

# Leica GRX1200 Series High Performance GNSS Reference Receivers



- when it has to be **right**

**Leica**  
Geosystems

# Leica GRX1200 Series

## For permanent reference stations

The Leica GRX1200 Series, part of Leica's new System 1200, is designed specifically for use at reference stations. With these new receivers, GNSS reference stations become more accurate, more powerful, more versatile and more reliable than ever before, yet they are easier to set up and operate.



### SmartTrack+

#### Best GNSS and RTK technology

The Leica GRX1200 Series incorporates an ultra-precise GNSS (Global Navigation Satellite System) measurement engine that supports both GPS and GLONASS – benefit from up to 100% more satellites than GPS alone.

- Acquisition within seconds
- Excellent signal strength
- Reliable tracking to low elevations
- Suppresses phase and code multipath
- Jamming resistant
- Top quality GPS and GLONASS measurements up to 20 Hz
- Totally reliable
- Low power consumption

The Leica GRX1200 Series delivers uncorrelated data of the highest quality under all conditions making them ideal for all reference station applications.

As the GRX1200 Series with SmartTrack+ is designed to support future GNSS signals such as GPS L5 and Galileo, your system investment is secure.

### Simple and robust data management

Removable and robust industrial-grade CompactFlash cards up to 1 GB are used for logging data, where 1 GB is sufficient for about 7 weeks of 1 Hz L1+L2 GPS data. There is no need for power-consuming external memory storage, which typically cannot fulfill the tough environmental conditions to which reference stations can be exposed.

The memory can be split into primary and ring buffer files for logging at different rates and in files of any length. Files can be logged in raw data and/or RINEX format.

### Built-In FTP services

The receiver has an in-built FTP server, allowing simple and quick manual download of data without the need for special software. Or use the FTP Push, a fully automatic upload of data from the receiver to a remote FTP server.

### RTK and DGPS output

The Leica GRX1200 Series provides all the information required for precise surveying with all types of RTK and GIS rovers. They output RTK and DGPS data for transmission from the site by radio, phone or internet, for distribution from a control center by radio, phone or Internet. RTCM, LEICA proprietary, CMR and CMR+ formats are supported.

The receivers can transmit two different formats simultaneously on two different frequencies or using two different media (e.g. radio and phone). Time slicing is supported.

### Benefits

- High accuracy data
- Tracking up to 20 Hz
- Low power consumption
- Removable memory
- Simple configuration
- Web enabled



### Continuously Operating Reference Stations (CORS)

Today, many organizations in many parts of the world recognize the benefits of establishing GPS reference stations and networks to support surveying, GIS, construction, geodesy, navigation, and for monitoring natural and man-made structures.



### Web interface

Use a web browser to conveniently monitor and control your GRX1200 receiver from any computer hooked up in the same network or via the Internet. Or use the browser to pre-configure the receiver for connections with GPS Spider software. The GRX1200 web interface provides highest flexibility, yet uses the latest web security technologies.



### Well trained specialists World-wide support

With support and service engineers in all areas of the world, Leica Geosystems can help you to define your requirements and to set up powerful, easy-to-use GPS reference stations and networks. Just call your dealer or contact us directly.



### AX1202 GG geodetic antenna For standard applications

The AX1202 GG antenna delivers high-quality GPS and GLONASS observables for single stations and networks. The AX1202 GG includes SmartTrack+ technology for sub-millimeter phase center accuracy and high quality measurements even from low elevation GPS and GLONASS satellites. Its built-in ground plane effectively suppresses multipath.



### AT504 GG choke-ring antenna Built to IGS standards

For national and continental first-order networks, and for IGS stations, the AT504 GG Dorne & Margolin geodetic choke-ring antenna will usually be required. Built to IGS standards, this antenna suppresses multipath, has excellent phase center stability and, when used with the Leica GRX1200 Series delivers GPS and GLONASS observables of the highest quality.



### Meteorology and tilt sensors connect to receivers

Meteorology and tilt sensors, such as the Leica Nivel210, can be connected to Leica GRX1200 Series receivers. Meteorological and tilt data are logged and downloaded together with GPS data.

## GRX1200 Series – Technical Data

<b>GNSS Technology</b>	
GRX1200 GG Pro	SmartTrack+, 14L1 + 14L2 GPS, 12L1 + 12L2 GLONASS, 20Hz, L1C/A, L2P, L2C code
GRX1200 Lite/Classic/Pro	SmartTrack, 12L1+12L2 GPS, 20 Hz, L1C/A, L2P code
<b>SmartTrack</b>	Time needed to acquire all satellites after switching on: typically 30 seconds.
Advanced GPS measurement technology	Re-acquisition of satellites after loss of lock: typically within 1 second.
	Very high sensitivity: acquires more than 99% of all possible observations above 10 degrees elevation.
	Very low signal noise. Robust tracking.
	Tracks weak signals to low elevations and in adverse conditions.
	Multipath mitigation. Jamming resistant.
<b>Measurement precision:</b>	
Carrier phase	L1: 0.2 mm rms L2: 0.2 mm rms
Code (pseudorange)	L1: 20 mm rms L2: 20 mm rms
<b>Status indicators</b>	3 LED indicators for power, tracking and memory.
<b>Web &amp; FTP Services</b>	Control and configuration of the receiver over a web browser through Ethernet or Serial PPP. Security by SSL and access management. FTP access to receiver memory, FTP push*, Email notification.
<b>Optional</b>	LEICA GPS Spider.
<b>Control software</b>	For managing single stations and RTK networks.
<b>Weight</b>	1.2 kg
<b>Temperature range</b>	ISO9022, MIL-STD-810F
Operating	-40° C to + 65° C
Storage	-40° C to + 80° C
<b>Humidity</b>	ISO9022, MIL-STD-810F
	Up to 100%
<b>Waterproof</b>	MIL-STD-810F
	Temporary submersion to 1 m
<b>Rain, dust, sand, wind</b>	MIL-STD-810F, IP67/IP57
	Sealed against wind blown rain, sand, and dust

<b>Shock / drop onto hard surface</b>	Withstand 1.0 m drop		
<b>Vibrations</b>	ISO9022, MIL-STD-810F		
	Withstand vibrations, no loss of lock		
<b>Supply voltage</b>	Nominal 12 V DC		
External power input	10.5 V to 28 V DC		
2 power ports	1 primary, 1 back-up		
	<b>GRX1200 Lite</b>	<b>GRX1200 Classic</b>	<b>GRX1200 Pro/GG Pro</b>
<b>Power consumption</b>	4.0 W	4.0 W	3.6 W
<b>Ports</b>			
External power	2	2	2
Serial	4	4	4
Antenna	1	1	1
For optional Controller	1	1	1
Ethernet	-	-	1
PPS output	-	-	1
Event input	-	-	1
External oscillator	-	-	1
<b>Raw data logging</b>	-	•	•
Onboard RINEX logging*	-	•	•
<b>Data streaming</b>			
<b>RTK and DGPS</b>			
Leica for SmartStation	•	•	•
Leica, CMR, CMR+	-	•	•
RTCM v2.1/2.2/2.3/3.0	-	•	•
<b>Other data</b>			
Leica LB2 raw data	•	•	•
BINEX	•	•	•
NMEA 0183	•	•	•
<b>NTRIP</b>			
Integrated NTRIP server	-	-	•
Simultaneous RTK transmission	From 2 ports, identical or different formats		
*Optional			



### GRX1200 Lite – Serving the SmartStation and RTK networks

The GRX1200 Lite is a reference station receiver particularly designed to offer RTK services to one or more SmartStation users at a budget price. If public reference stations are not conveniently available, use a GRX1200 Lite to serve your SmartStation rovers. Teamed with GPS Spider, the GRX1200 Lite is ideal for RTK Networks. As this receiver can be upgraded to a GRX1200, your initial investment is always secure.



### GRX1200 Classic – standard receiver with several connection ports

The GRX1200 Classic meets the needs of many reference station sites. With two power ports, four serial ports and an antenna port, it provides all the connection options and possibilities that you need. The GRX1200 Classic is perfectly suitable for most standard reference station applications.



### GRX1200 GG Pro – GNSS receiver with Ethernet and frequency input

The GRX1200 GG Pro has all the functions of the GRX Classic plus GLONASS and GPS L2C tracking and an Ethernet port for easy LAN/WAN connectivity, an external frequency input port for an external oscillator, a pulse per second output port, and an event input port. IP-port specific access restriction and SSL ensure Internet security. The GRX1200 Pro fulfills the most demanding reference station requirements. It is also available as GPS-only version.



## Numerous output, connection and communication options

Leica GRX1200 Series stations and networks are fully scalable. You can install what you need today, and add on and expand later as requirements change and increase. Your initial investment is always secure.

### Exceptionally rugged and reliable

The Leica GRX1200 Series has a strong magnesium housing and is designed to MIL specifications to withstand the roughest use and the most severe environments. These low power receivers operate throughout a wide temperature range, are fully waterproof, rain, sand and dustproof.

The Leica GRX1200 Series will operate 24 hours a day, 365 days a year, and continue to supply top quality data. It is built to be tough, to be left unattended in remote, hostile environments.

### For permanent installations and campaigns

Why does the GRX1200 almost look like a surveying receiver? Because it combines the best of both – the reference station and the surveying worlds: It features Internet, FTP and email capabilities, and can be fully configured over a web interface. Needless to say, it works seamlessly with the Leica GPS Spider software.

The optional RX controller also makes it the ideal choice for static raw data logging campaigns. Attach the RX for initial configuration and to start logging, then remove it for the rest of the measurement time. Compared to fixed front panels this saves power consumption, and is also more secure. You will also benefit from its robust and field-proven magnesium housing, its low power consumption and the wide range of GPS1200 accessories.



### Leica GPS Spider Reference Station software

Leica GPS Spider is a new, advanced and affordable software package for controlling and operating GNSS reference stations and networks with Leica GRX1200 Series receivers. A single server running Leica GPS Spider software can control many receivers; PCs are not required at the stations.

Leica GPS Spider controls the receivers for data logging and RTK. It manages and monitors all received data and provides Network RTK services, with secure RTK data distribution and user management.

Once started, Leica GPS Spider stations and networks with Leica GRX1200 Series receivers run completely automatically supplying GPS services over entire regions, states and even countries.

Whether providing corrections from just a single reference station, or an extensive range of services from a nationwide RTK network – innovative reference station solutions from Leica Geosystems offer tailor-made yet scalable systems, designed for minimum operator interaction whilst providing maximum user benefit. In full compliance with international standards, Leica's proven and reliable solutions are based on the latest technology.

Precision, value, and service from Leica Geosystems.

**When it has to be right.**

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**Leica GRX1200 Series**  
Technical Data



**Leica Reference Stations**  
Equipment list



**Leica GPS Spider**  
Product brochure



**Leica SmartStation**  
Product brochure



**Leica GPS1200**  
Product brochure



**Total Quality Management – our commitment to total customer satisfaction.**

Ask your local Leica Geosystems dealer for more information about our TQM program.

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