

The background image shows a Siemens low-voltage power distribution cabinet. The cabinet is open, revealing internal components like circuit breakers, busbars, and a central digital display. The display shows a graphical user interface with various data points and status indicators. The entire image is overlaid with a blue digital theme, including binary code (0s and 1s) and glowing geometric lines, suggesting a focus on digitalization and smart infrastructure.

SIEMENS

Ingenuity for life

Toward a digital future

Solutions for low-voltage power distribution

[siemens.com/lowvoltage/digitalization](https://www.siemens.com/lowvoltage/digitalization)

Fit for today's and tomorrow's challenges

Power distribution, IT, and the Internet are more and more converging, and today production facilities are already automated and networked. These trends are influencing the planning and design of electrical power distribution, and also playing a key role in the digital transformation in industry, buildings, and infrastructure. Consistently integrating the underlying systems and components in automation and digitalization environments will bring key competitive advantages for the operators of buildings and industrial plants.





Unlocking the potential of digitalization

Planning electric power distribution for industrial plants, infrastructure, and buildings is becoming more and more complex. To help you, as an electrical planning engineer as well as switchgear manufacturers and panel builders, to work faster and better under existing conditions, innovative software tools, CAx data or IT portal effectively support your planning and engineering process.

The digital transformation in industry and infrastructure is opening up enormous potential for plant and building operators.

Thanks to the transparency of system data, companies can significantly boost the productivity and efficiency of their entire industrial and building operation.

Within a short period of time, up to ten percent of energy costs can be saved if weaknesses in consumption can be pinpointed and corrected with simple means.

Savings of as much as 30 percent can be achieved if additional energy hogs are identified, peak loads avoided, and energy efficiency is optimized in production or building operation. Such measures can also help to avoid malfunctions and downtime and ensure a reliable power supply.

Simplified engineering

A digitalized automation environment based upon a reliable power distribution provides key benefits throughout the entire lifecycle of a plant, from planning and operation to maintenance. Siemens offers intelligent tools for the easy integration of electrical power distribution into digitalization.

SIMARIS tools

Integrating electrical power distribution into digitalization starts with the electrotechnical planning, long before the actual construction of switchboards, distribution systems, or an industrial control cabinet. Software-based planning tools and engineering systems, such as the SIMARIS software tools, support efficient planning in industry as well as in infrastructure.

More information

www.siemens.com/simaris

CAX data

Product data for automation technology and low-voltage switching technology such as macros for e-engineering systems, 3D models, and device circuit diagrams enable efficient engineering of industrial control cabinets based on digital twins. For electrical planning engineers, this reduces the costs for planning, configuration, design, documentation, ordering, and commissioning by as much as 80 percent.

More information

www.siemens.com/lowvoltage/cax

TIA Portal

The interaction of electrification and automation components can be simulated and virtually tested in the TIA Portal. Thanks to the integration of all important components of your automation project in a uniform engineering framework, the engineering platform makes it possible to reduce the time to market and increase the productivity of your plant. This benefits system integrators, switchgear manufacturers, and plant operators.

More information

www.siemens.com/TIA-portal

Building Information Modeling (BIM)

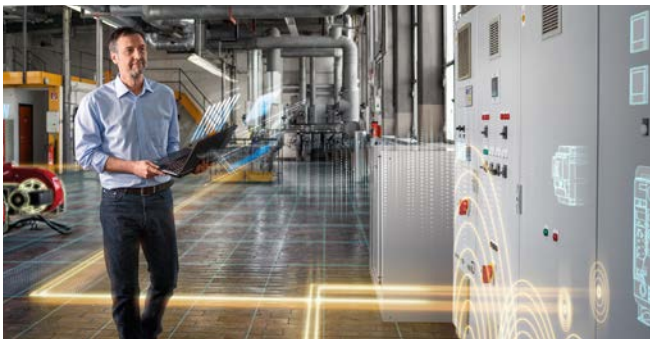
Building Information Modeling (BIM) has established itself as a new planning standard for buildings and in infrastructure. BIM data, for example, offers major advantages in the planning process, making it possible to avoid errors in the real world right from the start. The approach is simple: BIM is used to create a complete digital twin of the building with all the disciplines before the actual construction. Studies show that BIM results in 40 percent fewer change orders as well as significant cost savings in operation.

More information

www.siemens.com/bim-eplanning

Connection via communication-capable devices and diagnostics station

In smart buildings and Industrie 4.0 environments, communication-capable protection, switching, and measuring devices from the SENTRON portfolio, the SIMOCODE pro motor management system, as well as the SIMARIS control diagnostics station of the SIVACON S8 low-voltage switchboard, enable an optimally designed power distribution. Via standardized interfaces and protocols such as PROFINET, PROFIBUS, and Modbus, all the systems and components in the communication network work together intelligently. Electrical power distribution can thus be optimally tailored to automated operating processes, machine processes, and process workflows, ensuring a consistently reliable and flexible power supply.



Important data providers

As an integral component of industrial and building automation, communication-capable circuit breakers and measuring devices record energy-relevant data such as performance, energy, voltage, and power quality. This makes them some of the most important data providers in the Internet of Things, and they create the transparency necessary for digitalization. Depending on the application, it is worthwhile to integrate the collected data in the low-voltage main distribution board via SIMARIS control or in the industrial automation via SIMATIC S7, for this the engineering is handled in the TIA Portal.



SIMARIS control diagnostics station

As a permanent diagnostics station of the SIVACON S8 low-voltage switchboard, SIMARIS control enables a uniform control of the power distribution in the infrastructure. In addition, the diagnostics station provides a synthetic view of the power supply to higher-level automation and energy management systems as well as cloud-based analysis systems. In this way, you can use energy-relevant data to create a digital image of the power distribution.



Power distribution in the TIA Portal

The integration of communication-capable protection and measuring devices into the Totally Integrated Automation (TIA) Portal makes electrification an integral part of industrial automation. All components can be configured, virtually simulated, tested, and commissioned directly in the TIA Portal.

Future-oriented integration in cloud-based analysis systems

The systematic recording and analysis of energy consumption is the most important requirement for greater energy efficiency and reliability. Integrated in open IoT operating systems such as MindSphere, this optimization potential can be increased even further: Huge volumes of data from countless devices can be quickly and efficiently recorded and analyzed in real time.

Cloud-based analysis systems



Power monitoring



Condition monitoring



Preventive maintenance



Power distribution

SIMATIC S7



MindConnect



SIMARIS control



3WL
air circuit breaker



3VA molded
case circuit
breaker incl.
measuring
function



SIMOCODE pro
motor management
system



Frequency
converter



7KM PAC
measuring
device



Sensors



SIMARIS control

The SIMARIS control diagnostics station from the SIVACON S8^{plus} feature package can be used to uniformly parameterize, operate, and monitor all communication-capable switching devices. The connection to energy management, automation and cloud-based analysis systems such as MindSphere from Siemens supports a reliable, future-oriented operation.

More information

www.siemens.com/sivacon-S8



3WL air circuit breakers

Every power supply depends upon a reliable infeed of electricity. The 3WL air circuit breakers reliably protect electrical installations against damage or fire as a result of short circuits, ground faults, or overload faults.

More information

www.siemens.com/3wl



3VA molded case circuit breakers

The 3VA molded case circuit breakers have integrated measurement functions for recording power, voltage, energy and consumption data, and can be seamlessly connected to higher-level automation and energy management systems.

More information

www.siemens.com/3va



7KM PAC measuring devices

The 7KM PAC measuring devices communicate via standard bus systems and record as many as 200 measured values – from the infeed and outgoing feeders to the individual load with a clear allocation of energy consumption to individual cost centers.

More information

www.siemens.com/powermonitoring

SIMOCODE pro

SIMOCODE pro manages constant-speed, low-voltage motors and offers comprehensive protection, monitoring, and control functions. Enjoy the benefits of detailed operating, service, and diagnostics data – including for the fail-safe disconnection of motors. With the OPC UA communication from SIMOCODE pro, this data is available in cloud-based solutions such as Siemens MindSphere.

More information

www.siemens.com/simocode



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