The low-voltage power distribution board that sets new standards

SIVACON S8 - safe, flexible and cost-efficient

Answers for infrastructure.
Mastering your power needs - we support you with our systems

Energy is the driver of progress, because without energy, everything comes to a standstill. Whether in industrial applications or infrastructure, a safe and reliable power supply is vital for modern buildings. Even at the planning stage, the key focus is therefore on safety, flexibility and efficiency. Our intelligent systems and products for low-voltage power distribution are the perfect match for these requirements. Our high-performance, consistent components are the key to your success: they help to noticeably reduce investment costs and risks and guarantee you maximum convenience and system availability throughout the entire period of use.
Safe and intelligent distribution of power

Cost-efficient system
The SIVACON® S8 low-voltage power distribution board sets new standards as a power distribution board or Motor Control Center (MCC) for industrial applications or in infrastructure. The power distribution board system up to 7,000 A for the simple and consistent distribution of power guarantees maximum personal and system safety and, thanks to its optimal design, offers a wide range of possible uses. Thanks to the modular technology, the power distribution board can be optimally adapted to every requirement when designing the complete system. With its combination of maximum safety and a modern design, the system offers a highly cost-efficient solution.

Tested safety
SIVACON S8 stands for the highest level of safety. The low-voltage power distribution board is a design-tested power switchgear and controlgear assembly with a design verification based on testing. Evidence of its physical properties has been provided in the product testing department under both operating and fault conditions. An arcing-resistant locking system also ensures maximum personal safety. Furthermore, even with the standard design, verification of testing under arcing conditions is in accordance with IEC 61641.

Flexible solutions
The SIVACON S8 low-voltage power distribution board is the intelligent solution which can be adapted to match your requirements. The well thought-out design of the system allows it to be integrated perfectly into a modern room concept. The section, either single- or double-fronted, can be installed together with a main busbar system or back-to-back with a separate main busbar system. Different installation designs can be combined in one section with ease. The flexible, modular technology allows for the simple exchange or addition of functional units. The SIVACON S8 modular components undergo a continuous innovation process, thereby ensuring the highest possible level of technical progress for the complete system.

Highlights
- Safety for human beings and plants by design verification by verification tests in accordance with IEC 61439-2
- Maximum personal and system safety in the event of an arcing fault thanks to thorough testing in accordance with IEC 61641 and VDE 0660 Part 500-2
- High level of flexibility thanks to the innovative modular technology

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Read the QR code with the QR code reader in your mobile!
Safe and extensive power distribution

Whether in industrial applications or infrastructure, our integrated portfolio of products and systems offers safe, flexible and cost-efficient application options for low-voltage power distribution.
### SIVACON S8 - system overview

#### Section design

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<td>Plug-in design</td>
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<tr>
<td>Functions</td>
<td>Supply</td>
<td>Cable feeders</td>
<td>Cable feeders</td>
</tr>
<tr>
<td></td>
<td>Feeder</td>
<td>Motor outgoing feeders (MCC)</td>
<td></td>
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<tr>
<td></td>
<td>Coupling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated current (I_{\text{in}})</td>
<td>up to 6,300 A</td>
<td>up to 630 A</td>
<td>up to 630 A</td>
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<tr>
<td></td>
<td>up to 630 A</td>
<td>up to 250 kW</td>
<td></td>
</tr>
<tr>
<td>Connection position</td>
<td>front or rear</td>
<td>front or rear</td>
<td>front</td>
</tr>
<tr>
<td>Section width (mm)</td>
<td>400 • 600 • 800 • 1,000 • 1,400</td>
<td>600 • 1,000 • 1,200</td>
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<tr>
<td>Internal separation</td>
<td>Form 1*, 2b, 3a, 4b, 4 Type 7 (BS)</td>
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<td>Form 1*, 2b, 3b, 4a, 4b</td>
</tr>
<tr>
<td>Busbar position</td>
<td>rear/top</td>
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</tr>
</tbody>
</table>

* practical cover add-on possible
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<thead>
<tr>
<th>3NJ6 in-line system</th>
<th>3NJ4 in-line system</th>
<th>Reactive power compensation</th>
</tr>
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<tbody>
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<td>Plug-in design</td>
<td>Fixed-mounted design</td>
<td>Fixed-mounted design</td>
</tr>
<tr>
<td>Cable feeders</td>
<td>Cable feeders</td>
<td>Central reactive power compensation</td>
</tr>
<tr>
<td>Up to 630 A</td>
<td>Up to 630 A</td>
<td>unchoked up to 600 kvar choked up to 500 kvar</td>
</tr>
<tr>
<td>front</td>
<td>front</td>
<td>front</td>
</tr>
<tr>
<td>1,000 • 1,200</td>
<td>600 • 800 • 1,000</td>
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<tr>
<td>Form 1*, 3b, 4b</td>
<td>Form 1*, 2b</td>
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<tr>
<td>rear/top</td>
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<td>rear/top/without</td>
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</tbody>
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### Features

<table>
<thead>
<tr>
<th>Design side panel</th>
<th>Standardized labelling system for sections and feeders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable busbar positions, top up to 6,300 A</td>
<td>Variable busbar positions, rear up to 7,000 A (top and/or bottom)</td>
</tr>
<tr>
<td>Locking system for simple or central locking</td>
<td>Lockable pivoted lever system</td>
</tr>
</tbody>
</table>
### SIVACON S8 – system overview

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<td>with front covers</td>
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<td></td>
<td>Motor outgoing feeders (MCC)</td>
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<tr>
<th>Rated current (I_n)</th>
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</tr>
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<tr>
<td></td>
<td>up to 630 A</td>
<td>up to 250 kW</td>
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</tr>
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<table>
<thead>
<tr>
<th>Connection position</th>
<th>front or rear</th>
<th>front or rear</th>
<th>front</th>
</tr>
</thead>
</table>

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<tr>
<th>Section width (mm)</th>
<th>400 • 600 • 800 • 1,000 • 1,400</th>
<th>600 • 1,000 • 1,200</th>
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<th>Form 2b, 3b, 4a, 4b, 4 Type 7 (BS)</th>
<th>Form 1*, 2b, 3b, 4a, 4b</th>
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<table>
<thead>
<tr>
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<th>rear/top</th>
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<td>Form 1*, 2b</td>
<td>Form 1*, 2b</td>
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<tr>
<td>rear/top</td>
<td>rear</td>
<td>rear/top/without</td>
</tr>
<tr>
<td>Features</td>
<td></td>
<td></td>
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<tr>
<td>------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Patented low-wear withdrawable unit contact system for long service life</td>
<td>Miniature withdrawable units up to 63 A or 30 kW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Up to 48 withdrawable units per section for space-saving installation</td>
<td></td>
</tr>
<tr>
<td>Shutter with double-action for standard and miniature withdrawable units for a high level of personal safety</td>
<td>Arc-resistant section busbar embedding for a high level of personal and system safety</td>
<td></td>
</tr>
<tr>
<td>Lockable disconnected position for safe commissioning and maintenance</td>
<td>Optional withdrawable unit coding (up to 9,216 options) for the clear assignation of withdrawable units</td>
<td></td>
</tr>
</tbody>
</table>
Frame, enclosure and busbars

The SIVACON S8 power distribution board combines an cost-efficient design with excellent quality.

- **Safety and functionality**
  Safe, user-friendly and appealing: the intelligent design of the SIVACON S8 meets every demand. The frame and all of the bearing components of the section are made from stable, screw-fastened sheet steel profiles. Circumferential rows of holes allow for individual expansion. The patented door-locking system offers maximum safety: the universal door hinge allows for the hinge side to be changed with ease. The doors are available with either simple or central locking and can be fitted with various locking systems such as double bit fastener or pivoted lever lock. The roof plates feature pressure relief for additional safety. Section-to-section separation is provided as standard. The surfaces of frame components, bases, rear panels and floor plates are Sendzimir-galvanized. Doors, covers and base panels are powder-coated or lacquered.

- **Systematic flexibility**
  Whether your need is for simple systems or extensive networks with transversal and longitudinal couplings, SIVACON offers you all the flexibility you need. The busbars can be positioned at either the top or the rear and, if required, two busbar systems can also be integrated in a power distribution board. The shipping splits are easily accessible from the front or the top. The busbar connections require zero maintenance.

### Technical specifications

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<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frame</strong></td>
<td></td>
</tr>
<tr>
<td>Door opening angle</td>
<td>125 ° • 180 ° with stand-alone design</td>
</tr>
<tr>
<td>Frame height</td>
<td>2,000 • 2,200 mm</td>
</tr>
<tr>
<td>Base height</td>
<td>100 • 200 mm</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>in accordance with IEC 60529: IP30 • IP31 • IP40 • IP41 • IP42 • IP54</td>
</tr>
<tr>
<td><strong>Main busbars</strong></td>
<td></td>
</tr>
<tr>
<td>Rated currents</td>
<td>up to 7,000 A</td>
</tr>
<tr>
<td>Rated impulse withstand current (i_{up})</td>
<td>up to 330 kA</td>
</tr>
<tr>
<td>Rated short-time withstand current (i_{sp})</td>
<td>up to 150 kA</td>
</tr>
</tbody>
</table>
Section design

Enclosure
1. Roof plate (IPX1)
2. Rear panel
3. Design side panel
4. Frame
5. Base panel
6. Base
7. Ventilated base compartment panel
8. Ventilated section door
9. Compartment door
10. Head room door

Busbars
11. Main busbar (L1... L3, N) – top
12. Main busbar (L1... L3, N) – rear top
13. Main busbar (L1... L3, N) – rear bottom
14. Main busbar (PE) – bottom
15. Section busbar system (L1... L3, N) device compartment
16. Section busbar (PE) cable connection compartment
17. Section busbar (N) cable connection compartment

Internal separation
18. Device compartment/busbar compartment
19. Section to section
20. Compartment to compartment
21. Cross-wiring compartment
Circuit breaker system

The sections for circuit breakers 3WL/3VL ensure long-term operational and personal safety.

**Safe and user-friendly**
The incoming, outgoing and coupling sections of the circuit breaker system are fitted with air circuit breakers 3WL in the withdrawable or fixed-mounted system, or, alternatively, with molded-case circuit breakers 3VL. Since there are generally many loads downstream from these sections, the long-term personal and operational safety of these is of particular importance. SIVACON S8, with its components of the circuit breaker system, meets all these requirements, compact and safe. Movement to the connected, test or disconnected position with the air circuit breaker 3WL take place with the door closed. Design verification by verification test in accordance with IEC 61439-2 also guarantees maximum safety for all sizes.

**Flexibility for individual requirements**
The section dimensions are tailored to the size of the circuit breakers and can be selected to meet individual needs. The circuit breaker system offers optimal connection conditions for every rated current range. In addition to cable connections, the system also has design verification to SIVACON 8PS busbar trunking systems.

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<tr>
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<tbody>
<tr>
<td>Installation system</td>
</tr>
<tr>
<td>Functions</td>
</tr>
<tr>
<td>Rated current $I_{n}$</td>
</tr>
<tr>
<td>Connection position</td>
</tr>
<tr>
<td>Section width (mm)</td>
</tr>
<tr>
<td>Internal separation</td>
</tr>
<tr>
<td>Busbar position</td>
</tr>
</tbody>
</table>
The busbar trunking system connection pieces, specially developed for the SIVACON S8, are an integral component of the sections in the circuit breaker system. These sections consist of three functional compartments. The auxiliary equipment compartment provides the ideal space for control or monitoring switching devices. They are arranged on an auxiliary equipment support which can be separated from the power section.

Depending on the position of the cable connection or busbar connection compartment, this can be arranged at the top and/or bottom.

Efficient solutions
With a width of 600 mm and a depth of 800 mm, the section with three air circuit breakers takes up very little space. In this design, the cable connection compartment is located at the back.

Inspection possible without removing the air circuit breaker 3WL.

Highlights
- Maximum safety in the connected, test and disconnected position with the door closed
- Ideal space conditions for connecting any range of rated current
- Design verification connection to SIVACON 8PS busbar trunking systems
Benefits of flexible combinations
Many applications require a space-saving design of a power distribution board. In such cases, an ideal solution is therefore to combine various installation systems in one section. The SIVACON universal installation system offers you safety, together with maximum flexibility and cost-efficiency in one system. It allows tap-off units in withdrawable design and fixed-mounted system, as well as plug-in tap-off units in the 3NJ6 in-line system. When requirements are constantly changing, e.g. changes in motor rating or the connection of new loads, the withdrawable unit design offers you the flexibility that you need. Safe and simple handling means that modifications can be carried out quickly, thereby ensuring a high level of system availability.

Safe power distribution
The section busbar system is arranged at the rear of the universal installation system section. It offers test finger safety (IP20B) for live parts, even without additional shutters. As an option, the plug-in busbar system can be embedded with arcing fault resistance and can be fitted with a shutter with a double-action system. The tap openings are arranged in a 50 mm modular grid.

Technical specifications

<table>
<thead>
<tr>
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<th>Withdrawable unit design, fixed-mounted design with compartment doors, plug-in design</th>
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<td>Functions</td>
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<td>Connection position</td>
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</tr>
<tr>
<td>Section width (mm)</td>
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<tr>
<td>Internal separation</td>
<td>Form 2b, 3b, 4a, 4b, 4 Type 7 (BS)</td>
</tr>
<tr>
<td>Busbar position</td>
<td>top, rear top and/or rear bottom</td>
</tr>
</tbody>
</table>

Universal installation system

The motor control centers in the withdrawable unit design offer flexible solutions to meet all requirements in industrial plants.
This guarantees maximum flexibility, both at the outset and for later expansions.

**Compact and cost-efficient**

With the SIVACON S8 withdrawable unit sizes adapted to the rating, the system size can be reduced to a minimum. The compact miniature withdrawable units are particularly useful here. With miniature withdrawable unit sizes of 1/4 (up to four withdrawable units per compartment) and 1/2 (up to two withdrawable units per compartment), as well as standard withdrawable units with heights starting from 100 mm, very high packing density can be achieved. The withdrawable unit compartments have isolating distances on the incoming and outgoing sides. No connection work is required inside the withdrawable unit compartments.

When space is restricted, miniature withdrawable units can be used to achieve high packing density.

The withdrawable unit design, which can be individually combined as required, is ideally suited to situations with frequently changing requirements.

The SIVACON S8 power distribution board can be ideally adapted to fit the space available.

**Highlights**

- Space-saving assembly thanks to the combination of various installation systems
- High level of personal safety, even in the event of a fault, thanks to closed front doors in all withdrawable unit positions (connected, test, disconnected positions)
- Long serviceable life thanks to patented, wear-resistant contact system
Operation and handling

The withdrawable unit design offers maximum safety and flexibility with standardized handling.

- Simple adaptation to changed requirements

Is your power supply constantly having to increase to meet new requirements? SIVACON withdrawable units can offer you all the safety and flexibility that you need. These units can be modified or retrofitted with ease, and without disconnecting the section. Regardless of whether miniature or standard withdrawable units are used, the size is optimally adapted for the required performance. The patented withdrawable unit contact design has been designed to be user-friendly and particularly wear-resistant. In order to protect against damage, all parts in withdrawable units are racked down inside the contours of the withdrawable units. The cables are routed at the right side of the section in a cable connection compartment with a choice of width of either 400 mm or 600 mm. Cable brackets are provided here for fastening the cables. Alternatively, the cables can be connected at the back of the section. In this case, the cable connection compartment on the right is no longer required and the section width is reduced to 600 mm.

In the connected position, both power and control contacts are closed. In the disconnected position the incoming, outgoing and control sides have max. isolating distances. The test position allows for the no-load testing of the withdrawable units.
Communication and analysis
Communication via Proﬁbus DP with SIMOCODE pro offers all the beneﬁts of integrated full motor protection, extensive control functions and analysis options. Each feeder can be operated independently via an operator panel. The beneﬁts for you: Your hardware and wiring requirements are reduced.

Safe operation of the withdrawable units
Withdrawable units of all sizes are equipped with integrated operating fault protection and a standardized, clear display of the withdrawable unit positions. Moving to the test, disconnected or connected position takes place with the door closed and without removing the degree of protection. In addition to the main switch, the disconnected position of the withdrawable units can also be locked for additional safety. Optional withdrawable unit coding can be used to prevent any confusion of withdrawable units of the same size.

Highlights
- High level of safety thanks to standardized user interfaces for all withdrawable unit sizes
- Withdrawable unit coding for protection against any confusion of withdrawable units of the same size
- Convenient diagnostic possibilities through communication via Proﬁbus DP with SIMOCODE pro
Universal installation system

Thanks to the universal installation system section, the fixed-mounted design and the plug-in design can be combined for the power distribution.

The successful combination of modules
The SIVACON universal installation system combines tap-off units in the fixed-mounted system and plug-in tap-off units in the in-line design. The system is suitable for cable feeders up to 630 A. The modular technology allows functional subassemblies to be put together in any combination, thereby allowing for the space-saving installation of the power distribution board. Add-on modules enable functional compartments to be divided as required. The front control panel is available with either a section-height door or with compartment doors. The cables are routed at the right side of the section in a cable connection compartment with a choice of width of either 400 mm or 600 mm. Cable brackets are provided here for fastening the cables. Alternatively, the cables can be connected at the back of the section. In this case, the cable connection compartment on the right is no longer required and the section width is reduced to 600 mm.

Safe and flexible power distribution
The vertical section busbars are arranged at the rear left of the section. The profile bar or flat copper design allows for tap-offs in the smallest of grids. Connections to the section busbars by means of

Compartment formation – add-on modules enable functional compartments to be divided as required.

Technical specifications

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<tr>
<th>Specification</th>
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<td>Fixed-mounted design with compartment doors, plug-in design</td>
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cables, wires or busbars are also possible without any need for drilling or punching. This guarantees maximum flexibility, both at the outset and for later expansions.

**Modular and variable installation**
The installation of switching devices in the fixed-mounted system takes place using modular device holders. It can be fitted with circuit breakers or in-line switch disconnectors with LV HRC fuses. The cable connection is made directly at the device or, in cases of higher requirements, at special patented cable connection terminals. For individual expansion, the system offers freely assignable device holders.

**Flexible retrofitting of feeders**
In-line switch disconnectors with LV HRC fuses 3NJ6 can be installed in the bottom 600 mm of the equipment compartment. They are equipped with a plug-in contact on the supply line side. This means that the switch disconnectors can be exchanged or retrofitted without disconnecting the section. The plug-in in-line disconnectors are operated directly at the device.

**Highlights**
- High level of flexibility thanks to the modular technology subassemblies which can be combined as required
- Range of connection options to the section busbar system
- Cost-efficient design of the internal separation by means of add-on modules
Fixed-mounted design with front covers

Fixed-mounted design with front covers allows for the cost-efficient installation of high-rating tap-off units and the assembly of modular installation devices.

Safe and cost-efficient
If the exchange of components under operating conditions is not required, or if short downtimes are acceptable, then the SIVACON fixed-mounted system offers a safe and cost-efficient solution. The system is designed for cable feeders up to 630 A. Individual functional subassemblies can be combined in the modular technology as desired, therefore offering you all the flexibility that you need.

Add-on modules enable functional compartments to be subdivided as required (up to form 4b). The hinged masking frame also guarantees simple commissioning and maintenance. The cables are routed at the right side of the section in a cable connection compartment with a choice of width of either 400 mm or 600 mm. Cable brackets are provided here for fastening the cables.

Flexible and space-saving
The vertical section busbars are arranged at the rear left of the section. The profile bar or flat copper design allows for tap-offs in the smallest of grids. Connections to the section busbars by means of cables, wires or busbars are also possible without any need for drilling or punching. This guarantees maximum flexibility, both at the outset and for later expansions.

The front panels in the fixed-mounted design section are easy to fit and provide a uniform front surface.

Technical specifications

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</tr>
<tr>
<td>Section width (mm)</td>
<td>1,000 • 1,200</td>
</tr>
<tr>
<td>Internal separation</td>
<td>Form 1*, 2b, 4a, 4b</td>
</tr>
<tr>
<td>Busbar position</td>
<td>top, rear top and/or rear bottom</td>
</tr>
</tbody>
</table>

* practical cover add-on possible

With many industrial applications, the exchange of components under operating conditions is not required.

The aluminium multi-profile bar allows for the simple assembly of modular installation devices.
Multifunctional modules
The switching devices are installed on modular device holders of graduated depth. It can be equipped with circuit breakers, switch disconnectors with fuses or modular installation devices. Different switching devices groupings into one module are also possible. They are attached onto the device holders and directly connected to the section busbar. The cable connection is made at the device or, in cases of higher requirements, at special cable connection terminals. Thanks to the panel, simple operation is possible directly at the device. For individual expansion, the system offers freely assignable device holders.

Highlights
- Efficient arrangement of devices as single or multiple feeders
- More safety thanks to design verified standard modules
- High level of flexibility through the combination of high-rating tap-off units and modular installation devices
3NJ4 In-line system

The compact design of the in-line system ensures optimal and cost-efficient applications in infrastructure.

- **Compact and safe**
  The sections for cable feeders in the fixed-mounted system up to 630 A are equipped with vertically installed LV HRC fuse switch disconnectors 3NJ4. Thanks to their compact design and modular installation, they allow for optimal and cost-efficient applications in infrastructure. Design-tested standard modules guarantee maximum safety.

- **Cost-efficient and adaptable**
  As a horizontal section busbar system (phase conductors L1, L2, L3), various cross-sections are available which are arranged horizontally at the back of the section. The section busbar cross-sections can be freely selected, so the section type can be optimally adapted to the requirements. The protective conductor and PEN or neutral conductor busbars are installed separately from the phase conductors in the cable connection compartment, either at the top or the bottom of the section, depending on the connection.

---

**Technical specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation system</td>
<td>Fixed-mounted design</td>
</tr>
<tr>
<td>Functions</td>
<td>Cable feeders</td>
</tr>
<tr>
<td>Rated current $I_n$</td>
<td>up to 630 A</td>
</tr>
<tr>
<td>Connection position</td>
<td>front</td>
</tr>
<tr>
<td>Section width (mm)</td>
<td>600 • 800 • 1,000</td>
</tr>
<tr>
<td>Internal separation</td>
<td>Form 1*, 2b</td>
</tr>
<tr>
<td>Busbar position</td>
<td>rear top and/or rear bottom</td>
</tr>
</tbody>
</table>

* practical cover add-on possible
Flexible design
The switch disconnectors of sizes 1 to 3 are fixed-mounted on the horizontal section busbar system. For switch strips of size 00, mounting takes place on an adapter. The cable is connected at the front, directly at the device. The cables can be routed into the section from the top or the bottom. A section-height door provides the front closure. With degrees of protection up to IP31, this door can be optionally fitted with a cutout area, which allows for control of the switching devices when the door is closed. It is operated directly at the device. The switch disconnectors can be fitted with up to three current transformers to allow for feeder-related measurements. In order for a section-related summation current measurement to be performed, the system offers the option of installing a current transformer in the section busbar system.

Highlights
- Space-saving, thanks to the compact design with up to 18 tap-off units per section
- Cost-efficient system thanks to maximum possible main busbar loading with arrangement on separate section busbar system
- Optional installation of quick-assembly kits or freely assignable device holders
Variable with the plug-in design
In-line switching devices with a plug-in contact on the supply-line side offer an cost-efficient alternative to the withdrawable unit design and, thanks to its modular design, allow for quick and easy modification or exchange under operating conditions. The switch disconnectors with double-breaking are suitable for cable feeders up to 630 A.

With up to 35 feeders per section, the switching devices achieve a high packing density. The cables are routed vertically at the right side of the section in a cable connection compartment with a choice of width of either 400 mm or 600 mm. Cable brackets are provided here for fastening the cables.

Safe and flexible
The section busbar system is arranged at the rear of the in-line system section. It offers test finger safety (IP20B) to live parts. The tap openings are arranged in a 50 mm modular grid. This guarantees maximum flexibility, both at the outset and for later expansions.

### Technical specifications

<table>
<thead>
<tr>
<th>Installation system</th>
<th>Plug-in design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functions</td>
<td>Cable feeders</td>
</tr>
<tr>
<td>Rated current $I_n$</td>
<td>up to 630 A</td>
</tr>
<tr>
<td>Connection position</td>
<td>front</td>
</tr>
<tr>
<td>Section width (mm)</td>
<td>1,000 • 1,200</td>
</tr>
<tr>
<td>Internal separation</td>
<td>Form 1*, 3b, 4b</td>
</tr>
<tr>
<td>Busbar position</td>
<td>top, rear top and/or rear bottom</td>
</tr>
</tbody>
</table>

* practical cover add-on possible
Compact with high functionality
The cable is connected at the front, directly at the device. The in-line system door forms the front closure. The plug-in in-line disconnectors are operated directly at the device. Up to four required current transformers can be installed in the in-line disconnectors inside the device contours. Alarm and signalling devices can be integrated in the in-line disconnector. Device compartments are available for individual expansion. A compartment door provides the front closure, and signalling or measurement devices can be built into the door.

The device compartments offer enough room for e.g. terminal blocks, measuring devices or miniature circuit breakers.

Highlights
- High level of system availability thanks to modification or exchange under operating conditions
- Simple and cost-efficient assembly through plug-in contact on the supply-line side
- High packing density with up to 35 branches per section
Reactive power compensation

Save costs with the intelligent SIVACON technology.

Cost-efficient system
In a network, reactive power is caused by inductive linear loads, such as motors, transformers or reactors, and inductive, non-linear loads, such as converters, welding apparatus, arc furnaces or UPS systems. The sections for central reactive power compensation relieve transformers and cables, reduce transmission losses and therefore save energy.

Depending on the load structure, the reactive power compensation is equipped with choked or unchoked capacitor sub-assemblies. The controller subassembly has an electronic reactive power controller for door installation. The C/k value setting takes place automatically. The multifunction display is also used to set and display various parameters. The desired target cos phi can be set from 0.8 ind to 0.8 cap. Network parameters such as U, I, f, cos phi, P, S, Q, harmonics are displayed. The capacitor subassembly (up to 200 kvar) with MKK capacitors has a fuse switch disconnector, capacitor contactors, discharge devices and filter reactors. The switch disconnector subassembly can optionally be used for the central safety isolation of the integrated capacitor subassemblies.

<table>
<thead>
<tr>
<th>Technical specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation system</td>
</tr>
<tr>
<td>Functions</td>
</tr>
<tr>
<td>Rated current $I_n$</td>
</tr>
<tr>
<td>Capacitive reactive power Q</td>
</tr>
<tr>
<td>Connection position</td>
</tr>
<tr>
<td>Section width (mm)</td>
</tr>
<tr>
<td>Internal separation</td>
</tr>
<tr>
<td>Busbar position</td>
</tr>
</tbody>
</table>

* practical cover add-on possible
Integrated savings potential
The reactive power compensation section is available either with or without a main busbar system. The section can therefore be directly integrated into the power distribution board with design-test approval. In this case, additional protection and cable connections between the power distribution board and the reactive power compensation are not required.

The entire height of the device compartment is available for the installation of the controller, capacitor or group switch subassemblies. The device compartment is closed by means of a section-height door with ventilation openings.

Highlights
- Convincing efficiency thanks to lower energy costs
- Cost-efficient, network dimensioning thanks to low reactive power
- Simple handling by means of the switch disconnector subassembly for the central safety isolation of the capacitor subassemblies
Arc resistance

The SIVACON S8 power distribution board offers evidence of personal and system safety, thanks to testing under arc conditions.

**Personal and system protection**
The efficiency of production plants depends very much on the reliability of the power supply. Low-voltage power distribution boards play a key role in this regard. An arcing fault is one of the most dangerous faults, associated with the most serious consequences, which can occur in a power distribution board, and it can also damage adjacent tap-off units, sections or the entire system. Arcing faults can be caused by incorrect dimensioning and reductions in insulation due to contamination etc., but they can also be the result of handling errors. The effects, resulting from high pressure and extremely high temperatures, can have fatal consequences for the operator, the system and even the building. However, you can rely on the safety offered by SIVACON. Testing of low-voltage power distribution boards under arcing fault conditions is a special test in accordance with IEC 61641 or VDE 0660 Part 500-2. Even in its standard design, SIVACON offers evidence of personal safety through testing under arcing fault conditions.

**Safety – the primary objective**
Active protection measures such as the high-quality insulation of live parts (e.g. busbars), standardized and simple operation, integrated operating fault protec-
tion and reliable system dimensioning prevent arcing faults and the associated personal injuries. Passive protection measures such as hinge and locking systems with arc resistance, the safe operation of withdrawable units or circuit breakers behind a closed door and patented swing check valves behind ventilation openings on the front, combined with the rapid disconnection of arcing faults increase personal and system safety many times over. Evidence of the functionality of the measures described is provided by numerous, comprehensive arcing fault tests under "worst case" conditions, performed on a wide variety of section types and functional units. These tests are used to assess the danger that people and systems can be exposed to in the event of an arcing fault.

For situations which require a higher degree of arc resistance, Siemens has developed a system of levels for the SIVACON system. It is based on a very high level of personal safety without major restriction of the effects of arcing within the power distribution board (Level 1) for enhanced operating conditions. Subsequent levels are also based on personal safety, and these also include additional measures for system protection. With Level 2, damage is restricted to one section of the system. With Levels 3 and 4, the effects are restricted to the functional compartment or the site where the arcing fault originates.

Highlights

- High level of personal safety thanks to the testing of the power distribution board under arc conditions
- Reliability thanks to comprehensive and thorough test evidence
- System safety by restricting the effects of arcing faults within the system
- Personal safety in all configurations, e.g. through patented swing check valves behind ventilation openings
Requirement of standard IEC 61439

Low-voltage power distribution boards or standard-compliant power switchgear and controlgear assemblies are developed, manufactured and approved in accordance with the specifications of IEC 61439-1/-2 (VDE0660 Part 600-1/-2). In order to provide evidence that the power distribution board is fit for purpose, this standard requires two main forms of verification – the design verification and the routine verification. The design verification involves tests carried out during the development process and this is the responsibility of the original manufacturer (developer). A routine verification must be performed on every manufactured power distribution board prior to delivery by the manufacturer of the power switchgear and control gear assembly.

Design verification through testing

The SIVACON S8 power distribution board offers safety for human beings and plants by design verification by verification tests in accordance with IEC 61439-2. The physical properties are designed in the product testing department for operational and fault conditions and guarantee maximum system and personal safety. The design verification and the routine verification are a vital component of quality assurance and are the prerequisite for CE marking in accordance with EC directives and legislation.

SIVACON S8 – standard-compliant, design verified low-voltage power distribution board

Essential fit for purpose verifications in accordance with IEC 61439.

Highlights

- Safety for human beings and plants by design verification by verification tests in accordance with IEC 61439-2
- Maximum quality assurance through design verification and routine verification
- Testing always carried out on the complete system with all devices
Verification of temperature rise

One of the most important verifications is the "Verification of temperature rise". This verifies that the power distribution board is fit for purpose when the temperature rises due to power loss. In view of the ever increasing rated currents, together with higher requirements relating to degree of protection and internal separation, this is one of the greatest challenges in the power distribution board industry. This verification can be carried out by means of calculation for rated currents up to 1,600 A; for rated currents from 1,600 A, this verification must be performed by means of testing. Rules governing the selection of the test items (worst-case test) and the testing of complete switchgear and control gear assemblies ensure that there is systematic coverage of the entire product range and that the verification always includes the devices. Testing items selected at random is therefore inadequate, as is the replacement of a device without repeating testing.

### Design verifications

<table>
<thead>
<tr>
<th>Verification of temperature rise</th>
<th>Verification through testing</th>
<th>Verification through calculation</th>
<th>Verification through engineering rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Strength of materials and parts</td>
<td>✓</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2. Degree of protection of enclosures</td>
<td>✓</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td>3. Clearances in air and creepage distances</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4. Protection against electric shock and integrity of protective circuits</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5. Incorporation of switching devices and components</td>
<td>–</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td>6. Internal electric circuits and connection</td>
<td>–</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td>7. Terminal for external conductors</td>
<td>–</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td>8. Dielectric properties</td>
<td>✓</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td>9. Temperature-rise limits</td>
<td>✓</td>
<td>up to 1,600 A</td>
<td>up to 630 A³</td>
</tr>
<tr>
<td>10. Short-circuit withstand strength</td>
<td>✓</td>
<td>conditional³</td>
<td>conditional³</td>
</tr>
<tr>
<td>11. Electromagnetic compatibility (EMC)</td>
<td>✓</td>
<td>–</td>
<td>✓</td>
</tr>
<tr>
<td>12. Mechanical operation</td>
<td>✓</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

1 Effectiveness of the switchgear and controlgear assembly when external faults occur
2 Impulse voltage withstand only
3 Compared with a construction already tested
New low-voltage power distribution boards in the waste incineration plant

Enhanced safety thanks to modern, design-tested power distribution board system.

- **Requirement**
  Due to the new turbine which, at 50 MVA, is twice the size of the previous one, the power supply system also needed to be updated. The request was for a complete concept which, in addition to technical improvements, could also deliver a much higher level of power supply reliability. The existing underfloor cable paths left no space for expansions, so the possibility of connecting the power distribution board sections via the cabinets was sought. In order to avoid unnecessary downtime costs, the upgrading had to be completed within a maximum of three weeks.

- **Solution**
  A compact, complete solution was achieved by combining a design verified power distribution board with busbar trunking systems. Thanks to the variable concept and the simple assembly, it was possible to complete the upgrade within just ten days. As a result of the withdrawable unit design selected in this case, operational safety is increased, both during commissioning and during servicing. When the cabinet doors are closed, the circuit breakers can be moved, from the outside, from the connected position to the test or disconnected position.

- **Result**
  The combination of the SIVACON 8PS busbar trunking systems and the SIVACON S8 power distribution board is ideally suited to the space available. The power distribution board with design verification by verification tests in accordance with IEC 61439-2, guarantees greater personal and plant safety, because it has been tested as a complete unit. It also guarantees ac resistance as a result of thorough testing in accordance with IEC 61641. A characteristic feature of these systems is the high level of flexibility in terms of the installation designs. It was possible, for example, to use the air circuit breaker 3WL for the intelligent connection of the power supply and motor control centers for smaller units.
In car body production, the manual welding tongs require a power supply of up to 130 kVA. Since short-circuit currents of up to 100 kA are possible, a safe and interruption-free low-voltage power distribution board is required.

In order to design the power supply allocation to a welding station with several sets of tongs with maximum transparency, there is a decentrally positioned power distribution board, in each case, set on a supply gangway directly above the station. By supplying the power over the main busbars from above or below, a high level of flexibility is achieved, together with the associated reduced installation effort. The molded-case circuit breaker 3VL acts as a switch disconnector between the power supply via busbar trunking systems and the low-voltage power distribution board. The in-line switch disconnectors with LV HRC fuses 3NJ62 themselves provide a high level of flexibility, since they can be plugged into and removed from the live system. Due to the interruption contacts in front of and behind the fuse links up to 630 A, no additional measures are required when changing the fuses. All relevant electronic values can be recorded by the integrated measuring devices 7KM PAC3200.

It was possible to achieve a high level of personal and system safety through the use of the SIVACON S8 power distribution board, which has the required design verification and which was also supplied in a design offering arc resistance. A standardized installation was a crucial factor in terms of efficiency for planning, execution and service. Other production plants in various countries were fitted out on the basis of the model provided by the welding equipment power supply in this case.

Maximum system availability, even with production lines with a high power requirement.

The compact design ensures a flexible, cost-efficient assembly of the SIVACON S8.

Design verified power distribution boards for the automobile industry

Safe power supply for welding tongs in vehicle body serial manufacture.

■ Requirement
- In car body production, the manual welding tongs require a power supply of up to 130 kVA. Since short-circuit currents of up to 100 kA are possible, a safe and interruption-free low-voltage power distribution board is required.

■ Solution
- In order to design the power supply allocation to a welding station with several sets of tongs with maximum transparency, there is a decentrally positioned power distribution board, in each case, set on a supply gangway directly above the station. By supplying the power over the main busbars from above or below, a high level of flexibility is achieved, together with the associated reduced installation effort. The molded-case circuit breaker 3VL acts as a switch disconnector between the power supply via busbar trunking systems and the low-voltage power distribution board. The in-line switch disconnectors with LV HRC fuses 3NJ62 themselves provide a high level of flexibility, since they can be plugged into and removed from the live system. Due to the interruption contacts in front of and behind the fuse links up to 630 A, no additional measures are required when changing the fuses. All relevant electronic values can be recorded by the integrated measuring devices 7KM PAC3200.

■ Result
- It was possible to achieve a high level of personal and system safety through the use of the SIVACON S8 power distribution board, which has the required design verification and which was also supplied in a design offering arc resistance. A standardized installation was a crucial factor in terms of efficiency for planning, execution and service. Other production plants in various countries were fitted out on the basis of the model provided by the welding equipment power supply in this case.

■ Highlights
- More flexibility thanks to free choice of the main busbar position
- High level of system availability thanks to the exchange of plug-in disconnectors under operating conditions
- Cost-efficient planning thanks to standardized assembly

The compact design ensures a flexible, cost-efficient assembly of the SIVACON S8.
Energy management with the SIVACON S8 power distribution board

Knowing when, where and how much energy is being consumed – costs are lowered thanks to optimized energy use.

- **Consistently well informed**
  Anybody who wants to reduce energy costs on a long-term basis, firstly requires a clear overview of current energy consumption and power flows. The measuring devices 7KT/7KM PAC and communication-capable circuit breakers 3WL/3VL integrated in the power distribution board can help you to achieve this. They record precise and reliable measurements of the energy values for electric feeders or individual loads. In addition to this, the measuring devices 7KM PAC provide you with important measurement values, via standardized bus systems, for the assessment of system status and network quality.

- **Simple evaluation of data**
  For the further processing of measured data, additional devices, which are perfectly matched to the power distribution board, can be integrated into higher-level automation and power management systems with the greatest of ease, thanks to the wide variety of communication options they offer. The measurement devices and communication-capable circuit breakers therefore provide the ideal basis for cost-efficient energy management with the SIVACON S8 power distribution board.

- **Reliable through communication**
  Power distribution boards must operate efficiently. Consequently, the load must be constantly optimized and downtimes must be avoided. The software for energy management powermanager analyses and documents the data from measurement devices and communication-capable circuit breakers and produces load profile curves and trend analyses, extending to the visualisation of switching states.

- **Costs under control**
  Maximum monitors in conjunction with GAMMA building management systems enable cost-efficient and low-cost load management in buildings.

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**Highlights**

- Simple integration of the measurement devices and communication-capable circuit breakers
- Identification of savings potential thanks to transparency of power flows
- Reliable recording and presentation of consumption data
- Improvement of system availability through continuous monitoring

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Due to the transparency of power flows, savings potential can be easily identified.

Measuring devices of the SENTRON family for recording and supplying consumption data and electrical parameters.
Comprehensive support from A to Z

For more efficiency on all counts – comprehensive support and quick and easy access to service-proven tools at any time via the Internet.

### Product information

- **Website**: Fast and selective information on the subject of low-voltage power distribution: [www.siemens.com/lowvoltage](http://www.siemens.com/lowvoltage)
- **Newsletter**: Keep up to date with our future-oriented products and systems: [www.siemens.com/lowvoltage/newsletter](http://www.siemens.com/lowvoltage/newsletter)

### Product information/product & system selection

- **Information and download center**: Latest catalogs, customer magazines, brochures, demo software and campaign packages: [www.siemens.com/lowvoltage/infomaterial](http://www.siemens.com/lowvoltage/infomaterial)
- **Industry mall**: Comprehensive information and ordering platform for the Siemens industry shopping basket: [www.siemens.com/lowvoltage/mall](http://www.siemens.com/lowvoltage/mall)

### Product & system engineering

- **SIMARIS software tools**: Support with the planning and configuration of electrical power distribution: [www.siemens.com/simaris](http://www.siemens.com/simaris)
- **Configuration software ALPHA SELECT**: Quick and easy configuration of distribution boards with products from the Siemens Industry shopping basket: [www.siemens.com/alpha-select](http://www.siemens.com/alpha-select)

### Product documentation

- **Service & Support portal**: Comprehensive technical information - from planning to configuration through to operation: [www.siemens.com/lowvoltage/support](http://www.siemens.com/lowvoltage/support)
- **CAX data**: Compilation of the commercial and technical master product data: DVD Order No.: E86060-D1000-A207-A6-6300 (via Industry Mall) [www.siemens.com/lowvoltage/support](http://www.siemens.com/lowvoltage/support)
- **Image database**: Collection of product photos and graphics such as dimensional drawings and internal circuit diagrams: [www.siemens.com/lowvoltage/picturedb](http://www.siemens.com/lowvoltage/picturedb)

### Product training

- **SITRAIN portal**: Comprehensive training program on our products, systems and engineering tools: [www.siemens.com/lowvoltage/training](http://www.siemens.com/lowvoltage/training)

### Product hotline

- **Technical support**: Support for all technical queries concerning our products:
  - E-mail: support.automation@siemens.com
  - [www.siemens.com/lowvoltage/technicalsupport](http://www.siemens.com/lowvoltage/technicalsupport)
### Project checklist

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<thead>
<tr>
<th>Customer</th>
<th>Processor</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Project</th>
<th>Telephone</th>
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</table>

<table>
<thead>
<tr>
<th>Order No.</th>
<th>Fax</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Date of delivery</th>
<th>Date</th>
</tr>
</thead>
</table>

### Standards and specifications

- IEC 61439-1/2 / EN 61439-1/2
- VDE 0660 Part 600-1/2

- IEC 61641/VDE 0660 Part 500-2 arc resistance
- Level 1 Personal safety
- Insulated main busbar
- Level 2 Restriction to one section
- Level 3 Restriction to functional compartment
- Level 4 Restriction to site of origin

### Environmental conditions

- Operating conditions
  - standard (interior climate 3K4)
  - special
  - corrosive gases (e.g. H₂S)

- Ambient temperature (24-hour average)
  - 20 °C
  - 25 °C
  - 30 °C
  - 35 °C
  - 40 °C
  - 45 °C
  - 50 °C

- Installation altitude above sea level
  - ≤ 2,000 m
  - other

- IP degree of protection
  - Against the interior
    - Section ventilated: IP30, IP31, IP40, IP41, IP42
    - Section non-ventilated: IP54
  - Against cable base
    - IP00, IP30, IP40, IP41, IP42, IP54
  - Aggravated operating conditions: none, earthquake-proof, other
  - Control cabinet heating: no, yes

### Mains data/Infeed data

- Mains type
  - TN-C
  - TN-S
  - TN-C-S
  - IT
  - TT

- Design
  - External connection
    - L1, L2, L3, PEN
    - L1, L2, L3, PE + N
    - ZEP (PEN + PE)
    - other:

- Transformer rated power $S_p$ kVA
- Rated short-circuit voltage $U_z$ %
- Rated operational voltage $U_o$ V
- Frequency $f$ Hz
- Rated short-time withstand current $I_{cw}$ kA
- Short-circuit withstand current $I_g$ with DC kA

### Horizontal busbar system

- Position
  - top
  - rear (top)
  - rear (bottom)
- Rated current $I_n$ A
- CU treatment
  - blank
  - silver-plated
  - tin-plated
- AC design
  - L1, L2, L3 + ....
  - PEN
  - PE
  - N
  - PEN, N = 50 %
  - PEN, N = 100 %
- DC design
  - 220 V, L+, L-, PE
  - 24 V, L+, M(L-)

### Vertical busbar system

- CU treatment
  - blank
  - silver-plated
  - tin-plated
- AC design
  - L1, L2, L3 + ....
  - PEN
  - PE
  - N
  - PEN, N = 50 %
  - PEN, N = 100 %
- DC design
  - 220 V, L+, L-, PE
  - 24 V, L+, M(L-)

### Layout and installation

- Installation type
  - Single-fronted
  - Back to back
  - Double-fronted
- Restriction of total length
  - none
  - yes mm
- Max. net length per transport unit
  - 2,400 mm
  - mm
- Cable/busbar connection
- With incoming sections
  - from below
  - from above
  - from the rear
- With outgoing sections
  - from below
  - from above
  - from the rear

### Sections

- Internal separation in accordance with IEC 61439-2, DIN EN 61439-2, VDE 0660 Part 600-2, BS EN 61439-2

- Circuit breaker system
  - Form 1
  - Form 2b
  - Form 3a
  - Form 4b
  - Form 4 Type 7

- Universal installation system
  - Form 1
  - Form 2b
  - Form 3b
  - Form 4b
  - Form 4 Type 7

- Fixed-mounted design
  - Form 1
  - Form 2b
  - Form 3b
  - Form 4a
  - Form 4b

- Fixed-mounted 3N/4 in-line design
  - Form 1
  - Form 2b
  - Form 3b
  - Form 4a
  - Form 4b

- Plug-in 3NJ/6 in-line design
  - Form 1
  - Form 2b
  - Form 3b
  - Form 4a
  - Form 4b

- Reactive power compensation
  - Form 1
  - Form 2b
# Technical specifications

**SIVACON S8 low-voltage power distribution board**

| Standards and specifications | Power switchgear and controlgear assembly  
Design verifications | IEC 61439-2  
DIN EN 61439-2 (VDE 0660 Part 600-2)  
Inspection of behaviour with internal errors  
(arcing faults) | IEC 61641, VDE 0660 Part 500-2  
Protection against electric shock | DIN EN 50274, VDE 0660 Part 514 |
<table>
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<tbody>
<tr>
<td>Rated insulation voltage ($U_i$)</td>
<td>Main circuit</td>
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<tr>
<td>Rated operational voltage ($U_e$)</td>
<td>Main circuit</td>
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<tr>
<td>Clearances in air and creepage distances</td>
<td>Rated impulse withstand voltage ($U_{imp}$)</td>
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<td>Overvoltage category</td>
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<td>Pollution degree</td>
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<tr>
<td>Busbars (3-pole and 4-pole)</td>
<td>Horizontal main busbars</td>
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<td>Vertical busbars for circuit breaker system</td>
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<td>Vertical busbars for universal and fixed-mounted design</td>
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<td>Vertical busbars for 3NJ4 in-line system (fixed-mounted)</td>
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<td>Vertical busbars for 3NJ6 in-line system (plug-in)</td>
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<td>Device rated currents</td>
<td>Circuit breaker 3WL3VL</td>
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<td>Cable feeders</td>
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<td>Motor outgoing feeders</td>
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<td>Internal separation</td>
<td>IEC 61439-2, Section 8.101, VDE 0660 Part 600-2, 8.101</td>
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<td>BS EN 61439-2</td>
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<tr>
<td>Surface treatment</td>
<td>(Coating in accordance with DIN 43656)</td>
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</table>
Frame parts, bases: Sendzimir-galvanized  
Doors: Powder-coated  
Side panels: Powder-coated  
Back panels, roof plates: Sendzimir-galvanized  
Ventilation roof (IPX1, IPX2): Powder-coated  
Standard colour of the powder-coated parts (Coating thickness 100 ± 25 µm): RAL 7035, light grey  
Design parts: Blue Green Basic |
| IP degree of protection | In accordance with IEC/EN 60529 | IP30 • IP31 • IP40 • IP41 • IP42 • IP54 |
| Dimensions | Preferred dimensions in accordance with DIN 41488 |  
Height (without base): | 2,000 • 2,200 mm |
| | Width: | 200 • 350 • 400 • 600  
800 • 850 • 1,000 • 1,200 mm |
| | Depth (single-fronted): | 500 • 600 • 800 mm |
| | Depth (double-fronted): | 1,000 • 1,200 mm |

* Conditional rated short-circuit current ($I_{cc}$) = 100 kA
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– safety and security for people, processes and assets,
– increased business productivity.