

# Press Release

**Author** Leica Geosystems Mining, Brisbane Australia  
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## **Leica Geosystems Mining partners with Locata for a World First**

**Leica Geosystems Mining has announced 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 their Jigsaw product suite. Leica Jps provides an unprecedented level of 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 mine, instead of relying solely on GPS satellites to provide high precision positioning, can maintain availability and accuracy by using the Leica Jps alternative reference points 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.

### **How it works**

One of the fundamental requirements for GPS-style positioning is that all of the transmitters are synchronized to each other. Atomic clocks are used in all of the GPS satellites to achieve this. In a ground-breaking technical advance, however, the LocataLite transmitters can achieve this extremely 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 synchronization 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 HP 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.

### **A world first**

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. No other technology has ever been able to achieve this previously.

Leica Geosystems Mining is the first company to commercialise the Locata system as a Locata integration partner. This new technology is truly considered ground-breaking and shows Leica Geosystems Mining's commitment to state-of-the-art solutions for their customers.

Further evidence of Locata technology's "cutting edge" status was delivered on Friday 16<sup>th</sup> 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 a vast 2,500 sq. miles (6,500 sq. km's) of the White Sands Missile Range in New Mexico. ([http://mwne.ws/USAF\\_LocataNet](http://mwne.ws/USAF_LocataNet))

### **About Locata**

A high-technology development company headquartered in Canberra Australia, Locata has been working on this technology breakthrough for 16 years. Over the past four years the on-site mining system has been developed in partnership with Leica Geosystems Mining. Locata today has 82 secured patents and more than 160 pending, and many industries will soon be seeing much more of this incredible start-up.

Mr Nunzio Gambale, CEO and founder of Locata explains, *"We have been working closely with Leica Geosystems to develop the Jigsaw Positioning System (Jps), which is powered by Locata technology and is a part of the Leica Jigsaw product suite. Locata, across the open pit mine area, is ensuring that Jps customers have solid, operational cm-level positioning which is independent of GPS."*

He continues, *"The Locata team is extremely proud that Leica, the world's biggest GPS company, is the first to deploy a commercial system using our technology. You're going to hear a lot more about Locata as we start rolling out this "science-fiction" level of positioning to environments where it has never been available before. We believe our inventions are about to change the world of positioning for ever."*

Mr Haydn Roberts, CEO, Leica Geosystems Mining states, *"We are determined to remain the world's leading measurement technology company, offering only the very best in measurement solutions. Key to our strategic plan is the continued acquisition and development of leading technology, focussed R&D and the formation of strong, exclusive partnerships with companies that are absolute leaders in their fields. Companies like Locata Corporation."*

*I am very excited to offer the mining industry the incredible technological break-through that our partnership with Locata represents. Together we are providing something that no-one else can – OEM independent, GPS independent high precision positioning networks for mines and beyond."*

## Leica Geosystems – when it has to be right

With close to 200 years of pioneering solutions to measure the world, Leica Geosystems products and services are trusted by professionals worldwide to help them capture, analyse, and present spatial information. Leica Geosystems is best known for its broad array of products that capture accurately, model quickly, analyse easily, and visualize and present spatial information.

Those who use Leica Geosystems products every day trust them for their dependability, the value they deliver, and the superior customer support. Based in Heerbrugg, Switzerland, Leica Geosystems is a global company with tens of thousands of customers supported by more than 3'500 employees in 28 countries and hundreds of partners located in more than 120 countries around the world. Leica Geosystems is part of the Hexagon Group, Sweden.

### Images:

Images related to this press release may be downloaded from:

<ftp://ftpau.leica-geosystems.com>

Login Name: LeicaPress

Password: Mining

Directory: Leica Jps & Locata / Images



*AIMEX\_Nunzio Gambale&Haydn Roberts.jpg*



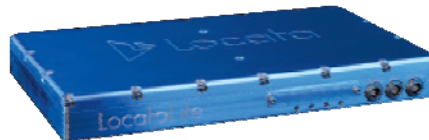
*NunzioGambale&LocataLite.jpg*

In this image Mr Gambale is holding a LocataLite with the outer cover removed to show the inner electronics of the unit



*Locata (1 of 3).jpg*

The LocataLites are approximately the size of a thin video cassette, with even smaller units already undergoing development.



*BlueLocataLite.psd*

LocataLites, as supplied with the Leica Jps system, will be silver in colour.



*Leica Geosystems LocataLite.jpg*  
A movable LocataLite at the WA mine.

**For further information and request for interviews please contact:**

Leica Geosystems Mining  
Stefana Vella  
Global Marketing - Mining  
Phone: 07 3891 9772  
Mobile: 0414 754 123  
stefana.vella@leica-geosystems.com

**[www.leica-geosystems.com/mining](http://www.leica-geosystems.com/mining)**

**NOTE:**

As a part of the global launch of the new Leica Jigsaw range, our website is currently undergoing a rebuild. All new product information will be available from the site by the end of September. Brochures and other information is available by direct contact with Leica Marketing as per the details provided.

### Mine Management Solutions

Leica Geosystems' next-generation Leica Jigsaw monitoring and GPS guidance solution unearths site productivity with a revolutionary product range for draglines; blast-hole drills; electric shovels; dozers; excavators; haul trucks; loaders and auxiliary assets.

State-of-the-art real-time analysis and reporting software gives users the tools that they need to stay on top by efficiently controlling resources and equipment. The result? Informed decision making, optimised productivity and unparalleled performance for maximum site output.

Backed up by a reliable global service and support network, Leica Geosystems Mining provides you with one, seamlessly integrated and efficient Mine Management Solution.

**When it has to be right.**

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#### United States, Canada & Mexico

Leica Geosystems Mining  
Tucson, USA  
Ph: +1 520 529 8729

#### Latin America

Leica Geosystems  
Santiago, Chile  
Ph: +56 2 224 9512

#### Australia & South-East Asia

Leica Geosystems  
Brisbane, Australia  
Ph: +61 7 3891 9772

#### Indonesia

SatNetCom & Leica Geosystems  
Balikpapan, Indonesia  
Ph: +62 54 287 5570

#### Africa

Reid & Mitchell & Leica Geosystems  
Johannesburg, South Africa  
Ph: +27 11 914 9600

#### China

Leica Geosystems  
Beijing, China  
Ph: +86 10 8569 1819

#### India

Leica Geosystems  
Gurgaon, India  
Ph: +91 124 412 2222

Email: [miningsales@leica-geosystems.com](mailto:miningsales@leica-geosystems.com)  
[www.leica-geosystems.com/mining](http://www.leica-geosystems.com/mining)



### ACTIVE customer care

Leica Geosystems is focused on providing you with low maintenance products that have competent back-up support, when you need it, 24/7 every day of the year.

- when it has to be right



## Leica Jps Jigsaw Positioning System Powered by Locata

Jigsaw



## Ground-Based High Precision GPS Guidance

### Mine Management Solutions

- when it has to be right



## GPS

NETWORK OF SYNCHRONIZED DEVICES TRANSMITTING FROM KNOWN LOCATIONS

(USES SATELLITES)

## Jps

NETWORK OF SYNCHRONIZED DEVICES TRANSMITTING FROM KNOWN LOCATIONS

(NO SATELLITES)

powered by



It's a game changer

"Jps Locata signals are seen as the equivalent of, but totally independent from, the satellite constellation."



### They said it couldn't be done. They were wrong.

Leica Geosystems, in partnership with Locata Corporation, can now offer the mining industry the world's first radiolocation technology which replicates a completely accurate positioning network system without any reliance on the traditionally used GPS signals from orbiting satellites.

The application of technologies based on GNSS positioning have revolutionised the mining industry, but as open cut mines go deeper, satellite masking around highwalls and in deep pits become a major issue. The solution? Leica Jps (powered by Locata).

Leica Jps, a GNSS augmentation product specifically designed for the mining industry, is fundamentally a new technology. Leica Jps creates a ground-based positioning network system that provides the same positioning accuracy that GNSS together with RTK corrections would normally provide - but without the signal drop-out.

Using a combination of fixed position and movable Jps stations (LocataLites), a Jps high precision positioning network is created exactly where and when you need it. Seamlessly complimenting or replacing traditional GPS at a local level, Leica Jps can be implemented anywhere.

### As incredible as it may seem, the video-cassette sized LocataLite device is the local equivalent of a \$100-million GPS satellite!

Leica Geosystems can deploy LocataLites around the rim of a mine, in whatever configuration is needed to do the job. When they are turned on, the LocataLites self-configure into an autonomous positioning network. Within minutes you have your own local equivalent of a GPS constellation. The LocataLites can be trailer mounted for easy deployment as the mine changes shape or they can be permanently installed as part of the mine's infrastructure.

### Incredible benefits...

- Fully customisable and scalable - make the Jps area as large or small as you need - add or remove LocataLites from a network at will.
- Interoperates with any WiFi network.
- Use independently or with your standard GNSS systems to supplement for signal drop outs in deep pits and against high walls.
- No additional correction network means no base stations, no atomic clocks, no data links, and no differential corrections. This means less room for error and drastically reduced infrastructure costs.

### Groundbreaking technology...

- Jps LocataLite ground-based transmitters each transmit four positioning signals in the 2.4GHz ISM band to the receivers on-board the machines.
- Jps works in a similar way to GPS but you can MOVE your LocataLite at will to optimise your requirements and fill in any coverage holes.
- Jps requires no differential corrections, meaning no additional corrections network or base stations are required.
- The new Leica Jps receivers can receive all the new GNSS signals including GPS, Glonass, Galileo, Compass and Locata. The Leica Jigsaw rugged co-located antenna receives all these signals too.



"Leica Jigsaw can run your mine while Leica Jps ensures every operational asset has an accurate position at all times."



The world's first and only "local" GPS...

#### Jps LocataNet

- Monitor network health via reporting of the Jps LocataNet status in Jmineops, the Leica Jigsaw system support software
- Mission Planning Tool to provide customer advice on the placement of LocataLites
- Technician diagnostic tool

#### Jps LocataLite

- Solar powered and mobile
- Self surveying, contains RTK GPS receiver
- TimeLoc synchronisation technology
- Multiple signals transmitted for redundancy & to mitigate multipath in the pit
- Running within minutes of turning on

#### Jps Receiver

- One module contains two receivers
- Ethernet connection
- Separate module
- Co-located antenna receives both GNSS & Locata signals
- Support for external GNSS corrections

"Whenever GNSS coverage cannot be accurately obtained, Leica Jps provides that position. The operator experiences no interruption to operations."

- when it has to be right

