

G10L Long-Range Laser GNSS Receiver Specifications

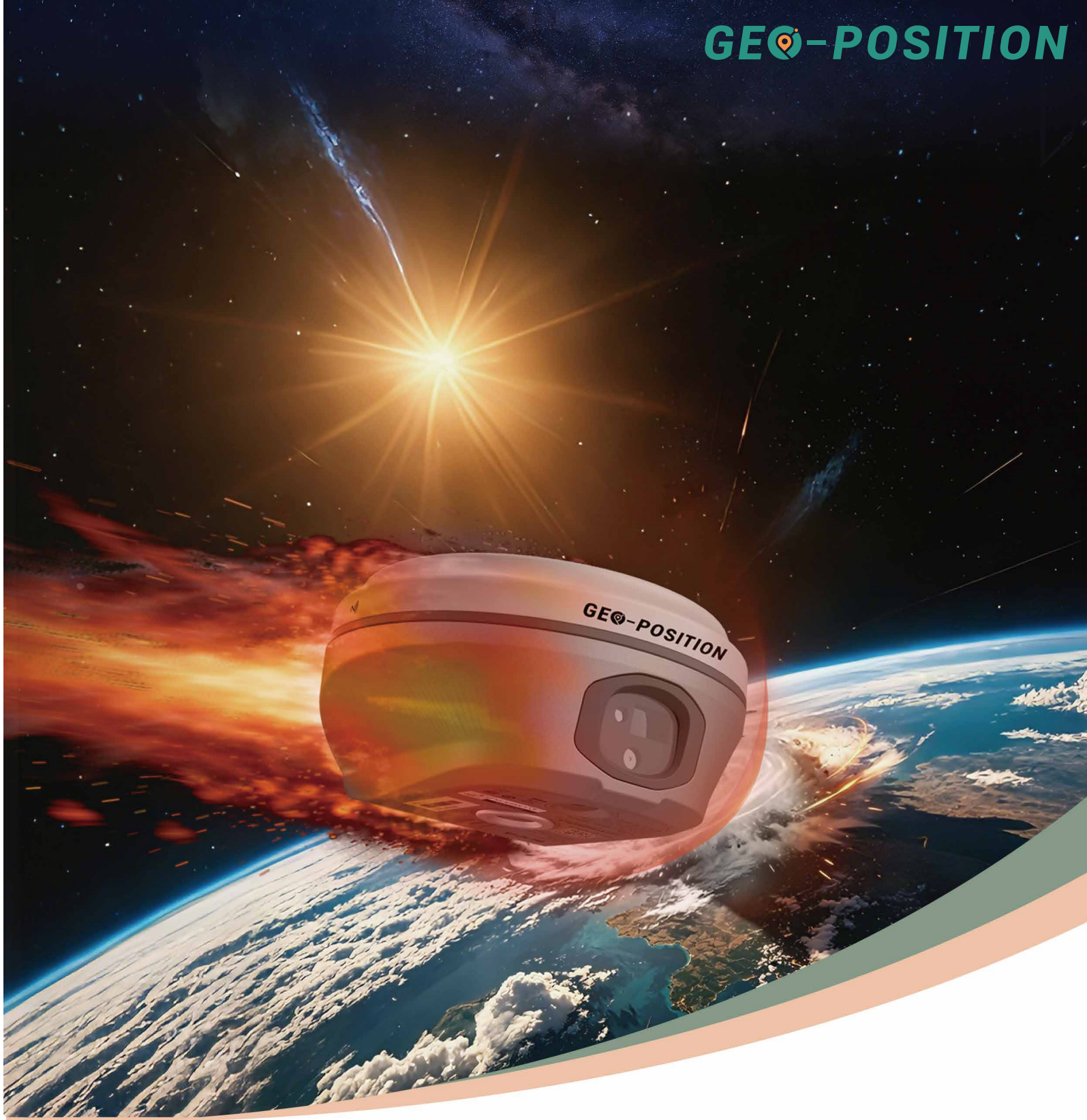
GNSS Signal ^[1]	• Channel	1408	
	• GPS	L1C/A, L1C, L2P(Y), L2C, L5	
	• BDS	B1I, B2I, B3I, B1C, B2a, B2b	
	• GLONASS	G1, G2, G3	
	• GALILEO	E1, E5a, E5b, E6	
	• QZSS	L1, L2, L5, L6*	
	• NavIC(IRNSS)	L5	
	• SBAS	L1, L2, L5	
	• PPP	B2b-PPP, Galileo E6-HAS	
Positioning Performance ^[2]	• High-Precision Static	H: 2.5 mm + 0.1 ppm RMS	V: 3.5 mm + 0.4 ppm RMS
	• Static and Fast Static	H: 2.5 mm + 0.5 ppm RMS	V: 5 mm + 0.5 ppm RMS
	• Post Processing Kinematic (PPK / Stop & Go)	H: 8 mm + 1 ppm RMS Initialization time: typically 10 min for base and 5 min for rover Initialization reliability: typically>99.9%	V: 15 mm + 1 ppm RMS
	• PPP	H: 10 cm	V: 20 cm
	• Code Differential GNSS Positioning	H: ±0.25 m+1 ppm RMS SBAS: 0.5 m (H), 0.85 m (V)	V: ±0.5 m+1 ppm RMS
	• Real Time Kinematic (RTK)	H: 8 mm+1 ppm RMS Initialization time: typically < 10 s	V: 15 mm+1 ppm RMS Initialization reliability: typically > 99.9%
	• G-Fix	H: RTK+10 mm / minute RMS	V: RTK+20 mm / minute RMS
	• Time to First Fix	Cold start: < 45 s	Hot start: < 30 s Signal re-acquisition: < 2 s
	• Positioning Rate	1 Hz, 5 Hz and 10 Hz	
	• Tilt Survey Performance ^[3]	200 Hz, auto calibration, additional horizontal pole-tilt uncertainty typically less than H: 8 mm+0.7 mm/°tilt(0~60°); V: 15 mm+0.7 mm/°tilt (0~60°)	
	• Image Stakeout Accuracy	2 cm accuracy	
	• Laser measurement ^[4]	RMS≤2.5cm@5m; RMS≤5cm@10m	
Physical	• Dimensions (W x H)	131mm × 70mm	
	• Weight	≤ 0.74kg (1.63 lb)	
	• Operation Temperature	-20 ℃ ~+50 ℃ (-4°F ~ +122°F)	
	• Storage Temperature	-40 ℃ ~+55 ℃ (-40°F ~ +131°F)	
	• Humidity	100% non-condensing	
	• IP Rating	IP68 (according to IEC 60529)	
	• Shock and Vibration	MIL-STD-810G, 514.6	
	• Free Fall	Designed to survive a 1.8 m natural fall onto concrete	
Electrical	• Internal Battery ^[5]	RTK rover(UHF): up to 13 h;Laser Survey: up to 10 h;Visual Stakeout: up to 12 h.	
	• External Power	Using standard smartphone chargers or external power banks (Support 5V 2.8A Type-C USB external charging)	
Communication	• I/O Interface	1 × USB type C port; 1 × SMA antenna port	
	• Wi-Fi	Frequency 2.4 GHz/5.8GHz, supports 802.11 a/b/g/n/ac	
	• Bluetooth	BT 5.2, 2.4 GHz	
	• NFC	Near field communication for device touch pairing	
	• Internal UHF Radio	Power: 1 W / 1.5 W adjustable	
		Frequency: 410 MHz~470 MHz	
		Protocol: LoRa,TRIMTALK450S,TRIMMARK III,SATEL-3AS,TRANSEOT,HI-TARGET,etc. Working range: Up to15 km ^[6] Channel: 116 (16 scalable)	
Laser	• Laser Product Classification	Class 3R	
	• Optimal Measuring Distance ^[7]	Up to 100 m	
Camera	• Front Camera	Image-assisted laser aiming and Support real scene CAD stakeout	
	• Bottom Camera	Support AR stakeout	
Control Panel	• Physical Button	1	
	• LED Lights	Satellite, Signal, Power	
System Configuration	• Storage	64 GB ROM internal storage	
	• Output Format	ASCII: NMEA-0183	
	• Output Rate	1Hz~20Hz	
	• Static Data Format	Rinex	
	• Real Time Kinematic (RTK)	RTCM2.X, RTCM3.X, CMR	
	• Network Mode	VRS, FKP, MAC, support NTRIP Client	

Note:
[1]The measurement accuracy, precision, reliability and initialization time depend on various factors, including tilt angle, number of satellites, geometric distribution, observation time, atmospheric conditions and multi-path validation, etc. The data are derived under normal conditions.
[2]Accuracies are dependent on GNSS satellite availability. G-Fix Positioning ends after 5 minutes without differential data.G-Fix is not available in all regions, check with your local sales representative for more information.
[3]Irregular operations such as rapid rotation and high-intensity vibration may affect the inertial navigation accuracy.
[4]The accuracy is tested by GEO-POSITION in specified test scenarios, it may have some deviations in certain scenarios.
[5]The battery operating time is related to the operating environment, operating temperature and battery life.
[6]Communication distance can be achieved when the LoRa protocol is used.
[7] Optimal measuring distance achieved under favourable conditions (nighttime, high-reflectivity targets).
Actual range varies with target reflectivity, ambient light and weather conditions.
Descriptions and Specifications are subject to change without notice.



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G10L
Long-Range Laser GNSS Receiver

GEO-POSITION next-generation Laser RTK that combines GNSS, IMU, dual-camera, and visible laser technologies for immersive, efficient, and precise fieldwork—especially in environments like under bridges, near fences, or across ditches. Including riverine stake-out, bridge pile surveying, elevation surveying, municipal surveying, and outdoor & indoor combination surveying.

It is calibration-free, significantly boosting operational efficiency and laser measuring makes the rodless survey improve efficiency and reduce risk factors. With visualized laser targeting and non-contact measurement, it unlocks a new level of accessibility and safety in obstructed, complex, or semi-enclosed terrains.



LASER



AR Stakeout



IMU



LORA



CAD

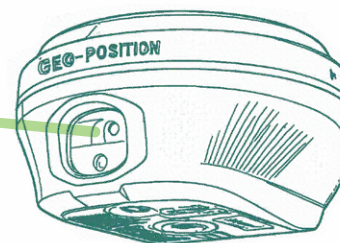


G-Fix



PPP

100m



Visual Laser Targeting

Seamlessly integrates laser and imaging technologies displaying the laser spot directly on the screen for fast, intuitive aiming. No guesswork, no extra steps. By fusing laser and visual technologies, our system delivers non-contact measurements with up to 2.5 cm accuracy within 5 m, such as under bridges, inside fenced zones, or across ditches, all from a safe and convenient distance.



Laser Stakeout —Stake Everything You can See

The laser points directly at the target, with a clearly visible indication; what you see is what you get, just aim to stakeout, achieving precise stakeout job several meters away with a single click.



Better AR Stakeout Experience

Visual positioning eases point finding by overlaying design files onto real scenes, enhancing stakeout efficiency. A high-performance HD camera achieves high accuracy with precise signal tracking. The 360-degree AR stakeout seamlessly switches between the handheld controller and rover, ensuring fast and accurate stakeout experiences.



Up To 120° Tilt Within 2.5cm Accuracy

Equipped with laser & 120° calibration-free IMU technology in a small body, ensures the G10L can still get fixed for tilt measurement work at even 120° measurement angles.



Built-in LORA Radio, Cross-Brand Compatibility

Integrated LORA transceiver supports multiple protocols and brands, delivering over 15 km working range in typical environments.



Real-Scene CAD Stakeout

Combines a high-performance CAD engine with real-world imagery to deliver a visual stakeout experience. Stake with confidence and boost efficiency by up to 50%.



G-FIX Correction Outage Technology

Extending FIX solution up to 10mins.

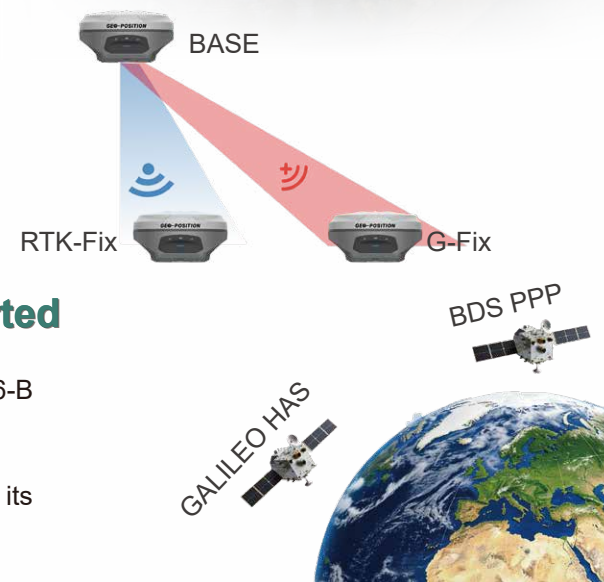
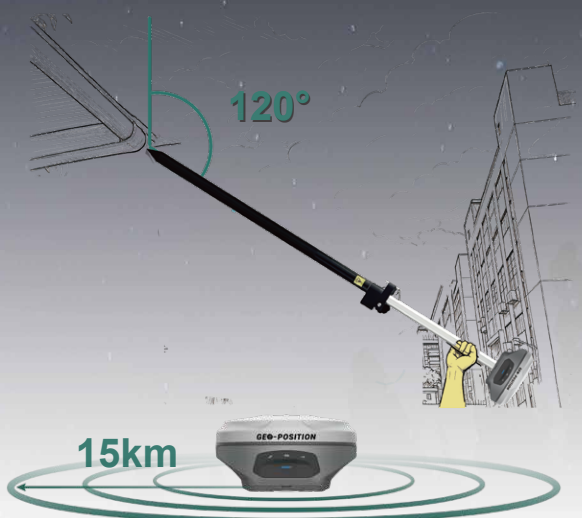
Reducing downtime waiting to re-establish RTK corrections.



GALILEO HAS/BDS PPP Service Supported

HAS provides free high-precision PPP corrections on the Galileo E6-B signal to improve real-time user positioning performance.

BDS PPP provides free BDS high precision PPP correction services within its coverage area.



GP-Survey Software

Professional Surveying and Mapping software

GP-Survey is an Android software that is designed for all types of land survey and road engineering projects in the field. It is compatible with GEO-POSITION professional controllers, Android phones, tablets and other third-party Android devices. It is a sleek and easy-to-use software that supports the operating of big data with built-in tools. With customized industrial application solutions, more possibilities are created for users.