

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 – advanced four constellation tracking of all GNSS satellites today and tomorrow
- 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
- Full GNSS compatibility: GPS, GLONASS, Galileo and BeiDou
- 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

IP68




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

Technical Specifications



GNSS Technology 	Advanced measurement engine	
	Leica patented SmartTrack+ technology	<ul style="list-style-type: none"> • 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; BeiDou: B1, B2; SBAS: WAAS, EGNOS, GAGAN, MSAS
	Position update rate	1 Hz standard, Optional 20 Hz (0.05 sec)
Measurement Performance 	Accuracy¹	
	DGPS/RTCM	Typically 25 cm (rms)
	Single Baseline (<30 km)	Horizontal: 8 mm + 1 ppm (rms) Vertical: 15 mm + 1 ppm (rms)
	Network RTK	Horizontal: 8 mm + 0.5 ppm (rms) Vertical: 15 mm + 0.5 ppm (rms)
	Post Processing (phase)	Horizontal: 3 mm + 0.1 ppm (rms)
	Static with long observations	Vertical: 3.5 mm + 0.4 ppm (rms)
	Post Processing (phase)	Horizontal: 3 mm + 0.5 ppm (rms)
	Rapid static mode	Vertical: 5 mm + 0.5 ppm (rms)
	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	<ul style="list-style-type: none"> • 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 and reception	Leica proprietary formats (Leica, Leica 4G) CMR, CMR+
	Real-Time data formats according RTCM standard for data reception	RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1
	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 (-40° F to +149° F) ³
	Temperature, storage	-40° C to +80° C (-40° F to +176° F) ³
	Humidity	100% ⁴
	Sealed against water, sand and dust	IP68 according IEC60529 and MIL STD 810F – 506.4-I, MIL STD 810F – 510.4-I and MIL STD 810F – 512.4-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 810F – 514.5-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 & rechargeable Li-Ion battery, GEB211 2.2 Ah / 7.4 V or GEB212 2.6 Ah / 7.4 V
	Operation time	Up to 7 hours using GEB212 battery ⁵

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 Compliance with ISO9022-10-08, ISO9022-11-special and MIL-STD-810F Method 502.4-II, MIL-STD-810F Method 501.4-II

⁴ Compliance with ISO9022-13-06, ISO9022-12-04 and MIL-STD-810F Method 507.4-I

⁵ May vary with temperature and battery age.