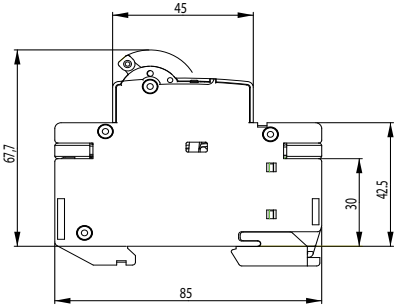
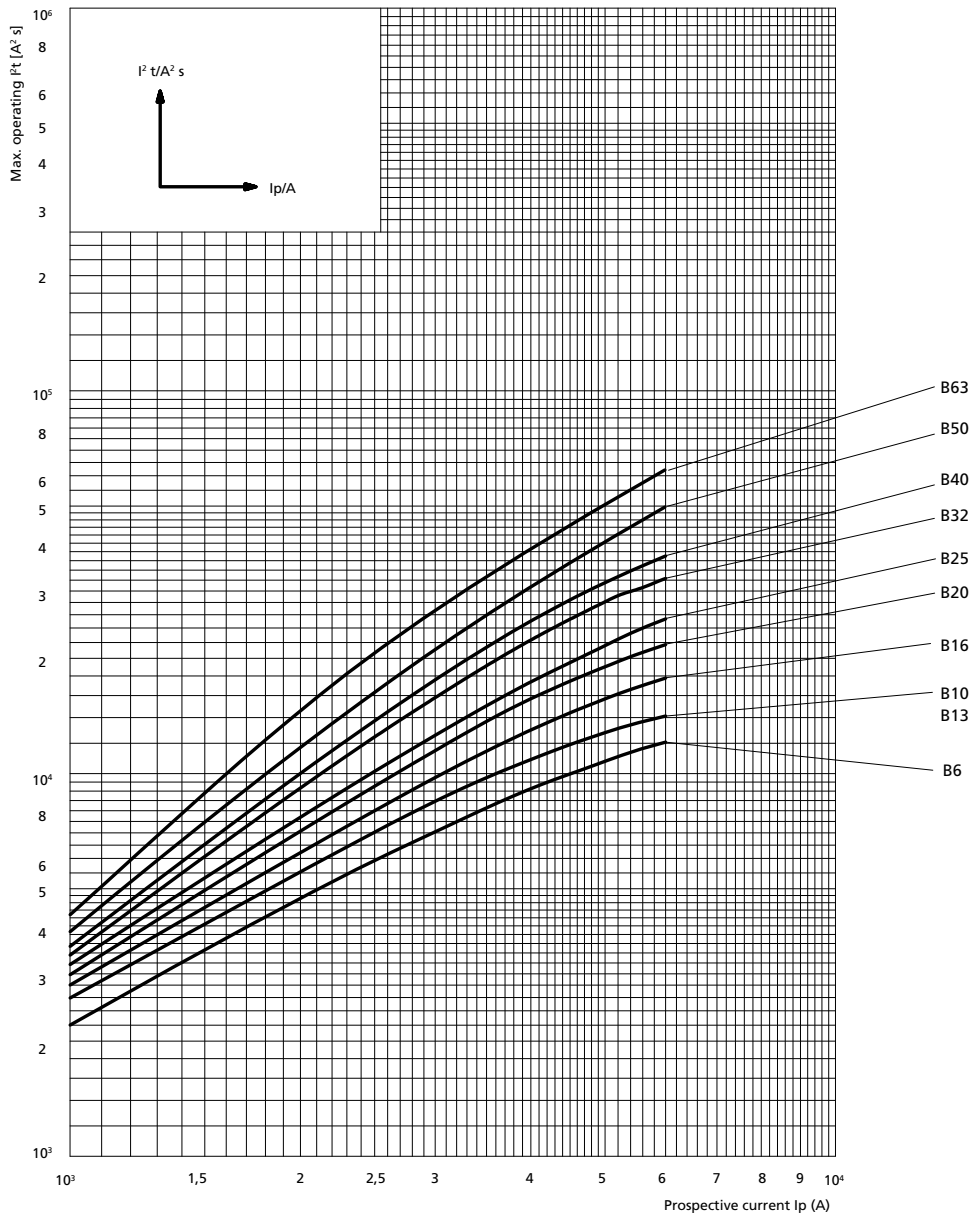


Miniature circuit breaker ETIMAT 6



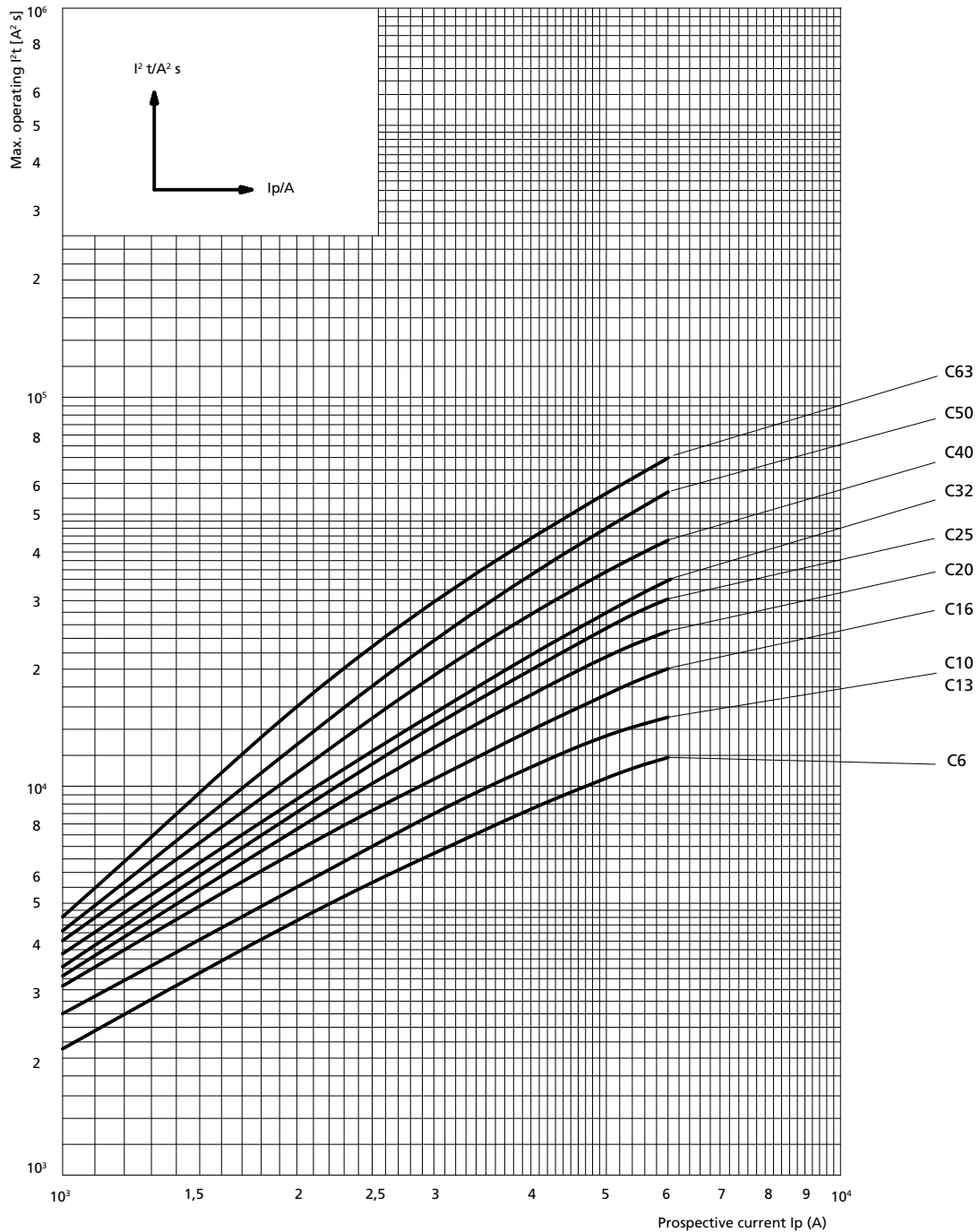
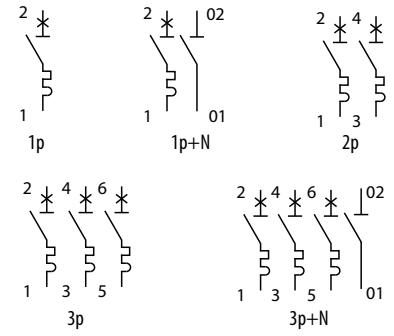
Technical data	
Rated voltage	230/400 V AC, max. 60 V DC / pole
Rated current	B:1-63A, C:0.5-63A, D:0.5-63A
Rated frequency	50/60 Hz
Rated short-circuit capacity	6 kA
Back-up fuse	100A gG
Energy limiting class	3; B, C
Tripping characteristic	B, C, D
Terminals	1 – 25 mm ² , max. 3 Nm
Terminal screw	M5 (Pozidrive PZ2)
Build-in width	18 mm/pol
Mounting on the rail	EN 60715 (EN 50022)
Busbar Thickness	0,8-2mm
Mounting position	any
Sealing possibility	ON / OFF
Electrical endurance (ops)	8.000
Mechanical endurance (ops)	20.000
Overvoltage category	III
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)
Standards	IEC 60898, EN 60898, IEC 60947-2



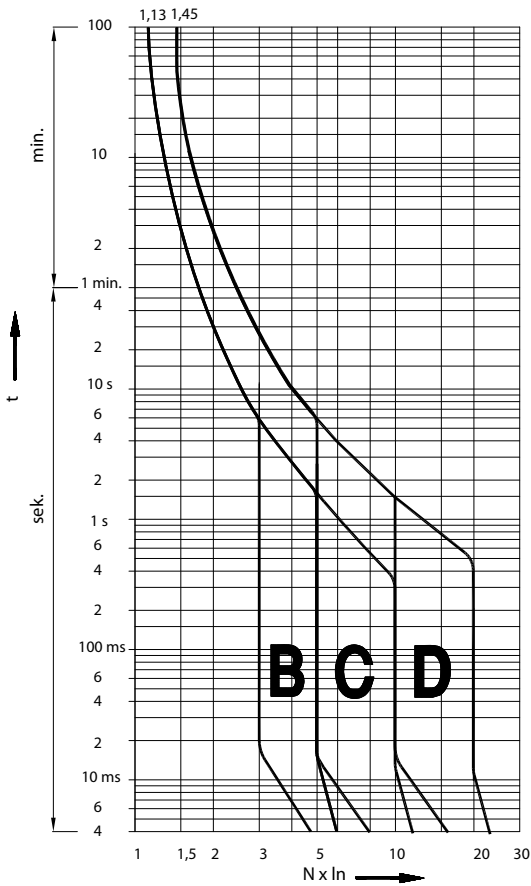
Technical data

Tripping characteristics

Characteristic	Test current	Tripping time	Result
B, C, D	$1,13 I_n$	$t \geq 3600 \text{ s}$	No tripping
B, C, D	$1,45 I_n$	$t < 3600 \text{ s}$	Tripping
B, C, D	$2,55 I_n$	$1 \text{ s} < t < 60 \text{ s}$	Tripping
B	$3,00 I_n$	$t \leq 0,1 \text{ s}$	No tripping
C	$5,00 I_n$	$t \leq 0,1 \text{ s}$	No tripping
D	$10,00 I_n$	$t \leq 0,1 \text{ s}$	No tripping
B	$5,00 I_n$	$t < 0,1 \text{ s}$	Tripping
C	$10,00 I_n$	$t < 0,1 \text{ s}$	Tripping
D	$20,00 I_n$	$t < 0,1 \text{ s}$	Tripping



I/t characteristic at 50 and 60Hz



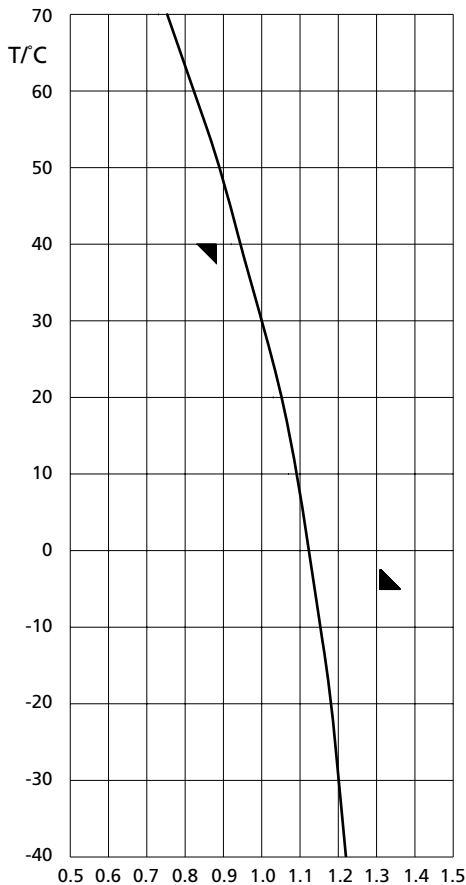
Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

Effect of the ambient temperature on the tripping characteristic



I _n [A]	Ambient temperature T/°C												
	-40	-30	-20	-10	0	10	20	30	40	50	60	70	
0,5	0,61	0,6	0,59	0,57	0,56	0,54	0,52	0,5	0,47	0,44	0,41	0,38	
1	1,22	1,2	1,18	1,15	1,12	1,09	1,05	1	0,94	0,88	0,82	0,75	
1,6	1,95	1,92	1,89	1,84	1,79	1,74	1,68	1,6	1,51	1,42	1,32	1,2	
2	2,44	2,4	2,36	2,30	2,24	2,18	2,1	2	1,88	1,77	1,65	1,5	
4	4,88	4,8	4,72	4,61	4,49	4,36	4,20	4	3,77	3,55	3,29	3	
6	7,32	7,2	7,09	6,91	6,73	6,54	6,31	6	5,66	5,33	4,94	4,5	
10	12,2	12	11,8	11,5	11,2	10,9	10,5	10	9,44	8,89	8,23	7,5	
13	15,9	15,6	15,4	14,9	14,5	14,1	13,6	13	12,2	11,5	10,7	9,75	
16	19,5	19,2	18,9	18,4	17,9	17,4	16,8	16	15,1	14,2	13,2	12	
20	24,4	24	23,6	23	22,4	21,8	21	20	18,8	17,7	16,5	15	
25	30,5	30	29,5	28,8	28	27,2	26,3	25	23,6	22,2	20,6	18,8	
32	39	38,4	37,8	36,9	35,9	34,9	33,6	32	30,2	28,4	26,3	24	
40	48,8	48	47,8	46,1	44,9	43,6	42	40	37,7	35,5	32,9	30	
50	61	60	59,1	57,6	56,1	54,5	52,6	50	47,2	44,4	41,2	37,5	
63	76,9	75,6	74,4	72,6	70,7	68,7	66,2	63	59,4	56	51,9	47,3	

Correction factor is valid for current with times over 30 s
 I(x°C) - test current at x ambient temperature
 I(30°C) - test current at 30°C ambient temperature

$$k = \frac{I(x^\circ\text{C})}{I(30^\circ\text{C})}$$

Technical data

Resistance and power loss

characteristic	I _n [A]	R/pole [mΩ]	P/pole [w]
C, D	0,5	4500	1,12
	1	1800	1,80
	1,6	450	1,15
	2	280	1,08
	4	110	1,70
B, C, D	6	29	1,08
	10	13	1,30
	13	11,6	2,00
	16	9,0	2,30
	20	5,3	2,00
	25	4,1	2,50
	32	2,6	2,70
	40	1,96	3,20
	50	1,5	4,00
	63	1,15	4,80

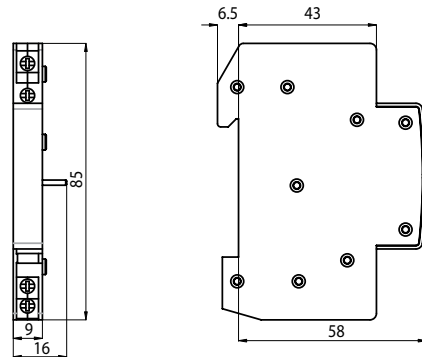
Selectivity

ETIMAT	gG NV											
	20	25	32	35	40	50	63	80	100	125	160	
B 6	0,5	0,78	1,2	1,4	1,7	2,4	4,6	6,0	6,0	6,0	6,0	
B 10/13	0,45	0,65	1,1	1,3	1,6	2,2	4,0	6,0	6,0	6,0	6,0	
B 16		0,55	1,0	1,2	1,5	2,0	3,6	5,5	6,0	6,0	6,0	
B 20			0,85	1,2	1,5	1,8	3,1	4,6	6,0	6,0	6,0	
B 25				1,1	1,4	1,7	2,9	4,0	6,0	6,0	6,0	
B 32					1,3	1,6	2,5	3,4	5,5	6,0	6,0	
B 40						1,5	2,2	3,1	4,9	6,0	6,0	
B 50							2,1	2,9	4,0	6,0	6,0	
B 63								2,5	3,3	5,1	6,0	

ETIMAT	gG NV											
	20	25	32	35	40	50	63	80	100	125	160	
C, D 6	0,52	0,82	1,3	1,5	2,0	2,7	5,1	6,0	6,0	6,0	6,0	
C, D 10/13	0,47	0,70	1,1	1,4	1,8	2,3	4,0	6,0	6,0	6,0	6,0	
C, D 16		0,61	0,92	1,2	1,5	1,9	3,2	5,0	6,0	6,0	6,0	
C, D 20			0,90	1,1	1,4	1,7	2,9	4,2	6,0	6,0	6,0	
C, D 25				1,0	1,3	1,6	2,7	3,9	6,0	6,0	6,0	
C, D 32					1,2	1,5	2,3	3,4	5,2	6,0	6,0	
C, D 40						1,4	2,1	3,0	4,6	6,0	6,0	
C, D 50							2,0	2,7	3,8	6,0	6,0	
C, D 63								2,3	3,2	5,5	6,0	

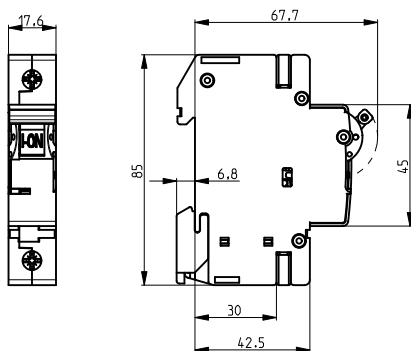
Auxiliary switch PS ETIMAT

Technical data	
Rated current	6A (230V AC), 1A (110V DC), 0,5A (220V DC)
Terminal	1-4mm ² , max 0,5Nm
Terminal screw	M3 (PH1)
Contact	1 xb-contact (NC) 1 xa-contact (NO)
Conditional short-circuit current	1 kA with fuse-link 20 A
Mounting position	any
Standard	EN-62019

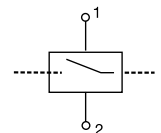


PS ETIMAT is an auxiliary switch only for ETIMAT 6.

Shunt trip release DA ETIMAT



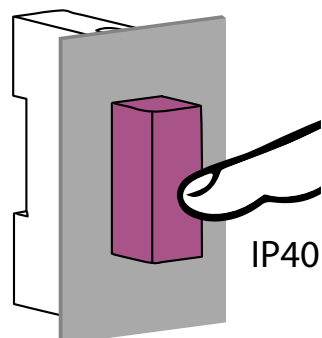
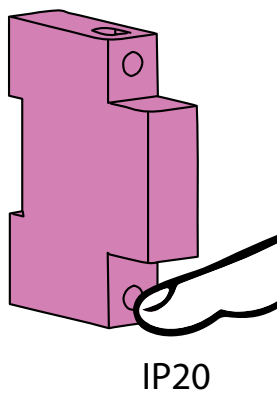
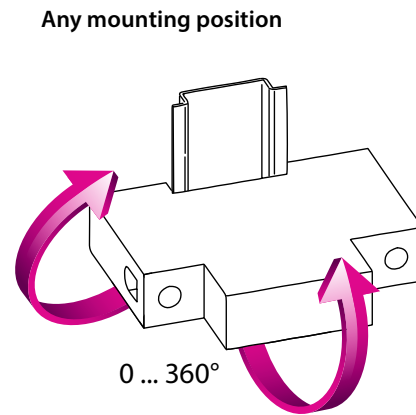
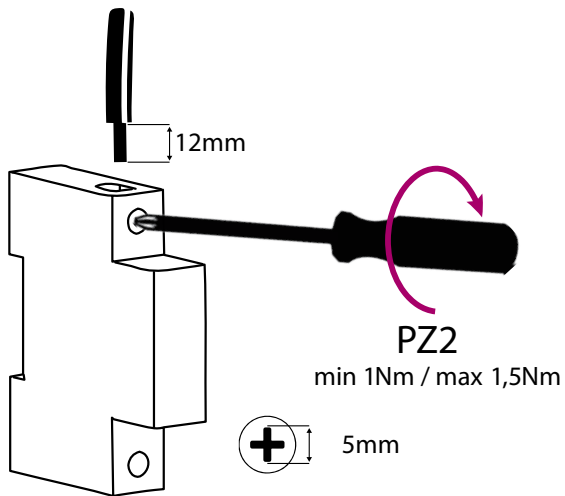
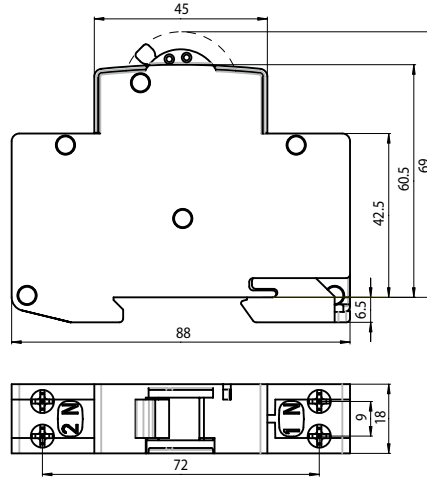
Technical data	
Nominal voltage	24V AC/DC, 48V AC/DC, 230V AC/DC
Rated frequency	50/60Hz
Max. inrush current	3,6 A
Terminals	1-25mm ² , max 3Nm
Terminal Screw	M5 (PoziDrive PZ2)
Build-in width	18mm
Mounting position	any
Mounting on the rail	EN 60715 (EN 50022)



DA ETIMAT is a shunt trip release only for ETIMAT 6.

Miniature circuit breaker ETIMAT 1N

Technical data	
Rated voltage U_n	230 V AC
Rated current I_n	6-32 A
Min. operating voltage	12V AC/DC
Max operating voltage	240V AC
Rated frequency f_n	50/60Hz
Rated short-circuit capacity	6.000 A
Back-up fuse	100 A gG
Tripping characteristics	B, C
Overvoltage category	III
Energy limiting class	3
Terminals	1-10mm ² , max. 1,5Nm
Terminal screw	M4 (Pozidrive PZ2)
Ambient temperature	-40°C ... +70°C
Storage temperature	-60°C ... +70°C
Build-in width	18mm
Mounting position	any
Supply possibility	top or bottom
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)
Standard	IEC 60898, EN 60898

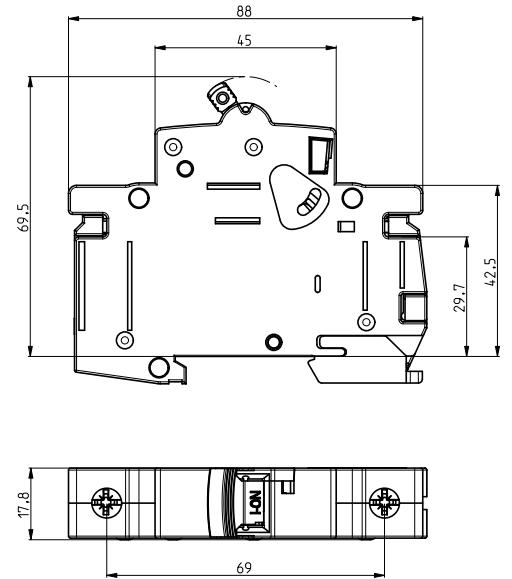


Technical data

Miniature circuit breaker ETIMAT P10

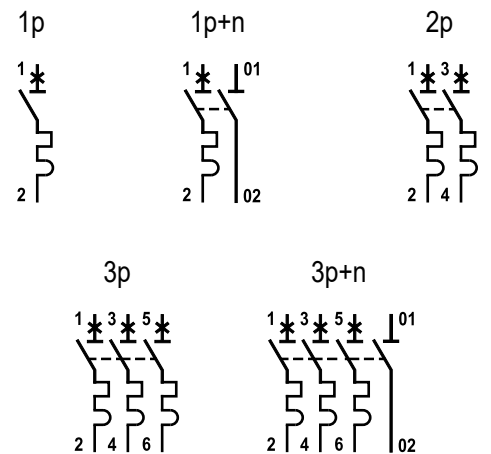
Technical data

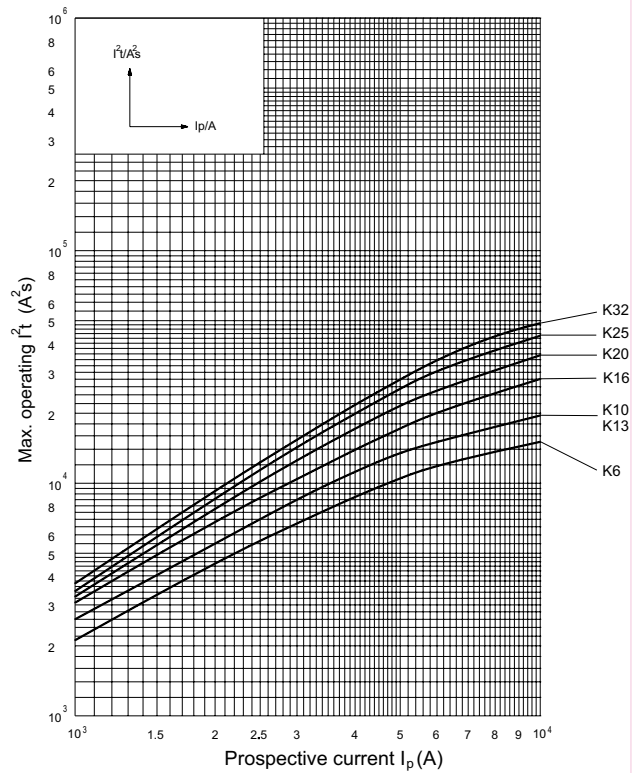
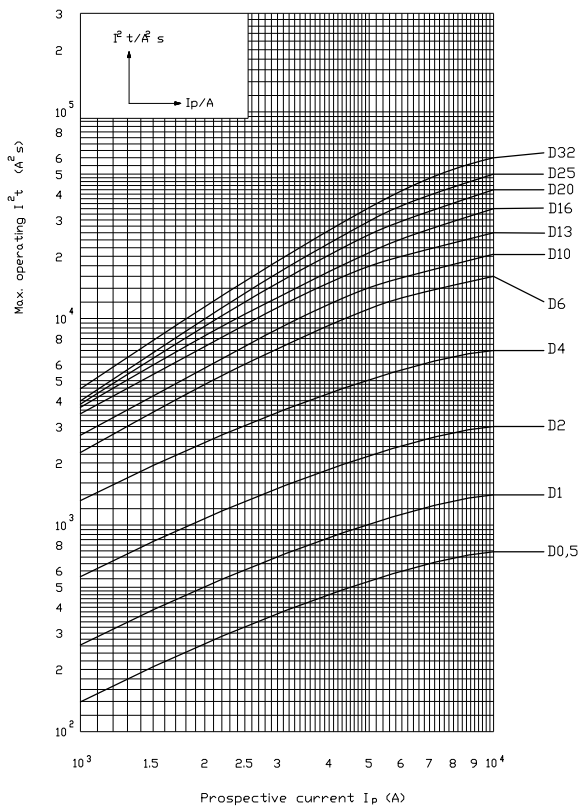
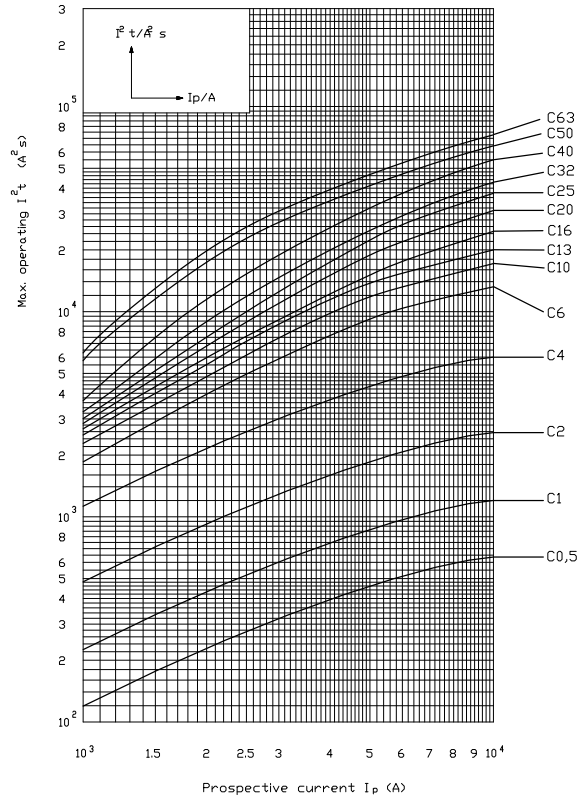
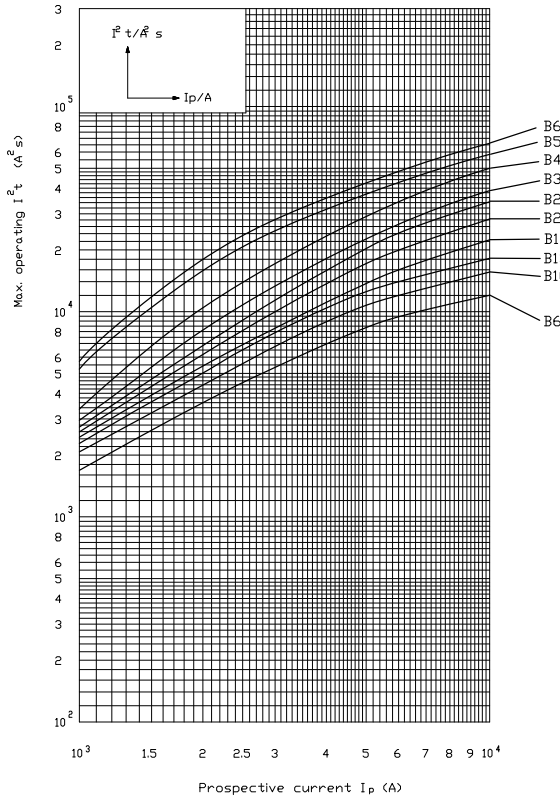
Rated voltage	230/400 V AC; max. 60 V DC / pole
Rated current	B:1-63A, C:0.5-63A, D:0.5-32A, K, Z:0.5-32A
Rated frequency	50/60Hz
Shock resistance	30g.min. 2 shocks, t = 13ms
Rated short-circuit capacity	10 kA
Energy limiting class	3; B,C
Tripping characteristic	B, C, D, K, Z
Back-up fuse	100A gG
Index of protection	IP 20 (IP 40)
Terminals	1-25mm ² , max. 2,5Nm
Terminal screw	M5 (Pozidrive PZ2)
Mechanical endurance	20000 op.c.
Electrical endurance	20000 op.c. (I _n ≤ 32A), 10000 op.c. (I _n > 32A)
Ambient temperature	max. -25°C ... +55°C
Storage temperature	max. -40°C ... +70°C
Supply possibility	top or bottom
Build-in width	18 mm/pol
Insulating class	B
Overvoltage category	III
Mounting on the rail	EN 60715
Mounting position	any
Sealing possibility	✓
Terminal cover	✓
Locking device	✓
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)
Standards	EN 60898, IEC 60898, IEC 60947-2



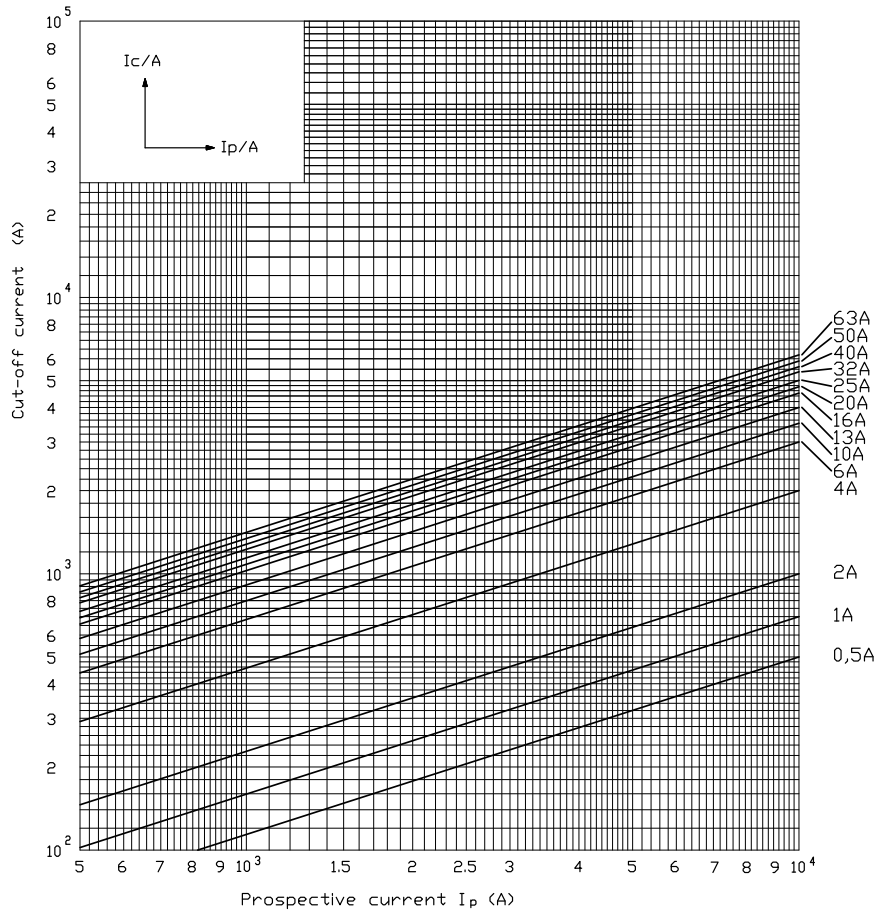
Tripping characteristics

Characteristic	Test current	Tripping time	Result
B, C, D	1,13 I _n	t ≥ 3600 s	No tripping
B, C, D	1,45 I _n	t < 3600 s	Tripping
B, C, D	2,55 I _n	1s < t < 60 s	Tripping
B	3,00 I _n	t ≤ 0,1 s	No tripping
C	5,00 I _n	t ≤ 0,1 s	No tripping
D	10,00 I _n	t ≤ 0,1 s	No tripping
B	5,00 I _n	t < 0,1 s	Tripping
C	10,00 I _n	t < 0,1 s	Tripping
D	20,00 I _n	t < 0,1 s	Tripping
K	1,05 I _n	t > 7200 s	No Tripping
K	1,20 I _n	t < 7200 s	Tripping
K	8,00 I _n	t ≤ 0,2 s	No Tripping
K	12,00 I _n	t < 0,2 s	Tripping
Z	2,00 I _n	t ≤ 0,2s	No Tripping
Z	3,00 I _n	t < 0,2s	Tripping

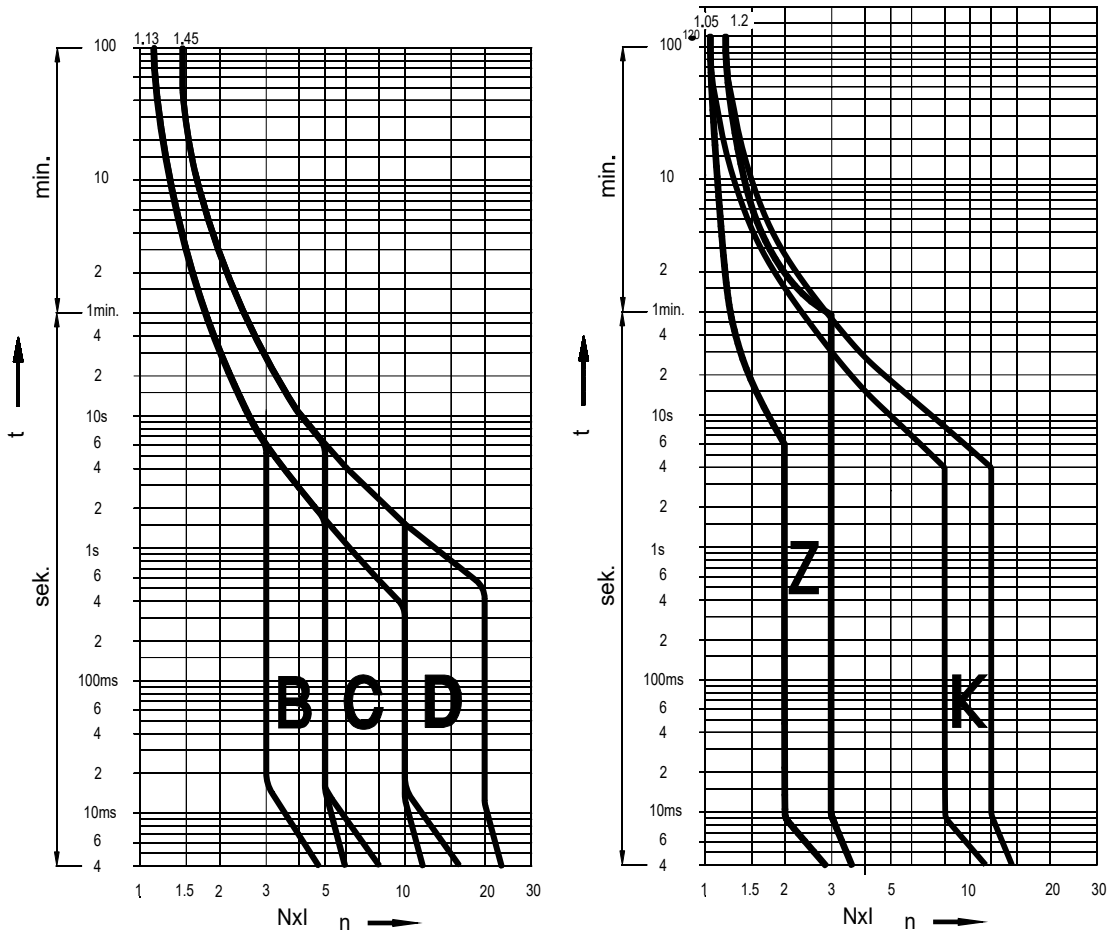




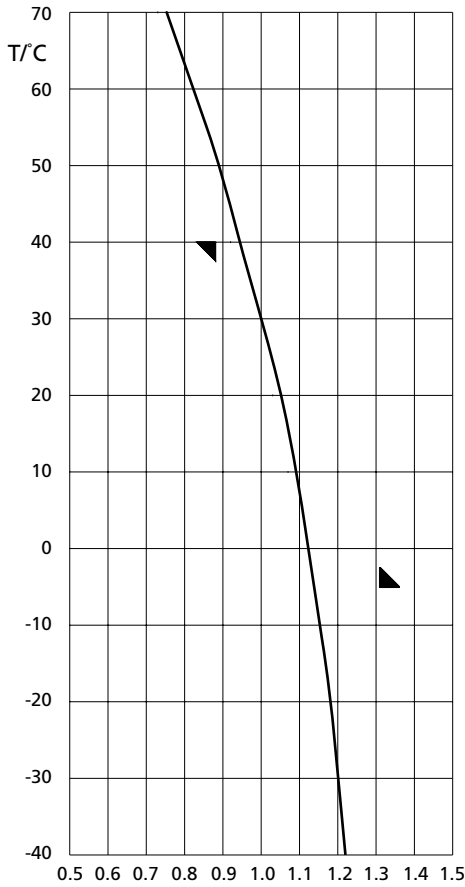
Technical data



I/t characteristic at 50 and 60Hz



Effect of the ambient temperature on the tripping characteristic



Correction factor is valid for current with times over 30 s
 $I(x^{\circ}C)$ - test current at x ambient temperature
 $I(30^{\circ}C)$ - test current at 30°C ambient temperature

$$k = \frac{I(x^{\circ}C)}{I(30^{\circ}C)}$$

I_n [A]	Ambient temperature T/°C											
	-40	-30	-20	-10	0	10	20	30	40	50	60	70
0,5	0,61	0,6	0,59	0,57	0,56	0,54	0,52	0,5	0,47	0,44	0,41	0,38
1	1,22	1,2	1,18	1,15	1,12	1,09	1,05	1	0,94	0,88	0,82	0,75
1,6	1,95	1,92	1,89	1,84	1,79	1,74	1,68	1,6	1,51	1,42	1,32	1,2
2	2,44	2,4	2,36	2,30	2,24	2,18	2,1	2	1,88	1,77	1,65	1,5
4	4,88	4,8	4,72	4,61	4,49	4,36	4,20	4	3,77	3,55	3,29	3
6	7,32	7,2	7,09	6,91	6,73	6,54	6,31	6	5,66	5,33	4,94	4,5
10	12,2	12	11,8	11,5	11,2	10,9	10,5	10	9,44	8,89	8,23	7,5
13	15,9	15,6	15,4	14,9	14,5	14,1	13,6	13	12,2	11,5	10,7	9,75
16	19,5	19,2	18,9	18,4	17,9	17,4	16,8	16	15,1	14,2	13,2	12
20	24,4	24	23,6	23	22,4	21,8	21	20	18,8	17,7	16,5	15
25	30,5	30	29,5	28,8	28	27,2	26,3	25	23,6	22,2	20,6	18,8
32	39	38,4	37,8	36,9	35,9	34,9	33,6	32	30,2	28,4	26,3	24
40	48,8	48	47,8	46,1	44,9	43,6	42	40	37,7	35,5	32,9	30
50	61	60	59,1	57,6	56,1	54,5	52,6	50	47,2	44,4	41,2	37,5
63	76,9	75,6	74,4	72,6	70,7	68,7	66,2	63	59,4	56	51,9	47,3

Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

Technical data

Resistance and power loss

characteristic	I _n [A]	R/pole [mΩ]	P/pole [w]
C, D, K, Z	0,5	5700	1,43
	1	1540	1,54
	2	365	1,46
	4	104	1,66
B, C, D, K, Z	6	47	1,68
	10	21	2,1
	13	13,1	2,21
	16	9,7	2,48
	20	6,8	2,70
	25	5,0	3,13
B, C	32	3,1	3,2
	40	2,4	3,80
	50	1,7	4,25
	63	1,23	4,90

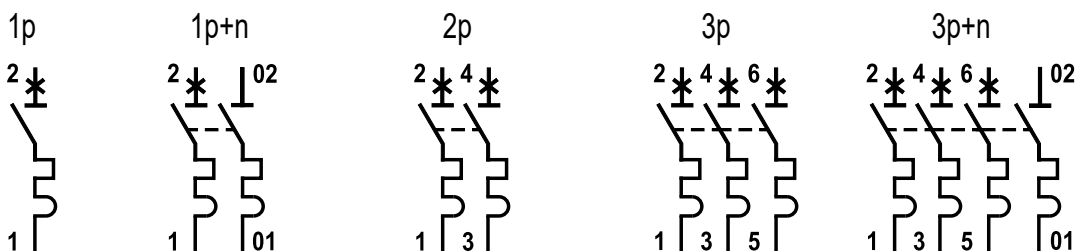
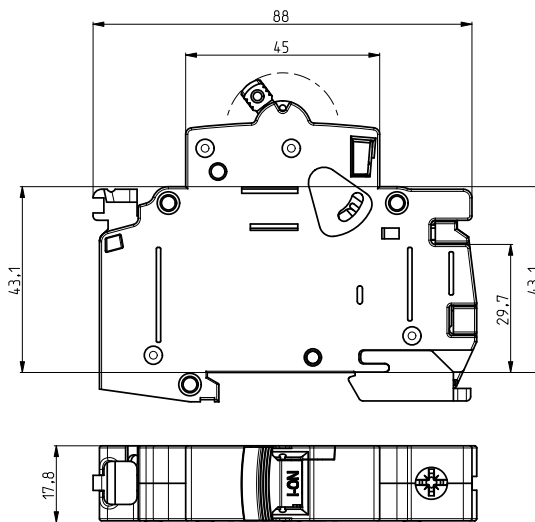
Selectivity

type	gG NV [kA]										
	20	25	32	35	40	50	63	80	100	125	160
B 6	0,5	0,78	1,2	1,4	1,7	2,4	4,6	7,0	10	10	10
B 10/13	0,45	0,65	1,1	1,3	1,6	2,2	4,0	6,5	10	10	10
B 16		0,55	1,0	1,2	1,5	2,0	3,6	5,5	9,5	10	10
B 20			0,85	1,2	1,5	1,8	3,1	4,6	9,0	10	10
B 25				1,1	1,4	1,7	2,9	4,0	8,0	10	10
B 32					1,3	1,6	2,5	3,4	5,5	9,0	10
B 40						1,5	2,2	3,1	4,9	8,0	10
B 50							2,1	2,9	4,0	6,2	10
B 63								2,5	3,3	5,1	8,0

type	gG NV [kA]										
	20	25	32	35	40	50	63	80	100	125	160
C,D,K,Z 6	0,52	0,82	1,3	1,5	2,0	2,7	5,1	9,0	10	10	10
C,D,K,Z 10/13	0,47	0,70	1,1	1,4	1,8	2,3	4,0	7,0	10	10	10
C,D,K,Z 16		0,61	0,92	1,2	1,5	1,9	3,2	5,0	9,0	10	10
C,D,K,Z 20			0,90	1,1	1,4	1,7	2,9	4,2	8,0	10	10
C,D,K,Z 25				1,0	1,3	1,6	2,7	3,9	6,0	10	10
C,D,K,Z 32					1,2	1,5	2,3	3,4	5,2	9,0	10
C 40						1,4	2,1	3,0	4,6	8,0	10
C 50							2,0	2,7	3,8	7,0	10
C 63								2,3	3,2	5,5	9,0

Miniature circuit breaker ETIMAT P10 QC (screwless terminal)

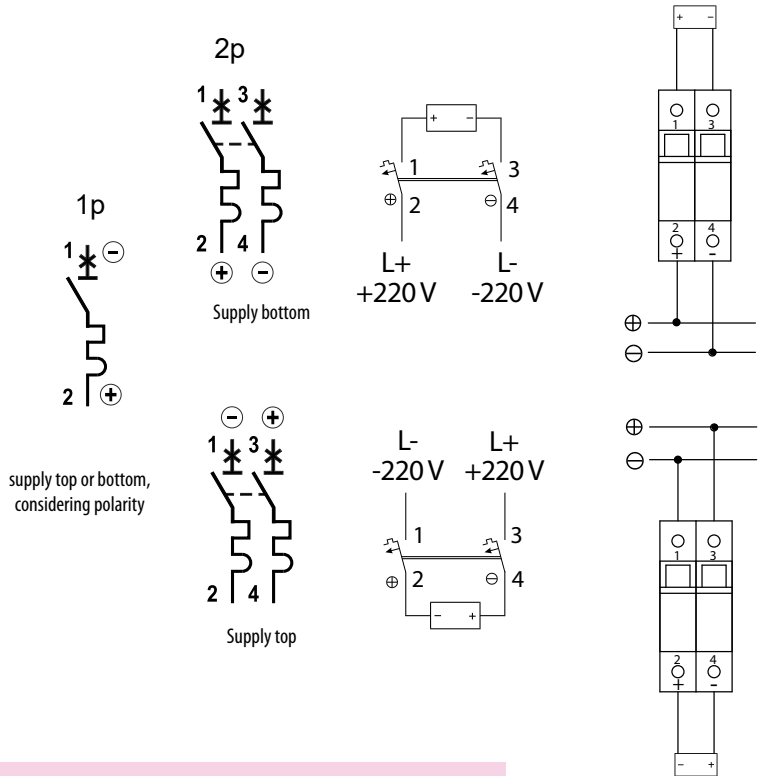
Technical data	
Rated voltage	230/400 V AC; max. 60 V DC / pole
Rated current	B:6-20A, C:0.5-20A, D:0.5-20A, K:0.5-20A
Rated frequency	50/60Hz
Shock resistance	30g.min. 2 shocks, t = 13ms
Rated short-circuit capacity	10 kA
Energy limiting class	3; B,C
Tripping characteristic	B, C, D, K
Back-up fuse	100A gG
Index of protection	IP 20 (IP 40)
Terminals	1-4mm ²
Mechanical endurance	20000 op.c.
Electrical endurance	20000 op.c.
Ambient temperature	max. -25°C to +55°C
Storage temperature	max. -40°C to +70°C
Build-in width	18 mm/pol
Insulating class	B
Mounting on the rail	EN 60715
Mounting position	any
Sealing possibility	✓
Terminal cover	✓
Locking device	✓
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)
Standards	EN 60898, IEC 60898, EN 60947-2



Technical data

Miniature circuit breaker ETIMAT P10 DC

Technical data	
Rated voltage - for 1-pole U_n - for 2-pole U_n	220 V DC 220 V /440 V DC
Rated time constant L/R	4 ms
Rated current I_n	0,5-32A (K & Z), 0,5-63A (C), 2-63A (B)
Rated short-circuit capacity	10 kA
Tripping characteristic	B, C, K, Z
Energy limiting class	3
Insulating class	B
Back-up fuse	100 A gG
Terminals	1-25mm ² , max. 2,5Nm
Terminal screw	M5 (Pozidrive PZ2)
Mounting position	any
Resistance to vibrations (IEC 60068-2-7)	5g (10,60 & 500Hz)
Standards	IEC 60898, EN 60898, DIN VDE 0641



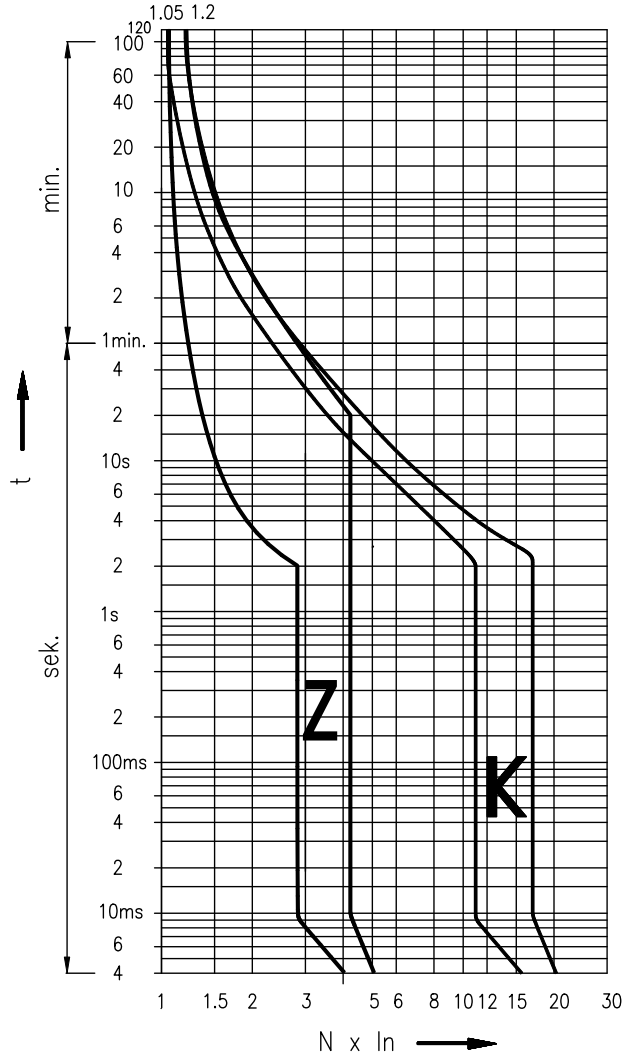
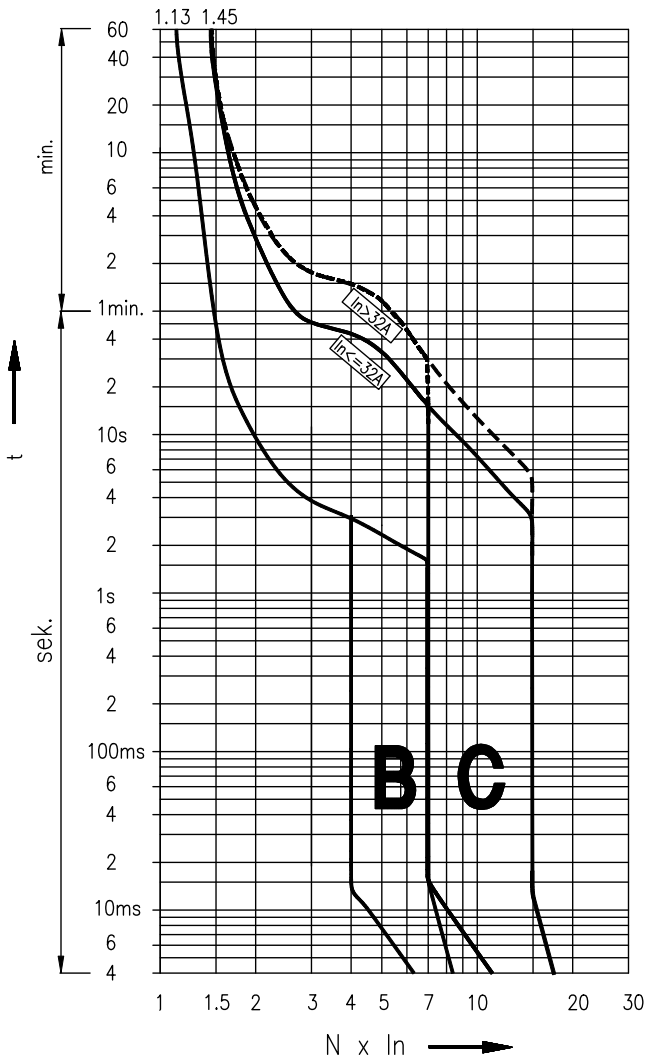
Connecting diagrams in direct current electric circuits				
Rated voltage of circuit breaker	220 V ---	220/440 V ---	220/440 V ---	220/440 V ---
Voltage between conductors - max.	220 V ---	440 V ---	440 V ---	440 V ---
Voltage between conductor and earth - max.	220 V ---	220 V ---	440 V ---	220 V ---
Circuit breaker	1-pole	2-pole	2-pole	2-pole
Connecting diagram				

Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

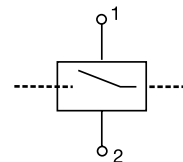
Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed



Shunt trip release DA ETIMAT P10

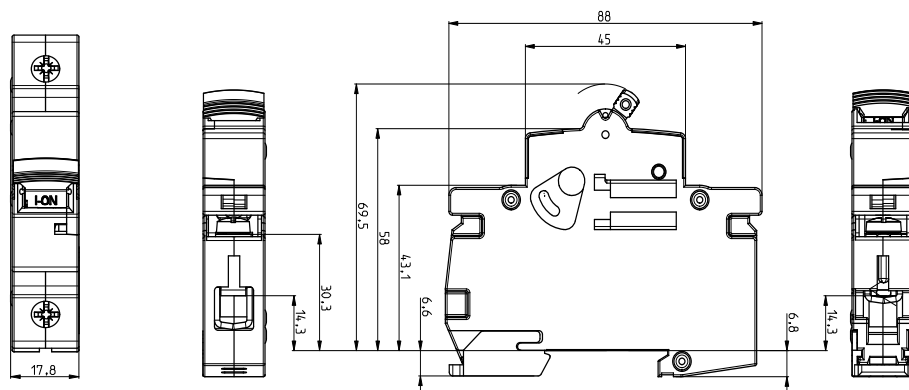
Technical data	
Rated voltage	12-60V AC/DC, 110-250V AC/DC
Rated frequency	50/60Hz, DC
Max inrush current	3A
Index of protection	IP 20 (IP 40)
Terminals	1-25mm ² , max. 2,5Nm
Ambient temperature	M5 (Pozidrive PZ2)
Terminal screw	max. 35°C
Storage temperature	max. -40°C ... +70°C
Mounting on the rail	EN 60715
Mounting position	any
Sealing possibility	✓
Terminal cover	✓
Locking device	✓

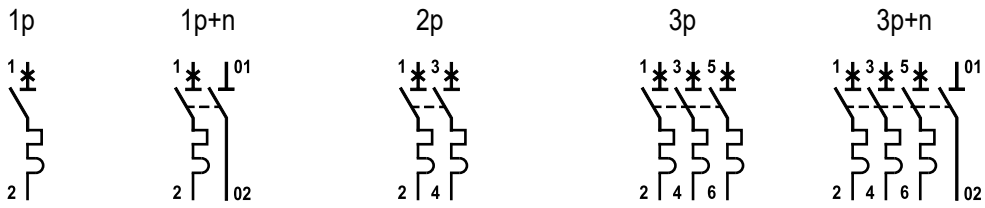


Note: Same dimensions as ETIMAT P10

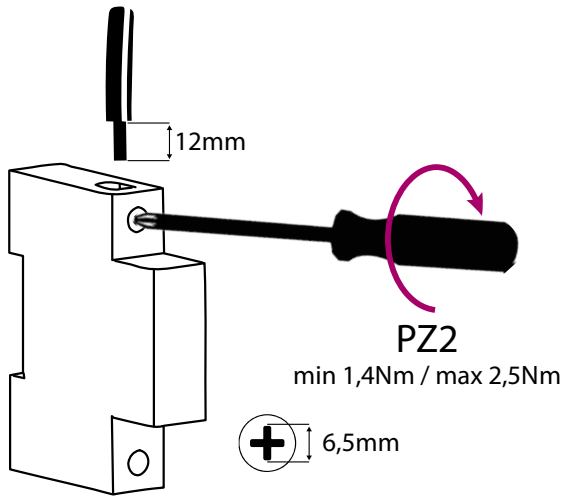
Miniature circuit breaker ETIMAT P6

Technical data	
Rated voltage	240/415V AC; max 60V DC/pol
Min. operating voltage	12V AC/DC
Max operating voltage	250/440V AC
Rated current	0,5-63A
Rated frequency	50/60Hz
Rated insulation voltage	500V
Rated impulse withstand voltage	6kV (acc. to 60947-2)
Shock resistance	30g, min 2 shocks, t=13ms
Rated short-circuit capacity	6 kA
Energy limiting class	3; B,C
Tripping characteristic	B, C, D
Back-up fuse	100A gG
Index of protection	IP 20 (IP 40)
Terminals	1-25mm ² , min 1,4Nm / max 2,5Nm
Terminal screw	M5 (Pozidrive PZ2)
Mechanical endurance	20.000 op. cycles
Electrical endurance	20.000 op. cycles
Ambient temperature	max -40°C ... +70°C
Storage temperature	max -60°C ... +70°C
Supply possibility	top or bottom
Build-in width	18mm/pol
Insulating class	B
Overvoltage category	III
Pollution degree	2
Mounting on the rail	EN 60715
Mounting position	any
Sealing possibility	✓
Terminal cover	✓
Contact position indicator	✓
Locking device	✓
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)
Standards	IEC/EN 60898-1, IEC 60947-2

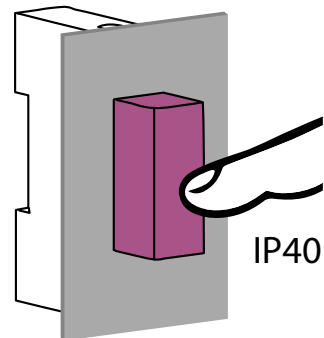
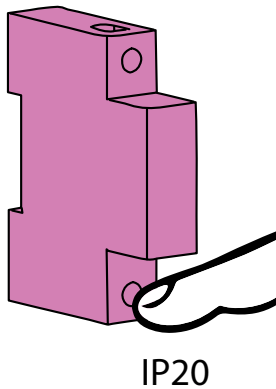
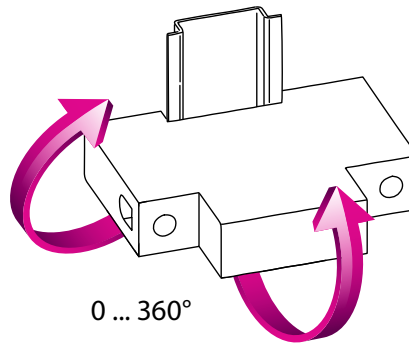




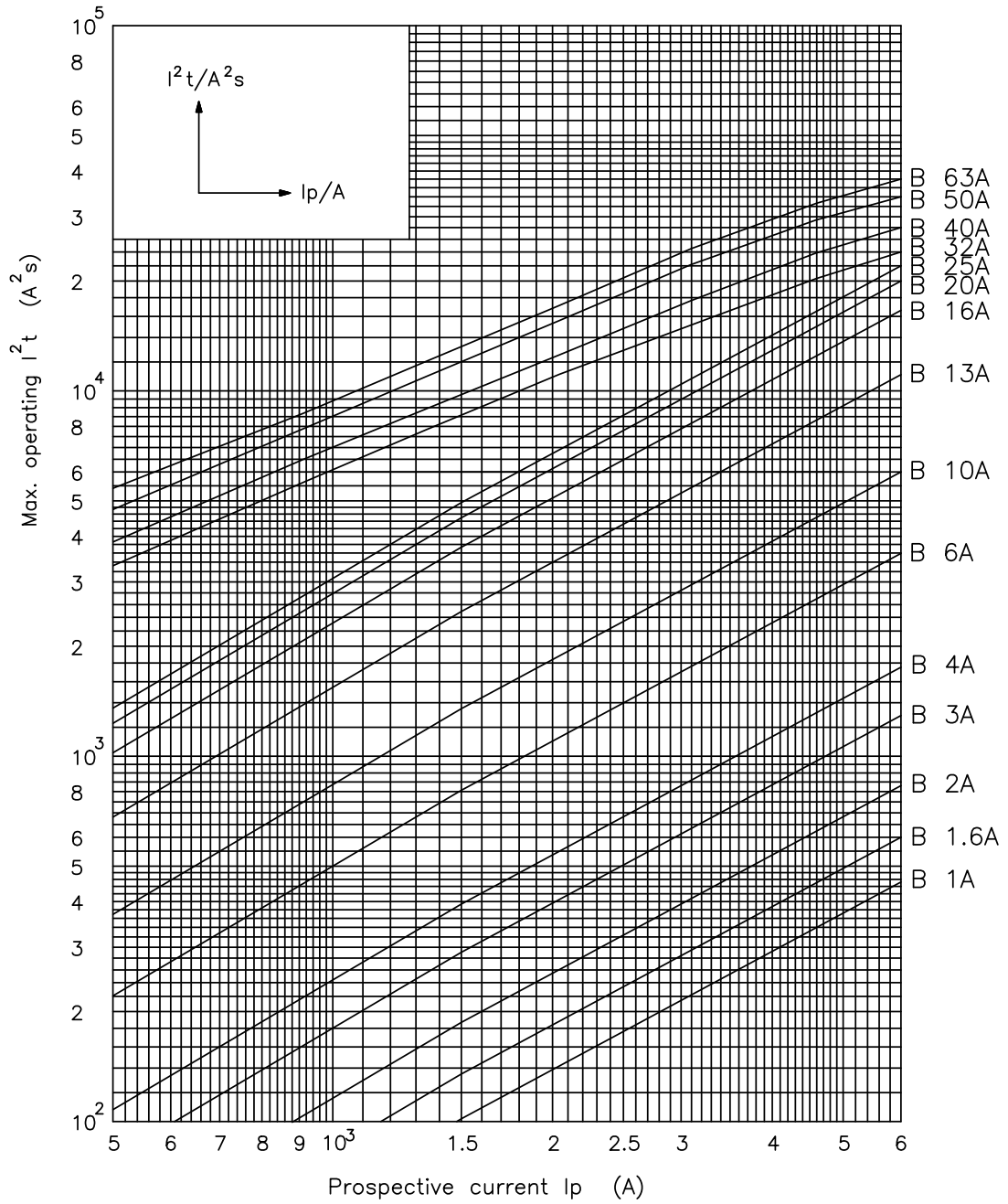
Tripping characteristics			
Characteristic	Test current	Tripping time	Result
B, C, D	$1,13 I_n$	$t \geq 3600 \text{ s}$	No tripping
B, C, D	$1,45 I_n$	$t < 3600 \text{ s}$	Tripping
B, C, D	$2,55 I_n$	$1 \text{ s} < t < 60 \text{ s}$	Tripping
B	$3,00 I_n$	$t \leq 0,1 \text{ s}$	No tripping
C	$5,00 I_n$	$t \leq 0,1 \text{ s}$	No tripping
D	$10,00 I_n$	$t \leq 0,1 \text{ s}$	No tripping
B	$5,00 I_n$	$t < 0,1 \text{ s}$	Tripping
C	$10,00 I_n$	$t < 0,1 \text{ s}$	Tripping
D	$20,00 I_n$	$t < 0,1 \text{ s}$	Tripping

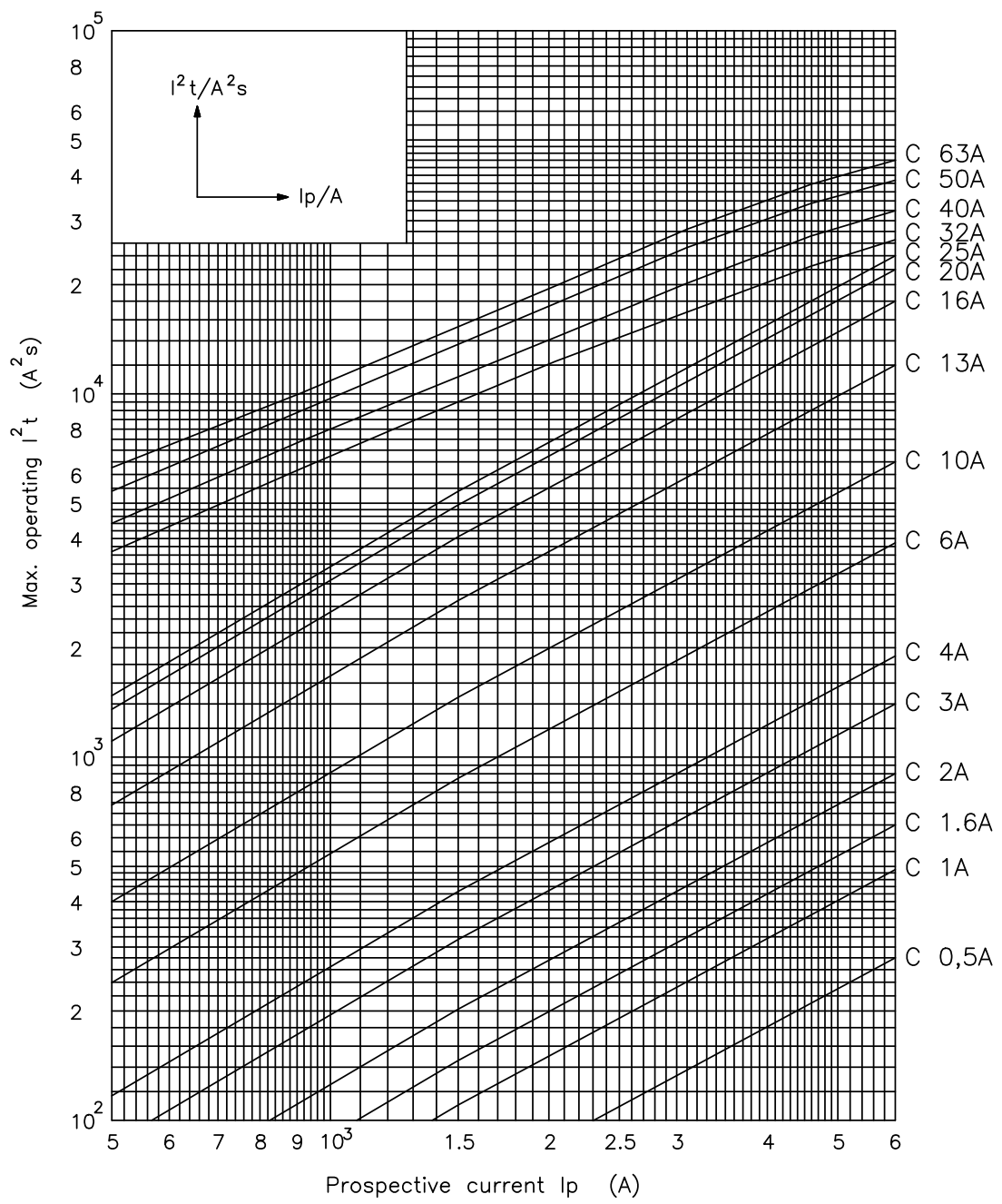


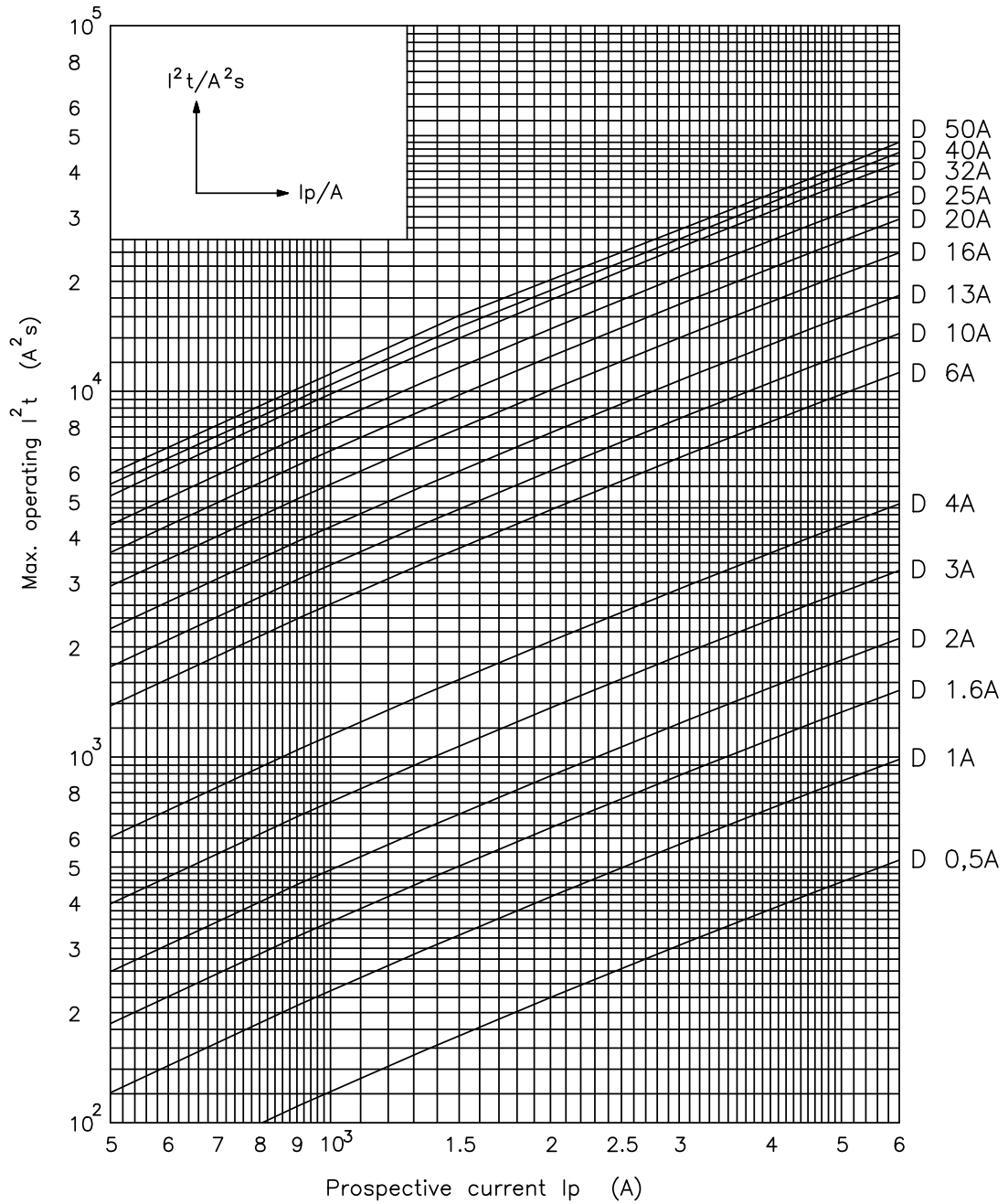
Any mounting position

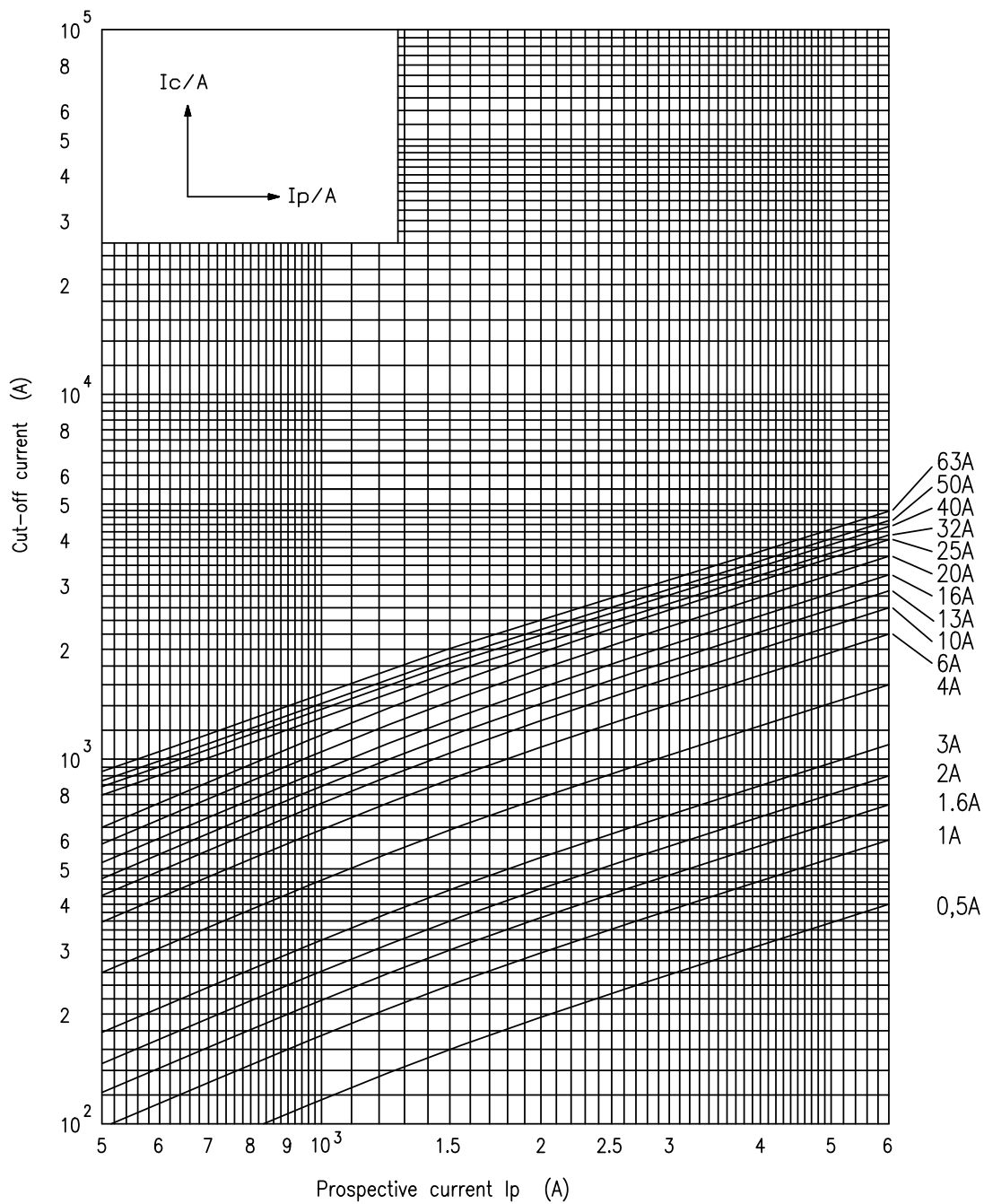


Technical data



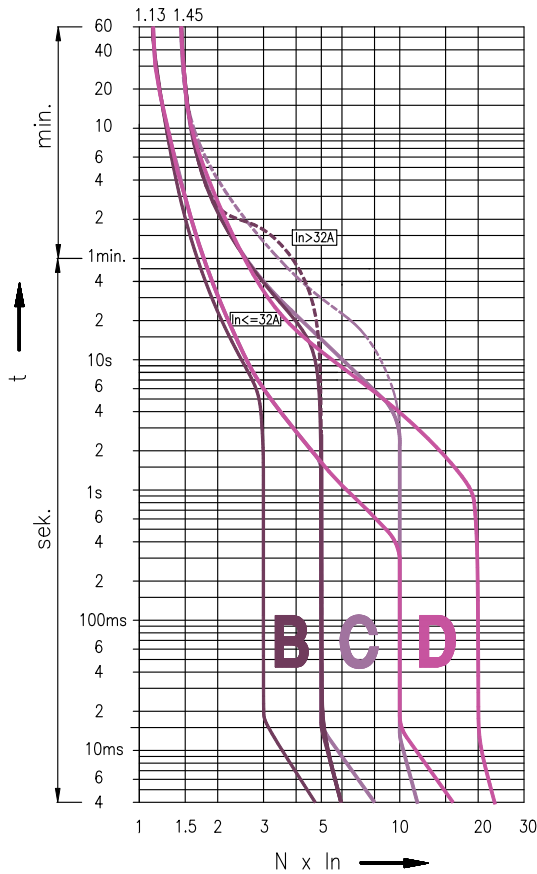






Technical data

I/t characteristic at 50 and 60Hz



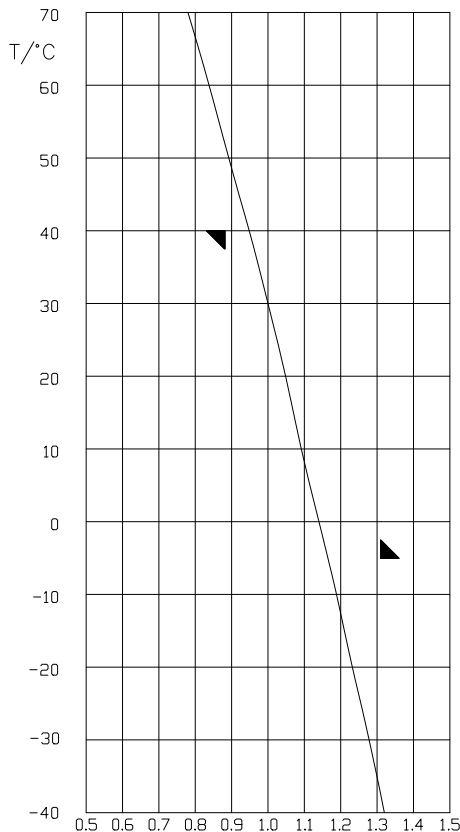
Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

Effect of the ambient temperature on the tripping characteristic



I_n (A)	Ambient temperature $T/^\circ\text{C}$											
	-40	-30	-20	-10	0	10	20	30	40	50	60	70
0,5	0,66	0,64	0,62	0,60	0,57	0,55	0,53	0,5	0,48	0,45	0,42	0,39
1	1,32	1,28	1,23	1,19	1,14	1,09	1,05	1	0,95	0,89	0,84	0,78
1,6	2,11	2,05	1,97	1,90	1,82	1,74	1,68	1,6	1,52	1,42	1,34	1,25
2	2,64	2,56	2,46	2,38	2,28	2,18	2,10	2	1,90	1,78	1,68	1,56
4	5,28	5,12	4,92	4,76	4,56	4,36	4,20	4	3,80	3,56	3,36	3,12
6	7,92	7,68	7,38	7,14	6,84	6,54	6,30	6	5,70	5,34	5,04	4,68
10	13,2	12,8	12,3	11,9	11,4	10,9	10,5	10	9,50	8,90	8,40	7,80
13	17,2	16,6	16,0	15,5	14,8	14,2	13,7	13	12,4	11,6	10,9	10,1
16	21,1	20,5	19,7	19,0	18,2	17,4	16,8	16	15,2	14,2	13,4	12,5
20	26,4	25,6	24,6	23,8	22,8	21,8	21,0	20	19,0	17,8	16,8	15,6
25	33,0	32,0	30,8	29,8	28,5	27,3	26,3	25	23,8	22,3	21,0	19,5
32	42,2	41,0	39,4	38,1	36,5	34,9	33,6	32	30,4	28,5	26,9	25,0
40	52,8	51,2	49,2	47,6	45,6	43,6	42,0	40	38,0	35,6	33,6	31,2
50	66,0	64,0	61,5	59,5	57,0	54,5	52,6	50	47,5	44,5	42,0	39,0
63	83,2	80,6	77,5	75,0	71,8	68,7	66,2	63	59,9	56,1	52,9	49,1

Correction factor is valid for current with times over 30 s
 $I(x^\circ\text{C})$ - test current at x ambient temperature
 $I(30^\circ\text{C})$ - test current at 30°C ambient temperature

$$k = \frac{I(x^\circ\text{C})}{I(30^\circ\text{C})}$$

Resistance and power dissipation

characteristic	I _n [A]	R/pole [mΩ]	P/pole [w]
B, C	0,5	3587	1,16
	1	935	1,21
	1,6	382	1,26
	2	264	1,37
	3	*	*
	4	69,6	1,38
	6	40,3	1,96
	10	16,9	2,00
	13	11,4	2,08
	16	8,17	2,26
	20	6,73	2,53
	25	5,03	2,96
	32	3,92	3,44
	40	*	*
	50	2,22	3,57
	63	1,71	4,59
D	0,5	*	*
	1	1183	1,55
	1,6	*	*
	2	303	1,58
	3	135	1,52
	4	81,8	1,66
	6	40,0	1,78
	10	17,3	1,57
	13	11,3	2,04
	16	8,59	2,31
	20	7,17	2,73
	25	4,77	2,91
	32	3,92	3,44
	40	*	*
50	*	*	
63	*	*	

Selectivity

ETIMAT	gG NV										
	20	25	32	35	40	50	63	80	100	125	160
B 6	0,5	0,78	1,2	1,4	1,7	2,4	4,6	6,0	6,0	6,0	6,0
B 10/13	0,45	0,65	1,1	1,3	1,6	2,2	4,0	6,0	6,0	6,0	6,0
B 16		0,55	1,0	1,2	1,5	2,0	3,6	5,5	6,0	6,0	6,0
B 20			0,85	1,2	1,5	1,8	3,1	4,6	6,0	6,0	6,0
B 25				1,1	1,4	1,7	2,9	4,0	6,0	6,0	6,0
B 32					1,3	1,6	2,5	3,4	5,5	6,0	6,0
B 40						1,5	2,2	3,1	4,9	6,0	6,0
B 50							2,1	2,9	4,0	6,0	6,0
B 63								2,5	3,3	5,1	6,0

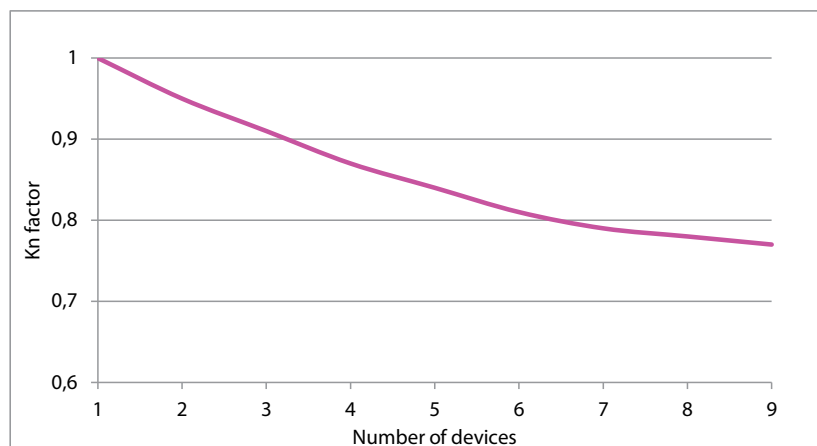
ETIMAT	gG NV										
	20	25	32	35	40	50	63	80	100	125	160
C,D 6	0,52	0,82	1,3	1,5	2,0	2,7	5,1	6,0	6,0	6,0	6,0
C,D 10/13	0,47	0,70	1,1	1,4	1,8	2,3	4,0	6,0	6,0	6,0	6,0
C,D 16		0,61	0,92	1,2	1,5	1,9	3,2	5,0	6,0	6,0	6,0
C,D 20			0,90	1,1	1,4	1,7	2,9	4,2	6,0	6,0	6,0
C,D 25				1,0	1,3	1,6	2,7	3,9	6,0	6,0	6,0
C,D 32					1,2	1,5	2,3	3,4	5,2	6,0	6,0
C,D 40						1,4	2,1	3,0	4,6	6,0	6,0
C,D 50							2,0	2,7	3,8	6,0	6,0
C,D 63								2,3	3,2	5,5	6,0

R: measured at 0.1*I_n
P: measured at I_n

Effect of number of poles on the tripping characteristic ETIMAT P6

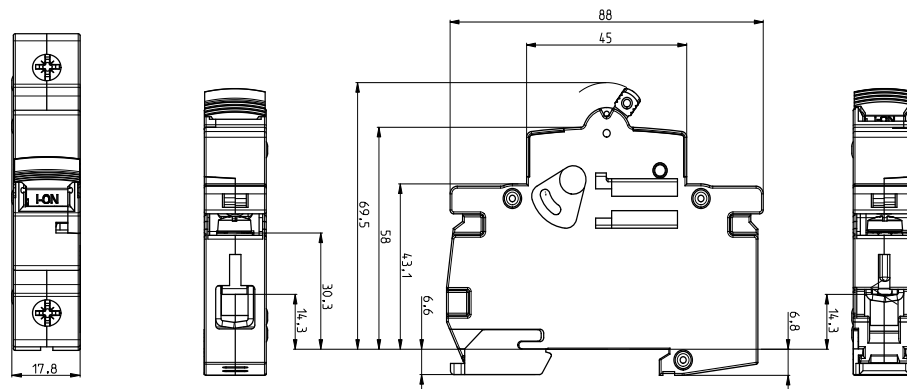
Correction factor K_n

Number of devices	Kn
1	1
2	0,95
3	0,91
4	0,87
5	0,84
6	0,81
7	0,79
8	0,78
9	0,77
>9	0,77

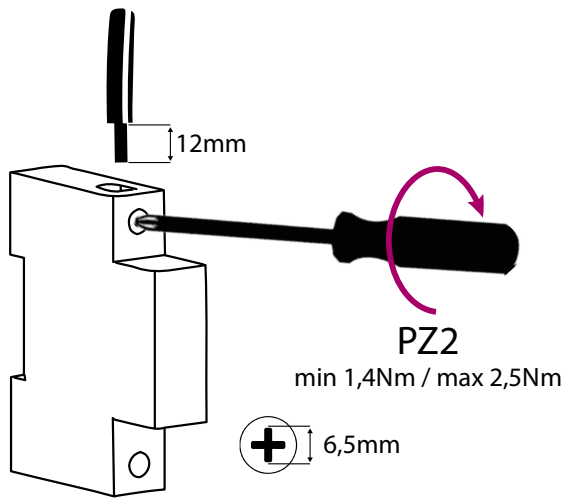


Miniature circuit breaker ETIMAT P10 - NEW GENERATION

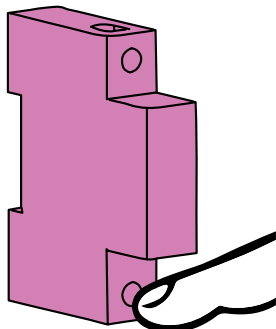
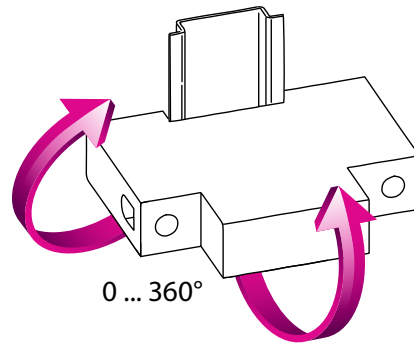
Technical data	
Rated voltage	240/415V AC; max 60V DC/pol
Min. operating voltage	12V AC/DC
Max operating voltage	250/440V AC
Rated current	B:1-63A, C:0.5-63A,D:0.5-63A, K&Z:0.5-32A
Rated frequency	50/60Hz
Rated insulation voltage	500V
Rated impulse withstand voltage	6kV (acc. to 60947-2)
Shock resistance	30g, min 2 shocks, t=13ms
Rated short-circuit capacity	10 kA
Energy limiting class	3; B,C
Tripping characteristic	B, C, D, K, Z
Back-up fuse	100A gG
Index of protection	IP 20 (IP 40)
Terminals	1-25mm ² , min 1,4Nm / max 2,5Nm
Terminal screw	M5 (Pozidrive PZ2)
Mechanical endurance	20.000 op. cycles
Electrical endurance	20.000 op. cycles
Ambient temperature	max -40°C ... +70°C
Storage temperature	max -60°C ... +70°C
Supply possibility	top or bottom
Build-in width	18mm/pol
Insulating class	B
Overvoltage category	III
Pollution degree	2
Mounting on the rail	EN 60715
Mounting position	any
Sealing possibility	✓
Terminal cover	✓
Contact position indicator	✓
Locking device	✓
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)
Standards	IEC/EN 60898-1, IEC 60947-2



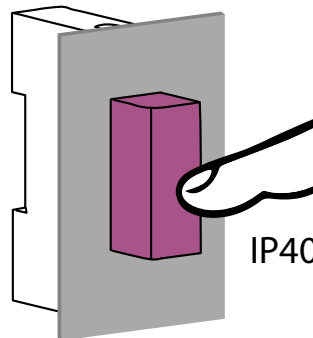
Tripping characteristics			
Characteristic	Test current	Tripping time	Result
B, C, D	$1,13 I_n$	$t \geq 3600 \text{ s}$	No tripping
B, C, D	$1,45 I_n$	$t < 3600 \text{ s}$	Tripping
B, C, D	$2,55 I_n$	$1 \text{ s} < t < 60 \text{ s}$	Tripping
B	$3,00 I_n$	$t \leq 0,1 \text{ s}$	No tripping
C	$5,00 I_n$	$t \leq 0,1 \text{ s}$	No tripping
D	$10,00 I_n$	$t \leq 0,1 \text{ s}$	No tripping
B	$5,00 I_n$	$t < 0,1 \text{ s}$	Tripping
C	$10,00 I_n$	$t < 0,1 \text{ s}$	Tripping
D	$20,00 I_n$	$t < 0,1 \text{ s}$	Tripping
K, Z	$1,05 I_n$	$t > 7200 \text{ s}$	No Tripping
K, Z	$1,20 I_n$	$t < 7200 \text{ s}$	Tripping
K	$8,00 I_n$	$t \leq 0,2 \text{ s}$	No Tripping
K	$12,00 I_n$	$t < 0,2 \text{ s}$	Tripping
Z	$2,00 I_n$	$t \leq 0,2 \text{ s}$	No Tripping
Z	$3,00 I_n$	$t < 0,2 \text{ s}$	Tripping



Any mounting position



IP20



IP40

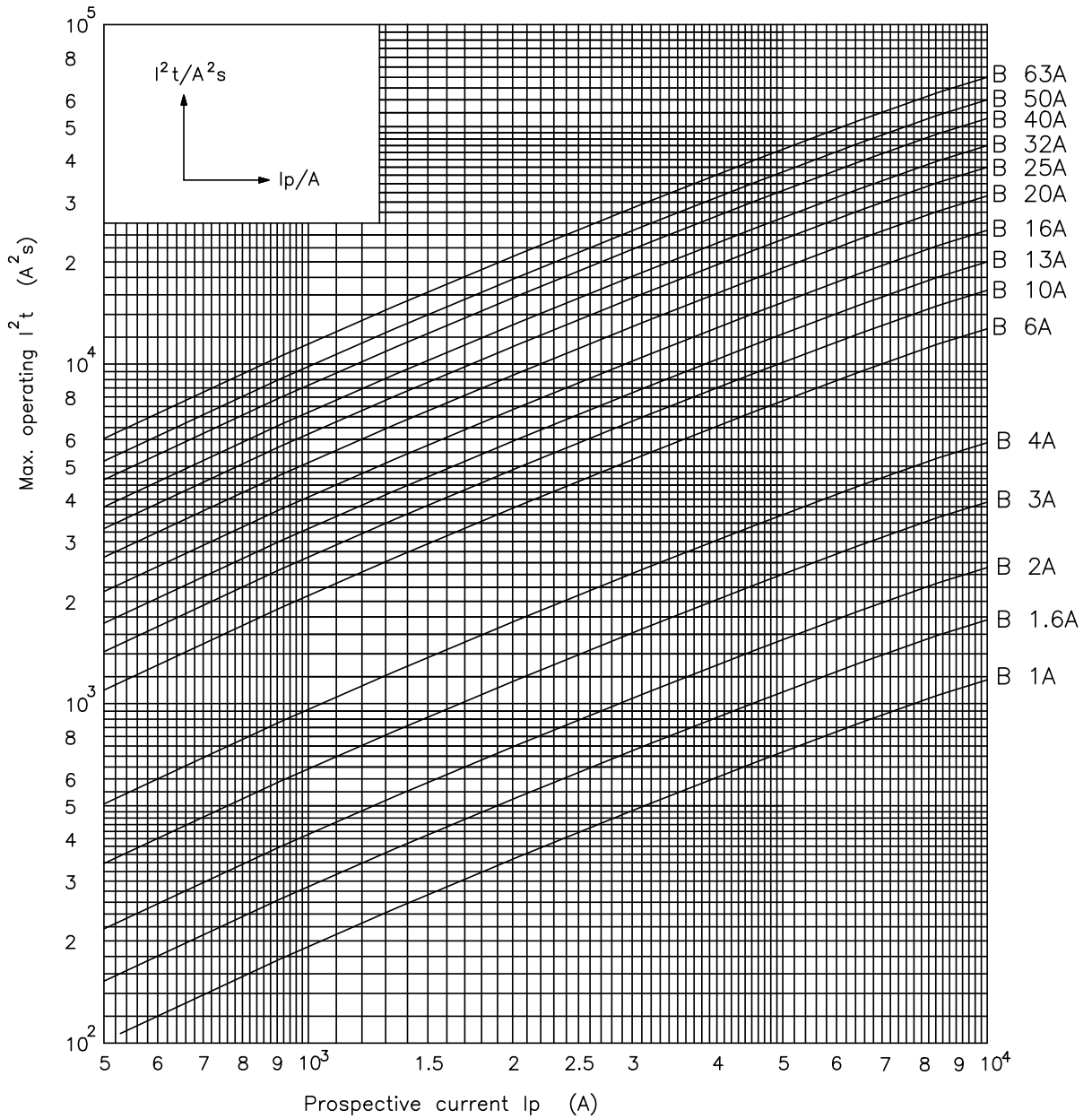
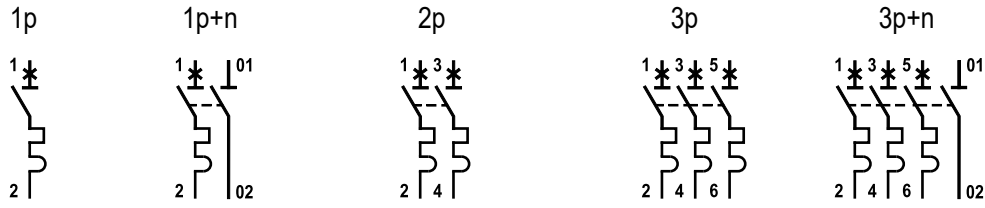
Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

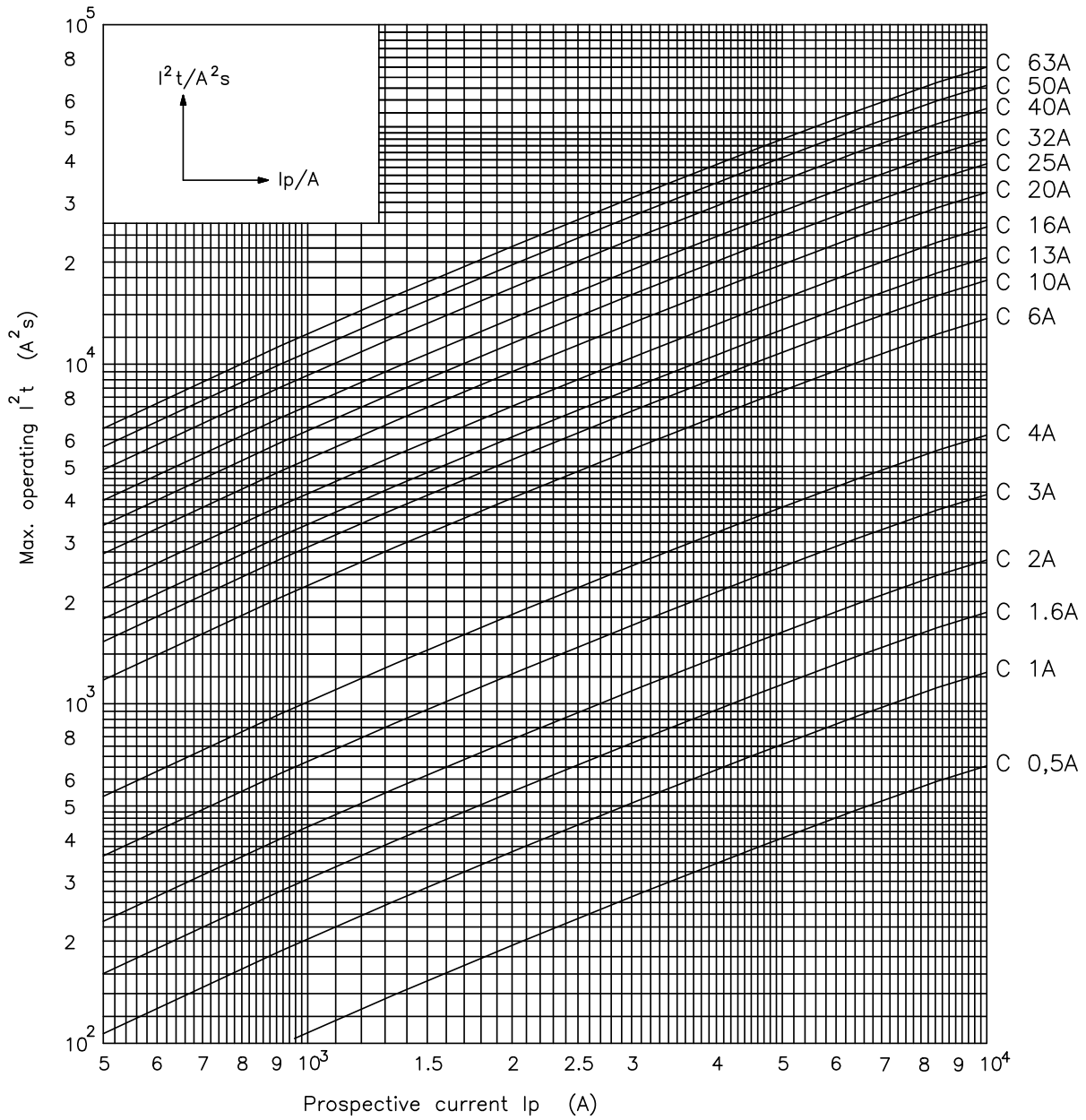
Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

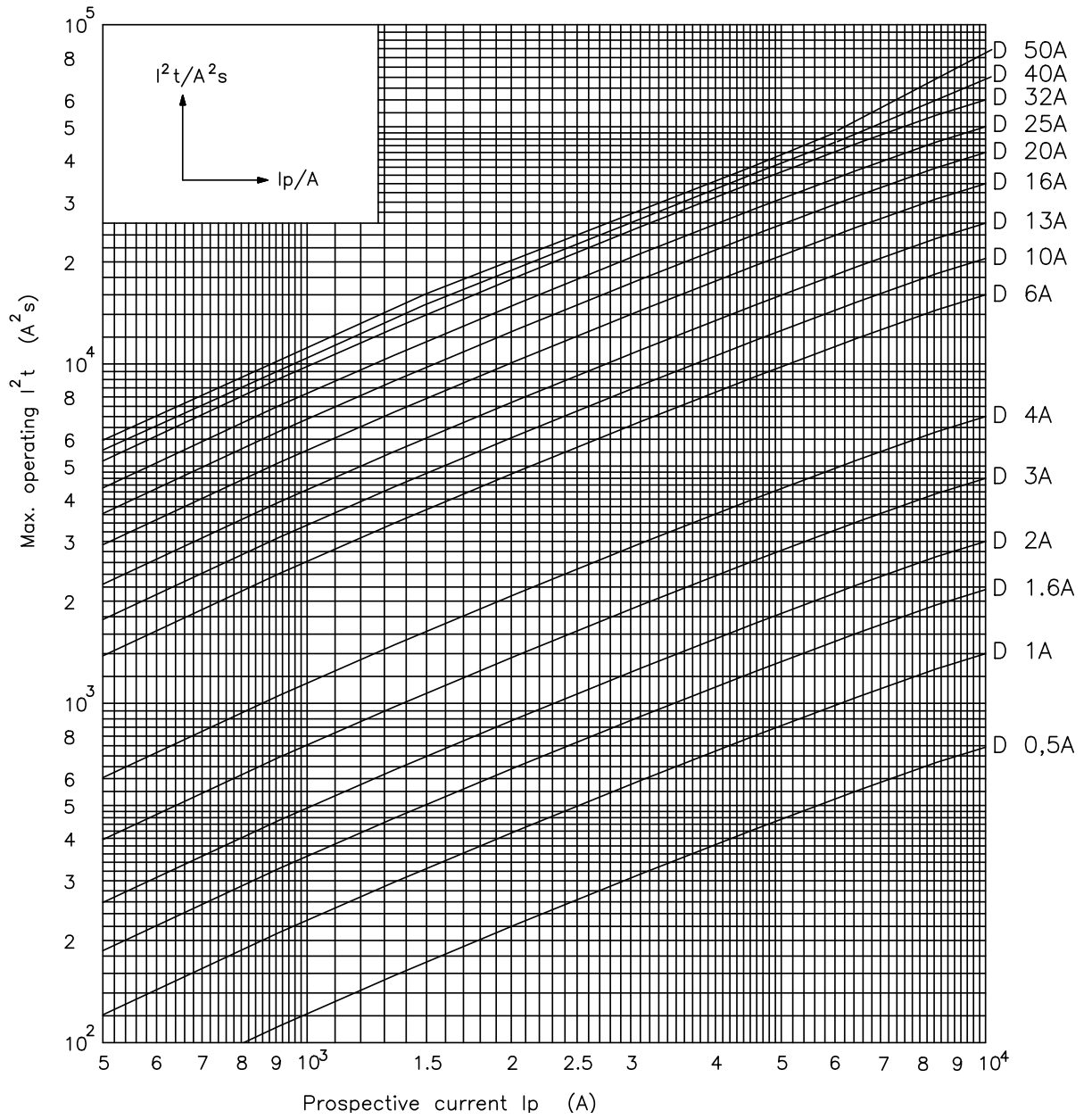
Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

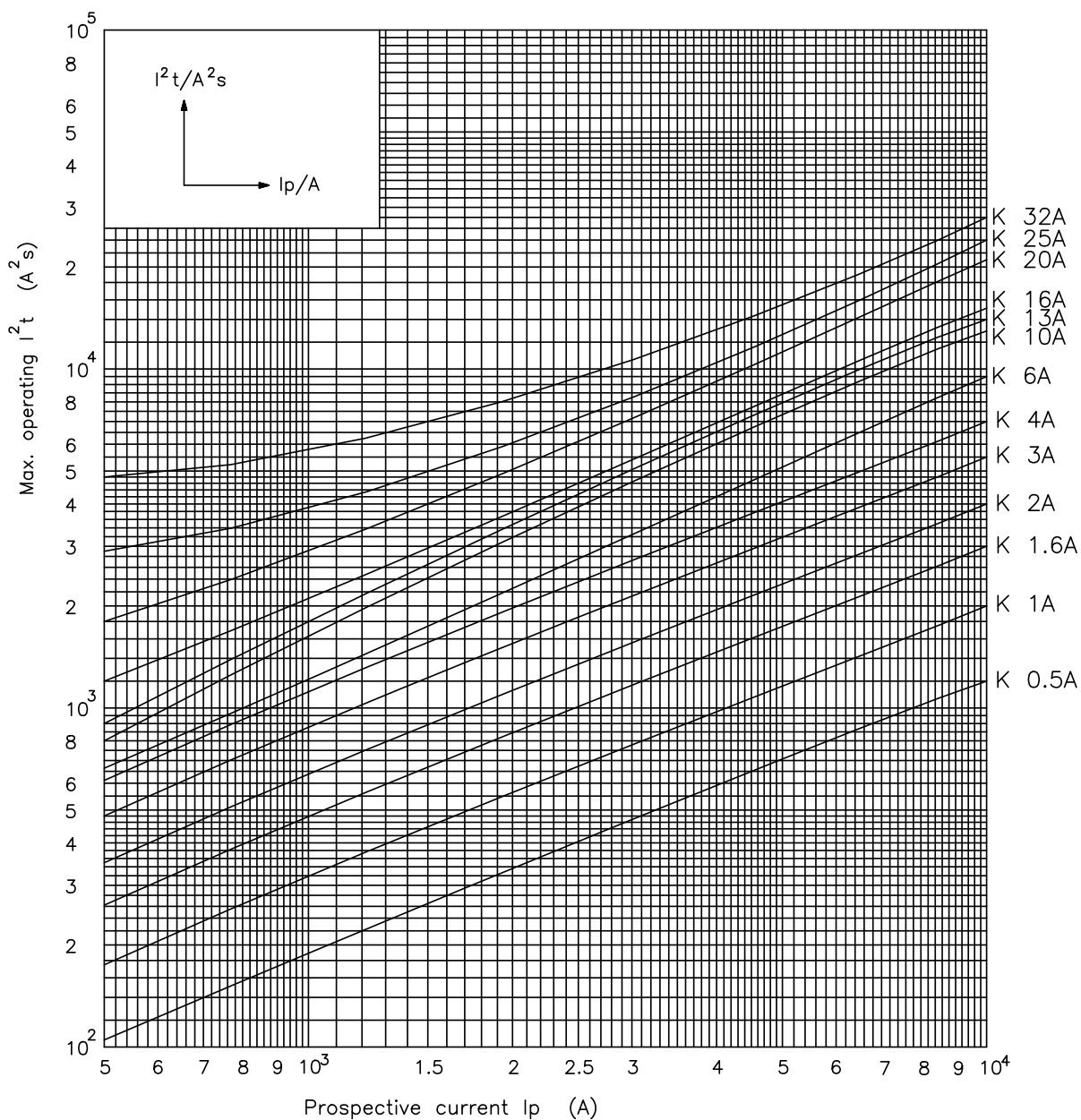
Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

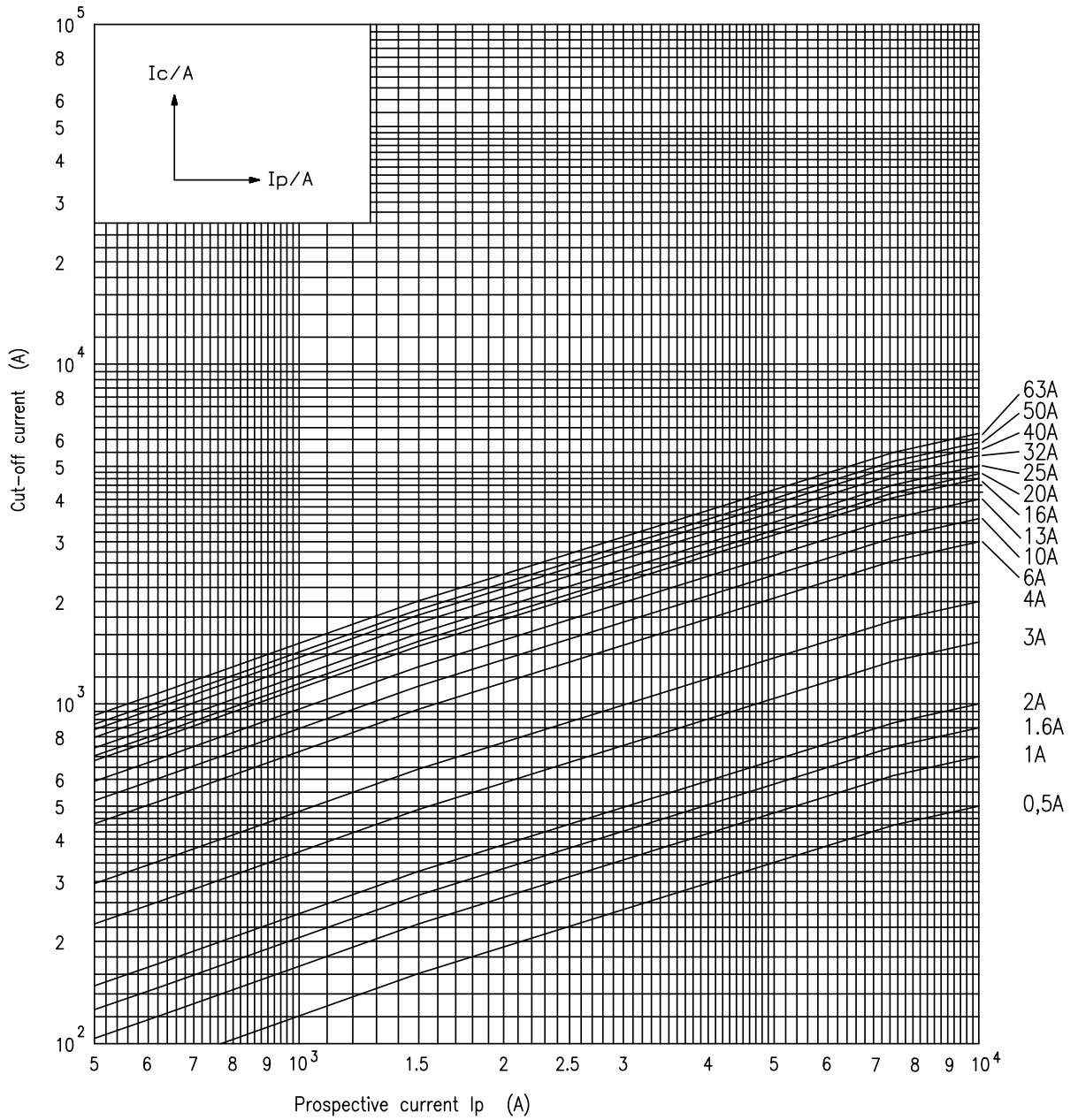
Technical data



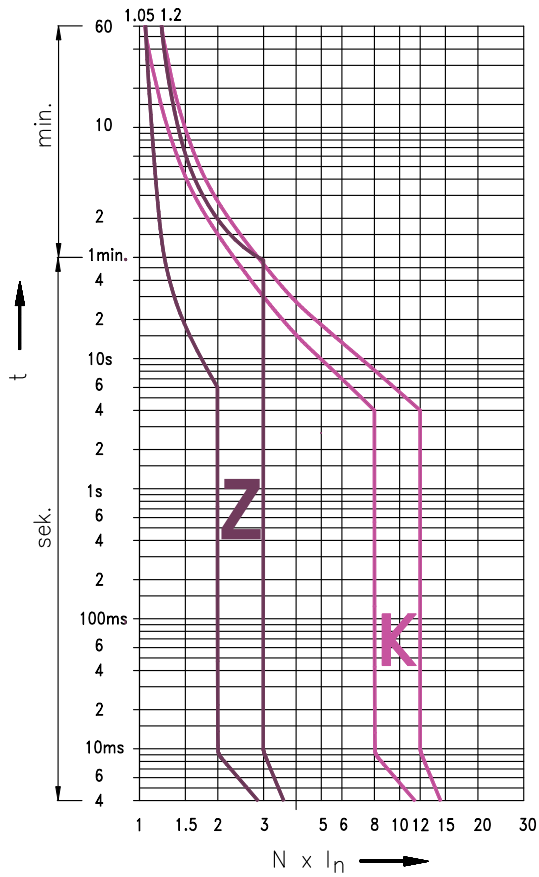
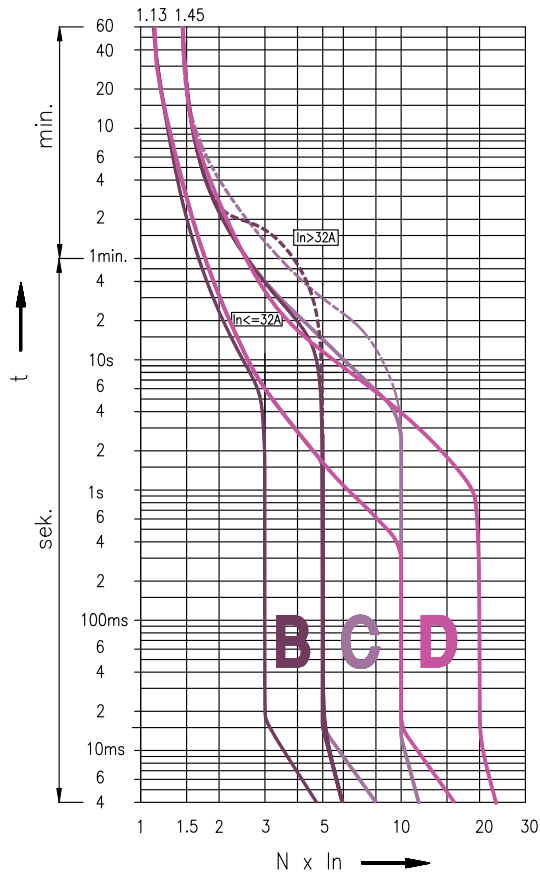




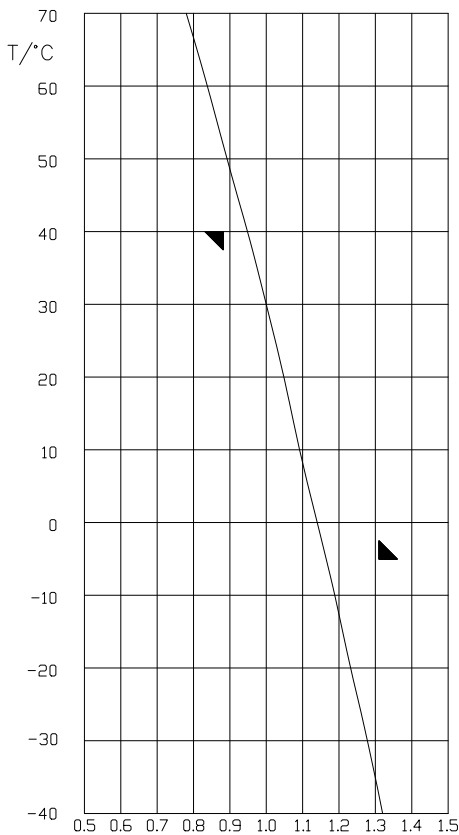




I/t characteristic at 50 and 60Hz



Effect of the ambient temperature on the tripping characteristic



Correction factor is valid for current with times over 30 s
 $I(x^\circ C)$ - test current at x ambient temperature
 $I(30^\circ C)$ - test current at $30^\circ C$ ambient temperature

$$k = \frac{I(x^\circ C)}{I(30^\circ C)}$$

I_n (A)	Ambient temperature $T/^\circ C$											
	-40	-30	-20	-10	0	10	20	30	40	50	60	70
0,5	0,66	0,64	0,62	0,60	0,57	0,55	0,53	0,5	0,48	0,45	0,42	0,39
1	1,32	1,28	1,23	1,19	1,14	1,09	1,05	1	0,95	0,89	0,84	0,78
1,6	2,11	2,05	1,97	1,90	1,82	1,74	1,68	1,6	1,52	1,42	1,34	1,25
2	2,64	2,56	2,46	2,38	2,28	2,18	2,10	2	1,90	1,78	1,68	1,56
4	5,28	5,12	4,92	4,76	4,56	4,36	4,20	4	3,80	3,56	3,36	3,12
6	7,92	7,68	7,38	7,14	6,84	6,54	6,30	6	5,70	5,34	5,04	4,68
10	13,2	12,8	12,3	11,9	11,4	10,9	10,5	10	9,50	8,90	8,40	7,80
13	17,2	16,6	16,0	15,5	14,8	14,2	13,7	13	12,4	11,6	10,9	10,1
16	21,1	20,5	19,7	19,0	18,2	17,4	16,8	16	15,2	14,2	13,4	12,5
20	26,4	25,6	24,6	23,8	22,8	21,8	21,0	20	19,0	17,8	16,8	15,6
25	33,0	32,0	30,8	29,8	28,5	27,3	26,3	25	23,8	22,3	21,0	19,5
32	42,2	41,0	39,4	38,1	36,5	34,9	33,6	32	30,4	28,5	26,9	25,0
40	52,8	51,2	49,2	47,6	45,6	43,6	42,0	40	38,0	35,6	33,6	31,2
50	66,0	64,0	61,5	59,5	57,0	54,5	52,6	50	47,5	44,5	42,0	39,0
63	83,2	80,6	77,5	75,0	71,8	68,7	66,2	63	59,9	56,1	52,9	49,1

Technical data

Resistance and power dissipation

characteristic	I _n [A]	R/pole [mΩ]	P/pole [w]
B, C	0,5	3587	1,16
	1	935	1,21
	1,6	382	1,26
	2	264	1,37
	3	*	*
	4	69,6	1,38
	6	40,3	1,96
	10	16,9	2,00
	13	11,4	2,08
	16	8,17	2,26
	20	7,17	2,73
	25	4,77	2,91
	32	3,92	3,44
	40	*	*
	50	2,22	3,57
63	1,71	4,59	
D, K, Z	0,5	*	*
	1	1183	1,55
	1,6	*	*
	2	303	1,58
	3	135	1,52
	4	81,8	1,66
	6	40,0	1,78
	10	17,3	1,57
	13	11,3	2,04
	16	8,59	2,31
	20	7,17	2,73
	25	4,77	2,91
	32	3,92	3,44
	40	*	*
	50	*	*
63	*	*	

Selectivity

type	gG NV [kA]										
	20	25	32	35	40	50	63	80	100	125	160
B 6	0,5	0,78	1,2	1,4	1,7	2,4	4,6	7,0	10	10	10
B 10/13	0,45	0,65	1,1	1,3	1,6	2,2	4,0	6,5	10	10	10
B 16		0,55	1,0	1,2	1,5	2,0	3,6	5,5	9,5	10	10
B 20			0,85	1,2	1,5	1,8	3,1	4,6	9,0	10	10
B 25				1,1	1,4	1,7	2,9	4,0	8,0	10	10
B 32					1,3	1,6	2,5	3,4	5,5	9,0	10
B 40						1,5	2,2	3,1	4,9	8,0	10
B 50							2,1	2,9	4,0	6,2	10
B 63								2,5	3,3	5,1	8,0

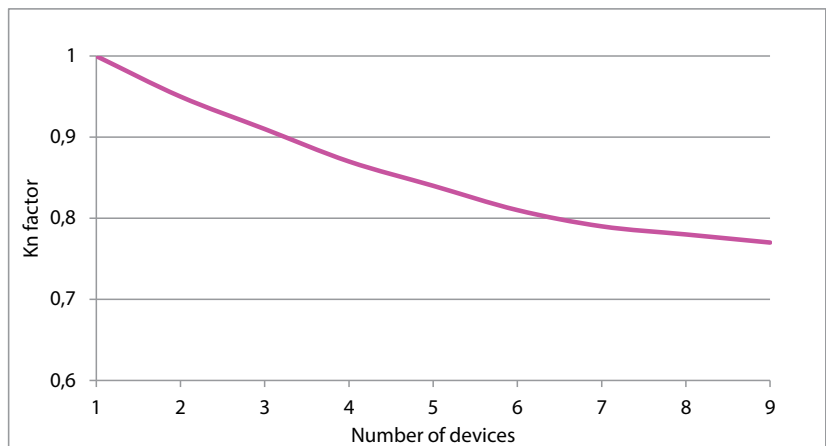
type	gG NV [kA]										
	20	25	32	35	40	50	63	80	100	125	160
C,D,K,Z 6	0,52	0,82	1,3	1,5	2,0	2,7	5,1	9,0	10	10	10
C,D,K,Z 10/13	0,47	0,70	1,1	1,4	1,8	2,3	4,0	7,0	10	10	10
C,D,K,Z 16		0,61	0,92	1,2	1,5	1,9	3,2	5,0	9,0	10	10
C,D,K,Z 20			0,90	1,1	1,4	1,7	2,9	4,2	8,0	10	10
C,D,K,Z 25				1,0	1,3	1,6	2,7	3,9	6,0	10	10
C,D,K,Z 32					1,2	1,5	2,3	3,4	5,2	9,0	10
C,D 40						1,4	2,1	3,0	4,6	8,0	10
C,D 50							2,0	2,7	3,8	7,0	10
C 63								2,3	3,2	5,5	9,0

Effect of number of poles on the tripping characteristic ETIMAT P10

Correction factor K_n

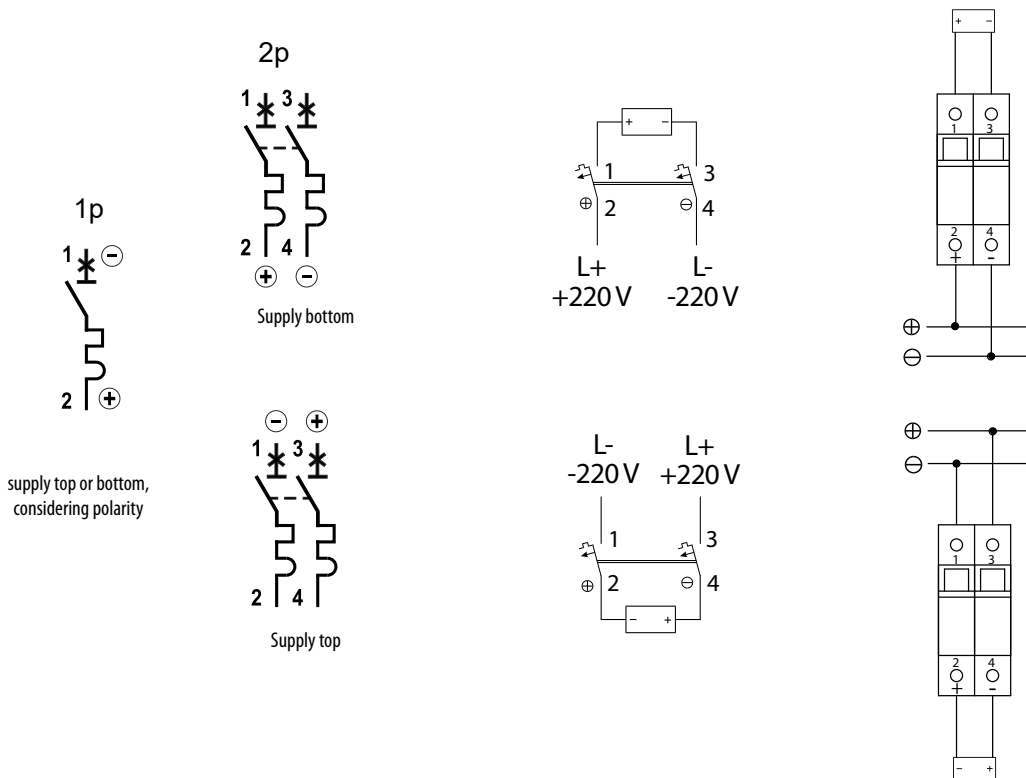
Number of devices

1	Kn	1
2		0,95
3		0,91
4		0,87
5		0,84
6		0,81
7		0,79
8		0,78
9		0,77
>9		0,77



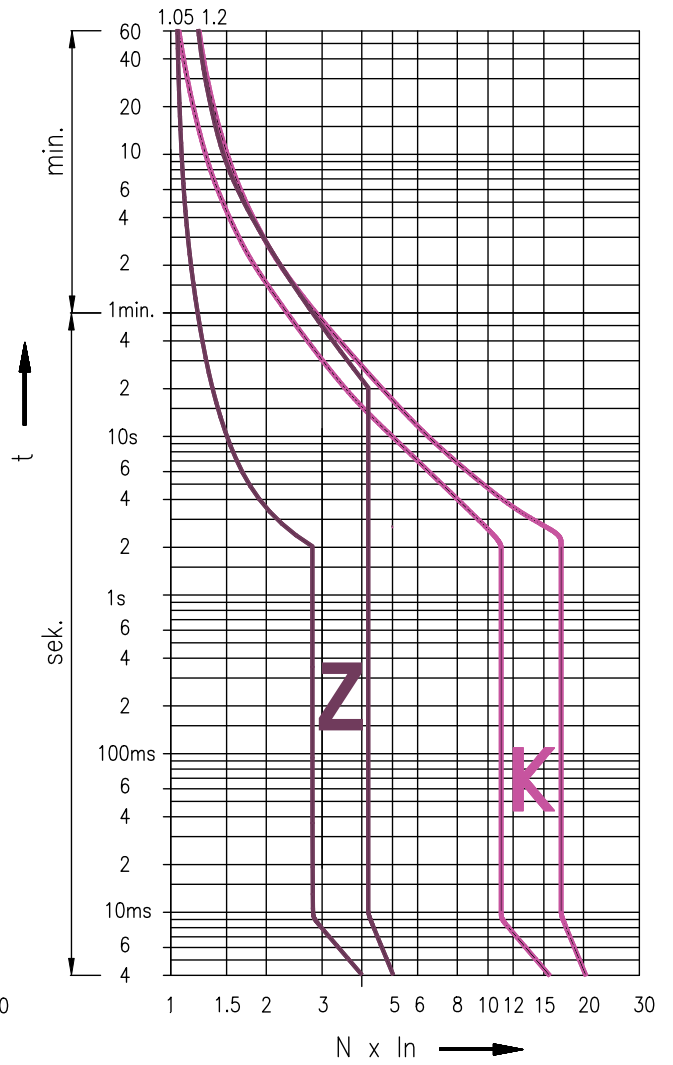
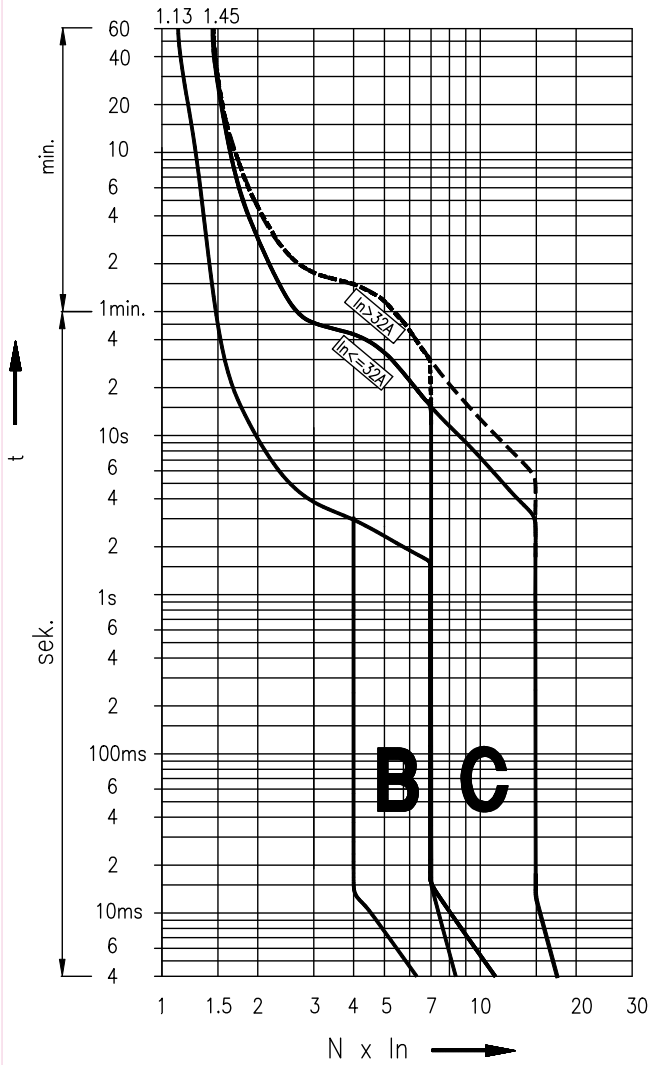
Miniature circuit breaker ETIMAT P10 DC - NEW GENERATION

Technical data	
Rated voltage - for 1-pole U_n - for 2-pole U_n	220 V DC 220 V /440 V DC
Rated time constant L/R	4 ms
Rated current I_n	0,5-32A (K & Z), 0,5-63A (C), 2-63A (B)
Rated short-circuit capacity	10 kA
Tripping characteristic	B, C, K, Z
Energy limiting class	3
Insulating class	B
Pollution degree	2
Back-up fuse	100 A gG
Ambient temperature	-40°C ... +70°C
Storage temperature	-60°C ... +70°C
Terminals	1-25mm ² , min 1,4Nm / max 2,5Nm
Terminal screw	M5 (Pozidrive PZ2)
Mounting position	any
Sealing possibility	✓
Terminal cover	✓
Contact position indicator	✓
Locking device	✓
Resistance to vibrations (IEC 60068-2-7)	5g (10,60 & 500Hz)
Standards	IEC 60898, EN 60898, DIN VDE 0641



Connecting diagrams in direct current electric circuits				
Rated voltage of circuit breaker	220 V ---	220/440 V ---	220/440 V ---	220/440 V ---
Voltage between conductors - max.	220 V ---	440 V ---	440 V ---	440 V ---
Voltage between conductor and earth - max.	220 V ---	220 V ---	440 V ---	220 V ---
Circuit breaker	1-pole	2-pole	2-pole	2-pole
Connecting diagram				

Technical data

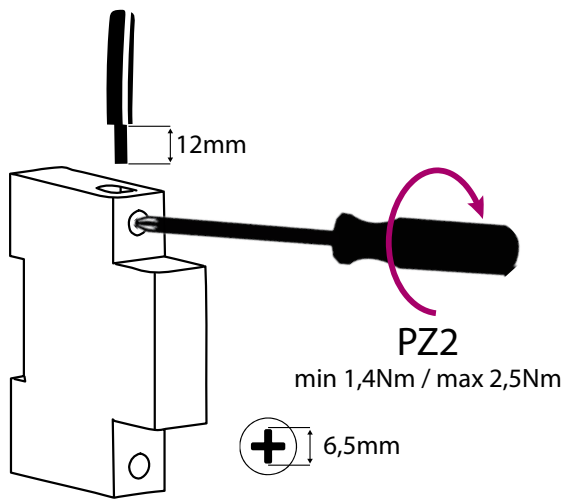


Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire Cu conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

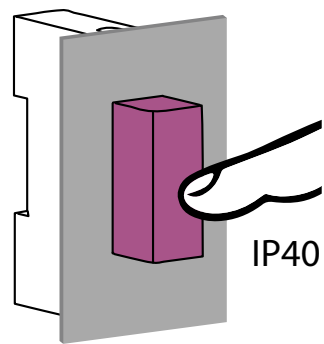
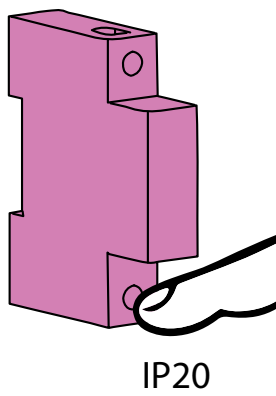
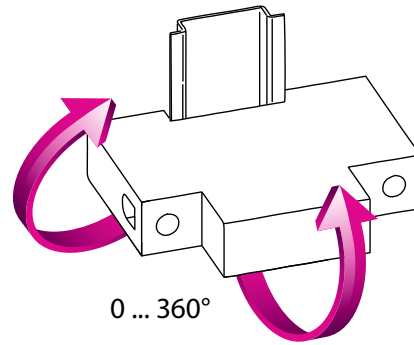
Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed



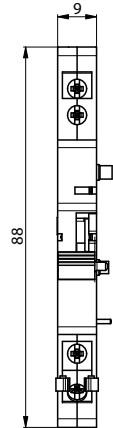
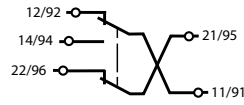
Any mounting position



Technical data

Auxiliary signal switch PS/SS

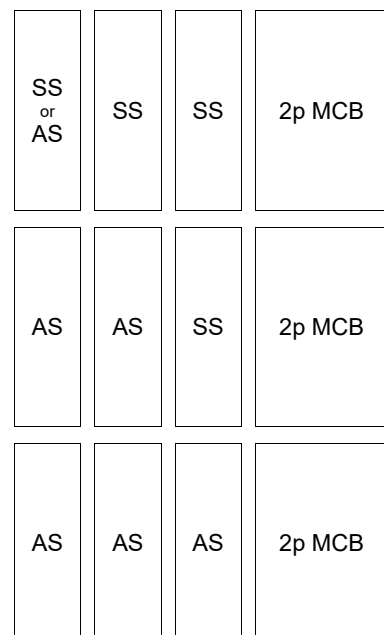
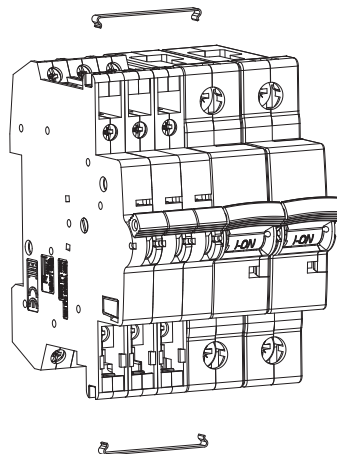
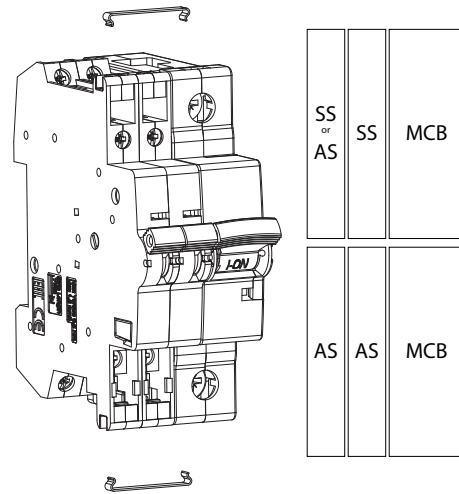
Technical data	
Function	Auxiliary or Signal Switch
Rated voltage	230V AC/DC, 110V DC
Rated current	6A (230V AC); 1A (110V DC); 0,5A (220V DC)
Rated frequency	50/60Hz, DC
Index of protection	IP 20 (IP 40)
Terminal capacity	1,5mm ²
Terminal Screw	M3 PH1
Terminal torque	max. 0,5Nm
Ambient temperature	-25°C ... +40°C
Storage temperature	-40°C ... +70°C
Contacts	1x NC, 1x NC/NO
Mounting position	any
Standards	EN 62019



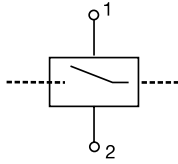
AUX switch connections	status of the breaker	
	ON	OFF
11-14 NO	1	0
11-12 NC	0	1
21-22 NC	0	1

Signal switch connections	status of the breaker		
	ON	manual trip	overcurrent trip
11-14 NO	1	1	0
11-12 NC	0	0	1
21-22 NC	0	0	1

NO - Normally open contact --> during the activation it makes a contact
 NC - Normally closed contact --> during the activation it brakes the contact
 1 - contact
 0 - without a contact



Shunt trip release DA ETIMAT



Note: Same dimensions as ETIMAT P10

Technical data	
Rated voltage	12-60V AC/DC, 110-250V AC/DC
Rated frequency	50/60Hz, DC
Max inrush current	3A
Index of protection	IP 20 (IP 40)
Terminals	1-25mm ² , min 1,4Nm / max 2,5Nm
Terminal screw	M5 (Pozidrive PZ2)
Ambient temperature	-40°C ... +70°C
Storage temperature	-60°C ... +70°C
Mounting on the rail	EN 60715
Mounting position	any
Sealing possibility	✓
Terminal cover	✓
Locking device	✓

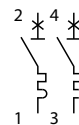
Miniature circuit breaker ETIMAT 10 80-125 A

Technical data		
Rated voltage	80-125 A	240/415V AC, 60V DC/pole
Rated current	80, 100, 125 A	
Tripping characteristics	B, C, D	
Rated frequency	50/60 Hz	
Rated insulation voltage	440V AC (80-125A)	
Rated impulse withstand voltage U _{imp}	4kV (80-125A)	
Rated short-circuit capacity:	Characteristic B, C	I _n =80, 100 A 20kA (EN 60947-2)
		I _n =125 A 15kA (EN 60947-2)
	Characteristic D	I _n =80 A 20kA (EN 60947-2)
		I _n =100 A 15kA (EN 60947-2)
Energy limiting class	3	
Terminals	80-125 A	2,5-50mm ² / 2,5-3,0 Nm
Build-in width	80-125 A	27mm/Pol
Terminal screw	M6 PZ2	
Mounting on the rail	EN 60715 (EN 50022)	
Mounting position	any	
Ambient temperature	max -30°C ... +50°C	
Storage temperature	max -50°C ... +70°C	
Mechanical durability (cycles)	80-125 A	min. 20000
Sealing possibility	ON / OFF	
Back-up fuse	max 200A gL	
Resistance to vibrations (IEC 60068-2-7)	5g (10,60 & 500Hz)	
Standards	EN 60898, EN 60947-2	

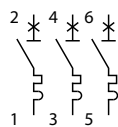
1P



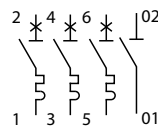
2P



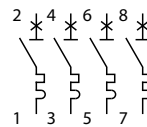
3P



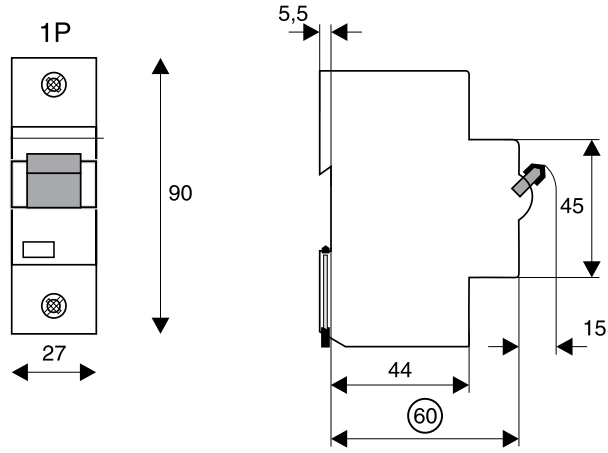
3P+N



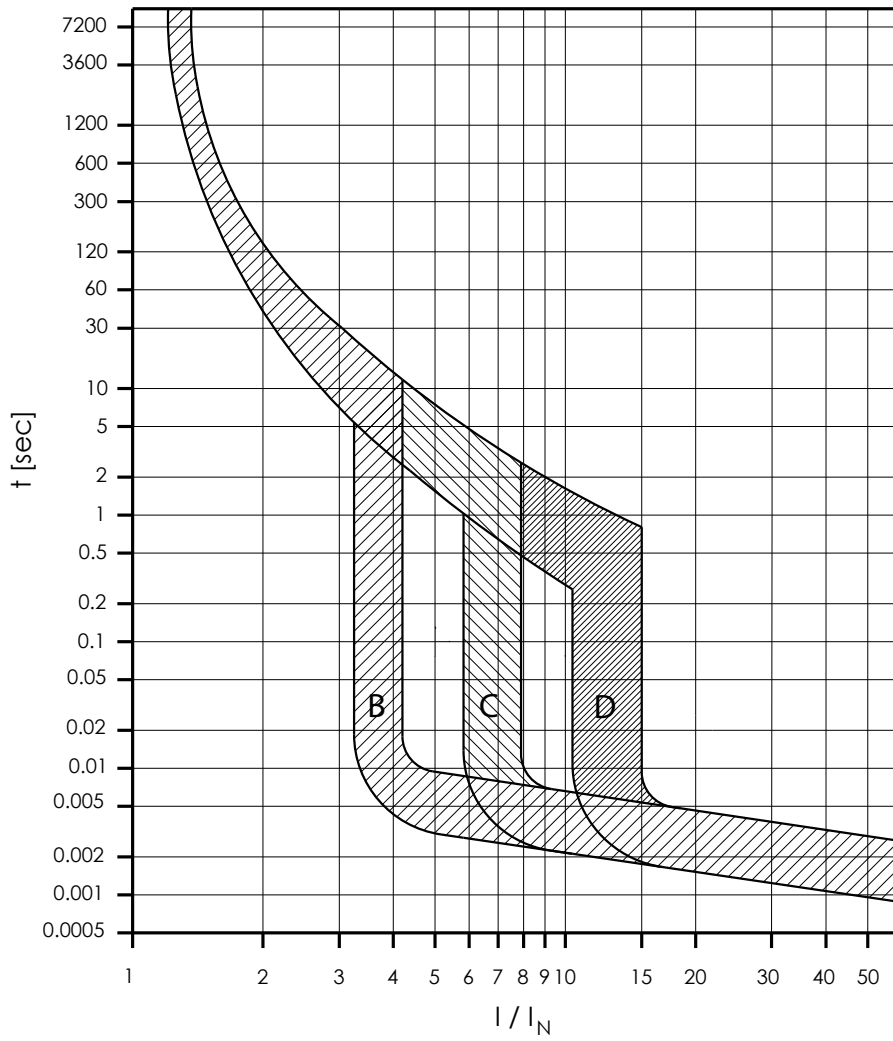
4P

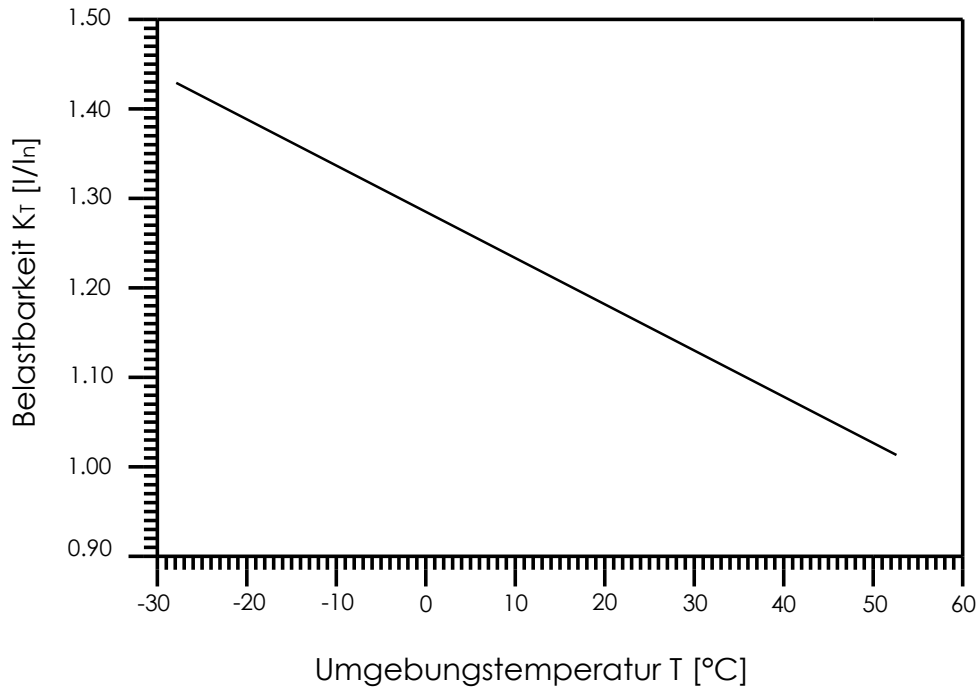


Technical data



ETIMAT 10, 80-125 A,





Zulässige Dauerbelastung I_L bei Umgebungstemperatur T: $I_L(T) = I_n K_T(T)$

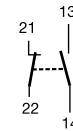
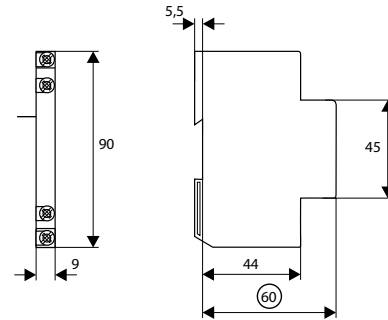
Resistance and power dissipation

characteristic	I_n [A]	R/pole [mΩ]	P/pole [w]
B, C, D	80	1,2	7,1
	100	0,9	9,1
	125	0,66	11,9

Technical data

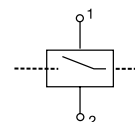
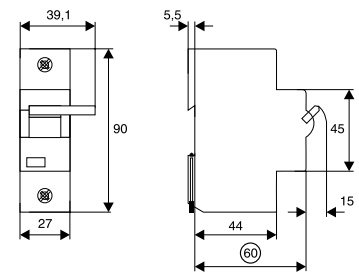
Auxiliary switch PSM 80 - 125 A

Technical data	
Rated current	6 A / AC13 (250 V AC)
Rated thermal current I_{th}	8 A
Rated insulation voltage	440 V AC
Max. back-up fuse	6A
Contacts	1x a-contact, 1x b-contact
Utilization category AC-13	6 A/250 V AC
	2 A/440 V AC
Utilization category DC-13	4 A/600 V DC
	2 A/110 V DC
	0,5 A/230 V DC
Ambient temperature	max -5°C ... +40°C
Build-in width	9 mm/Pol
Mounting position	any
Mounting on the rail	EN 60715 (EN 50022)
Terminals	1x1mm ² ... 2x2,5mm ²
Standard	EN 60947-5-1



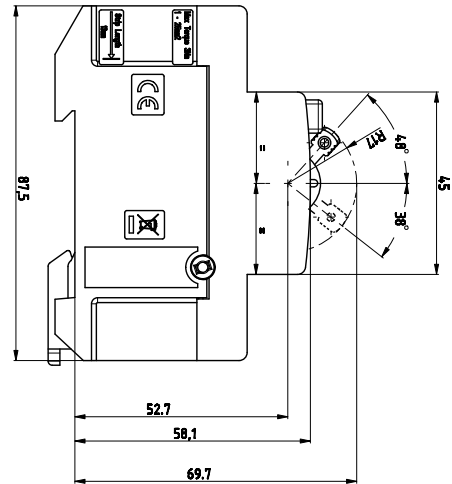
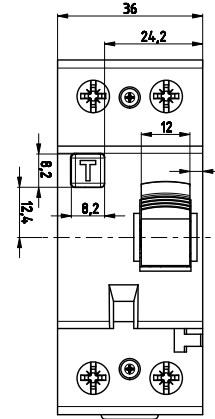
Shunt trip release DA ETIMAT 10 80 - 125A

Technical data	24V		230V	
	Responding limit	8 V AC / 11 V DC		70 V AC / 90 V DC
Operating voltage range	12 V...60 V AC / DC		110 V...415 V AC / 110 V...230 V DC	
Max. current consumption at the moment of switching on	18 A (24 V)		2 A (230 V)	
Duration of current flow at max consumption	4,5 ms (AC) / 2 ms (DC)		4,5 ms (AC) / 4 ms (DC)	
Minimum pulse duration	15 ms		10 ms	
Internal resistance	2,0 Ω		130 Ω	
Duty	100 %			
Tripping time	< 20 ms			
Peak withstand voltage	2 kV			
Service live operating cycles	> 4000			
Upper / lower terminals	lift / lift			
Conductor cross section	2,5 mm ² ... 50 mm ²			

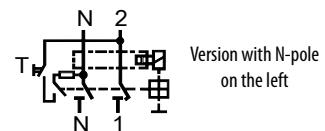
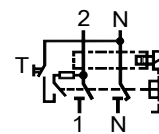


A and AC type residual current circuit breaker EFI-P2(R) & EFI-2

Technical data EFI-P2(R) Instantaneous type AC & A		
Type	EFI-P2, EFI-P2R 16-80A	EFI-P2R 100-125A
Electrical		
Rated Voltage U_n	230 / 240 V AC	230 V AC
Rated current I_n	16, 25, 40, 63, 80A	100, 125A
Rated frequency f_n	50/60Hz	50Hz
Rated insulation voltage U_i	440V	400V
Rated impulse withstand voltage (1,2/50µs)	4kV	4kV
Peak withstand current (8/20µs)	400A	250A
Electrical isolation	> 4mm contact space	
Rated residual operating current $I_{\Delta n}$	0,03; 0,1; 0,3 & 0,5A	
Rated conditional short-circuit current I_{cn}	10kA	10kA
Rated making and breaking capacity I_m	800A	1250A
Max back-up fuse for short circuit protection	80A gG	125A gG
Voltage range test circuit	150-264V	150-264V
Min. operating voltage	voltage independent	voltage independent
Insulating class	B	B
Standards	IEC/EN 61008	IEC/EN 61008
Mechanical Endurance (cycles)	> 10.000	> 5.000
Electrical endurance (cycles)	> 4.000	> 2.000
Shock resistance acc. to	IEC/EN 61008-1	IEC/EN 61008-1
Resistance to vibrations acc. To IEC 60068-2-7	5g (10, 60 & 500Hz)	5g (10, 60 & 500Hz)
Mechanical		
Frame size	45mm	45mm
Device height	68mm (DIN rail acc to EN6071)	
Device width	36mm (2 x Module units)	36mm (2 x Module units)
Degree of protection	IP20	IP20
Upper and lower terminals	open mounted/lift terminals	
Terminal capacity	1-25mm ²	1-50mm ²
Terminal screw	M5 (Pozidrive PZ2)	M6 (Pozidrive PZ2)
Terminal torque	max. 3Nm	max 5,0Nm
Busbar thickness	0,8 - 2 mm	0,8 - 2 mm
Operating temperature	-25°C ... +55°C	-25°C ... +55°C
Storage and transport temperature	-40°C ... +70°C	-40°C ... +70°C
Resistance to climatic conditions	IEC/EN 61008	IEC/EN 61008
Contact position indicator	mechanical red/green	
Mounting position	any	
Mounting on the rail	35mm acc to EN50022	
Supply possibility	top or bottom	

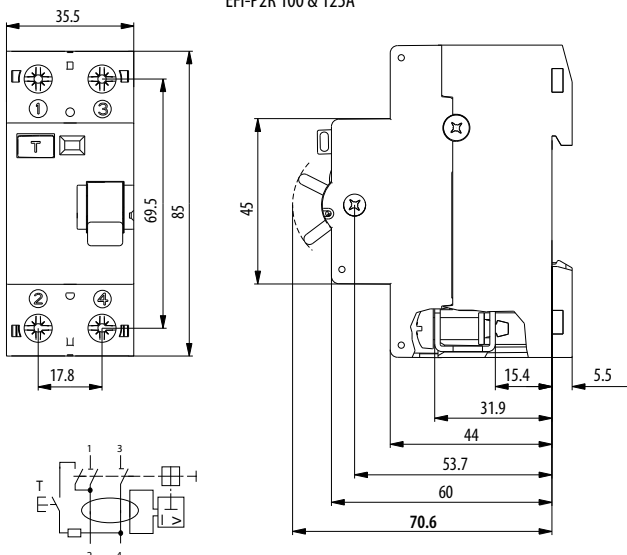


EFI-P2, EFI-P2R 16 - 80A



Version with N-pole on the left

EFI-P2R 100 & 125A

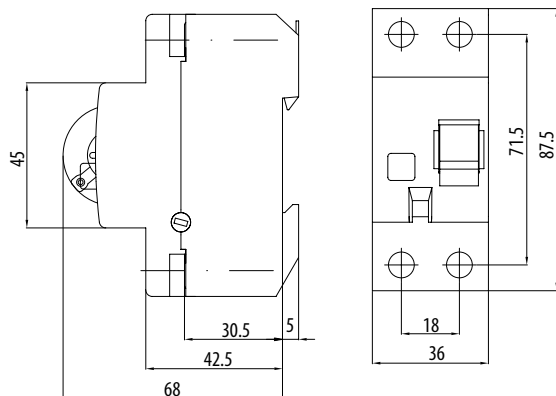


I_n [A]	Power dissipation EFI-P2 P/pole [W]
16	0,46-0,51
25	1,22-1,27
40	3,48-3,72
63	2,14-2,58
80	3,53-3,82
100	7,35-7,65
125	10,7-11,3

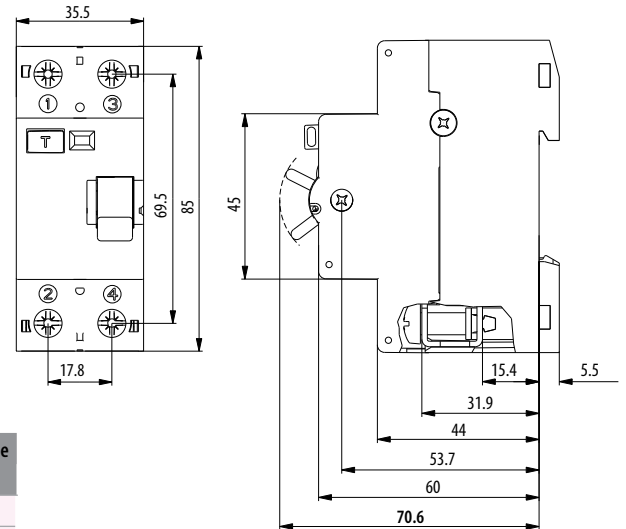
Technical data

Technical data			
Type	G/KV type	S type	S Reset
Electrical			
Rated voltage U_n	230/240V AC	230/240V AC	230V AC
Rated current I_n	25, 40, 63A	25, 40, 63A	100, 125A
Rated insulation voltage U_i	440V	440V	440V
Rated frequency f_n	50/60Hz	50/60Hz	50Hz
Peak withstand current	3kA (8/20 μ s) surge current proof	5kA (8/20 μ s) surge current proof	3kA (8/20 μ s) surge current proof
Electrical isolation	> 4mm contact space	> 4mm contact space	> 4mm contact space
Rated residual operating current $I_{\Delta n}$	0,03; 0,1 & 0,3A	0,1 & 0,3A	0,1 & 0,3A
Rated conditional short-circuit current I_{cn}	10kA	10kA	10kA
Rated making and breaking capacity I_m	630A	630A	1250A
Maximum back-up fuse	80A gG	80A gG	125A gG
Insulating class	B	B	B
Standard	IEC/EN 61008, OVE E 8601	IEC/EN 61008	IEC/EN 61008
Mechanical endurance (op. c.)	> 4000	> 4000	> 5000
Electrical endurance (op. c.)	> 2000	> 2000	> 2000
Mechanical			
Frame size	45mm	45mm	45mm
Device height	68mm (DIN rail acc to EN60715)	68mm (DIN rail acc to EN60715)	70,6mm (DIN rail acc to EN60715)
Device width	36mm (2 x Module units 18mm)	36mm (2 x Module units 18mm)	35,5mm (2 x Module units 17,8mm)
Degree of protection	IP20	IP20	IP20
Upper and lower terminals	open mounted/lift terminals	open mounted/lift terminals	open mounted/lift terminals
Terminal capacity	1-25mm ²	1-25mm ²	1-50mm ²
Terminal screw	M5 (Pozidrive PZ2)	M5 (Pozidrive PZ2)	M6 (Pozidrive PZ2)
Terminal torque	2-2,5Nm	2-2,5Nm	2,5-5Nm
Busbar thickness	0,8 - 2 mm	0,8 - 2 mm	0,8 - 2 mm
Operating temperature	-25°C ... +55°C	-25°C ... +55°C	-25°C ... +40°C
Storage and transport temperature	-40°C ... +70°C	-40°C ... +70°C	-35°C ... +60°C
Resistance to climatic conditions	IEC/EN 61008	IEC/EN 61008	acc. to IEC 60068-2-30: 28 cycles (55 °C, 95% relative humidity)
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)	5g (10,60 & 500Hz)	/
Contact position indicator	mechanical red/green	mechanical red/green	mechanical red/green
Supply possibility	Top or bottom	Top or bottom	Top or bottom
Mounting position	any	any	any

EFI-P2 G/KV & S 25-63A



EFI-P2R S 100&125A



I_n [A]	Power dissipation EFI-2 G/KV & S type
	P / pole (W)
25	1,29-1,43
40	2,80 - 3,05
63	4,28 - 5,34
100	7,35-7,65
125	10,7-11,3

Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

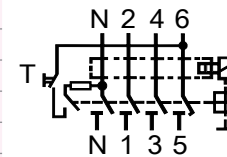
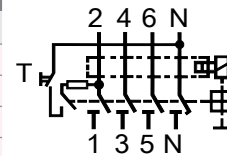
Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

A and AC type residual current circuit breaker EFI-P4(R) & EFI-4

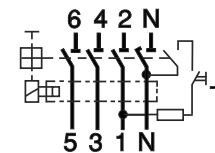
Technical data EFI-P4(R) Instantaneous type AC & A, EFI-4 Instantaneous type AC & A		
Type	EFI-P4, EFI-P4R 16-63A	EFI-4 80A, EFI-P4 R 100A, 125A
Electrical		
Rated Voltage U_n	400/415V AC	400V AC
Rated current I_n	16, 25, 40, 63A	80, 100, 125A
Rated frequency f_n	50/60Hz	50Hz
Rated insulation voltage U_i	440V	440V
Rated impulse withstand voltage (1,2/50µs)	4kV	4kV
Peak withstand current (8/20µs)	400A	
Electrical isolation	> 4mm contact space	
Rated residual operating current $I_{\Delta n}$	0,03; 0,1; 0,3 & 0,5A	
Rated conditional short-circuit current I_{cn}	10kA	10kA
Rated making and breaking capacity I_m	630A	800A ($I_n=80A$); 1250A ($I_n=100, 125A$)
Max back-up fuse for short circuit protection	63A gG	80A ($I_n=80A$); 125A ($I_n=100, 125A$)
Voltage range test circuit	150-264V	150-264V
Min. operating voltage	voltage independent	voltage independent
Insulating class	B	B
Standards	IEC/EN 61008	IEC/EN 61008
Mechanical Endurance (cycles)	> 10.000	> 4.000
Electrical endurance (cycles)	> 4.000	> 2.000
Shock resistance acc. to	IEC/EN 61008-1	IEC/EN 61008-1
Resistance to vibrations acc. To IEC 60068-2-7	5g (10, 60 & 500Hz)	5g (10, 60 & 500Hz)
Mechanical		
Frame size	45mm	45mm
Device height	68mm (DIN rail acc to EN6071)	
Device width	72mm (4 x Module Units)	72mm (4 x Module Units)
Degree of protection	IP20	IP20
Upper and lower terminals	open mounted/lift terminals	
Terminal capacity	1-25mm ²	1-25mm ² ($I_n=80A$), 1-50mm ² ($I_n=100, 125A$)
Terminal screw	M5 (Pozidrive PZ2)	M5 (80A) , M6 (100-125A) (Pozidrive PZ2)
Terminal torque	max. 3Nm	max 2,5Nm (80A); max 5,0Nm (100&125A)
Busbar thickness	0,8 - 2 mm	0,8 - 2 mm
Operating temperature	-25°C ... +55°C	-25°C ... +55°C
Storage and transport temperature	-40°C ... +70°C	-35°C ... +60°C
Resistance to climatic conditions	IEC/EN 61008	acc. to IEC 60068-2-30: 28 cycles (55°C, 95 % relative humidity)
Contact position indicator	mechanical red/green	
Mounting position	any	
Mounting on the rail	35mm acc to EN50022	
Supply possibility	top or bottom	

EFI-P4, EFI-P4R 16 - 63A

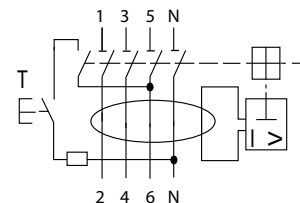


Version with N-pole on the left

EFI-4 80A



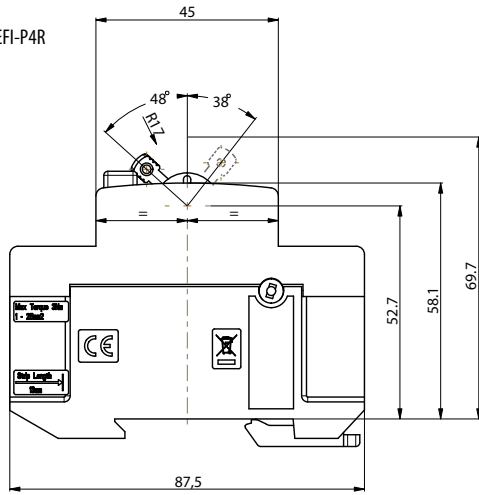
EFI-P4R 100 A, 125A



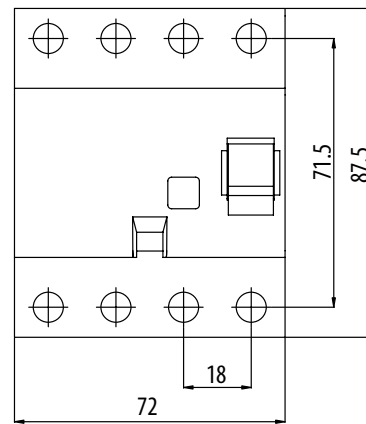
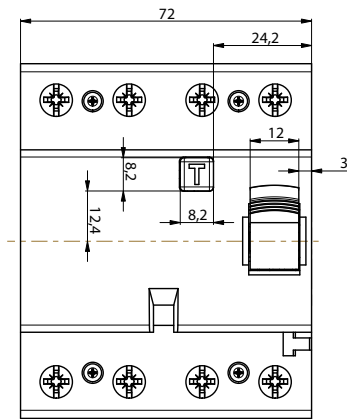
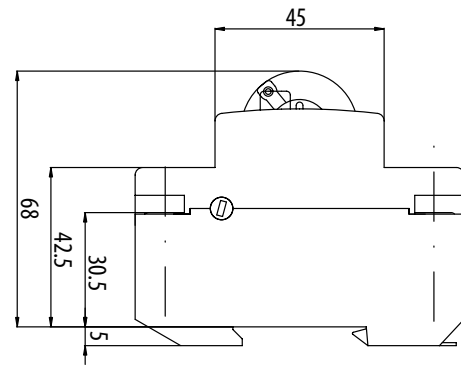
I_n [A]	Power dissipation EFI-P4 P/pole [W]
16	0,48-0,62
25	1,27-1,52
40	4,14-5,00
63	2,45-3,00
80	
100	7,35-7,65
125	10,7-11,3

Technical data

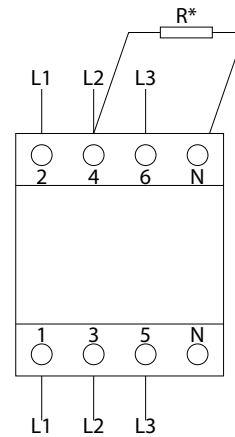
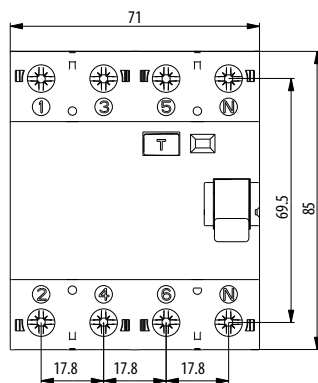
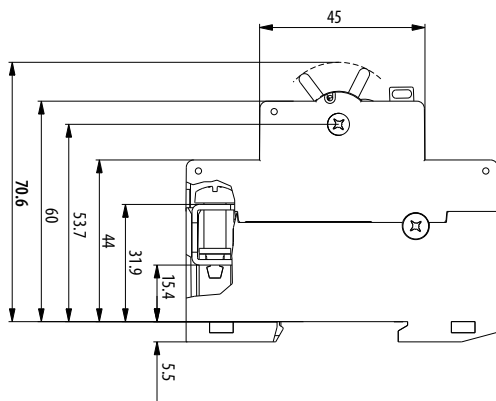
EFI-P4, EFI-P4R



EFI-4 80A, G/KV, S



EFI-P4 R 100&125A



RCD EFI-P4 Type in 3-phase system without neutral conductor:

- 30mA: R=2k7/1W/500V
- 100mA: R=1k2/1W/500V
- 300mA: R=470Ω/2W/500V
- 500mA: R=270Ω/3W/500V

* Resistor (R) has to be connected between N and 2 or L3 as to ensure proper functionality of the test button.

Technical data			
Type	G/KV type	S type	S Reset
Electrical			
Rated voltage U_n	400/415V AC	400/415V AC	400V AC
Rated current I_n	25, 40, 63A	25, 40, 63A	100 & 125A
Rated Insulation voltage U_i	440V	440V	440V
Rated frequency f_n	50/60Hz	50/60Hz	50Hz
Peak withstand current	3kA (8/20 μ s) surge current proof	5kA (8/20 μ s) surge current proof	3kA (8/20 μ s) surge current proof
Electrical isolation	> 4mm contact space	> 4mm contact space	> 4mm contact space
Rated residual operating current $I_{\Delta n}$	0,03; 0,1 & 0,3A	0,1 & 0,3A	0,1 & 0,3A
Rated conditional short-circuit current I_{cn}	10kA	10kA	10kA
Rated making and breaking capacity I_m	630A	630A	1250A
Maximum back-up fuse	80A gG	80A gG	125A gG
Insulating class	B	B	B
Standard	IEC/EN 61008, OVE E 8601	IEC/EN 61008	IEC/EN 61008
Mechanical endurance (op. c.)	> 4000	> 4000	> 5000
Electrical endurance (op. c.)	> 2000	> 2000	> 2000
Mechanical			
Frame size	45mm	45mm	45mm
Device height	68mm (DIN rail acc to EN60715)	68mm (DIN rail acc to EN60715)	70,6mm (DIN rail acc to EN60715)
Device width	72mm (4 x Module units 18mm)	72mm (4 x Module units 18mm)	71mm (4 x Module units 17,8mm)
Degree of protection	IP20	IP20	IP20
Upper and lower terminals	open mounted/lift terminals	open mounted/lift terminals	open mounted/lift terminals
Terminal capacity	1-25mm ²	1-25mm ²	1-50mm ²
Terminal screw	M5 (Pozidrive PZ2)	M5 (Pozidrive PZ2)	M6 (Pozidrive PZ2)
Terminal torque	2-2,5Nm	2-2,5Nm	2,5-5Nm
Busbar thickness	0,8 - 2 mm	0,8 - 2 mm	0,8 - 2 mm
Operating temperature	-25°C ... +55°C	-25°C ... +55°C	-25°C ... +40°C
Storage and transport temperature	-40°C ... +70°C	-40°C ... +70°C	-35°C ... +60°C
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)	5g (10,60 & 500Hz)	/
Resistance to climatic conditions	IEC/EN 61008	IEC/EN 61008	acc. to IEC 60068-2-30: 28 cycles (55 °C, 95 % relative humidity)
Contact position indicator	mechanical red/green	mechanical red/green	mechanical red/green
Supply possibility	Top or bottom	Top or bottom	Top or bottom
Mounting position	any	any	any

I_n [A]	Power dissipation EFi-4 G/KV & S type
	P / pole (W)
25	1,40-1,61
40	2,73 - 4,11
63	4,76 - 5,69
100	7,35-7,65
125	10,7-11,3

Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

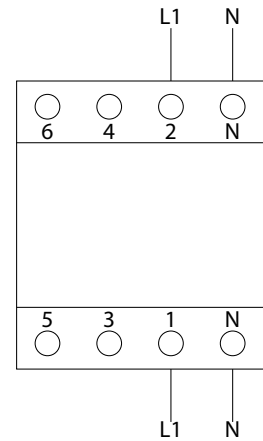
Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

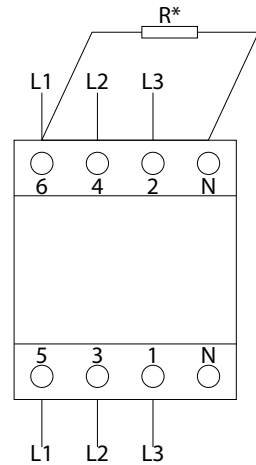
Technical data

B and B+ type residual current circuit breaker EFI-4

Technical data		
Type	B & B+	
Electrical		
Design according to	IEC/EN 61008, IEC/EN 62423 B+ -> VDE 0664-400	
Current test marks as printed onto the device		
Rated voltage U_n	230/400 V AC	
Rated frequency f_n	50/60Hz	
Mode of operation	"A type functionality: voltage independent B and B+ type functionality: voltage dependent"	
Operation voltage electronic	50 – 253V AC	
Voltage range test circuit	196 – 253V AC	
Rated residual operating current $I_{\Delta n}$	Instantaneous	30, 100, 300 mA
	K - short time delayed	30, 100, 300 mA
	S - selective	100, 300 mA
Sensitivity	Alternating, pulsed and smooth direct currents	
Rated insulation voltage U_i	440 V	
Rated impulse withstand voltage U_{imp}	4 kV (1.2/50µs)	
Rated conditional short-circuit current I_{cn}	10 kA	
Rated making and breaking capacity I_m	800 A	
Peak withstand current	3 kA (8/20 µs) surge current proof	
Electrical isolation	> 4 mm contact space	
Maximum back-up fuse $I_n = 25-63A$	Short circuit and overload protection 100 A gG/gL	
Endurance (operating cycles)	electrical components	≥ 2000
	mechanical components	≥ 4000
Mechanical		
Frame size	45 mm	
Device height	68 mm (DIN rail acc to EN60715)	
Device width	72 mm (4xModule Units 18mm)	
Degree of protection	IP20	
Upper and lower terminals	open mounted/lift terminals	
Terminal protection finger and hand touch safe	IEC/EN 61008	
Terminal capacity	1 - 25 mm ²	
Terminal screw	M5 (Pozidrive PZ2)	
Terminal torque	2 - 2.5 Nm	
Busbar thickness	0.8 - 2 mm	
Operating temperature	-25°C ... +55°C	
Storage- and transport temperature	-40°C ... +70°C	
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)	
Resistance to climatic conditions	IEC/EN 61008	
Contact position indicator	mechanical red / green	
Supply possibility	top or bottom	
Mounting position	any	



RCD ETI Type B & B+ in 1-phase system $U_n=230V$



RCD ETI Type B & B+ in 3-phase system without neutral conductor - $U_n=400V$
 30mA: $R=2k7/1W$ (500V)
 100mA: $R=7k5/1W$ (500V)
 300mA: $R=2k7/1W$ (500V)

* Resistor (R) has to be connected between N and L1 as to ensure proper functionality of the test button.

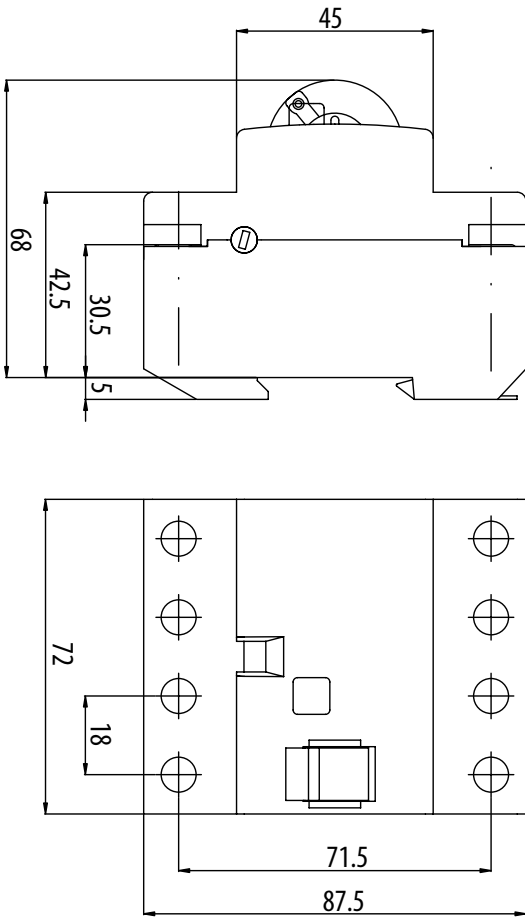
Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

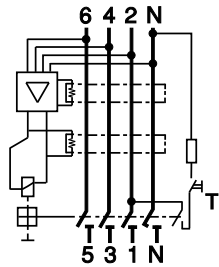
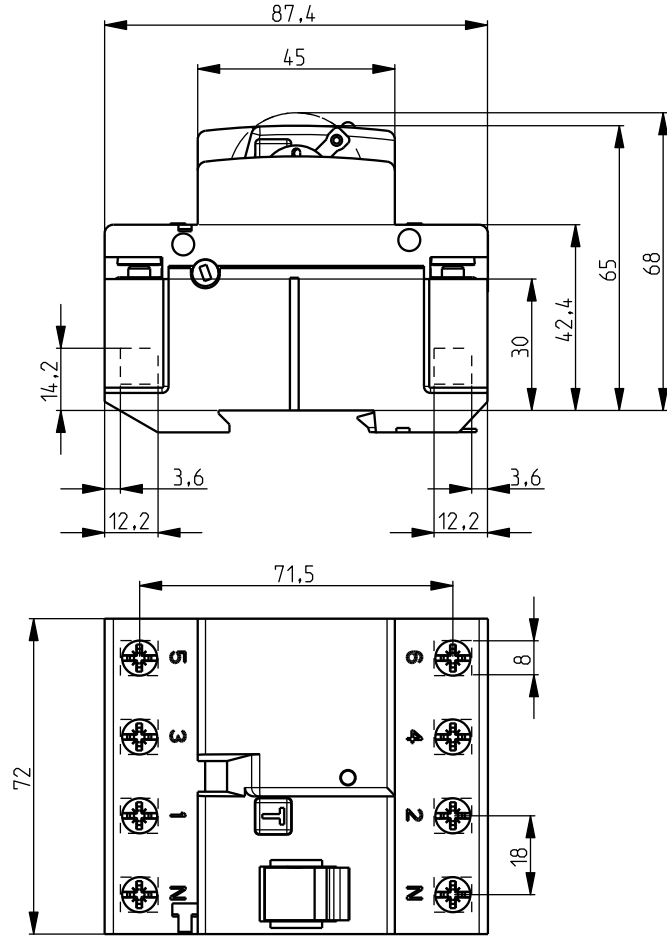
Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

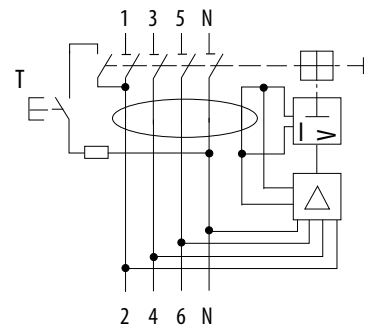
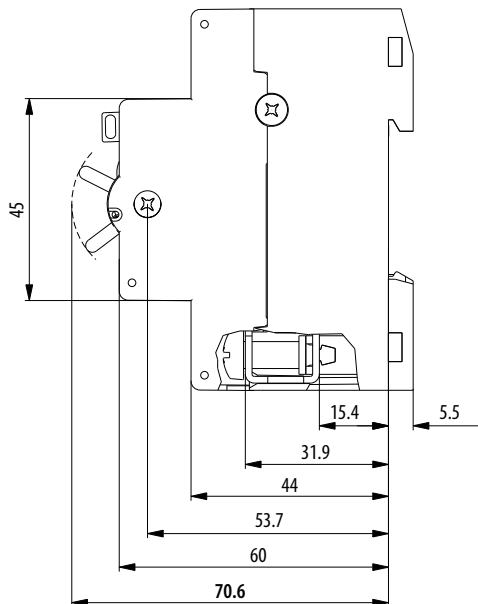
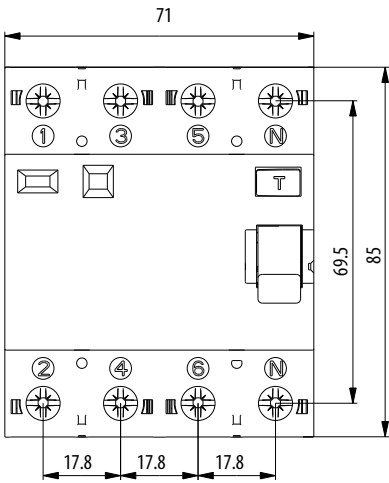
Instantaneous



K-Short time delay, S-Selective

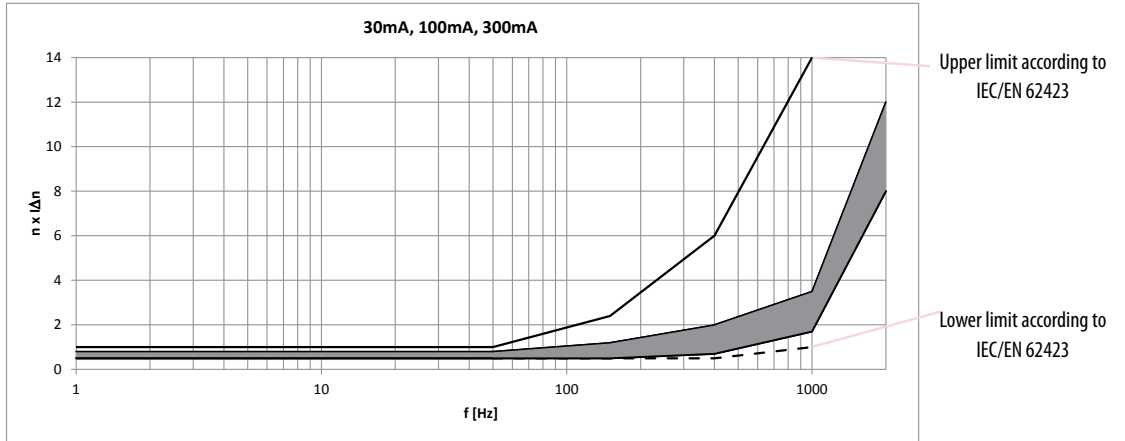


G/KV - Reset (100 & 125A)

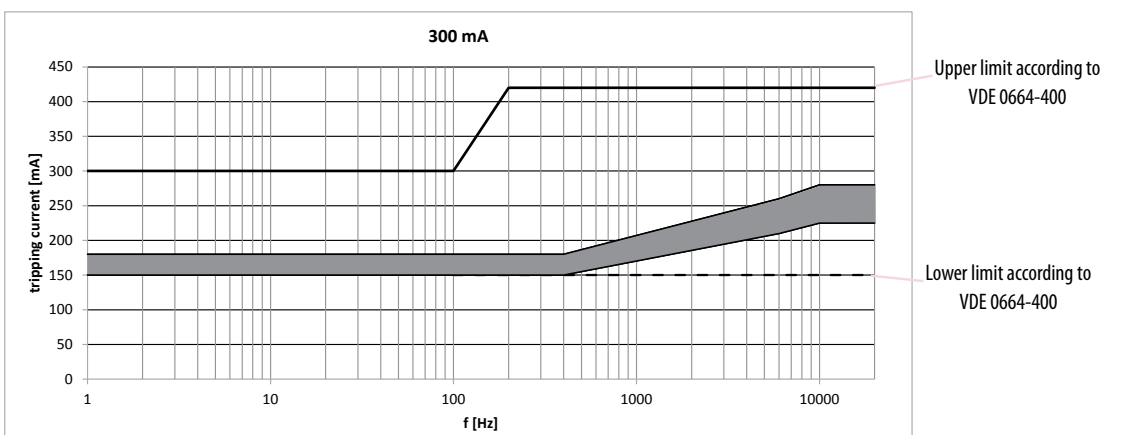
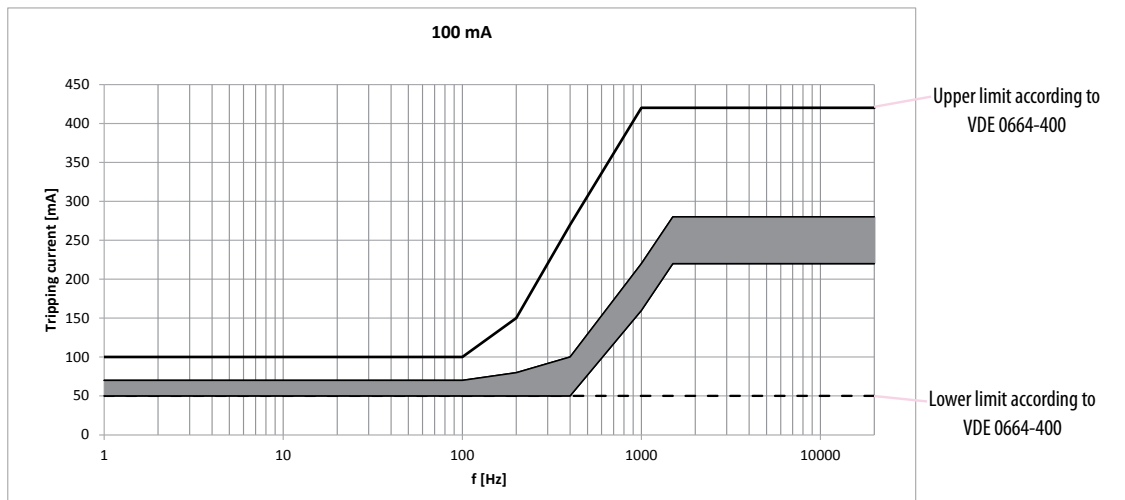
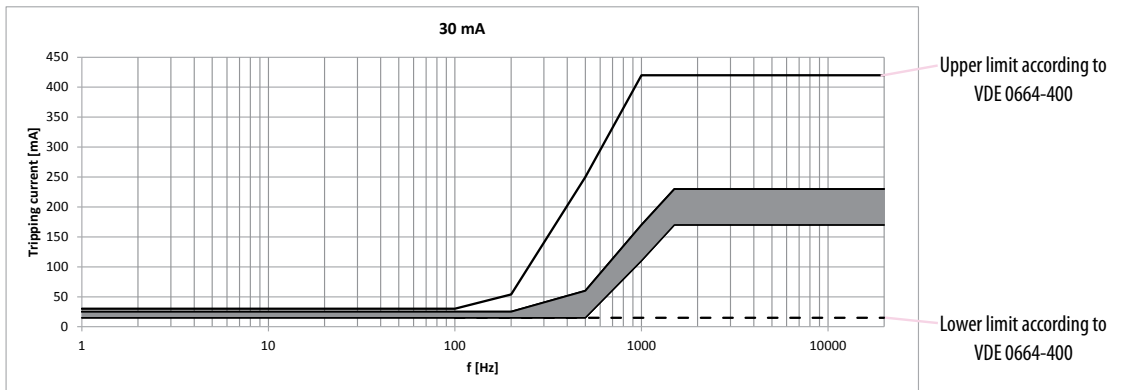


Technical data

EFI B type

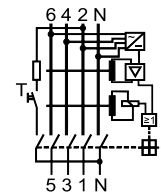
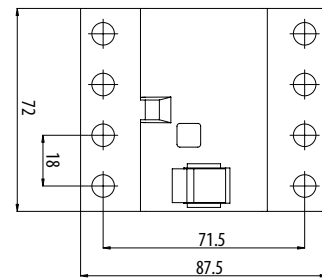
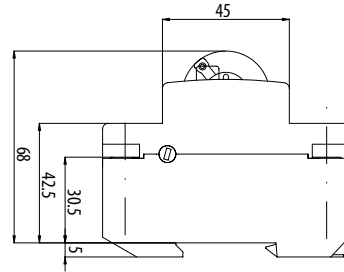


EFI B+ type



Residual Current Circuit Breakers for Protection of EV Charging Stations EFI eV

Technical data EFI-4 A eV	
Type	EFI-4 A eV
Electrical	
Rated Voltage U_n	400/415V AC
Rated current I_n	25, 40, 63 A
Rated frequency f_n	50/60Hz
Mode of operation	A type functionality : voltage independent DC functionality: voltage dependent
Sensitivity	Alternating, pulsed and smooth direct currents
Rated insulation voltage U_i	440V
Rated impulse withstand voltage (1,2/50 μ s)	4kV
Electrical isolation	> 4mm contact space
Rated residual operating current $I_{\Delta n}$	30 mA
DC tripping treshold	6 mA
Rated conditional short-circuit current I_m	10kA
Rated making and breaking capacity I_m	630A
Max back-up fuse for short circuit protection	80A gG
Voltage range test circuit	196 – 253 V AC
Min. operating voltage	80 V
Standards	IEC/EN 61008, IEC 62955:2018
Mechanical Endurance (cycles)	10.000
Electrical endurance (cycles)	2.000
Shock resistance acc. to	IEC/EN 61008-1
Resistance to vibrations acc. To IEC 60068-2-7	5g (10, 60 & 500Hz)
Mechanical	
Frame size	45mm
Device height	68mm (DIN rail acc to EN6071)
Device width	72mm (4 x Module Units)
Degree of protection	IP20
Overvoltage category	III
Upper and lower terminals	open mounted/lift terminals
Terminal capacity	1-25mm ²
Terminal screw	M5 (PoziDrive PZ2)
Terminal torque	max. 3Nm
Busbar thickness	0,8 - 2 mm
Operating temperature	-25°C ... +65°C
Storage and transport temperature	-40°C ... +85°C
Resistance to climatic conditions	IEC/EN 61008
Contact position indicator	mechanical red/green
Mounting position	any
Mounting on the rail	35mm acc to EN50022
Supply possibility	top or bottom
Locking device	Locking is possible through button and cover



In [A]	Maximum power dissipation EFI-4 A eV	
	P/pole [W]	
25	1,33	
40	3,12	
63	6,62	

conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire Cu conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

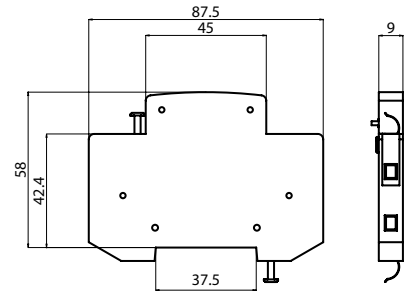
Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

Technical data

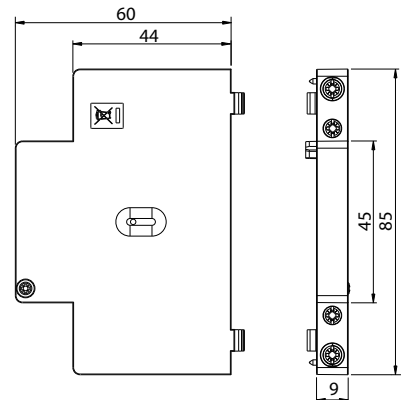
Auxiliary switch PS EFI 16 - 80A

Technical data	
Rated current I_n	6 A (230 V AC), AC 12, 1 A (110 V DC), DC 12
Conditional short-circuit current	1 kA with fuse-link 20 A
Terminals	1-2,5mm ² , max. 0,5Nm
Terminal Screw	M3 (PH1)
Mounting position	any
Standards	EN 62019



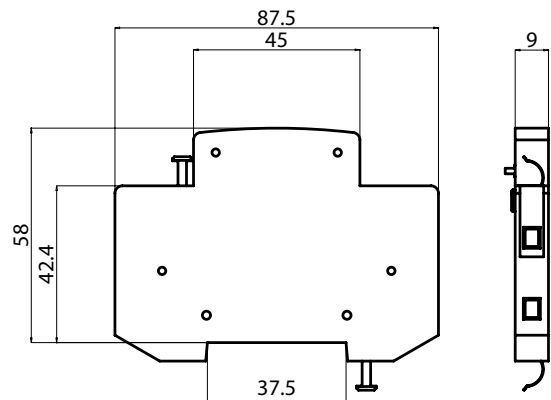
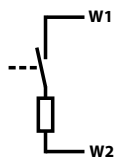
Auxiliary switch PS EFI 100 - 125A

Technical data	
Rated current I_n	6 A (230 V AC), AC 12, 1,5 A (110 V DC), DC 12
Conditional short-circuit current	10 kA with fuse-link 6 A
Terminals	0,75-2,5mm ² , max. 0,8Nm
Terminal Screw	M3 (PZ1)
Mounting position	any
Standards	IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 62019, DIN EN 62019 (VDE 0640)



Shunt trip release DA EFI 16-80A

Technical data	
Rated voltage	230V AC
Rated frequency	50/60Hz
Max inrush current	0,8A
Terminals	1-2,5mm ² , max. 0,5Nm
Terminal Screw	M3 (PH1)
Build-in width	9mm
Mounting position	any

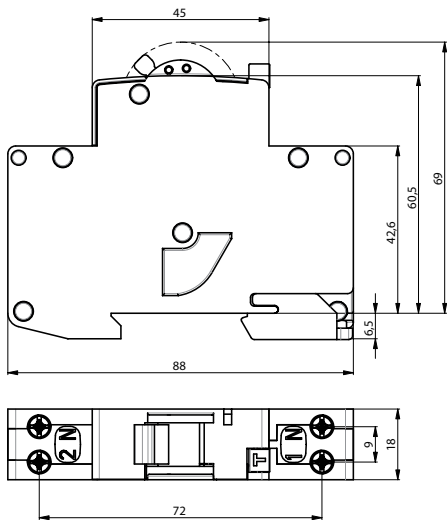


Residual current circuit breaker with integral overcurrent protection KZS -1M

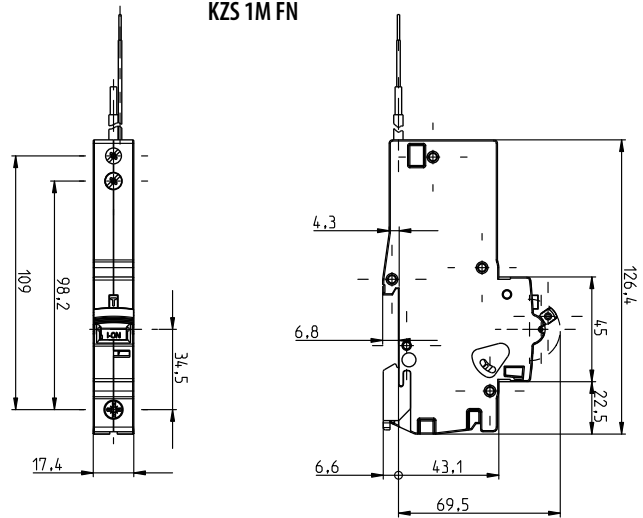
Technical data			
Type	KZS 1M	KZS 1M DN	KZS 1M FN
Rated voltage U_n		230 V AC	
Rated current I_n	6-25 A	6-25 A	6-45 A
Minimal supply voltage U_{min}		90 V	
Rated frequency f_n		50 Hz	
Rated short-circuit capacity	6.000 A	6.000 A	10.000 A
Back-up fuse		100 A gG	
Tripping characteristic		B, C	
Rated residual current $I_{\Delta n}$	10, 30, 100 mA	30 mA	30, 100 mA
Type of residual release		A, AC	
Rated residual making and breaking capacity $I_{\Delta m}$	1500A	1500A	4500A
Terminals	1-10 mm ² , max. 1,5Nm	1-10 mm ² , max. 1,5Nm	1-25 mm ² / 1-16 mm ²
Terminal screw	M4 (Pozidrive PZ2)	M4 (Pozidrive PZ2)	M5 (Pozidrive PZ2)
Width		18 mm	
Mounting position		any	
Standard	IEC 61009	IEC 61009, EN 50550	IEC 61009-1 / 61009-2
Length of neutral conductor	-	-	600 mm
Operating temperature		-25°C ... +40°C	

Voltage [V]	KZS 1M DN
	Tripping time [s]
255	/
275	3s < t < 15s
300	1s < t < 5s
350	0,25s < t < 0,75s
400	0,07s < t < 0,20s

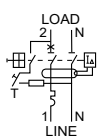
KZS-1M, KZS-1M-SUP, KZS-1M-LT, KZS-1M-DN



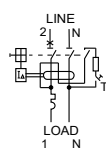
KZS 1M FN



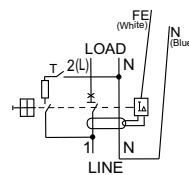
KZS-1M, KZS-1M-LT,
KZS-1M-DN



KZS-1M SUP



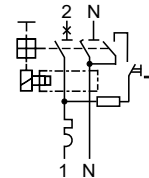
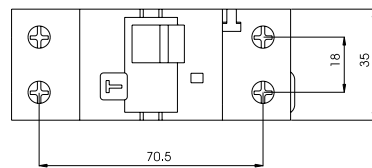
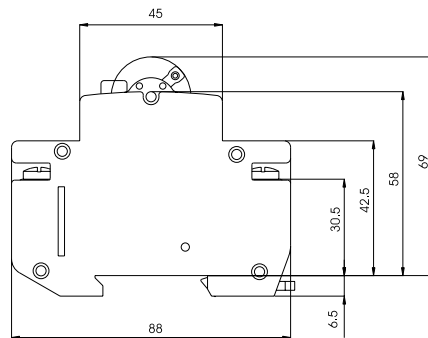
KZS-1M FN



Technical data

Residual current circuit breaker with integral overcurrent protection KZS-2M

Technical data			
Type	INST	G/KV	120 V
Rated voltage U_n	230/240 V AC		
Rated current I_n	6-40 A		
Rated frequency f_n	50 Hz		60 Hz
Rated impulse withstand voltage U_{imp}	4 kV		
Rated short-circuit capacity	10.000 A		
Back-up fuse	100 A gG		
Voltage range test circuit	180-200 V		90-143 V
Tripping characteristic	B, C		
Energy limiting class	3		
Type	A, AC		A
Rated residual current $I_{\Delta n}$	10, 30, 100, 300, 500 mA		30 mA
Peak withstand current	250 A		3 kA
Rated residual making and breaking capacity $I_{\Delta m}$	10.000A		
Terminals	1-25 mm ² , max. 3Nm		
Terminal screw	M5 (Pozidrive PZ2)		
Width	36 mm		
Mounting position	any		
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)		
Standard	IEC 61009, EN 61009		



Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

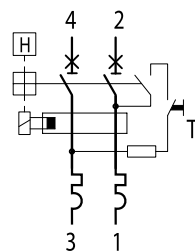
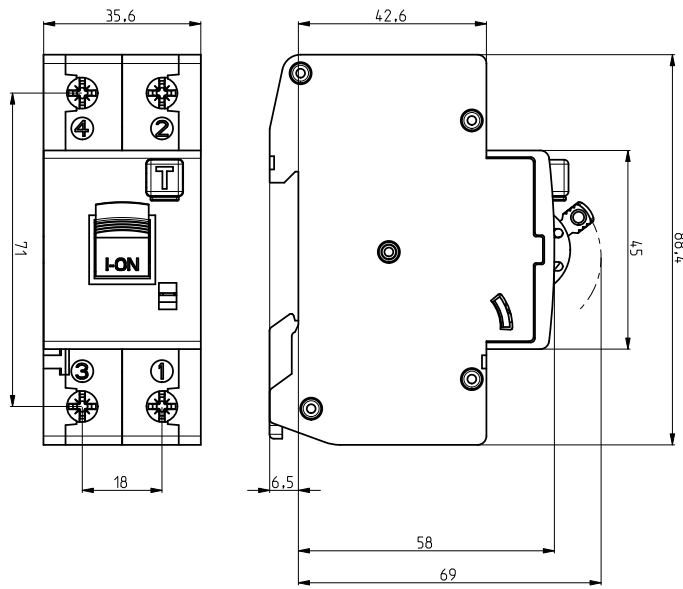
Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

Residual current circuit breaker with integral overcurrent protection KZS-2M 2p

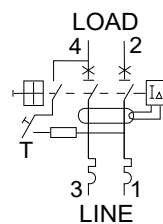
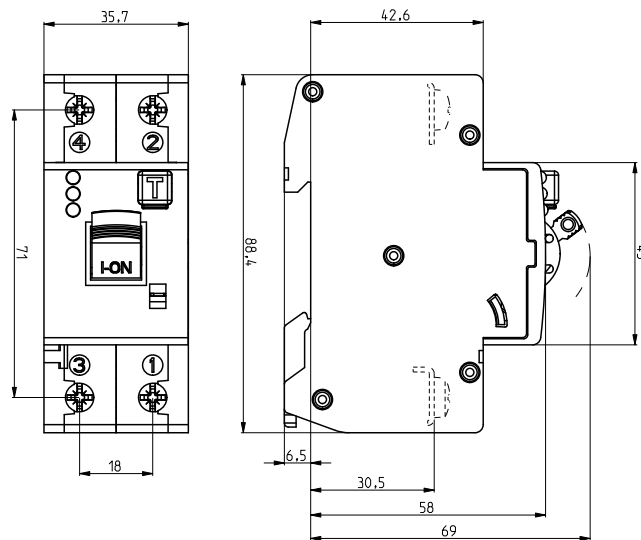
Technical data	
Rated voltage U_n	230 V AC
Rated current I_n	6-25 A
Rated frequency f_n	50 Hz
Rated short-circuit capacity	10.000 A
Back-up fuse	100 A gG
Tripping characteristic	B, C
Type	A
Rated residual current $I_{\Delta n}$	30, 100 mA
Rated residual making and breaking capacity $I_{\Delta m}$	1500A
Terminals	1-25 mm ² , max. 3Nm
Terminal screw	M5 (Pozidrive PZ2)
Width	36 mm
Mounting position	any
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)
Standard	IEC 61009, EN 61009



Technical data

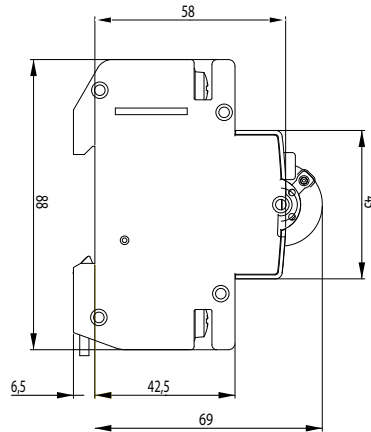
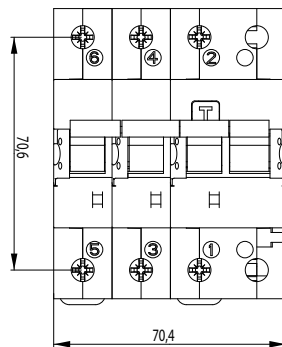
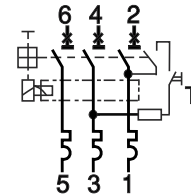
Residual current circuit breaker with integral overcurrent protection with LED status signalisation KZS 2M2p EDI

Technical data	
Rated voltage U_n	~230 V AC
Rated current I_n	6-25 A
Rated frequency f_n	50 Hz
Minimal supply voltage U_{min}	90 V
Min. LED operating voltage U_{min}	150 V
Rated short-circuit capacity	10.000 A
Back-up fuse	100 A gG
Tripping characteristic	B, C
Energy limiting class	3
Type of residual release	A
Rated residual current $I_{\Delta n}$	30 mA
Rated residual making and breaking capacity $I_{\Delta m}$	1500A
Index of protection	IP20
Overvoltage category	III
Ambient temperature	-25 °C ... +40 °C
Storage temperature	-40 °C ... +70 °C
Mounting position	any
Terminals	1-25 mm ² , max. 3 Nm
Terminal screw	M5 (Pozidrive PZ2)
Width	36 mm
Resistance to vibrations acc. to IEC 60068-2-7	5g (10,60 & 500Hz)
Standard	IEC 61009-2, IEC 61009-1



Residual current circuit breaker with integral overcurrent protection KZS-4M 3p

Technical data	
Rated voltage U_n	~400 V AC
Rated current I_n	6-32 A
Rated frequency f_n	50/60 Hz
Rated short-circuit capacity	10.000 A
Back-up fuse	100 A gG
Tripping characteristic	B, C
Type	AC, A
Rated residual current $I_{\Delta n}$	30, 100, 300, 500 mA
Rated residual making and breaking capacity $I_{\Delta m}$	4500A
Terminals	1-25 mm ² , max. 3 Nm
Terminal screw	M5 (Pozidrive PZ2)
Width	72 mm
Mounting position	any
Standard	EN 61009-1



Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

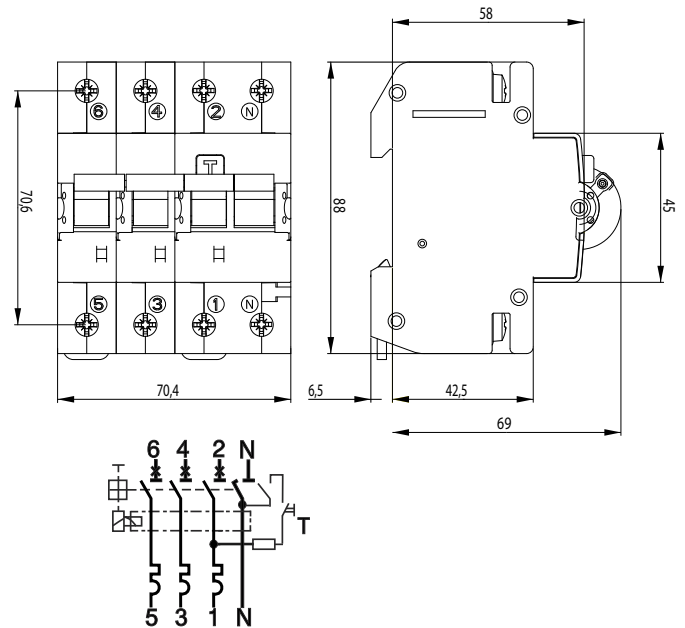
Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

Technical data

Residual current circuit breaker with integral overcurrent protection KZS-4M 3p+N

Technical data

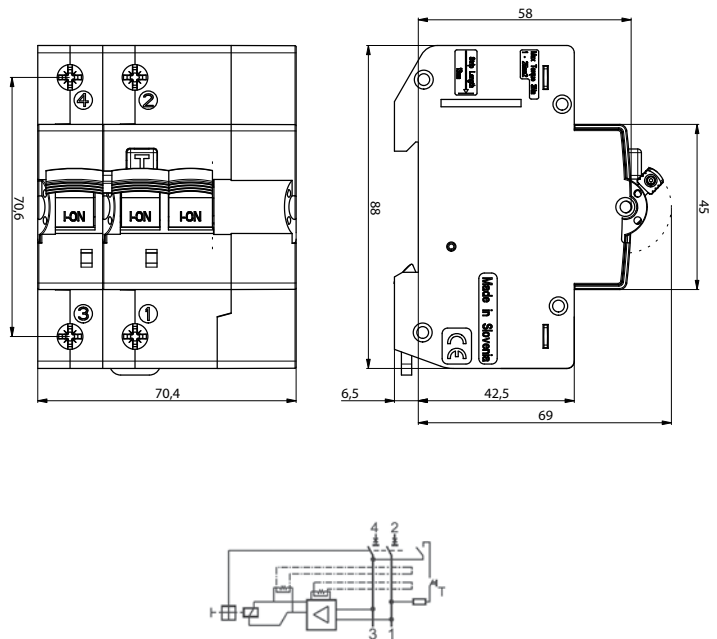
Rated voltage U_n	400/415V AC
Rated current I_n	6-32 A
Rated frequency f_n	50/60 Hz
Rated impulse withstand voltage U_{imp}	4 kV
Rated short-circuit capacity	6.000 A
Back-up fuse	100 A gG
Tripping characteristic	B, C
Energy limiting class	3
Type	AC, A
Rated residual current I_{dn}	30, 100, 300, 500 mA
Rated residual making and breaking capacity I_{dm}	4500A
Terminals	1-25 mm ² , max. 3 Nm
Terminal screw	M5 (Poqidrive PZ2)
Width	70 mm
Mounting position	any
Standard	EN 61009-1



Residual current circuit breaker with integral overcurrent protection KZS-4M 2p B-type

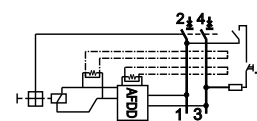
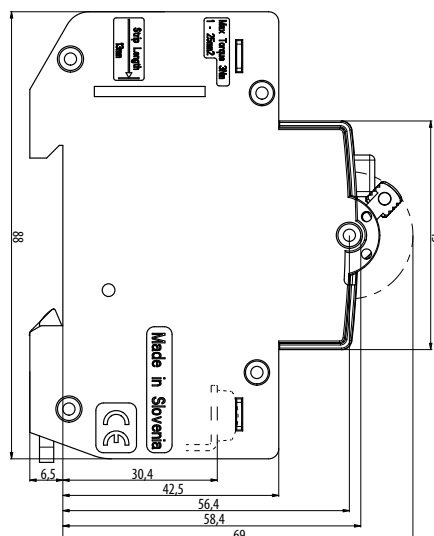
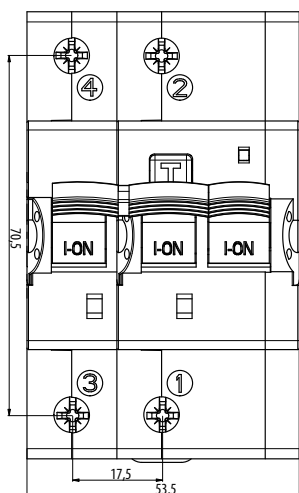
Technical data

Electrical	
Rated voltage U_n	230 V AC
Rated current I_n	6, 10, 13, 16, 20, 25, 32, 40 A
Rated Insulation voltage U_i	440 V
Peak withstand current	3kA (8/20µs) surge current proof
Electrical isolation	> 4mm contact space
Rated residual operating current I_{dn}	30, 100, 300mA
Rated short-circuit capacity	10kA
Maximum back-up fuse	100A gG
Insulating class	B
Standard	IEC/EN 61009-1, IEC/EN 62423
Mechanical endurance	20.000
Electrical endurance	10.000
Mechanical	
Frame size	45mm
Device height	69 mm
Device width	70 mm
Degree of protection	IP20
Upper and lower terminals	open mounted/lift terminals
Terminal capacity	1-25 mm ²
Terminal screw	M5 (Poqidrive PZ2)
Terminal torque	max 3,0 Nm
Operating temperature	-25°C ... +60°C
Storage and transport temperature	-40°C ... +70°C
Resistance to climatic conditions	IEC/EN 61009
Contact position indicator	mechanical red/green
Supply possibility	Top or bottom



Arc Fault Detection Device AFDD

Technical data KZS - AFDD 3M2p	
Electrical	
Rated Voltage U_n	240 V AC
Rated current I_n	6, 10, 13, 15, 16, 20, 25, 32 A
Rated residual operating current $I_{\Delta n}$	30 mA
Rated frequency f_n	50Hz
Type	A
Tripping characteristic	B, C
Rated short-circuit capacity	10kA
Rated insulation voltage U_i	440 V
Rated impulse withstand voltage U_{imp}	4kV (1,2/50 μ s)
Peak withstand current	3kA (8/20 μ s) surge current proof
Voltage range test circuit	135-264V
Min operating voltage for AFDD function	180V
Rated residual making and breaking capacity $I_{\Delta m}$	4500A
Electrical isolation	> 4mm contact space
Max back-up fuse	100A gG
Insulating class	B
Standards	IEC/EN 61009-1, IEC/EN 62606
Mechanical Endurance (cycles)	20.000
Electrical endurance (cycles)	10.000
Mechanical	
Frame size	45mm
Device height	69 mm
Device width	53.5 mm
Degree of protection	IP20
Upper and lower terminals	open mounted/lift terminals
Terminal capacity	1-25 mm ²
Terminal screw	M5 (Pozidrive PZ2)
Terminal torque	max 3,0 Nm
Operating temperature	-25°C ... +50°C
Storage and transport temperature	-40°C ... +70°C
Resistance to climatic conditions	IEC/EN 61009-1
Shock resistance acc. to	IEC/EN 61009-1
Resistance to vibrations acc. to IEC60068-2-7	5g (10,60 & 500Hz)
Contact position indicator	mechanical red/green
Supply possibility	Top or bottom
Mounting on the rail	35mm acc to EN60715
Mounting position	any



Technical data

I_n [A]	Power dissipation P/pole [W]	Rh [mΩ]	Rh/pole [mΩ]
6	1,5 - 1,7	126	63
10	1,6-1,8	86	43
13	1,8 - 2,0	60	30
16	1,9 - 2,2	48	24
20	2,2 - 2,4	40	20
25	2,8 - 3,1	34	17
32	4,0 - 4,4	24	12

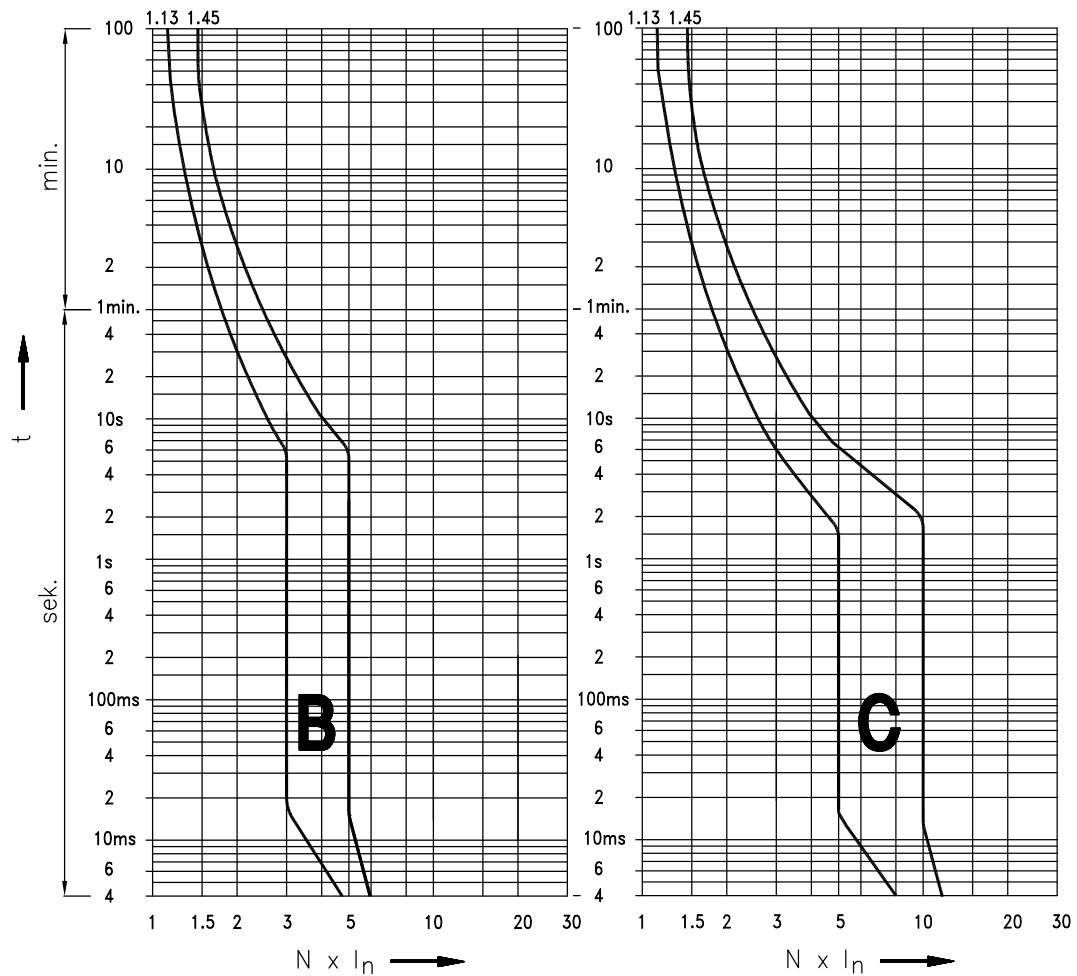
Voltage [V]	Tripping time [s]
255	/
275	$5s < t < 15s$
300	$1s < t < 5s$
350	$0,3s < t < 0,8$
400	$0,1s < t < 0,2s$

conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire Cu conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors with cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed



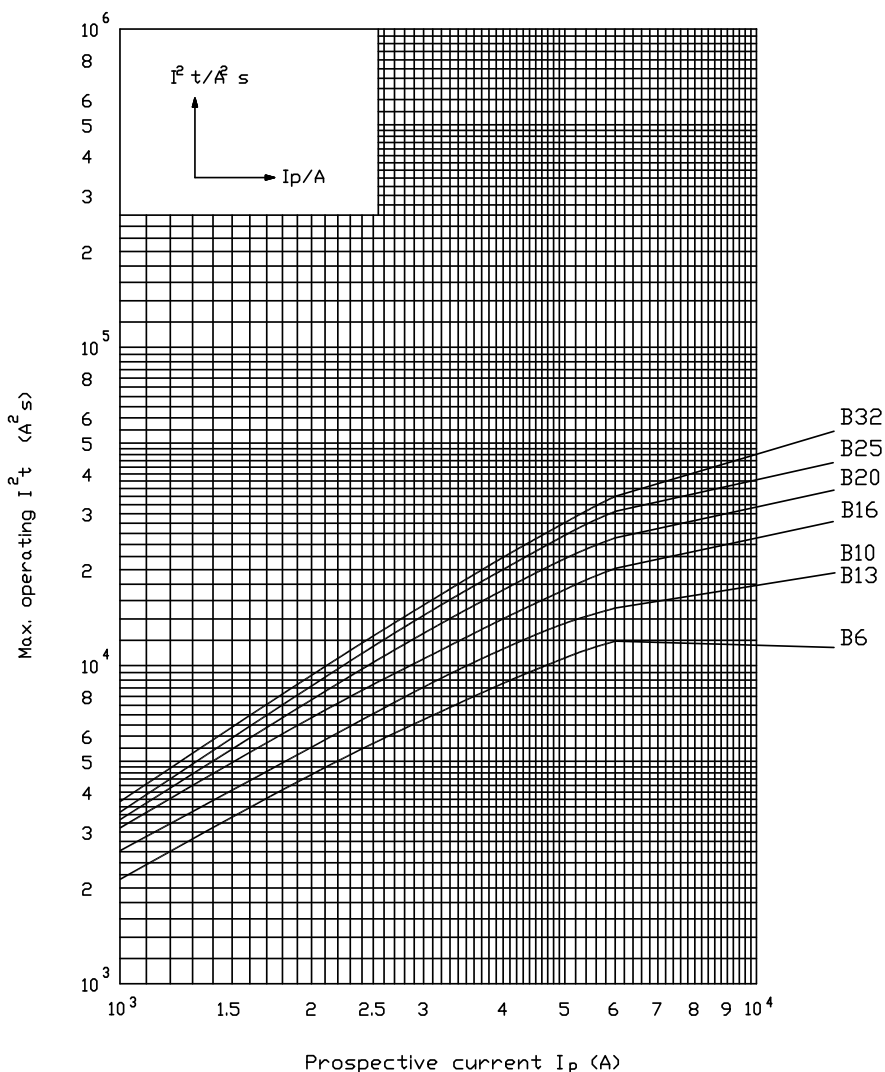
Self-Test function explanation

- How often does Self-test function perform on the AFDD?

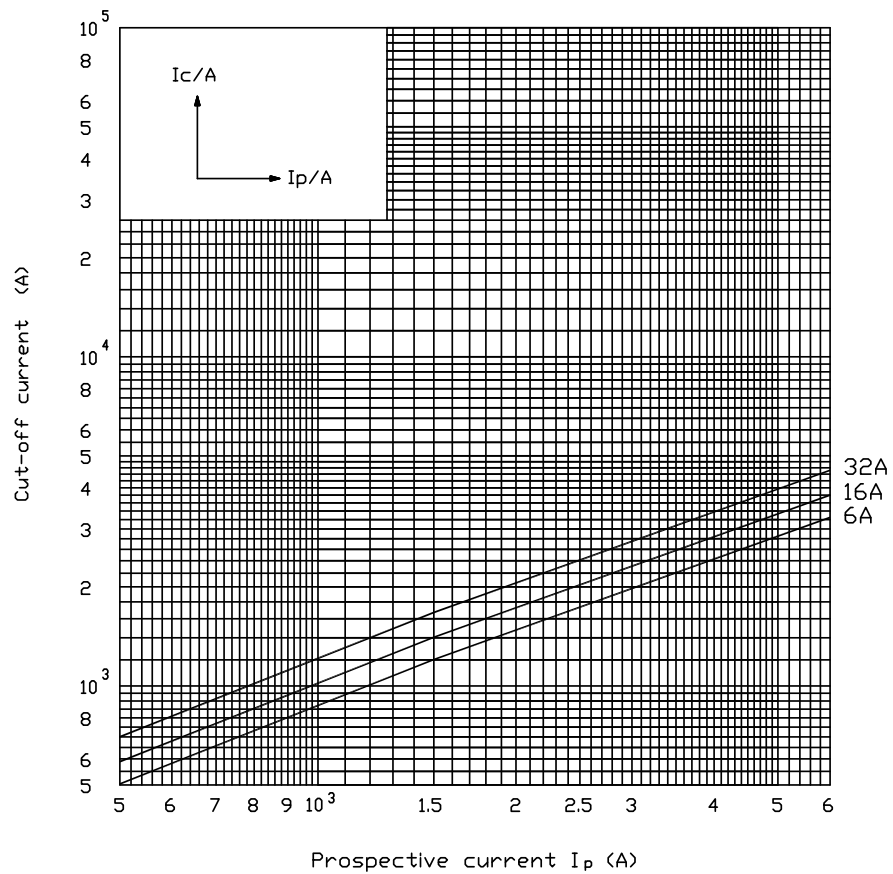
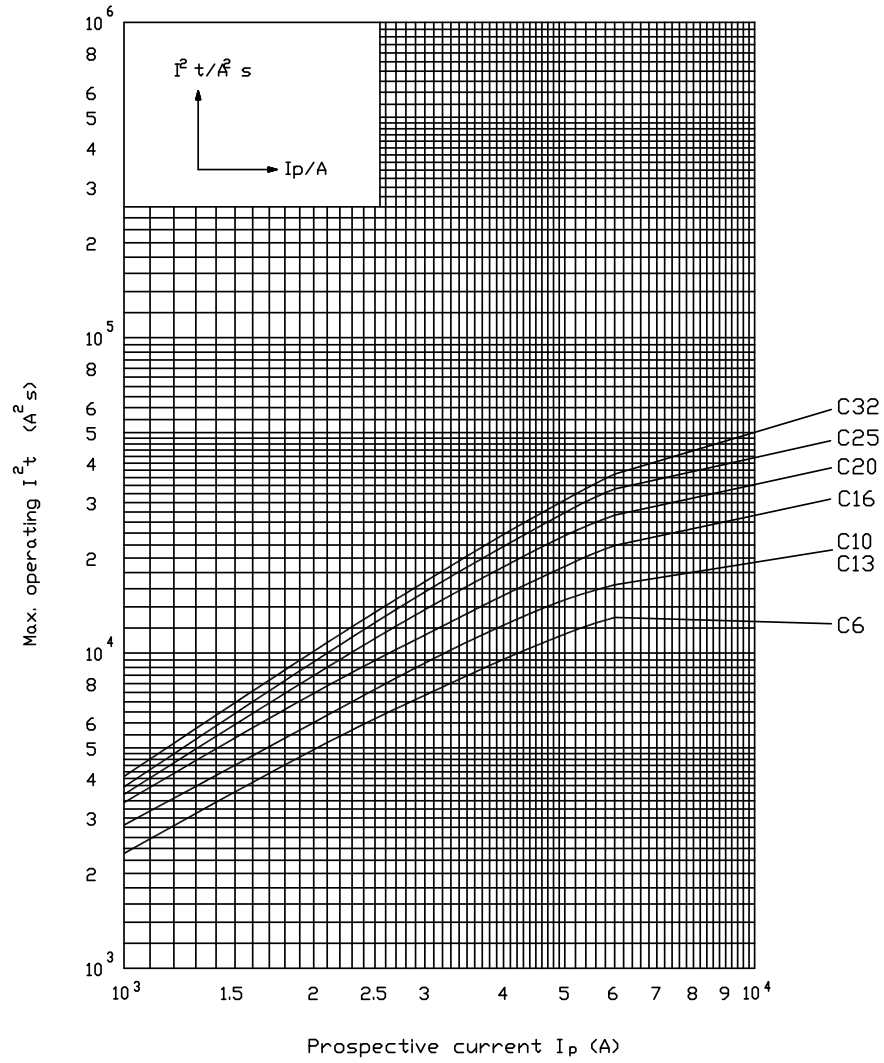
Every time it is powered and then once every minute while powered.
- What happens in the case that Self-test function is not positive, so if it fails this test, the AFD function does not work anymore?

If the self-test (automatically initiated test function) fails then the AFDD outputs a trip command. The self test checks the AFD function so if it fails then the AFD function is not operating correctly.
- In the case of failing Self-test fault what happens further: Does the AFDD trip immediately or does it trip after relatching the switch, or does not trip and just signalizes?

After a self-test failure the device will trip. Upon re-latching the AFDD signals the self-test fault by flashing the LED as described for the self-test fault below, it then does a self-test and if the result is a fail it will trip. If the AFDD cannot trip due because the tripping means is compromised (e.g. damaged PMR) it will continuously flash the LED (self-test fault) as long as it remains powered. If the self-test is a pass after re-latching then the flashing LED will cancel after 25 seconds.

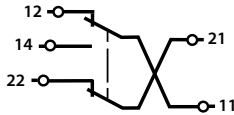


Technical data



Auxiliary switch PS KZS-2M/4M

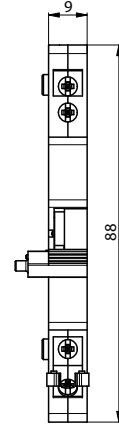
Technical data	
Function	Auxiliary Switch
Rated voltage	230V AC/DC, 110V DC
Rated current	6A (230V AC); 1A (110V DC); 0,5A (220V DC)
Rated frequency	50/60Hz, DC
Index of protection	IP 20 (IP 40)
Terminal capacity	1,5mm ²
Terminal Screw	M3 PH1
Terminal torque	max 0,5Nm
Ambient temperature	-25°C ... +40°C
Storage temperature	-40°C ... +70°C
Contacts	1x NC, 1x NC/NO
Mounting position	any
Standards	EN 62019



AUX switch connections	status of the breaker	
	ON	OFF
11-14 NO	1	0
11-12 NC	0	1
21-22 NC	0	1

NO - Normally open contact --> during the activation it makes a contact
 NC - Normally closed contact --> during the activation it brakes the contact
 1 - contact
 0 - without a contact

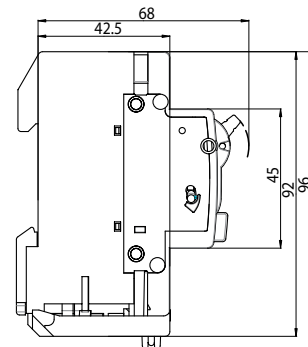
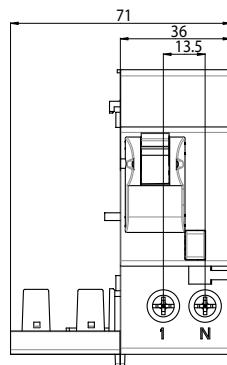
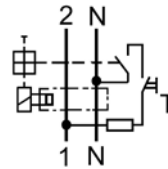
Suitable for use with:	
Type	Suitable
KZS-1M	✗
KZS 1M-FN	✗
KZS-2M	✓
KZS-2M2p	✗
KZS-4M 3p	✓
KZS-4M 3p+N	✓
KZS-4M2p	✗
AFDD	✗



Add-on block for residual current protection DIFO

DIFO2

Technical data	
Rated voltage U_n	230/400 V AC
Rated current I_n	≤32 A ≥ 40 A
Rated frequency f_n	50 / 60 Hz
Rated residual current $I_{\Delta n}$	30, 100, 300 mA
Type of residual current tripping	AC, A
Terminals	1 – 25 mm ² , max. 3 Nm
Terminal screw	M5 (Pozidrive PZ2)
Mounting position	any
Standards	IEC 61009, EN 61009



DIFO4

