

Partnership for Radio Positioning System



Leica Geosystems Mining has entered into an exclusive industry partnership with Locata Corporation Pty Ltd to provide the mining industry with the world's only high-precision radio positioning system that is not reliant on GPS. Known as the Leica Jigsaw Positioning System (Jps), Leica Geosystems Mining will provide this new technology as a part of its Jigsaw product suite.

Leica Jps claims an improved reliability for high-precision positioning by deploying ground-based LocataLite transmitters which augment conventional GPS systems. The LocataLites work without needing the additional corrections, communication or other assistance

normally used for GPS high-precision systems.

A high-precision positioning network utilising GPS alone requires a good view of the sky with sufficient geometry. In a mine, if a significant number of the satellites are blocked, the positioning fails. This is a common occurrence in deep pits and against high walls. With mine production efficiency being increasingly reliant on GPS positioning, this type of system failure is a major issue.

The issue has been overcome by Locata technology. Leica Jps, powered by Locata, provides the LocataLites as "a new constellation of ground-based satellites" or alternative points of reference. These additional points of reference can be used in conjunction with, or completely independent of, the GPS satellite network. The Leica Jps alternative reference points can be used in combination with any available GPS satellites. For example, three GPS satellites can be used in combination with two LocataLites to still provide a high precision position - something which would not normally be possible.

Leica Jps can augment the Jps LocataLite signals with the GPS signals to give uninterrupted operation, thereby solving the problem of blocked satellite signals and resultant downtime. A Leica Jps network has been successfully deployed and used in Western Australia on a large open cut gold mine in exactly this manner, supporting their High Precision guidance systems as a part of the product development process.

One of the fundamental requirements for GPS-style positioning is that all of the transmitters are synchronised to each other. Atomic clocks are used in all of the GPS satellites to achieve this. The LocataLite transmitters can achieve this high level of synchronization without using any atomic clocks. Within minutes of being turned on, the LocataLites generate an autonomous, nanosecond-accurate positioning network through a new synchronisation process called "TimeLoc". In this manner, each LocataLite unit becomes the functional equivalent of a 100 million dollar GPS satellite and so creates an alternative point of reference for the positioning network.

LocataLites are placed in any mining area requiring additional coverage. They can be permanently positioned on site or moved at will (or any combination thereof) ensuring the mine's Leica Jps network is set up exactly where and when needed.

The Locata network can be deployed completely independent of any GPS network, using only the LocataLites as points of reference. Locata therefore provide a fully operational, stand-alone high precision positioning network.

Further evidence of Locata technology's "cutting edge" status was delivered on Friday 16th September 2011 when the United States Air Force, who originally developed GPS, announced Locata is contracted to continue providing them accurate positioning when GPS is completely jammed on their test range. The USAF will use the Locata system for cm-accurate positioning over 2,500 sq. miles (6,500 sq. km) of the White Sands Missile Range in New Mexico.

