Leica GS18 I
Data sheet

Innovative

The Leica GS18 I is an accurate and easy to use GNSS RTK Rover. It utilises highly innovative Visual Positioning technology based on seamless integration of GNSS, IMU and a camera. It enables you to measure survey grade points in images on site and in the office. Create point clouds from captured data with Infinity to expand possibilities even further.

Fast

Designed to measure a large amount of points efficiently. The Leica GS18 I allows you to capture images and measure hundreds of points within minutes. There's no need to physically reach the point to measure it. This allows you to reduce time spent on-site and cut down re-work: once you've captured the site, you can measure all details whenever you want to.

Versatile

Imaging power has changed the rules of the game. By having the power to measure what you see, you can now reach places you couldn't before without switching tools or climbing through obstacles. That gives you flexibility in the field, frees up equipment and crews and truly maximises productivity in your projects, which results in increased profits.

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GNSS TECHNOLOGY & SERVICES

Self-learning GNSS	Leica RTKplus	Adaptive on-the-fly satellite selection
HxGN SmartNet Global	HxGN SmartNet Pro	Network RTK and unlimited worldwide RTK bridging and PPP service
	HxGN SmartNet+	Network RTK and RTK bridging service
	HxGN 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, B3I
	QZSS | NavIC	L1, L2C, L5, L6[2] | L5[3]
	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[1]

Time for RTK initialisation		Typically 4 s
Real-time kinematic (Compliant to ISO17123-8 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 max 8 mm + 0.4 mm/° tilt down to 30° 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 10 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 (2D[1]) captured from 2 – 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	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)
Built-in 4G LTE modem[4]	LTE frequency bands UMTS frequency bands GSM frequency bands	20, 8, 3, 1, 7 | 13, 17, 5, 4, 2 | 19, 3, 1 8, 3, 1 | 5, 4, 2 | 6, 19, 1 900, 1800 | 850, 900, 1800, 1900 MHz
Built-in UHF modem[5]	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 LTE or BASIC field controller, Leica CS30 & CS35 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[6]	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 x 173 mm x 109 mm
Environmental	Temperature Drop Proof against water, sand and dust Vibration Humidity Functional shock	-30 to +50°C operating with camera, -40 to +65°C operating without camera, -40 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) 95% (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)

1. 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.
2. QZSS L6 will be provided through future firmware upgrade.
3. Support of NavIC L5 is incorporated and will be provided through future firmware upgrade.
4. Depending on variant. In order Europe \| NAFTA \| Japan version
5. Available for the GS18 I UHF variants only.
6. Might vary with temperature, age of battery, transmit power of data link device or use of wireless communication devices.

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- when it has to be **right**

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