



PRECISE X7
Enjoy a
PRECISE,
RELIABLE,
and EASY
experience!

Laser&Image GNSS Receiver

Super-high Fix Rate

99.9%

M MATRIX

Enhanced by
the MATRIX ALGORITHM

All You Need for Surveying, All in One.

Think **PRECISE!**

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Laser Survey

Laser-Precise Survey, Wherever You Aim

Laser Survey allows users to visualize and mark design points directly on-site using laser projection, enabling fast, accurate, and contact-free work.

1. Locations that are difficult for surveyors to reach (e.g., deep pits, riverbanks, cliffs, high-voltage lines, etc.)
2. Places where GNSS signals are heavily blocked (e.g., the forest floor, the underpass.)

30m

laser Survey distance

< 2.5cm

Accuracy within 5 metres

Laser power class 1 according to IEC 60825-1
Supports synchronised image display to aid alignment and improve efficiency



6x

Visibility Advantage

Our green laser light is 6x more visible than other's red in daylight. Due to the human eye's peak sensitivity around 555nm, green laser (520-532nm) is perceived as 5 to 6 times brighter than red laser (635-650nm) under daylight (>100,000lux), improving visibility and usability in outdoor environments.

5x

Sharper Targeting

Allowing users to aim more precisely at distant or small targets. With a beam divergence of $\leq 0.2\text{mrad}$, the laser spot size at 15m remains $\leq 3\text{mm}$ in diameter—over 5x smaller than typical red laser modules ($\sim 1\text{mrad}$), resulting in significantly reduced aiming uncertainty and higher pointing precision.

Any Surface

Surface Response Consistency

From reflective metal to rough concrete, our green laser delivers reliable targeting where others struggle.

Green laser exhibits higher return signal stability on diffuse and low-reflectivity surfaces—including concrete, oxidized metal, bark, and painted wood—thanks to better scattering capture and shorter wavelength, which improves performance where red lasers tend to lose signal.



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AR Stakeout

Bring your blueprint to life with X7 AR Layout

Through the combination of dual high-definition wide-angle cameras and IMU sensors, the AR function can accurately superimpose the points in the design drawings into the real scene, realising WYSIWYG visualisation of sampling operations.

2cm

AR alignment accuracy

Work can still be carried out in bright light



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Tilt Survey

Easy tilt sensing and accurate every time

Built-in IMU module supports tilt survey, enabling measurement without alignment

1. Perfect for collecting precise data on slopes, ditches, and rugged landscapes without the need for vertical positioning.
2. Ideal for surveying manholes, fire hydrants, and other roadside infrastructure where vertical pole placement is difficult or unsafe.

<2cm

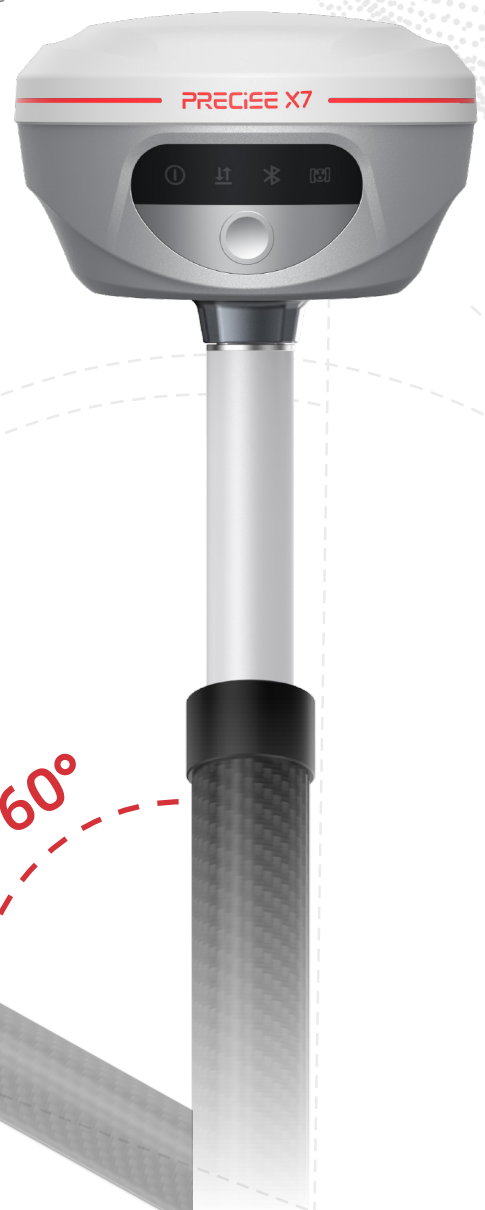
Accuracy within 60°

±60°

IMU tilt angle

no-alignment operation

Real-time dynamic compensation without static re-acquisition



GNSS

Channels	1,408
GPS	L1C/A, L2C, L2P(Y), L5
GLONASS	L1, L2
BEIDOU	B1i, B2i, B3i, B1C, B2a, B2b
GALILEO	E1, E5a, E6
QZSS	L1, L2, L5, L6
SBAS	L1
Output frequency	Maximum 20Hz
Operating System	st (Linux)
Initial time	< 5s (classical)
Initialization reliability	99.99%
Static H	$\pm(2.5\text{mm}+0.5\times 10^{-6}\times D)$
Static V	$\pm(5\text{mm}+0.5\times 10^{-6}\times D)$
RTK H	$\pm(8\text{mm}+1.0\times 10^{-6}\times D)$
RTK V	$\pm(15\text{mm}+1.0\times 10^{-6}\times D)$

PHYSICAL

Dimension	119x92mm
Weight	0.56kg (0.76kg)
Indicator	Satellite Light Data Light Power Light Bluetooth Light
Operating temperature	-45°C ~ +75°C
Storage temperature	-55°C ~ +85°C
Waterproof&Dustproof	IP65
Vibration	IK08
Anti-Drop	Resistant to 1.8 meter drop with rod

COMMUNICATION

I/O Interface	1 x USB Type-c, support power supply, charging 1 x SMA radio antenna connector
Wireless Built-in Network	Support Bluetooth, Handbook 4G Optional: Wi-Fi, Built-in 4G-LTE B1/B3/B5/B7/B8/B20B38/B40/B41 B1/B5/B8B3/B8GPS/GLONASS/Bei-Dou(Compass)/Galileo/QZSS
Internal radio power	Built-in 2w transceiver radio
Built-in radio frequency	410-470MHZ
Protocol	TRIMTALK450S, TRIMMARKIII, TRANSEOT, SOUTH, SATEL

IMU FEATURE

IMU	Support
IMU accuracy	Accuracy within 60° <2cm
IMU tilt angle	0°~120°

DATA FORMAT

Differential Format	RTCM2.X, RTCM3.X
GPS Output Format	NMEA 0183S RJK, Binary code

FUNCTION

Voice	Support
Tilt survey	Support
PPK survey	Support
Speaker	Support
NFC	NFC flash link

STATIC STORAGE

Static data format	TXT
Storage space	8G

POWER SUPPLY

Battery capacity	7.4V, 7000mAh Battery
Battery life	Rover and CORS mode 20 hours Base mode 7.5 hours
External power supply	Support USB port for external power supply, support rechargeable battery

CAMERA

Camera Pixel	5M&5M Dual HD Camera, Large Viewing Angle Support AR Stakeout
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LASER TILT MEASUREMENT

Function	3D error 0.008+0.005*D Tilt angle $\leq 30^\circ$
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PHOTOGRAPHY FEATURES

Camera Resolution	Rear 13MP HD camera
Flash	4x4 high-brightness true flash LEDs
Video Shooting	Up to 1920x1080 pixels at 30 fps

BASIC PARAMETERS

Main Screen Size	5.45-inch HD High-Brightness Display
Touch Screen	Capacitive screen, 5-point touch
Main Screen Material	High-definition hard screen, TP high aluminum white glass
Main Screen Resolution	720×1440 pixels
Appearance Design	Industrial design
SIM Card Type	Dual Nano SIM cards
Network Mode	GSM, WCDMA, TD-SCDMA, TDD/FDD-LTE
Data Services	LTE CAT4 / HSPA / TD-SCDMA / EDGE / GPRS
Supported Frequency Bands	GSM: B2 / B3 / B5 / B8; WCDMA: B1 / B2 / B5 / B8; FDD-LTE: B1 / B3 / B5 / B7 / B8 / B20 / B28 / B2 / B4 / B12 / B17; TDD-LTE: B34 / B38 / B39 / B40 / B41 (100M bandwidth)
Theoretical Speed	LTE CAT4: 150Mbps Downlink, 50Mbps Uplink; WCDMA: Category 24 HSDPA, Category 7 HSUPA; TD-SCDMA: Category 14 (downlink), Category 6 (uplink); GSM: Class 12 GPRS, EDGE
Operating System	Android 11
Main Control Platform	MT6762/6765, Octa-core 2.0GHz
Internal Memory	64GB ROM + 4GB RAM
Body Color	Black
Device Dimensions	221 × 78 × 16.5 mm
Device Features	IP68 Dustproof and Waterproof; 4G Full-Network Intelligent Terminal; Industrial Exterior Design

DATA FEATURES

WLAN Function	Supports 2.4G/5.0G dual-band Wi-Fi (802.11 a/b/g/n/ac)
Data Interfaces	Type-C USB 2.0 (supports 2A charging, data download, OTG)
Bluetooth Transmission	BT 5.0
External Interfaces	Side USB port supported
Wrist Strap	Supported



DEVICE FEATURES

GPS Navigation	GPS + BDS + GNSS + GLL + AGPS
Charging Method	Direct charging via Type-C
Fast Charging	Supports 2A fast charging (9V2A)
Rugged Protection	IP68 Waterproof, IP68 Dustproof, Professional Shock Resistance
Sensors	Gravity Accelerometer, Gyroscope, Proximity Sensor, Ambient Light Sensor, Electronic Compass
Flashlight	High-brightness professional-grade flashlight (operating current 100-150mAh)
NFC	13.56MHz (supports ID card recognition)
Speaker	8Ω 2W speaker
Microphone	Supported
Earphones (Optional)	Type-C port walkie-talkie headset supported
Motor	Supported
Battery	9000mAh
Operating Temperature	+55°C to -20°C
Storage Temperature	+70°C to -40°C



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