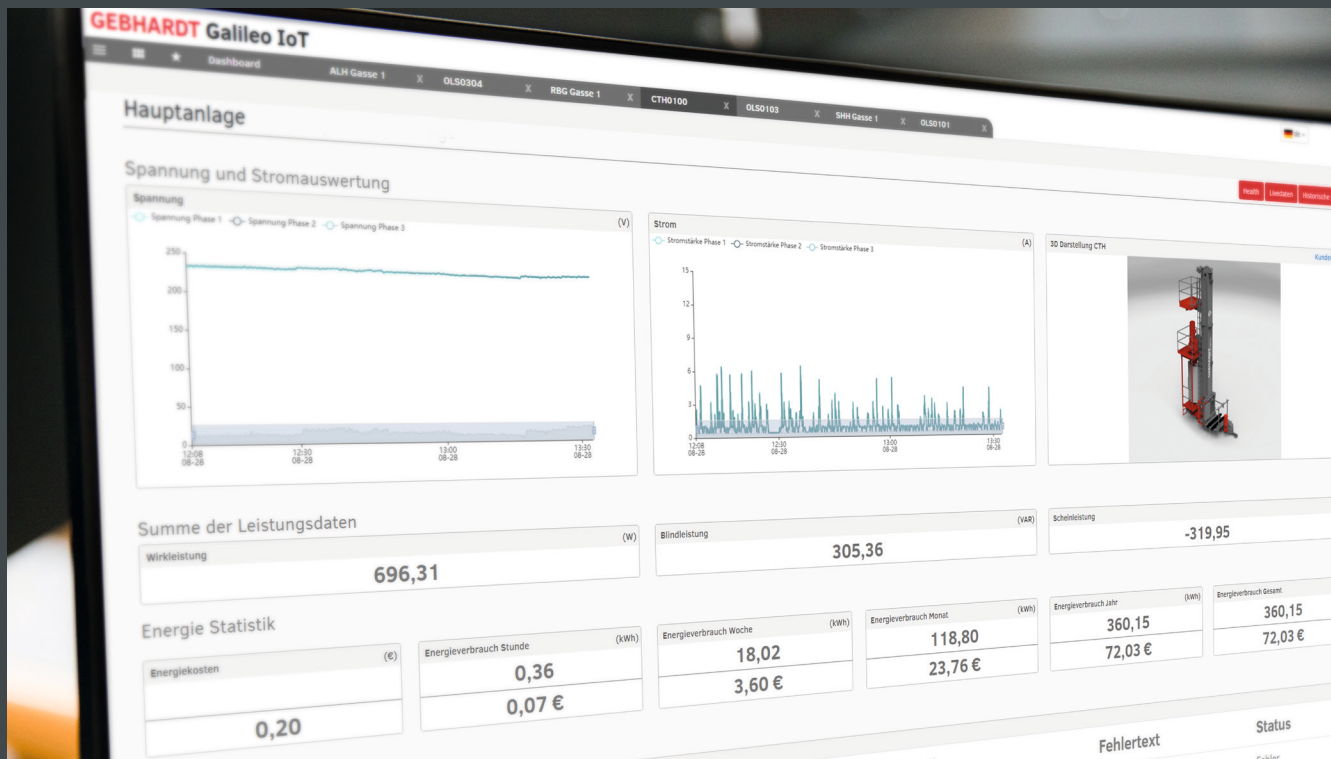




GEBHARDT Galileo IoT[®]

Focus on Networking



The advancement of digitalisation in intralogistics is leading to an increasingly interconnected network of machines and systems that continuously generate data. This data is presented on platforms, serving as the foundation for informed decision-making and strategy development in areas such as warehousing and conversion processes.

The GEBHARDT Galileo IoT® platform visualises data from the system and individual machines, providing crucial information regarding maintenance status and wear levels. Business data can be correlated with machine data or physical quantities collected by Galileo IoT®. This allows for the standardisation of data from various sources, enabling the creation of interactive and comprehensive dashboards and reports that yield valuable insights and enhance efficiency—resulting in fully connected intralogistics.

Additionally, GEBHARDT Galileo Insight enhances transparency and system availability by reducing the total cost of ownership and improving communication. Using analytics and root cause analysis contributes to smoother and more efficient operations for our customers' systems.

GEBHARDT GALILEO IOT® PLATFORM

The GEBHARDT Galileo IoT® platform enables the digitisation and connection of your entire intralogistics system in the cloud. Creating a digital twin within the platform allows you to visualise system expansions and changes using augmented reality and 3D holograms. With continuous condition monitoring, you gain access to real-time data at any time, allowing for the early detection of potential shutdowns and necessary maintenance work, facilitating predictive maintenance.

Advantages of the GEBHARDT Galileo IoT® platform

- Feedback from development & operations
- Faster response times
- Optimisation of plant operation
- Increase in plant availability
- Improved communication & customer focus
- Analytics Transparency
- Reduction of unplanned measures
- Remote Monitoring

Features GEBHARDT Galileo IoT®

- Digital twin monitoring
- Traffic light function in the digital twin and the tile overview
- Equipment-specific dashboard
- Health Page
- Test drive feature
- Asset Intelligence Network
- Predictive calculation tool



MODULES OF THE GEBHARDT GALILEO IOT® PLATFORM

The GEBHARDT Galileo IoT® platform has a modular structure and can be divided into six central topic areas:

CONDITION MONITORING

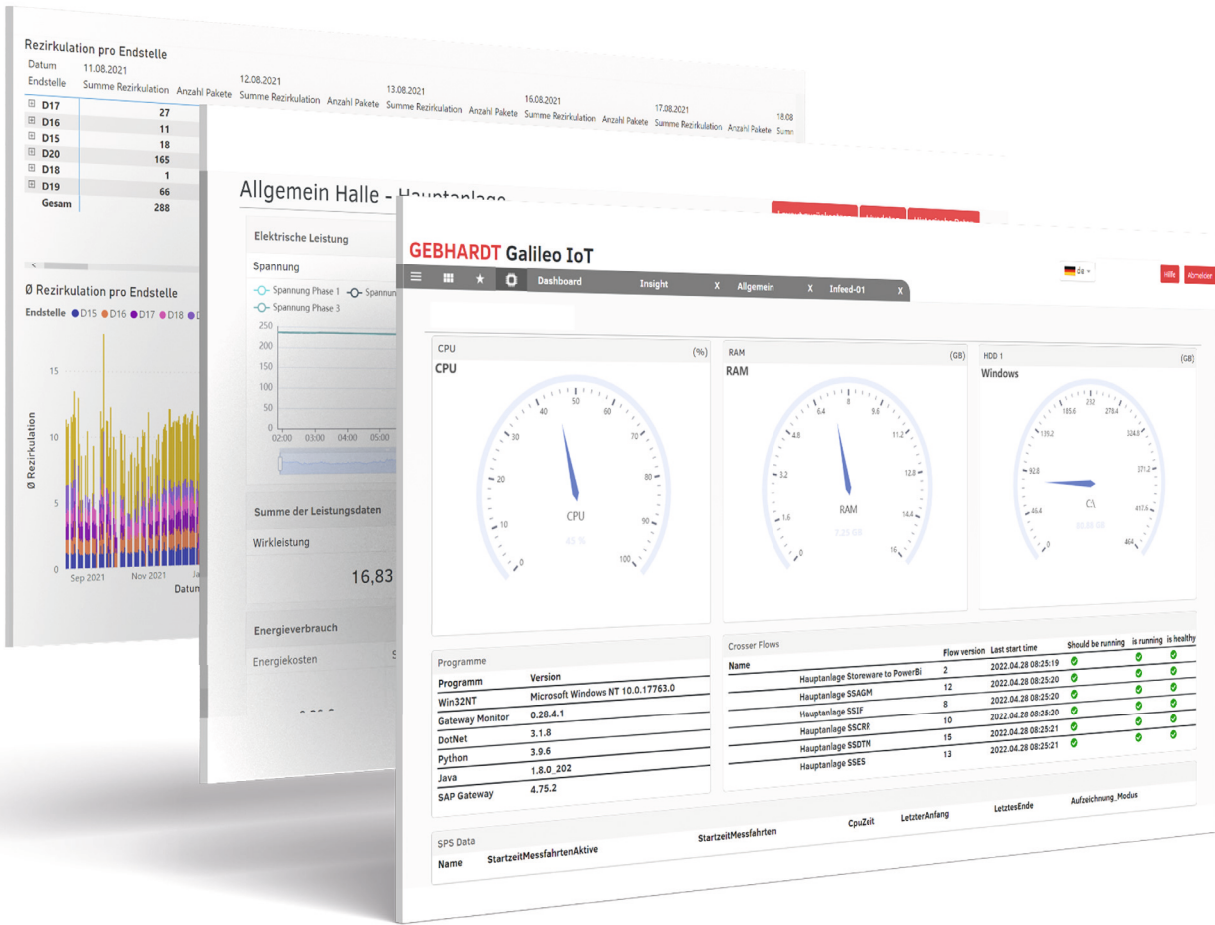
The GEBHARDT Galileo IoT® platform, along with its integrated Condition Monitoring feature, offers you a comprehensive insight into the relevant data of your logistics system. This setup not only allows for seamless monitoring of all intralogistics systems but also facilitates real-time tracking of each individual component. The data collected encompasses machine information from controllers and components, physical variables from our specially designed condition monitoring sensors, business data from the GEBHARDT warehouse management system, and performance data sourced from the GEBHARDT material flow computer. Analysing this material flow data allows you to access up-to-date insights on your system's performance and important wear parameters. Dashboards visually represent the monitoring process, showcasing information related to conveyor and storage systems, autonomous transport systems, and data from the warehouse management software.

CUSTOMER PORTAL

One key component of the GEBHARDT Galileo IoT® platform is the customer portal, which serves as a cloud-based business network. This portal consolidates information from manufacturers, service providers, and plant operators in a single location. It includes technical specifications, documentation, operating and maintenance instructions, maintenance reports, and spare parts lists.

HEALTH PAGE

The Health Page module continuously monitors the health of your machines by carefully analysing each individual component. It integrates seamlessly with GEBHARDT's maintenance and service teams, as well as the operator's maintenance department. The exchange and evaluation of spare parts are documented directly on the machine dashboard. With comprehensive assessments, our system enables thorough analysis, leading to optimised machine performance and enhanced reliability.



DIGITAL TWIN

Analysing material flow data offers current insights into your plant's performance and key wear parameters. Dashboards provide visualisations for monitoring conveyor and storage systems, autonomous transport systems, and data from warehouse management software. Augmented Reality (AR) applications display these systems using 3D models. These 3D models serve as digital twins and store all relevant system data. This means you can continuously track the design, configuration, and any changes, as well as the condition of your system, through the digital model.

TEST DRIVE

The platform collects and analyses sensor and process data in real time to detect potential downtime and necessary maintenance work based on wear parameters. This allows for early identification of issues and provides relevant information about the service status. In the future, the GEBHARDT Galileo IoT® platform will also incorporate machine learning and artificial intelligence to optimise internal processes further.

GEBHARDT GALILEO INSIGHT

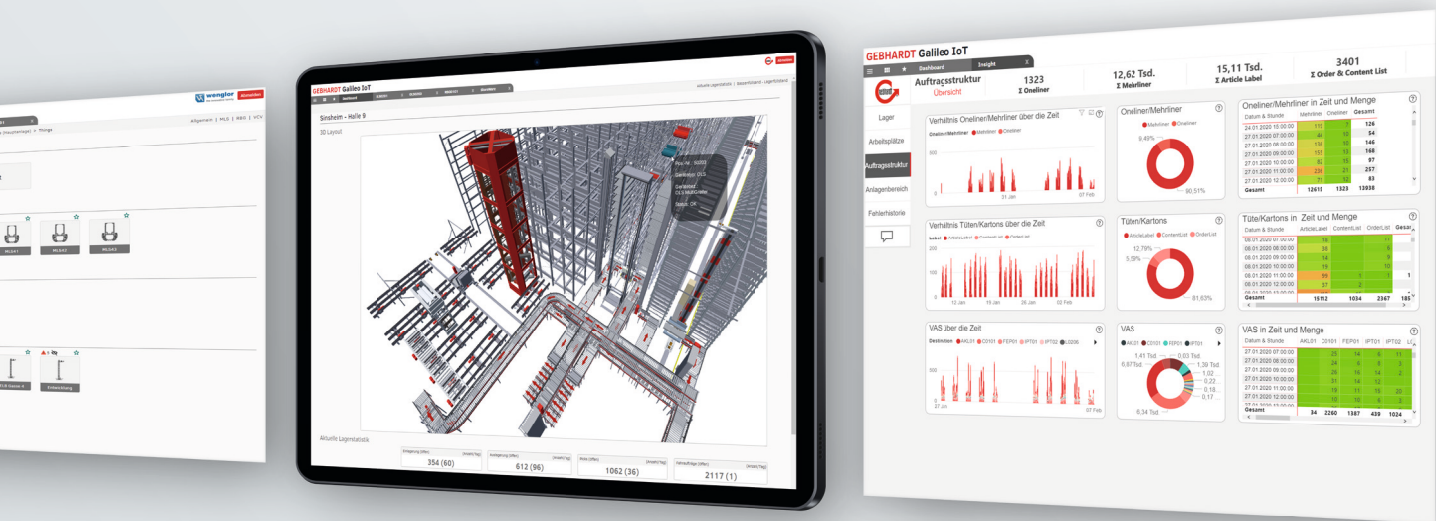
GEBHARDT Galileo Insight is the perfect complement to the GEBHARDT Galileo IoT® platform, offering a wide range of analysis, evaluation, visualisation, and optimisation options. You can integrate business data with machine performance data and physical variables with Galileo Insight. This integration standardises data from various sources and allows for creating interactive, comprehensive dashboards and reports. These dashboards provide valuable insights that can enhance the efficiency of your intralogistics and improve system availability. Combining Galileo IoT® and Galileo Insight ensures smoother and more efficient operations. A key advantage of this integration is improved communication and increased transparency, facilitated by in-depth analytics and targeted root cause analysis. With detailed feedback from both development and operations, you can quickly respond and optimise your plant operations effectively.

INTELLIGENT SENSORS

The specially developed Condition Monitoring Sensor (CMS02) accurately captures environmental data, including air pressure, temperature, volume, and humidity, as well as absolute orientation across three axes and acceleration. This versatile sensor can be easily integrated into various applications. An Ethernet connection and a 24V power supply ensure reliable connectivity, eliminating the need for frequent battery replacements. Additionally, the integrated switch allows for the easy series connection of multiple sensors, further enhancing its flexibility.

ADVANTAGES IOT SENSOR

- Web-based configuration
- Modern internet protocols
- 3D angular velocity
- Industrial IoT cloud
- Decentralised data evaluation
- 3D acceleration measurement
- Measurement of environmental data



Faster response times

Increased system availability

Improved communication & customer proximity



Reduction in the Total Cost of Ownership

Optimisation of plant operation



GOALS REDEFINED WITH IOT

GEBHARDT leverages the Internet of Things (IoT) to achieve essential intralogistics objectives. The primary focus is optimising operational processes by reducing costs, increasing performance, and enhancing plant availability. A significant step in this direction is the digitalisation of intralogistics, which encompasses aspects such as condition monitoring – the continuous real-time monitoring and analysis of the plant's status. This approach improves the safety, efficiency, and availability of machines. Additionally, predictive maintenance, which involves analysing measurement and production data, allows for the early identification of potential issues, thereby preventing unplanned downtime. Implementing a digital life cycle record for machine components dramatically enhances efficiency and minimises the time and effort required for research.

NEXT GENERATION INTRALOGISTICS

Already in its third generation, the name GEBHARDT is closely associated with innovative intralogistics solutions. The company has always developed, manufactured and installed individual products as well as complete turnkey solutions. The portfolio includes storage systems, conveyor systems, sorting and order picking systems as well as goods lifts, automated guided vehicles and software applications.

The complete range of systems, intelligent software and life cycle services enables the most reliable and efficient automation technology for retail & e-commerce, food & beverages, automotive, healthcare, contract logistics, fashion & consumer goods and industry.



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