Multi 9™

Catalogue 2018
Multistandard protection for OEM

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Life Is On Schneider Electric

Green Premium™

Endorsing industry eco-friendly products

Green Premium™
Product

Green Premium is the only label that allows you to effectively develop and promote an environmental policy whilst preserving your business efficiency. This ecolabel guarantees compliance with up-to-date environmental regulations, but it does more than this.

Over 75% of Schneider Electric manufactured products have been awarded the Green Premium ecolabel

Discover what we mean by green ….

Check your products!

Schneider Electric's Green Premium ecolabel is committed to offering transparency, by disclosing extensive and reliable information related to the environmental impact of its products:

RoHS

Schneider Electric products are subject to RoHS requirements at a worldwide level, even for the many products that are not required to comply with the terms of the regulation. Compliance certificates are available for products that fulfil the criteria of this European initiative, which aims to eliminate hazardous substances.

REACh

Schneider Electric applies the strict REACh regulation on its products at a worldwide level, and discloses extensive information concerning the presence of SVHC (Substances of Very High Concern) in all of its products.

PEP: Product Environmental Profile

Schneider Electric publishes complete sets of environmental data, including carbon footprint and energy consumption data for each of the lifecycle phases on all of its products, in compliance with the ISO 14025 PEP ecopassport program. PEP is especially useful for monitoring, controlling, saving energy, and/or reducing carbon emissions.

EoLI: End of Life Instructions

Available at the click of a button, these instructions provide:

- Recyclability rates for Schneider Electric products.
- Guidance to mitigate personnel hazards during the dismantling of products and before recycling operations.
- Parts identification for recycling or for selective treatment, to mitigate environmental hazards/ incompatibility with standard recycling processes.

Multi 9

Modular protection for OEMs

Multi 9™ is a range of DIN rail modular devices, a solution offering great performance. Multi 9 range is a Schneider Electric global offer dedicated to equipment manufacturers (OEMs), meeting the major standards for industry applications. Designed to meet your needs for most types of machines, offering a wide range of modular devices it provides protection, signaling functions and accessories.

Time to optimize your control panel

A comprehensive range to protect against electricalthreats, including short circuits, overloads, and earth leakages

Renowned quality

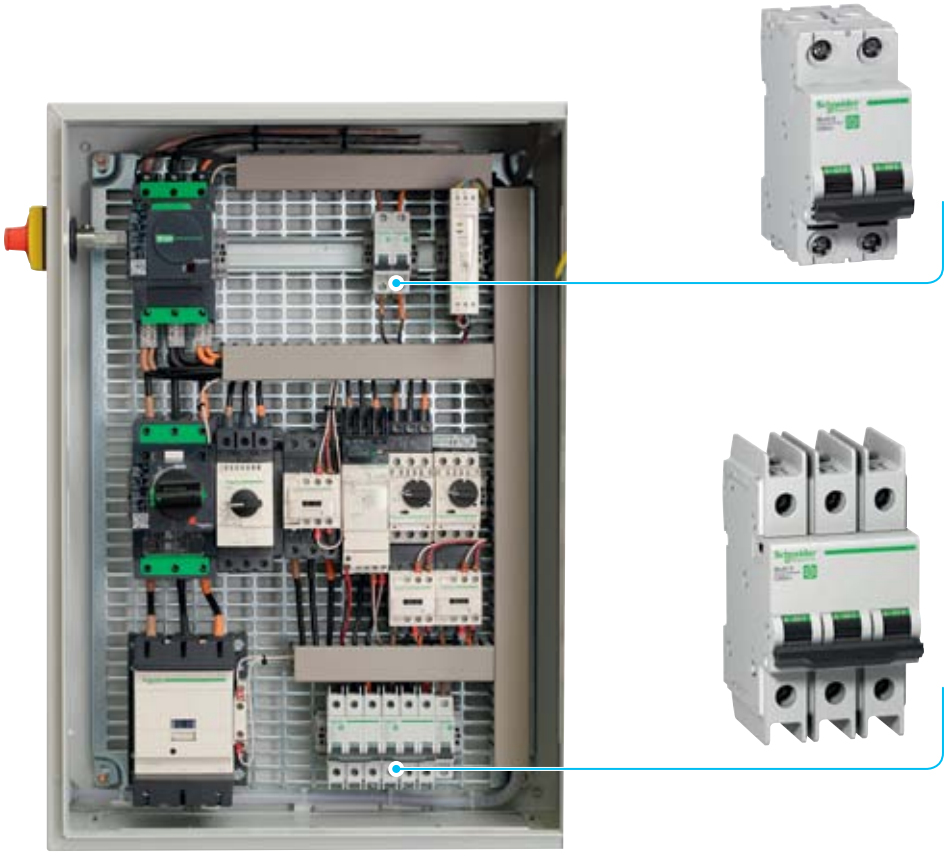
World leader's proven technology and experience.

Available worldwide

Sold under the same commercial reference.

Optimized

Small footprint to reduce your panel size, cost effective, less commercial references



Its new performances and the multiple choices of field installable accessories allow you to adapt easily to any configuration, any time. Multi 9 fits perfectly in Schneider Electric solutions allowing you to build your panel with a global specialist in energy management and automation.

The Multi 9 offer complies with UL, IEC®, CCC or CSA and sets a new standard of reliability and high performance. Every product of the range has a single global part number, simplicity starts with full availability. You order. We ship, worldwide.

Range Highlights

C60BP

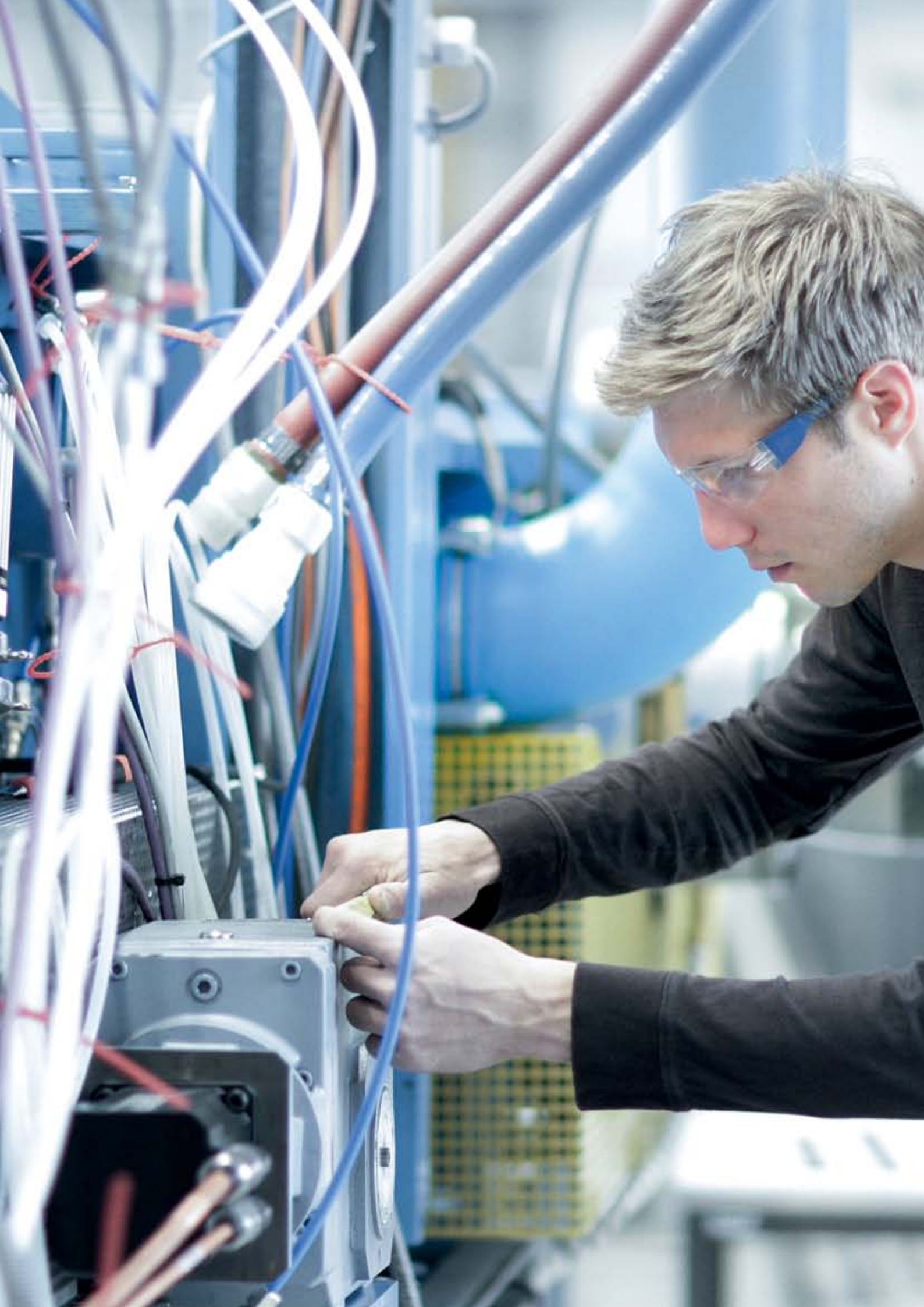
- UL 489, CSA, IEC and CCC certified,
- UL 489 performances: up to 35 A in 480Y/277V and up to 63 A in 240 V,
- New optimized design and smaller footprint (103 mm / 4,05 in): each references up to 35 A, cover both 480Y/277V and 240 V power supplies,
- In addition to the accessories range, the UL cuttable combs are now available.

C60BPR

- UL 489, CSA, IEC and CCC certified,
- UL 489 performances: up to 35 A in 480Y/277V and up to 63 A in 240 V,
- New optimized design and smaller footprint: each references up to 35 A cover both 480Y/277V and 240 V power supplies,
- Ring tongue terminal connection ability,
- Ready to wire as terminal are delivered open.

C60H-DC

- UL1077, IEC, CCC certified,
- To protect your direct current applications up to 500 V DC.



Multi 9
Multistandard circuit protection for OEM

UL/CSA + IEC/EN 60947-2 + GB

C60BP - UL 489 - Z, C, D curves – Tunnel terminals

DB105727 DB105728 DB405227

UL 489 / CSA C22.2 No 5 / IEC/EN 60947-2 / GB 14048-2

C60BP are multi-standard miniature circuit breakers and branch circuit protection as defined by UL 489. It combines following functions:

- circuit protection against short-circuit currents
- circuit protection against overload currents
- tripping and fault indication by the addition of auxiliaries.

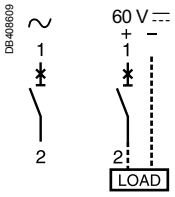
PB116664-40

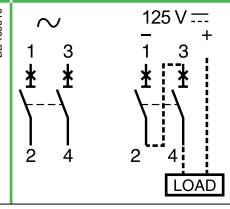
Number of 18 mm (0.71 in.) poles	Rating (A) 25°C/77°F	Breaking capacity (kA rms) AIR UL 489 / CSA C22.2 No 5				Icu IEC 60947-2			
	Voltage (Ue)	277 V ~	240 V ~	120 V ~	60 V ⎓	440 V ~	415 V ~	240 V ~	60 V ⎓
1P	0.5 to 35	10	14	14	10	-	3	10	20
	40 to 63	-	10	10	10	-	3	10	20
	Voltage (Ue)	480Y/277 V ~		240 V ~	125 V ⎓	440 V ~	415 V ~	240 V ~	125 V ⎓
2P	1 to 25	10		14	10	6	10	20	-
	30 to 35	10		14	-	6	10	20	-
3P	1 to 35	10		14	-	6	10	20	-
2P/3P	40 to 63	-		10	-	6	10	20	-

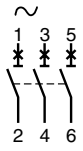
PB116665-40

Electrical diagrams

1P	2P	3P
DB408609	DB408610	DB408611







Catalogue numbers

Tunnel terminal connection

Type	UL489 and CSA voltages	1P				2P			3P		
Auxiliaries		Remote indication and tripping, see page 43									
Rating (In)		Curve Z	Curve C	Curve D (=K)	Width in 9 mm modules	Curve C	Curve D (=K)	Width in 9 mm modules	Curve C	Curve D (=K)	Width in 9 mm modules
C60BP											
0.5	480Y/277 V and 240 V	M9F44170	M9F42170	M9F43170	2	-	-	4	-	-	6
1		M9F44101	M9F42101	M9F43101		M9F42201	M9F43201		M9F42301	M9F43301	
2		M9F44102	M9F42102	M9F43102		M9F42202	M9F43202		M9F42302	M9F43302	
3		M9F44103	M9F42103	M9F43103		M9F42203	M9F43203		M9F42303	M9F43303	
4		M9F44104	M9F42104	M9F43104		M9F42204	M9F43204		M9F42304	M9F43304	
5		M9F44105	M9F42105	M9F43105		M9F42205	M9F43205		M9F42305	M9F43305	
6		M9F44106	M9F42106	M9F43106		M9F42206	M9F43206		M9F42306	M9F43306	
8		M9F44108	M9F42108	M9F43108		M9F42208	M9F43208		M9F42308	M9F43308	
10		M9F44110	M9F42110	M9F43110		M9F42210	M9F43210		M9F42310	M9F43310	
15		M9F44115	M9F42115	M9F43115		M9F42215	M9F43215		M9F42315	M9F43315	
20		M9F44120	M9F42120	M9F43120		M9F42220	M9F43220		M9F42320	M9F43320	
25		M9F44125	M9F42125	M9F43125		M9F42225	M9F43225		M9F42325	M9F43325	
30		M9F44130	M9F42130	M9F43130		M9F42230	M9F43230		M9F42330	M9F43330	
35		M9F44135	M9F42135	M9F43135		M9F42235	M9F43235		M9F42335	M9F43335	
40	240 V only	M9F44140	M9F42140	M9F43140	2	M9F42240	M9F43240	4	M9F42340	M9F43340	6
45		M9F44145	M9F42145	M9F43145		M9F42245	M9F43245		M9F42345	M9F43345	
50		M9F44150	M9F42150	M9F43150		M9F42250	M9F43250		M9F42350	M9F43350	
63		M9F44163	M9F42163	M9F43163		M9F42263	M9F43263		M9F42363	M9F43363	
Accessories		See page 48									

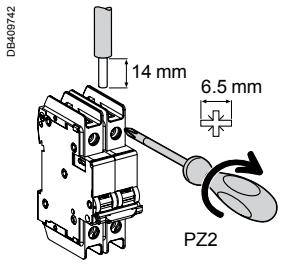
UL/CSA + IEC/EN 60947-2 + GB

C60BP - UL 489 - Z, C, D curves – Tunnel terminals (cont.)

Conformity with product standards

- UL 489 branch circuit protection, document #E215117.
- CSA C22.2 No 5 branch circuit protection, document #E179014.
- IEC/EN 60947-2.
- GB 14048-2.

UL 486A connections for copper cables, document #E216919

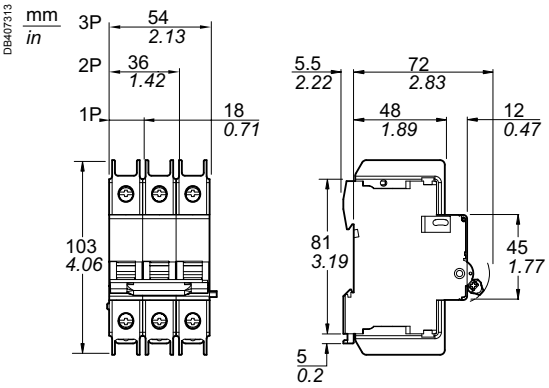


Rating	Tightening torque	Without accessory: Copper cables, Rigid, flexible or with ferrule	
		DB122945	DB122946
		IEC 60947-2	UL 486A-B
0.5 to 25 A	2.5 N.m (22 lb.in)	1 to 25 mm²	AWG #18 to #8
30 to 63 A	3.5 N.m (31 lb.in)	1 to 35 mm²	AWG #18 to #2

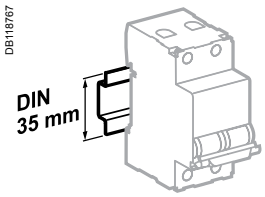
Weight (g / oz)

Circuit-breaker	
Type	**C60BP**
1P	130 g / 4.58 oz
2P	260 g / 9.17 oz
3P	390 g / 13.76 oz

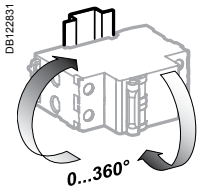
Dimensions (mm / inches)



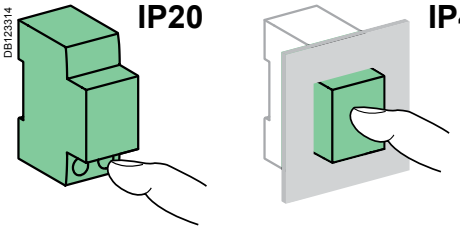
C60BP Tunnel terminal



Clip on DIN rail 35 mm.



Indifferent position of installation.



Technical data

Main characteristics			
Insulation voltage (Ui)			500 V
Service breaking capacity (Ics)		In alternating current	75 % of Icu
		In direct current	100 % of Icu
Pollution degree			3
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		25°C / 77°F
Magnetic tripping	Z curve	In alternating current	3 In ± 20 %
		In direct current	4.2 In ± 20 %
	C curve	In alternating current	8.5 In ± 20 %
		In direct current	12 In ± 20 %
	D curve (=K curve)	In alternating current	12 In ± 20 %
		In direct current	17 In ± 20 %

Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Endurance (O-C)	Electrical	10,000 cycles
	Mechanical	20,000 cycles
Operating temperature		-30°C to +70°C / -22°F to 158°F
Storage temperature		-40°C to +80°C / -40°F to 176°F
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power		See page 68

UL/CSA + IEC/EN 60947-2 + GB

C60BPR - UL 489 - Z, C, D curves – Ring-tongue terminals

DB105727 DB105728 DB405227

UL 489 / CSA C22.2 No 5 / IEC/EN 60947-2 / GB 14048-2

C60BPR are multi-standard miniature circuit breakers and branch circuit protection as defined by UL 489. It combines following functions:

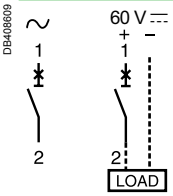
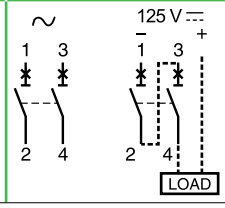
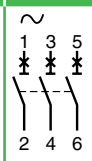
- circuit protection against short-circuit currents
- circuit protection against overload currents
- tripping and fault indication by the addition of auxiliaries
- IP2X ring tongue terminal connection.

PB116667-40 PB116668-40

Number of 18 mm (0.71 in.) poles	Rating (A) 25°C/77°F	Breaking capacity (kA rms) AIR UL 489 / CSA C22.2 No 5				Icu IEC 60947-2			
	Voltage (Ue)	277 V ~	240 V ~	120 V ~	60 V ⎓	440 V ~	415 V ~	240 V ~	60 V ⎓
1P	1 to 35	10	14	14	10	-	3	10	20
	40 to 63	-	10	10	10	-	3	10	20
	Voltage (Ue)	480Y/277 V ~		240 V ~	125 V ⎓	440 V ~	415 V ~	240 V ~	125 V ⎓
2P	1 to 25	10		14	10	6	10	20	-
	30 to 35	10		14	-	6	10	20	-
3P	1 to 35	10		14	-	6	10	20	-
2P/3P	40 to 63	-		10		6	10	20	-

PB116669-40

Electrical diagrams

1P	2P	3P
DB408609	DB408610	DB408611
		

Catalogue numbers

Ring tongue terminal connection

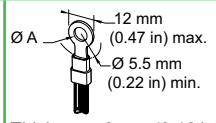
Type	UL489 and CSA voltages	1P				2P			3P		
Auxiliaries		Remote indication and tripping, see page 43									
Rating (In)		Curve Z	Curve C	Curve D (=K)	Width in 9 mm modules	Curve C	Curve D (=K)	Width in 9 mm modules	Curve C	Curve D (=K)	Width in 9 mm modules
C60BPR											
1	480Y/277 V and 240 V	M9F54101	M9F52101	M9F53101	2	M9F52201	M9F53201	4	M9F52301	M9F53301	6
2		M9F54102	M9F52102	M9F53102		M9F52202	M9F53202		M9F52302	M9F53302	
4		M9F54104	M9F52104	M9F53104		M9F52204	M9F53204		M9F52304	M9F53304	
6		M9F54106	M9F52106	M9F53106		M9F52206	M9F53206		M9F52306	M9F53306	
8		M9F54108	M9F52108	M9F53108		M9F52208	M9F53208		M9F52308	M9F53308	
10		M9F54110	M9F52110	M9F53110		M9F52210	M9F53210		M9F52310	M9F53310	
15		M9F54115	M9F52115	M9F53115		M9F52215	M9F53215		M9F52315	M9F53315	
20		M9F54120	M9F52120	M9F53120		M9F52220	M9F53220		M9F52320	M9F53320	
25		M9F54125	M9F52125	M9F53125		M9F52225	M9F53225		M9F52325	M9F53325	
30		M9F54130	M9F52130	M9F53130		M9F52230	M9F53230		M9F52330	M9F53330	
35		M9F54135	M9F52135	M9F53135		M9F52235	M9F53235		M9F52335	M9F53335	
40	240 V only	M9F54140	M9F52140	M9F53140	2	M9F52240	M9F53240	4	M9F52340	M9F53340	6
45		M9F54145	M9F52145	M9F53145		M9F52245	M9F53245		M9F52345	M9F53345	
50		M9F54150	M9F52150	M9F53150		M9F52250	M9F53250		M9F52350	M9F53350	
63		M9F54163	M9F52163	M9F53163		M9F52263	M9F53263		M9F52363	M9F53363	
Accessories		See page 48									

C60BPR - UL 489 - Z, C, D curves – Ring-tongue terminals (cont.)

Conformity with product standards

- UL 489 branch circuit protection, document #E215117.
- CSA C22.2 No 5 branch circuit protection, document #E179014.
- IEC/EN 60947-2.
- GB 14048-2.

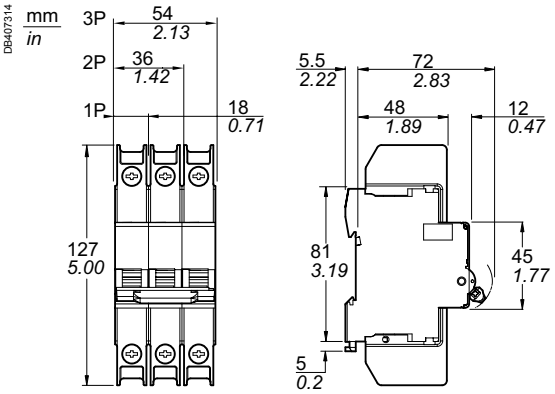
UL 486A connections for copper wires, document #E216919

		With accessory
Rating	**Tightening torque**	**Screw-on connection for ring terminal**
		DB407263  Thickness: 3 mm (0.12 in) or 2 x 1.5 mm (0.06 in) max.
1 to 63 A	2 N.m (18 lb.in)	Ø A: 5 mm (#10)

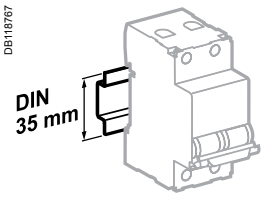
Weight (g / oz)

Circuit-breaker	
Type	**C60BPR**
1P	130 g / 4.58 oz
2P	260 g / 9.17 oz
3P	390 g / 13.76 oz

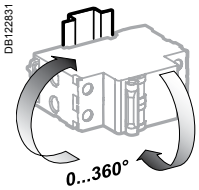
Dimensions

DB407314 

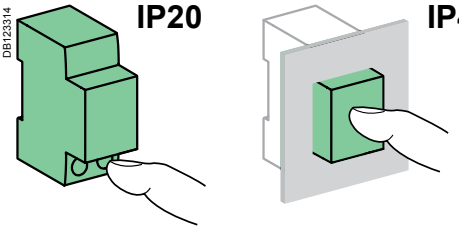
C60BPR Ring tongue terminal

DB118767 

Clip on DIN rail 35 mm.

DB122831 

Indifferent position of installation.

DB123314 

Technical data

Main characteristics			
Insulation voltage (Ui)			500 V
Service breaking capacity (Ics)		In alternating current	75 % of Icu
		In direct current	100 % of Icu
Pollution degree			3
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		25°C / 77°F
Magnetic tripping	Z curve	In alternating current	3 In ± 20 %
		In direct current	4.2 In ± 20 %
	C curve	In alternating current	8.5 In ± 20 %
		In direct current	12 In ± 20 %
	D curve (=K curve)	In alternating current	12 In ± 20 %
		In direct current	17 In ± 20 %
Additional characteristics			
Degree of protection (IEC 60529)	Device only		IP20
	Device in modular enclosure		IP40 Insulation class II
Endurance (O-C)	Electrical		10,000 cycles
	Mechanical		20,000 cycles
Operating temperature			-30°C to +70°C / -22°F to 158°F
Storage temperature			-40°C to +80°C / -40°F to 176°F
Tropicalization (IEC 60068-1)			Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power			See page 68

UL/CSA + IEC/EN 60947-2 + GB

C60SP - UL 1077 - B, C, D curves – Tunnels terminals

DB105730 DB105729 DB405227

UL 1077 / CSA C22.2 No 235 / IEC/EN 60947-2 / GB 14048-2

C60SP are multi-standard miniature circuit breakers and supplementary protection as defined by UL 1077. It combines following functions:

- circuit protection against short-circuit currents
- circuit protection against overload currents
- tripping and fault indication by the addition of auxiliaries.

PB116660-40

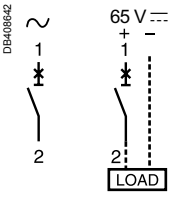
PB116661-40

Number of 18 mm (0.71 in.) poles	Rating (A) 25°C/77°F	Breaking capacity (kA rms) AIR UL 1077 / CSA C22.2 No 235				Icu IEC 60947-2			
	Voltage (Ue)	277 V ~	240 V ~	120 V ~	65 V ⎓	440 V ~	415 V ~	240 V ~	60 V ⎓
1P	0.5 to 32	10	14	14	10	-	3	10	20
	40 to 63	5	10	10	10	-	3	10	20
	Voltage (Ue)	480Y/277 V ~		240 V ~	125 V ⎓	440 V ~	415	240 V ~	125 V ⎓
2P	1 to 25	10		14	10	6	10	20	-
	32	10		14	-	6	10	20	-
3P/4P	2 to 32	10		14	-	6	10	20	-
2P/3P/4P	40 to 63	5		10		6	10	20	-

Electrical diagrams

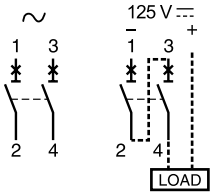
1P

DB408642



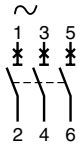
2P

DB408610



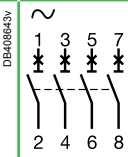
3P

DB408611



4P

DB408643v



Catalogue numbers

Tunnel terminal connection

Type	1P				2P			
Auxiliaries	Remote indication and tripping, see page 43							
Rating (In)	Curve B	Curve C	Curve D (=K)	Width in 9 mm modules	Curve B	Curve C	Curve D (=K)	Width in 9 mm modules
C60SP								
0.5	M9F21170	M9F22170	M9F23170	2	-	-	-	4
1	M9F21101	M9F22101	M9F23101		M9F21201	M9F22201	M9F23201	
2	M9F21102	M9F22102	M9F23102		M9F21202	M9F22202	M9F23202	
3	M9F21103	M9F22103	M9F23103		M9F21203	M9F22203	M9F23203	
4	M9F21104	M9F22104	M9F23104		M9F21204	M9F22204	M9F23204	
5	M9F21105	M9F22105	M9F23105		M9F21205	M9F22205	M9F23205	
6	M9F21106	M9F22106	M9F23106		M9F21206	M9F22206	M9F23206	
8	M9F21108	M9F22108	M9F23108		M9F21208	M9F22208	M9F23208	
10	M9F21110	M9F22110	M9F23110		M9F21210	M9F22210	M9F23210	
13	M9F21113	M9F22113	M9F23113		M9F21213	M9F22213	M9F23213	
16	M9F21116	M9F22116	M9F23116		M9F21216	M9F22216	M9F23216	
20	M9F21120	M9F22120	M9F23120		M9F21220	M9F22220	M9F23220	
25	M9F21125	M9F22125	M9F23125		M9F21225	M9F22225	M9F23225	
32	M9F21132	M9F22132	M9F23132		M9F21232	M9F22232	M9F23232	
40	M9F21140	M9F22140	M9F23140		M9F21240	M9F22240	M9F23240	
45	M9F21145	M9F22145	M9F23145		M9F21245	M9F22245	M9F23245	
50	M9F21150	M9F22150	M9F23150		M9F21250	M9F22250	M9F23250	
63	M9F21163	M9F22163	M9F23163		M9F21263	M9F22263	M9F23263	
Accessories	See page 48							

UL/CSA + IEC/EN 60947-2 + GB

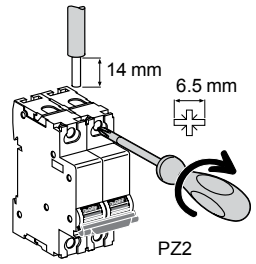
C60SP - UL 1077 - B, C, D curves – Tunnels terminals (cont.)

Conformity with product standards

- UL 1077 supplementary protection , document #E90509.
- CSA C22.2 No. 235 supplementary protection, document #E179014.
- IEC/EN 60947-2.
- GB 14048-2.

UL 486A connections for copper cables, document #E216919

DB123537



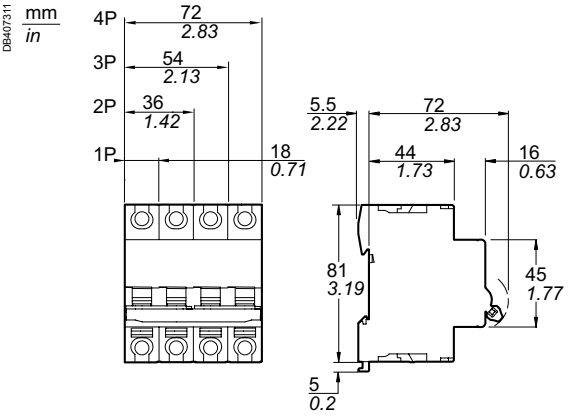
Rating	Tightening torque	Without accessory Copper cables Rigid, flexible or with ferrule	
		DB122945 IEC 60947-2	DB122946 UL 486A-B
0.5 to 25 A	2.5 N.m (22 lb.in)	1 to 25 mm²	AWG #18 to #8
30 to 63 A	3.5 N.m (31 lb.in)	1 to 35 mm²	AWG #18 to #2

Weight (g / oz)

Circuit-breaker	
Type	**C60SP**
1P	120 g / 4.23 oz
2P	240 g / 8.46 oz
3P	360 g / 12.70 oz
4P	480 g / 16.93 oz

Dimensions (mm / inches)

DB407311

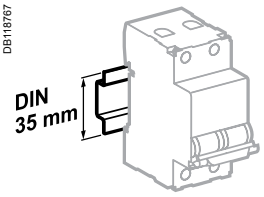


C60SP Tunnel terminal connection

3P				4P			
Curve			Width in 9 mm modules	Curve			Width in 9 mm modules
B	C	D (=K)		B	C	D (=K)	
-	-	-	6	-	-	-	8
-	-	-		-	-	-	
M9F21302	**M9F22302**	**M9F23302**		**M9F21402**	**M9F22402**	**M9F23402**	
-	-	-		-	-	-	
-	-	-		-	-	-	
-	-	-		-	-	-	
M9F21306	**M9F22306**	**M9F23306**		**M9F21406**	**M9F22406**	**M9F23406**	
M9F21308	**M9F22308**	**M9F23308**		**M9F21408**	**M9F22408**	**M9F23408**	
M9F21310	**M9F22310**	**M9F23310**		**M9F21410**	**M9F22410**	**M9F23410**	
M9F21313	**M9F22313**	**M9F23313**		**M9F21413**	**M9F22413**	**M9F23413**	
M9F21316	**M9F22316**	**M9F23316**		**M9F21416**	**M9F22416**	**M9F23416**	
M9F21320	**M9F22320**	**M9F23320**		**M9F21420**	**M9F22420**	**M9F23420**	
M9F21325	**M9F22325**	**M9F23325**		**M9F21425**	**M9F22425**	**M9F23425**	
M9F21332	**M9F22332**	**M9F23332**		**M9F21432**	**M9F22432**	**M9F23432**	
M9F21340	**M9F22340**	**M9F23340**		**M9F21440**	**M9F22440**	**M9F23440**	
M9F21345	**M9F22345**	**M9F23345**		**M9F21445**	**M9F22445**	**M9F23445**	
M9F21350	**M9F22350**	**M9F23350**		**M9F21450**	**M9F22450**	**M9F23450**	
M9F21363	**M9F22363**	**M9F23363**		**M9F21463**	**M9F22463**	**M9F23463**	

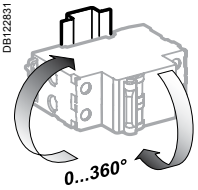
C60SP - UL 1077 - B, C, D curves – Tunnels terminals (cont.)

DB118767



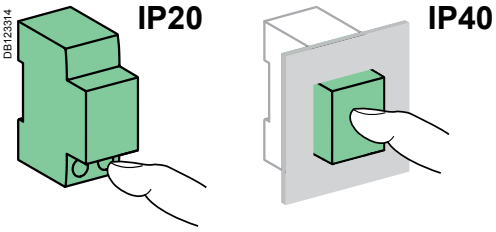
Clip on DIN rail 35 mm.

DB122831



Indifferent position of installation.

DB123314



Technical data

Main characteristics			
Insulation voltage (Ui)			500 V
Service breaking capacity (Ics)		In alternating current	75 % of Icu
		In direct current	100 % of Icu
Pollution degree			3
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		25°C / 77°F
Magnetic tripping	B curve	In alternating current	4 In ± 20 %
		In direct current	5.7 In ± 20 %
	C curve	In alternating current	8.5 In ± 20 %
		In direct current	12 In ± 20 %
	D curve (=K curve)	In alternating current	12 In ± 20 %
		In direct current	17 In ± 20 %
Additional characteristics			
Degree of protection (IEC 60529)	Device only		IP20
	Device in modular enclosure		IP40 Insulation class II
Endurance (O-C)	Electrical		10,000 cycles
	Mechanical		20,000 cycles
Operating temperature			-30°C to +70°C / -22°F to 158°F
Storage temperature			-40°C to +80°C / -40°F to 176°F
Tropicalization (IEC 60068-1)			Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power			See page 68

UL/CSA + IEC/EN 60947-2 + GB

C60H-DC - UL 1077 - B, C, K curves – Tunnels terminals for DC circuits only

DB105730 DB405227

IEC/EN 60947-2, GB 14048.2, UL1077

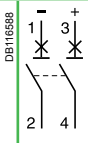
C60H-DC are multi-standard miniature circuit breakers and supplementary protection as defined by UL 1077 dedicated to direct current. It combines following functions:
- circuit protection against short-circuit currents,
- circuit protection against overload currents,
- tripping and fault indication by the addition of auxiliaries.

PB116681-40

Number of 18 mm (0.71 in.) poles	Rating (A) 25°C/77°F	Breaking capacity (kA rms) AIR UL 1077	Icu IEC 60947-2			
Voltage (Ue)		**12...250 V ⎓**	**110 V ⎓**	**220 V ⎓**	**250 V ⎓**	
1P	0.5 to 63	5	20	10	6	
Voltage (Ue)		**12...500 V ⎓**		**220 V ⎓**	**440 V ⎓**	**500 V ⎓**
2P	0.5 to 63	5	-	20	10	6

PB116682-40

Electrical diagrams

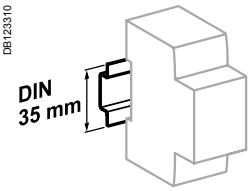
1P	2P	
		
Supply from above or below, observing the polarity	Supply from above or	Supply from below

Catalogue numbers

C60H-DC								
Type	**1P**				**2P**			
Auxiliaries	**Remote indication and tripping, see page 43**							
Rating (In)	**Curve** B	C	D (=K)	**Width in 9 mm modules**	**Curve** B	C	D (=K)	**Width in 9 mm modules**
C60H-DC								
0.5	-	M9U21170	-	2	-	M9U21270	-	4
1	-	M9U21101	M9U31101		-	M9U21201	M9U31201	
2	-	M9U21102	M9U31102		-	M9U21202	M9U31202	
3	-	M9U21103	M9U31103		-	M9U21203	M9U31203	
4	-	M9U21104	M9U31104		-	M9U21204	M9U31204	
6	M9U11106	M9U21106	M9U31106		M9U11206	M9U21206	M9U31206	
10	M9U11110	M9U21110	M9U31110		M9U11210	M9U21210	M9U31210	
13	M9U11113	M9U21113	M9U31113		M9U11213	M9U21213	M9U31213	
16	M9U11116	M9U21116	M9U31116		M9U11216	M9U21216	M9U31216	
20	M9U11120	M9U21120	M9U31120		M9U11220	M9U21220	M9U31220	
25	M9U11125	M9U21125	M9U31125		M9U11225	M9U21225	M9U31225	
32	M9U11132	M9U21132	M9U31132		M9U11232	M9U21232	M9U31232	
40	M9U11140	M9U21140	M9U31140		M9U11240	M9U21240	M9U31240	
50	M9U11150	M9U21150	M9U31150		M9U11250	M9U21250	M9U31250	
63	M9U11163	M9U21163	M9U31163		M9U11263	M9U21263	M9U31263	
Accessories	**See page 48**							

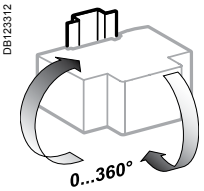
C60H-DC - UL 1077 - B, C, K curves – Tunnels terminals for DC circuits only (cont.)

DB123310



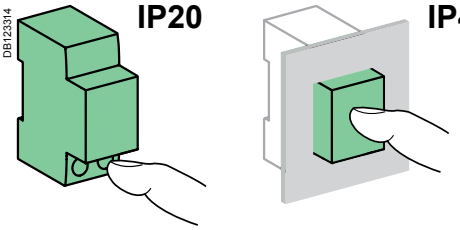
Clip on DIN rail 35 mm.

DB123312



Indifferent position of installation.

DB123314



Technical data

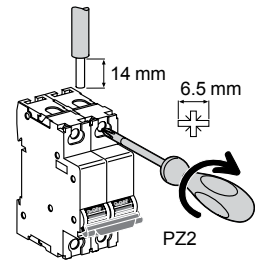
Main characteristics		
Insulation voltage (Ui)		500 V DC
Rated service breaking capacity (Ics)		75 % of Icu
Pollution degree		3
Rated impulse withstand voltage (Uimp) under frame		6 kV
Thermal tripping	Reference temperature	25°C / 77°F
Magnetic tripping (Ii)	B curve	Between 3 and 7 In
	C curve	Between 7 and 10 In
	D curve (=K curve)	Between 10 and 14 In
Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Endurance (O-C)	Electrical	3,000 cycles (where L/R=2 ms)
		6,000 cycles where the circuit is resistive
	Mechanical	20,000 cycles
Utilization category		A (no delay in accordance with IEC/EN 60947-2 standards)
Operating temperature		-25°C to 70°C / -13°F to 158°F
Storage temperature		-40°C to 85°C / -40°F to 185°F
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power		See page 68

DB408064

Failure to match polarity during connection may lead to a fire hazard and/or serious injury.
- **The connection polarity must be observed (marked on the front panel).**
- **Use only with direct current.**
- **If two poles are used in series for the American network, use at least a 12 inch / 30 cm cable.**

Connection

DB123537



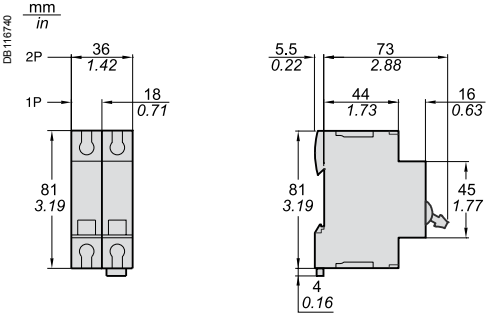
Rating	Tightening torque	Without accessory Copper cables Rigid, flexible or with ferrule	
		DB122945	DB122946
		IEC 60947-2	UL 486A-B
0.5 to 25 A	2.5 N.m (22 lb.in)	1 to 25 mm²	AWG #18 to #8
30 to 63 A	3.5 N.m (31 lb.in)	1 to 35 mm²	AWG #18 to #2

Weight (g / oz)

Circuit-breaker	
Type	**C60H-DC**
1P	128 g / 4.51 oz
2P	256 g / 9.03 oz

Dimensions (mm / inches)

DB116740



C60H-DC


Schneider Electric
Magelis
164
154C


C60N 1P


C60N 3P


C60N 2P


C60N 4P

IEC/EN 60947-2

- C60N circuit breakers are circuit breakers which combine the following functions:
  - circuit protection against short-circuit currents,
  - circuit protection against overload currents,
  - breaking and industrial disconnection as per standards IEC/EN 60947-2.
- The presence of the green strip guarantees physical opening of the contacts and allows operations to be performed on the downstream circuit in complete safety.

- Increased product service life thanks:
  - overvoltage resistance,
  - high performance limitation,
  - to fast closing independent of the speed of actuation of the toggle.
- Upstream or downstream connection.

Positive contact indication

- Suitability for isolation in accordance with the IEC/EN 60947-2 standard.

Alternating current (AC) 50/60 Hz

Ultimate breaking capacity (Icu) as per IEC/EN 60947-2	Voltage (Ue)				Service breaking capacity (Ics)
Ph/Ph (2P, 3P, 4P)	240 V	415 V	-	440 V	
Ph/N (1P)	-	240 V	415 V	-	
Rating (In) 1 to 63 A	20 kA	10 kA	3 kA(*)	6 kA	75 % of Icu
i_{IT}	1.2 x 12 In				

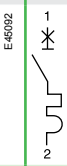
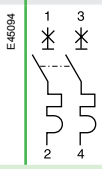
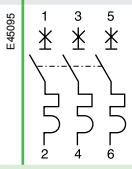
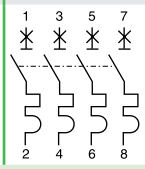
(*) Breaking capacity under 1 pole with IT isolated neutral system (case of double fault).

Direct current (DC)

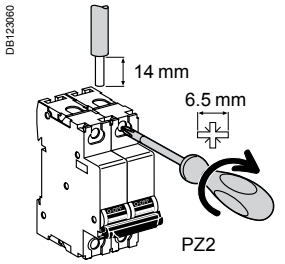
Breaking capacity (Icu) according to IEC/EN 60947-2	Voltage (Ue)				Service breaking capacity (Ics)
Between +/-	⩽ 72 V	⩽ 125 V	⩽ 125 V	⩽ 250 V	
Number of poles	1P	2P	3P	4P	
Rating (In) 1 to 63 A	15 kA	20 kA	30 kA	40 kA	100 % of Icu

Catalogue numbers

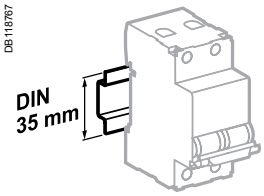
C60N circuit breaker

Type	1P			2P			3P			4P		
												
Auxiliaries	See page 43											
Vigi C60	See page 36											
Rating (In)	Curve			Curve			Curve			Curve		
	B	C	D	B	C	D	B	C	D	B	C	D
1 A	M9F10101	M9F11101	M9F12101	M9F10201	M9F11201	M9F12201	M9F10301	M9F11301	M9F12301	M9F10401	M9F11401	M9F12401
2 A	M9F10102	M9F11102	M9F12102	M9F10202	M9F11202	M9F12202	M9F10302	M9F11302	M9F12302	M9F10402	M9F11402	M9F12402
3 A	M9F10103	M9F11103	M9F12103	M9F10203	M9F11203	M9F12203	M9F10303	M9F11303	M9F12303	M9F10403	M9F11403	M9F12403
4 A	M9F10104	M9F11104	M9F12104	M9F10204	M9F11204	M9F12204	M9F10304	M9F11304	M9F12304	M9F10404	M9F11404	M9F12404
6 A	M9F10106	M9F11106	M9F12106	M9F10206	M9F11206	M9F12206	M9F10306	M9F11306	M9F12306	M9F10406	M9F11406	M9F12406
10 A	M9F10110	M9F11110	M9F12110	M9F10210	M9F11210	M9F12210	M9F10310	M9F11310	M9F12310	M9F10410	M9F11410	M9F12410
13 A	M9F10113	M9F11113	M9F12113	M9F10213	M9F11213	M9F12213	M9F10313	M9F11313	M9F12313	M9F10413	M9F11413	M9F12413
16 A	M9F10116	M9F11116	M9F12116	M9F10216	M9F11216	M9F12216	M9F10316	M9F11316	M9F12316	M9F10416	M9F11416	M9F12416
20 A	M9F10120	M9F11120	M9F12120	M9F10220	M9F11220	M9F12220	M9F10320	M9F11320	M9F12320	M9F10420	M9F11420	M9F12420
25 A	M9F10125	M9F11125	M9F12125	M9F10225	M9F11225	M9F12225	M9F10325	M9F11325	M9F12325	M9F10425	M9F11425	M9F12425
32 A	M9F10132	M9F11132	M9F12132	M9F10232	M9F11232	M9F12232	M9F10332	M9F11332	M9F12332	M9F10432	M9F11432	M9F12432
40 A	M9F10140	M9F11140	M9F12140	M9F10240	M9F11240	M9F12240	M9F10340	M9F11340	M9F12340	M9F10440	M9F11440	M9F12440
50 A	M9F10150	M9F11150	M9F12150	M9F10250	M9F11250	M9F12250	M9F10350	M9F11350	M9F12350	M9F10450	M9F11450	M9F12450
63 A	M9F10163	M9F11163	M9F12163	M9F10263	M9F11263	M9F12263	M9F10363	M9F11363	M9F12363	M9F10463	M9F11463	M9F12463
Width in 9-mm modules	2			4			6			8		
Accessories	See page 48											

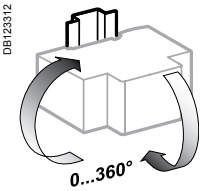
Connection



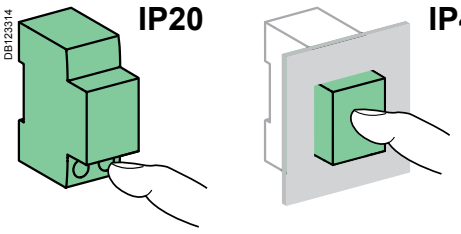
Rating	Tightening torque	Without accessory Copper cables Rigid, flexible or with ferrule	
		DB122945	DB122946
1 to 25 A	2.5 N.m (22 lb.in)	1 to 25 mm²	AWG #18 to #3
32 to 63 A	3.5 N.m (31 lb.in)	1.5 to 35 mm²	AWG #16 to #2



Clip on DIN rail 35 mm.



Indifferent position of installation.



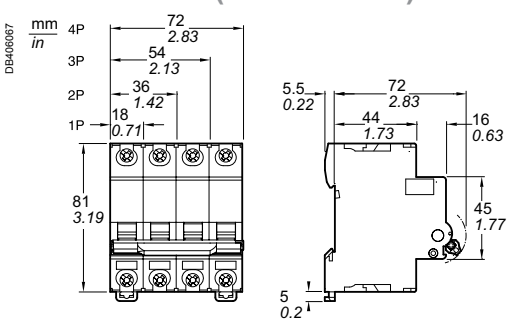
Technical data

According to IEC/EN 60947-2			
Insulation voltage (Ui)			500 V AC
Pollution degree			3
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		50°C / 122°F
Magnetic tripping (Ii)	B curve	in alternative current	4 In ± 20 %
		in direct current	5.7 In (± 20 %)
	C curve	in alternative current	8.5 In ± 20 %
		in direct current	12 In (± 20 %)
	D curve	in alternative current	12 In ± 20 %
		in direct current	17 In (± 20 %)
	According to current frequency		50/60 Hz
Utilization category			A
Additional characteristics			
Degree of protection (IEC 60529)	Device only		IP20
	Device in modular enclosure		IP40 Insulation class II
Endurance (O-C)	Electrical		10,000 cycles
	Mechanical		20,000 cycles
Service temperature			-30°C to +70°C / -22°F to 158°F
Storage temperature			-40°C to +80°C / -40°F to 176°F
Tropicalization (IEC 60068-1)			Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power			See page 68

Weight (g / oz)

Circuit-breaker	
Type	**C60N**
1P	120 g / 4.23 oz
2P	240 g / 8.46 oz
3P	360 g / 12.70 oz
4P	480 g / 16.93 oz

Dimensions (mm / inches)



IEC DB405227

PB111747-40

C60H 1P

PB111752-40

C60H 3P

PB111750-40

C60H 2P

PB111755-40

C60H 4P

IEC/EN 60947-2

- C60H circuit breakers are circuit breakers which combine the following functions:
  - circuit protection against short-circuit currents,
  - circuit protection against overload currents,
  - breaking and industrial disconnection as per standards IEC/EN 60947-2.
- The presence of the green strip guarantees physical opening of the contacts and allows operations to be performed on the downstream circuit in complete safety.

- Increased product service life thanks:
  - overvoltage resistance,
  - high performance limitation,
  - to fast closing independent of the speed of actuation of the toggle.
- Upstream or downstream connection.

Positive contact indication

- Suitability for isolation in accordance with the IEC/EN 60947-2 standard.

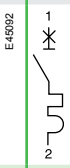
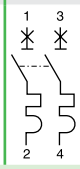
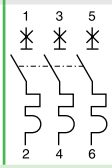
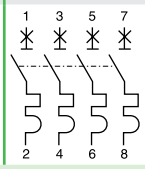
Alternating current (AC) 50/60 Hz					
Ultimate breaking capacity (Icu) as per IEC/EN 60947-2					**Service breaking capacity (Ics)**
	Voltage (Ue)				
Ph/Ph (2P, 3P, 4P)	**240 V**	**415 V**	**-**	**440 V**	
Ph/N (1P)	**-**	**240 V**	**415 V**	**-**	
Rating (In) 1 to 63 A	30 kA	15 kA	3 kA(*)	10 kA	50 % of Icu
i_{IT}	1.2 x 12 In				

(*) Breaking capacity under 1 pole with IT isolated neutral system (case of double fault).

Direct current (DC)					
Breaking capacity (Icu) according to IEC/EN 60947-2					**Service breaking capacity (Ics)**
	Voltage (Ue)				
Between +/-	**⩽ 72 V**	**⩽ 125 V**	**⩽ 125 V**	**⩽ 250 V**	
Number of poles	**1P**	**2P**	**3P**	**4P**	
Rating (In) 1 to 63 A	20 kA	25 kA	40 kA	50 kA	100 % of Icu

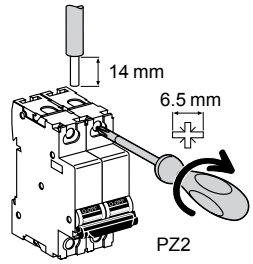
Catalogue numbers

C60N circuit breaker

Type	1P			2P			3P			4P		
												
Auxiliaries	See page 43											
Vigi C60	See page 36											
Rating (In)	**Curve**			**Curve**			**Curve**			**Curve**		
	B	**C**	**D**	**B**	**C**	**D**	**B**	**C**	**D**	**B**	**C**	**D**
1 A	M9F13101	M9F14101	M9F15101	M9F13201	M9F14201	M9F15201	M9F13301	M9F14301	M9F15301	M9F13401	M9F14401	M9F15401
2 A	M9F13102	M9F14102	M9F15102	M9F13202	M9F14202	M9F15202	M9F13302	M9F14302	M9F15302	M9F13402	M9F14402	M9F15402
3 A	M9F13103	M9F14103	M9F15103	M9F13203	M9F14203	M9F15203	M9F13303	M9F14303	M9F15303	M9F13403	M9F14403	M9F15403
4 A	M9F13104	M9F14104	M9F15104	M9F13204	M9F14204	M9F15204	M9F13304	M9F14304	M9F15304	M9F13404	M9F14404	M9F15404
6 A	M9F13106	M9F14106	M9F15106	M9F13206	M9F14206	M9F15206	M9F13306	M9F14306	M9F15306	M9F13406	M9F14406	M9F15406
10 A	M9F13110	M9F14110	M9F15110	M9F13210	M9F14210	M9F15210	M9F13310	M9F14310	M9F15310	M9F13410	M9F14410	M9F15410
13 A	M9F13113	M9F14113	M9F15113	M9F13213	M9F14213	M9F15213	M9F13313	M9F14313	M9F15313	M9F13413	M9F14413	M9F15413
16 A	M9F13116	M9F14116	M9F15116	M9F13216	M9F14216	M9F15216	M9F13316	M9F14316	M9F15316	M9F13416	M9F14416	M9F15416
20 A	M9F13120	M9F14120	M9F15120	M9F13220	M9F14220	M9F15220	M9F13320	M9F14320	M9F15320	M9F13420	M9F14420	M9F15420
25 A	M9F13125	M9F14125	M9F15125	M9F13225	M9F14225	M9F15225	M9F13325	M9F14325	M9F15325	M9F13425	M9F14425	M9F15425
32 A	M9F13132	M9F14132	M9F15132	M9F13232	M9F14232	M9F15232	M9F13332	M9F14332	M9F15332	M9F13432	M9F14432	M9F15432
40 A	M9F13140	M9F14140	M9F15140	M9F13240	M9F14240	M9F15240	M9F13340	M9F14340	M9F15340	M9F13440	M9F14440	M9F15440
50 A	M9F13150	M9F14150	M9F15150	M9F13250	M9F14250	M9F15250	M9F13350	M9F14350	M9F15350	M9F13450	M9F14450	M9F15450
63 A	M9F13163	M9F14163	M9F15163	M9F13263	M9F14263	M9F15263	M9F13363	M9F14363	M9F15363	M9F13463	M9F14463	M9F15463
Width in 9-mm modules	2			4			6			8		
Accessories	See page 48											

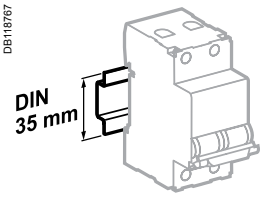
Connection

DB123060



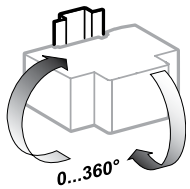
Rating	Tightening torque	Without accessory Copper cables Rigid, flexible or with ferrule	
		DB122945	DB122946
1 to 25 A	2.5 N.m (22 lb.in)	1 to 25 mm²	AWG #18 to #3
32 to 63 A	3.5 N.m (31 lb.in)	1.5 to 35 mm²	AWG #16 to #2

DB118767



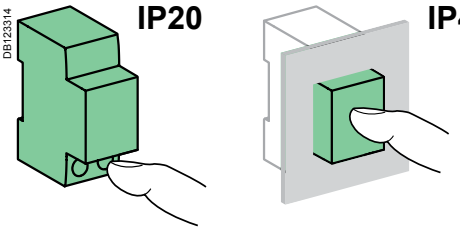
Clip on DIN rail 35 mm.

DB123312



Indifferent position of installation.

DB123314



Technical data

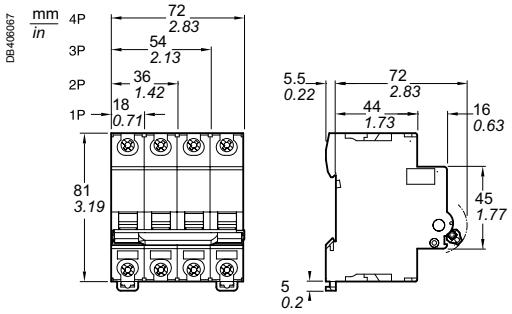
According to IEC/EN 60947-2			
Insulation voltage (Ui)			500 V AC
Pollution degree			3
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		50°C / 122°F
Magnetic tripping (Ii)	B curve	in alternative current	4 In ± 20 %
		in direct current	5.7 In (± 20 %)
	C curve	in alternative current	8.5 In ± 20 %
		in direct current	12 In (± 20 %)
	D curve	in alternative current	12 In ± 20 %
		in direct current	17 In (± 20 %)
	According to current frequency		50/60 Hz
Utilization category			A
Additional characteristics			
Degree of protection (IEC 60529)	Device only		IP20
	Device in modular enclosure		IP40 Insulation class II
Endurance (O-C)	Electrical		10,000 cycles
	Mechanical		20,000 cycles
Service temperature			-30°C to +70°C / -22°F to 158°F
Storage temperature			-40°C to +80°C / -40°F to 176°F
Tropicalization (IEC 60068-1)			Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power			See page 38

Weight (g / oz)

Circuit-breaker	
Type	**C60H**
1P	120 g / 4.23 oz
2P	240 g / 8.46 oz
3P	360 g / 12.70 oz
4P	480 g / 16.93 oz

Dimensions (mm / inches)

DB406067



IEC

C60L 1P

C60L 3P

C60L 2P

C60L 4P

IEC/EN 60947-2

- C60L circuit breakers are circuit breakers which combine the following functions:
  - circuit protection against short-circuit currents,
  - circuit protection against overload currents,
  - breaking and industrial disconnection as per standards IEC/EN 60947-2.
- The presence of the green strip guarantees physical opening of the contacts and allows operations to be performed on the downstream circuit in complete safety.

- Increased product service life thanks:
  - overvoltage resistance,
  - high performance limitation,
  - to fast closing independent of the speed of actuation of the toggle.
- Upstream or downstream connection.

Positive contact indication

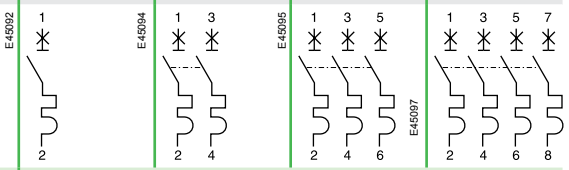
- Suitability for isolation in accordance with the IEC/EN 60947-2 standard.

Alternating current (AC) 50/60 Hz					
Ultimate breaking capacity (Icu) as per IEC/EN 60947-2					**Service breaking capacity (Ics)**
	Voltage (Ue)				
Ph/Ph (2P, 3P, 4P)	**240 V**	**415 V**	**-**	**440 V**	
Ph/N (1P)	**-**	**240 V**	**415 V**	**-**	
Rating (In) 1 to 25 A	50 kA	25 kA	3 kA(*)	20 kA	50 % of Icu
i_{IT}	1.2 x 8.5 In				

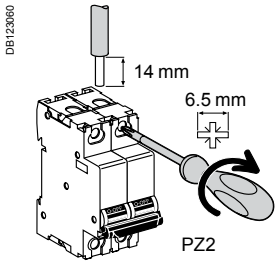
(*) Breaking capacity under 1 pole with IT isolated neutral system (case of double fault).

Direct current (DC)					
Breaking capacity (Icu) according to IEC/EN 60947-2					**Service breaking capacity (Ics)**
	Voltage (Ue)				
Between +/-	**⩽ 72 V**	**⩽ 125 V**	**⩽ 125 V**	**⩽ 250 V**	
Number of poles	**1P**	**2P**	**3P**	**4P**	
Rating (In) 1 to 25 A	25 kA	30 kA	50 kA	60 kA	100 % of Icu

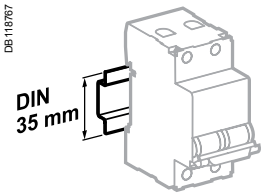
Catalogue numbers

C60L circuit breaker				
Type	**1P**	**2P**	**3P**	**4P**
				
Auxiliaries	**See page 43**			
Vigi C60	**See page 36**			
Rating (In)	**Curve C**	**Curve C**	**Curve C**	**Curve C**
1 A	**M9F17101**	**M9F17201**	**M9F17301**	**M9F17401**
2 A	**M9F17102**	**M9F17202**	**M9F17302**	**M9F17402**
3 A	**M9F17103**	**M9F17203**	**M9F17303**	**M9F17403**
4 A	**M9F17104**	**M9F17204**	**M9F17304**	**M9F17404**
6 A	**M9F17106**	**M9F17206**	**M9F17306**	**M9F17406**
10 A	**M9F17110**	**M9F17210**	**M9F17310**	**M9F17410**
16 A	**M9F17116**	**M9F17216**	**M9F17316**	**M9F17416**
20 A	**M9F17120**	**M9F17220**	**M9F17320**	**M9F17420**
25 A	**M9F17125**	**M9F17225**	**M9F17325**	**M9F17425**
Width in 9-mm modules	2	4	6	8
Accessories	**See page 48**			

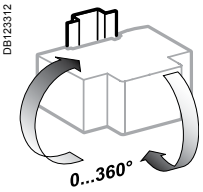
Connection



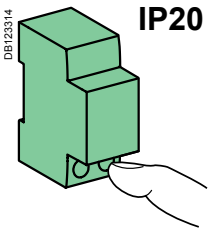
Rating	Tightening torque	Without accessory	
		Copper cables	
		Rigid, flexible or with ferrule	
		DB122945	DB122946
1 to 25 A	2.5 N.m (22 lb.in)	1 to 25 mm²	AWG #18 to #3

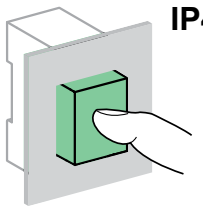


Clip on DIN rail 35 mm.



Indifferent position of installation.





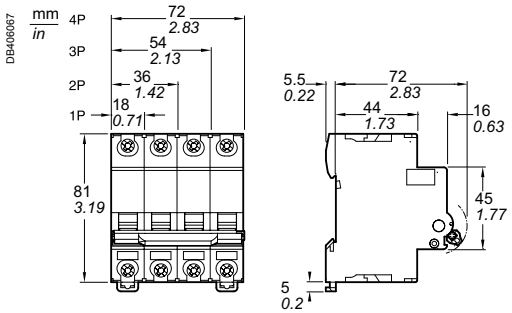
Technical data

According to IEC/EN 60947-2			
Insulation voltage (Ui)			500 V AC
Pollution degree			3
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		50°C / 122°F
Magnetic tripping (Ii)	C curve	in alternative current	8.5 In ± 20 %
		in direct current	12 In (± 20 %)
	According to current frequency		50/60 Hz
Utilization category			A
Additional characteristics			
Degree of protection (IEC 60529)	Device only		IP20
	Device in modular enclosure		IP40 Insulation class II
Endurance (O-C)	Electrical		10,000 cycles
	Mechanical		20,000 cycles
Service temperature			-30°C to +70°C / -22°F to 158°F
Storage temperature			-40°C to +80°C / -40°F to 176°F
Tropicalization (IEC 60068-1)			Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power			See page 68

Weight (g / oz)

Circuit-breaker	
Type	**C60L**
1P	120 g / 4.23 oz
2P	240 g / 8.46 oz
3P	360 g / 12.70 oz
4P	480 g / 16.93 oz

Dimensions (mm / inches)



C60CTRL - Z and C curves – For control circuits protection

IEC

C60CTRL 1P

C60CTRL 2P

IEC/EN 60947-2.

"C60CTRL circuit breakers for the protection of control circuits" protect and isolate:
- control circuits for industrial equipment with contactor coils, transformers, small motors, etc.
- programmable controllers (PLCs), voltage presence indicators, measuring and monitoring instruments, etc.
- single-phase auxiliary circuits such as solenoid valves, battery chargers, etc.

- C60CTRL circuit breakers combine the following features:
  - protection of circuits against short-circuit and overload currents,
  - breaking and isolation capability in the industrial sector to IEC/EN 60947-2.

- The presence of the green strip guarantees that the contacts open physically and allows work to be carried out safely on the downstream circuit.

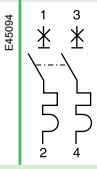
- The service life of the products is improved by:
  - good overvoltage withstand capacity,
  - fast closure, independent of handle operating speed.

- They can be connected upstream and downstream.

Alternating current (AC) 50/60 Hz				
Breaking capacity (Icu) to IEC/EN 60947-2				**Service breaking capacity (Ics)**
		Voltage (Ue)		
Ph/Ph (2P)		**240 V**	**415 V**	
Ph/N (1P)		**-**	**240 V**	
Rating (In)	1 to 4 A	100 kA	100 kA	50 % of Icu

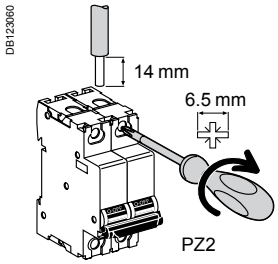
Direct current (DC)				
Breaking capacity (Icu) to IEC/EN 60947-2				**Service breaking capacity (Ics)**
		Voltage (Ue)		
Between +/-		**60 V**	**125 V**	
Number of poles		**1P**	**2P**	
Rating (In)	1 to 4 A	25 kA	30 kA	100 % of Icu

Catalogue numbers

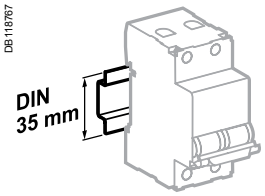
C60CTRL circuit breakers for the protection of control circuits				
Type	**1P**		**2P**	
				
Auxiliaries	**See page 43**			
Vigi C60	**See page 36**			
Rating (In)	**C curve**	**Z curve**	**C curve**	**Z curve**
1 A	**M9C01101**	**M9C02301**	**M9C01201**	**M9C02401**
2 A	**M9C01102**	**M9C02302**	**M9C01202**	**M9C02402**
3 A	**M9C01103**	**M9C02303**	**M9C01203**	**M9C02403**
4 A	**M9C01104**	**M9C02304**	**M9C01204**	**M9C02404**
Width in 9 mm modules	2		4	
Accessories	**See page 48**			

C60CTRL - Z and C curves – For control circuits protection (cont.)

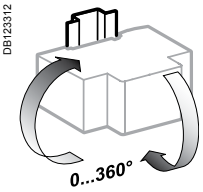
Connection



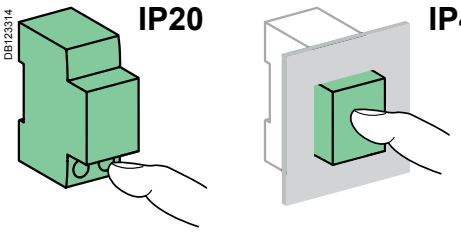
Rating	Tightening torque	Without accessory Copper cables Rigid, flexible or with ferrule	
			
1 to 4 A	2.5 N.m (22 lb.in)	1 to 25 mm²	AWG #18 to #3



Clip on DIN rail 35 mm.



Indifferent position of installation.



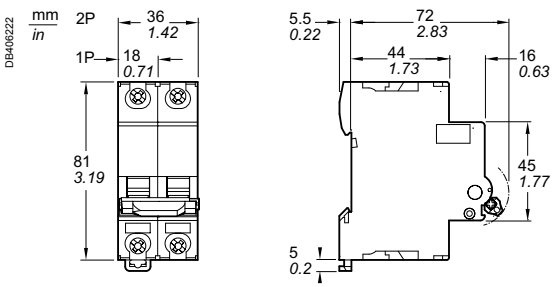
Technical data

According to IEC/EN 60947-2			
Insulation voltage (Ui)			500 V AC
Pollution degree			1
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		50°C / 122°F
Magnetic tripping (Ii)	C curve	in alternative current	8.5 In ± 20 %
		in direct current	12 In (± 20 %)
	Z curve	in alternative current	3 In ± 20 %
		in direct current	4.2 In (± 20 %)
	According to current frequency		50/60 Hz
Utilization category			A
Additional characteristics			
Degree of protection (IEC 60529)	Device only		IP20
	Device in modular enclosure		IP40 Insulation class II
Endurance (O-C)	Electrical		10,000 cycles
	Mechanical		20,000 cycles
Operating temperature			-30°C to +70°C / -22°F to 158°F
Storage temperature			-40°C to +80°C / -40°F to 176°F
Tropicalization (IEC 60068-1)			Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power			See page 68

Weight (g / oz)

Circuit breakers	
Type	**C60CTRL**
1P	120 g / 4.23 oz
2P	240 g / 8.46 oz

Dimensions (mm / inches)



IEC


PB111757-40


PB111758-40

IEC/EN 60947-2

- N40N circuit breakers are circuit breakers which combine the following functions:
  - circuit protection against short-circuit currents,
  - circuit protection against overload currents,
  - breaking and industrial disconnection as per standards IEC/EN 60947-2.
- The presence of the green strip guarantees physical opening of the contacts and allows operations to be performed on the downstream circuit in complete safety.

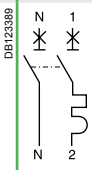
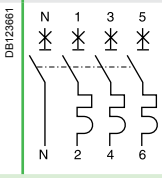
- Increased product service life thanks:
  - overvoltage resistance,
  - high performance limitation,
  - to fast closing independent of the speed of actuation of the toggle.
- Upstream or downstream connection.

Positive contact indication

- Suitability for isolation in accordance with the IEC/EN 60947-2 standard.

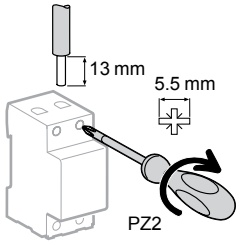
Alternating current (AC) 50/60 Hz			
Ultimate breaking capacity (Icu) as per IEC/EN 60947-2			**Service breaking capacity (Ics)**
		Voltage (Ue)	
Ph/Ph (3P+N)		**415 V**	
Ph/N (1P+N)		**240 V**	
Rating (In)	1 to 40 A	10 kA	75 % of Icu
i_{IT}		1.2 x 8.5 In	

Catalogue numbers

N40N circuit breakers		
	10 kA	
Type	**1P+N**	**3P+N**
	 DB123389	 DB123661
Auxiliaries	**See page 43**	
Vigi	**See page 38**	
Rating (In)	**C curve**	**C curve**
1 A	**M9P22601**	**-**
2 A	**M9P22602**	**-**
3 A	**M9P22603**	**-**
4 A	**M9P22604**	**-**
6 A	**M9P22606**	**M9P22706**
10 A	**M9P22610**	**M9P22710**
16 A	**M9P22616**	**M9P22716**
20 A	**M9P22620**	**M9P22720**
25 A	**M9P22625**	**M9P22725**
32 A	**M9P22632**	**M9P22732**
40 A	**M9P22640**	**M9P22740**
Width in 9-mm modules	2	6
Accessories	**See page 48**	

Connection

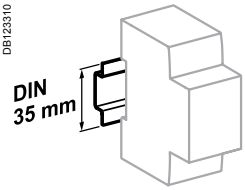
DB123947



Rating	Tightening torque	Copper cables			
		Rigid		Flexible or with ferrule	
		DB122945		DB122946	
1 to 40 A	2 N.m (18 lb.in)	0.75 to 16 mm²	AWG #18 to #6	0.33 to 10 mm²	AWG #22 to #8

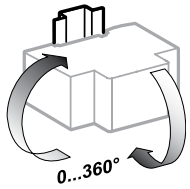
■ Connection by comb busbar or cables (as per EN 50027).

DB123310



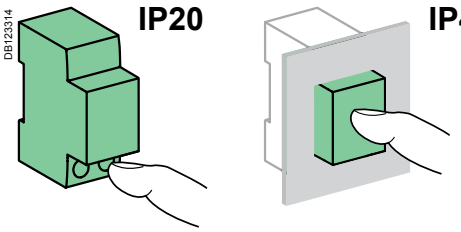
Clips on to 35 mm DIN rail.

DB123312



Indifferent position of installation.

DB123314

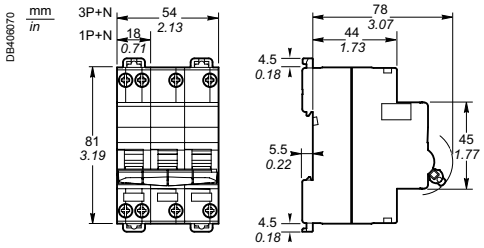


Technical data

Main characteristics			
According to IEC/EN 60947-2			
Insulation voltage (Ui)	Phase-to-phase		240...415 V AC
Thermal tripping	Reference temperature		50°C / 122°F
Magnetic tripping	C curve		8.5 In (± 20 %)
Rated impulse withstand voltage (Uimp)			4 kV
Pollution degree			3
Additional characteristics			
Degree of protection (IEC 60529)	Device only		IP20
	Device in modular enclosure		IP40 Insulation class II
Endurance (O-C)	Electrical	≤ 20 A	20,000 cycles
		≥ 25 A	10,000 cycles
	Mechanical		20,000 cycles
Operating temperature			-25°C to +70°C / -13°F to 158°F
Storage temperature			-40°C to +70°C / -40°F to 158°F
Tropicalization (IEC 60068-1)			Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power			See page 68

Dimensions (mm / inches)

DB406070



Weight (g / oz)

Circuit breakers	
Type	**N40N**
1P+N	115 g / 4.06 oz
3P+N	322 g / 11.35 oz

GFP - UL 1053 & IEC/EN 61008 - Ground Fault Protector

DB105727

PB116670-40

IEC/EN 61008-1
UL 1053

UL 1053 residual current circuit breakers already protected upstream by a short-circuit and overload protection device are used for:
- control and disconnection of electric circuits
- protection of people against electric shock by direct and indirect contacts
- protection of installations against insulation faults
- enhanced continuity of supply, during a series of close lightning strokes, IT earthing system, equipment including interference suppression filters, variable speed controllers, frequency converters, electronic ballasts for lighting
- enhanced earth leakage protection: in presence of harmonics or high frequency rejections.

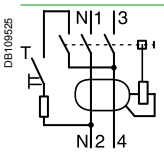
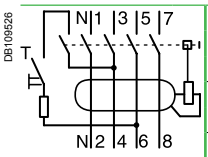
They comply with RCD standards UL 1053 and IEC/EN 61008.

A-SI type GFPs are ideal for operation in environments with a humid atmosphere and/or polluted by aggressive agents: swimming pools, marinas, agri-food industries, water treatment stations, industrial sites, etc.

PB116671-40

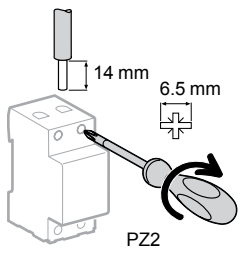
Catalogue numbers

GFP UL 1053 type A-SI

A-SI type	Rating (A)	Sensitivity (mA) UL 1053	Sensitivity (mA) IEC/EN 61008	Cat. no. 120 or 240 V 230 or 240 V	Cat. no. 240 V 480Y/277 V 230/400 or 240/415 V	Width in mod. of 9 mm (0.354 in.)
Auxiliaries	**Without auxiliaries**					
2P						
DB109525 	25	26	30	**M9R81225**	**M9R41225**	4
		86	100	**M9R12225**	**M9R44225**	
		260	300	**M9R84225**	**-**	
	40	26	30	**M9R81240**	**M9R41240**	
		260	300	**M9R84240**	**-**	
	63	26	30	**M9R81263**	**-**	
4P						
DB109526 	25	26	30	**-**	**M9R81425**	8
		86	100	**-**	**M9R12425**	
		260	300	**-**	**M9R84425**	
	40	26	30	**-**	**M9R81440**	
		260	300	**-**	**M9R84440**	
	63	26	30	**-**	**M9R81463**	
		86	100	**-**	**M9R12463**	
	100	86	100	**-**	**M9R12491**	
		260	300	**-**	**M9R84491**	
Accessories	**See page 48**					
Voltage rating (Ue) 2P	230 - 240 V					
Voltage rating (Ue) 4P	400 - 415 V					
Operating frequency	50/60 Hz					

UL 486A connections for copper cables, document #E216919

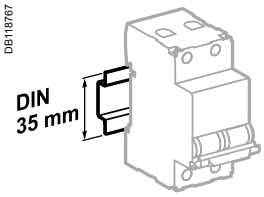
DB123537



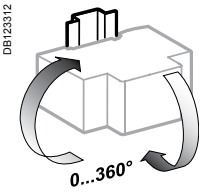
Without accessory

Rating	Tightening torque	Copper cables Rigid, flexible or with ferrule	
		DB122945 IEC/EN 61008-1	DB122946  UL 486A-B
25 to 100 A	3.5 N.m (31 lb.in)	1 to 35 mm²	AWG #18 to #2

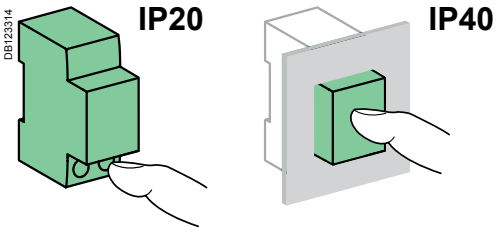
GFP - UL 1053 & IEC/EN 61008 - Ground Fault Protector (cont.)



Clip on DIN rail 35 mm.



Indifferent position of installation.



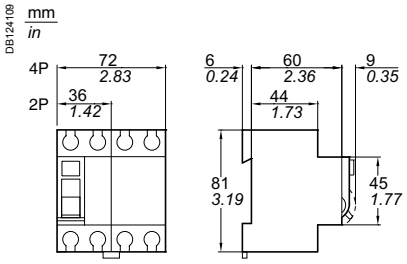
Technical data

GFP UL 1053 type A-SI		
Technical data		
Insulation voltage (Ui)		440 V
Pollution degree		3
Making and breaking capacity: rated residual current (IΔm)		1 500 A
Rated impulse withstand voltage (Uimp)		6 kV
Utilisation category		AC 23A
Level of immunity		In current wave 8/20 µs: 3 kÂ
		In dampened recurrent current wave 0.5 µs/100 kHz: 200 A
Short-circuit current withstand (IΔc = Inc)		10 kA with 100 A gG upstream fuse
Test button minimum operating voltage	2P	113 V AC
	4P	189 V AC
Phase-to-phase test circuit		To avoid external bridging on use on three-phase network without neutral
Locking possible in “tripped” position		By padlocking facility (not supplied)
Release with fixed sensitivity for all ratings		Instantaneous release: UL 1053 : ±15 % IEC/EN 61008 : +0 %, -50 %
Behaviour in case of voltage drop		Residual current protection down to 0 V according to IEC/EN 61008-1 § 3.3.4
Earth fault indication		On front face by red mechanical indicator
Number of cycles (O-C)		20,000 cycles
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Operating temperature		-25°C to +60°C / -13°F to 140°F
Storage temperature		-40°C to +70°C / -40°F to 158°F
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power		See page 68

Weight (g / oz)

GFP UL 1053 type A-SI	
Type	**GFP**
2P	220 g / 7.76 oz
4P	450 g / 15.87 oz

Dimensions (mm / inches)



RCCB ID - IEC/EN 61008-1 – Residual Current Circuit Breakers – AC, A-*SI* types

IEC

- RCCB-ID residual current circuit breakers offer the following functions:
  - protection of persons against electric shock by direct contact (30 mA),
  - protection of persons against electric shock by indirect contact (300 mA),
  - protection of installations against fire risks (300 mA).

PB111761-40

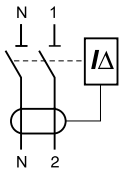
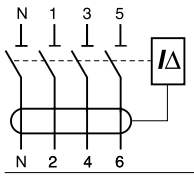
PB111762-40

A-SI type

The A-SI type offers enhanced immunity to electrical disturbances.

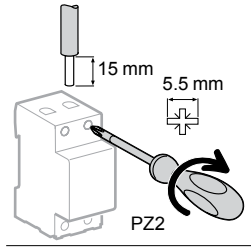
Catalogue numbers

RCCB-ID residual current circuit breakers

Type			AC		A-SI		Width in 9-mm modules
Auxiliaries			**See page 43**				
2P		**Sensitivity**	**30 mA**	**300 mA**	**30 mA**	**300 mA S**	
DB122476 	Rating	25 A	**M9R11225**	-	-	-	4
		40 A	**M9R11240**	**M9R14240**	**M9R31240**	**M9R35240**	
4P		**Sensitivity**	**30 mA**	**300 mA**	**30 mA**	**300 mA S**	
DB122477 	Rating	40 A	**M9R11440**	**M9R14440**	**M9R31440**	**M9R35440**	8
		63 A	**M9R11463**	**M9R14463**	**M9R31463**	**M9R35463**	
Voltage rating (Ue)		2P	230 - 240 V				
		4P	400 - 415 V				
Operating frequency			50 Hz				
Accessories			**See page 48**				

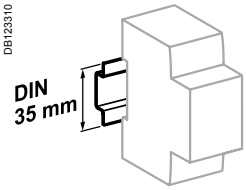
Connection

DB123947

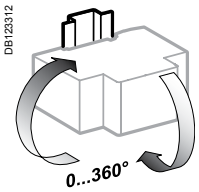


Rating	Tightening torque	Copper cables			
		Rigid		Flexible or with ferrule	
	DB122945	DB122945 		DB122946 	
25 to 63 A	3.5 N.m (31 lb.in)	1 to 35 mm²	AWG #18 to #2	1 to 25 mm²	AWG #18 to #4

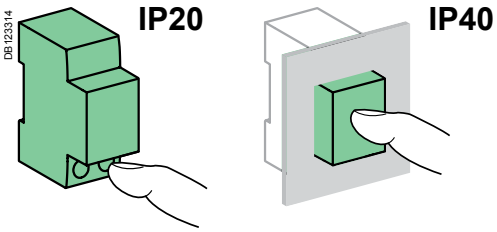
RCCB ID - IEC/EN 61008-1 – Residual Current Circuit Breakers – AC, A-*SI* types (cont.)



Clips on to 35 mm DIN rail.



Any installation position.



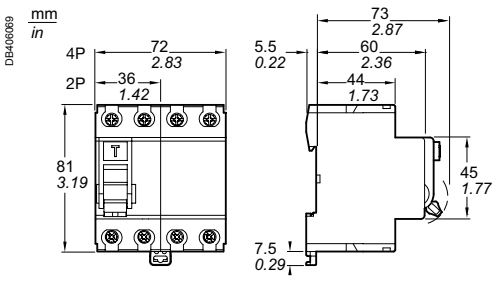
Technical data

Main characteristics			
Insulation voltage (Ui)			440 V
Pollution degree			3
Rated impulse withstand voltage (Uimp)			6 kV
According to IEC/EN 61008-1			
Making and breaking capacity (Im/IΔm)			10 In
Impulse current withstand (8/20 µs) without tripping	AC type		250 Â
	A-SI type		3 kÂ
Rated conditional short-circuit current (Inc/IΔc)	With fuse	100 A	10,000 A
Behaviour in case of voltage drop			Residual current protection down to 0 V according to IEC/EN 61008-1 § 3.3.4
Additional characteristics			
Degree of protection (IEC 60529)	Device only		IP20
	Device in modular enclosure		IP40 Insulation class II
Endurance (O-C)	Electrical		2000 cycles
	Mechanical		20,000 cycles
Operating temperature	AC type		-5°C to +40°C / 23°F to 104°F
	A-SI type	-25°C	-25°C to +40°C / -13°F to 104°F
Storage temperature			-40°C to +60°C / -40°F to 140°F
Tropicalization (IEC 60068-1)			Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power			See page 68

Weight (g / oz)

Residual current circuit breakers	
Type	**ID**
2P	230 g / 8.11 oz
4P	450 g / 15.87 oz

Dimensions (mm / inches)



RCCB ID - IEC/EN 61008-1 – Residual Current Circuit Breakers – B types

IEC

PB111281-35

16766

PB107510-33

16940

PB100572-18

16939

IEC/EN 61008-1
VDE 0664

- The RCCB-ID 125 A residual current circuit breakers provide:
  - protection of persons against electric shock by direct contact (30 mA),
  - protection of persons against electric shock by indirect contact (≥ 300 mA),
  - protection of installations against the risk of fire (300 mA or 500 mA).

B type

The RCCB-ID B type residual current circuit breakers provide:

- protection in the event of a continuous fault current on three-phase networks generated by:
  - controllers and variable speed drives,
  - battery chargers and inverters,
  - backed-up power supplies.

- They include and also guarantee protection against fault currents:
  - sinusoidal AC residual currents (AC type),
  - pulsed DC residual currents (A type).

They can be adapted to all the application cases defined in standards IEC 60364 and EN 50178.

- Schneider Electric guarantees that the type B RCCB-ID works correctly in combination with the variable speed drives manufactured by Schneider Electric.

OFsp auxiliary

- Electrical indication: by OFsp auxiliary mounted to the left.

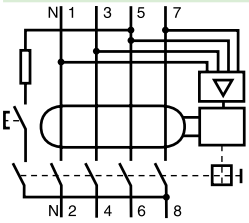
It has a double changeover switch indicating the "open" or "closed" position of the RCCB-ID B type.

Accessories

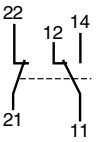
- 4P sealable screw shield.

Catalogue numbers

RCCB-ID B type residual current circuit breakers

Type			B				Width in 9 mm module
4P		Sensitivity	30 mA	300 mA	300 mA S	500 mA	
DB123726 	Rating	25 A	**16750**	**16751**	**-**	**-**	8
		40 A	**16752**	**16753**	**16754**	**16755**	
		63 A	**16756**	**16757**	**16758**	**16759**	
		80 A	**16760**	**16761**	**16762**	**-**	
		125 A	**16763**	**16764**	**16765**	**16766**	
Voltage rating (Ue)			230/400 V				
Operating frequency			50 Hz				

Auxiliary

Type				Width in 9 mm module
Contact OFsp	Contact	Voltage		
E91415 	1 A	110 V DC	**16940**	1
	6 A	230 V AC (AC15)		

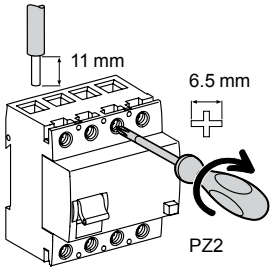
Accessory

Type	Number of pole	
Screw shield (set of 10) for upstream or downstream	4P	**16939**

RCCB ID - IEC/EN 61008-1 – Residual Current Circuit Breakers – B types (cont.)

Connection

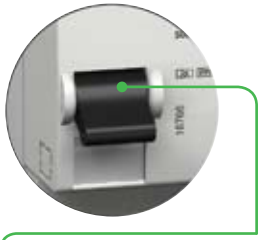
DB123736



Type	Tightening torque	Copper cables			
		Rigid		Flexible or with ferrule	
		DB122945		DB122946	
RCCB-ID B type	3 N.m (27 lb.in)	1 x 1.5 to 50 mm²	1 x AWG #16 to #1	1 x 1.5 to 35 mm²	1 x AWG #16 to #2
		2 x 1.5 to 16 mm²	2 x AWG #16 to #6	2 x 1.5 to 16 mm²	2 x AWG #16 to #6
OFsp	0.8 N.m (7 lb.in)	1 to 1.5 mm²	AWG #18 to #16	1 to 1.5 mm²	AWG #18 to #16

OFsp contact status, depending on the position of the residual current circuit breaker				
Type				
RCCB-ID B type	Closed	■	-	-
	Open	-	■	-
	Tripped on fault	-	-	■
Contact OFsp	22/21 12/11	Open	Closed	Closed
	14/11	Closed	Open	Open

DB122842



Indication of the status of the RCCB-ID B type via the 3-position toggle and front panel indicator

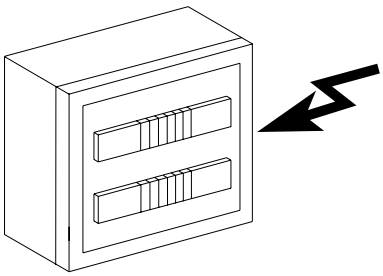
- Closed (red indicator)
- Tripped on fault (green indicator)
- Open (green indicator)

Technical data

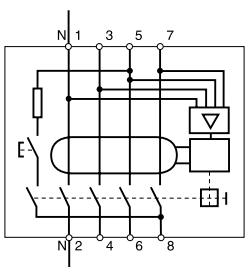
Electrical characteristics		
Insulation voltage (Ui)		440 V
Pollution degree		3
Rated impulse withstand voltage (Uimp)		4 kV
According to IEC/EN 61008-1		
Making and breaking capacity (Im/IΔm)	25/40 A	500 A
	63 A	630 A
	80 A	800 A
	125 A	1250 A
Surge current withstand (8/20 µs) without tripping	No selective Ⓢ	3 kÂ
	Selective Ⓢ	5 kÂ
Conditional rated short circuit current (Inc/IΔc)	25/40 A with FU 80 A gG fuse	10,000 A
	63 A with FU 100 A gG fuse	10,000 A
	80/125 A with FU 125 A gG fuse	10,000 A
Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Endurance (O-C)	Electrical	> 2 000 cycles
	Mechanical	> 5 000 cycles
Range of test button operating voltage	30 mA	250...400 V AC
	300, 500 mA	185...400 V AC
Operating temperature		-25°C to +40°C / -13°F to 104°F
Storage temperature		-40°C to +85°C / -40°F to 185°F
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power		See page 68

Dielectric test

E63606



DB109414



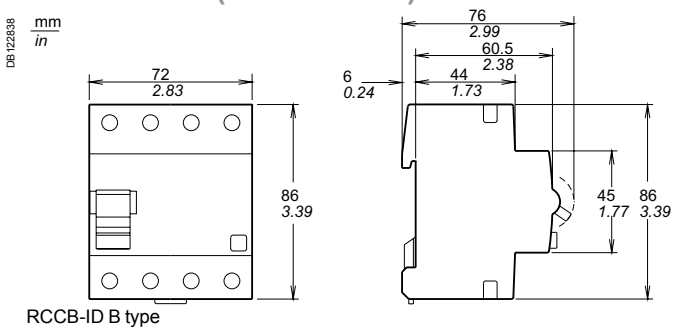
⚠ **To perform the dielectric test, disconnect terminals 3, 5, 7 and 4, 6, 8.**

Weight (g / oz)

Residual current circuit breakers and auxiliary		
Type	**RCCB-ID B type**	**OFsp**
4P	450 g / 15.87 oz	40 g / 1.41 oz

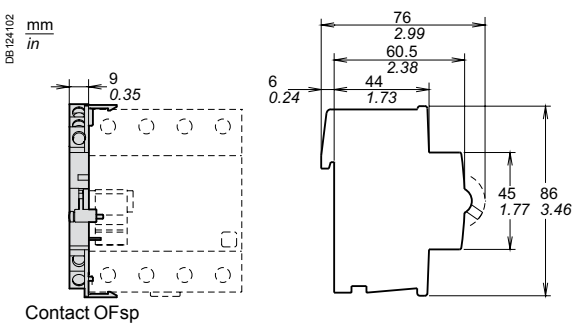
Dimensions (mm / inches)

DB122838



RCCB-ID B type

DB124102



Contact OFsp

Vigi C60 - IEC/EN 61009-1 – Residual current devices – Add-on for C60

IEC

IEC/EN 61009-1

- Combined with C60 circuit breaker, the Vigi C60 provide:
  - protection of persons against electric shock by direct contact (30 mA),
  - protection of persons against electric shock by indirect contact (300 mA),
  - protection of installations against the risk of fire (300 mA).

- The **A-SI** type provides increased immunity from electrical interference and polluted or corrosive environments.

DB406509-40

DB406510-40

DB406511-40

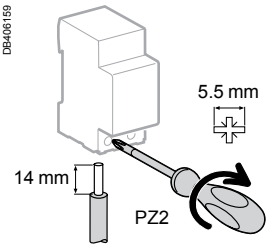
Catalogue numbers

Vigi C60 add-on residual current devices

Type			AC		A-SI	Width in 9-mm modules
2P		Sensitivity	30 mA	300 mA	30 mA	
DB406518	Rating	63 A	M9V11263	M9V14263	M9V31263	4
3P		Sensitivity	30 mA	300 mA	30 mA	
DB406519	Rating	63 A	M9V11363	M9V14363	M9V31363	7
4P		Sensitivity	30 mA	300 mA	30 mA	
DB406520	Rating	63 A	M9V11463	M9V14463	M9V31463	7
Voltage rating (Ue)		2P	230 - 240 V			
		3P-4P	400 - 415 V			
Operating frequency			50 Hz			

Connection

DB406159



Tightening torque	Copper cables			
	Rigid		Flexible or with ferrule	
	DB122945		DB122946	
3.5 N.m (31 lb.in)	1 to 35 mm²	AWG #18 to #2	1 to 25 mm²	AWG #18 to #4

Vigi C60 - IEC/EN 61009-1 – Residual current devices – Add-on for C60 (cont.)

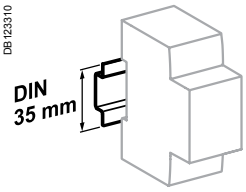
DB406909-55

- Reinforced cable pull-out strength: serrated terminals
- Automatic cable guiding in the correct position: terminals with guard

- Test button

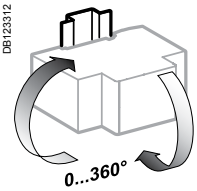
- Every circuit breaker combined with a Vigi module remains compatible with the indication and tripping auxiliaries

DB123310



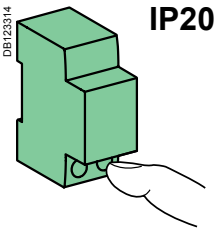
Clip on DIN rail 35 mm.

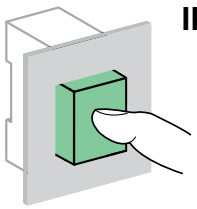
DB123312



Indifferent position of installation.

DB123314





Technical data

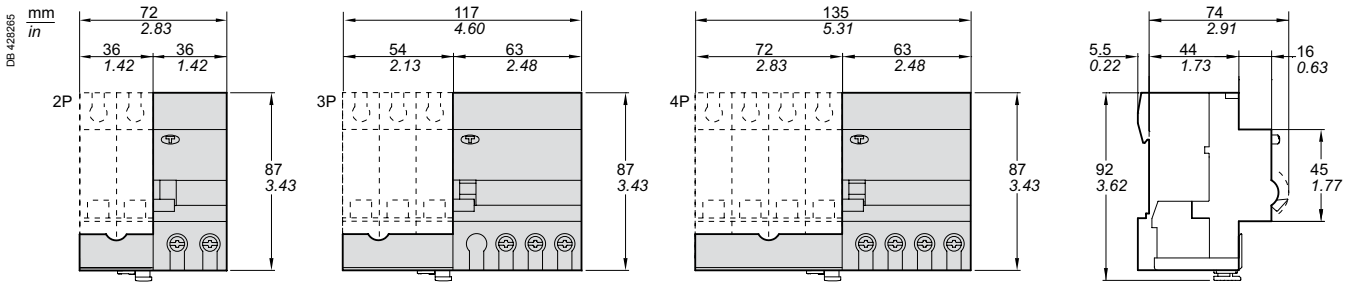
Main characteristics		
According to IEC/EN 61009-1		
Insulation voltage (Ui)	Phase-to-phase	500 V AC
Pollution degree		3
Rated impulse withstand voltage (Uimp)		4 kV
Impulse current withstand (8/20 µs) without tripping	AC types	250 Â
	A-SI types	3 kÂ
Behaviour in case of voltage drop		Residual current protection down to 0 V according to IEC/EN 61009-1 § 3.3.8
Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Operating temperature	A-SI types	-25°C to +60°C / -13°F to 140°F
	AC type	-5°C to +60°C / 23°F to 140°F
Storage temperature		-40°C to +60°C / -40°F to 140°F
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power		See page 68

Weight (g / oz)

	Vigi modules
Type	
2P	150 g / 4.29 oz
3P	210 g / 7.40 oz
4P	210 g / 7.40 oz

Dimensions (mm / inches)

DB 428265



Vigi N40 - IEC/EN 61009-1
– Residual current devices – Add-on for N40

IEC

Earth leakage protection devices can ensure:
- protection of electrical installations against insulation faults
- protection for people against direct and indirect contact
- protection of the installations against fire risks.

PB111760-40

IEC/EN 61009-1

The Vigi N40N modules, to be combined with a circuit breaker, incorporate in a single enclosure the residual current relay and the toroid.
- The residual current tripping device is electromechanical and operates without an auxiliary source.
- A homogeneous unit in compliance with the EN 61009-1 and EN 61009-2-1 standards, a residual current device retains all the characteristics of the circuit breaker alone; in particular, the thermal tripping threshold of the circuit breaker is retained in the presence of the earth leakage module.

Operation

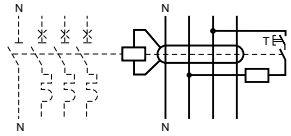
- When an earth fault occurs, the Vigi module causes automatic opening of the circuit breaker with which it is combined. Fault indication is performed by a red strip on the operating handle for Vigi module resetting.
- Resetting of the earth leakage module is performed, at the user's choice:
  - either by the reset handle of the circuit breaker (in one operation),
  - or independently of the circuit breaker (in 2 operations).

A-SI type

The A-SI type offers enhanced immunity to electrical disturbances.

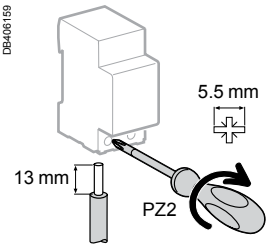
Catalogue numbers

Vigi N40 add-on residual current devices

Type			AC		A-SI		Width in 9-mm modules
3P+N		Sensitivity	30 mA	300 mA	30 mA	300 mA	
DB123871 		Rating 40 A	M9Y11740	M9Y14740	M9Y31740	M9Y34740	4
Voltage rating (Ue)			400 - 415 V				
Operating frequency			50 Hz				

Connection

DB406159



Tightening torque	Copper cables			
	Rigid		Flexible or with ferrule	
	DB122945 		DB122946 	
2 N.m (18 lb.in)	0.75 to 16 mm²	AWG #18 to #2	0.33 to 10 mm²	AWG #18 to #4

- Where there is a comb busbar tooth, the connection of cables of cross section 16 mm² remains possible.
- Connection:
  - upstream: direct by comb busbar,
  - downstream: by cables.

Vigi N40 - IEC/EN 61009-1
– Residual current devices – Add-on for N40 (cont.)

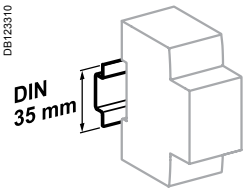
PB111760-45

- Reinforced cable pull-out strength: serrated terminals
- Automatic cable guiding in the correct position: terminals with guard

- Test button

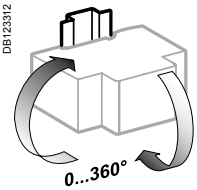
- Every circuit breaker combined with a Vigi module remains compatible with the indication and tripping auxiliaries

DB123310



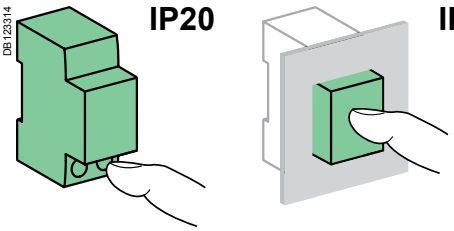
Clip on DIN rail 35 mm.

DB123312



Indifferent position of installation.

DB123314



Technical data

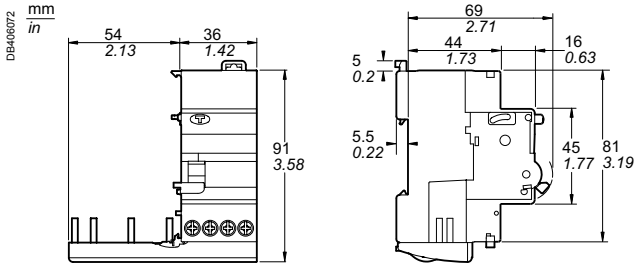
Main characteristics		
According to IEC/EN 61009-1		
Insulation voltage (Ui)	Phase-to-phase	440 V AC
Pollution degree		3
Rated impulse withstand voltage (Uimp)		4 kV
Behaviour in the event of a phase-to-earth fault in TN-S earthing system		Residual breaking and making capacity (IΔm) identical to the rated breaking capacity (Icn)
Behaviour in case of voltage drop		Residual current protection down to 0 V according to IEC/EN 61009-1 § 3.3.8
Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Operating temperature	AC type	-5°C to +60°C / 23°F to 140°F
	A-SI types	-25°C to +60°C / -13°F to 140°F
Storage temperature		-40°C to +60°C / -40°F to 140°F
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power		See page 68

Weight (g / oz)

	Vigi modules
Type	
3P+N	210 g / 7.40 oz

Dimensions (mm / inches)

DB406072



N40 Vigi - IEC/EN 61009-1
– Residual current circuit breakers with overcurrent protection

IEC/EN 61009-1

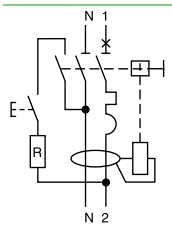
IEC

PB111759-40

- The N40 Vigi residual current device provides complete protection for final circuits (against overcurrents and insulation faults):
  - protection for people against electric shocks by direct contacts (30 mA),
  - protection for people against electric shocks by indirect contacts (300 mA),
  - protection of installations against risk of fire (300 mA).

Catalogue numbers

N40 Vigi 6 kA

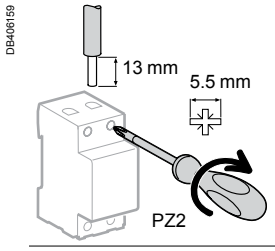
Type			AC ~		Width in 9-mm modules
Auxiliaries			**See page 43**		
1P+N	**C curve**	**Sensitivity**	**30 mA**	**300 mA**	
DB123871 	Rating (In) 6 A		**M9D11606**	**-**	4
		10 A	**M9D11610**	**M9D14610**	
		16 A	**M9D11616**	**M9D14616**	
		20 A	**M9D11620**	**M9D14620**	
		25 A	**M9D11625**	**M9D14625**	
		40 A	**M9D11640**	**M9D14640**	
Voltage rating (Ue)			240 V AC		
Operating frequency			50 Hz		
Accessories			**See page 48**		

Positive contact indication
- A green strip on the toggle guarantees opening of all the poles in safety conditions (padlocking possible) for work to be carried out on live parts

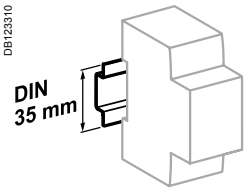
- Test button
- Fast closing
- Display of earth fault on the front panel by position of toggle

N40 Vigi - IEC/EN 61009-1
– Residual current circuit breakers with overcurrent protection (cont.)

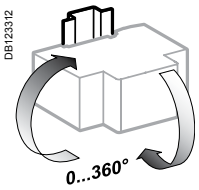
Connection



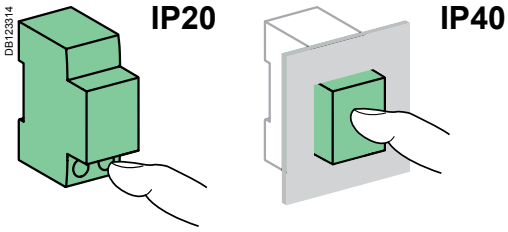
Tightening torque	Copper cables			
	Rigid		Flexible or with ferrule	
				
2 N.m (18 lb.in)	0.75 to 16 mm²	AWG #18 to #2	0.33 to 10 mm²	AWG #18 to #4



Clip on DIN rail 35 mm.



Indifferent position of installation.



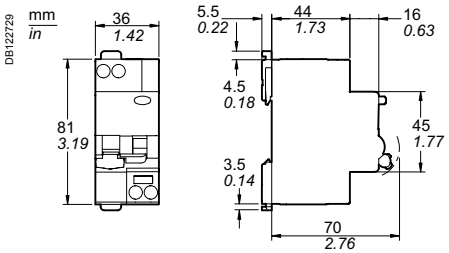
Technical data

Main characteristics			
Insulation voltage (Ui)			400 V AC
Pollution degree			3
Rated impulse withstand voltage (Uimp)			4 kV
Setting temperature for ratings			50°C / 122°F
Earth leakage protection with instantaneous tripping			30, 300 mA
Magnetic tripping	C curve		8.5 In (± 20 %)
8/20 µs impulse withstand current			250 Â
According to IEC/EN 61009-1			
Limitation class			3
Rated breaking capacity (Icn)			6000 A
Rated residual breaking and making capacity (IΔm)			6000 A
Behaviour in case of voltage drop			Residual current protection down to 0 V according to IEC/EN 61009-1 § 3.3.8
According to IEC/EN 60947-2			
Breaking capacity (Icu)			6 kA
Service breaking capacity (Ics)			75 % Icu
Additional characteristics			
Degree of protection (IEC 60529)	Device only		IP20
	Device in modular enclosure		IP40 Insulation class II
Endurance (O-C)	Electrical	N40 Vigi ≤ 20A	20,000 cycles
		N40 Vigi ≥ 25A	10,000 cycles
	Mechanical		20,000 cycles
Overvoltage category (IEC 60364)			IV
Operating temperature			-5°C to +60°C / 23°F to 140°F
Storage temperature			-30°C to +70°C / -22°F to 158°F
Tropicalization (IEC 60068-1)			Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power			See page 68

Weight (g / oz)

Residual current device	
Type	**N40 Vigi**
1P+N	125 g / 4.41 oz

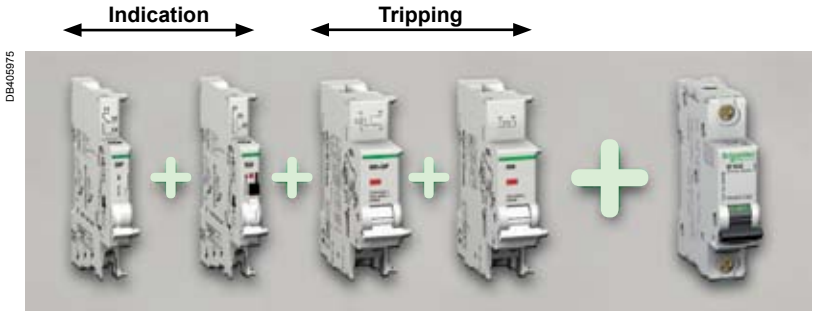
Dimensions (mm / inches)



Compliance with electrical auxiliaries standards

- For UL 489 Branch circuit protection File #E215117.
- For CSA C22.2 No. 5 Branch circuit protection File #179014.
- For UL 1077 Supplementary Protection File #E90509.
- For CSA C22.2 No. 235 Supplementary Protection File #179014.
- For IEC 60947-1 and IEC 60947-5-1 circuit-breakers.
- CE Marked.

- The electrical auxiliaries provide the remote tripping or position (open/closed/tripped) indication functions of these devices in the event of a fault.
- They clip on (no tool required) to the left-hand side of the associated device.
- The SD+OF auxiliary is a two-in-one product: a mechanical selector switch is used to select one of two contacts: SD or OF.

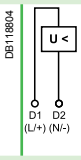


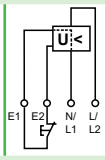
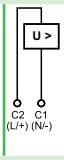
Combination table

Indication auxiliaries		Tripping auxiliaries	Devices
			
1 SD+OF **maxi**	**1** SD+OF **maxi**	**1 maxi**	
1 OF **maxi**	**1** (SD+OF or SD or OF) **maxi**	**2 maxi**	 C60, N40N, N40 Vigi
None	**1** (SD+OF or OF) **maxi**	**2 maxi**	 OF.S +  RCCB-ID
1 OF **maxi**	**1** OF **maxi**	**1 maxi**	
None	**1 OFsp** 	None	 RCCB-ID B type

Tripping devices must be installed first.
If two tripping devices are used: the MN undervoltage release must be installed first
Indication auxiliaries: install the SD auxiliary first

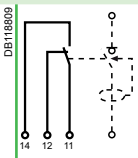
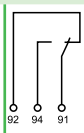
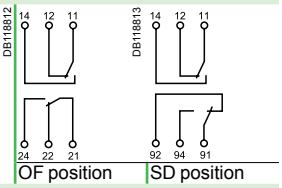
Tripping

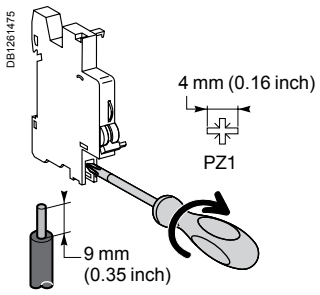
Auxiliaries	MN					MNS
Type	**Undervoltage release**					
	Instantaneous					Delayed
	 PB100202_SE-30					 PB100203_SE-30
Function						
	■ Causes the device with which it is associated to trip when its input voltage decreases (between 70 % and 35 % of Un). Prevents the device from closing until its input voltage has been restored					
						■ No tripping in the event of transient voltage dips (up to 0.2 s)
Wiring diagrams						
	 DB118804					
Utilization						
	■ Emergency stop via a normally-closed pushbutton ■ Ensures the safety of the power supply circuits of several machines by preventing accidental startups					
Catalogue numbers	**M9A27108**	**M9A27107**	**M9A26960**	**M9A26961**	**M9A26959**	**M9A26963**
Technical specifications						
Rated voltage (Ue) V AC	24	120	220…240	48	115	220…240
V DC	24			48		–
Operating frequency Hz	50/60				400	50/60
Pollution degree	3					3
Mechanical state indicator light, red	On front face					On front face
Test function	–					–
Width in 9 mm modules	2					2
Operating current	–					–
Number of contacts	–					–
Operating temperature	-25…+50°C / -13...122°F					-25…+50°C / -13...122°F
Storage temperature	-40…+85°C / -40...185°F					-40…+85°C / -40...185°F
Standards						
IEC/EN 60947-1	■					■
IEC/EN 60947-5-1	–					–
EN 60947-2	■					■
EN 62019-2	–					–
UL	■					■
CSA	■					■
RU	■					■
CCC	–					–
EAC	■					■

	MNx		MX			MX+OF		
			Shunt release					
	Independent of the supply voltage					With open/closed auxiliary contact		
	PB100205_SE-30 		PB100199_SE-30 			PB100198_SE-30 		
	■ Tripping of the associated device by opening of the control circuit (e.g. push-button, dry contact)		■ Trips the associated device when it is powered on					
	■ A drop in the supply voltage does not trip the associated device ■ A locking push-button control allows the circuit protected (e.g. machine control) to be placed in safety configuration					■ Includes an open/closed contact (OF contact) to indicate the "open" or "closed" position of the associated device		
	DB406947 		DB123012 					
	■ Fail-safe emergency stop ■ Insensitive to the variation in the control circuit voltage to improve continuity of service **Important: Before any servicing operation switch off the mains power supply (voltage presence at terminals E1/E2)**		■ Emergency stop via a normally-open pushbutton.			■ Emergency stop via a normally-open pushbutton ■ Remote indication of the position of the associated device		
	M9A26969	**M9A26971**	**M9A26476**	**M9A26477**	**M9A26478**	**M9A26946**	**M9A26947**	**M9A26948**
	230	400	100…415	48	12…24	100…415	48	12…24
	–		110…130	48	12…24	110…130	48	12…24
	50/60		50/60			50/60		
	3		3			3		
	On front face		On front face			On front face		
	–		–			–		
	2		2			2		
	–		–			3 A / 415 V AC 6 A / ≤ 240 V AC		
	–		–			1 NO/NC		
	-25…+50°C / -13...122°F		-25…+50°C / -13...122°F			-25…+50°C / -13°F...122°F		
	-40…+85°C / -40...185°F		-40…+85°C / -40...185°F			-40…+85°C / -40°F...185°F		
	■		■			■		
	–		–			–		
	–		–			–		
	–		–			–		
	–		■			■		
	–		■			■		
	–		■			■		
	–		–			■		
	■		■			■		

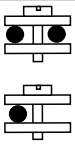
Common electrical auxiliaries (cont.)

Signalisation

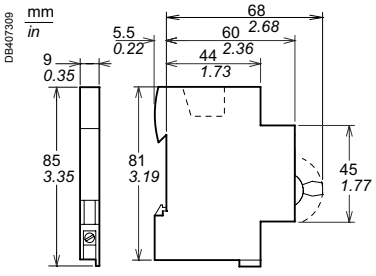
Auxiliaries	OF.S	OFsp	OF	SD	SD+OF
Type	**Open/closed auxiliary contact**		**Open/closed auxiliary contact**	**Fault indicating contact**	**Double open/closed or fault indicating contact**
					
Function	■ Changeover contact indicating the "open" or "closed" position of the associated device ⚠ **Compulsory for the addition of tripping or indication auxiliaries on an ID RCCB**		■ Changeover contact indicating the "open" or "closed" position of the associated device	■ Changeover contact indicating the position of the associated device in the event of: □ electrical fault □ action on the tripping auxiliary ⚠ **Not compatible compatible with a RCCB-ID residual current circuit breaker, use a SD+OF in the SD position**	■ The SD+OF auxiliary is a two-in-one product: choice of OF or SD contact via the selector switch
Wiring diagrams					 OF position / SD position
Utilization	■ Remote indication of the position of the associated device		■ Remote indication of the position of the associated device	■ Remote fault tripping indication of the associated device	■ Remote position and/or fault tripping indication of the associated device
Catalogue numbers	**26923**	**16940**	**M9A26924**	**M9A26927**	**M9A26929**
Technical specifications					
Rated voltage (Ue) V AC	24…415	230	240…415	240…415	240…415
V DC	24…130	110	24…130	24…130	24…130
Operating frequency Hz	50/60	50	50/60	50/60	50/60
Pollution degree	3	3	3	3	3
Mechanical state indicator light, red	–	–	–	On front face	On front face
Test function	–	_	On front face	On front face	On front face
Width in 9 mm modules	1	1	1	1	1
Operating current	3 A /415 V AC 6 A / ⩽ 240 V AC	1 A /110 V DC 6 A / ⩽ 230 V AC	3 A /415 V AC 6 A / ⩽ 240 V AC		
Number of contacts	1 NO/NC	1 NC + NC/NO	1 NO/NC	1 NO/NC	1 NO/NC + 1 NO/NC
Operating temperature	-25…+50°C / -13°F...122°F	-25…+50°C / -13°F...122°F	-25…+50°C / -13°F...122°F	-25…+50°C / -13°F...122°F	-25…+50°C / -13°F...122°F
Storage temperature	-40…+85°C / -40°F...185°F	-40…+85°C / -40°F...185°F	-40…+85°C / -40°F...185°F	-40…+85°C / -40°F...185°F	-40…+85°C / -40°F...185°F
Standards					
IEC/EN 60947-1	–	–	–	–	–
IEC/EN 60947-5-1	■	–	■	■	■
EN 60947-2	–	–	–	–	–
EN 62019-2	■	–	■	■	■
UL	–	–	■	■	■
CSA	–	–	■	■	■
RU	–	–	■	■	■
CCC	–	–	■	■	■
EAC	–	–	■	■	■



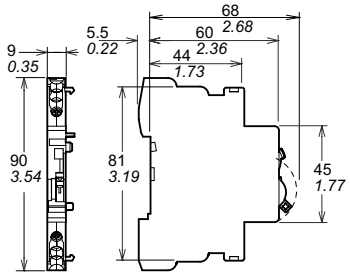
Connection

Type	Tightening torque	Copper cables
		Rigid
		 DB122946
Indication and tripping auxiliaries	1 N.m (9 lb.in)	2 cables, 1.5 mm² / #16 AWG or 1 cable, 2.5 mm² / #14 AWG  DB405990
OFsp	0.8 N.m (7 lb.in)	1 cable, 1.5 mm² / #16 AWG

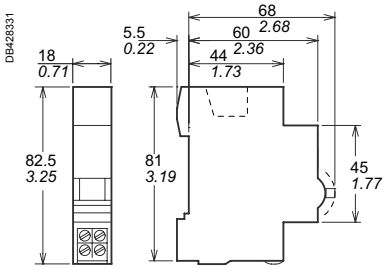
Dimensions (mm / inches)



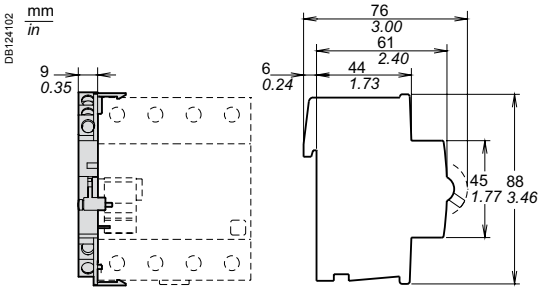
OF.S, OF, SD



SD+OF



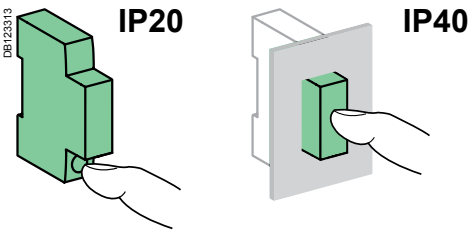
MX, MN, MN[S], MX+OF, MNx

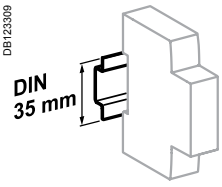


OFsp

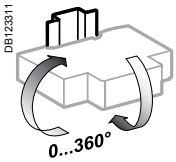
Weight (g / oz)

Electrical auxiliaries	
Type	
MN	66 g / 2.32 oz
MN[S]	66 g / 2.32 oz
MNx	73 g / 2.57 oz
MX	60 g / 2.32 oz
MX+OF	65 g / 2.12 oz
OF.S	33 g / 1.16 oz
OF	30 g / 1.06 oz
OFsp	40 g / 1.41 oz
SD	30 g / 1.06 oz
SD+OF	38 g / 1.34 oz



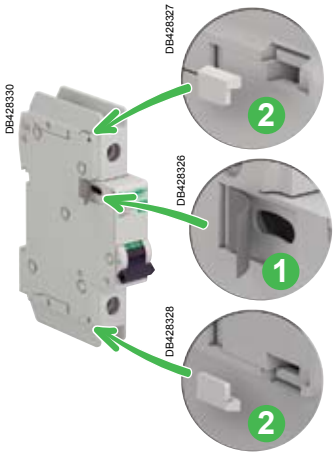


Clip on DIN rail 35 mm.



Indifferent position of installation.

C60BP or C60BPR association

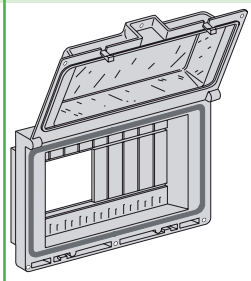
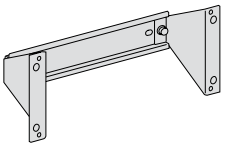


Installation

Accessories	Rotary handle			Plug-in base
	PB100137_SE-24 PB100138_SE-24 			PB111764-40 
Function				
	Front or side control of 2, 3 and 4-pole circuit breakers ■ Degree of protection: IP40 ■ A complete rotary handle consists of: □ a circuit-breaker operating sub-assembly, cat. no. **27046**, □ a handle cat. no. **27047** or a handle cat. no. **27048** ■ Installation: □ the circuit-breaker operating sub-assembly cat. no. **27046** is fixed to the circuit breaker □ the removable handle cat. no. **27047** is mounted on the removable front panel or on the enclosure door □ the fixed handle cat. no. **27048** is fixed to the front or side panel of the enclosure			**Allows a circuit breaker to be quickly removed or replaced, without touching the connections** ■ Degree of protection: IP20 ■ It consists of: □ a base to be fixed to a rail (or panel) □ 2 “blades” to be fixed in the device terminals ■ Connection: tunnel terminals for cables up to 50 mm² (rigid) or 35 mm² (flexible) ■ Installation: □ on backplate □ on a horizontal rail ■ Centreline between two rows: 200 mm ■ Only on the circuit breaker, without a Vigi device or auxiliary ■ Padlocking option (8 mm dia. padlock not supplied)
Cat. numbers	**27047** Removable extended handle	**27048** Fixed handle	**27046** Operating sub-assembly	**26996** (1 per pole)
Set of	**1**	**1**	**1**	**1**
Suitable for the following devices:				
C60BP UL489, C60BPR UL489	■ 2P, 3P			–
C60SP UL1077	■ 2P, 3P, 4P			■
C60H-DC	■ 2P			■
GFP UL1053	–			■
C60N, H, L, C60CTRL	■ 2P, 3P, 4P			■
N40N	■ 3P+N			–
RCCB-ID (AC, A-SI types)	–			–
RCCB-ID B type	–			–
N40 Vigi	–			–
Operating température	-35°C to +70°C / -31°F to 158°F			-35°C to +70°C / -31°F to 158°F

Accessories	Padlocking device			
	Front		Side	
	057209J_SE-20 	DB409566-25 	A9A26380-40 	A9A26381-40 
Function				
	Used to padlock a circuit breaker in the "open" or "closed" position ■ Locking in the ON position does not prevent the circuit breaker from tripping in the event of a fault ■ Isolation: in conformity with IEC/EN 60947-2. ■ Diameter of the padlock: 8 mm max.	**Used to padlock a circuit breaker in the "open" position** ■ Isolation: in conformity with UL 489/CSA C22.2 No 5 Listed and UL 1077 Reconized. ■ Diameter of the padlock: 8 mm max.	**Can be used to padlock a circuit breaker in open position** ■ Attached directly to the circuit breaker, it cannot be lost ■ Padlock diameter: 6 mm	
Cat. numbers	**26970**	**M9PAF**	**MGN26380** Left-hand mounting	**MGN26381** Right-hand mounting
Set of	**2**	**1**	**1**	**1**
Suitable for the following devices:				
C60BP UL489, C60BPR UL489	■	■	■	■
C60SP UL1077	■	■	■	■
C60H-DC	■	■	■	■
GFP UL1053	■	–	–	–
C60N, H, L, C60CTRL	■	■	■	■
N40N	■	■	■	■
RCCB-ID (AC, A-SI types)	■	–	–	–
RCCB-ID B type	–	–	–	–
N40 Vigi	■	–	–	–
Operating température	-35°C to +70°C / -31°F to 158°F	-35°C to +70°C / -31°F to 158°F	-35°C to +70°C / -31°F to 158°F	-35°C to +70°C / -31°F to 158°F

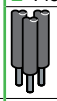
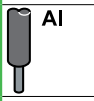
Installation (continued)

Accessories	Front mounting kit		Pole filler		Front mounting bracket			
	Front mounting kit	DIN rail support						
	DB409568 	DB409569 	DB409567 		DB409570 			
Function								
	■ Consists of a transparent, hinged, weatherproof cover ■ Allows installation of up to twenty modules (10 poles of C60) of circuit breakers or supplementary protectors and accessories ■ A DIN rail with support is also available ■ Degree of protection a s per IEC 529: IP55 ■ Includes a 10-Module divisible blanking plate and mounting template	■ DIN rail with support for front mounting kit cat. no. 14210 ■ Allows installation of up to twenty modules (10 poles of C60) of circuit breakers or supplementary protectors and accessories	■ Used to fill empty panels spaces ■ They clip into space ■ They may be snapped apart in 9 mm increments		■ Provides a convenient way to mount circuit breakers, supplementary protectors or accessories ■ Allows the C60 devices to be clipped onto it in a standard manner ■ In 480 V AC UL 1077 applications, cat. no. 26981 terminal screw shield should be used for increased isolation between the terminal screws of the device and the mounting bracket. These shields are included with the mounting bracket kits			
					■ 1P	■ 2P	■ 3P	■ 4P
Cat. numbers	**14210**	**14211**	**M9PF4**	**M9PF5**	**MG26983**	**MG26984**	**MG26985**	**MG26989**
			4 strips of 4 by 18 mm pole filler	4 strips of 5 by 18 mm pole filler				
Set of	**1**	**1**	**4**	**4**	**1**			
Suitable for the following devices:								
C60BP UL489, C60BPR UL489	■	For multi-pole mounting kit cat. no.14210	For multi-pole mounting kit cat. no.14210		■			
C60SP UL1077	■				■			
C60H-DC	■				■			
GFP UL1053	■				■			
C60N, H, L, C60CTRL	■				■			
N40N	■				■			
RCCB-ID (AC, A-SI types)	■				■			
RCCB-ID B type	–				–			
N40 Vigi	■				■			
Operating température	-35°C to +70°C / -31°F to 158°F				-35°C to +70°C / -31°F to 158°F			

	Safety					
Accessories	**Screw shield**		**Terminal shield**		**Interpole barrier**	**Spacer**
	PB124114 	PB100572-07 	DB122950 	DB123898	PB104483-35 	
Function						
	Prevents all contact with the fixing screws ■ The degree of protection becomes IP40 ■ Sealable, max. diameter 1.2 mm		**Prevents all contact with the terminals** ■ Degree of protection becomes IP40 ■ Sealable, max. diameter 1.2 mm		**Improves the insulation between the connections: cables, terminals, lugs, etc.**	■ Used to: □ complete the rows □ separate the devices ■ Width: 1 x 9 mm module ■ Allows that 2 cables are routed from one row to another (above and below), up to 6 mm²
	■ Dividable		■ 1P	■ 2P		
			■ 3P: 1 x 26975 + 1 x 26976 ■ 4P: 2 x 26976			
Cat. numbers	**26981**	**16939**	**26975**	**26976**	**27001**	**27062**
Set of	**2 (4P dividable)**	**10**	**2 (for upstream/downstream terminal)**		**10**	**1**
Suitable for the following devices:						
C60BP UL489, C60BPR UL489	–	–	–	–	–	■
C60SP UL1077	■	–	■	■	■	■
C60H-DC	■	–	■	■	■	■
GFP UL1053	■	–	–	–	■	■
C60N, H, L, C60CTRL	■	–	■	■	■	■
N40N	–	–	–	–	–	■
RCCB-ID (AC, A-SI types)	■	–	■	■	■	■
RCCB-ID B type	–	■	–	–	–	■
N40 Vigi	–	–	–	–	–	■
Operating température	-35°C to +70°C / -31°F to 158°F	-35°C to +70°C / -31°F to 158°F	-35°C to +70°C / -31°F to 158°F		-35°C to +70°C / -31°F to 158°F	-35°C to +70°C / -31°F to 158°F

3

Connection

Accessories	Multi-cable terminal		50 mm² / #1 AWG Al terminal	Connection kit for ring terminals
	 DB103334_SE-19		 DB122951	 DB409586
Function				
	For 3 copper cables: ■ Rigid up to 16 mm² ■ Flexible up to 10 mm²  DB118787		**For 16 to 50 mm² aluminium cables**  DB122935 Al	**For terminal up to 63 A, front or rear access (screw Ø 5 mm)** ■ It incorporates a "conductive" part and an "insulating" part which ensures the phase-to-phase clearance
Cat. numbers	**19091**	**19096**	**27060**	**M9A17400**
Set of	**4**	**3**	**1**	**24**
Suitable for the following devices:				
C60BP UL489, C60BPR UL489	–	–	–	–
C60SP UL1077 ⩽ 25 A	–	–	–	■
C60SP UL1077 > 25 A	■	■	–	■
GFP UL1053	■	■	–	–
C60N, H, L, C60CTRL ⩽ 25 A	–	–	–	■
C60N, H, L, C60CTRL > 25 A	■	■	■	■
C60H-DC ⩽ 25 A	–	–	–	■
C60H-DC > 25 A	■	■	■	■
N40N	–	–	–	–
RCCB-ID (AC, A-SI types)	■	■	■	–
RCCB-ID B type	–	–	–	–
N40 Vigi	–	–	–	–
Tightening torque	2 N.m (18 lb.in)		10 N.m (89 lb.in)	2 N.m (18 lb.in)
Stripping length	11 mm (0.43 in)		13 mm (0.51 in)	–
Tools to be used	Diameter 5 mm (0.2 in) or PZ2		Hc 1/5" or 5 mm (0.2 in)	Diameter 5 mm (0.2 in) or PZ2
Operating température	-35°C to +70°C / -31°F to 158°F		-35°C to +70°C / -31°F to 158°F	-35°C to +70°C / -31°F to 158°F

Identification

Accessories	Clip-on terminal marker strip			
	 0312040_SE-23			
Function	**For connection identification**			
Cat. numbers	0: **AB1-R0**	A: **AB1-GA**	K: **AB1-GK**	U: **AB1-GU**
	1: **AB1-R1**	B: **AB1-GB**	L: **AB1-GL**	V: **AB1-GV**
	2: **AB1-R2**	C: **AB1-GC**	M: **AB1-GM**	W: **AB1-GW**
	3: **AB1-R3**	D: **AB1-GD**	N: **AB1-GN**	X: **AB1-GX**
	4: **AB1-R4**	E: **AB1-GE**	O: **AB1-GO**	Y: **AB1-GY**
	5: **AB1-R5**	F: **AB1-GF**	P: **AB1-GP**	Z: **AB1-GZ**
	6: **AB1-R6**	G: **AB1-GG**	Q: **AB1-GQ**	+: **AB1-R12**
	7: **AB1-R7**	H: **AB1-GH**	R: **AB1-GR**	-: **AB1-R13**
	8: **AB1-R8**	I: **AB1-GI**	S: **AB1-GS**	Blank : **AB1-RV**
	9: **AB1-R9**	J: **AB1-GJ**	T: **AB1-GT**	
Set of	**250**			
Suitable for the following devices:				
C60BP UL489	–			
C60BPR UL489	–			
C60SP UL1077	■ 4 repères maxi. par pôle			
C60H-DC	■ 4 repères maxi. par pôle			
GFP UL1053	■ 4 repères maxi. par pôle			
C60H-DC	■ 4 repères maxi. par pôle			
C60N, H, L, C60CTRL	■ 4 markers max. per pole			
N40N	■ 4 markers max. per pole			
RCCB-ID (2P) (AC, A-SI types)	■ 4 markers max. per pole			
RCCB-ID B type	–			
N40 Vigi	■ 4 markers max. per device			

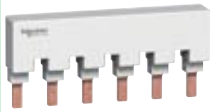
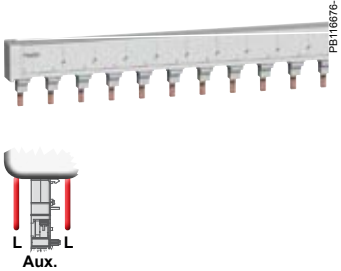
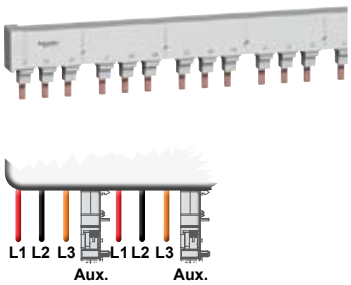
Comb busbars for C60BP (UL489)

DB105730 IEC

These comb busbars are aimed to be used only with C60BP circuit-breakers.

They perform distribution and subdistribution of the electric power supply and allow rapid assembly and disassembly of equipment.

Comb busbars

Connection accessories	Comb busbars					
Function						
	■ The comb busbars make it easier to install C60BP UL 489 circuit breakers ■ They must not be cut					
Use						
	■ Power supply by insulated connector					
Standard comb busbars						
	PB116672-14 		PB116673-16 			
Number of poles	1P		2P		3P	
Catalogue numbers	**M9XUP106**	**M9XUP112**	**M9XUP206**	**M9XUP212**	**M9XUP306**	**M9XUP312**
Number of 18 mm modules	6	12	6	12	6	12
Set of	**1**		**1**		**1**	
Cuttable comb busbars						
	PB116674-17 		PB116675-18 		PB116676-18 	
			With spare spaces of 9 mm for 9 mm electrical auxiliary			
Number of poles	1P	2P	3P	1P+Aux		3P+Aux
Catalogue numbers	**M9XCP157**	**M9XCP256**	**M9XCP357**	**M9XCA137**		**M9XCA348**
Number of 18 mm modules	57	56	57	37		48
Set of	**1**	**1**	**1**	**1**		**1**

Technical specifications	
Acceptable current at 40°C (Ie)	Standard comb busbars: 115 A Cuttable comb busbars: 80 A
Resistance to short-circuit currents	Compatible with the breaking capacity of Schneider Electric modular circuit breakers
Voltage rating (Ue)	480Y/277 V
Insulation voltage (Ui)	1000 V AC
Pollution degree	3
Fire resistance	Self-extinguishability 960°C 30 secondes
Colour	RAL 9001
Standards	UL489 and UL508

Comb busbars for C60BP (UL489) (cont.)

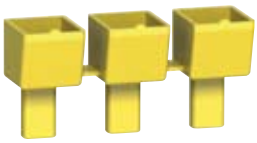
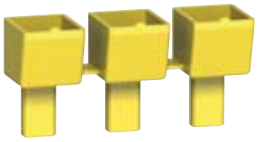
DB105730

IEC

These comb busbars are aimed to be used only with C60BP circuit-breakers.

They perform distribution and subdistribution of the electric power supply and allow rapid assembly and disassembly of equipment.

Accessories

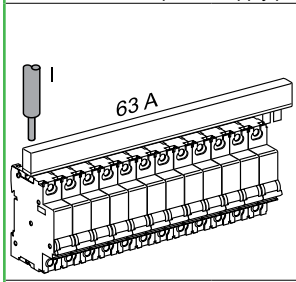
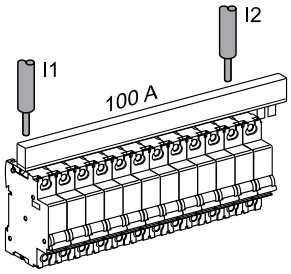
Connection accessories	Insulated connectors	Tooth covers	End-piece
Function			
	■ Comb busbar power supply ■ Vertical incoming feeder	■ Insulation of teeth remaining free	■ Essential to ensure the correctly comb busbars insulation
Use			
	■ Rigid and flexible copper cable: 6 to 35 mm² (AWG #10 to #2) ■ Tightening torque: 3.5 N.m (31 lb.in).		
Standard comb busbars			
	PB116679-28 	PB116680-18 	-
Number of poles	All	All	-
Catalogue numbers	**M9XUPC04**	**M9XUTC15**	**-**
Number of 18 mm modules	-	-	-
Set of	**4**	**5 x 3**	**-**
Cuttable comb busbars			
	PB116679-27 	PB116680-18 	PB116677-20 
Number of poles	All	All	All
Catalogue numbers	**M9XCPC04**	**M9XCTC15**	**M9XCEC10**
Number of 18 mm modules	-	-	-
Set of	**4**	**5 x 3**	**10**
Technical specifications			
Acceptable current at 40°C (Ie)	-	-	-
Resistance to short-circuit currents	Compatible with the breaking capacity of Schneider Electric modular circuit breakers	Compatible with the breaking capacity of Schneider Electric modular circuit breakers	Compatible with the breaking capacity of Schneider Electric modular circuit breakers
Voltage rating (Ue)	480Y/277 V	480Y/277 V	480Y/277 V
Insulation voltage (Ui)	1000 V AC	1000 V AC	1000 V AC
Pollution degree	3	3	3
Fire resistance	Self-extinguishability 960°C 30 secondes	Self-extinguishability 960°C 30 secondes	Self-extinguishability 960°C 30 secondes
Colour	RAL 7035	RAL 1021	RAL 7035
Standards	UL486E	-	-

Comb busbars for C60SP (UL1077)

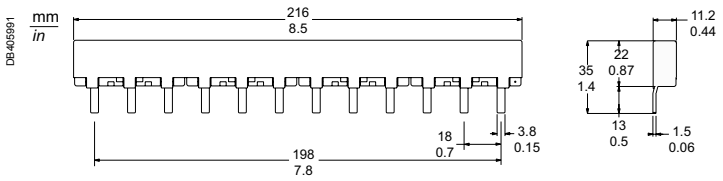
DB105730 IEC

The comb busbars are used only for C60SP circuit breakers UL 1077 supplementary protection in conformity with standards:
UL 1077 / CSA C22.2 No. 235 / IEC 60947-2 / GB 14048-2.

They perform distribution and subdistribution of the electric power supply and allow rapid assembly and disassembly of equipment.

	Comb busbars			Accessory
Connection accessories	**Comb busbar**			**Tooth cover end-piece**
	058963N-15 			62233-10 
Function				
	■ The comb busbars make it easier to install Schneider Electric circuit breakers UL 1077 supplementary protection ■ Power supply directly in the cage of the circuit-breaker			■ The Tooth Caps are insulated protectors which may be slipped onto the unused teeth of the comb busbar ■ They come in strips with 1-pole spacing, but can be snapped apart to be used individually
Number of poles	1P	2P	3P	All
Voltage rating (Ue)	480Y/277 V AC	480Y/277 V AC	480Y/277 V AC	–
Catalogue numbers	**10285**	**10286**	**10287**	**60488**
Number of 18 mm modules	12 (8.5 inches/216 mm)	12 (8.5 inches/216 mm)	12 (8.5 inches/216 mm)	–
Set of	**1**	**1**	**1**	**20**
Technical specifications				
Insulation voltage (Ui)	690 V			–
Impulse withstand voltage (Uimp)	12 kV under 240 V 5 kV under 480Y/277 V or 277 V			–
Acceptable current at 40°C (Ie)	63 A with 1 central power supply point	100 A with 2 power supply points		–
	DB110396 	DB110397 		
	■ Power supply via cable directly in the cage of the device: □ cross section maxi: 3 AWG (25 mm²) □ cross section mini: 10 AWG (5.27 mm²)			
Resistance to short-circuit currents	Compatible with the breaking capacity of C60SP Schneider Electric circuit breakers UL 1077 supplementary protection			
Pollution degree	3			
Fire resistance	Self-extinguishability 960°C 30 secondes			
Colour	RAL 7035			RAL 1021
Standards	UL 1077			–

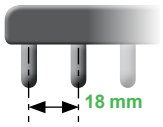
Dimensions (mm / inches)

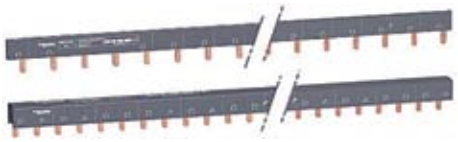
DB405991 

Comb busbars for C60N, C60H, C60L (IEC/EN, 18 mm pitch)

IEC

IEC 60947-7-1, IEC 61439-2





C60	18 mm poles, cuttable				
Number of poles	**1P**	**2P**	**3P**	**4P**	**3 (N+P)**
					
Type	L1…	L1L2…	L1L2L3...	NL1L2L3…	NL1NL2NL3…
Set of	1	1	1	1	1
Catalogue numbers					
6 modules of 18 mm	**A9XPH106**	-	**A9XPH306**	-	-
12 modules of 18 mm	**A9XPH112**	**A9XPH212**	**A9XPH312**	**A9XPH412**	**A9XPH512**
18 modules of 18 mm	-	-	-	-	**A9XPH518**
24 modules of 18 mm	**A9XPH124**	**A9XPH224**	**A9XPH324**	**A9XPH424**	**A9XPH524**
57 modules of 18 mm	**A9XPH157**	**A9XPH257**	**A9XPH357**	**A9XPH457**	**A9XPH557**

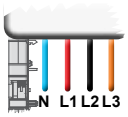
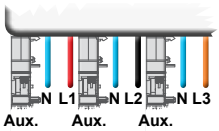
Technical data

Operating current (Ie) at 40°C	100 A
Short circuit current (Isc)	Compatible with the breaking capacity of Schneider Electric circuit breakers
Rated insulation voltage (Ui)	500 V AC
Operating voltage (Ue)	415 V AC
Pollution degree	3
Fire resistance IEC 695-2-1	Self-extinguishing at 960°C 30 secondes
Color	RAL 7016 (anthracite grey)

Accessories

Number of poles	**1P**	**2P**	**3P**	**4P**	**-**	**-**
						
	End-pieces				**Tooth covers**	**Connectors**
						Monoconnect
	Lateral end-pieces providing IP20 protection				Insulate teeth that have been left free	Comb busbar power supply. Horizontal incomer on each side. For 35 mm² cable. Tightening torque 4 N.m
Set of	10	10	10	10	20	4
Catalogue numbers	**A9XPE110**	**A9XPE210**	**A9XPE310**	**A9XPE410**	**A9XPT920**	**A9XPCM04**

Comb busbars for C60N, C60H, C60L (IEC/EN, 18 mm pitch) (cont.)

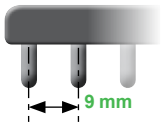
	Cuttable comb busbars, 18 mm modules, with 9 mm auxiliary					
	Aux+1P	Aux+2P	Aux+3P	Aux+4P	3 (Aux+1P)	3 (Aux+N+1P)
						
	AuxL1...	AuxL1L2...	AuxL1L2L3...	AuxNL1L2L3...	AuxL1AuxL2AuxL3...	AuxL1AuxL2AuxL3...
	1	1	1	1	1	1
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	A9XAH157	A9XAH257	A9XAH357	A9XAH457	A9XAH657	A9XAH557

3

Comb busbars for N40N, N40 Vigi (IEC/EN, 9 mm pitch)

IEC

IEC 60439-1



N40N, N40 Vigi	9 mm poles, cuttable							
Number of poles	**1P + N**				**3P + N**			
								
Number of 18 mm modules	12	18	24	48	12	18	24	48
Supplied accessories Tooth covers (for 3 modules of 18 mm)	1	1	2	-	1	1	2	-
End-pieces	4	4	4	-	4	4	4	-
Catalogue numbers	**21501**	**19512**	**21503**	**21089**	**21505**	**19516**	**21507**	**21093**

Technical data

Operating current at 40°C	(Ie)	80 A
Short circuit current	(Isc)	Compatible with the breaking capacity of Schneider Electric circuit breakers
Rated insulation voltage	(Ui)	440 V AC
Operating voltage	(Ue)	230 V AC (P + N) - 400 V AC (3P + N)
Degree of protection		IP20
Pollution degree		3
Fire resistance IEC 695-2-1		Self-extinguishing at 960°C 30 secondes
Color		RAL 7035

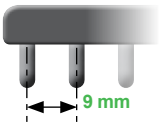
Accessories

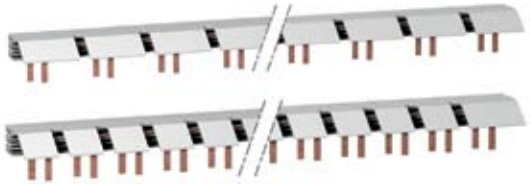
Number of poles	**1P + N**	**3P + N**			
					
	End-pieces		**Tooth covers (3 x 18 mm modules)**	**Tooth covers (1 x 18 mm module)**	**Connectors (grey)**
Set of	40		12	10	4
Catalogue numbers	**021094**	**021095**	**021096**	**010405**	**021098**

Comb busbars for N40N, N40 Vigi (IEC/EN, 9 mm pitch) (cont.)

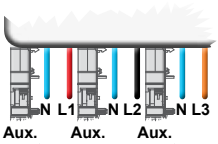
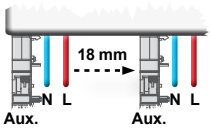
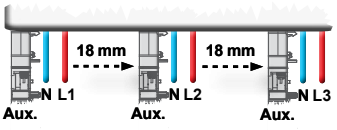
IEC

IEC 60439-1





Comb busbar for 1P+N circuit breaker with 9 mm auxiliary OF, SD

N40N, N40 Vigi	9 mm poles, cuttable			
Number of poles	**Aux., N, L**	**Aux. NL1, Aux. NL2, Aux. NL3**	**Aux., N, L1**	**Aux. NL1, Aux. NL2, Aux. NL3**
				
	N40N comb busbar		**N40 Vigi comb busbar**	
Number of 18 mm modules	56	56	56	56
Catalogue numbers	**A9N21035**	**A9N21036**	**A9N21037**	**A9N21038**

3

Technical data

Operating current at 40°C	(Ie)	63 A
Short circuit current	(Isc)	Compatible with the breaking capacity of Schneider Electric circuit breakers
Rated insulation voltage	(Ui)	500 V AC
Operating voltage	(Ue)	230 V AC (P + N) - 400 V AC (3P + N)
Degree of protection		IP20
Pollution degree		3
Fire resistance IEC 695-2-1		Self-extinguishing at 960°C 30 secondes
Color		RAL 7035

Accessories

Number of poles	**Aux., N, L**	**Aux. NL1, Aux. NL2, Aux. NL3**			
					
	End-pieces		**Connectors (grey)**	**Neutral connectors (bleu)**	**Tooth covers (1 x 18 mm module)**
Set of	20		10	10	10
Catalogue numbers	**A9N21039**	**A9N21040**	**A9N21041**	**A9N21042**	**A9N21050**

PB111254-30_1.eps

PB111253-30_1.eps

IEC/EN 60947-7-1, IEC/EN 61439-1 & 2

Description

- Single-pole or four-pole distribution block that can be installed on a standard DIN rail or on a mounting plate.
- Compatible with Prisma G and P, Pragma, Mini Pragma and Resbo series switchboards.
- Incomers and feeders are connected to screw terminals that accept rigid or flexible cables with ferrule.
- Optional: additional neutral terminal strip for four-pole distribution block.

Advantages

- Simplified power supply for main incomers.
- Easy phase balancing.
- Easy, effortless cabling due to excellent accessibility.
- Visible cabling.
- Insulation between phases.
- The single-pole distribution blocks are adjacent and bridgeable via the second incoming hole for parallel connection.

Screw distribution blocks

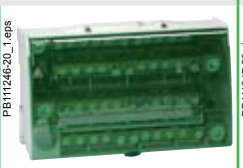
Number of poles	**1P**			**4P**
	PB111250-20_1.eps 	PB111251-20_1.eps 	PB111252-20_1.eps 	PB111243-20_1.eps 
Rated operational current	125 A	160 A	250 A	100 A
Total connections capacity	10	13	14	4 x 7
Terminal capacity				
Diameter	2 x Ø 9.5 mm	2 x Ø 12 mm	1 x Ø 15.3 mm	2 x Ø 7.5 mm
	2 x Ø 7.5 mm	3 x Ø 7.5 mm	1 x Ø 10 mm	5 x Ø 5.5 mm
	6 x Ø 5.8 mm	8 x Ø 5.8 mm	4 x Ø 6 mm	-
	-	-	8 x Ø 7.5 mm	-
Rated peak withstand current (Ipk) Ipk/60 ms	25 kÂ	36 kÂ	60 kÂ	14 kÂ
Ipk/6 ms	-	-	-	24 kÂ
Rated short-time withstand current (Icw) (IEC/EN 60947-7-1)	4.2 kA rms/1 s	8.4 kA rms/1 s	14.4 kA rms/1 s	3 kA rms/1 s
Width (number of 9 mm pitches)	3	4	5	8
Dimension (H x W x D)	85 x 27 x 50.5	85 x 36 x 50.5	85 x 45 x 50.5	100 x 71 x 50.5
Weight (g)	125	163	239	210
Neutral terminal strip (optional)	-	-	-	LGYN1007
References	**LGY112510**	**LGY116013**	**LGY125014**	**LGY410028**

Linergy DS screw distribution blocks (cont.)

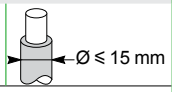
On LGY412560 and LGY416048 references.
Input cabling facilitated by side terminals.

Technical data

Common characteristics	
To IEC/EN 60947-7-1 and IEC/EN 61439-1 & 2	
Rated insulation voltage (Ui)	500 V AC
Rated operational voltage (Ue)	230 V AC (Ph/N) 440 V AC (Ph/Ph)
Rated impulse withstand voltage (Uimp)	8 kV
Rated conditional short-circuit current of an assembly	Up to the breaking capacity of Schneider Electric feeder circuit breakers, even in cascading configuration
Network frequency	50/60 Hz
Pollution degree	3
Overvoltage category	III
Additional technical characteristics	
Reference temperature	40 °C
Operating temperature	-25 °C to 55 °C
Dielectric withstand (IEC/EN 60947-1)	2500 V AC

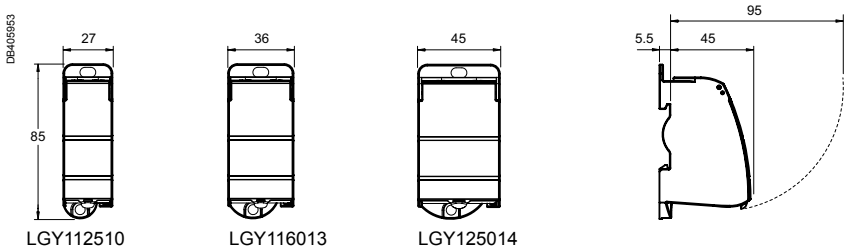
				Neutral terminal strip		
						
	125 A		160 A	100 A	125 A	
	4 x 12	4 x 15	4 x 12	7	12	15
	1 x Ø 9 mm	1 x Ø 9.5 mm	1 x Ø 12 mm	2 x Ø 7.5 mm	1 x Ø 9 mm	1 x Ø 9.5 mm
	7 x Ø 7.5 mm	3 x Ø 8.5 mm	3 x Ø 9 mm	5 x Ø 5.5 mm	7 x Ø 7.5 mm	3 x Ø 8.5 mm
	4 x Ø 6.5 mm	11 x Ø 6.5 mm	8 x Ø 7.5 mm	-	4 x Ø 6.5 mm	11 x Ø 6.5 mm
	-	-	-	-	-	-
	18 kÂ	18 kÂ	22 kÂ	-	-	-
	26 kÂ	28 kÂ	36 kÂ	-	-	-
	4.2 kA rms/1 s	4.2 kA rms/1 s	8.4 kA rms/1 s	-	-	-
	14	20	18	7	14	17
	100 x 126 x 50.5	100 x 162 x 50.5	100 x 174 x 50.5	20 x 70 x 35	20 x 125 x 35	20 x 155 x 35
	390	559	567	63	111	149
	LGYN12512	LGYN12515	LGYN12512	-	-	-
	LGY412548	**LGY412560**	**LGY416048**	**LGYN1007**	**LGYN12512**	**LGYN12515**

Terminal technical data

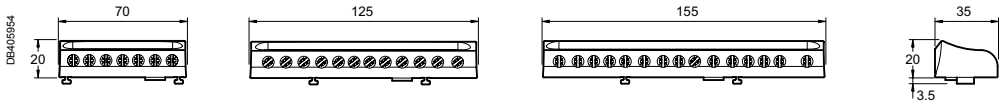
Type	**PZ2 screw**							
Diameter	Ø 5.5 mm	Ø 5.8 mm	Ø 6 mm	Ø 6.5 mm	Ø 7.5 mm	Ø 8.5 mm	Ø 9 mm	Ø 9.5 mm
Section rigid cable	1.5 to 16 mm²	1.5 to 16 mm²	1.5 to 16 mm²	1.5 to 16 mm²	2.5 to 25 mm²	6 to 35 mm²	10 to 35 mm²	10 to 35 mm²
Section flexible cable or with ferrule	1.5 to 10 mm²	1.5 to 10 mm²	1.5 to 10 mm²	1.5 to 10 mm²	1.5 to 16 mm²	4 to 25 mm²	4 to 25 mm²	6 to 35 mm²
Tightening torque	2 N.m	2 N.m	2 N.m	2 N.m	2 N.m	2 N.m	2.5 N.m	2.5 N.m
Type	**Hc screw**							
Diameter	Ø 9.5 mm	Ø 10 mm	Ø 12 mm		Ø 15.3 mm			
Section rigid cable	10 to 35 mm²	1.5 to 50 mm²	25 to 70 mm²	 Ø ≤ 15 mm	35 to 120 mm²			
Section flexible cable or with ferrule	6 to 35 mm²	1.5 to 35 mm²	16 to 50 mm²		25 to 95 mm²			
Tightening torque	8 N.m	4 N.m	1P: 9 N.m	4P: 5 N.m	14 N.m			

Linergy DS screw distribution blocks (cont.)

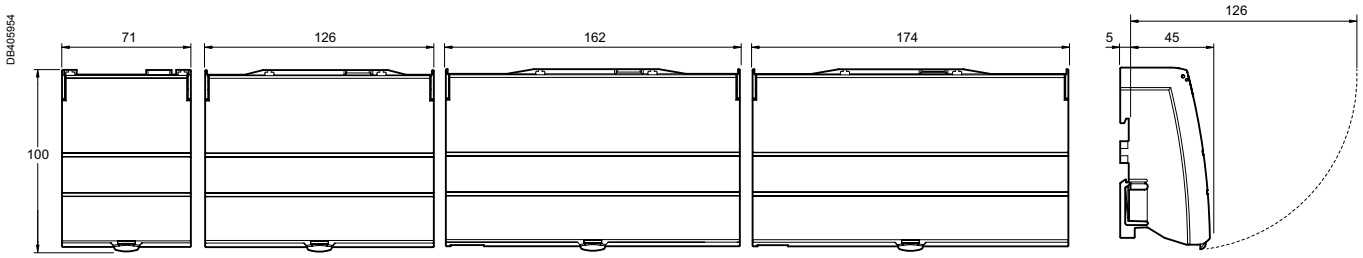
Dimensions (mm)



LGY112510 LGY116013 LGY125014



LGYN1007 LGYN12512 LGYN12515



LGY410028 LGY412548 LGY412560 LGY416048

The setup of circuit protective devices depends on the electrical installation standard. Multi 9 devices (designed for machinery and equipment manufacturers, integrators, panelbuilders, etc.) are tested in accordance with the UL (Underwriter Laboratories) product standard in order to meet the requirements of the NEC (National Electric Code) installation standard, in force in the United States.
To allow the most extensive possible use worldwide, Multi 9 “UL” products are also tested to ensure compliance with IEC and CSA standards.

The CE Marking is an administrative formality for free circulation and sale on the territory of the European Union.
Made compulsory by a European directive, the CE Marking of products complies with the administrative and legal requirements.
Designed for the European supervisory authorities (customs authorities), the “CE Marking” declarations and dossiers are produced under the sole responsibility of the manufacturer and undergo no conformity check by a third-party organization.
Only the quality marks, issued and inspected by an independent third-party organization, provide a full guarantee of operation, compatibility and safety in accordance with national and international standards.

UL 489

Branch circuit protection

The UL 489 standard applies primarily to the protection of circuits installed, in accordance with the NEC (National Electric Code):
- upstream of a device or a machine (branch circuit protection)
- inside the device or a machine, for certain loads (ventilation, air conditioning, heating, etc.)
- to power loads external to the device (motors, power sockets, etc.).

UL 1077

Supplementary protection - Internal protection of electrical equipment

The UL 1077 standard applies to circuit breakers for electrical equipment, in accordance with the NEC. These circuit breakers are considered as components forming part of the equipment but can in no case replace a UL 489 protective device. Their use is limited to the protection of specific loads exclusively inside the machine or equipment. Where the machine or equipment is powered upstream by a control panel, the UL 1077 protection must be combined with a UL 489 protective device in that panel.

CSA C22.2 No. 5-02

Branch circuit protection

The requirements of this standard cover circuit breakers that are specifically intended to provide service entrance, feeder and branch circuit protection in accordance with the National Installation Codes.
This standard is close to UL489.

CSA C22.2 No. 235-04

Supplementary protection - Internal protection of electrical equipment

This Standard applies to supplementary protectors that are intended for use as components within appliances or other electrical equipment where branch-circuit protection is already provided (or is not required), in accordance with the Rules of the Canadian Electrical Code.
This standard is close to UL1077.

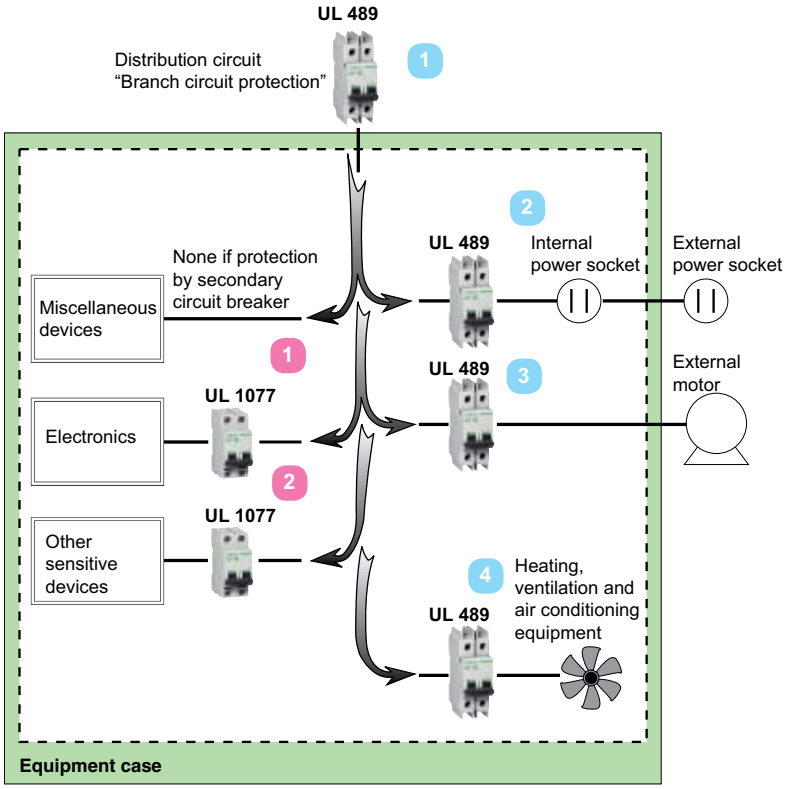
IEC 60947-2

The IEC 60947-2 standard is an international product standard concerning circuit breakers; it is used for industrial circuit protection applications.
It meets the requirements of the IEC 60364 installation standard.

GB 14048-2

The GB 14048-2 standard is close to the IEC 60947-2 standard for installations on Chinese territory.

Example of use of UL 489 circuit breakers and UL 1077 electrical equipment internal protective devices



UL 1077

Applications allowing the use of electrical equipment internal protective devices

UL 1077 1

Supplements an existing protective device or provides additional protection inside equipment

UL 1077 2

Used for the protection of internal circuits such as:
- Computers and microprocessors
- Telecommunications equipment
- Electronic controllers
- Power supply sources
- Transformers
- Small motors.

UL 489

Applications requiring branch circuit protection

UL 489 1

Equipment incoming end protection.

UL 489 2

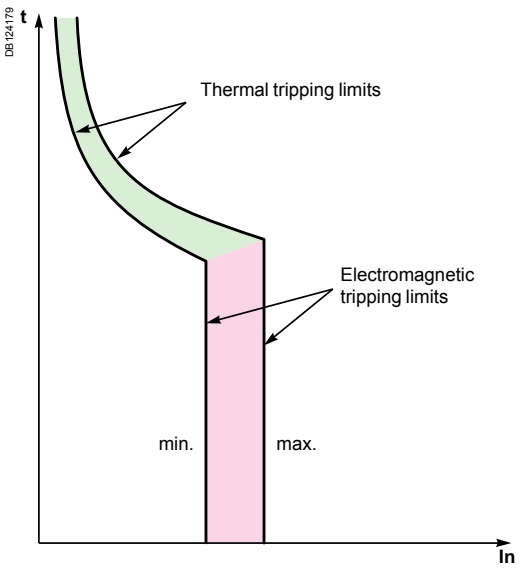
Power socket circuit protection (internal or external).

UL 489 3

Protection of an external circuit (e.g. motor).

UL 489 4

Protection of heating, ventilation and air conditionning equipment (HACR/HVAC).



The following curves show the total fault current breaking time, depending on its amperage. For example: based on the curve on "Circuit breakers tripping curves", page 66, a C60 circuit breaker of curve C, 20 A rating, will interrupt a current of 100 A (5 times the rated current In) in:
- 1 second at least
- 7 seconds at most.

The circuit breakers' tripping curves consist of two parts:
- tripping of overload protection (thermal tripping device): the higher the current, the shorter the tripping time
- tripping of short-circuit protection (magnetic tripping device): if the current exceeds the threshold of this protection device, the breaking time is less than 10 milliseconds. For short-circuit currents exceeding 20 times the rated current, the time-current curves do not give a sufficiently precise representation. The breaking of high short-circuit currents is characterized by the current limiting curves, in peak current and in energy. The total breaking time can be estimated at 5 times the value of the ratio $(I^2t)/(\hat{I})^2$.

Verification of the discrimination between two circuit breakers

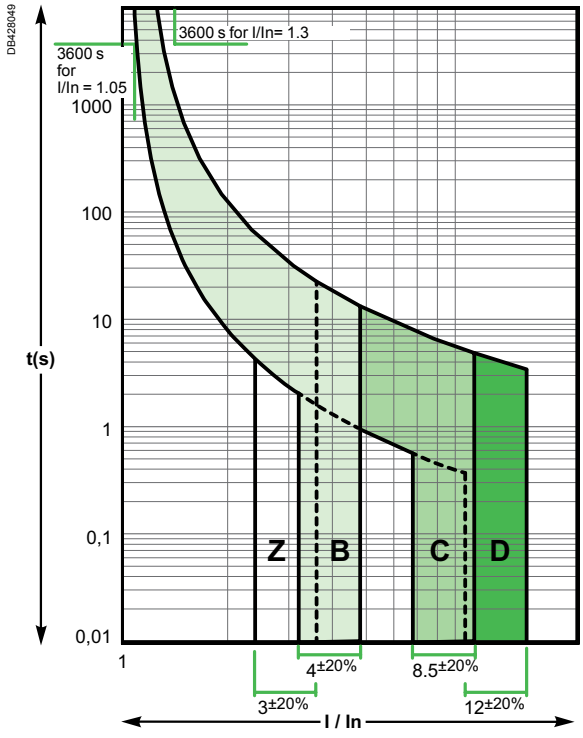
By superimposing the curve of a circuit breaker on that of the circuit breaker installed upstream, one can check whether this combination will be discriminating in cases of overload (discrimination for all current values, up to the magnetic threshold of the upstream circuit breaker). This verification is useful when one of the two circuit breakers has adjustable thresholds; for fixed-threshold devices, this information is provided directly by the discrimination tables.
To check discrimination on short circuit, the energy characteristics of the two devices must be compared.

Alternative current 50/60 Hz

C60BP, C60BPR, C60SP

According to IEC/EN 60947-2 (reference temperature 25°C)

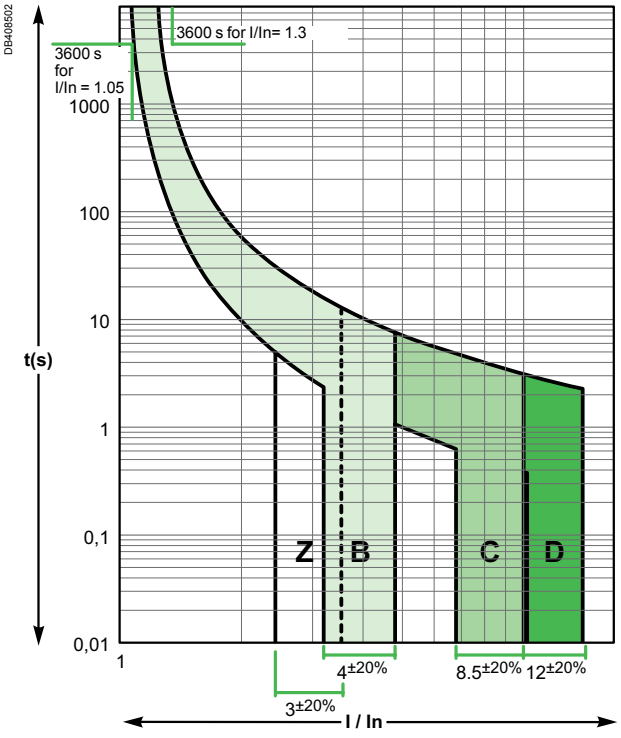
Curves Z, B, C, D



C60N, C60H, C60L, C60CTRL

According to IEC/EN 60947-2 (reference temperature 50°C)

Curves Z, B, C, D



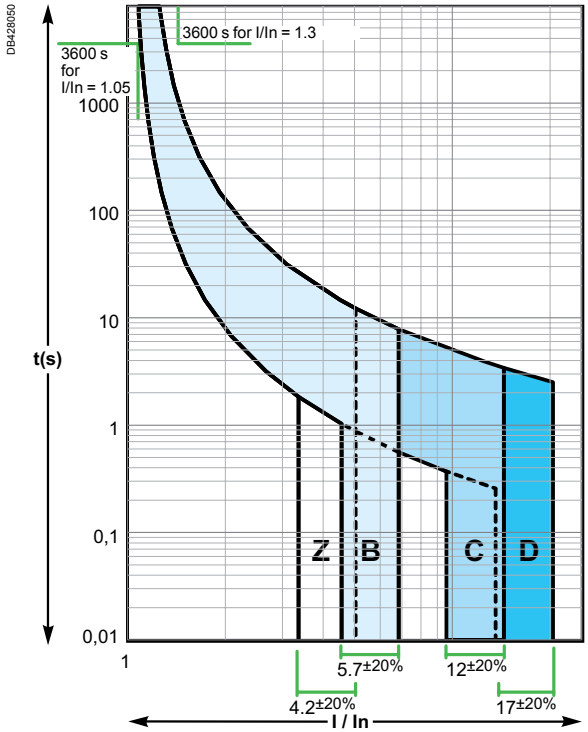
Note: IEC/EN 60947-2 tripping curves, respecting the tripping time specified by the standards UL 489, CSA C22.2 No 5, UL 1077 and CSA C22.2 No 235

Direct current

C60BP, C60BPR, C60SP

According to IEC/EN 60947-2 (reference temperature 25°C)

Curves Z, B, C, D

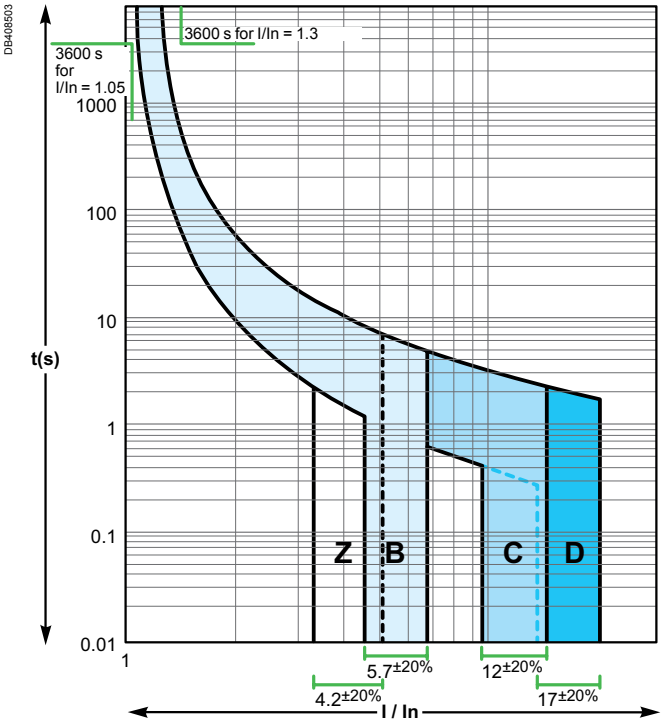


Note: IEC/EN 60947-2 tripping curves, respecting the tripping time specified by the standards UL 489, CSA C22.2 No 5, UL 1077 and CSA C22.2 No 235

C60N, C60H, C60L, C60CTRL

According to IEC/EN 60947-2 (reference temperature 50°C)

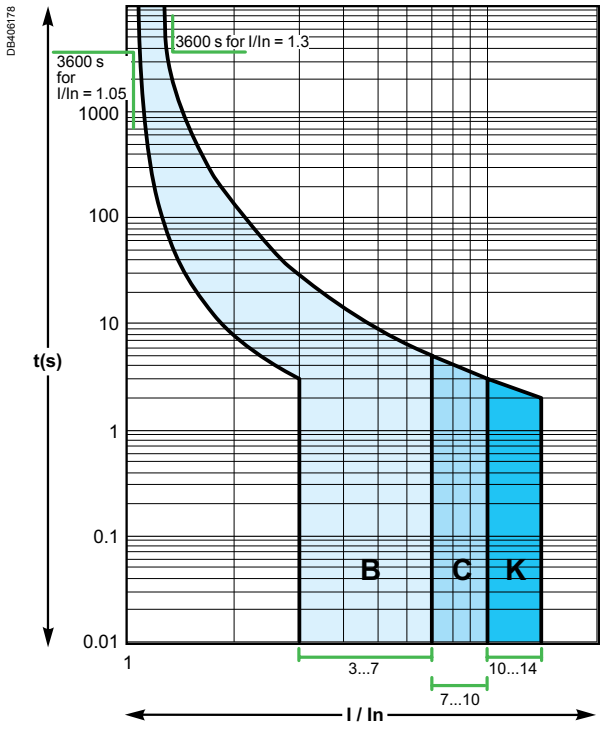
Curves Z, B, C, D



C60H-DC

According to IEC/EN 60947-2 (reference temperature 25°C)

Curves B, C, K



Note: IEC/EN 60947-2 tripping curves, respecting the tripping time specified by the standards UL 1077 and CSA C22.2 No 235

4

Influence of temperature on the operation

Devices		Characteristics influenced by temperature	Temperature	
			Mini	Maxi
C60BP, C60BPR, C60SP, C60N, C60H, C60L, C60CTRL circuit breakers		Tripping on overload	-30°C	+70°C
N40N circuit breakers		Tripping on overload	-25°C	+70°C
C60H-DC circuit breakers		Tripping on overload	-25°C	+70°C
Circuit breakers with	Vigi AC Type	Tripping on overload	-5°C	+60°C
	Vigi A-SI Type		-25°C	+60°C
N40 Vigi		Tripping on overload	-5°C	+60°C
GFP	A-SI Type	Maximum operating current	-25°C	+60°C
ID	AC Type	Maximum operating current	-5°C	+40°C
	A-SI Type		-25°C	+40°C
	B Type		-25°C	+40°C

Note: the temperature considered is the temperature viewed through the device.

Circuit breakers

High temperatures

- A rise in temperature decreases the tripping current of the thermal protection.
- Protection is still ensured: the tripping threshold remains lower than the current acceptable by the cable (I_z)
- To prevent nuisance tripping, it should be checked that this threshold remains higher than the maximum operating current (I_B) of the circuit, defined by:
  - the rated load currents,
  - the coefficients of expansion and simultaneity of use.

If the temperature is sufficiently high for the tripping threshold to become lower than the operating current I_B, switchboard ventilation should be provided for.

Low temperatures

- A fall in temperature increases the tripping current of the thermal protection.
- There is no risk of nuisance tripping: the threshold remains higher than the maximum operating current of the circuit (I_B) demanded by the loads.
- It should be checked that the cable remains suitably protected, i.e. that its acceptable current (I_z) is higher than the values shown in the following tables (in amperes).

When the ambient temperature could vary within a broad range, both these aspects must be taken into account:

- the difference between the maximum operating current of the circuit (I_B) and the tripping threshold of the circuit breaker for the minimum ambient temperature,
- the difference between the strength of the cable (I_Z) and the maximum tripping threshold of the circuit breaker for the maximum ambient temperature.

Influence of ambient temperature (cont.)

Maximum permissible current

- The maximum current allowed to flow through the device depends on the ambient temperature in which it is placed.
- The ambient temperature is the temperature inside the enclosure or switchboard in which the devices are installed.
- The reference temperature is in a halftone colour for the different devices.
- When several devices operating simultaneously are mounted side by side in a small enclosure, a temperature rise in the enclosure results in a reduction in the operating current. A reduction coefficient of 0.8 will then have to be assigned to the rating (already derated, if applicable, depending on the ambient temperature).

- Example:

Depending on the ambient temperature and the method of installation, the table below shows how to determine, for a C60, the operating currents not to be exceeded for ratings 25 A, 32 A and 40 A (reference temperature 50°C).

Operating current not to be exceeded (A)							
Installation conditions (IEC 60947-2)		**C60 alone**			**Several C60 in the same enclosure** (calculate with the reduction coefficient indicated below)		
Ambient temperature (°C)		**35 °C**	**50 °C**	**65 °C**	**35 °C**	**50 °C**	**65 °C**
Type	**Nominal rating (A)**	**Actual rating (A)**					
C60	25	26.7	25	23.2	26.7 x 0.8 = 21.4	25 x 0.8 = 20	23.2 x 0.8 = 18.6
	32	34	32	29.9	34 x 0.8 = 27	32 x 0.8 = 25.6	29.9 x 0.8 = 24
	40	42.9	40	36.9	42.9 x 0.8 = 34.3	40 x 0.8 = 32	36.9 x 0.8 = 29.5

Influence of ambient temperature (cont.)

C60BP, C60BPR, C60SP derating table

C60BP, C60BPR, C60SP	Ambient temperature (°C)																			
Rating	**-30**	**-25**	**-20**	**-15**	**-10**	**-5**	**0**	**+5**	**+10**	**+15**	**+20**	**+25**	**+30**	**+35**	**+40**	**+45**	**+50**	**+55**	**+60**	**+70**
0.5 A	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	**0.5**	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4
1 A	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.0	**1.0**	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.6
2 A	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.1	2.1	**2.0**	1.9	1.9	1.8	1.8	1.7	1.6	1.6	1.4
3 A	3.7	3.7	3.6	3.6	3.5	3.4	3.4	3.3	3.2	3.1	3.1	**3.0**	2.9	2.8	2.8	2.7	2.6	2.5	2.4	2.2
4 A	5.0	4.9	4.8	4.8	4.7	4.6	4.5	4.4	4.3	4.2	4.1	**4.0**	3.9	3.8	3.7	3.6	3.4	3.3	3.2	2.9
5 A	6.2	6.1	6.0	5.9	5.8	5.7	5.6	5.5	5.4	5.2	5.1	**5.0**	4.9	4.8	4.6	4.5	4.3	4.2	4.1	3.7
6 A	7.8	7.6	7.5	7.3	7.2	7.0	6.9	6.7	6.5	6.4	6.2	**6.0**	5.8	5.6	5.4	5.2	5.0	4.8	4.5	4.0
8 A	9.9	9.8	9.6	9.5	9.3	9.1	8.9	8.8	8.6	8.4	8.2	**8.0**	7.8	7.6	7.4	7.2	6.9	6.7	6.5	6.0
10 A	12.4	12.2	12.0	11.8	11.6	11.4	11.2	10.9	10.7	10.5	10.2	**10.0**	9.7	9.5	9.2	9.0	8.7	8.4	8.1	7.4
13 A	15.6	15.4	15.2	15.0	14.7	14.5	14.3	14.0	13.8	13.5	13.3	**13.0**	12.7	12.5	12.2	11.9	11.6	11.3	11.0	10.4
15 A	18.1	17.8	17.6	17.3	17.0	16.7	16.5	16.2	15.9	15.6	15.3	**15.0**	14.7	14.4	14.0	13.7	13.4	13.0	12.7	11.9
16 A	18.9	18.6	18.4	18.1	17.9	17.6	17.4	17.1	16.8	16.6	16.3	**16.0**	15.7	15.4	15.1	14.8	14.5	14.2	13.9	13.2
20 A	24.6	24.3	23.9	23.5	23.1	22.7	22.2	21.8	21.4	20.9	20.5	**20.0**	19.5	19.0	18.5	18.0	17.5	16.9	16.4	15.2
25 A	30.1	29.7	29.3	28.8	28.4	27.9	27.5	27.0	26.5	26.0	25.5	**25.0**	24.5	23.9	23.4	22.8	22.3	21.7	21.1	19.8
30 A	38.2	37.6	36.9	36.2	35.5	34.7	34.0	33.2	32.5	31.7	30.8	**30.0**	29.1	28.2	27.3	26.4	25.4	24.4	23.3	21.0
32 A	40.2	39.5	38.8	38.1	37.4	36.7	36.0	35.2	34.4	33.6	32.8	**32.0**	31.1	30.3	29.4	28.4	27.5	26.5	25.4	23.2
35 A	42.5	41.9	41.2	40.6	39.9	39.3	38.6	37.9	37.2	36.5	35.7	**35.0**	34.2	33.5	32.7	31.8	31.0	30.1	29.2	27.4
40 A	48.9	48.1	47.4	46.6	45.9	45.1	44.3	43.4	42.6	41.8	40.9	**40.0**	39.1	38.2	37.2	36.2	35.2	34.2	33.1	30.9
45 A	54.7	53.9	53.1	52.2	51.4	50.5	49.7	48.8	47.8	46.9	46.0	**45.0**	44.0	43.0	42.0	40.9	39.8	38.7	37.5	35.1
50 A	59.8	59.0	58.2	57.3	56.5	55.6	54.7	53.8	52.9	51.9	51.0	**50.0**	49.0	48.0	47.0	45.9	44.8	43.7	42.6	40.2
63 A	80.0	78.6	77.2	75.7	74.2	72.7	71.2	69.6	68.0	66.4	64.7	**63.0**	61.2	59.4	57.5	55.6	53.5	51.4	49.2	44.5

C60N, C60H, C60L, C60CTRL derating table

C60N, C60H, C60L, C60CTRL	Ambient temperature (°C)																				
Rating	**-30**	**-25**	**-20**	**-15**	**-10**	**-5**	**0**	**+5**	**+10**	**+15**	**+20**	**+25**	**+30**	**+35**	**+40**	**+45**	**+50**	**+55**	**+60**	**+65**	**+70**
1 A	1.31	1.3	1.28	1.27	1.25	1.23	1.21	1.19	1.17	1.15	1.13	1.11	1.09	1.07	1.05	1.02	**1**	0.98	0.95	0.93	0.91
2 A	2.55	2.59	2.56	2.52	2.49	2.45	2.41	2.37	2.34	2.3	2.26	2.22	2.17	2.13	2.09	2.04	**2**	1.95	1.91	1.88	1.84
3 A	3.81	4.04	3.98	3.92	3.85	3.79	3.73	3.66	3.59	3.52	3.45	3.38	3.31	3.23	3.16	3.08	**3**	2.92	2.83	2.82	2.76
4 A	4.9	4.86	4.81	4.76	4.7	4.65	4.59	4.54	4.48	4.42	4.37	4.31	4.25	4.19	4.13	4.06	**4**	3.94	3.87	3.81	3.74
6 A	7.93	7.82	7.71	7.6	7.49	7.38	7.27	7.15	7.03	6.91	6.79	6.66	6.54	6.41	6.27	6.14	**6**	5.86	5.71	5.56	5.42
10 A	13.3	13.2	13	12.8	12.6	12.4	12.2	12	11.8	11.6	11.4	11.2	10.9	10.7	10.5	10.2	**10**	9.8	9.5	9.2	9
13 A	17	16.9	16.6	16.4	16.2	15.9	15.7	15.4	15.2	14.9	14.7	14.4	14.1	13.9	13.6	13.3	**13**	12.7	12.4	12.1	11.8
16 A	20	19.8	19.5	19.3	19.1	18.8	18.6	18.4	18.1	17.9	17.6	17.3	17.1	16.8	16.6	16.3	**16**	15.7	15.4	15.1	14.8
20 A	26.9	26.6	26.2	25.8	25.4	25	24.6	24.2	23.7	23.3	22.9	22.4	22	21.5	21	20.5	**20**	19.5	18.9	18.4	17.9
25 A	32.9	32.5	32.1	31.6	31.1	30.7	30.2	29.7	29.2	28.7	28.2	27.7	27.2	26.7	26.1	25.6	**25**	24.4	23.8	23.2	22.6
32 A	41.5	41.1	40.5	40	39.4	38.9	38.3	37.7	37.1	36.5	35.9	35.3	34.7	34	33.4	32.7	**32**	31.3	30.6	29.9	29.1
40 A	53.7	52.9	52.2	51.4	50.6	49.8	49	48.2	47.3	46.5	45.6	44.7	43.8	42.9	42	41	**40**	39	37.9	36.9	35.8
50 A	65	64.3	63.5	62.6	61.7	60.8	59.9	59	58.1	57.1	56.2	55.2	54.2	53.2	52.1	51.1	**50**	48.9	47.8	46.7	45.5
63 A	85.5	84.6	83.3	82	80.7	79.4	78	76.7	75.3	73.9	72.4	70.9	69.4	67.9	66.3	64.7	**63**	61.3	59.5	57.8	56

Influence of ambient temperature (cont.)

N40N, N40 vigi derating table

N40N, N40 Vigi	Ambient temperature (°C)																			
Rating	**-25**	**-20**	**-15**	**-10**	**-5**	**0**	**+5**	**+10**	**+15**	**+20**	**+25**	**+30**	**+35**	**+40**	**+45**	**+50**	**+55**	**+60**	**+65**	**+70**
1 A	1.66	1.62	1.59	1.55	1.51	1.47	1.43	1.39	1.35	1.3	1.26	1.21	1.16	1.11	1.06	**1**	0.94	0.88	0.81	0.73
2 A	2.64	2.6	2.56	2.52	2.48	2.44	2.4	2.36	2.32	2.28	2.23	2.19	2.14	2.1	2.05	**2**	1.95	1.9	1.85	1.79
3 A	3.97	3.91	3.86	3.8	3.74	3.68	3.61	3.55	3.49	3.42	3.36	3.29	3.22	3.15	3.07	**3**	2.92	2.85	2.77	2.68
4 A	5.19	5.12	5.05	4.98	4.9	4.83	4.75	4.67	4.6	4.52	4.43	4.35	4.27	4.18	4.09	**4**	3.91	3.81	3.72	3.62
6 A	7.42	7.34	7.25	7.16	7.07	6.98	6.89	6.8	6.7	6.61	6.51	6.41	6.31	6.21	6.11	**6**	5.89	5.78	5.67	5.56
10 A	12.9	12.7	12.5	12.3	12.2	12	11.8	11.6	11.4	11.2	11	10.8	10.6	10.4	10.2	**10**	9.8	9.6	9.3	9.1
16 A	20.4	20.1	19.8	19.6	19.3	19	18.7	18.5	18.2	17.9	17.6	17.3	17	16.7	16.3	**16**	15.7	15.3	15	14.6
20 A	25.7	25.3	25	24.6	24.3	23.9	23.6	23.2	22.8	22.4	22	21.7	21.3	20.8	20.4	**20**	19.6	19.1	18.7	18.2
25 A	31.6	31.2	30.8	30.4	30	29.6	29.2	28.7	28.3	27.8	27.4	26.9	26.5	26	25.5	**25**	24.5	24	23.5	22.9
32 A	41.1	40.5	40	39.4	38.9	38.3	37.7	37.1	36.5	35.9	35.3	34.7	34	33.4	32.7	**32**	31.3	30.6	29.9	29.1
40 A	52	51.3	50.6	49.8	49.1	48.3	47.6	46.8	46	45.2	44.4	43.5	42.7	41.8	40.9	**40**	39.1	38.1	37.1	36.1

C60H-DC derating table

C60H-DC	Ambient temperature (°C)																			
Rating	**-25**	**-20**	**-15**	**-10**	**-5**	**0**	**+5**	**+10**	**+15**	**+20**	**+25**	**+30**	**+35**	**+40**	**+45**	**+50**	**+55**	**+60**	**+65**	**+70**
0.5 A	0.62	0.61	0.6	0.59	0.58	0.56	0.55	0.54	0.53	0.51	**0.5**	0.49	0.47	0.46	0.44	0.43	0.41	0.39	0.38	0.36
1 A	1.17	1.15	1.14	1.12	1.1	1.09	1.07	1.05	1.04	1.02	**1**	0.98	0.96	0.94	0.92	0.9	0.88	0.86	0.84	0.82
2 A	2.5	2.45	2.41	2.36	2.31	2.26	2.21	2.16	2.11	2.06	**2**	1.94	1.88	1.82	1.76	1.7	1.63	1.56	1.48	1.41
3 A	3.71	3.65	3.58	3.51	3.45	3.38	3.3	3.23	3.16	3.08	**3**	2.92	2.84	2.75	2.66	2.57	2.48	2.38	2.27	2.17
4 A	4.99	4.9	4.81	4.71	4.62	4.52	4.42	4.32	4.22	4.11	**4**	3.89	3.77	3.65	3.53	3.4	3.27	3.13	2.98	2.83
5 A	5.92	5.83	5.74	5.66	5.57	5.48	5.39	5.29	5.2	5.1	**5**	4.9	4.8	4.69	4.58	4.47	4.36	4.24	4.12	4
6 A	7.15	7.04	6.94	6.83	6.71	6.6	6.48	6.37	6.25	6.12	**6**	5.87	5.74	5.61	5.47	5.33	5.19	5.04	4.89	4.73
10 A	12.4	12.2	11.9	11.7	11.5	11.3	11	10.8	10.5	10.3	**10**	9.7	9.5	9.2	8.9	8.6	8.3	7.9	7.6	7.2
13 A	15.3	15.1	14.9	14.6	14.4	14.2	14	13.7	13.5	13.3	**13**	12.8	12.5	12.2	12	11.7	11.4	11.1	10.8	10.5
15 A	18.3	18	17.7	17.4	17.1	16.7	16.4	16.1	15.7	15.4	**15**	14.6	14.3	13.9	13.5	13	12.6	12.2	11.7	11.2
16 A	19.1	18.9	18.6	18.3	18	17.6	17.3	17	16.7	16.3	**16**	15.7	15.3	14.9	14.6	14.2	13.8	13.4	13	12.5
20 A	23.7	23.4	23	22.7	22.3	21.9	21.6	21.2	20.8	20.4	**20**	19.6	19.2	18.7	18.3	17.9	17.4	16.9	16.4	15.9
25 A	29.9	29.5	29	28.5	28.1	27.6	27.1	26.6	26.1	25.5	**25**	24.5	23.9	23.3	22.7	22.1	21.5	20.9	20.2	19.6
30 A	36.7	36.1	35.5	34.9	34.2	33.5	32.9	32.2	31.5	30.7	**30**	29.2	28.5	27.7	26.8	26	25.1	24.2	23.2	22.3
32 A	37.9	37.4	36.8	36.2	35.7	35.1	34.5	33.9	33.3	32.6	**32**	31.4	30.7	30	29.3	28.6	27.9	27.1	26.3	25.5
40 A	48.2	47.4	46.7	45.9	45.1	44.3	43.5	42.6	41.8	40.9	**40**	39.1	38.2	37.2	36.2	35.2	34.2	33.1	32	30.8
50 A	59.1	58.3	57.4	56.5	55.6	54.7	53.8	52.9	52	51	**50**	49	48	46.9	45.9	44.8	43.6	42.5	41.3	40.1
63 A	76.9	75.6	74.3	73	71.7	70.3	68.9	67.5	66	64.5	**63**	61.4	59.8	58.2	56.5	54.7	52.9	51.1	49.1	47.1

RCCB

- In all cases, the RCCB are correctly protected against overloads by a circuit breaker with a lower or equal rating, operating at the same ambient temperature.

Dissipated power, Impedance and Voltage drop

Multi 9 products

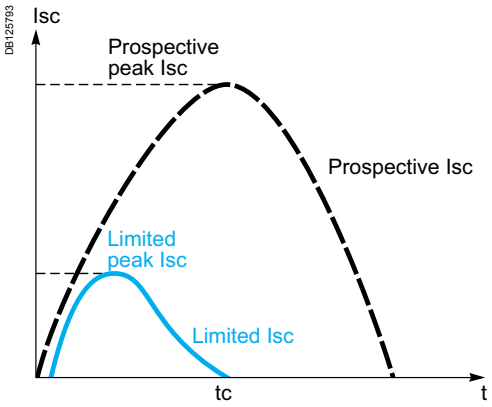
The following table indicates the average dissipated power per pole in W for a current equal to the rating of the device and at the operating voltage.

Rating (A)	0.5	1	2	3	4	5	6	8	10	13	15	16	20	25	30	32	35	40	45	50	63	80	100	125
Circuit breakers																								
C60BP, C60BPR, C60SP	2.6	1.3	1.7	1.9	2.0	2.2	1.2	1.7	1.9	2.4	2.3	2.6	2.2	3.4	2.5	2.8	3.5	3.6	3.9	4.8	4.8			
C60N, C60H, C60L, C60CTRL		1.3	1.7	1.9	2.0		1.2		1.9	2.4		2.6	2.2	2.7		3.2		3.6		4.8	4.3			
N40N		2.5	1.9	2.1	2.6		2.7		2.7			3.2	4.7	4.7		4.6		5.8						
C60H-DC	2.6	1.3	1.7	1.9	2.0		1.2		1.9	2.4		2.6	2.2	2.7		3.2		3.6		4.8	4.3			
RCCB																								
GFP A-SI Type														1,4				3.6			4.4		18	
ID AC / A-SI Type														1.4				3.6			4.4			
ID B Type														1.2				2.9			7.2	12		28
RCBO																								
N40 Vigi							4.1		3.2			3.9	4.4	4.5				6.4						
Add-on residual current devices																								
Vigi C60 AC / A-SI Type																					3.0			
Vigi N40 AC / A-SI Type																		2.1						

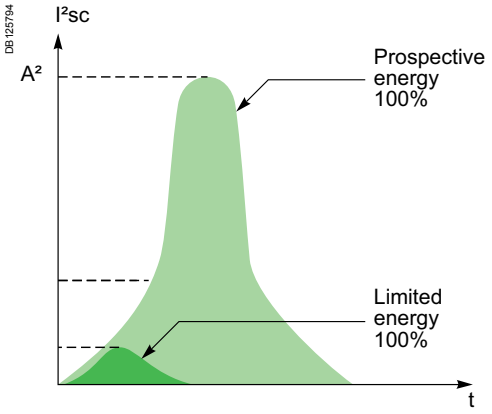
Note: RCBO dissipated power per pole is the sum of circuit breaker dissipated power per pole + add-on residual current device dissipated power per pole.
Example: C60N (63 A) + Vigi C60 (63 A) = 4.3 + 3.0 = 7.3 W.

Impedance calculation:
$Z = P / I^2$
Z: impedance in Ohms
P: dissipated power in Watts (table values)
I: rating in Amperes

Voltage drop calculation:
$U = P / I$
U: voltage drop in Volts
P: dissipated power in Watts (table values)
I: rating in Amperes



Prospective current and real limit current.



Definition

The limiting capacity of a circuit breaker is its ability to lessen the effects of a short circuit on an electrical installation by reducing the current amplitude and the dissipated power.

Benefits of limiting

Long installation service life

Thermal effects

Lower temperature rise at the conductor level, hence increased service life for cables and all components that are not self-protected (e.g. switches, contactors, etc.)

Mechanical effects

Lower electrodynamic repulsion forces, hence less risk of deformation or breakage of electrical contacts and busbars.

Electromagnetic effects

Less interference on sensitive equipment located in the vicinity of an electric circuit.

Savings through cascading

Cascading is a technique derived directly from current limiting: downstream of a current-limiting circuit breaker it is possible to use circuit breakers of breaking capacity lower than the prospective short-circuit current (in line with the cascading tables). The breaking capacity is heightened thanks to current limiting by the upstream device. Substantial savings can be achieved in this way on switchgear and enclosures.

Discrimination of protection devices

The circuit breakers' current limiting capacity improves discrimination with the protection devices located upstream: this is because the required energy passing through the upstream protection device is greatly reduced and can be not enough to cause it to trip. Discrimination can thus be natural without having to install a time-delayed protection device upstream.

Representation: Current limiting curves

The current limiting capacity of a circuit breaker is reflected by 2 curves which give, as a function of the prospective short-circuit current (current which would flow in the absence of a protection device):

- the real peak current (limited)
- the thermal stress (in A²s), this value, multiplied by the resistance of any element through which the short-circuit current passes, gives the power dissipated by this element.

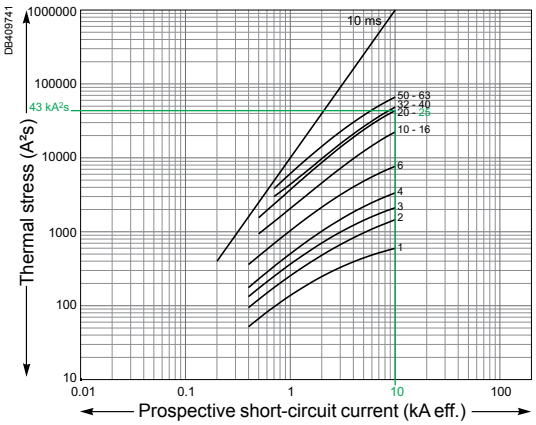
The straight line "10 ms" representing the energy A²s of a prospective short-circuit current of a half-period (10 ms) indicates the energy that would be dissipated by the short-circuit current in the absence of limiting by the protection device (see example).

Example

What is the energy limited by a C60N 25 A circuit breaker for a prospective short-circuit current of 10 kA rms. What is the quality of current limiting?

> as shown in the graph opposite:

- this short-circuit current (10 kA rms) is likely to dissipate up to 1,000 kA²s
- the C60N circuit breaker reduces this thermal stress to: 43 kA²s, which is 23 times less.

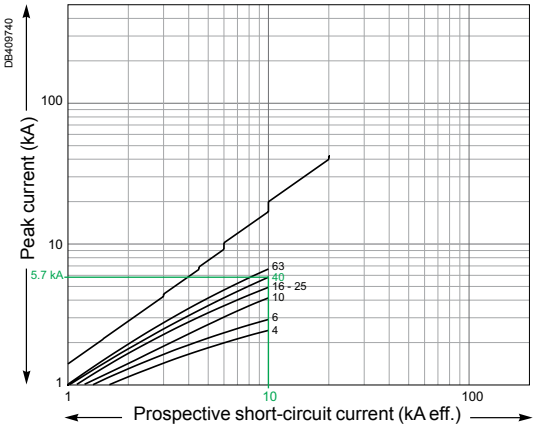


C60N Thermal stress (380-415 V AC)

Example of use: Stresses acceptable by the cables

The following table shows the thermal stresses acceptable by the cables depending on their insulation, their composition (Cu or Al) and their cross section. Cross-section values are expressed in mm² and stresses in A²s.

S (mm²)		1.5	2.5	4	6	10
PVC	Cu	2.97 x 10^4	8.26 x 10^4	2.12 x 10^5	4.76 x 10^5	1.32 x 10^6
	Al					5.41 x 10^5
PRC	Cu	4.10 x 10^4	1.39 x 10^5	2.92 x 10^5	6.56 x 10^5	1.82 x 10^6
	Al					7.52 x 10^5
S (mm²)		**16**	**25**	**35**	**50**	
PVC	Cu	3.4 x 10^6	8.26 x 10^6	1.62 x 10^7	3.21 x 10^7	
	Al	1.39 x 10^6	3.38 x 10^6	6.64 x 10^6	1.35 x 10^7	
PRC	Cu	4.69 x 10^6	1.39 x 10^7	2.23 x 10^7	4.56 x 10^7	
	Al	1.93 x 10^6	4.70 x 10^6	9.23 x 10^6	1.88 x 10^7	



C60N Peak current (380-415 V AC)

Example

Is a Cu/PRC cable of cross section 6 mm² protected by a C60N 40 A device?
The above table shows that the acceptable stress is 6.56 x 10^5 A²s. Any short-circuit current at the point where a C60N 40 A device (Icu = 25 kA) is installed will be limited, with a thermal stress of less than 5.7 x 10^5 A²s.
The cable is therefore always protected up to the breaking capacity of the circuit breaker.

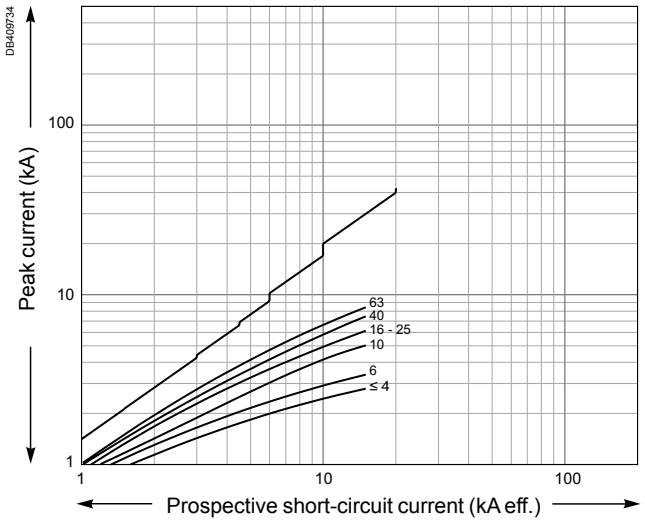
Short-circuit current limiting (cont.)
Ue: 380-415 V AC

Limitation curves for network
Ue: 380-415 V AC (Ph/N 220-240 V AC)

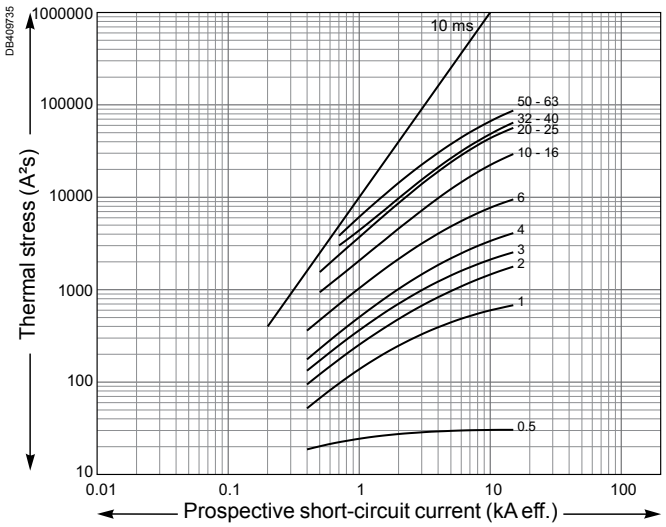
C60BP, C60BPR, C60SP

1P / 2P / 3P

Peak current



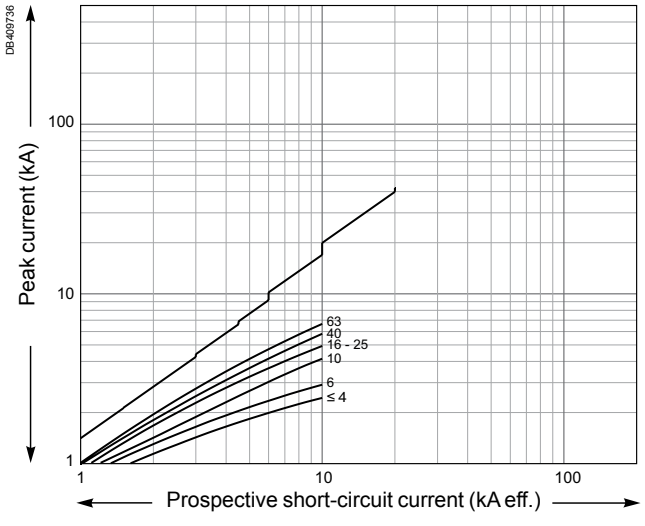
Thermal stress



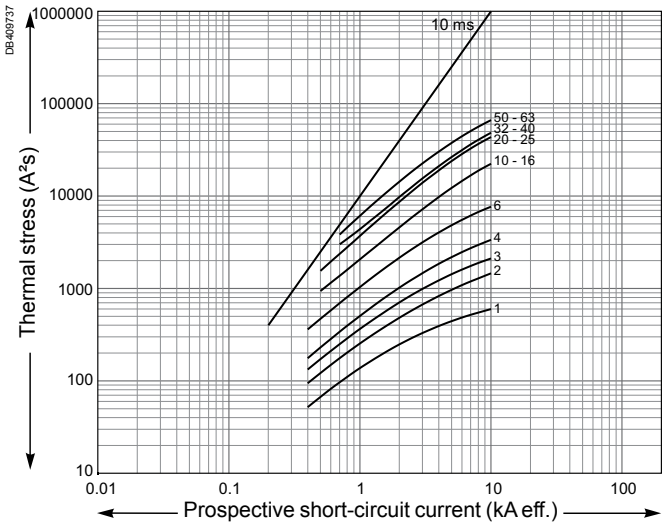
C60N

1P / 2P / 3P / 4P

Peak current



Thermal stress



Short-circuit current limiting (cont.)

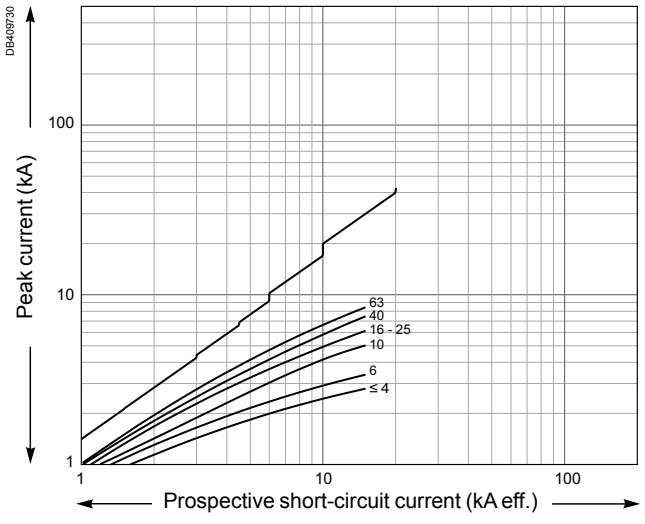
Ue: 380-415 V AC

Limitation curves for network
Ue: 380-415 V AC (Ph/N 220-240 V AC)

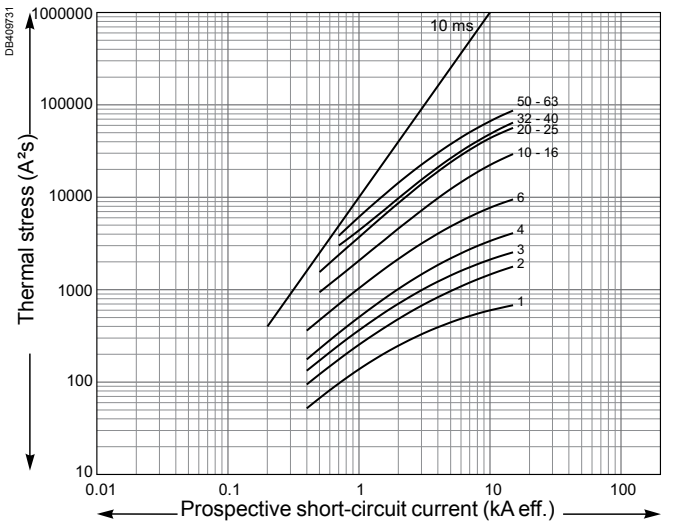
C60H

1P / 2P / 3P / 4P

Peak current



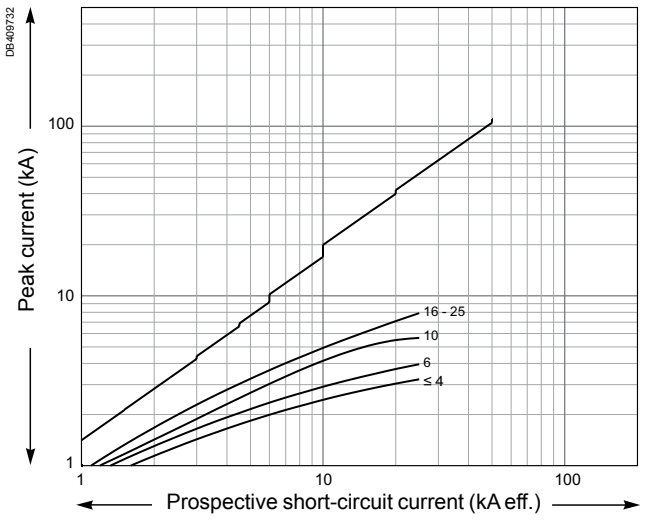
Thermal stress



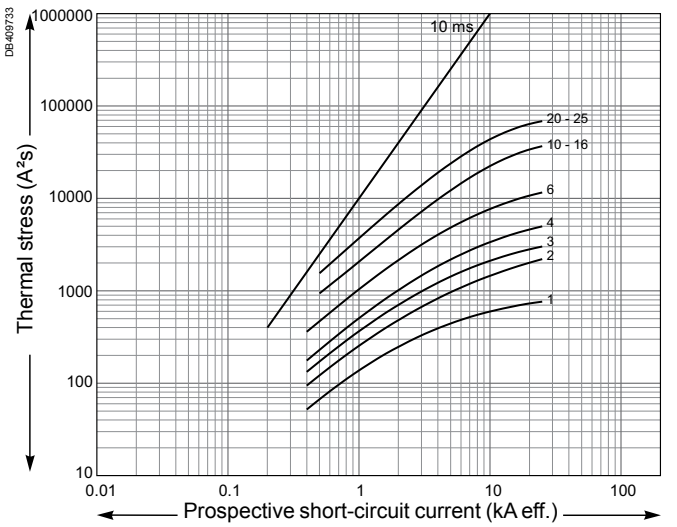
C60L

1P / 2P / 3P / 4P

Peak current



Thermal stress



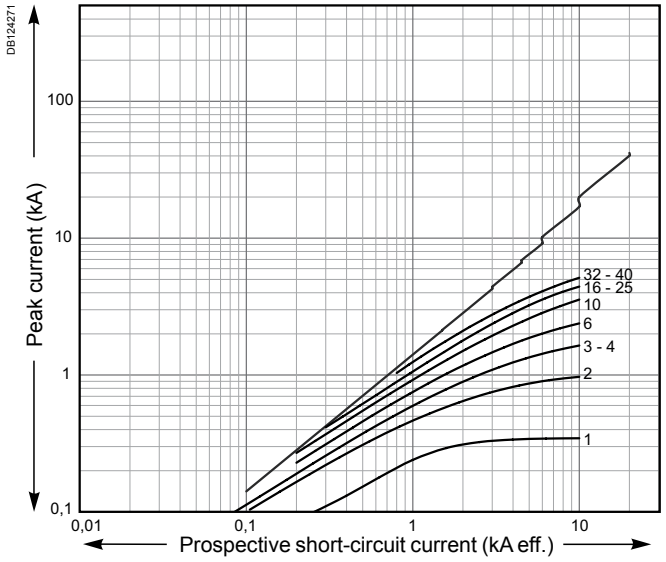
Short-circuit current limiting (cont.)
Ue: 380-415 V AC

Limitation curves for network
Ue: 380-415 V AC (Ph/N 220-240 V AC)

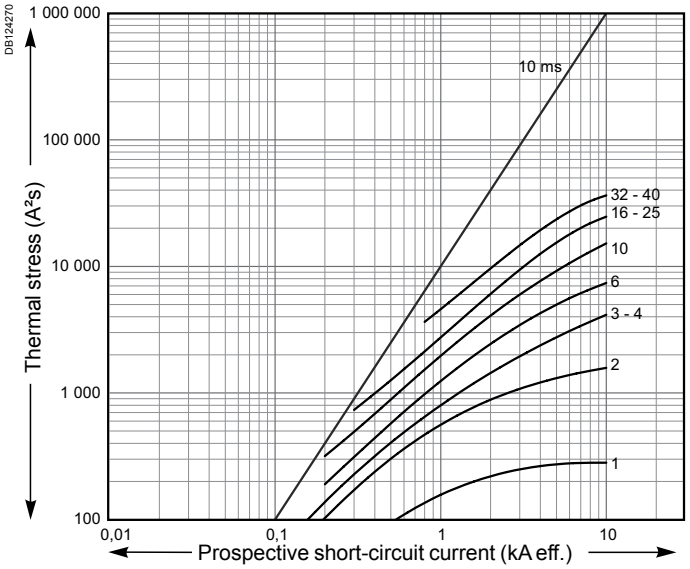
N40N, N40 Vigi

1P+N / 3P+N

Peak current



Thermal stress



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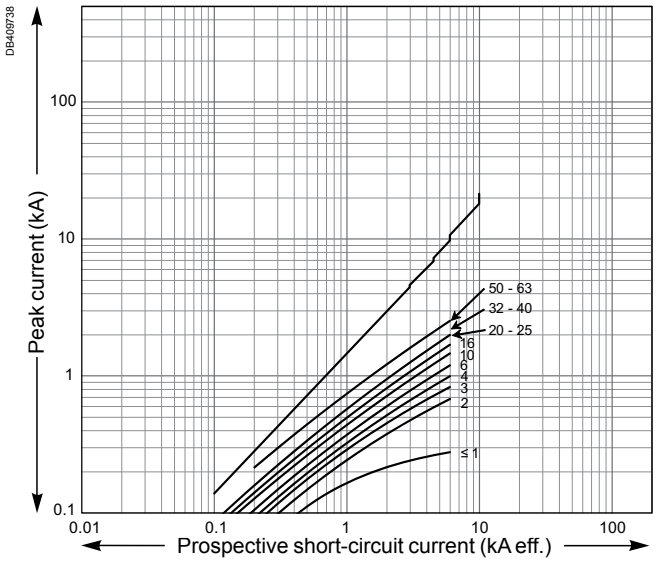
Limitation curves for direct current network

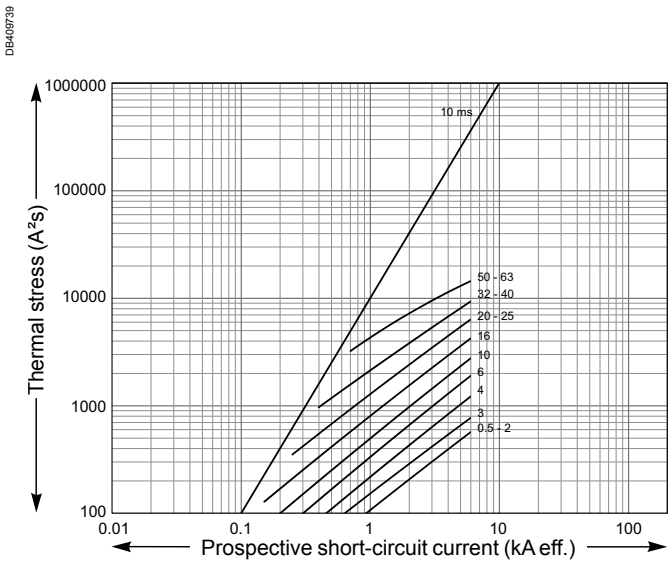
C60H-DC C curve

1P (250 V DC) - 2P (500 V DC)

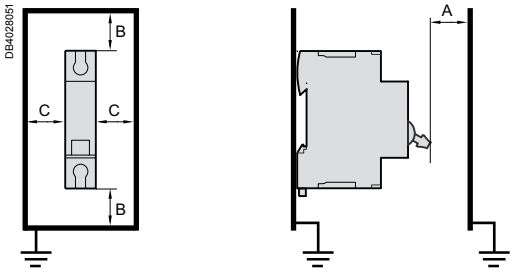
Peak current



Thermal stress



Minimum clearance bewteen device and bare sheet metal (mm/inches)



Details of minimum distances between the product and earthed metal parts for device intended for use without enclosure.

UL standard

Products	C60BP	C60BPR	C60SP, C60H-DC	GFP	Auxiliaries
A	10 mm/0.39 in.	10 mm/0.39 in.	10 mm/0.39 in.	10 mm/0.39 in.	10 mm/0.39 in.
B	16 mm/0.63 in.	16 mm/0.63 in.	20 mm/0.79 in.	20 mm/0.79 in.	20 mm/0.79 in.
C	0	0	0	0	0

IEC standard

Products	C60BP	C60BPR	C60SP, C60H-DC	C60N, C60H, C60L, C60CTRL	N40N	ID	N40 Vigi	Vigi modules	Auxiliaries
A	10 mm/0.39 in.	10 mm/0.39 in.	10 mm/0.39 in.	10 mm/0.39 in.	10 mm/0.39 in.	10 mm/0.39 in.	10 mm/0.39 in.	10 mm/0.39 in.	10 mm/0.39 in.
B	10 mm/0.39 in.	10 mm/0.39 in.	20 mm/0.79 in.	20 mm/0.79 in.	20 mm/0.79 in.	20 mm/0.79 in.	20 mm/0.79 in.	20 mm/0.79 in.	20 mm/0.79 in.
C	0	0	0	0	0	0	0	0	0

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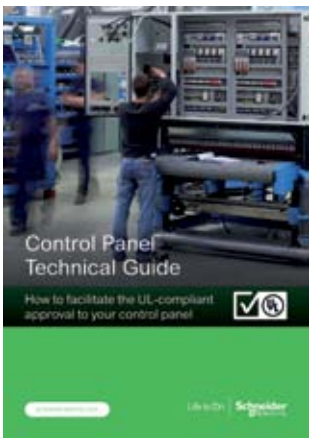

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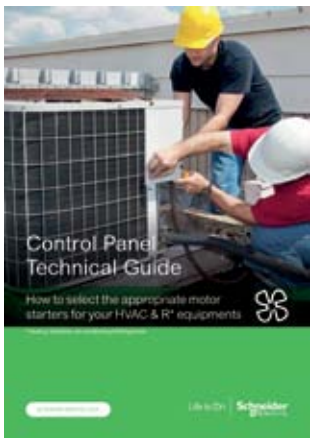

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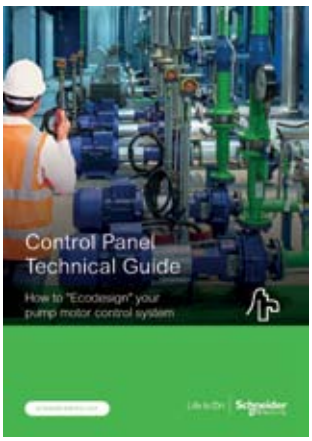

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