

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

- when it has to be **right**

Leica
Geosystems

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 | |
| | Measurement Performance | | |
| |  | Accuracy¹ | |
| | | DGPS/RTCM | Typically 25 cm (rms) |
| RTK Rapid static (phase) Static mode after initialization | | Horizontal: 5 mm + 0.5 ppm (rms) Vertical: 10 mm + 0.5 ppm (rms) | |
| RTK Kinematic (phase) Moving mode after initialization | | Horizontal: 10 mm + 1 ppm (rms) Vertical: 20 mm + 1 ppm (rms) | |
| Post Processing (phase) Static with long observations | | Horizontal: 3 mm + 0.1 ppm (rms) Vertical: 3.5 mm + 0.4 ppm (rms) | |
| Post Processing (phase) Rapid static mode | | Horizontal: 5 mm + 0.5 ppm (rms) Vertical: 10 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, <i>Bluetooth</i> [®] communication and battery power | |
| | Communication ports | <ul style="list-style-type: none"> • Combined USB / Power port with 8-pin Lemo plug • Integrated <i>Bluetooth</i>[®] 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 - 506.4-1, MIL STD 810F - 510.4-1 and MIL STD 810F - 512.4-1 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.



Total Quality Management - our commitment to total customer satisfaction.

The **Bluetooth**[®] word mark and logos are owned by Bluetooth SIG, Inc. and any use of such marks by Leica Geosystems AG is under license.

Other trademark and trade names are those of their respective owners.

Illustrations, descriptions and technical data are not binding. All rights reserved. Printed in Switzerland - Copyright Leica Geosystems AG, Heerbrugg, Switzerland, 2011. 783034en - VIII.13 - galledia