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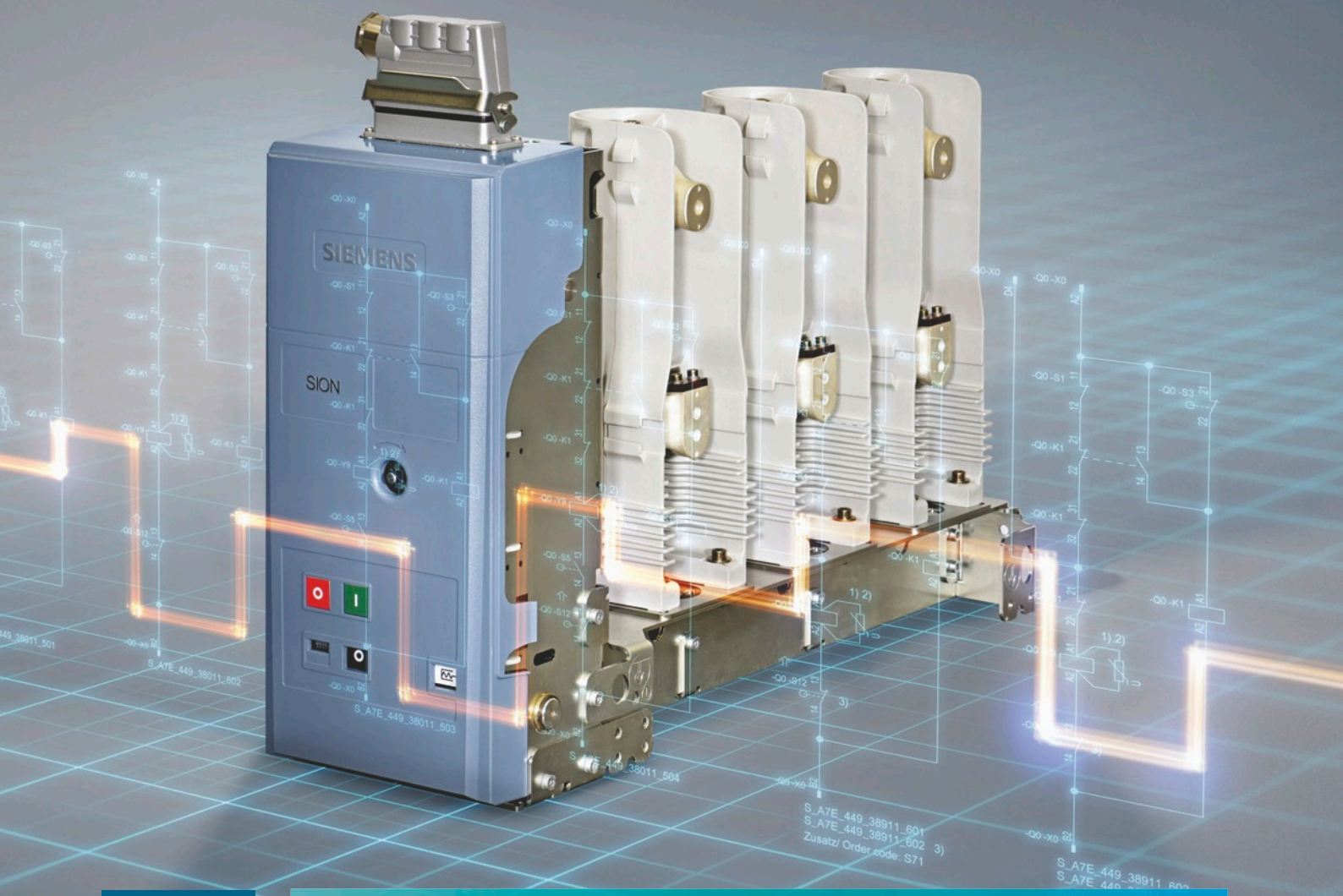

Catalog
HG11.07
Edition
10/2018

SION Lateral
Vacuum Circuit-Breaker with Lateral Operating Mechanism

3AE6

Medium-Voltage Equipment

siemens.com/SION

SION 3AE6 Vacuum Circuit-Breaker

Medium-Voltage Equipment
Catalog Abridged HG 11.07 · 10/2018

Contents Page

MANAGEMENT SYSTEM CERTIFICATION
DNV·GL
ISO 9001 = ISO 14001
OHSAS 18001

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).

SION 3AE6 Lateral vacuum circuit-breakers from 12 kV to 24 kV

SION vacuum circuit-breakers control all switching operations in medium-voltage distribution systems and are suitable for installation in all established and new air-insulated medium-voltage switchgear 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 comprehensive range of lateral circuit-breakers offers a wide selection of pole-center distances as well as various equipment 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 10000 maintenance-free operating cycles.

3AE61 SION Lateral for 12 kV

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3AE63 SION Lateral for 24 kV

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Thanks to a range of equipment 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 element 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 (6). The vacuum interrupter (5) is mounted rigidly to the upper interrupter support. The lower part of the interrupter is guided into the lower interrupter support, allowing axial movement. The pole shell (6) absorbs external forces resulting from switching operations and the contact pressure.

Operating mechanism

The whole operating mechanism with motor (13), releases, indicators and actuating devices is mounted on the mechanism mounting plate (9). 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 (12) can be charged either electrically or manually, and latches in automatically when charging is complete. The closing spring (12) acts as a stored-energy mechanism.

To close the breaker, the closing spring (12) can be unlatched either mechanically at the device (ON pushbutton), or electrically by remote control. The closing spring (12) charges the opening and/or contact-pressure springs as the breaker closes. The now discharged closing spring (12) will be charged again automatically by the motor (13).

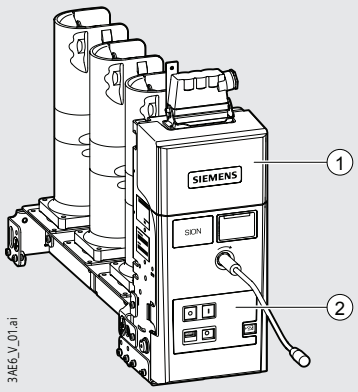
In this way, the stored-energy mechanism stores the OPEN – CLOSE – OPEN operating sequence that is required for an auto-reclosing operation on the system side. All stored-energy mechanisms perform the switching duties of synchronizing, rapid load transfer, and auto-reclosing.

Trip-free mechanism

The circuit-breakers have a trip-free mechanism. In the event of an opening command being given after a closing operation has been initiated, the moving contacts 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.

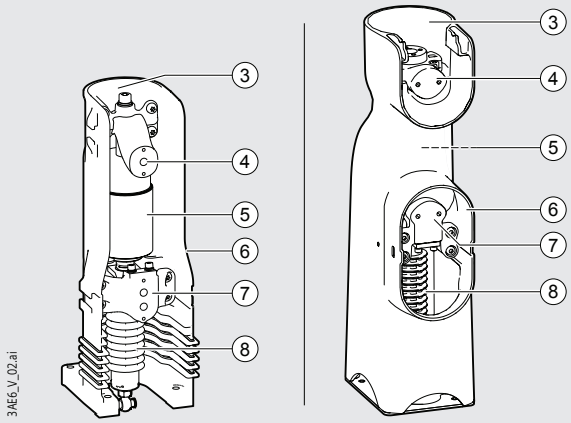
For charging the closing spring (12), the motor (13) operates in short-time duty. Therefore the voltage and power consumption might differ from the data of the motor rating plate.

3AE6



Front view

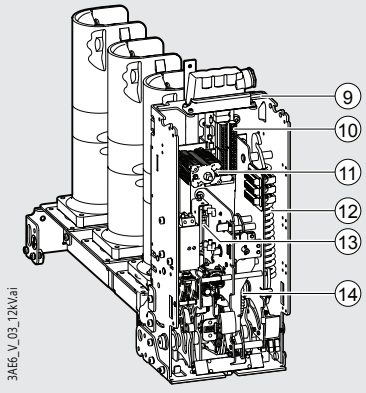
1 Cover of low-voltage interface
2 Central control board



12 kV 24 kV

Pole structure

3 Separating shell to the operating mechanism
4 Upper connection
5 Vacuum interrupter
6 Pole shell
7 Lower connection
8 Insulator



Pole structure

9 Mechanism mounting plate
10 Terminal strip
11 Auxiliary switch
12 Closing spring
13 Motor
14 Gear

Releases

A release is a device which transfers electrical commands from an external source, such as a control room, to the latching mechanism of the vacuum 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.

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

Closing solenoid

The closing solenoid unlatches the charged closing spring of the vacuum 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 stored energy mechanism, an unlatching mechanism and an electromagnet 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. overcurrent time protection) acting on the current-transformer-operated release.

Undervoltage releases

Undervoltage releases consist of a stored-energy mechanism, an unlatching mechanism and an electromagnet system which 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 release is enabled and the circuit-breaker is opened via the stored-energy mechanism.

A maximum of two releases can be equipped in accordance with page 13. The consumption data of the releases is listed on page 28.

Closing and anti-pumping

In the standard version, the circuit-breakers can be closed electrically via 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 CLOSE command is given only following a brief interruption of the closing signal. This prevents continuous closing and opening (= “pumping”) operations.

Closing spring charged indication

The circuit-breakers have a mechanically operated spring charged indicator. The charging status of the closing spring 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.

For the corresponding circuit diagrams, refer to page 29.

Interlocking

Mechanical interlocking

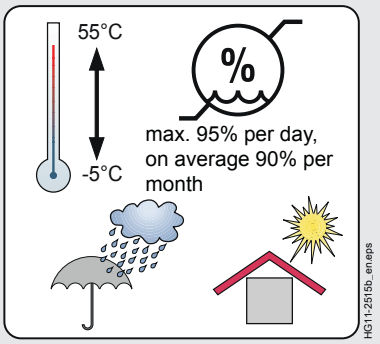
At the interface of the mechanical interlocking of the circuit-breaker, sensors on the switchgear side can check the switch position and prevent the associated disconnector from being operated while the circuit-breaker is closed. The system also prevents the circuit-breaker from being closed while the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

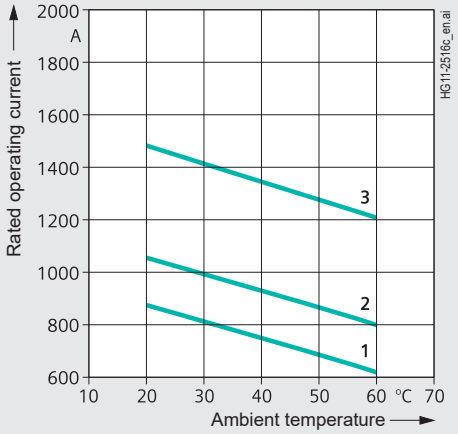
Electrical interlocking

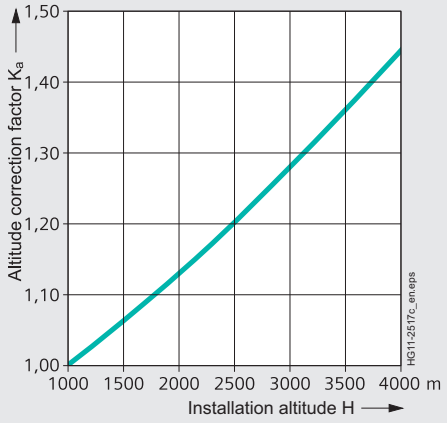
The auxiliary and signaling contacts which show the switch position of the circuit-breaker electrically can be integrated into the switchgear interlocking concept in order to prevent impermissible switching sequences.

Low-voltage interface

The removable cover of the SION 3AE6 vacuum circuit-breakers enables easy access to the low-voltage interface. All customer-side control and signaling options are concentrated here.







Ambient conditions

The circuit-breakers are designed for normal operating 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 3K4 [1]
Biological ambient conditions:	Class 3B1
Mechanical ambient conditions:	Class 3M2
Chemically active substances:	Class 3CS [3]
Mechanically active substances:	Class 3S2 [2]

1) Lower temperature limit: -5 °C (with order code A40 down to -25 °C)
2) Restriction: Clean insulation 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 operating currents can be carried (see diagram):

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

Dielectric strength

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

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 installation location
K_a Altitude correction factor according to the opposite diagram

Example

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

90 kV ≥ 75 kV x 1.2

Standards

The circuit-breakers conform to the following standards:

- IEC 62271-1
- IEC 62271-100

All circuit-breakers fulfill the endurance classes C2, E2, M2 and S1 according to IEC 62271-100.

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

Maintenance-free design

The circuit-breakers are maintenance-free:

- Under normal ambient conditions according to IEC 62271-1
- Up to 10000 operating cycles

– no regreasing
– no readjusting

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

Product range overview

Type	Rated voltage	Rated short-circuit breaking current	Rated operating current	Pole-center distance [mm]				
				150	210	230	250	300
				Width across flats [mm]				
	kV	kA	A	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.

Basic equipment

Equipment	Minimum equipment	Alternative equipment	Remarks
Operating mechanism	Electrical operating mechanism	-	Also for manual operation
Closing	Closing solenoid and mechanical manual closing	-	-
1st release	Shunt release	-	-
2nd release	None	Shunt release, undervoltage release, c.t.-operated release	Maximum of two releases possible
Varistor circuit	Standard for ≥ 60 V DC	-	For limiting switching overvoltages
Auxiliary switch	6 NO + 6 NC	12 NO + 12 NC	-
Plug connection	20-pole terminal strip	24-pole plug connector 64-pole plug connector	12 NO + 12 NC not available with 24-pole plug
Anti-pumping	Available	-	-
Circuit-breaker tripping signal	None	Possible	-
Operation cycles counter	Available	-	-
Mechanical interlocking	None	Key-operated interlocking Mechanical interlocking	Interlock to prevent reclosing
Insertion aid	None	Wheels	-
Cover	Plastic cover	Metal cover	-

Article number structure

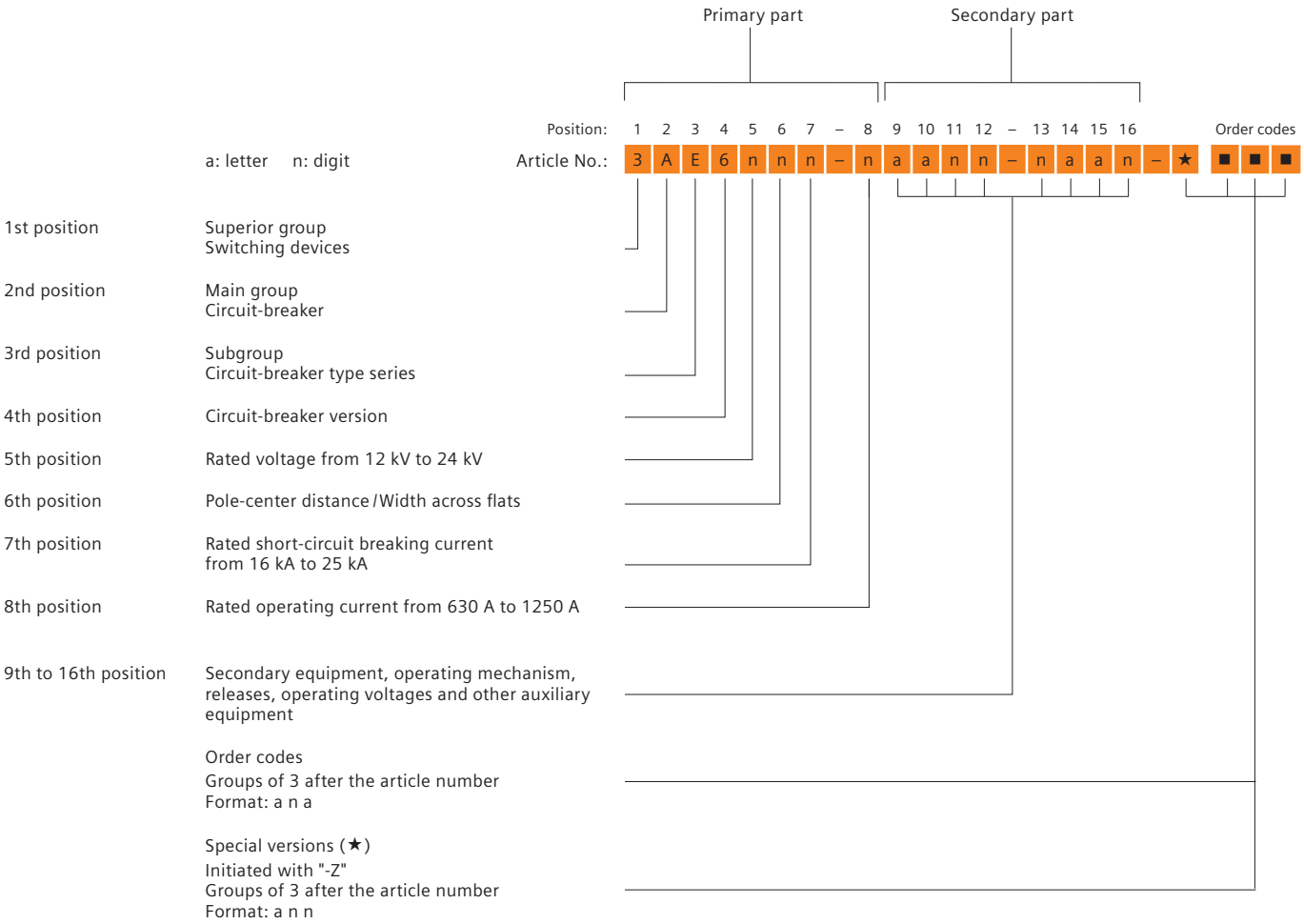
The circuit-breakers consist of a primary and a secondary part. The primary part covers the main electrical data of the circuit-breaker poles. The secondary part covers the auxiliary devices which are necessary for operating and controlling the vacuum circuit-breaker. The relevant data makes up the 16-digit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

Order codes

Individual equipment versions, 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 article number in succession and in any sequence.

Special versions (★)

In case of special versions, "-Z" is added to the article 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 with us. The consultation must take place directly between your sales partner and the order processing department at Siemens.



Device selection

Selection for 3AE6 circuit-breakers

																																Order codes
										1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		★			
										3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
Rated voltage for 50/60 Hz U_r kV	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Rated short-circuit breaking current with 50% DC share I_{sc} kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Pole-center distance mm	Width across flats mm	Terminals left/right	Rated operating current I_r A	see page 13																							
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														
							L	630		3	A	E	6	1	5	3	–	0														
			20	50/52	150		R	800		3	A	E	6	1	0	3	–	1														
							L	800		3	A	E	6	1	5	3	–	1														
			20	50/52	150		R	1250		3	A	E	6	1	0	3	–	2														
							L	1250		3	A	E	6	1	5	3	–	2														
12	75	28	25	63/65	150	205	R	630		3	A	E	6	1	0	4	–	0														
							L	630		3	A	E	6	1	5	4	–	0														
			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														
12	75	28	16	40/42	210	205	R	630		3	A	E	6	1	1	2	–	0														
							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														
12	75	28	20	50/52	210	205	R	630		3	A	E	6	1	1	3	–	0														
							L	630		3	A	E	6	1	6	3	–	0														
			20	50/52	210		R	800		3	A	E	6	1	1	3	–	1														
							L	800		3	A	E	6	1	6	3	–	1														
			20	50/52	210		R	1250		3	A	E	6	1	1	3	–	2														
							L	1250		3	A	E	6	1	6	3	–	2														
12	75	28	25	63/65	210	205	R	630		3	A	E	6	1	1	4	–	0														
							L	630		3	A	E	6	1	6	4	–	0														
			25	63/65	210		R	800		3	A	E	6	1	1	4	–	1														
							L	800		3	A	E	6	1	6	4	–	1														
			25	63/65	210		R	1250		3	A	E	6	1	1	4	–	2														
							L	1250		3	A	E	6	1	6	4	–	2														
12	75	28	16	40/42	230	205	R	630		3	A	E	6	1	2	2	–	0														
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			16	40/42	230		R	800		3	A	E	6	1	2	2	–	1														
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							L	1250		3	A	E	6	1	7	2	–	2														
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	1250		3	A	E	6	1	2	3	–	2														
							L	1250		3	A	E	6	1	7	3	–	2														
12	75	28	25	63/65	230	205	R	630		3	A	E	6	1	2	4	–	0														
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			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														
12	75	28	16	40/42	250	205	R	630		3	A	E	6	1	3	2	–	0														
							L	630		3	A	E	6	1	8	2	–	0														
			16	40/42	250		R	800		3	A	E	6	1	3	2	–	1														
							L	800		3	A	E	6	1	8	2	–	1														
			16	40/42	250		R	1250		3	A	E	6	1	3	2	–	2														
							L	1250		3	A	E	6	1	8	2	–	2														
12	75	28	20	50/52	250	205	R	630		3	A	E	6	1	3	3	–	0														
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			20	50/52	250		R	1250		3	A	E	6	1	3	3	–	2														
							L	1250		3	A	E	6	1	8	3	–	2														
12	75	28	25	63/65	250	205	R	630		3	A	E	6	1	3	4	–	0														
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			25	63/65	250		R	800		3	A	E	6	1	3	4	–	1														
							L	800		3	A	E	6	1	8	4	–	1														
			25	63/65	250		R	1250		3	A	E	6	1	3	4	–	2														
							L	1250		3	A	E	6	1	8	4	–	2														

Special versions — U_d = 42 kV for 12 kV devices of GOST standard — - Z E 1 3

Device selection

Selection for 3AE6 circuit-breakers

									1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		Order codes		
									3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■
$\underline{\cup}$ U_r Rated voltage for 50/60 Hz kV	$\underline{\cup}$ U_p Rated lightning impulse voltage kV	$\underline{\cup}$ U_d Rated short-duration power-frequency withstand voltage kV	I_{sc} Rated short-circuit breaking current with 50% DC share kA	I_{ma} Rated short-circuit making current (at 50/60 Hz) kA	Pole-center distance mm	Width across flats mm	Terminals left/right	I_r Rated operating current A										see page 13												
24	125	50	16	40/42	210	237.5	R	630	3	A	E	6	3	1	2	–	0												
							L	630	3	A	E	6	3	6	2	–	0												
			16	40/42	210		R	800	3	A	E	6	3	1	2	–	1												
							L	800	3	A	E	6	3	6	2	–	1												
			16	40/42	210		R	1250	3	A	E	6	3	1	2	–	2												
							L	1250	3	A	E	6	3	6	2	–	2												
24	125	50	20	50/52	210	237.5	R	630	3	A	E	6	3	1	3	–	0												
							L	630	3	A	E	6	3	6	3	–	0												
			20	50/52	210		R	800	3	A	E	6	3	1	3	–	1												
							L	800	3	A	E	6	3	6	3	–	1												
			20	50/52	210		R	1250	3	A	E	6	3	1	3	–	2												
							L	1250	3	A	E	6	3	6	3	–	2												
24	125	50	25	63/65	210	237.5	R	630	3	A	E	6	3	1	4	–	0												
							L	630	3	A	E	6	3	6	4	–	0												
			25	63/65	210		R	800	3	A	E	6	3	1	4	–	1												
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24	125	50	16	50/52	230	237.5	R	630	3	A	E	6	3	2	2	–	0												
							L	630	3	A	E	6	3	7	2	–	0												
			16	40/42	230		R	800	3	A	E	6	3	2	2	–	1												
							L	800	3	A	E	6	3	7	2	–	1												
			16	40/42	230		R	1250	3	A	E	6	3	2	2	–	2												
							L	1250	3	A	E	6	3	7	2	–	2												
24	125	50	20	50/52	230	237.5	R	630	3	A	E	6	3	2	3	–	0												
							L	630	3	A	E	6	3	7	3	–	0												
			20	50/52	230		R	800	3	A	E	6	3	2	3	–	1												
							L	800	3	A	E	6	3	7	3	–	1												
			20	50/52	230		R	1250	3	A	E	6	3	2	3	–	2												
							L	1250	3	A	E	6	3	7	3	–	2												
24	125	50	25	63/65	230	237.5	R	630	3	A	E	6	3	2	4	–	0												
							L	630	3	A	E	6	3	7	4	–	0												
			25	63/65	230		R	800	3	A	E	6	3	2	4	–	1												
							L	800	3	A	E	6	3	7	4	–	1												
			25	63/65	230		R	1250	3	A	E	6	3	2	4	–	2												
							L	1250	3	A	E	6	3	7	4	–	2												
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	8	2	–	0												
			16	40/42	250		R	800	3	A	E	6	3	3	2	–	1												
							L	800	3	A	E	6	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	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	8	3	–	0												
			20	50/52	250		R	800	3	A	E	6	3	3	3	–	1												
							L	800	3	A	E	6	3	8	3	–	1												
			20	50/52	250		R	1250	3	A	E	6	3	3	3	–	2												
							L	1250	3	A	E	6	3	8	3	–	2												
24	125	50	25	63/65	250	237.5	R	630	3	A	E	6	3	3	4	–	0												
							L	630	3	A	E	6	3	8	4	–	0												
			25	63/65	250		R	800	3	A	E	6	3	3	4	–	1												
							L	800	3	A	E	6	3	8	4	–	1												
			25	63/65	250		R	1250	3	A	E	6	3	3	4	–	2												
							L	1250	3	A	E	6	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												

Device selection

Additional equipment for 3AE6 circuit-breakers

1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		Order codes			
3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■

U_r Rated voltage for 50/60 Hz kV	U_p Rated lightning impulse voltage kV	U_d Rated short-duration power-frequency withstand voltage kV	I_{sc} Rated short-circuit breaking current with 50% DC share kA	I_{ma} Rated short-circuit making current (at 50/60 Hz) kA	Pole-center distance mm	Width across flats mm	Terminals left/right	I_r Rated operating current A	see page 13													
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 versions U_d = 65 kV for 24 kV devices

-	Z	E	6	5

9th position
Release combination [1]

1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16		Order codes			
3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■

1st shunt release	2nd shunt release	Undervoltage release	Current-transformer-operated release 0.5 A [2]	Current-transformer-operated release 1.0 A [2]	Current-transformer-operated release with tripping pulse ≥ 0.1 Ws (10 Ω)	Current-transformer-operated release with tripping pulse ≥ 0.1 Ws (20 Ω)	see page 14	see page 14	see page 15	see page 15	see page 15	see page 16							
I										A									
I	II									B									
I						II				C									
I					II					D									
I			II							G									
I				II						H									
I		II								F									

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

[1] Operating voltage is selected at positions 11 + 22

[2] Special version with 5 A c.t.-operated release can be ordered with order code A49

-	Z	A	4	9

10th position
Operating voltage of the closing solenoid

Standard voltages	
None	A
24 V DC	B
48 V DC	C
60 V DC	D
110 V DC	E
220 V DC	F
100 V AC 50/60 Hz [3]	H
110 V AC 50/60 Hz [3]	J
230 V AC 50/60 Hz [3]	K
30 V DC	M
32 V DC	N
120 V DC	P
125 V DC	Q
127 V DC	R
240 V DC	S
120 V AC 50/60 Hz [3]	U
125 V AC 50/60 Hz [3]	V
240 V AC 50/60 Hz [3]	W

[3] The AC frequency 50 or 60 Hz is selected at the 16th position of the article number together with the language (see page 16)

11th position
Operating voltage of the 1st release

1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16	–	★	Order codes		
3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■

Standard voltages	Standard voltages	see page 15	see page 15	see page 15	see page 16					
24 V DC						1				
48 V DC						2				
60 V DC						3				
110 V DC						4				
220 V DC						5				
100 V AC 50/60 Hz [1]						6				
110 V AC 50/60 Hz [1]						7				
230 V AC 50/60 Hz [1]						8				
	30 V DC					9		L	1	A
	32 V DC					9		L	1	B
	120 V DC					9		L	1	C
	125 V DC					9		L	1	D
	127 V DC					9		L	1	E
	240 V DC					9		L	1	F
	120 V AC 50/60 Hz [1]					9		L	1	K
	125 V AC 50/60 Hz [1]					9		L	1	L
	240 V AC 50/60 Hz [1]					9		L	1	M

12th position
Operating voltage of the 2nd release

Standard voltages	Standard voltages									
None or c.t.-operated release						0				
24 V DC						1				
48 V DC						2				
60 V DC						3				
110 V DC						4				
220 V DC						5				
100 V AC 50/60 Hz [1]						6				
110 V AC 50/60 Hz [1]						7				
230 V AC 50/60 Hz [1]						8				
	30 V DC					9		M	1	A
	32 V DC					9		M	1	B
	120 V DC					9		M	1	C
	125 V DC					9		M	1	D
	127 V DC					9		M	1	E
	240 V DC					9		M	1	F
	120 V AC 50/60 Hz [1]					9		L	1	K
	125 V AC 50/60 Hz [1]					9		M	1	L
	240 V AC 50/60 Hz [1]					9		M	1	M

[1] The AC frequency 50 or 60 Hz is selected at the 16th position of the article number together with the language (see page 16)

13th position
Attachment of wheels

1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16	–	★	■	■	■	Order codes
3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■	

Transport/movement wheels	13
No movement wheels	0
With movement wheels	1

14th position
Operating voltage of the drive motor

1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16	–	★	■	■	■	Order codes
3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■	

Standard voltages	14
No motor	A
24 V DC	B
48 V DC	C
60 V DC	D
110 V DC	E
220 V DC	F
100 V AC 50/60 Hz [1]	H
110 V AC 50/60 Hz [1]	J
230 V AC 50/60 Hz [1]	K
30 V DC	M
32 V DC	N
120 V DC	P
125 V DC	Q
127 V DC	R
240 V DC	S
120 V AC 50/60 Hz [1]	U
125 V AC 50/60 Hz [1]	V
240 V AC 50/60 Hz [1]	W

[1] AC voltage refers to the low-voltage equipment

15th position
Interlocking, auxiliary switch, low-voltage interface

1	2	3	4	5	6	7	–	8	9	10	11	12	–	13	14	15	16	–	★	■	■	■	Order codes
3	A	E	6	■	■	■	–	■	■	■	■	■	–	■	■	■	■	–	★	■	■	■	

Mechanical interlocking	Auxiliary switch: 6 NO + 6 NC	Auxiliary switch: 12 NO + 12 NC	Circuit-breaker tripping signal	Low-voltage interface: 20-pole terminal strip	Low-voltage interface: 24-pole plug connector	Low-voltage interface: 64-pole plug connector	15	16
	■		■	■			B	see page 16
	■			■			D	
	■		■		■		F	
	■				■		H	
		■	■	■			K	
		■		■			M	
		■	■			■	R	
		■				■	Q	
■	■		■	■			A	
■	■			■			C	
■	■		■		■		E	
■	■				■		G	
■		■	■	■			J	
■		■		■			L	
■		■	■			■	N	
■		■				■	P	

Device selection
Additional equipment for 3AE6 circuit-breakers

16th position
Language version of the operating instructions and rating plate, as well as AC voltage frequency of the operating voltages [1]

Language selection				Frequency selection		16th position	Order codes
German	English	French	Spanish	50 Hz DC or AC	60 Hz		
■				■		0	
■					■	1	
	■			■		2	
	■				■	3	
		■		■		4	
		■			■	5	
			■	■		6	
			■		■	7	
Special versions							
Portuguese, 50 Hz / DC						9	R 1 C
Portuguese, 60 Hz						9	R 1 D
Italian, 50 Hz / DC						9	R 1 F
Russian, 50 Hz / DC						9	R 1 G
Polish, 50 Hz / DC						9	R 1 K
Other languages on request							

[1] AC voltage refers to the low-voltage equipment

Additional equipment

Options	Order codes
Wire ends with marking at the plug connector	Z A 0 5
Wiring cables halogen-free and flame-retardant	Z A 1 0
Wiring cables tinned	Z A 1 2
Anti-condensation heating for 110 V AC, 50 W	Z A 2 9
Anti-condensation heating for 230 V AC, 50 W	Z A 3 0
Circuit-breaker for operation at ambient air temperatures down to -25 °C	Z A 4 0
Without upper part of plug	Z B 2 3
Without supplementary equipment	Z B 2 4
Rated short-duration power-frequency withstand voltage U_d = 42 kV	Z E 1 3
Rated short-duration power-frequency withstand voltage U_d = 65 kV	Z E 6 5
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
Switch-off interlocking	Z J 5 5
Key-operated interlocking	Z J 6 0
Other special versions not listed here (following consultation with order processing department at Berlin switchgear factory) specified additionally in plain text	Z Y 9 9

Ordering information for accessories and spare parts

The article numbers in the spare part overviews are valid for currently manufactured vacuum circuit-breakers. When mounting parts or spare parts are being ordered for an existing vacuum circuit-breaker, always quote the type designation, 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 article 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.

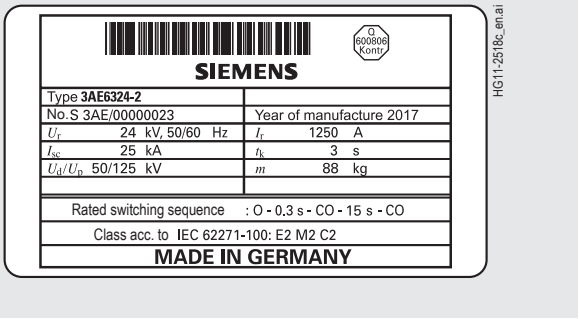
Accessories for the plug connector

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

For 24-pole plug connector
– Lower part of plug
– Crimp sockets according to number of contacts
– Upper part of plug with screwed contacts (no crimp sockets required)

For 64-pole plug connector
– Lower part of plug
– Upper part of plug
– Crimp sockets according to number of contacts

Rating plate



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	Article No.
Handles	Hand crank for circuit-breaker		3AX15 30-4B
Lubricants	180 g of Klüber-Isoflex Topas L32N		3AX11 33-3H
	1 kg of Klüber-Isoflex Topas L32N		3AX11 33-3E
	1 kg Molykote grease		3AX11 33-2L
	1 kg Vaseline, Atlantic		3AX11 33-4A
Covers	Metal cover		3AX14 70-4A
	Plastic cover		3AX14 70-5A
Interlocking	Mounting kit for key-operated interlock		3AX14 37-4A
Insulating shells for contact arms	Insulating shell, top	24 kV	3AX14 38-4B
	Insulating shell, bottom	24 kV	3AX14 38-5B

		Position:	1 – 9
Designation	Description	Feature	Article No.
Closing solenoid		24 – 32 V DC	3AY14 10-0B
		48 V DC	3AY14 10-0C
		60 V DC	3AY14 10-0D
		110 – 127 V DC	3AY14 10-0E
		220 – 240 V DC	3AY14 10-0F
		100/125 V AC, 50/60 Hz	3AY14 10-0J
		230/240 V AC, 50/60 Hz	3AY14 10-0K
2nd shunt release		24 – 32 V DC	3AX11 01-2B
		48 – 60 V DC	3AX11 01-2C
		110 – 127 V DC	3AX11 01-2E
		220 – 240 V DC	3AX11 01-2F
		100 – 125 V AC, 50 Hz	3AX11 01-2G
		230 – 240 V AC, 50 Hz	3AX11 01-2J
		100 – 125 V AC, 60 Hz	3AX11 01-3G
		230 – 240 V AC, 60 Hz	3AX11 01-3J
Mounting parts	For 2nd shunt release		3AX14 11-5A
Current-transformer-operated release	For rated operating current 0.5 A		3AX11 02-2A
	For rated operating current 1 A		3AX11 02-2B
	For tripping impulse ≥ 0.1 Ws, 20 Ω for 7SJ45 protection relay		3AX11 04-2B
	For rated operating current 5 A incl. rectifier		3AX14 02-2E
Mounting parts	For current-transformer-operated releases		3AX14 11-5A
Undervoltage release		24 V DC	3AX11 03-2B
		30/32 V DC	3AX11 03-2L
		48 V DC	3AX11 03-2C
		60 V DC	3AX11 03-2D
		110 V DC	3AX11 03-2E
		120/127 V DC	3AX11 03-2N
		220 V DC	3AX11 03-2F
		240 V DC	3AX11 03-2P
		100 V AC, 50 Hz	3AX11 03-2G
		110/125 V AC, 50 Hz	3AX11 03-2H
		230 V AC, 50 Hz	3AX11 03-2J
		240 V AC, 50 Hz	3AX11 03-2M
		100 V AC, 60 Hz	3AX11 03-3G
		110/125 V AC, 60 Hz	3AX11 03-3H
		230 V AC, 60 Hz	3AX11 03-3J
		240 V AC, 60 Hz	3AX11 03-3M
Mounting parts	For undervoltage releases		3AX14 13-5A
Drive motor		24/30/32 V DC	3AY14 11-0B
		48/60 V DC	3AY14 11-0C
		110 – 127 V DC 100 – 125 V AC	3AY14 11-0E
		220 – 240 V DC 220 – 240 V AC	3AY14 11-0F

			Position: 1 – 9
Designation	Description	Feature	Article No.
Electronic module		24 – 60 V DC	3AY14 20-1B
		110 – 240 V DC 100 – 240 V AC	3AY14 20-1E
PG cable gland			3AX14 58-0A
Anti-condensation	Anti-condensation heating for 230 V AC, 50 W		3AX14 57-5A
heating	Anti-condensation heating for 110 V AC, 50 W		3AX14 57-5B
Position switches	Type SE4 without mounting accessories		3AX42 06-0A
	Used for:	Quantity	
	– Electrical anti-pumping (-S3)	1	
	– Electrical interlocking (-S12)	1	
	– Motor control (-S21, -S22)	2	
	– Closing spring charged (-S4)	1	
	– Circuit-breaker tripping signal (-S6)	1	
Auxiliary switches (-S1)	6 NO + 6 NC		3SV92 73-2AA0
	12 NO + 12 NC		3SV92 74-2AA0
Accessories for	Crimp pins (for conductor cross-section 1.5 mm)	24-pole	3AX11 34-3A
plug connection	Crimp pins (for lower part of plug)	64-pole	3AX11 34-4B
	Crimp sockets (for upper part of plug)	64-pole	3AX11 34-4C
	Crimping pliers		3AX11 34-4D
	Disassembly tool		3AX11 34-4G
	Plug connector, complete	24-pole	3AX11 34-7A
		64-pole	3AX11 34-6A

Technical data

Electrical data, dimensions and masses

12 kV 50/60 Hz Article No.	Rated operating current I_r A	Width across flats mm	Pole-center distance mm	Rated switching sequence: O – 0.3 s – CO – 15 s – CO ■	Rated short-circuit duration t_k s	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current %	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance Interrupters mm	Minimum creepage distance Phase-to-earth mm	Minimum clearance Phase-to-phase mm	Minimum clearance Phase-to-earth mm	Mass kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 25)
3AE6102-0	630	205	150	■	3	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6152-0	630	205	150	■	3	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6102-1	800	205	150	■	3	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6152-1	800	205	150	■	3	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6102-2	1250	205	150	■	3	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6152-2	1250	205	150	■	3	16	50	17.9	40/42	75	28	3	93	245	90	129	65	A7E10903020	1
3AE6103-0	630	205	150	■	3	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6153-0	630	205	150	■	3	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6103-1	800	205	150	■	3	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6153-1	800	205	150	■	3	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6103-2	1250	205	150	■	3	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6153-2	1250	205	150	■	3	20	50	22.4	50/52	75	28	3	93	245	90	129	65	A7E10903020	2
3AE6104-0	630	205	150	■	3	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6154-0	630	205	150	■	3	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6104-1	800	205	150	■	3	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6154-1	800	205	150	■	3	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6104-2	1250	205	150	■	3	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6154-2	1250	205	150	■	3	25	50	28	63/65	75	28	3	93	245	90	129	65	A7E10903020	3
3AE6112-0	630	205	210	■	3	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6162-0	630	205	210	■	3	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6112-1	800	205	210	■	3	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6162-1	800	205	210	■	3	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6112-2	1250	205	210	■	3	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6162-2	1250	205	210	■	3	16	50	17.9	40/42	75	28	3	93	245	150	129	70	A7E10903020	1
3AE6113-0	630	205	210	■	3	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6163-0	630	205	210	■	3	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6113-1	800	205	210	■	3	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6163-1	800	205	210	■	3	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6113-2	1250	205	210	■	3	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6163-2	1250	205	210	■	3	20	50	22.4	50/52	75	28	3	93	245	150	129	70	A7E10903020	2
3AE6114-0	630	205	210	■	3	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6164-0	630	205	210	■	3	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3

12 kV 50/60 Hz Article No.	Rated operating current I_r A	Width across flats mm	Pole-center distance mm	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k s	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current %	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance Interrupters mm	Minimum creepage distance Phase-to-earth mm	Minimum clearance Phase-to-phase mm	Minimum clearance Phase-to-earth mm	Mass kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 25)
3AE6114-1	800	205	210	■	3	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6164-1	800	205	210	■	3	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6114-2	1250	205	210	■	3	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6164-2	1250	205	210	■	3	25	50	28	63/65	75	28	3	93	245	150	129	70	A7E10903020	3
3AE6122-0	630	205	230	■	3	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6172-0	630	205	230	■	3	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6122-1	800	205	230	■	3	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6172-1	800	205	230	■	3	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6122-2	1250	205	230	■	3	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6172-2	1250	205	230	■	3	16	50	17.9	40/42	75	28	3	93	245	170	129	72	A7E10903020	1
3AE6123-0	630	205	230	■	3	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6173-0	630	205	230	■	3	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6123-1	800	205	230	■	3	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6173-1	800	205	230	■	3	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6123-2	1250	205	230	■	3	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6173-2	1250	205	230	■	3	20	50	22.4	50/52	75	28	3	93	245	170	129	72	A7E10903020	2
3AE6124-0	630	205	230	■	3	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6174-0	630	205	230	■	3	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6124-1	800	205	230	■	3	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6174-1	800	205	230	■	3	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6124-2	1250	205	230	■	3	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6174-2	1250	205	230	■	3	25	50	28	63/65	75	28	3	93	245	170	129	72	A7E10903020	3
3AE6132-0	630	205	250	■	3	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6182-0	630	205	250	■	3	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6132-1	800	205	250	■	3	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6182-1	800	205	250	■	3	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6132-2	1250	205	250	■	3	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6182-2	1250	205	250	■	3	16	50	17.9	40/42	75	28	3	93	245	190	129	73	A7E10903020	1
3AE6133-0	630	205	250	■	3	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6183-0	630	205	250	■	3	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6133-1	800	205	250	■	3	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6183-1	800	205	250	■	3	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2

12 kV
50/60 Hz

Article No.	Rated operating current I_r	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k	Rated short-circuit breaking current I_{sc}	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	Rated short-circuit making current (at 50/60 Hz) I_{ma}	Rated lightning impulse voltage U_p	Rated short-duration power-frequency withstand voltage U_d	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance Interrupters	Minimum creepage distance Phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 25)
	A	mm	mm	■	s	kA	%	kA	kA	kV	kV	mV	mm	mm	mm	mm	kg		
3AE6133-2	1250	205	250	■	3	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6183-2	1250	205	250	■	3	20	50	22.4	50/52	75	28	3	93	245	190	129	73	A7E10903020	2
3AE6134-0	630	205	250	■	3	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6184-0	630	205	250	■	3	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6134-1	800	205	250	■	3	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6184-1	800	205	250	■	3	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6134-2	1250	205	250	■	3	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3
3AE6184-2	1250	205	250	■	3	25	50	28	63/65	75	28	3	93	245	190	129	73	A7E10903020	3

■ Standard information on rating plate

24 kV
50/60 Hz

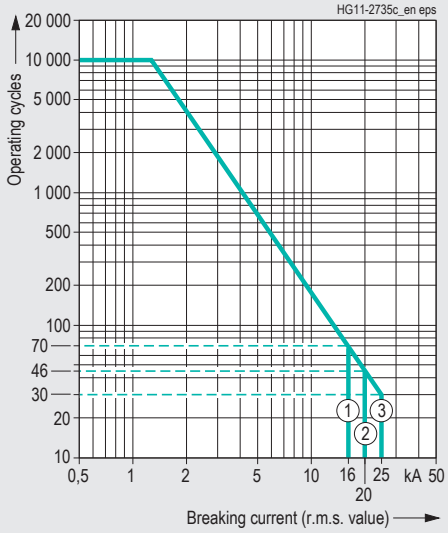
Article No.	Rated operating current I_r	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k	Rated short-circuit breaking current I_{sc}	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	Rated short-circuit making current (at 50/60 Hz) I_{ma}	Rated lightning impulse voltage U_p	Rated short-duration power-frequency withstand voltage U_d	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance Interrupters	Minimum creepage distance Phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 25)
	A	mm	mm	■	s	kA	%	kA	kA	kV	kV	mV	mm	mm	mm	mm	kg		
3AE6312-0	630	237.5	210	■	3	16	50	17.9	40/42	125	50	3	240	250	170	185	70	A7E10903000	4
3AE6362-0	630	237.5	210	■	3	16	50	17.9	40/42	125	50	3	240	250	170	185	70	A7E10903000	4
3AE6312-1	800	237.5	210	■	3	16	50	17.9	40/42	125	50	3	240	250	170	185	87	A7E10903000	4
3AE6362-1	800	237.5	210	■	3	16	50	17.9	40/42	125	50	3	240	250	170	185	87	A7E10903000	4
3AE6312-2	1250	237.5	210	■	3	16	50	17.9	40/42	125	50	3	240	250	170	185	87	A7E10903000	4
3AE6362-2	1250	237.5	210	■	3	16	50	17.9	40/42	125	50	3	240	250	170	185	87	A7E10903000	4
3AE6313-0	630	237.5	210	■	3	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5
3AE6363-0	630	237.5	210	■	3	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5

24 kV 50/60 Hz Article No.	Rated operating current I_r A	Width across flats mm	Pole-center distance mm	Rated switching sequence: O – 0.3 s – CO – 15 s – CO ■	Rated short-circuit duration t_k s	Rated short-circuit breaking current I_{sc} kA	DC component in % of the rated short-circuit breaking current %	Asymmetric breaking current kA	Rated short-circuit making current (at 50/60 Hz) I_{ma} kA	Rated lightning impulse voltage U_p kV	Rated short-duration power-frequency withstand voltage U_d kV	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC) mV	Minimum creepage distance Interrupters mm	Minimum creepage distance Phase-to-earth mm	Minimum clearance Phase-to-phase mm	Minimum clearance Phase-to-earth mm	Mass kg	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 25)
3AE6313-1	800	237.5	210	■	3	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5
3AE6363-1	800	237.5	210	■	3	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5
3AE6313-2	1250	237.5	210	■	3	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5
3AE6363-2	1250	237.5	210	■	3	20	50	22.4	50/52	125	50	3	240	250	170	185	87	A7E10903000	5
3AE6314-0	630	237.5	210	■	3	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6
3AE6364-0	630	237.5	210	■	3	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6
3AE6314-1	800	237.5	210	■	3	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6
3AE6364-1	800	237.5	210	■	3	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6
3AE6314-2	1250	237.5	210	■	3	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6
3AE6364-2	1250	237.5	210	■	3	25	50	28	63/65	125	50	3	240	250	170	185	87	A7E10903000	6
3AE6322-0	630	237.5	230	■	3	16	50	17.9	40/42	125	50	3	240	250	190	185	72	A7E10903000	4
3AE6372-0	630	237.5	230	■	3	16	50	17.9	40/42	125	50	3	240	250	190	185	72	A7E10903000	4
3AE6322-1	800	237.5	230	■	3	16	50	17.9	40/42	125	50	3	240	250	190	185	88	A7E10903000	4
3AE6372-1	800	237.5	230	■	3	16	50	17.9	40/42	125	50	3	240	250	190	185	88	A7E10903000	4
3AE6322-2	1250	237.5	230	■	3	16	50	17.9	40/42	125	50	3	240	250	190	185	88	A7E10903000	4
3AE6372-2	1250	237.5	230	■	3	16	50	17.9	40/42	125	50	3	240	250	190	185	88	A7E10903000	4
3AE6323-0	630	237.5	230	■	3	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5
3AE6373-0	630	237.5	230	■	3	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5
3AE6323-1	800	237.5	230	■	3	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5
3AE6373-1	800	237.5	230	■	3	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5
3AE6323-2	1250	237.5	230	■	3	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5
3AE6373-2	1250	237.5	230	■	3	20	50	22.4	50/52	125	50	3	240	250	190	185	88	A7E10903000	5
3AE6324-0	630	237.5	230	■	3	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6
3AE6374-0	630	237.5	230	■	3	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6
3AE6324-1	800	237.5	230	■	3	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6
3AE6374-1	800	237.5	230	■	3	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6
3AE6324-2	1250	237.5	230	■	3	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6
3AE6374-2	1250	237.5	230	■	3	25	50	28	63/65	125	50	3	240	250	190	185	88	A7E10903000	6
3AE6332-0	630	237.5	250	■	3	16	50	17.9	40/42	125	50	3	240	250	210	185	73	A7E10903000	4
3AE6382-0	630	237.5	250	■	3	16	50	17.9	40/42	125	50	3	240	250	210	185	73	A7E10903000	4
3AE6332-1	800	237.5	250	■	3	16	50	17.9	40/42	125	50	3	240	250	210	185	88	A7E10903000	4
3AE6382-1	800	237.5	250	■	3	16	50	17.9	40/42	125	50	3	240	250	210	185	88	A7E10903000	4

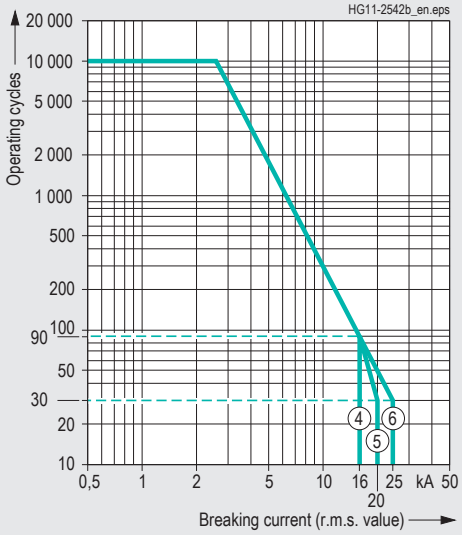
24 kV 50/60 Hz Article No.	Rated operating current I_r	Width across flats	Pole-center distance	Rated switching sequence: O – 0.3 s – CO – 15 s – CO	Rated short-circuit duration t_k	Rated short-circuit breaking current I_{sc}	DC component in % of the rated short-circuit breaking current	Asymmetric breaking current	Rated short-circuit making current (at 50/60 Hz) I_{ma}	Rated lightning impulse voltage U_p	Rated short-duration power-frequency withstand voltage U_d	Voltage drop ΔU between connections (acc. to IEC 62271-1 at 100 A DC)	Minimum creepage distance Interrupters	Minimum creepage distance Phase-to-earth	Minimum clearance Phase-to-phase	Minimum clearance Phase-to-earth	Mass	Detailed dimension drawing (must be explicitly requested)	Operating cycle diagram No. (see page 25)
	A	mm	mm	■	s	kA	%	kA	kA	kV	kV	mV	mm	mm	mm	mm	kg		
3AE6332-2	1250	237.5	250	■	3	16	50	17.9	40/42	125	50	3	240	250	210	185	88	A7E10903000	4
3AE6382-2	1250	237.5	250	■	3	16	50	17.9	40/42	125	50	3	240	250	210	185	88	A7E10903000	4
3AE6333-0	630	237.5	250	■	3	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6383-0	630	237.5	250	■	3	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6333-1	800	237.5	250	■	3	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6383-1	800	237.5	250	■	3	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6333-2	1250	237.5	250	■	3	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6383-2	1250	237.5	250	■	3	20	50	22.4	50/52	125	50	3	240	250	210	185	88	A7E10903000	5
3AE6334-0	630	237.5	250	■	3	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6384-0	630	237.5	250	■	3	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6334-1	800	237.5	250	■	3	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6384-1	800	237.5	250	■	3	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6334-2	1250	237.5	250	■	3	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6384-2	1250	237.5	250	■	3	25	50	28	63/65	125	50	3	240	250	210	185	88	A7E10903000	6
3AE6342-0	630	237.5	300	■	3	16	50	17.9	40/42	125	50	3	240	250	260	185	75	A7E10903000	4
3AE6392-0	630	237.5	300	■	3	16	50	17.9	40/42	125	50	3	240	250	260	185	75	A7E10903000	4
3AE6342-1	800	237.5	300	■	3	16	50	17.9	40/42	125	50	3	240	250	260	185	89	A7E10903000	4
3AE6392-1	800	237.5	300	■	3	16	50	17.9	40/42	125	50	3	240	250	260	185	89	A7E10903000	4
3AE6342-2	1250	237.5	300	■	3	16	50	17.9	40/42	125	50	3	240	250	260	185	89	A7E10903000	4
3AE6392-2	1250	237.5	300	■	3	16	50	17.9	40/42	125	50	3	240	250	260	185	89	A7E10903000	4
3AE6343-0	630	237.5	300	■	3	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6393-0	630	237.5	300	■	3	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6343-1	800	237.5	300	■	3	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6393-1	800	237.5	300	■	3	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6343-2	1250	237.5	300	■	3	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6393-2	1250	237.5	300	■	3	20	50	22.4	50/52	125	50	3	240	250	260	185	89	A7E10903000	5
3AE6344-0	630	237.5	300	■	3	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6394-0	630	237.5	300	■	3	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6344-1	800	237.5	300	■	3	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6394-1	800	237.5	300	■	3	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6344-2	1250	237.5	300	■	3	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6
3AE6394-2	1250	237.5	300	■	3	25	50	28	63/65	125	50	3	240	250	260	185	89	A7E10903000	6

■ Standard information on rating plate

Operating cycle diagrams for 12 kV



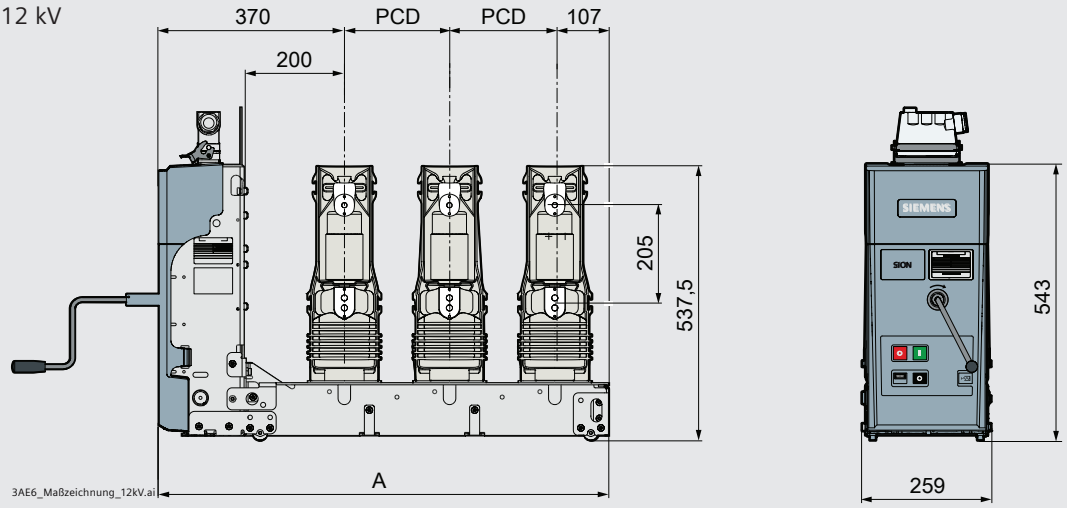
Operating cycle diagrams for 24 kV



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.

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

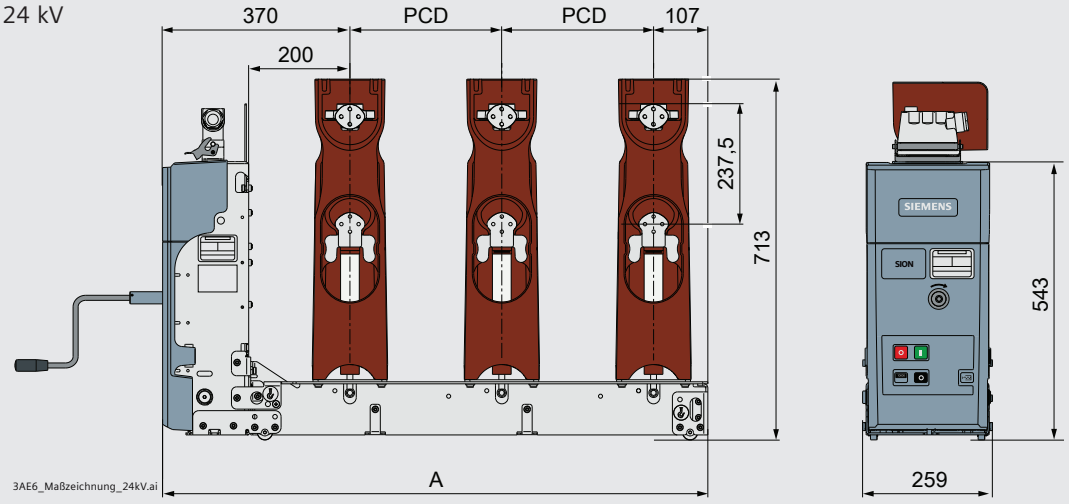
3AE61 for 12 kV



U_r [kV]	I_{sc} [kA]	I_r [A]	PCD [mm]	A [mm]	Mass [kg]	Dimension 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

Hinweis: Geringe Abweichungen der Maße sind zulässig / Note: Minor deviations from shown dimensions permitted

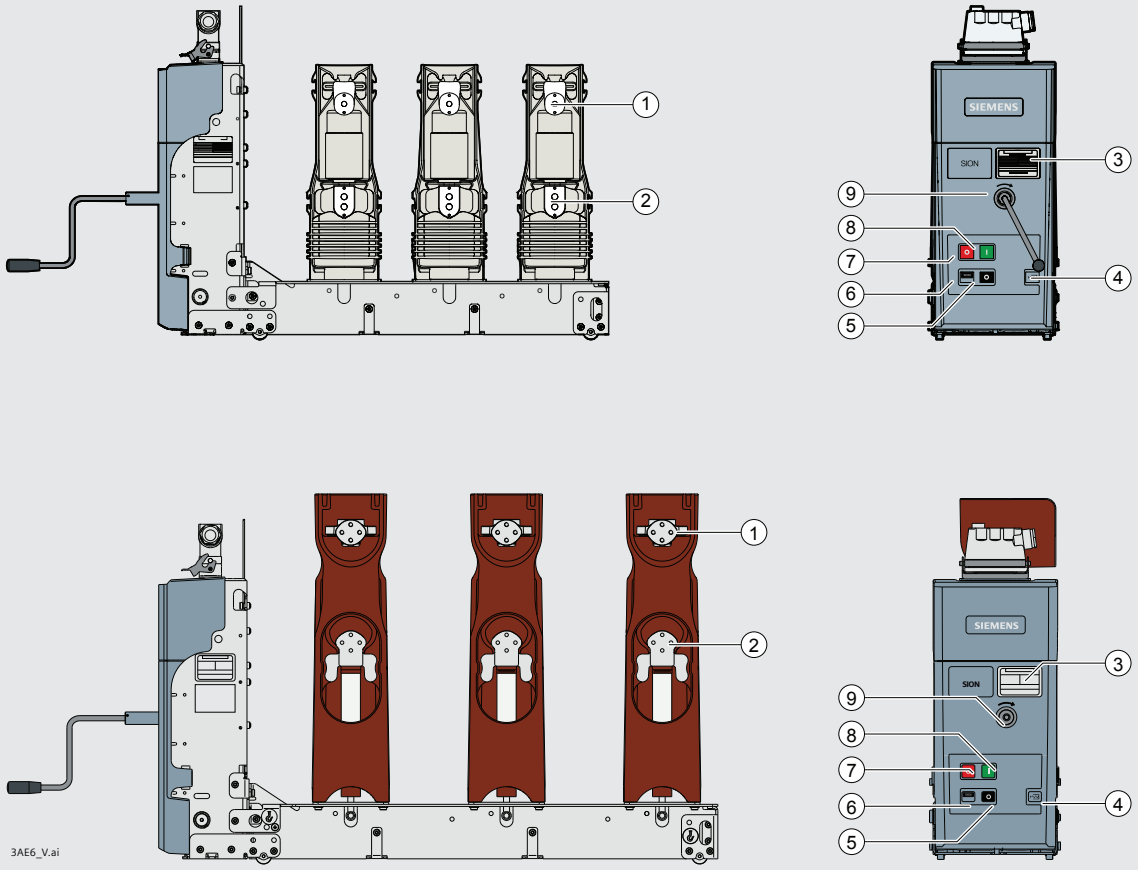
3AE63 for 24 kV



U_r [kV]	I_{sc} [kA]	I_r [A]	PCD [mm]	A [mm]	Mass [kg]	Dimension 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

Hinweis: Geringe Abweichungen der Maße sind zulässig / Note: Minor deviations from shown dimensions permitted

For all other details, please refer to the Catalog SION Vacuum Circuit-Breakers 3AE5 and 3AE1, HG11.02



① Anschlussfläche, oben
Upper terminal

② Anschlussfläche, unten
Lower terminal

③ Leistungsschild
Rating plate

④ Anzeige "Gespannt"
"Charged" indicator

⑤ Schaltstellungsanzeige
Position indicator

⑥ Schaltspielzähler
Operation cycles counter

⑦ Druckknopf "AUS"
"OPEN" pushbutton

⑧ Druckknopf "EIN"
"CLOSE" pushbutton

⑨ Öffnung für Handkurbel
Opening for hand crank

Allgemeine Angaben / General data:

Bemessung der Stromschienen nach DIN 43 670/671
Rating of bus bars according to DIN 43 670/671

Operating times and internal times

Operating times at rated voltage of the secondary circuit	Equipment of circuit-breaker	Circuit-breaker operating time
Closing time	–	< 60 ms
Opening time	1st shunt release	< 45 ms
	2nd release	< 45 ms
Arcing time	–	< 15 ms
Break time	1st shunt release	< 60 ms
	2nd release	< 60 ms
Dead time	–	300 ms
CLOSE/OPEN contact time	1st shunt release	< 75 ms
	2nd release	< 60 ms
Minimum command duration	Closing solenoid	45 ms
	1st shunt release	40 ms
	2nd release	20 ms
Pulse time for circuit-breaker tripping signal	1st shunt release	> 10 ms
	2nd release	> 6 ms
Charging time for electrical operation		< 15 s
Synchronism error between the poles		≤ 2 ms

Motor short-circuit protection (fuse protection of drive motors)

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

1) The inrush current in the drive motor can be neglected due to its very short presence.

Release consumption data

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 to 110 % U	85 to 110 % U
1st shunt release (without stored-energy mechanism) 3AY14 10	300	300	70 to 110 % U	85 to 110 % U
2nd shunt release (with stored-energy mechanism) 3AX11 01	70	50	70 to 110 % U	85 to 110 % U
Undervoltage release 3AX11 03	20	20	35 to 0 % U	35 to 0 % U
Current-transformer-operated release 3AX14 02 (rated operating current 0.5 A, 1 A or 5 A)	–	10 [2]	–	90 to 110 % I_a
Current-transformer-operated release 3AX11 04 (tripping pulse ≥ 0.1 Ws)	–	–	–	–

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

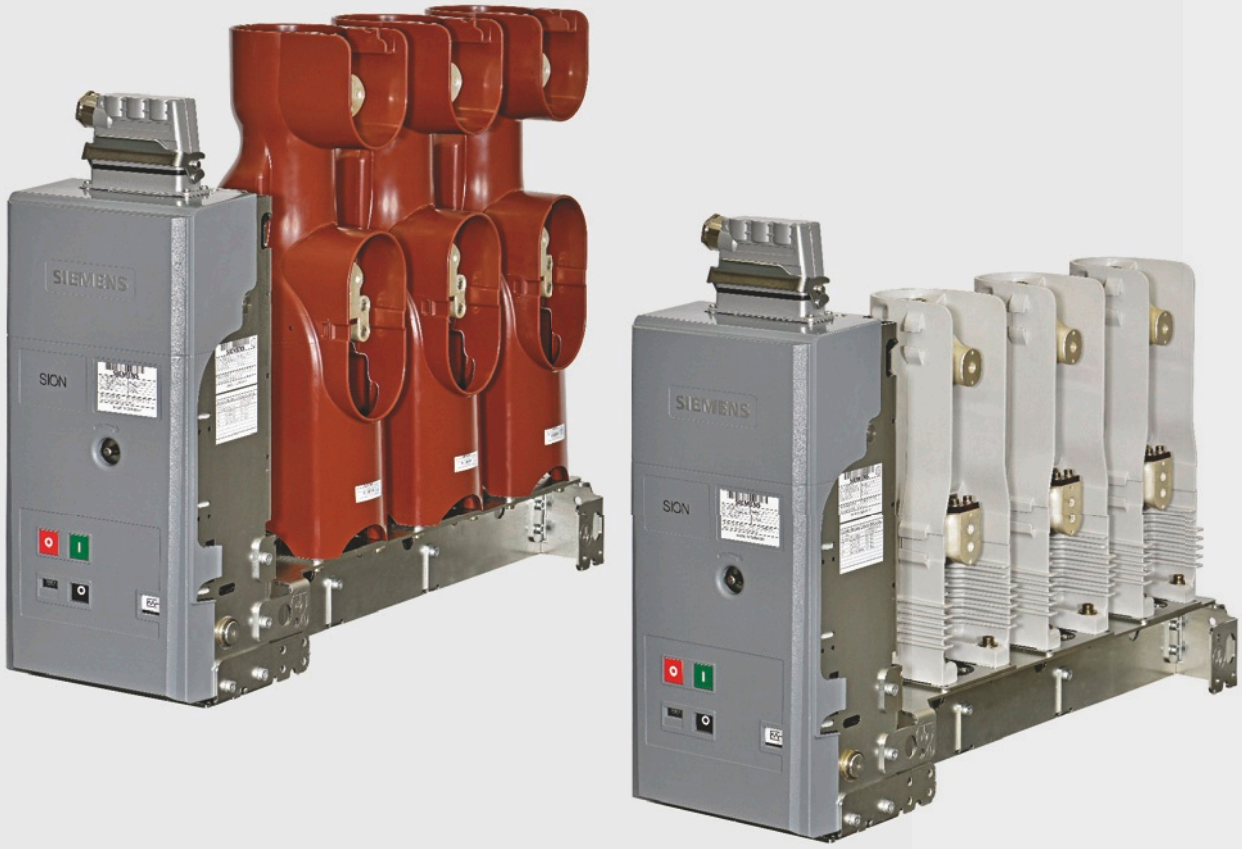
Circuit diagrams for 3AE6 can be found at the Siemens Industry Online Support (SIOS):

http://support.industry.siemens.com/

Circuit manual 3AE6 (64-pole plug): SA7E449 99009 021

Circuit manual 3AE6 (24-pole plug): SA7E449 99009 022

Circuit manual 3AE6 (20-pole connector strip): SA7E449 99009 013



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