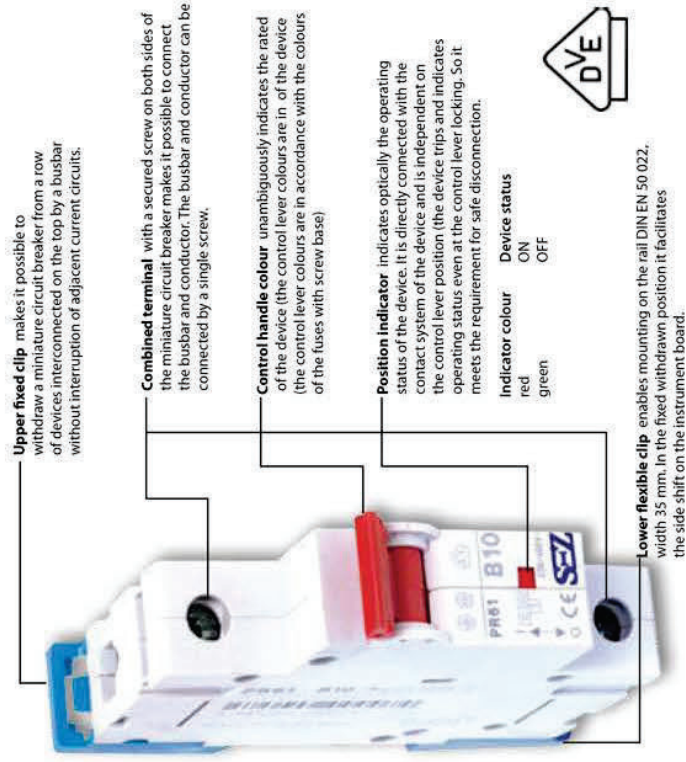


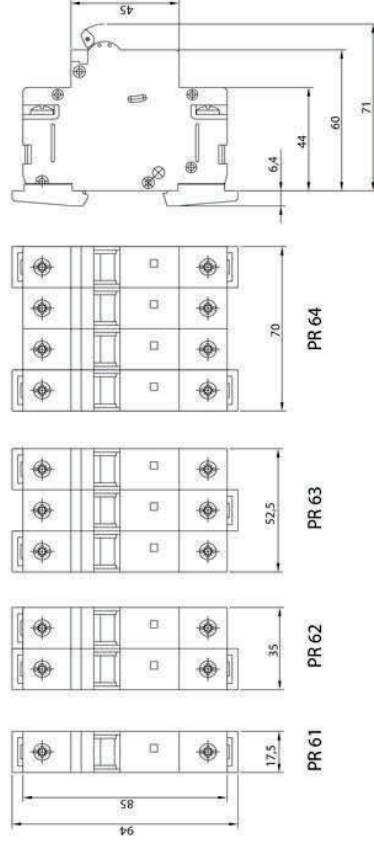
- Circuit breakers PR series are mechanical switching devices able to switch, conduct and switch-off the current under normal conditions and able to switch, conduct and automatically switch-off the current under abnormal circuit conditions such as short circuit.
- They are used to protect house installations and industrial electric distributions and devices against overcurrents.
- They are designed to be operated by untrained persons and they are maintenance-free.
- Handles of circuit breakers characteristic B, C, D are coloured like the rated currents of designation of the threaded fuse cartridges: 0,5-4 A - brown, 6-8 A - red, 16 A - gray, 20 A blue, 25 A - yellow, 32 and 35 A - violet, 40 A - black, 50 A - white, 63 A - orange.
- M - characteristic circuit breakers have black handles
- There is optical state indicator on the front side of the circuit breaker indicating operation state of the device (green target visible = closed contacts, red target visible = opened contacts). The state indicator is directly connected to the device contact system and it does not depend on the handle position (circuit breaker also can switch-off when the handle is sealed - it is corresponding with safe switch-off conditions)
- MCBs are commonly delivered with identification label of grey colour RAL 7035, placed on the front side above the operating handle intended for direct description. **There is a possibility to order following identification labels:**
 - of grey colour with text (lights, sockets, boilers, heating, main MCB, etc).
 - of blue colour
 - transparent, under which there is a possibility to put paper labels with dimensions 4.3 x 9.5 mm
 - lower flexible clip for fastening to the rail 35 x 7.5 in accordance with EN 60 715 - it allows also to take out circuit breaker from the line of devices together connected by lower busbar strip without interrupting of adjacent current circuits.
 - upper fixed clip - it allows to take out circuit breaker from the line of devices connected together by upper busbar strip
- **Simple assembly:**
 - with two clips for mounting on panel fixed with screws M5.
 - Sealable in ON and OFF position.
 - There is a possibility to use throughout covers for both terminals (the modular width 17,5 mm) which can be sealed by blinder.
- Connection:
 - conductors 1 – 2,5 mm²
 - busbar strip – top and low terminal allows connecting of pin and fork busbar strip.
 - simultaneous connection of conductors and busbars
- Method of connection: for AC MCBs optional, that means that input and output terminals can be changed., for DC MCBs, the polarity of terminals has to be observed.



Technical data

Standards	EN 60898-1 1, 1+N, 2, 3+N, 4	EN 60947-2
Pole configuration	B, C, D	M
Tripping characteristics	A, 0.5 - 63	0.2 - 63
Rated current In	V 230; 230/400; 400	230; 400
Rated voltage Un	V 400	
Rated insulation voltage Ui	V 4 000	
Rated impulse withstand voltage Uimp	V max. 60 - (for one pole $T = 15\text{ms}$)	
Rated DC voltage Un	Hz 50 - 60	
Short circuit breaking capacity	kA 10	
Selection category	3	
Ultimate short circuit breaking capacity Icu	kA 10	
Services short circuit breaking capacity Ics	kA 7.5	
Utilization category	A	
Electrical endurance	4 000 cycles	
Mechanical endurance	100 000 cycles	
Terminal capacity	mm ² 1 - 25 for Cu wires 2.5 - 25 for Al wires - special Type on rail DIN 35x7.5 EN 60 715, on panel	
Mounting	IP 20 / IP 40 front	
Degree of protection	°C -25 up to +55	
Ambient temperature	optional	
Mounting position	3g (8 - 50 Hz)	
Vibration resistance	ESS, ESC, VDE	
Approvals	Auxiliary and signal contacts - PK1, 2PK1, PK1+SK1	
Accessories	Shunt trips - VC, undervoltage trip	

Dimensional drawing of PR 60



Characteristics B

Rated current, I _n [A]	Type	Ordering number	Type	Ordering number	Type	Ordering number
0.5	PR 61-B 0.5	0099100	PR 61-C 0.5	0099200	PR 61-D 0.5	0099300
1	PR 61-B 1	0099101	PR 61-C 1	0099201	PR 61-D 1	0099301
2	PR 61-B 2	0099102	PR 61-C 2	0099202	PR 61-D 2	0099302
3	PR 61-B 3	0099103	PR 61-C 3	0099203	PR 61-D 3	0099303
4	PR 61-B 4	0099104	PR 61-C 4	0099204	PR 61-D 4	0099304
6	PR 61-B 6	0099105	PR 61-C 6	0099205	PR 61-D 6	0099305
8	PR 61-B 8	0099106	PR 61-C 8	0099206	PR 61-D 8	0099306
10	PR 61-B 10	0099107	PR 61-C 10	0099207	PR 61-D 10	0099307
13	PR 61-B 13	0099108	PR 61-C 13	0099208	PR 61-D 13	0099308
16	PR 61-B 16	0099109	PR 61-C 16	0099209	PR 61-D 16	0099309
20	PR 61-B 20	0099110	PR 61-C 20	0099210	PR 61-D 20	0099310
25	PR 61-B 25	0099111	PR 61-C 25	0099211	PR 61-D 25	0099311
32	PR 61-B 32	0099112	PR 61-C 32	0099212	PR 61-D 32	0099312
35	PR 61-B 35	0099116	PR 61-C 35	0099216	PR 61-D 35	0099316
40	PR 61-B 40	0099113	PR 61-C 40	0099213	PR 61-D 40	0099313
50	PR 61-B 50	0099114	PR 61-C 50	0099214	PR 61-D 50	0099314
63	PR 61-B 63	0099115	PR 61-C 63	0099215	PR 61-D 63	0099315
0.5	PR 62-B 0.5	0099120	PR 62-C 0.5	0099220	PR 62-D 0.5	0099320
1	PR 62-B 1	0099121	PR 62-C 1	0099221	PR 62-D 1	0099321
2	PR 62-B 2	0099122	PR 62-C 2	0099222	PR 62-D 2	0099322
3	PR 62-B 3	0099123	PR 62-C 3	0099223	PR 62-D 3	0099323
4	PR 62-B 4	0099124	PR 62-C 4	0099224	PR 62-D 4	0099324
6	PR 62-B 6	0099125	PR 62-C 6	0099225	PR 62-D 6	0099325
8	PR 62-B 8	0099126	PR 62-C 8	0099226	PR 62-D 8	0099326
10	PR 62-B 10	0099127	PR 62-C 10	0099227	PR 62-D 10	0099327
13	PR 62-B 13	0099128	PR 62-C 13	0099228	PR 62-D 13	0099328
16	PR 62-B 16	0099129	PR 62-C 16	0099229	PR 62-D 16	0099329
20	PR 62-B 20	0099130	PR 62-C 20	0099230	PR 62-D 20	0099330
25	PR 62-B 25	0099131	PR 62-C 25	0099231	PR 62-D 25	0099331
32	PR 62-B 32	0099132	PR 62-C 32	0099232	PR 62-D 32	0099332
35	PR 62-B 35	0099136	PR 62-C 35	0099236	PR 62-D 35	0099336
40	PR 62-B 40	0099133	PR 62-C 40	0099233	PR 62-D 40	0099333
50	PR 62-B 50	0099134	PR 62-C 50	0099234	PR 62-D 50	0099334
63	PR 62-B 63	0099135	PR 62-C 63	0099235	PR 62-D 63	0099335
0.5	PR 63-B 0.5	0099140	PR 63-C 0.5	0099240	PR 63-D 0.5	0099340
1	PR 63-B 1	0099141	PR 63-C 1	0099241	PR 63-D 1	0099341
2	PR 63-B 2	0099142	PR 63-C 2	0099242	PR 63-D 2	0099342
3	PR 63-B 3	0099143	PR 63-C 3	0099243	PR 63-D 3	0099343
4	PR 63-B 4	0099144	PR 63-C 4	0099244	PR 63-D 4	0099344
6	PR 63-B 6	0099145	PR 63-C 6	0099245	PR 63-D 6	0099345
8	PR 63-B 8	0099146	PR 63-C 8	0099246	PR 63-D 8	0099346
10	PR 63-B 10	0099147	PR 63-C 10	0099247	PR 63-D 10	0099347
13	PR 63-B 13	0099148	PR 63-C 13	0099248	PR 63-D 13	0099348
16	PR 63-B 16	0099149	PR 63-C 16	0099249	PR 63-D 16	0099349
20	PR 63-B 20	0099150	PR 63-C 20	0099250	PR 63-D 20	0099350
25	PR 63-B 25	0099151	PR 63-C 25	0099251	PR 63-D 25	0099351
32	PR 63-B 32	0099152	PR 63-C 32	0099252	PR 63-D 32	0099352
35	PR 63-B 35	0099156	PR 63-C 35	0099256	PR 63-D 35	0099356
40	PR 63-B 40	0099153	PR 63-C 40	0099253	PR 63-D 40	0099353
50	PR 63-B 50	0099154	PR 63-C 50	0099254	PR 63-D 50	0099354
63	PR 63-B 63	0099155	PR 63-C 63	0099255	PR 63-D 63	0099355
0.5	PR 64-B 0.5	0099700	PR 64-C 0.5	0099720	PR 64-D 0.5	0099740
1	PR 64-B 1	0099701	PR 64-C 1	0099721	PR 64-D 1	0099741
2	PR 64-B 2	0099702	PR 64-C 2	0099722	PR 64-D 2	0099742
3	PR 64-B 3	0099703	PR 64-C 3	0099723	PR 64-D 3	0099743
4	PR 64-B 4	0099704	PR 64-C 4	0099724	PR 64-D 4	0099744
6	PR 64-B 6	0099705	PR 64-C 6	0099725	PR 64-D 6	0099745
8	PR 64-B 8	0099706	PR 64-C 8	0099726	PR 64-D 8	0099746
10	PR 64-B 10	0099707	PR 64-C 10	0099727	PR 64-D 10	0099747
13	PR 64-B 13	0099708	PR 64-C 13	0099728	PR 64-D 13	0099748
16	PR 64-B 16	0099709	PR 64-C 16	0099729	PR 64-D 16	0099749
20	PR 64-B 20	0099710	PR 64-C 20	0099730	PR 64-D 20	0099750
25	PR 64-B 25	0099711	PR 64-C 25	0099731	PR 64-D 25	0099751
32	PR 64-B 32	0099712	PR 64-C 32	0099732	PR 64-D 32	0099752
35	PR 64-B 35	0099716	PR 64-C 35	0099736	PR 64-D 35	0099756
40	PR 64-B 40	0099714	PR 64-C 40	0099733	PR 64-D 40	0099754
50	PR 64-B 50	0099713	PR 64-C 50	0099734	PR 64-D 50	0099755
63	PR 64-B 63	0099715	PR 64-C 63	0099735	PR 64-D 63	0099755



1 - pole



2 - pole



3 - pole



4 - pole

Internal impedances, power losses, loop impedances and rated currents corrections of the PR60 circuit-breakers.

Characteristics M

Rated current I_n , A	Type	Ordering code
0.2	PR 61-M 0.2	0099400
0.3	PR 61-M 0.3	0099401
0.4	PR 61-M 0.4	0099402
0.6	PR 61-M 0.6	0099403
0.8	PR 61-M 0.8	0099404
1.2	PR 61-M 1.2	0099405
2	PR 61-M 2	0099406
3	PR 61-M 3	0099407
4.2	PR 61-M 4.2	0099408
6	PR 61-M 6	0099409
8	PR 61-M 8	0099410
10	PR 61-M 10	0099411
12	PR 61-M 12	0099412
14	PR 61-M 14	0099413
17	PR 61-M 17	0099414
21	PR 61-M 21	0099415
25	PR 61-M 25	0099416
32	PR 61-M 32	0099417
40	PR 61-M 40	0099418
50	PR 61-M 50	0099419
63	PR 61-M 63	0099420
0.2	PR 62-M 0.2	0099425
0.3	PR 62-M 0.3	0099426
0.4	PR 62-M 0.4	0099427
0.6	PR 62-M 0.6	0099428
0.8	PR 62-M 0.8	0099429
1.2	PR 62-M 1.2	0099430
2	PR 62-M 2	0099431
3	PR 62-M 3	0099432
4.2	PR 62-M 4.2	0099433
6	PR 62-M 6	0099434
8	PR 62-M 8	0099435
10	PR 62-M 10	0099436
12	PR 62-M 12	0099437
14	PR 62-M 14	0099438
17	PR 62-M 17	0099439
21	PR 62-M 21	0099440
25	PR 62-M 25	0099441
32	PR 62-M 32	0099442
40	PR 62-M 40	0099443
50	PR 62-M 50	0099444
63	PR 62-M 63	0099445
0.2	PR 63-M 0.2	0099450
0.3	PR 63-M 0.3	0099451
0.4	PR 63-M 0.4	0099452
0.6	PR 63-M 0.6	0099453
0.8	PR 63-M 0.8	0099454
1.2	PR 63-M 1.2	0099455
2	PR 63-M 2	0099456
3	PR 63-M 3	0099457
4.2	PR 63-M 4.2	0099458
6	PR 63-M 6	0099459
8	PR 63-M 8	0099460
10	PR 63-M 10	0099461
12	PR 63-M 12	0099462
14	PR 63-M 14	0099463
17	PR 63-M 17	0099464
21	PR 63-M 21	0099465
25	PR 63-M 25	0099466
32	PR 63-M 32	0099467
40	PR 63-M 40	0099468
50	PR 63-M 50	0099469
63	PR 63-M 63	0099470



1 - pole



2 - pole



3 - pole

R _c curr. I _n (A)	Internal impedance Z (mΩ)		Power losses P (W)		Maximum impedance of fault loop Z (Ω)		Rated currents correction at the ambient air temperature from -20 °C to +60 °C								
	char.B	char.M	char.B	char.M	char.B	char.M	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C	60°C
0.2	45100	1,8	230.0	127.8	71.9	0.24	0.24	0.23	0.22	0.21	0.2	0.19	0.18	0.17	0.16
0.3	19500	1,8	153.3	85.2	47.9	0.36	0.35	0.34	0.33	0.32	0.3	0.28	0.26	0.25	0.24
0.4	10650	1,7	115.0	63.9	35.9	0.48	0.47	0.46	0.44	0.42	0.4	0.37	0.35	0.33	0.32
0.5	6600	1,7	92.0	51.1	28.8	0.61	0.59	0.57	0.55	0.53	0.5	0.47	0.44	0.42	0.41
0.6	4300	1,5	76.7	42.6	24.0	0.73	0.71	0.68	0.66	0.63	0.6	0.56	0.53	0.50	0.49
0.8	3100	2,0	57.5	31.9	18.0	0.97	0.94	0.91	0.88	0.84	0.8	0.74	0.70	0.67	0.66
1	1650	1,7	46.0	25.6	14.4	1.21	1.18	1.14	1.10	1.05	1.0	0.93	0.88	0.83	0.82
1.2	1350	1,9	38.3	21.3	12.0	1.45	1.42	1.37	1.32	1.26	1.2	1.12	1.06	1.00	0.99
2	370	4.0	23.0	12.8	7.2	2.42	2.36	2.28	2.20	2.10	2.0	1.86	1.76	1.67	1.66
3	210	2.0	23.0	12.8	7.2	4.8	4.6	4.4	4.2	4.0	3.8	3.5	3.2	3.0	2.9
4	126	2,0	11.5	6.4	3.6	4.84	4.72	4.56	4.40	4.20	4.0	3.72	3.52	3.33	3.32
4.2	120	2,1	11.0	6.1	3.4	5.1	5.0	4.8	4.6	4.4	4.2	3.9	3.7	3.5	3.5
6	51	6.0	7.7	4.3	2.4	7.3	7.1	6.8	6.6	6.3	6	5.6	5.3	5.0	5.0
8	21	3.5	2.2	5.8	3.2	1.8	9.7	9.4	9.1	8.8	8.4	8	7.4	7.0	6.7
10	14.8	2.5	2.4	4.6	2.6	1.4	12.1	11.8	11.4	11.0	10.5	10	9.3	8.8	8.3
12	18.7	2,7	3.8	2.1	1.2	14.5	14.2	13.7	13.2	12.6	12	11.2	10.6	10.0	10.0
13	11.3	1,9	3.5	2.0	1.1	15.7	15.3	14.8	14.3	13.7	13	12.1	11.5	10.8	10.8
14	12.4	2,4	3.3	1.8	1.0	16.9	16.5	16.0	15.4	14.7	14	13.0	12.3	11.7	11.7
16	7.5	1,9	2.9	1.6	0.9	19.4	18.9	18.2	17.6	16.8	16	14.9	14.1	13.3	13.3
17	8.6	2,5	2.7	1.5	0.8	20.6	20.1	19.4	18.7	17.9	17	15.8	15.0	14.2	14.2
20	6.3	2,5	2.3	1.3	0.7	24.2	23.6	22.8	22.0	21.0	20	18.6	17.6	16.7	16.7
21	7.1	3,1	2.2	1.2	0.7	25.4	24.8	23.9	23.1	22.1	21	19.5	18.5	17.5	17.5
25	4.4	4.6	2.8	2.9	1.8	1.0	30.3	29.5	28.5	27.5	26.3	25	23.3	22.0	20.8
32	3.1	3.6	3.2	3.7	1.4	0.8	38.7	37.8	36.5	35.2	33.6	32	29.8	28.2	26.7
35	3.1	3.6	3.8	4.4	1.3	0.7	4.4	4.23	4.13	3.99	3.85	3.68	3.5	3.26	3.08
40	2.5	3	4.0	4.8	1.2	0.6	4.4	4.84	4.72	4.56	4.40	4.20	4.0	3.72	3.52
50	2.2	2.4	5.5	6.0	0.9	0.5	0.3	60.5	59.0	57.0	55.0	52.5	50	46.5	44.1
63	1.6	1.8	6.4	7.1	0.7	0.4	0.2	76.2	74.3	71.8	69.3	66.2	63	58.6	55.5

Instantaneous tripping characteristics (according to EN 60 898-1, EN 60 947-2)

- B - for protection of electrical circuits with equipment, which do not cause currents surges (protection of lines)
- C - for protection of electrical circuits with equipment, which cause currents surges (fluorescence lamps, installations with motors)
- D - for protection of electrical circuits with equipment, which cause high currents surges (installations comprising motors, transformers and inductances)
- M - for protection of motors in relation to current rating

Instantaneous tripping characteristics	thermal release test current		tripping time		electromagnetic release test current		tripping time	
	I ₁	I ₂	t	t ₁₅	I ₄	I ₅	t	t ₁₅
B	1,13I _n	1,45I _n	≥ 1	< 1	3I _n	5I _n	≥ 0.1 s	< 0.1 s
C	1,13I _n	1,45I _n	≥ 1	< 1	5I _n	10I _n	≥ 0.1 s	< 0.1 s
D	1,13I _n	1,45I _n	≥ 1	< 1	10I _n	20I _n	≥ 0.1 s	< 0.1 s
M	1,05I _n	1,3I _n	≥ 1	< 1	10I _n	16I _n	≥ 0.1 s	< 0.1 s

Characteristics B, C, D: For I₂ = 2.55I_n is: for I_n ≤ 32 A 1s < t < 60 s for I_n > 32 A 1s < t < 120 s
 Characteristics M: For I₂ = 7I_n is: for I_n < 10 A 2s < t < 8 s for I_n ≥ 10 A 0.3 s < t < 4 s

Influence of frequency on magnetic trip:

Corresponding ampere rates, at which the magnetic trip starts to work, has to be multiplied by this coefficient.

Frequency / Hz	16	50	400
Coefficient	1	1	1,45

Selectivity of miniature circuit breakers PR 60

Instantaneous tripping characteristics of circuit breakers PR 60

Selectivity of miniature circuit breakers PR 60 of characteristic B with backup fuses [kA]

PR 60		NH gG			PV gG			
I_n (A)	20	25	32	40	50	63	80	100
I_n (A)	≤1	0.5	1.1	5	10	10	10	10
	2	0.5	0.9	2.5	10	10	10	10
	4	0.5	0.8	1.3	4.8	6	10	10
	6	0.5	0.8	1.1	2.5	3.5	5	8
	8	0.5	0.7	1	2	2.3	3	6
	10	0.5	0.7	0.9	1.8	2.1	2.7	5
	13	0.5	0.6	0.8	1.6	2	2.6	4.2
	16	0.6	0.8	1.5	1.9	2.5	3.8	6.5
	20	0.5	0.7	1.4	1.8	2.4	3.6	6.1
	25	0.7	1.3	1.8	2.3	3.4	5.8	
	32	1.2	1.7	2.2	3.3	5.3		
	40	1.2	1.7	2.2	3.3	5.3		
	50						2	3
	63						2	3

Selectivity of miniature circuit breakers PR 60 of characteristic C with backup fuses [kA]

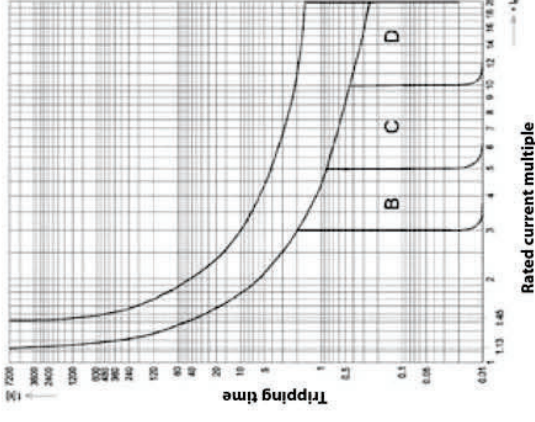
PR 60		NH gG			PV gG			
I_n (A)	20	25	32	40	50	63	80	100
I_n (A)	≤1	0.5	1.3	10	10	10	10	10
	2	0.5	0.9	3.5	10	10	10	10
	4	0.5	0.8	2.5	3	3.5	5	10
	6	0.5	0.8	1	2	2.3	3	8
	8	0.5	0.8	0.9	1.6	2	2.7	6
	10	0.7	0.8	1.5	1.9	2.6	5	7
	13	0.8	1.4	1.8	2.5	4.2	6.5	
	16	1.3	1.7	2.4	3.8	6.1		
	20	1.2	1.6	2.3	3.6	5.8		
	25	1.5	2.2	3.4	5.3			
	32	2.1	3.3	5.1				
	40	2	3.1	4.8				
	50						4	6
	63						4.4	5.6

Selectivity of miniature circuit breakers PR 60 of characteristic D with backup fuses [kA]

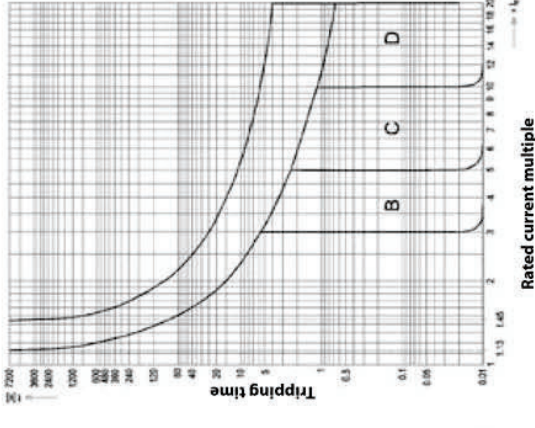
PR 60		NH gG			PV gG			
I_n (A)	20	25	32	40	50	63	80	100
I_n (A)	≤1	0.5	1.7	10	10	10	10	10
	2	0.5	1.2	5	10	10	10	10
	4	0.7	1.1	2	3	3.5	5.1	10
	6	0.6	1	1.4	2	2.4	3.5	7.5
	8	0.5	0.9	1.2	1.6	2.1	2.7	5
	10	0.5	0.8	1	1.5	2	2.6	4.5
	13	0.7	0.9	1.4	1.9	2.5	4.1	8
	16	0.6	0.8	1.3	1.7	2.4	3.8	6.1
	20	0.5	1.2	1.6	2.3	3.6	5.8	
	25	1.1	1.5	2.2	3.4	5.3		
	32	1.4	2.1	3.3	5.1			
	40	1.9	3.1	4.8				
	50	2.5	4.5					
	63						4	

In case of short-circuit after the circuit breaker PR 60 with backup fuse, selectivity of particular combination is guaranteed up to the value of the short-circuit current I_k stated in the tables.

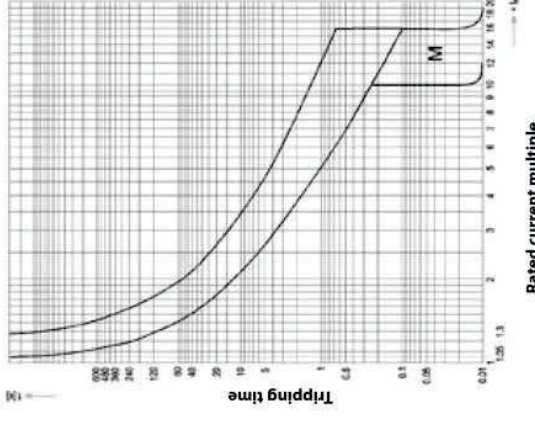
$I_n \geq 10$ A Characteristics B, C, D EN 60 898



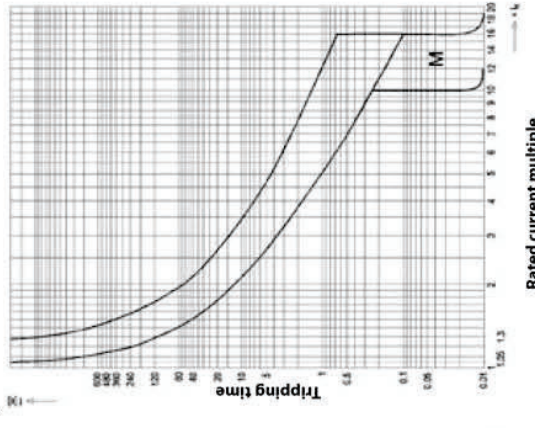
$I_n < 10$ A Characteristics B, C, D EN 60 898



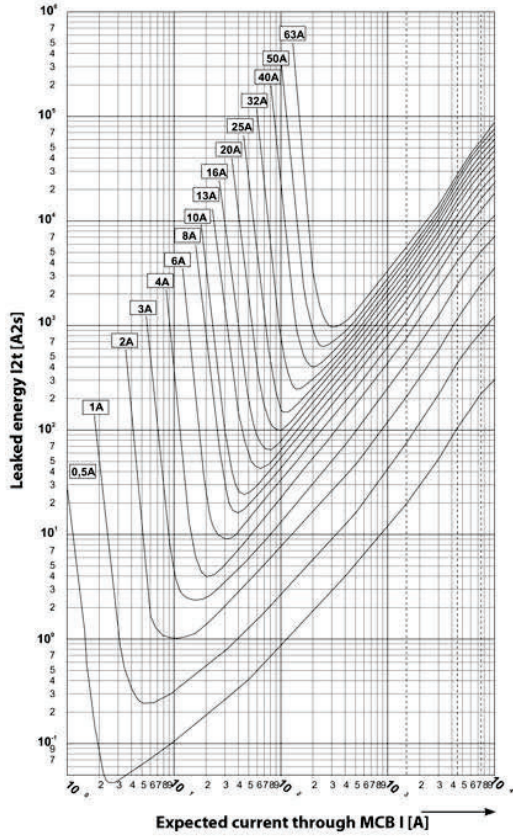
$I_n > 10$ A Characteristics M EN 60 947-2



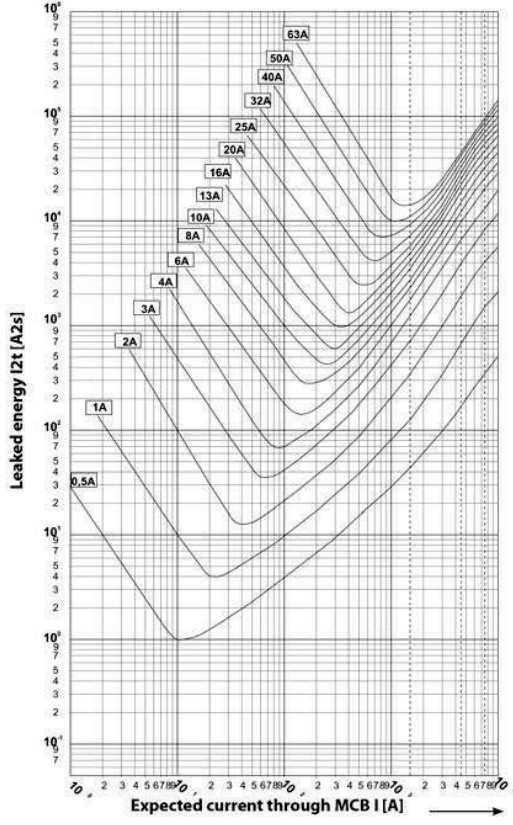
$I_n \leq 10$ A Characteristics M EN 60 947-2



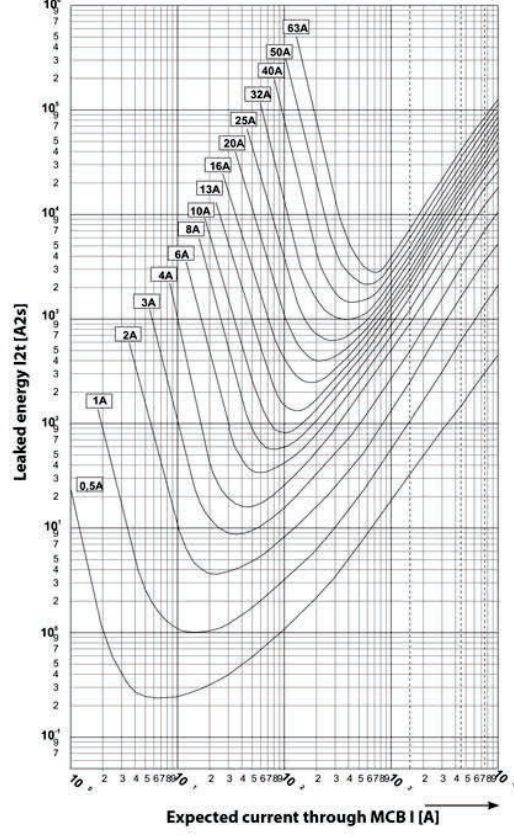
Charts of leaked energy I^2t of MCBS PR 60 with tripping characteristic B



Charts of leaked energy I^2t of MCBS PR 60 with tripping characteristic D



Charts of leaked energy I^2t of MCBS PR 60 with tripping characteristic C



Correction of rated currents of miniature circuit breakers PR 60

Correction of rated currents of miniature circuit breakers installed side by side (A)
Valid for reference temperature 30°C.

