

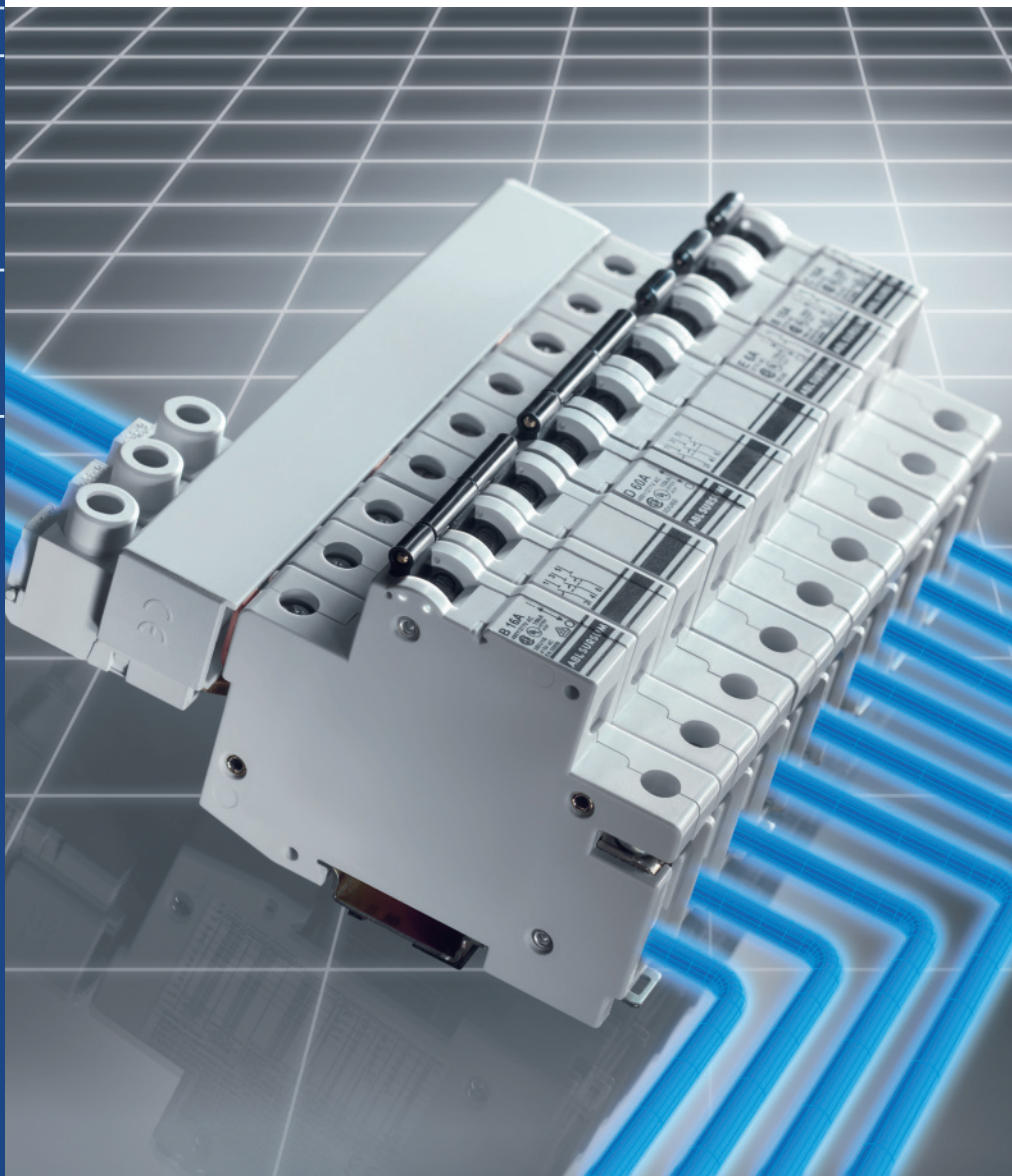
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B, C, D, E, G and Z Characteristic

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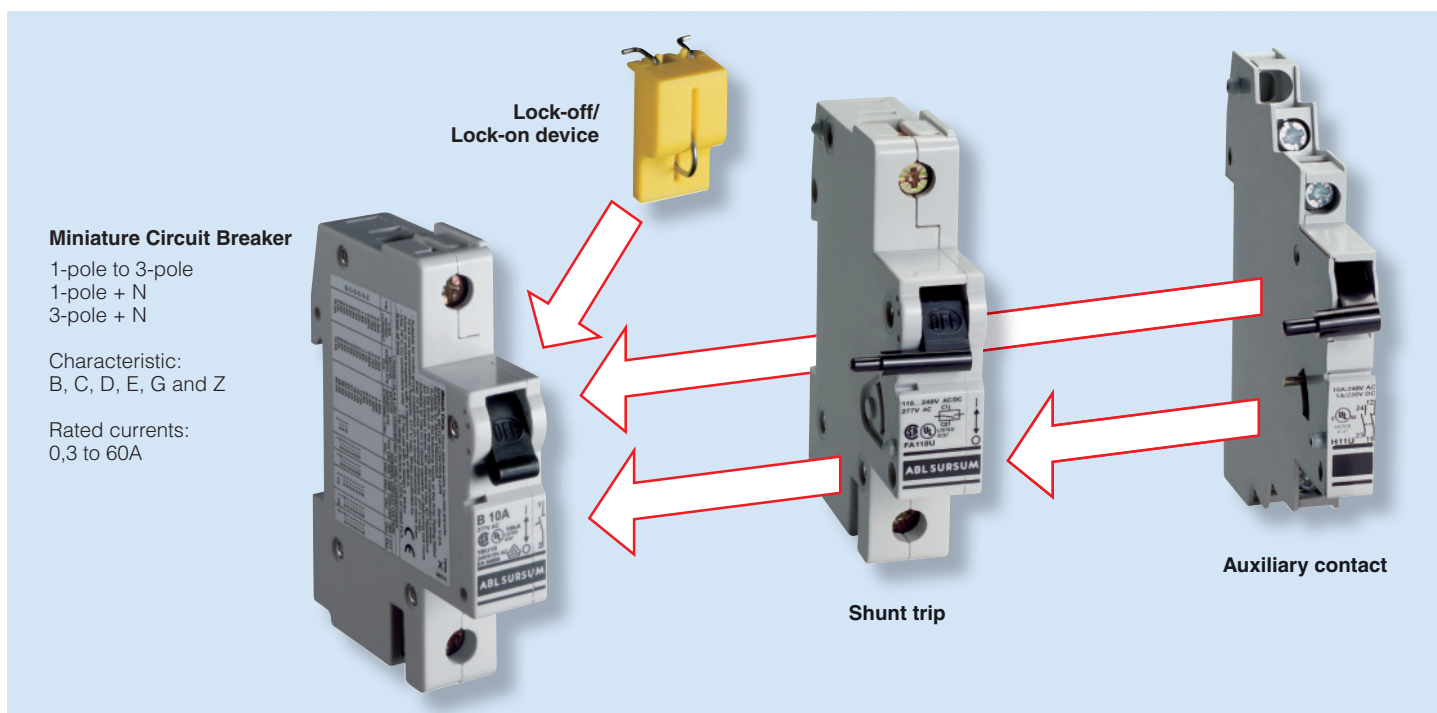
Miniature Circuit Breakers (MCBs) Manual Motor Controller according to UL 508 and CSA-22.2 No.14

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UL-approved accessories



Characteristic		B	C	D	E	G	Z
Application		Wiring protection	Wiring protection Device protection	Wiring protection Power circuits Transformers Motors	Wiring protection Power circuits Transformers Motors	Wiring protection Device protection	Wiring protection Semiconductor protection High impedance
Number of poles		1 - 3; 1 + N; 3 + N					
Standards		IEC 60898-1, DIN EN 60898-1, VDE 0641-11, UL 508, CSA-22.2 No.14					
Short circuit withstand rating		see data sheet for use in the USA, Canada and Europe					
Current limiting class		3	3				
Max. back-up fuse		see data sheet for use in the USA, Canada and Europe					
Rated AC voltage		277 / 480 V					
Rated DC voltage L/R = 4 ms		1-pole 42 V and 2-poles 80 V in serial connection of both poles (up to 25 A rated current)					
		1-pole 24 V and 2-poles 60 V in serial connection of both poles (30 A - 60 A rated current)					
Rated current range		6 - 60 A	0,3 - 60 A	0,3 - 60 A	0,3 - 60 A	0,3 - 60 A	0,3 - 32 A
Test currents	Thermal not tripping I ₁ (A) > 1 h	1,13 x I _N	1,13 x I _N	1,13 x I _N	1,05 x I _N	1,05 x I _N	1,05 x I _N
	Thermal tripping I ₂ (A) < 1 h	1,45 x I _N	1,45 x I _N	1,45 x I _N	1,35 x I _N	1,35 x I _N	1,35 x I _N
	Electromagnetic not tripping I ₃ (A) > 0,1 s	3 x I _N	5 x I _N	10 x I _N	14 x I _N	8 x I _N	2 x I _N
	Electromagnetic tripping I ₄ (A) < 0,1 s	5 x I _N	10 x I _N	16 x I _N	18 x I _N	10 x I _N	3 x I _N
Reference calibration temperature of the thermal tripping		30° C + 5° C			20° C + 5° C		
		Influence of the ambient temperature on the thermal release: Decrease of the current values with higher ambient temperature and increase with lower temperatures of approximately 5% per 10°C difference in temperature					
Frequency range of the electromagnetic trip		16 2/3 to 60 Hz With higher frequencies, the electromagnetic tripping values increase by approximately a factor of 1.1 at 100 Hz; 1.2 at 200 Hz; 1.3 at 300 Hz; 1.4 at 400 Hz; 1.5 for DC					
Ambient temperature		-25° C to +55° C					
Storage temperature		-40° C to +70° C					
Device depth according to DIN 43880		68 mm					
Mechanical endurance		20.000 switching cycles (20.000 ON / 20.000 OFF)					
Protection cover		Finger safe and safe to back of hand according to DIN EN 50274/ VDE0660-514, BGV A2					
Insulation group according to DIN/ VDE 0110		C at 250 V AC B at 400 V AC					
Degree of protection according to EN / IEC 60529		IP 20					
Installation position		any					
Mounting		DIN-rail according to DIN EN 60715 35 mm					
Lockability		The handle can be secured against manual switching in the on and off position by a lead seal					
Climatic resistance		Humid heat constant according to DIN EN 60068-2-78 Humid heat cycle according to DIN EN 60068-2-30					
Vibration resistance		> 15 g according to DIN EN 60068-2-59 during a load with I ₁					
Resistance to mechanical shocks		25g 11ms					

	Conductor cross sections			
	Box terminal bottom		Box terminal top	
Type of conductor	max.	min.	max.	min.
Single wire	35 mm ²	0,5 mm ²	25 mm ²	0,5 mm ²
Multiple wire	35 mm ²	(16 mm ²)	25 mm ²	(16 mm ²)
Stranded wire	25 mm ²	0,5 mm ²	16 mm ²	0,5 mm ²
Stranded wire with ferrule	16 mm ²	0,5 mm ²	16 mm ²	0,5 mm ²
Busbar cable lug	Up to 3 mm thickness		Up to 1,5 mm thickness	
Combined, connector and busbar or cable lug	Up to 35 mm ² and up to 2 mm thickness		Not possible	
Torque	max. 2 Nm			

Short circuit withstand rating and maximum back-up fuse for use in the USA and Canada

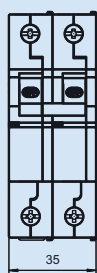
Characteristic	B; C; D; E; G and Z				
Standards	UL 508 and CSA-22.2 No.14				
	Number of poles	Maximum rated voltage V	Rated current A	Short circuit withstand rating kA	Maximum back-up fuse
Short circuit withstand rating at rated voltage Ambient temperature 40° C	1 / 1 + N	277	0,3 - 10	10	70 A
	1 / 1 + N	277	12 - 60	10	4 x I _n
	2 / 3 / 3 + N	480	0,3 - 10	10	70 A
	2 / 3 / 3 + N	480	12 - 60	10	4 x I _n
Back-up fuse for group installations	1 / 1 + N	277	0,3 - 10	10	800 A
	1 / 1 + N	277	12 - 60	5	800 A
	2 / 3 / 3 + N	480	0,3 - 10	10	800 A
	2 / 3 / 3 + N	480	12 - 60	5	800 A

Short circuit withstand rating and maximum back-up fuse for use in Europe

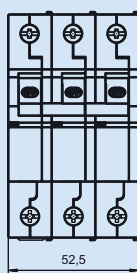
Characteristic	B; C; D; E; G and Z				
Standards	IEC 60947-2, DIN EN 60947-2, VDE 0660-101, UL 508 and CSA-22.2 No.14 B, C and D characteristic acc. to IEC 60898-1, DIN EN 60898-1, VDE 0641-11				
	Number of poles	Maximum rated voltage V	Rated current A	Short circuit withstand rating kA	Maximum back-up fuse A
Short circuit withstand rating at rated voltage	1 / 2 / 1 + N	277	0,3 - 60	10	160
	2 / 3 / 3 + N	480	0,3 - 60	10	160



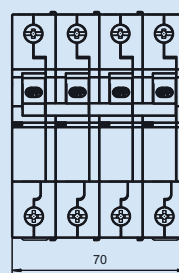
1-pole



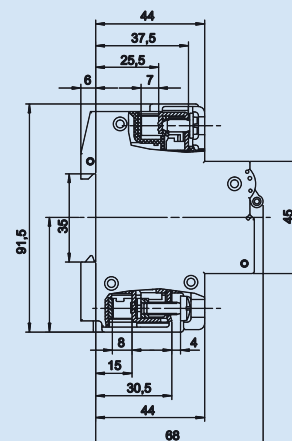
2-pole or
1-pole with
switched neutral

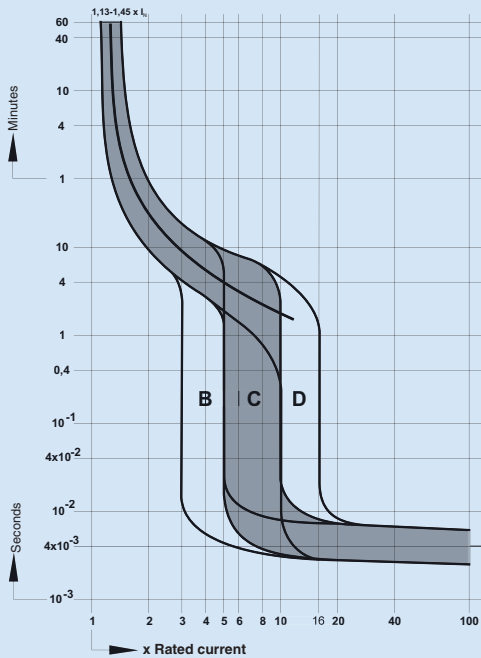


3-pole



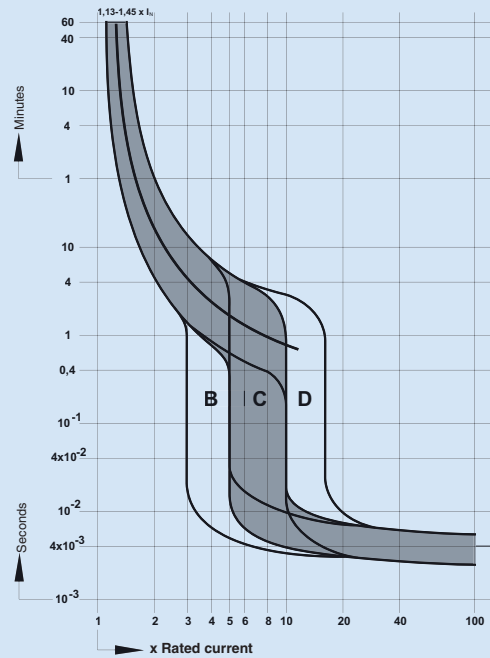
3-pole
with switched
neutral





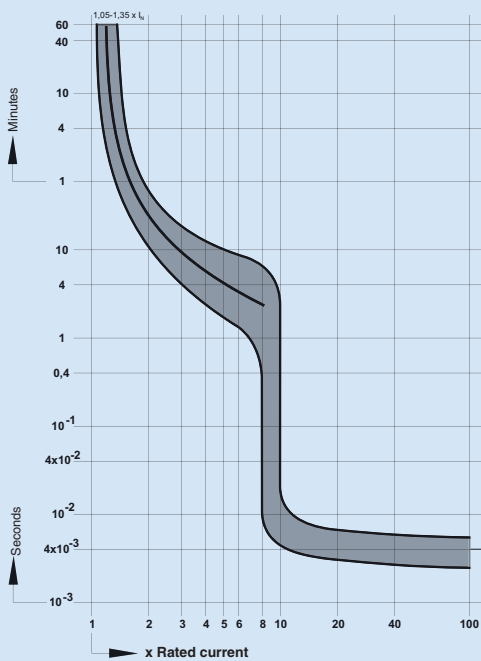
B, C and D characteristic
UL

$I_n = 0,3 - 10 \text{ A}$



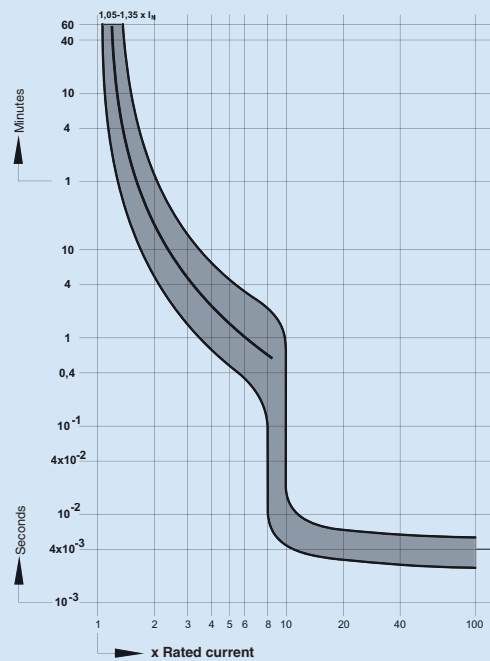
B, C and D characteristic
UL

$I_n = 13 - 60 \text{ A}$



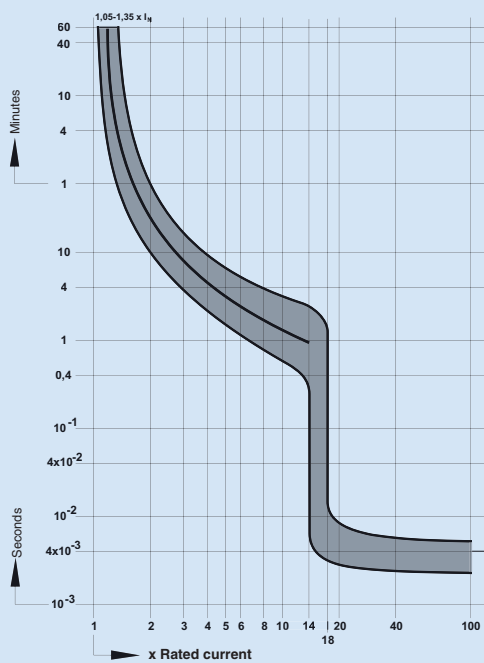
G characteristic
UL

$I_n = 0,3 - 10 \text{ A}$



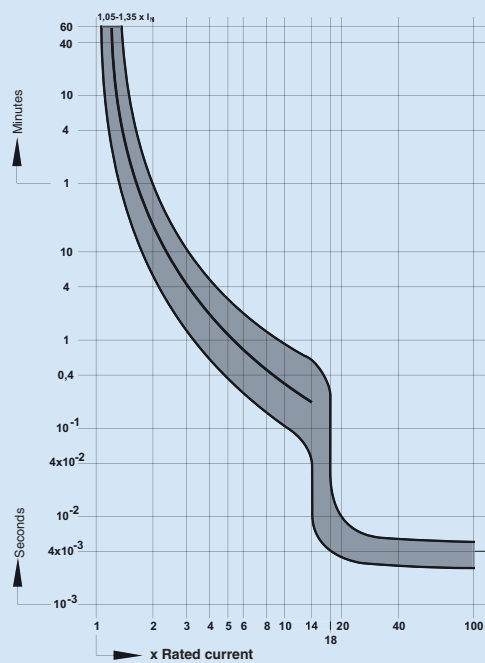
G characteristic
UL

$I_n = 12 - 60 \text{ A}$



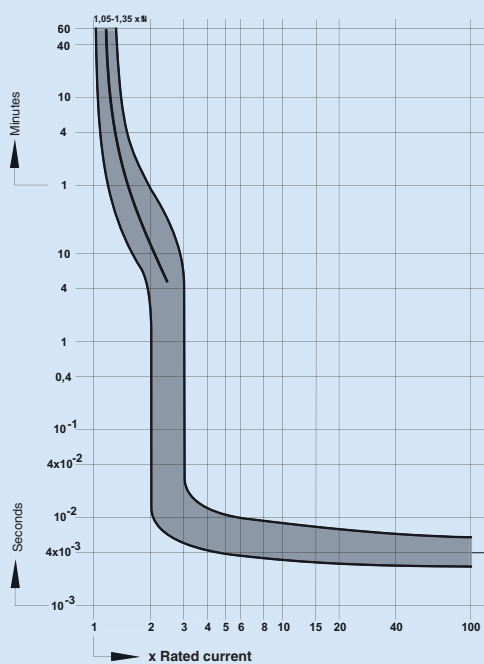
E characteristic
UL

$I_n = 0,3 - 10 \text{ A}$



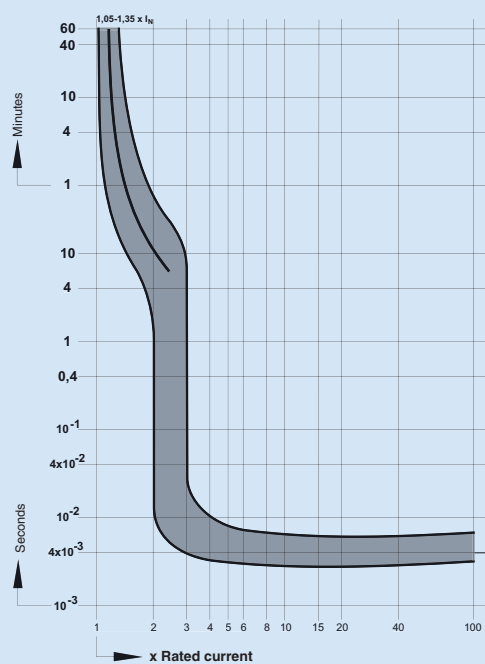
E characteristic
UL

$I_n = 12 - 50 \text{ A}$



Z characteristic
UL

$I_n = 0,3 - 10 \text{ A}$



Z characteristic
UL

$I_n = 12,5 - 32 \text{ A}$

This product range differentiates between:

- standard products for normal market applications (**shown in the table in bold**)
- exclusive products for branch-specific applications (shown in the table in normal print)



Rated current I _n A	Characteristic						Weight g/each	Packing unit
	B Article no.	C Article no.	D Article no.	G Article no.	E Article no.	Z Article no.		

1-pole

0,3		1CU03	1DU03	1GU03	1EU03	1ZU03	150	12
0,5		1CU05	1DU05	1GU05	1EU05	1ZU05	150	12
0,75		1CU075	1DU075	1GU075	1EU075	1ZU075	150	12
1		1CU1	1DU1	1GU1	1EU1	1ZU1	150	12
1,6		1CU1.6	1DU1.6	1GU1.6	1EU1.6	1ZU1.6	150	12
2		1CU2	1DU2	1GU2	1EU2	1ZU2	150	12
2,5		1CU2.5	1DU2.5	1GU2.5	1EU2.5	1ZU2.5	150	12
3		1CU3	1DU3	1GU3	1EU3	1ZU3	150	12
3,5		1CU3.5	1DU3.5	1GU3.5	1EU3.5	1ZU3.5	150	12
4		1CU4	1DU4	1GU4	1EU4	1ZU4	150	12
5		1CU5	1DU5	1GU5	1EU5	1ZU5	150	12
6	1BU6	1CU6	1DU6	1GU6	1EU6	1ZU6	150	12
8		1CU8	1DU8	1GU8	1EU8	1ZU8	150	12
10	1BU10	1CU10	1DU10	1GU10	1EU10	1ZU10	150	12
13	1BU13	1CU13	1DU13	1GU13	1EU13	1ZU13	150	12
15	1BU15	1CU15	1DU15	1GU15	1EU15	1ZU15	150	12
16	1BU16	1CU16	1DU16	1GU16	1EU16	1ZU16	150	12
20	1BU20	1CU20	1DU20	1GU20	1EU20	1ZU20	150	12
25	1BU25	1CU25	1DU25	1GU25	1EU25	1ZU25	150	12
32	1BU32	1CU32	1DU32	1GU32	1EU32	1ZU32	150	12
40	1BU40	1CU40	1DU40	1GU40	1EU40		150	12
50	1BU50	1CU50	1DU50	1GU50	1EU50		150	12
60	1BU60	1CU60	1DU60	1GU60	1EU60		150	12



1-pole with switched neutral

0,3		2CNU03	2DNU03	2GNU03	2ENU03	2ZNU03	300	6
0,5		2CNU05	2DNU05	2GNU05	2ENU05	2ZNU05	300	6
0,75		2CNU075	2DNU075	2GNU075	2ENU075	2ZNU075	300	6
1		2CNU1	2DNU1	2GNU1	2ENU1	2ZNU1	300	6
1,6		2CNU1.6	2DNU1.6	2GNU1.6	2ENU1.6	2ZNU1.6	300	6
2		2CNU2	2DNU2	2GNU2	2ENU2	2ZNU2	300	6
2,5		2CNU2.5	2DNU2.5	2GNU2.5	2ENU2.5	2ZNU2.5	300	6
3		2CNU3	2DNU3	2GNU3	2ENU3	2ZNU3	300	6
3,5		2CNU3.5	2DNU3.5	2GNU3.5	2ENU3.5	2ZNU3.5	300	6
4		2CNU4	2DNU4	2GNU4	2ENU4	2ZNU4	300	6
5		2CNU5	2DNU5	2GNU5	2ENU5	2ZNU5	300	6
6	2BNU6	2CNU6	2DNU6	2GNU6	2ENU6	2ZNU6	300	6
8		2CNU8	2DNU8	2GNU8	2ENU8	2ZNU8	300	6
10	2BNU10	2CNU10	2DNU10	2GNU10	2ENU10	2ZNU10	300	6
13	2BNU13	2CNU13	2DNU13	2GNU13	2ENU13	2ZNU13	300	6
15	2BNU15	2CNU15	2DNU15	2GNU15	2ENU15	2ZNU15	300	6
16	2BNU16	2CNU16	2DNU16	2GNU16	2ENU16	2ZNU16	300	6
20	2BNU20	2CNU20	2DNU20	2GNU20	2ENU20	2ZNU20	300	6
25	2BNU25	2CNU25	2DNU25	2GNU25	2ENU25	2ZNU25	300	6
32	2BNU32	2CNU32	2DNU32	2GNU32	2ENU32	2ZNU32	300	6
40	2BNU40	2CNU40	2DNU40	2GNU40	2ENU40		300	6
50	2BNU50	2CNU50	2DNU50	2GNU50	2ENU50		300	6
60	2BNU60	2CNU60	2DNU60	2GNU60	2ENU60		300	6

Miniature Circuit Breakers Manual Motor Controller

according to UL 508 and CSA-22.2 No.14
B, C and D also acc. to IEC 60898-1, DIN EN 60898-1, VDE 0641-11

This product range differentiates between:

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- exclusive products for branch-specific applications (shown in the table in normal print)



Rated current In A	B Article no.	C Article no.	Characteristic D		E	Z	Weight g/each	Packing unit
			Article no.	Article no.	Article no.	Article no.		
2-pole								
0,3		2CU03	2DU03	2GU03	2EU03	2ZU03	300	6
0,5		2CU05	2DU05	2GU05	2EU05	2ZU05	300	6
0,75		2CU075	2DU075	2GU075	2EU075	2ZU075	300	6
1		2CU1	2DU1	2GU1	2EU1	2ZU1	300	6
1,6		2CU1.6	2DU1.6	2GU1.6	2EU1.6	2ZU1.6	300	6
2		2CU2	2DU2	2GU2	2EU2	2ZU2	300	6
2,5		2CU2.5	2DU2.5	2GU2.5	2EU2.5	2ZU2.5	300	6
3		2CU3	2DU3	2GU3	2EU3	2ZU3	300	6
3,5		2CU3.5	2DU3.5	2GU3.5	2EU3.5	2ZU3.5	300	6
4		2CU4	2DU4	2GU4	2EU4	2ZU4	300	6
5		2CU5	2DU5	2GU5	2EU5	2ZU5	300	6
6	2BU6	2CU6	2DU6	2GU6	2EU6	2ZU6	300	6
8		2CU8	2DU8	2GU8	2EU8	2ZU8	300	6
10	2BU10	2CU10	2DU10	2GU10	2EU10	2ZU10	300	6
13	2BU13	2CU13	2DU13	2GU13	2EU13	2ZU13	300	6
15	2BU15	2CU15	2DU15	2GU15	2EU15	2ZU15	300	6
16	2BU16	2CU16	2DU16	2GU16	2EU16	2ZU16	300	6
20	2BU20	2CU20	2DU20	2GU20	2EU20	2ZU20	300	6
25	2BU25	2CU25	2DU25	2GU25	2EU25	2ZU25	300	6
32	2BU32	2CU32	2DU32	2GU32	2EU32	2ZU32	300	6
40	2BU40	2CU40	2DU40	2GU40	2EU40		300	6
50	2BU50	2CU50	2DU50	2GU50	2EU50		300	6
60	2BU60	2CU60	2DU60	2GU60	2EU60		300	6



3-pole								
0,3		3CU03	3DU03	3GU03	3EU03	3ZU03	450	4
0,5		3CU05	3DU05	3GU05	3EU05	3ZU05	450	4
0,75		3CU075	3DU075	3GU075	3EU075	3ZU075	450	4
1		3CU1	3DU1	3GU1	3EU1	3ZU1	450	4
1,6		3CU1.6	3DU1.6	3GU1.6	3EU1.6	3ZU1.6	450	4
2		3CU2	3DU2	3GU2	3EU2	3ZU2	450	4
2,5		3CU2.5	3DU2.5	3GU2.5	3EU2.5	3ZU2.5	450	4
3		3CU3	3DU3	3GU3	3EU3	3ZU3	450	4
3,5		3CU3.5	3DU3.5	3GU3.5	3EU3.5	3ZU3.5	450	4
4		3CU4	3DU4	3GU4	3EU4	3ZU4	450	4
5		3CU5	3DU5	3GU5	3EU5	3ZU5	450	4
6	3BU6	3CU6	3DU6	3GU6	3EU6	3ZU6	450	4
8		3CU8	3DU8	3GU8	3EU8	3ZU8	450	4
10	3BU10	3CU10	3DU10	3GU10	3EU10	3ZU10	450	4
13	3BU13	3CU13	3DU13	3GU13	3EU13	3ZU13	450	4
15	3BU15	3CU15	3DU15	3GU15	3EU15	3ZU15	450	4
16	3BU16	3CU16	3DU16	3GU16	3EU16	3ZU16	450	4
20	3BU20	3CU20	3DU20	3GU20	3EU20	3ZU20	450	4
25	3BU25	3CU25	3DU25	3GU25	3EU25	3ZU25	450	4
32	3BU32	3CU32	3DU32	3GU32	3EU32	3ZU32	450	4
40	3BU40	3CU40	3DU40	3GU40	3EU40		450	4
50	3BU50	3CU50	3DU50	3GU50	3EU50		450	4
60	3BU60	3CU60	3DU60	3GU60	3EU60		450	4

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according to UL 508 and CSA-22.2 No.14

B, C and D also acc. to IEC 60898-1, DIN EN 60898-1, VDE 0641-11

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Rated current I _n A	B	C	Characteristic		E	Z	Weight g/each	Packing unit
	Article no.	Article no.	D	G	Article no.	Article no.		

3-pole with switched neutral

0,3		4CNU03	4DNU03	4GNU03	4ENU03	4ZNU03	600	3
0,5		4CNU05	4DNU05	4GNU05	4ENU05	4ZNU05	600	3
0,75		4CNU075	4DNU075	4GNU075	4ENU075	4ZNU075	600	3
1		4CNU1	4DNU1	4GNU1	4ENU1	4ZNU1	600	3
1,6		4CNU1.6	4DNU1.6	4GNU1.6	4ENU1.6	4ZNU1.6	600	3
2		4CNU2	4DNU2	4GNU2	4ENU2	4ZNU2	600	3
2,5		4CNU2.5	4DNU2.5	4GNU2.5	4ENU2.5	4ZNU2.5	600	3
3		4CNU3	4DNU3	4GNU3	4ENU3	4ZNU3	600	3
3,5		4CNU3.5	4DNU3.5	4GNU3.5	4ENU3.5	4ZNU3.5	600	3
4		4CNU4	4DNU4	4GNU4	4ENU4	4ZNU4	600	3
5		4CNU5	4DNU5	4GNU5	4ENU5	4ZNU5	600	3
6	4BNU6	4CNU6	4DNU6	4GNU6	4ENU6	4ZNU6	600	3
8		4CNU8	4DNU8	4GNU8	4ENU8	4ZNU8	600	3
10	4BNU10	4CNU10	4DNU10	4GNU10	4ENU10	4ZNU10	600	3
13	4BNU13	4CNU13	4DNU13	4GNU13	4ENU13	4ZNU13	600	3
15	4BNU15	4CNU15	4DNU15	4GNU15	4ENU15	4ZNU15	600	3
16	4BNU16	4CNU16	4DNU16	4GNU16	4ENU16	4ZNU16	600	3
20	4BNU20	4CNU20	4DNU20	4GNU20	4ENU20	4ZNU20	600	3
25	4BNU25	4CNU25	4DNU25	4GNU25	4ENU25	4ZNU25	600	3
32	4BNU32	4CNU32	4DNU32	4GNU32	4ENU32	4ZNU32	600	3
40	4BNU40	4CNU40	4DNU40	4GNU40	4ENU40		600	3
50	4BNU50	4CNU50	4DNU50	4GNU50	4ENU50		600	3
60	4BNU60	4CNU60	4DNU60	4GNU60	4ENU60		600	3



Auxiliary contact

Module	Type of contact	Contacts	Article no.	Weight g/each	Packing unit
1/2	1 auxiliary contact	1NO	H10U	35	10
1/2	2 auxiliary contacts	1NO + 1NC	H11U	40	10
1/2	3 auxiliary contacts	1NO + 2NC	H12U	45	10
1/2	3 auxiliary contacts	2NO + 1NC	H21U	45	10



Standards	Acc. to IEC 60947-5-1, DIN EN 60947-5-1, VDE 0660-200, UL 508	
Rated operating currents	10 A / 240 V AC 3 A / 110 V DC 1 A / 220 V DC	
Minimum contact load	1mA at 24 V DC	
Conductor cross sections		
Type of conductor	min.	max.
Single wire	0,5 mm ²	2,5 mm ²
Stranded wire	0,5 mm ²	1,5 mm ²
Stranded wire with ferrule	0,5 mm ²	1,5 mm ²
Torque	max. 0,7 Nm	



Shunt trip

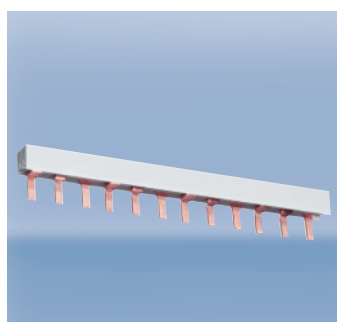
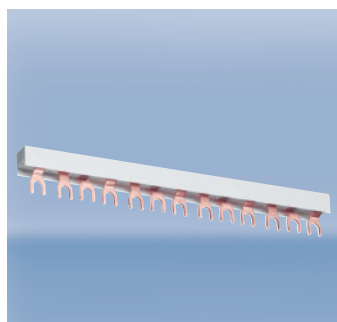
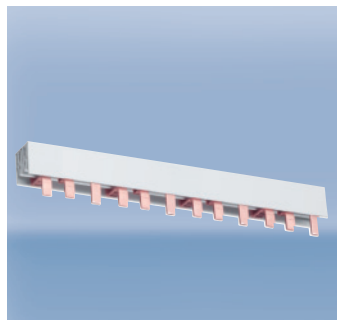
Module	Rated operating voltage	max. operating current at U _n (t < 10 ms)	Article no.	Weight g/each	Packing unit
1	12 V UC	1,3 A	FA12U	105	5
1	24 V UC	0,6 A	FA24U	105	5
1	48 - 74 V UC	0,2 A	FA48U	105	5
1	110 - 240 V UC, 415 V AC	0,25A at 110 V 0,5 A at 240 V 0,8 A at 415 V	FA110U	105	5



Lock-off/Lock-on device

Article no.	Weight g/each	Packing unit
EASS	2	10

Cross section (mm ²)	Busbar current Start of busbar/ Middle infeed	Modules/ Phases	Article no.	Weight g/each	Packing unit	Suitable end cap Article no.
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Busbars pin type acc. to UL and CSA

1-phase

18	80/130	57	SB.U1	300	1	
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1-phase 1-pole circuit breaker + auxiliary contact

18	80/130	37/1	SB.U1H	280	1	
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3-phase

18	80/130	19/3	SB.U3	800	1	SB.U8
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3-phase 3-pole circuit breaker + auxiliary contact

25	100/180	16/3	SB.U3H	1020	1	SB.U8
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Power feed terminals

6 - 35	115		AK.U1	35	1	
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Protection cover for busbars UL and CSA

18/25	115		SB.U9	0,6/3	1/5	
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Busbars fork type without UL and CSA approval

1-phase

20	90/150	57	SB120U	410	50	
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1-phase 1-pole circuit breaker + auxiliary contact

16	80/130	37/1	SD0124U	200	50	
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2-phase and 1-phase + N

16	80/130	28/2	SB216U	420	20	SB.A2
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3-phase

16	80/130	19/3	SB316U	700	20	SB.A2
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3-phase 1-pole circuit breaker + auxiliary contact

16	80/130	36/1	SD0316U	530	20	SB.A2
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4-phase and 3-phase + N

16	80/130	14/4	SB46116	870	15	SB.A3
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Busbars pin type without UL and CSA approval

3-phase

16	80/130	19/3	SB718U	500	20	SB.A2
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