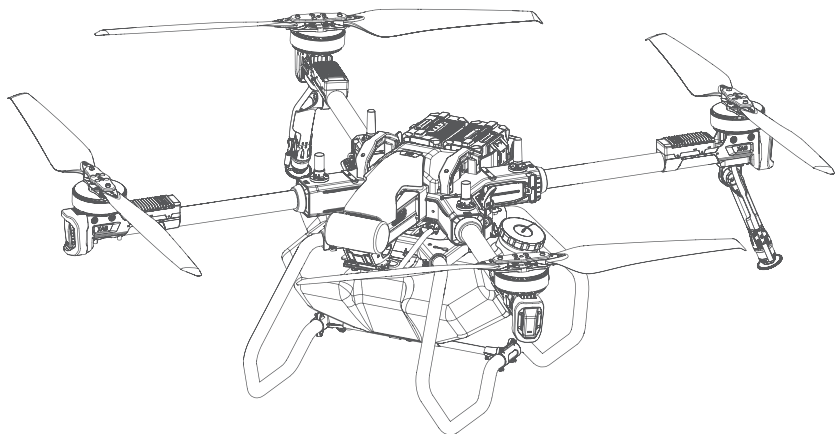


XAG P100 Agricultural Drone

User Manual

Version 1.0 **EN**



To User

Dear user, thank you for choosing XAG's products.

For safety purposes and better user experience, it is highly recommended that you read this manual carefully and strictly follow the instructions hereof.

Contact Us

If you have any questions about this document, please contact our Technical Support team via email:
info@xa.com

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Disclaimer

1. Please read this User Manual carefully before using this product, as it has much to do with both operational safety and your legitimate rights and interests, whether you are a buyer or a user. You shall be deemed to have read, understood, agreed and acknowledged all terms and conditions and information stated herein upon activation and use of the product.
2. Not being a toy, plus for certain safety risks, the product is NOT suitable for those who are under 18 years old, or those who have no or limited capacity for civil conduct, or those with mobility impairments, or those without a UAS operator certificate accredited by XAG or existing laws, regulations and policies. Please keep the product out of reach of children and be particularly cautious while there are children present.
3. The product, manufactured by XAG, is a multi-rotor agricultural unmanned aerial vehicle solely for agricultural use. Please read this User Manual carefully to scrutinize your legitimate rights and interests, responsibilities and safety guidelines, or it may pose risks of property loss, flight accident and personal injury.
4. You pledge to use the product within the bounds of the law only for a legitimate purpose and acknowledge this User Manual and all existing or future policies and norms formulated by XAG. You understand and accept that flight records and data will be automatically uploaded and saved to XAG's server during operation. XAG assumes no responsibility for the failure to analyze the flight records and data caused by any failure to upload and save them ascribed to your reasons.
5. Please note that, as services provided by the product and its auxiliary devices may involve geographic information and data collection, storage and processing of the fields, the use of the product shall comply with local laws and regulations dealing with such issues. Otherwise, you shall bear the sole responsibility, both financially and legally, for any illegal acts.
6. To the maximum extent permitted by law, XAG shall not be liable for all losses incurred by your operation disobeying the instructions in this User Manual. Also, XAG shall not be liable for any indirect, consequential, punitive, accidental, special or exemplary damage, including any loss resulting from your purchase, use, or inability to use the product, even if you have been advised of the possibility of such loss.
7. To the maximum extent permitted by law, under any circumstances, the liability or compensation amount from XAG to you for all damage, losses and litigation arising therefrom will not exceed the amount that you paid to XAG for purchasing the product.
8. You understand that in the use of any products, accidents may occur due to single or combined factors, including but not limited to improper operation, surroundings and communication networks. You understand that the aforesaid accidents are reasonable and acceptable in the use of the product, and that XAG shall not be held accountable for such accidents.
9. On any account, you shall comply with the laws and regulations of the country and the region where the product is used. XAG shall assume no liability arising from your violation of relevant laws and regulations.
10. As exclusion clauses may be prohibited by laws in some countries, your rights and interests in different countries may vary. However, this does not imply that the terms contained in this Disclaimer are necessarily invalid.
11. To the extent permitted by law, XAG reserves the rights for final explanation and revision of the terms and conditions hereinabove. XAG also has the right to update, modify or terminate these terms and conditions via channels including its official website, the User Manual and online App, without prior notice.

Warning

User is required to read through the User Manual and obtain a UAS operator certificate accredited by XAG or existing laws, regulations and policies. Otherwise, it may cause serious injury to yourself or others, or damage to the product and property loss. User should be strongly safety-conscious. This product is not suitable for those who are under 18 years old, or those who have no or limited capacity for civil conduct, or those with mobility impairments. Do NOT use the components that are not provided or suggested by XAG. Please install and use the product by strictly following XAG's instructions.

Safety Guidelines

- Please make sure that you have completed a drone pilot training program, passed the exam and obtained a UAS operator certificate prescribed by laws and regulations where the product is used before use. Otherwise, you shall NOT operate the product.
- Instead of operating alone, the beginner should seek help from a veteran beforehand and operate the aircraft accompanied by a veteran.
- It is necessary to observe the surroundings in advance to ensure an open operation area with no buildings and obstructions around, clear of electromagnetic interference sources including high-voltage lines, base stations and radio towers, far away from obstacles and crowds and free from potential hazards. Please refrain from indoor flying.
- For safety purposes, it is advisable to remove all propellers before each flight or after firmware update until you conduct a trial run of the aircraft, inspect the remote control devices, motors and other modules and ensure everything is in order.
- Please see that all parts and components are intact and that those aging or broken are replaced promptly before each flight. All devices should be sufficiently charged. When the battery gets low during operation, you should return the aircraft immediately and replace the battery.
- Please see that areas where the aircraft is going to fly have strong and stable signal coverage since sustained RTK and 4G networks are essential for the aircraft to function properly.
- It is required to keep the firmware and the "XAG One" App up to date before each flight.
- You should strictly observe local laws and regulations on flying agricultural drones, including but not limited to the rules on flight height, flight area and visual line of sight.
- It is advisable to use the product on sunny, cloudy or overcast days with winds of force 3 or below. NEVER use it in adverse weather conditions including rain, snow, frost, fog, thunder, hail, dust storm and gale or in an area with strong electromagnetic interference.
- Hover and return the aircraft immediately when encountering bad weather, such as gale, rain, snow or hail, or other cause preventing operation. In case of conditions unfavorable for returning, hover and fly the aircraft toward a safe place nearby immediately.
- Please ensure that the aircraft does not carry a load beyond the safe takeoff weight specified in this User Manual. Overload, a safety hazard, is NEVER allowed.
- To prevent impurities from clogging the tubes, please mix pesticide with clean and purified water and filter it before adding it to the tank.
- Be cautious when preparing and spraying pesticides. Using personal protective equipment is highly advisable. Refrain from direct contact with the pesticide. Avoid splashes that may result in damage to the aircraft and bodily injury. (See page 21 for "Precautions for Pesticide Preparation")
- Before spraying, please see that propellers are damage free with no adhering contaminants. Also, they should be securely installed with blades fully spread out. Motors on the aircraft should be clean and intact. Ensure the spraying system runs smoothly.
- Before spraying, please see that the space around the takeoff point and that along the route is open and far from crowds. Besides, select an appropriate height for takeoff/return according to the working environment.
- Pay attention to environmental protection when preparing and spraying pesticides. It is prohibited to pollute rivers and drinking water sources.
- Make sure to keep the aircraft in sight and stay alert for obstacles throughout the operation. Autonomous obstacle avoidance will not work when the obstacle avoidance module fails to recognize some obstacle due to its special material, size, shape and position. In that case, please maneuver the aircraft manually at once.
- Ensure strong and stable GNSS signal coverage throughout the operation, or it may lead to task failure.
- No crowd, animal or obstacle is allowed to stay near the spinning propeller which is hazardous. NEVER approach or touch the running propeller and motor with anything. NEVER wear loose-fitting clothing around propellers that could pose an entanglement hazard.
- NEVER install/remove any module or insert/extract any circuit while the power is on.
- Please charge the battery of the remote controller or aircraft when it falls to 20% to avoid damage to the device caused by overdischarge of the battery stored at a low charge state for a long time. By the same token,

please keep the battery at 40%-60% when storing an idle aircraft. The storage area should be dry, well-ventilated and clean.

- Please make sure to remove the battery and put it in a safe, level place before transporting the aircraft. (See page 16 for "Battery Safety Precautions")
- For long-term storage or long-distance transportation, please remove the liquid tank from the aircraft and empty it, and store the aircraft in a cool, dry place.
- Keep the product away from heat to prevent damage to the electronic component and other parts or fire incidents.
- Never take human bodies or animals, whether still or moving, or other hazardous objects as obstacles in the obstacle avoidance experiment.
- Do NOT use non-XAG components as they may seriously affect the safety and service life of the aircraft.
- Do NOT turn off the communication device connecting to the aircraft during the flight. Do NOT make or answer phone calls during operation. Do NOT fly the aircraft after drinking alcohol or taking medication.

Safety Signs



MIND THE BLADE



HIGH VOLTAGE



Do not press



HANDLE WITH CARE



Risk of Pinching Hands



Read the manual before use



HOT SURFACE



TOXIC HAZARD



CENTER OF BALANCE:
Hold here to lift the UAV

Read/Download E-Document

Scan the QR code below to read/download this User Manual.



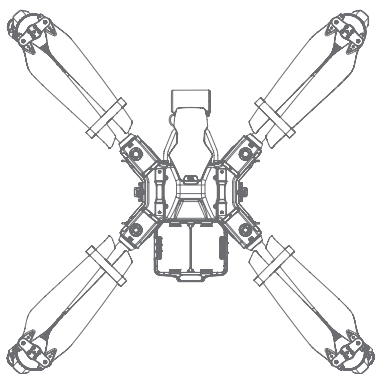
Introduction

XAG P100 Agricultural Drone (hereinafter "aircraft") features a simplified modular design, high stability, easy removal and multi-mode operations. Its all-new SuperX 4 pro Intelligent Control System, combined with the XAG RealTerra, RevoSpray and RevoCast systems and the Multi-directional Radar Matrix, delivers high-efficiency and high-quality farming operations like precision spraying, even spreading and smart mapping, making it arguably a stable and reliable all-rounder in agriculture.

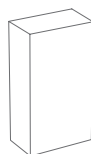
List of Items

The list below contains two boxes - the P100 airframe box and the XAG RevoSpray 2 box. Please see that all of the following items are present when unpacking the box. Should there be any item missing, please contact your seller immediately.

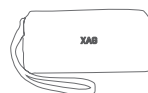
Airframe Box



Airframe
×1

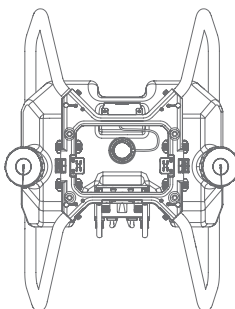


Control Stick^[1]
×1



Tool Kit
×1

XAG RevoSpray 2 Box



XAG RevoSpray 2
×1

[1]: There are two Control Stick models - ACS2 and ACS3, subject to the model you order. The following instructions are for ACS2.

Main Components

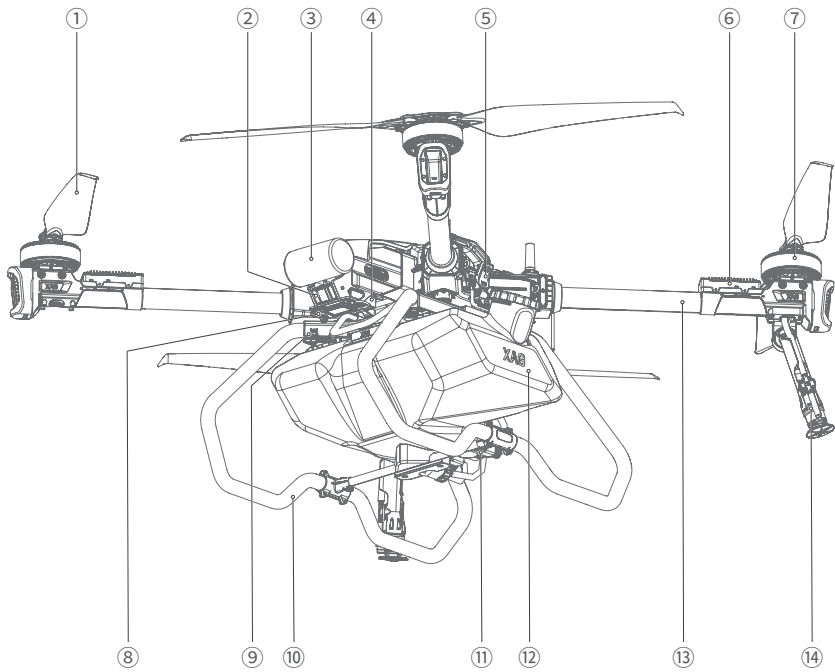


Fig.1 Airframe Module Structure

- ① Propeller
- ② PSL Pilot Sight Livestream
- ③ 4D Imaging Radar
- ④ UPS Battery Backup
- ⑤ Airframe Hasp
- ⑥ ESC (Electronic Speed Controller)
- ⑦ Motor
- ⑧ Terrain Module
- ⑨ Landing Gear Mounting Bracket
- ⑩ Landing Gear
- ⑪ Peristaltic Pump
- ⑫ Liquid Tank
- ⑬ Arm
- ⑭ Nozzle

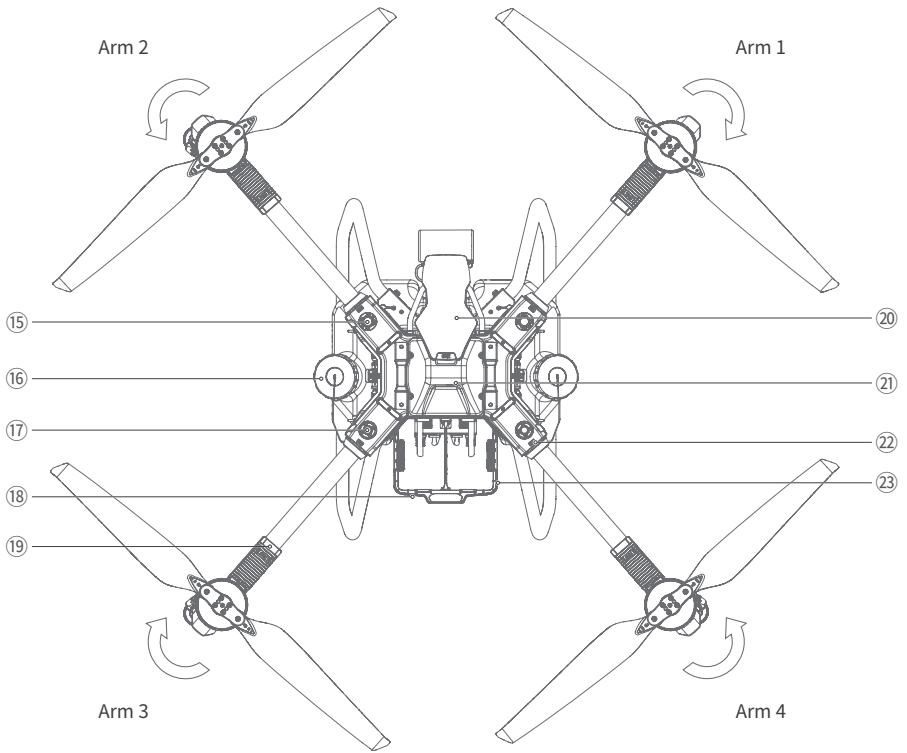


Fig.2 Airframe Module & Arms

- | | |
|----------------------|-----------------------|
| ⑮ RTK Antenna | ⑳ Head Cover |
| ⑯ Cap | ㉑ Central Cabin |
| ⑰ 2.4GHz Antenna | ㉒ Arm Position Number |
| ⑱ Airframe Nameplate | ㉓ Battery Compartment |
| ⑲ Status Indicator | |

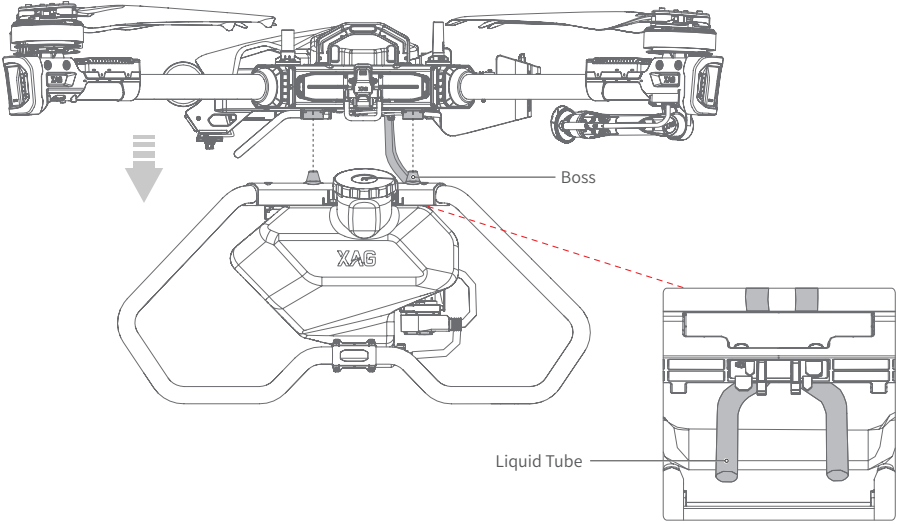
⚠ Note

- ⚠ Propellers of Arm 1 and 3 rotate clockwise. Propellers of Arm 2 and 4 rotate counterclockwise
- ⚠ The laser-etched numbers on the upper central compartment and motor covers denote the arm position numbers - **13** for Arm 1/3, **24** for Arm 2/4, **13** and **24** on the arms with nozzles for Arm 3 and Arm 4 respectively.

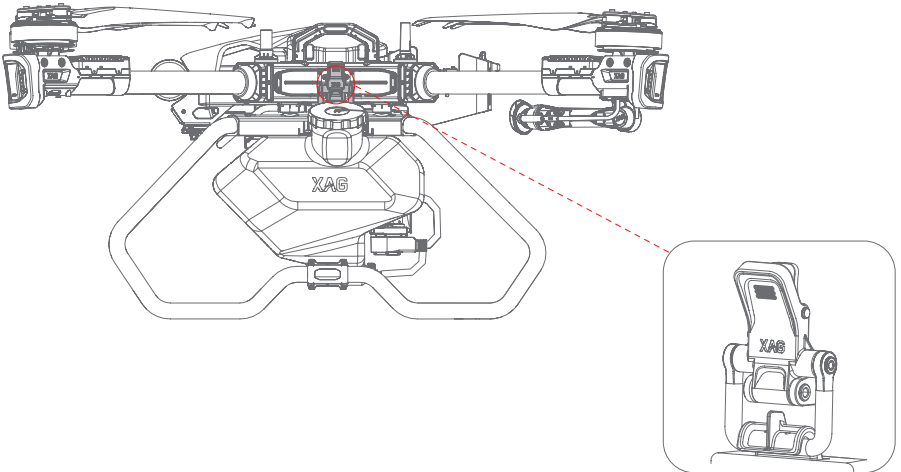
Pre-flight Preparation

Install RevoSpray System

Lift the airframe. Run the two liquid tubes through the gap between the airframe and the RevoSpray system. Put down the airframe with care and attach it to the RevoSpray system by lining up the holes on the bottom of the airframe with the bosses on the top of the RevoSpray system.

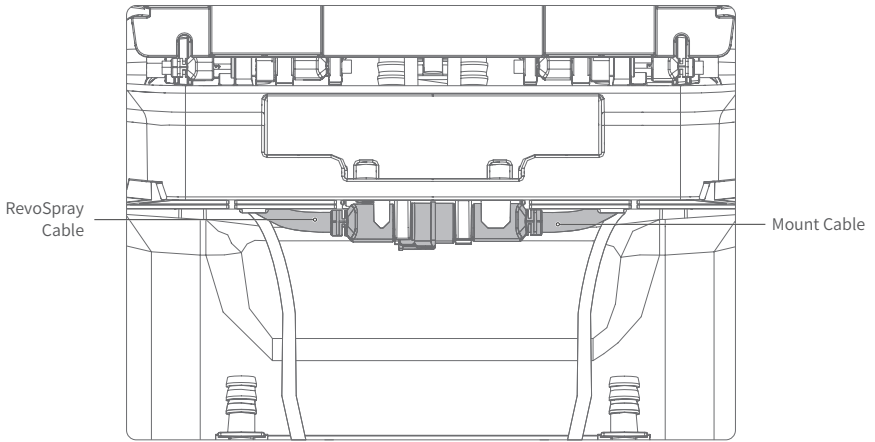


Lock the hasp on the airframe to the hook on the RevoSpray system.



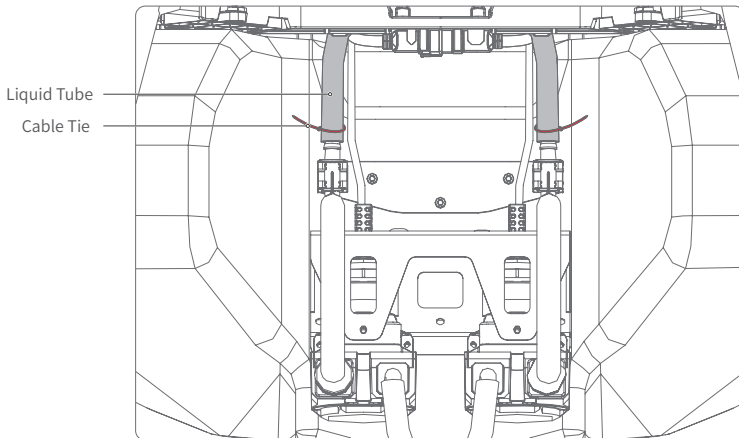
Connect Cables

Connect the mount cable and the RevoSpray cable. Affix them to the cable holder above the peristaltic pumps.



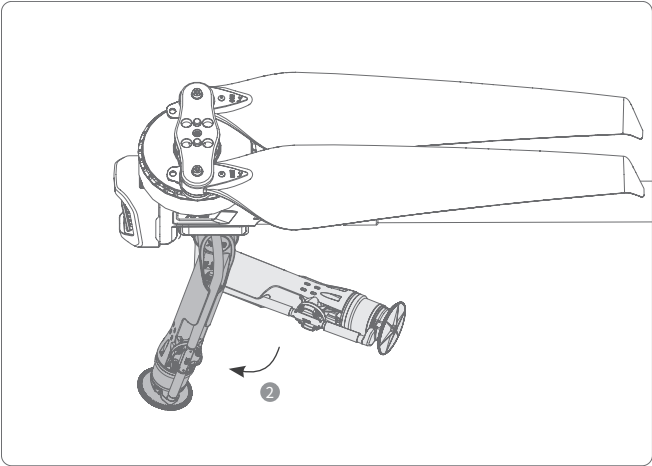
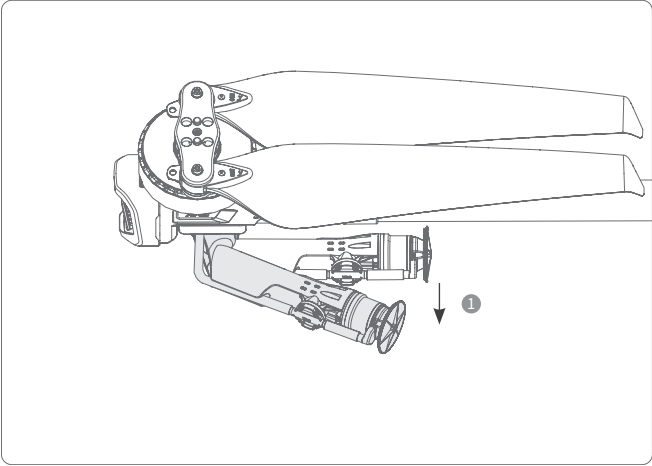
Connect Liquid Tubes

Connect the two liquid tubes to the connectors of the peristaltic pumps and strap them tightly with cable ties.



Unfold Spraying Bars

Raise the spraying bar inward and then spread it out (Take Arm 4 for example).



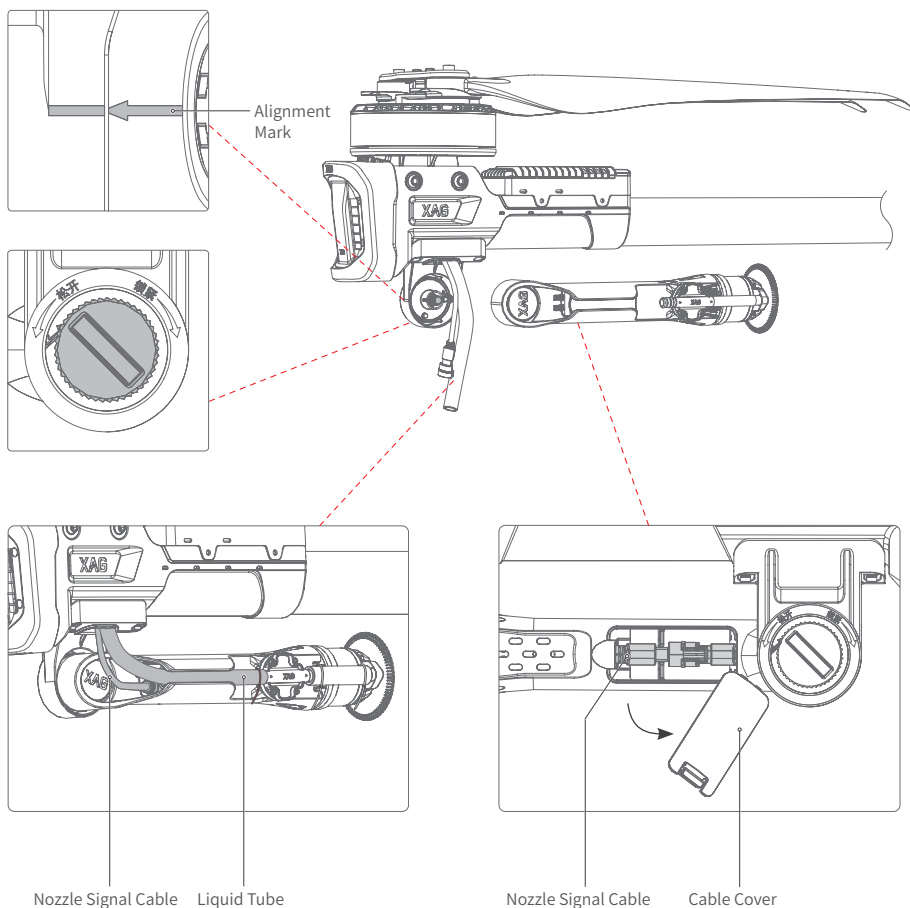
Remove/Install Spraying Bars

Removal Instructions:

- ① Remove the cable cover on the spraying bar, detach the nozzle signal cable (6pin) and replace the cover.
- ② Detach the liquid tube and extract it together with the nozzle signal cable from the bar.
- ③ Turn the quick-release knob counterclockwise to remove the bar.

Installation Instructions:

- ① Line up the alignment mark of the spraying bar with that of the mount, then turn the quick-release knob clockwise until tight.
- ② Put the nozzle signal cable into the bar. Run the liquid tube through the bar, connect it to the nozzle's fitting and strap them tightly with a cable tie.
- ③ Remove the cable cover on the bar, connect the nozzle signal cable (6pin) and affix it to the cable holder. Then replace the cover.

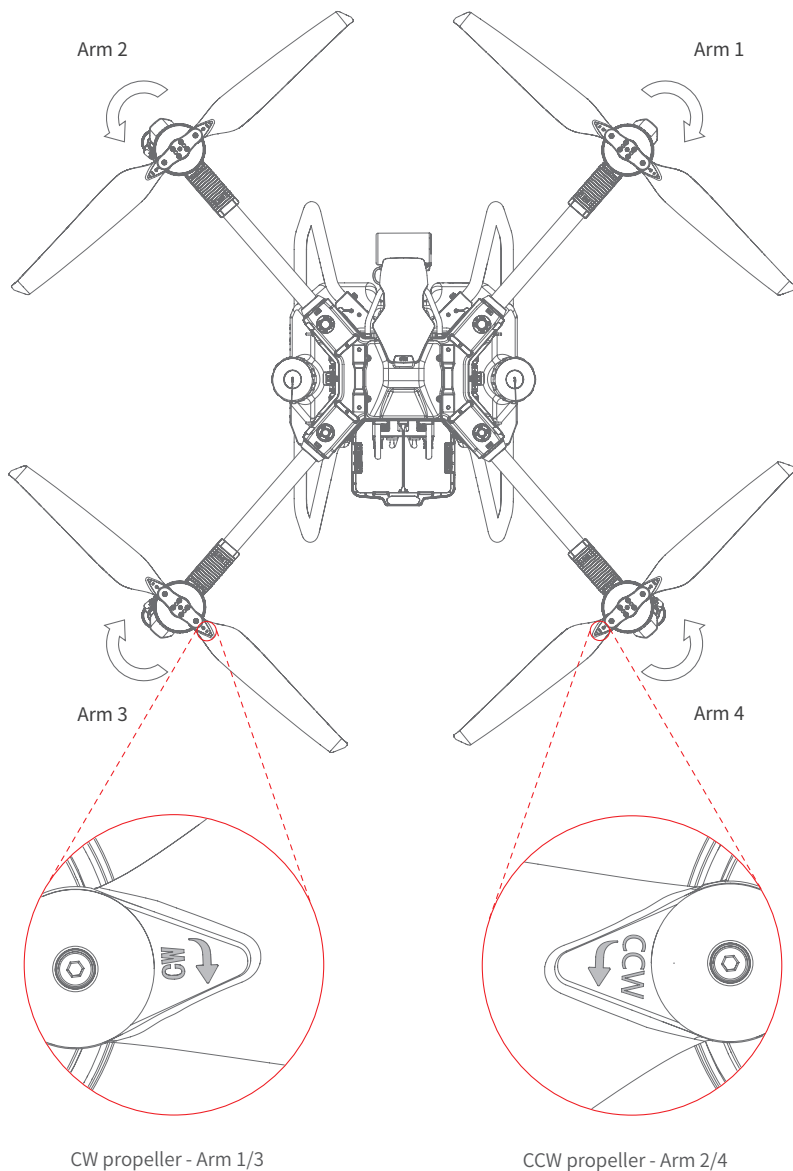


Note

 Please follow the steps above to remove the spraying bars before spreading with the RevoCast system.

Unfold Propellers

Spread out 4 propellers and see whether their models, which could be found between the clamp and the blade, match those on the arms respectively. CW propellers, rotating clockwise, should be on Arm 1 and 3. CCW propellers, rotating counterclockwise, should be on Arm 2 and 4.



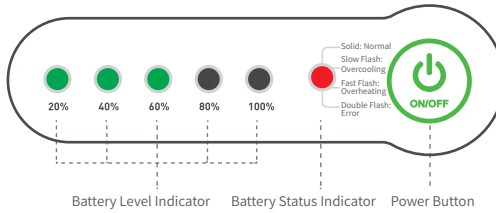
Note

 CW propeller and CCW propeller are NOT interchangeable, or it could cause accidents.

Prepare Smart Battery

Indicators/Buttons

There is 1 power button and 6 indicators on the smart battery screen.



Power ON / OFF

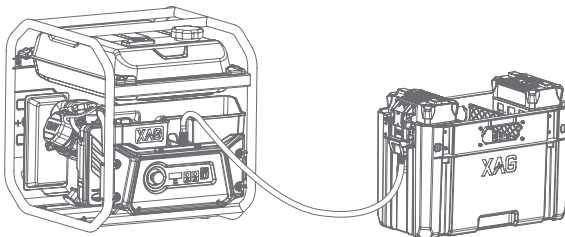
Long press twice to power on/off: Upon connection with the aircraft or the charger, long-press the power button for at least 1 second until all the battery level indicators flash simultaneously, followed by another long-press for at least 1 second until the battery beeps and all the status indicators are on/off.

Charge Battery

Charge the battery with Auto SuperCharge Station or Intelligent SuperCharger^[1]. As the battery reaches full charge, the Auto SuperCharge Station or the Intelligent SuperCharger will stop charging and the battery will power off automatically.

Charge with Auto SuperCharge Station

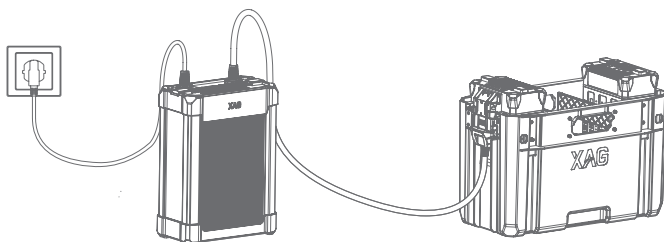
GC4000+ Auto SuperCharge Station



[1]: There are two models for Intelligent SuperCharger - CM12500P and CM13300, subject to the model you order. Besides, unless otherwise noted, what this Manual introduces is the common feature of the two models.

Charge with Intelligent SuperCharger

CM12500P, CM13300 Intelligent SuperCharger

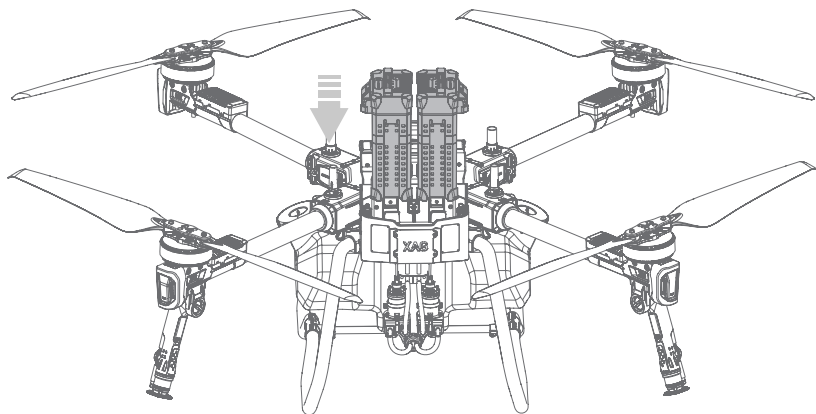


Note

⚠ It is advisable to power off the battery or the Auto SuperCharge Station before removing the battery during the charging process, if necessary. Otherwise, it may lead to the Auto SuperCharge Station being at a dead halt caused by overvoltage protection.

Install Battery

Insert the battery into the battery compartment until hearing a clicking sound and make sure it is fully engaged.



Battery Safety Precautions

- Please do NOT install or remove the battery while it is on. Otherwise, the battery connector may be damaged.
- Check battery firmware and software versions and make sure they are up to date before each flight. Or you shall bear all the loss as a result of the failure to do so.
- Check the battery level - preferably fully charged - before each flight. Please refer to the battery user manual for details. You should use, maintain and store the battery in strict accordance with the instructions.
- You should use XAG's dedicated charging device to charge the battery. Otherwise, you shall assume all the liabilities arising therefrom, both financially and legally.
- An optimal ambient temperature range for the battery is from 10°C to 45°C . Chances are that fire, even explosions will happen at a temperature over 45°C .
- Never connect the cathode and anode with a wire or other metals, as this will cause a short circuit.
- It signifies dual battery power-on limitation as a result of a substantial voltage variance between two batteries when one turns on while the other fails, concurring with group flashing lights (2+4) (as shown on page 15). In that case, stop using the batteries and charge them until they have comparable battery levels and voltages.
- To optimize battery performance and longevity, it is recommended that batteries with comparable cycle counts be used in pairs.
- You should try to make two batteries with the same or comparable cycle counts a pair. Two batteries with a cycle count variance of no more than 200 may impact the payload capacity and endurance of the aircraft. When the number exceeds 200, the aircraft will activate the protection mechanism automatically. In that case, only if they are replaced with another pair with comparable cycle counts can the aircraft work properly.
- For heat dissipation, the battery should be immersed in pure water instead of corrosive liquids within the maximum and minimum level indicated for no more than 60min, or else the battery will get damaged by water penetration.
- Please always keep the interface clean and clean the liquid or foreign matters off it promptly. Otherwise, it will cause poor contact, contributing to energy loss or failure to charge.
- Please handle the battery with care. NEVER take it apart, pierce the housing or apply pressure to it, including but not limited to such behaviors as sitting/standing on the battery, stacking heavy items on it and the like.
- Please regularly check the battery connector, the plug and other parts before use. Never clean the charging device with combustible liquids. Never use a damaged charging device.
- Please place the battery and the charging device on even ground with no combustible materials around while charging. Never charge in a small sealed enclosure. Never leave the battery unattended while charging in case of an accident.
- For safety purposes, keep a minimum of 30cm distance between the battery and the charger, and between two batteries, lest too much heat lead to the charger or battery failure, even causing dreadful consequences like a fire.
- Never use batteries provided by manufacturers other than XAG, or dismantle/replace the battery. If necessary, please contact XAG or a designated after-sales service center. For battery incidents, technical faults or other accidents caused by using a battery or accessories

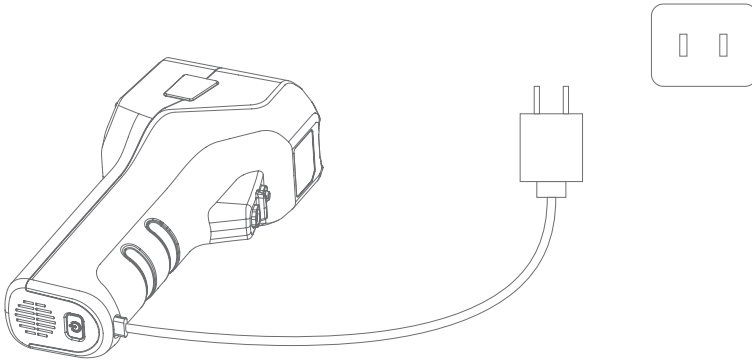
provided by non-XAG manufacturers, you shall assume all liabilities arising therefrom, both financially and legally.

- If one green light flashes at the end of a flight, please charge the battery to 40%~60% before storage. Failing to do so may damage the battery or impact battery longevity. Fully discharge and recharge the unused battery every 90 days to maintain battery health.
- The battery should be stored at 10°C to 30°C in a dry place. Never expose the battery to water, humidity or harsh sunlight during charging or storage.
- Avoid humidity while charging the battery. The warranty does NOT cover any damage to the product resulting from water penetration in the wake of a damaged battery housing or problems not attributable to product quality.
- Please stop using the battery swollen, leaking, deformed or with appearance damage immediately and contact XAG or the after-sales service center without hesitation.
- The warranty does not cover any damage due to failure to follow the instructions or human error.
- The battery is waterproof and splashproof under controlled experiments. However, rather than being permanent effective, the protection may get weaker due to wear and tear.
- The liquid inside the battery is highly corrosive. In case of contact with skin or eyes, flush with fresh water and seek medical attention instantly.
- To protect our environment, please properly dispose of the battery as required by the local laws and regulations.

Prepare ACS2

Charging

Put the Type-C cable end into the charging port of the ACS2 ControlStick and the USB end into the adapter before plugging it in. While charging the ControlStick with a fast-charging adapter, the power indicator will flash rapidly with a voice prompt "Fast Charging". When the ControlStick is fully charged (the ControlStick will switch itself off if it is not connected to an aircraft), the power indicator turns solid green.



ON/OFF

When the ControlStick is OFF, press and hold the power button for at least two seconds until all six indicators flash simultaneously. By this time, release the button and then long press it again for more than two seconds until you hear a voice prompt from the ControlStick, indicating that it is turned on. Wait for a few seconds until the third indicator turns from slow flashing green to OFF, indicating that the ControlStick has completed initialization and is ready to work.

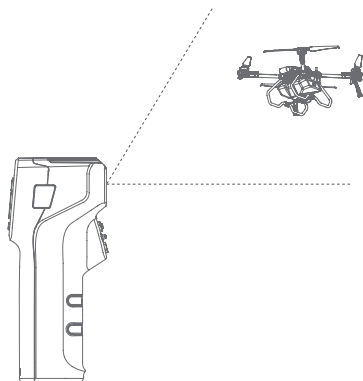
When the ControlStick is ON, press and hold the power button for at least two seconds until all six indicators flash simultaneously. By this time, release the button and then long press it again for more than two seconds until all six indicators go out simultaneously, indicating that it is turned off.

Note


- ⚠ DO charge the ControlStick with XAG's charging device, otherwise, user shall be held liable for any product failure or damage arising from charging with non-XAG devices.
- ⚠ Keep the ControlStick away from water while it is being charged or in use as it is not waterproof. User shall be responsible for any failure or damage caused by the device's exposure to water.
- ⚠ This device has a single LTE antenna and is designed for applications with low data transfer rates.

Use of ACS2

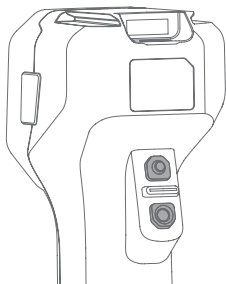
When piloting an aircraft with the ControlStick, make sure that the ControlStick is held upright with its back to the aircraft and is not obstructed, so signals will not be blocked.




Note

 When piloting an aircraft with the ControlStick, make sure that the aircraft flies in an open area. Stay at a safe distance from the aircraft and keep it away from crowds, animals or other obstacles.

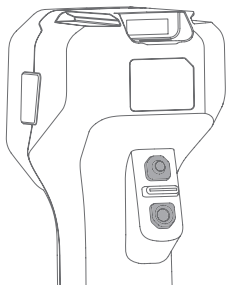
Takeoff/Landing




- Press and hold both height control buttons simultaneously for three seconds and the aircraft will take off automatically and hover at a height of 2.5 meters.
- During flight, press and hold both height control buttons simultaneously to have the aircraft land.

 Make sure that no one is within 10 meters of the aircraft when having it take off, land, ascend or descend.

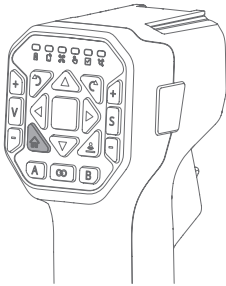
Ascend/Descend



- Press and hold the Ascend button to have the aircraft climb. Release it to hover the aircraft.
- Press and hold the Descend button to have the aircraft descend. Release it to hover the aircraft.

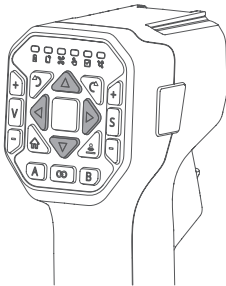
 When you press and hold the Descend button, the aircraft will descend and stop at one meter above the ground.

Return



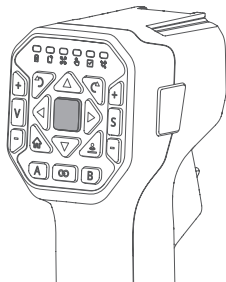
- Press and hold the Return button to have the aircraft return.
- ⚠ Make sure that no one is underneath the aircraft on its way back to the landing point when having it return using the ControlStick.

Pitch/Roll



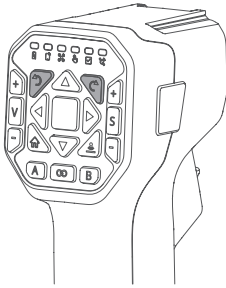
- Short press the Forward/Backward button to control the pitch of the aircraft. Release it to hover the aircraft.
- Short press the Left/Right button to control the roll of the aircraft. Release it to hover the aircraft.

Hover/Autonomous Flight



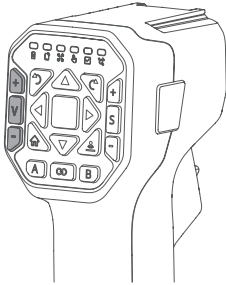
- Short Press the Hover button and the aircraft will hover.
 - Press and hold the Hover button until the ControlStick prompts "Autonomous Flight". The aircraft will exit Control mode and enter Autonomous Flight mode.
- ⚠ When the aircraft is in "Autonomous Flight", you may press any control button to switch to "Control mode". If the aircraft is taken over by the ControlStick in autonomous flight and enters "Control mode", you may long press the Hover button to switch to "Autonomous Flight" mode, where the aircraft will resume flight automatically.

Yaw



- Short press the CCW (counterclockwise) button to have the aircraft's nose swivel left and release it to hover the aircraft.
- Short press the CW (Clockwise) button to have the aircraft's nose swivel right and release it to hover the aircraft.

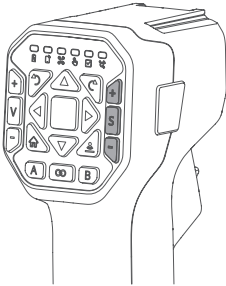
Speed Control



- Short press the Speed + button to accelerate the aircraft.
- Short press the Speed - button to decelerate the aircraft.
- Short press the Speed Voice Prompt button (V) for the current speed of the aircraft.

⚠ The aircraft flies at a speed of 0.5 to 6 m/s. Each time you press the Speed +/Speed - button, the aircraft will accelerate/decelerate by 0.5 m/s.

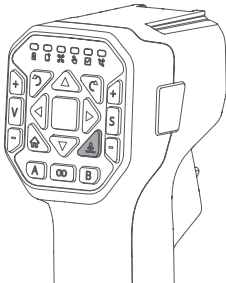
Spraying/Spreading Control



- Short press the Increase/Decrease button to increase or decrease the spraying/spreading volume.
- Short press button S to turn on or off Spraying/Spreading mode.

⚠ A hovering aircraft is unable to spray/spread.

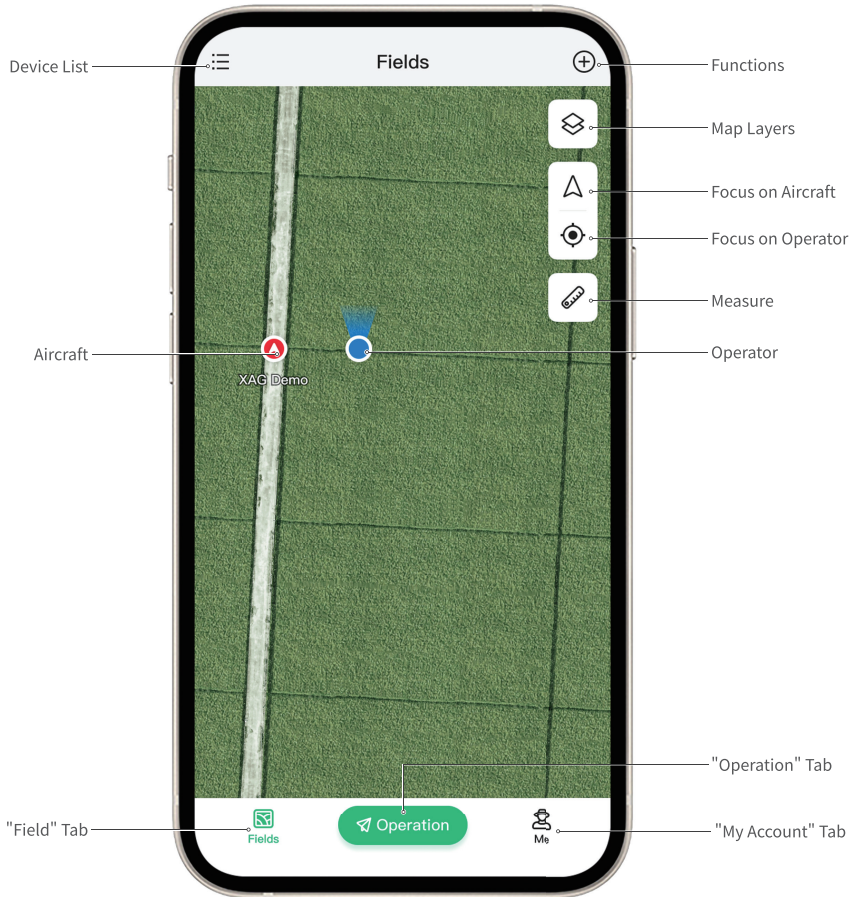
Terrain Following Button



- Press the Terrain Following button once for its current status. Press it twice in a row to switch between GPS Altitude Hold (Terrain Following disabled) and Terrain Following Altitude Hold (Terrain Following enabled).

APP Interface Introduction

"Field" Tab (Main)



Device List: Full device list

Operator: Operator's location

"Field" Tab: Main field options tab

Functions: New fields, New fields group, New HDMAP, Import data, Bind devices

Map Layers: Select map type

Focus on Aircraft: Centre screen on aircraft

Focus on Operator: Centre screen on operator

Measure: Measure distance

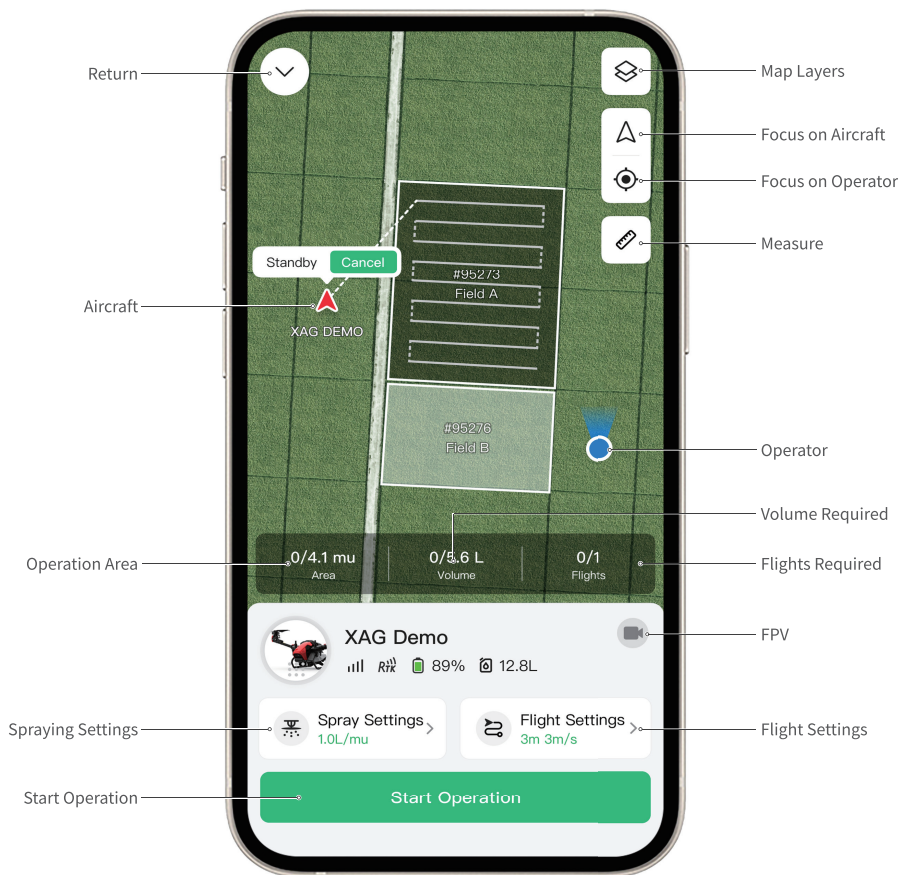
Aircraft: Aircraft's location

"Operation" Tab: Main operation options tab

"My Account" Tab: Main account options tab

"Operation" Tab

Tap on "Operation" tab to view the operation options.



Return: Return to "Field" Tab (Main)

Operation Area: Area of selected field

Spraying Settings: Spraying settings

Start Operation: Start operation

Volume Required: Estimated volume required
for current operation

Flights Required: Estimated flights required
for current operation

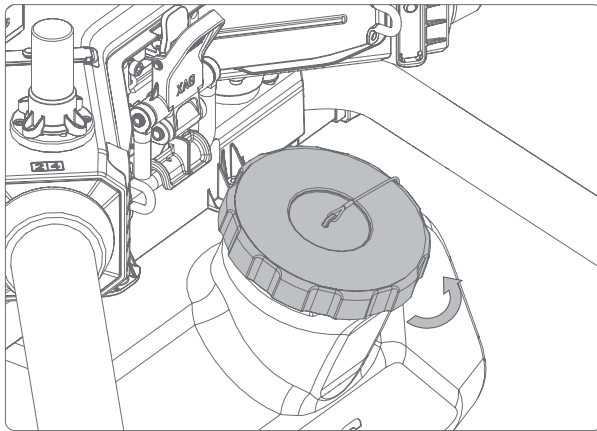
FPV: First-person-view camera

Flight Settings: Flight settings

Prepare Smart Liquid Tank

Tank Filling

Unscrew the cap counterclockwise, fill the tank up and then tighten the cap clockwise.



Protective Measures for Pesticide Preparation

Safety is paramount in preparing pesticides, so please strictly follow the guidelines below.

- ① Check if your long sleeves, trousers, mask, goggles and rubber gloves are worn out. Replace them when they do.
- ② Wear a mask, goggles, long sleeves, trousers and rubber gloves before preparing pesticides upwind in an airy and shady area.
- ③ NEVER smoke, eat or drink when spraying pesticides. When tubes or nozzles are clogged up, unclog them with soft objects or clean water. Do NOT blow them with your mouth.
- ④ If pesticides get into your eyes, rinse them immediately with plenty of clean water. When you have symptoms such as headaches, nausea and vomiting, stop the operation, take off your protective clothing and go to the nearest hospital with the packaging of the pesticides applied.
- ⑤ Upon completion of the operation, wash your hands with soap and remember to wash your body thoroughly in time.
- ⑥ Soak your protective equipment in lye and wash it.
- ⑦ Pesticide containers and packaging must be collected for proper disposal. NEVER discard pesticide packaging in ditches, wells or places with people and animals, otherwise, pesticide hazards, poisoning or environmental pollution could occur.

Pesticide Preparation Precautions

- Use pesticides in accordance with manufacturers' safety instructions.
- During operation, the protection of aircraft besides people is also important. Beware of liquid getting into the circuit board in the installation or removal of the liquid tank, causing short circuits and damaging the aircraft. Minimize malfunctions resulting from improper operation.
- Prepare pesticides with clean water as dirty or muddy water could reduce the dispersity, wettability and permeability of pesticides in water, causing them to precipitate and become less effective. Impurities in water could break down part of the active ingredients in pesticides, reducing their effectiveness.

- After adding clean water, stir the solution thoroughly so that pesticides fully dissolve with fewer precipitates and thus become more effective. Do NOT use warm water in pesticide preparation as the solution could crystallize and precipitate as the water cools down.

Pesticide Poisoning Symptoms and Emergency

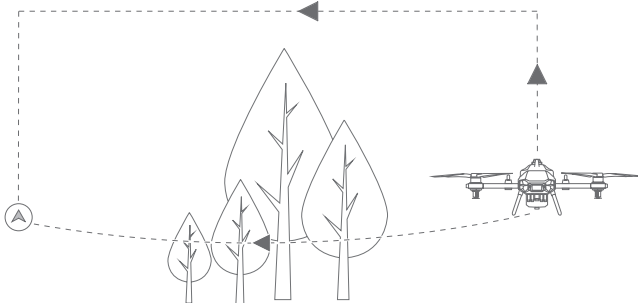
Symptoms of Poisoning: dizziness, headaches, nausea, vomiting, excessive sweating, chest tightness, blurred vision, weakness, shortness of breath, increased heart rate, or even incontinence, constricted pupils, etc.

Emergency Response: In case of swallowed poison, do NOT induce vomiting. Send the victim to the hospital immediately with the product label. Specific treatment is required, as special antidotes may not be available.

Safe Parking



- The landing point should be in an open area far from buildings and crowds. Make sure that the aircraft's return trip is free of obstacles.



- When the aircraft is flying back, the operator should observe the environment around it and steer it away from any obstacle found on the route.
- Power off the aircraft once it lands safely.

Maintenance

After operation, clean the spray parts and surface of the aircraft in a timely manner. Regular aircraft maintenance should be conducted.

Cleaning After Operation

Pesticides are caustic and could corrode the device, shortening its lifespan. Clean the device timely after each operation. The cleaning steps are as follows:

Detergent: soapy water or laundry powder/water mixture

A. Liquid Tank: Clean the interior and wipe the surface of the liquid tank with a rag.

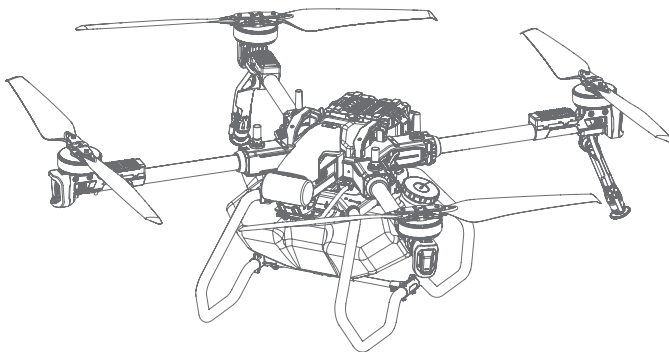
B. Aircraft:

- ① Fill the liquid tank with soapy water or the laundry powder/water mixture. Start spraying to clean pesticide residues in the spraying system.
- ② Fill the liquid tank with clean water and start spraying to wash off residual soapy water or the laundry powder/water mixture in the spraying system.
- ③ Place the empty liquid tank in the aircraft and start spraying until all tubes are drained, avoiding damage to other devices during transportation or storage.
- ④ Wring out the damp rag and wipe the surface of the aircraft to remove potion stains and mud. Empty the liquid tank and drain the tubes if the aircraft needs to be transferred or will not be used for an extended period.

Regular Maintenance

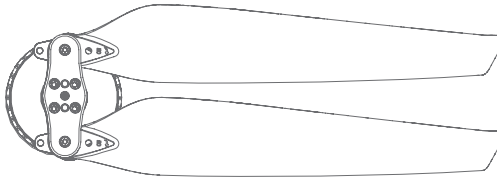
Wear and tear as well as malfunctions in/of the device could occur as a result of ordinary use. Regular maintenance ensures that the device performs at its best in future operations with fewer malfunctions and improved efficiency. Maintenance steps are as follows:

A. Airframe



- ① Check if any screw on the airframe is loosening or missing.
- ② Check if the components including landing gears, fuselage, arms, motors and antennas are secure.
- ③ Check if the connectors of each component are firmly in position, whether they have oxidized, and if the battery plug is deformed.
- ④ Check breakages and cracks on the airframe and components. Check if the beams of the aircraft are bent out of shape or broken, if the fasteners joining the arms and motors together are secure, if the arms are bent and twisted, or if the parts on the arms are at a proper angle.
- ⑤ The aircraft should be cleaned regularly and thoroughly, especially those hard-to-clean spots including the liquid tank socket and battery plug on the airframe.

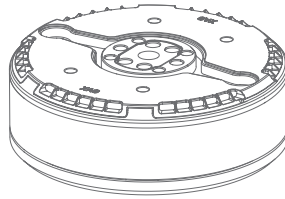
B. Propulsion System



(1) Propellers

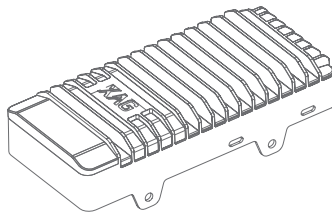
- ① Check by sight if propeller clamps are cracked or deformed and if the blades are loosening, damaged, bent out of shape or softened.
- ② Check if the blades and clamps are properly joined.
- ③ Check if the setscrews holding the clamps and motors are missing or loosening.
- ④ Wipe the propellers clean with a damp rag.

(2) Motors



- ① Remove the propellers and clean the motors with an air blow gun.
- ② Rotate the motors and check whether the bearings wobble or make noise.
- ③ Check by sight if the enameled wires of motors are broken.
- ④ Gently rock the motors and see if they are firmly fixed on the motor mounts.
- ⑤ Check the connectors and cables between motors and ESCs.

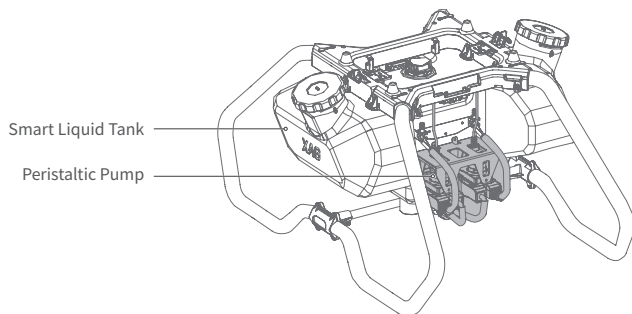
(3) ESCs



- ① Remove the power plugs of the ESCs and check if the metal parts are deformed or oxidized.
- ② Check if the setscrews on the ESCs are missing or loosening.
- ③ Check if fouling such as pesticide deposits occurs in the heat dissipation part of the ESCs.

C. RevoSpray System

The spraying system needs to be calibrated once it has a large error (outside of plus or minus 5%) due to chemical corrosion, thick pesticides, replacement of peristaltic pump parts, etc. Calibration needs to be done with clean water or pesticides used in operation. In case the health index remains unusual after calibration, check whether the peristaltic pump tubes or spray tubes are in good condition. Replace them in time if they shrivel, lose their elasticity or are out of shape.



(1) Peristaltic Pump

- ① Take apart the peristaltic pump and check if the peristaltic pump tube and roller are sufficiently lubricated. If not, apply Vaseline.
- ② Check if the connectors on the payload control board have come loose or oxidized, etc.

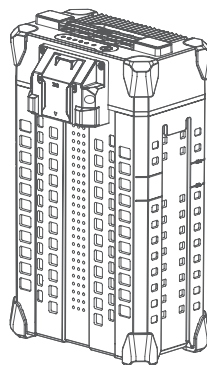
(2) Smart Liquid Tank

- ① Check the sealing ring of the liquid inlet.
- ② Unscrew the cap and check if the inner tubes are in good condition.
- ③ Unscrew the filter and clean the dirt off it.

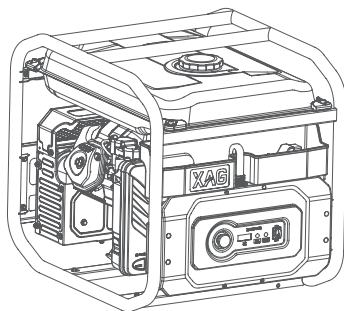
D. Power System

(1) Smart Battery

- ① If the battery shows single flashing green after flight, charge it to 40%-60% in time for storage. Batteries not charged timely before storage could be damaged.
- ② If the battery is not used for an extended period, charge and discharge it every three months to keep it active.
- ③ When the battery is swelling, leaking, deformed, or having exterior damage, immediately stop using it and contact your local dealer in a timely manner.
- ④ Check by sight the exterior of the battery. Should there be any damage, send it to the maintenance center.
- ⑤ Do NOT charge the battery in a damp environment.
- ⑥ Do NOT insert or remove the battery when it is turned on, or its socket could be damaged.
- ⑦ Handle the battery with care; NEVER take it apart without permission.



(2) Auto SuperCharge Station



Items		Maintenance Tips
Oil	Check Oil Level	Check the oil level before each use; the oil level should fall between the MIN and MAX markings on the oil dipstick
	Change Oil	Change oil after 20 hours of using the station for the first time along with changes every 50 hours
Air Cleaner	Check	Check the filter element and oil left in the oil reservoir of the air cleaner before each use
	Clean	Clean the air cleaner every 50 hours, or every 20 hours in dusty areas
Spark Plug	Replace	Replace it every 500 hours
Valve Lash	Adjust	Adjustment of valve lash by after-sales professionals is required every 500 hours
Fuel Tank & Filter	Clean	Clean the fuel tank and filter every two years
Oil Tube	Replace	Replace it in case of aging or cracking
For more details, please refer to the Auto SuperCharge Station Maintenance and Repair Guidelines		

(3) Power Socket

With dust, liquid, or other foreign objects sticking to the power socket, poor contact, short circuits or sparking could occur in the connection of the battery, charger or socket. Before and after the use of the power device, user should check and clean each component including the battery plug and socket, ensuring that the power socket remains clean, dry and free of foreign objects.

E. Devices with Lithium Batteries

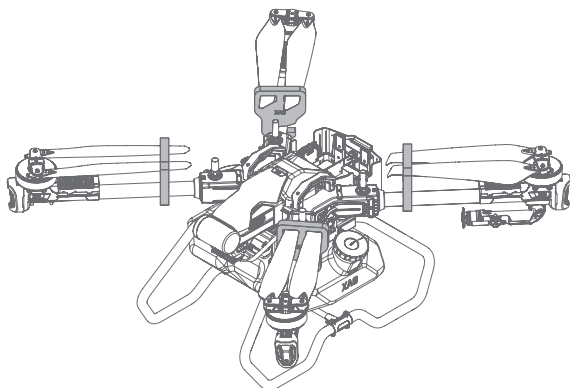
When not used for an extended period, devices with lithium batteries (exclusive of the Smart Battery) including the ControlStick should be charged to 40% to 60% every two months for storage.

Device Storage

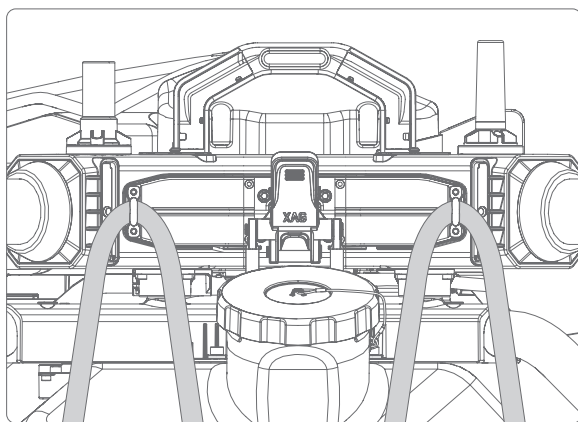
Devices like batteries, aircraft, ControlStick and chargers should be stored in a dry place with a temperature between 10°C -30°C . Do NOT store devices in leaky or damp places.

Transportation

Propeller blades of the aircraft should be folded and fastened by clamps for short-distance transportation.



Loop the safety belt through the handles of the airframe mounting brackets to fasten the aircraft on the carrier.



Note

- ⚠ Before transporting the aircraft, clean and empty its spraying system and drain all tubes, to avoid damage to other devices during transportation.
- ⚠ NEVER place batteries in the aircraft for transportation.
- ⚠ During transportation, do NOT drive while tired; devices should be stored separately with good air circulation to avoid poisoning by inhalation of pesticides.
- ⚠ Pesticide packaging and sewage must be collected for proper disposal to avoid pesticide hazards

Appendix

Wiring Quick Guide

WIRING QUICK GUIDE V1.0

XAG 极飞科技

A Upper Shell Trunking

B Flight Controller

C Flight Controller

D Central Cabin Bus Board

E Spraying & Spreading Systems

F Fuselage

G Liquid Tube

Note: Make sure tubes are not crushed or twisted when assembled.

Caution 1. Never disassemble or assemble any module whilst powered on.
2. Do NOT turn the power on until all modules are installed.


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Indicator Description

Get to know the aircraft's current status by checking the indicators on the SuperX 4 Pro Intelligent Control System (flight controller) and arm lights (ESC indicators on the left and right arms). Details are as follows.

Flight Controller RTK Indicator 	Description
Solid Red	Not searching for satellites, not positioning, no output from board
Flashing Red (Slow)	RTK timeout over 10s
Flashing Green (Slow)	Normal
Flashing Red (Fast)	Exited RTK; no differential signal; no heading
Flashing Green (Fast)	Satellites less than 16; heading accuracy lower than 2°
Flashing Red & Green	Initializing/Configuring
Flashing Red & Green (Fast)	Updating firmware

Flight Controller 4G Indicator 	Description
Flashing Red (Slow)	Disconnected from IoT
Flashing Green (Slow)	Connected to IoT

Flight Controller Wi-Fi Indicator 	Description
Flashing Red (Slow)	Disconnected from Wi-Fi module
Flashing Green (Slow)	Connected to Wi-Fi module
Flashing Orange (Slow)	Flight controller's Wi-Fi hotspot enabled

Flight Control System Status Indicator 	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 Alternating Flashing	Unlocking

Arm Light (ESC Indicator)	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 Alternating Flashing	Unlocking
Illuminating Red	Entering; returning; avoiding/bypassing obstacles

Arm light behaviors with firmware updating:

Arm Light (ESC Indicator)	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

Specifications

XAG P100 Agricultural Drone

Model	3WWDZ-40AH
Flight Control System	SuperX 4 Pro
Diagonal Motor Wheelbase	1780mm
Overall Dimensions	2487×2460×685mm (blades unfolded; RevoSpray system included) 1451×1422×675mm (blades folded; RevoSpray system included) 1451×1422×645mm (blades excluded; RevoSpray system included)
Arm Material	Glass & carbon fibre composite
Carrier Weight	39.6kg (payload system excluded; batteries included)
Empty Weight	48kg (RevoSpray system & batteries included) 53kg (RevoCast system & batteries included)
Rated Takeoff Weight	88kg (rated spray take off weight) 93kg (rated spread take off weight)
Protection Rating	IPX7

Flight Parameters

Operating Frequency	2.412GHz-2.472GHz
Wi-Fi Maximum transmit power	MAX 18dBm
Maximum Thrust-Weight Ratio:	1.8
2G Operating Frequency	CE: GSM 900: 880.2 – 914.8 MHz; DCS 1800: 1710.2 – 1784.8 MHz FCC: GSM850; PCS1900 ANATEL: GSM850, GSM900, GSM1800, GSM 1900
2G Maximum transmit power	Class 4 (33dBm) for EGSM900, Class 1 (30 dBm) for DCS1800
3G Operating Frequency	CE: WCDMA Band I: 1922.4 MHz-1977.6 MHz, 2210 – 2170 MHz; WCDMA Band VIII: 882.4 - 912.6 MHz KCC: WCDMA B1 FCC: WCDMA B4 ; WCDMA B2 ANATEL: WCDMA B1、WCDMA B2、WCDMA B5、WCDMA B8 MIC: WCDMA B1、WCDMA B5、WCDMA B6、WCDMA B8、WCDMA B19
3G Maximum transmit power	Class 3 (24dBm) for WCDMA bands
4G Operating Frequency	CE: Band1:1922.5-1977.5MHz、Band3:1710.7-1784.3MHz、Band7: 2502.5-2567.5MHz、Band8: 880.7-914.3MHz、Band20:834.5-859.5MHz、Band28:704.5-746.5MHz、Band38:2572.5-2617.5MHz、Band40:2302.5-2397.5MHz KCC: Band1、Band3、Band5、Band7、Band8 FCC: Band2、Band4、Band5、Band7、Band12、Band13、Band25、Band26、Band38、Band41 ANATEL: Band1、Band3、Band5、Band8、Band25、Band26、Band28、Band39、Band40、Band41 MIC: Band1、Band3、Band5、Band8、Band18、Band19、Band26、Band28、Band41
4G Maximum transmit power	Class 3 (24dBm) for LTE-TDD bands
GNSS Operating Frequency	GPS: L1/L2; GLONASS: L1/L2; BDS: B1/B2; Galileo: E1/E5b

Recommended Operating Wind Force	≤ 3
Load Ratio	0.45
Hovering Accuracy (good GNSS signal)	RTK Enabled: Horizontal ±10cm, Vertical ±10cm RTK Disabled: Horizontal ±0.6m, Vertical ±0.3m
High Precision Positioning Duration with RTK Data Latency	≤ 600s
Hovering Duration	17min (no-load @20000mAh x2 & take off weight 48kg) 7min (full-load @20000mAh x2 & take off weight 88kg)
Max. Flight Speed	13.8m/s
Max. Flight Height	30m
Max. Flight Distance	2000m

Propulsion System

Motor

Model	A45
Engine Power/Rotational Speed	136 x 27mm
KV Value	78RPM/V
Rated Power (Individual Motor)	4000W
Max. Lift (Individual Motor)	45kg

Electronic Speed Controller

Model	VC13200
Max. Operating Current (30s)	200A
Rated Operating Voltage	56.4V

Foldable Propeller

Model	P4718
Diameter x Pitch	47 x 18 inch

Power System

Smart SuperCharge Battery

Model	B13960S
Battery Type	13S lithium polymer battery
Rated Output	48.1V/120A
Rated Capacity	20000mAh (962Wh)
Max. Charging Current	100A (5C)
Recommended Charging Temperature	10~45°C

CM13300 SuperCharger

Model	M2CM1-3300A
Charging Adapter Quantity	1
Power Output	3kW
Input Voltage	AC 90-165V~50/60Hz 23A (Max) AC 180-260V~50/60Hz 23A (Max)

Output Voltage & Current	DC 50-60V/25A (Max)/1250W (AC 90-165V~50/60Hz) DC 50-60V/60A (Max)/3000W (AC 180-260V~50/60Hz)
--------------------------	---

Recommended Operating Temperature	-20~40°C
-----------------------------------	----------

CM12500P SuperCharger

Model	CM12500P
-------	----------

Charging Adapter Quantity	1
---------------------------	---

Power Output	2.5kW
--------------	-------

Input Voltage	AC 90-165V~50/60Hz 23A (Max) AC 180-260V~50/60Hz 23A (Max)
---------------	---

Output Voltage & Current	DC 50-60V/25A (Max)/1250W (AC 90-165V~50/60Hz) DC 50-60V/50A (Max)/2500W (AC 180-260V~50/60Hz)
--------------------------	---

Recommended Operating Temperature	-20~40°C
-----------------------------------	----------

RevoSpray System

Smart Liquid Tank

Sensor	Float liquid level sensor
--------	---------------------------

Rated Volume	40L
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Centrifugal Atomizing Nozzle

Quantity	2
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Nozzle Type	Centrifugal
-------------	-------------

Spraying Bar Length	1445mm
---------------------	--------

Spray Disc Rotational Speed	1000~16000RPM
-----------------------------	---------------

Atomized Droplet Size	60-400µm
-----------------------	----------

Spray Width	Spray Width 5~10m (subject to flight height, dosage, environment, etc)
-------------	--

* With a flight height of 3 ± 0.5 m, a flight speed of 3m/s and a flow rate (individual pump) of 5L/min, a spray width of 8m is recorded for reference only.

High-Frequency Pulse Peristaltic Pump

Quantity	2
----------	---

Voltage	50V
---------	-----

Fluid Pump Flow Rate	Max. Operating Flow Rate: 12L/min (dual pumps) Max. Flow Rate (Individual Pump): 6L/min
----------------------	--

Obstacle Sensing & Avoidance System

4D Imaging Radar

Model	RD24412
-------	---------

Operating Voltage	24-60V
-------------------	--------

Power	20dBm
-------	-------

Operating Frequency	24.05-24.25GHz
---------------------	----------------

Sensing Mode	Millimetre-wave imaging, MIMO
--------------	-------------------------------

Sensing Parameters	Obstacle's position, distance, direction and relative speed
--------------------	---

Sensing Range	1.5~40m
---------------	---------

Field of View (FOV)	Horizontal: $\pm 40^\circ$; Vertical: $+90^\circ \sim -45^\circ$
---------------------	---

Obstacle Avoidance Safety Distance	2.5m (distance between propeller tip and obstacle after the aircraft brakes and hovers stably)
------------------------------------	--

Obstacle Avoidance Safety Relative Height	$\geq 1.5\text{m}$
---	--------------------

Obstacle Avoidance Safety Relative Speed	$\leq 8\text{m/s}$
--	--------------------

Terrain Radar

Model	TR24S100
-------	----------

Operating Voltage	12V
-------------------	-----

Power	20dBm
-------	-------

Sensing Mode	Millimetre-wave
--------------	-----------------

Operating Frequency	24.05-24.25GHz
---------------------	----------------

Sensing Range	0.5-100m (distance to crop surface)
---------------	-------------------------------------

Altitude Hold Range	1-30m (distance to crop surface)
---------------------	----------------------------------

Max. Gradient	45° (@ flight speed $\leq 2\text{m/s}$)
---------------	--

PSL Camera

Dimensions	70 x 40 x 25mm
------------	----------------

Operating Voltage	24-60V
-------------------	--------

Resolution	1080P/720P
------------	------------


Encoding Format	H.264
-----------------	-------

Frame Rate	30fps
------------	-------

Focal Length	3.2mm
--------------	-------

Image Sensor	1/2.9-inch CMOS sensor
--------------	------------------------

Note

 The effectiveness of the Obstacle Sensing & Avoidance System depends on the obstacles' material, position, shape, size, etc. Please ensure that the aircraft is always in your sight during operation. Pay close attention to the aircraft and steer it away from obstacles using the ControlStick when necessary.

FCC/ISED Compliance Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This equipment complies with FCC and Canada radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device must accept any interference received, including interference that may cause undesired operation. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

EU Compliance Statement:Guangzhou Xaircraft Technology CO.,LTD.All Rights Reserved.hereby declares that this device is in compliance with the essential requirements and other relevant provisions of the RED Directive. This equipment must be installed and operated in accordance with provide instructions and the antenna used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operation in conjunction with any other antenna or transmitter.End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.



Warning: Operation of this equipment in a residential environment could cause radio interference.

“Hereby, [Guangzhou Xaircraft Technology CO.,LTD.], declares that this [P100 Agricultural UAV] is in compliance with the essential requirements and other relevant provisions of 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.address.com/doc.pdf”

Suppliers Name(EU): DRONEUA AGRICULTURE EUROPE Sp. Z O.O.
Suppliers Address (EU) : 21-007 Melgiew, Janowice 144 str., Poland.
Suppliers phone number and / or internet contact information: (093)4575757

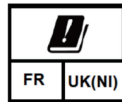
KCC Warning Message

이 기기는 업무용 환경에서 사용할 목적으로 적합성 평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파 간섭의 우려가 있습니다 .

FCC Supplier's Declaration of Conformity

Brand name / model number: 3WWDZ-40AH
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Suppliers Name(FCC): Pegasus Spray LLC
Suppliers Address (FCC): 2235 79th Ave NE, Medina, WA 98039, USA
Suppliers phone number and / or internet contact information: +1 (503) 866-1228

This device cannot be operated in France, the UK or Northern Ireland



NCC statement

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

Without permission granted by the NCC, any company, enterprise, or user is not allowed to change frequency, enhance transmitting power or alter original characteristic as well as performance to a approved low power radio-frequency devices. The low power radio-frequency devices shall not influence aircraft security and interfere legal communications; If found, the user shall cease operating immediately until no interference is achieved. The said legal communications means radio communications is operated in compliance with the Telecommunications Management Act. The low power radio-frequency devices must be susceptible with the interference from legal communications or ISM radio wave radiated devices.



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