

Power Distribution Boards, Busway and Cubicle Systems

14



14/2	Introduction
	Switchgear
14/7	General data
14/8	SIVACON S8 power distribution boards and motor control centers
LV 55 ¹⁾ 14/10	SIKUS 1600 power distribution boards
LV 70 ²⁾	Busway Systems
14/11	SIVACON 8PS busbar trunking systems
LV 50 ³⁾	SIVACON 8MC, 8MF Cubicle Systems
	<u>System Cubicles</u>
14/12	General data
14/13	8MC system cubicles
14/13	8MF system cubicles
	<u>Accessories</u>
14/14	Cubicle lighting, socket outlets, plug-on mounts
LV 50 ³⁾	SIVACON 8MR, 8ME Cubicle Air-Conditioning
14/16	Introduction
14/16	Filter fans
14/17	Air conditioners/cooling devices
14/17	Heat exchangers
14/18	Heater units
14/19	Fan heaters
14/22	Thermostats, hygrometers, hygrometers
	SENTRON 8US Busbar Systems
Ch.17	see Chapter 17
ET A1 ⁴⁾	ALPHA Distribution Boards
14/25	General data <u>ALPHA 630 - DIN Floor-Mounted Distribution Boards</u>
14/26	General data <u>ALPHA 8HP Molded-Plastic Distribution System</u>
14/27	General data
ET A1 ⁴⁾	ALPHA FIX Terminal Blocks
14/29	General data

Technical Information

can be found at
www.siemens.com/lowvoltage/support

under Product List:
- Technical Specifications

under Entry List:

- Updates
- Downloads
- FAQ
- Manuals
- Characteristic curves
- Certificates

and at

www.siemens.com/lowvoltage/configurators
- Configurators

- 1) See Catalog LV 55 "SIKUS 1600 Low-Voltage Power Distribution Boards" (in German only).
- 2) See Catalog LV 70 "SIVACON 8PS Busbar Trunking Systems".
- 3) See Catalog LV 50 "SICUBE System Cubicles and Cubicle Air-Conditioning" (in German only).
- 4) See Catalog ET A1 "ALPHA Distribution Boards and Terminal Blocks".

Power Distribution Boards, Busway and Cubicle Systems

Introduction

Overview



SIVACON S8 power distribution boards and motor control centers up to 7000 A

Reliable, economical, flexible and communication-capable

For all applications in infrastructure and the process industry

In circuit breaker design

In 3NJ4 in-line design, fixed-mounted

In in-line design, plugged in

In fixed-mounted design (infrastructure)

In universal installation systems for the combination of:

- Withdrawable version
- Fixed-mounted version
- 3NJ6 in-line design, plugged in

Degree of protection up to IP54

Design-tested according to IEC 61439-1/2 (type-tested according to IEC 60439-1)

Tested for resistance to internal arcing faults in compliance with IEC 61641

Tested for resistance to earthquakes



SIKUS 1600 power distribution boards

Reliable, economical and flexible

For applications in non-residential and industrial buildings and in control engineering

Flexible modular system

Delivery of packed assembly kits with with standard parts

Assembly kits for 3WL, 3VL circuit breakers

Assembly kits for 3NJ4 fuse switch disconnectors

Assembly kits for 8GK distribution board systems

Degree of protection up to IP55

Design-tested according to IEC 61439-1/2 (type-tested according to IEC 60439-1)



SIVACON 8PV power distribution boards and motor control centers up to 6300 A

Reliable, economical, flexible and communication-capable

For all applications in infrastructure and process industry

In circuit breaker design

In fixed-mounted design

In 3NJ4 in-line design, fixed-mounted

In 3NJ6 in-line design, plugged in

In plug-in design

In withdrawable design

Degree of protection up to IP54

Design-tested according to IEC 61439-1/2 (type-tested according to IEC 60439-1)

Tested for resistance to internal arcing faults in compliance with IEC 61641

Tested for resistance to earthquakes



SIVACON 8PT power distribution boards and motor control centers up to 7400 A

Reliable, economical, flexible and communication-capable

For all applications in infrastructure and process industry

In circuit breaker design

In 3NJ4 in-line design, fixed-mounted

In 3NJ6 in-line design, plugged in

In fixed-mounted design

In plug-in design

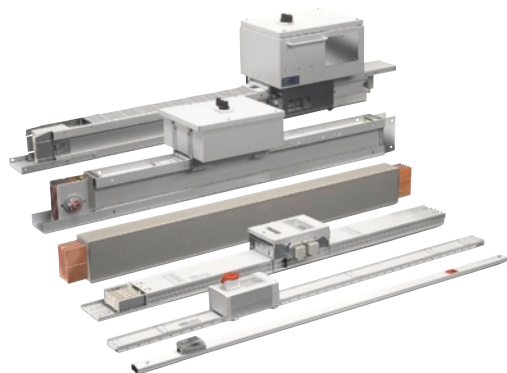
In withdrawable design

Degree of protection up to IP54

Design-tested according to IEC 61439-1/2 (type-tested according to IEC 60439-1)

Tested for resistance to internal arcing faults in compliance with IEC 61641

Tested for resistance to earthquakes



SIVACON 8PS busbar trunking systems

- Flexible, modular power supply
- Easy and speedy planning
- Time-saving mounting
- Reliable and safe operation
- Quick adaptation of tap-off points
- According to EN 60 439-1



SIVACON 8MC, 8MF cubicle systems

- System cubicles for individual solutions including cubicle air-conditioning for optimum operating conditions
- For a wide range of applications in tough environments and in laboratories, offices and medical practices
- Flexible expansion levels and types of delivery
- Coordinated logistical and delivery concepts
- Degree of protection up to IP55
- For heavy integrated equipment up to 1000 kg
- System cubicles in EMC version
- System cubicles in earthquake-proof version
- In all RAL colors, including special colors

Introduction



EFR 012 electronic hygostat



HG 140 semiconductor heater unit



CS 028 semiconductor fan



Air conditioner for lateral mounting

Control supply voltage or voltage for switching capacity

24 V DC

115 V AC

230 V AC

400 /440 V AC

8MR, 8ME Cubicle Air-Conditioning**Filter fans**

Standard filter fans, IP54 or IP55

- With or without additional EMC protection
- Cooling capacity 8 W/K ... 282 W/K
- Air rate 25 m³/h ... 845 m³/h
- Size 92 x 92 mm to 291 x 291 mm
- Color RAL 7035 or RAL 7032

Roof filter fans, IP33 or IP54

- Cooling capacity 113 W/K ... 242 W/K
- Air rate 350 m³/h ... 750 m³/h
- Size 430 mm x 430 mm to 470 mm x 470 mm
- Color RAL 7035 or RAL 7032

Air conditioners/cooling devices

For door and lateral mounting (recessed)

- 1000 W ... 1500 W
- 2000 W ... 2500 W

For lateral mounting

- 320 W ... 1400 W
- 2000 W ... 2500 W
- 3200 W ... 5000 W

For roof mounting

- 810 W ... 1600 W
- 3000 W ... 5000 W

Heat exchangers

Standard

- Size 11/06 ... 20/06

For lateral mounting

- 650 W ... 5000 W
- Size 500 mm x 200 mm x 100 mm ... 1400 mm x 460 mm x 235 mm

For roof mounting

- 1450 W ... 2100 W
- Size 600 mm x 390 mm x 140 mm ... 720 mm x 465 mm x 190 mm

Heater units optionally without or with thermostat

- 10 W ... 150 W

Fan heaters optionally without or with thermostat

- 100 W ... 950 W
- Setting ranges 0 ... 60 °C, +32 ... +140 °F

Thermostats, hygostats, hygrotherms

Thermostats, optionally NC, NO, CO contacts

- Setting ranges 0 ... 80 °C
- Switching capacities 10 (2) A ... 16 A

Hygostats, optionally NC, NO, CO contacts

- 40 ... 90 % relative air humidity

Hygrotherms, optionally NC, NO, CO contacts

- Setting ranges 0 ... 60 °C, +32 ... +140 °F
- 40 ... 90 % relative air humidity
- Switching capacities 6 (1) A ... 8 (1.6) A

✓ Available or possible

-- Not available or not possible



ALPHA 630 DIN floor-mounted distribution boards

ALPHA 630 DIN floor-mounted distribution boards

Up to 630 A

For applications in non-residential and industrial buildings

Flexible types of delivery (flat pack or preassembled)

Modular system

Many different assembly kits for individual expansion

Protection class 1 and protection class 2

Depth 210 mm, 250 mm and 320 mm

Degree of protection up to IP55

General data

Overvoltage category	V	III
Rated impulse withstand voltage U_{imp}	kV	6
Clearances in air and creepage distances		DIN VDE 0110
Rated insulation voltage U_i	V	690
Rated operational voltage U_e	V AC/DC	690
Rated voltage U_n (AC 40 Hz ... 60 Hz)	V	690 for built-in devices
Rated current	A	Up to 630
Short-circuit strength		
• Rated impulse withstand current I_{pk}	kA	Up to 61.3 (3-pole), conduction interval of 30 ms
• Rated short-time current I_{cw}	kA	20, conduction interval 1 s
Protective measures		Protection class 1 (protective conductor connection) Protection class 2 (total insulation)
Number of conductors in busbar run		4/5
Degree of protection acc. to EN 60529		IP43 with door, IP55 with door (with matching flanges)
Standard mounting rail tier spacing per standard mounting rail	mm	150
Modular width (MW)		18 mm, 12 MW + 1 mountable MW
Pollution degree		3
Ambient temperature	°C	35 (24 h mean value)
Relative air humidity	%	50 at 40 °C
Test specification		EN 60439-1/3 (VDE 0660 Part 500/504), DIN VDE 0603-1
Enclosures		Sheet steel
Mounting dimensions		DIN 43870
Surface of metal parts		Electrogalvanized and powder-coated
Color ¹⁾		RAL 7035 (light gray)
Locking system		3-point locking with integrated espagnolette lock (can be replaced with other locking systems if required)
Packing material		Shock-proof, environmentally-compatible

¹⁾ Further RAL colors are available upon request.

Introduction



Enclosure size		1	2	2.5	3	4
ALPHA 8HP molded-plastic distribution system						
Width	mm	307	307	307	307	614
Height	mm	153.5	307	460.5	614	614
Depth						
• 147,0 mm		✓	✓	✓	✓	✓
• 185,0 mm		--	--	✓	--	--
• 212,0 mm		--	✓	--	--	--
• 239.5 mm		--	--	--	✓ (+ n x 92.5 mm)	✓ (+ n x 92.5 mm)
Empty enclosures						
Transparent covers		✓	✓	✓	✓	✓
Opaque covers		✓	✓	--	✓	✓
Enclosures for modular devices						
1 x 14 MW (transparent and opaque cover with actuating flap)		✓	--	--	--	--
2 x 14 MW (transparent and opaque cover with actuating flap)		--	✓	--	--	--
3 x 14 MW (transparent cover)		--	--	✓	--	--
4 x 14 MW (transparent and opaque cover with actuating flap)		--	--	--	✓	--
DIAZED fuse enclosures (25 A or 63 A)						
		✓	✓	✓	✓	--
Enclosures with LV HRC fuse base						
3 x NH00		✓	✓	--	--	--
6 x NH00		--	✓	--	--	--
3 x NH1		--	✓	✓	--	--
3 x NH2		--	✓	✓	✓	--
3 x NH3		--	✓	✓	✓	--
Meter enclosures						
		--	✓	✓	✓	✓
Enclosures with NP fuse switch disconnectors						
NH000		✓	✓	--	--	--
NH00		✓	✓	✓	✓	--
NH1		--	✓	✓	✓	--
NH2		--	✓	✓	✓	--
NH3		--	--	--	✓	--
Enclosures with main control and EMERGENCY-STOP switch						
$I_e = 63 A$		--	✓	--	--	--
$I_e = 125 A$		--	✓	--	--	--
$I_e = 160 A$		--	✓	--	✓	--
$I_e = 250 A$		--	✓	--	✓	--
$I_e = 400 A$		--	✓	--	✓	--
$I_e = 630 A$		--	--	--	✓	--
$I_e = 800 A$		--	--	--	✓	--
Enclosure with 3VL circuit breaker						
$I_e = 63 A$		--	--	--	✓	--
$I_e = 100 A$		--	--	--	✓	--
$I_e = 160 A$		--	--	--	✓	--
$I_e = 250 A$		--	--	--	✓	--

✓ = Available or possible -- = Not available or not possible

Overview

Low-voltage switchboards form the link between equipment (generators), transmission (cables, overhead lines) and transformation (transformers) of electrical energy on the one hand, and the loads, such as motors, solenoid valves, actuators and devices for heating, lighting and air conditioning on the other.

As the majority of applications are supplied with low voltage, the low-voltage switchboard is of special significance in both public supply systems and industrial plants.

Reliable power supplies depend on good availability, flexibility to allow for changes and process-related modifications, and high operating safety.

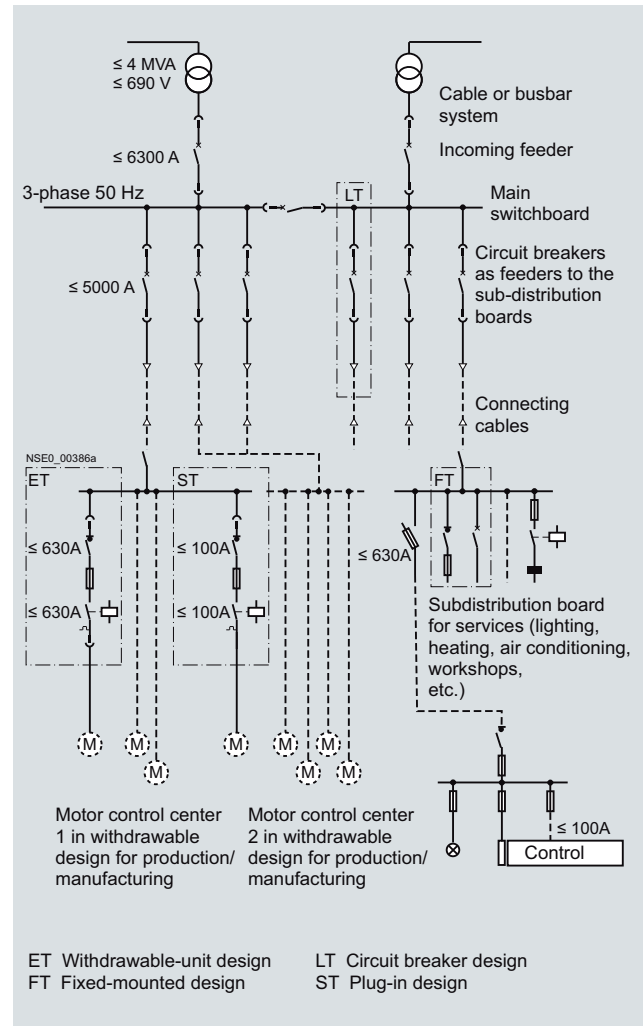
Power distribution in a low-voltage system usually takes place via a main switchboard (power center or main distribution board) and a number of sub-distribution boards or motor distribution boards, also known as motor control centers (MCC) (see example opposite).

The SIVACON low-voltage switchboards offer optimum solutions in low-voltage systems for all applications up to 7400 A. The SIVACON 8PV switchboards are manufactured by Siemens in Leipzig, and the SIVACON 8PT and SIVACON S8 switchboards by Siemens and our SIVACON Technology Partners near you.

The most important selection criteria are shown in the table below.

You can find more information on the Internet at:

www.siemens.com/sivacon



Power distribution in a low-voltage system

Selection criteria	SIVACON S8		SIVACON 8PV		SIVACON 8PT	SIKUS 1600
	Top	Rear	Top	Rear	Top	Rear
Rated currents						
• Busbars up to	6300 A	7010 A	2500 A	6300 A	7400 A	1600 A
• Infeed up to	6300 A	6300 A	2500 A	6300 A	6300 A	1600 A
Short-circuit strength I_{pk} up to	330 kA	330 kA	110 kA	220 kA (250 kA)	375 kA	120 kA
Equipment layout						
• Fixed-mounted version	✓ ¹⁾	✓ ¹⁾	✓	✓	✓	✓ ¹⁾
• 3NJ4 in-line design, fixed installation	✓	✓	✓	✓	✓	✓
• In-line version, plugged in	✓	✓	✓	✓	✓	--
• Plug-in design	✓ ²⁾	✓ ²⁾	✓	✓	✓	--
• Withdrawable version	✓	✓	✓	✓	✓	--
• Universal installation system	✓	✓	--	--	--	--
Type of installation						
• Free-standing/against wall	✓	✓	✓	✓	✓	✓
• Back to back	✓	✓	✓	✓	✓	✓
• Double-fronted	--	✓	--	✓	--	--
Use						
• Motor control center	✓	✓	✓	✓	✓	--
• Power distribution board	✓	✓	✓	✓	✓	✓
Manufactured by SIVACON Technology Partner	✓	✓	--	--	✓	✓

✓ Available.

-- Not available.

¹⁾ Circuit breakers optionally in withdrawable version.

²⁾ Plugged in in-line panel.

SIVACON S8 power distribution boards and motor control centers

Overview



SIVACON S8 low-voltage switchgear and controlgear

Maximum safety and attractive design are combined in an efficient solution: with SIVACON S8, the new generation of switchboards for consistent and easy power distribution in non-residential and industrial buildings as well as in the process industry up to 7000 A.

The new design of the control cabinets opens up new applications, e. g. here as a motor control center. Following features are offered to improve personal and machine safety:

- Uniform operation for all withdrawable unit sizes
- Integrated operating error protection for all withdrawable units
- Unambiguous indication of withdrawable unit positions
- Separate actuation for main control switch and withdrawable unit position
- Test and disconnected position with door closed, without interruption of degree of protection
- Lockable disconnected position
- Optional withdrawable unit coding prevents swapping of withdrawable units of same size
- Swiveling instrument carrier on standard withdrawable units for making settings during operation
- Small withdrawable units for motor and cable feeders up to 63 A

The SIVACON S8 low-voltage switchboard is custom configured and constructed using design-tested functional components.

We or our authorized contractual partners take care of the following:

- Customized configuration
- Mechanical and electrical construction
- Inspection

Documentation prescribed by us serves as the basis for our authorized contractual partners.

Standards and specifications

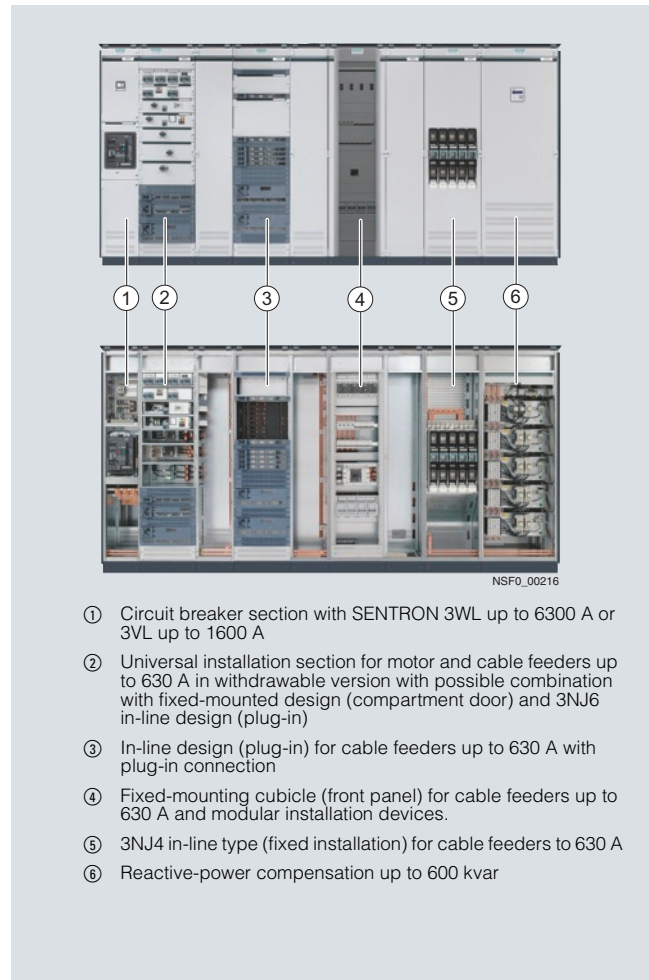
The SIVACON S8 low-voltage switchboard is a design-tested low-voltage controlgear assembly according to IEC 61439-1/2 (formerly IEC 60439-1 TTA). The switchboard is designed to be resistant to arcing faults according to IEC 61641, EN 60439, supplement sheet 2.

SIVACON S8 can be used as a design-tested power distribution board and motor control center up to 7000 A.

Equipment layouts

The SIVACON S8 low-voltage switchboard consists of standardized and typified components which can be flexibly combined as a cost-effective overall solution.

The following equipment layouts according to the diagram below are available:



- ① Circuit breaker section with SENTRON 3WL up to 6300 A or 3VL up to 1600 A
- ② Universal installation section for motor and cable feeders up to 630 A in withdrawable version with possible combination with fixed-mounted design (compartment door) and 3NJ6 in-line design (plug-in)
- ③ In-line design (plug-in) for cable feeders up to 630 A with plug-in connection
- ④ Fixed-mounting cubicle (front panel) for cable feeders up to 630 A and modular installation devices.
- ⑤ 3NJ4 in-line type (fixed installation) for cable feeders to 630 A
- ⑥ Reactive-power compensation up to 600 kvar

SIVACON S8 low-voltage switchboard with standardized and typified components

SIVACON S8 power distribution boards and motor control centers

Application

The main applications are as

- low-voltage power distribution boards or as
- motor control centers.

Use as motor control centers

Universal installation section (withdrawable version)

In many applications it is necessary for space reasons to integrate various installation systems in one and the same section.

The universal installation system from SIVACON S8 offers high efficiency, safety and high variability through the combination of

- tap-off units in withdrawable version (3 positions: Disconnect - Test - Operation),
- fixed-mounted version and
- tap-off units in 3NJ6 in-line design, plugged in.

The withdrawable units are ergonomically designed and offers the required flexibility where requirements change frequently. Changing requirements include e. g. a new motor rating or adding new loads.

Simple and safe handling as well as fast changeover times ensure the high availability of the plant.

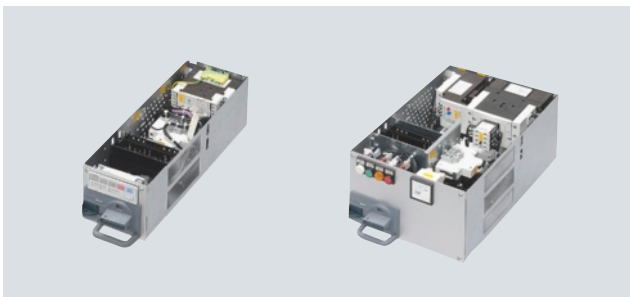


Universal installation section

Withdrawable unit versions

Small withdrawable units:

- Size ¼ and ½ (¼ sub-section or ½ sub-section)
- Height 150 mm and 200 mm
- Up to 48 withdrawable units per section



Small withdrawable unit size 1/4 (left) and size 1/2 (right)

Standard withdrawable units:

- Height 100 mm to 700 mm
- Up to 18 withdrawable units per section



Standard withdrawable unit

Operating error protection

Operating error protection prevents movement of the isolating contacts with main control switch "ON".



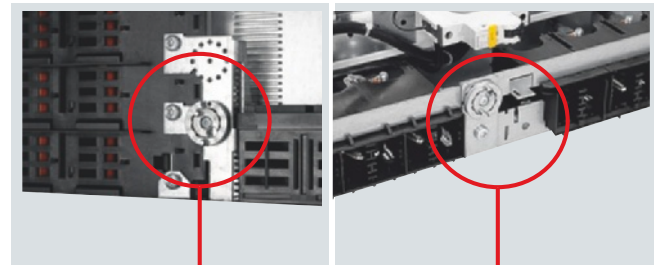
Operating error protection enabled, main control switch in position "0"

Operating error protection disabled, main control switch in position "1"

Lockable disconnected position

Withdrawable unit coding

The mechanical withdrawable unit coding prevents swapping of withdrawable units in the same size with up to 9216 coding options.



Withdrawable unit coding in the compartment

Withdrawable unit coding on the unit partment

More information

More information can be found on the Internet at www.siemens.com/sivacon

SIKUS 1600 Power Distribution Boards

Overview



SIKUS 1600 Power Distribution Boards

SIKUS 1600 is a low-voltage power distribution board in side-by-side cabinet design for indoor applications, optionally for wall or free-standing installation. SIKUS 1600 already meets the requirements of IEC 61439-1/2. The design verification is test-based.

System

SIKUS 1600 is based on the modular building block principle. Thanks to the use of requirements-based, standardized and series-produced assembly kits and the numerous combination possibilities, all demands in connection with low-voltage power distribution can be optimally met.

Through expansion with 8GK distribution board assembly kits or mounting plates, SIKUS 1600 also offers extensive solutions as a distribution board and in control engineering.

A catalog, manual and the SIMARIS Configuration Basic software are available for reliable and quick configuration.

Frames

The frame is constructed from height, width and depth profiles. It is the supporting structure for all built-in and surface-mounted components. Use of Sendzimir-galvanized frame profiles and self-tapping screws creates a mechanically highly stable construction with safe grounding of the built-in components.

Enclosures

The enclosure parts enable versions in degrees of protection IP30, IP40 or IP55. The powder-coated enclosure parts are finished in RAL7035. Panel-high doors come as standard with es-pagnolette and 3 mm double-bit key or optionally with twist lever catches with or without a lock.

Busbar systems

The SIKUS 1600 main busbar system offers a practical grading of rated currents up to 1600 A, coordinated with the rated currents and rated short-circuit currents of standard transformers.

Form of internal partition

Internal partition form 1 or 2 is possible depending on the requirements.

Assembly kits

A service-proven and coordinated range of assembly kits is available for SENTRON 3WL, 3VL, 3NJ4 switching and protection devices and for modular installation devices. Depth-adjustable modular and panel-high mounting plates round off the assembly kit range.

Benefits

- Future-oriented with prototype verification due to testing in accordance with IEC 61439-1/2
- Clear, modern design makes marking and operation easy and reliable
- Compact, space-saving design
- Versatile thanks to modular building block system
- Side-by-side cabinet system in frame type of construction, expandable width or depth
- Quick and reliable planning and configuring using SIMARIS Configuration Basic
- Delivery of assembly kits with all necessary standard parts
- Quick and easy assembly
 - due to clear separation of the functional areas
 - all frame components are marked to facilitate assembly
 - the necessary steps are described in mounting instructions
- Reliable grounding thanks to the use of self-tapping screws
- Doors with universal hinges
- Panel-high doors with 25 mm floor clearance
- Door hinges with grounding function
- Environmentally friendly and recyclable materials

Application

SIKUS 1600 is a system for the transmission and distribution of electrical energy in low-voltage systems.

The flexible building block system enables the configuration of incoming, outgoing or coupling unit sections with SENTRON 3WL or SENTRON 3VL circuit breakers. Through expansion with 8GK distribution board assembly kits or mounting plates, SIKUS 1600 also offers extensive solutions as a distribution board and in control engineering.

Through the use of standardized and series-produced assembly kits, easy and quick assembly and long maintenance intervals, SIKUS 1600 offers solutions for cost-effective configuration and operation.

Switchgear engineers must observe the manufacturer's construction and mounting instructions. The low-voltage switchboard must be configured and tested by the switchgear engineer in accordance with IEC 61439-1/2.

More information

Details and technical specifications can be found in Catalog LV 55.

Overview

Busbar trunking systems in the low-voltage range guarantee the reliable transmission and distribution of energy from the transformer through the main distribution board to the load. Siemens offers a complete range of high-performance systems:

- CD for 25 A ... 40 A
- BD01 for 40 ... 160 A
- BD2 for 160 ... 1250 A
- LR for 400 ... 6300 A
- LD for 1100 ... 5000 A
- LX for 800 ... 6300 A

All busbar trunking systems are "Type-tested low-voltage controlgear assemblies" (TTA) according to IEC/EN 60439-1 and -2. They thus provide a safety standard which meets the high demands of automated production facilities and building management systems.

Other advantages:

- Well arranged network topology
- Easy retrofitting when loads change
- Low operating costs thanks to high availability
- Easy planning and mounting

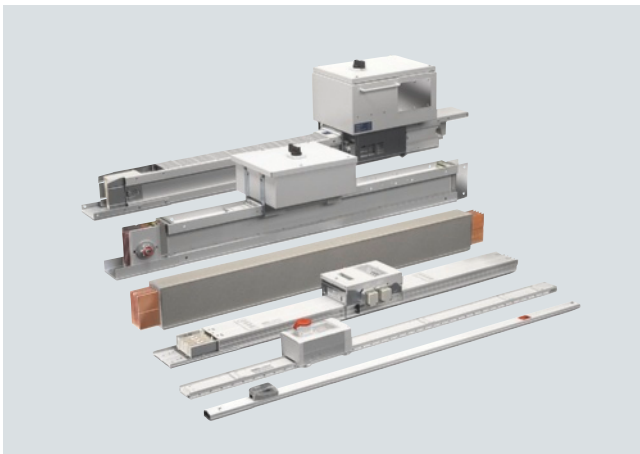
Area-wide solutions for lighting systems and small loads

Be it in furniture stores, supermarkets or greenhouses – with the CD system (up to 40 A) you can easily mount and supply energy to lighting systems over large areas. The attractive design of the busway systems is very suitable for sales rooms open to the public. And the high degree of protection enables use even under harsh conditions.

Power for loads with no fixed location

The BD01 system is ideal for power distribution (up to 160 A) in craft businesses and the skilled trades. The trunking units can be easily and quickly connected. An anti-rotation element in the tap-off units prevents incorrect mounting and guarantees easy conversion while production is in progress.

Other advantages: Minimum keeping of stocks and straightforward planning thanks to one standard size for five different levels of current.



Trunking units for currents from 25 A to 6300 A

Universal power distribution

The BD2 system (up to 1250 A) supplies energy to medium-size loads in buildings and all sectors of industry. Pre-assembled tap-off units with the most diverse equipment enable universal use. With only two standard sizes for all levels of current, stock keeping and planning are greatly facilitated.

High availability in production

The ventilated LD system (up to 5000 A) conveys electricity to production facilities with a high demand for power, e. g. in the automobile industry. A separate PE bar enables the assured response of the protective device over long conducting paths. The high short-circuit strength permits protection by medium-voltage circuit breakers for the conveyance of power between the transformer and the main infeed. Outgoing units up to 1250 A can be plugged in without causing any problems.

Flexible power distribution for multi-storey buildings

The LX sandwich system LX (up to 6300 A) is used wherever large amounts of power have to be conveyed independently of position. Be it for radio broadcasting stations, computer centers or Internet providers – conductor configurations with an insulated PE/ground conductor and double neutral conductor cross-section guarantee an interference-free power supply. Outgoing units up to 1250 A are available as standard.

Safe power conveyance for petrochemicals

The encapsulated LR system (up to 6300 A) is extremely resistant to external interference thanks to its high degree of protection. It guarantees the safe conveyance of power in severe weather as well as under harsh industrial conditions with dust, dirt and aggressive media. Typical applications are the petrochemical industry, refuse incineration plants and power stations.

More information

Catalog LV 70

SIVACON 8PS – CD, BD01, BD2 busbar trunking systems up to 1250 A

SIVACON 8PS Engineering Tools for made-to-measure, economical solutions

Used during the planning and configuring phase, SIVACON Engineering Tools result in made-to-measure and economical solutions. Even complicated tasks are now easy to perform from start to finish:

Selection aid for busway systems (MobileSpice)

The selection aid enables you to order busbar trunking systems up to 1250 A and is available in the Mall. The same selection aid is also included on the DVD in the catalog CA 01.

The following configurators are available:

- SIVACON 8PS System CD-L, 25 A ... 40 A
- SIVACON 8PS BD01 System, 40 ... 160 A
- SIVACON 8PS BD2 System, 160 A ... 1250 A

Manuals

Planning with SIVACON 8PS Busway Systems up to 6300 A

- German: Order No. A5E 01541017-01
- English: Order No. A5E 01541101-01

Leaflet

For Safe Power Flows – SIVACON 8PS Busbar Trunking Systems

- German: Order No. E20001-A360-P309-V2
- English: Order No. E20001-A360-P309-V2-7600
- French: Order No. E20001-A360-P309-X-7700

SIVACON 8MC, 8MF Cubicle Systems

System Cubicles

General data

Overview

Cubicles are installed in the most varied environments, from office buildings to workshops and manufacturing centers.

SIVACON 8MC and 8MF system cubicles are designed for all these environments.

Degrees of protection

In their standard versions, SIVACON 8MC and 8MF system cubicles offer the following degrees of protection:

- System cubicles without ventilation: IP40 and IP54
- System cubicles with ventilation: IP30 and IP40

Further degrees of protection are available upon request.

Available dimensions

The 8MC and 8MF system cubicles are available in dimension increments of 100 mm, within the following minimum and maximum dimension range:

- Height: From 400 mm to 2400 mm
- Width: From 300 mm to 1800 mm
- Depth: From 300 mm to 1400 mm

Transport

Cubicles are dispatched ex works on transport skids, or in the case of cubicle suites on transport bases.

Modifications and accessories/cubicle modifications

A standard 8MC or 8MF system cubicle comprises the following basic elements:

- a frame
- a rear panel
- a flat-panel roof
- a door with espagnolette lock and lock insert
- possibly side panels (in case of stand-alone installation)

For special requirements the standard system cubicle can be modified by replacing individual elements or by providing cut-outs, e. g.

- with a double-wing door in place of a single door
- with an instrument cover in place of a front door
- with a door in place of a rear panel
- with a roof prepared to accommodate a busbar or
- with the integration of ventilation slots into a standard door and with a perforated ventilation roof
- with mounted units for cubicle air-conditioning

Possible cubicle modifications are listed in Catalog LV 50.

Application

SIVACON 8MC and 8MF system cubicles are designed especially for:

- Open- and closed-loop control technology
- Electronics (19-inch installations)
- Power electronics
- Protection and control systems
- Automotive industry
- Remote control of crane systems
- Cement and paper industries
- Traffic engineering
- Switchgear and controlgear
- Data systems
- Communications technology
- Medical systems

Special cubicles

SIVACON 8MC and 8MF system cubicles are also available for special applications:

8MF6 earthquake-resistant version

The earthquake-resistant version is used preferably in nuclear power facilities and in applications with increased vibrations, e. g. on excavators or cranes.

PC cubicles

A variant of the SIVACON 8MC and 8MF system cubicles can also be ordered as a PC cubicle. The PC cubicle is a robust construction and is thus suitable for use in industrial environments.

EMC versions

Measures for enhancing electromagnetic compatibility (EMC) are becoming more and more important both for individual devices and complete systems. SIVACON 8MC and 8MF system cubicles are also available therefore in EMC versions.

The reasons for EMC measures are:

- Increasing processing speeds of communication systems
- Growing complexity of plants
- Contact between different systems working in a plant
- Different power levels
- More and more external interference sources

More information

More information can be found in Catalog LV 50 "[SIVACON Cubicle Systems and Air-Conditioning](#)"

or in the Industry Mall under "[Low-Voltage Controls and Distribution](#)" --> "[Low-Voltage Power Distribution](#)" --> "[SIVACON Power Distribution Boards, Busway and Cubicle Systems](#)"--> "[8MC, 8MF Cubicle Systems](#)" --> "[System Cubicles](#)".

SIVACON 8MC, 8MF Cubicle Systems

System Cubicles

8MC system cubicles

Overview



8MC system cubicle

Design

The 8MC system cubicle cuts a good figure wherever it stands:

- Doors over the full height and width of the cubicle, together with side panels integrated into the frame, lend the system cubicle an attractive appearance – the ideal choice for applications in office, industrial and craft trade environments.
- External hinges permit wide opening of the system cubicle doors – in line with individual requirements. Optional trim strips along the upper edges of the doors support a uniform design and also offer space for inscription.

Application

The versatile mounting options permit the fast and inexpensive installation of mechanical components and electrical devices, including all elements belonging to typical metric and/or 19" rack systems.

It goes without saying that the 8MC2 cubicle system complies with all national and international standards referring to metric installation systems (EN 50298, IEC 60917 etc.) and thus complements the SIPAC series (standardized Siemens packaging system) to offer solutions across the whole range from individual modules to subracks and cubicles.

8MC is the ideal cubicle system for the craft trades and industry, being suitable not only for small conventional systems but also for full-scale electrical installations.

8MF system cubicles

Overview



8MF system cubicle

Design

The 8MF cubicle system is available with the following frame variants:

- 8MF2 welded version
- 8MF5 screwed version
- 8MF6 earthquake-resistant version

The doors bring a floor clearance of 63 mm, and with their concealed hinges provide for a 180° opening angle (130° in the case of cubicle suites). The identical side and rear panels add 9 mm to the frame dimensions.

Petrol-colored trim strips above the doors offer space for inscription or for the integration of signaling lights.

Application

The 8MF cubicle system is suitable for the installation of devices and equipment for electronic and conventional open- and closed-loop control systems, as well as for low-voltage switchgear and controlgear.

Its design permits the fast and cost-effective integration of racks for 19-inch installations for the most varied industrial electronics applications, alongside distribution modules for power distribution.

Specific design measures permit 8MF6 cubicles in the dimensions (H x W) 2200 x 900 mm or 2200 x 600 mm to be supplied in earthquake-resistant versions for operation in nuclear power stations (see "Earthquake-Resistant Cubicles").

The 8MF5, 8MF6 and 8MF2 system cubicle series possess absolutely identical hole patterns in their frame profiles and are thus suitable for interconnection without restrictions.

SIVACON 8MC, 8MF Cubicle Systems

Accessories

Cubicle lighting, socket outlets, plug-on mounts

Overview



Slimline SL 025 light with motion detector

Cubicle lighting

The cubicle light is specifically suitable for operation in switch-gear and controlgear cubicles.

In the case of lamps with a SCHUKO socket outlet, the outlet is incorporated with an on/off switch or motion detector in the plastic enclosure.

The flat SL 025 Slimline lamp with motion detector or on/off switch is ideal for operation in cubicles and enclosures with a high density of built-in electrical/electronic components.

All lamps are fitted with environmentally friendly energy-saving lamps.

Rating of energy-saving lamps	Rating of conventional incandescent lamps
9 W	60 W
11 W	75 W
20 W	100 W

Spare lamp: Osram SPD1411-2B (100 W)

Socket outlets

Socket outlets are mounted on 35 mm support rails and connected without screws by way of three clamping terminals (for stranded and solid wires 0.5 ... 2.5 mm²).

The maximum operational voltage is 250 V. The enclosure is light-gray UL94 V-Q plastic.

Plug-on mounts

If a cubicle light is provided with a plug-on mount, it remains immune to vibration and can be removed at any later time without tools.

If fitted between two plug-on mounts, the cubicle light is fixed statically to the frame. The cubicle light can only be fitted to the cubicle frame by using plug-on mounts.

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
---------	----	-----------	--------------	-------------------	-----	----	--------------------------

Cubicle lighting

Compact lights (355 x 65 x 70 mm)

KL 025

- 230 V, 50 Hz, 11 W (Germany)
- 120 V, 60 Hz, 9 W (Germany)
- 240 V, 50 Hz, 11 W

C	8MF4 900	1	1 unit	195	2.230
C	8MF4 901	1	1 unit	195	1.115
C	8MF4 900-1A	1	1 unit	195	1.000

KL 025 with cover

- 230 V, 50 Hz, 11 W

C	8MF4 904	1	1 unit	195	1.000
---	-----------------	---	--------	-----	-------

KL 025 with 3-m cable

- 230 V, 50 Hz, 11 W

C	8MF4 900-1B	1	1 unit	195	1.000
---	--------------------	---	--------	-----	-------

KL 025 with 3-m cable (orange-colored)

Spare parts for KL 025 compact lights

- Cover

C	8MF4 908	1	1 unit	195	0.100
---	-----------------	---	--------	-----	-------

Dual lights (396 x 67 x 100 mm)

DL 026

- 220 ... 240 V, 50-60 Hz, 20 W, with motion detector
- 220 ... 240 V, 50-60 Hz, 20 W, with on/off switch
- 220 ... 240 V, 50-60 Hz, 20 W, with hand-held lamp

C	8MF4 902	1	1 unit	195	0.600
C	8MF4 905	1	1 unit	195	0.600
C	8MF4 906	1	1 unit	195	0.600

Cubicle lighting, socket outlets, plug-on mounts

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Slimline lights (345 x 91 x 40 mm)							
SL 025, 230 V, 50/60 Hz, 11 W with pushbutton (On/Off)							
		• With socket outlet D, without magnet	C	8MF5 900-1A	1	1 unit	195 0.400
		• With socket outlet D, with magnet (approx. 50 N)	C	8MF5 900	1	1 unit	195 0.600
		• With socket outlet D, with magnet (approx. 30 N)	C	8MF5 900-1C	1	1 unit	195 0.500
		• Without socket outlet, without magnet	C	8MF5 900-2A	1	1 unit	195 0.400
		• Without socket outlet D, with magnet (approx. 50 N)	C	8MF5 900-1B	1	1 unit	195 0.600
		• Without socket outlet D, with magnet (approx. 30 N)	C	8MF5 900-2B	1	1 unit	195 0.500
8MF5 900-1A							
SL 025, 230 V, 50/60 Hz, 11 W with motion detector							
		• With socket outlet D, without magnet	C	8MF5 910-1A	1	1 unit	195 0.400
		• With socket outlet D, with magnet (approx. 50 N)	C	8MF5 910	1	1 unit	195 0.600
		• With socket outlet D, with magnet (approx. 30 N)	C	8MF5 910-1C	1	1 unit	195 0.500
		• Without socket outlet, without magnet	C	8MF5 910-2A	1	1 unit	195 0.400
		• Without socket outlet D, with magnet (approx. 50 N)	C	8MF5 910-1B	1	1 unit	195 0.600
		• Without socket outlet D, with magnet (approx. 30 N)	C	8MF5 910-2B	1	1 unit	195 0.500
8MF5 910-1A							
SL 025, 24 ... 48 V DC, 11 W, with pushbutton (On/Off)							
		• Without socket outlet, without magnet	C	8MF5 900-3A	1	1 unit	195 0.400
		• Without socket outlet, with magnet (approx. 30 N)	C	8MF5 900-3B	1	1 unit	195 0.500
SL 025, 24 ... 48 V DC, 11 W, with motion detector							
		• Without socket outlet, without magnet	C	8MF5 910-3A	1	1 unit	195 0.400
		• Without socket outlet, with magnet (approx. 30 N)	C	8MF5 910-3B	1	1 unit	195 0.500
Socket outlets							
Socket outlets with fuse							
		• VDE	C	8MF9 300	1	1 unit	195 0.500
		• CEBEC	C	8MF9 301	1	1 unit	195 0.020
Socket outlets without fuse							
		• VDE	C	8MF9 305	1	1 unit	195 0.500
Plug-on mounts							
Plug-on mount							
		• For fitting the cubicle lighting	C	8MF4 903	1	1 unit	195 0.100

More information

More information can be found in Catalog LV 50
["SIVACON Cubicle Systems and Air-Conditioning"](#)

or in the Industry Mall under
["Low-Voltage Controls and Distribution"](#) --> ["Low-Voltage Power Distribution"](#) --> ["SIVACON Power Distribution Boards, Busway and Cubicle Systems"](#) --> ["8MC, 8MF Cubicle Systems"](#) --> ["Accessories"](#)

SIVACON 8MR, 8ME Cubicle Air-Conditioning

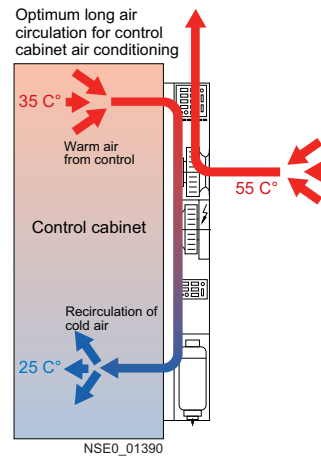
Introduction

Overview

In control cabinets, depending on the ambient conditions (e. g. heat, cold, air humidity etc.), there may be a tendency to over-heat or for mold to form. In such cases the cubicles should be air-conditioned. The following air-conditioning equipment is available for this purpose:

- Filter fans
- Air conditioners/cooling devices
- Heat exchangers
- Heaters/thermostats

When selecting the individual air-conditioning units, attention should be paid to the ambient temperature, power losses of the installed equipment, maximum permissible device temperatures and heat dissipation of the cubicle used. In addition, the required degree of protection must also be taken into account.



Optimum air duct for cubicle air-conditioning

Benefits

Installing air-conditioning equipment in SIVACON system cubicles ensures high fault tolerance for switchgear and controlgear assemblies and consequently a high level of availability of machines and plants.

Filter fans

Overview

Filter fans are the most cost-effective method - after heat dissipation through the surface of a control cabinet and/or ventilation openings in the enclosure parts of the control cabinets - for dissipating heat from control cabinets.

However, this can only achieve a control cabinet temperature which lies above the ambient temperature.

Standard filter fans optionally in EMC version

When filter fans are used for air conditioning, the cubicle must have openings which allow electromagnetic radiation to pass in and out unobstructed. Filter fans in EMC version offer additional protection when higher requirements are imposed on electromagnetic compatibility.

Filter fan versions

The following filter fans are available on request in 115 V and 230 V versions:

- Standard filter fan IP54, color RAL 7035/7032
- Standard filter fan IP55, color RAL 7035/7032
- Standard filter fan EMC, color RAL 7035/7032, IP54
- Standard filter fan EMC, color RAL 7035/7032, IP55

Note:

For all standard filter fans the useful cooling capacity and air rate are reduced by an average of approx. 30% in combinations of filter fan / outlet filter / filter mat, and for roof filter fans by approx. 40 %.

Air conditioners/cooling devices

Overview

Where ambient temperatures are higher than the permissible device temperatures, air conditioners must be used.

All units operate with CFC-free refrigerants. Air conditioners dehumidify the air inside the control cabinet.

Cooling devices for door or lateral mounting and roof mounting

Two separate air circuits ensure that no ambient air enters the control cabinet. High-performance radial fans provide for air circulation in the control cabinet.

Simple temperature control is provided with an integrated thermostat (roof-mounted units).

Side-mounted units

Intelligent standard electronics with maximum customer benefits:

- Test mode
- Temperature limits
- Delayed start-up
- Door contact function
- Alarm contact
- Local diagnosis
- UL-approved

Versions

Air conditioners/cooling devices are available on request in the following versions:

- For door and side panel mounting
- For roof mounting

Heat exchangers

Overview**Air-air principle (8ME78)**

Heat exchangers designed on the air-air principle function with two completely separate air circuits: an internal and an external circuit. One fan draws in cool external air. A second fan then directs the warmed cubicle air past a large-area finned partition element, which passes the heat to the external circuit. Air conditioners dehumidify the air inside the control cabinet.

Air-water principle (8MR5)

Heat exchangers designed on the air-water principle function with a single air circuit. A fan directs the warm control cabinet air over the heat exchanger. The heat is passed to the water as the cooling medium, resulting in cooling of the air in the control cabinet.

Versions

Heat exchangers are available on request in the following versions:

- For lateral mounting
- For roof mounting

SIVACON 8MR, 8ME Cubicle Air-Conditioning

Heater units

Overview



HG 140 semiconductor heater unit, high output

Control cabinet heaters are used for preventing malfunctions due to condensation water and corrosion and for controlling the temperature inside the control cabinet (compliance with a minimum temperature).

The aluminum profile is designed to guarantee a uniform distribution of temperature and hence an optimum heating effect over the entire surface.

All units are also available in UL-approved versions and for special voltages.

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
---------	----	-----------	--------------	-------------------	-----	----	--------------------------

Semiconductor heater units

Small semiconductor heater units

HGK 047 series

- 110-250 V, 10 W
- 110-250 V, 20 W
- 110-250 V, 30 W

B **8MR2 110-0B**
B **8MR2 110-2B**
B **8MR2 110-3B**

1 2 units 195 0.200
1 2 units 195 0.400
1 2 units 195 0.400

HGK 047 series, UL-approved

- 110-120 V, 10 W
- 110-120 V, 20 W
- 110-120 V, 30 W

C **8MR2 110-0C**
C **8MR2 110-2C**
C **8MR2 110-3C**

1 1 unit 195 0.100
1 1 unit 195 0.200
1 1 unit 195 0.200

HGK 047 series, special voltages

- 24 V, 10 W
- 24 V, 20 W

C **8MR2 110-0BA**
C **8MR2 110-2BA**

1 1 unit 195 0.100
1 1 unit 195 0.200

CSK 060 series

- 120-240 V AC/DC, 10 W
- 120-240 V AC/DC, 20 W

C **8MR2 112-1A**
C **8MR2 112-2A**

1 1 unit 195 0.250
1 1 unit 195 0.250



8MR2 112-1A

Semiconductor heater units

HG 040 series, UL-approved

- 110-250 V, 15 W
- 110-250 V, 30 W
- 110-250 V, 50 W
- 110-250 V, 80 W
- 110-250 V, 100 W

C **8MR2 110-1D**
C **8MR2 110-3D**
C **8MR2 110-4D**
C **8MR2 110-7D**
C **8MR2 110-0D**

1 1 unit 195 0.300
1 1 unit 195 0.300
1 1 unit 195 0.500
1 1 unit 195 0.700
1 1 unit 195 0.700

Overview



CR 030 fan heater with integrated thermostat or hygrostat

Where higher heating outputs (from 150 W) are required, fan heaters are used.

The integrated fans provide for better air circulation and hereby achieve a more even air temperature distribution in the control cabinet.

All units are also available in UL-approved versions and for special voltages.





Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Fan heaters							
<i>Fan heaters in standard version</i>							
Without fan, HV 031 series							
• 230 V, 100 W	C	8MR2 140-0A		1	1 unit	195	0.400
• 230 V, 150 W	C	8MR2 140-1A		1	1 unit	195	0.400
• 230 V, 200 W	C	8MR2 140-2A		1	1 unit	195	0.500
• 230 V, 300 W	C	8MR2 140-3A		1	1 unit	195	0.500
• 230 V, 400 W	C	8MR2 140-4A		1	1 unit	195	0.500
With fan, HVL 031 series							
• 230 V, 100 W	C	8MR2 140-0B		1	1 unit	195	0.600
• 230 V, 150 W	C	8MR2 140-1B		1	1 unit	195	0.600
• 230 V, 200 W	C	8MR2 140-2B		1	1 unit	195	0.900
• 230 V, 300 W	C	8MR2 140-3B		1	1 unit	195	0.900
• 230 V, 400 W	C	8MR2 140-4B		1	1 unit	195	0.900
<i>Compact fan heaters</i>							
With fan, HGL 046 series							
• 220-230 V, 250 W	B	8MR2 122-4E		1	1 unit	195	1.000
• 220-230 V, 400 W	B	8MR2 122-8E		1	1 unit	195	1.300
With fan, HGL 046 series, UL-approved							
• 230 V, 250 W	C	8MR2 122-4F		1	1 unit	195	1.000
• 230 V, 400 W	C	8MR2 122-8F		1	1 unit	195	1.300
• 115 V, 250 W	C	8MR2 122-4G		1	1 unit	195	1.000
• 115 V, 400 W	C	8MR2 122-8G		1	1 unit	195	1.300
With fan, HGL 046 series, special voltages							
• 24 V, 250 W	C	8MR2 122-4EA		1	1 unit	195	1.000
With fan, HGL 046 series							
• 230 V, 250 W (UL-approved)	C	8MR2 122-4A		1	1 unit	195	1.100
• 230 V, 400 W (UL-approved)	C	8MR2 122-8A		1	1 unit	195	1.400
With fan, HGL 046 series, UL-approved							
• 120 V, 250 W (UL-approved)	C	8MR2 122-4B		1	1 unit	195	1.100
• 120 V, 400 W (UL-approved)	C	8MR2 122-8B		1	1 unit	195	1.400
With fan, HGL 046 series, special voltages							
• 24 V, 250 W	C	8MR2 122-4AB		1	1 unit	195	1.100
• 48 V, 250 W	C	8MR2 122-4AC		1	1 unit	195	1.100
Without fan, HV 030 series							
• 230 V, 600 W	C	8MR2 140-6C		1	1 unit	195	0.600
With fan, HVL 030 series							
• 230 V, 600 W	C	8MR2 140-6D		1	1 unit	195	1.000

* You can order this quantity or a multiple thereof.

SIVACON 8MR, 8ME Cubicle Air-Conditioning

Fan heaters

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
HG 040 series, special voltages							
• 24 V, 60 W							
	C	8MR2 110-6AA		1	1 unit	195	0.400
HG 140 series							
• 110-250 V, 15 W							
	C	8MR2 130-1A		1	2 units	195	0.600
• 110-250 V, 30 W							
	C	8MR2 130-3A		1	2 units	195	0.600
• 110-250 V, 45 W							
	C	8MR2 130-4A		1	1 unit	195	0.300
• 110-250 V, 60 W							
	C	8MR2 130-6A		1	1 unit	195	0.400
• 110-250 V, 75 W							
	C	8MR2 130-7A		1	1 unit	195	0.500
• 110-250 V, 100 W							
	C	8MR2 130-0A		1	1 unit	195	0.500
• 110-250 V, 150 W							
	C	8MR2 130-5A		1	1 unit	195	0.700
							
8MR2 130-1A							
							
8MR2 130-5A							
Semiconductor heater units without thermostat, degree of protection IP20							
CS 060 series							
• 120-250 V, 50 W							
	C	8MR2 131-4A		1	1 unit	195	0.290
• 120-250 V, 100 W							
	C	8MR2 131-0A		1	1 unit	195	0.300
• 120-250 V, 150 W							
	C	8MR2 131-5A		1	1 unit	195	0.440
							
8MR2 131-4A							
Semiconductor heater units with thermostat, degree of protection IP20							
CSF 060 series							
• 120-250 V, 50 W, 15 °C							
	C	8MR2 132-1A		1	1 unit	195	0.300
• 120-250 V, 50 W, 25 °C							
	C	8MR2 132-1AB		1	1 unit	195	0.300
• 120-250 V, 100 W, 15 °C							
	C	8MR2 132-0A		1	1 unit	195	0.310
• 120-250 V, 100 W, 25 °C							
	C	8MR2 132-0AB		1	1 unit	195	0.310
• 120-250 V, 150 W, 15 °C							
	C	8MR2 132-5A		1	1 unit	195	0.440
• 120-250 V, 150 W, 25 °C							
	C	8MR2 132-5AB		1	1 unit	195	0.440
							
8MR2 132-1A							

SIVACON 8MR, 8ME Cubicle Air-Conditioning

Fan heaters

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg	
Fan heaters with integrated thermostat or hygrostat								
 8MR2 150-0A		Fan heaters, CR 030 series						
		<ul style="list-style-type: none"> • 230 V, 950 W 0 to 60 °C • 230 V, 950 W, 65 % relative air humidity 	C	8MR2 150-0A	1	1 unit	195	1.400
			C	8MR2 150-0BA	1	1 unit	195	1.400
 8MR2 150-0C		Fan heaters, CR 130 series						
		<ul style="list-style-type: none"> • 230 V, 950 W 0 to 60 °C • 230 V, 950 W, 65 % relative air humidity 	C	8MR2 150-0C	1	1 unit	195	1.450
			C	8MR2 150-0CA	1	1 unit	195	1.450
Semiconductor fan heaters								
 8MR2 150-2C		CR 027 series						
		• 230 V, 350 W, °C	C	8MR2 140-3C	1	1 unit	195	1.100
		• 230 V, 550 W, °C	C	8MR2 140-5C	1	1 unit	195	1.100
		• 115 V, 350 W, °F	C	8MR2 140-3D	1	1 unit	195	1.100
		• 115 V, 550 W, °F	C	8MR2 140-5D	1	1 unit	195	1.100
 8MR2 150-2C		CS 028 series						
		<ul style="list-style-type: none"> • 230 V, 170 W, clip fixing • 230 V, 170 W, screw fixing 	C	8MR2 150-2C	1	1 unit	195	0.300
			C	8MR2 150-2D	1	1 unit	195	0.300
PTC fan heaters optionally with or without thermostat								
 8MR2 150-2A		CS 030 series						
		• 230 V, 1200 W, screw fixing, with thermostat, 0 to 60 °C	C	8MR2 150-2A	1	1 unit	195	1.200
		• 230 V, 1200 W, without thermostat	C	8MR2 150-2B	1	1 unit	195	1.200
 8MR2 150-3A		CS 130 series						
		• 230 V, 1200 W, clip fixing, with thermostat, 0 to 60 °C	C	8MR2 150-3A	1	1 unit	195	1.250
		• 230 V, 1200 W, without thermostat	C	8MR2 150-3B	1	1 unit	195	1.250

SIVACON 8MR, 8ME Cubicle Air-Conditioning

Thermostats, hygrostats, hygotherms

Overview



Fix thermostat, FTO 01 series, NC contact

Thermostats

Thermostats (as NC, NO or CO contacts) are used to regulate cooling devices, filter fans and heat exchangers, as well as to trigger signals in case of excessive temperatures.

Hygrostats

Hygrostats are used to regulate heaters/fan heaters so that the temperature increase raises the dew point from a critical humidity of 65 % in cubicles and enclosures with built-in electrical and electronic components. This prevents condensation on structural parts and electronic components.

Hygotherms

Hygotherms monitor both temperature and relative humidity in cabinets and enclosures with built-in electrical/electronic components and switch on a heater or fan upon reaching the selected values (temperature or relative humidity). This prevents condensation on structural parts and electronic components.

Switching modules

Switching modules are electronic relays for the switching of high-power DC devices.

Thermostats, hygrostats or hygotherms can be connected to operate the switching modules.

Note:

The switching capacity values quoted in brackets refer to inductive loads.

Selection and ordering data

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
---------	----	-----------	--------------	-------------------	-----	----	--------------------------

Thermostats

Small thermostats

KTO 01140 series



8MR2 170-1BA

• NC contact, 0 ... 60 °C, max. switching capacity 250 V, 10 A (2 A)	B	8MR2 170-1BA		1	3 units	195	0.040
• NC contact, 0 ... 60 °C, max. switching capacity 250 V, 10 A (2 A), UL-approved	C	8MR2 170-2BA		1	1 unit	195	0.040
• NC contact, -10 ... 50 °C, max. switching capacity 250 V, 10 A (2 A)	C	8MR2 170-1CA		1	3 units	195	0.150
• NC contact, +20 ... 80 °C, max. switching capacity 250 V, 10 A (2 A)	C	8MR2 170-1DA		1	3 units	195	0.150

KTS 01141 series



8MR2 170-1BB

• NO contact, 0 ... 60 °C, max. switching capacity 250 V, 10 A (2 A)	B	8MR2 170-1BB		1	3 units	195	0.040
• NO contact, 0 ... 60 °C, max. switching capacity 250 V, 10 A (2 A), UL-approved	C	8MR2 170-2BB		1	1 unit	195	0.040
• NO contact, -10 ... 50 °C, max. switching capacity 250 V, 10 A (2 A)	C	8MR2 170-1CB		1	3 units	195	0.040
• NO contact, +20 ... 80 °C, max. switching capacity 250 V, 10 A (2 A)	C	8MR2 170-1DB		1	3 units	195	0.040

Fix thermostats

FTO 011 series



8MR2 171-1BA/2BA

• NC contact, 15 °C / 59 °F (40 °C / 41 °F), max. switching capacity 250 V, 10 A (2 A)	C	8MR2 171-1BA		1	1 unit	195	0.023
• NC contact, 25 °C / 77 °F (15 °C / 59 °F), max. switching capacity 250 V, 10 A (2 A)	C	8MR2 171-2BA		1	1 unit	195	0.023

Thermostats, hygrometers, hygrometers

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
---------	----	-----------	--------------	-------------------	-----	----	--------------------------

Thermostats (continued)

*Fix thermostats (continued)***FTS 011 series**

- NO contact, 50 °C / 122 °F (40 °C / 104 °F), max. switching capacity 250 V, 10 A (2 A)
- NO contact, 60 °C / 140 °F (50 °C / 122 °F), max. switching capacity 250 V, 10 A (2 A)

C	8MR2 171-1BB	1	1 unit	195	0.023
C	8MR2 171-2BB	1	1 unit	195	0.023



8MR2 171-1BA/2BA

*Mechanical thermostats***FZK 011 series**

- CO contact, +5 ... +60 °C, max. switching capacity 250 V, 10 A (4 A)
- CO contact, -20 ... +30 °C, max. switching capacity 250 V, 10 A (4 A)

B	8MR2 170-1A	1	2 units	195	0.100
C	8MR2 170-1B	1	1 unit	195	0.100



8MR2 171-1A

*Electronic thermostats***ET 011 series**

- CO contact, +5 ... +60 °C, max. switching capacity 28 V DC, 16 A

C	8MR2 170-2A	1	1 unit	195	0.080
---	--------------------	---	--------	-----	-------

*Twin thermostats***ZR 011 series**

- NC and NO contact, 0... +60 °C, - Max. switching capacity 250 V AC, 10 (2 A) or 120 V AC, 10 A (2 A)

C	8MR2 170-1E	1	2 units	195	0.090
---	--------------------	---	---------	-----	-------

*Twin thermostats (Fix)***FTD 011 series**

- NC contact, 15 °C/59 °F (5 °C/41 °F) and NO contact, 50 °C/122 °F (40 °C/104 °F) - Max. switching capacity 240 V AC, 5 A (1.6 A) or DC 30 W
- NC contact, 25 °C/77 °F (15 °C/59 °F) and NO contact, 60 °C/140 °F (50 °C/122 °F) - Max. switching capacity 240 V AC, 5 A (1.6 A) or DC 30 W
- NO contact, 50 °C/122 °F (40 °C/104 °F) and NO contact, 60 °C/140 °F (50 °C/122 °F) - Max. switching capacity 240 V AC, 5 A (1.6 A) or DC 30 W

C	8MR2 172-1A	1	1 unit	195	0.040
C	8MR2 172-2A	1	1 unit	195	0.040
C	8MR2 172-1AB	1	1 unit	195	0.040

Hygrometers

For regulating heaters/fan heaters so that the temperature increase raises the dew point

*Mechanical hygrometers***MFR 012 series**

- CO contact, 230 V AC, 35 ... 95 % relative air humidity C - Max. switching capacity 250 V AC, 5 A (0.2 A) or DC 20 W
- Min. switching capacity 20 V AC/DC, 100 mA

C	8MR2 170-1C	1	1 unit	195	0.060
---	--------------------	---	--------	-----	-------

*Electronic hygrometers***Electronic hygrometer, EFR 012 series**

- CO contact, 230 V AC, 40 ... 90 % relative air humidity C - Max. switching capacity 240 V AC, 8 A (1.6 A) or 120 V AC, 8 A (1.6 A) or 24 V DC, 4 A

C	8MR2 170-1AF	1	1 unit	195	0.700
---	---------------------	---	--------	-----	-------



8MR2 170-1AF

SIVACON 8MR, 8ME Cubicle Air-Conditioning

Thermostats, hygrometers, hygrotherms

Version	DT	Order No.	Price per PU	PU (UNIT, SET, M)	PS*	PG	Weight per PU approx. kg
Hygrotherms							
For simultaneously monitoring both temperature and relative humidity in cabinets and enclosures with electronic components							
<i>Electronic hygrotherms</i>							
ETF 012 series							
<ul style="list-style-type: none"> CO contact, 120 V AC, +32 ... +140 °F, 50 ... 90 % relative air humidity - Max. switching capacity of NC contact: 120 V AC, 6 A (1 A) - Max. switching capacity of NO contact: 120 V AC, 8 A (1.6 A) 	C	8MR2 170-3F		1	1 unit	195	0.200
<ul style="list-style-type: none"> CO contact, 230 V AC, +32 ... +140 °F, 50 ... 90 % relative air humidity - Max. switching capacity of NC contact: 240 V AC, 6 A (1 A) - Max. switching capacity of NO contact: 240 V AC, 8 A (1.6 A) 	C	8MR2 170-3G			1 unit	195	0.200
<ul style="list-style-type: none"> CO contact, 120 V AC, 0 ... +60 °C, 50 ... 90 % relative air humidity - Max. switching capacity of NC contact: 120 V AC, 6 A (1 A) - Max. switching capacity of NO contact: 120 V AC, 8 A (1.6 A) 	C	8MR2 170-3H		1	1 unit	195	0.200
<ul style="list-style-type: none"> CO contact, 230 V AC, 0 ... +60 °C, 50 ... 90 % relative air humidity - Max. switching capacity of NC contact: 240 V AC, 6 A (1 A) - Max. switching capacity of NO contact: 240 V AC, 8 A (1.6 A) 	B	8MR2 170-3E		1	1 unit	195	0.200
ETF 012 series							
<ul style="list-style-type: none"> CO contact, 120 V AC, +32 to +140 °F, 50 ... 90 % relative air humidity - Max. switching capacity of NC contact: 120 V AC, 6 A (1 A) - Max. switching capacity of NO contact: 120 V AC, 8 A (1.6 A) 	C	8MR2 170-4F		1	1 unit	195	0.020
<ul style="list-style-type: none"> CO contact, 120 V AC, 0 ... +60 °C, 50 ... 90 % relative air humidity - Max. switching capacity of NC contact: 120 V AC, 6 A (1 A) - Max. switching capacity of NO contact: 120 V AC, 8 A (1.6 A) 	C	8MR2 170-4H		1	1 unit	195	0.020
Switching modules							
Electronic relay for switching high-power DC devices from thermostats, hygrometers or hygrotherms							
SM 010 series							
<ul style="list-style-type: none"> 24 V DC, 16 A 	C	8MR2 180-1A		1	1 unit	195	0.085
<ul style="list-style-type: none"> 48 V DC, 16 A 	C	8MR2 180-1B		1	1 unit	195	0.085

More information

More information can be found in Catalog LV 50
["SIVACON Cubicle Systems and Air-Conditioning"](#)
 (in German only)

or in the Industry Mall under
["Low-Voltage Controls and Distribution"](#) --> ["Low-Voltage Power Distribution"](#) --> ["SIVACON Power Distribution Boards, Busway and Cubicle Systems"](#) --> ["8MR, 8ME Cubicle Air-Conditioning"](#)

Overview

		Surface-mounting distribution boards	Flush-mounting distribution boards	Rated current A	Cabinet depth mm	Protection class		Degree of protection
						1	2	
Small distribution boards	SIMBOX 63	✓	✓	63		--	✓	IP30
	SIMBOX LC	✓	✓	63		--	✓	IP40
	SIMBOX WP	✓	--	63		--	✓	IP65
ALPHA 160 - DIN wall-mounted distribution boards	Partially equipped distribution boards	✓	✓	160	140	--	✓	IP31/IP43
	Unequipped distribution board	✓	✓	160	140	--	✓	IP31/IP43
ALPHA 400 - DIN wall-mounted distribution boards	Unequipped distribution board, flat pack	✓	--	400	210	✓	✓	IP43
	Unequipped distribution board, pre-assembled	✓	✓	400	210	✓	✓	IP31/IP43/IP55
ALPHA 630 - DIN floor-mounted distribution boards	Unequipped distribution boards, flat pack	✓	--	630	210	✓	✓	IP43
	Unequipped distribution board, pre-assembled	✓	--	630	210 / 250 / 320	✓	✓	IP43/IP55
ALPHA AS	Preassembled unequipped distribution board	✓	--	1250	400 / 600 ¹⁾	✓	--	IP55
ALPHA 400 – ZS meter cabinets		✓	--	400	210	--	✓	IP43/IP55
ALPHA 8HP Molded-Plastic Distribution System	Empty enclosures	✓	--	1000	Expandable as required	--	✓	IP65
	Complete enclosure	✓	--	1000	147 / 185 / 212 / 239.5	--	✓	IP65

✓ Available

-- Not available

¹⁾ 600 mm available soon

More information

More information can be found in Catalog ET A1 "ALPHA Distribution Boards and Terminal Blocks".

ALPHA Distribution Boards

ALPHA 630 – DIN Floor-Mounted Distribution Boards

General data

Overview



ALPHA 630 - DIN floor-mounted distribution board

System

The new Siemens switchboard system, based on decades of experience with distribution boards, is of modular design.

Particular attention was paid to individual installation practices.

The system includes unequipped distribution boards as flat packs (delivered in individual parts for customer assembly, see also Part 3) in degree of protection IP43, unequipped distribution boards ready assembled in degree of protection IP55, assembly kits for project-related and individual compilation, and a comprehensive range of accessories.

Enclosures

Material: Sheet steel, electrogalvanized, powder-coated.

Sheet thickness, degree of protection IP43/IP55: body 1 mm, door 1 mm

Color: RAL 7035 (light gray), further RAL colors available on request.

Assembly kits

The assembly kits are made of sendzimir-galvanized sheet steel and are equipped with molded-plastic covers for a wide range of equipping options, e. g., with switching devices and modular installation devices.

The largest switching devices mountable with the ALPHA 630 - DIN floor-mounted distribution boards are Siemens switching devices with a rated current of up to 630 A.

Cabinet dimensions

All dimensions in mm

Height: Internal dimensions: 1800, external dimensions with base: 1950

Width (internal/external dimensions): 250/300, 500/550, 750/800, 1000/1050, 1250/1300

Depth (external dimension): 210, 250, 320

Assembly kits in panel-size grid dimensions, height x width: 150 x 250.

Benefits

- Available as a flat pack (kit for customer assembly; the assembly kits can be mounted directly on the platform) or preassembled as an unequipped distribution board
- Easy planning thanks to modular design
- Generous wiring compartments behind the standard mounting rail
- Extensive range of assembly kits for Siemens switching devices and modular installation devices for individual and project-related composition
- Assembly made easier by keyhole-fastened components and modules with quick-acting locks
- System design according to DIN, EN and VDE standards
- Sturdy sheet-steel enclosure
- Degrees of protection: IP43 and IP55
- Protection class 1 (protective conductor connection) and protection class 2 (total insulation)
- High-quality surface finish: Distribution made of electrogalvanized and powder-coated sheet steel, system components made of sendzimir-galvanized sheet steel, small parts and screws galvanized and chromated (colorless)
- Doors can be hinged right or left
- Door opening angle 170°
- Replaceable locking systems (accessories)
- Transparent doors in Giugiaro design (accessories)
- Front cover with sealable 90° quick-acting locks
- Environmentally-compatible and recyclable plastics

Application

The ALPHA 630 - DIN floor-mounted distribution boards are used for all applications for which the ALPHA 400 - DIN wall-mounted distribution boards do not provide sufficient equipping or wiring space, e. g. in administrative, non-residential, commercial and industrial buildings.

It rounds off the Siemens distribution board product range with three different mounting depths: 210 mm, 250 mm and 320 mm.

The distribution boards and components are designed as part of a modular system.

With just a few standard components, they provide the widest possible variety and project-related mounting and configuration possibilities.

The ALPHA 630 - DIN floor-mounted distribution board range comprises wall-mounted distribution boards with up to 12 modular installation devices each with 12 MW per mounting width (250 mm). The standard mounting rail tier spacing is 150 mm. A total of 5 cabinet mounting widths are available, each with an internal dimension of 250 mm.

The distribution boards are designed to meet protection class 1 (protective conductor connection) and protection class 2 (total insulation).

For floor-mounted distribution boards the following degrees of protection are standard:

- IP43 with a depth of 210 mm (flat pack: delivery in individual components) and
- IP55 (unequipped distribution board, preassembled) with depths of 250 mm and 320 mm

The rated current is 630 A.

40 mm or 60 mm busbar systems with dimensions up to 30 mm x 10 mm can be installed.

The modular system allows easy planning, configuring, cost calculation, ordering and mounting.

The assembly kits available for all mountable switching and modular installation devices are designed such one size of screwdriver is needed for mounting.

More information

More information can be found in Catalog ET A1 "ALPHA Distribution Boards and Terminal Blocks".

ALPHA Distribution Boards

ALPHA 8HP Molded-Plastic Distribution System

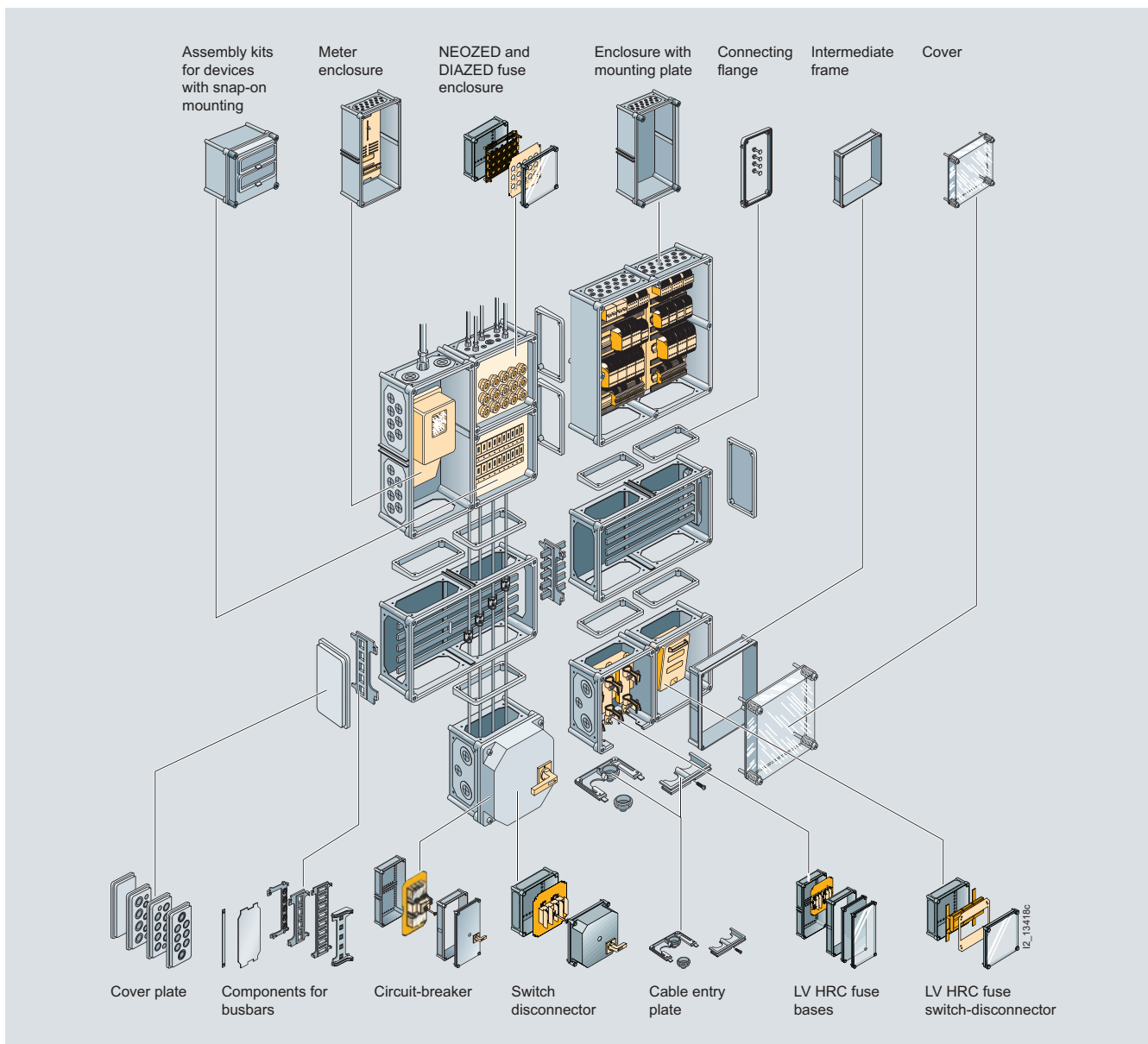
General data

Overview



8HP distribution board with support rack and cable space cover

The 8HP distribution system is a modular system for low-voltage small distribution boards, control panels and power distribution boards.



Overview of all components in the ALPHA 8HP molded-plastic distribution system

ALPHA Distribution Boards

ALPHA 8HP Molded-Plastic Distribution System

General data

Benefits

The optimum design of these high-quality materials fulfills all the demands made on modern enclosures. This includes:

- Basic insulation
- Corrosion resistance
- Mechanical strength
- Simple finish
- Temperature resistance
- Maintenance free
- Flame retardant, self-extinguishing

- Halogen-free (thus preventing consequential damage resulting from external fire), excludes cable space cover
- Lightweight components

Basic insulation

All enclosure parts and operating mechanisms are constructed so that they fulfill the conditions of the protective measure "basic insulation" according to DIN VDE 0100-410 when they are closed during operation. Enclosure fixings are situated outside the device installation space.

Application

It can be installed in all industrial plants, power stations, in large public or private buildings and in public utilities as well as in office buildings and residential buildings. The components of the 8HP distribution system fulfill the requirements specified for type-tested low-voltage controlgear assemblies (TTA) according to EN 60439-1. The enclosure corresponds to the protective measure "basic insulation" according to DIN VDE 0100-410.

Standards

EN 60439-1

Specifications for type-tested low-voltage switchgear and controlgear assemblies (TTA)

EN 60204-1

Standards for rating the creepage distances and clearances of electrical equipment

EN 60947-3

Standards for low-voltage controlgear

EN 60947-3

Standards for low-voltage controlgear:

Load-break switches, disconnectors, switch disconnectors and fuse-combination units

DIN VDE 0100 (IEC 60364, modified)

Specifications for the erection of power installations with rated voltages of up to 1000 V

Declaration of conformity

This declares conformity of the components and distribution boards with the safety requirements for low-voltage equipment as specified in the EC Directive dated 19.02.1973.

Special tests passed

- Fire tests for equipment used in mining are performed by the Versuchsgrube Tremonia, Dortmund, Germany.
- Shock tests for equipment used in protective rooms are performed by the Bundesamt für Zivilschutz, Bad Godesberg, Germany, regulation category RK 1.0/10 to safety level "A", certificate of use 036/95.
- Earthquake tests are performed by the IAB, Ottobrunn, Germany.
- The enclosure is UL-certified.

Installation conditions

Installation	Measures	Climatic conditions according to DIN 50010	Special operating and ambient conditions
Indoor	No further measures necessary.	An indoor climate is an environment in rooms that are designed so that objects are largely separated from the direct influence of an open-air climate.	If the operating and ambient conditions differ from the standard conditions to EN 60439-1, Item 6.1, appropriate measures must be taken to protect and maintain the operating capability of the controlgear assembly for "Special operating and ambient conditions" according to Item 6.2 (mechanical protection, ventilation, indoor heating, breathers, etc.).
External	E. g. protected installation or protective cover, if necessary with additional walls and door (protective cabinet).	An external environment is an environment in rooms that are designed so that objects are protected against direct sunlight and precipitation and, if necessary, against wind, but are otherwise exposed to an open-air climate.	
Outdoor	Only permissible with measures as for external installation.	An open-air climate is an environment that affects objects in the open air.	

Conversion from Pg to metric screw connections

A new option for using metric screw connections was tested for the 8HP molded-plastic distribution system. The result of this test showed that the Pg openings listed in the following table are also suitable for the use of metric screw connections. Metric screw connections with lock nuts are used. Corresponding sealing washers are used in order to ensure degree of protection IP65.

The values for the tested conversions from Pg to metric screw connections are shown in the following table.

The knockouts in the enclosure base parts need to be drilled out.

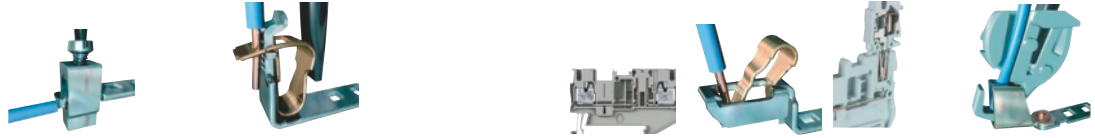
Heavy-gauge threaded joints	Hole diameter mm	Metric screw connection	Lock hasp diameter fits	Lock hasp diameter must be enlarged to mm
Pg13.5	20.4	M20	✓	--
Pg16	22.5	M25	--	25.4
Pg21	28.3	M32	--	32.4
Pg29	37	M40	--	40.4
Pg36	47	M50	--	50.5
Pg42	54	M63	--	63.6
Pg48	59.3	M63	--	63.6

✓ Yes -- No

More information

More information can be found in Catalog ET A1 "ALPHA Distribution Boards and Terminal Blocks".

Overview



Terminal block types ¹⁾		8WA/8WH screw terminals		8WH/8WA spring-type terminals			8WH IPO terminals	8WH plug-in terminals	8WH combination plug-in terminals	8WH insulation displacement terminals
		8WA1 standard terminals	8WH1 standard terminals	8WA2 standard terminals	8WH2 standard terminals	8WH25 compact terminals	8WH6 standard terminals	8WH4 standard terminals	8WH5 standard terminals	8WH3 standard terminals
Conductor cross-section	mm ²	2.5 ... 70	25 ... 240	2.5 ... 16	1.5 ... 35	2.5 ... 6	2.5	2.5 ... 4	2.5	1.5 ... 2.5
Through-type terminals		✓	✓	✓	✓	✓	✓	✓	✓	✓
Multi-tier terminal blocks		✓	--	✓	✓	✓	✓	--	✓	✓
Neutral isolating terminals		✓	--	✓	--	--	--	✓	--	--
PE terminals		✓	--	✓	✓	✓	✓	✓	✓	✓
Isolating terminals		✓	--	✓	✓	✓	✓	--	✓	✓
Terminals for components		✓	--	✓	✓	✓	✓	--	--	--
Fuse terminals		✓	--	✓	✓	✓	✓	--	--	--
Insta terminals/ three-tier terminals		✓	--	✓	--	--	--	✓	--	--
Hybrid terminals		--	--	--	✓	✓	--	--	✓	✓
High-current terminals		--	✓	--	--	--	--	--	--	--
Bolt-type screw terminals		--	✓	--	--	--	--	--	--	--
Flat-type terminals		--	✓	--	--	--	--	--	--	--
Shield terminals		--	✓	--	--	--	--	--	--	--

¹⁾ Only the main terminal block types are listed here.

More information

More information can be found in Catalog ET A1 "ALPHA Distribution Boards and Terminal Blocks".

ALPHA FIX Terminal Blocks

Notes

14

