Leica GEOSYSTEMS

Leica GS18

The Leica GS18 is a versatile GNSS RTK rover designed to help surveyors adapt to different tasks, site conditions, and project requirements without changing instruments. It combines trusted positioning, advanced tilt compensation, AI-powered signal classification, and imaging capabilities with workflows that connect field data, office processing, and cloud-based project collaboration.





Be ready for any GNSS surveying task

- **Measure with confidence:** Proven GNSS performance supports reliable results across a wide range of surveying applications.
- **Measure efficiently around obstacles:** Calibration-free tilt compensation keeps work moving without levelling the pole.
- **Stay productive in challenging conditions:** AI-RTK strengthens positioning performance by identifying and mitigating non-line of sight signals.
- **Capture now, measure later:** Imaging technology captures the entire site in seconds, and lets the surveyor extract survey-grade measurements from images, even after leaving the field.
- **Find stakeout points faster:** Visual stakeout directs surveyors to points with clear guidance overlaid on live camera imagery.
- **Keep project data organised:** Leica Captivate, Leica Infinity, and Hexagon GeoCloud support consistent project information across field, office, and cloud.

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Leica GS18

GNSS Technology & services		
Self-learning GNSS	Leica RTKplus	Adaptive on-the-fly satellite selection AI-powered NLOS (Non-Line-of-Sight) signal detection using AI-RTK
Hexagon SmartNet Global	Hexagon SmartNet Pro	Network RTK and unlimited worldwide RTK bridging and PPP service
	Hexagon SmartNet+	Network RTK and RTK bridging service
	Hexagon SmartNet PPP	Unlimited worldwide RTK bridging and PPP service
Leica SmartCheck	Continuous check of RTK solution	Reliability 99.99%
Signal tracking	GPS | GLONASS	L1, L2, L2C, L5 | L1, L2, L2C, L3
	Galileo | BeiDou	E1, E5a, E5b, AltBOC, E6 | B1I, B1C, B2I, B2a, B2b[1], B3I
	QZSS | NavIC	L1, L2C, L5, L6[1] | L1[1], L5
	SBAS | TerraStar	WAAS, EGNOS, MSAS, GAGAN | L-Band, IP
RAIM	Receiver Autonomous Integrity Monitoring	Detection and elimination of faulty satellite signals for enhanced positioning solution and GNSS integrity
Number of channels		555 (more signals, fast acquisition, high sensitivity)
Tilt compensation*	Increased measurement productivity and traceability	Calibration-free Immune to magnetic disturbances
Imaging**		
Measuring camera	Sensor | Field of view | Video frame rate	Global shutter with 1.2 MP | Hz 80°, V 60° | 20 Hz
Image group capture	2 Hz capturing rate	Max. capturing time: 60 s, size of an image group appr. 50 MB
Point cloud	Leica Infinity software	Derive point clouds from image groups
Measurement performance & accuracy[2]		
Time for RTK initialisation		Typically 4 s
Real-time kinematic (Compliant to ISO17123-11 standard)	Single baseline Network RTK	Hz 8 mm + 1 ppm | V 15 mm + 1 ppm Hz 8 mm + 0.5 ppm | V 15 mm + 0.5 ppm
Real-time kinematic tilt compensated	Not for static control points	Additional Hz uncertainty less than 2 mm + 0.15 mm/° tilt down to 60° tilt
RTK bridging	Up to 10 min bridging of RTK outages	Hz 2.5 cm | V 5 cm
PPP	Initial convergence to full accuracy typically 6 min, Re-convergence < 1 min	Hz 2.5 cm | V 5 cm
Post processing	Static (phase) with long observations Static and rapid static (phase)	Hz 3 mm + 0.1 ppm | V 3.5 mm + 0.4 ppm Hz 3 mm + 0.5 ppm | V 5 mm + 0.5 ppm
Code differential	DGNSS	Hz 25 cm | V 50 cm
Image point measurement**	1-click measurement in field & office	Typically 2 cm – 4 cm (2D1) captured from 2 m – 10 m distance
Communications		
Communication ports	Lemo | Bluetooth® | WLAN	USB and RS232 serial | Bluetooth® v4.0 (BLE & BR/EDR), class 1.5 | 802.11 b/g/n for field controller communication only
Communication protocols	RTK data protocols NMEA output Network RTK Security protocol	Leica 4G, Leica, CMR, CMR+, RTCM 2.2, 2.3., 3.0, 3.1, 3.2 MSM NMEA 0183 v4.00 & v4.10 and Leica proprietary VRS, FKP, iMAX, MAC (RTCM SC 104) TLS 1.2
Built-in 4G LTE modem[3]	LTE frequency bands UMTS frequency bands GSM frequency bands	20,8,3,1,7 | 1,2,3,4,5,7,8,12,13,18,19,20,26,28,38,40,41,66 | 13,17,5,4,2 | 19,3,1 8,3,1 | 1,3,2,4,5,6,8,19 | 5,4,2 | 6,19,1 900,1800 | 850,900,1800,1900 | 850,900,1800,1900 MHz
Built-in UHF modem[4]	Receive & transmit UHF radio modem	403 – 473 MHz, channel spacing 12.5 kHz, 20 kHz, 25 kHz, max. 1 W output power up to 28800 bps over air | 902 – 928 MHz (licence free in North America), max 1 W output power
General		
Field controller and software	Leica Captivate software	Leica CS20 & CS50 field controller, Leica CS30 & CC180 & CC200 tablets
User interface	Buttons and LEDs Web server	On / Off and Function button, 8 status LEDs Full status information and configuration options
Data recording	Storage Data type and recording rate	Internal memory up to 4 GB, Removable SD card Leica GNSS raw data and RINEX data at up to 20 Hz
Power management	Internal power supply External power supply Operating time[5]	Exchangeable Li-Ion battery (2.8 Ah / 11.1 V) Nominal 12 V DC, range 10.5 – 26.4 V DC Typical time up to 8 h
Weight and dimensions	Weight | Dimensions	1.25 kg / 3.55 kg standard RTK rover setup on pole | 173 mm × 173 mm × 109 mm
Environmental	Temperature Drop Proof against water, sand and dust Vibration Humidity Functional shock	-30°C to +50°C operating with camera, -40°C to +65°C operating without camera, -40°C to +85°C storage Withstands topple over from a 2 m survey pole onto hard surfaces IP66 | IP68 (IEC60529 | MIL STD 810G CHG-1 510.6 I | MIL STD 810G CHG-1 506.6 II, MIL STD 810G CHG-1 512.6 I) Withstands strong vibration (ISO9022-36-08 | MIL STD 810G 514.6 Cat.24) Up to 100% (ISO9022-13-06 | ISO9022-12-04 | MIL STD 810G CHG-1 507.6 II) 40 g / 15 to 23 msec (MIL STD 810G 516.6 I)

* Available for GS18 I and GS18 T. Available for GS18 with a tilt compensasion service upgrade.

** Available for GS18 I

[1] BeiDou B2b, QZSS L6 and NavIC L1 will be provided through future firmware upgrade.

[2] Measurement precision, accuracy, reliability and time for initialisation are dependent upon various factors including number of satellites, observation time, atmospheric conditions, multipath etc. Figures quoted assume normal to favourable conditions. A full BeiDou and Galileo constellation will further increase measurement performance and accuracy.

[3] Depending on version. In order Europe (SN < 4912000) | Worldwide (SN >= 4912000) | NAFTA | Japan version

[4] Available for the GS18 I UHF variants only.

[5] Might vary with temperature, age of battery, transmit power of data link device or use of wireless communication devices.





Leica GS18 GNSS antennas	GS18 I	GS18 T	GS18
Supported GNSS systems			
Multi-frequency	✓	✓	✓
GPS / GLONASS / Galileo / BeiDou / QZSS	✓ / ✓ / ✓ / ✓ / ✓	✓ / ✓ / ✓ / ✓ / ✓	✓ / ✓ / ✓ / ✓ / ✓
RTK performance			
DGPS/RTCM, RTK Unlimited, Network RTK	✓	✓	✓
Hexagon SmartNet Global	•	•	•
Position update & data recording			
20 Hz positioning	✓	✓	✓
Raw data / RINEX data logging / NMEA out	✓ / ✓ / ✓	✓ / ✓ / ✓	✓ / ✓ / ✓
Additional features			
Tilt compensation	✓	✓	•*
RTK reference station functionality	✓	✓	✓
LTE Phone / UHF Radio (receive & transmit) modem	✓ / •	✓ / •	✓ / •
Imaging	✓	•	•
Visual stakeout	✓	•	•

*Available with a tilt compensation service upgrade

✓ Standard • Optional

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With more than 200 years of history, Leica Geosystems, part of Hexagon, is the trusted supplier of premium sensors, software, and services. Delivering value every day to professionals in surveying, construction, infrastructure, mining, mapping, and other geospatial content-dependent industries, Leica Geosystems leads the industry with innovative solutions to empower our autonomous future.

Learn more at leica-geosystems.com

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 24,800 employees in 50 countries and net sales of approximately 5.4bn EUR.

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