VEGA Inventory System transforms supply chains

This article highlights the role of the VEGA Inventory System (VIS), which seamlessly integrates VEGA's advanced instrumentation with secure, cloud-based inventory management software to transform material-flow operations in the process industries.

Developed by VEGA as a holistic solution for inventory monitoring and control, VIS integrates three pillars: precise measurement technology, cloud-based software and streamlined logistics planning.

In modern process industries, the consequences of poor inventory management are significant. Excess inventory consumes valuable capital and storage space, while shortages can bring operations to a grinding halt and lead to costly last-minute deliveries. For efficient and safe manufacturing and logistics in Africa, having real-time visibility and the ability to anticipate material needs are non-negotiable. This is precisely the advantage offered by the VEGA Inventory System (VIS).

Developed by VEGA as a holistic solution for inventory monitoring and control, VIS brings together three pillars: precise measurement technology, cloud-based software and streamlined logistics planning. On paper, this may read as 'just another automation tool', but in practice, it represents a paradigm shift: operators and suppliers shift from reacting to stock events to anticipating them. At VEGA, data acquisition, precise visualisation and efficient logistics are considered core elements of successful automated inventory control.

Why visibility matters

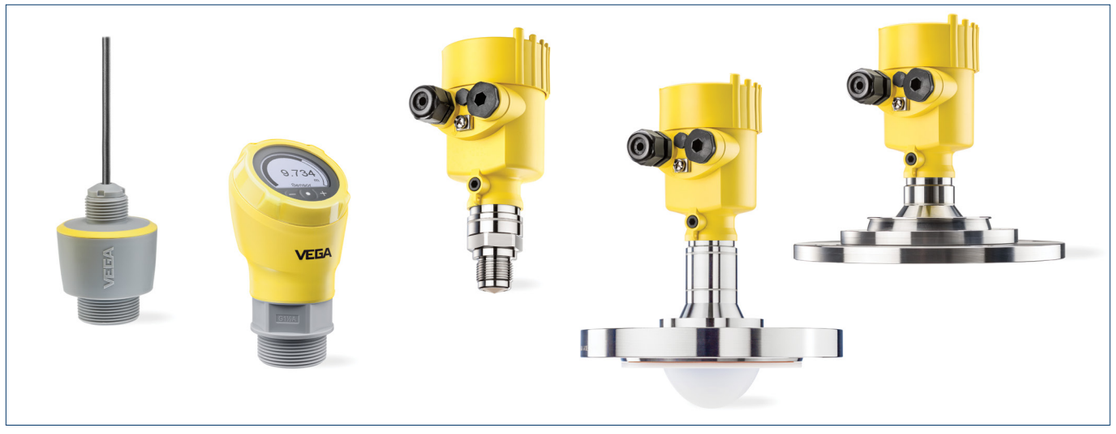
In chemical plants where raw material silos are manually inspected once a day, late deliveries, inaccurate readings and unsynchronised transport are realities. Each one of these creates risk. But with VIS, the inventory status of tanks and silos is captured and visualised in real time. The system allows users to monitor live levels, detect deviations immediately and trace their causes. This kind of transparency minimises the financial impact and ensures that the cause of the discrepancies is quickly identified and avoided in future.

The architecture of modern inventory control

The architecture of the VEGA Inventory System is built around the seamless integration of VEGA's advanced instrumentation with secure cloud-based software. At its core, the process unfolds in a straightforward sequence: sensors collect data, gateways transmit it, the data is securely hosted, and users can visualise the results.

First, VEGA level transmitters, designed for both liquids and bulk solids, measure levels in vessels, silos or storage tanks. These readings are then transmitted to the VIS portal at regular intervals via gateways or wireless instruments. Once received, the data is securely stored on VEGA's servers in dedicated installations or on client premises, using end-to-end encryption and robust authorisation management.

Users can access this information via a web browser or mobile app and view their inventory data in several real-time modes. The system offers four distinct viewing options, each tailored for specific monitoring needs. The chart view displays key numerical data, such as stock levels, available space, timestamps, and, for many liquid inventories, daily consumption and coverage. The graphic view provides an at-a-glance visual representation, using colour-coded



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indicators to show stock status, ranging from 'Reorder' to 'Safety stock', and includes alarm thresholds for immediate awareness.

For organisations with operations across multiple sites, the map view provides a geographical overview, showing facility and storage container locations and their colour-coded inventory statuses. This feature is particularly valuable for managing plants, depots or remote silos. The trend view enables users to review both historical and current data in a chart format, making it easier to identify usage patterns, forecast consumption and plan deliveries accordingly.

A familiar traffic-light colour scheme underpins the user interface: green for healthy levels, yellow for caution, and red to highlight the need for replenishment. Users can further refine their view by applying filters based on location, product type, inventory level status, alarm levels, and more, ensuring the system remains intuitive and adaptable to a wide range of operational requirements.

VIS goes beyond just 'visibility' and includes logistics planning tools. With the dispatcher module, users can plan delivery schedules: which driver will take which product, from which tank, to what location and when. The system also draws on historical consumption data to forecast future usage and support optimised delivery routes. The "dynamic web map" gives a current overview of tank locations and statuses.

Two application scenarios: internal and supplier-managed

VIS offers two principal deployment models, each delivering distinct advantages. In the internal inventory monitoring approach, a company utilises VIS to track its stock levels across various locations, including production plants, external manufacturing sites and storage depots. This model provides immediate access to up-to-date and historical consumption data, which supports economic production planning and supply chain management. As a result, companies benefit from greater operational efficiency and achieve cost savings by optimising their logistics processes.

The second model is Vendor-Managed Inventory (VMI), in which the supplier is responsible for monitoring and replenishing stock. Through the VIS portal, suppliers receive real-time visibility into tank or silo levels at the customer's site, enabling proactive planning. This arrangement gives suppliers swift access to customer consumption data, thereby enhancing production planning, improving logistics efficiency, and increasing client retention.

Customers, on the other hand, gain assurance of a consistent supply, experience fewer urgent orders and production interruptions, reduce administrative workload, and can focus more on their core business with increased confidence in their inventory levels.

Practical considerations for implementation

VEGA has designed the VEGA Inventory System (VIS) to be highly compatible, enabling integration of measuring instruments from other manufacturers, provided they can connect to VEGA's signal-conditioning instruments. This means that up to 15 sensors can be linked via HART multidrop to a single VEGASCAN controller, making upgrading existing systems straightforward and efficient.

Data security is treated with the utmost importance, with cybersecurity requirements considered non-negotiable. For example, in South Africa, the VIS portal has undergone thorough auditing. It is certified to the IDW DS 951 SOC 2 standard, providing users with confidence in the system's integrity and compliance.

Connectivity is also a key consideration, particularly for remote sites where traditional network infrastructure may not be available. To work around this, VIS supports mobile network options such as NB-IoT and LTE-M, as well as satellite connections, ensuring reliable data transmission regardless of location. The AIR line of instruments further enhances this flexibility, offering self-powered, wireless measurement solutions ideally suited to hard-to-reach or off-grid environments.

Transitioning from manual stock checks to a fully digital inventory management system requires more than just new technology; it demands organisational change. This shift involves comprehensive training, process adjustments and buy-in from all stakeholders. To support users through this transformation, VEGA provides consultancy services, training sessions and ongoing technical support to ensure smooth implementation and adoption.

When considering return on investment, the cost of installing the VIS, including hardware and hosting, is modest, especially given the substantial savings it delivers. By reducing the need for urgent deliveries, enabling more efficient route planning, minimising excess inventory and decreasing the likelihood of production stoppages, companies benefit from rapid investment returns. Local users have reported that these benefits are realised quickly, underscoring the system's effectiveness and value.

The future is NOW!

Industrial operations are becoming increasingly interconnected, and data-driven systems like VIS represent the next generation of inventory management. The term 'inventory' no longer means static stock in boxes in a warehouse or bulk solids in a silo; it means dynamic, predictive, and networked resources, especially in the African manufacturing and supply chain environment, where disruption, logistics complexity and cost pressures are daily realities. A shift towards a digital inventory system is not just beneficial; it's becoming essential.

For industrial players seeking to transform their material-flow operations, the VEGA Inventory System offers more than technology; it provides a mindset: see everything, act before the alarm and optimise continuously.

The move from reactive to proactive supply-chain insight is no longer optional; it is the competitive edge. VIS brings together instrumentation, IoT, analytics and logistics into a single platform.

As the saying goes, 'what gets measured gets managed'. With Vega's VIS, what gets measured is visible, actionable and optimised.

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