



FJDynamics

FJ DYNAMICS

FJD AT2

Auto Steer System

2023.05

Agenda

Create for a better world

- 01 Industry Background
- 02 Product Overview
- 03 Product Comparison

FJ DYNAMICS

Industry Background

Development Background

We are currently in the transition from Agriculture 3.0 to 4.0, and the global precision agriculture market is growing at CAGR of 7.9%, with enormous potential for future growth.

Agriculture1
.0

Manual



Agriculture2
.0

Mechanization



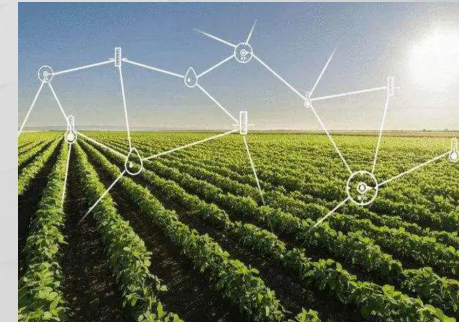
Agriculture3
.0

Precision



Agriculture4
.0

Digitalization



Industry Trends

The transition from single-device control to multi-device precision control is a significant development in the field of precision agriculture.



Product Trends

Good performance and joint precision control test a brand's ability to combine software and hardware development.

Hardware

- Hardware technology maturity**
- Operation precision stability**
- Simplified installation solutions**

Software

- User-friendly operation**
- Function customization**
- Control diversification**





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Product Overview



FJD AT2
Auto Steer System
Navigate to Next-level Efficiency

FJD AT2 Auto Steer System

FJDynamics AT2 Auto Steer System combines GNSS and RTK technology to guarantee a 2.5cm pass-to-pass accuracy on any terrain. With Farm Management, U-turn auto-driving and advanced guidance line in use, it can adapt to more application scenarios in precision agriculture as a more comprehensive solution. Benefiting from this product, you can take the hassle out of all farming seasons with larger yields, better working efficiency, increased productivity, and reduced cost.



Product DNA

FJD is focusing on creating precision navigation and control equipment that is more in line with user usage habits, while also improving agricultural production efficiency and stability.

Smart



The product functions are better tailored to the user's usage habits.

Efficient



More convenient installation and usage leads to increased efficiency.

Stable



Upgraded technology results in a stronger signal and more stable operation during work.

Benefits



Payback Within the **First Year**

Payback can be within the first year for larger growers (200ha fields).



Boost Productivity

With maximum precision and **speeds up to 18km/h**, the Auto Steer System can help you complete field operations quickly and efficiently.



15% Reduce Input Cost

Using auto steer other than working by eyes can efficiently reduce the probability of skips and overlaps, which achieve an average savings of about 15% on crop and fertilizer inputs.

Application Scenes



Harrowing

Soil Preparation



Sowing

Planting



Spraying

Spraying & Spreading



Harvesting

Grown & Gain



Tailored to User Habits



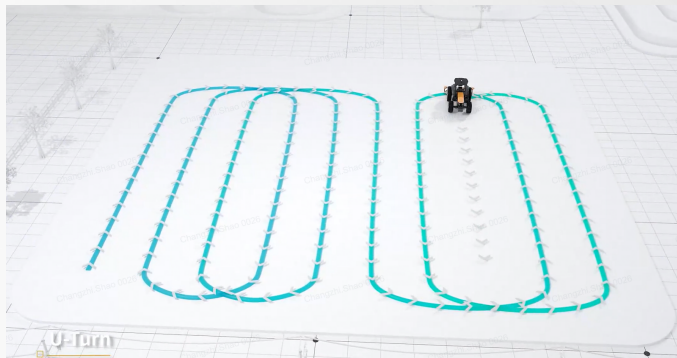
Auto-Turn

Planning is more straightforward

The product is not only suitable for standard square fields but also capable of planning turnaround paths according to complex boundaries, as well as automatically generating edge paths with U-Turns.

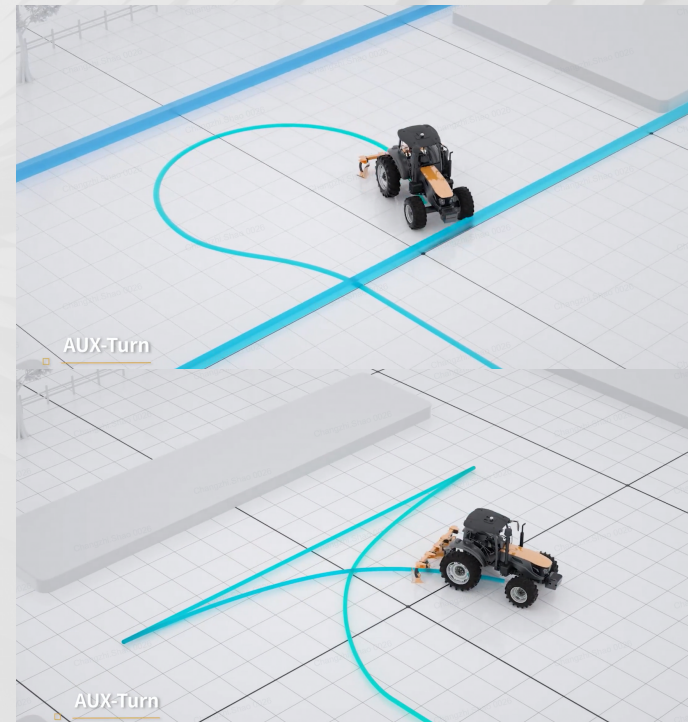


Complex Boundaries



Automatically avoids already-worked areas

Continue working from any position.



Comprehensive control

The product offers a wide range of compatibility

The kit is compatible with 9 different types of agricultural machinery. The ISOBUS Virtual Terminal (VT) currently supports 15 implement brands, and the Task Controller (TC) supports 7 implement brands*.

ISOBUS、NEMA*6、Radar Output

Tractors*6, plant protection machines, rice transplanters, harvesters



*Support for future x view



Extensive Compatibility

Guidance line/Boundary Make the lines more practical and useful.

Real-time adjustment of the guidance line

The guidance line can be easily moved to the current position with one click, and can also be adjusted in real-time with small movements.



Flexible and practical boundaries

After setting the boundary, it can be translated and used for calibration, turnaround planning, and early warning purposes.

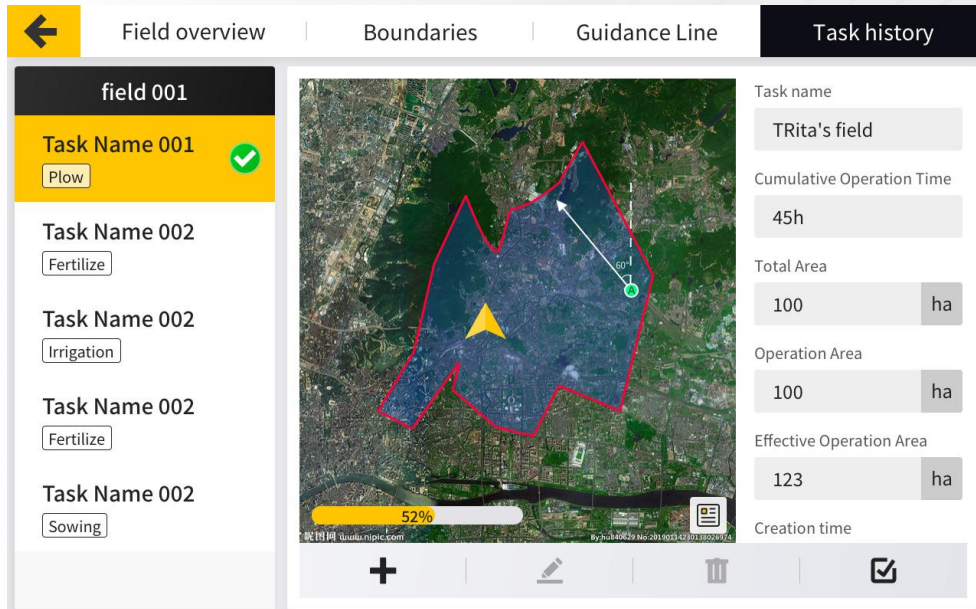


Minimalist interface

Optimized operation path, ready to work upon startup.

Simplified record viewing.

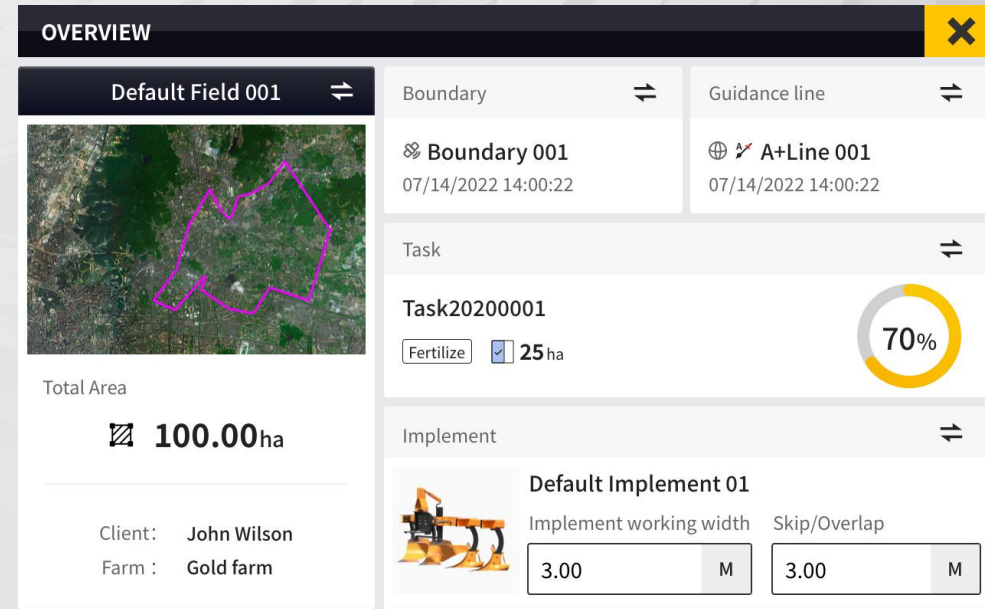
User's work records and task records are combined for easy viewing.



The screenshot shows the 'Task history' tab for 'field 001'. On the left, a list of tasks is shown: 'Task Name 001' (Plow, completed), and three instances of 'Task Name 002' (Fertilize, Irrigation, Fertilize, Sowing). The central map displays a field boundary in red with a blue operation path and a yellow arrow. A progress bar at the bottom of the map indicates 52% completion. On the right, a summary panel lists: Task name (TRita's field), Cumulative Operation Time (45h), Total Area (100 ha), Operation Area (100 ha), Effective Operation Area (123 ha), and Creation time.

Information overview

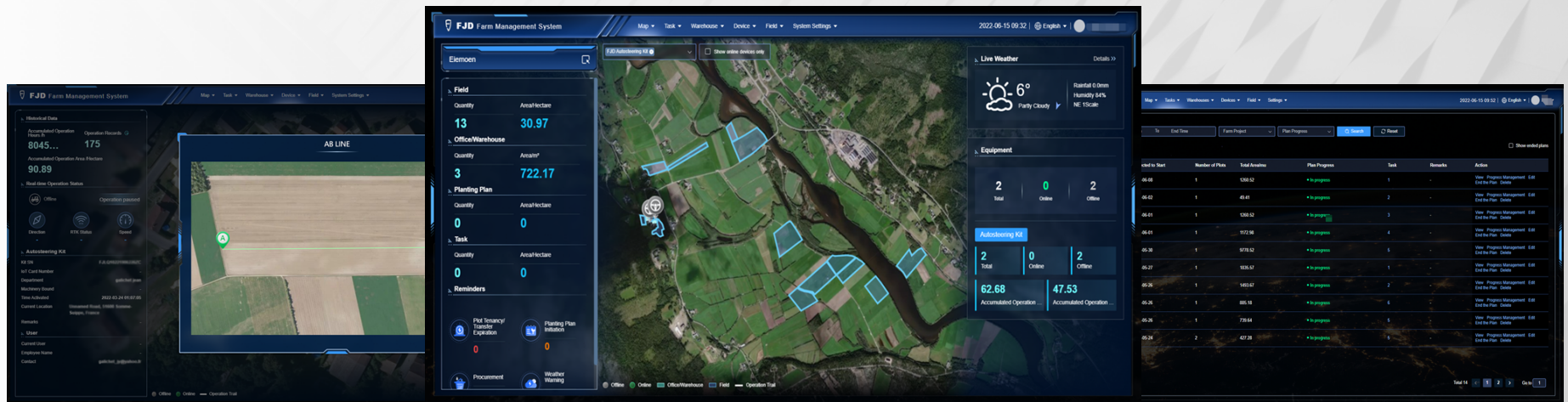
Convenient for users to view the overall work settings and monitor them in real-time.



The screenshot shows the 'OVERVIEW' screen for 'Default Field 001'. It features a central map with a purple boundary. The right side contains a summary of settings: Boundary (Boundary 001, 07/14/2022 14:00:22), Guidance line (A+Line 001, 07/14/2022 14:00:22), Task (Task20200001, Fertilize, 25 ha, 70% progress), and Implement (Default Implement 01, Implement working width 3.00 M, Skip/Overlap 3.00 M). Client and Farm information (John Wilson, Gold farm) is also displayed.

Farm Management

Improve remote management efficiency.



Use Kit Account

Kit accounts can directly log in to the platform, and one account can be bound to multiple kits.

Manage tasks on the platform.

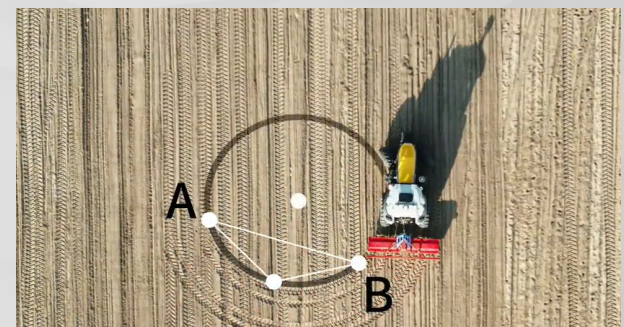
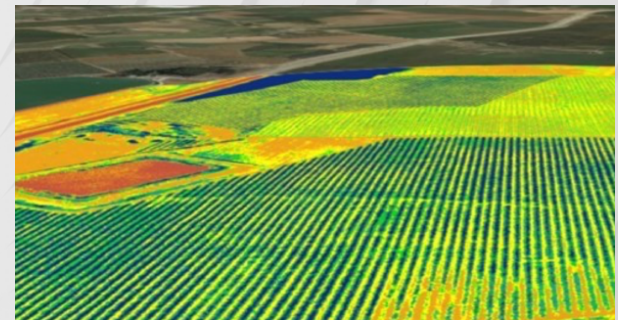
The platform creates farm, plot, boundary, and guideline information that can be synchronized to the terminal. Additionally, tasks can be created and assigned to employees online.

Perfectly Adapted to FJD

Retrieve the terminal's online status and historical work data, supporting real-time and historical review of the work situation.

Other Functions

- **Data Transfer (GIS)**
 - Record of detailed information of operations and import/export of files;
 - Support .SHP (SHX/DBF/SHP) and .ISOXML format;
 - Easy to transfer from machine to machine.
- **Terrain Compensation**
 - Accuracy guaranteed even when the tractor has to drive through rolling terrain, slopes, and rough ground for minimizing skips and overlaps.
- **Guidance Line**
 - Straight-Line, Curve, A+Line, Pivot . more



Improved Efficiency



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Core Components



Control Terminal

Visualization: Android-based, easy-to-use display to let you visualize your entire operation, like working path and status in real time.

Connectivity: Support Bluetooth and Wi-Fi.

Support: 29 languages.



Electric Steering Wheel

Provide simple, hands-free steer for more than 90% brand of tractors, and operate with other module to automatically steer your vehicles with 2.5cm accuracy.



GNSS Receiver

Receive info of positioning and orientation and vehicle angles for a better control of the automatic steering.



Angle Sensor

Be Installed on the steering axle to sense and turn the steering angle into voltages that are recognizable by sensors, which determines if the vehicle is driving straightly.

Installation Diagram

Complete installation in half an hour



GNSS Receiver



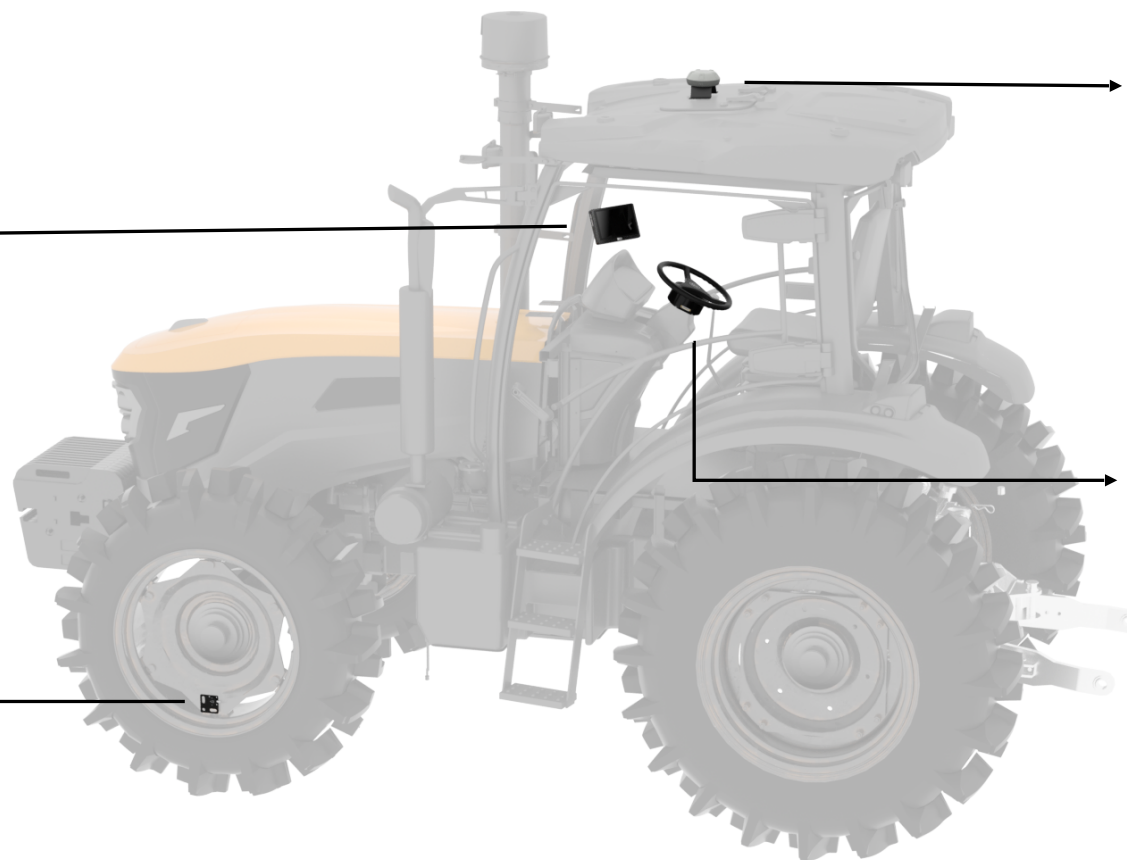
Electric Steering Wheel



Control Terminal

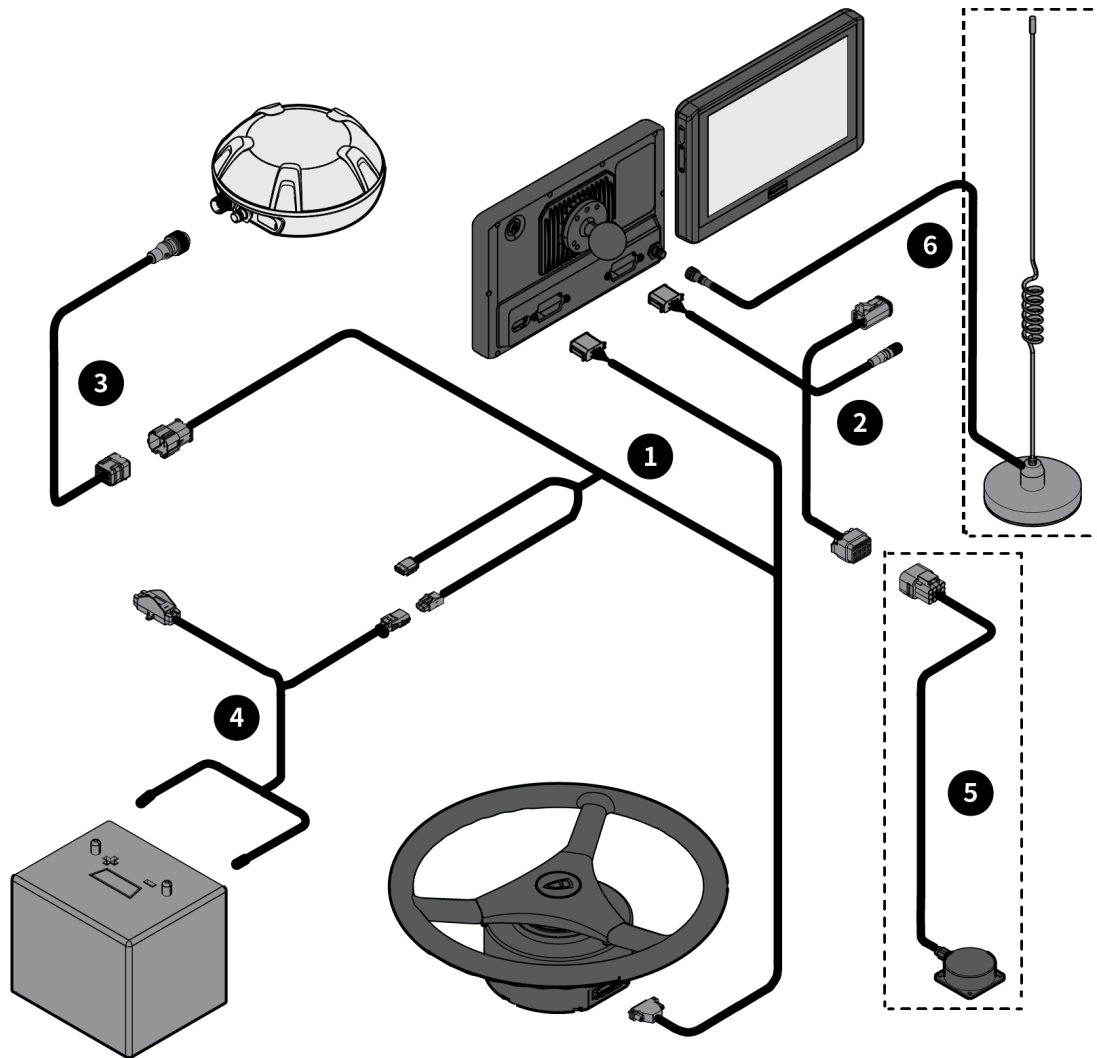


Angel Sensor



Hardware Reduce installation steps





Upgraded Technology



Technological Upgrade, Bigger and Lighter.



↑46%
Screen Ratio



30%
Lighter

Minimalist Design, Enhanced Stability.

GNSS antenna with built-in IMU reduces information transmission links.

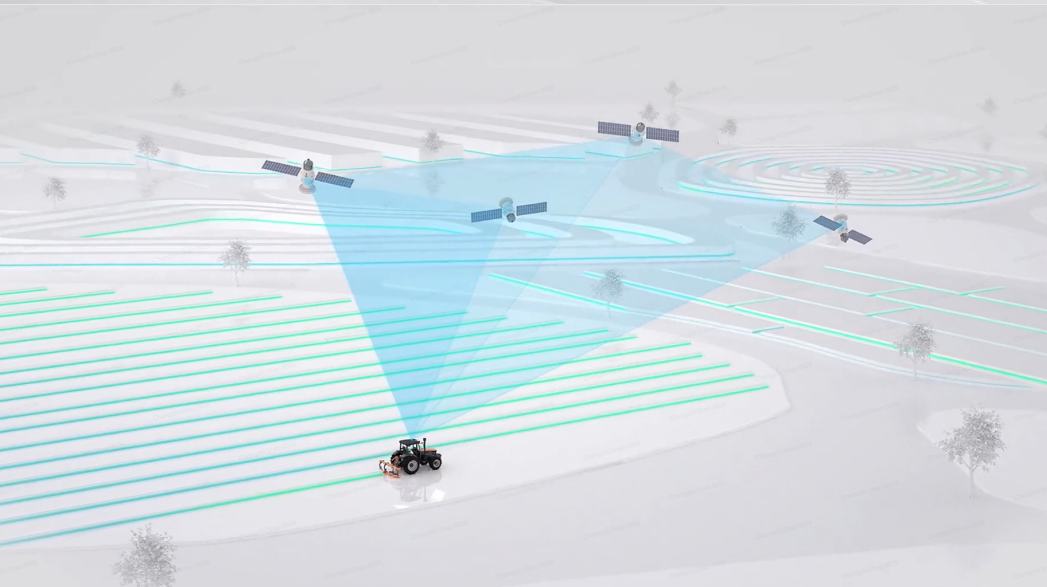


9 external interfaces are simplified to 2, reducing physical wear and tear.



Higher Precision, Stronger Signal.

GNSS board upgrade, support for more constellations, and stronger positioning signals.



The background is a dark, out-of-focus photograph of a desk lamp. The lamp's head is visible on the left, and its base extends downwards. The overall scene is dimly lit, with the lamp providing a soft, warm glow. The text is centered over this background.

More Compatible Accessories

Compatible Accessories



Products shown on the right are optional accessories of FJD AT2 Auto Steer System. By applying these products can improve user experience in vision, HCI, and usage. These products can be purchased separately and satisfy demands for different application scenes.



FJD Easy Control

A wireless controller supports remote control via bluetooth on the Autosteering Kit to achieve flexibility. (Release on V412)



FJD WiFi Camera

An additional camera that can be put on whatever you want to have a view, providing more visual communication.



FJD Satellite Navigation Base Station

A reference base station guarantee the positioning accuracy of operating the Autosteering Kit.



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Product Comparison

FJD AT2 vs CHCNAV 510 Series



As hardware capabilities continue to advance, navigation suite products that align with user habits and offer greater convenience are becoming increasingly crucial. At FJD, we concentrate on developing practical features using technology, while ensuring a solid hardware foundation.



More reasonable Auto Turn planning

FJD

CHCNAV

Aux-Turn

Plan a one-click auto turn path based on complex field boundaries, including fish-tail shaped route and Ω -shaped route.

U-turn

Plan paths on complex field boundaries, make u-turns automatically, enable continuous operations.

Unable to do path planning based on complex boundaries, only applicable to regular fields.

Broader compatibility range

FJD

CHCNAV

Agricultural Machinery

Tractor: 6 types
Support: Crop Protection Machines, Harvesters, Rice Transplanters*.

Tractor: 3 types
Not support: Harvesters, Crop Protection Machines

Farming Implement

ISOBUS: Supports VT/TC (Compatible with 7 Brands*)
NEMA: 6 Types
Radar output: Yes

ISOBUS: No Info
NEMA: 3 Types
Radar output: No

More practical guidance line/boundary management

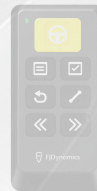
	FJD	CHCNAV
Guidance line correction	Real-time automatic correction of the guidance line during operation to correct vehicle's slight movement. .One-click to shift the guidance line to the current position (shift after obstacle avoidance).	No No
Boundary management	Plan paths on complex field boundaries, make u-turns automatically, enable continuous operations.	No functional effect

Wider variety of modes and more versatile.

	FJD	CHCNAV
Super-low speed mode	Drive the tractor precisely at a speed of 0.3 km/h.	Not clear
Hillside mode	No complicated settings required, one click to activate slope mode,	Multiple parameter settings, complex operation

More options for operation/upgrade

	FJD	CHCNAV
Easy control	Wirelessly controls the system.	No
Upgrade method	Support OTA, USB flash disk upgrade	No USB



*For more advantageous functions and product details, please visit the FJD official website or consult with sales directly.

AT2 vs AT1 SPEC



AT2				AT1			
PIC	Item	Specification		PIC	Item	Specification	
	Control Terminal	Dimension	275x180x40mm		Control Terminal	Dimension	300x190x43mm
		Screen	10.1" touch screen; 700nits LED screen			Screen	10.1" touch screen; 700nits LED backlight
		Power Supply	9V-36V			Power Supply	10-30V
		Pixel	1280*800 pixels			Pixel	1280*800 pixels
		Storage	2G RAM, 8G ROM			Storage	2G RAM, 8G ROM
		Operating Temperature	-20°C~70°C			Operating Temperature	-30°C~70°C
		Storage Temperature	-40°C~85°C			Storage Temperature	-40°C~85°C
		Waterproof & dustproof	IP66			Waterproof & dustproof	IP65
		WiFi Configuration	2.4GHz frequency band; Frequency range: 2.4GHz-2.5GHz, Output power: 14dB±1.5dB			WiFi Configuration	2.4GHz frequency band; Frequency range: 2.4GHz-2.5GHz, Output power: 14dB±1.5dB
		Access Port	Main Wiring Harnessx2, Radiox1, Type-Cx2, SIM Cardx1,			Access Port	Camerax2, Radiox1, 4Gx1, GNSSx2, Image Transmissionx2, Type-Cx3, SIM Cardx1, Main Wiring Harnessx1
	GNSS Receiver	Frequency	GPS: L1C/A, L1C, L2P(W), L2C, L5; GLONASS: L1, L2; BDS: B1I, B2I, B3I, B1C, B2a; Galileo: E1, E5a, E5b; QZSS: L1, L2, L5; SBAS: WAAS, EGNOS, MSAS		GNSS Antenna	Frequency	GPS: L1C/A, L1C, L2P(W), L2C, L5; GLONASS: L1, L2; BDS: B1I, B2I, B3I, B1C, B2a; Galileo: E1, E5a, E5b; SBAS: WAAS, EGNOS, MSAS
		Dimension	162*64.5mm			Dimension	152*63mm
		Operating Temperature	-20°C~+70°C			Operating Temperature	-20°C~+70°C
		Storage Temperature	-40°C~+85°C			Storage Temperature	-40°C~+85°C
		Waterproof & dustproof	IP66			Waterproof & dustproof	IP66
		Operation Voltage	9V-36V			Operation Voltage	3.3V-12V
		Operation Current	< 300mA			Operation Current	< 45mA
		Acceleration Accuracy	0.5mg				/
		Gyroscope Accuracy	0.1°/s				/
		Roll and Pitch Angle	0.2°				/
	Electric Steering Wheel	Dimension	410x410x135mm		Electric Steering Wheel	Dimension	410x410x135mm
		Power Supply	12V/24V			Power Supply	12V/24V
		Maximum Torque	20Nm(12V)/30Nm(24V)			Maximum Torque	20Nm(12V)/30Nm(24V)
		Waterproof & dustproof	IP66			Waterproof & dustproof	IP66
					IMU	Power Input	5V
						Acceleration Accuracy	0.5mg
						Gyroscope Accuracy	0.1°/s
						Roll and Pitch Angle	0.2°

AT2 vs AT1 Feature



Item		AT1	AT2	Description
Control Terminal	Dimension	300×190×43mm	275x180x40mm	Volume ratio: AT1:AT2=1.44: 1
	Weight	2200g	1500g	Weight ratio: AT1:AT2=1.47: 1
	Screen Ratio	0.5	0.73	AT2>AT1
	Access Port	13	6	AT1: Diversified interfaces Main harness*1; 4G Antenna*1 Radio Antenna*1; GNSS Antenna*2; Camera*2; Video Transmission*2; Type-C*3; SIM Card*1. AT2: Integrated interfaces Main Harness*1; Auxiliary Harness*1; Type-C*2; Base Station*1; SIM Card*1.
GNSS Receiver	Received Information Type	Positioning and orientation	Positioning, orientation, the vehicle's pitch angle and roll angle	AT2: free installation of IMU module
Electric Steering Wheel	IMU	/	Built-in	
	Dimension	410x410x135mm	410x410x135mm	AT1&AT2: The feel of the original steering wheel
FJDynamics Autosteering Software	Maximum Torque	20Nm(12V)/30Nm(24V)	20Nm(12V)/30Nm(24V)	
	/	Yes	Yes	The same version in future



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THANKS

