XAG APC1 AutoPilot Console

User Manual

Version 1.1 EN

XAG 极飞科技
ADVANCING AGRICULTURE
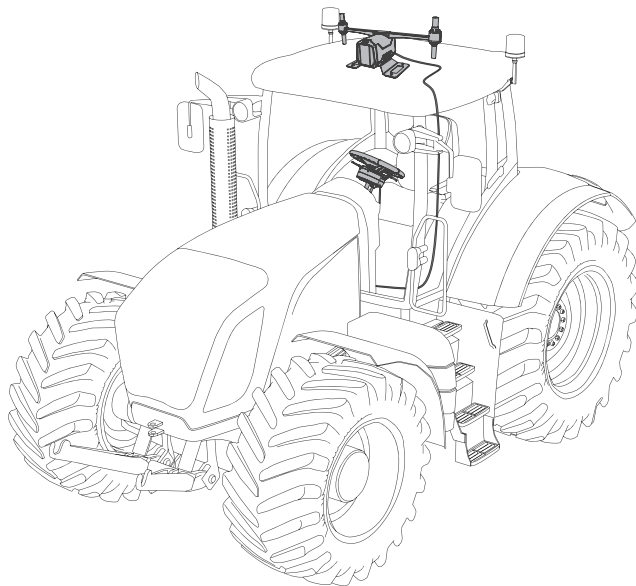
To User

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

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

Contact Us

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

Safety Guidelines

- The driver should hold a driver's license for farm vehicle and strictly observe local laws and regulations on driving farm vehicle.
- The driver should not operate with APC1 AutoPilot Console alone until completion of the training program on its operation before use.
- Make sure the farm vehicle is well-functioning and co-frequency interference is avoided before use.
- Check and make sure the device is in RTK status before use, otherwise it will be inoperable.
- While planning a route, allow for a distance between the vehicle and the field boundary or the forest zone. Set a safe distance from field boundary.
- Make sure the console is securely attached on the top of the vehicle for a stable signal.
- Make sure antennas are not blocked by any objects while using the console, or its function may be affected.
- In the case of weak RTK signal, please take back control of the vehicle at a moment's notice.
- The driver should neither leave the seat nor getting in or out of the vehicle throughout autonomous driving.
- The driver should keep looking ahead throughout autonomous driving to identify obstacles and beware of potiential hazard. Be ready to take back control of the vehicle when approaching the finishing line. If the vehicle deviates from the planned route, put on brakes immediately and stop operation.
- Before applying autonomous driving in operation with towing implement, it is recommended to drive manually at the start to save materials and assure safe operation.
- While planning the route with AB line mode in practice, please mark points based on the field shape to improve land use.
- Never drive while drowsy, drunk or in a poor mental state so as to prevent accident.
- Get acquainted with the driving environment, which should be kept clear of obstacles and crowd and free from hazardous conditions.
- The distance between the operating field and the base station should be maintained within 50km at all times.
- Stay clear of the machine while it is running. Never touch the spinning motor with your body or other components.
- Keep the product away from heat to avoid damage to the electronic device and other components.
- Never touch the spline under the middle of the steering wheel with any part of your body or other stuff to prevent personal injury and damage to device.
- The "Vehicle Parameters" referred herein is more an example that helps you fully understand the operation and requirements of this product than the reference data under practical conditions. You should go over and set the specific parameters based on particular conditions and requirements.

Introduction

XAG APC1 AutoPilot Console (the "console") is specially designed for medium and large farm vehicles such as tractors and harvesters. Featuring farm vehicle automatization, RTK high-precision navigation and operation at regular hours and in a fixed quantity, it promptly responds to the dynamic changes of soil and crops. Through connection to a smartphone or a mobile tablet device, it largely simplifies the operation, helping the driver relieve work fatigue. In addition, it can autonomously control the implement towed behind to precisely carry out agricultural tasks including land preparation, soil tilling and seeding. Operation records will be synchronized to the XAG Smart Agriculture System, making your every effort worthwhile.
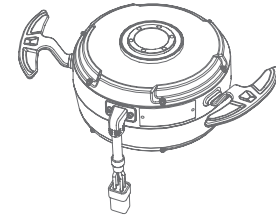
List of Items

Please check carefully to ensure that this package contains all the items listed below. Contact your dealer if there are any missing items.
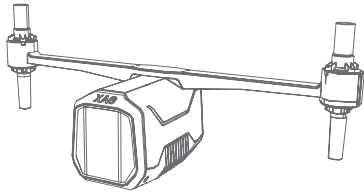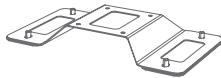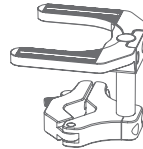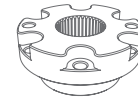
Console
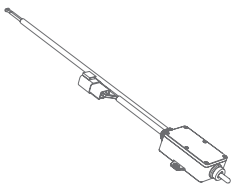x 1
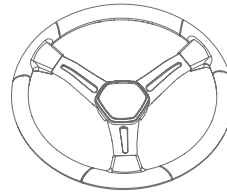
Steering Wheel
x 1

Motor
x 1

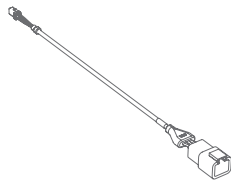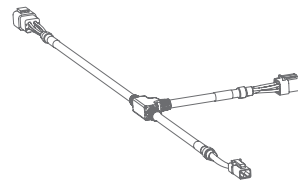Main Body Mounting Bracket
x 1

Motor Mounting Unit
x 1

Spline
x 1

Connector (to power source)
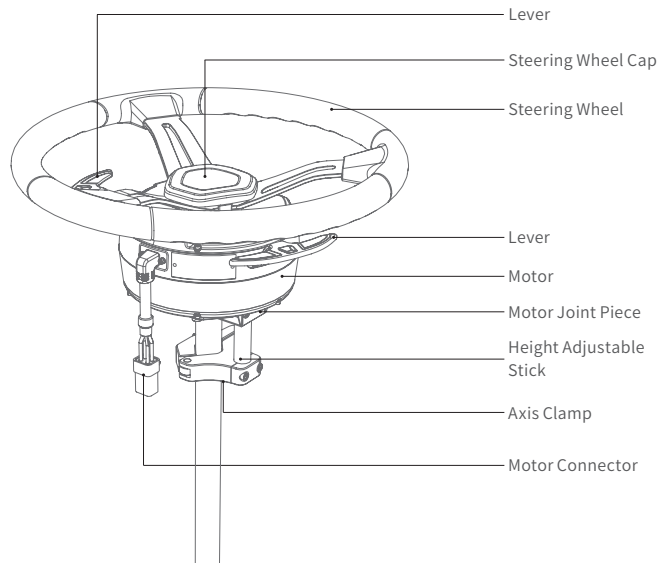x 1

Connector (to console)
x 1

Connector (main part)
x 1

Screw Pack (Console)
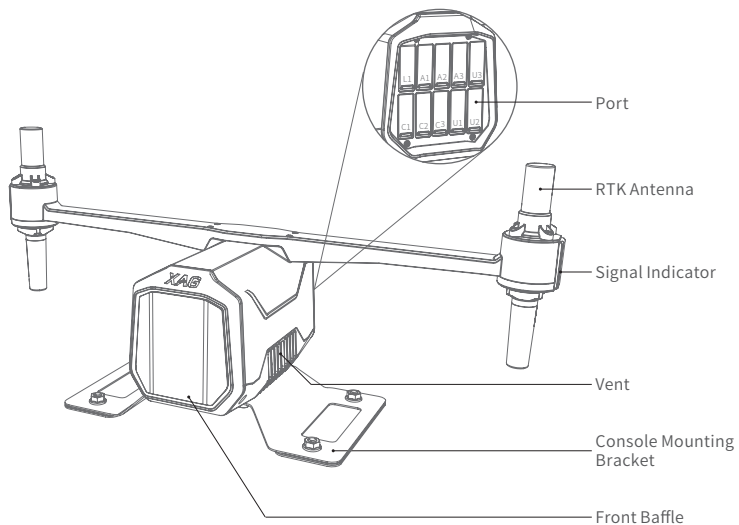x 1

Screw Pack (Steering Wheel)
x 1

⚠ Note Spline varies between models of farm vehicles. Should there be a mismatch between them, please contact the local dealer.

Main Components

Port

RTK Antenna

Signal Indicator

Vent

Console Mounting Bracket

Front Baffle

Lever

Steering Wheel Cap

Steering Wheel

Lever

Motor

Motor Joint Piece

Height Adjustable Stick

Axis Clamp

Motor Connector

Install APC1

Install Motor

Installation Steps

① Use M5*17*10 screws to attach the spline to the motor;

② Gently tighten M6*22*12 screws to secure the motor mounting unit;

③ Mount the motor (with the connector pointing towards the driver seat) on the steering shaft with the cap nut that comes with the farm vehicle;

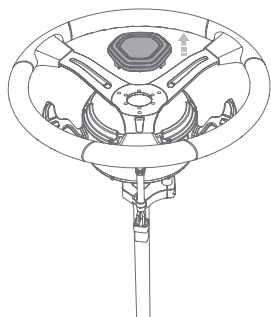④ Tighten all fasteners upon installation and adjustment.

⚠Note Please remove the original steering wheel and motor before installation.

① ② ③ ④
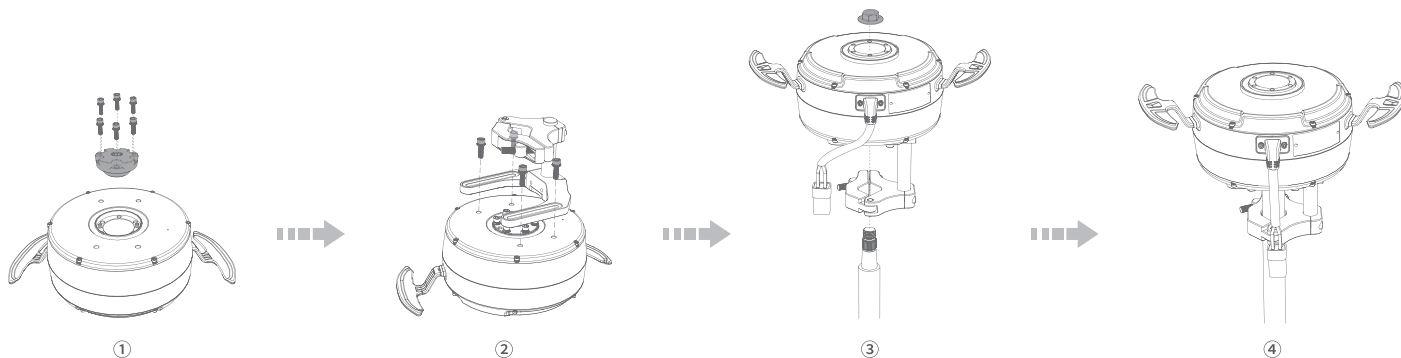
Install Steering Wheel

Installation Steps

① Remove the steering wheel cap;

② Use M5*17*10 screws to attach the steering wheel onto the motor;

③ Fasten the steering wheel cap.
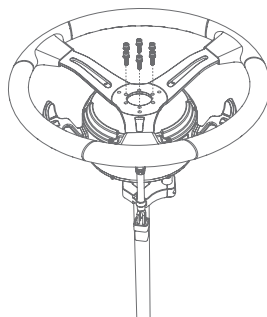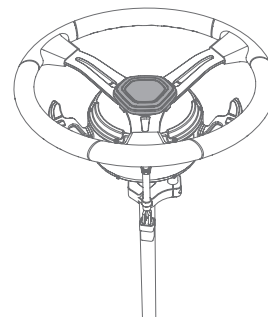
Install SIM Card

Installation Steps

① Remove the front baffle;

② Unscrew two M2*5 screws on the SIM card cover and remove it;

③ Insert the nano-SIM card into the slot with the angled corner inserted first and the gold contacts facing down. Then fit the SIM card cover and the front baffle again.

①

② ③

Angled Corner

Gold Contacts
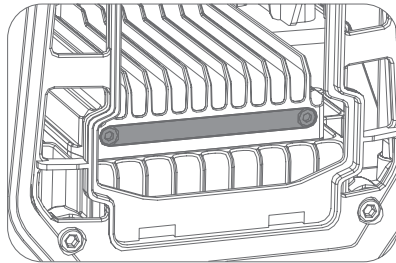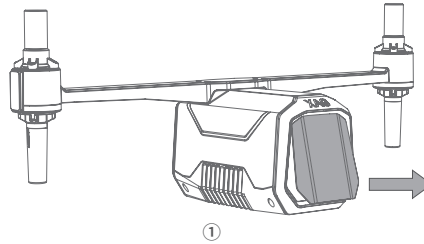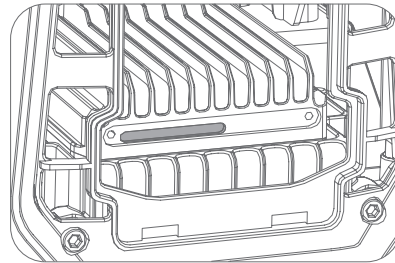
Install Console

Installation Steps

① Fix the mounting bracket to the console with M6*22*12 screws;

② Peel off the backing paper from the self-adhesive strips on the mounting bracket. Attach the console onto the central line of the farm vehicle.

⚠ Note

⚠ The central line should be marked on the middle of the widest part of the vehicle.

⚠ It is a must to attach the console to a place unobstructed.

①

Front of Farm Vehicle
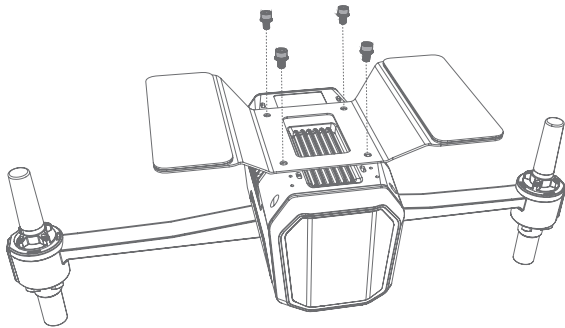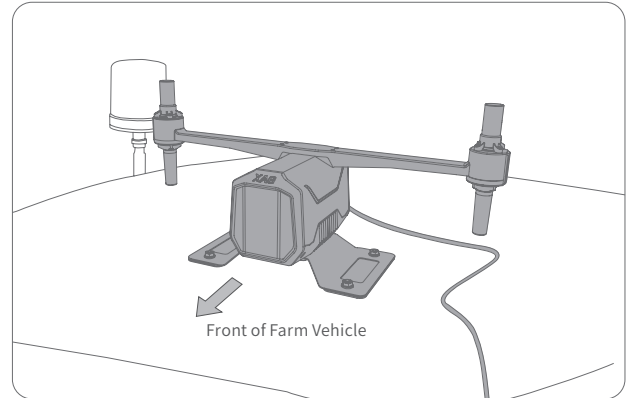
②

Wiring Guide

Please connect the connectors to the interfaces of the console, motor and the vehicle's battery as shown below.

To Console Interface C2

To Motor

To Farm Vehicle's Battery
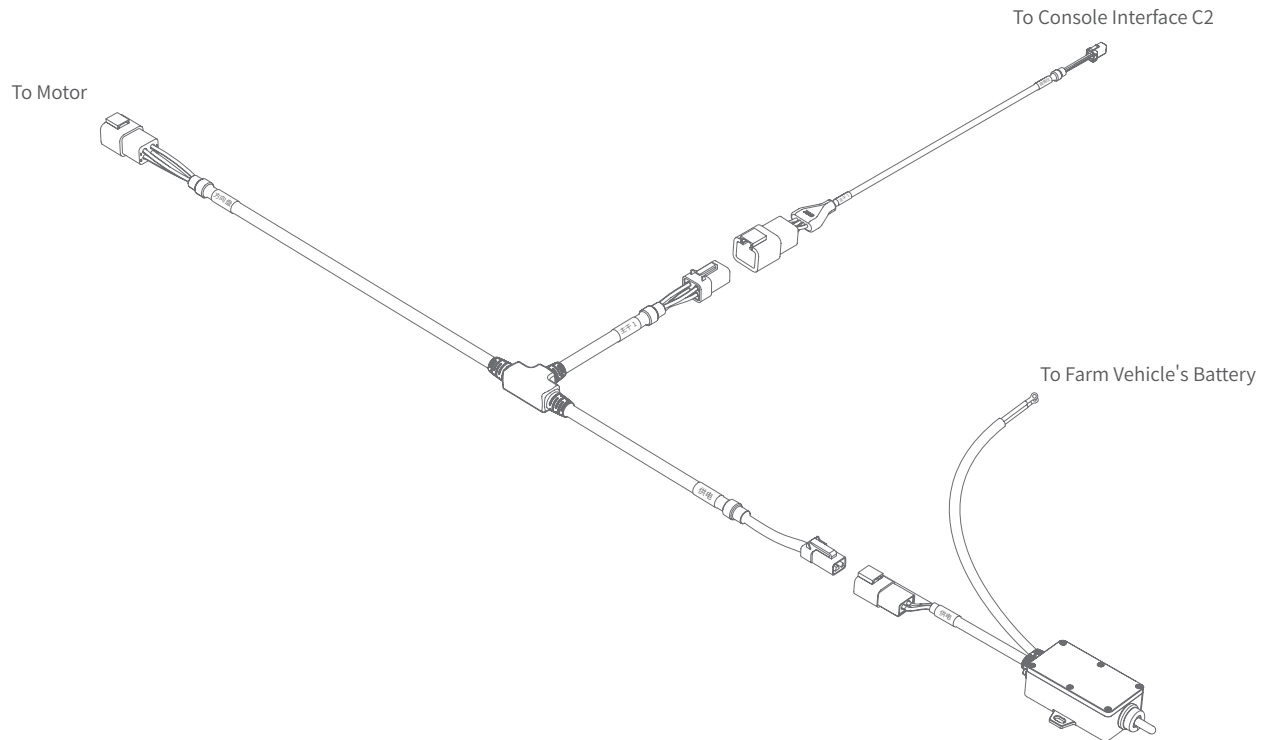
Download App

- Scan the QR Code to download and install the App。

⚠ The App is only compatible with smartphones or tablets that are running on Android 7.0 or above.

Connect APC1

1. Turn on the console;
2. Find the console's hotspot in the list of available WiFi connections in the phone or tablet, enter the password to connect. The default user name is: "APC_XXX".
   The default password is 20070401;

Specifications

Console

Model: XAPC1BD-2.5RD XAG APC1 AutoPilot Console

Steering Control: Electric

Satellite Receiver Type and Bands: Multi-band navigational receiver, BDS B1/B2 GPS L1/L2 GLONASS L1/L2 Galileo E1/E5b*

Satellite Receiver Mainboard Firmware Version: R2.00Build20095

Satellite Receiver Channels: 432 channels

Satellite Receiver Port: UART

Satellite Receiver Differential System: RTCMV2，RTCMV3

Satellite Receiver Update Rate: 5Hz

Satellite Receiver Antenna: Helix antenna

Steering Controller Mainboard Firmware Version: 1.0.0.8

Motor Model: SW-ED10

Fixed Base Station Signal Coverage: 30km

Radio Transmitter Frequency: 2400MHz

Power of Fixed Base Station Radio Transmitter: 6W

Integration Components: Satellite antennas, receiver & radio station; electric steering wheel & controller

Dimensions: 220*616*267mm

Positioning Accuracy: Horizontal: 1cm+1ppm Vertical: 1.5cm+1ppm

Operating Accuracy: ±2.5cm

Protection Rating: IP67

Power Input: DC12V ～ 24V

Satellite System: Beidou/GPS/GLONASS

Communications Protocol: Wi-Fi, cloud connection

Break-Point Endurance: 10min

Operating Temperature: -20℃ ~50℃

Storage Temperature: -40℃ ~70℃

Motor

Dimensions: 220mm (L) *210mm (W) *87mm (H)

Steering Wheel Diameter: 410mm

Rated Voltage: 12V

Max. Voltage: 28V

Isolation Voltage: 500VDC

Torque: Rated: 10NM Max.: 20NM

Disclaimer

1. Please read this statement 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 acknowledge, understand, agree to and accept all terms and conditions as well as content stated herein upon use of this product.
2. Not being a toy and with certain safety risks when using, this product is not suitable for those who are under 18 years old, or those who have not legally acquired agricultural vehicle licenses required by valid existing laws and regulations in the area where the product is used. Please keep those who have not legally acquired agricultural vehicle licenses away from this product and be particularly cautious with people and animals present.
3. This product is an autopilot designed for agricultural machinery, one of the XAG APC AutoPilot series solely for agricultural use. Please carefully read this User Manual before using this product. When turned on as instructed in this User Manual, with all instructions on the pre-installed app followed, a properly functioned battery and data indicated as normal, this product will provide you with safe and satisfactory autonomous driving service.
4. User commits to use this product within its range for legitimate purposes only and agrees to the terms and conditions herein as well as possible policies and norms formulated by XAG. User acknowledges, understands and accepts that relevant records and data generated during the use of the product will be automatically uploaded and saved to XAG's server. XAG assumes no responsibility for the failure to store and analyze the records and data caused by the unsuccessful upload due to any reason attributable to the user.
5. XAG offers no guarantee that this product is compatible with all agricultural machinery. User shall evaluate and confirm this product's compatibility before use. XAG assumes no responsibility for all economic and legal issues arising therefrom.
6. XAG understands that user may have procured insurances including but not limited to property insurance and third-party liability insurance for the agricultural machinery they own or use. User shall evaluate, confirm and verify whether the use of this product on agricultural machinery violates the terms of the aforesaid insurances. XAG assumes no liability for all economic and legal issues resulting from user's violation of the aforementioned.
7. XAG understands that in accordance with laws and regulations, agricultural machinery under warranty enjoys warranty (after-sales) service. User shall evaluate and confirm whether the use of this product on agricultural machinery violates policies on the terms of warranty service set by agricultural machinery manufacturer as well as the terms of warranty (after-sales) service provided by the agricultural machinery manufacturer. XAG assumes no responsibility for the aforesaid user's ineligibility to legitimately enjoy the warranty (after-sales) service for agricultural machinery due to the use of this product.
8. To the maximum extent permitted by law, under no circumstances shall XAG offer any 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.
9. To the maximum extent permitted by law, XAG shall not be liable for all losses caused by user's improper operation. Furthermore, XAG shall not be liable for any indirect, consequential, punitive, accidental, special or exemplary damages, 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).

10. To the maximum extent permitted by law, under any circumstances, the liability or compensation amount from XAG to you for all damages, losses, and litigation arising therefrom will not exceed the amount that you paid to XAG for purchasing the product, except for the liability or amount to be borne by XAG otherwise stated in the legally binding final verdict or ruling by judiciary accounting for XAG's violation of laws and regulations or obligations.

11. On any account, purchaser or user shall comply with laws and regulations of the country and region where the product is used. XAG assumes no liability arising from the violation of relevant laws and regulations by the purchaser or user.

12. As exclusion clauses may be prohibited by laws in some countries, your rights in different countries may vary. This does not imply that the content contained in this Disclaimer is necessarily invalid.

13. To the extent permitted by law, XAG reserves the right for final explanation and revision of the terms and conditions stated herein. XAG also has the right to update, modify or terminate these terms and conditions via its official website, User Manual/Instruction Manual, online APP, etc., without prior notice.

Warning

User is required to read through the whole User Manual and obtain a legal agricultural vehicle license or operator certificate accredited by XAG (or recognized by existing laws, regulations, and policies). Otherwise, it may cause serious injury to user or others, or cause damage to the product and property loss. Safety awareness is of paramount importance during operation. This product is not suitable for those who are under 18 or over 60 (included) years old. Do NOT use the parts that are not provided or suggested by XAG. Please install and use the product in strict accordance with XAG's instructions.

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