



Leica GPS System500 total solution

Global Positioning System (GPS) is funded by and controlled by the U. S. Department of Defense (DOD). While there are many thousands of civil users of GPS world-wide, the system was designed for and is operated by the U. S. military. GPS provides specially coded satellite signals that can be processed in a GPS receiver, enabling the receiver to compute position, velocity and time.

The nominal GPS Operational Constellation consists of 24 satellites that orbit the earth in 12 hours. There are often more than 24 operational satellites as new ones are launched to replace older satellites.

Leica Geosystems GPS receiver SR530 is a 24-channel, dual-frequency receiver with SATELLINE-3AS modems for highest accuracy and on-board RTK. RealTimeKinematic GPS (RTK) means a measuring position in centimetre accuracy real time. The system needs a reference station and a rover. The reference (base) station sends position corrections data to the rover. Because the base is set to a known point, it calculates corrections (positioning errors) from satellite data. Rover is normally few kilometres from base, so corrections are the same to base and to rover.

Satellite modem is the excellent choice for datalink between base (SATELLINE-3AS Epic10 W) and rover

Base datalink sends data once a second. Satellite modems are included in the menu so the operator can use them as default datalink. The surveyor can also change frequency using SR530 sensors software. In Finland so called free frequencies are almost history because of our high technology in telecommunication. Finnish Communications Regulatory Authority gives frequencies for use in SATELLINE. If customers have continuous reference station SATELLINE frequency they must request and get a permission from FCRA.

Sometimes it happens that there are other systems in the same or almost same frequency near the surveying area. This could cause misunderstanding or errors in the

field. Leicas software can handle this problem too. The surveyor can change frequency temporarily from the control panel. This is great help to engineering and consulting companies who survey all over the country using GPS.



APPLICATION NOTES FOR SATEL RADIO MODEMS

The rover calculates the position in centimetre accuracy. Leica uses ClearTrack technology in System500 receivers. This means high accuracy, fast and reliable positioning. In normal conditions it takes only a few seconds to get 3-D coordinates in centimetre accuracy. Leica Geosystems AG has made a housing for Sateline 3AS modem. There are no cables and wires, the housing is fixed directly to the sensors port. It may sound unimportant that there are no wires, but all who have been measuring in a forest or some other difficult area know that cables usually get broke first and if there is no extra cable available, it will cost a lot to find a new one and to go surveying again. Difficult measuring areas are normally the places where we need GPS most.

Leica Nilomark Oy is representative for Leica Geosystems and Leica Microsystems in Finland. Our staff of 22 persons takes care of customers support, training, service and marketing. We have sold over 110 System500 GPS receivers. Our biggest customer is NLS (National Board of Survey). They have 60 System500 GPS and Sateline modems. Many municipal surveying departments use Leica with Sateline.

One of our customers surveys up to 30 km from base with Leica GPS and a Sateline modem. Our customers are satisfied with Leicas GPS and Satels modems. We are the market leader in high accuracy GPS in Finland as Leica Geosystems AG in whole Europe.

We offer the best total solution for GPS !



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