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СИСТЕМЫ АВТОМАТИЗАЦИИ И УПРАВЛЕНИЯ CODEX Технические характеристики



GEA Codex® Connect, interconnection for real-time production data

Acting as a single point of ERP communication for all GEA Codex® modules, this unit uses a small-footprint, XML-based interface to exchange information with various external systems, including non-ERP ones.

GEA Codex® Connect provides an interconnected ERP-to-automation environment, acts as an MES-level broker and delivers multifunctional XML data for a variety of applications.

Easy configuration

It automatically keeps the ERP updated, according to the plant control system, and requires no previous ERP knowledge for configuration. It routinely calculates product costs enabling users to keep track of current stock. The GEA Codex® Connect software module facilitates the translation and exchange of real-time production data to ERP level and can also process information such as ERP-originated orders or BOMs.

XML-based interface

Seamlessly integrating with [GEA Codex® Recipe Advanced](#) and [GEA Codex® Traceability](#), data is converted into a flexible XML format, optimizing resource planning, improving stock data accuracy and avoiding manual entry errors. The data can subsequently be exported for use in other applications.

Accommodate production data

The system is easy to learn, operate and modify. It can also accommodate production data such as clean-in-place (CIP) process duration and temperature readings, providing accurate updates from the shop floor.

Your benefits:

- Highly reliable ERP data
- Shorter reaction times for business decisions
- Reduced dependency on manual entries
- Define which data to exchange and how
- Eliminate process bottlenecks with faster and accurate information
- Add additional production data to the ERP

An at-a-glance overview of past analog and digital values

GEA Codex® Historian presents an at-a-glance overview of past analog and digital values, as well as equipment status, in Gantt graph style. It allows you to compare two batches in one chart and add recordable comments.



Your benefits:

Create views and define how you look at your data

Gain knowledge about dependencies from combined data views

Visual grids and interfaces support reviews of large data sets

Faster lookups by smart filtering in large lists

High reliability with built-in redundancy

Add comments to inform and collaborate

Modern and user friendly UX

GEA Codex[®] Plant Playback for a recorded history of plant activity

Offering “live” or time-lapse viewing, this model animates your SCADA Historian data to improve both production and safety. It’s easy to use and supports operator training and troubleshooting by revealing any dependencies, root cause issues or faults.

Providing a reliable production history

GEA Codex[®] Plant Playback is, in essence, a piece of software that serves as an industrial video recorder. Providing a reliable production history of the whole, or parts, of the plant, the entire content of SCADA screens can be recorded, even without human intervention.

Multiple functionalities

With functionalities including rewind, pause, time-lapse or slow motion, the recordings can be used to verify and optimize workflows, identify dependencies and operational root causes with ease.

The acquired knowledge is subsequently available for training sessions, troubleshooting and process optimization.

Compatibility

The software is currently available for Siemens WinCC and Rockwell FactoryTalk SE, and is being developed to be compatible with Wonderware. In short, GEA Codex[®] Plant Playback operates as an entire plant history recording, enabling you to rewind and monitor previous plant activity, view past mimic screens and improve analyses.

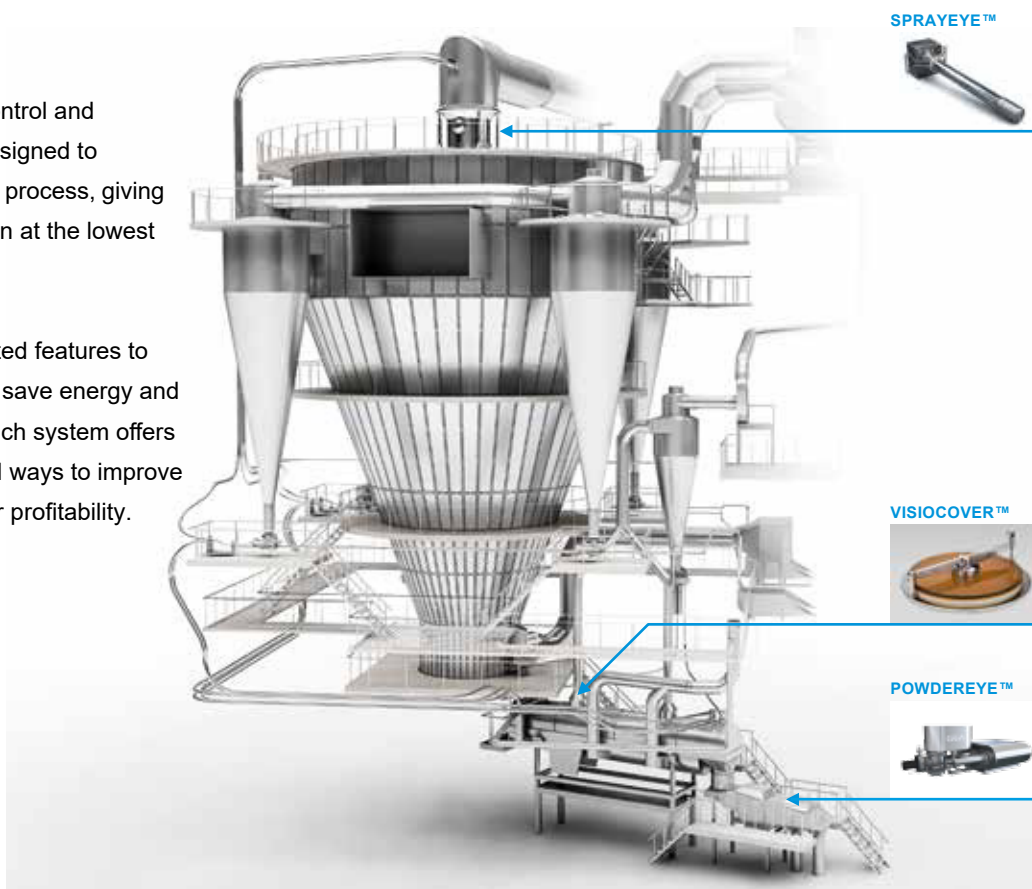
Your benefits:

- Perform root cause analysis with an intuitive UX
- Use historical data for training sessions
- Educate new staff within a real HMI environment
- Optimize your HMI design with user feedback
- Review all relevant SCADA screens from the same production batch

Process control and monitoring

GEA's range of process control and monitoring systems are designed to optimize your spray drying process, giving you the best possible return at the lowest cost of ownership.

With a range of sophisticated features to increase output efficiency, save energy and monitor product quality, each system offers significant advantages and ways to improve your production – and your profitability.



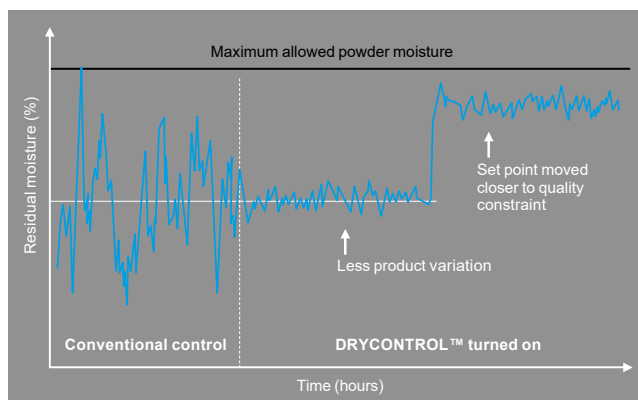
DRYCONTROL™

The DRYCONTROL™ offers precise control and the optimization of both residual moisture in the final powder and the drying conditions in the chamber.

- Capacity utilization is maximised, while avoiding chamber fouling
- Based on models of the specific dryer and product
- Supported by new innovative inline instrumentation, including the POWDEREYE™ (Patent pending)
- Disturbance rejection before the powder properties are affected

KEY BENEFITS

- Increased utilization of the spray dryer's capacity
- Increased yield with higher moisture content in the final powder (including the POWDEREYE™)
- Less variation in product quality
- Less energy consumption/kg powder
- Fewer deposits by controlling powder stickiness





SPRAYEYE™ Visual

Continuous visual quality control.

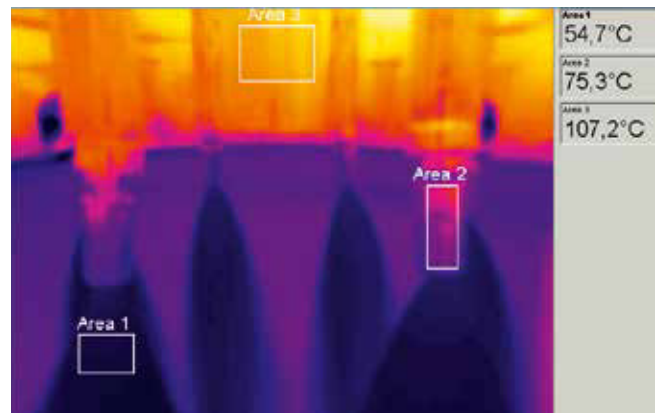
- Quick identification of product build up
- Control of spray pattern
- Instant check for leaks
- Surveillance of fines return flow



SPRAYEYE™ IR (patented)

Increased safety through the thermal surveillance of possible spray nozzle deposits.

- Alarm to highlight a temperature increase
- Early detection of deposits
- Ability to identify exact position, temperature and size of deposit



POWDEREYE™ (Patent pending)

Inline platform to measure the relevant properties of the final powder, including powder colour and density.

- Continuous moisture measurement allows the plant operator to optimize the moisture content of the final powder
- Dark particle detection identifies scorched particles before the quality specification is reached or a dangerous situation arises
- Possibility for timed reference sampling, sampling on demand or when a specification is not met



VISIOCOVER™ (patented)

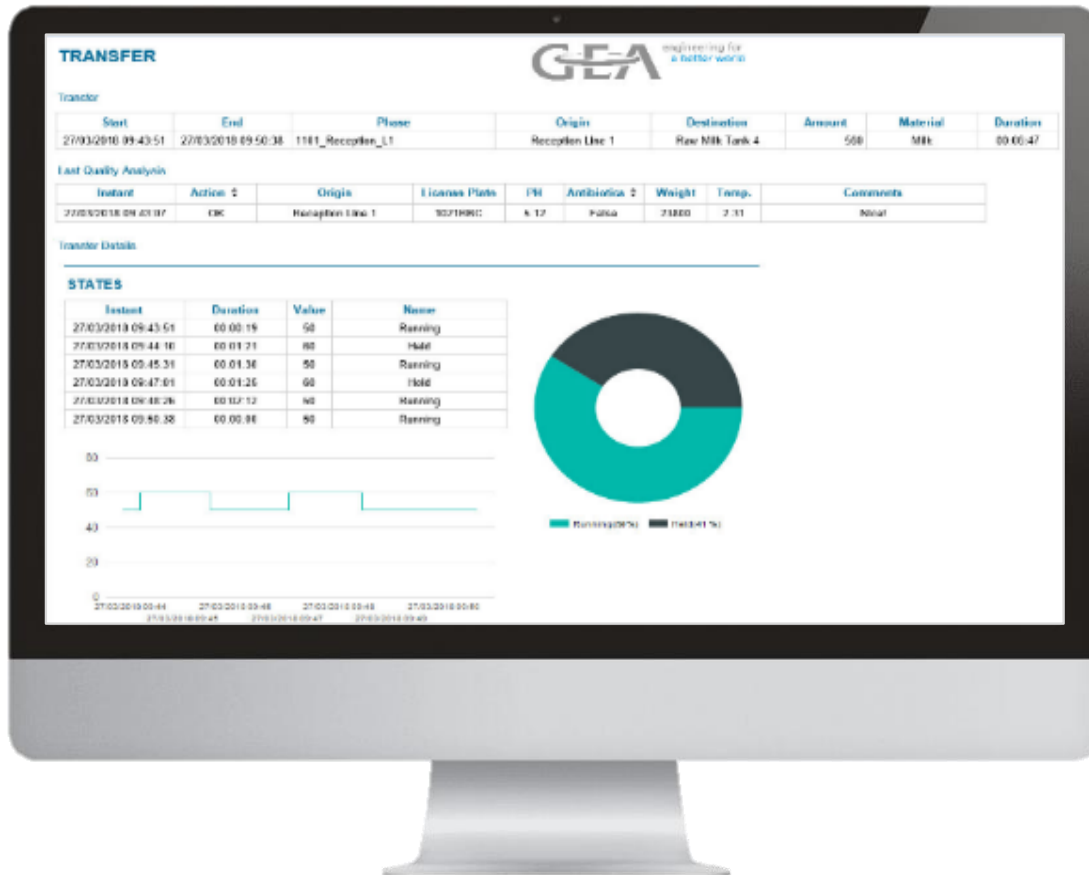
The VISIOCOVER™ and SANICOVER™ covers are designed specifically for the food and dairy industries. Benefits and features include

- Direct inspection
- Sanitary and safe operation through hygienic design
- Excellent view of the interior
- Built-in camera for remote monitoring (VISIOCOVER™)
- Diagnostic tools



GEA Codex® Report, creating dynamic process data reports

With this out-of-the-box production and CIP reporting module, batch statements keep you fully informed about your process and products.



Your benefits:

- Perfect integration with GEA Codex® HMI
- Powerfully combines diverse data sources
- Based on the popular SQL Server Reporting Services
- Robust communication modules for data collection
- Sophisticated report designer

Fully configurable to generate weekly, daily or shift-based reports

GEA Codex® Report is fully configurable with the ability to generate weekly, daily or shift-based reports. The information can be used in process documentation to meet regulatory and legal requirements.



Based on Microsoft SQL
Server Reporting
Services

GEA Codex® Report is a powerful software module, based on Microsoft SQL Server Reporting Services, that creates dynamic reports from production or clean-in-place (CIP) process data.



Report package &
data source

The module is extremely flexible, enabling three standard reports to be delivered as a prepared package. In addition, anything configured for GEA Codex® can be used as a data source. Any plant process-derived information can be recorded, represented graphically or analyzed.



Simpler
process reviews

The software will provide a deeper insight into your production data, improve both internal and external workflows, facilitate compliance with legal requirements and simplify process reviews with regular and accurate reports.

Full traceability from raw material to final product

GEA Codex® Traceability is a software product that records the transfer of material lot numbers and quantities from goods received to finished product. A user-friendly graphical interface provides an intuitive overview of the manufacturing facility that highlights the equipment used for the selected production run.



Your benefits:

- Record every step of your process and monitor materials during use
- Track batches, serial numbers, additional process values and acquired measurement data
- Reduce production variability, prevent out-of-specification product and subsequent recalls
- Specify ingredient usage via tracked searches
- Stay compliant with standards and specifications
- Save time with combined trace reports
- Optimize utilization

Full traceability from raw material to final product

Tracking forwards and backwards, from any part of the process, allows for more detailed analyses of batch genealogy. Plus, paperless tracking increases product quality, consistency and satisfies regulatory requirements and audit reports.



Navigate through a friendly-user interface

GEA Codex® Traceability's graphical interface lets you drill down from plant overview information to any single product movement. With a small footprint, this application-focused software offers user-designed screens of the production areas and is scalable from R&D level to commercial production.



Track transformation step and product movement

Both manually acquired and automatically generated supply data ensure that even complex, multi-pass processes can be tracked and logged. It enables users to track every single transformation step or product movement — both forwards and backwards, from raw material to final product — to optimize process cost and efficiency.



Track both order and recipe parameters

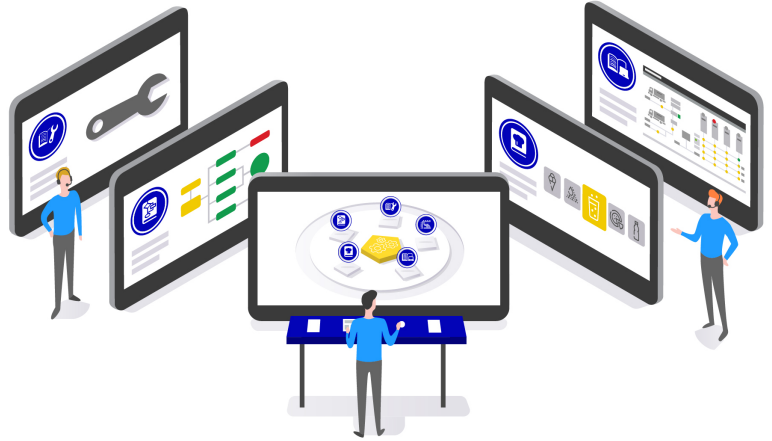
With [Codex® Connect](#), GEA Codex® Traceability integrates with existing ERP platforms to track both order and recipe parameters, as well as production phases or events, and delivers results to employees from the shop floor to control, procurement and beyond. Recorded data can be subsequently exported for advanced analysis if required.



Enhance overall view for better analysis

Historical traceability and alarm-related records can be used to enhance the overall view for better analysis and review. The software is easy to use and a valuable product safety tool. It helps with regulatory compliance, provides a simple way to support audits and provides a high level of customer care and confidence.

GEA CODEX® MES



GEA Codex® MES is a suite of applications that meet the current and future demands of manufacturing execution systems and manufacturing operations management (MES/MOM), including interfacing with enterprise resource planning (ERP) systems. Taking a modular approach, GEA Codex® MES applications can be integrated into a tailor-made solution.

In the current economy, manufacturing facilities are required to be more flexible, handle smaller batch sizes, increase performance while reducing the costs, deliver higher quality products with less waste and achieve shorter times to market.

The way to achieve these goals is to implement an MES that allows you to digitalize your production processes and manage them in real-time.

The MES acts as a central hub for the collection and management of data, facilitating efficient vertical integration between the business systems and the shop floor, and horizontal integration along the entire supply chain from raw material to finished goods.

Yet, each customer and every plant have different requirements; as such there are many paths to ensuring business success.

Key benefits

Modular and scalable system that allows customers to select what they need

Reliable solutions optimized for plant operation

Reporting that's targeted to different plant operation staff such as operators, maintenance staff and managers, and supports flawless decision making

Compliant with standard ISA-95

Helps with regulatory compliance (if required, agencies can access information)

Secure by design

Seamlessly integrates with GEA Codex® Process Control, providing consistent operation with a common look and feel.

User-defined software requirements

For customers who need a highly customized solution that integrates with existing or proprietary systems, GEA has the expertise to design and implement projects according to individual user requirements.

With an extensive team of engineers specializing in MES/IT and digital product development, GEA has the process knowledge and understanding of international standards to design operation management systems to enterprise level.

The company offers a flexible and scalable solution that provides total control of plant processes.

GEA CODEX® PROCESS CONTROL

Today's customers have many different requirements for their automation software, which needs to accommodate aspects such as company engineering policies, market preferences and/or local availability/support. As a result, GEA has combined its automation and digital expertise with a wealth of process and equipment know-how to develop Codex Process Control.

One of the benefits of Codex is that it's a modular software solution. As such, regardless of the platform, Codex Process Control focuses on providing consistent functionality and visualization across all your plant operations.

This innovative solution contains specific modules and libraries that adapt to different operational processes and industries, thereby allowing companies in a variety of sectors to use it as an established standard.

GEA Codex® Process Control allows you to monitor and control all your processes — either batch or continuous, from single machines to large complex process lines — in real-time with a high degree of customization based on customer needs and expectations.

With more than 500 installations completed in the last 5 years, GEA Codex® Process Control has proved that no matter how complex the production process, it's a reliable solution. This also includes aging or obsolete control systems that can be upgraded to Codex to remain compliant with today's requirements (such as data management, access, security, maintenance and connectivity).

Empowering operators with an efficient HMI

The design of Codex Process Control is based on the GEA style guide, according to high-performance HMI Philosophy principles, and was developed in conjunction with the Fraunhofer Institute. This enables the operator to focus on the most important information to ensure efficient plant operation. The ISA 101-compatible HMI provides a number of benefits, including optimized contrast and color to avoid eye strain, and visual effects that are limited to abnormal situations. A hierarchical screen structure and the visualization of automated sequences facilitates normal operation. Maintenance is supported by activation and runtime counters, lifecycle component histories and complete service information (location, diagrams, etc.) with no additional configuration. A mature alarm protocol that aligns with ISA 18.2 is included to provide statistics regarding the number and duration of abnormal conditions. Root cause analysis can be used to suppress deducted alarms and an interface is available for external evaluation.

Ensure high levels of quality and confidence

GEA Codex® complies with international standards and includes features to help your company meet regulatory requirements, including

plant control that's compliant with ISA 88

electronic signatures for Siemens, Rockwell and Ignition

full logging of operating cycles and, for example, motor use.

A SCADA-based formulation and batch recipe system enables the sequencing of phases that can also be configured to run in parallel. A graphical interface provides the operator with a real-time overview of the process and corresponding reports.

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