



Food for thought

Secure power, cooling and data solutions
for the food & beverage industry

se.com/industrial-business-continuity

Life Is On

Schneider
Electric

A moveable feast

Key issues and challenges in the Food & Beverage industry

How can we ensure access to secure and sustainable food for all when resources are increasingly scarce, supply chains are being disrupted and there is a rise to new levels of economic upheavals?

F&B manufacturers are constantly adapting to fast-changing markets, from shifts in consumer preferences to globalization, via greater competitiveness, tightened regulations, sustainability issues, raw material volatility, quality requirements and health considerations.

The worldwide health crisis has given rise to new levels of economic upheavals. No one can predict with certainty what the future of manufacturing will look. In the meantime, critical industries like food and beverage are either scrambling to increase agility of its factories and plants while navigating unorthodox working conditions and disrupted supply chains, or preparing for a new re-start after shutdown.

Food for thought: end-to-end visibility

The continued human health and safety of workers emerges a bigger than ever priority, together with other important issues coming up in the “new normal”. At Schneider Electric, we see digitization as an opportunity for food manufacturers to better align with consumers’ needs and expectations while enabling a more efficient manufacturing, safer, more reliable and greener facilities and a more agile and transparent supply chain.

The United Nations Global Compact defines “supply chain sustainability” as the “management of environmental, social and economic impacts, and the encouragement of good governance practices throughout the lifecycles of goods and services”¹. Optimizing the use of raw materials, energy, water and waste management along the whole supply chain are some of the critical topics impacting not only sustainability but also manufacturers’ performance and proper ROI for their shareholders. Supply chain policies and programs, like traceability, offer key opportunities for companies.

Traceability is linked to digitization and to trust: what if you could track the important parameters of your products to guarantee that ingredients and labeling are in line and give consumers the full story on the food they have on their plate? End-to-end traceability has become a strategic differentiator for food companies working to improve supply chain visibility, manufacturing resiliency, brand reputation and consumer trust, and maintain regulatory compliance.

Digital solutions for every step of your value chain

Schneider Electric provides a full portfolio of integrated solutions and services to help improving flexibility, traceability and sustainability of your operations, covering the entire value chain: farming, processing, packaging, utilities, and logistics.



Food for thought: the bottom line

The average Overall Equipment Effectiveness (OEE) rate in F&B manufacturing is estimated to be at 60%. What if you could utilize 100% of your asset capacity, see the performance of your operations in real-time, associate your central expertise team to solve local problems, predict future growth needs and avoid downtime?

¹ Supply-Chain Sustainability: A Practical Guide for Continuous Improvement, United Nations Global Compact, 2015, https://www.unglobalcompact.org/docs/issues_doc/supply_chain/SupplyChainRep_spread.pdf.



A comprehensive portfolio of solutions and services for:

Agile manufacturing

Boost manufacturing flexibility and efficiency

- Manufacturing operation management
- Industrial information management
- HMI and data integration
- Process automation
- Packaging automation

Efficient facilities

Safer, more available, and greener resources

- Smart building management
- Power safety and availability
- Power quality and efficiency
- Renewable energy and microgrids
- IT infrastructure management

Resilient supply chain

Manage complexity and reduce logistics costs

- Agriculture efficiency and sustainability
- Suppliers management
- Supply chain optimization
- Cold chain monitoring
- Product information management

... enabled by transversal, digital transformation levers

Food safety and traceability

Ensure compliance and trust across the product life cycle

- Food defense
- Cybersecurity services
- Digital calibration
- Raw material traceability
- Production traceability
- Product identification and tracking
-

Workforce empowerment

Improve staff knowledge, productivity and collaboration

- Operator training simulator
- Augmented and virtual reality
- Workflow management
- Staff schedule management
- Operator knowledge sharing

Energy and sustainability

Reduce footprint and meet sustainability goals

- Sustainability consulting
- Energy demand services
- Strategic energy sourcing
- Enterprise data management
- Energy as a service

Digital engineering

Cut time, cost, and risks of capital project engineering

- Electrical CAD
- Building information modelling
- Integrated engineering-design
- Digital asset visualization

Asset performance

Maximize return on capital expenditure

- Assessment and consulting
- Enterprise asset management
- Condition monitoring
- Predictive analytics
- Line and process optimization
- Modernization services

UPS solutions to ensure continuity and quality across the entire food chain

Our solutions for the food and beverage industry are based on expertise, proven methodology, reuse, and a deep understanding of your markets and their challenges. Our experts and partners help you specify your installations and advise you on the best solutions. Our international teams coordinate the implementation of complex projects, increasing the efficiency and sustainability of the industry in charge of feeding the world.

Maintaining the entire food chain

F&B manufacturers must successfully ensure continuity and quality throughout the manufacturing process, from the reception of raw materials to final shipping, via handling and storage operations. Schneider Electric has intimate knowledge of this vital sector, years of experience and the technology to make sure that the food chain and all participants in the process work safely and comfortably.

Secure and uninterrupted

Power supply outages or interruptions are a major risk for F&B companies. They can cause downtime on production lines that generate many liabilities, including lost production time and increased labor expenditures, as well as waste of raw materials and finished goods. Our UPS systems for the F&B industry are specially designed to avoid downtime and maintain food quality efficiency.

Long-term peace of mind

We provide your critical power solution, and the service excellence required to maintain optimal performance. Proper care and regular maintenance will save you time and money, and prolong the life of your equipment. We offer warranties and service plans, preventive maintenance, continuous upgrades, and remote monitoring services. Should you require on-site assistance, our field technicians and service personnel are conveniently located worldwide to accommodate you, wherever you operate.



9+

reasons to use a UPS

1. Mitigate the risk of power failures with high levels of power availability and quality
2. Avoid costly nonproductive time and remediation
3. Reduce energy costs — one of your largest operating expenses — by up to 30 percent
4. Keep critical processes and facilities online
5. Maintain data continuity
6. Maximize both operational and energy efficiency
7. Ensure regulatory compliance
8. Protect your crew and the environment
9. Enhance security

Solutions for Food & Beverage

Schneider Electric Secure Power offer covers all the needs generated by a modern F&B production site. A plant requires a stable and clean power supply and also IT infrastructures dedicated to data management generated by production process. Securing machine-to-machine communication and enabling any data generated by the process to be saved is a must-to-have.

 Process Protection	 Network Protection	 Edge Computing
<p>Intelligent lines and processes need to communicate, collect and store data. Critical processes need to be stable. Our 3ph offer brings a stable and reliable power supply to protect complex machines or a complete process.</p> 	<p>When a PLC or IoT sensor is connected to another machine or directly to the cloud, the network must be secured. Our 1ph UPS secures network communication.</p> 	<p>Collecting data for a SCADA system running real-time analytics requires safe and reliable IT architecture. Secure Power provides a complete range of solutions from micro-DC to pre-fab.</p> 

Process protection

Schneider Electric's 3ph UPS offer provides a secure and stable power supply to your production. You can decide to have one product securing all the processes or distributed the protection to every production line. Whatever you decide, we can offer the best performing solution.

Three-phase UPS: Galaxy VS⁽¹⁾⁽²⁾, VM⁽¹⁾⁽²⁾, VX⁽¹⁾⁽²⁾, Smart UPS VT, Symmetra MW/PX, Easy UPS 3S, Easy UPS 3M

Our three-phase UPS integrates new technologies like Econversion or Inverter 4 level that are Schneider Electric patents. Equipped with such technologies, the Galaxy range UPSs are able to provide the best level of efficiency (up to 99%) in keeping the same level of reliability and power quality than a standard online double conversion UPS. Such improvement generates substantial energy savings, reducing impact on the environment and decreasing TCO considerably.

The Schneider Electric three-phase UPS portfolio is composed by several ranges (Galaxy, Symmetra and Easy UPS) offering solutions for all types of application and covering power needs from 10 KW to 4MW.



- **Double conversion topology UPS** for ultra-high efficiency and power protection with harmonic free input rectifier
- **Comes parallel-ready**, so you can pay as you grow and meet your future needs
- **Designed to be compliant IP 20, IP32 on option and IP 44** (upon request) Backup times up to two hours
- **Fault-tolerant architecture** due to automatic and maintenance bypass in a compact footprint
- **Full front access** with a user-friendly interface
- **Operating temperature:** 0 to 40°C
- **IEC and UL standard**

To learn more about 3ph UPS, please visit our website: se.com

1 Lithium Ion Battery
2 EConversion

Solutions for Food & Beverage

Network protection

Smart machine, IIoT sensors, edge servers and many more are today generating sensible data that must be protected and protection starts from power supply quality. Schneider Electric's 1ph offer brings you different solutions to protect your devices and networks.

Single-phase UPS: APC Smart UPS, Symmetra LX, EasyUPS

Smart machine, IIoT sensors, edge servers and many more are today generating sensible data that must be protected and protection starts from power supply quality. Schneider Electric's 1ph offer brings you different solutions to protect your devices and networks.

Smart-UPS RT models protect your critical hardware from damaging surges and power failures, boosting availability levels for critical applications. Units are available in both tower and standard 19" rack formats, mounted in just 2U of space.

- Available from 0.5 to 20kVA, 50 and 60Hz (lower rating also available)
- Designed to be installed in racks or cabinets
- Hot-swappable, user-replaceable batteries
- Modbus communication enabled
- IEC and UL standard
- Elevation: 1000m no-derating; *above contact us*



EasyUPS
1ph online



Smart UPS
online

To learn more about 1ph UPS, please visit our website: se.com

Industrial edge computing

Digitizing your production process brings indisputable advantages, and real time data analytics drives better business decision. This also introduces new challenges as you will need dedicated IT infrastructure to deploy solutions on the edge.

75.4B connected devices globally by 2025^A

\$232B will be spent by enterprises



of enterprise data is expected to be created and processed at the edge by 2025^B

72% of companies implementing industrial transformation projects are still in the definitional or pilot phase, and of this



are "stuck" in the pilot phase with no real results to show^D

on artificial intelligence, machine learning, and robotic process automation technologies by 2025^C

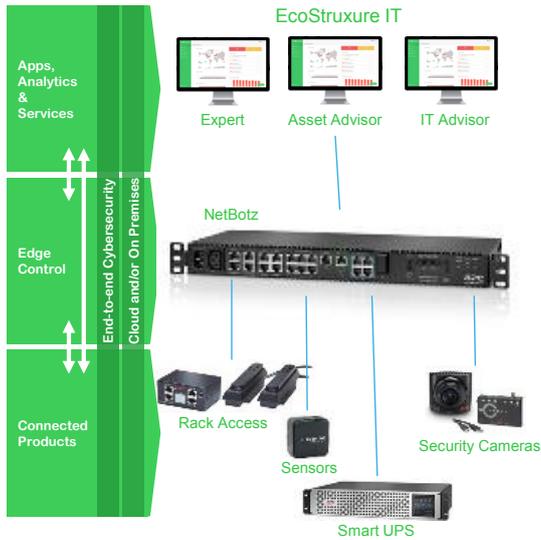
A IHS Markit, "IoT platforms: enabling the Internet of Things," March 2016

B Gartner, "What Edge Computing Means for Infrastructure and Operations Leaders," October 2018

C KPMG, "Ready, set, fail? Avoiding setbacks in the intelligent automation race," July 2018

D LNS Research, "Industrial Transformation (IX): Four Organizational Disconnects That Hinder Momentum," May 2019

EcoStruxure™ Micro Data Center solutions



Solution values and benefits

Asset performance

- Avoid unplanned downtime and loss of production capacity
- Early detection of equipment issues to avoid costly disasters
- Scheduling a maintenance intervention at a favorable moment

Cybersecurity

- Protect your IT against physical and environmental threats

Workforce empowerment

- Improve visibility of healthy equipment
- Elevate the assets knowledge base



Protect against physical and environmental threats with camera monitoring, keylock doors, intrusion detection, and more

Reduce service visits and downtime: reliable power and security offers coupled with proactive services and analytics

Complete offer of enclosure with different characteristics to host the necessary IT equipment in any environment

Pre-integration capability shock packaging allows equipment to be pre-integrated into the enclosure before it arrives on-site, speeding up deployment

EcoStruxure Micro Data Centers provide the reliability, resiliency, and security of a datacenter in a single enclosure that can be distributed in any edge environment.

- Reduce time to market
- Prevent equipment failures
- Reduce maintenance costs
- Extend equipment useful life
- Improve security

To learn more about EcoStruxure Micro Data Centers, please visit our website: se.com

EcoStruxure IT monitoring and maintenance solutions

Managing edge computing sites is critical to ensure business continuity. This requires around-the-clock monitoring and proactive maintenance to detect and correct issues before they occur.

EcoStruxure IT cloud-based management solutions enable users to mitigate and anticipate risks of failures of critical IT infrastructure while reducing operational expenses through an open, vendor-agnostic platform.

Schneider Electric's global footprint and domain expertise in IT infrastructure provide users visibility, insights, 24/7 expert remote monitoring, and on-site support.

With EcoStruxure IT monitoring and maintenance solutions, you can provide customers around the globe with peace of mind as you help them take advantage of everything Industry 4.0 has to offer.

To learn more about EcoStruxure IT, please visit our website: ecostruxureit.com



Pre-approved reference designs

Reduce time to market

Industrial edge computing also needs complex solutions. For this reason, we worked with our IT partner to create Industrial Edge reference designs.

No one company can deliver all the components that comprise a fully functional edge computing solution. That's why Schneider Electric has cultivated relationships with the most respected global brands of IT compute, storage, and network equipment to develop a network of partners that can deliver reliable, long-term solutions.

We've also worked hard to pre-configure complete solutions that are ready to implement — so you can have peace of mind that all the components will work together as intended. Our pre-configured reference designs can ...

- ✓ save up to 40%* in field engineering costs
- ✓ get systems to market 20%* faster
- ✓ reduce maintenance costs by 7%*

... meaning the customer gets a faster time to value. Everybody wins.

What are reference designs?

Reference designs are configurations of hardware, software, networking, and storage components approved by their respective manufacturers to work together. These can even be customized to a client's specific installation needs.

Schneider Electric worked with AVEVA, the market leader in industrial automation software, to understand the requirements for small, medium, and large installations. We then worked with our IT technology partners to define the best compute, network, and storage equipment to support each set of requirements.



Small installation
1 to 25,000 I/O
per system



Medium installation
25,000 to 50,000 I/O
per system



Large installation
50,000 to 400,000 I/O
per system

The result? Comprehensive, approved reference designs that can be implemented in our EcoStruxure Micro Data Center enclosures, complete with supporting electrical and (if needed) cooling systems. The entire system can be monitored and managed by EcoStruxure IT, ensuring ongoing reliability and uptime.

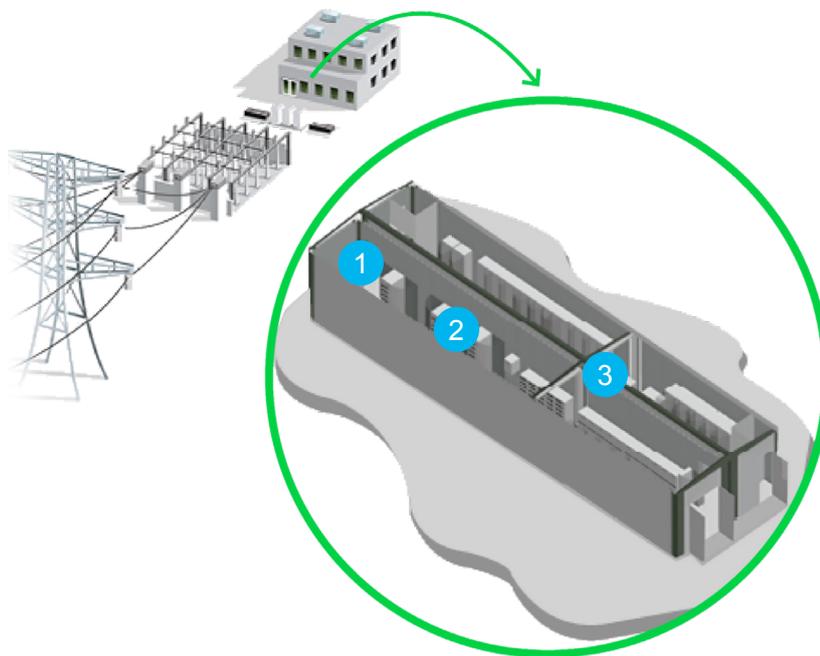
Access the [latest reference designs](#) in the Industrial Edge Computing Forum on Exchange.

* Based on 2019 data. Not a guarantee of future performance or performance in your particular circumstances.

Schneider Electric: global specialist in energy management

A comprehensive portfolio of integrated solutions

Schneider Electric designs, realizes and implements innovative technical solutions for safe, efficient, reliable and clean energy. We support you in your energy management strategy by offering you various offers.



1 Medium voltage



2 Low voltage



3 Secure Power



EcoStruxure: A total solution

EcoStruxure is an IoT-enabled architecture that delivers Innovation at Every Level from Connected Products to Edge Control, and Apps, analytics and Services delivering enhanced value around safety, reliability, operational efficiency, sustainability, and connectivity to our customers.

EcoStruxure improves efficiency, safety, customer satisfaction with the right information to the right person, anytime and anywhere.



Uninterrupted Power Supply

- Ensure continuous power availability for highly-sensitive materials
- Prevent fire or any other outside disturbances through mitigation and thermal detection



Full process control

- Monitor the entire distribution network for alerts, diagnostics and maintenance
- Quickly implement corrective actions in case of defects
- Analyze event root causes and correct power quality issues



Temperature control and ventilation

- Ensure complete temperature control and efficient ventilation and filtering
- Reduce energy consumption
- Simplify regulatory compliance

Services at any time and anywhere

Schneider Electric provides complete service support for Food & Beverage operators to ensure efficient and uninterrupted power supply, enabling customers to focus on their core business.

Design, engineering and installation

Schneider Electric works with its customers to configure, custom-build and install the right solutions to ensure safety, reliability and optimal performance.

Maintenance services

Schneider Electric offers a complete portfolio of preventive, routine and emergency maintenance services to make sure critical systems receive the care they need, including timely upgrades developed by our industry experts.

Remote monitoring and intervention services

Schneider Electric provides 24/7 monitoring both locally and remotely through network connections built into the systems. Schneider Electric experts and service partners monitor the health status of power facilities to diagnose, notify and, if needed, intervene from a distance or by coming on site.

Service plans

Schneider Electric offers customized service packages at predictable costs to maintain the highest performance levels and reduce downtime to a minimum.



Key figures

- A 170-year history of service culture
- 1,200 field service engineers
- 170 service centers in 100 countries
- 90 service-provider partners worldwide
- 6 regional service centers
- 49 rapid deployment centers
- Over 100 million man/hours of field experience



Life Is On



To learn more about Secure Power Solutions, visit our website:

se.com/industrial-business-continuity

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