Agile Manufacturing

EcoStruxure™ boosts manufacturing flexibility & efficiency in the Food & Beverage, Household and Personal Care industries
Agile Manufacturing
Transforming operations to improve flexibility and profitability

HMI and Data Integration
IoT ready system platform for better collaboration and reduced TCO

Process Automation
Innovative Ethernet based control platform for more performance, transparency and flexibility

Process Control System
Process control system including MES functions designed to serve F&B and CPG applications

Industrial Information Management
Transformation of your data into actionable knowledge and wisdom

Manufacturing Operation Management
Single plant and Multi-site IT platform for best-in-class operation, performance and quality

Smart Machines & Robotic
Packaging automation offer and know-how for outstanding line performance

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### Positioning Overview

**Indicators:**
- Blue circle: Indicates the recommended offer in this sub-segment.
- Yellow triangle: Indicates an alternative offer in this sub-segment.
- N/A: Indicates an offer is most likely not applicable.

### F&B Process Control System

<table>
<thead>
<tr>
<th>Sub-Segment</th>
<th>ProLeiT Plant iT or brewmaxx</th>
<th>Hybrid PCS / DCS</th>
<th>Traditional DCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dairy</td>
<td>Blue circle</td>
<td>Yellow triangle</td>
<td>N/A</td>
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<tr>
<td>Brewery</td>
<td>Blue circle</td>
<td>Yellow triangle</td>
<td>N/A</td>
</tr>
<tr>
<td>Beverage</td>
<td>Blue circle</td>
<td>Yellow triangle</td>
<td>N/A</td>
</tr>
<tr>
<td>Baked Goods and Confectionery</td>
<td>Yellow triangle *</td>
<td>Blue circle</td>
<td>N/A</td>
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<tr>
<td>Grain, Cereals &amp; Ingredients</td>
<td>Yellow triangle **</td>
<td>Blue circle</td>
<td>Yellow triangle ***</td>
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<tr>
<td>Sugar, Oil and Biofuels</td>
<td>Yellow triangle</td>
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<td>Yellow triangle ***</td>
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<tr>
<td>Other Food segments</td>
<td>Yellow triangle</td>
<td>Blue circle</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* For large industrial bakeries or dough preparation.
** For feed mill applications.
*** For 1/ Customer looking for a traditional DCS
2/ large projects where availability is key (< few day stop per year)
Object oriented & PLC-based process control system

The Solutions

Continuous, PLC-based automation solution whose base systems include a standard process control system with integrated recipe management system for hybrid and batch processes.

- Includes MES functionality,
- One central database and on one server
- Standardized user interface, side-bar, ribbon menu and search tools
- Context sensitive user guidance
- Comprehensive alarm management
- Visu-Recorder functionality allowing to replay event for analysis and training
- Phase controllers take care of the processes
- Object Control Matrix control the function of the objects involved
- Automation objects do the job and monitor themselves
- Full transparency down to the single object
V9 System

Embedded know-how for the transparency of your process

Business value

• Efficient engineering
  • “Parameterization instead of programming”
  • Open and compiler less system architecture
• Lean system design and operation
• User-friendly interface, developed based on the latest usability standards
• Enhanced audit, traceability and continuous improvement

PRO

✓ No more complex PLC coding required
✓ Embedded process-specific libraries for simplified configuration and start-up
✓ Multi lingual system, available in seven languages, built upon Microsoft Standard software
✓ Scalable solution for single stations up to multi server systems
Plan iT and brewmaxx
Over 2000 installations in more than 110 Countries

<table>
<thead>
<tr>
<th>Brewing</th>
<th>ABInBev</th>
<th>Asahi</th>
<th>Carlsberg</th>
<th>DIAGEO</th>
<th>HEINEKEN</th>
<th>MillerCoors</th>
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<tbody>
<tr>
<td>Dairies</td>
<td>Bauer</td>
<td>DANONE</td>
<td>dmk</td>
<td>müller</td>
<td>Omira MILCH</td>
<td>Pascual</td>
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<td>Brillux</td>
<td>CLARIANT</td>
<td>Henkel</td>
<td>Hilti</td>
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<td>Food</td>
<td>coop</td>
<td>GLOCKEN BÄCKEREI</td>
<td>JACK LINKS</td>
<td>KERRY</td>
<td>KWS</td>
<td>Lindt</td>
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<td>Beverages</td>
<td>Coca-Cola</td>
<td>ECKES granini</td>
<td>SELTERS</td>
<td>Gold</td>
<td>Ensinger</td>
<td>JUHAYNA</td>
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<td>Pharma</td>
<td>Bayer</td>
<td>FRESENIUS KABI</td>
<td>HAKA</td>
<td>Heraeus</td>
<td>Lichtwer Healthcare</td>
<td>Merck</td>
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</table>
EcoStruxure™ Process Expert
A comprehensive architecture built on secure, field-proven components

The solution
A Complete Solution utilizing Field-Proven components from Connected Products like (Sensors, Electrical devices: power meters, circuit breakers (compact, masterpact), motor starters TesysT, Speed Drives (Altivar family)).

• Connected to Edge control: automation platform base on Modicon families.
• Operation and Engineering Server to Business Information systems.
• Navigation Services
• Alarm Management
• Sequence Of Events
• Simulation / Override / Maintenance
• Version Control
• Operational Audit Trail

Business value
Brings together the best from the PLC and DCS worlds and combines it with integrated energy management features to deliver superior value throughout the life cycle of a plant.

• Better maintenance capability to reduce downtime
• Maximizes operational profitability, safely
EcoStruxure Process Expert
Maximizes operational profitability, safely

Automation Platform
- Field-proven hardware platform
- Scalable architecture
- Choice of controller based on your application

Communication
- Supports OPC for 3rd party
- Modbus, Profibus protocol for device communication
- Ethernet backbone

Operation
- Runtime Navigation Services
- High Performance graphics for smart and efficient operations
- Audit trail and version control
- Alarm management

Engineering
- Multi-user
- Global database
- Single configuration environment for control & supervision
- Object Oriented System

Libraries
- Ready to use Process Library based on Situational Awareness.
- Segment-specific library, bringing domain expertise
- Advance Process Control
- Energy Management
Casa Granado, Brazil
Tradition in premium and sustainable cosmetics

Founded in 1870, Casa Granado is the oldest Brazilian cosmetics brand. Focused on premium products, Granado produces soaps, moisturizers, colognes, perfumes and other products.

Customer Challenge
• Have a better integration between two production lines and find bottlenecks
• Reduce Time to Market

Solution
• EcoStruxure™ Process Expert
• InBatch
• Modicon M580
• HSBY Modicon Quantum
• Modicon X80 Distributed I/O
• Altivar Drives

Customer Benefits
• Compliance with FDA 21 CFR part 11.
• Empowering the workforce through the High performance HMI concept.
• Future-proof solution.
• Lower Time-to-Market
• Better control integration resulting in meaningful analytics and improved production
• Less need for operations and maintenance training with reduced downtime

The Results: Life is On with... Short payback

Link to Paper
Aavin Dairy
Digitization boosts productivity & efficiency

Customer Challenges
• Improve productivity to meet growing market demands
• Improve accuracy in milk processing and uniformity in end product quality
• Reduce excessive plant downtime
• Limited monitoring due to manual plant, reducing operational efficiency
• No visibility on energy consumption
• Lack of scalability
• Inability to track operational events
• Lack of asset information
• Lack of life cycle support & maintenance

The Solution
• Scalable & flexible EcoStruxure architecture, including software, that can accommodate future expansion
• Advanced digital technologies enabling transparency, security, reliability, and regulatory compliance
• Standardization through object-based programming

Customer Benefits
• Production increased from 0.2 to 0.3 million litres per day, and scalable up to 0.5 million litres per day
• 50% greater operational efficiency
• Real-time visibility
• Increased flexibility
• Future-proof system
• Simplified operation & maintenance
• Improved energy efficiency using consumption reports

The Results: Life Is On with... 50% increase in milk processing capacity & 50% improvement in operational efficiency

“Schneider Electric’s EcoStruxure aims at addressing (industry challenges) by powering ...the dairy industry with advanced digital technologies that ensure transparency, security, regulatory compliance and reliability.”

Link to Paper 1
Link to Paper 2

Indian milk cooperative promotes economic development of local farming community by procuring, processing & manufacturing milk products

For Food & Beverage

Apps, analytics, and services

Edge control

Connected products

EcoStruxure Process Expert
Modicon PLCs
Altivar Process
Harmony HMI
X80 I/O drops
Switchgears
UPS

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Customer Challenge
- High Mean Time To Repair (MTTR)
- Limited monitoring
- Visibility on energy consumption
- Process Transparency Tracking events
- Obtain asset information / Cybersecurity
- Operational and people safety

The Solution
- EcoStruxure Plant including:
  - EcoStruxure Process Expert
  - EcoStruxure Augmented Operator Advisor
  - Magelis iPC, Altivar Drive, ITD No-Breaks
  - Tesys T Ethernet / Easergy P3, LV and MV Panels

Customer Benefits
- Operation and engineering traceability
- Reduction of operating errors
- Advanced and quick diagnosis through Hybrid DCS and Augmented Operator Advisor
- Agility to solve problems
- Asset Management and cybersecurity
- Easy maintenance and calibration of assets
- Accident reduction thanks to process transparency.

The Results: Life is On with... ... Improved Operational and Production Efficiency with increased flexibility

Cerradinho Bio is part of Cerradinho Par group, with operations in sugarcane, agricultural properties, logistics, gas stations and real estate projects.
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Transforming operations to improve flexibility and profitability

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EcoStruxure for Food & Beverage / CPG

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<tr>
<th>Agile manufacturing</th>
<th>Efficient facilities</th>
<th>Resilient supply chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boost manufacturing flexibility and efficiency</td>
<td>Safer, more available, and greener resources</td>
<td>Manage complexity and reduce logistics costs</td>
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<tr>
<td>Manufacturing Operation Management</td>
<td>Smart Building Management</td>
<td>Agriculture Efficiency &amp; Sustainability</td>
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<tr>
<td>Industrial Information Management</td>
<td>Power Safety &amp; Availability</td>
<td>Suppliers Management</td>
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<tr>
<td>Process Control System</td>
<td>Power Quality &amp; efficiency</td>
<td>Supply Chain Optimization</td>
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<td>HMI and data Integration</td>
<td>Renewable Energy &amp; Microgrids</td>
<td>Cold Chain Monitoring</td>
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<td>Process Automation</td>
<td>IT Infrastructure Management</td>
<td>Product Information Management</td>
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<td>Packaging Automation</td>
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</table>

<table>
<thead>
<tr>
<th>Food Safety &amp; Traceability</th>
<th>Energy &amp; Sustainability</th>
<th>Asset Performance</th>
<th>Workforce Empowerment</th>
<th>Digital Engineering</th>
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<tbody>
<tr>
<td>Ensure compliance and trust across the product life cycle</td>
<td>Reduce footprint and meet sustainability goals</td>
<td>Maximize return on capital expenditure</td>
<td>Improve staff knowledge, productivity and collaboration</td>
<td>Cut time, cost and risks of capital project engineering</td>
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<tr>
<td>Food Defense</td>
<td>Sustainability Consulting</td>
<td>Assessment and Consulting</td>
<td>Operator Training Simulator</td>
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<td>Enterprise Asset Management</td>
<td>Augmented &amp; Virtual Reality</td>
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<td>Strategic Energy Sourcing</td>
<td>Condition Monitoring</td>
<td>Workflow Management</td>
<td>Integrated Engineering-Design</td>
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<td>Enterprise data management</td>
<td>Predictive Analytics</td>
<td>Staff Schedule Management</td>
<td>Digital Asset Visualization</td>
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<td>Energy as a Service</td>
<td>Line &amp; Process Optimization</td>
<td>Operator Knowledge Sharing</td>
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<td>Product Identification &amp; Tracking</td>
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<td>Modernization services</td>
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</table>

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Let’s talk about EcoStruxure® for Food & Beverage