Leica System 1200 Software
Integrated Software for GPS1200 and TPS1200

- when it has to be **right**

Leica
Geosystems

Leica System 1200
Software

System 1200 software includes SmartWorx – the onboard TPS, GPS and RX1250 software and the Leica Geo Office – the comprehensive office software package. SmartWorx supports GPS, TPS and RX1250 ensuring that they are efficient, powerful, easy to use and fully compatible, with the same displays and operation, identical functions and routines and with common application programs.

Application programs
Various easy to use on-board application programs are available for GPS, TPS and RX1250, as the instruments share a common operating concept. Operators can easily switch from one to the other.

RoadRunner alignment suite
RoadRunner is a powerful, comprehensive software suite for staking out and checking all types of alignments, from simple centerlines to the most complex designs. Available for both GPS and TPS.

Seamless data-flow
A key to System 1200 is the powerful data management system that is common to GPS, TPS, RX1250 and Leica Geo Office and that allows data to be transferred seamlessly in any direction between any components and between field and office.
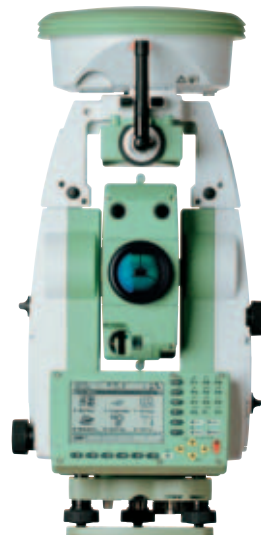
Leica Geo Office
This powerful office software provides everything needed for managing, visualizing, processing, importing and exporting GPS, TPS and level data. Also ensures easy interfacing to other software packages.

X FUNCTION
integrated

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.

Leica SmartStation	Leica GPS1200
TPS1200 with integrated GPS. All TPS1200 can be upgraded to SmartStation.	Unites top GPS technology with powerful data management. Perfect for all GPS applications.

Leica System 1200

TPS and GPS
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 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.

| Leica TPS1200	Leica SmartPole	Leica SmartWorx	Leica Geo Office
Top performance, high accuracy total stations do everything you want and much more.	Save time with SmartPoles' setup On-the-fly and easily swap between GPS and TPS when needed.	SmartWorx TPS/GPS application software is both easy-to-use and extremely powerful.	Everything you need in a single package for TPS, GPS and DNA: import, visualization, conversions, quality control, processing, adjustment, reporting, export etc.

Leica Application Programs

A suite of easy to use application programs

GPS, TPS and RX1250 are supplied with a range of standard application programs to help you perform standard survey tasks such as topographic surveys and stakeout as accurately and efficiently as possible.

For advanced survey tasks a wide range of optional application programs is offered. For special requirements, you can even write your own programs in GeoC++ or contact a Leica software center.
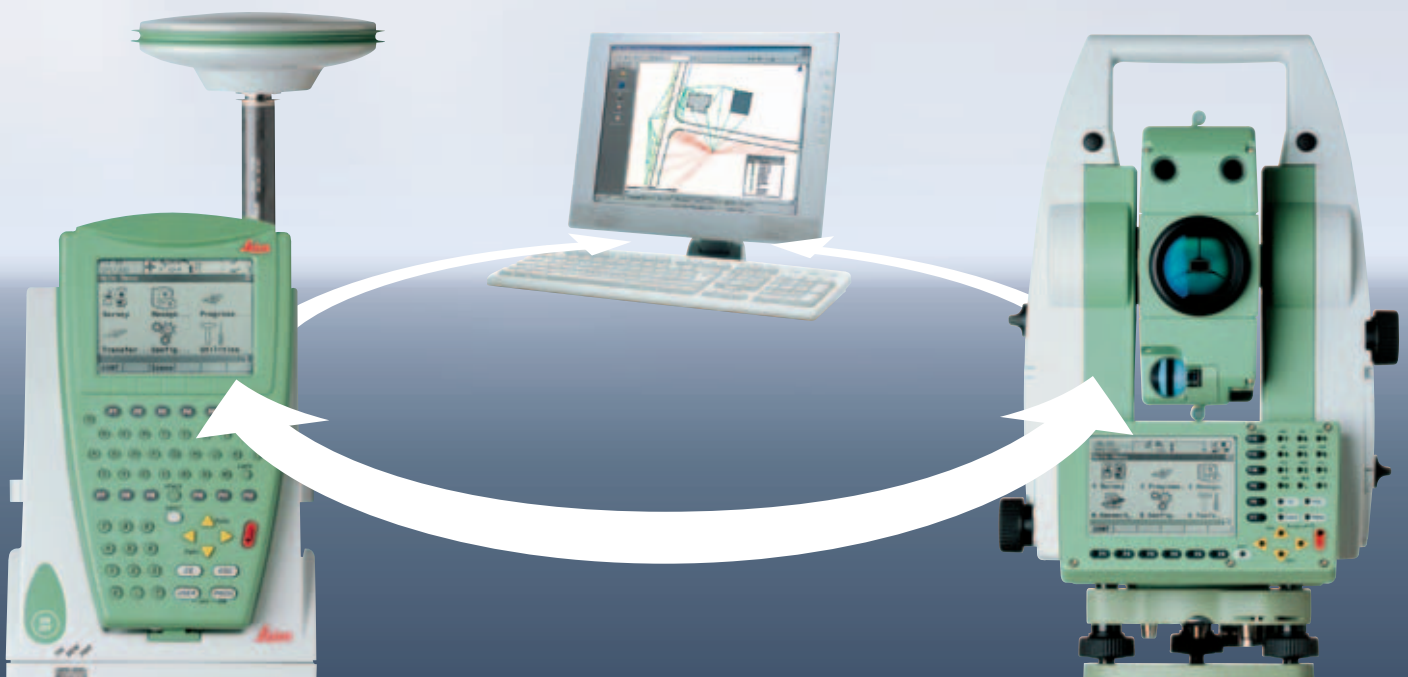
SmartWorx
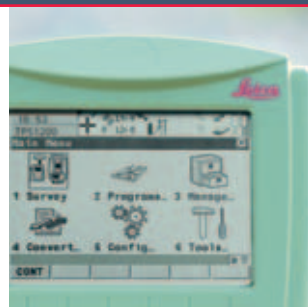
Identical operating concept
The operating concept, displays, keyboard layouts, functions, routines and even many of the application programs are identical for GPS and TPS. Use which-ever instrument is the most convenient and, best of all, use them in the same way.

Easy, fast operation
GPS1200 and TPS1200's operating concept leads you straight to what you need. Use the default settings, or allocate displays and functions to keys and define your own menu for the way you work. System 1200 adapts to you!
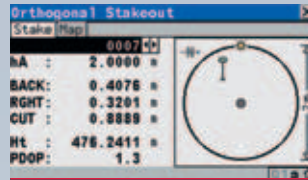
Powerful field coding
Set point identifiers in any way required, use free or thematic coding with or without attributes, define points, lines and areas. With System 1200 it's easy to prepare data for design, CAD and mapping software.
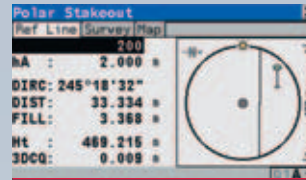
Survey – GPS + TPS

A powerful program for detail, topo, title surveys etc. For surveying points, lines and areas with or without codes.
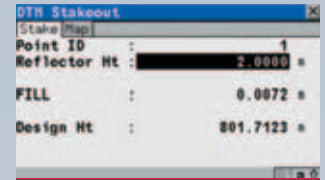
Stakeout – GPS + TPS

Various stakeout methods and orientation choices are provided. Navigate directly from a map or with text and graphical aids.
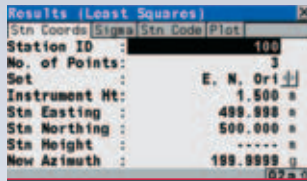
Reference Line – GPS + TPS

For staking out relative to defined lines and arcs. Can be used with or without offsets. Use for grids, buildings, drainage, seismic surveys etc.
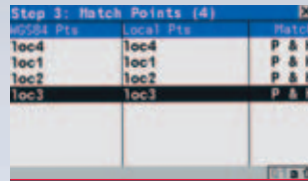
DTM Stakeout – GPS + TPS

Stakeout a terrain design and monitor progress during construction. For earthworks, land reclamation, mining etc.
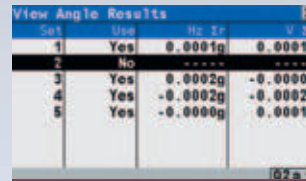
Setup – TPS

Setup and orient TPS1200 on a known station, perform a resection by measuring to known targets or derive station coordinates direct from GPS.
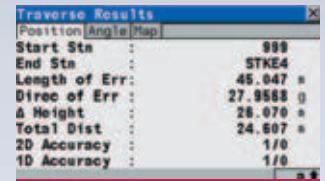
Coordinate Systems – GPS

Transform WGS84 to local grid. Contains ellipsoids, map projections, transformations - for GPS surveys in local coordinates.
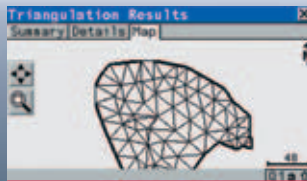
Sets of Angles – TPS

Measure angles and even distances one or more times in face I and face II. Calculate and store the mean values. Optional timer for monitoring.
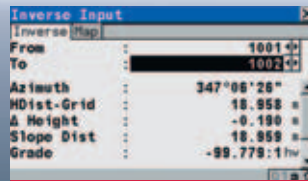
Traverse – TPS

With user guidance, measure direction and distance data to compute the coordinates of new stations. Upon completion, view comprehensive traverse closure results.
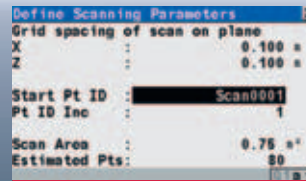
Volumes calculations – TPS + GPS

Define and triangle an areas surface and compute the Volume of a surface relative to a defined plane or boundary.
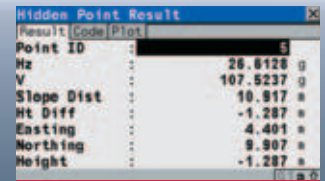
COGO – GPS + TPS

Full range of coordinate geometry routines: inverse, traverse, lines, arcs, area etc. Compute what you need directly in the field.

Reference Plane – GPS + TPS

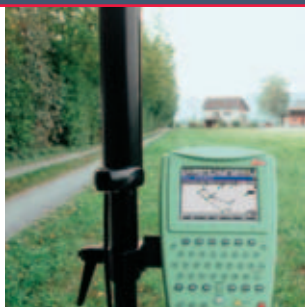Measure relative to any user-defined plane: horizontal, vertical or inclined in any direction. Face scanning with TPS.

Hidden Point – TPS

Measuring hidden points with a hidden point pole with 2 or 3 prisms.

WORKING TOGETHER

FUNCTION integrated

LEICA SYSTEM 1200

Visual checks in the field

With GPS1200 and TPS1200's large, graphical, map-view display, you see immediately what you've surveyed and staked out and what you've still to do. Zoom in and out and check for completeness directly in the field.

Import/export formats

Import control and stakeout data directly to GPS and TPS or via Leica Geo Office. Export data from GPS, TPS or Leica Geo Office in standard formats or user-definable formats. System 1200 interfaces easily to GIS, CAD and mapping software.

Special application programs

If you need special programs for special applications, your investment in System 1200 is safe. New application programs can be created at any time with GeoC++. Write your own program, or contact a Leica software center to do it for you.

Leica RoadRunner

The complete solution for roads and alignments

RoadRunner is a new, optional application program for GPS1200 and TPS1200 for staking out and checking all types of alignments: highways, pipelines, canals, airport runways, earthworks etc. RoadRunner also includes support software that converts data from many design packages, prepares the data for the way you work, and uploads to GPS1200 and TPS1200.
For Rail and Tunnel construction and maintenance are special versions of RoadRunner available.

RoadRunner in the field

Stakeout and check with the design elements you use

With RoadRunner you can handle any combination of geometric elements, from simple straights to different types of partial spirals.
All working tasks can be handled, including:
- Stringlines (e.g. centerline)
- Grades / Slopes (e.g. road surface, cut/fill)
- DTM stakeout
- and many more ...

Advanced graphics facilitate your work

View your position relative to cross sections, alignments, and other graphically selected elements that you have to stakeout or check. With advanced graphics you can see what you've done and what you've still to do. You work easier and faster with RoadRunner.

Adapts to your requirements

RoadRunner is easy to use and incredibly versatile.
- Configure and set it the way you prefer.
- Use it for any type of job, from simple to complex.
- Define panels to display the information you require.
- Create the log files, cut sheets and reports that you have to deliver.
- Store your working procedures ready for instant recall.

Onboard design editor Alignment Tool Kit ATK

Use Alignment Tool Kit ATK if you have to make quick changes to alignments or station equations in the field, for instance if you are confronted with unexpected obstructions. Use ATK for manually entering alignments taken from plans when carrying out small jobs or when making minor amendments.
You can adapt easily with RoadRunner.
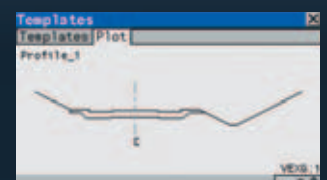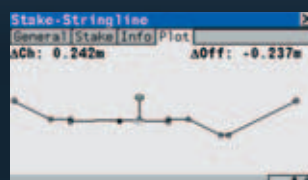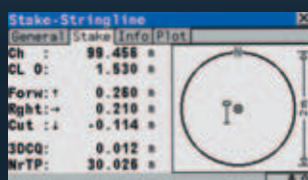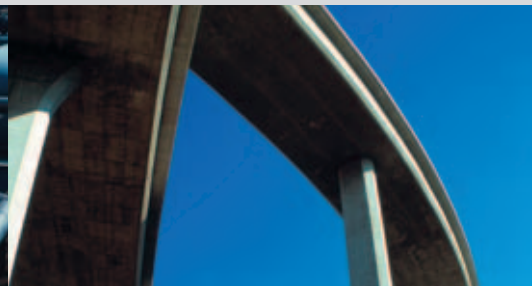
RoadRunner Increases productivity

Seamless dataflow
With RoadRunner you can transfer design data directly from many major design packages or via the office software to the CompactFlash cards used in GPS1200 and TPS1200 (no manual reconstruction of the design is required). As the transfer is seamless and largely automatic, you can start the stakeout work immediately confident that the data are correct.

Identical for GPS and TPS
As RoadRunner is identical for GPS1200 and TPS1200, you can use whichever is the most suitable for the job. Insert the Compact-Flash card(s) with the design data into the unit(s) that you want to use. To change between GPS and TPS, simply move the card to the other instrument.

Easy to learn and use
RoadRunner is easy to learn, adapts to your working methods and can be used for all types of jobs, complex or simple, large or small.

Completely flexible
One of the benefits of RoadRunner is that it allows you to represent data in the way that corresponds to your working procedures. Select whether you want to stake-out relative to centerlines, curb lines, profiles, cross sections etc. – whatever you prefer.

All data available in the field
RoadRunner provides rapid access to all data irrespective of the size of the job. When staking out in the field, you can locate the data you need immediately.

Manages complex sites
RoadRunner's project management helps you to organize data and work more efficiently.
- Group the data into projects.
- Organize the data in layers, e.g. layers for different stages of construction.
- Reference the data to several jobs.

Restarts instantly
With RoadRunner you can restart again after stopping work without wasting time (no long searches). Touch the Start-/Resume function to lead you straight to your last used task and start working again immediately.

RoadRunner in the office

Full support package

RoadRunner office software interfaces to design packages and converts data for direct use in GPS1200 and TPS1200.
- Seamless dataflow from numerous design packages.
- Fully compatible with the industry standard LandXML road design format.
- Additional converters can be easily added.
- Easy to use wizard for road design converters.
- Extremely versatile.
- Allows you to prepare data the way you prefer, for the work you have to do.

WORKING TOGETHER

FUNCTION integrated

LEICA SYSTEM 1200
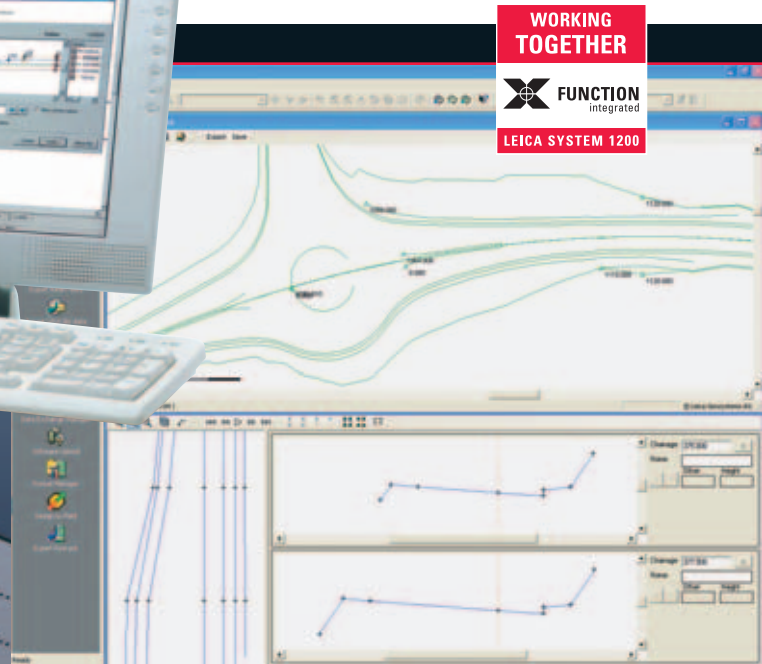
Leica Geo Office Software

The perfect partner for GPS1200 and TPS1200

Exploit the full potential of your data with Leica Geo Office.
View and manage your TPS, GPS and Level data in an integrated way.
Process independently or combine your data.
Leica Geo Office ensures you get the best result.
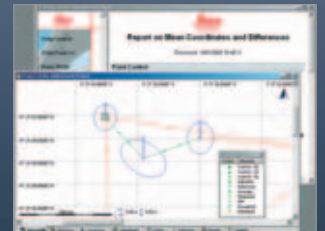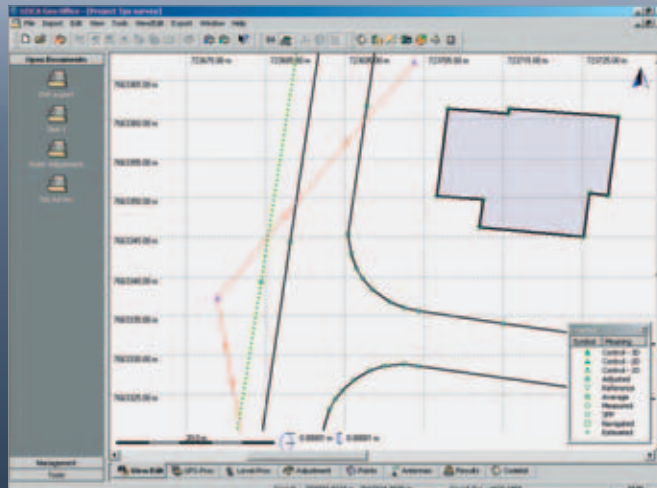
Easy and efficient to use

Leica Geo Office is based on an intuitive, graphical interface within a Windows™ multitasking environment making it very easy to learn and use. All components have a similar look and feel and interact seamlessly with each other.

GPS, TPS and level data are handled in a similar way with standardized tools and dataflow. The embedded HELP contains useful tutorials and provides advice and infor-mation whenever needed. Leica Geo Office assists you at every step.

Data management

The different management components for projects, coordinate systems, GPS antennas, report templates etc. provide a very logical separation of important information and a clear overview of all data. They enable you to manage your data and work easily and efficiently in a consistent manner.

View and edit

Various graphical and numerical displays allow you to view the data. Point, line, area, coordinate, code and attribute information can all be accessed and inspected in detail. Editing functions allow you to make any changes, corrections, additions or deletions that may be necessary before processing or exporting the data. With the view and edit facility, you can make sure that your work is correct.

Quality control

Leica Geo Office provides numerous quality checks. View a plan of your work and inspect the data on the screen to check for completeness. Compute and check loop misclosures. Coordinates of points measured more than once are averaged automatically provided that they lie within user-defined tolerances.

Easy to customize
Choose the way you want to work. Configure and set the software for your preferences and requirements. Set panels and screens to display the information that you need and in the formats you prefer. Define import and export masks for the way you have to handle data. Leica Geo Office can be customized easily and quickly.

Tools for GPS, TPS and levels
Codelist Manager, Data Exchange Manager, Format Manager and Software Upload are common tools for GPS receivers, total stations and also for digital levels. Powerful, easy-to-use, user-definable and wizard-guided, these software tools have all the functionality needed to exploit the full potential of the instruments and their data.

WORKING TOGETHER

FUNCTION integrated

LEICA SYSTEM 1200
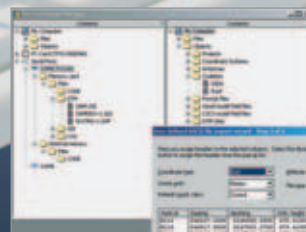
TPS Processing
Re-calculate TPS setups to update station coordinates and orientations. Setups and traverses can be defined and processed with your preferred parameters. Traverse results can be displayed and archived in HTML-based reports. From simple updating of reflector heights to complex traverse calculations, Leica Geo Office has everything that is needed to process your TPS data.

Flexible reporting
HTML-based reporting provides the basis for generating modern, professional reports. Measurement logs in field book format, reports on averaged coordinates, various processing log files and other information can be prepared and saved. Configure reports to contain the information that you require and define templates to determine the presentation style. Leica Geo Office has full reporting facilities.

Flexible import and export
Import data from Compact-Flash cards, directly from receivers, total stations and digital levels, or from reference stations and other sources via the Internet. Import coordinate lists as user-defined ASCII files using the import wizard. Export results in any format to any software using the ASCII export function. Transfer point, line, area, coordinate, code and attribute data to GIS, CAD and mapping systems. Leica Geo Office has all the flexibility required for the easy import and export of data.

Leica Geo Office Software
Powerful processing modules
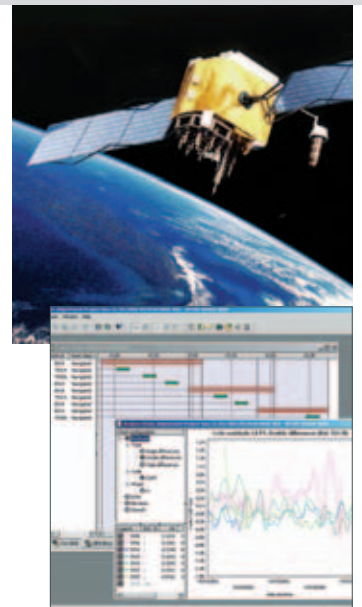
Optional modules

Extend the functionality of the standard software to further suit your needs. All the additional components share the same fundamental operating concepts and work together in a seamless fashion for maximum efficiency.

Coordinate transformations

Leica Geo Office has a complete range of libraries and tools for defining coordinate systems and transforming coordinates from one system to another: libraries of ellipsoids, projections and geoidal models, as well as six different transformation methods that give you the flexibility to select the transformation technique that suits your project best.

Convert ellipsoidal to orthometric heights and vice versa using imported and user defined geoidal models.

A special feature of Leica Geo Office is the support of country specific coordinate systems that are based on grids of correction values for the conversion of WGS84 to local coordinates.

With the Leica Geo Office coordinate management component and transformation module you can work in any system, WGS84 or local coordinates, and convert easily from one to the other.

GNSS post processing

This module processes all types of GPS and GLONASS raw data. One of the main applications is the classical processing of baselines in geodetic control networks. It is also used for processing kinematic data, especially for "filling in gaps" when RTK coordinates are not available due to breaks in the radio link.

As well as utilizing the integrity checks in the GPS1200 field system, Leica Geo Office post processing allows extended user control over what has to be processed and how it is processed. For routine baseline computations, processing can be set to run fully automatically using default settings. For critical lines or special investigations, processing can be manually controlled, in which case advanced users have ample scope to set parameters and use their own processing scenarios.

Results Manager contains a range of graphical analysis tools and report logs that allow the results to be viewed and examined in depth before they are accepted and stored.
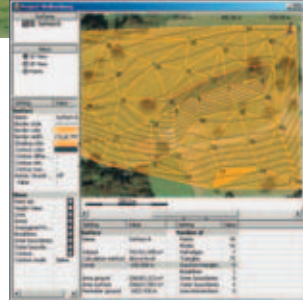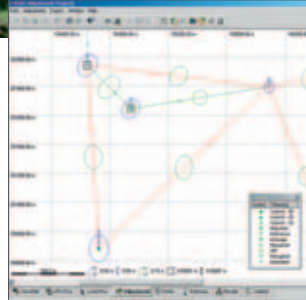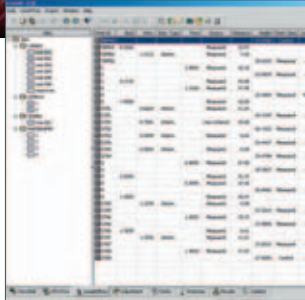
Processing level data

View all of the data collected with your Leica digital level in the Leica Geo Office level booking sheet. Select the processing settings that you prefer and process the level lines, quickly and automatically.

Use Results Manager to inspect and analyze the leveling results and generate a report. Finally, store the results and/or export them as required.

Leica Geo Office is the ideal complement for Leica digital levels.

Network adjustment

The Network Adjustment module allows you to combine all types of measurements – GPS, TPS and level – or to handle them separately in a rigorous least squares adjustment in order to obtain the best possible set of consistent coordinates and verify that they fit with the coordinates of known control points. Extensive statistical testing identifies blunders and outliers.

Network Adjustment is based on the powerful MOVE3 kernel with rigorous algorithms. It will adjust 3D GPS networks, 2D TPS traverse nets, 3D TPS traverse and height networks, 1D level line networks, as well as combined GPS, TPS and level networks.

A further advantage of Network Adjustment is that it allows the user to design and analyze networks in order to test their suitability before going into the field, establishing markers and taking measurements.

Network Adjustment completes your work, perfectly.

Surfaces and Volumes

This module allows you to calculate digital terrain models from points stored in your project. Breaklines can be introduced, which will automatically update the model. Boundaries can be calculated automatically or can be defined manually. The surfaces can be visualized in a 2D or in a 3D view with a wide range of graphical possibilities.

Using the Surfaces module you can calculate volumes above a reference height or between two surfaces.

Leica Geo Office enables you to manage your terrain models in an integrated way. All surfaces and volumes are instantly updated whenever coordinates need to be changed.

Whether you want to survey a parcel of land or a construction site, a facade or indoors to create as-built plans or carry out high-precision measurements of bridge and tunnel constructions – Leica Geosystems' surveying instruments provide the right solution for all measuring tasks.

The System 1200 Series instruments as well as the software are designed to meet the daily challenges of modern surveying. They all have outstanding, easy to read and user-friendly interfaces. Their straight-forward menu structures, their clearly outlined scope of functions and high technology perfectly mate GPS and TPS applications in the field. Whether you use the advantages of both technologies combined or each separately – due to the exceptional flexibility of Leica Geosystems instruments, reliable and productive surveying is assured.

When it has to be right.

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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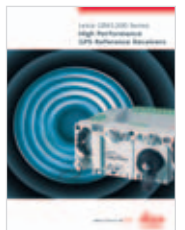
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Product brochure

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Switzerland
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