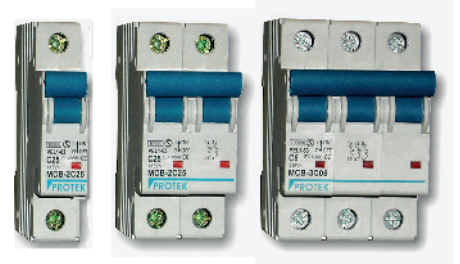




MCBs for industrial/residential applications

Available in B or C curves
 Positive Trip Indication
 Single Pole 6A to 63A
 BSEN 60898
 6KA Rated
 Accepts cables up to 25mm²



Single Pole

Rating	Description	Part Number B Curve	Part Number C Curve
6A	Single Pole 6A 6KA	MCB6-106B	MCB6-106C
10A	Single Pole 10A 6KA	MCB6-110B	MCB6-110C
16A	Single Pole 16A 6KA	MCB6-116B	MCB6-116C
20A	Single Pole 20A 6KA	MCB6-120B	MCB6-120C
25A	Single Pole 25A 6KA	MCB6-125B	MCB6-125C
32A	Single Pole 32A 6KA	MCB6-132B	MCB6-132C
40A	Single Pole 40A 6KA	MCB6-140B	MCB6-140C
50A	Single Pole 50A 6KA	MCB6-150B	MCB6-150C
63A	Single Pole 63A 6KA	MCB6-163B	MCB6-163C

Description

The Protek range of miniature circuit breakers have two different releases acting onto the switching mechanism:

- i) thermal over-current release for over-current protection, working with time lag
- ii) electromagnetic high-speed release with ejecting armature for immediate short-circuit Protection

They are intended to protect the electrical distribution systems and electrical devices against short-circuit and to protect the electrical distribution system against overload.

They are suitable for use in both domestic consumer units and MCB distribution boards. With their design as well as technical parameters, the Protek's miniature circuit breakers conform to the all the relevant national and international standards.

They all bear the Protek logo indicating both quality and reliability.

The miniature circuit breakers are manufactured in accordance with BSEN 60898.



'B' Curve to BSEN 60898

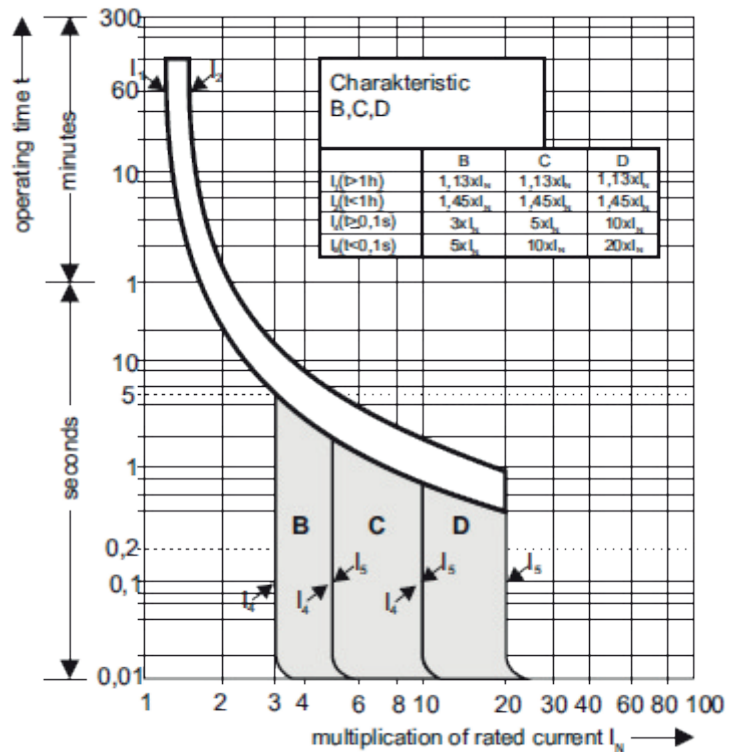
Magnetic Trip 3 to 5 Times I_n
 For use in domestic applications
 Where the maximum sensitivity
 is required and there is very little
 in the way of equipment
 which would require a high start
 up current.

'C' Curve to BSEN 60898

Magnetic Trip 5 to 10 Times I_n

Used in commercial and light industrial
 applications where close protection
 is not required and start up currents
 of devices can run up to 5 times rated
 current for a short period of time.

If a lot of low voltage lighting is used
 in a domestic environment then it would
 be prudent to fit C Type MCB due to the
 inrush current of the transformers thus
 avoiding nuisance tripping.



Technical Data

Nominal Voltage:	1 Pole (single phase)~230v 50/60Hz 3 Pole (three phase)~400v 50/60Hz
Rupturing capacity:	BS EN 60898 6000A (nominal short circuit and operational capacity)
Ambient temperature:	IP40 for single pole
Protection:	-5°C to +40°C pursuant to BS EN 60898
Gauging temperature:	+30°C pursuant to BS EN 60898
Maximum upstream fuse:	100A gG(>10KA)
Mechanical lifetime:	>=20,000 operations
Electrical Lifetime:	>=8,000 operations
Fastening:	By means of an unique snap mechanism (with arrestment in final position) on 35mm DIN rail.
Removal from DIN Rail:	By unclipping the snap mechanism and releasing device from the DIN rail
Input terminals:	Cage terminals
Maximum cross section of conductors:	35mm ² solid conductor or 25mm ² stranded conductor
Terminal protection:	IP20
Maximum torque setting for terminal screws:	2Nm (Combined slotted head screw)
Classification of manufacture:	BS EN 60898
Selectivity class:	3



Derating

When using MCBs in a distribution board the following chart needs to be adhered to.

Influence of ambient temperature on nominal currents										
Nominal current of MCB Amps	Internal resistance (mOhms)	Power Loss (W)	Maximum value of impedance loop (Ohms)			Thermal correction of nominal currents				
			B Curve	C Curve	D Curve	Ambient temp. 20°C	Ambient temp. 30°C	Ambient temp. 40°C	Ambient temp. 50°C	Ambient temp. 60°C
1	1215.69	1.24	46.2	25.7	14.4	1.05	1	0.95	0.9	0.85
2	343.28	1.38	21.6	12.02	6.73	2.08	2	1.92	1.84	1.74
3	128.09	1.15	16.9	9.4	5.26	3.18	3	2.82	2.61	2.37
4	105.53	1.68	10.68	5.94	3.33	4.24	4	3.76	2.52	3.24
6	29.22	1.08	7.14	3.97	2.22	6.24	6	5.76	5.52	5.3
10	14.49	1.55	3.87	2.15	1.21	10.6	10	9.3	8.6	7.8
16	10	2.56	2.24	1.25	0.7	16.8	16	15.2	14.2	13.3
20	8.02	3.32	1.55	0.86	0.48	21	20	19	17.8	16.8
25	3.11	2	2.43	1.35	0.76	26.2	25	23.7	22.2	20.7
32	3.05	3.17	1.27	0.71	0.4	33.5	32	30.4	28.4	27.5
40	2.16	3.4	0.6	0.33	0.19	42	40	38	25.6	33.2
50	1.65	4.2	0.71	0.39	0.22	52.5	50	47.4	44	40.5
60	1.68	6.3	0.47	0.26	0.15	66.2	63	58	54.2	49.2

Grouping factor

Inside an enclosure the heating effect of MCBs installed in close proximity (in groups) needs to be taken into consideration. Certain amount of watt loss from each device will contribute to raise the ambient temperature of the breaker above the ambient temperature of the enclosure. Apply Grouping Factor K(g) to derate MCB thermal trip current accordingly

No. of Devices (n)	1	$2 \leq n < 4$	$4 \leq n < 6$	$6 \leq n$
K(g)	1	0.95	0.9	0.85

Application example

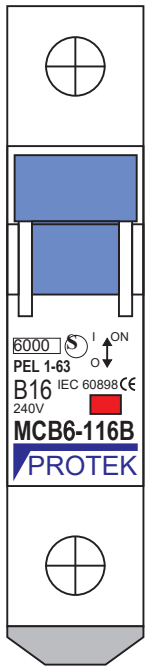
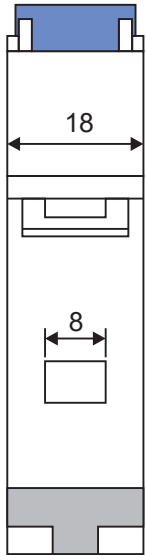
Three MCBs are to be installed side by side inside an enclosure. The ambient temperature inside the enclosure is at 40°C. The required maximum load current drawn per MCB = 29A. **Determine whether 32A MCB would provide suitable solution.**

- From the Temperature Derating table, The nominal trip current (In) of 32A MCB operating at 40°C is derated to 30.4A
 - From the Grouping Factor table, Three MCBs installed side by side have a grouping factor K(g) = 0.95
 - Combined effect of temperature derating & grouping factor, $30.4 \times 0.95 = 28.88A$
- In this application the 32A MCB would trip at 28.88A and therefore be unsuitable to supply the max 32A load that is required. In this case a 40A or higher MCB should be selected instead.



PROTEK

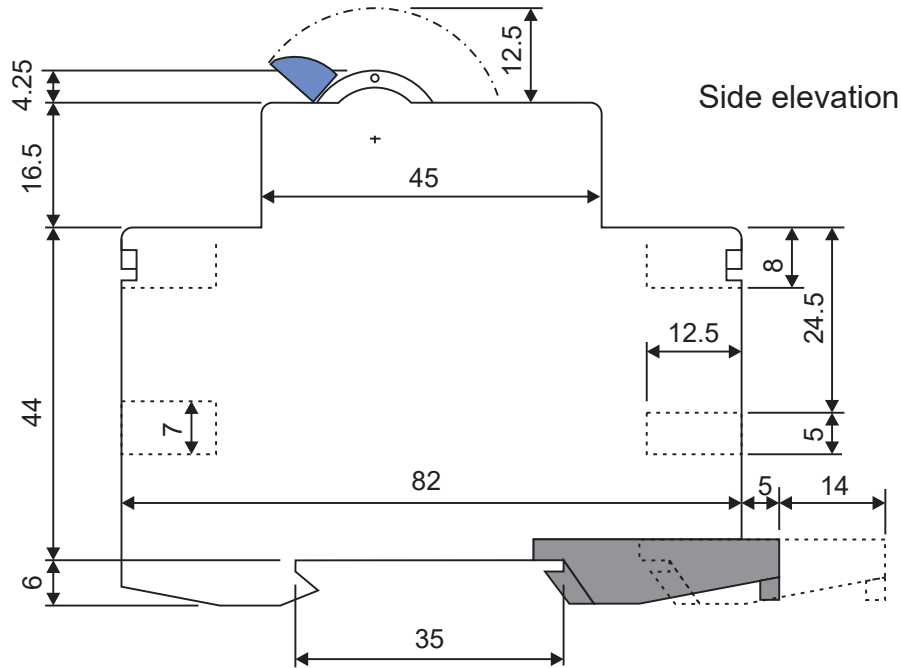
Bottom elevation



1 Pole

Front elevation

6000
PEL 1-63
B16 IEC 60898 CE
240V
MCB6-116B
PROTEK



Side elevation

MCBs will accept cables up to 25mm² on both the incoming and outgoing terminals

phone **01543 46 75 75**

fax **01543 46 23 70**

email **orders@protekuk.co.**



PROTEK