PacDrive 3 automation solution

General presentation

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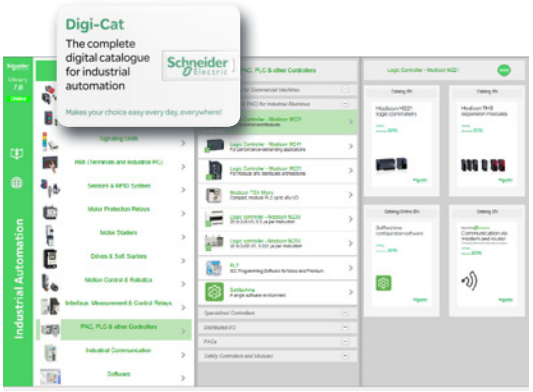

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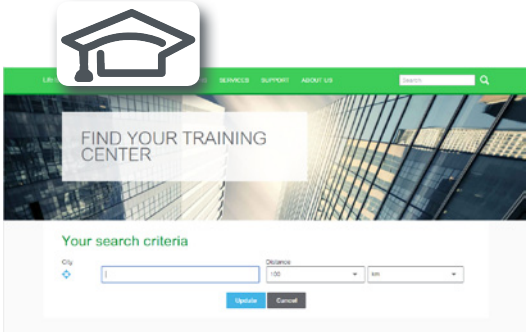


Life Is On Schneider Electric

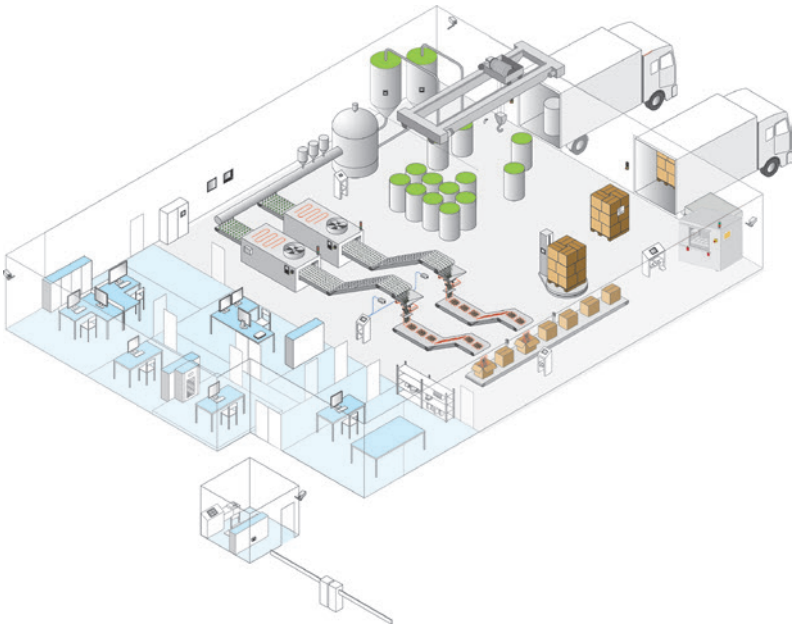
General contents

PacDrive 3 automation solution
General presentation

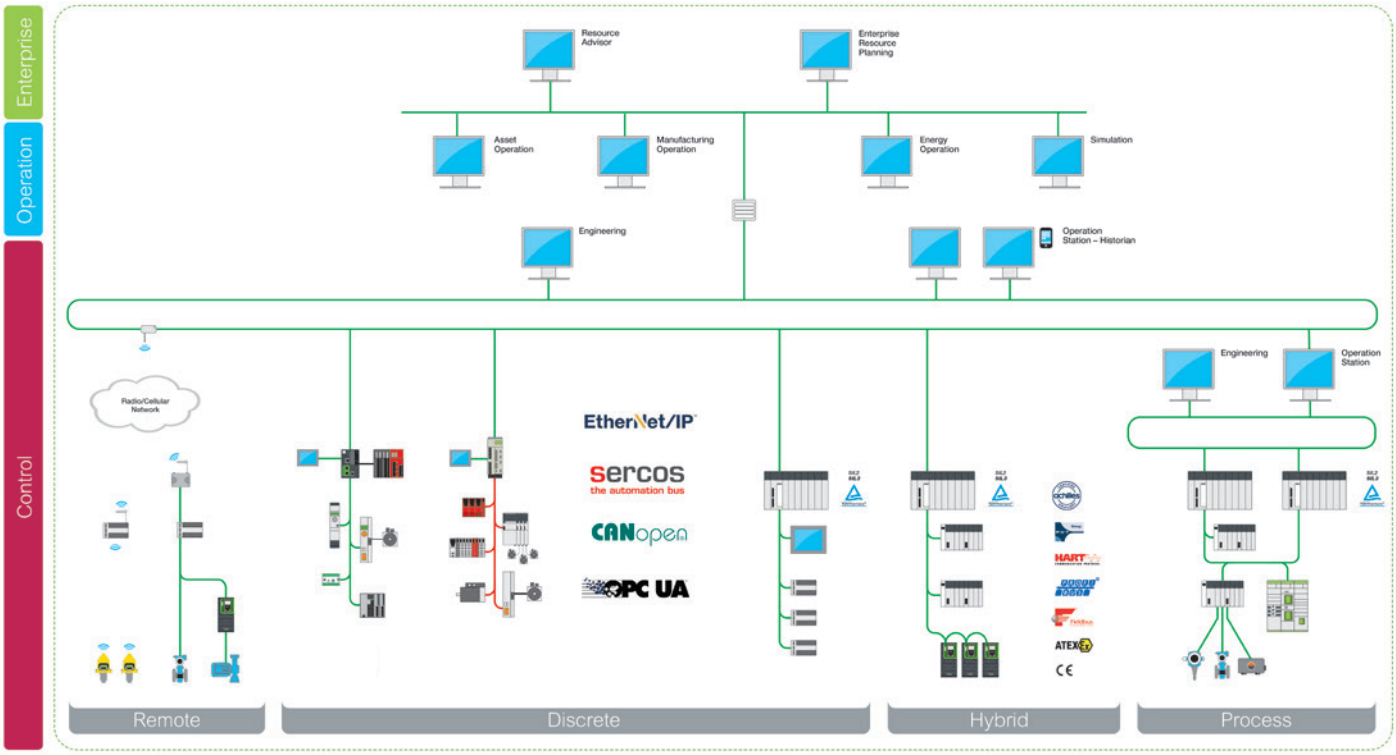
PacDrive 3 automation solution
One partner for complete solutions

One partner for complete solutions

As a global specialist in energy management, Schneider Electric offers integrated solutions across multiple market segments, including leadership positions in Utilities & Infrastructures, Industry & Machine automation, Data Centers & Networks, and in Residential. Focused on making energy safe, reliable, efficient, productive and green, Schneider Electric delivers complete solutions for manufacturing and process industries.

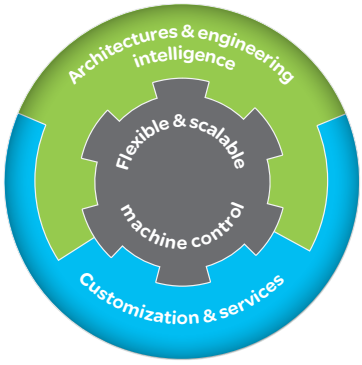


A fully embedded portfolio of solutions: Schneider Electric´s solution for scalable automation of individual production machines and entire production lines, is part of a comprehensive approach for automating complete production processes and for creating intelligent energy management systems within your facility/factory.



PacDrive 3 automation solution
Technology and services for automating the entire machine

Technology and services for automating the entire machine

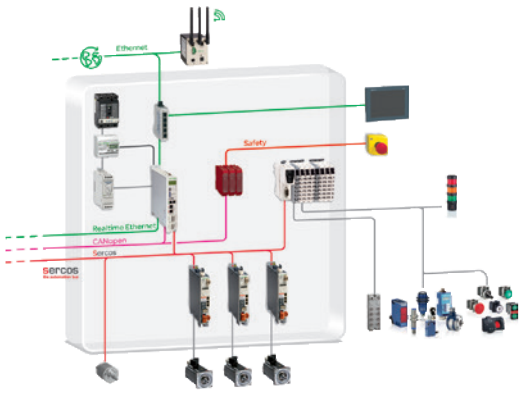


Schneider Electric helps you to design machines and systems while reducing time to market and increasing profitability: Flexible and scalable hardware platforms, architectures, and engineering intelligence, together with a comprehensive package of services, all with the goal of ensuring that you always get the best possible solution – throughout the entire machine lifecycle!

Flexible and scalable machine control

Flexible Machine Control is the technological core for machine automation. The drive, HMI, logic, and motion controllers included in Flexible Machine Control can be used in a wide range of machines. They also provide specific functions for packaging and material handling – either with or without robotics – as well as material working, hoisting, HVAC&R, and pumping applications. Safety controllers for hardwired and embedded safety network solutions meet common safety standard requirements.

Ready-to-use architectures and off-the-shelf software



Recommended automation architectures are available for mapping a wide range of machine designs. Combined with an extensive selection of preprogrammed software functions, these architectures put Schneider Electric's comprehensive application know-how at your fingertips. Specific benefits include shorter programming times, better software quality, and standardized programming. Off-the-shelf software templates can also enhance the reusability of machine programs.

Partnership throughout the entire machine lifecycle

As your partner, we provide support throughout the lifecycle of your machine. Our experts advise you at every step, from technical support to on-site assistance. If you are missing products from our portfolio or have a special product requirement, please discuss product customization options with our Solution Service. We offer standard support, a 24/7 hotline, and replacement parts centers in various locations around the world – so your machines are always available for your customers.

PacDrive 3 automation solution
Motion-centric machine automation

An integrated system´s approach

One controller for the entire machine

PacDrive's digital system architecture is based upon the concept of a centralized controller. Using an IEC 61131-3-compliant machine program, a single controller performs all control functions, from cartesian and robotic motion to temperature regulation and machine logic. This is a central pillar in the process of creating modular machines.

- single controller solution for motion, PLC logic, and communication
- Centralized calculation of all axis positions within the controller, allowing the controller to switch on the fly from real to virtual axes. Enables motion testing/ simulation without connecting drives/motors
- Standard parameterization of each axis, configuration of individual drives requires only input of inertia for each load
- Electronic type plates for all servo drives/motors, detailed communication with each drive/motor for automatic parameterization and firmware replication (all data are centrally stored in the controller) and diagnosis
- Maximum scalability: Modular machines can be configured easily. The controller recognizes all connected drives/motors and can activate/deactivate them automatically based upon the modules connected to the machine

Scalable controller performance

PacDrive LMC Eco series

PacDrive LMC Pro / LMC Pro2 series

Controllers for automating both simple and complex machines

The PacDrive LMC controllers cover a wide range of applications. Factors such as the number of axes to be synchronized, data transmission volumes, and the range of robotic elements to be integrated all determine which controller will offer the optimum balance of price and performance.

The PacDrive controller series deliver full scalability, from small applications with a few servo axes to complex, high-performance systems:

- PacDrive **LMC Eco** series for up to **16** synchronized servo axes
- PacDrive **LMC Pro** series for up to **99** synchronized servo axes
- PacDrive **LMC Pro2** series for up to **130** synchronized servo axes

Integrated robots can lower the number of axes depending upon kinematics and complexity of operation.
In addition, the controller can synchronize up to 255 virtual axes. The network update rate for all axes is 1msec. All controllers are software-compatible, since all have identical Schneider Electric Logic Motion Runtime software.
The PacDrive LMC controllers are equipped with integrated digital and/or analog I/Os (depending on model). The controllers include both standard and high-speed I/Os (touch probes) for significantly faster response to events recorded by sensors (such as motion-relevant signals). External I/Os can also be added with a Sercos bus coupler for the modular Modicon TM5/TM7 I/O solution.

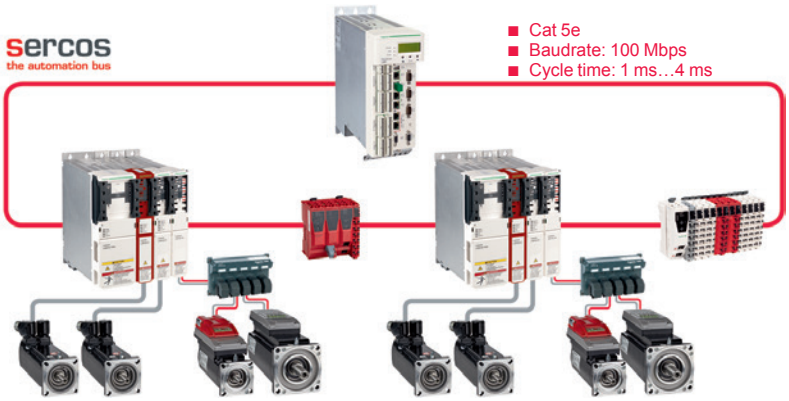
PacDrive 3 automation solution
Open communication standards

Sercos automation bus

sercos
the automation bus

Sercos – an Ethernet-based automation bus

Sercos is the automation bus used with PacDrive LMC Eco, LMC Pro and LMC Pro2 controllers. On a single Sercos ethernet network you are able to combine the complete system components for managing your machine such as Controllers, Drives, IO, Safety. The Sercos bus can be wired in a line or ring topology.
In parallel to communication on field level, Sercos can be used for controller to controller on line level. This ensures precise synchronisation of different machines, coupled in high-speed processes for example.



Open communication standards

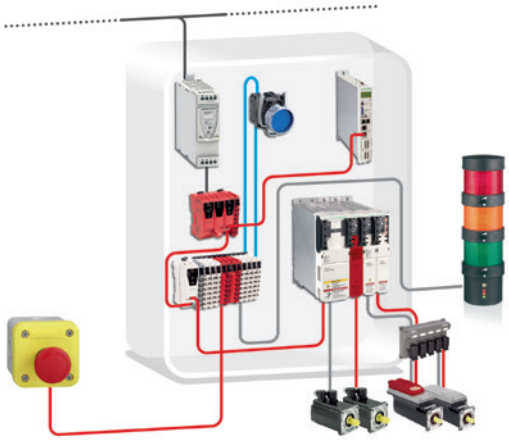
PROFIBUS
PROFINET
Ethernet
EtherNet/IP
CANopen
OPC UA

Fieldbus standards and web protocols

PacDrive is an open technology, which includes open communication standards. In addition to the default integrated interfaces, PacDrive controllers can communicate using the most common fieldbus and RT-Ethernet standards.

- Sercos is the preferred automation bus for PacDrive solutions, while CANopen is an alternative for I/O communication for simple machines. Each PacDrive controller has a CANopen interface as well as a standard Ethernet interface
- In addition to communication via Sercos and Ethernet, LMC Pro / LMC Pro2 series controllers can communicate simultaneously via two fieldbus protocols and real-time Ethernet, e.g. CAN and Profinet
- Optional expansion cards are also available for all controllers to implement additional fieldbus interfaces such as EtherNet/IP. The LMC Pro / LMC Pro2 series controllers also have a Profibus DP interface (master and slave)
- All current web protocols for vertical integration/remote control have been integrated, e.g. OPC UA, HTTP, FTP
- Web visualization is available for remote access

Embedded Safety



Example of Safety architecture with Modicon TM5CSLC Safety logic controller, Modicon TM5 safety & non-safety expansion modules, and safe drives and motors for a safe communication over Sercos automation bus.

All embedded safety solution

PacDrive's embedded safety solution is a scalable distributed architecture solution able to mix Safety and non-safe IO within IO islands, safety drives within the Lexium 62 ILM integrated servo drives rack as well as optional module dedicated to the Lexium 62 ILM motors.
The solution is certified up to SIL 3 of EN/IEC 61508, and performance level "e" Category 4 EN ISO 13849-1.
Depending on the hardware configuration the follwing saftey functions can be implemented: STO, SS1, SS2, SOS, SLS, SDI, SMS, all via Sercos bus.

PacDrive 3 automation solution
Flexible servo drive design

Flexible servo drive design

Lexium 52 stand-alone servo drive

Lexium 62 multi-axis drive system

Lexium SH3 Servo motors

Lexium MH3 Servo motors

Lexium SHS Servo motors

Lexium 62 ILM integrated servo drive

Lexium 62 ILD detached servo drive

Increasing control cabinet space requirements and rising costs for mounting and cabling are key factors driving the design of new servo solutions. At the same time, there is still a need for classic single-axis servo solutions. No single solution can fully satisfy both of these needs.

This is why the Lexium servo system for PacDrive proposes:

> a Lexium 52 stand-alone-axis solution,
> a Lexium 62 multi-axis solution,
> a Lexium 62 ILM integrated servo drive solution,
> a Lexium 62 ILD detached servo drive solution.

Those servo drives are fully software-compatible and can work side by side in mixed configurations.

Lexium 52 stand-alone servo drive

> In a conventional stand-alone design with integrated 3-phase power supply, Lexium 52 series drives are particularly well suited for economical configuration of servo drive solutions with self-contained single axes. They communicate via Sercos and offer embedded digital I/O. The servo drives are available in five different power levels, ranging from 1.5 to 24 A continuous current and 6 to 72 A peak current.
> Lexium 52 is ideal for solutions with a small number of axes and is fully compatible with the “smaller” PacDrive Eco controllers.

Lexium 62 multi-axis drive system

> The Lexium 62 series drives consist of single drives (1 axis) and double drives (2 axes) of the same size. All of the single and double drives within a group share a single power supply. No backplane connections are required, and the modules can be coupled to the adjacent module in less than two minutes through a quick front connection with locking screws. All are compatible for use with Lexium SH3, SHS (stainless) and MH3 series servo motors, and can also be used for third-party DC motors.
> The multi-axis cabinet-based Lexium 62 requires up to 50% less cabinet space compared to other solutions on the market.

Standard and stainless servo motors

> Dynamic, highly efficient servo motors form the basis for every modern servo solution. The Lexium SH3, MH3, and SHS stainless steel servo motors cover a wide range of performance and flange sizes.
> All motors are equipped with electronic type plates and are optimized for use with Lexium 52 and Lexium 62 cabinet servo drives.

Lexium 62 ILM integrated servo drive

> Lexium 62 ILM servo drives with integrated drive electronics incorporate a flexible approach to cabling, with prefabricated hybrid cables and distribution boxes. The only elements remaining in the cabinet are the shared power supply for the Lexium 62 series and a connection module. The drive and network solution together form a true plug-and-play solution. The range of network topologies available includes line, tree, and daisy chain, all topologies either alone or mixed.
> Lexium 62 ILM Integrated servo drives are the key element in consistent modular machine design.
> The Lexium 62 ILM requires up to 90% less cabinet space when compared to stand-alone drives, and wiring/installation times in the cabinet can be reduced by up to 90%.

Lexium 62 ILD detached servo drive

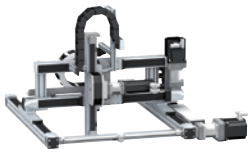
> The Lexium 62 ILD detached servo drives consist of single drives (1 axis) and triple drives (3 axes).
> The Lexium 62 ILD detached servo drives are fully integrated in the Lexium 62 ILM network infrastructure and support as well the strategy of cabinetless automation. In opposite to Lexium 62 ILM the IP 65 rated drives can be combined like Lexium 62 cabinet drives with standard Lexium SH3 and MH3 motors (up to a rated current of 6 A).
> The more they are suited for operating AC motors.

PacDrive 3 automation solution
Embedded robots
Related products

Embedded robotics solutions

Delta 2 picker mechanisms

Delta 3 picker mechanisms



Portal robots

The integration of robotics into the machine control solution is one of the outstanding features of PacDrive: if robot kinematics with up to 6 axes are equipped with Lexium SH3 servo motors, they can be fully integrated into the PacDrive 3 automation solution. Standard Lexium servo drives or integrated servo drives can be used, and thanks to library functions, the robot(s) can be integrated into the IEC 61131-3-compliant machine program structures.

Ready-to-use robotics packages

> With the availability of complete robot arm mechanisms, there is no longer any need to develop customer-specific kinematics or integrate third-party products. This allows faster creation of robot-enabled machine designs. The portfolio consists of Delta 2 and Delta 3 picker mechanisms, and the cartesian system provides individual solutions for portal and gantry robots.

> All PacDrive Delta robots and Lexium Cartesian robots are developed and produced by Schneider Electric.

Universal use of PacDrive Robotics software library

> Appropriate transformation modules incorporate all typical kinematics into the controller software, whether it involves PacDrive robotics or customized kinematics.

> In addition to transformation modules mapped to the PacDrive Delta 3 and Lexium cartesian kinematics, a universal transformation module is also available for custom-designed or third-party kinematics, and allows various robots to be controlled with PacDrive controllers.

Integration of vision systems with library functions

> Vision systems are typically a fundamental element in robotics solutions. An open vision library allows many of the vision systems available on the market to be quickly integrated into a solution. Cognex vision solutions in particular are fully supported.

Related products

Motor control, Positionning

HMI, Dialogue and control devices

Measuring, recording, switching devices

Mounting and powering

Your one-stop shop from simple control systems to global automation solutions

Schneider Electric offers a full range of products and solutions for energy distribution & management and for industrial automation.
From actuators to control systems, we have the products to complete your PacDrive 3 automation solution. Please visit on our web site, www.schneider-electric.com, to find the following products and others:

> Motor control, positioning: Variable frequency drives, Step motor drives, EC motor drives, Motor-starters

> HMI, control and dialogue devices: Operator interfaces with display panels, Pushbuttons, Emergency switches, Dialog and signaling devices (also for safety solutions)

> Measuring, recording, switching: Optoelectronic / Inductive / Ultrasound Switches and Sensors, Recording systems (also for safety solutions)

> Power supplies, power distribution, metering and monitoring: Power supplies, Contactors, Measuring equipment, Enclosures and Electrical cabinets

PacDrive 3 automation solution

Reduce your time to market

SoMachine Motion Software

Reduce your time to market

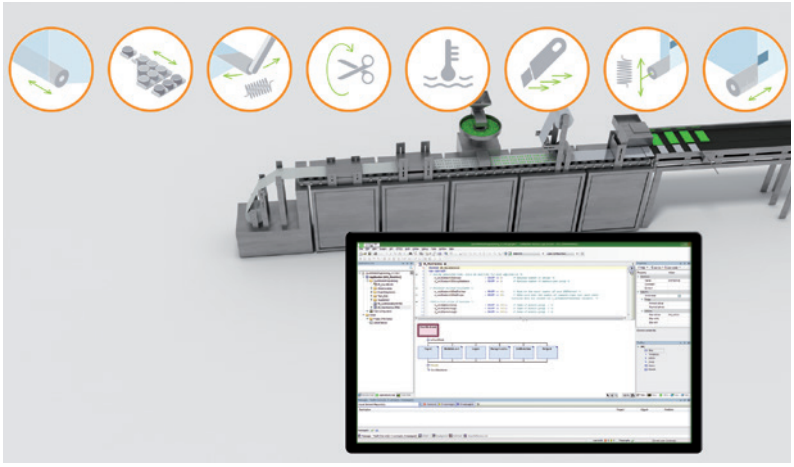
SoMachine Motion Software

SoMachine Motion – a single software for engineering, commissioning, and diagnostics

SoMachine Motion is an integrated software environment for all aspects of your machine engineering process with PacDrive.

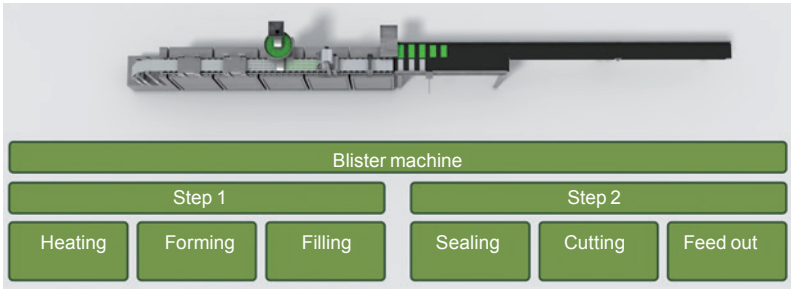
SoMachine Motion guides you in every phase of your project: planning, sizing and selection, programming, commissioning, diagnosis, and maintenance. Functionalities such as diagnostics, fast device replacement, and motion design are deeply embedded in the tools, making them highly efficient. PacDrive LMC controllers are programmed in compliance with the IEC-61131-3 standard, with object-oriented extensions. Devices are configured using a powerful parameter concept.

Library functions and template-based programming



Shorten your engineering time with ready-to-use modular software solutions that have been extensively tested and successfully deployed in many machines. PacDrive libraries provide software functionality in the form of classic function blocks (AFBs = Application Function Blocks) and Equipment Modules (EMs). AFBs and EMs allow you to build scalable, modular project architectures, thus reducing engineering times.

AFBs are supplied for many basic common automation tasks and machine functionalities. AFBs can be parameterized to perform a variety of common tasks in a motion-centric machine – with no programming required.



Equipment Modules add a standardized interface and behavior for command processing, operation modes, exception handling, and logging – on top of the functionality provided by AFBs. EMs consist of one or more combined AFBs. Equipment Modules for typical machine parts include: Axis Module (combining AFBs for homing, jogging, endless, positioning, and cam functions), Crank, Multibelt, Robotic, Smart Infeed, Unwinder, and Intelligent Line Shaft.

Equipment Modules were developed to pave the way for programming with the PacDrive Template, a standardized project architecture. This template is available in SoMachine Motion, along with sample projects adapted to individual applications for an easier design process. The PacDrive Template architecture includes communication with the HMI, machine level command processing, operation mode management (optionally compliant with PackML ISA-TR.00.02), exception handling, and logging.

PacDrive 3 automation solution

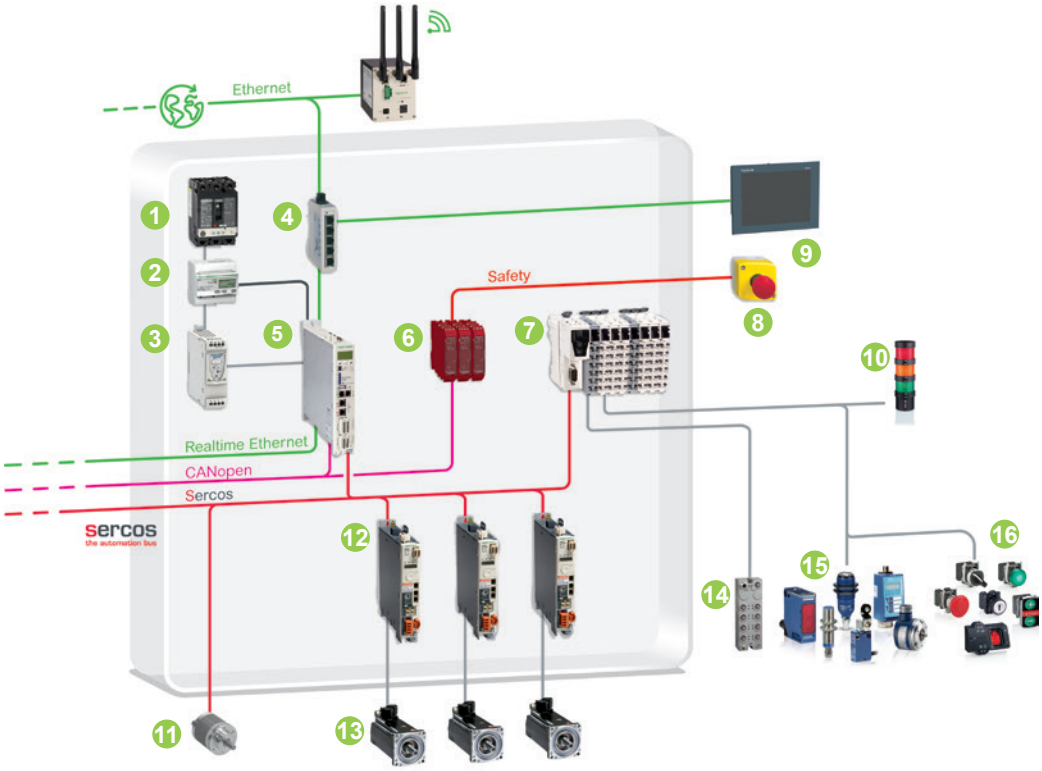
Reduce your time to market

Automation architectures for high performance motion

Example of automation architecture

For machine/motion control solutions with 0-4 servo axes

Compact architecture with hardwired safety solution, suitable for machines with small number of servo axes



Synchronized axes / Sercos / Motion controller PacDrive LMC101

Solution breakdown

1 **Compact NSX** Circuit breaker
2 **IEM32** Energy meter
3 **Phaseo** Switch mode power supply
4 **ConneXium** Switch Ethernet
5 **PacDrive LMC101** Motion controller
6 **Preventa XPSMCM** Safety modular controller
7 **Modicon TM5** (IP 20): Sercos interface module, Expansion module
8 **Harmony XALK** Emergency stop
9 **Magelis** HMI Small Panels
10 **Harmony XV** Signaling unit
11 3rd party product: encoder
12 **Lexium 52** stand alone servo drive
13 **Lexium SH/MH** Servo motors series
14 **Modicon TM7** IP 67 Expansion module
15 **Sensors:** Proximity and Photoelectric sensors, Limit and Pressure switches, Encoder
16 **Harmony XB4/XB5** Control units, **Harmony XB5S** Biometric switches

PacDrive 3 automation solution

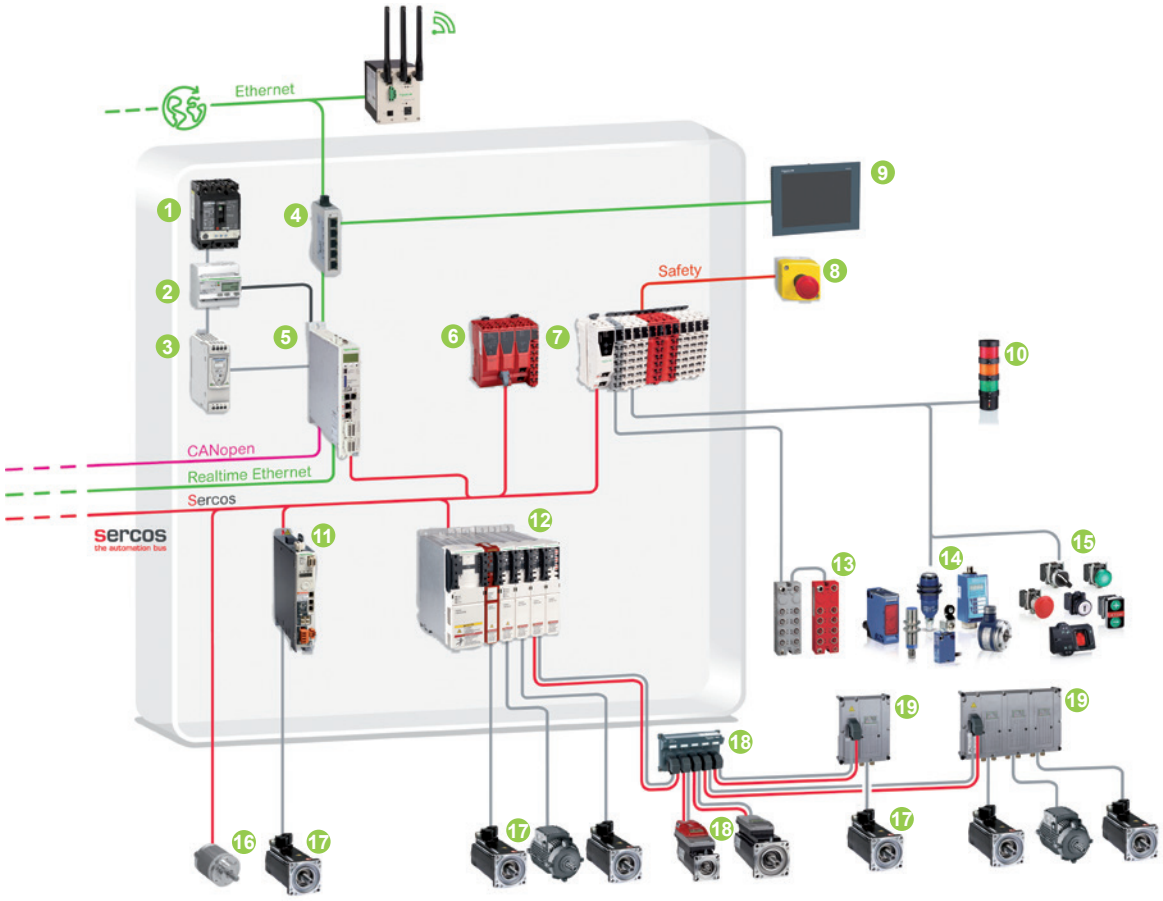
Reduce your time to market

Automation architectures for high performance motion

Example of automation architecture

For machine/motion control solutions with up to 16 servo axes

Scalable solution, suitable for automating a wide range of packaging machines and handling solutions



Synchronized axes / Sercos / Motion controller PacDrive LMC216

Solution breakdown

1 **Compact NSX** Circuit breaker
2 **IEM32** Energy meter
3 **Phaseo** Switch mode power supply
4 **ConneXium** Switch Ethernet
5 **PacDrive LMC216** Motion controller
6 **Modicon TM5CSLC** Safety logic controller
7 **Modicon TM5** (IP 20): Sercos interface module, Safety expansion module, Expansion module
8 **Harmony XALK** Emergency stop
9 **Magelis** HMI Small Panels
10 **Harmony XV** Signaling units
11 **Lexium 52** stand alone servo drive
12 **Lexium 62** multi-axis drive system: Power supply, Servo drives, Servo drives with embedded safety
13 **Modicon TM7:** IP 67 Expansion module, IP 67 Safety expansion module
14 **Sensors:** Proximity and Photoelectric sensors, Limit and Pressure switches, Encoder
15 **Harmony XB4/XB5** Control units, **Harmony XB5S** Biometric switches
16 3rd party product: encoder
17 **Lexium SH/MH** Servo motors series
18 **Lexium 62 ILM** Integrated servo drives: Connection module, Distribution boxes, Integrated servo drives, I/O and Safety optional modules
19 **Lexium 62 ILD** detached servo drives: single drive, triple drive

PacDrive 3 automation solution

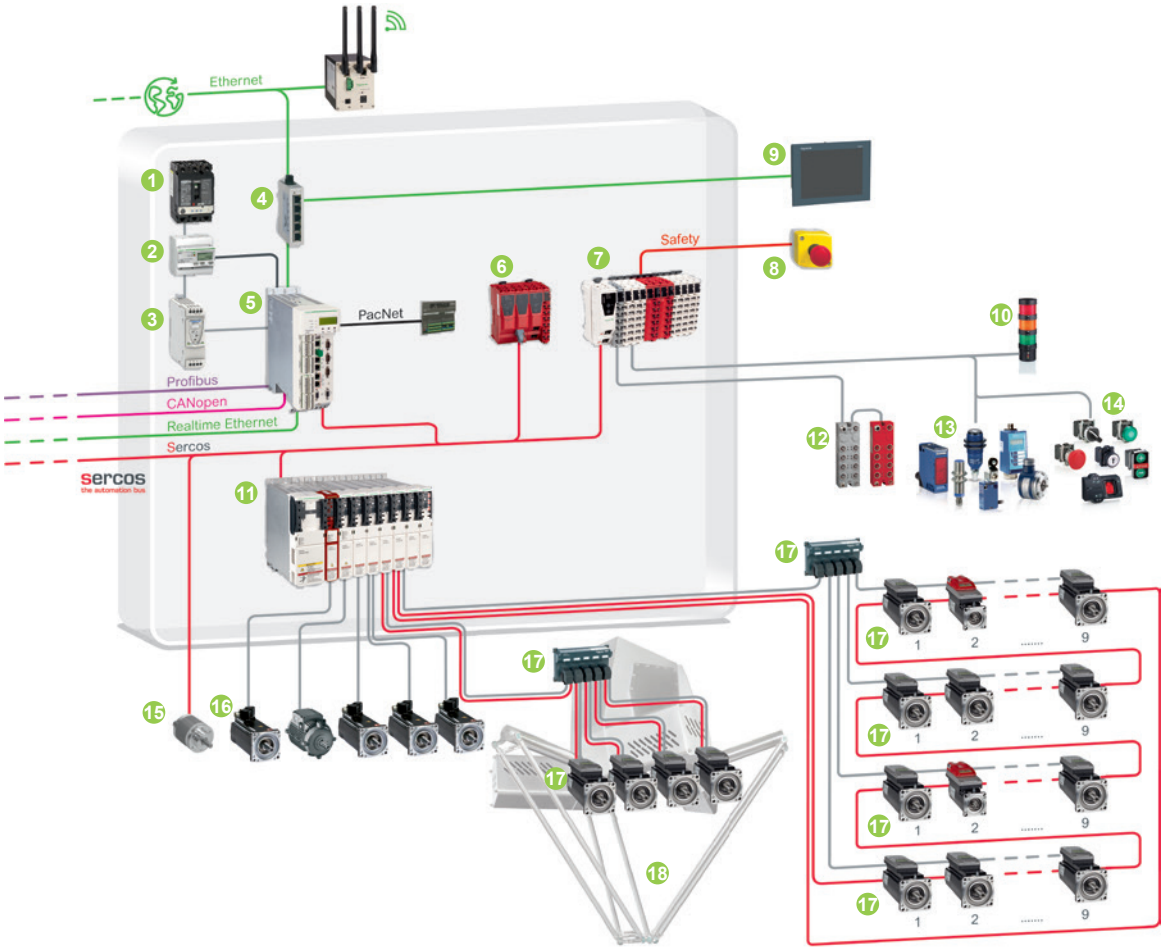
Reduce your time to market

Automation architectures for high performance motion

Example of automation architecture

For machines/motion control solutions with up to 99 / 130 servo axes and/or robots

Scalable automation architecture, suitable for demanding packaging machines, picker lines, and other applications with servo



Synchronized axes & robots / Sercos / Motion controller PacDrive LMC600, PacDrive LMC802 for higher requirements

Solution breakdown

1 **Compact NSX** Circuit breaker
2 **IEM32** Energy meter
3 **Phaseo** Switch mode power supply
4 **ConneXium** Switch Ethernet
5 **PacDrive LMC600** Motion controller, **PacNet** fast I/O module
6 **Modicon TM5CSLC** Safety logic controller
7 **Modicon TM5** (IP 20): Sercos interface module, Safety expansion module, Expansion module
8 **Harmony XALK** Emergency stop
9 **Magelis** HMI Small Panels
10 **Harmony XV** Signaling units
11 **Lexium 62** multi-axis drive system: Power supply, Servo drives, Servo drives with embedded safety
12 **Modicon TM7**: IP 67 Expansion module, IP 67 Safety expansion module
13 **Sensors:** Proximity and Photoelectric sensors, Limit and Pressure switches, Encoder
14 **Harmony XB4/XB5** Control units, **Harmony XB5S** Biometric switches
15 3rd party product: encoder
16 **Lexium SH/MH** Servo motors series
17 **Lexium 62 ILM** Integrated servo drives: Connection module, Distribution boxes, Integrated servo drives, I/O and Safety optional modules
18 **PacDrive** Delta 3 robot, type P4

PacDrive 3 automation solution

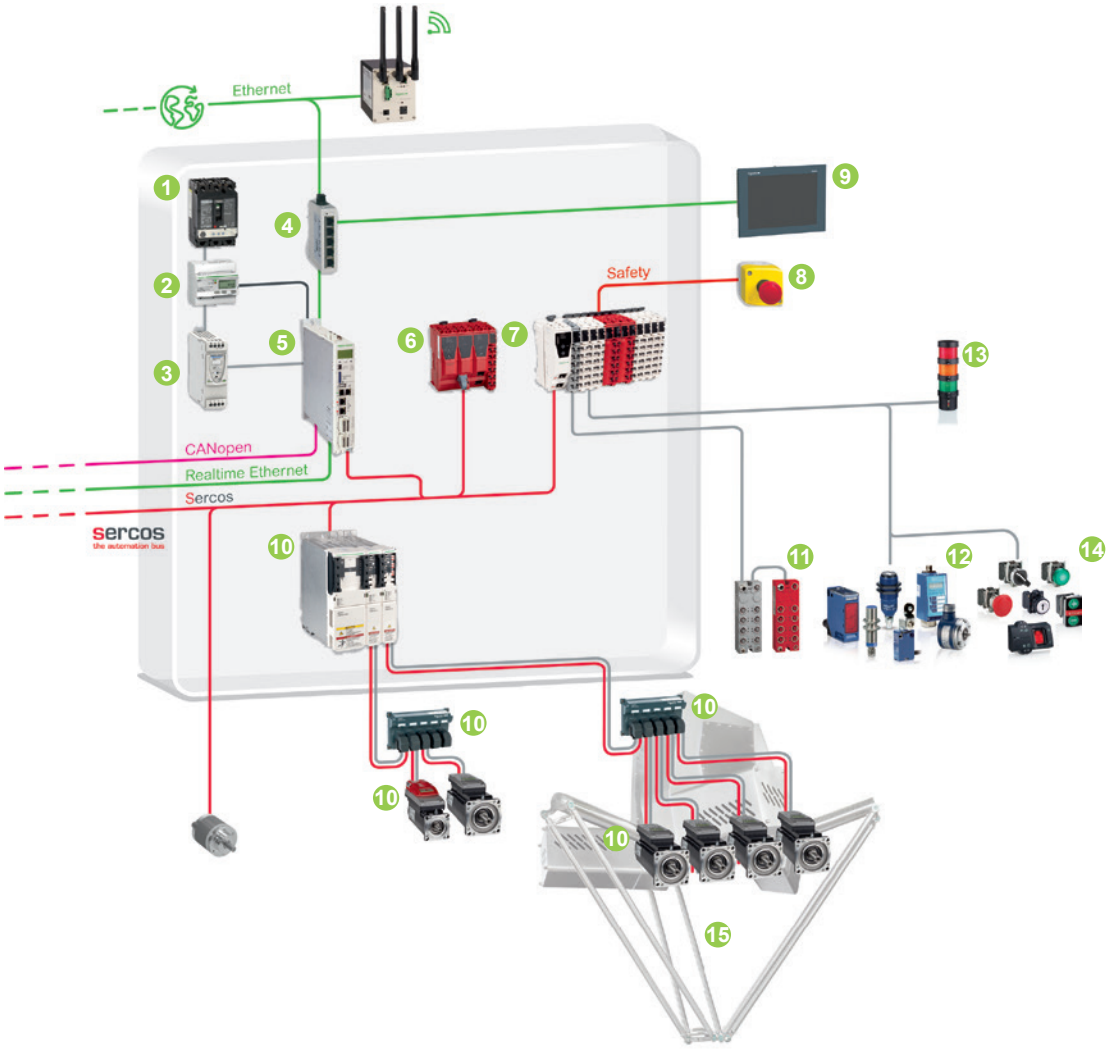
Reduce your time to market

Automation architectures for high performance motion

Example of automation architecture

For robot cells/portal robots: 1 robot, feed-in, feed-out

Flexible, adaptable automation architecture for designing typical standardized robot cells: robot (delta 3, cartesian ...), feed-in, feed-out



Robots / Sercos / Motion controller PacDrive LMC106

Solution breakdown

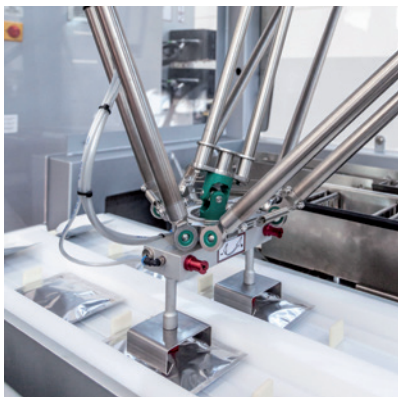
1 **Compact NSX** Circuit breaker
2 **IEM32** Energy meter
3 **Phaseo** Switch mode power supply
4 **ConneXium** Switch Ethernet
5 **PacDrive LMC106** Motion controller
6 **Modicon TM5CSLC** Safety logic controller
7 **Modicon TM5** (IP 20): Sercos interface module, Safety expansion module, Expansion module
8 **Harmony XALK** Emergency stop
9 **Magelis** HMI Small Panels
10 **Lexium 62 ILM** Integrated servo drives: Connection module, Distribution boxes, Integrated servo drives, I/O optional modules
11 **Modicon TM7:** IP 67 Expansion module, IP 67 Safety expansion module
12 **Harmony XB4/XB5** Control units, **Harmony XB5S** Biometric switches
13 **Harmony XV** Signaling units
14 **Sensors:** Proximity and Photoelectric sensors, Limit and Pressure switches, Encoder
15 **PacDrive D**elta 3 robot, type P4

PacDrive 3 automation solution
Focus on packaging and handling processes

Focus on packaging and handling processes

Expertise across the entire packaging process

Schneider Electric is one of the leading companies in packaging automation worldwide.



> As a pioneering member of OMAC, Schneider Electric has been active for many years in the OMAC Packaging Workgroup. Schneider Electric has also implemented the guidelines of the Weihenstephan Standard, which is becoming increasingly important for the vertical integration of data streams generated from packaging lines. Today, more than 80,000 machines worldwide are automated using the PacDrive platform. Everything is possible, from simple positioning applications up to 130 synchronous driven servo axes or integrated robots.

> To save time and enhance quality, machines can be automated with matching, ready-to-use library software modules such as Multibelt, Winder/Unwinder, Printmark Detection, Sealing, and so on. The template-based software strategy was developed for more complex applications, and supports the trend towards the use of modular machines in packaging automation by offering standardized, reusable machine programs.

Automated handling : solutions including mechatronics

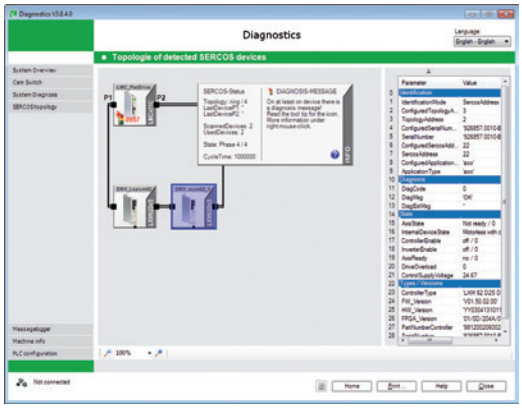
Example of architectures and library functions also simplify implementation for demanding applications. Linear motion axes, cartesian robots, and Delta 2 / Delta 3 picker robots are of particular interest. These functions can be used for stainless steel robots in hygienic designs, Schneider Electric offers complete solutions: hardware, software, and mechatronics – plus services.
These robots can be used for material handling solutions such as buffers for small load carriers or sorting systems in the beverage industry.

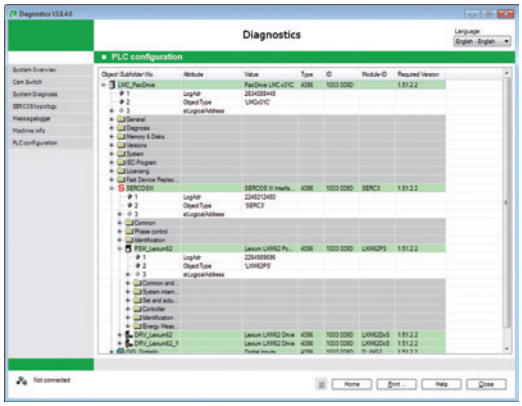
> In automated handling, solutions including mechatronics handling, Schneider Electric has taken its solutions far beyond basic technologies. PacDrive can serve as the hardware basis for a large number of conveying and handling requirements. The PacDrive software libraries offer ready-to-use software modules for many typical tasks such as conveying, feeding, separation, or infeed.

PacDrive 3 automation solution
Simplify integration & maintenance

Simplify integration and maintenance

PacDrive's digital system architecture is based upon the concept of a centralized controller. All system functions run through the centralized controller, from the human-machine interface to motion and device bus communication, line synchronization, and vertical integration. This approach creates far-reaching possibilities for diagnostics, easy firmware handling, and automatic parameterization of replacement components.





Maintenance tools

> The Logic Builder in SoMachine Motion offers extensive diagnostic funtionalities throughout a PacDrive-based automation system. Sercos scan can be used to detect all core components and maintain firmware version compatibility in drives or motors. An integrated software oscilloscope permits simultaneous plotting of PLC and motion variables (including mixed variables). During commissioning, the tool's message logger makes it easy to track down the source of system and user diagnostics messages.
> Backup data, system data and, firmware updates for the controller can be managed with the Controller Assistant. The Drive Assistant is an easy-to-use tool for direct updates of firmware in Sercos slaves.
> Diagnostics was developed for local use during normal operations. This stand-alone tool can be run as a single program on a PC, without the need for an additional SoMachine Motion workbench. Diagnostics provides a snapshot of a machine's current status, including loggers, device parameters, I/O status, graphical architecture view of the Sercos network, and more. Diagnostics contains almost the same functionalities as the programming and commissioning tool for engineering, without the risk of unintended changes to the machine program.

Fast device replacement

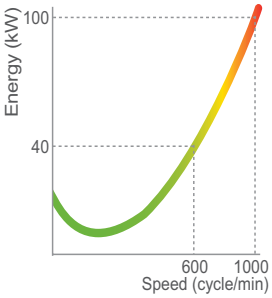
> The ability to easily replace the electronic components responsible for improper operation is just as important as a rapid diagnosis of the improper operation itself. PacDrive users can quickly change out servo drives or servo motors with plug-and-play technology.
> Parameterization of the replacement components via laptop or software installation is no longer required. The centralized PacDrive controller detects the replacement components or motors based upon their electronic type plates and configures them automatically.
> There is also no need to activate switches for the Sercos or IP address. The controller performs a firmware check and retrieves updates when the equipment is replaced.

Remote maintenance

PacDrive provides the interfaces and/or protocols needed for remote maintenance via the Internet, modem, and mobile telecommunications. Schneider Electric provides advice and support to machine users and machine builders for integration of the most practical options – worldwide.

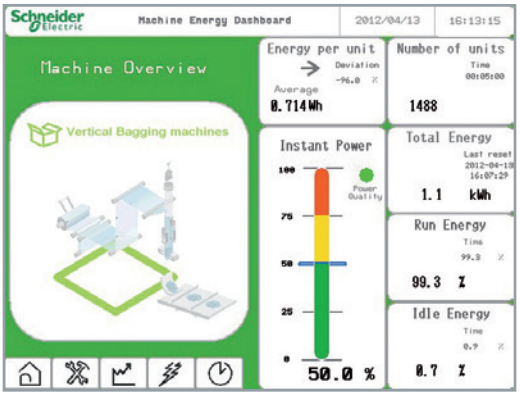
PacDrive 3 automation solution
Energy efficiency

Energy efficiency



Measure the energy consumption of a running machine compared to the output and calculate the optimal ratio

Lexium 62 multi-axis drive systems require no additional installation for a daisy chain bus coupling

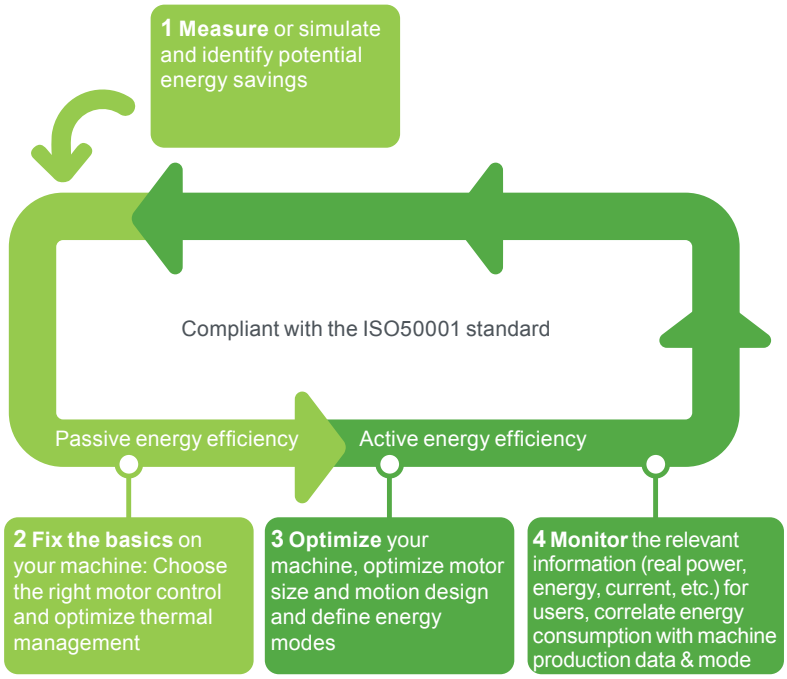


An energy dashboard integrated into the machine's HMI design provides the user with constant, up-to-date information on all energy-relevant parameters

Grow your business with energy-efficient solutions

Energy efficiency is an increasing concern for your customers' global strategic planning. By offering them machines that save energy, you can stand out in the market and gain a competitive advantage. Follow the four principles of energy efficiency adapted to your machine's lifecycle, and help your customers comply with the ISO 50001 standard.

Energy optimization in four sustainability steps



How can PacDrive help you?

> **Simulate** your individual program in virtual mode and **calculate** your machine's **energy footprint**
Measure real energy consumption
Request Schneider Electric **consulting/engineering** for comprehensive support

> Use Lexium SH3 series **high efficiency servo motors**
Share DC-bus using Lexium 62 multi-axis solution / Lexium 62 ILM integrated servo drives
Save energy used to cool the cabinet by shifting servo drives to the machine frame with Lexium 62 ILM series integrated servo drives

> Use SoMachine Motion tools for **energy efficient motion design/robotic path design**
Use sophisticated library functions for **optimized consumption of synchronous servo axes**
Use PackML-compliant operating modes of the PacDrive programming concept and **create standardized energy modes** for machines/lines

> Create your individual **energy dashboard** with library functions, **monitor and calculate** energy-related figures **in real time**

Service and support that are behind you all the way

Design

Stage in the product life cycle: “Design”

We find the best solution for your needs

> Based on your needs, our Solution Application Experts and Application Design Experts (SAE/ADE) work out innovative technical solutions including
  > Co-engineering
  > Tests
  > Validation

We understand your challenges

> Consulting
> Audits

We execute the solution with a full service agreement

> Our solution design and delivery centers (Flex-Centres) are committed to quality and results and provide tests, validation, and commissioning

We improve your team’s competencies

> In class training and On site training

Build

Stage in the product life cycle: “Build”

We ensure the delivery of your solution

> Availability of components through a large worldwide network of distributors
> Collaboration, management, and delivery through local partners
> With Schneider Electric as your turnkey solution partner, your solutions will include:
  > Project management and responsibility
  > Engineered systems
  > Third-party components management
  > Customizations and adaptations

We provide on-site services and support

> Secondment of qualified personnel to deliver on-site engineering and technical services

We improve your service team’s competencies

> Service and commissioning training
> Supply chain optimization

Service and support that are behind you all the way

Operate

Stage in the product life cycle: “Operate”

We provide international sales and after-sales services for you and your customers

> Maintenance contracts
> Spares parts and repairs
> Just-in-time delivery
> Return of goods
> Service expertise:
> Error diagnosis and repair
> Environmental measurements (EMC, fieldbus, thermography, power quality analyses, etc.)
> Customer International Support (CIS) as a single point of contact:
> A network of dedicated local country experts
> Web-based collaborative platform for efficient communication

We improve your customers’ competencies

> In-class customer training and On-site training
> Customer service and commissioning training

Improve

Stage in the product life cycle: “Improve”

We improve your machine ranges

> Consulting

We improve your customer’s machines in their production line

> Audits
> Training
> Migration and upgrade
> Services Expertises:
  > Consultancy
  > Retrofitting

The Next Generation

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