Leica Viva GNSS GS12 receiver

Datasheet

Proven GNSS Technology

Built on years of knowledge and experience, the Leica GS12 delivers the hallmarks of Leica GNSS – reliability and accuracy.

- SmartCheck – RTK data-processing to guarantee correct results
- SmartTrack – best measurement data quality in all environments
- SmartRTK – delivers consistent results in all networks

Light Weight and full functionality

The Leica GS12 delivers ultimate ergonomics through extreme light weight.

- Weight of only 1kg for ergonomic handling with ideal balance
- Fully scalable sensor allows you to buy only what you need today and upgrade with additional functionality as you need it
- Full RTK connectivity together with Leica Viva CS10/CS15 using UMTS, GPRS, GSM or CGR radio devices

Rugged

The Leica GS12 is built for the most demanding environments.

- IP68 protection against dust and continuous immersion
- Withstands 2m pole topple over test
- Built for extreme temperatures of -40° C to +65° C
- Complete cable free operation

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Technical Specifications

GNSS Technology	**Advanced measurement engine**	
	Leica patented SmartTrack technology	• Jamming resistant measurements • High precision pulse aperture multipath correlator • Excellent low elevation tracking technology • Very low noise GNSS carrier phase measurements with < 0.5 mm precision • Minimum acquisition time
	No. of channels	120 channels
	Max. simultaneous tracked satellites	Up to 60 Satellites simultaneously on two frequencies
	Reacquisition time	< 1 sec
	GNSS Measurements	
	Satellite signals tracking	GPS: L1, L2, L2C, L5 (C/A, P, C Code) GLONASS: L1, L2 (C/A, P narrow Code); Galileo (Test): GIOVE-A, GIOVE -B; Galileo: E1, E5a, E5b, Alt-BOC; SBAS: WAAS, EGNOS, GAGAN, MSAS
Measurement Performance	**Accuracy (rms)[1]**	
	DGPS/RTCM	Typically 25 cm
	Single Baseline (< 30 km)	Horizontal: 8 mm + 1 ppm Vertical: 15 mm + 1 ppm
	Network RTK	Horizontal: 8 mm + 0.5 ppm Vertical: 15 mm + 0.5 ppm
	Post Processing (phase) Static with long observations	Horizontal: 3 mm + 0.1 ppm Vertical: 3.5 mm + 0.4 ppm
	Post Processing (phase) Rapid static mode	Horizontal: 3 mm + 0.5 ppm Vertical: 5 mm + 0.5 ppm
	On-The-Fly initialization	
	Reliability[1]	Better than 99,99% using Leica SmartCheck technology
	Time for initialization	Typically 4 sec[2]
	RTK baseline range	up to 70 km
	Data recording	
	Recording rate	Up to 20 Hz
Hardware	**User Interface**	
	Keys	On / Off key
	Led Status indicator	Satellite tracking, *Bluetooth®* communication and battery power
	Communication ports	• Combined USB / Power port with 8-pin Lemo plug • Integrated *Bluetooth®* port • 5-pin clip on contacts for Leica SmartStation setup
	Communication protocols	
	Real-Time data formats for data transmission	RTCM 3
	Real-Time data formats for data reception	Leica proprietary formats (Leica, Leica 4G), CMR, CMR+, RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1, RTCM 3.2 MSM Full support of RTCM 3 Transformation Message
	Physical	
	Weight	1.05 kg including battery
	Dimension (diameter x height)	186 mm x 89 mm
	Environmental specifications	
	Temperature, operating	–40° C to +65° C, compliance with ISO9022-10-08, ISO9022-11-special, MIL STD 810G Method 502.5 II, MIL STD 810G Method 501.5 II
	Temperature, storage	–40° C to +80° C, compliance with ISO9022-10-08, ISO9022-11-special, MIL STD 810G Method 502.5 I, MIL STD 810G Method 501.5 I
	Humidity	100%, compliance with ISO9022-13-06, ISO9022-12-04 and MIL STD 810G Method 507.5 I
	Sealed against water, sand and dust	IP68 according IEC60529 and MIL STD 810G Method 506.5 I, MIL STD 810G Method 510.5 I and MIL STD 810G Method 512.5 I Protected against blowing rain and dust Protected against temporary submersion into water (max. depth 1,4 m)
	Vibration	Withstands vibrations in compliance with ISO9022-36-08 and MIL STD 810G Method 514.6-Cat.24
	Drops	Withstands 1 m drop onto hard surface
	Topple over	Withstands topple over from a 2 m survey pole onto hard surface
	Functional shock	No loss of lock to satellite signals when used on a pole setup and submitted to pole bumps up to 150 mm
	Power management	
	Supply voltage	Nominal 12 V DC, Range 10.5 – 28 V DC
	Internal Power supply	Removable & rechargable Li-Ion battery, GEB212 2.6 Ah / 7.4 V
	Operation time	Up to 7 hours[3]

[1] Measurement precision, accuracy and reliability are dependent upon various factors including number of satellites, geometry, obstructions, observation time, ephemeris accuracy, ionospheric conditions, multipath etc. Figures quoted assume normal to favorable conditions. Times required are dependent upon various factors including number of satellites, geometry, ionospheric conditions, multipath etc. GPS and GLONASS can increase performance and accuracy by up to 30% relative to GPS only.
[2] May vary due to atmospheric conditions, multipath, obstructions, signal geometry and number of tracked signals.
[3] May vary with temperature and battery age.

Swiss Technology by Leica Geosystems

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