

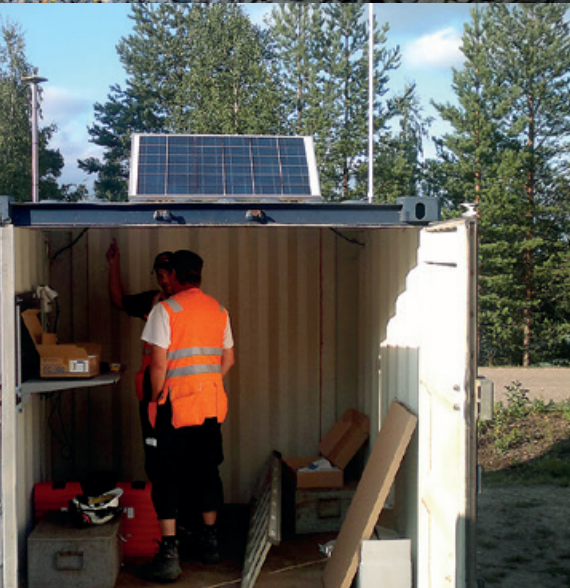
PRECISE POSITIONING WITH RADIO MODEMS

ON THE RIGHT TRACK WITH RELIABLE DATA TRANSFER

VR Track Oy needs reliable data transfer equipment to send GNSS correction data in its surveying work. VR Track Oy chose SATEL radio modems, because in addition to extreme precision and functional reliability, data transfer does not require any commercial operator and they have full control over their own data communication all the time.

SATEL radio modems offer a free and highly reliable data transfer channel between machinery and base station. Furthermore radio modems are almost entirely maintenance-free after installation. Compared to GPRS data transfer, radio modems enable receivers to achieve a centimetre-level accuracy in real-time, anytime and anywhere. The experience from this system has been accumulating during the past 17 years.

VR Track's GNSS base stations have SATELLINE-3ASd Epic modems with 10 W transmission. For example, in the Lielähti-Kokemäki rail section improvement project, eight fixed base stations send data continuously. The typical correction data transfer distance (between base station and machinery) is around five kilometres.



150 YEARS OF LAND SURVEYING EXPERIENCE

VR Track Oy is Finland's biggest rail track constructor. It has expertise covering all aspects of railway engineering, from design to project implementation. As an engineering office as well as a construction company, VR Track Oy is one of the biggest operators in Finland with around 2,000 expert personnel.

VR Track Oy's surveying services are part of the Consulting Business Unit with around 200 employees. There are four regional support bases in Finland and surveys have been conducted also in Sweden and Latvia.

VR Track Oy has a long history in track and land surveying. On the railways, surveying has been done since 1862. Some of VR Track Oy's current surveying staff have over 25 years' experience of track survey. In addition to railways, VR Track Oy also utilises its expertise in other fields. The company has a comprehensive and high quality stock of measurement instruments, which is continuously updated and supplemented.

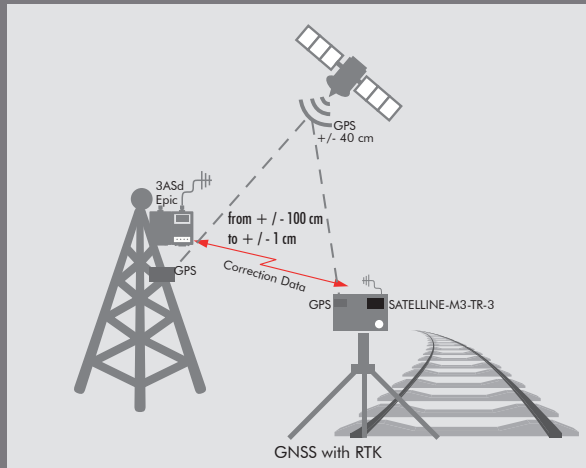
VR TRACK

Application in a nutshell

To give a train a good ride, the track alignment must be set to within a centimetre of the design. The precise gauge, curves and cant measurements of the tracks allow trains to travel with higher speed without causing any safety issues.

Radio modems are used to enhance the precision of position data derived from satellite-based positioning systems, such as GPS, GLONASS and/or Galileo. Radio modems provide real-time corrections based on the location of the base station. This provides up to centimetre-level accuracy to the machinery and measuring devices.

Radio modems provide reliable wireless data transfer even in the most rural areas where no infrastructure is available. The radio modem network operates independently guaranteeing that the work site can continue without interferences caused by inaccuracy or connection link failures.



SATEL IS A RELIABLE AND FLEXIBLE PARTNER

"It has been great to see all of the development work that SATEL has done on its equipment. As a result of this work, SATEL solutions are extremely reliable," says VR Track Oy's Development Engineer, **Pasi Kråknäs**. About working with SATEL, he only has good things to say. "With a reliable and flexible partner, matters have been handled smoothly. The significance of long-term personal relationships with key SATEL employees cannot be over-emphasised," concludes Kråknäs.



Photos: Hanna Välimaa

SATELLINE-3ASd Epic has a high power (10 W) transmitter and two receivers operating in a Diversity Reception mode. These features are particularly useful in demanding conditions. It has LCD-display and can be easily programmed even on-site.



M3-TR3 is especially designed for integration into a host devices. It is compact, slim and easy to add to various systems. It is small (57 mm x 36 mm, 18 g) and it has extremely low power consumption. The module is compatible with SATELLINE-3AS and -EASy products + other manufacturers' radio protocols.