Automation solutions for packaging machines

Reduce your costs and time-to-market
Pursue your strategy ...

- Reducing time-to-market for packaging machines
- Reducing costs for engineering, commissioning and integration in production lines
- Reducing total cost of ownership
- Maximize machine availability

... without compromises
One partner to meet shared challenges

Schneider Electric is one of the world’s leading automation solution providers for packaging machinery. With MachineStruxure™, Schneider Electric has designed a package consisting of technology and a wide range of services for solving the critical issues faced by both builders of packaging machinery and the consumer goods industry.

Time-to-market – the critical factor for success

Fast-moving trends are forcing the consumer goods industry to reduce the time interval between the design of a product and delivery to the point of sale. Packaging is a dominant element in many new product designs. Making new packaging machines available quickly is therefore key to maintaining a short time-to-market for consumer products – and is a decisive factor in the competition between builders of packaging machinery.

Reducing costs – throughout the entire lifecycle

Cost reduction is another critical competitive factor. Costs such as engineering and commissioning expenses are constantly under close scrutiny by packaging machine builders, while the consumer goods industry focuses on costs for procurement, production line integration, energy consumption, service and maintenance.

Machine availability – a matter of the right technology and the right partner

Packaging machines are a vital part of the production process in the consumer goods industry. They often work in multishift operation, and any malfunctions have to be repaired quickly. Proven automation technology provides clear diagnostic and service strategies, and a partner with a global presence can offer prompt on-site support.
Complete process expertise

More than 55,000 machines worldwide currently operating in production processes for the consumer goods industry are equipped with automation solutions from Schneider Electric.

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Food
Beverage
Pharmaceutical
Personal care
Home care
Dairy
Tobacco
Paper & Pulp

Experience in every process

> Specialist and full-range equipment supplier for packaging machinery

Schneider Electric specializes in packaging machinery, and as a full-range supplier of equipment is also familiar with the upstream and downstream stages of the production process: Post-processing, packaging production, and a wide range of other tasks. Schneider Electric can offer specific applications and experience for almost every area.

Our expertise
> for the entire consumer goods sector
> for every stage of the production process
> for all types of packaging machines
... for your business
International accepted technology

Companies that automate with Schneider Electric rely upon an open, internationally accepted technology that is mandated or at least listed as an approved technology with many global companies in the consumer goods industry.

Schneider Electric end users include

- Nestlé
- Procter & Gamble
- Unilever
- Coca Cola
- Pfizer
- Kraft Foods

> Food
On-the-go consumers expect convenience, first and foremost. But the easier the package is to use, the more sophisticated the underlying technology must be — and that goes for the packaging machinery, too.

> Beverage
The beverage industry is in transition. Increasingly, mechatronic beverage machine concepts are the answer.

> Personal Care
The more versions of a product there are, the more SKUs and the smaller the batch sizes — and the greater the demand for flexibility in production.

> Paper & Pulp
Tissue producers need mechatronic packaging machinery that can add sophisticated functionalities to their lines — yet fit the same footprint as before.

> Pharmaceutical
In pharmaceuticals, safe production and validated processes are essential. Reliable change management in the software development process is a must.

> Tobacco
Incredibly high speeds make tobacco one of the most demanding products to package.

> Dairy
Dairy production has to be non-stop around the clock to ensure uncompromising product quality, not to mention efficiency. This requires consistently reliable packaging systems.

> Home Care
As long as new packages and products attract consumers, product lifecycles will keep shrinking. Packaging machinery innovations have to keep pace, for example by efficiently running different bottle sizes on the same line.

> Other
From fasteners to cell phones to light bulbs — practically everything needs a package to get where it’s going. That’s not a problem for Schneider Electric, the packaging automation specialists.
One partner for complete automation solutions

As a global specialist in energy management, Schneider Electric offers integrated solutions across multiple market segments, including leadership positions in Utilities & Infrastructures, Industries & Machine manufacturers, Non-residential buildings, Data centers & Networks, and in Residential. Focused on making energy safe, reliable, efficient, productive and green, the Group has been delivering complete solutions for manufacturing and process industries for over 40 years.

Our foundation
> PlantStruxure™
> MachineStruxure™
... for entire processes
Schneider Electric has concentrated within MachineStruxure™ both hardware and software products as well as the full scope of its industry-specific know-how for automating packaging and filling machines, conveyors, and material handling.

The guiding principle behind MachineStruxure™ is the flexible automation of machines, using scalable and functionally adaptable control technology embedded in a standardized, platform-neutral environment of software and components. SoMachine is the single software environment, regardless of whether a machine is driven with PLC, HMI, drive or logic motion controllers, and at any level of performance.

A broad portfolio of components for drives, HMIs, I/Os, fieldbus interfaces, and functional safety, as well as a variety of electrical components provide the framework for complete system solutions with MachineStruxure™. Machine builders can use the same peripherals for designs ranging from simple machines to robot-assisted, high-performance systems.

PlantStruxure™ and MachineStruxure™ allow the scalable automation of processing systems, individual production machines, and entire production lines.

A fully integrated portfolio of solutions:
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MachineStruxure™ is embedded within PlantStruxure™, an automation architecture that includes technical processes as well as SCADA and MES software for connecting to the ERP level. Schneider Electric thus offers the potential for fully integrated automation of entire factories with one partner.
Improve the performance of your machines with MachineStruxure™

MachineStruxure™ helps you design more energy-efficient and cost-effective machines and systems while maximizing their performance. Using flexible hardware platforms and a comprehensive single software suite, MachineStruxure™ offers Tested, Validated and Documented Architectures with application function block libraries.

Flexible Machine Control

Controller hardware – from simple to complex
Flexible Machine Control is the technological core of MachineStruxure™. The drive, HMI, and logic controllers included in Flexible Machine Control are suitable for a wide range of PLC-controlled packaging machines, as well as conveyor and material handling systems.

The PacDrive 3 logic motion controller platform provides PLC, IT, and motion functionalities, fully-integrated Ethernet-based communication, and integrated safety solutions to meet the exacting demands of packaging machinery designers and builders. PacDrive 3 is suitable for a wide range of applications with simple to highly complex motion components, and even robotics.

Engineering workbench for the entire lifecycle
SoMachine includes tools for the entire packaging machine lifecycle. Whether for high-precision motion designs, IEC 61131-3-based programming, software quality assurance, commissioning, service and diagnostics, or graphic programming, SoMachine is one of the most modern and powerful tool concepts on the market.
Service & Support

Worldwide support
Worldwide support is available for all of our hardware and software products, as well as for MachineStruxure™ solution strategies. You can take advantage of our technical support, up to and including handling of the entire software engineering process, to reduce your engineering times. Our training centers at locations around the globe also provide rapid know-how transfer for your development and service personnel. With employees in more than 100 countries, Schneider Electric also offers the level of service that the consumer goods industry needs to maintain maximum machine and system availability at globally distributed production sites: a 24/7 hotline, replacement parts centers in various locations around the world, and on-site assistance.

Solution concepts for engineering

System solution for motion centric machines
PacDrive is a fully integrated automation solution with scalable controller performance and flexible drive solutions. It offers the greatest possible flexibility for mapping machine functions to modular system structures. Thanks to its template-based programming approach, this modularity is consistently reflected in the software. PackML-compliant operating modes, as well as diagnostic mechanisms and exception handling, are already implemented. In this way, PacDrive reduces the complexity of the electronics and software involved in machine building and design, and also simplifies the standardization of software functions.

Ready-to-use-architectures for logic-centric machines
A wide range of PLC-based machine concepts can be mapped using TVDAs (Tested, Validated and Documented Architectures). TVDAs include system user guides, CAD files, and references to available software Application Function Blocks (AFBs) to show users how they can specifically benefit from Schneider Electric’s comprehensive application know-how.
How can I reduce my machine’s time-to-market?
Save time in design, installation and implementation

A general increase in engineering times stands in stark contrast to demands for faster time-to-market for machines. The only way to turn this trend around is to use technology designed specifically for the industry.

Our experts understand the needs of packaging machinery design and construction. They speak your language and have the right answers.

- Tools for shorter engineering and commissioning times
- Efficient engineering strategies
- Tested generic automation architectures
- Training and engineering support

MachineStruxure™ can simplify your engineering process and save up to 50% of your time
Tools, technology, and know-how for more efficient engineering

The technology, tools, and programming concept of MachineStruxure™ are consistently designed to reduce engineering, assembly, and commissioning times. Technical support, training, and co-engineering are additional offerings that can accelerate projects and enable rapid know-how transfer.

> Tools to reduce engineering and commissioning times

SoMachine addresses every aspect of a project process with powerful tools and a multi-user design based upon a central data pool. The ability to manage fully integrated, parallel development processes without unnecessary interfaces and data conversions is a major time-saver.

Engineering tools designed specifically for high-speed packaging machines with synchronized servo drives and robotic elements allow users to efficiently perform tasks such as motion design or calculation of power requirements in drivetrain design. Graphic programming tools with automatic background code generation are innovative responses to the increasing complexity of software engineering.

> Training and on-site engineering

There are a number of ways to use efficient know-how transfer for a faster project start: Our worldwide training centers offer introductory and advanced seminars for engineers and programmers.

Our application engineers can also come directly to your site to help with the project. On-site engineering supports extensive know-how transfer while also shortening your project timelines. A wide range of options are available, including complete software engineering services by Schneider Electric.

Our expertise
> Technology, tools and strategies
> Experience and application know-how
> Service & support

... to reduce your time-to-market
> Efficient engineering strategies

Every project manager knows that constantly reinventing the wheel is a time-consuming proposition. Modular machine design offers a way out, namely by allowing machines to be subdivided into reusable modules, including software modules. The goal of this process is to create a software library filled with well-tested and documented functions. Users can then create new machines quickly, using existing software for 50% or more of the applications. There’s a catch, though: To be successful, you need the right strategies for creating standardized software. Schneider Electric has a well-engineered template in the PacDrive system solution along with the appropriate tools, all of which have proven their effectiveness over many years and in thousands of applications!

> Tested generic automation architectures

TVDAs (Tested, Validated, and Documented Architectures) are predefined, adaptable generic automation architectures that can reduce engineering times by up to 50%. A user guide for each TVDA defines the required hardware, configuration, and control cabinet mounting. CAD files make documentation easy.

In the comprehensive libraries, each TVDA also lists the technology and machine functions that are available to support rapid software implementation of the application.
How can I reduce my total cost of ownership?
High availability – the best way to cut costs

Purchasing costs, line integration costs, service/maintenance costs, and operating costs are the factors that flow into total cost of ownership. The most expensive factor, however, is a machine that is sitting idle – especially when it should be running!

With MachineStruxure™, Schneider Electric can help you minimize your costs and optimize the availability of your machines.

> Open standards
> Diagnostic tools and strategies
> 24/7 Hotline
> Service training – worldwide
> Fast component replacement
> 24 hour spare part availability

Schneider Electric can help you reduce costs throughout the lifecycle of your machine
Your partner for machine availability and efficiency

High machine availability is the result of an optimal combination of technical features and a comprehensive support network. That’s more than machine builders alone can provide. Today more than ever, innovative automation technology and a full range of services are the keys to successful and efficient utilization of production and packaging machines.

> Open standards

From fieldbus solutions that are accepted in Asia, the USA, and Europe, to IEC-compliant programming and vertical communication via Ethernet TCP/IP, Schneider Electric relies on open standards. As for the implementation of the OMAC guidelines demanded for so long by the packaging industry, Schneider Electric has been implementing these guidelines in its software for years.

As a pioneering member of OMAC, Schneider Electric has been active for many years in the OMAC Packaging Workgroup. The company has also implemented the guidelines of the Weihenstephan Standard, which is becoming increasingly important for the vertical integration of data streams. Experience shows that whether it involves production line integration, service, training, or other aspects, companies that rely on open standards also end up in a good position when it comes to costs.

> Diagnostic tools and strategies

Have you ever compared the diagnostic options and strategies of the automation solutions in your machines? Status information down to the level of each motor shaft, a data logger, software oscilloscope, powerful tools for the diagnosis and handling of program and firmware data – MachineStruxure™ provides all of these tools to reduce machine downtime.
Service training – worldwide

Our global network of training centers offers courses specifically designed for service employees. Here your employees can learn about options provided by MachineStruxure™-based automation solutions that can be used on-site to reduce downtimes and service times in production.

Fast component replacement

Plug-and-play technology based upon a centralized controller design, and using electronic name plates and automatic firmware management reduces the time and effort required to change out components in PacDrive. Pluggable interconnects and a fixed grid size also simplify electrical connections. Many tasks can be done without highly qualified specialists, who are often unavailable at short notice.

24/7 Hotline

When every attempt to identify the cause of a malfunction has failed, the Schneider Electric Technical Hotline is always available. You can contact one of our experts 24 hours a day, seven days a week.

24 hour spare part availability

Schneider Electric has a presence in more than 100 countries, making it easy to obtain replacement parts wherever they are needed. We also have centers for the overhaul and repair of our products at locations around the globe.
How can I improve the energy efficiency of my machines?
Energy efficiency as a perfect way to reduce the TCO!

Are you looking for technologies that can build packaging machines with up to 30% greater energy efficiency? MachineStruxure™ offers everything you need. And not just for building the machine itself – MachineStruxure™ also supplies resources and methods for ongoing energy-efficient operation of your packaging machinery.

> Calculate your machine’s energy footprint

Reducing energy consumption begins with the machine design. With PacDrive, you can simulate the energy requirements for every component that uses a particular machine, and then use Application Function Blocks (AFBs) to calculate a dynamic, machine-speed-dependent energy footprint for your machines – all without connecting a single motor or other component.

Once the machine is commissioned, the same AFBs can be used to monitor the current measurement results with integrated power meters (Energy Dashboard). You no longer have to “fly blind” when it comes to monitoring your energy consumption: This tool gives your engineering team a powerful energy efficiency tool in the design phase. For machine operators, this feature makes it possible to read off the HMI the energy expenditure for each product packaged at any time, and optimize the system based upon this information.

> Comprehensive consulting service

Energy-efficient machine design and construction is largely a matter of experience and know-how. When you use the Schneider Electric consulting service, you work with experienced engineers equipped with state-of-the-art measurement technology to identify the parts of your equipment that are “power vampires.” Together you can review for example options for reducing high standby-energy consumption. By implementing standardized PackML-compliant operating modes, PacDrive has created the most important prerequisites for this process.

> Technology for energy-efficient machines

With tools such as ECAM, PacDrive lays the groundwork for energy-optimized motion design. Application Function Blocks such as the “intelligent line shaft” create additional optimization potential. PacDrive incorporates high-efficiency servomotors with efficiency factors greater than Class IE3, servo drives with DC bus sharing that require no additional installation effort, and products for energy storage and recovery, all of which offer a number of options for energy-efficient designs in drive solutions.

At Schneider Electric, energy efficiency starts in the design phase of packaging machines.

“Together with Schneider Electric we realized the new SP2 NG – an energy efficient machine, bringing tangible improvements to the end user in energy usage, in terms of consumed watts per manufactured unit, enabling up to 30 % energy savings compared to traditional machines.”

ACMA
Flowpack Division