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 large amounts of points efficiently. Leica GS18 I allows you to capture images and measure hundreds of points within minutes, also places which cannot be physically accessed. Using images to measure these points, allows you to reduce time spent onsite and cut down re-work: once you captured the site, you have every detail measured.

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 the 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

Self-learning GNSS	Leica RTKplus SmartLink (worldwide correction service) SmartLink fill (worldwide correction service)	Adaptive on-the-fly satellite selection Remote precise point positioning (3 cm 2D)[1] Initial convergence to full accuracy typically 18 min, Re-convergence < 1 min Bridging of RTK outages up to 10 min (3 cm 2D)[1]
Leica SmartCheck	Continuous check of RTK solution	Reliability 99.99%
Signal tracking		GPS (L1, L2,L2C,L5), GLONASS (L1, L2, L2c, L3[2]) BeiDou (L1, L2 B1I, B2I, B2a, B3I), Galileo (E1, E5a, E5b, Alt-BOC, E6[2]) QZSS (L1, L2C, L5, L6[2]), NavIC (L5[3]), SBAS (WASS, EGNOS, MSAS, GAGAN), L-Band
Number of channels		555 (more signals, fast acquisition, high sensitivity)
Tilt compensation	Increase measurement productivity and traceability	Calibration-free Immune to magnetic disturbance

IMAGING

Camera	Sensor Field of view (HZ / V) Frame rate	Global shutter with 1.2 MP 80° / 60° 20 Hz
Image group capture	2 Hz capturing rate Working range	Max. capturing time: 60 s Size of an image group with a 60 s capturing time: appr. 50 MB 2 m - 10 m distance to object of interest
Point cloud	Leica Infinity	Derive point cloud from an image group

MEASURMENT PERFORMANCE & ACCURACY[4]

Time for 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	Topographic points (not for static control points)	Additional Hz pole tip uncertainty typically les than 8 mm + 0.4 mm/° tilt down to 30° tilt
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 3mm + 0.5 ppm / V 5 mm + 0.5 ppm
Code differential	DPGS / RTCM	Typically 25 cm
Image point measurement	1-tap measurement in field/office	Typically 3 cm – 5 cm (3D)[1]

COMMUNICATIONS

Communication ports	Lemo Bluetooth® WLAN	USB and RS232 serial Bluetooth® v2.1 + EDR, class 1.5 802.11 b/g for field controller communication only
Communication protocols	RTK data protocols NMEA output Network RTK	Leica, Leica 4G, CMR, CMR+, RTCM 2.2, 2.3., 3.0, 3.1, 3.2 MSM NMEA 0183 v4.00 and Leica proprietary VRS, FKP, iMAX, MAC (RTCM SC 104)
Built-in LTE modem	LTE frequency bands UMTS frequency bands GSM frequency bands	Penta Band (20, 8, 3, 7, 1) / Penta Band (13, 17, 5, 4, 2)[5] Tri Band (900/1800/2100 MHz) / Tri Band (1700/1900/2100 MHz)[5] Dual Band (900/1800 MHz / Quad Band (850/900/1800/1900 MHz)[5]
Built-in UHF modem	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
External data links		Generic serial interface for phone modems and UHF/VHF radio modems

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GENERAL		
Field controller and software	Leica Captivate software	Leica CS20 LTE field controller, Leica CS35 tablet
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	Removable SD card, 8 GB Leica GNSS raw data and RINEX data at up to 20 Hz
Power management	Internal power supply External power supply Operation time[4]	Exchangeable Li-Ion battery (2.8 Ah / 11.1 V) Nominal 12 V DC, range 10.5 26.4 DC 7 h receiving (Rx) data with internal radio, 5 h transmitting (Tx) data with internal Radio, 6 h Rx/Tx with internal phone modem
Weight and dimensions	Weight Dimensions	1.25 kg / 3.55 kg standard RTK rover setup on pole 173 mm x 73 mm x 108 mm
Environmental	Temperature	-30 to +50° C operating with camera -40 to +65° C operating without camera -40 to +85° C storage
	Drop	Withstand topple over from a 2 m survey pole onto hard surfaces
	Proof against ware, sand and dust	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)
	Vibration	Withstands strong vibration (ISO9022-36-08 / MIL STD 810G 514.6 Cat.24)
	Humidity	95% (ISO9022-13-06 / ISO9022-12-04 / MIL STD 810G CHG-1 507.6 II)
	Functional shock	40 g / 15 to 23 msec (MIL STD 810G 516.6 I)

LEICA GS18 I GNSS RTK ROVER	PERFORMANCE	UNLIMITED
SUPPORTED GNSS SYSTEMS		
Multi-frequency	✔	✔
GPS / GLONASS / Galileo / BeiDou / QZSS	✔ / • / • / • / •	✔ / ✔ / ✔ / ✔ / ✔
CORRECTION SERVICES		
DGPS/RTCM, RTK Unlimited, Network RTK	✔	✔
SmartLink fill / SmartLink	• / •	✔ / •
POSITION UPDATE & DATA RECORDING		
5 Hz / 20 Hz positioning	✔ / ✔	✔ / ✔
Raw data / RINEX data logging / NMEA out	✔ / • / •	✔ / ✔ / ✔
ADDITIONAL FEATURES		
Image point measurement	◇	◇
Derive point cloud from an image group	✔	✔
Tilt compensation	✔	✔
RTK reference station functionality	✔	✔
LTE Phone / UHF Radio (receive & transmit) modem	✔ / •	✔ / •

✔ = Standard • = Optional ◇ = Leica Infinity Imaging license required.

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. GLONASS L3, BeiDou B3, QZSS L6 and Galileo E6 will be provided through future firmware upgrade.
3. Support of NavIC L5 is incorporated and will be provided through future firmware upgrade.
4. Might vary with temperature, age of battery, transmit power of data link device.
5. NAFTA version only.

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Гост применим к геодезическому оборудованию и приборам.