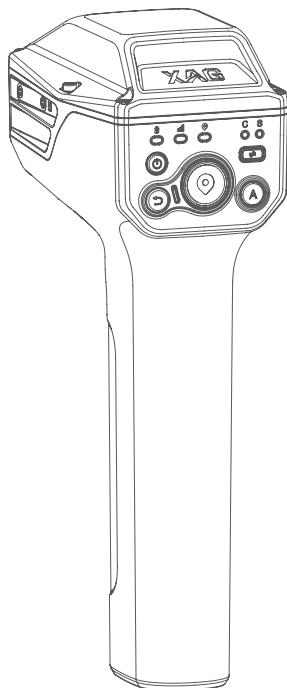


XAG XRTK7 Mobile Station

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

Manufacturer: Guangzhou Xaircraft Technology Co., Ltd.

Add: XSpace, No.115, Gaopu Road, Guangzhou, Guangdong Province, China

Technical Support Team: support@xa.com

Download User Manual

Scan the QR code below to read/download the full electronic version of the User Manual, which includes details on the introduction, main components, installation, usage instructions, maintenance, and disclaimers of the XRTK7 Mobile Station. Please read it carefully before use.



Note

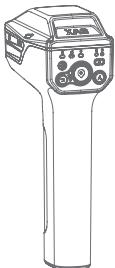
⚠ The User Manual will be updated on a regular basis in electronic form. You can scan the QR code to read or download the latest version.

Introduction

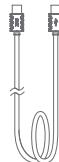
The XAG XRTK7 Mobile Station (hereinafter referred to as "XRTK7") combines mapping by point marking, signal relaying, and base station functions. With a 4G module, XLink communication link, and PPP (Precise Point Positioning) technology, it is designed for operations in all scenarios. The XRTK7 delivers high-precision and efficient performance, even in areas with limited or no network coverage, making it a powerful tool for farming tasks.

List of Items

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.



XRTK7 Mobile Station
×1

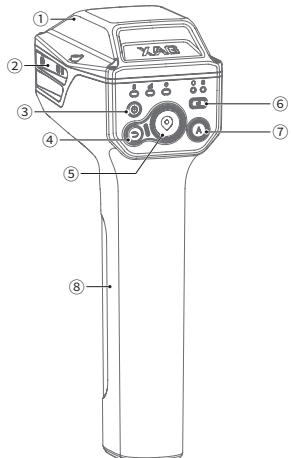


Type-C Cable
×1



Screwdriver
×1

Main Components

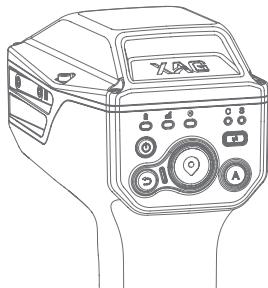


Bottom View

- ① RTK Antenna
- ② SIM Card Slot
- ③ Power Button
- ④ Undo Marking Button
- ⑤ Marking Button
- ⑥ Mode Switch Button

- ⑦ Function Button
- ⑧ Handle (with communication antenna inside)
- ⑨ Mounting Hole
- ⑩ Strip Hole
- ⑪ Type-C Charging Port

About Button



Button	Action	Description
 Power Button	Long Press	Press and hold for 2 seconds to power on/off
 Marking Button	Short Press	Mark a point
	Long Press	Close the shape
 Undo Marking Button	Short Press	Undo the last marked point
 Function Button	Short Press	Function button in specific modes
 Mode Switch Button	Short Press	Switch between Rover and Portable Base Station Mode

Indicator Description

When the XRTK7 is powered on, you can check its status through different indicators.

Battery Indicator ^[1] 	Description
Solid Green	Battery level: 51%-100%
Solid Yellow	Battery level: 21%-50%
Solid Red	Battery level: 1%-20%

Connection Status Indicator 	Description
Rover Mode	
Solid Green	Connected to phone via Bluetooth
Off	Not connected to phone
Portable Base Station Mode	
Solid Green	Networking successful
Off	Networking failed

Positioning Indicator 	Description
Fast Flashing Green	Positioning in progress (Single)
Slow Flashing Green	Positioning in progress (Float)
Solid Green	Normal (RTK)
Double Flashing Green	Normal (Fix)
Solid Red	No positioning (None)

Rover Mode Indicator 	Description
Solid Green	Currently in Rover Mode
Slow Flashing Green	Tilt angle exceeds 50°
Off	Not in Rover Mode

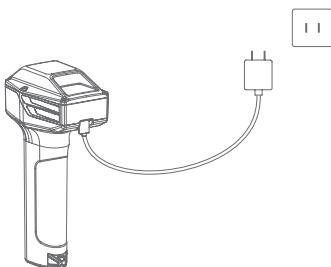
Portable Base Station Mode Indicator 	Description
Solid Green	Currently in Portable Base Station Mode
Slow Flashing Green	Tilt angle exceeds 50°
Off	Not in Portable Base Station Mode

[1]: When the XRTK7 is charging while powered off, the battery indicator shows the current battery level. Flashing green indicates 51%-100%, flashing yellow indicates 21%-50%, and flashing red indicates 1%-20%.

Before Use

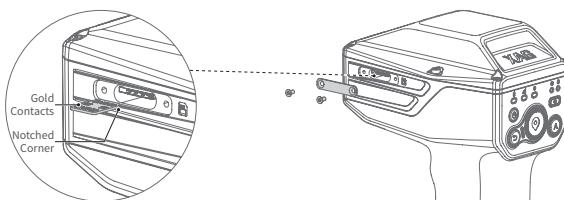
Charging

Insert the Type-C cable into the XRTK7 charging port and connect the other end to a power adapter. When using a fast-charging adapter, the power indicator will flash rapidly, and the buzzer will emit a beeping sound. Once the power indicator turns solid green, the XRTK7 is fully charged.



Install SIM Card

- ① Remove the SIM card slot cover with a screwdriver.
- ② Insert the SIM card^[1] into the slot (with the notched corner facing inward and the gold contacts facing up). Then reattach the cover.



[1]: The XRTK7 package does not include a SIM card. Users must purchase one separately.

Power On/Off

To power on, press and hold  for 2 seconds until the buzzer beeps. Release 

To power off, press and hold 

Warning

 When the battery level drops below 5%, the buzzer will emit a continuous "beep" sound, and the device will automatically shut down after one minute. Please charge the XRTK7 promptly.

Add Device

After adding the XRTK7 to the "XAG One" App, you can use it for field mapping or setting up a portable base station. Follow these steps to add the device.

1. Power on the XRTK7, open the "XAG One" App, and tap \oplus in the top-right corner to select "Add Device".
2. Scan the QR code on the XRTK7 or enter its serial number to add the device. Alternatively, tap \dots in the top-right corner of the App's Add Device screen and select "Add via Bluetooth" to pair the device.
3. Name the device, tap "Confirm," and complete the addition.

Firmware Update

Make sure the firmware is up to date before use.

1. Open the "XAG One" App, go to "Me" - "Device", select the XRTK7, and tap "Firmware Update" to check for updates.
2. If an update is available, tap "Download and Install". Once the update is complete, tap "Complete" and return to the device list to see whether all firmware is up to date. If not, repeat the update process until complete.

Use of XRTK7

XRTK7 Mobile Station supports two modes: Point Marking for Mapping and Set Mobile Station. The following introduces both modes separately.

Point Marking for Mapping

When used as a mapping device, the XRTK7 can be used for point marking.

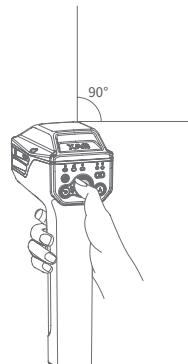
- ① Open the "XAG One" App, tap "Survey" on the home screen (main screen) to enter the Survey screen. In the bottom-right corner, tap \square and select the bound XRTK7.
- ② Hold the XRTK7 and move to the field boundary. Short press \odot to mark boundary points (short press \odot to undo points). Once all boundary points are marked, tap "Auto Close" or long press \odot to automatically close the field boundary.
- ③ Tap the "Field Boundary" \blacksquare to switch the point marking type. Select "Obstacle" or "Non-spraying Zone". Move around the obstacle or non-spraying zone with the XRTK7 and short press \odot (short press \odot to undo points) to mark boundary points.
- ④ Once the field is mapped, tap "Confirm" in the top-right corner.
- ⑤ Complete the field information and tap "Complete" to save it.

Warning

⚠ To ensure the accuracy of point marking, always hold the XRTK7 vertically.

Avoid blocking the XRTK7, as this may disrupt the communication signal.

⚠ In mapping mode, if the XRTK7 tilts beyond 50°, the mapping mode indicator will turn solid red. Adjust the XRTK7 to a vertical position promptly to avoid affecting its normal operation.



Device Networking

Before setting up the base station or using the communication relay function, you need to network the operation device with the XRTK7 in the device list. Users can follow the steps below to complete the device networking.

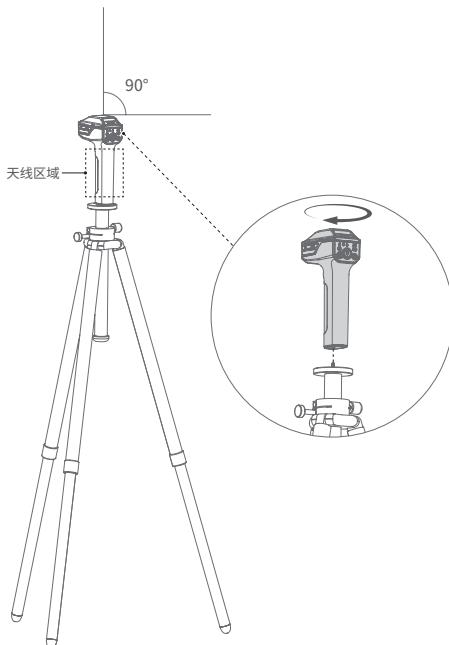
1. Open the "XAG One" App, tap "Device" on "Me" screen, and select the XRTK7 you want to network.
2. Tap "Device Networking", then place your phone or remote controller close to the device you want to network with the XRTK7 to scan.
3. Once the device is successfully scanned, select the current device and tap "Confirm" in the pop-up networking prompt.
4. When the "Networking Successful" message appears, the XRTK7 networking is complete.

Set Mobile Station

After switching to Mobile Station mode, XRTK7 can serve as a positioning station. Once the XRTK7 completes positioning, it can be used as a reference source for other devices.

Install Tripod

- ① Align the screw hole at the bottom of the XRTK7 with the screw on the tripod^[1], then rotate it clockwise to securely fasten the XRTK7 onto the tripod.



[1]: XRTK7 does not include a tripod in the item list. The tripod model shown in the user manual is for installation reference only. Please refer to the actual tripod for installation.

② Press and hold  for 2 seconds to power it on. After that, short press  to switch to Mobile Station mode (or switch modes via the app by selecting Device Details - Device Mode -Positioning Station Mode). Once the mobile station mode status indicator (S light) turns on, the tripod installation is complete.

Warning

- ⚠ The structure of tripods may vary by model. Users need to separately purchase the tripod that is compatible with the XRTK7 (the screw on the tripod should be a 1/4" UNC thread).
- ⚠ Avoid placing the antenna area near metal objects to prevent communication interference.
- ⚠ When selecting a location for setting up the base station, choose a flat and firm ground. The base station should be positioned in an open area without obstacles above a 15 ° elevation angle to ensure continuous satellite tracking and signal quality.
- ⚠ Ensure the tripod is securely on the ground. The tripod height can be adjusted as needed, with a recommended height of 1~1.5 m.
- ⚠ When mounting the XRTK7, ensure it is installed vertically.

Base Station Positioning

After the base station is successfully set up, you need to set the reference coordinates. The methods for obtaining reference coordinates include High-precision Mode Positioning^[1], Low-precision Mode Positioning, and Select Known Coordinates^[2]. This manual uses High-precision Mode – PPP Satellite-based Positioning as an example.

- ① Open the "XAG One" app, tap "Me" – "Device", and select the XRTK7 you want to set as the base station.
- ② In the "Device Details" screen, select "Positioning Service", then tap "Positioning Status" – "Set Reference".
- ③ Select the reference type as "High-precision Mode" – "PPP Satellite-based Positioning". The XRTK7 will automatically obtain the coordinates. Once the signal stabilizes, the XRTK7 will be set as a mobile station.
- ④ After the setting is complete, return to the previous screen. When the Positioning Status bar displays "Normal (Fix)", the base station positioning is successful.

Warning

- ⚠ Coordinates collected in Low-precision Mode may have a certain deviation from the actual coordinates.

[1]: "High-precision Mode" positioning uses RTCM signals from an established fixed base station for differential positioning to obtain accurate coordinate information. It includes three methods: "Network RTK", which connects to the XAG cloud base station to obtain high-precision coordinates; "PPP Satellite-based Positioning", which uses navigation satellites to obtain high-precision coordinates; and "CORS", which uses third-party CORS accounts to obtain coordinates.

[2]: "Select Known Coordinates" is suitable for re-establishing a base station. When setting up a base station at a previously mapped fixed point, you can enter the coordinates collected during the first setup into the device. The device will then automatically generate and broadcast RTCM data. Tap "Add Known Coordinates", enter the accurate coordinates in the pop-up window, and tap Confirm. Wait until the "Positioning" parameter on the main screen displays FIX, indicating the base station setup is complete.

Specifications

Model	M3RTK7AH
Dimensions	222 × 112 × 75 mm
Weight	0.55 kg
Operating Frequency (Wi-Fi)	2.4 GHz: 2412 MHz ~ 2462 MHz (FCC) , 2412 MHz ~ 2472 MHz (CE) 5.8 GHz: 5745 MHz ~ 5825 MHz
2G Operating Frequency	CE: GSM 900: 880.2 MHz~ 914.8 MHz; DCS 1800: 1710.2 MHz ~ 1784.8 MHz
2G Maximum transmit power	Class 4 (35 dBm) for GSM900, Class 1 (28 dBm) for DCS1800
3G Operating Frequency	CE: WCDMA Band I: 1922.4 MHz ~ 1977.6 MHz; WCDMA Band VIII: 882.4 MHz ~ 912.6 MHz; WCDMA Band V: 824.2 MHz ~ 848.8 MHz
3G Maximum transmit power	Class 3 (24 dBm) for WCDMA bands Band 1: 1922.5 MHz ~ 1977.5 MHz; Band 3: 1710.7 MHz ~ 1784.3 MHz; Band 5: 869.7 MHz ~ 893.3 MHz Band 7: 2502.5 MHz ~ 2567.5 MHz; Band 8: 880.7 MHz ~ 914.3 MHz; Band 20: 834.5 MHz ~ 859.5 MHz; Band 28: 704.5 MHz ~ 746.5 MHz; Band 38: 2572.5 MHz ~ 2617.5 MHz; Band 40: 2302.5 MHz ~ 2397.5 MHz; Band 41: 2498.5 MHz ~ 2687.5 MHz
4G Maximum transmit power	Class 3 (25 dBm) for LTE bands
Effective Isotropic Radiated Power (EIRP)	2412 MHz to 2472 MHz: <20 dBm (CE) 5745 MHz to 5825 MHz: <14 dBm (CE) 2402 MHz to 2480 MHz: <7 dBm (CE)
Bluetooth Protocol	Bluetooth LE V5.2
Operating Frequency (Bluetooth 5.2)	2402 MHz ~ 2480 MHz
Charging Voltage/Current	5 V=3 A, 12 V=1.5 A
Charging Protocol	Supports PD/QC protocol
Built-in Battery Capacity	10000 mAh/ 3.65 V
Charging Ambient Temperature	5°C to 40°C
Operating Ambient Temperature	-10°C to 40°C

Storage Ambient Temperature ^[1]	-20°C to 25°C (> 3 months, < 1 year) -20°C to 45°C (> 1 month, < 3 months) -20°C to 55°C (within 1 month)
IP Rating	IP65
Max. Signal Range (No Interference/Obstruction)	2000 m
Vibration	Yes
Voice Prompt	Yes
Frequency Band for RTK	BDS: B1I, B1C; GPS: L1C/A, L1C, L2C, L5; GLONASS: G1, G2; Galileo: E1, E5a, E5b
Positioning Accuracy (Good RTK Signal)	Horizontal: <5 cm+1 ppm (RMS) Vertical: <7.5 cm+1 ppm (RMS)

[1]: A drop in the XRTK7's battery performance may occur when the operating ambient temperature is below -5°C .

FCC Compliance Notice

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

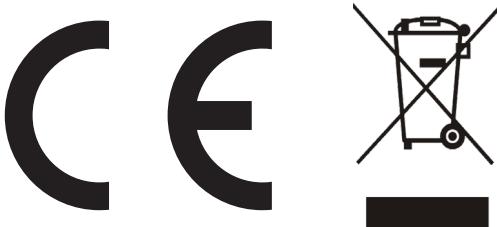
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device complies with FCC RF exposure limits for use on the limb (worn on the wrist, ankle, or other extremities). The maximum Specific Absorption Rate (SAR) for limb exposure is 4.0 W/kg (10g tissue average). To ensure compliance with FCC RF exposure guidelines, use the device only as instructed and maintain proper distance as specified in the user manual. Prolonged exposure to radio frequency electromagnetic fields may cause health hazards. Follow all safety instructions to minimize exposure.

The EU SAR limit For Limb is 4.0 W/kg. This device should keep 0mm separation distance for limb SAR testing. The Maximum limb SAR is 3.632W/kg. M3RTK7AH meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health.

La limite européenne (UE) de DAS pour les membres est de 4,0 W/kg. Cet appareil doit être testé avec une distance de séparation de 0 mm pour le DAS des membres. Le DAS maximal pour les membres est de 3,632 W/kg. Le M3RTK7AH répond aux exigences gouvernementales en matière d'exposition aux ondes radio. Les directives s'appuient sur des normes élaborées par des organisations scientifiques indépendantes, fondées sur une évaluation périodique et rigoureuse des études scientifiques. Ces normes incluent une marge de sécurité substantielle destinée à garantir la sécurité de toutes les personnes, quel que soit leur âge ou leur état de santé.

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. 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 [XRTK7 Mobile Station] 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.xa.com/en/service/downloads"

Suppliers Name(EU): NIK ELECTRONICS LTD

Suppliers Address (EU) : Sofia, 11B Brussels Blvd., fl.13

Suppliers phone number and / or internet contact information: 00359899952228

KCC Warning Message

이기기는 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: M3RTK7AH

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 Inc

Suppliers Address (FCC): 18571 State Hwy 6 Lewistown, MO 63452, United State

Suppliers phone number and / or internet contact information: +1 (503) 866-1228

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.

減少電磁波影響，請妥適使用。

電波功率密度 MPE 標準值：0.9mW/cm²，送測產品實測值：0.088 mW/cm²，建議使用時設備天線至少距離人體 20 公分。

警告使用者：此為甲類資訊技術設備，於居住環境中使用時，可能會造成射頻騷動，在此種情況下，使用者會被要求採取某些適當的對策。

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。

Disclaimer

1. Please read this Disclaimer carefully before using this product, as it has much to do with both operational safety and your legitimate rights and interests. You shall be deemed to have read, known, understood, agreed to and accepted all the terms and conditions as well as information stated herein upon the use of this product.
2. Not being a toy and with certain safety risks, this product is not suitable for those who are under 16 years old, those who have limited or no capacity for civil conduct, those with mobility impairments, or those who have not legally obtained a conventional agricultural drone operator certificate under existing laws and regulations of the location where the product is used. Individuals who have not obtained the conventional agricultural drone operator certificate as required by law are not allowed to come into contact with or use this product. Please be particularly cautious when operating this product with children, crowds, or animals present.
3. Operator undertakes to use the product within the bounds of the law for legitimate purposes only and agrees to the terms and conditions stated herein as well as potential related policies and norms formulated by XAG. User understands and accepts that flight records and data created during use will be automatically uploaded and saved to XAG's server. XAG shall resume no responsibility for the failure to analyze such flight records and data caused by the unsuccessful upload and saving for any reason attributable to the user.
4. Please install, use, transport, and maintain the product under the instructions in this User Manual. Do NOT modify, convert, or disassemble this product on your own as any malfunction or damage arising therefrom or resulting from your improper use will not be covered by the warranty, and you shall solely assume the liability arising therefrom, both financially and legally.
5. To the maximum extent permitted by law, under no circumstances shall XAG offer an implicit or explicit guarantee for this product, including but not limited to implicit guarantees pertaining to vendibility, fitness for a particular use, or non-infringement.
6. To the maximum extent permitted by law, XAG shall not be liable for any loss caused by your use of this product outside the instructions in this User Manual. Furthermore, XAG shall not be liable for any indirect, consequential, punitive, accidental, special or exemplary damage, including any loss incurred as a result of 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 as a result of a 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, purchasers or users shall comply with the laws and regulations of the country and region where the product is used. XAG shall assume no liability arising from the violation of relevant laws and regulations by the purchaser or user.

10. Please note that the services provided by this product and its accessories might involve the collection, storage as well as processing of the geographic information and data of farmland. Before using this product, be sure to comply with local laws and regulations related to the collection, storage and processing of such geographic information and data. Make sure that you use this product in accordance with the law. Any financial and legal liability arising from user's violations of the laws and regulations shall be borne solely by the user.
11. As exclusion clauses may be prohibited by certain laws and regulations, your rights may vary. However, this does not imply that the terms contained in this Disclaimer are necessarily invalid.
12. To the extent permitted by law, XAG reserves the right for final explanation and revision of the terms and conditions stated hereinabove. XAG also has the right to update, modify or terminate these terms and conditions via its official website, User Manual, online App, etc., without prior notice.

Warning

Before using a drone and its peripherals, user is required to read through the User Manual and obtain a UAS operator certificate accredited by XAG or the laws, regulations, and policies of the country/region where the product is used. Otherwise, improper operation of the drone and its peripherals may cause serious injury to user or others, or cause damage to the product and property loss. Safety awareness is of great importance during operation. Meanwhile, this product is not suitable for children or those who are under 16 years old, those who have no or limited capacity for civil conduct, or those with mobility impairments as prescribed by law. Please install and use the product by strictly following XAG's instructions in the User Manual. Do NOT use any components that are not provided or suggested by XAG for the repair of the product.



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