



PRECISE X9



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Flagship Visual & Laser RTK Receiver
One Receiver. More Ways to Measure.



TECHNICAL SPECIFICATIONS

GNSS PERFORMANCE

Channels	1920
GPS	L1 C/A, L1C, L2P(Y), L2C, L5
GLONASS	L1, L2, L3
BeiDou	B1I, B2I, B3I, B1C, B2a, B2b
Galileo	E1, E5a, E5b, E6
QZSS	L1C/A, L1C, L2C, L5, L6
SBAS	L1, L5
NavIC/IRNSS	L5
PPP	BDS B2b PPP (Asia-Pacific) & Galileo HAS
Positioning Output Rate	Up to 20 Hz
Signal Re-acquisition	<1 s
Cold Start	<40 s

LASER MEASUREMENT

Laser Measuring Range	0.05–120 m
Laser Color	Green Laser
Laser Safety Class	Class 1, IEC 60825-1
Ranging Accuracy	±(5 mm + 100 ppm × D)
Coordinate Measurement Accuracy	H: ±(8 mm + 3 mm/m); V: ±(15 mm + 3 mm/m)
Camera-Assisted Targeting	Supported — Side Camera

AR STAKEOUT

AR Stakeout	Supported
Camera Configuration	Side + Bottom Dual Camera
Long-Range Guidance	Side Camera
Close-Range Guidance	Bottom Camera
Camera Switching	Automatic, distance-based switching
Field Software	X Field Pro

IMU / TILT SURVEY

IMU Tilt Survey	Supported
Maximum Tilt Range	Up to 120°
Tilt Accuracy	≤2 cm within 60° tilt
Calibration Required	Calibration-Free
Initialization	Automatic

PHYSICAL / POWER / RELIABILITY

Dimensions	123*102mm
Weight	800g
Battery Capacity	7.4V,7000 mAh
Rover Runtime	20h
Base Runtime	7.5h
Static Runtime	24h
Operating Temperature	–45°C to +75°C
Storage Temperature	–55°C to +85°C
IP Rating	IP68
Drop Resistance	1.8 m pole drop

APPLICATION

Topographic and geodetic surveying

FIELD SOFTWARE

Software	X FIELD PRO
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POSITIONING PERFORMANCE

RTK Horizontal	±(8 mm + 1 ppm)
RTK Vertical	±(15 mm + 1 ppm)
Static Horizontal	±(2.5 mm + 0.5 ppm)
Static Vertical	±(5 mm + 0.5 ppm)
PPK Accuracy	H: ±(3 mm + 1 ppm); V: ±(5 mm + 1 ppm)
PPP Accuracy	H: ≤0.20 m; V: ≤0.40 m
Initialization Time	< 5s
Initialization Reliability	99.9%
MATRIX Fix Rate	99.9%
Signal Re-acquisition	<1 s
Positioning Engine	MATRIX
Base / Rover Operation	Supported

IMAGE MEASUREMENT & CAMERA

Image Measurement	Supported
Measurement Range	2–15m
Measurement Accuracy	2–3 cm
Measurement Method	Image-Group
Number of Cameras	Dual Camera
Side Camera Resolution	2 MP
Bottom Camera Resolution	5MP
Field of View	51.8° × 42.4° × 32.4°
Shutter Type	Global Shutter
Processing Location	Controller
Processing Software	X Field Pro

COMMUNICATION / DATA / INTERACTION

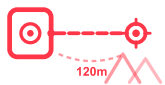
Internal UHF	2 W Max, Tx/Rx
UHF Frequency	410–470 MHz
Channel Spacing	12.5 kHz
Protocols	TrimTalk / TRIMMARK III / SOUTH / SATEL / LoRa / Transparent
UHF Range	Typical 8–12 km
4G	Supported
Wi-Fi	2.4 GHz; IEEE 802.11 b/g/n
Bluetooth	5.0
NFC	Supported
USB / I/O	USB Type-C; TNC UHF antenna; SIM slot; 5-pin LEMO
Internal Storage	32 GB
Differential Formats	RTCM 3.X
Data Output	NMEA-0183, RINEX, TXT
RINEX	RINEX 2.1–3.04
Operating System	Linux
Display	1.39-inch Display
WebUI	Supported
Voice Guidance	Supported
NTRIP	Client / Server or Caster



MEASURE BEYOND DIRECT POLE ACCESS

Different Points Need Different Ways to Measure.

X9 gives surveyors more than one way to measure beyond conventional pole access. Choose long-range laser measurement for remote targets, or image measurement when direct access is inconvenient.



120 m Long-Range Laser

Measure Hard-to-Reach Points from a Distance

Up to 120 m

Measure targets without placing the survey pole directly on the point. X9 extends RTK measurement to elevated features, obstacles and other locations where direct access is difficult or inefficient.



Image Measurement

Measure Directly from Captured Imagery

2–3 cm Image Measurement Accuracy within 15 m

When direct pole access is inconvenient, X9 supports coordinate measurement from captured imagery, delivering 2–3 cm measurement accuracy within 15 m.

It gives surveyors another practical way to collect point coordinates without forcing every target into a conventional pole-based workflow.



Dual-Camera AR Stakeout

See Direction First. Pinpoint the Target When You Get Close.

When you are farther from the stakeout point, X9 uses the side camera to help identify the direction and approximate target area.

As you approach the point, the bottom camera provides close-range visual guidance, helping you reach the target with less back-and-forth.

Tilt Survey

Measure Without Re-Leveling the Pole at Every Point

X9 compensates for pole tilt, so you can keep collecting points without stopping to carefully level the pole for every measurement.

Around walls, obstacles and uneven ground, this means fewer interruptions and a more natural surveying workflow.

MATRIX Positioning

Fix Faster. Stay Fixed More Consistently.

Powered by PRECISE MATRIX, X9 combines multi-frequency GNSS processing with scene-aware satellite selection, ambiguity validation and GNSS+IMU fusion to support fast and reliable positioning as field conditions change.

99.9% Average Fix Rate

