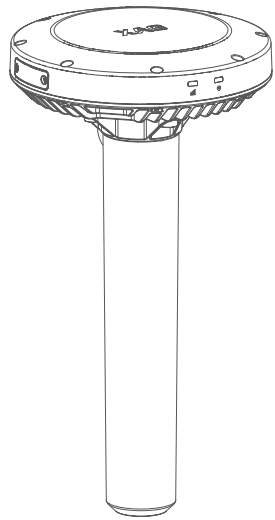
XAG **XRTK S1** Station
User Manual

Version 1.0 EN



XAG ADVANCING AGRICULTURE

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: Building 1, No. 9 Xinrui Road, Huangpu District, Guangzhou, P.R.China

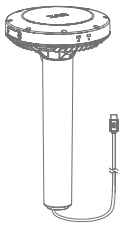
Technical Support Team: support@xa.com

Introduction

XAG XRTK S1 Station (hereinafter referred to as "XRTK S1") features PPP technology. It serves as a portable base station, providing positioning services to the APC4 AutoPilot Console via wireless communication, or as a cloud base station, offering positioning services to devices such as agricultural drones. It is a powerful tool for precision farming.

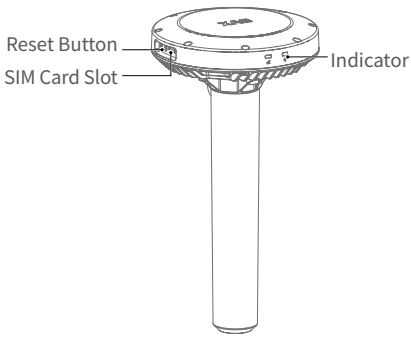
List of Items

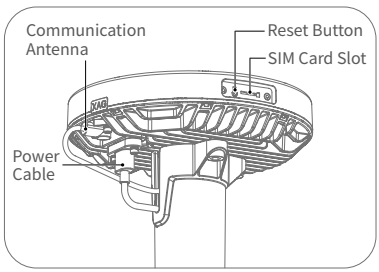
When unboxing, check the package contents against this list. Immediately contact your seller regarding any missing items.



XRTK S1 Station
×1

Main Components





Rear View

Status Indicator

When the XRTK S1 is powered on, its status can be checked by observing the indicators.

Connection Status Indicator	Description
Solid Green	4G connected
Flashing Green	Not connected
Solid Yellow	High network latency

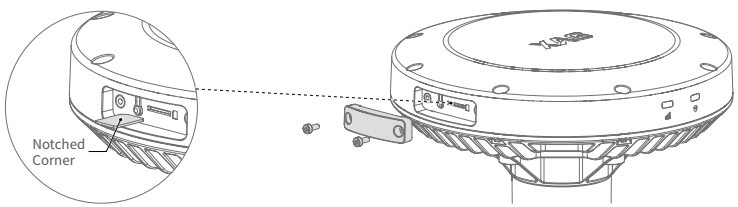
Positioning Indicator	Description
Fast Flashing Green	Positioning (Single)
Slow Flashing Green	Positioning (Float)
Solid Green	Normal (RTK)
Double Flashing Green	Normal (Fix)
Solid Red	No positioning (None)

Before Use

Install SIM Card

① Use a screwdriver to loosen the screw securing the SIM card slot cover.

② Insert the SIM card [1] into the slot (with the notched corner facing inward and the gold contacts facing downward), then reinstall the cover to complete the installation.



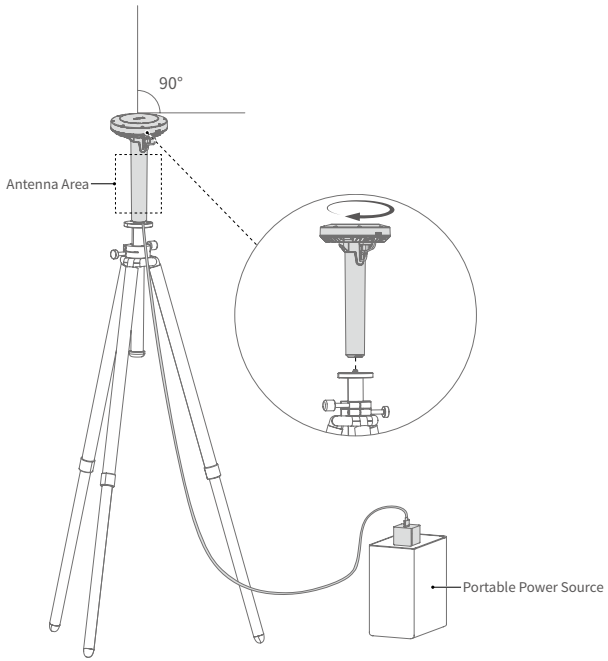
[1]: The SIM card is not included with the XRTK S1 and must be purchased separately.

Installation

Mobile Deployment

① Align the threaded hole at the bottom of the XRTK S1 with the screw on the tripod[1], then rotate clockwise to secure the XRTK S1 onto the tripod.

② Connect the Type-C cable to the charging port of the XRTK S1, and connect the other end to an adapter plugged into a power source[2]. The mobile deployment of the XRTK S1 is now complete.



[1]-[2]: The tripod and portable power source are not included with the XRTK S1 and must be purchased separately.

⚠Note

⚠ Tripod structures vary by model. It is recommended to select a tripod with a 1/4-inch screw on the platform.

⚠ The portable power source shown in this manual is for reference only. Refer to the actual product for installation.

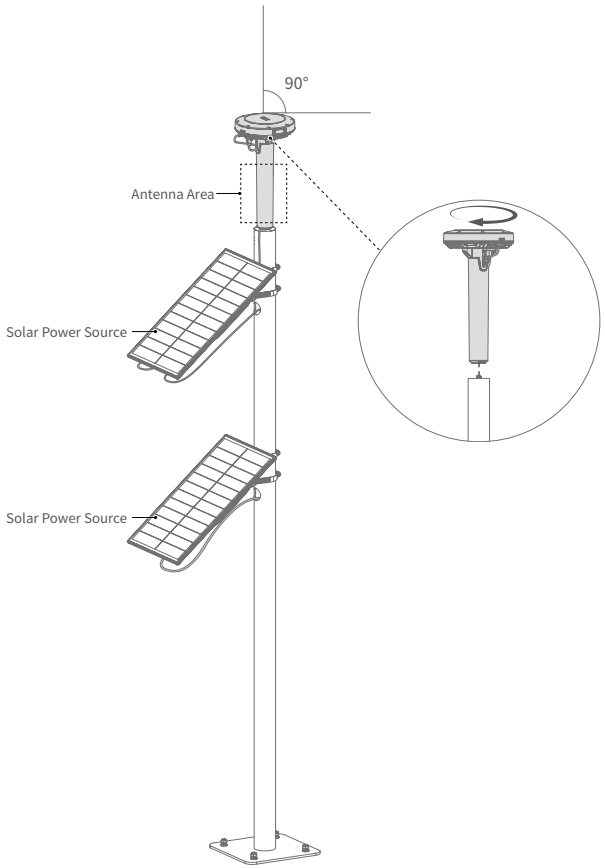
⚠ Ensure the tripod legs are firmly planted on the ground. The height may be adjusted as needed; 1.5 m or higher is recommended.

Fixed Deployment

① Align the threaded hole at the bottom of the XRTK S1 with the screw at the top of the pole[1], then rotate clockwise to secure the XRTK S1 onto the pole.

② Secure the pole to level ground using four expansion bolts.

③ Connect the Type-C cable to the charging port of the XRTK S1, and connect the other end to a power source[2]. Feed any excess cable into the designated hole on the pole. The fixed deployment of the XRTK S1 is now complete.



[1]-[2]: The pole and solar power source are not included with the XRTK S1 and must be purchased separately.

⚠Note

⚠ For easier installation, it is recommended to use a pole with a 1/4-inch screw on the top.

⚠ The solar power source shown in this manual is for reference only. Refer to the actual product for installation.

⚠ Warning

⚠ Keep the antenna area away from metal objects to avoid signal interference.

⚠ When setting up the XRTK S1, ensure it is exactly vertical.

⚠ The base station site should feature firm, level ground and an unobstructed sky view. There should be no dense obstacles above a 15° elevation angle to ensure continuous satellite tracking and signal quality.

How to Use

Download "XAG AutoPilot" App

Scan the QR code above to download and install the "XAG AutoPilot" App

Add a Device

The XRTK S1 must be added in the XAG AutoPilot app before first use. Follow the steps below.

1. Open the XAG AutoPilot app. On the home screen, tap the Personal Center icon" " in the upper-left corner, then go to My Devices > Other Devices and tap Add Device.
2. Scan the XRTK S1 QR code, or enter the SN to add the device. (Alternatively, select Add via Bluetooth in the QR code scanning screen to add the device via Bluetooth.)
3. Name the device, then tap Confirm to complete the process.

Firmware Update

Always check for firmware updates before use. If an update is available, install the latest version.

1. Open the XAG AutoPilot app, tap the Personal Center icon " " in the upper-left corner, then go to My Devices > Other Devices. Select the desired XRTK S1 to enter its Device Details screen, then tap Firmware Update to check for updates.
2. If an update is available, tap Download and Update. Once the update is complete, tap Done to return to the device list. Verify that all relevant devices have been updated to the latest firmware version. If not, repeat the update steps until complete.

Set Up Portable Base Station Positioning

Before using the XRTK S1 as a positioning base station, the positioning reference must be configured. Two positioning reference methods are available: setting the reference via RTK positioning (High-Precision Mode[1]) and setting the reference via satellite positioning (Low-Precision Mode). This User Manual uses RTK positioning (High-Precision Mode) - PPP satellite-based positioning as an example. Follow the steps below.

1. Open the XAG AutoPilot app. On the home screen, tap the Personal Center icon " " in the upper-left corner, then go to My Devices > Other Devices, and select the XRTK S1 that needs to be configured.
2. On the Device Details screen, tap Go to Settings. After confirming that the installation location of the XRTK S1 meets the installation requirements shown on the app, tap Completed, Next.
3. On the Set Positioning Reference screen, select PPP Satellite-Based Positioning.
4. Tap Confirm. When the Portable Base Station Positioning status displays Normal (Fix), the positioning reference of the base station has been successfully set.

[1]: In High-Precision Mode, the positioning reference is set by using RTCM signals transmitted from an already deployed fixed base station for differential positioning, thereby obtaining accurate coordinate information. High-Precision Mode includes three methods: PPP Satellite-Based Positioning, CORS, and Network RTK. PPP Satellite-Based Positioning refers to obtaining high-precision coordinates via navigation and positioning satellites. CORS refers to obtaining coordinates using a third-party CORS account. Network RTK refers to obtaining high-precision coordinates by connecting to the XAG cloud base station.

Set Base Station Sharing Password

Based on operational requirements, the base station can be shared with other devices under the same account or with other users. Follow the steps below.

1. Open the XAG AutoPilot app. Tap the Personal Center icon " " in the upper-left corner, then go to My Devices > Other Devices, and select the XRTK S1 that needs to be configured.
2. On the Device Details screen, enable Base Station Sharing Requires Password, then tap Password to enter the Change Connection Password screen.
3. Enter a 4-digit connection password and tap Confirm.
4. After the password is set successfully, the app will automatically return to the Device Details screen.

Add Reference

When the XRTK S1 is used as the positioning base station for the AutoPilot Console, the XRTK S1 must be added as a reference in the XAG AutoPilot app. Follow the steps below.

1. After powering on the XRTK S1, open the XAG AutoPilot app on the AutoPilot Console. On the home screen, tap APC > Positioning, then scroll down to the Reference List and tap Add Reference on the right.
2. Tap Add XRTK S1, then select the XRTK S1 to be set as the positioning base station from the pop-up list.
3. After that, the app will automatically return to the home screen.

⚠Note

⚠ If the XRTK S1 to be added does not belong to you and is being added for the first time, you must contact the device owner to obtain and enter the XRTK S1 connection password to complete the addition.

Specifications

Model	M3BS5AH
Dimensions	140.0 × 140.0 × 259.8 mm
Net Weight	0.65 kg
Charging Voltage/Current	12 V⎓3 A; 15 V⎓3 A; 20 V⎓2 A
Positioning Accuracy (Good RTK Signal)	Horizontal Accuracy: 0.8 cm + 1 ppm Vertical Accuracy: 1.5 cm + 1 ppm
RTK Frequency Bands	BDS: B1I, B2I, B3I, B1C, B2a, B2b GPS: L1C/A, L2P (Y)/L2C, L5 GLONASS: L1, L2 Galileo: E1, E5a, E5b, E6 QZSS: L1, L2, L5
Wi-Fi Operating Frequency	2.4GHz,5.1GHz，5.3GHz,5.8GHz
Equivalent Isotropically Radiated Power (EIRP)	⩽ 20 dBm
4G Operating Frequency	Band 1: 1922.5 MHz ~ 1977.5 MHz; Band 3: 1710.7 MHz ~ 1784.3 MHz; Band 5: 869.7 MHz ~ 893.3 MHz (non EU band); Band 7: 2502.5 MHz ~ 2567.5 MHz; Band 8: 880.7 MHz ~ 914.3 MHz; Band 20: 834.5 MHZ ~ 859.5 MHz (non EU band); Band 28: 704.5 MHz ~ 746.5 MHz (non EU band); Band 38: 2572.5 MHz ~ 2617.5 MHz; Band 40: 2302.5 MHz ~ 2397.5 MHz; Band 41: 2498.5 MHz ~ 2687.5 MHz (non EU band)
4G Maximum transmit power	Class 3（25 dBm）for LTE-TDD bands
other Operating Frequency	2400MHz-2480MHz
Bluetooth Protocol	Bluetooth LE V5.2
Operating Frequency(Bluetooth 5.2)	2402 MHz ~ 2480 MHz
Maximum Effective Signal Range (No Interference, No Obstructions)	5000 m
Operating Ambient Temperature	- 10°C ~ 60°C
Storage Ambient Temperature	- 40°C ~ 85°C

FCC Warning

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.

Caution: The user is cautioned that changes or modifications 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.

FCC RF Radiation Exposure Statement:

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

FCC SDoC statement

FCC Supplier's Declaration of Conformity

XAG / M3BS5AH
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: Americas Compliance Consulting LLC dba iCertifi
Suppliers Address (USA) : 5809 US-2, Suite B, Albeni Plaza Priest River, ID 83856 United States
Suppliers phone number and / or internet contact information: fccagent@icertifi.com

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

"Hereby, ***[Guangzhou Xaircraft Technology CO.,LTD.]***, declares that this ***[XAG XRTK S1 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"

Brand name / model number*：*M3BS5AH
Suppliers Name(EU)*：*NIK ELECTRONICS LTD
Suppliers Address (EU)*：*Sofia, 11B Brussels Blvd., fl.13
Suppliers phone number and / or internet contact information*：*00359899952228

사용자 안내문

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서사용하는 경우 전파간섭의 우려가 있습니다.

NBTC statement

1.Marking for technical standard conformity.

เครื่องโทรคมนาคมและอุปกรณ์นี้ มีความสอดคล้องตามมาตรฐานหรือข้อก าหนดทางเทคนิคของ กสทช.

2.Marking regarding safety to human health.

เครื่องวิทยุคมนาคมนี้มีระดับการแผ่ คลื่นแม่เหล็กไฟฟ้ าสอดคล้ องตามมาตรฐานความปลอดภัยต่อสุ ขภาพของมนุษย์จากการใช้ เครื่องวิทยุคมนาคมที่คณะกรรมการกิจการโทรคมนาคมแห่ งชาติประกาศก าหนด.

3. Marking regarding Regulation for selling radio communication equipment as per radio communication act B.E.2498 (Mandatory).

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XAG ADVANCING AGRICULTURE

This manual is subject to update without prior notice.