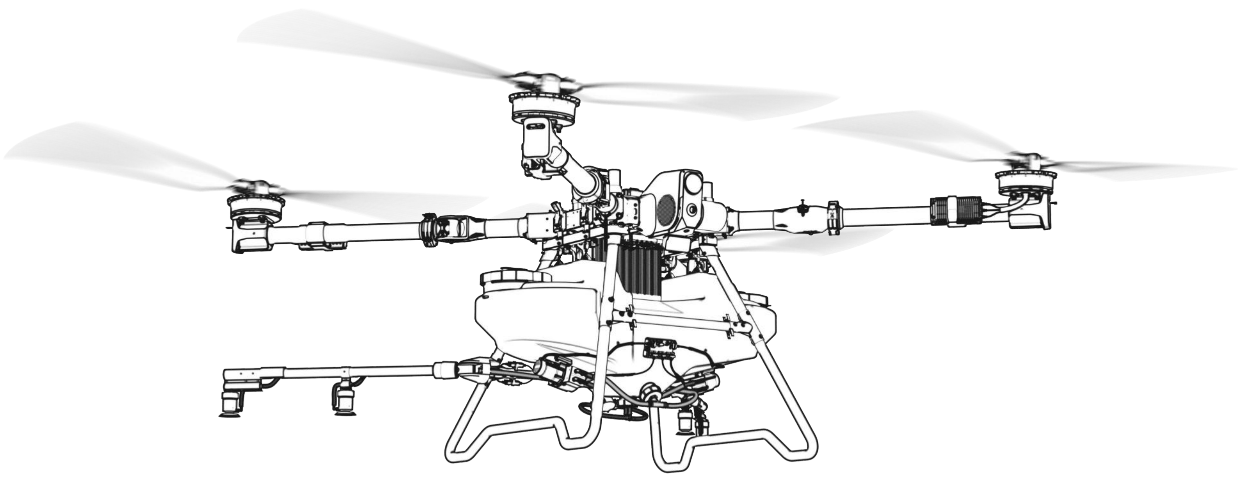
3WWDZ-U75B

A80 Agricultural Drone

User Manual V0.7



TopXGun (Nanjing) Robotics Co., Ltd.

2025.12

User Guidelines

TopXGun provides the following documentation for our users:

1. *Packing List*
2. *3WWDZ-U75B A80 Agricultural Drone User Manual*
3. *Agri Assistant App User Guide*

Please use the **Packing List** to verify all items. Read the **3WWDZ-U75B A80 Agricultural Drone User Manual** carefully to familiarize yourself with its operations and features. You can also follow our official YouTube Channel for tutorial videos and operational tips.

TopXGun Official Website

TopXGun YouTube Channel

<table>
<tr><th colspan="4">Three Guarantees Certificate</th></tr>
<tr><th colspan="4">Producer Information</th></tr>
<tr><td>Name</td><td colspan="3">TopXGun (Nanjing) Robotics Co., Ltd.</td></tr>
<tr><td>Address</td><td colspan="3">No. 3118 Jiyin Avenue, Jiangning District, Nanjing</td></tr>
<tr><td>Postal Code</td><td colspan="3">211112</td></tr>
<tr><td>Telephone</td><td colspan="3">400-788-3426</td></tr>
<tr><th colspan="4">Product Information</th></tr>
<tr><td rowspan="2">Name</td><td>A80Agricultural Drone</td><td rowspan="2">Model</td><td>☐ 3WWDZ-U75B</td></tr>
<tr><td>A50Agricultural Drone</td><td>☐ 3WWDZ-U50C</td></tr>
<tr><td>Factory Serial No.</td><td></td><td>Factory Date</td><td></td></tr>
<tr><th colspan="4">Purchase Record</th></tr>
<tr><td>Customer Name</td><td></td><td>Contact Information</td><td></td></tr>
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<tr><td>Place of Purchase</td><td colspan="3"></td></tr>
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<tr><td>Invoice Number</td><td colspan="3"></td></tr>
<tr><td>Product Warranty Period</td><td>12 months</td><td>Three Guarantees Validity Period</td><td>12 months</td></tr>
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<tr><td>Maintenance Address</td><td colspan="3"></td><td>Postal Code</td><td colspan="2"></td></tr>
<tr><td>Date Sent for Repair</td><td>Fault Description</td><td>Fault Cause</td><td>Fault Handling and Return/Exchange Certificate</td><td>Maintenance Personnel</td><td>Maintenance Status</td><td>Delivery Date</td></tr>
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<tr><td colspan="7">Note: If the product needs maintenance, please contact the authorized dealer in time and have it repaired by the authorized maintenance unit.</td></tr>
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Three Guarantees Period for Main Components		
Module Name		**Warranty Period**
Control Section	FCU	24 calendar months
	PMU	24 calendar months
	UPS	24 calendar months
	Remote Controller	24 calendar months
Body Section	Motor	24 calendar months
	Electronic Speed Controller (ESC)	24 calendar months
	Power Distribution Board	24 calendar months
	Frame	24 calendar months
Spraying Section	Water Pump	24 calendar months
	Impeller Pump	24 calendar months
	Centrifugal Nozzle	24 calendar months
	Spraying System (excluding pump)	24 calendar months
Spreading Section	Hopper	24 calendar months
	Auger Motor	24 calendar months
	Weight Sensor Assembly	24 calendar months
	Disc Motor Module	24 calendar months
	Gear Motor Housing	24 calendar months
	Auger Barrel	24 calendar months
	Spreading PCBA Assembly	24 calendar months
	Auger	24 calendar months
Other	Propeller Blades and Clamps	24 calendar months
	Obstacle Avoidance Radar	24 calendar months
	Terrain Following Radar	24 calendar months
	FPV Module	24 calendar months
	Smart Charger	24 calendar months
	Smart Battery	1500 cycles or 24 calendar months (whichever comes first)

Scope of Non-Liability for Three Guarantees:

1. Damage caused by flying in violation of the instructions in the manual.
2. Damage caused by forced flight while ignoring damaged components.
3. Damage caused by unauthorized modifications or use of non-original batteries/chargers.
4. Damage caused by the aircraft exceeding its safe takeoff weight.
5. Damage caused by insufficient battery power or intentional use of faulty batteries.
6. Damage caused by installation/disassembly in violation of the instructions in the official manual.
7. Damage caused by operation in severe weather conditions (strong winds, sandstorms, rain/snow, lightning, etc.).
8. Damage caused by using unauthorized third-party components due to their stability and compatibility issues.
9. Damage caused by operation in environments with radio wave interference (mining areas, wireless communication towers, power lines, substations, etc.).
10. Damage caused by operation while wireless devices (remote controllers, receivers, 4G network cards, etc.) are damaged.
11. Malfunctions not caused by the product itself, such as damage from collision, crash, fire, or other improper human operations.

Preface

The 3WWDZ-U75B agricultural drone is a high-performance multi-rotor UAV featuring industry-leading functionality, design, control, and safety. Due to the nature of drone operations, inherent risks exist. Please strictly follow the safety tips and user manual during the operation. Improper use may lead to direct or indirect loss, injury, or damage.

Disclaimer

Please read this disclaimer carefully before using the product. By using this product, you acknowledge and accept the full content of this statement. This product is intended for users aged 18 and above. The Company shall not be held liable for any personal injury or property damage resulting from the following:

1. Failure to assemble or use the product in accordance with this manual.
2. Operation under the influence of alcohol or drugs, or while in poor physical or mental states such as fatigue.
3. Intentional or willful operation to cause harm or damage.
4. Unauthorized modification using non-original accessories, resulting in malfunction.
5. Operating errors or errors in subjective judgment.
6. Natural wear and tear, or circuit aging leading to abnormal operation.
7. Operating the aircraft with the knowledge that it is in an abnormal state.
8. Operation under severe weather conditions, such as typhoons, hail, or dense fog.
9. Flight in magnetic interference zones, radio interference zones, or government-designated no-fly zones.
10. Operation in conditions of poor visibility or obstructed line of sight.
11. Infringement or any other illegal acts resulting from data or imagery obtained via the product.
12. Other losses that fall outside the scope of the Company’s liability.

Safety Operation Guidelines

1. Pesticide Usage

- Wear protective gear during handling to avoid direct contact with pesticides.
- Avoid using wettable powders, as they may shorten the lifespan of the spraying system.
- Always use clean water for mixing to prevent clogging. Do not remove any filters; if a filter is clogged, clean it thoroughly before further use.
- Clean up chemical residue immediately after use. Do not contaminate rivers or drinking water sources. Ensure no harm or impact is caused to people, animals, or the environment.
- Effectiveness depends on chemical concentration, spray rate, flight altitude, wind direction, and wind speed. Consider these factors comprehensively for optimal results.
- Strictly follow the safety instructions provided by the pesticide manufacturer.
- The use of specialized working fluids is prohibited.
- Pay attention to wind direction and chemical toxicity during operation to avoid crop damage to adjacent fields caused by spray drift.

2. Operating Environment

- Fly in open areas away from crowds.
- Operation at altitudes below 2000 meters is recommended.
- Fly in environments between 0°C and 40°C.
- Operation in wind speeds below 8m/s (Level 4) is recommended.
- Flight is strictly prohibited in rain, fog, snow, or other extreme weather conditions.
- Indoor flight is strictly prohibited.
- Fly in legal areas. Consult local aviation authorities before flying to ensure compliance with local laws and regulations.

3. Pre-flight Inspection

- Ensure all devices are fully charged.
- Ensure all components are in good condition. Replace any aged or damaged parts before flight. Ensure the landing gear and tank are securely mounted and all screws are tightened.

- Ensure propellers are undamaged and securely installed. Ensure propeller blades and frame arms are fully unfolded, and arm locks are securely fastened.
- Ensure the spraying system is free of clogs and functioning normally.
- Calibrate the compass before flight.

4. Operation

- Stay away from rotating propellers and motors during operation.
- Be aware of potential pinching or crushing hazards when folding the frame.
- Fly within the rated takeoff weight to avoid danger.
- Operators must receive professional training and pass assessment. Untrained personnel are strictly prohibited from operating this product.
- Ensure propellers are removed before performing device calibration or firmware updates.
- Ensure propellers are removed before linking the remote controller. Keep people and animals away from the motors during the linking process.
- Do not operate the product while under the influence of alcohol, or when experiencing fatigue, illness, or other impaired states.
- If the operating environment does not meet the radar module's working conditions, the aircraft will not automatically avoid obstacles during Return-to-Home (RTH).
- When starting, always power on the remote controller before connecting the flight battery. After landing, disconnect the flight battery before powering off the controller.
- Maintain full control of the aircraft at all times. Do not rely solely on information provided by the handheld ground station.
- Obstacle avoidance and terrain-following functions may be unavailable in certain flight modes or environments. Constantly observe the aircraft's attitude and make sound judgments to manually avoid obstacles.

5. Flight Limits and Local Regulations

- Visit the Civil Aviation Administration of China (CAAC) official website at http://www.caac.gov.cn for the latest list of restricted flight zones.
- The maximum flight altitude is limited to 20 meters. Consult local aviation authorities before takeoff to ensure compliance with local laws and regulations.

Special Note: The Safety Operation Guidelines include, but are not limited to the items listed above.

Intellectual Property

The intellectual property rights of this product and manual belong to TopXGun (Nanjing) Robotics Co., Ltd. No organization or individual may reproduce, reprint, or distribute them in any form without prior written permission. Any authorized citation must acknowledge the source and shall not involve any modification, deletion, or citation contrary to the original intent of this manual.

About This Manual

This manual serves as a guide for users. All photos, graphics, charts, and illustrations provided are for explanatory and illustrative purposes only and may differ from the actual product. Please refer to the actual product.
Due to product upgrades or other reasons, the content of this document will be updated periodically and is subject to change without notice, unless otherwise agreed. Please read this manual carefully before using the product.

Executive Standard: QTG_002-2025

Content

1. Product Overview

3WWDZ-U75B agricultural drone is primarily designed for pesticide spraying, seeding, and fertilizing. Following multiple iterations, it has achieved industry-leading performance in utility, reliability, and safety. The entire aircraft is waterproof, dust-proof, and corrosion-resistant, with key modules such as the spraying, radar, and propulsion systems, rated at IP67 for easy cleaning and maintenance. Featuring a dual-redundant positioning system, the drone achieves centimeter-level precision and supports dual-antenna anti-magnetic interference direction-finding. It is equipped with an FPV camera and a high-definition digital video transmission system for real-time monitoring of the operating environment.

1.1. Remote Control

1.1.1. Component Definition

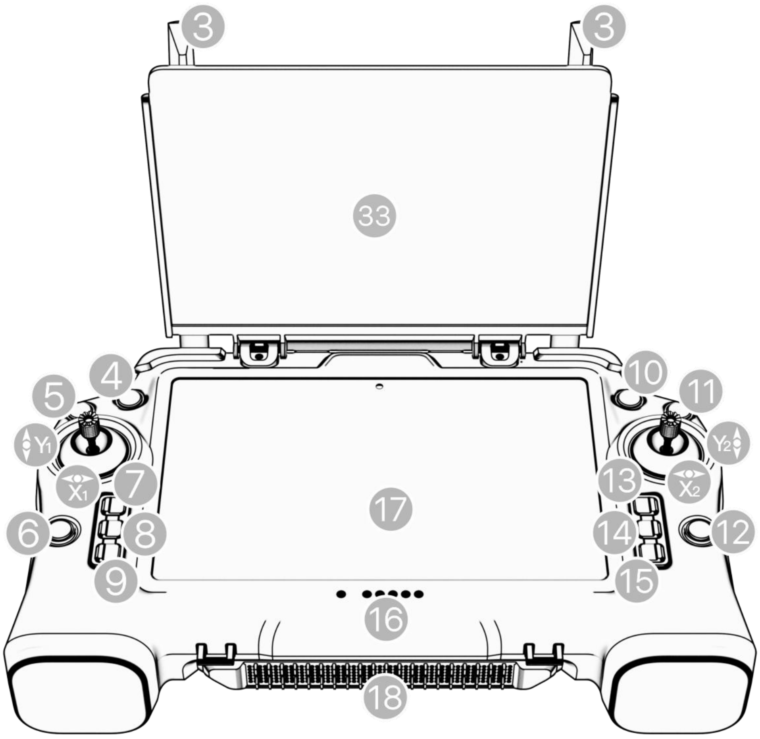


Figure 1-1

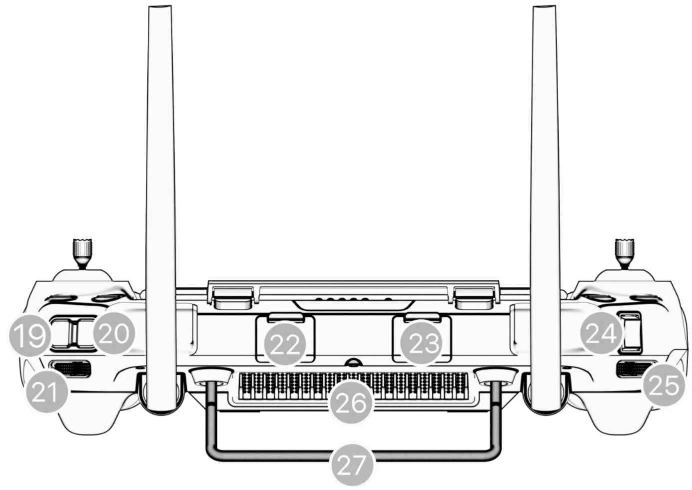


Figure 1-2

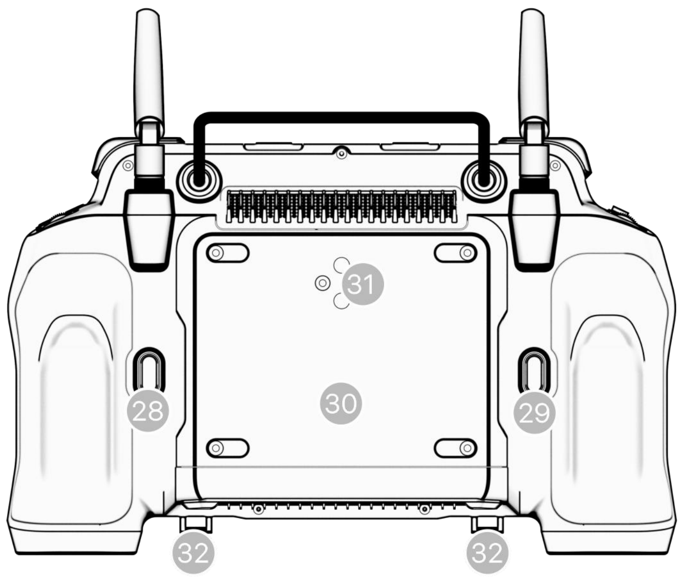


Figure 1-3

Main Remote Controller Buttons (American Mode Example)			
No.	**Component**	**Corresponding Function**	**Description**
Y1	Throttle	Left Stick (Up/Down)	Controls ascent and descent
X1	Yaw	Left Stick (Left/Right)	Controls heading turnaround
X2	Roll	Right Stick (Left/Right)	Controls lateral (left/right) movement
Y2	Pitch	Right Stick (Up/Down)	Controls forward and backward movement
3	Antennas	Primary and secondary antennas	Transmits control, telemetry, and video signals

4	Link Status LED & Control Authorization Button	Displays the link status between the remote controller and the aircraft. Used to transfer control of the aircraft during dual-operator mode.	**Red:** Disconnected **Yellow:** Connected but no control authority during dual-operator mode **Green:** Connected
5	Back Button	Press once to return to previous menu, hold to return to Home screen. Combines with other buttons for shortcuts.	
6	RTH (Return-To-Home) Button	Long press to initiate RTH. Short press to cancel.	Voice alerts will sound during RTH
7	L1 Button	Press to execute corresponding on-screen actions instead of tapping the screen.	
8	L2 Button	Press to execute corresponding on-screen actions instead of tapping the screen.	
9	L3 Button	Press to execute corresponding on-screen actions instead of tapping the screen.	
10	Custom Button	Performs specific software functions as set in the App.	
11	Emergency Stop (Red)	**Short press:** Emergency hover. **Combination:** Press RTH + Emergency Stop for 5s to lock the drone.	
12	Power Button	Press once, then long press to power on/off. Short press to toggle screen sleep/wake while powered on.	
13	R1 Button	Press to execute	

		corresponding on-screen actions instead of tapping the screen.	
14	R2 Button	Press to execute corresponding on-screen actions instead of tapping the screen.	
15	R3 Button	Press to execute corresponding on-screen actions instead of tapping the screen.	
16	Battery Level Indicator	RC Battery Status	Displays the current battery status of the remote controller.
17	HD Touchscreen	For interface display and touch selection	Interface for operation and displaying real-time aircraft status.
18	Air Vents	Internal Cooling	Facilitates internal air circulation. Do not obstruct during use.
19	View Switch Button	Switch between FPV and full-screen map views	
20	Spray Button	Pump Switch	Manually starts/stops the water pump in Manual Mode.
21	Right Dial	Adjusts the FPV camera pitch angle	
22	USB Port	For connecting external USB devices	
23	Type-C Port	Port for RC charging and port upgrades	Please use the specified charger only.
24	Flight Mode Switch	Toggle (Up/Down)	Switches between GNSS and Attitude modes (ATTI mode is disabled by default, enable in settings).
25	Left Dial	**Agri Mode:** Adjusts spray rate increments **Delivery Mode:** Controls winch cable retraction/release	
26	Air Vents	Internal Cooling	Facilitates internal air circulation. Do not obstruct during use.
27	Handle	For holding and carrying the remote controller	

28	B2 Button	One-tap row switching in Enhanced Manual Mode	
29	B1 Button	One-tap row switching in Enhanced Manual Mode	
30	Maintenance Bay	Open to clean the remote controller's radiator/heat sink	
31	Accessory Mount	For mounting external accessories (e.g., power bank clip)	
32	Lanyard Hook	For attaching the remote controller neck strap	
33	Sunshade	Provides screen shading in bright light	*Optional accessory, not included by default.

1.1.2. Antenna Placement

The remote controller antennas feature a foldable design. Signal strength varies depending on antenna orientation. For optimal communication, it is recommended to keep the antennas **perpendicular to the ground** during flight, as this provides maximum signal coverage.

Always adjust the orientation and distance between the operator and the aircraft to ensure it remains within the **optimal communication range**. Avoid pointing the tips of the antennas directly at the aircraft. The correct orientation is shown in Figure 1-4.

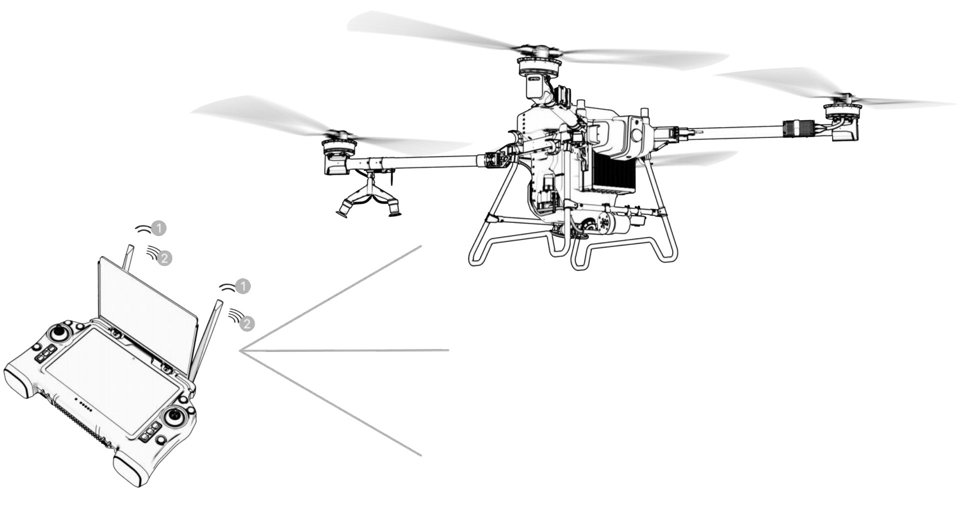


Figure 1-4 RC Signal Strength

1. Weak Signal 2. Strong Signal

Notes: Do not fold the antennas during flight. Ensure there are no obstacles between the remote controller and the aircraft, as this will severely degrade signal transmission quality.

1.1.3. Status LED Indicators

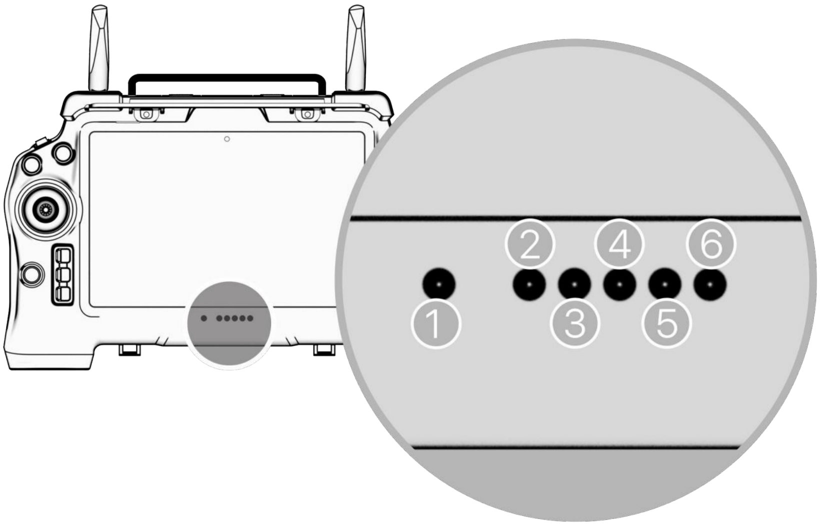


Figure 1-5 Status LED Indicator

The remote controller (RC) status LED indicates the current operational state, prioritizing link status and critical warnings.

LED Status	**RC Status**	**Power State**
Solid Red	Disconnected from aircraft	Powered On
Solid Green	Connected to aircraft	Powered On
Flashing Cyan	Linking in progress	Powered On
Flashing Green	Overheating (High temperature)	Powered On
Flashing Red	Low battery	Powered On
Flashing Blue	Stick not centered	Powered On
Solid Red	Charging (Battery < 10%)	Powered Off
Solid Yellow	Charging (Battery 10%–90%)	Powered Off
Solid Green	Charging (Battery > 90%)	Powered Off

1.1.4. Charging Illustration

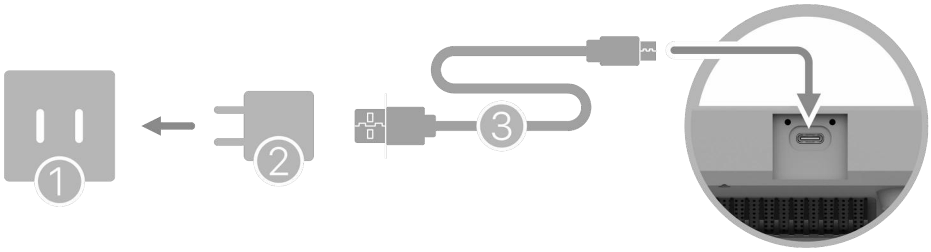


Figure 1-6

1. 100-240V AC Power   2. USB Charger   3. USB-C Cable

Notes:

1. Please use the Type-C port on the remote controller for charging.
2. Using the specified fast charger, a full charge takes approximately 2 hours.
3. Please use the official charger to charge the RC.
4. To ensure optimal battery health, ensure the RC is fully charged at least once every 3 months.
5. If the RC emits an unusual odor, smoke, or leaks, stop charging immediately and return it for inspection.
6. Do not charge the RC when the ambient temperature exceeds 60°C.
7. Keep the device out of reach of children while charging and maintain supervision throughout the process to prevent accidents.

1.1.5. Linking Procedures

When purchased as a complete set, the remote controller and the aircraft are linked by default at the factory and can be used immediately upon powering on. In other cases, please use the following method for linking:

1. Power on the aircraft, open the Agri Assistant App, tap the Device button on the right, and then tap Remote Controller on the device Information page.

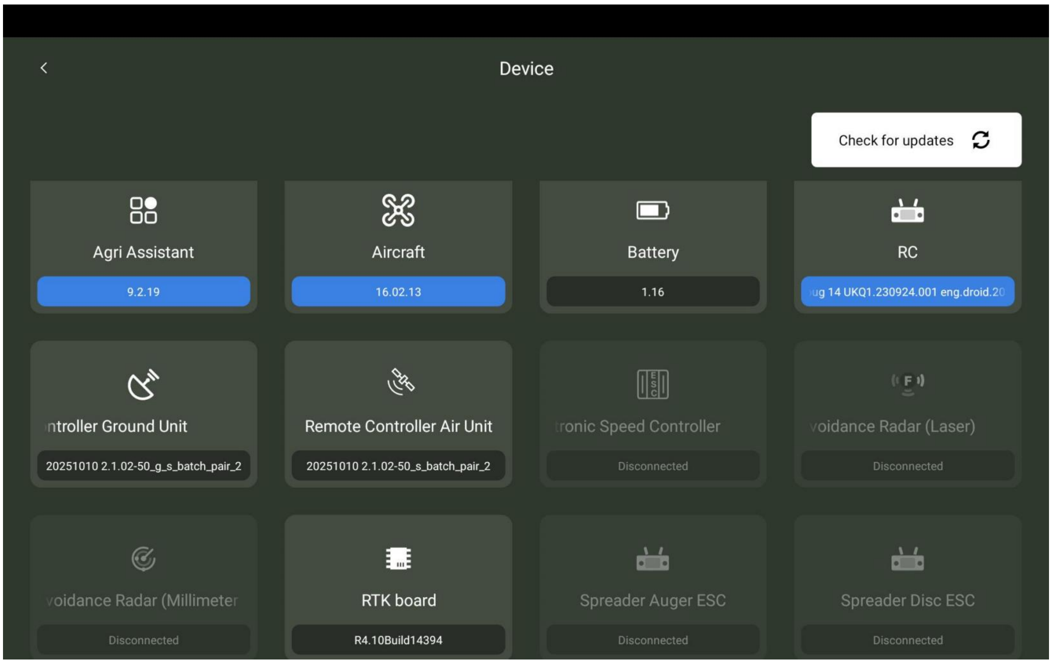


Figure 1-7

2. Tap the Start Linking button. The remote controller status LED will flash cyan, and the App will display a "Linking" notification with a 30-second countdown.

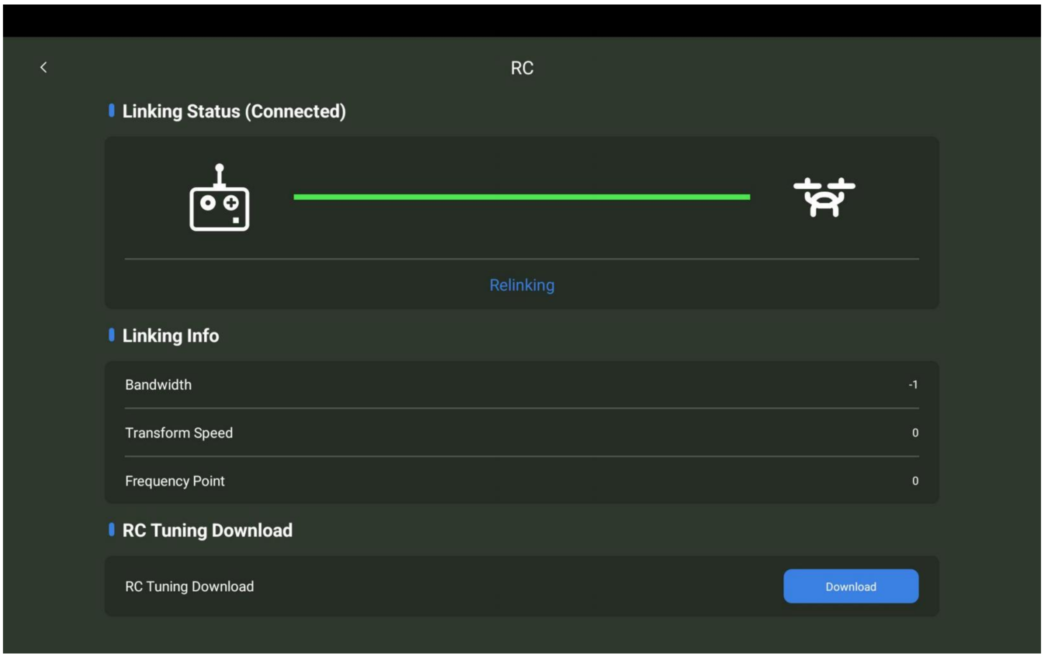


Figure 1-8

3. Press and hold the battery power button for 5 seconds until you hear a "Beep-Beep" sound, then release. The App will indicate "Linking Successful," and the remote controller status LED will turn solid green. If the button is not pressed

within 30 seconds, the App will display "Linking Failed."

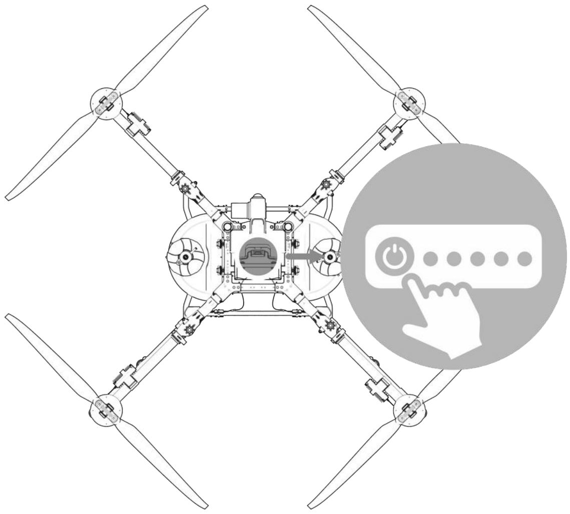


Figure 1-9

Notes:

1. Keep the distance between the remote controller and the aircraft is within 1 meter during linking.
2. Ensure the propellers have been removed before linking, keeping people and animals away from the motors during the process.

1.1.6. Specifications

RC Data link	
Wireless Transmission Band	2400-2476 MHz/ 5725-5829 MHz
Effective Signal Distance (Outdoor, unobstructed, interference-free)	Max Communication Distance: 10km Image Transmission: 3km (Agri-operation environment)
Bluetooth	
Bluetooth Operating Frequency	2.400-2.4835 GHz
FPV Camera	
Pixels	2 Megapixels
Field of View (FOV)	Horizontal: 86° / Vertical: 52°
Resolution	720p
Display	
Screen Size	7-inch
Touch Type	Capacitive
Screen Resolution	1920 x 1200

Other Parameters	
System	Android
Operating Temperature	-15°C to 40°C
Storage Temperature	-25°C to 60°C
Charging Environment Temperature	5°C to 40°C
Battery Capacity	13500mAh @7.4V Li-ion Battery
Charging Time	Approx. 2 hours (using official fast charger)
Operating Time	> 8 hours

1.2. Intelligent Battery Overview

The Intelligent Flight Battery for this model is a high-power Lithium-polymer battery, characterized by its compact size, lightweight, and high capacity.

1.2.1. Components

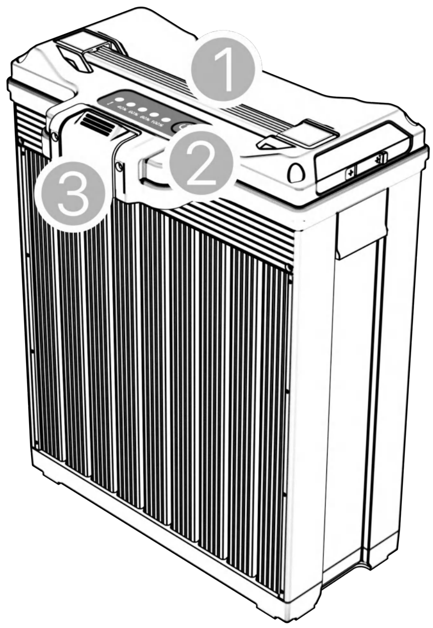


Figure 1-10 Battery Components

1. Handle 2. Status LEDs 3. Charging Connector

1.2.2. Specifications

Item	Specifications
Typical Capacity	34000mAh
Nominal Voltage	68.4V

Max Charging Current	170A (Ambient Temperature: 25 ± 5°C)
Charging Limit Voltage	78.3V
Max Discharging Current	340A
Operating Temperature	5°C to 40°C (Charging) -10°C to 40°C (Discharging)
Storage Temperature	Long-term: -10°C to 30°C (Maintenance charge recommended every 3 months) Short-term: -10°C to 45°C
Weight	Approx. 15.3kg

1.2.3. LED Status Indicators

1.2.3.1. Combined Functions

Function	**Precondition**	**Operation**	**LED Indicators**	**Remarks**
Check Battery Level	Sleep/Power off	**0** (Short Press)	Displays current level for 5s	Battery level is displayed immediately upon pressing the button.
Power On	Sleep/Power Off	**0-1** (Short Press + Long Press > 1s)	0: LEDs show current battery level. 0-1: Level display turns off, then LEDs light up one by one (Power-on sequence). Once the sequence is complete, the LEDs return to showing the current battery level.	The discharge MOS opens after the sequence is complete.
Power Off	Power on	0-1 (Short Press+Long Press > 1s)	0: LEDs show current battery level. 0-1: Level display turns off, then LEDs	The discharge MOS closes after the sequence.

			turn off one by one (Power-off sequence).	
RC Linking	Battery is ON; Remote Controller on Linking page	2 (Long Press > 5s)	LED 3 and LED 4 flash during the linking process. Once linking is successful, the LEDs will return to their previous status.	
UPS Shutdown	Battery is ON	0-0-0-0-0 (5 Short Presses)	0: LEDs show current battery level.	The backup battery will shut down.

Notes: 0 = Short Press; 1 = Long Press; 2 = Long Press > 5 seconds.

1.2.3.2. Battery Level Indicators

Notes: "●" indicates solid on; "⊙" indicates flashing; "○" indicates off

LED5	LED1	LED2	LED3	LED4	Battery Level
○	●	●	●	●	95%-100%
○	●	●	●	⊙	90%-94%
○	●	●	●	○	80%-89%
○	●	●	⊙	○	70%-79%
○	●	●	○	○	60%-69%
○	●	⊙	○	○	50%-59%
○	●	○	○	○	40%-49%
○	⊙	○	○	○	20%-39%
⊙	⊙	○	○	○	< 20%

1.2.3.3. Charging Status

LED1	LED2	LED3	LED4	SOC
⊙	⊙	○	○	0-59%
⊙	⊙	⊙	○	60%-79%
⊙	⊙	⊙	⊙	80%-100%

1.2.3.4. Faults and Warning Indicators

Item	LED Indicators	Description	Remarks
Firmware Update	Progress bar displayed on LEDs	Indicates update progress	
High Temp Charging Warning	LED 5 flashes + LED 4 flashes 3 times/second	Battery charging temperature is too high	Stop charging immediately
Low Temp Charging Warning	LED 5 flashes + LED 4 flashes 2 times/second	Battery charging temperature is too low	Stop charging immediately
Over voltage Charging Warning	LED 5 flashes + LED 3 flashes 3 times/second	Charging voltage is too high	Stop charging immediately
Over current Charging Warning	LED 5 flashes + LED 2 flashes 2 times/second	Charging current is too high	Stop charging immediately
Low Voltage Discharge Warning	LED 5 flashes + LED 3 flashes 2 times/second	Discharge voltage is too low	Stop discharging immediately
Short Circuit / Over current Alarm	LED 5 flashes + LED 2 flashes 3 times/second	Discharge current is too high (Short circuit)	Recovers 1 minute after load is removed
Battery Critical Failure Alarm	LED 5 remains solid on	Cell voltage < 1.5V or voltage difference > 1V	Please contact after-sales service. Do not attempt to disassemble.

Notes:

1. Ensure the battery is securely connected to the aircraft before powering it on.
2. Ensure the battery is powered off before removal.
3. This battery should be recharged every 3 months, recommended to 60%.
4. Before use, ensure the battery is fully charged. During long-term storage, please use the dedicated charger to charge/discharge the battery to storage voltage and store it in a dry, ventilated environment.
5. This battery must be charged using the dedicated charger (TC1201P). Do not replace it without authorization to avoid accidents.
6. If the battery emits an odor, generates heat, deforms, discolors, or shows any

other abnormal phenomena, it must not be used. If the battery is being used or charged, it should be immediately removed from the device or charger and discontinued.

7. When the operating environment temperature is below 10°C, the flight time will be shortened, which is a normal phenomenon.

8. After use, if there is chemical residue on the battery surface, it should be wiped in time to avoid pesticide corrosion.

9. Do not use in environments with strong static electricity, magnetic fields, or high-voltage lines.

10. Do not puncture the battery casing with nails or other sharp objects. Do not hammer, step on, or sit on the battery.

11. If electrolyte enters the eyes after a battery leak, do not rub them; rinse with water and seek medical help immediately. If not treated in time, the eyes will be injured.

12. Non-professionals are strictly prohibited from disassembling the battery.

13. Keep the battery away from fire sources during use.

1.3. Charger (TC1201P)

The TC1201P Intelligent Battery Charger features a built-in cooling system and delivers a maximum charging power of up to 12kW.

1.3.1. Components

The definition of the charger components is shown in Figure 1-11 & 1-12

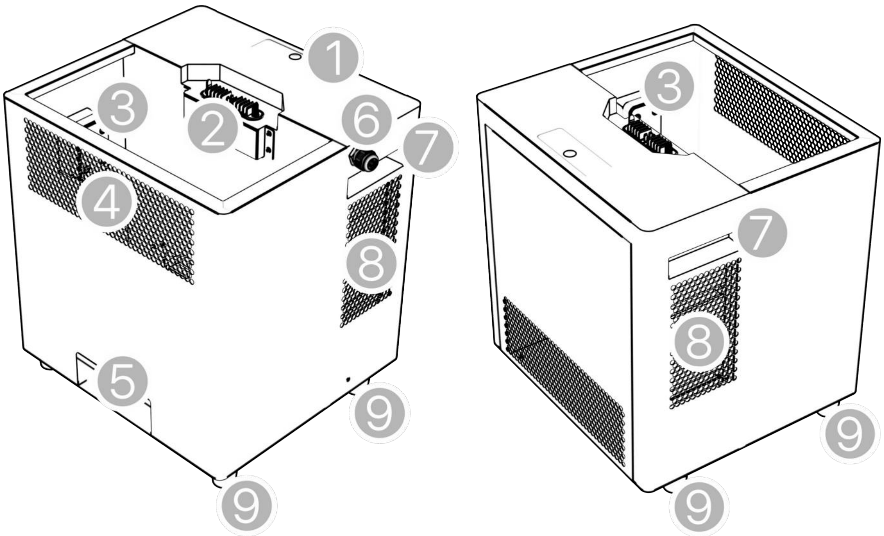


Figure 1-11 Charger Components

1. Operation Panel	2&3. Battery Connectors	4&5. Battery Brackets	6. Power Supply Cooling Fan
7&13. Handles	8&12. Battery Cooling Fans	9. AC Power Input	10&11. Battery Brackets
14. Dust Filter	15. Shock-Absorbing Base		

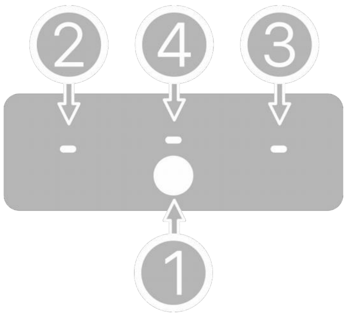


Figure 1-12 Operational Panel

Power ON/OFF Button	Charging Status Indicator 1	Charging Status Indicator 2	Warning Indicator

1.3.2. Function Description

1.3.2.1. Indicators

1) **Power-on self-check:** Ensure all cables are correctly connected. When the charger is powered on, the channel status indicators, warning indicator, and operation confirmation indicator will all light up simultaneously. After the buzzer sounds a single "beep," the indicators will turn off, completing the self-test. The Operation Indicator will then enter a normal breathing flash pattern. 220V System: On for 2 seconds, off for 1 second. 110V System: On for 1 second, off for 1 second.

2) Battery Charging Status Indicators

LED Status	Alert Tone	Description	Note
Off	/	No battery connected to the corresponding charging port	No battery detected. Note: In low-temp protection (cell < 3°C) or high-temp protection (cell > 70°C), the battery MOS does not open. The charger cannot detect

			battery voltage, and the channel indicator will remain off.
Solid Yellow	/	Battery connected to the corresponding port, waiting to charge.	
Breathing Green	/	Corresponding battery is in slow charge mode.	Charging start/stop phase or powered by only one module.
Flashing Green (Fast)	/	Corresponding battery is in fast charge mode.	
Solid Green	/	Corresponding battery is fully charged.	
Yellow Continuous Single Flash	/	Battery temperature too low, charging current is limited.	Check battery current-limit flag.
Yellow Continuous Triple Flash	/	Battery temperature too high; charging is prohibited.	Check battery over-temp protection flag.
Red Single Flash	Beep-Beep-Beep...	Battery not properly inserted, non-official battery, or communication abnormality.	No communication with voltage, or communication with no voltage.
Red Triple Flash	Beep-Beep-Beep...	Battery BMS fault flag detected.	Excluding battery low-temp or high-temp protection.
Solid Red	Beep-Beep-Beep...	Output over voltage or other hardware failures.	Requires power cycle to recover.
Solid Blue	/	Incompatible battery type, charging is prohibited.	

3) Charger Warning Indicators

LED Status	**Alert Tone**	**Description**	**Note**
Yellow Single Flash	/	Charger temperature is too high.	Derated operation.
Yellow Double Flash	/	Input under voltage warning.	Derated operation.
Yellow Triple Flash	/	Input over voltage warning.	Normal operation.

Red Single Flash	Beep-Beep-Beep...	Ambient temperature too high or fan abnormality.	Stop charging
Red Double Flash	Beep-Beep-Beep...	Abnormal input voltage (Under voltage protection, below 155V).	Stop charging
Red Triple Flash	Beep-Beep-Beep...	Abnormal input voltage (Over voltage protection, above 285V).	Stop charging
Solid Red	Beep-Beep-Beep...	Output over voltage or other hardware failure.	Stop charging. Power cycle required to recover.
Solid Blue	/	Only one power module is working	Only one AC input connected or one module has failed.

4) Activation Indicators

When the power button is pressed without a battery connected, the indicators for activated and unactivated states are as follows:

Status	**Alert Tone**	**Battery Status Indicator**	**Warning Indicator**	**Operation indicator**
Unactivated	/	Solid White	Solid White	Flashing
Activated	/	Off	Off	Flashing

1.3.2.2. Cooling System Logic

During the charging process, if the charger detects that the battery temperature or the charging board temperature is too high, it will start the cooling fans. The fan speed is intelligently adjusted based on the temperature.

1.3.2.3. Charging Steps

Step 1: Connect the power cable to the charger's power interface, and connect the other end to an AC power source. (Three-phase AC input: 175-450V / Single-phase AC input: 90-260V).

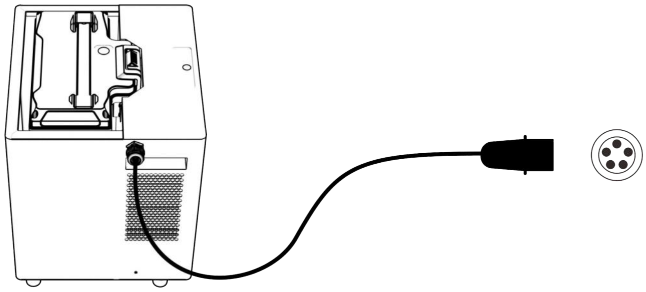


Figure 1-13 Connecting the power input cable

Step 2: Connect the Battery. Place the battery into the cooling box. Before placing, ensure there are no foreign objects at the bottom of the box. After placing, ensure the battery is properly seated in position.

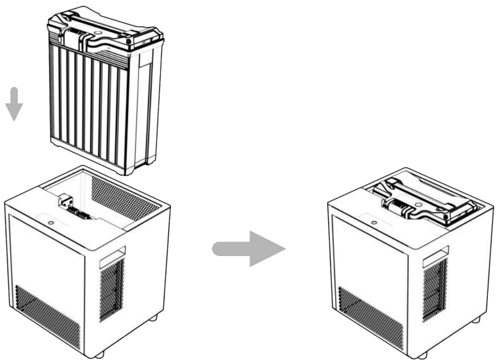


Figure 1-14 Battery Placement

Step 3: After confirming all connections are correct, press the "**Start/Stop**" button on the operation panel. The charger will perform a charging self-test. If any abnormality occurs during the self-test, please refer to the indicator status description section.

Step 4: Once charging is complete, press the "Start/Stop" button to power off, unplug the AC power cable, and remove the battery. Removing or inserting the battery must follow these rules:

Battery Status	**Channel Indicator Status**	**Battery Insertion/Removal Operation**
Fully charged	Solid Green	Can be inserted or removed directly.
During Charging	Flashing Green	If removal is required, press the Start/Stop button to stop first. Live plugging/unplugging is strictly prohibited.

Notes:

1. Do not use this product in environments with direct sunlight, moisture, high temperatures, dust, vibration, or lightning.
2. Keep the product away from high voltage, heat sources, corrosives, flammable gases, and other hazardous materials. Ensure it is used within a suitable ambient temperature (recommended: 5°C - 45°C).
3. The product must be placed on a stable, horizontal surface, and good ventilation and heat dissipation conditions must be maintained during operation.
4. When using this product for charging, please strictly follow the relevant safety instructions and precautions for the battery.
5. Before connection, ensure that the ports of the modules and batteries, as well as the input cables, are free from obvious defects such as blockages, damage, broken wires, or short circuits.
6. Before use, ensure the power supply line has sufficient capacity to avoid overheating or even fire. This product is a high-power device and is not recommended for residential use; if residential use is necessary, a dedicated power line must be installed.
7. Do not unplug the input cable or the battery while the product is operating. Please remove the battery promptly once charging is complete.
8. The cooling box has limited load-bearing capacity. Do not transport the battery while it is inside the box, as this may damage both the battery and the charger.
9. The design of this charger is only applicable to the matching batteries for this aircraft. The company assumes no responsibility if the user uses the charger for purposes other than those listed in the manual.
10. Do not use the charger unattended. If any functional abnormality occurs, please interrupt the charging process immediately.
11. In case of fire, do not use liquid fire extinguishers to avoid electric shock; please use dry powder fire extinguishers correctly.

1.3.3. Specification Parameters

Item	**Parameters**
Input Voltage	Three-phase AC input: 175 - 450V Single-phase AC input: 90 - 260V
Input Power	12000W (Three-phase 380V input) 12000W (Single-phase 220V input)

	6000W (Single-phase 110V input)
Charging Current	170A (Max)
Charging Mode	Constant power charging
Operating Temperature	-5°C - 45°C
Operating Humidity	0% - 75%
Storage Temperature	-10°C - 70°C
Storage Humidity	0% ~ 75%
Voltage Detection	Supported
Protection Functions	Over current Protection Over temperature Protection Over voltage Protection Short Circuit Protection
Communication Interface	Bluetooth / CAN

1.4. Aircraft Overview

1.4.1. Functional Features

3WWDZ-U75B agricultural drone features the following functional characteristics:

1. Manufactured with professional carbon fiber materials, it offers lighter weight and higher strength, the foldable arm design ensures convenient transportation.
2. The quick-release spraying and spreading systems, along with the plug-in battery, make switching between operation platforms more convenient, further improving operational efficiency.
3. Equipped with a high-precision GNSS navigation system and precise IMU sensors, providing accurate positioning, safety, and reliability.
4. Utilizes dual-channel high-flow metering pumps, featuring large flow rates and high spraying precision.
5. Standard equipped with four centrifugal nozzles, offering excellent atomization and strong penetration.
6. The Agriculture Assistant APP supports intelligent path generation, enabling fully autonomous spraying operations and reducing the operator's workload.
7. Environmentally friendly with no exhaust emissions, meeting national requirements for energy saving, environmental protection, and green agricultural development, easy to maintain with low operation and maintenance costs.

1.4.2. Drone Components

Descriptions of the drone components are shown in the figure below:

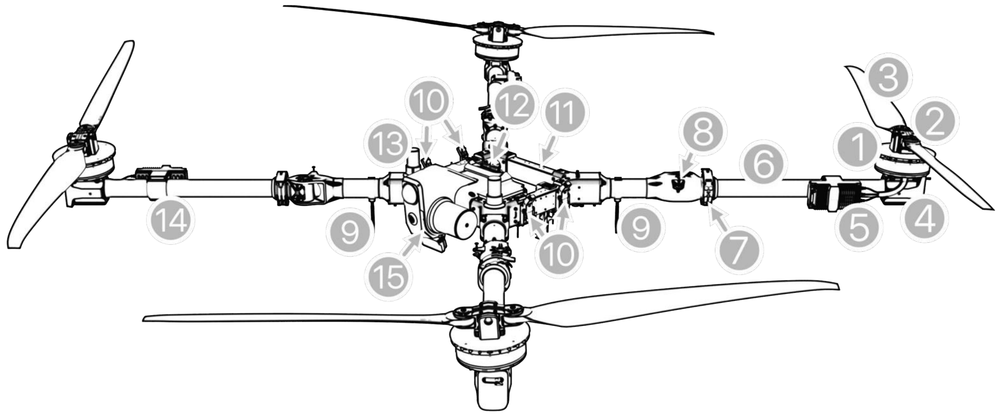


Figure 1-13

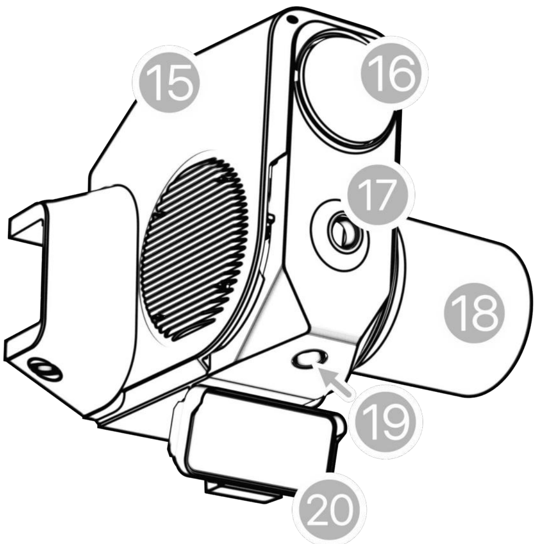


Figure 1-14

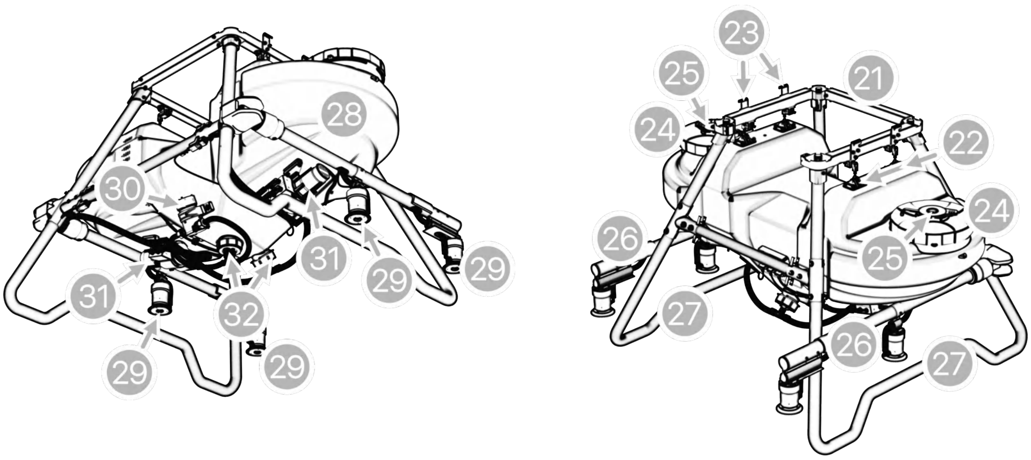


Figure 1-15

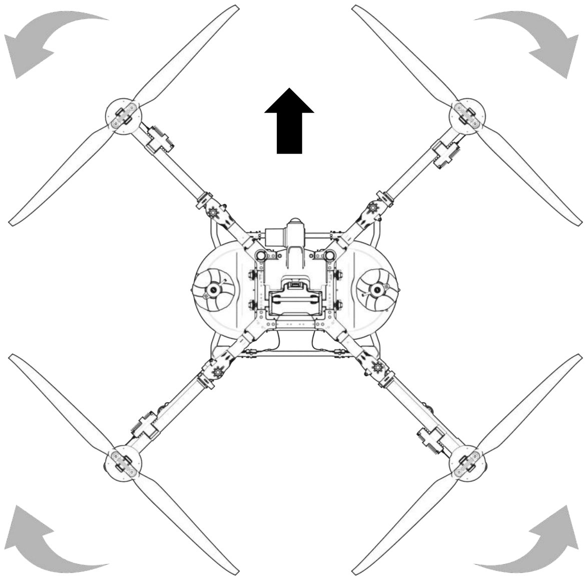


Figure 1-16

Notes:

The propellers on Arm 1 and Arm 3 rotate counter-clockwise (CCW). The propellers on Arm 2 and Arm 4 rotate clockwise (CW), as shown in Figure 1-16.

1.4.3. Preparation for Calibration

1.4.3.1. Unfolding the Arms

Step 1: Take A80 Agricultural Drone out of the packaging box.
Step 2: Rotate the propellers horizontally to remove them from the propeller holders.
Step 3: Unfold the arms, as shown in Figure 1-17.

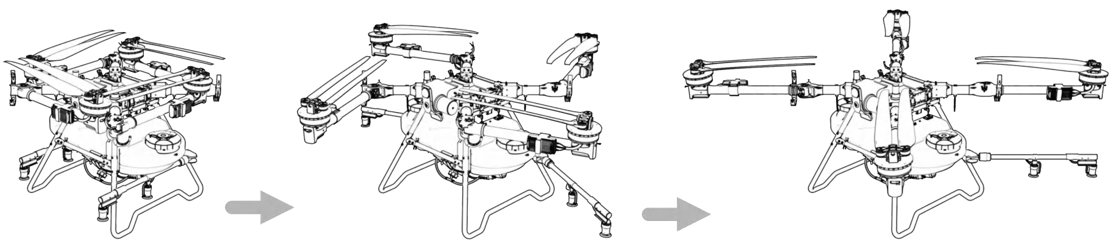


Figure 1-17 Arm Unfolding Process

Step 4: Secure the arm folding mechanisms, as shown in Figure 1-18.

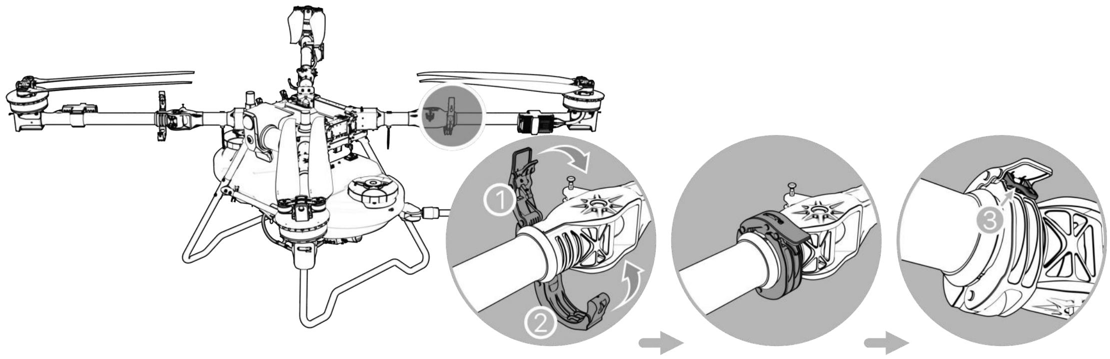


Figure 1-18 Arm Locking Process

Step 5: Unfold the folding propellers to 180°, as shown in Figure 1-19.

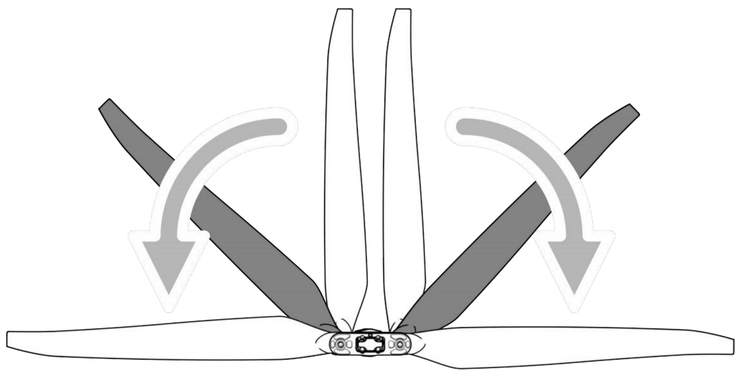


Figure 1-19 Propellers in Unfolded State

Notes:

Please be careful to avoid pinching your hands during storage or transportation of the drone.

1.4.4. Battery Installation

Only use the dedicated batteries provided for this aircraft and ensure the power levels meet the requirements for takeoff.

Step 1: Place the two intelligent batteries into the guide rails on both sides of the fuselage. Ensure the batteries are inserted vertically downward into the rails.

Step 2: Fasten the battery clamps into the fuselage slots. Ensure you hear a "click" sound and visually confirm that the batteries are securely locked in place, as shown in Figure 1-20.

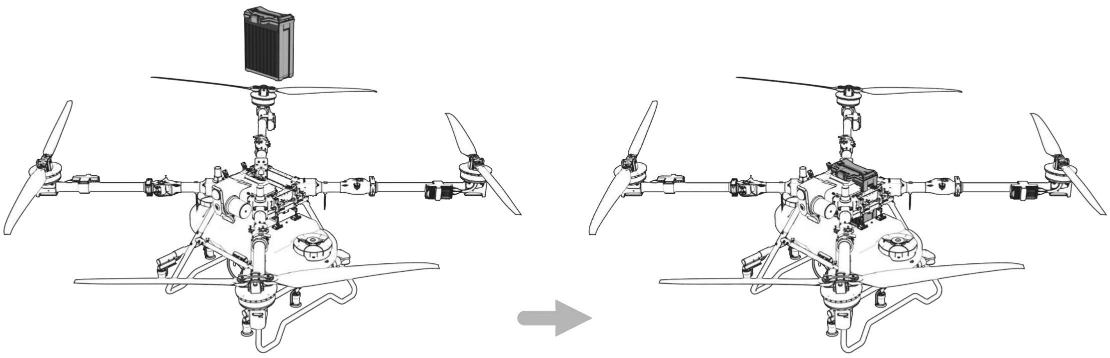


Figure 1-20 Insert the Battery

1.4.5. Calibration

1.4.5.1. Compass Calibration

Method 1: Using the Remote Controller

Step 1: Push the throttle stick to the lowest position.

Step 2: Rapidly toggle the Mode Switch between the lowest position "S" and the highest position "G" for 6–10 cycles until the status indicator flashes blue.

Step 3: Place the aircraft horizontally with the nose facing forward. Rotate it slowly clockwise for at least one full circle. If the status indicator flashes green, proceed to Step 4. If the green light stays solid for 4 seconds, calibration is successful.

Step 4: Tilt the aircraft horizontally at an angle greater than 45° and rotate it slowly clockwise for at least one full circle. When the status indicator stays solid green for 4 seconds, calibration is successful.

Step 5: If the status indicator stays solid red for 4 seconds, calibration has failed. Repeat Steps 2 through 4 until successful, as shown in Figure 1-21.

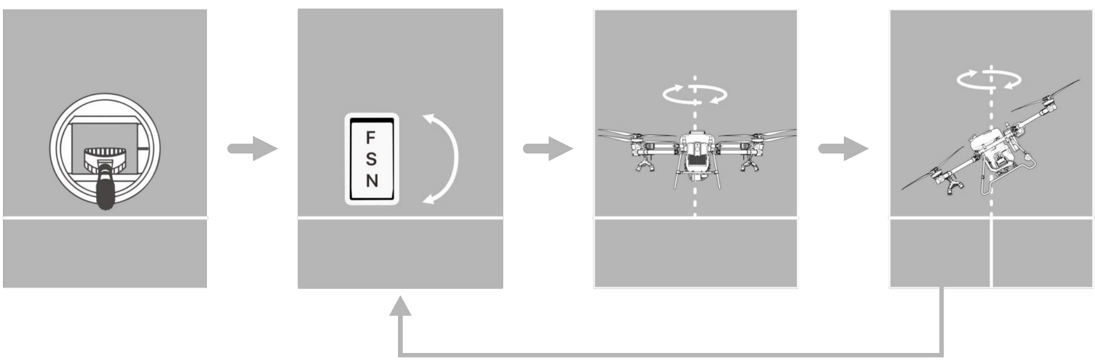
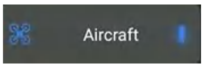


Figure 1-21 Compass Calibration

Method 2: Using the App

Step 1: Tap the Settings icon  in the top-right corner of the App, then tap



to get into Flight Settings.

Step 2: Enter the Magnetic Compass 

and tap Start Calibration. The drone navigation light will flash blue.

Step 3: Follow Steps 3 - Step 5 from Method 1 to complete the calibration.

Notes:

1. Remove the propellers before calibration.
2. Do not calibrate in areas with strong magnetic fields, such as magnetic mines, parking lots, or buildings with reinforced steel structures.
3. Do not carry ferromagnetic materials during calibration, such as keys or mobile phones.
4. Do not calibrate the compass indoors.

1.4.5.2. Flow Meter Calibration

Flow calibration is mandatory before the first spraying operation. Otherwise, operation effectiveness will be affected.

Preparation: Press the Spray button " " on the top right of the remote controller to start the pump on the ground and exhaust air from the pipes.

Procedure: Enter "Settings" — "Spraying" and tap "Flow Meter Calibration."

Notes:

1. Re-calibrate when switching to chemicals with different viscosities.
2. Re-calibrate if the error between the actual and theoretical sprayed area exceeds 10% after an operation.

2. Flight

2.1. Flight Notices

In compliance with International Civil Aviation Organization and local air traffic control regulations, UAVs must operate within designated airspace. For flight safety, flight limitation features—including altitude and distance limits as well as No-Fly Zones—are enabled by default to assist users in operating the product safely and legally.

When GNSS data is available, No-Fly Zones combined with altitude and distance limits define the permissible flight area; the aircraft can only operate within the intersection of all restricted airspaces. Without GNSS data, the flight altitude is not restricted by the App.

2.1.1. Altitude and Distance Limits

Altitude limits restrict the maximum flight height, while the maximum radius restricts the flight distance. The default factory setting for the maximum flight altitude is 20 meters, as shown in Figure 2-1.

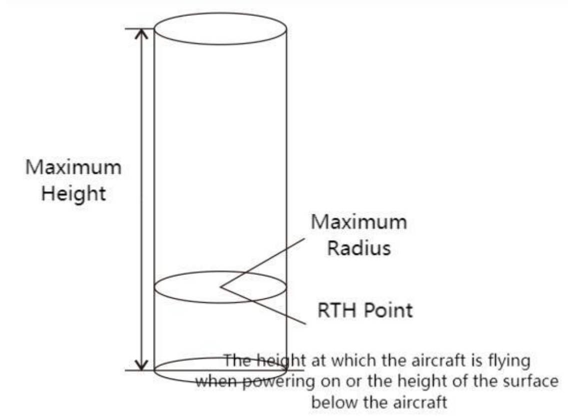


Figure 2-1 Altitude and Distance Limits

GNSS Status	**Flight Mode**	**Flight Limits**		**Notifications**
With GNSS	GPS Mode / Autonomous Mode	Max Altitude	20m	Warning Prompt
		Max Radius	999m	Warning Prompt
	Attitude Mode	Max Altitude	20m	Auto-switch to GNSS Mode; Warning Prompt
		Max Radius	999m	Auto-switch to GNSS Mode; Warning Prompt
Without GNSS	Attitude Mode	Max Altitude	No limit	No Prompt
		Max Radius	No limit	No Prompt

2.1.2. No-Fly Zones and Temporary Restricted Areas

2.1.2.1. No-Fly Zones

These include airport restricted areas and special flight restriction zones (such as military bases, prisons, and nuclear power plants). For details, please consult the specific civil aviation regulations of your country or region.

2.1.2.2. Temporary Restricted Areas (With GNSS Available)

Temporary flight restrictions are established due to emergencies or large-scale public events (e.g., forest fires, festivals). These circular or polygonal zones are prohibited airspace within which the aircraft cannot operate, as shown in Figure 2-2.

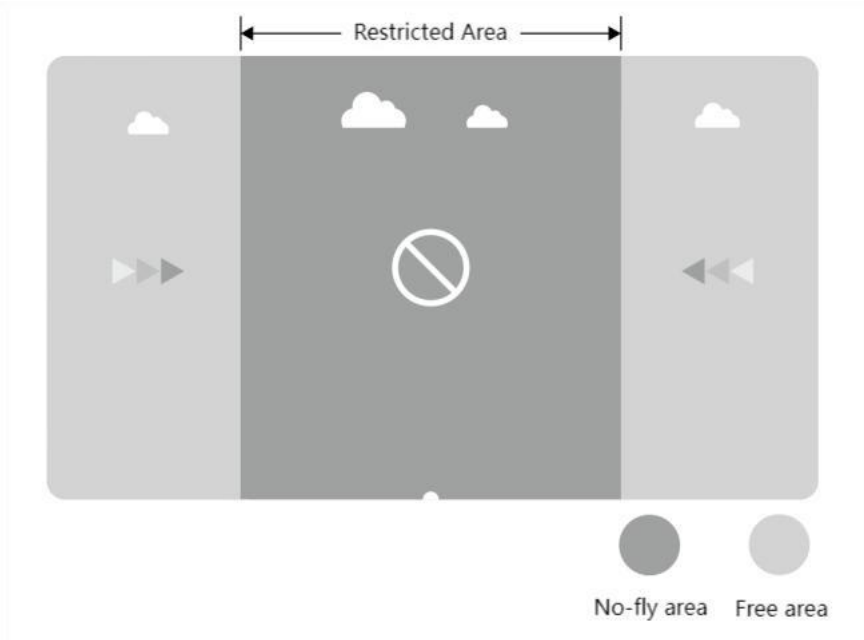


Figure 2-2 No-Fly Zone and Temporary Restricted Area

GNSS Signal Normal		
Zone	**Flight Restrictions**	**Status Indicator**
No-fly Zone	Motors will not start.	Solid red for 5s / Off 1s
	If the aircraft enters an no-fly zone after regaining GNSS signal, it will immediately perform an automatic landing and stop the motors upon touchdown.	

Approaching No-fly Zone	When the aircraft is within 120m of an no-fly zone, flight speed will be reduced and a flashing light alarm will trigger.	Solid red for 5s / Off 1s
Fly Zone	Normal flight with no restrictions.	No red light notification

Notes:

To ensure operational safety, avoid flying near airports, highways, railway stations, subway stations, urban centers, or other restricted airspaces.
If an operation must be conducted in these areas, users are required to prepare the necessary documentation and apply for temporary airspace authorization from local authorities. Once approval is obtained, please contact TopXGun Technical Support to request a temporary flight de-restriction.

2.2. Indicator Description

No.	Status	Description	Indicator
1	Normal	Power on self-check passed Searching for GNSS satellites	Yellow double flash
2		Ready & waiting for take-off	Solid yellow
3		In flight	Drone Nose: Solid Red Drone Tail: Solid Green
4		Mode switching	Green flashing for 5s
5		Compass calibration (Horizontal)	Yellow flashing twice per second
6		Compass calibration (Vertical)	Green flashing twice per second
7		Compass calibration successful	Solid green for 4s
8	Abnormal	Compass calibration failed	Solid red for 4s
9		Self-test failed	Solid red
10		Low Voltage/Battery Level I	Red slow flash

11		Low Voltage/Battery Level II	Solid red
12		IMU fault	Solid red
13		Barometer fault	Solid red
14		GNSS fault	Solid red
15		Independent compass fault	Solid red
16		Motor fault	Solid red
17		Remote Control (RC) signal lost	Solid red

For flight safety, it is highly recommended to familiarize yourself with the flight status indicators before your first flight.

2.3. Operation Instructions

2.3.1. Pre-flight Inspection

Please check the following points to avoid flight accidents.

1. Place the drone in an open operational area with the user facing the tail of the aircraft.
2. Ensure that the batteries are installed correctly and securely locked.
3. Always turn on the remote controller first, and then connect the aircraft power.
4. Ensure that the drone batteries and remote controller batteries are fully charged, and there is a sufficient supply of the required pesticide for spraying.
5. Ensure the motors and propellers rotate in the correct direction and are structurally stable; verify that all arms and propellers are fully unfolded and the arms are locked.
6. Ensure the spraying pipes are free from blockages or leaks, and the nozzles can spray water normally.

2.3.2. Drone Locking & Unlocking

2.3.2.1. Unlocking

The unlocking operation is shown in Figure 2-3. When you unlock the drone, the motors rotate in the sequence of No. 1, No. 2, No. 3 and No. 4. Once Motor No.1 begins to rotate, gently push the throttle, and all motors will start rotating simultaneously.

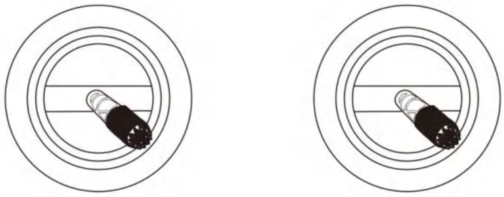


Figure 2-3 Unlocking

2.3.2.2. Locking

The drone supports two active locking methods:

- Perform the operation shown in Figure 2-4 to lock the drone.
- After the drone lands, hold the throttle stick at its lowest position for at least 3 seconds, and the drone will be locked automatically.

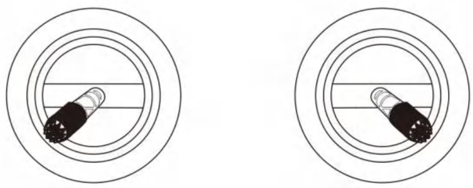


Figure 2-4 Locking

2.3.3. Takeoff and Landing

2.3.3.1. Takeoff

Step 1: Click the "" button, then long-press it for 2 seconds to turn on the remote controller.
Step 2: Connect the power supply to the drone.
Step 3: The operator should maintain a distance of ≥10 meters from the drone. Enter the operation interface of Agriculture Assistant APP and ensure the GNSS signal is strong, and the drone status indicator does not show red light warnings.
Step 4: The operator logs in to the TopXGun Agriculture Assistant APP with their account and password to activate the drone, complete real-time identity authentication. After the verification is successful:
Step 5: Perform the unlock action. The drone motors will start one by one. Then, slowly push the throttle stick upward, and the drone will take off.
Step 6: Once the throttle stick returns to the center position, the drone will maintain its current altitude and hover, as shown in Figure 2-5.

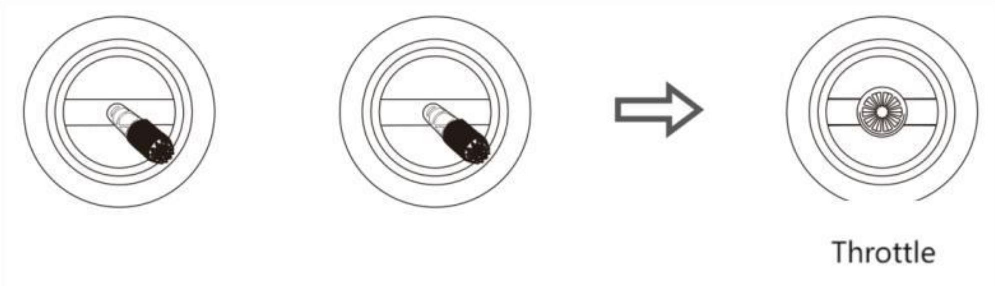


Figure 2-5 Unlocking and Take Off

2.3.3.2. Landing

Step 1: Slowly pull the throttle stick downward until the drone descends to the ground.
Step 2: Once the drone has landed, move the throttle stick to the lowest position, then perform the locking action as shown in Figure 2-6.

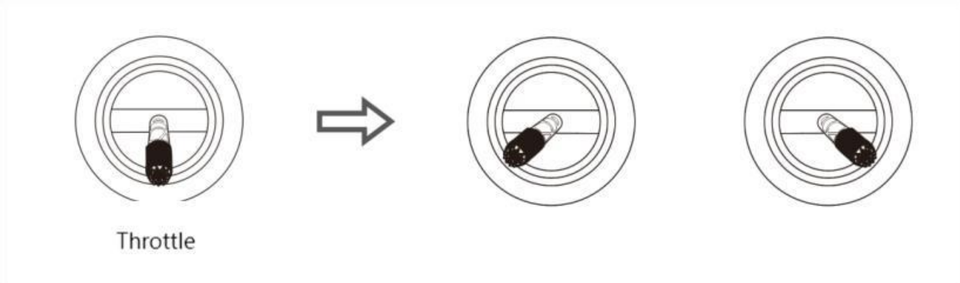


Figure 2-6 Lock and Land

Notes:

1. For the first test flight, the flight altitude should not exceed 4m.
2. For the first test flight, do not fly beyond the visual line of sight.
3. During flight, if the status indicator shows abnormal flashing or the Agriculture Assistant APP interface displays an abnormal alarm, please land immediately and check the drone based on the warning information provided by the APP.

2.3.4. GNSS Operation Mode

2.3.4.1. Overview

The GNSS operation mode features simple operation and short preparation time, making it suitable for small, irregular, and complex terrains. In GNSS mode, the maximum flight speed can be set to 10.0 m/s. The pesticide spraying rate is linked to the flight speed: the faster the drone flies, the higher the flow rate. When the drone hovers, spraying automatically stops.

2.3.4.2. Operation Steps

Step 1: Before takeoff, tap the "⁄⁞⧵" spraying button on the remote controller to perform a test spray. Check the pipelines for any trapped air.
Step 2: Take off and fly the drone to the area to be sprayed.
Step 3: Press the "⁄⁞⧵" button and maneuver the drone to begin the operation.

Notes:

During operation, ensure the drone remains within your line of sight.

2.3.5. Fully Autonomous Operation Mode

2.3.5.1. Overview

Users can perform field mapping, obstacle mapping, and waypoint settings through the Agriculture Assistant APP. The APP will automatically generate the optimal flight route to achieve intelligent operation planning. This mode is suitable for large or irregular fields. The flight path for the Fully Autonomous Operation Mode is shown in Figure 2-7. In the figure, the length of the dashed line represents the line spacing, which can be adjusted in the APP.

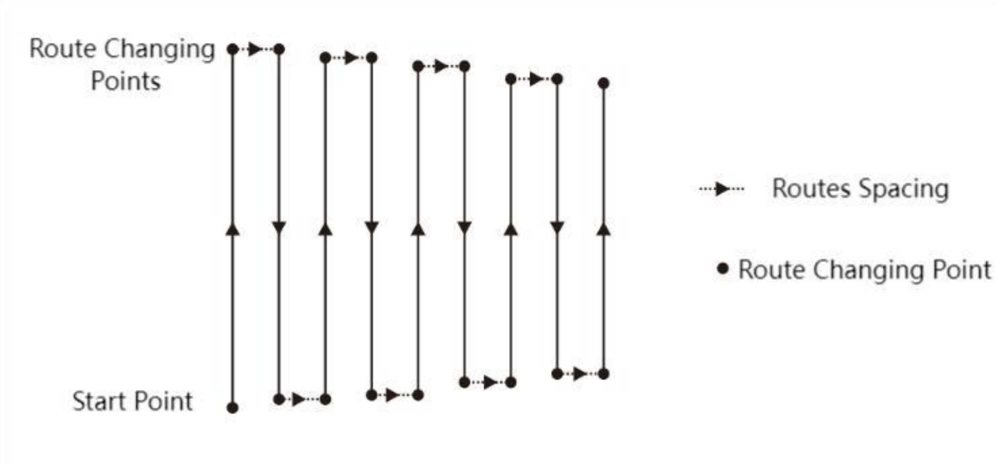


Figure 2-7 Autonomous Operation Route

2.3.5.2. Field Mapping Steps

Step 1: Run the Agriculture Assistant APP and there will be three options: GNSS mapping, drone mapping and RTK hand-held T-marker mapping, you can choose according to the actual situation.
Step 2: Set a name for the field.
Step 3: Mark border points. Select the points at each corner of the borderline.

Step 4: Mark obstacle points. If there are obstacles within the planned field, tap "Obstacle Point" and select the corresponding shape. Mark points at each corner of the obstacle area. Tap "Confirm" once editing is complete.
Step 5: Set Reference Points. After editing the operation area, Reference Points must be added for map offset correction. Ensure the reference object is easily identifiable and the surrounding area is clear of obstructions, making it suitable for takeoff. Once the Reference Point is set, the field mapping process is complete.

2.3.5.3. Fully Autonomous Operation Steps

Step 1: Connect the drone to the App, then expand the field/task list on the main interface.
Step 2: Select a field (or a specific field from the task list) to load the field.
Step 3: Place the drone at the Reference Point of the field. Tap Offset Correction, then select Calibrate Drone Position.
Step 4: In the field operation interface, configure the following route parameters: Route Angle, Turning Mode, Route Indentation, Obstacle Spacing, Altitude, Dosage per Hectare, Obstacle Avoidance Mode, etc.
Step 5: Select the spray routes based on the actual needs (all routes are selected by default).
Step 6: Tap “Start Operation”.
Step 7: Slide to unlock (ensure Takeoff Altitude and RTH Altitude are set before operating). The drone will take off automatically and execute the autonomous mission.
Step 8: The operation ends (you can manually tap “End Operation” during the mission) and an operation report will be generated.

Notes:

1. Maintain the drone within the visual line of sight during operation.
2. The flight altitude can be manually adjusted during operation by moving the throttle stick. Moving the stick up or down will change the altitude based on crop conditions; when the stick is returned to the center, the drone will automatically resume its initial preset altitude.

2.4. Function Descriptions

2.4.1. Remaining Liquid Level

2.4.1.1. Introduction

A80 agricultural drone is equipped with a weight sensor that measures the real-time remaining liquid in the tank, as shown in the figure below. During operation, users can evaluate the remaining liquid volume alongside the route length to strategically choose the breakpoint, thereby improving operational efficiency.

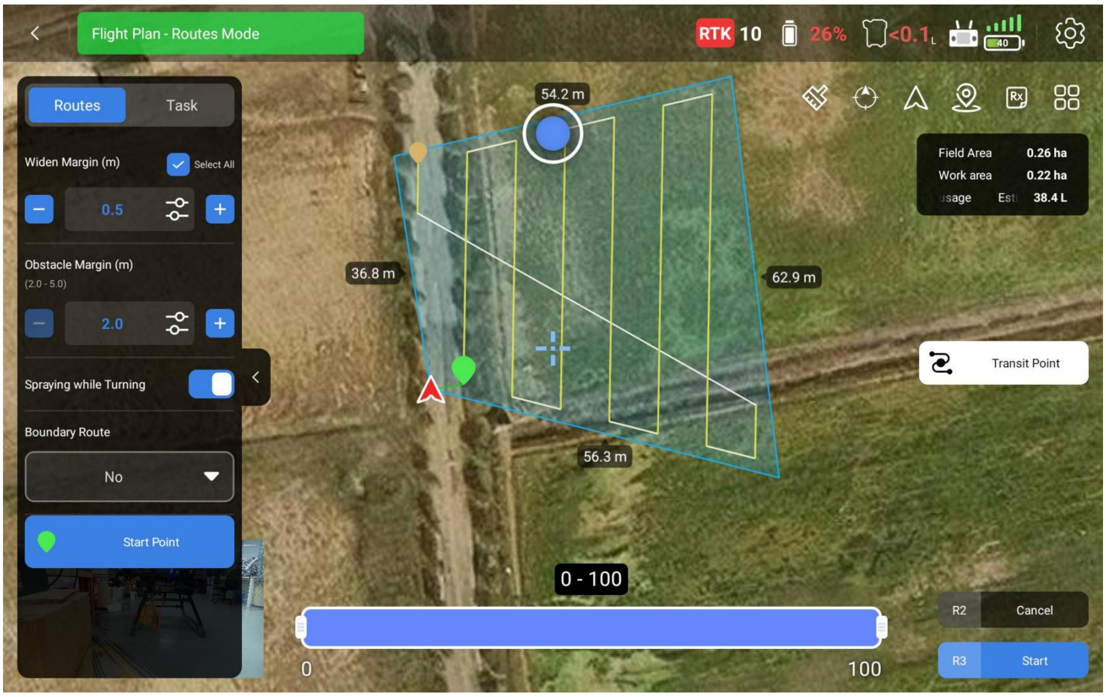


Figure 2-8

2.4.2. Resume From Breakpoint

2.4.2.1. Introduction

If an operation is interrupted due to reasons such as running out of liquid, low battery, emergency hover, or obstacle avoidance, the system will record a breakpoint. The Resume From Breakpoint function allows the drone to return to that specific point and continue the operation along the original planned route.

2.4.2.2. Recording Breakpoints

During operation, the drone will record a breakpoint and enable breakpoint resumption under the following conditions:

1. Insufficient liquid in the spray tank.
2. Triggering of Level II Low Voltage Protection.
3. Manual pitch or roll stick during an autonomous mission.
4. The drone initiates RTH via any trigger.
5. The drone automatically brakes upon detecting an obstacle (when equipped with obstacle avoidance).
6. Poor positioning or heading signals cause the drone to exit the mission and enter safety protection; the current coordinates are then recorded as a breakpoint.

Notes:

1. The breakpoint will be updated every time any of the above conditions are met.
2. After a breakpoint is recorded, the drone can be configured to perform one of the following actions: Hover, Ascend 2m and Hover, RTH, or No Action.

2.4.2.3. Flying to The Breakpoint

The steps to fly to the breakpoint are as follows:

Step 1: Manually fly the drone and bring it to a hover at any position, ensuring there are no obstacles between this location and the recorded breakpoint.

Step 2: Tap "**Breakpoint**" or "**Return Point**" on the App.

Step 3: The drone will automatically ascend or descend to the preset operation altitude and return to the breakpoint.

Step 4: The drone will resume the planned route and continue the operation.

2.4.2.4. Flying to the Return Points

If obstacles exist on the mission route, you can bypass them by selecting a specific return point:

Step 1: After interrupting the operation, manually fly the drone to bypass the obstacle.

Step 2: The App will display the positions of "Return Point 1" and "Return Point 2" in real-time. When the drone's horizontal speed is below 1m/s, the return point buttons will appear on the right side of the screen.

Step 3: Select the desired "Return Point" based on the map information and the actual field conditions.

Figure 2-9

Step 4: After tapping a waypoint option, the drone will fly to that point and resume the operation.

2.4.3. Terrain Following Radar

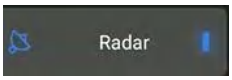
2.4.3.1. Overview

The optimal altitude sensing range for the terrain-following Radar is 1 to 30 meters. Once enabled, the radar allows the drone to maintain a constant relative height above the crops during operation. This ensures uniform pesticide application across varying terrain.

2.4.3.2. Terrain Settings

The drone adopts different terrain-following strategies for Plains and Mountainous landforms. Users must configure the terrain mode based on the actual operational environment.

Setup Steps:

Step 1: Tap  in the upper right corner of the App to enter the Settings page, then tap 

to enter the "**Radar Settings**".

Step 2: Under **"Terrain Settings,"** select either **"Plain"** or **"Mountain"** mode according to the terrain of the target field.

Notes:

1. Do not collide with or apply pressure to the radar cover to avoid deformation.
2. Keep the radar cover clean. Use a soft, damp cloth to wipe the surface regularly based on the frequency of use.

2.4.4. Low Battery Protection

The drone features a low battery protection function. Users can set the protection trigger threshold (battery percentage) in the Agriculture Assistant App. Once the threshold is reached, the drone will execute a preset action. Available actions include: Hover, Land, Return-to-Home, or No Action (LED warning only).

2.4.4.1. Level I Protection

When the drone status indicators **Flash Red**, it indicates a Level I Low Battery Alarm. After 10 seconds, the drone will execute the corresponding protection action. The factory default threshold for Level I Low Battery is 30%, and the default protection action is "No Action." Simultaneously, the App will provide a voice prompt: "Low Voltage Level I."

2.4.4.2. Level II Protection

When the drone status indicator turns **Solid Red**, it indicates a Level II Low Battery Alarm, and the corresponding protection action will be executed after 10 seconds. The factory default threshold for Level II Low Battery is 10%, and the default protection action is "Auto Landing." Simultaneously, the App will provide a voice prompt: "Low Voltage Level II."

Notes:

1. When the Level I Low Battery Alarm is triggered, fly the drone to a safe area and land as soon as possible.
2. Avoid triggering the Level II Low Battery threshold whenever possible to prevent safety accidents.
3. Once the low battery protection action begins, the flight mode can only be switched to Attitude Mode or Return-to-Home Mode.
4. After the Auto Landing action of the low battery protection has started, you can

exit the protection action by switching to Attitude Mode.

2.4.5. Control Lost Protection

2.4.5.1. Home Point Overview

Home Point is automatically recorded when the GNSS signal first reaches a minimum of 7 satellites with strong signal quality during takeoff or flight. The process in which the drone automatically returns to this recorded location is known as Return to Home (RTH).

2.4.5.2. Protection Logic

When the GNSS signal is strong and the compass is functioning normally, the drone will trigger protective measures if the remote controller signal is lost for any reason after a Home Point has been successfully recorded. Protective measures include: Land, Hover, or Return to Home (RTH).

Notes:

1. If the RC signal is active during an automated RTH, you can cancel the return and regain manual control by toggling the flight mode switch to "S" mode.
2. If the RC signal is active during an automated RTH, you can also cancel the return by pressing and holding the "H" button for 2 seconds.

2.4.6. Obstacle Avoidance System

The drone is equipped with an all-new obstacle avoidance radar system, designed to detect obstacles regardless of ambient light or dust interference. Under optimal operating conditions, the system provides predictive detection for both forward and rear obstacles with a maximum range of up to 120 meters. Upon detecting an obstacle during flight, the drone will autonomously brake to ensure safety. The obstacle avoidance function is enabled by default and can be disabled via the Agriculture Assistant App.

2.4.6.1. Detection Range

The detection range of the radar module is specified as follows: ±90° in the vertical plane, as shown in Figure 2-10, and ±90° in the horizontal plane, as shown in Figure 2-11. If an obstacle is located outside of this coverage, the radar module will be unable to detect it. Please fly with caution in such environments.

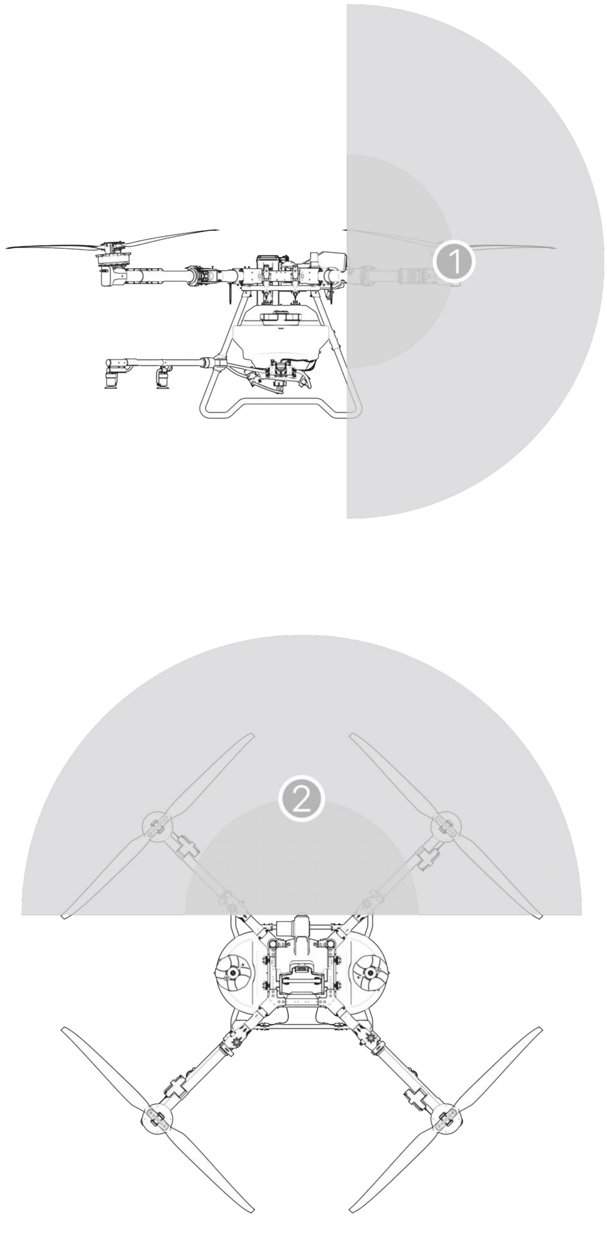


Figure 2-10 Vertical Detection Angle

The detection field of the mmWave radar is specified as follows:
Vertical field: 60° upward and 90° downward (as shown in Figure 2-11 ③). Horizontal field: ±30° (as shown in Figure 2-11 ④). If an obstacle is located outside of this coverage, the radar module will be unable to sense it. Please fly with caution in such environments.

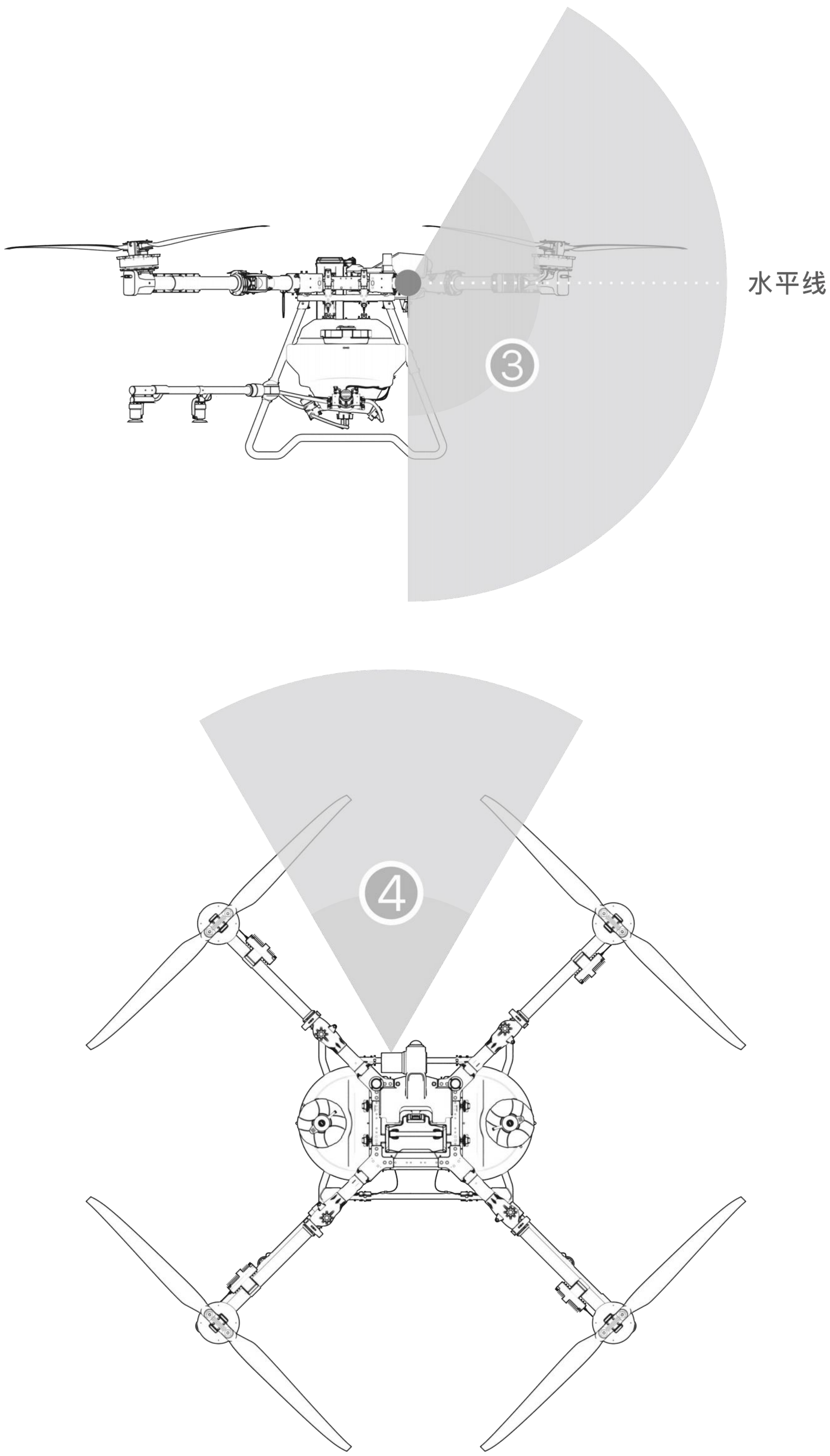


Figure 2-11 Horizontal Detection Angle

2.4.6.2. Safety Braking Logic

Distance between drone and obstacle is X

Status 1	Status 2	Status 3
X ⩾ 30M	30M ⩾ X ⩾ 8M	X < 8M

Stage 1 (Normal): X⩾30m, the drone automatically reduces speed. No alert is displayed on the App.
Stage 2 (Caution): Yellow Alert. When X < 30m, the drone decelerates to and maintains a constant speed of 2m/s. The App displays obstacle data in Yellow.
Stage 3 (Danger): Red Alert. The drone triggers emergency braking until it comes to a full stop and enters Safe Mode. In this mode, the drone will hover (if the Obstacle Avoidance / Bypass function is enabled, the drone will automatically navigate around the obstacle). Flight towards the obstacle is restricted. To exit Safe Mode, simply fly the drone in the opposite direction. The App displays obstacle data in Red.
Special Scenario: If an obstacle appears suddenly during flight, the drone will apply maximum braking force to ensure an immediate stop.

2.4.6.3. Autonomous Obstacle Avoidance System

Powered by an industry-leading radar system, A80 features advanced spatial awareness. When obstacles are detected in the flight path (forward or rear), the drone autonomously plans a rerouting path to bypass the obstacle from either the left or right, requiring zero manual intervention.
How to Enable: Open the Agriculture Assistant App, tap Radar Settings, and turn on the Obstacle Avoidance switch (disabled by default).

2.4.6.4. Important Notes

1. Even if enabled, obstacle avoidance will not function in "S" mode or after landing.
2. When the obstacle avoidance enabled, please limit the maximum speed to 13.8m/s to ensure sufficient braking distance.
3. When the drone attitude angle is too steep (Pitch angle > 15° or < -15°), obstacles cannot be detected.
4. Obstacle avoidance is not performed during takeoff, landing, or row switching.
5. When the obstacle disappears, the protection state will persist for 2 seconds. After this period, the flight speed limit will be gradually lifted.

2.4.6.5. Typical Obstacle Scenarios

Trees and Utility Poles: The radar can detect these obstacles within a 25m range and will continuously display warning messages. When the distance is < 30m, the drone will initiate braking to ensure flight safety.
Cables: For a cable with a 1.5cm diameter, detection occurs at approximately 10m

when the drone approaches at 3m/s (cables have poor radar reflectivity). The thinner the cable or the higher the flight speed, the less effective the detection will be.

Notes:

1. Use the radar module in accordance with local radio regulations and laws.
2. The effective operating range varies based on the size and material of the obstacles. Detection distance will decrease for pedestrians, horizontal wires, dry branches, and coniferous plants; please fly with caution.
3. The radar module is designed for flat environments; using it on steep slopes may result in false alarms.
4. False alarms may occur if the drone is at an altitude of less than 1.5m above the surface below.
5. Do not disassemble the radar module. Improper installation may cause functional abnormalities.
6. Avoid colliding with or squeezing the radar housing to prevent deformation.
7. The radar module can be used in rainy weather, but detection performance will decrease by 10-20%.

2.4.7. RTK

2.4.7.1. Overview

The RTK system provides centimeter-level positioning accuracy, enhancing the precision of crop protection operations. When RTK is active and the GNSS signal is strong, the drone enables dual-antenna direction finding. This not only provides higher heading accuracy but also serves as a backup to the magnetic compass, further improving flight reliability.

2.4.7.2. RTK Air Unit Setup

The A80 comes standard with the Network RTK version. The default data source is set to "QianXun" and requires no additional configuration.

Notes:

1. Always keep the remote controller powered on and connected to the internet during operation.
2. Do not take off until the RTK status shows "Fixed Solution".

3. Maintenance and Troubleshooting

3.1. RC Maintenance & Troubleshooting

- Regularly wipe the remote controller to keep it clean and avoid the entry of water, chemicals, or dust.
- Antennas should be folded after use to avoid breakage.
- If the aircraft fails to hover and moves in one direction while the sticks are in the neutral position, perform a remote controller stick calibration.
- For other malfunctions, please refer to the App self-check system prompts or contact the corresponding technical personnel.

3.2. Airframe Maintenance & Troubleshooting

- The airframe contains precision electronic components, do not immerse it in water when cleaning.
- Regularly check airframe components to ensure all screws are tightened.
- During transportation, ensure the folded arms are secured in the arm clips.
- If any airframe structural parts are damaged, please contact after-sales service for timely replacement.
- For other malfunctions, please refer to the App self-check system prompts or contact the corresponding technical personnel.

3.3. Motor Maintenance & Troubleshooting

The operating environment for agricultural UAV motors is harsh. Water mist, chemicals, and pesticide residues are the primary factors causing motor damage. Therefore, the following should be performed:

- After operations, clean the exterior of the motors with a warm damp cloth to remove surface residues. Do not use high-pressure washing on the interior of the motors to avoid water ingress, which can shorten their lifespan.
- Regularly inspect the motors. If you notice high resistance, abnormal sounds, or significant clearance/play, contact after-sales service immediately and follow their guidance to complete maintenance.
- For other malfunctions, please refer to the App self-check system prompts or contact the corresponding technical personnel.

3.4. Propeller Maintenance & Troubleshooting

- Replace propellers immediately if they are cracked or damaged. Failure to do so will result in reduced lift and increased vibration, creating safety risks.
- Propellers are divided into clockwise and counter-clockwise types. Motors 1 and 3 must be fitted with "CW" marked propellers, and Motors 2 and 4 with "CCW" marked propellers. Do not install them incorrectly.
- Clean pesticide residues from the propellers immediately after operations.
- Secure the propellers with propeller holders during transportation.
- For other malfunctions, please refer to the App self-check system prompts or contact the corresponding technical personnel.

3.5. Battery Maintenance & Troubleshooting

3.5.1. Backup Battery

A80 agricultural drone features the all-new 2026 flight control system with a built-in backup battery. After the main power battery is disconnected, the backup battery can maintain flight control system operation for 5 minutes. This effectively prevents time wasted on GNSS satellite searching and system rebooting when swapping batteries during continuous operations.

3.5.1.1. Specifications

No.	Item	Parameters
1	Battery Type	Rechargeable Lithium-Ion Battery
2	Battery Voltage	7.4V
3	Capacity	2500mAh
4	Discharge	-20℃ to 55℃
5	Charge	0℃ to 45℃
6	Storage (within 3 months)	-5℃ to 35℃

3.5.1.2. Notes

- When the agricultural drone is idle, power on the drone once every month for at least 20 minutes.

- It is strictly forbidden to disassemble the battery.
- Do not throw the battery into fire, as this will cause it to ignite or explode.
- Do not immerse the battery in liquids, such as fresh water, seawater, or beverages.
- Do not use damaged batteries.
- For other malfunctions or maintenance instructions, please refer to the App self-check system prompts or contact the corresponding technical personnel.

3.5.2. Power Battery

- Do not charge the battery in environments with temperatures above 45°C.
- Prevent the battery from falling, as this may cause internal cell short circuits, potentially leading to spontaneous combustion in severe cases.
- Ensure the battery plug is fully connected when inserting it into the aircraft; otherwise, it may cause aircraft malfunctions.
- If corrosion or discoloration is found on the aircraft or battery plugs, wipe them with anhydrous alcohol immediately. You may contact after-sales service for guidance.
- Regularly inspect the battery exterior for severe pits, scratches, or deformations. Serious mechanical damage may cause short circuits or spontaneous combustion, continued use is not recommended.
- Regularly check the cables for damage or peeling. Severe skin damage to the wires may lead to short circuits or spontaneous combustion.
- For other malfunctions or maintenance instructions, please refer to the App self-check system prompts or contact the corresponding technical personnel.

Storage Instructions:

When storing batteries in bulk, it is recommended to maintain a distance of at least 30cm between each battery.

- Regardless of the storage conditions, avoid exposing the battery to direct sunlight for more than 10 minutes.
- The battery should be stored at room temperature (15°C to 35°C). Long-term storage above 35°C will accelerate battery aging. For long-term storage between 0°C and 15°C, the battery capacity/operating time may decrease temporarily; it will return to normal after a few uses at room temperature.
- Avoid storing batteries in humid environments; the storage area must be kept

dry and unventilated.
- The storage location should be away from areas where large items are frequently moved to prevent accidental impact or damage.

Transportation Instructions:

- It is recommended to store batteries in temperature-resistant or flame-retardant containers with lids. Using the original anti-vibration and anti-tip foam packaging is also advised.
- Avoid overlapping the battery charging/discharging cables over the edges of the container to prevent accidental crushing or short circuits.
- During spraying operations, if batteries are left inside a vehicle, ensure they are kept out of direct sunlight and that the vehicle is well-ventilated. In direct sunlight, the temperature inside a sealed vehicle can rise above 80°C, posing a risk of spontaneous battery combustion.

Emergency Response Instructions:

Sufficient quantities of fire sand, fire extinguishers, and heat-resistant gloves should be equipped at locations where batteries are stored, transported, or used. If a battery is found to be smoking or burning, take the following measures immediately:

1. If the battery starts smoking or has a scorched smell: Immediately identify the location of the short circuit. Lift the battery by its handle or charging/discharging cables (using heat-resistant gloves if necessary) and quickly drag it to an open indoor area or outdoors. Then, completely bury the entire battery with fire sand (if the cables are smoking, they must also be buried). Notes: The battery must not be removed until it has cooled down completely, otherwise, it may continue to smoke.
2. If the battery emits thick smoke: Immediately use fire sand or a fire extinguisher to extinguish or bury the self-igniting battery. Simultaneously remove surrounding batteries and other flammable or combustible objects. If surrounding flammable/explosive objects cannot be removed, prioritize using large amounts of water for rapid cooling and extinguishing.
3. If there are open flames: Immediately use large amounts of water, fire extinguishers, and fire sand to put out the fire (ensure the power to surrounding electrical equipment is cut off first). Simultaneously remove surrounding batteries and other flammable/combustible materials.

Notes:

When using firefighting equipment, strictly comply with the requirements and regulations of your local fire department.

3.6. Connectors Maintenance & Troubleshooting

- Connectors must be fully inserted. Incomplete insertion will cause the plug to overheat, affecting flight safety.
- If the airframe power plug or the battery plug shows signs of blackening or sparking, they must be replaced.

3.7. Spraying System Maintenance & Troubleshooting

- Upon completion of daily operations, pour clean water into the tank, pipes, and nozzles to thoroughly flush and clean the system.
- Avoid using the tank for other purposes after mixing herbicides and insecticides to prevent crop damage.
- During long-term storage or transportation, the operation tank must be emptied.
- It is forbidden to run the water pump at high speed under no-load conditions for extended periods.
- Avoid using wettable powders or high-concentration emulsifiable concentrates to prevent clogging the spraying channels.
- For other malfunctions or maintenance instructions, please refer to the App self-check system prompts or contact the corresponding technical personnel.

4. Transportation Packaging

Packaging Method: For shipping, the complete drone is placed inside a packaging box lined with flexible cushioning materials.
Box Dimensions: 1152mm*1152mm*1055mm, approximately 1.4m^3.

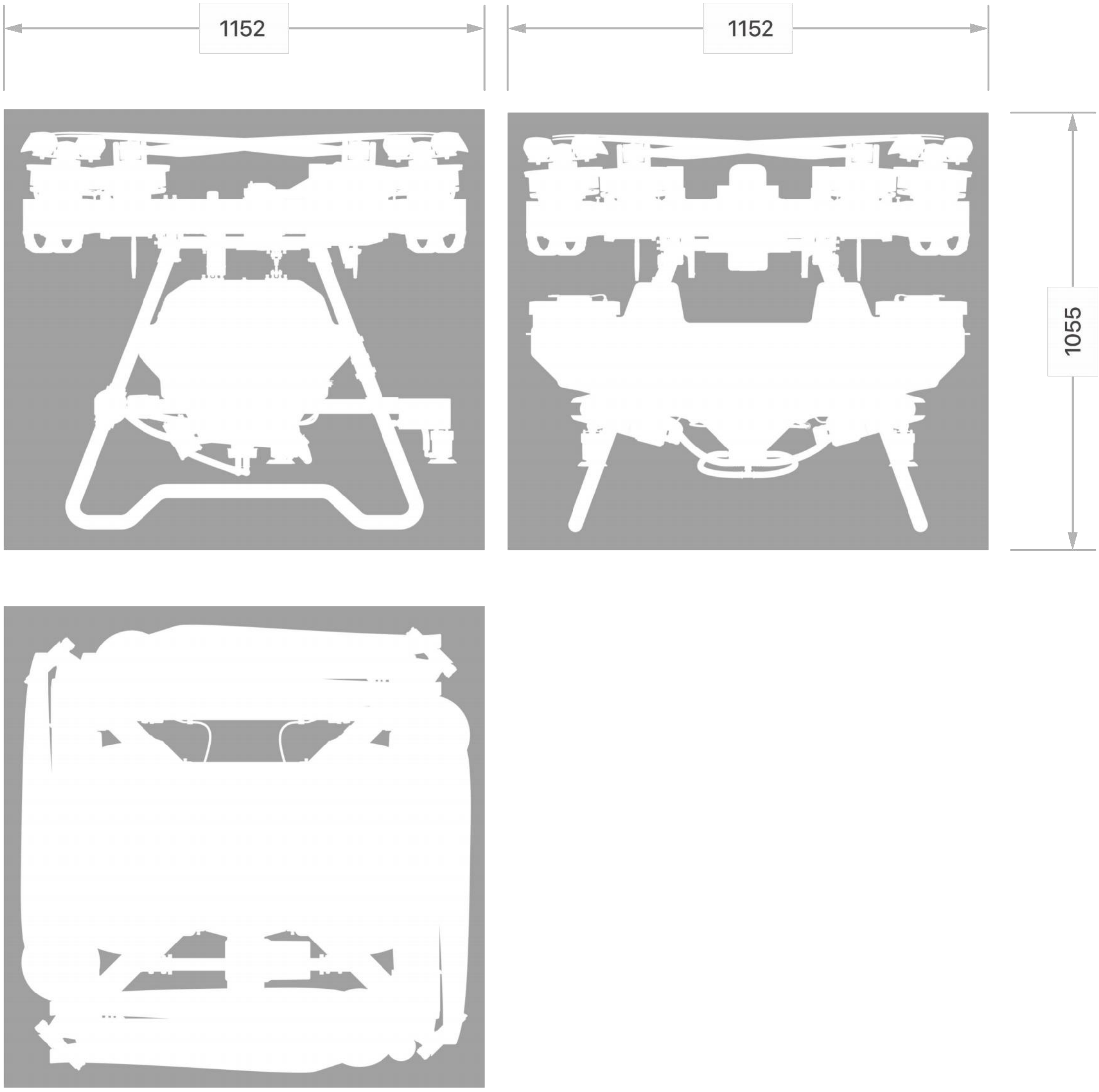


Figure 4-1

5. Hazard and Safety Summary & Countermeasures

No.	Hazards	Safety Countermeasures
1	Foldable Structure	When folding or unfolding the drone, be aware of the hand pinch hazard sign and keep your fingers away from the folding mechanism.
2	High-speed Rotating Propeller	Keep a safe distance from the drone during operation and keep it away from crowds, animals, or other obstacles.
3	Charger during Charging	Place in a designated charging area and environment with proper ventilation. Ensure the charger is grounded when powered on.
4	Liquid Tank	Flush with clean water after use, close the lid, and store in

		an area inaccessible to kids and animals.
5	Battery	Strictly follow relevant safety regulations and the battery manual. Do not use if the battery emits odors, heat, or shows deformation, discoloration, or other abnormalities. If electrolyte enters the eyes after a leak, do not rub; rinse with water and seek medical help immediately.
6	Agrochemical	Be fully aware of the hazards of pesticides and understand the application methods for various agrochemicals in advance.
7	Flight	Do not fly in adverse weather, such as strong winds (8 m/s and above), heavy rain (25 mm/12h and above), snow, or fog.

6. Manufacturer Information

Manufacturer: TopXGun (Nanjing) Robotics Co., Ltd.
Address: Building 13-14, No. 3118 Jiyin Avenue, Jiangning District, Nanjing, Jiangsu Province, China
Sales Email: sales.global@topxgun.com
Phone: 86-025-83798727

7. Appendix

7.1. Specification Parameters

Specification	**Parameter**
Package	
Package Size	1160*1160*1060mm (Including peripheral waterproof film)
Net Weight	63.7kg
Gross Weight	74.8kg
Body Frame	
Symmetrical Motor Wheelbase	2535mm
Spraying Mode	
Dimension (Folded State)	1080*1080*930mm
Dimension (Working State)	3377*1930*930mm (With unfolded propellers)

Dimension (Working State)	1990*1930*930mm (With propellers folded and spray booms extended)
Spray Boom Length (Working State)	1770mm (Maximum nozzle spacing)
Spreading Mode	
Dimension (Folded State)	1115*1080*930mm
Dimension (Working State)	3377*1930*930mm (With unfolded propellers)
Dimension (Working State)	1990*1930*930mm (With propellers folded and spray booms extended)
Power Motor	
Model	X75
Stator Dimension	156x23mm
KV value	45RPM/V
Power	5000W (Single motor)
Maximum Thrust	Approx. 75kg (Single motor)
Number of Motors	4
Power ESC	
Operating Voltage	68.4V (18S LiPo)
Rated Operating Current	100A
Rated Power	5000W
Foldable Propeller	
Material	Nylon-carbon fiber composite material
Diameter	63inch, 1608mm
Pitch	24inch
Spraying System	
Spraying Tank	
Rated Capacity	75L
Maximum Capacity	80L
Pump	
Pump Type	Metering peristaltic pump
Number of Channels	2

Maximum Flow Rate	40 L/min (2 pumps, 20 L/min per pump)
Measurement Error	＜5%
Centrifugal Nozzle	
Rated Voltage	68.4V
Protection Level	IP67
Maximum Atomization Capacity	10 L/min single nozzle
Spray Range	6-10m
Recommended Spray Range	8m
Recommended Operating Temperature	0℃-40℃
Atomization Particle Size	30μm-500μm
Spreading System SP-7 (Optional)	
Tank Capacity	150L
Maximum Payload	80Kg
Feeding Mode	Auger metering
Seeding Mode	Centrifugal disc
Spread Range	5-10m
Recommended Operating Temperature	0℃-40℃
Cargo Lifting System (Optional)	
Payload Capacity	80kg
Anti-Sway Function	Supported
Cable Length	15m(Standard Configuration)
Automatic Landing Hook Release	Supported
Working Temperature	0℃-40℃
Application Scenarios	For agricultural, forestry, livestock, and fishery use only
Radar System	
Millimeter-Wave Radar	
Ranging Accuracy	0.1m
Operating Condition	Flight Relative Height > 2.0m

Obstacle Avoidance Direction	Front
Detection Range	1-40m
Terrain Following Direction	Forward-oblique, Downward
Altitude Holding Range	1-30m
Protection Level	IP67
LiDAR	
Ranging Accuracy	0.1m
Obstacle Avoidance Direction	Front, Left, Right
Protection Level	IP67
FPV Camera	
FOV	Horizontal 86°, Vertical 52°
Resolution Ratio	Default 720P, maximum optional 1080P
Flight Parameter	
Drone Weight (With Battery)	74.0kg (Spraying mode) 74.0kg (Spreading mode)
Rated Takeoff Weight	149.0kg (Spraying mode) 149.0kg (Spreading mode)
Maximum Takeoff Weight	＜150kg (Maximum gross weight)
Hovering Accuracy (Good GNSS Conditions)	Horizontal ± 1.0m, Vertical ± 0.5 m
	Horizontal ± 10 cm, Vertical ± 10 cm (RTK enabled)
	Vertical ± 0.1m (Radar enabled)
Hover Time*	≥5.5min (149.0kg maximum takeoff weight with 34Ah battery) ≥12.0min (74.0kg maximum takeoff weight with 34Ah battery)
*The hover time is measured near sea level, with wind speed below 3 m/s and ambient temperature at 25 °C.	
Maximum Flight Speed	13.8m/s
Maximum Operating Speed	10m/s
Horizontal Distance Limit	1000m
Maximum Takeoff Altitude	2000m
Recommended Operating Temperature	0℃-40℃

Flight Control System	
Model	TIA2026
Input Voltage	30-80.0V
Rated Power	20W (Excluding radar, pump and other peripherals)
Interface Types	CANBus, RS485, PWM, USB, etc.
Protection Level	IP67 (after fastening the outer joint)
Operating Temperature	-10℃-45℃
Remote Controller	
Model	TC3
Operating Frequency	2400-2476MHz/ 5725-5829MHz
Effective Control Range (unobstructed, no interference)	Control Link: up to 10km Video Transmission: up to 3km (typical agricultural working environment)
RTK High-Precision Point Marking	Supported
Positioning Accuracy	RTK enabled (fixed solution): horizontal: ±0.1m vertical: ±0.1m
Screen Size	7inch
Battery Voltage	7.4V (Rechargeable lithium battery)
Battery Capacity	13500mAh
Charging Power	60W
Endurance Time	Approx. 10h
Weight	Approx. 1400g (excluding power bank clip and sunshade)
GNSS System	
Hovering Accuracy (RMS)	RTK disabled: horizontal ±0.6m; vertical ±0.3m
	RTK enabled (fixed): horizontal ±0.1m; vertical ±0.1m
Orientation Accuracy (RMS)	0.4°
Charger (TC1201P)	
Input Voltage	Three-phase AC: 175–450V Single-phase AC: 90–260V

Input Frequency	50/60Hz
Output Voltage	DC 78.3V (Max)
Output Current	170A (Max)
Output Power	12000W (Three-phase 380V input) 12000W (Single-phase 220V input) 6000W (Single-phase 110V input)
Dimension	330*280*370mm
Net Weight	15.2kg
Gross Weight	16.6kg
Charger (TC1201D) (Optional)	
Input Voltage	DC 300-500V
Input Interface Standard	GB/T 20234.3-2015 (China National Standard for New Energy Vehicle Interfaces)
Output Voltage	DC 78.3V (Max)
Output Current	170A (Max)
Output Power	12000W
Dimension	330*280*370mm
Net Weight	16.8kg
Fuel-Integrated Charging Station (ZAM79L0-01) (Optional)	
Fuel Tank Capacity	36L
Fuel Type	92# octane (RON) gasoline or higher
Reference Fuel Consumption	475ml/kWh (Fuel: 92# gasoline)
Engine Oil Capacity	1.1L (Please use the matching dedicated oil)
Engine Displacement	550 CC
Starting Method	One-key start
DC Output Power	Max 11,500W (Near sea level)
DC Output Voltage	45.0V-80.0V
DC Output Current	165A (Max)
AC Output Power	Max 1000 W (DC and AC channels share the same power source; when AC is under load, DC charging current decreases automatically)

AC Output Voltage	220V±22 V
AC Output Frequency	47–63 Hz
Net Weight	Approx. 95 kg (excluding fuel)
Fuel-Integrated Charging Station (YT1201D) (Optional)	
Fuel Tank Capacity	36L
Fuel Type	92# octane (RON) gasoline or higher
Reference Fuel Consumption	500ml/kWh (Fuel: 92# gasoline)
Engine Oil Capacity	1.1L (Please use the matching dedicated oil)
Engine Displacement	550 CC
Starting Method	One-key start
DC Output Power	Max 11,500W
DC Output Voltage	45.0V-80.0V
DC Output Current	165A (Max)
AC Output Power	Max 1000 W (DC and AC channels share the same power source; when AC is under load, DC charging current decreases automatically)
AC Output Voltage	220V±22 V
AC Output Frequency	47–63 Hz
Net Weight	Approx. 95 kg (excluding fuel)
Secondary Li-ion Battery (ZAB1834-01)	
Voltage	68.4V
Capacity	34000mAh
Discharge Rate	10C
Charge Rate	5C
Protection Level	IP56 (When installed on drone)
Battery Life	1500 cycles (Capacity will decrease, no usage limitation)
Weight	Approx. 15.3kg
Dimension	175*275*351mm

