



Catalog
HG 11.07
2022

MEDIUM-VOLTAGE EQUIPMENT

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

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SIEMENS



SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

Medium-Voltage Equipment
Catalog HG 11.07 · 03/2022



The products and systems listed in this catalog are manufactured and distributed using a certified management system (according to ISO 9001, ISO 14001 and BS OHSAS 18001).

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Description

General information

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

SION Vacuum Circuit-Breaker 3AE6

12 kV and 24 kV

SION vacuum circuit-breakers control all switching duties in medium-voltage distribution systems and are suitable for installation in all customary, new, air-insulated medium-voltage switchgear types as well as for retrofitting existing switchgear. They are applicable for operation of e.g. overhead lines, cables, transformers, capacitors and motors. The optional installation accessories enable easy integration into switchgear panels. Our range of lateral circuit-breakers offers a wide selection of pole-center distances as well as various equip-

ment options for voltage levels from 12 kV to 24 kV. Compact dimensions and well-protected terminals enable simple integration into commonly used medium-voltage switchgear. High reliability and availability are a matter of course, as are 10,000 maintenance-free operating cycles.

SION Lateral 3AE61 for 12 kV



HG11-07_3AE61.tif

SION Lateral 3AE63 for 24 kV



HG11-07_3AE63.tif

Thanks to a range of options, SION vacuum circuit-breakers can be precisely tailored to your requirements.

Switching medium

Proven and fully developed for more than 40 years, vacuum switching technology is the principal arc-quenching medium used in vacuum interrupters.

Pole assemblies

The pole assemblies consist of vacuum interrupters and pole shells. The vacuum interrupters are air-insulated and freely accessible. The pole assemblies are fixed on the mechanism mounting plate and supported by means of the pole shell (3). The vacuum interrupter (5) is mounted rigidly to the upper interrupter support. The lower part of the interrupter is guided in the lower interrupter support, allowing axial movement. The pole shell (3) absorbs external forces resulting from switching operations and the contact pressure.

Operating mechanism

The whole operating mechanism with spring energy store, motor (12), releases, indicators and actuating devices is fixed in the operating mechanism housing (8). This compact design enables very fast operating times.

The circuit-breaker operating mechanism is a stored-energy spring mechanism. The force is transmitted from the operating mechanism to the pole assemblies via operating levers. The closing spring (11) can be charged either electrically or manually, and latches in automatically when charging is complete. The closing spring (11) acts as a mechanical energy store.

To close the circuit-breaker, the closing spring (11) can be unlatched either mechanically at the device (ON pushbutton), or electrically by remote control. The closing spring (11) charges the opening and/or contact-pressure springs as the circuit-breaker closes. The now discharged closing spring (11) is charged again automatically by the motor (12).

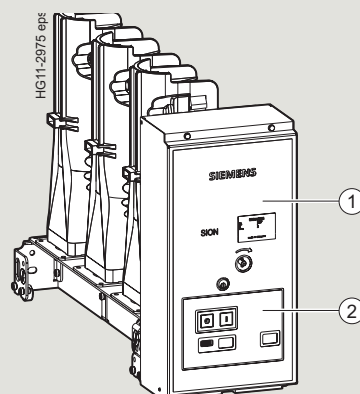
In this way, the stored-energy spring mechanism stores the OPEN – CLOSE – OPEN operating sequence. Thus, it can fulfill the following switching duties: synchronizing, rapid load transfer, and auto-reclosing.

Trip-free mechanism

In the event of an opening command being given after a closing operation has been initiated, the moving contacts of the vacuum interrupters return to the open position and remain there even if the closing command is sustained. However, the vacuum circuit-breaker contacts are momentarily in the closed position.

For charging the closing spring (11), the motor (12) operates in short-time duty. For this reason, the voltage and power consumption might differ from the data of the motor nameplate.

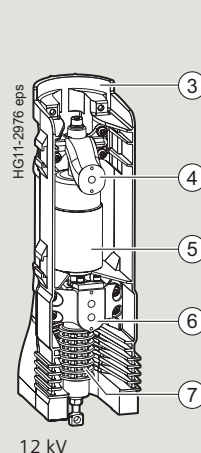
3AE6



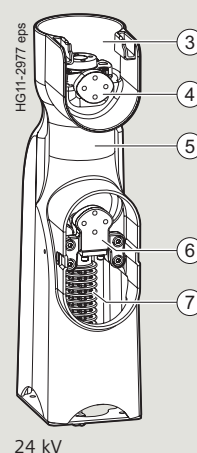
Front view

1 Cover of low-voltage interface

2 Central control board



12 kV



24 kV

Pole structure

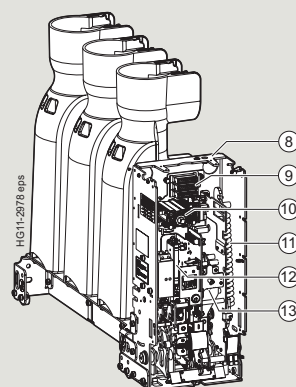
3 Pole shell

4 Upper connection

5 Vacuum interrupter

6 Lower connection

7 Insulator



8 Operating mechanism housing

9 Connection strip housing

10 Auxiliary switch

11 Closing spring

12 Motor

13 Gear

Description

Construction and mode of operation

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

1

Releases

A release is a device that transfers electrical commands from an external source, such as a control room, to the latching mechanism of the circuit-breaker so that it can be opened or closed. The releases are designed for short-time duty up to 1 minute and are reset internally.

A maximum of two releases can be equipped in accordance with page 19. The consumption data of the releases is listed on page 36.

The various types of releases available are described in detail below:

Closing solenoid

The closing solenoid unlatches the charged closing spring of the circuit-breaker, closing it by electrical means.

Shunt releases

Shunt releases are used for automatic tripping of the circuit-breaker by suitable protection relays and for deliberate tripping by electrical means. They are intended for connection to an external power supply (DC or AC voltage).

Current-transformer-operated releases

Current-transformer-operated releases consist of a mechanical energy store, an unlatching mechanism, and an electromagnetic system. They are used when there is no external source of auxiliary power (e.g. a battery). Tripping is effected by means of a protection relay (e. g. time-overcurrent protection) acting on the current-transformer-operated release.

Undervoltage releases

Undervoltage releases consist of a mechanical energy store, an unlatching mechanism, and an electromagnetic system that is permanently connected to the secondary or auxiliary voltage while the circuit-breaker is closed. If the voltage falls below a predetermined value, unlatching of the undervoltage release is enabled and the circuit-breaker is opened via the mechanical energy store.

Closing and anti-pumping

In the standard version, the circuit-breakers can be closed electrically from remote. In addition, they can be mechanically closed locally by direct unlatching of the closing spring. If constant electrical signals for CLOSE and OPEN commands are present at the circuit-breaker at the same time, the circuit-breaker will carry out an OPEN-CLOSE-OPEN or a CLOSE-OPEN operating sequence. A new closing operation only takes place after a brief interruption of the closing signal. This prevents continuous closing and opening (= "pumping") operations.

Closing spring charged indication

The circuit-breaker has a mechanically operated spring status indicator. The charging status can also be queried electrically by means of an integrated position switch.

Circuit-breaker tripping signal

During electrical opening, the NO contact S6 makes brief contact. This is often used to operate a hazard warning system, which should respond to automatic tripping of the circuit-breaker. In case of local control, the NO contact S6 does not close.

Interlocking

Mechanical interlocking

At the interface of the mechanical interlocking of the circuit-breaker, sensors on the switchgear side can check the switch position. This prevents the associated disconnectors from being operated while the circuit-breaker is closed. The system also prevents the circuit-breaker from being closed while the associated disconnector is in the fault position.

Manual interlocking

As an alternative to the mechanical interlocking, the circuit-breaker can also be protected against unauthorized closing via a key-operated interlocking at the front.

Electrical interlocking

The auxiliary and signaling contacts, which show the switch position of the circuit-breaker electrically, can be integrated into the interlocking concept of the switchgear. This makes it possible to exclude impermissible switching sequences.

Low-voltage interface

The removable cover of the SION vacuum circuit-breaker 3AE6 allows easy access to the low-voltage interface. All customer-side controls and signals are available here. The 64-pole plug enables easy disconnection from the switchgear.

For the corresponding circuit diagrams, see page 37.

Standards

The vacuum circuit-breakers 3AE6 conform to the following standards:

- IEC 62271-1
- IEC 62271-100.

All vacuum circuit-breakers 3AE6 fulfill the following classes:

C2, E2, M2 and S1 according to IEC 62271-100, as well as the shortest rated operating sequence O - 0.3s - CO - 15s - CO. Class M1 for operation without a motor.

For class C2, all circuit-breakers fulfill the following values acc. to IEC 62271-100.

	Line	Cable	Capacitors	Back-to-back capacitor bank	
Rated voltage U_r kV, r.m.s.	Rated line-charging breaking current I_l A, r.m.s.	Rated cable-charging breaking current I_c A, r.m.s.	Rated single capacitor bank breaking current I_{sb} A, r.m.s.	Rated back-to-back-capacitor- bank breaking current I_{bb} A, r.m.s.	Frequency of the inrush current f_{bi} Hz
12	10	25	400	400	4250
24	10	31.5	400	400	4250

The single capacitor bank breaking current is always tested at 400 A according to the standard. However, the circuit-breakers can generally switch capacitive currents up to $0.7 \cdot I_r$.

Maintenance-free design

The circuit-breakers are maintenance-free:

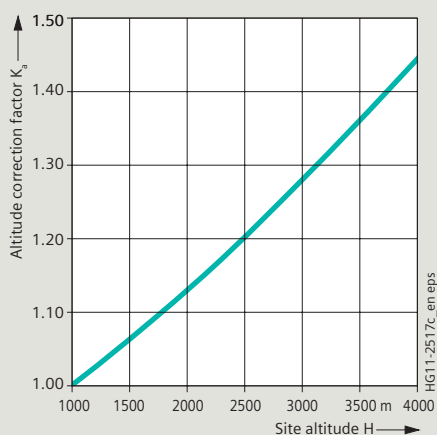
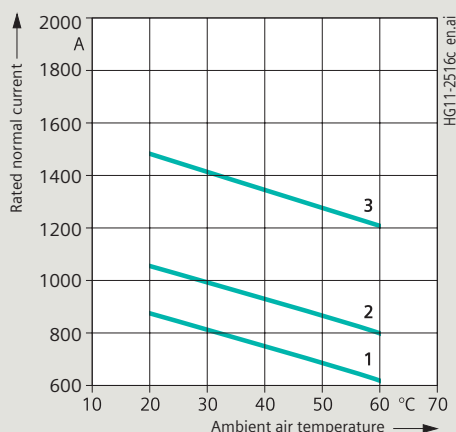
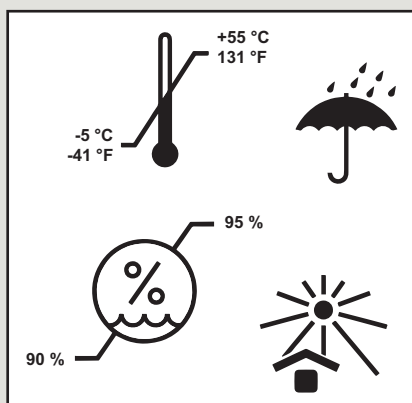
- Under normal ambient conditions according to IEC 62271-1
- Up to 10,000 operating cycles
 - no regreasing
 - no readjusting

The ratings are independent – within their tolerances – of the switching rate or standing times without switching.

Description

Ambient conditions, current-carrying capacity, dielectric strength

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism



Ambient conditions

The circuit-breakers are designed for normal service conditions as defined in IEC 62271-100. Condensation can occasionally occur under the ambient conditions shown opposite.

The circuit-breakers are suitable for use in the following climatic classes according to IEC 60721, Part 3-3:

Climatic ambient conditions:	Class 3K22 ¹⁾
Biological ambient conditions:	Class 3B1
Mechanical ambient conditions:	Class 3M11
Chemically active substances:	Class C3 ³⁾
Mechanically active substances:	Class 3S6 ²⁾

- 1) Lower temperature limit: -5 °C (with order code A40 down to -25 °C)
- 2) Restriction: clean insulating parts
- 3) Without appearance of saline fog and simultaneous condensation

Current-carrying capacity

The rated normal currents specified in the diagram have been defined according to IEC 62271-100 for an ambient air temperature of +55 °C and apply to open switchgear.

For enclosed switchgear, the data of the switchgear manufacturer applies.

At ambient air temperatures below +40 °C, higher normal currents can be carried (see diagram):

- Characteristics curve 1 = Rated normal current 630 A
- Characteristics curve 2 = Rated normal current 800 A
- Characteristics curve 3 = Rated normal current 1250 A

Dielectric strength

The dielectric strength of air insulation decreases with increasing altitude due to the lower air density. According to IEC 62271-1, the values of the rated lightning impulse withstand voltage and the rated short-duration power-frequency withstand voltage specified in the Chapter "Technical data" apply to a site altitude of up to 1000 m above sea level. For altitudes above 1000 m, the insulation level must be corrected according to the opposite diagram.

The characteristics curve shown applies to both rated withstand voltages.

When selecting the devices, the following applies:

$$U \geq U_0 \times K_a$$

U Rated withstand voltage under reference atmosphere

U_0 Rated withstand voltage requested for the place of installation

K_a Altitude correction factor according to the opposite diagram

Example

For a requested rated lightning impulse withstand voltage of 75 kV at an altitude of 2500 m, an insulation level of at least 90 kV under reference atmosphere is required:

$$90 \text{ kV} \geq 75 \text{ kV} \times 1.2$$

Equipment

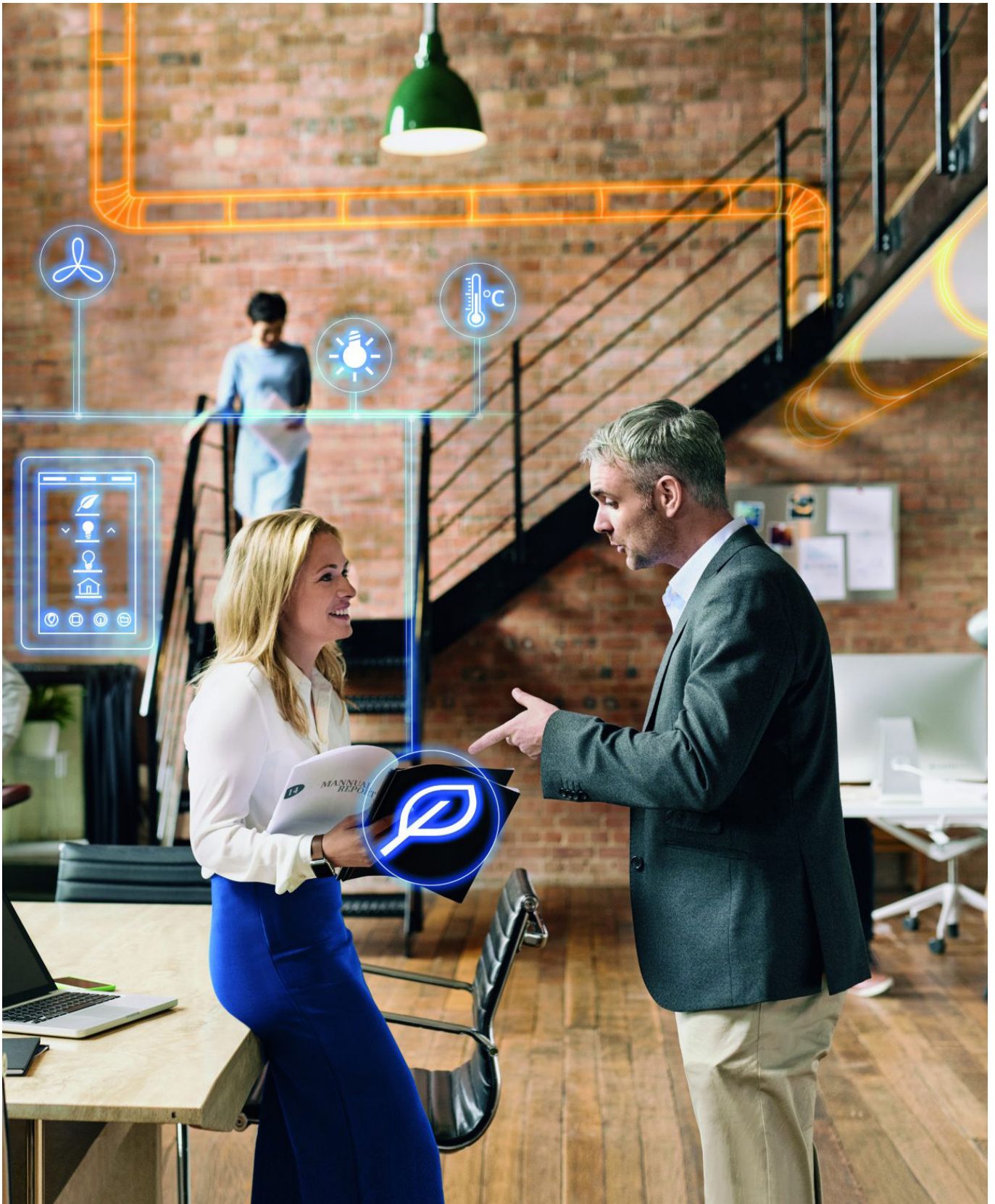
Feature	Basic equipment	Configuration	Remarks
Operating mechanism	Electrical operating mechanism	Without motor, but prepared for retrofitting	Also for manual operation
Closing	Closing solenoid and mechanical manual closing	–	–
1 st release	Shunt release	–	–
2 nd release	None	Shunt release, undervoltage release, c.t.-operated release	A maximum of two releases are possible in total
Varistor circuit	Standard for ≥ 60 V DC	–	For limiting switching overvoltages
Auxiliary switch	6 NO + 6 NC	12 NO + 12 NC	–
Low-voltage interface	20-pole connection strip (internal)	64-pole plug	In combination with 12 NO + 12 NC
Anti-pumping	Available	–	–
Circuit-breaker tripping signal	Available	–	–
Operation counter	Available	–	–
Interlocking	None	Key-operated interlocking Electrical closing lockout Mechanical interlocking	Interlock to prevent reclosing
Insertion aid	None	Wheels	–
Cover	Plastic cover	Metal cover	–

Product range overview

Type	Rated voltage kV	Rated short-circuit breaking current kA	Rated normal current A	Pole-center distance (in mm)				
				150	210	230	250	300
				Vertical distance between terminals ¹⁾ [mm]				
				205	237.5			
3AE6	12	16	630/800/1250	■	■	■	■	
		20	630/800/1250	■	■	■	■	
		25	630/800/1250	■	■	■	■	
	24	16	630/800/1250		■	■	■	■
		20	630/800/1250		■	■	■	■
		25	630/800/1250		■	■	■	■

Note: The circuit-breaker is available with various installation accessories. These versions can be configured on the following pages.

1) Distance between upper and lower connection hole



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Device configuration

Order number structure

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

Order number structure

The circuit-breakers consist of a primary and a secondary part. The primary part covers the main electrical data of the circuit-breaker poles. The secondary part covers the auxiliary devices that are necessary for operating and controlling the circuit-breaker. The relevant data makes up the 16-digit order number.

Order codes

Individual options, marked with **9** or **Z** in the 9th to 16th position, are explained in more detail by a 3-digit order code. Several order codes can be added to the order number in succession and in any sequence.

Special versions (★)

In case of special versions, “-Z” is added to the order number and a descriptive order code follows.

If several special versions are required, the suffix “-Z” is listed only once. If a requested special version is not in the catalog and can therefore not be ordered via order code, it has to be identified with **Y 9 9** after consultation. The agreement hereto is made directly between your responsible sales partner and the order processing department at Siemens.

2

		Primary part								Secondary part															
		Position:																Order codes							
		1	2	3	4	5	6	7	8	9	10	11	12	-	13	14	15	16							
a: Letter n: Numeral		Order No.:	3	A	E	6	n	n	n	-	n	a	a	n	n	-	n	a	a	n	-	★	■	■	■
1 st position	Superior group Switching devices																								
2 nd position	Main group Circuit-breaker																								
3 rd position	Subgroup Circuit-breaker type series																								
4 th position	Circuit-breaker version																								
5 th position	Rated voltage from 12 kV to 24 kV																								
6 th position	Pole-center distance / Vertical distance between terminals																								
7 th position	Rated short-circuit breaking current from 16 kA to 25 kA																								
8 th position	Rated normal current from 630 A to 1250 A																								
9 th to 16 th position	Secondary equipment, operating mechanism, releases, operating voltages, and further auxiliary equipment																								
Order codes																									
Groups of 3 after the order number																									
Format: a n a																									
Special versions (★)																									
Initiated with “-Z”																									
Groups of 3 after the order number																									
Format: a n n																									



									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Order codes					
									3	A	E	6	■	■	■	-	■	■	■	■	-	■	■	■	■	-	★	■	■	■
Rated voltage for 50/60 Hz U_n kV	Rated lightning impulse withstand voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 50% DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Vertical distance between terminals mm	Connections left (L)/right (R)	Rated normal current I_r A	see page 18																					
12	75	28	16	40/42	150	205	R	630	3	A	E	6	1	0	2	-	0													
							L	630	3	A	E	6	1	5	2	-	0													
			16	40/42	150		R	800	3	A	E	6	1	0	2	-	1													
							L	800	3	A	E	6	1	5	2	-	1													
			16	40/42	150		R	1250	3	A	E	6	1	0	2	-	2													
							L	1250	3	A	E	6	1	5	2	-	2													
12	75	28	20	50/52	150	205	R	630	3	A	E	6	1	0	3	-	0													
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			20	50/52	150		R	800	3	A	E	6	1	0	3	-	1													
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			20	50/52	150		R	1250	3	A	E	6	1	0	3	-	2													
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12	75	28	25	63/65	150	205	R	630	3	A	E	6	1	0	4	-	0													
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			25	63/65	150		R	800	3	A	E	6	1	0	4	-	1													
							L	800	3	A	E	6	1	5	4	-	1													
			25	63/65	150		R	1250	3	A	E	6	1	0	4	-	2													
							L	1250	3	A	E	6	1	5	4	-	2													
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							L	630	3	A	E	6	1	6	2	-	0													
			16	40/42	210		R	800	3	A	E	6	1	1	2	-	1													
							L	800	3	A	E	6	1	6	2	-	1													
			16	40/42	210		R	1250	3	A	E	6	1	1	2	-	2													
							L	1250	3	A	E	6	1	6	2	-	2													
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12	75	28	25	63/65	210	205	R	630	3	A	E	6	1	1	4	-	0													
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			25	63/65	210		R	800	3	A	E	6	1	1	4	-	1													
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12	75	28	16	40/42	230	205	R	630	3	A	E	6	1	2	2	-	0													
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12	75	28	20	50/52	230	205	R	630	3	A	E	6	1	2	3	-	0													
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			20	50/52	230		R	800	3	A	E	6	1	2	3	-	1													
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			20	50/52	230		R	1250	3	A	E	6	1	2	3	-	2													
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12	75	28	25	63/65	230	205	R	630	3	A	E	6	1	2	4	-	0													
							L	630	3	A	E	6	1	7	4	-	0													
			25	63/65	230		R	800	3	A	E	6	1	2	4	-	1													
							L	800	3	A	E	6	1	7	4	-	1													
			25	63/65	230		R	1250	3	A	E	6	1	2	4	-	2													
							L	1250	3	A	E	6	1	7	4	-	2													
Special version									U ₁ = 42 kV for 12 kV devices, GOST standard																		- Z E 1 3			

Special version $U_d = 42$ kV for 12 kV devices, GOST standard

- Z E 1 3



									1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Order codes				
									3	A	E	6	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Rated voltage for 50/60 Hz U_T kV	Rated lightning impulse withstand voltage U_0 kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current at 50% DC component I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Vertical distance between terminals mm	Connections left (L)/right (R)	Rated normal current I_T A	3	A	E	6	■	■	■	■	see page 18	■	■	■	■	■	■	■	■	■	■	■	■
									3	A	E	6	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
24	125	50	16	40/42	250	237.5	R	630	3	A	E	6	3	3	2	-	0												
							L	630	3	A	E	6	3	3	8	2	-	0											
			16	40/42	250		R	800	3	A	E	6	3	3	2	-	1												
							L	800	3	A	E	6	3	3	8	2	-	1											
			16	40/42	250		R	1250	3	A	E	6	3	3	2	-	2												
							L	1250	3	A	E	6	3	3	8	2	-	2											
24	125	50	20	50/52	250	237.5	R	630	3	A	E	6	3	3	3	-	0												
							L	630	3	A	E	6	3	3	8	3	-	0											
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							L	800	3	A	E	6	3	3	8	3	-	1											
			20	50/52	250		R	1250	3	A	E	6	3	3	3	-	2												
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24	125	50	25	63/65	250	237.5	R	630	3	A	E	6	3	3	4	-	0												
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							L	1250	3	A	E	6	3	3	8	4	-	2											
24	125	50	16	40/42	300	237.5	R	630	3	A	E	6	3	4	2	-	0												
							L	630	3	A	E	6	3	9	2	-	0												
			16	40/42	300		R	800	3	A	E	6	3	4	2	-	1												
							L	800	3	A	E	6	3	9	2	-	1												
			16	40/42	300		R	1250	3	A	E	6	3	4	2	-	2												
							L	1250	3	A	E	6	3	9	2	-	2												
24	125	50	20	50/52	300	237.5	R	630	3	A	E	6	3	4	3	-	0												
							L	630	3	A	E	6	3	9	3	-	0												
			20	50/52	300		R	800	3	A	E	6	3	4	3	-	1												
							L	800	3	A	E	6	3	9	3	-	1												
			20	50/52	300		R	1250	3	A	E	6	3	4	3	-	2												
							L	1250	3	A	E	6	3	9	3	-	2												
24	125	50	25	63/65	300	237.5	R	630	3	A	E	6	3	4	4	-	0												
							L	630	3	A	E	6	3	9	4	-	0												
			25	63/65	300		R	800	3	A	E	6	3	4	4	-	1												
							L	800	3	A	E	6	3	9	4	-	1												
			25	63/65	300		R	1250	3	A	E	6	3	4	4	-	2												
							L	1250	3	A	E	6	3	9	4	-	2												
Special version			$U_{d1} = 65$ kV for 24 kV devices																										
			- Z E 6 5																										

Device configuration

Selection of secondary equipment (position 9–12 and position 14–16)

9 th position Release combination 1)								1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16	Order codes					
1 st shunt release	2 nd shunt release	Undervoltage release	C.t.-operated release 0.5 A	C.t.-operated release 1.0 A	C.t.-operated release 5 A	C.t.-operated release with tripping pulse ≥ 0.1 Ws (10 Q)	C.t.-operated release with tripping pulse ≥ 0.1 Ws (20 Q)	3	A	E	6	■	■	■	-	■	■	■	■	■	-	■	■	■	■	■	-	★	■	■	■
■																	A														
■	■																B														
■							■										C														
■		■															D														
■			■														F														
■				■													G														
■					■												H									-	Z	A	4	9	

I = position of first release II = position of second release

1) The operating voltage is selected at positions 11 + 12

10th position

Operating voltage of the closing solenoid

[illegible]

³⁾ The power frequency 50 or 60 Hz is selected at the 16th position of the order number together with the language (see page 21)

11th position

Operating voltage of the 1st release

11 th position		1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		Order codes			
Operating voltage of the 1st release		3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
Standard voltages	Standard voltages															see page 22	see page 20	see page 20	see page 21					
DC 24 V													1											
DC 48 V													2											
DC 60 V													3											
DC 110 V													4											
DC 220 V													5											
AC 100 V 50/60 Hz ¹⁾													6											
AC 110 V 50/60 Hz ¹⁾													7											
AC 230 V 50/60 Hz ¹⁾													8											
	DC 30 V												9									L	1	A
	DC 32 V												9									L	1	B
	DC 120 V												9									L	1	C
	DC 125 V												9									L	1	D
	DC 127 V												9									L	1	E
	DC 240 V												9									L	1	F
	AC 120 V 50/60 Hz ¹⁾												9									L	1	K
	AC 125 V 50/60 Hz ¹⁾												9									L	1	L
	AC 240 V 50/60 Hz ¹⁾												9									L	1	M

12th position

Operating voltage of the 2nd release

12 th position		1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		Order codes			
Operating voltage of the 2nd release		3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
Standard voltages	Standard voltages																							
None or c.t.-operated release														0										
DC 24 V														1										
DC 48 V														2										
DC 60 V														3										
DC 110 V														4										
DC 220 V														5										
AC 100 V 50/60 Hz ¹⁾														6										
AC 110 V 50/60 Hz ¹⁾														7										
AC 230 V 50/60 Hz ¹⁾														8										
	DC 30 V													9								M	1	A
	DC 32 V													9								M	1	B
	DC 120 V													9								M	1	C
	DC 125 V													9								M	1	D
	DC 127 V													9								M	1	E
	DC 240 V													9								M	1	F
	AC 120 V 50/60 Hz ¹⁾													9								L	1	K
	AC 125 V 50/60 Hz ¹⁾													9								M	1	L
	AC 240 V 50/60 Hz ¹⁾													9								M	1	M

¹⁾ The power-frequency 50 or 60 Hz is selected at the 16th position of the order number together with the language (see page 21)

Device configuration

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

Selection of secondary equipment (position 9–12 and position 14–16)

14th position

Operating voltage of the drive motor

14 th position	1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		Order codes			
Operating voltage of the drive motor	3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
Standard voltages																							
Prepared for motor installation																A							
DC 24 V																B							
DC 48 V																C							
DC 60 V																D							
DC 110 V																E							
DC 220 V																F							
AC 100 V 50/60 Hz ¹⁾																H							
AC 110 V 50/60 Hz ¹⁾																J							
AC 230 V 50/60 Hz ¹⁾																K							
DC 30 V																M							
DC 32 V																N							
DC 120 V																P							
DC 125 V																Q							
DC 127 V																R							
DC 240 V																S							
AC 120 V 50/60 Hz ¹⁾																U							
AC 125 V 50/60 Hz ¹⁾																V							
AC 240 V 50/60 Hz ¹⁾																W							

¹⁾ Power-frequency voltage refers to the low-voltage equipment

15th position

Interlocking, low-voltage interface, auxiliary switch

15th position					1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16	Order codes				
Interlocking, low-voltage interface, auxiliary switch					3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
Mechanical interlocking	Low-voltage interface		Auxiliary switch																								
	Internal 20-pole connection strip	64-pole plug	6 NO + 6 NC	12 NO + 12 NC																							
	■		■																		B						
	■	■	■																		T						
				■																	K						
		■		■																	R						
■	■		■																		A						
■		■	■																		V						
■	■			■																	J						
■		■		■																	N						
■				■	Modified for SIMOSEC (only with 7 at the 13th position)																7	S					

Circuit breaker tripping signal is included as standard for all configurations shown

16th position

Languages of operating instructions and nameplate; power frequency of operating voltages ¹⁾

Language selection				Frequency selection																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
German	English	French	Spanish	DC or AC 50 Hz	60 Hz																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

¹⁾ Power-frequency voltage refers to the low-voltage equipment

Device configuration

Selection of installation options (position 13)

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

13th position

Attachment of wheels

13 th position	1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		Order codes			
Attachment of wheels	3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
Transport/racking wheels																							
No racking wheels															0								
With racking wheels															1								
Prepared for SIMOSEC															7		S						

Additional equipment

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Order codes			
	3	A	E	6	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Options																				
Cable ends with marking at the plug																		-	Z	A 0 5
Wiring cables halogen-free and flame-retardant																		-	Z	A 1 0
Anti-condensation heating, heater for 110 V AC, 50 W																		-	Z	A 2 9
Anti-condensation heating, heater for 230 V AC, 50 W																		-	Z	A 3 0
Circuit-breaker for operation down to -25 °C																		-	Z	A 4 0
Electrical closing lockout (not together with J60)																		-	Z	A 4 7
C.t.-operated release 5 A																		-	Z	A 4 9
Additional nameplate, loose delivery																		-	Z	B 0 0
Without upper part of plug																		-	Z	B 2 3
Without material pack																		-	Z	B 2 4
Long insulating shell (standard)																		-	Z	D 9 0
2 kV/1 min insulation routine test																		-	Z	E 0 2
Rated short-duration power-frequency withstand voltage 42 kV (at 12 kV)																		-	Z	E 1 3
Rated short-duration power-frequency withstand voltage 65 kV (at 24 kV)																		-	Z	E 6 5
Extended routine test certificate																		-	Z	F 1 7
Routine test certificate enclosed																		-	Z	F 2 0
Hand crank for manual charging of the closing spring (scope of supply: one hand crank per circuit-breaker)																		-	Z	F 3 0
Metal cover																		-	Z	J 1 9
Lock-in for feeder (for SIMOSEC only)													7					-	Z	J 5 5
Key-operated interlocking (not together with A47)																		-	Z	J 6 0
Electrical lock-in (for SIMOSEC only, voltage on request)													7					-	Z	L48-L75
Warranty 24 months																		-	Z	W 7 0
Warranty 36 months																		-	Z	W 7 1
Warranty 60 months																		-	Z	W 7 2
Warranty 84 months																		-	Z	W 7 3
Other special versions that are not listed (only after consultation with the order processing department at the Switchgear Factory in Berlin, Germany). Specifications additionally in clear text																		-	Z	Y 9 9

However, circuit-breakers can generally switch capacitive currents up to $0.7 \times I_r$

Device configuration

Accessories and spare parts

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

Ordering information for accessories and spare parts

The order numbers in the spare part overviews are valid for currently manufactured vacuum circuit-breakers. When mounting parts or spare parts are being ordered for existing vacuum circuit-breakers, always quote the type designation, the serial number, and the year of manufacture of the circuit-breaker to be sure to get the correct parts.

Retrofitting

When releases/solenoids are retrofitted, the order numbers of the mounting parts must also be specified.

For other additional equipment, the required mounting parts are included in the scope of supply.

Spare parts may only be replaced by qualified personnel.

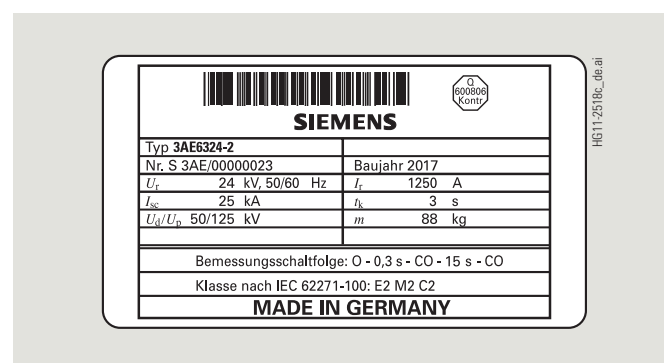
Accessories for the plug connection

Included in the scope of supply of the basic equipment for vacuum circuit-breakers 3AE6:

For 64-pole plug connection

- Lower part of plug
- Upper part of plug
- Crimp sockets according to number of contacts

Nameplate



Note:

The following 3 details are necessary for any query regarding spare parts, subsequent deliveries, etc.:

- Type designation
- Serial No.
- Year of manufacture

			Position:
			1 – 9
Designation	Description	Feature	Order No.
Handles	Hand crank for circuit-breaker		3AX1530-4B
Lubricants	180 g of Klüber-Isoflex Topas L32N		3AX1133-3H
	1 kg of Klüber-Isoflex Topas L32N		3AX1133-3E
	1 kg of Molykote grease		3AX1133-2L
	1 kg of Vaseline, Atlantic		3AX1133-4A
Front cover	Metal cover for terminal strip connection		3AX1470-4A
	Metal cover for SIMOSEC		3AX1470-4B
	Metal cover for plug connection		3AX1470-4C
	Plastic cover		3AX1470-5A
ON/OFF pushbuttons	For metal cover		3AX1470-5K
Interlocking	Mounting kit for key-operated interlocking		3AX1437-4A
Insulating shells for contact arms	Upper insulating shell	24 kV	3AX1438-4B
	Lower insulating shell	24 kV	3AX1438-5B

			Position:
			1 – 9
Designation	Description	Feature	Order No.
Operating solenoid	For CLOSE function/1st release/2nd release (from year of manufacture 2022)	DC 24 ... 32 V	3AY1410-0B
		DC 48 V	3AY1410-0C
		DC 60 V	3AY1410-0D
		DC 110 ... 127 V	3AY1410-0E
		DC 220 ... 240 V	3AY1410-0F
		AC 100/125 V, 50/60 Hz	3AY1410-0J
		AC 230/240 V, 50/60 Hz	3AY1410-0K
Mounting parts	For 2nd shunt release (from year of manuf. 2022)		3AX1411-6A
2nd shunt release	Up to and incl. year of manuf. 2021	DC 24 ... 32 V	3AX1101-2B
		DC 48 ... 60 V	3AX1101-2C
		DC 110 ... 127 V	3AX1101-2E
		DC 220 ... 240 V	3AX1101-2F
		AC 100 ... 125 V, 50 Hz	3AX1101-2G
		AC 230 ... 240 V, 50 Hz	3AX1101-2J
		AC 100 ... 125 V, 60 Hz	3AX1101-3G
		AC 230 ... 240 V, 60 Hz	3AX1101-3J
Mounting parts	For 2nd shunt release (up to year of manuf. 2021)		3AX1411-5A
Current-transformer-operated	For rated normal current 0.5 A		3AX1102-2A
	For rated normal current 1 A		3AX1102-2B
	For rated normal current 5 A incl. rectifier		3AX1402-2E
	For tripping pulse ≥ 0.1 Ws, 20 Ω for protection system 7SJ45		3AX1104-2B
Mounting parts	For current-transformer-operated release		3AX1411-5A
Undervoltage release		DC 24 V	3AX1103-2B
		DC 30/32 V	3AX1103-2L
		DC 48 V	3AX1103-2C
		DC 60 V	3AX1103-2D
		DC 110 V	3AX1103-2E
		DC 120/127 V	3AX1103-2N
		DC 220 V	3AX1103-2F
		DC 240 V	3AX1103-2P
		AC 100 V, 50 Hz	3AX1103-2G
		AC 110/125 V, 50 Hz	3AX1103-2H
		AC 230 V, 50 Hz	3AX1103-2J
		AC 240 V, 50 Hz	3AX1103-2M
		AC 100 V, 60 Hz	3AX1103-3G
		AC 110/125 V, 60 Hz	3AX1103-3H
		AC 230 V, 60 Hz	3AX1103-3J
		AC 240 V, 60 Hz	3AX1103-3M
Mounting parts	For undervoltage release		3AX1413-5A
Drive motor		DC 24/30/32 V	3AY1411-1B
		DC 48/60 V	3AY1411-1C
		DC 110 ... 127 V	3AY1411-1E
		AC 100 ... 125 V	
		DC 220 ... 240 V	3AY1411-1F
		AC 220 ... 240 V	
Electrical closing lockout	From year of manuf. 2022	DC 24 ... 32 V	3AX1405-4B
		DC 48 ... 60 V	3AX1405-4C
		DC 110 ... 127 V	3AX1405-4E
		DC 220 ... 250 V	3AX1405-4F
		AC 100 ... 125 V, 50/60 Hz	3AX1405-4G
		AC 230 ... 240 V, 50/60 Hz	3AX1405-4J
Mounting parts		Not required	

Device configuration

Accessories and spare parts

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

			Position:	1 – 9
Designation	Description	Feature	Order No.	
Electronic module		DC 24 ... 32 V	3AY1420-2A	
		DC 48 ... 60 V	3AY1420-2C	
		DC 110 ... 127 V AC 100 ... 125 V	3AY1420-2E	
		DC 220 ... 240 V AC 230 ... 240 V	3AY1420-2G	
			3AX1458-0A	
PG cable gland			3AX1458-0A	
Anti-condensation heating	Heater for 230 V AC, 50 W		3AX1457-5A	
	Heater for 110 V AC, 50 W		3AX1457-5B	
Position switch	Type SE4 without mounting accessories		3AX4206-0A	
	Used for:	Quantity		
	– Electrical anti-pumping (-S3)	1		
	– Electrical interlocking (-S12)	1		
	– Motor control (-S21, -S22)	2		
	– Closing spring charged (-S4)	1		
Auxiliary switch (-S1)	– Circuit-breaker tripping signal (-S6)	1		
Accessories for 64-pole plug	6 NO + 6 NC		3SV9473-2AA0	
	12 NO + 12 NC		3SV9474-2AA0	
Plug adapter	Crimp pins (for lower part of plug)	64-pole	3AX1134-4B	
	Crimp sockets (for upper part of plug)	64-pole	3AX1134-4C	
	Crimping pliers		3AX1134-4D	
	Disassembly tool		3AX1134-4G	
Plug adapter	Plug, complete	64-pole	3AX1134-6A	
	From 64-pole on circuit-breaker side to 24-pole on customer side		3AX1410-1A	

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Operating times and internal times, short-circuit protection of motors, consumption data of releases	36
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Example applications	38

Technical data

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

Electrical data, weights, operating cycle diagrams



Order No.	12 kV 50/60 Hz																
	Rated normal current	Pole-center distance (PCD)	Vertical distance between terminals (VDT)	Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetrical breaking current	Rated short-circuit making current (at 50/60 Hz)	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 33)
	I_r A	mm	mm	I_{sc} kA	%	kA	I_{ma} kA	U_p kV	U_d kV	mV	mm	mm	mm	mm	kg		
3AE6102-0	630	150	205	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6152-0	630	150	205	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6102-1	800	150	205	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6152-1	800	150	205	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6102-2	1250	150	205	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6152-2	1250	150	205	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6103-0	630	150	205	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6153-0	630	150	205	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6103-1	800	150	205	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6153-1	800	150	205	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6103-2	1250	150	205	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6153-2	1250	150	205	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6104-0	630	150	205	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6154-0	630	150	205	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6104-1	800	150	205	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6154-1	800	150	205	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6104-2	1250	150	205	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6154-2	1250	150	205	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6112-0	630	210	205	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6162-0	630	210	205	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6112-1	800	210	205	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6162-1	800	210	205	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6112-2	1250	210	205	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6162-2	1250	210	205	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6113-0	630	210	205	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6163-0	630	210	205	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6113-1	800	210	205	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6163-1	800	210	205	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6113-2	1250	210	205	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6163-2	1250	210	205	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6114-0	630	210	205	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6164-0	630	210	205	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3

Order No.	12 kV 50/60 Hz																
	Rated normal current	Pole-center distance (PCD)	Vertical distance between terminals (VDT)	Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetrical breaking current	Rated short-circuit making current (at 50/60 Hz)	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 33)
	I_r A	mm	mm	I_{sc} kA	%	kA	I_{ma} kA	U_p kV	U_d kV	mV	mm	mm	mm	mm	kg		
3AE6114-1	800	210	205	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6164-1	800	210	205	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6114-2	1250	210	205	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6164-2	1250	210	205	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6122-0	630	230	205	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6172-0	630	230	205	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6122-1	800	230	205	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6172-1	800	230	205	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6122-2	1250	230	205	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6172-2	1250	230	205	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6123-0	630	230	205	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6173-0	630	230	205	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6123-1	800	230	205	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6173-1	800	230	205	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6123-2	1250	230	205	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6173-2	1250	230	205	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6124-0	630	230	205	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6174-0	630	230	205	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6124-1	800	230	205	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6174-1	800	230	205	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6124-2	1250	230	205	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6174-2	1250	230	205	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6132-0	630	250	205	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6182-0	630	250	205	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6132-1	800	250	205	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6182-1	800	250	205	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6132-2	1250	250	205	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6182-2	1250	250	205	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6133-0	630	250	205	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6183-0	630	250	205	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6133-1	800	250	205	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6183-1	800	250	205	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2

Technical data

Electrical data, weights, operating cycle diagrams

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

Order No.	12 kV 50/60 Hz																
	Rated normal current	Pole-center distance (PCD)	Vertical distance between terminals (VDT)	Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetrical breaking current	Rated short-circuit making current (at 50/60 Hz)	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 33)
	I_r A	mm	mm	I_{sc} kA	%	kA	I_{ma} kA	U_p kV	U_d kV	mV	mm	mm	mm	mm	kg		
3AE6133-2	1250	250	205	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6183-2	1250	250	205	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6134-0	630	250	205	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6184-0	630	250	205	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6134-1	800	250	205	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6184-1	800	250	205	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6134-2	1250	250	205	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6184-2	1250	250	205	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3

Order No.	24 kV 50/60 Hz																
	Rated normal current	Pole-center distance (PCD)	Vertical distance between terminals (VDT)	Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetrical breaking current	Rated short-circuit making current (at 50/60 Hz)	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 33)
	I_r A	mm	mm	I_{sc} kA	%	kA	I_{ma} kA	U_p kV	U_d kV	mV	mm	mm	mm	mm	kg		
3AE6312-0	630	210	237.5	16	50	17.9	40/42	125	50	3	240	250	170	185	70	A7E10903000	4
3AE6362-0	630	210	237.5	16	50	17.9	40/42	125	50	3	240	250	170	185	70	A7E10903000	4
3AE6312-1	800	210	237.5	16	50	17.9	40/42	125	50	3	240	250	170	185	87	A7E10903000	4
3AE6362-1	800	210	237.5	16	50	17.9	40/42	125	50	3	240	250	170	185	87	A7E10903000	4
3AE6312-2	1250	210	237.5	16	50	17.9	40/42	125	50	3	240	250	170	185	87	A7E10903000	4
3AE6362-2	1250	210	237.5	16	50	17.9	40/42	125	50	3	240	250	170	185	87	A7E10903000	4
3AE6313-0	630	210	237.5	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5
3AE6363-0	630	210	237.5	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5



Order No.	24 kV 50/60 Hz																
	Rated normal current	Pole-center distance (PCD)	Vertical distance between terminals (VDT)	Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetrical breaking current	Rated short-circuit making current (at 50/60 Hz)	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 33)
	I_r A	mm	mm	I_{sc} kA	%	kA	I_{ma} kA	U_p kV	U_d kV	mV	mm	mm	mm	mm	kg		
3AE6313-1	800	210	237.5	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5
3AE6363-1	800	210	237.5	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5
3AE6313-2	1250	210	237.5	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5
3AE6363-2	1250	210	237.5	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5
3AE6314-0	630	210	237.5	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6
3AE6364-0	630	210	237.5	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6
3AE6314-1	800	210	237.5	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6
3AE6364-1	800	210	237.5	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6
3AE6314-2	1250	210	237.5	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6
3AE6364-2	1250	210	237.5	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6
3AE6322-0	630	230	237.5	16	50	17.9	40/42	125	50	3	240	250	190	185	72	A7E10903000	4
3AE6372-0	630	230	237.5	16	50	17.9	40/42	125	50	3	240	250	190	185	72	A7E10903000	4
3AE6322-1	800	230	237.5	16	50	17.9	40/42	125	50	3	240	250	190	185	88	A7E10903000	4
3AE6372-1	800	230	237.5	16	50	17.9	40/42	125	50	3	240	250	190	185	88	A7E10903000	4
3AE6322-2	1250	230	237.5	16	50	17.9	40/42	125	50	3	240	250	190	185	88	A7E10903000	4
3AE6372-2	1250	230	237.5	16	50	17.9	40/42	125	50	3	240	250	190	185	88	A7E10903000	4
3AE6323-0	630	230	237.5	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5
3AE6373-0	630	230	237.5	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5
3AE6323-1	800	230	237.5	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5
3AE6373-1	800	230	237.5	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5
3AE6323-2	1250	230	237.5	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5
3AE6373-2	1250	230	237.5	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5
3AE6324-0	630	230	237.5	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6
3AE6374-0	630	230	237.5	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6
3AE6324-1	800	230	237.5	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6
3AE6374-1	800	230	237.5	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6
3AE6324-2	1250	230	237.5	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6
3AE6374-2	1250	230	237.5	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6
3AE6332-0	630	250	237.5	16	50	17.9	40/42	125	50	3	240	250	210	185	73	A7E10903000	4
3AE6382-0	630	250	237.5	16	50	17.9	40/42	125	50	3	240	250	210	185	73	A7E10903000	4
3AE6332-1	800	250	237.5	16	50	17.9	40/42	125	50	3	240	250	210	185	88	A7E10903000	4
3AE6382-1	800	250	237.5	16	50	17.9	40/42	125	50	3	240	250	210	185	88	A7E10903000	4

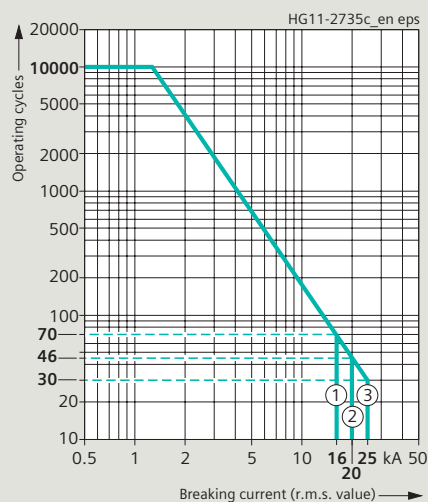
Technical data

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

Electrical data, weights, operating cycle diagrams

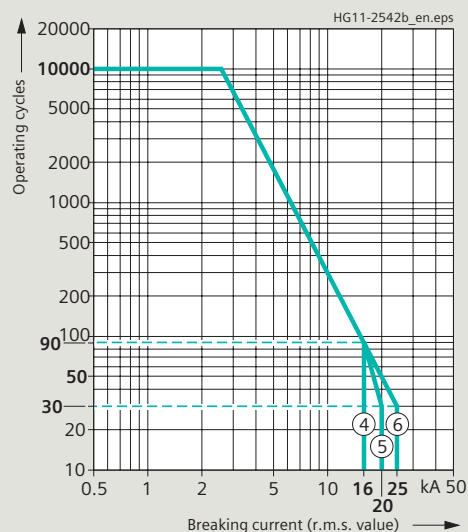
Order No.	24 kV 50/60 Hz																
	Rated normal current	Pole-center distance (PCD)	Vertical distance between terminals (VDT)	Rated short-circuit breaking current	DC component in % of the rated short-circuit breaking current	Asymmetrical breaking current	Rated short-circuit making current (at 50/60 Hz)	Rated lightning impulse withstand voltage	Rated short-duration power-frequency withstand voltage	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance, interrupter	Minimum creepage distance, phase-to-earth	Minimum clearance, phase-to-phase	Minimum clearance, phase-to-earth	Weight	Detailed dimensional drawing (must be explicitly requested)	Operating cycle diagram no. (see page 33)
	I_r A	mm	mm	I_{sc} kA	%	kA	I_{ma} kA	U_p kV	U_d kV	mV	mm	mm	mm	mm	kg		
3AE6332-2	1250	250	237.5	16	50	17.9	40/42	125	50	3	240	250	210	185	88	A7E10903000	4
3AE6382-2	1250	250	237.5	16	50	17.9	40/42	125	50	3	240	250	210	185	88	A7E10903000	4
3AE6333-0	630	250	237.5	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6383-0	630	250	237.5	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6333-1	800	250	237.5	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6383-1	800	250	237.5	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6333-2	1250	250	237.5	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6383-2	1250	250	237.5	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6334-0	630	250	237.5	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6384-0	630	250	237.5	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6334-1	800	250	237.5	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6384-1	800	250	237.5	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6334-2	1250	250	237.5	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6384-2	1250	250	237.5	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6342-0	630	300	237.5	16	50	17.9	40/42	125	50	3	240	250	260	185	75	A7E10903000	4
3AE6392-0	630	300	237.5	16	50	17.9	40/42	125	50	3	240	250	260	185	75	A7E10903000	4
3AE6342-1	800	300	237.5	16	50	17.9	40/42	125	50	3	240	250	260	185	89	A7E10903000	4
3AE6392-1	800	300	237.5	16	50	17.9	40/42	125	50	3	240	250	260	185	89	A7E10903000	4
3AE6342-2	1250	300	237.5	16	50	17.9	40/42	125	50	3	240	250	260	185	89	A7E10903000	4
3AE6392-2	1250	300	237.5	16	50	17.9	40/42	125	50	3	240	250	260	185	89	A7E10903000	4
3AE6343-0	630	300	237.5	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6393-0	630	300	237.5	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6343-1	800	300	237.5	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6393-1	800	300	237.5	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6343-2	1250	300	237.5	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6393-2	1250	300	237.5	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6344-0	630	300	237.5	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6394-0	630	300	237.5	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6344-1	800	300	237.5	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6394-1	800	300	237.5	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6344-2	1250	300	237.5	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6394-2	1250	300	237.5	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6

Operating cycle diagrams for 12 kV



The permissible number of electrical operating cycles is shown as a function of the breaking current (r.m.s. value). All SION vacuum circuit-breakers fulfill the endurance classes E2, M2 and C2 according to IEC 62271-100.

Operating cycle diagrams for 24 kV



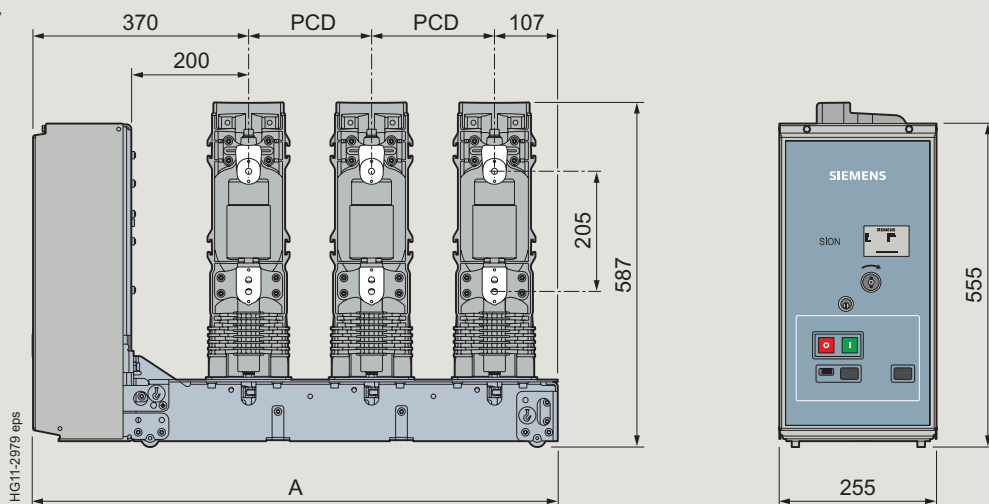
The curve shape beyond the parameters defined in IEC 62271-100 is based on average empirical data. The number of operating cycles that can actually be reached may be different depending on the respective application.

Technical data

Dimensional drawings

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

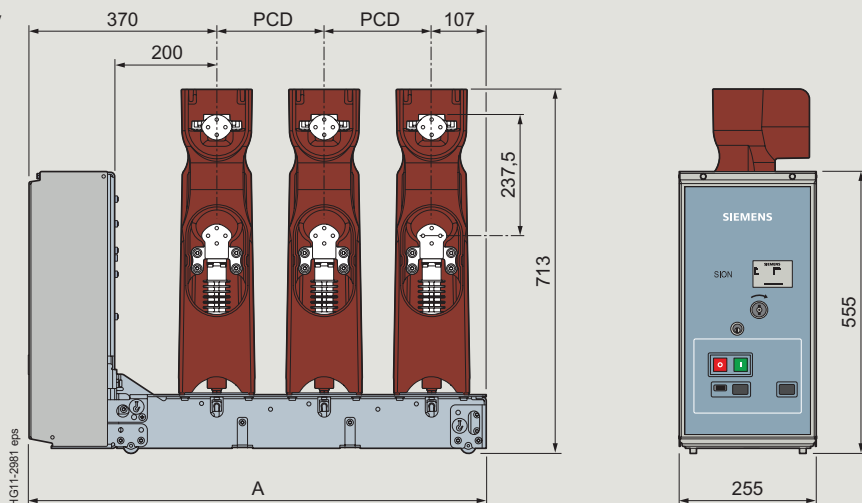
3AE61 for 12 kV



U_r [kV]	I_{sc} [kA]	I_r [A]	PCD [mm]	A [mm]	Weight [kg]	Dimensional drawing
12	16/20/25	630/800/1250	150	777	65	A7E10903020
12	16/20/25	630/800/1250	210	897	70	A7E10903020
12	16/20/25	630/800/1250	230	937	72	A7E10903020
12	16/20/25	630/800/1250	250	977	73	A7E10903020

Note: Minor deviations from shown dimensions permitted

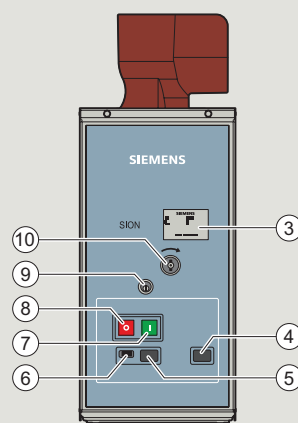
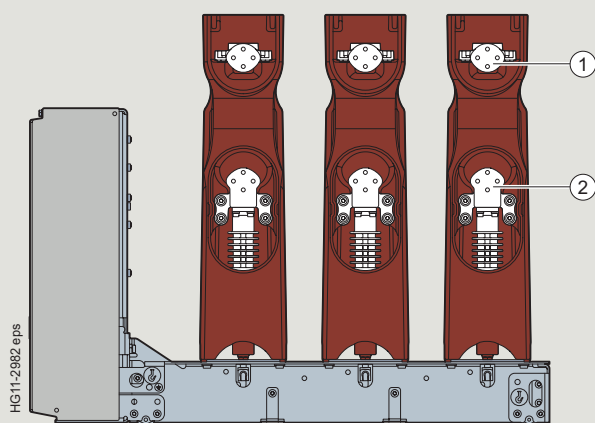
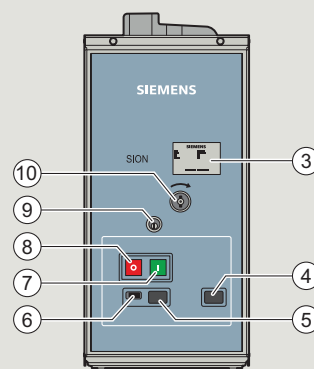
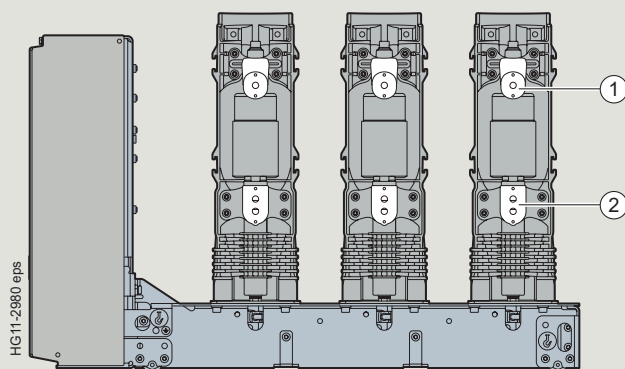
3AE63 for 24 kV



U_r [kV]	I_{sc} [kA]	I_r [A]	PCD [mm]	A [mm]	Weight [kg]	Dimensional drawing
24	16/20/25	630/800/1250	210	897	87	A7E10903000
24	16/20/25	630/800/1250	230	937	88	A7E10903000
24	16/20/25	630/800/1250	250	977	88	A7E10903000
24	16/20/25	630/800/1250	300	1077	89	A7E10903000

Note: Minor deviations from shown dimensions permitted

For all other details, please refer to the Catalog SION Vacuum Circuit-Breakers 3AE5, HG11.02.



- ① Upper terminal
- ② Lower terminal
- ③ Nameplate

- ④ "Charged" indicator
- ⑤ Position indicator
- ⑥ Operation counter

- ⑦ "ON" pushbutton
- ⑧ "OFF" pushbutton
- ⑨ Opening for hand crank

General data:

Rating of conductor bars according to DIN 43 670/671

Technical data**SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism**

Operating times and internal times, short-circuit protection of motors, consumption data of releases

**Operating times and internal times**

Operating times at rated voltage of the secondary circuit	Circuit-breaker equipment	Circuit-breaker operating time
Closing time	–	≤ 60 ms
Opening time	1 st and 2 nd shunt release	≤ 30 ms
	Further releases	≤ 45 ms
Arcing time	–	< 15 ms
Break time	1 st and 2 nd shunt release	≤ 45 ms
	Further releases	≤ 60 ms
CLOSE/OPEN time	1 st and 2 nd shunt release	≤ 45 ms
	Further releases	≤ 60 ms
Minimum command duration	Closing solenoid	45 ms
	1 st and 2 nd shunt release	40 ms
	Further releases	20 ms
Impulse time for circuit-breaker tripping signal	1 st and 2 nd shunt release	> 10 ms
	Further releases	> 6 ms
Charging time for electrical operation		< 15 s
Synchronism error between the poles		≤ 2 ms

Short-circuit protection of motors (protection of drive motors)

Rated voltage of the motor V	Operating voltage		Power consumption of the motor W/VA	Smallest possible rated current ¹⁾ of the m.c.b. with C-characteristic A
	max. V	min. V		
DC 24	26	20	140 + -50	2
DC 48	53	41	110	1
DC 60	66	51	130	1
DC 110	121	93	100	0.5
DC 220	242	187	110	0.315
AC 110	121	93	170	0.315
AC 230	244	187	200	0.25

¹⁾ The inrush current in the motor can be neglected due to its very short presence.**Consumption data of releases**

Release	Power consumption		Tripping ranges	
	Operation at		Tripping voltage	Tripping voltage or tripping current
	DC approx. W	AC 50/60 Hz approx. VA	at DC	at AC 50/60 Hz
Closing solenoid 3AY14 10	300 ... 370	300 ... 370	85 ... 110% U	85 ... 110% U
1 st and 2 nd shunt release (without mechanical energy store) 3AY14 10	300	300	70 ... 110% U	85 ... 110% U
Undervoltage release 3AX11 03	20	20	35 ... 0% U	35 ... 0% U
Current-transformer-operated release 3AX14 02 (rated normal current 0.5 A, 1 A or 5 A)	–	10 ²⁾	–	90 ... 110% I _a
Current-transformer-operated release 3AX11 04 (tripping pulse ≥ 0.1 Ws)	–	–	–	–

²⁾ Consumption at pickup current (90 % of the rated normal current) and open armature.



Circuit diagrams / operating instructions and dimensions for 3AE6 can be found at the Siemens Industry Online Support (SIOS):

www.siemens.com/product-support



Manual for SION Lateral - Vacuum Circuit-Breakers
(12 kV – 24 kV/16 kA – 25 kA)
Available in the following languages:
Portuguese, Spanish, French, English, Italian, Russian,
Polish, German
www.siemens.com/product-support (109767547)



Circuit diagrams for SION circuit-breakers 3AE6
www.siemens.com/product-support (109746957)



3



Medium-voltage components portfolio 3AE6
www.siemens.com/product-support (109770010)



3









Switchgear Factory in Berlin, Germany

R-HG11-180.eps

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Configuration aid

Foldout page

Annex

Inquiry form

SION Vacuum Circuit-Breaker 3AE6 with Lateral Operating Mechanism

Please copy, fill in and
return to your Siemens partner.

Inquiry concerning

SION
vacuum circuit-breaker
for 12 kV and 24 kV

Please

- ☐ Submit an offer
☐ Call us
☐ Visit us

Your address

Company

Department

Name

Street

Postal code / city

Country

Phone

Fax

E-mail

Siemens AG

Department

Name

Street

Postal code/ city

Country

Fax

Technical data

	Other values			
Rated voltage	☐ 12 kV	☐ 24 kV	☐ ___ kV	
Rated lightning impulse withstand voltage	☐ 75 kV	☐ 125 kV	☐ ___ kV	
Rated short-duration power-frequency withstand voltage	☐ 28 kV ☐ 65 kV	☐ 42 kV	☐ 50 kV	☐ ___ kV
Rated short-circuit breaking current	☐ 16 kA	☐ 20 kA	☐ 25 kA	☐ ___ kA
Rated normal current	☐ 630 A	☐ 800 A	☐ 1250 A	☐ ___ A
Pole-center distance	☐ 150 mm ☐ 300 mm	☐ 210 mm	☐ 230 mm	☐ 250 mm

Secondary equipment

For possible combinations, see page 18 to 21

Circuit-breaker installation accessories	☐ Fixed mounting	☐ With rollers
Drive motor	☐ DC ___ V	☐ AC ___ V, ___ Hz
Closing solenoid	☐ DC ___ V	☐ AC ___ V, ___ Hz
1 st shunt release	☐ DC ___ V	☐ AC ___ V, ___ Hz
2 nd shunt release	☐ DC ___ V	☐ AC ___ V, ___ Hz
C.t.-operated release	☐	
Undervoltage release	☐ DC ___ V	☐ AC ___ V, ___ Hz
Auxiliary switch	☐ 6 NO + 6 NC	☐ 12 NO + 12 NC
Low-voltage connection	☐ 20-pole connection strip	☐ 64-pole plug
☐ Mechanical interlocking		
☐ Electrical closing lockout	☐ Key-operated interlocking	
Operating instructions	☐ German	☐ English
	☐ French	☐ Spanish

Application and other requirements

☐ Please check off

___ Please fill in

You prefer to configure your SION vacuum circuit-breaker on your own?

Please follow the steps for configuration and enter the order number in the configuration aid.

Instruction for configuration of the SION vacuum circuit-breaker

1st step: Definition of the circuit-breaker and equipment package (see pages 15 to 17)

Please specify the following ratings:	Possible options:
Rated voltage (U_r)	U_r : 12 kV and 24 kV
Rated lightning impulse withstand voltage (U_p)	U_p : 75 kV and 125 kV
Rated short-duration power-frequency withstand voltage (U_d)	U_d : 28 kV, 42 kV, 50 kV, 65 kV
Rated short-circuit breaking current (I_{sc})	I_{sc} : 16 kA to 25 kA
Rated normal current (I_r)	I_r : 630 A to 1250 A
Pole-center distance	150 mm to 300 mm

These ratings define the positions 5 to 8 of the order number.

2nd step: Definition of the secondary equipment (see pages 18 to 21)

Please specify the following equipment features:	Possible options:
Release combination (position 9)	Shunt release, current-transformer-operated release, and undervoltage release
Closing solenoid (position 10)	Operating voltages from 24 V DC to 240 V AC
Operating voltages of the releases (positions 11/12)	Operating voltages from 24 V DC to 240 V AC
Installation accessories (position 13)	Fixed-mounted, with rollers, special SIMOSEC version
Drive motor (position 14)	Operating voltages from 24 V DC to 240 V AC
Type of auxiliary switches (position 15)	6 NO + 6 NC, 12 NO + 12 NC
Design of the control cable connection (position 15)	20-pole connection strip, 64-pole plug
Mechanical interlocking, key-operated interlocking, electrical closing lockout (position 15, and further supplements)	With or without
Language of the documentation (position 16)	English, German, French, Spanish, Russian; further languages on request
Frequency of the operating voltage of the secondary equipment at AC (position 16)	DC or AC 50 Hz; 60 Hz

These equipment features define the positions 9 to 16 of the order number.

3rd step: Do you have any further requirements concerning the equipment? (see page 23)

Your Siemens sales partner will be pleased to assist you.

For configuration of your
SION vacuum circuit-breaker

1	2	3	4	5	6	7	-	8	9	10	11	12	-	13	14	15	16
3	A	E	■	■	■	■	-	■	■	■	■	■	-	■	■	■	■
				see page 15 to see page 15				see page 18	see page 18	see page 19	see page 19		see page 22	see page 20	see page 20	see page 21	see page 23

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