

MCBs - Miniature circuit breakers ETIMAT P

Advantages of miniature circuit breakers ETIMAT P

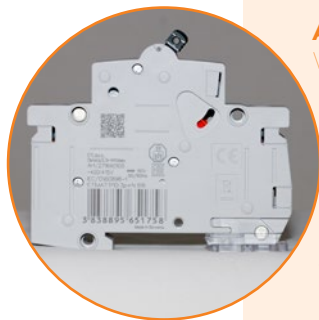
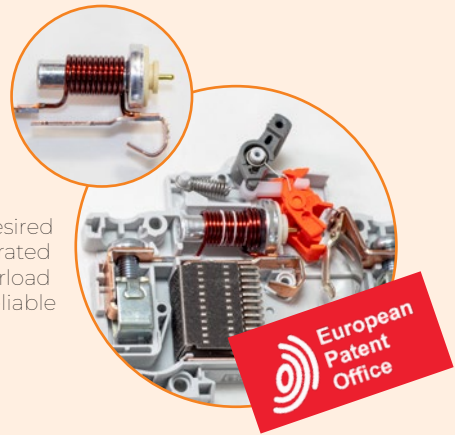


TESTED AND PROVEN QUALITY OF EACH MCB PRODUCED EXACT TRACEABILITY AND HIGHEST QUALITY CONTROL

- Fully automated assembly line with 17 different tests and measurements during assembly process to ensure best functionality of each finished product
- All important components are marked with a DMC code, containing individual test results and thus ensuring exact traceability and highest quality control of every MCB

UNIQUE TECHNOLOGY FOR PRECISE OVERLOAD TRIPPING THROUGH THE ENTIRE LIFE CYCLE

- While other MCBs on the market are adjusted to the desired tripping characteristic afterwards, ETIMAT P uses a new integrated thermal release, preventing both manual tampering of overload settings and material deterioration, ensuring a precise and reliable overload tripping through the entire life cycle of the MCB.

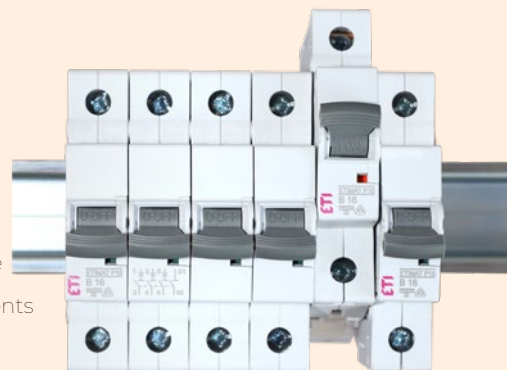


ALL REQUIRED DATA READILY AVAILABLE WITH A SINGLE QR CODE SCAN

- Every product has a QR code with a link to the product webpage with all relevant information, instruction manuals and other technical materials.
- All important technical data is printed on the front and side of the MCB
- Every product is marked with EAN code

SUPERIOR TECHNICAL FEATURES

- reduced power dissipation
- high electrical endurance: 20.000 operation cycles
- operation in DC circuits with voltage up to 60V DC/pole
- construction solutions protected by two European patents



SPECIAL VERSIONS TOGGLE POSITION INDICATES TRIPPING LESS ROOM FOR USER ERROR

- Reset version:
In case of overcurrent, the button moves to the "trip" (middle) position. In case of manual turn off, the button moves to the "off" (lowest) position (only ETIMAT P10).

Miniature circuit breakers

WIDE RANGE OF AUXILIARY DEVICES AND ACCESSORIES AND EASE OF INSTALLATION

→ possibility of mounting up to 3 auxiliary / signal switches



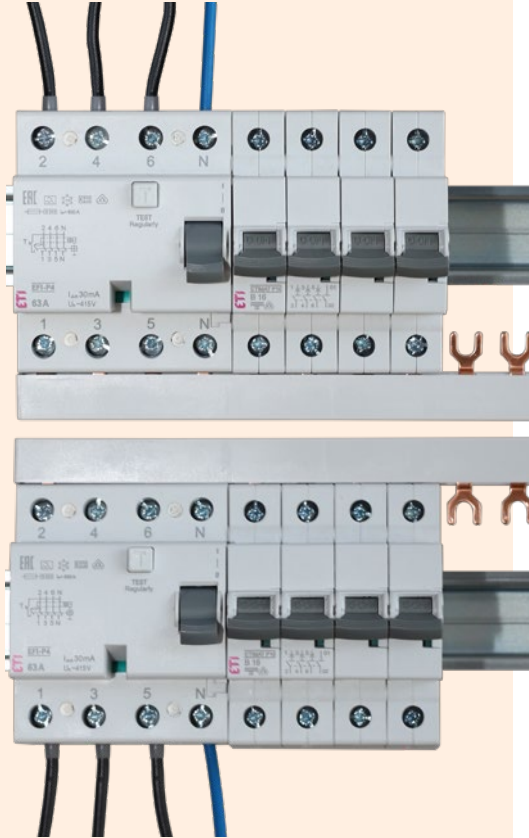
→ Terminal cover



→ Locking device



→ Double connection possibility - all MCBs can be simultaneously connected to busbar and conductor, both from above and below



→ supply possibility from top or bottom

→ possibility to connect wires to terminals up to 25 mm²

→ same profile as our other modular devices resulting in a coordinated and streamlined look to the installation

ATTENTION TO DETAILS

→ Trip-free mechanism ensures that MCB trips even if the toggle is held in ON position

→ Separate indication of contacts' real state (independent of the toggle position) ensures additional user safety

→ green flag: contacts open, red flag: contacts closed

→ Better protection of terminals against touching the parts under voltage



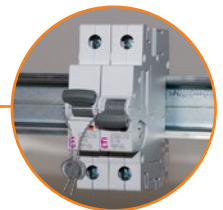
→ Sturdy pins on 4-module devices



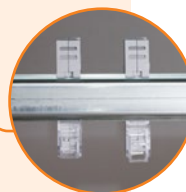
→ "ON/OFF" mark on the switch button



→ Possibility of sealing in "ON" or "OFF" position



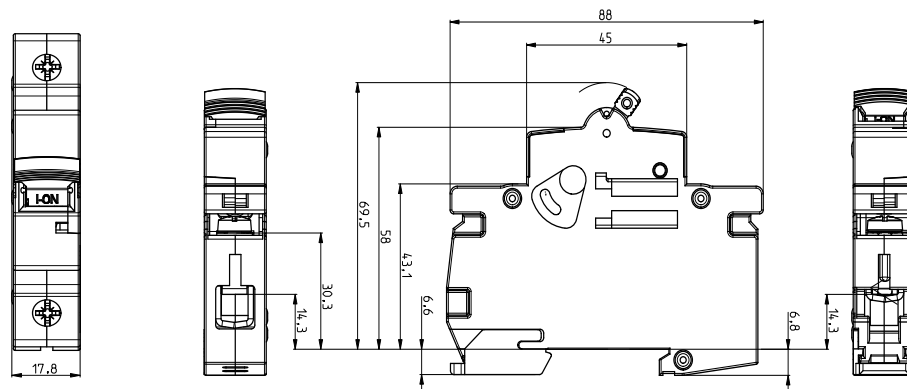
→ Space for labeling



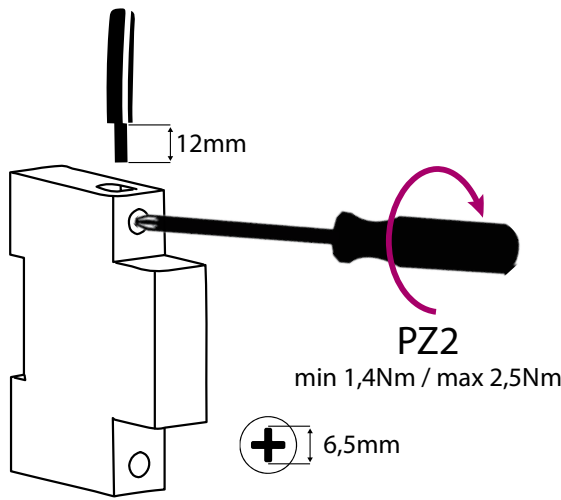
→ NO Wobble™ technology new snapping unit enables easy, firm and secure DIN-rail mounting and replacement

Miniature circuit breaker ETIMAT P10 - NEW GENERATION

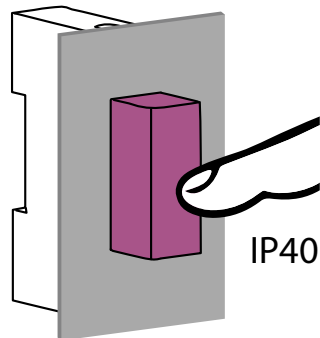
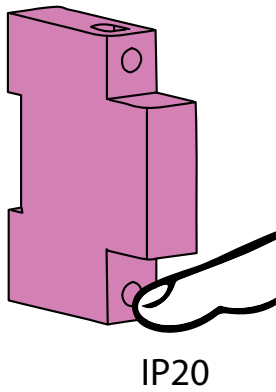
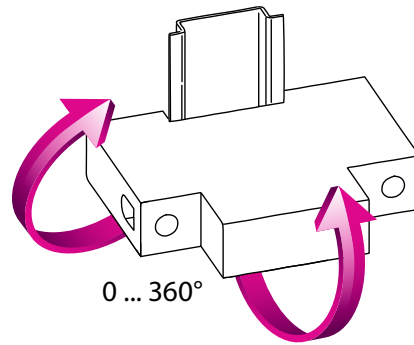
Technical data	
Rated voltage	240/415V AC; max 60V DC/pol
Min. operating voltage	12V AC/DC
Max operating voltage	250/440V AC
Rated current	B:1-63A, C:0.5-63A,D:0.5-63A, K&Z:0.5-32A
Rated frequency	50/60Hz
Rated insulation voltage	500V
Rated impulse withstand voltage	6kV (acc. to 60947-2)
Shock resistance	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 ≥ 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, Z	1,05 I _n	t > 7200 s	No Tripping
K, Z	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



Any mounting position



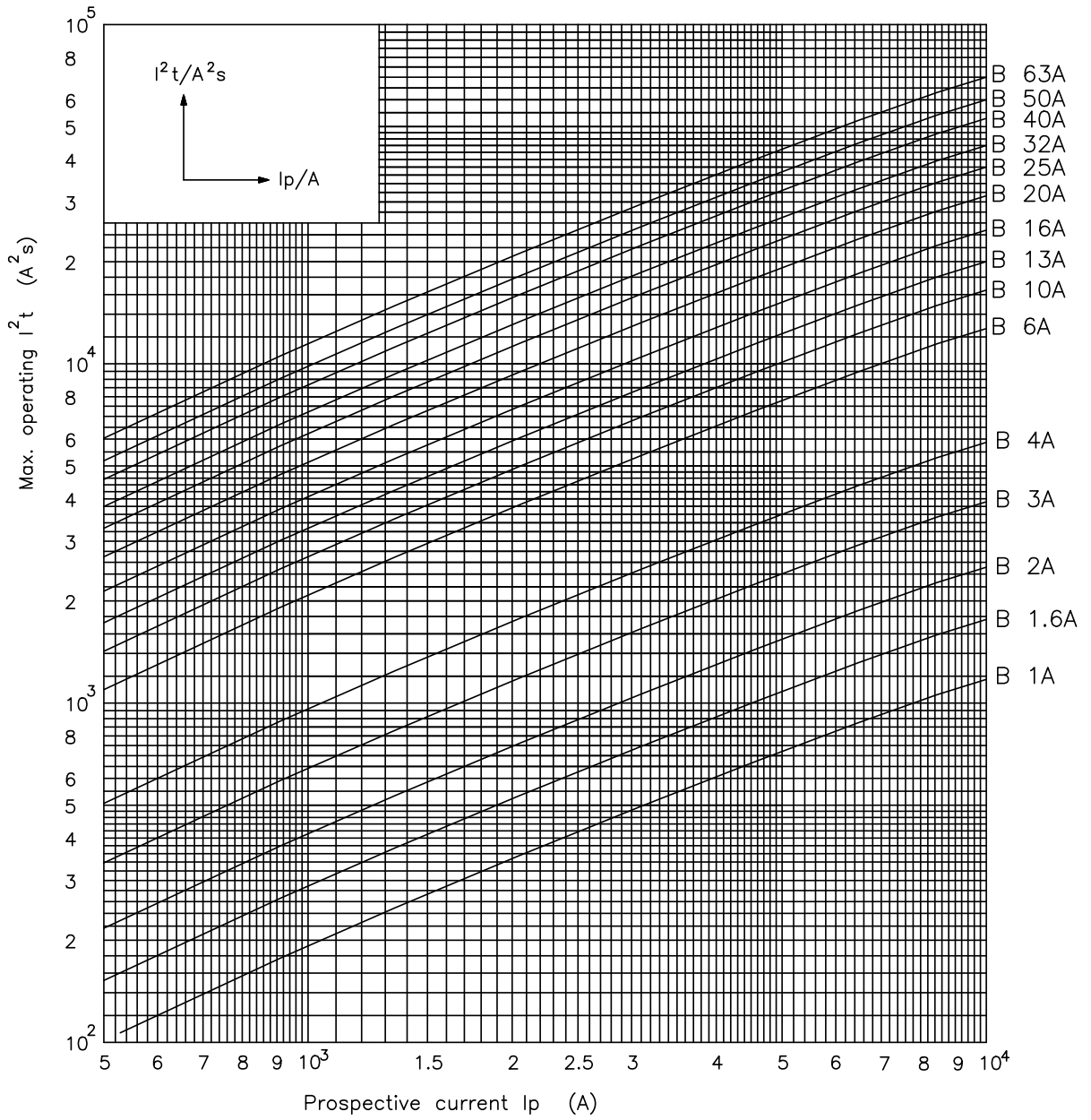
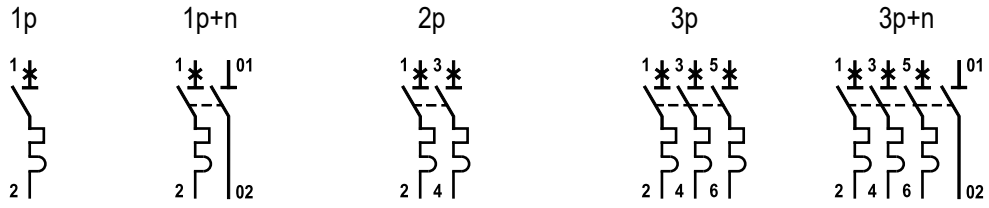
Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire CU conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

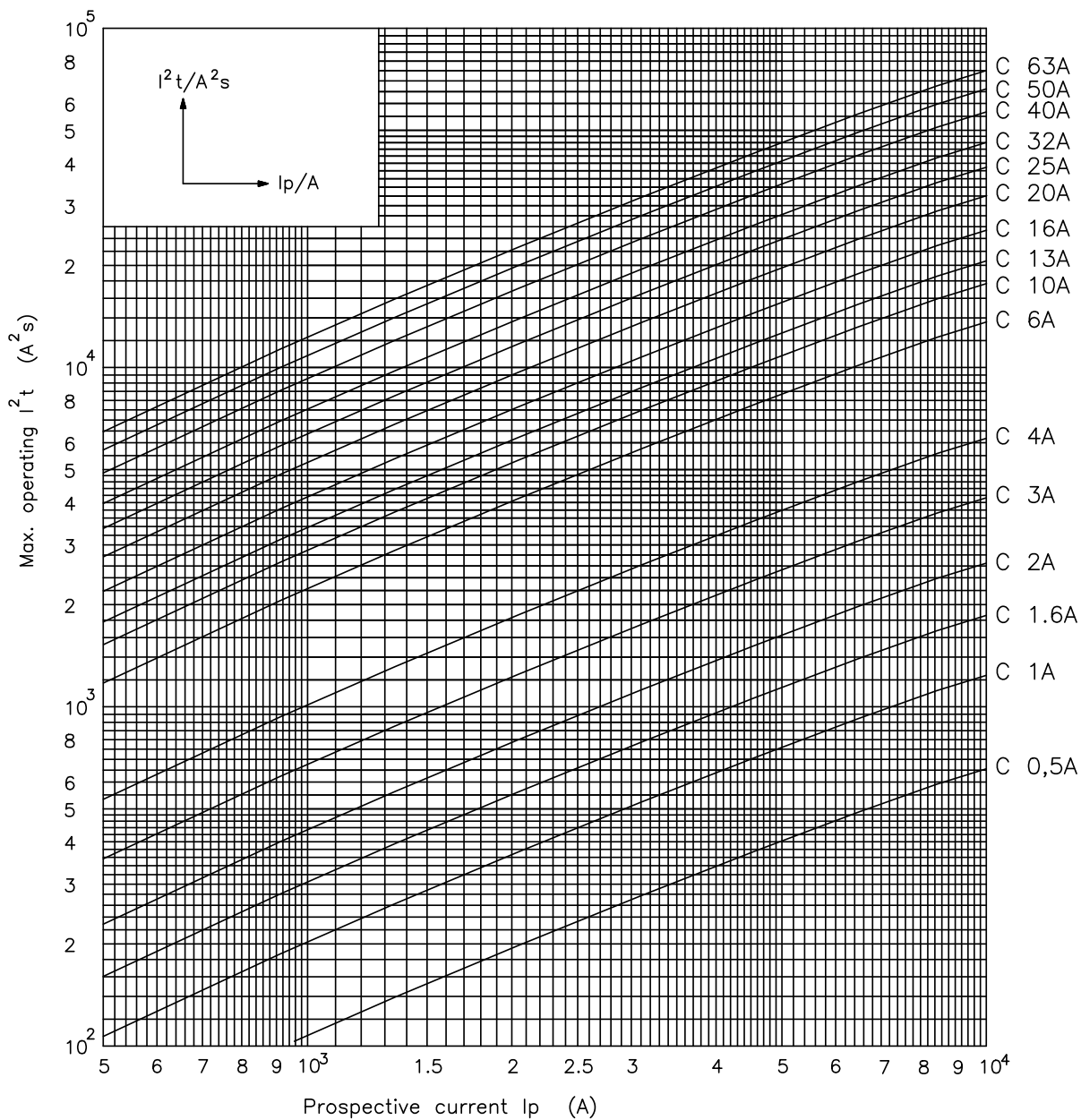
Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors without cable ferrule					
	1	2	3	4	5	6
1,5	✓	✓	✓	✓	✓	✓
2,5	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗	✗
16	✓	✗	✗	✗	✗	✗
25	✓	✗	✗	✗	✗	✗

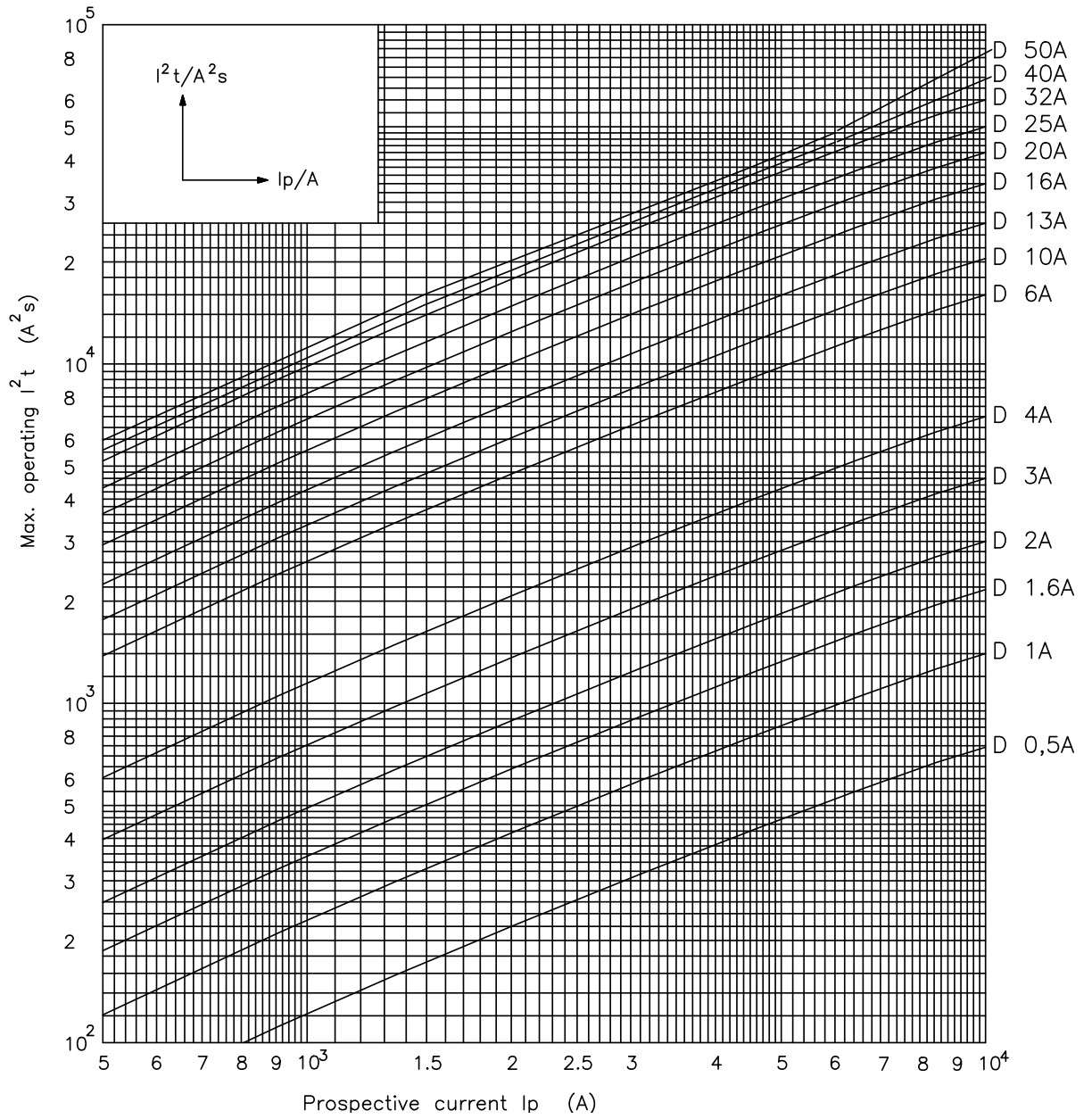
Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

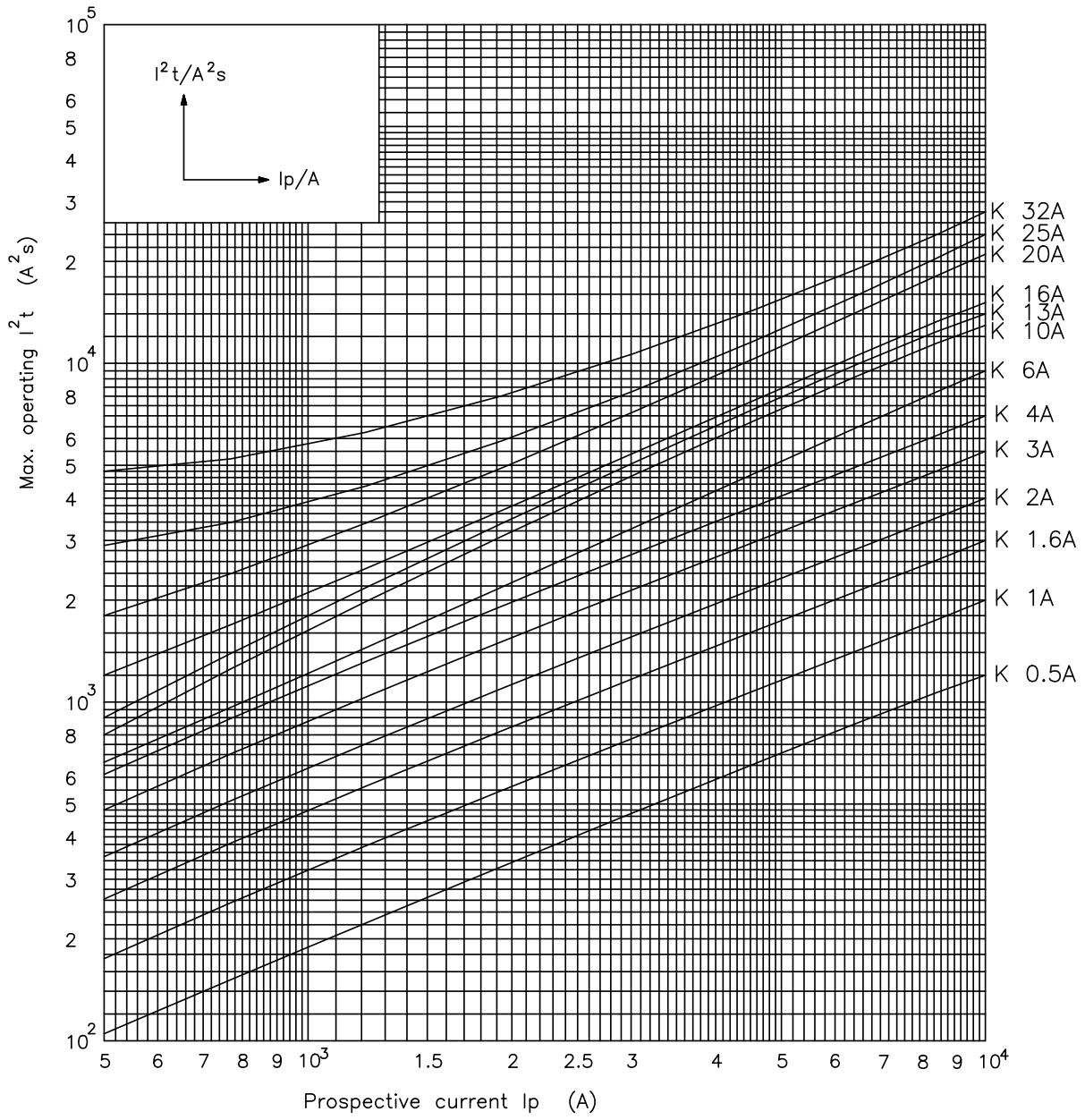
Combination of rigid single-wire and flexible multi-wire Cu conductors is not allowed

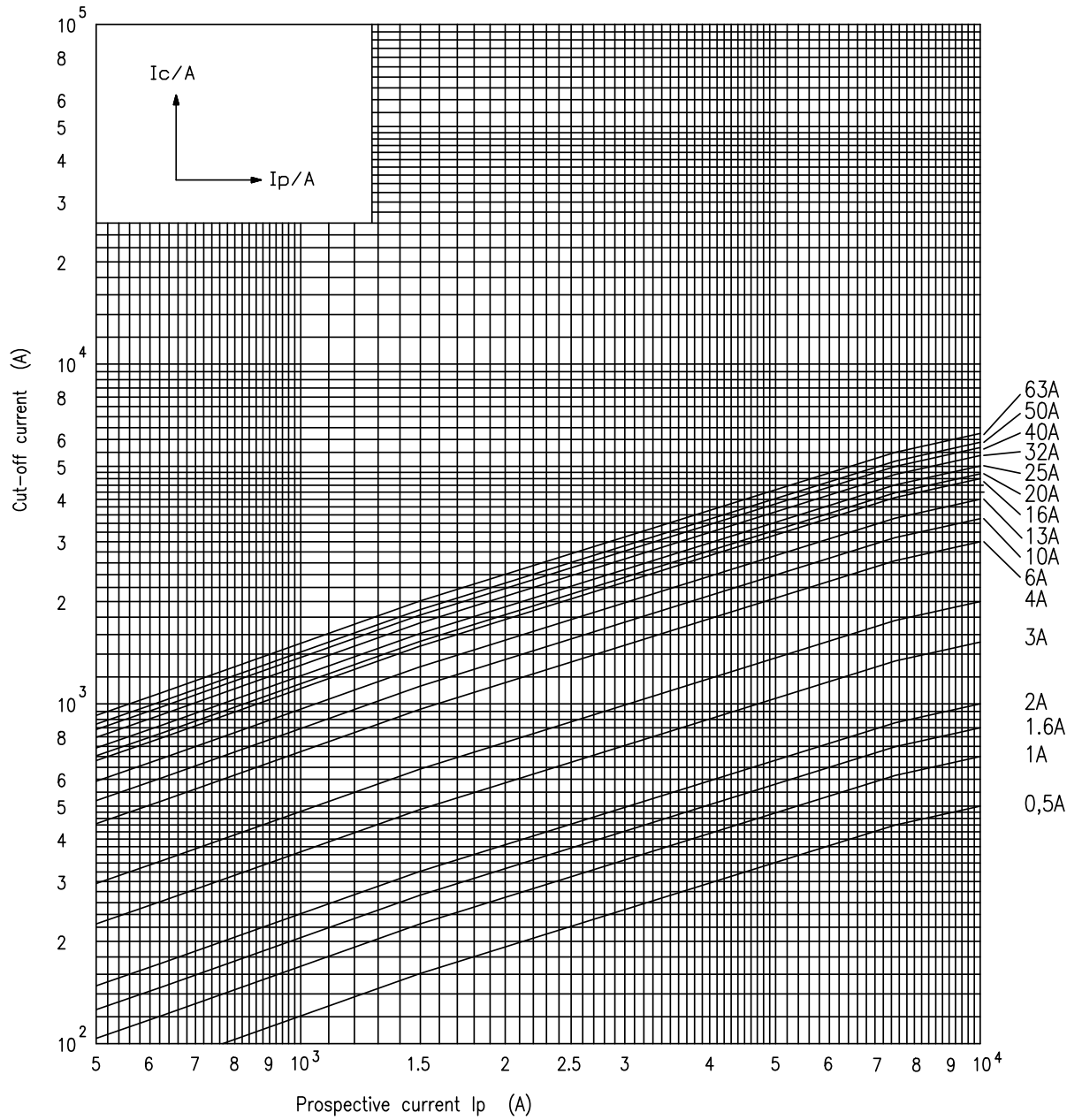
Technical data



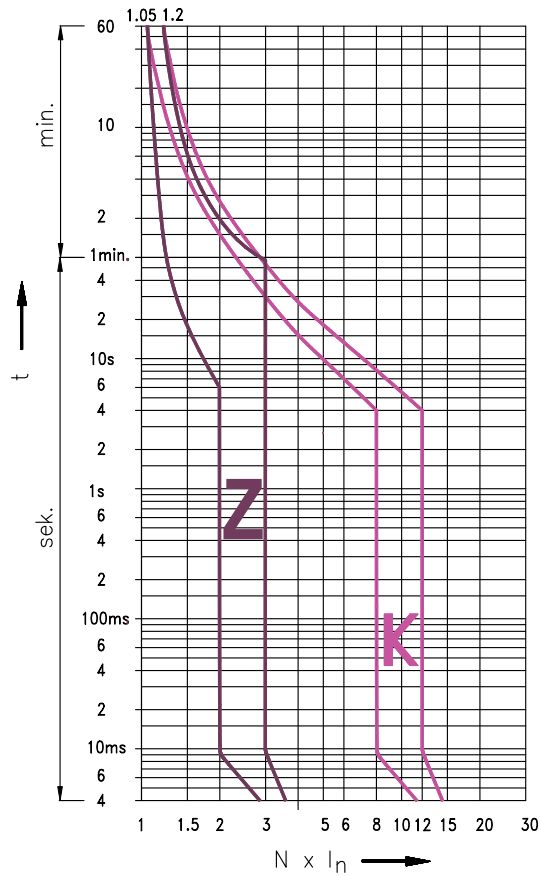
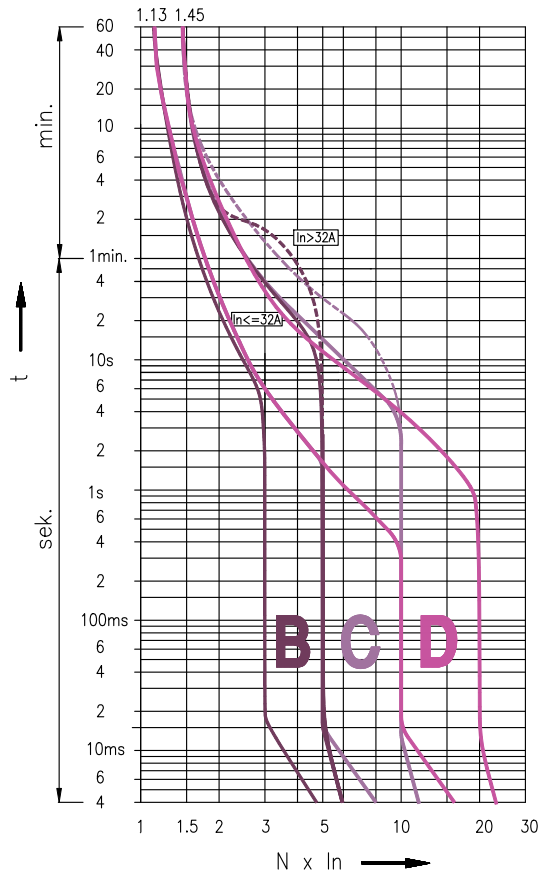




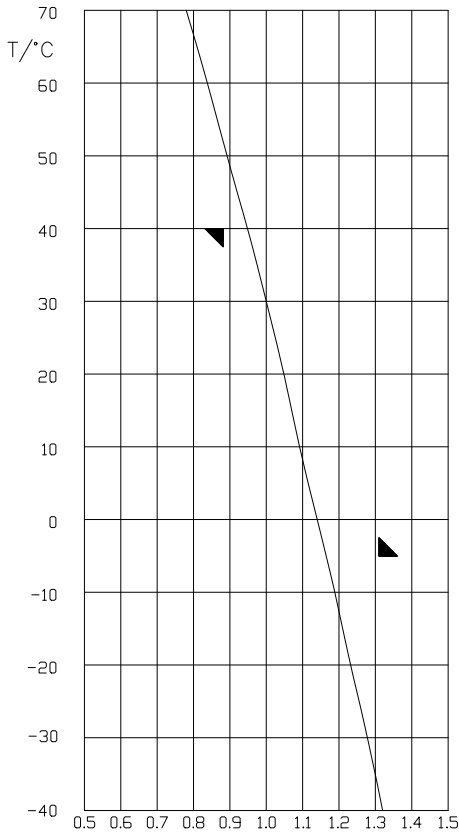




I/t characteristic at 50 and 60Hz



Effect of the ambient temperature on the tripping characteristic



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

In (A)	Ambient temperature T/°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

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

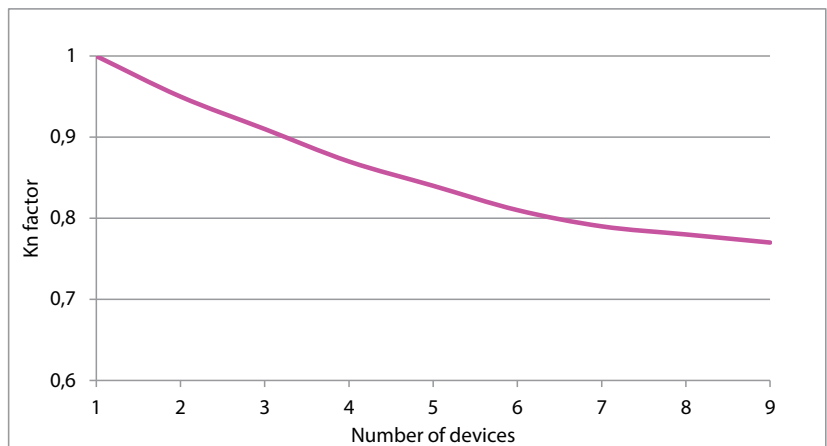
ETIMAT	gG NV [kA]										
	20	25	32	35	40	50	63	80	100	125	160
B 6	0,5	0,78	1,2	1,4	1,7	2,4	4,6	7,0	10	10	10
B 10/13	0,45	0,65	1,1	1,3	1,6	2,2	4,0	6,5	10	10	10
B 16		0,55	1,0	1,2	1,5	2,0	3,6	5,5	9,5	10	10
B 20			0,85	1,2	1,5	1,8	3,1	4,6	9,0	10	10
B 25				1,1	1,4	1,7	2,9	4,0	8,0	10	10
B 32					1,3	1,6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

ETIMAT	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

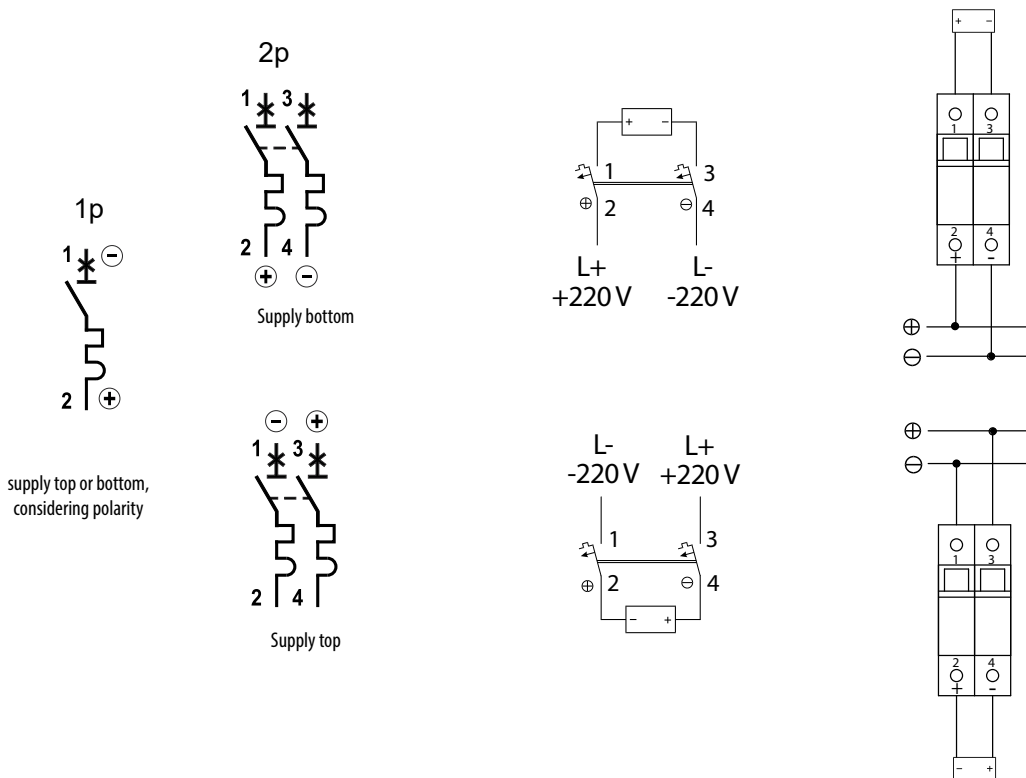
Correction factor K_n

Number of devices	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 DC - NEW GENERATION

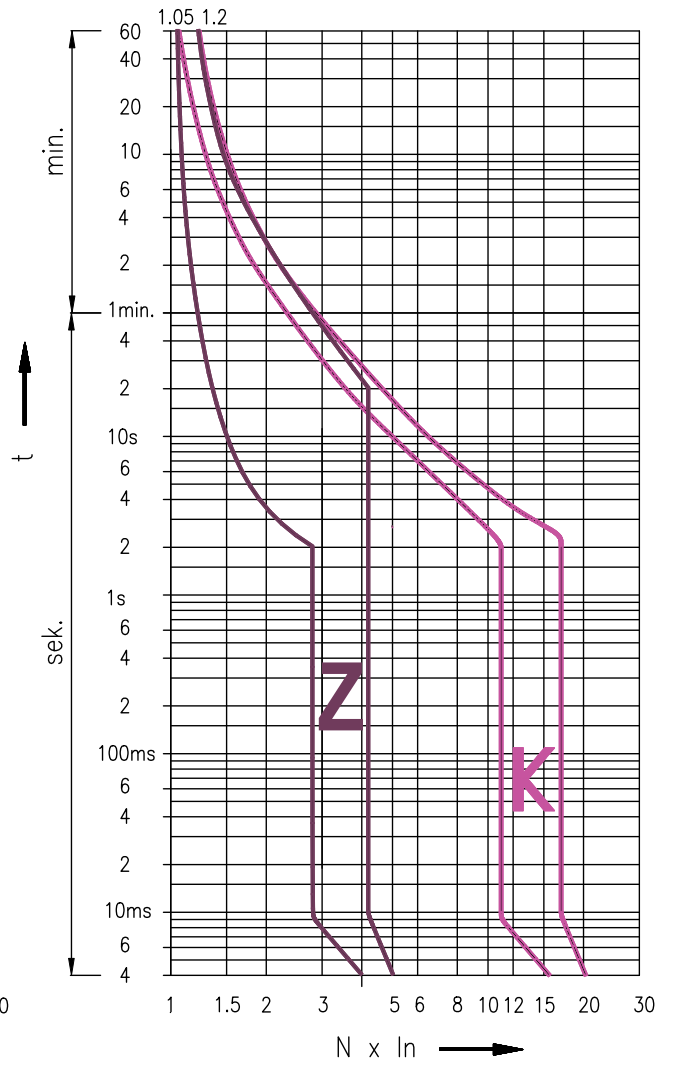
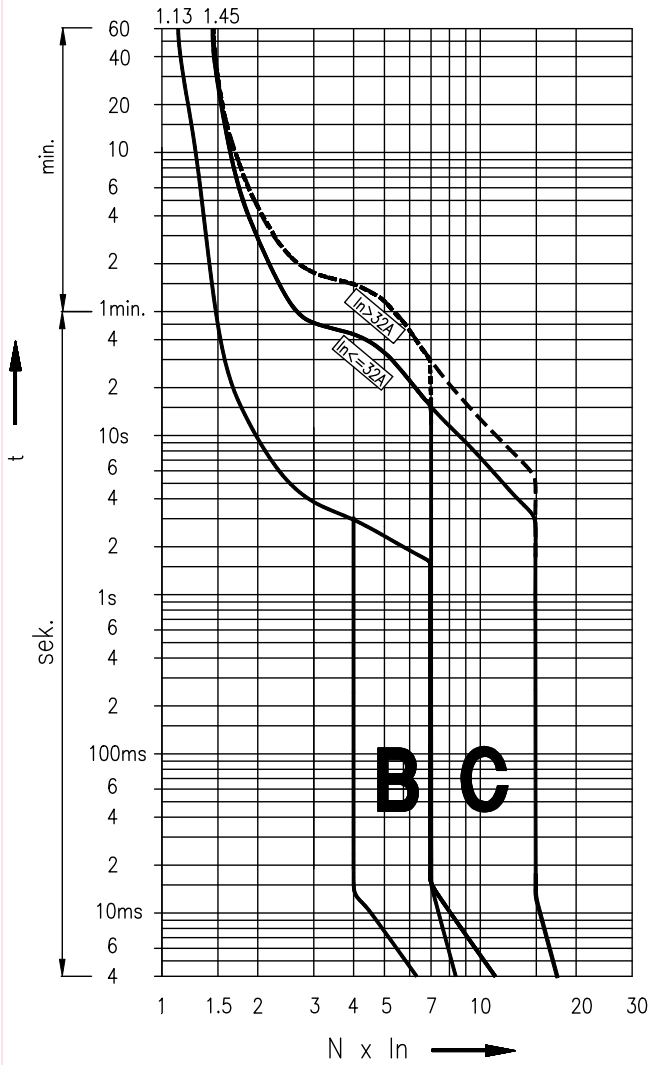
Technical data	
Rated voltage - for 1-pole U_n - for 2-pole U_n	220 V DC 220 V / 440 V DC
Rated time constant L/R	4 ms
Rated current I_n	0,5-32A (K & Z), 0,5-63A (C), 2-63A (B)
Rated short-circuit capacity	10 kA
Tripping characteristic	B, C, K, Z
Energy limiting class	3
Insulating class	B
Pollution degree	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

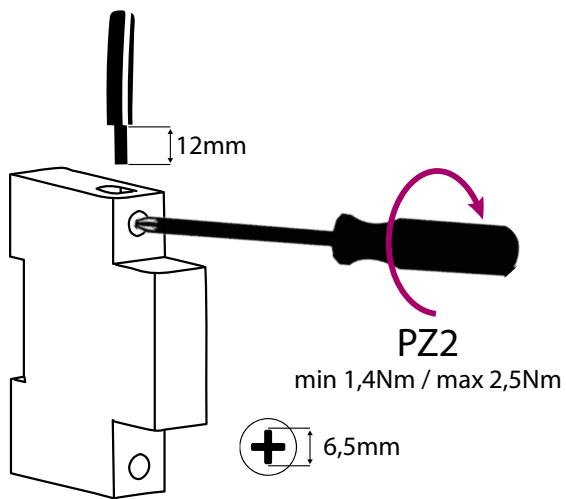


Conductor cross-section [mm ²]	Number of single conductors, rigid, single-wire Cu conductor				
	1	2	3	4	5
1,5	✓	✓	✓	✓	✗
2,5	✓	✓	✓	✗	✗
4	✓	✓	✓	✗	✗
6	✓	✓	✗	✗	✗
10	✓	✓	✗	✗	✗
16	✓	✗	✗	✗	✗
25	✓	✗	✗	✗	✗

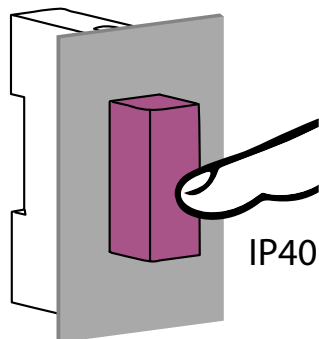
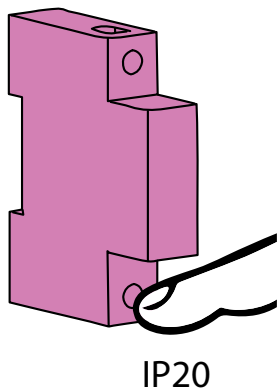
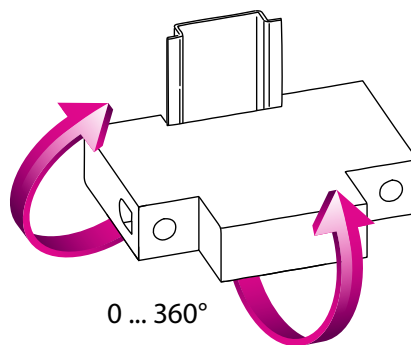
Remark: When you use more than 2 cables you have to be careful how those cables are inserted, due to insure proper pressure on each cable

Conductor cross-section [mm ²]	Number of single conductors, flexible Cu conductors without 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

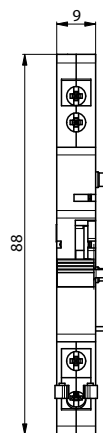
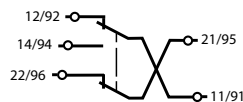


Any mounting position



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

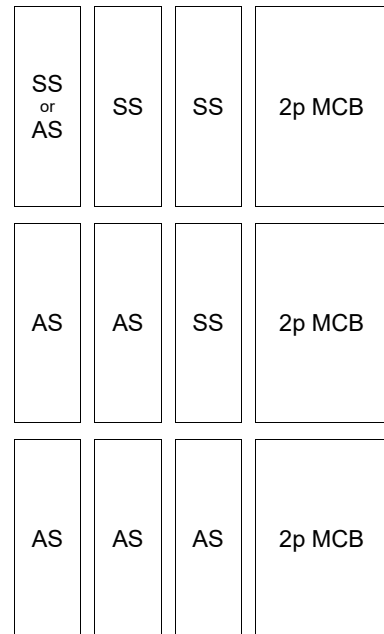
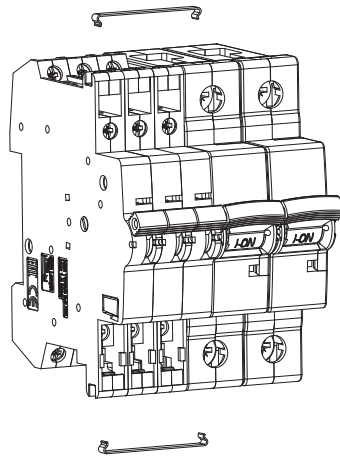
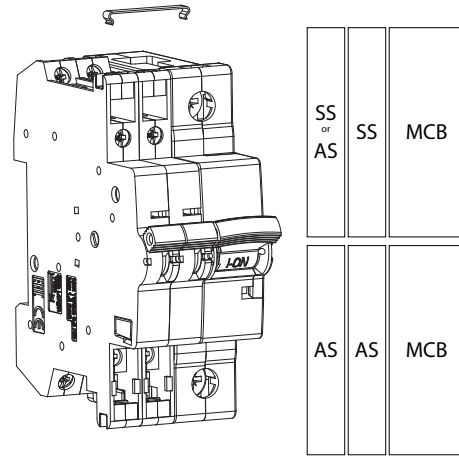


Technical data

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

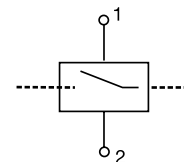
Signal switch connections	ON	status of the breaker	
		manual trip	overcurrent trip
11-14 NO	1	1	0
11-12 NC	0	0	1
21-22 NC	0	0	1

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

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	✓



Note: Same dimensions as ETIMAT P10