



NOUVEAUTÉS POUR
L'ENTREPRISE NUMÉRIQUE

product news

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SIEMENS



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DIGITAL ENTERPRISE

Master the digital transformation and Industry 4.0 and all the associated challenges! How? By becoming a Digital Enterprise and seamlessly connecting the real and digital worlds. This enables a more intelligent linking and analyzing of data – for fast and confident decisions and more efficient use of resources.

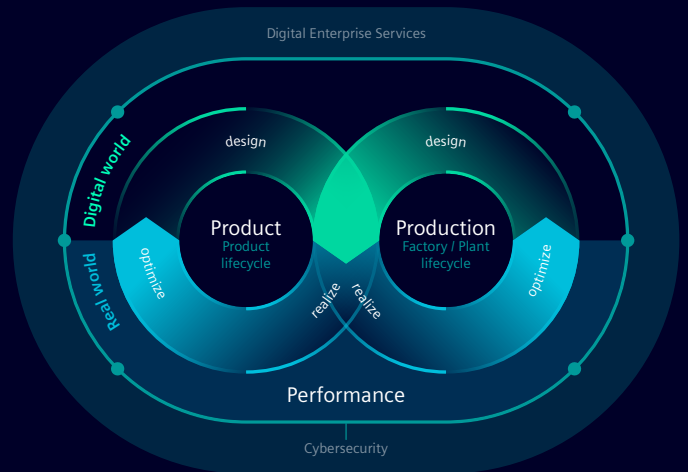
INFINITE OPPORTUNITIES FROM INFINITE DATA

Fast and confident decisions with the **Digital Enterprise**

The industrial world is facing rapidly changing challenges. The resources are finite, everybody needs to do more with less. Digitalization and automation are the game changers to meet these challenges on the way to Industry 4.0. But there is more! Since everything is connected with everything, it is essential to collect, analyse, and use the massive amount of data created in the Industrial Internet of Things (IIoT). How to do that? Companies must become a Digital Enterprise. By combining the real and the digital worlds they can use the finite resources efficiently and thereby make the industry more sustainable.

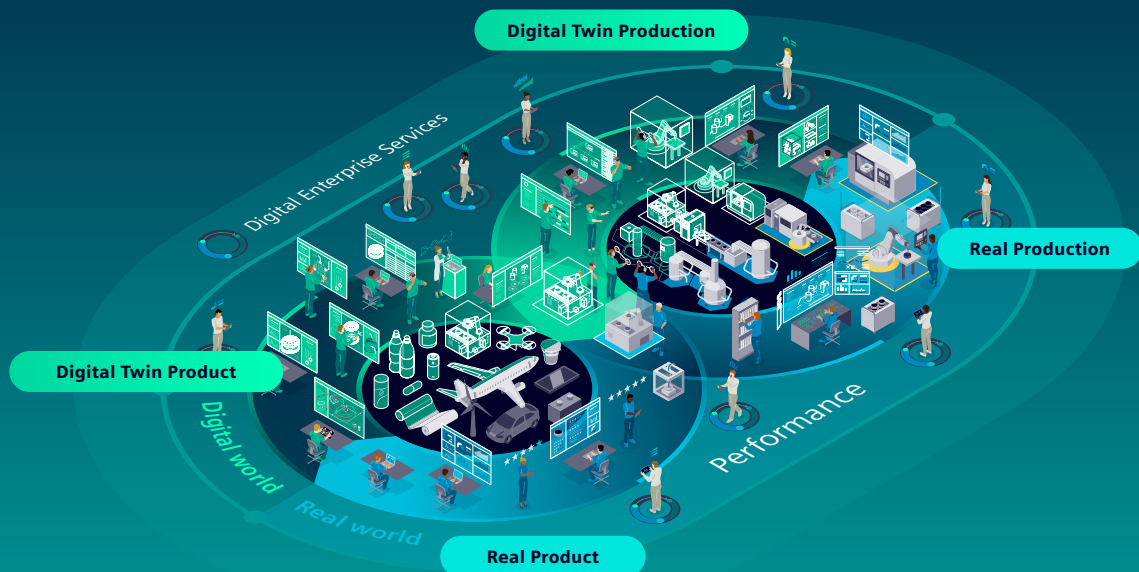
Combining the real and the digital worlds

With a continuous flow of data from the design of the product to production and continuous optimization, it is possible to seamlessly integrate the entire value chain. A true Digital Enterprise is able to harness the unlimited power of data by gaining valuable insights to make fast and confident decisions.



Comprehensive digital twin

Working with the comprehensive digital twin in the Digital Enterprise makes it possible to integrate the entire product lifecycle and – if required – even the factory and plant lifecycle. The generated performance data captured in the real world enables a continuous and open loop of optimization for both the product and the production. ➤



Maximum data transparency with IT/OT convergence

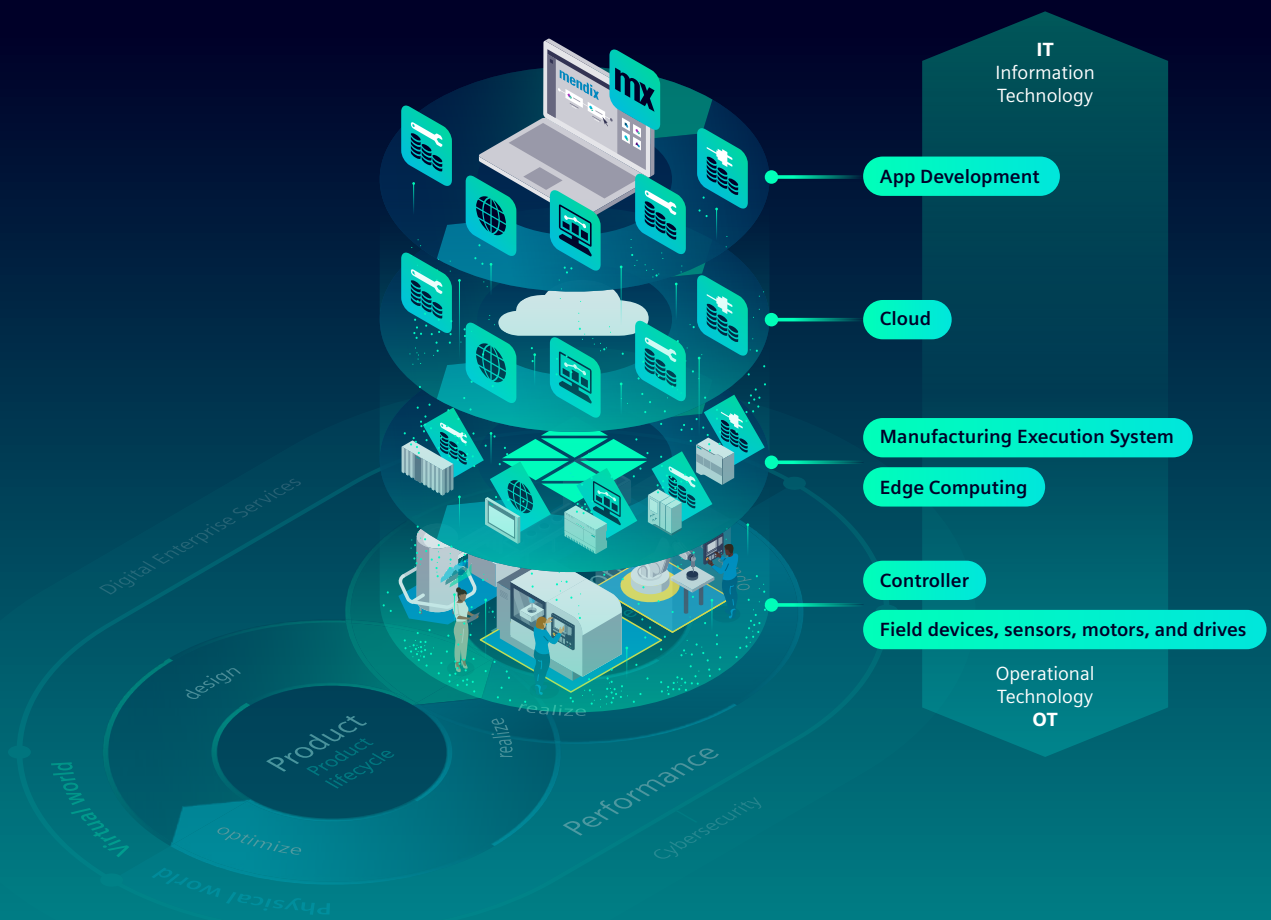
The Digital Enterprise brings together processes that were previously separate. It breaks down traditional silos and helps bridge the gaps between software and hardware, IT (information technology) and OT (operational technology), and shop floor and top floor. This offers great optimization potential, including technologies such as artificial intelligence for predictive maintenance, precise condition monitoring, and improved quality.

Comprehensive portfolio

Integrated software, automation solutions, and digital services from Siemens support companies

in becoming a Digital Enterprise. **Xcelerator** blurs the boundaries between industry domains, allowing companies to use the technology of today to build the products of tomorrow. **Totally Integrated Automation**, the world’s leading automation concept, stands for absolute end-to-end consistency in three dimensions. The service experts from **Digital Enterprise Services** are here to help users from the beginning to the end of their digital journey and focus on the individual needs of their digital factory. ■

> [siemens.com/digital-enterprise](https://www.siemens.com/digital-enterprise)



HANNOVER MESSE 2022

Combining the real and digital worlds

The pandemic has accelerated the preexisting trends of digitalization and automation. In light of this situation, many companies are realizing that they have not yet fully unlocked the opportunities provided by a consistent combination of the real and digital worlds. With sustainability becoming more and more crucial, fields of action have emerged that are of significant social importance and unleash promising economic potential. At the same time, cost efficiency and productivity are an increasingly important competitive factor. At the Hannover Messe 2022, visitors to the Siemens virtual showroom can experience firsthand how the solutions enable companies to take the decisive step into the digital age.



Sustainability and profitability

Becoming more sustainable while at the same time producing profitably? That's indeed possible! The solution: combining the real and digital worlds in order to leverage all the benefits of automation and digitalization as a Digital Enterprise. Visitors can see this for themselves in the virtual showroom.



Resilience and flexibility

Flexibility is a key factor in strengthening the resilience of production companies. Workstations that manufacture various products in short cycle times depending on the current order situation enable exactly this high level of flexibility. Siemens demonstrates how to set up such innovative lines and how to plan, implement, and optimize them.



Availability and scalability

Integrated solutions enable plant operators to leverage the opportunities arising from modular designs and plug and produce. Interested parties experience in the virtual showroom how the comprehensive solutions consisting of software, hardware, and services enable constant availability.



Transparency and speed

Industrial companies in particular need reliable information to make confident decisions. Siemens showcases solutions that demonstrate how simulation helps to determine the best concept possible already during the planning phase of a greenfield or brownfield plant.



Efficiency and quality

Short delivery times and low costs are playing an ever more decisive role for machine builders to maintain their competitiveness. The efficiency of innovative machine concepts starts with engineering: how to drastically reduce your engineering times while enhancing the quality of your products is demonstrated in the virtual showroom. ■

Experience our highlights in the 3D showroom of Hannover Messe 2022 at

> [siemens.com/hm22](https://www.siemens.com/hm22)

SMART MANUFACTURING

The smart way of manufacturing



Highlights

Closed-loop simulation environment for predictive insights

Real-time visibility for monitoring equipment performance

Digital data backbone for more flexibility and agility

The automotive industry is being reshaped faster than ever before. It is experiencing a rising pressure to release the next generation at higher speed while meeting sustainability and regulatory targets. To succeed, automakers must become more agile while accelerating innovation, managing increased complexity, and evolving manufacturing facilities.

Smart manufacturing is a powerful concept to master these challenges. It combines artificial intelligence (AI) with the Industrial Internet of Things (IIoT) and embeds analytics into traditional automation systems. Siemens smart manufacturing solutions combine technologies and automation to increase factory efficiencies and profitability. They create an intelligent production environment through data analytics, connectivity, and integrated simu-

lations that address situations in real time to ensure that output targets are achieved. With the digital twin of products and production, manufacturers can develop processes, configure assembly line layouts, and test them in a virtual world before executing them in the physical world. Fine-tuning can be achieved faster and more accurately. Data analysis generates automated insights, enabling faster and better-informed decisions. Thereby, automakers and suppliers can modernize legacy equipment faster with rapid factory automation, make better real-time decisions with intelligent operations excellence, and achieve cost savings and flexibility with the virtual development of manufacturing. ■

› [siemens.com/smart-manufacturing](https://www.siemens.com/smart-manufacturing)

DIGITAL NATIVE FACTORY

Optimized processes – from digital beginnings to reality

Siemens has built the first Digital Native Factory in in Nanjing, China, to increase production capacity, to better serve the fast-growing domestic market, and to expand and strengthen the footprint close to the customer. Siemens' largest R&D and manufacturing center outside Germany for CNC systems, drives, and motors extends over more than 70,000 m².

The factory is based on the concept of the Digital Enterprise, which has the following objective: All processes are carried out in the virtual world before real work starts. The digital twin, representing the complete factory including workstations, supply lines, production lines, and logistics, ensures that everything runs more efficiently. By using the digital twin, the factory and all its processes can be planned, analyzed, simulated, and validated at the same time. That makes it possible to optimize processes from the start and better synchronize customer orders – and saving massive time. It is assumed to be able to reduce the time required to transport supplies from the warehouse to a production line from four to just one hour. Another advantage: With the Digital Native Factory in China, existing production lines and their data can be reused, so that brownfield and greenfield plants can be combined in a short amount of time. ■

Experience this pilot project in person from June at the Digital Experience Center in Nanjing, China, or visit us in one of our virtual showrooms at [siemens.com/dex](https://www.siemens.com/dex)

› [siemens.com/digitalnativefactory](https://www.siemens.com/digitalnativefactory)



Highlights

- Improving **productivity** by up to 20%
- Boosting volume **flexibility** by up to 30%
- Refining **space efficiency** by up to 40%
- Increasing the speed of **material replenishment** by 50%

FUTURE OF AUTOMATION

The Totally Integrated Automation portfolio is constantly being expanded with innovations that are shaping the future of automation and optimally equip companies to meet their current and future challenges.

ARTIFICIAL INTELLIGENCE AND EDGE

The production of the future

Faster, more flexible, more sustainable: Today's industries are already facing huge demands, and they're growing all the time. To enable manufacturing companies to remain viable into the future, their production facilities need to be modified to take account of future developments. A combination of artificial intelligence and Industrial Edge can create a more efficient and reliable structure for the production of the future.

A crucial role is played by end-to-end, integrated, and application-oriented solutions and tools that can be useful to automation engineers or plant operators with no expertise in machine learning. They can ensure system stability and security regardless of personal familiarity with AI.

Another essential element is an optimal level of collaboration between data scientists and automation engineers, whose tasks differ throughout the lifecycle of an AI solution – from capturing the application, to creating and validating a machine learning model, to monitoring the model's performance and retraining it if needed.

Siemens offers users a broad range of opportunities to reliably develop their own AI solutions for industrial environments for the entire AI lifecycle – based on Industrial Edge and Simatic hardware. AI experts start by designing and evaluating a model as part of a comprehensive workflow that will offer all the necessary functions to meet their needs at every stage in the lifecycle – during modeling, deployment, and validation, for example. ■

► [siemens.com/futureofautomation](https://www.siemens.com/futureofautomation)



Highlights

Eases collaboration between data scientists and automation engineers

Industrial AI applications can be developed for and by customers

Customized tools for modeling the algorithm and deploying it in a number of different workflow environments

Standard interfaces for seamless integration of AI applications into the existing automation landscape

The workflow that covers the entire lifecycle of AI solutions



SMART FARMING WITH AI, EDGE, CLOUD, AND AR

Smart solutions for sustainable, customized consumption

As the world's population increases and the land available for agricultural use shrinks, the challenges confronting the food industry are growing. Along with cultivatable land, water is also becoming scarcer, while consumers are demanding more transparency with regard to where and how their food is made. So there is a strong demand for sustainable, individual, and intelligent processes along the entire value chain. Siemens is already experimenting with innovative technologies together with customers in its own laboratories. This results in solutions that advance sustainability and enable the flexible production of customized products – such as a specifically created soft drink.

How exactly does this work? The components of a soft drink can be very individual according to taste. Take the example of a lemon-mint soft drink. In the future, mint will be cultivated right where it is needed, in close proximity to the soft drink manufacturer. Smart applications analyze the entire lifecycle of the mint plants – for maximum quality and optimum use of light, water, and energy. The data from integrated sensors is acquired via edge systems and evaluated in real time to guarantee precise control over lighting, temperature, nutrients, and other factors. This ensures that as many resources as possible are conserved. The data is collected by the built-in sensors via edge systems and evaluated in real time to guarantee continuous monitoring and precise control of light, temperature, nutrients, etc. Intelligent robot systems like the modular, open, and AI-based technology package for the piece-picking robotics system help the plants and fruits on their way to a customized soft drink.



Because these systems know exactly which products to grasp and pack in the box.

Smart Farming is now being extended by augmented reality (AR) functions. HMI Panel and work instructions are made available via AR so that every user can check the status and intervene without problems when errors occur. AR connects sustainability with simplicity, since soft drinks can be produced directly in the supermarket from now on. On top of that, AR also ensures that even non-experts can easily react when maintenance is necessary. Therefore, thanks to AI and AR, the right decisions are made at run time. >

The example of smart farming illustrates all four fields of action of the digital transformation: digitalization, disruption, decarbonization, and demographics. The perfect interaction of innovative technologies such as edge, AI, FlexGrasp, and the LowCode platform Mendix promotes sustainability in flexible and individual production. Smart farming also enables new business models. For example, the ingredients are grown directly at the retailer or in the supermarket, which significantly shortens the transport routes. The continuously analyzed

use of light, water, and, above all, energy ensures resource-saving plant growth. Because the entire ingredient life cycle is completely automated, the experts no longer have to be available on-site constantly. And last but not least, the technology can be rented out in order to generate long-term and regular revenue. ■

> [siemens.com/agriculture](https://www.siemens.com/agriculture)

> [siemens.com/futureofautomation](https://www.siemens.com/futureofautomation)



Highlights

AI, edge, cloud, and AR: The perfect team for a sustainable future

Intelligent processes across the entire value chain

Extended data analysis using edge and Mendix apps – from the sensor to the cloud

Individual order management thanks to AI

Status monitoring, problem and error diagnosis with Unified AR

TOTALLY INTEGRATED AUTOMATION

Totally Integrated Automation (TIA) stands for integration in three dimensions: Hardware, software, and services are seamlessly interconnected, information flows horizontally and vertically, and new technologies are gradually integrated to create added value across industries.

SIMULATION FOR AUTOMATION

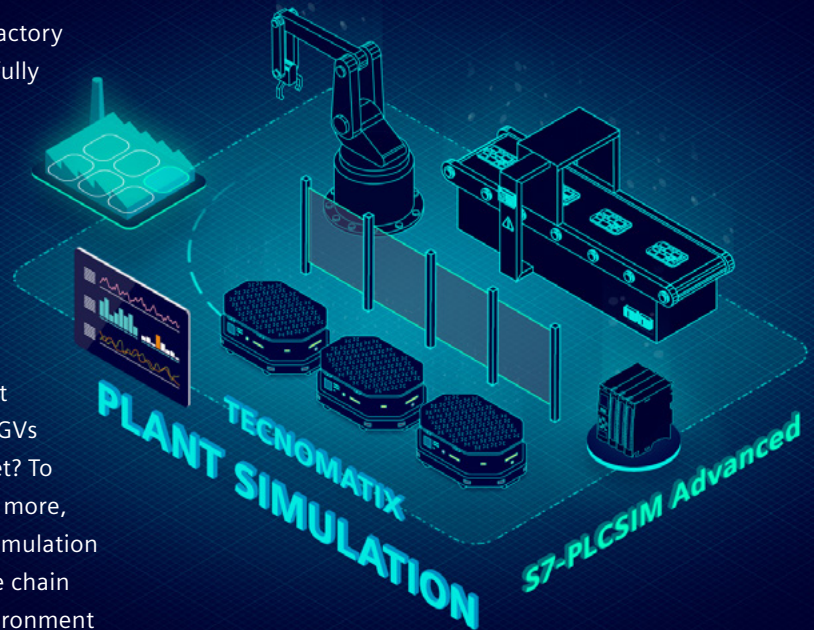
More flexible production with AGVs

Whether it's on the machine, cell/line or factory level, Simulation for Automation lets you fully exploit the benefits of simulation and the digital twin. The digital model can be used in a variety of customer-specific applications, also in connection with automated guided vehicles (AGVs), which are becoming more and more important.

What is the best AGV system design? What is the right control strategy? How many AGVs do you need and how big is the ideal fleet? To get answers to these questions and many more, manufacturers of AGVs should combine simulation and the digital twin along the entire value chain to test and optimize AGVs in a virtual environment before building and using them in the real world. Simulation includes validation from carrier control fleet management of AGV systems as well as detailed multi-physics simulation and also part-planning for smooth interaction with production cells. That ensures sustainability, because manufacturers need no real prototypes, as well as profitability, because of shorter time to market.

The worldwide-operating Siemens Services support users to get started with simulation. The Service experts structure and implement the digital twin of the machine or production line. If necessary, they advise and train the users. ■

> [siemens.com/simulation](https://www.siemens.com/simulation)



Highlights

Added value over the entire life cycle with simulation and the digital twin

Modular portfolio that exploits the potential of simulation at all levels

Detailed simulation of **multi-physics AGV components**

Commissioning of a **stand-alone AGV**

Simulating **AGVs in the context of a production cell**

SIMATIC ROBOT INTEGRATOR / SIMATIC ROBOT LIBRARY / STANDARD ROBOT COMMAND INTERFACE

New industry standard for communication with robots

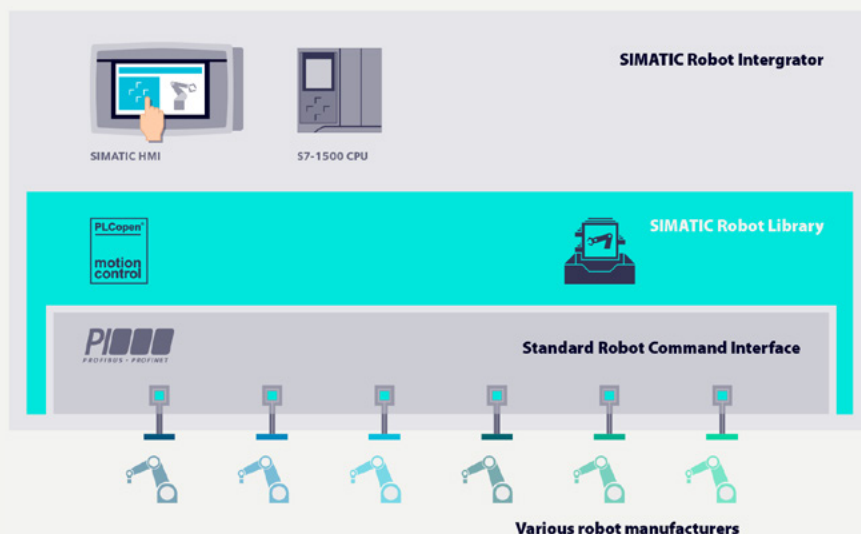
There is a tremendous potential market for robot applications in all areas of industry, a trend that Siemens recognized early on. The Simatic Robot Integrator app makes it possible to integrate robots from many manufacturers into machine concepts quickly and easily using TIA Portal, with no need for external specialists. The Simatic Robot Library has become a quasi standard that meets virtually all major customer requirements. The Simatic Robot Library for the Simatic Robot Integrator is a universal robot library for TIA Portal that replaces earlier manufacturer-specific libraries. It includes the Standard Robot Command Interface that was introduced by the Profibus and Profinet International (PI) organization as the new standard for robot communication.

The Simatic Robot Library was developed in close collaboration with leading robot manufacturers like ABB Robotics, Comau, Epson, Fanuc, Kawasaki Robotics, Kuka, Panasonic Industry, Stäubli, Techman Robot, Yamaha, and Yaskawa. In the future, users will be able to use the library to program most commercially available robots in TIA Portal and integrate them into their machine structures, thanks to uniform operating concepts, with no assistance from external specialists.



The robot manufacturers Comau and Stäubli have already implemented the connection to their controllers and provided the necessary interpreter. The first pilot projects are under way. ■

> [siemens.com/robot-integrator](https://www.siemens.com/robot-integrator)



Highlights

- Uniform interface** between Simatic S7-1500 and robot controllers
- Uniform multivendor **programming in TIA Portal**
- Uniform automation platform** reduces dependence on external robot specialists

TIA PORTAL

Work seamlessly in a team

We know from experience that working in a team is not always easy. Waiting for input from others wastes time and slows down processes, which in turn reduces overall efficiency. For manufacturing companies, this means being less competitive. But working on a project simultaneously and efficiently with multiple colleagues can save valuable engineering and commissioning time during automation projects. TIA Portal offers several optional integrated features for minimizing coordination efforts and parallelizing work processes so that all project participants can work from their own locations.

First of all, users need the free TIA Portal project server that allows them to centrally manage, version, and document automation projects. TIA Portal Multiuser then permits

multiple team members to work on their tasks in parallel or even to collaborate on a specific task during both the engineering and the commissioning phases. With the TIA Portal Teamcenter Gateway option, all machine data can be managed across disciplines, and an automation team can collaboratively engineer a TIA project stored in Teamcenter. UMAC (User Management and Access Control) prevents team members from making unauthorized changes to someone else's subproject. This feature assigns specific roles and rights to the participants and grants personalized access for each deployment. ■

> [siemens.com/tia-portal](https://www.siemens.com/tia-portal)

Highlights

Automatic notification of team members via updates: Everyone knows who is working on a project and who is responsible for changes

Access to a **shared database** that is centrally managed provides for **traceable changes** and **clearly defined workflows** within the team

Storing automation projects on the project server to download the latest versions of individual subprojects locally, process them, and synchronize changes



INDUSTRIAL EDGE

The volume of data in industry is continually growing. Industrial Edge takes full advantage of the potential of data from machines and plants – locally or in the cloud. This not only optimizes processes, it also opens the door to new business models.

EDGE COMPUTING

Simplify shop-floor IT and get more from production data!

Highlights

Efficiently integrates **IT and data processing functions** into automation systems

Enables **automation of IT processes** to make software available scalably and allow it to be used in production

Edge applications for **machine-level data processing, analysis, and sharing**

B2B **marketplace for applications and services** from Siemens and third-party providers

In conjunction with cloud systems, it lays the **groundwork for new business models in mechanical engineering** thanks to the use of apps for global machine data analysis



Edge computing with Industrial Edge
Improve processes by using machine data in real time

Data is the future of industry – that is clear from the rapid developments in the Internet of Things (IoT) in recent years. It is the key to greater productivity, improved efficiency, better use of resources, and much more. Industrial automation systems of the future will need to be agile and quick to adapt in order to meet requirements for faster product development cycles and a faster time to market.

In the future, edge computing will help manufacturing companies connect automation systems to the digital factory even more effectively, in order to transmit any process data that is generated but still unused from the devices to the right (central) locations – for example, to production control or cloud systems – and make better use of it than is possible today. IT market research companies also consider edge

computing technology necessary to overcome many of the challenges of Industry 4.0. Because of huge data volumes and the speed with which they are being generated, but also due to the need for real-time insights and current network restrictions, it is essential to use edge computing solutions and process the data closer to where it is generated.

A key feature of Industrial Edge is local data processing and analysis using edge devices at the production level or directly integrated into the automation portfolio. This can be achieved using the edge-capable Simatic HMI Unified Comfort Panel, for example, with apps that expand the panel functions. The Edge Management System serves as the central infrastructure for managing hundreds of edge devices of all kinds, factory-wide and even worldwide. >

The system can either be installed within the company's own IT infrastructure, which is the preferred solution for users who prioritize data security and control, or in private or public cloud infrastructures. Edge application software and updates such as safety-critical firmware updates can be rolled out centrally and remotely on connected edge devices. Wide-ranging user management helps administrators guarantee high system and software availability for the planned rollout and finely differentiated allocation of rights.

Modernization of a packaging line with Industrial Edge

Perfetti Van Melle is one of the biggest chewing gum and sweets producers in the world. Its consumers' preferences are changing constantly. The Italian company modernized an existing packaging line according to Industry 4.0 principles to create a new product format. The goal of the modernization: to improve working conditions at the packaging line and permanently increase not only productivity, but also quality. An important aspect was to be able to collect production data and process parameters in real time.

To reach this goal, Perfetti Van Melle brought Marchiani on board, an Italian automation specialist that settled on a solution including Industrial Edge. Thanks to ready-to-use applications and integrated open-source software, the solution met all the customer requirements.

Highest transparency about machines and lines at the distributed plants is necessary to make the right decisions. And thanks to the extensive connective features of Industrial Edge, the different devices can be connected without problems and data from the field can be collected, stored, and analyzed. The vertical integration from shop floor to ERP system also enables a precise display of the machine status at any time. Energy consumption or the state of maintenance can be captured, too.

Marchiani and Perfetti Van Melle both appreciate the various advantages of Siemens Industrial Edge: Marchiani benefits from reduced downtime and a quick and intuitive analysis of plant data. Perfetti Van Melle gets an overview of the performance or downtime of a plant in real time – the basis for continuous improvement. ■

> [siemens.com/industrial-edge](https://www.siemens.com/industrial-edge)

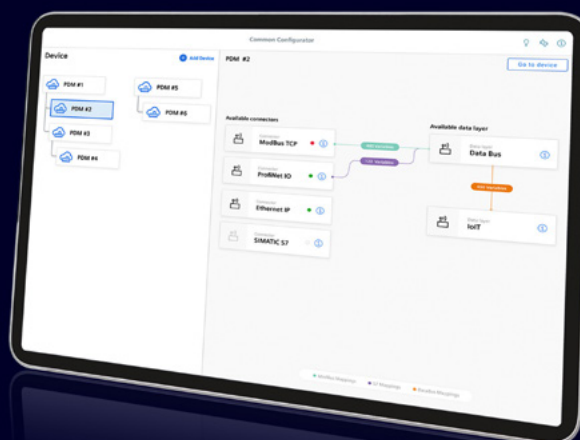


INDUSTRIAL INFORMATION HUB

Data integration at your fingertips

The Industrial Information Hub (IIH) permits storing machine data in a structured manner and setting them into semantic context. The app makes it easy to integrate plants and machines into existing structures. IIH synchronizes information models and values between different OT/IT layers at your fingertips, and changes in information models and values will be updated automatically. For the aggregation of data over several levels, there are appropriate mechanisms that ensure that information is synchronous and available when needed. The app can be put into operation per plug and play without additional configuration effort. ■

› [siemens.com/iiot](https://www.siemens.com/iiot)



Highlights

Structuring of data in asset models via OPC UA

Scalable from shop floor to cloud

Live and historical data access

Secure by design, **vendor independent**, **open API**

INDUSTRIAL EDGE FOR MACHINE TOOLS

Reduce costs in quality management



To ensure that nothing goes wrong on the shop floor in CNC production, Siemens offers Industrial Edge for machine tools, supporting machine operators with quality management functions: Analyze MyWorkpiece /Monitor for continuous monitoring of the processing data, Protect MyMachine /Setup for optical monitoring of the correct insertion of the workpiece with the aid of artificial intelligence, Analyze MyWorkpiece /ToolCheck for optical detection of tool wear, and Analyze MyWorkpiece /Toolpath Visual for visual analysis and optimization of machining. ■

› [siemens.com/sinumerik-edge](https://www.siemens.com/sinumerik-edge)

Highlights

Increased profitability through cost reduction

Increased availability and improved time to market due to reduced need for reworking

More sustainability through the reduction of scrap

MARKETPLACE FOR INDUSTRIAL EDGE

A software and services store: From industry – for industry

An open, cross-vendor app store allows B2B customers to purchase and run software from a single source. The marketplace for Industrial Edge helps users benefit from a simple, standardized shopping experience that is already typical of the B2C sector. In just a few steps, they can fill their app shopping basket, place their order, pay, and use the products they purchased. Another benefit for users is the extensive portfolio of software components from various providers. Products range from data storage, data analysis, data visualization, and machine monitoring to power and asset management.

With help from developers and Siemens partners, the marketplace is gradually being developed so that more apps and services can be added to the available offerings on an ongoing basis. In addition to numerous Siemens applications and services, third-party vendors like Braincube, Tosibox, Cybus, and seiOTec are also offering their Industrial Edge software products through the Siemens Industrial Edge Marketplace. ■

› [siemens.com/industrial-edge-marketplace](https://www.siemens.com/industrial-edge-marketplace)



Highlights

A marketplace for easily finding and purchasing a wide range of **Industrial Edge software products from a variety of vendors**

Provides app developers with **optimal opportunities for accessing the industrial automation market**, thanks to Siemens' global presence

No direct interaction between partners and customers needed to order, pay, or deliver the software – unlike current industry stores

AUTOMATION SYSTEMS

Consistent and efficient: Whether it is a Basic, Advanced Distributed, or a Software Controller, Simatic automation systems offer the right product for any application. Fail-safe redundant models and Motion Control functions ensure even more flexibility.

SIGREEN

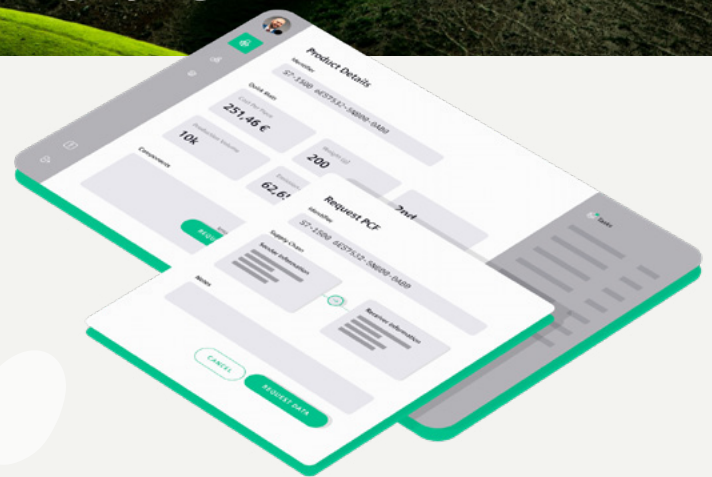
Making your product carbon footprint actionable

The transition to a low-carbon economy is advancing rapidly worldwide. Many companies are already measuring their energy-related emissions, and a growing number are implementing measures to reduce them. The majority of product-related emissions occur in the supply chain, which means that reducing a product's carbon footprint (PCF) requires cooperation along what are often complex supply chains.

As an industrial and software company, Siemens has developed a solution that, instead of quantifying static PCFs, provides companies with dynamic PCFs so that they can actively manage the decarbonization of their products. SiGreen makes it possible to efficiently share emissions data across the supply chain and aggregate them with data from a company's own value creation to generate carbon footprints on product level.

SiGreen connects to the open Estainium network, which is based on a distributed architecture, to exchange trustworthy PCFs. Innovative distributed ledger technology is used to create and exchange cryptographic certificates to verify the data provided and enable a trustworthy aggregation of a product's carbon footprint along the entire supply chain – without the participating companies having to disclose sensitive information. This is how SiGreen provides a trustworthy basis for data-driven reduction measures with quantifiable results. ■

> [siemens.com/sigreen](https://www.siemens.com/sigreen)



Highlights

Real data: Dynamic PCFs allow companies to efficiently manage the decarbonization process

Complete data sovereignty: "Peer to Peer" communication, no analysis, and no access to data by third parties

Interoperability and verifiability: Compatibility with numerous established standards enables an exchange of verifiable PCFs, even across industries

MOTION CONTROL SYSTEM

Full Motion. Easy Control.

Custom products require machines and production lines that can be quickly and easily adjusted to different formats, sizes, product types, and production processes. A precise and dynamic system solution for the Motion Control of electrically driven machine axes that is easy to implement and always flexibly adaptable is becoming a clear differentiator in machine building. Siemens offers users a coordinated Motion Control System consisting of a controller, drives, and motors – all seamlessly integrated into end-to-end engineering with open connectivity between the OT and IT levels – that is optimally prepared to meet the challenges of digitalization.

Thanks to a system solution that includes Simatic controllers, Sinumerik CNC controllers, Sinamics frequency converters, Simotics motors, uniform engineering in the TIA Portal, extensive libraries, and sample applications, users have all the tools and expertise they need to implement Motion Control applications of all sizes and levels of complexity. These include solutions for continuous motion in conveyor technology, for positioning individual axes, for moving multiple mechanically linked axes in handling systems, for precisely



coordinating axis movement in machining processes, and for controlling highly dynamic spindles or feed and auxiliary axes when turning, milling, drilling, and sawing workpieces. ■

> [siemens.com/motion-control](https://www.siemens.com/motion-control)

Highlights

Full performance with a modular, scalable portfolio and the seamless interaction of all components for simple to complex applications

Easy engineering with integrated, user-friendly features for configuration, commissioning, diagnostics, and simulation, along with sample applications and application libraries

Full future viability with comprehensive Motion Control System features on board and a powerful ecosystem

Easy safety with safety integrated in all system components and automatic validation

SIMATIC S7-1500 TECHNOLOGY CPU

More power for Motion Control

Flexible production lines with a high throughput rate must be easy to change over so as to be able to manufacture a wide variety of products quickly. The new Simatic T-CPU 1518T-4 PN/DP and 1518TF-4 PN/DP controllers are an ideal solution for sophisticated high-end Motion Control applications, which are very demanding in terms of performance, axis quantity structures, and cycle times. This means that they're therefore predestined for use in the pharmaceutical field or in machines that manufacture components for electromobility.

Thanks to integrated technology I/Os and powerful communications interfaces, the compact and cost-optimized drive controllers let you create sophisticated machine designs for machines used in the food and packaging industries, for example. The 1504D TF and 1507D TF CPUs now also offer a simulation function with Simatic S7-PLCSIM Advanced. With a realistic function test of the user program, you can detect errors at an early stage and validate its functionality – for a shorter commissioning process and a faster time to market.

Several axes can be controlled in parallel using the gearing and camming technology function for the T-CPU. Thanks to a new type of cam disk with up to 10,000 interpolation points, users can now handle sophisticated demands that require a high level of precision. ■

› [siemens.com/simatic-technology](https://www.siemens.com/simatic-technology)



Highlights

Expanding the controller portfolio:

1518T-4 PN/DP CPU (also available as a fail-safe version) with more memory and performance

Functional expansions for drive controllers:

PLCSIM Advanced, shorter minimum application cycle time, more functions with Sinamics Integrated

Expanding synchronization functions

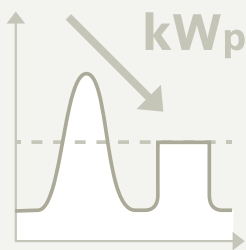
TOOLBOXES FOR EVERY USER

Everything a **machine builder** needs

Highlights

For applications like packaging, handling, metal forming, plastics processing, printing, and finishing, Siemens offers all the right standard applications for implementing simple engineering – and makes machine builders more competitive.

Smart Power Management / SPM Toolbox



With Smart Power Management, Siemens offers a variety of energy storage devices that can be integrated into the DC link of Sinamics drives. This makes it possible, for example, to prevent machine outages due to disruptions in the power grid, reduce load peaks and

therefore infeed power, and store braking energy for efficient reuse. A number of energy storage systems (like electrolytic capacitors, supercaps, and batteries) cover a wide range of machines and

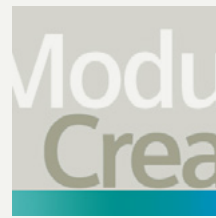
their specific requirements. The Smart Power Management Toolbox, with the SPM Sizer design tool and applications for storage and power management, is available for designing and operating these storage systems.



UPS

> [siemens.com/spm](https://www.siemens.com/spm)

Modular Application Creator

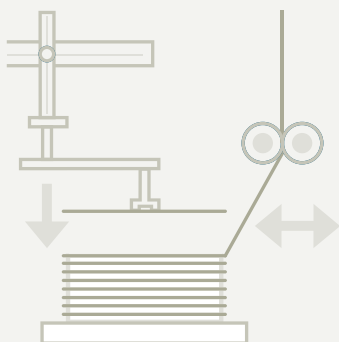


Time and cost pressure in machine building are increasing along with customers' demands for customized products. In an age of short innovation cycles, using a modular

system can significantly reduce engineering time, which in turn shortens the time to market. Standardization is also becoming increasingly important for reducing commissioning time. The Modular Application Creator offers predefined, versioned modules that automatically generate a TIA Portal or Simit project in the background. By reusing Modular Application Creator projects, users can easily modify the engineering software to meet industry-specific requirements – with absolutely no programming. All the parameters are already stored in the Modular Application Creator and can be easily configured via the intuitive user interface.

> [siemens.com/mac](https://www.siemens.com/mac)

Converting Toolbox / Battery Stacking

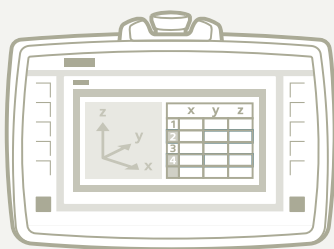


The stacking process is an integral part of almost any battery cell production, and it impacts the quality and productivity of the battery cells. The battery's main components – anode, cathode, and separator film – need to be handled carefully during the process,

and at the same time the requirements for speed, web tension control, and precise drive control are growing. The Battery Stacking function module in the Converting Toolbox greatly simplifies engineering, because functions like coordinating all axes via a virtual master and synchronizing gears and cams are already integrated. Machine-specific manufacturing tolerances are also identified and offset.

> [siemens.com/convertingtoolbox](https://www.siemens.com/convertingtoolbox)

Handling / Simatic Kinematics Integrator



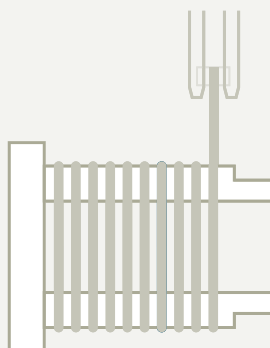
Ever faster product changeovers, smaller batch sizes, and customized products also require fast and flexible handling solutions. The Simatic Kinematics Integrator (SKI) software solution, a feature of the Handling

Toolbox, consists of an executable PLC project with an HMI user interface. Users can employ it to create, process, and execute kinematics programs

either conventionally in TIA Portal or directly at the HMI. Via the HMI, programs can also be loaded to the PLC. Command lists make it easy to program the kinematics path. SKI can be seamlessly integrated into an existing machine project or used as a stand-alone project on a Simatic S7-1500 T-CPU.

> [siemens.com/handling](https://www.siemens.com/handling)

Wire winding / digital twin



The challenge for Elmotec Statomat, a supplier of special machines for manufacturing stators, is to provide end customers with the real production machine along with all the necessary key functions on

schedule. To meet this challenge, the company relies on a digital twin that simulates the highly complex process of a linear winding application across the product's entire lifecycle. Using data, the digital twin can record and visualize all changes. As a result, the winding application is continuously optimized in terms of production and performance. Other benefits of the digital twin include time savings during the construction phase and minimized delays during on-site commissioning, because the different disciplines work in parallel.

> [siemens.com/WireProcessingToolbox](https://www.siemens.com/WireProcessingToolbox)

SIMATIC S7-1500 R/H

Intelligent double protection from failure

Unexpected events can impair the function of a machine or plant functioning itself and also result in unexpected machine downtime or a system outage. Users design protection from such events with the redundant Simatic S7-1500 R and S7-1500 H controllers – as standard or fail-safe CPUs with Profinet as their communication standard. In this way, users can scale their solution depending on the risk of outage: beginning with a standard Simatic S7-1500 CPU to a redundant setup on IO level using the LRedIO library all the way to Simatic S7-1500 R or H CPUs. Two R or H CPUs are needed in all cases – one is active, the other one is the backup. Determining the correct CPU to use mainly depends on the required switchover time. The two smaller CPUs 1513R and 1515R synchronize via a Profinet cable, which allows for a distance of 100 m and a switchover time of 300 ms. The bigger CPUs 1517H and 1518HF sync up with fiber-optic cable and allow for distances of up to 10 km and a much shorter switchover time of just 50 ms. The best of all, programming a redundant Simatic system is now as easy as programming one CPU only – synchronization is a system feature. ■

› [siemens.com/s7-1500-rh](https://www.siemens.com/s7-1500-rh)



Redundant – S7-1500 R



Highly available S7-1500 H

Highlights

Programming via TIA Portal – as a standard **Smart** setup and synchronization of the active and backup CPU – even in fail-safe, redundant applications
Integrated synchronization concept for Simatic S7-1500 R and S7-1500 H

LOGO! CIM

Communication talent



Highlights

Easy **configuration**
 Safe and fast **data exchange**
Worldwide accessibility and remote connectivity

It looks like the LOGO! 8 but it is a versatile logic module in its own right: The new communication module LOGO! CIM offers a wide range of innovative communication possibilities in a single device. LOGO! CIM is very easy to configure because users can access the module via web-based management for commissioning and diagnostics either locally or remotely. The communication module facilitates data exchange with other devices, software, and applications via Ethernet, Modbus RTU/TCP, and Restful API. Connection to cloud services such as AWS is achieved via MQTT and enables detailed visualization, comprehensive monitoring, and fast data exchange. The position of the module LOGO! CIM can be determined based on the signal received by the GPS antenna.

The LOGO! CIM communication module also permits remote communication via mobile wireless networks. This feature can be used to enhance the intruder alarm function, for example, with an alert function that informs users per SMS text messages. ■

› [siemens.com/logo](https://www.siemens.com/logo)

DISTRIBUTED I/O SYSTEMS

Whether Simatic ET 200 is deployed in the control cabinet or right at the machine – it provides a multifunctional, modular, and finely scalable system for distributed automation.

SIMATIC ET 200AL

Safety shutdown with IO-Link modules

New functions have been added to the IO-Link IO modules in the Simatic ET 200AL family. For the first time, users now have IO-Link IO modules that can be shut down safely. What makes this unique is the fact that shutdown is non-interacting – meaning that communication between the IO-Link master and the IO-Link device is maintained after the shutdown, and diagnoses and other activities can still be performed. As a result, the system is more transparent. ■

> [siemens.com/et200al](https://www.siemens.com/et200al)



Highlights

Safety-related shutdown

Protection class: **IP65/67**

Lightweight, flexible, and robust

Compact design

Connection technology: **M8 and M12**

SIMATIC ET 200ECO PN M12-L

Greater connectivity and integration

Highlights

MultiFieldbus function

S2 system redundancy

PCS 7 integration

Protection class **IP65/67**

Synchronous operation

Multi-shared input and output

Safety-related shutdown

Ecolab certification



The MultiFieldbus function for Simatic ET 200eco PN M12-L peripheral devices allows communication with Profinet, Modbus TCP, and EtherNet/IP field-buses. This means that applications can be implemented with different controllers, which in turn increases flexibility and makes integration easier. The S2 system redundancy feature in Simatic ET200eco PN M12-L ensures an uninterrupted exchange of process data in the event of a CPU failure in a redundant CPU system. The IO-Link master also supports this function, so that a large number of IO-Link devices can be integrated into highly available applications.

The Simatic ET 200eco PN block library for Simatic PCS 7 easily and conveniently integrates the devices from the decentralized Simatic ET 200eco PN M12-L peripheral system into the Simatic PCS 7 process control system. This significantly reduces the number of engineering steps and simplifies engineering overall. ■

> [siemens.com/et200ecopn](https://www.siemens.com/et200ecopn)

SIMATIC ET200

Digital transformation of distributed I/O systems

For many companies, data is the foundation for building their processes and business models, including predictive maintenance, optimization of spare part availability, and guaranteed material availability across the entire supply chain. The more data that is available for analysis, the more comprehensive the knowledge generated from it. Today, less than 20% of available data is used for actual automation tasks, and much more remains unused in the field. This is an area with tremendous potential for the future. In conjunction with IT systems and artificial intelligence, data will lay the groundwork for new and optimized processes in the future. For these processes to be implemented, data from the field level has to be made available to IT systems.

This is where the Simatic ET200 distributed I/O system with its connection to all sensors and actuators shows its strengths. With future innovations, however, the I/O system will not just make information available to automation; it will also supply data to all IT systems, including edge and cloud systems, in parallel with the automation process and reaction-free. This makes Simatic ET200 the smart data hub for OT and IT systems. ■

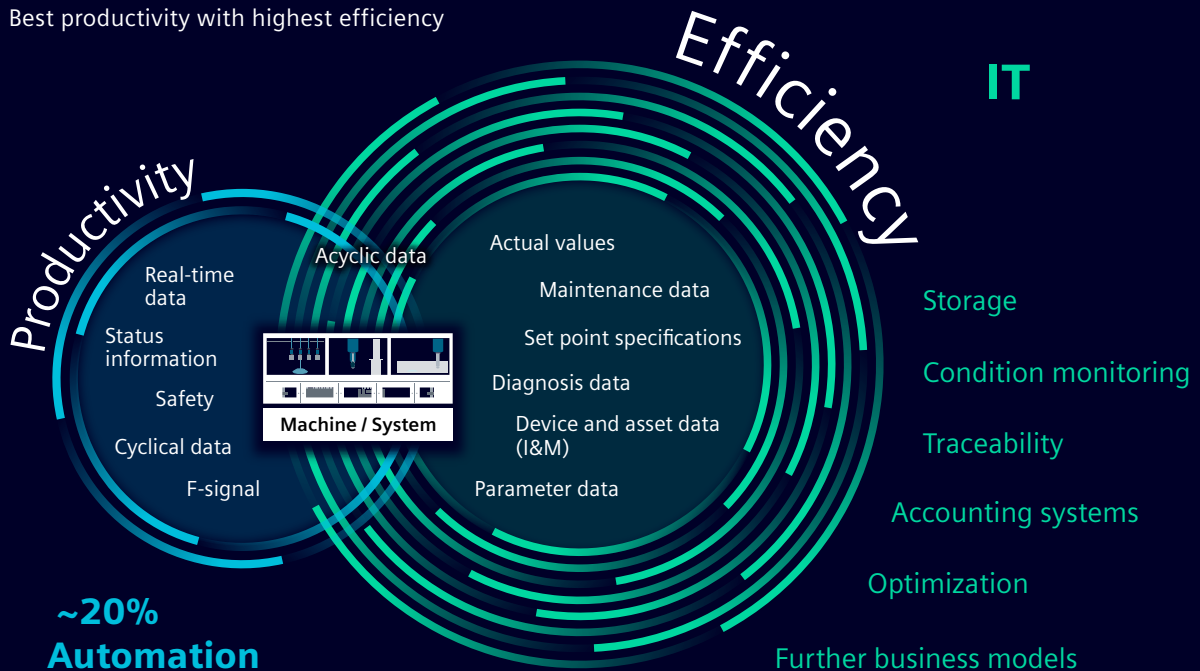
> [siemens.com/et200](https://www.siemens.com/et200)

Highlights

- Access to all **information in the field**
- More knowledge from more data**, creating new opportunities
- Parallel and reaction-free **data transparency for OT and IT**

Digital transformation of I/O systems

Best productivity with highest efficiency



HUMAN MACHINE INTERFACE

The motto “Efficient to a new level” describes an end-to-end portfolio of human-machine interfaces that are optimally tailored to the specific requirements of operator control and monitoring.

SIMATIC WINCC UNIFIED VISUALIZATION SYSTEM V17

Flexible operating concepts with distributed configurations



Highlights

Remote access to images and notifications with WinCC Unified Collaboration

Extremely flexible operating concepts thanks to configuration in the engineering phase

Optimal overview thanks to the seamless integration of images of distributed configurations

Extremely **user-friendly operation**

Employees at manufacturing companies who have to keep an eye on multiple machines and processes can use the Simatic WinCC Unified Collaboration option. WinCC Unified Collaboration allows them to integrate visualizations from other stations into their own visualization. This means that multiple authorized users can access the visualization simultaneously via modern HTML5-compatible web browsers and operate the machine locally, independent of the display on-site – without having to install more applications or programs.

With Update 2, WinCC Unified V17 also supports remote access to displays of reports and parameter sets (Parameter Control option) via Screen Collaboration. This provides users with fast access to an optimal overview and makes operation more

transparent and flexible. The management of parameter sets (selection and download) is typically distributed over several machines and is also performed on the machine on-site. In the future, Screen Collaboration will allow users to manage reports and parameter sets from other Unified stations by linking the image to the local Parameter Control display on another (for example, central) station. This link is defined as part of engineering. Alternatively, the parameters set in an entire plant can be managed on a central station and accessed from local stations via remote operation using Screen Collaboration. ■

> [siemens.com/wincc-unified](https://www.siemens.com/wincc-unified)

INDUSTRIAL PC

PC-based automation enables the implementation of applications and solutions that reach far beyond the functions of traditional control systems. Simatic IPCs provide a flexible and innovative platform with long-term availability that allows machine builders to easily master the challenges of the digital factory.

SIMATIC IPC BX-39A/PX-39A

The A-team of the digital dimension



The Simatic IPC hardware family is continuously evolving. Now a new device generation is being introduced: Generation A, the A-team of the digital dimension. It includes the Simatic IPC BX-39A Box PC, and Simatic IPC PX-39A Panel PC. The family will continue to grow with every new-generation Simatic IPC.

Why Generation A? Because a new era is dawning for Simatic IPCs. All new devices in the Simatic IPC portfolio now have a clearly structured and future-oriented nomenclature that indicates the devices' essential features. Depending on the device, this (box, panel, rack), CPU performance class, mechanical indicator for the number of height units, flexibility index, display size, and generation name. In the new generation of devices, the generation name will always start with "A," regardless of what letters were assigned to the previous version.

The Simatic IPC BX/PX-39A provides users with a platform for AI applications and automation solutions. Thanks to the latest Intel Tigerlake-H technology, the fan-less and maintenance-free

embedded PCs excel with higher productivity and a smaller footprint. The IPCs can be updated via remote access and remote diagnostics as needed through a secure connection, regardless of their location and with no additional hardware required. ■

› [siemens.com/ipc](https://www.siemens.com/ipc)

› [siemens.com/bx-39a](https://www.siemens.com/bx-39a)

› [siemens.com/px-39a](https://www.siemens.com/px-39a)

Highlights

High performance: up to 32 GB DDR4 RAM

High flexibility: 4 × GB Ethernet, dual monitoring with 2 × display ports, 2 × M.2 extension slots, up to 2 × PCIe 4th generation

Support for **remote access; flexible installation options**

DRIVE SYSTEMS

Siemens offers complete drive solutions that can be seamlessly integrated in any automation environment throughout the entire lifecycle. Today, digitally supported drive technology is creating new dimensions in transparency – for greater efficiency, reliability, and productivity.

SINAMICS S220 BOOKSIZE SMART LINE MODULE**High performance and fit for the future**

The Sinamics S220 Booksize features several innovations, starting with the first Smart Line modules in the 16- and 24-kW performance range. The two modules are available in a C-type version (200% overload capacity) and a D-type (300% overload capacity) to permit more customized dimensioning. The extremely cost-efficient design can be modified to meet many user requirements. The Sinamics S220 Booksize is also impressive for its scalability and performance data. In addition to a high overload capacity, it offers a broad portfolio of rated power tailored to the majority of applications. Along with electrical innovations, the new modules have also been enhanced mechanically. The result is easier installation in the control cabinet, greater reliability due to an improved EMC concept, and increased energy efficiency thanks to variable-speed fans. The Sinamics S220 is ready for the IIoT, which makes it fit for the future. It provides users with not just one drive but many when they take advantage of Siemens' full support – from TIA Portal to the TIA Selection Tool. ■

> [siemens.com/sinamics-s220](https://www.siemens.com/sinamics-s220)

Highlights

Higher power density saves space in the control cabinet

Full integration in **TIA Portal Sinamics Startdrive**
Drive design in the **TIA Selection Tool**

SIEMENS PRODUCT CONFIGURATOR**Best buddy** in product configuration

The Siemens Product Configurator supports users in configuring the optimal drive products for their application, ranging from gears, motors, converters to related options and components to controllers, software licenses, and connection technology. With this new smart tool and thanks to simple pre-selection and guided navigation, users get directly to the appropriate product. The Siemens Product Configurator is seamlessly integrated in the tool landscape and the order process. The intuitive design makes the Product Configurator exceptionally user-friendly. ■

> [siemens.com/product-configurator](https://www.siemens.com/product-configurator)

Highlights

One central selection and configuration tool for all drive products

Easy and fast **creation of documentation**

Can be ordered directly through **Siemens Industry Mall**

Efficient use from the very start **without expert knowledge**



SINASAVE

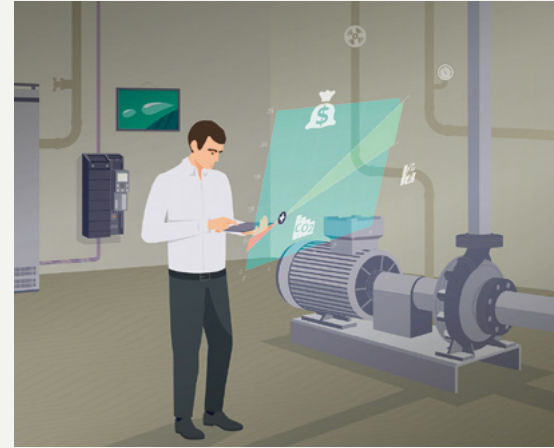
Calculate potential energy savings quickly and easily

SinaSave is a web tool that is intuitive to operate and answers users' key questions before they make an investment decision: Is it worthwhile to use more efficient technology? What do higher energy efficiency classes offer? What is the advantage of using a converter with pump or fan drives? When will my investment pay off? SinaSave does more than just calculate potential energy and CO₂ savings, return on investment (ROI), and total cost of ownership (TCO) for individual motors and drive systems. This tool lets users derive savings for entire plants with numerous individual motors and/or drive systems. Users obtain the above-mentioned KPIs for their entire

efficiency project. Graphic diagrams like a display of system power losses according to IEC 61800-9-2 provide transparency and make it easier to reach informed investment decisions. ■

Test SinaSave with your own operating hours and energy prices at

› [siemens.com/tools-sinasave](https://www.siemens.com/tools-sinasave)



Highlights

Intuitive operation thanks to a simple design and graphic display of results

Seamless workflow for configuration, technical documentation of products, and the ordering process

Save, load, and export a handout – for customers or decision-makers



ADDITIVE MANUFACTURING

Less is more

A long range is an important argument when purchasing an electric vehicle today, but it is also a technological challenge. One critical lever for increasing range is weight reduction throughout the vehicle's design. Additive manufacturing (AM) offers innovative options for the resource-efficient implementation of function- and weight-optimized components that can be used in a variety of industries.

To successfully implement and industrialize these applications, all elements in the value chain need to be taken into

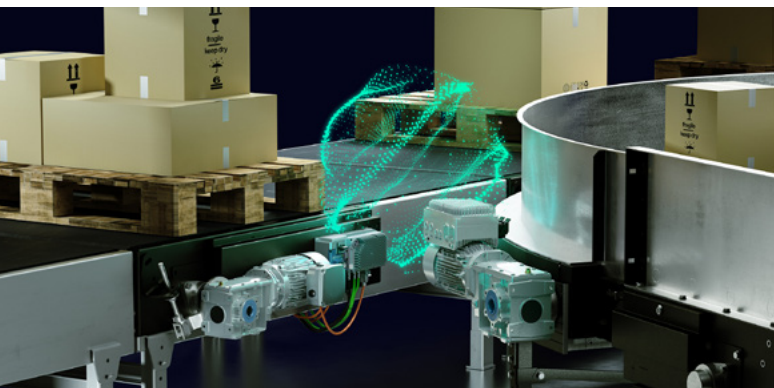
account and integrated – from the selection of optimal AM technology for the application, optimization and validation of the component design, and automation and monitoring of the machine and production line to the planning and smart financing of an entire AM factory. Siemens offers solutions across the entire value chain in close collaboration with partners using an ecosystem approach. ■

› [siemens.com/additive-manufacturing](https://www.siemens.com/additive-manufacturing)

Highlights

Weight reduced by over 30%

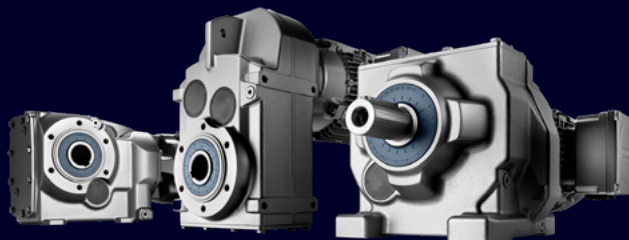
Resource-efficient production thanks to **reduced material consumption** and **distributed manufacturing**

SINAMICS G115D**Improved performance and flexibility****Highlights****Derating compensation****Temperature range improvement****EPLAN macros** for simplified engineering

The recently introduced distributed system Sinamics G115D, especially suitable for horizontal conveyor applications, has received several interesting improvements. First of them is the derating compensation. The converter in the wall-mounted version can be over-dimensioned by up to two stages to compensate for derating, e.g. due to increased ambient temperature. The temperature range improvement is also achieved thanks to a new performance update for the wall-mounted system.

More comfort during the preparation phase for engineering is achieved by newly available EPLAN macros. Users can download EPLAN macros for the motor-mounted version in two formats for the Profinet version with brake and temperature sensor. For the wall-mounted version, complete EPLAN macros are available. For more flexibility, new connector combinations for Sinamics G115D were released. Adding to it is a system platform with the same look and feel, available in two versions, to precisely fit every horizontal movement motion control application for both motor-mounted and wall-mounted versions. ■

› [siemens.com/sinamics-g115d](https://www.siemens.com/sinamics-g115d)

SIMOGEAR**More safety integrated**

Drive-Cliq encoders for Simogear geared motors have been released in the first steps in conjunction with synchronous reluctance motors. They are designed to supplement the encoder portfolio with digital absolute encoders (single-turn and multiturn), also as a functionally safe version. The new encoders are especially interesting for users who value precise positioning and therefore use systems with Sinamics S120.

For risk minimization, Safety Integrated comes into play in the form of the new safety-evaluated brake. The brake is designed for use in machines and plants without brackets in typical industrial environments. It can be used in typical conveyor technology applications, e.g. intralogistics or automotive. The brake certification is based on the standards DIN EN ISO 13849-1 and IEC 61508-1. The brake is TÜV certified and available in different voltage variants. The combination with Sinamics safety functions like Safe Brake Control (SBC) and Safe Brake Test (SBT) provides users the right solution for their applications. ■

› [siemens.com/simogear](https://www.siemens.com/simogear)

Highlights

Automatic configuration and fast commissioning with Drive-Cliq through electronic rating plates

Fullfillment of safety requirements with safety-evaluated brake and with safe Drive-Cliq Encoder

Engineering, configuration, and selection in the **DT Configurator** and **TIA Selection Tool**

ENERGY-EFFICIENT DRIVE SYSTEMS

Overall approach for more efficiency

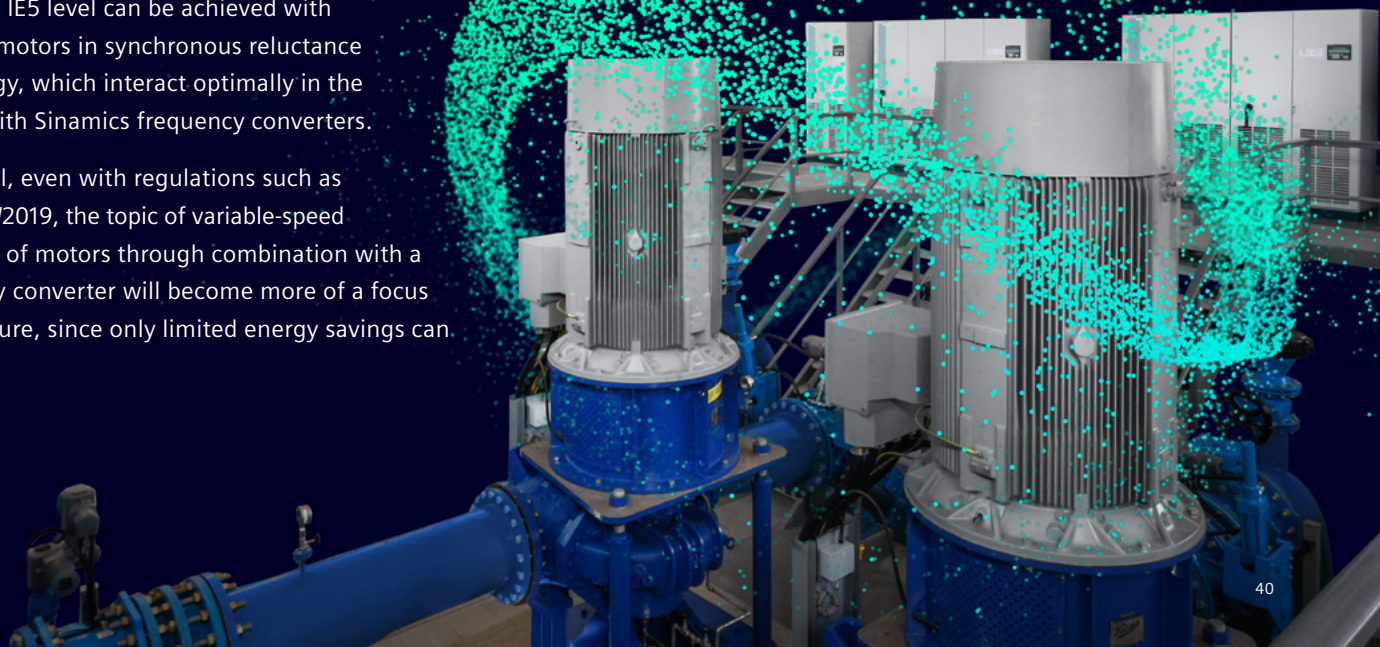
All industries focus increasingly on the economical and, above all, sustainable operation of plants. The aim is to develop modern plant concepts that protects not only the operator's wallet, but also the environment, counteracting global climate change by minimizing CO₂ emissions. The most important lever here is clearly drive technology, which accounts for around 70% of industrial electrical energy consumption.

With a multilayered concept from the product through the system up to the overall optimization, impressing untapped savings potential can be realized. The basis for this overall energy optimization of an industrial plant is provided by the use of electric motors with very high efficiencies. This is also reflected in legislation. For example, with its new Commission Regulation (EU) 1781/2019, the European Union will make the very-high-efficiency class IE4 "Super Premium Efficiency" mandatory for medium-voltage motors of 75–200 kW for the first time from the middle of next year.

To be future-proof and increase sustainability, the Simotics low-voltage motor family is once again going well beyond these future requirements: With IE4 "Super Premium Efficiency", it already covers a significantly larger power range than is required, from 2.2 to 1,000 kW. To complement this, the Simotics motor family now also offers solutions in the even higher IE5 "Ultra Premium Efficiency" efficiency class, which will be further expanded step by step. This IE5 level can be achieved with Simotics motors in synchronous reluctance technology, which interact optimally in the system with Sinamics frequency converters.

In general, even with regulations such as (EU) 1781/2019, the topic of variable-speed operation of motors through combination with a frequency converter will become more of a focus in the future, since only limited energy savings can

be achieved through the motor efficiencies alone. From mid-2023, there will be clear regulation for the use of frequency converters here, for example through the definition of seven load points, through which the energetic behavior of the motor is mapped during partial load operation. And for good reasons: Particularly in the case of flow machines such as pumps, fans, and compressors, which account for around three-quarters of all industrial electric motor applications, large energy-saving potentials can be leveraged through variable-speed operation, often in the higher double-digit percentage range. In the development of Simotics motors and Sinamics frequency converters, particular attention was paid to ensuring that the motor and frequency converter are optimally matched, because only then do such variable-speed drive systems work effectively. In addition, application-specific, efficiency-increasing functions are integrated in the converter software such as ECO mode, cascade function, pump control, or hibernation mode. The synchronous reluctance technology can also offer great advantages in this environment. Especially in partial-load operation, this technology achieves consistently very high efficiencies over the entire speed setting range. >



The third, decisive step towards extremely efficient drive systems is the holistic system approach, which increases the savings potential to up to 60%. This goes beyond optimizing the components and their interaction. Above all, it includes digitalization solutions for recording, visualizing, analyzing, and optimizing energy flows and requirements. Service offerings support the operator in fully exploiting all potential savings, and virtual simulations enable precise dimensioning of the drive system and its components. Integrated digitalization solutions often use intelligent sensors that save up to 10% of process energy through data analysis and the optimization of complex processes, increase the service life of the components in the system by up to 30%, and also increase productivity in the production process by 8–12% as part of an Industrial Internet of Things (IIoT) network. At the same time, digital tools such as SinaSave offer opportunities throughout the powertrain to curb CO₂ emissions – while reducing life-cycle costs. One example of a service offering to improve the

energy efficiency of the drive system and the entire plant is Energy Performance Contracting. This covers all steps from analysis, design, and implementation to operation. Due to the efficiency gains achieved, no investment needs to be made because the service is self-financing and realizes a direct return on investment. This ensures economic success as well as sustainability in operations. The virtual simulations make it possible to select and optimize drive components precisely and to prevent in advance over-dimensioning or other planning mistakes that are unfavorable for the energy balance. ■

> [siemens.com/energy-efficiency](https://www.siemens.com/energy-efficiency)

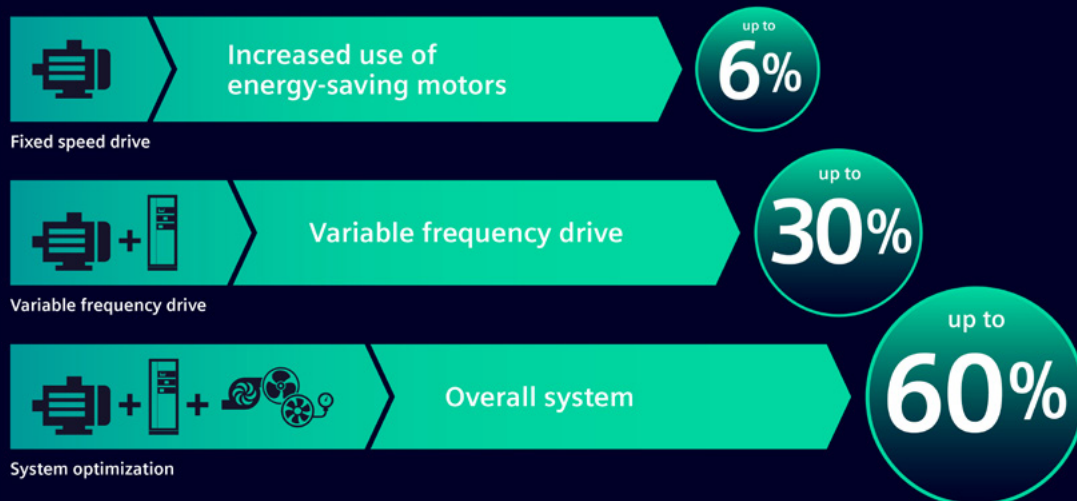
Highlights

Comprehensive offering in IE4,
ready for IE5

Additional saving instruments

beyond the hardware level:
digitalization, simulation, and services

Up to **60% less energy** than
conventional solutions



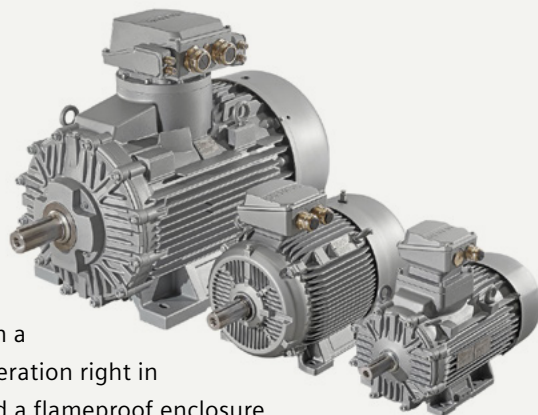
SIMOTICS XP

Ready for new challenges

Explosion-protected Simotics XP motors are a perfect fit for all applications in hazardous environments. Moreover, they are ready for new challenges and markets. They meet the new and stricter efficiency requirements and exceed them in many cases. Motors with increased safety (Ex eb) would not have to meet efficiency class IE2 until 2023; Siemens already offers the higher efficiency class IE3 throughout. Another example is the industry-specific Simotics XP Chemstar version, which complies with the new and increasingly important standard of the International Association of Oil & Gas Producers (IOGP). Marine certificates and CX-certified paint finishes make these motors ideal for offshore use and deployment in the liquefied natural gas (LNG) industry. Last but not least, Simotics XP offers a complete portfolio for all process steps in the rapidly emerging hydrogen industry, from production and transportation to storage and the end-use application. Due to the hazardous nature of these gases, ignition protection is required for Ex Zone 1, gas group IIC. Simotics XP offers the ignition protection classes' increased

safety (Ex eb), with a focus on operation right in the grid, and a flameproof enclosure (Ex db). If desired, they can be operated with any frequency converter up to 690 V at variable speeds. ■

► [siemens.com/simotics-xp](https://www.siemens.com/simotics-xp)



Highlights

High efficiency levels: efficiency classes IE3 and IE4

Comprehensive offering for Zone 1: Ex eb from 0.25 to 165 kW; Ex db from 0.09 to 460 kW

Global, local, and marine certificates: ATEX, IECEx, VIK, DNV GL, BV, ABS, and more

Also for use in extreme environmental conditions: protection classes up to IP66, temperatures from -55°C to +60°C

SIMATIC MICRO-DRIVE

Drive system for the safety extra-low voltage range

Simatic Micro-Drive – the safe, integrated drive system for the safety extra-low voltage range from 24 V to 48 V DC – is suitable for a wide range of applications, including precise positioning, shuttles for storage systems, automated guided vehicles (AGVs), and much more. Top performance is ensured by features such as its compact design and easy cabling and assembly, with Safety Integrated for maximum safety. The performance of PDC Drives and TM Drives complement each other perfectly. The new F-TM ServoDrive HF technology module optimally completes the TM Drives portfolio. Both EC motors with rated power of 280 W and stepper motors can be



Highlights

Safety extra-low voltage range: **24 to 48 V DC**

I_{nom} : **5 A**, I_{max} : **15 A**

Safety: **hardwired STO** (safe torque off) **SIL3**

High power density: 20 mm wide

controlled by the module in the smallest of spaces. Three-times overload capacity and support for Biss-C encoders make the F-TM ServoDrive HF the high-end device among TM Drives. ■

► [siemens.com/micro-drive](https://www.siemens.com/micro-drive)

PROCESS AUTOMATION

From integrated engineering to integrated operations: With the solutions for process automation, users benefit from the digitalization of their plant, production, and processes over the entire lifecycle. The foundation is a comprehensive, integrated portfolio, a broad range of services, and industry expertise.

SIEMENS DIGITAL WORKER

Get real work done digitally



Although the digital transformation of the process industry is in full swing, digitalization in the field often still lags behind operational reality. This is where the Siemens Digital Worker can play a crucial role.

The Digital Worker brings together the virtual and real worlds via mobile devices like laptops, tablets, smartphones, and smart glasses. This intuitively operable software concept replaces time-consuming analog processes that make workflows in the field slower. For example, the Digital Worker can make a maintenance task easier by providing necessary data such as instructions, checklists, and technical documentation. It can also guide employees to the relevant systems on-site and provide context-based information like the maintenance history or the current condition of the systems in near-real

time. Whether commissioning field devices, performing quality checks, or maintenance inquiries, the Digital Worker not only makes the job easier, it also offers improved data quality and security. For example, all people, tools, and equipment in the plant can be tracked via GPS, which could even save lives in case of a serious accident.

With the Digital Worker, data management and consolidation of information is handled by an application server, either cloud-based or on-site. It makes task-specific information available, and how it is displayed on the mobile devices is also configured for the tasks in question. This includes augmented reality services that help enrich real environments with digital content. ■

> [siemens.com/digital-worker](https://www.siemens.com/digital-worker)

Highlights

Huge potential for **greater efficiency, security, ease of operation, and data quality**

Application server enables **flexible implementation in any data environment**

Automated and digital documentation that is paperless and sustainable

OPCENTER EXECUTION PHARMA

Streamlining pharma production



In the pharmaceutical industry, millions of vaccine doses are being produced every day and makers are turning to digitalization to speed things up. Digitalization helps significantly accelerate the development process as well as manufacturing.

The orchestration of development and production requires a powerful manufacturing execution system (MES): Opcenter Execution Pharma seamlessly integrates MES functionality, automation, and enterprise resource planning (ERP) systems. It enables streamlining of processes and operations in full compliance with regulations thanks to completely paperless manufacturing and fully electronic batch recording. It is the constantly evolving digital platform that helps pharmaceutical companies develop and produce new drugs and vaccines faster than ever.

Specific pharma apps leverage the data collected throughout the process to further enable batch release by exception. The suite lets you improve quality and reduces time to react after a deviation, enables remote shift management and control, and facilitates review by exception focusing on relevant data only. ■

> [siemens.com/opcenter-pharma](https://www.siemens.com/opcenter-pharma)

Highlights

Acceleration of operations in R&D and production through **paperless manufacturing**

Innovative eBR App Suite:

- eBatch Operator for reconciliation, compounding, and equipment management
- eBatch Reviewer to review batches directly on mobile devices in real time
- eLogbook Manager to easily access logbooks from anywhere

Develop, use, and reuse standard processes and sub-processes without any IT skills

Faster and safer data acquisition thanks to a guided and controlled paperless process



Highlights

Sophisticated AI models for **detecting behavior deviations** of equipment and processes

Expert templates with consolidated knowledge

Integrated AI algorithms for different process categories

SIEMENS PREDICTIVE ANALYTICS

Improving maintenance and production **using AI**

Artificial intelligence (AI) plays a growing and important role in process plants. Integrating machine learning algorithms into current products – like in the Siemens Predictive Analytics (SiePA) app – was a natural step for Siemens to help users further overcome challenges in the process industry.

With the help of SiePA, users monitor their rotating equipment and the continuous processes around them, getting early alerts in case of any deviations from known behaviors. This allows failures of any kind to be analyzed and resolved. Because SiePA relies on sensor data to predict machine failures, the app helps users decide whether any corrective measures can be applied as part of an improved

maintenance strategy. With the upcoming Version 3.0, SiePA can also make predictions of failures based on analyzing raw vibration data.

High quality demands, cost pressures, continuous specification changes, and final usage requirements for chemical production was the trigger for the execution of SiePA for batch processes. The first global release focuses on batch production transparency, optimal Golden Batch identification, and real-time detection of anomalies powered by AI. As technology evolves, new opportunities arise to improve plant strategy, production, and overall system profitability for the customers. ■

› [siemens.com/industry-suites](https://www.siemens.com/industry-suites)

ASSET PERFORMANCE SUITE

Asset intelligence for plants and fleets

Asset Performance Suite from Siemens helps operators and owners of plants in the process industry to reach for maximum operational efficiency. The focus thereby is on plant asset management supported by artificial intelligence (AI). By using engineering, process, and diagnostic data from different sources, Asset Performance Suite leverages the hidden value contained in the data with almost zero engineering and configuration effort. That makes plant asset management cost-efficient in both – CAPEX and OPEX – offering a 360° view of all plant assets.

With enhanced connectivity and deployment options, Asset Performance Suite provides more flexibility either as a SaaS offering running on AWS and MS Azure or as an on-premises solution running on Industrial Edge. This gives users a lot of opportunities: They can create their own customized dashboards for a personalized user experience or develop their own applications based on the semantically enriched and contextualized

domain information. New functions and enhancements are constantly being added to help pave the way to autonomous plant management. ■

> [siemens.com/industry-suites](https://www.siemens.com/industry-suites)

Highlights

Contextualizing, managing, and analyzing data across the whole fleet

Zero onboarding, resulting in 20 times faster data integration

Boosting asset performance and identifying root causes through **holistic data-driven analytics**

Navigate with the **Smart Search function** across fleets, plants, subplants, and assets

AI-based analytics (of structure and device lifecycle) and optimization (NAMUR)



PROCESS INSTRUMENTATION AND ANALYTICS

Process instrumentation and analytics from Siemens provide holistic solutions from a single source. The intelligent Sitrans instruments are also designed for seamless interplay with the larger world of industrial automation and control systems – enabling greater process transparency and smarter decisions for your business.

SITRANS ANALYZER INTELLIGENCE DIRECTOR IQ

Predictive maintenance for process analytics

Unexpected downtime is one of the biggest challenges in process analytics – and not just for the customer service. In the worst case it can lead to production downtime, lower product quality, or noncompliance with legal emission requirements.

Now there is a new software solution for Siemens gas analyzers which enables predictive maintenance: Sitrans Analyzer Intelligence Director IQ (Sitrans AID IQ) continuously evaluates the internal health data of the devices, makes this data available, and uses predefined functions to detect emerging problems in the analyzers. In this way, a failure of elementary physical components can be identified at such an early stage that the service department has enough time to initiate appropriate steps such as contacting the Siemens expert and ordering spare parts.

Sitrans AID IQ not only provides the diagnosis, but also offers suggestions for remedial action. This makes the software a useful tool for operators of Siemens process analyzers to ensure a stress-free and proper working of the devices. ■

> [siemens.com/sitransaidiq](https://www.siemens.com/sitransaidiq)



Highlights

Provision of all health data of the devices, including consideration of the NOA standard

Statistical analysis of data for **early detection of emerging issues**

Identification of the cause of error and provision of solution paths

Modern and clear user interface via browser or Siemens HMI

Plug and play for **fast and easy installation**

INDUSTRIAL COMMUNICATION

As a basis for the digital transformation, Siemens offers the right solution for every network level from field to IT connection. With the solution portfolio consisting of hardware, software, and services, digital enterprises can master challenges such as cloud/edge computing, wireless applications with Wi-Fi 6 and 5G, and everything ranging from network planning to commissioning.

ZERO TRUST / ZSCALER INC.

OT/IT security concept for production and office networks



Operators of larger corporate networks are increasingly faced with the challenge of performing production work remotely using uniform OT (operational technology) and IT (information technology) security guidelines. Siemens and Zscaler Inc., provider of a cloud-based security platform, have entered into a collaboration agreement that makes it possible to access production networks securely from any authorized device, whether it is at the office or at home: for example, to conduct remote diagnostics. To prevent exposing the communication network to an increased threat potential, the defense-in-depth OT concept has been expanded to include the Zero Trust IT security concept. This means that access authorization and identification of connection requests can also be used in production and combined with established cell protection firewalls. Users simply install the cloud-based remote access service "Zscaler Private Access" (ZPA) – which is operated via the "Zscaler

Zero Trust Exchange" platform – as a docker container on the Scalance LPE local processing engine. Centralized management on the "Zscaler Zero Trust Exchange" cloud platform and exclusive use of outbound connections result in a more restrictive configuration of existing firewall rules. Existing legacy systems can be easily retrofitted. ■

> [siemens.com/zero-trust](https://www.siemens.com/zero-trust)

Highlights

Increased protection from cyberattacks

thanks to a combination of cell protection and Zero Trust principles

Boost in productivity thanks to flexible, dynamic, on-demand remote access

Reduced operating costs thanks to minimized administration outlay



INTEGRATED SECURITY SOLUTION WITH SCALANCE LPE

Anomaly-based intrusion detection for industry

Digital transformation for industry based on reliable OT (operational technology) networks needs efficient security solutions. Furthermore, deterministic OT communications have special security considerations. For instance, the security hardware should be rated for industrial environments and operate reliably without batteries for minimal maintenance. Moreover, the software must provide maximum transparency without network disruptions, especially when the cyberthreat is internal.

Passive anomaly-based intrusion detection with Guardian and Central Management Console from Nozomi Networks in combination with Scalance LPE offers a simple, integrated approach to monitor, detect, and respond to threats within the network. You can deploy Nozomi's Remote Collector on the Scalance LPE within trusted zones of the network. The overall solution provides security personnel with context-based smart alerts to respond to anomalies in real time, always keeping your production environment safe and operational. ■

Highlights

Complete visibility on OT/IoT assets and processes

Passive – **no downtime** during installation and operation

Single trusted source for hardware, software, and service

› [siemens.com/lpe](https://www.siemens.com/lpe)

RUGGEDCOM APE1808

End-to-end security for critical infrastructure

Cybersecurity regulations governing industrial control systems in electric power, transportation, oil and gas, etc. are designed to ensure high reliability and availability of these critical networks in the face of rapidly rising cyberthreats. To address their unique challenges, Siemens has partnered globally with cybersecurity leaders and combined its rugged hardware and OT (operational technology) expertise with their software.

The Ruggedcom APE1808 is an industrial application processing engine with an Intel quad core CPU that plugs into the modular Ruggedcom RX1500 series routers. It offers a standards-based platform to deploy next-generation firewall, intrusion prevention system, intrusion detection system, secure access management, and other advanced security applications at the OT edge.

This integrated approach ensures ease of maintenance from a hardware as well as a software perspective and sustains its relevance over the long term. ■

› [siemens.com/ruggedcom/cybersecurity](https://www.siemens.com/ruggedcom/cybersecurity)



Highlights

Reliable operation between –40°C and +85°C in high EMI and vibration environments

Streamlined procurement, deployment, and field upgrades **from a single trusted source**

Future-proof, scalable, and cost-effective cybersecurity solution

RUGGEDCOM APE, SCALANCE LPE, RUGGEDCOM RX1400

Edge computing for industrial environments

As edge computing creates new opportunities for industries, the demand to run applications at the edge using high-performance industrial-grade devices is growing. Essential in IIoT solutions, Ruggedcom APE, Scalance LPE, and Ruggedcom RX1400 provide a reliable, flexible, and secure platform for deploying Siemens and third-party edge computing applications into networks in industrial and harsh environments. This brings intelligence and data processing closer to the source in real time. Additional applications can be installed for predictive maintenance, secure remote access, network management, and anomaly-based intrusion detection. Siemens provides cost-effective and

customized solutions that help businesses make informed decisions while improving operational efficiency, openness, and security. ■

- > [siemens.com/ape](https://www.siemens.com/ape)
- > [siemens.com/lpe](https://www.siemens.com/lpe)



Highlights

Ruggedcom APE for the RX1500 family:

Intel quad core-based application-hosting platform

Scalance LPE: local processing engine with powerful CPU

Ruggedcom RX1400 + VPE: ARM-based virtual processing environment

Easy integration of edge applications including solutions for open sources

Improved network performance due to reduced latency



SIMATIC RTU3000C

Easily transmit data from field devices to the cloud

To enjoy the benefits of digitalization, cloud connectivity is essential. With firmware V5.0, RTU3000C remote terminal units can be combined with all standard cloud systems like MindSphere, Microsoft Azure, and AWS via MQTT.

In addition to telecontrol, this expands the range of potential applications for Simatic RTU3000C to include cloud

solutions combined in a single device. In addition to monitoring process data from the RTU (remote terminal unit), users take advantage of all the benefits offered by cloud systems: data (or big data) analysis to improve process quality, identify malfunctions, and perform preventive maintenance, in conjunction with data from other data sources. ■

- > [siemens.com/rtu3000c](https://www.siemens.com/rtu3000c)

Highlights

Support for a number of protocols: **DNP3, IEC 60870, TeleControl Basic, Sinaut ST7, or new: MQTT**

Peripheral devices and sensor technology can be connected via **local I/Os and HART/Modbus RTU**

Low-power operation, electricity supply via **battery, solar panel, or external 12/24-V power supply**

POWER OVER ETHERNET PORTFOLIO WITH SCALANCE AND RUGGEDCOM

More power and data for industrial applications



The reliability and cost-effectiveness of providing data and power over a single cable have driven the adoption of Power over Ethernet (PoE) in industry. Siemens is leading this trend with Scalance XC-200PoE, XR-100PoE WG, XR-300PoE WG and the utility-grade Ruggedcom RST916P and RST2228P Industrial Ethernet switches.

PoE-capable Scalance X switches are used in various sectors including automation technology, infrastructure and tunnel applications, and transportation. The existing 8-port versions of the Scalance XC-200 line are added with different Scalance XC216-3G PoE devices with 19 ports. This permits a maximum power budget of 300 W that can be individually distributed to the PoE ports. With a total of 14 PoE ports – 12 with up to 30 W of power and two with up to 60 W, end devices can be optimally connected, for example, in automotive productions.

For a PoE solution that needs to withstand harsh conditions and temperature fluctuations from -40°C to $+85^{\circ}\text{C}$, the Ruggedcom portfolio offers several high PoE port density and high bandwidth options. For space-constrained locations, especially transportation networks, the compact, 16-port RST916P layer 2 Ethernet switch with a total PoE power budget of 420 W is ideal. The 500 W-capable Ruggedcom RST2228P is excellently suited for a rack PoE solution. It can be powered with the Ruggedcom RPS2410, a 600 W rackmount PoE power supply. 10 Gbps uplinks, redundant power input, and gigabit bandwidth over distances exceeding 100 km ensure reliable communications for mission-critical applications. ■

› [siemens.com/poe](https://www.siemens.com/poe)

Highlights

Broad PoE portfolio consisting of switches, power supplies, and end devices

PoE switches in **24 V DC** or **54 V DC** versions

Up to 60 W per port for multiple PoE-capable end devices using the latest **IEEE 802.3bt** standard

SCALANCE MUM856-1 AND MUM853-1

Industrial 5G routers for Industry 4.0

5G is the communication standard that will raise future Industry 4.0 and IIoT applications to a whole new level. The highest data rates, maximum reliability, and lowest latencies will enable new potential applications in industry. For example, 5G lets users implement augmented reality applications for service technicians, autonomous logistics systems, and mobile robots. And it is possible to remotely upload firmware updated to machines.

Scalance MUM856-1 and MUM853-1 will bring 5G to the industrial space. These 5G routers allow for

the connection of machines, control elements, and other devices to private 5G campus networks and public 5G mobile wireless networks. Development was focused on the special hardware requirements of industry. The devices support Release 15 of the 5G standard and deliver data rates of up to 1 Gbit/s. This makes Scalance MUM856-1 and MUM853-1 the next step on the journey to the industry of tomorrow. ■

[siemens.com/industrial-5g-router](https://www.siemens.com/industrial-5g-router)

Highlights

5G communication in **public and private networks**

Fallback to lower mobile wireless standards (3G, 4G) if 5G connectivity is unavailable

Simple VPN remote access via public 5G networks with the Sinema Remote Connect management platform

Robust **IP65 and IP30** housing for industrial use



PRIVATE 5G NETWORKS FOR INDUSTRIAL APPLICATIONS

Test Industrial 5G for yourself



Copyright: Deutsche Messe AG

Highlights

Private 5G networks offer tremendous **benefits for industry**

Operation using **local 5G licenses**

Data security in own hands

5G provides important opportunities for developing flexible new factory concepts in all industries. Private 5G networks in particular offer major advantages for industry. A company can operate the 5G network using a private 5G frequency, which means it can precisely customize the network to meet its requirements for data rates, reliability, and the required latency time. The data also remains on-site in a self-managed network, and the company decides, among other things, which data will be forwarded, for example, to the cloud. At its Automotive Test Center in Nuremberg, Siemens tests industrial applications in a private, stand-alone 5G network that was developed to take the technology to the point where it can be used in industry. Prototypes of this solution were also installed in the factories in Amberg and Karlsruhe.

In 2022 interested parties will be able to test their applications very easily in a private 5G network. The 5G Smart Venue will open in Hanover at the world's largest exhibition site, making this site a test area and a showcase for the use of 5G in industry. Siemens is installing a permanent private 5G network in Hall 9. The 24,000 m² hall provides optimal conditions for large structures and can be leased for the purpose of conducting tests under real conditions when no trade shows are in session. ■

› [siemens.com/industrial-5g](https://www.siemens.com/industrial-5g)

SCALANCE W ACCESS POINTS AND CLIENT MODULE

Versatile IWLAN applications with Wi-Fi 6

Industrial wireless LAN increases flexibility in future-proof modular factories because mobile IIoT devices can connect wirelessly. Scalable industrial WLAN (IWLAN) solutions from Siemens have proved their worth in industry for almost 20 years and enable many applications in all industries – and they now also work with Wi-Fi 6. For example, mobile robots and automated guided vehicles (AGVs) can be conveniently connected wirelessly using powerful Scalance W Access Points and Client Modules. Everything is possible, from small sub-applications to complex plant networking. Experts from Siemens also support the planning, configuration, commissioning, and monitoring of these networks. ■

› [siemens.com/iwlan](https://www.siemens.com/iwlan)

Highlights

New IP30 and IP65 devices with the latest WLAN standard for industry

Special **added industrial functions**, including redundancy via WLAN

Gigabit data rates and highly efficient data transmission

Energy-efficient operation of mobile participants

Global approvals and industry-specific certifications



POWER SUPPLIES

A reliable power supply is a fundamental requirement for efficient plant operation. The portfolio of Sitop DC UPS and add-on modules ensures stable 24 V even under critical grid conditions and prevents plant downtime and production outages in every industry worldwide.

SITOP / SIMATIC TOP CONNECT

Power supplies and system cabling **with Ex approval**

The new standard IEC/EN 60079-15 has been applied to the use of electrical equipment in explosive atmospheres since April 2022. The new Ex portfolio of Sitop power supplies and add-on modules and the Simatic Top connect cabling components meet this new standard in accordance with ATEX and IECEx Zone 2: in other words, where an explosive gas atmosphere is usually either not present or is present only temporarily. To meet this standard, some devices contain coated PCBs (conformal coating), which increases their service life. ■

> [siemens.com/sitop](https://www.siemens.com/sitop)



Highlights

Extensive range of components in Ex design:

Power supplies

LOGO!Power 24 V/4 A, Sitop PSU6200 24 V/5-40 A, 1- and 3-phase, all Sitop power supplies in Simatic design (for example, PM1507 3 A + 8 A)

Sitop add-on modules

SEL1200/1400 8 x 10-A selectivity modules, RED1200 40-A redundancy module, BUF1200 40-A/300-ms buffer module

Sitop DC UPS

UPS1600 20-A UPS modules with/without IE/PN, BAT1600 3.2-Ah, and 12-Ah battery modules (lead), UPS500S 15-A/5-Ah, and UPS501S 5-Ah UPS modules (with Ultra Caps)

Simatic Top connect for S7-1500 64-K modules

Connecting cables and TP1 + TP3 connection modules

INDUSTRIAL IDENTIFICATION AND LOCATING

Industrial processes in the digital enterprise demand total transparency. The ability to gather and process data at strategically relevant points is more and more becoming a determining factor in achieving long-term business success. Industrial identification and real-time locating systems (RTLS) are key technologies.

SIMATIC RF600 FIRMWARE 4.0

Enhanced security and communication capabilities

The new firmware version 4.0 is now available for Simatic RF600 UHF RFID readers. Many new and enhanced features were added for IT security, communication, and system integration. By introducing the "Secure by Default" concept, it increases the security level of your RFID system, because many security settings and functions are activated in the readers automatically with the installation.

The new firmware extends functionality in communication by enabling the option to use several communication protocols in parallel. For example, it is possible to control a reader via Profinet with a PLC and transfer identification data to a cloud application via OPC UA at the same time. In addition, the communication via the OPC UA standard was highly optimized and now provides expanded possibilities to operate your RFID readers, transfer

diagnostic data, and efficiently manage and update your devices. Also, device management functions have been extended thanks to an enriched integration to Sinec NMS network management system and Sinec PNI commissioning tool. ■

> [siemens.com/rf600](https://www.siemens.com/rf600)

Highlights

Additional "Secure by Default" features:

activated user management, password change enforcement on first log-on, HTTPS protocol with TLS 1.2 enforcement, disablement of insecure communication protocols, and new encryption algorithms

OPC UA enhancements:

AutoID Companion Specification V1.1, OPC UA certification renewal, enhanced connection with PLC and HMI, device configuration upload/download and firmware upgrade

Free download from Siemens Industry online support website



SIMATIC MV530

Easy setup of a reliable reader

The new Simatic MV530 reader is the first reader in the Simatic MV500 series to be delivered fully assembled. The product can be installed directly without pre-assembly and component selection. The built-in optics are designed explicitly for this reader and provide a high image sharpness without manual or electronic focusing due to unparalleled depth of field.

The integrated lighting system enables a wide range of lighting scenarios selected automatically by the reader's software. The reader thus allows reliable reading of demanding product markings (e.g., needled on metal surfaces) in industrial production conditions.

Expert knowledge in optics and lighting is not required when using the Simatic MV530 compact reader. The self-parameterization ensures reliable code reading even in the case of material or marking technology variations. ■

> [siemens.com/optical-identification](https://www.siemens.com/optical-identification)

Highlights

- Ready to use out of the box**, no configuration and pre-assembly needed
- Ease of use** due to the special lens and flexible built-in ring light
- Highest performance** for code reading with up to 100 reads per second
- TIA Portal integrated** by library elements (drag and drop)
- Supports Siemens' **Totally Integrated Automation** concept
- Developed and **made in Germany**

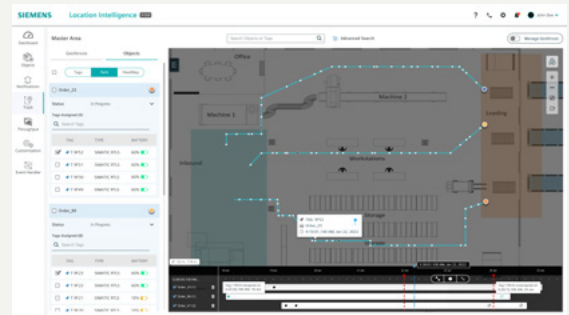


SIMATIC RTLS WITH LOCATION INTELLIGENCE

Optimize production and logistics workflows

Location Intelligence expands the Simatic RTLS real-time locating system to include a digital twin of performance. The web-based software can be integrated into ERP, MES, and shop floor management systems. The transponder movement data is detected in real time and transmitted from the locating system to Location Intelligence for visualization and analysis. New features in the map view create even more added value using position data. That makes it easier to identify potential anomalies in production and logistics processes and better understand their causes – which means that bottlenecks can be traced and fixed. Because Location Intelligence supports transportation processes, it now has more relevance to the field of intralogistics. ■

› [siemens.com/location-intelligence](https://www.siemens.com/location-intelligence)



Highlights

Full transparency over all production and logistics workflows

Fewer search procedures thanks to visualization of all relevant objects on different terminals in real time

Real-time analytics of material flows and dwell times, to identify problems with orders and reduce response time

Optimized production and logistics thanks to process automation using position-based and event-based scenarios

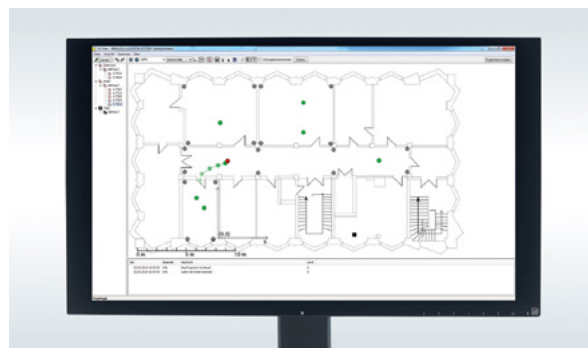
SIMATIC RTLS LOCATING MANAGER

Optimize supplied positions

The new Version 2.13 of Simatic RTLS Locating Manager expands the system to include the ability to postprocess position data, making it even more versatile to use. The three post-processing filters – jump suppression, interpolation, and time hysteresis – can be individually configured in the transponder groups. Jump suppression permits rejection of transponder positions that are too far from their previous position. Interpolation enables insertion of intermediate positions. The number of output transponder positions can be limited using time hysteresis.

Version 2.13 gives the opportunity to export audit trails in different formats. ■

› [siemens.com/rtls](https://www.siemens.com/rtls)



Highlights

Postprocessing of position data **for optimized usability**

More export options for audit trails

Improved quality of digital processes

DIGITAL ENTERPRISE SERVICES

Siemens' service experts assist and support companies throughout the entire digitalization process and align the Digital Enterprise Services offerings with each customer's requirements. The result is faster product launches, higher product quality, and more efficient and sustainable production.

DIGITAL ENTERPRISE SERVICES

Service is more than you think!

Sustainability, profitability, and increasing demands for efficiency, quality, and connectivity are just some of the challenges companies are facing today. What is needed is a digital transformation, and it has to happen faster and faster. But many companies lack experts in digitalization and automation who can keep up the pace. In addition to their deep domain know-how, the service experts from Digital Enterprise Services have the necessary experience with comprehensive digitalization projects and can help companies to get the most out of the new opportunities. Of course, technology is not the only factor. Heart and soul of Digital Enterprise Services are the service experts: the human side of the digital transformation. Whether it's mastering the challenges of customers'

day-to-day business or supporting their sustainable success with forward-looking, long-term planning, the Siemens service experts are optimally equipped to provide not only digital services but also conventional services like spare parts supply and repairs. They have in-depth sector expertise and passionately support digitalization in three steps: consulting, implementation and optimization. How this holistic digitalization approach looks in detail will be explained in the following by the example of Airborne, a medium-sized company in the composite business located in the Netherlands.

In the first stage, consulting experts from Siemens listen to the customer and determine what they want to achieve. Then they jointly develop a digitalization strategy and road map together tailored to the company's needs. Airborne had two distinct goals to boost its production and to make it more flexible. >

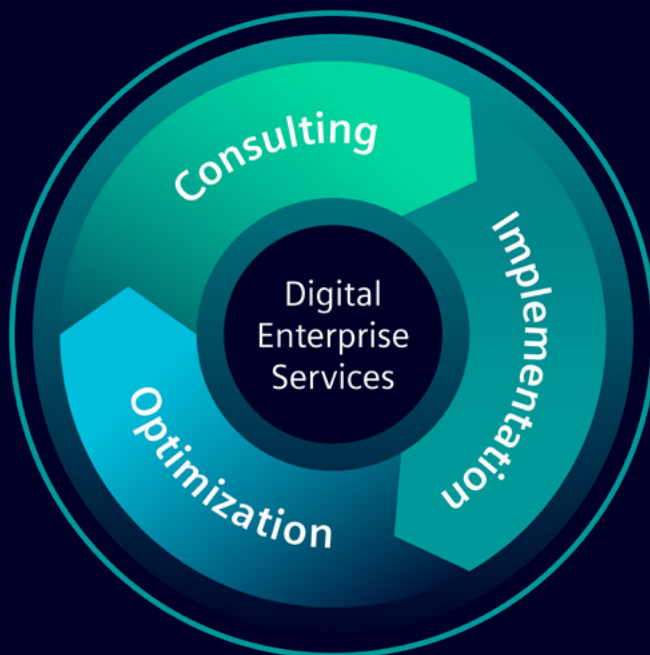


In the second phase, implementation, a previously developed architecture is brought to life. Software and hardware are installed, and digital twins of machines, plant, products, and production lines are created. For Airborne, this led to an increase in production performance. Digital tools and a simulation showed that a specific robot was causing a backlog, and the machine in question was optimized accordingly. A more flexible response to rapid product changes was also achieved by incorporating artificial intelligence (AI) into the digital twin of the product and the digital twin of the production. This allowed the experts to determine which of the countless options for product manufacturing would result in the desired quality and also be efficient in production. Introducing automation and digitalization enabled Airborne to reduce its costs by 70 to 80%.

The third step, optimization, involves collecting required data and using it to optimize a plant. Algorithms and AI analyze the collected data and transform it into valuable insights to improve overall equipment effectiveness (OEE).

But Digital Enterprise Services offer even more: Users benefit from customized security services to protect their machines and systems from cyberattacks, in addition to other solutions like Industrial Connectivity Services, Trusted Traceability, Digital Factory Optimization, AI Services, and Training Services (see p. 67 ff). ■

› [siemens.com/digital-enterprise-services](https://www.siemens.com/digital-enterprise-services)



Highlights

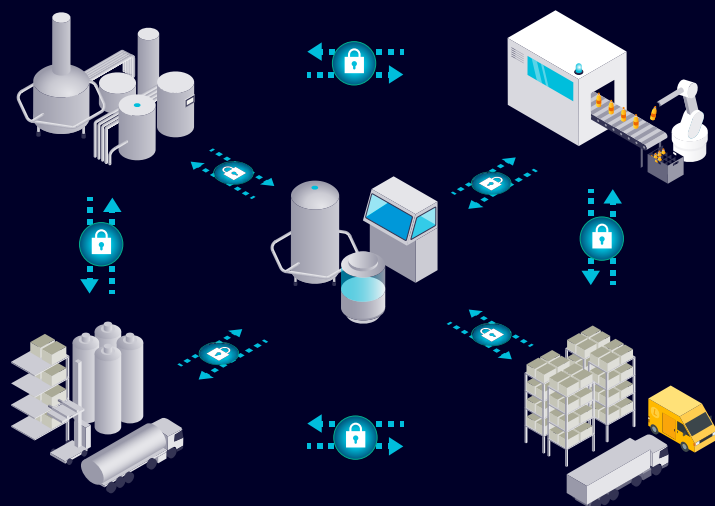
Comprehensive **solution portfolio**

Custom digitalization strategy for every company, regardless of size, sector, or existing degree of digitalization

Unique, all-in-one package comprising Siemens experts, traditional services, and future-oriented technologies

TRUSTED TRACEABILITY

Transparency along the value chain



The Industrial Internet of Things (IIoT) is creating rapid changes in value chains and production processes in all sectors. There is a pressing need for an effective, secure, and reliable data and information exchange to advance the Internet of Things. In the current IIoT context, machines still are not sharing enough data on product quality. This is where Trusted Traceability comes in. Cutting-edge technologies like smart contracts, tokens, blockchain, and industrial edge computing can anchor physical objects to a digital identity and ensure the transparency and authenticity of information and physical objects along the value chain. That simplifies and helps with activities such as regulatory compliance and strengthens confidence in product and component authenticity and quality. Trusted Traceability is therefore a solution that is relevant to every company, regardless of size or sector. Because every company is unique, Siemens service experts are there to support customers from the beginning to successful implementation: They screen all processes, manage the integration of IT and OT, and perform any necessary customer-specific adjustments. In the

meantime, customers can continue to focus on their day-to-day business.

Siemens is working with Merck to expand this solution with maximum digital confidence in machine-to-machine and machine-to-lab communication in industrial value chains. The Siemens and Merck portfolios complement each other in this regard, which will enable the future implementation of more use cases where reliable data plays an important role. ■

› [siemens.com/blockchain-iiot](https://www.siemens.com/blockchain-iiot)

Highlights

Fight counterfeit by demonstrating that products in circulation are original

One-button recall to recall products

One-button batch release for quality assurance with support from automation systems

INDUSTRIAL CONNECTIVITY SERVICES

Connecting anything with everything

Digitalization and the Industrial Internet of Things (IIoT) improve the flexibility, speed, and traceability of materials and products. The precondition is connectivity, the ability to record and process data from machines and plants. Industrial Connectivity Services connect new and old plants, machines, and components to higher-level systems, regardless of age or manufacturer. A standardized connection can be established between the production network, Industrial Edge, the ecosystem, and the cloud. Industrial Connectivity Services also help users identify the solution that is best for them and implement and optimize the connectivity throughout their OT and IT infrastructure. ■

› [siemens.com/industrial-connectivity-services](https://www.siemens.com/industrial-connectivity-services)

Highlights

Improved transparency for **optimized overall equipment effectiveness (OEE), fewer outages, improved productivity**

Lays the groundwork for the **digital transformation** and smart systems

Foundation of **OT/IT integration**



DIGITAL FACTORY OPTIMIZATION

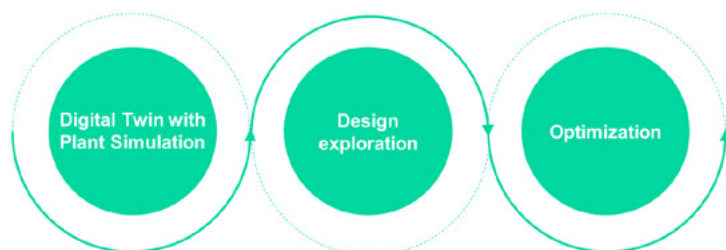
Leverage optimization potentials using simulation

Highlights

Improved **CAPEX efficiency**

Optimization of **orders in progress and the integration process**

Optimization of **plant logistics and resources**



The optimization of production and logistics environments is an extremely complex task because many different parameters must be taken into account. Digital Factory Optimization uses the digital twin of production to identify and realize optimization potentials for the real or planned plant based on simulations.

At the Gerätewerk Erlangen (GWE) electronics manufacturing plant – a pioneer in digitalization within Siemens AG – the

challenges was to optimize the overall logistics system by ensuring a defined production capacity. The next step was to create a simulation model that was as accurate as possible (maximum tolerance of 5%), compare the simulation to the real situation, and make customer-specific adjustments. The result was a significant reduction in materials required, the number of containers, and production time per day. ■

› [siemens.com/dfo](https://www.siemens.com/dfo)

ARTIFICIAL INTELLIGENCE SERVICES

Driving digitalization forward

The Siemens service experts at Artificial Intelligence (AI) Services develop strategies for customers based on the latest technologies and algorithms. This makes it possible, for example, to identify system errors at an early stage or optimize the maintenance process. Users can enjoy crucial benefits in terms of quality, costs, and productivity.



Highlights

- Early **error detection**
- Easier **maintenance planning**
- Improved **overall equipment effectiveness (OEE)**

One application area for AI Services is automatic optical inspection system (AOI). Like every other testing device in electronics manufacturing, AOIs trigger a certain proportion of false alarms, depending on their settings. Production management therefore needs to find a compromise between the effort needed to optimize the testing programs and the effort that visual testing would involve. The "False Call Reduction" service enables electronics manufacturers to reduce manual input following the AOI test by up to 50% and improve first-pass yield by up to 15%. These productivity improvements can be achieved in production using artificial intelligence, with no need for users to have special knowledge in data science or edge computing. ■

› [siemens.com/ai-services](https://www.siemens.com/ai-services)

VIRTUAL TRAINING SOLUTIONS

Turn digital assets into qualification

Increasing complexity of production and manufacturing processes is one of the biggest challenges for companies. More and more complex tasks must be implemented in ever shorter time. That is why targeted training of employees in their work steps is becoming more important, especially after product or process changes. Virtual Training Solutions help companies optimize their processes and production quality, improve employee skills, and boost their motivation using innovative learning methods that use 3D models. They use the company's existing digital assets to create realistic, customized training environments. ■

› [siemens.com/virtual-training-solutions](https://www.siemens.com/virtual-training-solutions)



Highlights

- Can be used **in every industry, on any device**
- Training time reduced** by up to 50%, with up to 40% **fewer errors**
- Costs reduced** thanks to less need for costly preproduction products and physical prototypes
- Flexible training methods** ensure consistent knowledge levels at locations around the world

SITRAIN – DIGITAL INDUSTRY ACADEMY

Future of Learning

On-site training or location-independent digital training? Learning at any time of the day on demand, or on set dates and at set course times? With a personal learning consultant, as part of a team, or on one's own? Everything is possible. Sitrain – Digital Industry Academy offers an extensive spectrum of knowledge on Siemens industrial products. And as part of its "Future of Learning" vision, it takes a comprehensive approach that combines diverse learning styles and methods.

The "Learning Journey" learning format combines self-learning units and live modules led by learning consultants that are ideal for adjusting to one's personal learning pace. "Learning Membership" gives access to the extensive and ever-growing selection of self-learning units on the Sitrain access digital learning platform. Users can now safeguard their knowledge with ongoing learning on their own. "Learning Event" is the right choice to build or expand theoretical and practical knowledge in a protected learning situation away from an everyday work environment: A learning consultant guides users through the practical exercises and is also available for the entire duration of the theoretical units, either virtually, in the training center, or on-site, at the company.

Relevant content and combined methods ensure an efficient learning outcome, while flexible learning concepts provide better integration into the work routine. Users get the opportunity to build knowledge and skills with a focus and learn exactly what they really need. ■

> [siemens.com/sitrain](https://www.siemens.com/sitrain)

Highlights

- Live:** Learning guided by a learning consultant – online or in person
- Self reliant:** Self-determined acquisition of content
- On demand:** Update or expand knowledge to meet individual requirements
- Individual:** Interact directly with a learning consultant



SMART POWER DISTRIBUTION

Whether it's for buildings, infrastructure facilities, or industrial companies, Smart Power Distribution offers an extensive, integrated portfolio of products, solutions, and services for effective, reliable, and safe power distribution.

SMART POWER DISTRIBUTION

Why power matters – the relevance of **electrification** and **digitalization**

On the way to a clean, increasingly non-fossil, and sustainable energy system, the relevance of electricity as a resource is increasing enormously. At the same time, the immense application potential of new smart devices requires a reliable power supply. In this respect, electrification and digitalization go hand in hand and are mutually dependent, and when they interact lead to a fundamental change in the energy landscape.

The data that modern communication-capable components in a power distribution infrastructure can provide are key. Taking full advantage of the data creates a smart power distribution system that is efficient, resilient, and sustainable. This paves the way to greater productivity, more competitiveness, and finally to maximum compliance and safety – no matter what the industry, no matter what the application.

To keep any enterprise competitive, a consistently high degree of efficiency is a must. Smart power distribution can make a significant contribution to this: A networked power distribution infrastructure enables efficiency gains and continuous optimization along the entire value chain as well as rapid situational changes to the distribution infrastructure.



Another striking advantage of smart power distribution is its great contribution to maximum resilience of a power supply system. It can take system availability to a level that any electrical configuration alone is unable to achieve. The implementation of a smart power distribution system contributes to the consistent prevention of distribution system failures and costly unplanned downtime. ■

› [siemens.com/powerdistribution](https://www.siemens.com/powerdistribution)

Highlights

Data at the core

Improved efficiency translates into **improved competitiveness**

Improved resilience for **highest possible availability**

8DJH 24 AND NXPLUS C 24 GAS-INSULATED MEDIUM-VOLTAGE SWITCHGEAR

blue GIS – 100% F-gas-free, 100% digital

The new, future-oriented 8DJH 24 and NXPLUS C 24 switchgear expands the scope of application of sustainable, gas-insulated blue GIS technology to the 24-kV voltage level. There is no change to the simple, reliable, and familiar operating concept of the 8DJH product range – close, open, ground – or the typicals circuit breaker, bus sectionalizer and disconnecter of the NXPLUS C 24. What is new is the sustainability of the switchgear: The blue GIS technology works absolutely without fluorine gas as an insulating medium and is therefore 100% F-gas-free. The Clean Air insulating medium, consisting of the components of the ambient air, is completely climate-neutral and safe in handling and operation. The innovative blue Switch in the 8DJH 24 – a three-position switch-disconnector with vacuum interrupter in the auxiliary path – keeps dimensions to a minimum and ensures safe operation for its entire service life.

Blue GIS medium-voltage switchgear are 100% digital and also compact, maintenance-free, highly reliable in operation and personal safety, and they offer a high level of availability. This means that they fulfill all the conditions for reliable and cost-effective operation in both public and industrial power networks at the primary and secondary distribution level, for example in local substations, transfer and switching stations as well as in industrial and infrastructure facilities. Users benefit in particular from digitalization: The switchgear can be remote-controlled and are communication-capable, and they can be connected to IoT platforms like MindSphere and other open IoT systems. It is also possible to integrate components for condition monitoring and distribution grid automation using NCIT (non-conventional instrument transformer) technology. ■

› [siemens.com/bluegis](https://www.siemens.com/bluegis)

Highlights

Clean air: Fluorine gas-free insulating medium consisting of components of ambient air

blue Switch: Proven switching principle with vacuum technology in the auxiliary path

Gas-insulated switchgear with all the well-known benefits such as availability, compactness and climate independence

Digitalization with smart, future-proof solutions



NXPOWER MONITOR

Digital caretaker for your electrical distribution system



Highlights

Gaining transparency across electrical distribution assets

Identifying optimization strategies to **reduce operation costs**

Better managing of risks by identifying potential asset breakdowns and failures in advance

Users can concentrate on their business by being sure that assets are reliable, and they know beforehand that something will happen

NXpower Monitor enables users to visualize and monitor electrical assets within a main power distribution substation such as medium- and low-voltage switchgear continuously from anywhere in the world. NXpower Monitor is a cloud-based application configurable for system and solution types of business, which involves more than one component and system. This application supports key performance indicator calculation and monitoring of operational data from electrical distribution assets in time-series and alarm data. Different views support an overview of substation assets on different hierarchy levels. With the help of NXpower Monitor, unplanned shutdowns can be prevented and operating expenses optimized. ■

› [siemens.com/nxpowermonitor](https://www.siemens.com/nxpowermonitor)

SIVACON S8PLUS LOW-VOLTAGE SWITCHBOARD

Exploiting the potential of data

Low-voltage switchboards are more than just black boxes that supply machines with power. With the Sivacon S8plus switchboard and Simaris control diagnostics station, data can not only be acquired via numerous smart switching devices and sensors, it can also be made visible and evaluable. As a result, users can exploit the full potential of their energy data in a digital ecosystem.

Based on this energy data, Simaris control accelerates and simplifies operational diagnostics so that operators will benefit from predictive maintenance, optimized energy management, and higher system availability at a lower cost. ■

› [siemens.com/sivacon-S8plus](https://www.siemens.com/sivacon-S8plus)



Highlights

Simplified diagnostics: all tools already on board

More overview: operational and diagnostic data will be seamlessly visualized

Higher system availability: continuous monitoring and diagnostic reports for predictive maintenance

Greater efficiency: optimal energy transparency for extra efficiency

Optimal connectivity: simple connection to higher-level automation/energy management systems and the cloud

ALPHA 3200 ECO

Engineering with the digital twin

As the demands on power distribution grow and project lead times become shorter, switchgear manufacturers require increasingly complex solutions. The response to these challenges is 3D engineering with the digital twin of the Alpha 3200 Eco power distribution board. Switchgear manufacturers start by performing the entire engineering process digitally in the Simaris configuration software, from simple, fail-safe, and standards-compliant configuration to rapid calculation, bid preparation, and system documentation. The newly developed 3D processor then generates a detailed digital twin that switchgear manufacturers can easily view with the push of a button using the Simaris Sketch visualization software. The digital twin makes it easy to try out system alternatives, manage complex systems, and implement shorter project lead times. But the Alpha 3200 Eco also has a lot to offer in terms of hardware. The busbar at the center of the board device makes installation much easier, and it uses 30% less copper than conventional solutions. The high packaging density provides greater functionality in a smaller space.

Another development benefits customers that have their own copper production centers. All the necessary data is provided via Simaris at no charge as a STEP file for the purpose of optimizing the



manufacturing sequence. Complex programming efforts using 2D dimensional drawings is now a thing of the past. 3D data makes copper production much simpler for users and reduces waste in manufacturing. ■

> [siemens.com/alpha](https://www.siemens.com/alpha)

Highlights

The 3D output's **high level of detail** improves technical communication in all areas

Resource-saving thanks to the use of 30% less copper

Practice-based thanks to application-specific design verification according to IEC 61439, accessible right in Simaris

Modular design thanks to flexibly combinable 8GK installation systems

SMART CONTROL PANEL DESIGN

The new standard in electrical engineering

Electrical planners are often confronted with the challenge of having to select not only the correct components for a motor-starting application but also all the parameters associated with the motor feeder. With Control Panel Design in the TIA Selection Tool, it is possible to design and dimension the main electrical components of a machine in compliance with standards. Dimensioning the cables all the way to the motor is equally important as selecting the suitable switching and protection devices. With Control Panel Design in the TIA Selection Tool, the cables are designed in compliance with the IEC 60204-1 and UL 508A and other relevant standards. To begin with their configuration, electrical planners just need the current offline version of the free TIA Selection Tool and some basic information to describe the motor. On this basis, tool users are guided step by step through the freely selectable parameters of the configuration process.

Planners are also shown the correct devices for the entire motor feeder, which they can then easily add to an order list in a subsequent step. Finally, they are provided with complete documentation of the technical data and calculations, which they need, for example, for verifying short-circuit strength. ■

› [siemens.com/cpd](https://www.siemens.com/cpd)

Highlights

Dimensioning of fuseless and fused load feeders according to **IEC** and **UL** up to **250 kW** and **500 hp**

Main disconnect dimensioning for IEC and UL infeeds

Visual planning of the main circuit in a **single-line diagram** and easy selection of required accessories

Complete **PDF documentation** of technical data and calculation results

SENTRON COMPONENTS

Ready for digitalization

From planning to engineering and operation: With Sentron components, all stages in the electrical power distribution process for industrial systems, infrastructure, and buildings can be supported completely digitally. With its 3WA air circuit breakers from the Sentron portfolio, Siemens offers an end-to-end product range to cover all requirements and potential applications. Extensive modular accessories let users expand functions easily, and a long service life and low maintenance costs for all the components ensure long-term security. Expanded protective functions and increased selectivity with the 3WA air circuit breakers provide maximum system availability. Their sturdy mechanicals and top product quality also come to the fore in demanding heavy-duty applications.

The 3VA molded case circuit breakers secure highly available production workflows. As a modular and highly variable system, the 3VA molded case circuit breakers ensure comprehensive, reliable protection for people and plant while supporting every stage of the process – from planning to operating the electrical power distribution system. The Condition Monitoring function gives users a quick overview of the health of the circuit breaker and allows them to assess its remaining service life. The 3VA molded case circuit breakers are available in several series with IEC registration and also in series that meet the IEC 60947 and UL 489 standards. This means that machine and switchgear builders can utilize all the functions offered by the molded case circuit breakers for plants in Europe and North America with full confidence that they are compliant with standards.



Overloads and unbalanced loads in local networks increase the risk of power failures and resulting damage. In the event of a failure, identifying and locating electricity outages becomes a time-consuming and costly exercise. Thanks to its measuring and communication function, the 3NA COM LV HRC fuse link not only provides ideal overload and short circuit protection, it also brings transparency to local power distribution. It has the same dimensions as conventional LV HRC fuses (Retrofit) and easily replaces them in existing 400 V power distribution systems. The measured data is transmitted to the 7KN Powercenter 1000 data transceiver – wirelessly within a defined field – and can be forwarded from there to higher-level gateways or monitoring and analysis systems via Modbus TCP.



Compact Sentron circuit protection devices with measurement and communication functions take digitalization to the final circuit. In addition to their protection function, the 5SL6 COM miniature circuit breakers and 5SV6 COM AFDD/miniature circuit breakers also have measurement and communication functions that cover electrical values from the power circuit and data from the components themselves, including the number of operating hours and short circuits. Standard devices like the 5SV residual current circuit breakers or 5SV1 RCBOs are easy to expand using communication-capable 5ST3 COM auxiliary switch/fault signal contacts. In addition, existing plants can be easily and cost-effectively connected to automation platforms such as Simatic.

Irregularities and faults in a system can be rapidly identified and rectified at an early stage if measured values exceed or fall below defined limits, which prevents downtime and unnecessary costs. Data such as the number of operating hours and component triggering lets users draw conclusions about device service life, which means that maintenance can be scheduled at an early stage. The 7KN Powercenter 1000 data transceiver gathers the recorded data wirelessly and transmits it to

mobile devices, PCs, or cloud solutions for visualization and analysis. By using easily installed Sentron measuring devices and intuitive power monitoring, users can identify potential savings with minimal effort and expense. ■

> [siemens.com/sentron](https://www.siemens.com/sentron)

Highlights

3VA air circuit breaker with smart ETU600 electronic trip unit to meet all requirements

3VA molded case circuit breakers with stored energy motor operator SEO520 for up to 630 A (IEC) and 600 A (UL)

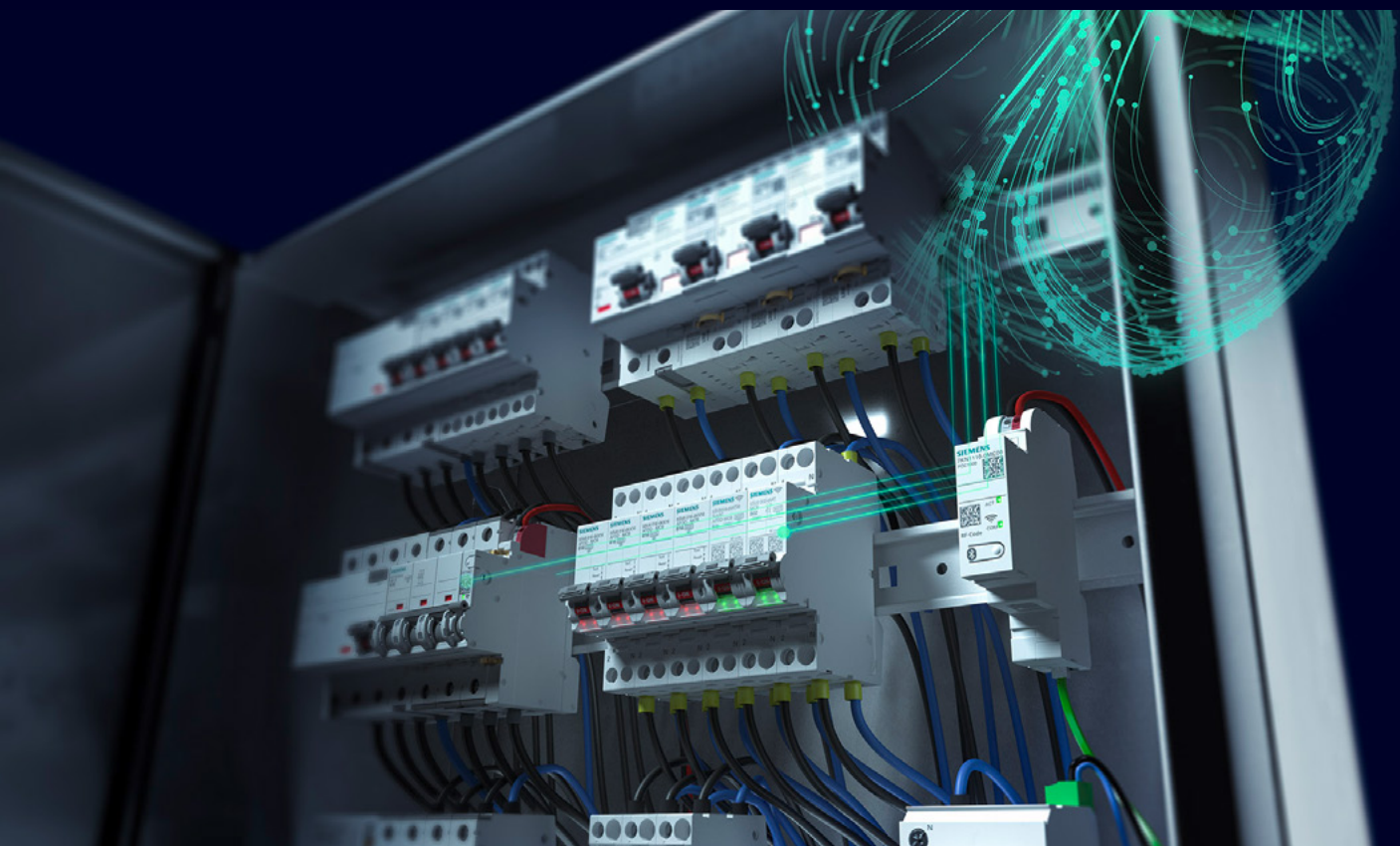
Sentron circuit protection devices with measuring and communication functions

7KN Powercenter 1000 data transceiver with narrow dimensions (1 MW)

Sentron 3NA COM LV HRC fuse link for effective protection of humans and plant

Sentron 7KM PAC measuring devices and power monitoring for efficient and safe power monitoring

Sentron Profinet Proxy SPP2000



3WA AIR CIRCUIT BREAKERS

Made for markers.
Simply reliable.



Highlights

- Flexible addition of features** by the software improves investment protection
- New protection technologies** prevent failures with distributed power supply
- Seamless integration** into digital environments

The new 3WA air circuit breakers are available in three frame sizes, from 630 to 6,300 A for alternating current (AC) applications, and in one frame size with rated currents of 1,000, 2,000, and 4,000 A for direct current (DC) applications. They support software-based planning and configuration, digital testing and monitoring, and seamless integration in automation and IoT systems. For the first time, upgrades can be completed 100% digitally. Users simply download new features from the Internet and add them using an app. Circuit breakers are designed for 30,000 operating cycles while only requiring one inspection per year. Their practical service life averages approximately 10 years, although they have a demonstrated potential service life in excess of 100 years. ■

› [siemens.com/3wa](https://www.siemens.com/3wa)

MOLDED CASE CIRCUIT BREAKERS 3VA UL LARGE FRAME

**Performance, safety,
functionality**

The new 3VA UL Large Frame molded case circuit breakers (MCCB) from the Sentron portfolio enable international switchgear manufacturers and panel builders to implement powerful, safe, and smart systems while allowing them to improve and greatly simplify their work processes. The 1,200 and 1,600 A frame sizes meet the requirements of IEC and UL standards, and the new 2,000 A frame size is designed exclusively for the US market. Thanks to the integrated arc energy reduction feature (Dynamic Arc Flash Sentry DAS+), the new 3VA UL Large Frame MCCBs are now capable of minimizing potential arc energy occurring in the switchgear. That protects service technicians from serious injury from hot gases that occurs when a switchgear shuts down in the event of a short circuit. Communication and measurement features are also fully integrated. Energy and circuit breaker data is recorded with an accuracy of 99% and transmitted to higher-level systems – without requiring additional components in the circuit breaker. ■

› [siemens.com/3va](https://www.siemens.com/3va)



Highlights

- Consistent** internal accessories of the 3VA MCCB series
- Molded case circuit breakers equipped with ETU and LCD display** are communication-ready – additional communication modules are not required
- Same footprint and switching mechanism** as its predecessor – for easy upgrade to 3VA MCCB in existing switchgear

SIRIUS ELECTRONICALLY CONFIGURABLE SIGNALING COLUMN

High system availability and efficient engineering

Siemens is expanding its signaling columns portfolio with a new high-performance tower that is particularly easy to adjust to individual application requirements thanks to the standard electronic configurability. The signaling columns combine modern industrial design and ruggedness for both indoor and outdoor applications and bring reliable signaling of different states. For this, they offer a complete range of signaling levels and functions. In addition to the individual settings, users are able to set preprogrammed modes like variable fill level or full-surface signaling. Professional signaling not only makes applications safer; users also identify incidents faster and can fix potential problems in a timely manner. This significantly reduces reaction, waiting, and downtimes. Due to the columns being pre-assembled, users also benefit from a simplified ordering process. ■

› [siemens.com/sirius-signaling-columns](https://www.siemens.com/sirius-signaling-columns)



Highlights

Efficient engineering

through electronic configuration

Optimum communication and connection through optional digital interface (IO-Link) and integration in TIA Portal

Flexibility in applications processes due to the different signaling modes through electronic modularity

Eight variants (4 × USB, 4 × IO-Link) with either 9 or 15 LED segments and with or without an acoustic function



Highlights

Installation elevations above 2,000 m: Sirius ACT 3SU1, Sirius 3RM1, Sirius 3SK1, Sirius 3SK2, Simatic ET 200SP motor starter, Simocode

Temperature range from -25°C to +60°C: Sirius ACT 3SU1, Sirius 3RM1, Sirius 3SK1, Sirius 3SK2, Simatic ET 200SP motor starter, Sirius 3RT, Sirius 3RQ1, Simocode

Marine approval: Sirius ACT 3SU1, Sirius 3SK1, Simatic ET 200SP motor starter, Simocode, Sirius 3RQ1

Coated printed circuit board as special variant: Sirius 3SK1, Sirius 3SK2, Sirius 3RQ1, Simocode

SIRIUS SAFETY INTEGRATED PORTFOLIO

Robust devices for harshest environments

Like the Simatic ET 200SP and Simocode motor starters, the Sirius 3RM1 motor starters and Sirius 3SK1 and 3SK2 safety relays can now also be deployed at very high elevations above 2,000 meters. All the devices listed can be operated at temperatures from -25°C to +60°C without derating. Even in hot and dusty environments, users can rely on the safety portfolio from Siemens. Sirius safety relays, and Simocode and Sirius coupling relays are reliably robust thanks to optional coated printed circuit boards. They easily cope with condensation, rapidly fluctuating temperatures, corrosion, and harmful gases. Because Sirius push buttons and indicator lights, safety relays, and 3RQ1 coupling relays as well as Simocode and Simatic motor starters are resistant to shock and vibrations, they're also approved for marine use. ■

› [siemens.com/safety-integrated](https://www.siemens.com/safety-integrated)

SIRIUS SIM / SIRIUS SAFETY ES (TIA PORTAL)

Create safety applications in the digital twin

Parameterizing Sirius 3SK2 safety relays is now easy and convenient, thanks to the new Sirius Safety ES V17 software. Seamless integration in TIA Portal allows multiple devices or entire plants to be engineered in a single project. The free Sirius Sim simulation tool also creates brand-new digitalization options for Sirius 3SK2. This integrated interface makes it possible to test the functioning and parameterization of 3SK2 devices on a digital twin in the simulator – all with no real devices, sensors, or actuators. This greatly reduces engineering time and cost because no real components are required and the applications can be modified quickly and easily. ■

› [siemens.com/safety-relays](https://www.siemens.com/safety-relays)



Highlights

Intuitive and flexible engineering

Efficient parameterization via drag and drop

Interface to Sirius Sim for **extensive simulation of the safety application**

Easy replacement of **devices and elements**

SIRIUS 3RQ1 COUPLING RELAYS

Maximum safety for people and systems



Highlights

Universally usable

thanks to a wide-range power voltage from 24 to 240 V AC/DC

Certified up to SIL 3 / PL e (IEC 61508/ISO 13849) and approved for railway applications

Simple assembly reduces time required for building control panels

The Sirius 3RQ1 series completes the portfolio of coupling relays for electrical systems in industry and infrastructure. Thanks to their force-guided operation according to IEC 60947-5-1 (IEC 61810-3), these devices offer maximum safety for people and systems, making them especially well suited for use in railway and signaling applications as well as in elevators and industrial production facilities. The coupling relays offer additional safety as an output expansion of the Sirius 3SK safety relays using a device connector. This reliably prevents wiring errors and protects against electrical accidents and damage during assembly. The Sirius 3RQ1 coupling relays are also ideal for coupling and reproducing signals to controllers. ■

› [siemens.com/sirius-coupling-relays](https://www.siemens.com/sirius-coupling-relays)

SIMATIC ET 200SP, ET 200PRO, SIRIUS M200D MOTOR STARTERS

Expanded functions in TIA Portal



Whether they are in the control panel or locally distributed in the field, all communication-capable Simatic and Sirius motor starters can now be completely diagnosed in TIA Portal and implemented more easily. In addition, parameters for all motor starters can be adjusted during operation. Thanks to constant innovation in the latest versions of TIA Portal (from V15 to V17), users can now accomplish in TIA Portal what was previously impossible, or otherwise required an additional tool (Sirius motor starter ES). ■

> [siemens.com/sirius-hybrid](https://www.siemens.com/sirius-hybrid)

Highlights

Complete display of diagnostic, status, and statistical values – online, with no programming effort

Master function for starting/stopping and testing other functions with no programming effort in commissioning test mode

Change parameters in operation, with no need to stop the system

SIMATIC ET 200SP MOTOR STARTER

Robust design for the **process industry**

The finely modular Simatic ET 200SP motor starters can also be used in the Simatic ET 200SP HA I/O system with special base units, and they are the solution needed to start and protect three-phase consumers up to 5.5 kW in five setting ranges. Starting in TIA Portal V17 (Update 2), configuration can be performed in the high-availability ET 200SP HA system. The fully prewired load feeders offer major advantages for configuration and assembly. The modular design of Simatic ET 200SP HA with permanent wiring and hot swapping is also used in the motor starters. ■

> [siemens.com/et200sp-motorstarter](https://www.siemens.com/et200sp-motorstarter)

Highlights

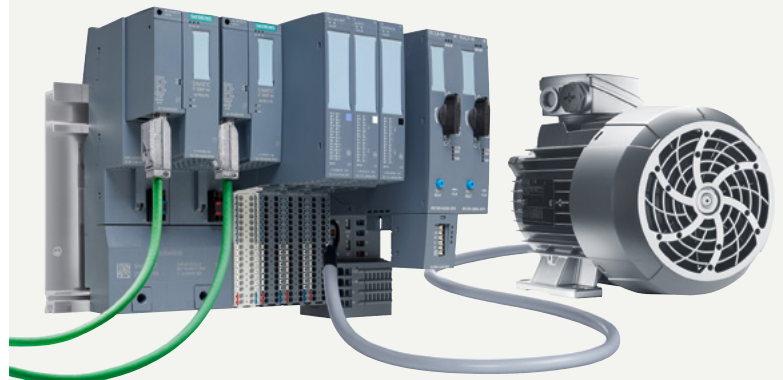
Direct and reverse start function

Switching and protective device for **1- and 3-phase motors and resistive loads**

High power up to 5.5 kW / 12 A

Integrated **short circuit and overload protection**

Expanded temperature range from -25°C to $+60^{\circ}\text{C}$



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For further information please visit:

[siemens.com/digital-enterprise](https://www.siemens.com/digital-enterprise)
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