

5S Breaker Offering

Introduction

5SP and 5SY Supplementary Protectors are single and multi-pole thermal / magnetic overcurrent protection devices that are intended for general industrial use. They are UL Recognized (File No. E116386) in accordance with UL 1077, "Supplementary Protectors for Use in Electrical Equipment" and Certified to Canadian Standards (CSA 22.2 No. 2352). They are provided with a manual means for opening the circuit and they are not ambient compensated.

Features

- Thermal magnetic protection
- High interrupting rating / rated switching capacity –
- UL 1077: up to 14,000 maximum RMS symmetrical amps AC
- (I_{cn}) to IEC 60 898-1: up to 10,000 A AC
- (I_{cu}) to IEC 60 947-2: up to 15,000 A AC
- Can be used for "field wiring" applications:
- 5SP4: AWG 14 to AWG 2, Copper (Cu) only
- 5SY: AWG 14 to AWG 4, Copper (Cu) only
- Calibration base:
- UL: 25°C (77°F)
- IEC: 30°C (86°F)
- Meets trip characteristics: A, B, C, D
- Rated voltage
- UL 1077
 - 277 VAC (1- & 1+N-pole)
 - 480 VAC (multi-poles)
- EN 60 898 and EN 60947-2
 - VAC/DC: 24 minimum
 - VDC/pole: 60 maximum
 - VAC: 440 maximum
- Available with: 1-, 1+N-, 2-, 3-, 3+N- and 4-poles
- Available from: 0.3 to 80 Amps (depending on the device selected)
- Visible indicator for ON and OFF/Trip
- Touch protection to EN 50274-1
- Standard DIN rail mounting
- Identical wire screw connections on line and load side
- CFC and silicone free

Certifications And Standards

- UL recognized and certified to Canadian Standards (File E116386)
- UL 1077
- CSA 22.2 No. 235
- CE
- EN 60 898, IEC/EN 60 947-2

Catalog Number Structure

5SY4 1 10 7

Frame Style

- 5SY4 – 10 kA, standard frame
- 5SY5 – 10 kA, universal current
- 5SY6 – 6 kA, standard frame
- 5SY7 – 15 kA, standard frame
- 5SY8 – 25 kA, standard frame
- 5SP4 – 10 kA, high current

Poles

- 1 – 1 Pole
- 5 – 1 Pole + Neutral
- 2 – 2 Pole
- 3 – 3 Pole
- 6 – 3 Pole + Neutral
- 4 – 4 Pole

Code Rated current (I_n)

14	–	0.3
05	–	0.5
01	–	1
15	–	1.6
02	–	2
03	–	3
04	–	4
11	–	5
06	–	6
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
80	–	80
91	–	100
92	–	125

Trip Curve (Characteristic)

- 5 – Trip curve A, Magnetic trip point 2 to 3 I_n , 1.13 to 1.45 breaker rating
- 6 – Trip curve B, Magnetic trip point 3 to 5 I_n , 1.13 to 1.45 breaker rating
- 7 – Trip curve C, Magnetic trip point 5 to 10 I_n , 1.13 to 1.45 breaker rating
- 6 – Trip curve D, Magnetic trip point 10 to 20 I_n , 1.13 to 1.45 breaker rating

Control Circuit Protection Supplementary Protection

5SY and 5SP Supplementary Protectors



		5SY4 ^②	5SY5 ^②	5SP4 ^②
Technical Data				
Standards		EN 60898; EN 60947-2; UL 1077; CSA C22.2 No. 235	EN 60898; EN 60947-2	EN 60898; EN 60947-2; UL 1077; CSA C22.2 No. 235
Certifications		CE; cURus, UL File No. E116386	Not UL/CSA Rated	CE; cURus, UL File No. E106582
Tripping Characteristic		A, B, C, D	B, C	B, C, D
Number Of Poles		1, 1+N, 2, 3, 3+N, 4	1, 2	1, 2, 3, 4
Operating Voltage - EN 60898, EN 60947-2 - UL 1077 and CSA C22.2 No. 2352	Min. V AC/DC Max. V DC/pole Max. V AC Max. V AC V DC/pole	24 60 ^① 440 480 -	220 440 - -	60 ^① 440 480 60
Interrupting Rating - I _{cn} to IEC/EN 60898-1 - I _{cn} to IEC/EN 60898-2 - UL 1077 and CSA C22.2 No. 235 AC: Max. RMS Symmetrical	kA AC kA AC 120/240, 240 V: kA AC 240 V: kA AC 277 V: kA AC 480 V: kA AC	10 - 14 7.5 5 5	10 10 Not UL Rated	10 - 14 7.5 5 5
Touch protection to EN 50274-1		Yes	Yes	Yes
Degree of protection to EN 60529		IP20, with connected conductors	IP20, with connected conductors	IP20, with connected conductors
CFC and Silicone Free		Yes	Yes	Yes
Mounting - Snap-on mounting - Standard mounting rail and mounting		Yes -	Yes -	- Yes
Device depth	mm	70	70	70
Terminals - Tunnel terminals at both ends - Combined terminals at both ends - Terminal, solid, stranded or finely stranded with end sleeve - Terminal tightening torque	mm ² lb. in. Nm	- Yes 0.75 to 25 22 to 26 2.5 to 3	- Yes 0.75 to 25 22 to 26 2.5 to 3	Yes - 0.75 to 25 22 to 31 2.5 to 3.5
Conductor cross sections - Solid and stranded - Finely stranded, with end sleeve	mm ² mm ² AWG	0.75 to 35 0.75 to 25 14 to 4	0.75 to 35 0.75 to 25 14 to 4	0.75 to 50 0.75 to 35 14 to 2
Calibration Base	°C	30 (EN 60898)	30 (EN 60898)	30 (EN 60898)
Average Service Life, With Rated Load	Operations	20,000	20,000 (above 40A: 10,000)	20,000
Ambient Operating Temperature	°C	-25 to 45, occasionally +55, max. 95% humidity	-25 to 45, occasionally +55, max. 95% humidity	-25 to 45, occasionally +55, max. 95% humidity
Storage Temperature	°C	-40 to +75	-40 to +75	-40 to +75
Resistance to vibration to IEC 600068-2-6	m/s ²	60 at 10 Hz to 150 Hz	60 at 10 Hz to 150 Hz	60 at 10 Hz to 150 Hz

① The operating voltage 60 V DC/pole takes into account a battery charging voltage with peak value of 72 V.

② 50 °C Calibration.

Miniature Circuit Breakers

5SY and 5SP Miniature Circuit Breakers

Introduction

Technical specifications

		5SY6	5SY4	5SY5	5SY7	5SY8	5SP4
Standards		EN 60898-1	EN 60898-1	EN 60898-2	EN 60898-1	EN 60947-2	EN 60898-1
Approvals		www.siemens.com/lowvoltage/certificates					
Rated voltage U_n	V AC V DC	230/400 --	230/400 --	230/400 220/440/ 880 ⁵⁾	230/400 --	230/400 --	230/400 --
Operational voltage							
Acc. to EN 60898-1/-2 and EN 60947-2	Min. V AC/DC/pole	24	24	24	24	24	24
	Max. V DC/pole	72 ⁴⁾	72 ⁴⁾	250	72 ⁴⁾	72 ⁴⁾	72
Acc. to UL 1077 and CSA C22.2 No.235	Max. V AC	250/440	250/440	250/440	250/440	250/440	250/440
	Max. V DC	480/277	480/277	--	480/277	480/277	480/277
Max. V DC		60	60 ⁶⁾	--	60 ⁶⁾	60 ⁶⁾	60
Breaking capacity¹⁾							
• I_{cn} acc. to IEC/EN 60898-1	kA AC	6	10	10	15	--	10
• I_{cn} acc. to IEC/EN 60898-2	kA DC	10	10	10	15	--	10
• I_{cu} acc. to IEC/EN 60947-2	kA AC	30 ... 10 ¹⁾	35 ... 10 ¹⁾	35 ... 10 ¹⁾	50 ... 15 ¹⁾	70 ... 20 ¹⁾	10
	kA DC	15	15	15	15	15	15
• Acc. to UL1077 and CSA C22.2 No.235	kA AC	5	5	--	5	5	5
Insulation coordination							
• Rated insulation voltage	V AC V DC/pole	250/440 --	--	250	--	--	--
Pollution degree for overvoltage category		3/III ³⁾					
Touch protection	Acc. to EN 50274	Yes					
Handle end position, sealable		Yes					
Degree of protection	Acc. to EN 60529	IP20 with connected conductors, IP40 in the area of the handle with distribution cover					
CFC and silicone-free		Yes					
Mounting							
• Snap-on fixing system		Yes					
• Standard mounting rail and screw fixing		--					
Terminals	± screw (Pozidriv)	2					
• Tunnel terminals at both ends		--					
• Combined terminals at both ends		Yes					
• Terminal tightening torque	Nm lbs/in.	2.5 ... 3 22 ... 26					
Conductor cross-sections							
• Solid and stranded	mm ²	0.75 ... 35					
• Finely stranded, with end sleeve	mm ²	0.75 ... 25					
• AWG conductors (Cu 60/75 °C $I_n \leq 40$ A; 60 °C $I_n > 40$ A)	AWG	14 ... 4					
Mains connection							
• AC		Any					
• DC		Any					
Mounting position		Any					
Endurance							
On average, with rated load	Actuations	20000					
	Actuations	10000 for 5SY5 at 40 A, 50 A and 63 A					
Ambient temperature	°C	-25 ... +55, max. 95 % humidity					
Storage temperature	°C	-40 ... +75					
Resistance to climate	Acc. to IEC 60068-2-30	6 cycles					
Shock	Acc. to IEC 60068-2-27	m/s ² 150 at 11 ms half-sine					
Resistance to vibrations	Acc. to IEC 60068-2-6	m/s ² 50 at 25 ... 150 Hz and 60 at 35 Hz (4 sec)					

¹⁾ For further information, see Configuration Manual "Miniature Circuit Breakers" at: www.siemens.com/lowvoltage/manuals.

²⁾ Ensure compliance with the specified polarity when connecting DC.

³⁾ 5SY54.. 4-pole, degree of pollution 2 at overvoltage category III.

⁴⁾ Exempt: C/D 0.3 A ... 0.5 A





⁵⁾ 5SY54.. 4-pole 880 V is not a standardized voltage acc. to EN 60898-1, suitable for max. 1000 V DC, if the four poles are connected in series.

⁶⁾ Valid for 1-pole switching devices only.

Miniature Circuit Breakers

5SY and 5SP Miniature Circuit Breakers

5SY4, 10000 A

10000 3		I_n	Mounting width MW ¹⁾	DT	Characteristic A		Characteristic B		PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
					Article No. www.siemens.com/ product?Article No.	Price per PU	PG	DT				
Miniature circuit breakers 10000 A												
	3P, 400 V AC											
	0.5	3	5SY4305-5		002	--						
	1		5SY4301-5		002	--						
	1.6		5SY4315-5		002	--						
	2		5SY4302-5		002	--						
	3		5SY4303-5		002	--						
	4		5SY4304-5		002	--						
	6		5SY4306-5		002	5SY4306-6		1	1 unit	002	0.467	
	8		5SY4308-5		002	--						
	10		5SY4310-5		002	5SY4310-6		1	1 unit	002	0.439	
	13		5SY4313-5		002	5SY4313-6		1	1 unit	002	0.471	
	16		5SY4316-5		002	5SY4316-6		1	1/4 units	002	0.461	
	20		5SY4320-5		002	5SY4320-6		1	1 unit	002	0.461	
	25		5SY4325-5		002	5SY4325-6		1	1 unit	002	0.469	
	32		5SY4332-5		002	5SY4332-6		1	1/4 units	002	0.473	
	40		5SY4340-5		002	5SY4340-6		1	1 unit	002	0.478	
50		5SY4350-5		002	5SY4350-6		1	1 unit	002	0.493		
63		5SY4363-5		002	5SY4363-6		1	1 unit	002	0.506		
80		--			5SY4380-6		1	1 unit	002	0.508		
	3P+N, 400 V AC											
	1	4	5SY4601-5		002	--						
	1.6		5SY4615-5		002	--						
	2		5SY4602-5		002	--						
	3		5SY4603-5		002	--						
	4		5SY4604-5		002	--						
	6		5SY4606-5		002	5SY4606-6		1	1 unit	002	0.617	
	8		5SY4608-5		002	--						
	10		5SY4610-5		002	5SY4610-6		1	1 unit	002	0.612	
	13		5SY4613-5		002	5SY4613-6		1	1 unit	002	0.596	
	16		5SY4616-5		002	5SY4616-6		1	1 unit	002	0.614	
	20		5SY4620-5		002	5SY4620-6		1	1 unit	002	0.612	
25		5SY4625-5		002	5SY4625-6		1	1 unit	002	0.624		
32		5SY4632-5		002	5SY4632-6		1	1 unit	002	0.634		
40		5SY4640-5		002	5SY4640-6		1	1 unit	002	0.616		
50		5SY4650-5		002	5SY4650-6		1	1 unit	002	0.667		
63		5SY4663-5		002	5SY4663-6		1	1 unit	002	0.673		
	4P, 400 V AC											
	1	4	5SY4401-5		002	--						
	1.6		5SY4415-5		002	--						
	2		5SY4402-5		002	--						
	3		5SY4403-5		002	--						
	4		5SY4404-5		002	--						
	6		5SY4406-5		002	5SY4406-6		1	1 unit	002	0.595	
	8		5SY4408-5		002	--						
	10		5SY4410-5		002	5SY4410-6		1	1 unit	002	0.611	
	13		5SY4413-5		002	5SY4413-6		1	1 unit	002	0.650	
	16		5SY4416-5		002	5SY4416-6		1	1 unit	002	0.621	
	20		5SY4420-5		002	5SY4420-6		1	1 unit	002	0.610	
25		5SY4425-5		002	5SY4425-6		1	1 unit	002	0.622		
32		5SY4432-5		002	5SY4432-6		1	1 unit	002	0.632		
40		5SY4440-5		002	5SY4440-6		1	1 unit	002	0.627		
50		5SY4450-5		002	5SY4450-6		1	1 unit	002	0.650		
63		5SY4463-5		002	5SY4463-6		1	1 unit	002	0.660		
80		--			5SY4480-6		1	1 unit	002	0.692		

¹⁾ 1 MW (modular width) = 18 mm.