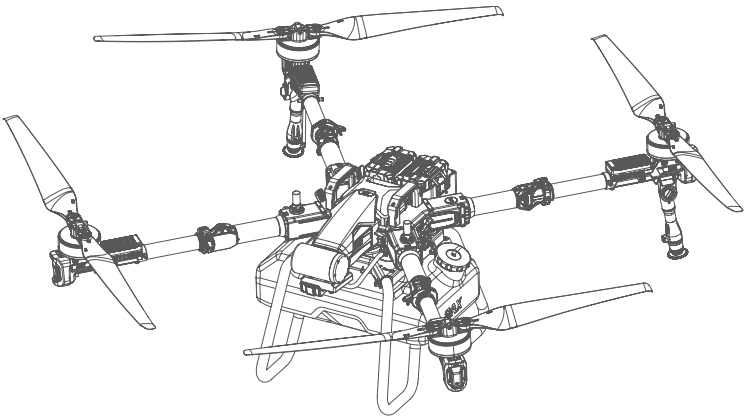
XAG P100 Pro

Type: 3WWDZ-50AH

Pilot's Operating Handbook

Version AU V1.0 EN



XAG AUSTRALIA

Disclaimer and Warnings

This User Manual / Pilot Operating Handbook ("Handbook") is provided for the XAG P100 Pro ("Product") by XAG ("Company"). The Product is not a toy and is not suitable for children under the age of 18. Adults should keep the Product out of reach of children and exercise caution when operating this Product in the presence of children.

The Product is a multirotor flying platform designed for agricultural applications in farmland, woodland, and orchards only. It is crucial to read and understand all materials associated with the Product before its first use. These documents are included in the product package and are also available online on the Company's product page.

Failure to read and follow the instructions in this Handbook may result in serious injury to yourself and/or others, and damage to your Products and/or other objects in the vicinity. By using this Product, you hereby signify that you have read this disclaimer and the Handbook carefully and that you understand and agree to abide by all terms and conditions of this document and all relevant documents of this product. You agree that you are solely responsible for your own conduct while using this product, and for any consequences thereof.

NO ADVICE OR INFORMATION, WHETHER ORAL OR WRITTEN, OBTAINED BY YOU FROM THE PRODUCT, PRODUCT ACCESSORIES, OR ANY MATERIALS WILL CREATE ANY WARRANTY REGARDING THE PRODUCT THAT IS NOT EXPRESSLY STATED IN THESE TERMS. YOU ASSUME ALL RISKS FOR ANY DAMAGE THAT MAY RESULT FROM YOUR USE OF OR ACCESS TO THE PRODUCT, PRODUCT ACCESSORIES, AND ANY MATERIALS. YOU UNDERSTAND AND AGREE THAT YOU USE THE PRODUCT AT YOUR OWN DISCRETION AND RISK, AND THAT YOU ARE SOLELY RESPONSIBLE FOR ANY PERSONAL INJURY, DEATH, DAMAGE TO YOUR PROPERTY OR THIRD-PARTY PROPERTY, OR THE LOSS OF DATA THAT RESULTS FROM YOUR USE OF OR INABILITY TO USE THE PRODUCT. SOME JURISDICTIONS MAY PROHIBIT A DISCLAIMER OF WARRANTIES AND YOU MAY HAVE OTHER RIGHTS THAT VARY FROM JURISDICTION TO JURISDICTION.

The Company reserves the rights for final interpretation and revision of the Terms and conditions herein to the extent permitted by law. XAG also reserves the right to update, modify or terminate these terms and conditions via its official website without prior notice.

XAG reserves the right to update this disclaimer and safety guidelines. Visit the Company's website periodically for the latest version. This disclaimer is available in various languages. In the event of divergence among different versions, the Chinese version shall prevail.

This document and all other collateral documents are subject to change without prior notice at the sole discretion of XAG.

LIMITATION OF LIABILITY

The Company shall not be liable for any indirect, incidental, special, consequential or punitive damages (including damages for loss of profits, goodwill, or any other intangible loss) arising out of or relating to your access to or use of, or your inability to access or use, the Product, Product accessories, or any materials, flight environment data, whether based on warranty, contract, tort (including negligence), statute, or any other legal theory.

Except as otherwise agreed upon between you and the Company, the aggregate liability of the Company to you for all claims arising out of or relating to the use of or any inability to use any portion of the Product or otherwise under these terms, whether in contract, tort, or otherwise, is limited to $100.

DATA STORAGE AND USAGE

When you use our mobile apps or our products or other software, you may provide the Company with data regarding the use and operation of the product, such as flight telemetry data (e.g., speed, altitude, battery life, and operations record. Refer to the Company's Privacy Policy for more information.

Individual Parts

Regarding Genuine and Functional Parts

⚠ WARNING

To ensure optimal performance and safety when operating XAG Agricultural Drones, strictly adhere to the following guidelines:

⚠ **EXCLUSIVELY USE AUTHENTIC XAG COMPONENTS:** Parts must be genuine XAG or certified by XAG. The utilization of unauthorized parts or those from non-XAG certified manufacturers may trigger system malfunctions and compromise safety. Violation of this guideline will result in the immediate voiding of the product warranty.

⚠ **ENSURE COMPONENTS ARE FOREIGN OBJECT FREE:** Prior to each operation, verify that no foreign objects, such as water, oil, soil, or sand, have entered the aircraft or its components.

⚠ **MAINTAIN EQUIPMENT IN OPTIMUM CONDITION:** Confirm the aircraft and all components are functioning correctly and are free from damage. Key components include the remote controller, compass, propulsion system, radar modules, and spraying system.

Purchasing components from unauthorized sellers, commonly found on ecommerce platforms like eBay or Alibaba, carries substantial risk. Not only will the product warranty be voided, but non-authorized parts may cause performance degradation, malfunctions, or total system failure. These risks can lead to safety hazards, including potential injury or property damage. Legal implications may also arise, including fines or legal action, particularly if the accident occurs in a regulated context or causes harm.

For the safe, reliable, and lawful operation of your XAG Agricultural Drone, adhere strictly to these guidelines. Always validate the seller's authorization status when purchasing components and buy only from reputable sources. Your drone is a sophisticated device; risking its performance with uncertified parts or services is not advised. Prioritize safety by relying on XAG-certified parts and guidelines.

Remote Controller

⚠ WARNING

OPERATIONAL SAFETY:

01. Port Usage: Ports on the remote controller must be used strictly in accordance with their designated specifications.

02. Internet Connectivity: Regular internet access, via WI-FI or a SIM card, is mandatory for the remote controller. Failure to maintain this connection may result in XAG being unable to provide warranty repair services, and any resultant losses will not be the responsibility of XAG.

03. Joystick Protocols: Under no circumstances should the joysticks be activated to start the motors when the aircraft is airborne.

PHYSICAL INTEGRITY:

01. Charging Precautions: Ensure the remote controller is sufficiently charged prior to each flight. Any exposure to moisture, especially during charging, is strictly prohibited.

02. Antenna Positioning: Antennas must be correctly positioned for optimal data transmission. Ensure no obstructions block or cover the folding antennas or the external GNSS antenna.

03. Handling & Storage: The remote controller must always be held by the pilot and should never be placed on objects for transmission. Store in a location free from potential damage.

Notes

OPTIMAL USAGE:

01. Data Transmission: Prior to take-off, ensure your phone is connected to the remote controller's WI-FI.

02. Transmission Quality: Utilize the XAG One APP to select the ideal transmission channel based on the environment. Adjust the antenna's position or relocate to an obstruction-free environment if signal strength weakens.

03. Replacement Protocols: When utilizing a replacement remote controller, it must be linked to the aircraft and tested for a minimum transmission distance of 400 m.

04. Battery Maintenance: The internal batteries of the remote controller should be fully charged at least once every three months. If a triple-beeping sound is detected, immediate charging is required. Batteries should be charged promptly if they reach 0% to prevent over-discharge damage.

Aircraft Airframe

⚠ WARNING

PORT AND CONNECTOR INTEGRITY:

⚠ Port Compliance: All ports on the aircraft body must be utilized in strict accordance with their designated specifications. Any deviation can lead to severe operational malfunctions.

⚠ Short Circuit Prevention: Under no circumstances should the ports and connectors on the aircraft body be subjected to conditions that might induce a short circuit.

ANTENNA AND RADIO INTERFERENCE:

⚠ Operational Environment: The aircraft must be operated in environments devoid of radio interference. It is imperative that onboard antennas remain unobstructed during all operational phases.

⚠ USB-C Port Protection: If the USB-C port is not actively in use, the waterproof cover must be securely attached to prevent potential water ingress and subsequent short circuits.

ARM FOLDING AND UNFOLDING PROTOCOLS:

⚠ Unfolding Directives: For the M1 and M4 arms, the M4 arm must be unfolded first, followed by the M1 arm. For the M2 and M3 arms, the M3 arm must be unfolded first, followed by the M2 arm.

⚠ Folding Directives: For the M1 and M4 arms, the M1 arm must be folded first, followed by the M4 arm. For the M2 and M3 arms, the M2 arm must be folded first, followed by the M3 arm.

Propulsion System

⚠ WARNING

PROPELLERS:

⚠ Mandatory Inspection: Prior to every flight, conduct a rigorous assessment of the propellers. Any propellers exhibiting signs of wear, chipping, or breakage must be immediately replaced.

⚠ Strict Safety Protocols: Under no circumstances should the aircraft be powered on when handling propellers. Exercise extreme caution due to the inherent sharp edges of the propellers.

⚠ Operational Directives: Before initiating any flight, it is imperative that propellers are securely anchored and fully extended. Maintain a significant distance from operational propellers to avert potential harm.

MOTORS:

⚠ Installation & Functionality: It is essential to ascertain that motors are firmly affixed and operate without any hindrance. Ventilation apertures on the motors must remain unobstructed at all times.

⚠ Safety Directives: Any alterations or modifications to the motor structure are strictly prohibited. Post-operational motors can reach elevated temperatures; any interaction should be approached with utmost caution.

Ⓝ Notes

Maintenance Protocol: Motors must be consistently kept devoid of dust and any potential external impediments.

Terrain-Following Radar

⚠ WARNING

DEVICE INTEGRITY:

⚠ Cleanliness: Ensure the terrain following radar and its wires are clean. Keep them away from chemicals and dust to make sure they work correctly.

OPERATIONAL PROTOCOLS:

⚠ Operational Environment: The aircraft must be operated in environments devoid of radio interference. It is imperative that onboard antennas remain unobstructed during all operational phases.

⚠ USB-C Port Protection: If the USB-C port is not actively in use, the waterproof cover must be securely attached to prevent potential water ingress and subsequent short circuits.

Radar Module

⚠ WARNING

OPERATIONAL CAUTIONS:

⚠ Variable Effectiveness: The radar's efficacy and detection range are subject to variations based on numerous factors. These include, but are not limited to, the material, shape, location, form, and size of obstacles such as trees. The aircraft's speed and altitude further influence these parameters. Detailed guidance on these variables can be found in the aircraft's specifications.

⚠ Surface Integrity: It is imperative that the surface of the dynamic radar remains uncontaminated to ensure optimal functionality. Any deviations from this can lead to operational abnormalities.

⚠ Manual Oversight: Despite the capabilities of the dynamic radar and the XAG One APP, operators must maintain vigilant control over the aircraft. Relying solely on automated systems is strictly discouraged. The aircraft must remain within the Visual Line Of Sight (VLOS) at all times. In situations demanding immediate intervention, operators must exercise their discretion and assume manual control to navigate around obstacles.

⚠ the aircraft's proximity to vegetation, ensuring adherence to safety protocols.

⚠ Strict adherence to these directives is paramount for the safe and efficient utilization of the Terrain Following Radar.

DETECTION PARAMETERS:

⚠ Detection Range: The dynamic radar is equipped with a horizontal obstacle detection range spanning ±40° and a vertical range from +90° to -45°. It is crucial to understand that the aircraft is blind to obstacles outside this detection range. Such scenarios necessitate heightened caution during operations.

⚠ Specific Obstacle Concerns: The radar's detection capabilities can be compromised when encountering objects positioned at an inclined angle relative to the aircraft's flight direction, such as inclined lines or utility poles. Given that a significant portion of the radar's electromagnetic waves may be deflected in such scenarios, operators must exercise heightened vigilance.

RevoSpray System

⚠ WARNING

SYSTEM SETUP:

⚠ Attachment: Make sure the RevoSpray System is tightly attached to the aircraft.

⚠ Wiring: Avoid using any wires that are exposed or damaged.

⚠ Load Limit: Don't fill the spray tank beyond its maximum limit. Check the RevoSpray System's manual for details.

PUMPS AND NOZZLES:

⚠ Cleaning: After using, clean the tubing with soapy water.

⚠ Nozzle Check: Ensure the nozzle disks are whole and undamaged to prevent chemicals from spreading where they shouldn't.

SPRAY TANK:

⚠ Securing: Make sure the spray tank is tightly fixed in place and doesn't leak any liquid.

USING PESTICIDES:

⚠ Safety Gear: Always wear long-sleeved shirts, pants, masks, goggles, and rubber gloves when preparing pesticides.

⚠ Safe Area: Use pesticides in places with good air flow and shade.

⚠ Check Your Gear: Look over your safety gear for any tears or damage. If you find any, get new gear before handling pesticides again.

Aircraft Battery

⚠ WARNING

USAGE AND HANDLING:

01. Official Equipment Requirement: Only the designated XAG Smart Battery is permitted for use. Any deviation from this specification can lead to severe operational malfunctions.

02. Voltage Awareness: Users must be acutely aware that the aircraft's voltage can peak at 55.4V. Such voltages necessitate meticulous handling to ensure safety.

03. Liquid and Chemical Exposure: The battery terminal and top case must remain free from exposure to any form of liquid, including water and chemicals, to prevent potential short-circuiting and subsequent damage.

04. Cooling Protocols: Cooling sessions for the battery are restricted to a maximum of 60 minutes. Complete submersion of the battery in water is strictly prohibited.

05. Charging Precautions: During the charging process, it is imperative to ensure that no water from the water-cooling box comes into contact with the charger or supercharging station.

PHYSICAL INTEGRITY:

01. Insertion & Removal Protocols: The battery must be powered off before any insertion or removal procedures. Non-compliance can lead to damage to the power interface.

02. Battery Care: The battery must not be subjected to disassembly, puncturing, or undue pressure. Such actions can compromise its integrity and safety.

03. Charging Environment: A minimum distance of 30cm must be maintained between batteries and chargers during the charging process to prevent potential electrical failures or fire hazards.

Notes

MAINTENANCE AND STORAGE:

01. Cooling Medium: Only distilled, non-corrosive water is permitted for battery cooling.

02. Water Levels: Water levels within the battery must strictly adhere to the indicated Max and Min levels.

03. Charging Protocols: Prior to charging, the battery socket must be meticulously inspected for cleanliness and moisture. The charging socket and battery interface must be free from any metallic debris or liquid remnants.

04. Temperature Compliance: The battery is designed to operate within the 10°C to 45°C range. Any deviation from this range can lead to severe risks, including potential fire or explosion.

05. Storage Protocols: Post-flight, if the battery's green light is activated, it indicates a requirement to charge the battery to a level between 40%-60% for optimal storage. Periodic full charge-discharge cycles, at least once every 90 days, are mandatory for battery health.

Battery Charger

⚠ WARNING

OPERATIONAL INTEGRITY:

01. Secure Connection: The charger's plug must be securely inserted at all times. Inadequate connections can lead to overcurrent, overheating, and potential fire hazards.

02. Liquid Exposure Prevention: The charger must remain free from any form of liquid, including water and chemicals. Exposure can result in short-circuiting, leading to irreversible damage.

03. Environmental Hazards: The charger must be protected from environmental contaminants such as sand, dust, and foreign objects. Such obstructions can impair the fan's functionality, leading to cooling inefficiencies and potential overheating.

VOLTAGE AND DEVICE HANDLING:

01. Voltage Compliance: The charger must only be operated within its specified voltage limits. Exceeding these limits can lead to severe malfunctions.

02. Device Maintenance: Regular inspections are required to ensure the charger's plug is free from damage, rust, or corrosion. The charger must be stored in a cool, dry environment to ensure its longevity.

03. Physical Care: The charger must be handled with utmost care. Any external damage can compromise its cooling efficiency and overall functionality.

Software and Firmware

⚠ WARNING

FIRMWARE INTEGRITY & SAFETY:

01. Pre-flight Precautions: Prior to embarking on a flight or updating the aircraft's firmware, a preliminary test run of the drone is mandatory, and this must be conducted without its propellers affixed. This ensures the remote controller, motors, and other integral electronic modules are operational. Propellers should only be installed subsequent to a thorough verification of system functionality to mitigate potential hazards.

02. Safety During Updates: During firmware updates, system calibrations, and parameter setting procedures, it is imperative to maintain a secure perimeter, ensuring both humans and animals are at a safe distance.

Notes

FIRMWARE UPDATES & MAINTENANCE:

01. Official Firmware: Utilization of only the official XAG firmware is mandated.

02. Sequential Updates: Post the aircraft's firmware update, it is essential to verify and, if necessary, update the RTK4 and remote controller's firmware to the latest available version.

03. Re-linking Post Update: There exists a possibility of the remote controller becoming unlinked from the aircraft subsequent to an update. In such instances, re-establishing the link between the remote controller and aircraft is crucial.

04. Connection Verification: Prior to initiating a firmware update, all connections must be meticulously inspected.

05. Post-Update Test Flight: In the event of a significant firmware update or a series of concurrent firmware updates, a test flight is mandatory to ensure system integrity.

06. Updates Post Part Replacement: Should any electronic components be replaced, an immediate update of the aircraft firmware is required.

XAG One APP

Notes

APPLICATION MAINTENANCE & USAGE:

01. Version Updates: It is imperative to consistently update the XAG One APP to the most recent version available.

02. Regulatory Compliance: All safety tips, warning messages, and disclaimers provided within the app must be meticulously read and understood. Familiarize yourself with all pertinent regulations within your operational jurisdiction. The onus of being conversant with, and adhering to, all relevant regulations rests solely with the user. Particular vigilance is required in scenarios such as:

    a. Utilizing the RTL (Return to Land) and Auto-landing functionalities.

    b. Configuring the altitude settings beyond the default threshold of 30m.

OPERATIONAL PRECAUTIONS:

⚠ Manual Override: In the event of a warning message being displayed within the app, be prepared to assume manual control of the aircraft using the remote controller.

⚠ Pre-flight Checks: Prior to each flight, it is essential to scrutinize all warning messages presented in the aircraft status list within the app.

⚠ Map Data Caching: Before each operation, ensure you cache the map data for your intended flight area by establishing an internet connection.

⚠ Application Login: An active internet connection is required to log into the XAG One APP. Ensure you are logged in before commencing operations.

⚠ Flight Parameter Verification: It is of paramount importance to review and confirm flight parameters before each flight.

Flight Condition Requirements

Responsible Aircraft Operation

⚠ WARNING

OPERATIONAL SAFETY:

⚠ Physical & Mental Condition: Operation of the aircraft while under the influence of alcohol, drugs, anesthesia, or any other condition that may impair judgment or physical capability is strictly prohibited.

⚠ Motor Interruption: The cessation of motor function during flight is forbidden unless faced with a dire emergency that necessitates such action to prevent further harm or damage.

⚠ Payload Protocols: Releasing, launching, or projecting hazardous materials or objects towards structures, individuals, or animals is unequivocally prohibited.

Notes

LEGAL & ETHICAL CONDUCT:

01. Certification & Training: Prior to any operation, the operator must have completed the requisite drone operation training and possess a valid drone operation certificate as mandated by regional laws.

02. Adherence to Regional Regulations: All operations must strictly adhere to the prevailing regional laws governing drone flights, including but not limited to flight altitudes, operational zones, and visibility requirements.

03. Emergency Protocols: Operators must be adequately trained to manage emergencies and must have established procedures in place for unforeseen incidents.

04. Safety Evaluation: A rigorous safety assessment is mandatory before each flight. Any form of reckless or negligent operation is unacceptable.

05. Illicit Activities: The aircraft shall not be used for any activities deemed illegal or inappropriate, such as espionage, unauthorized military operations, or unsanctioned investigations.

06. Respect for Privacy & Legal Rights: Any operation that infringes upon the privacy, publicity, or other legal rights of individuals is strictly prohibited.

07. Property Boundaries: Unauthorized entry or operation over private properties is forbidden.

Weather Conditions and Surrounding Environment

⚠ WARNING

OPERATIONAL PARAMETERS:

⚠ Weather Constraints: The aircraft is engineered for optimal performance in benign to moderate weather conditions. Operation is strictly limited to sunny, cloudy, or partly cloudy conditions with wind velocities not exceeding 5.4 m/s (19 km/h). Activities under adverse conditions such as rain, snow, frost, fog, thunderstorms, hail, sandstorms, or in the presence of strong winds are unequivocally prohibited. Furthermore, regions with pronounced magnetic interference must be avoided.

⚠ Adverse Weather Protocols: Should the aircraft encounter detrimental weather conditions, such as excessive wind speeds, rain, snow, or hail, during its operation, it is imperative to immediately stabilize the drone in a hover. If prevailing conditions compromise a safe return trajectory, maintain a temporary hover, identify a proximate secure location, and navigate the drone to said location posthaste.

SAFETY & COMPLIANCE:

⚠ Weight Limitations: Strict adherence to the delineated safe take-off weight range, as specified in the official manual, is non-negotiable. Operations that exceed the aircraft's weight constraints are strictly forbidden due to the inherent risks they pose.

⚠ Proximity Restrictions: At all times during flight, the aircraft must maintain a minimum distance of 30 m (98.4 ft) from individuals, fauna, structures, public infrastructure, and water bodies. As the altitude of the aircraft escalates, this distance must be proportionally increased to ensure safety.

⚠ Tank Load Limitations: When loading materials into the tank, it is imperative that the total weight does not surpass the officially recommended threshold. Non-compliance jeopardizes flight safety and is strictly prohibited.

Interference with Flight Controller and Communications

Ⓝ Notes

OPERATIONAL INTEGRITY:

⚠ GNSS Signal Strength: Ensure that the GNSS satellite navigation signal within the designated operational area is robust and reliable. Inadequate signal strength can compromise the execution of tasks and jeopardize operational integrity.

⚠ Environmental Assessment: Prior to commencing any flight, it is imperative to conduct a meticulous evaluation of the surrounding environment. The chosen operational area must be expansive and devoid of towering structures or obstructions. It is of paramount importance to ensure the absence of electromagnetic interference sources, including but not limited to high-voltage power lines, communication base stations, and transmission towers. The operational zone must be sufficiently isolated from potential hazards, obstructions, and unauthorized personnel. Any discernible safety concerns within the vicinity must be promptly addressed and rectified. Indoor flights are strictly prohibited under all circumstances.

Operation Modes, Functions, and Warnings

Operations Modes

⚠ WARNING

⚠ OPERATIONAL SAFETY:

⚠ Mode Familiarity: Prior to any operation, ensure comprehensive understanding of the aircraft's behavior and response under each operational mode:

- Autonomous Mode
- Manual Mode
- AB Mode

⚠ Visual Monitoring: It is imperative to maintain a direct line of sight with the aircraft and continuously monitor its status throughout the operation.

Return to Land (RTL)

Ⓝ Notes

NAVIGATIONAL PROTOCOLS:

01. Obstacle Mapping: In the event of RTL activation, the aircraft is designed to chart a return path that avoids mapped obstacles. Ensure comprehensive mapping of all obstructions within the operational area, inclusive of approach and operational routes. Additionally, set optimal flight altitudes for these routes to ensure safety.

02. Transmission Range: Always operate the aircraft within the effective transmission range of the remote controller.

03. GNSS Dependency: RTL functionality may be compromised or rendered inoperative in the absence of a robust GNSS signal.

04. Building Interference: Tall structures can adversely impact RTL functionality. It is of paramount importance to pre-set an appropriate failsafe altitude prior to each flight. In the presence of a strong remote controller signal, make necessary adjustments to the aircraft's location, altitude, and speed during its return to ensure obstacle avoidance.

ⓘ IMPORTANT

ⓘ **GNSS DEPENDENCY:** The RTL function will not operate in the event of weak or absent GNSS signals. Ensure your drone maintains a strong GNSS connection for the proper function of RTL.

ⓘ **EFFECT OF TALL STRUCTURES:** High-rise buildings can negatively impact the RTL feature. Therefore, it's crucial to establish an appropriate failsafe altitude before each flight. Adjust the aircraft's location, altitude, and speed while returning home to avoid obstacles, provided there is a strong remote controller signal.

ⓘ **TRANSMISSION RANGE:** Operate the drone within the remote controller's transmission range to ensure uninterrupted connectivity and function.

ⓘ **EMERGENCY USE OF RTL:** The RTL function should be used only in emergency situations, as its performance may be influenced by weather conditions, environmental factors, and nearby magnetic fields.

ⓘ **OBSTACLE DETECTION:** If an obstacle is detected within 30 meters of the aircraft, the drone will slow down, brake, and hover in place. In this situation, the RTL mode is disengaged and the drone waits for further commands.

ⓘ **ROUTE OPERATIONS:** If the RTL function is activated during Route operations, the aircraft is capable of planning a flight path to avoid the obstacles that were identified during the field planning phase.

RTL Battery Level

Ⓝ Notes

POWER MANAGEMENT:

⚠ Battery Threshold: If the RTL Battery Level is activated, the aircraft will initiate a landing sequence at the pre-set battery level. A setting of 25% is recommended for optimal safety.

Low Battery

Ⓝ Notes

EMERGENCY PROTOCOLS:

⚠ Automatic Descent: Upon reaching the critical battery threshold, the aircraft will automatically initiate a descent sequence.

⚠ Immediate Response: In the event of battery warnings, it is imperative to expediently navigate the aircraft back to the Home Point or execute a safe landing. This is crucial to prevent potential power depletion during flight, which could result in damage to the aircraft, property, fauna, or pose a risk to human safety.

Storage and Transportation

Responsible Aircraft Operation

⚠ WARNING

SAFETY AND INTEGRITY OF COMPONENTS:

- ⚠ Hazardous Components: Small components, including cables and tubes, pose a significant ingestion risk. Ensure these parts are securely stored and remain inaccessible to children and animals.
- ⚠ Aircraft Security: During transportation, it is imperative to securely strap the aircraft to prevent any movement or potential damage.
- ⚠ Battery Removal: Prior to transportation, remove the battery from the aircraft to mitigate risks associated with battery damage or malfunction.
- ⚠ Tank Emptying: Ensure that both the liquid and granular tanks are emptied before transportation. Any residual content can pose risks during transit.

Maintenance

⚠ WARNING

UPKEEP AND SAFETY OF COMPONENTS:

- ⚠ Post-Operation Cleaning: It is imperative to meticulously clean all components of the aircraft after each spraying or spreading operation. For comprehensive cleaning guidelines, refer to the "After-Flight Maintenance & Care" section.
- ⚠ Remote Controller Maintenance: After each operational day, cleanse the surface and antennas of the remote controller using a cloth dampened with water, ensuring it is well-wrung to prevent excess moisture.
- ⚠ Routine Inspection: Conduct a thorough examination of every component of the aircraft in alignment with the stipulations of the Maintenance guide.
- ⚠ Unauthorized Repairs: Under no circumstances should one attempt to repair the aircraft independently. For repair guidance, contact Support@xagaustralia.com.au.
- ⚠ Authorized Parts: Utilize only official XAG-approved spare parts for any repair or replacement needs.

Notes

POST-INCIDENT PROTOCOLS:

Incident Assessment: Should the aircraft be involved in an incident or collision, it is mandatory to conduct a rigorous inspection of all its parts. Any required repairs or replacements must be addressed prior to the next flight. Alternatively, for a comprehensive evaluation, contact Support@xagaustralia.com.au to facilitate the return of the aircraft to our warehouse.

Compliance with Regulations & Flight Limits

⚠ WARNING

REGULATORY ADHERENCE:

- ⚠ Aircraft Modification: Under no circumstances should the aircraft be altered or employed for non-agricultural purposes.
- ⚠ Proximity to Manned Aircraft: It is strictly prohibited to operate in the vicinity of manned aircraft. Should such a situation arise, ground the aircraft immediately.
- ⚠ Interference with Manned Operations: Ensure the aircraft does not disrupt manned aircraft operations. Maintain vigilant awareness of other aircraft and obstacles.
- ⚠ Event Zones: Refrain from operating the aircraft in zones hosting significant events, including but not limited to, sports events and concerts.
- ⚠ Legal Restrictions: It is imperative to avoid flying in areas where local regulations prohibit drone operations.

ⓘ IMPORTANT

OPERATIONAL GUIDELINES:

- ⓘ Restricted Zones: Do not operate the aircraft in zones designated as restricted by local regulations. Such zones encompass airports, international borders, major urban areas, and event locations. Be apprised that these zones are subject to change.
- ⓘ Altitude Restrictions: Ensure the aircraft does not exceed legally sanctioned altitudes.
- ⓘ Visual Line of Sight (VLOS): The aircraft must always remain within the operator's visual line of sight. If necessary, employ an observer for assistance.
- ⓘ Payload Restrictions: The aircraft must not be used to transport illicit or hazardous materials.

Ⓝ Notes

OPERATIONAL COMPLIANCE:

- ⚠ Regulatory Understanding: Prior to operation, ascertain the nature of your flight (e.g., recreational, public, commercial) and secure the necessary permissions from relevant governmental bodies. Engage with local regulatory agencies for detailed guidelines.
- ⚠ Sensitive Zones: Refrain from operating in or near areas of sensitive infrastructure, including power plants, water facilities, prisons, major roadways, governmental buildings, and military installations.

Flight Limits

OPERATIONAL COMPLIANCE:

Maximum Altitude: The aircraft should not exceed an altitude of 100 m (328 ft) above ground level. Always be cognizant of surrounding obstacles.

Distance Limit:

Operational Range: The aircraft's maximum configurable flight distance is set at 1 km (0.62 mi). Ensure that the aircraft remains within a range that allows for a safe return, considering battery levels.

Safety

Pesticide Usage

- Pesticides are poisonous and pose severe risks to safety. Only use them in strict accordance with their specifications.
- Chemicals residues on the equipment caused by splashes or spills during refilling or mixing can irritate your skin, rinse with clean water and seek medical attention accordingly.
- Uses clean water or specialised mixing agents prescribed by Experts or Agronomist for mixing chemicals.
- Ensure to stay in an upwind location when conducting chemical spraying to reduce and avoid health hazards.
- Wear protective clothing and avoid direct physical contact with chemicals. Rinse your hands and skin after handing chemicals and post-Flights.
- Effective use of pesticides depends on chemical density, spray rate, spray distance, flight speed, wind speed, wind direction, temperature, humidity, and more... Consider all factors and applicable laws or regulations when using chemicals.
- Do not compromise the safety of people, animals, or the environment.
- Do not contaminate rivers and sources of drinking water.

Environment Considerations

- Consider the surroundings and ensure a safe distance from obstacles or people.
- If there is strong wind, rain, snow, hail, or other adverse weather conditions, return or land the aircraft at a safe location.
- Maintain a Visual line of sight of your aircraft at all times.
- Make sure your operations do not violate any applicable laws or regulations and have obtained all appropriate authorisation before the operations. Consult with the relevant government agency or authority to ensure compliance with all relevant laws and regulations.

Flight Operation

- Pre-flight Calibration and Inspection must be conducted before Operation.
- Stand clear and do not approach rotating propellers and motors.
- Operate within the specified max take-off weight to avoid potential safety risks which may result in serious injury to yourself and/or others, damage to your Products, and/or other objects in the vicinity.
- Maintain a Visual line of sight of your aircraft at all times.
- If the radar is not operating properly in the operating environment, the aircraft will not be able to avoid obstacles that are not previously mapped within the APP. Manual Control is recommended to ensure flight safety.
- Maintain complete control of the aircraft at all times. Obstacle avoidance is disabled in certain situations and operating environments.
- Effectiveness of the Obstacle radar is dependent on the obstacle's material, location, shape, size, etc. Maintain visual line of sight and pay attention to its flight, and prepare to operate the aircraft and manually avoid obstacles promptly or during an emergency.
- Strictly forbidden to conduct obstacle avoidance tests on humans or animals (regardless of static or dynamic) as obstacles, it is also strictly prohibited for humans, animals, or objects to obstruct, interfere or impact the aircraft directly.
- DO NOT fly above or near a populated area or population.
- DO NOT fly when you are fatigued or under the influence of alcohol or drugs.

Ingress Protection Rating

Under stable laboratory conditions, this aircraft has a protection rating of IPX7, which is waterproof, dustproof, corrosion-resistant, and can be cleaned using a small amount of water. However, this protection is not permanent and may reduce overtime after long-term use due to aging and wear. Liquid leakage or penetration may damage electrical and internal components, and it is not covered by the Product warranty.

Some of the scenarios that may decrease the Ingress Protection include but are not limited to the following:

- There is a flight incident/collision causing the sealing to deform.
- Sealing structure is cracked or damaged.
- Waterproof covers or sealing are not adequately secured or installed.

Maintenance and Upkeep

- Check & ensure the equipment is in good condition; replace aged or broken parts before the flight.
- Check & ensure the correct Propellers & Propeller Type (CW & CCW) are correctly installed.
- Conduct Regular Maintenance & record Logbook per warranty and regulation requirements.
- Use only XAG-approved parts and accessories for the maintenance and repair of your aircraft. Our approved parts are designed and tested to ensure optimal performance and safety. Your satisfaction and safety are our top priorities.

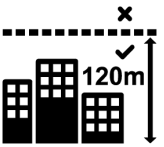
⚠ WARNING

Please be aware that the use of third-party parts or accessories in the maintenance, repair, or operation of your XAG aircraft may lead to the immediate voiding of your warranty. XAG's warranty is designed to cover our products when used as intended, with parts and accessories that have been expressly approved by XAG Australia.

Furthermore, XAG will not be held responsible or liable for any damages, incidents, or accidents that may arise as a result of the use of third-party parts or accessories. This includes but is not limited to, operational failures, mechanical malfunctions, or any potential harm to operators, bystanders, or property.

Abide Local Laws and Regulations

Visit - Know Your Drone - for a safe and responsible flight



You must not fly your drone higher than 120 metres (400 feet) above ground level.

You must keep your drone at least 30 metres away from other people.

Remember, you must not operate your drone in a way that creates a hazard to another aircraft, person or property.

You must keep your drone within visual line-of-sight. This means always being able to see the drone with your own eyes (rather than through a device, screen or goggles).

You must not fly over or above people or in a populous area. This could include beaches, parks, events, or sport ovals where there is a game in progress.

Respect personal privacy. Don't record or photograph people without their consent — this may breach other laws.

You must not fly your drone over or near an area affecting public safety or where emergency operations are underway. This could include situations such as a car crash, police operations, a fire or firefighting efforts or search and rescue.

If you're near a helicopter landing site or smaller aerodrome without a control tower, you can fly your drone within 5.5 kilometres. If you become aware of manned aircraft nearby, you will have to manoeuvre away and land your drone as quickly and safely as possible.

If your drone weighs more than 250 grams, you must fly at least 5.5 kilometres away from a controlled airport, which generally have a control tower at them.

Content

P100 Pro Agricultural RPA

Product Profile

The epitome of progress and efficiency in agricultural drone technology. This marvel of innovation is fortified with enhanced strength and a larger payload capacity, taking your farming capabilities to new heights. The P100 Pro is designed with an industry-leading detachable design, offering you the versatility to switch between crop protection and spreading tasks with ease.

The P100 Pro's foldable arms are a testament to its practicality, simplifying transportation and setup. What sets it apart is the multitude of control methods available, ensuring an optimal solution for a wide array of farming scenarios. Retaining the advanced quadcopter design, the XAG P100 Pro Agricultural Drone can effortlessly carry a rated payload of up to 50kg and reach a top speed of 13.8 meters per second.

The P100 Pro is coupled with the XAG® RevoSpray and RevoCast Systems, our two significant task modules. The RevoSpray and RevoCast Systems come equipped with a 50L smart liquid tank and an 80L granule container respectively, enabling you to spray up to 19 hectares per hour and spread up to 1300 kg per hour – an unrivalled efficiency in the agricultural industry.

The XAG® RevoSpray P3 System is armed with potent centrifugal atomizing nozzles, which can precisely adjust droplet sizes from 60 to 500 microns. This system also features a maximum flow rate of 22L per minute, enabling comprehensive and precise spraying even at high flying speeds. With a non-contact level sensor, the smart liquid tank ensures you always have a clear view of the remaining liquid level.

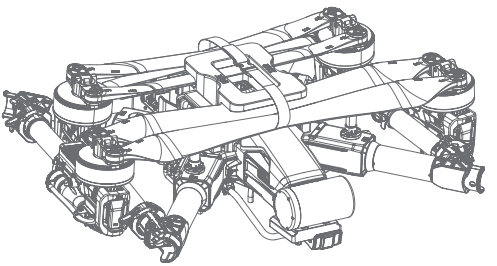
Complementing the RevoSpray is the XAG® RevoCast P3 system, upgraded with a smart screw feeder that increases the maximum discharge rate to 150kg per minute. Its vertical centrifugal broadcasting disc allows for a quick, direct, and precise spread of granules. The system's container includes an external residual sensor, keeping you informed of the remaining status of seeds or fertilizers during flight.

The P100 Pro has also taken significant strides in safety with the improved 4D imaging radar system, which provides a broader and more sensitive vision for obstacle detection and avoidance, even at high speeds.

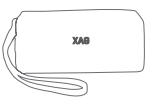
The XAG P100 Pro Agricultural Drone is not just an agricultural tool, but a testament to the future of farming. Unparalleled in flight automation and efficiency, it's more than just a drone – it's a pro in every flight. Welcome to the future of farming with the XAG P100 Pro Agricultural Drone.

List of Items – P100 Pro

Please check that the following items are all present when unpacking the box. Should there be any item missing, please contact your dealer.

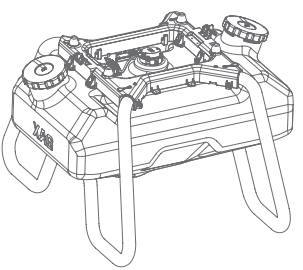


Airframe
×1

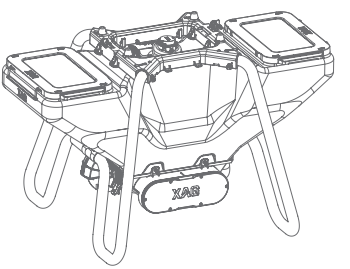


Tool Kit
×1

XAG® Optional Payload System

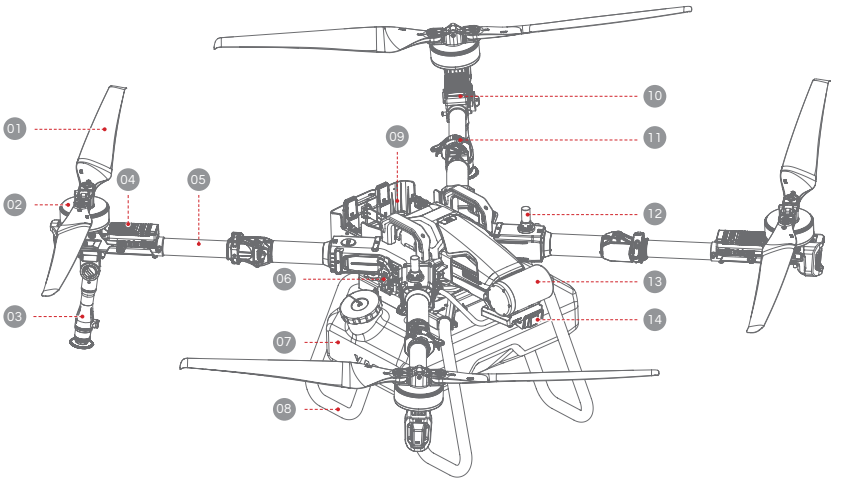


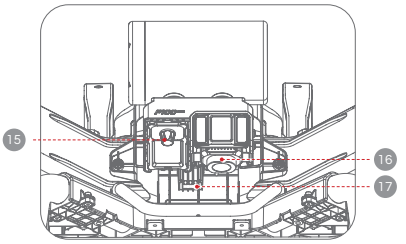
XAG® RevoSpray P3
(Optional)



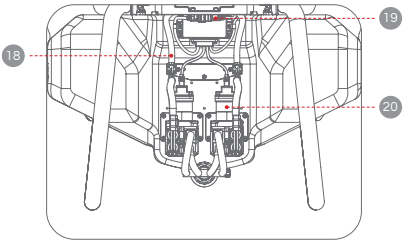
XAG® RevoCast P3
(Optional)

Overview – P100 Pro



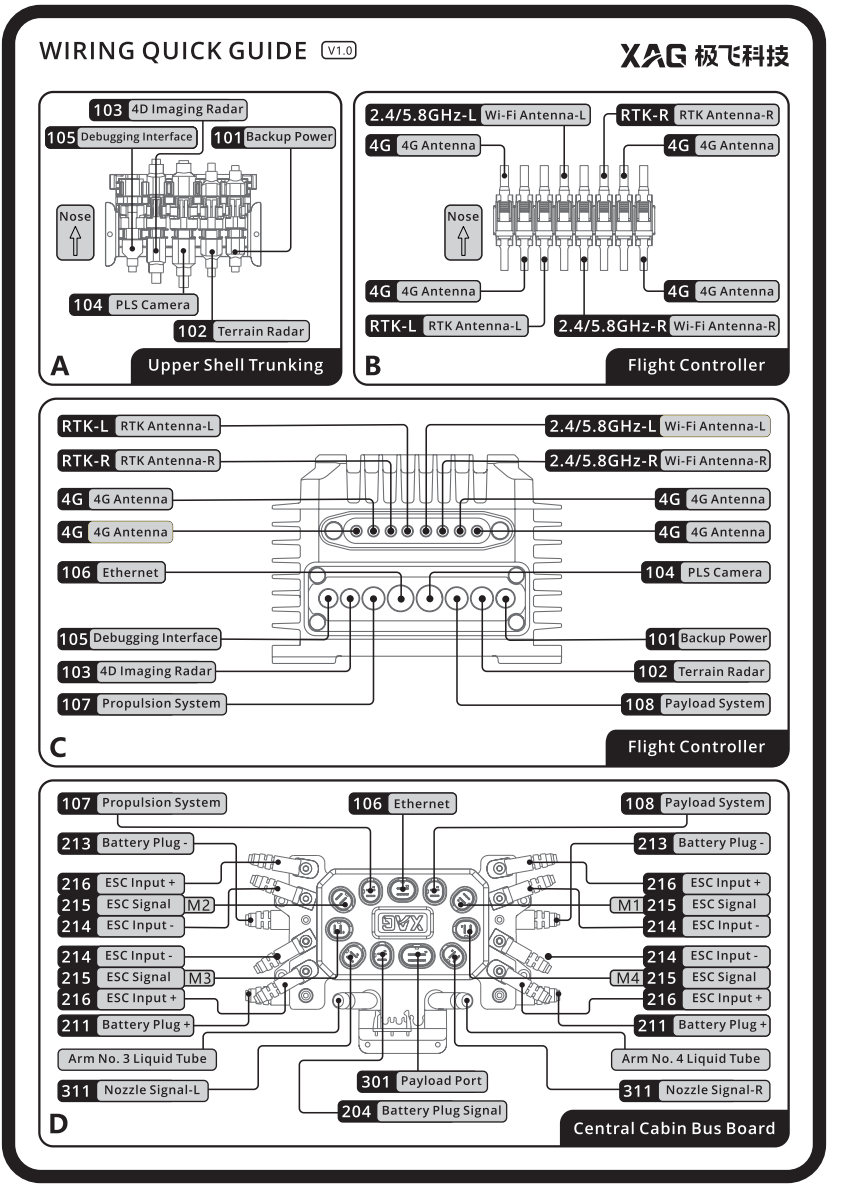


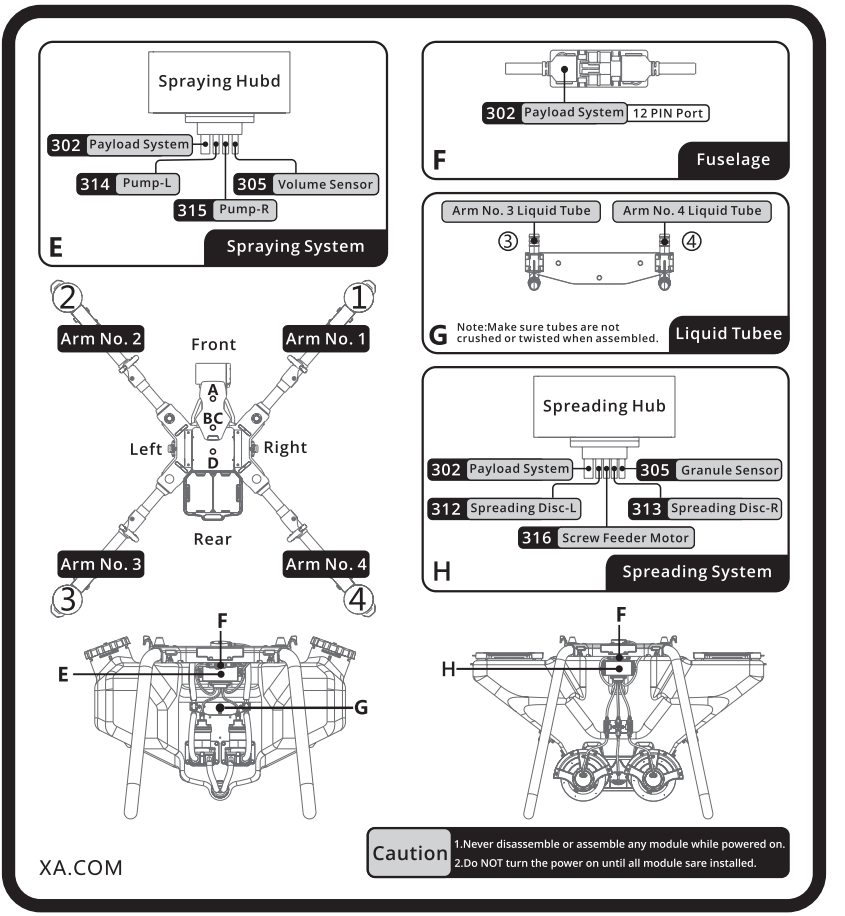
Front Bottom View



Rear View

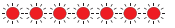
01	Propeller	11	Arm Fastener
02	Motor	12	RTK Antenna
03	Spraying Bar	13	4D Imaging Radar
04	ESC	14	Forward PSL Camera
05	Foldable Arm	15	Terrain Radar
06	Airframe Hasp	16	Downward PSL Camera
07	Liquid Tank	17	UPS Module
08	Landing Gear	18	Liquid Tube
09	Battery Compartment	19	Peristaltic Pump
10	Arm Light	20	Payload System Cable


WIRING QUICK GUIDE V1.0
XAG 极飞科技
103 4D Imaging Radar
105 Debugging Interface
101 Backup Power
Nose
104 PLS Camera
102 Terrain Radar
A
Upper Shell Trunking
2.4/5.8GHz-L Wi-Fi Antenna-L
RTK-R RTK Antenna-R
4G 4G Antenna
4G 4G Antenna
Nose
4G 4G Antenna
4G 4G Antenna
RTK-L RTK Antenna-L
2.4/5.8GHz-R Wi-Fi Antenna-R
B
Flight Controller
RTK-L RTK Antenna-L
RTK-R RTK Antenna-R
4G 4G Antenna
4G 4G Antenna
106 Ethernet
105 Debugging Interface
103 4D Imaging Radar
107 Propulsion System
2.4/5.8GHz-L Wi-Fi Antenna-L
2.4/5.8GHz-R Wi-Fi Antenna-R
4G 4G Antenna
4G 4G Antenna
104 PLS Camera
101 Backup Power
102 Terrain Radar
108 Payload System
C
Flight Controller
107 Propulsion System
106 Ethernet
108 Payload System
213 Battery Plug -
216 ESC Input +
215 ESC Signal
214 ESC Input -
M2
214 ESC Input -
215 ESC Signal
216 ESC Input +
M3
211 Battery Plug +
Arm No. 3 Liquid Tube
311 Nozzle Signal-L
301 Payload Port
204 Battery Plug Signal
213 Battery Plug -
216 ESC Input +
M1
215 ESC Signal
214 ESC Input -
214 ESC Input -
M4
215 ESC Signal
216 ESC Input +
211 Battery Plug +
Arm No. 4 Liquid Tube
311 Nozzle Signal-R
D
Central Cabin Bus Board


Spraying Hubd
302 Payload System
314 Pump-L
305 Volume Sensor
315 Pump-R
E
Spraying System
302 Payload System 12 PIN Port
F
Fuselage
Arm No. 3 Liquid Tube
Arm No. 4 Liquid Tube
③
④
G
Note:Make sure tubes are not crushed or twisted when assembled.
Liquid Tubee
2
1
Arm No. 2
Front
Arm No. 1
A
BC
D
Left
Right
Rear
Arm No. 3
Arm No. 4
3
4
Spreading Hub
302 Payload System
305 Granule Sensor
312 Spreading Disc-L
313 Spreading Disc-R
316 Screw Feeder Motor
H
Spreading System
F
E
G
F
H
XA.COM
Caution
1.Never disassemble or assemble any module while powered on.
2.Do NOT turn the power on until all module sare installed.

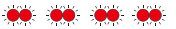
Status Indicator

Status Indicator – SuperX4 FC

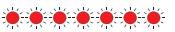
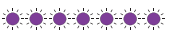
FC Indicator – RTK		Description
Slow Flash – Green		Normal
Rapid Flash – Green		Insufficient Satellites (<16) Heading Accuracy >2°
Slow Flash – Red		RTK Timeout > 10s
Rapid Flash – Red		Exited RTK, no differential signal, no heading.
Solid Red		Not positioned or searching for satellites, no output from the board
Red & Green Alternate Flashing		Initializing / Configurating
Rapid Flash – Red & Green Alternate		Updating firmware

FC Indicator – 4G		Description
Slow Flash – Green		Cloud Communication connected
Slow Flash – Red		Cloud Communication disconnected

FC Indicator – Wi-Fi		Description
Slow Flash – Red		Disconnected from Wi-Fi module
Slow Flash – Green		Connected to Wi-Fi module
Slow Flash – Orange		Flight controller's Wi-Fi hotspot enabled

FC Indicator – Control System		Description
Solid Green		In operation
Solid White		File system mounting failed
Flashing Red (Slow)		Taking-off / Landing
Single Flashing Red		GPS malfunctioning/dramatic satellite loss
Single Flashing Green		Attitude mode
Single Flashing Blue		Manual mode
Single Flashing Purple		Initialization failed or preheating
Flashing Red (Fast)		Sensor error
Flashing Blue (Fast)		Propulsion system error
Flashing Purple (Fast)		Underlying controller formatting/incorrect parameters
Double Flashing Red		Flight in safe mode
Double Flashing Green		Manual GPS mode; good GPS signal
Flashing Red & Green		Weak GPS signal
Triple Flashing Red		Low voltage
Triple Flashing Green		Auto GPS mode; good GPS signal
Red/Green/Blue Alter-nating Flashing		Unlocking

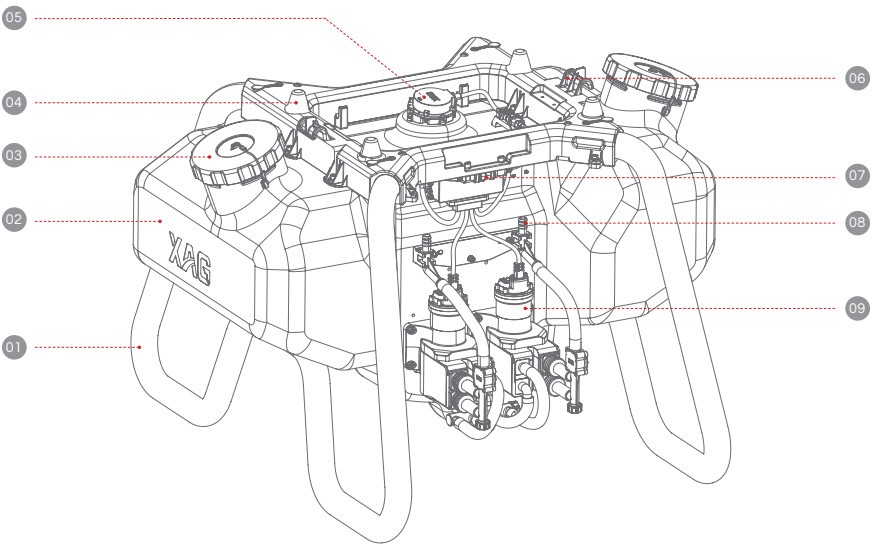
Status Indicator – Arm (Operation Mode)

Status Indicator (Arm) – Operation Mode		Description
Solid Green		In operation
Solid White		File system mounting failed
Flashing Red (Slow)		Taking-off / Landing
Single Flashing Red		GPS malfunctioning/dramatic satellite loss
Single Flashing Green		Attitude mode
Single Flashing Blue		Manual mode
Single Flashing Purple		Initialization failed / Preheating
Flashing Red (Fast)		Sensor error
Flashing Blue (Fast)		Propulsion system error
Flashing Purple (Fast)		Underlying controller formatting/incorrect parameters
Double Flashing Red		Flight in safe mode
Double Flashing Green		Manual GPS mode; good GPS signal
Flashing Red & Green		Weak GPS signal
Triple Flashing Red		Low voltage
Triple Flashing Green		Auto GPS mode; good GPS signal
Red/Green/Blue Alter-nating Flashing		Unlocking
Illumination Red		Entering; returning; avoiding/bypassing obstacles

Status Indicator (Arm) – Firmware Update Mode		Description
Red Light ON for 2s		Update failed
Green Light ON for 2s		Updated
Flashing Cyan (Slow)		ESC updating
Flashing Cyan (Fast)		ESC requesting to be updated
Flashing White (Fast)		Updating
Illuminating Blue		Updates detected by underlying controller; waiting for the update

XAG® RevoSpray P3

Overview – RevoSpray P3

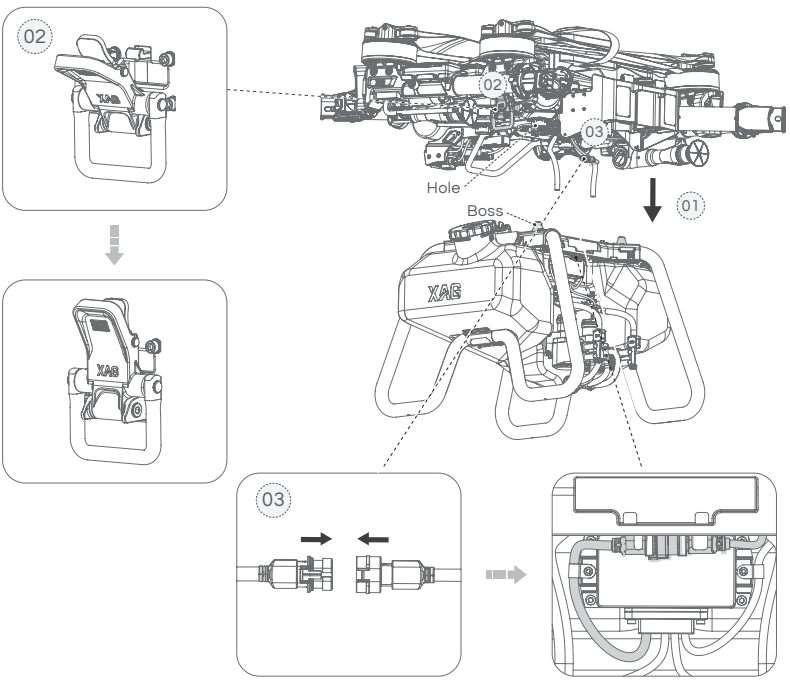


01	Landing Gear	06	Frame Hook
02	Liquid Tank	07	System Cable
03	Liquid Tank cap	08	Liquid Tube Connector
04	Boss alignment	09	Peristaltic Pump
05	Liquid level sensor		

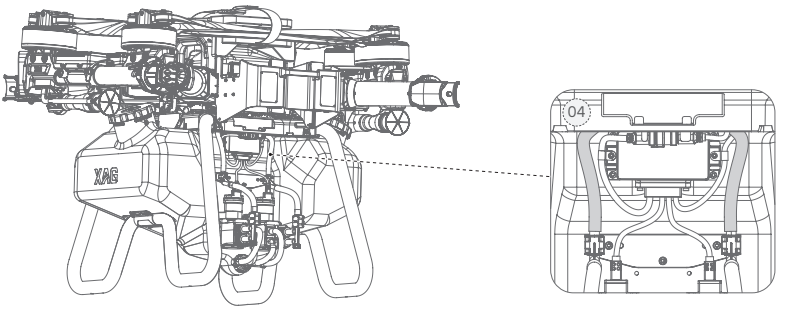
Assembling RevoSpray P3

INSTRUCTION

01. Start by aligning the Airframe's alignment hole with the Boss alignment on the RevoSpray System. Once they are correctly aligned, gently place the airframe onto the RevoSpray.
02. Proceed to lock and secure the two Airframe Hasps to the RevoSpray System. Ensure the Airframe and the RevoSpray System are tightly connected for optimal performance and safety.
03. Next, connect the Airframe's payload system cables to the RevoSpray's System cable. After establishing the connection, fasten the cable securely to the cable holder.



04. Lastly, connect the two liquid tubes to the connectors of the Peristaltic pumps. Secure the connected liquid tubes with cable ties to prevent disconnection or leakage.



IMPORTANT

- It's crucial to conduct calibration during the initial use or after replacing the Peristaltic Pump. This procedure helps to ensure system accuracy and optimal performance.
- Calibration should also be conducted after the swapping of any Task system, such as RevoCast or RealTerra, to ensure proper system operation and to prevent potential errors.

Disassembling RevoSpray P3

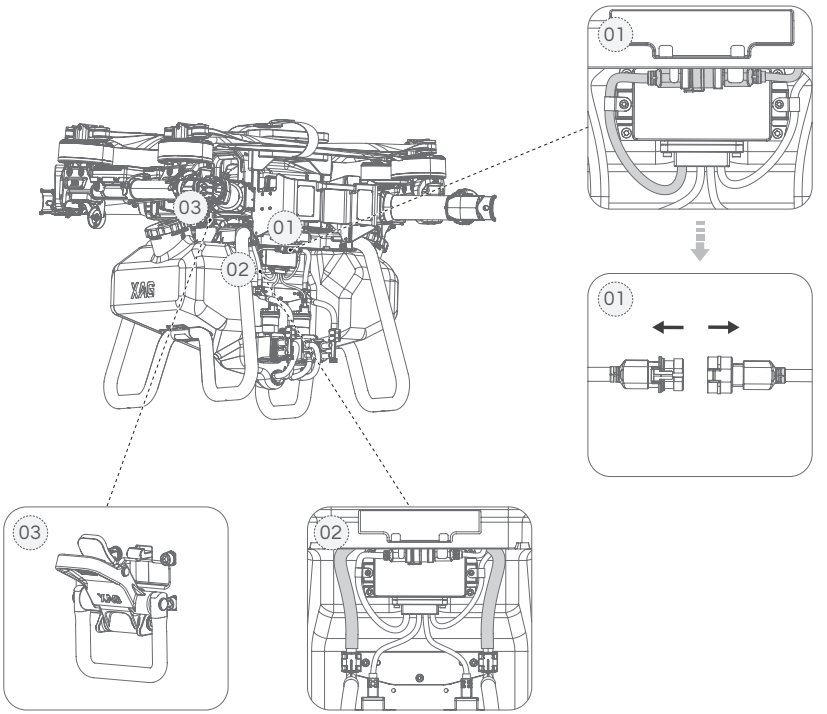
Cleaning

Chemicals can be corrosive, causing erosion within the equipment and reducing its lifespan. It is recommended to thoroughly clean the aircraft after each operation and before disassembling or swapping the Payload System.

INSTRUCTION

01. Refill the Liquid Tank with a solution of soap water or soap powder water, and engage all nozzles to drain and clean out any remaining residues within the spray system.
02. After the first cleaning, refill the Liquid Tank with clean water and engage all nozzles again, using the APP or Remote Controller. This will help to drain and clean out the remaining soap water within the spray system.
03. Finally, place an empty Liquid Tank and engage all nozzles one more time to drain and clean out any remaining residues within the spray system. This step will prevent residue leakage during transportation that could potentially damage other items.
04. Using a damp rag, wipe and clean the exterior of the aircraft and the Liquid Tank to remove any stains and foreign objects.

Disassembling



PREREQUISITE

√ Batteries is turned OFF and removed from the Airframe.

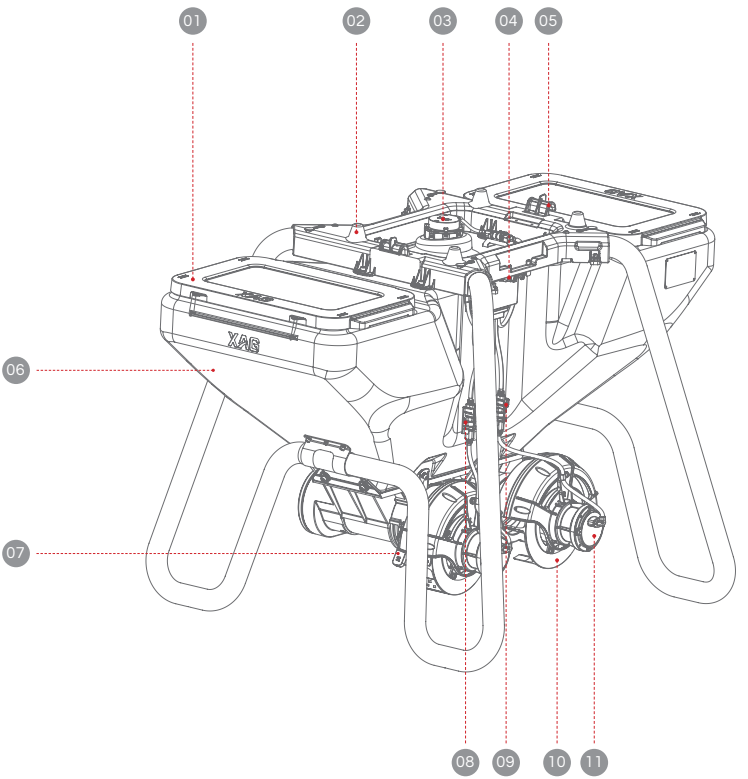
√ Airframe is cleaned, and chemicals residues are drained.

INSTRUCTION

01. Unsecure the System Cables from the cable holder, then disconnect the System cable connecting the payload system to the Airframe.
02. Disconnect the two liquid tubes from the Peristaltic pumps.
03. Unlock the two Airframe Hasps, then remove the Airframe from the RevoSpray.

XAG® RevoCast P3

Overview – RevoCast P3

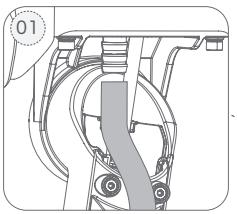


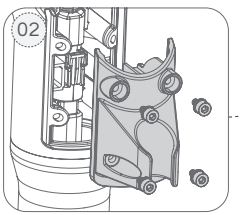
01	Material container cover	06	Material container
02	Boss alignment	07	Quick Assembly unit Hasp
03	Residual sensor	08	Spreader Motor Cable (L)
04	Frame Hook	09	Spreader Motor Cable (R)
05	System cable	10	Spreader Disc
		11	Spreader Motor

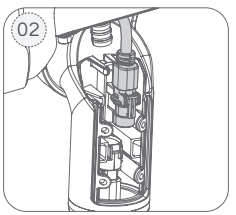
Assembling RevoCast P3

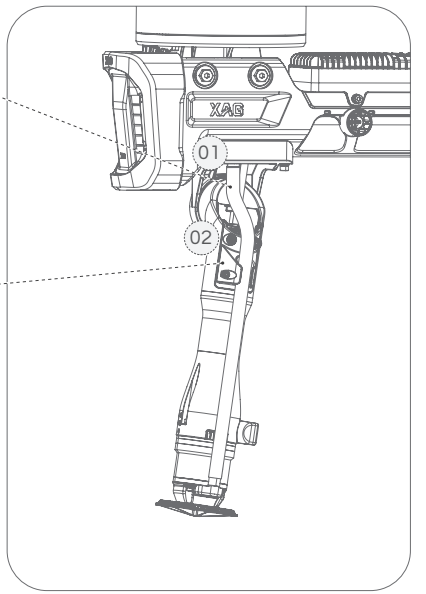
Detaching Aircraft's Spray Bar

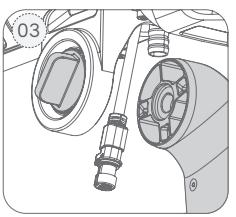
Before initiating the spreading process with your RevoCast System, it's of utmost importance to disassemble the left and right spray bar assemblies. This proactive measure helps prevent any possible damage to these assemblies during the spreading operation. Follow the instructions below for detailed steps on how to safely remove the spray bar assemblies:

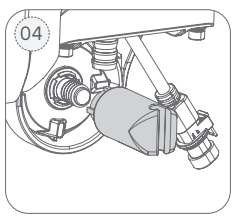


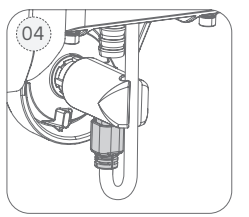












INSTRUCTION

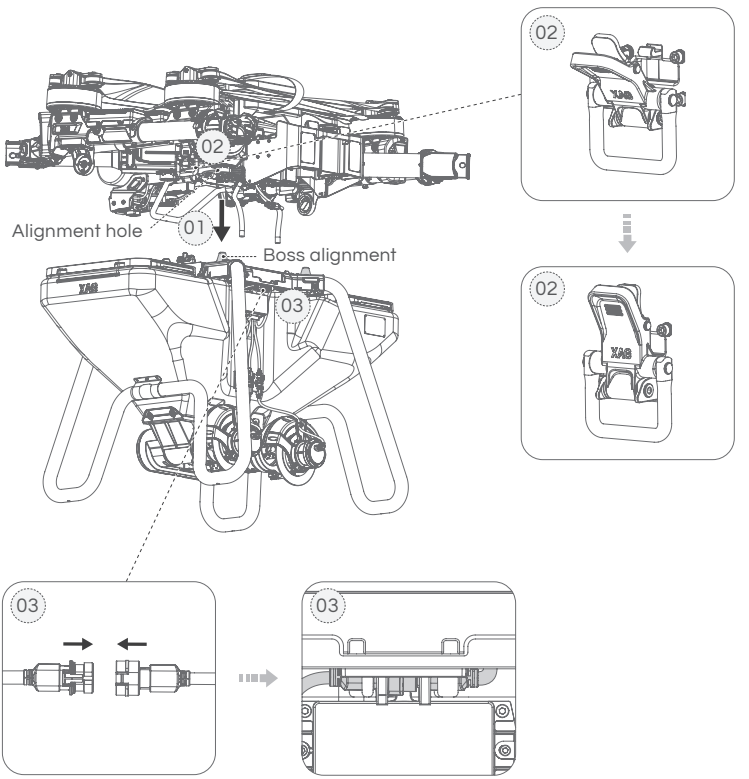
01. Start by detaching the Liquid Tube from the Spray bar that is connected to the Airframe arm. Handle with care to prevent any damage.
02. Next, locate the screws that secure the spray bar junction cover and unscrew them. Once the cover is loosened, proceed to carefully disconnect the Nozzle Cable. After safely removing this cable, reinstall the spray bar junction cover by retightening the screws.
03. Find the spray bar knob and slowly rotate this knob in a counterclockwise direction until it's fully unlocked. Then, with caution, remove the spray bar assembly.
04. Arrange the wire harness receptacle so that it points downwards. Line up this receptacle with the base of the spray bar for installation. After proper alignment, tighten the spray bar knob to fasten it securely in place. To conclude the installation, gently insert the spray head signal wire into the wire harness receptacle.

Assembling

PREREQUISITE

√ Ensure chemicals residues within the Spray System are drained.

√ Ensure cleaning of the aircraft are conducted before the disassembly of the RevoSpray.



INSTRUCTION

01. Start by aligning the airframe's alignment hole with the Boss alignment on the RevoCast System. Once aligned, gently place the airframe onto the RevoSpray.

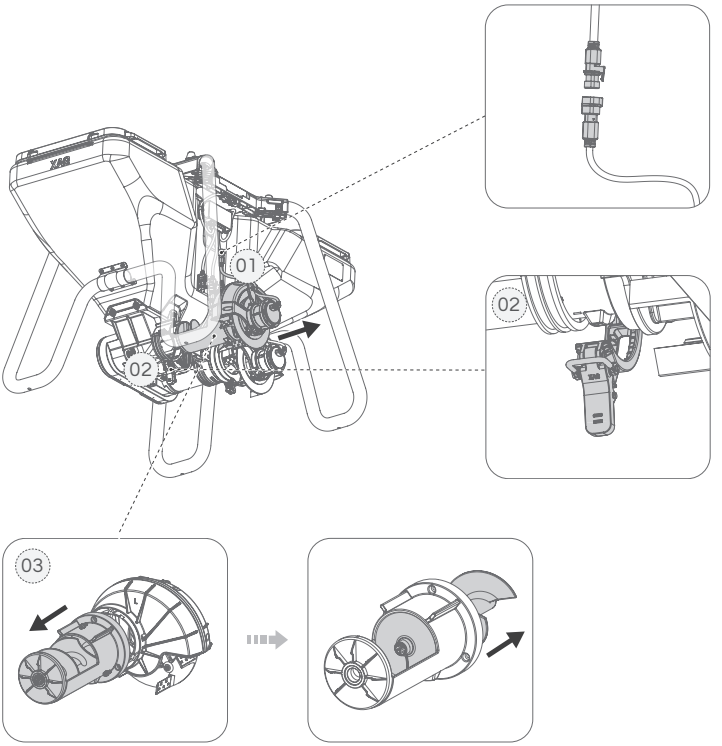
02. Proceed to lock and secure the two Airframe Hasps to the RevoCast System. Make sure the Airframe and the RevoCast System are firmly secured to prevent any misalignment during operation.

03. Finally, connect the payload system cables from the Airframe to the RevoCast System's cable. After the connection, affix and securely fasten the cable to the cable holder.

IMPORTANT

- Calibration is a mandatory procedure during the first use of the RevoCast System or after the replacement of the Spiral Feeder. This step ensures the accuracy and optimal performance of the system.
- Calibration should also be conducted after the swapping of any Task system (like RevoSpray or RealTerra) or the Spiral Feeder. This step helps to maintain the proper operation of the new system and prevents any potential operational errors.

Changing the Spiral Feeder



01. Begin by disconnecting the Spreader Motor Cable.

02. Proceed by releasing the hasp on the Quick Assembly unit. Once it has been released, carefully remove the Quick Assembly Unit from its position.

03. Identify the three screws that secure the Spiral Feeder in place. With a suitable tool, unscrew these, then carefully remove the Spiral Feeder from its compartment.

04. Install the new Spiral Feeder into the designated spot. Confirm that it fits accurately before securing it firmly in place with the three screws.

05. Return the Quick Assembly Unit to its original position, ensuring it aligns correctly with the associated fittings.

06. Once aligned, tighten the hasp to fix the Quick Assembly Unit in place. Following its successful fixation, reconnect the Spreader Motor Cable, ensuring the cable is firmly connected to prevent any loose connections.

07. Finally, conduct a thorough calibration to confirm the RevoCast System is functioning as intended. Please refer to the 'Calibration - RevoCast' section of this manual for a detailed guide on this procedure.

⚠ WARNING

⚠ Consistency in using the same model of Spiral Feeder is vital. The use of different models can lead to system damage and imbalanced spreading. Always verify that the Spiral Feeder model aligns with the specifications of your RevoCast System.

⚠ Both the Spiral Feeder and Quick Assembly Unit must align accurately with their corresponding fittings. Misalignment could cause granule leakage, leading to inefficient spreading and potential equipment damage.

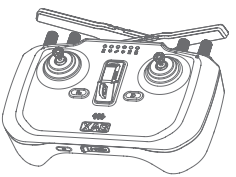
Remote Controller – ARC3 Pro

Product Profile

XAG Agricultural Remote Controller 3 Pro (ARC3 Pro), a screen-free, hands-on tool engineered specifically for modern farming. Equipped with a dedicated RTK positioning module, the ARC3 Pro unlocks high-precision mapping for unprecedented accuracy. It boasts four user-friendly knobs and multiple buttons tailored for XAG agricultural drones, simplifying farm equipment operation. The ARC3 Pro stands out with its advanced WiFi+4G networking and dual SIM dual standby capabilities, allowing standalone operation without the need for an app. Experience a leap in efficiency and control with the ARC3 Pro - transforming the landscape of agricultural remote operation.

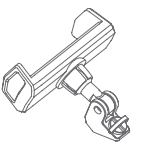
List of Items – ARC3 Pro Remote Controller

Please carefully check if the product contains all the items listed below and your dealer if there are any missing items.



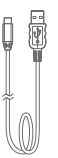
ARC3 Two-handed Pro Remote Controller
×1

RTK Module
×1



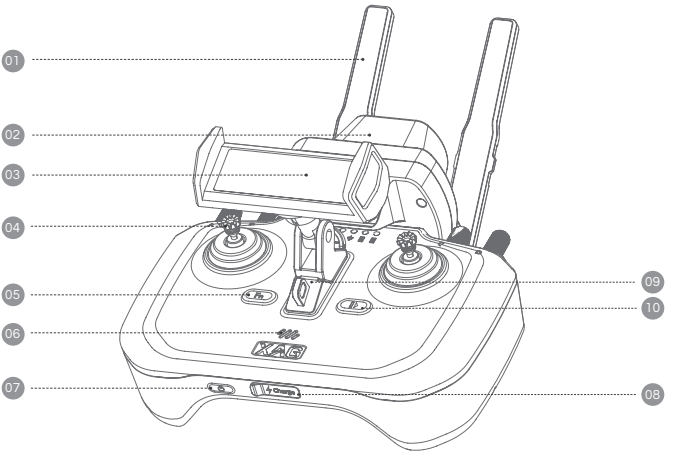
Phone Holder
×1

Neck Strap
×1

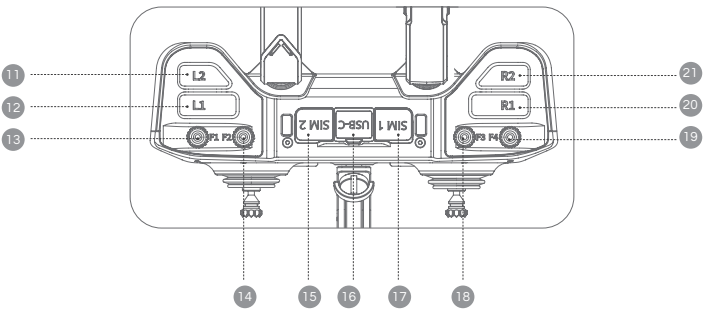


USB-A To Type-C Cable
×1

Overview – ARC3 Pro Remote Controller



01	Antenna	06	Buzzer
02	RTK Module	07	Power Button
03	Phone Holder	08	Charging Port
04	Joystick	09	Neck Strap Ring
05	Fn Button	10	Pause/Resume



11	L2 Button	16	USB-C Port
12	L1 Button	17	SIM1 Card Slot
13	F1 Knob	18	F3 Knob
14	F2 Knob	19	F4 Knob
15	SIM2 Card Slot	20	R1 Button
		21	R2 Button

Status Indicator

Battery Indicator

When the remote controller is OFF, press the power button once to display the battery level. The battery level is indicated by the 6 Status Indicator.

Status Indicator	Description
1 Solid Green	Battery level: 01% - 20%
2 Solid Green	Battery level: 21% - 35%
3 Solid Green	Battery level: 36% - 50%
4 Solid Green	Battery level: 51% - 65%
5 Solid Green	Battery level: 66% - 80%
6 Solid Green	Battery level: 81% - 100%

When the remote controller is ON, the battery indicator displays the current battery level.

Battery Indicator	Description
Solid Red	Battery level: 01% - 20%
Solid Yellow	Battery level: 21% - 50%
Solid Green	Battery level: 51% - 100%
1 Light Flashing	Quick Charging

Mobile Network Indicator

Mobile Network	Description
OFF	SIM Card not detected
Solid Red	Communication error
Solid Yellow	Communication normal (LNT)
Solid Green	Communication normal (LAN)
Flash Green	LAN/WAN Communication

Wireless Communication Indicator

Wireless Communication	Description
OFF	Aircraft not connected
Flash Yellow	Pairing
Flash Green	Initializing remote controller
Solid Green	Aircraft connection normal

External Device Indicator

External Device	Description
OFF	RC has no RTK Module
Solid Red	RTK module – Error
Solid Yellow	RTK module – Standby Mode
Flash Green (Single)	Positioning, Not ready for Mapping
Flash Green (Double)	Ready for mapping (Single Positioning)
Solid Green	Ready for mapping (RTK Positioning)

Function Indicator A

Function Indicator A	Description
OFF	Mode – Autonomous
Solid Green	Mode – Manual
Flash Green	Mode – Auxiliary
Flash Yellow	RTL / Emergency landing
Solid Yellow	Manual flight mapping (Compatible Aircraft Only)
Solid Red	Joystick error, Calibration required

Function Indicator B

Function Indicator B		Description
OFF		Manual spray – OFF
Solid Green		Manual spray – ON
Flash Yellow		Container volume – LOW

Remote Controller Alert

The remote controller of your drone is more than just a device to guide the drone's movement; it's also a vital tool that communicates essential information about the status of the controller and the drone itself. It does so through a series of beeping sounds. By understanding these auditory signals, you can maintain better control over your drone, potentially averting mishaps, and ensuring smoother operations.

When the remote controller is switched on, it emits beeping sounds that serve as status indicators. These may vary depending on the drone model, but generally, they include alerts for low battery, loss of connection with the drone, GPS lock status, and more.

Remember to keep your ears open to these audio cues during operations, and familiarize yourself with what each beep or series of beeps signifies. Doing so will allow you to react quickly to any changes, ensuring safer and more efficient drone operation.

Buzzer	Description
Long Beep	When remote controller is being powered ON/OFF, or a device is being added
Single short Beep	When a key is briefly pressed, or a knob is rotated
Double short Beeps	When any key is long-pressed, or when the remote controller is binding, calibrating, or charging
Triple short Beeps (Continuous)	Aircraft's System or Payload System Warning
Triple long Beeps (Continuous)	Low battery warning / Remote controller abnormal

Using the Remote Controller

Inserting SIM Card

IMPORTANT

Before inserting the SIM Card, please ensure the remote controller is turn OFF.

INSTRUCTION

01. Carefully unplug the rubber plug of the SIM1 Slot.
02. Insert the nano-SIM card into the slot, ensuring it is aligned correctly with the SIM slot's orientation.
03. Once the SIM card is properly inserted, close and secure the rubber plug. This will protect the SIM card and the slot from any potential damage.

WARNING

The remote controller may already have an eSIM card (embedded SIM card) in the SIM2 card slot from the factory, as per service provider requirements. If you notice that the SIM2 card slot is sealed, DO NOT remove the seal or insert any other SIM cards or foreign objects into this slot. Violating this warning could result in damage to the remote controller, for which you would be held responsible.

ARC3 Pro RTK Module

01. Locate the USB-C cover located at the top of the Remote Controller. Carefully open it to reveal the USB-C port, ensuring not to apply excess force that might damage the cover or the port.
02. Once the USB-C port is exposed, take the RTK Module and gently insert it into the port. Ensure it's properly connected and fully seated in the port.

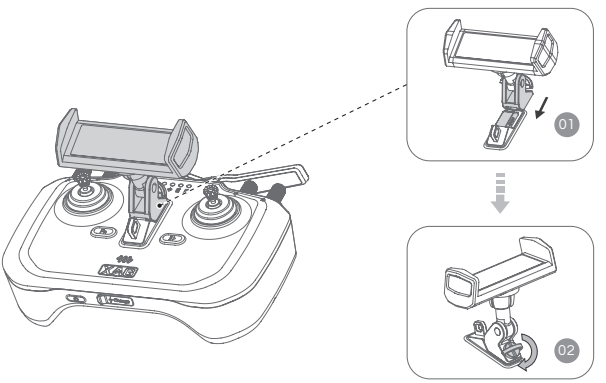
IMPORTANT

Your ARC3 Pro RTK Module is now ready for use. Always remember to handle the module and the remote controller with care to prevent any damage. And always double-check to make sure your RTK Module is securely attached before starting your drone operations.

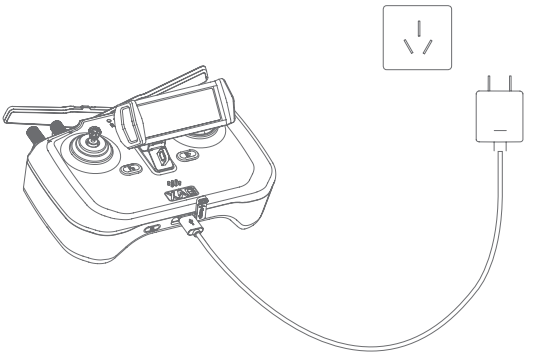
Install Phone Holder

01. Insert the phone holder into the designated slot on the remote controller. Make sure it's oriented correctly for proper installation.

02. Once the phone holder is in the slot, rotate the adjacent knob clockwise to tighten it. Ensure the holder is securely fastened to prevent your mobile device from falling during operation.



Charging the Remote Controller



01. Connect the Type-C end of the charging cable to the charging port on the Remote Controller.
02. Connect the USB-A end of the cable to your charging device (e.g., wall charger, computer port, etc.).

Normal Charge:

Upon successful connection for charging, the remote controller will emit two beeps, and the power indicator will flash Red, signalling that charging has commenced.

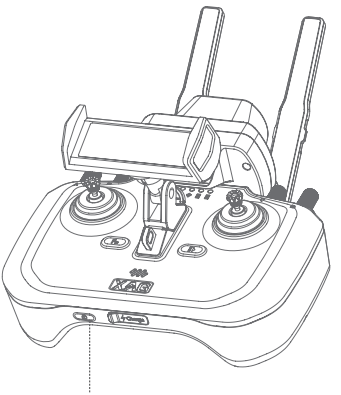
Fast Charging:

If you're using a fast charger, the power indicator will flash, and the buzzer will beep. The power indicator will turn solid green when the remote controller is fully charged. If the remote controller isn't connected to the aircraft, it will automatically power off after charging.

IMPORTANT

For optimal battery health and longevity, it's important to fully charge and discharge the internal batteries of the Remote Controller at least once every three months. When the Remote Controller is stored for an extended period, the battery will slowly deplete. Regular charging and discharging help maintain the battery's capacity and prevent potential damage.

Powering the Remote Controller ON/OFF



POWER ON

01. Press and Hold the Power Button until all the indicators flash simultaneously.

02. Release the Power Button and then press and hold it again until you hear the power-on sound effect. This sound effect indicates that the remote controller is now turned ON.

POWER OFF

01. Press and Hold the Power Button until all the indicators flash simultaneously.

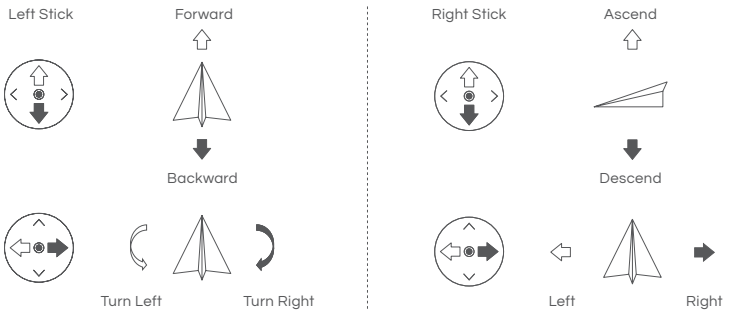
02. Release the Power Button and then press and hold it again until all indicators are off. This signifies that the remote controller is now turned OFF.

Operating the Aircraft

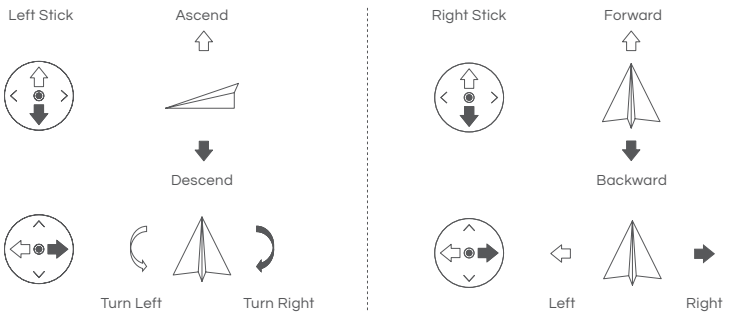
This section details how to manipulate the aircraft's orientation using the remote controller. The controller can be configured into one of three modes: Mode 1, Mode 2, or Mode 3.

To adjust the Joystick Mode, first launch the "XAG One" application. Then, navigate to the "Remote Controller Details" section and select the "Joystick Settings" option. By doing this, you will be able to customize the joystick controls to better suit your preferences and improve the overall operation of your aircraft.

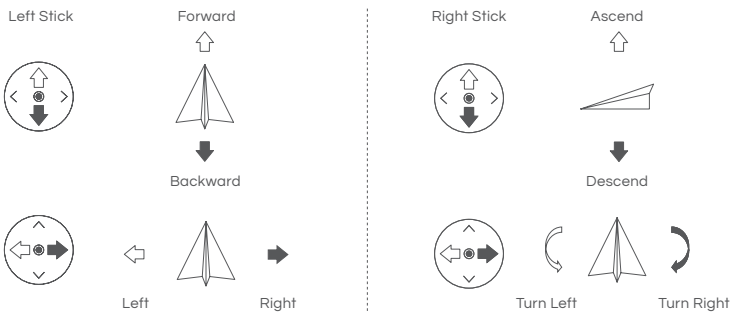
Mode 1



Mode 2



Mode 3



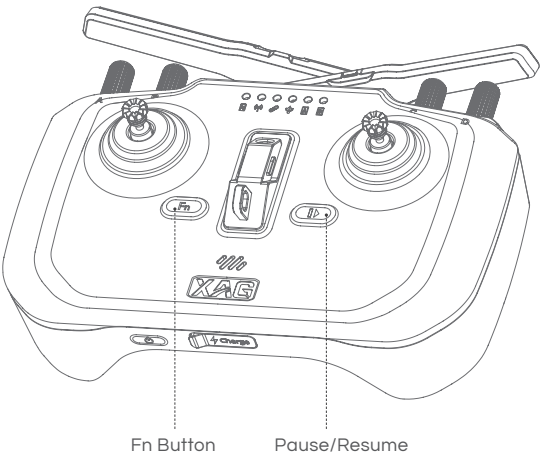
For example, the following description uses Mode 2

Mode 2	Aircraft	Remarks
Left Stick  Throttle Stick		Control the aircraft's Elevation. Push UP: Ascend Push Down: Descend Center: Hover at its current altitude Note: The speed of ascent or descent increases as you push the stick further from the centre.
Left Stick  Yaw Stick		Control the aircraft's Heading Push Left: Rotate aircraft counterclockwise (CCW) Push right: Rotate aircraft clockwise (CW) Center: Maintain heading Note: The further you push the stick, the faster the rotation.
Right Stick  Pitch Stick		Control the aircraft's Pitch Push UP: Fly Forward Push Down: Fly Backward Center: Hover Note: Larger pitch angles and faster forward or backward flight can be achieved by pushing the stick further away from the centre.
Right Stick  Roll Stick		Control the aircraft's Roll Push Left: Fly towards the Left Push right: Fly towards the Right Center: Hovers Note: For a greater roll angle and faster lateral flight, push the stick further from the centre.

Button Functions

Button	Operation	Description
Pause/Resume	Short Press	(Calibration Mode) Next
		Hover the Aircraft
	Long Press	Resume Task
Fn	Long Press	Enter/Exit Mapping Mode: Short Press L1: Mark current position Short Press L2: Undo previous Mark IMPORTANT In Mapping Mode, remote controller can only be used for mapping rather than piloting the aircraft.
	Long Press (Fn + Pause/Resume)	Return-to-Land (RTL)
	Long Press (Fn + Both stick to Bottom Left)	Enable – Calibration Mode
F1 Knob	Twiddle	(Auxiliary Mode) Adjust Route spacing
	Short Press	Enable – Obstacle Avoidance
	Long Press	Disable – Obstacle Avoidance
F2 Knob	Twiddle	(Auxiliary Mode) Adjust Route direction
	Short Press	Disable – Terrain Following
	Long Press	Enable – Terrain Following
F3 Knob	Twiddle	Spraying: Adjust Droplet Size Spreading: Adjust Feed Rate
	Short Press	Toggle One-Nozzle/Two-Nozzle Spraying
	Long Press	Toggle Constant/Variable Rate Spraying
F4 Knob	Twiddle	Spraying: Adjust Flow Rate Spreading: Adjust Dosage Rate
	Short Press	Disable – Spraying / Spreading
	Long Press	Enable – Spraying / Spreading

L1	Short Press	(Mapping Mode) Mark current position (Auxiliary Mode) Resume in Auxiliary Mode
	Long Press	(Mapping Mode) Form a close shape (Auxiliary Mode) Enable Auxiliary Mode
	Long Press + Long Press	(Auxiliary Mode) Adjust Preset Height to Current Height
L2	Short Press	(Mapping Mode) Undo previous Mark (Auxiliary Mode) Turn around to Left row
	Long Press	(Auxiliary Mode) Move/Shift to Left row
R1	Short Press	Toggle PSL Upward/Downward
R2	Short Press	(Auxiliary Mode) Turn around to Right row
	Long Press	(Auxiliary Mode) Move/Shift to Right row



Hover / Pause Flight

Pause/Resume

During "Autonomous Flight", the Pause/Resume button serves to halt the aircraft mid-flight, causing it to hover in place. To pause the aircraft, simply press this button once. This action can be particularly useful in situations where you need to momentarily stop the drone for safety or operational reasons.

RTL (Return-to-Land)

Fn + the Pause/Resume

The Return-to-Land (RTL) command is a safety feature that prompts your drone to return to its launch or home point. To execute the RTL command, press and hold both the Pause/Resume button and the Fn (Function) button simultaneously. While RTL is in progress, Function Indicator A will flash yellow. This serves as a visual confirmation that the RTL command has been activated and the aircraft is enroute to its home point.

Always keep in mind that, safety is paramount when operating drones, so do not hesitate to use the RTL function if you ever find yourself in a situation where you're unsure of the drone's position or if it's in any potential danger.

Optimal Transmission Zone

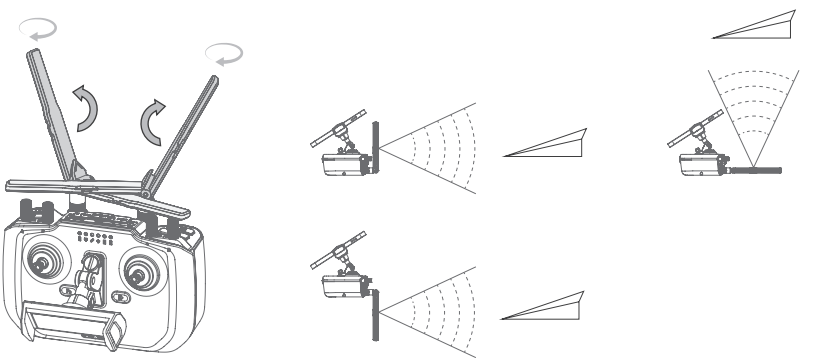
IMPORTANT

The effectiveness of your remote controller's signal hinges on the placement of the antennas. Ensure the controller and aircraft are within optimal transmission zones by fine-tuning the direction of the external RC antennas. Signal strength can fluctuate based on the antennas' positions, so users are encouraged to adjust them for the strongest signal during operation.

To achieve an optimal transmission zone, aim to align the antennas so that they're parallel with each other and perpendicular to the aircraft. Avoid pointing the tips of the antennas directly at the aircraft, as this can lead to weaker signal transmission. Instead, the broadside (long flat side) of each antenna should face towards the aircraft for optimal signal strength.

Keep in mind that factors such as antenna positioning and tightness, physical obstructions, and Wi-Fi signal interference can influence the communication between the remote controller and the aircraft. If the signal weakens, consider repositioning the antennas or operating the aircraft in an area with fewer obstacles or Wi-Fi interferences for optimal performance.

Remember to always follow local regulations and guidelines when flying your drone, and maintain line-of-sight with your drone at all times during flight.



Networking Mode

PREREQUISITE

ARC3 Pro and the Aircraft needs to be added to your XAG One APP account before Networking Mode can be conducted.

Should you encounter a lack of 4G network availability or an unstable connection, the remote controller can be linked to the aircraft using a local network. This method allows for flexible piloting of the aircraft without the need for an internet connection. Please follow the subsequent instructions to establish this connection.

INSTRUCTION

01. Ensure both the ARC3 Pro Remote Controller and the Aircraft are turned ON.
02. With the Aircraft ON, Press and Hold the Power Button on the Smart Battery until the Arm Light (ESC Indicator) flashes yellow. This indicates that the aircraft is now in Networking Mode.
03. With the Remote Controller ON, wait until the Wireless communication indicator is OFF. Then, Press and Hold the Power Button of the Remote Controller for approximately 10 seconds until the Wireless communication indicator begins to flash yellow. This indicates that the Remote Controller is now in Networking Mode.
04. The Wireless communication indicator will flash green, and the remote controller will automatically restart.
05. Please patiently wait for the Wireless communication indicator to return to Normal (Solid Green). This indicates that the Networking process has been successful and all the status indicators on both the Aircraft and ARC3 Pro have returned to Normal.

IMPORTANT

- Always ensure that both the ARC3 Pro Remote Controller and the Aircraft are sufficiently charged before initiating the Networking Mode.
- If the Networking Mode fails, repeat the steps above. If the issue persists, contact XAG technical support for assistance.

Aircraft Response to Lost Connection with ARC3 Pro

The P100 Pro is designed to respond to lost connection with the Remote Controller in two different ways, depending on the mode it's currently operating in: Autonomous Mode and Manual Mode.

Autonomous Mode:

Should your P100 Pro drone be operating in Autonomous Mode and experience a lost connection with the Remote Controller, it's pre-programmed to persist with its ongoing task. Upon completion of this task, or under two specific conditions - when the battery level depletes to the predetermined RTL threshold, or when the drone's container becomes empty - the drone will activate the Return to Land (RTL) procedure.

Manual Mode:

In Manual Mode, a lost connection triggers a different set of responses. The aircraft will first hover in place for two minutes. If the connection is not restored within this period, the aircraft will start the Return to Land (RTL) procedure. However, if connection with the Remote Controller is regained during the initial hover or while it's returning to land, the aircraft will stop and hover, and waits for new input.

Please refer to the table below for a quick reference:

Mode	Aircraft Action (Connection Lost)	Aircraft Actions (If Connection is Restored)
Autonomous	Continue Task, then RTL	Continue Task, then RTL
Manual	Hovers for 2 min, then RTL	Hovers and awaits Command

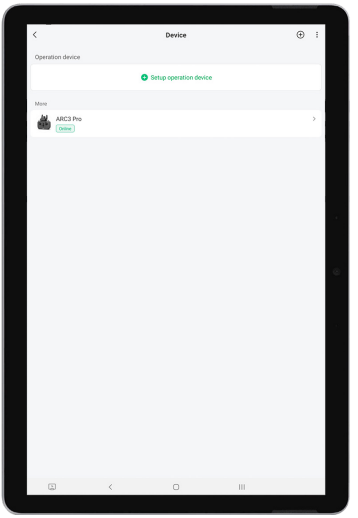
Joystick Calibration

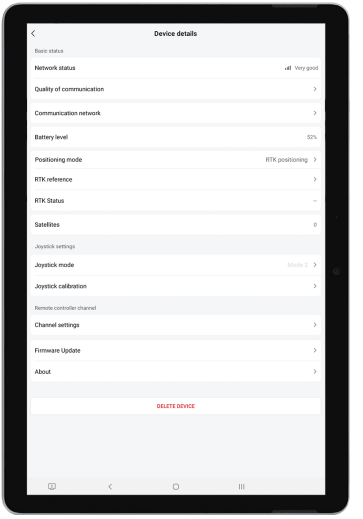
Keeping your joystick calibrated ensures that your drone responds accurately to your commands. It's especially crucial to recalibrate your joystick if you haven't used your remote controller for a while, or if you notice any irregularities in your drone's movements.

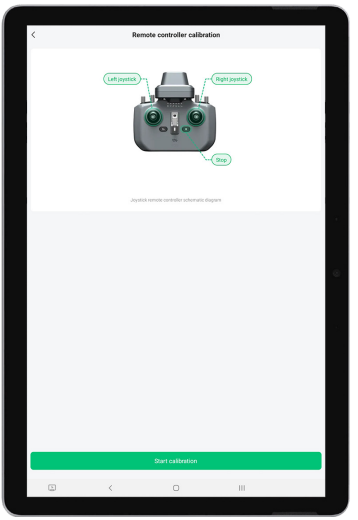
Calibrating your joystick regularly helps to maintain optimal control and precision when flying your drone. For regular users, it's recommended to perform joystick calibration every 3-4 weeks. However, if you use your drone infrequently, it's best to calibrate your joystick before every manual flight to ensure your drone responds accurately to your commands.

Calibration via XAG One APP

01. Open XAG One APP.
02. Tap on “Me” to access Account Menu.
03. Navigate to the “Device” page and select the ARC3 Pro Remote Controller from the list of devices.
04. Find and select the "Joystick Calibration" option.
05. Tap on “Start Calibration”.
06. Follow the instructions provided on-screen to complete the calibration process.






Remote controller calibration
Left joystick
Right joystick
Stop
Joystick remote controller schematic diagram
Start calibration

Calibration via ARC3 Pro

01. Move both the left and right joysticks to the far left and at the same time long press button Fn. You will hear a beep from the buzzer with six indicators turning solid yellow, and now the remote controller is in calibration mode.

Left Joystick Right Joystick Fn Button

02. Release both joysticks and button Fn. The six indicators will remain solid yellow, and the remote controller will check the calibration automatically.

Left Joystick Right Joystick

03. Wait until all six indicators turn slow flashing yellow, and move both joysticks to the far end in four directions (forward, backward, left and right) simultaneously.

Left and Right Joysticks

04. Short press the Stop button, and you will hear a beep from the buzzer, with all six indicators getting back to normal. The calibration is now completed.

Stop Button

Take-off / Landing

Starting and stopping the motors of your drone properly is crucial for safe take-off and landing. It's also important to remember to do this in one smooth action. Below is how to perform it:

Take-off / Starting Motors

To start the motors and prepare for take-off, perform the Combination Stick Command (CSC).

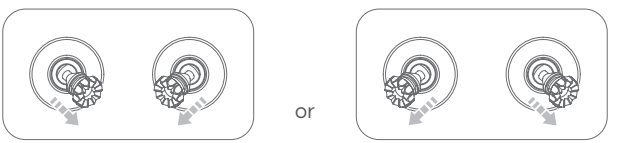
01. Move both sticks to the inner-lower corners or outer-lower corners simultaneously. This action should be performed smoothly and quickly.

02. Once you've completed the CSC, you'll have 3 seconds to push the throttle stick upwards to lift the drone off the ground. If you don't do this within the 3 seconds, the motors will automatically shut down.

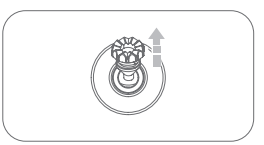
IMPORTANT

Please remember, failure to lift off promptly after completing the CSC could cause the drone to lose balance, move sideways, or even lift off on its own, which could lead to damage or injury. Therefore, always be prepared to push the throttle stick upwards immediately after completing the CSC.

Starting Motor



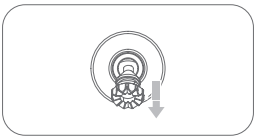
Take-off



Throttle Stickleft
(Left stick in Mode 2)

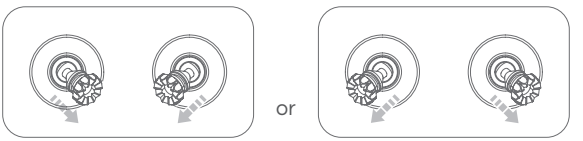
Landing / Stopping Motors

Method 1: After the drone has landed, push and hold the throttle stick downwards to the lowest position for 1 second to stop the Motors.



Throttle Stickleft
(Left stick in Mode 2)

Method 2: Stopping Motors (Emergency Use)



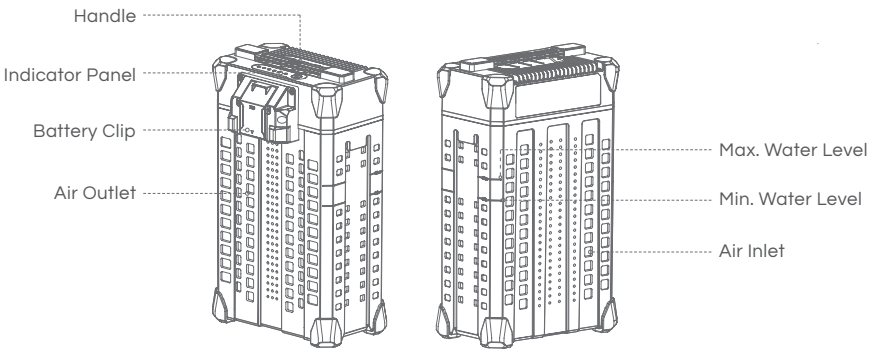
IMPORTANT

- **Caution: Propeller Danger!** Active propellers are a serious hazard. Always maintain a secure distance from propellers and motors when they are spinning. Never initiate motor operation in confined areas or in proximity to individuals. Your safety and the safety of others is paramount.
- **Maintain Control: Remote Controller Usage!** It's essential to retain control of the remote controller at all times while the motors are operational. Negligence can result in unpredictable drone behaviour, potentially leading to accidents.
- **Emergency Shutdown: Use with Caution!** The motors should only be stopped while the drone is airborne during urgent scenarios where such action can prevent damage or personal injury. This is a critical measure that should only be employed in extreme circumstances.
- **Preferred Motor Shutdown Method: Safety First!** We strongly recommend using method 1 to stop the motors. Utilizing method 2 may cause the drone to tip over if it is not fully grounded. Exercise extreme caution when choosing to use method 2.
- **Power Down Sequence: Drone Before Controller!** Once your drone has safely landed, always ensure to switch off the drone prior to turning off the remote controller. This sequence is crucial for maintaining the integrity of your device and ensuring its longevity.

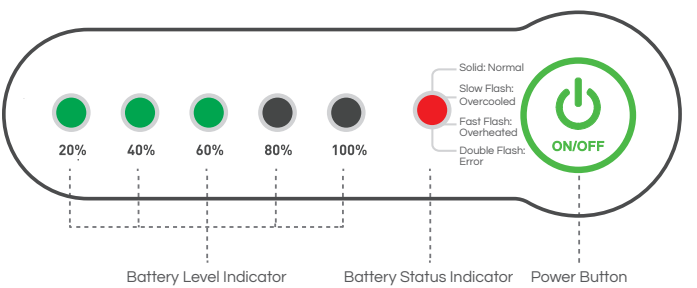
Smart Battery

Overview – B13960S Battery

Structure



Indicator Panel



Using the Battery

IMPORTANT

- ENSURE to check and update Battery firmware and Device Software prior to any Flights.
- ENSURE there are no liquid or foreign matter on the battery terminal, wipe and clean in a timely fashion. Otherwise, it may cause poor contact, resulting in loss of power or charging failure.
- AVOID the Liquids (Electrolytes) in the battery as it is highly corrosive. If any liquid make contact with your skin or eyes, rinse with clean water and seek medical attention immediately.
- DO NOT Fly when the Battery Level is less than 30%.
- DO NOT connect the Cathode and Anode of the battery with conductive object, otherwise it may cause a short circuit.
- DO NOT Connect or Disconnect the battery when it is turned ON, otherwise the power ports may be damaged.
- DO NOT use or store battery near heat sources such as a furnace, heater and within a vehicle during hot days.
- DO NOT use Batteries with abnormal conditions such as swollen, leaking, or deformed batteries. Contact XAG After-sales Support for further assistance.
- DO NOT use Overheated Battery exceeding 40° C, may lead to fire or an explosion.
- DO NOT disassemble, pierce or apply pressure the battery in any way, including but not limited to behaviours such as Sitting / Standing on the Battery.

Battery Level

INSTRUCTION

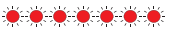
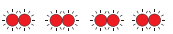
When the battery is OFF, press the power button once to display the battery level.

When the battery is ON, observe the battery level indicators to see the battery level.

Battery Level Indicator		Description
1 Green Flash		00 – 09 %
1 Solid Green		10 – 29 %
2 Solid Green		30 – 49 %
3 Solid Green		50 – 69 %
4 Solid Green		70 – 89 %
5 Solid Green		90 – 100 %

Battery Status

Battery Level Indicator		Status	Description
2 Green – Double Flash		Battery Locked (Fault)	Cell Over-discharge / Cell Failure / Temperature Failure Contact After-sales Support to Unlock
3 Green – Double Flash		Battery Locked (Remote)	Battery is locked Remotely Contact After-sales Support to Unlock
4 Green – Double Flash		Battery Locked (Anti-Dismantling)	Failed to verify Cell Contact After-sales Support to Inspect
2 / 3 Green – Alternate Flash		Overcurrent Protection	Overcurrent Protection Contact After-sales Support to Unlock
2 / 4 Green – Alternate Flash		Power Disabled	Dual-Battery Disabled Similar Battery Level on both batteries required

Battery Status Indicator		Status	Description
Red Solid		Normal	Normal
Red Quick Flash		Too HOT	Temperature is too HOT Charging / Discharging temporary Disable
Red Slow Flash		Too COLD	Temperature is too COLD Charging / Discharging temporary Disable
Red Double Flash		Anomalous	Over discharge / Cell Failure / Temperature Failure Contact After-sales Support

Battery ON/OFF

INSTRUCTION

01. When the Battery is OFF, press the Power button once to check the current battery level indicated by the Battery level LED. If the battery is too low, recharge before use.
02. Connect the battery to a device, then press the Power button once for at least 1 second until all the indicator lights flashes, then press and hold the power button again for at least 1 second until you hear a beep from the battery.
03. Repeat Step 02 to turn OFF the Battery.

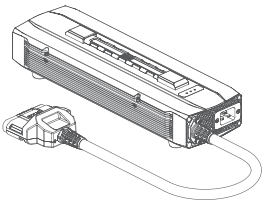
Battery Storage

IMPORTANT

- ENSURE the Battery is stored in a dry and ambient environment of 10° C to 30° C.
- ENSURE the Batteries are recharge every 90 days to maintain battery health.
- DO NOT Store Batteries with less than 30% Power.
- DO NOT store Batteries for an extended period, otherwise it may damage the battery or impact battery life.

Battery Charger

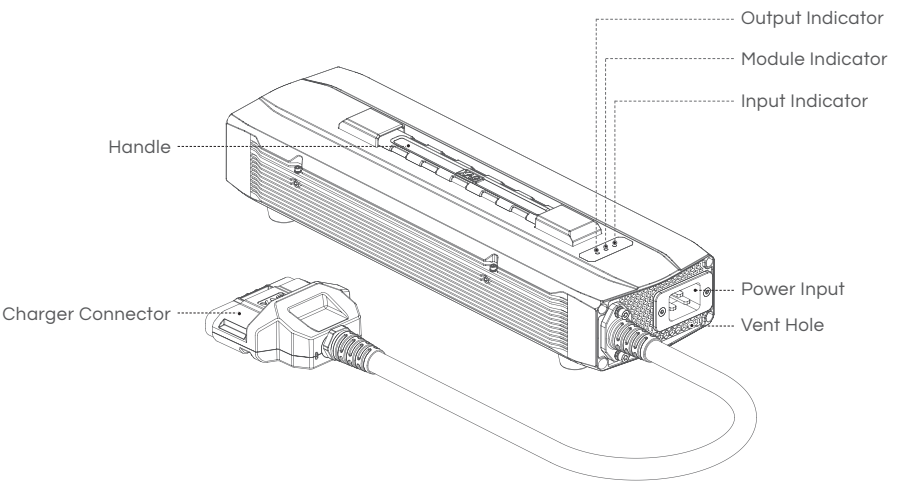
Overview – CM13600



CM13600 Charger
×1

15A Power Cord
×1

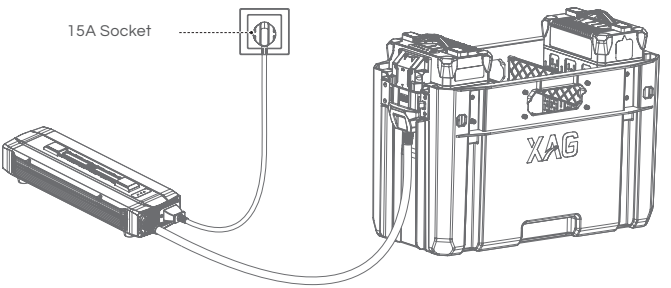
Main Components



Status Indicator

Output Indicator				Description
Solid Green				Idle
Flash Green				No Battery or Connection Error
Solid Red				Charging
Module Indicator				**Description**
Solid Yellow				Normal
Flash Yellow				Module Abnormal
Input Indicator				**Description**
Solid Green				Normal
Flash Green				No Grounding – Risk Charging
Solid Red				Device Failure Protection Triggered – Output OFF
Flash Red				Device Overheated Protection Triggered – Output OFF

Battery Charging



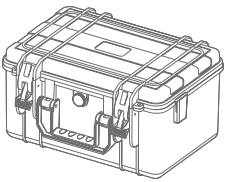
IMPORTANT

- ENSURE there are no obvious defects on the Battery or the Charger before use.
- ENSURE there are no liquid or foreign matter on the battery terminal, wipe and clean in a timely fashion. Otherwise, it may cause poor contact, resulting in loss of power or charging failure.
- ENSURE Batteries & Chargers is placed on even ground with no nearby combustible materials.
- ENSURE Batteries have a minimum of 30cm distance between the batteries and Chargers during Charging.
- ENSURE the Batteries are recharge every 90 days to maintain battery health.
- ENSURE pure water is used for heat Dissipation.
- ENSURE Water level should be kept between the Minimum and Maximum Water levels to achieve the best heat dissipation effect.
- DO NOT clean the charging device with alcohol or other combustible liquids.
- DO NOT disconnect the AC cable or the Charging cable while the Charger is in use.
- DO NOT use this product under direct sunlight, in rain, or in a humid environment.
- DO NOT exceed the Max. Water level or Submerge the Battery in Water, or Battery will be damage.
- DO NOT use Corrosive liquids for heat Dissipation, or Battery will be damage.
- DO NOT exceed 60 minutes for heat Dissipation, or Battery will be damage.
- DO NOT store Batteries with less than 30% Power or for an extended period, otherwise it may damage the battery or impact battery life.

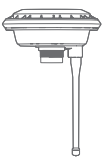
GNSS XRTK4 Mobile Station

List of Items – GNSS XRTK4 Mobile Station

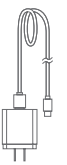
GNSS RTK Module



Toolbox
× 1



GNSS XRTK4 Module
× 1



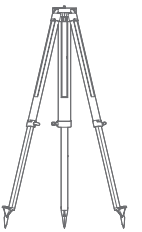
Power Supply Cable
× 1

GNSS RTK Battery

B4100 Battery Extension Rod
× 1

GNSS RTK Mobile Station Package

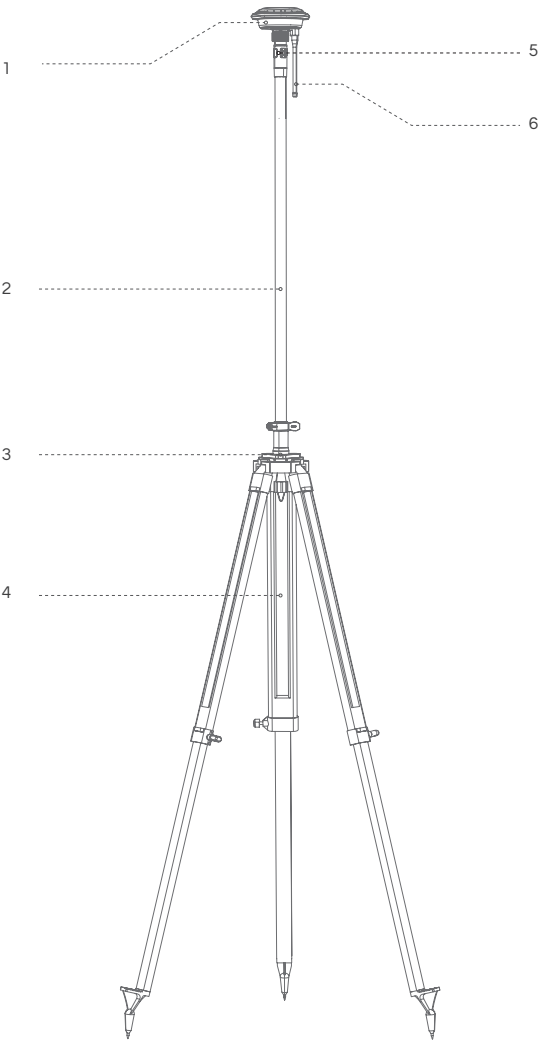
Balance Plate
× 1



Tripod
× 1

Overview – GNSS XRTK4 Mobile Station

The XRTK4 Mobile Station is comprised of the GNSS RTK Module, B4100 Battery Extension Rod, Base Plate, and Tripod.

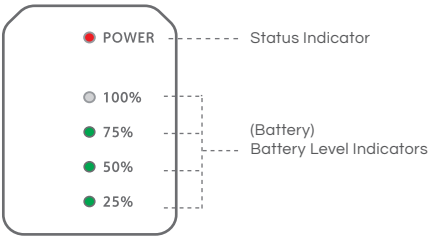


1. GNSS RTK Module
2. B4100 Battery Extension Rod
3. Balance Plate
4. Tripod
5. Battery Extension Rod Console
6. Antenna

Battery Extension Rod Console

The B4100 Battery Extension Rod has a built-in 7500mAh/14.4V lithium battery. The Extension Rod is integrated with a battery level/status display panel (see below figure), a power button, and a Type-C charging port.

The functions of the button/indicator lights are defined as follows:



Battery ON/OFF

INSTRUCTION

01. When the Battery is OFF, press the Power button once to check the current battery level indicated by the Battery level LED. If the battery is too low, recharge before use.
02. Connect the battery to a device, then press the Power button once for at least 1 second until all the indicator lights flashes, then press and hold the power button again for at least 1 second until you hear a beep from the battery.
03. Repeat Step 02 to turn OFF the Battery.

Battery Level

INSTRUCTION

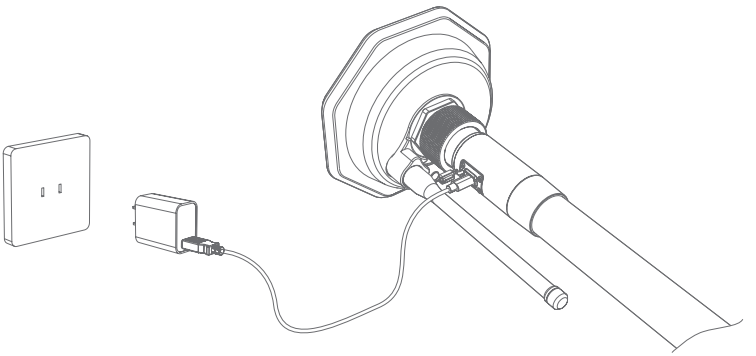
When the battery is OFF, press the power button once to display the battery level.

When the battery is ON, observe the battery level indicators to see the battery level.

Battery Level Indicator LED	Description
1 Green Flash	00 – 09 %
1 Solid Green	10 – 24 %
2 Solid Green	25 – 49 %
3 Solid Green	50 – 74 %
4 Solid Green	75 – 100 %

Battery Charging

The battery can be charged when it is either ON or OFF. During the battery charging, the battery level indicators corresponding to the current battery level will be ON, while the remaining lights will flash in series, indicating that the battery is being charged. After charging is completed, all battery level indicators will be on.



Battery Status Indicator

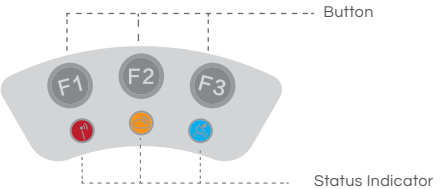
Once the Battery is ON, its status will be displayed on the console. Battery Status are defined as follows:

Once the Battery is ON, its status will be displayed on the console. Battery Status are defined as follows:

Battery Status Indicator LED		Status	Description
Red Solid		Normal	Normal
Red Quick Flash		Too HOT	Temperature is too HOT Charging / Discharging temporary Disable
Red Slow Flash		Too COLD	Temperature is too COLD Charging / Discharging temporary Disable
Red Double Flash		Anomalous	Battery Malfunction Contact After-sales Support

GNSS RTK Module Console

The GNSS RTK Module Console has three function buttons and three status indicators in different colours.



Checking Operation Status

Operation Status Indicator	Status
Red Light ON	Normal
Red Slow Flash	WLAN initializing (about 30 seconds)
Red Quick Flash	Voltage is low (< 12.5V) (Immediate charging required; when the voltage is higher than 13.5V, the red light will return to Normal and the alert stops).

Checking Network Status

Network Status Indicator	Status
Yellow Single Flash	Not connected
Yellow Double Flash	Connected
Solid Yellow	Connected, but no available fixed station nearby (Automatic switch to 24-hour selfcapturing mode).

Checking Positioning Status

Positioning Status Indicator	Status
Blue Light OFF	Not connected
Blue Single Flash	Single
Blue Double Flash	Float
Blue Triple Flash	Fix

Equipment Positioning Mode

GPS (Global Positioning System):

GPS is a satellite-based navigation system that provides location and time information anywhere on Earth. In agriculture, it's used for basic navigation and mapping, offering global coverage without the need for additional equipment. However, its accuracy is lower compared to other technologies, making it susceptible to interference and multipath errors.

VRTK (Virtual RTK):

Virtual RTK (VRTK) represents a significant advancement in high-precision positioning technology. By eliminating the need for a physical base station and providing real-time centimetre-level accuracy, VRTK offers a flexible and cost-effective solution for precision agriculture and other applications requiring high accuracy. While VRTK technology eliminates many traditional requirements, users should be aware that Offset Correction may be necessary after periods of inactivity. This alignment process ensures that the system continues to provide optimal positioning corrections.

RTK (Real-Time Kinematic):

RTK is a high-precision GPS technology that uses a base station and a rover to provide centimetre-level accuracy. It's commonly used in precision agriculture for tasks that require very high accuracy and difficult terrain. The real-time corrections are a significant advantage, but the technology requires a base station.

CORS (Continuously Operating Reference Stations):

CORS is a network of reference stations that provide corrections to GPS signals, enhancing the accuracy of standard GPS. It's used in various applications, including agriculture, to provide improved accuracy without the need for a personal base station. While it offers wide network availability, it requires an internet connection, and subscription fees may apply. Its accuracy is slightly lower than RTK.

Positioning Mode Comparison Table:

Positioning Mode	Accuracy	Pros	Cons
GPS	1-5m	√ No Additional Equipment √ Low Cost	X Low Accuracy X Susceptible to Interference X Multipath Errors
VRTK	1-2cm	√ No Additional Equipment √ Provides centimetre-level accuracy, similar to traditional RTK	X Susceptible to Interference X Potential Inaccuracies after inactivity X Field Alignment Required after inactivity
RTK	1-2cm	√ Very High Accuracy √ Real-Time Positioning Correction	X Requires Additional Equipment X Requires Station Setup
CORS	1-10cm	√ No Additional Equipment √ Improved Accuracy	X Requires Internet X Subscription Fees X Slightly less accurate than RTK

XAG One APP

The XAG One Mobile Application is a powerful, multifunctional tool meticulously designed to maximize the utility of compatible XAG Agricultural RPA (Remotely Piloted Aircraft) systems. This user-friendly app provides a comprehensive view of real-time statuses, including those of the aircraft, task systems such as RevoCast 2 and RevoSpray 2, the Remote Controller, and the RTK Station.

This all-in-one platform empowers users by providing customizable settings, enabling the planning of field layouts, and offering complete management capabilities over the operation of the aircraft. It's an essential tool for the modern agricultural professional, designed to bring precision and efficiency to your fingertips.

Download App – XAG One

Download XAG One from XAG Australia Website or Scan the QR Code.

DOWNLOAD APK android

Android Version Requirements:

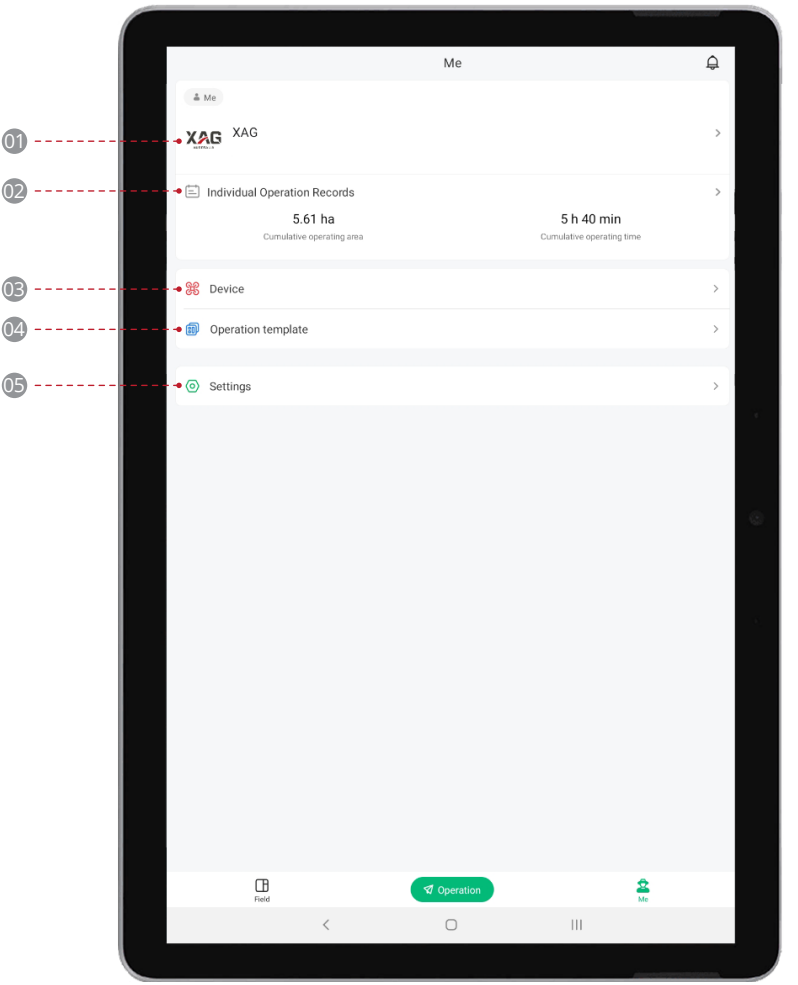
Android	Android 12 or later
APP Version:	V3.6.14 or later

Download on the App Store

The XAG ONE APPLE APP FOR 4G MODE ONLY.

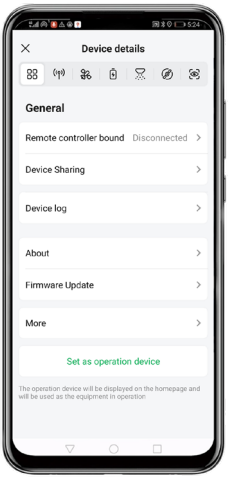
XAG One APP User Interface

APP UI – Accounts Menu



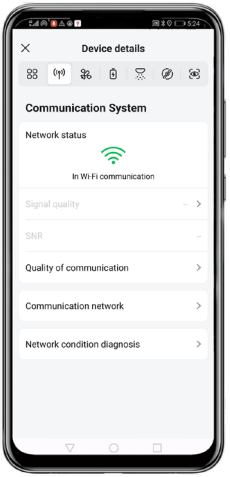
01	Accounts	
	Overview:	Users can access their account information, including profile pictures.
	Team Management:	Options to switch between different teams or create new ones are available, allowing collaboration and shared access.
02	Individual Operations Record	
	Historical Record:	This section contains the historical record of the pilot's activities.
	Personal and Device Records:	Users can review their personal operation records, device records, and upload any missing information to the cloud for safekeeping.
03	Device Menu	
	Device Management:	Users can add and manage their XAG devices through this menu.
	Detailed Options:	By tapping on individual devices, users can access detailed information and additional options for configuration and control.
04	Operation Template	
	Template Creation:	Users can preset templates for future operations, streamlining the setup process.
	Customization:	Templates can be saved according to specific chemicals or crop types, making future operations more efficient and tailored to specific needs.
05	Settings	
	Unit Adjustment:	Users can adjust the unit of area to Acres, Hectares, or Mu, depending on their preference.
	Network and Updates:	Options to conduct network tests, update app logs, and check the app's version are available, ensuring that the app is running smoothly and up to date.

App UI – Device Details (Aircraft)



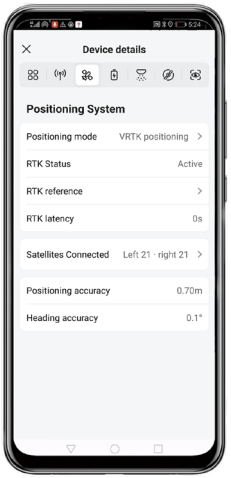
General:

The General interface encompasses the fundamental information and options of the selected aircraft. This platform allows users to pair with the Remote Controller for manual control, share equipment with team members, lease to other pilots, rename the aircraft, update module firmware, and remove the device from this account.



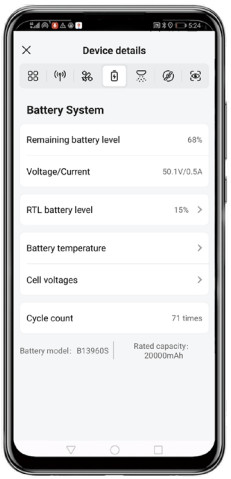
Communication:

The communication interface showcases crucial information about the aircraft's data link status. It includes options to diagnose the network health and manually adjust the Carrier Settings. Note that Carrier Settings are reserved for professional adjustment to achieve optimal communication latency.



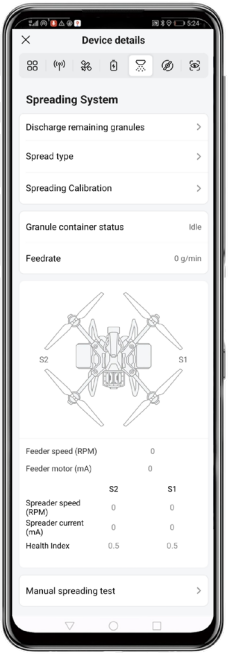
Positioning System

This interface details about the RTK positioning status, connected RTK base station, the quantity of currently connected satellites, positioning accuracy, heading accuracy, and an option to change positioning modes.



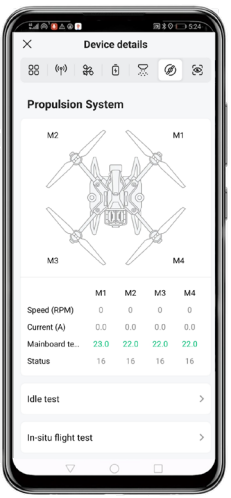
Battery

The battery interface provides vital information about the aircraft's battery, including battery model, battery cycle, and remaining power. It also houses the Return-to-Land (RTL) settings, enabling the pilot to preset when the aircraft will return upon battery reaching the set percentage. It is recommended to check these settings before initiating flight operation.



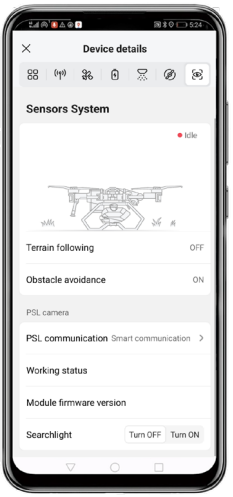
Task System

This interface contains icons, related information, and available options, all of which depend on the attached Task System.



Propulsion

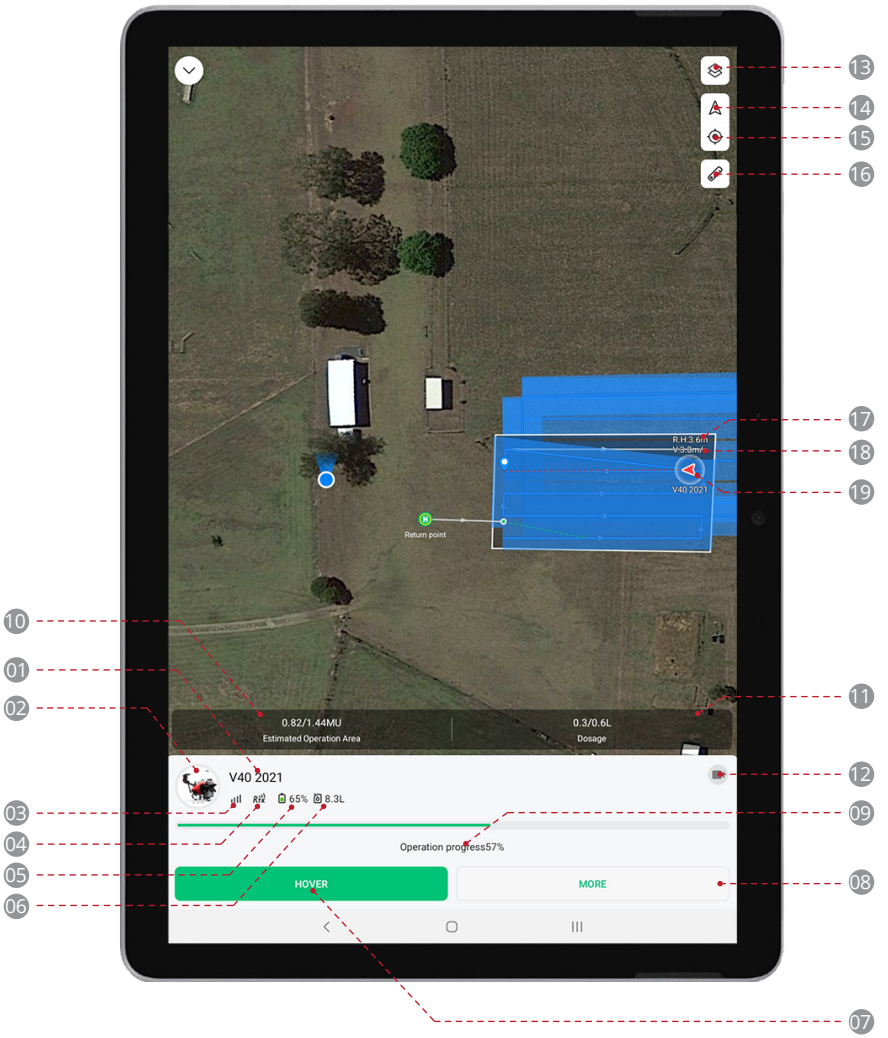
The propulsion interface displays crucial information about the Propulsion System. It offers options for pilots to conduct calibration, ground & flight tests to ensure all the motors are functioning correctly.



Sensor

The sensor interface exhibits information and current settings of the sensor module available on the Aircraft, primarily with Terrain Radar, Obstacle Avoidance, and PSL Camera. It also provides the option for pilots to turn the searchlight ON/OFF for low visibility conditions.

APP UI – Operation (In Flight)



01 Aircraft Name

Customer Name / Identification of the selected Aircraft.

02 Device Details

 : Tab this icon to open Device Details of this Aircraft.

03 Signal Strength (Cellular)

 : Shows the signal strength of the Aircraft's Cellular Network.

04 RTK

Shows the status and connectivity of the RTK.

 : Insufficient Satellites for Autonomous Operation.

 : Sufficient Satellites for Autonomous Operation.

05 Battery

Shows the remaining Battery Voltage.

06 Liquid

Shows the remaining volume of the RPA's Liquid Container.

07 Hover / Continue

Hover:	Command the RPA to Hover.
Continue:	Command the RPA to resume Task.

08 More Settings

Land:	Command RPA to force Land at its current location.
Return:	Command RPA to Return and Land.
Tap & Go:	Command RPA to move to location specified by Pilot.
Follow Terrain:	Enable / Disable Terrain following in Operation route.
Obstacle Avoidance:	Enable / Disable Obstacle Avoidance.

09 Task Status Bar

Shows the Completion rate of the Aircraft's Task.

10 Estimated Operation Area

Shows the Completed Acreage / Total Operation Acreage of the Operation Area.

11 Dosage

Shows the dispersed Dosage / Total Dosage of the Operation Area.

12 PSL Camera

Tap on this Icon to enable First-Person View .

13  Map

Satellite:	Map data based on Satellites Image.
HD Map:	Map data based on previous surveyed and processed data.
Field:	Field data based on previous planned field.

14 Position (Aircraft)

Tap to centre the map around the selected Aircraft.

15 Position (Smart Device)

Tap to centre the map around the Smart Device.

16 Ruler

Tap to expand the menu for the measurement tool.

17 Height

Shows the altitude of the Aircraft in relation to the ground.

18 Speed

Shows the movement speed of the selected Aircraft.

19 Location (Aircraft)

Shows the approximate location of the Aircraft.

Preparing the Equipment

Prepare the Remote Controller

Add Device – Remote Controller

INSTRUCTION

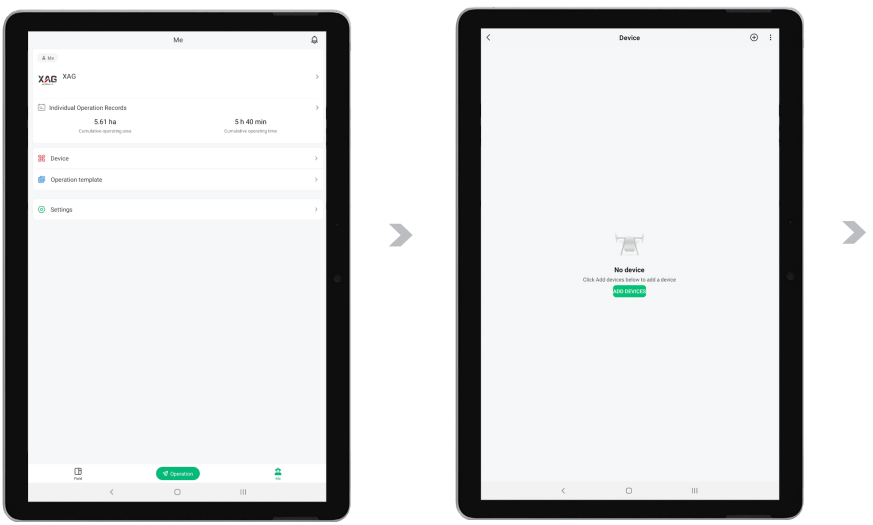
01. Initiate the setup by inserting a Telstra or Optus SIM card into the ARC3 Pro device. The SIM slot, labelled as "SIM 1", is conveniently located at the top of the controller.

    Notes

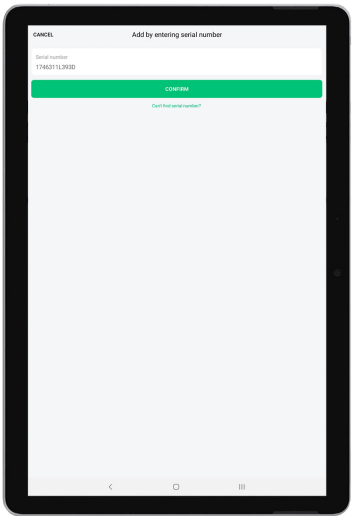
    Please ensure that the controller is switched off before proceeding to Step 2.

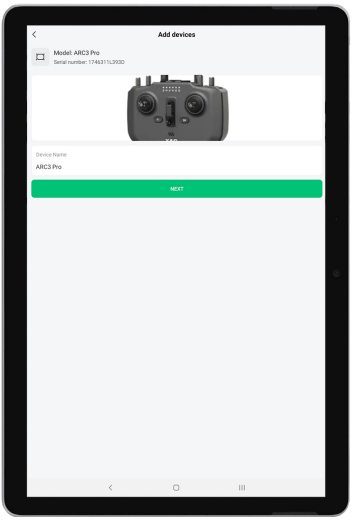
02. With the ARC3 device switched off, take it outside. Locate the power button on the underside of the controller. Press and hold the power button until all the indicator lights start to flash red. You will also hear an auditory beep sound to confirm the action. As soon as you notice all lights flashing red, you can release the power button.

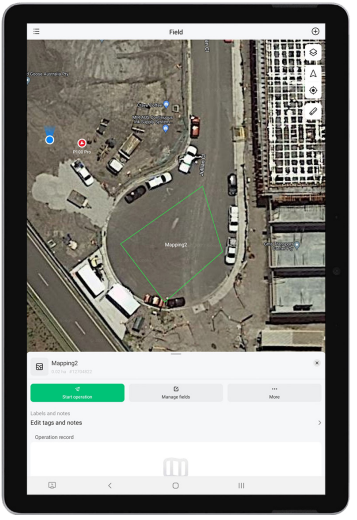
03. After activating the controller, observe the flashing lights. They will transition from red to yellow and ultimately to green. The green flashing lights indicate that the device is now in pairing mode and ready to connect with other devices.



04. Now, on your mobile device, open the XAG One (ensure you're running version 4.6.21 or higher). Navigate to the Me Accounts Menu and proceed to the (Device Menu. At the top right corner of the page, tap the ⊕ to add a new device.







05. At this point, you'll be prompted to either scan or manually enter the Product's QR code. This code is located at the back of your ARC3 Pro controller (do not mistake it for the QR code on the ARC3 Pro RTK module). Please note that this process is case sensitive.

06. Upon successful scanning or typing of the QR code, a new window will open allowing you to assign a unique name to your ARC3 Pro controller. Once you've entered the desired name, press "next" to proceed.

07. A confirmation message reading "setup success" will appear on the screen, indicating that the setup process is complete. You can now see the newly named ARC3 Pro controller listed on your Device page in the XAG One app.

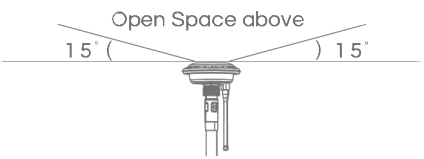
Prepare the XRTK4 Mobile Station (Optional Add-on)

The XAG GNSS XRTK4 Mobile Station, specifically designed to provide centimetre precision for flight operations, is a part of the versatile range of Real-Time Kinematic (RTK) options available for XAG Agricultural Drone Product series. This ensures precision in farming operations, leading to better productivity and outcomes.

The subsequent instructions are optional and specifically intended for users who prefer using the Mobile RTK Station for enhanced positioning accuracy, as an alternative to utilizing conventional GPS, Virtual RTK (VRTK), or Continuously Operating Reference Stations (CORS) networks. This flexibility allows users to choose the most suitable positioning technology for their unique operational needs and conditions.

XRTK Mobile Station Setup

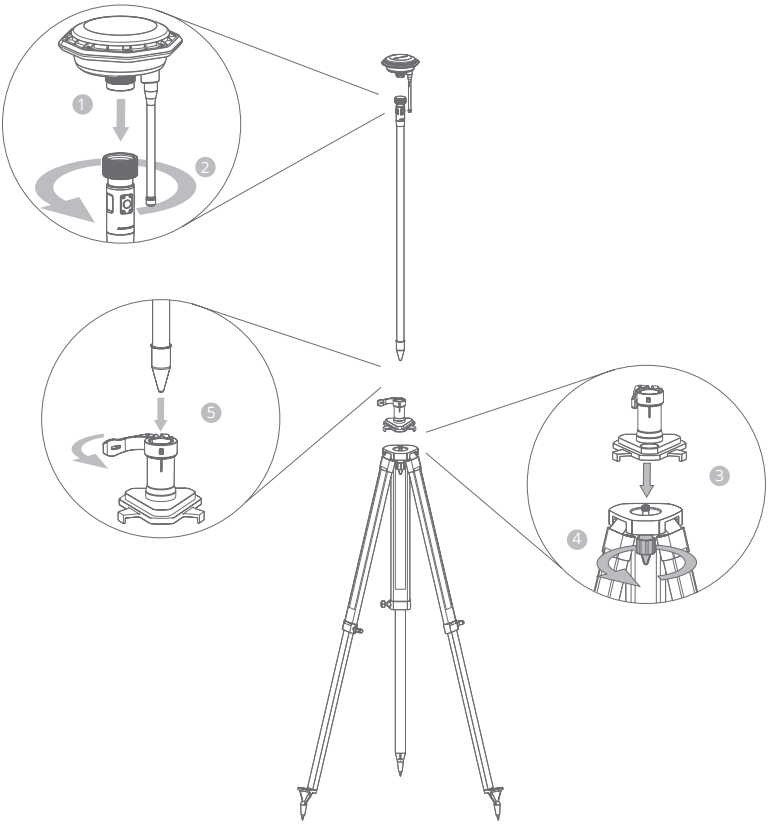
Choosing a Suitable Location for the Station



IMPORTANT

- **Select a suitable site:** The optimal location for your station is a solid and flat surface with a clear, unobstructed overhead view. This is essential to ensure seamless satellite tracking and high-quality satellite signal reception.
- **Consider the elevation angle:** It is crucial that there are no obstacles over an elevation angle of 15° from the station's location. Obstructions within this range could interfere with continuous satellite tracking and the reception quality of satellite signals.

Assembling the Mobile Station



Follow the steps below to assemble your mobile station:

01. Attach the GNSS RTK Module: Connect the GNSS RTK Module to the top end of the extension rod. Make sure the connection is secure to prevent any movement during operations.

02. Secure the extension rod: Rotate the tightening ring until the extension rod and the Module are securely connected. This finalizes the assembly of the Rover.

03. Prepare the tripod: Position the Balance Plate on top of the Tripod as indicated in the manual diagrams. The plate should sit flush against the tripod for stability.

04. Fasten the Balance Plate: Securely tighten the fixing bolts on the Tripod to firmly fasten the Balance Plate. Check the security of the bolts to ensure the assembly will not shift or loosen during use.

05. Insert the Rover: Carefully place the assembled Rover from Step 2 into the spacing hole on top of the Balance Plate. Ensure the Rover is seated correctly within the hole.

06. Secure the Rover: Close the buckle to lock the Rover into place, finalizing the assembly of the Mobile Station. Double-check the entire assembly to ensure all components are securely connected and ready for operation.

IMPORTANT

The level of the RTK Mobile Station is crucial for proper functioning. An unlevelled station can lead to erratic behaviour of the connected Aircraft. To ensure the Mobile Station is level, follow these critical steps:

- Adjust the tripod legs: Manipulate the three retractable legs of the Tripod as needed. Each leg is independently adjustable, allowing for precise alignment on uneven surfaces.
- Check the bubble on the Balance Plate: The Balance Plate features a built-in bubble level. Adjust the legs until the bubble is perfectly centred within the marked circle on the bubble level.
- Confirm a level Mobile Station: Double-check the position of the bubble to ensure the Mobile Station is level. A perfectly level Station is critical for achieving accurate and reliable results from your operations.

Always confirm the RTK Mobile Station is level before starting any operations. This preventative measure can significantly reduce the risk of erratic Aircraft behaviour, enhancing the safety and efficiency of your operations.

Link Device – XRTK4 Mobile Station

INSTRUCTION

Follow the steps below to establish a connection between your XRTK4 base station and the ARC3 Pro controller:

01. Start by placing the XRTK4 base station outdoors and power it on. Wait until the F1 indicator displays a solid red light, indicating readiness to proceed.

02. To activate the base station's pairing mode, give a single press on the F1 button. You will hear a double beep sound, indicating that the base station is now ready to pair with your ARC3 controller.

03. With your ARC3 Pro controller already switched on, press and hold the power button until you hear a double beep. Observe the third light from the left on the controller; it should now be flashing yellow. This signifies that the controller has entered pairing mode. Please note: It's crucial to have a SIM card inserted in the ARC3 Pro for this process.

04. Upon successful pairing, the ARC3 controller will emit another double beep, signalling that it's now paired with the base station. The previously yellow flashing light on the controller will now be off.

    Notes

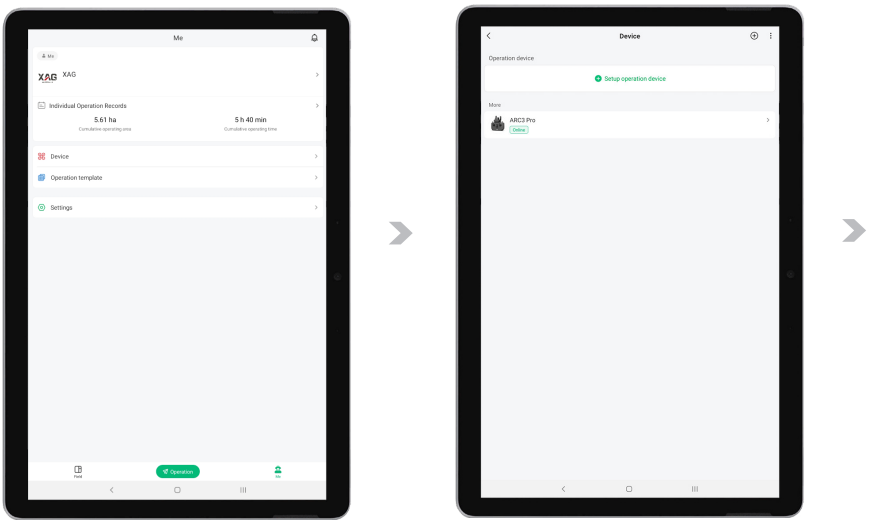
    Even though the controller and base station are paired, you still need to add the base station to your device page on the XAG One app.

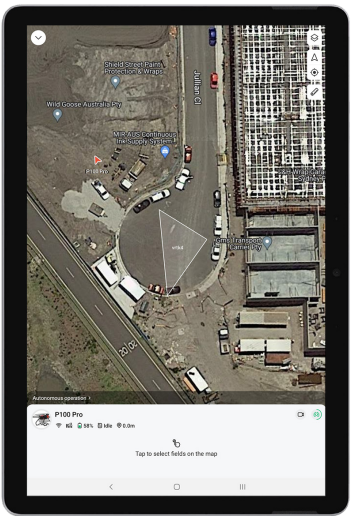
Add Device – XRTK4 Mobile Station

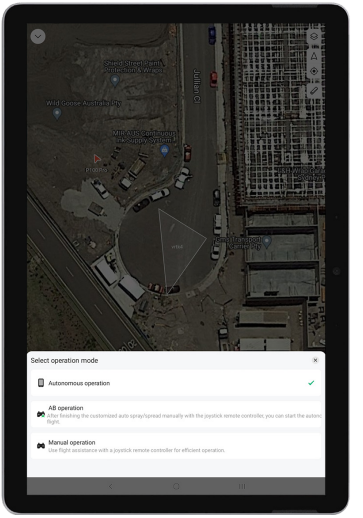
INSTRUCTION

01. Open the XAG One and navigate to the Me Accounts Menu From there, proceed to the Device Menu. and tap on the ⊕ located in the top right corner.

02. On the XRTK4 base station, find the F3 button located beneath the XRTK4's module. Press and hold this button until the base station emits a beep, indicating it has entered pairing mode. Please note: For the pairing process to be successful, the F2 indicator must be flashing three times.

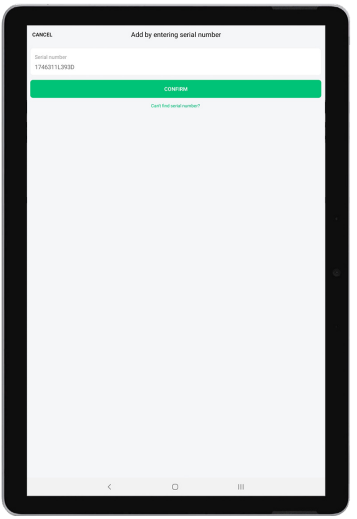




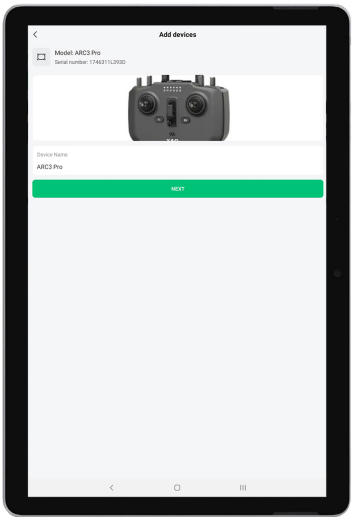


03. You'll then be prompted to either scan or manually type the serial number of the XRTK4. This serial number can be found underneath the XRTK4's module.

04. Upon successfully scanning or typing the serial number, a new window will open allowing you to assign a unique name to your XRTK4 base station. After naming the XRTK4 to your liking, press "next" to continue.



05. A new window will appear displaying a message of " Added ", confirming the successful addition of the base station to your device page.



06. After completing these steps, you should be able to see your XRTK4 listed as 'online' on the device page. If it does not appear, try restarting the XAG One App and ensure you're connected to your ARC3 Pro's WIFI network. This connection is essential for enabling communication between the devices.

07. Recheck the device page after restarting the app and connecting to ARC3 Pro's WIFI. You should now see your XRTK4 displayed as 'online'. If not, verify your WIFI connection and try restarting the app again.

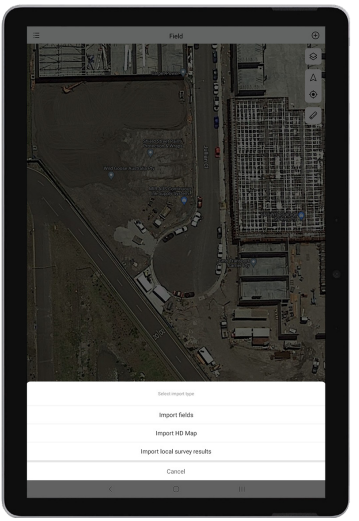
DATUM Setup

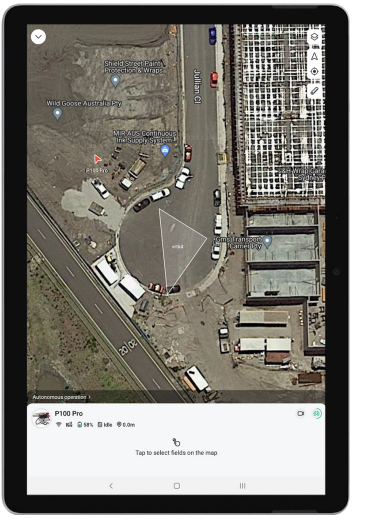
INSTRUCTION

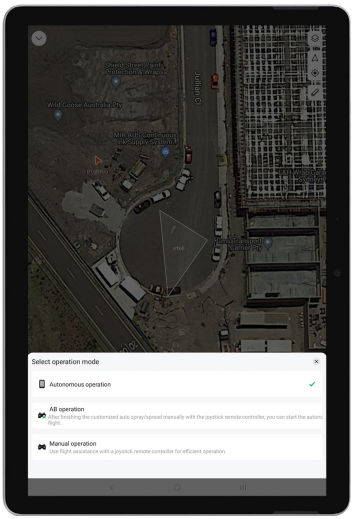
01. Activate the RTK Base Station: Power on your RTK Base Station and patiently wait for the "F1" indicator light to illuminate a solid red colour. This is a sign that the device is ready for operation.

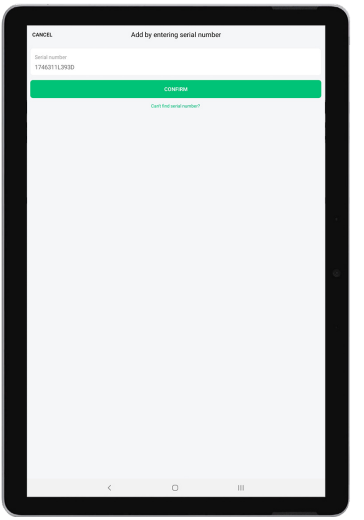
02. Access the Device Menu on XAG ONE APP: Open the and navigate to the Me Accounts Menu From there, proceed to the Device Menu.

03. Configure the RTK Base Station: Within the Device Menu, select the RTK Base Station from the list of devices. Tap on the RTK Base Station to enter the "Detail Details".



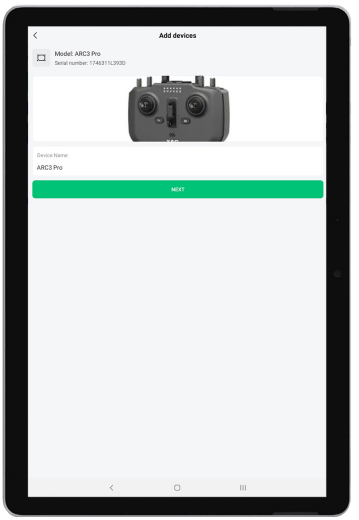






04. Set DATUM: Once in the details section, tap on "Set DATUM." This action configures the necessary parameters for the RTK Base Station.

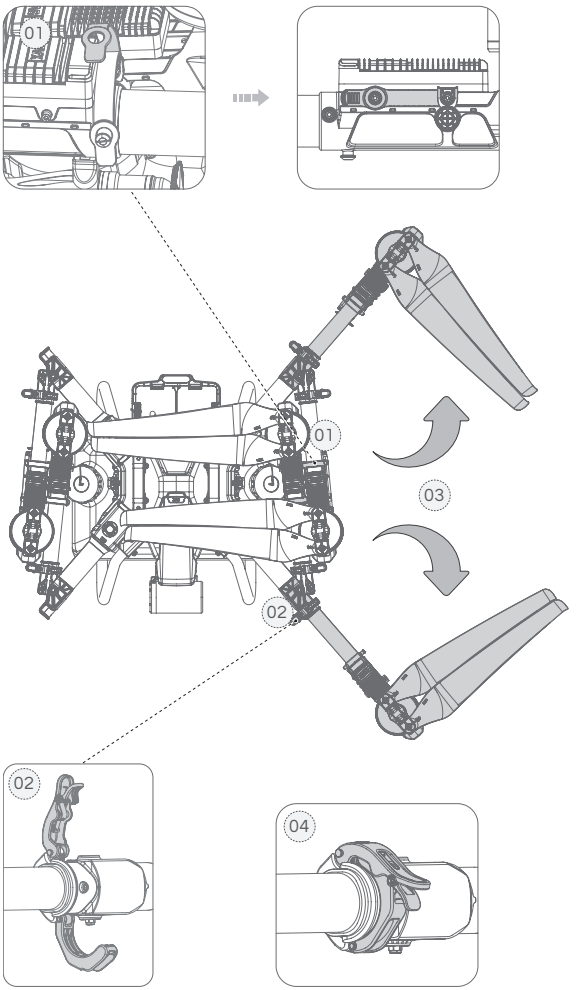
05. Configure GPS Positioning: Navigate to the "GPS Positioning" menu and select the "GPS single point positioning" option. This setting enables precise location tracking for your RTK Base Station.



06. Wait for RTK4 to Reach the Correct Mode: Monitor the RTK Positioning status and patiently wait for it to enter the "Normal (FIX)" Mode. This mode signifies that the RTK4 is functioning optimally and is ready for the next steps.

Prepare the Aircraft

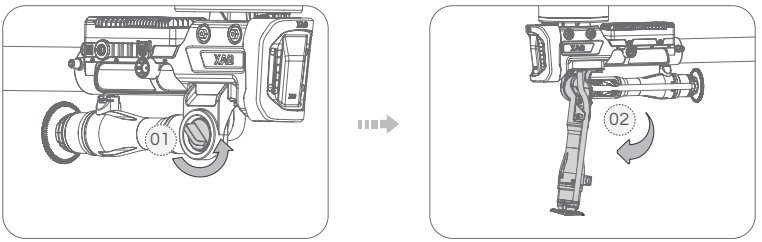
Unfold Arms



INSTRUCTION

01. Loosening the securing tie (Using the left arm as an example).
02. Unlock the fasteners of Arm No.2 and No.3.
03. Spread out Arm No.3 and No.2.
04. Securely lock the fasteners on the Arm No.2 and No.3. Ensure each fastener is correctly engaged and firmly in place to guarantee the aircraft's safety and operational readiness.

Unfold Spray Bar



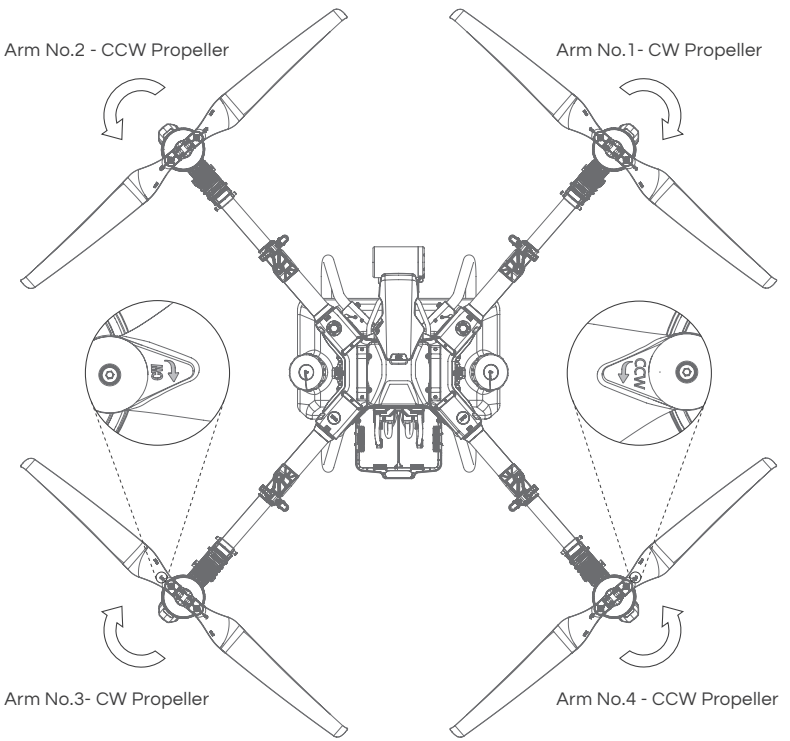
INSTRUCTION

01. To unlock, turn the knob in a counter-clockwise direction until it is released.
02. Extend the spraying bar fully, then secure it by rotating the knob in a clockwise direction until it is tightly fastened.

Unfold Propellers

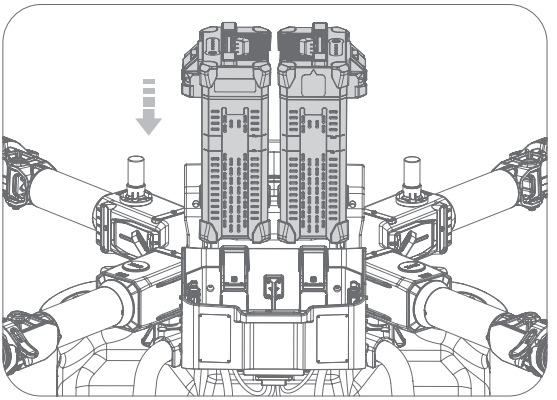
Clockwise (CW) and Counter-Clockwise (CCW) propellers are distinct and are NOT interchangeable. Any attempt to replace one with the other could potentially lead to severe injuries to yourself or others in proximity, as well as extensive damage to your products or objects around. Hence, it is absolutely vital to verify that the correct propeller is securely attached according to its specified orientation.

The model of the propeller can be ascertained by inspecting the area located between the propeller blades and the clamp. Furthermore, it's essential to note that the CCW Propeller is designed to be attached to Arm No.1 and No.3, while the CW Propeller corresponds to Arm No.2 and No.4. Adherence to these guidelines ensures the safe and optimal operation of your equipment.



Install the Battery

To install the battery, insert it into the aircraft's battery compartment. Apply a gentle downward force until you hear a clicking sound. This audible click confirms that the battery terminal has made a successful connection with the aircraft.



IMPORTANT

- Prior to the battery installation, it is imperative to ensure the power connector of the aircraft and the battery connector are clean, dry, and devoid of any metal foreign objects or liquids. This preventive measure is critical to maintaining the overall integrity of your aircraft's electrical system.
- Before initiating the power-up sequence, double-check to confirm that the battery is fully inserted into the battery compartment. Failure to securely position the battery could lead to unfortunate flight accidents during operation. Therefore, always ensure the battery is properly installed to guarantee safe and stable flight conditions.

Turning the Aircraft ON/OFF

Turning On the Aircraft:

01. Initiate by inserting the battery into the aircraft's battery compartment. Again, gently push downward until a clicking sound is heard, indicating that the battery terminal is now connected to the aircraft.

02. Proceed by pressing and holding the power button on the battery for about 1 second. Upon doing this, all indicator lights should flash. Press and hold the power button once more for around 1 second until a beep from the battery is heard.

03. After completing these steps, kindly wait until the Aircraft Flight Status (ESC) Indicator flashes green three times. This sequence of flashes signals that the aircraft is now ready for use.

Turning Off the Aircraft:

01. Begin by pressing and holding the power button on the battery once for approximately 1 second until all the indicator lights flash. Following this, press and hold the power button once more for about 1 second until a beep from the battery is heard.

02. At this point, both the Battery Indicator and Aircraft Flight Status (ESC) Indicator will switch off, signalling that the battery can now be safely removed or replaced as necessary.

Add Device – Aircraft

PREREQUISITE

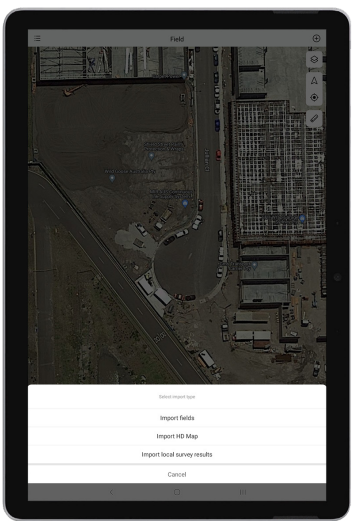
Prior to starting the setup, confirm that your mobile device has a stable internet connection. Additionally, make sure the location services on your mobile device are enabled. These prerequisites are crucial for the smooth operation and accurate performance of the app.

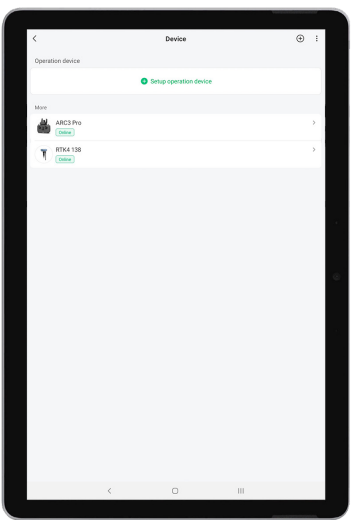
INSTRUCTION

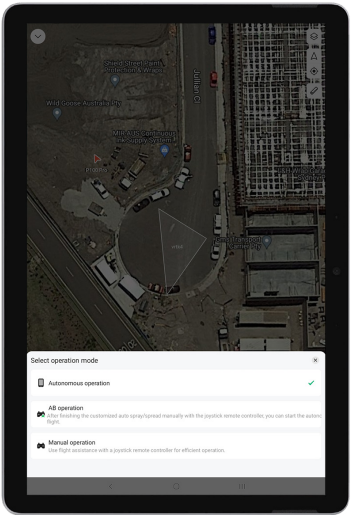
01. Begin the setup by powering on the P100 Pro device. Make sure the device is positioned outdoors with a clear and unobstructed view of the sky for optimal signal reception.

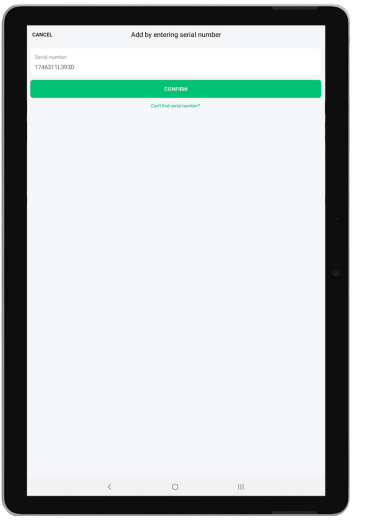
02. Patiently wait and observe the P100 Pro's ESC (Electronic Speed Controller) indicators. Only proceed once these indicators flash green three times, signalling readiness for the next step.

03. Open the XAG One app (ensure its version 4.6.21 or later) and navigate to the Me Accounts Menu. From there, proceed to Device Menu and tap on the ⊕ located in the top right corner of the page to initiate the device adding process.



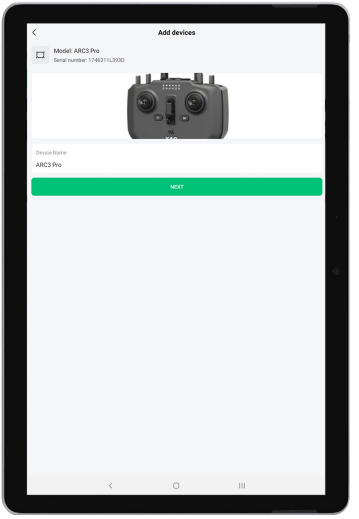


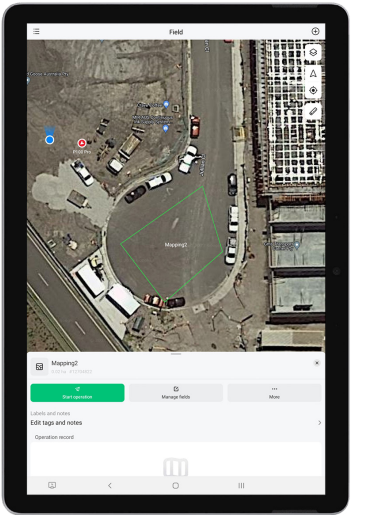




04. You'll be prompted to either scan or type the QR code, which can be found at the back of the UAV's rear fuselage. Alternatively, you may manually input the P100 Pro's Serial Number (S/N) into the specified field to add the device to your app.

05. Upon successful QR code scanning or S/N input, a new window will appear allowing you to assign a unique name to your P100 Pro. After naming your P100 Pro, press "next" to continue.





06. A new window will display a message indicating successful addition of the P100 Pro device. This confirmation serves as an assurance that your P100 Pro is now registered in the system.

07. To finalize the setup, close and then restart the XAG One app. Upon reopening, navigate to your "My-Device" page where you will now see your newly added P100 Pro.

Link Device – Remote Controller

PREREQUISITE

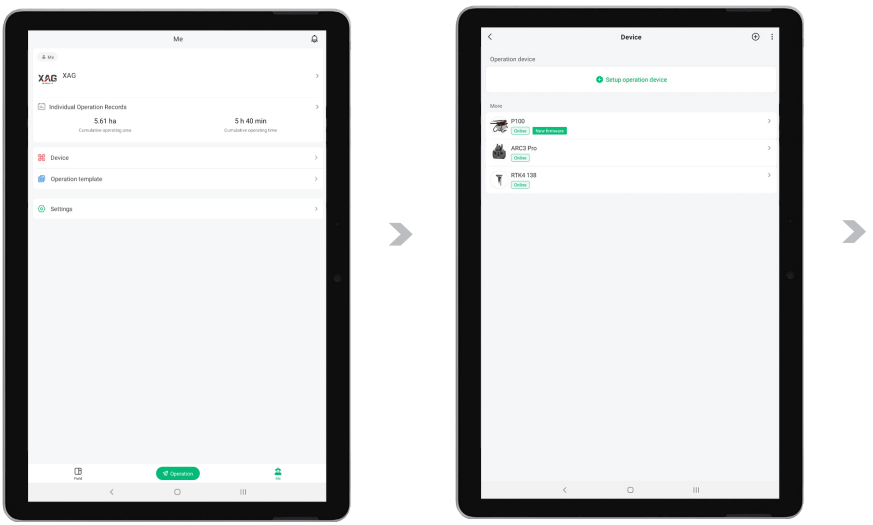
Before proceeding with the pairing process, ensure that both the ARC3 Pro controller and the P100 Pro UAV have been successfully added to your account on the XAG One app. This is a crucial step to ensure seamless connectivity between your devices.

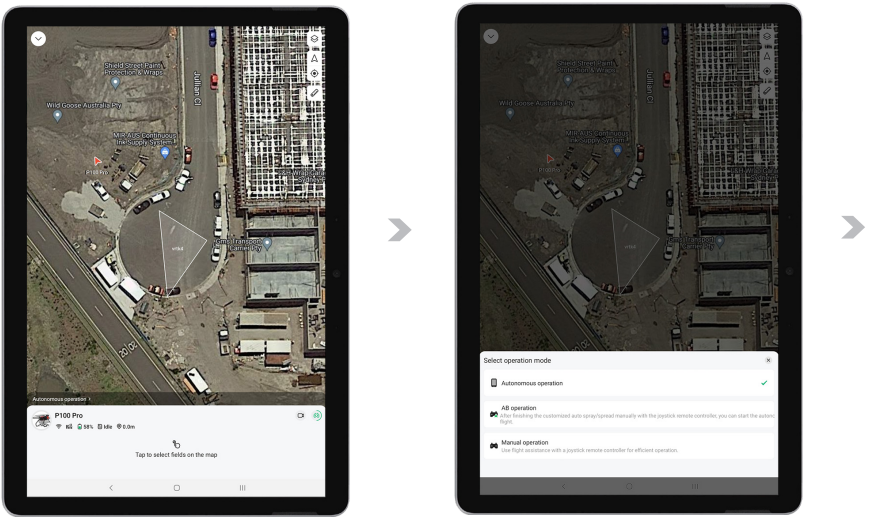
INSTRUCTION

This section provides a step-by-step guide on how to establish a connection between your controller and the UAV.

01. Begin by powering on both your UAV and controller. Wait until they are fully powered up and their statuses are displayed as 'Online' on the device page of the XAG One app.

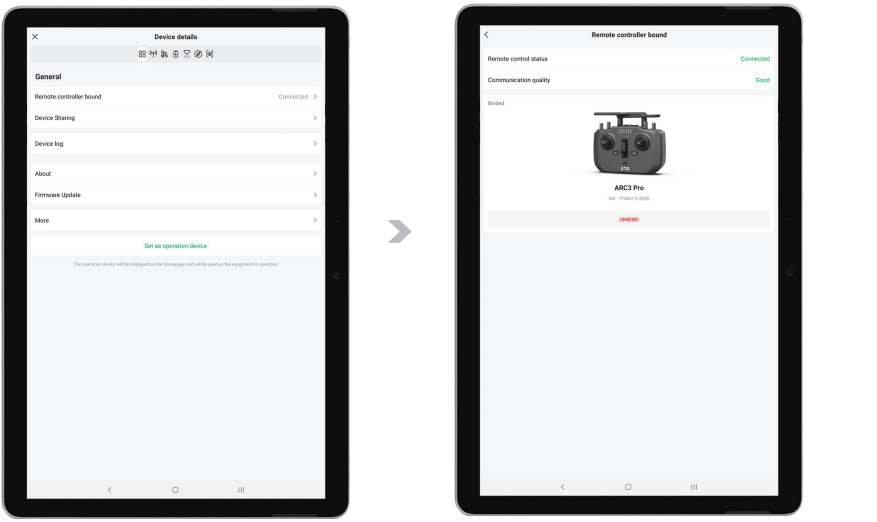
02. Open the XAG One app and navigate to the Me Accounts Menu. From there, proceed to Device Menu. From the list of available devices, select your P100 Pro UAV.





03. Once you've selected the P100 Pro, you'll be directed to the 'General' page under device details. On this page, look for and select the option 'remote controller bound'.

04. A list of available controllers will appear. From this list, select your ARC3 Pro controller and press 'Bind' to initiate the pairing process.



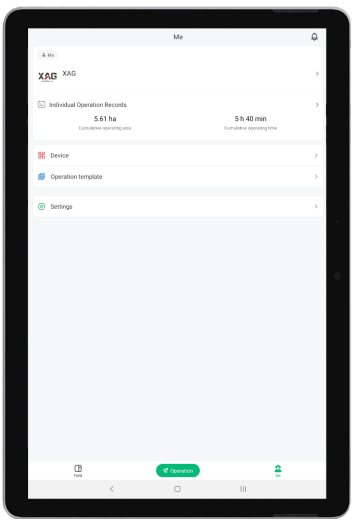
05. To verify a successful binding between the drone and the controller, navigate to the Drone's Device details - General page and ensure that the remote controller status is displaying as "Connected." Additionally, check the status on your ARC3 Pro controller; the third indicator from the left should exhibit a solid green light. This light is a clear signal of a successful connection. Please refrain from proceeding with the use of your devices until this solid green light is visible, confirming the connection's integrity and readiness.

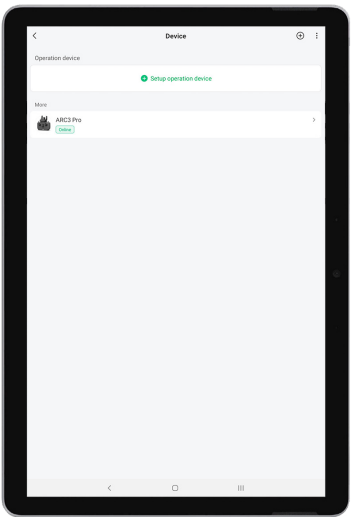
Set as Operation Device

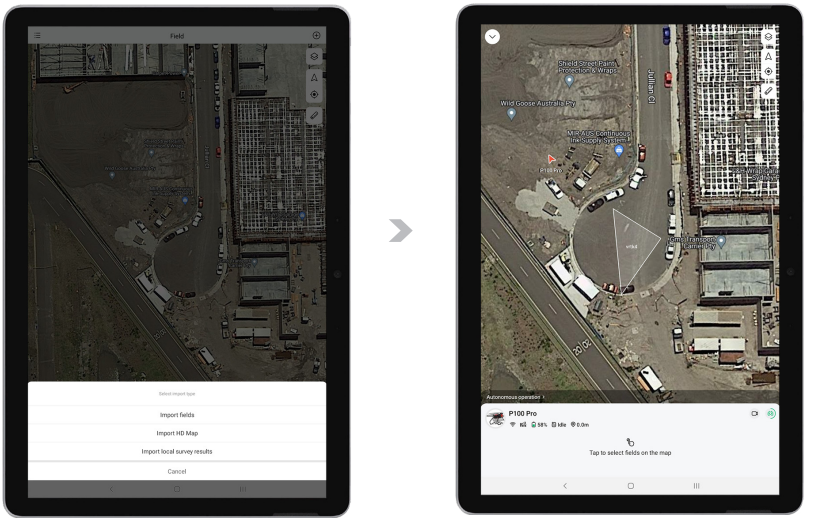
INSTRUCTION

This section provides a step-by-step guide on how to establish a connection between your controller and the UAV.

01. Start by tapping on the Me in your app. Here, select the Device Menu option to open the Device Menu.







02. Once you've selected the P100 Pro, you'll be directed to the 'General' page under device details. On this page, look for and select the option 'remote controller bound'.

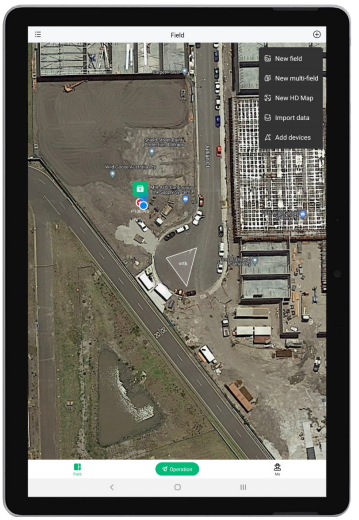
03. A list of available controllers will appear. From this list, select your ARC3 Pro controller and press 'Bind' to initiate the pairing process.

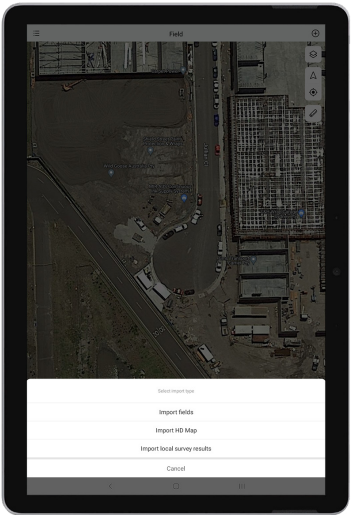
Setting Up the Aircraft's Positioning System

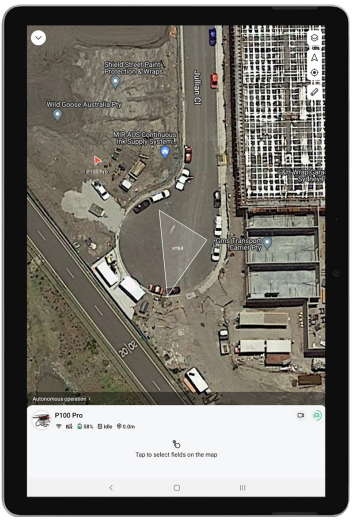
INSTRUCTION

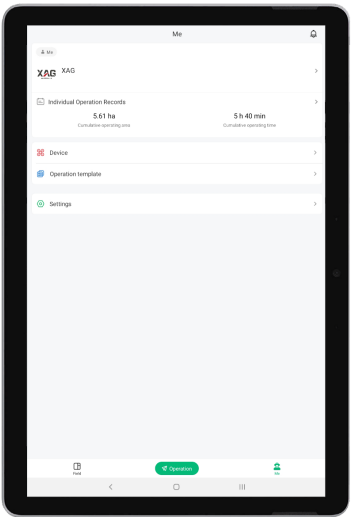
01. Start by tapping on the Me in your app. Here, select the Device Menu option to open the Device Menu.

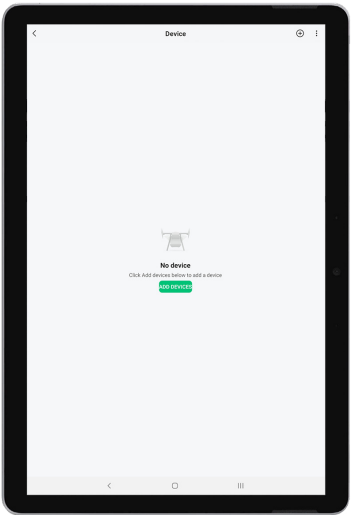
02. Next, tap on the desired aircraft from the list displayed to access its Device Detail page.

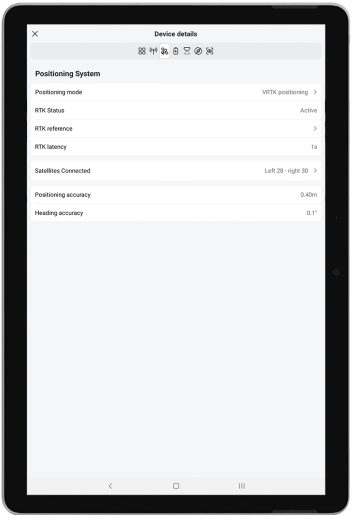












03. Tap on the to select the positioning system.

04. Tap on "Positioning Mode" to access options, then choose your preferred mode:

RTK Positioning:	Tap “RTK Reference” to review nearby RTK Stations (Mobile and Fixed), select your Base Station, and wait for “RTK Status” to become Active.
VRTK Positioning:	Wait for “RTK Status” to become Active.
GPS Positioning:	Wait for “RTK Status” to become Active.

05. Once RTK Status is displaying "Active," the Aircraft is now ready to fly.

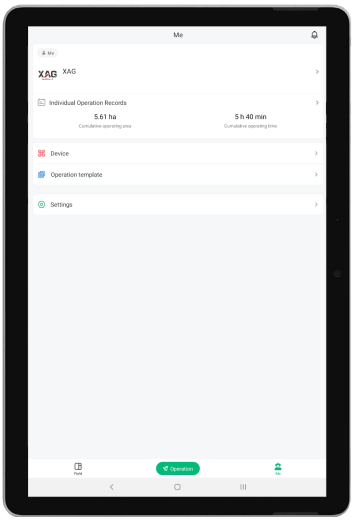
Calibration – RevoSpray P3

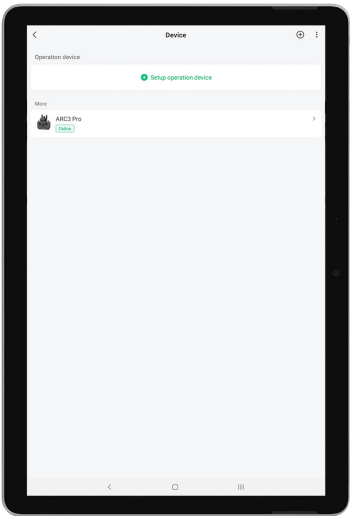
Before using RevoSpray for the first time, or after replacing a new peristaltic pump, a spray calibration is required. You can follow the steps below to perform the spray calibration.

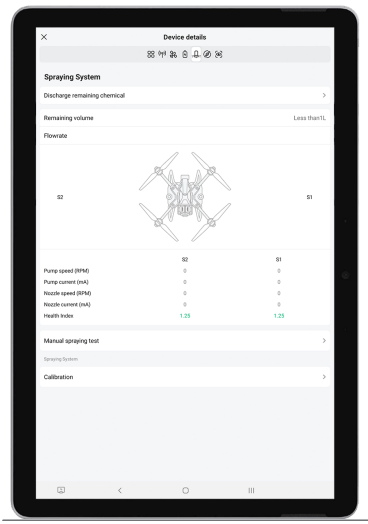
INSTRUCTION

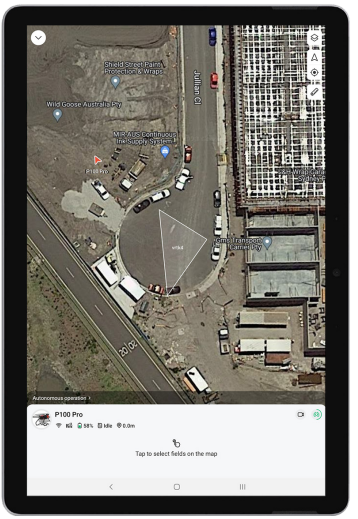
01. Open the XAG One app and navigate to the Me Accounts Menu. From there, proceed to Device Menu. From the list of available devices, select your P100 Pro UAV.

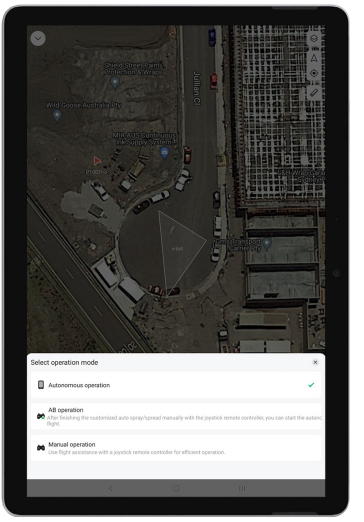
02. Tap the to enter the Spray System interface -> select " Calibration" -> select Liquid Tank capacity.





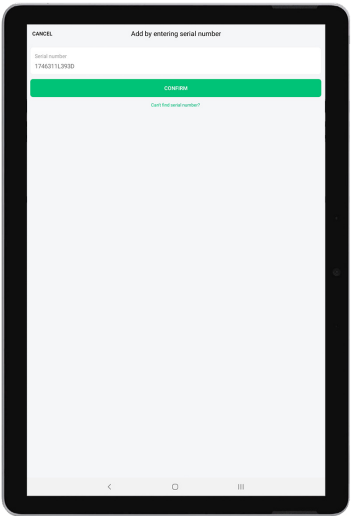


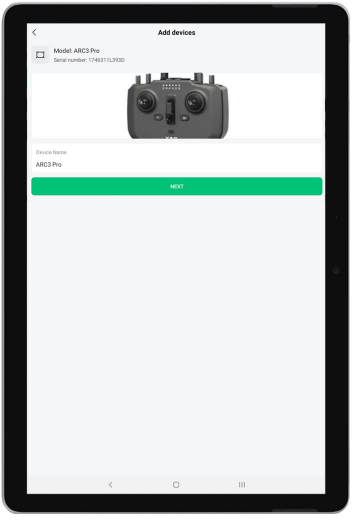




03. Follow the prompts in the App interface to add an appropriate amount of clear water to the Liquid Tank.

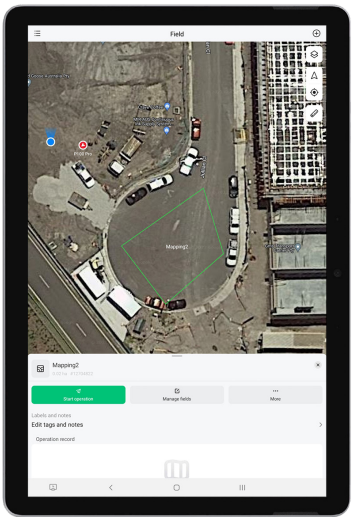
04. Prepare an empty container and place it under the S1 nozzle. Check the box for "An empty container has been placed under the S1 nozzle" and tap "S1 Start Calibration".





05. After the S1 nozzle calibration is complete, follow the App interface prompts again to add an appropriate amount of clear water to the Liquid Tank.

06. Place the container under the S2 nozzle, check the box for "An empty container has been placed under the S2 nozzle", and tap "S2 Start Calibration".



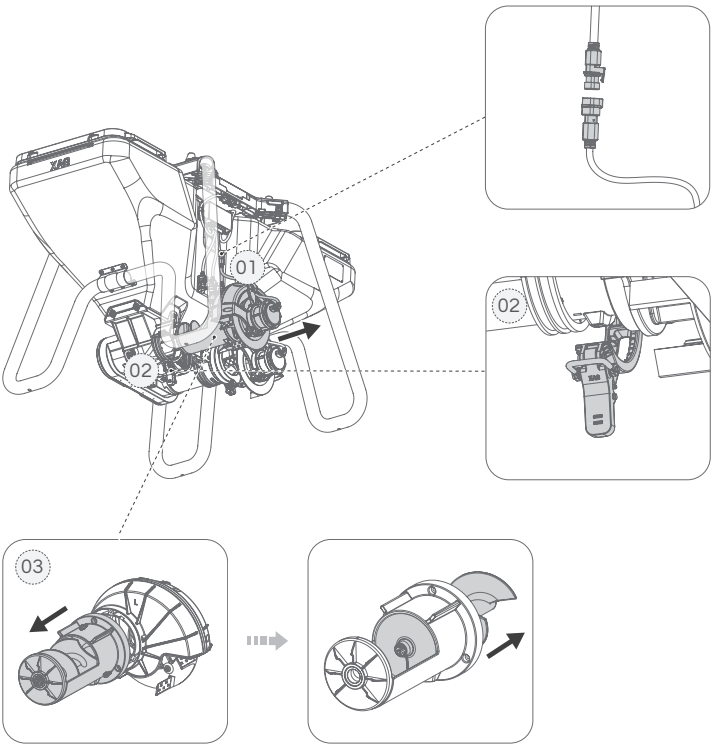
07. After the calibration of the S2 nozzle is completed, tap "Complete" to complete the spray calibration.

IMPORTANT

The RevoSpray system should be calibrated if there are large deviations (more than 5%) due to reasons such as chemical corrosion, the use of thick pesticides, or after replacement of parts or tubes in the peristaltic pump. This calibration should be performed using either clean water or the specific pesticides that will be used in operation.

Calibration – RevoCast P3

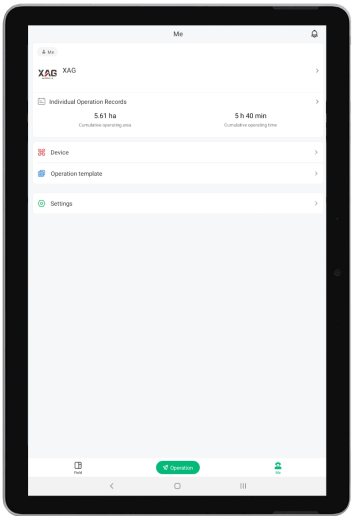
Before using RevoCast for the first time, or after replacing granules or switching to different models of spiral feeders, a spreading calibration is required. Before performing the calibration, the spreading disc units on both sides must be removed (take the left one as an example):

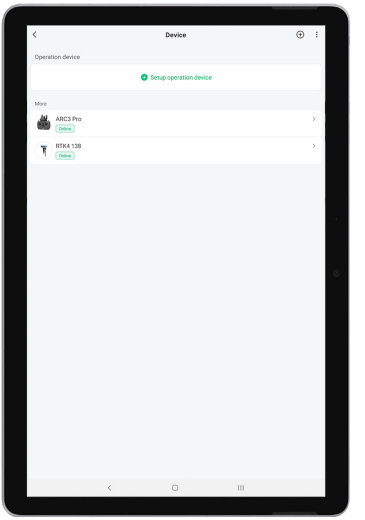


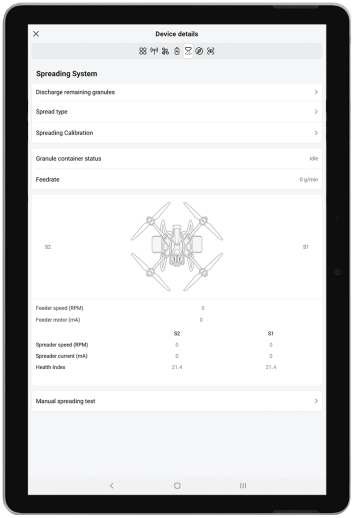
INSTRUCTION

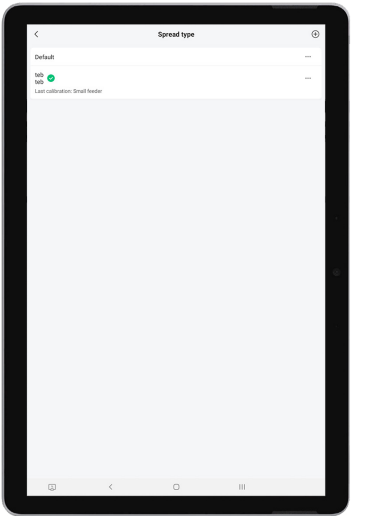
01. Disconnect the spreading disc motor cables.

02. Unscrew the four screws holding the spreading disc unit in place to remove it.



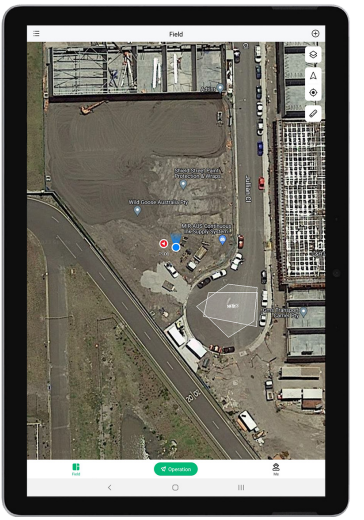


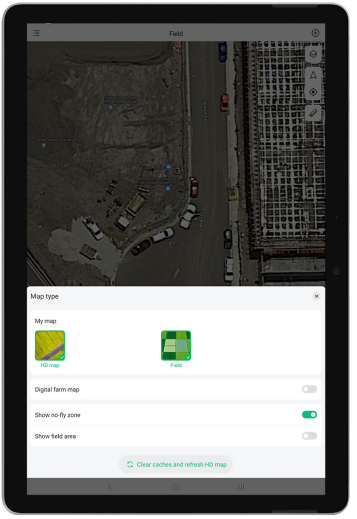


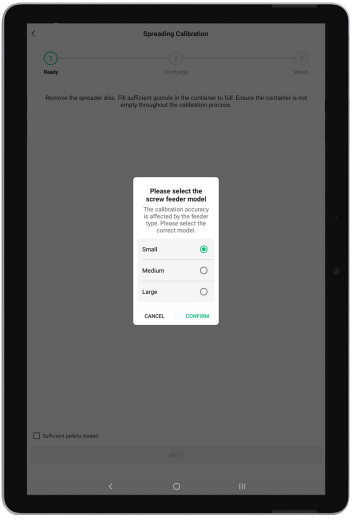


03. Open the XAG One app , tap on Me , then , then select and Tap on the aircraft to enter the Device Details page.

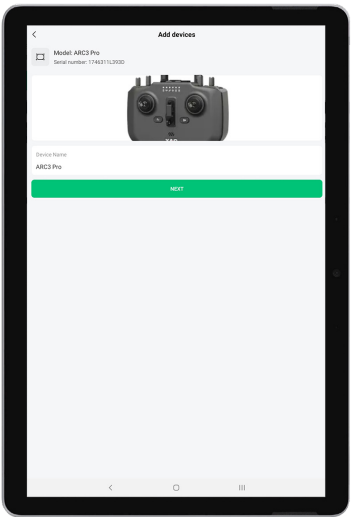
04. Tap on the to enter the Spreading System page. Tap on "Spread Type", then the ⊕ in the upper right corner to create a new granule entry. Enter the name of the granules to be calibrated, and tap on "Confirm".

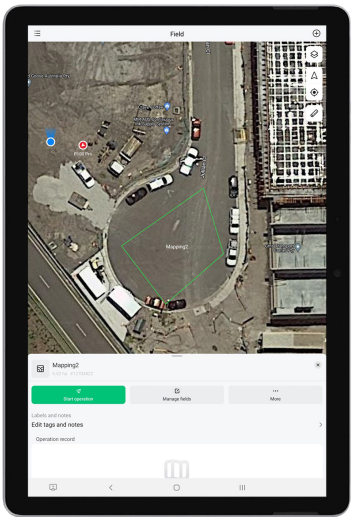


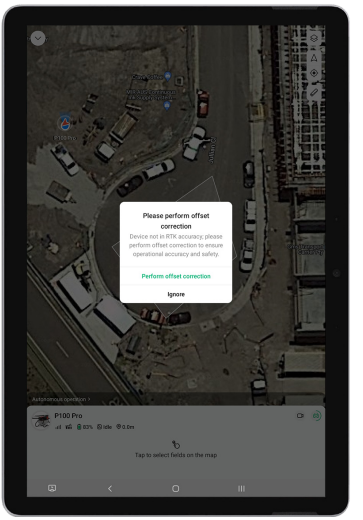




05. After selecting the granule, go back to the "Spreading System" page. Tap on "Spreading Calibration", select the current Spiral Feeder model, and tap on "Confirm". Add the granules to be calibrated into the granule container, filling at least 60% of the volume. Check the option “Sufficient pellets loaded,” then tap on “Next.”





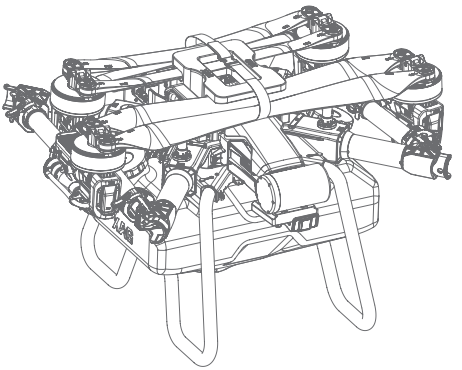


06. Elevate the aircraft approximately 50 cm above the ground. Hang a bag/container on a handheld electronic scale, set the scale to zero, then fix the bag/container under both outlets. Check the option "Empty containers are placed under the outlets" and tap on "Start Calibration".

07. After the outlets stop discharging, use the handheld electronic scale to weigh the bag/container and granules. Fill in the actual weight (in grams) into the App and tap on "Submit" to complete the calibration.

08. 08After the spreading calibration is completed, reinstall the left and right spreading disc units according to their markings ("L" for left and "R" for right), and reconnect the two spreading disc motor cables.

Pre-Flight Checklist



01 Perform a rigorous structural inspection of the airframe. Confirm that all arms are fully extended and have been firmly secured using the appropriate Arm Clamps and Arm Joint Pins.

02 Conduct a thorough scan for foreign substances on the aircraft or any of its components, including, but not limited to, chemicals, oil, soil, or sand.

03 Examine the integrity of the Dynamic Radar, PSL Camera, Terrain Following Sensor, and ESCs, ensuring that they are pristine and in optimal operational condition. Look for any signs of damage such as cracks, chips, indentations, deformations, or blockages.

04 Scrutinize the propulsion system's integrity.

- √ Ensure that the Propellers, Propeller Clamps, and Clamp Brackets have been correctly installed and properly tightened. Assess the cleanliness and structural integrity of these parts.
- √ Examine the Motor wiring integrity. Manually rotate the Motor to inspect the motor bearing for any irregularities, vibrations, or anomalous noises.
- √ Verify the secure connection of the Motor's three-phase cables and confirm that Loctite has been applied to fully tighten the screws.

05 Assure that the power sockets are immaculate and intact, and that the batteries have been correctly installed.

06 Ensure that the Firmware of each component and the XAG One APP is current and up to date.

07 Confirm sufficient battery levels for the operation, which includes the aircraft batteries, remote controller, and RTK extension rod.

- √ Aircraft battery temperatures are maintained below 54 degrees.
- √ Circuit Board and MOS temperature are kept under 70 degrees.

08 Monitor the voltage of the batteries and ensure the difference between each Battery Cell Voltage is less than 150 mv.

09 Ensure the aircraft is individually paired with a Remote Controller (RC). Confirm that the RC has selected the most optimal communication channel and is ready for immediate aircraft operation and obstacle evasion, if required during emergencies.

10 Confirm robust and effective communication.

- √ Aircraft enters GPS, RTK or VRTK Mode (Active).
- √ RTK Time Delay is less than 10s.
- √ Aircraft Heading Accuracy < 2 degrees.
- √ Number of satellites is greater than 16.
- √ Direct line of sight is maintained between the Aircraft and RC/RTK Station.

11 Conduct Offset Correction if using VRTK or importing maps/shapefiles as fields.

12 Ensure there are no red warning messages on the APP concerning the Terrain Following Sensor and Obstacles Avoidance Radar.

13 Conduct the Spray/Spread calibration followed by the system idle test (Motor, Spray/Spread).

14 Ensure that the payload loaded on the RevoSpray 3 or RevoCast 3 system does not exceed the 50kg threshold.

15 Ensure the take-off location is a flat, sand and rock-free surface.

Operation Mode – Autonomous Mode

Field Planning

XAG One APP supports multiple methods in Field Planning.

: Create a new field

: Import Data

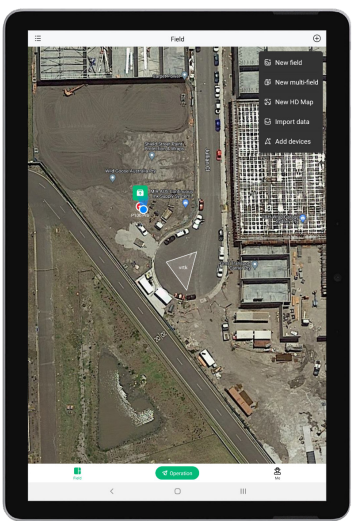
This Section will provide step by step instructions on how to Import a Field/ HD Map and create a new field for Aerial Survey & Aerial Operations

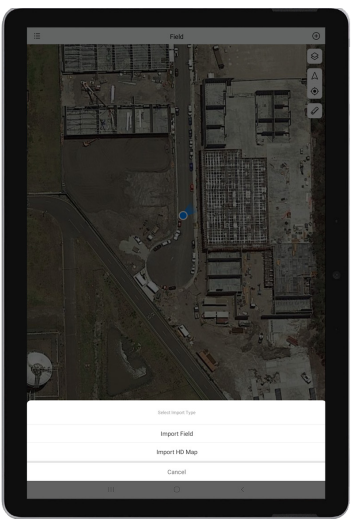
Import Field / HD Map

This section is primarily for previous XAG Pilots to access Fields that had been previously planned and Maps that XAG's related survey equipment had surveyed.

Notes

Imported Data may only be available on the specific Smart Device that had imported the data.





PREREQUISITE

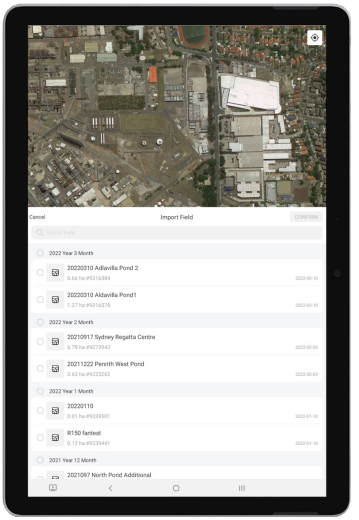
√ Internet Access to Cloud for Data Retrieval.

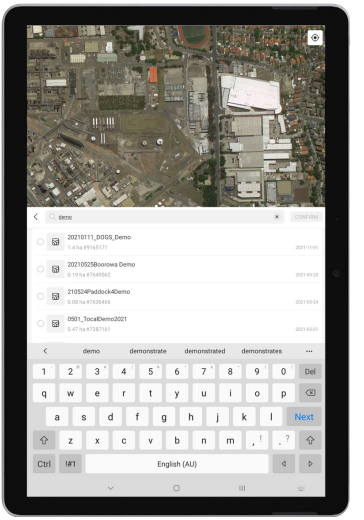
√ Using the same XAG Account.

01. Open XAG One APP.

02. Tap on ⊕ to expand the Options menu, then Tap on Import Data.

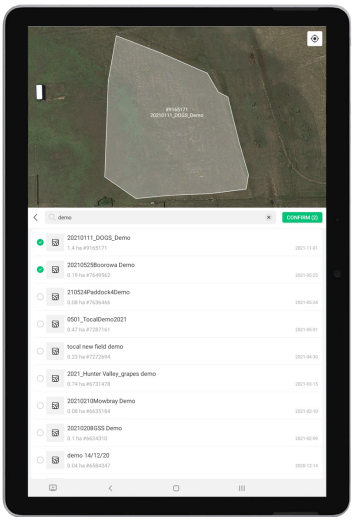
03. Select to Import Field or HD Map (This Manual will be using Importing Field as an example).

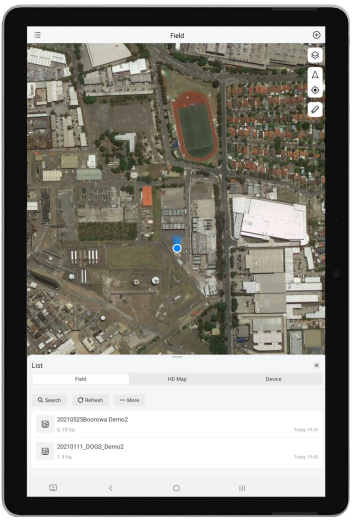




04. Previous records of Field that is available for import will be displayed.

05. Alternatively, the user may choose to search for the fields as well.





06. Select 1 or Several fields, then confirm to start importing the field to this Smart Device.

07. After the field is imported, please refresh the List and find the imported field is now available.

Importing Pix4D Shapefile (KML / SHP)

Creating a New Project

01. Start by launching the PIX4Dfields software.
02. Select "New project."
03. Under "Import files," choose a folder containing the images you wish to process. PIX4D will automatically process these images and place markers on the satellite image.

Processing Images

04. Select the desired processing quality (Note: Lower quality will result in reduced accuracy when uploading to FMS).
05. Click "Start processing" to produce your orthomosaic and surface model.

Defining Boundaries

06. Once the processing is completed, select "Boundaries" above the orthomosaic.
07. Click the "Draw boundary" icon and map out the points for your field.
08. Confirm your selection by clicking the checkmark.
09. Name your boundary as desired, then click "Save."

Defining Obstacles

10. Select the arrow next to the "Draw boundary" icon and choose "Draw obstacle."
11. Map out the points for your obstacle and confirm by clicking the checkmark.
12. Name the obstacle as desired, then click "Save."

Creating an Operation

13. Exit the boundary menu by selecting "Boundaries" and then choose "Operation."
14. Click "Targeted operation" and select "Continue."
15. Check the boxes for both boundary and obstacle, then click "Continue."
16. Choose "Do not pre-fill grid cells" and click "Continue."
17. Adjust cell size and orientation to suit your field, then click "Preview." Confirm by selecting "Create operation layer."

Variable Rate Operations (COMING SOON FUNCTION)

18. Assign prescription rates on the right side of the desktop (e.g., 30L/ha).
19. Use the paintbrush tool to colour the area you wish to spray at this rate.
20. For different prescription rates within the same field, select the plus button and assign a new rate. Colour the desired spray area.
21. Note: Anything left blank can be changed to a no-spray zone or obstacle based on your selections.

Exporting the Operation

22. Click "Export" in the top right corner.
23. Select "Operations," choose the XAG platform from the dropdown menu, then click "Continue."
24. Define the blanks left as obstacles or no-spray areas, then press "Export."
25. Choose the folder for exporting the operation layer.

Uploading to Field Management System (FMS)

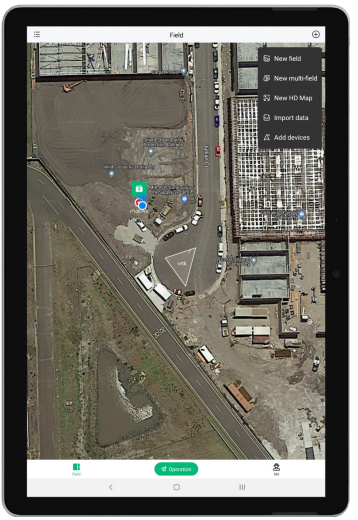
26. You now have a KML file ready for upload to FMS at FMS Login.
27. Log into FMS using your XAG One account.
28. Select "Farmland" on the left side of the screen.
29. Click "Upload" and select your operation Layer KML File.
30. Choose the XAG One option and confirm.
31. Open the XAG One app on your operation device to ensure the field has been uploaded correctly.

Create a new Field

Mapping via Satellite / HD Map

IMPORTANT

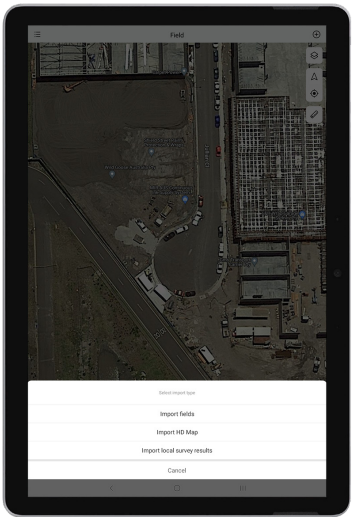
Maximum acreage for each field is 333.33 ha.

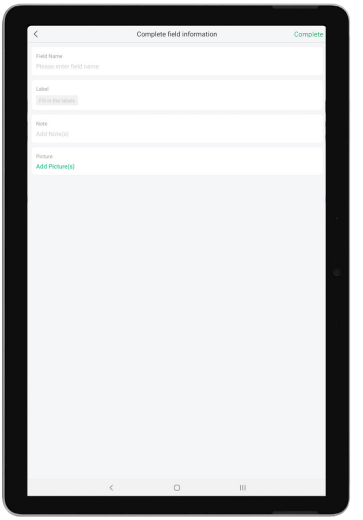


Notes

This planning option is only suited for experienced pilots familiar with the field or pilots who have surveyed the area for an HD Map. Satellite map accuracy varies and is not recommended for a new or inexperienced pilot unfamiliar with the field or the Aircraft. The pilot should be cautious with the possible deviation between the satellite map and the RTK Position based aircraft.

01. Open XAG One APP.
02. Tap on ⊕ to expand the Options menu, then Tap on Create a new field.





03. Then, tap on to position the map to your current location.
Or
Drag & Scroll through the map and find the desired location.

04. Field Boundary, Obstacles and Restricted Zone can be added via the APP directly

Field Boundary	Field Boundary are individual points that form an application zone.
Obstacle	Obstacles are individual points that form an area where the RPA will not fly/enter as it has been designated as a potential hazard to the RPA
Restricted Zone	Restricted Zone are individual points that form an area that the RPA may fly over but will be restricted from application

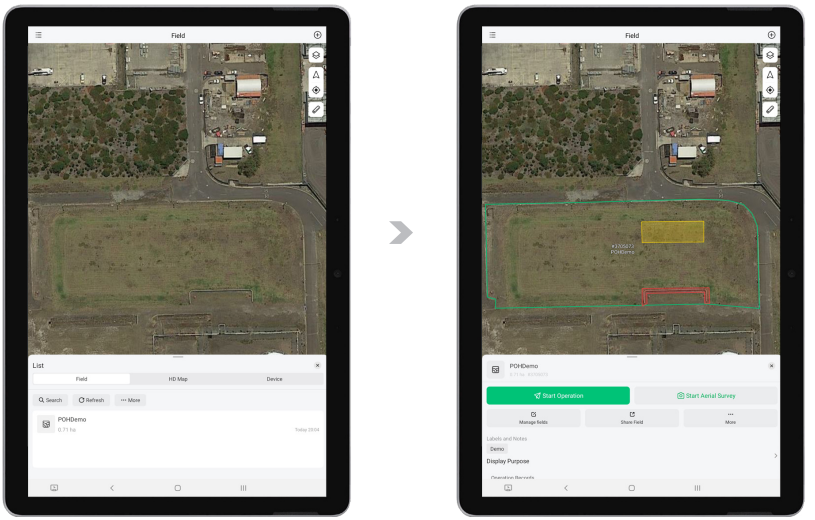
05. Tap on one of these , , to expand the menu for alternate options.

06. Tap on the desired location on the map to Add points;

07. Alternatively, the User can use the crosshair to add boundary, obstacles, and Restricted Zone.
Adding Point via APP: Press on APP
Removing Point via APP: Press on APP

08. Review the Map and the points added, then Tap “Confirm”.

09. Enter & Insert Field Information, then Tap “Complete” to Save.



10. The field has now been created.

11. Tap on ☰ to review the List of Field / HD Map / Device. The field is now available for Route Planning.

Mapping via Remote Controller

PREREQUISITE

√ Verify that the Remote Controller is set to Mapping Mode.

√ Confirm that the Remote Controller RTK Module is properly connected and functioning.

INSTRUCTION

Setting Up the Remote Controller

01. Locate the USB-C cover located at the top of the Remote Controller. Carefully open it to reveal the USB-C port, ensuring not to apply excess force that might damage the cover or the port.

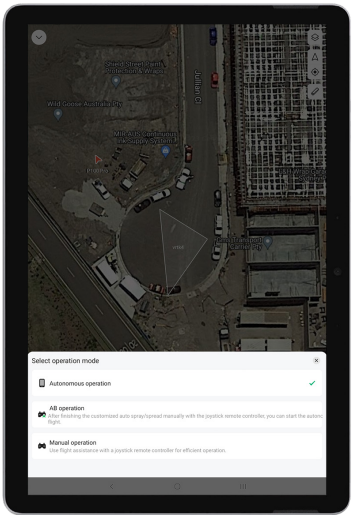
02. Once the USB-C port is exposed, take the RTK Module and gently insert it into the port. Ensure its properly connected and fully seated in the port.

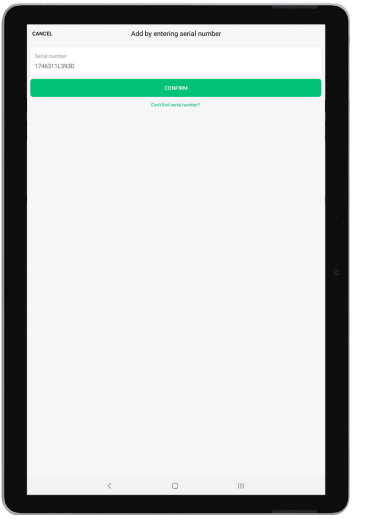
03. With the RTK module installed, place your mobile device in the phone holder on the Remote Controller.

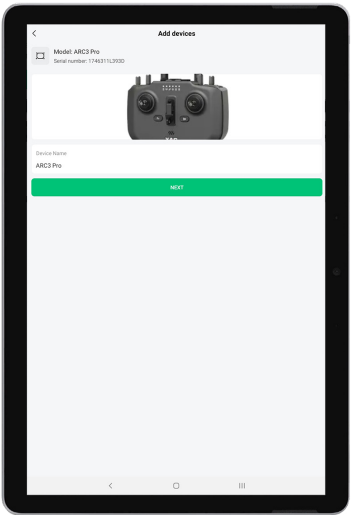
Configuring Positioning Mode

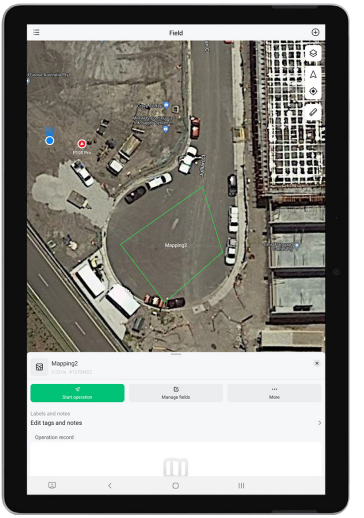
04. Open the XAG One App (ensure its version 4.6.21 or later) and navigate to the Me Accounts Menu. From there, proceed to Device Menu.

05. Select and Tap on the Remote Controller from the list of devices to enter the "Detail Details".



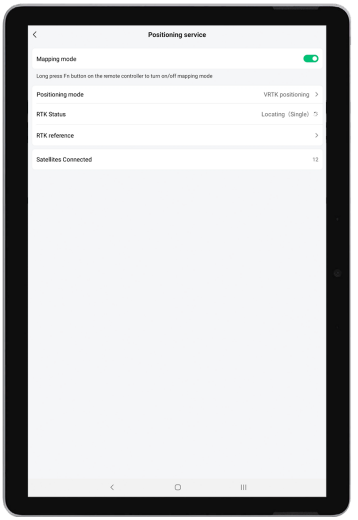


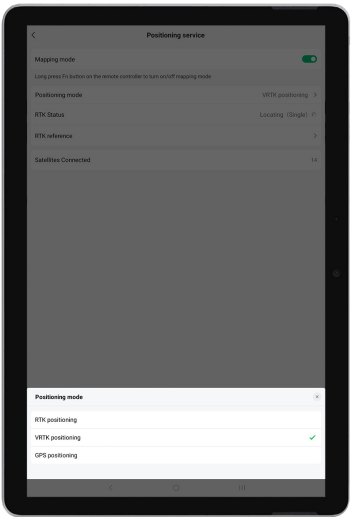


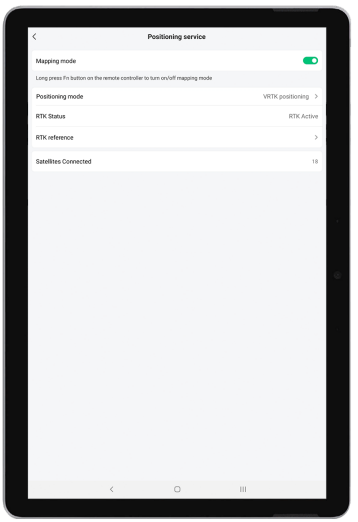


06. Tap on "Positioning Services" to access Positioning Options

07. Press and hold the "Fn" button on the ARC3 Pro controller to initiate the mapping mode. Mapping mode is activated when the buzzer emits two beeps and the 4th indicator transition to a solid green.



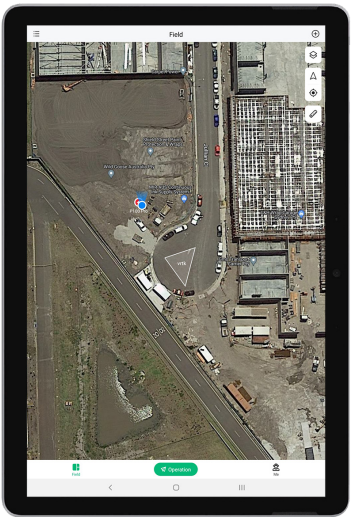


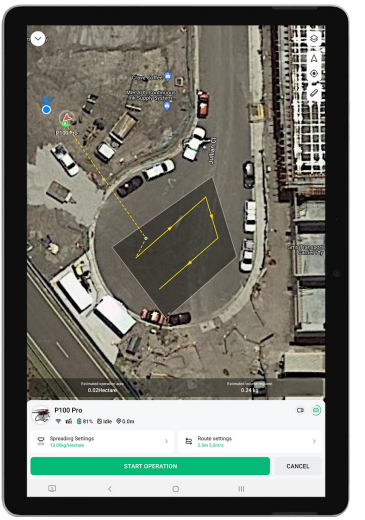


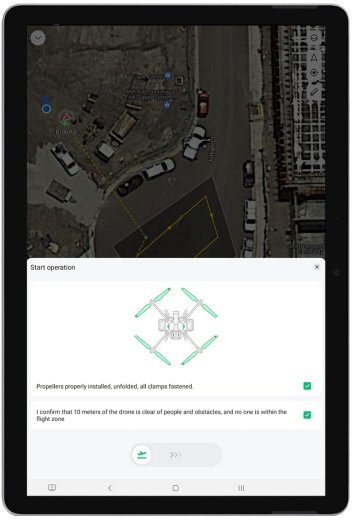
08. Then choose your preferred Positioning mode:

RTK Positioning:	Tap “RTK Reference” to review nearby RTK Stations (Mobile and Fixed), select your Base Station, and wait for “RTK Status” to become Active.
VRTK Positioning:	Wait for “RTK Status” to become Active.
GPS Positioning:	Wait for “RTK Status” to become Active.

09. The ARC3 Remote Controller 4th indicator (External Device) light should be solid green indicating Remote Controller is now ready to start Mapping.

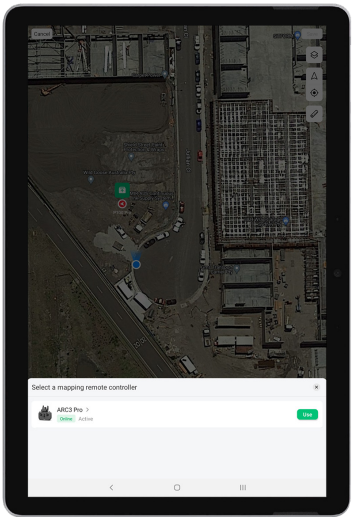


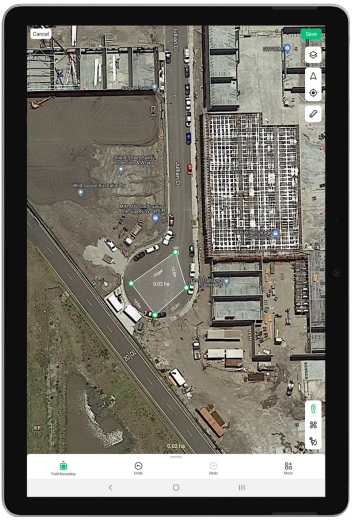




Mapping the Field

10. Navigate to the Field page.
11. Tap the located in the upper right corner and choose New Field ".
12. Tap the located in the upper right corner to position the map to your current location.
13. Tap the in the bottom right corner to expand the options for Available Remote Controller.





14. Choose the appropriate Remote Controller for mapping. Ensure that the controller is Active, and press "Use."

15. Depending on the Positioning Services you have preferred (Step 08), your position icon will change as follows and be ready for mapping:

    : RTK Precision

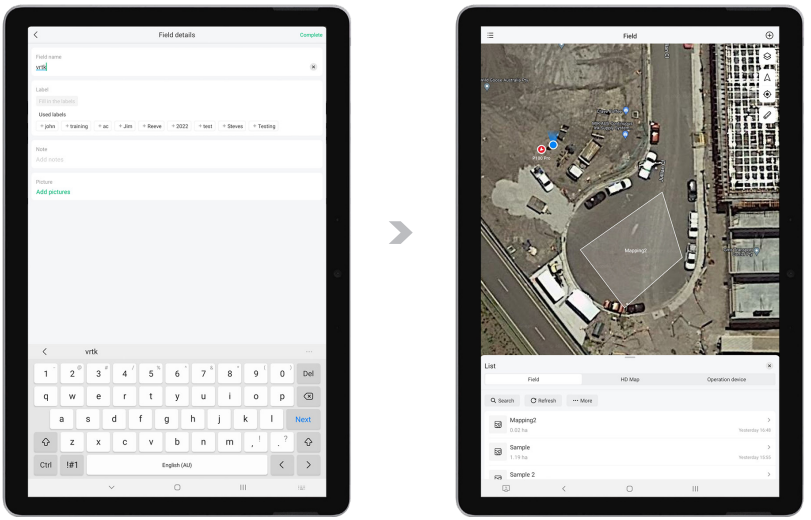
    : GPS Precision

16. User will walk and position themselves with the Remote Controller (with RTK Module attached) at the desired location and add Points of the Field Boundary, Obstacles and Restricted Zone

    Points can be added via APP or Remote Controller:

Adding Point via APP:	Press on APP
Removing Point via APP:	Press on APP
Adding point via Remote Controller:	Press L1 Button on Remote Controller
Removing Point via Remote Controller:	Press L2 Button on Remote Controller

17. After mapping the operating area, tap "Save" in the upper right corner of the app screen. Alternatively, you can also long press the L1 Button on the ARC3 Pro to save the Field.



18. Lastly, enter the field information in the app and tap "Complete" to save the field. The field is now created and saved, ready for future use.

19. Tap on ☰ to review the List of Field / HD Map / Device, the field is now available for Route Planning.

IMPORTANT

When operating in Mapping Mode, the ARC3 Pro's remote controller is exclusively for mapping activities and cannot be used for piloting the aircraft. This limitation is essential to maintain the accuracy of the mapping process and ensure safety during flight operations.

To resume manual flight control of the aircraft, you must exit Mapping Mode. To do this, long press the "Fn" button on the ARC3 Pro controller. Once you have exited Mapping Mode, you can proceed with normal flight operations.

Always remember to switch out of Mapping Mode when you intend to pilot the aircraft manually. This is a critical step to ensure proper control and safety during operations.

Mapping via Flight

The "Fly to Mark" feature is only applicable when generating fields by piloting an aircraft with the ARC3 Pro. Follow these steps to use this feature:

INSTRUCTION

01. **Launch the XAG One App:** On your device, open the XAG One App. Navigate to the "Field" page, then tap the ⊕ located in the upper right corner of the screen. Select "New Field". To choose the aircraft for mapping, tap the located in the bottom right corner of the screen.

02. **Marking Field Boundaries:** Pilot the aircraft over the field that needs to be marked. On your device screen, tap the "PSL perspective" to switch to the downward "PSL perspective" view. Short press the "L1" button on the controller to mark the boundary points of the field. Continue flying the aircraft to other boundary points, marking each one. After marking all the points, tap "Auto Closing" on the App. The system will automatically generate a field based on the marked points.

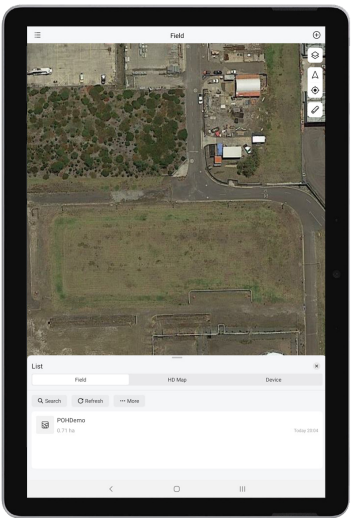
03. **Marking Obstacles and Non-operating Areas:** Select either "Obstacle" or "Non-operating Area" on the app. Pilot the aircraft around the obstacles or non-operating areas. Short press the "L1" button on the controller to mark the boundary points of these areas (to undo a mark, short press the "L2" button).

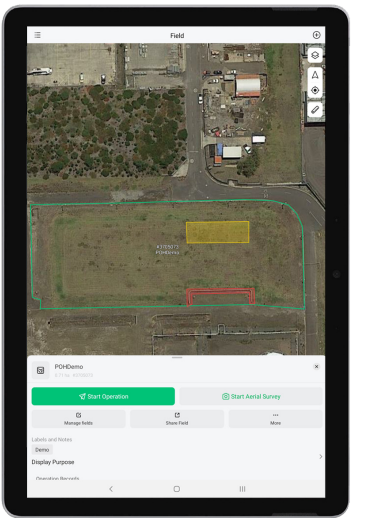
04. **Finalize Mapping:** After successfully mapping the operating area, tap "Ok" in the upper right corner of the app screen.

05. **Enter Field Information:** Provide necessary field information as prompted, then tap "Complete" to save the field.

06. **Land the Aircraft:** Remotely control the aircraft to fly it to a safe area and land. Alternatively, long press the "Stop" and "Fn" buttons simultaneously to make the aircraft return to base.

Manage Fields



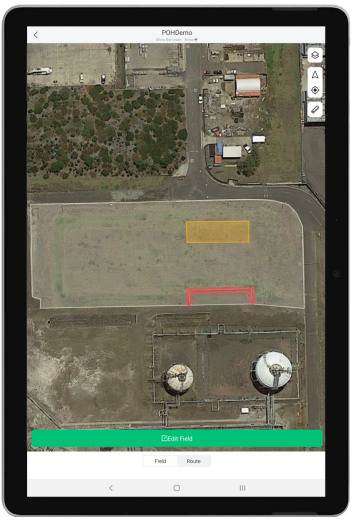


01. Open XAG One APP, and tap on the for the Listing.

02. Within the List of Fields, find and tap on the corresponding fields for additional options.

03. Additional options include Aerial Flight, Aerial Survey, Manage fields, Share Field and more...

04. Proceed to “Manage Fields” to edit or pre-plan the fields.



05. At the bottom of the screen, there are two available options.

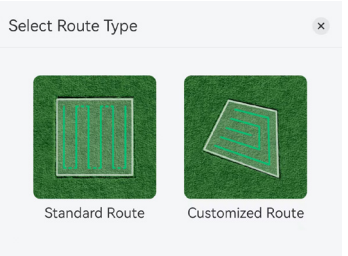
Field:	Modify field information
Route:	Route Pre-Planning with Basic Flight Parameters

Edit Fields

Select Edit Field, and then Tap on one of the Boundary Icons to switch options between Field Boundary, Obstacles, or Restricted Zone. Points are highlighted in respect of their Boundary Type colours. Users have the options to Add, Move, or Delete the points to edit the field in preparation for the Aerial Flight.

Field Boundary	
Add Points:	Tap anywhere between the segments to add Points
Move Points:	Drag the points to the appropriate location
Delete Points:	Tap on the points, then select “Delete Point”
Obstacle	
Add Points:	Tap once between the segments and drag the ⊕ to add Points
Move Points:	Drag the points to the appropriate location
Delete Points:	Tap on the points, then select “Delete Point”
Restricted Zone	
Add Points:	Tap once between the segments and drag the ⊕ to add Points
Move Points:	Drag the points to the appropriate location
Delete Points:	Tap on the points, then select “Delete Point”

Route Pre-Planning



Route Type	
Standard Route:	This route type is a zig-zag pattern that is based on the planned field boundary. It follows a back-and-forth pattern and is one of the most common and efficient ways to cover an area, ensuring the drone can cover the entire field without leaving any parts untreated.
Custom Route:	This route type is designed based on specific points that the user has added. This is more flexible and allows the user to customize the flight path according to specific needs or challenges in the field. It is particularly useful in irregularly shaped fields, or fields with a large number of obstacles or non-treatable areas.

Parameters	
Route Direction	This refers to the direction each flight route will follow. It is usually dictated by the shape and layout of the field. Flying into the wind can help with stability and spray distribution but may require more power.
Route Spacing	This refers to the distance between each flight route. It's usually determined by the effective spray width of the drone, or the width of the implement being (RevoSpray or RevoCast). Ensuring appropriate route spacing helps to avoid overlap or missed areas, leading to more efficient operations.
Boundary Safety Distance	This is the buffer distance that the drone maintains from the boundary of the field. This is important to prevent accidental drifting into adjacent fields or areas, and to provide a safety margin for turning the drone at the end of each pass.
Obstacle Safety Distance	This is the buffer distance that the drone maintains from any obstacles in the field (like trees or power lines). This safety distance helps prevent collisions with obstacles that could potentially damage the drone. It's essential to properly mark these obstacles during the field setup phase.

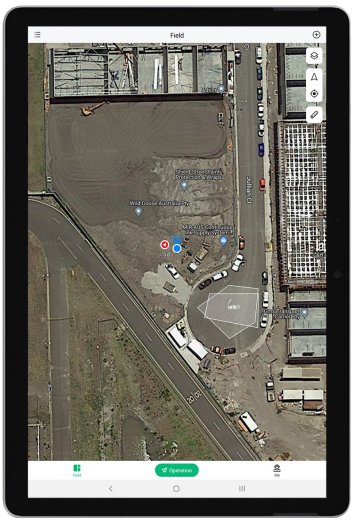
Operation (Spraying / Spreading)

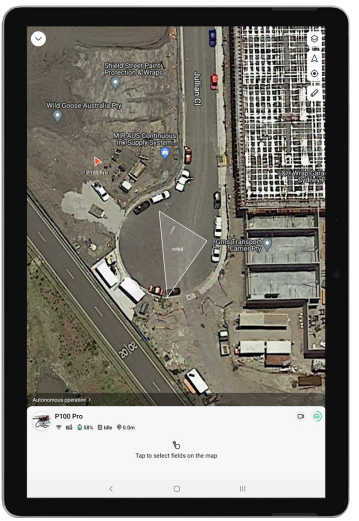
This section provides comprehensive instructions for conducting spraying or spreading operations using the "XAG One" App with your agricultural drone. Follow these step-by-step guidelines to ensure a successful and safe operation.

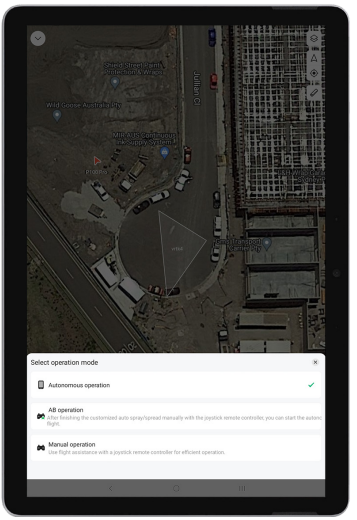
Selecting Operation Mode

INSTRUCTION

01. Open the "XAG One" App on your device. Select the location icon to position the map according to your current location.
02. Tap the “Operation” button to access the operation menu.
03. Tap on the Option located above the Drone icon to reveal the Operation Mode menu.





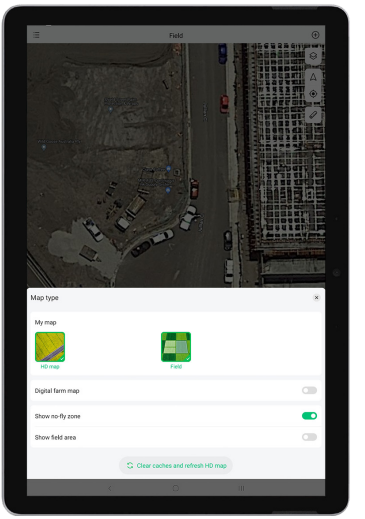


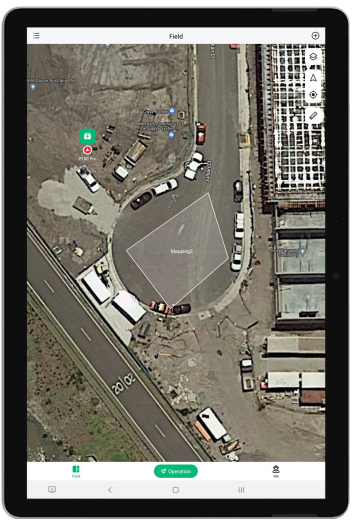
04. Choose “Autonomous Operation” from the menu, then close it to return to the Operation View screen.

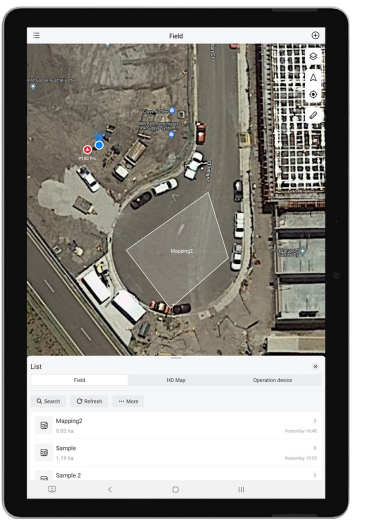
Selecting the Field

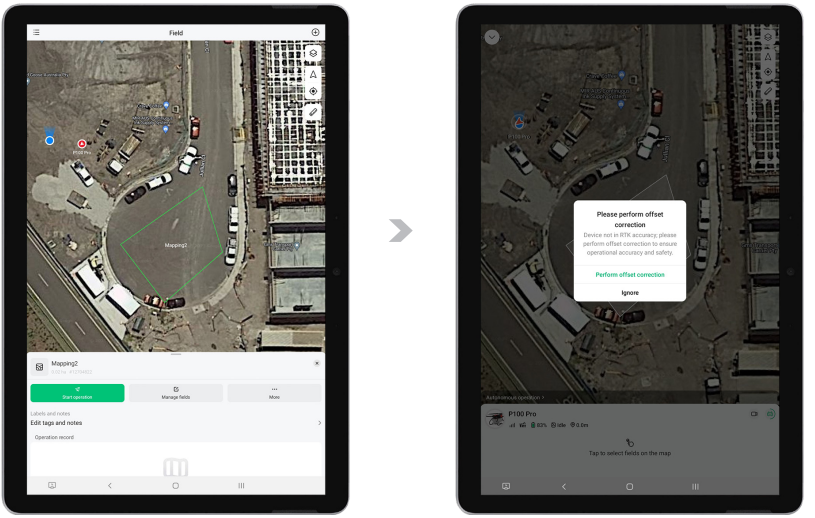
05. Tap on the to expand the "Map Pages" section, and then verify that the "Field" option under the My Map section is enabled.

06. Tap the to expand the Field list, then select the desired Field from the list.









07. Tap “Start Operation” to initiate the process.

08. If fields are created using the VRTK Positioning service, an "Offset Correction" option may be available, or a notification may advise that Offset Correction is recommended. To align the aircraft's internal mapping system with the actual field layout, follow the instructions in the Offset Correction section below.

Offset Correction

IMPORTANT

Offset Correction is a crucial procedure that should be executed under certain circumstances to ensure the highest level of precision during operations. Implementing this offset correction procedure harmonizes the aircraft's internal mapping system with the physical layout of the field, guaranteeing an accurate correspondence between the two. The following are situations in which Offset Correction should be performed:

- **Creation or Modification of Fields (VRTK):** When a new field is delineated using the remote controller with the Positioning Mode of VRTK (Virtual RTK), or existing field parameters (such as boundaries, obstacles, or restricted zones) are altered, Offset Correction must be executed. This step is vital to ensure that the drone's internal understanding of the field's layout is congruent with its actual physical structure. It helps in avoiding navigational errors and ensures that the drone can operate within the defined parameters efficiently.
- **Major Shifts in Operational Area:** If the drone's geographical operational context experiences a significant change compared to the previously recorded location, executing a Offset Correction is imperative. This adjustment ensures that the aircraft's internal map is updated to accurately reflect the current operation environment, taking into account any geographical or environmental changes that may affect the drone's performance.
- **High Precision Tasks:** In scenarios that demand a high level of precision, such as crop spraying or seeding, Offset Correction is highly recommended. This procedure guarantees that the drone accurately adheres to the planned routes, thereby maximizing the effectiveness of the operation.
- **After Extended Inactivity:** If a created field has been inactive for a prolonged period, a Offset Correction must be executed before resuming operations. This action compensates for any potential GPS drift or inaccuracies that might have accumulated during the period of inactivity. It ensures that the drone's navigation system is recalibrated to the current conditions, providing a reliable basis for operations.

Offset Correction is a key operational step that aims to maintain high precision in drone operations. It is particularly crucial for agricultural activities, where even slight misalignment can result in skipped areas or overlapping applications, potentially impacting the effectiveness and efficiency of these operations. Depending on your preference and the specific conditions of the operation, Offset Correction can be conducted using one of the following methods:

Offset Correction on Ground

INSTRUCTION

01. Open App: Open the App and then tap on "Operation" on the page.
02. Select Fields: Tap on "Select Fields" and choose the desired fields for operation on the map. Move the aircraft to the boundary of the selected field.
03. Align: Tap on "Offset Correction" on the map, and the settings page will appear. Tap the boundary point closest to the aircraft and adjust the boundary points to align with the aircraft's current position (or directly drag the boundary points to the aircraft's current position).
04. Confirm Alignment: Tap on "Align with aircraft's current position", and the app page will display "Aligned" to confirm that Offset Correction is completed.

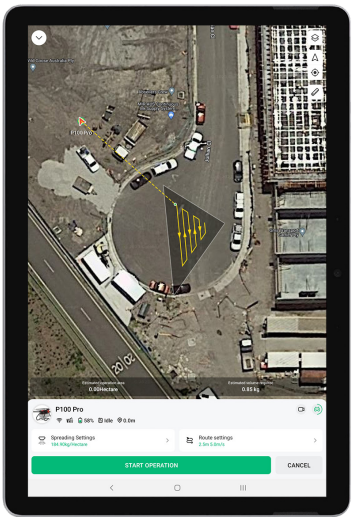
Offset Correction by Flight

INSTRUCTION

01. Open App: Open the App and then tap on "Operation" on the page.
02. Select Fields and Start Aircraft: Tap on "Select Fields" and choose the fields for operation on the map. Start the aircraft and remotely control it to fly to the boundary points of the fields.
03. Align: Tap on "Offset Correction" on the map, and the settings page will appear.
04. Confirm Alignment: Tap on "Align with aircraft's current position", and the app page will display "Aligned" to confirm that Offset Correction is completed.

Setting Operation parameters

09. After completing the Offset Correction and aligning the Fields, the Operations parameters become available for customization. Review and adjust the settings as needed (Refer to Page 146 – 149 for specific Spray/Spread and Route Settings).



Operation Parameters - Task modules

Spraying Settings (with RevoSpray P3)	
Spray Volume	Controls the amount of liquid sprayed per unit acreage. It allows the user to adjust the volume to achieve the desired coverage and saturation.
Droplet Size	Determines the size of the individual droplets in the spray. Smaller droplets may provide finer coverage, while larger droplets may be more resistant to drift.
Spray during lane Change	- **Turn on Both Nozzles** Activates both nozzles during a lane change to ensure continuous coverage.
	- **Turn on Outer Nozzle** Only the outer nozzle is activated during a lane change, focusing the spray on the outer edge.
	- **Turn OFF** Deactivates the spray during a lane change to prevent over-spraying.
Advance Settings	
- Enable Fly Only	When activated, this function allows the equipment to only fly without conducting any spraying. It's useful for navigation or repositioning without applying any materials.
- Low Liquid Level RTL & Auto Drain Mode	Triggers Return to Land (RTL) mode when liquid levels are low and automatically drains the remaining liquid.

Spreading Settings (with RevoCast P3)	
Granule Type	Specifies the type of granular material being spread, allowing the system to optimize the RevoCast System.
Spreading Rate	Controls the amount of granular material spread per unit area. It can be adjusted to meet specific application needs.
Spread during lane Change	- **Enable Seeding on both sides** Allows spreading on both sides of the equipment during a lane change, ensuring uniform distribution.
	- **Turn OFF** Stops spreading during a lane change to prevent over-application.
Advance Settings	
- Enable Fly Only	When activated, this function allows the equipment to only fly without conducting any spraying. It's useful for navigation or repositioning without applying any materials.
- Low Volume RTL & Auto Drain Mode	Triggers Return to Land (RTL) mode when liquid levels are low and automatically drains the remaining liquid.
- Freed Spreading Mode	When enabled, this mode allows the maximum route spacing for spreading to be 100 meters. It provides greater flexibility in the application of granular material, accommodating larger distances between passes and potentially increasing efficiency in certain scenarios.

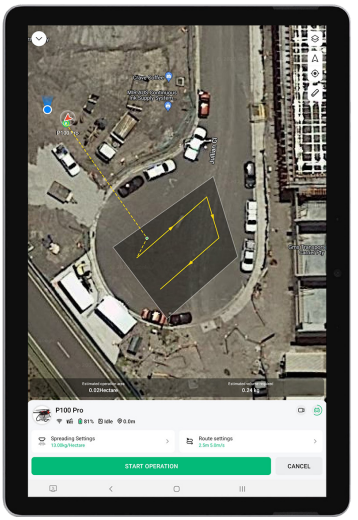
Operation Parameters – Route Settings

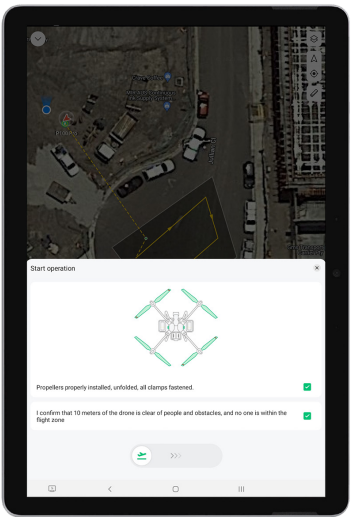
APPROACHING ROUTE	
- Enable Guide point Planning	Allows the use of guide points to plan the approach route, providing precise navigation and alignment.
- Flight Height	Specifies the altitude at which the equipment will fly during the approach, ensuring proper positioning for the operation.
- Flight Speed	Determines the speed at which the equipment will approach the operation area, allowing for controlled and timely arrival.
OPERATION ROUTE	
- Flight Height	Sets the altitude for the main operation, directly affecting the spray or spread width. A higher flight height may result in a wider spray or spread pattern, while a lower height may concentrate the application. This parameter allows for precise control over the application of materials, ensuring optimal coverage and efficiency.
- Flight Speed	Controls the speed during the main operation, balancing efficiency, and accuracy.
- Route Direction	Defines the direction of travel along the operation route, ensuring proper alignment with the target area.
- Route Spacing	Specifies the distance between parallel passes, allowing for uniform coverage or application.
- Boundary Safety clearance	Sets a safety buffer around the boundaries of the operation area, preventing accidental intrusion or overspray.
- Obstacle Safety Distance	Determines the minimum distance the equipment must maintain from the marked obstacles, enhancing safety and preventing collisions.

ADVANCED SETTINGS	
Operation Range	- **Shuttle Mode** Allows the user to customize which routes to operate. For example, based on the parameters of the Operation Route, if a field has 10 routes, the user can selectively operate on Route 1-3, 4-5, etc. This provides flexibility in planning and executing specific tasks within the designated area. - **Boundary Mode** When enabled, this setting activates targeted application (spray or spread) along the boundaries of the field or operation area.
Operation Range	- **ALL OFF** Disables terrain following. - **ALL ON (RECOMMENDED)** Enables terrain following for both approaching and operation routes. - **Approaching Route Only** Enables terrain following only during the approach route. - **Operation Routes Only** Enables terrain following only during the main operation.
Obstacle Avoidance	IMPORTANT The Effectiveness and ability of the obstacle radar to detect and avoid obstacles is dependent on various factors, including the obstacle's material, location, shape, size, etc. It may not function effectively with all types of obstacles. It is essential to maintain a visual line of sight with the equipment during operation. Pay close attention to its flight and be prepared to operate the aircraft manually to avoid obstacles promptly or during an emergency. Relying solely on the obstacle radar without proper vigilance may lead to unexpected risks. - **Enable** Activates obstacle avoidance. - **Disable** Weactivates obstacle avoidance.
Route Optimization for Reloading	- **Enable** Activates route optimization for efficient reloading. - **Disable** Deactivates route optimization, following the standard route.

Commence Operation

10. With all settings properly configured, the pilot is ready to commence the operation.
11. Tap “Start Operation” once more to proceed.
12. Complete the Start Operation Checklist, then swipe “Start” to initiate the flight.
13. The App will now upload the Flight Route and Flight Parameters to the Drone and perform a Self-Check. Upon successful completion of the Self-Check, the Drone will automatically take off within approximately 5 seconds.





Operation Mode – AB Mode

The AB Mode is a specialized operation mode designed for precision and efficiency in agricultural drone operations. In this mode, the aircraft follows a meticulously planned square zig-zag route, determined by two primary turning points: Point A and Point B. Here's a detailed breakdown of how the AB Mode functions:

- Zig-Zag Route: After recording the turning points A and B, the aircraft embarks on a square zig-zag route. This systematic movement ensures comprehensive coverage of the field, minimizing overlaps and missed areas.
- Obstacle Avoidance: Under optimal working conditions, the drone is equipped with an obstacle avoidance feature. This ensures that the aircraft can detect and navigate around any potential obstacles in its path, ensuring safety and uninterrupted operation.
- Vegetation Distance Maintenance: One of the standout features of the AB Mode is its ability to maintain a consistent distance from the vegetation below. This ensures uniform application of sprays or treatments, leading to consistent results across the field.
- Route Spacing Adjustment: The distance between the zig-zag routes, known as "route spacing," is represented by dotted lines in the operational map. Users have the flexibility to adjust this spacing within the app, allowing for customization based on the specific needs of the field or crop.
- Dynamic Route Alteration: After recording points A and B, if users decide to adjust the heading for these points, the turning angles for the operation route's turning points will be recalibrated. This means the shape and direction of the operation route will change based on the newly set headings for points A and B. For instance, as illustrated in the provided figure, the operation route can transform into shapes like Route L' or Route R'.

This section provides comprehensive instructions for conducting operations using the "AB Operation Mode" with the "XAG One" App and your agricultural drone. Follow these step-by-step guidelines to ensure a successful and safe operation.

Selecting Operation Mode

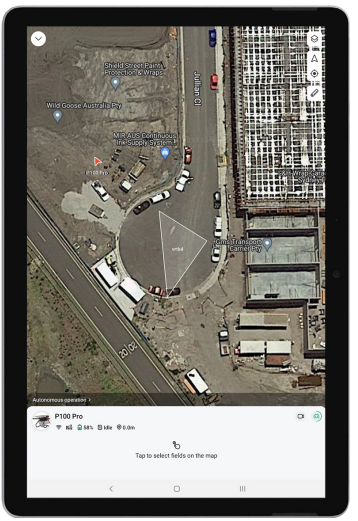
INSTRUCTION

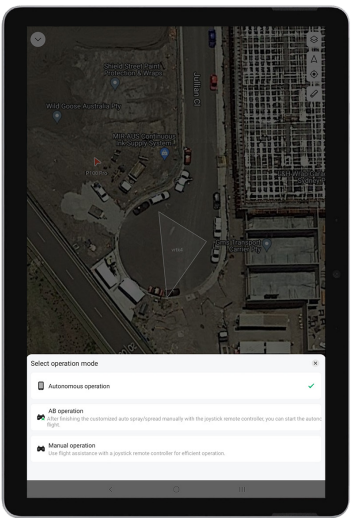
01. Open the App on your device. Select the location icon to position the map according to your current location.

02. Tap the “Operation” button to access the operation menu.

03. Tap on the Option located above the Drone icon to reveal the Operation Mode menu.

04. Choose “AB Operation” from the menu, then close it to return to the Operation View screen.





Setting Operation parameters

05. Adjusting Settings: Tap on Spraying settings and Route settings to Review and adjust the operation parameters for your task.

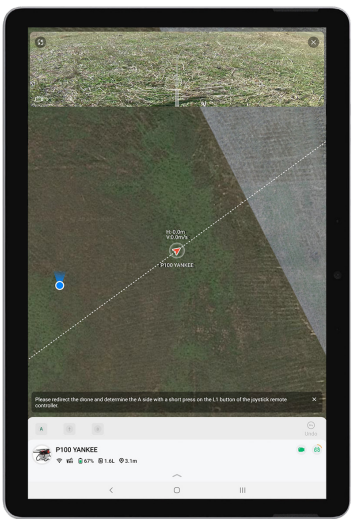
Manual Take-off and Setting Boundaries

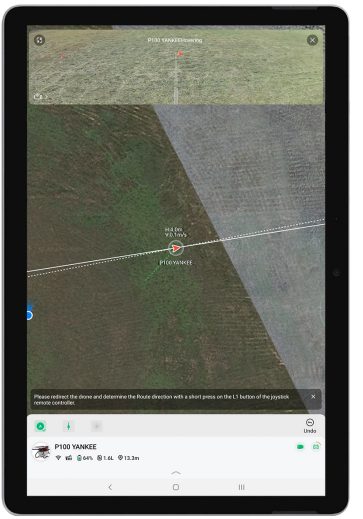
06. Take-off: Initiate manual take off by moving both sticks to the inner-lower corners or outer-lower corners simultaneously. This action should be performed smoothly and quickly. Once you've completed the CSC, you'll have 3 seconds to push the throttle stick upwards to lift the drone off the ground. If you don't do this within the 3 seconds, the motors will automatically shut down.

07. Setting First Boundary (A): Navigate the drone to the initial boundary point of the field (A). Adjust the drone's heading by yawing left or right to select your boundary direction. Short press the L1 Button to set the first Boundary (A).

Notes

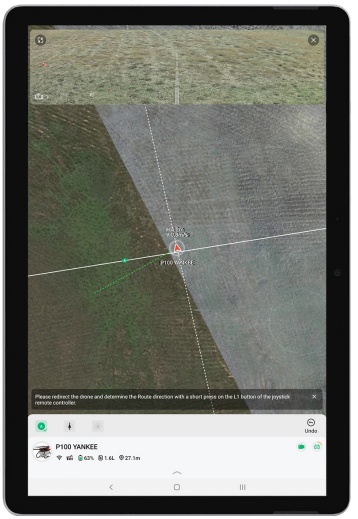
Monitor the added points by checking the A , A , B at the bottom of each icon. Tap "Undo" if you need to modify the boundary point or its direction.

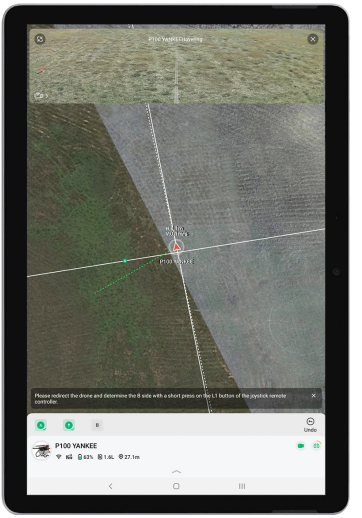


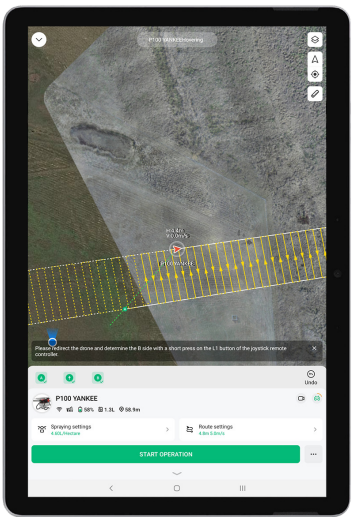


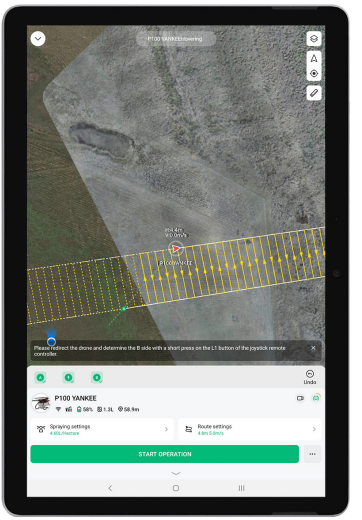
08. Setting Route Direction: Adjust the drone's heading to select the route direction by yawing left or right. Confirm your choice with a short press of the L1 button.

09. Setting Last Boundary (B): Fly the drone to its final Boundary point (B) and confirm with a short press of the L1 Button.



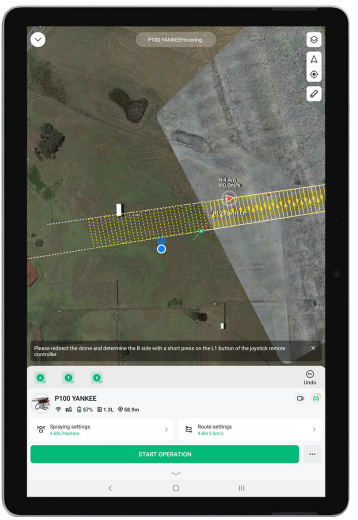


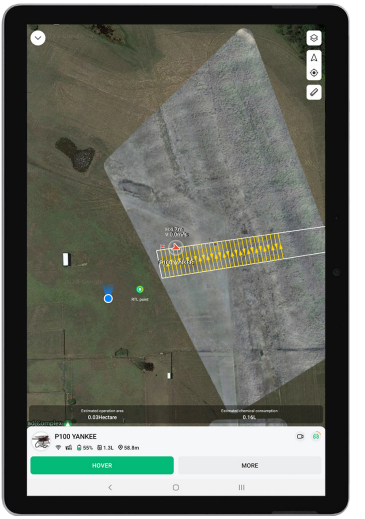




Commence Operation

10. Starting the Operation: After defining the boundaries, a field will be generated. Tap "Start Operation", and the drone will fly to point A to initiate its task.



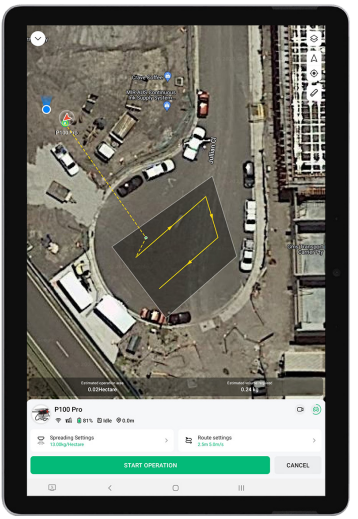


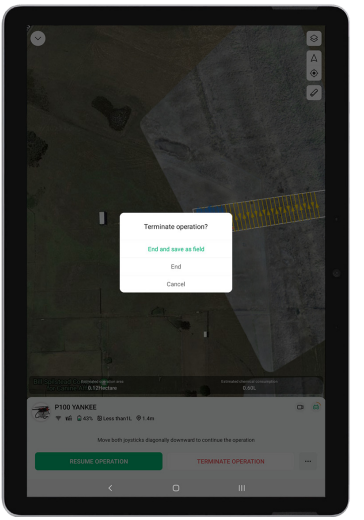
Concluding the Operation

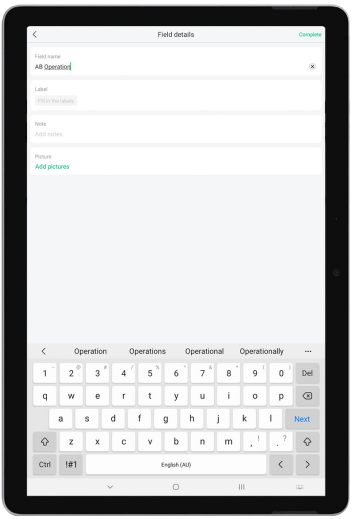
11. Termination: Once the operation is complete, tap "Terminate Operation".

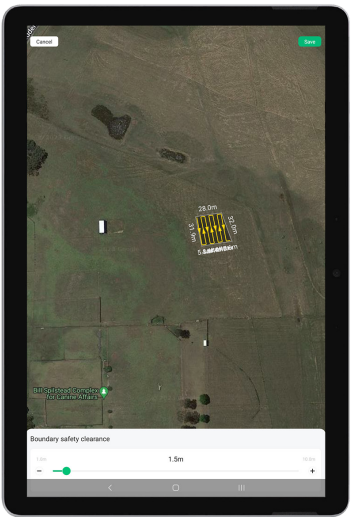
> **Notes**
> Remember, this action can only be executed after the drone has landed.

12. Saving the Field: To save the field for future operations, tap "End and save as field". Choose your boundary safety clearance, input the field details, and then tap "Complete".

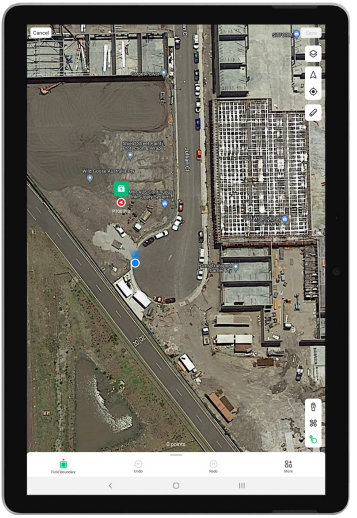








13. Using the Saved Field: The saved field can now be accessed and sprayed under an autonomous operation mode.



Operation Mode – Manual Operation (Auxiliary Mode)

The Auxiliary Mode feature helps to maintain the correct flight path when you're piloting the drone using the remote controller. When this feature is activated, the system will automatically adjust the drone's course to correct any deviations, ensuring steady flight along the intended route.

INSTRUCTION

Selecting Operation Mode

01. Open the App on your device. Select the location icon to position the map according to your current location.
02. Tap the “Operation” button to access the operation menu.
03. Tap on the Option located above the Drone icon to reveal the Operation Mode menu.
04. Choose “Manual Operation” from the menu, then close it to return to the Operation View screen.

Setting Operation parameters

05. Adjusting Settings: Tap on “Track Spacing”, “Droplet Size”, and “Spray Volume” to Review and adjust the operation parameters for your task.

    Notes

    You can adjust spraying settings during the flight using the knobs on your controller. (For details, refer to the Button Functions section.)

Manual Take-off

06. Take-off: Initiate manual take off by moving both sticks to the inner-lower corners or outer-lower corners simultaneously. This action should be performed smoothly and quickly. Once you've completed the CSC, you'll have 3 seconds to push the throttle stick upwards to lift the drone off the ground. If you don't do this within the 3 seconds, the motors will automatically shut down.
07. Navigate the drone to the intended operating field.

Engaging Auxiliary Mode

08. Press and hold the "L1" button to activate the Auxiliary mode and establish a route.

IMPORTANT

- To exit this mode, either yaw the drone left/right or briefly press the pause button.
- When flying in Auxiliary Mode, you have the option to momentarily adjust the drone's altitude by using the throttle (move the Throttle Stick up or down). Once you release the throttle, the drone will automatically revert to its pre-set altitude.

Commence Operation

09. To commence spraying, Navigate the drone forward.

Notes

For details, refer to the Button Functions section.

Concluding the Operation

10. To conclude the operation, either manually guide the drone back or use the RTL (Return to Land) command. The Return-to-Land (RTL) command is a safety feature that prompts your drone to return to its launch or home point. To execute the RTL command, press and hold both the Pause/Resume button and the Fn (Function) button simultaneously. While RTL is in progress, Function Indicator A will flash yellow. This serves as a visual confirmation that the RTL command has been activated and the aircraft is enroute to its home point.

Emergency Control

Emergency Control via APP

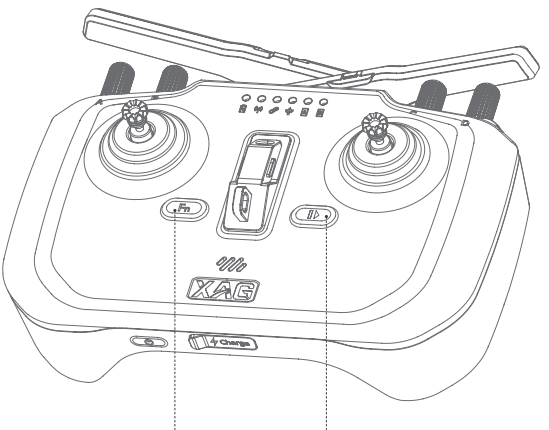
Hover: Command the Drone to Hover

These following Control could be found in “MORE”

Land: Command the Dronte to land at its current location

Return: Command the Drone to Return and Land

Tap & Go: Command the Drone to move to location specificed by Pilot



After-Flight Maintenance & Care

Maintenance and Care

Upon completion of agricultural drone operations, it is crucial to promptly clean the drone's exterior and task module components. Regular maintenance and care are also essential to ensure optimal performance and longevity of the drone.

Cleaning Procedure

Cleaning Procedure - RevoSpray System

Upon the conclusion of agricultural drone operations, it's critical to thoroughly clean the RevoSpray system. This routine helps to prevent potential harm from human contact with any residual pesticides during maintenance procedures. Follow these steps for a comprehensive cleaning:

Cleaning Agent: Use soapy water or a solution of water and laundry detergent.

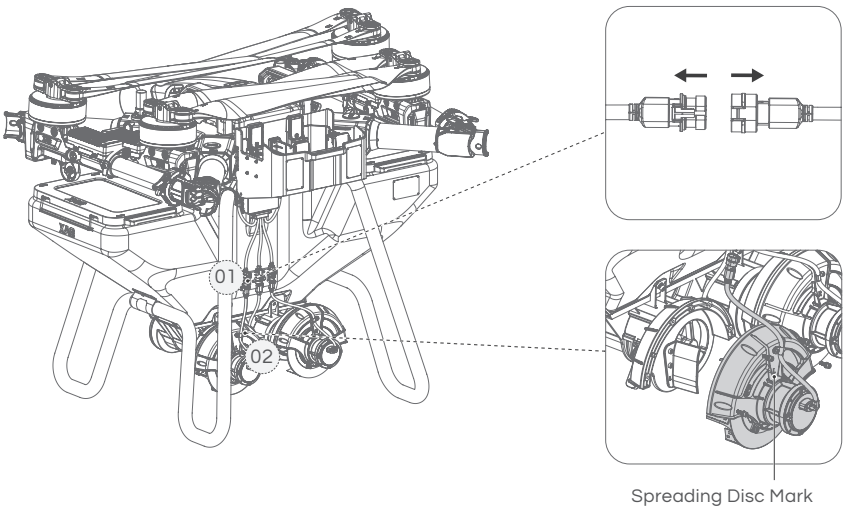
01. Refill the Liquid Tank with a solution of soap water or soap powder water, and engage all nozzles to drain and clean out any remaining residues within the spray system.
02. After the first cleaning, refill the Liquid Tank with clean water and engage all nozzles again, using the APP or Remote Controller. This will help to drain and clean out the remaining soap water within the spray system.
03. Finally, place an empty Liquid Tank and engage all nozzles one more time to drain and clean out any remaining residues within the spray system. This step will prevent residue leakage during transportation that could potentially damage other items.
04. Using a damp rag, wipe and clean the exterior of the aircraft and the Liquid Tank to remove any stains and foreign objects.

IMPORTANT

If the drone is to be transported to a new location or is not going to be used for an extended period, it is necessary to empty the Liquid Tank and ensure all liquid within the system is completely drained.

Cleaning Procedure - RevoCast System

To prevent complications such as material accumulation and clogging, the RevoCast system should be cleaned after each day's spreading operation. This practice ensures the spreading efficiency of the RevoCast system. Follow these steps for a comprehensive cleaning:



01. Disconnect the Spreader Motor Cable.

02. Open the hasps of both Quick-release unit.

03. Extract the quick-release units and rinse the Spiral Feeders and the cross slots at the base of the Spiral Feeders. After rinsing, ascertain there are no foreign objects remaining in the Quick-release unit, then place them in a cool, shaded area to dry.

04. Open the Material covers on both side and rinse the residual materials in the material container with clean water. After rinsing, place it in a cool, shaded area to dry.

05. Once the quick-release units and the material container are dry, reinstall the left and right quick-release units in their original positions. Perform a manual spreading test before the next spreading operation to ensure that the RevoCast system is functioning properly.

IMPORTANT

- If the granules in the RevoCast system is corrosive, ensure to clean the RevoCast with soapy water or a solution of water and laundry detergent, followed by a rinse with clean water.
- Granules are likely to remain in the following locations:
  - Inside the Spiral Feeder motor cover;
  - Between the front of the spreading disc motors and the motor assembly units.
- The speed reducer gears require lubrication every 500 hours of operation to ensure they remain adequately lubricated.
- Before installing the quick-release units, please match the "L"/"R" markings on the quick-release units to the corresponding positions inside the RevoCast to avoid incorrect installation.
- When reinstalling the quick-release units, align the guides with the guide rails and insert them into the RevoCast. During insertion, rotate the Spiral Feeders so that the cross slots beneath the Spiral Feeders align with the cross axles of the RevoCast system. Gently jiggle it to confirm that the sowing quick-release component is securely installed, then lock the fixing buckle of the sowing quick-release component.
- If the hasps of the quick-release units cannot be securely locked, it may indicate improper installation of the quick-release units. In this scenario, remove the quick-release units and reinstall them after proper alignment.

After-Flight Inspection

01. Before initiating any maintenance or storage procedures, make certain that the aircraft is fully powered down. Proceed to remove the battery from the aircraft with caution and store it in a secure and suitable location.

02. Perform a detailed inspection to ensure the structural integrity of the aircraft, clean off any accumulated dirt or dust, and replace any components that appear loose or damaged.

03. Check that the Battery retains sufficient power (>10%). Promptly charge the battery to a level between 50% and 60% for proper storage. Neglecting to charge and store the battery in a timely manner could compromise the battery's efficiency, leading to potential damage and even reducing its overall lifespan.

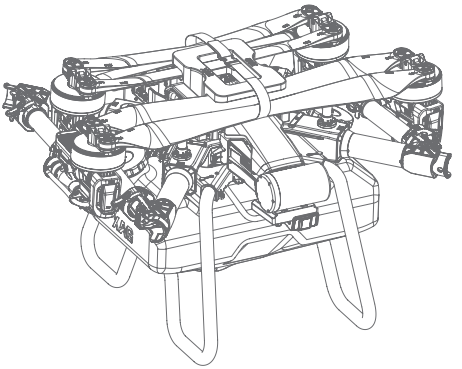
04. Ensure the Battery connector is in a clean and dry state.

05. Ensure the aircraft is properly folded and that the propeller is safely fastened with the propeller holder before transportation.

06. Prior to transportation, make sure all residues within the Aircraft and its container are fully drained. This is crucial to prevent residual damage to the RevoSpray/RevoCast system or any other equipment during transportation.

Transportation Guidelines

Ensure the aircraft is correctly folded, with the propeller safely fastened using the provided propeller holder prior to transportation. The Airframe should be appropriately secured with a safety belt to maintain a fixed position during transit, preventing potential damages due to movement.



IMPORTANT

Please be aware that damages or hardware failures caused by incorrect transportation methods will be the user's sole responsibility. The damaging impact of improper transportation is frequently underestimated; however, it can result in far more extensive damage than typically anticipated. Compliance with these guidelines isn't just about preserving the integrity of your equipment—it's also about sidestepping unnecessary expenses and mitigating safety hazards.

Please adhere to these guidelines to ensure the safe and efficient transportation of your equipment. Your safety, and the longevity of your equipment, is our utmost priority.

- Disassembly for Long-Distance Transportation: For long-distance transportation, it is necessary to disassemble the Spray Bar. This helps to prevent any potential damage during transit.
- Drainage of Liquids and Residues: Prior to any form of transportation, ensure that all liquids and residues are thoroughly drained from the aircraft and the RevoSpray system. Any remaining substances could potentially cause significant damage to critical modules during transit.
- Battery Removal: It is mandatory to remove all batteries from the aircraft before transportation. This is a crucial safety measure to prevent any potential hazards.
- Avoid Fatigue: Safety is paramount. Never operate or transport the equipment when fatigued. Fatigue can lead to errors, which can result in accidents or damage to the equipment.
- Proper Storage: The equipment should be stored separately from the occupants during transportation. This is to ensure the safety of all individuals involved in the transportation process.
- Maintain Air Circulation: It is essential to maintain proper air circulation during transportation. This is to prevent the inhalation of any residual pesticides, which can be harmful to health.

Maintenance Guide

Maintenance Cycle – Airframe

Component	Service Schedule (Recommended)	Service Plan (Recommended)
Main Fuselage	Every 300 ha	Ensure the Main Fuselages are intact, free from cracks or dents, and that all components are securely attached.
Fuselage Front Compartment Frame	Every 300 ha	Ensure the Fuselage Front Compartment Frame is intact, free from cracks, and securely fastened to the main body.
Fuselage Handle	Every 300 ha	Ensure the Fuselage Handles are intact, provide a firm grip, and show no signs of wear or damage.
Fuselage Arm Cover	Every 300 ha	Ensure the Fuselage Arm Covers fit snugly, are free from cracks, and protect the underlying components effectively.
Airframe Arm Clamp	Every 300 ha	Ensure the Arm Clamps are intact, provide a secure hold, and are free from signs of wear or corrosion.
Airframe Arm	Every 300 ha	Ensure the Arms are free from damages or deformation. Confirm that they securely attach and release from the aircraft body without any hindrance.
Airframe Hasp	Every 300 ha	Ensure the Airframe Hasps are intact, securely fastened, and operate smoothly without jamming.
Airframe Hasp Bracket	Every 300 ha	Ensure the Airframe Hasp Brackets are intact, screws are tightened, and there's no sign of rust or corrosion.
Motor Bracket	Every 300 ha	Ensure the Motor Brackets are free from deformations or damages. Confirm that all connections between the arm and motor are secure and that there's no play or wobble.
Motor Bracket Pin Buffer	Monthly	Ensure the Bracket Pin Buffer is in place and shows no signs of damage or wear.
Motor Bracket Pin	Monthly	Ensure the Bracket Pin is in place, securely fastened, and free from damage or wear.
Tail Frame Beam	Every 300 ha	Ensure the Tail Frame Beam is intact, straight, and securely attached to the main frame.
Tail Frame	Every 300 ha	Ensure the Tail Frame is intact, free from cracks, and securely attached to the main body.
Battery Socket Housing	Every 300 ha	Ensure the Battery Socket Housings are intact, provide a secure fit for the batteries, and show no signs of wear or damage.

Tubing	Monthly	Ensure the Tubing retains its original shape and elasticity. Inspect for any signs of wear, cracks, or deformations. If the tubing has expanded or elongated due to the effects of potent chemicals, replace it to maintain a consistent flow rate.
Gearing	Monthly	Ensure the Gearings are in good condition and free from damage or excessive wear. Regularly lubricate the gears to ensure smooth operation and reduce wear. Check for any misalignments or grinding sounds during operation.
Cables	Every 2 Months	Ensure the Cables are free from damage, fraying, or kinks. Regularly inspect the insulation for any signs of wear or damage, and ensure connectors are clean and securely fastened.
Screws	Every 2 Months	Ensure all Screws are securely in place, free from rust, and not stripped. Periodically tighten any screws that may have become loose over time.

Maintenance Cycle – Electronics Modules

Component	Service Schedule (Recommended)	Service Plan (Recommended)
FC (Flight Controller)	Monthly	Ensure the FC is functioning correctly, and all connections are secure. Conduct a test-flight to observe the coordination of each electronic component and check for any firmware updates.
UPS	Monthly	Ensure the UPS activates when powering down the DRONE. Check the battery health and inspect connectors for signs of wear or corrosion.
Terrain Following	Monthly	Ensure the Terrain Following module is dry, free from foreign objects, and securely mounted. Conduct a flight test to verify the DRONE's responsiveness to terrain change.
Dynamic Radar	Monthly	Ensure the Radar is intact, free from obstructions, and securely fastened. Clean the radar surface for optimal performance and check for software updates.
PSL Camera (Forward & Downward)	Monthly	Ensure the Cameras are clear, lenses are clean, and securely mounted. Verify the APP displays the camera feed correctly and calibrate if the image appears skewed.
Antennas (RTK, 4G, WIFI)	Monthly	Ensure the Antennas are free from physical damage and securely mounted. Test the RTK, WIFI, and 4G antennas for stable connections and signal strength.
Central Power Hub	Monthly	Ensure the Power Hub is clean and securely connected. Inspect connectors for signs of wear or corrosion.
Central Cable Hub	Monthly	Ensure the Cable Hub is clean, and all connections are secure. Inspect the insulation of the cables for wear signs.
Power Socket	Every 200 ha	Ensure the Power Sockets and associated wiring are intact. Check connectors for cleanliness and signs of wear or corrosion. Test for consistent power flow.
ESC	Every 200 ha	01. Ensure the ESCs are in good shape without any deformations or oxidation. 02. Ensure the ESC Connectors are not melted or damaged. 03. Ensure the ESCs are securely installed with all screws in place. 04. Ensure the ESCs' heat dissipation area is clean and free from any chemicals or foreign objects.

Maintenance Cycle – Propulsion

Component	Service Schedule (Recommended)	Service Plan (Recommended)
Motor	Daily	01. Ensure the Motors are clean using compressed air. 02. Manually rotate the Motor to ensure smooth operation without any abnormal sounds. 03. Ensure the Motor enamelled wire is free from damage or fractures. 04. Ensure the Motor and Motor Bracket are securely fastened. 05. Ensure the connectors between the Motor and the ESC are securely fastened and show no signs of melting or damage.
Motor Connector Isolator (Thick & Thin)	Daily	Ensure the Isolators (Thin & Thick) are intact, retaining their original colour, and show no signs of heat-induced discoloration or wear.
Motor Connector Bracket	Daily	Ensure the Connector Brackets are intact, clean, and free from any signs of corrosion or wear.
Propeller	Daily	01. Ensure the Propeller is free from damage, cracks, softening, or deformation. 02. Ensure the Propellers are correctly installed with no missing or loose screws between the Propeller and Propeller Clamp. 03. Clean the Propeller using a wrung-out wet rag to remove any stains or foreign objects.
Propeller Clamp	Daily	01. Ensure the Clamp is free from damage, cracks, or deformation. 02. Ensure the Clamps are correctly installed with no missing or loose screws.
Propeller Clamp Bracket	Daily	01. Ensure the Bracket is free from damage, cracks, or deformation. 02. Ensure the Brackets are correctly installed with no missing or loose screws between the Clamp and Clamp Bracket.
Propeller Clamp Pin	Weekly	Ensure the Clamp Pins are free from damage, cracks, or deformation and are securely in place.
Propeller Gasket (CW / CCW)	Weekly	Ensure the Gaskets are in good condition and not excessively worn. Test by swaying the propeller blade tip to check for any wobbling.
Clamp Bracket Pin Bushing	Monthly	Ensure the Pin Bushings are in good condition and not excessively worn or damaged.

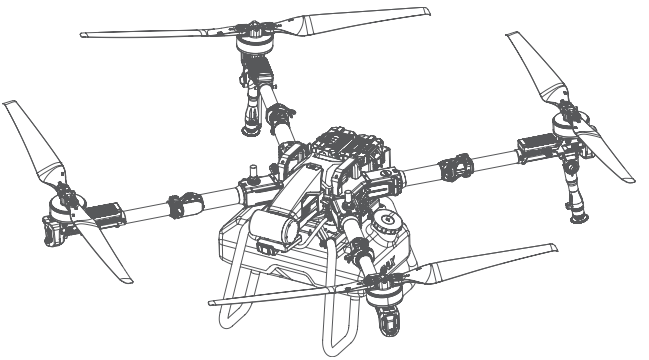
Maintenance Cycle – RevoSpray P3

Component	Service Schedule (Recommended)	Service Plan (Recommended)
Peristaltic Pump	Every 100 ha	01. Ensure the tubing inside each Pump is well-lubricated. If the tubing appears dry or shows signs of wear, apply Vaseline for smoother operation. 02. Inspect the exterior and interior of the Pumps for cleanliness. Confirm the cable connector of each pump is securely fastened, and check for signs of oxidation, chemicals, or other contaminants. Ensure the pump's housing is free from cracks or damage.
Nozzle	Every 100 ha	01. Examine the Nozzles for any signs of blockages, wear, or damage. Ensure they are clean and intact. 02. Use a mixture of soapy water to thoroughly rinse through the nozzle, ensuring the removal of any chemical residues. After cleaning, perform a manual test via the APP to verify spray patterns and functionality.
Nozzle Disc	Weekly	Ensure the Discs are intact and securely attached. Check for any signs of wear, cracks, or deformations that might affect the spray pattern.
Nozzle Extension Rod Bracket	Monthly	Examine the Rod Bracket for structural integrity. Confirm all screws are tight, in place, and free from rust. Ensure the bracket holds the rod securely without any wobble.
Nozzle Extension Rod	Monthly	Inspect the Extension Rod for straightness and ensure it's free from bends, dents, or damage. Confirm its secure installation and check the joints for any signs of wear.
Nozzle Extension Rod Internal Cable Bracket	Monthly	Ensure the Internal Cable Brackets are intact, securely holding cables in place, and free from signs of wear or damage. Check the insulation of any cables for potential issues.
Liquid Container Level Detector	Monthly	Examine the Level Detector for functionality. Ensure it provides accurate readings and is free from corrosion, damage, or blockages that might affect its performance.

Maintenance Cycle – RevoCast P3

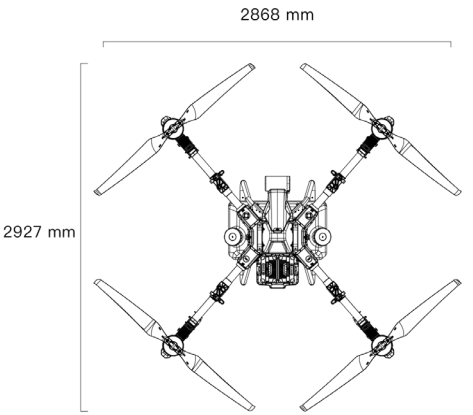
Component	Service Schedule (Recommended)	Service Plan (Recommended)
Spiral Feeder	Monthly	01. Ensure the Spiral Feeder operates smoothly without obstructions or signs of jamming. Look for any indications of damage or excessive wear that could affect its performance. 02. Ensure the magnet on the Spiral Feeder is fully intact, securely attached, and free from foreign objects or contaminants.
Spreader Disk	Monthly	Ensure the Spreader Disk is free from damage, cracks, or excessive wear. Ensure it rotates smoothly and evenly, and that there are no residues or obstructions that could hinder its operation. Periodically clean the disk to maintain optimal performance.
Feeder Motor	Monthly	Ensure the Feeder Motor functions without abnormal sounds or vibrations. Examine the motor for any physical damage and ensure the cable connection is clean, free from oxidation, and securely fastened.
Spreader Motor	Monthly	Ensure the Spreader Motor functions efficiently and without disruptions. Examine the motor for signs of wear or damage and ensure the cable connection is clean and securely fastened. Periodically test the motor's speed and responsiveness to ensure consistent performance.

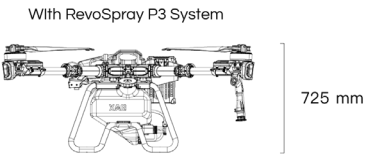
Technical Specifications

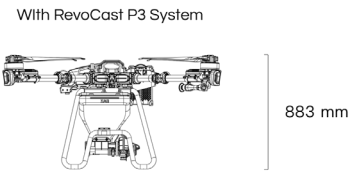


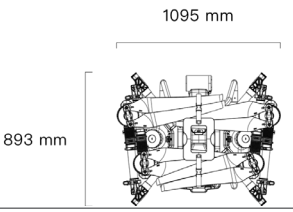
P100 Pro Agricultural RPA

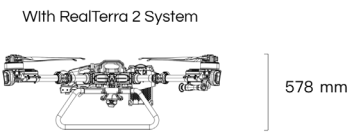
Model	3WWDZ-50AH
Flight Control System	SuperX4 Pro (Online RTK)
IP Rating	IPX6K
Arm Material	Glass Fibre + Carbon Fibre Material
Diagonal Wheelbase	2094mm











Propulsion System

Motors	
Model	A50
Stator Dimension	136mm x 30mm
Max Power	4100W / Motor
Max Tension	52KG / Motor
KV Value	68RPM / V
ESCs	
Model	VC13230
Max. Continuous Working Current (30s)	110A
Max. Output Current	230A
Foldable Propellers	
Model	P5515
Diameter x Pitch	55 x 15 inch
Diameter	1420mm

Flight Parameters

Total Weight (No Module + Battery)	46.00 Kg
Empty Weight (Empty Container + Battery)	54.00 Kg (With RevoSpray P3) 60.50 Kg (With RevoCast P3)
Max Take-off Weight (Full Container + Battery)	104.00 Kg (With RevoSpray P3) 110.00 Kg (With RevoCast P3)
Max. Thrust-Weight Ratio	1.8
Load Ratio	0.45
Hovering Time [1]	16.5min (Take-off weight of 54Kg @20000mAh x 2) 6.0min (Take-off weight of 104Kg @20000mAh x 2)
Max. Operating Speed	13.8m/s (With Good GNSS Signal)
Max. Flying Height	100m
Max. Configurable Flight Radius	1,000m
Max Service Ceiling Above Sea Level [2]	2,000m
Max. Wind Resistance	10m/s
Recommended Operating Temperature	0°C to 40°C
RTK / GNSS Operating Frequency	GPS: L1/L2 GLONASS: L1/L2 BDS: B1/B2 Galileo: E1/E5b

Hovering Accuracy Range (With Strong GNSS Signal)	RTK Enabled: ±10cm (Horizontal) ±10cm (Vertical) RTK Disabled: ±0.6m (Horizontal) ±0.3m (Vertical) (Radar Enabled ±0.1m)
Sustainable High Precision Navigation (with RTK Delay)	≤600s
Operating Frequency	2.4000GHz – 2.4835GHz, 5.725GHz – 5.845GHz
Transmission Power (EIRP)	2.4GHz: ≤20 dBm (SRRC) 5.8GHz: ≤33 dBm (SRRC)
2G Operating Frequency	CE: DCS 1800: 1710.2 – 1784.8MHz GSM900: 880.2 – 914.8MHz FCC: GSM850, PCS1900 ANATEL: GSM850, GSM900, GSM1800,GSM1900
2G Max. Transmit Power	Class 1 (30dBm) for DCS1800 Class 4 (33dBm) for EGSM900
3G Operating Frequency	CE: WCDMA Band 1 1920 ~1980MHz, 2210 ~ 2170 MHz WCDMA Band 5 880~915MHz, 925 ~ 960MHz FCC: WCDMA B2, B4 KCC: WCDMA B1 ANATEL: WCDMA B1, B2, B6, B8 MIC: WCDMA B1, B5, B6, B8, B19
3G Max. Transmit Power	Class 3 (24dBm) for WCDMA bands
4G Operating Frequency	CE: Band 1, 3, 7, 8, 20, 28, 38, 40 FCC: Band 2, 4, 5, 7, 12, 13, 25, 26, 38, 41 KCC: Band 1, 3, 5, 7, 8 ANATEL: Band 1, 3, 4, 8, 25, 26, 28, 39, 40, 41 MIC: Band 1, 3, 5, 8, 18, 19, 26, 28, 41
4G Max. Transmit Power	Class 3 (24dBm) for LTE-TDD bands

PSL Camera

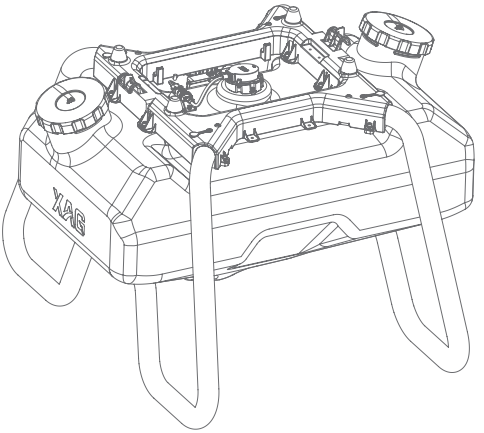
Model	RD24412
Operating Voltage	Forward PSL: 48V Downward PSL: 5V
Resolutions	720P / 1080P
Frame Rate	30fps
Coding Format	H.264
Focal Length	3.2mm
Image Sensor	1/2.9-inch CMOS-RGB Image sensor

Obstacle Sensor & Avoidance System

4D Imaging Radar [3]	
Model	RD24912
Operating Frequency	24 GHz
Voltage	24V ~ 60V
Power Consumption	12W
Sensing Range	1.5m ~ 80m
Sensing Mode	Millimetre-wave Imaging, MIMO
Sensing Parameters	Obstacle's Position, Distance, Direction and Relative Speed
Field of View (FOV)	Horizontal: ±40° Vertical: +90° to -45°
Safety Limit Distance [4]	2.5m
Working Conditions	Relative Height: ≥ 1.5m Relative Speed: ≤ 13.8m/s

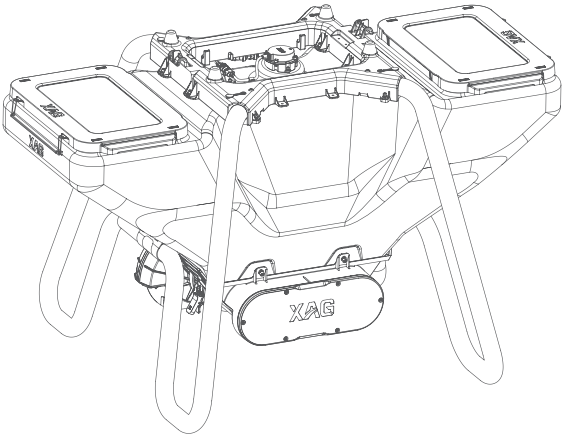
Terrain Sensor	
Model	TR24S100
Voltage	12V
Power	1.5W
Sensing Mode	Millimeter-wave
Operating Frequency	24GHz
Altitude detection range	0.5 ~100m (Relative Height from Vegetation)
Fixed Height Range	1.0 ~ 30m (Relative Height from Vegetation)
Max. Gradient	45° (Flight Speed ≤ 2m/s)

RevoSpray P3 System



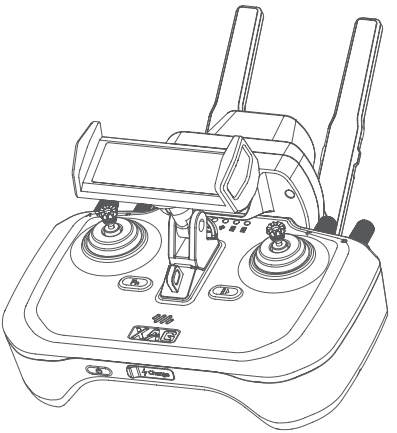
Model	M4TANP50A
Dimensions	737mm x 738mm x 498mm
Net Weight	7.83kg
IP Rating	IPX6K
Liquid Tank	
Material	PE
Volume	50L
Sensor	Liquid Level Sensor
Centrifugal Atomizing Nozzles	
Nozzle Type	Centrifugal
Quantity	2
Spray Bar Length	151 mm
Rotational speed of Spray disc	1000RPM ~ 16000RPM
Spray Swath [5]	5m – 10m
Droplet Size	60μm – 500μm
Peristaltic Pump	
Quantity	2
Voltage	50V
Flow Rate [6]	0.5L ~ 11.0L/min (Single Pump) 1.0L ~ 22.0L/min (Both Pump)

RevoCast P3 System



Model	M4RC-80A-P
IP Rating	IP65
Dimension	1059mm x 728mm x 651mm
Net Weight	14.00Kg
Rated Capacity	80L
Rated Load	50Kg
Spray Swath [5]	3m – 7m
Optimal Operating Temperature	0° C to 40° C
Storage Temperature	0° C to 40° C
Applicable granule Size	1-6mm (Dry Solid Granule)

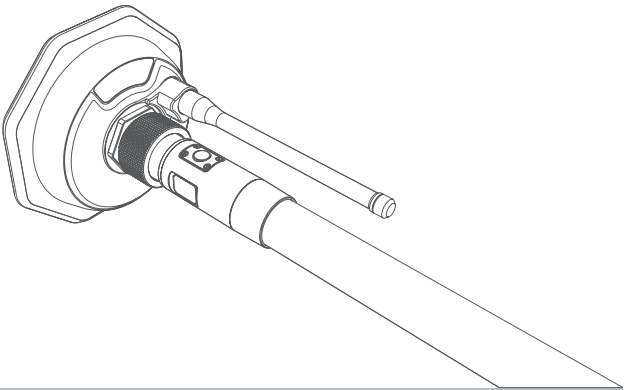
ARC3 Pro Remote Controller



Model	M3ARC3AH	
Dimensions	170mm x 135mm x 65mm	
IP Rating		
Supported Operating System	Android, IOS	
Battery Capacity	4932mAh, 7.38V	
Charging Temperature	0° C to 45° C	
Operating Temperature [7]	-20° C to 55° C	
Storage Temperature	-20° C to 55° C -20° C to 45° C -20° C to 25° C	Less than a Month One to three months Three months to one year
Charging Voltage / Current	5V / 2A 9V / 1.5A 12V / 1.5A	
RTK Operating Frequency	GPS: GLONASS: BDS: Galileo:	L1/L2 L1/L2 B1/B2 E1/E5b
Positioning Accuracy (With strong RTK Signal)	Vertical: Horizontal:	< 7.5cm + 1ppm (RMS) < 5.0cm + 1ppm (RMS)
Max Transmission Distance [8] (Unobstructed, free of interference)	1000 Meters	
Operating Frequency	2.4000GHz – 2.4835GHz, 5.725GHz – 5.850GHz	
Transmission Power (EIRP)	2.4GHz: 5.8GHz:	≤20 dBm (SRRC) ≤33 dBm (SRRC)

2G Operating Frequency	CE:	DCS 1800: 1710 ~ 1785, 1805 ~1880MHz GSM900: 880 ~ 915, 925 ~ 960MHz
	FCC:	GSM850, PCS1900
	ANATEL:	GSM850, GSM900, GSM1800,GSM1900
2G Max. Transmit Power	Class 1 (30±2dBm) for DCS1800 Class 4 (33±2dBm) for EGSM900	
3G Operating Frequency	CE:	WCDMA Band 1 1920 ~1980MHz, 2210 ~ 2170 MHz WCDMA Band 5 880~915MHz, 925 ~ 960MHz
	FCC:	WCDMA B2, B4
	KCC:	WCDMA B1
	ANATEL:	WCDMA B1, B2, B5, B8
	MIC:	WCDMA B1, B5, B6, B8, B19
3G Max. Transmit Power	Class 3 (24dBm + 1/3-3dBm) for WCDMA bands	
4G Operating Frequency	CE:	Band 1, 3, 7, 8, 20, 28, 38, 40
	FCC:	Band 2, 4, 5, 7, 12, 13, 25, 26, 38, 41
	KCC:	Band 1, 3, 5, 7, 8
	ANATEL:	Band 1, 3, 4, 8, 25, 26, 28, 39, 40, 41
	MIC:	Band 1, 3, 5, 8, 18, 19, 26, 28, 41
4G Max. Transmit Power	Class 3 (23dBm±2dBm) for LTE-TDD bands	

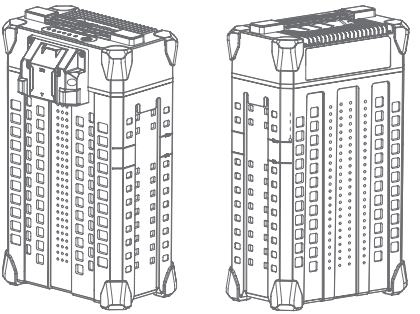
GNSS XRTK4 Mobile Station



RTK Positioning Module for Agricultural Use	
Model	XRTK4
Dimensions (Diameter x Height)	154mm x 83.6mm (RTK Module) 154mm x 1230mm (RTK Module + Rod)
Weight	1.5 Kg (RTK Module)
Port/Panel	Button × 3, Positioning Indicator × 1 Networking Indicator × 1, Power Indicator × 1
IP Rating	IP65
Operating Temperature	-20° C to 60° C
Storage Temperature	-20° C to 60° C
Relative Humidity	100%, condensation
Warranty Details	12 Months
GNSS Performance & Specifications	
Compatible motherboard	K726
GNSS Frequency	
BDS	B1I / B2I / B3I / B1C / B2a
GPS	L1 / L2 / L5
GLONASS	L1, L2, L2C,
Galileo	E1 / E5a / E5b
QZSS	L1 / L2 / L5
RTK Positioning Accuracy	
Horizontal	±10mm+1ppm (RMS)
Vertical	±15mm+1ppm (RMS)
Initialization time	Typical <10 seconds
Initialization Reliability	>99.9%
Data update rate	Maximum 20 Hz (Raw data) Maximum 20 Hz (Positioning data)

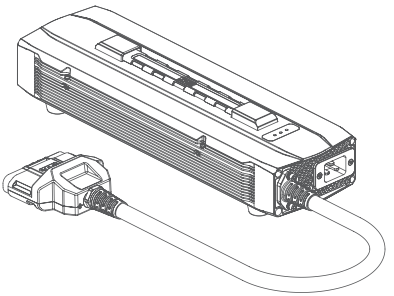
Communication Interface	
1 CAN port;	
3 mobile communication modules (2G/3G/4G);	
1 dedicated 2.4GHz/5.8GHz WLAN.	
Communication	
Mobile communication network	
Communication modules	2G/3G/4G
Protocols	GSM, CDMA2000/EVDO, WCDMA, TD- SCDMA, LTE-FDD, LTE-TDD
Dedicated 2.4GHz/5.8GHz WLAN	
Protocol supported	Xlink Communication Protocol
Transmission performance Frequency range	2.400-2.4835GHz/5.735-5.835GHz
Channel spacing	20 MHz
Frequency error/ frequency stability	±10 ppm
Communication mode	Full duplex
Communication protocol	Transparent
Forward error correction	FEC
Data rate	6Mbps
Modulation	OFDM
Emission performance RF output power	Less than 1W Subject to regional SRRC/FCC/CE standards
Reception performance Decoding sensitivity	-90dbm
External Hardware Interface	
Battery terminal × 1	
SIM card slot × 3	
Battery Extension Rod	
Model	B4100
Dimensions (Diameter x Height)	45mm x 1166mm
Capacity	7500mAh 99Wh
Input	12.0 V/1 A (Type-C port)
Output	14.4V/1A
Operating temperature	-10° C to 45° C
Port/Panel	Power Button × 1, Type-C Port × 1, Battery Level/Status Display Panel × 1

Smart Battery



Model	B13960S
Dimensions	189mm x 139mm x 317mm
Weight	Approx. 6.7 kg
Battery Type	Lithium Polymer
Capacity	20000 m/Ah
Energy	962 Wh
Rated Output	48.1V / 120A
Operating Temperature	10° C to 45° C
Charging Temperature	10° C to 40° C
Storage Temperature	10° C to 30° C
IP Rating	IP65
Compatible Aircraft	XAG V40 2021 XAG P40 2021 XAG P100 2022 XAG P100 Pro 2023
Compatible Chargers	CM12500P GC4000+
Charging Voltage	56.55V
Battery Charging Time	

Battery Charger



Model	M2CM1-3600A
Compatible Battery	B13860S (With Plug A1 Adapter) B13960S
Dimensions	383.5mm x 121mm x 79.4mm
Weight	4.6 Kg
Operating Temperature	-20° C to 40° C
Storage Temperature	-20° C to 40° C
Cooling Mode	Forced Air cooling
Input	AC 100~120 Vac 50/60 Hz 15.0 A AC 220~240 Vac 50/60 Hz 16.0 A
Output	DC 56.6 Vdc-35 A (Max)/1300 W (100~120 Vac 50/60 Hz) DC 56.6 Vdc-80 A (Max)/3400 W (220~240 Vac 50/60 Hz)

[1] Hovering time acquired at sea level with wind speeds lower than 3m/s.

[2] The maximum load needs to be reduced by 12% for each additional 1,000m in altitude above 2,000m.

[3] The effectiveness of the Obstacle radar is dependent on the obstacle's material, location, distance, shape, size, relative velocity, etc.

[4] Distance between the propeller tip and the obstacles after braking and hovering.

[5] A spray width of 8m is recorded under the flight height of 3±0.5m, the flight speed of 3m/s and flow rate (single pump) of 5L/min. For reference only.

[6] The actual minimum flow rate varies depending on route spacing, flight speed, flight conditions, etc.

[7] The remote controller's battery performance might be affected when the ambient temperature for operating is lower than -5° C.

[8] This is the result of tests conducted outdoors (with no obstruction or interference) in line with FCC standards. It is not necessarily the actual effective range and is for reference only.