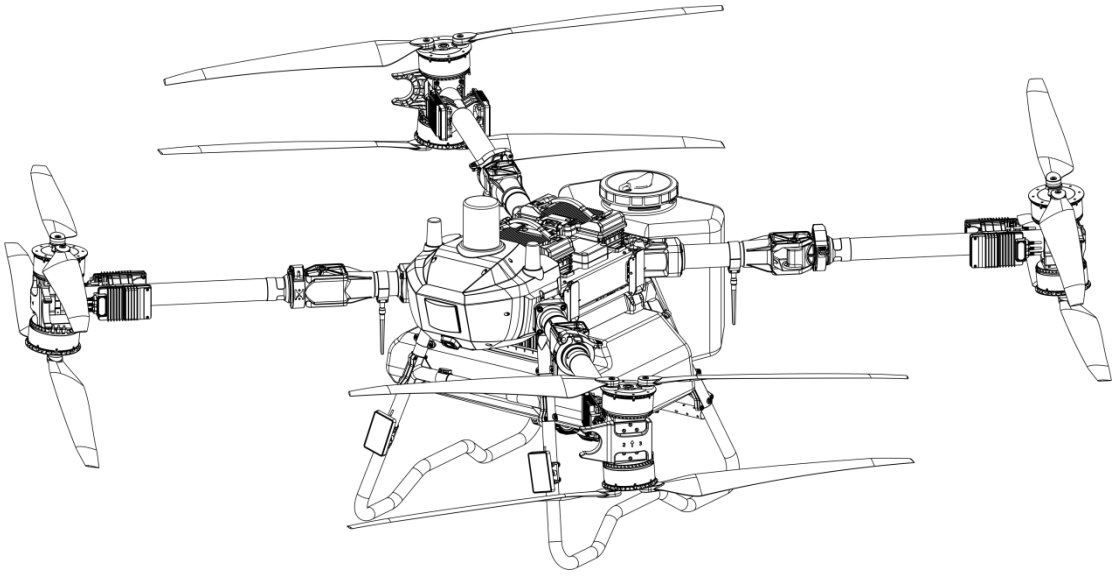
C31 Agricultural Drone

User Manual (V1.2)



Ceres Air LLC

February 2026

Revision History

Version	Revision Date	Description
V1.0	5/4/2025	
V1.1	8/4/2025	1. Update Max Takeoff Weight to be 573.2 lbs 2. Add max speed 40mph 3. Add max flight height 98.4 ft 4. Update the max wind speed to be 17.9mph
V1.2	8/9/2025	Correct the hotline number to be +1 (314) 887-4999

Contents

⚠ **Safety Note:** Not all information is contained in this manual. This document is intended as a guide. To ensure safe and efficient operation, the safety and service manuals should be reviewed prior to drone usage. These additional documents—including all related manuals—are available on www.ceresair.com. The Drone should not be operated unless all relevant manuals have been reviewed.

Flight Environment Requirements

1. All spraying operations must be suspended when wind speeds reach 17.9 mph (8 m/s). Flight operations are strictly prohibited at this wind level or above.
2. To ensure operational safety and application efficacy, conduct spraying under wind speeds ≤13.4 mph (6 m/s). For herbicides and drift-prone chemicals, maintain winds ≤ 6.7 mph (3 m/s) per EPA drift reduction requirements.
3. Flight operations are strictly prohibited under adverse weather conditions including: dense fog (visibility <3 statute miles), high winds (≥8 m/s or 17.9 mph sustained), precipitation (rain/snow) affecting sensor performance.
4. Select open terrain free of tall structures for flight operations. High-rise buildings may obstruct GNSS signals, potentially causing RTK positioning failure and creating significant flight safety hazards.

   ⚠ GNSS/RTK failure may cause loss of positional awareness, increased drift risk, and increased collision risk.

5. Maintain continuous unaided visual contact with the aircraft at all times, while keeping safe distances from: static obstacles , populated areas, water surfaces, livestock/wildlife.
6. Ensure the worksite and adjacent areas are clear of electromagnetic interference (EMI) sources, including high-voltage power lines, communication base stations, and transmission towers.
7. Flight operations are strictly prohibited above 13,123 ft (4000m) MSL.
8. Maintain unobstructed GNSS signal reception by ensuring the RTK antenna has fully hemispherical sky visibility.
9. Prohibited indoor operation of drone systems.
10. When operating at night, always turn on the spotlight before flight. Nighttime visual obstacle avoidance may not work, so make sure to activate the obstacle avoidance radar and fly with caution.

    ⚠ Vision/radar performance is degraded at night/obstacle avoidance effectiveness is reduced. Use caution while operating at night.

11. Maximum Takeoff Weight (MTOW) decreases by 10% per 3,280 ft (1000m) density altitude increase, with payload capacity reduction being a derived consequence of gross weight limitation.
12. Maximum Takeoff Weight (MTOW) decreases by 10% per 3,280 ft (1000m) density altitude increase, with payload capacity reduction being a derived consequence of gross weight limitation.
13. When operating above 6,562 ft (2000m) MSL, expect reduced battery and powertrain performance due to environmental factors. Flight characteristics will be adversely affected-exercise extreme caution.
14. The Applicator View App by Ceres Air dynamically constrains maximum takeoff weight (MTOW) based on real-time environmental factors. Never exceed the chemical payload limit. The aircraft's integrated load cell system verifies weight pre-launch-overload conditions

trigger permanent flight lockout until payload reduction.

15. Ensure optimal GNSS signal integrity (verified by green status icon) with RTK antenna maintaining full 360° Sky Visibility during operations.
16. It is prohibited to carry illegal or dangerous payloads (non-chemical).

Pre Flight Checklist

1. Verify aircraft and remote controller battery levels are ≥80%.
2. Inspect all components for damage and validate that the airframe is free of cracks, deformation, or damage. Replace deteriorated or defective parts before flight.
3. Confirm secure attachment of landing gear and spray tank.
4. Verify propellers are crack-free, no foreign body, and securely mounted with locking nuts.
5. Confirm blades and arms are fully deployed with positive lock mechanisms engaged.
6. Verify aircraft motors are clean and undamaged.
7. Check the landing gear mounting points.
8. Confirm spray system has unobstructed flow and functions normally.
9. Ensure all systems operate without warnings or anomalies.
10. Check the radar for any external damage or contamination, it should be free of foreign objects to function properly.
11. Calibrate compass immediately when prompted by the Applicator App before flight.

Note: Use only Ceres Air OEM replacement parts for maintenance.

Safety Considerations During Operation

1. Never approach rotating propellers or motors during operation (minimum distance 49ft/15m clearance).
2. Strictly observe maximum takeoff weight (MTOW) limits, exceeding certified MTOW constitutes reckless operation.
3. Do not exceed recommended chemical payload mass. Overloading compromises flight stability.
4. Maintain visual line-of-sight (VLOS) at all times.
5. Only use stick combinations stopping motors in flight for emergencies, as this will cause crashes.
6. Do not operate while using mobile devices or under alcohol or drug influence.
7. Do not operate while fatigued, as this may cause reduced situational awareness or reliance on aircraft automation.
8. Immediately initiate return-to-home (RTH) on low battery warning.
9. If radar obstacle avoidance is unavailable due to the environment, AUTO-RTH will not evade obstacles. Manually control speed and altitude via remote controller if the signal is stable.
10. Power down aircraft before remote controller post-landing to prevent signal loss triggering uncommanded RTH.

11. Maintain positive control of the aircraft throughout the operation, never rely solely on the Applicator View App by Ceres Air data. In specific flight modes or environments, radar-based obstacle avoidance may be disabled. Ensure optimal visibility, rely on direct visual observation to assess flight conditions, maneuver to avoid obstacles, set appropriate flight and return-to-home altitudes based on environmental factors.
12. When operating near high-voltage power lines, plan flight paths appropriately to maintain safe clearance. If the aircraft contacts power lines, never attempt physical retrieval - electrocution hazard exists.

Emergency Motor Stop Protocol

1. Emergency Motor Stop during flight - this will cause immediate uncontrolled descent.
2. Emergency Motor Stop should only be used when collision with persons is imminent, to minimize injury severity.
3. Emergency stop procedure: Maintain full outward stick deflection for >0. 5 seconds to trigger irreversible motor cutoff. The aircraft will enter free fall immediately.

Flight restrictions and regulatory compliance

1. Manned aircrafts always have the right of way, if a no fly zone is entered or manned aircraft are encountered, the drone must be landed immediately.
2. For detailed flight restrictions and no-fly zone data: Consult local aviation authority to ensure compliance with applicable regulations. Users must obtain required operational authorizations from government agencies when necessary.
3. All Ceres Air LLC agricultural drones shall maintain flight altitudes at or below 400 ft (122M). Please consult local laws and regulations.
4. Ceres Air agricultural drones must operate within a maximum radius of 6,560 ft (2000m) or within VLOS from the pilot or controller. For cross-border operations, compliance with host nation aviation regulations is required.

⚠ Warning: Ceres Air LLC drones must not be operated in or near airports/heliports, emergency response areas (fires, disaster areas), border zones, hazard zones, Sensitive infrastructure (power plants, substations, prisons, military sites), dense urban areas, and major public events without explicit approval from local authorities. Ceres Air LLC is not responsible for drones flown in these areas.

⚠ Warning: Ceres Air LLC drones must not be operated near fires/wildfires, floods, explosions, earthquakes, landslides, avalanches, emergency response procedures and dust storms/sandstorms

Geo-fencing

Ceres Air LLC's agricultural drones feature geo-fencing NOT enabled by default, which automatically restricts flight altitude, airspeed, and maximum operational radius.

Within the Applicator View App by Ceres Air, operators may configure safety limits for: Flight altitude ceilings, maximum operational radius (from remote controller as center point).

No-Fly Zone

1. Pursuant to airspace regulations established by ICAO and national aviation authorities worldwide, drones must operate within designated flight zones. To ensure flight safety, Ceres Air LLC agricultural drones will enable flight restriction features by default—including No-Fly Zone (NFZ) and Geo-fencing containment—facilitating safer and legally compliant operations.
2. Geofencing is a technology that creates a virtual, digital boundary around a specific physical location using GPS, it is not inherently "regulatory compliance" itself. Rather, it is a tool or strategy implemented to help meet compliance, safety, or security obligations.
3. No-fly zones include both aviation authority restricted areas and operator-defined exclusion zones. Drones are strictly prohibited from entering any designated no-fly zone.
4. When approaching any no-fly zone boundary, the aircraft will automatically decelerate and initiate hover at the perimeter.
5. If the aircraft enters a no-fly zone without positioning capability, it will automatically initiate landing upon regaining positioning. Moreover, takeoff capability remains disabled while within restricted airspace.
6. The Operator must independently verify airspace legality, geofencing does not replace Operator or legal responsibility.

Note: During GNSS-enabled operations, drone flight is jointly governed by NFZ restrictions and altitude ceilings. Under GNSS-denied conditions, aircraft remain solely constrained by hard-coded height limits, with actual flight altitude not exceeding 400 ft (122 M) AGL.

Integrated Pesticide Application System

1. Pesticides are hazardous chemicals. Strictly follow EPA-approved label instructions and safe handling protocols at all times.
2. Avoid splashing when mixing chemicals to prevent pesticide residue on the machine from harming you.
3. When mixing pesticides, use clean water only. After mixing, filter the solution before transferring it to the spray tank to prevent filter clogging. If clogging occurs during application, stop and clean the filter before resuming.
4. During application, always position yourself upwind to avoid exposure to pesticide drift.
5. During application, wear proper PPE (personal protective equipment) to avoid direct skin contact with pesticides. After spraying, thoroughly wash all exposed skin and clean the drone and remote controller.
6. Spray effectiveness depends on critical factors including: solution concentration, flow rate, drone height above crop canopy, wind direction and speed, temperature and humidity. To achieve optimal coverage, all factors must be accounted for during application.
7. Ensure the pesticide application causes no harm to flora, fauna, or natural habitats within either the target spray area or potential drift zone.
8. Contamination of rivers, streams, or drinking water sources during pesticide application violates federal environmental laws and is subject to severe penalties.
9. Disposal of Excess Pesticide Solution: Proper planning should minimize leftover pesticide solution. It is recommended to apply the remaining solution and rinse water to target crops. Avoid over-application if excessive amounts remain.
10. The use of strongly acidic and alkaline solutions, high-temperature liquids, and pesticides banned by national regulations is strictly prohibited.

Ingress Protection (IP) Rating Specifications

Under normal operating conditions, this drone provides dust, water resistance and corrosion protection. When tested under controlled laboratory conditions per IEC 60529 Standard, the entire unit (excluding intelligent flight battery) achieves IP65 rating. The airframe is splash-resistant.

Protection effectiveness isn't permanent and may degrade due to prolonged use or aging. Liquid immersion damage is excluded from warranty coverage.

Protection may become compromised if:

1. Sealing surfaces deform after impact damage;
2. Cracks or breaks develop in enclosure seals;
3. Port covers or sealing grommets are improperly seated or become detached.

Drone Maintenance Instructions

1. Before each flight, inspect propellers and immediately replace any deformed or damaged blades. Ensure all propellers are securely mounted.
2. Always empty and detach the liquid tank during transport or storage to prevent landing gear overloading.
3. Store aircraft in environments between -4°F (-20°C) and 104°F (40°C). Verify tanks, flow meters, pumps, and hoses are completely drained.
4. Clean aircraft promptly after spraying. Perform routine maintenance per Section 4: 'Product Maintenance' in the C31 Agricultural drone Warranty & Maintenance Manual.

Drone Maintenance & Cleaning Protocol

Folding Procedure: After operations, fold arms in this sequence: M1 and M4 arms first, M2 and M3 arms second. Ensure arms are securely locked into storage clamps on fuselage sides. Failure to properly secure them may cause arm damage.

Cleaning Preparation: Allow the drone to cool to ambient temperature before cleaning. Never clean immediately after operation. Clean drone and remote controller daily after flight operations.

Step-by-Step Cleaning Procedure:

1. Tank Flushing: Triple-rinse the liquid tank. Fill with clean water or soap solution. Spray until empty and repeat this process two additional times.
2. Remove and clean the tank filter, nozzle screens, and spray tips. After confirming there are no blockages, soak these components in clean water for 4 hours.
3. Rinse airframe with low-pressure water, scrub with soft brush or damp cloth and dry thoroughly with lint-free cloth.
4. For motors, propellers, and heat sinks. Wipe pesticide residue or dust with damp cloth. Immediately dry with absorbent cloth. Never allow liquid pooling.
5. Dampen lint-free cloth (wring until no dripping), wipe surfaces and display and Air-dry before storage.

⚠️ Warning: foreign debris can cause rotor ingestion risks, the drone and operating area must be free of foreign objects such as plastic bags, fertilizer sacks, loose tarps, and any other objects that may interfere with safe flight.

Intelligent Battery Storage Protocol

For long-term storage, charge to 60% before storage (optimal preservation state). Check the remaining charge monthly. If the state of charge (SOC) falls below 20%, recharge to approximately 60% before storage. Prolonged low-charge storage causes permanent capacity degradation and reduces cycle life.

Storage & Transportation Safety Protocol

To prevent injury and property damage:

1. Keep all components away from children – small parts and cables pose choking hazards.
2. Always remove batteries from the aircraft before transport.

3. For long-term storage or extended transport: Detach the spray tank assembly or completely drain residual liquid. Store aircraft in climate-controlled environments.
4. For long-term storage, maintain batteries at approximately 60% state of charge .

Post-Operation Maintenance Protocol

To prevent injury and equipment damage:

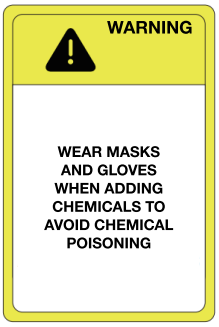
1. After daily operations, allow aircraft to reach ambient temperature before cleaning. Never clean immediately post-flight.
    a. Fill with clean water or ≤2% detergent solution. Spray until fully emptied and repeat twice.
    b. Remove and clean the following: spray tank filter assembly, nozzle screen filters, and spray tips. Verify that all parts are obstruction-free and soak disassembled components in clean water for 12 continuous hours.
    c. Ensure the body structure is intact—the entire unit can be washed directly with water. It is recommended to rinse the body using a spray hose, then clean it with a soft brush or damp cloth, and finally wipe it dry with a clean, dry cloth.
    d. If there is dust or chemical residue on the motor, propeller blades, or heat sink surfaces, it is recommended to clean them with a damp cloth and then wipe dry with a clean, dry cloth.
    e. Keep the aircraft in a dry location.
2. After each day of operation, wipe the remote controller's surface and screen with a clean, damp cloth (wring out excess water).
3. After every 20 flight hours or 100 takeoff/landing cycles:
    a. Inspect the propellers for cracks. Replace any cracked propellers.
    b. Check if the propellers are loose. If looseness is found, replace the propeller and it’s washer.
    c. Examine plastic and rubber components for signs of aging/deterioration.
    d. Check the nozzle’s spray pattern. If atomization is poor, thoroughly clean the nozzle or replace it.
    e. Replace both the nozzle filter and the spray tank filter.
4. After daily operations: If the equipment will be used again the next day or in the near future, perform slow charging on the batteries overnight for maintenance.
5. Do not attempt unauthorized repairs on the aircraft. If damage occurs, contact an authorized Ceres Air Dealer for service.

Note:

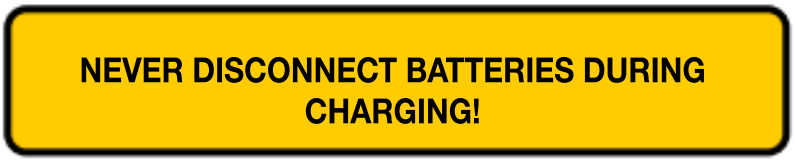
1. Keep the radar module’s protective cover clean. Gently wipe the surface with a soft, damp cloth and allow it to air-dry.
2. Maintain FPV camera cleanliness by removing any dust, sand, or debris from the camera surface.
3. Inspect all aircraft components for signs of severe impact. If any damage is suspected, contact customer support or an authorized Ceres Air Dealer.

Aircraft Body Safety

Arm Lock Mechanism



CHEMICAL TANK WARNING DECAL



BATTERY CHARGING HAZARD LABEL

Recommended Operating Environment

Safety Pictograms

Recommended Operating Environment

Fly in open areas

Good GNSS reception

Fly within visual line of sight (VLOS)

Keep flight altitude below 98ft (30m)

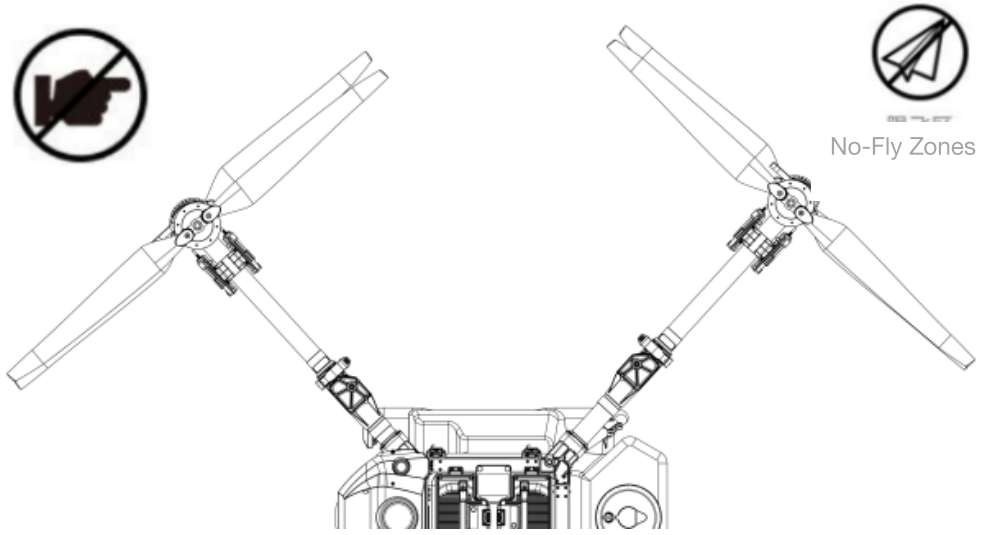
Not Recommended Flying Environments

When flying, always keep your drone away from crowds, power lines, tall buildings, airports, and signal transmission towers.
Radio towers, high-voltage power lines, and electrical substations may cause interference with your remote control signal, compromising flight safety. Always exercise caution during flight.

No-Fly Zones

Avoid flying under severe weather conditions including: Heavy rain (25mm/12hrs or more), dense fog, snowfall, thunderstorms and strong winds 17. 9mph (8m/s or higher).

Dangerous Maneuvers



Disclaimer

1. Thoroughly review this manual before product use. By activating this product, you are deemed to have acknowledged, understood, accepted, and agreed to all terms and conditions contained herein.
2. Agricultural drones are large-scale drones carrying operational risks. Ceres Air LLC does not sell drones to minors. Ceres Air LLC shall bear no liability whatsoever for any consequences arising from drone operation by minors. Under such circumstances, both the complimentary first-year Damage Protection Plan and any subsequently renewed coverage shall be immediately void and unenforceable.
   ⚠ Do not operate in the presence of of minor children. A safety perimeter must be maintained at all times
3. Users are strictly prohibited from operating the drone under the following conditions: While under the influence of alcohol, drugs, or medication. While experiencing dizziness, fatigue, nausea, or any other physical or mental impairment Ceres Air LLC disclaims all liability for any incidents or damages resulting from such prohibited operation.
4. When handling toxic pesticides: Thoroughly review the pesticide manufacturer's instructions. Implement all specified personal protective equipment (PPE). Ceres Air LLC shall bear no liability under any circumstances for injuries to persons, animals, or plants resulting from user negligence or improper chemical application.
5. This product is a multi-rotor agricultural drone designed exclusively for spraying applications within agricultural, forestry, livestock, and aquaculture operations. Any use beyond this specified scope is strictly prohibited. Ceres Air LLC shall bear no direct, indirect, or consequential liability whatsoever for incidents resulting from non-compliant operations.
6. Unauthorized modification or use of non-Ceres Air components is strictly prohibited. Ceres Air LLC shall bear no direct, indirect, or consequential liability for any incidents, damages, or injuries resulting from such unauthorized alterations or use of third-party parts.
7. To optimize product functionality and enhance user experience, you expressly acknowledge, understand, and consent that during product operation all flight records and data will be automatically uploaded and stored to Ceres Air LLC’s secure data center by default. Ceres Air LLC may lawfully collect, store, and utilize all related operational data generated during your use of this product. Should flight data fail to upload due to your actions or omissions, Ceres Air LLC shall bear no liability whatsoever for: Any impacts on flight safety, compromised product or service quality, operational consequences arising from unavailable data for storage and analysis.
8. To the maximum extent permitted by law, Ceres Air LLC shall not be liable for any losses resulting from your failure to operate the product in accordance with the "Operator’s Manual" nor for any indirect, consequential, punitive, incidental, special, or exemplary damages, including but not limited to damages arising from your purchase, use, or inability to use the product.
9. You acknowledge and agree that during product use, unforeseen incidents may occur due to operational errors, environmental factors, network communication issues, or a combination thereof. These incidents are considered inherent and reasonably foreseeable risks of product operation, and Ceres Air LLC shall not be held liable for any such occurrences.
10. To the maximum extent permitted by law, in no event shall Ceres Air LLC’s total liability to you for all damages, losses, and causes of action (whether in contract, tort, or otherwise) exceed the amount you actually paid to Ceres Air LLC or its authorized dealers for the product.

11. Under all circumstances, purchasers or users must comply with applicable laws, regulations, and policies of the country or region where the product is operated. Ceres Air LLC shall bear no liability whatsoever for violations of such legal requirements by purchasers or users.
12. Certain jurisdictions may legally prohibit disclaimers of liability. Consequently, your rights may vary across different countries. This shall not be construed as automatic invalidation of any provisions herein where legally permissible.
13. To the maximum extent permitted by law: Ceres Air LLC reserves the sole right to interpret and modify these terms. Ceres Air LLC reserves the right to update, modify, or terminate the terms of the "User Operation Manual " at any time without prior notice, through official channels including but not limited to the Ceres Air LLC website and Ceres Air Agricultural Service App.
14. Resale or Transfer: Your resale or transfer of Ceres Air agricultural drones - whether activated or not is at your sole discretion. Ceres Air LLC neither interferes with such transfers nor assumes liability for any associated risks.
15. Export Compliance: The export, re-export, or transfer of this product is governed by export control laws and other relevant export control regulations. Unless expressly authorized by applicable export control laws or licensed by competent export control authorities, you must ensure all operations—including use, sale, transfer, lease, or other disposition comply with the following requirements:
    a. Not violating embargoes under applicable export controls.
    b. Not transacting with prohibited end-users per export control lists.
    c. Solely for civilian end-use. Not for military applications, nuclear, biological and chemical weapons , or missile technology dissemination.
12. You are duty-bound to adhere to the relevant export control laws as well as any other applicable international export control regulations. You shall bear sole responsibility for any breaches of such laws that arise from your activities, including use, sale, transfer, rental, or any other actions related to the product.

Introduction

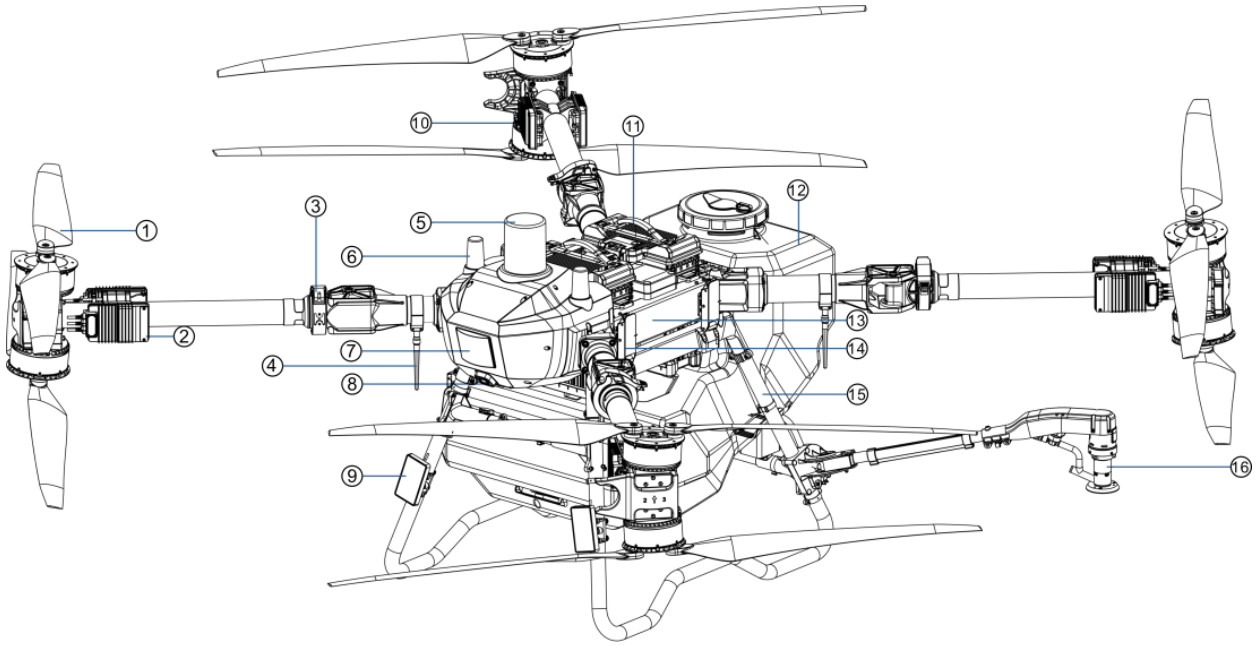
Ceres Air LLC’s newly developed C31 Agricultural Drone, features an advanced agricultural operation system. Standard Configuration: Equipped with two centrifugal nozzles delivering a maximum flow rate of 7.8gal/min (30 L/min). Upgradable to four centrifugal nozzles for a maximum flow rate exceeding 10.4gal/min (40 L/min). Features a dual-layer spray disc design for superior atomization uniformity. Adjustable droplet size range: 1.97-19.7μin (50-500 microns).

Comes standard with a Front-Mounted Radar, 360°Rotating Obstacle Avoidance Radar, and Terrain Follow Radar. Its monocular camera supports virtual gimbal technology with adjustable angles and low-light night vision capabilities. The C31 integrates Ceres Air's most powerful intelligent safety suite for significantly safer operation.

The newly enhanced smart remote controller boasts a 6-inch high-brightness display and the built-in Applicator View App by Ceres Air, offering improved operational fluidity and stability. Features a standard RTK high-precision positioning module for centimeter-level flight path planning. Supports both internal and external batteries, achieving a comprehensive operational endurance of up to 8 hours to meet demanding, long-duration tasks.

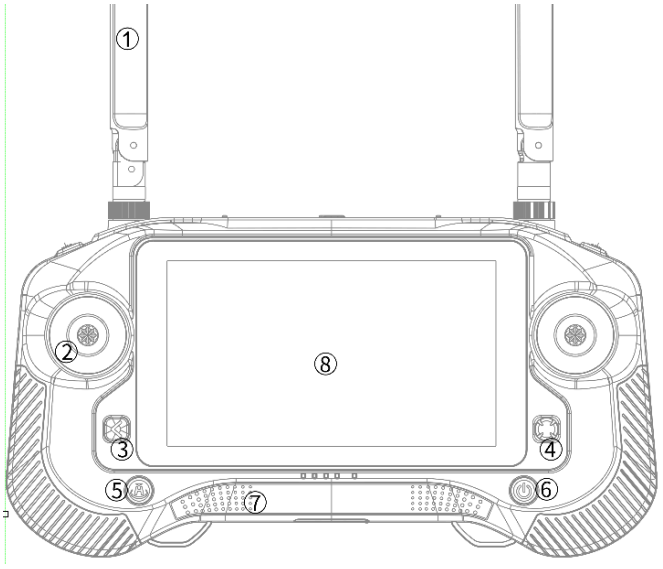
The C31 drone is built for harsh conditions with dustproof, waterproof, and corrosion-resistant properties. Core components feature triple-layer protection, achieving an overall IP66 protection rating (based on the International Electrotechnical Commission standard IEC 60529). The entire airframe is washable.

Drone Parts Diagram

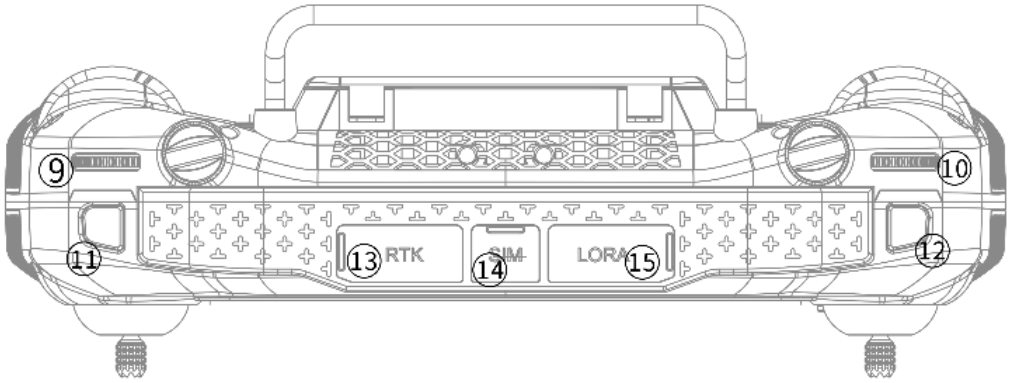


① Propeller
② Navigation Lights
③ Arm Locking Latch
④ Video Transmission Antenna
⑤ 360°Rotating Radar
⑥ RTK GNSS Antenna
⑦ Radar Module
⑧ Front FPV Camera
⑨ Spotlight
⑩ Motor
⑪ Intelligent Battery
⑫ Spray Tank
⑬ Frame
⑭ Frame Locking Mechanism
⑮ Landing Gear
⑯ Centrifugal Nozzle

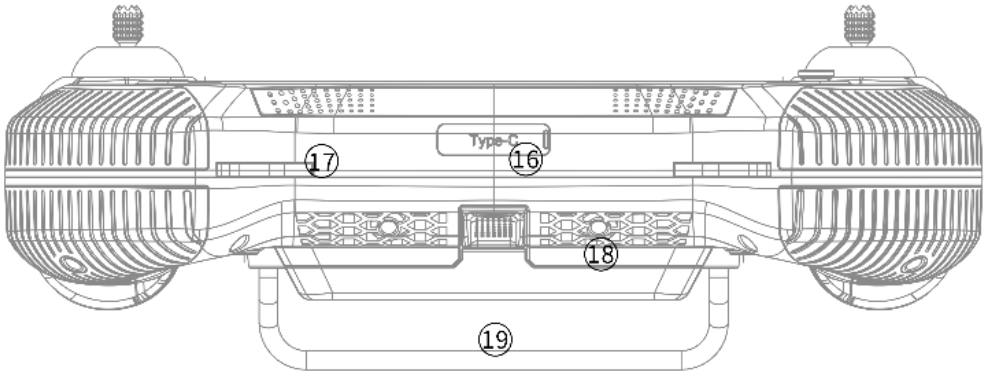
Remote Controller Components



① Antenna	② Control Stick
③ Return Button	④ 5-way Navigation Key
⑤ Return-to-Home (RTH) Button	⑥ Power Button
⑦ Speaker Grille	⑧ Touch Display Screen



⑨ Control Dial1	⑩ Control Dial 2
⑪ Radar Toggle Switch	⑫ Spray Control Switch
⑬ External RTK Port	⑭ SIM Card Slot
⑮ LORA Communication Port	

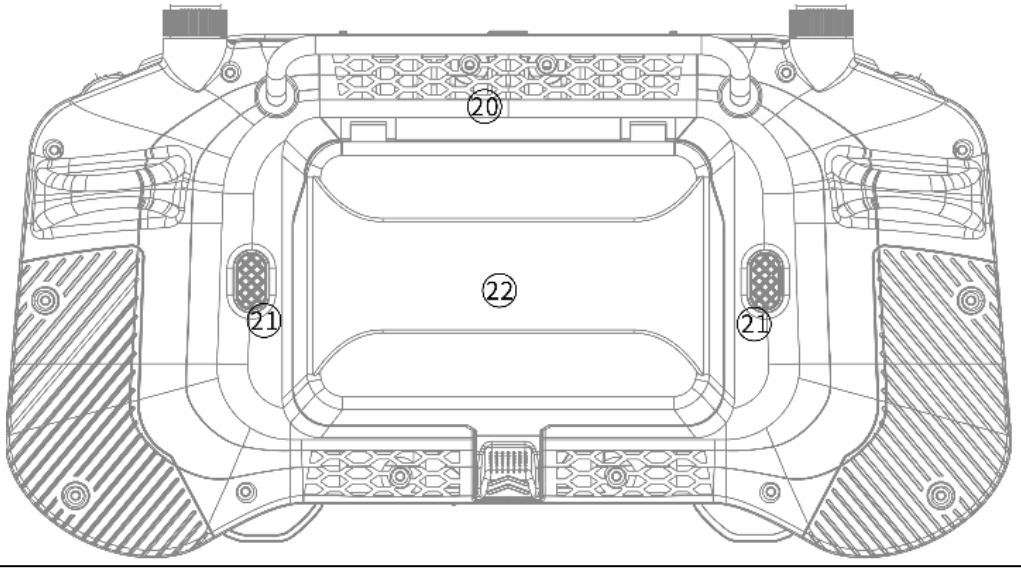


⑯ Type—C USB Port

⑰ Lanyard Loop

⑱ Ventilation Grille

⑲ Carrying Handle



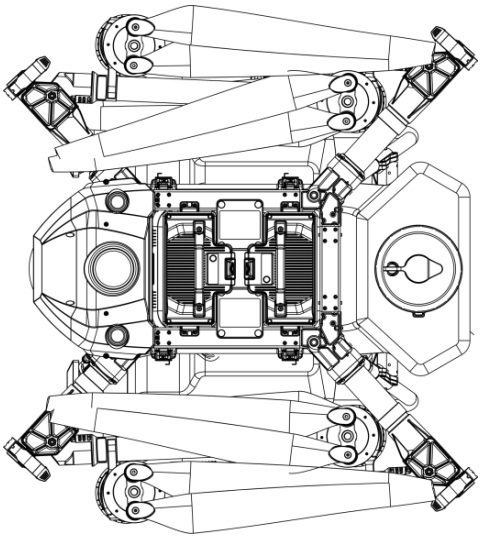
⑳ Cooling Vent

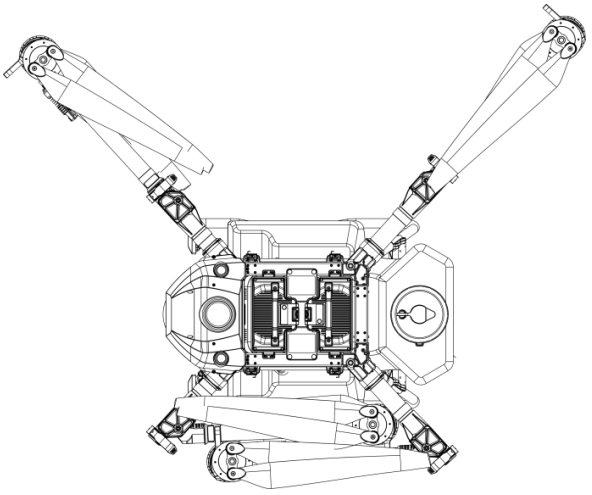
㉑ Programmable Button

㉒ Battery Access Door

Drone Pre-Launch Checklist

Extend Arms

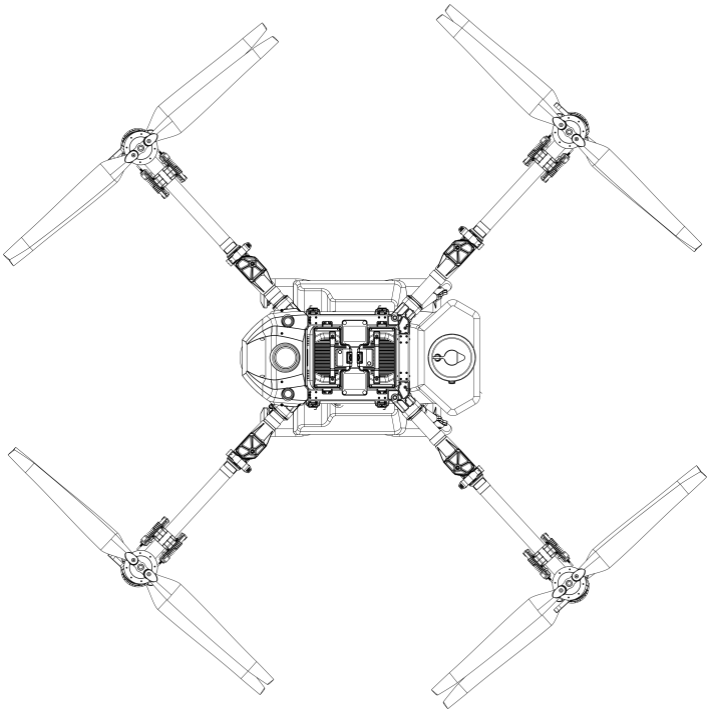




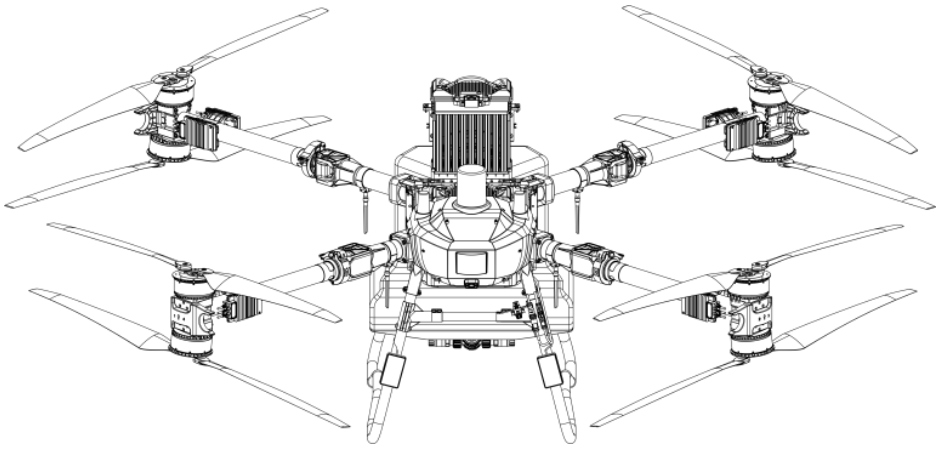
⚠ Warning: Before extending the arms, you must unlock all arm locking latches.

For C31 drone: After full arm deployment, verify all four arm locking latches are fully engaged and secured.

Deploy Propellers Individually



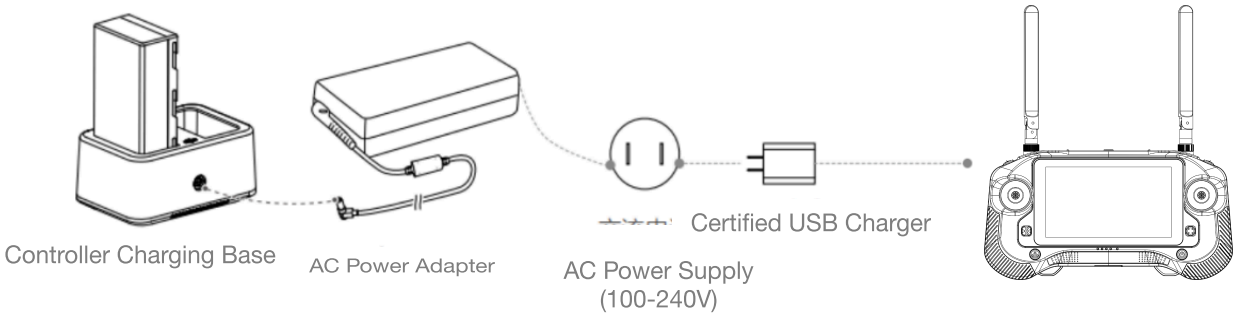
Insert Battery



⚠ Warning: Before inserting the battery into the compartment, verify the battery is powered off.

Remote Controller Preparation

Charging Procedure: Charge external batteries using the dedicated charging dock and AC power adapter. Charge the controller's internal battery via USB charger and USB-C cable.



External Battery Installation Procedure

1. Press the battery access door release button on the rear of the controller.
2. Place the intelligent battery into the compartment and slide upward until fully seated.
3. Close the battery access door until an audible click is heard.

⚠ Warning: Do not leave batteries unattended while charging.

4G SIM Card Installation Procedure

1. Insert the SIM card with correct orientation as indicated on the tray. Do not reverse polarity.
2. After insertion, wait 30 seconds for system initialization. Confirm "SIM Detected" status on controller display. If confirmed, proceed to network connectivity diagnostics.

RTK Module Installation Protocol

When utilizing RTK-enabled area mapping, connect the RTK GNSS module securely to the controller's Type-C USB port until an audible engagement click is confirmed.

Power Verification Procedure

On the Applicator View App by Ceres Air home screen, check internal battery level (%) and Verify external battery status (V). Do not launch unless combined reserve > 40%.

Antenna Optimization Procedure

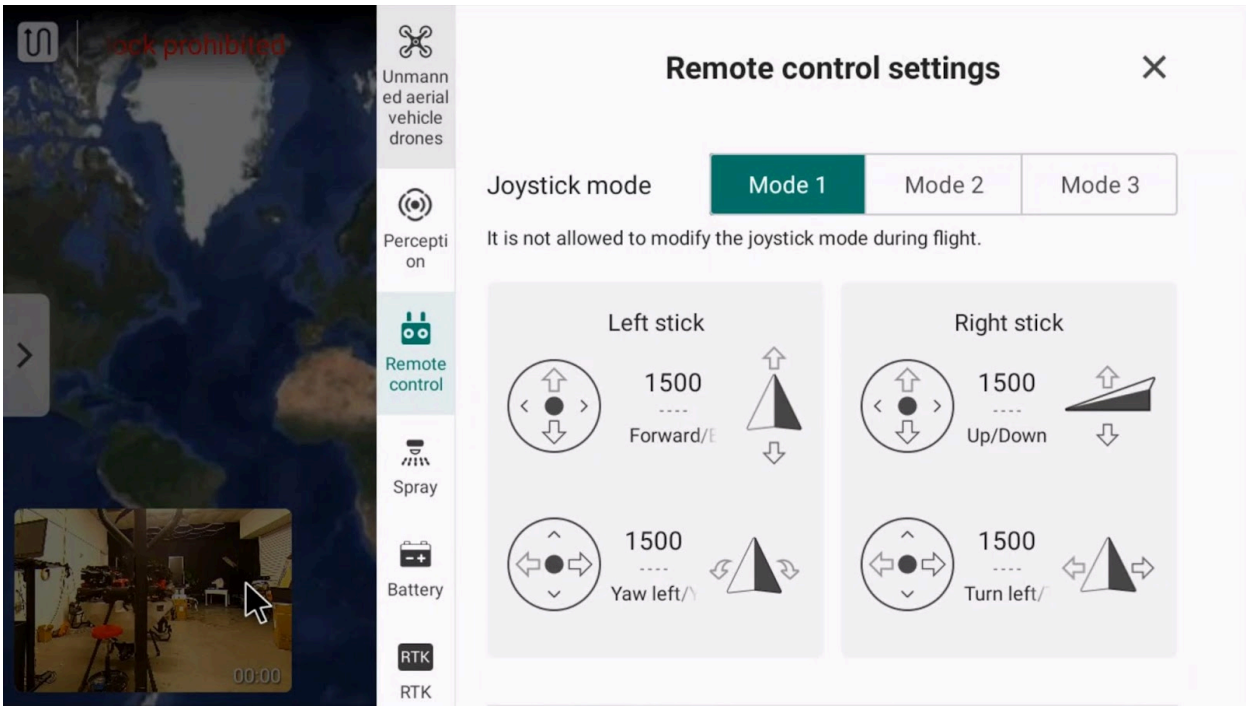
1. Extend and adjust the controller antennas. Signal strength varies with antenna orientation. For optimal signal quality: Position antennas at 80° or 180° relative to the controller's backplane, ensure the antenna plane is directly facing the aircraft.
2. Aircraft Operation: Always maintain the aircraft within the optimal communication range. Continuously adjust your position or distance relative to the aircraft and monitor the real-time signal strength indicator to ensure stable connection.

Note:

1. Do not use other devices operating on the same frequency band simultaneously, as this may cause interference with the remote control signals.
2. When using the RTK high-precision positioning module for RTK operations, detach the module after completing the operation. Failure to do so may impair remote control communication performance.

Setting Stick Mode

Before flight, always verify your stick mode. The Ceres Air RC402 remote controller supports three stick configurations: Mode 1 (American), Mode 2 (Chinese), and Mode 3 (Japanese). Select the mode you are most comfortable with to operate your drone.



Stick Calibration

The remote controller is factory-calibrated. If you notice any deviation in stick response during use, perform a stick calibration to resolve the issue.

Note: Ensure the drone is powered OFF before performing stick calibration.

Account Registration/Remote Pilot Certification

Register your Ceres Air User Account

Get full drone data services and flight management tools or Access Ceres Air Drone User Platform, register your account, view operation logs and download flight paths at: www.applicatorview.com

Activate Your Aircraft

After logging into the Applicator View App by Ceres Air, if your drone isn't activated, a pop-up reminder will automatically appear. Follow the prompts to complete activation instantly. Should activation fail, contact our support team immediately.

Note: Ensure the account logged into your remote controller is your personal account. The account used for activation will be legally registered as the aircraft owner in the system.

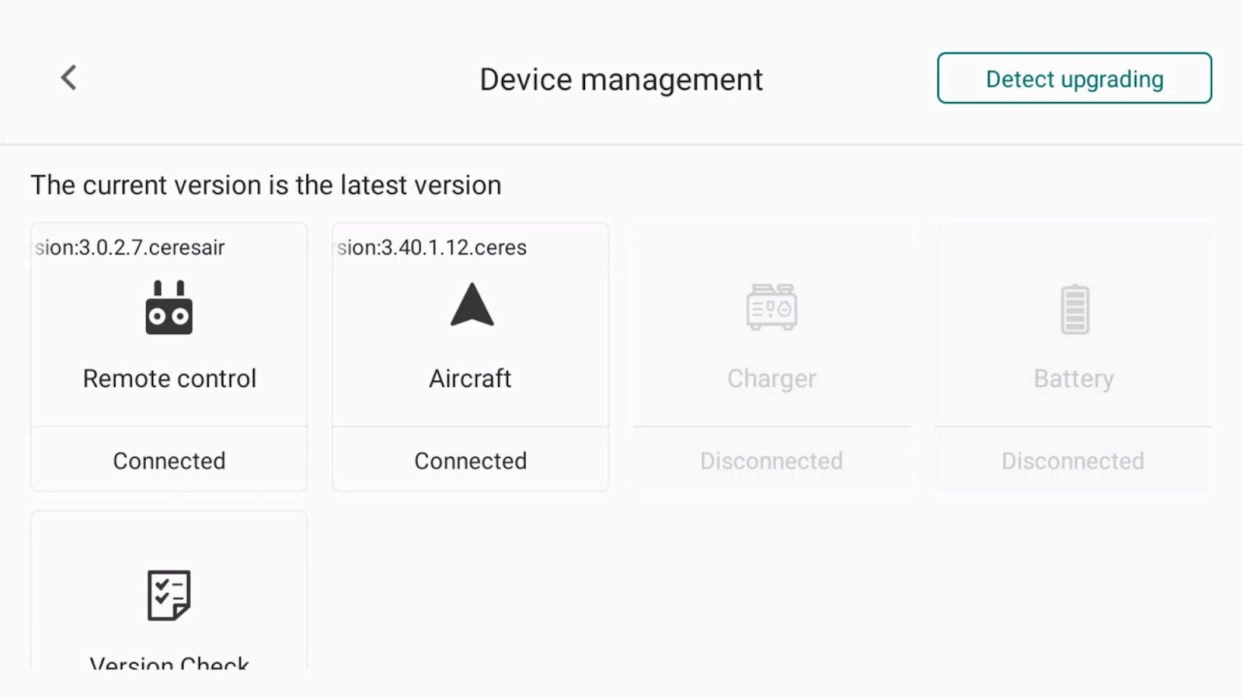
Firmware Updates

The Applicator View App by Ceres Air supports over-the-air (OTA) updates for both remote controller and aircraft firmware.

In the Applicator View App by Ceres Air: Go to Device Management Aircraft or Device Management Remote Controller. The available updates display the latest version number. Tap the version and follow the prompts to complete installation.

Note:

1. A stable internet connection is required to download the latest firmware from Ceres Air's servers.
2. When updating the Remote Controller, power OFF the aircraft completely. When updating the Aircraft, keep all propellers folded and secured.



AGRICULTURAL DRONE OPERATIONS

Power On or Off Procedure

Power on

Short-press the power button and immediately press and hold for 3-5 seconds. The battery will activate and the aircraft systems will power up.

Power off

With the aircraft battery powered on: Briefly press the power button once and immediately press and hold for 3-5 seconds. The battery will deactivate and aircraft systems will power down.

Charging Instructions

1. Use only the included 18S12000 Multi-Charger to charge intelligent batteries.
2. When using fuel-powered charging stations: Connect via high-power thick-gauge quick-charge cables.
3. If using other fuel generators: Verify that the generator's output meets battery specifications.

⚠ Warning: Do not leave batteries unattended while charging.

Flight Mode System

The aircraft operates primarily in P-Mode (Precision GNSS Mode). For the C31 Series Agricultural drone, manual switching to Attitude Mode is prohibited. Automatic failover to Attitude Mode occurs only if: Both RTK and GNSS signals are lost, and compass interference is detected. Audible and visual alerts activate immediately on the remote controller when these conditions are met.

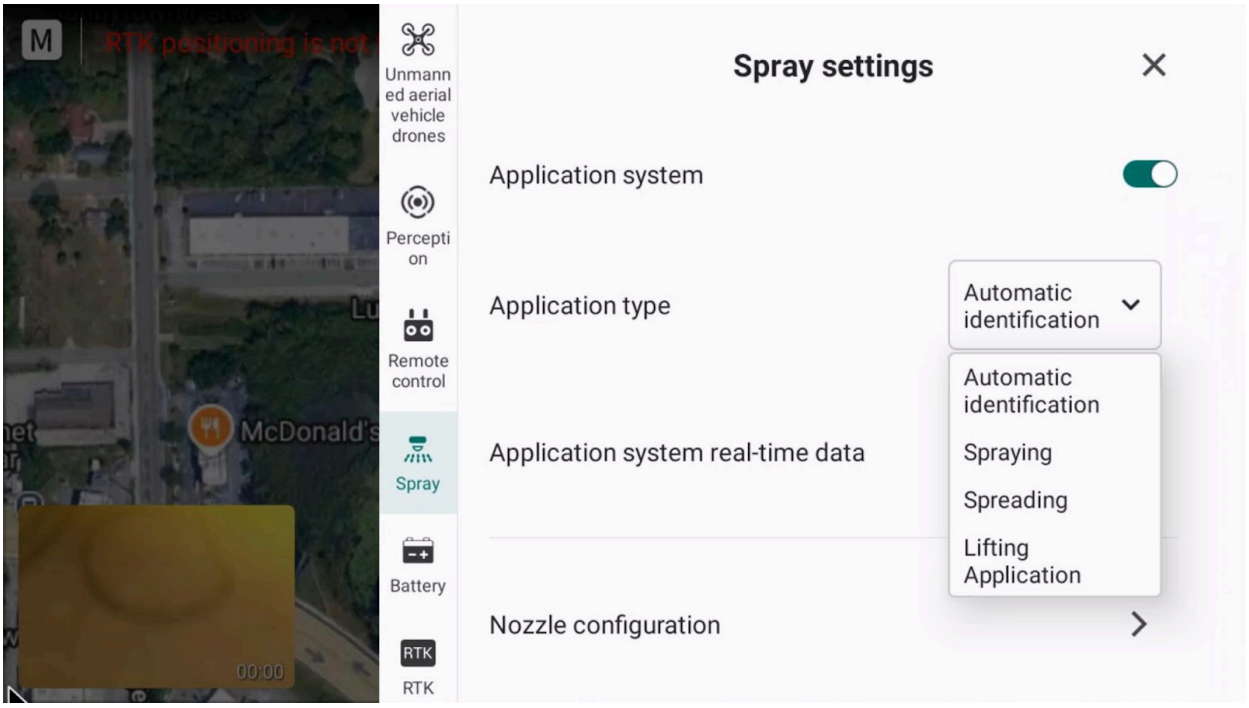
P-Mode (Positioning Mode) Operation: The aircraft utilizes an RTK high-precision positioning module for accurate hovering, with strong GNSS signals it achieves standard positioning accuracy. With RTK enabled and proper differential data, it delivers centimeter-level positioning. Automatic failover to Attitude Mode occurs when: GNSS signal degrades and Compass interference is detected.

Precautions for Attitude (Atti) Mode

In Atti mode, the aircraft is more susceptible to environmental factors (like wind), causing it to drift horizontally. The aircraft cannot maintain a stable hover automatically in this mode. Constant manual control inputs are required to keep it stationary. Controlling the aircraft becomes significantly more challenging in Atti mode. Only use Atti mode if you are thoroughly familiar with the aircraft's behavior in this mode and possess advanced piloting skills. Do not fly the aircraft far away during Atti mode operations. Maintaining a close distance is crucial to accurately judge its attitude and orientation to avoid accidents. Avoid flying in areas with poor GNSS signal conditions, near obstacles (such as tall buildings), or in confined spaces. These environments increase the risk of the aircraft being forced into Atti mode unexpectedly, which could lead to a loss of control and potential accidents.

Operational Modes

The C31 agricultural aircraft features four operational modes selectable via the Applicator View App by Ceres Air: Autonomous Operation Mode, A-B Point Mode, Manual Operation Mode and Manual Plus Mode.



Autonomous Operation Mode

Through the Applicator View App by Ceres Air intelligent mission planning system, users conduct field boundary surveying and obstacle mapping. After setting waypoints, the App algorithmically calculates and generates optimized flight paths for automated mission planning. Upon mission execution, the aircraft enters full autonomous operation mode, and automatically performs tasks along the pre-defined route.

The C31 agricultural drone features: Automated Launch Sequence, Predictive Replenishment Alert System, Smart Endurance Waypoint Resumption, and Abnormal Operation Interruption Recovery. It also has radar-assisted terrain-following height lock, omnidirectional obstacle avoidance, and active circumvention capabilities.

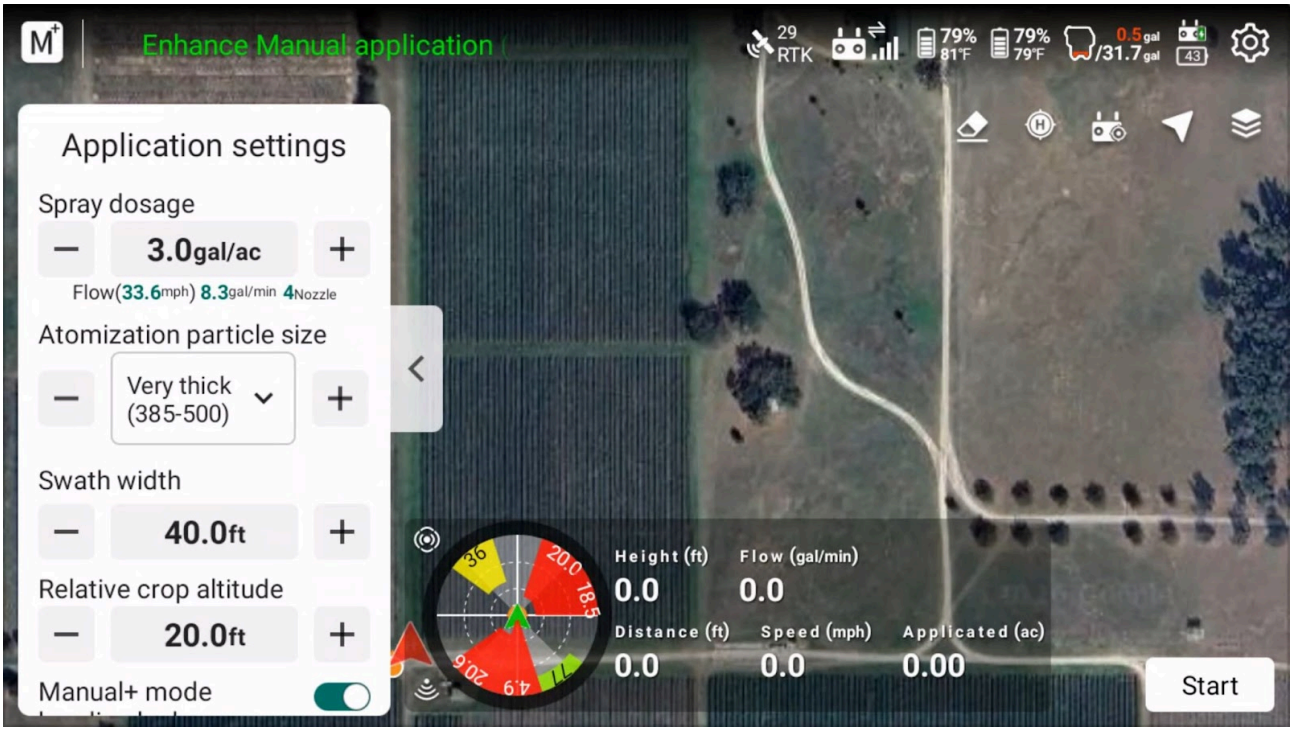
Users can make real-time adjustments to spray application and ground speed directly in the App interface. This operational mode delivers field-proven performance on both regularly shaped and irregularly contoured plots exceeding 50 acres.

⚠ Warning: Automation does not eliminate pilot responsibility. The pilot must always be able to take control immediately.

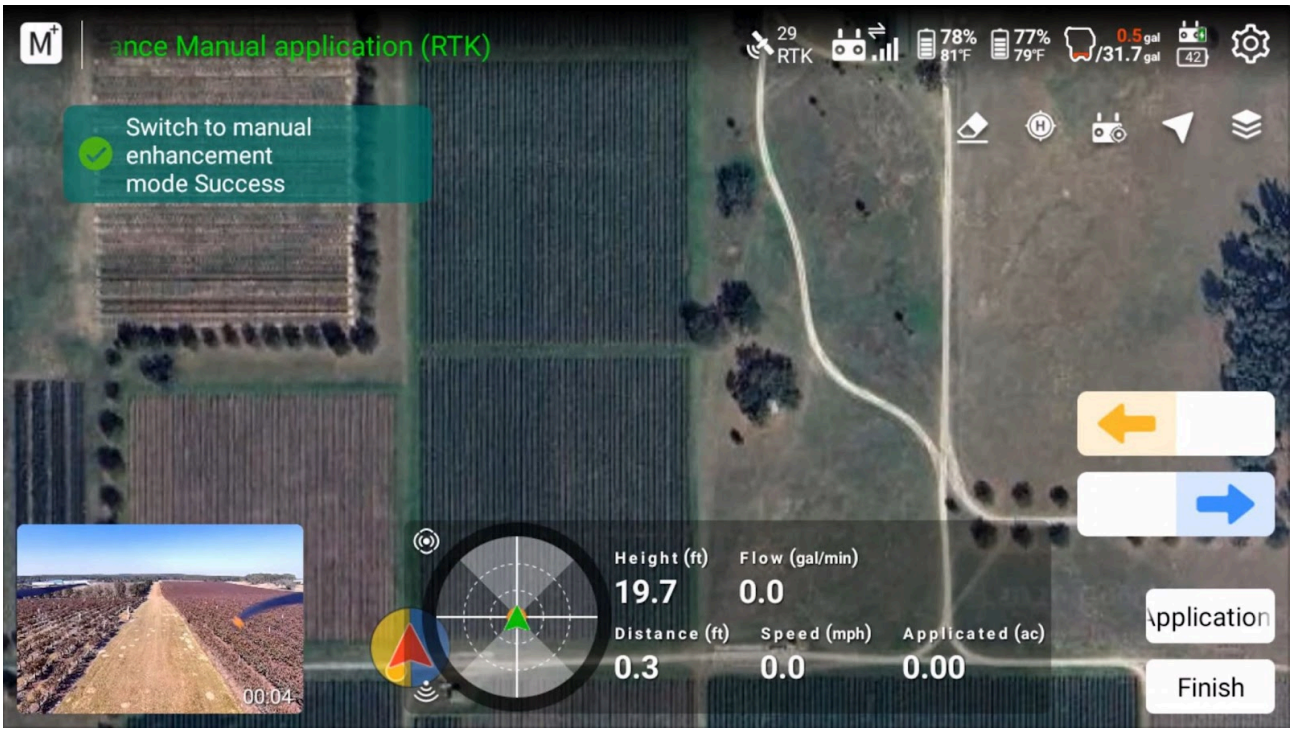
Autonomous Operation Workflow

1. Initiate Operation
2. Access the Manual Control Home Screen
3. Load Target Field Data.

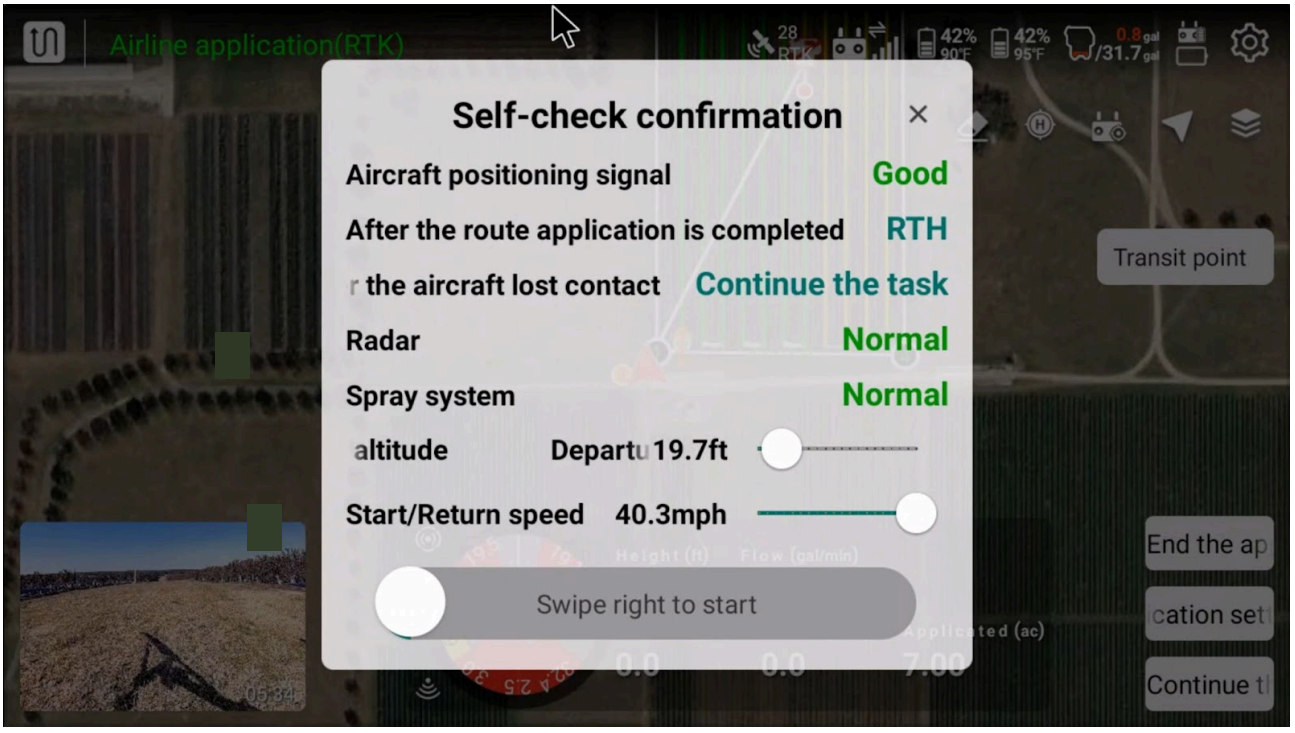
Upon successful field data loading, the system engages Full Autonomous Operation Mode, enabling on-demand configuration of application parameters prior to mission execution.



Set the application parameters and click Upload. After the remote controller and drone sync data, click Execute to begin the operation.



On the Pre-flight Verification Screen, confirm operational parameters and slide the activation control to the right to initiate the pre-planned route operation.



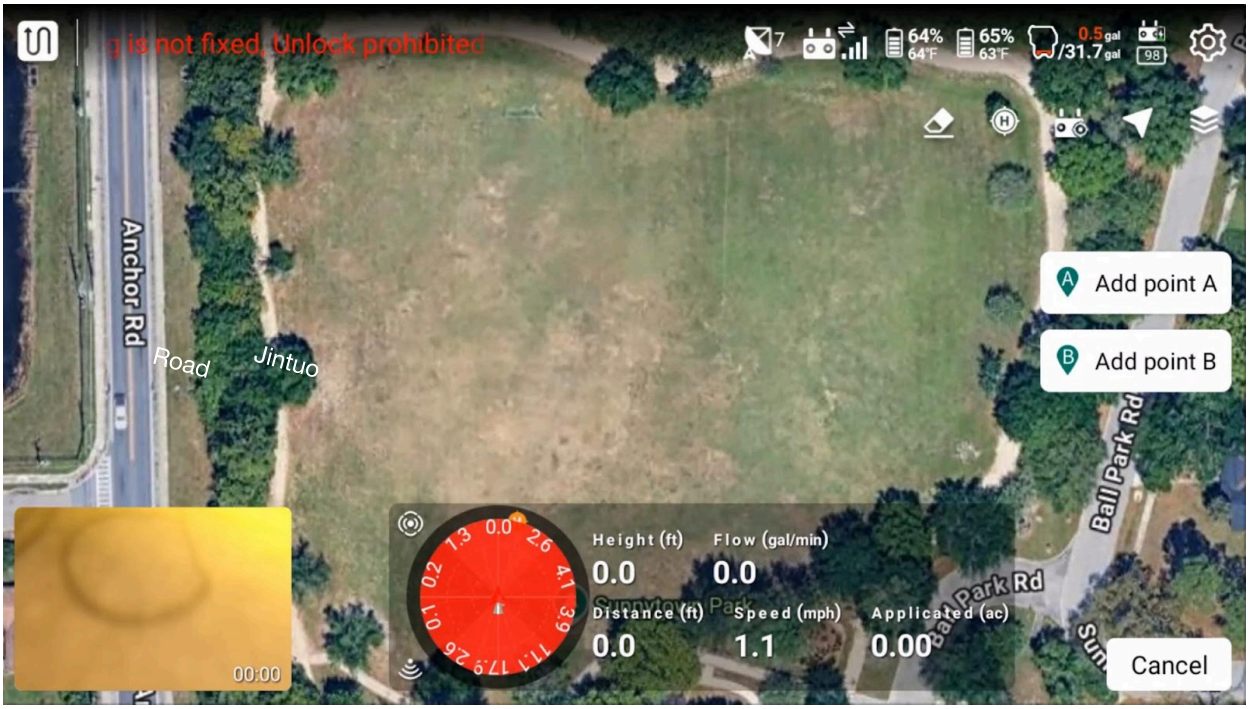
A-B Point Mode

Utilizing the Applicator View App by Ceres Air's intelligent mission planning system, users perform A-B point surveying by setting Point A and Point B. After aligning the A-B point parallel to field boundaries and configuring swath count for full coverage, the App algorithmically generates optimized flight paths for automated operation planning. Upon mission initiation, the aircraft engages A-B Point Mode, executing autonomous operations along intelligent flight routes.

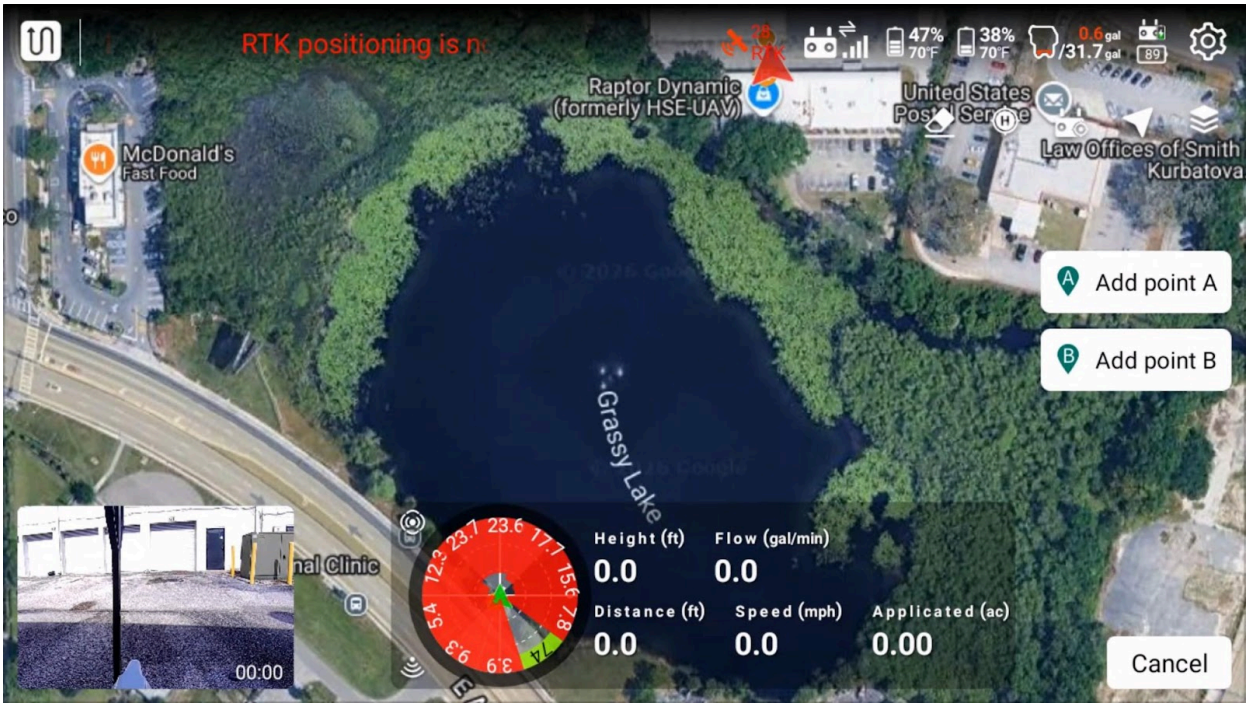
Note: The A-B point mode does not support in-field obstacle mapping. For fields containing obstacles, it is strongly recommended to utilize Full Autonomous Mode to conduct comprehensive field planning prior to mission invocation.

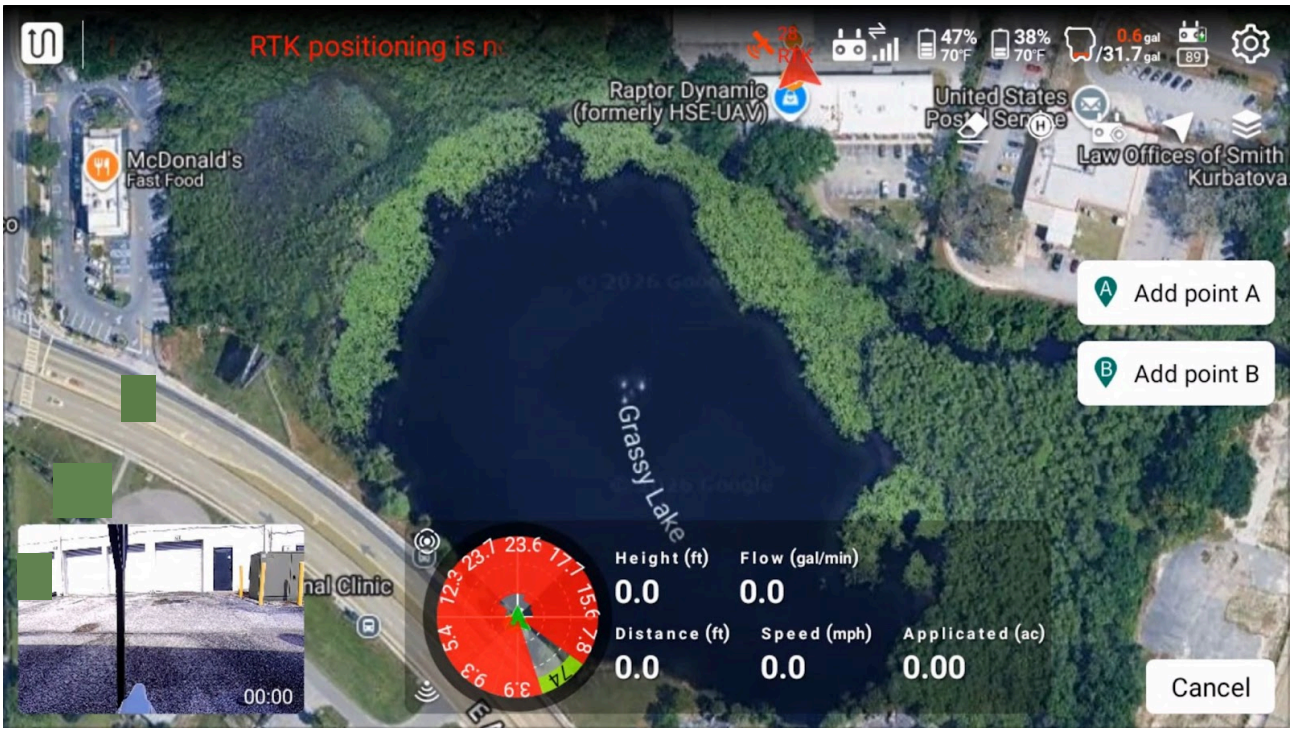
Set A-B Point

Set Point A



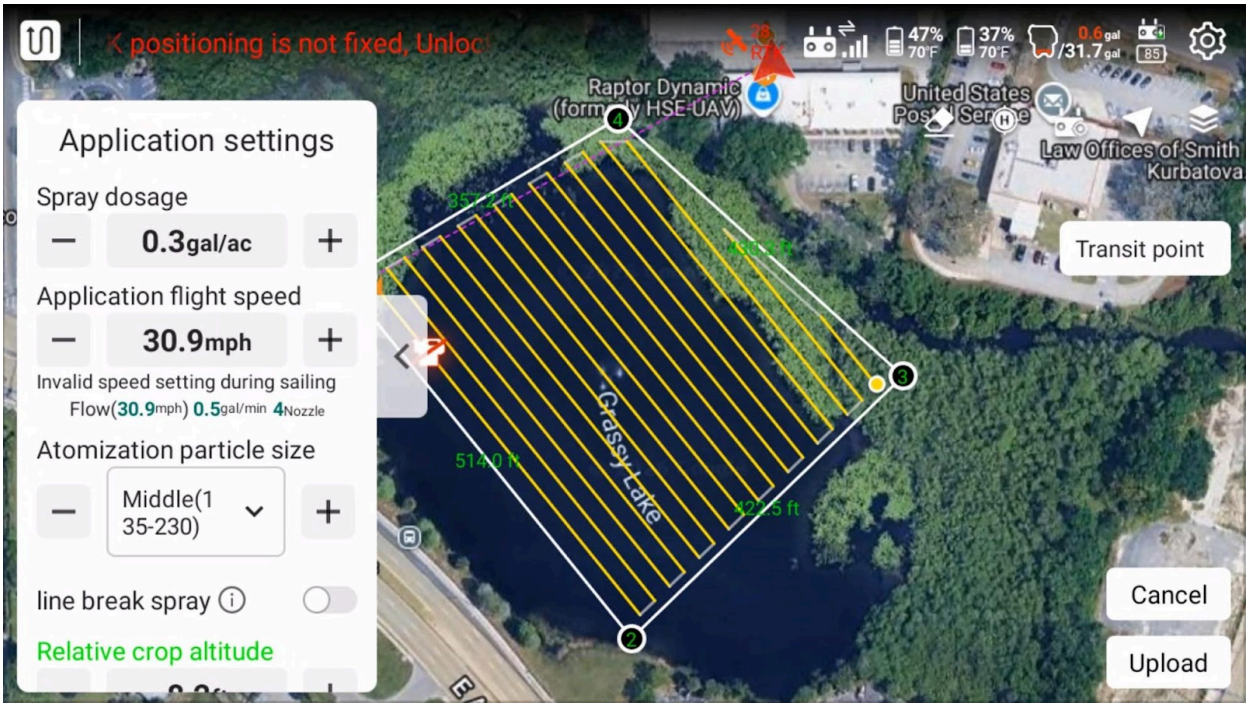
Set Point B





Flight Path Configuration/Application Parameters

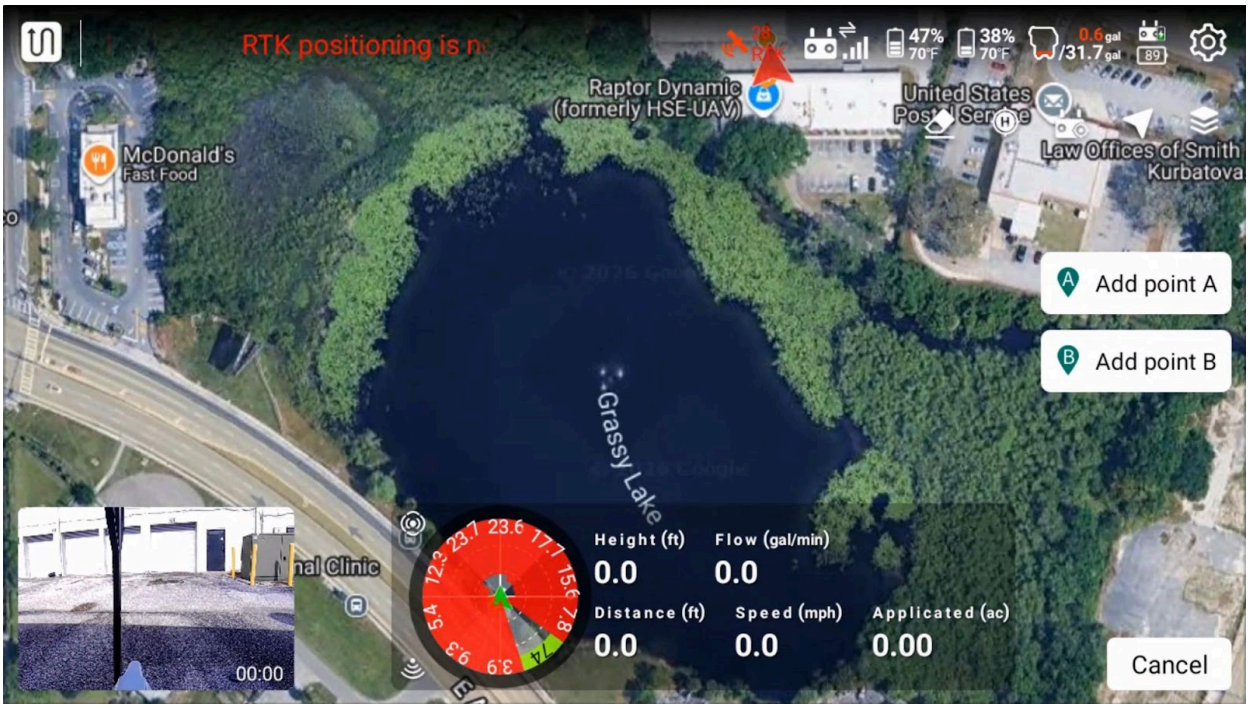
Configure the flight path count and Application Parameters



Select UPLOAD to synchronize data between the remote controller and drone, then press ENGAGE. On the Pre-flight Verification Screen, confirm operational readiness to initiate A-B point operation.

Manual Operation Mode

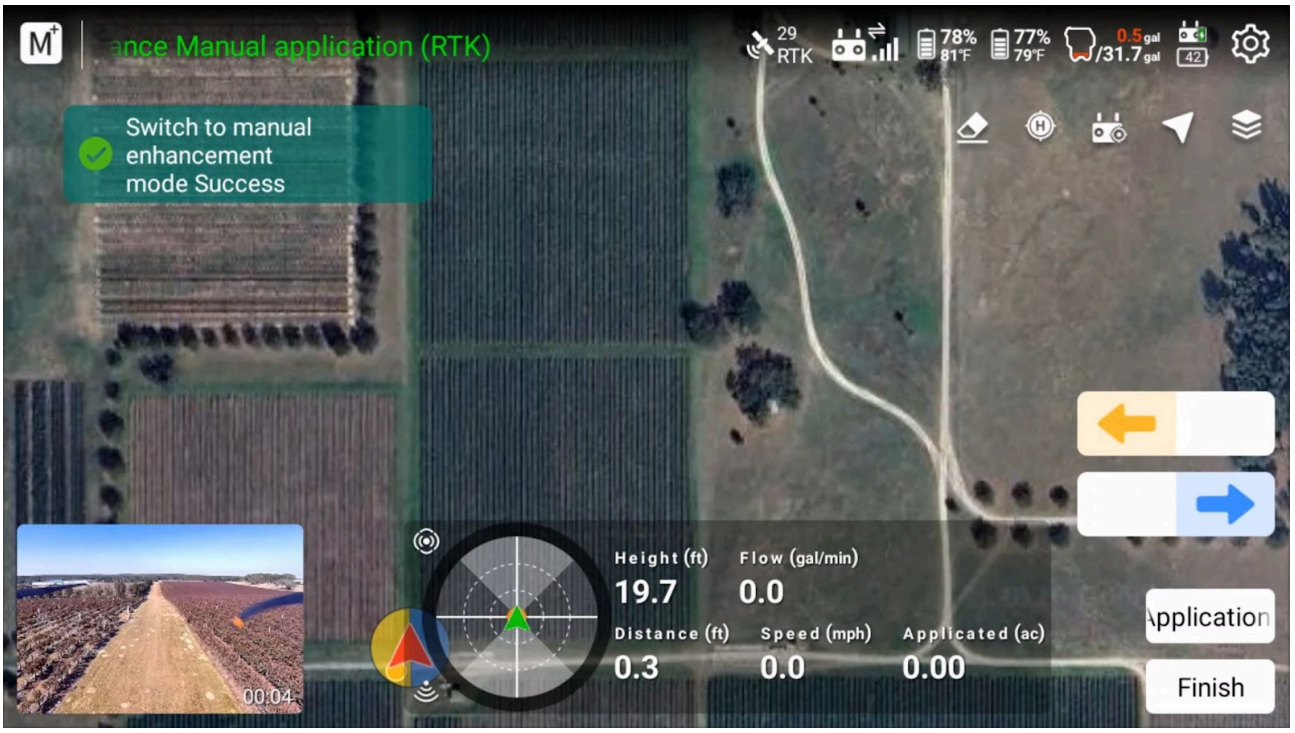
For small fields or areas with excessive obstacles and highly complex terrain, Manual Operation Mode may be employed. In this mode, aircraft trajectory is entirely controlled by manual stick inputs on the remote controller, and spray activation requires manual triggering. The Drone must not exceed visual line of sight (VLOS) during operation, as beyond-VLOS flight may compromise safety and violate FAA regulations.



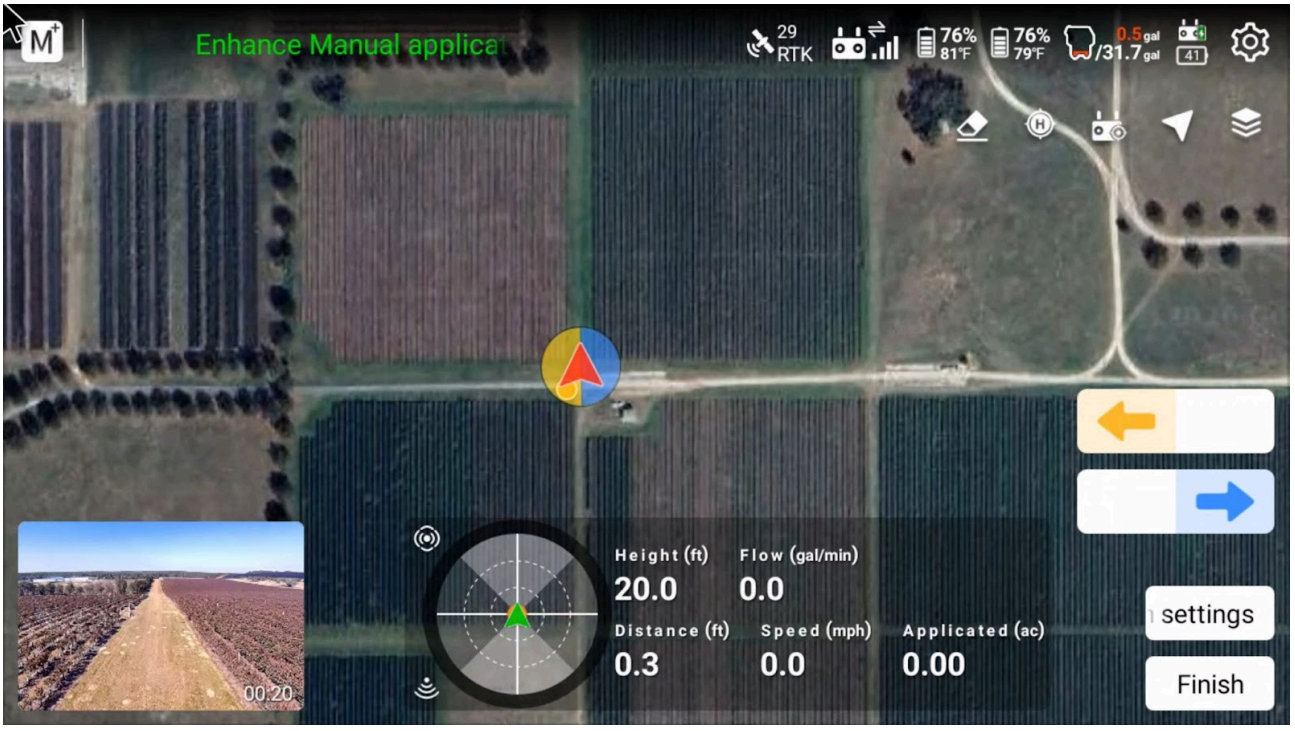
Note: Manual Operation Mode requires engaging the START command to initiate logging of operational metrics, including coverage area and chemical application data.

Enhanced Manual Operation Mode

Suitable for medium-to-large fields with minimal obstacles and regular boundaries. Position the aircraft at the desired flight line origin with nose orientation aligned to the intended path. Configure application rate, ground speed, swath width, and AGL height, then engage START. Apply forward stick input to commence operation. At headland turns, select LATERAL SHIFT LEFT or RIGHT for automated swath transition. Manually maneuver the drone back to the subsequent line and repeat the sequence to complete field coverage.



On the Enhanced Manual Operation Home Screen, configure application parameters and engage START to initiate Enhanced Manual Operation.



Autonomous Return-to-Home (RTH)

Home Point Specification: When RTK positioning is available, the launch point serves as the default home point. Upon manual takeover and landing, the launch point dynamically updates.

RTH Operation: The autonomous navigation process wherein the aircraft returns to the designated home point.

Manual RTH

Initiate smart RTH by long-pressing (≥2 seconds) the dedicated RTH button on the remote controller. The control App issues an audible/visual alert prior to aircraft autonomous return. Any stick deflection during RTH immediately transfers control authority to the operator.

Chemical Depletion RTH

The C31 agricultural drone allows configuration of post-depletion actions (Hover/RTH). When RTH is selected, the aircraft automatically navigates to the home point upon chemical exhaustion. Stick input at any stage resumes manual control.

Low-Battery RTH

The C31 agricultural drone allows configuration of low-battery actions (Hover/RTH). When RTH is enabled, the drone automatically initiates a return sequence at preset critical level (default: ≤25%). Stick input at any stage resumes manual control.

Link-Loss RTH

The C31 agricultural drone allows configuration of link-loss procedures (Hover/RTH). When RTH is activated, the drone auto-commences home bound navigation after ≥5 seconds of control link disruption. Control authority reverts to operator upon stick input if connectivity resumes.

Note: When RTH is triggered during Full Autonomous Operation Mode, the aircraft dynamically negotiates mapped obstacles within the operational boundary with precision.

Home Point Selection

Users may designate either the launch position or remote controller location as the return destination via the Applicator View App by Ceres Air.

Home Point Update Procedure:

1. Access the Mission Interface in the Applicator View App by Ceres Air.
2. Confirm home point mode is set to "Current Aircraft Position".
3. Execute manual landing at a new location to trigger automatic home point refresh.

RTH Proximity Restriction

Autonomous RTH will not engage when the drone is within 32 feet of the remote controller.

RTH Activation Prerequisites

Requires RTK positioning availability. RTH remains disabled during RTK outages.

Obstacle Avoidance During RTH

When ambient conditions satisfy radar operational requirements, the aircraft executes RTH with obstacle avoidance. If obstacles ≤65ft (20m) are detected on the return path, the drone decelerates to a hover, cancels autonomous RTH, and awaits manual obstacle circumvention.

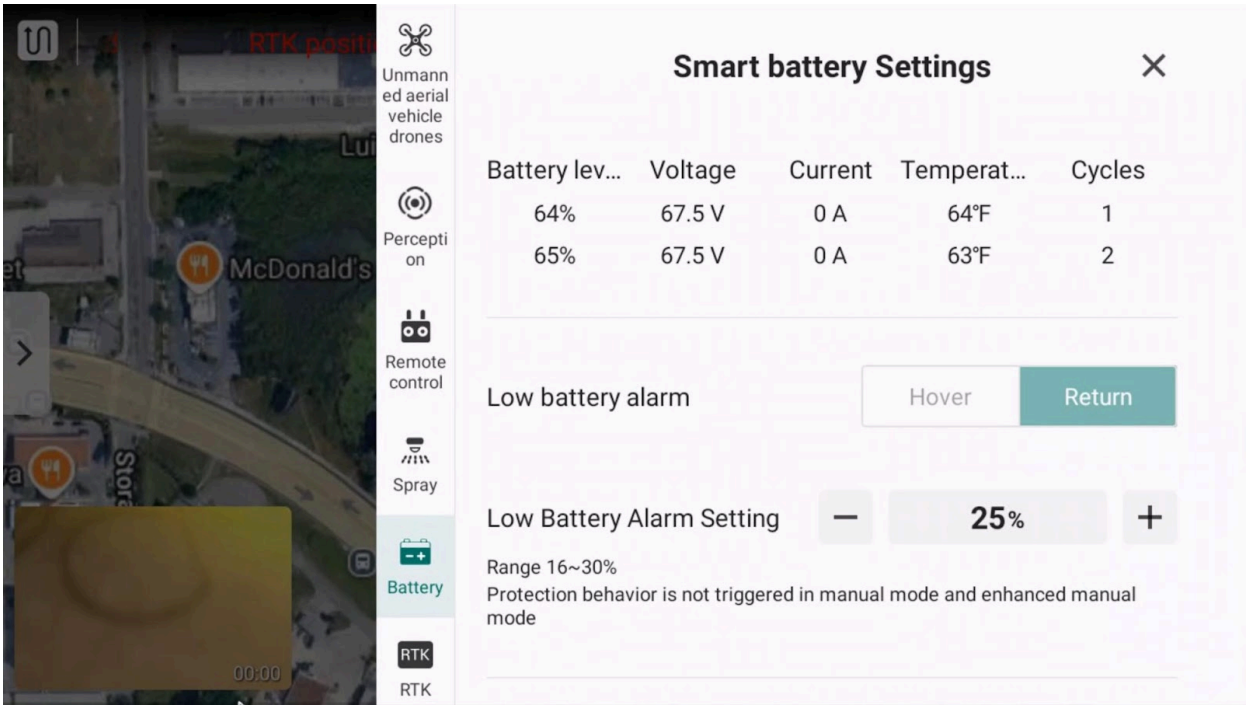
Low and Critical Battery Protection

The C31 drone integrates a tiered battery monitoring system with: Low Battery Warning, Critical Battery Alert and Low Voltage Protection.

1. Upon a Low Battery Warning activation in the App, immediately navigate the aircraft to a secure landing zone. After landing, perform a battery replacement. When configured for Return-to-Home (RTH) response at critical battery threshold: Activation of the Low Battery

Warning in the App triggers audible or visual RTH alerts, followed by autonomous execution of certified RTH protocol. When configured for hover response at critical battery threshold: the activation of the Low Battery Warning in the App triggers geostationary position hold, with the aircraft awaiting manual intervention within a 5 minute operational timeout.

Note: Users may configure battery thresholds via the Applicator View App by Ceres Air Conservative percentage settings are strongly advised to ensure operational safety.



2. Upon Critical Battery Alert or Severe Low Voltage Warning activation in the App, the aircraft auto-triggers controlled descent at current position with non-interruptible emergency protocols. Pilot intervention is system-locked during this type of landing sequence.

Note: Configure conservative thresholds via the Applicator View App by Ceres Air. Proactive percentage adjustment is strongly recommended to ensure a flight safety buffer.

Aircraft Indicator Lights

Each motor arm (M1 through M4) is equipped with FAA-compliant LED position lights. M1 or M2 (Front Arms) emit steady red illumination to indicate aircraft nose orientation during flight. M3 or M4 (Rear Arms) provide constant green illumination to designate tail direction.

All navigation lights deactivate automatically during airborne operation to preserve night vision.

Status Light Definition（M1/M4)

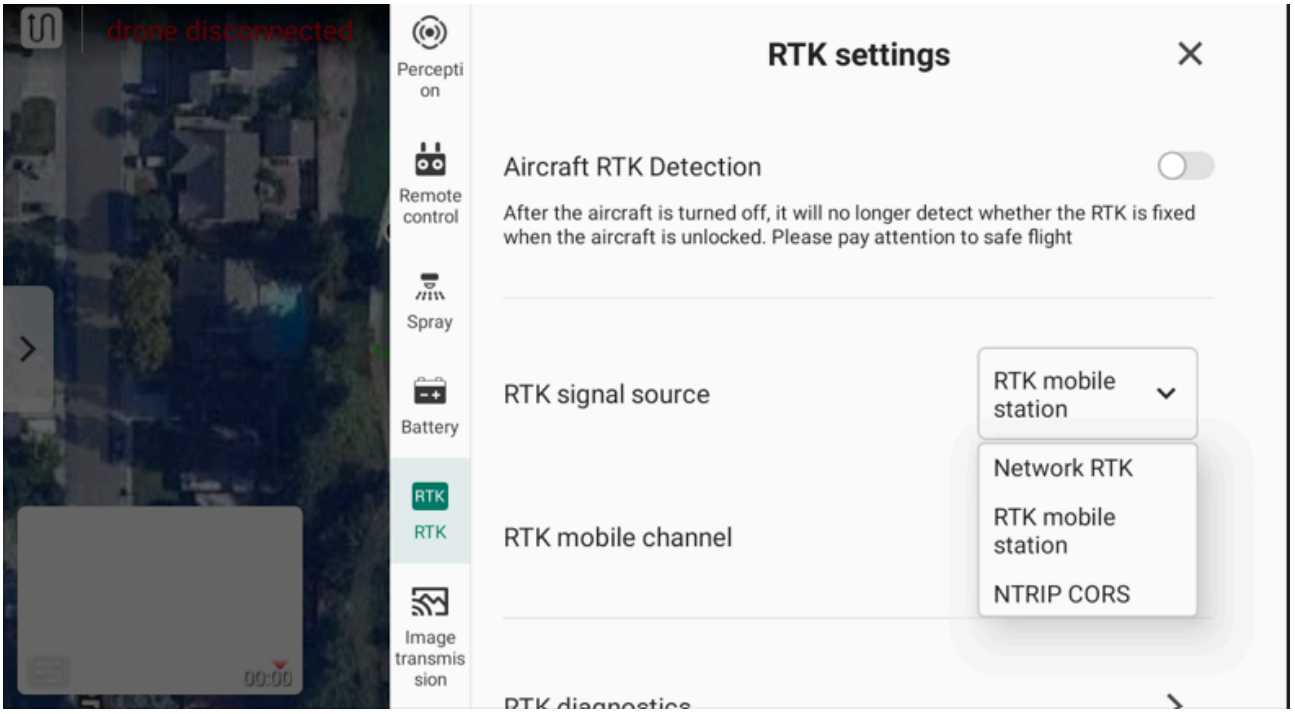
System State	LED Status
System Initialization	Red or Green or Yellow LEDs alternate flashing
CRITICAL ALERT : Aircraft Malfunction, IMU Over-Vibration,Tier-2 Battery Alert, GNSS Failure, Geo-Fence Violation	Rapid red flashing (1. 25Hz, ≤1s interval)
RESTRICTED AIRSPACE PROTOCOL: (120m: Proximity Warning; 50m: Auto-Hover Activation)	M1/M2 arm ESC LEDs: Pulsed red (0. 5Hz, 2s interval)
MINOR ALERTS: Tier-1 Battery Warning, RTK Float Status, Magnetic Interference, RC Signal Loss, Obstacle Detected, Chemical Depletion	Slow red flashing (0. 4-0. 67Hz, 1. 5-2s interval)
NOMINAL OPERATION	Steady green pulse (0. 4-0. 67Hz, 1. 5-2s interval)
RC PAIRING IN PROGRESS	Continuous yellow illumination
PAIRING SUCCESS	Solid green for 2. 5-3 seconds
PAIRING FAILURE	Solid red for 2. 5-3 seconds

ESC (Electronic Stability Control) Indicator Light Definition

Note: During normal ESC operation, indicators synchronize with flight controller status lights. In firmware update mode, self-test failure, or abnormal operation, ESC indicators activate proprietary alert patterns.

RTK Positioning System

The C31 agricultural Drone integrates an airborne high-precision RTK module. Compared to traditional compass systems, its dual-antenna heading determination technology delivers superior accuracy with >30dB electromagnetic interference suppression. This ensures reliable operation in high-interference environments such as around high-voltage power lines and metal structures. Dual-antenna heading automatically activates under optimal GNSS conditions.



The C31 agricultural Drone leverages centimeter-accurate RTK to enhance agricultural spraying precision. Implementation protocol follows:

RTK Function Activation or Deactivation

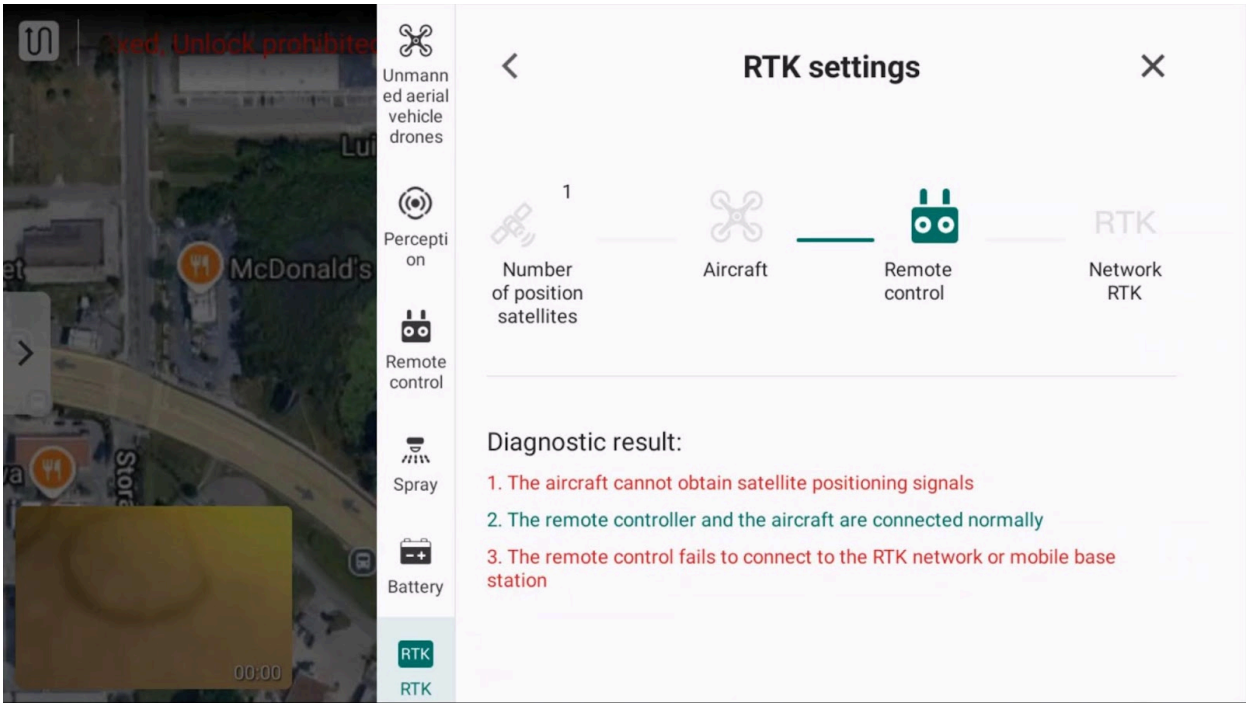
Prior to each RTK operation, verify airborne RTK positioning is enabled and select proper signal source (RTK Mobile Station or Network RTK Service). Failure to configure correctly disables centimeter-level positioning.

⚠ Warning: Aircraft takeoff is prohibited when RTK is enabled but unavailable.

Network RTK Service Implementation

This method utilizes the remote controller as NTRIP caster to communicate with designated RTK correction servers. You must maintain persistent controller power and internet connectivity throughout operation.

1. Confirm remote controller displays active internet connection.
2. Access App Mission Interface > RTK Settings, select "NTRIP CORS" as signal source.
3. Select "Coverage Check" to verify service availability in your area and then proceed to "Service Management Portal" for subscription purchase/activation.
4. Monitor RTK status until a connection is established (icon indicates RTK-FIXED state), confirming centimeter-level positioning active.



HD201 Mobile Base Station Integration

1. This offers complete air-to-ground pairing and base deployment per HD201 documentation.
2. Power on the base station and await satellite acquisition. When the RTK status icon in the Mission Interface displays, the aircraft is actively utilizing base station corrections for centimeter-accurate positioning.

Radar System Functions

Terrain Follow Radar: When enabled, the drone automatically maintains consistent altitude above crops by adjusting for terrain variations. When disabled, the drone maintains a fixed altitude relative to crops based on the takeoff reference height.

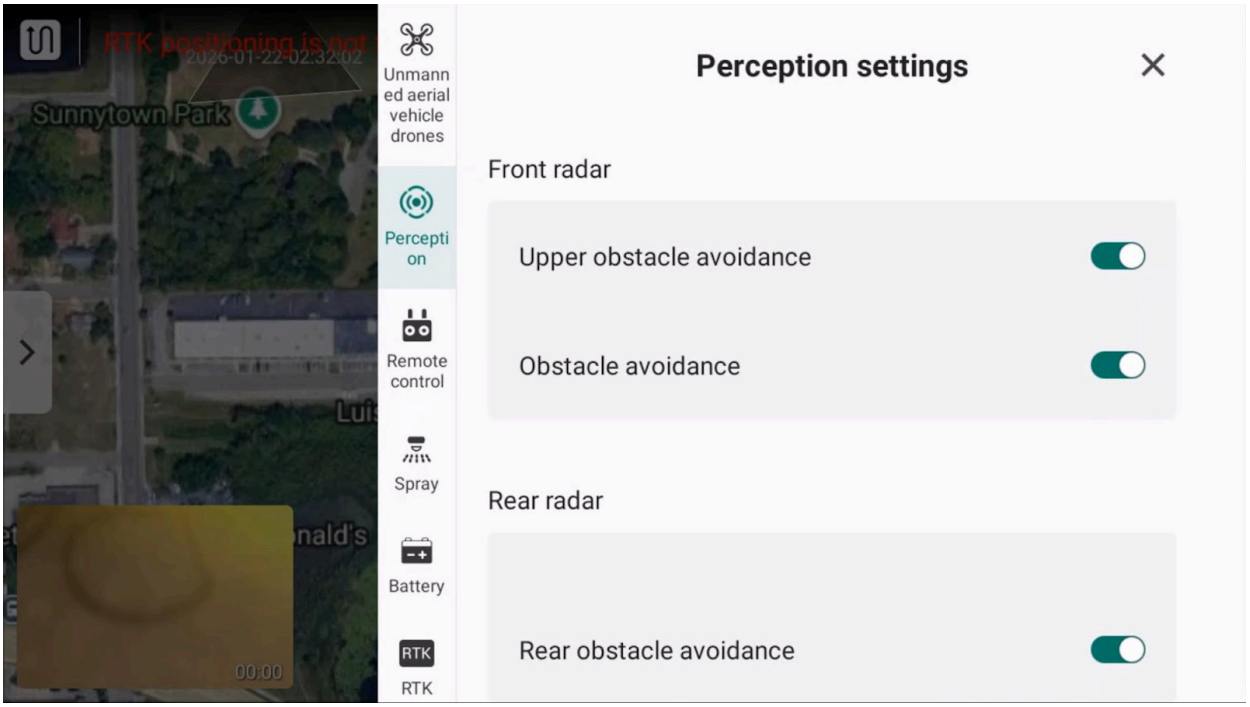
Terrain Following Sensitivity: Higher sensitivity results in stronger responses to minor ground variations, use lower sensitivity settings for flat terrain to avoid unnecessary altitude adjustments.

Obstacle Avoidance (OA): The App always displays obstacles detected by the radar, regardless of the OA switch setting. The drone can automatically avoid obstacles, or not, depending on whether automatic obstacle avoidance is enabled.

Note: Only disable OA radar if you can absolutely confirm there are no obstacles present and the radar is generating excessive false alerts. Otherwise, keep OA enabled.

Obstacle Avoidance Alert Sounds: The remote controller emits distinct audible alerts when obstacles are detected. The sound pattern changes based on the distance to the obstacle.

Obstacle Avoidance Radar Sensitivity: Higher sensitivity increases the success rate of obstacle avoidance, but increases the likelihood of false obstacle detections.



Radar Detection Range: Configurable between 66-295ft (20-90 m).

Obstacle Alert Range: When obstacles are detected within the alert range forward, aft, port, or starboard, the system displays real-time distance measurements and provides color-coded proximity warnings.

Fade-Out Delay: Radar spheres will automatically dim to low opacity after remaining unobstructed beyond the set duration, maintaining visibility of critical operational data.

Radar Sphere Display Size: Adjustable in-app size options: Large or Small.

Stereo Vision: The stereo vision system enables independent obstacle avoidance and radar-sensor fusion. When equipped with stereo cameras, enable this setting for enhanced detection capabilities.

Data Protection and Aborted Operation State Recovery:

During fully autonomous or A-B point missions, operators may pause the operation, power-cycle the aircraft for battery swaps or payload reloading. System-critical data including mission progress, A or B point coordinates, and resume waypoint are retained in non-volatile memory. Upon repowering, the aircraft automatically resumes from the interruption point. If manual override occurs during operation, select "Return to Resume Point" post-maneuver to continue.

If the control application crashes or the remote controller loses connection with the aircraft during route operations, the flight controller autonomously logs a resume point. Upon reconnection, the application automatically restores mission parameters for continuity.

Common Settings

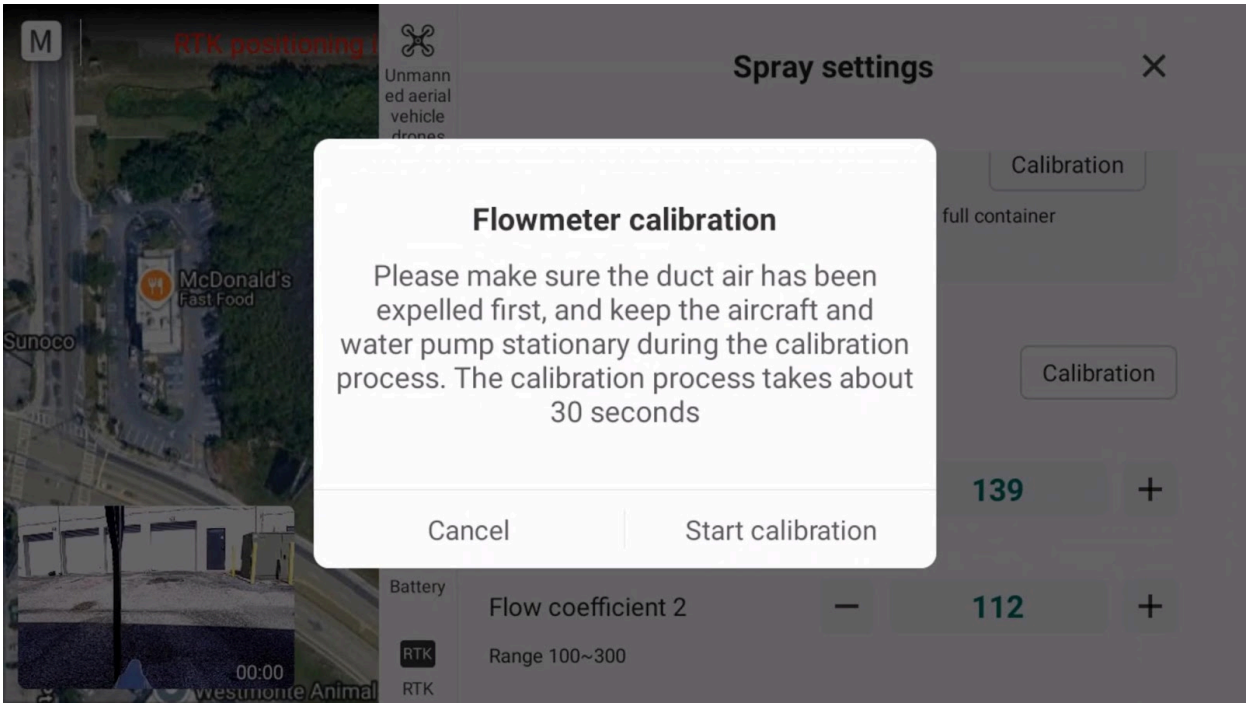
Flowmeter Calibration

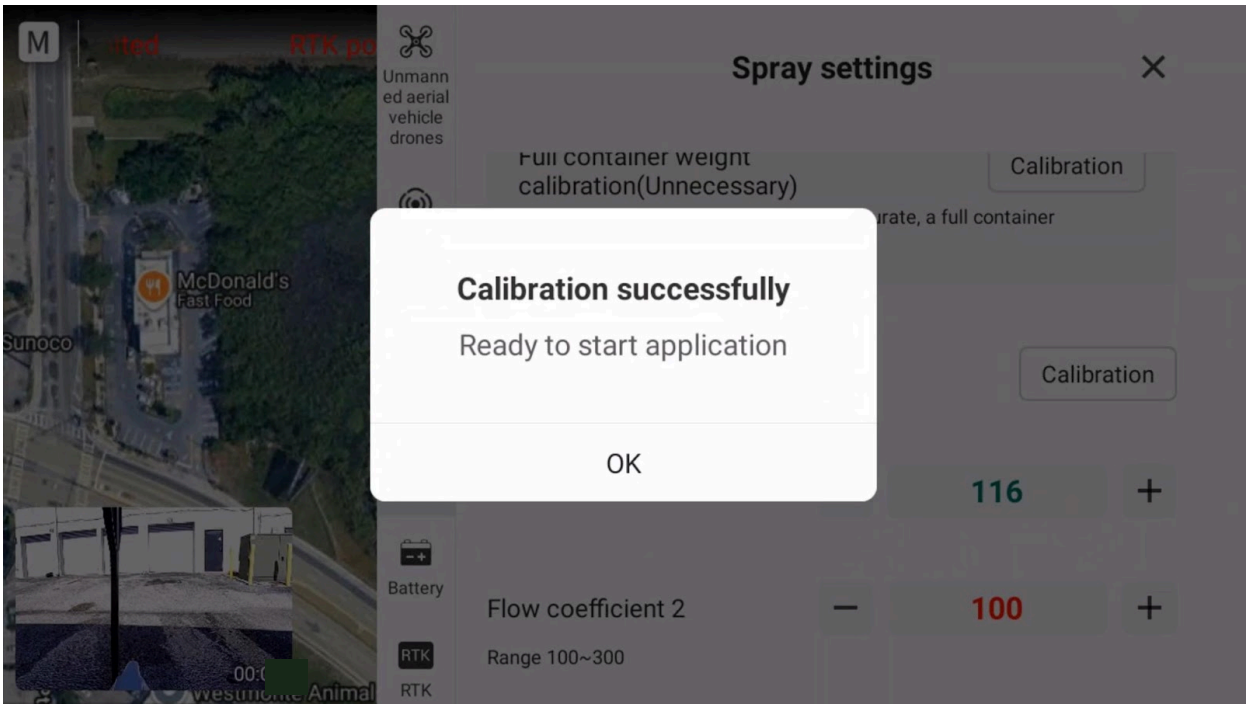
For first-time spray operations, calibrate the flow meter to ensure accurate application rate per acre. Incorrect calibration may lead to improper chemical dosage.

Calibration Steps:

Fill the tank with at least 20L (5.2 Gallons) of clean water, open the Applicator View App by Ceres Air and go to the Home Screen, tap "Start Operation", then open the Settings panel on the right, select "Spray Settings", then tap "Flowmeter Calibration", wait for the system to complete calibration automatically. If calibration fails, repeat the process.

When calibrating the flow meter, ensure that the resulting flow coefficient is close to 100 (typically within the range of 90–110). If the value deviates significantly from this range, recalibration is required.



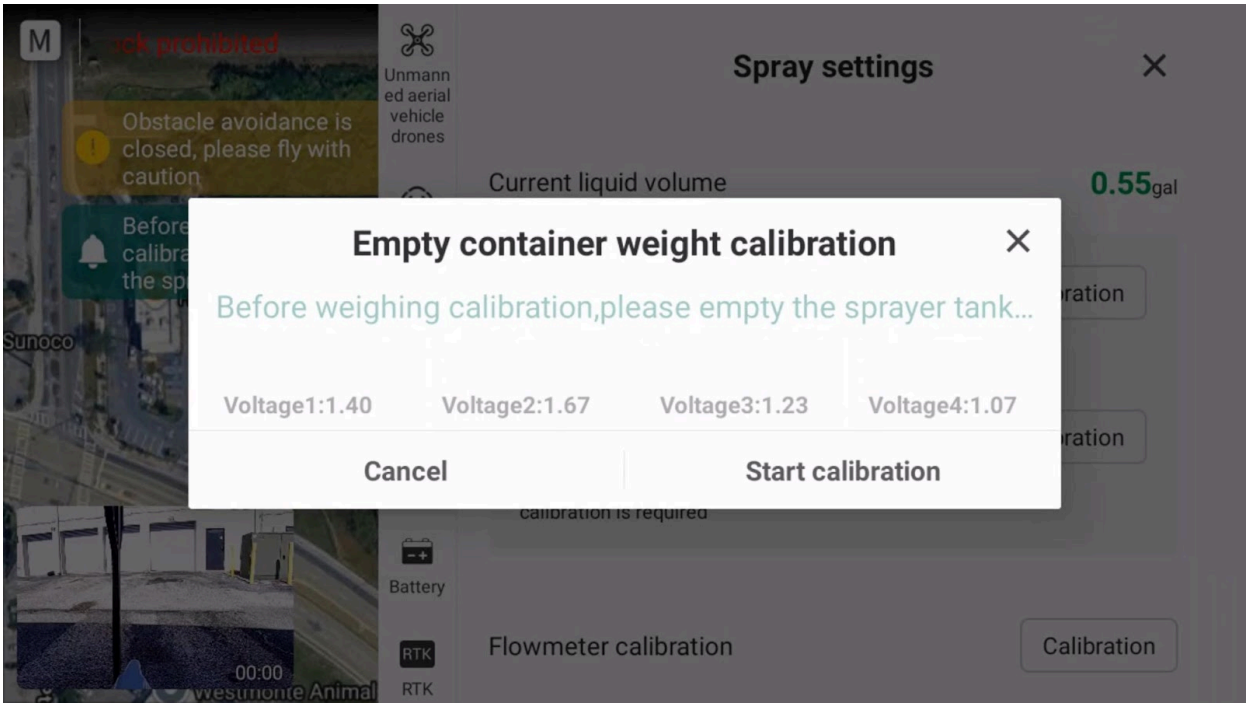


Flowmeter Calibration Requirements:

1. When flow inaccuracy is detected.
2. After changing nozzle types/sizes.
3. After spray system modifications.

Weight Calibration

For optimal accuracy, empty the chemical tank completely before calibration.



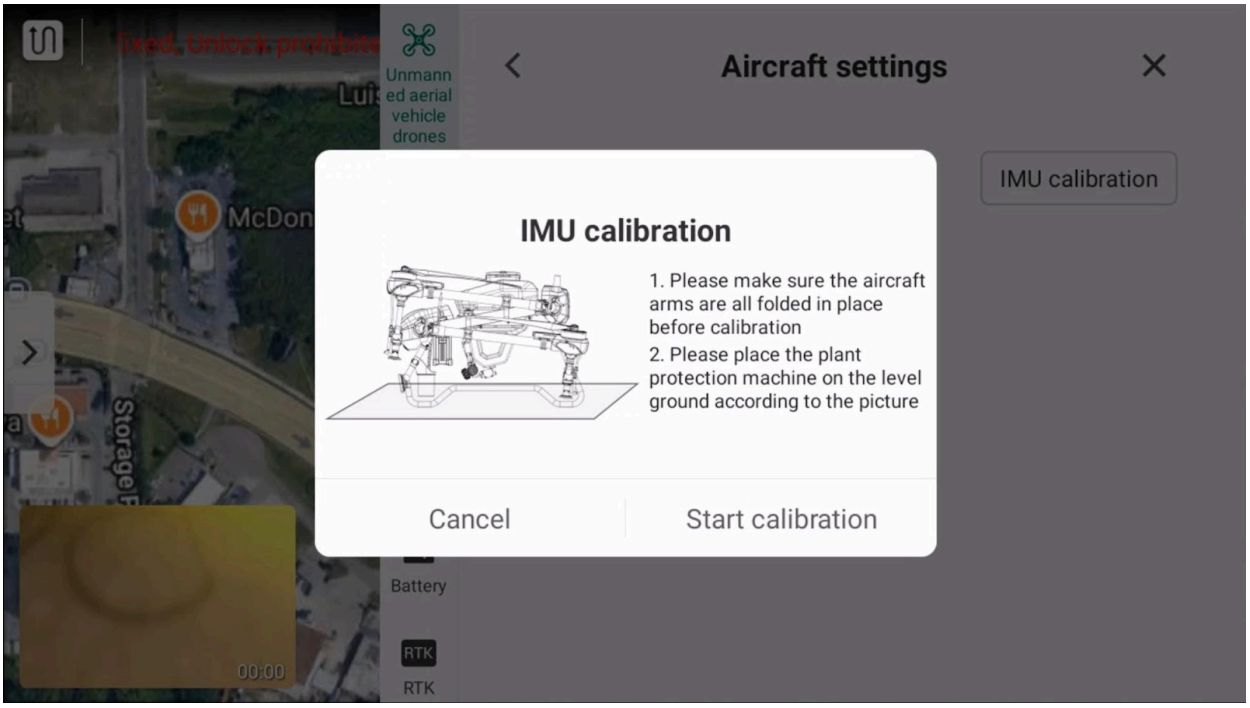
IMU Calibration

Note: Before performing IMU calibration

1. Fold all four arms of the aircraft
2. Place the aircraft on a level surface, ensuring the airframe is within 1° of horizontal.

Calibration Procedure - Only When Prompted

1. In the Applicator View App by Ceres Air: Navigate to Home Screen, tap "Start Operation", open right-side slide-out panel then select "Aircraft Settings".
2. Navigate to "Advanced Settings", select "IMU". With two operators securely grip aircraft extremities (never touch sensors) and perform 3+ horizontal 360° rotations following on-screen orientation prompts. Success will be confirmed via remote controller notification.
3. If calibration fails, repeat the procedure following all previous steps.



Basic Flight

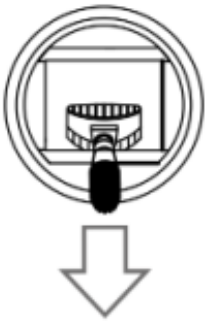
Manual Takeoff

Perform the stick combination to start motors, then push up the throttle stick for takeoff.

Manual Landing

Gradually pull down the throttle stick (Mode 2 left stick) until the aircraft contacts the ground. After the aircraft makes ground contact, motors can be shut down using the following procedure:

After ground contact confirmation, pull and hold the throttle stick at its full down position for 5 seconds until motors stop. Then return sticks to neutral.



4. High-speed rotating propellers can cause severe lacerations or amputations. Maintain 10ft (3m) minimum clearance from operating drone,establish safety zones to keep aircraft away from crowds, animals, obstacles.
5. Maintain active control of the transmitter and ensure positive aircraft command until full motor cessation is confirmed.
6. Never cut motor power during flight - immediate loss of lift will cause uncontrolled crash descent. Execute emergency motor shutdown Only when imminent collision with people is unavoidable, as a last resort to minimize injury severity.
7. After landing, power off the aircraft first, then deactivate the transmitter.

Motor Startup Procedure

1. At the Mission Start interface, execute arming sequence only when all three conditions are met: Drone battery ≥30% capacity, stable RC link, active RTK positioning. Push both control sticks downward and inward (45° position) simultaneously to initiate motors.
2. Immediately release the throttle sticks after motor start-up and take off promptly. If not taking off, do not input stick commands to spin motors. Failure to comply may cause aircraft instability, drifting, or unintended takeoff, resulting in personal injury or property damage.

Motor Shutdown Procedure

1. After Landing: Pull the throttle stick to the lowest position and hold for 5 seconds until the motors stop.

⚠ Warning: Propellers remain hazardous while spinning. Maintain a safe distance from the aircraft and keep it clear of people, animals, or obstacles.

2. Before motors stop, keep the remote controller in hand and ensure full control of the aircraft.
3. In-Flight Motor Shutdown (Emergency Only): Never stop motors mid-flight—this will cause an immediate crash. Exception: Only in emergencies (e.g., risk of collision with people) to minimize injury.

4. Post-Landing Shutdown Sequence: First power off the aircraft. Then power off the remote controller.

Flight Environment Requirements

1. Do not operate in high winds. Flying is prohibited when the wind force is above 17.9 MPH.
2. No flight in: Heavy fog, causing low visibility and a risk to reduced sensory performance.
3. No flight in strong winds (≥18mph), rain, snow, lightning, icing, or ice accumulation, and/or other hazardous weather.
4. Choose an open area to operate that is free of tall structures. Buildings may block GNSS signals, causing RTK failure and flight instability.
5. Always fly within VLOS. Keep clear of obstacles, crowds, water, and animals.
6. Avoid flying in areas near high-voltage power lines, communication towers or other strong EMI sources.
7. Flight is strictly prohibited above an altitude of 400 feet.
8. Ensure strong GNSS reception and keep the RTK antenna unobstructed.
9. Never operate the drone indoors.
10. The operator must maintain a minimum distance of 49 feet from the aircraft, and all other personnel must keep a safety distance of at least 49 feet before the drone is allowed to take off.

Safe Landing Procedure

1. Before every landing: Confirm mission termination and manual control authority, gradually pull down the throttle stick, execute controlled descent to suitable terrain.
2. After touchdown: Lower throttle stick to minimum position and hold for 3+ seconds until motors stop.
3. Shutdown sequence: Power off aircraft first then power off controller.

⚠ Warning: During flight, if the App indicates 'Low Battery': Immediately navigate the aircraft to a safe landing zone. Land the Drone and replace the battery with a charged battery. If the App displays 'Critical Low Battery', the aircraft will initiate auto-landing at its current position. Use extreme caution when applying stick commands to adjust position during auto-landing. Intervention may accelerate descent.

Controller Overview

The RC402controller (standard with C31 Agricultural Drone) is Ceres Air's next-generation, proprietary remote control system. Featuring advanced digital video/data link technology with a 2,000-meter max range, it integrates a 6-inch HD touchscreen display and android OS for direct Applicator View App by Ceres Air operation. Integrated functionality also exists for mission planning & field editing, flight management & manual control, and real-time aircraft status monitoring. There is also firmware update support for both the aircraft and controller and well as bluetooth connectivity for peripheral devices.

Power On or Off

Briefly press then immediately press and hold the power button for 3-5 seconds. The controller will initiate startup. After approximately 30 seconds, you'll reach the Applicator View App by Ceres Air home screen.

To power off or restart while the controller is on: Briefly press then immediately press and hold the power button for 3-5 seconds. In the confirmation dialog that appears: Select "Power Off" to shut down or select "Restart" to reboot. Release the button to execute your choice.

Charging

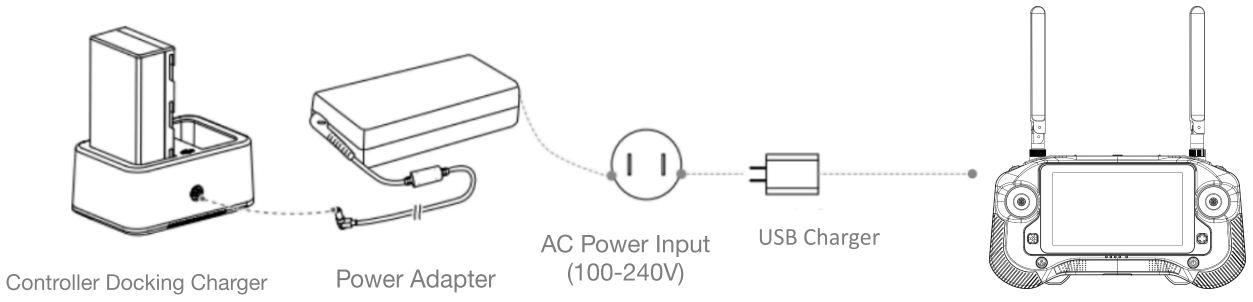
Internal Battery

Charge the controller's internal battery using a USB charger and USB-C cable.

⚠ Warning: For optimal charging, use a 65W or higher charger (not included).

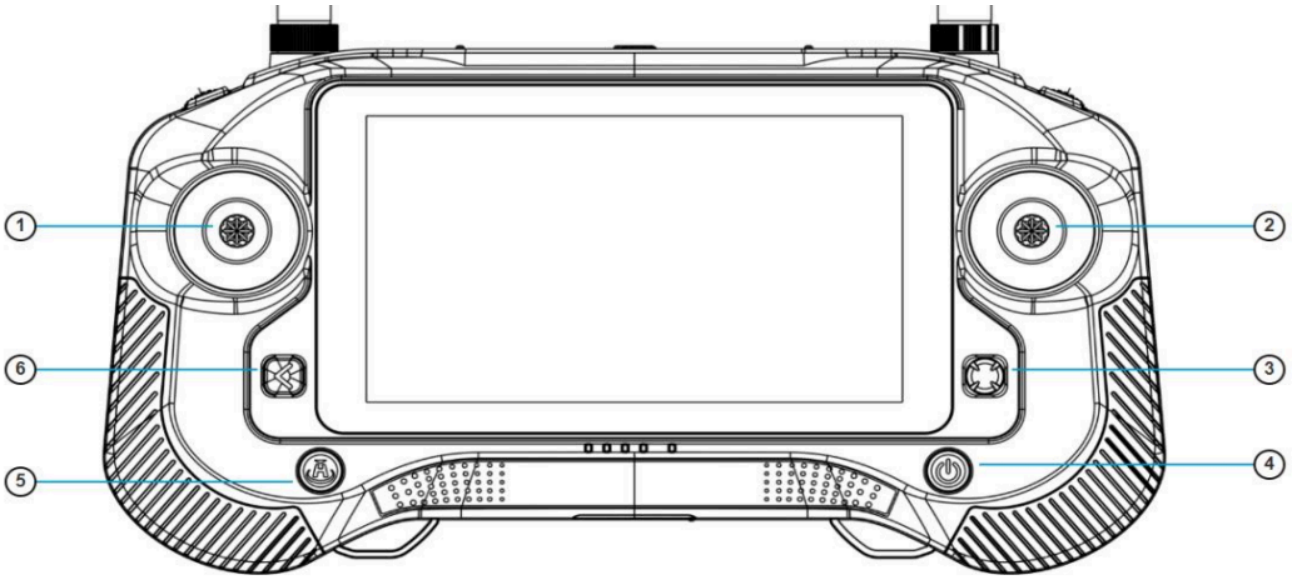
External Battery

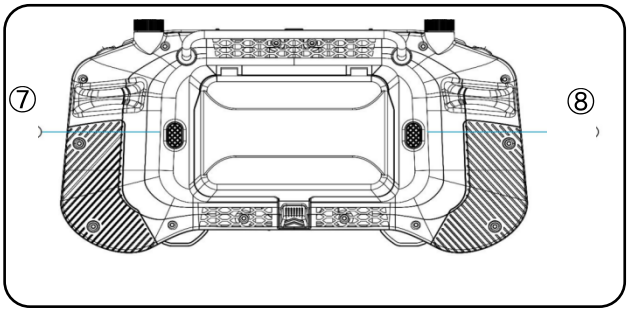
Charge external smart batteries using the dedicated charging dock and power adapter.

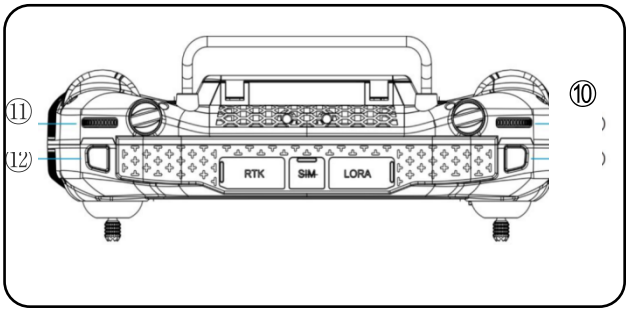


Controller Button Functions

Controller Physical Button Layout Diagram





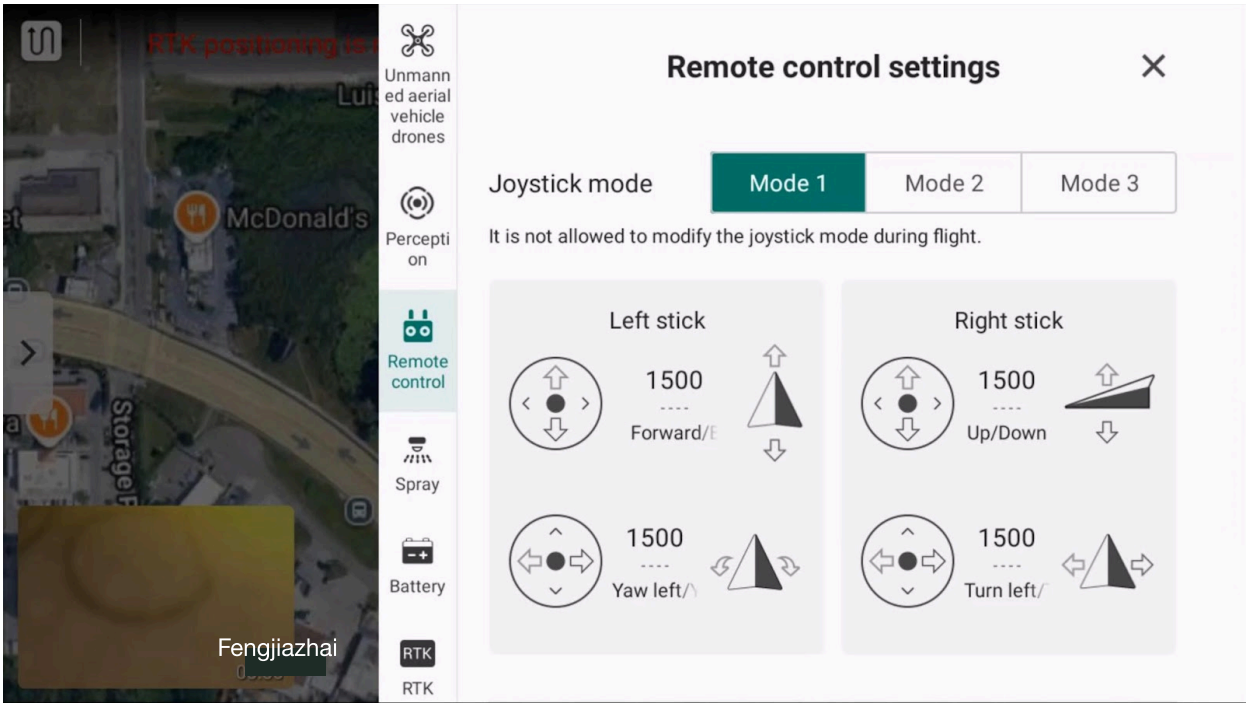


① Left Stick	② Right Stick
③ 5-way Navigation Key	④ Rower Button
⑤ Return-to-Home(RTH) Button	⑥ Return Button
⑦ Programmable Button	⑧ Programmable Button
⑨ Spray Control Switch	⑩ Control Dial 2
⑪ Control Dial 1	⑫ Radar Toggle Button

Joystick Control

Configure your preferred joystick mode before operation.

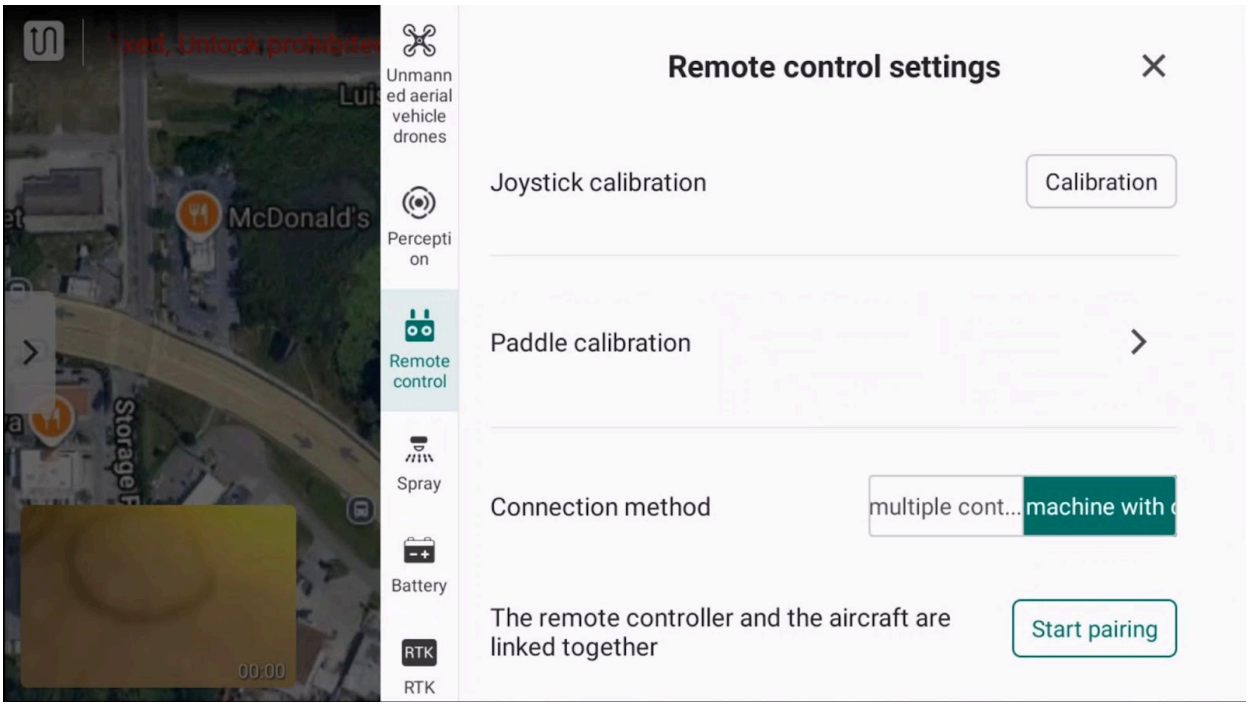
⚠ Warning: Factory default mode is Mode 2 (American Style). Never arm the aircraft under any circumstances if you're uncertain about the current control mode configuration.



Joystick Calibration

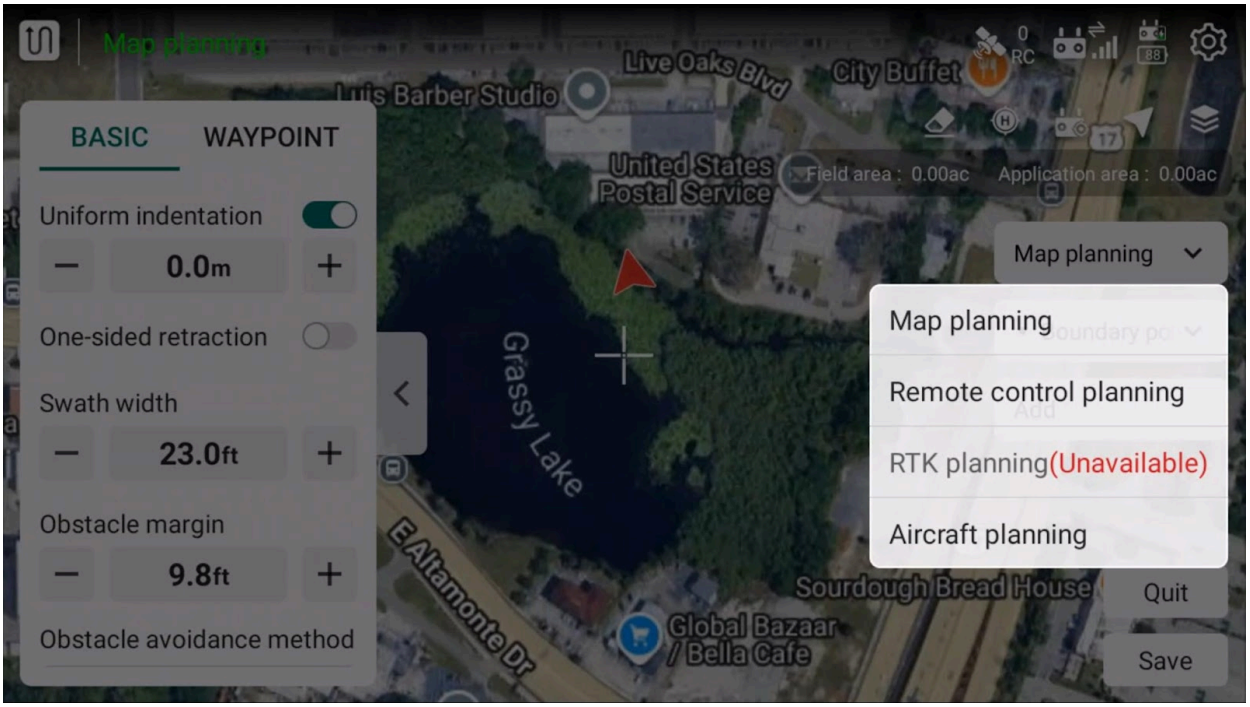
While C31 controller joysticks are factory-calibrated, we strongly recommend calibrating them before first flight to compensate for potential shipping vibrations affecting stick accuracy.Also calibrate whenever you observe the control sticks failing to return to center or excessive deviation during operation.

From the Applicator View App by Ceres Air home screen, access the settings menu (right-side icon), tap Controller Settings, follow the on-screen calibration procedure.



Plan Fields

The Applicator View App by Ceres Air provides four methods to plan fields: RTK Planning, Aircraft Planning, Remote Control Planning, Map Planning.



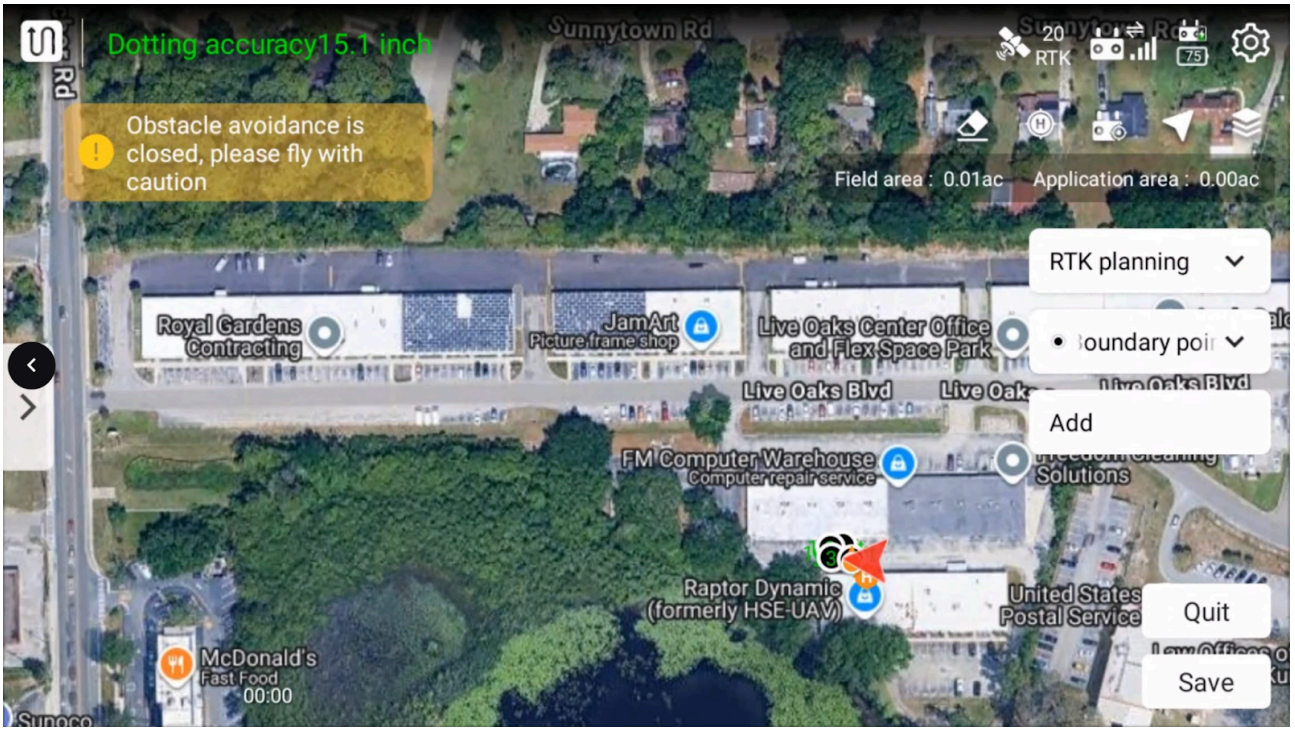
RTK planning

RTK planning uses the high-precision RTK positioning module installed on the remote controller for measurement. For your safety, always ensure the aircraft's power is turned off when performing RTK planning.

1. Ensure the high-precision RTK positioning module is installed on the remote controller.

2. Turn on the remote controller. Swipe down from the top of the screen and ensure the "USB" toggle switch is turned on.
3. From the App's main interface, tap "Plan Field" and select "RTK Planning".
4. Enter > RTK Settings. Select the RTK signal source (Network RTK, RTK Mobile Station) and complete the corresponding setup. Wait until the RTK positioning status bar at the top of the screen turns green, indicating that RTK positioning is active.
5. Walk while holding the remote controller along the area boundary. At each field corner, tap the "Add" icon. By default, this adds a boundary point. Add boundary points at all corners sequentially to complete field boundary planning.
6. Adding Obstacle Points: For non-circular obstacles, plan them similarly to the field. Walk while holding the remote controller along the obstacle boundary. At each obstacle corner, set the point type to "Obstacle Point" and tap the "Add" icon. Add obstacle points at all corners sequentially to complete obstacle mapping.
7. Important: When adding obstacles, we strongly advise planning the obstacle boundary at least 3 meters away from the actual obstacle for subsequent flight safety. You can also adjust this uniformly within the field editor after planning.
8. Adding Circular Obstacles: While holding the remote controller, walk to the circular obstacle. Set the point type to "Circular Obstacle", then tap any point on the obstacle's edge. Drag to adjust the radius size of the circular obstacle.
9. Smart Route Planning: The flight route is generated automatically once the field is added. After adding obstacles, the route automatically adjusts to find the optimal path around them.
10. Adding a Reference Point: If needed, you can add one reference point outside the planned field. This serves as a starting point, making it easier to correct the flight route using the aircraft's latest RTK position when calling up the field later.

Start RTK planning



RTK planning for field boundaries

RTK planning for irregular obstacles

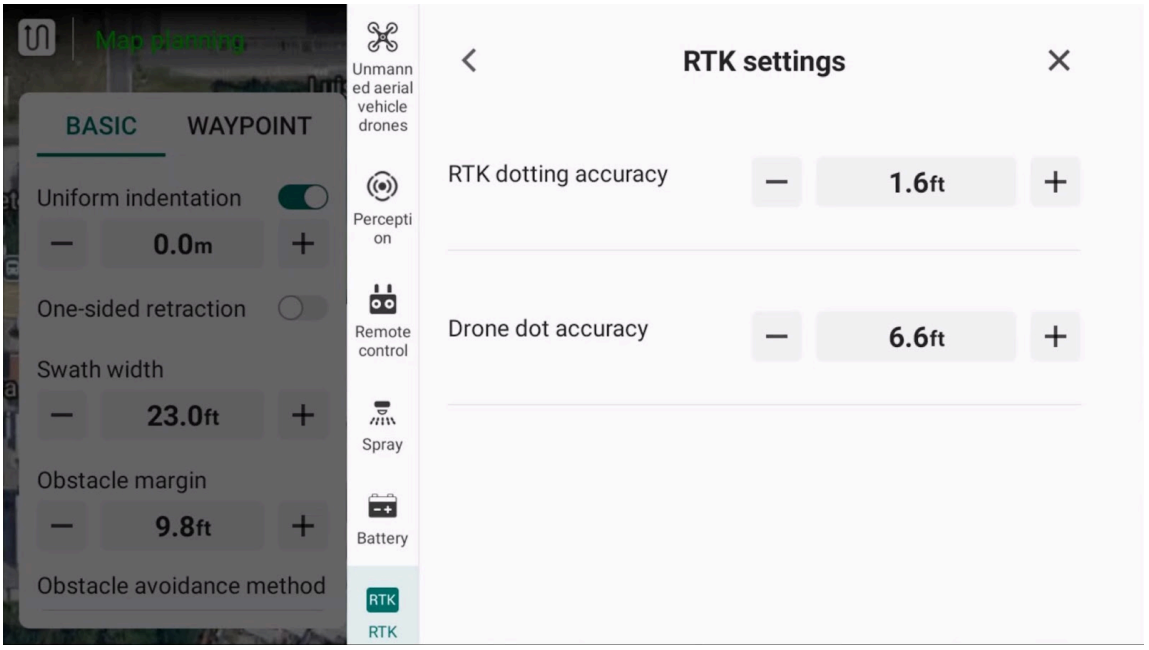
RTK planning for circular obstacles

Remote Control Planning

The operator walks the field or obstacle perimeters with a powered-on controller. For the operator's safety, physically disconnect aircraft power before remote control planning operations.

1. Power on the remote controller and establish a stable connection. Then, navigate to the App's main interface, and tap Field "Planning", then select "Remote control planning".
2. Verify that there is ≤6ft horizontal positioning accuracy. Follow identical procedures to the RTK Planning.

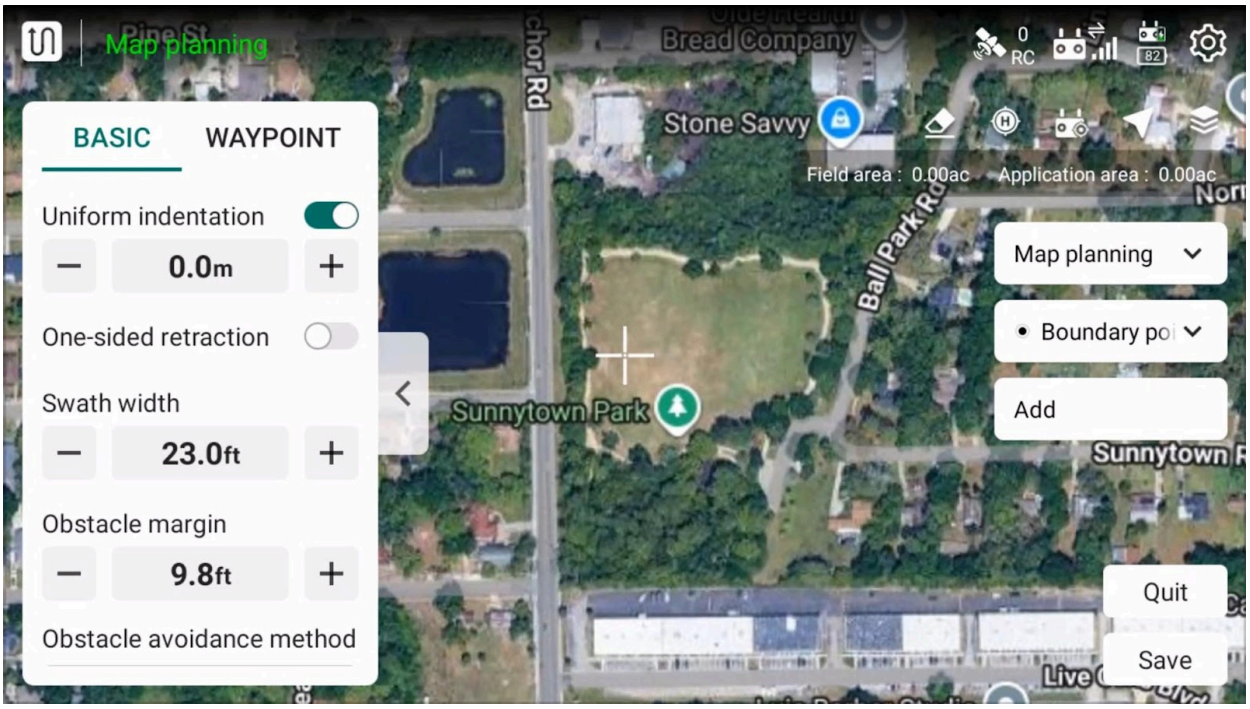
Note: For International Users: If GNSS signal quality is poor during field mapping, adjust the RTK Waypoint Accuracy setting to a maximum tolerance of 4 m (13 ft) in the RTK configuration menu.



Aircraft-Based Field Planning

1. Manually navigate the aircraft to desired locations and add survey waypoints via remote controller or mobile app to add map field boundaries and mark obstacle locations.
2. Power on the remote controller and launch the App to connect to the Drone.
3. Select Plan Field, choose Aircraft Planning mode.
4. Execute throttle stick inward diagonal movement (arm motors). Ascend to safe hover altitude (≥6ft).
5. Follow standard RTK Planning workflow, the key difference in flying the aircraft is that it replaces walking the perimeter.

Map Planning



In suitable areas (clearly visible boundaries, no obstacles). Directly plan flight paths using the map interface.

⚠ Warning: For map-planned fields, perform boundary verification before takeoff. Use drone-mounted vision systems and adjust via remote controller. This ensures centimeter-accurate positioning during operations.

Field Planning via Map

Flight Path Editing

Adjust Swath Offset: Default applies uniform offset to all edges, for edge-specific offsets. Click target field boundary, and enter a custom offset value.

Row Spacing Configuration: Set desired spacing manually, enable Auto-Calibrate Spacing. The system will automatically optimize the swath width; this ensures equal field segmentation.

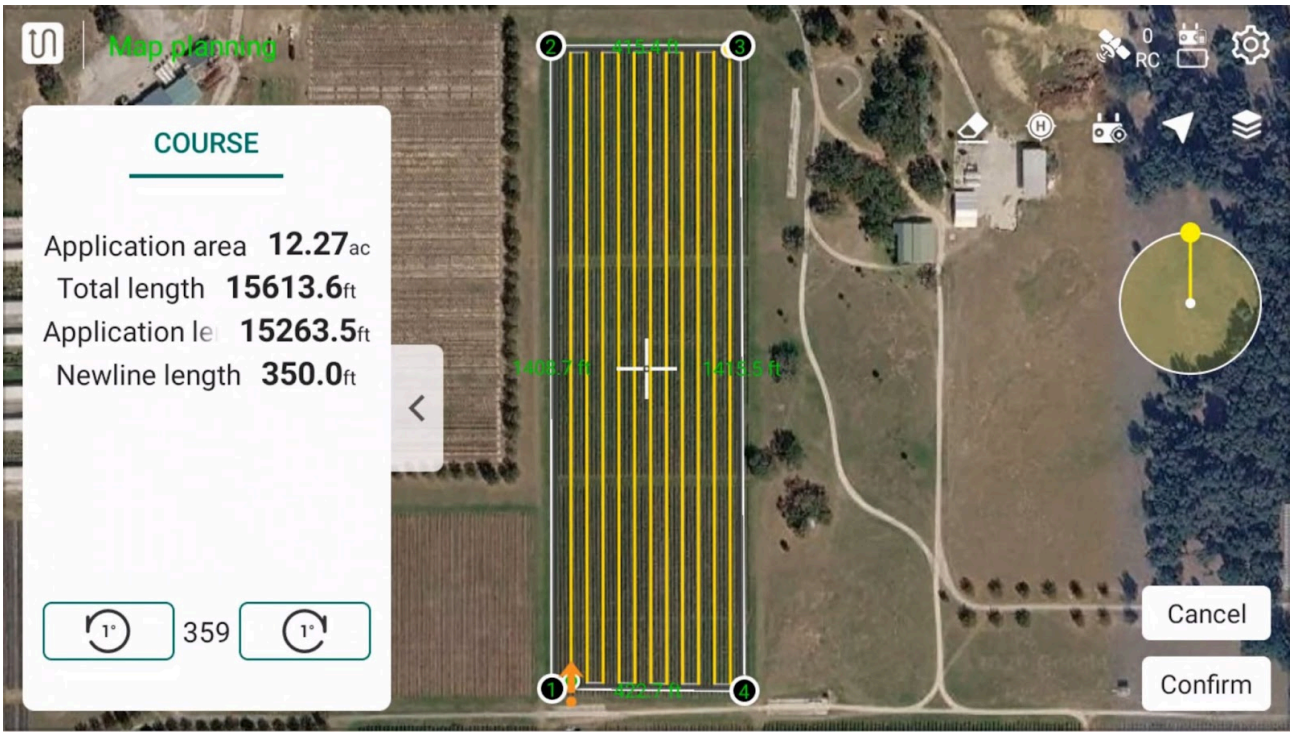
Obstacle Margin: Define minimum rotor-to-obstacle distance.

Flight Path Direction Adjustment

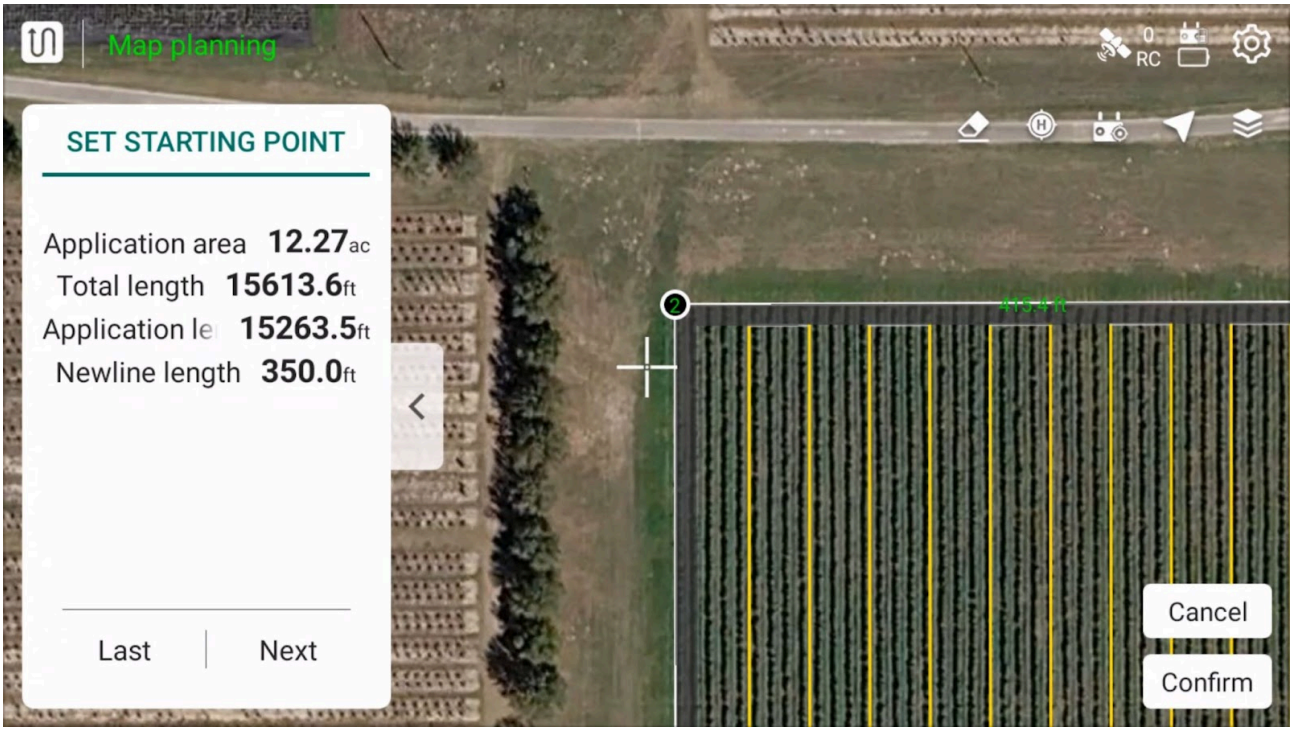
Slide to continuously adjust direction. Tap ±1° buttons for single-degree precision tuning.

Quick Flight Path Reorientation: Double-click any field boundary line to instantly align flight paths parallel to that edge.

Reverse Flight Path Direction: Select target boundary line. Click "Reverse Direction" to move the starting point to the opposite side of the boundary. Automatically maintain optimal coverage patterns.



Set Starting Point

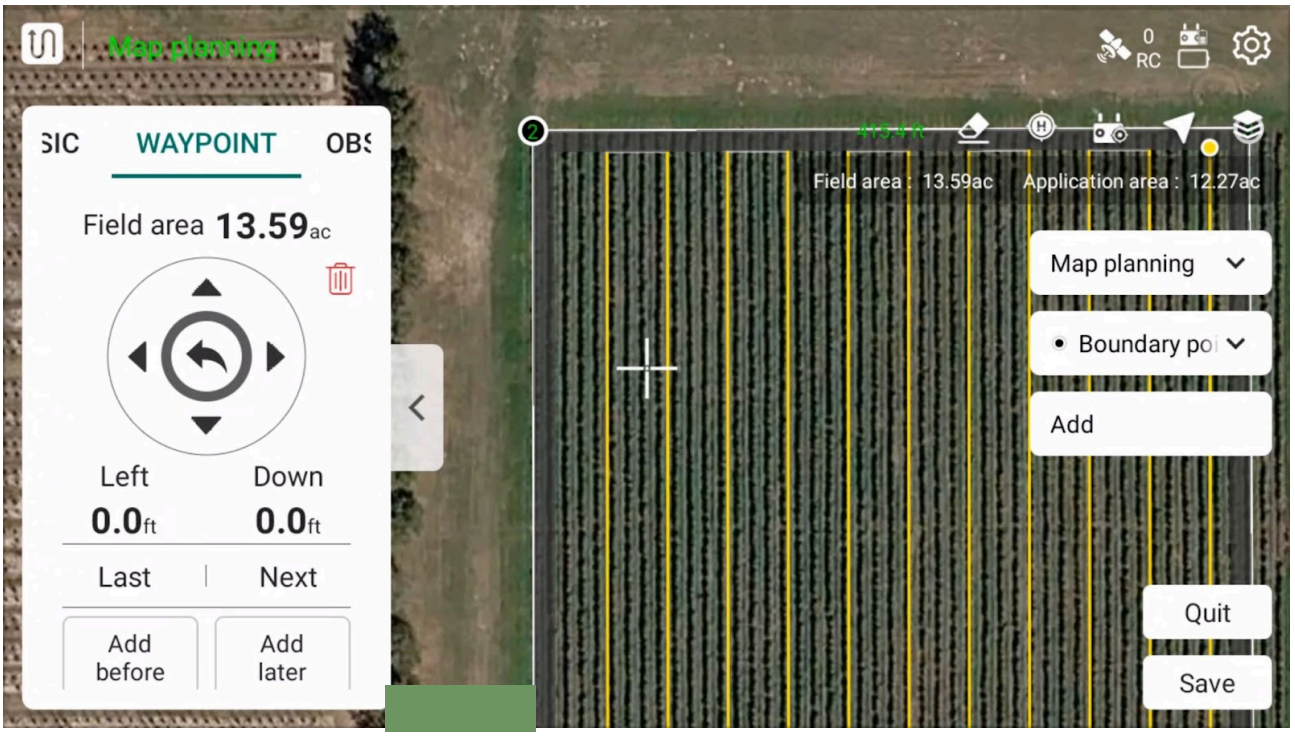


Waypoint Editing

Move Boundary Point: Drag or use fine-adjustment controls to reposition flight paths automatically replan in real-time after movement.

Delete Boundary Point: Select a target point and tap "Delete", the routes will instantly re-optimize post-deletion.

Add Boundary Point: Place a new point on the boundary line and the routes immediately regenerate with optimized pathing.



Obstacle Editing

Add an Obstacle: Follow the standard obstacle planning procedures: For circular obstacles, reference circular obstacle planning guidelines. For non-circular obstacles, Reference polygonal obstacle planning guidelines.

Delete an Obstacle Point: Select an obstacle point and tap "Delete" to remove.

Delete a Circular Obstacle: Click to select circular obstacle and tap "Delete" to remove.

Move an Obstacle Point: Click to select obstacle point and drag or use fine-adjustment buttons to reposition. Flight paths will automatically replan in real-time after any obstacle edits.

Add Reference Point

Select a permanent and distinctive landmark as reference points to enhance flight path correction accuracy.

Delete Reference Point

Click the reference point and tap "Delete".

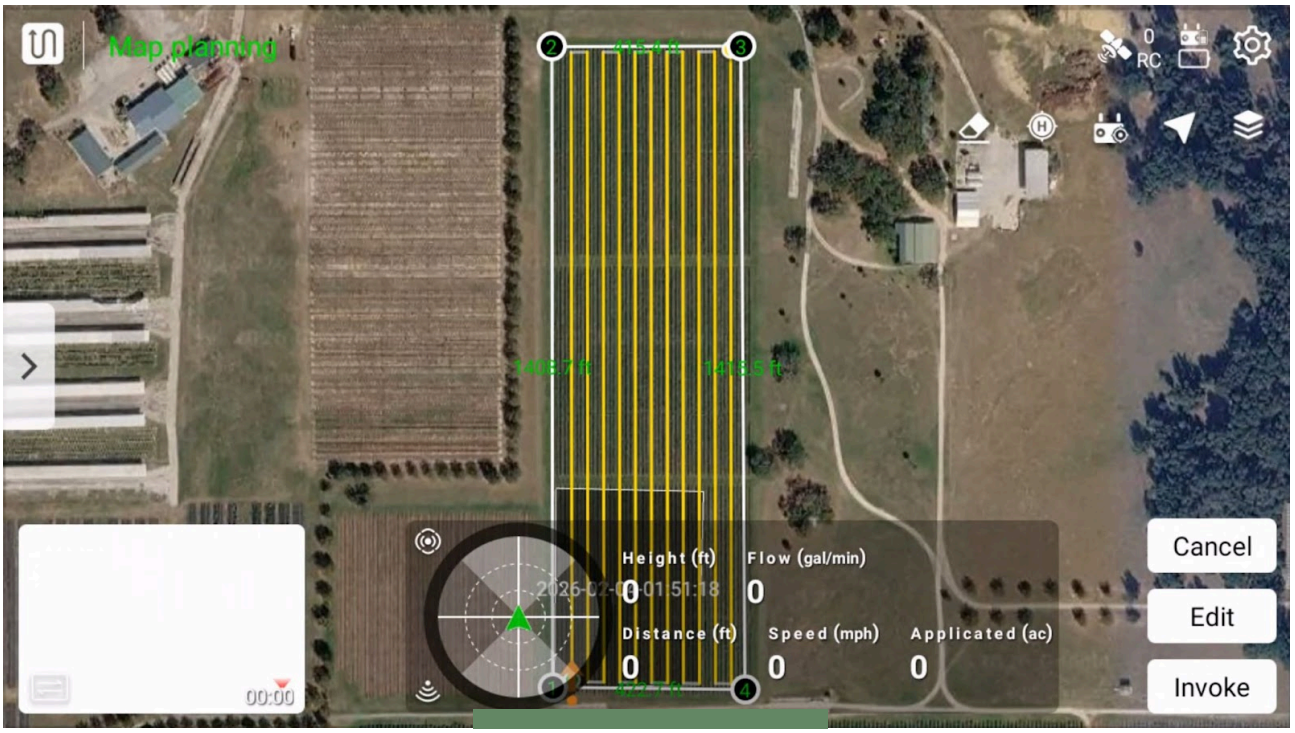
Undo Action

Tap "Undo" to reverse any add/delete/move operation (supports multi-step action history).

Flight Path Segmentation

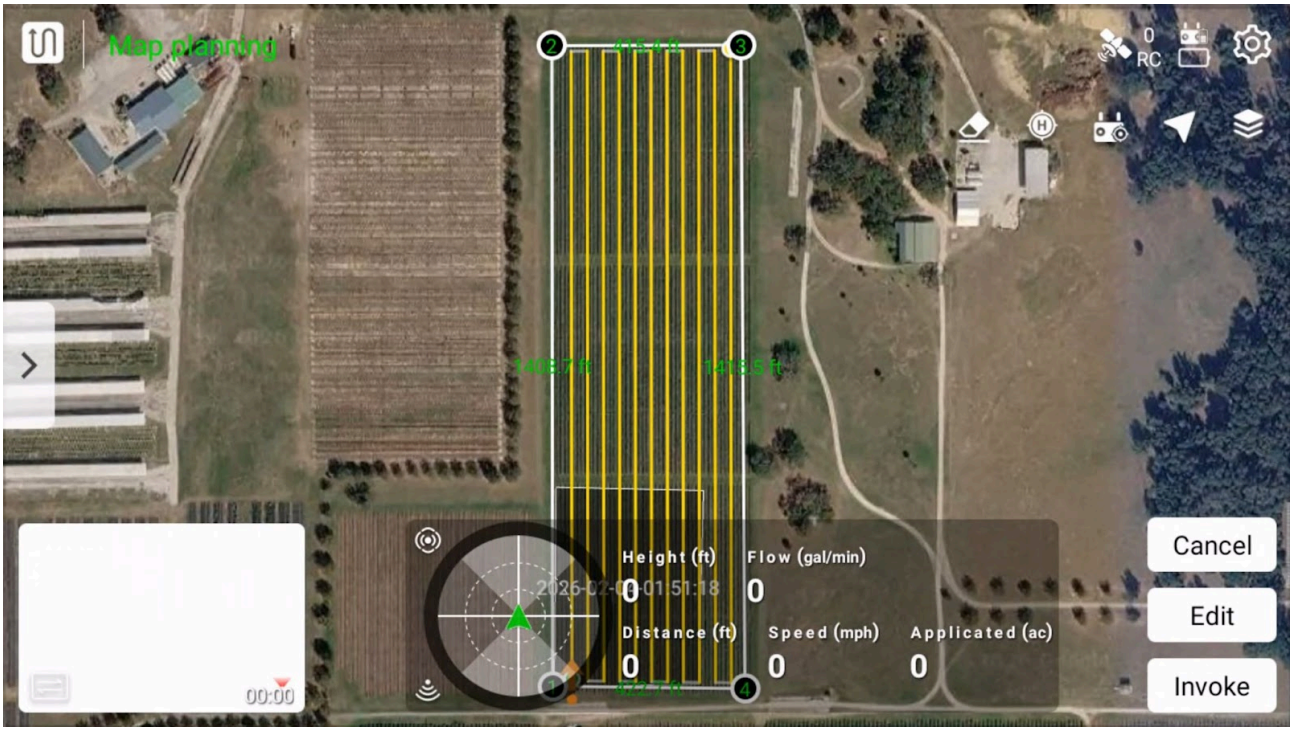
Split flight paths to remove any non-operational segments and retain required operational routes.

Note: If segmentation errors occur, cancel saving in the Field Save dialog and re-segment before final save.



Field Preview

After successfully saving a field, the Field Summary screen will display automatically.

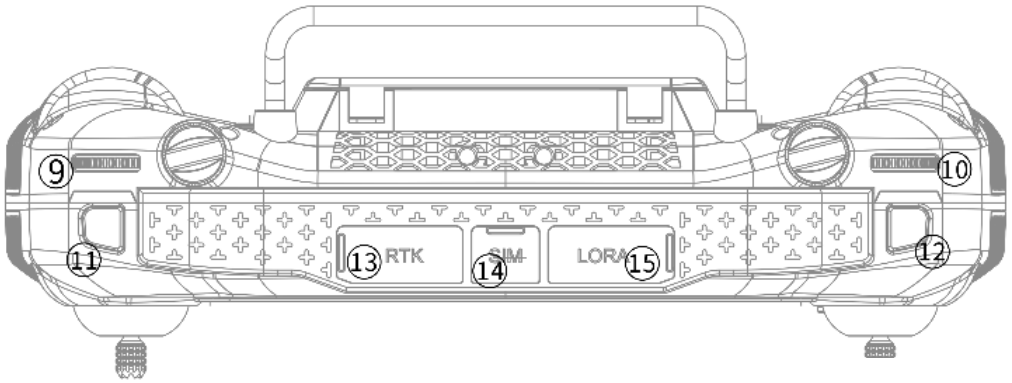


Spray Control

Spray Button

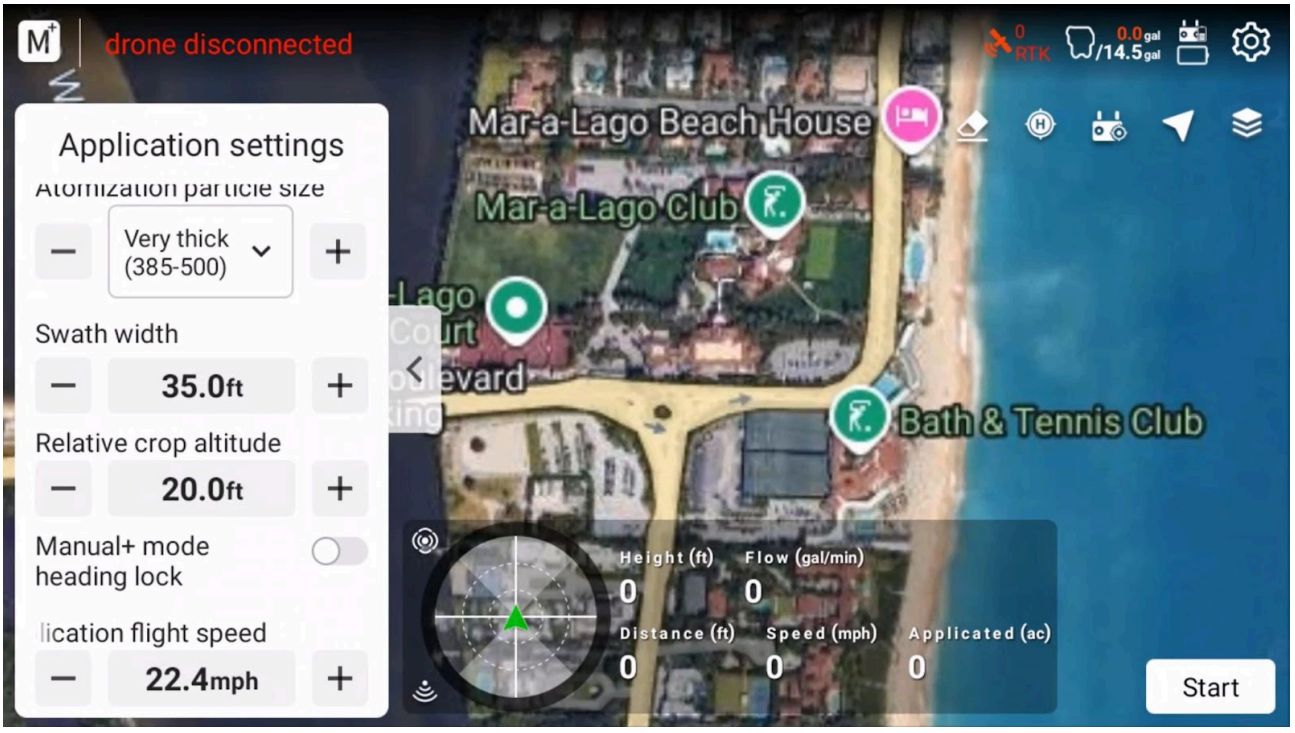
In Manual or Manual+ Mode. Press button 12 to engage the spray system. Then press again to disengage the spray system.

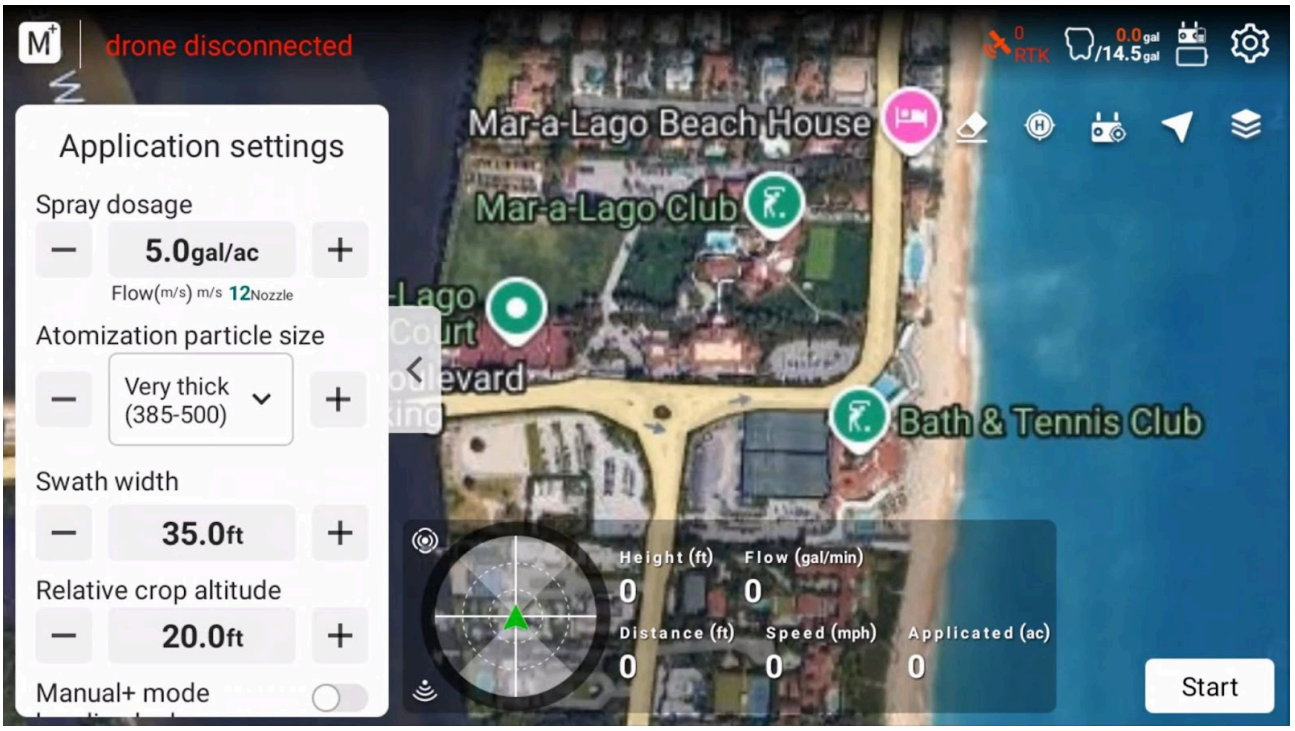
Note: Spray activation is automatically controlled in both Full Auto Operation and A-B Route Operation modes without manual input.



Application Rate Per Acre Settings

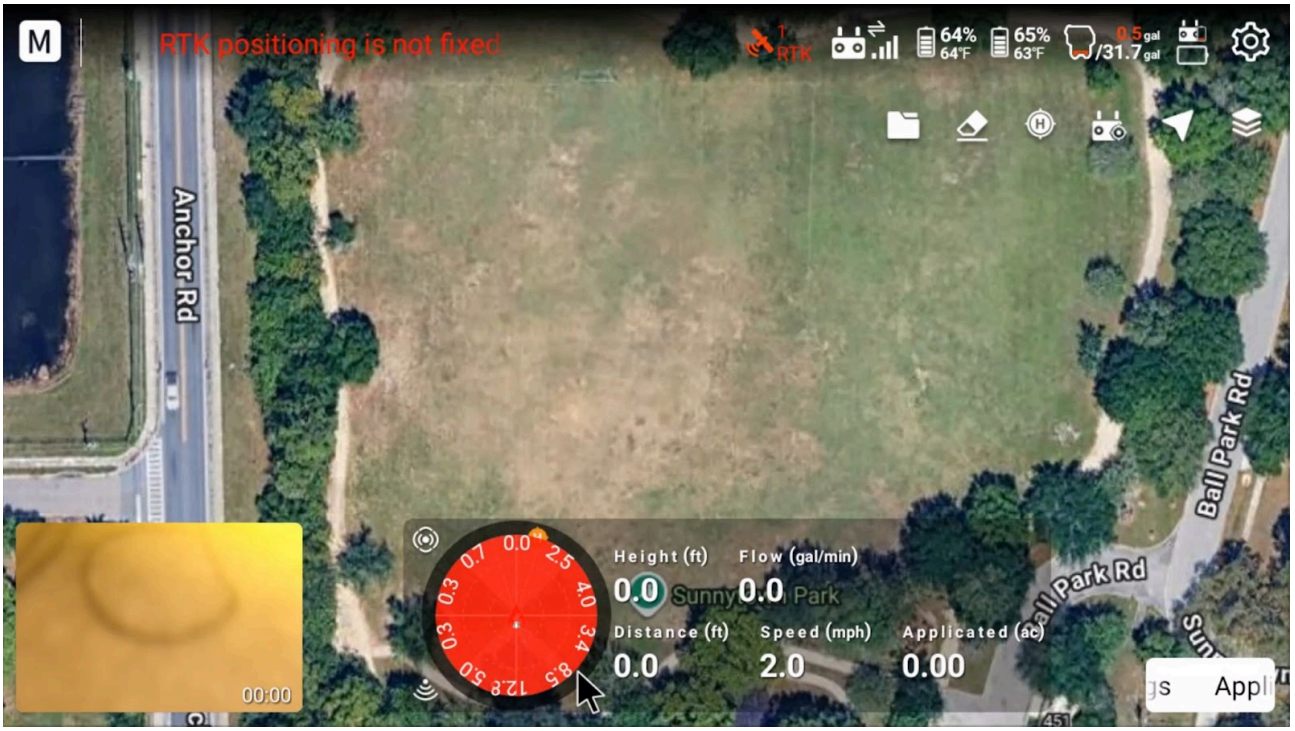
In both Full Auto Operation and A-B Point Operation modes. Configure job parameters (including application rate per acre) before starting operations. Adjust parameters live (including application rate per acre) during active spraying.





FPV/Map Toggle

While in flight, within the Applicator View App by Ceres Air interface, tap the Camera View and Map toggle button to switch between full-screen FPV display and map display.



Customizable Buttons

H Left Button, Customizable, Assignable functions include:	
Default	Undefined
Boundary Point And Obstacle Point Switch	Active only during field planning.
Add Boundary or Barrier Point	Active only during field planning.
Purge Spray Lines	Only when motors disarmed & aircraft grounded
Turn On/Off Obstacle Avoidance	Confirmation pop-up appears when disabling obstacle avoidance
Map/FPV Switching	Full-screen map ↔ Front camera view
Front/Rear Camera Switch	Alternate camera feeds
Add Point A	Only active in A-B Point Planning mode
Add Point B	Only active in A-B Point Planning mode
M+ Left Shift	Only active in M+ Manual Boost Mode
M+ Right Shift	Only active in M+ Manual Boost Mode
Toggle Front Lights	Aircraft LED headlights on/off
Toggle Rear Lights	Aircraft LED taillights on/off
H Right Button	
Same as H-Left Button	Same H-Left Button

One-Tap Return-to-Home (RTH) Button

Initiate Smart RTH by pressing and releasing the RTH button on the remote controller once. During Smart RTH, moving any control stick will immediately give you manual control of the drone (manual override).

Remote Controller Signal Range

For optimal signal quality between the remote controller and the aircraft. Position the antennas at an 80° or 180° angle relative to the back of the remote controller. Ensure the antenna plane is facing directly towards the aircraft.

Remote Controller Audio Prompts

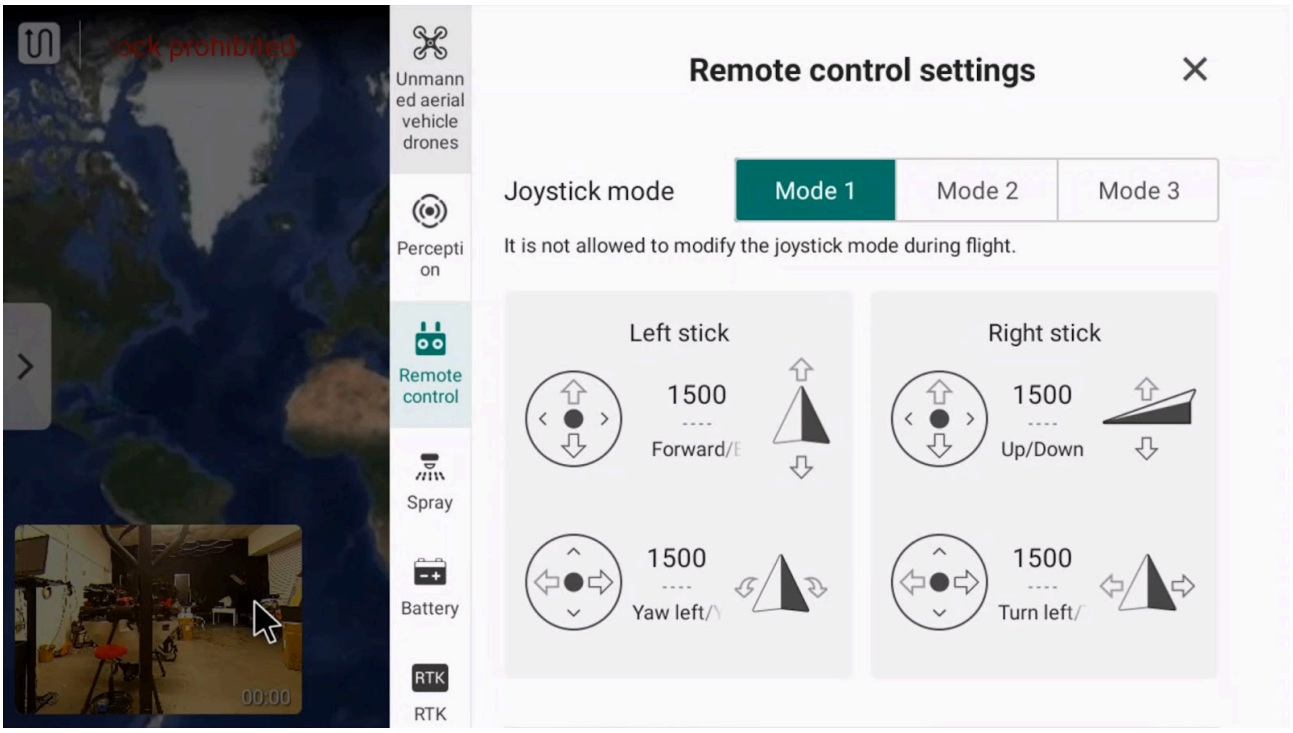
The Applicator View App by Ceres Air includes voice feedback and operational guidance after certain actions, making the App more user-friendly.

Prompts include normal operation feedback and abnormal alarm alerts. Alarms are accompanied by both voice announcements and on-screen floating text warnings.

Remote Controller Pairing

The remote controller and aircraft are pre-paired at the factory and ready for use after power-on. If replacing the remote controller, re-pairing is required before use.

6. Turn on the remote controller, launch the Applicator View App by Ceres Air, then power on the aircraft.
7. Navigate to Settings > Remote Control Settings, and tap "Pair", then tilt the drone's nose or tail upwards to an angle greater than 30 degrees relative to the ground. Wait until you hear a "beep-beep" confirmation sound and see the pairing status indicator light change from flashing red to solid green, indicating successful pairing. If pairing fails, re-enter pairing mode and repeat the process.



Flight Intelligent Battery

Overview

The C31 Agricultural Drone utilizes two sets of HE102 Intelligent Batteries. Each HE102 battery has a capacity of 38,000mAh and a voltage of 72V.

The HE102 Intelligent Battery must only be charged using the 18S12000W Intelligent Charger.

When paired with a fuel-powered generator, it supports fast charging up to 12000W.

When charging via mains power, use a cable harness rated for a maximum of 10A. Maximum charging power is 2000W. To protect the safety of the power supply input, always set a safe output power level on the charger panel.

1. Carrying Handle

   Use the handle to lift the battery. After extended use, always check that the handle is secure and reliable before lifting.

2. Power Button

   Press and release to check battery level. Press and release, then press and hold to turn the battery on. Always ensure the battery is fully inserted into the aircraft before powering it on. Always power the battery off before removing it from the aircraft. Failure to do so may damage the drone and battery interfaces.

3. LED Indicators

   Display battery level and assist in quickly identifying fault causes (troubleshooting).

4. Power Port

   Connects to the aircraft or the intelligent charger.

5. Silicone Protective Sleeve

Provides shock absorption and protects the battery.

HE102 Battery Usage Guidelines

1. After connecting the battery to the aircraft, power on: Short-press, then long-press the power button.
2. Power off (after landing): Short-press, then long-press to shut down. Disconnect from the aircraft.
3. Ensure battery level exceeds 95% before each flight.
4. Low-battery alert: Land immediately and replace the battery.
5. Cold weather operation: Pre-warm batteries above 5°C (41°F); 20°C (68°F) recommended. Achieve this by hovering briefly.

⚠ Critical Warnings:

1. It is prohibited to use near heat sources (direct sunlight, hot vehicles, flames, heaters, or generator exhaust).
2. Batteries must be charged on non-flammable surfaces with adequate ventilation and clearance from fuels and combustibles.
3. Never expose to liquids. Water contact may cause thermal runaway, fire, or explosion. Avoid rain/humid environments.
4. Do not use swollen, leaking, or damaged batteries. Contact authorized dealers immediately.
5. Always power off before installing/removing batteries. Hot-swapping damages ports.
6. Use the battery within an ambient temperature range of 23°F to 113°F. Excessive heat (above 122°F) may cause fire or explosion. Extreme cold (below 23°F) severely reduces performance; normal function resumes at room temperature.
7. Avoid strong electrostatic or magnetic fields, which may trigger protection circuit faults.
8. Never disassemble or puncture the battery with sharp objects, as this may cause fire or explosion.
9. Electrolyte leakage, Highly corrosive! If leakage occurs, stay away. If skin or eyes are exposed, rinse immediately with clean water and seek medical help.
10. Discard batteries after impacts or drops.
11. After water immersion, send batteries for inspection. Do not reuse.
12. Fire response, use in this order: Water/mist, Sand, Fire blanket, Dry powder, CO_2 extinguisher.
13. Never short-circuit terminals with metal objects.
14. Avoid impacts or compression. No heavy objects on batteries or chargers.
15. Clean terminals with dry cloth to prevent poor contact or charging failure.
16. Land immediately if battery falls below 15% , as this may damage the battery or cause flight accidents.

17. Reverse polarity PROHIBITED. Improper charging may cause overheating, explosion, or fire. Only use official-recommended batteries. Unauthorized batteries may lead to accidents or malfunctions, for which the user is responsible.Unauthorized batteries void warranty; user assumes all liability.
18. Place on flat surfaces to avoid puncture by sharp objects..
19. Danger: Never stack items on batteries or use as seating, as this may cause damage or danger.

⚠ Warning: Do not leave batteries unattended while charging.

Transportation, Storage, and Maintenance

Transportation and Storage

1. During transportation, ensure the battery is powered off and disconnected from the drone or any other device.
2. Store the battery out of reach of children. If any parts are accidentally swallowed, seek immediate medical attention.
3. If the battery indicates a critically low charge after flight, recharge it to approximately 25% before storage. Prolonged storage at a low charge may damage the battery.
4. Do not place the battery near heat sources, such as direct sunlight, inside a hot car, near open flames, or heating appliances.
5. Store the battery in a dry environment. Avoid exposing it to water or areas prone to leaks.
6. Do not store or transport the battery with metal objects (e.g., glasses, watches, metal necklaces, hairpins) or flammable/explosive materials.
7. Never transport damaged batteries or those with a charge exceeding 30%. Discharge the battery to around 25% before transportation.
8. When placing the battery, ensure the surface is flat to prevent sharp objects from puncturing the bottom.
9. For long-term storage (over 3 months), keep the battery in an environment with a temperature between -20°C and 40°C.
10. Avoid storing the battery in a fully discharged state for extended periods, as this may cause over-discharge, leading to irreversible cell damage.
11. If the battery is severely depleted and left idle for too long, it will enter deep sleep mode. To reactivate it, recharge the battery.
12. For long-term storage, disconnect the battery from the aircraft.

Maintenance

1. Do not clean the battery with water.
2. Never store the battery in environments where temperatures exceed 45°C (113°F) or fall below -20°C (-4°F).
3. Long-term inactivity may negatively impact the battery’s performance.

4. Recharge and discharge the battery approximately every 3 months to maintain its activity.
5. Batteries that go without maintenance (charging/discharging) for over 5 months will not be covered under warranty.

Packing List

Item Description	Quantity
C31 Agricultural drone Main Unit	1
RC402 Remote Controller Complete Kit	1
HE102 Intelligent Battery	2
18S12000W Intelligent Charger	1
C31 Agricultural drone Operator’s Manual	1

Aircraft Center of Gravity

The body coordinate system and geometric centroid (Point O) are illustrated in the diagram below (spraying configuration shown).

Equipment Configuration for Transport

To prepare the aircraft for transport, remove the battery from the drone. Fold the propellers and fully retract the arms, securing them into the storage clips on the side of the aircraft. Then place the entire unit into the protective case, which features soft interior liners to safeguard all components.

For long-term storage or long-distance transport, always remove both the battery and the spray tank system from the aircraft. Thoroughly flush the spraying system with clean water to ensure all traces of pesticide residue are removed.Allow the system to dry completely before repacking. Only transport the equipment after it has been fully dried and secured in the protective case.

Hazard List and Response Procedures

Failure to follow operating requirements or reckless operation of the model C31 Agricultural drone can create serious hazards.

Specific hazard scenarios and countermeasures are as follows:

Serial number	Hazard Source	Mitigation Measures
1	Propellers	Maintain ≥49ft (15m) clearance during operation.
2	Motors	≥1.6ft (0.5m)clearance (without propellers). ≥49ft (15m) clearance (with propellers installed)
3	Chemical Tank	Never reuse for drinking water/personal hygiene – pesticide residue risk.
4	Pesticides	Apply strictly per manufacturer instructions or certified crop advisor guidance.
5	Batteries	Strictly follow operational procedures! NO overcharging/deep discharging.
6	Charger Use	Operate per manual only: Keep away from flammables. Keep fire extinguisher or sand bucket nearby. Maintain ≥49ft (15m) from people during field operations.
7	In-Flight Ops	NO flight over densely populated areas. Maintain ≥49ft (15m) from people during field operations.
8	Spray Operations	Maintain a minimum 196ft (60m) downwind buffer zone from apiaries (bee colonies), with distance adjusted based on current wind and weather conditions.

Fault Handling Guide

Module	Error Source	Error Description	Troubleshooting Steps
Power System ESC	Motor	Motor Stalled, immediately cease flight	Locate affected motor using indicated ID. Check for propeller entanglement or foreign object obstruction. If unresolved, contact nearest authorized service center.
		Motor Overload, immediately cease flight	Locate affected motor using indicated ID. Inspect propellers for entanglement, deformation, damage, check for motor obstruction. If unresolved, contact nearest authorized service center.
		Motor Overheating Risk	Locate affected motor using indicated ID. Allow aircraft to cool before operating, check ambient temperature conditions. If unresolved, contact nearest authorized service center.
	ESC	ESC Overvoltage Anomaly	Identify affected ESC using indicated ID. Verify battery voltage levels. If unresolved, contact nearest authorized service center.

Module	Error Source	Error Description	Troubleshooting Steps
Battery	Battery	Battery-FC Communication Failure	Reconnect battery and inspect interface for debris. Test with replacement battery to confirm failure. Check PDB gold-plated contacts for deformation or contamination. Verify PDB-wiring module-avionics connections (power off). If unresolved, contact nearest authorized service center.
		Battery Authentication Failure	Confirm use of OEM-approved battery. Inspect PDB contacts for damage or contamination. Reconnect battery, check interface cleanliness. Test with replacement battery. If unresolved, contact nearest authorized service center.
		Critical Low Voltage	Check individual cell voltages for anomalies. If unresolved, contact nearest authorized service center.

Module	Error Source	Error Description	Troubleshooting Steps
Avionics System	IMU	IMU Module Disconnected	Restart aircraft. Perform IMU calibration. If unresolved, contact nearest authorized service center.
		IMU Attitude Data Unavailable	Keep aircraft stationary for 10 seconds, restart aircraft if persists. Perform IMU calibration. If unresolved, contact nearest authorized service center.
	Compass Module	Compass Module Disconnected	Power off aircraft. Verify avionics module seating. Power on and check status. If unresolved, contact nearest authorized service center.
		Ground Magnetic Interference Detected	Move to interference-free area. Perform compass calibration. Verify avionics module installation (power off). If unresolved, contact nearest authorized service center.
	RTK	RTK Board Connection Lost	Power off for 2 minutes then restart aircraft. If unresolved, contact nearest authorized service center.
		RTK Dual-Antenna Baseline Error	Restart aircraft. If unresolved, contact nearest authorized service center.
	Video TX	Video Signal Lost	Restart aircraft. Update to latest firmware. If unresolved, contact nearest authorized service center.

Module	Error Source	Error Description	Troubleshooting Steps
Controller	Video TX	Low Controller Antenna SNR	Check channel interference in HD settings, change controller ID in settings, re-pair. Identify nearby interference sources (cell towers or WiFi). Clear line-of-sight obstructions. Verify antenna connections. If unresolved, contact nearest authorized service center.
		No Aircraft Signal	Check HD settings for interference, change controller ID, re-pair. Identify interference sources. Ensure unobstructed signal path.
		No Stick Input Received	Clear obstructions between controller and craft. Calibrate controller sticks. If unresolved, contact nearest authorized service center.

Module	Error Source	Error Description	Troubleshooting Steps
Spraying System	Pump ESC	Pump Not Connected	Restart aircraft. Cross-test pump on different connector. Check pump-to-wiring module connections. Verify pump-wiring-spray module links (power off). If unresolved, contact nearest authorized service center.
		Pump ESC Self-Test Failure	Restart aircraft. Cross-test pump on different connector. Inspect wiring for damage or looseness. Verify full system connections (power off). If unresolved, contact nearest authorized service center.

Module	Error Source	Error Description	Troubleshooting Steps
Radar	Radar	Radar ESC Undertemperature	Confirm ambient temperature normal. Verify radar-wiring-avionics connections (power off). If unresolved, contact nearest authorized service center.
		Radar ESC Overtemperature	Confirm ambient temperature normal. Verify radar-wiring-avionics connections (power off). If unresolved, contact nearest authorized service center.

Technical Specifications

Flight Parameters	
Model	C31
Configuration	8-rotor coaxial (4 arms)
Dimensions (L×W×H)	88.6in×84.6in×20.4in (Arms or props extended) 51.3in×46.1in×20.4in (folded)
Max Diagonal Wheelbase	109.0in
Max Takeoff Weight	573.2 lbs (260 kg) (Spraying or cargo)
Empty Weight (w/battery)	242 lbs (110 kg)
Tank Capacity	31.2 gal (120L)
Maximum Flight Speed	40 mph (17.9 m/s)
Maximum Flight Height	400 ft (122m)
Hovering Accuracy	
RTK Positioning	Horizontal: ±3.93" Vertical: ±3.93"
No-load Hover Time	
Full-load Hover Time	5 min 50s

Powertrain System	
Motor KV Rating	46 RPM/V
Motor Dimensions	5.5in×1.3in
Rated Power	4,650W × 8
Rated Speed	2,000 RPM
Main Rotor Diameter	62in (1,575 mm)
Rotor Quantity	8
Rotor Material	Carbon Fiber

Energy System - Intelligent Battery	
Model	HE102 Li-ion Battery Pack
Charge Voltage	78.3V DC Max
Charge Current	140A Max
Capacity	2,025 Wh
Cell Voltage	3.75V
Cell Configuration	18S
Nominal Voltage	67.5V
Operating Temp	32°F~113°F (0°C~45°C)
Charge Temp	41°F~158°F (5°C~70°C) (Quick: 59°F~149°F)
Discharge Temp	-4°F~140°F (-20°C~60°C)
Weight	32.1 lbs(14.6 kg)
Installation	Quick-release
Energy System - Charger	
Model	HE202B Universal Charger
Input Voltage	110-230V AC
Frequency	47-63 Hz
Output Power	9,000W (generator) 2,000W (grid)
Output Channels	1
Protection	Overtemp or Overvoltage or Undervoltage or Short Circuit
Operating Temp	23°F~104°F (-5°C~40°C)
Weight	38.7 lbs(17.6 kg)

Spraying System	
Tank Volume	31.2 gal (120L)
Nozzle Type	Centrifugal
Nozzle Qty	2 or 4
Max Swath Width	39.4 ft (12m) @ 11.5 ft AGL ±1.6 ft, 11.2 mph
Droplet Size	50-500 μm
Pump Type	Magnetic Impeller
Pump Qty	2
Max Flow Rate	7.3 gpm (28 L/min) - 2 nozzles 10.4 gpm (40 L/min) - 4 nozzles

Cargo System	
Payload	330 lbs (150KG)
Cable Length	49.2 ft (15m) standard
Anti-sway	Supported
Operating Temp	32°F~104°F (0°C~40°C)

Controller System	
Model	HD402
Data Transmission & Positioning	LTE-FDD:Band 1/3/5/8
	LTE-TDD:Band 34/38/39/40/41
	WCDMA:Band 1/8
	CDMA EV-DO:Band Class 0
	GSM:900/1800 MHz
	WLAN:Dual-band 2.4/5 GHz 802.11a/b/g/n/ac
	Bluetooth:2.1+EDR/3.0/4.1 LE/4.2 BLE
	GNSS:BeiDou Navigation Satellite System
	LoRa:1.24 mi (2 km) range
	Radio Module:1.24 mi (2 km) range
Video Transmission	Dual-band 2.4/5.8 GHz
	Range (SRRC) >1.86 mi (3 km)
	Range (CE) >1.86 mi (3 km)
	Range (FCC) >1.55 mi (2.5 km) (Unobstructed environment, 8.2 ft AGL)
Mapping Module	BeiDou GNSS
	DGNSS ±1.64 ft (0.5 m)
	RTK ±0.79 in (0.02 m) +1 ppm CEP
Display	6in Touch LCD (1280×720)
Operating Temp	-4°F~122°F (-20°C~50°C)
Charge Temp	32°F~113°F (0°C~45°C)
Internal Battery Runtime	5 hours
External Battery Runtime	2 hours per battery
External Battery Quantity	2
Total System Runtime	≥8 hours
Charge Power	External: 33.6W/8.4V/4A ×2
	Internal: 65W Max
Charge Method	External: Dock
	Internal: USB-C

Sensing System-Camera	
Front Camera	Virtual Gimbal Camera
Resolution	1080p (1920×1080)
Pixel	4MP
FOV	80° H × 170° V
Night Vision	Supported

Sensing System-Radar	
Altitude Hold Range	Measurement: 3.3-197 ft (1-60m)
	Operating: 1.6-98 ft (0.5-30m)
Obstacle Avoidance Distance	Detection Range Horizontal: 3.3-262 ft (1-80m)
	Field of View: 50° H × 10° V (3dB)
	Operating Conditions AGL >8.2 ft (2.5m), Speed ≤30.9 mph (13.8m/s)
	Safety Distance: 11.5 ft (3.5m) (rotor tip to obstacle)

Manufacturer: Ceres Air LLC

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