



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 with interference mitigation and spoofing detection, 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.



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.



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 spoofing and interference detection with notification, as well as advanced interference mitigation.		
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)³; SBAS (L1, L5; 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 + 0.5ppm	Hz: 8 mm + 0.5 ppm V: 15 mm + 0.5 ppm
	Time for initialisation (typical):	10s	10s	4s
PPP	Precise Point Positioning	Initial convergence to full accuracy typically 6 min, Re-convergence < 1 min; Accuracy: Hz 2.5 cm V 5 cm		
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, 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 Hz². 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 Hz². Supports Leica, Leica 4G, CMR, CMR+, RTCM v2.1/2.2/2.3/3.0/3.1/3.2/3.3, 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.		

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

* 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.

* Hardware ready for: GPS L1P(Y), GLONASS L1P, L5 CDMA, QZSS L6, and NavIC L1 may be provided through future firmware upgrade

* Designed for BeiDou Phase 2, Phase 3 compatibility.

* 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.

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

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