

Application

Siemens' UL 1077 Supplementary Protectors are designed to provide additional protection along with a branch circuit protection device. Since our Supplementary protectors are made to trip faster than a standard UL 489 Circuit Breaker they are able to provide additional protection for more sensitive devices inside the panel. Supplementary protectors can be used in a number of industrial applications such as to provide selectivity for multiple motor control circuits on the secondary side of a control transformer or power supply by allowing the user to quickly find the problem circuit should a fault occur without having to shut down all of the other control circuits. Supplementary protectors may also be used as a local disconnecting means inside the panel when a branch circuit protection device is already present.

Always remember to follow the National Electric code when wiring your panel for applications within the United States.

Design

Supplementary protectors are equipped with a delayed overload/time-dependent thermal release (thermal bimetal) for low overcurrents and with an instantaneous electromagnetic release for high overload and short-circuit currents.

The special contact materials used virtually guarantee a long service life and offer a high degree of protection against contact welding.

Mode of operation

Thanks to the extremely fast contact separation in cases of failures and the rapid quenching of the arc consequently generated in the arcing chamber, supplementary protectors assure a safe and current-limiting off-switching.

The permissible limit- I^2t -values of the energy limitation class 3 specified in EN 60 898 are generally undercut. This guarantees an excellent selectivity towards upstream overcurrent protection devices.

Features

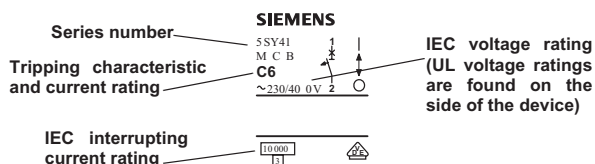
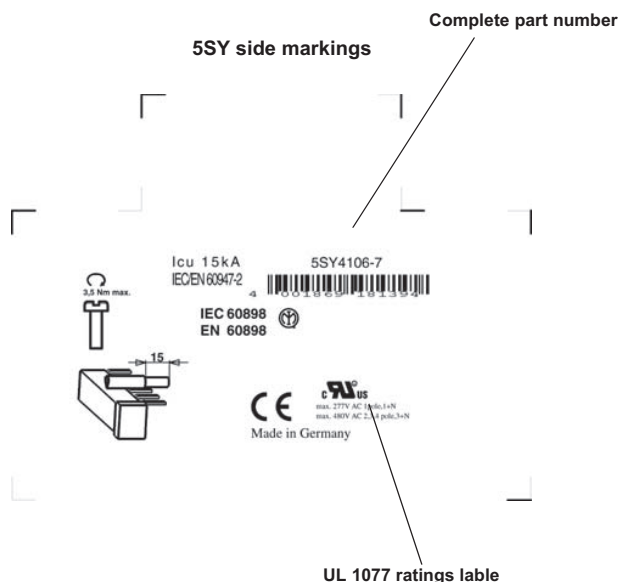
- High rated breaking capacity of up to 10,000 A acc. to EN 60 898 / up to 15 kA acc. to EN 60 947-2
- Excellent current limiting and selectivity characteristics
- Tripping characteristic A, B, C and D
- Terminals offer protection against contact with fingers or the back of the hand acc. to the German accident prevention regulations VBG 4/ BGV A2
- Combined terminals enable a simultaneous connection of busbars and feeder cables
- Uniform components that can be quickly mounted individually, thanks to their snap-on technique
- The handle locking device virtually prevents any unauthorized operation of the handle

Features of 5SY

- Rapid connection of the feeder cable in front of the busbar
- Identical terminals at both sides for an optional infeed from the top or the bottom
- No tool required for mounting or dismounting
- Supports a fast and comfortable removal from the assembly
- Trip indication

Features of 5SP4

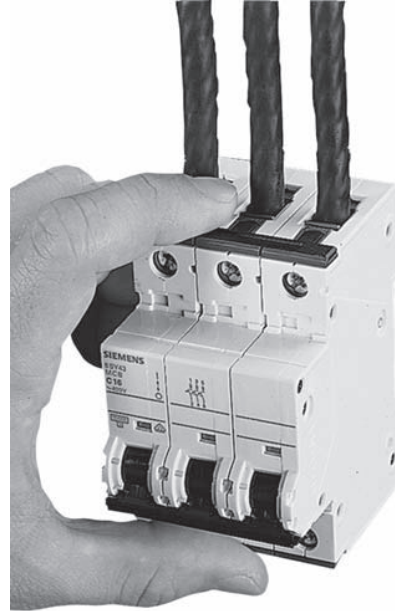
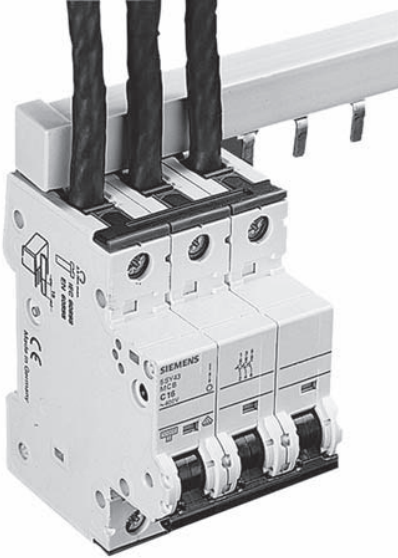
- Disconnection characteristics acc. to EN 60947-3 (DIN VDE 0660 Part 107)
- Main switch characteristics acc. to EN 60 204-1
- Can be screwed onto bases
- Separate switch position indication.

Device markings**5SY Front Markings****5SY side markings**

5SY4 Supplementary Protection

Overview

Features of 5SY supplementary protectors

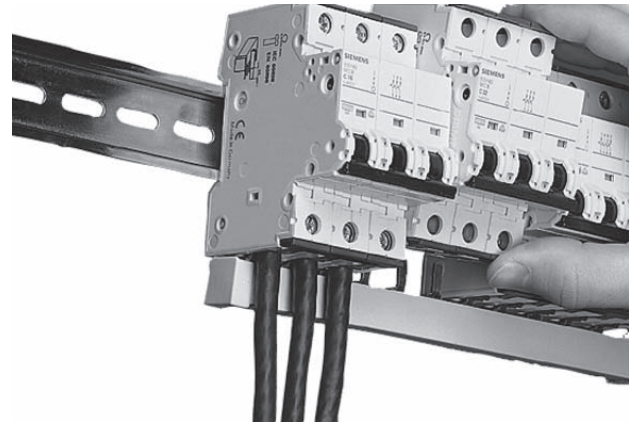
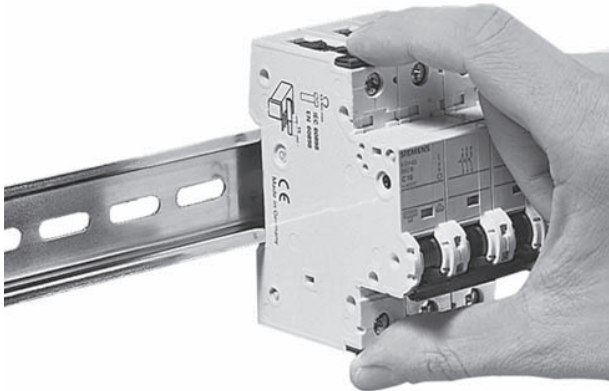


Easier, faster, enlarged wiring space

- Identical top and bottom terminals
- Connection of incoming cables vis-à-vis of the busbar
- Enlarged and easily accessible wiring space for the feeder cables
- Comfortable insertion of the incoming cables into the terminal
- Defined, visible and controllable connection of the feeder cables
- Universal infeed with top and bottom busbar mounting options.

Protection against contact with clear advantages

- Integrated movable terminal covers located at the feeder cable input
- The terminals are completely closed when screws are fully tightened
- Effective protection against contact, also when the device is fully grabbed



Flexible and no use of tools required

- Manually operable quick-assembly and disassembly systems requiring no use of tools
- Fast assembly and disassembly of 5SY supplementary protectors to and from the standard mounting rail.
- All devices can be easily and comfortably replaced at any time.

Removal from the assembly

Thanks to the combination of the various features stated above, 5SY supplementary protectors can be easily and rapidly removed from the assembly when circuits need to be changed - with these devices, removal of the busbar is no longer necessary.

5SY6 Supplementary Protection

5SY6 70 mm mounting depth

Features

All 5SY6 designs have been certified to **UL 1077 and CSA 22.2 No. 235-M 89** and can therefore be used as “supplementary protectors” for applications up to 277 V AC (1-pole and 1-pole + N designs) and 480 V AC (2-pole, 3-pole, 3-pole + N and 4-pole designs). The only difference between 5SY4 and 5SY6 is the IEC 60898-1 Interrupting Rating. 5SY4 has 10kA and 5SY6 has 6kA Interrupting rating according to IEC 60898-1. However, UL Interrupting ratings are the same for 5SY4 and 5SY6.

Selection and ordering data

	I_n	Mounting width	DT	Characteristic B Order No.	Price per PU	PG	DT	Characteristic C Order No.	Price per PU	PU (UNIT, SET, M)	PS*/ P. unit	PG	Weight per PU approx. kg
	A	MW ¹⁾											
	MCBs 6000 A			—				5SY6 114-7		1	1 unit	001	0.167
	1-Pole, 230/400 V AC			—				5SY6 105-7		1	1/12 units	001	0.165
	0.3	1		—				5SY6 101-7		1	1/12 units	001	0.164
	0.5			—				5SY6 115-7		1	1 unit	001	0.162
	1			—				5SY6 102-7		1	1/12 units	001	0.153
	1.6			—				5SY6 103-7		1	1/12 units	001	0.145
	2			5SY6 102-6		001	▶	5SY6 104-7		1	1/12 units	001	0.160
	3			—				5SY6 111-7		1	1/12 units	001	0.160
	4			5SY6 104-6		001	▶	5SY6 106-7		1	1/12 units	001	0.160
	5			—				5SY6 108-7		1	1/12 units	001	0.158
	6		▶	5SY6 106-6		001	▶	5SY6 110-7		1	1/12 units	001	0.158
	8			—				5SY6 113-7		1	1/12 units	001	0.148
	10		▶	5SY6 110-6		001	▶	5SY6 118-7		1	1/12 units	001	0.160
	13			5SY6 113-6		001		5SY6 116-7		1	1/12 units	001	0.158
	15			—				5SY6 120-7		1	1/12 units	001	0.162
	16		▶	5SY6 116-6		001	▶	5SY6 125-7		1	1/12 units	001	0.163
	20			5SY6 120-6		001		5SY6 130-7		1	1/12 units	001	0.160
	25			5SY6 125-6		001		5SY6 132-7		1	1/12 units	001	0.149
	30			—				5SY6 140-7		1	1/12 units	001	0.150
	32			5SY6 132-6		001		5SY6 150-7		1	1/12 units	001	0.168
	40			5SY6 140-6		001		5SY6 163-7		1	1/12 units	001	0.172
	50			5SY6 150-6		001							
	63			5SY6 163-6		001							
	1-Pole + N, 230 V AC			—				5SY6 514-7		1	1 unit	001	0.328
	0.3	2		—				5SY6 505-7		1	1 unit	001	0.325
	0.5			—				5SY6 501-7		1	1 unit	001	0.321
	1			—				5SY6 515-7		1	1 unit	001	0.318
	1.6			—				5SY6 502-7		1	1 unit	001	0.324
	2			5SY6 506-6		001		5SY6 503-7		1	1 unit	001	0.314
	3			—				5SY6 504-7		1	1 unit	001	0.314
	4			5SY6 510-6		001		5SY6 506-7		1	1/6 units	001	0.310
	6			5SY6 513-6		001		5SY6 508-7		1	1 unit	001	0.310
	8			—				5SY6 510-7		1	1/6 units	001	0.301
	10			5SY6 510-6		001		5SY6 513-7		1	1/6 units	001	0.320
	13			5SY6 513-6		001		5SY6 218-7		1	1/12 units	001	0.160
	15			—				5SY6 516-7		1	1/6 units	001	0.302
	16			5SY6 516-6		001		5SY6 520-7		1	1 unit	001	0.316
	20			5SY6 520-6		001		5SY6 525-7		1	1 unit	001	0.318
	25			5SY6 525-6		001		5SY6 532-7		1	1 unit	001	0.319
	32			5SY6 532-6		001		5SY6 540-7		1	1 unit	001	0.318
	40			5SY6 540-6		001		5SY6 550-7		1	1 unit	001	0.323
	50			5SY6 550-6		001		5SY6 563-7		1	1 unit	001	0.343
	63			5SY6 563-6		001							
	2-Pole, 400 V AC			—				5SY6 214-7		1	1 unit	001	0.328
	0.3	2		—				5SY6 205-7		1	1 unit	001	0.324
	0.5			—				5SY6 201-7		1	1/6 units	001	0.302
	1			—				5SY6 215-7		1	1 unit	001	0.317
	1.6			—			▶	5SY6 202-7		1	1/6 units	001	0.324
	2			—			▶	5SY6 203-7		1	1/6 units	001	0.320
	3			—				5SY6 204-7		1	1/6 units	001	0.300
	4			—				5SY6 211-7		1	1/12 units	001	0.160
	5			—				5SY6 206-7		1	1/6 units	001	0.292
	6			5SY6 206-6		001	▶	5SY6 208-7		1	1 unit	001	0.309
	8			—				5SY6 210-7		1	1/6 units	001	0.310
	10			5SY6 210-6		001	▶	5SY6 213-7		1	1 unit	001	0.318
	13			5SY6 213-6		001		5SY6 218-7		1	1/12 units	001	0.160
	15			—				5SY6 216-7		1	1/6 units	001	0.291
	16			5SY6 216-6		001	▶	5SY6 220-7		1	1/6 units	001	0.300
	20			5SY6 220-6		001		5SY6 225-7		1	1/6 units	001	0.308
	25			5SY6 225-6		001		5SY6 230-7		1	1/12 units	001	0.160
	30			—				5SY6 232-7		1	1/6 units	001	0.318
	32			5SY6 232-6		001		5SY6 240-7		1	1 unit	001	0.318
	40			5SY6 240-6		001		5SY6 250-7		1	1 unit	001	0.330
	50			5SY6 250-6		001		5SY6 263-7		1	1 unit	001	0.340
	63			5SY6 263-6		001							

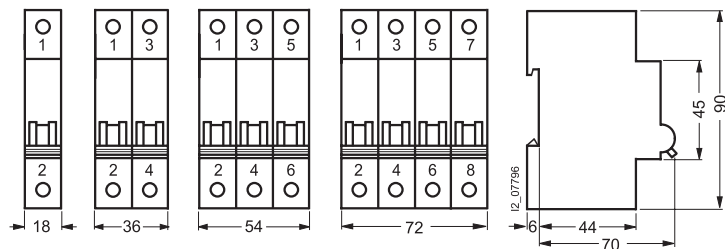
¹⁾ 1 MW (modular width) = 18 mm.

* Availability to be announced

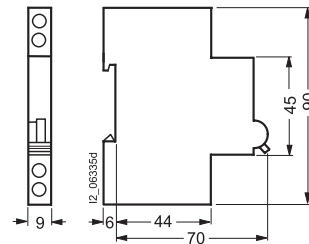
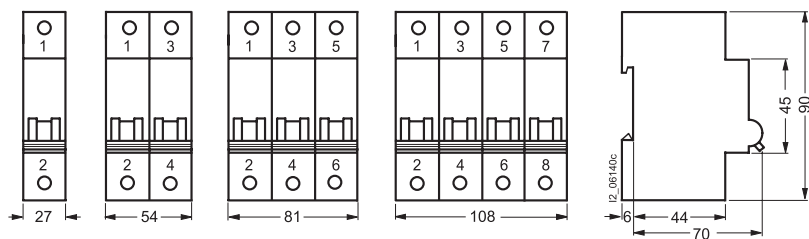
Technical data

		5SY4	5SY6	5SY5	5SP4
Standards		EN60898 EN 60947-2 UL 1077; CSA C22.2 No. 235	EN60898 EN 60947-2 UL 1077; CSA C22.2 No. 235	EN60898 EN 60947-2	EN60898 EN 60947-2 UL 1077; CSA C22.2 No. 235
Certifications		cE; cURus, UL File No. E116386	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	B, C, D
Number of poles		1, 1+N, 2, 3, 3+N, 4	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 22.2 No. 235	Min. V AC/DC	24	24	24	24
	Max. V DC/pole	60 ¹⁾	60 ¹⁾	250	60 ¹⁾
	Max. V AC	400	400	400	400
	Max. V AC V DC/pole	480Y/277 —	480Y/277	—	480Y/277
Interrupting rating					
I _{cn} to IEC/EN 60898-1	kA AC	10	6	10	10
I _{cn} to IEC/EN 60898-2	kA AC	10	10	10	10
– UL 1077 and CSA 22.2 No. 235	120/240, 240 V: kA AC	14	14	Not UL Rated	14
AC: Max. RMS Symmetrical	240 V: kA AC	7.5	7.5		7.5
	277 V: kA AC	5	5		5
	480 V: kA AC	5	5		5
Touch Protection to EN 50274-1		Yes			
Degree of protection to EN 60529		IP20, with connected conductors			
CFC and silicone free		Yes			
Mounting					
– Snap-on mounting		Yes			—
– Standard mounting rail and mounting		—			Yes
Device Depth	mm	70			
Terminals					
– Tunnel Terminals at both ends		—	—	—	Yes
– Combined terminals at both ends		Yes	Yes	Yes	—
– Terminal, solid, stranded or finely stranded with end sleeve	mm ²	0.75 to 25			
– Terminal tightening torque	lb. in.	22 to 26			22 to 31
	Nm	2.5 to 3			2.5 to 3.5
Conductor cross sections					
– Solid and stranded	mm ²	0.75 to 35			0.75 to 50
– Finely stranded, with end sleeve	mm ²	0.75 to 25			0.75 to 35
	AWG	14 to 4			14 to 2
Calibration Base	°C	30 (EN 60898)			
Average service life, with rated load	Operations	20,000	20,000	20,000 (above 40A: 10, 000)	20,000
Ambient temperature	°C	-25 to 45, occasionally +55, max. 95% humidity			
Storage Temperature	°C	-40 to +75			
Resistance to vibration to IEC 60068-2-6	m/s ²	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.

5SY4, 5SY5, 5SY6 supplementary protectors**5ST3 auxiliary switch
5ST3 fault signal contact**

can be used with 5SY4, 5SY5, 5SY6, 5SP4

**5SP4 supplementary protectors****5ST3 shunt trip
5ST3 undervoltage release**can be used with
5SY4, 5SY5, 5SY6, 5SP4