Integrated Solutions for Power Distribution in Commercial, Institutional and Industrial Buildings

Savings potential throughout the entire project cycle

Totally Integrated Power

Answers for industry.
Electrical power distribution in buildings requires integrated solutions. Our response: Totally Integrated Power. This means innovative and integrated, interface-optimized products and systems which have been optimally coordinated, and complemented with communication and software modules that link power distribution to building automation or industrial automation. Totally Integrated Power accompanies power distribution projects from one end to the other. From A to Z. From the planning to the building's use: Totally Integrated Power offers significant advantages in every project stage and to everyone involved in the project – the investors, electrical planning engineers, electricians, users and building facility managers.
Hotels, administrative and office buildings, shopping centers, airports, hospitals, production plants … We provide you with a planning concept that covers every commercial, institutional and industrial building and has a lot of advantages from the planning stage to the construction and building use: **Totally Integrated Power™**

Our portfolio comprises everything from engineering tools to the matching hardware: from switchgear and distribution systems for medium voltage to transformers, from switching and circuit-protection devices to low-voltage switchgear and busbar trunking systems, as far as to the small distribution board and the wall outlet. It goes without saying that both the medium-voltage switchgear, which requires no maintenance, and the low-voltage switchgear are type-tested, and their busbar connections, too. Comprehensive protection systems ensure the safety of man and machine at any time.
Integrated solutions for power distribution in buildings
With Totally Integrated Power, Siemens provides integrated solutions for the electrical power distribution in commercial, institutional and industrial buildings ranging from medium voltage systems to wall outlets.

Totally Integrated Power is based on integration

- in planning and system configuration
- using well matched products and systems
- and communication and software modules for linking power distribution systems to industrial automation and building automation

**Totally Integrated Power creates tremendous savings potential for everyone involved in the project throughout the entire project cycle**

- You substantially increase your return on investment while boosting the estate’s attractiveness for your tenant at the same time
- You substantially reduce your planning and configuring expense
- You noticeably cut down your overhead for procurement, installation and commissioning
- You minimize your operating costs while maintaining a high flexibility in the event of a changing building use
- User/Facility manager
- Investor
- Planner
- Electrician

You noticeably cut down your overhead for procurement, installation and commissioning.
Investors substantially increase their return on investment with Totally Integrated Power while boosting the estates’ attractiveness for their tenants

... by cost savings in the procurement of products and systems for power distribution

III Our dimensioning tool SIMARIS design ensures optimal sizing of the electrical power distribution system
III Oversizing is avoided
III A combination of different operating strategies can be considered in the dimensioning process
III Power reserves can be considered to ensure uninterrupted operation and account for possible system extensions
III Simulating various scenarios of use is feasible as early as in the preplanning stage

... by small space requirements for the electrical infrastructure

III Extra compact products and systems, such as gas and air-insulated medium-voltage switchgear help to save space in the building
III Type-tested switchgear allows for maximum mounting density of the products at maximum safety

... by securing the return on investment over a long period of time due to a high attractiveness for the tenant

III Standard bus systems connect functions for room climate control and other, such as HVAC, lighting or shading, as well as the power generating sets themselves
III Energy savings options ensure economical operation
III Comfortable room functionalities boost the estate’s attractiveness
III Changes of building use can be implemented in a cost-effective way
Using Totally Integrated Power, electrical planning engineers substantially reduce their overhead for planning and configuring

... by focusing on what’s important
- The SIMARIS design software automatically and efficiently dimensions the power distribution systems
- SIMARIS design chooses the most cost-effective products and systems
- All relevant standards are taken into account
- “At the touch of a button,” tender specification texts and parts lists containing precise product descriptions are generated
- High safety standards and planning quality are ensured
- The plans drafted are close to reality and plausible
- Selectivity can be verified

... with competent advice and support in the concept drafting
- Your regional partners have the expert know-how for planning a power distribution system and will be pleased to give you individual advice
  – on all matters regarding electrical power distribution
  – on bus systems that communicate with the equipment
  – on building automation

... by being supplied with matching products and systems for power distribution from a single source so that they can meet every engineering challenge
- All products and systems, such as medium-voltage switchgear, transformers, low-voltage switchgear, distribution systems, circuit protection devices and controls, switches and outlets, are optimally coordinated
- All systems are modularly designed
- We can offer you the whole spectrum from standard power distribution systems to solutions that will satisfy even the highest demands
Electricians noticeably cut down their overhead for procurement, installation and commissioning with Totally Integrated Power

... due to a simple configuration and procurement procedure and a faster installation and commissioning process

III The ALPHA SELECT software tool enables you to configure meter cabinets and distribution boards rapidly, and the data can be used directly for online product orders

III The dimensioning results gained from SIMARIS design, such as cable data and setting values for the switching devices, can be directly used for the installation and commissioning process

III Your local Siemens partner will also support you in the procurement procedure

... by the selection of the most economical products and systems

III The interplay of planning and configuring tools optimizes device selection and coordination

III This minimizes material and wiring expense

III Space-saving distribution board systems will be suggested and the most economical products will always be selected

III A documentation of the planning and configuring results is possible at the touch of a button, this is a good basis for maintenance planning

... owing to the safe and easy to handle interfaces within the entire power distribution environment, to the building and to building automation

III SIMARIS design automatically checks all interfaces of the power supply system

III Drawings identifying switchboard locations and possibly necessary floor openings are also output

III Your local Siemens partners will support you in implementing innovative communication solutions
Users or building facility managers optimize their operating costs with Totally Integrated Power while maintaining a high degree of flexibility, when the building’s use is changed... thanks to transparent energy consumption and optimized energy costs

- The interfacing of the power supply units to bus systems provides the necessary data
- Power management makes energy costs transparent
- Purchase contracts can be optimally negotiated

... by a high degree of operational safety and by interfacing power distribution to building management or process control systems

- Central operator control & monitoring helps to reduce downtimes
- This saves costs arising from losses in production and services
- When a selective design is chosen, protective tripping on fault will only disconnect the units involved
- Modular systems can be easily and quickly replaced

... due to low expense in case of changes in the building use or demand adjustments

- Interactive room and energy management functions can be adapted to new variants of use with the existing equipment, equipment changes become unnecessary
- Our systems can be modularly extended
- Our dimensioning tool SIMARIS design permits to simulate different scenarios for an intended change of building use

Lower operating costs, higher flexibility
Products and systems for power distribution ranging from medium voltage systems to wall outlets
1 Medium-voltage switchgear
2 GEAFOL transformers
3 Busbar trunking systems
4 Low-voltage switchgear
5 Small and normal-size distribution boards, meter cabinets
6 Circuit-breakers
7 Switch-disconnectors
8 Circuit protection devices
9 Controls and monitoring devices
10 Switches and outlets
11 Power automation
12 Power management
13 Protective devices and systems
14 Building systems technology & automated room control functions
15 Drives
## Our complete portfolio for electrical power distribution: integrated, safe and well matched

<table>
<thead>
<tr>
<th>Products</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Medium-voltage switchgear</strong></td>
<td>The utility company feeds medium voltage to the basement of the building. The switchgear ensures safe and efficient power distribution in the building and feeds the transformer. Our type-tested switchgear range covers all requirement profiles. Zero-maintenance, gas-insulated switchgear and low-maintenance air-insulated switchgear make sure that life-cycle costs are kept low.</td>
</tr>
<tr>
<td><strong>GEAFOL transformers</strong></td>
<td>Transformers convert the medium voltage to the low voltage required for operating power consuming appliances. GEAFOL transformers are flame-retardant, self-extinguishing, and do not emit any toxic gases in case of fire. For this reason, they are particularly suited in areas highly frequented by people, e.g. in high-rise buildings, hospitals, road and subway tunnels, offshore and mining facilities etc., where a maximum of safety is required.</td>
</tr>
<tr>
<td><strong>SIVACON busbar trunking systems</strong></td>
<td>Electrical power is distributed via cables or busbar trunking systems, like SIVACON, which are routed through the building side by side with other supply lines and ventilation ducts. Thanks to their high short-circuit strength and very low fire load, busbars are much safer than cables. Easy planning with the aid of planning software and fast installation ensure optimum efficiency.</td>
</tr>
<tr>
<td><strong>Switchgear</strong></td>
<td>The low-voltage main distribution feeds the power to safety circuits and general power distribution systems. SIVACON S8 switchbard proves its safety and high quality by type and arc fault tests as well as by its type-tested connection to the busbar trunking system. Being produced locally by carefully chosen, qualified and permanently audited SIVACON Technology Partners worldwide, SIVACON offers an utmost of individual design, based on well-proven Siemens components and preferred in infrastructure applications.</td>
</tr>
<tr>
<td><strong>ALPHA subdistribution boards</strong></td>
<td>Subdistribution boards are located on every floor and in every production unit. They feed electricity to the rooms or the appliances. In compliance with every relevant national and international standard, SIMBOX small distribution boards from our ALPHA series are suitable for use everywhere around the globe.</td>
</tr>
<tr>
<td><strong>SENTRON circuit breakers</strong></td>
<td>Circuit breakers trip in the event of a fault, thus protecting human life and appliances. SENTRON circuit-breakers protect individual machines or entire plants, disconnect systems from the supply and are able to communicate with service personnel.</td>
</tr>
<tr>
<td><strong>SENTRON switch-disconnectors</strong></td>
<td>SENTRON switch-disconnectors, reliably disconnecting and switching under load, ensure the safety of persons, equipment and cabling. They protect against overload and short circuit, with or without a fuse.</td>
</tr>
<tr>
<td><strong>BETA low-voltage circuit protection technology</strong></td>
<td></td>
</tr>
<tr>
<td>Handling electricity gets safer when the current is cut within the split of a second. For this purpose, we can offer fuses that cut off the current in the event of a short circuit, and protect against hazardous shock currents in case of direct or indirect contact with live parts. Switching and monitoring devices control circuits, e.g. according to time settings or when certain limit values are reached.</td>
<td></td>
</tr>
</tbody>
</table>

| **DELTA switches and outlets** |
| Our range of switches and power outlets comprises a vast scope of functions for communication, data and voice networks, for brightness control (also GAMMA wave radio-controlled) and the control of shutters and blinds, for timing, room temperature regulation, motion detection and for connection to the GAMMA instabus®. |

| **Power automation** |
| Power automation using the SICAM PAS substation control system meets high requirements regarding interference immunity, operational safety, interlocking, real-time data resolution and secure remote data transmission. |

| **Power management** |
| The objective of the Power Management System is to optimize operating costs and increase plant availability. Various products for energy distribution can be integrated in the Power Management System. These include components such as multi-function measuring instruments e.g. SENTRON PAC3200, SENTRON circuit breakers with communications capability, the SIMOCODE pro motor management system, E meters or protective devices such as SIPROTEC. |

| **SIPROTEC protective devices and systems** |
| SIPROTEC technology protects both the primary equipment by fast switching, and the electrical network and machinery by selective fault clearing. |

| **GAMMA building management technology** |
| GAMMA building management technology comprises innovative electrical installation technology for more convenience, less energy consumption and improved safety. |

| **DESIGO RX automated room control** |
| DESIGO RX contains an innovative product range of controllers and operating units that monitor and control comfort conditions in rooms and enclosed areas, and ensure maximum efficiency in energy consumption. |

| **Drives** |
| Fans, pumps, elevators, revolving doors and other technical equipment in a building must be powered by a great number of motors and converters. We can offer efficient drives that provide plenty of comfort and safety. Power-saving models make for an efficient power record, as required. And our explosion-proof motors meet the highest safety standards. |
Totally Integrated Power: versatile and proven many times

Office and technical building

Entertainment and business event arena

Airport terminal

Pharmaceutical production plant

Soccer stadium
More information

More about Totally Integrated Power at:
www.siemens.com/tip

Be One –
The Magazine for Integrated Building Technology

You can download B1, the Siemens magazine for integrated building technology, from our website as a PDF file. You can also order a free sample copy or take a full subscription of the print version, free of charge, if you like.
www.siemens.com/B1-online

The information provided in this brochure contains merely general descriptions or characteristics of performance which in actual case of use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.