

### THE LOW-VOLTAGE POWER DISTRIBUTION BOARD

### that sets new standards SIVACON S8 - Intelligent. Flexible. Safe.

PCC, IMCC, Draw-out MCCs, APFC Solutions

The **SIVACON S8** low-voltage power distribution switchboard sets new standards failproof safety & service. In conformance to the IEC 61439-1&2, SIVACON S8 guarantees high performance, maximum safety and compact modularity. These switchboards help industries and buildings significantly reduce investment costs and space.

### BENEFITS

- Superior safety, performance reliability and unmatched space saving
- SIVACON Assurance Maintenance-free for life

### FEATURES

- The only 'Arc Free' switchboards in the world
- SIVACON patented double front PCCs upto 7000A, 150kA
- Patented holeless technology for connections
- Patented ventilation technique
- Combination of fixed, plugin & drawout feeders in the same vertical
- State-of-the-art technology, innovation in design and unmatched performance

# **TECHNICAL SPECIFICATIONS TECHNICAL SPECIFICATION** 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			
Rated insulation voltage (Ui)	Main circuit	Up to 1,000 V			
Rated operational voltage (U <sub>e</sub> )	Main circuit	Up to 690 V			
	Rated impulse withstand voltage Uimp	8 kV			
Clearances in air and creepage	Overvoltage category	111			
distances	Pollution degree	3			
		Pated current		Lip to 7 000 A	
		Rated impulse withstand	current (L.L.)		
		Rated short-time withstand current (L_)		Up to 150 kA 1s	
		Pated surrant			
	Vertical bushars for circuit broaker design	Rated current			
	Vertical busbars for circuit breaker design	Rated impulse withstatu	$red current (L_{pk})$		
Duchava		Rated short-time withsta			
Busbars (3-pole and 4-pole)	Vertical busbars for universal and fixed-	Rated current			
	mounted design	Rated impulse withstand	$r current (I_{pk})$	Up to 65 kA* 1s	
		Rated short-time withstand current (I <sub>cw</sub> )		Up to 1 600 A	
	Vertical busbars for 3NJ4lin-line design (fixed-mounted)	Conditional rated short	circuit current (L_)		
	Vertical busbars for 3NJ6 In-line design	Dated surrent			
		Rated current	d	Up to 2,100 A	
	(plug-in)	Rated impulse withstand	current (I <sub>pk</sub> )		
		Rated short-time withsta	and current (I <sub>cw</sub> )	Up to 50 kA*, 1s	
Device rated currents		Circuit breaker 3WL/3VL		Up to 6,300 A	
Device fated currents		Cable leeders			
	IEC 61439-2, Section 8.101,	Form 1 to Form 4		Up to 250 kW	
Internal separation	RS EN 61439-2	To Form 4 Type 7			
	(Coating in accordance with DIN 43656)				
	Frame parts, bases	Galvanized iron			
	Doors	Powder-coated	Powder-coated		
	Side panels	Powder-coated			
Surface treatment	Back panels, roof plates	Sendzimir-galvanized			
	Ventilation roof (IPX1, IPX2)	Powder-coated			
	Standard colour of the powder-coated parts (Coating thickness 100 $\pm$ 25 $\mu\text{m}$ )	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			
		Height (without base):		2,000 • 2,200 mm	
Dimensions	Preferred dimensions in accordance with	Width:	200	• 350 • 400 • 600	
		800 • 850 • 1,000 • 1,200 mi		1,000 • 1,200 mm	
	DIN 41400	Depth (single-fronted):	500 • 600 • 800 mm		
		Depth (double-fronted):		1,000 • 1,200 mm	

\* Conditional rated short-circuit current (I<sub>cc</sub>) = 100 kA

### **SIVACON S8 - SYSTEM OVERVIEW**

SIVACON S8 low-voltage power distribution board



	CIRCUIT BREAKER DESIGN	UNIVERSAL MOUNTING DESIGN	FIXED MOUNTING DESIGN
Installation designs	Fixed-mounted design Withdrawable design	Withdrawable unit design Fixed-mounted design with compartment doors Plug-in design	Fixed-mounted design with front covers
Functions	Supply Feeder Coupling	Cable feeders Motor outgoing feeders (MCC)	Cable feeders
Rated current I <sub>n</sub>	up to 6,300 A	up to 630 A up to 250 kW	up to 630 A
<b>Connection position</b>	front or rear	front or rear	front
Section width (mm)	400 • 600 • 800 • 1,000 • 1,400	600 • 1,000 • 1,200	1,000 • 1,200
Internal separation	Form 1, 2b, 3a, 4b, 4 Type 7 (BS)	Form 3b, 4a, 4b, 4 Type 7 (BS)	Form 1, 2b, 3b, 4a, 4b
Busbar position	rear/top	rear/top	rear/top

	3NJ6 IN-LINE DESIGN	3NJ4 IN-LINE DESIGN	REACTIVE POWER COMPENSATION
Installation designs	Plug-in design	Fixed-mounted design	Fixed-mounted design
Functions	Cable feeders	Cable feeders	Central reactive power compensation
Rated current I	up to 630 A	up to 630 A	unchoked up to 600 kvar choked up to 500 kvar
Connection position	front	front	front
Section width (mm)	1,000 • 1,200	600 • 800 • 1,000	800
Internal separation	Form 1, 3b, 4b	Form 1, 2b	Form 1, 2b
Busbar position	rear/top	rear	rear/top/without

## **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

## **FEATURES**



Shutter with double-action for normal and small withdrawable units for a high level of personal safety

Arc-resistant section busbar embedding for a high level of personal and system safety

Integrated full motor protection, including communication for intelligent linking to the control level

## **ARC RESISTANCE**



Arc resistance measures are an integral component of the SIVACON S8 system

### Personal and plant 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. Arcling 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. 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 operalition, prevent arcing faults and the associated personal injuries. Passive protections increase personal and system safety many times over. These include: 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 venitilation openings on the front, arcing fault barriers or arcing fault detection system combined with the rapid disconnection of arcing faults. Evidence of the functionality of the measures described is provided by numerous, comprehensive arcing fault tests under "worst case" conditions, perliformed on a wide variety of section types and functional units. These tests are used to assess the danger that people and sysitems can be exposed to in the event of an arcing fault.under arcing fault conditions.



### **SIVACON S8 DESIGN VERIFICATIONS ACCORDING TO** IEC 61439-1&2

	Verification through testing	Verification through calculation	Verification through engineering rules
1. Strength of materials and parts	$\checkmark$	-	-
<b>2.</b> Degree of protection of enclosures	$\checkmark$	-	$\checkmark$
<b>3.</b> Clearances in air and creepage distances	$\checkmark$	$\checkmark$	$\checkmark$
<ol> <li>Protection against electric shock and integrity of protective circuits</li> </ol>	$\checkmark$	√1	√ 1
<b>5.</b> Incorporation of switching devices and components	-	-	$\checkmark$
<ul> <li>6. Internal electric circuits and connection</li> </ul>	-	-	$\checkmark$
7. Terminal for external conductors	-	-	$\checkmark$
8. Dielectric properties	✓	-	√ <sup>2</sup>
9. Temperature-rise limits	$\checkmark$	up to 1,600 A	up to 630 A <sup>3</sup>
<b>10.</b> Short-circuit withstand strength	$\checkmark$	conditional <sup>3</sup>	conditional <sup>3</sup>
<b>11.</b> Electromagnetic compatibility (EMC)	$\checkmark$	-	$\checkmark$
<b>12.</b> Mechanical operation	$\checkmark$	-	-

1 Effectiveness of the switchgear and controlgear assembly when external faults occur2 Impulse voltage withstand only

**3** Compared with a construction already tested



### **DIMO LOW VOLTAGE POWER & CONTROL PANEL SOLUTIONS**

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