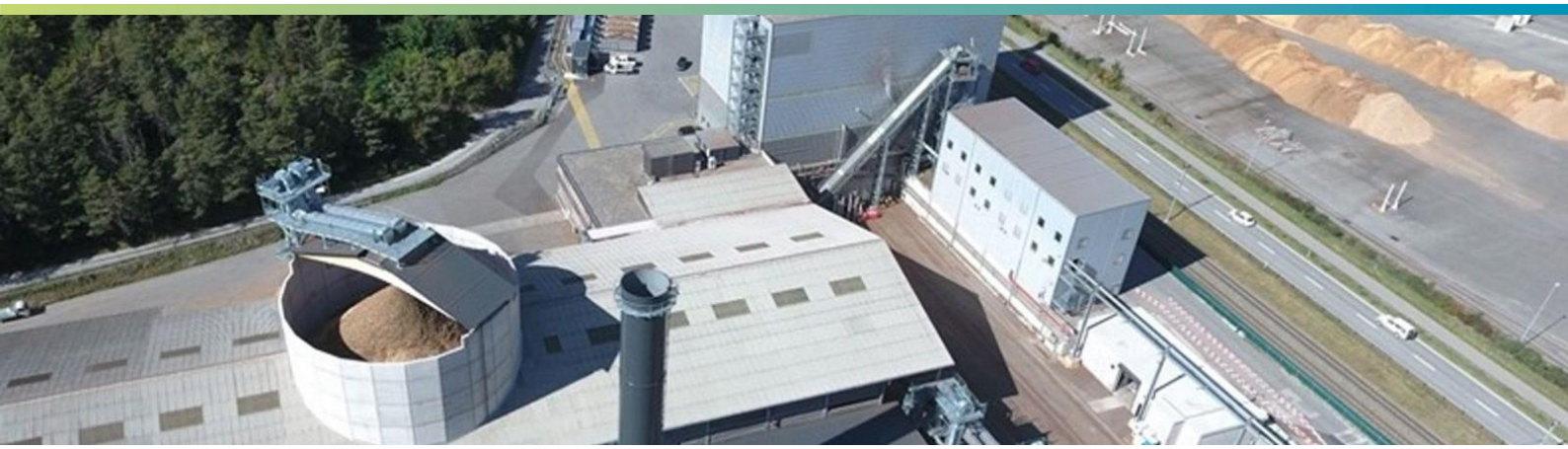
# Automated volume monitoring with Leica BLK247

## Gain real-time volumetric insights about bulk goods like grain, wood chips, chemicals and other precious resources



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### Challenge

- Imprecise volume estimates over- or undervalue stock that is stored on site.
- Near estimates or approximations are insufficient for asset management, especially if such information feeds automated processes.
- Frequent accurate scanning of the piles is essential but requires automated solutions instead of manual processes that involve human resources.
- Unclear and unreliable information about on-stock volume impedes quantifying operation efficiency of downstream processes and accurate asset management.

### Solution

- The Leica BLK247's LiDAR creates a 3D point cloud of the goods inside by scanning its full field of view in seconds.
- The Cyclone software then calculates the volume from the point cloud by comparing it with the empty storage, providing advanced 3D data processing and flexibility for site-specific customisation.
- The BLK247 is a fused sensor that also integrates 360-degree cameras that deliver high-resolution images of the goods to tailor every solution to site’s unique needs.
- Thermal sensors provide information about the surface temperature of the stockpile and can trigger an alarm in case a predefined temperature level is exceeded.

### Imprecise volume monitoring is problematic

Volume monitoring is essential for today's automated processes, which depend on accurate, up-to-date data. Precise asset management is also necessary for controlling downstream processes: Managers of power plants or chemical factories can only optimise operations if they know the exact amount of goods that have gone into these processes. Knowing how much is on stock allows the purchasing manager to procure supply at the right moment regarding pricing and availability.

Today plant managers often merely estimate volumes of goods. They base such estimates on their experience or roughly calculate the amount based on laser distance measurements of the stockpile's height. Often, they do precise volume detection with a human-operated high-precision laser scanner only once per quarter or even once per year. This method is very accurate and allows operators to reset the volume estimates and correct the data in the systems. However, it is time-consuming and expensive and doesn't deliver a continuous data update.

Automated processing requires regular monitoring with high accuracy and frequency. Other solutions, for example, single-point laser or radar/echo systems, don't deliver the necessary accuracy, especially when the stockpile has an irregular shape.

### 3D scanning for real-time volume information

The solution is installing a 3D scanner that provides real-time information about the existing volume. Combining advanced sensor technology from Leica Geosystems, part of Hexagon, with powerful software processing creates a rapid and autonomous volume monitoring solution.

For volumetric measuring, the BLK247 is mounted above the stockpile. The sensor can scan up to 60 metres in diameter and 30 metres in height. The BLK247's rotating LiDAR continuously scans the surface of the goods and creates a dense point cloud of the surface. This point cloud is then passed to the Cyclone 3DR software for automatic processing and evaluation of the volume in relation to the empty storage facility.

The user can select the measurement frequency, whether it is every few minutes, days, weeks or months. The BLK247 also delivers high-resolution images of the stockpile so that staffers can inspect the material and notice abnormalities of the surface.

## Visual and thermal cameras

With two high-definition video streams, users can utilise the BLK247 to provide visual monitoring of the site in real time. Additionally, the BLK247's thermal cameras deliver information about the surface temperature. The system will inform staffers if the temperature exceeds a user-defined threshold or if it detects temperature abnormalities.

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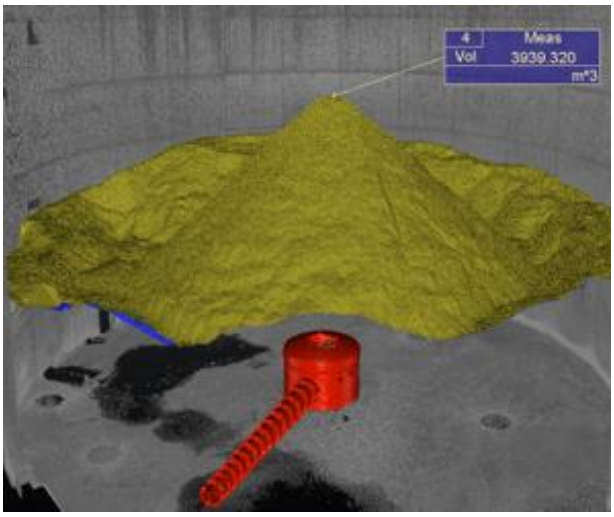
The BLK247 is an IoT device, and a simple network cable will link it to the control system and network of the factory. As an edge computing device, it does not need any extra processing capabilities for many of its features and functionalities.

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## 3D Surveillance solution

Not only can the BLK247 provide volumetric and visual monitoring of the site, it is also a surveillance device with an advanced set of security features. For example, 3D zones can be defined around the stock area where persons shouldn't trespass. When an intruder is detected in this area, an alarm and video information can be sent to the control room to allow a rapid response. The BLK247 sends out an alarm and video information to the control room in case of an intrusion.

For more information, visit https://3dsurveillance.hexagon.com

Contact us to discuss volume monitoring with one of our experts: https://3dsurveillance.hexagon.com/contact-us