

CATALOG

# SACE EMAX 2/E

Air circuit breakers over 690V AC



**ABB always has paid special attention to renewable energy generation, constantly collaborating with major wind turbine producers, inverter manufacturers and renewable-plant system integrators to satisfy present needs and anticipate installation market trends.**

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# SACE EMAX 2/E

## Introduction

High-performance air circuit breakers over 690V.

ABB SACE Emax 2/E circuit breakers can control many demanding applications effectively and simply, with the highest availability and continuity of service.

The world of renewable energy is evolving rapidly, generating major changes in electrical power distribution.

This development prompts an increased focus on:

- Power continuity with very high performance requirements, even at elevated altitudes,
- Smarter and faster maintenance,
- Optimized footprint.

These trends lead to new customer and application demands. As a result, ABB has further enhanced the innovative Emax 2/E product line, which was born with Emax 2/E9 at 800-900V.

The Emax 2/E product line is now enriched with /E10 at 1000V and /E12 range, capable of reaching 65kA breaking capacity up to 1380V.

Emax 2/E solutions are certified according to IEC 60947, with CCC approval, and include both circuit breakers and switch disconnectors.

In addition, the Emax 2 portfolio offers the -A/E version, UL certified up to 1000V.



# SACE EMAX 2/E

## Range overview



SACE Emax /E comprises a complete range of air circuit breakers and air switch-disconnectors that extends Emax 2 ratings over 690V. The new /E12 version covers application at 5000A and 1000-1200V and up to 1380V (maximum voltage):

<b>Emax 2</b>	<b>6300A</b>	<b>690V</b>
<b>Emax 2/E9</b>	<b>6300A</b>	<b>900V</b>
<b>Emax 2/E10</b>	<b>4000A</b>	<b>1000V</b>
<b>Emax 2/E12</b>	<b>5000A</b>	<b>1200V 1380V</b>



The Emax 2/E9, Emax 2/E10 and E12 circuit breaker ranges also cover additional performances according to IEC 60947-2 Annex H for use in IT systems (networks with isolated neutral) like photovoltaic installations:

<b>Emax 2</b>	<b>6300A</b>	<b>690V</b>
<b>Emax 2/E10 &amp; E12</b>	<b>4000A</b>	<b>800V</b>
<b>Emax 2/E9</b>	<b>2500A</b>	<b>900V</b>



Emax 2 -A/E UL1066 can reach 730V, which means a +15% tolerance over the typical 600V nominal voltage, with a complete offer up to 5000A nominal current. The new Emax 2 -A/E10 UL489 goes further, up to 1000V:

<b>Emax 2-A UL1066</b>	<b>6000A</b>	<b>635V</b>
<b>Emax 2-A/E UL1066</b>	<b>5000A</b>	<b>730V</b>
<b>Emax 2-A/E10 UL489</b>	<b>3200A</b>	<b>1000V/577V</b>

# SACE EMAX 2/E

## Value proposition

### One range, many advantages.



#### TOP PERFORMANCES

The SACE Emax 2/E range extends Emax 2 performances to higher voltages with solid breaking capacities, achieving up to 100kA at 800V, 90kA at 900V, 85kA at 1000V, and 85kA at 1200V (up to 1380V) to better support increasing power needs in demanding applications around the world.



#### ENERGY EFFICIENCY

The SACE Emax 2/E range is here to support the energy efficiency trend in electricity generation and distribution. Achieving a higher service voltage of 1200V AC (up to 1380V) helps to cut power losses and make our planet a better place. Full compatibility with ABB Ability™ Energy and Asset Manager allows data processing from electrical equipment to optimize the system performance.



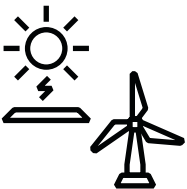
#### FULL FLEXIBILITY

The SACE Emax 2/E range offers solutions to find the best fit for all applications. With four sublines (/E9, /E10, /E12 for IEC and -A/E for UL) and four circuit breaker frames, it is easier to cover specific application needs with the right voltages at the best ratings. All versions are available in fixed and withdrawable version and can be fitted with electrical and mechanical accessories in common with the standard SACE Emax 2 range.



#### SPACE SAVING

The SACE Emax 2/E is the most compact circuit breaker on the market. SACE Emax 2/E offers the highest performance in the small space. Its compact dimensions allow the size of switchboard to be reduced by up to 30 percent, compared to a standard solution.



#### RENEWABLE ORIENTED

The SACE Emax 2/E range supports renewable energy growth with increased performances for wind and solar applications, reaching up to 1380V AC (equivalent to, e.g., 1150V + 20% tolerance) and covering single-pole short-circuit testing at 800-900V (IT networks). Performances are guaranteed in a wide range of operating temperatures and installation altitudes.



#### CONNECTIVITY

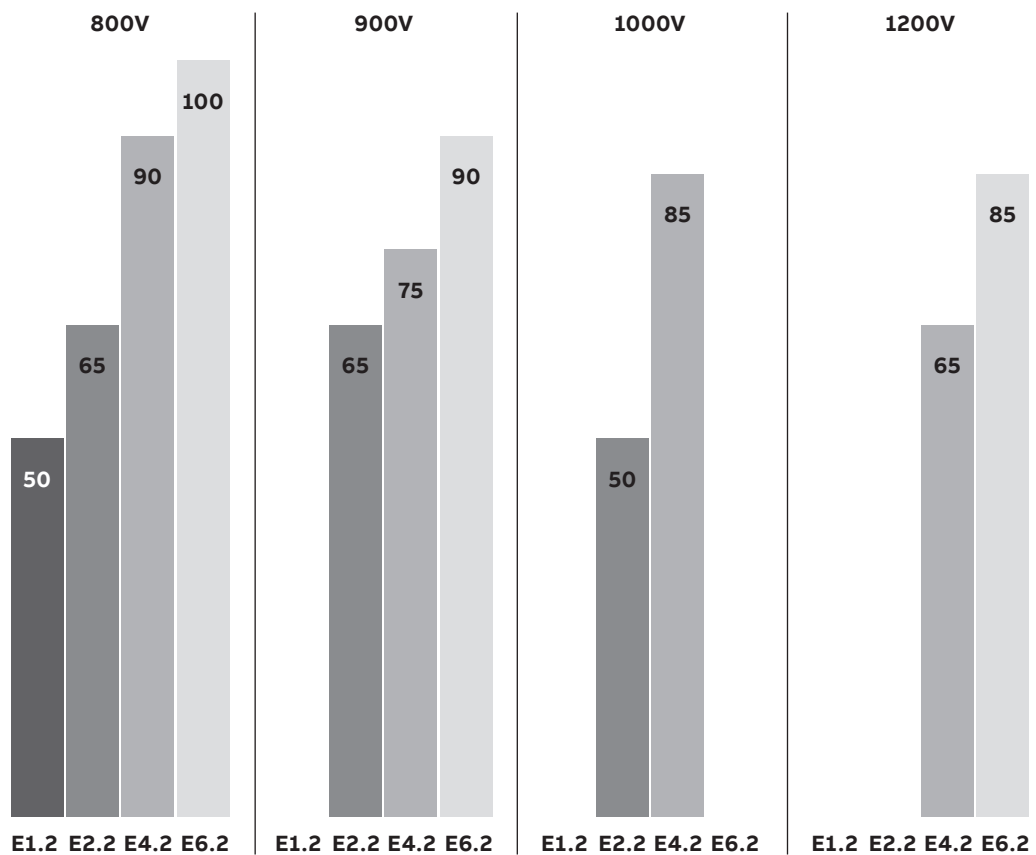
SACE Emax 2/E range of circuit breakers can be integrated into all automation and energy management systems to improve productivity and energy consumption, and to carry out remote service. All circuit breakers can be equipped with embedded communication modules that offer Modbus, Profibus, and DeviceNet™ protocols as well as the modern Modbus TCP, Profinet, EtherNet™.

# SACE EMAX 2/E

## Key performances

SACE Emax 2/E covers a wide range of voltages over 690V AC with four frames.

Maximum short-circuit performances (kA) on /E range

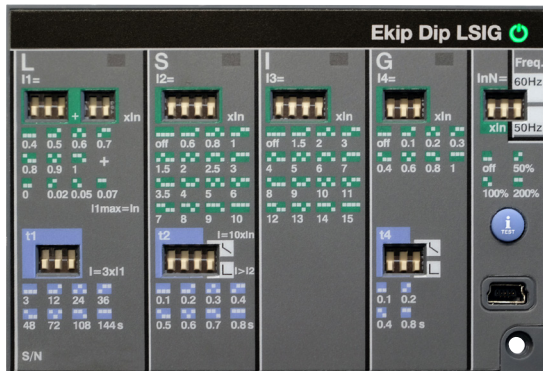


# SACE EMAX 2/E

## Trip units

SACE Emax 2 trip units offer a complete range of solutions, also in the /E versions, for any installation requirements, providing a flexible choice of protection, measurement, supervision and connectivity features.

### Ekip Dip: The standard trip unit



### Ekip Dip LSI Ekip Dip LSIG

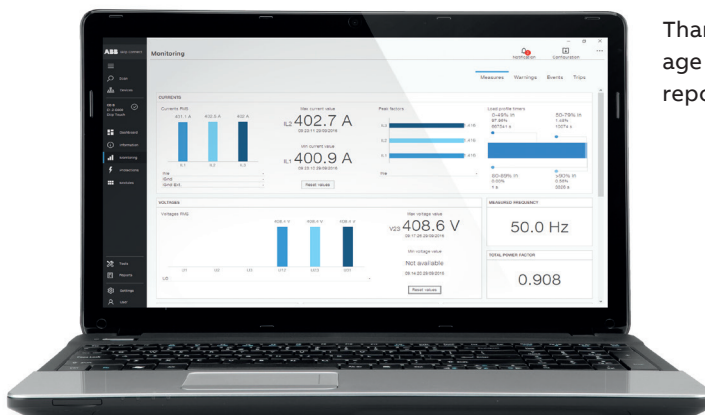
- Overcurrent protection for distribution systems
- Phase and neutral current measurements
- LED Permanent trip cause signalization
- Ekip Multimeter to display data and measurements

### Ekip Touch: The smart trip unit



### Ekip Touch LSIG

- Advanced set of protections and measurements, always upgradable and customizable
- Intuitive touchscreen interface
- High measurement accuracy of electrical parameters
- Hi-Touch version with additional features (available on /E9).



Thanks to Ekip Connect software, it is easy to manage configuration, monitoring & analysis, testing & reporting.

# SACE EMAX 2/E

## Committed to sustainability

At ABB, sustainability drives innovation, guiding our commitment to deliver cutting-edge solutions that power the global transition to renewable energy and build a greener future.



In continuity with the Emax 2 standard portfolio, the /E range is provided with the ABB EcoSolutions™ label, strengthening ABB's commitment to a greener and more sustainable future. This certification takes on particular significance for the /E range, which is specifically dedicated to renewable energy applications where sustainability is not just a feature, but a fundamental priority. Look for the ABB EcoSolutions™ logo and QR code on the packaging to access comprehensive sustainability information.

Emax 2/E is well suited for:

- Wind turbines
- Solar plants
- Other demanding applications with high voltage or altitude requirements.

The SACE Emax 2/E range supports renewable energy growth with increased performances for wind and solar applications, reaching up to 1380V AC (equivalent to, e.g., 1150V + 20% tolerance) and covering single-pole short-circuit testing at 800-900V (IT networks). Performances are guaranteed in a wide range of operating temperatures and installation altitudes.



# SACE EMAX 2/E

## Installation

The SACE Emax 2 /E range is based on standard Emax 2 frame sizes. In this section we present the main differences related to /E performances.

### Altitude

SACE Emax 2 air circuit breakers guarantee rated performances up to 2000 meters above sea level. Beyond this altitude, the performance of the circuit breakers is subject to derating, which can be measured by means of the variation in maximum rated service voltage and rated uninterrupted current.

Altitude		[m]	2,000	3,000	4,000	5,000
Rated service voltage Ue	Versions 690V	[V]	690	623	544	477
	Versions 730V	[V]	730	659	576	498
	Versions 800V	[V]	800	722	631	549
	Versions 900V	[V]	900	813	710	623
	Versions 1000V	[V]	1000	903	789	692
	Versions 1200V	[V]	1200	1084	946	830
Rated current		[% In]	100	98	93	90

### Insulation distances

The circuit breakers can be connected to the main power system using the most common configurations and dimensions of copper bars.

- Insulation distance of installation cubicle

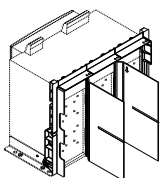
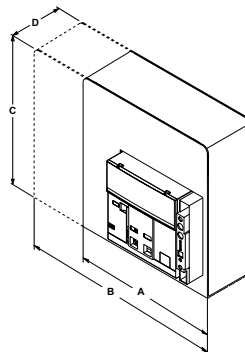
#### FIXED CIRCUIT BREAKERS

[mm]	A 3p	B 4P	C	D
E1.2	250	322	382.5	130
E2.2	400	490	500	221
E4.2	500	600	500 <sup>(1)</sup>	221
E6.2	900	1000	500	221

#### WITHDRAWABLE CIRCUIT BREAKERS

[mm]	A 3p	B 4P	C	D
E1.2	280	350	440	252
E2.2	400	490	500	355
E4.2	500	600	500	355
E6.2	900	1000	500	355

1) For /E12 Fixed, 500mm with insulated roof panel; 600mm otherwise.



- Separator PB and insulation frame

The rear part of the circuit breaker has been designed with specific slots in which insulating walls are placed to facilitate segregation between polarities. Phase separators are mandatory with all Emax 2/E circuit breakers.

For the withdrawable version, phase separators must be ordered as loose parts. For fixed version, they are provided as standard with an additional insulation frame protection kit to be installed on field (see document [1SDH001000R0746](#)).

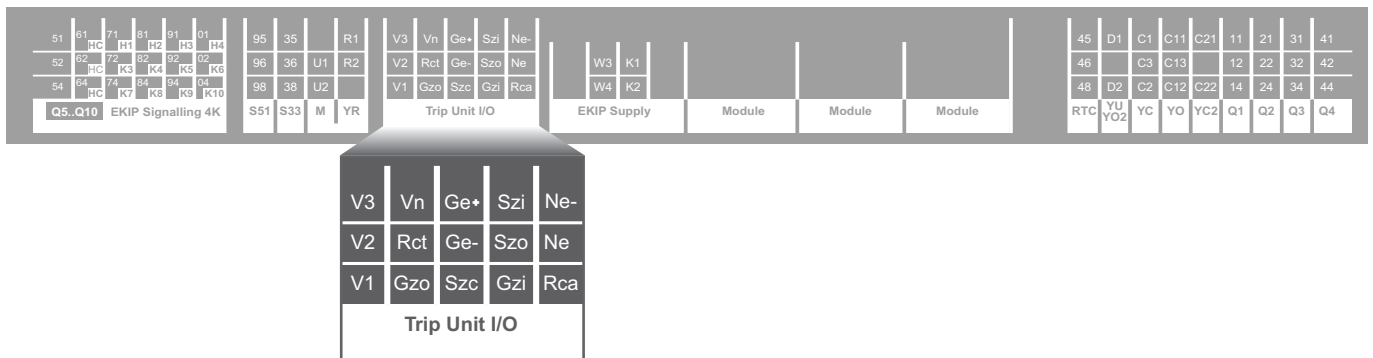
# SACE EMAX 2/E

## Trip Unit features

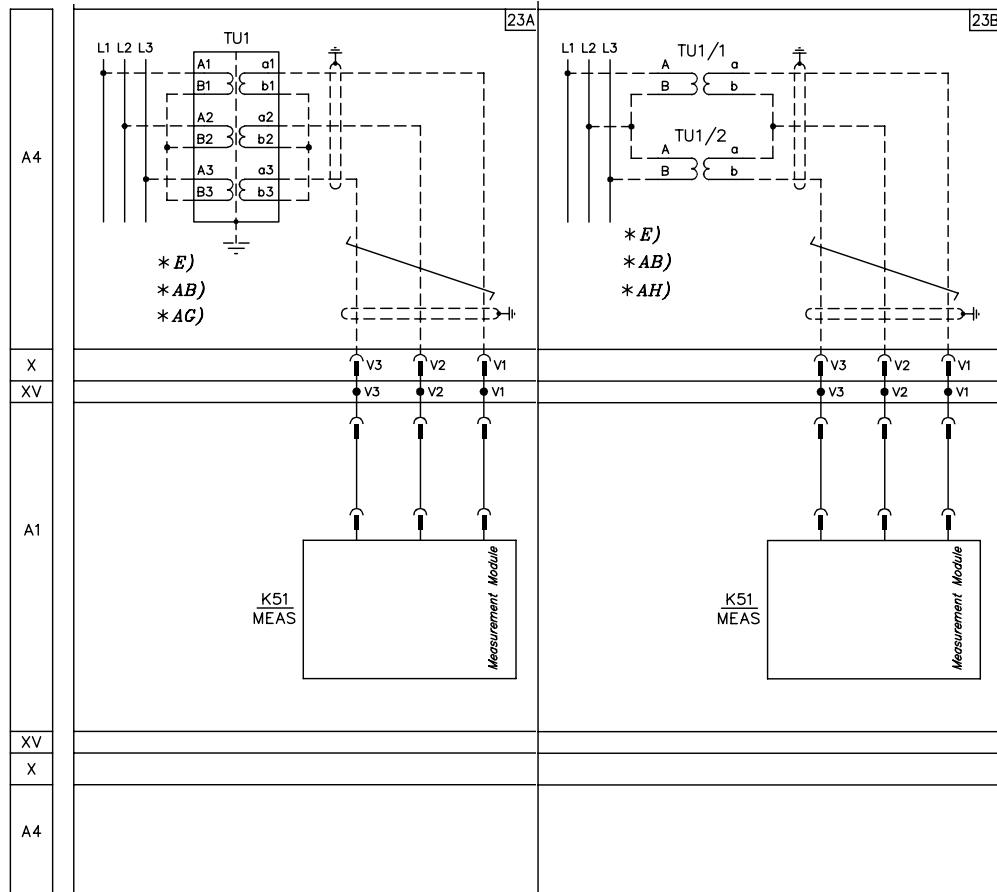
The Measurement Enabler module is supplied with Ekip Touch trip units with external installed voltage outlets by default, enabling the trip unit to measure phase and neutral voltages. For rated voltages over 690V, external insulation voltage transformers must be installed and connected to the terminal box according below scheme.

The installation of external voltage transformers does not guarantee Class 1 accuracy.

Ekip Synchrocheck module is not compatible with Emax 2 /E12.



## 23 A/B) Measurement Enabler/Measurement Enabler with voltage sockets with external voltage transformer

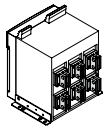
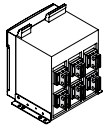
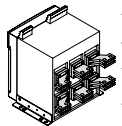
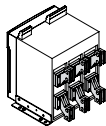
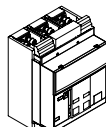


# SACE EMAX 2/E

## Connections and dimensions

The SACE Emax 2 circuit-breakers offer a wide variety of terminals, thereby always guaranteeing an optimal solution for connection to the power circuit.

### SOLUTION FOR FIXED CIRCUIT-BREAKERS CLASSIFIED ACCORDING TO I U

Type	Abbreviation		E1.2 /E9	E2.2 /E9	/E10	E4.2 /E9	/E10	/E12	E6.2 /E9	/E12
Rear adjustable terminal <sup>(1)</sup>	HR VR		<b>Single stab design</b>							
			-	● 1250A ● 2000A	-	● 3200A	-	-	● 5000A	-
Long rear adjustable terminal	LHR LVR		<b>Multiple stab design</b>							
			-	● 2500A	● 2500A	● 4000A	● 3200A ● 4000A	● 3200A ○ 3600A <sup>(3)</sup>	● 6300A	● 5000A
Horizontal rear spread terminal	SHR		<b>Single stab design</b>							
			-	○ 1250A ○ 2000A	-	○ 3200A	-	-	-	-
Vertical rear spread terminal	SVR		<b>Multiple stab design</b>							
			-	○ 2500A	-	○ 4000A	○ 3200A ○ 4000A	○ 3200A ○ 3800A <sup>(2)</sup>	-	○ 5000A
Front terminal	F		● 1250A							

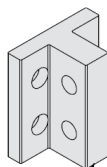
- Standard configuration
- Configuration on request

1) The adjustable terminals are supplied as standard in the HR – HR configuration

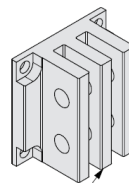
2) Terminals available for 4000A frame with a derating to 3800A

3) HR terminals not available. VR terminals are available for 4000A frame with a derating to 3600A.

### Examples of terminal stab design

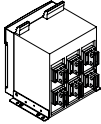
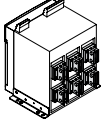
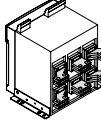
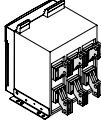


Single stab design



Multiple stab design

**SOLUTIONS FOR FIXED PARTS, WITHDRAWABLE CIRCUIT-BREAKERS ACCORDING TO IUC**

Type	Abbreviation		E1.2	E2.2	E4.2			E6.2			
			/E9	/E9	/E10	/E9	/E10	/E12	/E9	/E12	
Rear adjustable terminal <sup>(1)</sup>	HR VR		<b>Single stab design</b>								
			● 1250A	● 1250A ● 2000A	-	● 3200A	-	-	● 5000A	-	
			<b>Multiple stab design</b>								
			-	● 2500A	● 2500A	● 4000A	● 3200A ● 4000A	● 3200A ○ 3600A <sup>(3)</sup>	● 6300A	● 5000A	
Long rear adjustable terminal	LHR LVR		<b>Single stab design</b>								
			-	-	-	-	-	-	-	-	
			<b>Multiple stab design</b>								
			-	○ 2500A	○ 2500A	○ 4000A	○ 3200A ○ 4000A	○ 3200A ○ 3800A <sup>(2)</sup>	○ 5000A X performance ○ 6300A	-	
Horizontal rear spread terminal	SHR		<b>Single stab design</b>								
			-	○ 1250A ○ 2000A	-	○ 3200A	-	-	-	-	
			<b>Multiple stab design</b>								
			-	○ 2500A	○ 2500A	○ 4000A	○ 3200A ○ 4000A	○ 3200A ○ 3800A <sup>(2)</sup>	-	-	
Vertical rear spread terminal	SVR		<b>Single stab design</b>								
			-	○ 1250A ○ 2000A	-	○ 3200A	-	-	-	-	
			<b>Multiple stab design</b>								
			-	○ 2500A	○ 2500A	○ 4000A	○ 3200A ○ 4000A	○ 3200A ● 4000A	-	-	

- Standard configuration
- Configuration on request

1) The adjustable terminals are supplied as standard in the HR – HR configuration  
 2) Terminals available for 4000A frame with a derating to 3800A  
 3) HR terminals not available. VR terminals are available for 4000A frame with a derating to 3600A.

**Overall dimensions**

The Emax 2/E range is based on standard Emax 2 frames, sharing the same overall dimensions, with specific connection setup and insulation parts.

Visit our Drawings Selector to find and download the 2D and 3D files for Emax 2 breakers and connections:  
<https://new.abb.com/low-voltage/products/circuit-breakers/emax2/drawings>

For more information about trip units, accessories, installation, wiring diagrams and dimensions, consult SACE Emax 2 technical catalogs:



IEC version: 1SDC200023D0209



UL version: 1SXU200040C0201

# SACE EMAX 2/E9 AND /E10

## Range

IEC circuit breakers at 800-900V and 1000V

### Common data

Rated service voltage U <sub>e</sub>	[V]	800-900 (/E9), 1000 (/E10)
Rated insulation voltage U <sub>i</sub>	[V]	1000
Rated impulse withstand voltage U <sub>imp</sub>	[kV]	12 <sup>(1)</sup>
Frequency	[Hz]	50 - 60
Version		Fixed - Withdrawable
Suitable for isolation according to		IEC 60947-2



1) 15kV for E4.2/E10

SACE Emax 2/E	E1.2		E2.2		E4.2		E6.2				
		N/E9	S/E9	H/E9	H/E10	S/E9	H/E9	S/E10	H/E9	X/E9	
Rated uninterrupted current I <sub>u</sub> @ 40°C		[A]	1250	1250	1250	2500	3200	3200	3200	5000	5000
		[A]		2000	2000		4000	4000	4000	6300	6300
		[A]		2500	2500						
Neutral pole current-carrying capacity for 4-pole CBs		[%I <sub>u</sub> ]	100	100	100		100	100		50	50
Rated service voltage U <sub>e</sub>		[V]	800	900	900	1000	900	900	1000	900	900
Rated ultimate short-circuit breaking capacity I <sub>cu</sub>	800V	[kA]	50	50	65		65	90	50	90	100
	900V	[kA]		50	65		65	75		75	90
	1000V	[kA]				50			50		
Rated service short-circuit breaking capacity I <sub>cs</sub>	800V	[kA]	44	50	65		65	90	50	90	100
	900V	[kA]		50	65		65	75		75	90
	1000V	[kA]				50			50		
Rated short-time withstand current I <sub>cw</sub>	(1s)	[kA]	44	50	65	50	65	75	50	75	90
	(3s)	[kA]	30	50	65	50	65	75 <sup>(1)</sup>	50	75	90
Rated short-circuit making capacity (peak value) I <sub>cm</sub>	800V	[kA]	105	105	143		143	200	105	200	220
	900V	[kA]		105	143		143	165		165	198
	1000V	[kA]				105			105		
Utilization category (according to IEC 60947-2)		[V]	B	B	B	B	B	B	B	B	B
Suitable for IT network (IEC 60947-2 Annex H)		[V]	800	900	900	No	No	No	800	No	No

1) 66kA I<sub>cw</sub>(3s) up to 3200A

SACE Emax 2/E	E1.2		E2.2		E4.2		E6.2	
		[I <sub>u</sub> ]	1250	≤2500	≤3200	4000	6300	
Mechanical life <sup>(1)</sup>		[No. cycles x 1000]	20	25	20	15	12	
	Frequency	[Oper./Hour]	60	60	60	60	60	
Electrical life	800 V	[No. cycles x 1000]	0.5	2	1.6	1	1	
	900 V	[No. cycles x 1000]		2	1	1	1	
	1000 V	[No. cycles x 1000]		0.5	1	1	1	
	Frequency	[Oper./Hour]	30	30	10	10	10	

1) With regular maintenance prescribed by the manufacturer.

## IEC switch disconnectors at 900V and 1000V

### Common data

Rated service voltage Ue	[V] 900 (/E9), 1000(/E10)
Rated insulation voltage Ui	[V] 1000
Rated impulse withstand voltage Uimp	[kV] 12
Frequency	[Hz] 50-60
Number of poles	3
Version	F-W (/E9), F (/E10)
Suitable for isolation according to	IEC 60947-3



SACE Emax 2/E MS		E2.2	E4.2	E6.2
Performance levels		H/E10 MS	H/E9 MS	H/E9 MS
Rated uninterrupted current Iu @ 40°C		[A] 2500	2500	6300
		[A]	3200	
		[A]	4000	
Rated service voltage Ue		[V] 1000	900	900
Rated short-time withstand current Icw	(1s)	[kA] 50	75	80
	(3s)	[kA] 50	75 <sup>(1)</sup>	
Rated short-circuit making capacity (peak value) Icm	900V	[kA]	165	176
	1000V	[kA] 105		
Utilization category (according to IEC 60947-3)		AC-23A	AC-23A	AC-23A

1) 66kA Icw(3s) up to 3200A.

SACE Emax 2/E MS		E2.2	E4.2	E6.2
		[Iu] 2500	≤3200	4000
Mechanical life <sup>(1)</sup>		[No. cycles x 1000] 20	20	15
	Frequency	[Oper./Hour] 60	60	60
Electrical life	900 V	[No. cycles x 1000] 2	1	1
	1000 V	[No. cycles x 1000] 0.5		
	Frequency	[Oper./Hour] 30	10	10

1) With regular maintenance prescribed by the manufacturer.

For Variable Frequency versions, see document [1SDC200097B0201](#)

# SACE EMAX 2/E9 AND /E10

## Ordering codes - Automatic circuit breakers /E9



**IT**  
800V



**IT**  
900V

### Fixed version

Size	Iu	Icu (900V) <sup>(1)</sup>	Type	3 Poles	4 Poles	
<b>E1.2N</b>	1250	50	E1.2N/E9 1250 Ekip Dip LSI F F	1SDA104274R1	1SDA104284R1	
			E1.2N/E9 1250 Ekip Dip LSIG F F	1SDA104275R1	1SDA104285R1	
			E1.2N/E9 1250 Ekip Touch LSI F F	1SDA104278R1	1SDA104288R1	
			E1.2N/E9 1250 Ekip Touch LSIG F F	1SDA104276R1	1SDA104286R1	
			E1.2N/E9 1250 Ekip Hi-Touch LSIG F F	1SDA104277R1	1SDA104287R1	
<b>E2.2H</b>	1250	65	E2.2H/E9 1250 Ekip Dip LSI FHR	1SDA104347R1	1SDA104362R1	
			E2.2H/E9 1250 Ekip Dip LSIG FHR	1SDA104348R1	1SDA104363R1	
			E2.2H/E9 1250 Ekip Touch LSI FHR	1SDA104351R1	1SDA104366R1	
			E2.2H/E9 1250 Ekip Touch LSIG FHR	1SDA104349R1	1SDA104364R1	
			E2.2H/E9 1250 Ekip Hi-Touch LSIG FHR	1SDA104350R1	1SDA104365R1	
	2000	65	E2.2H/E9 2000 Ekip Dip LSI FHR	1SDA104352R1	1SDA104367R1	
			E2.2H/E9 2000 Ekip Dip LSIG FHR	1SDA104353R1	1SDA104368R1	
			E2.2H/E9 2000 Ekip Touch LSI FHR	1SDA104356R1	1SDA104371R1	
			E2.2H/E9 2000 Ekip Touch LSIG FHR	1SDA104354R1	1SDA104369R1	
			E2.2H/E9 2000 Ekip Hi-Touch LSIG FHR	1SDA104355R1	1SDA104370R1	
	2500	65	E2.2H/E9 2500 Ekip Dip LSI FHR	1SDA104357R1	1SDA104372R1	
			E2.2H/E9 2500 Ekip Dip LSIG FHR	1SDA104358R1	1SDA104373R1	
			E2.2H/E9 2500 Ekip Touch LSI FHR	1SDA104361R1	1SDA104376R1	
			E2.2H/E9 2500 Ekip Touch LSIG FHR	1SDA104359R1	1SDA104374R1	
			E2.2H/E9 2500 Ekip Hi-Touch LSIG FHR	1SDA104360R1	1SDA104375R1	
	<b>E2.2S</b>	1250	50	E2.2S/E9 1250 Ekip Dip LSI FHR	1SDA104317R1	1SDA104332R1
				E2.2S/E9 1250 Ekip Dip LSIG FHR	1SDA104318R1	1SDA104333R1
E2.2S/E9 1250 Ekip Touch LSI FHR				1SDA104321R1	1SDA104336R1	
E2.2S/E9 1250 Ekip Touch LSIG FHR				1SDA104319R1	1SDA104334R1	
E2.2S/E9 1250 Ekip Hi-Touch LSIG FHR				1SDA104320R1	1SDA104335R1	
2000		50	E2.2S/E9 2000 Ekip Dip LSI FHR	1SDA104322R1	1SDA104337R1	
			E2.2S/E9 2000 Ekip Dip LSIG FHR	1SDA104323R1	1SDA104338R1	
			E2.2S/E9 2000 Ekip Touch LSI FHR	1SDA104326R1	1SDA104341R1	
			E2.2S/E9 2000 Ekip Touch LSIG FHR	1SDA104324R1	1SDA104339R1	
			E2.2S/E9 2000 Ekip Hi-Touch LSIG FHR	1SDA104325R1	1SDA104340R1	
2500		50	E2.2S/E9 2500 Ekip Dip LSI FHR	1SDA104327R1	1SDA104342R1	
			E2.2S/E9 2500 Ekip Dip LSIG FHR	1SDA104328R1	1SDA104343R1	
			E2.2S/E9 2500 Ekip Touch LSI FHR	1SDA104331R1	1SDA104346R1	
			E2.2S/E9 2500 Ekip Touch LSIG FHR	1SDA104329R1	1SDA104344R1	
			E2.2S/E9 2500 Ekip Hi-Touch LSIG FHR	1SDA104330R1	1SDA104345R1	

1) For E1.2, Icu at 800V



Size	Iu	Icu (900V)	Type	3 Poles	4 Poles
<b>E4.2H</b>	3200	75	E4.2H/E9 3200 Ekip Dip LSI FHR	1SDA104397R1	1SDA104407R1
			E4.2H/E9 3200 Ekip Dip LSIG FHR	1SDA104398R1	1SDA104408R1
			E4.2H/E9 3200 Ekip Touch LSI FHR	1SDA104401R1	1SDA104411R1
			E4.2H/E9 3200 Ekip Touch LSIG FHR	1SDA104399R1	1SDA104409R1
			E4.2H/E9 3200 Ekip Hi-Touch LSIG FHR	1SDA104400R1	1SDA104410R1
	4000	75	E4.2H/E9 4000 Ekip Dip LSI FHR	1SDA104402R1	1SDA104412R1
			E4.2H/E9 4000 Ekip Dip LSIG FHR	1SDA104403R1	1SDA104413R1
			E4.2H/E9 4000 Ekip Touch LSI FHR	1SDA104406R1	1SDA104416R1
			E4.2H/E9 4000 Ekip Touch LSIG FHR	1SDA104404R1	1SDA104414R1
			E4.2H/E9 4000 Ekip Hi-Touch LSIG FHR	1SDA104405R1	1SDA104415R1
<b>E4.2S</b>	3200	65	E4.2S/E9 3200 Ekip Dip LSI FHR	1SDA104377R1	1SDA104387R1
			E4.2S/E9 3200 Ekip Dip LSIG FHR	1SDA104378R1	1SDA104388R1
			E4.2S/E9 3200 Ekip Touch LSI FHR	1SDA104381R1	1SDA104391R1
			E4.2S/E9 3200 Ekip Touch LSIG FHR	1SDA104379R1	1SDA104389R1
			E4.2S/E9 3200 Ekip Hi-Touch LSIG FHR	1SDA104380R1	1SDA104390R1
	4000	65	E4.2S/E9 4000 Ekip Dip LSI FHR	1SDA104382R1	1SDA104392R1
			E4.2S/E9 4000 Ekip Dip LSIG FHR	1SDA104383R1	1SDA104393R1
			E4.2S/E9 4000 Ekip Touch LSI FHR	1SDA104386R1	1SDA104396R1
			E4.2S/E9 4000 Ekip Touch LSIG FHR	1SDA104384R1	1SDA104394R1
			E4.2S/E9 4000 Ekip Hi-Touch LSIG FHR	1SDA104385R1	1SDA104395R1
<b>E6.2H</b>	5000	75	E6.2H/E9 5000 Ekip Dip LSI FHR	1SDA104605R1	1SDA104615R1
			E6.2H/E9 5000 Ekip Dip LSIG FHR	1SDA104606R1	1SDA104616R1
			E6.2H/E9 5000 Ekip Touch LSI FHR	1SDA104609R1	1SDA104619R1
			E6.2H/E9 5000 Ekip Touch LSIG FHR	1SDA104607R1	1SDA104617R1
			E6.2H/E9 5000 Ekip Hi-Touch LSIG FHR	1SDA104608R1	1SDA104618R1
	6300	75	E6.2H/E9 6300 Ekip Dip LSI FHR	1SDA104610R1	1SDA104620R1
			E6.2H/E9 6300 Ekip Dip LSIG FHR	1SDA104611R1	1SDA104621R1
			E6.2H/E9 6300 Ekip Touch LSI FHR	1SDA104614R1	1SDA104624R1
			E6.2H/E9 6300 Ekip Touch LSIG FHR	1SDA104612R1	1SDA104622R1
			E6.2H/E9 6300 Ekip Hi-Touch LSIG FHR	1SDA104613R1	1SDA104623R1
<b>E6.2X</b>	5000	90	E6.2X/E9 5000 Ekip Dip LSI FHR	1SDA104417R1	1SDA104427R1
			E6.2X/E9 5000 Ekip Dip LSIG FHR	1SDA104418R1	1SDA104428R1
			E6.2X/E9 5000 Ekip Touch LSI FHR	1SDA104421R1	1SDA104431R1
			E6.2X/E9 5000 Ekip Touch LSIG FHR	1SDA104419R1	1SDA104429R1
			E6.2X/E9 5000 Ekip Hi-Touch LSIG FHR	1SDA104420R1	1SDA104430R1
	6300	90	E6.2X/E9 6300 Ekip Dip LSI FHR	1SDA104422R1	1SDA104432R1
			E6.2X/E9 6300 Ekip Dip LSIG FHR	1SDA104423R1	1SDA104433R1
			E6.2X/E9 6300 Ekip Touch LSI FHR	1SDA104426R1	1SDA104436R1
			E6.2X/E9 6300 Ekip Touch LSIG FHR	1SDA104424R1	1SDA104434R1
			E6.2X/E9 6300 Ekip Hi-Touch LSIG FHR	1SDA104425R1	1SDA104435R1



# SACE EMAX 2/E9 AND /E10

## Ordering codes - Automatic circuit breakers /E9



**IT**  
800V



**IT**  
900V

### Withdrawable version

Size	Iu	Icu (900V) <sup>(1)</sup>	Type	3 Poles	4 Poles
<b>E1.2N</b>	1250	50	E1.2N/E9 1250 Ekip Dip LSI WMP	1SDA104294R1	1SDA104304R1
			E1.2N/E9 1250 Ekip Dip LSIG WMP	1SDA104295R1	1SDA104305R1
			E1.2N/E9 1250 Ekip Touch LSI WMP	1SDA104298R1	1SDA104308R1
			E1.2N/E9 1250 Ekip Touch LSIG WMP	1SDA104296R1	1SDA104306R1
			E1.2N/E9 1250 Ekip Hi-Touch LSIG WMP	1SDA104297R1	1SDA104307R1
<b>E2.2H</b>	1250	65	E2.2H/E9 1250 Ekip Dip LSI WMP	1SDA104467R1	1SDA104482R1
			E2.2H/E9 1250 Ekip Dip LSIG WMP	1SDA104468R1	1SDA104483R1
			E2.2H/E9 1250 Ekip Touch LSI WMP	1SDA104471R1	1SDA104486R1
			E2.2H/E9 1250 Ekip Touch LSIG WMP	1SDA104469R1	1SDA104484R1
			E2.2H/E9 1250 Ekip Hi-Touch LSIG WMP	1SDA104470R1	1SDA104485R1
	2000	65	E2.2H/E9 2000 Ekip Dip LSI WMP	1SDA104472R1	1SDA104487R1
			E2.2H/E9 2000 Ekip Dip LSIG WMP	1SDA104473R1	1SDA104488R1
			E2.2H/E9 2000 Ekip Touch LSI WMP	1SDA104476R1	1SDA104491R1
			E2.2H/E9 2000 Ekip Touch LSIG WMP	1SDA104474R1	1SDA104489R1
			E2.2H/E9 2000 Ekip Hi-Touch LSIG WMP	1SDA104475R1	1SDA104490R1
	2500	65	E2.2H/E9 2500 Ekip Dip LSI WMP	1SDA104477R1	1SDA104492R1
			E2.2H/E9 2500 Ekip Dip LSIG WMP	1SDA104478R1	1SDA104493R1
			E2.2H/E9 2500 Ekip Touch LSI WMP	1SDA104481R1	1SDA104496R1
			E2.2H/E9 2500 Ekip Touch LSIG WMP	1SDA104479R1	1SDA104494R1
			E2.2H/E9 2500 Ekip Hi-Touch LSIG WMP	1SDA104480R1	1SDA104495R1
<b>E2.2S</b>	1250	50	E2.2S/E9 1250 Ekip Dip LSI WMP	1SDA104437R1	1SDA104452R1
			E2.2S/E9 1250 Ekip Dip LSIG WMP	1SDA104438R1	1SDA104453R1
			E2.2S/E9 1250 Ekip Touch LSI WMP	1SDA104441R1	1SDA104456R1
			E2.2S/E9 1250 Ekip Touch LSIG WMP	1SDA104439R1	1SDA104454R1
			E2.2S/E9 1250 Ekip Hi-Touch LSIG WMP	1SDA104440R1	1SDA104455R1
	2000	50	E2.2S/E9 2000 Ekip Dip LSI WMP	1SDA104442R1	1SDA104457R1
			E2.2S/E9 2000 Ekip Dip LSIG WMP	1SDA104443R1	1SDA104458R1
			E2.2S/E9 2000 Ekip Touch LSI WMP	1SDA104446R1	1SDA104461R1
			E2.2S/E9 2000 Ekip Touch LSIG WMP	1SDA104444R1	1SDA104459R1
			E2.2S/E9 2000 Ekip Hi-Touch LSIG WMP	1SDA104445R1	1SDA104460R1
	2500	50	E2.2S/E9 2500 Ekip Dip LSI WMP	1SDA104447R1	1SDA104462R1
			E2.2S/E9 2500 Ekip Dip LSIG WMP	1SDA104448R1	1SDA104463R1
			E2.2S/E9 2500 Ekip Touch LSI WMP	1SDA104451R1	1SDA104466R1
			E2.2S/E9 2500 Ekip Touch LSIG WMP	1SDA104449R1	1SDA104464R1
			E2.2S/E9 2500 Ekip Hi-Touch LSIG WMP	1SDA104450R1	1SDA104465R1

1) For E1.2, Icu at 800V



Size	Iu	Icu (900V)	Type	3 Poles	4 Poles
<b>E4.2H</b>	3200	75	E4.2H/E9 3200 Ekip Dip LSI WMP	1SDA104517R1	1SDA104527R1
			E4.2H/E9 3200 Ekip Dip LSI WMP	1SDA104518R1	1SDA104528R1
			E4.2H/E9 3200 Ekip Touch LSI WMP	1SDA104521R1	1SDA104531R1
			E4.2H/E9 3200 Ekip Touch LSI WMP	1SDA104519R1	1SDA104529R1
			E4.2H/E9 3200 Ekip Hi-Touch LSI WMP	1SDA104520R1	1SDA104530R1
	4000	75	E4.2H/E9 4000 Ekip Dip LSI WMP	1SDA104522R1	1SDA104532R1
			E4.2H/E9 4000 Ekip Dip LSI WMP	1SDA104523R1	1SDA104533R1
			E4.2H/E9 4000 Ekip Touch LSI WMP	1SDA104526R1	1SDA104536R1
			E4.2H/E9 4000 Ekip Touch LSI WMP	1SDA104524R1	1SDA104534R1
			E4.2H/E9 4000 Ekip Hi-Touch LSI WMP	1SDA104525R1	1SDA104535R1
<b>E4.2S</b>	3200	65	E4.2S/E9 3200 Ekip Dip LSI WMP	1SDA104497R1	1SDA104507R1
			E4.2S/E9 3200 Ekip Dip LSI WMP	1SDA104498R1	1SDA104508R1
			E4.2S/E9 3200 Ekip Touch LSI WMP	1SDA104501R1	1SDA104511R1
			E4.2S/E9 3200 Ekip Touch LSI WMP	1SDA104499R1	1SDA104509R1
			E4.2S/E9 3200 Ekip Hi-Touch LSI WMP	1SDA104500R1	1SDA104510R1
	4000	65	E4.2S/E9 4000 Ekip Dip LSI WMP	1SDA104502R1	1SDA104512R1
			E4.2S/E9 4000 Ekip Dip LSI WMP	1SDA104503R1	1SDA104513R1
			E4.2S/E9 4000 Ekip Touch LSI WMP	1SDA104506R1	1SDA104516R1
			E4.2S/E9 4000 Ekip Touch LSI WMP	1SDA104504R1	1SDA104514R1
			E4.2S/E9 4000 Ekip Hi-Touch LSI WMP	1SDA104505R1	1SDA104515R1
<b>E6.2H</b>	5000	75	E6.2H/E9 5000 Ekip Dip LSI WMP	1SDA104625R1	1SDA104635R1
			E6.2H/E9 5000 Ekip Dip LSI WMP	1SDA104626R1	1SDA104636R1
			E6.2H/E9 5000 Ekip Touch LSI WMP	1SDA104629R1	1SDA104639R1
			E6.2H/E9 5000 Ekip Touch LSI WMP	1SDA104627R1	1SDA104637R1
			E6.2H/E9 5000 Ekip Hi-Touch LSI WMP	1SDA104628R1	1SDA104638R1
	6300	75	E6.2H/E9 6300 Ekip Dip LSI WMP	1SDA104630R1	1SDA104640R1
			E6.2H/E9 6300 Ekip Dip LSI WMP	1SDA104631R1	1SDA104641R1
			E6.2H/E9 6300 Ekip Touch LSI WMP	1SDA104634R1	1SDA104644R1
			E6.2H/E9 6300 Ekip Touch LSI WMP	1SDA104632R1	1SDA104642R1
			E6.2H/E9 6300 Ekip Hi-Touch LSI WMP	1SDA104633R1	1SDA104643R1
<b>E6.2X</b>	5000	90	E6.2X/E9 5000 Ekip Dip LSI WMP	1SDA104537R1	1SDA104547R1
			E6.2X/E9 5000 Ekip Dip LSI WMP	1SDA104538R1	1SDA104548R1
			E6.2X/E9 5000 Ekip Touch LSI WMP	1SDA104541R1	1SDA104551R1
			E6.2X/E9 5000 Ekip Touch LSI WMP	1SDA104539R1	1SDA104549R1
			E6.2X/E9 5000 Ekip Hi-Touch LSI WMP	1SDA104540R1	1SDA104550R1
	6300	90	E6.2X/E9 6300 Ekip Dip LSI WMP	1SDA104542R1	1SDA104552R1
			E6.2X/E9 6300 Ekip Dip LSI WMP	1SDA104543R1	1SDA104553R1
			E6.2X/E9 6300 Ekip Touch LSI WMP	1SDA104546R1	1SDA104556R1
			E6.2X/E9 6300 Ekip Touch LSI WMP	1SDA104544R1	1SDA104554R1
			E6.2X/E9 6300 Ekip Hi-Touch LSI WMP	1SDA104545R1	1SDA104555R1



Phase separators are mandatory with Emax 2/E circuit breakers.

For withdrawable version, phase separators have to be ordered as loose part.

For fixed version, they are provided as standard.

# SACE EMAX 2/E9 AND /E10

## Ordering codes - Automatic circuit breakers /E9

### Fixed version



#### SACE EMAX E2.2H/E10 • ORIENTABLE REAR TERMINALS (HR)

Size	Iu	Icu (1000V)	Type	3 Poles
E2.2H	2500	50	E2.2H/E10 2500 Ekip Dip LSI FHR	1SDA115924R1
			E2.2H/E10 2500 Ekip Dip LSIG FHR	1SDA115925R1
			E2.2H/E10 2500 Ekip Touch LSIG FHR	1SDA115926R1

#### SACE EMAX E4.2S/E10 - ORIENTABLE REAR TERMINALS (HR)



**IT**  
800V

Size	Iu	Icu (1000V)	Type	3 Poles
E4.2S	3200	50	E4.2S/E10 3200 Ekip Dip LSI 3p FHR	1SDA121090R1
			E4.2S/E10 3200 Ekip Dip LSIG 3p FHR	1SDA121091R1
			E4.2S/E10 3200 Ekip Touch LSIG 3p FHR	1SDA121092R1
	4000	50	E4.2S/E10 4000 Ekip Dip LSI 3p FHR	1SDA121093R1
			E4.2S/E10 4000 Ekip Dip LSIG 3p FHR	1SDA121094R1
			E4.2S/E10 4000 Ekip Touch LSIG 3p FHR	1SDA121095R1

### Withdrawable version



#### SACE EMAX E2.2H/E10 • MOBILE PART OF WITHDRAWABLE CIRCUIT-BREAKER (MP)

Size	Iu	Icu (1000V)	Type	3 Poles
E2.2H	2500	50	E2.2H/E10 2500 Ekip Dip LSI WMP	1SDA115927R1
			E2.2H/E10 2500 Ekip Dip LSIG WMP	1SDA115928R1
			E2.2H/E10 2500 Ekip Touch LSIG WMP	1SDA115929R1

#### SACE EMAX E4.2S/E10 - MOBILE PART OF WITHDRAWABLE CIRCUIT-BREAKER (MP)



**IT**  
800V

Size	Iu	Icu (1000V)	Type	3 Poles
E4.2S	3200	50	E4.2S/E10 3200 Ekip Dip LSI WMP	1SDA121096R1
			E4.2S/E10 3200 Ekip Dip LSIG WMP	1SDA121097R1
			E4.2S/E10 3200 Ekip Touch LSIG WMP	1SDA121098R1
	4000	50	E4.2S/E10 4000 Ekip Dip LSI WMP	1SDA121099R1
			E4.2S/E10 4000 Ekip Dip LSIG WMP	1SDA121100R1
			E4.2S/E10 4000 Ekip Touch LSIG WMP	1SDA121101R1

Phase separators are mandatory with Emax 2/E circuit breakers. For the withdrawable version, phase separators must be ordered as loose parts. For fixed version, they are provided as standard.

# SACE EMAX 2/E9 AND /E10

Ordering codes - Switch-disconnectors /E9 and /E10

## Fixed version



### SACE EMAX E2.2H/E10 MS • ORIENTABLE REAR TERMINALS (HR)

Size	Iu	Icw (1s)	Type	3 Poles
E2.2H/E10	2500	50	E2.2H/E10 MS 2500	1SDA114826R1



### SACE EMAX E4.2H/E9 MS • ORIENTABLE REAR TERMINALS (HR)

Size	Iu	Icw (1s)	Type	3 Poles
E4.2H/E9	2500	75	E4.2H/E9 MS 2500	1SDA119542R1
	3200	75	E4.2H/E9 MS 3200	1SDA119543R1
	4000	75	E4.2H/E9 MS 4000	1SDA119544R1



### SACE EMAX E6.2H/E9 MS • ORIENTABLE REAR TERMINALS (HR)

Size	Iu	Icw (1s)	Type	3 Poles
E6.2H/E9	6300	80	E6.2H/E9 MS 6300 FHR	1SDA132558R1

## Withdrawable version



### SACE EMAX E4.2H/E9 MS • MOBILE PART OF WITHDRAWABLE CIRCUIT-BREAKER (MP)

Size	Iu	Icw (1s)	Type	3 Poles
E4.2H/E9	2500	75	E4.2H/E9 MS 2500	1SDA119548R1
	3200	75	E4.2H/E9 MS 3200	1SDA119549R1
	4000	75	E4.2H/E9 MS 4000	1SDA119550R1

Phase separators are mandatory with Emax 2/E circuit breakers. For the withdrawable version, phase separators must be ordered as loose parts. For fixed version, they are provided as standard.



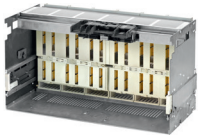
### SACE EMAX E6.2H/E9 MS • MOBILE PART OF WITHDRAWABLE CIRCUIT-BREAKER (MP)

Size	Iu	Icw (1s)	Type	3 Poles
E6.2H/E9	6300	80	E6.2H/E9 MS 6300 WMP	1SDA132559R1

Phase separators are mandatory with Emax 2/E circuit breakers. For the withdrawable version, phase separators must be ordered as loose parts. For fixed version, they are provided as standard.

# SACE EMAX 2/E9 AND /E10

## Ordering codes - Fixed parts for /E9 and /E10



Size	Performance	Iu range	Type of terminal	Type	3 Poles Code	4 Poles Code
E1.2	N	250 - 1600	HR - HR	E1.2 W FP Iu=1600 HR HR	1SDA073907R1	1SDA073908R1
E2.2	S, H	250 - 2000	HR - HR	E2.2 W FP Iu=2000 HR HR	1SDA073909R1	1SDA073910R1
E2.2	S, H	2500	HR - HR	E2.2 W FP Iu=2500 HR HR	1SDA073911R1	1SDA073912R1
E4.2	S, H	3200	HR - HR	E4.2 W FP Iu=3200 HR HR	1SDA073913R1 <sup>(2)</sup>	1SDA073914R1
E4.2	S, H	4000	HR - HR	E4.2 W FP Iu=4000	1SDA073915R1 <sup>(2)</sup>	1SDA073916R1
E6.2	H	5000	HR - HR	E6.2 W FP Iu=5000 HR HR	1SDA073917R1	1SDA073918R1
E6.2 <sup>(1)</sup>	H, X	4000-6300	HR - HR	E6.2 W FP Iu=6300 or X version HR HR	1SDA073920R1	1SDA073921R1

Phase separators are mandatory with Emax 2/E circuit breakers. For withdrawable version, phase separators have to be ordered as loose part. (see Accessories section for phase separators codes). For fixed version, they are provided as standard.

1) These types of fixed parts are suitable for all types of E6.2 mobile parts (all Icu performance level).

2) For E4.2 /E10, the code is 1SDA073915R1 for both 3200A and 4000A.

# SACE EMAX 2/E12

## Range

IEC circuit breakers at 1000-1150-1200V up to 1380V

The SACE Emax2/E12 automatic circuit breakers have been certified according to IEC 60947-2 and are available in the Frame E4.2 and E6.2. "S" and "H" performance levels reach 1200V, while the "V" one is characterized by an extended voltage range up to 1380V (only available for E4.2 frame).

Devices are available in fixed and withdrawable versions, and can be fitted with a vast assortment of electrical and mechanical accessories already available for the standard SACE Emax 2 range.

### Common data

Rated service voltage Ue	[V]	1200
Rated insulation voltage Ui	[V]	1500
Rated impulse withstand voltage Uimp	[kV]	15
Frequency	[Hz]	50-60
Number of poles		3
Version		Fixed-Withdrawable
Suitable for isolation according to		IEC 60947-2



### SACE Emax 2/E12

		E4.2		E6.2		
		S/E12	H/E12	V/E12	H/E12	
Rated uninterrupted current Iu @ 40°C		[A]	2500	2500	2500	5000
		[A]	3200	3200	3200	
		[A]	4000	4000	4000	
Rated ultimate short-circuit breaking capacity Icu	1000V <sup>(2)</sup>	[kA]	65	85	85	100
	1150V	[kA]	50	65	65	85
	1200V	[kA]	50	65	65	85
Rated service short-circuit breaking capacity Ics	1000V <sup>(2)</sup>	[kA]	65	85	85	85
	1150V	[kA]	50	65	65	85
	1200V	[kA]	50	50	50	85
Rated short-time withstand current Icw	(1s) 1000V	[kA]	65	85	85	80
	(3s) 1000V	[kA]	65	75	75	80
	(1s) 1200V	[kA]	50	65	65	80
	(3s) 1200V	[kA]	50	65	65	80
Rated short-circuit making capacity (peak value) Icm	1000V	[kA]	143	187	187	220
	1150V	[kA]	105	143	143	187
	1200V	[kA]	105	143	143	187
Utilization category (according to IEC 60947-2)			B	B	B	B
Suitable for IT networks (IEC 60947-2 Annex H)		[V]	800	No	No	800
<b>Extended performances</b>			S/E12	H/E12	V/E12	H/E12
Maximum operating voltage		[V]	1260	1260	1380	1260
Breaking capacity <sup>(1)</sup>	1380V	[kA]			65	

1) Defined as one single opening operation under short circuit condition

2) For E6.2 frame tolerance range +10%

### SACE Emax 2/E12

		E4.2		E6.2	
		[Iu]	≤3200	4000	≤6300
Mechanical life <sup>(1)</sup>		[No. cycles x 1000]	20	15	12
	Frequency	[Oper./Hour]	60	60	60
Electrical life	1000V	[No. cycles x 1000]	1	1	0.5
	1150V	[No. cycles x 1000]	1	1	0.5
	1200V	[No. cycles x 1000]	1	1	0.5
	Frequency	[Oper./Hour]	10	10	10

1) With regular maintenance prescribed by the manufacturer.

# SACE EMAX 2/E12

## Range

IEC switch disconnectors at 1200V up to 1380V

Switch disconnectors at 1200V are identified with the abbreviation /E12 MS and have been certified according to IEC 60947-3. The switch disconnectors are derived from the corresponding automatic circuit breakers, and they have the same dimensions and accessory options, without protection trip units.

The device, when in the open position, guarantees an isolating distance between the main contacts of the circuit breaker that is sufficient to ensure that the installation downstream is not live.

### Common data

Rated service voltage $U_e$	[V]	1200
Rated insulation voltage $U_i$	[V]	1500
Rated impulse withstand voltage $U_{imp}$	[kV]	15
Frequency	[Hz]	50-60
Number of poles		3
Version		Fixed-Withdrawable
Suitable for isolation according to		IEC 60947-3



### SACE Emax 2/E12

### E4.2

#### Performance levels

#### H/E12 MS

Rated uninterrupted current $I_u$ @ 40°C		[A]	2500
		[A]	3200
		[A]	4000
Rated short-time withstand current $I_{cw}$	(1s)	[kA]	85
	(3s)	[kA]	75
Rated short-circuit making capacity (peak value) $I_{cm}$	1000V	[kA]	187
	1200V	[kA]	143
Utilization category (according to IEC 60947-3)			AC-23A

#### Extended performances

Maximum operating voltage	[V]	1380
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### SACE Emax 2/12

### E4.2

Mechanical life <sup>(1)</sup>		[ $I_u$ ]	≤3200	4000
		[No. cycles x 1000]	20	15
Electrical life	Frequency	[Oper./Hour]	60	60
	1000V	[No. cycles x 1000]	1	1
	1150V	[No. cycles x 1000]	1	1
	1200V	[No. cycles x 1000]	1	1
	Frequency	[Oper./Hour]	10	10

1) With regular maintenance prescribed by the manufacturer.

For Variable Frequency versions, see document [1SDC200097B0201](#).

# SACE EMAX 2/E12

## Ordering codes - Automatic circuit breakers /E12

### Fixed version

#### SACE EMAX E4.2 /E12 - ORIENTABLE REAR TERMINALS (HR)<sup>(1)</sup>



**IT**  
800V



~~**IT**~~

Size	Iu	Icu (1200V)	Type	3 Poles
<b>E4.2S</b>	2500	50	E4.2S/E12 2500 Ekip Dip LSI FHR	1SDA121102R1
			E4.2S/E12 2500 Ekip Dip LSI SVR	1SDA121103R1
			E4.2S/E12 2500 Ekip Touch LSI SVR	1SDA121104R1
	3200	50	E4.2S/E12 3200 Ekip Dip LSI FHR	1SDA121105R1
			E4.2S/E12 3200 Ekip Dip LSI SVR	1SDA121106R1
			E4.2S/E12 3200 Ekip Touch LSI SVR	1SDA121107R1
	4000	50	E4.2S/E12 4000 Ekip Dip LSI SVR	1SDA121108R1
			E4.2S/E12 4000 Ekip Dip LSI SVR	1SDA121109R1
			E4.2S/E12 4000 Ekip Touch LSI SVR	1SDA121110R1
<b>E4.2H</b>	2500	65	E4.2H/E12 2500 Ekip Dip LSI FHR	1SDA121111R1
			E4.2H/E12 2500 Ekip Dip LSI SVR	1SDA121112R1
			E4.2H/E12 2500 Ekip Touch LSI SVR	1SDA121113R1
	3200	65	E4.2H/E12 3200 Ekip Dip LSI FHR	1SDA121114R1
			E4.2H/E12 3200 Ekip Dip LSI SVR	1SDA121115R1
			E4.2H/E12 3200 Ekip Touch LSI SVR	1SDA121116R1
	4000	65	E4.2H/E12 4000 Ekip Dip LSI SVR	1SDA121117R1
			E4.2H/E12 4000 Ekip Dip LSI SVR	1SDA121118R1
			E4.2H/E12 4000 Ekip Touch LSI SVR	1SDA121119R1
<b>E4.2V</b>	2500	65	E4.2V/E12 2500 Ekip Dip LSI FHR	1SDA121120R1
			E4.2V/E12 2500 Ekip Dip LSI SVR	1SDA121121R1
			E4.2V/E12 2500 Ekip Touch LSI SVR	1SDA121122R1
	3200	65	E4.2V/E12 3200 Ekip Dip LSI FHR	1SDA121123R1
			E4.2V/E12 3200 Ekip Dip LSI SVR	1SDA121124R1
			E4.2V/E12 3200 Ekip Touch LSI SVR	1SDA121125R1
	4000	65	E4.2V/E12 4000 Ekip Dip LSI SVR	1SDA121126R1
			E4.2V/E12 4000 Ekip Dip LSI SVR	1SDA121127R1
			E4.2V/E12 4000 Ekip Touch LSI SVR	1SDA121128R1

1) SVR terminals on 4000A versions. See page 10-11 for other terminals.

#### SACE EMAX E6.2 /E12 - ORIENTABLE REAR TERMINALS (HR)



**IT**  
800V

Size	Iu	Icu (1200V)	Type	3 Poles
<b>E6.2H</b>	5000	85	E6.2H/E12 5000 Ekip Dip LSI 3p FHR	1SDA132717R1
			E6.2H/E12 5000 Ekip Dip LSI 3p SVR	1SDA132718R1
			E6.2H/E12 5000 Ekip Touch LSI 3p SVR	1SDA132719R1

# SACE EMAX 2/E12

## Ordering codes - Automatic circuit breakers /E12



**IT**  
800V



### Withdrawable version

#### SACE EMAX E4.2 /E12 • MOBILE PART OF WITHDRAWABLE CIRCUIT-BREAKER (MP)

Size	Iu	Icu (1200V)	Type	3 Poles
<b>E4.2S</b>	2500	50	E4.2S/E12 2500 Ekip Dip LSI WMP	1SDA121129R1
			E4.2S/E12 2500 Ekip Dip LSI WMP	1SDA121130R1
			E4.2S/E12 2500 Ekip Touch LSI WMP	1SDA121131R1
	3200	50	E4.2S/E12 3200 Ekip Dip LSI WMP	1SDA121132R1
			E4.2S/E12 3200 Ekip Dip LSI WMP	1SDA121133R1
			E4.2S/E12 3200 Ekip Touch LSI WMP	1SDA121134R1
	4000	50	E4.2S/E12 4000 Ekip Dip LSI WMP	1SDA121135R1
			E4.2S/E12 4000 Ekip Dip LSI WMP	1SDA121136R1
			E4.2S/E12 4000 Ekip Touch LSI WMP	1SDA121137R1
<b>E4.2H</b>	2500	65	E4.2H/E12 2500 Ekip Dip LSI WMP	1SDA121138R1
			E4.2H/E12 2500 Ekip Dip LSI WMP	1SDA121139R1
			E4.2H/E12 2500 Ekip Touch LSI WMP	1SDA121140R1
	3200	65	E4.2H/E12 3200 Ekip Dip LSI WMP	1SDA121141R1
			E4.2H/E12 3200 Ekip Dip LSI WMP	1SDA121142R1
			E4.2H/E12 3200 Ekip Touch LSI WMP	1SDA121143R1
	4000	65	E4.2H/E12 4000 Ekip Dip LSI WMP	1SDA121144R1
			E4.2H/E12 4000 Ekip Dip LSI WMP	1SDA121145R1
			E4.2H/E12 4000 Ekip Touch LSI WMP	1SDA121146R1
<b>E4.2V</b>	2500	65	E4.2V/E12 2500 Ekip Dip LSI WMP	1SDA121147R1
			E4.2V/E12 2500 Ekip Dip LSI WMP	1SDA121148R1
			E4.2V/E12 2500 Ekip Touch LSI WMP	1SDA121149R1
	3200	65	E4.2V/E12 3200 Ekip Dip LSI WMP	1SDA121150R1
			E4.2V/E12 3200 Ekip Dip LSI WMP	1SDA121151R1
			E4.2V/E12 3200 Ekip Touch LSI WMP	1SDA121152R1
	4000	65	E4.2V/E12 4000 Ekip Dip LSI WMP	1SDA121153R1
			E4.2V/E12 4000 Ekip Dip LSI WMP	1SDA121154R1
			E4.2V/E12 4000 Ekip Touch LSI WMP	1SDA121155R1

Phase separators are mandatory with Emax 2/E circuit breakers.

For the withdrawable version, phase separators must be ordered as loose parts. (See Accessories section for phase separators codes).  
For fixed version, they are provided as standard.



**IT**  
800V

#### SACE EMAX E6.2 /E12 - MOBILE PART OF WITHDRAWABLE CIRCUIT-BREAKER (MP)

Size	Iu	Icu (1200V)	Type	3 Poles
<b>E6.2H</b>	5000	85	E6.2H/E12 5000 Ekip Dip LSI 3p WMP	1SDA132723R1
			E6.2H/E12 5000 Ekip Dip LSI 3p WMP	1SDA132724R1
			E6.2H/E12 5000 Ekip Touch LSI 3p WMP	1SDA132725R1

# SACE EMAX 2/E12

## Ordering codes - Switch disconnectors /E12

### Fixed version

#### SACE EMAX E4.2 /E12 MS - ORIENTABLE REAR TERMINALS (HR) <sup>(1)</sup>



Size	Iu	Type	3 Poles
E4.2H/E12	2500	E4.2H/E12 MS 2500 FHR	1SDA121156R1
	3200	E4.2H/E12 MS 3200 FHR	1SDA121157R1
	4000	E4.2H/E12 MS 4000 SVR	1SDA121158R1

1) SVR terminals on 4000A versions.

### Withdrawable version

#### SACE EMAX E4.2 /E12 MS - MOBILE PART OF WITHDRAWABLE CIRCUIT-BREAKER (MP)



Size	Iu	Type	3 Poles
E4.2H/E12	2500	E4.2H/E12 MS 2500 WMP	1SDA121159R1
	3200	E4.2H/E12 MS 3200 WMP	1SDA121160R1
	4000	E4.2H/E12 MS 4000 WMP	1SDA121161R1

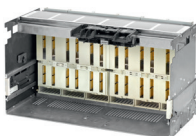
Phase separators are mandatory with Emax 2/E circuit breakers.

For the withdrawable version, phase separators must be ordered as loose parts. (See Accessories section for phase separators codes).

For fixed version, they are provided as standard.

# SACE EMAX 2/E12

## Ordering codes - Fixed parts for /E12



Size	Performance	Iu range	Type of terminal	Type	3 Poles
					Code
E4.2	S, H, V	2500-3200	HR - HR	E4.2 /E12 W FP Iu=3200 HR HR	1SDA121088R1
		4000	SVR - SVR	E4.2 /E12 W FP Iu=4000 SVR SVR	1SDA121089R1
E6.2	H,	5000	HR-HR	E6.2 /E12 W FP Iu=5000 3p HR HR	1SDA132732R1

Phase separators are mandatory with Emax 2/E circuit breakers.

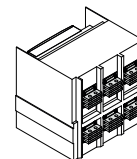
For withdrawable version, phase separators have to be ordered as loose part. (See Accessories section for phase separators codes)

For fixed version, they are provided as standard.

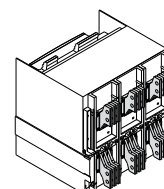
### Standard configurations for terminals

The terminal configurations below are a standard setup installed on E4.2/E12 for both fixed and withdrawable versions. Other terminals are also available optionally.

Iu	Terminals
2500-3200A	Rear adjustable terminals HR/VR



4000A <sup>(1)</sup>	Vertical spread terminals
----------------------	---------------------------



1) For Iu=4000A version, when using other terminal configurations assume the current deratings you see at pages 10 and 11

# ACCESSORIES FOR EMAX 2/E

## Ordering codes for IEC

All Emax2 standard accessories are compatible with the Emax2 /E version. In this catalogue only the variation with the standard options are reported.

### Separators - PB

This protection devices increase the insulation distance between adjacent phases. They are available for all the frames. Phase separators are mandatory with Emax 2/E circuit breakers. For withdrawable version, phase separators have to be ordered as loose part. For fixed version, they are provided as standard.

Size	Type	Code
E1.2	PB separators 2 pz E1.2 W FP 3P	1SDA076164R1
E1.2	PB separators 3 pz E1.2 W FP 4P	1SDA076165R1
E2.2...E6.2	PB separators 2 pz E2.2...E6.2 F 3P	1SDA076166R1
E2.2...E6.2	PB separators 3 pz E2.2...E6.2 F 4P	1SDA076167R1
E2.2...E6.2	PB separators 2 pz E2.2...E6.2 FP 3P	1SDA076168R1
E2.2...E6.2	PB separators 2 pz E2.2...E6.2 FP 4P	1SDA076169R1

### Auxiliary position contacts - AUP

When the circuit-breaker is a withdrawable version, the position of the mobile part can be signalled electrically by accessorizing the fixed part with auxiliary position contacts. For E9 and E10 application AUP contacts are equal to the IEC ones provided for Emax2 standard version. For /E12 applications, due to the presence of the 0-art distance cover, AUP IEC version are not compatible. Alternatively it is possible to install the AUP UL version.

Size	Type	Code
E2.2...E6.2/E12	AUP 5 contacts 400V left set	1SDA080373R1
E2.2...E6.2/E12	AUP 5 contacts 24V left set	1SDA080374R1
E2.2...E6.2/E12	AUP 5 suppl. contacts 400V right set	1SDA080375R1
E2.2...E6.2/E12	AUP 5 suppl. contacts 24V right set	1SDA080376R1

### Terminal covers - HTC

These accessories are installed over the terminals, thereby reducing the risk of direct contact with the live parts of the circuit-breaker. For E1.2/E9 it is mandatory and provided by default with the breaker. It consist in a plastic shield and an additional rear insulation panel.

Size	Type	3 poles	4 poles
E1.2	HTC High terminal covers E1.2/E9	1SDA135029R1	1SDA135030R1

### Terminals

For a detailed offering of terminals for each frame please refer to "Connections and dimensions" section. For detailed information on the ordering codes please refer to the Emax2 standard catalogue. In addition to the standard one, below the Emax 2/E dedicated terminal design are reported.

### KIT FOR TERMINALS

Size	Mounting	Version	Iu max	Type	3 poles
E6.2	Factory fit	F	6300A	Kit SVR Sup E6.2 F INST	1SDA133957R1
E6.2	Factory fit	F	6300A	Kit SVR Inf E6.2 F INST	1SDA133958R1
E6.2	Factory fit	W	6300A	Kit SVR Sup E6.2 W INST	1SDA133959R1
E6.2	Factory fit	W	6300A	Kit SVR Inf E6.2 W INST	1SDA133960R1
E6.2	Loose	F/W	6300A	KIT SVR E6.2 Iu=6300 3pcs	1SDA133961R1

# SACE EMAX 2 -A/E UL

## Range

UL Circuit breakers at 730V, 800V and 1000Y/577V

### Common data

Rated maximum voltage	[V]	730, 1000Y/577 <sup>(1)</sup>
Test voltage (main circuit)	[kV]	3.5
Frequency	[Hz]	50-60
Number of poles		3-4
Version		Fixed (F) - Drawout (W)



1) 1000Y/577V only for wye connected systems

UL SACE Emax 2 -A/E		E4.2	E6.2	
Performance levels		H-A/E	H-A/E10	V-A/E
Standard		UL1066	UL489	UL1066
Rated uninterrupted current I <sub>u</sub> @ 40°C	[A]	3200 <sup>(1)</sup>	3200 <sup>(1)</sup>	4000
	[A]	3600 <sup>(1)</sup>		5000
Neutral pole current-carrying capacity for 4-pole CBs	[%I <sub>u</sub> ]	100	100	100
Interrupting ratings	730V	[kA]	85	65
	800V	[kA]		65
	1000Y/ 577V	[kA]		65

### IEC 60947

Rated ultimate short-circuit breaking capacity I <sub>cu</sub>	1000V	[kA]	50
Rated service short-circuit breaking capacity I <sub>cs</sub>		[%I <sub>cu</sub> ]	100

1) Fixed version only

UL and IEC 60947 SACE Emax2 -A/E		E4.2	E6.2			
Mechanical life <sup>(1)</sup>	[I <sub>u</sub> ]	3200	3600	4000	5000	
	[No. cycles x 1000]	20	15	12	12	
Electrical life	Frequency	[Oper./Hour]	60	60	60	60
	730V	[No. cycles x 1000]	0.4	0.4	0.4	0.4
	800V	[No. cycles x 1000]	1			
	1000Y/577V	[No. cycles x 1000]	1			
	Frequency	[Oper./Hour]	30	30	30	30

1) With regular maintenance prescribed by the manufacturer.

For more information about trip units, accessories, installation, wiring diagrams and dimensions, consult SACE Emax 2 UL1066 Technical Catalogue



UL version: 1SXU200040C0201

# SACE EMAX 2 -A/E

## Ordering codes - Automatic circuit breakers -A/E

### Fixed version

#### SACE EMAX2 -A/E 730V



Size	Iu	Icu (730V)	Type	3 Poles	4 Poles	
E4.2H	3200	85	E4.2H-A/E 3200 Ekip Dip LSI FVR	1SDA113758R1	1SDA113762R1	
			E4.2H-A/E 3200 Ekip Dip LSI G FVR	1SDA113759R1	1SDA113763R1	
			E4.2H-A/E 3200 Ekip Touch LSI FVR	1SDA113760R1	1SDA113764R1	
			E4.2H-A/E 3200 Ekip Touch LSI G FVR	1SDA113761R1	1SDA113765R1	
	3600	85	E4.2H-A/E 3600 Ekip Dip LSI FVR	1SDA113754R1		
			E4.2H-A/E 3600 Ekip Dip LSI G FVR	1SDA113755R1		
			E4.2H-A/E 3600 Ekip Touch LSI FVR	1SDA113756R1		
			E4.2H-A/E 3600 Ekip Touch LSI G FVR	1SDA113757R1		
E6.2V	4000	65	E6.2V-A/E 4000 Ekip Dip LSI FHR	1SDA113774R1	1SDA113778R1	
			E6.2V-A/E 4000 Ekip Dip LSI G FHR	1SDA113775R1	1SDA113779R1	
			E6.2V-A/E 4000 Ekip Touch LSI FHR	1SDA113776R1	1SDA113780R1	
			E6.2V-A/E 4000 Ekip Touch LSI G FHR	1SDA113777R1	1SDA113781R1	
	5000	65	E6.2V-A/E 5000 Ekip Dip LSI FHR	1SDA113782R1	1SDA113786R1	
			E6.2V-A/E 5000 Ekip Dip LSI G FHR	1SDA113783R1	1SDA113787R1	
			E6.2V-A/E 5000 Ekip Touch LSI FHR	1SDA113784R1	1SDA113788R1	
			E6.2V-A/E 5000 Ekip Touch LSI G FHR	1SDA113785R1	1SDA113789R1	



#### SACE EMAX E4.2H-A/E10 - REAR VERTICAL TERMINALS 3200A (VR)



Size	Iu	Icu 1000Y/577V	Type	3 Poles	4 Poles
E4.2H	3200	65	E4.2H-A/E10 3200 Ekip Dip LSI FVR	1SDA130133R1	1SDA130137R1
			E4.2H-A/E10 3200 Ekip Dip LSI G FVR	1SDA130134R1	1SDA130138R1
			E4.2H-A/E10 3200 Ekip Touch LSI FVR	1SDA130135R1	1SDA130139R1
			E4.2H-A/E10 3200 Ekip Touch LSI G FVR	1SDA130136R1	1SDA130140R1

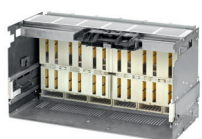
### Withdrawable version

#### SACE EMAX E6.2V-A/E - MOBILE PART FOR DRAWOUT CIRCUIT BREAKER (MP)



Size	Iu	Icu (730V)	Type	3 Poles	4 Poles
E6.2V	4000	65	E6.2V-A/E 4000 Ekip Dip LSI WMP	1SDA113790R1	1SDA113794R1
			E6.2V-A/E 4000 Ekip Dip LSI G WMP	1SDA113791R1	1SDA113795R1
			E6.2V-A/E 4000 Ekip Touch LSI WMP	1SDA113792R1	1SDA113796R1
			E6.2V-A/E 4000 Ekip Touch LSI WMP	1SDA113793R1	1SDA113797R1
	5000	65	E6.2V-A/E 5000 Ekip Dip LSI WMP	1SDA113798R1	1SDA113802R1
			E6.2V-A/E 5000 Ekip Dip LSI G WMP	1SDA113799R1	1SDA113803R1
			E6.2V-A/E 5000 Ekip Touch LSI WMP	1SDA113800R1	1SDA113804R1
			E6.2V-A/E 5000 Ekip Touch LSI G WMP	1SDA113801R1	1SDA113805R1

### Fixed part



Size	Performance	Iu range	Type of terminal	Type	3 Poles Code	3 Poles Code
E6.2	H-A, V-A, L-A	4000-5000	HR - HR	E6.2-A W FP Iu=5000 HR HR UL	1SDA079706R1	1SDA079707R1

Phase separators are mandatory with Emax 2/E circuit breakers.

For withdrawable version, phase separators have to be ordered as loose part. (see Accessories section for phase separators codes).

For fixed version, they are provided as standard.

# ACCESSORIES FOR EMAX2 -A/E

## Ordering codes for UL

All Emax 2 standard accessories are compatible with the Emax 2-A/E version. In this catalogue only the variation with the standard options are reported.

### Separators - PB

This protection devices increase the insulation distance between adjacent phases. They are available for all the frames. Phase separators are mandatory with Emax 2/E circuit breakers. For withdrawable version, phase separators have to be ordered as loose part. For fixed version, they are provided as standard.

Size	Type	Code
E2.2...E6.2	PB Separators 2 pcs E2.2..E6.2 W FP 3P	1SDA076168R1
E2.2...E6.2	PB Separators 3 pcs E2.2..E6.2 W FP 4P	1SDA076169R1

For more information about trip units, accessories, installation, wiring diagrams and dimensions, please consult SACE Emax 2 technical catalogs:



IEC version: 1SDC200023D0209



UL version: 1SXU200040C0201

# STANDARD SUPPLY AND ACCESSORIES

The fixed versions of SACE Emax 2 are always supplied as standard with the following accessories: IP30 protection for switchgear door and adjustable rear terminals mounted in HR – HR configuration (for /E12 4000A: SVR – SVR configuration).

The withdrawable versions are always supplied as standard with the following accessories: closed circuit breaker racked-out mechanism lock, lever for racking in and racking out and anti-insertion lock. The fixed parts features are: IP30 protection for switchgear door, anti-insertion lock, standard shutter lock – SL and adjustable rear terminals mounted in HR – HR configuration (for /E12 4000A: SVR – SVR configuration).

	Automatic circuit-breaker		Switch-disconnector
	E1.2	E2.2 - E4.2 - E6.2	E2.2 - E4.2 - E6.2
<b>SIGNALLING</b>			
Standard open/closed auxiliary contacts - AUX 4Q	● / ●●	● / ●●	○ / ∞
Open/closed auxiliary contacts - AUX 6Q	-	○ / ∞	○ / ∞
Open/closed auxiliary contacts- AUX 15Q	○ / △	○ / △	○ / △
Auxiliary position contacts - AUP	△	△	△
Ready to close signalling contact - RTC	○ / ∞	○ / ∞	○ / ∞
TU Reset mechanical signalling of the tripping of protection trip unit - TU Reset	● / ●●	● / ●●	-
Contact signalling tripping of Ekip protection trip unit - S51	● / ●●	● / ●●	-
Second contact signalling tripping of Ekip protection trip unit - S51/2	-	○ / ∞	-
Contact signalling loaded springs – S33 M/2 (supplied with Motor)	○ / ∞	○ / ∞	○ / ∞
<b>CONTROL</b>			
Opening and closing release - YO/YC	○ / ∞	○ / ∞	○ / ∞
Second opening and closing release - YO2/YC2	○ / ∞	○ / ∞	○ / ∞
Undervoltage release - YU	○ / ∞	○ / ∞	○ / ∞
Electronic time-delay device for undervoltage release - UVD	○ / ∞	○ / ∞	○ / ∞
Motor - M	○ / ∞	○ / ∞	○ / ∞
Remote reset - YR	○ / ∞	○ / ∞	-
Opening and closing release test unit - YO/YC Test Unit	○ / △	○ / △	○ / △
<b>SAFETY</b>			
Key lock and padlock in open position - KLC and PLC	○ / ∞	○ / ∞	○ / ∞
Key lock and padlock in racked-in / test / racked-out position - KLP and PLP	△	∞	∞
Shutter lock - SL	▲	▲	▲
Lock for racking-out mechanism with circuit-breaker in closed position	▲	●●	●●
Lock for racking in / racking out the mobile part when the door is open - DLR	-	△	△
Lock to prevent door opening when circuit-breaker is in racked-in / test position - DLP	-	△	△
Lock to prevent door opening when circuit-breaker is in closed position - DLC	○ / ∞	○ / ∞	○ / ∞
Anti-insertion lock	● / ●●	● / ●●	● / ●●
Mechanical operation counter - MOC	○ / ∞	○ / ∞	○ / ∞
<b>PROTECTION DEVICES</b>			
Protection device for opening and closing pushbutton - PBC	○ / ∞	○ / ∞	○ / ∞
IP30 Protection	● / ▲	● / ▲	● / ▲
IP54 Protection	○ / △	○ / △	○ / △
Terminals covers - HTC/LTC	○ / ∞	-	-
Separators PB	● / △	● / △	● / △
<b>CONNECTIONS</b>			
Orientable rear terminals - HR/VR	▲	● / ▲	● / ▲
Spread vertical rear terminals - SVR	-	● <sup>(1)</sup> / ▲ <sup>(1)</sup>	● <sup>(1)</sup> / ▲ <sup>(1)</sup>
Front terminal - F	●	-	-
Other configurations	-	○ / △	○ / △

- Standard accessory for fixed circuit-breaker
- Accessory on request for fixed circuit-breaker
- Standard accessory for mobile part
- ∞ Accessory on request for mobile part

- ▲ Standard accessory for fixed part
- △ Accessory on request for fixed part

1) Standard for E4.2 /E12 4000A only, on request for other versions.



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**ABB S.p.A.**

5, Via Pescaria

I-24123, Bergamo

Phone: +39 035 395 111

**[abb.com/lowvoltage](http://abb.com/lowvoltage)**