

Leica GR30 & GR50

Versatile solutions for today and tomorrow



GNSS Performance

Prepared for the constantly changing requirements of GNSS technology, the GR30 and GR50 reference servers are optimised with multi-frequency, 555 channel capabilities. All GNSS installations are certain of receiving and delivering highly accurate and reliable data – today and tomorrow. Rugged and reliable, the GR-series comes with innovative SmartTrack+ technology, ensuring superior quality data even under the harshest conditions.



Smart and Reliable

From RTK, static networks or single base stations to structural monitoring, atmospheric and seismic studies or offshore positioning; all GNSS applications will find a highly reliable solution in the GR-series reference server. Reliable with highly redundant communication, low power consumption and data logging. Smart because RefWorx software offers the highest versatility.

ACC»

Customer care is only a click away

Through Active Customer Care (ACC), a global network of experienced professionals is ready to expertly guide you through any challenge. Eliminate delays with superior technical service, finish jobs faster and avoid costly site revisits with excellent consultancy support. Control your costs with a tailored Customer Care Package, giving you peace of mind you're covered anywhere, anytime.

Leica GR30 & GR50



GNSS TECHNOLOGY

Leica SmartTrack+

Very low noise GNSS carrier phase measurements (<0.5 mm rms). Signal acquisition < 30 s¹. Industry-leading Pulse Aperture Correlator (PAC) multipath mitigation technology. Advanced RF power spectrum analysis, automatic interference detection with notification and interference mitigation on all GNSS bands.

GNSS Signals²

GPS (L1C/A, L1C, L2P(Y), L2C, L5)³; GLONASS (L1, L2P, L2C, L3)³; Galileo (E1, E5a, E5b, AltBOC, E6); BeiDou (B1I, B1C, B2I, B2a, B2b, B3I)⁴; QZSS (L1C/A, L1C, L2C, L5)³; NavIC L5; SBAS³ (WAAS, EGNOS, GAGAN, MSAS)

Number of channels

555 universal tracking channels

MEASUREMENT PERFORMANCE AND ACCURACY⁵

Code differential

Hz: 0.25 m + 1 ppm / V: 0.5 m + 1 ppm

Site Monitor

RTK Positioning modes:

Reference station
(smoothed)

Monitoring
(instantaneous)

Network RTK
(instantaneous)

Single baseline (< 30 km):

Hz: 6 mm + 1 ppm
V: 10 mm + 1 ppm

Hz: 8 mm + 1 ppm
V: 15 mm + 1 ppm

Hz: 8 mm + 1 ppm
V: 15 mm + 1 ppm

VRS, FKP, iMAX, MAC (RTCM SC 104):

Hz: 6 mm + 0.5 ppm
V: 10 mm + 0.5 ppm

Hz: 8 mm + 0.5 ppm
V: 15 mm + 0.5 ppm

Hz: 8 mm + 0.5 ppm
V: 15 mm + 0.5 ppm

Time for initialisation (typical):

10s

10s

4s

VADASE

Velocity and displacement engine:

Velocity accuracy: Hz: 0.003 m/s, V: 0.005 m/s.
Typical velocity derived displacement sensitivity: Hz: 1 cm/s, V: 2 cm/s

PORTS AND CONNECTORS, COMMUNICATIONS

Ruggedized RJ45 Ethernet / Power over Eth.
Serial RS232 / Slot-In / WLAN or Bluetooth®
USB client (PC or tablet) / USB host (ext. disk)
External oscillator / Event input / PPS Out
Dual-Power Input

1 / -
1 / 1 / -
1 / -
1 / - / -
1

1 / Yes
2 / 1 / 1
1 / 1
1 / 1 / 1
1

Internal removable battery and built-in charger

-

GEB243 (up to 24h backup)

Slot-in communication interface

Exchangeable radio/GSM/GPRS/UMTS/LTE devices supported. Automatic gateway routing provides backup of internet access for continuity of communications.

ELECTRICAL, PHYSICAL AND ENVIRONMENTAL

Power supply

Nominal 24 V DC, range 10.5 – 28 V DC. Two external power inputs.

Power consumption

3.5 W typical, 24 V at 145 mA

3.1 W typical, 24 V at 130 mA

Dimension / weight (with rubber bumpers)

220 x 200 x 94 mm / 1.67kg

220 x 200 x 94 mm / 2.01 kg

Temperature

Operating: -40 to 65 °C, Storage: -40 to 80 °C

Humidity

Up to 100% condensing.
Compliance with ISO9022-13-06, ISO9022-12-04 and MIL-STD-810H 507.6-I

Vibration

Withstands strong vibration during operation.
Compliance with ISO9022-36-08 and MIL-STD-810H 514.8 E-1 Cat.24

Drop

Withstands 1 m drop onto hard surfaces.

Proof against water, sand and dust

IP68 (IEC 60529) and MIL-STD-810H 506.6-I / 510.7-I / 512.6-I.
Dust tight. Protected against water jets.
Waterproof tested up to 1.4 m / 2 h submersion.

GENERAL

User interface

Web Interface for full receiver control and status information.

On / Off and 1x function button
6x LED for power, memory, logging,
RT out, RT in, position

On / Off and 6x button keypad, Display,
7x LED for power, memory, logging,
RT out, RT in, position, Bluetooth®

Data logging

Internal removable SD card up to 32GB. 12 parallel logging sessions with automatic clean-up and VADASE event-based file protection. Data rates up to 50 Hz⁶.
RINEX 2.11/3.xx/4.xx, Hatanaka and Leica MDB formats including zip compression.

Data streaming

Up to 20 parallel data streams with multiple connections. Data rates up to 50 Hz⁶.
Supports Leica, Leica 4G, CMR, CMR+, RTCM v2.1/2.2/2.3/3, BINEX, NMEA 0183 v4 and proprietary formats via TCP/IP, Ntrip, serial, USB and Bluetooth®

RefWorx Web and FTP Services

Full control and configuration of the receiver over a web browser. Internet connection sharing (ICS) using the GR50 as a internet gateway for connected devices.
Ntrip server (source), client and caster functionality with unlimited mount points.
Secure access using HTTPS, SSL/TLS certificates, access management and port blocking.
SFTP/FTP server and client (push), Email notification, SNMP support.

¹ Hot start (typical). Cold start <40 s (typical).

² The tracking capability for a specific satellite system is based on publicly available information. For cases where public information is subject to change or not yet available Leica Geosystems cannot guarantee full compatibility.

³ Hardware ready for: GPS L1P(Y), GLONASS L1P, L5 CDMA, QZSS L6 and SBAS L5 may be provided through future firmware upgrade

⁴ Designed for BeiDou Phase 2, Phase 3 compatibility.

⁵ Measurement precision, accuracy in position and height, reliability and time for initialisation are dependent upon various factors including the number of satellites tracked, the observation time, the ephemeris accuracy, the atmospheric conditions, multipath and resolved ambiguities. Figures quoted are RMS (root mean square) and assume normal to favourable conditions.

⁶ 100Hz ready. Can be provided through future firmware upgrade.

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Leica Geosystems AG

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- when it has to be **right**

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