Product Profile: 5SJ4...-.HG4. Miniature Circuit Breakers for North American and International Applications according to UL, CSA and IEC



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Certifications and Standards

- UL Listed, Certified to Canadian Standards, CE
- UL 489
- CSA 22.2 No. 5-02
- HACR
- IEC 60 898

Features – UL 489

- Suitable for Branch Circuit Protection Applications
 - -.HG40: up to 240 VAC, and 60 VDC (1-pole);
 - -.HG41: up to 240 VAC, and 60 VDC (1-pole); and, up to 240 VAC, and 125 VDC (2- and 3-pole)
 - -.HG42: up to 277 VAC, and 60 VDC (1-pole); and, up to 480Y/277 VAC and 125 VDC (2- and 3-pole).
- cULus: UL Listed and Certified to Canadian Standards. File E243414
- HACR Rated
- Thermal Magnetic Protection
- High Interrupting Rating:
 - VAC: up to 14,000 (Type HSJ) or 10,000 (Type NSJ) Maximum RMS Symmetrical Amps
 - VDC: up to 10,000 Amps (Type HSJ and Type NSJ) at 60/125 VDC
- 40°C (104°F) Calibration Base (Industrial Applications)
- Can be used for "field wiring" applications, AWG 14 to AWG 4, Copper (Cu) Only
- -.HG40: suitable for "Same Polarity" connections only. Not suitable for "Reverse Feed" Applications
- -.HG41 & -.HG42: suitable for "Reverse Feed" Applications. No "Same Polarity" restrictions.

5SJ4 miniature circuit breakers are also CE marked according to EN/IEC 60 898 making them suitable for use in International applications.

Features – EN/IEC 60 898

- CE Marked
- 30°C (86°F) Calibration Base
- Meets Trip Characteristics
 - o -.HG40: B, C and D
 - o -.HG41 & -.HG42: C and D
- Rated Voltage
 - VAC/DC: 24 minimum
 - VDC/pole: 60 maximum
 - VAC: 440 maximum
- High Interrupting Rating (I_{cn}) acc. to IEC 60898-1 of up to 10,000 A AC

Features – Common

- Available with
 - o -.HG40: 1-pole
 - o -.HG41 & -.HG42: 1-, 2- or 3-poles
- Available from
 - -.HG40 & -.HG41: 0.3 to 63 Amps depending on the device selected
 - -.HG42: 0.3 to 40 A (C Characteristic); 0.3 to 32A (D Characteristic)
- Visible Indicator for ON and OFF/Trip
- Finger-Safe Design
- DIN Rail Mounting (35 mm)
- Identical Wire Screw Connections on Line and Load Sides
- CFC and Silicone Free

Description

5SJ4...-.HG4. Miniature Circuit Breakers (mCB) are 1-, 2- and 3-pole thermal / magnetic overcurrent protection devices that are intended for general industrial use such as Branch Circuit Protection. They are UL Listed (File No. E243414, Volume 1, Section 1) in accordance with UL 489, 10th edition, "Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures" and Certified to Canadian Standards (CSA 22.2 No. 5.02). They are provided with a manual means for opening the circuit and they are not ambient compensated.

5SJ4...-.HG4. Miniature Circuit Breakers are rated

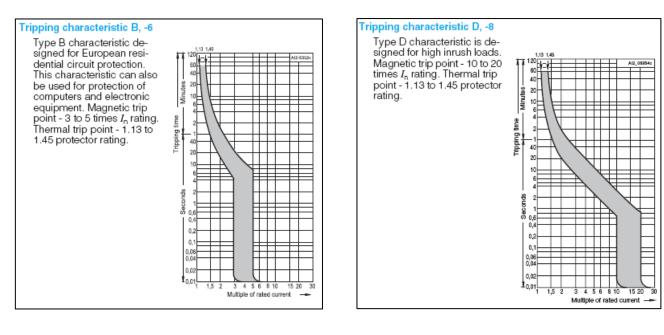
- -.HG40: 240 VAC max. and 60 VDC max. for 1-pole devices
- -.HG41: 240 VAC max. and 60 VDC max. for 1-pole devices; 240 VAC max. and 125 VDC max. for 2- and 3-pole devices.
- -.HG42: 277 VAC max. and 60 VDC max. for 1-pole devices; 480Y/277 VAC max. and 125 VDC max. for 2- and 3-pole devices.
- The load current ranges form 0.3 to 63 A depending on the device selected with interrupting ratings stated in the following table for 1-, 2- and 3-pole devices.

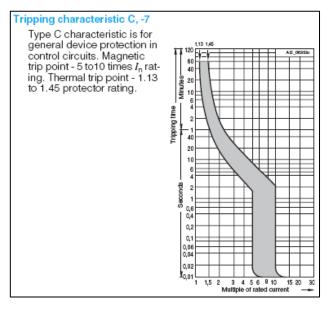
Designation	Characteristic	Current A	Rated switching capacity (operational voltage 240 V AC) kA AC	Rated switching capacity (operational voltage 480Y/277 V AC) kA AC
5SJ4HG40	B C C D	6 63 0.3 40 45 63 0.3 20 25 63	14 14 10 14 10	
5SJ4HG41	C C D D	0.3 40 45 63 0.3 20 25 63	14 10 14 10	
5SJ4HG42	C D D	0.3 40 0.3 20 25 32	14 14 10	10 10 10

Type descriptions are:

- Type HSJ: VAC: 14,000 Maximum RMS Symmetrical Amps VDC: 10,000 Amps
- Type NSJ: VAC: 10,000 Maximum RMS Symmetrical Amps VDC: 10,000 Amps

Tripping Characteristics according to EN 60 898 are defined as follows.





Current Ratings at Ambient Temperatures Other than 40°C

Use the following table to determine the mCBs I_{n} current rating for ambient temperatures other than 40°C.

Device Marked		I _n (A)	at differer	nt Ambien	t Tempera	atures	
Current Rating in (A) @ 40C	15°C	20°C	25°C	30°C	40°C	50°C	55°C
0.3	0.33	0.32	0.32	0.31	0.30	0.29	0.28
0.5	0.55	0.54	0.53	0.52	0.50	0.48	0.47
1	1.1	1.1	1.1	1.0	1.0	1.0	0.9
1.6	1.8	1.7	1.7	1.7	1.6	1.5	1.5
2	2.2	2.2	2.1	2.1	2.0	1.9	1.9
3	3.3	3.3	3.2	3.1	3.0	2.9	2.8
4	4.6	4.4	4.3	4.2	4.0	3.8	3.6
5	5.7	5.6	5.4	5.3	5.0	4.7	4.5
6	6.8	6.7	6.5	6.3	6.0	5.6	5.4
8	9.1	8.9	8.7	8.5	8.0	7.5	7.3
10	11.1	10.9	10.7	10.5	10.0	9.5	9.3
13	14.5	14.2	13.9	13.6	13.0	12.4	12.0
15	16.7	16.4	16.0	15.7	15.0	14.3	13.9
16	17.8	17.5	17.1	16.7	16.0	15.2	14.8
20	22.3	21.8	21.4	20.9	20.0	19.0	18.5
25	27.8	27.3	26.7	26.2	25.0	23.8	23.1
30	33.4	32.7	32.1	31.4	30.0	28.5	27.8
32	35.6	34.9	34.2	33.5	32.0	30.4	29.6
35	39.9	38.2	37.4	36.6	35.0	33.3	32.4
40	44.5	43.6	42.8	41.9	40.0	38.0	37.0
45	51.2	50.0	48.8	47.6	45.0	42.3	40.8
50	56.9	55.6	54.2	52.9	50.0	47.0	45.4
60	66.8	65.5	64.1	62.8	0.6	57.1	55.5
63	71.7	70.0	68.3	66.6	63.0	59.2	57.2

5SJ4 miniature circuit breakers are "Non 100 percent rated" as specified in UL 489, paragraph 7.1.4.2. When selecting a miniature circuit breaker for continuous loads no more than 80% of the device's marked current should be used.

Power Loss

Rated current	Characterist	ic B	Characterist	ic C	Characterist	ic D
In A	R _i mΩ	Pv W	R _i mΩ	Pv W	R _i mΩ	P _v W
0.3			12900	1.2	12600	1.1
0.5			4900	1.2	4600	1.2
1			1650	1.7	1480	1.5
1.6			620	1.6	570	1.5
2			440	1.8	435	1.8
3			197	1.8	190	1.7
4			115	1.8	100	1.6
5			115	2.9	100	2.5
6	85	3.1	74	2.7	73	2.6
8			40	2.6	39	2.5
10	16.5	1.7	13.5	1.4	11.9	1.2
13	11.7	2.0	10.2	1.7	10.2	1.7
15	8.5	1.9	7.8	1.8	7.7	1.7
16	8.5	2.2	7.8	2.0	7.7	2.0
20	6.7	2.7	5.5	2.2	5.5	2.2
25	4.3	2.7	4.2	2.6	4.2	2.6
30	3.4	3.1	3.5	3.2	3.0	2.7
32	3.4	3.5	3.5	3.6	3.0	3.1
35	2.8	3.4	2.8	3.4	2.7	3.3
40	2.8	4.5	2.8	4.5	2.5	4.0
45	2.8	5.7	2.7	5.5	2.5	5.1
50	2.1	5.3	2.1	5.0	2.0	5.0
60	1.7	6.1	1.7	6.1	1.7	6.1
63	1.7	6.7	1.7	6.7	1.7	6.7

Catalog Number Nomenclature

$\frac{5SJ4}{a} \frac{1}{b} \frac{10}{c} - \frac{7}{d} \frac{HG41}{e}$

а	Frame Style			
	Code	Description		
	5SJ4	Standard Frame		
h	Polos			
b	Poles			
b	Poles Code	Description		
b		Description 1-Pole		
b				

b	Poles	
	Code	Description
	1	1-Pole
	2	2-Pole
	3	3-Pole

С	Rated 0	Current
	Code	Rated Current (In)
	14	0.3
	05	0.5
	01	1
	15	1.6
	02	2
	03	3
	04	4
	11	2 3 4 5 6
	06	
	08	8
	10	10
	13	13
	18	15
	16	16
	20	20
	25	25
	30	30
	32	32
	35	35
	40	40
	45	45
	50	50
	60	60
	63	63

d	Trip Curve (Characteristic)						
	Code	Code Trip Magnetic Trip Thermal Trip Curve Point Point					
	6	В	3 to 5 <i>I</i> n	1.13 to 1.45			
	7	С	5 to 10 <i>I</i> n	Breaker Rating			
	8	D	10 to 20 <i>I</i> n				

е	Version	ı
	Code	Description
	HG40	240 VAC Same
		Polarity
	HG41	240 VAC Opposite
		phase
	HG42	480Y/277 VAC

Product Selection – 5SJ41..-.HG40



Type HSJ: Interrupting rating: 240 VAC: 14,000 Maximum RMS Symmetrical Amps 60 VDC: 10,000 Amps

Type NSJ: Interrupting rating:

240 VAC: 10,000 Maximum RMS Symmetrical Amps

60 VDC (1-pole) / 125 VDC (2- & 3-pole): 10,000 Amps

TYPE	→	HSJ	HSJ	NSJ	HSJ	NSJ
No. of Poles	<i>I</i> n (A)	Characteristic B Order No.	Characteristic C Order No.	Characteristic C Order No.	Characteristic D Order No.	Characteristic D Order No.
1	0.3		5SJ4114-7HG40		5SJ4114-8HG40	
1	0.5		5SJ4105-7HG40		5SJ4105-8HG40	
1	1		5SJ4101-7HG40		5SJ4101-8HG40	
1	1.6		5SJ4115-7HG40		5SJ4115-8HG40	
1	2		5SJ4102-7HG40		5SJ4102-8HG40	
1	3		5SJ4103-7HG40		5SJ4103-8HG40	
1	4		5SJ4104-7HG40		5SJ4104-8HG40	
1	5		5SJ4111-7HG40		5SJ4111-8HG40	
1	6	5SJ4106-6HG40	5SJ4106-7HG40		5SJ4106-8HG40	
1	8		5SJ4108-7HG40		5SJ4108-8HG40	
1	10	5SJ4110-6HG40	5SJ4110-7HG40		5SJ4110-8HG40	
1	13	5SJ4113-6HG40	5SJ4113-7HG40		5SJ4113-8HG40	
1	15	5SJ4118-6HG40	5SJ4118-7HG40		5SJ4118-8HG40	
1	16	5SJ4116-6HG40	5SJ4116-7HG40		5SJ4116-8HG40	
1	20	5SJ4120-6HG40	5SJ4120-7HG40		5SJ4120-8HG40	
1	25	5SJ4125-6HG40	5SJ4125-7HG40			5SJ4125-8HG40
1	30	5SJ4130-6HG40	5SJ4130-7HG40			5SJ4130-8HG40
1	32	5SJ4132-6HG40	5SJ4132-7HG40			5SJ4132-8HG40
1	35	5SJ4135-6HG40	5SJ4135-7HG40			5SJ4135-8HG40
1	40	5SJ4140-6HG40	5SJ4140-7HG40			5SJ4140-8HG40
1	45	5SJ4145-6HG40		5SJ4145-7HG40		5SJ4145-8HG40
1	50	5SJ4150-6HG40		5SJ4150-7HG40		5SJ4150-8HG40
1	60	5SJ4160-6HG40		5SJ4160-7HG40		5SJ4160-8HG40
1	63	5SJ4163-6HG40		5SJ4163-7HG40		5SJ4163-8HG40

Product Selection – 5SJ4...-.HG41



Type HSJ: Interrupting rating:

240 VAC: 14 kA Maximum RMS Symmetrical 60 VDC (1-pole) / 125 VDC (2- & 3-pole): 10kA

Type NSJ: Interrupting rating: 240 VAC: 10kA Maximum RMS Symmetrical 60 VDC (1-pole)/125 VDC (2- & 3-pole): 10 kA

TYP	E→	HSJ	NSJ	HSJ	NSJ
No. of Poles	/ _n (A)	Characteristic C Order No.	Characteristic C Order No.	Characteristic D Order No.	Characteristic D Order No.
*	0.3	5SJ4*14-7HG41		5SJ4*14-8HG41	
*	0.5	5SJ4*05-7HG41		5SJ4*05-8HG41	
*	1	5SJ4*01-7HG41		5SJ4*01-8HG41	
*	1.6	5SJ4*15-7HG41		5SJ4*15-8HG41	
*	2	5SJ4*02-7HG41		5SJ4*02-8HG41	
*	3	5SJ4*03-7HG41		5SJ4*03-8HG41	
*	4	5SJ4*04-7HG41		5SJ4*04-8HG41	
*	5	5SJ4*11-7HG41		5SJ4*11-8HG41	
*	6	5SJ4*06-7HG41		5SJ4*06-8HG41	
*	8	5SJ4*08-7HG41		5SJ4*08-8HG41	
*	10	5SJ4*10-7HG41		5SJ4*10-8HG41	
*	13	5SJ4*13-7HG41		5SJ4*13-8HG41	
*	15	5SJ4*18-7HG41		5SJ4*18-8HG41	
*	16	5SJ4*16-7HG41		5SJ4*16-8HG41	
*	20	5SJ4*20-7HG41		5SJ4*20-8HG41	
*	25	5SJ4*25-7HG41			5SJ4*25-8HG41
*	30	5SJ4*30-7HG41			5SJ4*30-8HG41
*	32	5SJ4*32-7HG41			5SJ4*32-8HG41
*	35	5SJ4*35-7HG41			5SJ4*35-8HG41
*	40	5SJ4*40-7HG41			5SJ4*40-8HG41
*	45		5SJ4*45-7HG41		5SJ4*45-8HG41
*	50		5SJ4*50-7HG41		5SJ4*50-8HG41
*	60		5SJ4*60-7HG41		5SJ4*60-8HG41
*	63		5SJ4*63-7HG41		5SJ4*63-8HG41

1Substitute the "*" with:

1 for 1-pole mCBs

2 for 2-pole mCBs

3 for 3-pole mCBs

Product Selection – 5SJ4...-.HG42







Type NSJ: Interrupting rating:

- 480Y/277 VAC 10,000 Maximum RMS Symmetrical Amps
- 60 VDC (1-pole) / 125 VDC (2- & 3-pole) 10,000 Amps

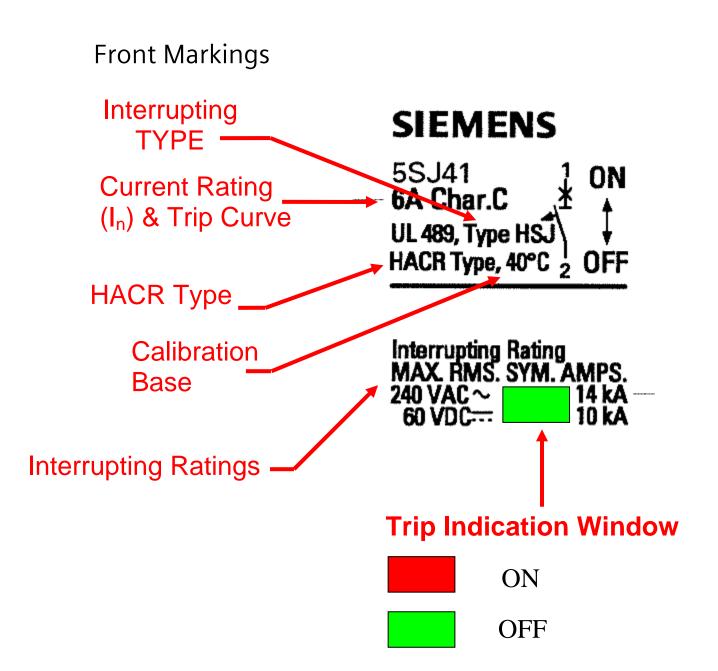
TYP	E→	HSJ	NSJ	HSJ	NSJ
No. of Poles	/ _n (A)	Characteristic C Order No.	Characteristic C Order No.	Characteristic D Order No.	Characteristic D Order No.
*	0.3		5SJ4*14-7HG42		5SJ4*14-8HG42
*	0.5		5SJ4*05-7HG42		5SJ4*05-8HG42
*	1		5SJ4*01-7HG42		5SJ4*01-8HG42
*	1.6		5SJ4*15-7HG42		5SJ4*15-8HG42
*	2		5SJ4*02-7HG42		5SJ4*02-8HG42
*	3		5SJ4*03-7HG42		5SJ4*03-8HG42
*	4		5SJ4*04-7HG42		5SJ4*04-8HG42
*	5		5SJ4*11-7HG42		5SJ4*11-8HG42
*	6		5SJ4*06-7HG42		5SJ4*06-8HG42
*	8		5SJ4*08-7HG42		5SJ4*08-8HG42
*	10		5SJ4*10-7HG42		5SJ4*10-8HG42
*	13		5SJ4*13-7HG42		5SJ4*13-8HG42
*	15		5SJ4*18-7HG42		5SJ4*18-8HG42
*	16		5SJ4*16-7HG42		5SJ4*16-8HG42
*	20		5SJ4*20-7HG42		5SJ4*20-8HG42
*	25		5SJ4*25-7HG42		5SJ4*25-8HG42
*	30		5SJ4*30-7HG42		5SJ4*30-8HG42
*	32		5SJ4*32-7HG42		5SJ4*32-8HG42
*	35		5SJ4*35-7HG42		
*	40		5SJ4*40-7HG42		
*	45				
*	50				
*	60				
*	63				

1Substitute the "*" with:

- 1 for 1-pole mCBs
- 2 for 2-pole mCBs
- 3 for 3-pole mCBs

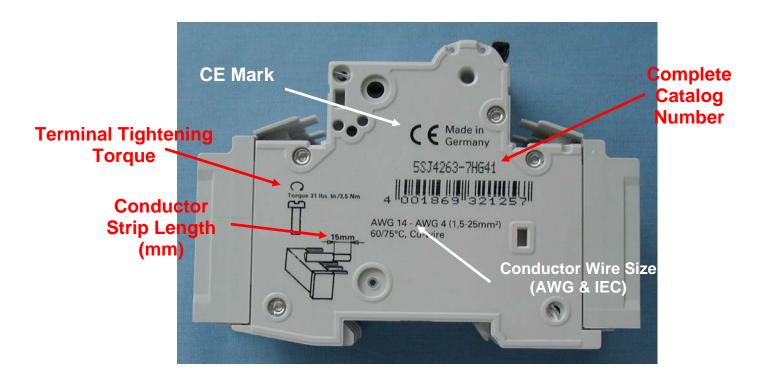


Typical Device Markings

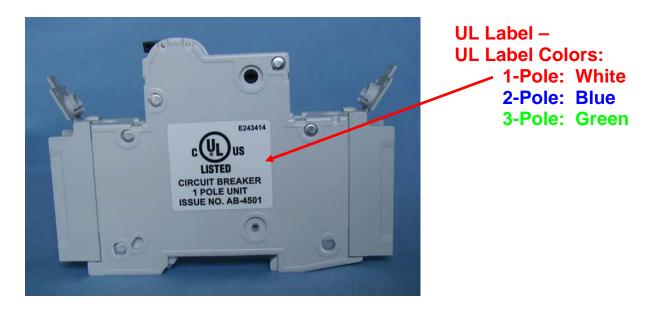


Typical Device Markings (Continued)

Left Side Markings



Right Side Markings



Accessories

		Pin spacing	Length	DT	Order No.
		MW	mm		
	Busbars acc. to UL 489 for use with 5SJ4HG fixed lengths, cannot be cut ¹⁾ Single-Pole				
	For 6 MCB 1P For 12 MCB 1P For 18 MCB 1P	1 1 1	100 205 310	A A A	5ST3 663-0HG 5ST3 663-1HG 5ST3 663-2HG
11111	Two-Pole For 3 MCB 2P For 6 MCB 2P For 9 MCB 2P	1 1 1	100 205 310	A A A	5ST3 664-0HG 5ST3 664-1HG 5ST3 664-2HG
	Three-Pole For 2 MCBs 3P For 4 MCBs 3P For 6 MCBs 3P	1 1 1	100 205 310	A A A	5ST3 665-0HG 5ST3 665-1HG 5ST3 665-2HG
	Connection terminals acc. to UL489 for use only with 5SJ4HG Infeed - MCBs 35 mm ²			A	5ST3 666-0HG
Î	Infeed - busbars 50 mm ²			A	5ST3 666-2HG
VVV	Touch protection covers for busbars acc. to UL489 ⁽¹⁾ 3 x 1 pin			A	5ST3 666-1HG

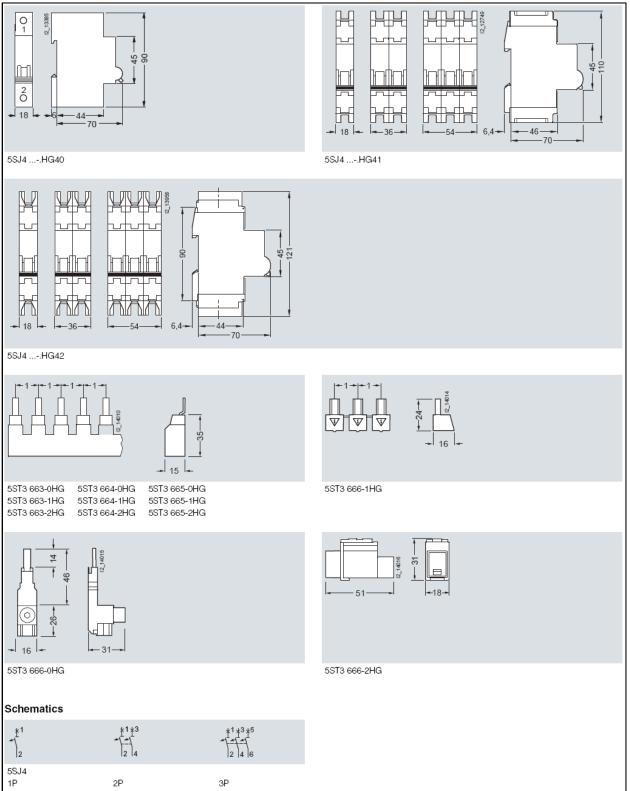
¹⁾ To maintain UL Listing, ALL unused busbar terminals must be covered

Specifications

Miniature circuit breakers			5SJ4HG40	5SJ4HG41	5SJ4HG42		
Standards			EN 6898; UL 489; CSA C22.2 No. 5-02				
Approved acc. to			UL 489; CSA C22.2 No. 5-02, UL File No. E243414				
Tripping characteristic			B, C, D	C, D			
Operational voltage	min.	V AC/DC	24				
Acc. to IEC 60898 ma ma		V DC/pole V AC	60 440				
Acc. to UL 489 and CSA C22.2 No. 5-02	max.	V AC V DC/1P V DC/2P	240/120 60 	240 60 125	480Y/277 60 125		
Rated breaking capacity • I _{cn} acc. to IEC 60898-1 • Acc. to UL 489 and CSA C22.2 No. 5-02		kA AC kA AC	10 14/10 ¹⁾	14/10 ¹⁾	10 ¹⁾		
Insulation coordination Rated insulation voltage Degree of pollution for overvoltage category 		VAC	250 3/III	250/440			
Touch protection acc. to EN 50274		Yes					
Handle end position, sealable		Yes					
Degree of protection acc. to EN 60529		IP20, with connected conductors					
CFC and silicone-free		Yes					
Mounting		On standard mounting rail					
Terminals • Combined terminals at both ends • Terminal tightening torque, only for Cu, 60/75 °C		Nm Ib/in	Yes 3.5 31				
 Conductor cross-sections Solid and stranded, top and bottom terminal, acc. to UL 489 and CSA C22.2 No. 5-02 		AWG	144				
		mm ²	0.75 35				
Mains connection			Any				
Mounting position			Any				
Average service life, with rated load		20000 actuations					
Ambient temperature °C		-25 +45, occasionally +55, max. 95 % humidity, storage temperature: -40 +75					
Resistance to climate acc. to IEC 60068-2-30			6 cycles				
Resistance to vibrations acc. to IEC 60068-2-6		m/s ²	60 at 10 150 Hz				

Busbars		5ST3 663 5ST3 664 5ST3 665	5ST3 666-0	5ST3 666-2	
Standards		UL 489	-		
Approved acc. to		UL 489; UL File Nr. E321559			
Operational voltage • Acc. to IEC • Acc. to UL 489	V AC V AC	690 480Y/277 and 240			
Rated conditional short-circuit current Dielectric strength Surge strength	kA kV/mm kV	15 kA with NH3 355A gL/gG 500 V			
Rated current at 40 °C ambient temperature	A 115				
Insulation coordination Degree of pollution Overvoltage category 		2 			
Busbar cross-section	sbar cross-section mm ² Cu 16				
Infeed		Any			
Conductor cross-sections	AWG mm²		14 2 1.5 35	14 1 1.5 50	
Terminals – terminal tightening torque	Nm Ib/in		3.5 30	3.5 30	
Temperature resistance	°C	200 – UL94-V0/0.4 mm			

Dimensions



The information provided in this product profile contains descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract. Availability and technical specifications are subject to change without notice.

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