SL7 GNSS Receiver

Data Specifications

GNSS Signal[1]	GPS (L1C/A, L2C, L2P, L5) BDS (B1I, B1C, B2a, B2b, B2I, B3I) GLONASS (L1CA, L2CA, L2P, L3) Galileo (E1, E5a, E5b, E5 AltBoc) QZSS (L1C/A, L1S, L2C, L5) NavIC (L5) SBAS* (L1, L2, L5) PPP (B2b-PPP)
No. of Channels	1760
POSITIONING PERFORMANCE[2]	
High-precision static GNSS Surveying	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:8mm + 1 ppm RMS / V:15 mm + 1 ppm RMS Initialization time: Typically 10 min for base and 5 min for rover Initialization reliability: Typically>99.9%
B2b-PPP	H: 10cm / V: 20cm
Code Differential GNSS Positioning	H:±0.25 m+1 ppm RMS | V:±0.5 m+1 ppm RMS SBAS: 0.5 m (H), 0.85 m (V)
Real Time Kinematic (RTK)	H:8 mm+1ppm RMS / V:15 mm+1 ppm RMS Initialization time: Typically <10 s Initialization reliability: Typically > 99.9%
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
Hi-Fix[3]	H: RTK+10mm / minute RMS | V: RTK+20mm / minute RMS
Tilt Survey Performance[4]	Additional horizontal pole-tilt uncertainty typically less than 8mm+0.7mm/°tilt(0° ~ 60°)
AR stakeout accuracy	1cm
PHYSICAL	
Dimensions (W x H)	130mm × 68mm
Weight	≤ 0.75kg (1.65lb)
Operation temperature	-40℃~+75℃ (-40°F~+167°F)
Storage temperature	-55℃~+85℃ (-67°F~+185°F)
Humidity	100% non-condensing
Water/dustproof	IP68 dustproof, protected from temporary immersion to depth of 1.0m (3.28ft)
Shock and vibration	MIL-STD-810G, 514.6
Free fall	Designed to survive a 2m(6.56ft) natural fall onto concrete
ELECTRICAL	
Internal Battery[5]	Internal 7.2V / 6900mAh lithium-ion rechargeable battery RTK rover(UHF/Cellular): up to 21 hours
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
WiFi	Frequency 2.4GHz, Supports 802.11 b/g/n
Bluetooth	BT 5.2, 2.4GHz
NFC	Near Field Communication for device touch pairing
Internal UHF Radio	Power: 0.5W/1W/2W Adjustable Frequence: 410MHz~470MHz Protocol: HI-TARGET, TRIMTALK450S, TRIMMARK III, SATEL-3AS, TRANSEOT, etc. Working Range: Typically 3~5km, optimal 8~15km Channel: 116 (16 scalable)
CAMERA	
Function	Professional star-level HD camera, large viewing angle, support AR stakeout
CONTROL PANEL	
Physical button	1
LED Lights	Satellite, Signal, Power
SYSTEM CONFIGURATION	
Storage	16GB ROM internal storage
Output format	ASCII: NMEA-0183
Output rate	1Hz~20Hz
Static data format	GNS, Rinex
Real Time Kinematic (RTK)	RTCM3.X
Network Mode	VRS, FKP, MAC, Support NTRIP protocol

Note:
[1]SBAS service can be provided by firmware upgrade, PPP service is not available in all regions, check with your local sales representative for more information.
[2]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.
[3]Accuracies are dependent on GNSS satellite availability. Hi-Fix Positioning ends after 5 minutes without differential data.
[4]Irregular operations such as rapid rotation and high-intensity vibration may affect the inertial navigation accuracy.
[5]The battery operating time is related to the operating environment, operating temperature and battery life
Descriptions and Specifications are subject to change without notice

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SL7

GNSS Receiver

IP68

Powerful Satellite Tracking and Anti-jamming Capabilities

SatLab's unique design and self-developed antenna promise a stable and efficient operation. A highly integrated motherboard chip with low power consumption, supporting up to 1760 channels, tracks full constellations and frequencies. The excellent hardware configuration suppresses signal interference and obtains high-quality satellite-tracking data, ensuring performance and accuracy even in complex environments.

Visual Navigation Makes Stakeout Easier

Star-level HD camera provides users with immersive 3D visual navigation and stakeout experience. The featured AR stakeout on the Satsurv software provides guidance of the pointing arrow on the real scene and the real-time distance display to users for quickly locating the target point. And the AR function can also be performed in activities such as line stakeout and CAD-based map stakeout. The AR stakeout improves working efficiency by nearly 50% compared with the traditional graphics and text mode stakeout.

Accurate and Reliable Tilt Measurement

The SL7 utilizes SatLab's most advanced tilt measurement technology, and with built-in 200Hz IMU module and automatic initialization upon turning on can automatically complete the tilt calibration process without waiting for a fixed solution during operation. And it can measure and stakeout with survey-grade accuracy within a tilt compensation range of up to 60°, increasing efficiency by nearly 30%.

Longer Battery Life and Better Portability

Optimized the whole structure with new hardware, the nimble GNSS smart antenna weighs only 750g, Its energy-efficient hardware design ensures an extended operational battery life of up to 21 hours, allowing users to enjoy portability without worrying about battery drain.

SL7 GNSS Receiver

Key Features

Applications

- Monitoring
- Land Survey
- Mapping
- Hydrographic
- Topography and As-built
- Agriculture