Leica GPS1200 Series
High performance GNSS System

- when it has to be right
Leica GPS1200
Supports full GNSS signals

Now with 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 only. Leica System 1200 receivers provide all the flexibility, power and performance needed for every type of GNSS application. Built to the toughest MIL specifications, they withstand extreme temperatures, the worst weather and the roughest site conditions.

**Best GNSS and RTK technology**
Fast satellite acquisition, high accuracy measurements, tracking to low elevations, the world’s first phase multipath mitigation technology, jamming resistant, high up-date rate, low latency, and fast, reliable, long-range RTK.

**Fully waterproof, incredibly robust**
GPS1200 receivers are designed to work anywhere under the roughest conditions imaginable. They float, withstand falls, jolts and vibrations, operate in rain, dust, sand and snow, at temperatures from –40°C to +65°C.

**Totally versatile**
GPS1200 can be used as a reference or rover in any mode from static to RTK. Small, light, and supporting all formats and communication devices, it can be used on a pole, in a minipack, on a tripod, or even on a construction machine, survey boat or aircraft.

**For all applications**
You can use GPS1200 for everything: control, topo, engineering, cadastre, stake out, monitoring, seismic – whatever you want.

Combine GPS and TPS. Use them in the same way. Change easily from one to the other. Work faster, more accurately and more efficiently. Enjoy all the freedom, flexibility and power of System 1200.

<table>
<thead>
<tr>
<th>Leica SmartStation</th>
<th>Leica GPS1200</th>
</tr>
</thead>
<tbody>
<tr>
<td>TPS1200 with integrated GPS. All TPS1200 can be upgraded to SmartStation.</td>
<td>Unites top GPS technology with powerful data management. Perfect for all GPS applications.</td>
</tr>
</tbody>
</table>
Leica System 1200

GPS and TPS
Working together
For all applications
Today and in the future

Designed and built to the most stringent standards with the latest measurement technologies, Leica System 1200 instruments are extremely efficient and reliable, and stand up to the severest environments.

A new, highly intuitive user interface, a multitude of functions and features, powerful data management, and user-programming capabilities are common to both System 1200 GPS and TPS instruments.

Operators can switch instantly between GPS and TPS and use whichever is the most convenient and suitable; extra training is not required.

These new high-tech GPS and TPS instruments with identical operation enable you to do every type of job, faster, more accurately and more efficiently than ever before.

And most important, you reduce your costs and increase your profits.

<table>
<thead>
<tr>
<th>Leica TPS1200</th>
<th>Uniform operating concept</th>
<th>Identical data management</th>
<th>Leica Geo Office</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top performance, high accuracy total stations do everything you want and much more.</td>
<td>Same operation for TPS and GPS. Use whichever is the most convenient.</td>
<td>As TPS and GPS use exactly the same format and data management, you can transfer cards from one to the other and work in the same way.</td>
<td>Everything you need in a single package for TPS and GPS: import, visualization, conversions, quality control, processing, adjustment, reporting, export etc.</td>
</tr>
</tbody>
</table>
Leica GPS1200
Fast, accurate, rugged and reliable

GNSS technology
GPS1200’s SmartTrack+ measurement engine now utilizes two global navigation satellite systems increasing the number of tracked satellites. The new SmartTrack+ measurement engine tracks all available GNSS signals (L2C and GLONASS). More satellites mean higher productivity, accuracy and reliability. SmartTrack+ acquires satellites within seconds, is ideal in urban canyons and obstructed areas where other receivers often fail. GPS1200 with SmartTrack+ is designed to support the future signals GPS L5 and Galileo.

SmartCheck+
Continuously checking provides the highest possible reliability. A unique, built-in integrity monitoring system checks all results immediately. SmartCheck+ now processes GPS and GLONASS measurements simultaneously for centimeter-accuracy, 20 Hz RTK at 30 km and more. Initialize within seconds and survey in obstructed areas with a GX1230/ATX1230 (GPS only) sensor or increase productivity with a GX1230 GG/ATX1230 GG (GPS and GLONASS).

GLONASS
For many years the GLONASS system was not reliable enough in terms of satellite availability and system performance. With recent launches and commitment from the Russian government, reliability and availability are significantly improved. Under normal conditions there are 2 to 5 additional satellites compared to a GPS only constellation - and even more satellites will be available over the next two years. Now is the time to invest in hybrid GNSS technology.

“...The GLONASS system should be created before 2008, as it was originally planned … We have the possibility. Let us see what can be done in 2006 – 2007”
(Russian President Vladimir Putin December 26th 2005).

High contrast touch screen
The high quality 1/4 VGA (11 lines by 32 characters) touch screen guarantees perfect clarity and contrast. Whether in fading light or bright sunshine, you can always read the display perfectly. Operate using the touch screen or the QWERTY keyboard, whichever you prefer.

Immune to bad weather
Designed for temperatures from −40° C to +65° C (storage +80° C), GPS1200 shrugs off arctic cold and blistering heat. Fully waterproof – withstands immersion to 1 m – sand and dustproof, it operates perfectly in any conditions from tropical rainfall to desert sandstorms. GPS1200 just keeps on working.

Exceptionally rugged
Don’t worry about how your crews handle GPS1200. It’s built to MIL specs to withstand the roughest use. With its strong, precision-machined magnesium housing, GPS1200 stands up to drops and falls and the jolts and vibrations of machines.

RTK/DGPS communication
Radio modems, GSM, GPRS and CDMA modules fit in waterproof housings attached to the receiver. Attach either one or two devices for RTK/DGPS reference and rover applications. With Bluetooth wireless technology built in to the RX1250 controller complete cable free operation and connectivity to compatible wireless products is available.
Antenna technology
All GPS1200 antennas include SmartTrack+ technology to deliver sub-millimeter phase center accuracy and high quality measurements even from low elevation GPS and GLONASS satellites. Built in ground plane suppresses multipath.

GPS1200 antenna and receiver technology deliver high precision measurements for the most demanding tasks. Antennas are light and rugged, built to survive falls from the top of a 2 m pole.

SmartStation with SmartAntenna
SmartStation is a TPS1200 with a ATX1230 (GG) SmartAntenna. All GPS and TPS operations are controlled from the TPS keyboard, all data are in the same database, all information is shown on the TPS screen. Touch the GPS key, let RTK determine the position to centimeter accuracy, then survey and stake out with the total station. You can do anything with SmartStation. You can also use SmartAntenna independently on a pole with a RX1250 controller.

Light, modular equipment
Use it the way that suits you best.

All on the pole
Light weight with excellent balance. Ideal for stakeout on construction sites and other demanding conditions.

Pole and minipack
Minimum weight in your hand when surveying for hours on end.

On a tripod or pillar
For geodetic control and reference stations.

All in the minipack
For 30 cm DGPS, GIS and seismic surveys.

CompactFlash cards
Same CompactFlash cards for GPS and TPS.

Plug-in Li-lon batteries
For reliable, long-lasting power, GPS1200 uses the best, high-capacity batteries available. Work for up to 15 hours with just two plug-in, Lithium-ion batteries.

TPS1200 Total Stations
GPS and TPS use the same CompactFlash cards, formats and data management. Transfer cards from one to the other and continue working in the same way.

Keyboard illumination
Switch on the display and keyboard illumination when working at night. All the keys light up.

Use GPS1200 for everything
For RTK, DGPS, and static data logging
As a rover or reference
On a pole, tripod, pillar, or in a minipack
On construction machines, survey boats, or planes
For every type of application

Leica Geo Office
Software support package for GPS and TPS with tools and components for import, visualization, conversions, quality control, processing, adjustment, reporting, export etc.

Choice of RTK pole
Carbon fiber or aluminum pole with adjustable, ergonomic handgrip.

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For 30 cm DGPS, GIS and seismic surveys.
Leica GPS1200
Extremely powerful
Yet very easy to use

GPS1200 is loaded with a multitude of features and functions to meet the many different needs of users all over the world, yet it is remarkably easy to use.

GPS1200’s graphical operating concept is self-explanatory and guides you straight to what you need.

You can use the default settings or, if you prefer, you can set GPS1200 to operate, display and output data in exactly the way you require.

When you use GPS1200, you’ll find that everything is very easy to understand.

Even better, you’ll notice that GPS1200 and TPS1200 are fully compatible with the same CompactFlash cards, data management, displays and keyboards.

Depending on the jobs you do, you can switch easily from GPS to TPS and continue working in exactly the same way.

Operate GPS1200 using the QWERTY keyboard or the large graphic touch screen, whichever you prefer.

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Graphic view mode

Graphic views show your work. Zoom in for details and out for the entire survey. Use the touch screen or keyboard to access data related to points and objects.

With graphical views you can check quickly in the field for completeness and correctness.

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Coding and plan of your work

Define points, lines and areas to build up a plan in the display as you survey. You see immediately what you’ve done. Attach the codes, attributes and information needed for input into your office or mapping software.

System 1200 has all types of tools and is incredibly versatile.

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Data export in any format

Data can be exported directly from GPS1200 or via Leica Geo Office in various standard formats or in your own user-defined formats for direct input into any type of processing, office, CAD or mapping software.

System 1200 interfaces easily to third-party software packages.
User definable displays
With GPS1200 you can define different display masks so that the system shows exactly what you and your crews want to see when surveying in the field. Set the displays according to the jobs you do and the information required.

Definable function keys
Allocate commands, functions, displays etc. to these keys for immediate access.

Data management
The powerful database manages data, files, jobs, quality checks etc. You can view, edit, delete, and search with or without filters. Coordinates of points measured more than once are averaged provided that they lie within specified tolerances.

Program menu
Direct access to all loaded application programs such as survey, stakeout, COGO etc. and optional application programs.

Application programs
GPS1200 is supplied with many useful programs such as Survey, Stakeout, COGO. Other programs such as RoadRunner, Reference Line and DTM Stakeout are optional. You can also write your own programs for special applications in Geo C++.

GPS1200 adapts perfectly to your needs.

Surveying is much easier and more reliable with System 1200.

Most programs run on both GPS and TPS.

Status icons
Indicate the current measurement and operation modes, recording and battery status, instrument settings etc.

Configurable user menu
Set up your own user menu for the way you and your crews operate. Show what you need and hide the rest.

QWERTY keyboard
The standard QWERTY layout of the controller keyboard facilitates fast, easy input of alphanumeric data and information.

Large graphic display
1/4 VGA high-resolution LCD, easy to read in any light. Display and keyboard light up for work in the dark.

Program menu
The controller’s touch screen provides immediate access without using the keyboard. You can view data and information related to points and objects and call up all types of functions directly via the screen. Use the touch screen and/or the keyboard whichever you prefer.

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Leica GPS1200
Superb measurement and RTK performance

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<thead>
<tr>
<th>SmartTrack</th>
<th>SmartCheck</th>
<th>SmartRover</th>
</tr>
</thead>
<tbody>
<tr>
<td>World leading GNSS technology</td>
<td>Fast, self-checking +30km RTK</td>
<td>SmartRover – extremely light weight</td>
</tr>
<tr>
<td>Low noise, reliable, high</td>
<td>The SmartCheck algorithms weight and</td>
<td>SmartRover weighs just 2.8kg for a</td>
</tr>
<tr>
<td>accuracy code and phase</td>
<td>process SmartTrack measurements and</td>
<td>complete cable free all on the pole</td>
</tr>
<tr>
<td>measurements are the basis of</td>
<td>deliver fast, accurate RTK.</td>
<td>RTK GPS rover. Work the complete</td>
</tr>
<tr>
<td>all satellite surveying work.</td>
<td>Centimeter accuracy positions are</td>
<td>day in comfort and enjoy full</td>
</tr>
<tr>
<td>The better the raw data and the</td>
<td>available continuously at rates of</td>
<td>compatibility with SmartStation.</td>
</tr>
<tr>
<td>more satellites being tracked,</td>
<td>up to 20 Hz. Integrity monitoring</td>
<td>SmartRover is fully compatible with</td>
</tr>
<tr>
<td>the better the performance and</td>
<td>runs in the background resolving the</td>
<td>SmartStation through the interchange-</td>
</tr>
<tr>
<td>the results. GPS1200’s</td>
<td>ambiguities and verifying the</td>
<td>able SmartAntenna. Using Bluetooth</td>
</tr>
<tr>
<td>completely new SmartTrack+</td>
<td>coordinates. Reliability</td>
<td>wireless technology the new light</td>
</tr>
<tr>
<td>measurement engine and antenna</td>
<td>is phenomenal – 99.99% for baselines</td>
<td>weight RX1250 controller communicates</td>
</tr>
<tr>
<td>are matched perfectly to each</td>
<td>up to 30 km – and the range is</td>
<td>with the SmartAntenna to provide</td>
</tr>
<tr>
<td>other for the best possible</td>
<td>outstanding.</td>
<td>RTK positioning to centimeter</td>
</tr>
<tr>
<td>receiver performance:</td>
<td>Whatever the work, whether the</td>
<td>accuracy. SmartRover delivers many</td>
</tr>
<tr>
<td>Acquisition within seconds</td>
<td>receiver is on a pole or vehicle,</td>
<td>benefits:</td>
</tr>
<tr>
<td>Excellent signal strength</td>
<td>you’ll find GPS1200 RTK to be the</td>
<td>■ Weighs just 2.8 kg</td>
</tr>
<tr>
<td>Tracking to low elevations</td>
<td>perfect tool:</td>
<td>■ Interchange</td>
</tr>
<tr>
<td>Suppresses phase and code</td>
<td>■ Initializes within seconds</td>
<td>SmartAntenna between SmartStation</td>
</tr>
<tr>
<td>multipath</td>
<td>■ Excellent signal strength</td>
<td>and SmartRover</td>
</tr>
<tr>
<td>Jamming resistant</td>
<td>■ Tracking to low elevations</td>
<td>■ Cable free all on the pole set-up</td>
</tr>
<tr>
<td>Top quality GPS and GLONASS</td>
<td>■ Suppresses phase and code</td>
<td>is ideal for construction applications</td>
</tr>
<tr>
<td>measurements</td>
<td>multipath</td>
<td></td>
</tr>
<tr>
<td>Perfect tracking in dynamic</td>
<td>■ Jamming resistant</td>
<td></td>
</tr>
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<td>environments</td>
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<td>Totally reliable</td>
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</tbody>
</table>
### Everything you need for all applications

<table>
<thead>
<tr>
<th>Hidden points</th>
<th>Reference stations</th>
<th>SmartStation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Connect a DISTO or Vector</strong>&lt;br&gt;With a Leica DISTO or Leica Vector or any other suitable handheld laser rangefinder connected to GPS1200, you can measure distances to or from objects at which it is impossible to position the antenna or acquire sufficient satellites. Using onboard COGO routines, GPS1200 computes and records the point coordinates instantly. When carrying out detail, title or utility surveys in built up or wooded areas, there will always be points and objects, such as building corners, trees and boundary markers, which cannot be surveyed directly with GPS. The best solution is to use the DISTO, Leica’s inexpensive handheld miniature rangefinder. With the latest generation Leica DISTO plus, you can even benefit from connectivity to GPS via Bluetooth wireless technology. <strong>GPS1200 at CORS sites</strong>&lt;br&gt;Organizations in many countries are establishing GPS reference stations. GPS1200 with a SmartTrack antenna or IGS/Dome &amp; Margolin chokering antenna is ideal for a Continuously Operating Reference Station (CORS). It logs data, streams data, outputs RTK and DGPS for transmission to RTK and GIS rovers, and is perfect for use with GPS SPIDER, Leica’s reference station software. As GPS1200 accepts all formats (Leica, CMR, RTCM) and outputs all standard messages (NMEA), GPS1200 RTK rovers work perfectly with all reference station services all over the world. <strong>GPS &amp; TPS perfectly combined</strong>&lt;br&gt;TPS1200 total station with GPS SmartAntenna combined in one easy-to-use instrument. Ideal for measuring to points that cannot be occupied by an RTK rover. Eliminates need for control points, traverses and resections when using a total station. Set up SmartStation and let RTK fix the position to centimeter accuracy, then survey and stake out with the TPS. Once SmartStation is positioned, use the SmartAntenna on a pole with controller and sensor as an RTK rover. Use TPS and GPS together Fix the position with RTK, then survey with TPS Survey easier and faster Do any type of job Increase productivity and profits</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Leica GPS1200

### Technical specifications and system features

<table>
<thead>
<tr>
<th>GPS1200 receivers</th>
<th>GX1230 GG/GX1230 GG</th>
<th>GX1230/ATX1230</th>
<th>GX1220</th>
<th>GX1210</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>Dual frequency</td>
<td>Dual frequency</td>
<td>Dual frequency</td>
<td>Single frequency</td>
</tr>
<tr>
<td><strong>Channels</strong></td>
<td>14 L1 + 14 L2 GPS 2 SBAS</td>
<td>12 L1 + 12 L2 GPS 2 SBAS</td>
<td>12 L1 + 12 L2 GPS 2 SBAS (with DGPS option)</td>
<td>12 L1 2 SBAS (with DGPS option)</td>
</tr>
<tr>
<td><strong>RTK</strong></td>
<td>SmartCheck+</td>
<td>SmartCheck</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Status indicators</strong></td>
<td>3 LED indicators: for power, tracking, memory</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ports</strong></td>
<td>1 power port, 3 serial ports, 1 controller port, 1 antenna port</td>
<td>1 power/controller port, Bluetooth® port</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Supply voltage,</strong></td>
<td>Nominal 12 VDC</td>
<td>Nominal 12 VDC</td>
<td>1.8 W</td>
<td></td>
</tr>
<tr>
<td><strong>Consumption</strong></td>
<td>4.6 W receiver + controller + antenna</td>
<td>Optional:</td>
<td>1 PPS output port</td>
<td></td>
</tr>
<tr>
<td><strong>Event input and PPS</strong></td>
<td>1 PPS output port</td>
<td>2 event input ports</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Standard antenna</strong></td>
<td>SmartTrack+ AX1202 GG</td>
<td>SmartTrack AX1201</td>
<td>SmartTrack+ ATX1230 GG</td>
<td></td>
</tr>
<tr>
<td><strong>Built-in groundplane</strong></td>
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</table>

The following apply to all receivers except where stated.

### Power supply
- Two Li-Ion 3.8 Ah/7.2 V plug into receiver. One Li-Ion 1.9 Ah/7.2 V plugs into AX1230 and RX1250.
- Power receiver + controller + SmartTrack antenna for about 15 hours (for data logging).
- Power receiver + controller + SmartTrack antenna + low power radio modem or phone for about 10 hours (for RTK/DGPS).
- Power SmartAntenna + RX1250 controller for about 5 hours (for RTK/DGPS).
- External power input 10.5 V to 28 V.

### Plug-in Li-Ion batteries
Same for GPS and TPS.

### External power
- Receiver: 1.20 kg. Controller: 0.48 kg (RX1210) and 0.75 kg (RX1250). SmartTrack antenna: 0.44 kg.
- SmartAntenna: 1.12 kg. Plug-in Li-Ion battery: 0.09 kg (1.9 Ah) and 0.19 kg (1.9 Ah).
- Carbon fiber pole with SmartTrack antenna and RX1210 controller: 1.80 kg.
- All on pole: carbon fiber pole with SmartAntenna, RX1250 controller and plug-in batteries: 2.84 kg.

### Temperature
- Operation: Receiver –40°C to +65°C
- Antennas –40°C to +70°C
- Controllers –30°C to +65°C
- Storage: Receiver –40°C to +80°C
- Antennas –55°C to +85°C
- Controllers –40°C to +80°C

### Humidity
- Receiver, antennas and controllers: Up to 100% humidity.

### Protection against water, dust and sand
- Receiver, antennas and controllers: Waterproof to 1 m temporary submersion.
- Antennas withstand 1.5 m drop onto hard surface.

### Shock/drop onto hard surface
- Receiver withstands 1 m drop onto hard surface.
- Antennas withstand 1.5 m drop onto hard surface.

### Topple over on pole
- Receiver, antennas and controllers: withstand fall if pole topples over.

### Vibration
- Receiver, antennas and controllers: withstand vibrations on large construction machines. No loss of lock.
**SmartTrack+**

**Advanced GNSS measurement technology**

Time needed to acquire all satellites after switching on: typically about 50 seconds.

Re-acquisition of satellites after loss of lock (e.g. passing through tunnel): typically within 1 second.

Very high sensitivity: acquires more than 99% of all possible observations above 10 degrees elevation.

Very low noise. Robust tracking.

Tracks weak signals to low elevations and in adverse conditions.

Multipath mitigation. Jamming resistant.

Measurement precision:

- Carrier phase on L1: 0.2 mm rms.
- On L2: 0.2 mm rms.
- Code (pseudorange) on L1 and L2: 20 mm rms.

**SmartCheck+**

**Advanced, long range RTK technology**

Initialization typically 8 seconds.

Position update rate selectable up to 20 Hz.

Latency < 0.03 secs.

Range 30 km or more in favorable conditions.

Self checking.

Accuracies:

- Horizontal: 10 mm + 1 ppm, kinematic
- Vertical: 20 mm + 1 ppm, kinematic
- Horizontal: 5 mm + 0.5 ppm, static
- Vertical: 10 mm + 0.5 ppm, static

Reliability: 99.99% for baselines up to 30 km.

Formats supported for transmission and reception:

- Leica proprietary, CMR, CMR+, RTCM V2.1/2.2/2.3/3.0.

**Reference station networks**

RTK rover fully compatible with Leica’s Spider i-MAX & MAX formats, VRS and Area Correction (FKP) reference station networks.

**DGPS**

- GX1230 (GG), ATX1230 (GG), RX1210 only
- GX1220 – standard
- GX1210 – optional

DGPS, includes support of WAAS and EGNOS. RTCM V2.1/2.2/2.3/3.0. formats supported for transmission and reception.

Baseline rms: typically 25 cm rms with suitable reference station.

**Position update rate and latency**

Applies to RTK, DGPS and navigation positions.

Update rate selectable from 0.05 sec (20 Hz) to 1 sec.

Latency less than 0.03 secs.

NMEA output

NMEA 0183 V3.00 and Leica proprietary.

**Post-processing with Leica Geo Office software**

- Horizontal: 10 mm + 1 ppm, kinematic
- Vertical: 20 mm + 1 ppm, kinematic

- Horizontal: 5 mm + 0.5 ppm, static
- Vertical: 10 mm + 0.5 ppm, static

**All GPS1200 dual-frequency receivers**

For long lines with long observations

- Horizontal: 3 mm + 0.5 ppm, static
- Vertical: 6 mm + 0.5 ppm, static

**Notes on performance and on accuracies**

Figures quoted are for normal to favorable conditions. Performance and accuracies can vary depending on number of satellites, satellite geometry, observation time, ephemeris, ionosphere, multipath etc.

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**Controllers**

**RX1210/RX1250**

- High contrast, 1/4 VGA display.
- Touch screen, 11 lines x 32 characters.
- Windows CE 5.0 on RX1250.
- Full alphanumeric QWERTY keypad.
- Function keys and user definable keys.
- Illumination for screen and keys.
- Can also be used with TPS1200 for alphanumeric input and extensive coding.

**Operation with controller**

- For GPS and TPS

  - Graphical operating concept.
  - Function keys and user definable keys.
  - All information displayed.

**Displayed information**

- All information displayed: status, tracking, data logging, database, RFK, DGPS, navigation, survey, stakeout, quality, timer, power, geographical, cartesian, grid coordinates etc.

**Graphical display of survey**

- For GPS and TPS

  - Graphical display (plan) of survey. Zooming.
  - Can access surveyed points directly via touch screen.

**Stakeout display**

- For GPS and TPS

  - Graphical with zoom.
  - Digital, polar and orthometric.
  - Accuracy: 10 mm + 1 ppm at 20 Hz (0.05 sec) update rate. No degradation with high update rates.

**Operation without controller**

- For reference stations and static measurements.

**Data logging**

- On CompactFlash cards: 64, 256 MB and 1 GB

  - Optional internal receiver memory:
    - 64 and 256 MB.

**Capacity**

- 64 MB sufficient for (20 % less for GPS/GLONASS):
  - About 1 100 hours L1 + L2 data logging at 15 sec rate.
  - About 4 400 hours L1 + L2 data logging at 60 sec rate.

- About 90 000 RTK points with codes.

**Data management**

- For GPS and TPS

  - User definable job management.
  - Point identifiers, coordinates, codes, attributes etc.
  - Search, filter and display routines.
  - Multi point averaging.
  - Five types of coding systems cover all requirements.

**Coordinate systems**

- For GPS and TPS

  - Ellipsoids, projections, geoidal models, coordinate, transformations, transformation parameters, country specific coordinate systems.

**Application programs**

- For GPS and TPS

  - Standard: Full range of COGO functions.
  - Hidden point.
  - Optional: RoadRunner, Reference Line, DTM Stakeout, Reference Plane, Area Division and X-Section Survey

**Programmable**

- For GPS and TPS

  - User programmable in GeoC++.
  - Users can write and upload programs for their own special requirements and applications.

**Communication Data links**

- One or two of the following devices can be connected: Radio modem, GSM, GPRS, CDMA.

  - Different frequencies and/or formats can be received and transmitted.
  - Time slicing is supported.
Leica System 1200 – working together

TPS, GPS and SmartStation.
Use TPS and GPS together or separately according to the work you do. Use whichever is the most suitable for the job in hand. Change easily from one to the other and use them in the same way. Enjoy all the freedom, flexibility and power of System 1200.

When it has to be right.