Leica Geosystems
Original Accessories
The right selection

- when it has to be right
Original Accessories

Become the best surveyor with Leica Geosystems equipment

Designed and built to the most stringent standards, Leica Geosystems instruments are of the highest quality, extremely reliable and designed to stand up to harsh environments. Original Accessories from Leica Geosystems meet these same stringent standards. Our engineers design every accessory to perfectly integrate with your instrument so you always achieve the required performance and accuracy.

Quality & Reliability
Leica Geosystems accessories are known for their robustness and dependability in the field because they provide the best reliability over many years, even in extreme environments. The accessories are tested according to Leica Geosystems exacting standards for quality, accuracy and longevity.

Your benefit – Leica Geosystems Original Accessories provide you with the feeling of confidence you are used to getting from your instrument.

Replacement guaranteed
We are so sure of our quality that we replace any Original Accessory with a new, identical product if it fails during the warranty period.

One year warranty
The warranty period for all Leica Geosystems accessories is one year, except for batteries.

With accessories out of warranty, our worldwide service centres are mostly able to repair your product cost-effectively with a wide range of spare parts being available.
The right selection

Original Accessories

To easily select the most suitable accessory to perform your survey task, Leica Geosystems divides its accessories into three distinctive price/performance groups.

<table>
<thead>
<tr>
<th>Professional</th>
<th>Basic</th>
<th>Choice</th>
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<tbody>
<tr>
<td><strong>Price/Performance</strong></td>
<td>Ultimate performance products meeting the highest demands.</td>
<td>Quality products for standard accuracy requirements.</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>Built to the highest tolerances to achieve the best possible measurement accuracy. ★★★</td>
<td>For requirements where a 3 mm positioning accuracy is sufficient. ★★★</td>
</tr>
<tr>
<td><strong>Environmental Specifications</strong></td>
<td>For use even in extreme environments, from -20°C (-4°F) to 50°C (122°F). ★★★</td>
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<td><strong>Spare Parts</strong></td>
<td>Complete range of spare parts for repairs are available. These remain available for up to 5 years after product phase-out. ★★★</td>
<td>Limited spare parts and repairs are offered. These remain available for up to 5 years after product phase-out. ★★★</td>
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</table>
The right tripod
Accuracy starts from the ground up

The construction and type of material that makes up a tripod has a major influence on how stable a platform it provides for the instrument. Tripod legs consist either of wood, aluminium or fibreglass. Each of these materials differently effect the stability of the tripod.

### Wood

**Advantage:** Of all materials, wood is the most stable and least susceptible to expansion when exposed to the warming effects of the sun. Wooden tripods also have excellent vibration damping characteristics.

**Disadvantage:** Wood is porous and absorbs water which causes it to deform. It is therefore vital that the wood be completely sealed.

**Leica Geosystems tripods:** The GST20 range of tripods are sealed with several layers of oil and paint and the GST05 is covered with a water-tight plastic wrap for complete protection.

### Aluminium

**Advantage:** Aluminium is completely resistant to conditions of high humidity. Aluminium tripods are also light-weight, providing convenience when set-ups are often changed.

**Disadvantage:** Being a metal, aluminium expands and contracts through temperature changes. To maintain accuracy these tripods should therefore only be used for set-ups of short duration.

**Leica Geosystems tripods:** The GST05L and CTP103 aluminium tripods are resistant to the elements and provide for long life in all environmental conditions.

### Fibreglass

**Advantage:** Fibreglass is resistant to the elements and provides a long lasting tripod.

**Disadvantage:** Fibreglass is a fibre reinforced plastic. As a tripod, this material remains flexible and deforms over the setup time.

**Leica Geosystems choose not to use fibreglass for surveying tripods. We do not consider them suitable to achieve reliable measurements with our modern motorized instruments.**

The stability of tripods is primarily defined by their vertical movement and horizontal drift over time. The effect of different tripod materials can be clearly seen in the graphs. In both cases, the wooden tripods remain the most stable over the set-up time.
Leica Geosystems offers a range of extremely stable and long lasting tripods to suit all instruments and surveying applications. In order to achieve the instrument specified accuracy it is vital that the correct tripod is selected.

### Original tripods

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<tr>
<td>GST20 Range</td>
<td>GST05 Range</td>
<td>CTP Range</td>
</tr>
<tr>
<td>- The GST20 range of wooden tripods provide the highest stability over long periods.</td>
<td>- The GST05 wooden tripod is recommended for all manual TPS of 5” or less.</td>
<td>- The CTP101 wooden and CTP103 aluminium tripods are low cost alternatives to the GST ranges.</td>
</tr>
<tr>
<td>- Required when a maximum angular accuracy is required.</td>
<td>- The GST05L aluminium tripod is suitable for prism stations and levels.</td>
<td>- Extremely rugged and therefore suitable for everyday construction surveys.</td>
</tr>
<tr>
<td>- Strongly recommended for use with motorized instruments.</td>
<td>- Ideal for temporary GPS reference stations.</td>
<td></td>
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</table>
The right prism
For maximum accuracy and maximum range

Various aspects define the achievable measurement precision and distance range of prisms. The most significant of these are Reflective Coating, the Angular Beam Deviation and Anti-reflex Coating.

Reflective Coating
Leica Geosystems prisms have a copper coating on the reflection surfaces. Copper offers a very high reflectance of infrared beams. Being robust and resistant to corrosion, the coating has a long useable life.

Without a reflective coating, the distance measuring, ATR and PowerSearch range reduces by over 30%. In addition, incorrect measurements can result when moisture forms droplets on the reflecting surface.

Angular Beam Deviation
The precision to which the prism glass is cut is measured in terms of the Angular Beam Deviation. This is the angular difference between the entering and exiting measurement beam. The higher this deviation, the weaker the returned signal strength to the EDM and hence the shorter the measuring range.

Anti-reflex Coating
The front surface of most Leica Geosystems prisms have an anti-reflection coating. Without this, the front face of a prism reflects part of the EDM signal. At close ranges, this causes incorrect distance measurements. The coating is optimised for the frequency of the Leica Geosystems distance measuring signal. Therefore other brands of coated prisms still partially reflect and can cause incorrect measurements.

An additional feature of the coating is that it is remarkably hard and therefore protects the surface from scratches.
Quality counts
Leica Geosystems reflectors are produced to the highest possible accuracy. After manufacture, the reflecting surface of each prism is measured by Interferometer to determine its Angular Beam Deviation. Only those prisms meeting the required specifications are supplied to the market.

The right target

Original prisms

Leica Geosystems prisms use the highest quality glass and are improved with optical coatings to achieve the longest possible measuring range at the highest accuracy. Round prisms are available in 62mm diameter for maximum range or as a convenient 24mm diameter mini-prism.

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<td>GPR121, GMP101</td>
<td>GPR111, GMP111</td>
<td>CPR105</td>
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- Mounted in metal holders for the best centring accuracy, stability and longevity.
- The Beam Deviation of the GPR121 is less than 2° and for the GMP101 is less than 6°.
- Ideal for precision and long range distance measurement.

- Mounted in Polymer holders which are unaffected by the elements, even when exposed for long periods.
- The GPR111 has a Beam Deviation of less than 8°.
- These light-weight prisms provide sufficient accuracy for normal surveying applications.

- The CPR105 patented Flat Prism provides two back-to-back reflectors, both having 0-constants.
- The unique Cat-eye reflector provides a RL measurement range of 250 m.
- Ideal for traversing, since the prism can be measured from both sides without requiring rotation.
The right tribrach
For accurate positioning over the surveying point

The stability of the tripod and tribrach is the primary influence on the accuracy of measurements and therefore it is important to use reliable and stable equipment.

Perfectly suited to your instrument
Leica Geosystems tribrachs are designed to operate reliably even in extreme temperatures, humidity and dusty conditions. In all situations, the maintenance-free foot screws ensure a movement that is always smooth and free of play.

The support area of the tribrach is matched precisely to the base circumference of Leica Geosystems equipment. This provides extremely accurate forced centring.

The optical plummet is of a robust construction, which virtually eliminates the need for adjustment during the lifetime of the tribrach. For tribrachs without optical plummet the innovative SNLL121 laser plummet provides for a convenient and rapid setup.

Torsional Stiffness
The top plate of the tribrach moves relative to the base plate when the mounted instrument is rotated. This force is most pronounced in motorised instruments, due to high acceleration and deceleration.

The accuracy with which the tribrach returns to its original position, once the instrument has stopped rotating, is known as hysteresis. Since the hysteresis of the tribrach has a direct influence on the angular accuracy of the instrument, choosing the correct tribrach is important.
Quality counts
The foot screw assembly is of the highest quality, providing an extremely stable support plate. After production, each tribrach is laboriously measured to determine its hysteresis. Only those tribrachs that are within specifications are supplied by Leica Geosystems.

The right set-up

Original tribrachs

Leica Geosystems offers a range of tribrachs to suit all accuracy requirements. The correct tribrach should be chosen to meet the requirements of the surveying application.

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<td>GDF121/GDF122</td>
<td>GDF111/GDF112</td>
<td>CTB101</td>
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- The hysteresis of the Professional tribrachs is guaranteed to a maximum of 1” (3 cc).
- The foot screws are maintenance free, ensuring a movement that is always smooth and free-of-play, in all environmental conditions.
- These tribrachs should be used with all applications where the required accuracy exceeds 3”.

- The Basic series tribrachs have a hysteresis to a maximum of 3” (10 cc).
- The foot screws have a large diameter which permits fine adjustment even when wearing work gloves.
- The GDF112 with optical plummet is ideal for GPS antennas and prism stations.

- The CTB101 tribrach has a hysteresis to a maximum of 5” (15 cc).
- The CTB101 is a low-cost tribrach which is suitable for use in normal environments.
- It is the standard tribrach supplied with the Builder TPS and is suitable for light-weight instruments.
The right communication tools
Secure data for peace of mind

Losing data after a day’s work is extremely frustrating and expensive. Leica Geosystems storage media and communication products are of the highest quality in order to achieve continuous reliability.

The right data

Compact Flash (CF) cards
Leica Geosystems memory cards are perfectly suited to the requirements of System 1200 sensors. These instruments operate differently to consumer devices which read or write individual files. The TPS or GPS creates a database on the card and constantly switches between different open files. A standard CF-card controller software is unable to perform this required multi-tasking and may cause communication problems with System 1200 instruments.

One of the primary causes of data loss is when a card is subject to shock, which can occur as a result of being dropped. The ruggedised industrial cards are rated to withstand up to a 3 metre drop to hard ground. In addition, these cards will operate reliably even in extreme temperatures and high humidity conditions.

Data cables
Most instruments have a data port for communication by cable. Connection to the external device can be made to a RS232 or USB port by using the appropriate cable. Cables provide extremely secure data transfer to and from the instrument. The highest specified wire and plugs are used which remain reliable even in extreme heat or cold.

Bluetooth® Wireless Technology
A Bluetooth® module can be integrated into the housing of the TPS1200 by local service centres.

An external Bluetooth® Kit (Art.No.8216666) is available which connects to all Leica Geosystems instruments. With this set-up, data can be transferred to or from any external device which has Bluetooth® wireless technology within a range of 100 m. The module is pre-programmed to be plug-and-play compatible.
## Technical specifications

### Professional

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<th>Min. Height</th>
<th>Weight</th>
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<td>180 cm</td>
<td>107 cm</td>
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### Batteries

For specifications of batteries and chargers, refer to the separate brochure Chargers & Batteries (Art.No.722797)
Whether you want to monitor a bridge or a volcano, survey a skyscraper or a tunnel, stake out a construction site or perform control measurements – you need reliable equipment. Using Leica Geosystems Original Accessories ensures the specifications of instruments are met, giving you the precise and reliable measurements that you need and expect. With Leica Geosystems Original Accessories you can rely on accuracy, quality and long life, and guarantee that you get the most from your instrument.

When it has to be right.