

Load and Motor Switches, Load-Break Switches Series 8544



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12123E00

- > Innovative switch concept
- > State-of-the-art contact arrangement
- > Easy and clear connection technology
- > Wiring channel for auxiliary contacts
- > Retrofittable:
 - alligator clip
 - auxiliary contacts
 - Ex i separation body
 - N terminal
 - PE terminal
 - adapter plate for cable connection
- > Isolating characteristics according to IEC/EN 60947-1



The load and motor switch of type 8544/1 is an explosion-protected electrical device in a flameproof enclosure. It is used for the separation or activation of electrical circuits in hazardous areas of Zone 1, Zone 2 or in the safe area.

The load and motor switch 8544/1 is available in versions 8544/1-3. (3 poles) and 8544/1-4. (3 poles + N).

The switches are actuated by means of an actuator insert which is connected to the switch by means of a selector shaft.

Up to two certified contact elements of the type 8080/1 can be mounted at the load and motor switch 8544/1.

The switching function of the contact elements is defined by the contact version and their position in the load and motor switch (left-hand: delayed (ON), advanced (OFF); right-hand: synchronising).

		ATEX / IECEx							Class I (NEC 505) (NEC 506)						Class I		Class II		Class III		
Zone		0	1	2	20	21	22	Zone	0	1	2	20	21	22	Division	1	2	1	2	1	2
For use in		x	x			x	x	For use in		x					For use in	x					

WebCode 8544A

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Selection Table

Version	Circuit diagram	Ambient temperature	Art. no.	Weight kg
8544/1-3., 3-pole		- 30 ... + 80 °C	165675	2.200
		- 50 ... + 80 °C	171154	2.200
8544/1-4., 3-pole + N		- 30 ... + 80 °C	167240	2.800
		- 50 ... + 80 °C	171156	2.800

Explosion Protection

Marking

IECEX	Ex d e IIC Gb Ex d e I Mb
Europe (ATEX)	⊕ II 2 G Ex d e IIC Gb ⊕ I M 2 Ex d e I Mb
NEC	Class I, Zone 1, AEx de IIC T6 Class I, Div. 2, Groups A, B, C, D T6
CEC	Class I, Zone 1, Ex de IIC T6 Class I, Div. 2 per CEC J18-150

Certificates

IECEX	IECEX PTB 09.0011 U
Europe (ATEX)	PTB 08 ATEX 1060 U
NEC/CEC	3037662



Technical Data

Electrical data

Main contacts

Rated isolation voltage	800 V	
Rated operational voltage		
ATEX/IECEX	690 V AC, 50 / 60 Hz	
NEC/CEC	600 V AC	
Rated operational current	max. 80 A	
Switching capacity		
ATEX/IECEX	acc. to IEC/EN 60947-3:	
	AC-3 DC-23 DC-1	
	690 V, 63 A 220 V, 80 A ³⁾ 220 V, 80 A ³⁾	
	500 V, 80 A 120 V, 80 A ²⁾ 120 V, 80 A ²⁾	
		60 V, 80 A ¹⁾ 60 V, 80 A ¹⁾

- 1) 1 flow path of current
2) 2 flow paths of current connected in series
3) 3 flow paths of current connected in series

NEC/CEC

Rated voltage up to	AC-ratings				DC-ratings		
	600 V	480 V	240 V	120 V	240 V ³⁾	125 V ²⁾	62.5 V ¹⁾
Rated current up to	63 A				80 A		

- 1) 1 flow path of current
2) 2 flow paths of current connected in series
3) 3 flow paths of current connected in series

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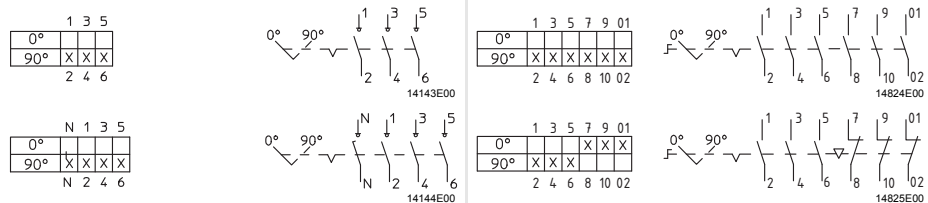
Technical Data

Electrical data

Main contacts							
Motor switching capacity							
ATEX/IECEX	690 V 55 kW	500 V 55 kW	400 V 37 kW	240 V 22 kW			
NEC/CEC	Rated voltage up to						
	AC-ratings				DC-ratings		
	600 V	480 V	240 V	120 V	240 V	125 V	62.5 V
Horse Power	60				10		
Short-circuit	20 kA						
Back-up fuse - Class J	≤150 A						
Service life							
Mechanical	40.000 switching cycles						
Electrical	20.000 switching cycles						
Max. short circuit protection							
ATEX/IECEX	160 A, tripping characteristic: gG according to IEC/EN 60269-1						
NEC/CEC	150 A, Fuse-Class J according to ANSI/UL 248-8						
Short circuit protection	20 kA (IEC/EN 60947-3; ANSI/UL 489)						
Type of assignment	2 (according to IEC/EN 60947-4-1)						
Rated short-time withstand current I _{cs}	2.2 kA (IEC/EN 60947-3)						
Max. power dissipation	3.8 W per path						
Auxiliary contacts							
Possible auxiliary contacts	max. 2 auxiliary contact blocks of type 8080/1 8080/1-1: slow-action contacts, 1 NC + 1 NO, (normally open contact opens > 20 ms before opening of the main contact) 8080/1-3: slow-action contacts, 2 NC 8080/1-4: slow-action contacts, 2 NO						
Rated operational voltage							
ATEX/IECEX	250 V AC / DC 400 V AC, for equal potential of both contacts 500 V AC, when 1 NC + 1 NO and the same potential of both contact is used						
NEC/CEC	250 V AC						
Rated operational current							
ATEX/IECEX	6 A						
NEC/CEC	10 A						
Short-circuit protection	10 A, tripping characteristic: gG according to IEC/EN 60291-1						

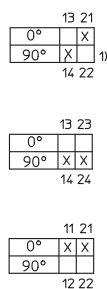
Schematic

Main contacts

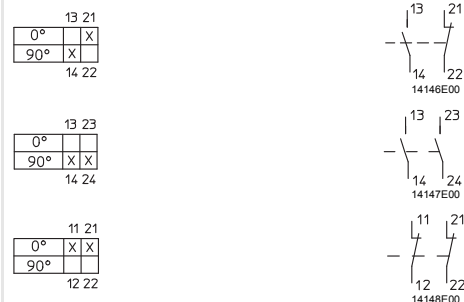


Auxiliary contacts

mounted in left mounting slot



mounted in right mounting slot



1) load-shedding contact (delayed ON, advanced OFF, acc. to IEC/EN 60947-1)

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Technical Data

Ambient conditions

Ambient temperature ATEX/IECEX	8544/1-.1: - 30 ... + 80 °C 8544/1-.2: - 50 ... + 80 °C depending on the rated operational current and the temperature class:			
	80 A		63 A	
	T6	$T_a \leq 60\text{ °C}$	T6	$T_a \leq 60\text{ °C}$
	T5	$T_a \leq 75\text{ °C}$	T5	$T_a \leq 75\text{ °C}$
	T4	$T_a \leq 80\text{ °C}$		
NEC/CEC	T6: - 50 ... + 40 °C			

Mechanical data

Degree of protection	IP20 (IEC/EN 60529, finger touch-safe from the top)		
Material			
Switching chamber	epoxy resin		
Upper enclosure parts	PA		
Contacts	silver stannic oxide		
Weight	3-pole: 2.2 kg 3-pole + N: 2.8 kg		
Switching torque	approx. 3.5 Nm		
Main contacts			
Connection			
cross-section			
Main terminals	Conductor connection:		
	one conductor, finely stranded	6 ... 10 mm ² (AWG 10 ... AWG 8)	only with insertion prism
	stranded:	16 ... 50 mm ² (AWG 6 ... AWG 1/0)	
	finely stranded:	16 ... 50 mm ² (AWG 6 ... AWG 1/0)	
	with cable lug:	max. 50 mm ² (max. AWG 1/0) The degree of protection IP20 is not reached!	with clamping plate and insertion prism
	Connection using several conductors (only within ATEX/IECEX permitted):		
	one conductor, finely stranded	2 x 6 mm ² (AWG 10) *)	only with insertion prism
	one or more conduc- tors, finely stranded:	2 x 10 mm ² ... 2 x 16 mm ² (2 x AWG 8 ... 2 x AWG 6) *)	
	with cable lug:	max. 2 x 50 mm ² (max. 2 x AWG 1/0) **)	with clamping plate and insertion prism
	*) Only conductors with the same cross-section are allowed!		
	**) Conductors with different cross-sections are allowed! For cross-sections < 25 mm ² / AWG 4, the degree of protection IP20 is not reached!		
Alligator clips ATEX/IECEX	Conductor connection:		
	one conductor, finely stranded	0.5 ... 10 mm ² (AWG 20 ... AWG 8)	
	If several conductors must be connected (only conductors with the same cross-section):		
	one conductor, finely stranded	max. 2 x 6 mm ² (max. 2 x AWG 10)	
NEC/CEC	Conductor connection:		
	one conductor, finely stranded	AWG 24 ... AWG 6	
	If several conductors must be connected (only conductors with the same cross-section):		
	one conductor, finely stranded	Not permitted!	
Auxiliary contacts			
Connection			
cross-section			
ATEX/IECEX	1.5 ... 2.5 mm ² (AWG 16 ... AWG 14), solid, finely stranded		
NEC/CEC	AWG 22 ... AWG 12		


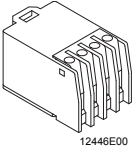

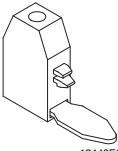
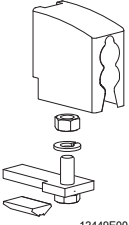

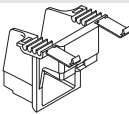
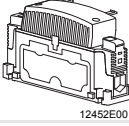

Mounting / Installation

Installation position	arbitrary
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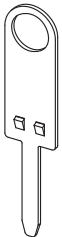
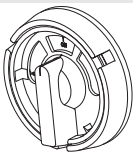
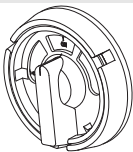
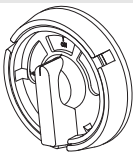

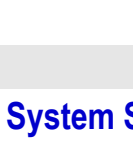
Accessories and Spare Parts				
Designation	Illustration	Description	Art. no.	Weight kg
Selector shaft		52 mm for 8146/...2	168354	0.031
		71 mm for 8146/...3 or 8125/...3	168355	0.046
		111 mm for 8146/...5 or 8125/...5	168357	0.077
Auxiliary contact		2 NC contacts (8080/1-3) ²⁾	168356	0.026
		1 NC contact + 1 NO contact (8080/1-1) ¹⁾	168351	0.026
		2 NO contact (8080/1-4) ²⁾	168353	0.026
		The switching function of the auxiliary contact depends on the installation slot used. ¹⁾ left: delayed (ON), advanced (OFF); right: synchronising ²⁾ left and right: synchronising		
Designation labels		qr: 1 10 pieces	168286	0.053
		qr: 2 10 pieces	168287	0.053
		qr: 3 10 pieces	168288	0.053
		qr: 4 10 pieces	168289	0.053
		qr: 5 10 pieces	168290	0.053
		qr: 6 10 pieces	168291	0.053
		qr: N 10 pieces	168285	0.053
		qr: PE 10 pieces	168292	0.053
Alligator clip		AGK 10-UKH 50	168543	0.014
Connection for cable lug		Mounting kit for the connection of conductors with cable lug	171292	0.032
Insertion prism		for connection of conductors with cross-sections $\leq 10 \text{ mm}^2$ (conductor connection) or $\leq 6 \text{ mm}^2$ (connection of several conductors) to the main terminals	171324	0.012
Ex i separation body		to ensure the required distance of 50 mm between the connection points of intrinsically safe and non-intrinsically safe circuits	169683	0.008
PE/N terminal		for subsequent assembly	168347	0.600
Parallel drive		to actuate simultaneously 2 combined load and motor switches	171330	0.327

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Accessories and Spare Parts

Designation	Illustration	Description	Art. no.	Weight kg	
Auxiliary contact key		for removing the mounted auxiliary contact	201909	0.035	
Knob lever		14151E00 Ø 122.5 mm; can be padlocked in 0 position using max. 3 padlocks			
		Handle: black Protective collar: black Designation label: 0/OFF - I/ON	8604A1-21-1-01-1-2	201436	0.325
		Handle: red Protective collar: yellow Designation label: 0/OFF - I/ON	8604A1-21-1-01-2-2	201437	0.325
		Handle: red Protective collar: black Designation label: 0/OFF - I/ON	8604A1-21-1-01-3-2	201438	0.325
		Ø 122.5 mm; can be padlocked in 0 position using max. 3 padlocks for safety switch; cover can only be removed in I/ON position!			
		Handle: black Protective collar: black Designation label: 0/OFF - I/ON	8604A1-22-1-01-1-2	201439	0.325
		Handle: red Protective collar: yellow Designation label: 0/OFF - I/ON	8604A1-22-1-01-2-2	201451	0.325
		Handle: red Protective collar: black Designation label: 0/OFF - I/ON	8604A1-22-1-01-3-2	201453	0.325
		for switch with 6 poles: Ø 180 mm; can be padlocked in 0 position using max. 3 padlocks			
		handle: black protective collar: black designation label: 0/OFF - I/ON	8604A1-31-1-01-1-1	201454	0.830
		handle: red protective collar: yellow designation label: 0/OFF - I/ON	8604A1-31-1-01-2-1	201456	0.830
		handle: red protective collar: black designation label: 0/OFF - I/ON	8604A1-31-1-01-3-1	201457	0.830
		for switch with 6 poles: Ø 180 mm; can be padlocked in 0 position using max. 3 padlocks for safety switch; cover can only be removed in I/ON position!			
		handle: black protective collar: black designation label: 0/OFF - I/ON	8604A1-32-1-01-1-1	201459	0.830
		handle: red protective collar: yellow designation label: 0/OFF - I/ON	8604A1-32-1-01-2-1	201460	0.830
	handle: red protective collar: black designation label: 0/OFF - I/ON	8604A1-32-1-01-3-1	201461	0.830	

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Dimensional Drawings (All Dimensions in mm) - Subject to Alterations

8544/1, 3 pole

8544/1, 3 pole + N

Dim. "A"	Mounting kit	Selector shaft	Installation in enclosure
191.7 mm	8544A0303-3	111 mm	8146/...5 and 8125/...5
151.7 mm	8544A0303-2	71 mm	8146/...3 and 8125/...3
132.7 mm	8544A0303-1	52 mm	8146/...2

8544/1, 3 pole + N + PE

We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.