

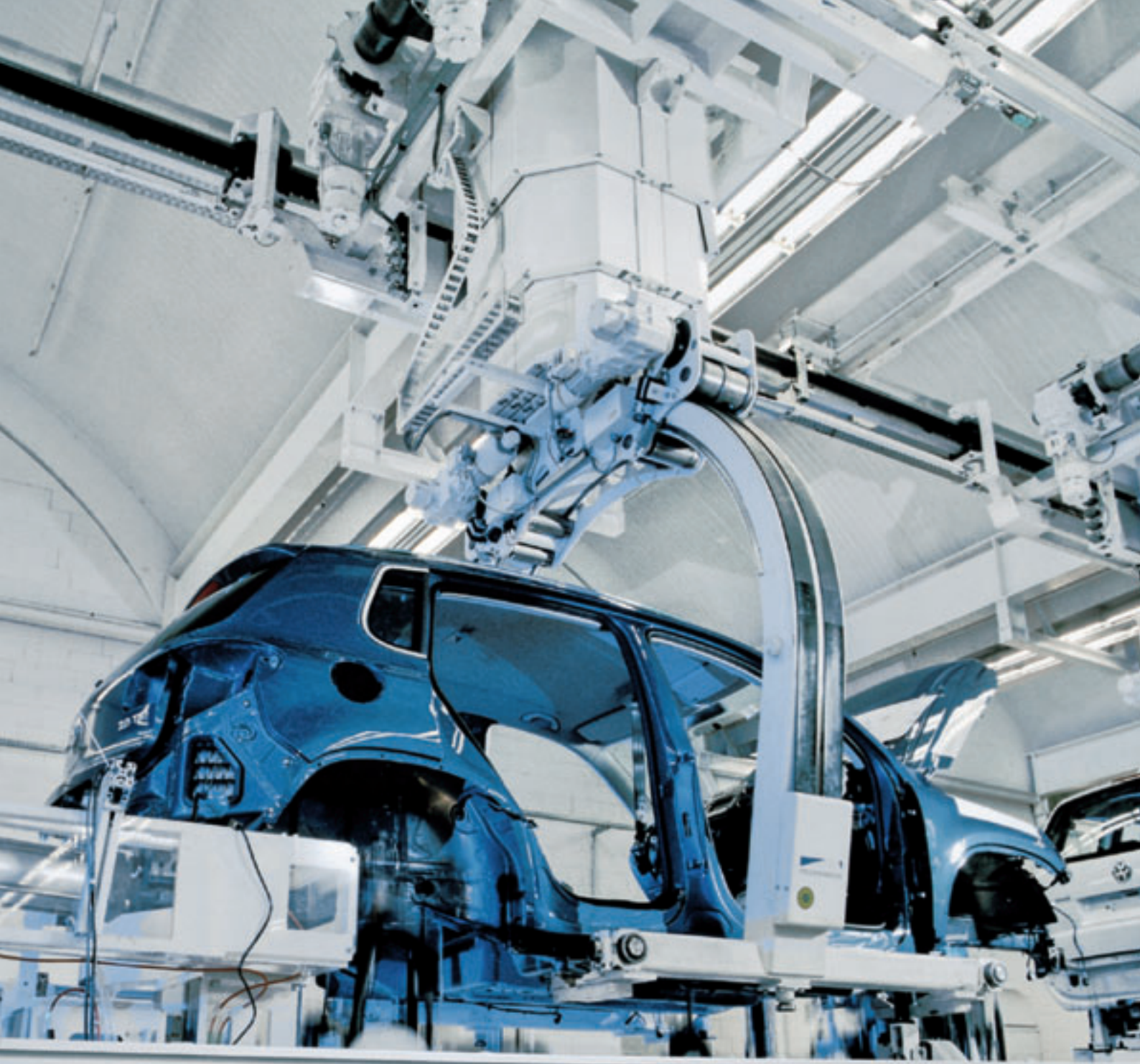


Integrated automation for discrete manufacturing

SIMATIC

Answers for industry.

SIEMENS



The fast and economical route to an automation solution – with SIMATIC

For a machine builder or plant manager, the critical factors for leveraging productivity and competitiveness are time, costs and quality. The goal must be to reduce the time from initial idea to finished machine or product while maintaining maximum flexibility. At the same time, costs should be kept to a minimum and the quality improved.

These objectives result in numerous demands on the automation of your machine or plant. But in every case, Siemens can deliver the right solution – with SIMATIC®. SIMATIC, the basic system of Totally Integrated Automation, includes a complete spectrum of tried and tested products for the widest variety of applications in both the process and discrete manufacturing industries.

This brochure will provide you, the machine builder or plant manager, with an overview of the extensive range of SIMATIC products for every manufacturing industry. See for yourself the system features of SIMATIC products – and learn how you can use them to solve your automation problems easily and efficiently.



SIMATIC has been tried and tested worldwide in nearly every industry.

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Efficient automation

SIMATIC is the comprehensive product portfolio for all production-based automation requirements – from field level, to control level and management level. Machine builders and plant end users will benefit from SIMATIC in every respect.

SIMATIC

System features

Thanks to its system features, SIMATIC offers you the perfect basis for integrated and economical automation solutions. On the following pages you will discover how the SIMATIC system features can help you achieve sustainable improvements to your competitive capability.

We recommend that you leave this page unfolded.

Engineering

Maximum engineering efficiency –
in every phase of the machine and plant cycle

Communication

Maximum data transparency across all automation levels –
on the basis of tried and tested standards

Diagnostics

Minimization of downtimes –
by means of efficient diagnostics concepts

Safety

Protection for personnel and machinery –
as part of an integrated overall system

Security

Data security in the networked world –
by means of coordinated, scalable security concepts

Robustness

Highest industry standard –
due to extremely robust design

Technology

Integrated technology functionality –
counting, measuring, positioning, closed-loop control and cam control

High availability

Maximum availability –
with integrated redundancy concepts



The basis for Totally Integrated Automation

One reason for being No. 1 in the world of automation is the continuous integration of SIMATIC system features. These provide a maximum degree of integration – in keeping with the Totally Integrated Automation philosophy. The system features offer many advantages – over the entire life cycle of your machines and plants.

SIMATIC:
the world's leading
automation system



Scalability, long-term availability, openness – SIMATIC provides all the benefits you expect

The scalability of SIMATIC enables automation to be extremely flexible and economically match your actual requirements. Additionally, thanks to its strict upward compatibility, the system can be upgraded at any time – for maximum security of investment. You benefit from the long-term availability of the components as well as the opportunity of migrating seamlessly to new technologies such as PROFINET or Embedded Automation. Even system requirements such as functional security or fault-tolerance can be expanded without difficulty.

In addition, automation components from other suppliers can be integrated into SIMATIC through standardized interfaces. With SIMATIC, you are benefiting from a system that has 50 years of success behind it.

Our SIMATIC products include a comprehensive range of service and support:

- Training
- Solution Partners
- E-Business and Online Support
- Support over the entire product life

The SIMATIC product portfolio for the manufacturing industry:

SIMATIC Controller

Controllers for every requirement: modular, PC-based Automation and Embedded Automation.

SIMATIC ET 200

Distributed, modular I/O system for use in the cabinet or directly on the machine.

SIMATIC Software

Powerful engineering software that covers every phase in the life cycle of an automation solution.

SIMATIC Safety Integrated

Seamless safety program that covers all automation components and is smoothly integrated into the standard automation.

SIMATIC Technology

Comprehensive range of products for performing technological tasks such as counting, measuring, positioning, closed-loop control and cam control.

SIMATIC HMI

Complete range of operator panels and visualization software for machine-level operator control and monitoring up to and including the scalable SCADA system.

SIMATIC NET

Everything you need for powerful, reliable and secure industrial communication.

SIMATIC Industrial PCs

Robust, high-performance industrial PCs with brilliant displays – for a wide variety of requirements.

SIMATIC IT

The perfect basis for customer-specific, integrated MES (manufacturing execution system) solutions which enable the quality and efficiency of production to be optimized at all locations within an organization.

SIMATIC sensors

Comprehensive range of sensors for recording objects, product tracing and quality control, as well as the protection of personnel in hazardous areas.

Maximum efficiency in engineering

Discover how you can significantly reduce your development time with SIMATIC – and implement an extremely wide range of automation requirements quickly, easily, flexibly and cost-effectively.

Central data storage

Powerful configuration and programming tools are available for SIMATIC products. These are integrated into a user interface via the SIMATIC Manager (STEP 7) and use a shared project structure. The advantage for you: Access to the respective target devices from a central station. This enables you to save time when organizing the variety of data – i.e. for panel, controller, drive and network – in a project.

Graphical configuration

Whether you are programming the controller or configuring the hardware and networks, the powerful graphical editors of SIMATIC software give you the best possible support in your tasks. Using the new Topology Editor (STEP 7), you can not only display the logical network structure (addresses of the bus systems, subsystems), but also the physical network structure displaying the sequence in which the devices are interconnected. This greatly simplifies the assignment of the configuration to the installed hardware – which pays dividends particularly in larger projects.

Preassembled blocks

The functionality of the software includes an extensive library of preassembled and fully tested function blocks. These make it easy for you to implement complex functions, e.g. modular PID, motion control and data handling.

- Engineering
- Communication
- Diagnostics
- Safety
- Security
- Robustness
- Technology
- High availability

By choosing SIMATIC, you are opting for an integrated engineering environment. Throughout the life cycle of your machine or plant, you benefit from the intuitive operation, the interaction of the programming tools, the central data storage and plant-wide access to devices.



Standard programming languages

SIMATIC STEP 7 software offers six programming languages compliant with both IEC 61131-3 and PLCopen for the programming of controllers. For drives, the PLCopen certified Motion Control blocks in STEP 7 can be used. This simplifies the training period and reduces associated training costs.

Simple HMI connection

WinCC flexible is used for the configuration of machine-level HMI devices. WinCC is also available as a SCADA system. Both systems make use of the shared project structure described above. The advantage: Address and symbol designations of a variable or signal that are defined in STEP® 7 can be directly accessed in the HMI configuration. There is no need for repeated configuration or tag data entry. The more information from a process that has to be visualized, the more this level of integration will pay for itself.

Data exchange via open interfaces

Interoperability and data transfer are not restricted within SIMATIC software. Open standard interfaces make it possible to incorporate data already available in other software tools; for example, data from electrical design (CAx).

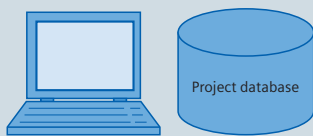
Digital engineering

Efficient configuration of all plants is enabled by the SIMATIC Automation Designer that supports you in every stage of the workflow – from the computer-aided design, through PLC programming to system testing and commissioning. Start-up times can be considerably shortened using the simulation tools provided.

Further information on this topic:

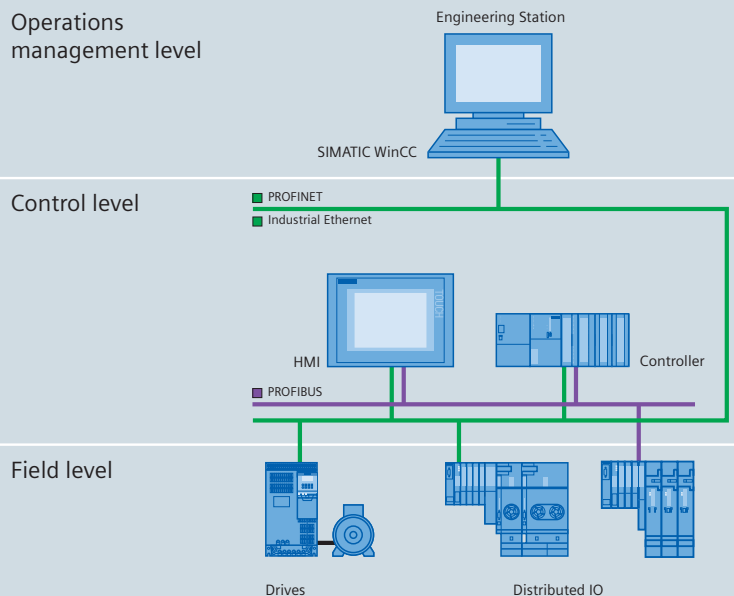
www.siemens.com/simatic/engineering

Standardized design and engineering ...



- SIMATIC Automation Designer
- SIMATIC STEP 7
- SIMATIC WinCC / WinCC flexible

... for all automation components



Reduction of installation costs

Whether you want to integrate machines into existing production lines or link a manufacturing execution system (MES) to the control system – e.g. on the basis of SIMATIC IT: SIMATIC enables complete integration from the field to the enterprise management level.

Standard communication platform

With PROFIBUS and PROFINET, SIMATIC offers open standards with proven global use for all industrial communication.

The advantage for you: You can integrate devices from a variety of manufacturers seamlessly into your automation solution and then quickly and easily configure the communication of several machines in one production line.

Consistent integration from the field level to the MES level also simplifies the connection of IT and office systems using PROFINET with Standard Ethernet supporting TCP/IP communication and

The SINEMA E engineering tool will support you when planning, simulating, configuring, measuring and documenting your IWLAN.

Simple integration into SCADA system

One important factor for the integration of machines into a plant is their connection to the higher level SCADA system. The direct data access from the SCADA system WinCC or the HMI software WinCC flexible to the variables of STEP 7 makes the configuration considerably easier. For example, I/O signals, times, counters or data registers from the SIMATIC controller can be effortlessly connected to WinCC or WinCC flexible. Connection to other SCADA systems via open interfaces is also possible.

Further information on this topic:

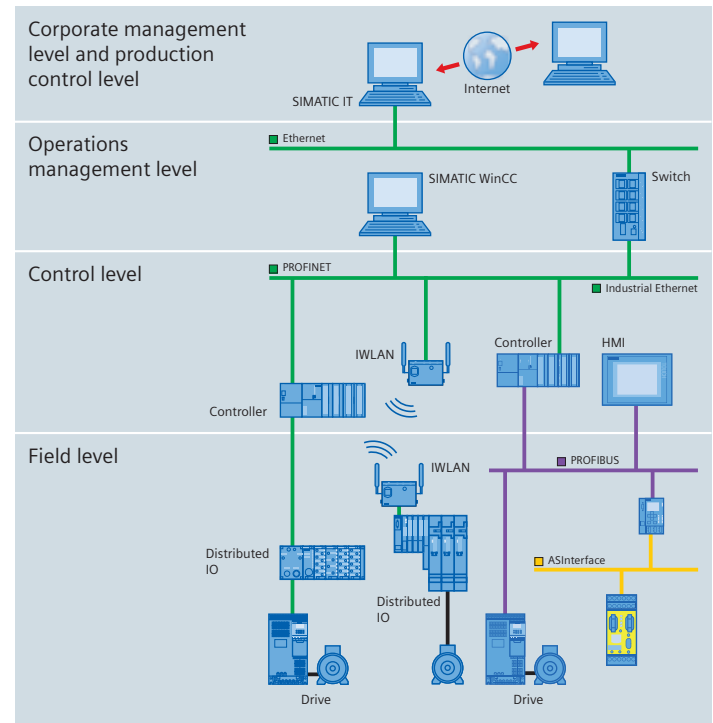
www.siemens.com/simatic/engineering
www.siemens.com/simatic/communication

Engineering	With SIMATIC, you benefit from the highest level of integration in communication and engineering. This enables you to create the ideal conditions for a significant reduction of the integration overhead.
Communication	
Diagnostics	
Safety	
Security	
Robustness	
Technology	
High availability	

isochronous real time (deterministic real time) on one cable. Additional outlay due to extra networks or specially designed switches does not arise. This saves you costs on cabling and network components and considerably reduces administration overhead.

Industrial Wireless LAN (IWLAN) technology

In addition, innovations such as Industrial Wireless LAN are also supported by PROFINET: This is possible with PROFINET support built into SCALANCE W (access points and client modules). Various machines, plant segments or mobile users can simply be wirelessly connected.



Unrestricted integration in the communication

Greater flexibility in production

You must respond quickly to customer demands that include more unique requirements and are becoming more and more complex – and you have to adapt your production line accordingly.

The answer to these difficult challenges is SIMATIC.

Shorter conversion times

When a production line is installed mechanically, the electronic components very frequently have to be adapted. SIMATIC products enable this to be done quickly and efficiently. For example, the entire configuration of the controller, including the network systems, the HMI and the parameterization of the sensors and actuators takes place in one development environment – in the SIMATIC Manager. As the data is stored in structured and modular form, you can transfer the required configurations and parameter settings to the controller and selectively modify the parameterization.

Once created, configurations can be saved in data blocks, reloaded again and again and dynamically transmitted to the sensors/actuators. In this way you can reconfigure drives and sensors without additional engineering. Installation work can be further simplified using IWLAN technology: wireless communication saves the expense of installing additional cabling and connections.

Distributed intelligence and machine-to-machine communication

PROFIBUS and PROFINET International have defined a standard for implementing modular manufacturing structures: PROFINET CBA (Component Based Automation). This unique and innovative concept enables machines to be interlocked with each other through a network connection rather than time-consuming hardwiring of controller and I/O signals. This is especially useful in assembly applications where frequently manufactured parts are made on demand when an order is placed.

More efficient production planning and control

If various product versions can be manufactured on one production line without machine changeover, the focus rests on integration – from the automation to the MES level. On the basis of SIMATIC IT, you can implement MES solutions that are perfectly tailored to your specific requirements and you can guarantee this level of integration. Integration of MES solutions with the SCADA System WinCC gives you maximum transparency of your production data.

Further information on this topic:

www.siemens.com/simatic/engineering
www.siemens.com/simatic/communication

Engineering	With SIMATIC products you are in a position to network production planning and production data with maximum efficiency. This integration enables you to exploit all potential for optimization in production – and to respond faster and more flexibly to the specific demands and requests of your target groups.
Communication	
Diagnostics	
Safety	
Security	
Robustness	
Technology	
High availability	



Protection against unauthorized data access

Whether it is a matter of protection against unauthorized system access, or verifying when changes were performed on the system and by whom, SIMATIC always has the perfect solution to these sensitive issues.

Security in the networked world

Automation requires a security concept that reliably protects the production networks and automation components against unauthorized access. This includes protection against access to automation cells (cell protection concept), protection against industrial espionage and manipulation, as well as secure remote access over unsecured networks such as the Internet.

You can achieve these security objectives by using SCALANCE S security components. In addition, all security requirements (authentication, encryption)

for wireless communication via WLAN in accordance with IEEE 802.11i are satisfied with SCALANCE W.

Compliance with industry standard guidelines

SIMATIC Logon adds user management to the system: Users and access rights can be easily defined for both engineers and operators. With SIMATIC Logon and SIMATIC Audit Trail, changes to the system can be traced in accordance with FDA Guideline CFR21 part 11. This functionality is built-in and no custom programming or special certification for compliance is required compared to other automation supplier products that do not offer these capabilities. This enables strict validation requirements to be met in tightly-regulated industries.

Further information on this topic:

www.siemens.com/simatic/security

Engineering
Communication
Diagnostics
Safety
Security
Robustness
Technology
High availability

With SIMATIC you leave nothing to chance regarding security. SIMATIC security solutions minimize risks between networked systems and comply with your strictest security policies.



Protection for personnel and machinery

Safety Integrated stands for the seamless integration of safety into standard automation.

For machine builders and plant managers that means: easier and faster access to a safe and productive machine.

Integration of safety into standard automation

As a machine and plant builder as well as operator you have a legal obligation to ensure the safety of both your personnel and the environment.

With SIMATIC Safety Integrated, Siemens offers products certified by TÜV (German Technical Inspectorate), which make it simple for you to meet the relevant standards: IEC 62061 up to SIL 3, EN ISO 13849-1 up to PL e as well as EN 954-1 up to Cat. 4. In line with the Totally Integrated Automation concept, SIMATIC Safety Integrated incorporates safety functions into standard automation, thus creating an integrated overall system with

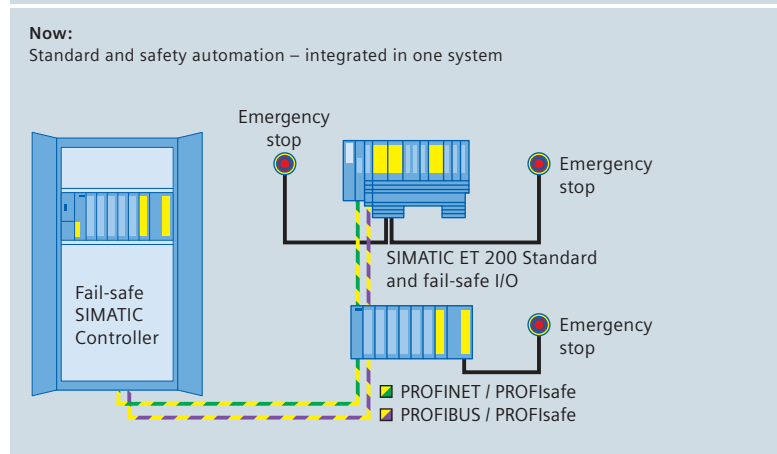
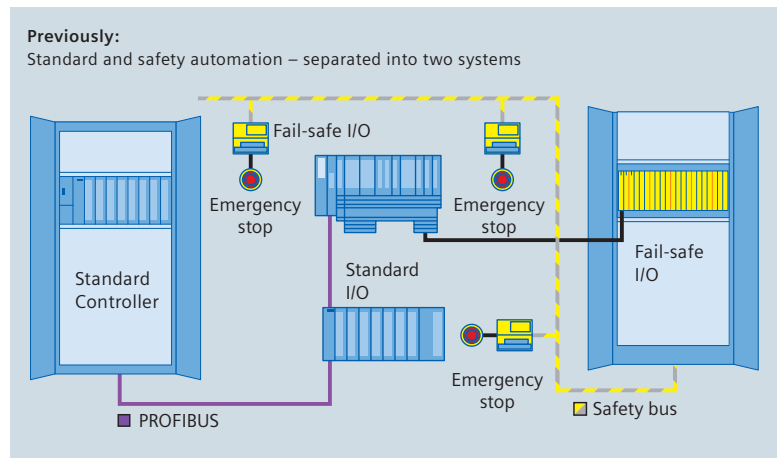
One engineering environment for both standard and safety technology means significantly greater efficiency when programming the safety functions. This minimizes overhead for instruction and training and simplifies machine operation. In addition, this consistent integration permits faster and better fault diagnostics and clearance – ensuring greater productivity.

Further information on this topic:

www.siemens.com/simatic/safety

Engineering	SIMATIC consistently integrates safety functions into the standard automation, thus creating an integrated overall system with one engineering, one controller, one distributed I/O and one bus.
Communication	
Diagnostics	
Safety	
Security	
Robustness	
Technology	
High availability	

one engineering, one controller, one distributed I/O, one bus. The system advantages and extensive functionality of SIMATIC are then also available for fail-safe applications, which considerably reduces the interface costs. Fail-safe communication takes place over the universally tried and tested PROFINET or PROFIBUS communication standard using the PROFSafe profile. This enables innovative solutions, such as the wireless fail-safe communication via IWLAN and PROFINET – e.g. using the SIMATIC Mobile Panel 277F IWLAN with integrated safety function.



Improving the availability of machines and systems

Plant failures must be prevented, especially in critical processes that allow no interruptions. With fully industry-standard, robust components for machine-level use, SIMATIC ensures maximum availability – and if anything does happen, it supports you in clearing a fault as quickly as possible.

Efficient diagnostics ...

The diagnostic display of SIMATIC can be scaled as required: at machine level, along one line or the whole plant. Fault messages are displayed the same way on individual machine operator panels or in the plant-wide control room. This means that all relevant information is available at all times without a separate diagnostics system.

... of system and process, even online

The diagnostic messages are generated automatically without any engineering overhead and forwarded to the HMI system where you can freely define the display options. Many other automation suppliers require additional programming for controller diagnostics which increases engineering time and costs, especially when connecting to third-party HMIs. For efficient process diagnostics, SIMATIC offers powerful and reliable tools. For example, the option package for STEP 7 PDIAG monitors a signal defined in advance or a critical value in the controller program.

In the event of a fault, you will see the entire logic operation with the current status for this signal next to a message on the HMI system – so that you can easily identify the cause. In addition, our controllers, panels and switches have integrated web server functionalities for online access to diagnostic information. The display appears in the web browser itself, without the need for any additional software tools.

Plant-wide optimization of the maintenance expenditure

The SIMATIC Maintenance Station offers a plant-wide view of all components in use. Apart from the diagnostic information, it also stores all device data. On the basis of this configuration data, the maintenance needs of all devices can be recorded and maintenance work planned accordingly – another enabler for increasing availability.

Fast fault clearance

SIMATIC I/O modules are equipped with permanent wiring that permits a replacement of modules without any wiring expense. In addition, SIMATIC S7-400 controllers and the distributed I/O systems SIMATIC ET 200S, ET 200M, ET 200iSP and ET 200pro support hot swapping.

Engineering	SIMATIC products ensure maximum uptime of your machines and process systems. Robust controllers, I/O, devices and HMI products combined with advanced software tools and diagnostics keep your plant running efficiently and also via Internet.
Communication	
Diagnostics	
Safety	
Security	
Robustness	
Technology	
High availability	

Diagnostic functions can also be implemented at any stage of development, even after the automation system is already installed, without any additional expense. The standardized use of SIMATIC components offers one other advantage in networked systems. Regardless of which network – via PROFIBUS or PROFINET – both network topologies provide access to all devices from any point in the plant, saving significant troubleshooting and maintenance costs. The necessary routers for this are implemented automatically by the SIMATIC products.

This means that modules can also be replaced during operation. When replacing SIMATIC products, the configuration data is either copied automatically using memory cards or through the higher-level controller – and is then available again after the replacement without the need for reconfiguration.

Convenient user administration

WinCC flexible and WinCC enable you to configure different user interfaces. The central, plant-wide user administration SIMATIC Logon permits extended security functions – especially with regard to the FDA validation. In this way, for example, the operating options for certain users can be restricted – in order to prevent settings or inputs that are incorrect in the first place.

Robust and maintenance-free

For demanding applications we offer you particularly robust devices. These include: SIPLUS versions for an extended temperature range; special device versions with IP65/67 degree of protection for use directly at the process; I/O modules that withstand high acceleration forces, for mounting directly on robot arms; operator panels with IP65 protection on the front or fully protected versions for swivel-arm or pedestal mounting; industrial PCs with high resistance to vibration and electromagnetic interference.

Maximum robustness during construction and installation is ensured, for example, by gold-plated contact pins on I/O modules or M12 plugs for PROFINET connection. Robustness plays a particularly important role in PC systems. For this reason, our Embedded Automation products are designed to operate completely without fans or hard disks.

Fault-tolerant system design

SIMATIC permits the redundant design of the system – adapted to your process. There are hardly any limits to the scalability: from redundant controllers and bus systems to redundantly designed I/O interface modules. The great advantage is: the programming takes place in the same STEP 7 environment and the redundant design in the I/O station is executed using standard components. In addition, the H-controllers make hot-standby possible: in the event of a failure the redundant controller takes over the processing within 100 ms. If required, the high-availability controllers can be located 10 km apart.

Further information on this topic:

www.siemens.com/simatic/engineering
www.siemens.com/simatic/communication
www.siemens.com/simatic/diagnostics
www.siemens.com/simatic/security
www.siemens.com/simatic/robustness
www.siemens.com/simatic/high-availability



Optimum production processes through improvement of plant-wide transparency

The number of units produced is the most important performance data in the manufacturing industry. The decisive factor for this is the efficiency of the entire production line or plant. In order to identify any bottlenecks or hidden potential, you require a precise overview of the entire production process. This is the only way you can be sure that you are making maximum use of your production capacities.

Optimization of production lines

If the machines on your production lines are already equipped with SIMATIC (both communication and HMI), you will quickly obtain meaningful information about the entire line, because machines can very easily be networked on the basis of PROFINET. Additionally, PROFIBUS and PROFINET bus systems can be combined flexibly with one another.

If, for example, PROFIBUS is used for each individual machine, the communication of the entire line can be implemented via PROFINET. If the machine already has a panel/panel PC configured with WinCC flexible, you can combine all the local HMI information into an overall picture of the line with the aid of Sm@rt Access (Master Control Station). The configuration of the individual machines remains unaffected by this. The advantage for you is that the information of all machines in the line is displayed centrally on one operator panel. This enables you, for example, to respond with considerably more speed and precision in the event of a fault. This operating concept not only saves valuable maintenance time, but also supports you in optimizing your production lines with regard to output, quality and other key performance indicators for optimizing the operation of machines and plants.

Simple integration of MES and ERP systems

Integrated data transparency from the sensor through to the MES is a decisive factor in ensuring a smooth production process. With WinCC as your SCADA system you can implement the connection to the MES system SIMATIC IT with ease. WinCC Plant Intelligence and SIMATIC IT Plant Intelligence offer you the option of expanding WinCC on a modular basis to create a complete MES system. To obtain the various types of information that are required across the production process, the following plant intelligence options are available for WinCC:

- Data Monitor: recording, analysis and reporting of production data and production status – also available over the Internet.
- Downtime Monitor: determination of key performance indicators (KPIs) of machines/plants for increasing the availability and efficiency.
- Process Monitor: recording, analysis and storage of process data.

Engineering	With consistency in engineering and communication, SIMATIC ensures plant-wide transparency across all levels from the control level (STEP 7), through the operation management level (WinCC) to the production control level (SIMATIC IT) – without any complicated programming.
Communication	
Diagnostics	
Safety	
Security	
Robustness	
Technology	
High availability	



The plant intelligence options can be expanded by a simple upgrade to an MES system – for raising the productivity and for high security of investment. With SIMATIC IT we are able to offer you a complete MES solution that enables you to record and evaluate data, even across different sites. Planning or job data from the enterprise resource planning (ERP) level (i.e. SAP) can be integrated in the process. A powerful workflow management system supports you in executing and optimizing your complete business processes.

Integration from the sensor to the MES system

With SIMATIC IT you are opting for integration from the automation level to the MES – a requirement that is becoming increasingly important. This is because information carried by the material or work-piece itself is being used to an ever greater extent to determine the individual processing steps. Siemens offers you an enormous range of different sensors for reading and writing this information, e.g. RFID or

data matrix code. For example, production data that is read via RFID can be communicated directly to the MES and accepted into the business processes (workflow) defined there.

One network across all levels

PROFINET provides you with a standardized protocol for this communication. PROFINET includes unrestricted support to the Ethernet standard and at the same time offers the highest performance for integrated communication from the field level through to the IT and office world. Without the need for additional routers and links, PROFINET ensures a high-speed exchange of data and supports all communication standards common to the office environment, such as IWLAN or Internet access.

Further information on this topic:

www.siemens.com/simatic/engineering

www.siemens.com/simatic/communication



Simplified international deployment of machines

If your company operates globally, it is essential that you comply with the guidelines and standards of different countries. You may also have to eliminate any possible language barriers for your machines.

And you will require reliable service and support on site at all times – both at home and abroad.

User interfaces and documentation in several languages

Your global business requires that user interfaces, alarms and messages, as well as the documentation of the controller program, are available in several languages. The SIMATIC Panels enable you to configure and store as many as 32 language versions simultaneously. The displayed language can be switched during operation without requiring a restart.

This advanced capability allows a single machine to be operated simultaneously by several people of different nationalities. In addition, SIMATIC STEP 7 allows all texts to be extracted from the STEP 7 project, translated and copied back as additional language versions. By separating the comments from the program code, they can be processed and translated independently. The changeover between different language versions can be performed without restarting the development environment.

Unlimited service and support

The Siemens global support network and optimized logistics supply chains ensure spare parts are available anywhere in the world within a matter of hours. As part of our Online Support we also offer you extensive information on our portfolio free of charge. The documents provided are available in at least five languages.

International approvals and certifications

SIMATIC products are supplied as standard with all key international approvals and certifications. You can obtain all the necessary certificates through the Online Support. Even in the field of machine safety, our products conform to international requirements such as those of the IEC or UL. The advantage for you: significantly less expenses involved in the export of your machines.

Remote access

SIMATIC offers you numerous options by which diagnostics functions can be performed over a telephone or Internet line (Teleservice, Smart Service). These enable you to perform a diagnostics on your machines or plants across the world and to intervene in the event of a fault.

Further information on this topic:

www.siemens.com/simatic/engineering
www.siemens.com/simatic/communication

Engineering	SIMATIC helps you to overcome country-specific obstacles and to operate successfully on a global basis: multilingual user interfaces and documentation, worldwide service and support as well as international approvals and certifications help facilitate your access to international markets.
Communication	
Diagnostics	
Safety	
Security	
Robustness	
Technology	
High availability	



Long-term security of investment

The development of the user software for machines and plants accounts for a considerable proportion of overall costs. For this reason, it is important to be able to reuse existing engineering expertise over and over again. With regard to security of investment, the long-term availability and compatibility of the devices used should also be assured.

Use of standard programming languages

The consistent use of standard programming languages gives you the greatest assurance that your expertise is protected in the long term. In addition, the SIMATIC engineering software ensures that once the programs and HMI configurations have been generated, they can continue to be used for a long time. Whether for another PLC or a PC-based system, whether in a centralized or distributed hardware

architecture or for safety applications, each individual requirement can be implemented quickly and easily and existing programs can be simply reused.

Complete openness

Additional security of investment is ensured by the openness of Totally Integrated Automation. By means of the leading bus systems PROFIBUS and PROFINET, a broad spectrum of products from international suppliers can be connected. The numerous import/export interfaces as well as programming interfaces of our engineering tools make sure that configuration data can also be used in other tools. Open platforms such as SIMATIC Embedded Automation or the SIMATIC Panel PCs also permit the direct integration of any PC hardware and software into the application.

Long-term availability and compatibility

It is not unusual for the life cycle of machines and plants to exceed 10 years. For this reason, we guarantee a long-term supply of spare parts or compatibility with follow-on products through the use of standardized software and communication interfaces. This also applies to technologies that are finding their way into automation via the PC market and which have considerably shorter innovation cycles.

Further information on this topic:

www.siemens.com/simatic/engineering

Engineering	By choosing SIMATIC, you are opting for the long-term security of your investments – through the consistent use of standard programming languages as well as the long-term availability and compatibility of our products and systems. At the same time, you automatically benefit from technological advances.
Communication	
Diagnostics	
Safety	
Security	
Robustness	
Technology	
High availability	



Fast production processes due to performance and technological functions

Growing demands are being made on machines in terms of performance and functionality. In this respect too, you have the best preparation in the form of SIMATIC. This is because our comprehensive range of systems leaves nothing to be desired in respect of performance.

Fast program processing and precision

Without exception, SIMATIC controllers are characterized by excellent performance. For particularly fast program processing (e.g. for closed-loop control with PROFINET) the 319-3 PN/DP CPU or the modular S7-mEC RTX embedded controller are available. High-speed communication of the controller with the I/O is possible with PROFINET and isochronous real time (deterministic real time): a cycle time of up to 250 µs with jitter of less than 1 µs can be achieved. With PROFIBUS a response time of up to 1 ms is possible.

- Distributed intelligent ET 200S modules
- Parameterizable function modules for expanding the S7-200/S7-300/S7-400 controllers that perform the technological tasks automatically and reducing their workload
- Technology controllers: S7-300 CPUs with integrated PLCopen-compliant motion control blocks and isochronous PROFIBUS for linked motion control processes of several axes
- User-configurable application modules and control systems, e.g. SIMATIC TDC, for the highest performance of the most complex technology tasks

For particularly high precision as well as a fast and reliable operating sequence, which are of particular importance when controlling drives, modules with isochronous PROFIBUS are available (e.g. the SIMATIC Technology Controller or the FM 458-1DP application module). Isochronous mode refers to the synchronous coupling of the signal recording and output which makes time-critical applications possible.

Further information on this topic:

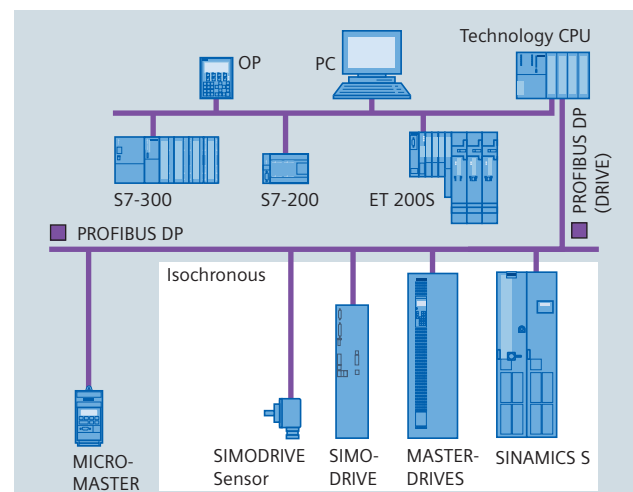
www.siemens.com/simatic/communication
www.siemens.com/simatic/technology

Engineering	With SIMATIC you are opting for maximum performance by means of high-speed program processing and communication, as well as the integration of high-performance and complex applications such as counting/measuring closed-loop control, cam control and motion control.
Communication	
Diagnostics	
Safety	
Security	
Robustness	
Technology	
High availability	

Integrated technology functions

You can integrate high-performance or complex applications such as the technology functions of counting/measuring, closed-loop control, cam control and motion control into the SIMATIC system without any inconsistencies between systems. The parameterization and programming are executed in the familiar STEP 7 environment. The technology functions are available in various designs with scalable hardware and software:

- Integral component of the operating program of the CPU or of STEP 7
- Loadable software blocks with Easy Motion Control, for example



Time-critical applications by means of isochronous PROFIBUS

Step into the world of SIMATIC

This brochure has given you an initial overview of the extensive SIMATIC portfolio for the processing industry – and of the advantages for you as a machine builder and plant operator. Further information on the individual families of systems can be found on the Internet sites listed below.

SIMATIC

SIMATIC is a principal component of Totally Integrated Automation, the comprehensive and integrated range of products and systems for automation:

www.siemens.com/totally-integrated-automation

SIMATIC

The leading automation system for industry: www.siemens.com/simatic
Get to know the SIMATIC consistency through its system features:
www.siemens.com/simatic-system-features

SIMATIC PCS 7

The powerful, scalable process control system for all sectors
www.siemens.com/simatic-pcs7

SIMATIC Controller

Powerful controller based on various hardware platforms
www.siemens.com/simatic-controller

SIMATIC ET 200

The distributed, modular I/O system for all requirements
www.siemens.com/simatic-et200

SIMATIC Software

Industrial software for maximum efficiency in every phase of an automation project
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SIMATIC Technology

The comprehensive range of products for performing technological tasks
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www.siemens.com/automation/newsletter

You can find out more about SIMATIC from your Siemens contact partner:
www.siemens.com/automation/partners

Or order the products and systems from our extensive range – direct from our Mall:
www.siemens.com/automation/mall

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