

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

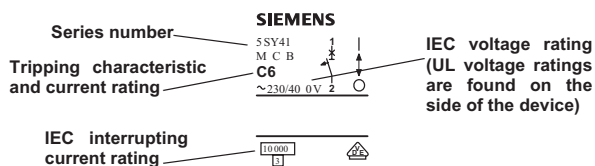
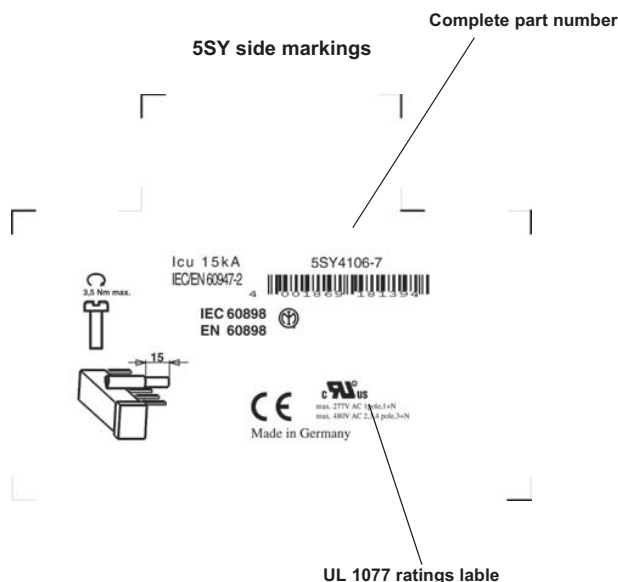
- High rated breaking capacity of up to 10,000 A acc. to EN 60 898 / up to 15 kA acc. to EN 60 947-2
- Excellent current limiting and selectivity characteristics
- Tripping characteristic A, B, C and D
- Terminals offer protection against contact with fingers or the back of the hand acc. to the German 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

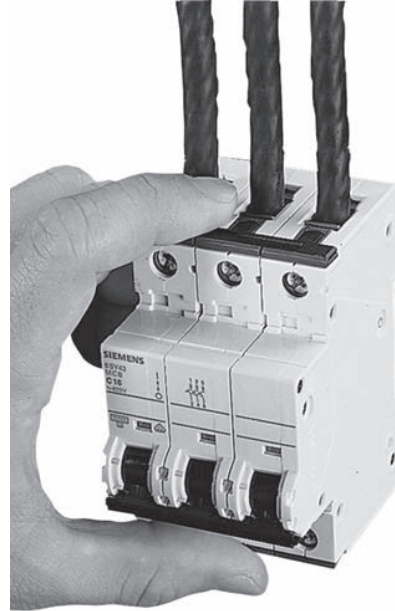
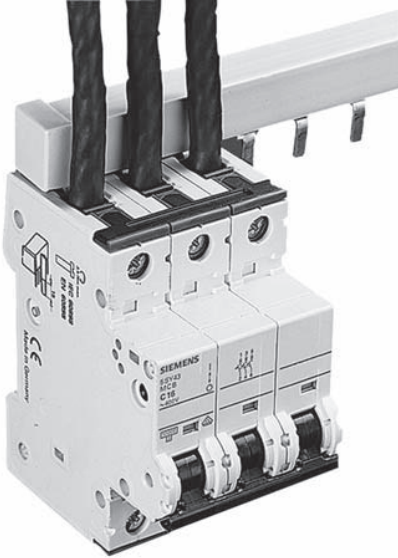
- Disconnection characteristics acc. to EN 60947-3 (DIN VDE 0660 Part 107)
- Main switch characteristics acc. to EN 60 204-1
- Can be screwed onto bases
- Separate switch position indication.

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

5SY4 Supplementary Protection

Overview

Features of 5SY supplementary protectors

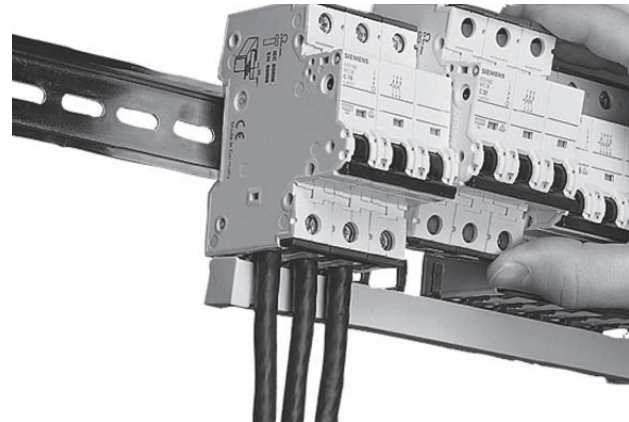
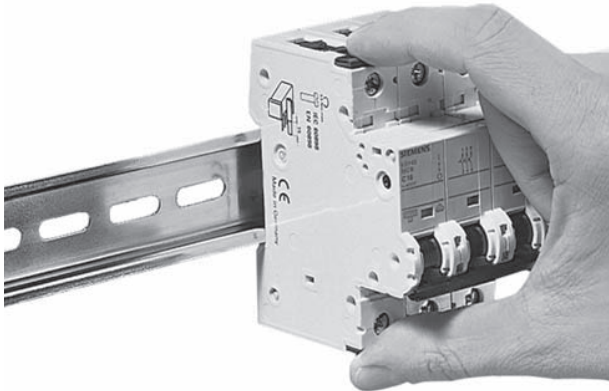


Easier, faster, enlarged wiring space

- 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 (cont.)

Selection and ordering data

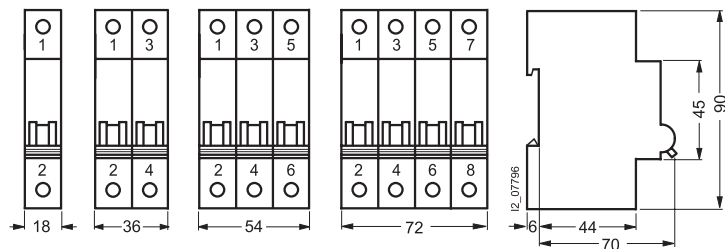
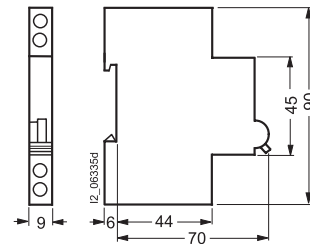
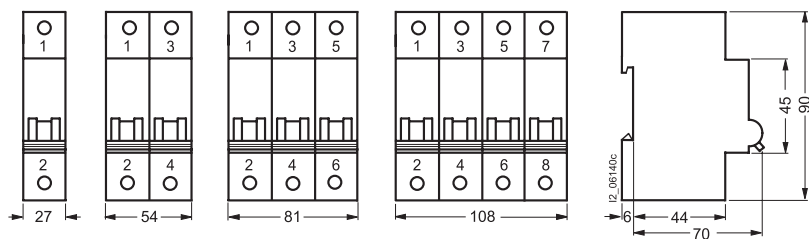
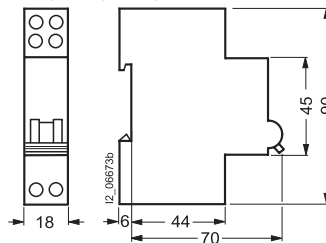
	I_n	Mounting width	DT	Characteristic B		PG	DT	Characteristic C		PU (UNIT, SET, M)	PS* / P. unit	PG	Weight per PU approx. kg
	A	MW ¹⁾		Order No.	Price per PU			Order No.	Price per PU				
MCBs 6000 A 3-Pole, 400 V AC 	0.3	3		—				5SY6 314-7		1	1 unit	001	0.489
	0.5			—				5SY6 305-7		1	1 unit	001	0.481
	1			—				5SY6 301-7		1	1 unit	001	0.473
	1.6			—				5SY6 315-7		1	1 unit	001	0.471
	2			—				5SY6 302-7		1	1/4 units	001	0.480
	3			—				5SY6 303-7		1	1 unit	001	0.465
	4			—				5SY6 304-7		1	1/4 units	001	0.458
	5			—				5SY6 311-7		1	1/12 units	001	0.160
	6			5SY6 306-6		001	▶	5SY6 306-7		1	1/4 units	001	0.435
	8			—				5SY6 308-7		1	1 unit	001	0.461
	10			5SY6 310-6		001	▶	5SY6 310-7		1	1/4 units	001	0.443
	13			5SY6 313-6		001		5SY6 313-7		1	1 unit	001	0.471
	15			—				5SY6 318-7		1	1/12 units	001	0.160
	16		▶	5SY6 316-6		001	▶	5SY6 316-7		1	1/4 units	001	0.437
	20			5SY6 320-6		001		5SY6 320-7		1	1/4 units	001	0.455
	25			5SY6 325-6		001		5SY6 325-7		1	1/4 units	001	0.464
	30			—				5SY6 330-7		1	1/12 units	001	0.160
	32			5SY6 332-6		001	▶	5SY6 332-7		1	1/4 units	001	0.459
	40			5SY6 340-6		001		5SY6 340-7		1	1/4 units	001	0.472
	50			5SY6 350-6		001		5SY6 350-7		1	1/4 units	001	0.489
	63			5SY6 363-6		001		5SY6 363-7		1	1/4 units	001	0.488
3-Pole + N, 400 V AC 	0.3	4		—				5SY6 614-7		1	1 unit	001	0.631
	0.5			—				5SY6 605-7		1	1 unit	001	0.643
	1			—				5SY6 601-7		1	1 unit	001	0.623
	1.6			—				5SY6 615-7		1	1 unit	001	0.631
	2			—				5SY6 602-7		1	1 unit	001	0.632
	3			—				5SY6 603-7		1	1 unit	001	0.590
	4			—				5SY6 604-7		1	1 unit	001	0.620
	6			5SY6 606-6		001		5SY6 606-7		1	1 unit	001	0.609
	8			—				5SY6 608-7		1	1 unit	001	0.607
	10			5SY6 610-6		001		5SY6 610-7		1	1 unit	001	0.611
	13			5SY6 613-6		001		5SY6 613-7		1	1/3 units	001	0.630
	16			5SY6 616-6		001		5SY6 616-7		1	1/3 units	001	0.613
	20			5SY6 620-6		001		5SY6 620-7		1	1 unit	001	0.623
	25			5SY6 625-6		001		5SY6 625-7		1	1 unit	001	0.622
	32			5SY6 632-6		001		5SY6 632-7		1	1 unit	001	0.628
	40			5SY6 640-6		001		5SY6 640-7		1	1 unit	001	0.629
	50			5SY6 650-6		001		5SY6 650-7		1	1 unit	001	0.655
	63			5SY6 663-6		001		5SY6 663-7		1	1 unit	001	0.671
4-Pole, 400 V AC 	0.3	4		—				5SY6 414-7		1	1 unit	001	0.640
	0.5			—				5SY6 405-7		1	1 unit	001	0.641
	1			—				5SY6 401-7		1	1 unit	001	0.634
	1.6			—				5SY6 415-7		1	1 unit	001	0.620
	2			—				5SY6 402-7		1	1 unit	001	0.642
	3			—				5SY6 403-7		1	1 unit	001	0.625
	4			—				5SY6 404-7		1	1 unit	001	0.615
	6			5SY6 406-6		001		5SY6 406-7		1	1 unit	001	0.612
	8			—				5SY6 408-7		1	1 unit	001	0.605
	10			5SY6 410-6		001		5SY6 410-7		1	1/3 units	001	0.603
	13			5SY6 413-6		001		5SY6 413-7		1	1 unit	001	0.628
	16			5SY6 416-6		001		5SY6 416-7		1	1/3 units	001	0.620
	20			5SY6 420-6		001		5SY6 420-7		1	1/3 units	001	0.598
	25			5SY6 425-6		001		5SY6 425-7		1	1/3 units	001	0.625
	32			5SY6 432-6		001		5SY6 432-7		1	1/3 units	001	0.627
	40			5SY6 440-6		001		5SY6 440-7		1	1/3 units	001	0.628
	50			5SY6 450-6		001		5SY6 450-7		1	1 unit	001	0.651
	63			5SY6 463-6		001		5SY6 463-7		1	1/3 units	001	0.673

¹⁾ 1 MW (modular width) = 18 mm.

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			

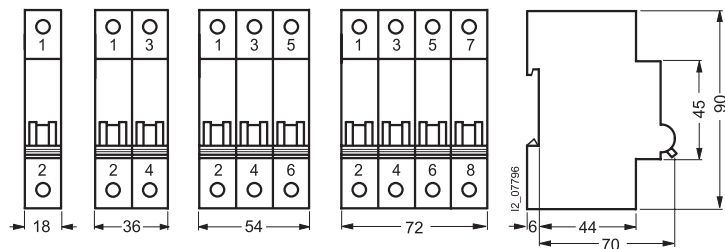
1) The operating voltage 60 V DC/pole takes into account a battery charging voltage with peak value of 72 V.

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


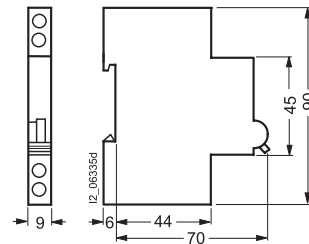
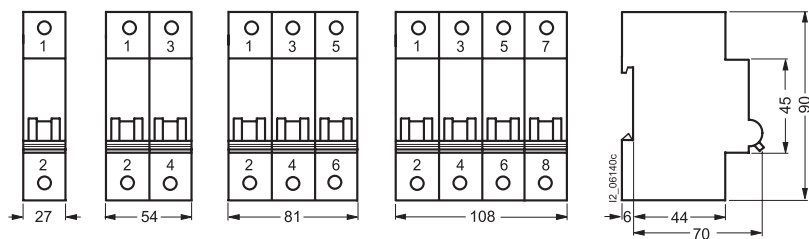
Technical data

		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