

# MCB M80N (space reduction up to 50%)

## Data Sheet V1.0



The GACIA M80N is a miniature circuit breaker suitable for domestic, utility as well as in small industrial applications. The extended range of busbars is also available to connect the items together. The M80N has a breaking capacity of 6kA, is available in a range of current up to 40A and in characteristics B, C or D.

M80N miniature circuit breaker



RoHS

M80N is a MCB compliant to product standard IEC/EN 60898 and with the following main technical features:

- Breaking capacity 6kA
- Rated current up to 40A
- 1p+n and 2p+2n (cooking device protection)
- Characteristics B, C and D

### Application benefits

- Supply possible from top and bottom
- PIN type busbar connection up to 10mm<sup>2</sup> and cable connection up to 16mm<sup>2</sup>.
- Toggle can be sealable in ON-OFF positions true a position inside attribute
- Family feeling in the GACIA range modular components

# MCB M80N

## Technical Data



			M80N	M80N-2N
Electrical features	Type		IEC/EN 60898-1	
	Standards		CE, CB, KEMA KEUR	
	Certification		CN	
	Country of origin		Compliant, No Exemption	
	RoHS Compliance Status			
	Number of poles		1p+n	2p+2n
	Number of modules (18mm)		1	2
	Tripping characteristics		B, C, (D)	
	Rated current	In A	1 ≤ In ≤ 32A (40)	16 ≤ In ≤ 25A
	Rated voltage	Ue V AC	230 / 240	
Mechanical features	Min. operating voltage	V	12	
	Max. operating voltage	V	264	
	Insulation voltage	Ui V	500 V AC	
	Overvoltage category		III	
	Pollution degree		2	
	Rated frequency	Hz	50 - 60	
	Rated breaking capacity acc. to IEC/EN 60898	Icu A	6.000	
	Rated breaking capacity acc. to IEC/EN 60947-2 (only referring to short circuit test)	Ultimate Icu kA	6*	
		Service Ics kA	6*	
	Rated impulse withstand voltage (1.2/50) Uimp	kV	4	
	Dielectric test voltage at ind. freq. for 1 min.		2.5 kV (50 / 60Hz, 1 min.)	
	Thermomagnetic release – characteristics			
	B: 3 In ≤ In ≤ 5 In		■	
	C: 5 In ≤ In ≤ 10 In		■	
	D: 10 In ≤ In ≤ 20 In		■ □	
	Energy limiting class acc. to EN 61009-1		3	
	Housing		Insulation group I - II, RAL 7035	
	Toggle		Insulation group II, RAL 5017	
	Contact position indication		Green / Red window	
	Electrical life	operations	10.000	
	Mechanical life	operations	20.000	
	Protection degree acc. to EN 60529	housing	IP4X	
		terminals	IP2X	
	Relative humidity	%	≤95	
	Resistance to humidity and heat	class	2	
	Reference temperature for setting of thermal element	°C	30	
	Ambient temperature (with daily average ≤ + 35°C)	°C	-25... +55	
	Storage temperature	°C	-40... +70	

\* IEC/EN 60947-2 certificate and test-report are not available at present, the use of these values is the responsibility of the user

# MCB M80N

## Technical Data



Type			M80N	M80N-2N	
Installation	Terminal type	bottom / top	lift / open-mouthed		
	Terminal size for cables	bottom / top	mm²	16/10	
	Terminal size for PIN busbar	bottom / top	mm²	10	
	Solid /stranded wiring		1x 1.5mm² - 16mm² 2 x 1.5mm² - 6mm² *		
	Flexible wires with or without ferrules		1x 1.5mm² - 10mm² 2 x 1.5mm² - 4mm² *		
	Tightening torque	bottom / top	1.2Nm		
	Stripping length of the cable		10mm		
	Mounting		on DIN rail EN 60715 (35mm) by means of mounting clip		
	Mounting position		Any		
	Installation class		III		
	Supply from		Top / bottom terminals		
	Dimensions (H x W x D)	Height	mm	81 x 17.5 x 73	81 x 37 x 73
Weight		kg	0,11	0,22	
Packing	Packing A	QTY	12	5	
		Dimensions (H x W x D)	mm	220 x 88 x 82	
		Weight	kg	1,30	1,13
	Packing B (x A)	QTY	120	50	
		Dimensions (H x W x D)	mm	425 x 234 x 190	
		Weight	kg	14	14
	CN-code		85362010		
Combination with auxiliary elements	Auxiliary contact		Yes		
	Signal contact		Yes		
	Shunt release		Yes		
	Auxiliary contact for bottom fitting		NA		
	Undervoltage release		Yes		
	Overvoltage release		Yes		
	Motor operating device		NA		

\*Check local installation rules, this type of connection is not advised. Special add-on terminals are available.

# MCB M80N

## Technical Data

### Performance in altitude\*

Elevation [m]	2000	3000	4000	5000	6000
Rated current [A]	1 x In	0,95 x In	0,92 x In	0,90 x In	0,88 x In
Rated voltage [V]	1 x Un	0,85 x Un	0,75 x Un	0,65 x Un	0,55 x Un

\* the isolator switch is designed for standard level operations, performance information on higher altitude is not available

### Power loss component

In [A]	1p+n [W]	2p+2n [W]
1	2,10	
2	2,10	
3	2,10	
4	2,10	
6	2,30	
8	2,30	
10	2,50	
13	3,20	
16	3,10	6,30
20	2,50	8,20
25	4,10	8,10
32	4,90	
40	5,10	

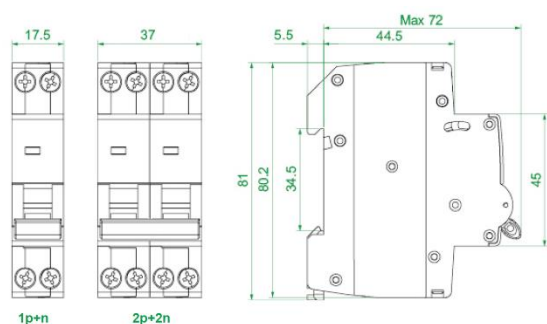
### Influence of adjacent devices

Number of devices	Correction factor
1	1
2-3	0,9
4-5	0,8
6-9	0,7
≥10	0,6

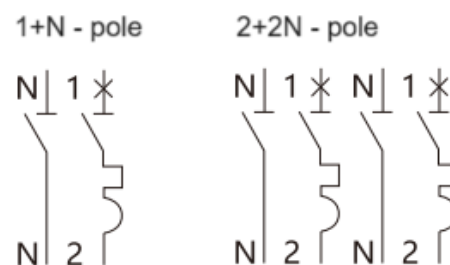
These values are provided by recommendation IEC 61439-1 and standards EN 61439-1. In order to avoid having to use these coefficients there must be good ventilation and the devices must be kept apart using the spacing element article number 2119000010 (0.5 module).

### Overall dimensions

All measurements in mm



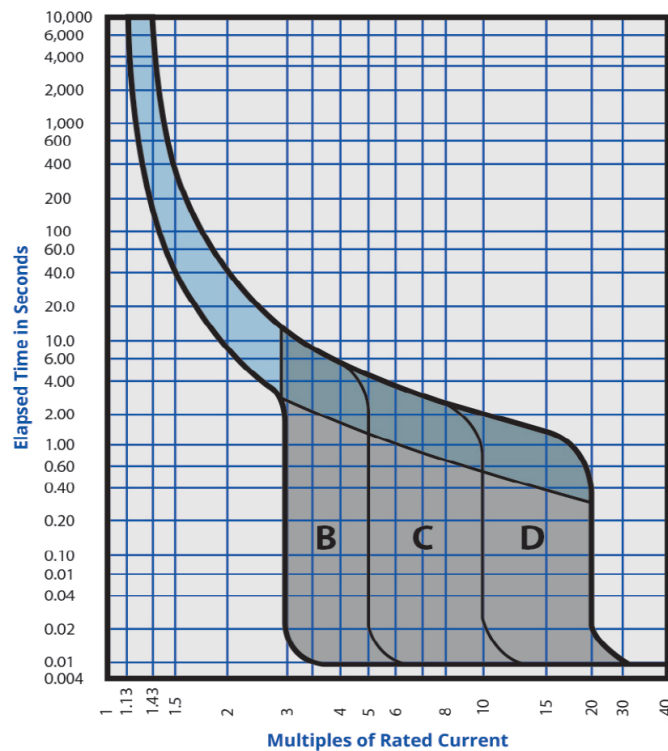
### Connection diagram



# MCB M80N

## Technical Data

### Tripping Characteristics



### Derating in temperature *M80N*




Max operating current depending on the ambient temperature (daily average  $\leq +35$  °C)

In [A]	Ambient temperature [°C]										
	-20	-15	-5	10	30	40	45	55	60	65	70
1	1,35	1,28	1,20	1,10	1	0,97	0,95	0,89	0,86	0,84	0,81
2	2,60	2,53	2,33	2,23	2	1,95	1,91	1,85	1,81	1,77	1,71
3	4,10	4,05	3,45	3,45	3	2,95	2,91	2,82	2,77	2,73	2,65
4	5,30	5,15	4,98	4,65	4	3,91	3,85	3,74	3,71	3,65	3,52
6	8,00	7,80	7,30	6,80	6	5,90	5,83	5,65	5,50	5,40	8,20
8	10,12	10,00	9,76	8,83	8	7,53	7,3	6,79	6,51	6,23	5,95
10	13,50	13,30	12,30	12,10	10	9,80	9,80	9,50	9,00	8,60	8,00
13	16,29	15,74	15,17	14,29	13	12,24	11,86	11,04	10,59	10,12	9,65
16	20,00	19,80	19,20	18,60	16	15,40	15,10	14,70	14,50	14,00	13,80
20	24,50	24,30	23,80	23,30	20	19,30	18,80	18,20	17,80	17,50	17,30
25	29,80	29,70	29,30	28,80	25	24,30	24,00	23,50	23,00	22,00	21,50
32	39,50	39,30	38,80	38,20	32	31,10	30,80	29,50	28,50	27,50	27,00
40	47,81	46,48	45,13	43,00	40	38,41	37,59	35,89	35,01	34,10	33,16

# MCB M80N

## Order codes


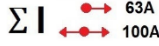
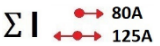
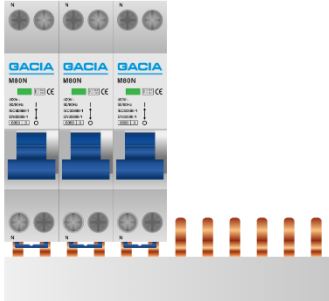
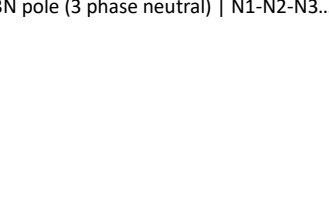

### Characteristics

Reference image	Inom	B	C	D
	1 A	5101541001	5101551001	3101561001
	2 A	5101541002	5101551002	5101561002
	3 A	5101541003	5101551003	5101561003
	4 A	5101541004	5101551004	5101561004
	6 A	5101541006	5101551006	5101561006
	8 A	5101541008	5101551008	5101561008
	10 A	5101541010	5101551010	5101561010
	13 A	5101541013	5101551013	5101561013
	16 A	5101541016	5101551016	5101561016
	20 A	5101541020	5101551020	5101561020
	25 A	5101541025	5101551025	5101561025
	32 A	5101541032	5101551032	5101561032
	40 A	5101541040	5101551040	5101561040
	16 A	5101541116	5101551116	-
	20 A	5101541120	5101551120	-
	25 A	5101541125	5101551125	-
Auxiliary contact	1CO		5101000010	
Alarming contact	1CO		5101000020	
Shunt release	230V AC		5101000030	
Undervoltage release	230V AC		5101000050	
	Terminal cover 2p		3102290010	

# MCB M80N

## Order codes for connective rail

Supplied by SEP EUROPE ®


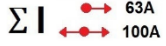
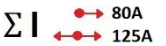
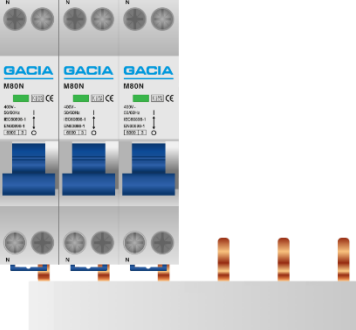
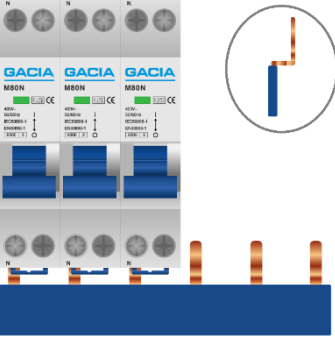

		10mm <sup>2</sup> (closed end - non cuttable) 	16mm <sup>2</sup> (cut to size with end- caps) 
Busbar / connective rail type	No. devices	PIN	PIN
 2 pole (phase neutral)   N1-N1-N1...   12-12-12	3	2305122906	2306020906
	4	2305122908	2306020908
	5	2305122910	2306020910
	6	2305122912	2306020912
	8	2305122916	-
	9	-	2306020918
	10	2305122920	-
	12	2305122924	2306020924
	18	-	2306020936
	24	-	2306020948
	54	-	2306162200
 3N pole (3 phase neutral)   N1-N2-N3...	6	2305142912	2306050912
	9	2305142920	2306050918
	12	2305142924	2306050924
	15	-	2306050930
	18	-	2306050936
	21	-	2306050942
	24	-	2306050948
	54	-	2306162400
 Open mouth covers for busbar PIN 9/18	2115900015		

\* pictures are indicative – other combinations are possible

# MCB M80N

## Order codes for connective rail

Supplied by SEP EUROPE ®

Busbar / connective rail type	 No. devices	10mm <sup>2</sup> (closed end - non cuttable)		16mm <sup>2</sup> (cut to size with end-caps)	
		 PIN		 PIN	
		Grey	Blue	Grey	Blue
<b>1 pole – phase/neutral bar (17,8mm)</b> 	2	2305101002	2305101902	-	-
	3	2305101003	2305101903	-	-
	4	2305101004	2305101904	-	-
	5	2305101005	2305101905	-	-
	6	2305101006	2305101906	230601006	2306019006
	7	2305101007	2305101907	-	-
	8	2305101008	2305101908	-	-
	9	2305101009	2305101909	230601009	2306019009
	10	2305101010	2305101910	-	-
	11	2305101011	2305101911	-	-
	12	2305101012	2305101912	2306010012	2306019012
	13	2305101013	2305101913	-	-
	15	-	-	2306010015	2306019015
	18	-	-	2306010018	2306019018
	21	-	-	2306010021	2306019021
	24	-	-	2306010024	2306019024
	54	-	-	2306160100	2306160101
<b>1 pole – neutral bar (17,8mm)</b> 	2	-	2305101992	-	-
	3	-	2305101993	-	-
	4	-	2305101994	-	-
	5	-	2305101995	-	-
	6	-	2305101996	-	-
	8	-	2305101998	-	-
	10	-	2305101990	-	-
	12	-	2305101991	-	-
	Open mouth covers for busbar PIN	2115900010			



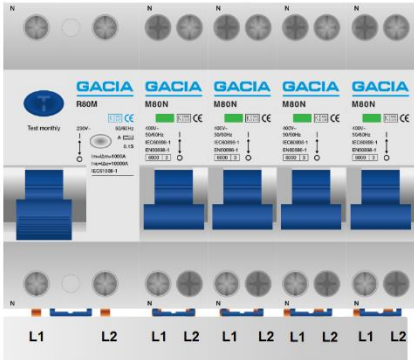
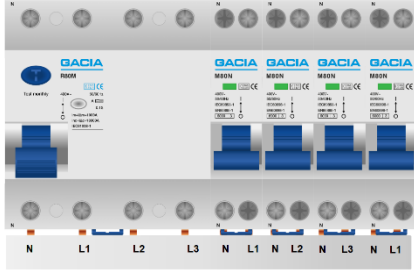

\* pictures are indicative – other combinations are possible



# MCB M80N

## Order codes for connective rail

Supplied by SEP EUROPE ®

		<p>10mm<sup>2</sup> (closed end - non cuttable)</p> <p><math>\Sigma I</math> </p>
<p><b>Busbar / connective rail type</b></p> <p>Bottom Combi-rail   (L1-L2) R80M – M80N</p> 	<p><b>No. devices</b></p> <p>1x 2p + 2x 2P (18mm) 1x 2p + 3x 2P (18mm) 1x 2p + 4x 2P (18mm) 1x 2p + 5x 2P (18mm)</p>	<p>2305192006 2305192008 2305192010 2305192012</p>
<p>Bottom Combi-rail   (N-L1-L2-L3-N1-N2-N3-N1) R80M – M80N</p> 	<p>1x 4p + 4x 2P (18mm)</p>	<p>2305194012</p>
	<p>Open mouth covers for busbar PIN 9/18</p>	<p>2115900015</p>


\* pictures are indicative – other combinations are possible

# MCB M80N


Order codes accessories

Supplied by SEP EUROPE ®


Add-on terminals

Reference image	Wire size	PIN connection high		PIN connection Low	
		Grey	Blue	Grey	Blue
	2x10mm² solid/stranded 2x6mm² flexible	2115900040	2115900540	2115900041	2115900541

Marker - spacer

Reference image	Description	Code
	Component Spacer 0,5mm	2119000010

Lockout

Reference image	Description	Code
	Lockout set - complete	2115909099
	Locking devices adaptor	2115909015
	Locking device screw adaptor	2115909010
	Padlock with 2 identical keys	2115909020
	Warning tag (English)	2115909030