PRECISE

Enjoy a PRECISE, RELIABLE, and EASY experience!

Autopilot Steering System with an Exceptional User Experience.

Super-high Fix Rate
99.9%

MATRIX
Enhanced by
the MATRIX ALGORITHM

Think PRECISE!

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SALES@precise-geo.com
@PRECISE-GEO

PRECISE

99.9%

Super-high Fix Rate

Our product achieves exceptional positioning accuracy.
On average,
only 1 out of every 1,000 positioning attempts,
This precision ensures unparalleled reliability for critical applications.

*Fix rate and accuracy can be affected by external conditions such as multipath, obstacles, satellite geometry, and atmospheric conditions.

Enhenced By

MATRIX

Algorithmic Magic to Enhance
‘Precision, Reliability, and Ease’,
for an Exceptional User Experience.

Magical Module

AI Data Correction Algorithm Module

Utilizing an XGBoost model, this module employs AI tools to comprehensively train and fine-tune large-scale pre-data sets, generating data correction functions. This process effectively enhances real-time fix verification success rates by at least 18%.

Magical Module

Partial Ambiguity Resolution Algorithm Module

Implementing the lambda algorithm for fix solutions, this module performs up to ten intelligent satellite exclusion operations based on actual signal conditions, further improving fix rates.

PRECISE

± 2.5cm
working Accuracy

0.1-28km/h
Velocity Range

20mins(min)
Quick Installation

ISOBUS
Implement Control

Satellite-based PPP
Free Satellite-based Solution (Low Precision)

All Scenarios
Support Diverse Operation Modes

High Compatibility
Compatible with Mainstream
Agricultural Machinery Brands and Models

Full Self-developed R&D and Production
Spreading Efficiency

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HIGHLY INTEGRATED MODULAR DESIGN

Easy assembly, less wire harness and smalle「 size, easy installation and space-saving.

DIVERSE OPERATION MODES

AB line, A+ line, Parallel Curve, Pivot and Diagonal path planning 2.0, meeting the needs of different types of operation modes.

REMOTE ASSISTANCE

Remote desktop assistance allow online debugging, and quickly resolve operational abnormalities.

STABLE SIGNAL

Support the acquisition of differential signals through wireless networks, base stations, and direct satellite connections, enable high-precision operations in diverse environmental conditions.

ADAPTATION TO

HIGH STANDARDS ENVIRONMENT

IP67.

IP67. Dustproof and waterproof features ensure vehicles normally operate under harsh environments.

PRECISE AGRI-SERVICE APP

PRECISE Agri-Service APP helps customers coordinate various Product and equipment management, operation management, digital plot management, and after-sale service system, empower agricultural machinery intelligence and scientific management, improve the quality of PRECISE service, and improve agricultural management efficiency.

Steering control type - Torque motor control

Vehicle terminal

System	Quad-core CORTEX-A 53 high-speed processor of 2GB DDR3 SDRAM
	16GB ON-BOARD EMMC / Built-in speaker (8 ohm, 2w) / Android 10.0
Function key	Power switch key
Display	A 10.1-inch LCD screen/Resolution: 1024 * 600
	Capacacitive touch screen, support 5 finger touch
Specification and dimension	281mm*187mm*48mm
Input voltage	The DC flow is 6.5-36V
Rated current	1.2A 12V
Maximum current	15A 12V
Power rating	≈150W
Overvoltage protection	36V, surge, compliant with ISO-7637 standard
Reverse protection	-36V, surge, compliant with ISO-7637 standard
Communication	BT4.0, BLE / Classic dual-mode / 4G L TE full Dual SIM dual standby dual communication / WIFI
On-board computer data input and output protocol	Support for CAN, USB, WIFI, and Bluetooth
I/O Interface	AHD Camera * 2/CA N *2/The USB interface * 1
	PWM*4/5V DC external power supply
Protection level	IP67
Vibration standard	GB/T 4798.5-2007 5M4
Impact standard	GB/T 4798.5-2007 5M4
Road vehicle standard	ISO16750
Working temperature	-20-70℃, Humidity: 0% -90%
Storage temperature	-30-80℃, Humidity: 30% -95%

Satellite receiving

Shell	Germany Bayer industrial grade modulated PC
Junctor	Aviation plug
Working current	<15A
Satellite receiver type and frequency point	UNICORE UM 982 / BDS B1I, B2I, B3I, GPS L1, L2, L5, GLONASS L1, L2,Galileo E1, E5a, E5b, QZSS L1, L2, L5 full system full frequency letter
Number of satellite receiver channels	1408 channel
Types of satellite receiver interface	Support 3 x UART, 1 x I2C *, I x SPI *, 1 xCAN *
Satellite receiver data update rate	20Hz
Satellite receiver antenna type	Single-antenna / Dual-antenna antenna
The vibration standard	GB/T 4798.5-2007 5M4

Motor

Shell	Cast Aluminium
Working voltage	9V~18V DC
Rated voltage	12V DC
Rated current	10A
Rating torque	7N.m
Peak torque	14±2N.m
Steering error with load	<±5°
Rated rotational speed	100±10 r/min
Weight	About 5 kg
Interface	Air plug
Protection level	IP65
Mechanical shock	EP455 5.14.1
Use temperature	-20℃~+55℃
Storage temperature	-40℃~+60℃

PRECISE

MATRIX

Algorithmic Magic to Enhance ‘Precision, Reliability, and Ease’ for an Exceptional User Experience.

The MATRIX algorithm is driven by a “data-driven” philosophy, integrating mainstream spatial sensing technologies such as GNSS and IMU to build a comprehensive algorithm set and optimization platform with the core advantages of EFFICIENT (optimize iteration efficiency), COMPREHENSIVE (module parameter construction) and PRECISE (final results).

In dynamic mode/ scenario, it meets the continuous precise positioning needs of intelligent driving and drones;

In static mode/ scenario, it fulfills the real-time surveying and mapping, and post-processing monitoring requirements for single-point precise positioning.

The MATRIX algorithm comprises three main modules: the RTK Algorithm Module, the PVT Algorithm Module, and the Integrated Algorithm Module (GNSS+IMU).

PRECISE | **EFFICIENT** | **COMPREHENSIVE**

99.9%

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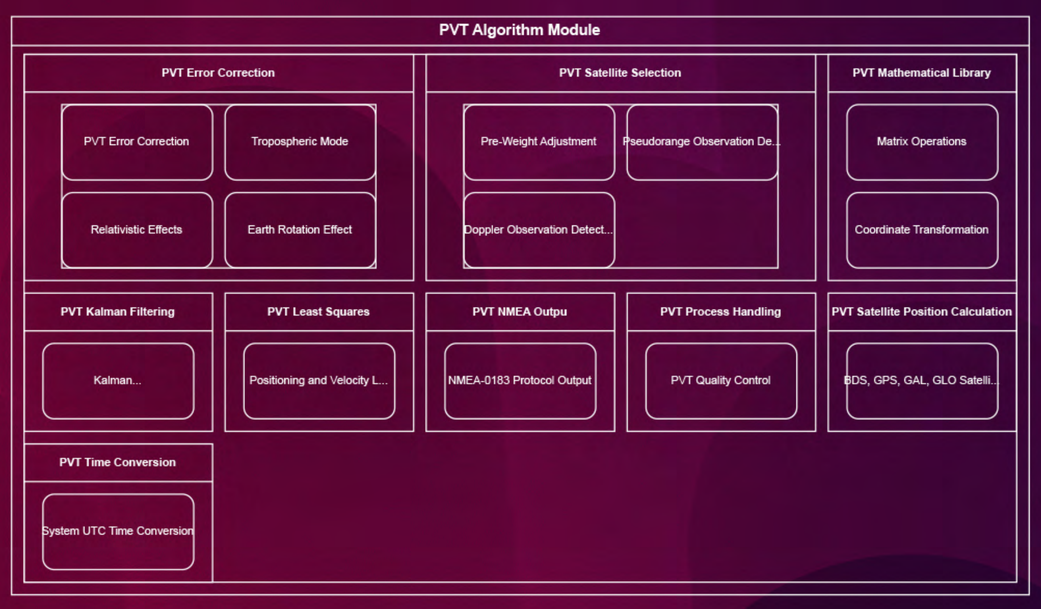
PRECISE | EFFICIENT | COMPREHENSIVE

500+ Algorithm Modules

3,000+ Algorithm Parameters

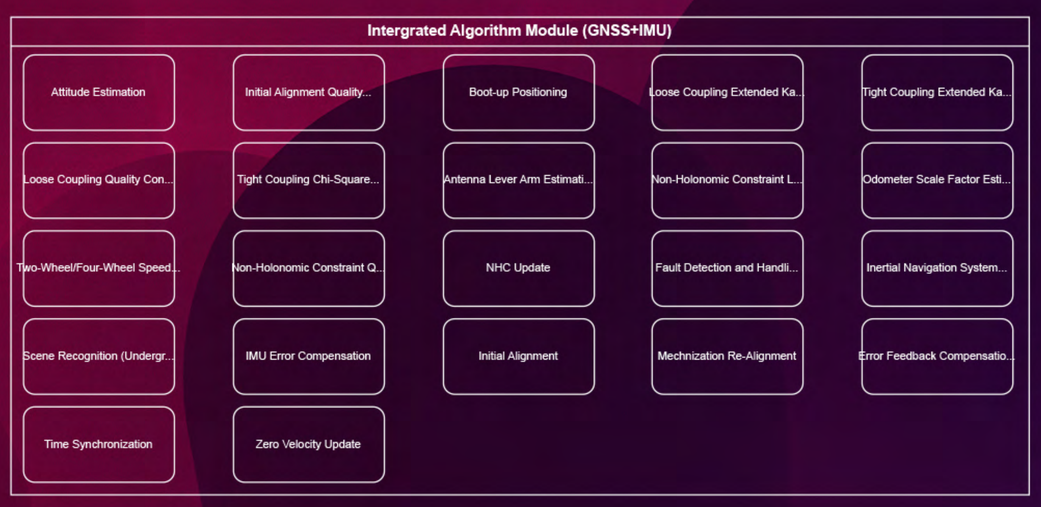
RTK Algorithm Module

The RTK algorithm employs machine learning algorithms to address traditional technical challenges, achieving scene-adaptive recognition, AI satellite selection, and ambiguity validation. It utilizes carrier phase observations from base stations and mobile stations to achieve high-precision position solutions.



PVT Algorithm Module

The PVT algorithm utilizes multi-frequency non-combined updates, combining prior and posterior information to maximize information utilization. It also employs INS multi-directional assistance for GNSS and achieves parameter adaptive optimization in different scenarios, providing strong support and assurance for subsequent RTK algorithms.



Integrated Algorithm Module

The integrated navigation algorithm employs a multi-level fusion positioning architecture, robust filter design, adaptive sensor fusion, and fault diagnosis mechanism to achieve precise estimation of position, velocity, and attitude.

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