m/s Mavic 3E: max 10 m/s
Visibility	> 500m minimum
Temperature	Within drone specifications

2.3.3   Recommended Weather Apps

Windy and **UAV Forecast** provide specialized weather data for drone operations:

Windy App   UAV Forecast App
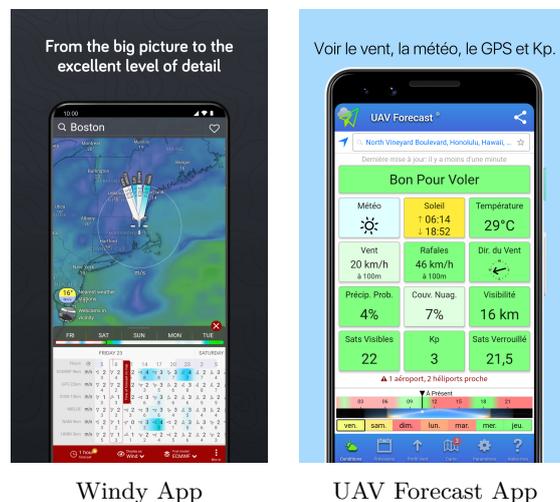
Info

Pay special attention to wind gusts, not just average wind speed. Sudden gusts can make flight control difficult and compromise image quality.

2.4   Equipment Preparation

A thorough pre-flight equipment check prevents technical issues and ensures operational safety.

2.4.1   Visual Equipment Inspection

Before each inspection day, carefully examine all equipment:

Drone Components:

- **Propellers**: No cracks, chips, or deformation
- **Vision sensors**: Clean, undamaged lenses (infrared and stereo cameras)
- **Main camera**: No scratches or dirt on lens
- **Frame and arms**: No visible damage or loose parts
- **Propeller guards**: Intact and properly fitted

Remote Controller:

- Antenna properly attached
- Screen protector clean
- Control sticks smooth operation
- All buttons functional

Batteries:

- No visible damage or swelling
- Contacts clean
- Proper charge level
- Within service life

> **Warning**
>
> NEVER use a damaged, swollen, or expired battery. Battery failure during flight can result in a complete loss of the aircraft. When in doubt, retire the battery.

2.4.2   Charging Checklist

Ensure all equipment is **fully charged** before heading to the inspection site:

- ☐ All drone batteries (bring extras)
- ☐ Remote controller(s)
- ☐ External battery bank
- ☐ Tablet or phone (if used)
- ☐ RTK mobile station (if applicable)

2.4.3   System Calibration

IMU (Inertial Measurement Unit):

- Calibrate regularly to maintain sensor accuracy
- Required after firmware updates
- Recommended before important missions

Stereo Vision System:

- DJI Pilot will alert you if calibration is needed
- Follow the in-app calibration procedure
- Ensure optimal lighting during calibration

Compass:

- Calibrate on-site if required (app will prompt)
- Required when changing locations significantly
- Necessary near large metal structures

Info

Keep a physical checklist of all equipment and consumables. This helps prevent forgetting essential items at the office or hotel.

3   Blade Inspection Procedure

This chapter provides a complete step-by-step guide for conducting wind turbine blade inspections using the Cornis Drone application.
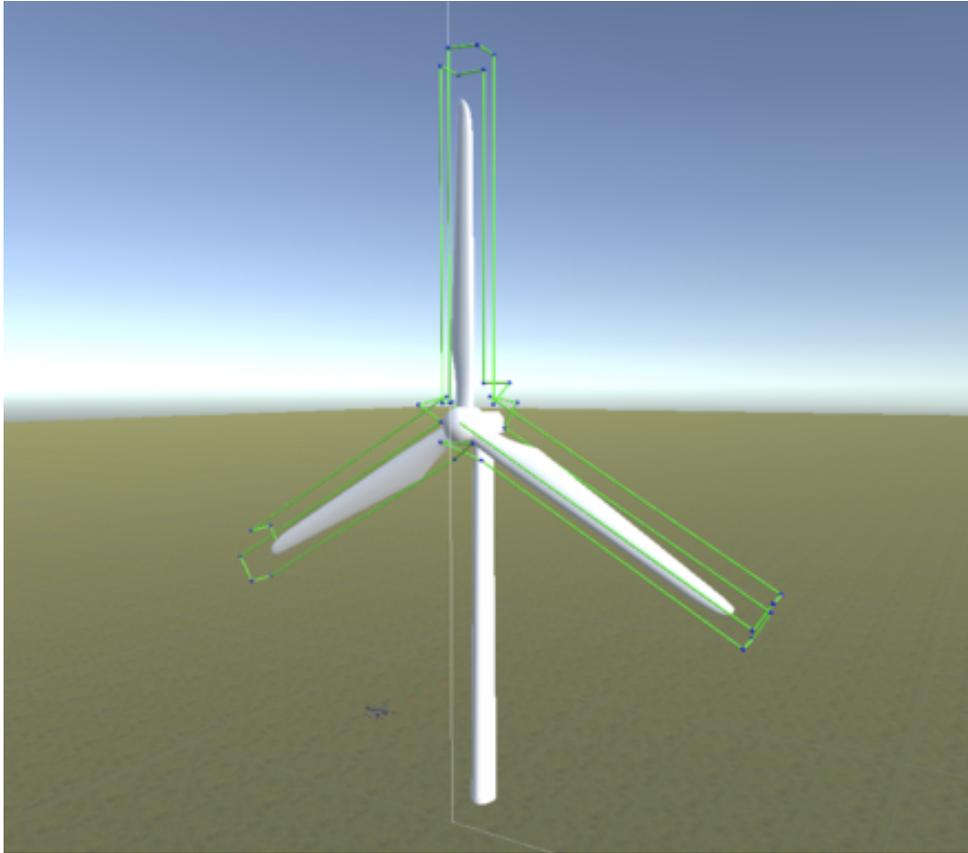
Automated inspection trajectory around wind turbine blades

3.1   Daily Startup Routine

3.1.1   Equipment Setup

Begin each inspection day with a systematic equipment setup:

1. **Unfold** the drone arms fully
2. **Attach** propeller guards securely
3. **Power on** the radio and then the drone

> **Warning**
>
> ALWAYS use propeller guards during turbine inspections. Guards prevent propeller damage and potential crashes by allowing the drone to bounce off surfaces during accidental contact.

3.1.2   Final Equipment Check

Before powering on the drone, conduct one final inspection:

- Propellers firmly attached and undamaged
- All sensors clean and unobstructed

- Camera lens clean
- Battery properly seated and locked
- Propeller guards secure

3.2   Turbine Positioning

3.2.1   Blade Position Setup

Stop the turbine with one blade in the **"inverted Y" position** (one blade pointing upward).

Vertical tolerance: $\pm 10°$ from perfect vertical position

3.2.2   Yaw Adjustment for Optimal Lighting

To avoid backlit images, adjust the turbine yaw according to sun position:
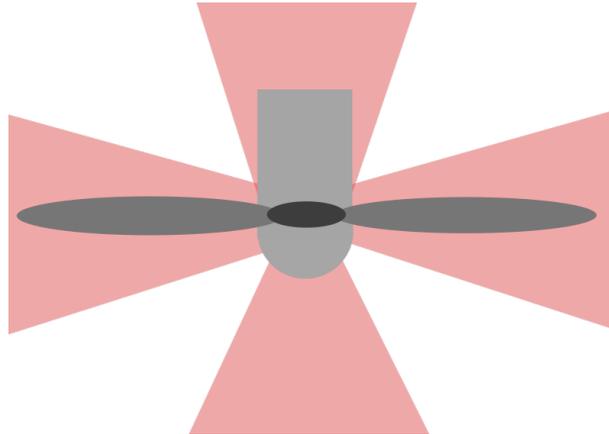
Top view: Red zones indicate problematic sun positions. Yaw the turbine to avoid backlighting.

Best Practice: Position the turbine so the sun is behind or to the side of the camera during inspection.

3.2.3   Using the Sun Compass Widget

The Cornis Drone app includes a real-time sun compass widget to help you position the turbine optimally.

How to use it:

1. **Power on** the drone
2. **Align** the drone's yaw with the turbine's yaw orientation
3. **Open** the widget in the app (displays automatically on liveView screen)
4. **Observe** the real-time sun position indicator
5. **Adjust** the turbine yaw to avoid the red zones
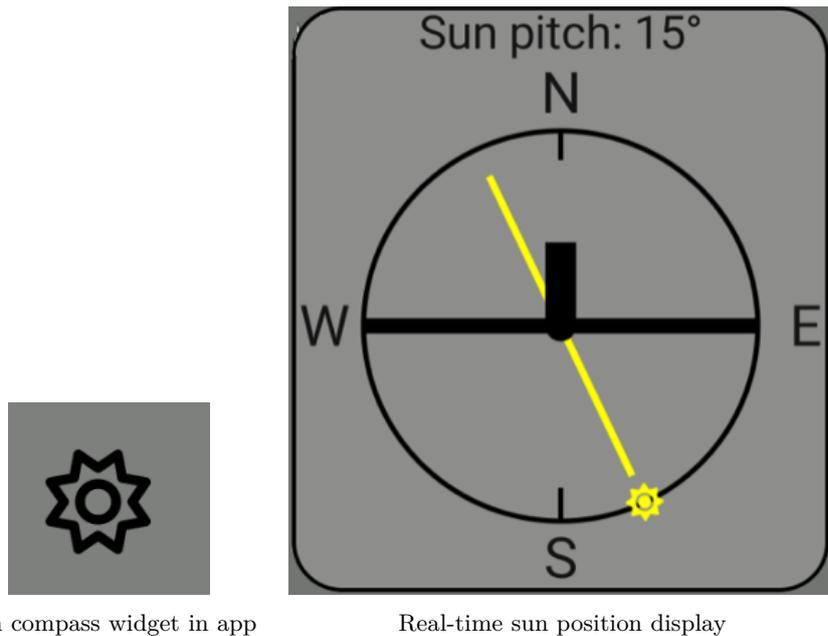
Sun compass widget in app   Real-time sun position display

> **Info**
>
> The widget updates in real-time based on your location, time of day, and drone orientation. Use it to ensure optimal lighting conditions before starting calibration.

3.2.4 Blade Identification

Before starting the mission, determine the blade orientation:

Method 1: Check for blade numbers at the blade root (model dependent)

Method 2: Use the turbine control system to pitch a known blade to 0° for identification

> **Info**
>
> If blade numbers aren't immediately visible, you can set the orientation later in the app. The serial numbers are sometimes only visible on the blade surface itself.

3.3   Remote Controller Configuration

3.3.1   DJI Pilot Setup (First Flight of the Day)

Before launching Cornis Drone app, open DJI Pilot for system verification:

1. **Launch** DJI Pilot application
2. **Open** Health Monitoring System (colored button, top right)
3. **Verify** all items show green status
4. **Address** any warnings or errors before proceeding
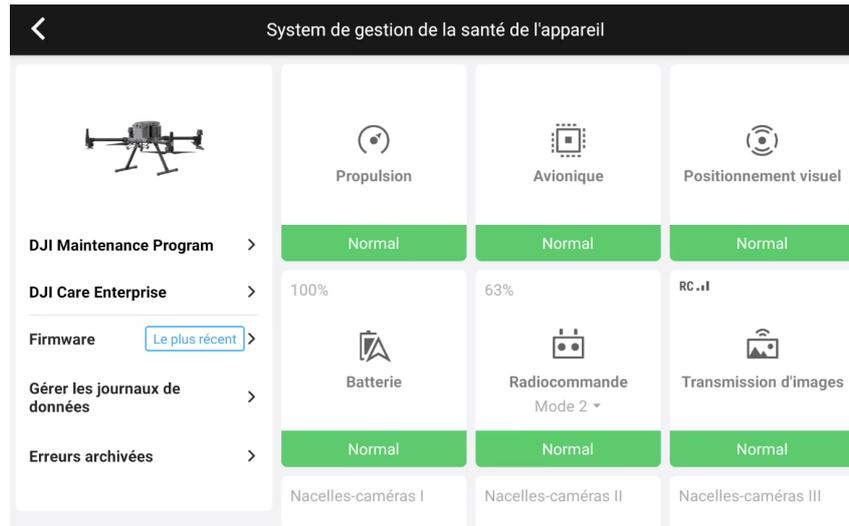
Health Monitoring System - ensure all systems are green

3.3.2   Flight Parameter Configuration

Navigate to the camera view and configure the following settings:

Parameter	Recommended Setting
Max Flight Altitude	Hub height + blade length + 10m minimum
Braking Distance	1 meter
Signal Loss Action	Hover (maintain position)
Return to Home Altitude	Above turbine tip height

> **Warning**
>
> CRITICAL: Always force-close DJI Pilot before opening Cornis Drone app. Running both applications simultaneously will cause conflicts and system instability.

To force-close an app:
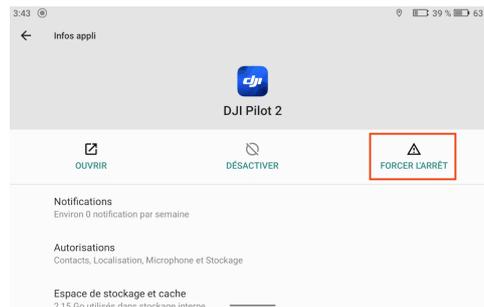
Force close procedure: Recent apps → Swipe up to close

3.4   Cornis Drone App - Mission Creation

3.4.1   Campaign Selection

1. **Launch** the Cornis Drone application
2. **Select** the appropriate inspection campaign from the list
3. **Verify** the campaign details (farm name, inspection type)
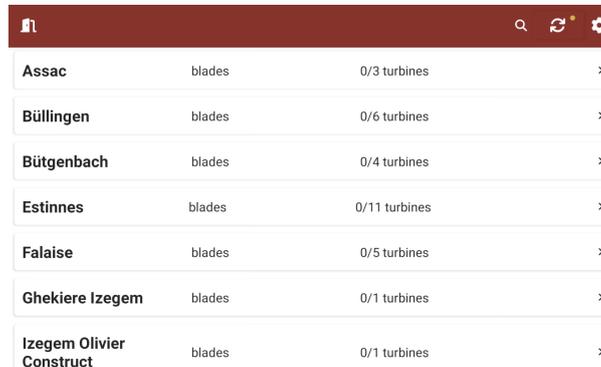
Select your inspection campaign

3.4.2   Closest Campaign Detection

When the drone is powered on and connected to the app, the system automatically retrieves the drone's GPS coordinates. Based on this location data, the app intelligently identifies and displays the closest campaign to your current position.

The closest campaign is highlighted at the top of the campaign list with an orange border, making it easy to identify and select the most relevant campaign for your inspection mission.

Closest campaign highlighted with orange border

3.4.3   Turbine Selection

1. **Choose** the turbine to inspect
2. **Verify** the turbine name and serial number (if applicable)

Turbine selection screen

3.4.3.1   Closest Turbine Identification   The app also determines which turbine within that campaign is nearest to your current location. This feature is particularly useful when working on large wind farms with multiple turbines, as it helps you quickly navigate to the correct turbine for inspection.
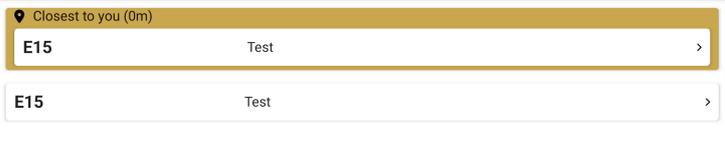
Closest turbine automatically identified based on GPS location

3.4.4   Mission Configuration

3.4.4.1   Step 1: Blade Orientation   Tap the **"+ New mission" button** to create a new mission, then input the blade orientation:

Choose Blades Orientation

1 ✎			2 ✎			3 ✎		
Top	Left	Right	Top	Left	Right	Top	Left	Right

☐ I don't know the blades orientation

Set the blade orientation

> **Info**
>
> If you're unsure of the blade orientation, select "I don't know the blade orientation". You can update this information after the inspection when the blade numbers become visible during flight. You can also change blade names by clicking the small pen icon next to the current blade names.

3.4.5   Editing Blade Orientation During Flight

You can modify blade names and orientation **at any time during the inspection**, even after starting the mission.

Important: The automatic flight must be **paused** before making changes.

How to edit:

1. **Pause** the automatic flight
2. **Tap** the edit icon in the flight screen
3. **Update** blade names and/or orientation
4. **Confirm** changes
5. **Resume** the mission

Edit Blade Orientation

1 ✎			2 ✎			3 ✎		
Top	Left	Right	Top	Left	Right	Top	Left	Right

☐ I don't know the blades orientation

Missing information, please choose the Blades orientation

Cancel   Edit

Edit button during flight   Blade orientation editor

> **Info**
>
> This feature is particularly useful when blade numbers become visible only during flight, or if you realize the initial orientation or name was incorrect.

3.4.5.1 Step 2: Mission Type   Select the appropriate mission type based on your inspection requirements:

- **Full blades**: Complete blade inspection (most common)
- **Leading Edge (LE)**: Front edge only
- **Trailing Edge (TE)**: Rear edge only
- **Pressure Side (PS)**: Windward blade surface
- **Suction Side (SS)**: Leeward blade surface
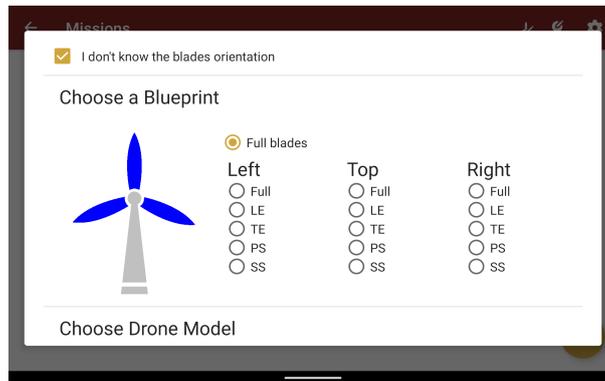
Mission type selection

3.4.5.2   Step 3: Camera Selection   Choose the camera configuration. If the drone is powered on, selection will be automatic:

- **35mm lens**
- **50mm lens**
- **Onboard camera**: For Mavic series drones

Choose Camera Model

P1-35MM   P1-50MM   ON-BOARD
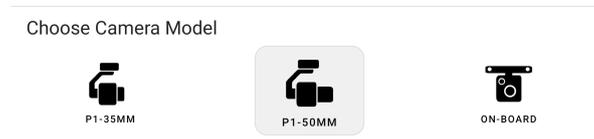
Camera model selection

3.4.5.3   Step 4: Mission Quality   Select the inspection quality level:

Choose Mission Quality

★★★   ★★☆   ★☆☆
High Quality   Standard Quality   Far Away
Flight Distance 8m   Flight Distance 9m   Flight Distance 10m
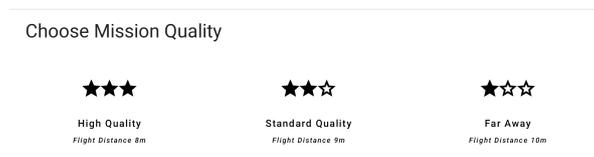
Mission quality determines flight distance and image detail

Quality Level	Flight Distance	Use Case
High Quality	Closer (e.g., 8m)	**Recommended**: Best defect detection
Standard Quality	Medium (e.g., 9m)	**Special condition**: Less experienced pilots, windy
Far Away	Far (e.g., 10m)	**Big turbines**: offshore turbines

> **Info**
>
> Always use **High Quality** for optimal defect detection unless weather or piloting comfort require standard quality. The "Big Blades" option is specifically designed for offshore wind turbines and is not recommended for onshore operations.

3.4.6 Pre-Flight Checklist

Before starting the mission, review the checklist screen:
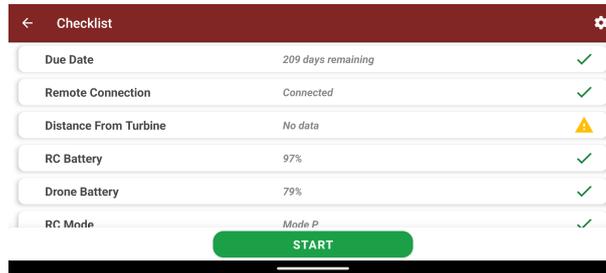
Pre-flight checklist - all items should be green

When an error or warning is detected, an information icon will appear on the checklist card. You can tap this icon to view detailed information about the issue and recommended actions to resolve it.

Common errors and solutions:

- **GPS**: Insufficient satellites - wait for better GPS signal or move to open area
- **Camera**: Camera not detected - verify camera connection and power cycle if needed
- **RTK**: RTK connection failed - check network settings or mobile station status
- **Battery**: Low battery level - replace with fully charged battery
- **Compass**: Compass calibration required - follow in-app calibration procedure
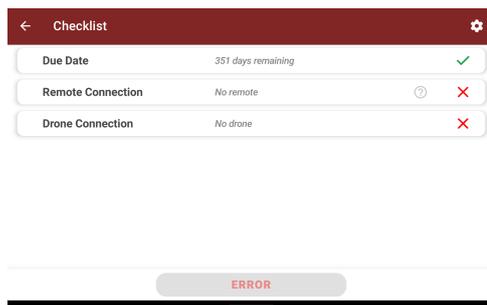
Info icon on checklist card   Detailed error message and solution
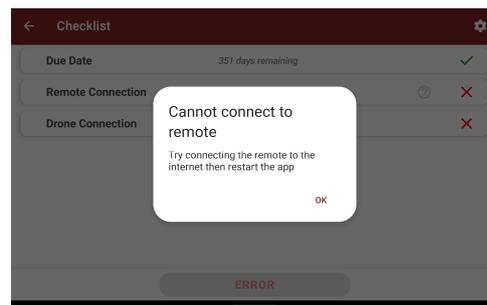
Once all checks are green, tap **START** to proceed to the flight screen.

3.5   Connection Verification

On the flight screen, verify all systems are functioning correctly:

3.5.1   System Check

- **Camera feed**: Displaying the correct camera
- **Sensor data**: Distance values updating in real-time (not frozen)
- **GPS**: Sufficient satellites (ideally 15+)

Troubleshooting: If anything appears incorrect:

1. Force-close the Cornis Drone app
2. Wait 5 seconds
3. Relaunch the application
4. Verify all systems again

> **Info**
>
> Don't hesitate to restart the app if something seems off. Taking an extra minute for troubleshooting is always better than encountering issues mid-flight.

3.6   RTK Configuration (Highly Recommended)

RTK (Real-Time Kinematic) positioning provides centimeter-level GPS accuracy for enhanced inspection precision.

> **Info**
>
> RTK is not mandatory but **highly recommended** for optimal inspection results. It significantly improves positioning accuracy and flight consistency.

3.6.1   When to Use RTK

- High precision requirements for critical defect localization
- Challenging GPS environments with poor satellite visibility
- Maximum positioning accuracy needs

3.6.2   Option 1: RTK Mobile Station

Equipment: DJI mobile RTK base station required

Setup:

1. Power on and position the RTK station in an open area
2. Wait 2-5 minutes for position establishment
3. In Cornis app: **RTK Settings → Mobile Station → Search → Connect**
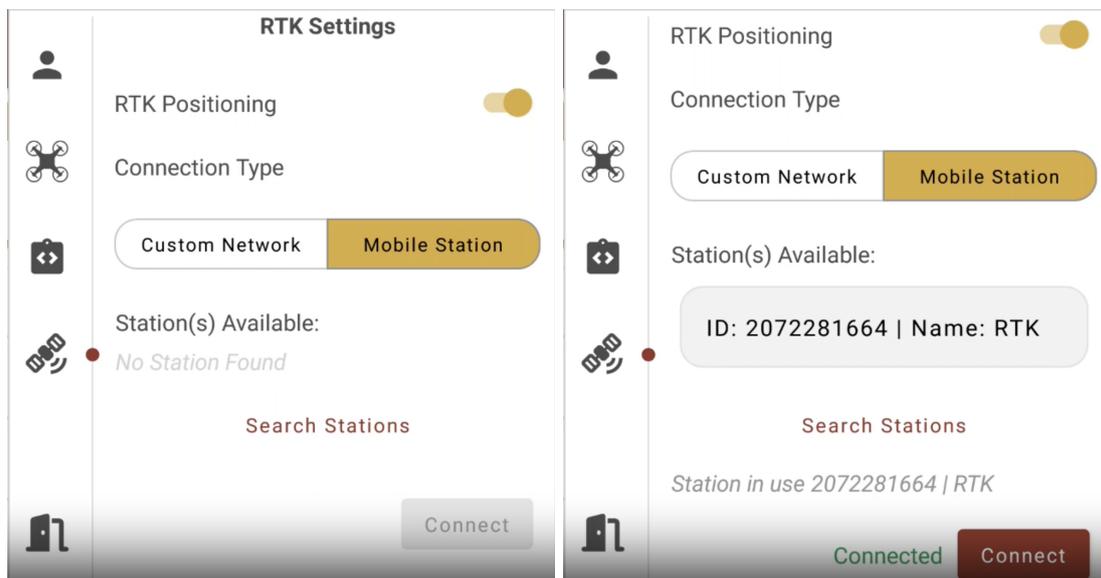
RTK Settings and Mobile Station connected

Status indicators:

- **Green**: Centimeter-level accuracy
- **Yellow**: Decimeter-level accuracy
- **Gray**: Standard GPS

3.6.3   Option 2: RTK Network

Requirements: Internet connection on remote controller

Setup:

1. Connect remote to internet
2. In Cornis app: **RTK Settings → Custom Network**
3. Configure network settings:

   - Mount Point: **NEAR** (for Centipede)
   - Enter credentials for your RTK service

4. Tap **Connect**

RTK Settings

RTK Positioning

Connection Type

| Custom Network | Mobile Station |

Server Address

caster.centipede.fr

Port

2101

Username

centipede

Password

••••••••

Mount Point

Converging …   **Connect**

RTK Custom Network configuration

> **Info**
>
> The default credentials are pre-configured for the French Centipede network. These can be modified to match your region's RTK service provider.

> **Warning**
>
> Troubleshooting: If RTK won't connect on ground, try: disable RTK → take off → re-enable RTK → connect while airborne.

3.6.4   Camera Focus Calibration

When you first install the app, you will need to calibrate the focus of the camera. This is indicated by a message in the checklist and a yellow dot on the label, in the bottom bar.

Figure 1: Focus needs calibration

To calibrate the focus, click on the yellow dot, then follow the instructions. You will need to take off the drone and point its camera on the ground, then perform multiple focus.
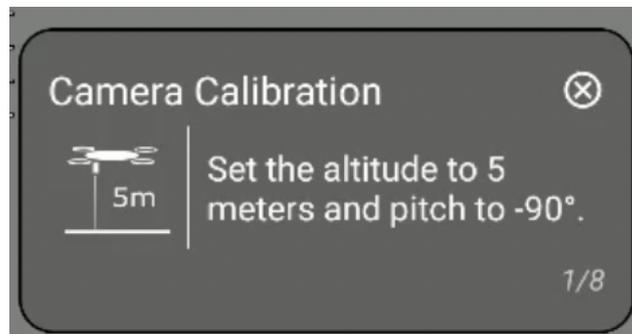

Figure 2: Calibration procedure

Once this operation is done, the distance indicated by the label should become quite precise (~50 cm). During the inspection, if the focus distance is far from the target distance, pause the drone then redo the focus on the blade, until both distances match.

Keep in mind that you can always restart the calibration if it doesn't give reliable results.

3.7   Calibration Phase

Calibration is crucial for accurate autonomous flight. Six calibration points must be recorded around the blade.

3.7.1   Taking Off

1. **Take off manually** from a safe distance (15-20m from turbine)
2. **Ascend** to hub height while maintaining visual contact
3. **Position** the drone 10-15m in front of the turbine
4. **Align drone yaw** with the turbine's yaw orientation
5. **Verify** stable hover and control responsiveness

> **Info**
>
> CRITICAL: The drone's yaw must be aligned with the turbine and remain constant throughout all 6 calibration points (tolerance: $\pm 5°$). This ensures accurate trajectory calculation for the automated flight.

3.7.2   Calibration Point Requirements

Each calibration point must be taken **less than 5 meters** from the blade surface:

- It is better for accuracy
- You can be closer but not closer than 3m (safety)

> **Info**
>
> Pro Tip: You can validate a calibration point by taking a picture instead of tapping the button. This keeps your hands on the remote controller for improved safety.

3.7.3   Monitoring Yaw Consistency

The app displays the yaw of previous calibration points, allowing you to maintain consistency:
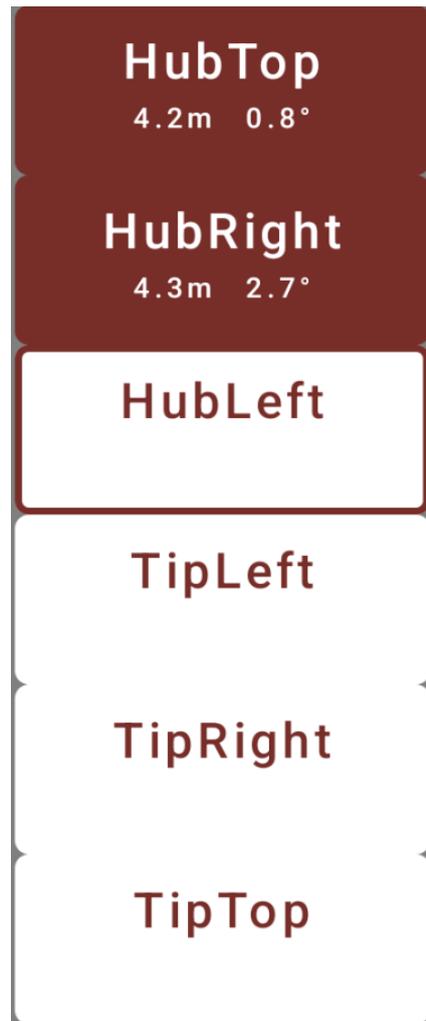
Previous calibration points with yaw values

Best practice: Before validating each new point, check that your current yaw matches the previous points within ±5°.

3.7.4   Six Required Points

1. Hub Top	2. Hub Right	3. Hub Left

| 4. Tip Left | 5. Tip Right | 6. Tip Top |

3.7.5   Troubleshooting: Tip Detection Issues

> **Warning**
>
> **Important: Distance Sensor Display Behavior**

The distance values displayed on the Live View screen correspond to the drone's distance sensors. These values may occasionally turn **gray** - this is critical to understand:

- **Gray values** indicate the last distance captured by the drone, not the current real-time distance
- If you move closer or change position without the drone detecting new obstacles, the displayed value will not update (it remains frozen at the last captured value)
- This cached value persists for **7 seconds**, allowing pilots to perform keypoint operations at blade tips without sensor
- Always be aware when distance values are gray: they do not reflect your actual current distance from obstacles

On the Matrice, sensors may struggle to detect blade tips due to their thin profile:

Solution:

1. Descend 1-2 meters below the tip
2. Wait for blade detection to activate
3. Return to tip level
4. Validate the point once properly positioned

3.8   Automatic Flight

Once the last calibration point has been recorded, the **Start Inspection** button will turn red.
Move back approximately 10m from the blade, keep your finger on the *Pause* button, and click **Start** to launch the automatic flight.

The drone will move into position and prompt you to focus.
Make sure to perform the focus at the target distance from the blade.
If the drone is too close or too far, pause, reposition to the correct distance, then resume focus.

> **Info**
>
> At any time during the flight, you can press the *Pause* button to interrupt automatic flight and regain manual control. In case of danger, you can also switch the remote controller to **Sport (S)** or **Tripod (T)** mode. This will immediately stop the drone's movement and return full control to the pilot.

Small corrections can be made during the flight by moving the drone backwards, forwards, up, or down.
For larger corrections, pause the flight before moving the drone to ensure all pictures are properly taken.

3.9   Focus

3.9.1   Focus During Flight

On the Zenmuse P1, focus must be adjusted manually **at the beginning of every flight**.
When the drone is positioned at the start of the inspection, pause the drone, then double-click on a point on the turbine to set focus.

If at any time the image appears out of focus, pause the drone and focus again by clicking on the blade.

> **Warning**
>
> When taking a manual picture, ensure you fully press the shutter button. A half-press (middle click) will trigger autofocus instead of taking a picture. If you hear the focus sound, verify that the focus distance remains correct before continuing.

> **Info**
>
> The P1 depth of field is approximately 1.5m. If the drone is focused at 7m, images will become blurry if the drone moves beyond 8.5m. Always maintain the correct distance during inspection for sharp images.

3.10   Exposure

Throughout the flight, the pilot must ensure brightness is properly adjusted.
Use the **C1** and **C2** buttons on the back of the remote controller to increase or decrease brightness.
Areas of the image that are saturated will appear highlighted in green on the screen.

Underexposed blade	Properly exposed blade	Overexposed blade

3.11   Framing

You may need to correct the framing of the image if the camera is misaligned or the drone is incorrectly positioned.
In such cases:

- Pause the mission

- Reposition the drone to capture the entire blade

- Resume the mission

You may also take a manual picture if part of the blade (e.g. the base) was not captured.

3.12 In-Flight Error Messages

This section describes common error messages that may appear during automated flight operations.

3.12.1 "Couldn't take picture"

This error indicates that the camera was unable to capture an image. The automated flight will pause automatically.

Possible causes:

- Two photos were requested simultaneously
- Remote controller performance issues
- Temporary software glitch

How to respond:

1. Tap "OK" on the popup
2. Manually move the drone back to the missed position
3. Take a manual picture
4. Resume the automated flight

3.12.2 Focus Error Message

When performing a focus operation, you may encounter an error message indicating a focus conflict.

How to respond:

1. Wait a moment for the system to reset
2. Perform the focus operation again
3. Verify that the distance indicator updates correctly

3.13   Landing and Mission Completion

3.13.1   End of Automated Flight

When the inspection completes, the **FINISHED** button appears on screen and full manual control returns to the pilot.

### 3.13.2   Landing Procedure

Land the drone normally, then **tap FINISHED** in the app to return to the mission creation screen.
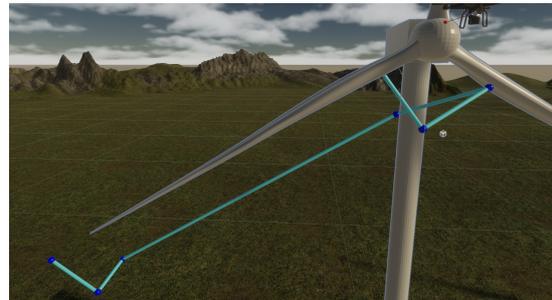
3.14   Unit Trajectories (Partial Inspections)

Unit trajectories allow you to inspect specific blade sections rather than the full blade.

3.14.1   When to Use Unit Trajectories

- **Mission interrupted**: The mission had to be stopped at a certain point for a specific reason
- **Weather degradation**: Weather conditions deteriorate during flight, so you need to cancel previous flight
- **Missing coverage**: You're unsure if all photos were captured (frame or quality) on a specific blade section.
- **Avoid full re-inspection**: This prevents having to redo the entire turbine and allows completing the inspection across multiple trajectories
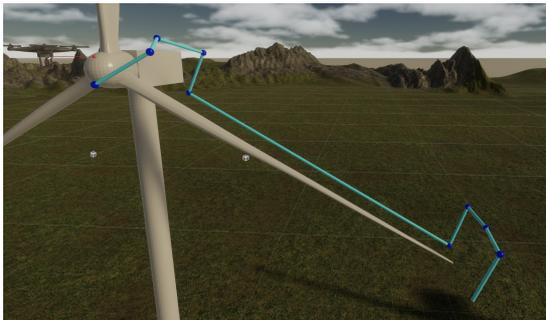
Right Trailing Edge unit trajectory   Left Pressure Side unit trajectory

3.14.2   Procedure Differences

The process is identical to full blade inspection, with two exceptions:

1. **Fewer calibration points** required (typically 3-4 instead of 6)
2. **Shortened flight path** (only covers selected blade section)

All other procedures (turbine positioning, camera settings, focus, exposure) remain the same.

4   Tower Inspection

Within the Cornis app, you can also manage tower inspections.
To begin, you must create a tower inspection campaign, just like for a blade inspection, by contacting Cornis.
Once the campaign is created, you can proceed with the tower inspection.

The process is identical to a blade inspection until the calibration step.
Simply follow the same procedure up to that point.

4.1   Turbine Yaw

Before starting the tower inspection, ensure that the turbine is stopped and placed in the "Y-inverted" position.
The nacelle must be aligned so that the yaw orientation corresponds with the tower door.

This alignment ensures that the inspection begins directly at the door level, providing a clear and consistent reference point for identifying and recording any defects.

4.2   Calibration Procedure

Tower calibration is based on two reference points: the **base** and the **top** of the tower.
Position the drone approximately 5 meters away from the tower to record these calibration points.

While calibration accuracy is important, it is less critical than for blade inspections since tower inspections
are less affected by sensor issues.

Base point:

- Align with the yaw orientation of the turbine. If the door is offset, this is not a problem; what
  matters is being directly in front of the yaw position.

- Set the altitude between 5m and 7m.
- Pitch the camera downward until the base is in the middle of the image.

Figure 3: Base point

Top point:

- Pitch the camera at 25° and move until the top of the tower is in the middle.

- You must not fully pitch because during the inspection, the wind can block the pitch of the drone
  and won't be able to reach the pitch that you defined during the calibration point.
- Keep the same yaw degree as the bottom keypoint.

Once both reference points are correctly set, press **Start** to begin the inspection.

Figure 4: Top point

5   Uploading the Data

At the end of each inspection day, transfer your captured data to the Cornis Cloud for processing and analysis.

5.1   Two-Step Upload Process

5.1.1   Step 1: Synchronize Mission Data

On the remote controller:

1. **Connect** to the internet (Wi-Fi or mobile data)
2. **Open** the Cornis Drone app
3. **Tap** the **Synchronize** button on the home screen
4. **Wait** for completion (mission metadata will upload)

This syncs the mission information, GPS data, and inspection parameters.

5.1.2   Step 2: Upload Images

Images must be uploaded separately using Cyberduck.

Detailed procedure:

Scan to access the online documentation

Or visit: https://drone-training.cornis.fr/documentation/

> **Info**
>
> Keep a local backup of images until upload is confirmed successful.

5.2   Backup Best Practices

Recommended workflow:

1. **End of day**: Copy all images to external hard drive
2. **Upload**: Transfer to Cornis Cloud via Cyberduck
3. **Verify**: Confirm upload completion before deleting local copies