9 Series

Multi9

Catalog V2.10 6 july 2023

Multistandard protection for OEM applications

se.com

Life Is On Schneider Electric

Multi**9**
Multistandard circuit protection for OEM

About the Book

Legal information

The information provided in this Catalog contains description of Schneider Electric products, solutions and services (“Offer”) with technical specifications and technical characteristics of the performance of the corresponding Offer.

The content of this document is subject to revision at any time without notice due to continued progress in methodology, design and manufacturing.

To the extent permitted by applicable law, no responsibility or liability is assumed by Schneider Electric and its subsidiaries for any type of damages arising out of or in connection with (i) informational content of this Catalog not conforming with or exceeding the technical specifications, or (ii) any error contained in this Catalog, or (iii) any use, decision, act or omission made or taken on basis of or in reliance on any information contained or referred to in this Catalog.

SCHNEIDER ELECTRIC MAKES NO WARRANTY OR REPRESENTATION OF ANY KIND, WHETHER EXPRESS OR IMPLIED, AS TO WHETHER THIS CATALOG OR ANY INFORMATION CONTAINED THEREIN SUCH AS PRODUCTS AND SERVICES WILL MEET REQUIREMENTS, EXPECTATIONS OR PURPOSE OF ANY PERSON MAKING USE THEREOF.

Schneider Electric brand and any trademarks of Schneider Electric and its subsidiaries referred to in this Catalog are property of Schneider Electric or its subsidiaries. All other brands are trademarks of their respective owners.

This Catalog and its content are protected under applicable copyright laws and provided for informative use only. No part of this Catalog may be reproduced or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise), for any purpose, without the prior written permission of Schneider Electric.

Copyright, intellectual, and all other proprietary rights in the content of this Catalog (including but not limited to software, audio, video, text, and photographs) rests with Schneider Electric or its licensors. All rights in such content not expressly granted herein are reserved. No rights of any kind are licensed or assigned or shall otherwise pass to persons accessing this information.

Trademarks

QR Code is a registered trademark of DENSO WAVE INCORPORATED in Japan and other countries.

Green Premium™

Schneider Electric's commitment to deliver products with best-in-class environmental performance.

Green Premium™

More than 75% of our product sales offer superior transparency on the material content, regulatory information and environmental impact of our products:

- RoHS compliance
- REACh substance information
- Industry leading # of PEP's*
- Circularity instructions

Green Premium promises compliance with the latest regulations, transparency on environmental impacts as well as circular and low-CO2 products.

CO_2 and P&L impact through… Resource Performance

Green Premium brings improved resource efficiency throughout an asset's lifecycle. This includes efficient use of energy and natural resources, along with the minimization of CO_2 emissions.

Cost of ownership optimization through… Circular Performance

We're helping our customers optimize the total cost of ownership of their assets. To do this, we provide IoT-enabled solutions, as well as upgrade, repair, retrofit, and remanufacture services.

Peace of mind through… Well-being Performance

Green Premium products are RoHS and REACh compliant. We're going beyond regulatory compliance with step-by-step substitution of certain materials and substances from our products.

Improved sales through… Differentiation

Green Premium delivers strong value propositions through third-party labels and services. By collaborating with third-party organizations we can support our customers in meeting their sustainability goals such as green building certifications.

*PEP: Product Environmental Profile (i.e. Environmental Product Declaration)

Learn more about Green Premium

Version : 2.10 - 06/07/2023
LVCATM9OEM_EN

Multi**9** has been designed to offer enhanced protection by preventing and protecting people and equipment from electrical threats such as short circuits, earth leakages, overloads, and more.

A comprehensive range for enhanced protection against electrical threats.

Multi**9**™ is a range of DIN rail modular devices, a solution offering great performance. Multi**9** range is built to meet the major standards for industry applications. Designed to meet your needs for most types of machines, it offers a wide range of modular devices providing protection, signalling functions and accessories.

Renowned quality

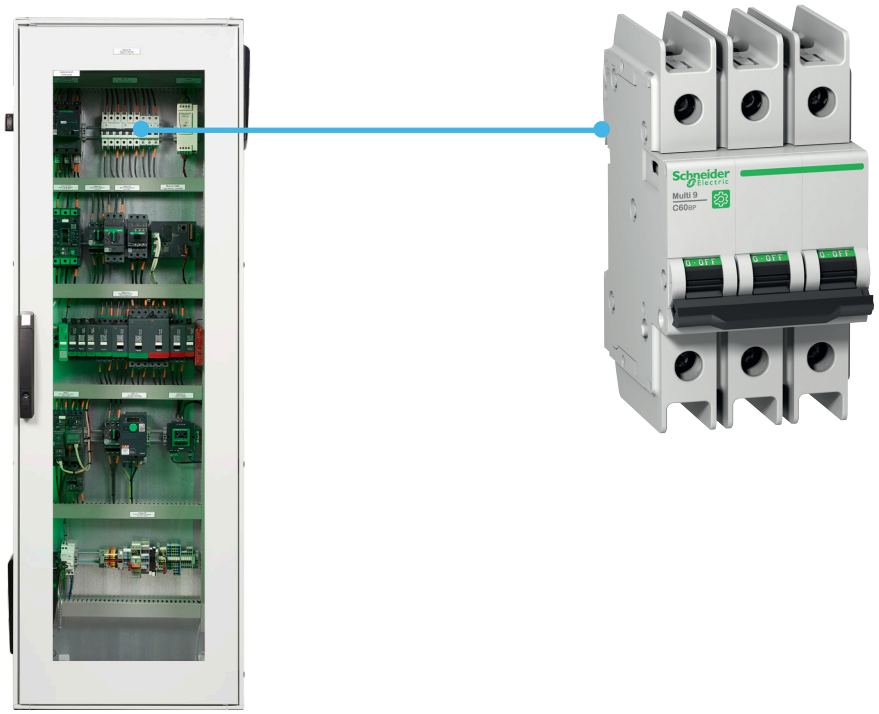
World leader's proven technology and experience.

Available worldwide

Sold under the same commercial reference.

Optimized

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



Multi-standard

Multi**9** covers all standards for industry application: UL/CSA for North America, IEC, EAC, CCC and others for the rest of the world. It allows a unique panel design

Optimized references which is easy to select

- Time-saving
- Easy to procure and install
- Meaningful commercial references

Wide range of offers to cover all functions in a control panel

Wide range of solutions that are customized to fit your efficiency and sustainability needs

Sustainable with Green Premium Compliance

- 70% of the packaging is made with recycled cardboard
- Green Premium™ products are RoHS and REACh compliant

Multi-standard

Multi**9** - range with advanced protection

Designed to offer enhanced protection by preventing and protecting people and equipment from electrical threats such as short circuits, earth leakages, overloads and more.

Miniature Circuit Breakers

Protection against short circuits and overcurrent faults ensuring uninterrupted functionality..

- Ensures no accidental contact with live part – Finger-proof IP-20 terminals
- Avoids false insertion of cables and loose termination with Pull up terminals
- Total Flexibility : Line-Load reversibility
- Low cost with higher performance: Cascading. Cascading charts available From ACB-MCCB-MCB level.
- Reduce Downtime: Discrimination. Discrimination charts available From ACB-MCCB-MCB level
- Easy Installation: Bi – connect terminals
- Increased service life: Fast Closing mechanism
- Environmentally friendly with 100% recyclable & recoverable materials.

Residual Current Devices

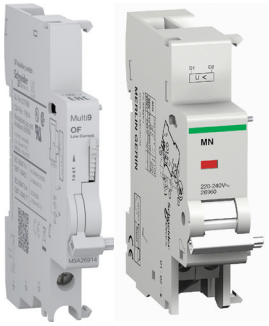
Safe and reliable protection against earth fault, fire protection and electrocution ensuring people's safety, delivering efficiency and service continuity.

- Easy monitoring: Earth fault indication on front face
- Immunity against nuisance tripping
- New SI RCDs offers enhanced immunity to electrical disturbances and polluted & corrosive environments
- Easy Installation: bi-connect terminals
- Field fittable auxiliaries for advanced protection & monitoring

Surge Protective Devices

Surge protection, harmonic filtering and voltage regulation from home to the data center to industrial environments.

- Affordable – An affordable way to protect your infrastructure from potential hazards.
- Easy Repair & Replacement – Surge Protective Devices protect your electrical devices from burnout and expand their lifespan.
- Reduced Maintenance Costs – Because surge Protective Devices limit excessive voltage, they can protect your appliances, HVAC system, and more. Thus reducing the number of maintenance calls you make.



Indication and Tripping Auxiliaries

OF, SD, OF/SD+OF for standard (from 100 mA to 6 A) and advanced (from 2 mA to 100 mA) applications.

- Compliant in harsh environments with low current auxiliaries.
- Optimize your wiring (less wires and wiring time) inside a panel with the daisy chain architecture with low current auxiliaries.
- Monitor up to 100 protective devices (permanently close) under the daisy chain.
- Tripping auxiliaries: MN, MX
- Instantaneous or delayed option: independent of the supply voltage.

Wide range of offers to cover all functions in a Control Panels

Fully compliant with all industry standards, Multi**9** is ideally suited for all types of machine and equipment, providing you not only with protection but plenty of accessories as well as signaling functions.

Time saving

Easy to buy from same vendor and install

Easy coordination

Easy warranty and maintenance

PLC (Programmable Logic Controllers)

Control and monitor industrial operations in a sustainable, flexible, efficient and protected way. Our PLCs and PACs supply edge technology, augmenting it with Ethernet connectivity, built-in cybersecurity, and processing power needed to handle Big Data analysis and protecting against new vulnerabilities among connected industrial assets, across devices or into the cloud.

Push buttons

Ensure robust, safe, ergonomic and easy control of machines and manufacturing lines delivering efficiency and effectiveness.

HMI

Simple and effective means of connecting systems, collecting data and presenting information. Perform diagnostics, add control and adjust system settings on simple or compact applications from the smallest text display to the most sophisticated industrial PC.

Speed drives

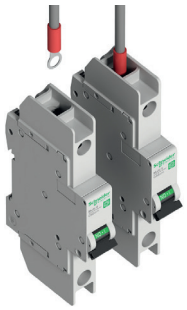
Powerful and reliable combination for your motor control solutions made to the highest quality level to meet your needs in various applications, such as industrial processes, machines or buildings.

Multi**9** Range Highlights

C60BP

Miniature circuit breaker for Branch Protection

- 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

Miniature circuit breaker for Branch Protection with Ring terminal

- 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 ready to wire as delivered open.

C60SP

Miniature Circuit Breaker for Supplementary Protection

- UL 1077, CSA, IEC and CCC certified
- UL 1077 performances: up to 63A in 480 Y/277 V
- B, C & D curves

C60N/H/L

Miniature Circuit Breaker for IEC zone

- IEC/EN 60947-2 and CCC certified
- Up to 20 kA (440 V)
- B, C & D curves

C60H-DC

Miniature circuit breaker, “H” breaking capacity for Direct Current applications

- UL1077, IEC, CCC certified,
- To protect your direct current applications up to 500 V DC
- B, C & K curves

Vigi C60

Residual Current Device

- IEC/EN 61009-1

Multi**9** Range Highlights

Surge Protective Devices

Surge protection, harmonic filtering and voltage regulation from home to the data center to industrial environments.

- UL 1449 4th Edition Recognized, CSA C22.2 No. 269.4-17, 1st Edition

PowerTag Energy

PowerTag Energy is a wireless-communication energy sensor
PowerTag Energy is designed specifically for Energy Management, Load Monitoring and Power Availability applications.
Associated to a concentrator or a gateway, PowerTag Energy provides a full wireless class 1 solution to monitor energy at any level of a distribution panel.
Suitable for industrial and machine applications, PowerTag Energy sensor incorporates all features required to perform accurate real-time measurements (U, V, I, P, PF) and energy values up to 160 A.
Advantages:

- Wireless-communication
- Voltage loss alarming
- Class 1 accuracy
- Compact design
- Easy installation and commissioning
- Scalable solution
- Perfect for retrofit or new panels

See PowerLogic Catalog PLSED309005EN

Click on
QR Code or scan
to download

Multi**9**
Multistandard circuit protection for OEM

Multi9 C60BP - Z, C, D curves – Tunnel terminals

DB105727 DB105728 DB405227

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

As per the above standards:

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

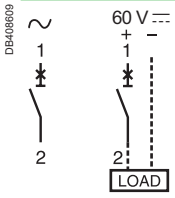
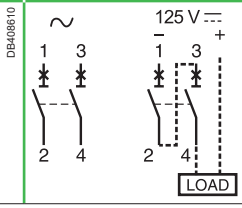
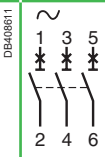
- circuit protection against short-circuit currents
- circuit protection against overload currents
- tripping and electrical fault indication by the addition of auxiliaries.

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	10
	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

Catalog numbers

Tunnel terminal connection											
Type	UL489 and CSA voltages	1P				2P			3P		
Rating (In)		Curve Z	C	D (=K)	Width in 9 mm (0.35 in) modules	Curve C	D (=K)	Width in 9 mm (0.35 in) modules	Curve C	D (=K)	Width in 9 mm (0.35 in) 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	
7		-	M9F42107	-		M9F42207	-		-	-	
8		M9F44108	M9F42108	M9F43108		M9F42208	M9F43208		M9F42308	M9F43308	
10		M9F44110	M9F42110	M9F43110		M9F42210	M9F43210		M9F42310	M9F43310	
13		-	M9F42113	-		M9F42213	-		-	-	
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	-		M9F42245	-		M9F42345	-	
50		M9F44150	M9F42150	-		M9F42250	-		M9F42350	-	
63		M9F44163	M9F42163	-		M9F42263	-		M9F42363	-	
Auxiliaries		Remote indication and tripping, see page 55									
Accessories		See page 72									

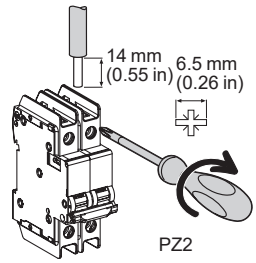
Multi9 C60BP - Z, C, D curves – Tunnel terminals (cont.)

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

DB409742



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

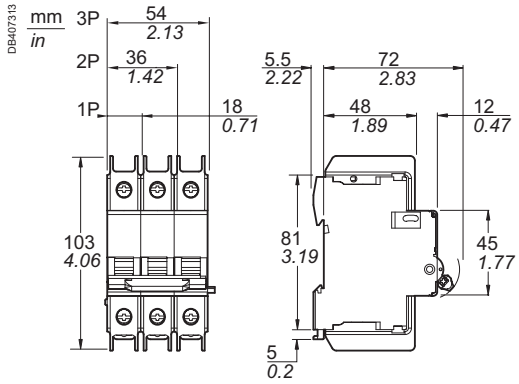
(*) See Copper Multi-cable connection chapter for more information, page 113.

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

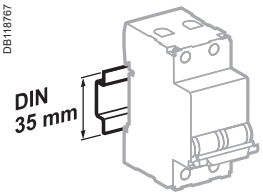
Dimensions (mm / inches)

DB407313



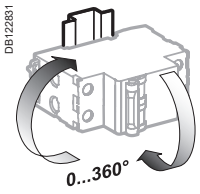
C60BP Tunnel terminal

DB118767



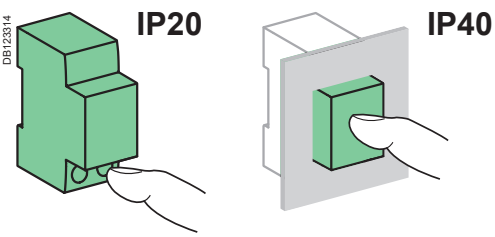
Clip on DIN rail 35 mm (1.38 in)

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 104

Railways

Type	1P	2P	3P
Mass of combustible material	**46.4 g / 1.64 oz**	**93.8 g / 3.31 oz**	**139.2 g / 4.91 oz**
Type of combustible material	PA66 GF25 FR		
Fire and smoke requirements (EN 45545-2)	HL3 R22 / HL3 R23		
Resistance to shocks and vibrations (IEC 61373)	■ Category 1 ■ Class B		

Multi**9** C60BPR - Z, C, D curves – Ring-tongue terminals

DB105727 DB105728 DB405227

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

As per the above standards:

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 electrical fault indication by the addition of auxiliaries
- IP2X ring tongue terminal connection.

PB116667-40 PB116668-40

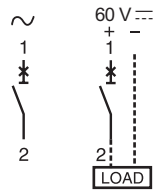
Number of 18 mm (0.71 in) poles	Rating (A) 25°C/77°F	Breaking capacity (kA rms) AIR UL 489 / CSA C22.2 No 5				Icu IEC 60947-2			
	Voltage (Ue)	277 V ~	240 V ~	120 V ~	60 V ⎓	440 V ~	415 V ~	240 V ~	60 V ⎓
1P	1 to 35	10	14	14	10	-	3	10	20
	40 to 63	-	10	10	10	-	3	10	20
	Voltage (Ue)	480Y/277 V ~		240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

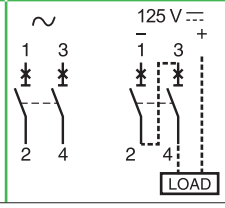
1P

DB408609



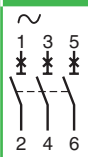
2P

DB408610



3P

DB408611



Catalog numbers

Ring tongue terminal connection

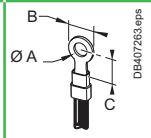
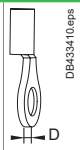
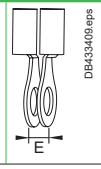
Type	UL489 and CSA voltages	1P				2P			3P		
Rating (In)		Curve Z	C	D (=K)	Width in 9 mm (0.35 in) modules	Curve C	D (=K)	Width in 9 mm (0.35 in) modules	Curve C	D (=K)	Width in 9 mm (0.35 in) modules
C60BPR											
1	480Y/277 V and 240 V	-	M9F52101	M9F53101	2	M9F52201	M9F53201	4	M9F52301	M9F53301	6
2		-	M9F52102	-		M9F52202	M9F53202		M9F52302	M9F53302	
4		-	M9F52104	M9F53104		M9F52204	M9F53204		M9F52304	M9F53304	
6		-	M9F52106	M9F53106		M9F52206	M9F53206		M9F52306	M9F53306	
8		-	M9F52108	M9F53108		M9F52208	M9F53208		M9F52308	M9F53308	
10		-	M9F52110	M9F53110		M9F52210	M9F53210		M9F52310	M9F53310	
15		-	M9F52115	M9F53115		M9F52215	M9F53215		M9F52315	M9F53315	
20		-	M9F52120	M9F53120		M9F52220	M9F53220		M9F52320	M9F53320	
25		-	M9F52125	M9F53125		M9F52225	M9F53225		M9F52325	M9F53325	
30		-	M9F52130	M9F53130		M9F52230	M9F53230		M9F52330	M9F53330	
35		-	M9F52135	M9F53135		M9F52235	M9F53235		M9F52335	M9F53335	
40	240 V only	M9F54140	M9F52140	M9F53140	2	M9F52240	M9F53240	4	M9F52340	M9F53340	6
45		-	M9F52145	-		M9F52245	-		M9F52345	-	
50		-	M9F52150	-		M9F52250	-		M9F52350	-	
63		-	M9F52163	-		M9F52263	-		M9F52363	-	
Auxiliaries		Remote indication and tripping, see page 55									
Accessories		See page 72									

Multi9 C60BPR - 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

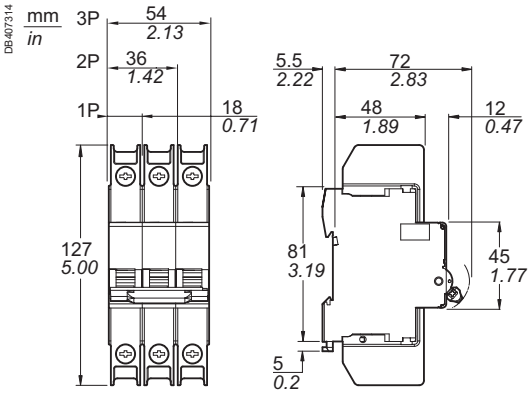
		With accessory		
Rating	**Tightening torque**	**Screw-on connection for ring terminal**		
1 to 63 A	2 N.m (18 lb.in)			
		A: Ø 6 mm (Ø 0.24 in) B: 12 mm +0.4/-2 (0.47 in +0.02/-0.08) C: 7.15 mm (0.28 in) minimum value	D: 3 mm (0.12 in) maxi or E: 2 x 1.5 mm (2 x 0.06 in)	

Note: Please check instruction sheet QGH7334601 for proper cable insertion

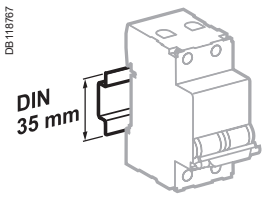
Weight (g / oz)

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

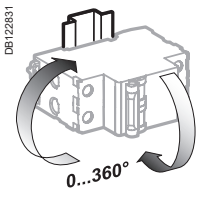
Dimensions



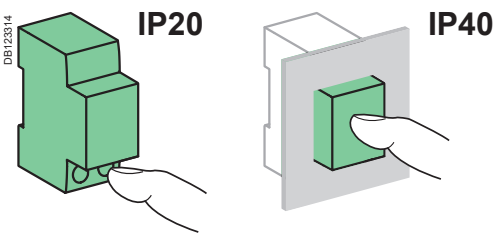
C60BPR Ring tongue terminal



Clip on DIN rail 35 mm (1.38 in)



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 104

Railways			
Type	**1P**	**2P**	**3P**
Mass of combustible material	**46.4 g / 1.64 oz**	**93.8 g / 3.31 oz**	**139.2 g / 4.91 oz**
Type of combustible material	PA66 GF25 FR		
Fire and smoke requirements (EN 45545-2)	HL3 R22 / HL3 R23		
Resistance to shocks and vibrations (IEC 61373)	■ Category 1 ■ Class B		

Multi**9** C60SP - B, C, D curves – Tunnels terminals

DB105730 DB105729 DB405227

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

As per the above standards:

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 electrical fault indication by the addition of auxiliaries.

PB116660-40

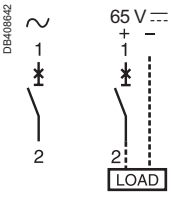
Number of 18 mm (0.71 in) poles	Rating (A) 25°C/77°F	Breaking capacity (kA rms) AIR UL 1077 / CSA C22.2 No 235				Icu IEC 60947-2			
	Voltage (Ue)	277 V ~	240 V ~	120 V ~	65 V ⎓	440 V ~	415 V ~	240 V ~	60 V ⎓
1P	0.5 to 32	10	14	14	10	-	3	10	20
	40 to 63	5	10	10	10	-	3	10	20
	Voltage (Ue)	480Y/277 V ~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

PB116661-40

Electrical diagrams

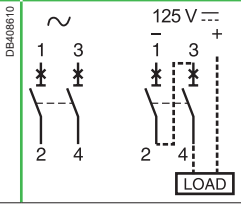
1P

DB408642



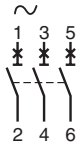
2P

DB408610



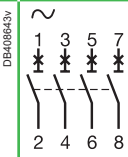
3P

DB408611



4P

DB408643v



Catalog numbers

Tunnel terminal connection

Type	1P				2P			
Rating (In)	Curve B	Curve C	Curve D (=K)	Width in 9 mm (0.35 in) modules	Curve B	Curve C	Curve D (=K)	Width in 9 mm (0.35 in) 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**	-		**M9F21245**	**M9F22245**	-	
50	**M9F21150**	**M9F22150**	-		**M9F21250**	**M9F22250**	-	
63	**M9F21163**	**M9F22163**	-		**M9F21263**	**M9F22263**	-	
Auxiliaries	**Remote indication and tripping, see page 55**							
Accessories	**See page 72**							

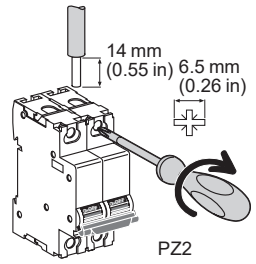
Multi9 C60SP - B, C, D curves – Tunnels terminals (cont.)

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

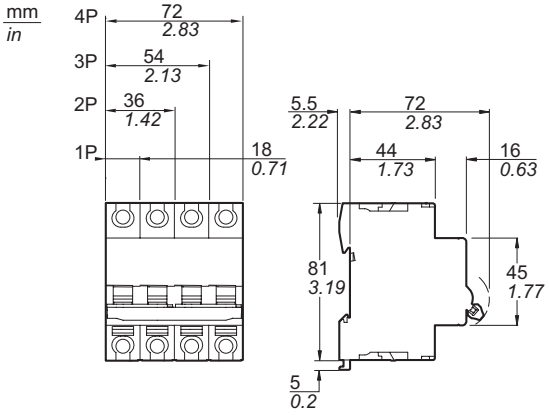
(*) See Copper Multi-cable connection chapter for more information, page 113.

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)

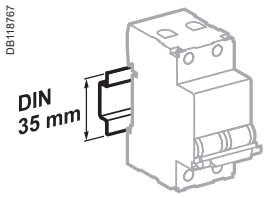
DB407311



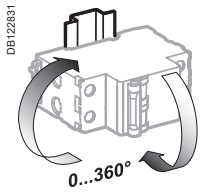
C60SP Tunnel terminal connection

3P				4P			
Curve			Width in 9 mm (0.35 in) modules	Curve			Width in 9 mm (0.35 in) 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**	-		**M9F21445**	**M9F22445**	-	
M9F21350	**M9F22350**	-		**M9F21450**	**M9F22450**	-	
M9F21363	**M9F22363**	-		**M9F21463**	**M9F22463**	-	

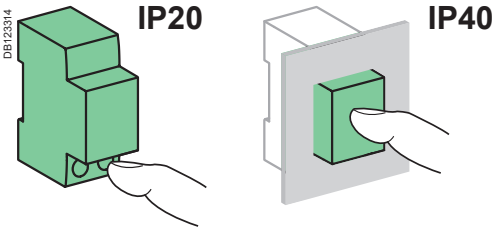
Multi**9** C60SP - B, C, D curves – Tunnels terminals (cont.)



Clip on DIN rail 35 mm (1.38 in)



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	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 104

Railways

Type	1P	2P	3P	4P
Mass of combustible material	**46.4 g / 1.64 oz**	**93.8 g / 3.31 oz**	**139.2 g / 4.91 oz**	**185.6 g / 6.55 oz**
Type of combustible material	PA66 GF25 FR			
Fire and smoke requirements (EN 45545-2)	HL3 R22 / HL3 R23			
Resistance to shocks and vibrations (IEC 61373)	■ Category 1 ■ Class B			

Multi**9** C60H-DC - B, C, K curves – Tunnels terminals
For DC circuits only

DB105730 DB405227

IEC/EN 60947-2, GB 14048.2, UL1077

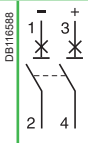
As per the above standards:
C60H-DC are multi-standard miniature circuit breakers and supplementary protection as defined by UL 1077 dedicated to direct current. It combines following functions:
- circuit protection against short-circuit currents,
- circuit protection against overload currents,
- tripping and electrical 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

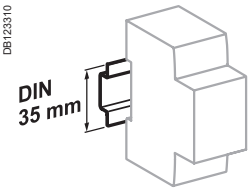
1P	2P	
		
Supply from above or below, observing the polarity	Supply from above	or Supply from below

Catalog numbers

C60H-DC							
Type	**1P**			**2P**			
Rating (In)	**Curve** C	**Curve** D (=K)	**Width in 9 mm (0.35 in) modules**	**Curve** B	**Curve** C	**Curve** D (=K)	**Width in 9 mm (0.35 in) modules**
C60H-DC							
0.5	**M9U21170**	-	2	-	**M9U21270**	-	4
1	**M9U21101**	-		-	**M9U21201**	-	
2	**M9U21102**	-		-	**M9U21202**	-	
3	**M9U21103**	-		-	**M9U21203**	-	
4	**M9U21104**	-		-	**M9U21204**	-	
6	**M9U21106**	-		**M9U11206**	**M9U21206**	**M9U31206**	
10	**M9U21110**	-		**M9U11210**	**M9U21210**	**M9U31210**	
13	**M9U21113**	-		**M9U11213**	**M9U21213**	-	
16	**M9U21116**	-		**M9U11216**	**M9U21216**	-	
20	**M9U21120**	-		-	**M9U21220**	**M9U31220**	
25	**M9U21125**	-		-	**M9U21225**	**M9U31225**	
32	**M9U21132**	-		**M9U11232**	**M9U21232**	**M9U31232**	
40	**M9U21140**	**M9U31140**		-	**M9U21240**	**M9U31240**	
50	**M9U21150**	-		**M9U11250**	**M9U21250**	**M9U31250**	
63	**M9U21163**	**M9U31163**		-	**M9U21263**	**M9U31263**	
Auxiliaries	**Remote indication and tripping, see page 55**						
Accessories	**See page 72**						

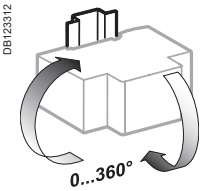
Multi**9** C60H-DC - B, C, K curves – Tunnels terminals
For DC circuits only (cont.)

DB123310



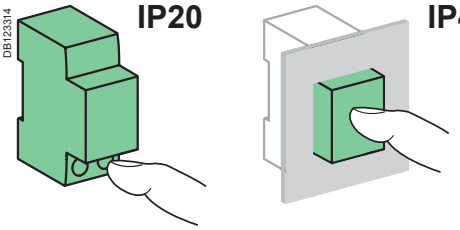
Clip on DIN rail 35 mm (1.38 in)

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 104

DB406064

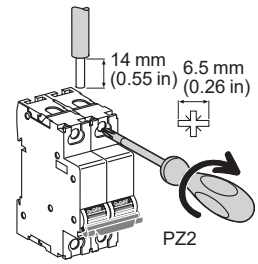
Failure to match polarity during connection may lead to a fire hazard and/or serious injury.
- **The connection polarity must be observed (marked on the front panel).**
- **Use only with direct current.**
- **If two poles are used in series for the American network, use at least a 12 inch / 30 cm cable.**

Weight (g / oz)

Circuit breaker	
Type	**C60**H-DC
1P	128 g / 4.51 oz
2P	256 g / 9.03 oz

Connection

DB123537

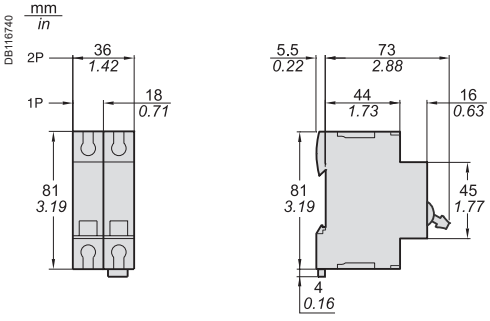


Rating	Tightening torque	Without accessory Copper cables (*) Rigid, flexible or with ferrule	
		DB122945	DB122946
		IEC 60947-2	UL 486A-B
0.5 to 25 A	2.5 N.m (22 lb.in)	1 to 25 mm²	AWG #18 to #8
30 to 63 A	3.5 N.m (31 lb.in)	1 to 35 mm²	AWG #18 to #2

(*) See Copper Multi-cable connection chapter for more information, page 113.

Dimensions (mm / inches)

DB116740



C60H-DC

Railways		
Type	**1P**	**2P**
Mass of combustible material	**39.3 g / 1.39 oz**	**78.6 g / 2.77 oz**
Type of combustible material	PA6 GF20 FR	
Fire and smoke requirements (EN 45545-2)	HL2 R22 / HL2 R23	
Resistance to shocks and vibrations (IEC 61373)	■ Category 1 ■ Class B	


1
Schneider Electric
Automatic Shrink Wrap Machine
Speed
164
/Min
79.9
19.4
753
Status Monitor
Start
Stop
Reset
154C
Transform
Translate
Rotate
Scale
Mirror
Edit
Duplicate
Duplicate Linked
Delete
Cell Fracture
Cell Fracture
History

IEC DB405227

C60N 1P

C60N 3P

C60N 2P

C60N 4P

IEC/EN 60947-2

As per the above standards:

- 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.
- A green strip on the toggle indicates full opening of all the poles allowing downstream maintenance operation.

- 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.
- Compatible with PowerTag Energy (for 2P, only 200… 240 V AC)

Positive contact indication

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

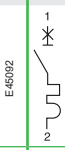
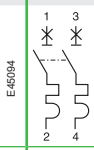
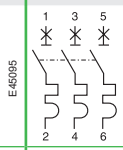
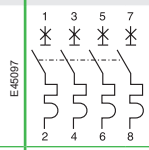
Alternating current (AC) 50/60 Hz					
Ultimate breaking capacity (Icu) as per IEC/EN 60947-2					**Service breaking capacity (Ics)**
	Voltage (Ue)				
Ph/Ph (2P, 3P, 4P)	**240 V**	**415 V**	**-**	**440 V**	
Ph/N (1P)	**-**	**240 V**	**415 V**	**-**	
Rating (In) 1 to 63 A	20 kA	10 kA	3 kA(*)	6 kA	75 % of Icu
i_{Γ}	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**	**≤ 180 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

Catalog numbers

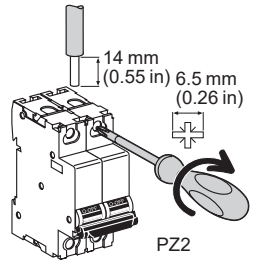
C60N circuit breaker

Type	1P			2P			3P			4P		
												
Rating (In)	**Curve**			**Curve**			**Curve**			**Curve**		
	B	**C**	**D**	**B**	**C**	**D**	**B**	**C**	**D**	**B**	**C**	**D**
1 A	-	**M9F11101**	**M9F12101**	-	**M9F11201**	-	-	**M9F11301**	-	-	-	-
2 A	**M9F10102**	**M9F11102**	**M9F12102**	-	**M9F11202**	**M9F12202**	-	**M9F11302**	**M9F12302**	-	-	-
3 A	-	**M9F11103**	**M9F12103**	-	**M9F11203**	**M9F12203**	-	**M9F11303**	-	-	**M9F11403**	-
4 A	**M9F10104**	**M9F11104**	**M9F12104**	-	**M9F11204**	**M9F12204**	-	**M9F11304**	**M9F12304**	**M9F10404**	-	-
6 A	-	**M9F11106**	**M9F12106**	**M9F10206**	**M9F11206**	**M9F12206**	-	**M9F11306**	**M9F12306**	-	-	**M9F12406**
10 A	**M9F10110**	**M9F11110**	**M9F12110**	**M9F10210**	**M9F11210**	**M9F12210**	-	**M9F11310**	**M9F12310**	-	**M9F11410**	**M9F12410**
13 A	-	-	-	**M9F10213**	-	-	-	-	**M9F12313**	-	-	-
16 A	**M9F10116**	**M9F11116**	-	**M9F10216**	**M9F11216**	**M9F12216**	-	**M9F11316**	**M9F12316**	**M9F10416**	**M9F11416**	**M9F12416**
20 A	-	**M9F11120**	-	**M9F10220**	**M9F11220**	**M9F12220**	-	**M9F11320**	**M9F12320**	**M9F10420**	**M9F11420**	-
25 A	-	**M9F11125**	**M9F12125**	-	**M9F11225**	**M9F12225**	-	**M9F11325**	**M9F12325**	**M9F10425**	**M9F11425**	-
32 A	-	**M9F11132**	-	-	**M9F11232**	**M9F12232**	**M9F10332**	**M9F11332**	**M9F12332**	**M9F10432**	**M9F11432**	-
40 A	-	**M9F11140**	-	**M9F10240**	**M9F11240**	**M9F12240**	-	**M9F11340**	-	-	**M9F11440**	-
50 A	-	**M9F11150**	-	-	**M9F11250**	-	**M9F10350**	**M9F11350**	-	**M9F10450**	**M9F11450**	-
63 A	-	**M9F11163**	-	-	**M9F11263**	-	**M9F10363**	**M9F11363**	-	**M9F10463**	**M9F11463**	-
Width in 9-mm (0.35 in) mod.	2			4			6			8		
Vigi C60	**See page 44**											
Auxiliaries	**See page 55**											
Accessories	**See page 55**											
PowerTag energy sensors	**See PowerLogic catalog: PLSED309005EN**											

Multi9 C60N - B, C, D curves (cont.)

Connection

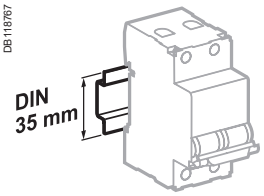
DB123060



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 #8
32 to 63 A	3.5 N.m / 31 lb.in	1 to 35 mm²	AWG #18 to #2

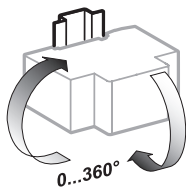
(*) See Copper Multi-cable connection chapter for more information, page 113.

DB118767



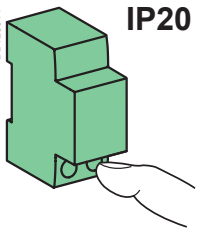
Clip on DIN rail 35 mm (1.38 in)

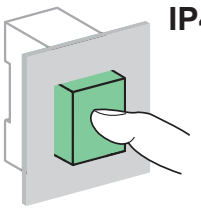
DB123312



Indifferent position of installation.

DB123314





Technical data

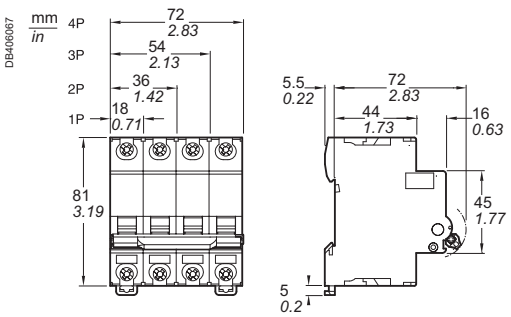
According to IEC/EN 60947-2			
Insulation voltage (Ui)			500 V AC
Pollution degree			3
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		50°C / 122°F
Magnetic tripping (Ii)	B curve	in alternative current	4 In ± 20 %
		in direct current	5.7 In (± 20 %)
	C curve	in alternative 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 104

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)

DB406067



Multi9 C60H - B, C, D curves

IEC DB405227

PB111747-40

C60H 1P

PB111752-40

C60H 3P

PB111750-40

C60H 2P

PB111755-40

C60H 4P

IEC/EN 60947-2

As per the above standards:

- 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.
- A green strip on the toggle indicates full opening of all the poles allowing downstream maintenance operation.

- 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.
- Compatible with PowerTag Energy

Positive contact indication

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

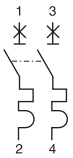
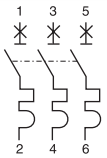
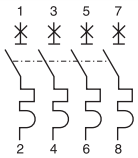
Alternating current (AC) 50/60 Hz					
Ultimate breaking capacity (Icu) as per IEC/EN 60947-2					**Service breaking capacity (Ics)**
	Voltage (Ue)				
Ph/Ph (2P, 3P, 4P)	**240 V**	**415 V**	**-**	**440 V**	
Ph/N (1P)	**-**	**240 V**	**415 V**	**-**	
Rating (In) 1 to 40 A	30 kA	15 kA	3 kA(*)	10 kA	50 % of Icu
i_{rr}	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**	**≤ 180 V**	**≤ 250 V**	
Number of poles	**1P**	**2P**	**3P**	**4P**	
Rating (In) 1 to 40 A	20 kA	25 kA	40 kA	50 kA	100 % of Icu

Catalog numbers

C60N circuit breaker

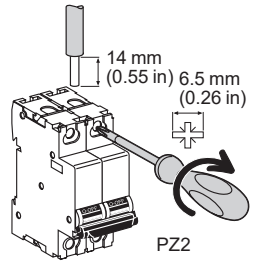
Type	1P		2P	3P			4P		
	E45092 		E45094 	E45095 			E45097 		
Rating (In)	**Curve**		**Curve**	**Curve**			**Curve**		
	C	**D**	**C**	**B**	**C**	**D**	**B**	**C**	**D**
2 A	**M9F14102**	-	-	-	-	**M9F15302**	**M9F13402**	-	-
6 A	**M9F14106**	-	**M9F14206**	-	**M9F14306**	-	-	**M9F14406**	**M9F15406**
10 A	**M9F14110**	-	**M9F14210**	**M9F13310**	**M9F14310**	**M9F15310**	**M9F13410**	-	-
13 A	-	-	-	-	-	**M9F15313**	-	-	-
16 A	-	-	**M9F14216**	-	**M9F14316**	-	**M9F13416**	-	-
20 A	-	**M9F15120**	**M9F14220**	-	**M9F14320**	**M9F15320**	-	-	-
25 A	-	-	**M9F14225**	-	-	-	-	**M9F14425**	-
32 A	-	-	**M9F14232**	-	**M9F14332**	-	**M9F13432**	**M9F14432**	-
40 A	-	-	**M9F14240**	-	-	-	-	-	-
Width in 9-mm (0.35 in) mod.	2		4	6			8		

Vigi C60	**See page 44**
Auxiliaries	**See page 55**
Accessories	**See page 72**
PowerTag energy sensors	**See PowerLogic catalog: PLSED309005EN**

Multi9 C60H - B, C, D curves (cont.)

Connection

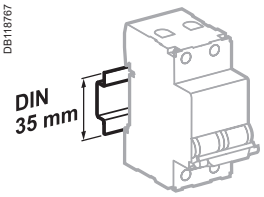
DB123060



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 #8
32 and 40 A	3.5 N.m / 31 lb.in	1 to 35 mm²	AWG #18 to #2

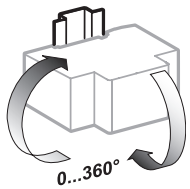
(*) See Copper Multi-cable connection chapter for more information, page 113.

DB118767



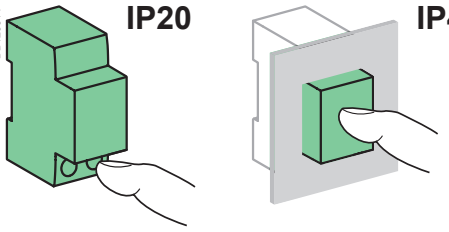
Clip on DIN rail 35 mm (1.38 in)

DB123312



Indifferent position of installation.

DB123314



Technical data

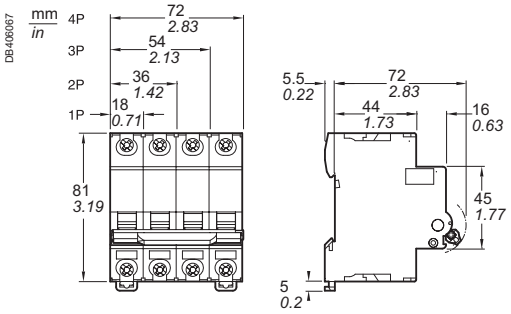
According to IEC/EN 60947-2			
Insulation voltage (Ui)			500 V AC
Pollution degree			3
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		50°C / 122°F
Magnetic tripping (Ii)	B curve	in alternative current	4 In ± 20 %
		in direct current	5.7 In (± 20 %)
	C curve	in alternative 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 104

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)

DB486067



IEC

C60L 1P

C60L 3P

C60L 2P

C60L 4P

IEC/EN 60947-2

As per the above standards:

- 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.
- A green strip on the toggle indicates full opening of all the poles allowing downstream maintenance operation.

- 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.
- Compatible with PowerTag Energy

Positive contact indication

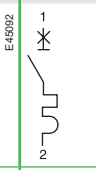
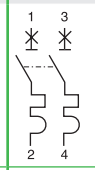
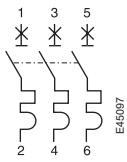
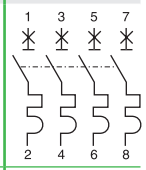
- Suitability for isolation in accordance with the IEC/EN 60947-2 standard.

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
$i_{\Delta n}$	1.2 x 8.5 In				

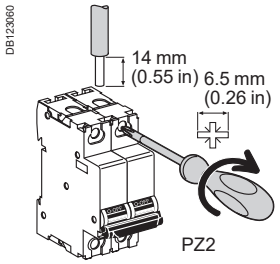
(*) Breaking capacity under 1 pole with IT isolated neutral system (case of double fault).

Direct current (DC)					
Breaking capacity (Icu) according to IEC/EN 60947-2					**Service breaking capacity (Ics)**
	Voltage (Ue)				
Between +/-	**⩽ 72 V**	**⩽ 125 V**	**⩽ 180 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

Catalog numbers

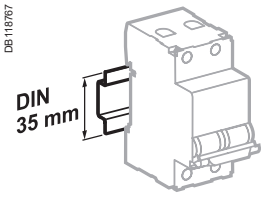
C60L circuit breaker				
Type	**1P**	**2P**	**3P**	**4P**
				
Rating (In)	**Curve C**	**Curve C**	**Curve C**	**Curve C**
1 A	**M9F17101**	**M9F17201**	**M9F17301**	**M9F17401**
2 A	**M9F17102**	**M9F17202**	**M9F17302**	**M9F17402**
3 A	**M9F17103**	**M9F17203**	**M9F17303**	**M9F17403**
4 A	**M9F17104**	**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 (0.35 in) modules	2	4	6	8
Vigi C60	**See page 44**			
Auxiliaries	**See page 55**			
Accessories	**See page 72**			
PowerTag energy sensors	**See PowerLogic catalog: PLSED309005EN**			

Connection

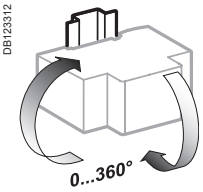


Rating	Tightening torque	Without accessory Copper cables (*) Rigid, flexible or with ferrule	
		DB122945	DB122946
1 to 25 A	2.5 N.m / 22 lb.in	1 to 25 mm²	AWG #18 to #8

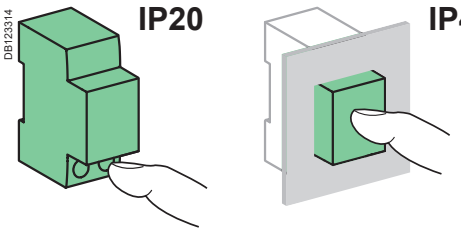
(*) See Copper Multi-cable connection chapter for more information, page 113.



Clip on DIN rail 35 mm (1.38 in)



Indifferent position of installation.



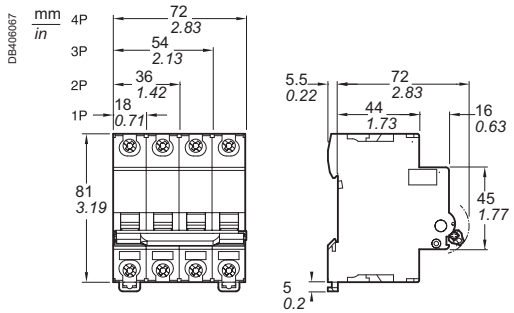
Technical data

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 104

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)



Multi9 C60CTRL - Z, C curves
For control circuits protection

IEC

C60CTRL 1P

C60CTRL 2P

IEC/EN 60947-2.

As per the above standards:

"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.

- A green strip on the toggle indicates full opening of all the poles allowing downstream maintenance operation.

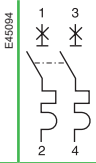
- The service life of the products is improved by:
  - good overvoltage withstand capacity,
  - fast closure, independent of handle operating speed.

- 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 3 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 3 A	25 kA	30 kA	100 % of Icu

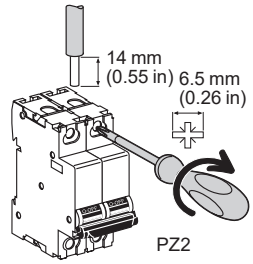
Catalog numbers

C60CTRL circuit breakers for the protection of control circuits		
Type	1P	2P
		
Rating (In)	Z curve	C curve
1 A	M9C02301	-
3 A	-	M9C01203
Width in 9 mm (0.35 in) modules	2	4
Vigi C60	See page 44	
Auxiliaries	See page 55	
Accessories	See page 72	

Multi9 C60CTRL - Z, C curves
For control circuits protection (cont.)

Connection

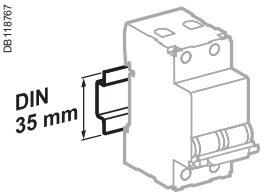
DB123060



Rating	Tightening torque	Without accessory Copper cables (*) Rigid, flexible or with ferrule	
		DB122945	DB122946
1 to 4 A	2.5 N.m / 22 lb.in	1 to 25 mm²	AWG #18 to #8

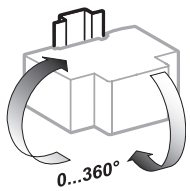
(*) See Copper Multi-cable connection chapter for more information, page 113.

DB118787



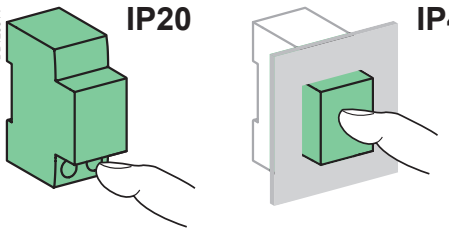
Clip on DIN rail 35 mm.

DB123312



Indifferent position of installation.

DB123314



Technical data

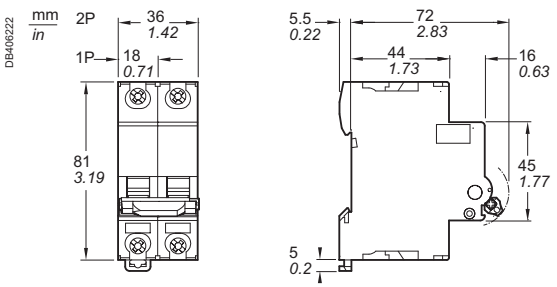
According to IEC/EN 60947-2			
Insulation voltage (Ui)			500 V AC
Pollution degree			1
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		50°C / 122°F
Magnetic tripping (Ii)	C curve	in alternative current	8.5 In ± 20 %
		in direct current	12 In (± 20 %)
	Z curve	in 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 104

Weight (g / oz)

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

Dimensions (mm / inches)

DB406222



IEC

IEC/EN 60947-2

As per the above standards:

- 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.
- A green strip on the toggle indicates full opening of all the poles allowing downstream maintenance operation.

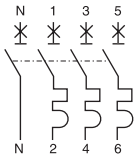
- Increased product service life thanks:
  - overvoltage resistance,
  - high performance limitation,
  - to fast closing independent of the speed of actuation of the toggle.
- Upstream or downstream connection.
- Compatible with PowerTag Energy

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	

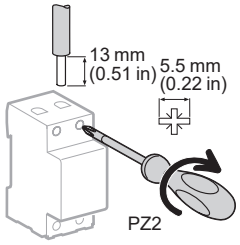
Catalog numbers

N40N circuit breakers		
	10 kA	
Type	**1P+N**	**3P+N**
	DB123389 	DB123661 
Rating (In)	**C curve**	**C curve**
1 A	**M9P22601**	**-**
2 A	**M9P22602**	**-**
3 A	**M9P22603**	**-**
4 A	**M9P22604**	**-**
6 A	**M9P22606**	**-**
10 A	**M9P22610**	**M9P22710**
16 A	**M9P22616**	**M9P22716**
20 A	**M9P22620**	**M9P22720**
25 A	**M9P22625**	**M9P22725**
32 A	**-**	**M9P22732**
40 A	**-**	**M9P22740**
Width in 9-mm (0.35 in) mod.	2	6
Vigi	**See page 46**	
Auxiliaries	**See page 55**	
Accessories	**See page 72**	
PowerTag energy sensors	**See PowerLogic catalog: PLSED309005EN**	

Multi9 N40N - C curve (cont.)

Connection

DB123947

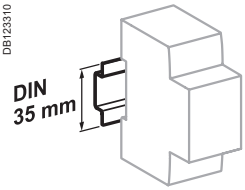


Rating	Tightening torque	Copper cables (*)			
		Rigid		Flexible or with ferrule	
		DB122945		DB122946	
1 to 40 A	2 N.m / 18 lb.in	1 to 16 mm²	AWG #18 to #6	1 to 10 mm²	AWG #18 to #8

(*) See Copper Multi-cable connection chapter for more information, page 113.

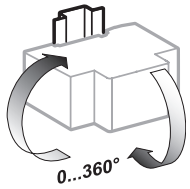
■ Connection by comb busbar or cables (as per EN 50027).

DB123310



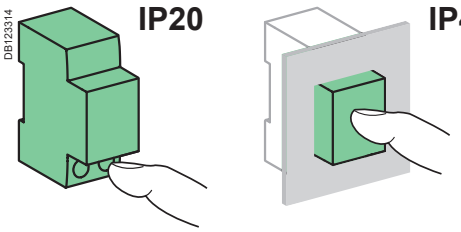
Clips on to 35 mm (1.38 in) DIN rail

DB123312



Indifferent position of installation.

DB123314

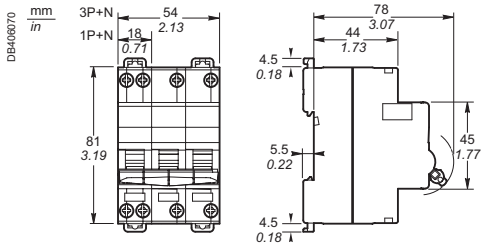


Technical data

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 104

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

Multi9 GFP - Ground Fault Protector

DB105727

PB116670-40

PB116671-40

IEC/EN 61008-1
UL 1053

As per the above standards:

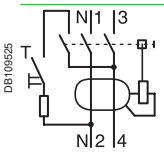
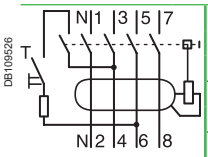
UL 1053 residual current circuit breakers already protected upstream by a circuit breaker device are used for:
- control and disconnection of electric circuits
- protection of people against electric shock by direct and indirect contacts
- protection of installations against insulation faults
- enhanced 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.

Catalog numbers

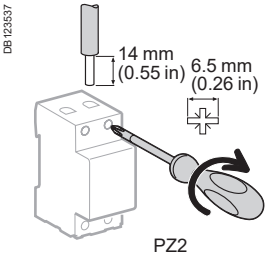
GFP UL 1053 A-SI type

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 (0.35 in)
2P						
 DB109525	25	26	30	**M9R81225**	**M9R41225**	4
		86	100	**M9R12225**	**-**	
		260	300	**M9R84225**	**M9R44225**	
	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**	

Auxiliaries		**2P: without auxiliaries** **4P: see page 55**
Accessories		**See page 48**
Voltage rating (Ue)	2P	230 - 240 V
	4P	400 - 415 V
Operating frequency		50/60 Hz

UL 486A connections for copper cables, document #E216919

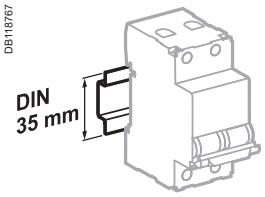
DB 123537



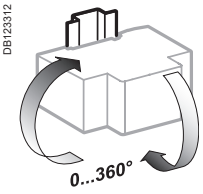
Rating	Tightening torque	Without accessory Copper cables (*) Rigid, flexible or with ferrule	
		DB122945 	DB122946 
		IEC/EN 61008-1	UL 486A-B
25 to 100 A	3.5 N.m / 31 lb.in	1 to 35 mm²	AWG #18 to #2

(*) See Copper Multi-cable connection chapter for more information, page 113.

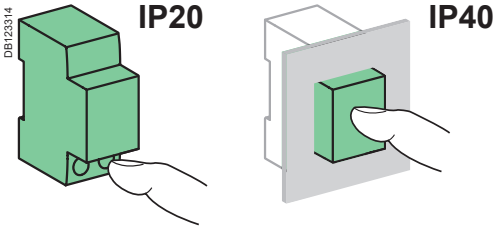
Multi9 GFP - Ground Fault Protector (cont.)



Clip on DIN rail 35 mm (1.38 in)



Indifferent position of installation.



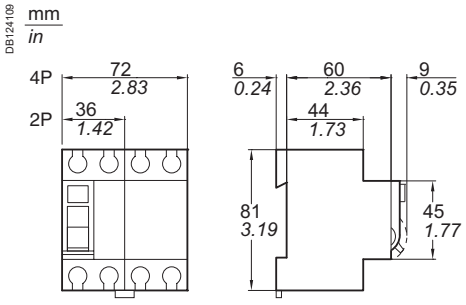
Technical data

GFP UL 1053 A-SI type		
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 104

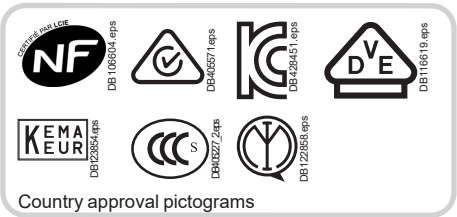
Weight (g / oz)

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

Dimensions (mm / inches)



Acti9 iID B-SI type Residual Current Circuit Breakers (RCCB)


Country approval pictograms

IEC/EN 61008-2-1, IEC/EN 62423
IEC 61543 ,VDE 0664

As per the above standards:
- The Acti9 iID B-SI type 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-SI type
The Acti9 iID B-SI type residual current circuit breakers provide:
- protection in the event of a continuous earth fault current on networks generated by:
  - controllers and variable speed drives,
  - battery chargers and inverters, such as used in photovoltaic application,
  - backed-up power supplies.
- They include protection against earth fault currents:
  - sinusoidal AC residual currents (AC type),
  - pulsed DC residual currents (A type),
  - multi frequency residual current (F type).
- The use of Acti9 iID B-SI type residual current circuit breaker can be made mandatory, according to standards applicable in country.
- For applications using 3-poles drives, such as:
  - crane,
  - lift,
  - HVAC,
  - pumping system.

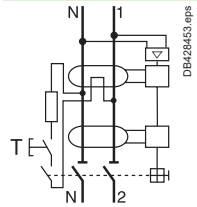
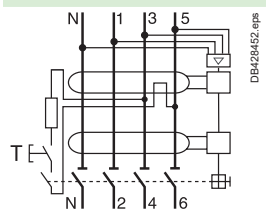
B type is needed.

For more information, see Earth Fault Protection guide (CA908066E).

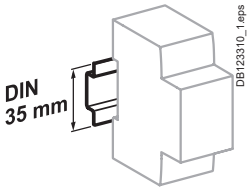
- The Acti9 iID B-SI type works optimally with the variable speed drives manufactured by Schneider Electric, even with a long cable length between motor and variable speed drive (up to 50 m).
- **SI** technology is embedded in Acti9 iID B-SI type residual current circuit breaker, providing increased immunity from electrical interference and polluted environments.
- The Acti9 iID B-SI type is compatible with Schneider Electric AC and A types wired in parallel or in series in the installation, following coordination tables (refer to Earth Fault Protection guide CA908066E).
- Compatible with PowerTag Energy

Catalog numbers

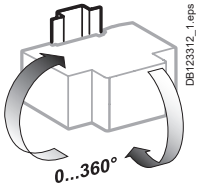
Acti9 iID B-SI type residual current circuit breakers

Type			B-SI				Width in 9 mm (0.35 in) mod.
2P		**Sensitivity**	**30 mA**	**300 mA**	**300 mA S**	**500 mA**	
	Rating	25 A	**A9Z61225**	**A9Z64225**	-	-	**8**
		40 A	**A9Z61240**	**A9Z64240**	-	-	
		63 A	**A9Z61263**	**A9Z64263**	-	-	
Voltage rating (Ue)			230 V				
Operating frequency			50 Hz				
4P		**Sensitivity**	**30 mA**	**300 mA**	**300 mA S**	**500 mA**	
	Rating	25 A	**A9Z61425**	**A9Z64425**	-	-	8
		40 A	**A9Z61440**	**A9Z64440**	**A9Z65440**	**A9Z66440**	
		63 A	**A9Z61463**	**A9Z64463**	**A9Z65463**	**A9Z66463**	
		80 A	**A9Z61480**	**A9Z64480**	**A9Z65480**	**A9Z66480**	
Voltage rating (Ue)	400 V						
Operating frequency	50 Hz						
PowerTag energy sensors	**See PowerLogic catalog: PLSED309005EN**						

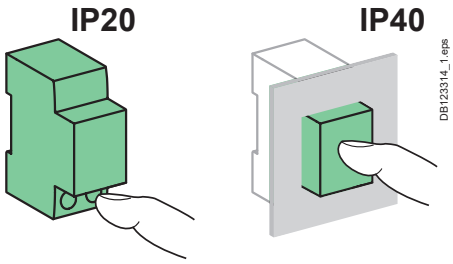
Acti9 iID B-SI type Residual Current Circuit Breakers (RCCB) (cont.)



Clip on DIN rail 35 mm (1.38 in)



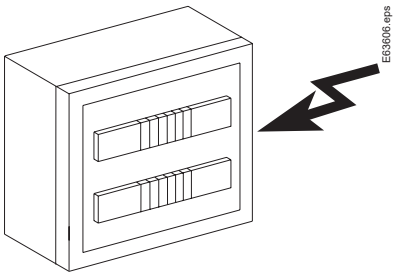
Indifferent position of installation.

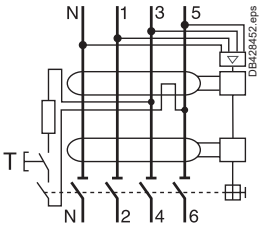


Technical data

Electrical characteristics			
Insulation voltage (Ui)		2P	250 V
		4P	500 V
Pollution degree			3
Rated impulse withstand voltage (Uimp)			6 kV
According to IEC/EN 61008-2-1			
Making and breaking capacity (Im/IΔm)			1500 A
Surge current withstand (8/20 µs) without tripping	No selective Ⓢ		3 kÂ
	Selective Ⓢ		5 kÂ
Conditional rated short-circuit current (Inc/IΔc)	With 100 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	≤ 63 A	15,000 cycles
		> 63 A	10,000 cycles
	Mechanical		20,000 cycles
Range of test button operating voltage	30 mA	2P	180...270 V AC
		4P	300...450 V AC
	300, 500 mA	2P	140...330 V AC
		4P	220...450 V AC
Impulse withstand according to IEC 60068-2-27			15 g
Vibration withstand according to IEC 60068-2-6			3 g
Electromagnetic compatibility			According to IEC 61543
Operating temperature			-25°C to +60°C / -13°F to +140°F
Storage temperature			-40°C to +85°C / -40°F to +185°F
Dissipated power			See page 104

Dielectric test



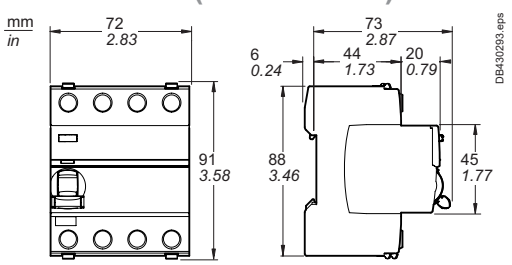


⚠ **To perform any dielectric test, disconnect terminals:**
4P: 1, 3, 5 and 2, 4, 6
2P: 1 and 2
Except for insulation resistance test at 500 V DC between L1, L2, L3 & N all connected, and the earth circuit.

Weight (g / oz)

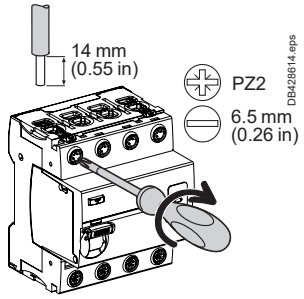
Residual current circuit breakers	
Type	**iID**
2P	350 g / 12.35 oz
4P	415 g / 14.64 oz

Dimensions (mm / inches)



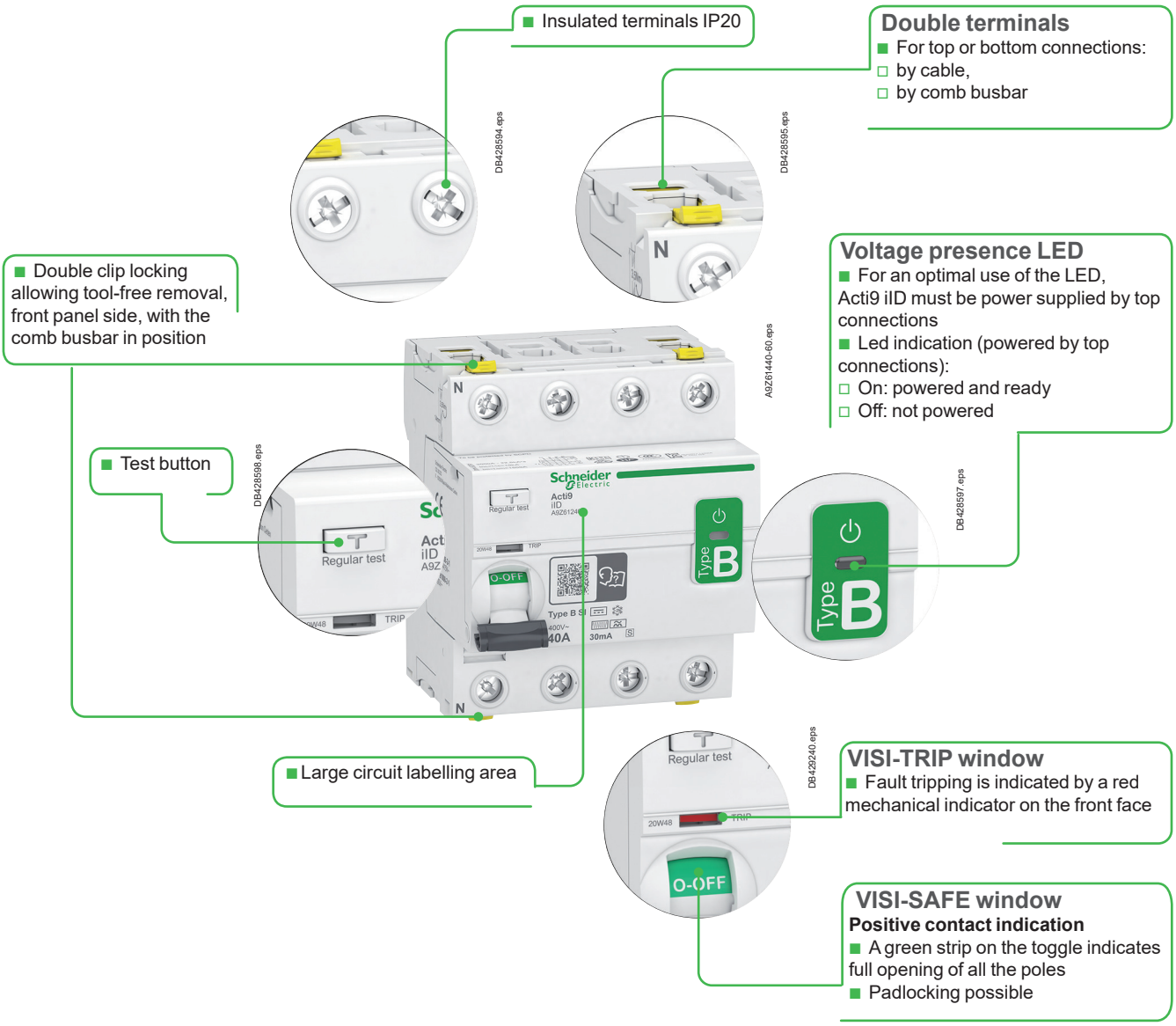
Acti9 iID B-SI type Residual Current Circuit Breakers (RCCB) (cont.)

Connection



Rating	Without accessory: Back: Copper cables: Rigid	Without accessory: Back: Copper cables: Flexible or with ferrule	Without accessory: Front: Copper cables: Rigid	Without accessory: Front: Copper cables: Flexible or with ferrule	With accessories: 50 mm² Al terminal	With accessories: Screw-on connection for ring terminal	With accessories: Multi-cables terminal: Rigid cables	With accessories: Multi-cables terminal: Flexible cables
	 DB122945_1.eps	 DB122946.eps	 DB122945.eps	 DB122946.eps	 Al DB122935.eps	 Ø DB118789.eps	 DB118787.eps	
All	1 to 25 mm² / AWG #18 to #4	1 to 16 mm² / AWG #18 to #6	1 to 35 mm² / AWG #18 to #2	1 to 25 mm² / AWG #18 to #4	50 mm² / AWG #1	Ø 5 mm / 0.2 in	3 x 16 mm² / AWG #6	3 x 10 mm² / AWG #8

Accessories: see page 77



Acti9 RCCB-ID 125 A Residual Current Circuit Breakers (AC, A, A-SI, B types)

PB111262-33

16966

PB111263-33

16921

PB107510-33

16940

PB101616-33

16766

PB100573-18

16938

PB100572-18

16939

IEC/EN 61008-1
IEC/EN 61008-2-1
VDE 0664

As per the above standards:
- 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 (≥ 100 mA),
  - protection of installations against the risk of fire (300 mA or 500 mA).

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

- Compatible with PowerTag Energy (4P only)

B type
- The RCCB-ID B type residual current circuit breakers provide specific protection of three-phase installations and people even in the presence of DC fault currents on the network generated by:
  - 3-poles controllers and variable speed drives,
  - 3-poles battery chargers and inverters,
  - 3-poles backed-up power supplies.

Instantaneous
It ensures instantaneous tripping (without time delay).

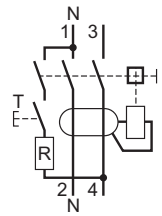
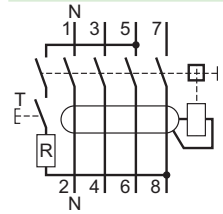
Selective S
It ensures total discrimination with a non-selective RCD placed downstream.

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 125 A.

Accessories
- 2P and 4P sealable screw shield.

Catalog numbers

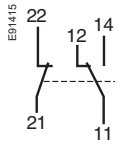
RCCB-ID 125 A residual current circuit breakers

Type			AC				A			
2P		**Sensitivity**	**30 mA**	**100 mA**	**300 mA**	**500 mA**	**30 mA**	**300 mA**	**300 mA S**	**500 mA**
E91413 	Rating	125 A	**16966**	-	**16967**	-	**16970**	**16971**	-	-
4P		**Sensitivity**	**30 mA**	**100 mA**	**300 mA**	**500 mA**	**30 mA**	**300 mA**	**300 mA S**	**500 mA**
E91414 	Rating	125 A	**16905**	**16906**	**16907**	**16908**	**16924**	**16926**	**16925**	**16927**
Voltage rating (Ue)		2P	230 V							
		4P	400 V							
Operating frequency			50 Hz							
PowerTag energy sensors			**See PowerLogic catalog: PLSED309005EN**							

Acti9 RCCB-ID 125 A Residual Current Circuit Breakers (AC, A, A-SI, B types) (cont.)

Catalog numbers

Auxiliary

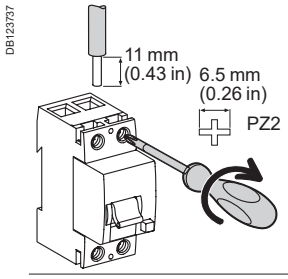
Type				Width in 9 mm (0.35 in) mod.
Contact OFsp	Contact	Voltage		
	1 A	110 V DC	**16940**	1
	6 A	230 V AC (AC15)		

Accessory

Type	Number of pole	
Screw shield (set of 10) for upstream or downstream	2P	**16938**
	4P	**16939**

Connection

■ By tunnel terminals for:



Type	Tightening torque	Copper cables (*)	
		Rigid	Flexible or with ferrule
		DB122945	DB122946
RCCB-ID	3 N.m / 26.6 lb.in	1.5 to 50 mm² / AWG #15 to #1	1.5 to 35 mm² / AWG #15 to #2
OFsp	0.8 N.m / 7 lb.in	1 to 1.5 mm² / AWG #18 to #16	

(*) See Copper Multi-cable connection chapter for more information, page 113.

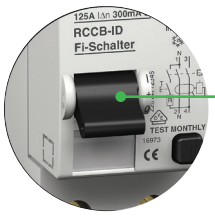
	A-SI		B				Width in 9 mm (0.35 in) modules
	30 mA	300 mA	-				
	16972	-	-	-	-	-	4
	30 mA	300 mA	30 mA	300 mA	300 mA S	500 mA	
	16920	16921	16763	16764	16765	16766	8

Acti9 RCCB-ID 125 A Residual Current Circuit Breakers (AC, A, A-SI, B types) (cont.)

OFsp contact status, depending on the position of the residual current circuit breaker

Type				
RCCB-ID 125 A	Closed	■	-	-
	Open	-	■	-
	Tripped on electrical fault	-	-	■
Contact OFsp	22/21 12/11	Open	Closed	Closed
	14/11	Closed	Open	Open

DB122835



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

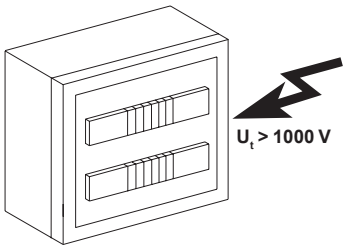
- Open (toggle in high position and green indicator)
- Closed (toggle in low position and red indicator)
- Tripped on electrical fault (toggle in middle position and green indicator)

Technical data

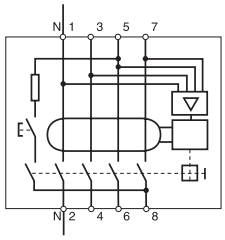
Electrical characteristics			
Insulation voltage (Ui)			400 V
Pollution degree			3
Rated impulse withstand voltage (Uimp)			4 kV
According to IEC/EN 61008-1			
Making and breaking capacity (Im/IΔm)			1250 A
Surge current withstand (8/20 µs) without tripping	AC and A types (not selective Ⓢ)		250 Â
	A-SI and B types (not selective Ⓢ)		3 kÂ
	AC, A, **A-SI** and B types (selective Ⓢ)		3 kÂ
Conditional rated short-circuit current (Inc/IΔc)	With FU 125 A gG fuse		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	Device only		IP20 IP40 with screw shield
	Device in modular enclosure		IP40 Insulation class II
Endurance (O-C)	Electrical		> 2 000 cycles
	Mechanical		> 5 000 cycles
Operating temperature	-25°C		-25°C to +40°C / -13°F to +104°F
Storage temperature	AC, A, **A-SI** types		-40°C to +85°C / -40°F to +185°F
	B type		-40°C to +60°C / -40°F to +140°F
Range of test button operating voltage	30 mA	2P	160...250 V AC
		4P	250...440 V AC
	100, 300, 500 mA	2P	185...250 V AC
		4P	185...440 V AC

Dielectric test

E63606



DB109414



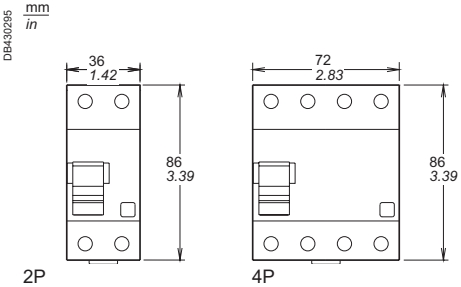
⚠ To perform the dielectric test, disconnect terminals 3, 5, 7 and 4, 6, 8.

Weight (g / oz)

Residual current circuit breakers and auxiliary			
Type		**RCCB-ID 125 A**	**OFsp**
2P		230 g / 8.11 oz	40 g / 1.41 oz
4P	AC, A and **A-SI** types	420 g / 14.82 oz	
	B type	500 g / 17.64 oz	

Dimensions (mm / inches)

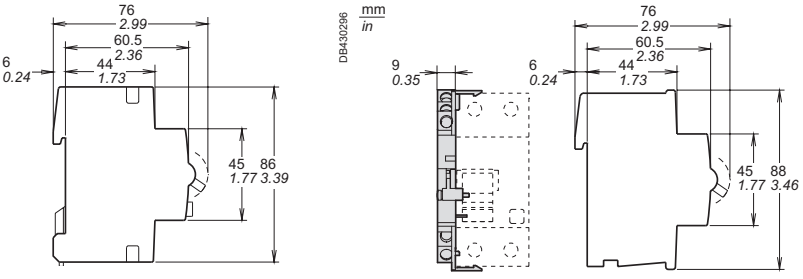
DB430295



2P
RCCB-ID 125 A

4P

DB430296



Contact OFsp

Multi9 RCCB ID Residual Current Circuit Breakers (AC, A-SI types)

IEC

PB111761-40

PB111762-40

IEC/EN 61008-1

As per the above standard:

- ■ 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).

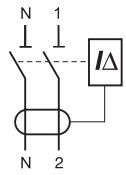
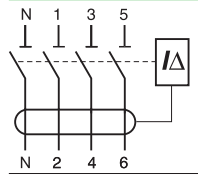
A-SI type

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

■ Compatible with PowerTag Energy.

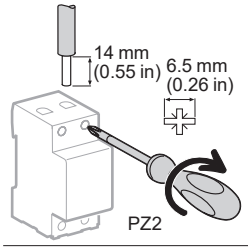
Catalog numbers

RCCB-ID residual current circuit breakers

Type			AC		A-SI		Width in 9-mm (0.35 in) modules
2P		**Sensitivity**	**30 mA**	**300 mA**	**30 mA**	**300 mA S**	
DB122476 	Rating	25 A	**M9R11225**	-	-	-	4
		40 A	**M9R11240**	**M9R14240**	**M9R31240**	**M9R35240**	
		63 A	**M9R11263**	-	-	-	
4P		**Sensitivity**	**30 mA**	**300 mA**	**30 mA**	**300 mA S**	
DB122477 	Rating	40 A	**M9R11440**	**M9R14440**	**M9R31440**	**M9R35440**	8
		63 A	-	**M9R14463**	-	**M9R35463**	
Voltage rating (Ue)		2P	230 - 240 V				
		4P	400 - 415 V				
Operating frequency			50 Hz				
Auxiliaries			**See page 55**				
Accessories			**See page 72**				
PowerTag energy sensors			**See PowerLogic catalog: PLSED309005EN**				

Connection

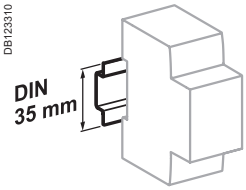
DB123947



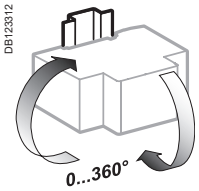
Rating	Tightening torque	Copper cables (*)			
		Rigid		Flexible or with ferrule	
	DB122945 			DB122946 	
25 to 63 A	3.5 N.m / 31 lb.in	1 to 35 mm²	AWG #18 to #2	1 to 25 mm²	AWG #18 to #4

(*) See Copper Multi-cable connection chapter for more information, page 113.

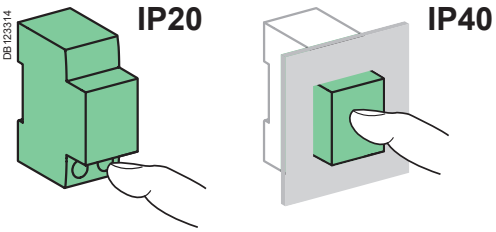
Multi9 RCCB ID Residual Current Circuit Breakers (AC, A-SI types) (cont.)



Clips on to 35 mm (1.38 in) DIN rail



Any installation position.



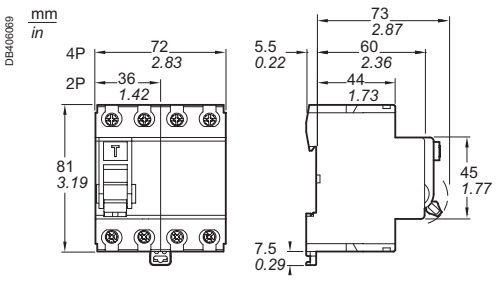
Technical data

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 104

Weight (g / oz)

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

Dimensions (mm / inches)



Multi9 Vigi C60 – Residual Current Devices – Add-on for C60

IEC

IEC/EN 61009-1

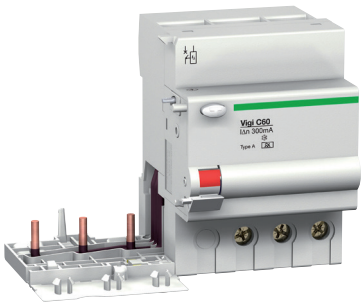
As per the above standard:

- 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).

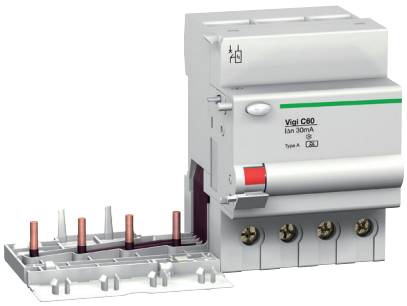
- The **A-SI** type provides increased immunity from electrical interference and polluted or corrosive environments.

DB406509-40

DB406510-40



DB406511-40



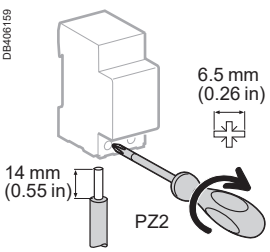
Catalog numbers

Vigi C60 add-on residual current devices

Type			AC		A-SI	Width in 9-mm (0.35 in) 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**	-	7
4P		**Sensitivity**	**30 mA**	**300 mA**	**30 mA**	
DB406520	Rating 63 A		-	**M9V14463**	-	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

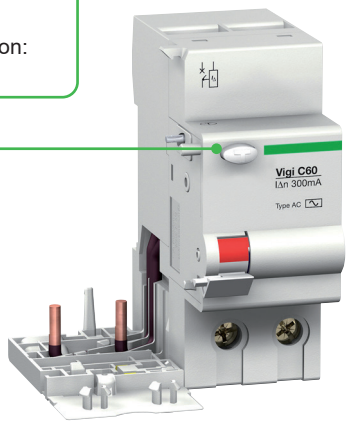
(*) See Copper Multi-cable connection chapter for more information, page 113.

Multi9 Vigi C60 – Residual Current Devices – Add-on for C60 (cont.)

DB406909-55

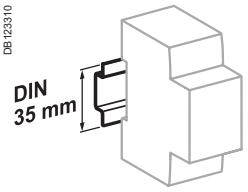
- Reinforced cable pull-out strength: serrated terminals
- Automatic cable guiding in the correct position: terminals with guard

- Test button



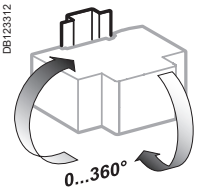
- Every circuit breaker combined with a Vigi module remains compatible with the indication and tripping auxiliaries

DB123310



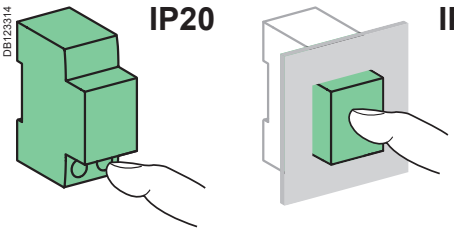
Clip on DIN rail 35 mm (1.38 in)

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 104

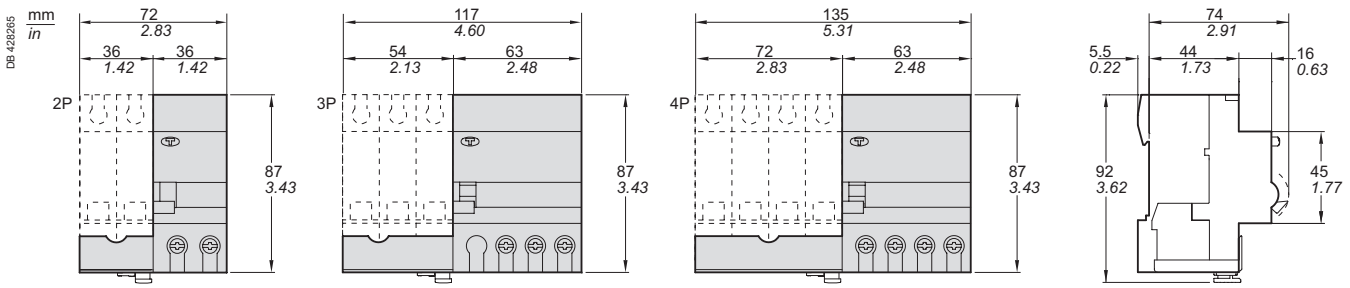
Railways			
Type	**2P**	**3P**	**4P**
Mass of combustible material	**44.4 g / 1.55 oz**	**72.6 g / 2.54 oz**	**72.6 g / 2.54 oz**
Type of combustible material	PA6 MD25 FR & PA6 MD30 FR		
Fire and smoke requirements (EN 45545-2)	HL2 R22 / HL2 R23		
Resistance to shocks and vibrations (IEC 61373)	■ Category 1 ■ Class B		

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)

DB428265



Multi9 Vigi N40 – Residual Current Devices – Add-on for N40

IEC

Earth leakage protection devices offer the following functions:
- 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

As per the above standard:

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

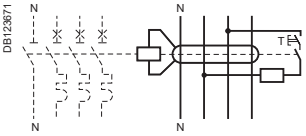
- When an earth fault occurs, the Vigi module causes automatic opening of the circuit breaker with which it is combined. Fault indication is performed by a red strip on the operating handle for Vigi module resetting.
- Resetting of the earth leakage module is performed, at the user's choice:
  - either 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 provides increased immunity from electrical interference and polluted or corrosive environments.

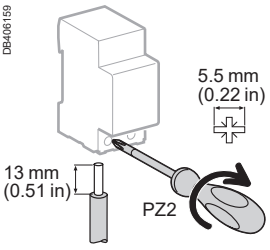
Catalog numbers

Vigi N40 add-on residual current devices

Type		AC		A-SI		Width in 9-mm (0.35 in) modules
3P+N	Sensitivity	30 mA	300 mA	30 mA	300 mA	
DB123671 	Rating 40 A	-	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	1 to 16 mm²	AWG #18 to #6	1 to 10 mm²	AWG #18 to #8

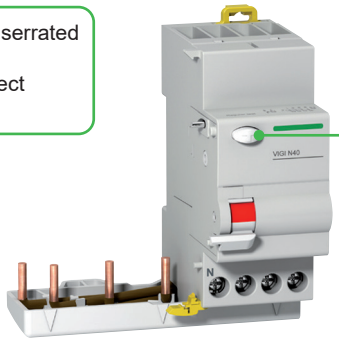
(*) See Copper Multi-cable connection chapter for more information, page 113.

- 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.

Multi9 Vigi N40 – Residual Current Devices – Add-on for N40 (cont.)

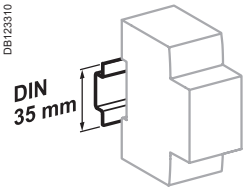
PB111760-45

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



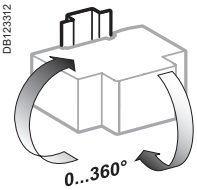
- Test button
- Every circuit breaker combined with a Vigi module remains compatible with the indication and tripping auxiliaries

DB123310



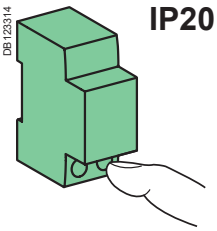
Clip on DIN rail 35 mm (1.38 in)

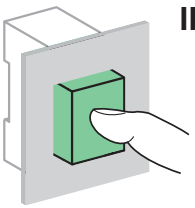
DB123312



Indifferent position of installation

DB123314





Technical data

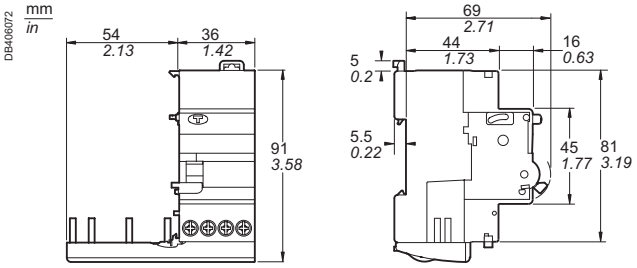
Main characteristics		
According to IEC/EN 61009-1		
Insulation voltage (Ui)	Phase-to-phase	440 V AC
Pollution degree		3
Rated impulse withstand voltage (Uimp)		4 kV
Behaviour in the event of a phase-to-earth fault in TN-S earthing system		Residual breaking and making capacity (IΔm) identical to the 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 104

Weight (g / oz)

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

Dimensions (mm / inches)

DB406072



Multi9 N40 Vigi – Residual Current circuit Breakers with Overcurrent protection

IEC

IEC/EN 61009-1

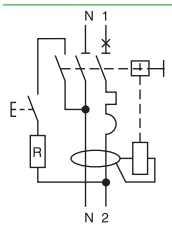
As per the above standard:

- 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).

PB111759-40

Catalog numbers

N40 Vigi 6 kA

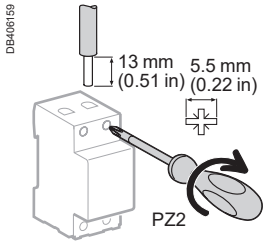
Type			AC		Width in 9-mm (0.35 in) mod.
1P+N	C curve	Sensitivity	30 mA	300 mA	
DB123871 	Rating (In) 6 A		**M9D11606**	-	4
		10 A	**M9D11610**	**M9D14610**	
		16 A	**M9D11616**	-	
Voltage rating (Ue)			240 V AC		
Operating frequency			50 Hz		
Auxiliaries			**See page 55**		
Accessories			**See page 72**		

Positive contact indication
- A green strip on the toggle indicates full opening of all the poles
- Downstream maintenance operations can be carried out in better safety conditions
- Padlocking possible

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

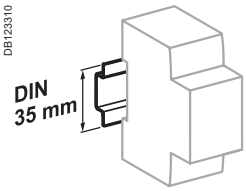
Multi9 N40 Vigi – Residual Current circuit Breakers with Overcurrent protection (cont.)

Connection

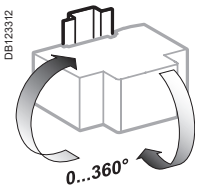


Tightening torque	Copper cables (*)			
	Rigid		Flexible or with ferrule	
				
2 N.m / 18 lb.in	1 to 16 mm²	AWG #18 to #6	1 to 10 mm²	AWG #18 to #8

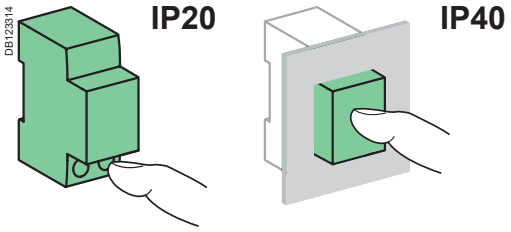
(*) See Copper Multi-cable connection chapter for more information, page 113.



Clip on DIN rail 35 mm (1.38 in)



Indifferent position of installation.



Technical data

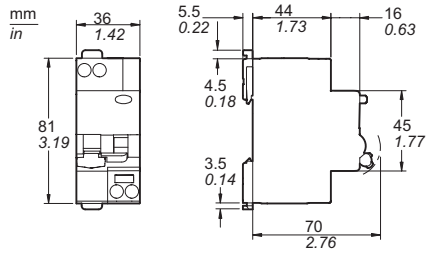
Main characteristics			
Insulation voltage (Ui)			400 V AC
Pollution degree			3
Rated impulse withstand voltage (Uimp)			4 kV
Setting temperature for ratings			50°C / 122°F
Earth leakage protection with instantaneous tripping			30, 300 mA
Magnetic tripping	C curve		8.5 In (± 20 %)
8/20 µs impulse withstand 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 104

Railways	
Type	**1P+N**
Mass of combustible material	**45.8 g / 1.59 oz**
Type of combustible material	PA6 MD25 FR & PA6 GF20 FR
Fire and smoke requirements (EN 45545-2)	HL2 R22 / HL2 R23
Resistance to shocks and vibrations (IEC 61373)	■ Category 1 ■ Class B

Weight (g / oz)

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

Dimensions (mm / inches)



Multi9 PRD1 75r
Type 1 Surge Protective Devices

The Type 1 range of Surge Protective Device meets the normative withstand capability of current wave type 8/20 µs.
PRD1 75r Surge Protective Devices are fitted with dry contacts to send "end-of-life indication" information.
PRD1 75r Surge Protective Devices are fitted with easy-to-replace withdrawable cartridges.

PRD1 75r (1P)

PRD1 75r (2P)

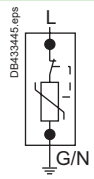
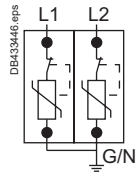
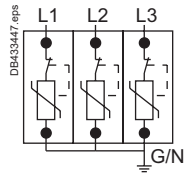
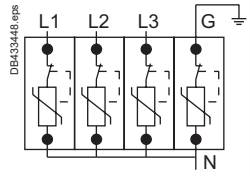
PRD1 75r (3P)

PRD1 75r (4P)

UL 1449 4th Edition Recognized, CSA C22.2 No. 269.4-17, 1st Ed

As per the above standard:
The PRD1 75r Surge Protective Device (SPD) is rated UL and CSA Type 1, and is well suited for use installed within electrical equipment. Rated at 200kA SCCR, without additional upstream protection, it can be installed in a variety of installations including service entrance, branch panels and control panel environments.
For serviceability considerations, connecting through a disconnector is recommended.
Replaceable devices are available,should the device reach end of life due to a surge event or sustained over-voltage.

Multi9 PRD1 75r Type 1

Type	Surge Protective Devices			
Wiring configuration	Rated network voltage (V AC)	I max (kA) Surge Capacity	In (kA)	SCCR (kA)
1P 	120	75	20	200
	240	75	20	200
	277	75	20	200
	347	75	10	200
2P 	120/240	75	20	200
	240/480	75	20	200
3P 	240	75	20	200
	480	75	10	200
	120/208	75	20	200
	277/480	75	20	200
	347/600	75	10	200
	400/690	75	10	200
4P 	120/208	75	20	200
	277/480	75	20	200
	347/600	75	10 (L1/L2/L3) 20 (N-G)	200
	400/690	75	10 (L1/L2/L3) 20 (N-G)	200
	120/240	75	20	200
	240/480	75	20 (L1/L3/N-G) 10 (H-L)	200

Multi9 PRD1 75r
Type 1 Surge Protective Devices (cont.)

					Associated cartridge				SPD only
	VPR (V) Voltage Protection Rating	MCOV (V)	SPD wiring (2-, 3-, 4- or 5- wire)	Catalog number	L1	L2/H-L	L3	G (Ground)	Width in 9 mm (0.35 in) modules
	600 (L-N)	175 (L-N)	2	**M9L11120**	M9LC175	-	-	-	2
	900 (L-N)	275 (L-N)	2	**M9L21240**	M9LC275	-	-	-	2
	1000 (L-N)	320 (L-N)	2	**M9L31277**	M9LC320	-	-	-	2
	1500 (L-N)	420 (L-N)	2	**M9L41347**	M9LC420	-	-	-	2
	600 (L-N) 1200 (L-L)	175 (L-N) 350 (L-L)	3	**M9L12240**	M9LC175	M9LC175	-	-	4
	900 (L-N) 1800 (L-L)	275 (L-N) 550 (L-L)	3	**M9L22480**	M9LC275	M9LC275	-	-	4
	900 (L-G) 1800 (L-L)	275 (L-G) 550 (L-L)	4	**M9L23240**	M9LC275	M9LC275	M9LC275	-	6
	1500 (L-G) 3000 (L-L)	550 (L-G) 1100 (L-L)	4	**M9L53480**	M9LC550	M9LC550	M9LC550	-	6
	600 (L-N) 1200 (L-L)	175 (L-N) 350 (L-L)	4	**M9L13208**	M9LC175	M9LC175	M9LC175	-	6
	1000 (L-N) 2000 (L-L)	320 (L-N) 640 (L-L)	4	**M9L33480**	M9LC320	M9LC320	M9LC320	-	6
	1500 (L-N) 2500 (L-L)	420 (L-N) 840 (L-L)	4	**M9L43600**	M9LC420	M9LC420	M9LC420	-	6
	1500 (L-N) 3000 (L-L)	550 (L-N) 1100 (L-L)	4	**M9L53690**	M9LC550	M9LC550	M9LC550	-	6
	600 (L-N) 1200 (L-G) 1200 (L-L) 600 (N-G)	175 (L-N) 175 (L-G) 350 (L-L) 175 (N-G)	5	**M9L17208**	M9LC175	M9LC175	M9LC175	M9LC175	8
	1000 (L-N) 1500 (L-G) 2000 (L-L) 600 (N-G)	320 (L-N) 495 (L-G) 640 (L-L) 175 (N-G)	5	**M9L37480**	M9LC320	M9LC320	M9LC320	M9LC175	8
	1500 (L-N) 2000 (L-G) 2500 (L-L) 800 (N-G)	420 (L-N) 695 (L-G) 840 (L-L) 275 (N-G)	5	**M9L47600**	M9LC420	M9LC420	M9LC420	M9LC275	8
	1500 (L-N) 2500 (L-G) 3000 (L-L) 1000 (N-G)	550 (L-N) 870 (L-G) 1100 (L-L) 320 (N-G)	5	**M9L57690**	M9LC550	M9LC550	M9LC550	M9LC320	8
	1200 (L-L/L-G) 600 (L-N/N-G) 1500 (H-L/H-G) 800 (H-N)	350 (L-L/L-G) 175 (L-N/N-G) 450 (H-L/H-G) 275 (H-N)	5	**M9L17240**	M9LC175	M9LC275	M9LC175	M9LC175	8
	1500 (L-L/L-G) 800 (L-N) 600 (N-G) 2500 (H-L) 2000 (H-G) 1500 (H-N)	550 (L-L) 450 (L-G) 275 (L-N) 175 (N-G) 825 (H-L) 725 (H-G) 550 (H-N)	5	**M9L27480**	M9LC275	M9LC550	M9LC275	M9LC175	8

3

Multi9 PRD1 75r

Type 1 Surge Protective Devices (cont.)

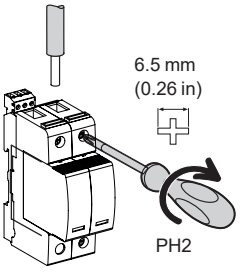
M9LC275

Spare cartridge						
Un (V) Rated voltage network	**I max (kA) Surge Capacity**	**In (kA)**	**SCCR (kA)**	**VPR (V) Voltage Protection Rating**	**MCOV (V)**	**Catalog number**
120	75	20	200	600	175	**M9LC175**
240	75	20	200	900	275	**M9LC275**
277	75	20	200	1000	320	**M9LC320**
347	75	10	200	1500	420	**M9LC420**
400	75	10	200	1500	550	**M9LC550**

Technical data

		PRD1 75r Type 1
Operating frequency		50/60 Hz
Response time		< 25 ns
Short circuit withstand (Isccr)		200 kA
Ground residual current (I_G)	I_G (Neutral-Ground)	< 1 mA
Surge Protective Device technology		MOV
End-of-life indication	Green	Correct operation
	Red	At end of life
	Remote notification	250 V AC / 1 A 125 V AC / 3 A
Operating temperature		-25°C to +60°C
Storage temperature		-40°C to +85°C
Relative humidity		5 % to 90 %
Operating altitude		2000 m
Degree of protection	IP	NEMA 1 built-in
	Impacts	IK05
Pollution degree		3
Standards		UL 1449: 4th Edition Recognized CSA C22.2 No. 269.4-17, 1st Ed

Connection

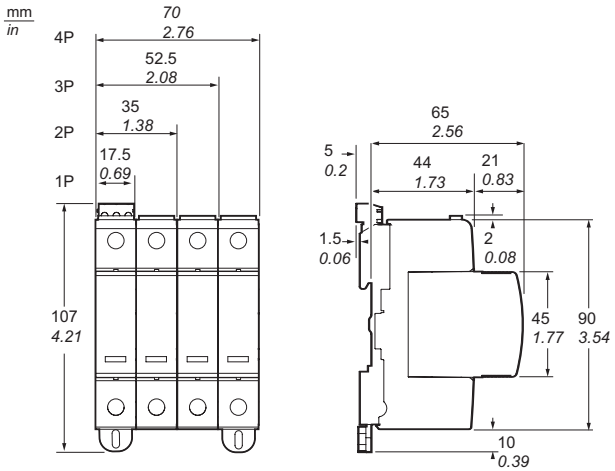


Wire stripping length		Tightening torque		Tunnel type terminals			
						Dry contacts	
L/N/ Ground	Dry contacts	L/N/ Ground	Dry contacts	Rigid cable	Flexible cable or with ferrule	Rigid cable	Flexible cable
				DB122945.eps	DB122946.eps	DB122945.eps	DB123007.eps
10 mm (0.4 in.)	6 mm (0.24 in.)	3 N.m (26.5 Lbf. in.)	0.27 N.m (2.4 Lbf. in.)	6 to 35 mm² (AWG 10...AWG 2)	6 to 25 mm² (AWG 10...AWG 4)	Max. 1.5 mm² (AWG 16)	0.05 to 2.5 mm² (AWG 30...AWG14)

Weight (g)

Surge protective device	
Type	**PRD1 75r**
1P	154
2P	340
3P	522
4P	703
Cartridge	82

Dimensions



Multi9 Electrical auxiliaries for MCB and RCD, except Acti9 iID B-SI type RCCB

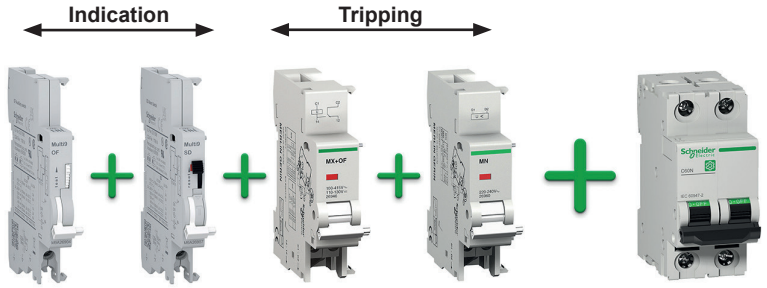
DB105727 DB105730 DB105728 IEC DB405227_1

Compliance with electrical auxiliaries standards

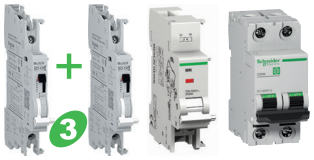
- UL 489 Branch circuit protection File #E215117.
- CSA C22.2 No. 5 Branch circuit protection File #179014.
- UL 1077 Supplementary Protection File #E90509.
- CSA C22.2 No. 235 Supplementary Protection File #179014.
- IEC 60947-1 and IEC 60947-5-1.
- CE Marked.

- 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 2-in-1 product: a mechanical selector switch is used to select one of two contacts: SD or OF.
- The low current auxiliaries OF, SD (2 to 100 mA) are especially dedicated to low current application to report status information to a Programmable Logic Controller (Industry).

DB405975



Combination table

Indication auxiliaries		Tripping auxiliaries	Devices
			 PB116685-18  PB111749-19, PB111759-19 C60, N40N, N40 Vigi
1 OF + SD/OF **maxi**	**1** OF + SD/OF **maxi**	**1 maxi**	
1 OF **maxi**	**1** (OF + SD/OF or SD or OF) **maxi**	**2 maxi**	
None	**1** (OF + SD/OF or OF) **maxi**	**2 maxi**	 P100628_SE-18 OF,S (26923) +  PB111761 RCCB-ID, GFP
1 OF **maxi**	**1** OF **maxi**	**1 maxi**	
None	**1 OFsp**  PB107510-18	None	 PB111261-18 RCCB-ID B type, RCCB-ID > 63 A

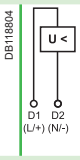
Note: iOF and iSD in combination table can be (2 to 100 mA) or (100 mA to 6A) products.

Note **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

Railways		
Type	**MN, MNs, MNx, MX, MX+OF**	**OF, SD, SD+OF**
Mass of combustible material	**25.5 g / 0,88 oz**	**17.6 g / 0.6 oz**
Type of combustible material	PA6 GF20 FR	
Fire and smoke requirements (EN 45545-2)	HL2 R22 / HL2 R23	
Resistance to shocks and vibrations (IEC 61373)	■ Category 1 ■ Class B	

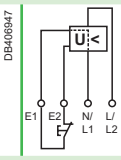
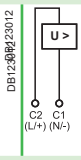
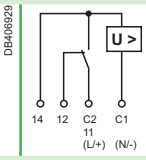
Multi9 Electrical auxiliaries for MCB and RCD, except Acti9 iID B-SI type RCCB (cont.)

Tripping

Auxiliaries	MN	MNS
Type	**Undervoltage release**	
	Instantaneous	Delayed
		
Function		
	■ Trips the device with which it is combined when its input voltage decreases (between 70 % and 35 % Un). ■ Prevents device closing again until its input voltage is restored	
		■ No tripping in the event of transient voltage dips (up to 0.2 s)
Wiring diagrams		
		
Utilization		
	■ Emergency stoppage by normally closed push button ■ Improve the safety of power supply circuits for several machines by preventing "uncontrolled" restarting	

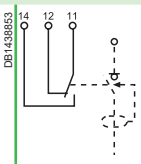
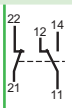
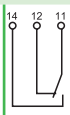
Catalog numbers		M9A27108	M9A27107	M9A26960	M9A26961	M9A26959	M9A26963
Technical specifications							
Rated voltage (Ue)	V AC	24	120	220…240	48	115	220…240
	V DC	24			48		–
Operating frequency	Hz	50/60				400	50/60
Pollution degree		3					3
Mechanical state indicator light, red		On front face					On front face
Test function		–					–
Width in 9 mm modules		2					2
Operating current		–					–
Number of contacts		–					–
Busbar compatibility		Top					Top
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		■				–	■
RCM		■				–	■
CCC		–				–	–
EAC		■				–	■

Multi9 Electrical auxiliaries for MCB and RCD, except Acti9 iID B-SI type RCCB (cont.)

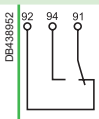
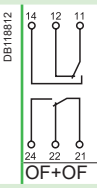
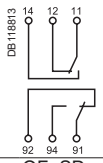
	MNx		MX			MX+OF		
			Shunt release					
	Independent of the supply voltage					With open/closed auxiliary contact		
								
	■ Tripping of the associated device by opening of the control circuit (e.g. push-button, dry contact)		■ Trips the associated device when it is powered on					
	■ A drop in the 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		
								
	■ Emergency stoppage with fail-safe principle ■ 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 stoppage with fail-safe principle			■ Emergency stoppage with fail-safe principle ■ 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		
	–		–			100 mA mini, 6 A maxi ≤ 130 V DC 1 A ≤ 240 V AC 6 A 277 V AC 3 A 415 V AC 3 A	48 V AC 2 A 48 V DC 2 A	≤ 24 V AC 6 A ≤ 24 V DC 6 A
	–		–			1 NO/NC		
	Top		Top			Top		
	-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		
	■		■			■		
	–		–			–		
	–		–			–		
	–		–			–		
	–		■			■		
	–		■			■		
	–		■			■		
	–		–			■		
	■		■			■		

Multi9 Electrical auxiliaries for MCB and RCD, except Acti9 iID B-SI type RCCB (cont.)

Indication

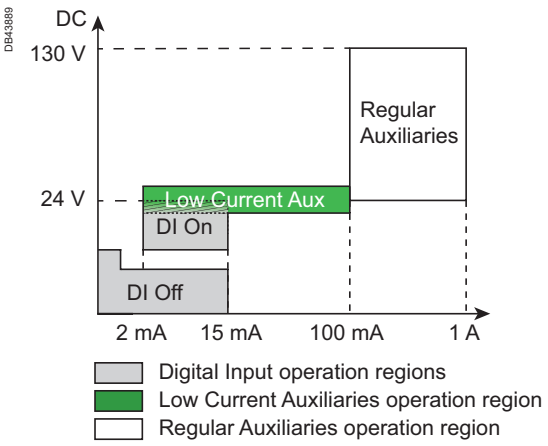
Auxiliaries	OF.S	OFsp	OF	
Type	**Open/closed auxiliary contact**		**Open/closed auxiliary contact**	
	 PB100828_SE-30	 PB107510-30	 M9A26914	 M9A26904
Function				
	■ Changeover contact indicating the "open" or "closed" position of the associated device		■ Changeover contact indicating the "open" or "closed" position of the associated device ■ Low current auxiliary (2 to 100 mA): 2 contacts (1 NO/NC) can report the signalling information to a Programmable Logic Controller (Industry).	
	■ for RCCB-ID ⩽ 63 A	■ for RCCB-ID > 63 A		
	⚠ **Compulsory for the addition of tripping or indication auxiliaries on a RCCB-ID**			
Wiring diagrams				
	 DB1438853	 DB409611	 DB438851	
Utilization				
	■ Remote indication of the position of the associated device		■ Remote indication of the position of the associated device	
Catalog numbers	**26923**	**16940**	**M9A26914**	**M9A26904**
Technical specifications				
Rated voltage (Ue) V AC	24…415	230	24…250	24…415
V DC	24…130	110	24…220	24…130
Operating frequency Hz	50/60	50	50/60	
Pollution degree	3	3	3	
Mechanical state indicator light, red	-	-	-	
Test function	-	-	On front face	
Width in 9 mm modules	1	1	1	
Operating current 24 V DC	100 mA to 6 A	-	2 mA to 100 mA	100 mA to 6 A
48 V DC	100 mA to 2 A			100 mA to 2 A
60 V DC	100 mA to 1.5 A			100 mA to 1.5 A
110 V DC	100 mA to 1 A	1 A		100 mA to 1 A
130 V DC		-		
220 V DC	-			-
⩽ 230 V AC	100 mA to 6 A	6 A		100 mA to 6 A
240 V AC		-		
250 V AC				
277 V AC	-		-	100 mA to 3 A
415 V AC	100 mA to 3 A			
Number of contacts	1 NO/NC	1 NC + NC/NO	1 NO/NC	
Connections - terminals	Screw clamp	Screw clamp	Screw clamp	
Wiring position	Bottom	Top and bottom	Bottom	
Busbar compatibility	Top	-	Top	
Operating temperature	-25…+50°C / -13°F...122°F	-25…+50°C / -13°F...122°F	-25…+70°C / -13°F...158°F	
Storage temperature	-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	■	-	■	
IEC/EN 60947-5-4	-	-	■	-
EN 60947-2	-	-	-	
EN 62019-2	■	-	■	
UL	-	-	■	
CSA	-	-	■	
RCM	-	-	■	
CCC	-	-	■	
EAC	-	-	■	

Multi9 Electrical auxiliaries for MCB and RCD, except Acti9 iID B-SI type RCCB (cont.)

	SD		OF+SD/OF
	Fault indicating contact		**Double open/closed or fault indicating contact**
	 M9A26917	 M9A26907	 M9A26909
	■ Changeover contact indicating the position of the associated device in the event of: □ electrical fault □ action on the tripping auxiliary ■ Low current auxiliary 2 to 100 mA): 2 contacts (1 NO/NC) can report the signalling information to a Programmable Logic Controller (Industry). ⚠ **Not compatible with a RCCB-ID ≤ 63 A. Use a SD+OF in the SD position**		■ The OF+OF/SD auxiliary is a 2-in-1 product: via a mechanical selector switch, it provides 2 contacts, OF+SD or OF+OF
	 DB438952		 DB118812 OF+OF  DB118813 OF+SD
	■ Remote fault tripping indication of the associated device		■ Remote position and/or fault tripping indication of the associated device
	M9A26917	**M9A26907**	**M9A26909**
	24…250	24…415	24…415
	24…220	24…130	24…130
	50/60		50/60
	3		3
	On front face		On front face
	On front face		On front face
	1		1
	2 mA to 100 mA	100 mA to 6 A	100 mA to 6 A
		100 mA to 2 A	100 mA to 2 A
		100 mA to 1.5 A	100 mA to 1.5 A
		100 mA to 1 A	100 mA to 1 A
		-	-
		100 mA to 6 A	100 mA to 6 A
	-	100 mA to 3 A	100 mA to 3 A
	1 NO/NC		2 NO/NC
	Screw clamp		Screw clamp
	Bottom		Top and bottom
	Top		-
	-25…+70°C / -13°F...158°F		-25…+70°C / -13°F...158°F
	-40…+85°C / -40°F...185°F		-40…+85°C / -40°F...185°F
	-		-
	■		■
	■	-	-
	-		-
	■		■
	■		■
	■		■
	■		■
	■		■
	■		■

4

Multi9 Electrical auxiliaries for MCB and RCD, except Acti9 iID B-SI type RCCB (cont.)

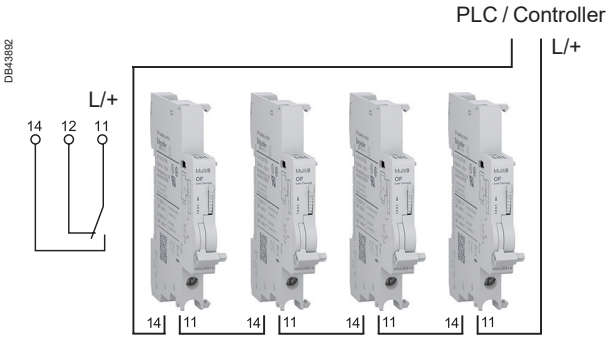


How to generate summary data using OF or SD contacts of low current electrical auxiliaries

- Electrical summary of the OF signals or electrical summary of the SD signals can be generated with low current indication auxiliaries (2 mA to 100 mA) wired as a daisy chain
- The OF connections and the SD connections must not be connected on the same daiy chain: 2 separate daisy chains are required to report OF information on the one hand and SD information on the other
- A daisy chain is made of up to 100 OF contacts or 100 SD contacts
- A daisy chain is connected locally to the PLC or the Controller (inside the same switchboard).

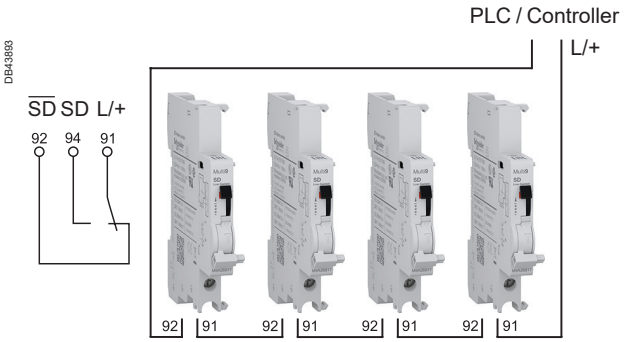
OF contacts within a daisy chain

- OF contacts are Normally Open (NO)
- The electrical summary of the OF signals can be done by cabling in series all OF signals
- Any open position opens the daisy chain and can be detected.

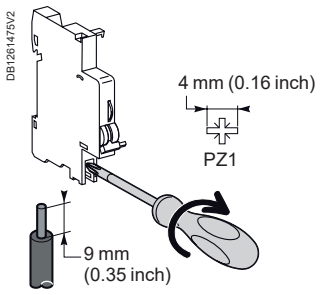


SD contacts within a daisy chain

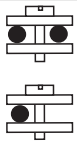
- SD contacts are Normally Closed (NC)
- The electrical summary of the SD signals can be done by cabling in series all SD signals
- Any SD signal opens the daisy chain and can be detected.



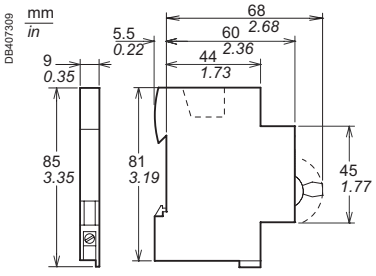
Multi9 Electrical auxiliaries for MCB and RCD, except Acti9 iID B-SI type RCCB (cont.)



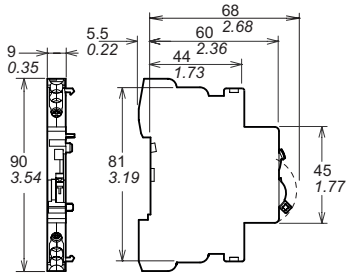
Connection

Type	Tightening torque	Copper cables
		Rigid
		
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 
OFsp	0.8 N.m (7 lb.in)	1 cable, 1.5 mm² / #16 AWG

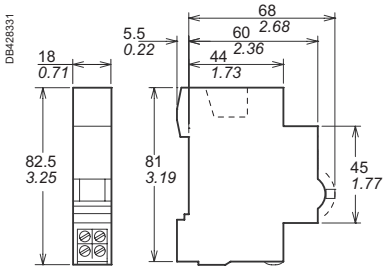
Dimensions (mm / inches)



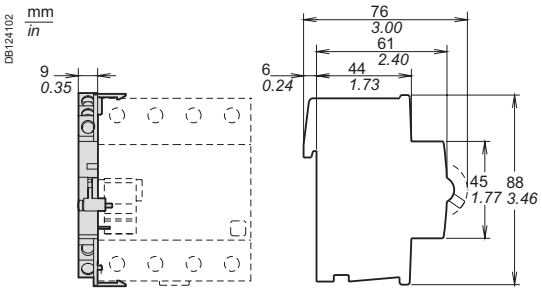
OF.S, OF, SD



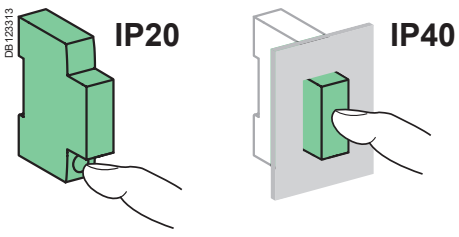
SD+OF

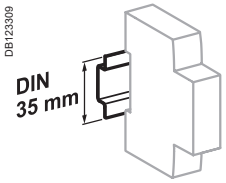


MX, MN, MN[S], MX+OF, MNx

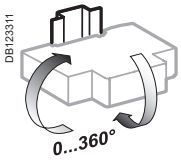


OFsp





Clip on DIN rail 35 mm.

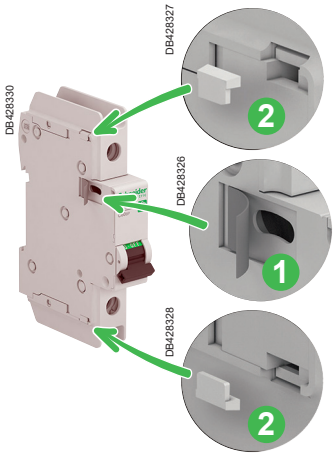


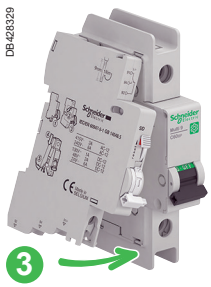
Indifferent position of installation.

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	2 mA to 100 mA	29 g / 1.02 oz
	100 mA to 6 A	30 g / 1.06 oz
OFsp		40 g / 1.41 oz
SD	2 mA to 100 mA	29 g / 1.02 oz
	100 mA to 6 A	30 g / 1.06 oz
SD+OF		38 g / 1.34 oz

C60BP or C60BPR association





4

Electrical auxiliaries for Acti9 iID B-SI type RCCB

■ The electrical auxiliaries are combined with iID residual current circuit breakers; they enable tripping or remote indication of their position (open/closed/tripped) upon an electrical fault.
■ The iOF/SD+OF auxiliary is a 2-in-1 product: via a mechanical selector switch, it provides two contacts, OF+SD or OF+OF.
■ The low current auxiliaries iOF, iSD, iSD+OF (2 to 100 mA) are especially dedicated to low current application to report status information to a Programmable Logic Controller (Industry) or a Controller (Building/BMS).
■ The iOF+SD24 auxiliary can report open/closed (OF) status information and intentional or fault tripping of the associated device (SD) to the Acti9 Smartlink, a Programmable Logic Controller (Industry) or a Controller (Building/BMS), via the Ti24 interface (24 V DC).

Tripping auxiliaries:

IEC/EN 60947-1
- ■ iMN: undervoltage release
- ■ iMNs: delayed undervoltage release
- ■ iMNx: undervoltage release, independant from supply voltage
- ■ iMX: shunt release
- ■ iMX+OF: shunt release with open/close contact.

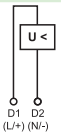
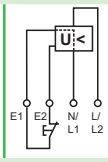
EN 50550
- ■ iMSU: overvoltage release.

Indication auxiliaries:

IEC/EN 60947-5-1
- ■ iOF: open/close contact
- ■ iSD: fault indicating contact
- ■ iOF/SD+OF: open/close contact and switchable OF or SD function

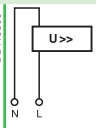
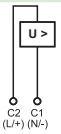
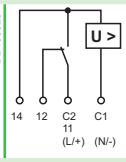
IEC/EN 60947-5-4
- ■ Auxiliaries dedicated to low current applications (PLC...)
- □ iOF Low Current: open/close contact
- □ iSD Low Current: fault indicating contact
- □ iSD+OF Low Current: open/close contact and fault indicating SD contact
- ■ iOF+SD24: open/close contact OF and fault indicating contact SD with Ti24 interface.

Electrical auxiliaries for Acti9 iID B-SI type RCCB (cont.)

	Tripping						
Auxiliaries	**iMN**				**iMNs**	**iMNx**	
Type	**Undervoltage release**						
	Instantaneous				Delayed	Independent of the supply voltage	
	PB104477-35 				PB104478-35 	PB104480-35 	
Function							
	■ Trips the device with which it is combined when its input voltage decreases (between 70 % and 35 % Un). ■ Prevents device closing again until its input voltage is restored					■ Tripping of the associated device by opening of the control circuit (e.g. push-button, dry contact)	
					■ Not tripping on transient voltage dip (up to 0.2 s)	■ 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	
Wiring diagrams							
	DB118804 					DB406947 	
Use							
	■ Emergency stoppage by normally closed push button ■ Improve the safety of power supply circuits for several machines by preventing "uncontrolled" restarting					■ Emergency stoppage with fail-safe principle ■ Insensitive to control circuit voltage variation to increase service continuity **Important: Before any servicing operation switch off the mains power supply (voltage presence at terminals E1/E2)**	
Catalog numbers	**A9A26960**	**A9A27108**	**A9A26961**	**A9A26959**	**A9A26963**	**A9A26969**	**A9A26971**
iID double terminals	■	■	■	■	■	■	■
Technical specifications							
Rated voltage (Ue)	220…240 V AC	24 V AC	48 V AC	115 V AC	220…240 V AC	220…240 V AC	380…415 V AC
	–	24 V DC	48 V CC		–	–	
Standardised operating and non-response to voltage times (Ua)*	–	–	–	–	–	–	–
Maximum operating time	–	–	–	–	–	–	–
Minimum non-response time	–	–	–	–	–	–	–
Operating frequency	50/60 Hz			400 Hz	50/60 Hz	50/60 Hz	
Red mechanical indicator	On front face				On front face	On front face	
Test function	–				–	–	
Width in 9 mm modules	2				2	2	
Operating current	–				–	–	
Number of contacts	–				–	–	
Busbar compatibility	Top and bottom				Top and bottom	Top	
Operating temperature	-35…+70°C / -31°F...158°F				-35…+70°C / -31°F...158°F	-35…+70°C / -31°F...158°F	
Storage temperature	-40…+85°C / -40°F...185°F				-40…+85°C / -40°F...185°F	-40…+85°C / -40°F...185°F	

*(Ua)
Voltages measured between the phase and the neutral conductor, at which the iMSU device must control the associated protective device.

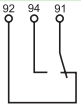
Electrical auxiliaries for Acti9 iID B-SI type RCCB (cont.)

	iMSU	iMX			iMX+OF		
	Overvoltage release	**Shunt release**					
					With Open/Close auxiliary contact		
	PB104479-35 	PB104496-35 			PB104481-35 		
	■ Switches off the power supply by opening the breaker with which it is combined, in the event that the phase/neutral voltage is exceeded (loss of neutral). For a four-phase network, use three iMSU tripping auxiliaries.	■ Trips the associated device when it is powered on					
					■ Includes an open/close contact (OF) to indicate the "open" or "closed" position of the device		
	DB118806 	DB123012 			DB406929 		
	■ Protection of equipment against overvoltages on the electrical network (neutral conductor break) ■ Voltage monitoring between phase and neutral conductors	■ Emergency stoppage by normally open push button			■ Emergency stoppage by normally open push button ■ Remote indication of the position of the associated device		
	A9A26500	**A9A26476**	**A9A26477**	**A9A26478**	**A9A26946**	**A9A26947**	**A9A26948**
	■	■	■	■	■	■	■
	230 V AC	100…415 V AC	48 V AC	12…24 V AC	100…415 V AC	48 V AC	12…24 V AC
	–	110…130 V DC	48 V DC	12…24 V DC	110…130 V DC	48 V DC	12…24 V DC
	255 V AC / 275 V AC / 300 V AC / 350 V AC / 400 V AC	–	–	–	–	–	–
	No tripping / 15 s / 5 s / 0.75 s / 0.20 s	–	–	–	–	–	–
	3 s / 1 s / 0.25 s / 0.07 s	–	–	–	–	–	–
	50/60 Hz	50/60 Hz			50/60 Hz		
	On front face	On front face			On front face		
	–	–			–		
	2	2			2		
	–	–			100 mA mini, 6 A maxi ≤ 130 V DC 1 A / ≤ 240 V AC 6 A / 415 V AC 3 A 48 V AC 2 A / 48 V DC 2 A ≤ 24 V AC 6 A / ≤ 24 V DC 6 A		
	–	–			1 NO/NC		
	Top and bottom	Top and bottom			Top		
	-35…+70°C / -31°F...158°F	-35…+70°C / -31°F...158°F			-35…+70°C / -31°F...158°F		
	-40…+85°C / -40°F...185°F	-40…+85°C / -40°F...185°F			-40…+85°C / -40°F...185°F		

4

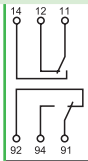
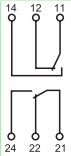
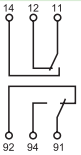
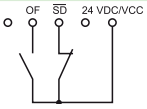
Electrical auxiliaries for Acti9 iID B-SI type RCCB (cont.)

Indication

Auxiliaries	iOF		iSD	
Type	**Open/close auxiliary contact**		**Fault indicating contact**	
	A9A26915 	A9A26905 	A9A26916 	A9A26906 
Function	■ Changeover contact indicates "open" or "closed" position of the device ■ Low current auxiliary (2 to 100 mA): 1 contact (1 NO/NC) can report the signalling information to a Programmable Logic Controller (Industry) or a Controller (Building/BMS)		■ Changeover contact indicates position of the device upon: □ electrical fault □ action on tripping auxiliary ■ Same indication as VISI-TRIP ■ Low current auxiliary (2 to 100 mA): 1 contact (1 NO/ NC) can report the signalling information to a Programmable Logic Controller (Industry) or a Controller (Building/BMS)	
Wiring diagrams	DB438851 		DB438852 	
Use	■ Remote indication of the position of the associated device		■ Remote indication of tripping upon a fault of the associated device	
Catalog numbers	**A9A26915**	**A9A26905**	**A9A26916**	**A9A26906**
iID double terminals	■	■	■	■

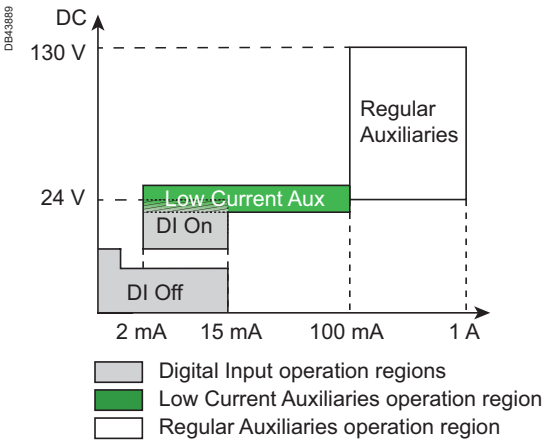
Technical specifications					
Rated voltage (Ue)		24…250 V AC	24…415 V AC	24…250 V AC	24…415 V AC
		24…220 V DC	24…130 V DC	24…220 V DC	24…130 V DC
Operating frequency		50/60 Hz		50/60 Hz	
Red mechanical indicator		-		On front face	
Test function		On toggle		On toggle	
Width in 9 mm modules		1		1	
Operating current	24 V DC	2 mA to 100 mA	100 mA to 6 A	2 mA to 100 mA	100 mA to 6 A
	48 V DC		100 mA to 2 A		100 mA to 2 A
	60 V DC		100 mA to 1.5 A		100 mA to 1.5 A
	130 V DC		100 mA to 1 A		100 mA to 1 A
	220 V DC		-		-
	24...240 V AC		100 mA to 6 A		100 mA to 6 A
	415 V AC	-	100 mA to 3 A	-	100 mA to 3 A
Number of contacts		1 NO (OF) / NC	1 NO (OF) / NC	1 NO / NC (SD)	1 NO / NC (SD)
Connections - terminals		Screw clamp		Screw clamp	
Wiring position		Top	Top	Top	Top
Busbar compatibility		Bottom	Bottom	Bottom	Bottom
Operating temperature		-25…+70°C / -13°F...158°	-35…+70°C / -31°F...158°F	-25…+70°C / -13°F...158°	-35…+70°C / -31°F...158°F
Storage temperature		-40…+85°C / -40°F...185°F		-40…+85°C / -40°F...185°F	

Electrical auxiliaries for Acti9 iID B-SI type RCCB (cont.)

	iSD+OF	iOF/SD+OF	iOF+SD24
	Open/close and fault indicating contact	**Double open/close or fault indicating contact**	**Double open/close and fault indicating contact**
	A9A26919 	PB104475-35 	PB107750-35 
	■ The iSD+OF auxiliary is a 2-in-1 product: it provides an OF+SD contact ■ 2 contacts (2 NO/NC) can report the signalling information of the associated device to a Programmable Logic Controller (Industry) or a Controller (Building/BMS)	■ The iOF/SD+OF auxiliary is a 2-in-1 product: via a mechanical selector switch, it provides 2 contacts, OF+SD or OF+OF	■ 2 contacts (1 NO + 1 NC) can report the signalling information of the associated device to the Acti9 Smartlink, a Programmable Logic Controller (Industry) or a Controller (Building/BMS): □ electrical fault □ actuation of the tripping auxiliary □ "Open" or "Closed" position of the associated device
	DB118813 	DB118812  DB118813 	DB438843 
	SD+OF	OF+OF SD+OF	
	■ Remote indication of position and tripping upon a fault of the associated device	■ Remote indication of position and/or tripping upon a fault of the associated device	■ Remote indication of position and tripping upon a fault of the associated device
	A9A26919	**A9A26909**	**A9A26897**
	■	■	■
	24…250 V AC	24…415 V AC	-
	24…220 V DC	24…130 V DC	24 V DC
	50/60 Hz	50/60 Hz	-
	On front face	On front face	On front face
	On toggle	On toggle	On toggle
	1	1	1
	2 mA to 100 mA	100 mA to 6 A	2 mA to 100 mA
		100 mA to 2 A	-
		100 mA to 1.5A	-
		100 mA to 1 A	-
		-	-
		100 mA to 6 A	-
	-	100 mA to 3 A	-
	1 NO (OF) / NC 1 NO / NC (SD)	1 NO (OF) / NC 1 NO (OF) / NC	1 NO (OF) / NC 1 NO / NC (SD) 1 NO (OF) + 1 NC (SD)
	Screw clamp	Screw clamp	Spring-loaded Ti24 (sold separately)
	Top and bottom	Top and bottom	Top
	-	-	Bottom
	-25…+70°C / -13°F...158°	-35…+70°C / -31°F...158°F	-25…+70°C / -13°F...158°
	-40…+85°C / -40°F...185°F	-40…+85°C / -40°F...185°F	-40…+85°C / -40°F...185°F

4

Electrical auxiliaries for Acti9 iID B-SI type RCCB (cont.)

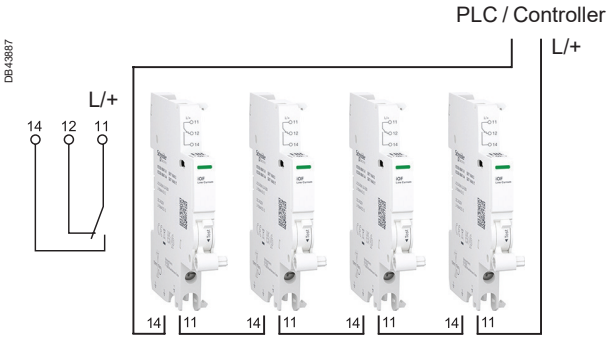


How to generate summary data using OF or SD contacts of low current electrical auxiliaries

- Electrical summary of the OF signals or electrical summary of the SD signals can be generated with low current indication auxiliaries (2 mA to 100 mA) wired as a daisy chain
- The OF connections and the SD connections must not be connected on the same daiy chain: 2 separate daisy chains are required to report OF information on the one hand and SD information on the other
- A daisy chain is made of up to 100 OF contacts or 100 SD contacts
- A daisy chain is connected locally to the PLC or the Controller (inside the same switchboard).

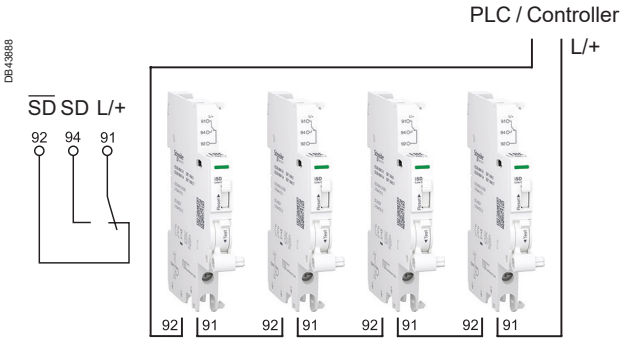
OF contacts within a daisy chain

- OF contacts are Normally Open (NO)
- The electrical summary of the OF signals can be done by cabling in series all OF signals
- Any open position opens the daisy chain and can be detected.



SD contacts within a daisy chain

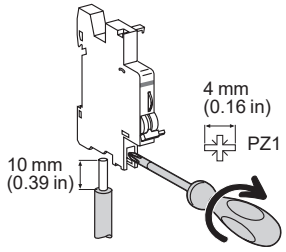
- SD contacts are Normally Closed (NC)
- The electrical summary of the SD signals can be done by cabling in series all SD signals
- Any SD signal opens the daisy chain and can be detected.



Electrical auxiliaries for Acti9 iID B-SI type RCCB (cont.)

Connection

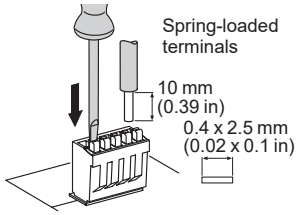
DB123061



Type	Tightening torque	Copper cables		Multi-cables	
		Rigid	Flexible	Rigid	Cables with ferrule
		DB122945 DB123007	DB123011	DB123008	
Indication auxiliaries	1 N.m / 8.85 lb.in	1 to 4 mm² / AWG #18 to #12	0.5 to 2.5 mm² / AWG #20 to #14	2 x 2.5 mm² / 1 x AWG #14	2 x 1.5 mm² / 1 x AWG #16
Tripping auxiliaries	1 N.m / 8.85 lb.in	1 to 6 mm² / AWG #18 to #10	0.5 to 4 mm² / AWG #20 to #12	2 x 2.5 mm² / 1 x AWG #14	2 x 2.5 mm² / 1 x AWG #14

Ti24 connector connection

DB123580



Type	Catalog numbers	Copper cables	
		Rigid	Flexible
		DB122945	DB123553
Ti24 interface	**A9XC2412**	1 x 0.5 to 1.5 mm² / 1 x AWG #20 to #16	1 x 0.5 to 1.5 mm² / 1 x AWG #20 to #16

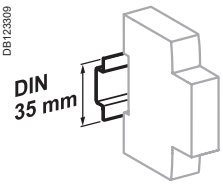
Ti24 prefabricated cables connection

	Type	Catalog numbers	Length
PB107754-10	**Connection for Acti9 Smartlink**		
	6 prefabricated	**A9XCAS06**	100 mm (3.94 in)
		A9XCAM06	160 mm (6.3 in)
		A9XCAH06	450 mm (17.72 in)
		A9XCAL06	870 mm (34.25 in)
PB107755-14	**Connection for PLC type terminals**		
	6 long prefabricated on a single side	**A9XCAU06**	870 mm (34.25 in)
DB404941	1 long prefabricated on a single side	**A9XCAC01**	4000 mm (157.48 in)
PB107756-7	12 connectors, 5-pins (Ti24)	**A9XC2412**	-

4

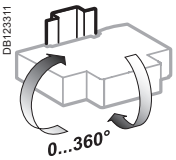
Electrical auxiliaries for Acti9 iID B-SI type RCCB (cont.)

DB123309



Clip on DIN rail 35 mm (1.38 in)

DB123311



Indifferent position of installation

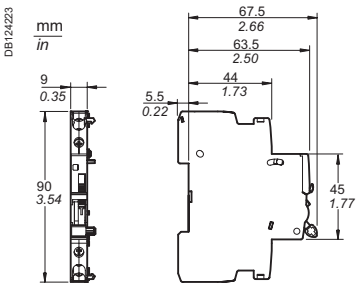
Technical data

Weight (g / oz)

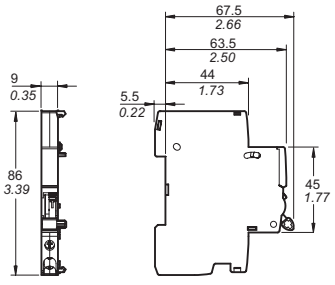
Electrical auxiliaries	
Type	
iMN	69 g / 2.43 oz
iMNs	72 g / 2.54 oz
iMNx	79 g / 2.79 oz
iMSU	68 g / 2.4 oz
iMX	64 g / 2.26 oz
iMX+OF	68 g / 2.4 oz
iOF	32 g / 1.13 oz
iSD	33 g / 1.16 oz
iOF/SD+OF	43 g / 1.52 oz
iOF+SD24	25 g / 0.88 oz

Dimensions (mm / inches)

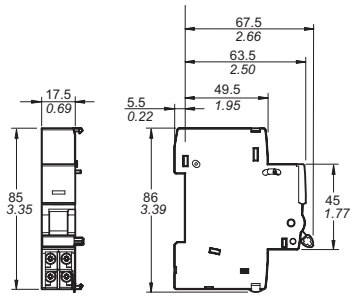
DB124223



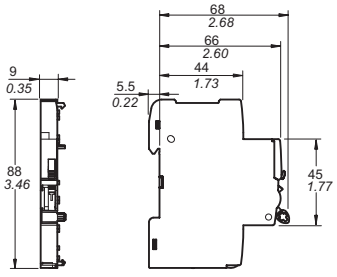
iOF/SD+OF



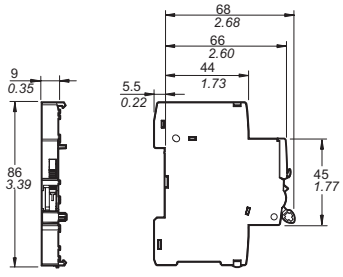
iOF, iSD



iMN, iMNs, iMNx, iMSU, iMX, iMX+OF



iOF+SD24 (A9A26897)



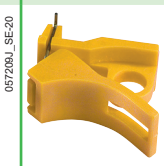
iOF+SD24 (A9A26898)

Accessories for MCB and RCD, except Acti9 iID B-SI type RCCB

Installation

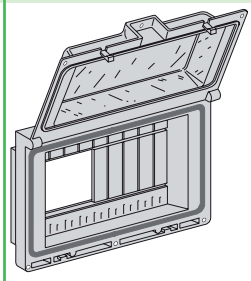
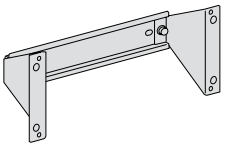
Accessories	Rotary handle			Plug-in base
	PB100137_SE-24 PB100138_SE-24 			PB111764-40 
Function				
	Front or side control of 2, 3 and 4-pole circuit breakers ■ Degree of protection: IP40 ■ A complete rotary handle consists of: □ a circuit breaker operating sub-assembly, cat. no. **27046**, □ a handle 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 (7.87 in) ■ Only on the circuit breaker, without a Vigi device or auxiliary ■ Padlocking option: 8 mm (0.31 in) diameter, 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 125 A	–			–
N40 Vigi	–			–
Operating temperature	-35°C to +70°C / -31°F to 158°F			-35°C to +70°C / -31°F to 158°F

Accessories for MCB and RCD, except Acti9 iID B-SI type RCCB (cont.)

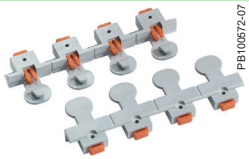
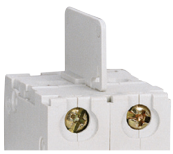
Accessories	Padlocking device			
	Front		Side	
	 057209J_SE-20	 DB409566-25	 A9A26380-40	 A9A26381-40
Function				
	Used to padlock a circuit breaker in the "open" or "closed" position ■ Locking in the ON position does not prevent the circuit breaker from tripping in the event of an electrical fault ■ Isolation: in conformity with IEC/EN 60947-2. ■ Diameter of the padlock: 8 mm (0.31 in) 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 (0.31 in) 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 (0.24 in)	
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 125 A	–	–	–	–
N40 Vigi	■	–	–	–
Operating temperature	-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

Accessories for MCB and RCD, except Acti9 iID B-SI type RCCB (cont.)

Installation (continued)

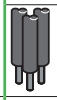
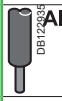
Accessories	Front mounting kit		Pole filler		Front mounting bracket			
	Front mounting kit	DIN rail support						
	DB409568 	DB409569  DB409567			DB409570 			
Function								
	■ Consists of a transparent, hinged, weatherproof cover ■ Allows installation of up to twenty modules (10 poles of C60) of circuit 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 (0.35 in) 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 (0.71 in) pole filler	4 strips of 5 by 18 mm (0.71 in) 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 125 A	–				–			
N40 Vigi	■				■			
Operating temperature	-35°C to +70°C / -31°F to 158°F				-35°C to +70°C / -31°F to 158°F			

Accessories for MCB and RCD, except Acti9 iID B-SI type RCCB (cont.)

	Security					
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 (0.05 in)		**Prevents all contact with the terminals** ■ Degree of protection becomes IP40 ■ Sealable, max. diameter 1.2 mm (0.05 in)		**Improves the insulation between the connections: cables, terminals, lugs, etc.**	■ Used to: □ complete the rows □ separate the devices ■ Width: 1 x 9 mm (0.35 in) 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 125 A	–	■	–	–	–	■
N40 Vigi	–	–	–	–	–	■
Operating temperature	-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

4

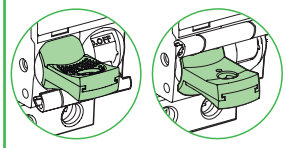
Accessories for MCB and RCD, except Acti9 iID B-SI type RCCB (cont.)

	Connection				Spare part
Accessories	**Multi-cable terminal**		**50 mm² / #1 AWG Al terminal**	**Connection kit for ring terminals**	**Locking clips**
	DB103334_SE-19 		DB122951 	DB409586 	27052-16 
Function					
	For 3 copper cables: ■ Rigid up to 16 mm² ■ Flexible up to 10 mm² DB118787 		**For 16 to 50 mm² aluminium cables** DB122935 	**For terminal up to 63 A, front or rear access** ■ It incorporates a "conductive" part and an "insulating" part which ensures the phase-to-phase clearance	Top and bottom locking clips
Cat. numbers	**19091**	**19096**	**27060**	**M9A17400**	**27052**
Set of	**4**	**3**	**1**	**24**	**50**
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 125 A	–	–	–	–	–
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	Flat 5 mm (0.2 in) or PZ2		Hc 1/5" or 5 mm (0.2 in)	Flat 5 mm (0.2 in) or PZ2	–
Operating temperature	-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 markers max. per pole			
C60H-DC	■ 4 markers max. per pole			
GFP UL1053	■ 4 markers max. per pole			
C60H-DC	■ 4 markers max. per pole			
C60N, H, L, C60CTRL	■ 4 markers max. per pole			
N40N	■ 4 markers max. per pole			
RCCB-ID 125 A	–			
N40 Vigi	■ 4 markers max. per device			

Accessories for Acti9 iID B-SI type RCCB

Mounting

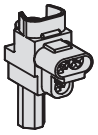
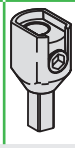
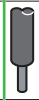
Accessories	Rotary handle				Plug-in base	Padlocking device	
						Front	Side
	PB104509-35  		PB106297_10 	PB104508-35 	PB104492-15 	A9A26380-40 
					DB123599  		
Function							
	Front or side-mounted control ■ Degree of protection: IP55 rotary handle ■ Installation: □ the control mechanism is mounted on the device □ the rotary handle is fixed to the front or side of the enclosure ■ Front-mounted (on door or faceplate) ■ Prevents the door from opening when the device is in the ON position (can be deactivated) ■ Can be padlocked when the device is in the "open" position (can be padlocked with the device in the "closed" position subject to adaptation) ■ Can be locked by padlock of (dia. 5 to 8 mm / 0.2 to 0.31 in), not supplied with the device ■ Pushbutton: iID test available in the front face of the rotary handle			■ The Laser Square tool brings the accurency to align the breaker and the rotary handle	**Allows a breaker to be removed or replaced quickly, without handling the connections** ■ Degree of protection: IP20 ■ Consists of: □ a base to be fastened on a rail (or panel) □ 2 "blades" to be fastened in the device's terminals ■ Connection: tunnel terminals for cable up to 35 mm^2 rigid, 25 mm^2 flexible, ■ Installation: □ in universal enclosure □ on horizontal rail ■ Height: 178 mm (7.01 in) ■ Not compatible with Vigi iC60 and auxiliaries ■ Can be locked by padlock of (dia. 6 mm / 0.24 in), not supplied with the device	**Used to padlock a breaker in open or closed position** ■ Padlock diameter: 3 to 6 mm (0.12 to 0.24 in) ■ Sealable (max. diameter: 1.2 mm / 0.05 in) ■ Locking in ON position does not prevent tripping of the breaker in the event of faults ■ Suitable for IEC/EN 60947-2 compliant disconnection	**Can be used to padlock a breaker in open position** ■ Attached directly to the circuit breaker, it cannot be lost ■ Padlock diameter: 6 mm (0.24 in)
Catalog numbers	**A9A27005**	**A9A27006**	**A9A27008**	**GVAPL01**	**A9A27003 (1 per pole)**	**A9A26970**	**A9A26380**
	Operating sub-assembly						Left-hand mounting
	+	+					
	Black handle	Red handle	No handle				
Set of	**1**	**1**	**1**	**1**	**1**	**10**	**1**
Suitability							
iID	■				■ ⩽ 63 A	■	■
ARA+iID	–				–	■	–

Accessories for Acti9 iID B-SI type RCCB (cont.)

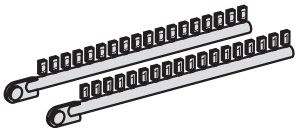
	Security			
Accessories	**Screw shield**	**Terminal shield**	**Inter-pole barrier**	**Spacer**
	PB104488-14 	PB104503-35 	PB104484-30 	PB104483-35 
Function				
	Prevents any contact with the connecting screws ■ Upgrades degree of protection to IP20D ■ Sealable, max. diameter 1.2 mm (0.05 in)	**Prevents any contact with the terminals** ■ Upgrades degree of protection to IP20D ■ Sealable, max. diameter 1.2 mm (0.05 in) ■ Set of two, for power supply and output terminals ■ For 4 poles: 2 X **A9A26976**	**Enhances insulation between connections: cables, terminals, lugs, etc**	■ Used to: □ complete rows □ separate devices. ■ Width: 1 x 9 mm (0.35 in) module ■ Allows cable routing from one row to another, (above and below), up to 6 mm^2
Catalog numbers	**A9A26981**	**A9A26976**	**A9A27001**	**A9A27062**
Set of	**20 x 4 poles (splittable)**	**2 x 2 poles**	**10**	**5**
Suitability				
iID	■	■	■	■
ARA+iID	■	■	■	■

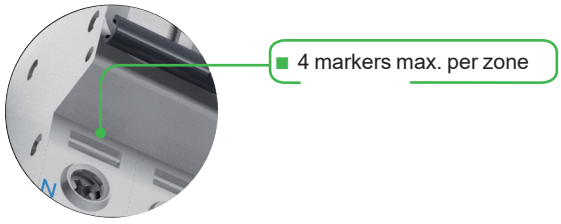
Accessories for Acti9 iID B-SI type RCCB (cont.)

Connection

Accessories	Multi-cable terminal		50 mm² Al terminal	Screw-on connection for ring terminal
	DB118780 		DB118781 	DB118783 
Function				
	For 3 copper cables: ■ Rigid up to 16 mm² ■ Flexible up to 10 mm²		**For aluminium cables from 16 to 50 mm²**	**For lug tipped cables, front or rear mounting** To be used only with inter-pole barrier (A9A27001)
	DB118787 		DB122935  Al	DB118789  Ø 5 mm (0.2 in)
Catalog numbers	**19091**	**19096**	**27060**	**27053**
Set of	**4**	**3**	**1**	**8**
Suitability				
iID	■	■	■	■
Tightening torque	2 N.m		10 N.m	2 N.m
Lenght stripping	11 mm (0.43 in)		13 mm (0.51 in)	–
Tools to use	Dia. 5 mm (0.2 in) or PZ2		Hc 1/5" or 5 mm (0.2 in)	Dia. 5 mm (0.2 in)

Marking

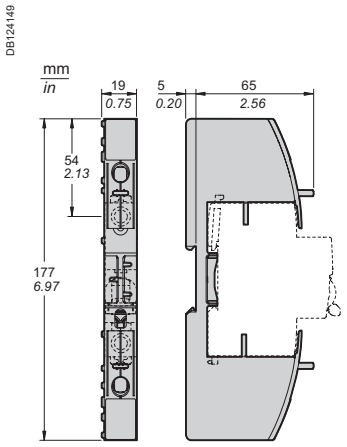
Accessories	Clip-on terminal markers					
	DB118785 					
	Used for connection identification					
Catalog numbers	0: **AB1-R0** 1: **AB1-R1** 2: **AB1-R2** 3: **AB1-R3** 4: **AB1-R4**	5: **AB1-R5** 6: **AB1-R6** 7: **AB1-R7** 8: **AB1-R8** 9: **AB1-R9**	A: **AB1-GA** B: **AB1-GB** C: **AB1-GC** D: **AB1-GD** E: **AB1-GE** F: **AB1-GF** G: **AB1-GG** H: **AB1-GH** I: **AB1-GI**	J: **AB1-GJ** K: **AB1-GK** L: **AB1-GL** M: **AB1-GM** N: **AB1-GN** O: **AB1-GO** P: **AB1-GP** Q: **AB1-GQ** R: **AB1-GR**	S: **AB1-GS** T: **AB1-GT** U: **AB1-GU** V: **AB1-GV** W: **AB1-GW** X: **AB1-GX** Y: **AB1-GY** Z: **AB1-GZ**	+: **AB1-R12** -: **AB1-R13** Blank: **AB1-RV**
Set of	**250**					



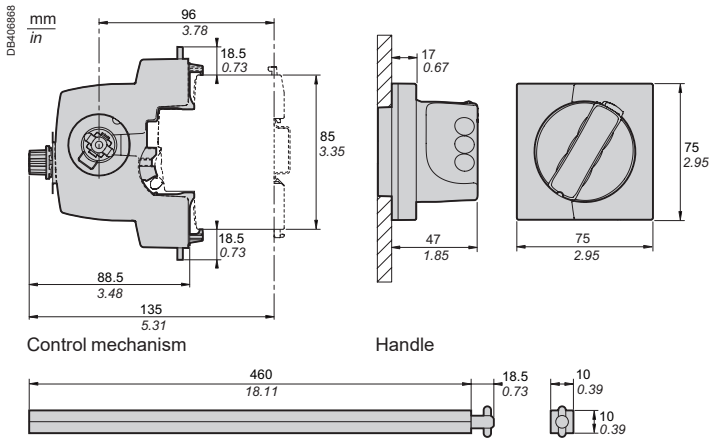
4

Accessories for Acti9 iID B-SI type RCCB (cont.)

Dimensions (mm / inches)



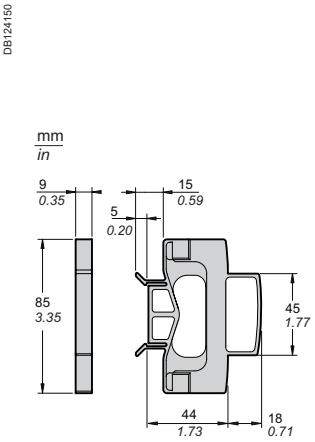
Plug-in base



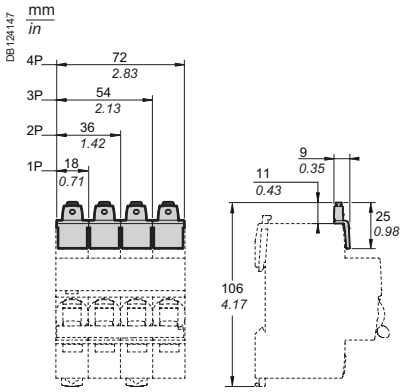
Control mechanism

Handle

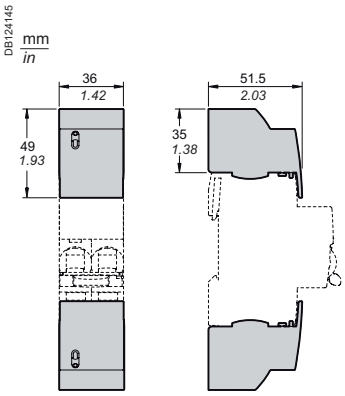
Rotary handle



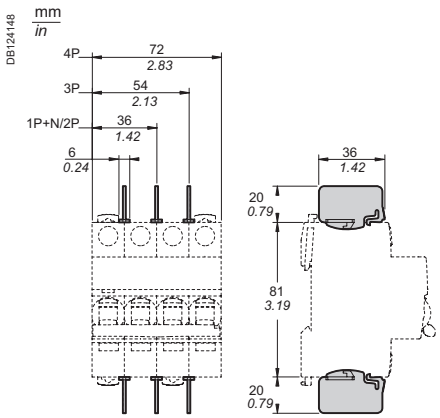
Spacer



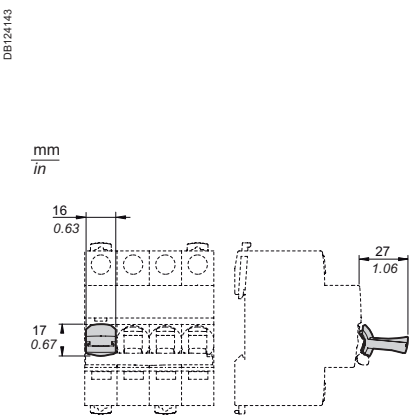
Screw shield 4P (A9A26981)



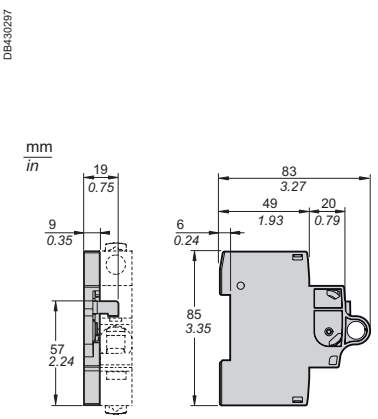
Terminal shield 2P



Inter-pole barrier



Front padlocking device

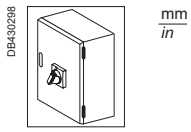


Side padlocking device

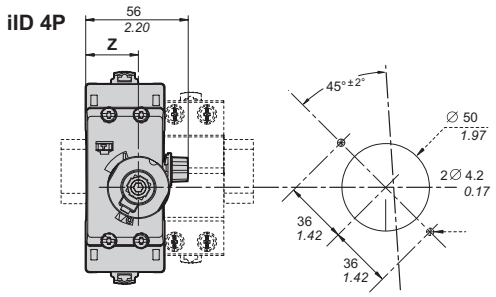
Accessories for Acti9 iID B-SI type RCCB (cont.)

Rotary handle installation

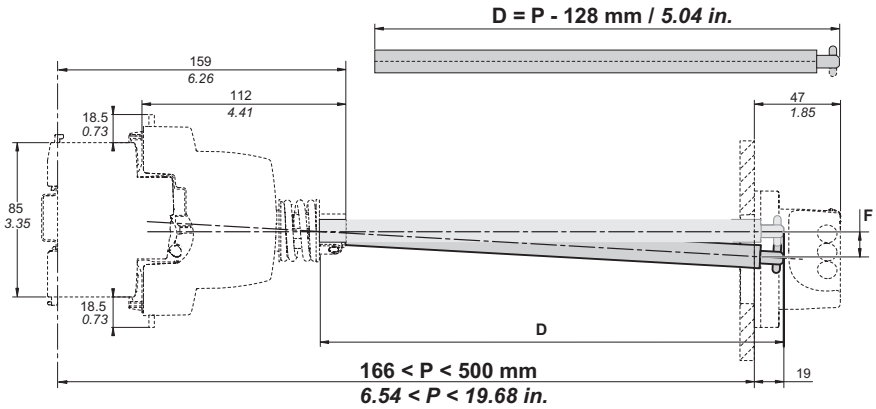
Dimensions (mm / inches)

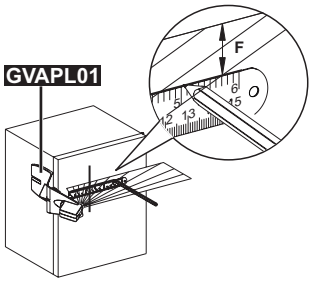


mm
in



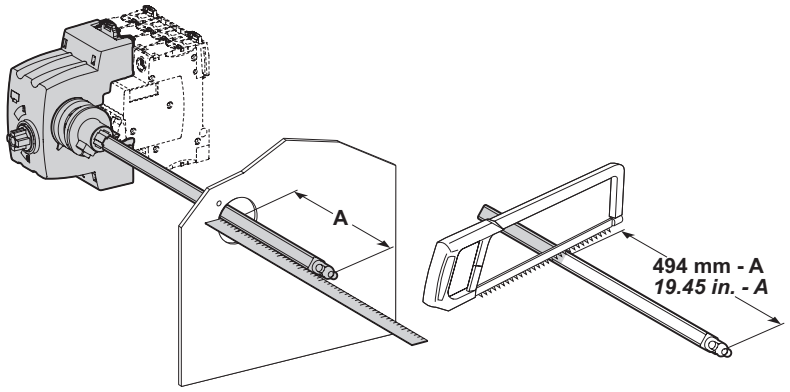
iID	Z (mm / *in.*)
2P	25.3 / *1.00*
4P	25.3 / *1.00*





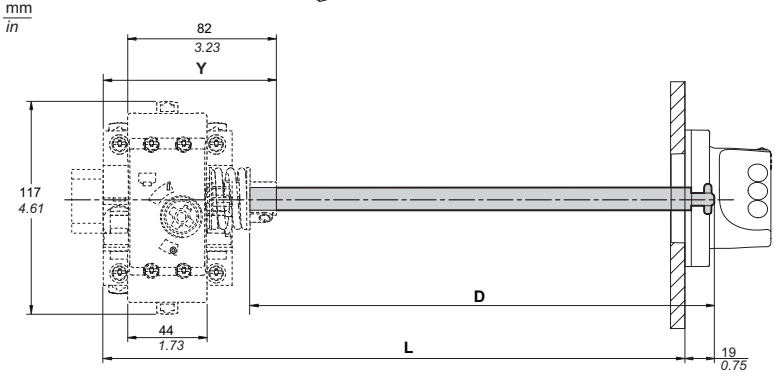
P (mm / *in.*)	F (mm / *in.*)
300 / *11.81*	5 / *0.20*
500 / *19.68*	11 / *0.43*

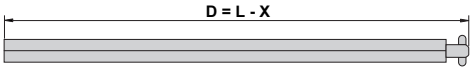
Rotary handle: front mounted control



iID	X (mm / *in.*)	Y (mm / *in.*)
2P	44.5 / *1.75*	76.8 / *3.02*
4P	44.5 / *1.75*	76.8 / *3.02*

mm
in





Rotary handle: side mounted control

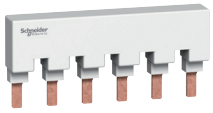
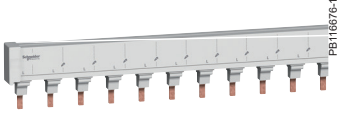
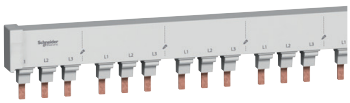
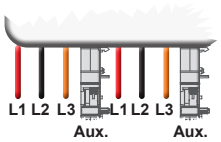
Comb busbars for C60BP

DB105730

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	
Catalog numbers	**M9XUP106**	**M9XUP112**	**M9XUP206**	**M9XUP212**	**M9XUP306**	**M9XUP312**
Number of 18 mm (0.71 in) mod.	6	12	6	12	6	12
Set of	**1**		**1**		**1**	
Cuttable comb busbars						
	PB116674-17 		PB116675-18   L L Aux.		PB116676-18   L1 L2 L3 Aux. L1 L2 L3 Aux.	
					With spare spaces of 9 mm (0.35 in) for 9 mm (0.35 in) electrical auxiliary	
Number of poles	1P	2P	3P	1P+Aux	3P+Aux	
Catalog numbers	**M9XCP157**	**M9XCP256**	**M9XCP357**	**M9XCA137**	**M9XCA348**	
Number of 18 mm (0.71 in) mod.	57	56	57	37	48	
Set of	**1**	**1**	**1**	**1**	**1**	

Technical specifications	
Acceptable current at 40°C (104 °F) (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 (1760 °F) 30 secondes
Colour	RAL 9001
Standards	UL489 and UL508

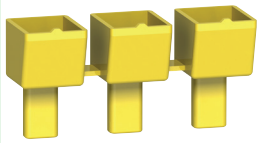
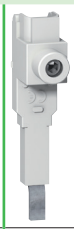
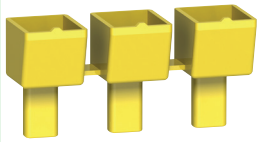
Comb busbars for C60BP (cont.)

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	■ Insulation of end of comb busbar
Use			
	■ Rigid and flexible copper cable: 6 to 35 mm² (AWG #10 to #2) ■ Tightening torque: 3.5 N.m (31 lb.in) ■ Tool to use: hexagonal key Sw4 (4mm).		
Standard comb busbars			
	PB116679-28 	PB116680-18 	-
Number of poles	All	All	-
Catalog numbers	**M9XUPC04**	**M9XUTC15**	**-**
Number of 18 mm (0.71 in) mod.	-	-	-
Set of	**4**	**5 x 3**	**-**
Cuttable comb busbars			
	PB116679-27 	PB116680-18 	PB116677-20 
Number of poles	All	All	All
Catalog numbers	**M9XCPC04**	**M9XCTC15**	**M9XCEC10**
Number of 18 mm (0.71 in) mod.	-	-	-
Set of	**4**	**5 x 3**	**10**
Technical specifications			
Acceptable current at 40°C (104 °F) (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 (1760 °F) 30 secondes	Self-extinguishability 960°C (1760 °F) 30 secondes	Self-extinguishability 960°C (1760 °F) 30 secondes
Colour	RAL 7035	RAL 1021	RAL 7035
Standards	UL486E	-	-

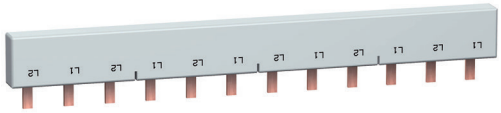
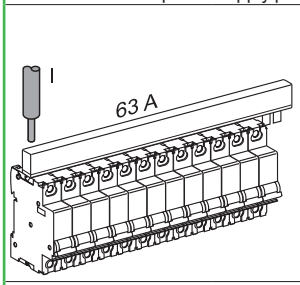
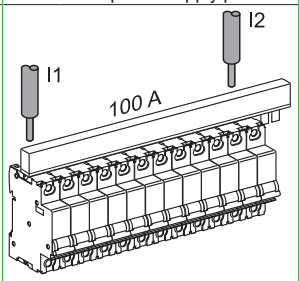
4

Comb busbars for C60SP

DB105730

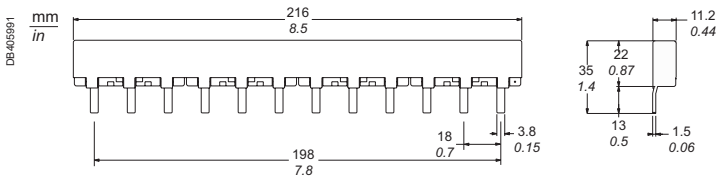
The comb busbars are used only for C60SP circuit breakers UL 1077 supplementary protection in conformity with standards:
UL 1077 / CSA C22.2 No. 235 / IEC 60947-2 / GB 14048-2.

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**
	05896GN-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	–
Catalog numbers	**10285**	**10286**	**10287**	**60488**
Number of 18 mm (0.71 in) modules	12 (216 mm / 8.5 in)	12 (216 mm / 8.5 in)	12 (216 mm / 8.5 in)	–
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 (104 °F) (Ie)	63 A with 1 central power supply point DB110396 	100 A with 2 power supply points 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 (1760 °F) 30 secondes			
Colour	RAL 7035			RAL 1021
Standards	UL 1077			–

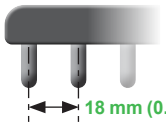
Dimensions (mm / inches)

DB405991



Comb busbars for C60N, C60H, C60L (18 mm / 0.71 in pitch)

IEC



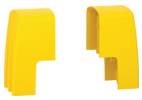
IEC 60947-7-1, IEC 61439-2

C60	18 mm (0.71 in) 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
Catalog numbers					
6 modules of 18 mm (0.71 in)	**A9XPH106**	-	**A9XPH306**	-	-
12 modules of 18 mm (0.71 in)	**A9XPH112**	**A9XPH212**	**A9XPH312**	**A9XPH412**	**A9XPH512**
18 modules of 18 mm (0.71 in)	-	-	-	-	**A9XPH518**
24 modules of 18 mm (0.71 in)	**A9XPH124**	**A9XPH224**	**A9XPH324**	**A9XPH424**	**A9XPH524**
57 modules of 18 mm (0.71 in)	**A9XPH157**	**A9XPH257**	**A9XPH357**	**A9XPH457**	**A9XPH557**

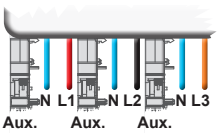
Technical data

Operating current (Ie) at 40°C (104 °F)	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 (1760 °F) 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 (35.4 lb.in)
Set of	10	10	10	10	20	4
Catalog numbers	**A9XPE110**	**A9XPE210**	**A9XPE310**	**A9XPE410**	**A9XPT920**	**A9XPCM04**

Comb busbars for C60N, C60H, C60L (18 mm / 0.71 in pitch) (cont.)

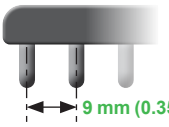
	Cuttable comb busbars, 18 mm (0.71 in) modules, with 9 mm (0.35 in) auxiliary					
	Aux+1P	Aux+2P	Aux+3P	Aux+4P	3 (Aux+1P)	3 (Aux+N+1P)
						
	AuxL1...	AuxL1L2...	AuxL1L2L3...	AuxNL1L2L3...	AuxL1AuxL2AuxL3...	AuxL1AuxL2AuxL3...
	1	1	1	1	1	1
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-
	A9XAH157	A9XAH257	A9XAH357	A9XAH457	A9XAH657	A9XAH557

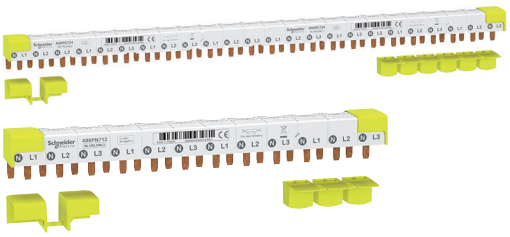
4

Comb busbars for N40N, N40 Vigi (9 mm / 0.35 in pitch)

IEC

IEC 60439-1





N40N, N40 Vigi	9 mm (0.35 in) poles, cuttable					
Number of poles	**1P + N**			**3P + N**		
						
Number of 18 mm (0.71 in) modules	12	24	48	12	24	48
Supplied accessories — Tooth covers (for 3 modules of 18 mm / 0.71 in)	1	2	-	1	2	-
Supplied accessories — End-pieces	4	4	-	4	4	-
Catalog numbers	**A9XPC612**	**A9XPC624**	**A9XPC648 (*)**	**A9XPC712**	**A9XPC724**	**A9XPC748 (*)**

(*)

⚠ CAUTION

INCOMPATIBILITY BETWEEN 1P+N COMB BUSBARS AND 3P+N DEVICES
- Never connect a 1P+N comb busbar to a 3P+N device, as this will result in a multi-phase bolted short circuit.
- Always check that the head of group circuit breaker is in good working condition before connecting a comb busbar.

Failure to follow these instructions can result in injury or equipment damage.

Technical data

Operating current at 40°C (104 °F)	(Ie)	80 A
Short-circuit current	(Isc)	Compatible with the breaking capacity of Schneider Electric circuit breakers
Rated insulation voltage	(Ui)	400 V AC (Ph/N) - 440 V AC (Ph/Ph)
Operating voltage	(Ue)	230 V AC (Ph/N) - 400 V AC (Ph/Ph)
Degree of protection		IP20
Pollution degree		3
Fire resistance IEC 695-2-1		Self-extinguishing at 960°C (1760 °F) 30 secondes
Color		RAL 9003

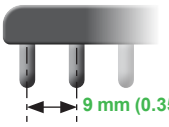
Accessories

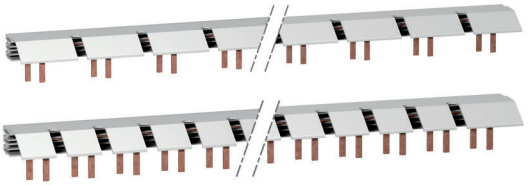
Number of poles	**1P+N**	**3 (N+P)**		
				
	End-pieces		**Tooth covers (3 x 18 mm modules)**	**Connectors**
Set of	40	40	12	4
Catalog numbers	**A9X21094**	**A9X21095**	**A9X21096**	**A9XPCM04**

Comb busbars for N40N, N40 Vigi (9 mm / 0.35 in pitch) (cont.)

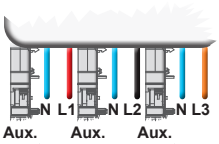
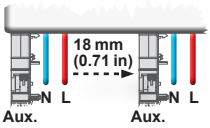
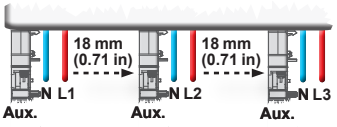
IEC

IEC 60439-1





Comb busbar for 1P+N circuit breaker with 9 mm (0.35 in) auxiliary OF, SD

N40N, N40 Vigi	9 mm (0.35 in) 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 (0.71 in) modules	56	56	56	56
Catalog numbers	**A9N21035**	**A9N21036**	**A9N21037**	**A9N21038**

Technical data

Operating current at 40°C (104 °F)	(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 (1760 °F) 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 / 1 x 0.71 in module)**
Set of	20		10	10	10
Catalog numbers	**A9N21039**	**A9N21040**	**A9N21041**	**A9N21042**	**A9N21050**

4

Linergy DS screw distribution blocks


PB111254-30_1.eps


PB111253-30_1.eps

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

As per the above standards:

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

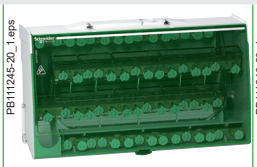
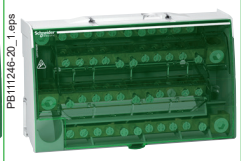
Number of poles	1P			4P
	 PB111250-20_1.eps	 PB111251-20_1.eps	 PB111252-20_1.eps	 PB111243-20_1.eps
Rated operational current	125 A	160 A	250 A	100 A
Total connections capacity	10	13	14	4 x 7
Terminal capacity				
Diameter	2 x Ø 9.5 mm (0.37 in)	2 x Ø 12 mm (0.47 in)	1 x Ø 15.3 mm	2 x Ø 7.5 mm (0.29 in)
	2 x Ø 7.5 mm (0.29 in)	3 x Ø 7.5 mm (0.29 in)	1 x Ø 10 mm (0.39 in)	5 x Ø 5.5 mm (0.22 in)
	6 x Ø 5.8 mm (0.23 in)	8 x Ø 5.8 mm (0.23 in)	4 x Ø 6 mm (0.24 in)	-
	-	-	8 x Ø 7.5 mm (0.29 in)	-
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 (nb of 9 mm / 0.35 in pitches)	3	4	5	8
Dimension (H x W x D)	85 x 27 x 50.5 mm 3.35 x 1.06 x 1.99 in	85 x 36 x 50.5 mm 3.35 x 1.42 x 1.99 in	85 x 45 x 50.5 mm 3.35 x 1.77 x 1.99 in	100 x 71 x 50.5 mm 3.94 x 2.79 x 1.99 in
Weight	125 g (4.41 oz)	163 g (5.75 oz)	239 g (8.43 oz)	210 g (7.41 oz)
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.

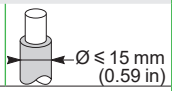
Technical data

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 (104 °F)
Operating temperature	-25 °C to 55 °C (-13 °F to 131 °F)
Dielectric withstand (IEC/EN 60947-1)	2500 V AC

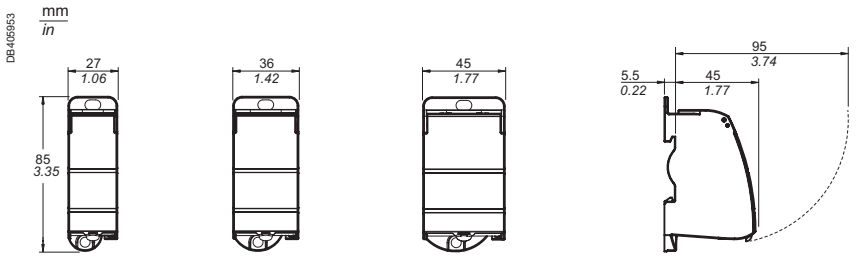
				Neutral terminal strip		
						
	125 A		160 A	100 A	125 A	
	4 x 12	4 x 15	4 x 12	7	12	15
	1 x Ø 9 mm (0.35 in)	1 x Ø 9.5 mm (0.37 in)	1 x Ø 12 mm (0.47 in)	2 x Ø 7.5 mm (0.29 in)	1 x Ø 9 mm (0.35 in)	1 x Ø 9.5 mm (0.37 in)
	7 x Ø 7.5 mm (0.29 in)	3 x Ø 8.5 mm (0.33 in)	3 x Ø 9 mm (0.35 in)	5 x Ø 5.5 mm (0.22 in)	7 x Ø 7.5 mm (0.29 in)	3 x Ø 8.5 mm (0.33 in)
	4 x Ø 6.5 mm (0.26 in)	11 x Ø 6.5 mm (0.26 in)	8 x Ø 7.5 mm (0.29 in)	-	4 x Ø 6.5 mm (0.26 in)	11 x Ø 6.5 mm (0.26 in)
	-	-	-	-	-	-
	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 mm 3.94 x 4.96 x 1.99 in	100 x 162 x 50.5 mm 3.94 x 6.38 x 1.99 in	100 x 174 x 50.5 mm 3.94 x 6.85 x 1.99 in	20 x 70 x 35 mm 0.79 x 2.76 x 1.38 in	20 x 125 x 35 mm 0.79 x 4.92 x 1.38 in	20 x 155 x 35 mm 0.79 x 6.1 x 1.38 in
	390 g (13.76 oz)	559 g (19.72 oz)	567 g (20 oz)	63 g (2.22 oz)	111 g (3.91 oz)	149 g (5.26 oz)
	LGYN12512	LGYN12515	LGYN12512	-	-	-
	LGY412548	**LGY412560**	**LGY416048**	**LGYN1007**	**LGYN12512**	**LGYN12515**

Linergy DS screw distribution blocks (cont.)

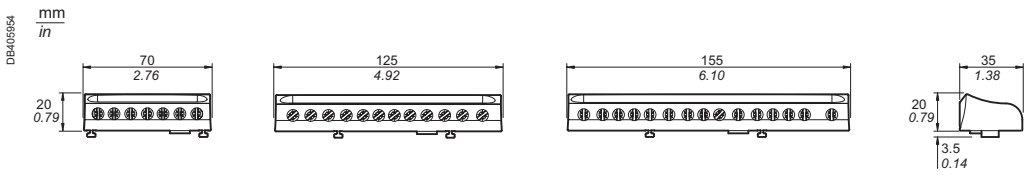
Terminal technical data

Type	PZ2 screw							
Diameter	Ø 5.5 mm (0.22 in)	Ø 5.8 mm (0.23 in)	Ø 6 mm (0.24 in)	Ø 6.5 mm (0.26 in)	Ø 7.5 mm (0.3 in)	Ø 8.5 mm (0.33 in)	Ø 9 mm (0.35 in)	Ø 9.5 mm (0.37 in)
Section rigid cable	1.5 to 16 mm² (AWG #16 to AWG #6)	1.5 to 16 mm² (AWG #16 to AWG #6)	1.5 to 16 mm² (AWG #16 to AWG #6)	1.5 to 16 mm² (AWG #16 to AWG #6)	2.5 to 25 mm² (AWG #14 to AWG #4)	6 to 35 mm² (AWG #10 to AWG #2)	10 to 35 mm² (AWG #8 to AWG #2)	10 to 35 mm² (AWG #8 to AWG #2)
Section flexible cable or with ferrule	1.5 to 10 mm² (AWG #16 to AWG #8)	1.5 to 10 mm² (AWG #16 to AWG #8)	1.5 to 10 mm² (AWG #16 to AWG #8)	1.5 to 10 mm² (AWG #16 to AWG #8)	1.5 to 16 mm² (AWG #16 to AWG #6)	4 to 25 mm² (AWG #12 to AWG #4)	4 to 25 mm² (AWG #12 to AWG #4)	6 to 35 mm² (AWG #10 to AWG #2)
Tightening torque	2 N.m (18 lb.in)	2 N.m (18 lb.in)	2 N.m (18 lb.in)	2 N.m (18 lb.in)	2 N.m (18 lb.in)	2 N.m (18 lb.in)	2.5 N.m (22 lb.in)	2.5 N.m (22 lb.in)
Type	**Hc screw**							
Diameter	Ø 9.5 mm (0.37 in)	Ø 10 mm (0.39 in)	Ø 12 mm (0.47 in)		Ø 15.3 mm (0.6 in)			
Section rigid cable	10 to 35 mm² (AWG #8 to AWG #2)	1.5 to 50 mm² (AWG #16 to AWG #1)	25 to 70 mm² (AWG #4 to AWG #2/0)	 Ø ≤ 15 mm (0.59 in)	35 to 120 mm² (AWG #2 to AWG #4/0)			
Section flexible cable or with ferrule	6 to 35 mm² (AWG #10 to AWG #2)	1.5 to 35 mm² (AWG #16 to AWG #2)	16 to 50 mm² (AWG #6 to AWG #1)		25 to 95 mm² (AWG #4 to AWG #3/0)			
Tightening torque	8 N.m (71 lb.in)	4 N.m (35 lb.in)	1P: 9 N.m (80 lb.in)	4P: 5 N.m (44 lb.in)	14 N.m (124 lb.in)			

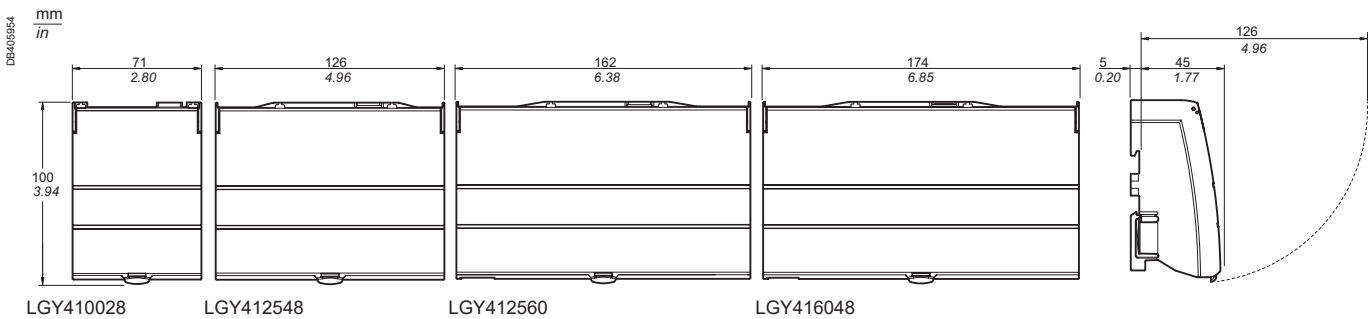
Dimensions (mm / inches)



LGY112510 LGY116013 LGY125014



LGYN1007 LGYN12512 LGYN12515



LGY410028 LGY412548 LGY412560 LGY416048

The setup of circuit protective devices depends on the electrical installation standard. Multi9 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, Multi9 “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

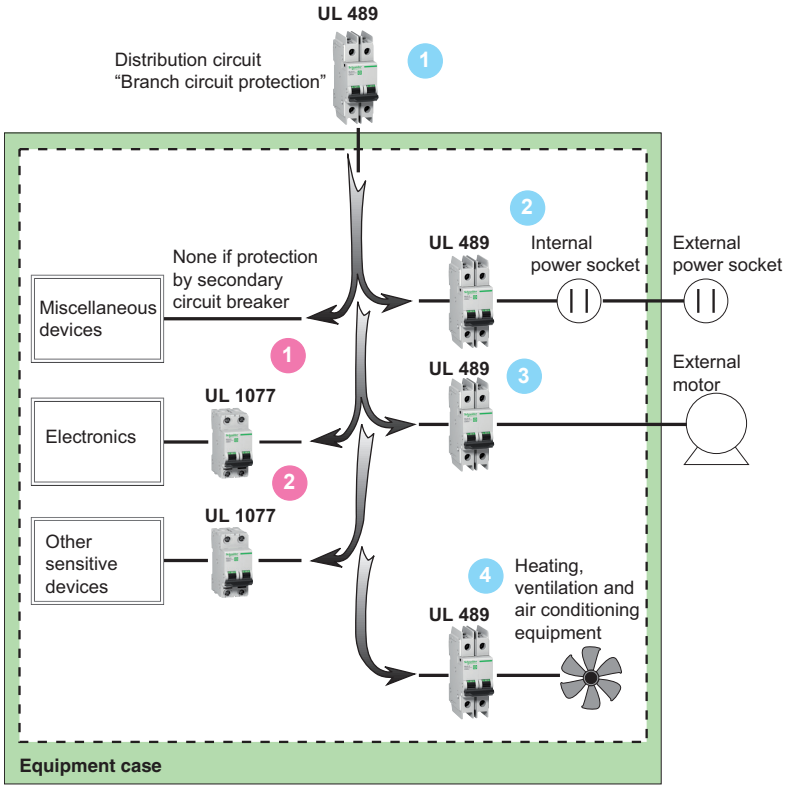
The IEC 60947-2 standard is an international product standard concerning circuit breakers; it is used for industrial circuit protection applications.
It meets the requirements of the IEC 60364 installation standard.

GB 14048-2

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

The standards and their applications

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).

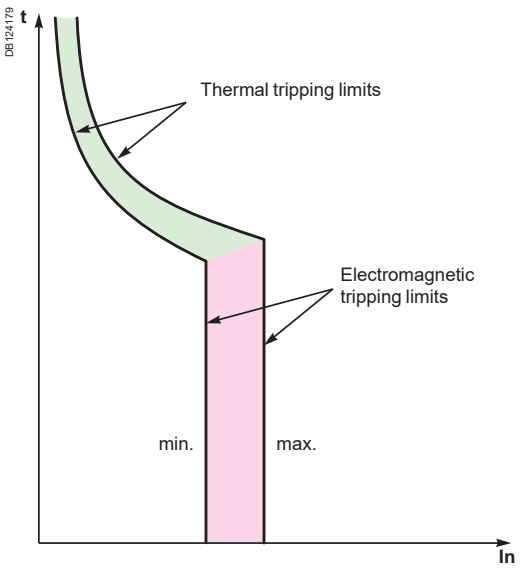
UL 489 3

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

UL 489 4

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

Circuit breakers tripping curves



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 96, 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

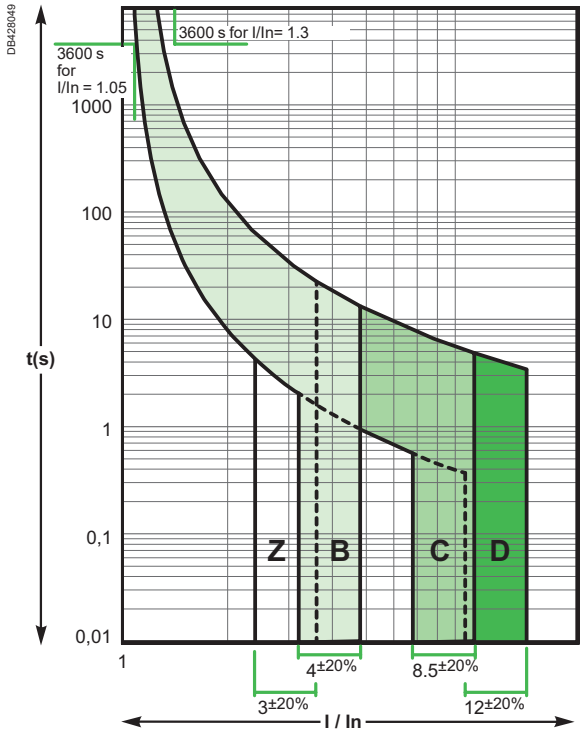
By superimposing the curve of a circuit breaker on that of the circuit breaker installed upstream, one can check whether this combination will be discriminating in cases of overload (discrimination for all current values, up to the magnetic threshold of the upstream circuit breaker). This verification 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)

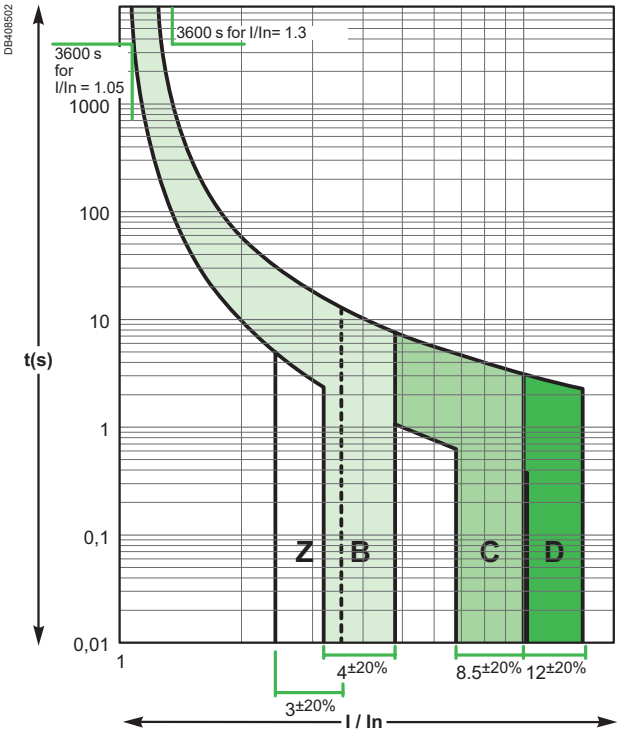
Curves Z, B, C, D



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

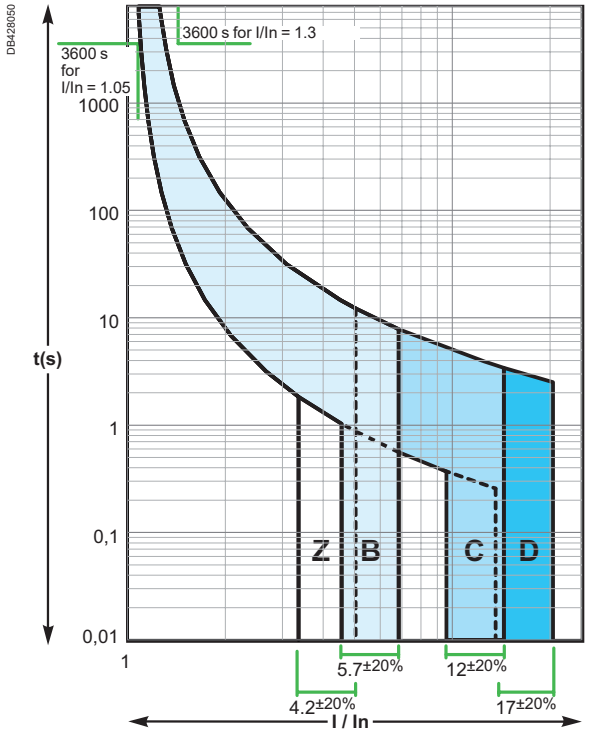
Circuit breakers tripping curves (cont.)

Direct current

C60BP, C60BPR, C60SP

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

Curves Z, B, C, D

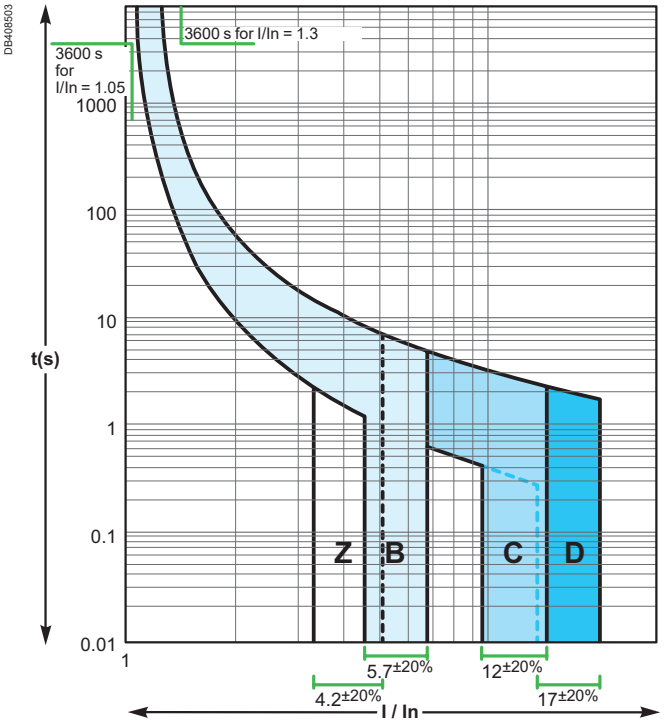


Note: IEC/EN 60947-2 tripping curves, respecting the tripping time specified by the standards UL 489, CSA C22.2 No 5, UL 1077 and CSA C22.2 No 235

C60N, C60H, C60L, C60CTRL

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

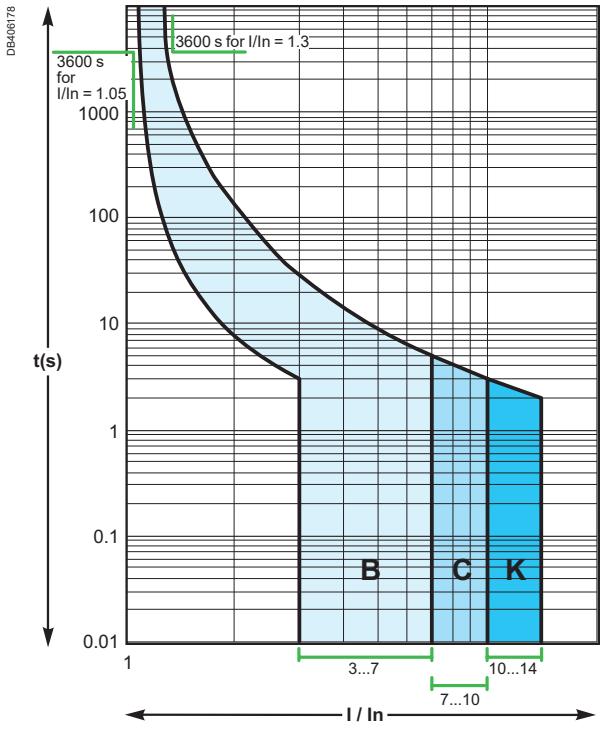
Curves Z, B, C, D



C60H-DC

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

Curves B, C, K



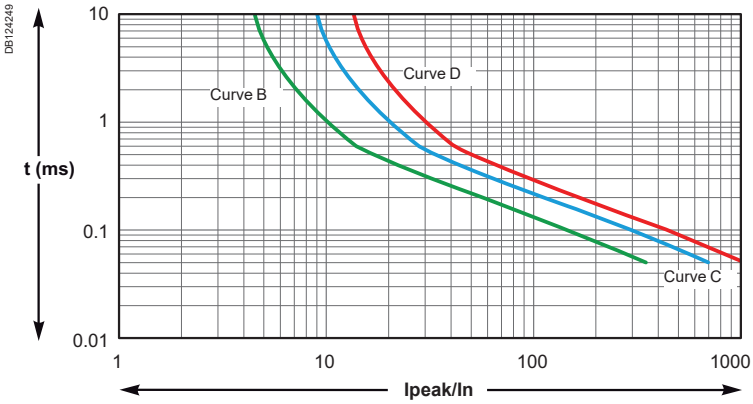
Note: IEC/EN 60947-2 tripping curves, respecting the tripping time specified by the standards UL 1077 and CSA C22.2 No 235

Circuit breakers tripping curves (cont.)

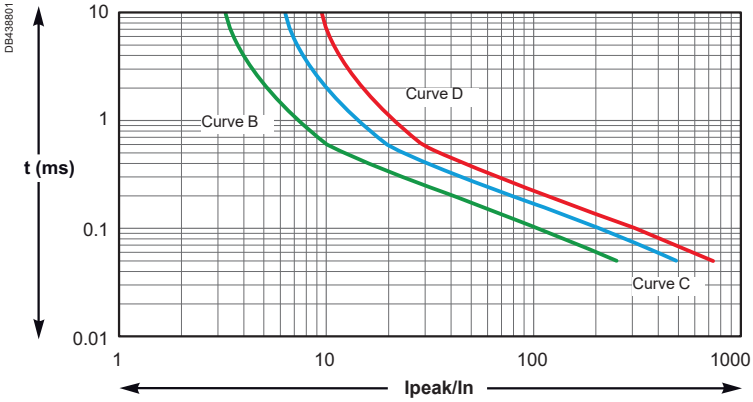
The circuit-breaker characteristics chosen depend on the type of load downstream of the installation.
The rating depends on the size of the cables to be protected and the curves depend on the load inrush current.

Product selection according to the load inrush current
When certain "capacitive" loads are switched on, very high inrush currents appear during the first milliseconds of operation. The following graphs show the average non-tripping curves of our products for this time range (50 µs to 10 ms).

C60N, C60H, C60L, C60CTRL



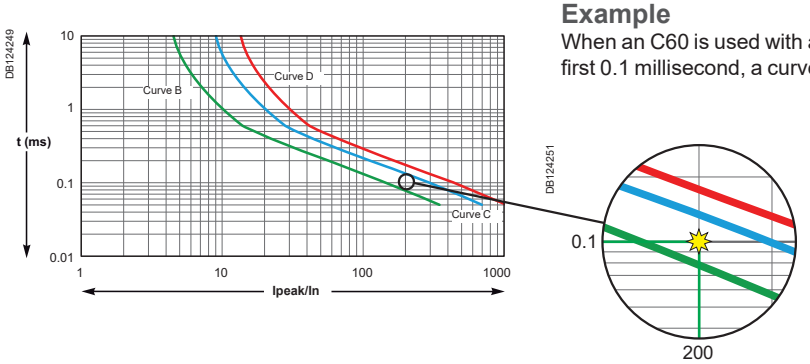
C60H-DC



This information allows us to select the most appropriate product, according to the load specifications: curve and rating.

Example

When an C60 is used with a load with current peaks in the order of 200 In during the first 0.1 millisecond, a curve C or D product must be installed.



Miniature Circuit Breakers for DC applications up to 380 V DC

This application sheet is intended to provide guidance for selecting the best protection and control components for a given DC system.
The scope is DC system supplied by rectifier (AC/DC or DC/DC converter) and/or battery, isolated or connected to earth.
The application voltages are 24 V DC, 48 V DC, 110 V DC and 220 V DC.

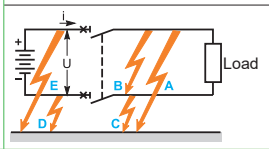
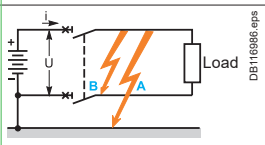
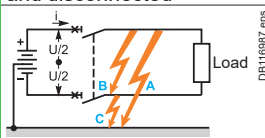
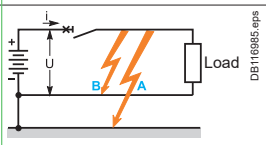
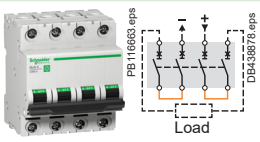
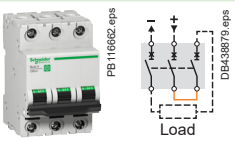
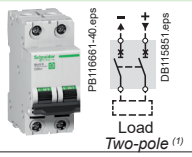
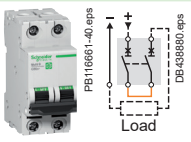
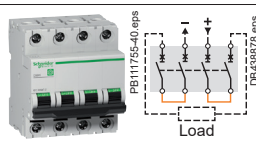
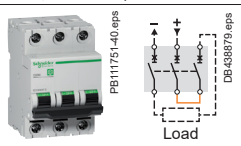
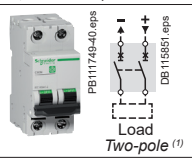
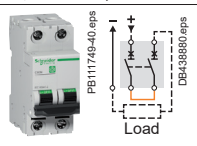
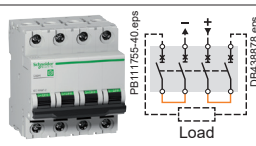
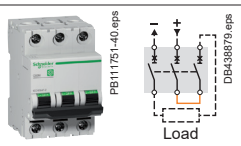
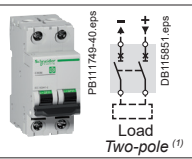
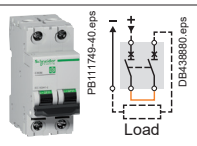
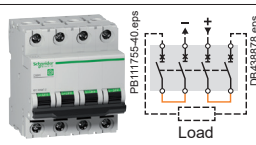
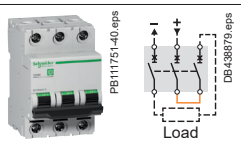
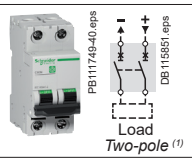
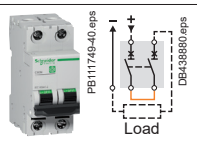
A. Circuit breaker selection for 24/48 V DC according to the method of earthing

Refer to Tables A of Application Guide CA908061E.
C60BP / C60BPR / C60SP and C60N/H/L circuit breakers follow the wiring rules of iC60N/H/L circuit breakers.
Multi9 C60H-DC circuit breakers follow the wiring rules of Acti9 C60H-DC circuit breakers.
The breaking capacities of these products are available in catalog pages.

B. Circuit breaker selection for 110 V DC according to the method of earthing

Refer to Tables B of Application Guide CA908061E.
Multi9 C60H-DC circuit breakers follow the rules of Acti9 C60H-DC circuit breakers.

Ue = 110 V DC

Method of earthing		IT	TN		
		Isolated from earth + and - conductors protected and disconnected	**- (or +) earthed** + and - conductors protected and disconnected	**Midpoint earthed (not distributed)** + and - conductors protected and disconnected	**- (or +) earthed** + (or -) conductor protected and disconnected
					
Breaking capacity	**Rating**				
Isc ≤ 10 kA (UL Standard)	In ≤ 25 A				
		C60SP 4P	C60BP, C60BPR, C60SP 3P	C60BP, C60BPR, C60SP 2P	C60BP, C60BPR, C60SP 2P
Isc ≤ 20 kA	In ≤ 63 A				
		C60N/H/L 4P	C60N/H/L 3P	C60N/H/L 2P	C60N/H/L 2P
Isc ≤ 25 kA	In ≤ 40 A				
		C60H/L 4P	C60H/L 3P	C60H/L 2P	C60H/L 2P
Isc ≤ 30kA	In ≤ 25 A				
		C60L 4P	C60L 3P	C60L 2P	C60L 2P

Note: This table is applicable for 125 V DC floating battery voltage.

C. Circuit breaker selection 220 - 380 V DC according to the method of earthing

Refer to Tables C of Application Guide CA908061E.
Multi9 C60H-DC circuit breakers follow the rules of Acti9 C60H-DC circuit breakers.

Influence of ambient temperature

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
RCCB-ID 125 A		Maximum operating current	-25°C	+40°C
iID	B-SI type	Maximum operating current	-25°C	+60°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

Acti9 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	1.6	2	2.5	3	4	6	6.3	10	12.5	13	16	20	25	32	40	45	50	63	80	100	125
RCCB																								
iID	2P													0.8		0.9		2.6			2.6	3	5	
	4P															0.7		1.9			1.5	2.6	4.3	

Note: When the enclosure's thermal balance, consider the 4P devices load is only on 3 phases.

Multi9 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.

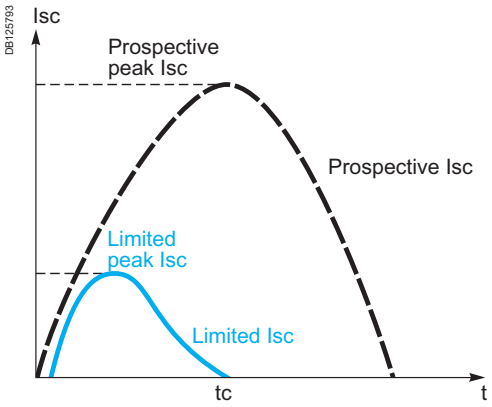
Rating (A)	0.5	1	2	3	4	5	6	8	10	13	15	16	20	25	30	32	35	40	45	50	63	80	100	125
Circuit breakers																								
C60BP, C60BPR, C60SP	2.6	1.3	1.7	1.9	2.0	2.2	1.2	1.7	1.9	2.4	2.3	2.6	2.2	3.4	2.5	2.8	3.5	3.6	3.9	4.8	4.8			
C60N, C60H, C60L, C60CTRL		1.3	1.7	1.9	2.0		1.2		1.9	2.4		2.6	2.2	2.7		3.2		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	2.2	2.3	2.6	2.2	2.4		2.7		1.8	2.5		2.5	3	3.1		3.5		4.3		4.8	6.1			
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.

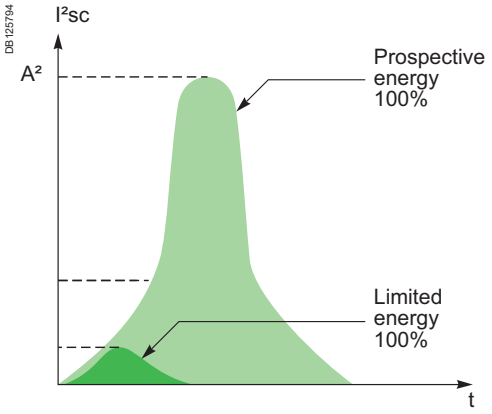
Impedance calculation:
$Z = P / I^2$
Z: impedance in Ohms
P: dissipated power in Watts (table values)
I: rating in Amperes

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

Short-circuit current limiting



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.

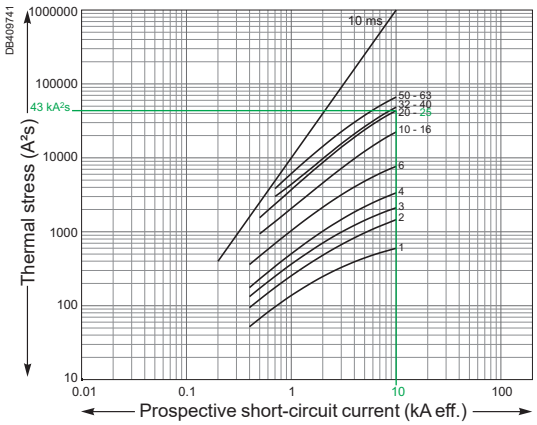
Short-circuit current limiting (cont.)

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).



C60N Thermal stress (380-415 V AC)

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:

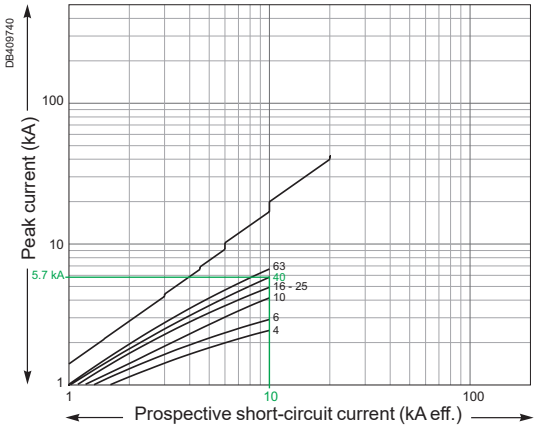
- this short-circuit current (10 kA rms) is likely to dissipate up to 1,000 kA²s
- the C60N circuit breaker reduces this thermal stress to: 43 kA²s, which is 23 times less.

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 10⁴	8.26 x 10⁴	2.12 x 10⁵	4.76 x 10⁵	1.32 x 10⁶
	Al					5.41 x 10⁵
PRC	Cu	4.10 x 10⁴	1.39 x 10⁵	2.92 x 10⁵	6.56 x 10⁵	1.82 x 10⁶
	Al					7.52 x 10⁵

S (mm²)		16	25	35	50
PVC	Cu	3.4 x 10⁶	8.26 x 10⁶	1.62 x 10⁷	3.21 x 10⁷
	Al	1.39 x 10⁶	3.38 x 10⁶	6.64 x 10⁶	1.35 x 10⁷
PRC	Cu	4.69 x 10⁶	1.39 x 10⁷	2.23 x 10⁷	4.56 x 10⁷
	Al	1.93 x 10⁶	4.70 x 10⁶	9.23 x 10⁶	1.88 x 10⁷



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 10⁵ 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 10⁵ A²s.
The cable is therefore always protected up to the breaking capacity of the circuit breaker.

Short-circuit current limiting (cont.)

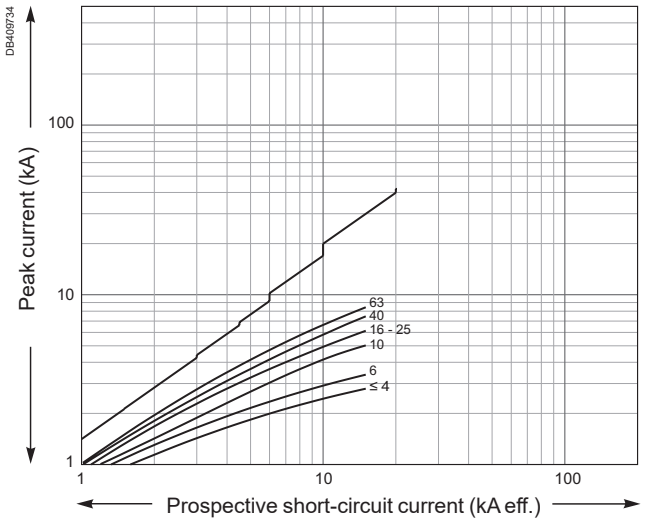
Ue: 380-415 V AC

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

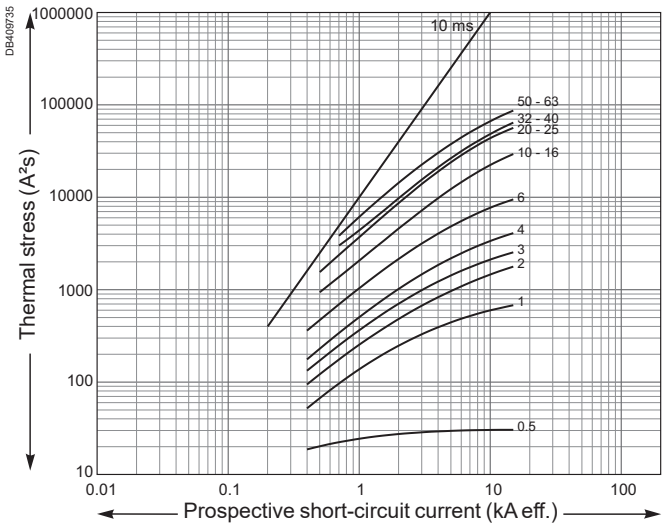
C60BP, C60BPR, C60SP

1P / 2P / 3P

Peak current



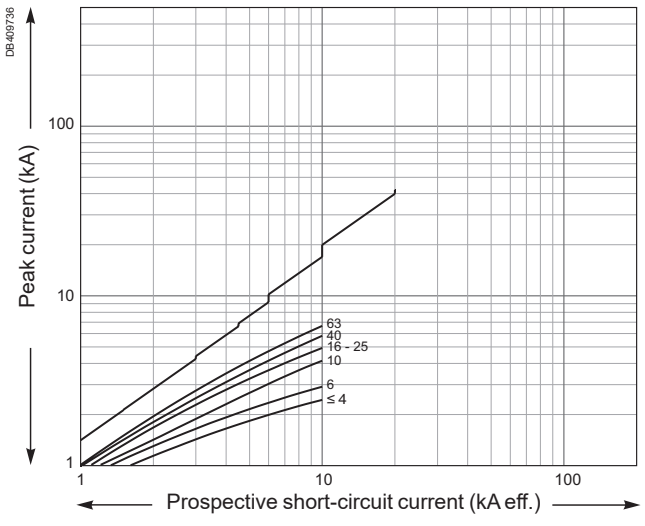
Thermal stress



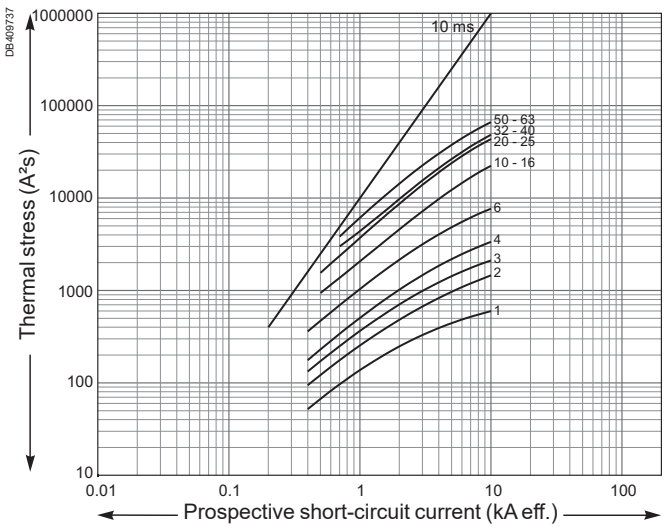
C60N

1P / 2P / 3P / 4P

Peak current



Thermal stress



5

Short-circuit current limiting (cont.)

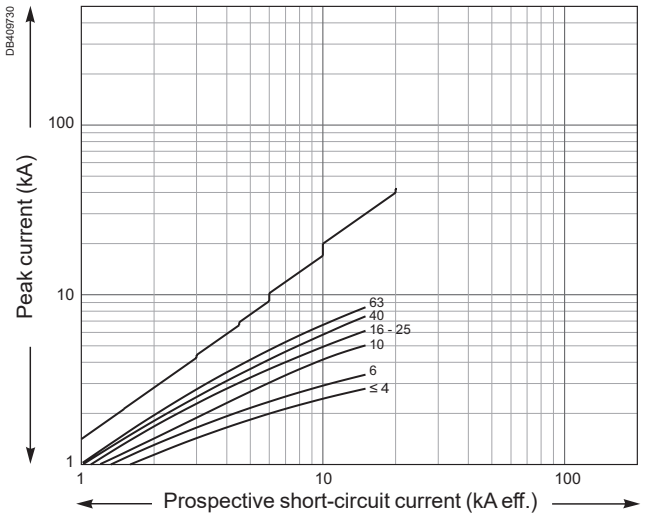
Ue: 380-415 V AC

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

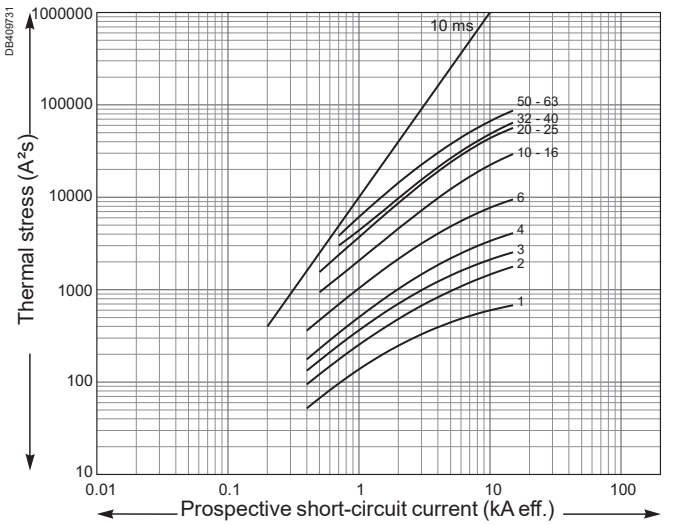
C60H

1P / 2P / 3P / 4P

Peak current



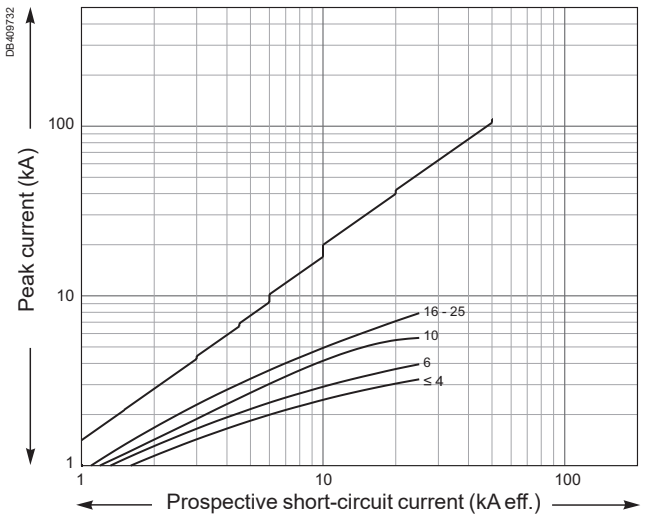
Thermal stress



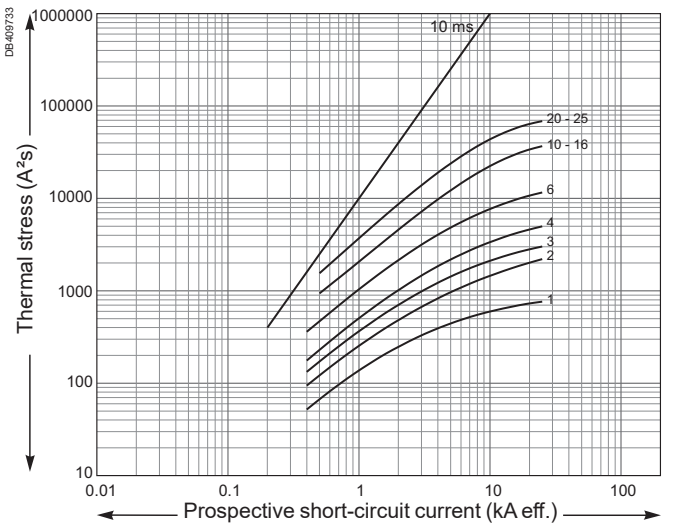
C60L

1P / 2P / 3P / 4P

Peak current



Thermal stress



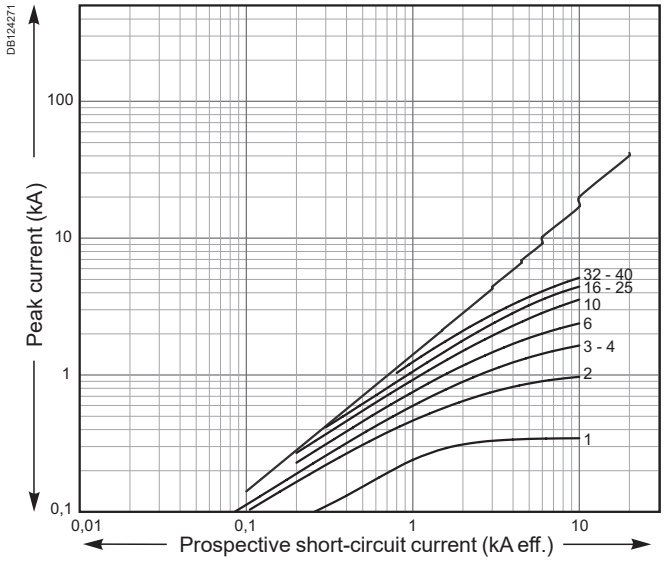
Short-circuit current limiting (cont.)
Ue: 380-415 V AC

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

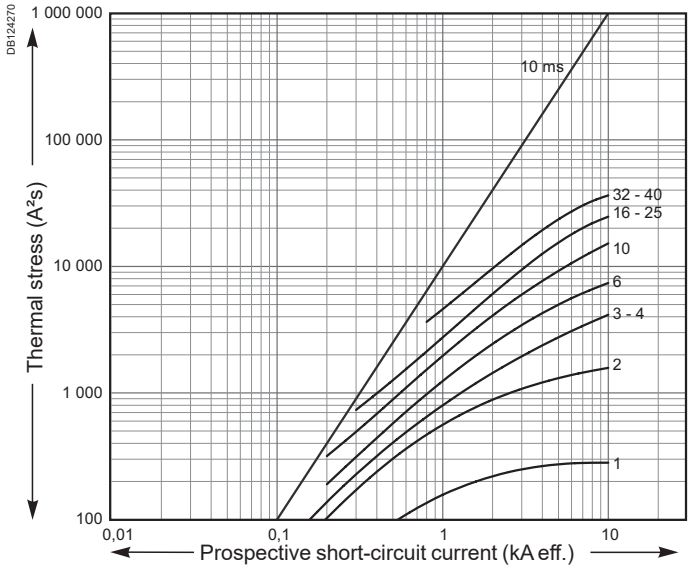
N40N, N40 Vigi

1P+N / 3P+N

Peak current



Thermal stress



5

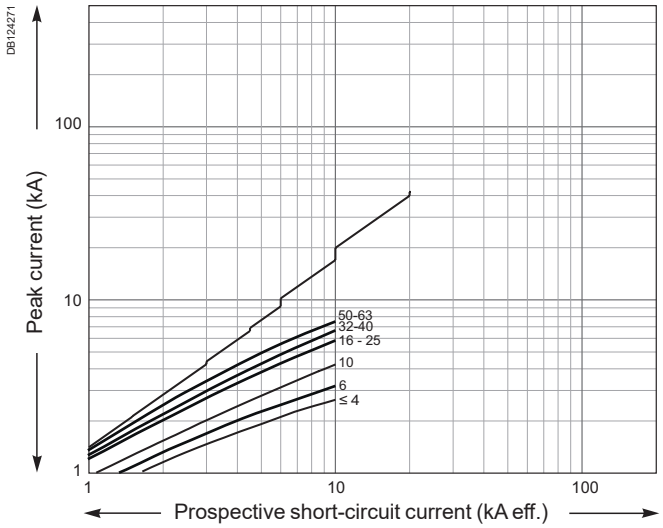
Short-circuit current limiting (cont.)
Ue: 480 V AC 60 Hz

Limitation curves for network
Ue: 480 V AC 60 Hz (Ph/N 277 V AC)

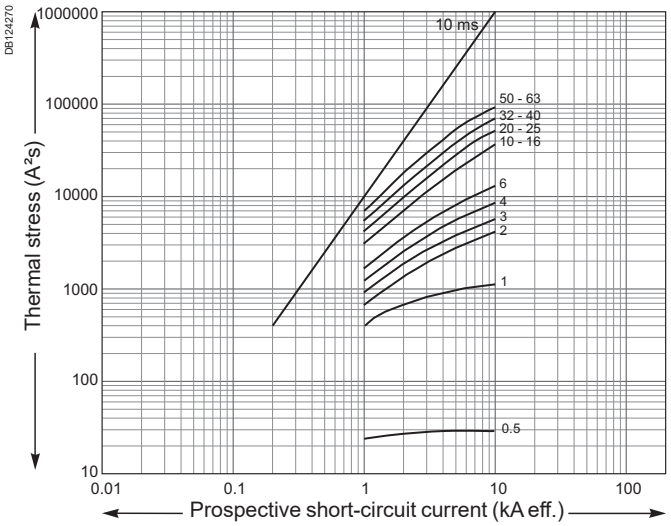
C60BP, C60BPR

1P / 2P / 3P

Peak current



Thermal stress



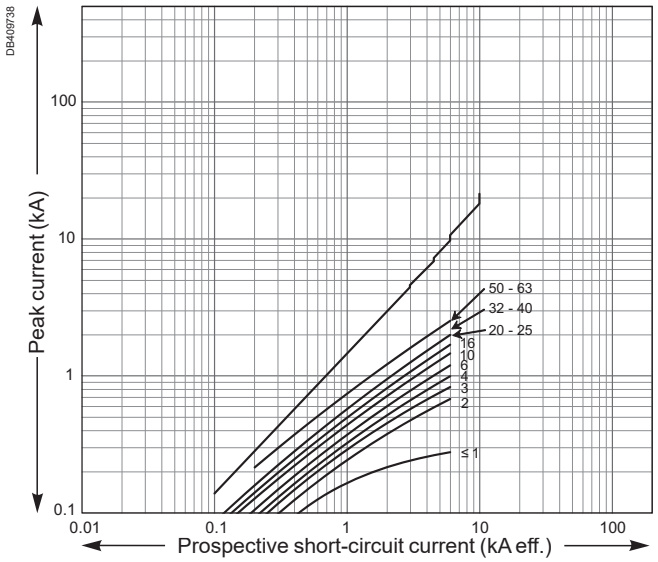
Short-circuit current limiting (cont.)
Direct current network

Limitation curves for direct current network

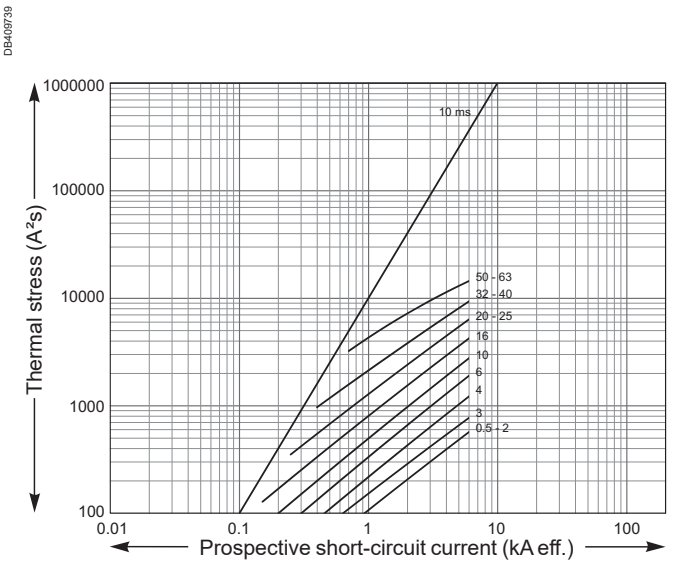
C60H-DC C curve

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

Peak current

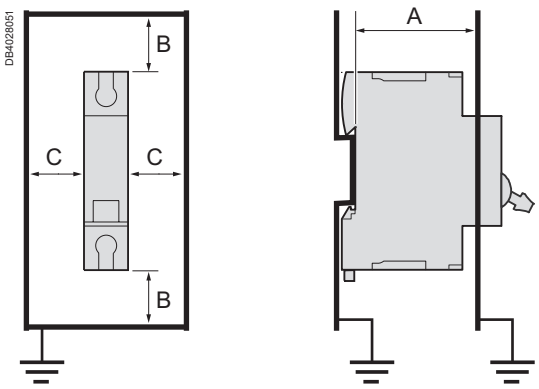


Thermal stress



5

Clearance between device and bare sheet metal



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

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

UL/IEC/GB standards				
Products	**C60BP**	**C60BPR**	**C60SP, C60H-DC**	**C60N, C60H, C60L, C60CTRL**
A	52 mm (2.05 in)	52 mm (2.05 in)	50 mm (1.97 in)	50 mm (1.97 in)
B	10 mm (0.39 in)	10 mm (0.39 in)	20 mm (0.79 in)	20 mm (0.79 in)
C	10 mm (0.39 in)	10 mm (0.39 in)	10 mm (0.39 in)	10 mm (0.39 in)

Copper Multi-cables connection

Connection

Products	Rating	Copper Multi-cables			
		Rigid	Flexible without ferrule	Flexible with ferrule	Cable stripping length
		 DB112804	 DB112805	 DB436618	 DB433451
C60BP UL489	≤25A	2x1.5 mm² or 2x2.5 mm² or 2x1.5 mm²+1x2.5 mm²		2xAWG #16 or 2xAWG #14 or 2xAWG #16+1xAWG #14	14 mm / 0.55 in
	>25A	2x4 mm² or 2x6 mm² or 2x1.5 mm²+1x2.5 mm²		2xAWG #12 or 2xAWG #10 or 2xAWG #16+1xAWG #14	14 mm / 0.55 in
C60SP UL1077	≤25A	2x1.5 mm² or 2x2.5 mm² or 2x1.5 mm²+1x2.5 mm²		2xAWG #16 or 2xAWG #14 or 2xAWG #16+1xAWG #14	14 mm / 0.55 in
	>25A	2x4 mm² or 2x6 mm² or 2x1.5 mm²+1x2.5 mm²		2xAWG #12 or 2xAWG #10 or 2xAWG #16+1xAWG #14	14 mm / 0.55 in
C60H-DC	≤25A	2x1.5 mm² or 2x2.5 mm² or 2x1.5 mm²+1x2.5 mm²		2xAWG #16 or 2xAWG #14 or 2xAWG #16+1xAWG #14	14 mm / 0.55 in
	>25A	2x4 mm² or 2x6 mm² or 2x1.5 mm²+1x2.5 mm²		2xAWG #12 or 2xAWG #10 or 2xAWG #16+1xAWG #14	14 mm / 0.55 in
C60N, H, L, C60CTRL	≤25A	2x1.5 mm² or 2x2.5 mm² or 2x1.5 mm²+1x2.5 mm²		2xAWG #16 or 2xAWG #14 or 2xAWG #16+1xAWG #14	14 mm / 0.55 in
	>25A	2x4 mm² or 2x6 mm² or 2x1.5 mm²+1x2.5 mm²		2xAWG #12 or 2xAWG #10 or 2xAWG #16+1xAWG #14	14 mm / 0.55 in
N40N	All	2x1.5 mm² or 2x2.5 mm² or 2x1.5 mm²+1x2.5 mm²		2xAWG #16 or 2xAWG #14 or 2xAWG #16+1xAWG #14	13 mm / 0.5 in
GFP UL1053	All	2x 1.5 mm² to 10 mm²		2x AWG #16 to #8	14 mm / 0.55 in
RCCB ID IEC/EN 61008-1	All	2x 1.5 mm² to 10 mm²		2x AWG #16 to #8	14 mm / 0.55 in
RCCB-ID 125A	All	2x 1.5 mm² to 16 mm²		2x AWG #16 to #6	11 mm / 0.43 in
Vigi C60	All	2x4 mm² or 2x6 mm² or 2x1.5 mm²+1x2.5 mm²		2xAWG #12 or 2xAWG #10 or 2xAWG #16+1xAWG #14	14 mm / 0.55 in
Vigi N40	All	2x1.5 mm² or 2x2.5 mm² or 2x1.5 mm²+1x2.5 mm²		2xAWG #16 or 2xAWG #14 or 2xAWG #16+1xAWG #14	13 mm / 0.5 in
N40 Vigi	All	2x1.5 mm² or 2x2.5 mm² or 2x1.5mm²+1x2.5 mm²		2xAWG #16 or 2xAWG #14 or 2xAWG #16+1xAWG #14	13 mm / 0.5 in

Control panel technical guides library

Discover our technical guides collection.

They are dedicated to frequent issues faced when designing an installing a control panel.

How to reduce damage to components through effective thermal management inside an enclosure

Ref.: CPTG001_EN

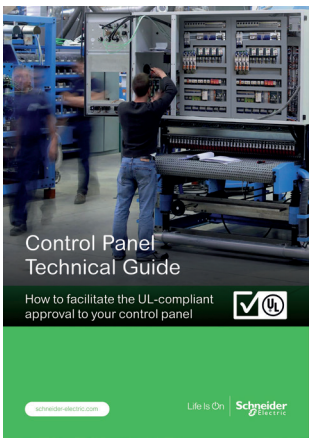
Click on QR Code or scan to download

How to prevent machine malfunctions and electronic damage due to voltage surges

Ref.: CPTG002_EN

Click on QR Code or scan to download

How to ensure trouble-free approval of your UL-compliant control panels



Ref.: CPTG005_EN

Click on QR Code or scan to download

Free download on www.se.com with the document reference or from the QR Codes.

Control panel technical guides library

Discover our technical guides collection.

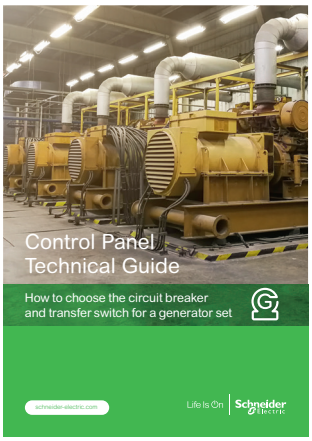
They are dedicated to frequent issues faced when designing an installing a control panel.

How define the right outdoor enclosure and optimize its durability

Ref.: CPTG006_EN

Click on QR Code or scan to download

How to choose the circuit breaker and transfer switch for a generator set



Ref.: CPTG008_EN

Click on QR Code or scan to download

How to select the appropriate motor starters for your HVAC equipments

Ref.: CPTG007_EN

Click on QR Code or scan to download

How to prevent condensation inside an enclosure

Ref.: UE12MK03EN

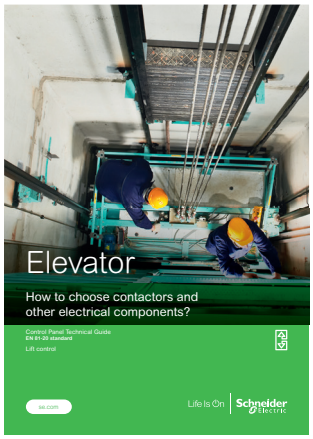
Click on QR Code or scan to download

Free download on www.se.com with the document reference or from the QR Codes.

Discover our technical guides collection.

They are dedicated to frequent issues faced when designing an installing a control panel.

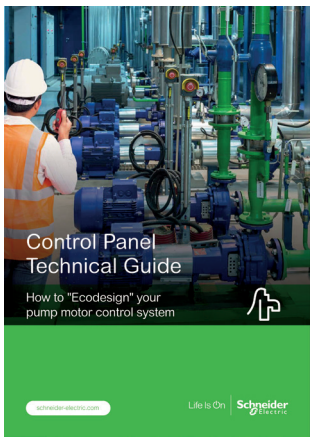
How to choose the contactors for elevator machinery?



Ref.: CPTG009_EN

Click on QR Code or scan to download

How to select the appropriate motor control system for your pump



Ref.: CPTG010_EN

Click on QR Code or scan to download

Free download on www.se.com with the document reference or from the QR Codes.

6

Life Is On | Schneider Electric

Schneider Electric SE

35, rue Joseph Monier
92500 Rueil Malmaison
France

RCS Nanterre 542 048 574
Capital social 2 284 371 684 €
www.se.com

6-jul-2023
LVCATM9OEM_EN

This document has been
printed on recycled paper