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product news

Innovations for the
Digital Enterprise

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TIA Portal V14

More than an engineering framework

TIA Portal rounds out the comprehensive range of services Siemens offers companies on their path toward Industrie 4.0 and is therefore the perfect gateway to automation in the Digital Enterprise.

TIA Portal V14 supports every stage of digital automation – from planning to integrated engineering to transparent operation. The virtual and real worlds of production are merging. What were once sequential processes are now running in parallel. This is good for machine builders and systems integrators as well as plant operators. TIA Portal shortens time to market with innovative simulation tools, boosts plant productivity with additional diagnostic and energy management functions, and increases flexibility by enabling coordinated work across teams. >



Digital Workflow

Work open, virtual, and connected

TIA Portal integrates itself into the continuous digital workflow of product and production lifecycles using open interfaces. For greater efficiency, the Teamcenter PLM software merges project statuses for planning, engineering, and design and keeps them consistent throughout the entire project.

The Simatic PLCSim Advanced simulation software allows the creation of a digital twin of the control system. To optimize entire production sequences, users can integrate simulations that demonstrate the production process already in the planning and construction phases. This allows for early optimizations and a higher project quality before any hardware costs are incurred.

The TIA Portal Cloud Connector makes day-to-day operations more flexible. Installing the software in the cloud replaces maintenance at individual workspaces. Users can also use it to access the plant's control system. MindSphere is also available for additional digital services.



Integrated Engineering

Transparent Operation

Shorten time to market

With TIA Portal, users can increase their engineering efficiency by using a shared database and a standardized user interface. The engineering framework integrates all important automation components – from HMI to drives to motion control (see p. 7) and power distribution – including safety and security.

TIA Portal offers a team-oriented, fully integrated tool landscape for efficient engineering. With the TIA Portal Multiuser Engineering option, multiple team members can work on a project at the same time. There are also many efficient diagnostic functions, such as cycle-granular signal recording, enabling the analysis of sporadic faults during commissioning. To create solutions even more quickly, users can take advantage of the automatic HMI visualization generator with Simatic Visualization Architect (SiVArc), for example. To automatically create programs, software generators can control TIA Portal by TIA Portal Openness interface. Duplicate work is avoided through the use of a comprehensive library system that guarantees easy reusability of all project objects.

Increase productivity

TIA Portal V14 ensures increased transparency during ongoing production. This transparency is possible thanks to additional diagnostic options. The standardized machine and plant diagnostics option Simatic ProDiag, for example, efficiently analyzes process disturbances. Rapid fault recognition in the automation system leads to fewer production outages and increases plant and machine availability.

Additional interfaces for interaction with higher-level systems were created to optimize processes. With the Energy Manager PRO system, users now have full control over their energy costs at all times (see p. 8). The Simatic Information Server allows for target-group-specific on-site or mobile data processing.

Merging the automation and corporate IT systems using open communication enables easy integration into higher-level MES/ERP solutions via the standard OPC UA communications protocol or IndustrialDataBridge.

Automation – in less than 10 minutes

In these web tutorials, Siemens uses concrete examples to show users how they can reduce configuration time in their daily work. The demonstrations focus not only on Simatic controllers but also on HMI and software. A total of nine

topics are covered in more than 30 online tutorials.

The three highlights of TIA Portal V14 are presented in the following videos. In the online tutorials, you will learn how to obtain the result

you want in less than 10 minutes – step-by-step. ■

You can access all the online tutorials at siemens.com/automation-tasks



TIA Portal Openness interface

If you need new functions for a machine, they must be programmed first. The most time-consuming task is typing in lines of code and testing the programs. The Openness interface considerably reduces this time, as it allows for the efficient generation of the program's code with its own code generators. Identical or similar processes are automated, and the time for commissioning is reduced.

➤ sie.ag/2eNuOQd

Simatic Visualization Architect – SiVArc

Ever shorter production cycles mean that new products need to reach the market faster. To save time during the development phase, users can take advantage of the Simatic Visualization Architect (SiVArc) to automatically generate HMI visualizations. Multiple configurations for the visualization of the same or similar components – for example, conveyor belts – therefore need to be generated only once.

➤ sie.ag/2dFNlxc

Simatic ProDiag for machine and plant diagnostics

To successfully run a business, you need to make the right decisions. And you can only make the right decisions if operations are transparent. With ProDiag, you can keep track of increasingly complex processes. In addition to system diagnostics, the tool also offers integrated machine and plant diagnostics functions that allow for the quick localization of production sequences and increase the availability of machines and plants. TIA Portal allows for simple and easy parameterization.

➤ sie.ag/2er2msX

TIA Portal

TIA Portal is the key to exploiting the full potential of Totally Integrated Automation (TIA). The engineering framework for all automation tasks integrates HMI, controller, distributed I/O systems, and drives seamlessly into a single engineering environment.



Simatic S7-1500 T-CPU / Sinamics V90 with Profinet / Simotion V4.5

Motion Control meets TIA Portal

Integrated into TIA Portal V14, the Simatic S7-1500 T-CPU Advanced Controller allows for extended motion control functionalities in the interaction between Simatic and Sinamics. TIA Portal V14 offers particularly efficient support to the user when engineering motion control tasks such as gear or cam disc synchronization. The integrated cam disc editor simplifies configuration and optimizes the motion dynamics between the master and slave axes.

The S7-1500 T-CPU is also suitable for safety applications, meaning that the user needs only one controller for standard and safety tasks as well as for a broad range of motion control automation tasks. The Sinamics V90 servodrive system with Profinet makes the machine fast and precise. Both protocols can run on the same cable – without compromising performance. With this new package, users can easily and efficiently imple-

ment motion control tasks in the already familiar Simatic environment. Object-oriented programming (OOP) in Simotion V4.5 breaks complex applications down into a manageable object structure. Thus OOP exactly mirrors the structure of a modular machine. This helps the mechanical engineer to better standardize and reuse software modules. Programming and testing work, as well as the risk of error, are considerably reduced. As a result, larger software projects are implemented more effectively.

With OPC UA, Simotion in Version 4.5 and up supports standardized communications protocols for manufacturer-independent and platform-independent connections to different systems. This open interface enables access to all Simotion data in a consistent way across all automation levels all the way to the cloud – which is the basis for integration into Industrie 4.0. Ultimately, OPC UA is the perfect

NEW FEATURES

Simatic S7-1500 T-CPU / Sinamics V90

- Coordinated package consisting of a Simatic Advanced Controller and a Sinamics servodrive system, all integrated into TIA Portal V14
- Easy execution of motion control tasks such as gear or cam disc synchronization with Simatic S7-1500 T-CPU, thanks to integration into TIA Portal
- One controller for standard, safety, and motion control automation tasks

Simotion V4.5

- Increased software standardization and reusability due to object-oriented programming (OOP) with V4.5 of the high end motion control system Simotion
- Manufacturer-independent and open data communication across all automation levels with OPC UA

complement for deterministic Profinet communication with real-time Simotion applications. ■

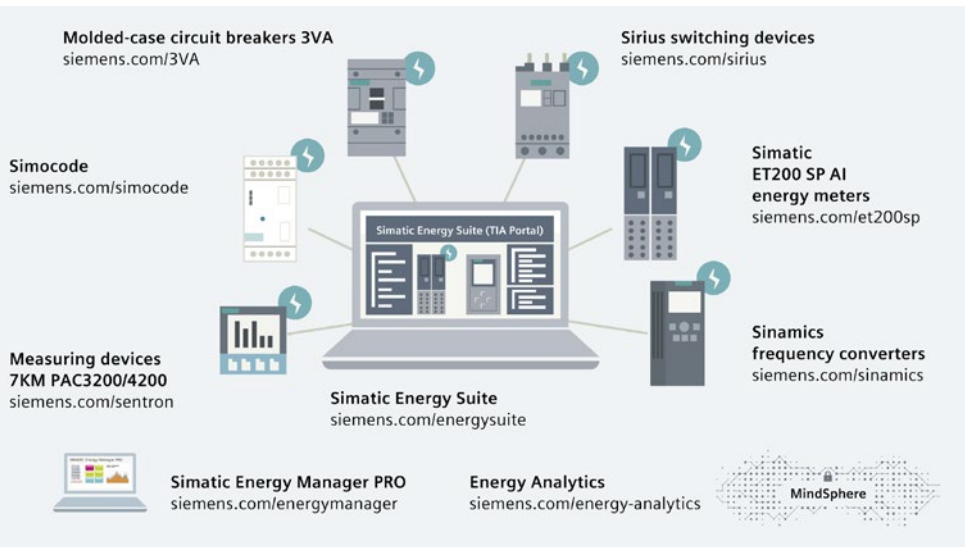
➤ [siemens.com/t-cpu](https://www.siemens.com/t-cpu)

➤ [siemens.com/sinamics](https://www.siemens.com/sinamics)

➤ [siemens.com/simotion](https://www.siemens.com/simotion)

Simatic Energy Suite V14 and Simatic Energy Manager PRO

Energy management in automation



NEW FEATURES

- Simple and intuitive configuration instead of programming
- Automatic generation of the PLC energy program
- Integration into TIA Portal and the automation network
- Archiving in WinCC Professional or the PLC
- Seamless connection to Energy Manager PRO

Simatic Energy Suite, as an integrated option for TIA Portal, efficiently combines energy management with automation, bringing more energy transparency into the production line. The configuration effort is reduced thanks to energy-measuring components from the Simatic, Sentron, Simocode, Sinamics, and Sirius product lines – such as, for example, the Energy Meter module, which records energy flows either directly at the machine or from a central location.

With the integrated link to Simatic Energy Manager PRO or the cloud-based Energy Analytics service, the recorded energy data can be seamlessly integrated into a location-independent energy management system. This also allows companies to comply with all the necessary financial and management requirements – from procuring energy, to energy planning, to energy controlling – for conformance with ISO 50001. Users need only basic configuration know-how for the Simatic Energy Suite. This makes integration faster and shortens configuration times.

Certified energy management

Simatic Energy Manager PRO is the innovated successor to Simatic B.Data V6.0. The scalable and location-independent energy management software can retrieve energy data directly from Simatic Energy Suite, Simatic WinCC, Simatic PCS 7, Simatic PLCs, and measuring devices, thanks to its many interfaces. Linking energy and production data makes it possible to determine the energy costs per piece, machine, and shift. The software thus offers a variety of functions to users, from energy efficiency controlling and cost center accounting with corporate-wide energy analyses (e.g., reports, dashboards, KPIs) to optimizing energy procurement. The TÜV-certified system makes it easy to comply with the statutory requirements set down in ISO 50001.

Simatic Energy Manager PRO also offers machine efficiency analysis. With standardized indicators such as energy utilization, energy efficiency, and energy quality, the energy efficiency of a machine can be evaluated, monitored, and optimized. This enables machine owners to improve their energy efficiency by, for example, reducing standby losses. ■

- siemens.com/energysuite
- siemens.com/energymanager



NEW FEATURES

- Identification of energy guzzlers
- Future-proof system, compliant with ISO 50001
- Assistance with energy procurement

Automation Systems

Simatic automation systems offer the right product for any application. The new generation includes Basic, Advanced, Distributed, and Software controllers. The Simatic controllers have failsafe functionality, and the Simatic S7-1500 Advanced Controller features advanced Motion Control.

Simatic controller portfolio

Scalable in TIA Portal

The Simatic controller portfolio has the right product for every application. It is made up of Basic, Advanced, Distributed, and Software Controllers and impresses users with its scalability and functional consistency. TIA Portal V14 (see p. 4) increases engineering efficiency, simplifies diagnostics, and opens up motion control as an additional essential function (see p. 7). The safety functions of the failsafe controllers are seamlessly integrated into the standard automation system to ensure safe production processes at all times. This also applies to the new Simatic CPU 1212FC. The new Basic Controller combines standard and safety-oriented automation tasks in a single device, thus reducing the wiring effort compared to conventional solutions. And the support for Profisafe allows

safety-oriented devices to be connected via Profinet. The S7-1500 Software Controller is also available with integrated safety functions. The failsafe PC-based control works independently from the Windows operating system and guarantees high system availability.

New features of the Distributed Controller line include the failsafe 1516pro F-2 PN CPU, and the failsafe ET 200SP Open Controller, as well as the standard and failsafe versions of the new, highly efficient, and compact motor starter for the Simatic ET 200SP distributed I/O system (see p. 32).

To connect Simatic to mixed industrial environments, users benefit from the OPC UA communications protocol, the

NEW FEATURES

- Compact and failsafe Simatic CPU 1212FC
- ET 200SP Open Controller and S7-1500 Software Controller in a failsafe version
- Execution of customer-specific C/C++ high-level language programs via the S7-1500 Software Controller, ET 200SP Open Controller, and 1518 ODK CPU
- Expanded motion control functions for the compact 1511C/1512C CPUs to easily and directly connect devices (e.g., drives)
- Support for manufacturer-independent communication with OPC UA for all S7-1500 CPUs
- IM 155-6PN High Speed interface module and 1518 CPU: clock-synchronized operation at 125 μ s and above with Profinet Performance Upgrade

open industry standard that is at the core of Industrie 4.0 and enables vertical communication. The Matlab/Simulink communications software simplifies and improves the development of complex automation solutions while at the same time lowering development costs. Model-based automation functions created and tested with Matlab/Simulink can be directly integrated into the Simatic S7-1500 control. This applies to Software Controllers, Open Controllers, and the 1518 ODK CPU.

The I/O system Simatic ET 200SP has also been expanded. There is a new IM 155-6 PN High Speed interface module, which exchanges data between the higher-level control system and the distributed modules. Together with a 1518 CPU, the interface module can control synchronous operation at 125 μ s and above. The Profinet performance upgrade also includes high-speed functions such as Fast Forwarding, Dynamic Frame Packing, and Fragmentation, as well as an expanded quantity structure. ■

➔ siemens.com/simatic-controller



LOGO!

Flexible and easy to use

As of production status FS:04, LOGO!, the intelligent logic module for small automation projects, features many new functions. It is now also possible to use the nanocontroller outdoors at temperatures down to -20°C. The Modbus TCP/IP communications protocol is implemented in every basic LOGO! 8 device, allowing for even more flexible use in existing infrastructure.

The new LOGO! Soft Comfort V8.1 software allows users to easily operate the device as a stand-alone unit, configure it in network mode, and transfer programs from earlier versions without any problems. Users can also display three programs at the same time and drag and drop the signals from one program to another. Consistent with the new hardware, LOGO! Soft Comfort V8.1 supports Modbus TCP/IP

connections in diagram and network modes as well as easy configuration of date and time synchronization via NTP.

With the LOGO! Access Tool, process data from ongoing operations can be directly imported into an Excel spreadsheet or saved in a log file on the computer. ■

➔ siemens.com/logo



NEW FEATURES

- Greater temperature range, from -20°C to +55°C, without condensation
- Integrated Modbus TCP/IP communication with LOGO! as both client and server simultaneously
- Automatic date and time synchronization via NTP
- LOGO! Soft Comfort V8.1 software with varied functions: function blocks to convert sliding point values into integral number values and vice versa, reset function for slide registers, additional sorting functions, and a larger area for column diagrams in the message box

TIA Selection Tool

Intelligent online catalog

With the TIA Selection Tool, users can select, configure, and order devices for Totally Integrated Automation (TIA). It combines already familiar configurators for automation technology in a single tool and can do even more: the tool can be directly opened in a browser or downloaded as a file and run on Windows computers. With the TIA Selection Tool, users can configure individual devices and entire plants. It assists in the selection of modules and accessories, checks terminal slot rules, and prevents selection errors. It also supports the “24-V load view” by choosing the correct 24-V power supply for the automation products that have already been selected. The power requirements of the 24-V loads are automatically calculated and factored in for the selection.

Based on the user’s product configuration, the TIA Selection Tool generates a complete order list that can be directly exported into the Industry Mall shopping cart. It is possible



NEW FEATURES

- Sitop power supplies now also in the cloud
- Selection of an uninterruptible power supply (DC UPS) from the power supply device portfolio

to select and configure control units, I/O systems, HMI operating devices, industrial PCs, drive systems, circuit technology, software, communications technology, power supplies, connection technology, industrial identification systems, and power distribution and energy measurement systems. Profibus and Profinet networks can also be designed, including all the relevant cables and plugs. ■

➔ siemens.com/tst

Industrial PCs

From compact, fanless embedded IPCs to powerful expandable high-end IPCs, the products in the Simatic IPC portfolio are the ideal foundation for many PC applications in the manufacturing environment.

Simatic industrial tablet PC

Rugged and easy-to-use powerhouse

The new Simatic industrial tablet PC condenses the performance of the Simatic industrial PCs into a compact tablet size. Thanks to state-of-the-art processor technology, industry-friendly design, and long-term availability of components, users now benefit from more mobile computing power in their production lines – with a low total cost of ownership and out-

standing investment security. Another persuasive feature of the Simatic ITP1000 is its high flexibility and excellent price/performance ratio, made possible by well-engineered interfaces and diverse configuration possibilities. ■

➤ siemens.com/itp1000



NEW FEATURES

- Unparalleled high performance for industrial mobile computing
- Well-matched hardware, software, and complementary components
- Seamless integration into the automation architecture

Simatic HMI PRO system family

All-around IP65 protected

A high degree of protection for installation outside a control cabinet, together with a large display and powerful computing – that is the new Simatic HMI PRO system family with all-round IP65 protection. The PC-based systems can be mounted directly on the machine, using a pedestal or a bracket. This ensures that the operator always has a perfect view of the panel and the process.

The Simatic HMI PRO system family combines high-performance basic devices from the Simatic IFP and IPC portfolios with sophisticated components for installation and individual expansion. The Simatic IFP and IPC PRO devices with 15-, 19-, and 22-inch displays have all-round IP65 protec-

tion (NEMA 4), which makes them an attractive solution for visualization and automation outside the control cabinet. The combination of basic device, extension unit, mounting adapter, and optional keyboard and keyboard tray impresses with its easy installation and commissioning, simple engineering, and efficient operation. Tailored system solutions with standard components allow the product to be easily adapted to individual customer requests. And last but not least, the device also stands out with its safety and long-term reliability as well as its modern and attractive design. ■

➤ siemens.com/ip65-hmi-devices



NEW FEATURES

- Combination of high-performance basic devices from the Simatic IFP and IPC portfolios with 15-, 19-, and 22-inch displays
- High IP65 degree of protection for installation outside a control cabinet
- Efficient engineering, installation, and operation
- Ability to create tailored system solutions with standard components

Simatic IPC277E/IPC477E Multitouch

Innovative ease of operation in a slim design

Operating and monitoring plants and machines efficiently never looked better than with the Simatic flat panel monitors and panel PCs, which represent the intelligent integration of a modern, slim design with innovative ease of operation. Their projected capacitive touch technology, specially developed for industrial applications, allows for intuitive and efficient single-digit or multiple-digit operation as well as gesture and two-hand operation.

With the new multitouch devices with glass covers, the IPC277E (15-/19-inch) and the IPC477E (15-/19-/22-inch), as well as the IFP with 15-inch, 19-inch, and 22-inch displays, Siemens has expanded its portfolio of Simatic IPCs. ■

➔ siemens.com/ipc



NEW FEATURES

- Slim design for modern operation concepts
- Multitouch in widescreen format for the IPC477E in 15"/19"/22", IPC277E in 15"/19", and IFP in 15"/19"/22"
- Recognition of operating errors (e.g., with the ball of the thumb)

Simatic IPC547G

Award-winning PC technology

The powerful Simatic IPC547G is effective both as a workstation and as a server for industrial applications that require high computing power as well as high system and data availability. In its new version, the IPC547G is now also available in a compact 356-mm-deep design. This makes it possible to integrate the IPC into the control cabinet as a rack or set it up as a tower. The Simatic IPC547G comes with top-of-the-line PC technology in a newly developed industrial

design that won the 2016 Red Dot Award in the product design category. The easy-to-service IPC547G sets new standards for devices of this type: it is now easier to expand and requires less maintenance. The new security functions ensure increased protection from unauthorized access. ■

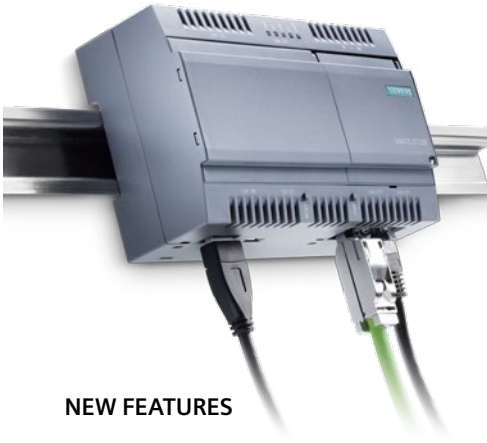
➔ siemens.com/ipc547g



reddot award 2016
winner

NEW FEATURES

- Space-saving design
- Award-winning product design (Red Dot Award 2016)
- Highest system performance with Intel Xeon / Core i processors (6th generation) and DDR4 storage of up to 64 GB
- High system and data availability with RAID systems (HDD or SSD)



Simatic IOT2000

Gateway for industrial IoT solutions

NEW FEATURES

- Open platform for collecting, processing, and transferring data directly during manufacturing
- Energy-efficient Intel Quark processor and numerous interfaces
- Highly rugged, reliable, and durable design
- Many options for programming in high-level languages
- Open solution for educational institutions with Simatic IOT2020, distributed by RS Components

The Simatic IOT2040 (Internet of Things) is the reliable, open platform for collecting, processing, and transferring data directly during manufacturing. It transfers data from the production unit to the cloud and vice versa. This continuous exchange of data closes the control loop to optimize manufacturing. The openness of the system in terms of the varied communications protocols it supports and the programming in high-level languages allows for tailored solutions.

The Simatic IOT2040 can be easily integrated into existing plants, which makes it a cost-effective and low-risk alternative to a full retrofit of older machines.

With the Simatic IOT2020, Siemens for the first time offers an open solution for open-source applications for the training market. Students and teachers in many different engineering and science fields can easily learn the basics of high-level language programming with C/C++, Python, JSON, Node.js, and others.

Thanks to proven Simatic quality, both devices are suitable for continuous operation in harsh industrial environments. ■

➤ siemens.com/iot2000

Human Machine Interface

Simatic HMI – Efficient to a new level. This is the tagline for a consistent HMI portfolio from a one-stop shop that can be used to implement the most versatile applications efficiently and economically.

Simatic HMI in machine-oriented settings

An eye for efficiency

The integrated Simatic HMI and Simatic IPC hardware and software systems efficiently meet all the requirements of state-of-the-art machine-oriented Human Machine Interface solutions. The system portfolio offers innovative technologies and solutions for a wide variety of applications in all areas, from panel-based entry-level devices from the HMI Basic family, such as Key and Basic Panels for cost-effective visualization solutions, to high-performance

panel-based and PC-based devices from the HMI Advanced family, such as Comfort and Mobile Panels or panel PCs and multi-touch devices for the most sophisticated and complex operating solutions. All the systems can be efficiently configured in the TIA Portal engineering framework, enabling the rapid development of machine solutions that are a perfect fit for the tasks at hand. ■

➤ siemens.com/hmi



NEW FEATURES

- For simple visualization tasks:
 - **Basic HMI**
Key Panels, Basic Panels, and devices for special requirements
- For sophisticated visualization tasks:
 - **Advanced HMI – Panel-based**
Comfort and Mobile Panels, devices for special requirements
 - **Advanced HMI – PC-based**
Panel and Box PCs including monitors, thin clients, devices for special requirements

Products for specific requirements

Products and systems for specific markets and custom requirements offer a high level of ruggedness, efficiency, and flexibility.



Siplus Comfort Outdoor Panel

HMI for extreme and corrosive environments

The new Siplus Comfort Outdoor Panel has been specifically developed for demanding HMI applications under extreme ambient conditions. This allows for highly flexible operation and monitoring in any outdoor area.

Whether in the oil and gas industry, on ships, in refrigerated warehouses, or in salt and sulfur production facilities, the new Siplus Comfort Outdoor Panel TP700, with a 7-inch daylight-readable widescreen display, offers all the advantages of the Simatic Outdoor Panel. It has also been enhanced to make it suitable for use in environments with up to 100% air humidity; extreme medial load (e.g., pollutant gas atmospheres), including salt mist; and increased mechanical stress (e.g., sand and dust).

It also offers additional extreme equipment properties for flexible outdoor applications and reliable operation at a wide temperature range, from -30°C to $+60^{\circ}\text{C}$ (for example, in refrigerated warehouses or in desert regions), and an IP66 panel front for a high level of protection against dust and water penetration (for example, for use in mining or on ships). Thanks to the high vibration and shock resistance, the new Siplus Comfort Outdoor Panel is optimally suited for use in vehicles or for punching and pressing. Its high UV resistance guarantees long-lasting functionality and appearance, making it ideal for use in the mountains, in equatorial regions, or at installation heights above 5,000 m. ■

➔ siemens.com/siplus-extreme

NEW FEATURES

- Certification for use under extraordinary medial load and in the presence of mechanically active substances (3B2, 3C4, 3S4), including salt mist, sand, and dust
- Bonded display for maximum protection against air humidity, condensation, formation of ice, and thermal stress
- IP66 panel front for a high level of protection against dust and water penetration
- 7-inch daylight-readable widescreen display

Siplus extreme Rail

Top performance for railway transportation

The Siemens portfolio of railway-certified products has been expanded with the addition of the Siplus extreme S7-1500 Rail, S7-1200 Rail, and ET 200SP Rail product lines. The devices have extensive certifications and are approved in accordance with the applicable railway standards, making them suitable for various automation tasks in the railway sector – in trains or on the track bed. For rail vehicles and functional railway areas such as switchyards or signaling systems in particular, rapid and reliable communication between all components is essential. Thanks to the consistent engineering in TIA Portal, project engineers and suppliers benefit from high engineering efficiency as well as short commissioning times. The easy expandability of the I/O modules and plug-and-play maintenance offer unique advantages for railway operators and subcontractors. For maintenance, the integrated diagnostic functions have proven their value.

**NEW FEATURES**

- Wide range of trainside and trackside applications
- Efficient engineering thanks to integration into TIA Portal
- Industrial Security Level 2 for Rail
- Suitability for temperature ranges TX and T1

Typical applications in trains are HVAC (heating, ventilation, and air-conditioning) systems, water and light management, toilet facilities, sandbox systems, and exterior and interior door control. On the track bed, Siplus extreme Rail is above all used for switch points, signaling and switchgear systems, platform doors, and information displays. ■

➤ siemens.com/siplus-extreme-rail

Sirius components for railway applications

Compliant with standards for extreme conditions

The Sirius product family for switching technology is complemented by products developed specifically for the railway industry. To ensure that the electrical and mechanical components operate safely and reliably even in this extreme area of application, they have been designed to be highly resistant to large temperature fluctuations, shocks, vibration, electromagnetic interference, and much more.

Sirius railway components have been developed, tested, and certified in accordance with current standards and guidelines, such as DIN, EN, IEC, IEEE, ISO, EAC/GOST, and ANSI as well as the current fire protection standard EN 45545, and reliably fulfill any requirement in the railway sector. With these certified components, Siemens actively supports the international vehicle approval process. ■

➤ siemens.com/railway-components

**NEW FEATURES**

- Contactors from 3 kW (smallest size, S00) to 250 kW (largest size, S12), which can be directly controlled with a PLC
- Compliance with all relevant international railway standards (e.g., EN 60077, EN 50212, IEC61373, etc.)
- Usability in a temperature range of -40°C to $+70^{\circ}\text{C}$ and with an extended voltage range of -30% to $+25\%$ of rated voltage



Siplus CMS1200

Better analyses for broad monitoring ranges

NEW FEATURES

- Easy integration of condition monitoring of mechanical components into the Simatic S7-1200
- Documentation of spectra trend patterns
- Extension of the monitored frequency range to include all parameters from 0.1 Hz to 10 kHz

The new Siplus CMS1200 condition monitoring system for drivetrains offers improved functionality for analyzing the recorded signals and a broader monitoring range. With the Siplus CMS1200, the status analysis of mechanical components can be easily integrated into the Simatic S7-1200. Mechanical damage can thus be detected at an early stage, so that the appropriate maintenance activities can be planned in good time. With IEPE vibration acceleration sensors, the CMS1200 detects vibration signals, evaluates them without any additional software, diagnoses them, and then visualizes them in TIA Portal or a web

browser. Up to seven condition monitoring modules (SM 1281) can be connected to an S7-1200 controller, allowing a total of 28 IEPE vibration acceleration sensors to be connected. With the new firmware, the Siplus CMS1200 can monitor parameters in the frequency range of 0.1 Hz to 10 kHz – for example, for wind power stations.

To better analyze the recorded values, users can document trend patterns for spectra, for example, to better evaluate the wear and tear of mechanical components. ■

➤ siemens.com/siplus-cms

Siplus HCS

Efficient heating element control

The powerful Siplus HCS I/O systems now offer additional functions for easy project planning and commissioning. The HCS4200 heating control systems are available for 230-/277-V networks, and the HCS4300 for 400-/480-V networks. Both systems control heating elements up to a rating of 16 A. Both 230-V and 400-V heating elements can now also be controlled with just one central interface module (CIM), which saves space and money.

With the TIA Portal engineering framework, Siplus HCS can be easily integrated into automation systems. An HCS program library and application examples further simplify

the engineering process. With HCS integration into the Proneta diagnostics portal, Profinet networks are even easier to commission – for example, a wiring test can already be performed during assembly. Thanks to the integrated configuration control (option handling), HCS stations can also be modified or expanded without any engineering. And with the permanent phase shift, the HCS4200 now offers a third operating mode for heating elements that enables the implementation of fast processes at constant heat dissipation. ■

➤ siemens.com/siplus-hcs



NEW FEATURES

- HCS in Proneta for easy Profinet commissioning
- HCS with configuration control
- Combined operation for 230-V and 400-V heat emitter control
- HCS4200: Phase shift for fast processes

Power Supplies

Efficient machine and plant operation requires reliable power supply. The Sitop portfolio includes solutions with maintenance-free energy storage units to protect PC-based automation systems against power failure.

Sitop UPS1600/PSU8600

24-V supply for protection against power failure

A power failure or voltage dip caused by, for example, a lightning strike, switching operations in the medium-voltage networks, or an unstable power supply with mains and voltage fluctuations can have serious consequences: if the 24-V power supply is not reliable, automation systems and their communication links will fail. Process information might be lost, and operating systems and software could be damaged. Furthermore, failsafe system operation is no longer guaranteed, which poses a threat to personnel and equipment.

A possible solution for this is 24-V buffering with an uninterruptible DC supply. The Sitop UPS1600 DC UPS modules can be combined with UPS1100 battery modules with different energy storage options (lead,

pure lead, and lithium technology). The lithium technology (LiFePo) sets itself apart with a constant output across the entire discharge time and a broad temperature range. Its primary advantage over a lead battery is its long service life, which makes annual battery replacement unnecessary. The UPS1600 reports all relevant operating and diagnostic information, such as power failure and buffer capacity, via the integrated Ethernet interface. Monitoring takes place via the Sitop UPS Manager software. Based on the battery charge state, it reliably closes software applications and allows multiple computers to be shut down according to the master/slave principle. The integrated OPC UA server enables flexible integration into various automation, operating, and monitoring systems.



NEW FEATURES

- Controlled shutdown of one or more computers
- Access to all important Sitop UPS1600 or PSU8600 operating and diagnostic data
- Very long service life for the energy storage units (ultra caps or LiFePo)
- Lithium technology option, which makes annual battery replacement unnecessary
- Buffer time extension with up to six UPS1100 battery modules or up to two BUF8600 buffer modules
- Free-of-charge application examples (documentation and program)

Another solution is the Sitop PSU8600 power supply system. The basic device can be expanded with additional outputs (CNX8600) and buffer modules (BUF8600) to compensate power failures. With the buffer modules, which are based on high-capacity double-layer capacitors (so-called ultra caps), bridging times in the range of minutes are possible (for example, 2.5 minutes at 5-A load current). In case of a power failure, the PSU8600 powers the connected 24-V loads and reports this state to the S7 software controller via Profinet. The computer applications are closed as defined and the computer is shut down in a controlled way. ■

➔ siemens.com/sitop





Sinamics V20 Smart Access web server module

Wireless access

A web server module has been added to the small and rugged Sinamics V20. Thus the frequency converter is easy to commission and can wirelessly be operated with a mobile device or a laptop.



The Sinamics V20 converter is a simple and cost-effective solution for basic applications. The smallest frequency converter by Siemens covers a power range from 0.12 kW to 30 kW. The compact and rugged converter is suitable for applications such as pumps, fans, compressors, and conveyors, as well as for commercial applications such as refrigerators, treadmills, and ventilation systems.

The performance range of the Sinamics V20 can be expanded by the optional web server module Sinamics V20 Smart Access. The device is

mounted to the frequency converter and enables wireless commissioning, operation as well as diagnostics and maintenance via a mobile device or laptop. The Sinamics V20 Smart Access enables access to the converter via a wireless Wi-Fi connection. This enables comfortable commissioning and operation of the converter. Sinamics V20 Smart Access offers functions such as quick commissioning, running the motor in JOG mode, setting up and changing parameters, monitoring of the converter status, and saving or restoring settings. Furthermore error and fault

codes can be diagnosed and directly forwarded to the local service partner.

The user interface of the Sinamics V20 Smart Access is designed like an app and is thus easy and intuitive to use. In addition, thanks to the web server technology, no additional data or applications need to be installed. Instead, the existing web browser of the terminal device is used. The user has greater flexibility in his choice of terminal device and can use a familiar device as the operating panel.

➔ [siemens.com/sinamics-v20](https://www.siemens.com/sinamics-v20)

Integrated Drive Systems

Siemens offers all-in-one solutions for drive technology that can be seamlessly integrated into any automation environment and during the entire lifecycle – for improved efficiency, reliability, and productivity.

Sinamics G120C / Expanded performance

Increased functionality for high power ranges

Siemens has expanded its successful Sinamics G120C inverter series with new frame sizes for high power ranges. The new FSD (22 to 45 kW), FSE (55 kW), and FSF (75 to 132 kW) frame sizes complement the existing four sizes in the series. This means the Sinamics G120C is available in seven different performance-optimized sizes for the power range from 0.55 to 132 kW, compatible with three-phase networks (3AC, 380 to 480 V). Among other applications, the Sinamics G120C can be used in conveyor belts, mixers, extruders, pumps, fans, compressors, and simple handling machines.

The Sinamics G120C is fully integrated into TIA Portal V14 and can communicate with the Simatic S7-1200 Basic Controller via Profibus or Profinet. Thus, both the control and the drive systems can be programmed intuitively. Thanks to the perfect integration into Totally Integrated Automation (TIA) and integrated safety with Safe Torque Off (STO), together with reliable communications via various communication interfaces, the compact and versatile inverter now also offers full functionality in higher performance ranges. ■

➔ siemens.com/sinamics-g120c

NEW FEATURES

- All-in-one compact series for 400-V 3AC networks in the power range from 0.55 to 132 kW
- First compact devices also for higher power ranges in the new FSD, FSE, and FSF frame sizes
- Greater efficiency thanks to user-friendly commissioning and operation
- Full integration of the drives into TIA Portal system diagnostics
- Easy reusability of the inverters, together with their parameters and hardware components, thanks to the TIA Portal library concept



Sinamics G120P

Innovated power modules for industrial applications

The Sinamics G120P frequency converter has been innovated with two new power modules. The new PM240P-2 power module is the newest addition to the Sinamics G120 portfolio for built-in and cabinet units. The 400-V voltage-level category has been enhanced with new devices, and an additional 690-V voltage level has been introduced. Built-in units in safety class IP20 and a power range of 22 to 132 kW as well as cabinet units in safety class IP20 to IP55 and a power range of 75 to 132 kW are now available for both voltage levels. The components of the rugged devices are resistant to corrosive gases and can withstand operating temperatures ranging from -10°C to +50/60°C, allowing the frequency converters to be used in highly demanding settings. Integrated safety functions ensure higher process safety up to Safety Integrity Level (SIL) 3. The Power Module PM240P-2 also has a link reactor that efficiently reduces the circuit feedback and increases the output voltage by 98%.

The expansion of the PM330 power module with the new 690-V voltage level makes it ideal for industrial applications. With this addition, Siemens' wide-range power module portfolio covers the entire range from 315 to 630 kW. Using the new PM240P-2 power module and reducing the width of the cabinet from 1,000 to 400 mm, allows the cabinet to take up 60% less space. Variable-speed equipment fans also substantially increase energy efficiency. ■

➤ siemens.com/sinamics-g120p



NEW FEATURES

- **New PM240P-2**
 - Increased energy efficiency thanks to higher output voltage
 - Higher process safety with integrated safety functions
 - Increased ruggedness for demanding ambient conditions
- **Innovated PM330**
 - 60% space savings
 - Increased efficiency thanks to variable-speed equipment fans
 - Full product line that offers a consistent solution throughout all voltage ranges

Sinamics S120 Safety Integrated for converting

Safe and efficient winding

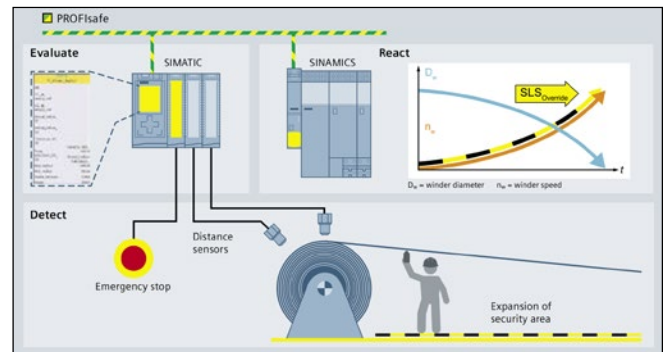
Machines that process continuous material (reel-to-reel or reel-to-sheet) can be operated more efficiently using safety winders equipped with the failsafe Simatic F-CPU and the safe Sinamics S120 converter. When the machine is set up or retooled, the operator needs to feed the material manually. The safe automation system recognizes the size of the reel and derives the currently permissible Safely Limited Speed (SLS) limit. The winder's speed limit can then be adjusted to ensure that the material moves at a safe and constant pace throughout the entire speed range. This accelerates the set-up process without endangering the operator.

Even in automatic operation, when setting the initial diameter the failsafe automation system recognizes the size of the current reel and calculates the permissible SLS limit. This means that it is possible to determine and monitor the maximum speed for each reel size that is being processed at any given time. The operator can thus put the machine into a safe operating state and shut it down in time – and not when it is too late and the maximum speed has been exceeded. ■

➔ siemens.com/safety-drives

NEW FEATURES

- Dynamic safe speed regulation based on the roll diameter
- Safe monitoring of the web pace, from set-up mode to maximum production speed
- Compliance with the prescribed web pace at all motor speeds



Sinamics S120 FW4.8

Suitable for many hardware types

NEW FEATURES

- Support for new hardware
- New functions for improved control precision and dynamics
- Safety Integrated functions
- System redundancy with highly available Simatic controller



The tried and tested Sinamics S120 converter system now comes with updated firmware, Version 4.8. The system now supports PM240-2 power modules in sizes D–F, Simotics 1FP1 reluctance motors, and Simotics S-1FG servo-g geared motors. The new FW 4.8 also has many useful functions – for example, cogging torque compensation, which regulates torque ripple; active vibration dampers without load sensors, which save the mechanics and increase dynamics; and an innovated U_{max} controller to increase torque and dynamics. Together with the highly available Simatic S7-400H controller, the Sinamics S120 FW 4.8 supports system redundancy to minimize plant downtime. The new firmware is completed with Safety Integrated functions such as braking ramp monitoring with a sensor, SS1 to SIL 3 with the PM240-2 sizes D–F, and configurable fault response after Profisafe downtimes. ■

➔ siemens.com/sinamics-g120p

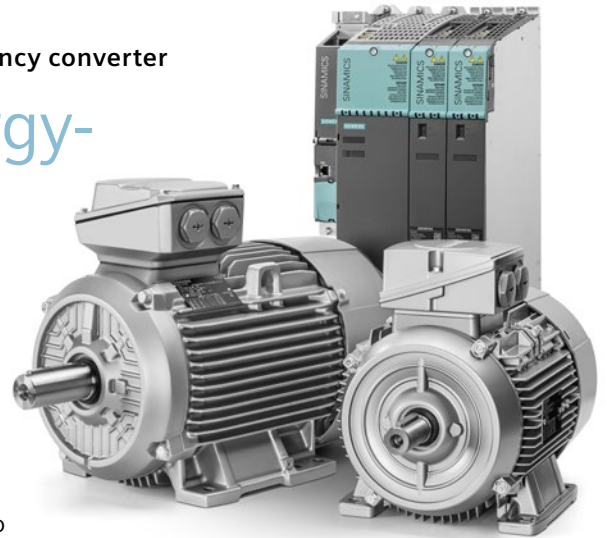
Simotics synchronous-reluctance motor with Sinamics S120 frequency converter

High-performance and energy-efficient combination

Simotics synchronous-reluctance motors can now also be operated with the Sinamics S120 frequency converters in the new firmware version 4.8, allowing the entire functionality and complexity of the modular Sinamics S120 range of products to be utilized. The system can be used wherever the performance or efficiency of asynchronous motors is insufficient, but the highest level of dynamics is not necessary for permanent-magnet synchronous motors. That is true for various applications in general machine building, for example, winders, extruders, and servo-pumps. The safety functionality and high energy efficiency are two very persuasive features offered by the system consisting of Sinamics S120 and Simotics synchronous-

reluctance motors. In the partial-load range in particular, synchronous-reluctance motors have efficiency levels that correspond to those of highly efficient permanent-magnet synchronous motors. The system costs are also considerably lower than those of permanent-magnet synchronous motors and less than those of Simotics 1LE1 IE4 asynchronous motors. Thanks to the high energy efficiency and the low initial costs, it usually takes less than 12 months to achieve full return on investment when compared to the cost of operating IE2 drives. ■

➔ siemens.com/drivesystem-reluctance



NEW FEATURES

- Vector control optimized for synchronous-reluctance motors
- Motor and regenerative operation optimized in terms of energy efficiency and dynamics
- Operation with or without an encoder
- Similar dynamics to permanent-magnet synchronous motors in terms of speed steps
- Better dynamics than asynchronous motors in terms of torque steps
- Safety functionality



NEW FEATURES

- More efficient heat dissipation
- One cooling circuit for plant, motor, and converter
- Available process water becomes cooling water of the drive system
- Increased energy efficiency thanks to power recovery and less power loss

Water-cooled Sinamics S120 and Simotics FD

Complete system for open circuits

The new Simotics FD and Sinamics S120 converters offer an integrated cooling system for open motor and converter circuits. The system stands out due to its highly efficient use of power. Due to an optimized control and pulse pattern for Simotics FD, power loss can be reduced by at least 10%. The drive system is also available with active infeed to recover regenerated power and feed it into the network. Another advantage of the system is its open circuit. Only one common cooling circuit is needed for the plant, the motor, and the converter. The water-quality requirements are low, and the system is highly resistant to corrosion, ensuring easy maintenance and commissioning. Because it is easy to implement high degrees of protection in the converter and the motor, reliability is guaranteed even in harsh environments. ■

➔ siemens.com/ids

Simotics HV HP

Faster project completion, higher plant availability

The new Simotics HV HP high-voltage motor for top performance up to 70 MW speeds up projects, resulting in a shorter time to market for the complete plant. This is attributable primarily to the unusually short delivery times for this power rates. Also, the workload is reduced at all stages of the project: from planning the system with 3D design data from the Siemens PLM software, to selecting and configuring components with standard IT tools from Siemens, and even easier integration into the plant with standardized interfaces, and a lightweight, compact design. The optimized base frame of the new series minimizes vibrations, increases the motors' resistance to extreme ambient conditions, and makes the high-output motors run more quietly. Integrated condition monitoring systems (CMS), the easy-to-service structure, and the simplified spare parts inventory also contribute to increased plant availability.

Thanks to the flexible and modular design, the Simotics HV HP offers customized solutions for every industrial application in a high output range. The Simotics HV HP can be delivered as either an asynchronous or a synchronous device, in an explosion-proof design if necessary, and perfectly matched for use with Sinamics medium-voltage converters. Typical applications for the motor are heavy-duty pumps and compressors for oil, gas, and petrochemicals; rolling applications in the steel industry; blower fans and boiler feed pumps in power plant technology; high-performance refiners for the fiber industry; and propeller engines in shipbuilding. ■

➤ siemens.com/simotics-hv-hp-asynchronous

➤ siemens.com/simotics-hv-hp-synchronous

NEW FEATURES

- Shorter project duration thanks to a reduced workload at all project stages
- Increased plant availability thanks to the flexible and maintenance-friendly design
- Easy-to-service structure and integration into the CMS



Simotics DP crane motors

Reliable in harsh sea environments

NEW FEATURES

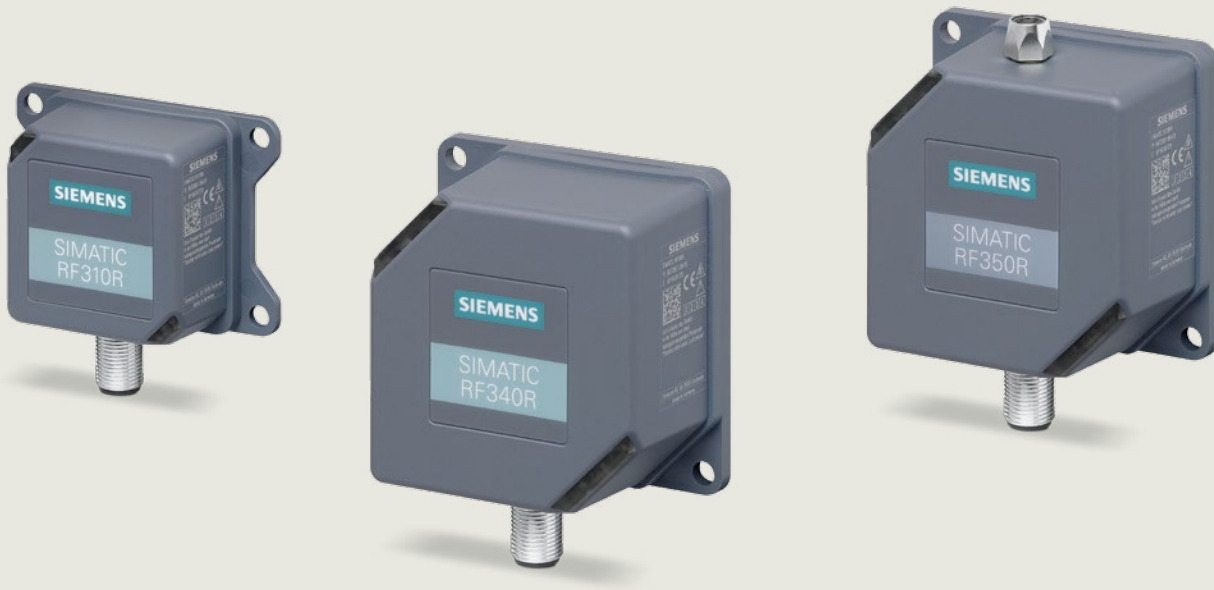
- Solution package for environments with salty air and high humidity
- Modular design with application-specific components
- Special insulation system up to 500 V AC on the converter as standard, and optionally for 690 V AC on the converter
- Nonventilated (IC410), ventilated (IC411), and force-ventilated (IC416) designs



Simotics DP crane motors will soon be available in combination with the Sinamics converter family. These latest-generation motors offer maximum efficiency and high availability thanks to the use of particularly robust materials, from cast

iron housings to specially adapted encoders and brakes. This motor generation offers a wide range of solutions for the most diverse applications. Simotics DP crane motors have been developed for use in salty environments with high humidity. The system has been adapted to the typical S2 or S3 (S9) intermittent duty cycles for crane applications. The motors are available in power ranges from 1.8 to 481 kW (S3) and in frame sizes from 132S to 315L. Special approvals confirm that the motors are suitable for worldwide application. ■

➤ siemens.com/simotics-dp



Simatic RF300

Features for the future

The Simatic RF300 RFID system has been innovated with the addition of a new generation of readers. With their updated design and considerably improved functionality, the new readers are even more versatile and at the same time fully compatible with the first generation.

The Simatic RF300 is an inductive RFID (radio frequency identification) system that has been specially designed for controlling and optimizing the material flow in industrial production. With its compact component dimensions, it fits snugly into assembly lines, handling systems, and workpiece carrier systems in confined spaces. The RF300 is ideal for both simple and complex RFID applications and offers a convincing price/performance ratio. Now Siemens has renewed its Simatic RF300 RFID system by modernizing three readers, the RF310R, RF340R, and RF350R. The new devices combine all functionalities of the previous models with features that no other product currently on the market can offer: easy integration into TIA Portal, integrated set-up support, a “mixed transponder” operating mode, and simplified migration.

Various additional features

The readers enable full integration into Simatic controllers. And since they allow for configuration via TIA Portal, parameterization and programming errors are eliminated and commissioning is accordingly faster and easier. The new, user-friendly setup help is used to position perfectly the antenna and ensures high reliability, especially in the

metallic environment. This helps the user optimize the reader-to-transponder position during assembly/commissioning without any additional accessories. The RF310R and RF340R readers are equipped with an integrated antenna. The RF350R also allows for the connection of an external antenna. Different antenna designs and sizes are available for different uses.

The readers also feature an additional transponder protocol (air interface) for Moby E transponders (MIFARE classic, ISO 14443) and the automatic detection of different types of transponders (RF300, ISO 15693, MIFARE classic). This simplifies the migration of older systems such as Moby I (only exchange of readers and transponders) and Moby E (system expansion with RF300 readers possible) and allows for new applications. This enables plant owners to cost-efficiently convert Moby E installations without exchanging transponders. The users benefit from greater flexibility in production control and lower complexity (for example, easier warehousing). ■

➔ siemens.com/rf300

Industrial Identification

Identification systems help companies remain competitive in increasingly dynamic markets. RFID or optical readers allow manufacturers to meet the ever-increasing demands relating to material flow control, asset management, tracking and tracing, and supply chain management.



Simatic RF1000

Easy machine and plant access control

With the new Simatic RF1060R reader, Siemens has introduced a flexible and easy-to-use solution for machine and plant access control. With this innovation, companies can use their existing employee ID cards to control access rights individually and thus identify the operating staff and document who accessed the machines when. This helps prevent unauthorized access and misuse, thereby ensuring process reliability and efficiency. To protect plants, systems, machines, and networks against cyberattacks, a holistic industrial security system must be implemented and continuously maintained. The Simatic RF1060R is parti-

cularly well suited for automotive manufacturers and suppliers as well as companies in the pharmaceutical and food industries.

The Simatic RF1060R operates in the HF range, with a frequency of 13.56 MHz. It supports the ISO 14443 A/B (MIFARE) and ISO 15693 standards. The reader has a USB interface (1.8 m cable with USB connector, type A) and can be integrated into software applications running on Windows 7, 8, and 10. It can also be easily integrated into existing hardware, control, and IT systems. With its compact design, it is perfect for applications in confined

NEW FEATURES

- Easy machine and plant access control
- Increased process reliability and efficiency
- Suitable for cross-sectoral use and harsh environments
- Easy integration into existing hardware (HMI devices and panels) as well as control and IT systems

spaces. Thanks to its high protection class (front: protection class IP65), it can withstand harsh industrial environments at temperatures of -25°C to $+55^{\circ}\text{C}$. ■

➤ siemens.com/rf1000

Simatic RF600 V3 with OPC UA

Future integrated

As of Version 3, the UHF RFID devices in the Simatic RF600 line have new firmware. With the OPC UA interface, all RF600 readers – the RF650R, RF680R, and RF685R – now offer an interface that can play an important role in networking sensors, automation technology, and IT systems in the context of Industrie 4.0.

The integrated security functions give OPC UA a high level of data security, which is especially crucial in the age of communication. Additionally, the OPC UA standard for auto ID makes it

easier to exchange similar auto ID systems or to migrate from optical readers to RFID without significant modifications to the user application. With the new firmware version, the RF680R and RF685R devices now also support EtherNet/IP, an interface that is particularly common in the United States and Asia. This makes the devices easy to integrate into third-party PLCs. ■

➤ siemens.com/rf600



NEW FEATURES

- High data security with the integrated security functions of OPC UA
- OPC UA interoperability for easy networking
- Support for EtherNet/IP

Scalance X-200

Three new industrial switches

With the new Scalance XB-200, XC-200, and XP-200 product lines, managed Industrial Ethernet network infrastructure can be set up in different types of industrial environments – in control cabinets or in cabinet-free installation.

All the new Scalance X-200 product lines support various firmware functions, for example, MRP (Media Redundancy Protocol), which is used to set up redundant ring structures, or SNMP (Simple Network Management Protocol), which allows for use with management systems such as Sinema Server. Thanks to their ability to switch between Profinet and EtherNet/IP diagnostics modes, the new switches can also be operated in automation systems using different Industrial Ethernet protocols – even in Zone 2 hazardous areas.

Entry-level Scalance XB-200

The Scalance XB-200 is the entry-level model for managed layer 2. It is available in both electrical and electrical/optical versions. Scalance XB-200 is the right switch for all applications with low requirements on the hardware and the device's quantity structure.

Scalance XC-200 – for a broad range of applications

The Scalance XC-200, in contrast, has all the features a switch needs to network within automation cells or to connect cells. In addition to different versions with up to 24 electrical ports and two optical ports, fiber-optic versions are available, which are suitable for bridging long distances of up to 200 km. The switches with optical ports are available in either ST/BFOC, SC, or SFP versions. The SFP version can be additionally equipped with two Gigabit plug-in transceivers, making it the perfect solution for connecting several machines and plant sections with each other. Thanks to their design, the Scalance XC-200 models are ideal for control cabinet installation: they have the same height as the Simatic S7-1500 controller, and versions with reduced port depth save space. Retaining collars and the continuous monitoring of the fiber-optic line help improve data connection reliability and prevent plant downtimes. The XC-200 is also approved for trackside railway applications.

Scalance XP-200 – for cabinet-free installation

The Scalance XP-200 with IP65/67 degree of protection and M12 connection technology is designed for cabinet-free installation. In addition to four Gigabit ports, it has up to eight Power over Ethernet (PoE) ports in accordance with the IEEE 802.3at type 2 standard, which can power both Fast Ethernet and Gigabit devices with 30 W per port.

The Scalance XP-200 sets itself apart with its distinctive flat design. With a housing depth of only 60 mm – even with the wiring – the rugged metal switches are perfect for applications in which the installation depth is an essential factor when selecting network components. The Scalance XP-200 is approved for trackside and train-side railway applications, as versions with specially hardened hardware (conformal coating) are available for use in areas with harsh environmental conditions. Furthermore, it fulfills the requirements of the e1 and E1 standards required for motor vehicles. ■

➔ siemens.com/x-200



Industrial Communication

From the simple connection of a sensor to recording and transmitting all the quality and production data of a factory, Siemens' comprehensive range of products and services for industrial communication networks enables efficient integration of all business segments.

Scalance XB004-2

The right switch for industrial applications and building technology

New in the Scalance X-000 unmanaged Industrial Ethernet switch portfolio: the Scalance XB004-2. It is especially suitable for fiber-optic line topologies of up to 5 km in length, allowing distributed machines and plant sections to be connected and automated at low cost. Versions of the Scalance XB-000 product line can now also be used for automation systems

in public buildings such as schools, supermarkets, public pools, and underground parking lots. In addition to the classic 24-V DC technology, primarily used for industrial purposes, the switch also offers a 24-V AC power supply option, which is mainly used for building automation. The Building Automation and Control Networks (BACnet) protocol support provides

high bandwidth of up to one Gigabit per second to transmit large amounts of data. With its compact dimensions, the Scalance XB-000 models are ideal for space-saving control cabinet installation. ■

➔ siemens.com/x-000



NEW FEATURES

- Unmanaged switch product line with Gigabit versions
- Fiber-optic connectors for bridging long distances
- 24-V AC support for building automation

Scalance XC-100

Robust Industrial Ethernet switch

The new line of Scalance XC-100 unmanaged layer 2 switches allows the creation of electrical and optical line and star topologies for machine-oriented networks in industrial environments. The switches have a robust housing and a broad temperature range of -40°C to $+70^{\circ}\text{C}$. The redundant power supply ensures that the network remains operational in case of voltage loss.

The Scalance XC-100 devices are available as different versions with up to 24 electrical ports and two fiber-optic connectors. Depending on the requirements, RJ45 and ST/BFOC or SC versions are available for various applications. For example, industrial-standard RJ45 connectors with a collar combined with FastConnect plugs and cables are the perfect

solution for creating stable RJ45 connections in environments prone to shock and vibration. Thanks to their design, which is optimized for compatibility, Scalance XC-100 devices can be installed at the same height as a Simatic S7-1500 controller or on the wall, using a 35 mm DIN standard mounting rail. Clearly arranged diagnostic LEDs and a signaling contact make it possible to precisely determine the device status and carry out quick and reliable diagnostic evaluations. Furthermore, the new product line is approved for a wide range of applications: it has Ex Zone 2 certification for use in hazardous areas as well as various onshore and offshore marine approvals. ■

➔ siemens.com/x-100



NEW FEATURES

- Up to 24 electrical ports and 2 fiber-optic connectors
- Robust housing and broad temperature range of -40°C to $+70^{\circ}\text{C}$
- ATEX/IECEx certification for hazardous areas
- Scalance XC108 with E1 motor vehicle approval for use in public transport

Scalance M876-4 (NAM)

Mobile wireless router for North America

The new Scalance M876-4 4G mobile wireless router now meets both the North American and the European mobile telecommunications standards, making it perfect for North America’s LTE networks. As it is downward compatible, it can also be used for UMTS and GSM in addition to LTE networks.

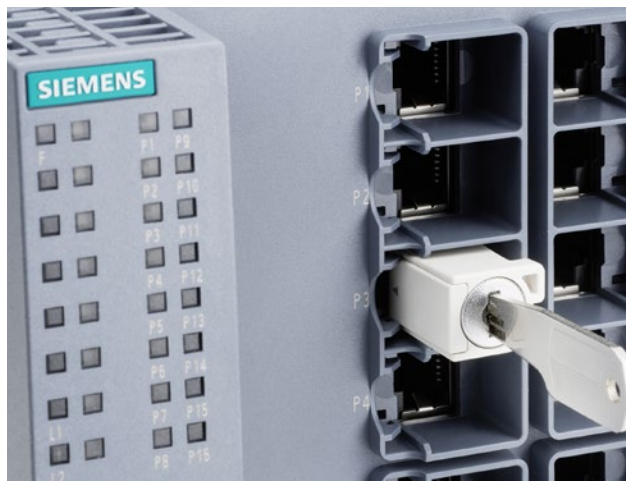
With its extended temperature range of –20°C to +60°C and the well-designed housing with a stable collar, the Scalance M876-4 can be used in harsh industrial environments as well as in Ex Zone 2. The mobile wireless router can set up a structured network with up to four IP addresses. In addition to its routing functionality, it can be used as an Industrial Ethernet switch in local networks. The Scalance M876-4 also supports the OpenVPN and IPsec security mechanisms and can be easily integrated into the Sinema Remote Connect management platform. This gives users secured remote access to machines and plants in outlying production facilities. ■

➤ siemens.com/remote-networks



NEW FEATURES

- Compliance with North American mobile telecommunications standards
- Robust design, suitable for industrial environments
- Structured, clear, and secured network set-up



IE RJ45 port lock

Physical network access protection

Open, unused RJ45 interfaces that can be used by unauthorized third parties to access networks are a well-known network security problem. The IE RJ45 port lock reduces this risk with the ability to mechanically lock the ports of terminal equipment and network components. Shaped like a plug, the port lock with a robust design snaps securely into place at the RJ45 interface. This easily prevents the insertion of RJ45 cables and thus the unwanted use of empty RJ45 ports, even on nonconfigurable network components. The integrated lock, which can be unlocked only using a mechanical key, blocks the latch of the RJ45 port lock. The robust port lock is suitable for industrial use, and it is easy to install without additional tools, thanks to its RJ45-compatible design. ■

➤ siemens.com/networksecurity

NEW FEATURES

- Prevention of unwanted use of empty RJ45 ports on devices and network components – even on nonconfigurable network devices
- Clear identification of unusable ports with mechanical port lock
- Robust design, suitable for industrial use
- Easy installation without additional tools, thanks to RJ45-compatible design

Sinema Server V13 SP2

Diagnostics at its best

With Sinema Server, users can obtain a central status overview of all active servers and thus a general overview of the company's production network. In the new version, V13 SP2, the management software features extended Profinet diagnostics, which offers the user not only SNMP and Simatic but also additional diagnostic options. Thus, it can evaluate selected channels on the module level to quickly determine the diagnostic statuses of large distributed systems such as the Simatic ET 200, for example, with its many inputs and outputs. It can also automatically recognize tool changers.

The new version now also supports Scalance M (DSL and mobile wireless router) and Scalance S615. This makes downloading the firmware from the management system more convenient



NEW FEATURES

- Extended Profinet diagnostics
- Automatic recognition of changing topologies
- Online network validation functions
- Firmware management now also for Scalance M / Scalance S615

for the user, as more and more network components use this mechanism. Sinema Server V13 SP2 also has some new validation functions: with Ethernet-based devices, the software detects duplicate device names, IP and MAC addresses, and changing topologies when reading the status and diagnostic data.

Thanks to universal mechanisms, seamless integration of the defined network diagnosis into SCADA systems such as WinCC or PCS 7 is possible with standards such as OPC UA (Open Platform Communications Unified Architecture). In this way, Sinema Server is positioned to play an important role in industrial communication on the path toward increased digitalization. ■

➤ siemens.com/sinema-server

Sinema Remote Connect V1.2

Integrated security and virtualization

With the Sinema Remote Connect management platform, users can easily set up secured connections to remote machines. This solution is especially well suited for remote maintenance in series and special machine construction. The new version, V1.2, offers both OpenVPN and IPsec encryption. Users can now flexibly connect machines with different security protocols. Additionally, the new version of Sinema Remote Connect also runs in a virtualized environment. This increases the application's flexibility and availability, making service and support even more efficient.

Siemens offers a complete virtualization solution (Simatic Virtualization as a Service) that includes setting up the Sinema Remote Connect server, configuring the virtual machines and their network structure, installing and configuring the operating system, and installing the respective Simatic software (TIA Portal, Step 7, etc.). To support virtualized systems across the entire lifecycle, Siemens additionally offers coordinated services such as Simatic Remote Services and Managed Support Services. ■

➤ siemens.com/sinema-remote-connect



NEW FEATURES

- Additional security functions thanks to IPsec encryption
- Parallel connection with different security protocols
- Virtualization solution for increased flexibility and availability

Ruggedcom RX1400

Now with a Wireless LAN interface

The Ruggedcom RX1400 LTE cellular router will soon be available with an optional Wireless LAN interface. The Wireless LAN interface can function as a Wireless LAN IEEE 802.11n access point or client and supports 2.4 GHz and 5 GHz at a maximum Wireless LAN bandwidth of up to 300 Mbit/s. The RX1400 is designed to connect Industrial Ethernet and serial devices in any environment through its wired or wireless interfaces. For example, the LTE interface with bandwidths of up to 100 Mbit/s is ideal for backhaul from remote locations, whereas the Wireless LAN interface is ideal for local wireless connections. The local Wireless LAN connection can be used for secure configuration and monitoring of the RX1400 parameters as well as for accessing its virtual machine environment.

This robust and fanless device comes with a rugged metal housing that supports DIN rail, panel, or rack mounting. Thanks to its IP40 ingress protection

rating and rugged overall design, the RX1400 can operate continuously within a -40°C to $+85^{\circ}\text{C}$ temperature range. Furthermore, it provides a high level of immunity to electromagnetic interference, heavy electrical surges, and humidity for reliable operation in harsh environments.

The Ruggedcom RX1400, due to its compact form factor and multifunctional capabilities, offers a cost-saving solution for large-scale deployments in existing cabinets by avoiding the need for multiple devices to achieve the needed interface, switching, and routing capabilities. Advanced cybersecurity features make it ideally suited for mission-critical applications, where high reliability and secure communications are of paramount importance, for example, in utility substations, traffic control cabinets, railway applications, the oil and gas industry, and other harsh environments. ■

➔ siemens.com/rx1400



NEW FEATURES

- Integrated Wireless LAN access point and client functionality
- All-in-one router with LTE, Wireless LAN and Industrial Ethernet switching and routing
- Rugged design for demanding environments such as utilities, transportation, and oil and gas industry applications



NEW FEATURES

- Communication using LTE standard
- High bandwidth and better class of service
- Sustainability for power distribution automation, railway or remote video surveillance applications

Ruggedcom RM1224

Remote communications with high bandwidth

The Siemens cellular router portfolio has been expanded by the addition of the Ruggedcom RM1224 as an entry-level device. Thanks to its high bandwidth and performance capabilities, the Ruggedcom RM1224 wireless router can be deployed in a diverse range of applications: from the integration of remote substations and feeder devices to railway applications and mobile intelligent transportation systems (ITS), as well as remote video surveillance.

Ruggedcom RSL910

Reducing cabling costs

Siemens has extended its portfolio of rugged network components with the Ruggedcom RSL910. The compact Ethernet switch is designed to operate in harsh environments with widely varying climatic and environmental conditions. Withstanding extreme temperatures from -40°C up to $+85^{\circ}\text{C}$, vibration and shock and therewith offering high reliability, this device offers high reliability for transportation applications such as rail and ITS (intelligent transportation systems).

The RSL910 helps meet the growing demand for Ethernet in roadside and wayside cabinets by eliminating the need for multiple switches. Customers can reduce cabling costs by reusing existing two-wire copper cabling. The two Gigabit SFP (small form factor pluggable) and the two EoVDSL2 (Ethernet over VDSL2) uplinks offer a migration path to fiber optics when required. The six copper Fast Ethernet interfaces allows users to connect multiple end devices directly to the RSL910 without the need for additional network equipment.

The small form factor of the Ruggedcom RSL910 makes it easy to deploy in space limited cabinets, and it can also be mounted directly on a DIN rail. To further simplify installation in existing cabinets, the switch supports multiple AC-and DC-voltage input ranges. ■

➤ siemens.com/rs1910

**NEW FEATURES**

- Rugged layer 2 switch with two EoVDSL2 uplinks
- Use of existing copper cabling infrastructure to reduce cabling costs
- Suitable for use in transportation applications, such as intelligent transportation systems (ITS)

The RM1224 router comes with an integrated 4 port switch, which can be used to connect up to four Industrial Ethernet devices. In addition, it comes with two antenna connections, making it possible for operators to use multiple receive and transmit paths (antenna diversity) and thus increase both signal quality and bandwidth. The device has one digital IO (input and output) for applications such as setting up secured VPN connections at the push of a button. Furthermore, it is equipped with its own redundant power supply for bridging short-term power failures.

The router offers downlink speeds of up to 100 Mbit/s and uplink speeds of up to 50 Mbit/s via LTE. When LTE is not

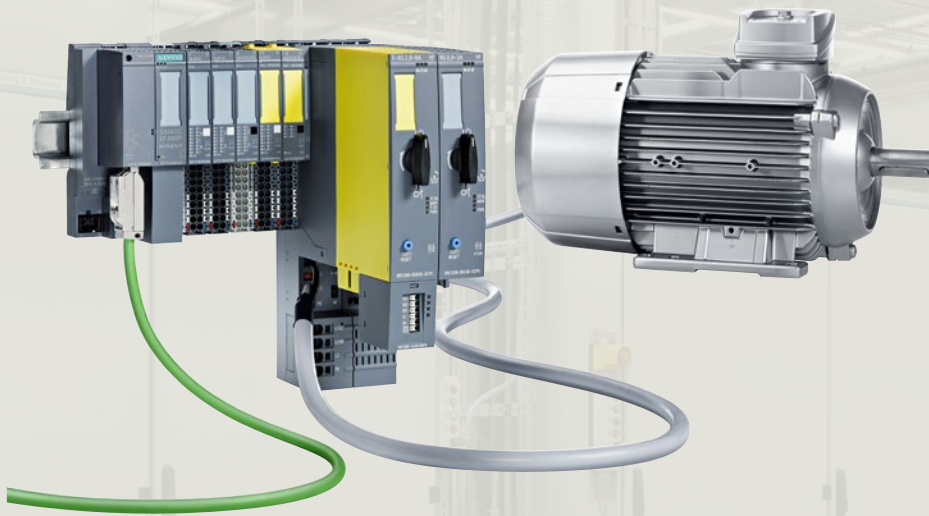
available, the Ruggedcom RM1224 supports HSPA+ (Evolved High-Speed Packet Access) and EVDO (Evolution Data Optimized) communications. Depending on the available mobile service provider infrastructure, this enables high transmission rates to end devices (downlink) of up to 14.4 Mbit/s and back to the telecommunications network (uplink) of up to 5.76 Mbit/s. This allows users to connect to IP-based end-devices around the globe. With regard to security, the RM1224 offers an end-to-end communication link encryption also via either IPsec or OpenVPN, and has an integrated firewall. ■

➤ siemens.com/rm1224

Simatic ET 200SP motor starter

High-performance protection for motors and loads

Whatever the task – switching or controlling, starting or monitoring – the powerful yet compact Simatic ET 200SP motor starter offers versatile functionality to monitor manufacturing plants while taking up little space in the control cabinet.



The new Simatic ET 200SP motor starters are available in standard and failsafe versions to switch loads up to 5.5 kW. They monitor systems, switch off devices, and reliably activate switches in various areas of application, for example, logistics systems, production machines, and machine tools. The combination of compact design and hybrid switching technology with three settings up to 5.5 kW makes the motor starter particularly powerful. When starting single-phase and three-phase motors, the motor starter reliably protects them from overloads and short circuits. The current values can be communicated and used for energy management functions.

Like all components in the Simatic ET 200 portfolio, the motor starters are easy to install. Thanks to their push-in technology, the motor starters can be wired without tools. With the infeed module, several motor starters can be connected to the main circuit. Once installed, the motor starters can be easily connected to the control system and parameterized via TIA Portal without any programming. The ET 200SP motor starter offers a variety of diagnostic possibilities. For instance, it is possible to detect zero cur-

rents. The LED display allows the defect to be located and corrected.

Guaranteed safe shutdown

The ET 200SP motor starters offer two possibilities for safe motor tripping. For localized safety functions, the operator can choose safety-oriented tripping of the motor starter using the Sirius 3SK safety relay, which separates standard technology from safety technology. For integrated safety solutions, the motor can be tripped with the F-CPU, which allows for the integration of safety technology in the standard automation system.

The ET 200SP motor starter also offers many additional functions. With the quick stop function, for example, conveyed goods can be halted with precision and the motor can be switched off independently from the PLC. This increases productivity and conveyor throughput. The motor tripping protection function ensures quick system shutdown in the event of a mechanical obstruction – for example, when a tool gets wedged in the conveyor belt. This allows operators to protect their motors and increase plant availability. ■

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

Industrial Controls

Whether the task involves switching, protecting, starting, or monitoring, with the Sirius modular system, Siemens offers a coordinated portfolio for industrial controls that is easy to install in the control cabinet and straightforward in its integration into distributed systems.

Sirius modular system

New high-capacity size

Siemens has extended its Sirius modular system portfolio with a new series of flexible devices. The switching, protecting, and monitoring devices in size S3 have a capacity of up to 55 kW/400 V and an amperage of 100/115 A despite their narrow installation width of only 70 mm. Thus, these new devices allow for a particularly compact set-up and fulfill the requirement of space-saving components for modern plant and machine manufacturing.

The tried-and-tested accessories for sizes S00, S0, and S2 that are already featured in the series are compatible with the new size S3. It is therefore possible to easily connect

the new devices to open AS-Interface and IO-Link systems with push-in function modules. For example, a current monitoring relay that can be integrated into the feeder facilitates direct monitoring and control of the application. Logic modules reduce the wiring effort and also minimize the risk of wiring errors. Thanks to the function modules, it is possible to connect the unit to the control system in the Totally Integrated Automation (TIA) environment without the effort commonly associated with this task.

The Sirius modular system is an essential component of the control cabinet. In addition to the many different possibilities for combining individual products, extensive configuration data, such as CAx data for digital planning and Siemens' detailed standards expertise, make the control cabinet designer's work considerably easier. ■

➤ siemens.com/sirius-modular-system



NEW FEATURES

- Compact design, with a width of only 70 mm, and suitability for currents of up to 100/115 A and power of up to 55 kW/400 V
- Ability to create more than 45,000 type-tested combinations
- Portfolio with matching switching, protecting, and monitoring devices

Sirius 3RN2 thermistor motor protection relay

Reliable protection against overheating

The new Sirius 3RN2 thermistor motor protection relay product line replaces the existing 3RN1 series. With a size of 17.5 or 22.5 mm, the new relay takes up less space in the control cabinet, and device variance is reduced thanks to the continuous wide range power supply. With only one device, machine builders and operators can now cover all voltage power supply ranges around the world.

The Sirius 3RN2 thermistor motor protection relay reliably protects the motor from overheating by measuring the temperature at those points within the motor that have thermal risk. Typical applications of the thermistor

motor protection relay are heavy starting (for example, of centrifuges), braking actions, and frequent switching if there is a risk of motor cooling being impeded by, for example, soiling in applications in the paper and textile industry or cement works. The new generation of thermistor motor protection relays is also available in ATEX versions, which are proven to be compatible with SIL 1 applications and therefore comply with one of the main requirements of DIN EN 50495. ATEX-compatibility certification is valid for both gas and dust atmospheres. For the machine builder and the operator, this means production is ensured even in difficult condi-

tions, as can be found in the oil, gas, and chemicals industries or in various types of mills.

The new Sirius 3RN2 devices are easy to commission: they require no parameterization, minimizing the risk of error for the operator, and the operator does not need any additional knowledge of motor details, for example, the maximum temperature of each motor type. ■

➤ siemens.com/relays

NEW FEATURES

- Reliable protection from overheating
- Temperature measurement directly at the motor winding, even under unusual conditions or in potentially explosive situations
- ATEX and SIL 1 certification in accordance with DIN EN 50495
- Compact housing with a width of 17.5 or 22.5 mm
- Reduced inventory and easier logistics thanks to the minimal number of versions



NEW FEATURES

- Mounting on busbar systems and mounting rails
- Compatibility with all Sirius 3RM1 motor starters
- Motor protection with easy-to-change fuses



NEW FEATURES

- Version available for safety technology
- Integration into TIA Portal
- Communication via Profinet and Profisafe
- Fast and easy installation

Sirius ACT with Profinet

Fast and easy connection to the Controller

With the flexible Sirius ACT with Profinet communication solution, Sirius ACT commanding and signaling devices can be directly linked with the control system via Profinet. This reduces wiring effort and sources of error and gives the operator greater flexibility if something needs to be changed. The units with communication capability are as quick and easy to install as the standard modular Sirius ACT devices. The system consists of an interface module for Profinet communication and the required command points with open terminal modules that can be easily integrated into the flat ribbon cable. The interface module is then connected to the control system with Profinet. Safety solutions can also be implemented with this method. For example, an emergency stop can be directly clipped onto the interface module. Sirius ACT commanding and sig-

naling devices are also optimized for easy installation on operating panels. The devices are directly connected to an HMI via Profinet.

The Sirius ACT device is parameterized via the proven TIA Portal, and the visualization of the configuration completely corresponds to the actual structure. The device can also be commissioned without a CPU, as each terminal module has a LED indicating its status. This ensures that function tests can be performed even without a running CPU. In addition to Profinet, Sirius ACT devices are available in versions for AS-Interface or IO-Link, as well as in the classic versions with screw, spring, or soldered connections. ■

➤ [siemens.com/sirius-act](https://www.siemens.com/sirius-act)

Sirius 3RM1 Motor Starter

Fuse module for busbar systems

The new 3RM19 fuse module extends the application range of the 3RM1 motor starter to include mounting on busbar systems and mounting rails. This means that users with only busbar systems can now use the 3RM1 motor starter. The new module can

also be combined with all motor starters in the 3RM1 series. For operators, this means wider applicability with fewer versions. The easily exchangeable fuse modules also offer protection for the motor and cables connected to the motor starter.

Different adapters enable use of the 3RM19 fuse module in all 60-mm busbar systems as well as contact busbar systems and support rails. ■

➤ [siemens.com/sirius-motorstarter](https://www.siemens.com/sirius-motorstarter)



AS-i SlimLine Compact analog modules

45-mm widths are a thing of the past!

The new AS-i SlimLine Compact control cabinet modules impress users with their very narrow widths of 17.5 and 22.5 mm. This makes the new devices half as wide as their predecessors, saving space in the control cabinet and lowering costs. The second generation of AS-i SlimLine Compact modules now also includes analog modules to capture and read out analog data. Thanks to their integration into TIA, the analog modules can be parameterized in plain text, enabling easy engineering for operators in Step 7 (classic and TIA Portal). Multiple modules can be easily coupled with one another using device connectors, which saves time and reduces the risk of wiring errors. ■

➤ [siemens.com/as-interface](https://www.siemens.com/as-interface)

NEW FEATURES

- Extremely compact design, requiring less space in the control cabinet
- Flexible use thanks to switchable sensor supply
- Easy interlinking of multiple modules with device connectors

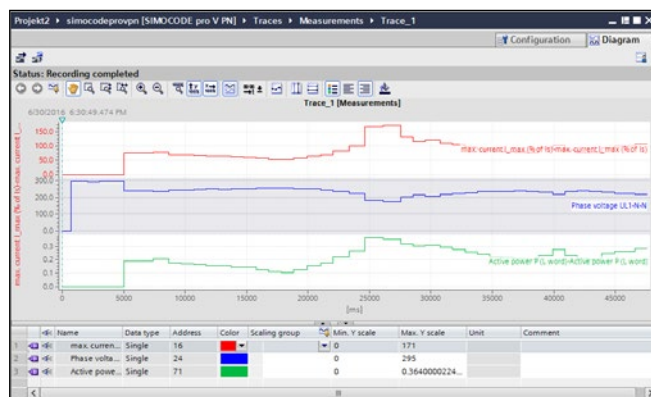
Simocode ES V14 for TIA Portal

Easier, clearer, faster

The new version of Simocode ES V14 for TIA Portal now comes with new functions enabling even easier integration into TIA Portal. The trace records have been optimized so that the operator can now individually create several traces at the same time. Thus, multiple curve diagram windows can be combined, and the data can be shown or collected in a single view, making the visualization more detailed, clearer, and more transparent.

The improvements in the library structure increase flexibility and time savings for the user. With the new version V14, the user can store not only entire devices but also the individual plans and traces he creates. These reusable library elements are saved in TIA Portal and are available for other configurations later. Transferring projects from Simocode Classic to TIA Portal is easier now as well. Users can choose from different projects in Simocode ES Classic and do not need to migrate them one by one as before. Instead, they can be transferred all together into a single TIA project from Simocode ES to TIA Portal. Now, users can also access Simocode Pro devices even without a PC connected to the Industrial Ethernet network – and it is easy, convenient, and, most importantly, secure, thanks to the new routing function of Simocode ES V14 for TIA Portal. ■

➤ [siemens.com/simocode](https://www.siemens.com/simocode)



NEW FEATURES

- Optimized trace recording to display all data in a single record
- Time-saving configuration thanks to reusable library elements
- More efficient project migration
- Routing function via Industrial Ethernet to easily connect to other devices in the network

MindSphere

The cloud-based, open IoT operating system

OEMs and end customers can use MindSphere to improve the productivity of their plants by capturing and analyzing large amounts of production data. The cloud-based, open IoT operating system from Siemens now has additional features that are expected to set new standards in the market.

Especially in networked companies with software-based production – digital enterprises – processing large amounts of data is critical. The cloud-based open IoT operating system MindSphere turns big data into smart data, helping companies prevent unplanned downtime and optimize the use of machinery. In addition, it serves as the foundation for data-based services from Siemens, for example, in the preventive maintenance of machine tools or integrated drive systems.

Diverse connectivity options

Depending on the area of application, the user has various options to connect to MindSphere. For example, the connectivity element MindConnect Nano

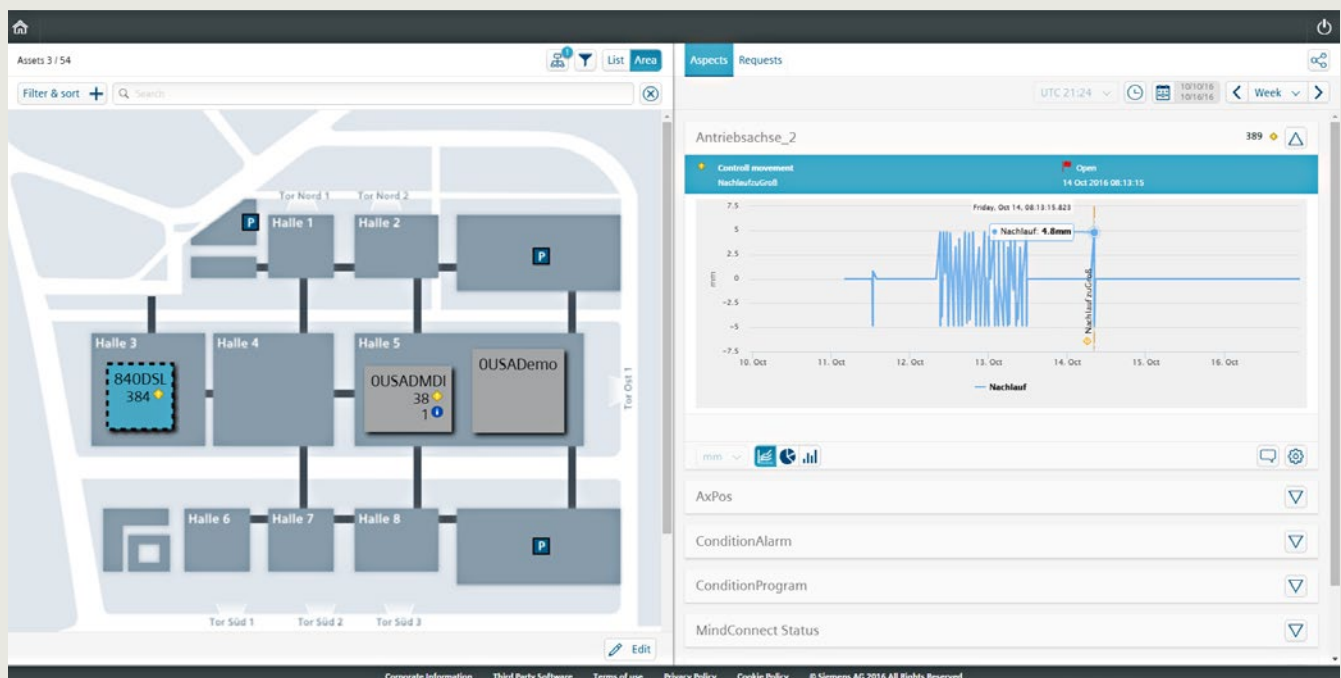
is a plug-and-play solution with which data can be quickly and securely exported out of the industrial asset and prepared for transfer to MindSphere. The encrypted data is securely transferred to MindSphere, where it is made available for analysis and visualization. Siemens devices with integrated connectivity are already available as well. These do not need any additional hardware and can be easily configured in the MindSphere Configuration Portal or TIA Portal, for example.

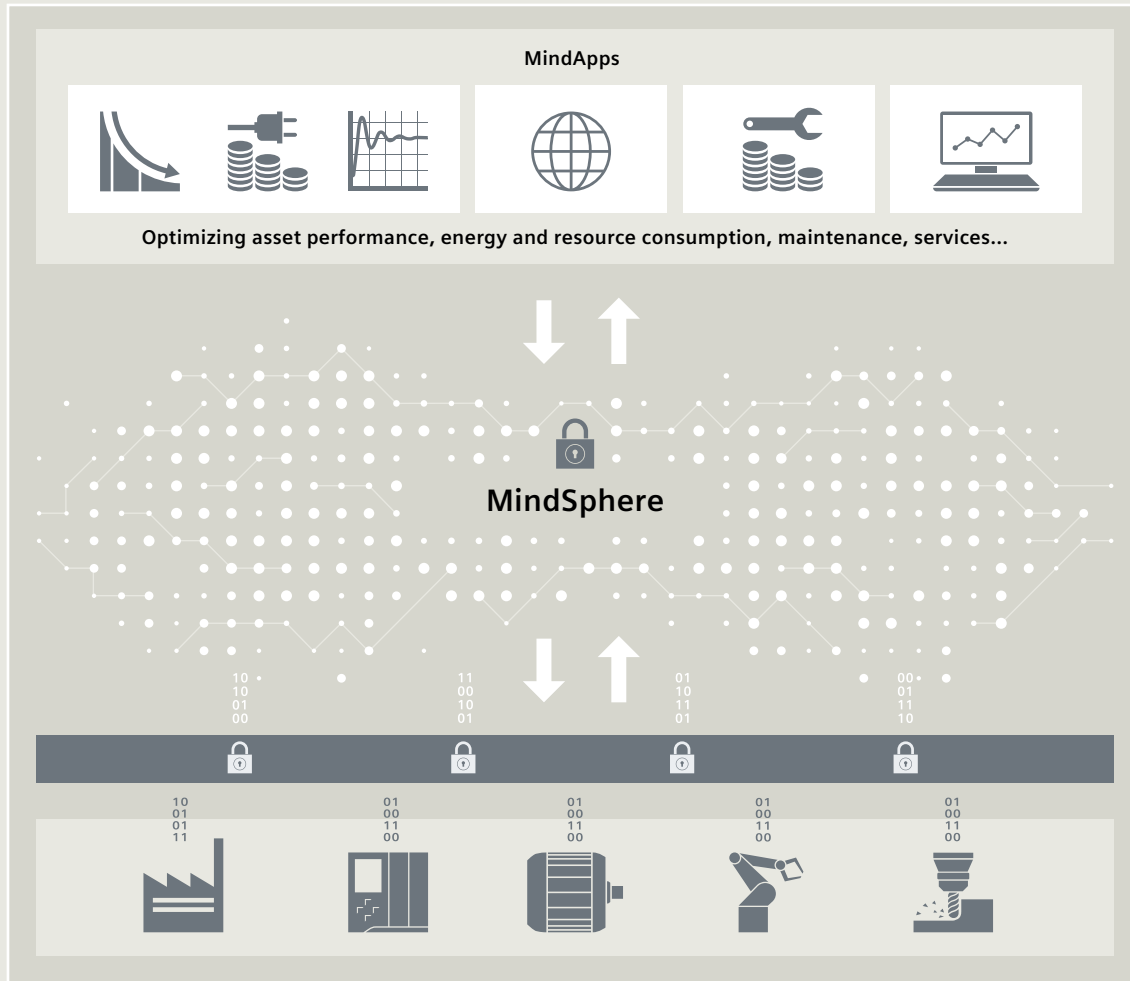
Continuous development of applications

Customers who choose MindSphere also receive two additional MindApps with which they can read and visualize the data that are relevant for

analysis: “Fleet Manager” and “Visual Analyzer”. With “Fleet Manager for Machine Tools”, another application is now available that can be used to monitor machine tools in production sites of any size worldwide. The application quickly and simply adds a Sinumerik 840D sl control to MindSphere, providing the user with a transparent overview of the machine status and history. Machine tool engineers also have the option of developing new digital services with this application, for example, selling machine hours.

Another upcoming innovation is an open programming interface that allows machine manufacturers and end customers to develop their own





apps and use them via MindSphere. Siemens so launches the conception of an open cloud-based IoT operating system that will consequently be developed further, including Stores and Catalogs on the roadmap, which will enable users to sell their apps to other participants of the MindSphere system.

Success through collaboration

Siemens is collaborating with experienced partners to further develop MindSphere. For example, the professional software developer Accenture supports OEMs with several MindSphere apps for new digital services, such as preventive maintenance and remote status monitoring. The “Out of the Box Analytics” offering has already been tested by customers, and, without exception, generated positive feedback.

Atos SE is the new partner for IT services and applications. Atos provides MindSphere customers a structured approach, with offerings that range from quickly implemented services for first results to ready-to-use MindSphere applications. The goal is to speed up the prototyping, validation, and implementation of MindSphere applications through the use of automated and predefined use cases.

Potential for new business models

In addition to end customers such as car manufacturers, an increasing number of machine builders are also taking advantage of the benefits of MindSphere. Especially when it comes to machines that are distributed worldwide, proactive service is extremely useful. An OEM that can determine

the status of a device with the data available in MindSphere and know which replacement parts are needed can, for example, offer customers lower warranty costs. MindSphere also enables new business models that go beyond the mere provision of services to include informing the end customer about the necessary replacement of parts in time to prevent plant downtime. The honing machine manufacturer Gehringer, for example, is already using MindSphere to monitor the wear of honing stones and prevent machine downtime. ■

➤ siemens.com/mindsphere

Plant Data Services

Every day, industrial plants generate more and more data. With Plant Data Services, these data can be turned into value – big data becomes smart data.

Plant Security Services

Prevent to protect your plant

Assess Security, Implement Security, and Manage Security form the basis of Siemens' Plant Security Services offering. These three areas have been augmented with additional solutions.

With Assess Security, Siemens covers all aspects of IT security for shop-floors. At the core, is the adherence to relevant standards such as IEC 62443. Siemens was the first company to receive TÜV Süd certification based on IEC 62443-1 for the comprehensive development process of products in automation and drive technology, including industrial software, at seven development sites in Germany. In addition, Siemens now offers an assessment in accordance with the international standard IEC 62443. Using a question-based checklist, the evaluator assesses the security status and compiles a comprehensive report with recommendations to close identified security gaps.

Implement Security offers essential products for setting up a "Defense in Depth" strategy. This service includes installation of systems with the ability to detect and prevent potential threats. A new automation firewall provides protection of automation systems in line with the Simatic PCS 7 and WinCC

security concept. A preinstalled assistant, the Industrial Wizard, facilitates the installation and configuration of the firewall. Additionally a web based training hosted by Sitrain increases industrial security awareness. In this one-hour module, participants learn about the risks present in industrial automation environments and how to mitigate them, as well as how to identify security-relevant events.

The Manage Security portfolio provides comprehensive security through monitoring and pro-active protection to close gaps with continuous updates, identify and handle security incidents and adapt early to evolving threat scenarios. This service relies on Siemens' Cyber Security Operation Centers (CSOCs) in Europe and the United States, which monitor potential threats worldwide in order to provide warnings and alarms at an early stage. With the new Remote Incident Handling, security-relevant events can also be analyzed remotely. It consists of the analyse of available system data. In case an indicator of compromise is detected an investigation is performed to find the root cause by gathering forensic information and performing cyber security investigations. If required, Siemens ProductCERT



NEW FEATURES

- IEC 62443 assessment
- New Automation Firewall approved for usage in Simatic PCS 7 and WinCC environments
- Web-based security awareness training
- Remote Incident Handling
- Patch & Vulnerability Management

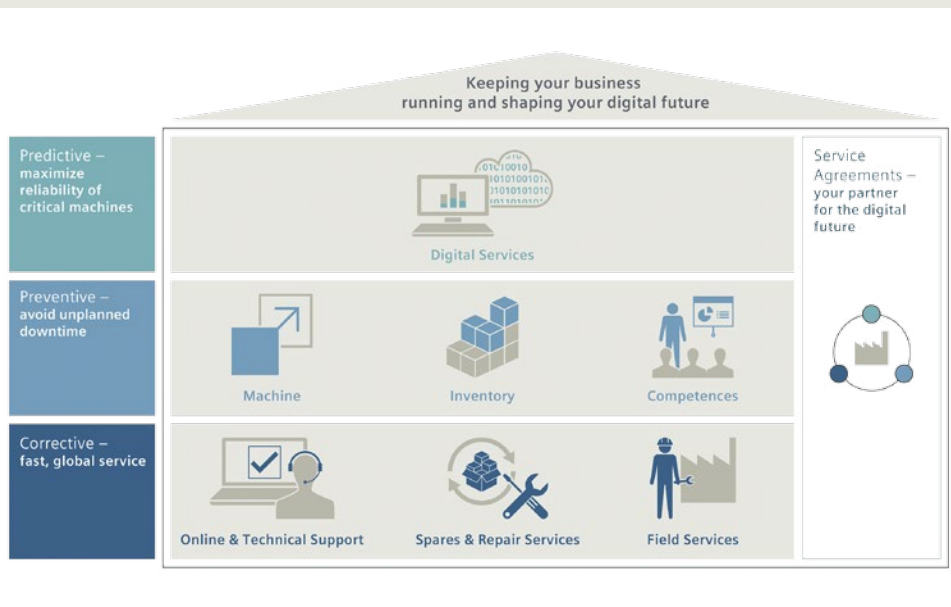
gets involved. Also new is an update service for Microsoft products: Patch & Vulnerability Management, which simplifies the patch installation processes for plant systems. Via the central Siemens update server, the customer automatically receives the information of the Microsoft security and critical updates compatible with the corresponding Simatic PCS 7 version. This process combines high security, availability, and efficiency. ■

➔ [siemens.com/plant-security-services](https://www.siemens.com/plant-security-services)

Factory Automation Services

No time for downtime

Siemens Factory Automation Services offer a solution package for all maintenance activities that includes fast global support, the prevention of unscheduled downtimes and the maximization of machine and plant reliability with digital services as well as Predictive Maintenance.



The comprehensive Factory Automation Services model increases plant availability, optimizes costs, and maximizes plant and machine availability.

Fast global support helps plant operators restore their plants and machines to a functioning status as quickly as possible in the event of a failure. Online Support is the main point of contact for technical information about all Siemens Industry products, systems, and services and is the gateway to additional services and to Siemens experts. Technical Support service offers expert assistance with all technical questions regarding products and systems – even during con-

figuration and commissioning. With global service points and a worldwide network of repair shops as well as the reliable spare parts supply, Siemens helps its customers reduce plant downtime.

Preventive services are designed to proactively avoid unscheduled downtimes and optimize all assets. Lifecycle Information Services allow full plant transparency, providing current information on the product lifecycle, including recommendations and the corresponding service. With Simatic Migration Services, companies can future-proof their automation systems by migrating to state-of-the-art

Simatic technologies. To round out the offering, Siemens also offers optimized inventory and spare parts supply with Asset Optimization Services, and standard and customized training courses to improve the skills of technical staff.

The core elements of Digital Services are status monitoring, predictive maintenance, and increasing efficiency. Fleet Management Services offer machine builders a cloud-based platform solution that connects plants and machines to the Internet and collects and analyzes their data. Secure infrastructure for connecting machines and plants in the field allows for remote access for rapid troubleshooting as well as for the web-based, automatic transfer of field and machine data to enable early detection of changes. To optimize energy efficiency, plant operators can take advantage of Energy Analytics, an energy data management system in the form of a managed service. With this service, they can obtain an overview of the consumption values of a wide variety of resources with informative key performance indicators, to highlight hidden savings potential.

To perfectly match the individual needs of customers, Siemens offers tailored service agreements that flexibly combine elements from the service models. ■

➤ siemens.com/fa-services

Industry Services

Siemens offers a broad portfolio of services related to products, systems, and applications for the entire plant over the entire machine lifecycle – from planing, engineering to modernization.



Siemens Industry Service Card

Customized service bundles

The new Siemens Industry Service Card supports customers over the entire lifecycle of their plants and machines – from technical support about Siemens Industry products, to commissioning assistance, to specific support for fault detection and elimination. This gives you the possibility of bundling all the technical support services that are useful to you in a single package that costs less than the sum of the individual services. The Service Card can be purchased at the usual sales points, for example, in the Industry Mall, or from through Siemens representative.

NEW FEATURES

- Customized service bundles for individual cases
- Priority calls, support for discontinued products, project and commissioning support, and much more
- Two Service Card types (Priority and Premium)

You can choose from two variants: Priority Card and Premium Card. With the Priority Card, customers benefit from priority calls during office hours (Monday through Friday). The Premium Card can be used around the clock during the week and covers all main use cases. Furthermore, it offers an additional support hour provided by Siemens experts, even for discontinued products. ■

➤ siemens.com/sisc

HMI Upgrade Package

Easy and safe HMI retrofitting



To facilitate step-wise migration in existing plants, Siemens has introduced a new HMI Upgrade Package that allows old human-machine-interface systems to be safely and easily upgraded to state-of-the-art technology. Perfectly coordinated hardware, software, and application migration services ensure a smooth upgrade of obsolete Simatic components. The scope of delivery includes the new panel, the

NEW FEATURES

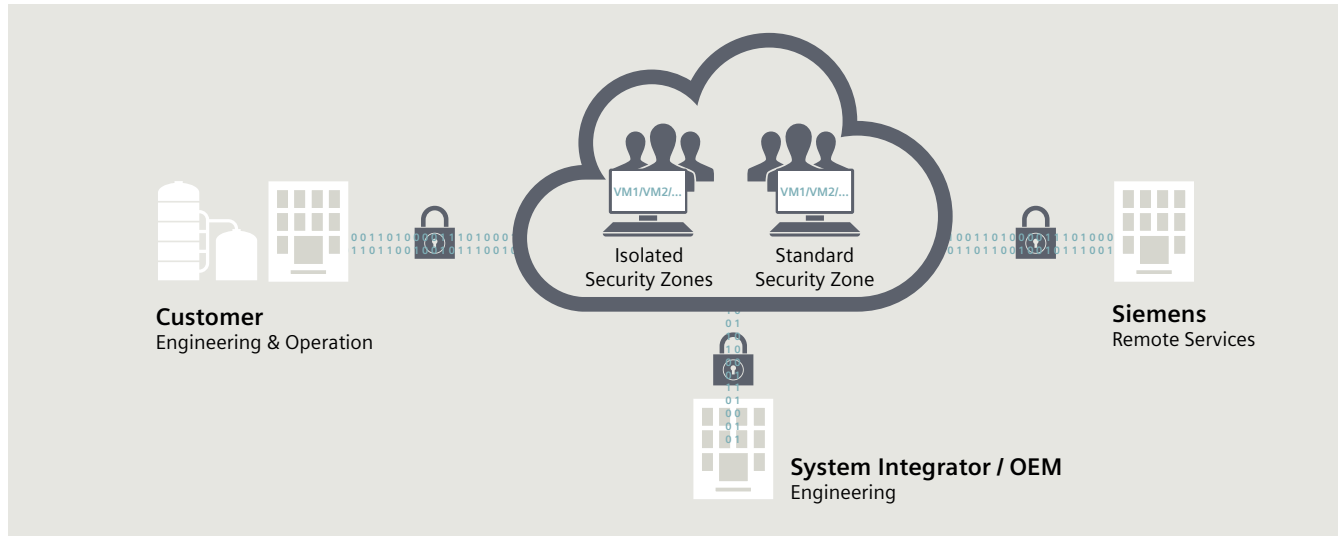
- Savings thanks to package composed of hardware, software, and migration of customer application
- System-tested solutions that reduce testing and inspection effort
- Prevention of obsolescence and increased machine availability

migrated and tested customer application, WinCC Comfort software (TIA Portal), two 2-GB Simatic HMI memory cards (system and data card), and a Profinet cable for testing purposes. Additional services such as on-site installation and commissioning can also be purchased as options. ■

➤ siemens.com/fa-migration

Simatic Software Platform as a Service

Flexible and cost-effective engineering environment



Simatic Software Platform as a Service is an engineering environment with preinstalled and preconfigured Simatic software based on a central cloud infrastructure. This allows for short-term, temporary, and flexible use, especially in the engineering and commissioning phase. Here, the cloud solution reveals its full potential. It can also be used for multiproject and multiuser engineering. Simatic Software Platform as a Service is thus perfectly geared toward the requirements of each project phase. The price of the software is also a compelling factor, as users pay only for what they really need with the “pay-as-you-use” concept. Simatic Remote Services and Technical Support Extended ensure outstanding technical support.

Simatic Software Platform as a Service can be used, for example, for migration and upgrades to update a Simatic application to the latest software version based on existing configura-

tion data. Using interim software versions can often be helpful in this process. Though they will no longer be needed afterward, the customer would still have to go to great lengths to acquire, install, and configure them. Therefore, the platform offers the right solution to perform this interim step in the fastest and most cost-effective way possible.

Simatic Software Platform as a Service is also perfect for operator training systems (OTS), which provide efficient training for plant operators and production engineers. The training can then take place right where the staff members are located. The cloud-based platform is also ideal for web-based training, especially if several participants in different locations need to be trained at the same time. ■

➔ siemens.com/sicbs

NEW FEATURES

- Standard testing and programming environments that eliminate infrastructure design and configuration costs
- Location-independent multiproject/multiuser engineering for flexible use of distributed engineering resources
- Investment costs that are tailored to actual usage, thanks to needs-oriented pricing model

Training

Sitrain's training courses offer expert know-how and practical knowledge for the entire range of products for the industry.



Remote Learning@Sitrain

Training – digital, global, certified

With Remote Learning@Sitrain, it is now possible to participate in training courses worldwide via remote access. This makes the expert knowledge of certified trainers even more easily accessible. The digital knowledge and information exchange allows for quick and straightforward knowledge acquisition – the ideal method for engineers, project planners, and programmers who only need a functioning software environment for their training. Service personnel and service technicians, in contrast, sometimes require special training tools at the location of the training. However, here too, the use of Remote Learning@Sitrain makes sense – for example, by eliminating the logistical effort and cost of transporting large medium-voltage converters. Users in countries with restrictive transport regulations benefit in

particular from this offering. In this respect, the new learning method is a useful supplement to the Sitrain attendance-based training courses.

Remote Learning@Sitrain has already been tested in real life in a Simatic PCS 7 certification workshop for Siemens Solution Partners at the Sitrain training center in Nuremberg, where participants prepared for the demanding exam at the end of the course. The difference between this and the regular courses? The participants' commands were not transmitted to the devices directly, but via remote technology, and the results were transmitted via webcam to their monitors. The actual training hardware was set up separately in another room. The workshop participants' assessments were positive, without exception. The

demand for Sitrain is increasing, and Remote Learning@Sitrain training courses open up new training opportunities for customers around the world who previously could be reached only with difficulty or not at all – because with this offering there are no travel expenses for the participants, and it is also not necessary for the instructor to be on-site with the participants, as he or she can conduct the course from a remote training center. Another Simatic PCS 7 certification workshop successfully proved that Remote Learning@Sitrain also works over greater distances: here, the participants were able to remotely access virtual machines in the training center in Nuremberg. ■

➤ [siemens.com/sitrain-remote-learning](https://www.siemens.com/sitrain-remote-learning)

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