SIMOSYNERGY

medium voltage switchgear manufacturer

VACUUM CIRCUIT-BREAKER
SWITCHGEAR TYPE SIMOPRIME,
UP TO 17.5kV & 24kV,
AIR INSULATED
MEDIUM-VOLTAGE SWITCHGEAR.
UNDER LICENSE BY

SIEMENS

www.simosynergy.com

Technology partner
SIMOPRIME

SIEMENS

Certificate

SIMOPRIME Technology Partner

Siemens AG
Smart Infrastructure
Electrification & Automation

SIMOSYNERGY SDN BHD

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78000 Alor Gajah. Melaka. Malaysia

is a certified SIMOPRIME Technology Partner.

In the context of the technical cooperation and license agreement the company is qualified and authorized to manufacture type-tested medium voltage switchgear based on type

stephan may

Electronically signed by:
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Date: Jan 9, 2023 18:19
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Stephan May
CEO SI EA

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Marcus Bauersachs
Head of SI EA Finance

APPLICATION

Benefits & Typical Uses

SIMOPRIME PANEL

The circuit-breaker switchgear type SIMOPRIME is a factory - assembled, type-tested switchgear for indoor installation according to IEC 62271-200 and VDE 0671-200.

Loss of service continuity category	: LSC 2B
Partition Class	: PM
Internal arc classification	: IAC A FLR, Isc ≤ 40kA,
Arc duration	: 1 or 0.1 s

SIMOPRIME Panel : Maximum ratings 17.5 kV / 40kA / 3600 A

TYPICAL USES

The SIMOPRIME circuit-breaker switchgear can be used in transformer and switching substations, e.g.:

Power supply system

- Power supply companies

Industry

- Power stations
- Cement industry
- Automobile industry
- Iron and steelworks
- Rolling mills
- Mining industry
- Textile, paper and food industries
- Chemical industry
- Petroleum industry
- Pipeline installations
- Offshore installations
- Electro chemical plants
- Petro chemical plants
- Ship building industry
- Diesel power plants
- Emergency power supply installations
- Lignite open-cast mines
- Traction power supplies

TECHNICAL DATA

Ratings

(1) Option: Higher values acc. to GOST standards
(2) Depending on the rated current of the HV HRC fuses installed
(3) 60 kV for vacuum contactor
(4) With forced ventilation

Electrical data (maximum values) of SIMOPRIME

Ratings	Switchgear up to 7.2kV	Switchgear 12kV	Switchgear 15kV	Switchgear 17.5kV
Rated voltage	7.2 kV	12 kV	15 kV	17.5 kV
Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Rated short-duration power-frequency withstand voltage	20 kV (1)	28 kV (1)	35 kV (1)	38 kV (1)
Rated lightning impulse withstand voltage	60 kV	75 kV (3)	95 kV	95 kV
Rated short-time withstand current, 3 s	40 kA	40 kA	40 kA	40 kA
Rated peak withstand current at 50/60 Hz	100/104 kA	100/104 kA	100/104 kA	100/104 kA
Rated short-circuit breaking current	40 kA	40 kA	40 kA	40 kA
Rated short-circuit making current at 50/60 Hz	100/104 kA	100/104 kA	100/104 kA	100/104 kA
Rated normal current of busbar	3600 A 4000 A (4)	3600 A 4000 A (4)	3600 A 4000 A (4)	3600 A 4000 A (4)
Rated normal current of feeders				
– with circuit-breaker	3600 A 4000 A (4)	3600 A 4000 A (4)	3600 A 4000 A (4)	3600 A 4000 A (4)
– with vacuum contactor	400 A (2)	400 A (2)	–	–

TECHNICAL DATA

Classification, Dimensions, Room Planning

Single-row arrangement (plan view)
For dimensions B (width) and T (depth) refer to table on the previous page.

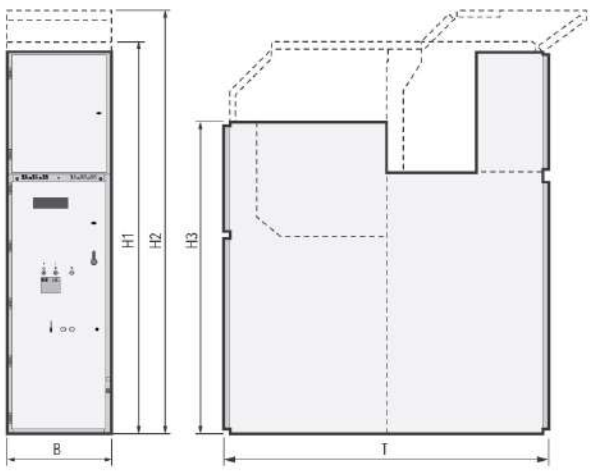
(1) Control aisle widths
≤31.5 kA and ≤3150 A versions: ≥1500mm
40 kA or 3600 A versions: ≥1700mm
For panel replacement: ≥2000mm

Classification of the SIMOPRIME switchgear according to IEC 62271-200

Internal arc classification	
Classification	IAC
Accessibility	
– Front	Type A
– Rear	Type A
– Lateral	Type A
Test current (kA)	25/31.5/40
Arc duration (s)	0.1/1.0

Construction and design	
Partition class	PM (metallic partition)
Loss of service continuity category	LSC2B (metal-clad)
Compartment accessibility (standard)	
– Busbar compartment	Tool-based
– Switching-device compartment	Interlock-controlled
– Low-voltage compartment	Tool-based
– Connection compartment	
– Front connection	Interlock-controlled and tool-based
– Rear connection	Tool-based

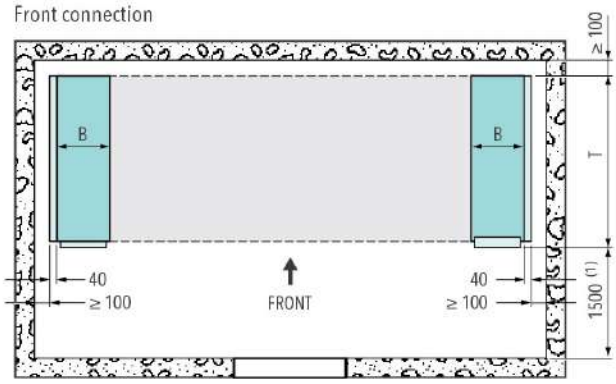
Dimensions



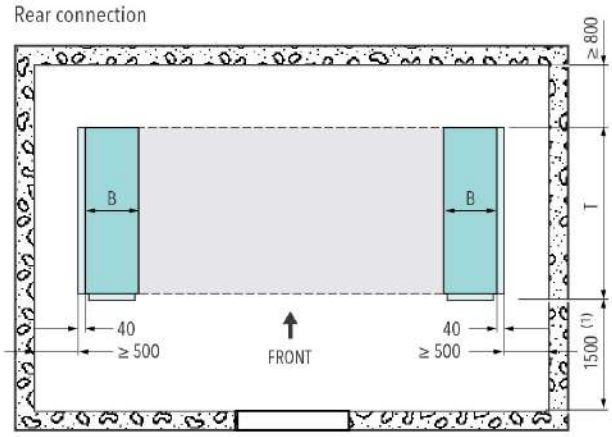
All panel types		Dimensions in mm	
Width B	Circuit-breaker panel	up to	
		31.5 kA	40 kA
	≤1250 A	600	800
	2500 A, 3150 A, 3600 A	800	800
	Contactor panel	435 / 600	435
	Disconnecting panel		
	≤1250 A	600	800
	2500 A, 3150 A, 3600 A	800	800
	Bus sectionalizer/circuit-breaker		
	panel≤1250 A	600	800
	2500 A, 3150 A, 3600 A	800	800
	Bus sectionalizer/bus riser panel		
	≤2500 A	600	800
	3150 A, 3600 A	800	800
	Metering panel	600	800
Height H1	With standard low-voltage		
	compartment and IAC 0.1 s	2253	2253
H2	With standard low-voltage		
	compartment and IAC 1.0 s	2425	2460
H3	-	1780	1780
Depth T	Standard	1860	1860

Room planning (room height ≥ 2800 mm)

Front connection



Rear connection

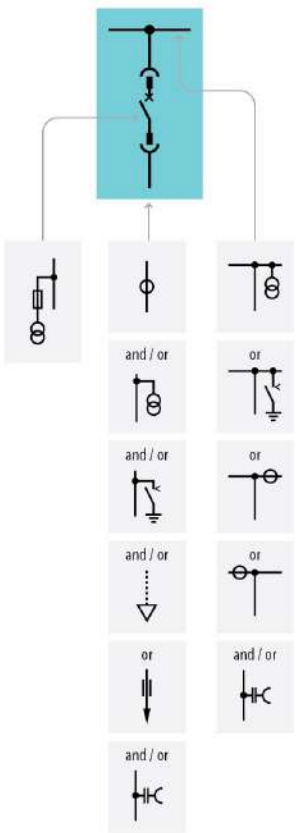


PRODUCT RANGE

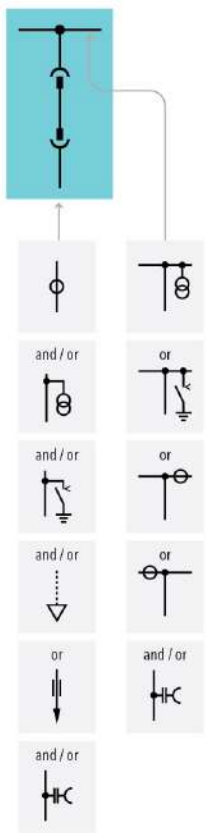
Panels SIMOPRIME

(1) The details refer to conventional single-core sealing ends.

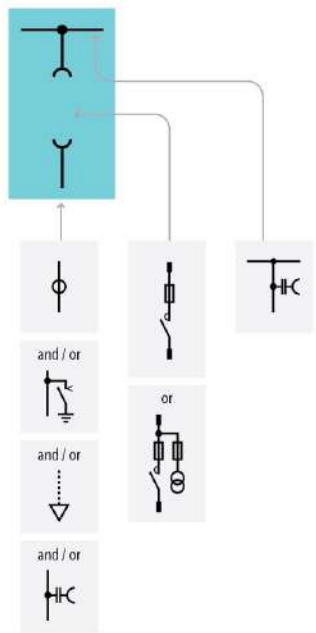
CIRCUIT-BREAKER PANEL



DISCONNECTING PANEL



VACUUM CONTRACTOR PANEL



Components

	Current transformer
	Voltage transformer without primary fuses
	Current transformer in run of busbar
	Voltage transformer with primary fuses
	Capacitive voltage detecting system

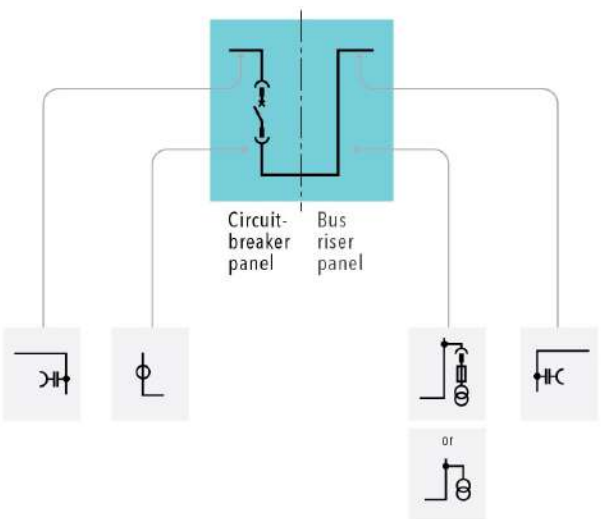
	Vacuum contactor with HV HRC fuses
	Vacuum contactor with control transformer and HV HRC fuses
	Make-proof earthing switch
	Cable sealing ends (1) max. 4 x 500mm² per phase

	Bar connection
	Vacuum circuit-breaker
	Disconnector
	HV HRC Fuse

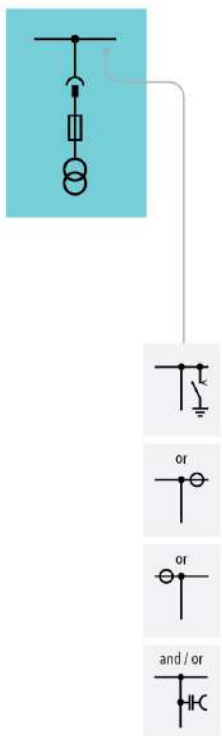
PRODUCT RANGE

Panels SIMOPRIME

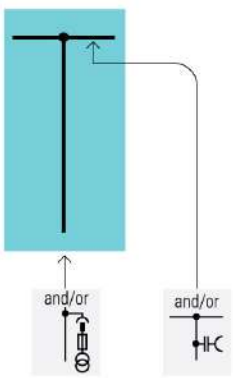
BUS SECTIONALIZER
(MIRROR-IMAGE INSTALLATION ALSO POSSIBLE)



METERING PANEL



BUSBAR CONNECTING



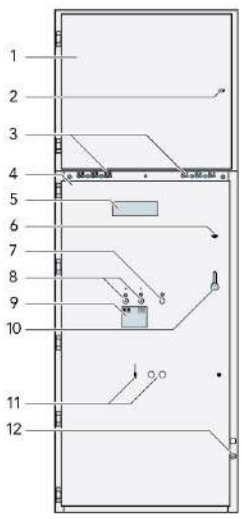
Components

	Current transformer
	Voltage transformer without primary fuses
	Current transformer in run of busbar
	Withdrawable voltage transformer with primary fuses
	Capacitive voltage detecting system
	Make-proof earthing switch
	Vacuum circuit-breaker

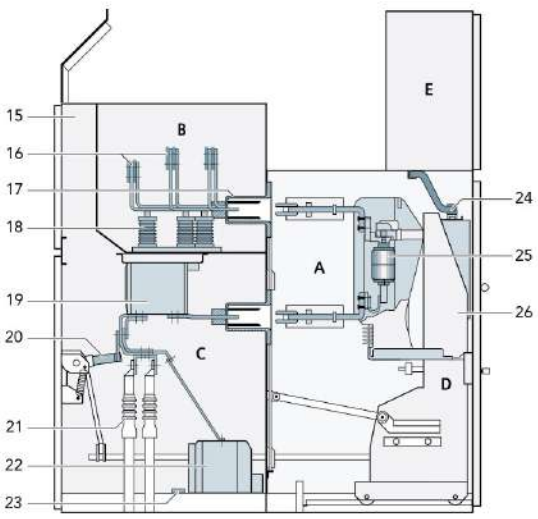
DESIGN

Panel Design SIMOPRIME

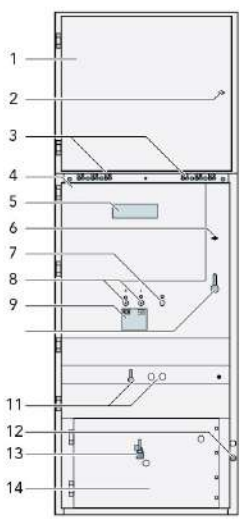
Basic panel design (example)



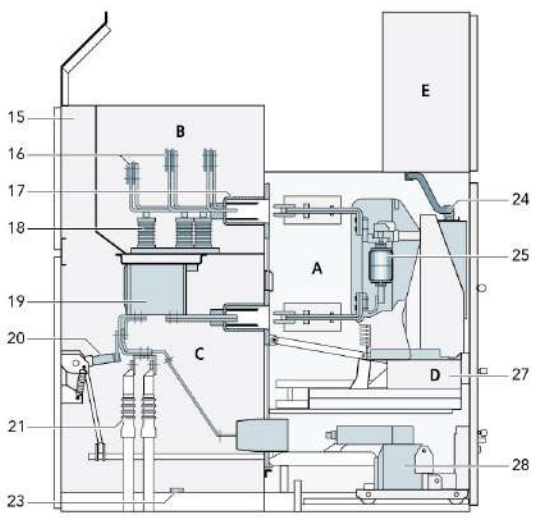
Circuit breaker panel 12 kV, 1,250 A, 40 kA



Basic panel design (example)



Circuit breaker panel with withdrawable VT feature



Legend for panel design

1 Door of low-voltage compartment
2 Opening for locking or unlocking the low-voltage compartment door
3 Option: Capacitive voltage detecting system for feeder and busbar
4 High-voltage door
5 Inspection window for checking the switching device truck
6 Opening for locking or unlocking the high-voltage door
7 Opening for mechanical charging of circuit breaker closing spring
8 Openings for manual operation (ON/OFF) of the circuit breaker
9 Inspection window for reading the indicators
10 Door handle
11 Openings for switching device truck operation
12 Opening for earthing-switch operation
13 Withdrawable VT operation opening lever
14 Withdrawable VT compartment door
15 Pressure relief duct
16 Busbars
17 Bushings
18 Post insulators
19 Block-type current transformer
20 Option: Make-proof earthing switch
21 Cable sealing ends
22 Option: Voltage transformer
23 Earthing busbar
24 Low-voltage plug connector
25 Vacuum interrupters
26 Switching device truck
27 Switching device withdrawable element
28 Withdrawable VT

A Switching device compartment
B Busbar compartment
C Connection compartment
D Vacuum circuit breaker truck / withdrawable part
E Low-voltage compartment

APPLICATION

Benefits & Typical Uses

SIMOPRIME A4 PANEL

The circuit-breaker switchgear type SIMOPRIME A4 is a factory-assembled, type-tested switchgear for indoor installation according to IEC 62271-200 and VDE 0671-200.

Loss of service continuity category	: LSC 2B
Partition Class	: PM
Internal arc classification	: IAC A FLR
Arc duration	: 1 or 0.1 s

SIMOPRIME A4 Panel : Maximum ratings 24 kV / 25 kA / 2500 A

TYPICAL USES

The SIMOPRIME A4 circuit-breaker switchgear can be used in transformer and switching substations, e.g.:

Power supply system

- Power supply companies

Industry

- Power stations
- Cement industry
- Automobile industry
- Iron and steelworks
- Rolling mills
- Mining industry
- Textile, paper and food industries
- Chemical industry
- Petroleum industry
- Pipeline installations
- Offshore installations
- Electro chemical plants
- Petro chemical plants
- Ship building industry
- Diesel power plants
- Emergency power supply installations
- Lignite open-cast mines
- Traction power supplies

TECHNICAL DATA

Ratings

Electrical data (maximum values) of SIMOPRIME A4

Ratings	Rated values (max.)
Switchgear up to 24 kV	
Rated voltage	**24 kV**
Rated frequency	50/60 Hz
Rated short-duration power-frequency withstand voltage	50 kV
Rated lightning impulse withstand voltage	125 kV
Rated short-time withstand current, 3 s	25 kA
Rated peak withstand current at 50/60 Hz	63 kA
Rated short-circuit breaking current	25 kA
Rated short-circuit making current at 50/60 Hz	63 kA
Rated normal current of busbar	2500 A
Rated normal current of feeders – with circuit-breaker – with fused load break switch	2500 A As per fuse

TECHNICAL DATA

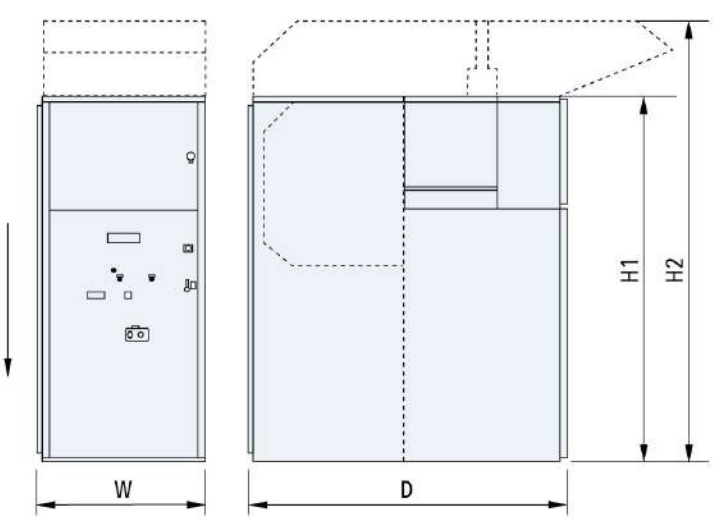
Classification, Dimensions, Room Planning

Classication of the SIMOPRIME A4 Switchgear according to IEC 62271-200

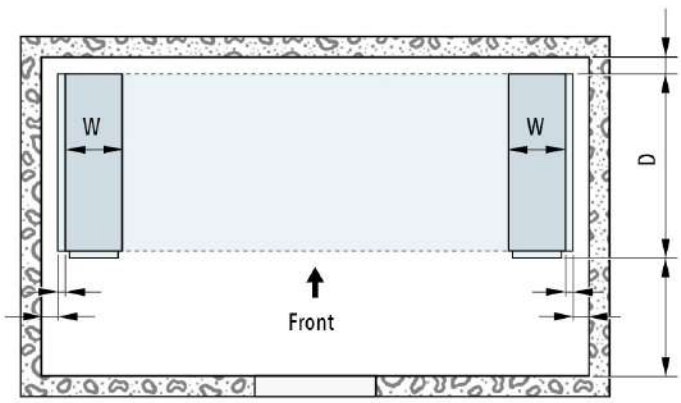
Internal arc classification		
Classification		IAC
Accessibility – Front – Rear – Lateral		 Type A Type A Type A
Test current Arc duration	kA s	25 1.0

Construction and design	
Partition class Loss of service continuity category	PM (metallic partition) LSC2B (metal-clad)
Compartment accessibility (standard) – Busbar compartment – Switching-device compartment – Low-voltage compartment – Connection compartment – Front connection – Rear connection	 Tool-based Interlock-controlled Tool-based Interlock-controlled and Tool-based Tool-based

Dimensions



Room planning (room height ≥ 2,850 mm)
Front connection



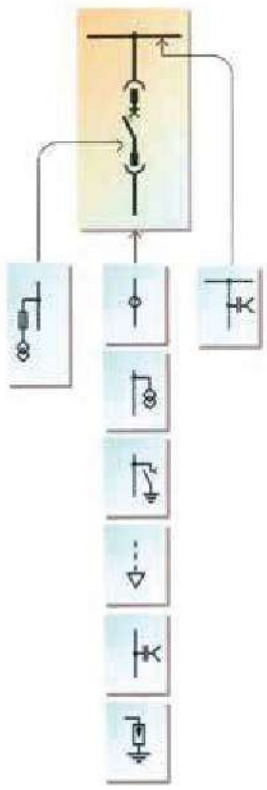
Single-row arrangement (plan view)
For dimensions W (width) and D (depth) refer to table on this page
1) For panel replacement: Control aisle 2,000 mm
2) Minimum distance to wall 150 mm

		Dimensions in mm
Width W	Circuit-breaker panel	
	less than 1250 A	800
	for 1250 A	800
	for 2500 A	1,000
	Load break switch	500
Height H1	With standard low-voltage compartment and IAC 0.1 s	2,250
Height H2	With additional pressure relief channel for IAC 1.0 s	2,728
Depth D	Standard	1,900

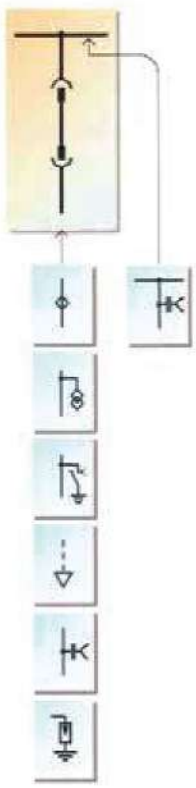
PRODUCT RANGE

Panels SIMOPRIME A4

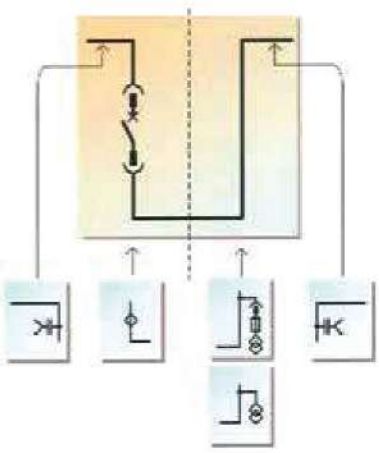
Circuit-break panel



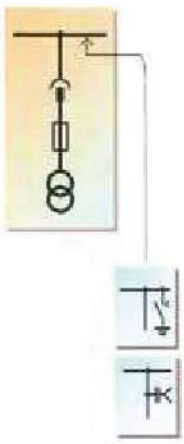
Disconnecting panel



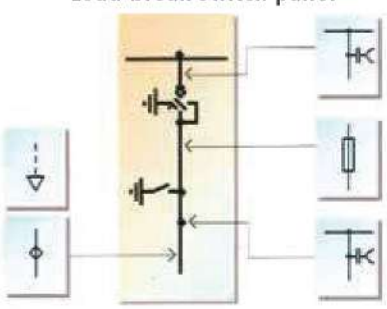
Bus sectionalizer
(mirror-image Installation also possible)



Metering panel



Load-break switch panel



Components

	Current transformer
	Voltage transformer without primary fuses
	Voltage transformer with primary fuses
	Capacitive voltage detection system

	Withdrawable voltage transformer with primary fuses
	Make-proof earthing switch
	Disconnecting link or dummy truck
	Cable sealing ends[1] 4x500 mm² per phase

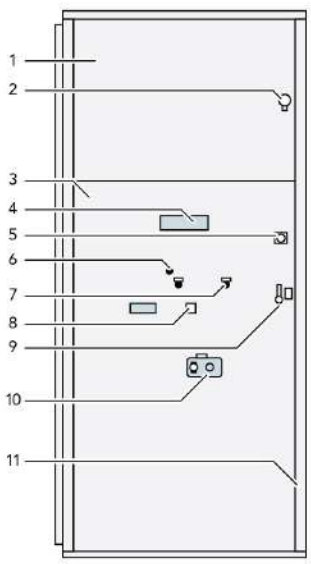
	HV HRC fuse
	3AH5 vacuum circuit-breaker
	Three-position Switch-disconnector
	Surge arrestor

1) The details refer to conventional RXS single-core sealing ands for XLPE cables or other makers with similar dimensions.

DESIGN

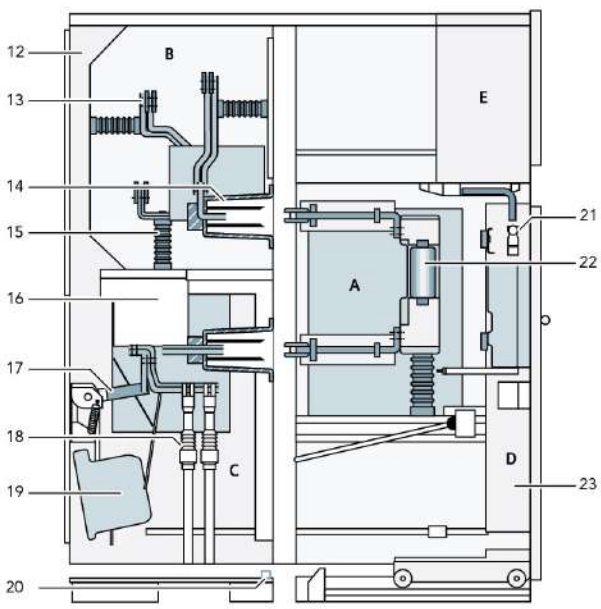
Panel Design SIMOPRIME A4

Basic panel design (example)



Circuit breaker panel

Design: Connection from front with block current transformer



Legend for panel design

1 Door of low-voltage compartment
2 Opening for locking or unlocking the low-voltage compartment door
3 High-voltage door
4 Inspection window for checking the switching device truck
5 Opening for locking or unlocking the high-voltage door
6 Opening for mechanical charging of circuit breaker closing spring
7 Openings formanual operation (ON/OFF) of the circuit breaker
8 Inspection window for reading the indicators
9 Door handle
10 Openings for switching device truck operation
11 Opening for earthing-switch operation
12 Pressure relief duct
13 Busbars
14 Bushings
15 Post insulators
16 Block-type current transformer
17 Option: Make-proof earthing switch
18 Cable sealing ends
19 Option: Voltage transformer
20 Earthing busbar
21 Low-voltage plug connector
22 Vacuum interrupters
23 Switching device truck

A Switching device compartment
B Busbar compartment
C Connection compartment
D Vacuum circuit breaker truck
E Low-voltage compartment

DESIGN
Compartments

Switching - device compartment

- All switching operations with high-voltage door closed
- Pressure relief upwards
- Panel powder-coated with epoxy resin
- Shutter operating mechanisms separately for
  – Busbar compartment
  – Connection compartment
- Metallic, earthed shutters and partitions ensure partition class PM
- High-voltage door pressure resistant in the event of internal arcs in the panel
- Metallic ducts on the side for laying control cables
- Interlocking between high-voltage door and circuit-breaker truck ensures interlock-based access
- Option: Test sockets for capacitive voltage detecting system
- Switching-device compartment to accommodate components for implementing various panel versions with
  – Vacuum circuit-breaker with or without voltage transformers on the truck
  – Disconnector truck
  – Vacuum-contactor truck
  – Metering truck

Busbar compartment

- Pressure relief upwards and through rear pressure relief duct
- Option: Busbar transverse partition between panels
- Busbars made of flat copper, bolted from panel to panel
  – For rated normal currents up to 3600 A
  – Option: Insulated busbars
- Bolted rear and top covers provide tool-based access
- Option: Coupling electrode for capacitive voltage detecting system
- Options: Possibility of installing the following components
  – Voltage transformers
  – Busbar earthing switch
  – Current transformers in the run of busbars

Connection compartment

- Pressure relief upwards through rear pressure relief duct
- Suitable for connection of
  – Single-core XLPE cables up to max. 6 x 500 mm2 per phase
  – Three-core XLPE cables up to max. 3 x 300 mm2 per panel
  – Bars made of flat copper with bushings in a floor cover or fully-insulated bars including floor cover
- Shutters to be opened separately to permit cable testing
- Earthing busbar
- Connection from front or rear
- Option: Pressure-resistant floor cover
- Use of block-type current transformers
- Bolted rear covers of the connection compartment provide tool-based access for panels with connection from rear
- Interlocked high-voltage door and bolted partitions between connection compartment and switching-device compartment provide interlock-based and tool-based access for panels with connection from front

Components at the panel connection (option)

- Coupling electrode for capacitive voltage detecting system
- Voltage transformers
  – Cast-resin insulated
  – Max. 3 x 1-pole
  – Fixed-mounted, without primary fuses
- Make-proof earthing switches
  – With manual operating mechanism
  – In addition to standard interlocking of earthing switch / circuit-breaker truck, optionally lockable or with electromagnetic interlock
- Surge arresters or limiters
  – Surge arresters for protecting the switchgear against external overvoltages
  – Surge limiters for protecting consumers against switching overvoltages

DESIGN

Interlocks, operation

Interlocks

- Interlocking conditions are satisfied according to IEC 62271-200 / VDE 0671-200
- Earthing switch can only be operated with circuit-breaker truck in test position
- Circuit-breaker truck can only be moved with circuit-breaker "OPEN" and earthing switch "OPEN"
- Mechanical coding on the circuit-breaker truck prevents insertion of similar circuitbreaker trucks for lower rated normal currents into panels with higher rated normal currents
- Interlocking of high-voltage door against circuit-breaker truck
- The high-voltage door can only be opened when the circuit-breaker truck is in test position
- Option: Electromagnetic interlocks

Low-voltage Compartment

- For accommodation of all protection, control, measuring and metering equipment
- Partitioned safe-to-touch from the high-voltage part
- Low-voltage compartment can be removed, bus wires and control cables are plugged in
- Option: Partition between panels

Low-voltage Cables

- Control cables of the panel are flexible and have metallic covers
- Connection of switching device truck and panel wiring to low-voltage compartment via 64-pole coded plug connectors
- Bus wires are pluggable from panel to panel

DESIGN

Benefits and features

SIMOPRIME

Benefits	Features
Saves lives	• All switching operations including emergency manual operations with high-voltage door closed • Interlocking between high-voltage door and switching devices • Rack-in, rack-out operations of the circuit-breaker truck with high-voltage door closed • Metallic, earthed shutters and partitions, partition class: PM (metallic partition) • Internal arc tested design up to 40 kA, 1 s, according to IEC 62271-200, VDE 0671-200 • Use of vacuum circuit-breakers
Peace of mind	• Factory-assembled, type-tested switchgear according to IEC 62271-200 • Type testing of the circuit-breaker inside the panel • Use of standard, world-wide available components • Use of maintenance-free vacuum circuit-breakers • Quality management according to DIN EN ISO 9001 • Design based on global best practice sharing and experience • More than 300,000 air-insulated switchgear panels powered by Siemens in operation world-wide
Increases productivity	• Use of metallic, earthed shutters and partitions between the compartments ensures highest loss of service continuity of the switchgear (LSC2B according to IEC 62271-200) during maintenance • Use of maintenance-free vacuum circuit-breakers
Saves money	• Use of maintenance-free vacuum circuit-breakers

SIMOPRIME A4

Benefits	Features
Saves lives	• All switching operations including emergency manual operations with high-voltage door closed • Interlocking between high-voltage door and switching devices • Rack-in, rack-out operations of the circuit-breaker truck with high-voltage door closed • Metallic, earthed shutters and partitions, partition class: PM (metallic partition) • Internal arc tested design up to 25 kA, 1 s, according to IEC 62271-200 • Use of vacuum circuit-breakers
Peace of mind	• Factory-assembled, type-tested switchgear according to IEC 62271-200 • Type testing of the circuit-breaker inside the panel • Use of standard, world-wide available components • Use of maintenance-free vacuum circuit-breakers • Quality management according to DIN EN ISO 9001 • Design based on global best practice sharing and experience • More than 300,000 air-insulated switchgear panels from Siemens in operation world-wide
Increases productivity	• Use of metallic, earthed shutters and partitions between the compartments ensures highest loss of service continuity of the switchgear (LSC2B according to IEC 62271-200) during maintenance • Use of maintenance-free vacuum circuit-breakers
Saves money	• Use of maintenance-free vacuum circuit-breakers

STANDARDS

Standards, specifications, guidelines

The products and systems described in this catalog are manufactured and sold according to a certified quality and environmental management system (acc. to ISO 9001 and ISO 14001). (DQS Certificate Reg. No. DQS 003473 QM UM). The certificate is accepted in all IQNet countries.

		IEC	VDE	DIN
		IEC standard	VDE standard	DIN / EN standard
SIMPOPRIME switchgear		IEC 62271-1	VDE 0671-1	DIN / EN 62271-1
		IEC 62271-200	VDE 0671-200	DIN / EN 62271-200
Internal arcing tests		IEC 62271-200	VDE 0671-200	–
Devices	Circuit breaker	IEC 62271-100	VDE 0671-100	DIN / EN 62271-100
	Circuit breaker, generator switching	IEC / IEEE 62271-37-013	–	–
	Vacuum contactor	IEC 62271-106	VDE 0670-501	DIN / EN 62271-106
	Disconnector and earthing switch	IEC 62271-102	VDE 0671-102	DIN / EN 62271-102
	HV HRC fuses	IEC 60282	VDE 0670-4	DIN / EN 62271-103
	Voltage detecting systems	IEC 61243-5	VDE 0682-415	DIN / EN 62271-105
	Internal arc classification	IEC 62271-200	VDE 0671-200	DIN / EN60282-1
Degree of protection		IEC 60529	VDE 0470-1	DIN / EN 61243-5
		IEC 62271-200	VDE 0671-200	DIN / EN 60529
Current-carrying capacity		IEC 62271-1	VDE 0671-1	DIN / EN 62271-1
		IEC 62271-200 [1]	VDE 0671-200 [1]	DIN / EN 62271-200 [1]
Insulation		IEC 60071	VDE 0111	DIN / EN 60071
Current transformer		IEC 61869-2	VDE 0414-1	DIN / EN 61869-2
Voltage transformer		IEC 61869-3	VDE 0414-2	DIN / EN 61869-3
Installation		IEC 61936-1	VDE 0101	DIN / EN 61936-1
Enclosure		IP 4X [2] (protection against solid foreign bodies)		
		Compartments: IP 2X (protection against solid foreign bodies)		

[1] Ambient air temperatures: Maximum of 24 H mean + 35 °C, Maximum + 40 °C
- The current-carrying capacity of the panels and busbars depends on the ambient air temperature outside the enclosure.
- To attain the maximum rated normal currents rrents, some panel variantes are provided with natural or forced ventilation.

[2] Higher degree of protection IP 5x for enclosure on request.

STANDARDS

Standards, specifications, guidelines

Type of service location

The switchgear can be used for indoor installation in accordance with IEC 61936 (Power installations exceeding 1kV AC) and VDE 0101

- Outside lockable electrical service locations at places which are not accessible to the public. Enclosures of switchgear can only be removed with tools.
- Inside lockable electrical service locations. A lockable electrical service location is a place outdoors or indoors that is reserved exclusively for housing electrical equipment and which is kept under lock and key. Access is restricted to authorized personnel and persons who have been properly instructed in electrical engineering. Untrained or unskilled persons may only enter under the supervision of authorized personnel or properly instructed persons.

Dielectric strength

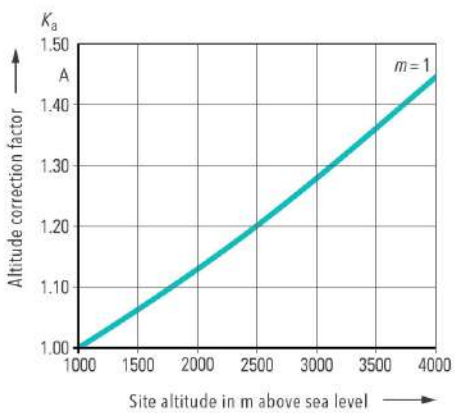
- The dielectric strength is verified by testing the switchgear with rated values of shortduration power-frequency withstand voltage and lightning impulse withstand voltage according to IEC 62271-1 / VDE 0671-1 (see table "Dielectric strength").
- The rated values are referred to sea level and to normal atmospheric conditions (1013 hPa, 20 °C, 11 g/m3 humidity in accordance with IEC 60071 / VDE 0111).
- The dielectric strength decreases with increasing altitude. For site altitudes above 1000 m (above sea level) the standards do not provide any guidelines for the insulation rating. Instead, special arrangements apply to these altitudes.
- Site altitude
  - As the altitude increases, the dielectric strength in air decreases due to the decreasing air density. This reduction is permitted up to a site altitude of 1000 m according to IEC and VDE.
  - For site altitudes above 1000 m, a higher insulation level must be selected. It results from the multiplication of the rated insulation level for 0 to 1000 m with the altitude correction factor Ka.

Table - Dielectric strength (kV)

Rated voltage (rms value)	7.2	12	15	17.5
Rated short-duration power-frequency withstand voltage (rms value)				
– Across isolating distances	23	32	39	45
– Between phases and to earth	20	28	35	38
Rated lightning impulse withstand voltage (peak value)				
– Across isolating distances	70	85	105	110
– Between phases and to earth	60	75	95	95

Altitude correction factor *Ka*

For site altitudes above 1000m, the altitude correction factor *Ka* is recommended, depending on the actual site altitude above sea level.



Rated short-dur. power-freq. withstand volt. to be selected for site altitudes>1000m
≥Rated short-duration power-frequency withstand voltage up to≤1000m · Ka

Rated lightning impulse withstand volt. to be selected for site altitudes > 1000m
≥ Rated lightning impulse withstand voltage up to≤1000m · Ka

Example:
1800m site altitude above sea level
12 kV switchgear rated voltage
75 kV rated lightning impulse withstand voltage

Rated lightning impulse withstand voltage to be selected
75 kV · 1.10 = 82.5 kV

Result:
According to the above table, a switchgear for a rated voltage of 17.5 kV is to be selected.

STANDARDS

Standards, specifications, guidelines

Terms

"Make-proof earthing switches" are earthing switches with short-circuit making capacity according to IEC 62271-102 and VDE 0671-102 / EN 62271-102

Internal arc classification

Protection of operating personnel by means of tests for verifying the internal arc classification

- Internal arcing tests must be performed in accordance with IEC 62271-200 / VDE 0671-200
- The switchgear complies with criteria 1 to 5 specified in the mentioned standards for the basic version up to 40 kA.
- Definitions of the criteria:

Criterion 1

Correctly secured doors and covers do not open. Limited deformations are accepted.

Criterion 2

No fragmentation of the enclosure. Projection of small parts up to an individual mass of 60 g are accepted.

Criterion 3

Arcing does not cause holes in the accessible sides up to a height of 2 m.

Criterion 4

Horizontal and vertical indicators do no ignite due to the effect of hot gases.

Criterion 5

The enclosure remains connected to its earthing point.

Internal arc classification according to IEC

IAC	Internal arc classification
A	300 mm distance of indicators for test (installation in closed electrical service location)
F	Front arrangement of indicators for test
L	Lateral arrangement of indicators for test
R	Rear arrangement of indicators for test
Isc	Test current for SIMOPRIME ≤ 17.5 kV up to 40 kA, ≤ 24 kV up to 25 kA
t	Arc duration 1 s, optionally 0.1 s

SIMOPRIME switchgears are fully type-tested to comply with IEC standards as well as DIN and GOST standards.

Current-carrying capacity

- According to IEC 62271-1 / VDE 0671-1 and IEC 62271-200 / VDE 0671-200 current carrying capacities refer to the following ambient air temperatures:
  - Maximum of 24-hour mean + 35 °C
  - Maximum + 40 °C
- The current-carrying capacity of the panels and busbars depends on the ambient air temperature outside the enclosure.
- To attain the maximum rated normal currents, the panels are provided with natural or forced ventilation.

Climate and environmental influences

The switchgear may be used, subject to possible additional measures, under the following environmental influences and climate classes:

Environmental influences

- Natural foreign materials
- Chemically active pollutants
- Small animals

Climate classes

- 3K3
- 3K5
- The climate classes are classified according to IEC 60721-3-3.

Protection against solid foreign bodies, electric shock and ingress of water

SIMOPRIME switchgear fulfills acc. to the standards IEC 62271-200, IEC 60529, VDE 0470-1 and VDE 0671-200, the following degrees of protection:

- Enclosure:
  IP 4X, IP 5X (protection against solid foreign bodies)
  IP X1, IP X2 (protection against ingress of water)
- Compartments:
  IP 2X (protection against solid foreign bodies)

Higher degree of protection for enclosure on request.

SIMOSYNERGY
medium voltage switchgear manufacturer

CHOOSING SIMOPRIME SWITCHGEAR, PROVIDES PEACE OF MIND, IT INCREASES PRODUCTIVITY, IT IS COST EFFICIENT AND MORE IMPORTANTLY, IT SAVES LIVES.

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