



- when it has to be **right**



PRECISE MEASUREMENT – FAST DATA TRANSFER

Leica Geosystems Oy is a subsidiary owned by Leica Geosystems AG and its main sales office is in Espoo, Finland. Leica has consolidated its position as a respected and trusted brand in measurement technology.

The company's main areas of focus are surveying, satellite measurement, mapping, laser scanning, construction and industrial measurement, and civil engineering measurement instruments. The technology is also suitable for controlling construction machines.

SATEL modems are extensively used in Leica's satellite positioning devices. Cooperation began in the late-1990s, when Leica required a reliable point-to-point wireless data transfer link.

Leica Geosystems measurement systems

SATELLINE modems are used to transfer satellite positioning correction data from an accurately known point to a mobile measurement receiver. In landscape conditions, the practical operating distance is typically up to 6-7 kilometres, but with permanently installed base locations, positioned in water towers for example, distances of up to 30 kilometres can be achieved.

When satellite positioning coordinates are corrected continually in relation to a known point, it is possible to achieve centimetre accuracy and kinematic (RTK, real-time kinematic) measurement is possible. The receiver can be carried by measurement personnel, enabling precise measurement data to be obtained quickly even over long distances, with no visual contact. A special application is construction machine guidance, in which the receiver is installed on the machine, thereby

enabling the location of an excavator bucket, for example, to be continually known. Measurement of demanding excavation tasks takes place efficiently as work progresses.

A significant benefit gained in the work-site environment is that an installed base station can be connected to any number of "measuring poles", whose locations are continually known to a centimetre level. The SATELLINE radio modem is extremely fast; the measurement data latency is only a few tens of milliseconds. Leica's systems are also fully compatible with future satellite positioning systems. For the radio modem frequency band, more compact correction data formats have been developed, ensuring that the reliable transfer of correction data will also be possible in future.



- Adapting SATEL technology to data transfer in precise positioning systems.
- SATEL products have been in use since the 1990s.
- SATELLINE radio modems used in many GPS/GNSS devices.
- Modems used both separately and integrated into measurement devices.
- Devices widely used by municipalities and companies.

According to Leica Geosystems' Esa Wikman, cooperation with SATEL has gone well and has deepened into a partnership. Cooperation has resulted, for example, in the development of solutions in which a radio modem is fully integrated into measurement devices. This has made the technology, used in sometimes very difficult field conditions, more reliable than before.



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