Leica SmartStation
Total Station with integrated GPS

- when it has to be **right**

Leica Geosystems

Leica SmartStation

Total station with integrated GPS

New revolutionary surveying system. World's first, TPS and GPS perfectly combined. High performance total station with powerful GPS receiver.

No need for control points, long traverses or resections.
Just set up SmartStation and let GPS determine the position.
Then measure and stake out with the total station.
You survey easier, quicker and with fewer set ups.
Use TPS and GPS separately when required.
Put the SmartAntenna on a pole as an RTK rover.
Use the TPS as a standard total station.
SmartStation's modular design gives you all the options.
Undertake any type of job.
Save time and money.
Increase your productivity and profits.
All TPS1200 total stations can be upgraded to SmartStation.

WORKING TOGETHER
FUNCTION integrated
LEICA SYSTEM 1200

Incredibly versatile
Use it in any way you like

SmartStation position coordinates at the touch of a key

With SmartStation you don't need to worry about control points, traverses and resections. Just set up wherever it's convenient, touch the GPS key and let the SmartAntenna do the rest. RTK determines the position to centimeter accuracy within a few seconds at ranges up to 50 km from a reference station. With SmartStation you're ready to go in the shortest possible time; fix the position with GPS and then survey with the total station.

GPS fully integrated into total station

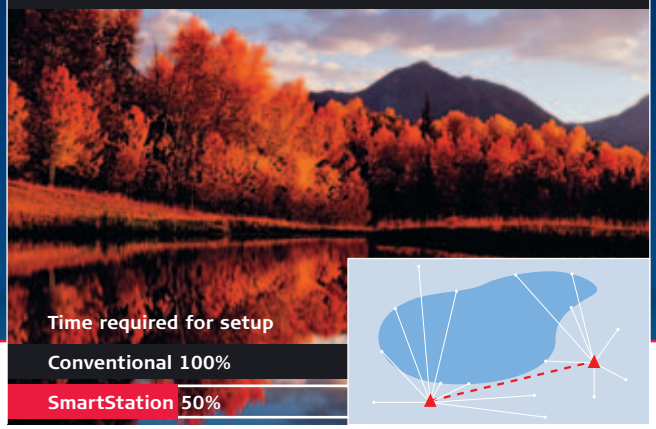
With the entire software in the total station, all TPS and GPS operations are controlled via the TPS keyboard. All data are stored in the same database on the same CompactFlash card. All measurement, status and other information are displayed on the TPS screen. The TPS plug-in battery also powers the GPS SmartAntenna and RTK communication device. All components combine perfectly. Everything is integrated into one compact unit – no need for cables, external battery, data logger etc.

Use as SmartStation, or as a total station and RTK rover

With SmartStation's modular design, you can use the equipment in any way you like. Use SmartStation when there are no control points available. Once SmartStation is accurately positioned, take off the SmartAntenna, put it on a pole, and use it with the RX1210 controller and GTX1230 sensor as a fully-fledged RTK rover. You're totally flexible with SmartStation.

Leica SmartStation
A new way to survey

Remote Area
Topographic Survey



Situation
Survey company has a detail and topographic survey in a remote area. Vegetation makes kinematic RTK difficult and a total station has to be used. There are no control points but there is a reference station 40 km away transmitting RTK.

The conventional way
Fix a series of control points with GPS. Transfer the coordinates into the total station. Occupy the points with the total station, orient to other points, and survey the detail. If the total station occupies points before GPS, results have to be transformed in the office.

Points have to be occupied twice, once with GPS and once with the total station. Two sets of equipment are needed. Two crews may be needed. It may be necessary to transform results.

The SmartStation way
Set up SmartStation where it is convenient and determine the position with RTK. Orient to a second point that will be used but is not coordinated yet. Survey the detail from the first station.

Set up at the second point and determine the position with RTK. As the bearing between the points is now known, SmartStation transforms the coordinates of all detail surveyed from the first point. Orient to the first point and survey the detail from the second point.

The advantages
- Points occupied only once.
- Only SmartStation is needed.
- Only one crew is needed.
- Automatic transformations.
- The survey takes less time.

Rural Area
Boundary Survey

Situation
A farm boundary has to be surveyed with a total station. The nearest control points are 5 km away. RTK data can be received from a reference station.

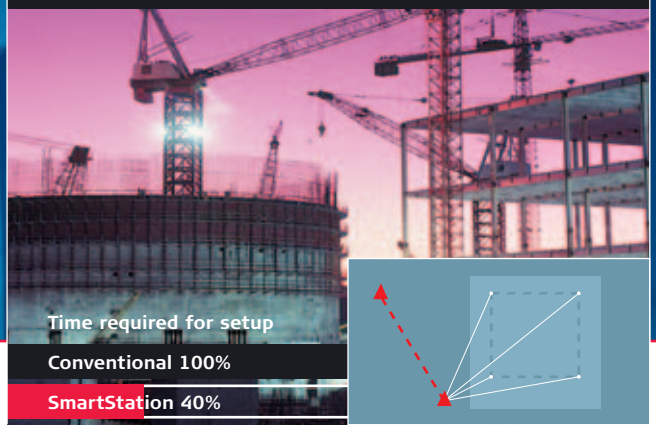
The conventional way
Bring in control by measuring a long traverse from the control points.
Traverse close to the boundary and coordinate the boundary markers from the traverse stations.

An open traverse is liable to error. A closed traverse will take twice as long.
Even with careful planning, traversing in difficult terrain is complicated and time consuming.

The SmartStation way
Set up SmartStation at a first point where one or more boundary markers can be seen. Fix the position with RTK. Orient to a second point, which is not yet fixed. Measure angles and distances to the markers.
Set up at the second point, fix the position and orient to the first point.
All previous measurements are transformed automatically in SmartStation.
Survey the markers from the second point.
Survey the boundary in this way using pairs or clusters of SmartStation points.

The advantages
- No long traverses needed.
- Less set ups needed.
- Fewer people required.
- Takes less time.
- Uniform, higher accuracy.

Construction site
Stakeout



Situation
A large number of markers have to be placed and many components positioned. Control points exist but often get damaged or are covered by equipment, material, vehicles etc. There is a GPS reference station but, due to obstructions and the type of construction, most points cannot be set out with RTK.

The conventional way
Stakeout with a total station is possible but difficult and time consuming.Traversing is needed to get around obstructions. Temporary points, which can be used for stakeout, have to be established. The work plan has to be revised constantly. Equipment and material have to be moved, which slows down both the survey and construction work.

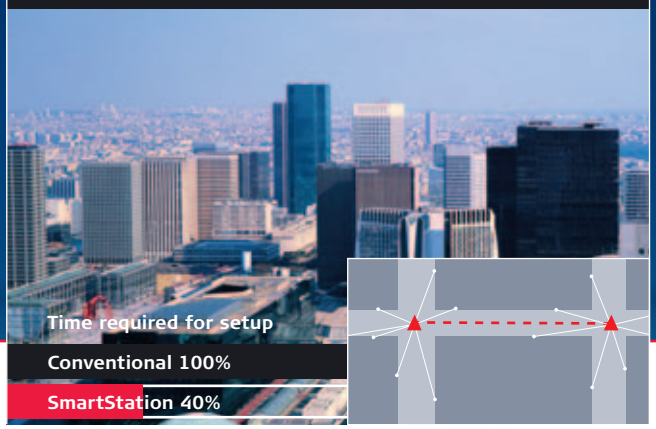
The SmartStation way
Control points are not required. Simply set up SmartStation wherever it's convenient.

Set up at a first point and fix the position with RTK. Set up at a second point, fix the position, use the first point for orientation, and stake out from the second point.

Work in this way establishing pairs or groups of points from which to stake out. As RTK determines the positions, the groups do not have to be connected by total station measurements.

The advantages
- Set up where convenient.
- No traversing needed.
- Fewer obstructions.
- Faster stakeout.
- Faster construction work.

Urban Area
Utilities Survey



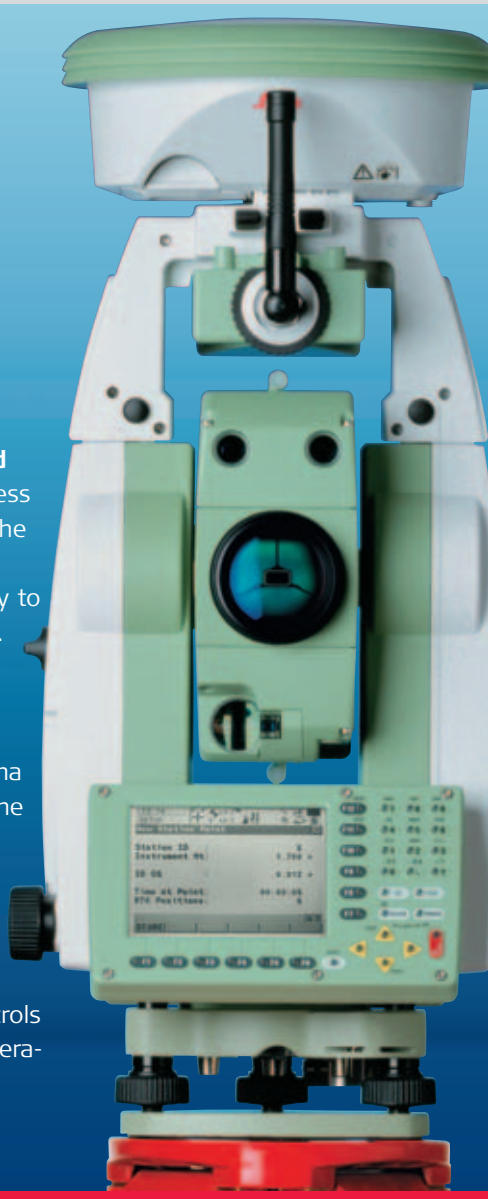
Situation
The positions of all manholes, covers, hydrants, distribution boxes etc. for water, gas and electricity have to be determined. High buildings and trees along the roads prevent the use of RTK rover equipment. Many objects are close to buildings or under trees. The city operates GPS reference stations.

The conventional way
Control points exist but traffic, parked vehicles and other obstructions make it difficult to set up over them and orient between them. If a standard total station is used, a lot of traversing in a very difficult environment will be necessary. Both careful planning and improvisation will be needed. The work will be awkward and slow.

The SmartStation way
Set up SmartStation where RTK fixes are possible, such as at road intersections, open spaces and even on the tops of buildings. Use pairs of SmartStation setups as explained in the previous examples. Measure angles and distances to the objects that have to be surveyed.

The advantages
- Control points not needed.
- No awkward traversing.
- RTK fixes the positions.
- Consistent high accuracy.
- Fast, flexible, convenient.
- Much easier, saves time.

Leica System 1200 – SmartStation and SmartAntenna



High accuracy GPS positioning
Leica's SmartCheck algorithms compute static RTK fixes with 10 mm + 1 ppm horizontal and 20 mm + 1 ppm vertical accuracy at ranges up to 50 km. Reliability is 99.99%.

CompactFlash card
SmartStation, TPS and GPS data are stored in the same job, in the same database, on the same CompactFlash card.

ATX1230 SmartAntenna
12 L1 + 12 L2 receiver incorporating Leica's SmartTrack GPS technology. Strong signals, fast satellite acquisition, tracking to low elevations, multipath mitigation and anti-jamming guarantee top performance.

Plug-in Li-Ion battery
One small plug-in battery provides long-lasting power for SmartStation. Cables and external batteries are not required.

Bluetooth™ integrated
With Bluetooth™ wireless technology built into the total station, you can transfer data wirelessly to PDA's and cell phones. The Bluetooth™ device in the SmartAntenna facilitates connectivity when the SmartAntenna is used as a stand-alone rover.

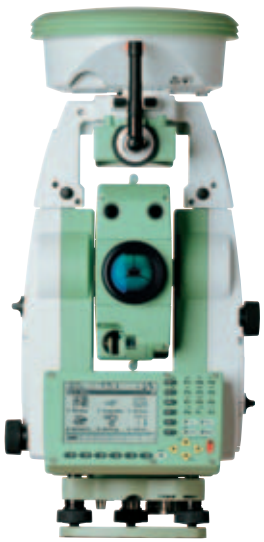
Operated via TPS keyboard
With SmartStation, the TPS keyboard controls all measurements, operations and routines for both TPS and GPS.

FUNCTION integrated

SmartStation combines TPS and GPS in one instrument.
Use TPS and GPS together or separately, according to the work you do.
Survey faster, more accurately and more efficiently.
Enjoy all the freedom, flexibility and power of System 1200.

Leica SmartStation

TPS1200 with integrated GPS. All TPS1200 can be upgraded to SmartStation.



Leica GPS1200

Unites top GPS technology with powerful data management. Perfect for all GPS applications.

ATX1230 SmartAntenna as stand-alone rover
When not on SmartStation, the SmartAntenna can be used with the RX1210 controller and GTX1230 sensor. Use it on a pole as an RTK rover or on a tripod for logging data and post processing, with all the capabilities and performance of GPS1200.

RTK communication devices
There is a wide choice of communication devices with SmartStation. Radio modems, GSM, GPRS and CDMA modules fit neatly into a small, waterproof, clip-on housing.

GPS reference stations
Connect to a reference station and let SmartStation fix its position. Static RTK provides high accuracy in accordance with the accuracy specifications provided by the reference station network.

GRX1200 Lite and GPS Spider software
If public reference stations are not conveniently available, set up your own private reference station using the GRX1200 Lite receiver and GPS Spider software.

Leica TPS1200

Top performance, high accuracy total stations do everything you want and much more.

Uniform operating concept

Same operation for TPS and GPS. Use whichever is the most convenient.

Identical data management

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.

Leica Geo Office

Everything you need in a single package for TPS and GPS: import, visualization, conversions, quality control, processing, adjustment, reporting, export etc.

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.

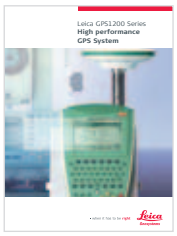
When it has to be right.

Distance meter (IR), ATR and PowerSearch:
Laser class 1 in accordance with IEC 60825-1 resp. EN 60825-1

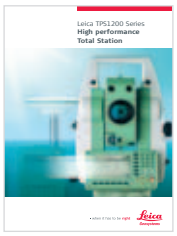
Guide light (EGL):
LED class 1 in accordance with IEC 60825-1 resp. EN 60825-1

Laser plummet:
Laser class 2 in accordance with IEC 60825-1 resp. EN 60825-1

Distance meter (PinPoint R100 / R300):
Laser class 3R in accordance with IEC 60825-1 resp. EN 60825-1

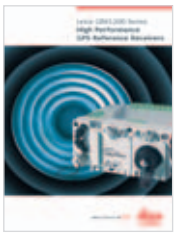


Leica GPS1200
Product brochure



Leica TPS1200
Product brochure

Leica System1200 Software
Product brochure



Leica GRX1200
Product brochure

Leica Geosystems AG
Switzerland
www.leica-geosystems.com

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