

# BETA Miniature Circuit-Breakers

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## Introduction

Overview								
Design	Tripping characteristic	Depth [mm]	Rated currents $I_n$	Standards	Rated short-circuit capacity Energy limitation class	Usage		
						Non-resid. bldgs.	Resid. bldgs.	Industry
<b>Standard product range</b>								
5SX2	B	55	6 - 50 A	EN 60898	6 000 3	•	•	
	C		0.3 - 63 A			•	•	
5SX4	B	55	6 - 50 A	EN 60898	10 000 3	•	•	•
	C		0.5 - 50 A			•	•	•
<b>Industry product range</b>								
5SY6	B	70	6 - 63 A	EN 60898	6 000 3	•		•
	C		0.3 - 63 A			•		•
	D		0.3 - 63 A			•		•
5SY4	A	70	1 - 63 A	EN 60898	10 000 3	•		•
	B		6 - 63 A			•		•
	C		0.3 - 63 A			•		•
	D		0.3 - 63 A			•		•
5SY7	B	70	6 - 63 A	EN 60898	15 000 3	•		•
	C		0.3 - 63 A			•		•
	D		0.3 - 63 A			•		•
5SY8	C	70	0.3 - 63 A	EN 60947-2	25 kA	•		•
	D		0.3 - 63 A			•		•
<b>AC/DC product range</b>								
5SY5	B	70	6 - 63 A	EN 60898	10 000 3			•
	C		0.3 - 63 A					•
<b>High-current product range</b>								
5SP4	B	70	80 - 125 A	EN 60898	10 000	•		•
	C		80 - 125 A			•		•
	D		80 - 100 A			•		•

### Definitions

1 MW = modular width of 18 mm

N-type = device mounting depth of 55 mm

Depth 70 mm = device mounting depth of 70 mm

### Benefits

- High rated breaking capacity of up to 15 000 A acc. to EN 60898/up to 25 kA acc. to EN 60947-2
- Excellent current limiting and selectivity characteristics
- Tripping characteristic A, B, C and D
- Terminals offer touch protection 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 supplementary components which can be mounted individually, fast and on-site thanks to their snap-on technique
- The handle locking device effectively prevents any unauthorized operation of the handle

### Features of 5SX

- Especially suited for installation in flat distribution boards for building installations

### Features of 5SY

- Safe and rapid connection of the feeder cables thanks to the possibility of relocating the busbars to the back
- Identical terminals at both sides for an optional infeed from the top or the bottom
- No tool required for mounting or dismounting
- Supports fast and comfortable removal from the assembly
- Variable labeling system
- Separate switch position indication

### Features of 5SP4

- Disconnection characteristics acc. to DIN VDE 0660 Part 107
- Main switch characteristics acc. to EN 60204
- Variable labeling system
- Can be screwed onto bases
- Separate switch position indication

### Area of application

The miniature circuit-breakers of the *N.System* primarily serve the purpose of protecting cables and conductors against overload and short circuits. Thus, they also serve to protect electrical equipment against excessive overheating acc. to DIN VDE 0100 Part 430.

Under certain conditions, miniature circuit-breakers also offer protection against shock currents caused by excessive touch voltage due to insulation failures acc. to DIN VDE 0100 Part 410.

Thanks to their fixed rated current settings, the miniature circuit-breakers may also be used for limited motor protection applications.

Various tripping characteristics are available, depending on the respective application. They are explained in detail in the catalog ET B1.T ("Technical Information on the ET B1 Catalog"). The EN 60898, DIN VDE 0641 Part 11 and IEC 60898 standards form the basis for the design and approval of the miniature circuit-breakers.

When used for industrial applications and for system and plant engineering applications, the miniature circuit-breakers of the *N.System* are supplemented by individually mountable supplementary components such as auxiliary switches, fault signal contacts, shunt trips, undervoltage releases, RCCB modules and individually mountable accessories such as busbar systems and mounting parts.

### Design

Miniature circuit-breakers of the *N.System* are equipped with a delayed overload/time-dependent thermal release (thermal bi-metal) for low overcurrents and with an instantaneous electromagnetic release for high overload and short-circuit currents.

The special contact materials used 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, the miniature circuit-breakers of the *N.System* assure safe, current-limiting off-switching.

The permissible limit- $I^2t$ -values of the energy limitation class 3 specified in DIN VDE 0641 Part 11 are generally undercut by 50 %. This guarantees an excellent selectivity towards upstream overcurrent protection devices.

# BETA Miniature Circuit-Breakers

## Introduction

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### Technical specifications

		5SX2	5SX4	5SY4	5SY5	5SY6	5SY6 ...-KV	5SY7	5SY8	5SP4
<b>Tripping characteristic</b>		B, C	B, C	A, B, C, D	B, C	B, C, D	B, C	B, C, D	C, D	B, C, D
<b>Number of poles</b>	1	•	•	•	•	•	•	•	•	•
	1 + N	•	•	•	•	•	•	•	•	•
	2	•	•	•	•	•	•	•	•	•
	3	•	•	•	•	•	•	•	•	•
	3 + N	•	•	•	•	•	•	•	•	•
4	•	•	•	•	•	•	•	•	•	
<b>Rated voltage</b>	AC V	230/400					230	230/400		
	DC V	-					220/440	-		
<b>Operational voltage</b>	min. AC/DC V	24			220		24	60 <sup>1)</sup>		
	max. DC V/pole	60 <sup>1)</sup>			220		60 <sup>1)</sup>	60		
	max. AC V	440			440		440	250		
<b>Rated breaking capacity</b>	acc. to EN 60898	AC kA	6	10	10		6	15	10	
		DC kA	-			10	-	-		
	acc. to EN 60947-2	AC kA	-			-		25		-
<b>Insulation coordination</b>										
Rated insulation voltage	AC V	250/440								
Degree of pollution for overvoltage category III		2								
		3								
<b>Protection against contact</b>		•	•	•	•	•	•	•	•	•
acc. to DIN VDE 106 Part 100										
<b>Main switch characteristics</b>				•	•	•		•	•	•
acc. to EN 60204										
<b>Sealability in handle end position</b>		•	•	•	•	•	•	•	•	•
<b>Device depth</b>		mm	55		70					
acc. to DIN 43880										
<b>Degree of protection</b>		IP00 acc. to DIN 40050, IP20 acc. to DIN 40050 for 5SY., IP40 when mounting in distribution boards								
<b>Free of CFC and silicon</b>		yes								
<b>Mounting technique</b>		for snapping onto standard mounting rails 35 mm (EN 60175, or EN 50022 for 5SY6...-KV); additionally with • 5SY: quick-assembly system (no tools required for assembly) • 5SP4: screw mounting also possible								
<b>Terminals</b>		5SX2, 5SX4: combined terminals at the bottom for a simultaneous connection of busbars (fork-type) and feeder cables 5SY: combined terminals at both sides for a simultaneous connection of busbars (fork-type) and feeder cables 5SP4 and 5SY6...-KV: combined tunnel terminals								
<b>Terminal tightening torque</b>										
recommended	Nm	2.5 - 3								3 - 3.5
<b>Conductor cross-sections</b>										
Solid and stranded, max. • upper terminal • lower terminal	mm <sup>2</sup>	16		35		16		35		50
	mm <sup>2</sup>	25		35		16		35		50
Finely stranded with end sleeves, max. • upper terminal • lower terminal	mm <sup>2</sup>	10		25		10		25		35
	mm <sup>2</sup>	16		25		10		25		35
Differing conductor cross-sections may be clamped together simultaneously; details are available upon request.										
<b>Supply connection</b>		As required, the specified polarity must be observed for DC applications								
<b>Mounting position</b>		As required								
<b>Endurance</b>		On average 20 000 operations at the rated load <sup>2)</sup>								
<b>Ambient temperature</b>		°C	-25 ... +45; temporarily: +55; max. humidity: 95 %; storage temperature: -40 ... +75							
<b>Resistance to climate</b>		6 cycles acc. to IEC 60068-2-30								
<b>Resistance to vibrations</b>		m/s <sup>2</sup>	60 at 10 Hz up to 150 Hz acc. to IEC 60068-2-6							

1) ≙ Battery charging voltage of 72 V.

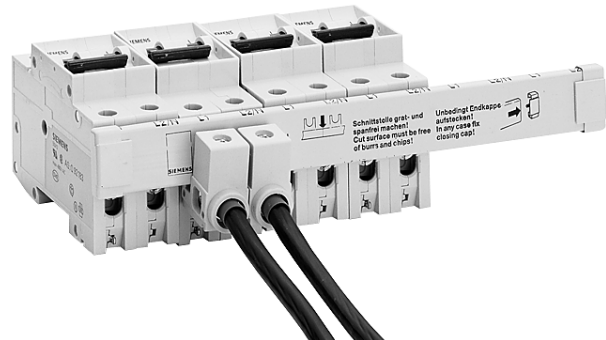
2) ≙ 10 000 operations for 5SY5, 40 A, 50 A and 63 A at the rated load.

### Benefits

#### Application examples for 5SX miniature circuit-breakers.

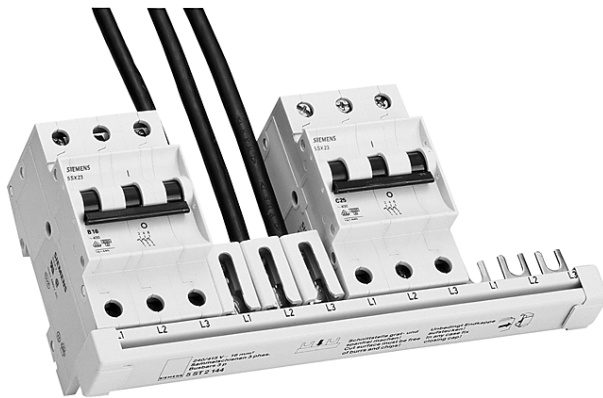


Simultaneous connection of the bottom feeder cables with cross-sections of up to 25 mm<sup>2</sup> and the 5ST2 144 3-pole busbar to the combined terminal of the miniature circuit-breaker.

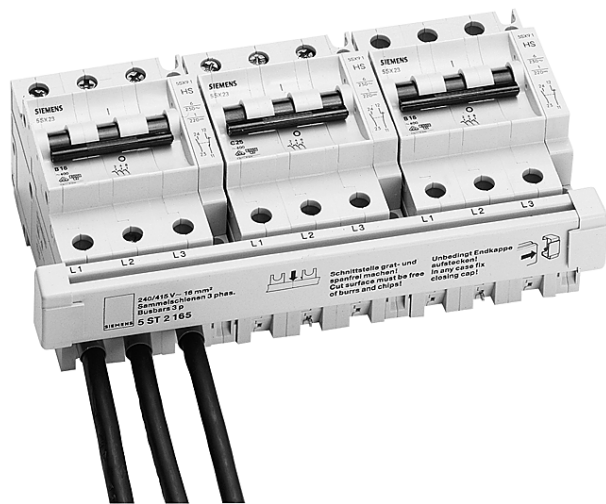


Simultaneous connection of the bottom feeder cables with cross-sections of up to 35 mm<sup>2</sup> and the 5ST2 143 2-pole busbar via the 5ST2 166 connection terminal.

The same connection principle applies to the application of top feeder cables.



Connection of the top feeder cables with cross-sections of up to 35 mm<sup>2</sup> to the 5ST2 144 busbar via the 5ST2 157 supplementary terminal.



Simultaneous connection of the feeder cables with cross-sections of up to 25 mm<sup>2</sup> and the 5ST2 165 busbar to the miniature circuit-breakers' combined terminal via locally retrofitted auxiliary switches. For a description of busbars and connection terminals, please see page 2/37.

# BETA Miniature Circuit-Breakers

## Standard Product Range



6 000  
3

N-type, 6 kA  
55 mm mounting depth

2

### Area of application

- $U_n$ : 230/400 V, 50-60 Hz, applicable in networks up to AC 250/440 V, DC 60 V per pole
- Standards EN 60898, DIN VDE 0641 Part 11, IEC 60898
- Supplementary components can be retrofitted individually.





### Characteristic B

Line protection mainly used in residential building installations; no proof required regarding personal safety.

### Characteristic C

General line protection, especially advantageous with higher in-rush currents (lamps, motors, etc.).

### Selection and ordering data

	$I_n$	MW	DC	Characteristic B Order No.	Pack. unit*	Weight per unit approx. kg	DC	Characteristic C Order No.	Pack. unit*	Weight per unit approx. kg	
	<b>1-pole</b>										
		0.3	1	-	-	-	-	A	<b>5SX2 114-7</b>	12	0.140
		0.5		-	-	-	A	<b>5SX2 105-7</b>	12	0.140	
		1		-	-	-	A	<b>5SX2 101-7</b>	12	0.140	
		1.6		-	-	-	A	<b>5SX2 115-7</b>	12	0.140	
		2		-	-	-	A	<b>5SX2 102-7</b>	12	0.140	
		3		-	-	-	A	<b>5SX2 103-7</b>	12	0.140	
		4		-	-	-	A	<b>5SX2 104-7</b>	12	0.140	
		6		A	<b>5SX2 106-6</b>	12	0.140	A	<b>5SX2 106-7</b>	12	0.140
		8		-	-	-	A	<b>5SX2 108-7</b>	12	0.140	
		10		A	<b>5SX2 110-6</b>	12	0.140	A	<b>5SX2 110-7</b>	12	0.140
		13		A	<b>5SX2 113-6</b>	12	0.140	A	<b>5SX2 113-7</b>	12	0.140
		16		A	<b>5SX2 116-6</b>	12	0.140	A	<b>5SX2 116-7</b>	12	0.140
		20		A	<b>5SX2 120-6</b>	12	0.140	A	<b>5SX2 120-7</b>	12	0.140
		25		A	<b>5SX2 125-6</b>	12	0.140	A	<b>5SX2 125-7</b>	12	0.140
		32 <sup>1)</sup>		A	<b>5SX2 132-6</b>	12	0.140	A	<b>5SX2 132-7</b>	12	0.140
40		A		<b>5SX2 140-6</b>	12	0.115	A	<b>5SX2 140-7</b>	12	0.115	
50	A	<b>5SX2 150-6</b>	12	0.115	A	<b>5SX2 150-7</b>	12	0.115			
63 <sup>2)</sup>	-	-	-	-	A	<b>5SX2 163-7</b>	12	0.150			
	<b>1-pole + N</b>										
	6	2	A	<b>5SX2 506-6</b>	6	0.210	A	<b>5SX2 506-7</b>	6	0.210	
	10		A	<b>5SX2 510-6</b>	6	0.210	A	<b>5SX2 510-7</b>	6	0.210	
	13		A	<b>5SX2 513-6</b>	6	0.210	A	<b>5SX2 513-7</b>	6	0.210	
	16		A	<b>5SX2 516-6</b>	6	0.210	A	<b>5SX2 516-7</b>	6	0.210	
	20		A	<b>5SX2 520-6</b>	6	0.210	A	<b>5SX2 520-7</b>	6	0.210	
	25		A	<b>5SX2 525-6</b>	6	0.210	A	<b>5SX2 525-7</b>	6	0.210	
	32		C	<b>5SX2 532-6</b>	6	0.210	A	<b>5SX2 532-7</b>	6	0.210	
40	D		<b>5SX2 540-6</b>	6	0.300	A	<b>5SX2 540-7</b>	6	0.300		
50	D	<b>5SX2 550-6</b>	6	0.300	D	<b>5SX2 550-7</b>	6	0.300			
	<b>2-pole</b>										
	0.5	2	-	-	-	-	A	<b>5SX2 205-7</b>	6	0.280	
	1		-	-	-	A	<b>5SX2 201-7</b>	6	0.280		
	1.6		-	-	-	A	<b>5SX2 215-7</b>	6	0.280		
	2		-	-	-	A	<b>5SX2 202-7</b>	6	0.280		
	3		-	-	-	A	<b>5SX2 203-7</b>	6	0.280		
	4		-	-	-	A	<b>5SX2 204-7</b>	6	0.280		
	6		A	<b>5SX2 206-6</b>	6	0.280	A	<b>5SX2 206-7</b>	6	0.280	
	8		-	-	-	A	<b>5SX2 208-7</b>	6	0.280		
	10		A	<b>5SX2 210-6</b>	6	0.280	A	<b>5SX2 210-7</b>	6	0.280	
	13		A	<b>5SX2 213-6</b>	6	0.280	A	<b>5SX2 213-7</b>	6	0.280	
	16		A	<b>5SX2 216-6</b>	6	0.280	A	<b>5SX2 216-7</b>	6	0.280	
	20		A	<b>5SX2 220-6</b>	6	0.280	A	<b>5SX2 220-7</b>	6	0.280	
	25		A	<b>5SX2 225-6</b>	6	0.280	A	<b>5SX2 225-7</b>	6	0.280	
	32		A	<b>5SX2 232-6</b>	6	0.280	A	<b>5SX2 232-7</b>	6	0.280	
	40		A	<b>5SX2 240-6</b>	6	0.300	A	<b>5SX2 240-7</b>	6	0.300	
50	D		<b>5SX2 250-6</b>	6	0.300	A	<b>5SX2 250-7</b>	6	0.300		
63 <sup>2)</sup>	-	-	-	-	A	<b>5SX2 263-7</b>	6	0.300			

1) Also suitable for 21 kW active power at DC 400 V (e.g. continuous-flow water heater with short-time operation) and 7 kW active power at AC 230 V (e.g. hot water storage tank in non-continuous operation). For continuous load applications, the use of miniature circuit-breakers of characteristic B or C and  $I_n = 40$  A is recommended.

2) Without 

Designs 5SX2 B 6 ... 50 and C 0.5 ... 50 1-pole, 2-pole and 3-pole are certified acc. to UL 1077 and CSA 22.2 No. 235-M 89 and can therefore be used as "supplementary protectors" up to AC 277 V (1-pole design) and AC 480 V (2-pole and 3-pole design).

For supplementary components, please see page 2/34.  
For accessories, please see pages 2/35 to 2/38.

6 000  
3




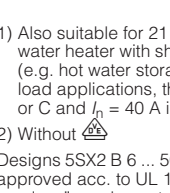
# BETA Miniature Circuit-Breakers

## Standard Product Range


N-type, 6 kA  
55 mm mounting depth

2

### Selection and ordering data

	$I_n$	MW	DC	Characteristic B Order No.	Pack. unit*	Weight per unit approx. kg	DC	Characteristic C Order No.	Pack. unit*	Weight per unit approx. kg	
	<b>3-pole</b>										
		0.5	3	-	-	-	-	A	<b>5SX2 305-7</b>	4	0.440
		1	-	-	-	-	-	A	<b>5SX2 301-7</b>	4	0.440
		1.6	-	-	-	-	-	A	<b>5SX2 315-7</b>	4	0.440
		2	-	-	-	-	-	A	<b>5SX2 302-7</b>	4	0.440
		3	-	-	-	-	-	A	<b>5SX2 303-7</b>	4	0.440
		4	-	-	-	-	-	A	<b>5SX2 304-7</b>	4	0.440
		6	A	<b>5SX2 306-6</b>	4	0.440	A	<b>5SX2 306-7</b>	4	0.440	
		8	-	-	-	-	-	A	<b>5SX2 308-7</b>	4	0.440
		10	A	<b>5SX2 310-6</b>	4	0.440	A	<b>5SX2 310-7</b>	4	0.440	
		13	A	<b>5SX2 313-6</b>	4	0.440	A	<b>5SX2 313-7</b>	4	0.440	
		16	A	<b>5SX2 316-6</b>	4	0.440	A	<b>5SX2 316-7</b>	4	0.440	
		20	A	<b>5SX2 320-6</b>	4	0.440	A	<b>5SX2 320-7</b>	4	0.440	
		25	A	<b>5SX2 325-6</b>	4	0.440	A	<b>5SX2 325-7</b>	4	0.440	
		32 <sup>1)</sup>	A	<b>5SX2 332-6</b>	4	0.440	A	<b>5SX2 332-7</b>	4	0.440	
40		A	<b>5SX2 340-6</b>	4	0.450	A	<b>5SX2 340-7</b>	4	0.450		
50	A	<b>5SX2 350-6</b>	4	0.450	A	<b>5SX2 350-7</b>	4	0.450			
63 <sup>2)</sup>	-	-	-	-	-	A	<b>5SX2 363-7</b>	4	0.450		
	<b>3-pole + N</b>										
	6	4	-	-	-	-	A	<b>5SX2 606-7</b>	3	0.450	
	10	-	-	<b>5SX2 610-6</b>	-	-	A	<b>5SX2 610-7</b>	3	0.450	
	13	A	<b>5SX2 613-6</b>	3	0.450	A	<b>5SX2 613-7</b>	3	0.450		
	16	A	<b>5SX2 616-6</b>	3	0.450	A	<b>5SX2 616-7</b>	3	0.450		
	20	A	<b>5SX2 620-6</b>	3	0.450	A	<b>5SX2 620-7</b>	3	0.450		
	25	C	<b>5SX2 625-6</b>	3	0.450	A	<b>5SX2 625-7</b>	3	0.450		
	32	C	<b>5SX2 632-6</b>	3	0.450	A	<b>5SX2 632-7</b>	3	0.450		
	40	D	<b>5SX2 640-6</b>	3	0.610	A	<b>5SX2 640-7</b>	3	0.610		
	50	D	<b>5SX2 650-6</b>	3	0.610	A	<b>5SX2 650-7</b>	3	0.610		
	<b>4-pole</b>										
	6 <sup>2)</sup>	4	-	-	-	-	A	<b>5SX2 406-7</b>	3	0.590	
	10 <sup>2)</sup>	-	-	-	-	-	A	<b>5SX2 410-7</b>	3	0.590	
	13 <sup>2)</sup>	-	-	-	-	-	C	<b>5SX2 413-7</b>	3	0.590	
	16 <sup>2)</sup>	-	-	-	-	-	A	<b>5SX2 416-7</b>	3	0.590	
	20 <sup>2)</sup>	C	<b>5SX2 420-6</b>	3	0.590	A	<b>5SX2 420-7</b>	3	0.590		
	25 <sup>2)</sup>	C	<b>5SX2 425-6</b>	3	0.590	A	<b>5SX2 425-7</b>	3	0.590		
	32 <sup>2)</sup>	C	<b>5SX2 432-6</b>	3	0.590	A	<b>5SX2 432-7</b>	3	0.590		
	40	D	<b>5SX2 440-6</b>	3	0.590	A	<b>5SX2 440-7</b>	3	0.590		
	50	-	-	-	-	-	A	<b>5SX2 450-7</b>	3	0.590	

1) Also suitable for 21 kW active power at DC 400 V (e.g. continuous-flow water heater with short-time operation) and 7 kW active power at AC 230 V (e.g. hot water storage tank in non-continuous operation). For continuous load applications, the use of miniature circuit-breakers of characteristic B or C and  $I_n = 40$  A is recommended.

2) Without 

Designs 5SX2 B 6 ... 50 and C 0.5 ... 50, 1-pole, 2-pole and 3-pole have been approved acc. to UL 1077 and CSA 22.2 No. 235-M 89 and can therefore be used as "supplementary protectors" for applications of up to AC 277 V (1-pole design) and AC 480 V (2-pole and 3-pole design).

For supplementary components, please see page 2/34.  
For accessories, please see pages 2/35 to 2/38.

# BETA Miniature Circuit-Breakers

## Standard Product Range



10 000  
3

**N-type, 10 kA  
55 mm mounting depth**

2

### Area of application

- $U_n$ : 230/400 V, 50-60 Hz, applicable in networks up to AC 250/440 V, DC 60 V per pole
- Standards EN 60898, DIN VDE 0641 Part 11, IEC 60898
- Supplementary components can be retrofitted individually.





### Characteristic B

Line protection mainly used in residential building installations; no proof required regarding personal safety.

### Characteristic C

General line protection, especially advantageous with higher in-rush currents (lamps, motors, etc.).

### Selection and ordering data

	$I_n$	MW	DC	Characteristic B Order No.	Pack. unit*	Weight per unit approx. kg	DC	Characteristic C Order No.	Pack. unit*	Weight per unit approx. kg	
	<b>1-pole</b>										
		0.5	1	-	-	-	-	A	<b>5SX4 105-7</b>	12	0.140
		1	-	-	-	-	-	A	<b>5SX4 101-7</b>	12	0.140
		1.6	-	-	-	-	-	A	<b>5SX4 115-7</b>	12	0.140
		2	-	-	-	-	-	A	<b>5SX4 102-7</b>	12	0.140
		3	-	-	-	-	-	A	<b>5SX4 103-7</b>	12	0.140
		4	-	-	-	-	-	A	<b>5SX4 104-7</b>	12	0.140
		6	-	A	<b>5SX4 106-6</b>	12	0.140	A	<b>5SX4 106-7</b>	12	0.140
		8	-	-	-	-	-	A	<b>5SX4 108-7</b>	12	0.140
		10	-	A	<b>5SX4 110-6</b>	12	0.140	A	<b>5SX4 110-7</b>	12	0.140
		13	-	A	<b>5SX4 113-6</b>	12	0.140	A	<b>5SX4 113-7</b>	12	0.140
		16	-	A	<b>5SX4 116-6</b>	12	0.140	A	<b>5SX4 116-7</b>	12	0.140
		20	-	A	<b>5SX4 120-6</b>	12	0.140	A	<b>5SX4 120-7</b>	12	0.140
		25	-	A	<b>5SX4 125-6</b>	12	0.140	A	<b>5SX4 125-7</b>	12	0.140
		32 <sup>1)</sup>	-	A	<b>5SX4 132-6</b>	12	0.140	A	<b>5SX4 132-7</b>	12	0.140
40		-	D	<b>5SX4 140-6</b>	12	0.115	A	<b>5SX4 140-7</b>	12	0.115	
50	-	D	<b>5SX4 150-6</b>	12	0.115	A	<b>5SX4 150-7</b>	12	0.115		
	<b>1-pole + N</b>										
	6	2	C	<b>5SX4 506-6</b>	6	0.210	A	<b>5SX4 506-7</b>	6	0.210	
	10	-	C	<b>5SX4 510-6</b>	6	0.210	A	<b>5SX4 510-7</b>	6	0.210	
	13	-	C	<b>5SX4 513-6</b>	6	0.210	A	<b>5SX4 513-7</b>	6	0.210	
	16	-	C	<b>5SX4 516-6</b>	6	0.210	A	<b>5SX4 516-7</b>	6	0.210	
	20	-	C	<b>5SX4 520-6</b>	6	0.210	C	<b>5SX4 520-7</b>	6	0.210	
	25	-	C	<b>5SX4 525-6</b>	6	0.210	C	<b>5SX4 525-7</b>	6	0.210	
	32	-	C	<b>5SX4 532-6</b>	6	0.210	C	<b>5SX4 532-7</b>	6	0.210	
40	-	D	<b>5SX4 540-6</b>	6	0.300	D	<b>5SX4 540-7</b>	6	0.300		
50	-	D	<b>5SX4 550-6</b>	6	0.300	D	<b>5SX4 550-7</b>	6	0.300		
	<b>2-pole</b>										
	0.5	2	-	-	-	-	C	<b>5SX4 205-7</b>	6	0.280	
	1	-	-	-	-	-	A	<b>5SX4 201-7</b>	6	0.280	
	1.6	-	-	-	-	-	A	<b>5SX4 215-7</b>	6	0.280	
	2	-	-	-	-	-	A	<b>5SX4 202-7</b>	6	0.280	
	3	-	-	-	-	-	A	<b>5SX4 203-7</b>	6	0.280	
	4	-	-	-	-	-	A	<b>5SX4 204-7</b>	6	0.280	
	6	-	A	<b>5SX4 206-6</b>	6	0.280	A	<b>5SX4 206-7</b>	6	0.280	
	8	-	-	-	-	-	A	<b>5SX4 208-7</b>	6	0.280	
	10	-	A	<b>5SX4 210-6</b>	6	0.280	A	<b>5SX4 210-7</b>	6	0.280	
	13	-	C	<b>5SX4 213-6</b>	6	0.280	A	<b>5SX4 213-7</b>	6	0.280	
	16	-	A	<b>5SX4 216-6</b>	6	0.280	A	<b>5SX4 216-7</b>	6	0.280	
	20	-	C	<b>5SX4 220-6</b>	6	0.280	A	<b>5SX4 220-7</b>	6	0.280	
	25	-	C	<b>5SX4 225-6</b>	6	0.280	A	<b>5SX4 225-7</b>	6	0.280	
	32	-	C	<b>5SX4 232-6</b>	6	0.280	A	<b>5SX4 232-7</b>	6	0.280	
40	-	D	<b>5SX4 240-6</b>	6	0.300	A	<b>5SX4 240-7</b>	6	0.300		
50	-	D	<b>5SX4 250-6</b>	6	0.300	D	<b>5SX4 250-7</b>	6	0.300		

1) Also suitable for 21 kW active power at DC 400 V (e.g. continuous-flow water heater with short-time operation) and 7 kW active power at AC 230 V (e.g. hot water storage tank in non-continuous operation). For continuous load applications, the use of miniature circuit-breakers of characteristic B or C and  $I_n = 40$  A is recommended.

For supplementary components, please see page 2/34.  
For accessories, please see pages 2/35 to 2/38.

10 000  
3




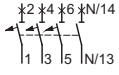

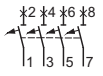
# BETA Miniature Circuit-Breakers

## Standard Product Range

N-type, 10 kA  
55 mm mounting depth

2

### Selection and ordering data

	$I_n$	MW	Characteristic B Order No.	Pack. unit*	Weight per unit approx. kg	DC	Characteristic C Order No.	Pack. unit*	Weight per unit approx. kg
 <p><b>3-pole</b></p> 	0.5	3	-			C	<b>5SX4 305-7</b>	4	0.440
	1		-			A	<b>5SX4 301-7</b>	4	0.440
	1.6		-			C	<b>5SX4 315-7</b>	4	0.440
	2		-			A	<b>5SX4 302-7</b>	4	0.440
	3		-			A	<b>5SX4 303-7</b>	4	0.440
	4		-			A	<b>5SX4 304-7</b>	4	0.440
	6	A	<b>5SX4 306-6</b>	4	0.440	A	<b>5SX4 306-7</b>	4	0.044
	8		-			C	<b>5SX4 308-7</b>	4	0.440
	10	A	<b>5SX4 310-6</b>	4	0.440	A	<b>5SX4 310-7</b>	4	0.440
	13	C	<b>5SX4 313-6</b>	4	0.440	A	<b>5SX4 313-7</b>	4	0.440
	16	A	<b>5SX4 316-6</b>	4	0.440	A	<b>5SX4 316-7</b>	4	0.440
	20	A	<b>5SX4 320-6</b>	4	0.440	A	<b>5SX4 320-7</b>	4	0.440
	25	A	<b>5SX4 325-6</b>	4	0.440	A	<b>5SX4 325-7</b>	4	0.440
	32 <sup>1)</sup>	A	<b>5SX4 332-6</b>	4	0.440	A	<b>5SX4 332-7</b>	4	0.440
	40	D	<b>5SX4 340-6</b>	4	0.450	A	<b>5SX4 340-7</b>	4	0.450
50	D	<b>5SX4 350-6</b>	4	0.450	A	<b>5SX4 350-7</b>	4	0.450	
 <p><b>3-pole + N</b></p> 	6	4	-			C	<b>5SX4 606-7</b>	3	0.450
	10	C	<b>5SX4 610-6</b>	3	0.450	A	<b>5SX4 610-7</b>	1	0.450
	13	C	<b>5SX4 613-6</b>	3	0.450	C	<b>5SX4 613-7</b>	3	0.450
	16	C	<b>5SX4 616-6</b>	3	0.450	A	<b>5SX4 616-7</b>	3	0.450
	20	C	<b>5SX4 620-6</b>	3	0.450	A	<b>5SX4 620-7</b>	3	0.450
	25	C	<b>5SX4 625-6</b>	3	0.450	A	<b>5SX4 625-7</b>	3	0.450
	32	C	<b>5SX4 632-6</b>	3	0.450	A	<b>5SX4 632-7</b>	3	0.450
	40	D	<b>5SX4 640-6</b>	3	0.610	A	<b>5SX4 640-7</b>	3	0.610
	50	D	<b>5SX4 650-6</b>	3	0.610	D	<b>5SX4 650-7</b>	3	0.610
	 <p><b>4-pole</b></p> 	6	4	-			C	<b>5SX4 406-7</b>	3
10		C	<b>5SX4 410-7</b>	3	0.590			3	0.590
13		-	-			C	<b>5SX4 413-7</b>	3	0.590
16		-	-			C	<b>5SX4 416-7</b>	3	0.590
20		-	-			C	<b>5SX4 420-7</b>	3	0.590
25		-	-			C	<b>5SX4 425-7</b>	3	0.590
32		-	-			C	<b>5SX4 432-7</b>	3	0.590
40		D	<b>5SX4 440-7</b>	3	0.590			3	0.590
50		D	<b>5SX4 450-7</b>	3	0.590			3	0.590

1) Also suitable for 21 kW active power at DC 400 V (e.g. continuous-flow water heater with short-time operation) and 7 kW active power at AC 230 V (e.g. hot water storage tank in non-continuous operation). For continuous load applications, the use of miniature circuit-breakers of characteristic B or C and  $I_n = 40$  A is recommended.

For supplementary components, please see page 2/34.  
For accessories, please see pages 2/35 to 2/38.



# BETA Miniature Circuit-Breakers

## Standard Product Range

### Supplementary components 55 mm mounting depth

2

#### Benefits

##### Supplementary components

- Can be retrofitted individually
- Connectable to *instabus EIB* and AS-Interface bus via binary inputs.

##### Auxiliary switches (AS) and fault signal contacts (FC)

- Mounting with factory-installed clips
- Max. contact loading acc. to DIN VDE 0660 Part 200, EN 60947-5-1:  
6 A, AC 230 V, AC-15  
1 A, DC 220 V, DC-13
- Short-circuit protection via 5SX miniature circuit-breakers; with  $I_n = 6$  A or gL fuses 6 A, depending on design ...-6, -7.

##### Function

Remote indication of the miniature circuit-breaker's switching state:

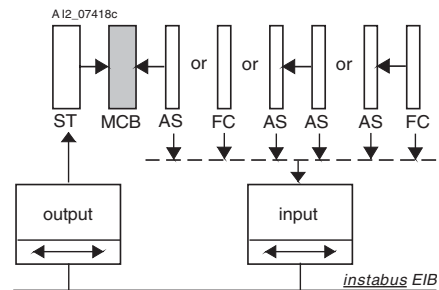
- AS: ON/OFF
- FC: tripped.

##### Shunt trips (ST)

- Assembly with enclosed screws
- Applicable for voltages of AC 110 to 415 V
- Short-circuit protection via 5SX...-7 miniature circuit-breaker with  $I_n \geq 16$  A

##### Function

- Remote tripping of the miniature circuit-breaker.



#### Selection and ordering data

			MW	DC	Order No.	Pack. unit*	Weight per unit approx. kg	
	<b>Auxiliary switches (AS)</b>							
		1 NO + 1 NC	0.5	A	<b>5SX9 100</b>	1	0.040	
		2 NO		A	<b>5SX9 101</b>	1	0.040	
		2 NC		A	<b>5SX9 102</b>	1	0.040	
	<b>Fault signal contacts (FC)</b>							
		1 NO + 1 NC	0.5	A	<b>5SX9 200</b>	1	0.040	
	2 NO		A	<b>5SX9 201</b>	1	0.040		
	2 NC		A	<b>5SX9 202</b>	1	0.040		
	<b>Shunt trip (ST) 100% duty ratio</b>							
			1	A	<b>5SX9 300</b>	1	0.141	

# BETA Miniature Circuit-Breakers Standard Product Range

Accessories  
for 55 mm mounting depth

2














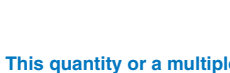

## Benefits

### 5ST2 1 busbar system

- Acc. to DIN 57606 and DIN 57659
- Load for one-side/central infeed:  
50 A/90 A for 10 mm<sup>2</sup>  
65 A/120 A for 16 mm<sup>2</sup>

- Fork-type connections
- Single and multi-phase
- Cu: 10 mm<sup>2</sup> and 16 mm<sup>2</sup>, fully insulated
- 18 mm lug spacing
- No additional connection terminal required for bottom connection.

## Selection and ordering data

	Length mm	DC	Order No.	Pack. unit*	Weight per unit approx. kg
<b>Cu busbars 10 mm<sup>2</sup></b>					
With end caps					
	210	A	<b>5ST2 137</b>	25	0.088
		A	<b>5ST2 138</b>	10	0.103
		A	<b>5ST2 140</b>	10	0.153
Without end caps					
	1 000	A	<b>5ST2 146</b>	10	0.408
		A	<b>5ST2 147</b>	5	0.523
		A	<b>5ST2 148</b>	10	0.838
<b>Cu busbars 16 mm<sup>2</sup></b>					
With end caps					
	210	A	<b>5ST2 142</b>	25	0.102
		A	<b>5ST2 143</b>	10	0.154
		A	<b>5ST2 144</b>	10	0.231
		A	<b>5ST2 145</b>	10	0.315
Without end caps					
	1 000	A	<b>5ST2 151</b>	10	0.487
		A	<b>5ST2 152</b>	5	0.692
		A	<b>5ST2 153</b>	10	1.100
		A	<b>5ST2 154</b>	5	1.498
Without end caps Lug spacing acc. to the devices' busbar mounting; 1-pole, 2-pole, 3-pole with one auxiliary switch each					
	1 000	A	<b>5ST2 163</b>	5	0.460
		A	<b>5ST2 164</b>	5	0.900
		A	<b>5ST2 165</b>	10	1.490
<b>End caps</b>					
for lateral insulation of cut-to-length busbars					
		A	<b>5ST2 155</b>	10	0.013
		A	<b>5ST2 156</b>	10	0.017
<b>Connection terminals up to 35 mm<sup>2</sup> (stranded)</b>					
for top or bottom direct infeed into miniature circuit-breakers; side-by-side mounting possible					
		A	<b>5ST2 166</b>	10	0.020
		A	<b>5ST2 167</b>	10	0.020
<b>Connection terminal up to 35 mm<sup>2</sup> (stranded)</b>					
for direct infeed into miniature circuit-breakers, side-by-side mounting possible					
		A	<b>5ST2 157</b>	1	0.030

For application examples of busbars, please see page 2/29.

# BETA Miniature Circuit-Breakers

## Standard Product Range

### Accessories for 55 mm mounting depth



2

#### Area of application

##### 5ST2 18 busbar system

- Acc. to DIN 57606 and DIN 57659
- Load for one-side/central infeed:  
50 A/90 A for 10 mm<sup>2</sup>  
65 A/120 A for 16 mm<sup>2</sup>
- Fork-type connections
- Single and multi-phase
- Cu: 10 mm<sup>2</sup> and 16 mm<sup>2</sup>, fully insulated
- 17.8 mm lug spacing

#### Selection and ordering data

	Length mm	DC	Order No.	Pack. unit*	Weight per unit approx. kg
<b>Cu busbars 10 mm<sup>2</sup></b>					
	With end caps				
	1-phase	X	<b>5ST2 180</b>	50	0.060
	2-phase	X	<b>5ST2 181</b>	25	0.080
	3-phase	X	<b>5ST2 182</b>	25	0.110
	Without end caps				
	1-phase	X	<b>5ST2 183</b>	20	0.290
2-phase	X	<b>5ST2 184</b>	20	0.600	
3-phase	X	<b>5ST2 185</b>	20	0.820	
<b>Cu busbars 16 mm<sup>2</sup></b>					
	With end caps				
	1-phase	X	<b>5ST2 186</b>	50	0.090
	2-phase	X	<b>5ST2 187</b>	25	0.160
	3-phase	X	<b>5ST2 188</b>	25	0.230
	Without end caps				
	1-phase	X	<b>5ST2 190</b>	20	0.500
	2-phase	X	<b>5ST2 191</b>	20	0.710
	3-phase	X	<b>5ST2 192</b>	20	1.100
	Without end caps				
	Lug spacing acc. to the devices' busbar mounting; 1-pole, 2-pole, 3-pole with one auxiliary switch each				
1-phase + AS	X	<b>5ST2 193</b>	10	0.450	
2-phase + AS	X	<b>5ST2 194</b>	10	0.890	
3-phase + AS	X	<b>5ST2 195</b>	10	1.470	
<b>End caps</b>					
for 10 mm <sup>2</sup> Cu busbars, for use as lateral insulating end barrier with cut-to-length busbars					
1- and 2-phase		X	<b>5ST2 196</b>	10	0.001
3- and 4-phase		X	<b>5ST2 197</b>	10	0.001

For application examples of busbars, please see page 2/29

# BETA Miniature Circuit-Breakers

## Standard Product Range

Accessories  
for 55 mm mounting depth

2


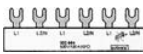
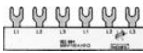
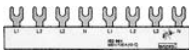




### Benefits

#### 5ST2 4 busbar system

- Acc. to IEC 60664, 500 V (40 °C), fully insulated
- Load for centered infeed: 1-phase up to 70 A, 2-phase to 4-phase up to 120 A.
- Fork-type connection: any length possible thanks to the combination of 3 fixed busbar lengths

- Favorable current and temperature conduction thanks to the overlapping of individual components
- Time-consuming work such as cutting, cutting to length, deburring, cleaning of cut surfaces as well as mounting of end caps is made unnecessary
- Safe touch protection for non-assigned connections.

### Selection and ordering data

	Number of circuits	DC	Order No.	Pack. unit*	Weight per unit approx. kg
<b>Cu busbars</b>					
	1-phase				
	2 x 1-phase	A	<b>5ST2 400</b>	20	0.006
	6 x 1-phase	A	<b>5ST2 401</b>	20	0.017
	12 x 1-phase	A	<b>5ST2 402</b>	20	0.033
	2 x (1-phase + AS/FC)	A	<b>5ST2 403</b>	20	0.008
	6 x (1-phase + AS/FC)	A	<b>5ST2 404</b>	20	0.024
	9 x (1-phase + AS/FC)	A	<b>5ST2 405</b>	20	0.036
	2-phase				
	2 x 2-phase	A	<b>5ST2 406</b>	10	0.011
	3 x 2-phase	A	<b>5ST2 407</b>	10	0.017
	6 x 2-phase	A	<b>5ST2 408</b>	10	0.033
	2 x (2-phase + AS/FC)	A	<b>5ST2 410</b>	10	0.023
	3 x (2-phase + AS/FC)	A	<b>5ST2 411</b>	10	0.034
	5 x (2-phase + AS/FC)	A	<b>5ST2 412</b>	10	0.056
	3-phase				
	2 x 3-phase	A	<b>5ST2 413</b>	10	0.037
	3 x 3-phase	A	<b>5ST2 414</b>	10	0.055
	4 x 3-phase	A	<b>5ST2 415</b>	10	0.086
	2 x (3-phase + AS/FC)	A	<b>5ST2 416</b>	10	0.057
4 x (3-phase + AS/FC)	A	<b>5ST2 417</b>	10	0.065	
	2 x (1-phase x (3 + AS/FC))	A	<b>5ST2 418</b>	10	0.057
	3 x (1-phase x (3 + AS/FC))	A	<b>5ST2 420</b>	10	0.086
	4-phase				
	2 x 4-phase	A	<b>5ST2 421</b>	5	0.046
	3 x 4-phase	A	<b>5ST2 422</b>	5	0.091
	2 x 3 x (1-phase + N)	A	<b>5ST2 423</b>	5	0.060
	3-phase, for a 5SM1 4-pole RCCB module with 8 miniature circuit-breakers				
	3/N + 8 connections	A	<b>5ST2 424</b>	5	0.091
	<b>Feeder terminal</b>	A	<b>5ST2 425</b>	10	0.024
	side-by-side mounting possible, for infeed into 35 mm <sup>2</sup> busbar system (stranded)				
	<b>Touch protection</b>	A	<b>5ST2 426</b>	10	0.004
	for unassigned connections, yellow (RAL 1004)				

\* This quantity or a multiple thereof can be ordered.








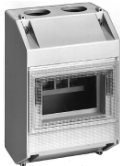
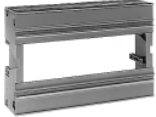
# BETA Miniature Circuit-Breakers

## Standard Product Range

### Accessories for 55 mm mounting depth

2

#### Selection and ordering data

	Length mm	DC	Order No.	Pack. unit*	Weight per unit approx. kg
<b>Mounting and covering components</b>					
	<b>Cable links</b> conductor cross-section: 6 mm <sup>2</sup> ; both ends equipped with end sleeves; 5SX miniature circuit-breakers				
	125	A	<b>5ST1 292</b>	50	0.008
	250	A	<b>5ST1 293</b>	50	0.017
	<b>Snap-on terminal</b> for 16 mm <sup>2</sup> 1-wire or 10 mm <sup>2</sup> stranded width: 0.5 MW				
		A	<b>5ST2 112</b>	50	0.008
	<b>Spacer</b> (contour of N-type, 0.5 MW miniature circuit-breakers)				
		A	<b>5ST2 122</b>	10	0.009
	<b>Packer</b> for height increase from 53 to 60 mm; snap-snap adapter; 1 MW				
		A	<b>5ST2 120</b>	10	0.002
	<b>Mounting components</b> 1 MW (sheet metal) 4 MW (plastic)				
		A	<b>5ST2 121</b>	10	0.017
		A	<b>5ST2 201</b>	20	0.012
	<b>Handle locking device</b> for N-type, 1-pole 5SX miniature circuit-breakers; for protection against unintended mechanical: on-switching (red part) off-switching (transparent part)				
		A	<b>5ST2 168</b>	10	0.007
		A	<b>5ST2 170</b>	10	0.007
	<b>Terminal covers, gray</b> For surface mounting; degree of protection IP40 with 35 mm standard mounting rail; sealable up to 2.5 MW up to 4.5 MW				
		A	<b>5SW3 004</b>	10	0.084
		A	<b>5SW3 005</b>	5	0.114
		A	<b>5SW3 006</b>	5	0.126
		A	<b>5SW3 007</b>	5	0.147
	<b>Molded-plastic enclosure</b> For surface mounting, IP54 with 35 mm standard mounting rail; sealable with transparent flap cover up to 4.5 MW				
		A	<b>5SW1 200</b>	1	0.500
	<b>Cover</b> Can be combined with miniature distribution board Sections are prepared for side-by-side mounting of standard label caps consisting of				
		A	<b>5ST2 134</b>	10	0.022
		A	<b>5ST2 135</b>	5	0.330
		A	<b>5ST2 136</b>	5	0.260