PRECISE

PRECISE X

Enjoy a **PRECISE,** **RELIABLE,** **and EASY** **experience!**

Survey grade receiver with an Exceptional User Experience.
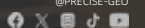
Super-high Fix Rate
99.9%

MATRIX
Enhanced by
the MATRIX ALGORITHM

Think PRECISE!

EASY-Fix   EASY-Surveying   EASY-Stakeout   EASY-Connecting   EASY-Power   Easy-Durability

PRECISE

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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.

EASY-Fix

High-spec hardware ensures
hassle-free positioning and settlement.

· 1,808 channels
· 8+1 RTK accuracy
· 21 frequencies & full constellation
· 5 sec to converge to CM accuracy

01

EASY-Surveying

IMU overcoming conventional terrain constraints while
enhancing surveying flexibility and precision.

· Calibration-free
· Quick initialization
· Immune to magnetic disturbances
· 20mm accuracy at up to 60° angle

02

EASY-Stakeout

Real-time, precise AR visual
marking enhances accuracy and simplifies staking.

· 2mga CMOS sensor
· MM accuracy
· Visualized data display

03

EASY-Connecting

Versatile communication protocols enhance streamlined surveying and field operations.

· 4G internet modem
· 15km radio solution
· Worldwide PPP service
· Connect via IP, Bluetooth, Cable (Type-C)

04

EASY-Power

Extended Endurance for Uninterrupted Field Performance.

· 4.5 hours PD fast charging (Type-C)
· 28 hours working time with 6800mAh battery
· over 3,000 cycles of charging and discharging

05

EASY-Durability

Waterproof and Heat-Resistant Design for Extended Product Lifespan.

· 8-year designed lifespan
· Heat-Resistant aluminum housing
· IP68 waterproof & dustproof rating

06

"PRECISE X has significantly enhanced our construction projects with its outstanding accuracy and reliability. It's a game-changer for our workflow."

Alexei Ivanov, Russia

Rugged Controller
PC2

android **11**

Google Mobile Service

8-core | 2.0GHz processor

4GB RAM
64GB ROM

Type-C Fast Charge

5.5" CORNING Gorilla Glass 3

13mpx rear camera

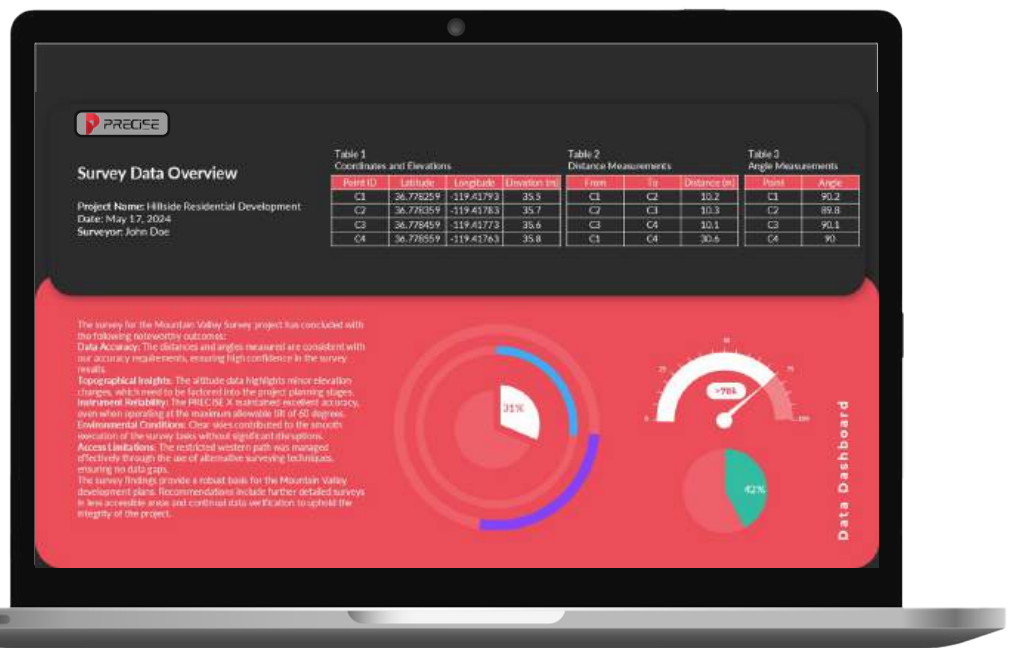**GPS / BEIDOU / GLONASS**

IP67

Web UI Management

By connection through WiFi, PRECISE X can be managed on your PC browser or smartphone easily. You can monitor, check the status, configurate, register, upgrade firmware, download data, etc.

SATELLITE PERFORMANCE

Channels	1,808
GPS	L1C/A, L2C, L2P(Y), L5
GLONASS	L1, L2
BEIDOU	B1i, B2i, B3i, B1C, B2a, B2b
GALILEO	E1, E5a, E5b, E6
QZSS	L1, L2, L5, L6
SBAS	L1, L5
L-Band	B2b PPP
Positioning Rate	1-20Hz

IMU MEASUREMENT

Tilt Accuracy (No tilt angle limit)	2cm within 60°

DATA STORAGE

Type & Storage	SSD 8GB External USB Pen drive
Data Tranfer	Type-C USB Transfer Supports FTP/HTTP download
Differential Format	RTCM 2.1, RTCM 2.2, RTCM 3.0, RTCM 3.1, RTCM 3.2, NMEA 0183, CMR, CMR+
Static Data Format	DAT, RINEX 2.x, RINEX 3.x, BINEX
GPS Output Format	VRS, FKP, MAC
Network Model	Ntrip fully supportable

COMMUNICATION

I/O	Type-C (OTG+Fast Charge+Ethernet)
Antenna Port	All-in-one port for radio/GPRS antenna
Network Modem	Nano-SIM card LTE FDD, LTE TDD, UMTS, GSM
UHF Radio	2W Tx/Rx 410-470MHz
Protocol	LoraLink, TrimTalk, Hi-target, SOUTH, CHC
WiFi	IEEE 802.11 a/b/g/n/ac Hotspot/Data Link
Bluetooth	Bluetooth 2.1 + EDR and 4.0
NFC	Available

INTERFACES

Button	1
LED Indicator	Data Link, Satellite, Bluetooth, Power

POWER SUPPLY

Battery	Internal Li-on Battery 7.2V, 6,800mAh
Operating Time	Static mode 20h Rover mode 15h

PHYSICAL

Dimension	74mm(H), 128mm (W)
Weight	740g
Operating Temp.	-30°C to 65°C
Storage Temp.	-40°C to 80°C
Proof	IP68 water and dust proof 2m drop on hard surface 40G 10ms sawtooth wave

ACCURACY

Code Differential	H: 0.40m (RMS) V: 0.80m (RMS)
Static	H: 2.5mm±0.5ppm (RMS) V: 5mm±0.5ppm (RMS)
Real-time Kinematic	H: 8mm±1ppm (RMS) V: 15mm±1ppm (RMS)
Network PPK	H: 8mm±0.5ppm (RMS) V: 15mm±0.5ppm (RMS)

CAMERA

Optical Format	1/5"
Pixel Size	1.75*1.75μm
Active Pixel Array	1616*1232
Sensor	2 mega CMOS imaging sensors

PRECISE PL2

The Ultimate Companion for High-Precision Surveying

Our advanced External Radio designed to enhance your RTK Rover systems by extending communication range and ensuring stable signal transmission in challenging environments. With powerful signal transmission, reliable connectivity, and seamless integration with PRECISE RTK systems, the PL2 boosts your surveying accuracy and efficiency, making it the perfect companion for high-precision positioning needs.

Overall

Frequency	410~470MHz
Mode	Half duplex
Channel spacing	12.5KHz / 25KHz
Input voltage	10.8~15V DC
Transient power (typical)	Transport (high power) , 97W@13.5V
	Receive, 6.5W
Frequency stability	≤±1.0ppm
Dimension	165mm×125mm×80mm
Weight	1680g
Operating temperature	-40~+85℃
Storage temperature	-45~+90℃
UHF antenna	TNC
Antenna interface impedance	50ohm
Data interface	5pin

Transmitter

Output power	10w/30w (13.5V input)
Power stability	±1dB
Adjacent channel inhibition	>50dB

Receiver

Sensitivity	Better than -116dBm@BER 10-5, 9600bps
Common channel suppression	>-12dB
Blocking	>70dB
Adjacent channel selectivity	>52dB@25KHz
Stray immunity	>55dB

Modulator demodulator

Air rate	4800/8000/9600/16000/19200bps
Modulation method	GMSK/4FSK

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

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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.

Think PRECISE!