Life Is On | Schneider Electric

Acti 9

The efficiency you deserve

schneider-electric.com/sg

Contents

www.schneider-electric.com/sg

General

Circuit protection

Earth leakage protection

Load protection

Install, connection, power distribution

Supervision and switchboard control

Monitoring and control of protections

Electrical circuit control

Version 2.0 - May 2017
Acti9
Life Is On Schneider Electric

Contents

Indication

Complementary technical information

Principle of catalogue numbers

Circuit and earth leakage protection

iID, iC60, Vigi iC60, Reflex iC60, switches

Range	Family	Code
Acti 9 (A9)	**iID**	**R**
	Vigi iC60	**V**
	iC60	**F**
	iK60	**K**
	Auxiliaries and accessories	**A**
	Switches	**S**
	Reflex iC60	**C**

Internal code

Poles	Code
0	**0**
1P	**1**
2P	**2**
3P	**3**
4P	**4**
1N	**5**
1P+N	**6**
3P+N	**7**

Rating (A)	Code
0	**00**
0.5	**70**
0.75	**71**
1	**01**
1.6	**72**
2	**02**
2.5	**73**
3	**03**
4	**04**
6	**06**
6.3	**76**
8	**08**
10	**10**
12.5	**82**
13	**13**
16	**16**
20	**20**
25	**25**
32	**32**
40	**40**
50	**50**
63	**63**
80	**80**
100	**91**
125	**92**

Comb busbar and comb busbar accessories

Range	Family	Code	Type		Type of installation		Number of poles		Dimensioning	
Acti 9 (A9)	**Comb busbar**	**X**	**Comb busbar**				1P	**1**	Comb busbar	**Number of 18 mm modules (approximately)**
			Fork teeth	**F**	Horizontal	**H**				
			Pin teeth	**P**			2P	**2**	Accessories	**Number of pieces per cat. no.**
			Auxiliarisable	**A**			3P	**3**		
			Accessories				4P	**4**		
			End-piece	**E**	Double terminals	**D**	4P balanced, with neutral	**5**		
			Tooth cover	**T**	Single terminal	**M**	3P balanced for single-poles	**6**		
			Connector	**C**						

Choice of circuit protective devices

Protection of electrical connections against short circuits and overloads

Protection of loads against overloads

Protection of control devices

Protection for people against indirect contacts in IT and TN earthing systems

- Circuit breakers can:
  - break a faulty electrical circuit (short-circuit, overload, insulation fault), to prevent fires,
  - protect control devices,
  - increase the service life of the installation, thanks to its ability to limit the short-circuit current (see module CA908025),
  - in IT and TN systems, they ensure personal protection against electrocution in the event of indirect contacts.
- The choice of circuit breakers must be optimised to provide absolute protection while ensuring continuity of service.
- Although circuit breakers are sometimes used as control units, it is recommended to install separate control devices which are more suitable for frequent switching operations (switch, contactor, impulse relay).

Choice of protective circuit breakers

This depends on several criteria:
- prospective short-circuit current
- max. voltage rating
- planned amperage for the circuit to be protected
- nature and cross section of cables
- ambient temperature (possible derating)
- the network and neutral system, which determine the number of poles of the protective circuit breaker installed on their power supply circuit and the tripping curve
- coordination with the other electrical devices (protection, discrimination, cascading).

Choice of breaking capacity

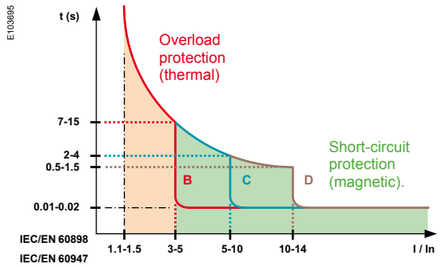
- The breaking capacity must be greater than or equal to the prospective short-circuit current (Isc) upstream of the circuit-breaker (Isc depends on the length, type of conductor and cross section of the cable and the power of the source).
- However, in the event of use in combination with an upstream circuit-breaker limiting the current, this breaking capacity can possibly be reduced (cascading, see module **557E4200**).

Choice of rating

- The rating (In) is chosen above all to protect the electrical connections:
  - for cables: it is chosen according to the cross section and type of conductor,
  - for Canalis prefabricated busbar trunking: it must be simply less than or equal to the rating of the busbar trunking.
- The rating should be greater than the nominal current of the loads.

Choice of tripping curve

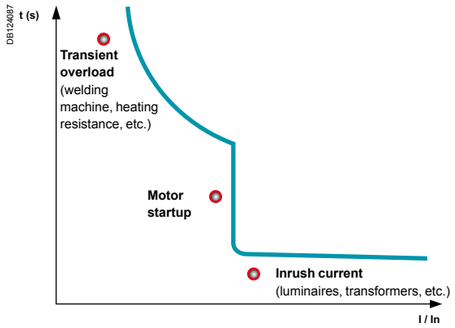
The tripping curve makes the protection more or less sensitive to:
- the inrush current at power up
- the overload current.

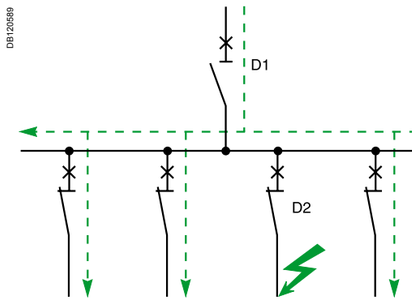


Tripping thresholds (x In)		
Curves	IEC /EN 60898	IEC/EN 60947-2
B	Between 3 In and 5 In	4 ±20 %
C	Between 5 In and 10 In	8 ±20 %
D or K	Between 10 In and 14 In	12 ±20 %
MA	-	12 ±20 %
Z	-	3 ±20 %

- To prevent nuisance tripping, it may be advisable to choose a less sensitive curve, e.g. change from B to C (tripping curves, see module **CA908024**).

Choice of circuit protective devices





Circuit disconnection

Continuity of service

- Nuisance tripping can be generated by:
  - the inrush current at circuit closure,
  - the overload current, and sometimes the harmonic current flowing through the neutral of three-phase circuits (1),
  - motor startup currents.

Solutions

- Choose a circuit breaker with a less sensitive curve: change from B curve to C curve or from C curve to D curve (2).
- Reduce the number of loads per circuit.
- Energize the circuits in succession, using time delay auxiliaries on the control devices.
- Under no circumstances may the circuit breaker rating be increased beyond the maximum constraints permitted by the cable as the electrical connections will no longer be protected.
- Ensure discrimination of the protective devices (see modules **557E4300**).

Discrimination is the coordination of automatic breaking devices in such a way that a fault occurring at any point on the network is eliminated by the circuit breaker located immediately upstream of the fault, and by it alone.

Total Discrimination
For all values of the fault, from overload to non-resistive short circuit, distribution is fully discriminating if D2 opens and if D1 remains closed.

Partial Discrimination
Discrimination is partial if the above condition is not complied with up to full short-circuit current, but only up to a lower value. This value is called the discrimination limit.
In the event of a fault exceeding this value, circuit breakers D1 and D2 open.

(1) In the case of three-phase circuits, third-order harmonic currents and harmonic currents that are multiples of three are generated by loads (discharge lamps with electronic ballast, etc.). The neutral cable must be sized to prevent it from overheating. The current flowing through the neutral conductor may become greater than the current of each phase and cause nuisance tripping.
(2) In the case of installations with very long cables in a TN or IT system, it may be necessary to add an earth leakage protection device to protect human life..

Disconnection

The purpose of disconnection is to separate and isolate a circuit or a device from the rest of the electrical installation in order to ensure the safety of personnel having to work on the electrical installation for maintenance or repair.
- The circuit breaking must be omnipolar, i.e. the live conductors, including neutral (3), must be cut off (depending on country regulations).
- It must be lockable or padlockable in "open" position in order to prevent any unintentional reclosing, at least in industrial environments.
- It must be in compliance with a standard ensuring its suitability for isolation.

(3) With the exception of the PEN conductor which should never be cut off.

Circuit breaker panorama

Selection guide

Circuit breakers									
Type			iC60N				iC60H			
										
Standard			IEC/EN 60947-2, 60898-1				IEC/EN 60947-2, 60898-1			
Quality label			Country approval pictogram				Country approval pictogram			
Number of poles			1P, 1P+N		2, 3, 4P		1P, 1P+N		2, 3, 4P	
Add-on residual current devices (Vigi)			●				●			
Auxiliaries for remote tripping and indication			●				●			
Electrical characteristics										
Curves			B, C, D				B, C, D			
Ratings (A)	In		0.5 to 63				0.5 to 63			
Maximum operational voltage (V)	Ue max	AC (50/60 Hz)	240/415, 440				240/415, 440			
		DC	250				250			
Minimum operational voltage (V)	Ue min	AC (50/60 Hz)	12				12			
		DC	12				12			
Insulation voltage (V AC)	Ui		500				500			
Rated impulse withstand voltage (kV)	Uimp		6				6			
Limitation class 40 A (EN 60898)			3				3			
Breaking capacity										
IEC/EN 60898 (A)	Icn	240/415 V - 230/400 V	6000		6000		10000		10000	
AC-Breaking capacity		Ue (50/60 Hz)	1P, 1P+N		2, 3, 4P		1P, 1P+N		2, 3, 4P	
Ratings (A)	In		0.5 to 4 A	6 to 63 A	0.5 to 4 A	6 to 63 A	0.5 to 4 A	6 to 63 A	0.5 to 4 A	6 to 63 A
IEC 60947-2 (kA)	Icu	12...60 V	50	36	–	–	70	42	–	–
		12...133 V	–	–	50	36	–	–	70	42
		100...133 V	50	20	–	–	70	30	–	–
		220...240 V	50	10	50	20	70	15	70	30
		380...415 V	–	–	50	10	–	–	70	15
		440 V	–	–	25	6	–	–	50	10
	Ics		100 % of Icu	75 % of Icu	100 % of Icu	75 % of Icu	100 % of Icu	50 % of Icu	100 % of Icu	50 % of Icu
DC-Breaking capacity		Ue DC								
IEC 60947-2 (kA)	Icu	12...60 V (1P)	15				20			
		≤ 72 V (1P)	10				15			
		≤ 125 V (2P)	10				15			
		≤ 180 V (3P)	10				15			
		≤ 250 V (4P)	10				15			
	Ics		100 % of Icu				100 % of Icu			
Other characteristics										
Suitable for industrial isolation according to IEC/EN 60947-2			●				●			
Reference temperature IEC/EN 60947-2			50°C				50°C			
Fault tripping indication			Visi-trip window				Visi-trip window			
Positive contact indication			●				●			
Fast closing			●				●			
Degree of protection	IP	Device only	IP20				IP20			
		Device in modular enclosure	IP40 Insulation class II				IP40 Insulation class II			
For more detail, see module			CA901002				CA901003			
Accessories			CA907000 and CA907001				CA907000 and CA907001			
Auxiliaries			CA907000 and CA907002				CA907000 and CA907002			
Add-on residual current devices (Vigi)			CA902005				CA902005			

(1) 100 % of Icu for ratings 6 to 25 A under Ue 100 to 133 V AC Ph/Ph and Ue 12 to 60 V AC Ph/N.

Circuit breaker panorama

Selection guide

Instantaneous circuit breakers (ICB)								
Type			iC60L					
								
Standard			IEC/EN 60947-2, 60898-1					
Quality label			Country approval pictogram					
Number of poles			1P				2, 3, 4P	
Add-on residual current devices (Vigi)			●					
Auxiliaries for remote tripping and indication			●					
Electrical characteristics								
Curves			B, C, K, Z					
Ratings (A)	In		0.5 to 63					
Maximum operational voltage (V)	Ue max	AC (50/60 Hz)	240/415, 440					
		DC	250					
Minimum operational voltage (V)	Ue min	AC (50/60 Hz)	12					
		DC	12					
Insulation voltage (V AC)	Ui		500					
Rated impulse withstand voltage (kV)	Uimp		6					
Limitation class 40 A (EN 60898)			–					
Breaking capacity								
IEC/EN 60898 (A)	Icn	240/415 V - 230/400 V	15000				15000	
AC-Breaking capacity		Ue (50/60 Hz)	1P				2, 3, 4P	
Ratings (A)	In		0.5 to 4 A	6 to 25 A	32/40 A	50/63 A	0.5 to 4 A	6 to 25 A	32/40 A	50/63 A
IEC 60947-2 (kA)	Icu	12...60 V	100	70	70	70	–	–	–	–
		12...133 V	–	–	–	–	100	70	70	70
		100...133 V	100	50	36	30	–	–	–	–
		220...240 V	100	25	20	15	100	50	36	30
		380...415 V	–	–	–	–	100	25	20	15
		440 V	–	–	–	–	70	20	15	10
	Ics		100 % of Icu	50 % of Icu[1]	50 % of Icu	50 % of Icu	50 % of Icu	50 % of Icu [1]	50 % of Icu	50 % of Icu
DC-Breaking capacity		Ue DC								
IEC 60947-2 (kA)	Icu	12...60 V (1P)	25							
		≤ 72 V (1P)	20							
		≤ 125 V (2P)	20							
		≤ 180 V (3P)	20							
		≤ 250 V (4P)	20							
	Ics		100 % of Icu							
Other characteristics										
Suitable for industrial isolation according to IEC/EN 60947-2			●							
Reference temperature IEC/EN 60947-2			50°C							
Fault tripping indication			Visi-trip window							
Positive contact indication			●							
Fast closing			●							
Degree of protection	IP	Device only	IP20							
		Device in modular enclosure	IP40 Insulation class II							
For more detail, see module			CA901004							
Accessories			CA907000 and CA907001							
Auxiliaries			CA907000 and CA907002							
Add-on residual current devices (Vigi)			CA902005							

(1) 100 % of Icu for ratings 6 to 25 A under Ue 100 to 133 V AC Ph/Ph and Ue 12 to 60 V AC Ph/N.

Circuit breaker panorama

Selection guide

Instantaneous circuit breakers (ICB)				
Type			iC60LMA	
				
Standard			IEC/EN 60947-2	
Quality label			Country approval pictogram	
Number of poles			2, 3P	
Add-on residual current devices (Vigi)			●	
Auxiliaries for remote tripping and indication			●	
Electrical characteristics				
Curves			MA (Ii = 12 In ± 20 %)	
Ratings (A)	In		1.6 to 40	
Maximum operational voltage (V)	Ue max	AC (50/60 Hz)	440	
		DC	–	
Minimum operational voltage (V)	Ue min	AC (50/60 Hz)	12	
		DC	–	
Insulation voltage (V AC)	Ui		500	
Rated impulse withstand voltage (kV)	Uimp		6	
Breaking capacity				
IEC/EN 60898 (A)	Icn	230/400 V	–	
AC-Breaking capacity		Ue (50/60 Hz)	2, 3P	
Ratings (A)	In		1.6 to 16 A	25 to 40 A
IEC 60947-2 (kA)	Icu	12...60 V	–	–
		12...133 V	–	–
		100...133 V	–	–
		110...130 V	–	–
		130 V	–	–
		220...240 V	40	30
		230/400 V	–	–
		380...415 V	20	15
		400/415 V	–	–
		440 V	15	10
		500 V	–	–
	Ics		50 % of Icu	50 % of Icu
Other characteristics				
Suitable for industrial isolation according to IEC/EN 60947-2			●	
Reference temperature IEC/EN 60947-2			50°C	
Fault tripping indication			Visi-trip window	
Positive contact indication			●	
Fast closing			●	
Degree of protection	IP	Device only	IP20	
		Device in modular enclosure	IP40 Insulation class II	
For more detail, see module			CA901005	
Accessories			CA907000 and CA907001	
Auxiliaries			CA907000 and CA907002	
Add-on residual current devices (Vigi)			CA902005	

Circuit breaker panorama

Selection guide

Circuit breakers						
Type			C120N		C120H	
						
Standard			IEC/EN 60898-1		IEC/EN 60898-1	
Quality label			Country approval pictogram		Country approval pictogram	
Number of poles			1P	2, 3, 4P	1P	2, 3, 4P
Add-on residual current devices (Vigi)			●		●	
Auxiliaries for remote tripping and indication			●		●	
Electrical characteristics						
Curves			B, C, D		B, C, D	
Ratings (A)	In		63 to 125		63 to 125	
Maximum operational voltage (V)	Ue max	AC (50/60 Hz)	240/415, 440		240/415, 440	
		DC	125 per pole		125 per pole	
Minimum operational voltage (V)	Ue min	AC (50/60 Hz)	12		12	
		DC	12		12	
Insulation voltage (V AC)	Ui		500		500	
Rated impulse withstand voltage (kV)	Uimp		6		6	
Breaking capacity						
IEC/EN 60898 (A)	Icn	230/400 V	10000	10000	15000	15000
AC-Breaking capacity		Ue (50/60 Hz)	1P	2, 3, 4P	1P	2, 3, 4P
Ratings (A)	In		63 to 125		63 to 125	
IEC 60947-2 (kA)	Icu	110...130 V	–	–	–	–
		12...130 V	20	–	30	–
		220...240 V	10	20	15	30
		380...415 V	3 (1)	10	4.5 (1)	15
		440 V	–	6	–	10
		500 V	–	–	–	–
	Ics		75 % of Icu		50 % of Icu	
DC-Breaking capacity		Ue DC				
IEC 60947-2 (kA)	Icu	12...125 V (1P)	15		20	
		≤ 144 V (1P)	10		15	
		≤ 250 V (2P)	10		15	
		≤ 375 V (3P)	10		15	
		≤ 500 V (4P)	10		15	
	Ics		100 % of Icu		100 % of Icu	
Other characteristics						
Suitable for industrial isolation according to IEC/EN 60947-2			●		●	
Reference temperature IEC/EN 60947-2			50°C		50°C	
Fault tripping indication			–		–	
Positive contact indication			●		●	
Fast closing			●		●	
Degree of protection	IP	Device only	IP20		IP20	
		Device in modular enclosure	IP40		IP40	
For more detail, see module			CA901015		CA901016	
Accessories			CA907012 and CA907013		CA907012 and CA907013	
Auxiliaries			CA907008 and CA907013		CA907008 and CA907013	
Earth leakage module (Vigi)			CA902016		CA902016	

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

iC60N circuit breakers

Curve B, C, D

IEC/EN 60947-2, IEC/EN 60898-1

- iC60N circuit breakers are multi-standard circuit breakers which combine the following functions:
  - circuit protection against short-circuit currents,
  - circuit protection against overload currents,
  - suitable for industrial isolation according to IEC/EN 60947-2, standard.
  - fault tripping indication by a red mechanical indicator in circuit breaker front face.

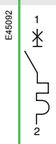
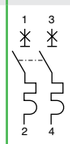
PB104437-40

PB104460-40

Alternating current (AC) 50/60 Hz					
Breaking capacity (Icu) according to IEC/EN 60947-2					Service breaking capacity (Ics)
	Voltage (Ue)				
Ph/Ph (2P, 3P, 4P)	12 to 133 V	220 to 240 V	380 to 415 V	440 V	
Ph/N (1P, 1P+N)	12 to 60 V	100 to 133 V	220 to 240 V	-	
Rating (In) 0.5 to 4 A	50 kA	50 kA	50 kA	25 kA	100 % of Icu
6 to 63 A	36 kA	20 kA	10 kA	6 kA	75 % of Icu
Breaking capacity (Icn) according to IEC/EN 60898-1					
	Voltage (Ue)				
Ph/Ph	400 V				
Ph/N	230 V				
Rating (In) 0.5 to 63 A	6000 A				

Direct current (DC)						
Breaking capacity (Icu) according to IEC/EN 60947-2						Service breaking capacity (Ics)
	Voltage (Ue)					
Between +/-	12 to 60 V	≤ 72 V	≤ 125 V	≤ 180 V	≤ 250 V	
Number of poles	1P		2P	3P	4P	
Rating (In) 0.5 to 63 A	15 kA	10 kA	10 kA	10 kA	10 kA	100 % of Icu

Catalogue numbers

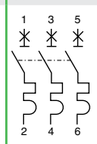
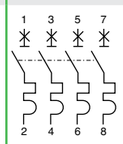
iC60N circuit breaker						
Type	1P			2P		
	E45092 			E45094 		
Auxiliaries	Remote tripping and indication, module CA907000 and CA907002			Remote tripping and indication, module CA907000 and CA907002		
Vigi iC60	Vigi iC60 add-on residual current device, module CA902005			Vigi iC60 add-on residual current device, module CA902005		
Rating (In)	Curve			Curve		
	B	C	D	B	C	D
0.5 A	A9F73170	A9F74170	A9F75170	A9F73270	A9F74270	A9F75270
1 A	A9F73101	A9F74101	A9F75101	A9F73201	A9F74201	A9F75201
2 A	A9F73102	A9F74102	A9F75102	A9F73202	A9F74202	A9F75202
3 A	A9F73103	A9F74103	A9F75103	A9F73203	A9F74203	A9F75203
4 A	A9F73104	A9F74104	A9F75104	A9F73204	A9F74204	A9F75204
6 A	A9F73106	A9F74106	A9F75106	A9F73206	A9F74206	A9F75206
10 A	A9F73110	A9F74110	A9F75110	A9F73210	A9F74210	A9F75210
13 A	A9F73113	A9F74113	A9F75113	A9F73213	A9F74213	A9F75213
16 A	A9F73116	A9F74116	A9F75116	A9F73216	A9F74216	A9F75216
20 A	A9F73120	A9F74120	A9F75120	A9F73220	A9F74220	A9F75220
25 A	A9F73125	A9F74125	A9F75125	A9F73225	A9F74225	A9F75225
32 A	A9F73132	A9F74132	A9F75132	A9F73232	A9F74232	A9F75232
40 A	A9F73140	A9F74140	A9F75140	A9F73240	A9F74240	A9F75240
50 A	A9F73150	A9F74150	A9F75150	A9F73250	A9F74250	A9F75250
63 A	A9F73163	A9F74163	A9F75163	A9F73263	A9F74263	A9F75263
Width in 9-mm modules	2			4		
Accessories	Module CA907000 and CA907001			Module CA907000 and CA907001		

iC60N circuit breakers

Curve B, C, D

- Increased product service life thanks to:
  - overvoltage resistance by high level of industrial performances conception (pollution degree, rated impulse withstand voltage and insulation voltage),
  - high performance limitation (see limitation curves),
  - fast closing independent of the speed of actuation of the toggle.
- Remote indication, open/closed/tripped, by optional auxiliary contacts.

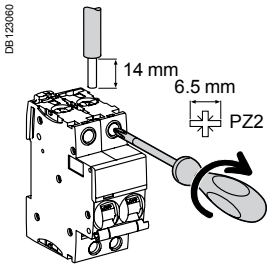
Top or bottom electrical feeding.

Type	3P			4P		
	E45095 			E45097 		
Auxiliaries	Remote tripping and indication, module CA907000 and CA907002			Remote tripping and indication, module CA907000 and CA907002		
Vigi iC60	Vigi iC60 add-on residual current device, module CA902005			Vigi iC60 add-on residual current device, module CA902005		
Rating (In)	Curve			Curve		
	B	C	D	B	C	D
0.5 A	A9F73370	A9F74370	A9F75370	A9F73470	A9F74470	A9F75470
1 A	A9F73301	A9F74301	A9F75301	A9F73401	A9F74401	A9F75401
2 A	A9F73302	A9F74302	A9F75302	A9F73402	A9F74402	A9F75402
3 A	A9F73303	A9F74303	A9F75303	A9F73403	A9F74403	A9F75403
4 A	A9F73304	A9F74304	A9F75304	A9F73404	A9F74404	A9F75404
6 A	A9F73306	A9F74306	A9F75306	A9F73406	A9F74406	A9F75406
10 A	A9F73310	A9F74310	A9F75310	A9F73410	A9F74410	A9F75410
13 A	A9F73313	A9F74313	A9F75313	A9F73413	A9F74413	A9F75413
16 A	A9F73316	A9F74316	A9F75316	A9F73416	A9F74416	A9F75416
20 A	A9F73320	A9F74320	A9F75320	A9F73420	A9F74420	A9F75420
25 A	A9F73325	A9F74325	A9F75325	A9F73425	A9F74425	A9F75425
32 A	A9F73332	A9F74332	A9F75332	A9F73432	A9F74432	A9F75432
40 A	A9F73340	A9F74340	A9F75340	A9F73440	A9F74440	A9F75440
50 A	A9F73350	A9F74350	A9F75350	A9F73450	A9F74450	A9F75450
63 A	A9F73363	A9F74363	A9F75363	A9F73463	A9F74463	A9F75463
Width in 9-mm modules	6			8		
	Module CA907000 and CA907001			Module CA907000 and CA907001		

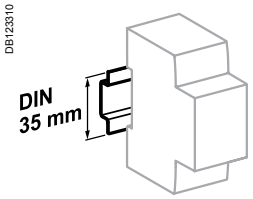
iC60N circuit breakers

Curve B, C, D

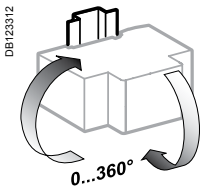
Connection



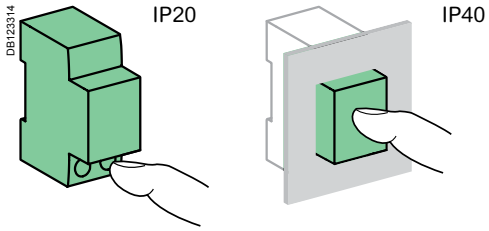
Rating	Tightening torque	Without accessories: Copper cables – Rigid	Without accessories: Copper cables – Flexible or with ferrule	With accessories: 50 mm² Al terminal	With accessories: Screw-on connection for ring terminal	With accessories: Multi-cables terminal – Rigid cables	With accessories: Multi-cables terminal – Flexible cables
		DB122945	DB122946	DB122935 Al	DB118789 Ø	DB118787	
0.5 to 25 A	2 N.m	1 to 25 mm²	1 to 16 mm²	-	Ø 5 mm	-	-
32 to 63 A	3.5 N.m	1 to 35 mm²	1 to 25 mm²	50 mm²		3 x 16 mm²	3 x 10 mm²



Clip on DIN rail 35 mm.



Indifferent position of installation.



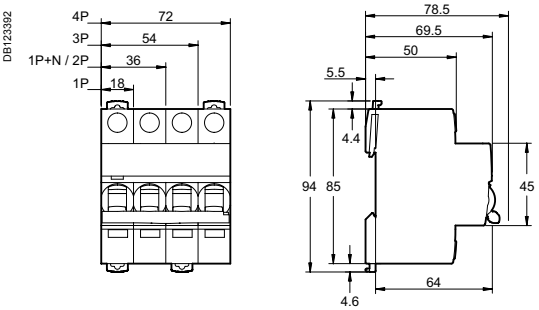
Technical data

Main characteristics		
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
	Temperature derating	See module CA908007
Magnetic tripping	B curve	4 In ± 20 %
	C curve	8 In ± 20 %
	D curve	12 In ± 20 %
Utilization category		A
According to IEC/EN 60898-1		
Limitation class		3
Rated making and breaking capacity of an individual pole (Icn1)		Icn1 = Icn
Additional characteristics		
Breaking capacity under 1 pole with IT 380-415 V isolated neutral system (case of double fault)	40 A	4 kA
	50/63 A	3 kA
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
Overvoltage category (IEC 60364)		IV
Operating temperature		-35°C to +70°C
Storage temperature		-40°C to +85°C
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % to 55°C)

Weight (g)

Circuit-breaker	
Type	iC60N
1P	125
2P	250
3P	375
4P	500

Dimensions (mm)



iC60H circuit breakers

Curve B, C, D

PB104441-40

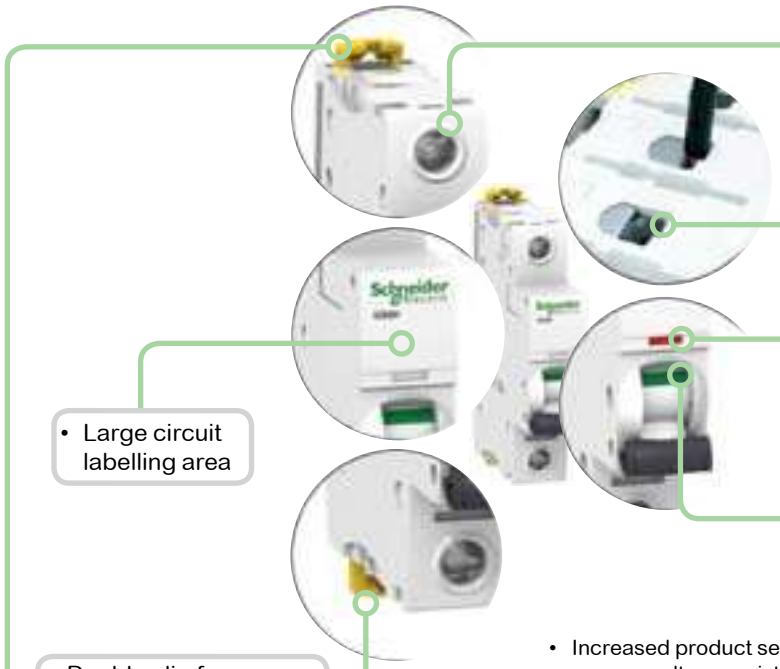
PB104451-40

IEC/EN 60947-2, IEC/EN 60898-1

- iC60H circuit breakers are multi-standard circuit breakers which combine the following functions:
  - circuit protection against short-circuit currents,
  - circuit protection against overload currents,
  - suitable for industrial isolation according to IEC/EN 60947-2, standard.
  - fault tripping indication by a red mechanical indicator in circuit breaker front face.

Alternating current (AC) 50/60 Hz						
Breaking capacity (Icu) according to IEC/EN 60947-2						Service breaking capacity (Ics)
		Voltage (Ue)				
Ph/Ph (2P, 3P, 4P)		12 to 133 V	220 to 240 V	380 to 415 V	440 V	
Ph/N (1P, 1P+N)		12 to 60 V	100 to 133 V	220 to 240 V	-	
Rating (In)	0.5 to 4 A	70 kA	70 kA	70 kA	50 kA	100 % of Icu
	6 to 63A	42 kA	30 kA	15 kA	10 kA	50 % of Icu
Breaking capacity (Icn) according to IEC/EN 60898-1						
		Voltage (Ue)				
Ph/Ph		400 V				
Ph/N		230 V				
Rating (In)	0.5 to 63 A	10000 A				

Direct current (DC)							
Breaking capacity (Icu) according to IEC/EN 60947-2							Service breaking capacity (Ics)
		Voltage (Ue)					
Between +/-		12 to 60 V	≤ 72 V	≤ 125 V	≤ 180 V	≤ 250 V	
Number of poles		1P		2P	3P	4P	
Rating (In)	0.5 to 63 A	20 kA	15 kA	15 kA	15 kA	15 kA	100 % of Icu



- Insulated terminals IP20

Visi-trip window
- Fault tripping is indicated by a red mechanical indicator on the front face

Positive contact indication
- Suitable for industrial isolation according to IEC/EN 60947-2 standard.
- The presence of the green strip guarantees physical opening of the contacts and allows operations to be performed on the downstream circuit in complete safety

- Large circuit labelling area

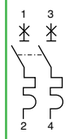
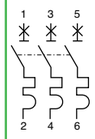
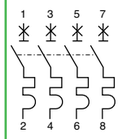
- Double clip for dismounting with comb busbar in place

- Increased product service life thanks to:
  - overvoltage resistance by high level of industrial performances conception (pollution degree, rated impulse withstand voltage and insulation voltage),
  - high performance limitation (see limitation curves),
  - fast closing independent of the speed of actuation of the toggle.
- Remote indication, open/closed/tripped, by optional auxiliary contacts.
- Top or bottom electrical feeding.

iC60H circuit breakers

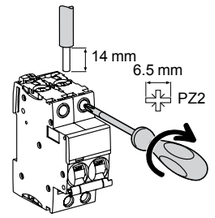
Curve B, C, D

Catalogue numbers

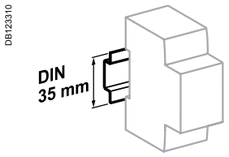
iC60H circuit breaker												
Type	1P			2P			3P			4P		
												
Auxiliaries	Remote tripping and indication, module CA907000 and CA907002			Remote tripping and indication, module CA907000 and CA907002			Remote tripping and indication, module CA907000 and CA907002			Remote tripping and indication, module CA907000 and CA907002		
Vigi iC60	Vigi iC60 add-on residual current device, module CA902005			Vigi iC60 add-on residual current device, module CA902005			Vigi iC60 add-on residual current device, module CA902005			Vigi iC60 add-on residual current device, module CA902005		
Rating (In)	Curve			Curve			Curve			Curve		
	B	C	D	B	C	D	B	C	D	B	C	D
0.5 A	A9F83170	A9F84170	A9F85170	A9F83270	A9F84270	A9F85270	A9F83370	A9F84370	A9F85370	A9F83470	A9F84470	A9F85470
1 A	A9F83101	A9F84101	A9F85101	A9F83201	A9F84201	A9F85201	A9F83301	A9F84301	A9F85301	A9F83401	A9F84401	A9F85401
2 A	A9F83102	A9F84102	A9F85102	A9F83202	A9F84202	A9F85202	A9F83302	A9F84302	A9F85302	A9F83402	A9F84402	A9F85402
3 A	A9F83103	A9F84103	A9F85103	A9F83203	A9F84203	A9F85203	A9F83303	A9F84303	A9F85303	A9F83403	A9F84403	A9F85403
4 A	A9F83104	A9F84104	A9F85104	A9F83204	A9F84204	A9F85204	A9F83304	A9F84304	A9F85304	A9F83404	A9F84404	A9F85404
6 A	A9F83106	A9F84106	A9F85106	A9F83206	A9F84206	A9F85206	A9F83306	A9F84306	A9F85306	A9F83406	A9F84406	A9F85406
10 A	A9F83110	A9F84110	A9F85110	A9F83210	A9F84210	A9F85210	A9F83310	A9F84310	A9F85310	A9F83410	A9F84410	A9F85410
13 A	A9F83113	A9F84113	A9F85113	A9F83213	A9F84213	A9F85213	A9F83313	A9F84313	A9F85313	A9F83413	A9F84413	A9F85413
16 A	A9F83116	A9F84116	A9F85116	A9F83216	A9F84216	A9F85216	A9F83316	A9F84316	A9F85316	A9F83416	A9F84416	A9F85416
20 A	A9F83120	A9F84120	A9F85120	A9F83220	A9F84220	A9F85220	A9F83320	A9F84320	A9F85320	A9F83420	A9F84420	A9F85420
25 A	A9F83125	A9F84125	A9F85125	A9F83225	A9F84225	A9F85225	A9F83325	A9F84325	A9F85325	A9F83425	A9F84425	A9F85425
32 A	A9F83132	A9F84132	A9F85132	A9F83232	A9F84232	A9F85232	A9F83332	A9F84332	A9F85332	A9F83432	A9F84432	A9F85432
40 A	A9F83140	A9F84140	A9F85140	A9F83240	A9F84240	A9F85240	A9F83340	A9F84340	A9F85340	A9F83440	A9F84440	A9F85440
50 A	A9F83150	A9F84150	A9F85150	A9F83250	A9F84250	A9F85250	A9F83350	A9F84350	A9F85350	A9F83450	A9F84450	A9F85450
63 A	A9F83163	A9F84163	A9F85163	A9F83263	A9F84263	A9F85263	A9F83363	A9F84363	A9F85363	A9F83463	A9F84463	A9F85463
Width in 9-mm modules	2			4			6			8		
Accessories	Module CA907000 and CA907001			Module CA907000 and CA907001			Module CA907000 and CA907001			Module CA907000 and CA907001		

iC60H circuit breakers
Curve B, C, D

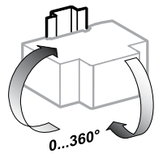
Connection



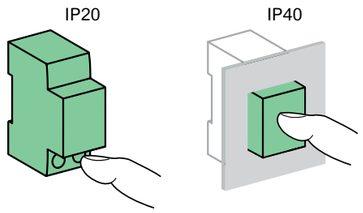
Rating	Tightening torque	Without accessories: Copper cables, Rigid	Without accessories: Copper cables, Flexible or with ferrule	With accessories: 50 mm² Al terminal	With accessories: Screw-on connection for ring terminal	With accessories: Multi-cables terminal, Rigid cables	With accessories: Multi-cables terminal, Flexible cables
							
0.5 to 25 A	2 N.m	1 to 25 mm²	1 to 16 mm²	-	Ø 5 mm	-	-
32 to 63 A	3.5 N.m	1 to 35 mm²	1 to 25 mm²	50 mm²		3 x 16 mm²	3 x 10 mm²



Clip on DIN rail 35 mm.



Indifferent position of installation.



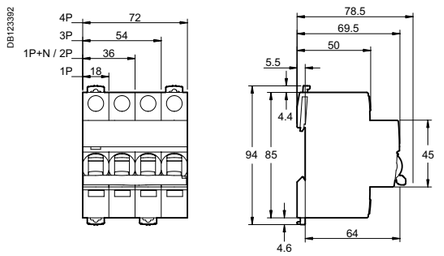
Technical data

Main characteristics		
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
	Temperature derating	See module CA908007
Magnetic tripping	B curve	4 In ± 20 %
	C curve	8 In ± 20 %
	D curve	12 In ± 20 %
Utilization category		A
According to IEC/EN 60898-1		
Limitation class		3
Rated making and breaking capacity of an individual pole (Icn1)		Icn1 = Icn
Additional characteristics		
Breaking capacity under 1 pole with IT 380-415 V isolated neutral system (case of double fault)	40 A	4 kA
	50/63 A	3 kA
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
Overvoltage category (IEC 60364)		IV
Operating temperature		-35°C to +70°C
Storage temperature		-40°C to +85°C
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % to 55°C)

Weight (g)

Circuit-breaker	
Type	iC60H
1P	125
2P	250
3P	375
4P	500

Dimensions (mm)



iC60L circuit breakers

Curve B, C, K, Z

IEC/EN 60947-2, IEC/EN 60898-1 up to 40 A

- iC60L circuit breakers are multi-standard circuit breakers which combine the following functions:
  - circuit protection against short-circuit currents,
  - circuit protection against overload currents,
  - suitable for industrial isolation according to IEC/EN 60947-2, standard.
  - fault tripping indication by a red mechanical indicator in circuit breaker front face.

Alternating current (AC) 50/60 Hz						
Breaking capacity (Icu) according to IEC/EN 60947-2		Voltage (Ue)				Service breaking capacity (Ics)
Ph/Ph (2P, 3P, 4P)		12 to 133 V	220 to 240 V	380 to 415 V	440 V	
Ph/N (1P)		12 to 60 V	100 to 133 V	220 to 240 V	-	
Rating (In)	0.5 to 4 A	100 kA	100 kA	100 kA	70 kA	100 % of Icu
	6 to 25 A	70 kA	50 kA	25 kA	20 kA	50 % of Icu (1)
	32 / 40 A	70 kA	36 kA	20 kA	15 kA	50 % of Icu
	50 / 63 A	70 kA	30 kA	15 kA	10 kA	50 % of Icu
Breaking capacity (Icn) according to IEC/EN 60898-1		Voltage (Ue)				
Ph/Ph		400 V				
Ph/N		230 V				
Rating (In)	0.5 to 40 A	15000 A				

Direct current (DC)						
Breaking capacity (Icu) according to IEC/EN 60947-2		Voltage (Ue)				Service breaking capacity (Ics)
Between +/-		12 to 60 V	≤ 72 V	≤ 125 V	≤ 180 V	≤ 250 V
Number of poles		1P		2P	3P	4P
Rating (In)	0.5 to 63 A	25 kA	20 kA	20 kA	20 kA	20 kA	100 % of Icu

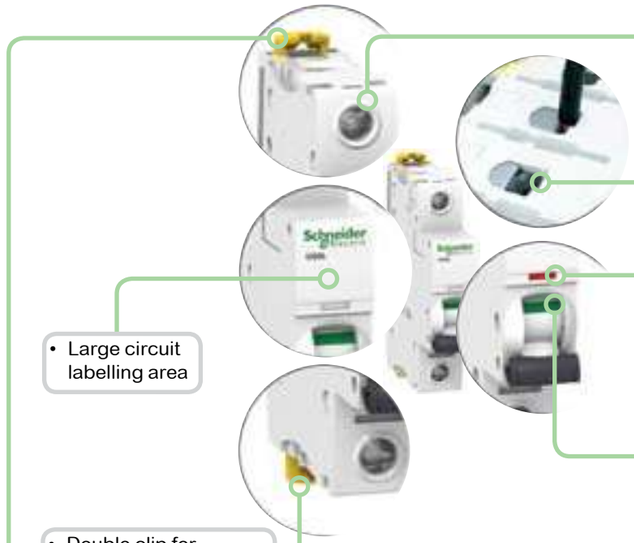
Catalogue numbers

iC60L circuit breaker									
Type		1P				2P			
		E45092				E45094			
Auxiliaries		Remote tripping and indication, module CA907000 and CA907002				Remote tripping and indication, module CA907000 and CA907002			
Vigi iC60		Vigi iC60 add-on residual current device, module CA902005				Vigi iC60 add-on residual current device, module CA902005			
Rating (In)	Quality label (2)	Curve				Curve			
		B	C	K	Z	B	C	K	Z
0.5 A		A9F93170	A9F94170	A9F95170	A9F92170	A9F93270	A9F94270	A9F95270	A9F92270
1 A		A9F93101	A9F94101	A9F95101	A9F92101	A9F93201	A9F94201	A9F95201	A9F92201
1.6 A		-	-	A9F95172	A9F92172	-	-	A9F95272	A9F92272
2 A		A9F93102	A9F94102	A9F95102	A9F92102	A9F93202	A9F94202	A9F95202	A9F92202
3 A		A9F93103	A9F94103	A9F95103	A9F92103	A9F93203	A9F94203	A9F95203	A9F92203
4 A		A9F93104	A9F94104	A9F95104	A9F92104	A9F93204	A9F94204	A9F95204	A9F92204
6 A		A9F93106	A9F94106	A9F95106	A9F92106	A9F93206	A9F94206	A9F95206	A9F92206
10 A		A9F93110	A9F94110	A9F95110	A9F92110	A9F93210	A9F94210	A9F95210	A9F92210
16 A		A9F93116	A9F94116	A9F95116	A9F92116	A9F93216	A9F94216	A9F95216	A9F92216
20 A		A9F93120	A9F94120	A9F95120	A9F92120	A9F93220	A9F94220	A9F95220	A9F92220
25 A		A9F93125	A9F94125	A9F95125	A9F92125	A9F93225	A9F94225	A9F95225	A9F92225
32 A		A9F93132	A9F94132	A9F95132	A9F92132	A9F93232	A9F94232	A9F95232	A9F92232
40 A		A9F93140	A9F94140	A9F95140	A9F92140	A9F93240	A9F94240	A9F95240	A9F92240
50 A		A9F93150	A9F94150	A9F95150(3)	A9F92150	A9F93250	A9F94250	A9F95250	A9F92250
63 A		A9F93163	A9F94163	A9F95163(3)	A9F92163	A9F93263	A9F94263	A9F95263	A9F92263
Width in 9-mm modules		2				4			
Accessories		Module CA907000 and CA907001				Module CA907000 and CA907001			

(1) 100 % of Icu for ratings 6 to 25 A under Ue 100 to 133 V AC Ph/Ph and Ue 12 to 60 V AC Ph/N.
(2) Information to be provided by the country.
(3) Without approval.

iC60L circuit breakers

Curve B, C, K, Z



- Increased product service life thanks to:
  - overvoltage resistance by high level of industrial performances conception (pollution degree, rated impulse withstand voltage and insulation voltage),
  - high performance limitation (see limitation curves),
  - fast closing independent of the speed of actuation of the toggle.
- Remote indication, open/closed/tripped, by optional auxiliary contacts.
- Top or bottom electrical feeding.

E45095						E45097			
3P						4P			
Remote tripping and indication, module CA907000 and CA907002						Remote tripping and indication, module CA907000 and CA907002			
Vigi iC60 add-on residual current device, module CA902005						Vigi iC60 add-on residual current device, module CA902005			
Curve						Curve			
B	C	K	Z			B	C	K	Z
A9F93370	A9F94370	A9F95370	A9F92370			A9F93470	A9F94470	A9F95470	A9F92470
A9F93301	A9F94301	A9F95301	A9F92301			A9F93401	A9F94401	A9F95401	A9F92401
-	-	A9F95372	A9F92372			-	-	A9F95472	A9F92472
A9F93302	A9F94302	A9F95302	A9F92302			A9F93402	A9F94402	A9F95402	A9F92402
A9F93303	A9F94303	A9F95303	A9F92303			A9F93403	A9F94403	A9F95403	A9F92403
A9F93304	A9F94304	A9F95304	A9F92304			A9F93404	A9F94404	A9F95404	A9F92404
A9F93306	A9F94306	A9F95306	A9F92306			A9F93406	A9F94406	A9F95406	A9F92406
A9F93310	A9F94310	A9F95310	A9F92310			A9F93410	A9F94410	A9F95410	A9F92410
A9F93316	A9F94316	A9F95316	A9F92316			A9F93416	A9F94416	A9F95416	A9F92416
A9F93320	A9F94320	A9F95320	A9F92320			A9F93420	A9F94420	A9F95420	A9F92420
A9F93325	A9F94325	A9F95325	A9F92325			A9F93425	A9F94425	A9F95425	A9F92425
A9F93332	A9F94332	A9F95332	A9F92332			A9F93432	A9F94432	A9F95432	A9F92432
A9F93340	A9F94340	A9F95340	A9F92340			A9F93440	A9F94440	A9F95440	A9F92440
A9F93350	A9F94350	A9F95350	A9F92350			A9F93450	A9F94450	A9F95450	A9F92450
A9F93363	A9F94363	A9F95363	A9F92363			A9F93463	A9F94463	A9F95463	A9F92463
4						6			
Module CA907000 and CA907001						Module CA907000 and CA907001			

iC60L circuit breakers

Curve MA, instantaneous circuit breakers (ICB)

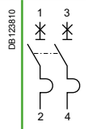
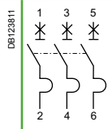
IEC/EN 60947-2

- iC60L curve MA circuit breakers combine the following functions:
  - circuit protection against short-circuit currents,
  - suitability for industrial isolation according to IEC/EN 60947-2, standard,
  - fault tripping indication by a red mechanical indicator in circuit breaker front face,
  - to be associated with overload protection for motor.

Alternating current (AC) 50/60 Hz					
Breaking capacity (Icu) according to IEC/EN 60947-2					Service breaking capacity (Ics)
		Voltage (Ue)			
Ph/Ph (2P, 3P)		220 to 240 V	380 to 415 V	440 V	
Rating (In)	1.6 to 16 A	40 kA	20 kA	15 kA	50 % of Icu
	25 à 40 A	30 kA	15 kA	10 kA	50 % of Icu

Catalogue numbers

iC60L instantaneous trip circuit breaker

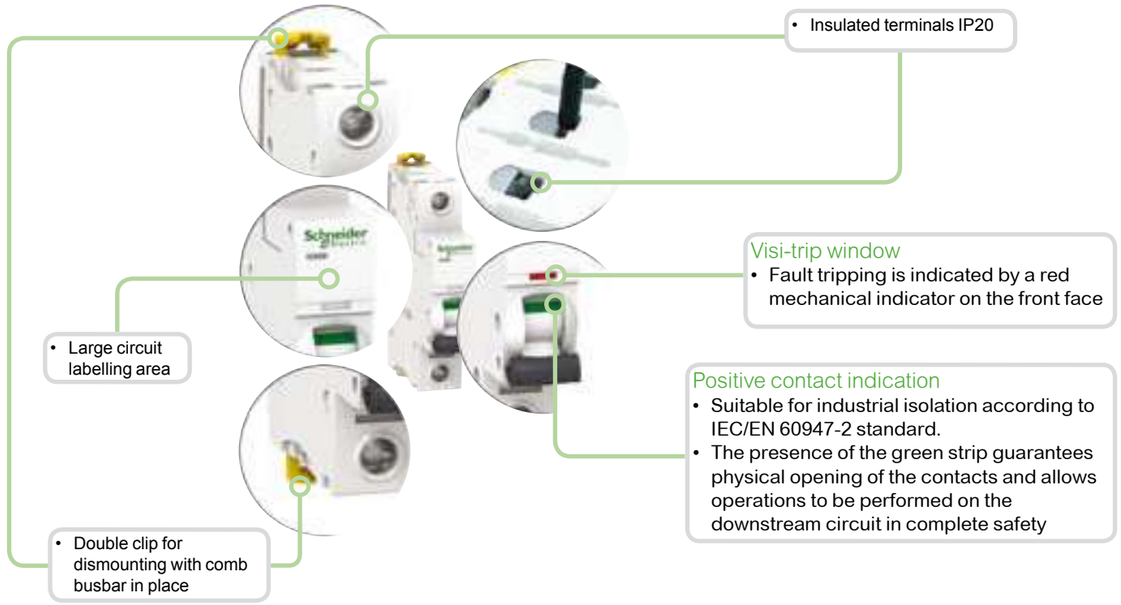
Type		2P	3P
			
Auxiliaries		Remote tripping and indication, module CA907000 and CA907002	Remote tripping and indication, module CA907000 and CA907002
Vigi iC60		Vigi iC60 add-on residual current device, module CA902005	Vigi iC60 add-on residual current device, module CA902005
Rating (In)	Quality label (1)	Curve MA	Curve MA
1.6 A		A9F90272	A9F90372
2.5 A		A9F90273	A9F90373
4 A		A9F90204	A9F90304
6.3 A		A9F90276	A9F90376
10 A		A9F90210	A9F90310
12.5 A		A9F90282	A9F90382
16 A		A9F90216	A9F90316
25 A		A9F90225	A9F90325
40 A		A9F90240	A9F90340
Width in 9-mm modules		4	6
Accessories		Module CA907000 and CA907001	Module CA907000 and CA907001

(1) Information to be provided by the country.

Circuit protection
www.schneider-electric.com/sg

iC60L circuit breakers

Curve MA, instantaneous circuit breakers (ICB)

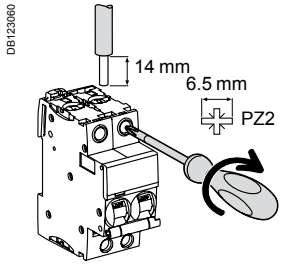


- Increased product service life thanks to:
  - overvoltage resistance by high level of industrial performances conception (pollution degree, rated impulse withstand voltage and insulation voltage),
  - high performance limitation (see limitation curves),
  - fast closing independent of the speed of actuation of the toggle.
- Remote indication, open/closed/tripped, by optional auxiliary contacts.
- Top or bottom electrical feeding.

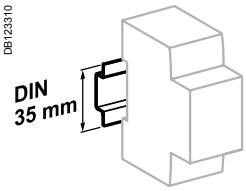
iC60L circuit breakers

Curve MA, instantaneous circuit breakers (ICB)

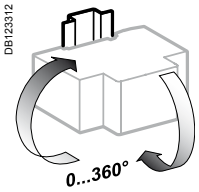
Connection



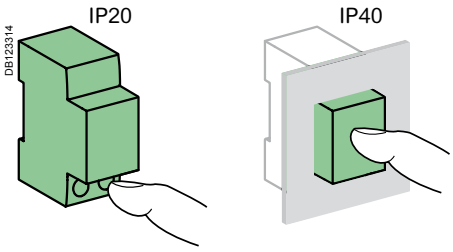
Rating	Tightening torque	Without accessories: Copper cables – Rigid	Without accessories: Copper cables – Flexible or with ferrule	With accessories: 50 mm² Al terminal	With accessories: Screw-on connection for ring terminal	With accessories: Multi-cables terminal – Rigid cables	With accessories: Multi-cables terminal – Flexible cables
		DB122945	DB122946	DB122935 Al	DB118789 Ø	DB118787	
1.6 to 16 A	2 N.m	1 to 25 mm²	1 to 16 mm²	-	Ø 5 mm	-	-
25 to 40 A	3.5 N.m	1 to 35 mm²	1 to 25 mm²	50 mm²		3 x 16 mm²	3 x 10 mm²



Clip on DIN rail 35 mm.



Indifferent position of installation.



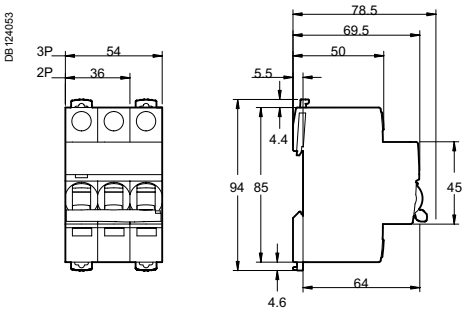
Technical data

Main characteristics		
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
	Temperature derating	See module CA908007
Magnetic tripping	MA curve	12 In ± 20 %
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
Overvoltage category (IEC 60364)		IV
Operating temperature		-35°C to +70°C
Storage temperature		-40°C to +85°C
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % to 55°C)

Weight (g)

Circuit-breaker	
Type	iC60L
2P	250
3P	375

Dimensions (mm)



K60N Biconnect circuit breakers


PB114837-40

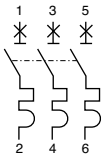
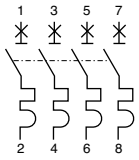
IEC/EN 60898-1

- K60N Biconnect circuit breakers are circuit breakers which combine the following functions:
  - circuit protection against short-circuit currents,
  - circuit protection against overload currents,
  - disconnection, opening and closing.

K60N Biconnect circuit breaker 50/60 Hz			
Breaking capacity in short circuit (Icn) as per IEC/EN 60898-1			Service breaking capacity (Ics)
Ph/Ph		400 V	100 % of Icn
Ph/N		230 V	
Rating (In)	6 to 63 A	6000 A	

Catalogue numbers

K60N Biconnect circuit breaker

Type	1P		2P		3P		4P	
	 E45092		 E45094		 E45095		 E45097	
Auxiliaries	Without auxiliaries		Without auxiliaries		Without auxiliaries		Without auxiliaries	
Rating (In)	Curve		Curve		Curve		Curve	
	B	C	B	C	B	C	B	C
6 A	A9K01106	A9K02106	A9K01206	A9K02206	A9K01306	A9K02306	A9K01406	A9K02406
10 A	A9K01110	A9K02110	A9K01210	A9K02210	A9K01310	A9K02310	A9K01410	A9K02410
16 A	A9K01116	A9K02116	A9K01216	A9K02216	A9K01316	A9K02316	A9K01416	A9K02416
20 A	A9K01120	A9K02120	A9K01220	A9K02220	A9K01320	A9K02320	A9K01420	A9K02420
32 A	A9K01132	A9K02132	A9K01232	A9K02232	A9K01332	A9K02332	A9K01432	A9K02432
40 A	A9K01140	A9K02140	A9K01240	A9K02240	A9K01340	A9K02340	A9K01440	A9K02440
50 A	A9K01150	A9K02150	A9K01250	A9K02250	A9K01350	A9K02350	A9K01450	A9K02450
63 A	A9K01163	A9K02163	A9K01263	A9K02263	A9K01363	A9K02363	A9K01463	A9K02463
Width in 9-mm modules	2		4		6		8	
Accessories	Padlocking device cat. no. 26970							

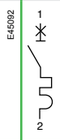
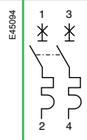
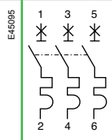
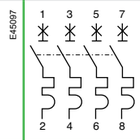
K60H Biconnect circuit breakers

IEC/EN 60898-1

- K60H Biconnect circuit breakers are circuit breakers which combine the following functions:
  - circuit protection against short-circuit currents,
  - circuit protection against overload currents,
  - disconnection, opening and closing.

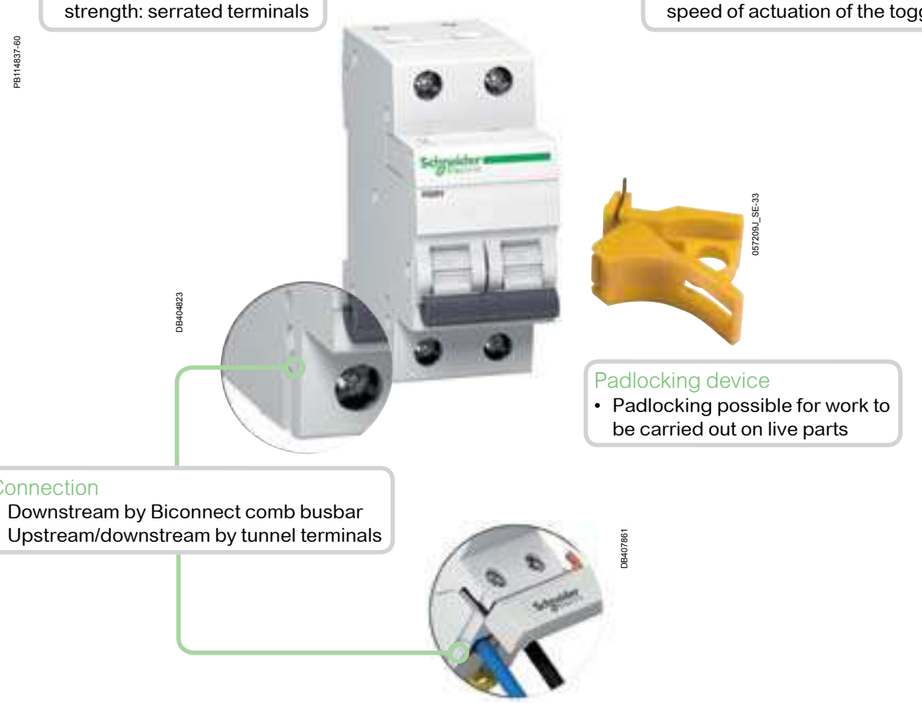
K60H Biconnect circuit breaker 50/60 Hz		
Breaking capacity in short circuit (Icn) as per IEC/EN 60898-1		Service breaking capacity (Ics)
Ph/Ph	400 V	75 % of Icn
Ph/N	230 V	
Rating (In) 6 to 63 A	10000 A	

Catalogue numbers

K60H Biconnect circuit breaker								
Type	1P		2P		3P		4P	
								
Auxiliaries	Without auxiliaries		Without auxiliaries		Without auxiliaries		Without auxiliaries	
Rating (In)	Curve		Curve		Curve		Curve	
	B	C	B	C	B	C	B	C
6 A	A9K11106	A9K12106	A9K11206	A9K12206	A9K11306	A9K12306	A9K11406	A9K12406
10 A	A9K11110	A9K12110	A9K11210	A9K12210	A9K11310	A9K12310	A9K11410	A9K12410
16 A	A9K11116	A9K12116	A9K11216	A9K12216	A9K11316	A9K12316	A9K11416	A9K12416
20 A	A9K11120	A9K12120	A9K11220	A9K12220	A9K11320	A9K12320	A9K11420	A9K12420
32 A	A9K11132	A9K12132	A9K11232	A9K12232	A9K11332	A9K12332	A9K11432	A9K12432
40 A	A9K11140	A9K12140	A9K11240	A9K12240	A9K11340	A9K12340	A9K11440	A9K12440
50 A	A9K11150	A9K12150	A9K11250	A9K12250	A9K11350	A9K12350	A9K11450	A9K12450
63 A	A9K11163	A9K12163	A9K11263	A9K12263	A9K11363	A9K12363	A9K11463	A9K12463
Width in 9-mm modules	2		4		6		8	
Accessories	Padlocking device cat. no. 26970							

K60 Biconnect circuit breakers

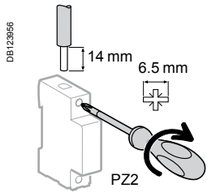
- Reinforced cable pull-out strength: serrated terminals
- Fast closing independent of the speed of actuation of the toggle.



Padlocking device
- Padlocking possible for work to be carried out on live parts

Connection
- Downstream by Biconnect comb busbar
- Upstream/downstream by tunnel terminals

Connection

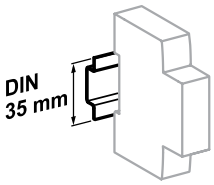


Type	Rating	Tightening torque	Copper cables	
			Rigid	Flexible or with ferrule
		DB122945	DB122946	
K60 Biconnect	6 to 20 A	2 N.m	0.5 to 25 mm^2	0.5 to 16 mm^2
	32 to 63 A	3.5 N.m	0.5 to 35 mm^2	0.5 to 25 mm^2

- *Connection by comb busbar or cables (conforms to EN 50027).*

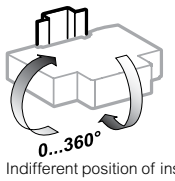
K60 Biconnect circuit breakers

DB123309



Clip on DIN rail 35 mm.

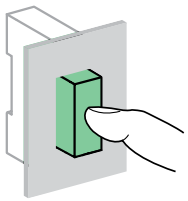
DB123311



Indifferent position of installation.

DB406666

IP40



Technical data

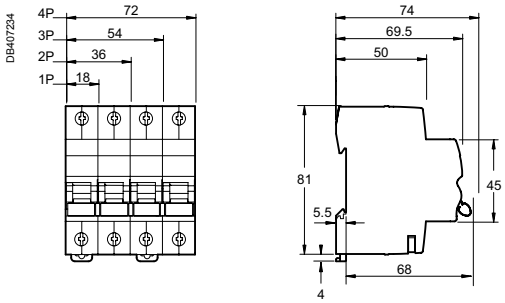
Main characteristics			K60N	K60H
Insulation voltage (Ui)	Phase-to-phase		440 V AC	
Voltage rating (Ue)	Phase-to-neutral		230 V AC	
	Phase-to-phase		400 V AC	
Magnetic tripping	B curve	3 to 5 In	●	
	C curve	5 to 10 In	●	
According to EN 60898-1				
Limitation class			3	
Rated breaking capacity (Icn)			6000 A	10000 A
Service breaking capacity (Ics)			100 % of Icn	75 % of Icn
Rated breaking and making capacity on a single pole (Icn1)			Icn1 = Icn	
Additional characteristics				
Degree of protection (IEC 60529)	Device in modular enclosure		IP40 Insulation class II	
Endurance (O-C)	Electrical	≤ 20 A	20,000 cycles	
		≥ 32 A	10,000 cycles	
	Mechanical		20,000 cycles	
Operating temperature			-5°C to +55°C	
Storage temperature			-25°C to +85°C	
Tropicalization (IEC 60068-1)			Treatment 2 (relative humidity 95% at 55°C)	

Weight (g)

Circuit-breaker	
Type	K60 Biconnect
1P	120
2P	240
3P	360
4P	480

Dimensions (mm)

DB407234



C120N circuit breakers

Curves B, C, D

PB107914-30

PB107917-40

PB107920-30

PB107923-30

IEC/EN 60898-1

C120N circuit breakers are multistandard circuit breakers that combine the following functions:

- circuit protection against short-circuit currents,
- circuit protection against overload currents,
- suitability for isolation in the industrial sector to IEC/EN 60947-2,
- fault tripping and indication by adding auxiliaries.

Alternating current (AC) 50/60 Hz						
Breaking capacity (Icu) to IEC/EN 60947-2						Service breaking capacity (Ics)
Type		Voltage (V)				
1P		12 to 130 V	220 to 240 V	380 to 415 V	440 V	
Rating (In)	63 to 125 A	20 kA	10 kA	3 kA (1)	-	75 % of Icu
2P/3P/4P		12 to 130 V	220 to 240 V	380 to 415 V	440 V	
	63 to 125 A	-	20 kA	10 kA	6 kA	75 % of Icu
Breaking capacity (Icn) to IEC/EN 60898-1						
Type		Voltage (V)				
1P, 2P, 3P, 4P		230 to 400 V				
Rating (In)	63 to 125 A	10000 A				75 % of Icn

(1) One-pole breaking capacity in IT isolated neutral system (double fault).

Direct current (DC)						
Breaking capacity (Icu) according to IEC/EN 60947-2						Service breaking capacity (Ics)
		Voltage (Ue)				
Between +/-		12 to 125 V	⩽ 144 V	⩽ 250 V	⩽ 375 V	⩽ 500 V
Number of poles		1P		2P	3P	4P
Rating (In)	63 to 125 A	15 kA	10 kA	10 kA	10 kA	10 kA	100 % of Icu

Catalogue numbers

C120N circuit breaker						
Type	1P			2P		
						
Auxiliaries	Remote indication and tripping, module CA907008 and CA907013			Remote indication and tripping, module CA907008 and CA907013		
Vigi C120	Vigi C120 add-on residual current device, module CA902016			Vigi C120 add-on residual current device, module CA902016		
Rating (In)	Curve			Curve		
	B	C	D	B	C	D
63 A	A9N18340	A9N18356	A9N18378	A9N18344	A9N18360	A9N18382
80 A	A9N18341	A9N18357	A9N18379	A9N18345	A9N18361	A9N18383
100 A	A9N18342	A9N18358	A9N18380	A9N18346	A9N18362	A9N18384
125 A	A9N18343	A9N18359	A9N18381	A9N18347	A9N18363	A9N18385
Width in 9-mm modules	3			6		
Accessories	Module CA907012 and CA907013			Module CA907012 and CA907013		

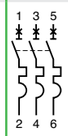
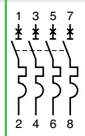
(1) Country France only

C120N circuit breakers
Curves B, C, D

PB107917-40

- Longer product service life thanks to:
  - good overvoltage withstand capacity: products designed to offer a high industrial performance level (degree of pollution, rated impulse withstand voltage and insulation voltage).
  - high limitation performances (see limitation curves).
  - fast closure independent of toggle operating speed.
- Remote indication of the open/closed/tripped state by auxiliary contacts (optional).
- Power supply from above or below.

Catalogue numbers

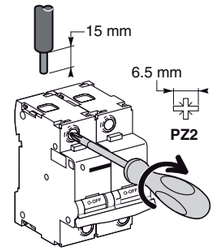
C120N circuit breaker						
Type	3P			4P		
						
Auxiliaries	Remote indication and tripping, module CA907008 and CA907013			Remote indication and tripping, module CA907008 and CA907013		
Vigi C120	Vigi C120 add-on residual current device, module CA902016			Vigi C120 add-on residual current device, module CA902016		
Rating (In)	Curve			Curve		
	B	C	D	B	C	D
63 A	A9N18348	A9N18364	A9N18386	A9N18352	A9N18371	A9N18390
80 A	A9N18349	A9N18365	A9N18387	A9N18353	A9N18372 A9N18373(1)	A9N18391
100 A	A9N18350	A9N18367	A9N18388	A9N18354	A9N18374 A9N18375(1)	A9N18392
125 A	A9N18351	A9N18369	A9N18389	A9N18355	A9N18376 A9N18377(1)	A9N18393
Width in 9-mm modules	9			12		
Accessories	Module CA907012 and CA907013			Module CA907012 and CA907013		

(1) Country France only

C120N circuit breakers
Curves B, C, D

Connection

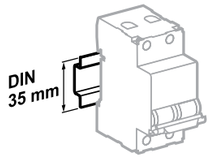
DB125143



Rating	Tightening torque	Without accessories: Copper cables: Rigid/ semi-rigid	Without accessories: Copper cables: Flexible or with ferrule	With accessories: 50 mm² Al Terminal	With accessories: Screw-on connection for ring terminal(1)	With accessories: Multi-cable terminal: Rigid cables	With accessories: Multi-cable terminal: Flexible cables
		DB122945	DB122946	DB122935 Al	DB118789	DB118787	
63 to 125 A	3.5 N.m	1.5 to 50 mm²	1.5 to 35 mm²	16 to 50 mm²	Ø 5 mm	3 x 16 mm²	3 x 10 mm²

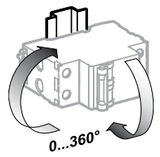
(1) For lugs up to 63 A, front or rear access.

DB118767



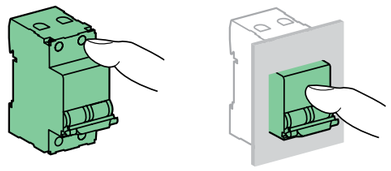
Clips onto 35 mm DIN rail.

DB122831



Any installation position.

DB122932



Technical data

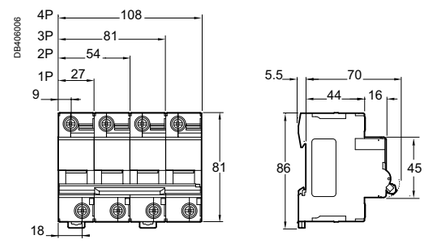
Main characteristics			
To IEC/EN 60947-2			
Insulation voltage (Ui)			500 V AC
Degree of pollution			3
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		50°C
To IEC/EN 60898-1			
Magnetic tripping	Curve B		3 and 5 In
	Curve C		5 and 10 In
	Curve D		10 and 14 In
Limitation class			3
Additional characteristics			
Degree of protection (IEC 60529)	Device only		IP20
	Device in a modular enclosure		IP40
Endurance (O-C)	Electrical	63 A	10000 cycles (O-C)
		80...125 A	5000 cycles (O-C)
	Mechanical		20000 cycles
Operating temperature			-30°C to +70°C
Storage temperature			-40°C to +80°C
Tropicalisation (IEC 60068-1)			Treatment 2 (relative humidity 95 % at 55°C)

Weight (g)

Circuit breaker	
Type	C120N
1P	205
2P	410
3P	615
4P	820

Dimensions (mm)

DB406006



C120H circuit breakers

Curves B, C, D

PB107913-30

PB107916-30

PB107919-30

PB107922-30

IEC/EN 60898-1

C120H circuit breakers are multistandard circuit breakers that combine the following functions:

- circuit protection against short-circuit currents
- circuit protection against overload currents
- suitability for isolation in the industrial sector to IEC/EN 60947-2
- fault tripping and indication by adding auxiliaries.

Alternating current (AC) 50/60 Hz

Breaking capacity (Icu) to IEC/EN 60947-2						Service breaking capacity (Ics)
Type		Voltage (V)				
1P		12 to 130 V	220 to 240 V	380 to 415 V	440 V	
Rating (In)	63 to 125 A	30 kA	15 kA	4,5 kA (1)	-	50 % of Icu
2P, 3P, 4P		12 to 130 V	220 to 240 V	380 to 415 V	440 V	
	63 to 125 A	-	30 kA	15 kA	10 kA	50 % of Icu
Breaking capacity (Icn) to IEC/EN 60898-1						
Type		Voltage (V)				
1P, 2P, 3P, 4P		230 to 400 V				
Rating (In)	63 to 125 A	15000 A				50 % of Icn

(1) One-pole breaking capacity in IT isolated neutral system (double fault).

Direct current (DC)

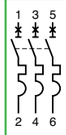
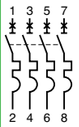
Breaking capacity (Icu) according to IEC/EN 60947-2						Service breaking capacity (Ics)
	Voltage (Ue)					
Between +/-	12 to 125 V	⩽ 144 V	⩽ 250 V	⩽ 375 V	⩽ 500 V	
Number of poles	1P		2P	3P	4P	
Rating (In) 63 to 125 A	20 kA	15 kA	15 kA	15 kA	15 kA	100 % of Icu

- Longer product service life thanks to:
  - good overvoltage withstand capacity: products designed to provide a high industrial performance level (degree of pollution, rated impulse withstand voltage and insulation voltage).
  - high limitation performances (see limitation curves).
  - fast closure independent of toggle operating speed.
- Remote indication of the open/closed/tripped state by auxiliary contacts (optional).
- Power supply from above or below.

Circuit protection
www.schneider-electric.com/sg
C120H circuit breakers
Curves B, C, D

Catalogue numbers

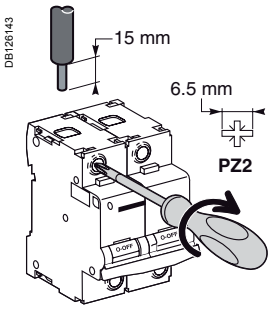
C120H circuit breaker

Type	1P			2P			3P			4P		
												
Auxiliaries	Remote indication and tripping, module CA907008 and CA907013			Remote indication and tripping, module CA907008 and CA907013			Remote indication and tripping, module CA907008 and CA907013			Remote indication and tripping, module CA907008 and CA907013		
Vigi C120	Vigi C120 add-on residual current device, module CA902016			Vigi C120 add-on residual current device, module CA902016			Vigi C120 add-on residual current device, module CA902016			Vigi C120 add-on residual current device, module CA902016		
Rating (In)	Curve			Curve			Curve			Curve		
	B	C	D	B	C	D	B	C	D	B	C	D
63 A	A9N18401	A9N18445	A9N18489	A9N18412	A9N18456	A9N18500	A9N18423	A9N18467	A9N18511	A9N18434	A9N18478	A9N18522
80 A	A9N18402	A9N18446	A9N18490	A9N18413	A9N18457	A9N18501	A9N18424	A9N18468	A9N18512	A9N18435	A9N18479	A9N18523
100 A	A9N18403	A9N18447	A9N18491	A9N18414	A9N18458	A9N18502	A9N18425	A9N18469	A9N18513	A9N18436	A9N18480	A9N18524
125 A	A9N18404	A9N18448	A9N18492	A9N18415	A9N18459	A9N18503	A9N18426	A9N18470	A9N18514	A9N18437	A9N18481	A9N18525
Width in 9 mm modules	3			6			9			12		
Accessories	Module CA907012 and CA907013			Module CA907012 and CA907013			Module CA907012 and CA907013			Module CA907012 and CA907013		

C120H circuit breakers

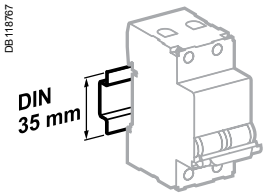
Curves B, C, D

Connection

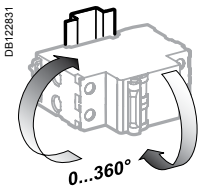


Rating	Tightening torque	Without accessories: Copper cables – Rigid	Without accessories: Copper cables – Flexible or with ferrule	With accessories: 50 mm² Al term.	With accessories: Screw-on connection for ring terminal (1)	With accessories: Multi-cable terminal – Rigid cables	With accessories: Multi-cable terminal – Flexible cables
		DB122945	DB122946	DB122935 Al DB118789	Ø DB118787		
63 to 125 A	3.5 N.m	1.5 to 50 mm²	1.5 to 35 mm²	16 to 50 mm²	Ø 5 mm	3 x 16 mm²	3 x 10 mm²

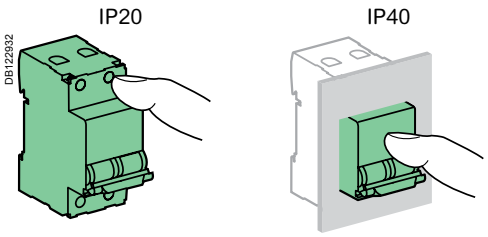
(1) For lugs up to 63 A, front or rear accessories.



Clips onto 35 mm DIN rail.



Any installation position.



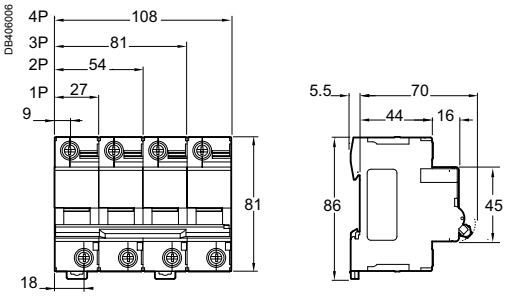
Technical data

Main characteristics			
To IEC/EN 60947-2			
Insulation voltage (Ui)			500 V AC
Degree of pollution			3
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		50°C
To IEC/EN 60898-1			
Magnetic tripping	Curve B		3 and 5 In
	Curve C		5 and 10 In
	Curve D		10 and 14 In
Limitation class			3
Additional characteristics			
Degree of protection (IEC 60529)	Device only		IP20
	Device in a modular enclosure		IP40 (IPXXD)
Endurance (O-C)	Electrical	63 A	10000 cycles (O-C)
		80...125 A	5000 cycles (O-C)
	Mechanical		20000 cycles
Operating temperature			-30°C to +70°C
Storage temperature			-40°C to +80°C
Tropicalisation (IEC 60068-1)			Treatment 2 (relative humidity 95% at 55°C)

Weight (g)

Circuit breaker	
Type	C120H
1P	205
2P	410
3P	615
4P	820

Dimensions (mm)



C60H-DC circuit breakers

C curve, supplementary protectors for feeders / distribution systems

PB107193-34.eps

PB107194-34.eps

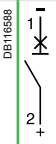
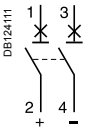
CE

IEC 60947-2

The C60H-DC supplementary protectors are used in direct current circuits (Industrial control and automations, transport, renewable energy...).
They combine the following functions of circuit protection against short-circuit and overload currents, control and isolation.

Direct current (DC)						
Breaking capacity (Icu) according to IEC 60947-2						Rated service breaking capacity (Ics)
Type						
1P	110 V	220 V	250 V	440 V	500 V	
Rating (In) 0.5 to 63 A	20 kA	10 kA	6 kA	-	-	75 % Icu
2P (in series)	110 V	220 V	250 V	440 V	500 V	
0.5 to 63 A	-	20 kA	20 kA	10 kA	6 kA	75 % Icu

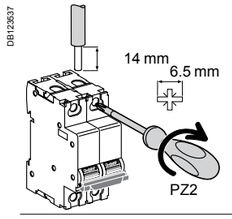
Catalogue numbers

C60H-DC		
Type	1P	2P
	DB116588  Supply from above or below, observing the polarity	DB124110  Supply from above DB124111  Supply from below
Auxiliaries	Remote signalisation and tripping, module CA907008	
Rating (In)	Curve C	Curve C
0.5 A	A9N61500	A9N61520
1 A	A9N61501	A9N61521
2 A	A9N61502	A9N61522
3 A	A9N61503	A9N61523
4 A	A9N61504	A9N61524
5 A	A9N61505	A9N61525
6 A	A9N61506	A9N61526
10 A	A9N61508	A9N61528
13 A	A9N61509	A9N61529
15 A	A9N61510	A9N61530
16 A	A9N61511	A9N61531
20 A	A9N61512	A9N61532
25 A	A9N61513	A9N61533
30 A	A9N61514	A9N61534
32 A	A9N61515	A9N61535
40 A	A9N61517	A9N61537
50 A	A9N61518	A9N61538
63 A	A9N61519	A9N61539
Number of modules of 9 mm	2	4
Accessories	Modules CA907013 and CA907012	

C60H-DC circuit breakers

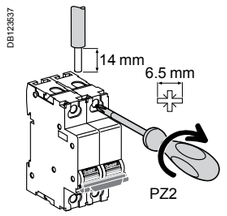
C curve, supplementary protectors for feeders / distribution systems

Connection

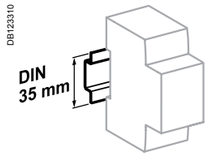


Rating	Tightening torque	Without accessories: Copper cables – Rigid / Stranded	Without accessories: Copper cables – Flexible or with ferrule	With accessories: 50 mm² Al terminal	With accessories: Screw-on connection for ring terminal	With accessories: Multi-cables terminal – Rigid cables	With accessories: Multi-cables terminal – Flexible cables
		DB122945	DB122946	DB123935 Al	DB118789 Ø	DB118787	
≤ 25 A	2.5 N.m	1 to 25 mm²	1 to 16 mm²	-	Ø 5 mm	-	-
> 25 A	3.5 N.m	1 to 35 mm²	1 to 25 mm²	50 mm²		3 x 16 mm²	3 x 10 mm²

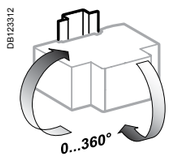
Multi-cables connection



Rating	Tightening torque	Without accessories: 2 Copper cables – Rigid / Stranded	Without accessories: 2 Copper cables – Flexible or with ferrule	3 Multi-cables / Different wires: Flexible / Stranded	3 Multi-cables / Different wires: Flexible / Stranded / Rigid
		DB122945	DB122946	DB118787	
≤ 25 A	2.5 N.m	2 x 1 mm² to 2 x 10 mm²		3 x 1 mm²	2 x 2.5 mm² + 1 x 1.5 mm²
> 25 A	3.5 N.m	2 x 1 mm² to 2 x 16 mm²		3 x 4 mm²	2 x 10 mm² + 1 x 6 mm²

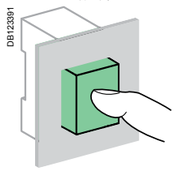


Clip on DIN rail 35 mm.



Indifferent position of installation.

IP40



Technical data

- Tripping curves: C curve - Overcurrent protection for any type of application.
- Positive break indication - the green strip indicates that all the poles are open and allows work to be carried out on the downstream circuit in complete safety.
- Suitable for isolation as defined in IEC 60947-2.
- Increase in the service life of the product: thanks to fast closure independent of the speed of action on the handle.
- Current limitation in the event of a fault: fast opening of the contacts prevents the loads from being destroyed in the event of a short-circuit.

Main characteristics		
According to IEC 60947-2		
Insulation voltage (Ui)		500 V DC
Rated voltage (Un)	1P	250 V DC
	2P	500 V DC
Operating voltage (Ue)	1P	24...250 V DC
	2P	24...500 V DC
Pollution degree		3
Rated impulse withstand voltage (Uimp) under frame		6 kV
Magnetic tripping (Ii)		8.5 In (± 20 %) (compatible with curve C)
Additional characteristics		
Degree of protection (IEC 60529)	Device in modular enclosure	IP40
Utilization category		A (no delay in accordance with IEC 60947-2 standards)
Endurance (O-C)	Electrical	3,000 cycles (where L/R=2 ms)
		6,000 cycles where the circuit is resistive
	Mechanical	20,000 cycles
Tropicalization (IEC 60068-2)		Treatment 2 (relative humidity 95 % at 55°C
Operating temperature		-25°C to 70°C
Storage temperature		-40°C to 85°C

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.

Circuit protection
www.schneider-electric.com/sg

C60H-DC circuit breakers

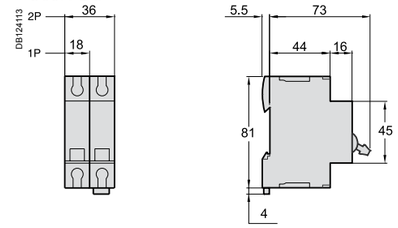
C curve, supplementary protectors for feeders / distribution systems

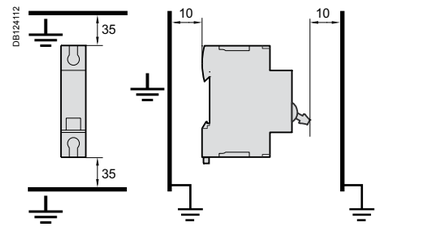
Weight (g)

Circuit-breaker	
Type	C60H-DC
1P	128 g
2P	256 g

Dimensions (mm)

C60H-DC





Details of minimum distance between circuit-breaker and earthed metal parts for circuit-breaker intended for use without enclosure.

C60PV-DC circuit breakers

Supplementary protectors for photovoltaic installations

PB108403-50

The C60PV-DC is a DC circuit breaker dedicated to multi string photovoltaic installations.

This circuit breaker is designed to protect the cables located between each string of photovoltaic modules and the photovoltaic inverter against overloads and short circuits (see application diagram).

Combined with a switch (of the C60NA-DC type, for example), the C60PV-DC will be installed in a string PV protection enclosure at the end of each string of photovoltaic modules.

It can be locked (by a padlocking device) in OFF position as a safety measure for removal of the PV inverter.
Since a fault current can flow in the reverse direction to the operating current, the C60PV-DC can detect and protect against any bidirectional current.

To ensure the safety of the installation, it is necessary, depending on the various types of application, to combine the C60PV-DC with:
- a residual current device at the AC end,
- a fault passage detector (insulation monitoring device) at the DC end
- an earth protection circuit breaker at the DC end (see Practical Advice CA908035).

In all cases, fast action on site will be required to clear the fault (protection not ensured in the event of a double fault).

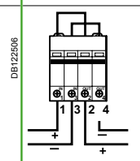
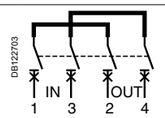
C60PV-DC is not polarity sensitive: (+) and (-) wires can inversed without any risk.

The C60PV-DC is: delivered with three inter-pole barrier to provide increased isolation distance between two adjacent connectors.

IEC / EN 60947-2

CE

DB404840

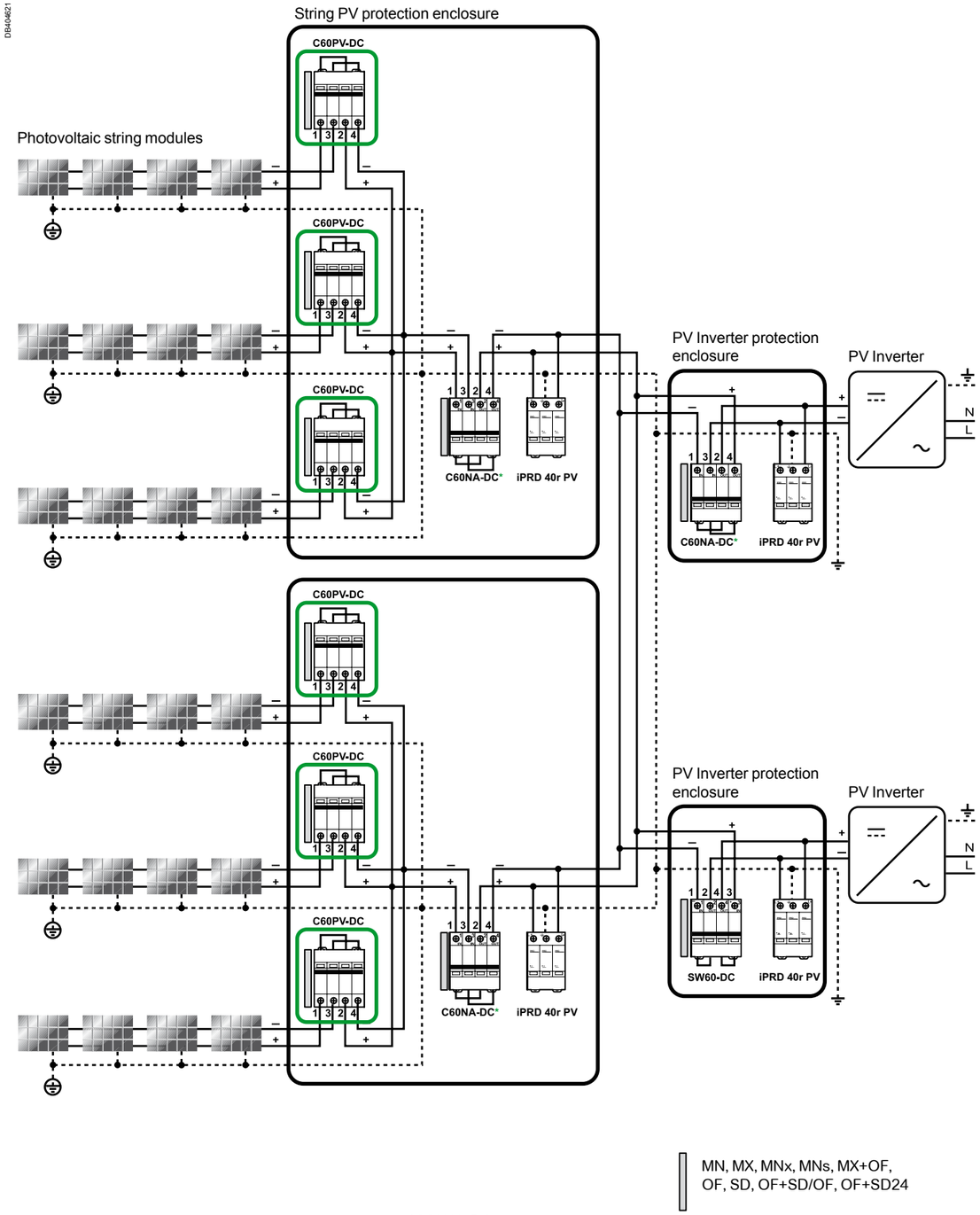
Main characteristics		
Operating voltage (Ue)	800 V DC	
Rated insulation voltage (Ui)	1,000 V DC	
Breaking capacity (Icu)	1.5 kA	
Impulse voltage (Uimp)	6 kV	
Electrical connection	By the bottom for In and Out	
Number of poles	2P	
Number of modules of 9 mm	8	
Diagrams	DB122506  DB122703 	
Standards	IEC 60947-2 EN 60947-2	
Rating (A)	Catalogue numbers	
	Curve B	Curve C
1	-	A9N61653
2	-	A9N61654
3	-	A9N61655
5	-	A9N61656
8	A9N61657	-
10	A9N61650	-
13	A9N61658	-
15	A9N61659	-
16	A9N61651	-
20	A9N61652	-
25	A9N61660	-
Auxiliaries	See modules CA907008 and CA907013	

C60PV-DC circuit breakers

Supplementary protectors for photovoltaic installations

Application diagram

DB404621



MN, MX, MNx, MNs, MX+OF, OF, SD, OF+SD/OF, OF+SD24

*C60NA-DC:
20 A/1000 V DC or
32 A/800 V DC or
50 A/700 V DC

Technical data

- Position contact indication - suitability for isolation according to IEC/EN 60947-2 standard.
- The presence of the green strip guarantees physical opening of the contacts and allows operations to be performed on the downstream circuit in complete safety.
- Increased product service life thanks to fast closing independent of the speed of actuation of the toggle.
- Pre-wired product: Input / Output on the same side.

Main characteristics

Rated service breaking capacity (Ics)		100 % of the Icu
Magnetic tripping (Ii)	Ratings 1...5 A	8.5 In (± 20 %) (compatible with curve C)
	Ratings 8...25 A	5.5 In (± 20 %) (compatible with curve B)
Endurance (O-C)	Electrical	1,500 cycles (where L/R=2 ms)
	Mechanical	20,000 cycles
Mechanical		20,000 cycles
Degree of pollution		2
Category		A (no delay in accordance with IEC / EN 60947-2 standards)
Degree of protection (IEC 60529)	Device in modular enclosure	IP40
Tropicalisation		Relative humidity: 95 % at 55°C in accordance with IEC 60068-2 and GB 14048.2 standards
Temperature	Operating	-25°C to 70 °C
	Storage	-40°C to 85°C

Additional characteristics

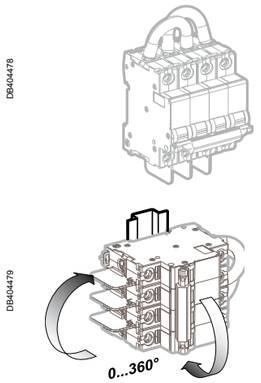
Rating (A)	Voltage drop (mV)	Impedance (mΩ)	Power loss (W)
1	9200	9200	9.2
2	5104	2552	10.2
3	2980	993.3	8.9
5	2000	400	10
8	1384	173	11.1
10	680	68	6.8
13	572	44	7.4
15	600	40	9
16	648	40.5	10.4
20	588	29.4	11.8
25	488	19.5	12.2

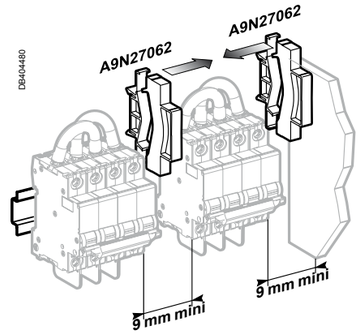
Derating table (A)

C60PV-DC	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	1.18	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	2.54	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	3.78	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
5 A	6	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
8 A	9.64	9.5	9.36	9.22	9.08	8.93	8.78	8.63	8.48	8.32	8.16	8	7.83	7.67	7.49	7.31	7.13	6.95	6.76	6.56	6.36
10 A	12.6	12.4	12.2	11.9	11.7	11.5	11.2	11	10.8	10.5	10.3	10	9.7	9.4	9.2	8.9	8.6	8.2	7.9	7.6	7.2
13 A	15.5	15.3	15.1	14.8	14.6	14.4	14.2	14	13.7	13.5	13.2	13	12.7	12.5	12.2	12	11.7	11.4	11.1	10.8	10.5
15 A	18.6	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	13.0	12.6	12.2	11.7	11.2
16 A	19.4	19.1	18.9	18.6	18.3	18.0	17.6	17.3	17.0	16.7	16.3	16	15.7	15.3	14.9	14.6	14.2	13.8	13.4	13.0	12.5
20 A	24.1	23.7	23.4	23.0	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	30.4	29.9	29.5	29.0	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

Technical data

Moreover it is recommended to use:
- a terminal Screw Shield snaps onto the front of the C60PV-DC protective devices to provide greater insulation of the terminal screws
- a spacer clips 9 mm in each side to provide isolation.



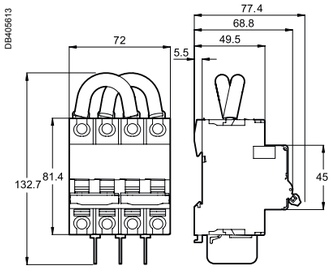


⚠ *Required to have a 9 mm space isolation in each side"*

Weight (g)

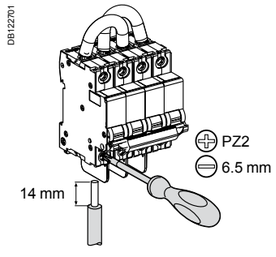
Circuit breaker	
Type	C60PV-DC
	545

Dimensions (mm)



C60PV-DC ≤ 25 A

Connection



		Without accessories		With accessories	
Rating	Tightening torque	Copper cables UL 486A file no. #E216919		50 mm² Cu/Al Terminal	Ring tongue terminal screw connection
		Rigids	Flexibles with ferrule		
		DB112804 DB112805	DB118755	DB118756	Ø
≤25 A	2.5 N.m	1 to 25 mm²	1 to 16 mm²	50 mm²	Ø 5 mm

C60NA-DC circuit breakers

DC main switch for photovoltaic installations

PB108404-50

The C60NA-DC is a direct current switch-disconnector dedicated to disconnection of the string of photovoltaic modules and the PV inverter.

It is designed to isolate the string of photovoltaic modules and the inverter from the rest of the photovoltaic installation for maintenance operations in complete safety.

Combined with a circuit breaker (of the C60PV-DC type, for example), the C60NA-DC will be installed in a string PV protection enclosure close to the strings of photovoltaic modules. It can also be installed near the PV inverter.

It can be locked (by a padlocking device) in OFF position to ensure safety during maintenance operations.
Since a fault current can flow in the reverse direction to the normal operating current, the C60NA-DC can switch a multi-directional current.

C60NA-DC is not polarity sensitive: (+) and (-) wires can inversed without any risk.

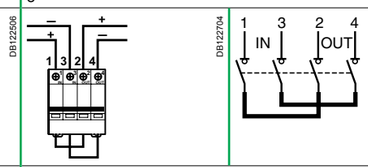
The C60NA-DC is delivered with three inter-pole barrier to provide increased isolation distance between two adjacent connectors.

IEC / EN 60947-3

CE

DB404841

Main characteristics

Operating voltage (Ue)	20 A: 1000 V CC
	32 A: 800 V CC
	50 A: 700 V CC
Rated insulation voltage (Ui)	1,000 V DC
Rated operational current (Ie)	50 A
Impulse voltage (Uimp)	6 kV
Permissible rated short-time withstand current (Icw)	600 A
Rated short-circuit closing current (Icm)	1 kA
Electrical connection	By the top for In and Out
Number of poles	2P
Number of modules of 9 mm	8
Diagrams	
Standards	IEC 60947-3 EN 60947-3
Catalogue number	A9N61690
Auxiliaries	See modules CA907008 and CA907013

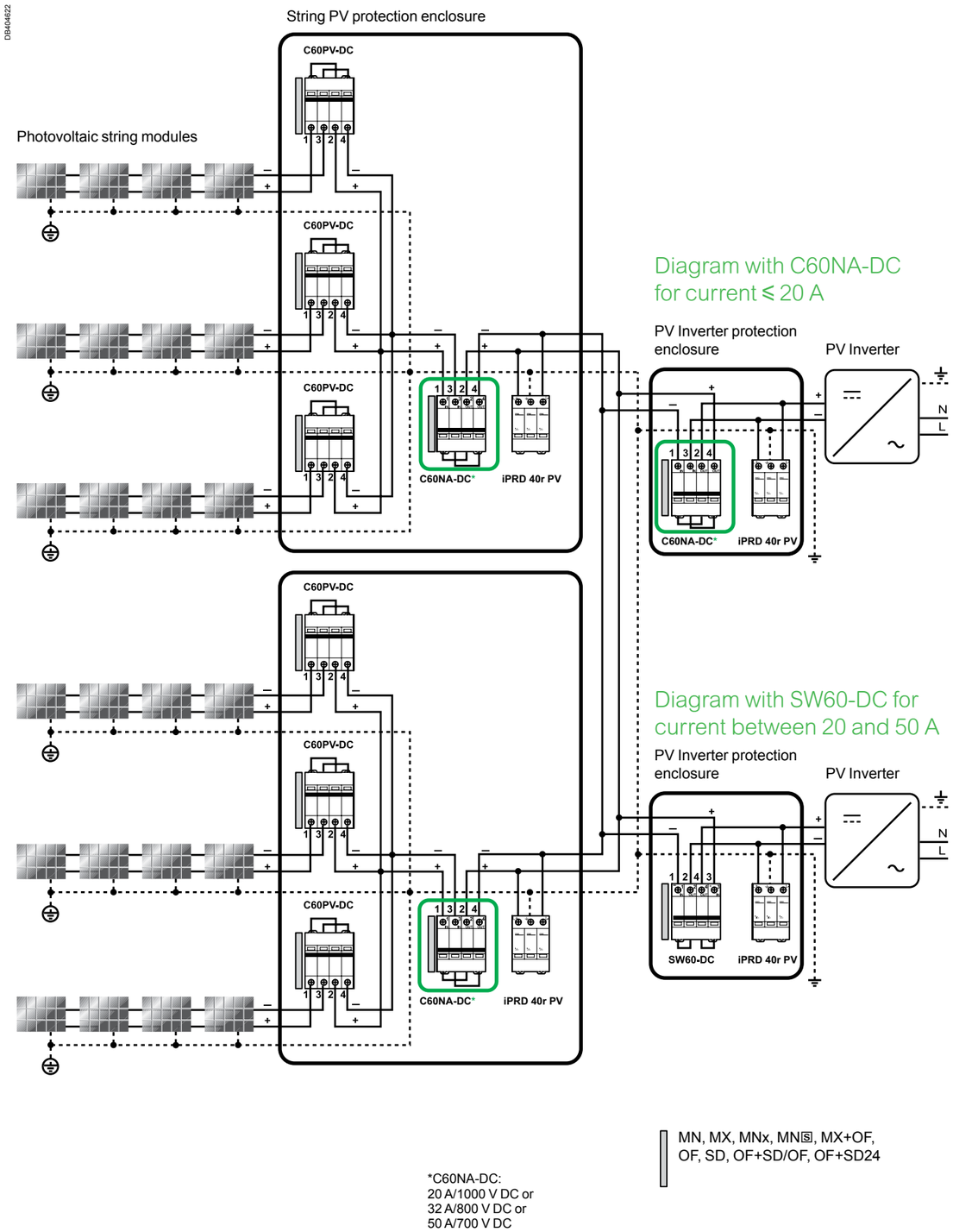
Additional characteristics

Rating (A)	Voltage drop (mV)	Impedance (mΩ)	Power loss (W)
20 A	100	5.02	2
32 A	151	5.02	5.14
50 A	251	5.02	12.55

C60NA-DC circuit breakers
DC main switch for photovoltaic installations

Application diagram

DB404622



C60NA-DC circuit breakers

DC main switch for photovoltaic installations

Technical data

- Position contact indication - suitability for isolation according to IEC/EN 60947-3 standard.
- The presence of the green strip guarantees physical opening of the contacts and allows operations to be performed on the downstream circuit in complete safety.
- Increased product service life thanks to fast closing independent of the speed of actuation of the toggle.
- Pre-wired product: Input / Output on the same side.

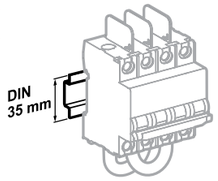
Endurance (O-C)	Electrical	300 cycles
	Mechanical	20,000 cycles
Degree of pollution		2
Category		DC21B
Degree of protection (IEC 60529)	Device in modular enclosure	IP40
Tropicalisation		Relative humidity: 95 % at 55°C in accordance with IEC 60068-2 and GB 14048.2 standards
Temperature	Operating	-25°C to 70°C
	Storage	-40°C to 85°C

Derating table (A)

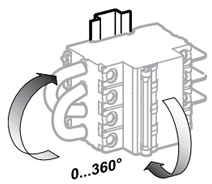
C60NA-DC	Ambient temperature (°C)											
Rating	+5	+10	+15	+20	+25	+30	+35	+40	+45	+50	+60	+70
50 A	63	61	60	58	56	54	52	50	48	46	41	35

Moreover it is recommended to use:
- a terminal Screw Shield snaps onto the front of the C60NA-DC protective devices to provide greater insulation of the terminal screws
- a Spacer clips 9 mm in each side to provide isolation.

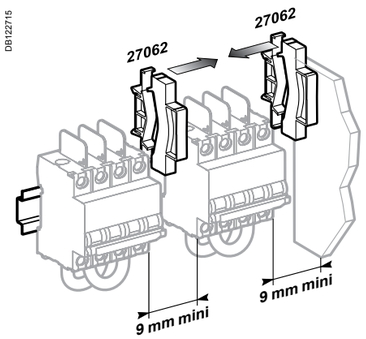
DB122713



DB122714



DB122715



Required to have a 9 mm space isolation in each side"

C60NA-DC circuit breakers

DC main switch for photovoltaic installations

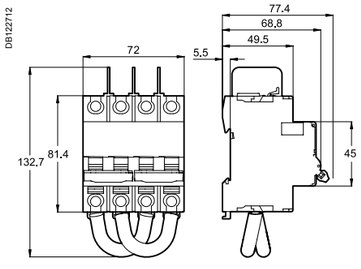
Technical data

Weight (g)

Switch disconnector	
Type	C60NA-DC
	530

Dimensions (mm)

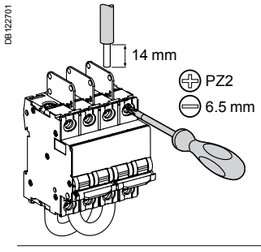
DB122712



C60NA-DC

Connection

DB122701



		Without accessories		With accessories			
Rating	Tightening torque	Copper cables UL 486A file no. #E216919		50 mm² Cu/Al Terminal	Screw on connection for ring terminal	Multi-cables terminal	
		Rigids	Flexibles with ferrule			Rigid cables	Flexible cables
		DB112804	DB112805	DB118755	DB118756	DB118757	
50 A	3.5 N.m	1 to 35 mm²	1 to 25 mm²	50 mm²	Ø 5 mm	3 x 16 mm²	3 x 10 mm²

Switch SW60-DC circuit breakers

DC main switch for photovoltaic installations


PB108406-50

The SW60-DC is a direct current switch-disconnector dedicated to disconnection of the string of photovoltaic modules and the PV inverter.

It is designed to isolate the inverter from the rest of the photovoltaic installation for maintenance operations in complete safety.

Combined with a circuit breaker (of the C60PV-DC type, for example) and a switch (of the C60NA-DC type, for example), the SW60-DC will be installed in the string PV protection enclosure close to the PV inverter (see application diagram).

It can be locked (by a padlocking device) in OFF position to ensure safety when removing the PV inverter.

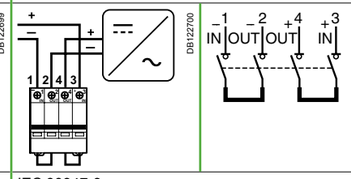
SW60-DC is polarity sensitive: (+) and (-) has to be respected for connection.

The SW60-DC is: delivered with three inter-pole barrier to provide increased isolation distance between two adjacent connectors.

DB404842

IEC / EN 60947-3

CE

General technical data	
Operating voltage (Ue)	1000 V DC
Rated insulation voltage (Ui)	1000 V DC
Rated operational current (Ie)	50 A
Impulse voltage (Uimp)	6 kV
Permissible rated short-time withstand current (Icw)	600 A
Rated short-circuit closing current (Icm)	1 kA
Electrical connection	By the top for In and Out
Number of poles	2P
Number of modules of 9 mm	8
Diagrams	 DB122699 DB122700
Standards	IEC 60947-3 EN 60947-3
Catalogue number	A9N61699

Switch SW60-DC circuit breakers
DC main switch for photovoltaic installations

Applications

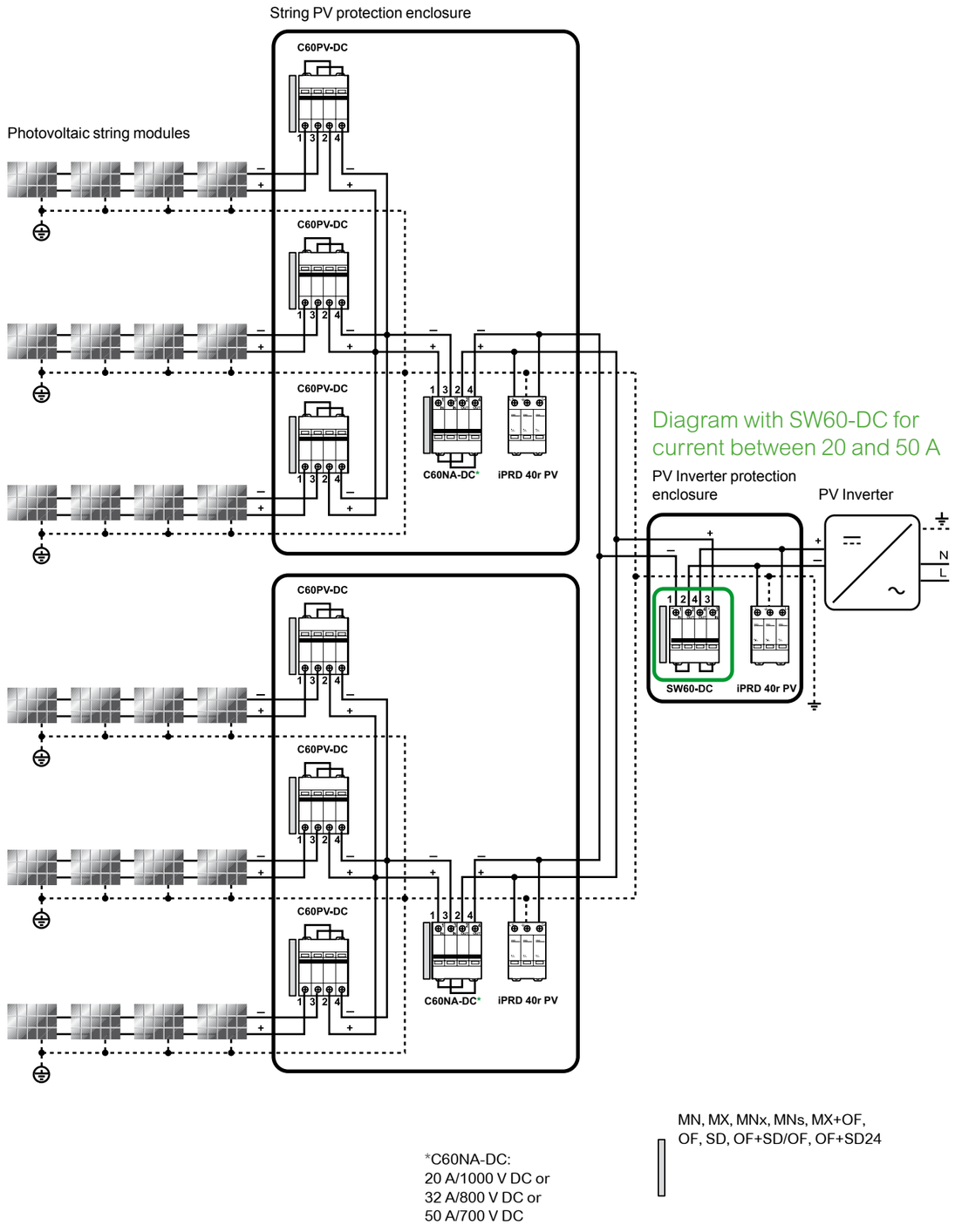


Diagram with SW60-DC for current between 20 and 50 A

*C60NA-DC:
20 A/1000 V DC or
32 A/800 V DC or
50 A/700 V DC

MN, MX, MNx, MNs, MX+OF, OF, SD, OF+SD/OF, OF+SD24

Switch SW60-DC circuit breakers

DC main switch for photovoltaic installations

Technical data

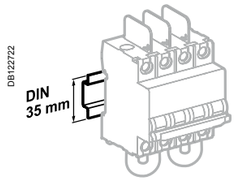
- Position contact indication - suitability for isolation according to IEC/EN 60947-3 standard.
- The presence of the green strip guarantees physical opening of the contacts and allows operations to be performed on the downstream circuit in complete safety.
- Increased product service life thanks to fast closing independent of the speed of actuation of the toggle.
- Pre-wired product: Input / Output on the same side.

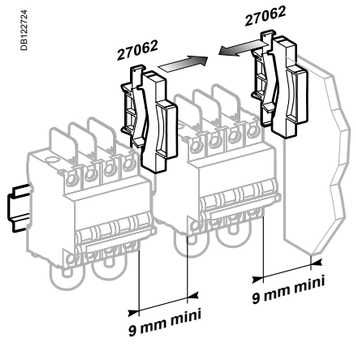
Main characteristics		
Endurance (O-C)	Electrical	1,500 cycles
	Mechanical	20,000 cycles
Degree of pollution		2
Category		DC21A
Degree of protection (IEC 60529)	Device in modular enclosure	IP40
Tropicalisation		Relative humidity: 95 % at 55°C in accordance with IEC 60068-2 and GB 14048.2 standards
Temperature	Operating	-25°C to 70°C
	Storage	-40°C to 85°C
	Rating adjustment	40°C

Additional characteristics			
Rating (A)	Voltage drop (mV)	Impedance (mΩ)	Power loss (W)
50 A	251	5.02	12.54

Derating table (A)												
SW60PV-DC	Ambient temperature (°C)											
Rating	+5	+10	+15	+20	+25	+30	+35	+40	+45	+50	+60	+70
50 A	63	61	60	58	56	54	52	50	48	46	41	35

Moreover it is recommended to use:
- a terminal Screw Shield snaps onto the front of the SW60-DC protective devices to provide greater insulation of the terminal screws.
- a Spacer clips 9 mm in each side to provide isolation.





9 mm spacers must be used on both sides of the device to create a local ventilation space around the product.

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.

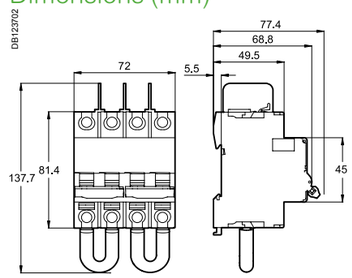
Switch SW60-DC circuit breakers
DC main switch for photovoltaic installations

Technical data

Weight (g)

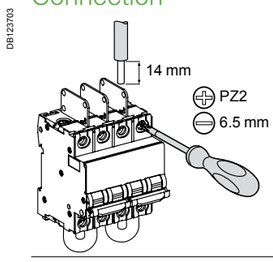
Switch disconnector	
Type	SW60-DC
	530

Dimensions (mm)



SW60-DC

Connection



Rating	Tightening torque	Without accessories: Copper cables UL 486A file no. #E216919 – Rigids	Without accessories: Copper cables UL 486A file no. #E216919 – Flexibles with ferrule	With accessories: 50 mm² Cu/Al Terminal	With accessories: screw on connection for ring terminal	With accessories: Multi-cables terminal – Rigid cables	With accessories: Multi-cables terminal – Flexible cables
		DB112804	DB112805	DB118755	DB118756	DB118757	
50 A	3.5 N.m	1 to 35 mm²	1 to 25 mm²	50 mm²	Ø 5 mm	3 x 16 mm²	3 x 10 mm²

C120NA-DC circuit breakers

DC main switch for photovoltaic installations

IEC / EN 60947-3

The C120NA-DC is a direct current switch-disconnector dedicated to disconnection of the string of photovoltaic modules and the PV inverter.

It is designed to isolate the string of photovoltaic modules and the inverter from the rest of the photovoltaic installation for maintenance operations in complete safety.

The C120NA-DC will be installed in a string PV protection enclosure close to the strings of photovoltaic modules. It can also be installed near the PV inverter.

It can be locked (by a padlocking device) in OFF position to ensure safety during maintenance operations.
Since a fault current can flow in the reverse direction to the normal operating current, the C120NA-DC can switch a multi-directional current.

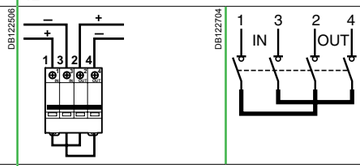
Isolation distance
- The C120NA-DC is delivered with three inter-pole barrier to provide increased isolation distance between two adjacent connectors

Connection
- The C120NA-DC is not polarity sensitive: (+) and (-) wires can inversed without any risk.

Prewired
- The cables crosssection is suitable
- The tightening torque is mastered

C120NA-DC circuit breakers

DC main switch for photovoltaic installations

Main characteristics	
Operating voltage (Ue)	1000 V DC
Rated insulation voltage (Ui)	1000 V DC
Rated operational current (Ie)	100 A
Impulse voltage (Uimp)	6 kV
Permissible rated short-time withstand current (Icw)	1.5 kA / 500 ms
Rated short-circuit closing current (Icm)	1 kA
Electrical connection	By the top for In and Out
Number of poles	2P
Number of modules of 9 mm	12
Diagrams	
Standards	IEC 60947-3 EN 60947-3
Catalogue number	A9N61701
Auxiliaries	See modules CA907008 and CA907013

Additional technical data

- Position contact indication - suitability for isolation according to IEC/EN 60947-3 standard.
- The presence of the green strip guarantees physical opening of the contacts and allows operations to be performed on the downstream circuit in complete safety.
- Increased product service life thanks to fast closing independent of the speed of actuation of the toggle.
- Prewired product: Input / Output on the same side.

Endurance (O-C)	Electrical	300 cycles
	Mechanical	20,000 cycles
Degree of pollution		2
Category		DC21B
Tropicalisation		Relative humidity: 95 % at 55°C in accordance with IEC 60068-2 and GB 14048.2 standards
Temperature	Operating	-25°C to 70 °C
	Storage	-40°C to 85°C

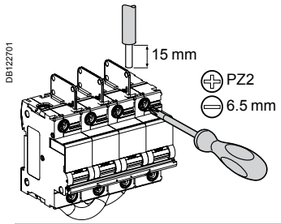
Derating table (A)

C120NA-DC	Ambient temperature (°C)											
Rating	+5	+10	+15	+20	+25	+30	+35	+40	+45	+50	+60	+70
100 A	113	111	110	108	106	104	102	100	98	96	91	85

C120NA-DC circuit breakers

DC main switch for photovoltaic installations

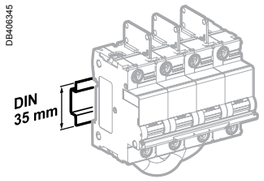
Upstream connection



Tightening torque	Without accessories: Copper cables – Rigids	Without accessories: Copper cables – Flexibles with ferrule	With accessories: 50 mm² Cu/Al Terminal	With accessories: Screw on connection for ring terminal	With accessories: Multi-cables terminal – Rigid cables	With accessories: Multi-cables terminal – Flexible cables
	DB112945	DB112946	DB118755	DB118756 Ø	DB118757	
3.5 N.m	35 to 50 mm²	25 to 35 mm²	50 mm²	Ø 5 mm	3 x 16 mm²	3 x 10 mm²

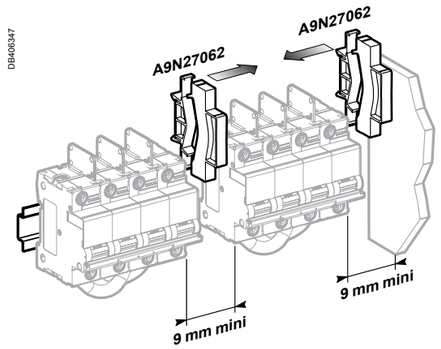
Downstream connection

Prewired delivered product: Do not remove



Moreover it is recommended to use:

- a terminal Screw Shield snaps onto the front of the C120NA-DC protective devices to provide greater insulation of the terminal screws
- a Spacer clips 9 mm in each side to provide isolation.

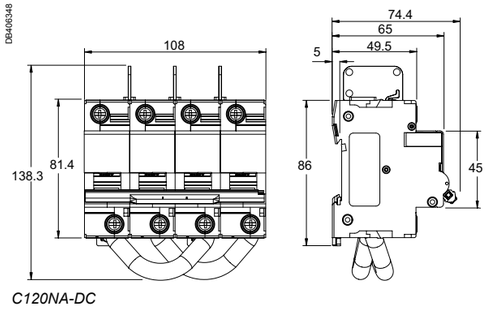


Required: to have a 9 mm space isolation in each side"

Weight (g)

Switch disconnector	
Type	C120NA-DC
	910

Dimensions (mm)



C120NA-DC

C120NA-DC circuit breakers

DC main switch for photovoltaic installations

Application diagram

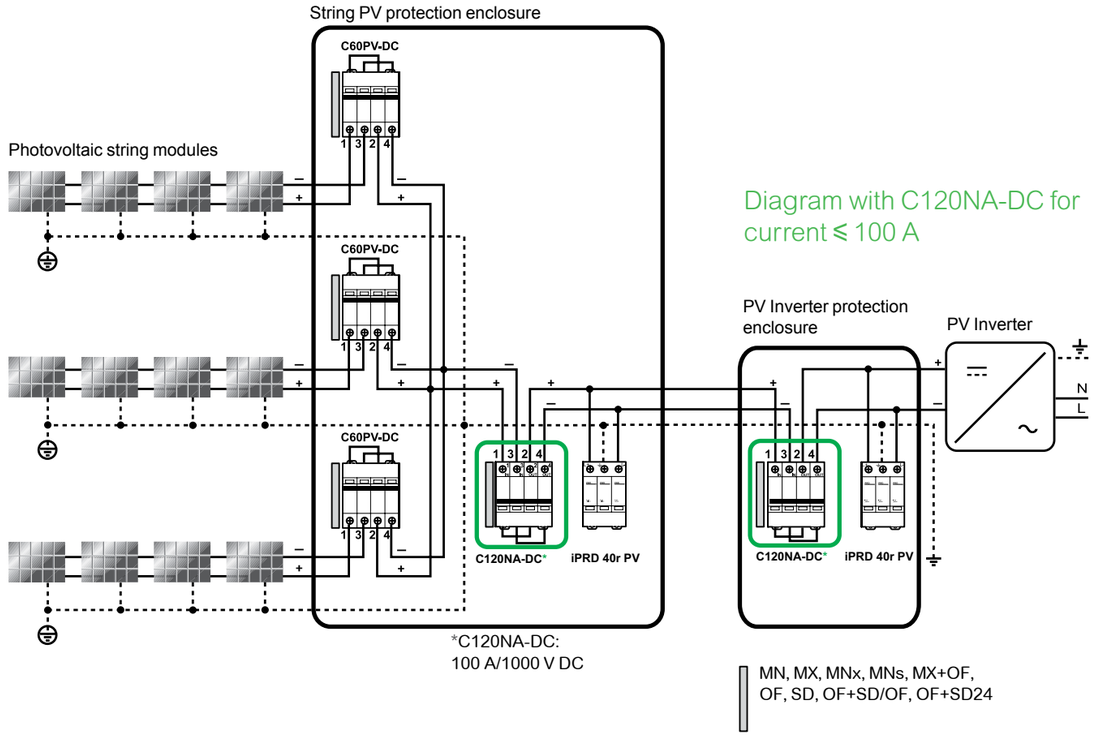


Diagram with C120NA-DC for current ⩽ 100 A

Choice of earth leakage protection devices

Choice of sensitivity

The sensitivity of an earth leakage protection device depends mainly on the function it has to perform:
- Protection from electric shock by direct contact.
- Protection from electric shock by indirect contact.
- Protection from fire due to current leakage.

The following table gives a reminder of:
- The circuits that must be protected against these various risks (obligation or recommendation).
- The type of earth leakage protection device to be used in each case, its sensitivity, and its location in the distribution diagram.

Type of protection	Obligations		Recommended by Schneider Electric	Sensitivity (IΔn)		
	National standard To be filled in according to the country standard	International standard IEC 60364		30 mA (*)	100 mA to 3000 mA (depending on the earthing system)	300 mA (or 500 mA)
Protection from electric shock by direct contact						
	To be filled in according to the country standard	Power supply for • General-purpose power sockets, up to 20 A • Appliances in the vicinity of a bathtub, shower, pond or swimming pool • Portable appliances for outdoor use, up to 32 A • Lighting for exhibition stands and shows • Outdoor lighting *To be modified according to national obligations (above)*	• Lighting in the home	Setup in final distribution switchboard • Residual current device protecting a circuit • Residual current circuit breaker protecting a group of circuits		
Protection from electric shock by indirect contact						
	To be filled in according to the country standard	The entire power distribution system, except for devices: With class II insulation • Operating at Safety Extra Low Voltage (class III) *To be modified according to national obligations (above)*	–		**Setup in final distribution switchboard** • Residual current circuit breaker or device, on incoming feeder **Setup in subdistribution board or main switchboard** • Residual current device protecting a circuit • Residual current device or circuit breaker protecting a group of circuits • On incoming feeder: residual current circuit breaker or device	
Protection from fire due to current leakage						
	To be filled in according to the country standard	• High-risk premises: - explosion (BE3) - fire (BE2) • Agricultural and horticultural buildings • Equipment for fairs, exhibitions and shows • Temporary outdoor recreational installations *To be modified according to national obligations (above)*	• Dilapidated buildings or electrical installations • Humid atmospheres: agricultural buildings, public swimming pools • Presence of chemical agents			**Setup in final distribution switchboard** • Residual current circuit breaker or device, on incoming feeder **Setup in subdistribution board or main switchboard** • Residual current device protecting each circuit to a high-risk zone • Residual current device or circuit breaker protecting a group of circuits • On incoming feeder: residual current circuit breaker or device

(*) The 10 mA sensitivity is useful for certain very specific applications, where there is a risk that someone could sustain a non-dangerous current (10 to 30 mA) without being able to get free. Example: healthcare equipment for hospital beds. Generally, devices with this very high sensitivity are liable to cause frequent tripping, due to the natural leakage currents of the installation.

Choice of earth leakage protection devices

Interference immunity

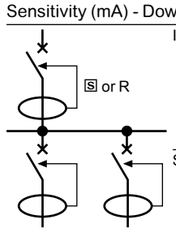
Schneider Electric provides various equipment technologies capable of overcoming the consequences of interference of all kinds.

Operating conditions		Examples	Types AC	A	SI	B
Loads						
With no special characteristics		• General-purpose power sockets • Incandescent lighting • Household appliances: microwave oven, dishwasher, clothes dryer • Electric heating, water heater	●	●	●	●
Including a rectifier	Single phase	• Household appliances: induction cooking appliances, washing machines (variable speed) • Single-phase variable speed drives	–	●	●	–
	Three phase	• Three-phase variable speed industrial drives • Three-phase uninterruptible power supplies	–	–	–	●
Generating high-frequency interference (current peaks, harmonics)		• Fluorescent lighting powered by extra low voltage transformer, by electronic ballast • Variable luminosity lighting • Powerful IT equipment • Single-phase variable speed industrial drives • Air conditioning • Telecommunications equipment • Capacitor banks	–	–	●	●
Including an anti-harmonic filter in the power supply		• Microcomputer systems • Computer peripherals (printers, scanners, etc.)	–	–	●	●
Electrical environment						
Vicinity of equipment generating transient overvoltages		• High-powered switching devices • Reactive energy compensation banks	–	–	●	●
Circuits powered by an uninterruptible power supply		• Backed-up networks	–	–	●	●
"Isolated neutral" (IT) earthing system		–	–	–	●	●
Major risk of lightning strokes		• Buildings protected by a lightning protection system • Mountainous or humid regions • Regions with high keraunic level	–	–	●	●
Atmosphere						
Ambient temperature which could be less than -5°C		–	–	●	●	●
Presence of corrosive agents (AF2 to AF4) or dust		• Indoor swimming pools • Yacht harbours, marinas, camping grounds • Water treatment • Chemical industries, heavy industries, paper mills • Mines and cellars, road tunnels • Markets, stock raising, food processing industries	–	–	● (1)	–

(1) SiE for C120 and NG125 circuit-breakers

Discrimination

Residual current devices of average sensitivity (100 mA and more) are available in a selective (s) and delayed (R) version. This option ensures that, in the event of an earth fault downstream of the installation, only the defective part is switched off. The table below shows (in green) which upstream/downstream equipment combinations provide this discrimination.



Sensitivity (mA) - Downstream			Sensitivity (mA) - Upstream: Instantaneous 30	100	300	500	1000	3000	Selectives 100	300	500	1000	3000	Delayed R 1000	3000
Instantaneous	30		-	-	-	-	-	-							
	100		-	-	-	-	-	-	-						
	300		-	-	-	-	-	-	-	-	-				
	500		-	-	-	-	-	-	-	-	-	-		-	
	1000		-	-	-	-	-	-	-	-	-	-	-	-	
	3000		-	-	-	-	-	-	-	-	-	-	-	-	-
Selective S	100		-	-	-	-	-	-	-	-	-	-	-		
	300		-	-	-	-	-	-	-	-	-	-	-	-	
	500		-	-	-	-	-	-	-	-	-	-	-	-	
	1000		-	-	-	-	-	-	-	-	-	-	-	-	
	3000		-	-	-	-	-	-	-	-	-	-	-	-	-
Delayed R	1000		-	-	-	-	-	-	-	-	-	-	-	-	-
	3000		-	-	-	-	-	-	-	-	-	-	-	-	-

Overview of the earth leakage protection product range

Selection guide

Type												
			iID		RCCB-ID 125 A	RCCB-ID type B	Vigi iC60			Vigi C120	DPN N Vigi
											
Standards			IEC/EN 61008		IEC/EN 61008-1 and VDE 0664	IEC/EN 61008 and VDE 0664	IEC/EN 61009			IEC/EN 61009	IEC/EN 61009
Voltage (V)	Ue		110/230	230/400	230/400	230/400	110/230	230/400	400/415	230/400	230
Number of poles		1P+N	–	–	–	–	–	–	–	–	●
		2P	●	●	●	–	●	●	●	●	–
		3P	–	–	–	–	–	●	–	●	–
		4P	●	●	●	●	–	●	–	●	–
Type		AC	–	●	●	–	●	●	–	●	●
		A	●	●	●	–	●	●	●	●	–
		SI	–	●	●	–	–	●	–	●	●
		B	–	–	–	●	–	–	–	–	–
Impulse voltage (kV)	Uimp		6	6	4	4	6	6	6	6	4
Insulation voltage (V)	Ui		500	500	400	400	500	500	500	500	400
Current rating (A)	In		63	16 to 100	125	25 to 125	25-40-63	25-40-63	63	10-125	4 to 40
Frequency (Hz)			50	50	50	50	50/60	50/60	50/60	50/60	50/60
Rated breaking capacity (A)	Icn		–	–	–	–	–	–	–	–	6000
Rated conditional short-circuit current	Inc		10000	10000	10000	10000	–	–	–	–	–
Rated residual breaking and making capacity (A)	(IΔm)		1500	1500	1250	10 In (500 A min.)	–	–	–	–	6000
Sensitivity (mA)	(IΔn)	10	–	●	–	–	–	●	–	–	–
		30	●	●	●	●	●	●	●	●	●
		100	–	●	●	–	–	●	–	–	–
		300	–	●	●	●	●	●	–	●	●
		500	–	●	●	●	–	●	–	●	–
		1000	–	–	–	–	–	–	–	–	–
		3000	–	–	–	–	–	–	–	–	–
		300 s	–	●	●	●	–	●	–	●	–
		500 s	–	●	–	–	–	●	–	●	–
		1000 s	–	–	–	–	–	●	–	●	–
		3000 s	–	–	–	–	–	–	–	–	–
Electrical characteristics											
Curves		B	–		–	–	Depending on circuit breaker used			Depending on circuit breaker used	●
		C	–		–	–					●
		D	–		–	–					–
		L	–		–	–					–
		K	–		–	–					–
		MA	–		–	–					–
For more details, see module			CA902002		CM902001	CM902002	CA902005			CA902016	CA902014
Accessories			CA907000, CA907001		CM902001	CM902002	CA907000, CA907001			CA907012, CA907013	CA907013, CA907012
Auxiliaries			CA907000, CA907002		CM902001	CM902002	CA907000, CA907002			CA907008, CA907013	CA907013, CA907008

Inc: rated conditional short-circuit current
Value of the alternating component of the prospective current that a residual current circuit breaker protected by an appropriate short-circuit protective device (SCPD) mounted in series can withstand in specified conditions of use.

IΔc: rated residual short-circuit current
Value of the alternating component of the prospective residual current that a residual current circuit breaker protected by an appropriate short-circuit protective device (SCPD) mounted in series can withstand in specified conditions of use.

Im: rated making and breaking capacity
Value of the alternating component of the prospective current that a residual current circuit breaker is capable of establishing or interrupting in specified conditions of use.

IΔm: rated making and breaking capacity
Value of the alternating component of the prospective residual current that a residual current circuit breaker is capable of establishing and withstanding during its opening time and interrupting in specified conditions of use and behaviour.

SCPD
Short-circuit protective device (a fuse in the case of our markings): this is the max. fuse that can be used to resist the value Inc = IΔc.

Version 2.0 - May 2017
Acti9

iID residual current circuit breakers

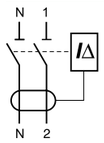
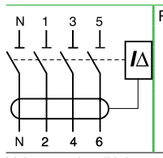
AC type

IEC/EN 61008-1

- The iID residual current circuit breakers provide:
  - protection of persons against electric shock by direct contact (y 30 mA),
  - protection of persons against electric shock by indirect contact (u 100 mA),
  - protection of installations against the risk of fire (300 mA or 500 mA).

Catalogue numbers

iID residual current circuit breakers for 230/400 V network

Type			AC ~							Width in 9 mm module
Auxiliaries			Module CA907002							
2P		Sensitivity	10 mA	30 mA	100 mA	300 mA	500 mA	300 mA S	500 mA S	
	Rating	16 A	A9R10216	-	-	-	-	-	-	4
		25 A	A9R10225	A9R71225	-	A9R74225	A9R16225	-	-	
		40 A	-	A9R71240	A9R12240	A9R74240	A9R16240	-	-	
		63 A	-	A9R71263	A9R12263	A9R74263	A9R16263	A9R15263	-	
		80 A	-	A9R11280	A9R12280	A9R14280	-	A9R15280	-	
		100 A	-	A9R11291	A9R12291	A9R14291	-	A9R15291	-	
4P		Sensitivity	10 mA	30 mA	100 mA	300 mA	500 mA	300 mA S	500 mA S	
	Rating	25 A	-	A9R71425	-	A9R74425	A9R16425	-	-	8
		40 A	-	A9R71440	A9R12440	A9R74440	A9R16440	A9R15440	A9R17440	
		63 A	-	A9R71463	A9R12463	A9R74463	A9R16463	A9R15463	A9R17463	
		80 A	-	A9R11480	A9R12480	A9R14480	A9R16480	A9R15480	A9R17480	
		100 A	-	A9R11491	A9R12491	A9R14491	-	A9R15491	-	
Voltage rating (Ue)		2P	230 - 240 V							
		4P	400 - 415 V							
Operating frequency			50/60 Hz							
Accessories			Module CA907000 and CA907001							

iID residual current circuit breakers

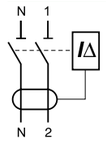
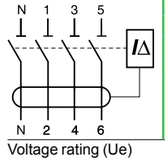
A type

IEC/EN 61008-1

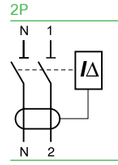
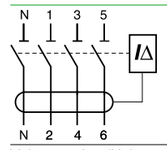
- The iID residual current circuit breakers provide:
  - protection of persons against electric shock by direct contact (y 30 mA),
  - protection of persons against electric shock by indirect contact (u 100 mA),
  - protection of installations against the risk of fire (300 mA or 500 mA).

Catalogue numbers

iID residual current circuit breakers for 230/400 V network

Type			A ~						Width in 9 mm module
Auxiliaries			Module CA907002						
2P		Sensitivity	10 mA	30 mA	100 mA	300 mA	500 mA	300 mA S	
	Rating	16 A	A9R20216	-	-	-	-	-	4
		25 A	A9R20225	A9R51225	-	A9R54225	-	-	
		40 A	-	A9R51240	-	A9R54240	-	A9R25240	
		63 A	-	A9R51263	-	A9R54263	-	A9R25263	
		100 A	-	A9R21291	-	A9R24291	-	A9R25291	
4P		Sensitivity	10 mA	30 mA	100 mA	300 mA	500 mA	300 mA S	
	Rating	25 A	-	A9R51425	-	A9R54425	-	-	8
		40 A	-	A9R51440	A9R22440	A9R54440	A9R26440	A9R25440	
		63 A	-	A9R51463	A9R22463	A9R54463	A9R26463	A9R25463	
		80 A	-	A9R21480	-	A9R24480	-	A9R25480	
		100 A	-	A9R21491	-	A9R24491	A9R26491	A9R25491	
Voltage rating (Ue)		2P	230 - 240 V						
		4P	400 - 415 V						
Operating frequency			50/60 Hz						
Accessories			Module CA907000 and CA907001						

iID residual current circuit breakers for 110/230 V network

Type			A ~	Width in 9 mm module
Auxiliaries			Module CA907002	
2P		Sensitivity	30 mA	
	Rating	63 A	A9R08263	4
4P		Sensitivity	30 mA	
	Rating	63 A	A9R08463	8
Voltage rating (Ue)		2P	110 V	
		4P	230 V	
Operating frequency			50/60 Hz	
Accessories			Module CA907000 and CA907001	

iID residual current circuit breakers

SI type

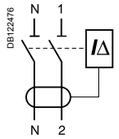
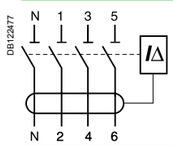
IEC/EN 61008-1

- The iID residual current circuit breakers provide:
  - protection of persons against electric shock by direct contact (y 30 mA),
  - protection of persons against electric shock by indirect contact (u 300 mA),
  - protection of installations against the risk of fire (300 mA or 500 mA).

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

Catalogue numbers

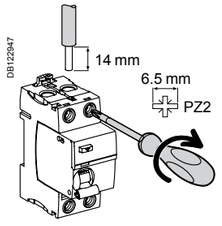
iID residual current circuit breakers for 230/400 V network

Type			SI					Width in 9 mm module
Auxiliaries			Module CA907002					
2P		Sensitivity	10 mA	30 mA	300 mA	300 mA S	500 mA S	
	Rating	16 A	-	-	-	-	-	4
		25 A	A9R30225	A9R91225	-	-	-	
		40 A	-	A9R91240	-	A9R35240	-	
		63 A	-	A9R91263	-	A9R35263	-	
		100 A	-	-	-	A9R35291	-	
4P		Sensitivity	10 mA	30 mA	300 mA	300 mA S	500 mA S	
	Rating	25 A	-	A9R91425	-	-	-	8
		40 A	-	A9R91440	-	A9R35440	A9R37440	
		63 A	-	A9R91463	A9R34463	A9R35463	A9R37463	
		80 A	-	A9R31480	-	A9R35480	A9R37480	
		100 A	-	A9R31491	A9R34491	A9R35491	-	
Voltage rating (Ue)		2P	230 - 240 V					
		4P	400 - 415 V					
Operating frequency			50/60 Hz					
Accessories			Module CA907000 and CA907001					

iID residual current circuit breakers

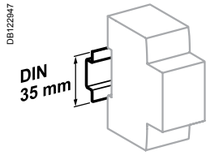
AC, A, SI types

Connection

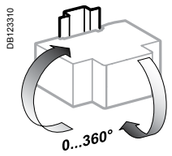


Type	Tightening torque	Without accessories: Copper cables: Rigid	Without accessories: Copper cables: Flexible or with ferrule	With accessories*: 50 mm² Al terminal	With accessories*: Screw-on connection for ring terminal	With accessories*: Multi-cables terminal: Rigid cables	With accessories*: Multi-cables terminal: Flexible cables
		DB122945	DB122946	DB122935 Al	DB118789 Ø	DB118787	
iID	3.5 N.m	1 to 35 mm²	1 to 25 mm²	50 mm²	Ø 5 mm	3 x 16 mm²	3 x 10 mm²

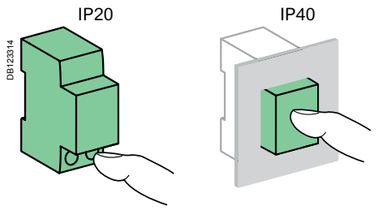
** See module CA907000*



Clip on DIN rail 35 mm.



Indifferent position of installation.



Technical data

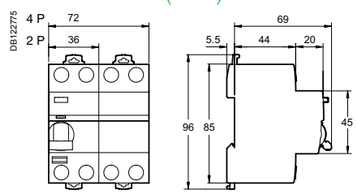
Main characteristics			
Insulation voltage (Ui)			500 V
Pollution degree			3
Rated impulse withstand voltage (Uimp)			6 kV
According to IEC/EN 61008-1			
Making and breaking capacity (Im/IΔm)			1500 A
Surge current withstand (8/20 µs) without tripping	AC and A types (no selective s)		250 Â
	AC, A types (selective S)		3 kÂ
	SI type		3 kÂ
Conditional rated short circuit current (Inc/IΔc)	With iC60N/H/L		Equal to breaking capacity of iC60
	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	Device only		IP20
	Device in modular enclosure		IP40 Insulation class II
Endurance (O-C)	Electrical (AC1)	16 to 63 A	15,000 cycles
		80 to 100 A	10,000 cycles
	Mechanical		20,000 cycles
Operating temperature	AC type		-5°C to +60°C
	A and SI types -25°C		-25°C to +60°C
Storage temperature			-40°C to +85°C

Weight (g)

Residual current circuit breakers	
Type	iID
2P	210
4P	370

Dimensions (mm)

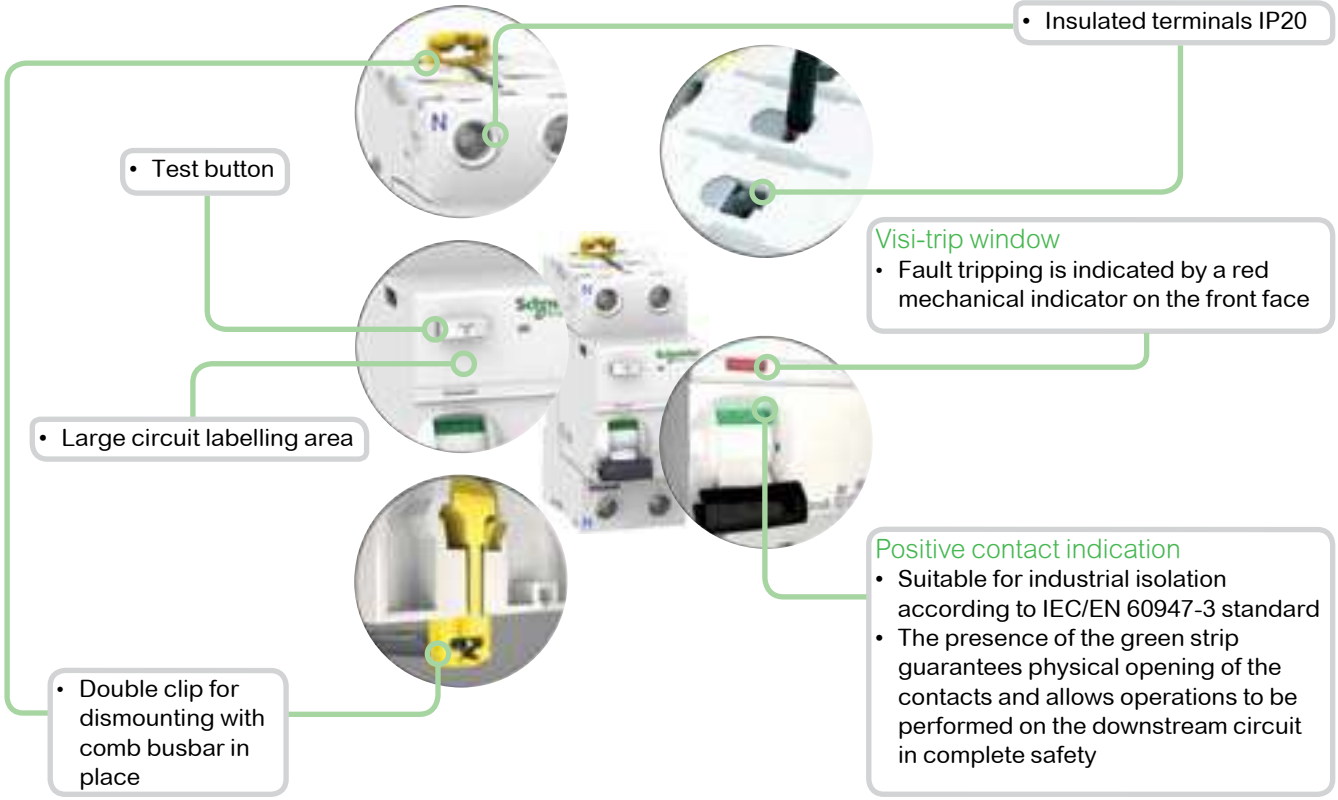


iID residual current circuit breakers

AC, A, SI types

PB104548-40

PB104472-40



SI type

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

RCCB-ID residual current circuit breakers

B type

PB111261-35

16766

PB107510-33

16940

PB100572-18

16939

IEC/EN 61008-1, VDE 0664

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

B type

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

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

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

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

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

OFsp auxiliary

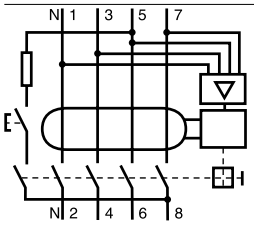
- Electrical indication: by OFsp auxiliary mounted to the left.
  It has a double changeover switch indicating the "open" or "closed" position of the RCCB-ID B type.

Accessories

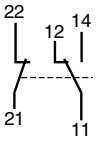
- 4P sealable screw shield.

Catalogue numbers

RCCB-ID B type residual current circuit breakers

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

Auxiliary

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

Accessory

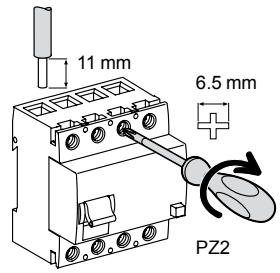
Type	Number of pole	
Screw shield (set of 10) for upstream or downstream	4P	16939

RCCB-ID residual current circuit breakers

B type

Connection

DB123736

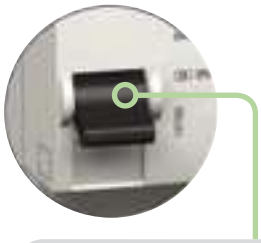


Type	Tightening torque	Copper cables			
		Rigid		Flexible or with ferrule	
		DB122945		DB122946	
RCCB-ID B type	3 N.m (27 lb.in)	1 x 1.5 to 50 mm²	1 x AWG #16 to #1	1 x 1.5 to 35 mm²	1 x AWG #16 to #2
		2 x 1.5 to 16 mm²	2 x AWG #16 to #6	2 x 1.5 to 16 mm²	2 x AWG #16 to #6
OFsp	0.8 N.m (7 lb.in)	1 to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

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

Type				
RCCB-ID B type	Closed	●	-	-
	Open	-	●	-
	Tripped on fault	-	-	●
Contact OFsp	22/21 12/11	Open	Closed	Closed
	14/11	Closed	Open	Open

DB122842



Indication of the status of the RCCB-ID B type via the 3-position toggle and front panel indicator
- Closed (red indicator)
- Tripped on fault (green indicator)
- Open (green indicator)

Technical data

Electrical characteristics		
Insulation voltage (Ui)		440 V
Pollution degree		3
Rated impulse withstand voltage (Uimp)		4 kV
According to IEC/EN 61008-1		
Making and breaking capacity (Im/IΔm)	25/40 A	500 A
	63 A	630 A
	80 A	800 A
	125 A	1250 A
Surge current withstand (8/20 µs) without tripping	No selective s	3 kÂ
	Selective s	5 kÂ
Conditional rated short circuit current (Inc/IΔc)	25/40 A with FU 80 A gG fuse	10,000 A
	63 A with FU 100 A gG fuse	10,000 A
	80/125 A with FU 125 A gG fuse	10,000 A

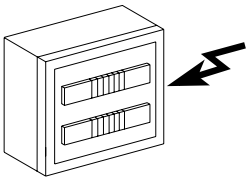
Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Endurance (O-C)	Electrical	> 2 000 cycles
	Mechanical	> 5 000 cycles
Range of test button operating voltage	30 mA	250...400 V AC
	300, 500 mA	185...400 V AC
Operating temperature		-25°C to +40°C / -13°F to 104°F
Storage temperature		-40°C to +85°C / -40°F to 185°F
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C / 131°F)
Dissipated power		Module CM908012

Weight (g / oz)

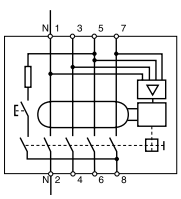
Residual current circuit breakers and auxiliary		
Type	RCCB-ID B type	OFsp
4P	450 g / 15.87 oz	40 g / 1.41 oz

Dielectric test

E63606



DB109414

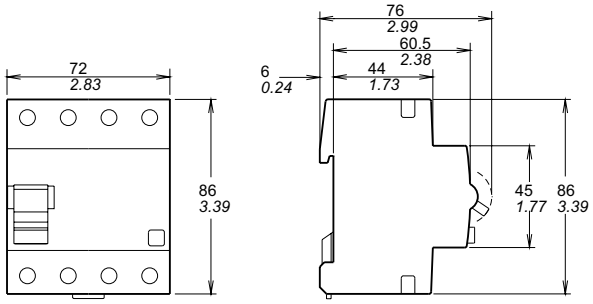


⚠ *To perform the dielectric test, disconnect terminals 3, 5, 7 and 4, 6, 8.*

Dimensions (mm / inches)

DB122838

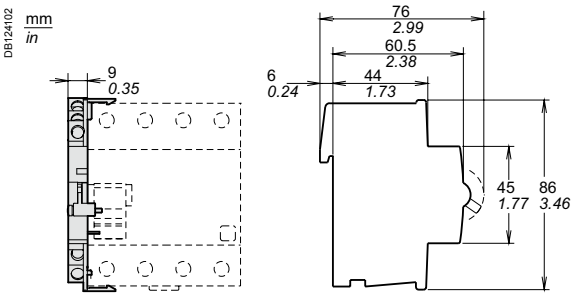
mm
in



RCCB-ID B type

DB124102

mm
in



Contact OFsp

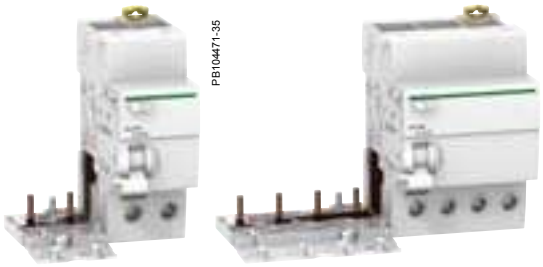
Vigi iC60 residual current devices add-on

AC type

DB116619 DB123430

Country approval pictograms

PB104466-35 PB104471-35



IEC/EN 61009-1

- Combined with iC60 circuit breaker, the Vigi iC60 provide:
  - protection of persons against electric shock by direct contact (y 30 mA),
  - protection of persons against electric shock by indirect contact (u 100 mA),
  - protection of installations against the risk of fire (300 mA or 500 mA).

Catalogue numbers

Vigi iC60 add-on residual current devices for 230/400 V network

Type			AC ~							Width in 9mm modules
Auxiliaries			Without auxiliaries							
2P		Sensitivity	10 mA	30 mA	100 mA	300 mA	500 mA	300 mA S	1000 mA S	
DB122462	Rating	25 A	A9V10225	A9V41225	A9V12225	A9V44225	A9V16225	-	-	3
		40 A	-	A9V41240	-	A9V44240	A9V16240	-	-	4
		63 A	-	A9V41263	A9V12263	A9V44263	A9V16263	A9V15263	A9V19263	4
3P		Sensitivity	10 mA	30 mA	100 mA	300 mA	500 mA	300 mA S	1000 mA S	
DB122463	Rating	25 A	-	A9V41325	-	A9V44325	A9V16325	-	-	6
		40 A	-	A9V41340	-	A9V44340	A9V16340	-	-	7
		63 A	-	A9V41363	-	A9V44363	A9V16363	A9V15363	A9V19363	7
4P		Sensitivity	10 mA	30 mA	100 mA	300 mA	500 mA	300 mA S	1000 mA S	
DB122464	Rating	25 A	-	A9V41425	A9V12425	A9V44425	A9V16425	-	-	6
		40 A	-	A9V41440	-	A9V44440	A9V16440	-	-	7
		63 A	-	A9V41463	A9V12463	A9V44463	A9V16463	A9V15463	A9V19463	7
Voltage rating (Ue)		2P	230 - 240 V							
		3P-4P	400 - 415 V							
Operating frequency			50/60 Hz							
Accessories			Module CA907000							

Vigi iC60 add-on residual current devices for 110 V network

Type			AC ~		Width in 9 mm modules
Auxiliaries			Without auxiliaries		
2P		Sensitivity	30 mA	300 mA	
DB122462	Rating	25 A	A9V01225	A9V04225	3
		40 A	A9V01240	A9V04240	4
		63 A	A9V01263	A9V04263	4
Voltage rating (Ue)			110 V		
Operating frequency			50/60 Hz		
Accessories			Module CA907000		

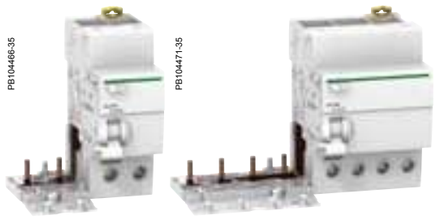
Vigi iC60 residual current devices add-on

A type

DB116619 DB123430

Country approval pictograms

PB104466-35 PB104471-35



IEC/EN 61009-1

- Combined with iC60 circuit breaker, the Vigi iC60 provide:
  - protection of persons against electric shock by direct contact (30 mA),
  - protection of persons against electric shock by indirect contact (u 100 mA),
  - protection of installations against the risk of fire (300 mA or 500 mA).

Catalogue numbers

Vigi iC60 add-on residual current devices for 230/400 V network

Type		A						Width in 9 mm modules
Auxiliaries		Without auxiliaries						
2P	Sensitivity	30 mA	100 mA	300 mA	500 mA	300 mA S	1000 mA S	
DB122462	Rating 25 A	A9V51225	A9V22225	A9V54225	A9V26225	-	-	3
	63 A	A9V51263	A9V22263	A9V54263	A9V26263	A9V25263	A9V29263	4
3P	Sensitivity	30 mA	100 mA	300 mA	500 mA	300 mA S	1000 mA S	
DB122463	Rating 25 A	A9V51325	A9V22325	A9V54325	A9V26325	-	-	6
	63 A	A9V51363	-	A9V54363	A9V26363	A9V25363	A9V29363	7
4P	Sensitivity	30 mA	100 mA	300 mA	500 mA	300 mA S	1000 mA S	
DB122464	Rating 25 A	A9V51425	A9V22425	A9V54425	A9V26425	-	-	6
	63 A	A9V51463	A9V22463	A9V54463	A9V26463	A9V25463	A9V29463	7
Voltage rating (Ue)	2P	230 - 240 V						
	3P-4P	400 - 415 V						
Operating frequency		50/60 Hz						
Accessories		Module CA907000						

Vigi iC60 add-on residual current devices for 400 V network

Type		A	Width in 9 mm modules
Auxiliaries		Without auxiliaries	
2P	Sensitivity	30 mA	
DB122462	Rating 63 A	A9V07263	4
Voltage rating (Ue)		400 - 415 V	
Operating frequency		50/60 Hz	
Accessories		Module CA907000	

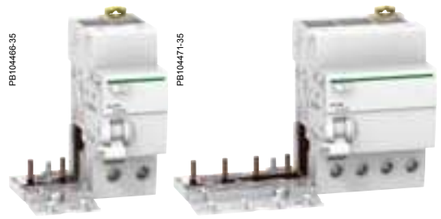
Vigi iC60 residual current devices add-on

SI type

DB116619 DB123430

Country approval pictograms

PB104466-35 PB104471-35



IEC/EN 61009-1

- Combined with iC60 circuit breaker, the Vigi iC60 provide:
  - protection of persons against electric shock by direct contact (y 30 mA),
  - protection of persons against electric shock by indirect contact (u 300 mA),
  - protection of installations against the risk of fire (300 mA).

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

Catalogue numbers

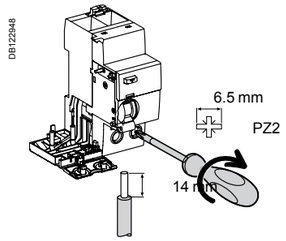
Vigi iC60 add-on residual current devices for 230/400 V network

Type		SI				Width in 9 mm modules
Auxiliaries		Without auxiliaries				
2P	Sensitivity	10 mA	30 mA	300 mA s	1000 mA s	
DB122462	Rating 25 A	A9V30225	A9V61225	-	-	3
	40 A	-	A9V61240	-	-	4
	63 A	-	A9V61263	A9V65263	A9V39263	4
3P	Sensitivity	10 mA	30 mA	300 mA s	1000 mA s	
DB122463	Rating 25 A	-	A9V61325	-	-	6
	40 A	-	A9V61340	-	-	7
	63 A	-	A9V61363	A9V65363	A9V39363	7
4P	Sensitivity	10 mA	30 mA	300 mA s	1000 mA s	
DB122464	Rating 25 A	-	A9V61425	-	-	6
	40 A	-	A9V61440	-	-	7
	63 A	-	A9V61463	A9V65463	A9V39463	7
Voltage rating (Ue)	2P	230 - 240 V				
	3P-4P	400 - 415 V				
Operating frequency		50/60 Hz				
Accessories		Module CA907000				

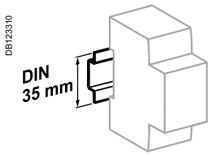
Vigi iC60 residual current devices add-on

AC, A, SI types

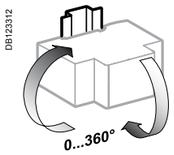
Connection



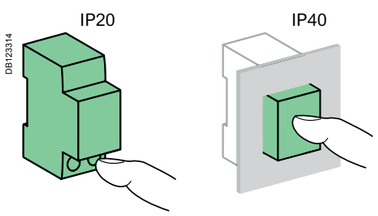
Type	Rating	Tightening torque	Copper cables	
			Rigid	Flexible or with ferrule
				
Vigi iC60	25 A	2 N.m	1 to 25 mm²	1 to 16 mm²
	40 to 63 A	3.5 N.m	1 to 35 mm²	1 to 25 mm²



Clip on DIN rail 35 mm.



Indifferent position of installation.



Technical data

Main characteristics		
Insulation voltage (Ui)		500 V
Pollution degree		3
Rated impulse withstand voltage (Uimp)		6 kV
According to IEC/EN 61009-1		
Surge current withstand (8/20 µs) without tripping	AC and A types (no selective s)	250 Â
	AC, A types (selective s)	3 kÂ
	SI type	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	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Operating temperature	AC type	-5°C to +60°C
	A and SI types	-25°C to +60°C
Storage temperature		-40°C to +85°C

Vigi iC60 residual current devices add-on

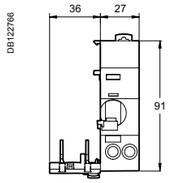
AC, A, SI types

Weight (g)

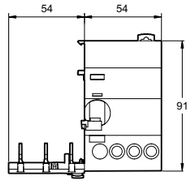
Add-on residual current devices	
Type	Vigi iC60
2P	165
3P	210
4P	245

Dimensions (mm)

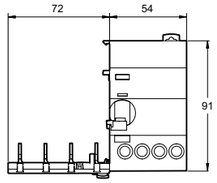
Vigi iC60 25 A



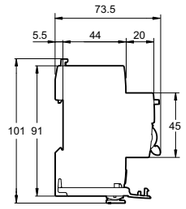
2P



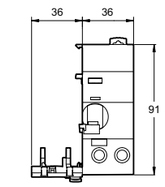
3P



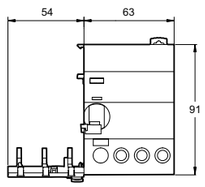
4P



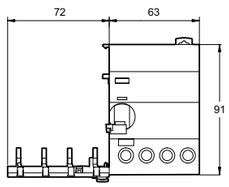
Vigi iC60 40 and 63 A



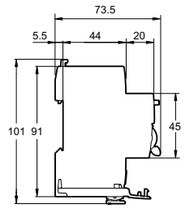
2P



3P



4P



iDPN Vigi residual current devices

iDPN H Vigi

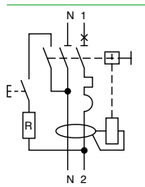
iDPN N Vigi

IEC/EN 61009-1

- The iDPN Vigi residual current device provide complete protection for final circuits (against overcurrents and insulation faults):
  - protection for users against electric shocks by direct contacts (y 30 mA),
  - protection for users against electric shocks by indirect contacts (300 mA),
  - protection of the installations against fire risks (300 mA).
- The SI range has been designed to maintain a network with optimum safety and continuity of service in installations disturbed by:
  - extreme atmospheric conditions,
  - harmonic generating loads,
  - transient operating currents.

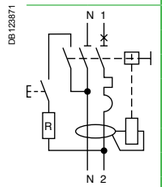
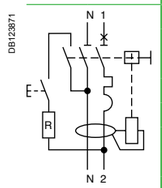
Catalogue numbers

iDPN N Vigi 6000

Type			A ~	Width in 9 mm modules
Auxiliaries			Module CA907000 and CA907013	
1P+N Curve B		Sensitivity	30 mA	
	Rating (In)	10 A	A9D06610	4
		16 A	A9D06616	
		20 A	A9D06620	
1P+N Curve C		Sensitivity	30 mA	
	Rating (In)	10 A	A9D01610	4
		16 A	A9D01616	
		20 A	A9D01620	
Voltage rating (Ue)			110 V AC	
Operating frequency			50 Hz	
Accessories			Module CA907000 and CA907001, comb busbars CA907013	

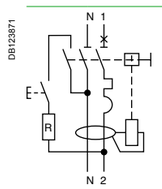
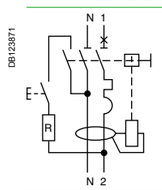
iDPN Vigi residual current devices

iDPN N Vigi 6000

Type			AC ~	A ~			SI ~			Width in 9 mm modules
Auxiliaries			Module CA907000 and CA907013							
1P+N Curve B		Sensitivity	30 mA	300 mA	10 mA	30 mA	100 mA	300 mA	30 mA	100 mA	300 mA	
	Rating (In)	4 A	A9D55604	A9D68604	-	A9D56604	A9D60604	A9D69604	-	-	-	4
		6 A	A9D55606	A9D68606	-	A9D56606	A9D60606	A9D69606	-	-	-	
		10 A	A9D55610	A9D68610	A9D08610	A9D56610	A9D60610	A9D69610	-	-	-	
		13 A	-	-	-	A9D56613	A9D60613	A9D69613	-	-	-	
		16 A	A9D55616	A9D68616	A9D08616	A9D56616	A9D60616	A9D69616	-	-	-	
		20 A	A9D55620	A9D68620	-	A9D56620	A9D60620	A9D69620	-	-	-	
		25 A	A9D55625	A9D68625	-	A9D56625	A9D60625	A9D69625	-	-	-	
		32 A	A9D55632	A9D68632	-	A9D56632	A9D60632	A9D69632	-	-	-	
		40 A	A9D55640	A9D68640	-	A9D56640	A9D60640	A9D69640	-	-	-	
1P+N Curve C		Sensitivity	30 mA	300 mA	10 mA	30 mA	100 mA	300 mA	30 mA	100 mA	300 mA	
	Rating (In)	6 A	A9D31606	A9D41606	-	A9D32606	A9D52606	A9D42606	A9D33606	A9D53606	A9D43606	4
		10 A	A9D31610	A9D41610	A9D02610	A9D32610	A9D52610	A9D42610	A9D33610	A9D53610	A9D43610	
		13 A	-	-	-	A9D32613	A9D52613	A9D42613	A9D33613	A9D53613	A9D43613	
		16 A	A9D31616	A9D41616	A9D02616	A9D32616	A9D52616	A9D42616	A9D33616	A9D53616	A9D43616	
		20 A	A9D31620	A9D41620	-	A9D32620	A9D52620	A9D42620	A9D33620	A9D53620	A9D43620	
		25 A	A9D31625	A9D41625	-	A9D32625	A9D52625	A9D42625	A9D33625	A9D53625	A9D43625	
		32 A	A9D31632	A9D41632	-	A9D32632	A9D52632	A9D42632	A9D33632	A9D53632	A9D43632	
		40 A	A9D31640	A9D41640	-	A9D32640	A9D52640	A9D42640	A9D33640	A9D53640	A9D43640	
Voltage rating (Ue)			230...240 V AC									
Operating frequency			50 Hz									
Accessories			Module CA907000 and CA907001, comb busbars CA907013									

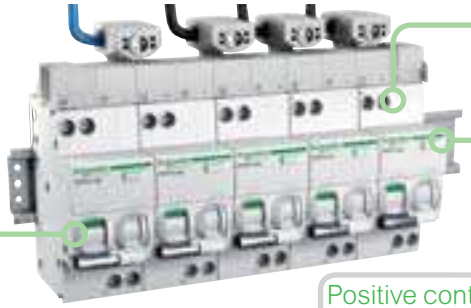
Catalogue numbers

iDPN H Vigi 10000

Type			A ~		SI ~		Width in 9 mm modules
Auxiliaries			Module CA907000 and CA907013				
1P+N Curve B		Sensitivity	30 mA	300 mA	30 mA	300 mA	
	Rating (In)	6 A	A9D07606	-	-	-	4
		10 A	A9D07610	-	-	-	
		16 A	A9D07616	-	-	-	
		20 A	A9D07620	-	-	-	
		25 A	A9D07625	-	-	-	
		32 A	A9D07632	-	-	-	
1P+N Curve C		Sensitivity	30 mA	300 mA	30 mA	300 mA	
	Rating (In)	6 A	A9D37606	A9D47606	A9D38606	A9D48606	4
		10 A	A9D37610	A9D47610	A9D38610	A9D48610	
		16 A	A9D37616	A9D47616	A9D38616	A9D48616	
		20 A	A9D37620	A9D47620	A9D38620	A9D48620	
		25 A	A9D37625	A9D47625	A9D38625	A9D48625	
		32 A	A9D37632	A9D47632	A9D38632	A9D48632	
Voltage rating (Ue)			230...240 V AC				
Operating frequency			50 Hz				
Accessories			Module CA907000 and CA907001, comb busbars CA907013				

iDPN Vigi residual current devices

- Fast contact closure

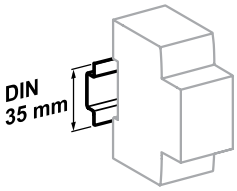


- Insulated terminals IP20
- Test button

Visi-trip double window
- Fault tripping circuit breaker is indicated by a red mechanical indicator on the front face.
- Earth fault is indicated by a red mechanical indicator on the front face

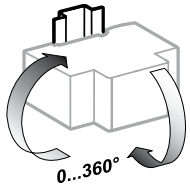
Positive contact indication
- A green strip on the toggle guarantees opening of all the poles in safety conditions (padlocking possible) for work to be carried out on live parts

DB123310



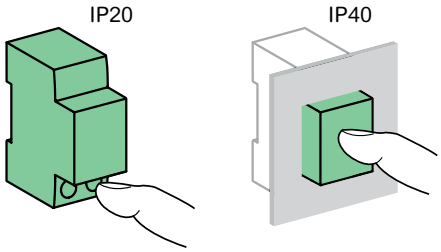
Clip on DIN rail 35 mm.

DB123312



Indifferent position of installation.

DB123314

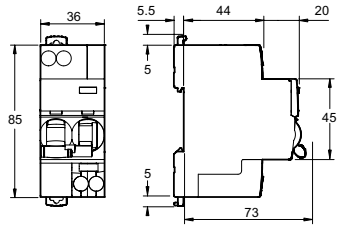


Weight (g)

Residual current device	
Type	iDPN Vigi
1P+N	125

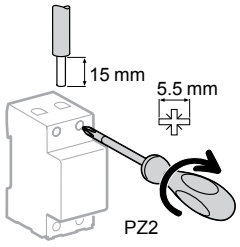
Dimensions (mm)

DB124454



Connection

DB123947



Rating	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
		DB122945	DB122946
4 to 40 A	2 N.m	1 to 16 mm²	1 to 10 mm²

Technical data

Main characteristics			
Type		iDPN N Vigi	iDPN H Vigi
Insulation voltage (Ui)		400 V AC	
Pollution degree		3	
Rated impulse withstand voltage (Uimp)		4 kV	
Setting temperature for ratings		30°C	
Magnetic tripping	Curve B	Between 3 and 5 In	
	Curve C	Between 5 and 10 In	
According to IEC/EN 61009-1			
Limitation class		3	
Rated breaking capacity (Icn)		6000 A	10,000 A
Rated residual breaking and making capacity (IDm)		6000 A	10,000 A
8/20 µs impulse withstand	Type AC	250 Â	250 Â
	Type A	250 Â	250 Â
	Type SI	3 kÂ	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				
Earth leakage protection with instantaneous tripping			10, 30, 100, 300 mA	30, 300 mA
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	
Overvoltage category (IEC 60364)			III	
Operating temperature	Type AC		-5°C to +60°C	
	Type A, SI	-25°C	-25°C to +60°C	
Storage temperature			-40°C to +85°C	
Tropicalization (IEC 60068-1)			Treatment 2 (relative humidity 95 % to 55°C)	

iPRF1 12.5r/PRD1 35r/PRD1 25r/PRD1 Master LV surge arresters

Type 1 and 2

The Type 1 range of surge arresters meets the normative withstand capability of current wave type 10/350 µs (8/20 µs for Type 2 surge arresters).
It is suitable for use with TT, TN-S, TN-C and IT earthing connection systems (neutral point connection).
In addition, the PRD1 35r surge arrester covers the 400 V IT system.
iPRF1 12.5r and PRD1 surge arresters are fitted with a remote transfer contact to send "end-of-life indication" information.
PRD1 surge arresters are fitted with easy-to-replace withdrawable cartridges.

iPRF1 12.5r/PRD1 35r/PRD1 25r/PRD1 Master

The Type 1 surge arrester is recommended for electrical installations in the service sector and industrial buildings protected by a lightning conductor or by a meshed cage.
It protects electrical installations against direct lightning strikes.
It is used to conduct the direct lightning current, propagating from the earth conductor to the network conductors.
It must be installed with an upstream disconnection device, such as a fuse or circuit-breaker, whose breaking capacity must be at least equal to the maximum prospective short-circuit current at the installation point.
iPRF1 12.5r and PRD1 25r surge arresters also provide Type 2 protection and protect the electrical installation by finely clipping the lightning wave overvoltages.

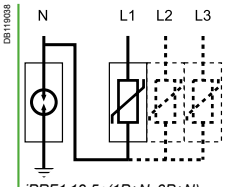
Refer to Page 232 for Surge Arrester Guide.

iPRF1 12.5r (3P+N)

PRD1 35r (1P)

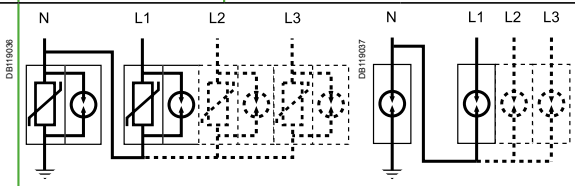
PRD1 25r (3P+N)

PRD1 Master (3P+N)



iPRF1 12.5r (1P+N, 3P+N)

Type	Product solution	
Fixed surge arrester	1P+N	3P+N
iPRF1 12.5r T1, T2	A9L16632	A9L16634

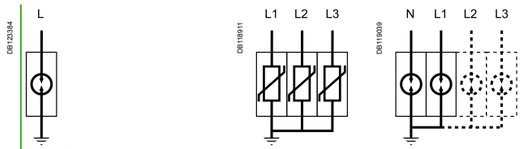


PRD1 25r (1P+N, 3P+N) *PRD1 Master (1P+N, 3P+N)*

Cartridge surge arrester	1P+N	3P+N
PRD1 25r T1 + T2	16330	16332
PRD1 Master T1	16361	16363
PRD1 35r T1		

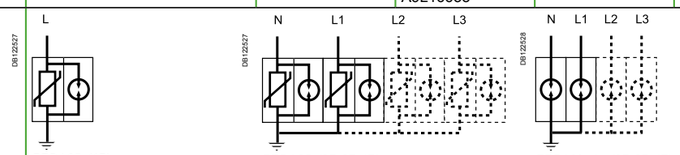
iPRF1 12.5r/PRD1 35r/PRD1 25r/PRD1 Master LV surge arresters

Type 1 and 2



PRD1 35r (1P) *iPRF1 12.5r (3P)* *PRD1 35r (2P, 3P, 4P)*

Type	Product solution				Earthing system	Recommended accessory
Fixed surge arrester	1P	2P	3P	4P		
iPRF1 12.5r T1, T2					TT, TN-S	
			A9L16633		TN-C	



PRD1 25r (1P) *PRD1 25r (2P, 3P, 4P)* *PRD1 Master (2P, 3P, 4P)*

Cartridge surge arrester	1P	2P	3P	4P		
PRD1 25r T1 + T2					TT, TN-S	
	16329	2 x 16329		4 x 16329	TT, TN-C	
			16331		TN-C	
PRD1 Master T1					TT, TN-S	
	16360	2 x 16360		4 x 16360	TT, TN-C	
			16362		TN-C	
PRD1 35r T1		2 x 16649			IT distributed neutral, TT, TN-S	16643
	16649		3 x 16649		IT non-distributed neutral, TN-C	16644
				4 x 16649	IT distributed neutral	16645

iPRF1 12.5r/PRD1 35r/PRD1 25r/PRD1 Master LV surge arresters

Type 1 and 2

Type	Nb. of poles	Width	I imp (kA) (10/350) Impulse current	I max (kA) (8/20) Maximum discharge current	In - kA Nominal discharge current	Up - kV Voltage protection level	Un - (V) Rated voltage network	Uc - V Maximum continious operating voltage	Cat. no.
Fixed surge arrester		9 mm modules						(L-N)/(N-PE)	
iPRF1 12.5r	Type 1 + 2								
	1P+N	4	12.5 (L-N)/50 (N-PE)	50	25	≤ 1.5	230	350/255	A9L16632
	3P	8	12.5	50	25	≤ 1.5	230/400	350	A9L16633
	3P+N	8	12.5 (L-N)/50 (N-PE)	50	25	≤ 1.5	230/400	350/255	A9L16634
Withdrawable surge arrester									
PRD1 25r	Type 1 + 2								
	1P	4	25	40	25	≤ 1.5	230	350	16329
	1P+N	8	25 (L-N)/100 (N-PE)	40	25	≤ 1.5	230	350/350	16330
	3P	12	25	40	25	≤ 1.5	230/400	350	16331
	3P+N	16	25 (L-N)/100 (N-PE)	40	25	≤ 1.5	230/400	350/350	16332
PRD1 Master	Type 1								
	1P	4	25	50	25	≤ 1.5	230	350	16360
	1P+N	8	25 (L-N)/100 (N-PE)	50	25	≤ 1.5/2.5	230	350/350	16361
	3P	12	25	50	25	≤ 1.5	230/400	350	16362
	3P+N	16	25 (L-N)/100 (N-PE)	50	25	≤ 1.5/2.5	230/400	350/350	16363
PRD1 35r	Type 1								
	1P	4	35	50	35	≤ 2.5	230/400	440	16649
Spare cartridge									
C1 Master-350	-	4	-	-	25	≤ 1.5	-	350	16314
C1 25-350	-	23 mm	-	-	25	≤ 1.5	-	350	16315
C2 40-350	-	12 mm	-	-	20	≤ 1.5	-	350	16316
C1 Neutral-350	-	4	-	-	-	-	-	350	16317
C1 35-440	-	4		-	35	≤ 2.5	-	440	16318

C1 Neutral-350

Surge arresters	Spare cartridge		
	Phase		Neutral
	Type 1	Type 2	
PRD1 25r			
PRD1 25r 1P	16315	16316	-
PRD1 25r 1P+N	16315	16316	16317
PRD1 25r 3P	3 x 16315	3 x 16316	-
PRD1 25r 3P+N	3 x 16315	3 x 16316	16317
PRD1 Master			
PRD1 Master 1P	16314	-	-
PRD1 Master 1P+N	16314	-	16317
PRD1 Master 3P	3 x 16314	-	-
PRD1 Master 3P+N	3 x 16314	-	16317
PRD1 35r			
PRD1 35r 1P	1 x 16318	-	-
PRD1 35r 2P	2 x 16318	-	-
PRD1 35r 3P	3 x 16318	-	-
PRD1 35r 4P	4 x 16318	-	-

Accessories		
Type	Number of poles (18 mm)	
Wiring comb busbars for 2 x 1P	4	16643
Wiring comb busbars for 3 x 1P	6	16644
Wiring comb busbars for 4 x 1P	8	16645
200 mm flexible cable	-	16646

iPRF1 12.5r/PRD1 35r/PRD1 25r/PRD1 Master LV surge arresters

Type 1 and 2

Technical data

		iPRF1 12.5r	PRD1 35r	PRD1 25r	PRD1 Master
Operating frequency		50 Hz	50/60 Hz	50 Hz	50 Hz
Degree of protection	Front panel	IP40	IP40	IP40	IP40
	Terminals	IP20	IP20	IP20	IP20
	Impacts	IK05	IK05	IK05	IK05
Response time		≤ 25 ns	≤ 100 ns	≤ 25 ns	≤ 100 ns
Short circuit withstand (Isccr)		50 kA	50 kA	25 kA	50 kA
Temporary overvoltage withstand (U_T)	U_T (L-N)	335 V AC/5 s	580 V AC/5 s	415 V AC/5 s	415 V AC/5 s
	U_T (N-PE)	1200 V AC/200 ms	800 V AC/120 min	1200 V AC/200 ms	1200 V AC/200 ms
Temporary overvoltage Safe failure mode (U_T)	U_T (L-N)	440 V AC/120 min	1640 V AC/200 ms	440 V AC/120 min	440 V AC/120 min
Ground residual current (I_{PE})	I_{PE} (N-PE)	0.004 mA	≤ 0.005 mA	≤ 0.01 mA for 1P+N, 3P+N	≤ 0.01 mA for 1P+N, 3P+N
Follow current interrupting rating (I_{fi})	I_{fi} (L-N)	-	50 kA	25 kA/264 V AC 3 kA/350 V AC	50 kA
	I_{fi} (N-PE)	100 A	-	100 A	100 A
End-of-life indication		Green: correct operation	White: correct operation	White: correct operation	White: correct operation
		Red: at end of life	Red: at end of life	Red: at end of life	Red: at end of life
	Remote notification	1.5 A/250 V AC	1 A/250 V AC ≤ 1 A/30 V DC	1 A/250 V AC ≤ 1 A/30 V DC	1 A/250 V AC ≤ 1 A/30 V DC
By tunnel terminal	Rigid cable	10...35 mm²	16...35 mm²	10...35 mm²	10...35 mm²
	Flexible cable	10...25 mm²	10...25 mm²	10...25 mm²	10...25 mm²
Operating temperature		-25°C to +60°C	-40°C to +80°C	-40°C to +80°C	-40°C to +80°C
Humidity range		5 % to 95 %	5 % to 95 %	5 % to 95 %	5 % to 95 %
Standards		IEC 61643-11: 2011 T1, T2 EN 61643-11: 2012 Type 1 + Type 2	IEC 61643-11 T1 EN 61643-11 Type 1	IEC 61643-11: 2011 T1, T2 EN 61643-11: 2012 Type 1 + Type 2	IEC 61643-11: 2011 T1 EN 61643-11: 2012 Type 1
Approvals		CE, EAC	CE	CE, KEMA-KEUR	CE, KEMA-KEUR

Choice of disconnector / surge arrester						
Type	I imp: impulse current	Isc: prospective short-circuit current at the installation point				
		10 kA	15 kA	25 kA	36 kA	50 kA
iPRF1 12.5r	12.5 kA	C120N 80 A curve C or Compact NSX100B 100 A *	C120H 80 A curve C or Compact NSX100B 100 A *	NG125N 80 A curve C or Compact NSX100B 100 A *	NG125H 80 A curve C or Compact NSX100F 100 A *	NG125L 80 A curve C or Compact NSX100N 100 A *
PRD1 35r	35 kA	Compact NSX160B 160 A			Compact NSX160F 160 A	Compact NSX160N 160 A
PRD1 25r	25 kA	Compact NSX100B 100 A			-	
PRD1 Master	25 kA	Compact NSX100B 100 A			Compact NSX100F 100 A	Compact NSX100N 100 A

(*) For lightning impulse current withstand

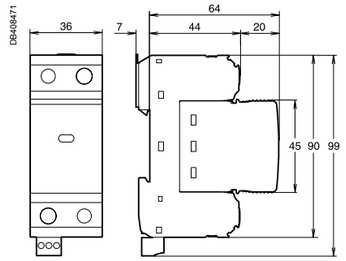
PRD1 25r / PRD1 Master / PRD1 35r Reversible

- The surge arrester base can be turned over to allow the phase/ neutral/earth cables to enter through either the top or the bottom

iPRF1 12.5r/PRD1 35r/PRD1 25r/PRD1 Master LV surge arresters

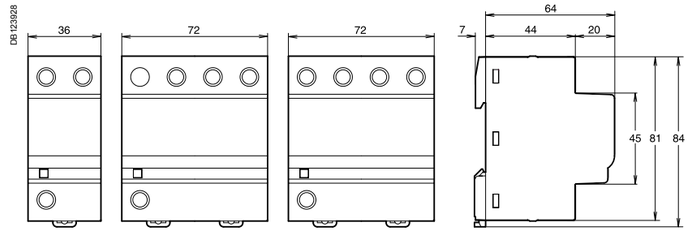
Type 1 and 2

Dimensions (mm)



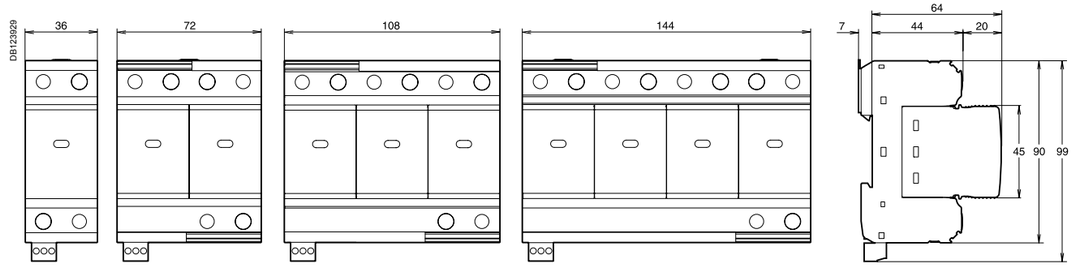
1P

PRD1 35r



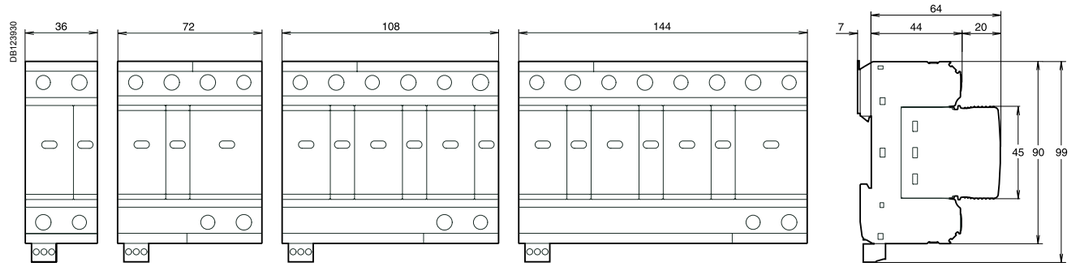
1P + N 3P 3P + N

iPRF1 12.5r



1P 1P + N 3P 3P + N

PRD1 Master



1P 1P + N 3P 3P + N

PRD1 25r

Weight (g)

Surge arresters					
Type		iPRF1 12,5r	PRD1 35r	PRD1 25r	PRD1 Master
1P		-	401	334	394
1P+N		290	-	725	774
3P		590	-	1010	1175
3P+N		590	-	1338	1535
Cartridge	Neutral	-	-	229	229
	Phase	-	245	-	242

iPF LV surge arresters

Type 2 or 3

www.schneider-electric.com/sg

The iPF multi-pole single-piece surge arrester range is adapted for earthing systems: TT, TN-S, TN-C.
Type 2 surge arresters are tested with a 8/20 µs current wave.
Type 3 surge arresters are tested with a 12/50 µs and 8/20 µs combined wave.

Each surge arrester in the range has a specific application:
- incoming protection (type 2):
  - the iPF65(r) is recommended for a very high risk level (strongly exposed site)
  - the iPF40(r) is recommended for a high risk level
  - the iPF20 is recommended for a medium risk level
- secondary protection (type 2 or 3):
  - the iPF8 ensures secondary protection of loads to be protected and is placed in cascade with the incoming surge arresters. This surge arrester is required when the loads to be protected are at a distance of more than 10 m from the incoming surge arrester.

The iPF surge arresters with “r” indication have remote transfer of the information: “surge arrester to be replaced”.

1P+N.

3P+N.

Rated discharge current (Imax) / Nominal discharge current (In)	Type of protection		Network						Earthing system	Transfer	Surge arrester name	Width in mod. of 9 mm	Up - (kV) Voltage protection level			Un - (V) Rated voltage network	Uc - (V) Maximum continuous operating voltage		
													CM*		DM*		CM*		DM*
	Incoming	Secondary (type 2 or 3)	1P+N	3P+N	1P	2P	3P	4P					L/⏚	N/⏚	L/N		L/⏚	N/⏚	L/N
65 kA / 20 kA											iPF65								
Very high risk level	iPF65				A9L15683				TT & TN		iPF65 1P	2	⩽ 1.5	-	-	230	340	-	-
			A9L15684						TT & TN-S		iPF65 1P+N	4	-	⩽ 1.5	⩽ 1.5		-	260	340
						A9L15584			TN-C		iPF65 2P		⩽ 1.5	⩽ 1.5	-		340	340	-
							A9L15581		TN-C		iPF65 3P	8	⩽ 1.5	-	-	230/400	340	-	-
				A9L15685					TT & TN-S	●	iPF65r 3P+N		-	⩽ 1.5	⩽ 1.5		-	260	340
				A9L15586					TT & TN-S		iPF65 3P+N		-	⩽ 1.5	⩽ 1.5		-	260	340
								A9L15585	TN-C	●	iPF65r 4P		⩽ 1.5	⩽ 1.5	-		340	340	-
40 kA / 15 kA											iPF40								
High risk level	iPF40				A9L15686				TT & TN		iPF40 1P	2	⩽ 1.5	-	-	230	340	-	-
			A9L15687						TT & TN-S		iPF40 1P+N	4	-	⩽ 1.5	⩽ 1.5		-	260	340
						A9L15587			TN-C		iPF40 2P		⩽ 1.5	⩽ 1.5	-		340	340	-
							A9L15582		TN-C		iPF40 3P	8	⩽ 1.5	-	-	230/400	340	-	-
				A9L15690					TT & TN-S	●	iPF40r 3P+N		-	⩽ 1.5	⩽ 1.5		-	260	340
				A9L15688					TT & TN-S		iPF40 3P+N		-	⩽ 1.5	⩽ 1.5		-	260	340
								A9L15590	TN-C	●	iPF40r 4P		⩽ 1.5	⩽ 1.5	-		340	340	-
								A9L15588	TN-C		iPF40 4P		⩽ 1.5	⩽ 1.5	-		340	340	-
20 kA / 5 kA											iPF20								
Medium risk level	iPF20				A9L15691				TT & TN		iPF20 1P	2	⩽ 1.1	-	-	230	340	-	-
			A9L15692						TT & TN-S		iPF20 1P+N	4	-	⩽ 1.5	⩽ 1.1		-	260	340
						A9L15592			TN-C		iPF20 2P		⩽ 1.1	⩽ 1.1	-		340	340	-
							A9L15597		TN-C		iPF20 3P	8	⩽ 1.1	-	-	230/400	340	-	-
				A9L15693					TT & TN-S		iPF20 3P+N		-	⩽ 1.5	⩽ 1.1		-	260	340
								A9L15593	TN-C		iPF20 4P		⩽ 1.1	⩽ 1.1	-		340	340	-
8 kA / 2.5 kA											iPF8 (1)		Type 2 / Type 3						
Secondary protection: placed near the loads to be protected when they are at a distance of more than 10 m from the incoming surge arrester		iPF8			A9L15694				TT & TN		iPF8 1P	2	⩽ 1 / ⩽ 1.1	-	-	230	340	-	-
			A9L15695						TT & TN-S		iPF8 1P+N	4	-	⩽ 1.5 / ⩽ 1.2	⩽ 1 / ⩽ 1.1		-	260	340
						A9L15595			TN-C		iPF8 2P		⩽ 1 / y 1.1	⩽ 1 / ⩽ 1.1	-		340	340	-
							A9L15598		TN-C		iPF8 3P	8	⩽ 1 / ⩽ 1.1	-	-	230/400	340	-	-
				A9L15696					TT & TN-S		iPF8 3P+N		-	⩽ 1.5 / ⩽ 1.2	⩽ 1 / ⩽ 1.1		-	260	340
								A9L15596	TN-C		iPF8 4P		⩽ 1 / ⩽ 1.1	⩽ 1 / ⩽ 1.1	-		340	340	-

** CM: common mode (phase to earth and neutral to earth). * DM: differential mode (phase to neutral). (1) Uoc: combinated waveform voltage: 10 kV.*

Surge arrester/circuit breaker association

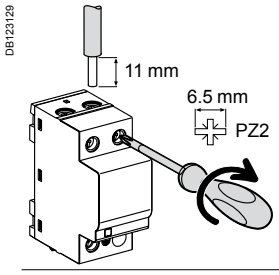
Type of surge arrester	Associated circuit breaker
iPF65	Curve C 50 A
iPF40	Curve C 40 A
iPF20	Curve C 25 A
iPF8	Curve C 20 A

Version 2.0 - May 2017
Acti9

iPF LV surge arresters

Type 2 or 3

Connection



Type	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
		DB122945	DB122946
iPF	3.5 N.m	25 mm² max.	16 mm² max.

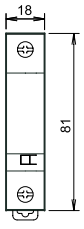
Technical data

Main characteristics		
Operating frequency		50/60 Hz
Operating voltage (Ue)		230/400 V AC
Permanent operating current (Ic)		< 1 mA
Response time		< 25 ns
End of life indication: by green/red indicator light	Green	In operation
	Red	At end of life
End of life remote indication		By contact NO, NC 250 V / 0.25 A
Additional characteristics		
Operating temperature		-25°C to +60°C
Type of connection terminals		Tunnel terminals, 2.5 to 35 mm²
Standards		IEC 61643-1 T2 and EN 61643-11 Type 2

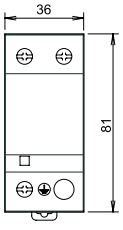
Weight (g)

Surge arrester	
Type	iPF
1P	125
2P	210
3P	335
4P	420

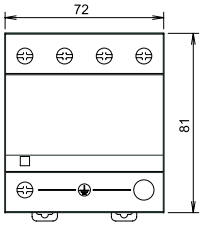
Dimensions (mm)



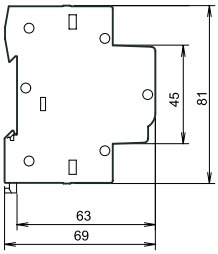
1P



1P+N
2P



3P
3P+N
4P



iPF K LV surge arresters

Type 2

DB406142

Country approval pictograms

The iPF K multi-pole single-piece surge arrester range is adapted for earthing systems: TT, TN-S, TN-C.
Type 2 surge arresters are tested with a 8/20 µs current wave.

Each surge arrester in the range has a specific application:
Incoming protection (type 2)

- the iPF K 65 is recommended for a very high risk level (strongly exposed site),
- the iPF K 40 is recommended for a high risk level, the iPF K 20 is recommended for a medium risk level.

PB114703-40

1P

PB114702-40

1P+N

PB114701-40

3P

PB114700-40

3P+N

Rated discharge current (Imax) / Nominal discharge current (In)	Type of protection	Network			
		DB122942 N L1 L2 L3		DB407087 L1 L2 L3	
	Incoming	1P+N	3P+N	1P	3P
65 kA / 20 kA					
Very high risk level	iPF K 65		A9L15586		
40 kA / 15 kA					
High risk level	iPF K 40			A9L15686	
		A9L15687			
					A9L15582
			A9L15688		
20 kA / 5 kA					
Medium risk level	iPF K 20			A9L15691	
		A9L15692			
					A9L15597
			A9L15693		

Surge arrester/circuit breaker association	
Type of surge arrester	Associated circuit breaker (1 to 4 poles protected) (Isc ≤ 6 kA)
iPF K 65	iK60N Curve C 50 A
iPF K 40	iK60N Curve C 40 A
iPF K 20	iK60N Curve C 20 A

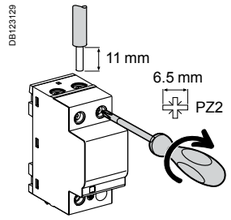
iPF K LV surge arresters

Type 2

Rated discharge current (Imax) / Nominal discharge current (In)	Type of protection	Earthing system	Surge arrester name	Width in mod. of 9 mm	Up - (kV) Voltage protection level			Un - (V) Rated voltage network	Uc - (V) Maximum continious operating voltage		
					CM*		DM*		CM*		DM*
	Incoming				L/⏚	N/⏚	L/N		L/⏚	N/⏚	L/N
65 kA / 20 kA			iPF K 65								
Very high risk level	iPF K 65	TT & TN-S	iPF K 65 3P+N		-	≤ 1.5	≤ 1.5		-	260	340
40 kA / 15 kA			iPF K 40								
High risk level	iPF K 40	TN	iPF K 40 1P	2	≤ 1.5	-	-	230	340	-	-
		TT & TN-S	iPF K 40 1P+N	4	-	≤ 1.5	≤ 1.5		-	260	340
		TN-C	iPF K 40 3P	8	≤1.5	-	-	230/400	340	-	-
		TT & TN-S	iPF K 40 3P+N		-	≤ 1.5	≤ 1.5		-	260	340
20 kA / 5 kA			iPF K 20								
Medium risk level	iPF K 20	TN	iPF K 20 1P	2	≤ 1.1	-	-	230	340	-	-
		TT & TN-S	iPF K 20 1P+N	4	-	≤ 1.5	≤ 1.1		-	260	340
		TN-C	iPF K 20 3P	8	≤ 1.1	-	-	230/400	340	-	-
		TT & TN-S	iPF K 20 3P+N		-	≤ 1.5	≤ 1.1		-	260	340

** CM: common mode (phase to earth and neutral to earth).*
** DM: differential mode (phase to neutral). (1) Uoc: combinated waveform voltage: 10 kV.*

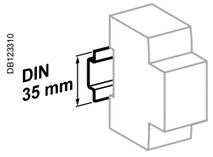
Connection



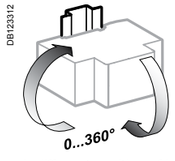
Type	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
		DB122945	DB122946
iPF K	3.5 N.m	25 mm² max.	16 mm² max.

iPF K LV surge arresters

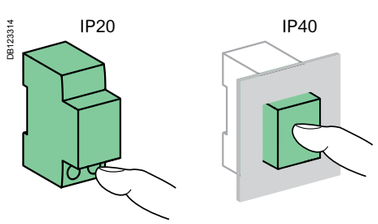
Type 2



Clip on DIN rail 35 mm.



Indifferent position of installation.



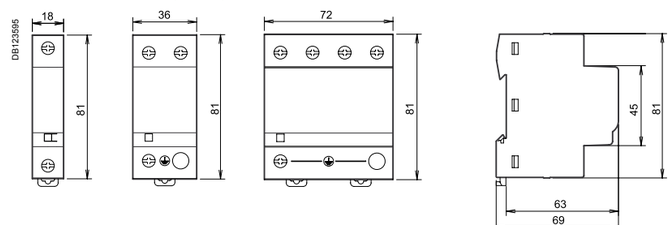
Technical data

Main characteristics		
Operating frequency		50/60 Hz
Rated voltage network (Un)		230/400 V AC ±10 %
Permanent operating current (Ic)		< 5 mA
Response time		< 25 ns
Short circuit withstand (I_{SCCR})		25 kA (50 Hz)
Temporary overvoltage withstand (U_T) LV network	U_T (L-N)	337 V AC / 5 s
	U_T (L-PE)	442 V AC / 120 min
Temporary overvoltage withstand (U_T) HV network	U_T (N-PE)	1200 V AC / 200 ms
	U_T (L-PE)	1453 V AC / 200 ms
Ground residual current (I_{PE})	I_{PE} (L-PE)	1P: ≤ 5 mA
		3P: ≤ 25 mA
	I_{PE} (N-PE)	3 µA for 1P+N, 3P+N
Operation indication by mechanical indicator	Green	In operation
	Red	At end of life
Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20 (built-in)
	Device in modular enclosure	IP40
Operating temperature		-25°C to +60°C
Humidity range		5 % to 95 %
Standards		IEC 61643-11: 2011 T2

Weight (g)

Surge arrester	
Type	iPF K
1P	125
1P+N	210
3P	335
3P+N	420

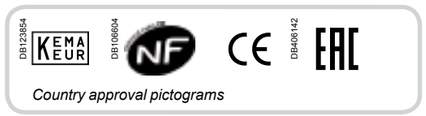
Dimensions (mm)



1P *1P+N* *3P* *3P+N*

iPRD LV withdrawable surge arresters

Type 2 or 3



Country approval pictograms

iPRD withdrawable surge arresters allow quick replacement of damaged cartridges.
Type 2 surge arresters are tested with a 8/20 µs current wave.
Type 3 surge arresters are tested with a 1.2/50 µs and 8/20 µs combined wave.

Each surge arrester in the range has a specific application:

Incoming protection (type 2)
- the iPRD65r is recommended for a very high risk level (strongly exposed site)
- the iPRD40(r) is recommended for a high risk level
- the iPRD20(r) is recommended for a medium risk level

Secondary protection (type 2 or 3)
- the iPRD8(r) ensures secondary protection of loads to be protected and is placed in cascade with the incoming surge arresters. This surge arrester is required when the loads to be protected are at a distance of more than 10 m from the incoming surge arrester.

The iPRD surge arresters with “r” indication have remote transfer of the information: “cartridge to be replaced”.

Cartridge

Spare cartridges iPRD

Type	Spare cartridges for	Cat. no
iPRD 65-350	iPRD65r	A9L65102
iPRD 40-350	iPRD40, iPRD40r	A9L40102
iPRD 20-350	iPRD20, iPRD20r	A9L20102
iPRD 8-350	iPRD8, iPRD8r	A9L08102
iPRD Neutral	All products (1P+N, 3P+N)	A9L00002

Spare cartridges iPRD IT

Type	Spare cartridges for	Cat. no
C 65-460	iPRD65r IT	A9L65122
C 40-460	iPRD40r IT	A9L40122
C 20-460	iPRD20r IT	A9L20122
C 8-460	iPRD8r IT	A9L08122

Catalogue number iPRD surge arresters

2P

4P

Rated discharge current (Imax)	Nominal discharge current (In)	Type of protection		Network						Earthing system	Transfer	Surge arrester name	Width in mod. of 9 mm	Up - (kV) Voltage protection level			Un - (V) Rated voltage network	Uc - (V) Maximum continuous operating voltage		
														CM*		DM*		CM*		DM*
		Incoming	Secondary	1P+N	3P+N	1P	2P	3P	4P					L/⏚	N/⏚	L/N		L/⏚	N/⏚	L/N
iPRD65												iPRD65								
65 kA Very high risk level (strongly exposed site)	20 kA	iPRD65				A9L65101			A9L65101	TT & TN	●	iPRD65r 1P	2	≤ 1.5	-	-	230	350	-	-
						A9L65121			A9L65121	IT	●	iPRD65r 1P IT		≤ 2.3	-	-		460	-	-
				A9L65501					A9L65501	TT & TN-S	●	iPRD65r 1P+N	4	-	≤ 1.4	≤ 1.5		-	260	350
							A9L65201		A9L65201	TN-C-S	●	iPRD65r 2P		≤ 1.5	≤ 1.5	-		350	350	-
								A9L65301	A9L65301	TN-C	●	iPRD65r 3P	6	≤ 1.5	-	-	230/400	350	-	-
								A9L65321	A9L65321	IT	●	iPRD65r 3P IT		≤ 2.3	-	-		460	-	-
					A9L65601				A9L65601	TT & TN-S	●	iPRD65r 3P+N	8	-	≤ 1.4	≤ 1.5		-	260	350
									A9L65401	TN-C-S	●	iPRD65r 4P		≤ 1.5	≤ 1.5	-		350	350	-
iPRD40												iPRD40								
40 kA High risk level	15 kA	iPRD40				A9L40101			A9L40101	TT & TN	●	iPRD40r 1P	2	≤ 1.6	-	-	230	350	-	-
						A9L40100			A9L40100	TT & TN		iPRD40 1P		≤ 1.6	-	-		350	-	-
				A9L40501					A9L40501	TT & TN-S	●	iPRD40r 1P+N	4	-	≤ 1.4	≤ 1.6		-	260	350
				A9L40500					A9L40500	TT & TN-S		iPRD40 1P+N		-	≤ 1.4	≤ 1.6		-	260	350
							A9L40201		A9L40201	TN-C-S	●	iPRD40r 2P		≤ 1.6	≤ 1.6	-		350	350	-
							A9L40200		A9L40200	TN-C-S		iPRD40 2P		≤ 1.6	≤ 1.6	-		350	350	-
								A9L40301	A9L40301	TN-C	●	iPRD40r 3P	6	≤ 1.6	-	-	230/400	350	-	-
								A9L40321	A9L40321	IT	●	iPRD40r 3P IT		≤ 2.2	-	-		460	-	-
								A9L40300	A9L40300	TN-C		iPRD40 3P		≤ 1.6	-	-		350	-	-
					A9L40601				A9L40601	TT & TN-S	●	iPRD40r 3P+N	8	-	≤ 1.4	≤ 1.6		-	260	350
					A9L40600				A9L40600	TT & TN-S		iPRD40 3P+N		-	≤ 1.4	≤ 1.6		-	260	350
								A9L40401	A9L40401	TN-C-S	●	iPRD40r 4P		≤ 1.6	≤ 1.6	-		350	350	-
								A9L40421	A9L40421	IT	●	iPRD40r 4P IT		≤ 2.2	≤ 2.2	-		460	-	-
								A9L40400	A9L40400	TN-C-S		iPRD40 4P		≤ 1.6	≤ 1.6	-		350	350	-
iPRD20												iPRD20								
20 kA Medium risk level	5 kA	iPRD20				A9L20100			A9L20100	TT & TN		iPRD20 1P	2	≤ 1.2	-	-	230	350	-	-
				A9L20501					A9L20501	TT & TN-S	●	iPRD20r 1P+N	4	-	≤ 1.4	≤ 1.2		-	260	350
				A9L20500					A9L20500	TT & TN-S		iPRD20 1P+N		-	≤ 1.4	≤ 1.2		-	260	350
							A9L20200		A9L20200	TN-C-S		iPRD20 2P		≤ 1.2	≤ 1.2	-		350	350	-
								A9L20300	A9L20300	TN-C		iPRD20 3P	6	≤ 1.2	-	-	230/400	350	-	-
								A9L20321	A9L20321	IT	●	iPRD20r 3P IT		≤ 1.8	-	-		460	-	-
					A9L20601				A9L20601	TT & TN-S	●	iPRD20r 3P+N	8	-	≤ 1.4	≤ 1.2		-	260	350
					A9L20600				A9L20600	TT & TN-S		iPRD20 3P+N		-	≤ 1.4	≤ 1.2		-	260	350
								A9L20400	A9L20400	TN-C-S		iPRD20 4P		≤ 1.2	≤ 1.2	-		350	350	-
								A9L20421	A9L20421	IT	●	iPRD20r 4P IT		≤ 1.8	≤ 1.8	-		460	-	-
iPRD8												iPRD8 (1)		Type 2 / Type 3 (1)						
8 kA Secondary protection: placed near the loads to be protected when they are at a distance of more than 10 m from the incoming surge arrester	2.5 kA		iPRD8			A9L08100			A9L08100	TT & TN		iPRD8 1P	2	≤ 1.2	-	-	230	350	-	-
				A9L08501					A9L08501	TT & TN-S	●	iPRD8r 1P+N	4	-	≤ 1.4	≤ 1.2		-	260	350
				A9L08500					A9L08500	TT & TN-S		iPRD8 1P+N		-	≤ 1.4	≤ 1.2		-	260	350
							A9L08200		A9L08200	TN-C-S		iPRD8 2P		≤ 1.2	≤ 1.2	-		350	350	-
								A9L08300	A9L08300	TN-C		iPRD8 3P	6	≤ 1.2	-	-	230/400	350	-	-
								A9L08321	A9L08321	IT	●	iPRD8r 3P IT		≤ 1.6 / ≤ 1.8	-	-		460	-	-
					A9L08601				A9L08601	TT & TN-S	●	iPRD8r 3P+N	8	-	≤ 1.4	≤ 1.2		-	260	350
					A9L08600				A9L08600	TT & TN-S		iPRD8 3P+N		-	≤ 1.4	≤ 1.2		-	260	350
								A9L08400	A9L08400	TN-C-S		iPRD8 4P		≤ 1.2	≤ 1.2	-		350	350	-
								A9L08421	A9L08421	IT	●	iPRD8r 4P IT		≤ 1.6 / ≤ 1.8	≤ 1.6 / ≤ 1.8	-		460	-	-

** CM: common mode (phase to earth and neutral to earth).*
** DM: differential mode (phase to neutral). (1) Uoc: combinated waveform voltage: 10 kV.*

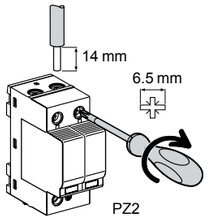
Version 2.0 - May 2017
Acti9

iPRD LV withdrawable surge arresters

Type 2 or 3

Connection iPRD surge arresters

DB123130

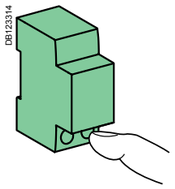


Type	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
		DB122945	DB122946
iPRD	3.5 N.m	2.5 to 25 mm²	4 to 16 mm²

Technical data iPRD surge arresters

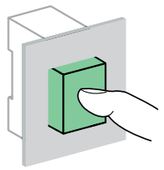
Main characteristics		iPRD	iPRD IT
Operating frequency		50/60 Hz	
Operating voltage (Ue)		230/400 V AC ±10 %	
Permanent operating current (Ic)		< 1 mA	
Response time		< 25 ns	
Short circuit current rating (Isccr)		50 kA (50 Hz)	-
Short circuit current rating (Isccr), case of double fault		-	5 kA (50 Hz)
Temporary overvoltage withstand (U_T)	U_T (L-N)	337 V AC / 5 s	337 V AC / 5 s
	U_T (L-PE)	442 V AC / 120 min	-
Temporary overvoltage Safe failure mode (U_T)	U_T (N-PE)	1200 V AC / 200 ms	1455 V AC / 200 ms
	U_T (L-PE)	1455 V AC / 200 ms	1455 V AC / 200 ms
Ground residual current (I_{PE})	I_{PE} (L-PE)	600 µA for 1P, 2P, 3P, 4P	
	I_{PE} (N-PE)	3 µA for 1P+N, 3P+N	-
Satisfactory operation indication: by mechanical indicator	White	In operation	
	Red	Cartridge must be replaced	
Remote indication of satisfactory operation		By contact NO, NC 250 V / 0.25 A	
Additional characteristics			
Degree of protection (IEC 60529)	Device only	IP20 (built-in)	
	Device in modular enclosure	IP40	
Operating temperature		-25°C to +60°C	
Storage temperature		-40°C to +85°C	
Humidity range		5 % to 95 %	
Type of connection terminals		Tunnel terminals, 2.5 to 35 mm²	
Standards		IEC 61643-11: 2011 T2, T3 and EN 61643-11: 2012 Type 2, Type 3	

IP20



DB123314

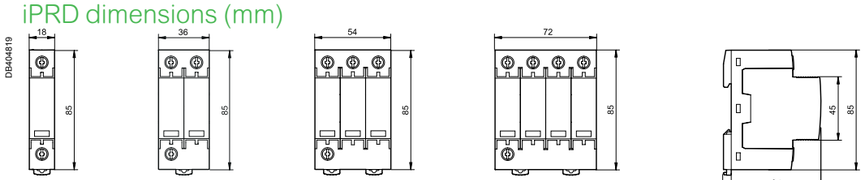
IP40



Surge arrester/circuit breaker association			
Surge arrester	Associated circuit breaker		
	iPRD		iPRD IT
	Isc ⩽ 25 kA	Isc ⩽ 50 kA	Isc (IT 400 V AC) ⩽ 5 kA
iPRD65	Curve C 50 A	Curve C 63 A	Curve C 25 A
iPRD40	Curve C 40 A	Curve C 63 A	Curve C 20 A
iPRD20	Curve C 20 A	Curve C 63 A	Curve C 10 A
iPRD8	Curve C 10 A	Curve C 63 A	Curve C 10 A

iPRD dimensions (mm)

DB404819



1P *1P+N, 2P* *3P* *3P+N, 4P*

Weight (g)

Surge arrester	
Type	iPRD
1P	119
1P+N, 2P	220
3P	340
3P+N, 4P	450

iPRD LV withdrawable surge arresters

Type 2 or 3

iPRD surge arresters

PB110281-60

Terminals
- IP20

Satisfactory operation indication
- By mechanical indicator
  - white: operating
  - red: cartridge must be replaced

- Transfer to Acti 9 Smartlink

Connection iPRD surge arrester with its short circuit disconnector

TT / TN-S

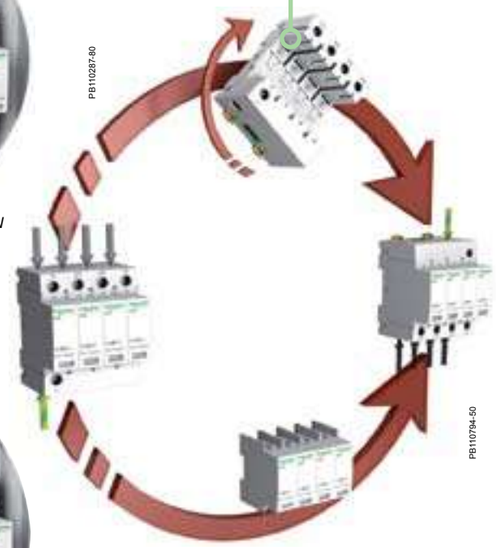
Power supply through the top
Connection with cables

PB110289-50

Surge arrester iPRD 3P+N + iC60N 3P+N

Reversible
- The surge arrester base can be turned over to allow the phase/ neutral/earth cables to enter through either the top or the bottom

PB110287-80



TT / TN-S

Power supply through the bottom
Connection with comb busbar

PB110793-50

Surge arrester iPRD 3P+N + iC60N 3P+N

IT/TNC-S with neutral

Power supply through the top
Connection with comb busbar

PB110720-50

Surge arrester iPRD 4P + iC60N 4P

IT/TNC-S with neutral

Power supply through the bottom
Connection with comb busbar

PB110794-50

Surge arrester iPRD 4P + iC60N 4P

iPRD LV withdrawable surge arresters

Type 2 or 3

iPRD withdrawable surge arresters allow quick replacement of damaged cartridges.


PB105274-35

1P+N


PB105275-35

3P


PB105276-35

3P+N


PB105272-35

Cartridge

Rated discharge current (Imax) / Nominal discharge current (In)	Type of protection		Network						Earthing system	Transfer	Surge arrester name	Width in mod. of 9 mm	Up - (kV) Voltage protection level			Un - (V) Rated voltage network	Uc - (V) Maximum continuous operating voltage		
													CM*		DM*		CM*		**DM***
	Incoming	Secondary	1P+N	3P+N	1P	2P	3P	4P					L/⏚	N/⏚	L/N		L/⏚	N/⏚	L/N
65 kA / 20 kA											iPRD65								
Very high risk level (strongly exposed site)	iPRD65				A9L16555				IT	●	iPRD65r 1P IT	2	⩽ 2	-	-	230	460	-	-
					A9L16556				TT & TN	●	iPRD65r 1P		⩽ 1.5	-	-		340	-	-
			A9L16557						TT & TN-S	●	iPRD65r 1P+N	4	-	⩽ 1.5	⩽ 1.5		-	260	340
						A9L16442			TN-C	●	iPRD65r 2P		⩽ 1.5	⩽ 1.5	-		340	340	-
							A9L16558		IT	●	iPRD65r 3P IT	6	⩽ 2	-	-	230/400	460	-	-
							A9L16443		TN-C	●	iPRD65r 3P		⩽ 1.5	-	-		340	-	-
				A9L16559					TT & TN-S	●	iPRD65r 3P+N	8	-	⩽ 1.5	⩽ 1.5		-	260	340
								A9L16659	TN-C	●	iPRD65r 4P		⩽ 1.5	⩽ 1.5	-		340	340	-
40 kA / 15 kA											iPRD40								
High risk level	iPRD40				A9L16561				TT & TN	●	iPRD40r 1P	2	⩽ 1.4	-	-	230	340	-	-
					A9L16566				TT & TN		iPRD40 1P		⩽ 1.4	-	-		340	-	-
			A9L16562						TT & TN-S	●	iPRD40r 1P+N	4	-	⩽ 1.4	⩽ 1.4		-	260	340
			A9L16567						TT & TN-S		iPRD40 1P+N		-	⩽ 1.4	⩽ 1.4		-	260	340
						A9L16444			TN-C	●	iPRD40r 2P		⩽ 1.4	⩽ 1.4	-		340	340	-
						A9L16667			TN-C		iPRD40 2P		⩽ 1.4	⩽ 1.4	-		340	340	-
							A9L16445		TN-C	●	iPRD40r 3P	6	⩽ 1.4	-	-	230/400	340	-	-
							A9L16568		TN-C		iPRD40 3P		⩽ 1.4	-	-		340	-	-
							A9L16563		IT	●	iPRD40r 3P IT		⩽ 2	-	-		460	-	-
				A9L16564					TT & TN-S	●	iPRD40r 3P+N	8	-	⩽ 1.4	⩽ 1.4		-	260	340
				A9L16569					TT & TN-S		iPRD40 3P+N		-	⩽ 1.4	⩽ 1.4		-	260	340
								A9L16597	IT	●	iPRD40r 4P IT		⩽ 2	⩽ 2	-		460	460	-
								A9L16664	TN-C	●	iPRD40r 4P		⩽ 1.4	⩽ 1.4	-		340	340	-
								A9L16669	TN-C		iPRD40 4P		⩽ 1.4	⩽ 1.4	-		340	340	-
20 kA / 5 kA											**iPRD20**								
Medium risk level	iPRD20				A9L16571				TT & TN		iPRD20 1P	2	⩽ 1.1	-	-	230	340	-	-
			A9L16672						TT & TN-S	●	iPRD20r 1P+N	4	-	⩽ 1.4	⩽ 1.1		-	260	340
			A9L16572						TT & TN-S		iPRD20 1P+N		-	⩽ 1.4	⩽ 1.1		-	260	340
						A9L16446			TN-C		iPRD20 2P		⩽ 1.1	⩽ 1.1	-		340	340	-
							A9L16447		TN-C		iPRD20 3P	6	⩽ 1.1	-	-	230/400	340	-	-
							A9L16573		IT	●	iPRD20r 3P IT		⩽ 1.6	-	-		460	-	-
				A9L16674					TT & TN-S	●	iPRD20r 3P+N	8	-	⩽ 1.4	⩽ 1.1		-	260	340
				A9L16574					TT & TN-S		iPRD20 3P+N		-	⩽ 1.4	⩽ 1.1		-	260	340
								A9L16599	IT	●	iPRD20r 4P IT		⩽ 1.6	⩽ 1.6	-		460	460	-
								A9L16673	TN-C		iPRD20 4P		⩽ 1.1	⩽ 1.1	-		340	340	-
8 kA / 2.5 kA											**iPRD8 (1)**		**Type 2 / Type 3**						
Secondary protection: placed near the loads to be protected when they are at a distance of more than 10 m from the incoming surge arrester		iPRD8			A9L16576				TT & TN		iPRD8 1P	2	⩽ 1 / ⩽ 1	-	-	230	340	-	-
			A9L16677						TT & TN-S	●	iPRD8r 1P+N	4	-	⩽ 1.4 / ⩽ 1	⩽ 1 / ⩽ 1.1		-	260	340
			A9L16577						TT & TN-S		iPRD8 1P+N		-	⩽ 1.4 / ⩽ 1	⩽ 1 / ⩽ 1.1		-	260	340
						A9L16448			TN-C		iPRD8 2P		⩽ 1 / ⩽ 1	⩽ 1 / ⩽ 1	-		340	340	-
							A9L16449		TN-C		iPRD8 3P	6	⩽ 1 / ⩽ 1	-	-	230/400	340	-	-
							A9L16578		IT	●	iPRD8r 3P IT		⩽ 1.4 / ⩽ 1.6	-	-		460	-	-
				A9L16679					TT & TN-S	●	iPRD8r 3P+N	8	-	⩽ 1.4 / ⩽ 1	⩽ 1 / ⩽ 1.1		-	260	340
				A9L16579					TT & TN-S		iPRD8 3P+N		-	⩽ 1.4 / ⩽ 1	⩽ 1 / ⩽ 1.1		-	260	340
								A9L16678	IT	●	iPRD8r 4P IT		⩽ 1.4 / ⩽ 1.6	⩽ 1.4 / ⩽ 1.6	-		460	460	-
								A9L16680	TN-C		iPRD8 4P		⩽ 1 / ⩽ 1	⩽ 1 / ⩽ 1	-		340	340	-

** CM: common mode (phase to earth and neutral to earth).*
** DM: differential mode (phase to neutral). (1) Uoc: combinated waveform voltage: 10 kV.*

Spare cartridges

Type	Spare cartridges for	Cat. no
C 65-460	iPRD65r IT	A9L16682
C 65-340	iPRD65r	A9L16681
C 40-460	iPRD40r IT	A9L16684
C 40-340	iPRD40, iPRD40r	A9L16685
C 20-460	iPRD20r IT	A9L16686
C 20-340	iPRD20, iPRD20r	A9L16687
C 8-460	iPRD8r IT	A9L16688
C 8-340	iPRD8, iPRD8r	A9L16689
C neutral	All products	A9L16691

Surge arrester/circuit breaker association

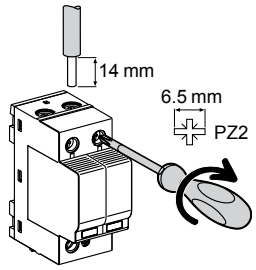
Surge arrester	Associated circuit breaker		
	iPRD		iPRD IT
	Isc ⩽ 25 kA	Isc ⩽ 50 kA	Isc (IT 400 V AC) ⩽ 5 kA
iPRD65	Curve C 50 A	Curve C 63 A	Curve C 25 A
iPRD40	Curve C 40 A	Curve C 63 A	Curve C 20 A
iPRD20	Curve C 20 A	Curve C 63 A	Curve C 10 A
iPRD8	Curve C 10 A	Curve C 63 A	Curve C 10 A

iPRD LV withdrawable surge arresters

Type 2 or 3

Connection

DB123130



Type	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
		DB122945 	DB122946 
iPRD	2 N.m	2.5 to 25 mm²	2.5 to 16 mm²

Technical data

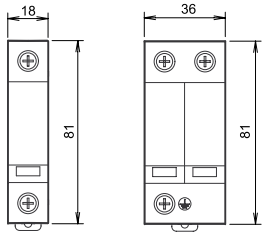
Main characteristics		
Operating frequency		50/60 Hz
Operating voltage (Ue)		230/400 V AC
Permanent operating current (Ic)		< 1 mA
Response time		< 25 ns
End of life indication: by mechanical indicator	White	In operation
	Red	At end of life
End of life remote indication		By contact NO, NC 250 V / 0.25 A
Additional characteristics		
Operating temperature		-25°C to +60°C
Type of connection terminals		Tunnel terminals, 2.5 to 35 mm²
Standards		IEC 61643-1 T2 and EN 61643-11 Type 2

Weight (g)

Surge arrester	
Type	iPRD
1P	115
2P	220
3P	340
4P	450

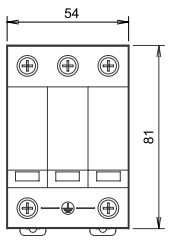
Dimensions (mm)

DB123596

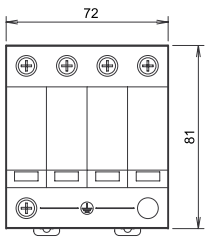


1P

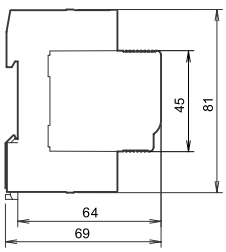
1P+N
2P



3P



3P+N
4P



iPRC, iPRI surge arresters

Analogue telephone line protection: the iPRC surge arrester wired in series to the private installation input protects the telephones, the PABX, the modems (including ADSL), etc.

Protection for 2 low-current lines without common potential or 4 lines with common reference potential: the iPRI protects the measuring instrument and PLC "sensor" inputs and the DC power supply inputs up to 53 V and AC power supply inputs up to 37 V.
The input current must not exceed 300 mA.

PB104269-35

A9L16337

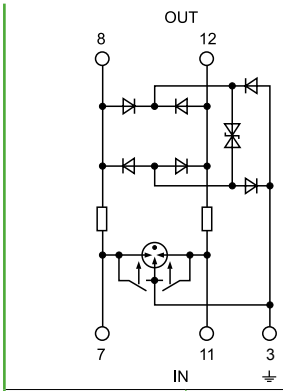
DB122624

DSL

PB104270-35

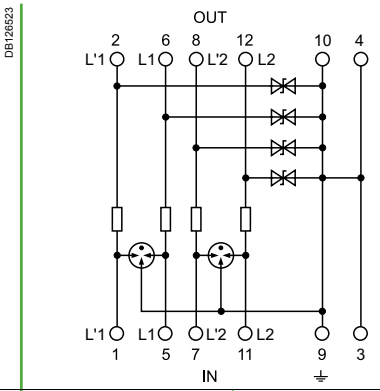
A9L16339

DB122585



Line L1	Cables 7-8
Line L2	Cables 11-12
–	–
–	–
⏚	Cable 3
IN	Ligne side
OUT	Protected side

DB126523



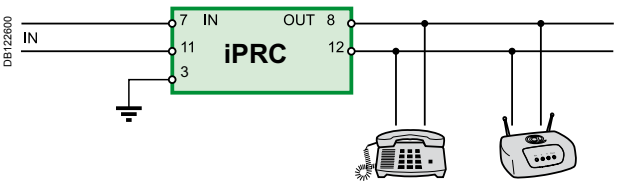
Line L1	Cables 5-6
Line L2	Cables 11-12
Line L'1	Cables 1-2
Line L'2	Cables 7-8
⏚	Cables 3-4-9-10
IN	Ligne side
OUT	Protected side

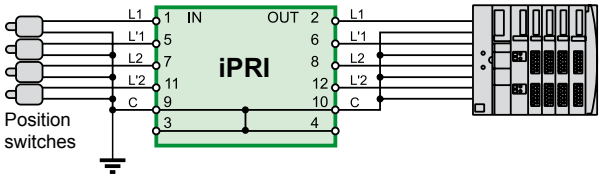
Catalogue numbers

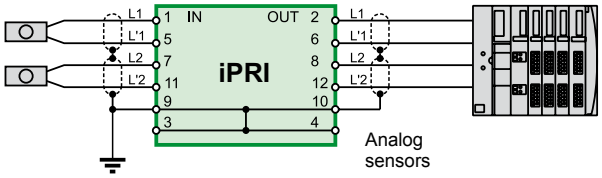
Surge arresters	iPRC	iPRI
Mains voltage (Un)	<130 V AC	48 V DC
Analogue telephone system	●	–
Telephone transmitter	●	–
Digital telephone system	–	●
Automation network	–	●
VLV load power supply (12…48 V)	–	●
xDSL compatibility	●	–
Cat. no..	A9L16337	A9L16339
Width in 9 mm modules	2	2

Diagrams

DB122600

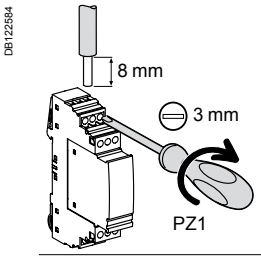




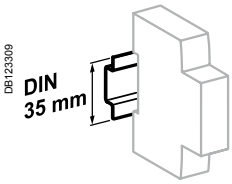


iPRC, iPRI surge arresters

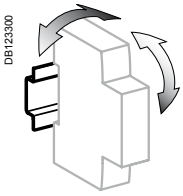
Connection



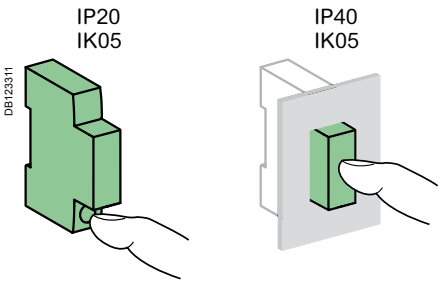
Tightening torque	Copper cables	
	Rigid	Flexible or with ferrule
		
0.8 N.m	0.2 to 4 mm²	0.2 to 2,5 mm²



Clip on DIN rail 35 mm.



± 30° vertical.



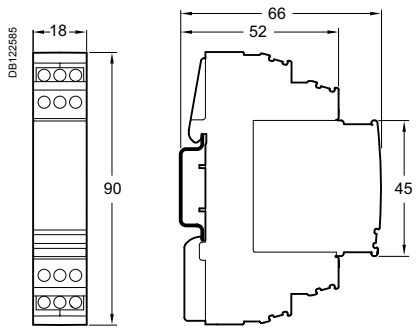
Technical data

Main characteristics			
		iPRC	iPRI
Number of protected lines		2	2
Test category	IEC/EN	C1, C2, C3, D1, B2	C1, C2, C3, D1, B2
Maximum continuous voltage (Uc)		180 V DC, 130 V AC	53 V DC, 37 V AC
Limitation voltage (Up)		300 V	70 V
Rated discharge current (8/20) (In)		10 kA	10 kA
Maximum discharge current (8/20) (Imax)		18 kA	10 kA
Response time		< 500 ns	≤ 1 ns
Nominal impulse current		100 A	70 A
Rated current (I_N)		450 mA (up to 45°C)	300 mA (up to 45°C)
Series resistor		2.2 Ω	4.7 Ω
End-of-life information by		Loss of dialling tone	Loss of transmission
Additional characteristics			
Degree of protection	Device only	IP20	IP20
	Device in modular enclosure	IP40	IP40
	IK	05	05
Operating temperature		-25°C to +60°C	-25°C to +60°C
Storage temperature		-40°C to +85°C	-40°C to +85°C

Weight (g)

Surge arresters		
Type	iPRC	iPRI
	25	65

Dimensions (mm)



iPRD-DC surge arresters

Withdrawable type 2 for photovoltaic applications

CE

Country approval pictograms

PB107595-40

iPRD-DC40r 600PV

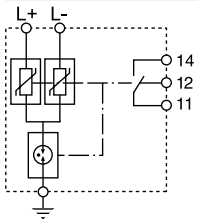
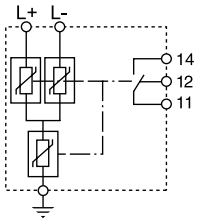
IEC 61643-1 T2, EN 61643-11 Type 2, UTE C 61740-51 T2, prEN 50539-11 T2

iPRD-DC direct current surge arresters are designed to protect against overvoltages due to a lightning strike: of the “DC” input to the inverter and of photovoltaic panels.

It should be installed in a switchboard inside the building. If the switchboard is located outside, it must be weatherproof.

Withdrawable iPRD-DC surge arresters allow damaged cartridges to be replaced quickly. They offer remote reporting of the “cartridge must be changed” message.

Catalogue numbers

Internal diagram	Imax (kA) Maximum discharge current	In (kA) Nominal discharge current	Up (kV) Protection level			U_{CPV} (V) (1) Maximum steady state voltage			Width in module of 9 mm	Cat. no.
			L+/⏚	L-/⏚	L+/L-	L+/⏚	L-/⏚	L+/L-		
iPRD-DC40r 600PV										
DB124051 	40	15	1.6	1.6	2.8	600	600	840	6	A9L16434
iPRD-DC40r 1000PV										
DB124052 	40	15	3.9	3.9	3.9	1000	1000	1000	6	A9L16436

(1) Ucpv u 1.2 x Uoc stc (Uoc stc: maximum no-load voltage of the photovoltaic generator "photovoltaic module manufacturer's data")

PB107598-30

PB107597-30

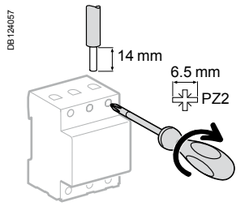
Replacement cartridges

Replacement cartridges		
Type	Replacement cartridges for	Cat. no.
C 40-600PV	iPRD-DC40r 600PV	A9L16683
C 40-1000PV	iPRD-DC40r 1000PV	A9L16692
C neutral PV	iPRD-DC40r 600PV	A9L16690

iPRD-DC surge arresters

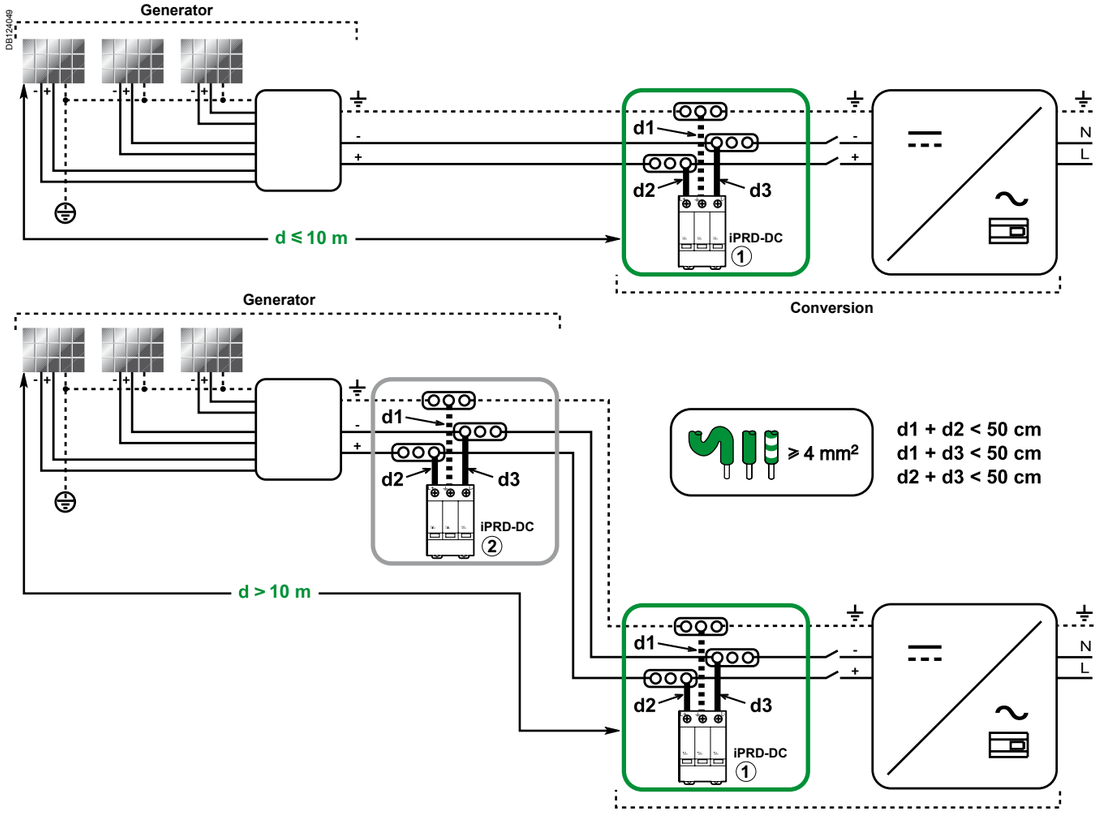
Withdrawable type 2 for photovoltaic applications

Connection



Type	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
			
iPRD-DC	2 N.m	2.5 to 25 mm²	2.5 to 16 mm²

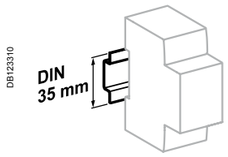
Depending on the distance between the “generator” part and the “conversion” part, it may be necessary to install two surge arresters or more, to ensure protection of each of the two parts.



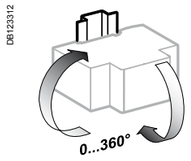
d1 + d2 < 50 cm
d1 + d3 < 50 cm
d2 + d3 < 50 cm

iPRD-DC surge arresters

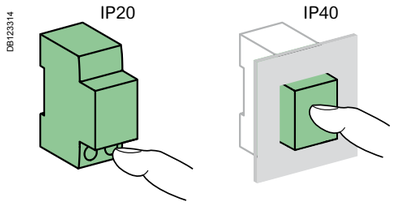
Withdrawable type 2 for photovoltaic applications



Clip on DIN rail 35 mm.



Indifferent position of installation.



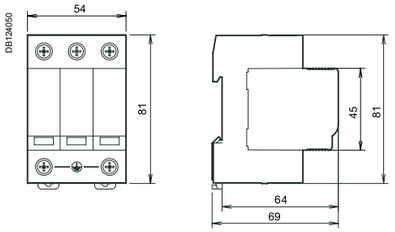
Technical data

Main characteristics			
Type of network		Isolated direct current	
Temps de réponse		< 25 ns	
Short circuit current (I_{SCPV})		30 A	
Type of surge arresters		Type 2	
End-of-life indication mode		Circuit opened by integrated thermal disconnector	
Additional characteristics			
Degree of protection (IEC 60529)	Device only	IP20	
	Device in modular enclosure	IP40	
	Chocs	IK03	
End-of-life indication	By the cartridges	White	Operational
		Red	At end of life
	By the NO/NC remote indication contact 250 V AC / 0.25 A		
Operating temperature		-25°C to +60°C	
Storage temperature		-40°C to +85°C	
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity of 95 % at 55°C)	

Weight (g)

Surge arresters	
Type	
iPRD-DC40r 600PV	400
iPRD-DC40r 1000PV	400

Dimensions (mm)



Connection accessories

See module CA907001

9	Splitter blocks	Linergy FM	See module	LIN022
		Linergy DX	See module	LIN003
10	50 mm² Al terminal			27060
11	Screw-on connection for ring terminal			27053
12	Multi-cables terminal		4 parts	19091
			3 parts	19096
13	Comb busbar		See modules	CA907026, CA907027

Mounting accessories

See module CA907001

14	Sealable terminal shields for top and bottom connection		1P (set of 2)	A9A26975
			2P (set of 2)	A9A26976
			3P	1P + 2P
			4P	2P + 2P
15	Interpole barrier		(set of 10)	A9A27001
16	Screw shields		4P (set of 20)	A9A26981
16"	Screw shields	Vigi iC60	(set of 12)	A9A26982
17	Clip-on terminal markers		See module	CA907001
18	9 mm spacer			A9A27062
19	Padlocking device		(set of 10)	A9A26970
20	Plug-in base			A9A27003
21	Rotary handle			
	Black handle			A9A27005
	Red handle			A9A27006
	No handle			A9A27008

Electrical auxiliaries

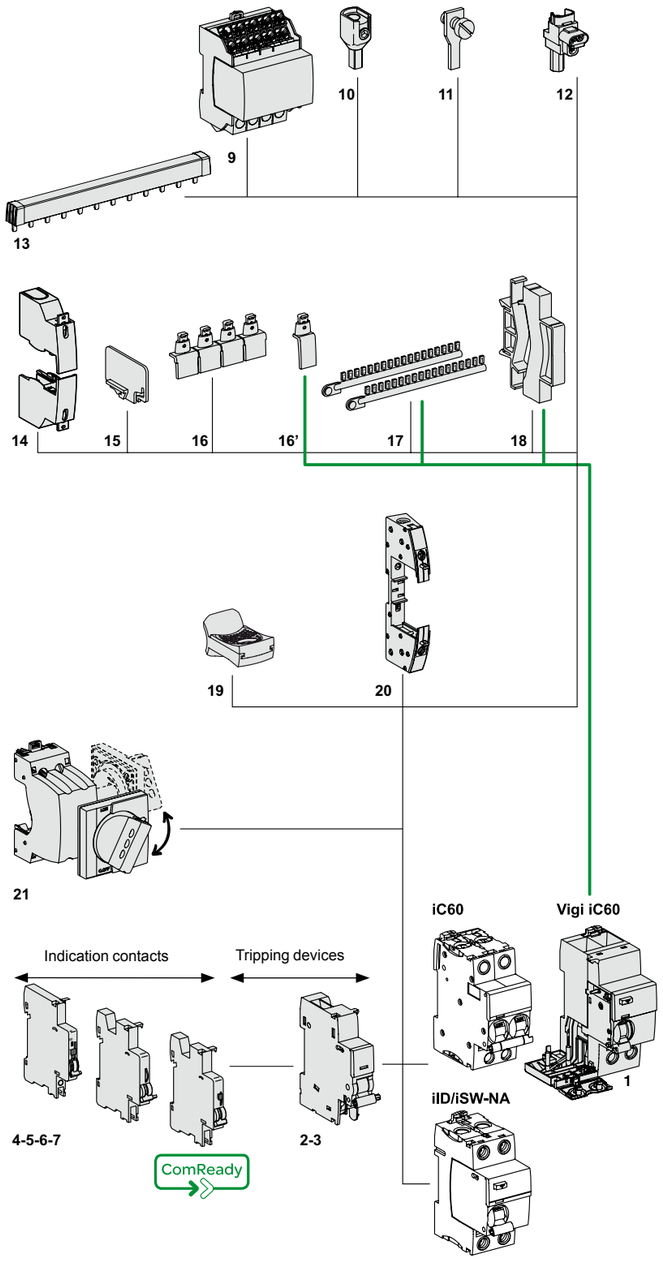
See module CA907002

Indication		
4	iOF/SD+OF auxiliary contact (OF+SD or OF+OF combination switch)	A9A26929
5	iSD fault indicating contact	A9A26927
6	iOF open/close auxiliary contact	A9A26924
7	iOF+SD24 auxiliary contact	A9A26897
Control		
8	iMDU voltage matching auxiliary	A9C18195

Tripping devices			
2	iMN undervoltage release or iMNs undervoltage release delayed or iMNx undervoltage release with external feeding	See module	CA907002
3	Shunt release iMX, iMX+OF overvoltage release iMSU	See module	CA907002

Vigi iC60

1	Vigi iC60 add-on residual current device	See module	CA902005
	Double terminals Vigi iC60 add-on residual current device	See module	CA902019

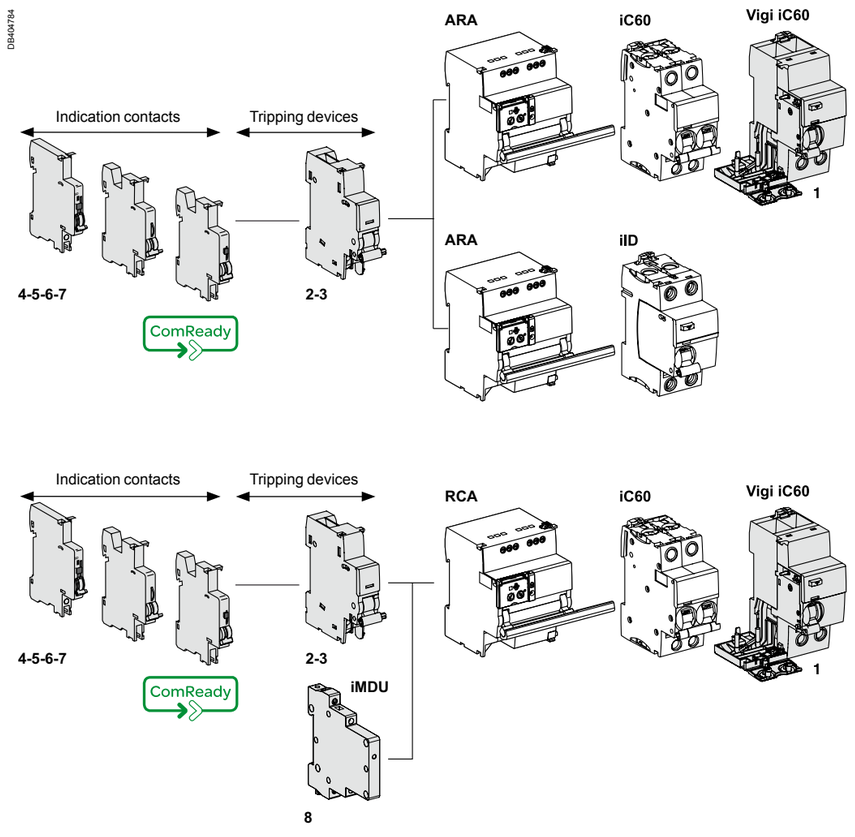


Tripping devices must be installed first.
If two tripping devices are used: the iMN must be installed first
Indication auxiliaries: respect specified position for SD functions.
iSW-NA: when installing a tripping device (iMN, iMX, iMSU...), an iSD auxiliary contact must be associated, which indicates that the iSW-NA has been tripped open.

Assembly rule

The mounting order and the number for the various auxiliaries must be complied with.
The tripping auxiliaries iMN, iMX, iMSU...) should be mounted first (1) as close as possible to the main device.
Then at the left, the indicating auxiliaries (iOF, iSD) should be mounted (2) then (3) complying with the following association table.

Indicating auxiliaries (3)	+ (2)	Tripping auxiliaries + (1)	Remote control	Device	Vigi iC60
1 (iOF/SD+OF or iOF+SD24 or iSD)	1 iOF/SD+OF	1 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU)	–	iC60, iID, iSW-NA	Vigi iC60
1 iOF	1 (iSD or iOF or iOF/SD+OF)	2 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU)			
–	1 iOF+SD24	2 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU)			
–	–	3 iMSU			
1 iSD	1 iSD	1 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU)			
–	1 (iSD or iOF or iOF/SD+OF or iOF+SD24)	1 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU)	ARA, RCA	iC60	Vigi iC60
1 iOF	1 (iSD or iOF or iOF/SD+OF)	–			
–	1 (iSD or iOF or iOF/SD+OF or iOF+SD24)	1 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU) maxi	ARA	iID	–
1 iOF	1 (iSD or iOF or iOF/SD+OF)	–			



iDPN Vigi accessorisation/auxiliarisation

Connection accessories

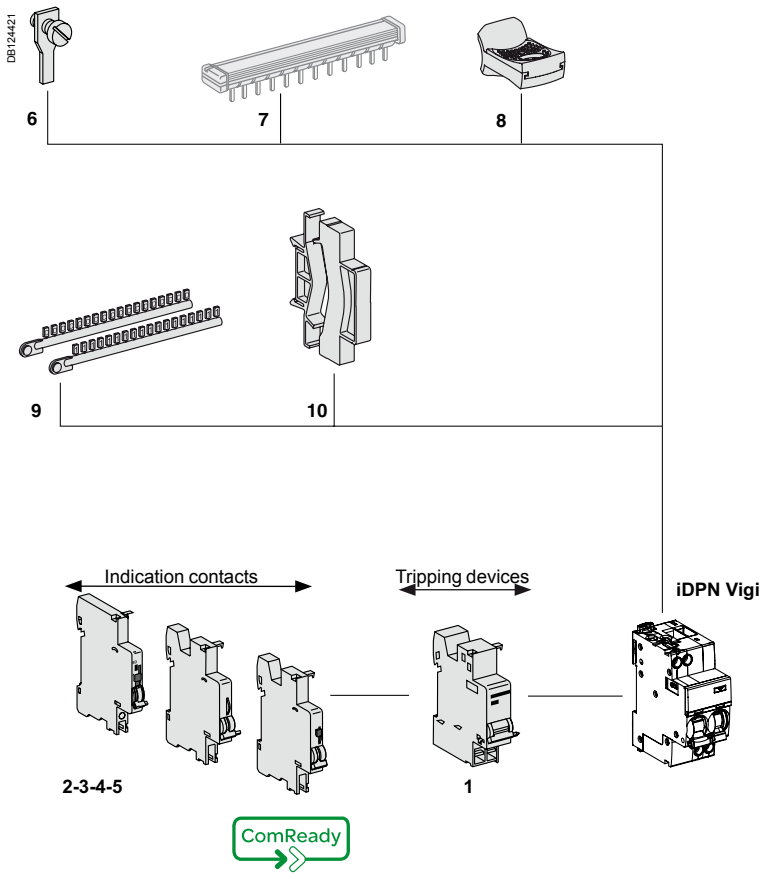
See module CA907001

6	Screw-on connection for ring terminal		27053
7	Comb busbar	See modules	CA907026, CA907027

Mounting accessories

See module CA907001

8	Padlocking device	(set of 10)	A9A26970
9	Clip-on terminal markers	See module	CA907001
10	9 mm spacer		A9A27062



Electrical auxiliaries

See module CA907002

Indication		
2	iOF/SD+OF auxiliary contact (OF+SD or OF+OF combination switch)	A9A26929
3	iSD fault indicating contact	A9A26927
4	iOF open/close auxiliary contact	A9A26924
5	iOF+SD24 auxiliary contact	A9A26897

Tripping devices			
1	iMN undervoltage release or iMNs undervoltage release delayed or iMNx undervoltage release with external feeding or shunt release iMX, iMX+OF overvoltage release iMSU	See module	CA907002

Tripping devices must be installed first.
If two tripping devices are used: the iMN must be installed first
Indication auxiliaries: respect specified position for SD functions.

Assembly rule

The mounting order and the number for the various auxiliaries must be complied with.
The tripping auxiliaries iMN, iMX, iMSU...) should be mounted first 1 as close as possible to the main device.
Then at the left, the indicating auxiliaries (iOF, iSD) should be mounted 2 then 3 complying with the following association table.

Indicating auxiliaries		Tripping auxiliaries	Device
3	+2	+1	
1 (iOF/SD+OF or iOF+SD24 or iSD)	1 iOF/SD+OF	1 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU)	iDPN Vigi
1 iOF	1 (iSD or iOF or iOF/SD+OF)	2 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU)	
–	1 iOF+SD24	2 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU)	
–	–	3 iMSU	
1 iSD	1 iSD	1 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU)	

C120, Vigi C120 devices accessorisation/auxiliarisation

Connection accessories

See module CA907012

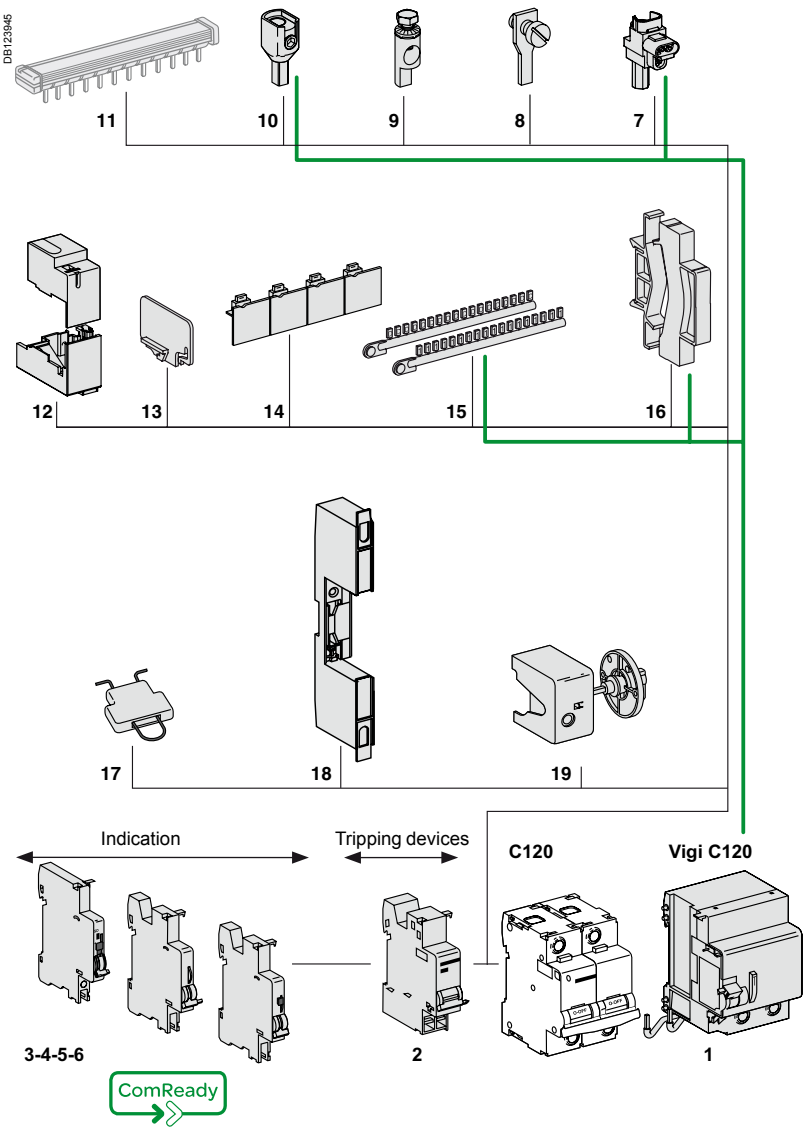
7	Multi-cable terminal	4 parts	19091
		3 parts	19096
8	Screw-on connection for ring terminal	8 parts	27053
9	Terminal for rear connector		18528
10	50 mm² Al terminal		27060
11	Comb busbar	See module	LIN001

Mounting accessories

See module CA907012

12	Sealable terminal shields for top and bottom connection	1P (set of 2)	18526
13	Interpole barrier	(set of 10)	27001
14	Screw shields	4P (set of 2)	18527
15	Clip-on terminal markers	See module	CA907012
16	9 mm spacer		A9N27062
17	Padlocking device		27145
18	Plug-in base (1)		26997
19	Rotary handle		
	Removable extended handle		27047
	Fixed handle		27048
	Operating sub-assembly (2)		27046

(1) For 1P, centreline between two rows: 200 mm
(2) 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.



Electrical auxiliaries

See module CA907008

Indication		
3	SD fault indicating contact	A9N26927
4	OF+SD24 auxiliary contact	A9N26899
5	OF open/close auxiliary contact	A9N26924
6	OF+SD/OF auxiliary contact (OF+SD or OF+OF combination switch)	A9N26929

Tripping			
2	MN, MNx, MNs undervoltage release, MSU overvoltage release or MX, MX + OF shunt release	See module	CA907008

Tripping devices must be installed first.
If two tripping devices are used: the MN must be installed first
Indication auxiliaries: respect specified position for SD functions.

Vigi C120

1	Vigi C120 add-on residual current device	See module	CA902016

Assembly rule

The mounting order and the number for the various auxiliaries must be complied with.
The tripping auxiliaries MN, MX, MSU...) should be mounted first (1) as close as possible to the main device.
Then at the left, the indicating auxiliaries (OF, SD) should be mounted (2) then (3) complying with the following association table.

Indicating auxiliaries		Tripping auxiliaries	Device	Vigi C120
(3)	+(2)	+(1)		
1 (OF+SD/OF or OF+SD24)	1 OF+SD/OF	1 (MN, MNx, MNs or MX, MX+OF or MSU)	C120	Vigi C120
1 OF	1 (OF+SD/OF or SD or OF)	2 (MN, MNx, MNs or MX, MX+OF or MSU)		
–	1 OF+SD24	2 (MN, MNx, MNs or MX, MX+OF or MSU)		
–	–	3 MSU		

C60H-DC devices accessorisation/auxiliarisation

Connection accessories

See module CA907012

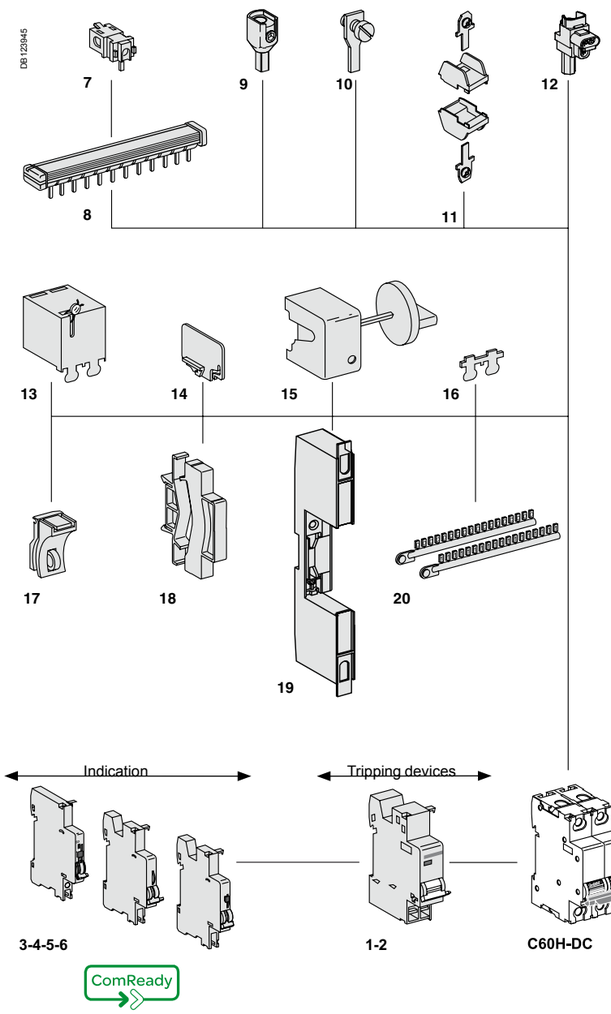
7	Insulated connector	See module	LIN001
8	Comb busbar	See module	LIN001
9	50 mm² Al terminal		27060
10	Ring tongue terminal screw connection		27053
11	Ring tongue terminal connections kit Ø 5 mm, (upstream/downstream)		17400
12	Insulated distribution terminal	4 parts	19091
		3 parts	19096

Mounting accessories

See module CA907012

13	Sealable terminal shield	See module	CA907012
14	Inter-pole barrier		27001
15	Rotary handle		
	Switching sub-assembly		27046
	Disconnectable handle		27047
	Fixed handle		27048
16	Screw shield	See module	CA907012
17	Padlocking accessory (to be locked in the "open" position)		26970
18	Spacer		A9N27062
19	Plug-in base		26996
20	Marker strip	See module	CA907012

(1) 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.



Electrical auxiliaries

See module CA907008

Indication			
3	SD fault indicating switch		A9N26927
4	OF+SD24 auxiliary contact		A9N26899
5	OF open/closed contact		A9N26924
6	OF+SD/OF auxiliary contact (OF+SD or OF+OF combination switch)		A9N26929

Tripping			
1	MN, MNx, MNs undervoltage release	See module	CA907008
2	MX, MX + OF shunt release	See module	CA907008

Tripping devices must be installed first.
If two tripping devices are used: the MN must be installed first
Indication auxiliaries: respect specified position for SD functions.

Assembly rule

The mounting order and the number for the various auxiliaries must be complied with.
The tripping auxiliaries MN, MX...) should be mounted first (1) as close as possible to the main device.
Then at the left, the indicating auxiliaries (OF, SD) should be mounted (2) then (3) complying with the following association table.

Indicating auxiliaries		Indicating auxiliaries	Device
(3)	+(2)	+(1)	
1 (OF+SD/OF or OF+SD24)	1 OF+SD/OF	1 (MN, MNx, MNs or MX, MX+OF)	C60H-DC
1 OF	1 (OF+SD/OF or SD or OF)	2 (MN, MNx, MNs or MX, MX+OF)	
–	1 OF+SD24	2 (MN, MNx, MNs or MX, MX+OF)	

iSW devices accessorisation/auxiliarisation

Connection accessories

See module CA907012

1	Insulated connector	See module	LIN001
2	Comb busbar	See module	LIN001
3	50 mm² Al terminal		27060
4	Ring tongue terminal screw connection		27053
5	Ring tongue terminal connections kit Ø 5 mm, (upstream/downstream)		17400
6	Insulated distribution terminal	4 parts	19091
		3 parts	19096

Mounting accessories

See module CA907012

7	Sealable terminal shield	See module	CA907012
8	Inter-pole barrier		27001
9	Rotary handle		
	Switching sub-assembly		27046
	Disconnectable handle		27047
	Fixed handle		27048
10	Screw shield	See module	CA907012
11	Padlocking accessory (to be locked in the "open" position)		26970
12	Spacer		A9N27062
13	Plug-in base		26996

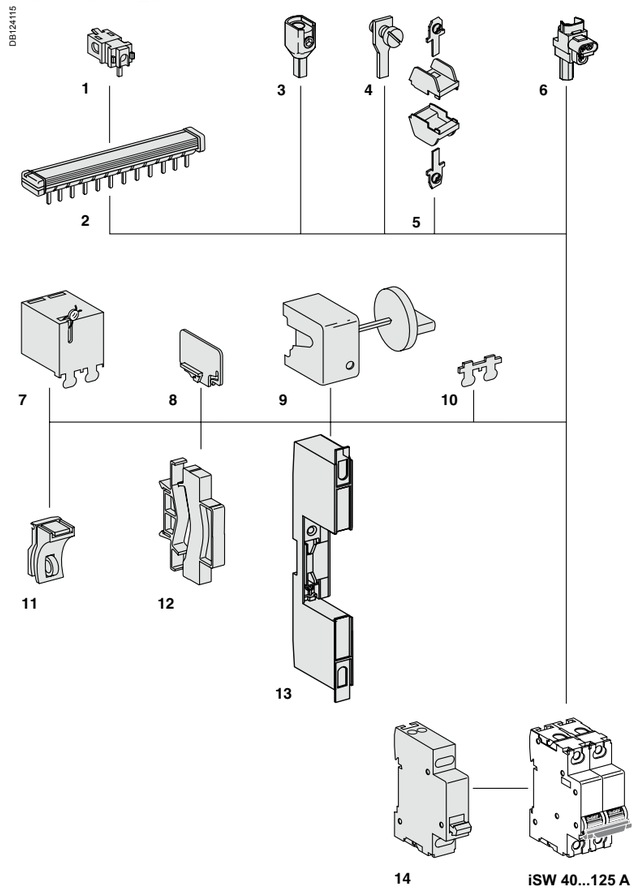
(1) A complete rotary handle consists of a circuit-breaker operating sub-assembly, cat. no. 27046, a handle cat. no. 27047 or a handle cat. no. 27048.

Electrical auxiliary

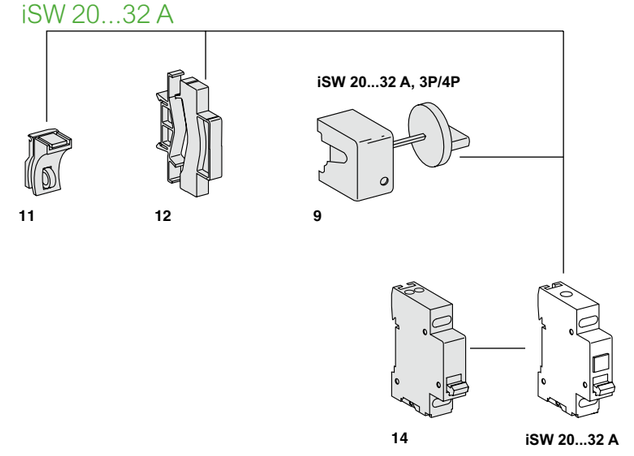
See module iSW CA904005

Indication		
14	OF iSW open/closed contact	A9A15096

iSW 40...125 A



iSW 20...32 A



SW60-DC, C60NA-DC, C60PV-DC accessorisation/ auxiliarisation

Connection accessories

See module CA907012

7	50 mm² Al terminal		27060
8	Ring tongue terminal screw connection		27053
9	Insulated distribution terminal	4 parts	19091
		3 parts	19096

Mounting accessories

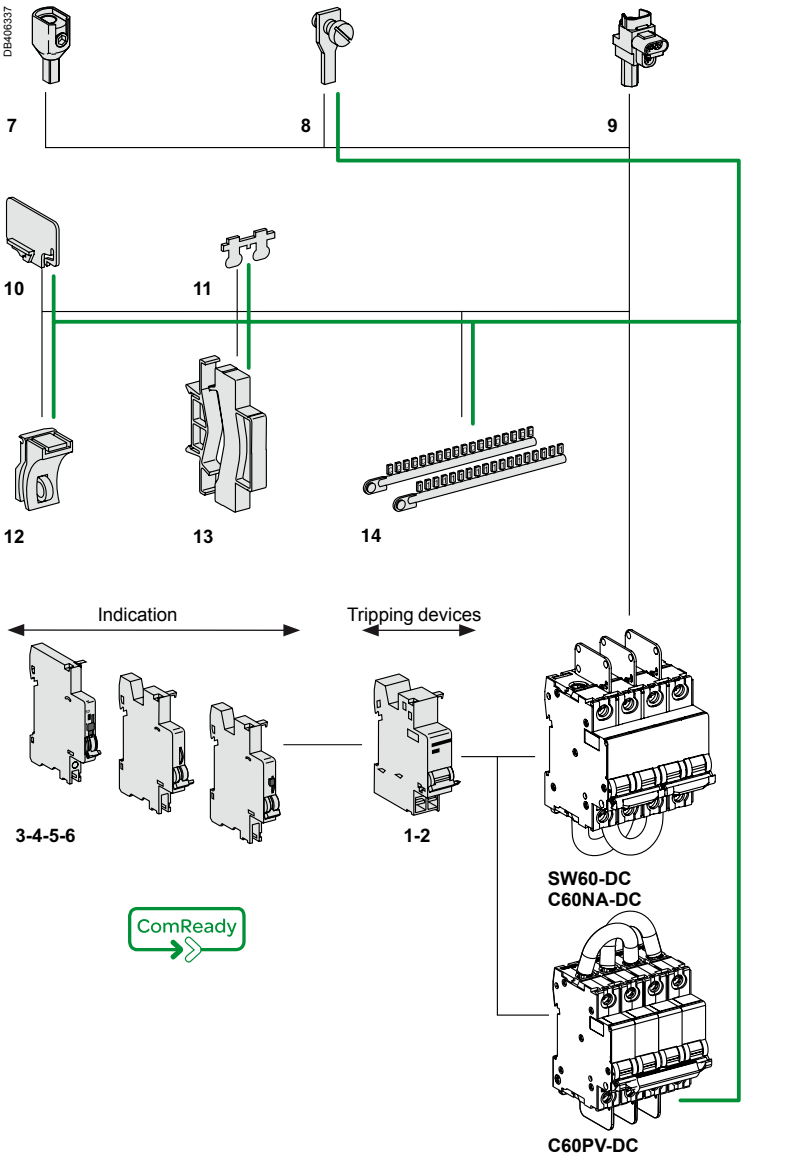
See module CA907012

10	Inter-pole barrier		27001
11	Screw shield		26981
12	Padlocking accessory (to be locked in the "open" position)		26970
13	Spacer		A9N27062
14	Marker strip	See module	CA907012

Electrical auxiliaries

See module CA904005

Indication			
3	SD fault indicating switch		A9N26927
4	OF+SD24 auxiliary contact		A9N26899
5	OF open/closed contact		A9N26924
6	OF+SD/OF auxiliary contact (OF+SD or OF+OF combination switch)		A9N26929
Tripping			
1	MN, MNx, MNs undervoltage release	See module	CA907008
2	MX, MX + OF shunt release	See module	CA907008



Tripping devices must be installed first.
If two tripping devices are used: the MN must be installed first
Indication auxiliaries: respect specified position for SD functions.

Assembly rule

The mounting order and the number for the various auxiliaries must be complied with.
The tripping auxiliaries MN, MX...) should be mounted first 1 as close as possible to the main device.
Then at the left, the indicating auxiliaries (OF, SD) should be mounted 2 then 3 complying with the following association table.

Indicating auxiliaries		Indicating auxiliaries	Device
3	+2	+1	
1 (OF+SD/OF or OF+SD24)	1 OF+SD/OF	1 (MN, MNx, MNs or MX, MX+OF)	SW60-DC, C60NA-DC, C60PV-DC
1 OF	1 (OF+SD/OF or SD or OF)	2 (MN, MNx, MNs or MX, MX+OF)	
–	1 OF+SD24	2 (MN, MNx, MNs or MX, MX+OF)	

iC60, iID, iDPN Vigi, iSW-NA, Reflex iC60, RCA, ARA, iSW accessories

	Mounting				
Accessories	**Rotary handle**				**Plug-in base**
	PB104509-35 			PB106297_10 	PB104508-35 
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), 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 circuit 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 • Not compatible with Vigi iC60 and auxiliaries • Can be locked by padlock of (dia. 6 mm), not supplied with the device
Catalogue numbers	A9A27005	A9A27006	A9A27008	GVAPL01	A9A27003 (1 per pole)
	Operating sub-assembly				
	+	+			
	Black handle	Red handle	No handle		
Set of	1	1	1	1	1
Suitability					
iC60	● 2P, 3P, 4P				●
iSW	● 2P, 3P, 4P				●
iC60 + Vigi iC60	● 2P, 3P, 4P				–
iID	●				● ⩽ 63 A
iDPN Vigi	–				–
Reflex iC60 or RCA+iC60 or ARA+iC60	–				–
ARA+iID	–				–
iSW-NA	●				●

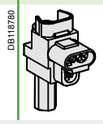
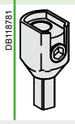
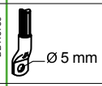
iC60, iID, iDPN Vigi, iSW-NA, Reflex iC60, RCA, ARA, iSW accessories

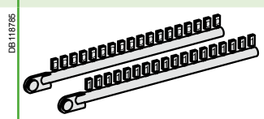
	Mounting				Spare part
Accessories	**Padlocking device**			**Wall mounting**	**Locking clips**
	Front	Side			
	PB104492-15 DB123599	A9A26380-40	A9A26381-40 P135159-40	A9A27052-25	
Function					
	Used to padlock breaker in open or closed position • Padlock diameter: 3 to 6 mm • Sealable (max. diameter: 1.2 mm) • 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 circuit breaker in open position • Attached directly to the circuit breaker, it cannot be lost • Padlock diameter: 6 mm		Can be used for wall mounted installation of any 18 mm DIN rail devices • Degree of protection: IP40 • Sealable: (max. diameter: 1.5 mm)	Top and bottom locking clips for monoconnect iC60
Catalogue numbers	A9A26970	A9A26380 Left-hand mounting	A9A26381 Right-hand mounting	15359	A9A27052
Set of	10	1	1	1	10
Suitability					
iC60	●	●	●	● All products up to 18 mm ● Except iCT	●
iSW	●	–	–		–
iC60 + Vigi iC60	●	–	–		–
iID	●	●	–		–
iDPN Vigi	●	–	–		–
Reflex iC60 or RCA+iC60 or ARA+iC60	●	–	–		–
ARA+iID	●	–	–		–
iSW-NA	●	–	–		–

iC60, iID, iDPN Vigi, iSW-NA, Reflex iC60, RCA, ARA, iSW accessories

	Security					
Accessories	**Screw shield**		**Terminal shield**		**Inter-pole barrier**	**Spacer**
	PB104489-14	PB104488-14	PB104502-35	PB104503-35	PB104494-30	PB104493-35
Function						
	Prevents any contact with the connecting screws • Upgrades degree of protection to IP20D • Sealable, max. diameter 1.2 mm		Prevents any contact with the terminals • Upgrades degree of protection to IP20D • Sealable, max. diameter 1.2 mm • Set of two, for upstream and downstream terminals • For 3 poles: A9A26975 + A9A26976 • 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 module • Allows cable routing from one row to another, (above and below), up to 6 mm^2
Catalogue numbers	A9A26982	A9A26981	A9A26975	A9A26976	A9A27001	A9A27062
Set of	12 x 1 pole	20 x 4 poles (splittable)	2 x 1 pole	2 x 2 poles	10	5
Suitability						
iC60	–	●	●	●	●	●
iSW	–	–	●	●	●	●
Vigi iC60	●	–	–	–	–	●
iID	–	●	–	●	●	●
iDPN Vigi	–	–	–	–	–	●
Reflex iC60 or RCA+iC60 or ARA+iC60	–	●	●	●	●	●
ARA+iID	–	●	–	●	●	●
iSW-NA	–	●	–	●	●	●

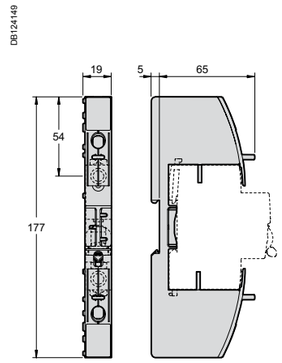
iC60, iID, iDPN Vigi, iSW-NA, Reflex iC60, RCA, ARA, iSW accessories

	Connection			
Accessories	**Multi-cable terminal**		**50 mm² terminal Al**	**Screw-on connection for ring terminal**
				
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
			 Al	 Ø 5 mm
Catalogue numbers	19091	19096	27060	27053
Set of	4	3	1	8
Suitability				
iC60 ⩽ 25 A Reflex iC60 ⩽ 25 A	–	–	–	●
iC60 >25 A Reflex iC60 40 A, iSW	●	●	●	●
Vigi iC60	–	–	–	–
iID	●	●	●	●
iDPN Vigi	–	–	–	●
iSW-NA	●	●	●	●
Tightening torque	2 N.m		10 N.m	2 N.m
Lenght stripping	11 mm		13 mm	–
Tools to use	Dia. 5 mm or PZ2		Hc 1/5" or 5 mm	Dia. 5mm

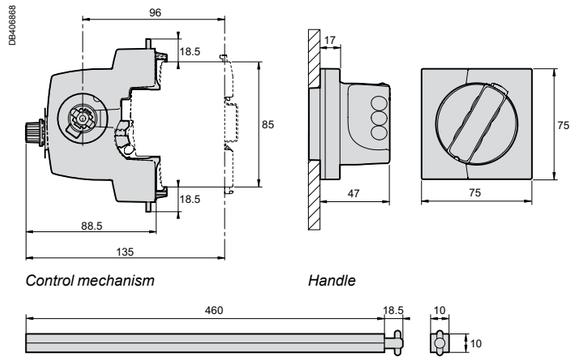
	Marking					
Accessories	**Marker strip**					
						
	Used for connection identification					
Catalogue numbers	0: AB1-R0 1: AB1-R1 2: AB1-R2 3: AB1-R3 4: AB1-R4	5: AB1-R5 6: AB1-R6 7: AB1-R7 8: AB1-R8 9: AB1-R9	A: AB1-GA B: AB1-GB C: AB1-GC D: AB1-GD E: AB1-GE F: AB1-GF G: AB1-GG H: AB1-GH I: AB1-GI	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					
Suitability						
iC60, Reflex iC60, iSW	• 4 markers max. per pole					
Vigi iC60	• 4 markers max. per device					
iID	• 4 markers max. per device					
iDPN Vigi	• 4 markers max. per device					
iSW-NA	• 4 markers max. per device					

iC60, iID, iDPN Vigi, iSW-NA, Reflex iC60, RCA, ARA, iSW accessories

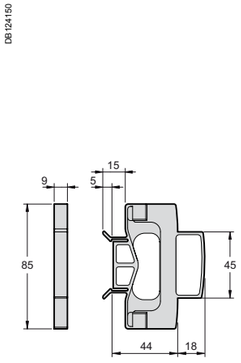
Dimensions (mm)



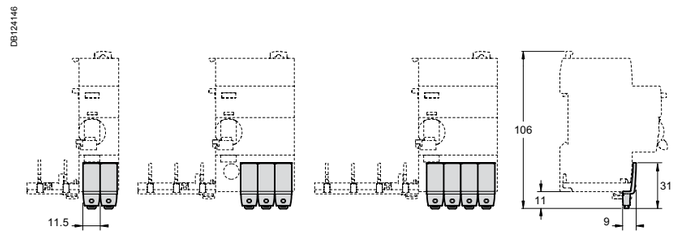
Plug-in base



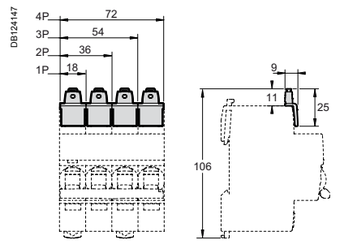
Control mechanism *Handle*
Rotary handle



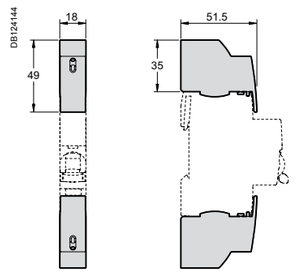
Spacer



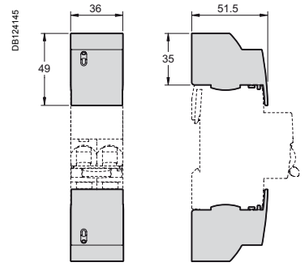
Screw shield 1P (A9A26982)



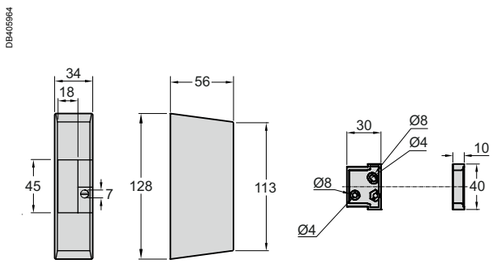
Screw shield 4P (A9A26981)



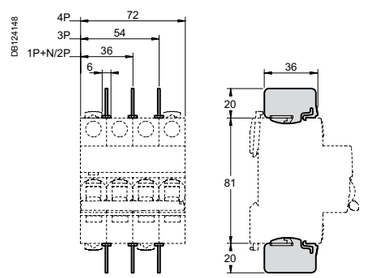
Terminal shield 1P



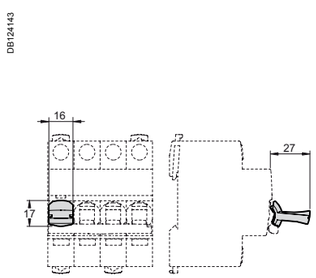
Terminal shield 2P



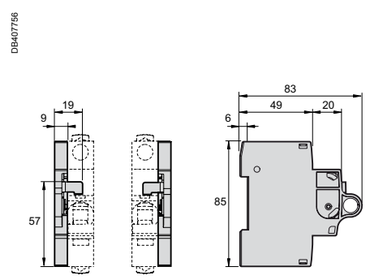
Wall mounted



Inter-pole barrier



Front padlocking device

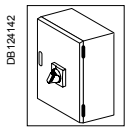


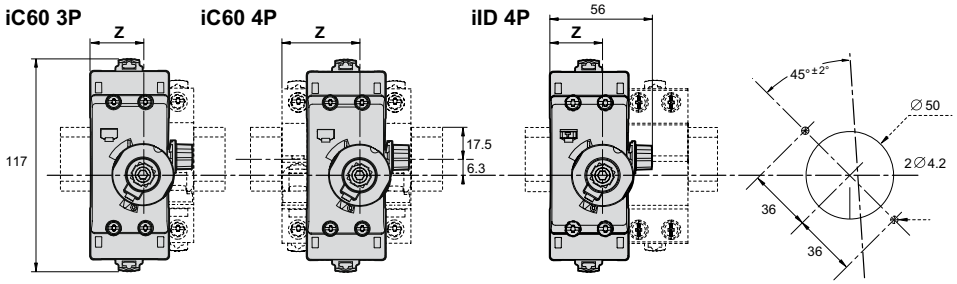
Side padlocking device

iC60, iID, iDPN Vigi, iSW-NA, Reflex iC60, RCA, ARA, iSW accessories

Rotary handle installation

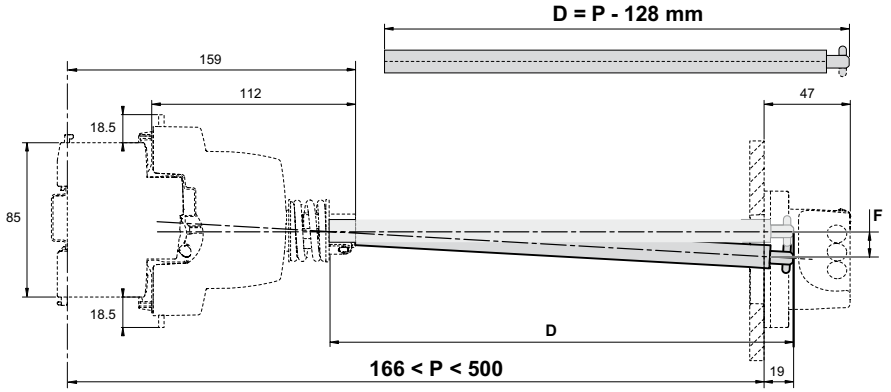
Dimensions (mm)

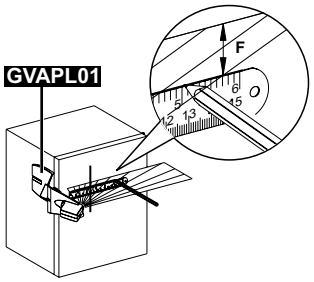




iC60	Z (mm)
2P	25.3
2P + Vigi	25.3
3P	25.3
3P + Vigi	43
4P	43
4P + Vigi	43

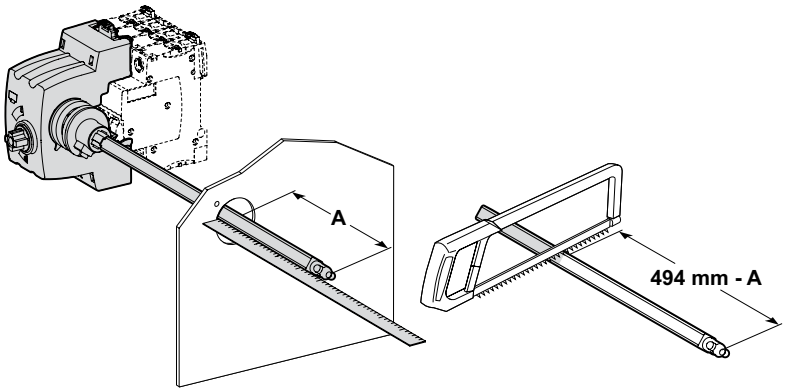
iID	Z (mm)
2P	25.3
4P	25.3

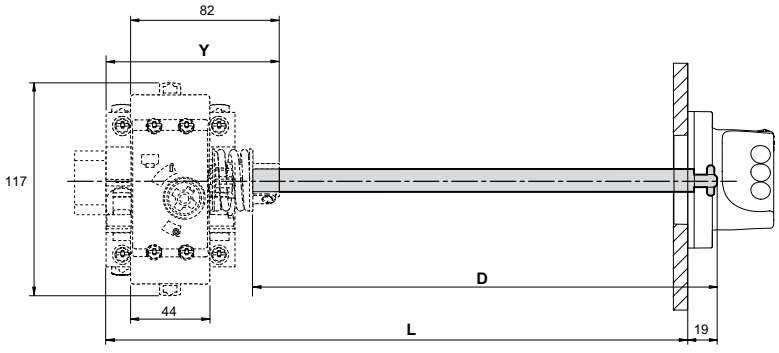




P (mm)	F (mm)
300	5
500	11

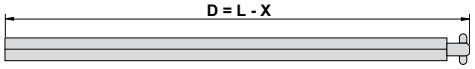
Rotary handle: front mounted control





iC60	X (mm)	Y (mm)
2P	44.5	76.8
2P + Vigi	44.5	76.8
3P	44.5	76.8
3P + Vigi	62	94.5
4P	62	94.5
4P + Vigi	62	94.5

iID/iSW-NA	X (mm)	Y (mm)
2P	44.5	76.8
4P	44.5	76.8



Rotary handle: side mounted control

C60, C120, DPN, DPN Vigi, C60H-DC, SW60-DC, C60NA-DC, C60PV-DC, ID, iSW devices accessories

	Installation						
Accessories	**Rotary handle**			**Plug-in base**		**Padlocking device**	
	PB100137_SE-24 PB100138_SE-24 			PB111764-40 		056886_SE  057209J_SE-20 	
Function							
	Front or side control of 2, 3 and 4-pole circuit breakers • Degree of protection: IP40 • A complete rotary handle consists of: - a circuit-breaker operating sub-assembly, cat. no. 27046, - a handle cat. no. 27047 or a handle cat. no. 27048 • Installation: - the circuit-breaker operating sub-assembly cat. no. 27046 is fixed to the circuit breaker - the removable handle cat. no. 27047 is mounted on the removable front panel or on the enclosure door - the fixed handle cat. no. 27048 is fixed to the front or side panel of the enclosure			Allows a circuit breaker to be quickly removed or replaced, without touching the connections • Degree of protection: IP20 • It consists of: - a base to be fixed to a rail (or panel) - 2 “blades” to be fixed in the device terminals • Connection: tunnel terminals for cables up to 50 mm² (rigid) or 35 mm² (flexible) • Installation: - on backplate - on a horizontal rail • Centreline between two rows: 200 mm • Only on the circuit breaker, without a Vigi device or auxiliary • Padlocking option (8 mm dia. padlock not supplied)		Used to padlock a circuit breaker in the “open” or “closed” position • Diameter of the padlock: 8 mm max. • Locking in the ON position does not prevent the circuit breaker from tripping in the event of a fault • Isolation: in conformity with IEC/EN 60947-2.	
Cat. numbers	27047 Removable extended handle	27048 Fixed handle	27046 Operating sub-assembly	26996 (1 per pole)	26997 (1 per pole)	27145	26970
Set of	1	1	1	1	1	4	2
Suitable for the following devices:							
C60	● 2P, 3P, 4P			●	–	–	●
C120, C120NA-DC	● 2P, 3P, 4P			–	● ⩽ 63 A	●	–
C120 + Vigi C120	● 2P, 3P, 4P			–	–	●	–
DPN, DPN Vigi	● 3P, 4P			–	–	–	●
C60H-DC	● 2P			●	–	–	●
SW60-DC, C60NA-DC, C60PV-DC	–			–	–	–	●
ID	–			● ⩽ 63 A	–	–	●
iSW	● iSW u at 4 modules of 9 mm			● iSW 40 to 63 A	–	–	●

C60, C120, DPN, DPN Vigi, C60H-DC, SW60-DC, C60NA-DC, C60PV-DC, ID, iSW devices accessories

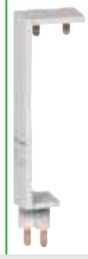
	Safety						
Accessories	**Screw shield**		**Terminal shield**			**Interpole barrier**	**Spacer**
	056870_SE-33 / PB124114	056869_SE-38	DB123898			PB104483-35	
Function							
	Prevents all contact with the fixing screws • The degree of protection becomes IP40 • Sealable, max. diameter 1.2 mm • Dividable		Prevents all contact with the terminals • Degree of protection becomes IP40 • Sealable, max. diameter 1.2 mm			Improves the insulation between the connections: cables, terminals, lugs, etc.	• Used to: - complete the rows - separate the devices • Width: 1 x 9 mm module • Allows that 2 cables are routed from one row to another (above and below), up to 6 mm²
			• 1P	• 1P	• 2P		
				• 3P: 1 x 26975 + 1 x 26976 • 4P: 2 x 26976			
Cat. numbers	18527	26981	18526	26975	26976	27001	A9N27062
Set of	2 (4P dividable)		2 (for upstream/downstream terminal)			10	1
Suitable for the following devices:							
C60	–	●	–	●	●	●	●
C120, C120NA-DC	●	–	●	–	–	●	●
Vigi C120	–	–	–	–	–	–	●
DPN, DPN Vigi	–	–	–	–	–	–	●
C60H-DC	–	●	–	●	●	●	●
SW60-DC, C60NA-DC, C60PV-DC	–	●	–	–	–	●	●
ID	–	●	–	●	●	●	●
iSW	–	● iSW 40 to 125 A	–	● iSW 40 to 125 A		● iSW 40 to 125 A	●

C60, C120, DPN, DPN Vigi, C60H-DC, SW60-DC, C60NA-DC, C60PV-DC, ID, iSW devices accessories

	Connection					
Accessories	**Multi-cable terminal**		**50 mm² Al terminal**	**Screw-on connection for ring terminal**	**Connection kit for ring terminals**	**Terminal for rear connector**
	DB118780		DB118782	DB123897	08967N-23	DB118784
Function						
	For 3 copper cables: • Rigid up to 16 mm² • Flexible up to 10 mm²		For 16 to 50 mm² aluminium cables	For lug tipped cables, front or rear mounting	For terminal up to 63 A, front or rear access (screw Ø 5 mm) • It incorporates a "conductive" part and an "insulating" part which ensures the phase-to-phase clearance	For cable up to 50 mm² or by terminal • Supplied with a 1P terminal shield
	DB118787		DB122935 Al	DB118788 Ø 5 mm		
Cat. numbers	19091	19096	27060	27053	17400	18528
Set of	4	3	1	8	2	2
Suitable for the following devices:						
C60 ≤ 25 A	–	–	–	●	●	–
C60 > 25 A	●	●	●	●	●	–
C120, C120NA-DC	●	●	●	●	–	●
Vigi C120	●	●	●	–	–	–
DPN, DPN Vigi	–	–	–	●	–	–
C60H-DC, ID iSW 40 to 125 A	●	●	●	●	●	–
SW60-DC, C60NA-DC	●	●	●	●	–	–
C60PV-DC	–	–	–	●	–	–
Tightening torque	2 N.m		10 N.m	2 N.m	–	–
Stripping length	11 mm		13 mm	–	–	–
Tools to be used	Diameter 5 mm or PZ2		Hc 1/5" or 5 mm	Diameter 5 mm	Diameter 5 mm	13 mm spanner

	Identification			
Accessories	**Clip-on terminal marker strip**			
	03120AD_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:				
C60, ID	• 4 markers max. per pole			
C120, C120NA-DC	• 4 markers max. per pole			
Vigi C120	• 4 markers max. per device			
DPN, DPN Vigi	• 4 markers max. per pole			
C60H-DC, SW60-DC, C60NA-DC, C60PV-DC	• 4 markers max. per pole			

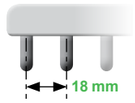
Vertical comb busbars

	Comb busbars				
Accessories	**Vertical comb busbars**				
	PB106071-40 	PB106073-40 	DB124263-40 	PB106072-40 	PB106074-40 
Function					
	Comb busbars make it easier to implement Schneider Electric products. • They provide a 2P supply to the main incomers from one row to the next: - centreline between rows: 125 mm or 150 mm, depending on the model - distances between terminals: 9 mm or 18 mm, depending on the model				
Use					
	• Direct power supply to circuit breaker or residual current circuit breaker terminals				
Catalogue numbers	14900	14901	14909	14910	14911
Distance between upstream terminals	9 mm		18 mm	18 mm	
Distance between downstream terminals	9 mm		9 mm	18 mm	
Centreline between rows	125 mm	150 mm	125 mm	125 mm	150 mm

Technical specifications					
Rated voltage (Ue)	415 V				
Insulation voltage (Ui)	500 V				
Permissible current at 40°C	80 A				
Short-circuit current withstand	Compatible with the breaking capacity of Schneider Electric modular circuit breakers				
Fire resistance to IEC 695-2-1	Self-extinguishing: 850°C 30 s				
Standards	IEC 60664-1				
Colour	RAL 7035 (light grey)	RAL 7016 (anthracite grey)	RAL 7035 (light grey)	RAL 7035 (light grey)	RAL 7016 (anthracite grey)

Acti 9: iC60 horizontal comb busbars

18 mm modules



IEC 60947-7-1, IEC 61439-2

Acti 9 iC60, iK60	**18 mm poles, cuttable**				
Number of poles	1P	2P	3P	4P	3 (N+P)
	 L1	 L1 L2	 L1 L2 L3	 N L1 L2 L3	 N L1 NL2 NL3
Type	L1, …	L1L2, …	L1L2L3, ...	NL1L2L3, …	NL1NL2NL3, …
Set of	1	1	1	1	1
Catalogue numbers					
6 modules of 18 mm	A9XPH106	A9XPH206	A9XPH306	-	-
8 modules of 18 mm	-	A9XPH208	-	A9XPH408	-
9 modules of 18 mm	-	-	A9XPH309	-	-
10 modules of 18 mm	-	A9XPH210	-	-	-
12 modules of 18 mm	A9XPH112	A9XPH212	A9XPH312	A9XPH412	A9XPH512
16 modules of 18 mm	-	-	A9XPH316	A9XPH416	-
18 modules of 18 mm	-	A9XPH218	A9XPH318	-	A9XPH518
20 modules of 18 mm	-	-	A9XPH320	-	-
24 modules of 18 mm	A9XPH124	A9XPH224	A9XPH324	A9XPH424	A9XPH524
57 modules of 18 mm	A9XPH157	A9XPH257	A9XPH357	A9XPH457	A9XPH557

Technical data		
Operating current at 40°C	(Ie)	100 A
Short circuit current	(Isc)	Compatible with the breaking capacity of Schneider Electric circuit breakers
Rated insulation voltage	(Ui)	500 V AC
Operating voltage	(Ue)	415 V AC
Pollution degree		3
Fire resistance IEC 695-2-1		Self-extinguishing at 960°C 30 secondes
Color		RAL 9003

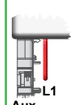
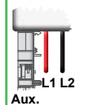
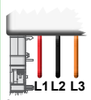
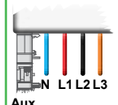
End-pieces
• essential to ensure the correctly comb busbars insulation

Connectors
• facilitate comb busbar power supply

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

Acti 9: iC60 horizontal comb busbars

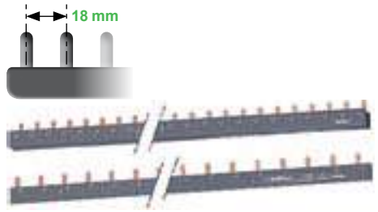
18 mm modules

Acti 9 iC60, iK60	Cuttable comb busbars, 18 mm modules, with 9 mm auxiliary					
Number of poles	Aux+1P	Aux+2P	Aux+3P	Aux+4P	3 (Aux+1P)	3 (Aux+N+1P)
						
Type	AuxL1, ...	AuxL1L2, ...	AuxL1L2L3, ...	AuxNL1L2L3, ...	AuxL1AuxL2AuxL3, ...	AuxNL1AuxNL2AuxNL3, ...
Set of	1	1	1	1	1	1
Catalogue numbers						
6 modules of 18 mm	-	-	-	-	-	-
8 modules of 18 mm	-	-	-	-	-	-
9 modules of 18 mm	-	-	-	-	-	-
10 modules of 18 mm	-	-	-	-	-	-
12 modules of 18 mm	-	-	-	-	-	-
16 modules of 18 mm	-	-	-	-	-	-
18 modules of 18 mm	-	-	-	-	-	-
20 modules of 18 mm	-	-	-	-	-	-
24 modules of 18 mm	-	-	-	-	-	-
57 modules of 18 mm	A9XAH157	A9XAH257	A9XAH357	A9XAH457	A9XAH657	A9XAH557

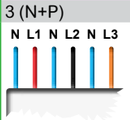
Technical data		
Operating current at 40°C	(Ie)	100 A
Short circuit current	(Isc)	Compatible with the breaking capacity of Schneider Electric circuit breakers
Rated insulation voltage	(Ui)	500 V AC
Operating voltage	(Ue)	415 V AC
Pollution degree		3
Fire resistance IEC 695-2-1		Self-extinguishing at 960°C 30 secondes
Color		RAL 9003

Acti 9: iC60 horizontal comb busbars

18 mm modules



IEC 60947-7-1, IEC 61439-2

Acti 9 iC60	18 mm poles, cuttable				
Number of poles	1P	2P	3P	4P	3 (N+P)
					
Type	L1…	L1L2…	L1L2L3...	NL1L2L3...	NL1NL2NL3...
Set of	1	1	1	1	1
Catalogue numbers					
6 modules of 18 mm	A9XPH106	A9XPH206	A9XPH306	-	-
8 modules of 18 mm	-	A9XPH208	-	A9XPH408	-
9 modules of 18 mm	-	-	A9XPH309	-	-
10 modules of 18 mm	-	A9XPH210	-	-	-
11 modules of 18 mm	-	-	A9XPH311	-	-
12 modules of 18 mm	A9XPH112	A9XPH212	A9XPH312	A9XPH412	A9XPH512
16 modules of 18 mm	-	-	A9XPH316	A9XPH416	-
18 modules of 18 mm	-	A9XPH218	A9XPH318	-	A9XPH518
20 modules of 18 mm	-	-	A9XPH320	-	-
24 modules of 18 mm	A9XPH124	A9XPH224	A9XPH324	A9XPH424	A9XPH524
57 modules of 18 mm	A9XPH157	A9XPH257	A9XPH357	A9XPH457	A9XPH557

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

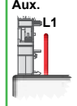
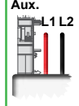
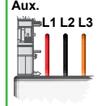
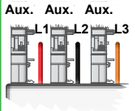
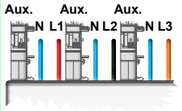
End-pieces
- essential to ensure the correctly comb busbars insulation

Tooth covers
- Insulate teeth that have been left free

Accessories						
Number of poles	1P Aux+1P	2P Aux+2P	3P Aux+3P 3 (Aux+1P)	4P Aux+4P 3 (Aux+N+1P)		
						
	End-pieces				Tooth covers	Connectors Double terminal
	Lateral end-pieces providing IP20 protection				Insulate teeth that have been left free	Comb busbar power supply. Horizontal incomer on each side. For 35 mm² cable. Tightening torque 4 N.m
Set of	10	10	10	10	20	4
Catalogue numbers	A9XPE110	A9XPE210	A9XPE310	A9XPE410	A9XPT920	A9XPCD04

Acti 9: iC60 horizontal comb busbars

18 mm modules

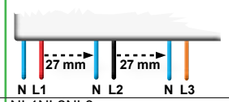
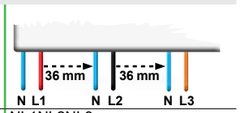
Acti 9 iC60	Cuttable comb busbars, 18 mm modules, with 9 mm auxiliary					
Number of poles	Aux+1P	Aux+2P	Aux+3P	Aux+4P	3 (Aux+1P)	3 (Aux+N+1P)
						
Type	AuxL1...	AuxL1L2...	AuxL1L2L3...	AuxNL1L2L3...	AuxL1AuxL2AuxL3...	AuxNL1AuxNL2AuxNL3...
Set of	1	1	1	1	1	1
Catalogue numbers						
6 modules of 18 mm	-	-	-	-	-	-
8 modules of 18 mm	-	-	-	-	-	-
9 modules of 18 mm	-	-	-	-	-	-
10 modules of 18 mm	-	-	-	-	-	-
11 modules of 18 mm	-	-	-	-	-	-
12 modules of 18 mm	-	-	-	-	-	-
16 modules of 18 mm	-	-	-	-	-	-
18 modules of 18 mm	-	-	-	-	-	-
20 modules of 18 mm	-	-	-	-	-	-
24 modules of 18 mm	-	-	-	-	-	-
57 modules of 18 mm	A9XAH157	A9XAH257	A9XAH357	A9XAH457	A9XAH657	A9XAH557

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

Acti 9: iC60 + Vigi iC60 horizontal comb busbars

18 mm modules

IEC 60947-7-1, IEC 61439-2

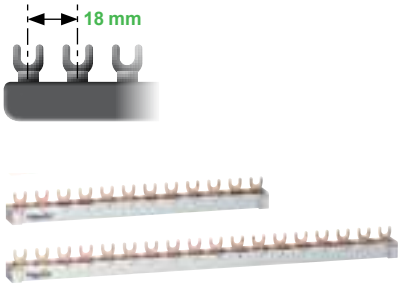
Acti 9 Vigi iC60 1P+N	18 mm poles, cuttable	
Number of poles	3 (N+P)	
		
Type	NL1NL2NL3, ...	NL1NL2NL3, ...
Set of	1	1
Rating of Vigi	25 A	40 A - 63 A
Catalogue numbers		
21 modules of 18 mm	A9XPF521	-
24 modules of 18 mm	-	A9XPF524

Technical data		
Operating current at 40°C	(Ie)	100 A
Short circuit current	(Isc)	Compatible with the breaking capacity of Schneider Electric circuit breakers
Rated insulation voltage	(Ui)	500 V AC
Operating voltage	(Ue)	415 V AC
Pollution degree		3
Fire resistance IEC 695-2-1		Self-extinguishing at 960°C 30 secondes
Color		RAL9003

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

K60 Biconnect horizontal comb busbars

18 mm modules



IEC 60664-1

Acti 9 K60 biconnect	18 mm poles, cuttable											
Number of poles	1P			2P			3P			4P		
												
Type	L1			L1L2			L1L2L3			NL1L2L3		
Number of 18 mm modules	12	18	57	12	18	57	12	18	57	12	18	57
Set of	1	1	1	1	1	1	1	1	1	1	1	1
Catalogue numbers	R9XFH112	R9XFH118	R9XFH157	R9XFH212	R9XFH218	R9XFH257	R9XFH312	R9XFH318	R9XFH357	R9XFH412	R9XFH418	R9XFH457

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

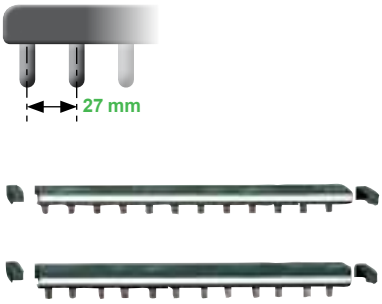
Tooth covers
- Insulate teeth that have been left free

End-pieces
- essential to ensure the correctly comb busbars insulation

Accessories						
Number of poles	1P	2P	3P	4P		
						
	End-pieces				Tooth covers	Connectors
Set of	10				20	4
Catalogue numbers	R9XE110	R9XE210	R9XE310	R9XE410	R9XT20	R9XFC04

C120 horizontal comb busbars

27 mm modules



IEC 60664-1

C120	27 mm poles, cuttable			
Number of poles	1P	2P	3P	4P
				
Number of 27 mm modules	16	16	15	16
Set of	1			
Catalogue numbers	14811	14812	14813	14814

Technical data		
Operating current at 40°C	(Ie)	125 A
Short circuit current	(Isc)	Compatible with the breaking capacity of Schneider Electric circuit breakers
Rated insulation voltage	(Ui)	620 V AC
Operating voltage	(Ue)	500 V AC
Pollution degree		3
Fire resistance IEC 695-2-1		Self-extinguishing at 960°C 30 secondes
Color		RAL 7016 (anthracite grey)

Power supply
- directly in the circuit breaker terminals

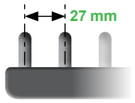
Tooth covers
- Insulate teeth that have been left free

End-pieces
- essential to ensure the correctly comb busbars insulation

Accessories	
Number of poles	1P, 2P, 3P, 4P
	
	Tooth covers Insulate teeth that have been left free
Set of	20
Catalogue numbers	14818

C120 horizontal comb busbars

27 mm modules



IEC 60664-1

C120	27 mm poles, cuttable			
Number of poles	1P	2P	3P	4P
	L1	L1 L2	L1 L2 L3	N L1 L2 L3
Number of 27 mm modules	16	16	15	16
Set of	1			
Catalogue numbers	14811	14812	14813	14814

Technical data		
Operating current at 40°C	(Ie)	125 A
Short circuit current	(Isc)	Compatible with the breaking capacity of Schneider Electric circuit breakers
Rated insulation voltage	(Ui)	620 V AC
Operating voltage	(Ue)	500 V AC
Degree of protection		3
Fire resistance IEC 695-2-1		Self-extinguishing at 960°C 30 secondes
Color		RAL 7016 (anthracite grey)

End-pieces
- essential to ensure the correctly comb busbars insulation

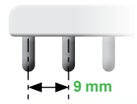
Tooth covers
- Insulate teeth that have been left free

Power supply
- directly in the circuit breaker terminals

Accessories	
Number of poles	1P, 2P, 3P, 4P
	
	Tooth covers Insulate teeth that have been left free
Set of	20
Catalogue numbers	14818

Acti 9: iDPN, iDPN Vigi horizontal comb busbars

9 mm modules



IEC 60439-1

Acti 9 iDPN, iDPN Vigi	9 mm poles, cuttable							
Number of poles	1P + N				3P + N			
								
	N L				N L1 N L2 N L3			
Number of 18 mm modules	12	18	24	48	12	18	24	48
Supplied accessories Tooth covers (for 3 modules of 18 mm)	1	1	2	-	1	1	2	-
End-pieces	4	4	4	-	4	4	4	-
Catalogue numbers	21501	19512	21503	21089	21505	19516	21507	21093

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

Connectors
- facilitate comb busbar power supply

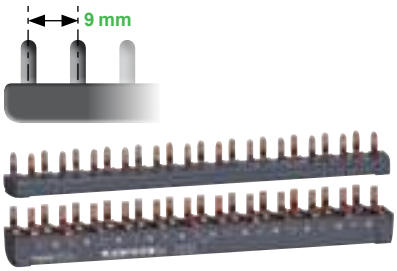
End-pieces
- essential to ensure the correctly comb busbars insulation

Tooth covers
- Insulate teeth that have been left free

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

Acti 9 : iDPN, iDPN Vigi horizontal comb busbars

9 mm modules



IEC 60947-7-1, IEC 61439-1

Acti 9 iDPN, iDPN Vigi	9 mm poles						
Number of poles	1P+N		3P+N				
							
Type	N, L1...		N, L1, N, L2, N, L3...				
Set of	1		1	1	1	1	1
Number of 18 mm modules	12	24	8	12	16	20	24
Catalogue numbers	A9XPH612	A9XPH624	A9XPH708	A9XPH712	A9XPH716	A9XPH720	A9XPH724

Technical data			
Operating current at 40°C	(Ie)	80 A	
Short circuit current	(Isc)	Compatible with the breaking capacity of Schneider Electric circuit breakers	
Rated insulation voltage	(Ui)	500 V AC	
Operating voltage	(Ue)	230 V AC	230 V AC (Ph/N) / 400 V AC (Ph/Ph)
Degree of protection IEC 60529		IP20	
Pollution degree		3	
Fire resistance IEC 695-2-1		Self-extinguishing at 960°C 30 secondes	
Color		RAL 7016 (anthracite grey)	

End-pieces
- essential to ensure the correctly comb busbars insulation

Connectors
- facilitate comb busbar power supply

Tooth covers
- Insulate teeth that have been left free

Accessories					
Number of poles	1P+N	3P+N	For 1P+N comb busbars	For 3P+N comb busbars	
					
	End-pieces		Connectors		Tooth covers
	Lateral end-pieces providing IP20 protection		Comb busbar power supply. Horizontal incomer on each side. For 35 mm² cable. Tightening torque 4 N.m		Insulate teeth that have been left free
Color	RAL 7016 (anthracite grey)		RAL 7016 (anthracite grey)		Yellow
Set of	10		4		20
Catalogue numbers	A9XPE210	A9XPE410	A9XPC604	A9XPCM04	A9XPT620

Acti 9 Smartlink

PB107797-47

DB404502

ComReady

IEC/EN 61131-2

Acti 9 Smartlink Modbus Slave and Acti 9 Smartlink Ethernet are used to transfer data from Acti 9 devices to a PLC or monitoring system via the communication system:

- Modbus serial line for Acti 9 Smartlink Modbus Slave
- Modbus Ethernet TCP/IP or http for Acti 9 Smartlink Ethernet.

Functions

Data transmission between the network and Acti 9 devices

- Circuit breakers, residual current circuit breakers, residual current devices:
  - open/closed state
  - tripped state
  - number of opening/closing cycles
  - number of tripping actions.
- Contactors, impulse relays:
  - opening control
  - closing control
  - open/closed state
  - number of opening/closing cycles
  - total period of operation of the load (device closed).
- Remote controlled circuit breaker/Reflex iC60:
  - opening control
  - closing control
  - open/closed state
  - tripped state
  - number of opening/closing cycles
  - total period of operation of the load.
- Power meters:
  - number of pulses recorded
  - pulse value setting (e.g. kWh)
  - total consumption recorded
  - estimate of power consumption.
- Analog sensors only for Acti 9 Smartlink Ethernet:
  - temperature sensor
  - humidity sensor,
  - CO_2 detector,
  - optical detector
  - ...

All the data are stored in memory: number of cycles, consumption, period of operation, even in the event of a power failure.

Acti 9 Smartlink can also exchange data with any device having 24 V DC digital inputs/outputs.
No configuration of the connected products is required.

When Acti 9 Smartlink is switched on, communication automatically adjusts to the Modbus Master or Ethernet (PLC, control station) communication parameters.

DB405140

Acti 9 Smart Test software

- Electrical continuity test
- Functional testing of the devices
- Report printing
- Printing of a simplified diagram
- Project archiving
- Compatible with Windows XP, Windows 7, Windows 8
- To be download on: Schneider Electric web sites:
  - schneider-electric.com or
  - schneider-electric country web site

Installation

- Mounting in switchboards:
  - width 24 modules per row
  - minimum spacing between rails 150 mm.
- Mounting on
  - DIN rail, with mounting kit **A9XMFA04**
  - Linergy FM 80 A, with locking clips supplied
  - Linergy FM 200 A, wtih mounting kit **A9XM2B04**.

DB406513

Test

- The communication and cabling test for the connected devices can be performed using Acti 9 Smart Test software

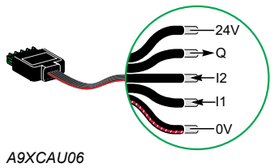
PB107753-68

Acti 9 Smartlink Modbus Slave

PB113286-68

Acti 9 Smartlink Ethernet

DB404941



A9XCAU06

PB107804-43

Catalogue numbers

Acti 9 Smartlink			
Type		Set of	
Acti 9 Smartlink Modbus Slave		1	A9XMSB11
Supplied with	Modbus connector	1	
	24 V DC power supply connector	1	
	Locking clips for mounting on Linergy FM 80	2	
Acti 9 Smartlink Ethernet		1	A9XMEA08
Supplied with	Connector for 4-point analog output	1	
	Modbus connector	1	
	24 V DC power supply connector	1	
	Locking clips for mounting on Linergy FM 80	2	
Accessories			
USB cable link / Modbus for Acti 9 Smartlink test		1	A9XCATM1
Prefabricated cables			
With 2 connectors	100 mm	6	A9XCAS06
	160 mm	6	A9XCAM06
	450 mm	6	A9XCAH06
	870 mm	6	A9XCAL06
With 1 connector	870 mm	6	A9XCAU06
	4000 mm	1	A9XCAC01
Connectors	5-pin connectors (Ti24)	12	A9XC2412
Mounting kit	DIN rail (4 feet, 4 straps, 4 adapters)	1	A9XMFA04
	Linergy FM 200 A (4 adapters)	1	A9XM2B04
	Back panel (2 angle brackets)	1	A9XMBP02
Spare parts	Lock for Linergy FM 80 A (2 clips)	1	A9XMLA02

PB107754-12

PB107755-5

PB107756-7

Connectable devices

With Ti24 interface		
Type	Reference	Description
iACT24	A9C15924	Low-level control and indication auxiliary for iCT contactors
iATL24	A9C15424	Low-level control and indication auxiliary for iTL impulse relays
iOF+SD24	A9A26897	Low-level indication auxiliary for iC60, iID, ARA, RCA, iSW-NA
OF+SD24	A9N26899	Low-level indication auxiliary for C60, C120, DPN, RCCB/ID, C60H-DC
RCA	See module CA904011	Remote control with Ti24 interface
Reflex iC60	See module CA904012	Reflex iC60 with Ti24 interface

Without Ti24 interface
Power meters with pulse output, e.g. IEM2000T
Impulse meters complying with the IEC 62053-21 standard
24 V DC indicator lamps, Harmony XVL range
All loads not exceeding 100 mA, 24 V DC
Light sensitive switches: example IC2000
Timers, thermostats, time switches, load shedding devices
All 24 V DC auxiliary contacts, IEC 61131-2 type 1

With analog outputs
Temperature and humidity sensors, with a 0-10 V or 4-20 mA output
CO_2 and optical detectors, with a 0-10 V or 4-20 mA output

Example of an installation

DB406505

Ethernet link
- 10/100 MB Ethernet, Modbus TCP server

1 analog input channel
- Example: temperature sensor connection

Prefabricated cables
- Simplified cabling
- Fast and safe

DB406507

Modbus Communication
- Up to 8 Acti 9 Smartlink Modbus Slave or others slaves Modbus connected

Connection to the Ethernet network

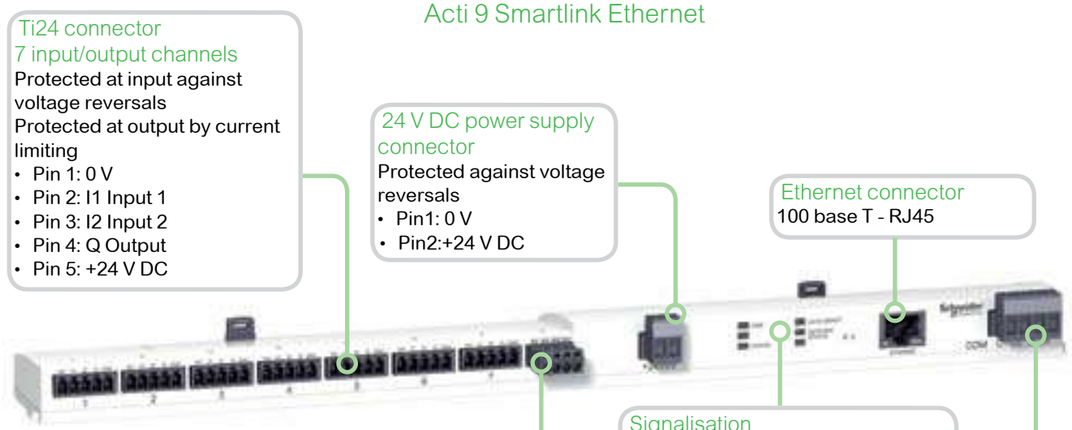
Acti 9 Smartlink Ethernet has an embedded web server that can be used to configure the connection to the Ethernet network

DB406473

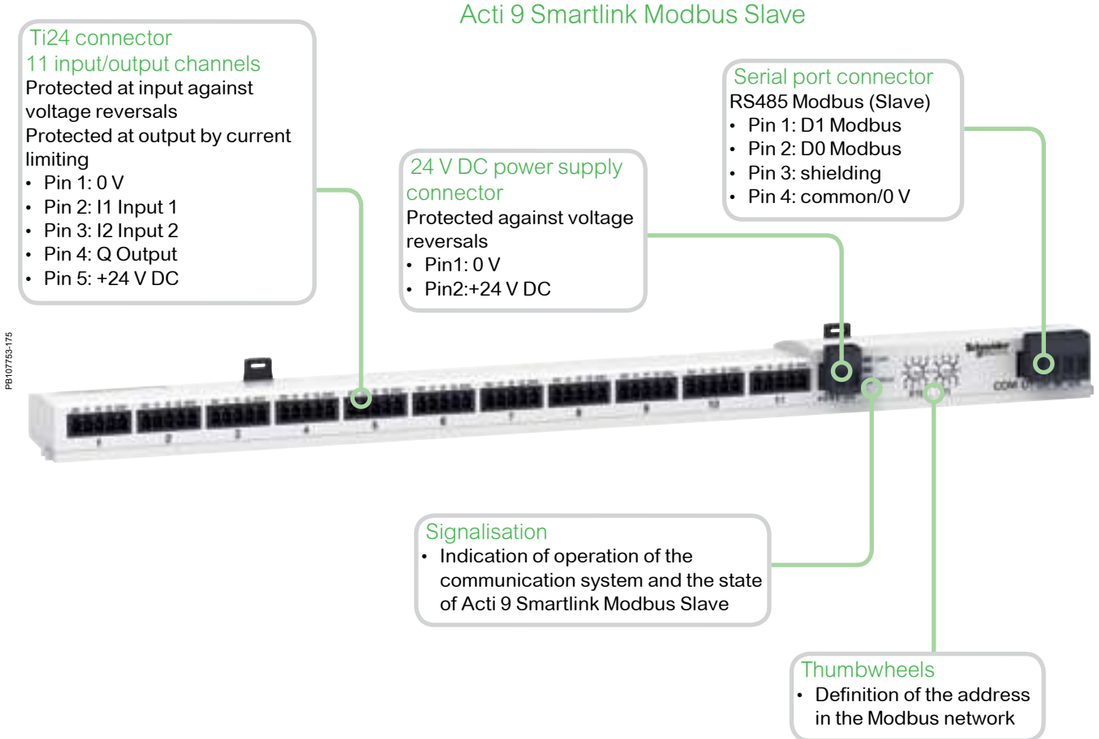
Web page

- Web Page available, to configure Acti 9 Smartlink Ethernet communication Ethernet parameter, to visualize or control data

Acti 9 Smartlink Ethernet



Acti 9 Smartlink Modbus Slave



Common technical characteristics

Power supply		
Rated		24 V DC ± 20 %
Maximum input current		1.5 A
Maximum inrush current		3 A
Meter		
Capacity		2^{32} pulses per input
Input characteristics		
Number of channels	Acti 9 Smartlink Modbus Slave	11 of 2-input channels
	Acti 9 Smartlink Ethernet	7 of 2-input channels
Type of input		Current collector Type 1 IEC 61131-2
Maximum cable length		500 m
Rated voltage		24 V DC
Voltage limits		24 V DC ± 20 %
Rated current		2.5 mA
Maximum current		5 mA
Filtering time	In state 1	2 ms
	In state 0	2 ms
Isolation		No isolation between channels
Negative sequence voltage protection		Yes
Output characteristics		
Number of output channels	Acti 9 Smartlink Modbus Slave	11
	Acti 9 Smartlink Ethernet	7
Type of output		24 V DC 0.1 A current source
Maximum cable length		500 m
Rated voltage	Voltage	24 V DC
	Maximum current	100 mA
Filtering time	In state 1	2 ms
	In state 0	2 ms
Voltage drop (voltage in state 1)		1 V max
Maximum inrush current		500 mA
Leakage current		0.1 mA
Overvoltage protection		33 V DC
Environmental characteristics		
Temperature	Operating	-25°C ... +60°C (if vertical mounting, limited to 50°C)
	Storage	-40°C…+80°C
Tropicalization		Treatment 2 (relative humidity of 93% at 40°C)
Resistance to voltage dips		10 ms, class 3 as per IEC 61000-4-29
Degree of protection		IP20
Pollution degree		3
Altitude	Operating	0 … 2000 m
Vibration resistance	As per IEC 60068.2.6	1 g / ± 3.5 mm - 5 Hz to 300 Hz - 10 cycles
Shock resistance	As per IEC 60068.2.2 7	15 g / 11 ms
Immunity to electrostatic discharge	As per IEC 61000-4-2	Air: 8 kV Contact: 4 kV
Immunity to radiated magnetic fields	As per IEC 61000-4-3	10 V/m - 80 MHz to 3 GHz
Immunity to fast transients	As per IEC 61000-4-4	1 kV for inputs/outputs and Modbus communication. 2 kV for 24 DC power supply - 5 kHz - 100 kHz
Immunity to conducted magnetic fields	As per IEC 61000-4-6	10 V from 150 kHz to 80 MHz
Immunity to magnetic fields at mains frequency	As per IEC 61000-4-8	30 A/m
Resistance to corrosive atmospheres	As per IEC 60721-3-3	Level 3C2 on H_2S / SO_2 / NO_2 / Cl_2
Fire resistance	For live parts	At 960°C 30 s / 30 s as per IEC 60 695-2-10 and IEC 60 695-2-11
	For other parts	At 650°C 30 s / 30 s as per IEC 60 695-2-10 and IEC 60 695-2-11
Salt spray test	As per IEC 60068.2.52	Severity 2
Environment		In compliance with the RoHS directive
Additional characteristics		
Duration of saving memory		10 years
Prefabricated cables characteristics		
Dielectric resistance		1 kV / 5 min
Minimum draw-out resistance		20 N

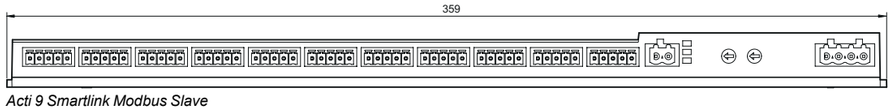
Acti 9 Smartlink Modbus Slave technical characteristics

Characteristics of the Modbus link		
Link		Modbus, RTU, RS485 serial connection
Transmission	Transfer rate	9600 baud ... 19200 baud, self-adaptable
	Medium	Shielded cable, double twisted pair
Protocol		Master/Slave
Type of device		Slave
Modbus addressing range		1 to 99
Maximum length of the bus		1000 m
Type of bus connector		4-pin connector

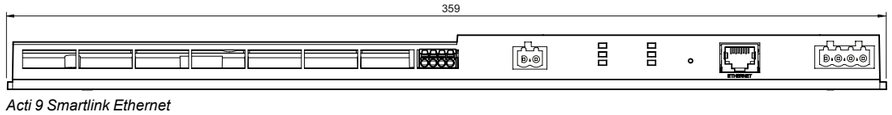
Acti 9 Smartlink Ethernet technical characteristics

Characteristics of the Ethernet link	
Link	10/100 MB Ethernet
Protocol	Modbus TCP server
	http (Web pages)
Address mode	Static and dynamic (supplied, by default, in dynamic mode)
Characteristics of Gateway	
Protocol	Modbus TCP/IP -> Modbus SL
Modbus slave number	8
Modbus addressing range	1 to 247
Characteristics of the Modbus Master link	
Link	Modbus serial connection, RTU, RS485
Transmission	Transfer rate: 9600 baud ... 19200 baud, self-adaptable
	Support: Shielded cable, double twisted pair
Maximum length of the bus	1000 m
Type of bus connector	4-pin connector
Characteristics of the analog inputs	
Number	2
Type	Separate configuration for each input, either 0-10 V or 4-20 mA
Measuring accuracy	1/100 full scale
Resolution	12 bits
Acquisition time	500 ms
Isolation	No isolation between channels
Power supply	0-24 V DC
Type of cable	Shielded cable, double twisted pair
Maximum cable length	30 m
Protection	Short-circuit protection

Dimensions (mm)



Acti 9 Smartlink Modbus Slave

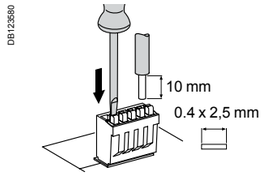


Acti 9 Smartlink Ethernet

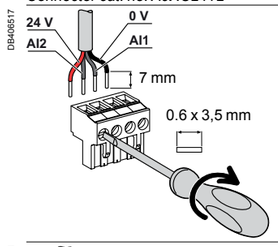
Weight (g)

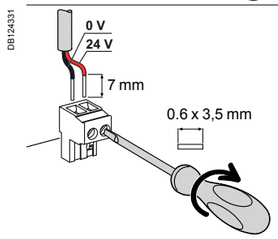
Acti 9 Smartlink	
Type	
Acti 9 Smartlink Modbus Slave	195
Acti 9 Smartlink Ethernet	180

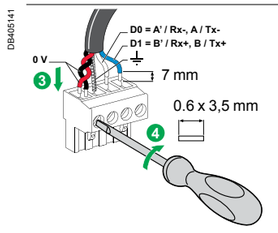
Connection

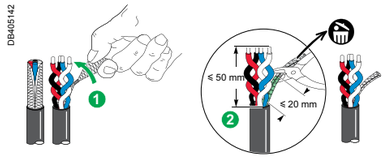


Connector cat. no: A9XC2412









Terminal	Tightening torque	Copper cables		
		Rigid	Flexible	Flexible with ferrule
		DB122945	DB123553	DB123554
Ti24 interface	Spring loaded terminal	0.5 to 1.5 mm²	0.5 to 1.5 mm²	-
Analog connector	0.8 N.m	0.1 to 1.5 mm²	0.1 to 1.5 mm²	0.1 to 1.5 mm²
Power supply connector	0.8 N.m	0.2 to 1.5 mm²	0.2 to 1.5 mm²	0.2 to 1.5 mm²
Modbus connector	0.8 N.m	0.25 mm²	0.25 mm²	0.25 mm²

CE

Country approval pictograms

PB107797-47

DB404502

ComReady

IEC/EN 61131-2

The Acti 9 Smartlink is an open system that remotely measures, balances, monitors and controls final distribution. It consists of:
- a Modbus Slave version (Acti 9 Smartlink Modbus Slave)
- a Modbus Master version (Acti 9 Smartlink SI B Ethernet) with the following functions: radio hub, Modbus gateway and embedded web server: this provides web pages for configuring the system, and real-time monitoring of values (status of circuit breakers, energy meters, alarms and monitoring and control).
- These modules transmit data to a PLC or monitoring system.

The system supports
- Alarm monitoring on current, voltage, power factor, tripping, power, consumption thresholds and their transmission by email.
- Integration with facility Hero.com, which allows all the alarms from the facility to be received in a single notification centre on a smartphone application, as well as web facility maintenance management (CAMM).
- Monitoring and control via web pages of loads, energy and power by zone and by consumption.
- Single access point for a full analysis of the status of switchboard power distribution (measurements, protection status, temperature, consumption, alarms, control and monitoring).
- Real-time transmission via the Modbus protocol (Ethernet or RS485) of all the information and commands.

Functions

Transmission of data collected by Acti 9 switchgear assemblies
- Circuit breakers, residual current circuit breakers and residual current devices:
  - open/closed state, tripped state,
  - number of opening/closing cycles,
  - number of tripping actions.
- Contactors, impulse relays, Reflex iC60:
  - opening and closing control,
  - open/closed state,
  - number of opening/closing cycles,
  - total period of operation of the load (device closed).
- Remote controlled circuit breaker/Reflex iC60:
  - opening control ,
  - closing control ,
  - contactor open/closed state,
  - circuit breaker open/closed state,
  - number of opening/closing cycles,
  - total period of operation of the load.
- Pulse meters (energy, water, gas, etc.):
  - number of pulses recorded,
  - pulse value setting (default: 10 Wh),
  - total consumption recorded,
  - possibility of resetting energy meters.
- Digital inputs/outputs.

DB405571

Functions (cont.)

Transmission of additional data collected by Acti 9 Smartlink SI B Ethernet
- Modbus slave power meters: Acti 9 Smartlink SI B Ethernet acts as a Modbus gateway.
- Analog sensors:
  - CO_2 sensor,
  - light sensor,
  - humidity sensor,
  - temperature sensor,
  - any 0..10 V or 4..20 mA compatible sensor.
- PowerTag wireless power meters:
  - total and partial energy,
  - active power, phase-to-phase voltage, phase-to-neutral,
  - currents I1, I2, I3,
  - power factor,
  - voltage loss and overload information.

All the data are stored in memory: number of cycles, consumption, period of operation, even in the event of a power failure.

Acti 9 Smartlink can also exchange data with any device having 24 VDC digital inputs/outputs (e.g. low-level contacts 29452 for position of the Compact NSX).
No configuration of the products connected to the Ti24 channels is required.

At power up, Acti 9 Smartlink Modbus Slave adapts automatically to the communication parameters of the Modbus master (PLC, supervisor, etc.).

Installation

- Assembly in switchboards:
  - width 24 modules per row,
  - minimum spacing between rails 150 mm.
- Mounting on:
  - DIN rail with mounting kit **A9XMFA04**,
  - Linergy FM 80 A, with bolts provided,
  - Linergy FM 200 A, with mounting kit **A9XM2B04**,
  - back of enclosure with mounting kit **A9XMBP02**.

DB405140

Test software: Acti 9 Smart Test
- Electrical continuity test (cabling of connected devices)
- Communication Testing of wired, wireless devices, analog and Modbus devices..
- Editing of a complete test report (Excel, pdf) with the Modbus communication registers for easy integration into a supervision system
- Windows XP, Windows 7, Windows 8 and Windows 10 compatible
- Downloadable from: schneider-electric.com

Test

- The communication and cabling test on the connected devices can be performed using the Acti 9 Smart Test software.

Acti 9 Smartlink

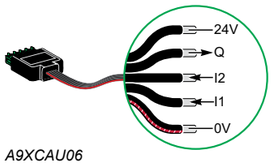
PB113286-68

Acti 9 Smartlink SI B Ethernet

PB107753-68

Acti 9 Smartlink Modbus Slave

DB404941



A9XCAU06

Catalogue numbers

Acti 9 Smartlink			
Type		Set of	
Acti 9 Smartlink SI B Ethernet		1	A9XMZA08
Supplied with	4-pin connector for analog inputs	1	
	Modbus connector	1	
	24 V DC power supply connector	1	
	Bolts for mounting on Linergy FM 80	2	
Acti 9 Smartlink Modbus Slave		1	A9XMSB11
Supplied with	Modbus connector	1	
	24 V DC power supply connector	1	
	Bolts for mounting on Linergy FM 80	2	
Accessories			
USB/Modbus connecting cables for Acti 9 Smartlink test		1	A9XCATM1
Prefabricated cables			
With 2 connectors	100 mm	6	A9XCAS06
	160 mm	6	A9XCAM06
	450 mm	6	A9XCAH06
	870 mm	6	A9XCAL06
With 1 connector	870 mm	6	A9XCAU06
	4000 mm	1	A9XCAC01
Connectors	5-pin connectors (Ti24)	12	A9XC2412
Mounting kit	DIN rail (4 feet, 4 earthing straps, 4 adapters)	1	A9XMFA04
	Linergy FM 200 A (4 adapters)	1	A9XM2B04
	Back of enclosure (2 brackets)	1	A9XMBP02
Spare parts	Bolts for Linergy FM 80 A (2 bolts)	1	A9XMLA02

PB107754-12

PB107755-5

PB107756-7

Connectable devices

With Ti24 interface		
Type	Reference	Description
iACT24	A9C15924	Low-level control and indication auxiliary for iCT contactors
iATL24	A9C15424	Low-level control and indication auxiliary for iTL impulse relays
iOF+SD24	A9A26897	Low-level indication auxiliary for iC60, iID, ARA, RCA, iSW-NA
OF+SD24	A9N26899	Low-level indication auxiliary for C60, C120, DPN, RCCB/ID, C60H-DC
RCA iC60	See module CA904011	Remote control with Ti24 interface
Reflex iC60	See module CA904012	Reflex iC60 with Ti24 interface

Without Ti24 interface

Power meters with pulse output, e.g. iEM2000T

Pulse meters complying with the IEC 62053-21 standard

24 V DC indicator lamps, Harmony range type XVL

All loads not exceeding 100 mA, 24 V DC

Timers, thermostats, time switches, load shedding devices

All 24 V DC auxiliary contacts, IEC 61131-2 type 1

With Modbus connector systems

Power meters: iEM3150, iEM3250, iEM3350, iEM3155, iEM3255, iEM3355, all Modbus slave RS485 equipment

With wireless connector systems

PowerTag wireless energy sensors. See module CA907029

With analog outputs

Any 0...10 V and 4...20 mA compatible sensor (temperature, humidity, luminosity, etc.)

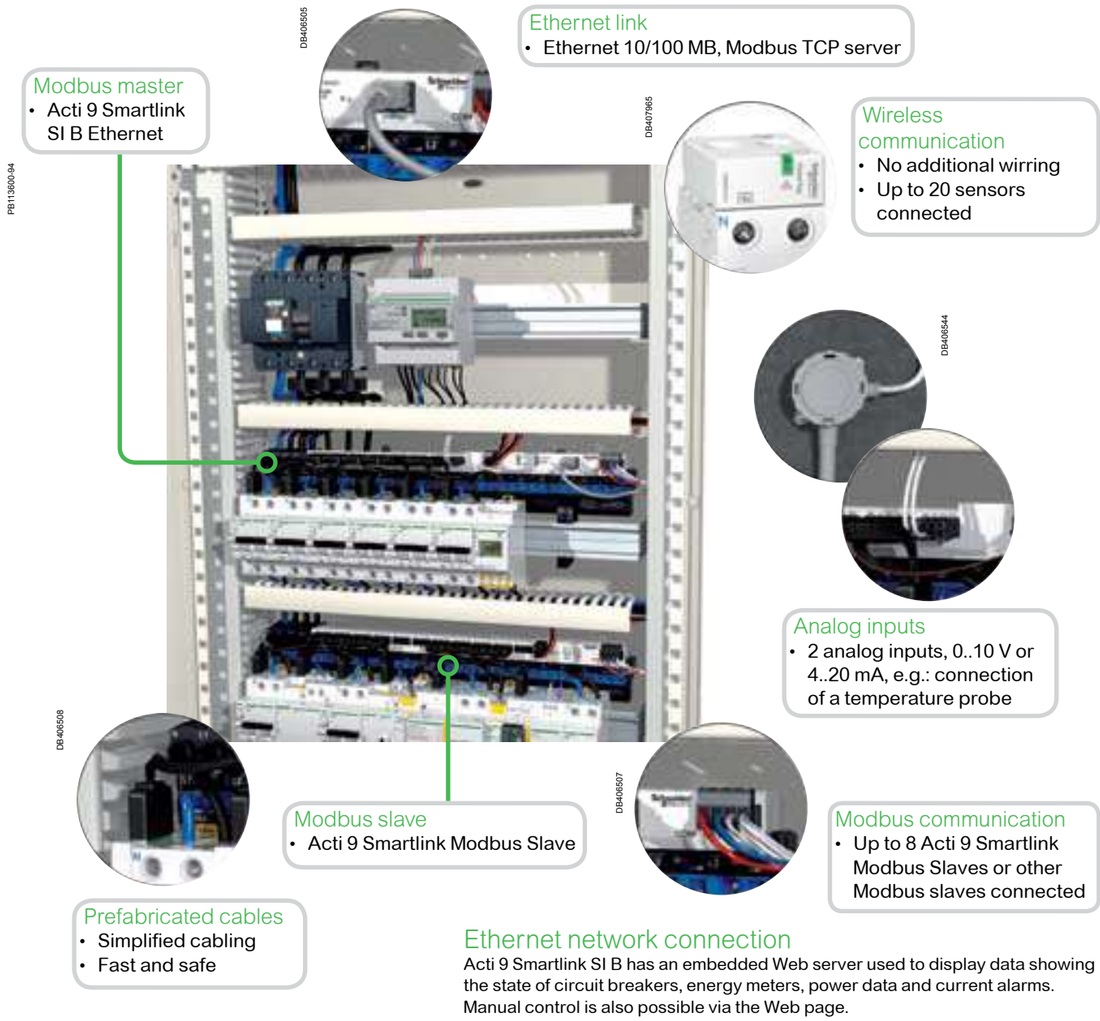
PB107804-43

PB115448-40

Acti 9 Smartlink

Example of an installation

PB113600-94



Modbus master
- Acti 9 Smartlink SI B Ethernet

Ethernet link
- Ethernet 10/100 MB, Modbus TCP server

Wireless communication
- No additional wirring
- Up to 20 sensors connected

Analog inputs
- 2 analog inputs, 0..10 V or 4..20 mA, e.g.: connection of a temperature probe

Modbus slave
- Acti 9 Smartlink Modbus Slave

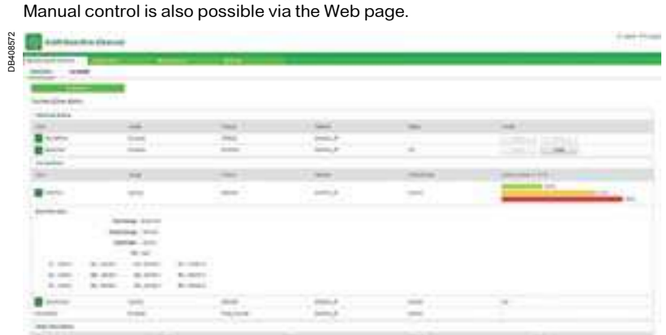
Modbus communication
- Up to 8 Acti 9 Smartlink Modbus Slaves or other Modbus slaves connected

Prefabricated cables
- Simplified cabling
- Fast and safe

Ethernet network connection

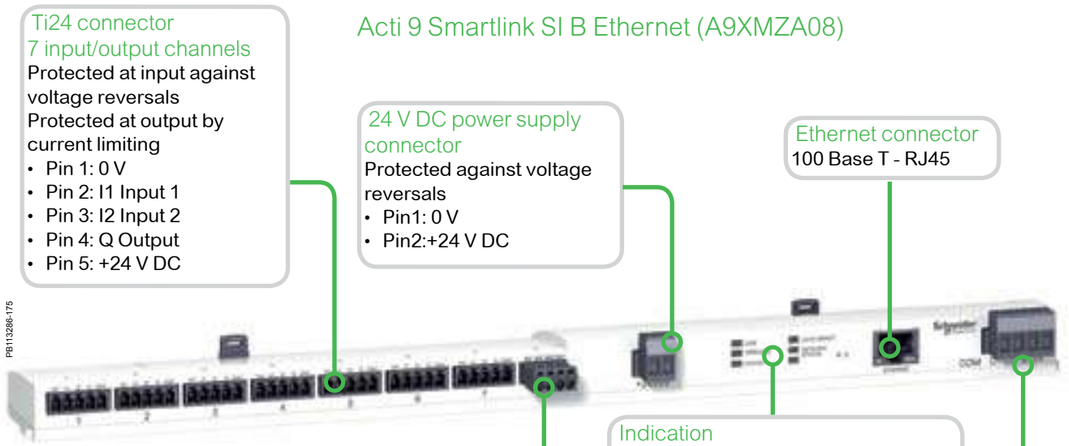
Acti 9 Smartlink SI B has an embedded Web server used to display data showing the state of circuit breakers, energy meters, power data and current alarms. Manual control is also possible via the Web page.

DB408572



- The Web server sets the parameters of the connection to the network servers (SNTP, SMTP), as well as the parameters of user emails and of the connection to the Facility Hero.com service

Acti 9 Smartlink SI B Ethernet (A9XMZA08)



Ti24 connector
7 input/output channels
Protected at input against voltage reversals
Protected at output by current limiting
- Pin 1: 0 V
- Pin 2: I1 Input 1
- Pin 3: I2 Input 2
- Pin 4: Q Output
- Pin 5: +24 V DC

24 V DC power supply connector
Protected against voltage reversals
- Pin1: 0 V
- Pin2:+24 V DC

Ethernet connector
100 Base T - RJ45

Indication
- Indication of operation of the communication system and the state of the Acti 9 Smartlink Ethernet

Analog connector
2 configurable input points, either 0-10 V or 4-20 mA
- Pin 1: 0 V
- Pin 2: AI1 Input 1
- Pin 3: AI2 Input 2
- Pin 4: +24 V DC

20 wireless energy sensors
Radio-frequency communication
- ISM band 2.4 GHz (2.4 GHz to 2.4835 GHz)
- Channels 11 to 16 as per IEEE 802.15.4

Note: Acti9 Smartlink SI B Ethernet and the PowerTags must be installed in the same switchboard

Serial port connector
Modbus (Master) RS485
- Pin 1: D1 Modbus
- Pin 2: D0 Modbus
- Pin 3: shielding
- Pin 4: common/0 V

Acti 9 Smartlink Modbus Slave (A9XMSB11)

Ti24 connector
11 input/output channels
Protected at input against voltage reversals
Protected at output by current limiting
- Pin 1: 0 V
- Pin 2: I1 Input 1
- Pin 3: I2 Input 2
- Pin 4: Q Output
- Pin 5: +24 V DC

24 V DC power supply connector
Protected against voltage reversals
- Pin1: 0 V
- Pin2:+24 V DC

Serial port connector
Modbus (Master) RS485
- Pin 1: D1 Modbus
- Pin 2: D0 Modbus
- Pin 3: shielding
- Pin 4: common/0 V

Indication
- Indication of operation of the communication system and the state of the Acti 9 Smartlink Modbus Slave

Thumbwheels
- Definition of the address in the Modbus network

Common technical characteristics

Power supply		
Nominal		24 V DC ± 20 %
Maximum input current		1.5 A
Maximum inrush current		3 A
Meter		
Capacity		2^{32} pulses per input
Input characteristics		
Number of channels	Acti 9 Smartlink Modbus Slave (A9XMSB11)	11 2-input channels
	Acti 9 Smartlink SI B Ethernet (A9XMZA08)	7 2-input channels
Type of input		Current collector Type 1 IEC 61131-2
Maximum cable length		500 m
Rated voltage		24 V DC
Voltage limits		24 V DC ± 20 %
Rated current		2.5 mA
Maximum current		5 mA
Filtering time	A l'état 1	2 ms
	A l'état 0	2 ms
Isolation		No isolation between channels
Negative sequence voltage protection		Yes
Output characteristics		
Number of output channels	Acti 9 Smartlink Modbus Slave (A9XMSB11)	11
	Acti 9 Smartlink SI B Ethernet (A9XMZA08)	7
Type of output		24 V DC - 0.1 A current source
Maximum cable length		500 m
Rated voltage	Voltage	24 V DC
	Maximum current	100 mA
Filtering time	In state 1	2 ms
	In state 0	2 ms
Voltage drop (voltage in state 1)		1 V max
Maximum inrush current		500 mA
Leakage current		0.1 mA
Overvoltage protection		33 V DC
Environmental characteristics		
Temperature	Operating	-25°C ... +60°C (if vertical mounting, limited to 50°C)
	Storage	-40°C ... +80°C
Tropicalization		Treatment 2 (relative humidity of 93 % at 40°C)
Resistance to voltage dips		10 ms, class 3 as per IEC 61000-4-29
Degree of protection		IP20
Pollution degree		3
Altitude	Operating	0 … 2000 m
Vibration resistance	As per IEC 60068.2.6	1 g / ± 3.5 mm - 5 Hz to 300 Hz - 10 cycles
Shock resistance	As per IEC 60068.2.27	15 g / 11 ms
Immunity to electrostatic discharge	As per IEC 61000-4-2	Air: 8 kV Contact: 4 kV
Immunity to radiated magnetic fields	As per IEC 61000-4-3	10 V/m - 80 MHz to 3 GHz
Immunity to fast transients	As per IEC 61000-4-4	1 kV for inputs/outputs and Modbus communication. 2 kV for 24 V DC power supply - 5 kHz - 100 kHz
Immunity to conducted magnetic fields	As per IEC 61000-4-6	10 V from 150 kHz to 80 MHz
Immunity to magnetic fields at mains frequency	As per IEC 61000-4-8	30 A/m
Resistance to corrosive atmospheres	As per IEC 60721-3-3	Level 3C2 on H_2S / SO_2 / NO_2 / Cl_2
Fire resistance	For live parts	At 960°C 30 s / 30 s as per IEC 60 695-2-10 and IEC 60 695-2-11
	For other parts	At 650°C 30 s / 30 s as per IEC 60 695-2-10 and IEC 60 695-2-11
Salt spray test	As per IEC 60068.2.52	Severity 2
Environment		In compliance with the RoHS directive
Prefabricated cable characteristics		
Dielectric strength		1 kV / 5 min
Minimum draw-out resistance		20 N
Electromagnetic compatibility		
Reference standards	Immunity	EN 55024
	Emissions	EN 55022
	Electromagnetic compatibility and Radio spectrum Matters (ERM)	EN 300328 EN 301489-1 EN 301489-17

Acti 9 Smartlink Modbus Slave (A9XMSB11) technical characteristics

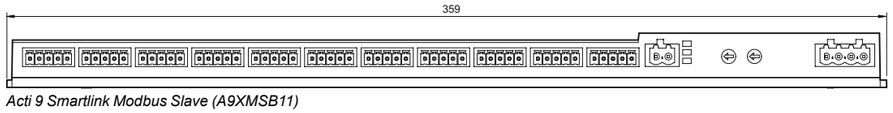
Characteristics of the Modbus link		
Link		Modbus, RTU, RS485 serial connection
Transmission	Transfer rate	9600 baud ... 19200 baud, self-adaptable
	Medium	Shielded cable, double twisted pair
Protocol		Master/Slave
Type of device		Slave
Modbus addressing range		1 to 99
Maximum length of the bus		1000 m
Type of bus connector		4-pin connector

Acti 9 Smartlink SI B Ethernet (A9XMZA08) technical characteristics

Characteristics of the Ethernet link		
Link		Ethernet 10/100 MB
Protocol		Modbus TCP server
		http (web pages)
Addressing mode		Static and dynamic (supplied, by default, in dynamic mode)
Gateway characteristics		
Protocol		Modbus TCP/IP -> Modbus SL
Number of Modbus slaves		8
Modbus addressing range		1 to 247
Characteristics of the Modbus Master link		
Link		Modbus, RTU, RS485 serial connection
Transmission	Transfer rate	9600 baud ... 19200 baud, self-adaptable
	Medium	Shielded cable, double twisted pair
Maximum length of the bus		1000 m
Type of bus connector		4-pin connector
Characteristics of analog inputs		
Number		2
Type		Independent settings for each input, either 0-10 V or 4-20 mA
Measuring accuracy		1/100 full scale
Resolution		12 bits
Acquisition time		500 ms
Isolation		No isolation between channels
Power supply		0-24 V DC
Cable type		Shielded cable, twisted pair
Maximum cable length		30 m
Protection		Short-circuit protection
Characteristics of the wireless link of the Acti 9 Smartlink SI B Ethernet (A9XMZA08)		
Compatible devices		PowerTag energy sensors
Maximum number of sensors		20
Radio-frequency communication		2.4 GHz to 2.4835 GHz at 0 dBm

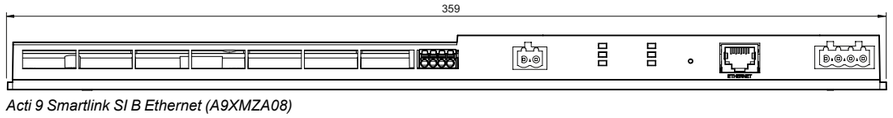
Dimensions (mm)

DB124330



Acti 9 Smartlink Modbus Slave (A9XMSB11)

DB406390



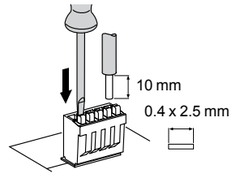
Acti 9 Smartlink SI B Ethernet (A9XMZA08)

Weight (g)

Acti 9 Smartlink	
Type	
Acti 9 Smartlink Modbus Slave (A9XMSB11)	195
Acti 9 Smartlink SI B Ethernet (A9XMZA08)	180

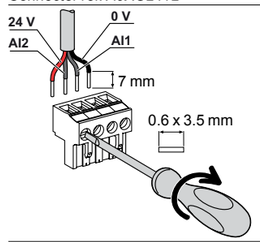
Connection

DB123580

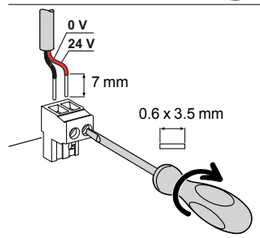


Connector ref: A9XC2412

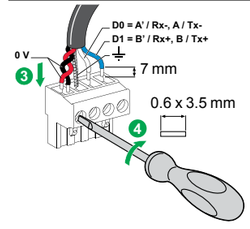
DB406517



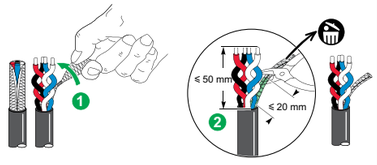
DB124331



DB405141



DB405142



Terminal	Tightening torque	Copper cables		
		Rigid	Flexible	Flexible with ferrule
	DB122945	DB123553	DB123554	
Ti24 interface	Spring-loaded terminals	0.5 to 1.5 mm²	0.5 to 1.5 mm²	-
Analog connector	0.8 N.m	0.1 to 1.5 mm²	0.1 to 1.5 mm²	0.1 to 1.5 mm²
Power supply connector	0.8 N.m	0.2 to 1.5 mm²	0.2 to 1.5 mm²	0.2 to 1.5 mm²
Modbus connector	0.8 N.m	0.25 mm²	0.25 mm²	0.25 mm²

Acti 9 Smartlink
SI D

A9XMWA20-35

A9XMWA20

A9XMWA20-24

A9MEM1521-18

DB405140

Test software: Acti 9 Smart Test
- PowerTag energy sensor communication test and configuration
- Editing of a complete test report (Excel, pdf) with the Modbus communication registers for easy integration into a supervision system
- Windows XP, Windows 7, Windows 8 and Windows 10 compatible
- Downloadable from: schneider-electric.com

DB408571

IEC 61000-6-1: 2005 and IEC 61000-6-3: 2005

Ethernet connection gateway (Modbus TCP/IP) for wireless energy sensors (PowerTag) with data display web pages.
- The associated PowerTags allow alarms to be managed via email for terminal loads, and energy, power, current and voltage to be measured accurately in real time.
- The entire system can easily be installed in existing switchboards using Multi 9/ Acti 9 type circuit breakers.

Data transmitted:
- total and partial energy,
- active power, phase-to-phase and phase-to-neutral voltage,
- currents I1, I2, I3,
- power factor (cos phi),
- voltage loss and overload information.

Functions

Acti 9 Smartlink SI D permits:
- concentration of PowerTag wireless energy sensor data,
- ethernet connection via the RJ45 port,
- remote display via embedded web pages,
- communication with supervision systems in Modbus TCP/IP,
- alarm monitoring on current, voltage, power and energy thresholds and transmission by email,
- integration with facility Hero.com, which allows all the alarms from the facility to be received in a single notification centre on a smartphone application, as well as web facility maintenance management (CAMM),
- transmission of data via the Modbus protocol (Ethernet).

Installation
- On DIN rail (width 54 mm).
- 230 V AC power supply.

Testing and start-up
- Pairing of PowerTag wireless energy sensors must be performed via the Acti 9 Smart Test software, freely available by downloading.
- The software makes it possible, in particular, to attribute to each circuit a name, a use and the current rating (useful for alarms).

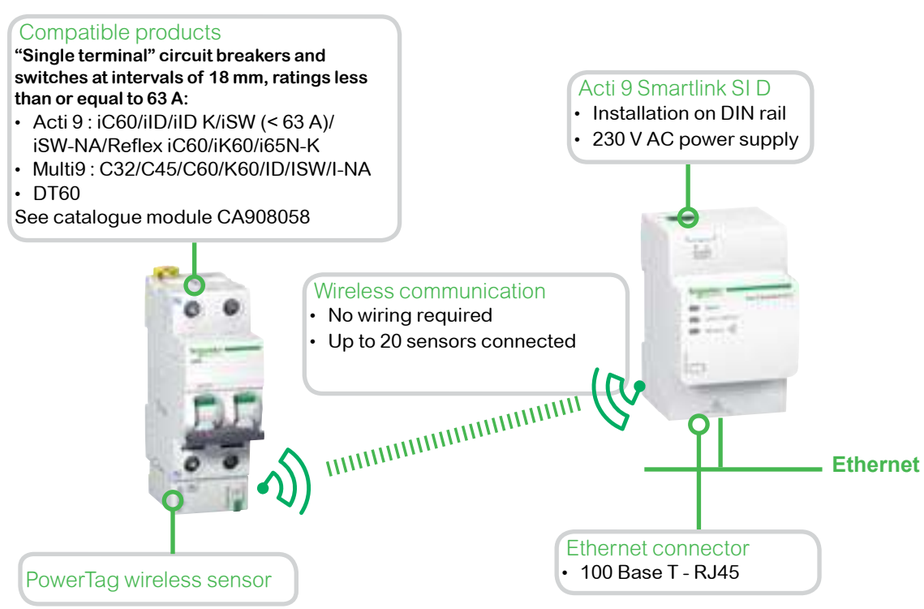
Catalogue numbers

Acti 9 Smartlink SI D		
Type		Width in 9-mm modules
Ethernet connection gateway (Modbus TCP/IP)	A9XMWA20	6

Supervision and switchboard control
www.schneider-electric.com/sg

Acti 9 Smartlink
SI D

Acti 9 Smartlink SI D

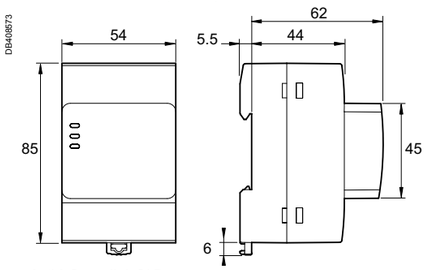


Weight (g)

Acti 9 Smartlink SI D	
Type	
Acti 9 Smartlink SI D	133

Dimensions (mm)

DB408573



Acti 9 Smartlink SI D

Technical characteristics

Main characteristics		
Supply voltage	Us	110/230 V AC ± 20 %, 2 A
Frequency		50/60 Hz
Power consumption		5 VA
Communication interface		Ethernet 10/100 BASE-T, Cable length y 100 m Cat.6 STP
Wireless communication		Up to 20 PowerTag sensors
Integrated connection type		DHCP client (Ethernet port)
Local indication	Product state	Green, orange and red LED
	Ethernet state (LAN ST)	Green, orange and red LED
Overvoltage category		III
Radio-frequency communication	ISM band 2.4 GHz	2.4 GHz to 2.4835 GHz
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Fire resistance		650°C, 30 s
Environment		In compliance with the RoHS directive REACH Regulations

Additional characteristics		
Operating temperature		-25°C to +55°C
Storage temperature		-40°C to +85°C
Pollution degree		2
Tropicalization (IEC 60068-2)		Treatment 2 (relative humidity of 93 % at 40°C)
Operating altitude		0 to 2000 m
Electromagnetic compatibility	Reference standards	
	Immunity	EN 55024
	Emissions	EN 55022
	Electromagnetic compatibility and Radio spectrum Matters (ERM)	EN 300328 EN 301489-1 EN 301489-17

A9MEM1520-18

A9MEM1520

A9MEM1521-18

A9MEM1521

A9MEM1540-18

A9MEM1540

A9MEM1522-18

A9MEM1522

A9MEM1541-18

A9MEM1541

A9MEM1542-18

A9MEM1542

DB405140

Test software: Acti 9 Smart Test

- Electrical continuity test (cabling of connected devices)
- Communication Testing of wired, wireless devices, analog and Modbus devices..
- Editing of a complete test report (Excel, pdf) with the Modbus communication registers for easy integration into a supervision system
- Windows XP, Windows 7, Windows 8 and Windows 10 compatible
- Downloadable from: schneider-electric.com

DB408571

IEC 61557-12 PMD/DD/K55/1

PowerTags are energy sensor modules for 1P, 1P+N, 3P and 3P+N networks. They are mounted directly on equipment of the Acti 9 or Multi 9 range at intervals of 18 mm up to 63 A.

Functions

Combined with Acti 9 Smartlink SI B (Ethernet) or Acti 9 Smartlink SI D (Ethernet) by radio-frequency communication, PowerTag sensors measure the following values in accordance with the IEC 61557-12 standard

- Cumulative active energy, total and partial (kWh).
- Rms values:
  - phase-to-neutral and phase-to-phase voltages (V),
  - currents per phase (A),
  - total active power and active power per phase (W),
  - power factor.

Installed upstream or downstream of a protective device, they measure useful data for diagnosis of the associated circuit.

Configuration

- Recognition of the device in the Acti 9 Smart Test configuration software: the product flashes in the switchboard during configuration for easy recognition.
- Addition of context-related information to Acti 9 Smart Test (name of the load, energy usage, single-line circuit label).
- Partial energy counter can be reset or preset to a special value via the software.

Integration in Acti 9 Smartlink

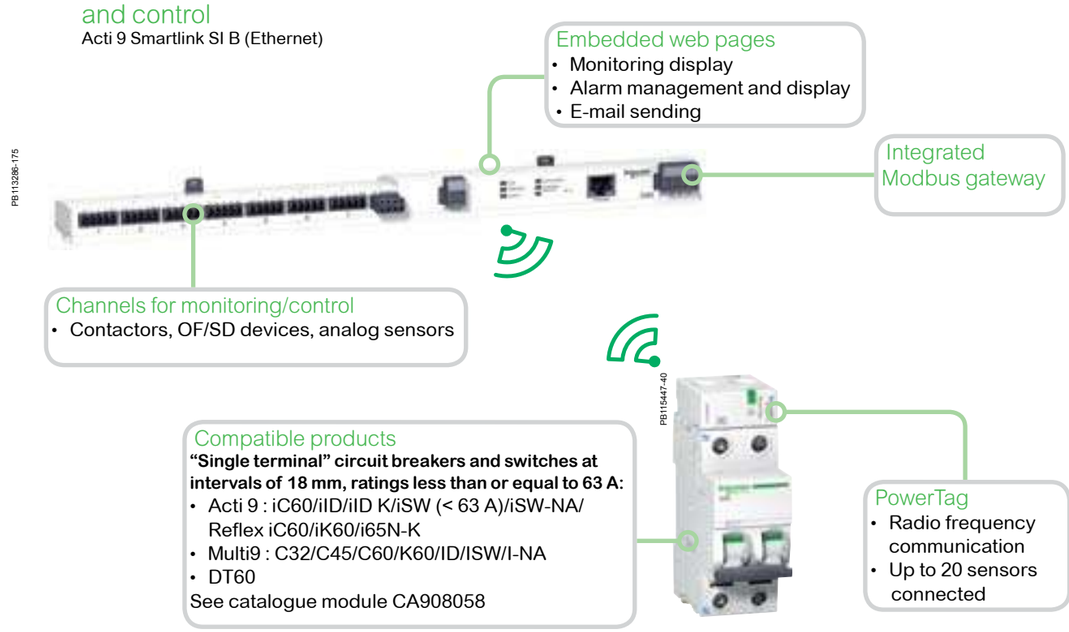
- Use of a wireless concentrator to report data:
  - Acti 9 Smartlink SI B (Ethernet) for a complete metering, monitoring and control solution,
  - Acti 9 Smartlink SI D (Ethernet) for a metering and monitoring solution only.
- Native display, in Smartlink's embedded web pages, of the quantities measured by the PowerTag sensors.
- Load monitoring
  - alarm sent by the sensor in the event of a voltage loss,
  - pre-alarms on predefined thresholds (50 %, 80 %) or customized thresholds (thresholds on currents, power, voltages and cumulative energies).
- Alarm management on current/voltage/load level thresholds by e-mail.
- Display of alarms and pre-alarms on Smartlink embedded web pages.
- Easy integration into system with Com'X200, Com'X 510 and other Schneider Electric software and third-party Building Management Systems (BMS's) thanks to the Acti 9 Smart Test report in Excel format. This report provides dynamically all the Modbus registers, including bits and meanings associated, for an easy integration into the software.
- Remote metering possible using the Smartlink monitoring page.

Catalogue numbers

PowerTag		
Type	Type of mounting	Cat. no.
1P	Top and bottom	A9MEM1520
1P+N	Top	A9MEM1521
	Bottom	A9MEM1522
3P	Top and bottom	A9MEM1540
3P+N	Top	A9MEM1541
	Bottom	A9MEM1542

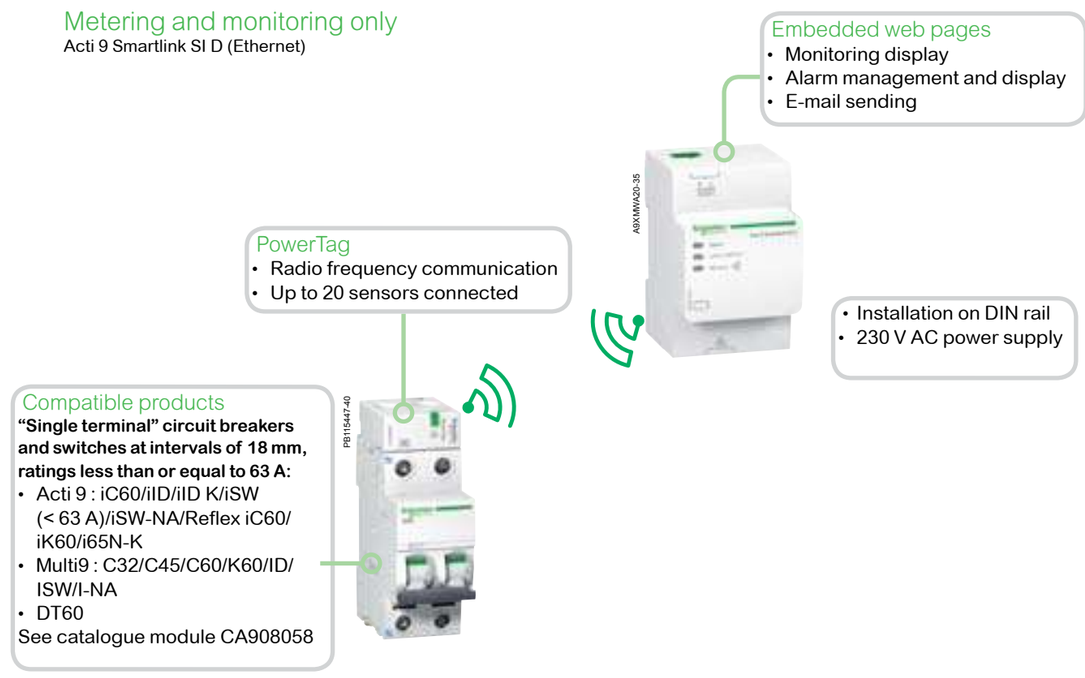
Metering and monitoring and control

Acti 9 Smartlink SI B (Ethernet)



Metering and monitoring only

Acti 9 Smartlink SI D (Ethernet)



PB115448-40

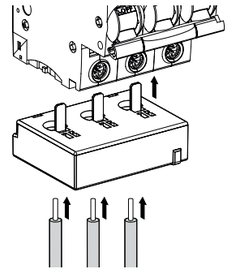
Technical characteristics

Main characteristics			
Rated voltage	Un	Phase-to-neutral	230 V AC ± 20 %
		Phase-to-phase	400 V AC ± 20 %
Frequency			50/60 Hz
Maximum operating current	Imax		63 A
Saturation current			130 A
Maximum consumption			y 2 VA
Starting current	Ist		40 mA
Base current	Ib		10 A
Additional characteristics			
Operating temperature			-25°C to +60°C
Storage temperature			-40°C to +85°C
Overvoltage category		As per IEC 61010-1	Cat. III
Measuring category		As per IEC 61010-2-30	Cat. III
Pollution degree			3
Altitude			y 2000 m
Degree of protection		Device only	IP20
		IK	05
Radio-frequency communication			
ISM band 2.4 GHz			2.4 GHz to 2.4835 GHz
Channels		As per IEEE 802.15.4	11 to 26
Isotropic Radiated Power		Equivalent (EIRP)	0 dBm
Maximum transmission time			< 5ms
Channel occupancy		For 1 device	Messages sent every 5 seconds

Characteristics of measuring functions			
Function		Performance category as per IEC 61557-12	
Active power	P	1	9 W to 63 kW
Active energy	Ea	1	Total and partial 0 to 99999999.9 kWh
Current	I	1	2 A to 63 A
Voltage	U	0.5	Un ± 20 %
Power factor	PFA	1	0 to 1

Connection

DB407926

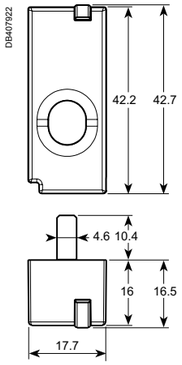


Stripping length	Copper cables					
	Rigid		Flexible		Flexible with ferrule	
	DB122945	DB112804 DB123553	DB112805	DB123554	DB123008	
18 mm(*)	1.5 to 16 mm²	2 x 1.5 to 2.5 mm²	1.5 to 16 mm²	2 x 1.5 to 2.5 mm²	-	-
18 mm	-	-	-	-	1.5 to 16 mm²	2 x 1.5 to 2.5 mm²

- *Mounting with 18 mm ferrule recommended.*
- *(*) Without ferrule/cable ends, respect the stripping length stated on the associated products.*

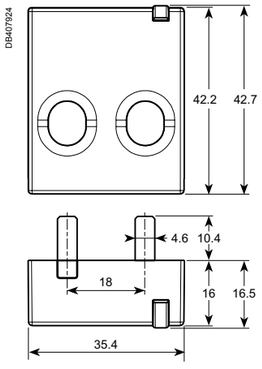
Dimensions (mm)

DB407922



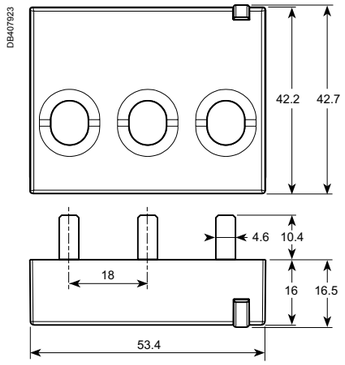
1P

DB407924



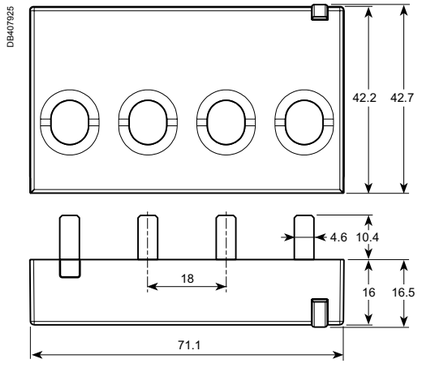
1P+N

DB407923



3P

DB407925



3P+N

Weight (g)

PowerTag	
Type	
1P	16.4
1P+N	17.5
3P	28
3P+N	35

iC60, iID, iDPN Vigi, iSW-NA electrical auxiliaries

• The electrical auxiliaries are combined with iC60 circuit breakers, iID residual current circuit breakers, remote tripping switch disconnector iSW-NA; they enable tripping or remote indication of their position (open/closed/tripped) upon a fault.
• They are fastened by clips (without tools) to the left side of the breaker.
• 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 iOF+SD24 auxiliary can report open/closed (OF) status information and intentional or fault tripping of the associated device (SD) to the Acti 9 Smartlink or a programmable logic controller 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:

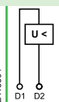
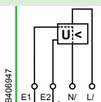
IEC/EN 60947-5-1

- iOF: open/close contact
- iSD: fault indicating contact
- iOF/SD+OF: open/close contact and switchable OF or SD contact
- iOF+SD24: open/close contact OF and default indicating contact SD with Ti24 interface.

IEC/EN 60947-5-4

- iOF+SD24: open/close contact OF and default indicating contact SD with Ti24 interface.

iC60, iID, iDPN Vigi, iSW-NA electrical auxiliaries

		Tripping						
Auxiliaries		**iMN**				**iMNs**	**iMNx**	
Type		Undervoltage release						
		Instantaneous				Delayed	Independent of the supply voltage	
		PB104477-35 				PB104479-35 	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 • Ensures 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)	
Catalogue numbers		A9A26960	A9A27108	A9A26961	A9A26959	A9A26963	A9A26969	A9A26971
iC60, iID, iDPN Vigi, iSW-NA		●	●	●	●	●	●	●
iC60, iID double terminals		●	●	●	●	●	●	●
Technical specifications								
Rated voltage (Ue)	V AC	220…240	24	48	115	220…240	220…240	380…415
	V DC	–	24	48		–	–	
Standardised operating and non-response to voltage times (Ua)*		–	–	–	–	–	–	–
Maximum operating time		–	–	–	–	–	–	–
Minimum non-response time		–	–	–	–	–	–	–
Operating frequency	Hz	50/60			400	50/60	50/60	
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		–				–	–	
Operating temperature	°C	-35…+70				-35…+70	-35…+70	
Storage temperature	°C	-40…+85				-40…+85	-40…+85	

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

iC60, iID, iDPN Vigi, iSW-NA electrical auxiliaries

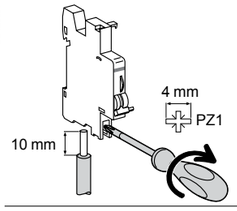
		Tripping							
Auxiliaries		**iMSU**		**iMX**			**iMX+OF**		
Type		Overvoltage release		Shunt release					
							With Open/Close auxiliary contact		
		PB104479-35		PB104496-35			PB104481-35		
Function		• Switches off the power supply by opening the breaker with which it is combined, in the event that the phase/neutral voltage is exceeded (loss of neutral). For a four-phase network, use three iMSU tripping auxiliaries		• Trips the breaker when powered					
							• Includes an open/close contact (OF) to indicate the "open" or "closed" position of the breaker		
Wiring diagrams		DB118806		DB123012			DB406929		
Use		• 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 breaker		
Catalogue numbers		A9A26500		A9A26476	A9A26477	A9A26478	A9A26946	A9A26947	A9A26948
iC60, iID, iDPN Vigi, iSW-NA		●		●	●	●	●	●	●
iC60, iID double terminals		●		●	●	●	●	●	●
Technical specifications									
Rated voltage (Ue)	V AC	230		100…415	48	12…24	100…415	48	12…24
	V DC	–		110…130	48	12…24	110…130	48	12…24
Standardised operating and non-response to voltage times (Ua)*		255 V AC	275 V AC	300 V AC	350 V AC	400 V AC	–	–	–	–	–	–
Maximum operating time		No tripping	15 s	5 s	0.75 s	0.20 s	–	–	–	–	–	–
Minimum non-response time			3 s	1 s	0.25 s	0.07 s	–	–	–	–	–	–
Operating frequency	Hz	50/60					50/60			50/60		
Red mechanical indicator		On front face					On front face			On front face		
Test function		–					–			–		
Width in 9 mm modules		2					2			2		
Operating current		–					–			10 mA mini, 6 A maxi		
										y 24 V DC	6 A	
										48 V DC	2 A	
										y 130 V DC	1 A	
										y 240 V AC	6 A	
										415 V AC	3 A	
Number of contacts		–					–			1 NO/NC		
Operating temperature	°C	-35…+70					-35…+70			-35…+70		
Storage temperature	°C	-40…+85					-40…+85			-40…+85		

iC60, iID, iDPN Vigi, iSW-NA electrical auxiliaries

		Indication							
Auxiliaries		**iOF**		**iSD**		**iOF/SD+OF**		**iOF+SD24**	
Type		Open/close auxiliary contact		Fault indicating contact		Double open/close or fault indicating contact		Double open/close and fault indicating contact	
		PB104474-36	PB104476-36	PB104475-35		PB104475-35		PB107790-35	
Function		• Changeover contact indicates "open" or "closed" position of the breaker		• Changeover contact indicates position of the breaker; upon: - electrical fault - action on tripping auxiliary - Same indication as VISI-TRIP		• 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		• 2 contacts (1 NO + 1 NC) can report the signalling information of the associated device to the Acti 9 Smartlink or a programmable logic controller: - electrical fault - actuation of the tripping auxiliary - "Open" or "Closed" position of the associated device	
Wiring diagrams		DB118810		DB118811		DB118812		DB118813	DB124318
Use		• Remote indication of the position of the associated breaker		• Remote indication of tripping upon a fault of the associated breaker		• Remote indication of position and/or tripping upon a fault of the associated breaker			• Remote indication of position and tripping upon a fault of the associated breaker
Catalogue numbers		A9A26924	A9A26869	A9A26927	A9A26855	A9A26929			A9A26897
iC60, iID, iDPN Vigi, iSW-NA		●	–	●	–	●			●
iC60, iID double terminals		–	●	–	●	●			●
Technical specifications									
Rated voltage (Ue)	V AC	24…415		24…415		24…415			-
	V DC	24…130		24…130		24…130			24
Operating frequency	Hz	50/60		50/60		50/60			-
Red mechanical indicator		–		On front face		On front face			On front face
Test function		On toggle		On toggle		On toggle			On toggle
Width in 9 mm modules		1		1		1			1
Operating current		10 mA mini, 6 A maxi							2 mA mini, 100 mA maxi
		24 V DC	6 A						
		48 V DC	2 A						-
		60 V DC	1.5 A						-
		130 V DC	1 A						-
		24...240 V AC	6 A						-
		415 V AC	3 A						-
Number of contacts		1 NO/NC		1 NO/NC		1 NO/NC + 1 NO/NC			1 NO/NC
Operating temperature	°C	-35…+70		-35…+70		-35…+70			-25…+70
Storage temperature	°C	-40…+85		-40…+85		-40…+85			-40…+85

Connection

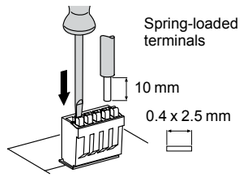
DB123061



Type	Tightening torque	Copper cables		Multi-cables	
		Rigid	Flexible	Rigid	Cables with ferrule
	DB122945	DB123007	DB123011	DB123008	
Indication auxiliaries	1 N.m	1 to 4 mm²	0.5 to 2.5 mm²	2 x 2.5 mm²	2 x 1.5 mm²
Tripping auxiliaries	1 N.m	1 to 6 mm²	0.5 to 4 mm²	2 x 2.5 mm²	2 x 2.5 mm²

Ti24 connector connection

DB123560

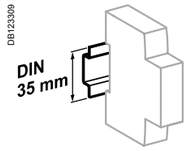


Type	Catalogue numbers	Copper cables	
		Rigid	Flexible
	DB122945		DB123553
Ti24 interface	A9XC2412	1 x 0.5 to 1.5 mm²	1 x 0.5 to 1.5 mm²

Ti24 prefabricated cables connection

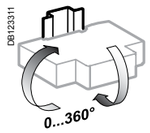
	Type	Catalogue numbers	Length
PB107754-10	Connection for Acti 9 Smartlink		
	6 prefabricated	A9XCAS06	100 mm
		A9XCAM06	160 mm
		A9XCAH06	450 mm
		A9XCAL06	870 mm
PB107755-14	Connection for PLC type terminals		
	6 long prefabricated on a single side	A9XCAU06	870 mm
	1 long prefabricated on a single side	A9XCAC01	4000 mm
DB404941			
PB107756-7	12 connectors, 5-pins (Ti24)	A9XC2412	-

DB123309



Clip on DIN rail 35 mm.

DB123311



Indifferent position of installation.

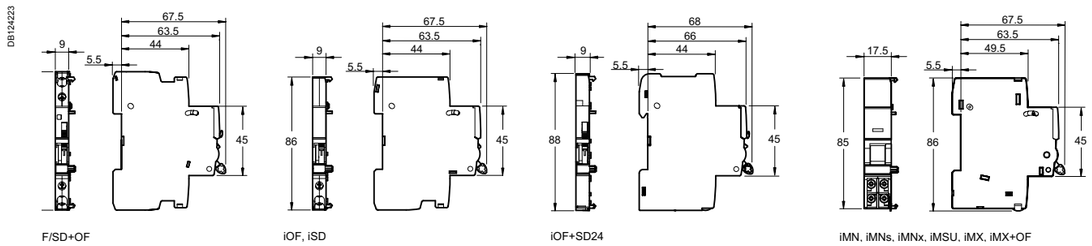
Technical data

Weight (g)

Electrical auxiliaries	
Type	
iMN	69
iMNs	72
iMNx	79
iMSU	68
iMX	64
iMX+OF	68
iOF	32
iSD	33
iOF/SD+OF	43
iOF+SD24	25

Dimensions (mm)

DB124223



C60, C120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC electrical auxiliaries

• 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 OF+SD/OF auxiliary is a two-in-one product: a mechanical selector switch is used to select one of two contacts: OF+SD or OF+OF.
• The OF+SD24 auxiliary can report open/closed (OF) status information and intentional or fault tripping of the associated device (SD) to the Acti 9 Smartlink or a programmable logic controller via the TI24 interface (24 V DC).

⚠
- The electrical auxiliaries are not compatible with ID residual current circuit breakers of type B.

Tripping auxiliaries:

IEC/EN 60947-1
- MN: undervoltage release
- MNs: delayed undervoltage release
- MNx: undervoltage release, independent of the supply voltage
- MX: shunt release
- MX+OF: shunt release with open/closed contact.

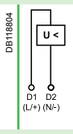
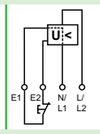
EN 50550
- MSU: overvoltage release.

Indication auxiliaries:

IEC/EN 60947-5-1
- OF.S: open/closed contact for ID
- OF: open/closed contact
- SD: fault indicating contact
- OF+SD/OF: choice of open/closed contact and OF or SD contact via the selector switch
- OF+SD24: open/close contact OF and cfault indicating contact SD with Ti24 interface.

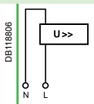
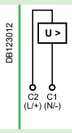
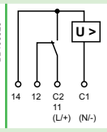
IEC/EN 60947-5-4
- OF+SD24: open/close contact OF and cfault indicating contact SD with Ti24 interface.

C60, C120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC electrical auxiliaries

		Tripping					
Auxiliaries		**MN**		**MNs**		**MNx**	
Type		Undervoltage release					
		Instantaneous		Delayed		Independent of the supply voltage	
		PB107151-30 		PB107152-30 		PB107149-30 	
Function							
		• Causes the device with which it is associated to trip when its input voltage decreases (between 70 % and 35 % of Un). Prevents the device from closing until its input voltage has been restored				• Tripping of the associated device by opening of the control circuit (e.g. push-button, dry contact)	
				• No tripping in the event of transient voltage dips (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 	
Utilization							
		• Emergency stop via a normally-closed pushbutton • Ensures the safety of the power supply circuits of several machines by preventing accidental startups				• Fail-safe emergency stop • Insensitive to the variation in the control circuit voltage to improve continuity of service Important: Before any servicing operation switch off the mains power supply (voltage presence at terminals E1/E2)	
Catalogue numbers		A9N26960	A9N26961	A9N26959	A9N26963	A9N26969	A9N26971
C60, C120, DPN, DPN Vigi, ID		●	●	●	●	●	●
C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC		●	●	●	●	●	●
Technical specifications							
Rated voltage (Ue)	V AC	220…240	48	115	220…240	230	400
	V DC	–	48	–	–	–	
Standardised operating and non-response to voltage times (Ua)*		–	–	–	–	–	–
Maximum operating time		–	–	–	–	–	–
Minimum non-response time		–	–	–	–	–	–
Operating frequency	Hz	50/60		400	50/60	50/60	
Mechanical state indicator light, red		On front face			On front face	On front face	
Test function		–			–	–	
Width in 9 mm modules		2			2	2	
Operating current		–			–	–	
Number of contacts		–			–	–	
Operating temperature	°C	-25…+50			-25…+50	-25…+50	
Storage temperature	°C	-40…+85			-40…+85	-40…+85	
Standards							
IEC/EN 60947-1		●			●	●	
IEC/EN 60947-5-1		–			–	–	
EN 60947-2		●			●	–	
EN 62019-2(1)		–			–	–	

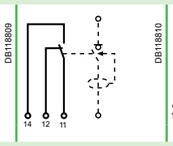
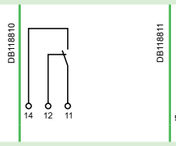
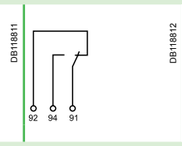
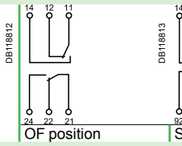
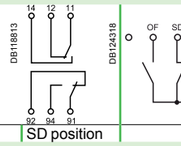
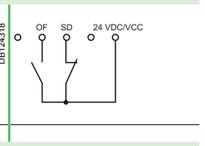
(1) For C120, DPN.
**(Ua): Voltages measured between the phase and the neutral conductor, at which the MSU device must control the associated protective device.*

C60, C120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC electrical auxiliaries

		Tripping		
Auxiliaries		**MSU**	**MX**	**MX+OF**
Type		Voltage threshold release	Shunt release	
				With Open/Close auxiliary contact
		PB107153-30  PB107150-30 		PB107148-30 
Function				
		• Cuts off the power supply by opening the device with which it is associated when the phase/neutral voltage is exceeded (loss of neutral). For a four-phase network, use three MSU 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 breaker
Wiring diagrams				
		DB118806 	DB123012 	DB406929 
Utilization				
		• Protection of the devices against overvoltages on the electrical network (break in the neutral conductor) • Monitoring the voltage between the phase conductor and the neutral conductor	• Emergency stop via a normally-open pushbutton.	• Emergency stop via a normally-open pushbutton • Remote indication of the position of the associated device
Catalogue numbers		A9N26500	A9N26476	A9N26477	A9N26478	A9N26946	A9N26947	A9N26948
C60, C120, DPN, DPN Vigi, ID		●	●	●	●	●	●	●
C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC		–	●	●	●	●	●	●
Technical specifications								
Rated voltage (Ue)	V AC	230	100…415	48	12…24	100…415	48	12…24
	V DC	–	110…130	48	12…24	110…130	48	12…24
Standardised operating and non-response to voltage times (Ua)*		255 V AC / 275 V AC / 300 V AC / 350 V AC / 400 V AC	–	–	–	–	–	–
Maximum operating time		No tripping / 15 s / 5 s / 0.75 s / 0.20 s	–	–	–	–	–	–
Minimum non-response time		3 s / 1 s / 0.25 s / 0.07 s	–	–	–	–	–	–
Operating frequency	Hz	50/60	50/60			50/60		
Mechanical state indicator light, red		On front face	On front face			On front face		
Test function		–	–			–		
Width in 9 mm modules		2	2			2		
Operating current		–	–			10 mA mini, 6 A maxi ≤ 24 V DC 6 A 48 V DC 2 A ≤ 130 V DC 1 A ≤ 240 V AC 6 A 415 V AC 3 A		
Number of contacts		–	–			1 NO/NC		
Operating temperature	°C	-25…+50	-25…+50			-25…+50		
Storage temperature	°C	-40…+85	-40…+85			-40…+85		
Standards								
IEC/EN 60947-1		●	●			●		
IEC/EN 60947-5-1		–	–			–		
EN 60947-2		–	–			–		
EN 62019-2(1)		–	–			–		

(1) For C120, DPN.
**(Ua): Voltages measured between the phase and the neutral conductor, at which the MSU device must control the associated protective device.*

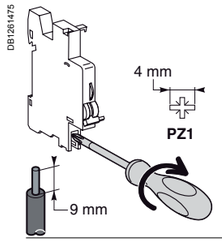
C60, C120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC electrical auxiliaries

		Indication				
Auxiliaries		**OF.S**	**OF**	**SD**	**OF+SD/OF**	**OF+SD24**
Type		Open/closed auxiliary contact	Open/closed auxiliary contact	Fault indicating contact	Double open/closed or fault indicating contact	Double open/close and fault indicating contact
		PB100628_SE-30-b  PB107145-30 	PB107146-30 	PB100625_SE-30-b 	PB107760-35 
Function						
		• Changeover contact indicating the "open" or "closed" position of the associated device ⚠ Compulsory for the addition of tripping or indication auxiliaries on a residual current circuit breaker ID	• Changeover contact indicating the "open" or "closed" position of the associated device	• Changeover contact indicating the position of the associated device in the event of: - electrical fault - action on the tripping auxiliary ⚠ Not compatible with a ID residual current circuit breaker, use an OF+SD/OF in the SD position	• The OF+SD/OF auxiliary is a two-in-one product: choice of OF + SD or OF + OF contact via the selector switch	• 2 contacts (1 NO + 1 NC) can report the signalling information of the associated device to the Acti 9 Smartlink or a programmable logic controller: - electrical fault - actuation of the tripping auxiliary - "Open" or "Closed" position of the associated device
Wiring diagrams						
		DB118809 	DB118810 	DB118811 	DB118812  OF position	DB118813  SD position
						DB124318 
Utilization						
		• Remote indication of the position of the associated device	• Remote indication of the position of the associated device	• Remote fault tripping indication of the associated device	• Remote position and/or fault tripping indication of the associated device	• Remote indication of position and tripping upon a fault of the associated breaker
Catalogue numbers		A9N26923	A9N26924	A9N26927	A9N26929	A9N26899
ID		●	●	●	●	●
C60, C120, DPN, DPN Vigi, C60H-DC, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC		–	●	●	●	●
Technical specifications						
Rated voltage (Ue)	V AC	24…415	24…415	24…415	24…415	–
	V DC	24…130	24…130	24…130	24…130	24
Operating frequency	Hz	50/60	50/60	50/60	50/60	–
Mechanical state indicator		–	–	On front face	On front face	On front face
Test function		–	On front face	On front face	On front face	On toggle
Width in 9 mm modules		1	1	1	1	1
Operating current		10 mA mini, 6 A maxi 24 V DC 6 A 48 V DC 2 A 60 V DC 1.5 A 130 V DC 1 A 24…240 V AC 6 A 415 V AC 3 A				2 mA mini, 100 mA maxi - - - -
Number of contacts		1 NO/NC	1 NO/NC	1 NO/NC	1 NO/NC + 1 NO/NC	1 NO + 1 NC
Operating temperature	°C	-25…+50	-25…+50	-25…+50	-25…+50	-25…+70
Storage temperature	°C	-40…+85	-40…+85	-40…+85	-40…+85	-40…+85
Standards						
IEC/EN 60947-1		–	–	–	–	–
IEC/EN 60947-5-1		●	●	●	●	● IEC 60947-5-4
EN 60947-2		–	–	–	–	–
EN 62019-2(1)		●	●	●	●	–

(1) For C120, DPN.

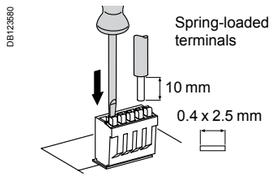
C60, C120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC electrical auxiliaries

Connection



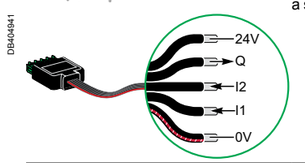
Type	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
	DB122945	DB122945	DB122946
Indication and tripping auxiliaries	1 N.m	0.5 to 2.5 mm²	2 x 1.5 mm²

Ti24 connector connection



Type	Catalogue numbers	Copper cables	
		Rigid	Flexible
	DB122945	DB122945	DB122553
Ti24 interface	A9XC2412	1 x 0.5 to 1.5 mm²	1 x 0.5 to 1.5 mm²

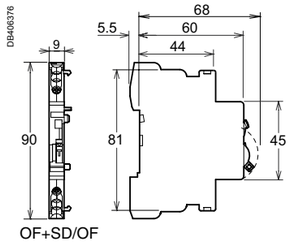
Ti24 prefabricated cables connection



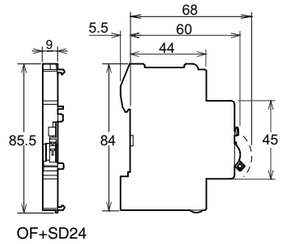
Type	Catalogue numbers	Length
Connection for Acti 9 Smartlink		
6 prefabricated	A9XCAS06	100 mm
	A9XCAM06	160 mm
	A9XCAH06	450 mm
	A9XCAL06	870 mm
Connection for PLC type terminals		
6 long prefabricated on a single side	A9XCAU06	870 mm
1 long prefabricated on a single side	A9XCAC01	4000 mm
12 connectors, 5-pins (Ti24)	A9XC2412	-

C60, C120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC electrical auxiliaries

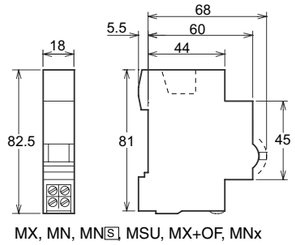
Dimensions



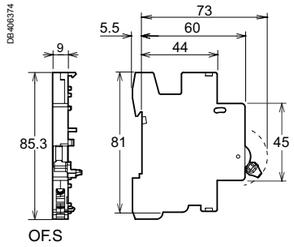
OF+SD/OF



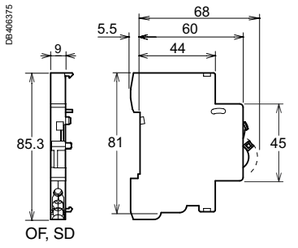
OF+SD24



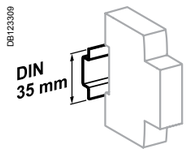
MX, MN, MN[S], MSU, MX+OF, MNx



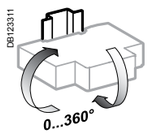
OF.S



OF, SD



Clip on DIN rail 35 mm.



Indifferent position of installation.

Weight (g)

Electrical auxiliaries	
Type	
MN	66
MNs	66
MNx	73
MSU	66
MX	60
MX+OF	65
OF.S	33
OF	30
SD	30
OF+SD/OF	38
OF+SD24	28

RCA remote controls

iC60 circuit breakers

PB106253-40

PB106251-40

The RCA remote control system allows:
- Remote electrical control (opening and closing) of circuit breakers with or without Vigi add-on RCD, with or without auxiliary.
- Circuit-breaker resetting after tripping, in accordance with safety principles and the regulations in force.
- Local control by operating handle.
- Circuit placing in safety configuration by padlocking.

2 choices of operation after tripping:
- A: Enabling of remote circuit-breaker resetting;
- B: Inhibition of remote resetting.

The version with Ti24 interface allows:
- Direct interfacing of remote control with a programmable logic controller (PLC), a supervision system and any other communication device, having inputs/outputs in 24 V DC (control, OF and SD indications).
- Fast, reliable connection of the remote control to the Acti 9 Smartlink thanks to the prefabricated cables.
- Remote indication by "OF" potential-free contact.
- Provision of 2 operating modes, "1 and 3".

The iMDU auxiliary allows RCA control in 24/48 V AC/DC.

Catalogue numbers

RCA remote control			
Type			Width in 9 mm modules
For circuit breakers 1P, 1P+N, 2P	Voltage		
Without Ti24 interface	230 V AC, 50/60 Hz	A9C70112	7
With Ti24 interface	230 V AC, 50/60 Hz	A9C70122	7
For 3P, 4P circuit breakers			
Without Ti24 interface	230 V AC, 50/60 Hz	A9C70114	7
With Ti24 interface	230 V AC, 50/60 Hz	A9C70124	7
Auxiliaries		See module CA907000 and CA907002	

DB123613

Without Ti24 interface

DB123572

DB123573

With Ti24 interface

Legend		
Type		Application
OFF		All remote control inhibited
auto	A	Circuit breaker remote reclosing after tripping allowed
	B	Circuit breaker remote reclosing after tripping inhibited
Green indicator lamp		Remote control possible
Orange indicator lamp		Remote control impossible
1 (Ti24)		Mode 1
3 (Ti24)		Mode 3
Y1		Latched order local control
Y2		Impulse-type or latched order local control (depending on mode)
Y3		Latched order centralized control

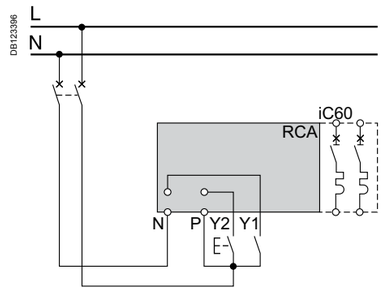
RCA remote controls

iC60 circuit breakers

Standard RCA

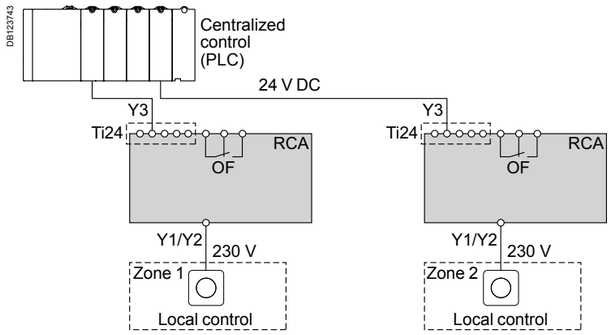
- The orders received on terminals Y1 and Y2 are taken into account progressively in their order of arrival.

DB123396



RCA Ti24

DB123743

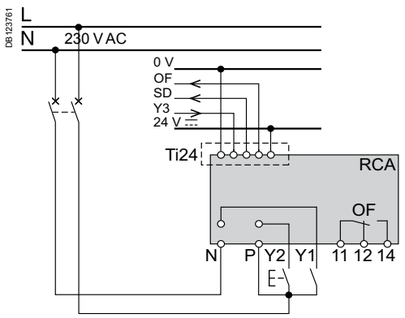


Mode 1: Locally or centrally controlled circuit-breaker opening/closing

- The orders come from various control points, and they are taken into account in their order of arrival
- Y1: Latched order local control
- Y2: Impulse-type local control
- Y3: Latched order centralized control

RCA Ti24 mode 1

DB123761

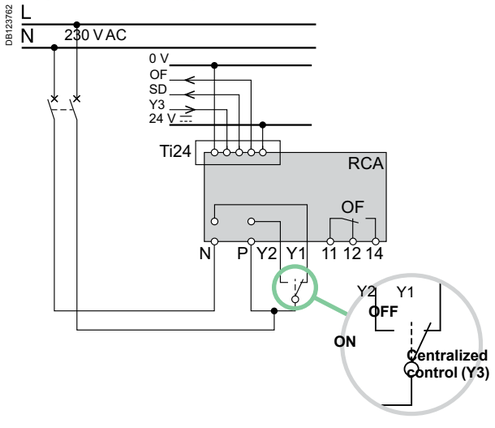


Mode 3: Centrally controlled opening/closing + local override

- 3 positions allowing a choice between override and centralized control:
- Y1: Latched order local control
- Y2: Latched order local control
- Y3: Latched order centralized control

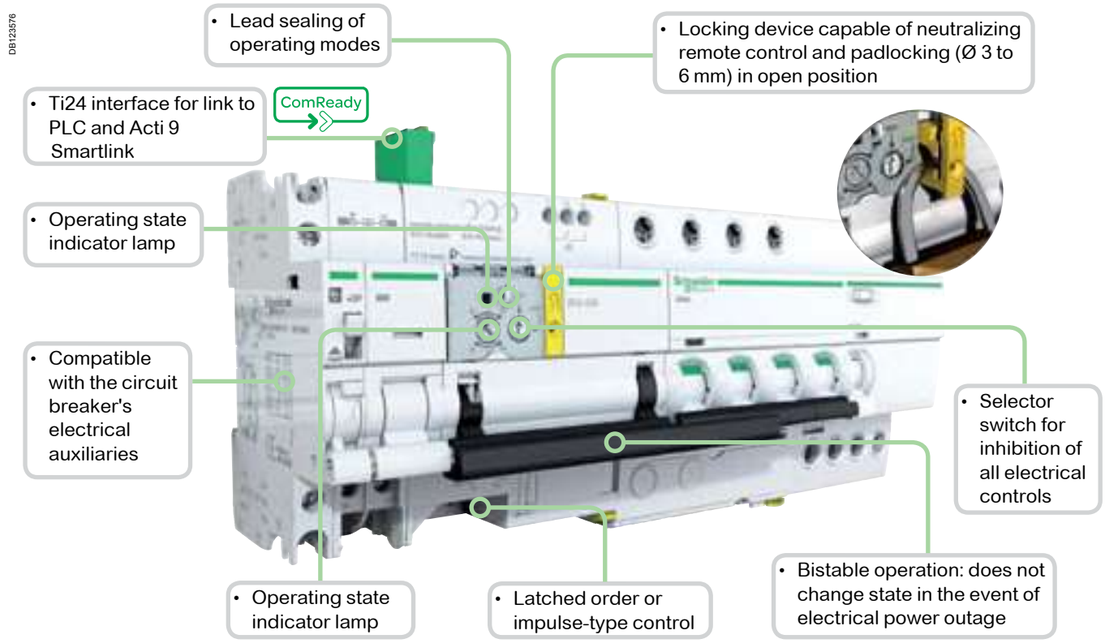
RCA Ti24 mode 3

DB123762



RCA remote controls

iC60 circuit breakers

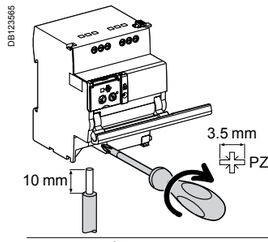


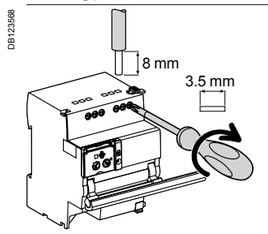
Legend	
Type	Application
+24VDC	V DC power supply
Y3	Latched order centralized control
SD	Circuit-breaker tripping information
OF	Control circuit state information (open/closed)
0 V	V DC power supply
Y1	Latched order local control
Y2	Impulse-type or latched order local control (depending on mode)
N	230 V AC power supply
P	
OF 11 12 14	Circuit-breaker state indication contact (open/closed)

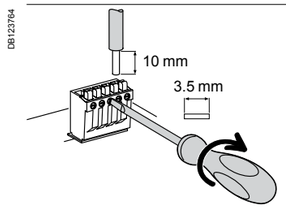
RCA remote controls

iC60 circuit breakers

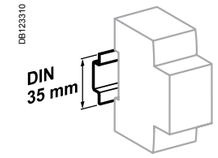
Connection



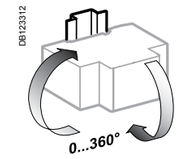




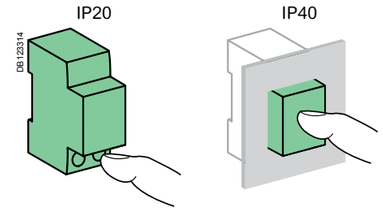
Terminal	Tightening torque	Without accessories — Copper cables		
		Rigid	Flexible	Flexible with ferrule
		DB122945	DB123553	DB123554
Power supply (N/P) Inputs (Y1/Y2)	1 N.m	0.5 to 10 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 6 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 4 mm² 2 x 0.5 to 2 x 2.5 mm²
Outputs (OF)	0.7 N.m	0.5 to 2.5 mm² 2 x 0.5 to 2 x 1.5 mm²	0.5 to 2.5 mm² 2 x 0.5 to 2 x 1.5 mm²	0.5 to 1.5 mm² 2 x 0.5 to 2 x 1.5 mm²
Ti24 interface	Spring-loaded terminals	0.5 to 1.5 mm²	0.5 to 1.5 mm²	-



Clip on DIN rail 35 mm.



Indifferent position of installation.



Technical data

Control circuit		
Supply voltage (Ue) (N/P)		230 V AC, 50/60 Hz
Control voltage (Uc)	Type 1 inputs (Y1/Y2)	230 V AC (as per IEC 61131-2)
Min. duration of control order (Y2)		u 200 ms
Response time (Y2)		< 500 ms
Consumption		≤ 1 W
Thermal self-protection with automatic Reset against overheating of the control circuit due to an abnormal number of operations		
Endurance (O-C) (RCA combined with a circuit breaker)		
Electrical/Mechanical		10,000 cycles
Indication / Remote control		
Potential free changeover contact output (OF)	Min.	24 V AC/DC, 10 mA
	Max.	230 V AC ,1 A
Input (Y1/Y2)	230 V AC	5 mA
Ti24 interface (as per IEC 61131)		
Type 1 input (Y3)	24 V DC	5.5 mA
Output (OF and SD)	24 V DC	In max.: 100 mA
Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in a modular enclosure	IP40 Insulation class II
Insulation voltage (Ui)		400 V
Degree of pollution (IEC 60947)		3
Rated impulse withstand voltage (Uimp)		6 kV
Operating temperature		-25°C to +60°C
Storage temperature		-40°C to +70°C
Tropicalization		Treatment 2 (relative humidity of 93 % at +40°C)

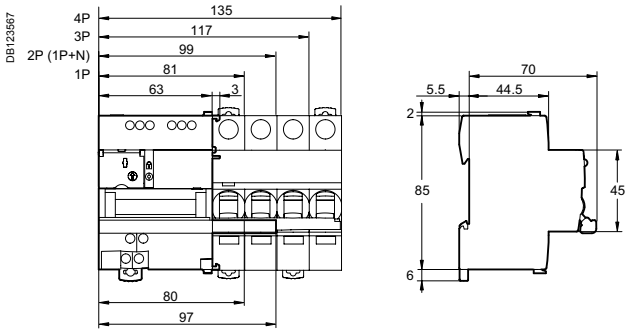
RCA remote controls

iC60 circuit breakers

Weight (g)

Remote controls	
Type	RCA
For 1P, 1P+N, 2P circuit breakers	400
For 3P, 3P+N, 4P circuit breakers	430

Dimensions (mm)



ARA automatic reclosers

iC60 circuit breakers and iID residual current circuit breakers

PB106254-40

ARA iC60

PB106257-40

ARA iID

The ARA reclosing auxiliary can:

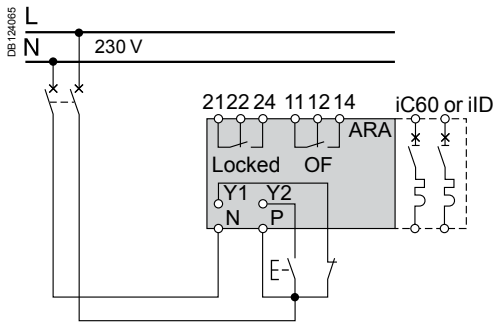
- Perform automatic reclosing of the associated protection device, after tripping.
- Increase the availability of installations without supervision, isolated, hard of access and demanding very great availability (mobile telephony systems, motorways, pumping stations, airports, railways, meteorological stations, service stations, automatic teller machines, public lighting, tunnels, etc.), by restoring them to operation without intervention by personnel in the event of a transient fault (atmospheric disturbances, industrial overvoltages, etc.).
- For the ARA iC60, the operator can choose predefined reclosing program which allows the safety and availability of facilities to be reconciled taking into account the facility's environment.
- The circuit is placed in safety configuration by the padlocking device.

Catalogue numbers

ARA iC60				
For circuit breaker				Width in 9 mm modules
1P, 1P+N, 2P	Number of programs	Voltage		
	4	230 V AC, 50/60 Hz	A9C70132	7
3P, 4P				
	4	230 V AC, 50/60 Hz	A9C70134	7
ARA iID				
For residual current circuit breaker				Width in 9 mm modules
2P	Number of programs	Voltage		
	1	230 V AC, 50/60 Hz	A9C70342	7
4P				
	1	230 V AC, 50/60 Hz	A9C70344	7
Auxiliaries		See module CA907000 and CA907002		

Diagram

DB124065



DB124060

DB123582

ARA iC60

DB123583

DB406179

ARA iID

Legend			
Type			Application
DB124061 			Choice of program (ARA iC60)
Y1			"Remote" inhibition of automatic reclosing
Y2			Remote control of final reclosing
N			230 V power supply
P			
Locked			Automatic recloser inhibition indication contact
OF			Indicates the state of the circuit breaker or residual current circuit breaker (opened or closed)
Indicator lamp	Flashing green		ARA automatic recloser operational
	Flashing red		Reclosing cycle in progress
	Fixed red		ARA automatic recloser locked at end of reclosing cycle: circuit breaker or residual current circuit breaker tripped (open)
	Flashing orange		ARA automatic recloser not operational

ARA automatic reclosers

iC60 circuit breakers and iID residual current circuit breakers

Operating principle

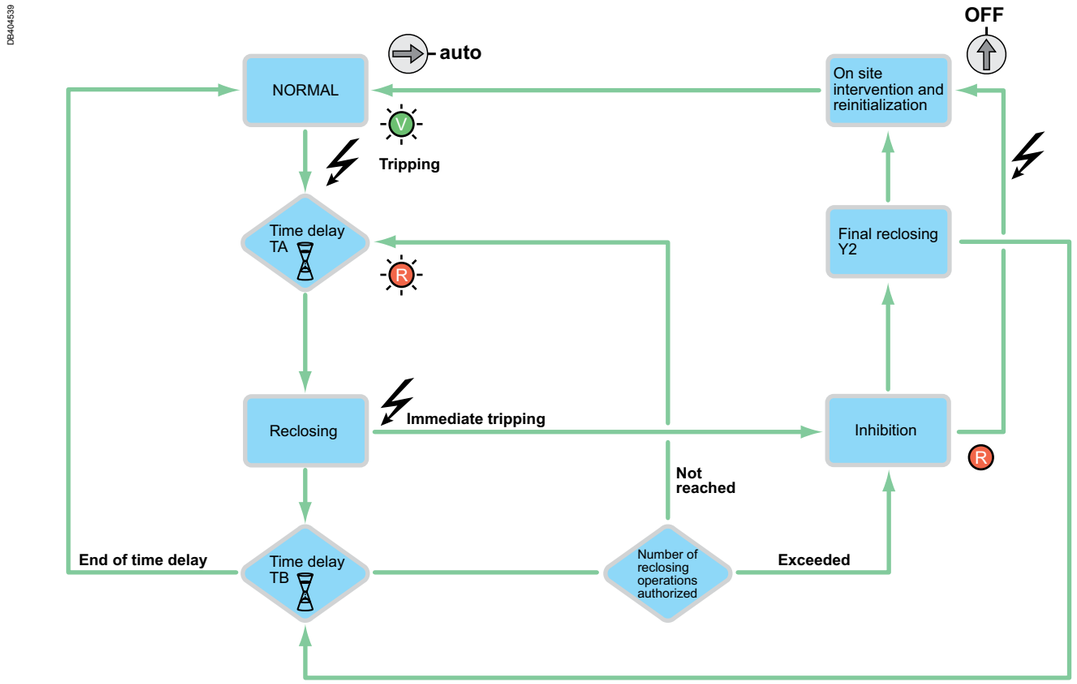
The ARA automatic recloser makes a number of attempts at reclosing depending on the program chosen by the user.
The program includes the following settings:
- A time delay before reclosing (TA).
- A reinitialization time delay (TB).
- A maximum number of reclosing attempts.

If, following these attempts, the fault is still present, the device places itself in waiting for manual reclosing, or final remote reclosing (Y2).

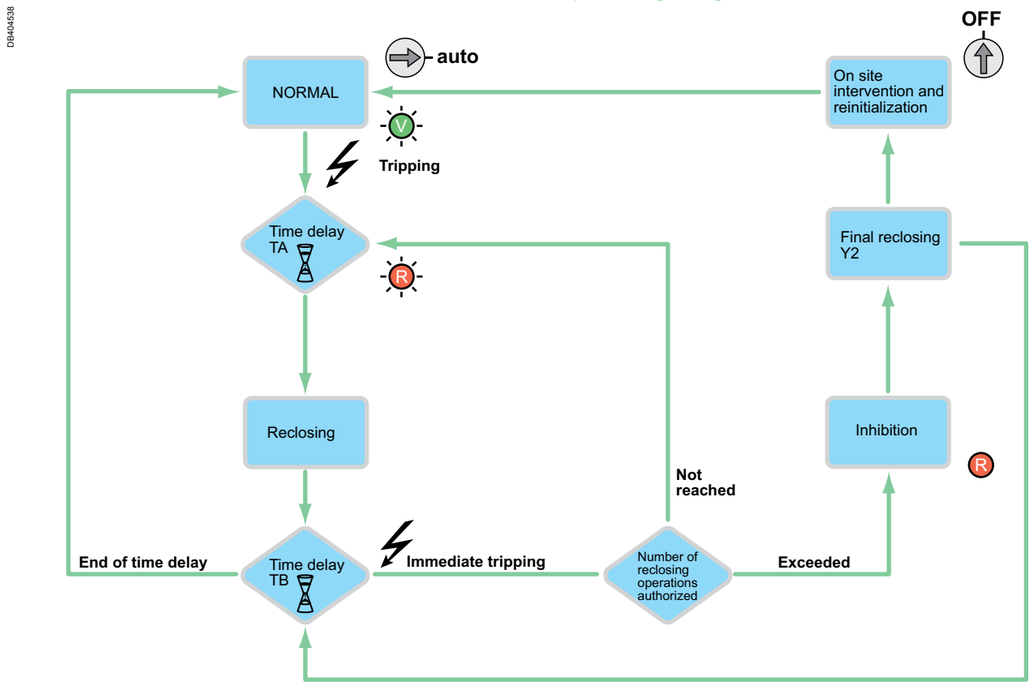
ARA iC60	Number of reclosing attempts	Delay before reclosing	Check time	Final reclosing Y2
		TA	TB	
Program				
DB124061 1 2 4 3	1	10 s	6 min.	Once after inhibition
DB124062 1 2 4 3	3	10 s 1 min. 3 min.	2 min. 6 min. 6 min.	
DB124063 1 2 4 3	5	10 s 1 min. 3 min. 3 min. 3 min.	2 min. 6 min. 6 min. 6 min. 6 min.	
DB124064 1 2 4 3	5	10 s 1 min. 3 min. 4 min. 5 min.	2 min. 6 min. 8 min. 10 min. 12 min.	

ARA iID	Number of reclosing attempts	Delay before reclosing	Check time	Final reclosing Y2
		TA	TB	
Only 1 program available	15	10 s 20 s 40 s 3 min. ...	30 min. 30 min. ...	Once per cycle

ARA iC60 operating diagram



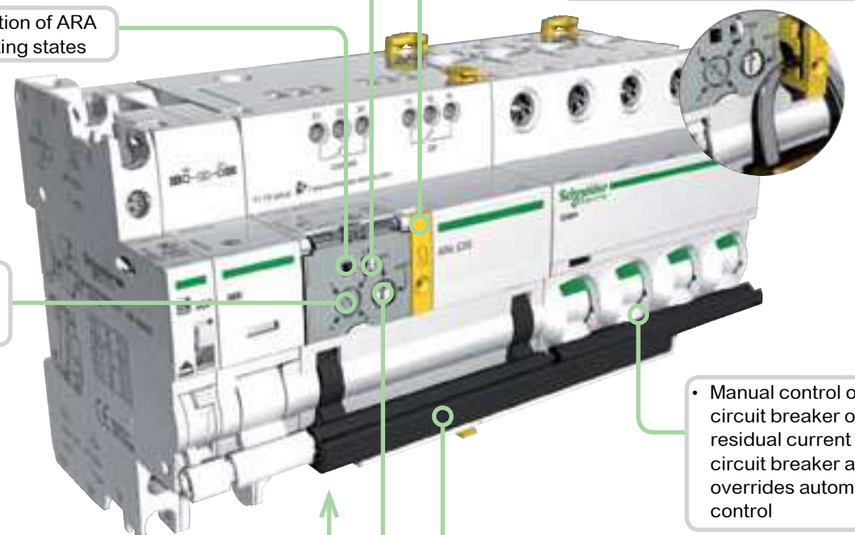
ARA iID operating diagram



ARA automatic reclosers

iC60 circuit breakers and iID residual current circuit breakers

PB106055-104



- Sealable cover
- Placing in safety configuration by integrated padlocking device (Ø 3 to 6 mm)
- Indication of ARA operating states

ARA iC60
- 4 predefined programs

- Manual control of the circuit breaker or residual current circuit breaker always overrides automatic control

- Manual remote control of final reclosing (after inhibition of automatic recloser) (Y2)
- Remote inhibition of remote reclosing (Y1)

- Inhibition of automatic recloser (auto - OFF) and resetting (Reset)

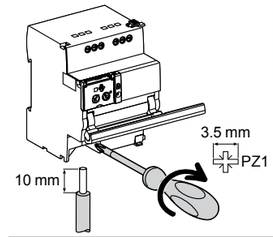
- Bistable operation: does not change state in the event of electrical power outage

ARA automatic reclosers

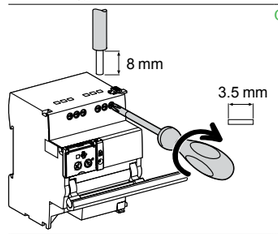
iC60 circuit breakers and iID residual current circuit breakers

Connection

DB123585

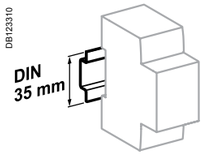


DB123586



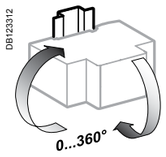
Terminal	Tightening torque	Copper cables		
		Rigid	Flexible	Flexible with ferrule
		DB122945	DB123553	DB123554
Power supply (N/P) Inputs (Y1/Y2)	1 N.m	0.5 to 10 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 6 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 4 mm² 2 x 0.5 to 2 x 2.5 mm²
Outputs (OF/Locked)	0.7 N.m	0.5 to 2.5 mm² 2 x 0.5 to 2 x 1.5 mm²	0.5 to 2.5 mm² 2 x 0.5 to 2 x 1.5 mm²	0.5 to 1.5 mm² 2 x 0.5 to 2 x 1.5 mm²

DB123310



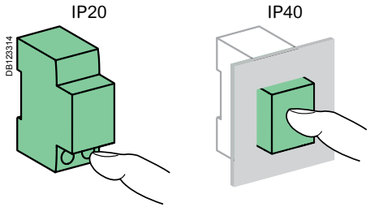
Clip on DIN rail 35 mm.

DB123312



Indifferent position of installation.

DB123314



Technical data

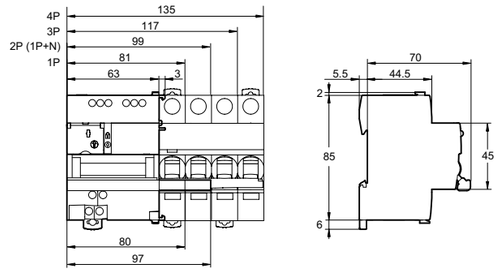
Control circuit		
Supply voltage (Ue) (N/P)		230 V AC, 50/60 Hz
Control voltage (Uc)	Type 1 inputs (Y1/Y2)	230 V AC (as per IEC 61131-2)
Min. duration of control order (Y2)		≥ 200 ms
Response time (Y2)		< 500 ms
Consumption		< 2 W
Endurance (O-C) (ARA combined with a circuit breaker)		
Electrical		5000 cycles
Indication / Remote control		
Potential-free changeover contact output (OF/Locked)	Min.	24 V AC/DC, 10 mA
	Max.	230 V AC, 1 A
Input (Y1/Y2)	230 V AC	5 mA
Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in a modular enclosure	IP40 Insulation class II
Insulation voltage (Ui)		400 V
Degree of pollution (IEC 60947)		3
Rated impulse withstand voltage (Uimp)		6 kV
Operating temperature		-25°C to +60°C
Storage temperature		-40°C to +70°C
Tropicalization		Treatment 2 (relative humidity of 93 % at +40°C)

Weight (g)

Automatic reclosers	
Type	ARA
For 1P, 1P+N, 2P circuit breakers or iID residual current circuit breaker	440
For 3P, 4P circuit breakers	470

Dimensions (mm)

DB123567



iPB pushbuttons

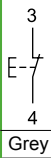
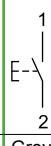
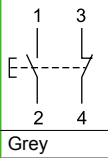
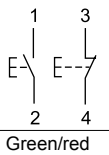
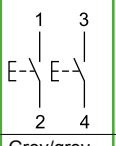
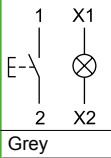
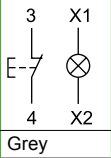
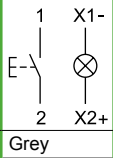
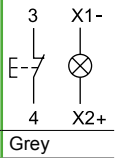
Local control

IEC 60669-1, IEC 60947-5-1

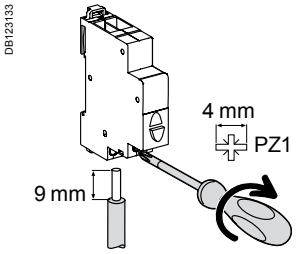
- iPB pushbuttons are used to control electric circuits by means of pulses.

Catalogue numbers

iPB pushbuttons

Type		Single				Double		Single + indicator light			
											
Diagram		1 NC 		1 NO 	1 NO + 1 NC 	1 NO / 1 NC 	1 NO / 1 NO 	1 NO 	1 NC 	1 NO 	1 NC 
Pushbutton	Colour	Grey	Red	Grey	Grey	Green/red	Grey/grey	Grey	Grey	Grey	Grey
Indicator light	Power supply	-	-	-	-	-	-	110…230 V AC		12…48 V AC/DC	
	Colour	-	-	-	-	-	-	Green	Red	Green	Red
Cat. no.		A9E18030	A9E18031	A9E18032	A9E18033	A9E18034	A9E18035	A9E18036	A9E18037	A9E18038	A9E18039
Width in 9 mm modules		2				2		2			

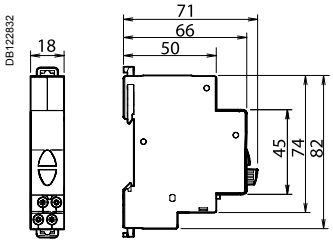
Connection



Tightening torque	Copper cables	
	Rigid	Flexible or with ferrule
		
1 N.m	0.5 mm² min. 2 x 2.5 mm² max.	0.5 mm² min. 2 x 2.5 mm² max.

- Phase-separated wall that can be divided to allow the teeth of all types of comb busbar to pass through.
- Staggered terminals to simplify connection.

Dimensions (mm)



Technical data

Main characteristics	
Pollution degree	3
Power circuit	
Voltage rating (Ue)	250 V AC
Current rating (Ie)	20 A
Additional characteristics	
Endurance (O-C)	30,000 operations AC22 (cos j = 0.8)
Operating temperature	-35°C... +70°C
Storage temperature	-40°C... +80°C
Tropicalization	Treatment 2 (relative humidity 95 % at 55°C)

Reflex iC60N, iC60H integrated control circuit breakers

Curves B, C, D

PB115437-40

ComReady

PB115442-40

IEC/EN 60947-2

The Reflex iC60 devices are integrated control circuit breakers which combine the following main functions in a single device:

- Remote control by latched and/or impulse-type order according to the 3 operating modes to be chosen by the user.
- Circuit breaker, to provide:
  - circuit protection against short-circuit currents,
  - circuit protection against overload currents,
  - disconnection in the industrial sector.

Resetting after a fault is performed manually, by the resetting handle.

The Ti24 interface allows direct interfacing of the Reflex iC60 with a PLC, to:

- Execute remote control (Y3).
- Indicate the state of the control circuit (O/C) and circuit-breaker state information (auto/OFF).
- Connect in a fast way and sure the Reflex iC60 to the Acti 9 Smartlink thanks to the prefabricated cables.

The iMDU auxiliary allows the Reflex iC60 to be controlled in 24/48 V AC/DC.

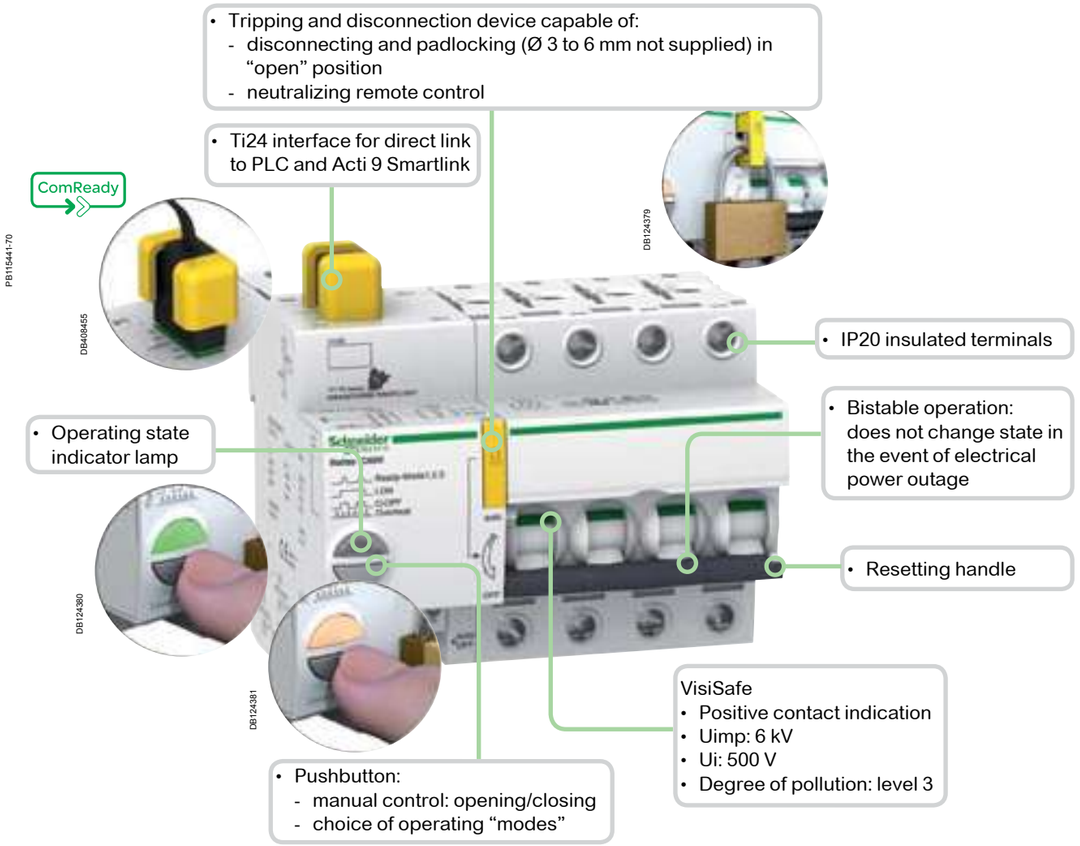
Alternating current (AC) 50/60 Hz				
Ultimate breaking capacity (Icu) as per IEC/EN 60947-2				Service breaking capacity (Ics)
		Voltage (Ue)		
Ph/Ph (2P, 3P, 4P)		220 to 240 V	380 to 415 V	
Reflex iC60N				
Rating (In)	10 to 40 A	20 kA	10 kA	75 % of Icu
	63 A	20 kA	10 kA	50 % of Icu
Reflex iC60H				
Rating (In)	10 to 40 A	30 kA	15 kA	50 % of Icu

Catalogue numbers

Reflex iC60 circuit breaker									
Type	2P			3P			4P		
Rating (In) for AC1 use	Curve			Curve			Curve		
	B	C	D	B	C	D	B	C	D
Reflex iC60N									
10 A	A9C61210	A9C62210	A9C63210	A9C61310	A9C62310	A9C63310	A9C61410	A9C62410	A9C63410
16 A	A9C61216	A9C62216	A9C63216	A9C61316	A9C62316	A9C63316	A9C61416	A9C62416	A9C63416
25 A	A9C61225	A9C62225	A9C63225	A9C61325	A9C62325	A9C63325	A9C61425	A9C62425	A9C63425
40 A	A9C61240	A9C62240	-	A9C61340	A9C62340	-	A9C61440	A9C62440	-
63 A	A9C61263	A9C62263	-	A9C61363	A9C62363	-	A9C61463	A9C62463	-
Reflex iC60H									
10 A	A9C64210	A9C65210	A9C66210	A9C64310	A9C65310	A9C66310	A9C64410	A9C65410	A9C66410
16 A	A9C64216	A9C65216	A9C66216	A9C64316	A9C65316	A9C66316	A9C64416	A9C65416	A9C66416
25 A	A9C64225	A9C65225	A9C66225	A9C64325	A9C65325	A9C66325	A9C64425	A9C65425	A9C66425
40 A	A9C64240	A9C65240	-	A9C64340	A9C65340	-	A9C64440	A9C65440	-
Width in 9 mm modules	9			11			13		
Vigi iC60	Vigi iC60 add-on residual current device, module CA902005			Vigi iC60 add-on residual current device, module CA902005			Vigi iC60 add-on residual current device, module CA902005		
iMDU auxiliary	See module CA907000 and CA907002			See module CA907000 and CA907002			See module CA907000 and CA907002		
Accessories	See module CA907000 and CA907001			See module CA907000 and CA907001			See module CA907000 and CA907001		

Reflex iC60N, iC60H integrated control circuit breakers

Curves B, C, D



- Longer product service life thanks to:
  - good overvoltage withstand capacity: products designed to provide a high industrial performance level (degree of pollution, rated impulse withstand voltage and insulation voltage),
  - high limitation performances,
  - fast closure independent of the speed of resetting of the operating handle.

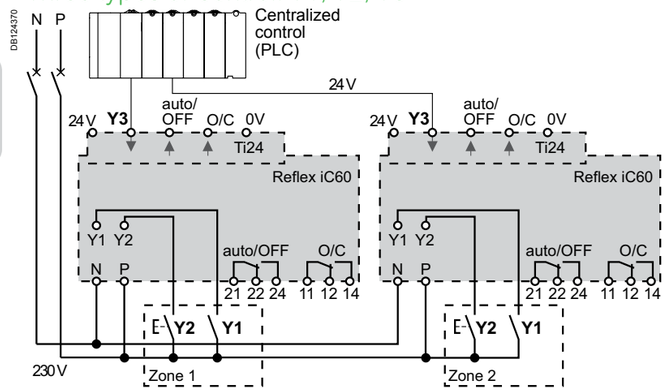
Legend	
Ti24 interface	
+24VDC	V DC power supply
Y3	Remote control by latched order
auto/OFF	Circuit-breaker state information
O/C	Control circuit state information (open/closed)
0 V	V DC power supply
Y1	Latched order control
Y2	Control by impulse-type
N	230 V AC power supply
P	
O/C 11 12 14	Control circuit state indication contact
auto/OFF 21 22 24	Circuit-breaker tripping indication contact

Reflex iC60N, iC60H integrated control circuit breakers

Curves B, C, D

Remote control is possible by 3 operating modes to be set using the pushbutton on the front panel.

Three types of control: Y1, Y2, Y3



Operating modes

Mode 1: Reflex iC60 opening/closing, locally or centrally controlled

- The opening/closing orders come from various control points, and they are taken into account in their order of arrival
- Y1: latched order local control
- Y2: impulse-type local control
- Y3: latched order centralized control

Mode 2: Reflex iC60 opening/closing, possible inhibition of local impulse-type control

- Y1 is used to inhibit Y2
- Y1: local opening/Y2 inhibition latched order control
- Y2: impulse-type local opening/closing control
- Y3: latched order centralized opening/closing control

Mode 3: Reflex iC60 opening/closing, possible inhibition of centralised latched order control

- Y1 is used to inhibit Y3
- Y3 inhibition local latched order control
- Y2: impulse-type local opening/closing control
- Y3: latched order centralized opening/closing control

Reflex iC60

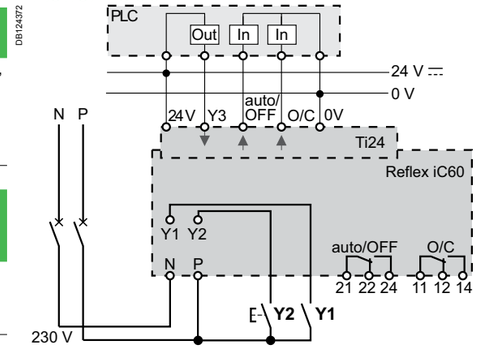


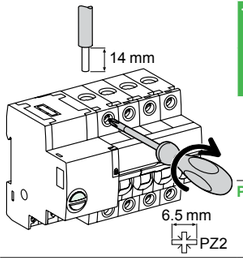
Table of modes			
	Mode 1	Mode 2	Mode 3
Reflex iC60	• Possible mode	• Possible mode	• Default mode

Reflex iC60N, iC60H integrated control circuit breakers

Curves B, C, D

Power connection

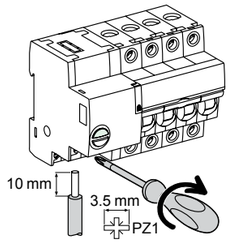
DB123561



Terminal	Rating	Tightening torque	Without accessories: Copper cables – Rigid	Without accessories: Copper cables – Flexible or with ferrule	With accessories: Al terminal 50 mm²	With accessories: Screw-on connection for ring terminal	With accessories: Multi-cable terminal – Rigid cables	With accessories: Multi-cable terminal – Flexible cables
			DB122945	DB122946 DB122935	Al DB118789	Ø DB118787		
Power	10 to 25 A	2 N.m	1 to 25 mm²	1 to 16 mm²	-	Ø 5 mm	-	-
	40 to 63 A	3.5 N.m	1 to 35 mm²	1 to 25 mm²	50 mm²		3 x 16 mm²	3 x 10 mm²

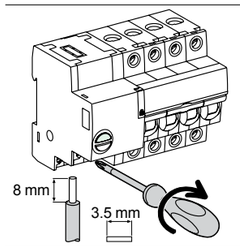
Control connection

DB123562

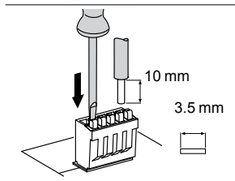


Terminal	Tightening torque	Without accessories: Copper cables – Rigid	Without accessories: Copper cables – Flexible	Without accessories: Copper cables – Flexible with ferrule
		DB122945	DB123553 DB123554	
Power supply (N/P) Inputs (Y1/Y2)	1 N.m	1 to 10 mm²	1 to 6 mm²	1 to 4 mm²
Outputs (O/C, auto/OFF)	0.7 N.m	1 to 2.5 mm²	1 to 2.5 mm²	1 to 1.5 mm²
Ti24 interface	Spring-loaded terminals	0.5 to 1.5 mm²	0.5 to 1.5 mm²	0.5 to 1.5 mm²

DB123563



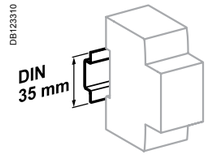
DB123580



Reflex iC60N, iC60H integrated control circuit breakers

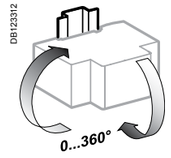
Curves B, C, D

DB123310



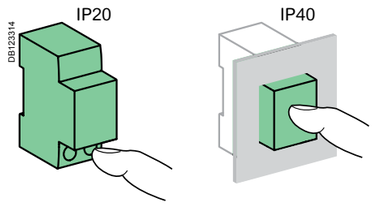
Clip on DIN rail 35 mm.

DB123312



Indifferent position of installation.

DB123314

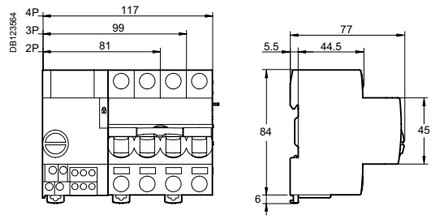


Weight (g)

Circuit breaker	
Type	Reflex iC60
2P	480
3P	620
4P	750

Dimensions (mm)

DB123564



Technical data

Control circuit				
Supply voltage (Ue) (N/P)		230 V AC - 50/60 Hz		
Control voltage (Uc)	Inputs (Y1/Y2)	230 V AC - 23 mA (24…48 V AC/DC, with iMDU auxiliary)		
	Input (Y3)	24 V DC - 5.5 mA		
Min. duration of control impulse (Y2)		u 250 ms		
Response time (Y2)		y 250 ms		
Maximum continuous apparent power	Inputs (Y1/Y2)	5.3 VA		
	Input Y3	0.12 VA		
Length of control wires	Inputs (Y1/Y2/Y3)	500 m		
Inrush current at 230 V - 50/60 Hz		Measured peak current	Peak current duration	Rms current measurement
	2P	11.4 Â	11 ms	7.6 A
	3P	21.8 Â	11 ms	14.5 A
	4P	21.8 Â	11 ms	14.5 A

The inrush currents are added in the event of simultaneous control of several Reflex iC60.
The controls should therefore be offset by 10 ms (by automaton or time-delay relays).

Power circuit		
Max. working voltage (Ue)		400 V AC
Insulation voltage (Ui)		500 V
Rated impulse withstand voltage (Uimp)	Set to disconnected	6 kV
	Set to Ready	4 kV
Thermal tripping	Reference temperature	50°C
Magnetic tripping	Curve B	4 In ± 20 %
	Curve C	8 In ± 20 %
	Curve D	12 In ± 20 %
Overvoltage category (IEC 60364)		IV
Temperature derating		See module CA908007

Indication / Remote control		
Potential-free changeover contact outputs (O/C, auto/OFF)	Min.	24 V DC - 100 mA
	Max	230 V AC - 1 A
Ti24 interface (as per IEC 61131)		
Outputs (O/C, auto/OFF)	Ti24 interface	24 V DC - 100 mA max

Endurance (O-C)		
Electrical	AC1 - AC7a	Up to 50,000 cycles
	AC5a - AC5b	Up to15,000 cycles
	AC7c	Up to 20,000 cycles
Mechanical		50,000 cycles

Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in a modular enclosure	IP40 Insulation class II
Degree of pollution		3
Operating temperature		-25°C to +60°C
Storage temperature		-40°C to +85°C
Tropicalization		Treatment 2 (relative humidity of 93 % at 40°C)
Immunity to voltage dips		IEC 61000-4-11 class III
Immunity to power supply frequency variations		IEC 61000-4-28 and IACS E10
Immunity to harmonics		IEC 61000-4-13 class 2
Immunity to electrostatic discharges	Air	8 kV, IEC 61 000-4-2
	Contacts	4 kV, IEC 61 000-4-2
Immunity to stray magnetic fields		10 V/m up to 3 GHz, IEC 61000-4-3
Immunity to fast transients		4 kV from 5 to 100 kHz, IEC 61000-4-4
Immunity to shock waves		IEC 61000-4-5
Immunity to power frequency magnetic fields		10 V from 150 kHz to 80 MHz, IEC 61000-4-6
Immunité aux champs magnétiques à la fréquence du réseau		Level 4 30 A/m to IEC 61000-4-8 and IEC 61000-4-9
Conducted emissions		CISPR 11/22
Radiated emissions		CISPR 11/22

iCT contactors
Remote control

DB123399 DB116619 DB106604

Country approval pictograms

EN 61095, IEC 1095

iCT contactors are available in two versions:
- Contactors without manually-operated
- Contactors with manually-operated.

The breadth of the iCT contactor range satisfies most application cases.
iCT contactors can be combined with auxiliary control, protection and indication functions.

Contactors

iCT 2P

PB106115-35

manual control

iCT 4P

PB106105-35

- iCT contactors can be used to remote control applications in alternative networks:
  - lighting, heating, ventilation, roller blinds, sanitary hot water
  - mechanical ventilation systems, etc
  - load-shedding of non-priority circuits

Contactors auxiliaries

PB106120-34

Indication iACTs
- This auxiliary allows indication or control of the "open" or "closed" position of the contactor power contacts

PB106124-34

Interference filtering iACTp
- This auxiliary is an interference suppressor which limits overvoltages on the control circuit

PB106123-34

Dual control iACTc
- Used to control a contactor in impulse-type mode or to combine latched or impulse-type control orders

PB107751-34

Control and indication 24 V DC iACT24
- Allows control and indication of a 230 Vac contactor from the Acti 9 Smartlink or by a PLC, by 24 V DC signals
- Also allows control by a maintained signal

PB106125-34

Time delay iATEt
- This auxiliary is used to time delay for iCT and iTL. According to cabling, there are 5 possible time delay types:
  - 1 for iTL
  - 4 for iCT

Function type A:
late closing
Delay energizing of contactor

Function type B:
time delay
- Energize the contactor by closing a push button
- The time delay starts as soon as the control contacts are closed

Function type C:
late opening
- Energize the contactor by closing a push button
- The time delay starts when the control contacts are opened

Function type H:
fixed time operation
- Operate the contactor for a pre-determined time from the moment of energizing

		Choice of 50 Hz contactors										Choice of 60 Hz contactors					
Type		Contactor						Manually-operated contactors				Contactor				Manually-operated contactors	
Rating	A	16	20	25	40	63	100	16	25	40	63	16	25	40	63	40	
Auxiliaries								Contactors that can be equipped with auxiliaries				Contactors that can be equipped with auxiliaries					
iACTs indication auxiliary		Yes	Yes	Yes				Yes				Yes				Yes	
iACTp protection auxiliary	By yellow clips	No	No	Yes				No	Yes			No	Yes			Yes	
iACTc, iATEt control auxiliary	By yellow clips	No	No	Yes				No	Yes			No	Yes			Yes	
iACT24 control auxiliary		Non	No	Yes (for contactors 230 V - 50 Hz)				No	Yes (for contactors 230 V - 50 Hz)			No	Yes			No	

iCT contactors
Remote control

PB106115-39

Yellow clip
- Clip-on system for electrical and mechanical connections between contactors u 25 A and their auxiliaries

- Insulated terminals IP20

- Minimum noise

- Large circuit labeling area

- Mechanical contact position indicator

- Consistent with the entire Acti 9 offer and with all types of lighting

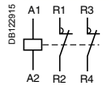
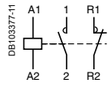
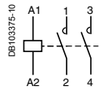
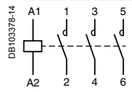
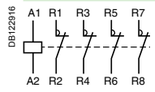
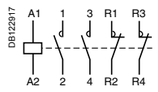
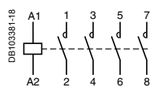
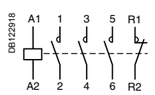
- Manually-operated contactors have a 4-position selector switch on their front face:
  - automatic operating mode
  - temporary "ON" override
  - permanent "ON" override: used to lock the contactor in the ON position during installation maintenance
  - shutdown

iCT contactors

Remote control

Catalogue numbers

iCT contactors - 50 Hz

Type						Width in 9 mm modules
1P	Rating (In) AC7a	AC7b	Control voltage (V AC) (50 Hz)	Contact		
	16 A	6 A	12	1NO	A9C22011	2
			24	1NO	A9C22111	2
			48	1NO	A9C22211	2
			220	1NO	A9C22511	2
			230…240	1NO	A9C22711	2
	25 A	8.5 A	220	1NO	A9C20531	2
			230…240	1NO	A9C20731	2
2P						
	16 A	6 A	12	2NO	A9C22012	2
			24	2NO	A9C22112	2
			48	2NO	A9C22212	2
			220	2NO	A9C22512	2
			230...240	2NO	A9C22712	2
			12	1NO+1NC	A9C22015	2
			24	1NO+1NC	A9C22115	2
			220	1NO+1NC	A9C22515	2
			230...240	1NO+1NC	A9C22715	2
	20 A	-	230...240	2NO	A9C22722	2
	25 A	8.5 A	24	2NO	A9C20132	2
			48	2NO	A9C20232	2
			220	2NO	A9C20532	2
			230...240	2NO	A9C20732	2
			220	2NC	A9C20536	2
			230...240	2NC	A9C20736	2
	40 A	15 A	220...240	2NO	A9C20842	4
	63 A	20 A	24	2NO	A9C20162	4
			220...240	2NO	A9C20862	4
	100 A (*)	-	220...240	2NO	A9C20882	6
3P						
	16 A	6 A	220…240	3NO	A9C22813	4
	25 A	8.5 A	220…240	3NO	A9C20833	4
	40 A	15 A	220…240	3NO	A9C20843	6
	63 A	20 A	220…240	3NO	A9C20863	6
4P						
	16 A	6 A	24	4NO	A9C22114	4
			220...240	4NO	A9C22814	4
			220...240	2NO+2NC	A9C22818	4
	20 A	-	220 ...240	4NO	A9C22824	4
	25 A	8.5 A	24	4NO	A9C20134	4
			220...240	4NO	A9C20834	4
			24	4NC	A9C20137	4
			220...240	4NC	A9C20837	4
			220...240	2NO+2NC	A9C20838	4
	40 A	15 A	220...240	4NO	A9C20844	6
			220...240	4NC	A9C20847	6
	63 A	20 A	24	4NO	A9C20164	6
			220...240	4NO	A9C20864	6
			24	4NC	A9C20167	6
			220...240	4NC	A9C20867	6
			220...240	2NO+2NC	A9C20868	6
			220...240	3NO+1NC	A9C20869	6
	100 A (*)	-	220...240	4NO	A9C20884	12

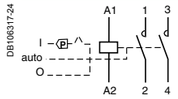
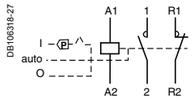
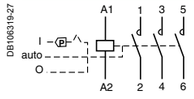
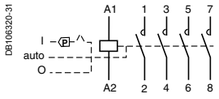
(*) do not use for lighting applications

iCT contactors

Remote control

Catalogue numbers

iCT manual control contactor 50 Hz

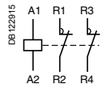
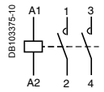
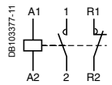
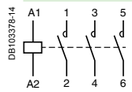
Type						Width in 9 mm modules
2P	Rating (In) AC7a	AC7b	Control voltage (V AC) (50/60 Hz)	Contact		
	16 A	6 A	220	2NO	A9C23512	2
			230...240	2NO	A9C23712	2
			220	1NO+1NC	A9C23515	2
			230...240	1NO+1NC	A9C23715	2
	25 A	8,5 A	24	2NO	A9C21132	2
			220	2NO	A9C21532	2
			230...240	2NO	A9C21732	2
	40 A	15 A	24	2NO	A9C21142	2
			220...240	2NO	A9C21842	4
	63 A	20 A	24	2NO	A9C21162	4
			220...240	2NO	A9C21862	4
3P						
	25 A	8,5 A	220...240	3NO	A9C21833	4
	40 A	15 A	220...240	3NO	A9C21843	6
4P						
	25 A	8,5 A	24	4NO	A9C21134	4
			220...240	4NO	A9C21834	4
	40 A	15 A	24	4NO	A9C21144	6
			220...240	4NO	A9C21844	6
	63 A	20 A	24	4NO	A9C21164	6
			220...240	4NO	A9C21864	6

iCT contactors

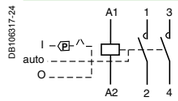
Remote control

Catalogue numbers

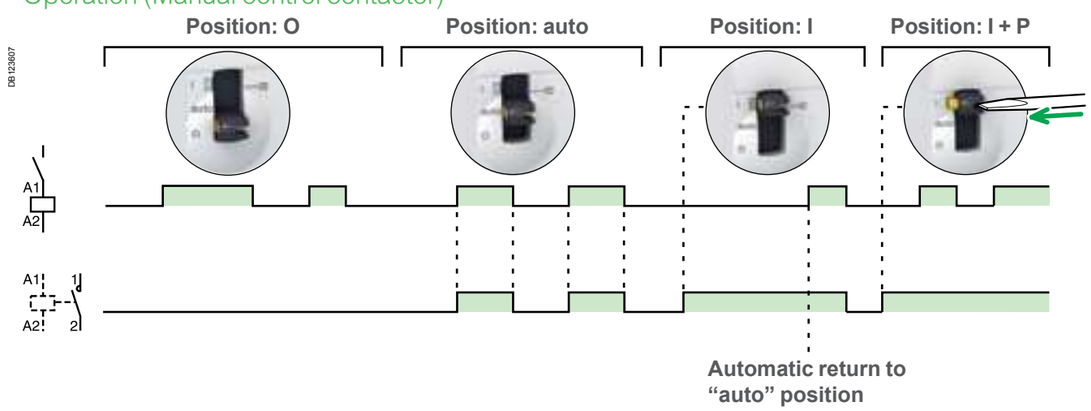
iCT contactors - 60 Hz

Type						Width in 9 mm modules
1P	Rating (In) AC7a	AC7b	Control voltage (V AC) (60 Hz)	Contact		
	25 A	8.5 A	127	1NO	A9C20431	2
			220 ...240	1NO	A9C20631	2
2P						
 	16 A	6 A	127	1NO+1NC	A9C22415	2
			220...240	1NO+1NC	A9C22615	2
	25 A	8.5 A	127	2NO	A9C20432	2
			220...240	2NO	A9C20632	2
			127	2NC	A9C20436	2
			220...240	2NC	A9C20636	2
	40 A	15 A	127	2NO	A9C20442	4
			220...240	2NO	A9C20642	4
3P						
	25 A	8.5 A	127	3NO	A9C20433	4
			220...240	3NO	A9C20633	4
	40 A	15 A	127	3NO	A9C20443	6
			220...240	3NO	A9C20643	6
	63 A	20 A	127	3NO	A9C20463	6
			220...240	3NO	A9C20663	6

iCT manual control contactor 60 Hz

Type						Width in 9 mm modules
2P	Rating (In) AC7a	AC7b	Control voltage (V AC) (60 Hz)	Contact		
	40 A	15 A	127	2NO	A9C21442	4
			220...240	2NO	A9C21642	4

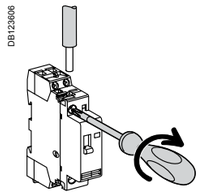
Operation (Manual control contactor)



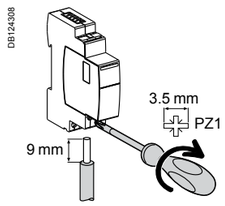
iCT contactors

Remote control

Connection

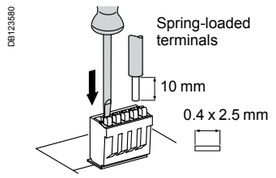


Type		Rating	Lenght tripping	Circuit	Tightening torque	Copper cables	
						Rigid	Flexible or with ferrule
							
iCT	PZ1: 4 mm	16 - 100 A	9 mm	Control	0.8 N.m	1.5 to 2.5 mm: 2 x 1.5 mm²	1.5 to 2.5 mm: 2 x 2.5 mm²
		16 and 25 A		Power		1.5 to 6 mm²	1 to 4 mm²
	PZ2: 6 mm	40 A - 63 A	14 mm		3.5 N.m	6 to 25 mm²	6 to 16 mm²
		100 A				6 to 35 mm²	6 to 35 mm²
iACTs, iACTp, iACTc, iATEt	PZ1: 4 mm	-	9 mm	-	0.8 N.m	1.5 to 2.5 mm: 2 x 1.5 mm²	1.5 to 2.5 mm: 2 x 2.5 mm²



Type	Terminals	Tightening torque	Copper cables		
			Rigid	Flexible	Flexible or with ferrule
					
iACT24	Power supply (N/P) Input (Y1/Y2)	1 N.m	0.5 to 10 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 6 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 4 mm² 2 x 0.5 to 2 x 2.5 mm²

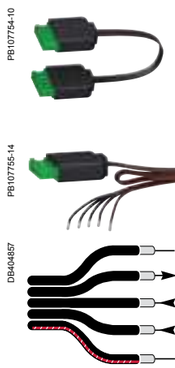
Ti24 connector connection



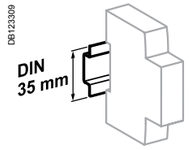
Type	Catalogue numbers	Copper cables	
		Rigid	Flexible
			
Ti24 Interface	A9XC2412	1 x 0.5 to 1.5 mm²	1 x 0.5 to 1.5 mm²

Ti24 prefabricated cables connection

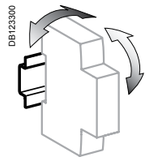
Type	Catalogue numbers	Length
Connection for Acti 9 Smartlink		
6 short prefabricated	A9XCAS06	100 mm
6 medium-sized prefabricated	A9XCAM06	160 mm
6 long prefabricated	A9XCAL06	870 mm
Connection for PLC type terminals		
6 long prefabricated on a single side	A9XCAU06	870 mm



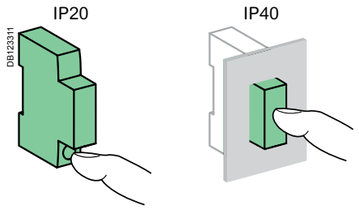
iCT contactors
Remote control

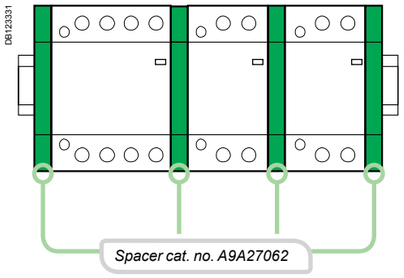


Clip on DIN rail 35 mm.



± 30° vertical.





Technical data

Power circuit		
Voltage rating (Ue)	1P, 2P	250 V AC
	3P, 4P	400 V AC
Frequency		50 Hz or 60 Hz
Type of load		See module CA908026
Endurance (O-C)		
Electrical		100,000 cycles
Maximum number of switching operation a day		100
Additional characteristics		
Insulation voltage (Ui)		500 V AC
Pollution degree		2
Rated impulse withstand voltage (Uimp)		2.5 kV (4 kV for 12/24/48 V AC)
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40
Operating temperature		-5°C to +60°C (1)
Storage temperature		-40°C to +70°C
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C)
ELSV compliance (Extra Low Safety Voltage) for 12/24/48 V AC versions		
The product control conforms to the SELV (safety extra low voltage) requirements		

(1) In the case of contactor mounting in a enclosure for which the interior temperature is in range between 50°C and 60°C, it is necessary to use a spacer, cat. no. A9A27062, between each contactor

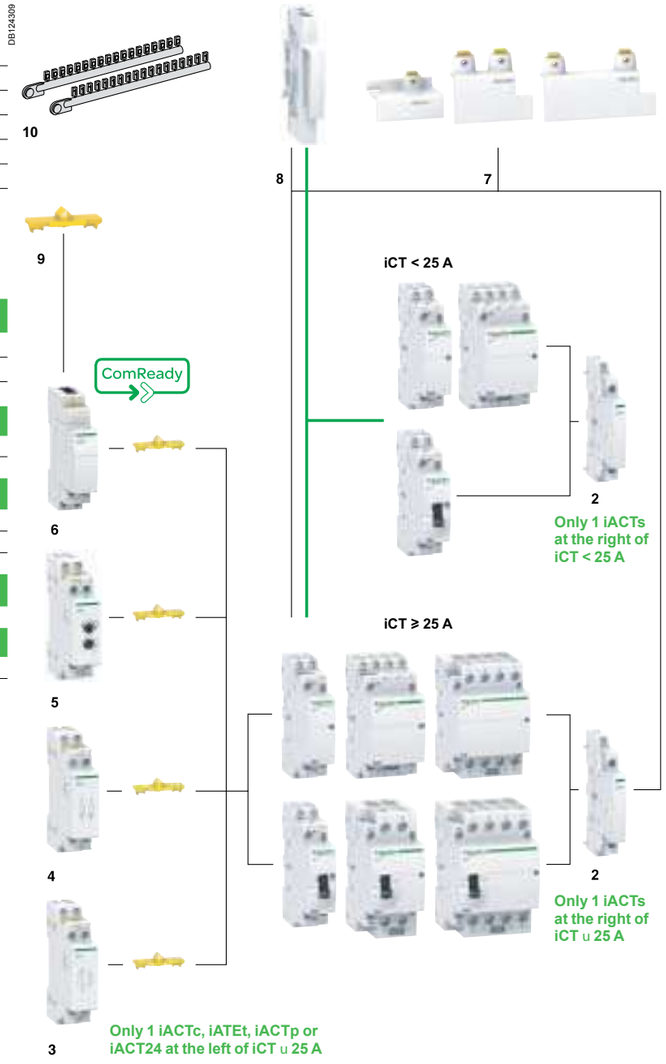
iCT contactors
Remote control

Mounting accessories

7	Sealable screw shields for top and bottom	3P, 4P	25 A	A9A15921
		2P	40/63 A	A9A15922
		3P, 4P	40/63 A	A9A15923
8	9 mm spacer			A9A27062
9	Yellow clips			A9C15415
10	Clip-on terminal markers	see module		CA907001

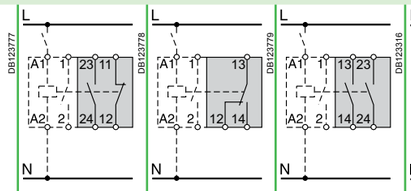
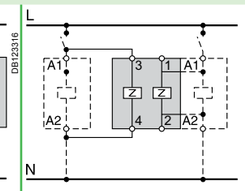
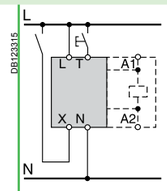
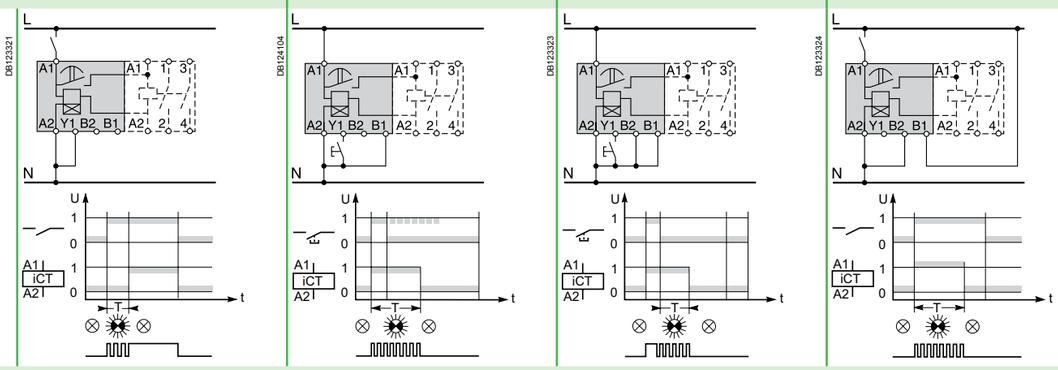
Auxiliaries

Indication			
2	iACTs	1NO + 1NC	A9C15914
		1CO	A9C15915
		2NO	A9C15916
Double control inputs			
3	iACTc	230 V AC	**A9C18308**
		24 V AC	**A9C18309**
Coil suppression blocs			
4	iACTp	12...48 V AC	A9C15919
		48...127 V AC	A9C15918
		220...240 V AC	A9C15920
Time delay			
5	iATEt	24...240 V AC	A9C15419
Control and indication			
6	iACT24	230 V AC	A9C15924



iCT contactors

Electrical auxiliaries

	Indication	Protection	Control	Control
Auxiliaries	**iACTs**	**iACTp**	**iACTc**	**iATEt**
Type	Indication	Interference filtering	Impulse/latched control	Time delay
	With Open/Close auxiliary contact	2 protection circuits		
				
Function	• This auxiliary allows indication of the "open" or "closed" position of the contactor power contacts	• This auxiliary is an interference suppressor which limits overvoltages on the control circuit	• This auxiliary, combined with contactors, enables them to be controlled by 2 order types: - impulse order for local control (input T) - latched order for centralised control (input X) - the last order received takes priority	• This auxiliary is used to time delay for iCT and iTL. According to cabling, there are 5 possible time delay types: - 1 for iTL - 4 for iCT. Function type A: late closing • Delay energizing of contactor. Function type B: time delay • Energize the contactor by closing a push button. • The time delay starts as soon as the control contacts are closed. Function type C: late opening • Energize the contactor by closing a push button. • The time delay starts when the control contacts are opened. Function type H: fixed time operation • Operate the contactor for a pre-determined time from the moment of energizing.
Wiring diagrams				
Mounting	• Mounted to the right of iCT	• Mounted to the left of iCT by yellow clips (1) • By wires	• Mounted to the left of iCT by yellow clips (1)	• Mounted to the left of iCT by yellow clips (1)
Use	–	• The iACTp has 2 separate and identical circuits, allowing it to be combined with 2 different one on the iCT the other by wires	• Mains power outages: - < 70 ms: keeps its initial status - > 80 ms: reset - put back into operation by manual operation on input X or T. • Minimum impulse duration: 250 ms	–

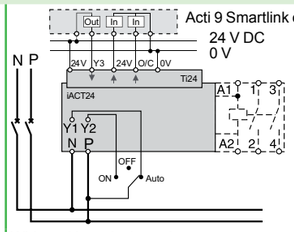
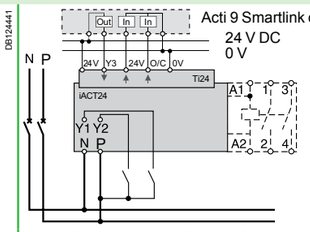
Catalogue numbers		A9C15914	A9C15915	A9C15916	A9C15918	A9C15919	A9C15920	A9C18308	A9C18309	A9C15419
Technical specifications										
Control voltage (Ue)	V AC	24…240			48 …127	12 …48	220 …240	230…240	24…48	24…240
	V DC	24…130			–			–		24…110
Control voltage frequency	Hz	50/60			50/60			50/60		50/60
Width in 9 mm modules		1			2			2		2
Auxiliary contact (breaking capacity)		• Mininimum: 10 mA at 24 V DC/AC • Maximum: - 5 A at 230 V AC, AC12 - 2 A at 230 V AC, AC15 - 1 A at 130 V DC, DC13			–			–		–
Number of contacts		1NO + 1NC	1CO	2NO	–			–		–
Operating temperature	°C	-5°C to +50°C								-20°C to +50°C
Storage temperature	°C	-40°C to +70°C								-40°C to +80°C
Consumption		–			–			OFF load: 3 VA Inrush (2): 2 VA Holding (2): 0.2 VA		Off-load: 5 VA Inrush (2): 3 A Holding (2): 0.2 A

(1) Electrical and mechanical link.
(2) Maximum consumption of all contactors controlled.

Version 2.0 - May 2017
Acti9

iCT contactors

Electrical auxiliaries

		Control and indication
Auxiliary		**iACT24**
Type		Control and indication 24 V DC
		With Ti24 connector
		
Function		
		• This auxiliary allows a contactor to be interfaced with the Acti 9 Smartlink interface or a programmable logic controller (PLC) in 24 V DC (control, O/C indication) • 230 V AC control
Wiring diagrams		
		 Wiring with exclusive selector 230 V AC control (Y1 = 0) / 24 V DC control (Y1 = 1)
		 Wiring for non-exclusive 230 V AC and 24 V DC controls
Mounting		
		• To the left of the iCT contactor using the yellow clips (1). • When an iACT24 is used, the A1/A2 terminals of the contactors should not be wired. Only the yellow clips integral with the iACT24 should be used for connection to the coil.
Utilization		
		• 230 V AC interface: - Y1: enabling of 24 V DC control (Y1 = 1) or inhibition of 24 V DC control (Y1 = 0). - Y2: 230 V pulse control • "Ti24" 24 V DC interface: - Y3: 24 V DC control of iCT closing on rising edge and opening on falling edge - reading of the contactor status (opened or closed) from the position of the integrated O/C auxiliary contact - monitoring of connection of the "Ti24" terminal block by the upstream system (PLC, supervision system) via the 24 V terminal (in the centre of the Ti24 terminal block)
Catalogue numbers		A9C15924
Technical specifications		
Control voltage (Ue)	V AC	230, +10 %, -15 % (Y2)
	V DC	24, ± 20 % (Y3)
Control voltage frequency	Hz	50/60
Insulation voltage (Ui)	V AC	250
Rated impulse withstand voltage (Uimp)	kV	8 (OVC IV)
Pollution degree		3
Degree of protection		IP20B device only
		IP40 device in modular enclosure
Width in 9 mm modules		2
Auxiliary contact (O/C) Ti24		24 V DC protected output, min. 2 mA, max. 100 mA
Contact		1 O/C operating category AC 14
Operating temperature	°C	-25°C to +60°C
Storage temperature	°C	-40°C to +80°C
Consumption		<1 W
Standard		IEC/EN 60947-5-1

(1) Mechanical and electrical link.

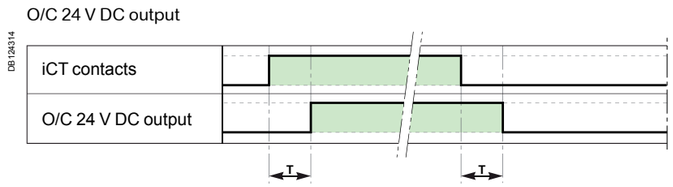
iCT contactors

Accessories

		Security				
Accessories		**Sealable screw shields**			**Yellow clips**	**Spacer**
						
Function						
		• Designed to cover terminals to avoid contact with device screws. • Allow sealing			• Ensure the mechanical and/or electrical link between contactors and their auxiliaries.	• Required to reduce temperature rise of modular devices installed side by side. • Recommended to separate electronic devices (thermostat, programmable clock, etc.) from electromechanical devices (relays, contactors).
		• For iCT: 3P, 4P - 25 A	• For iCT: 2P - 40/63 A	• For iCT: 3P, 4P - 40/63 A	• For iCT: ≥ 25 A	
Use						
		• Bag of 10 upstream/10 downstream			• Bag of 10	• Bag of 5
Catalogue numbers		A9A15921	A9A15922	A9A15923	A9C15415	A9A27062
Technical specifications						
Width in 9 mm modules		4	4	6	–	1
Number of poles		3P, 4P	2P	3P	–	–

ComReady

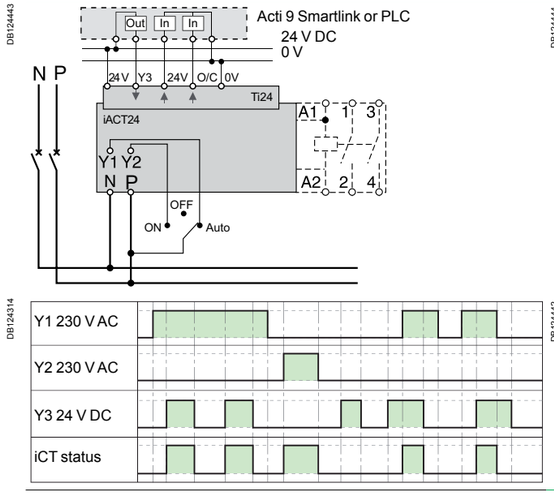
Operation of the iACT24



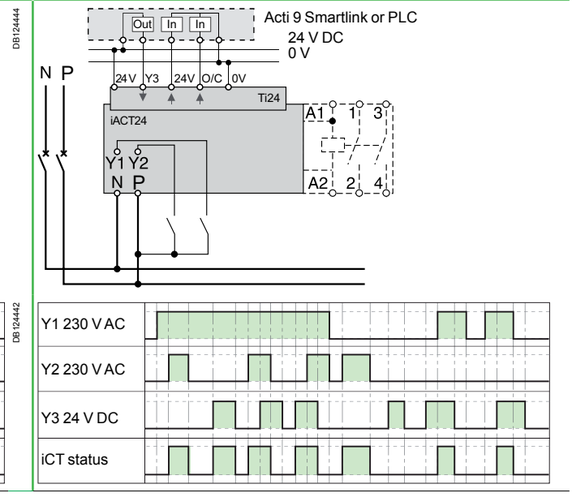
	Parameter	Min	Max
T	Time delay between iACT24 closing and indication	100 ms	200 ms

- Minimum duration of 230 V AC pulse (Y2): 200 ms.
- 30 iACT24 closing or opening actuations are authorized per minute: Minimum time delay between 2 actuations on the iACT4 via Y1,Y2, Y3 (closing or opening of the iCT coil): 220 ms.
- 10 closing or opening actuations spaced 440 milliseconds apart are authorized following no loading of the iACT24 during a period of 20 seconds.

Wiring with exclusive selector 230 V AC control (Y1 = 0) / 24 V DC control (Y1 = 1)



Wiring for non-exclusive 230 V AC and 24 V DC controls



Consumption

iCT contactors - 50 Hz

Type	Rating (In)		Control voltage (V AC) (50 Hz)	Consumption		Max. power	
	AC7a	AC7b		Holding	Inrush		
1P							
	16 A	5 A	12	3.8 VA	15 VA	1.3 W	A9C22011
			24	3.8 VA	15 VA	1.3 W	A9C22111
			48	3.8 VA	15 VA	1.3 W	A9C22211
			220	3.8 VA	15 VA	1.3 W	A9C22511
			230…240	2.7 VA	9.2 VA	1.2 W	A9C22711
	25 A	8.5 A	220	3.8 VA	15 VA	1.3 W	A9C20531
			230…240	2.7 VA	9.2 VA	1.2 W	A9C20731
2P							
	16 A	5 A	12	3.8 VA	15 VA	1.3 W	A9C22012
			24	3.8 VA	15 VA	1.3 W	A9C22112
			48	3.8 VA	15 VA	1.3 W	A9C22212
			220	3.8 VA	15 VA	1.3 W	A9C22512
			230...240	2.7 VA	9.2 VA	1.2 W	A9C22712
			12	3.8 VA	15 VA	1.3 W	A9C22015
			24	3.8 VA	15 VA	1.3 W	A9C22115
			220	3.8 VA	15 VA	1.3 W	A9C22515
			230...240	2.7 VA	9.2 VA	1.2 W	A9C22715
	20 A	6.4 A	230...240	2.7 VA	9.2 VA	1.2 W	A9C22722
	25 A	8.5 A	24	3.8 VA	15 VA	1.3 W	A9C20132
			48	3.8 VA	15 VA	1.3 W	A9C20232
			220	3.8 VA	15 VA	1.3 W	A9C20532
			230...240	2.7 VA	9.2 VA	1.2 W	A9C20732
			220	3.8 VA	15 VA	1.3 W	A9C20536
			230...240	2.7 VA	9.2 VA	1.2 W	A9C20736
	40 A	15 A	220...240	4.6 VA	34 VA	1.6 W	A9C20842
	63 A	20 A	24	4.6 VA	34 VA	1.6 W	A9C20162
			220...240	4.6 VA	34 VA	1.6 W	A9C20862
	100 A (*)	-	220...240	6.5 VA	53 VA	2.1 W	A9C20882
3P							
	16 A	5 A	220…240	4.6 VA	34 VA	1.6 W	A9C22813
	25 A	8.5 A	220…240	4.6 VA	34 VA	1.6 W	A9C20833
	40 A	15 A	220…240	6.5 VA	53 VA	2.1 W	A9C20843
	63 A	20 A	220…240	6.5 VA	53 VA	2.1 W	A9C20863
4P							
	16 A	5 A	24	4.6 VA	34 VA	1.6 W	A9C22114
			220...240	4.6 VA	34 VA	1.6 W	A9C22814
			220...240	4.6 VA	34 VA	1.6 W	A9C22818
	20 A	6.4 A	220 ...240	4.6 VA	34 VA	1.6 W	A9C22824
	25 A	8.5 A	24	4.6 VA	34 VA	1.6 W	A9C20134
			220...240	4.6 VA	34 VA	1.6 W	A9C20834
			24	4.6 VA	34 VA	1.6 W	A9C20137
			220...240	4.6 VA	34 VA	1.6 W	A9C20837
			220...240	4.6 VA	34 VA	1.6 W	A9C20838
	40 A	15 A	220...240	6.5 VA	53 VA	2.1 W	A9C20844
			220...240	6.5 VA	53 VA	2.1 W	A9C20847
	63 A	20 A	24	6.5 VA	53 VA	2.1 W	A9C20164
			220...240	6.5 VA	53 VA	2.1 W	A9C20864
			24	6.5 VA	53 VA	2.1 W	A9C20167
			220...240	6.5 VA	53 VA	2.1 W	A9C20867
			220...240	6.5 VA	53 VA	2.1 W	A9C20868
			220...240	6.5 VA	53 VA	2.1 W	A9C20869
	100 A (*)	-	220...240	13 VA	106 VA	4.2 W	A9C20884

(*) do not use for lighting applications

iCT contactors

Technical advice for iCT

Consumption (cont.)

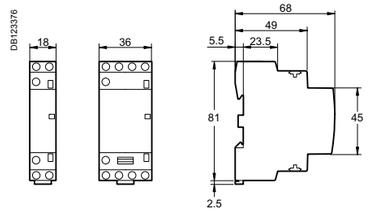
iCT manual control contactor 50 Hz							
Type							
2P	Rating (In)		Control voltage (V AC) (50 Hz)	Consumption		Max. power	
	AC7a	AC7b		Holding	Inrush		
	16 A	5 A	220	2.7 VA	9.2 VA	1.2 W	A9C23512
			230...240	2.7 VA	9.2 VA	1.2 W	A9C23712
			220	3.8 VA	15 VA	1.3 W	A9C23515
			230...240	2.7 VA	9.2 VA	1.2 W	A9C23715
	25 A	8.5 A	24	3.8 VA	15 VA	1.3 W	A9C21132
			220	2.7 VA	9.2 VA	1.2 W	A9C21532
			230...240	2.7 VA	9.2 VA	1.2 W	A9C21732
	40 A	15 A	24	4.6 VA	34 VA	1.6 W	A9C21142
			220...240	4.6 VA	34 VA	1.6 W	A9C21842
	63 A	20 A	24	4.6 VA	34 VA	1.6 W	A9C21162
			220...240	4.6 VA	34 VA	1.6 W	A9C21862
3P							
	25 A	8.5 A	220...240	4.6 VA	34 VA	1.6 W	A9C21833
	40 A	15 A	220...240	6.5 VA	53 VA	2.1 W	A9C21843
4P							
	25 A	8.5 A	24	4.6 VA	34 VA	1.6 W	A9C21134
			220...240	4.6 VA	34 VA	1.6 W	A9C21834
	40 A	15 A	24	6.5 VA	53 VA	2.1 W	A9C21144
			220...240	6.5 VA	53 VA	2.1 W	A9C21844
	63 A	20 A	24	6.5 VA	53 VA	2.1 W	A9C21164
			220...240	6.5 VA	53 VA	2.1 W	A9C21864

iCT contactors - 60 Hz							
Type							
1P	Rating (In)		Control voltage (V AC) (60 Hz)	Consumption		Max. power	
	AC7a	AC7b		Holding	Inrush		
	25 A	8.5 A	127	3.8 VA	15 VA	1.3 W	A9C20431
			220 ...240	2.7 VA	9.2 VA	0.9 W	A9C20631
2P							
	16 A	5 A	127	3.8 VA	15 VA	1.3 W	A9C22415
			220...240	2.7 VA	9.2 VA	0.9 W	A9C22615
	25 A	8.5 A	127	3.8 VA	15 VA	1.3 W	A9C20432
			220...240	2.7 VA	9.2 VA	0.9 W	A9C20632
			127	3.8 VA	15 VA	1.3 W	A9C20436
			220...240	2.7 VA	9.2 VA	0.9 W	A9C20636
	40 A	15 A	127	4.6 VA	34 VA	1.6 W	A9C20442
			220...240	4.6 VA	34 VA	1.6 W	A9C20642
3P							
	25 A	8.5 A	127	4.6 VA	34 VA	1.6 W	A9C20433
			220...240	4.6 VA	34 VA	1.6 W	A9C20633
	40 A	15 A	127	6.5 VA	53 VA	2.1 W	A9C20443
			220...240	6.5 VA	53 VA	2.1 W	A9C20643
	63 A	20 A	127	6.5 VA	53 VA	2.1 W	A9C20463
			220...240	6.5 VA	53 VA	2.1 W	A9C20663

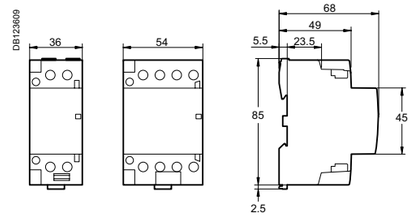
iCT contactors

Dimensions for iCT

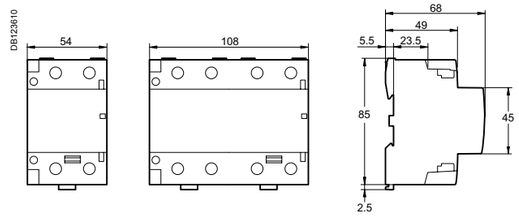
Dimensions (mm)



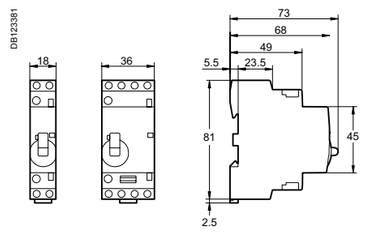
iCT 16/25 A



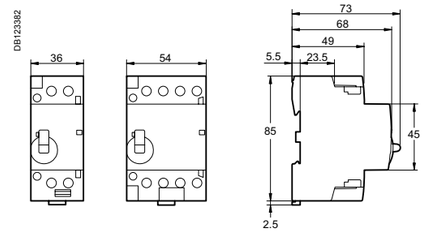
iCT 40/63 A



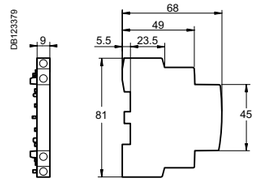
iCT 100 A



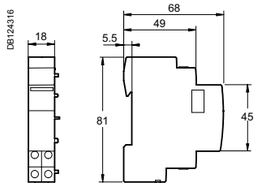
iCT manual control contactor 16/25 A



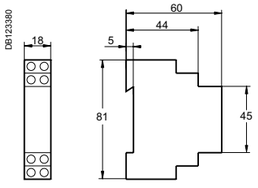
iCT manual control contactor 40/63 A



iACTs



iACT24



iATEt
iACTp
iACTc

Electrical circuit control
iTL impulse relays
www.schneider-electric.com/sg

DB123399 DB116619

iTL, iTLI, iTLs, iTLc, iTLm

Country approval pictograms

IEC/EN 60669-2-2, iTLs: IEC/EN 60947-5-1

Impulse relays are used:

- Closing of the impulse relay pole(s) is triggered by an impulse on the coil.
- Having two stable mechanical positions, the pole(s) will be opened by the next impulse. Each impulse received by the coil reverses the position of the pole(s).
- Can be controlled by an unlimited number of pushbuttons.
- Zero energy consumption.

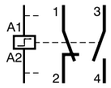
Impulse relays

PB106126-34 PB106128-34

iTL
- The impulse relays are used to control, by means of pushbuttons, lighting circuits consisting of:
  - incandescent lamps, low-voltage halogen lamps, etc. (resistive loads)
  - fluorescent lamps, discharge lamps, etc. (inductive loads)

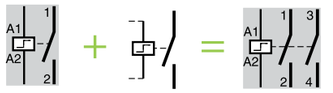
PB106131-34

Changeover contact iTLi
- This impulse relay has a changeover contact



PB106134-34

Extensions iETL
- Used to increase the number of impulse relay poles
- Can be installed on the iTL, iTLi, iTLc, iTLm and iTLs



Remote indication

PB106133-34

iTLs
- Allows remote indication of its operating state (open/closed)

PB106139-34

Indication iATLs
- Allows remote indication of the associated impulse relay

PB106140-34

Centralised control + indication iATLc+s
- Used for centralised control, thanks to a "pilot line", of a group of impulse relays controlling separate circuit, while at the same time maintaining local individual control of each impulse relay
- Remote indication of the mechanical status of each relay

PB107752-34

Control and indication 24 V DC iATL24
- Allows control and indication of a 230 V AC impulse relay from the Acti 9 Smartlink or by a PLC, by 24 V DC signals
- Also allows control by a pulsed signal

PB106125-34

Time delay iATEt
- Combined with an impulse relay, it automatically disconnects the circuit after a preset time

PB106141-34

Control iATLz
- Must be used when installing several illuminated PBs in parallel to control an impulse relay (prevents operating malfunctions)

Centralised control

PB106130-34

iTLc
- Allows centralised control of a group of TLc impulse relays, whilst at the same time retaining local impulse-type control

PB106137-34

Centralised control iATLc
- Used for centralised control, thanks to a "pilot line", of a group of impulse relays controlling separate circuit, while at the same time maintaining local individual control of each impulse relay

PB106136-34

Multi-level centralised control iATLc+c
- Allows centralised control of a group of iTLc or “iTL + ATLc” impulse relays

Latched control

PB106132-34

iTLm
- Operated by latched orders from a changeover contact (switch, time switch, thermostat). Manual control does not work

PB106138-34

Latched control iATLm
- Controls the associated impulse relay by latched orders from a changeover contact

PB106142-63

Step by step control iATL4
- Allows step-by-step control of two circuits via a single pushbutton

Impulse relays **Impulse relays auxiliaries** **Specific auxiliaries**

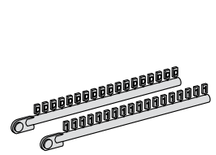
Version 2.0 - May 2017
Acti9

iTL impulse relays

Mounting accessories

11	Yellow clips		A9C15415
12	9 mm spacer		A9A27062
13	Clip-on terminal markers	see module	CA907001

DB123631



13

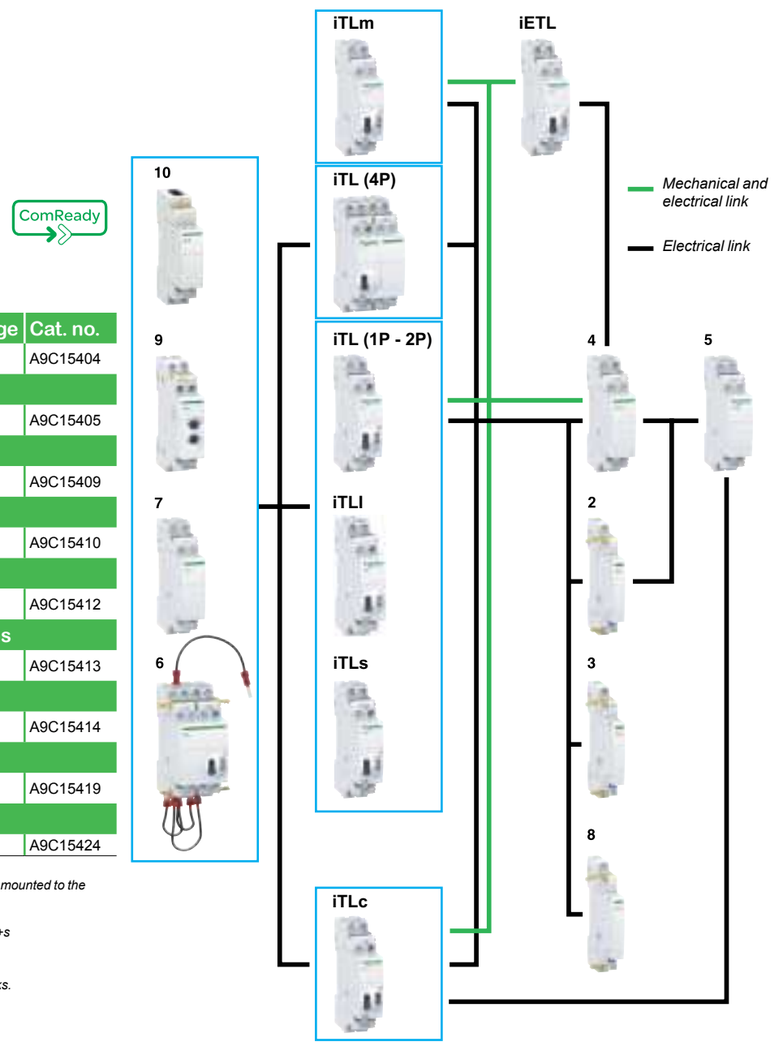
12

11

Auxiliaries

Centralised control	Control voltage	Cat. no.
2 iATLc (1), (3)	24...240 V AC	A9C15404
Indication		
3 iATLs (1)	-	A9C15405
Centralised control + indication		
4 iATLc+s (3)	24...240 V AC	A9C15409
Multi-level centralised control		
5 iATLc+c (2), (3)	24...240 V AC	A9C15410
Step by step control		
6 iATL4	230 V AC	A9C15412
Control by illuminated push-buttons		
7 iATLz	230...240 V AC	A9C15413
Latched control		
8 iATLm (1)	12...240 V AC	A9C15414
Time delay control		
9 iATEt (4)	24...240 V AC	A9C15419
Control and indication		
10 iATL24	230 V AC	A9C15424

(1) The iATLc, iATLs and iATLm 9 mm auxiliaries must be mounted to the right of an impulse relay.
(2) Connection by traditional cabling. The iATLc+c must be mounted to the right of an iATLc+s or an iATLc.
(3) The centralised control functions (iTLc, iATLc, iATLc+s, iATLc+c) only operate on AC voltage networks.
(4) iATEt: control voltage: 24...240 V AC, 24...110 V DC.



iTL impulse relays

PB106126-41

Yellow clip
- A simple clip-on system for flexible auxiliaries combination and improved robustness
- For electrical and mechanical connections

- Large circuit labeling area

- Consistent with the entire Acti 9 offer and with all types of lighting

- Insulated terminals IP20

- Disconnection of remote control by selector switch (except for 4P single-piece iTL) for maintenance operation

- Manual controls on front face: direct and priority manual control by O-I toggle
- Mechanical contact position indicator

- Built-in or optional auxiliary function: state indication, centralised control, latched control, control for illuminated pushbutton, step-by-step control, time delay

iTL impulse relays

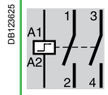
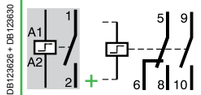
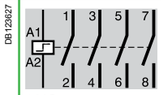
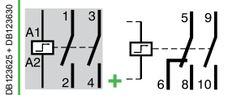
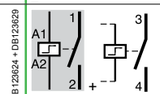
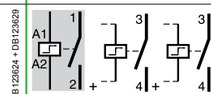
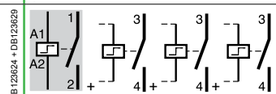
Auxiliaries choice in V AC and V DC

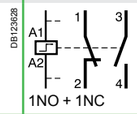
V AC		Choice impulse relays auxiliaries																
Type		Standard iTL						Changeover iTLI						iTLc centralised control			iTLm control on latched order	iTLs remote indication		
Rating	A	16					32	16						16			16	16		
Control voltage (Uc)	V AC	230/240	130	48	24	12	230/240	230/240	130	48	24	12		230/240	48	24	230/240	230/240	48	24
Auxiliaries																				
Extension																				
iETL		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Centralised control + indication																				
iATLc+s		•	•	•	•	-	•	•	•	•	-	-		-	-	-	-	•	•	•
Centralised control																				
iATLc		•	•	•	•	-	•	•	•	•	-	-		-	-	-	-	•	•	•
Indication																				
iATLs		•	•	•	•	-	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Multi-level centralised control																				
iATLc+c		•	•	•	•	-	•	•	•	•	-	-		•	•	•	-	•	•	•
Latched control																				
iATLm		•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	•	•	•
Control for illuminated Pushbutton																				
iATLz		•	-	-	-	-	•	•	-	-	-	-		•	-	-	-	•	-	-
Step by step control																				
iATL4		•	-	-	-	-	•	•	-	-	-	-		•	-	-	-	•	-	-
Time delay control																				
iATEt		•	•	•	•	-	•	•	•	•	•	-		-	-	-	-	•	•	•
Control and indication																				
iATL24		•	-	-	-	-	•	•	-	-	-	-		•	-	-	-	•	-	-

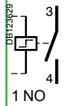
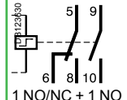
V DC		Choice impulse relays auxiliaries																
Type		Standard iTL						Changeover iTLI						iTLc centralised control			iTLm control on latched order	iTLs remote indication		
Rating	A	16					32	16						16			16	16		
Control voltage (Uc)	V DC	110	48	24	12	6	110	110	48	24	12	6		-			110	110	24	12
Auxiliaries																				
Extension																				
iETL		•	•	•	•	•	•	•	•	•	•	•	•	-	-	-	-	•	•	•
Indication																				
iATLs		•	•	•	•	-	•	•	•	•	•	•	•	-	-	-	-	•	•	•
Time delay control																				
iATEt		•	•	•	-	-	•	•	•	•	-	-		-	-	-	-	•	•	-

iTL impulse relays

Catalogue numbers

iTL impulse relays						
Type			1P	2P	3P	4P
			 1 NO	 2 NO	 1 NO + 1 NO/NC + 1 NO	 4 NO  2 NO + 1 NO/NC + 1 NO
Rating (In)	Control voltage (Uc) (V AC) (50/60 Hz)	(V DC)				
16 A	12	6	A9C30011	A9C30012	A9C30011 + A9C32016	A9C30012 + A9C32016
	24	12	A9C30111	A9C30112	A9C30111 + A9C32116	A9C30114
	48	24	A9C30211	A9C30212	A9C30211 + A9C32216	A9C30212 + A9C32216
	130	48	A9C30311	A9C30312	A9C30311 + A9C32316	A9C30312 + A9C32316
	230...240	110	A9C30811	A9C30812	A9C30811 + A9C32816	A9C30814
Width in 9 mm modules			2	2	4	4
			 1 NO	 1 NO + 1 NO	 1 NO + 1 NO + 1 NO	 1 NO + 1 NO + 1 NO + 1 NO
32 A	230...240	110	A9C30831	A9C30831 + A9C32836	A9C30831 + 2 x A9C32836	A9C30831 + 3 x A9C32836
Width in 9 mm modules			2	4	6	8

iTLI impulse relays			
Type			2P
			 1NO + 1NC
Rating (In)	Control voltage (Uc) (V AC) (50/60 Hz)	(V DC)	
16 A	12	6	A9C30015
	24	12	A9C30115
	48	24	A9C30215
	130	48	A9C30315
	230...240	110	A9C30815
Width in 9 mm modules			2

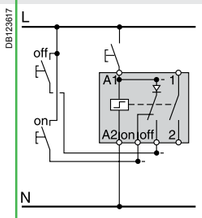
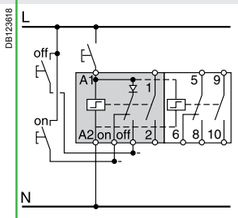
iETL extensions for iTL and iTLI				
Type			1P	2P
			 1 NO	 1 NO/NC + 1 NO
Rating (In)	Control voltage (Uc) (V AC) (50/60 Hz)	(V DC)		
16 A	12	6	-	A9C32016
	24	12	-	A9C32116
	48	24	-	A9C32216
	130	48	-	A9C32316
	230...240	110	-	A9C32816
32 A	230...240	110	A9C32836	-
Width in 9 mm modules			2	2

iTL impulse relays

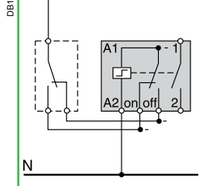
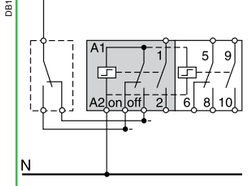
iTLc , iTLm, iTLs with built-in auxiliary function

Catalogue numbers

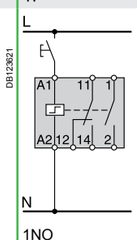
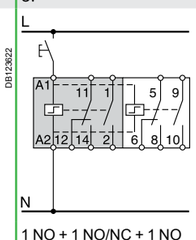
iTLc impulse relay with centralised control

Type		1P	3P
		DB123617  	DB123618 
		1NO	1 NO + 1 NO/NC + 1 NO
Rating (In)	Control voltage (Uc) (V AC) (50/60 Hz)		
16 A	24	A9C33111	A9C33111 + A9C32116
	48	A9C33211	A9C33211 + A9C32216
	230...240	A9C33811	A9C33811 + A9C32816
Width in 9 mm modules		2	4

iTLm impulse relay with latched control

Type		1P	3P
		DB123986  	DB123987 
		1NO	1 NO + 1 NO/NC + 1 NO
Rating (In)	Control voltage (Uc) (V AC) (50/60 Hz)		
16 A	230...240	A9C34811	A9C34811 + A9C32816
Width in 9 mm modules		2	4

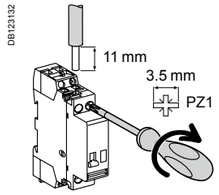
iTLs impulse relay with remote indication*

Type			1P	3P
			DB123621  	DB123622 
			1NO	1 NO + 1 NO/NC + 1 NO
Rating (In)	Control voltage (Uc) (V AC) (50/60 Hz)	(V DC)		
16 A	24	12	A9C32111	A9C32111 + A9C32116
	48	24	A9C32211	A9C32211 + A9C32216
	230...240	110	A9C32811	A9C32811 + A9C32816
Width in 9 mm modules			2	4

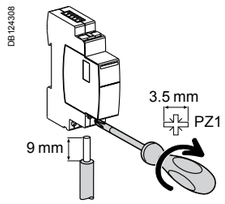
(*) Short circuit protection device for indication contacts : 6 A gG fuse.

iTL impulse relays

Connection

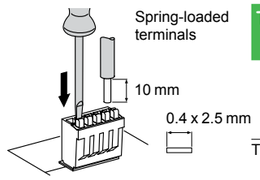
DB123132


Type	Rating	Circuit	Tightening torque	Copper cables	
				Rigid or with ferrule	Flexible or with ferrule
			DB122945	DB123553	
iTL, iTLi, iTLc, iTLm, iTLs, iETL	16 A	Control	1 N.m	0.5 to 4 mm²	1 to 4 mm²
		Power		1.5 to 4 mm²	1.5 to 4 mm²
iTL, iETL	32 A	Control		0.5 to 4 mm²	1 to 4 mm²
		Power	1.2 N.m	1.5 to 10 mm²	1.5 to 10 mm²
iATLs, iATLc, iATLc+s, iATLc+c, iATLm, iATEt, iATL4, iATLz			1 N.m	0.5 to 4 mm²	1 to 4 mm²

DB124308


Type	Terminals	Tightening torque	Copper cables		
			Rigid	Flexible	Flexible or with ferrule
		DB122945	DB123553	DB123554	
iATL24	Power supply (N/P)	1 N.m	0.5 to 10 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 6 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 4 mm² 2 x 0.5 to 2 x 2.5 mm²
	Input (Y1/Y2)				

Ti24 connector connection

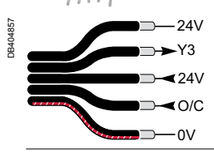
DB123580


Type	Catalogue numbers	Copper cables	
		Rigid	Flexible
		DB122945	DB123553
Ti24 interface	A9XC2412	1 x 0.5 to 1.5 mm²	1 x 0.5 to 1.5 mm²

Ti24 prefabricated cables connection

PB107754-10

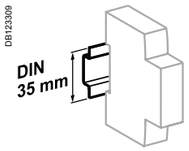

PB107755-14


DB404857


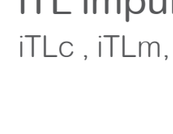
Type	Catalogue numbers	Length
Connection for Acti 9 Smartlink		
6 short prefabricated	A9XCAS06	100 mm
6 medium-sized prefabricated	A9XCAM06	160 mm
6 long prefabricated	A9XCAL06	870 mm
Connection for PLC type terminals		
6 long prefabricated on a single side	A9XCAU06	870 mm

iTL impulse relays

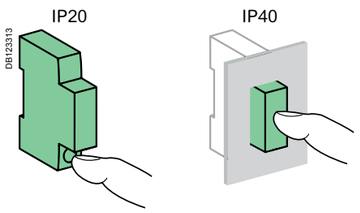
iTLc , iTLm, iTLs with built-in auxiliary function



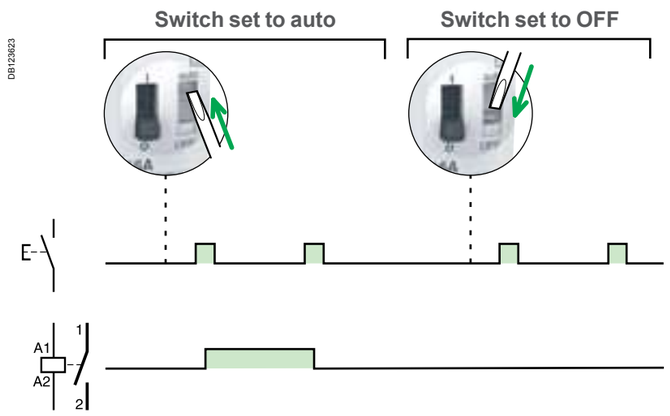
Clip on DIN rail 35 mm.



Indifferent position of installation.



Operation



Technical data

Control circuit			
		iTL and iTLI 16 A iTLc, iTLm, iTLs, iETL 16 A	iTL 32 A, iETL 32 A
Control voltage (Uc)	Tolerence at 50 Hz	+6 %, -15 %	
	Tolerence at 60 Hz	±6 %,	
	Tolerence V DC	+6 %, -10 %	
Dissipated power (during the impulse)		1, 2, 3P: 19 VA	19 VA
		4P: 38 VA	
Illuminated PB control		Max. current 3 mA (if > use an ATLz)	
Operating threshold		Min. 85 % of Un in conformance with IEC/EN60669-2-2	
Duration of the control order		50 ms to 1 s (200 ms recommended)	
Response time		50 ms	
Power circuit			
Voltage rating (Ue)	1P, 2P	24 ...250 V AC	
	3P, 4P	24....415 V AC	
Frequency		50 Hz or 60 Hz	
Maximum number of operations per minute		5	
Maximum number of switching operation a day		100	
Additional characteristics			
Insulation voltage (Ui)		440 V AC	
Pollution degree		3	
Rated impulse withstand voltage (Uimp)		6 kV	
Overvoltage category		IV	
Endurance (O-C)			
Electrical		200,000 cycles (AC21)	50,000 cycles (AC21)
		100,000 cycles (AC22)	20,000 cycles (AC22)
Other characteristics			
Degree of protection (IEC 60529)	Device only	IP20	
	Device in modular enclosure	IP40 Insulation class II	
Operating temperature		-20°C to +50°C	
Storage temperature		-40°C to +70°C	
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C)	

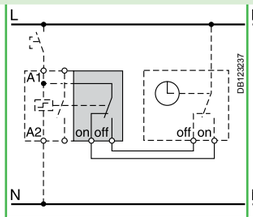
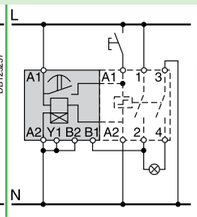
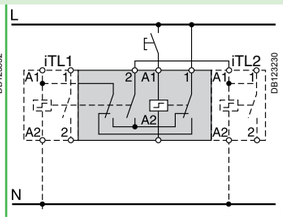
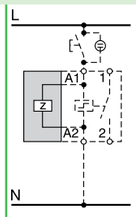
iTL impulse relays

Electrical auxiliaries for iTL impulse relays

		Indication	Control		
Auxiliaries		**iATLs**	**iATLc**	**iATLc+s**	**iATLc+c**
Type		Indication	Centralised control	Centralised control + indication	Multi-level centralised control
		PB106139-34 / PB106137-34	PB106140-34	PB106138-34	
Function		• Allows remote indication of the associated impulse relay	• Used for centralised control, thanks to a "pilot line", of a group of impulse relays controlling separate networks, while at the same time maintaining local individual control of each impulse relay	• And for remote indication of the mechanical status of each relay	• Used to control the centralised controls of a number of impulse relay groups, while at the same time maintaining local individual control and centralised control by level
Wiring diagrams		DB123233	DB123232	DB123231	DB123235
		–	–	–	• Each group, made up of iTLc or (iTL or iTLI or iTLs) + iATLc+s, must only contain a single iATLc+c • Maximum number of impulse relays that can be controlled: - 230 V AC: 24 - 130 V AC: 12 - 48 V AC: 5
Mounting		• Mounted to the right of iTL by yellow clips	• Mounted to the right of iTL by yellow clips	• Mounted to the right of iTL by yellow clips	• Without mechanical link with impulse relays and auxiliaries
Catalogue numbers		A9C15405	A9C15404	A9C15409	A9C15410
Technical specifications					
Control voltage (Uc)	V AC	–	24…240	24…240	24 …240
	V DC	–	–	–	–
Control voltage frequency	Hz	–	50/60	50/60	50/60
Width in 9 mm modules		1	1	2	2
Auxiliary contact (breaking capacity)		• Mininimum: 10 mA at 24 V AC/DC • Maximum (IEC 60947-5-1): - 12…240 V AC 6 A - 12…24 V DC 6 A - 15…240 V AC 2 A - 13…24 V DC 2 A	–	• Mininimum: 10 mA at 24 V AC/DC • Maximum (IEC 60947-5-1): - 12…240 V AC 6 A - 12…24 V DC 6 A - 15…240 V AC 2 A - 13…24 V DC 2 A	–
Number of contacts		–	–	–	–
Operating temperature	°C	-20°C to +50°C			
Storage temperature	°C	-40°C to +70°C			

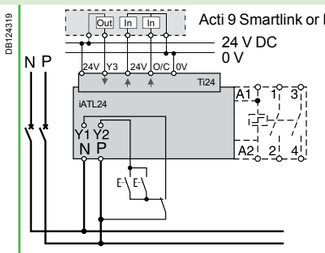
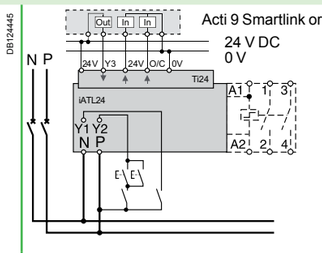
iTL impulse relays

Electrical auxiliaries for iTL impulse relays

	Control			
Auxiliaries	**iATLm**	**iATEt**	**iATL4**	**iATLz**
Type	Latched control	Time delay	Step by step control	Control by illuminated push-buttons
	PB106125-34 	PB106142-63 		PB106141-34 
Function	• Combined with an impulse relay, it operates on latched orders	• Combined with an impulse relay, it automatically disconnects the circuit after a preset time	• Allows the step by step sequence over 2 circuits	• Used to control impulse relays by illuminated push-buttons, without operating risks
Wiring diagrams	DB408801 	DB123237 	DB123652 	DB123230 
	–	• 5 time setting ranges: - 1 to 10 s - 6 to 60 s - 2 to 10 min - 6 to 60 min - 2 to 10 h	• The cycle is as follows: - 1st impulse - iTL 1 closed, iTL 2 open - 2nd impulse - iTL 1 open, iTL 2 closed - 3rd impulse - iTL 1 and 2 closed - 4th impulse - iTL 1 and 2 open - 5th impulse - iTL 1 closed, iTL 2 open, etc	• Provide an iATLz when the current drawn up by the illuminated push-buttons is higher than 3 mA (this current is sufficient to keep the coils energised). Above this value, fit one extra iATLz per 3 mA. • For example: for 7 mA, fit 2 iATLz
Mounting	• Mounted to the right of iTL by yellow clips	• Mounted to the left of iTL by yellow clips	• Assembled between 2 impulse relays: according to the auxiliarisation table by yellow clips	• Mounted to the left of iTL by yellow clips
Catalogue numbers	A9C15414	A9C15419	A9C15412	A9C15413
Technical specifications				
Control voltage (Uc) V AC	12…240	24…240	230	230…240
Control voltage (Uc) V DC	–	24…110	–	–
Control voltage frequency Hz	50/60	50/60	50/60	50/60
Width in 9 mm modules	1	2	4	2
Auxiliary contact (breaking capacity)	–	–	–	–
Number of contacts	–	–	–	–
Operating temperature °C	-20°C to +50°C			
Storage temperature °C	-40°C to +70°C			

iTL impulse relays

Electrical auxiliaries for iTL impulse relays

	Control and indication
Auxiliaire	**iATL24**
Type	Control and indication 24 V DC With Ti24 connector
	PB107752-34 
Function	• This auxiliary allows a impulse relay to be interfaced with the Acti 9 Smartlink interface or a programmable logic controller (PLC) in 24 V DC (control, O/C indication) • 230 V AC control
Wiring diagrams	DB124319  Wiring with exclusive selector 230 V AC and 24 V DC controls DB124445  Wiring for non-exclusive 230 V AC and 24 V DC controls
Mounting	• To the left of the iTL impulse relay using the yellow clips (1). • When an iATL24 is used, the A1/A2 terminals of the impulse relay should not be wired. Only the yellow clips integral with the iATL24 should be used for connection to the coil.
Utilization	• 230 V AC interface: - Y1: enabling of 24 V DC control (Y1 = 1) or inhibition of 24 V DC control (Y1 = 0). - Y2: 230 V pulse control • "TI24" 24 V DC interface: - Y3: 24 V DC control of iTL closing on rising edge and opening on falling edge - reading of the impulse relay status (opened or closed) from the position of the integrated O/C auxiliary contact - monitoring of connection of the "Ti24" terminal block by the upstream system (PLC, supervision system) via the 24 V terminal (in the centre of the Ti24 terminal block)
Catalogue numbers	A9C15424
Technical specifications	
Control voltage (Uc) V AC	230, +10 %, -15 % (Y2)
Control voltage (Uc) V DC	24, ± 20 % (Y3)
Control voltage frequency Hz	50/60
Insulation voltage (Ui) V AC	250
Rated impulse withstand voltage (Uimp) kV	8 (OVC IV)
Pollution degree	3
Degree of protection	IP20B device only IP40 device in modular enclosure
Width in 9 mm modules	2
Auxiliary contact (O/C) Ti24	24 V DC protected output, min. 2 mA, max. 100 mA
Contact	1 O/C operating category AC 14
Operating temperature °C	-25°C to +60°C
Storage temperature °C	-40°C to +80°C
Consumption	<1 W
Standard	IEC/EN 60947-5-1

(1) Mechanical and electrical connection.

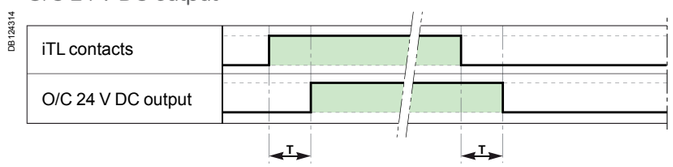
iTL impulse relays

Electrical auxiliaries for iTL impulse relays

ComReady

Operation of the iATL24

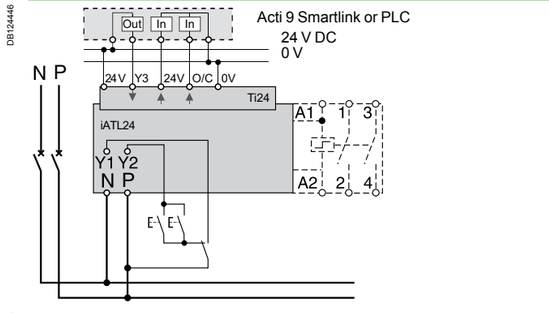
O/C 24 V DC output

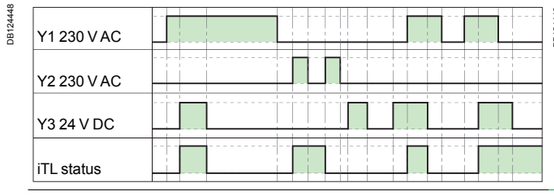


	Parameter	Min	Max
T	Time delay between iATL24 closing and indication	100 ms	200 ms

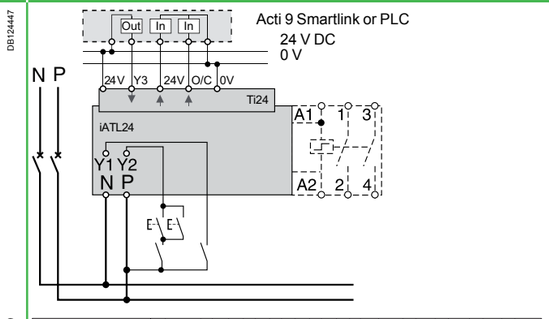
- Minimum duration of 230 V AC pulse (Y2): 200 ms.
- 30 iATL24 closing or opening actuations are authorized per minute: Minimum time delay between 2 actuations on the iATL24 via Y1,Y2, Y3 (closing or opening of the iTL coil): 440 ms.
- 10 closing or opening actuations spaced 440 milliseconds apart are authorized following no loading of the iATL24 during a period of 20 seconds.

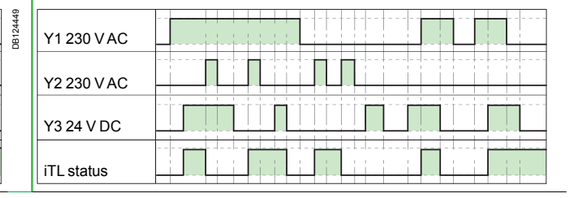
Wiring with exclusive selector 230 V AC and 24 V DC controls





Wiring for non-exclusive 230 V AC and 24 V DC controls



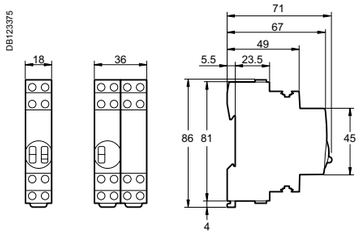


iTL impulse relays

Accessories for iTL impulse relays

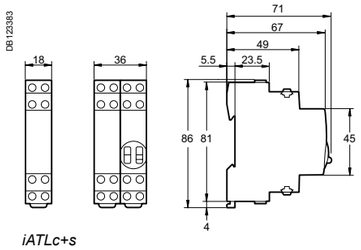
Accessories	Security Yellow clips	Spacer
	PB106143-10 	PB104483 
Function		
	• Ensure the mechanical and/or electrical link between impulse relays and their auxiliaries (set of 10).	• Required to reduce temperature rise of modular devices installed side by side. • Recommended to separate electronic devices (thermostat, programmable clock, etc.) from electromechanical devices (relays, contactors).
Catalogue numbers	A9C15415	A9A27062
Technical specifications		
Width in 9 mm modules	–	1

Dimensions (mm)

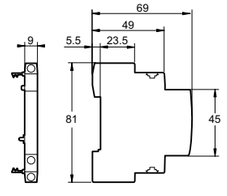


iTL 1P
iTLc
iTLm
iTLs
iTLi
iETL

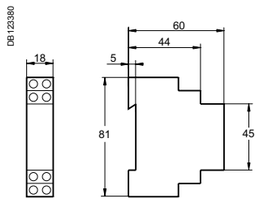
iTL+iETL
iTL 4P



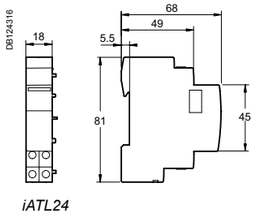
iATLc+s
iATLc+c
iATLz
iATL4



iATLc
iATLs
iATLm



iATEt



iATL24

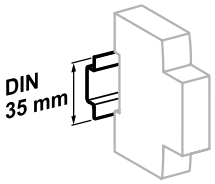
iTL+ high-performance impulse relays

They combine the benefits of static switching and electromechanical technology: small size, little temperature rise.

PB107132-40

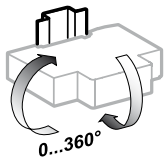
Following a mains failure, the iTL+ returns to 0 position (forced stoppage) irrespective of its initial state.

DB123309



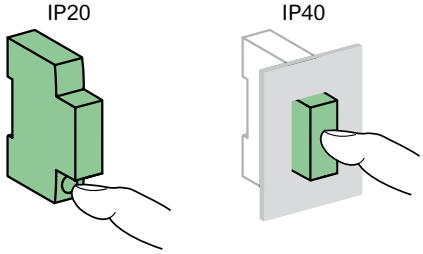
Clip on DIN rail 35 mm.

DB123311



Indifferent position of installation.

DB123313



Technical data

Control circuit		
Coil voltage (Uc)		230 V AC
Frequency		50 Hz
Inrush power		11 VA
Holding power		1.1 VA
Control by luminous push button		Max. current 5 mA
Control order duration		50 ms to 1 s (recommended 200 ms)
Power circuit		
Voltage rating (Ue)		230 V AC
Frequency		50 Hz
Electrical load	Minimum	20 W
	Maximum	3600 W
Max. number of switching operations per minute		6
Other characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Endurance (O-C)	Electrical	5.000.000 cycles (AC21 - AC22)
Noise level at activation		< 30 dBA
Operating temperature		-5°C to +55°C
Storage temperature		-40°C to +60°C
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity of 95 % at 55°C)

Weight (g)

High-performance impulse relays	
Type	iTL+
1P+N	70

iCT+ high-performance contactors

DB106604

Country approval pictograms

iCT+ high-performance contactors allow remote control of single-phase circuits.
They are designed for demanding applications.

EN 60669-2-2

iCT+ high-performance contactors can be used for remote control of applications on AC networks:
- lighting, heating, ventilation, roller blinds, domestic hot water
- mechanical ventilation systems, etc.
- load shedding on non-priority circuits.

PB107130-35

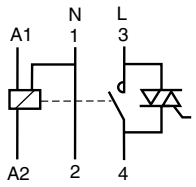
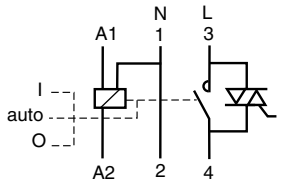
Standard 1P+N

PB107131-35

1P+N with manual control

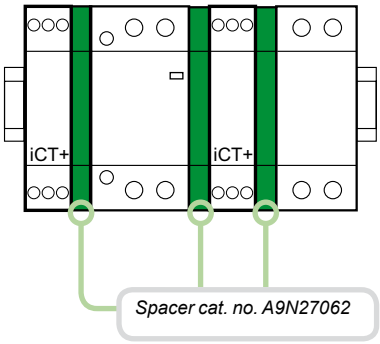
PB104483-35

Spacer

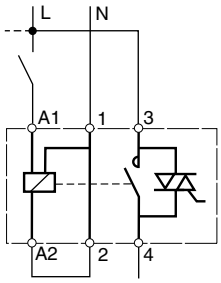
iCT+				V
Type	Rating	Contact		Width in 9-mm modules
Standard 1P+N				
E57636 	20 A	1 NO	A9C15030	2+1 (1)
1P+N with manual control				
E57646 	20 A	1 NO	A9C15031	2+1 (1)

(1) Supplied with a 9 mm spacer (cat. no. A9N27062): to be used for mounting the iCT+ alongside a circuit breaker, contactor, impulse relay, etc., in order to maintain optimal operation.

DB124140



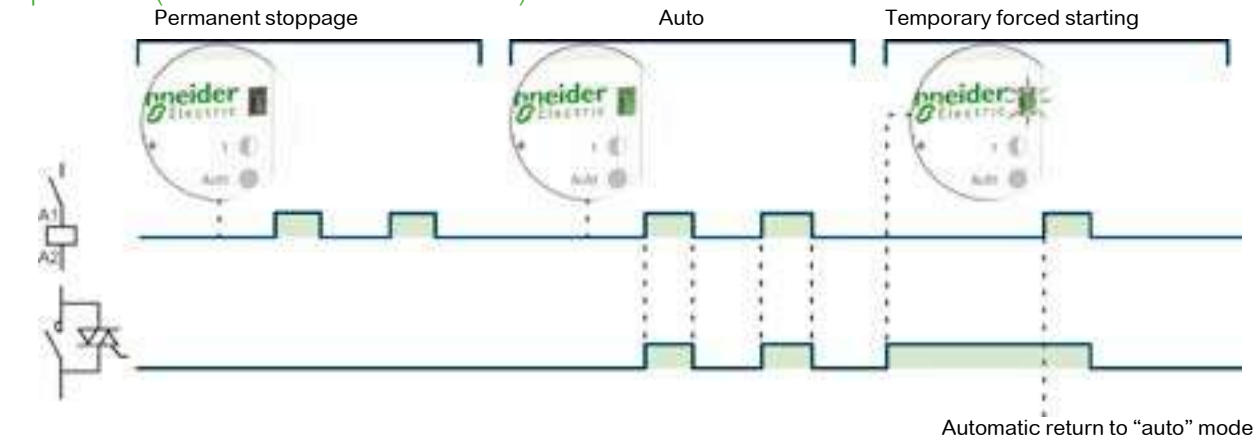
DB404607



It is compulsory:
- to connect the neutral
- to keep the same control circuit connection
"A1: phase", "A2: neutral"
- to use the same phase for connection of the power and control functions.

Operation (manual-control contactor)

DB124156



iCT+ high-performance contactors

They combine the benefits of static switching and electromechanical technology: small size, little temperature rise.

PB137131-40

- Silent
- Large number of switching operations

- Green indicator on the front panel:
  - fixed green: auto operation
  - flashing green: temporary forced starting
  - extinguished: permanent stoppage

- Operating mode selection push button:
  - auto operation
  - temporary forced starting*
  - permanent stoppage

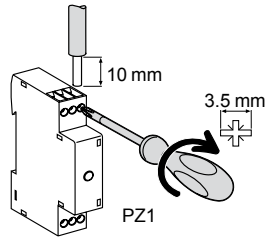
- Equivalent performances with all types of lamps
- No derating

- Orange indicator: output contact closed

Following a mains failure, the iCT+ returns to "auto" operating mode irrespective of its initial state.

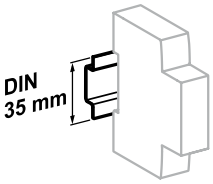
Connection

DB123665



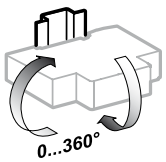
Type	Tightening torque	Copper cables	
		Rigid or flexible with ferrule	Rigid or flexible without ferrule
		DB123656	DB123657
iCT+	1 N.m	2 x 1.5 mm²	2 x 2.5 mm² 1 x 4 mm²

DB123309



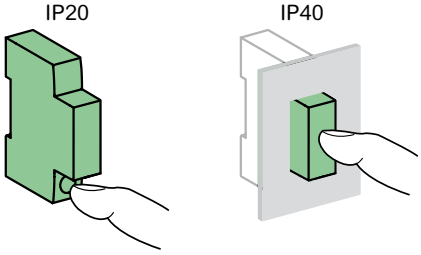
Clip on DIN rail 35 mm.

DB123311



Indifferent position of installation.

DB123313



Technical data

Control circuit		
Coil voltage (Uc)		230 V AC (± 10 %)
Frequency		50 Hz
Inrush power		11 VA
Holding power		1.1 VA
Power circuit		
Voltage rating (Ue)		230 V AC (± 10 %)
Frequency		50 Hz
Electrical load	Minimum	20 W
	Maximum	3600 W
Max. number of switching operations per minute		6
Other characteristics		
Endurance (O-C)	Electrical	5.000.000 cycles
Pollution degree		3
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Operating temperature		-5°C to +55°C
Storage temperature		-40°C to +60°C
Tropicalization (IEC 60068-1)		2 (relative humidity of 95 % at 55°C)

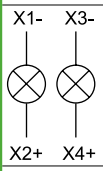
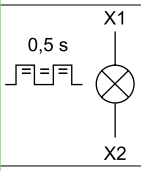
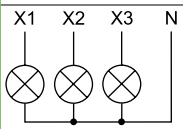
Weight (g)

High-performance contactors	
Type	iCT+
Standard 1P+N	70
1P+N with manual control	70

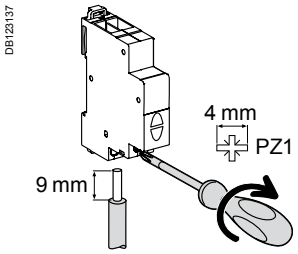
iIL indicator lights

IEC 60947-5-1

- iIL indicator lights light up to indicate that a voltage is present.

iIL indicator lights									
Type	Single					Double		Flashing light	Three-phase voltage presence indicator light
									
Diagram									
Colour	Red	Green	White	Blue	Yellow	Green/red	White/ white	Red	Red/red/red
Cat. no.									
12...48 V AC/DC	A9E18330	A9E18331	A9E18332	A9E18333	A9E18334	A9E18335	-	-	-
110...230 V AC 110...130 V DC	A9E18320	A9E18321	A9E18322	A9E18323	A9E18324	A9E18325	A9E18328	-	-
110...230 V AC	-	-	-	-	-	-	-	A9E18326	-
230...400 V AC (3 phases)	-	-	-	-	-	-	-	-	A9E18327
Width in 9 mm modules	2					2		2	2

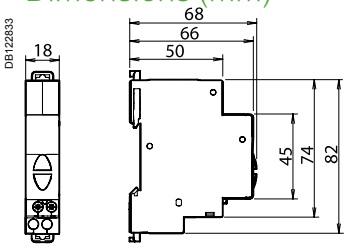
Connection



Tightening torque	Copper cables	
	Rigid 	Flexible or with ferrule 
1 N.m	0.5 mm² min.	0.5 mm² min.
	2 x 2.5 mm² max.	2 x 2.5 mm² max.

- Phase-separated wall that can be divided to allow the teeth of all types of comb busbar to pass through.
- Staggered terminals to simplify connection.

Dimensions (mm)



Technical data

Main characteristics	
Pollution degree	3
Power circuit	
Operating frequency	50...60 Hz
Flashing frequency	2 Hz
Additional characteristics	
Operating temperature	-35°C... +70°C
Storage temperature	-40°C... +80°C
Tropicalization	Treatment 2 (relative humidity 95 % at 55°C)
LED indicator light	Consumption per indicator light: 0.3 W
	Service life: 100,000 hours of constant lighting efficiency
	Maintenance-free indicator light (non-interchangeable LEDs)

Compatibility of 50/60 Hz equipment with a 400 Hz network

The performance of products designed for domestic frequencies of 50/60 Hz is impacted by the specific properties of networks of 400 Hz frequency.

Phenomena due to the increased frequency influence the behaviour of the copper components of transformers, cables and protective equipment.

Some types of equipment designed for 50/60 Hz networks may not be suitable. You should check whether or not a product is compatible, and also apply any correction factors given by the manufacturer.

Circuit breakers

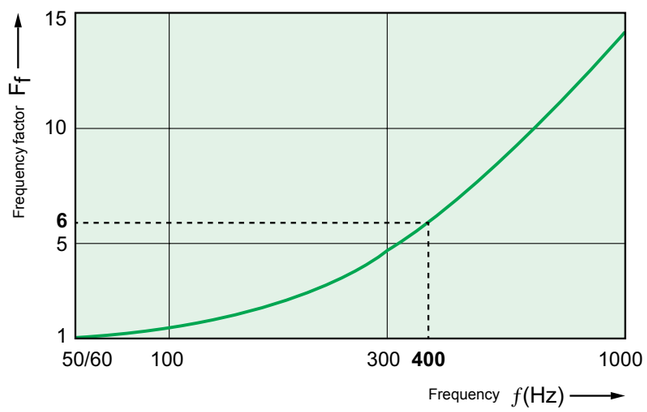
Depending on the technologies used, modular circuit breakers designed for 50/60 Hz can be used at 400 Hz.
To choose the performance of a modular circuit breaker:

- do not take any thermal derating into account (In at 400 Hz is equivalent to In at 50 Hz).
- increase the magnetic tripping threshold, according to the table below.
- check that the short-circuit current on the installation is less than the breaking capacity of the circuit breaker. The breaking capacity of the circuit breakers at a frequency of 400 Hz is the same as at frequencies of 50/60 Hz. This characteristic is generally complied with, due to the fact that the short-circuit current of a 400 Hz generator is relatively low. In most cases, the generator Isc does not exceed four times the rated current.

Circuit breaker	Curve	Magnetic trip thresholds		
		50 Hz	400 Hz	Tolerance
iDPN, DPN	B	4 In	6 In	± 20 %
	C	8 In	12 In	
	D	12 In	18 In	
iC60	B	4 In	5.6 In	
	C	8 In	11.2 In	
	D	12 In	16.8 In	
C60	B	4 In	5.1 In	
	C	8.5 In	10.9 In	
	D	12 In	15.4 In	
C120	The NG125 and C120 circuit breakers are not suitable for networks of 400 Hz frequency. Refer to the Compact NSX offer.			
NG125				

Earth leakage protection devices

The residual current device trip thresholds designed for 50/60 Hz increase with the frequency, but since the human body is less sensitive to the passage of a current at 400 Hz, protection is still ensured for the users.
According to the IEC 60479-2 standard, at 400 Hz the ventricular fibrillation threshold is higher by a ratio of 6 (which means that the physiological effect of a 180 mA current at 400 Hz will be the same as that of a 30 mA current at 50/60 Hz).



Variations in the ventricular fibrillation threshold for shock durations exceeding the period of cardiac cycle (as per IEC 60479-2).

Compatibility of residual current devices at 400 Hz:

Depending on the type and the technology employed, a residual current device designed for a frequency of 50/60 Hz will or will not be capable of ensuring protection for users in accordance with the requirements of the standard.

Type of protection and type of equipment		Use possible on network of 400 Hz frequency	Limit
A type		Not compatible	Trip threshold exceeding the limit given by the curve
AC type		Not recommended	Excessive sensitivity with risk of unwanted tripping (poor guarantee of continuity of service)
Si type	iID iTG40	Yes	
	Vigi iC60	Yes	
	DPN Vigi, Vigi DPN	Yes	

Note: The choice of an iID residual current circuit breaker ensures protection for users at 400 Hz while ensuring good continuity of service.

At 400 Hz, the test function of residual current devices designed for 50/60 Hz is not operational due to the increase in the trip threshold.

Auxiliary function

Voltmetric releases

If a circuit breaker needs to be provided with a voltmetric release whose control circuit is powered by the 400 Hz network, it is necessary to use a release auxiliary of appropriate characteristics for 400 Hz networks:

Type	Voltage	Cat. no.
Undervoltage release iMN	115 V AC - 400 Hz	A9A26959

Influence of ambient temperature

Influence of temperature on the operation

Devices		Characteristics influenced by temperature	Temperature	
			Min.	Max.
C60H-DC, C60, C120, NG125, C60PV-DC circuit breakers		Tripping on overload	-30°C	+70°C
DPN circuit breakers		Tripping on overload	-25°C	+70°C
iK60 circuit breakers		Tripping on overload	-25°C	+60°C
iC60a/N/H/L circuit breakers		Tripping on overload	-35°C	+70°C
Circuit breakers	With Vigi (AC)	Tripping on overload	-5°C	+60°C
	With Vigi (A, SI)		-25°C	+60°C
Reflex iC60		Tripping on overload	-25°C	+60°C
iC60N/H RCBO, iC60H2 RCBO		Tripping on overload	-15°C	+60°C
C60NA-DC, SW60PV-DC, C120NA-DC switch-disconnectors		Maximum operating current	-25°C	+70°C
STI, SBI isolatable fuse-carriers		Maximum operating current	-20°C	+60°C
iID K residual current circuit breakers		Maximum operating current	-5°C	+60°C
iID residual current circuit breakers	AC	Maximum operating current	-5°C	+60°C
	A, SI		-25°C	+60°C
Switches	iSW (Acti 9 design)	Maximum operating current	-25°C	+60°C
	iSW		-20°C	+50°C
	iSW-NA		-35°C	+70°C
Protection auxiliaries		None	-35°C	+70°C
RCA, ARA control auxiliaries		None	-25°C	+60°C
iCT contactors		Installation conditions	-5°C	+60°C
iTL impulse relays		None	-20°C	+50°C
Linergy DS	Cat. no. 04040 Cat. no. 04041	Maximum operating current	-25°C	+60°C
Linergy FH		Maximum operating current	-25°C	+60°C
iCT, iTL auxiliaries		None	-20°C	+50°C
Linergy DX		Maximum operating current	-25°C	+60°C
Linergy FM	Cat. no. 04000	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.

Resistance to environmental conditions

Acti 9 devices have successfully passed the environmental resistance tests specified in the building standards (IEC / EN 60898 and 60947-2 for circuit breakers, IEC / EN 61008 for residual current circuit breakers, etc.). Most of these tests were performed under the control of official bodies in different countries: the devices therefore carry the quality mark issued by each of these bodies.

Schneider Electric has also subjected these devices to additional tests with higher requirements, to give users reliability and sturdiness that are unparalleled on the market.
These tests checked that the constraints described below did not have any significant effect on the main functions of the devices:

- Tripping (for protection devices).
- Isolation and dielectric withstand.
- Degree of protection (IP) of the casing.
- Grip on the mounting bracket (rail).
- Manual opening / closing.

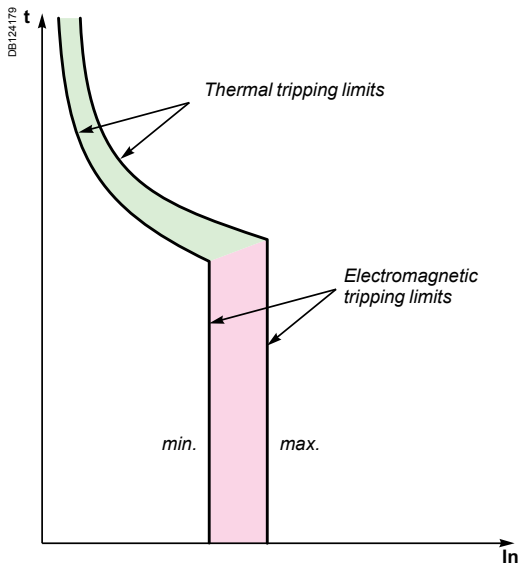
Additional checks were performed for certain tests, mentioned in the tables below.

Constraints	Atmospheric				
Type	**Humidity**	**Salt mist**	**Corrosive atmospheres**		**Dust**
Standard defining the test protocol	IEC 60068-2-78	IEC 60068.2.52	IEC 60721-3-3		
Constraint level applied					
	Temperature 40°C, relative humidity 93%	Severity 2 (maritime environment)	Classification 3C2: urban regions with industrial activities, heavy traffic	Covered swimming pools atmospheres	Plaster deposits + bumps
Additional checks after constraint					
		Conductivity, overheating, no corrosion			Conductivity and overheating
Circuit breakers					
iK60N	●	●	-	-	●
iC60a/N/H/L	●	●	●	●	●
Residual current circuit breakers					
iID	●	●	●	SI only	●
Residual current devices					
iC60a/N/H/L + Vigi iC60	●	●	●	SI only	●
Protection device auxiliaries					
iOF	●	●	●	-	●
iSD	●	●	●	-	●
iOF/SD+OF	●	●	●	-	●
iMN, iMNs	●	●	●	-	●
iMX, iMX+OF	●	●	●	-	●
iMNx	●	●	●	-	●
iMSU	●	●	●	-	
Surge arresters					
iPF	-	-	-	-	-
iPRD	-	●		-	-
Mounting accessories					
Rotary handle	●	●	-	-	●
Plug-in base	●	●	-	-	●
Padlocking device	●	●	●	-	●
Safety accessories					
Screw shield	●	●	●	-	●
Interpole barrier	●	●	●	-	●
Spacer	●	●	●		
Splitter blocks					
Comb busbars for iC60	●	●	●	-	●

Resistance to environmental conditions

Constraints	Mechanical						Storage
Type	**Vibrations, impacts and bumps**	**Vibrations**	**Bumps (repeated impacts)**	**Impacts**	**Impacts on the device**	**Falls**	**Damp heat**
Standard defining the test protocol	IEC 60721-3-3	IEC 60068.2-6	IEC 60068-2-27	IEC 60068-2-27	IEC 62262	IEC 60068-2-32	IEC 60068-2-30
Constraint level applied							
	Class 3M4: industrial environment with considerable vibrations and impacts (e.g. proximity of machines, circulation of vehicles)	Amplitude: 3.5 mm. Acceleration: 1 g. Directions: 3 axes. Frequency: 5 to 300 Hz	Acceleration: 15 g. Pulse duration: 6 ms	Force: 15 g. Pulse duration: 11 ms	IK 05: 5 impacts of 0.7 J	Height: 0.8 m, concrete floor	Db: - Temperature: 55°C. - Relative humidity: 95%
Additional checks after constraint							
	No power supply fault, no tripping				Casing, degree of protection (IP)	Casing, degree of protection (IP)	
Circuit breakers							
iK60N	-	●	●	-	●	●	
iC60a/N/H/L	●	●	●	●	●	●	
Residual current circuit breakers							
iID	●	●	●	●	●	●	
Residual current devices							
iC60a/N/H/L + Vigi iC60	●	●	●	●	●	●	
Protection device auxiliaries							
iOF	●	●	●	●	●	●	●
iSD	●	●	●	●	●	●	●
iOF/SD+OF	●	●	●	●	●	●	●
iMN, iMNs	●	●	●	●	●	●	●
iMX, iMX+OF	●	●	●	●	●	●	●
iMNx	●	●	●	●	●	●	●
iMSU	●	●	●	●	●	●	●
Surge arresters							
iPF	-	-	-	-	-		
iPRD	-	● Frequency: 8.5 to 100 Hz.	-	-	-	● Height: 0.6 m	
Mounting accessories							
Rotary handle	●	●	●	●	●	●	
Plug-in base	●	●	●	●	●	●	
Padlocking device	●	●	●	●	●	●	
Safety accessories							
Screw shield	●	●	●	●	●	●	
Interpole barrier	●	●	●	●	●	●	
Spacer	●	●	●	●	●	●	
Splitter blocks							
Comb busbars for iC60	●	●	●	●	●	●	●

Tripping curves



The following curves show the total fault current breaking time, depending on its amperage. For example: based on the curve on page 206, an iC60 circuit breaker of curve C, 20 A rating, will interrupt a current of 100 A (5 times the rated current In) in:
- 0.45 seconds at least
- 6 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.

Tripping curves

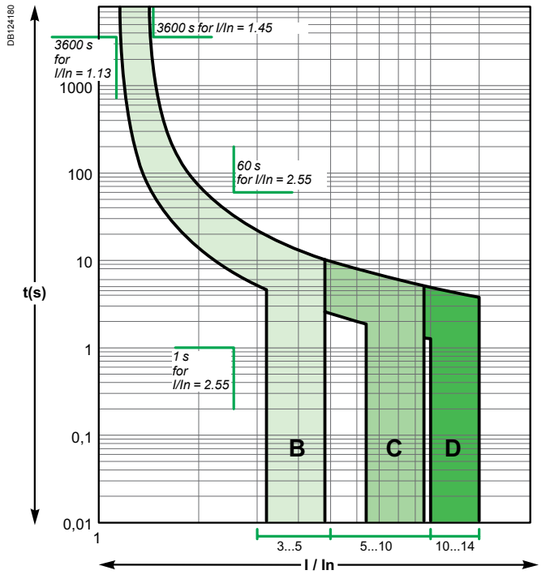
According to IEC/EN 60898-1 standards

Alternative current 50/60 Hz

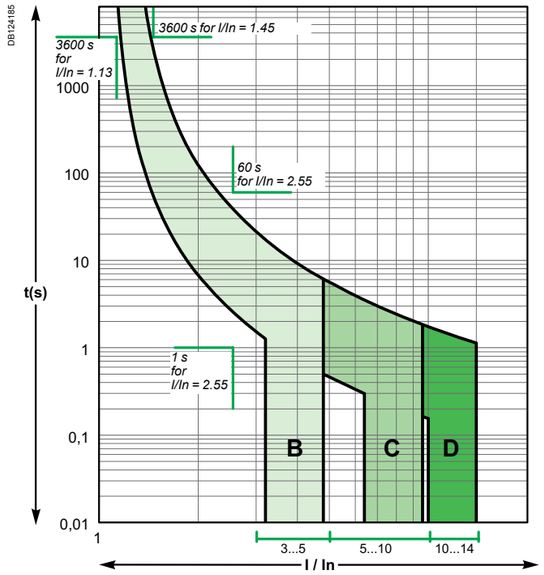
iC60a/N/H/L

According to IEC/EN 60898-1 (reference temperature 30°C)

Curves B, C, D rating up to 4 A



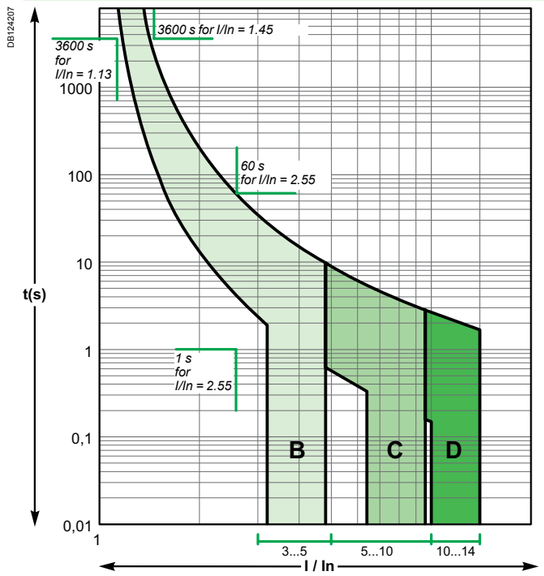
Curves B, C, D rating 6 A to 63 A



C120N/H

According to IEC/EN 60898-1 (reference temperature 30°C)

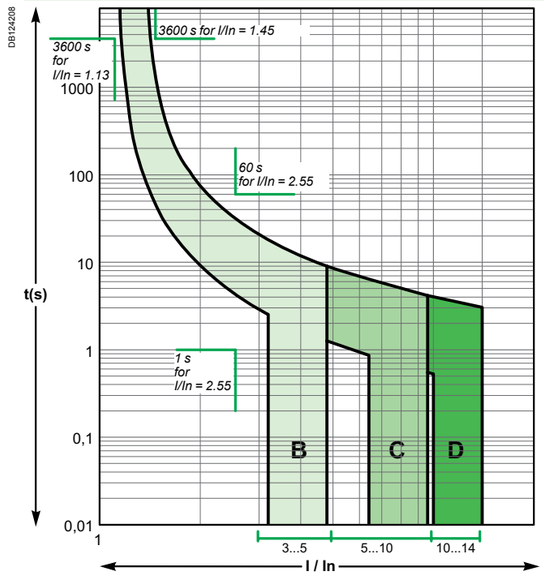
Curves B, C, D



DPN, DPN N, DPN H (circuit-breaker and residual current device)

According to IEC/EN 60898-1 (reference temperature 30°C)

Curves B, C, D



Tripping curves

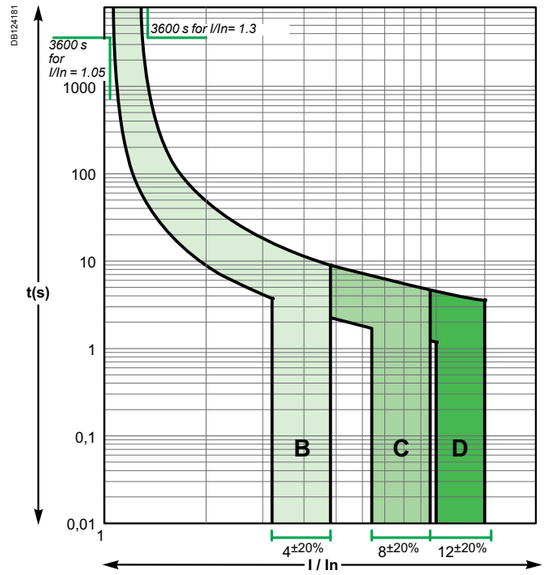
According to IEC/EN 60947-2 standards

Alternative current 50/60 Hz

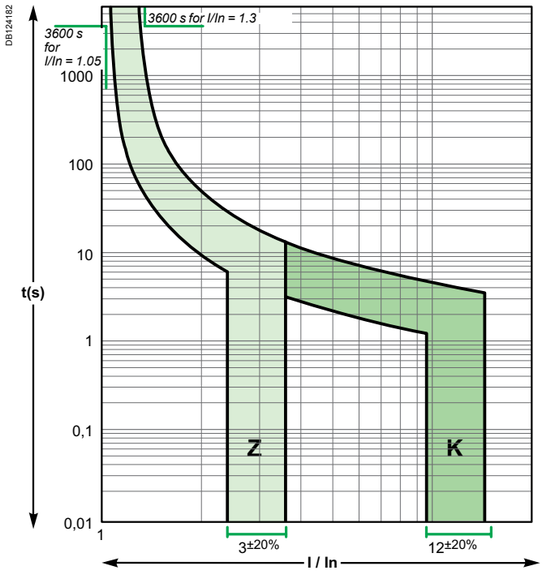
iC60N/H/L MCB and iC60 RCBO

According to IEC/EN 60947-2 for MCB and IEC/EN 61009-1 for RCBO (reference temperature 50°C)

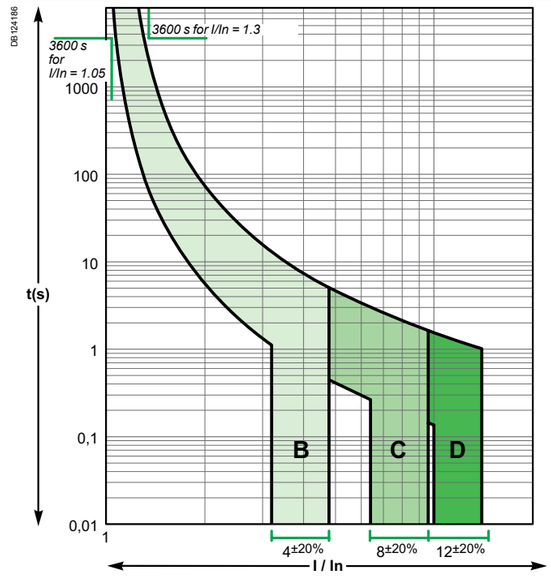
Curves B, C, D rating up to 4 A



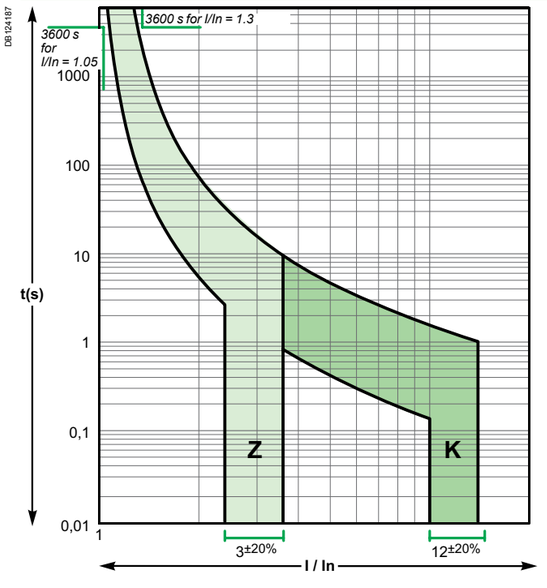
Curves Z, K rating up to 4 A



Curves B, C, D rating 6 A to 63 A



Curves Z, K rating 6 A to 63 A



Tripping curves

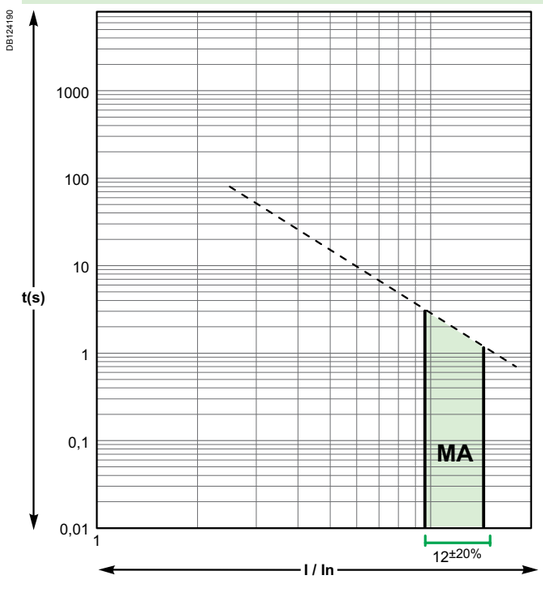
According to IEC/EN 60947-2 standards

Motor curve

iC60L-MA

According to IEC/EN 60947-2

Curve MA



Tripping curves

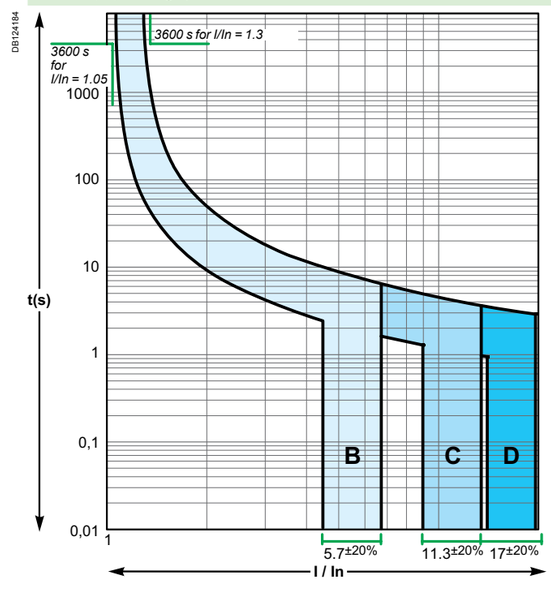
According to IEC/EN 60947-2 standards

Direct current

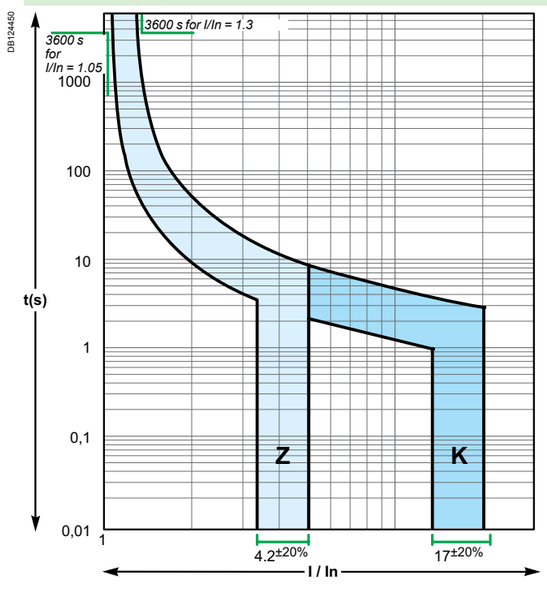
iC60N/H/L

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

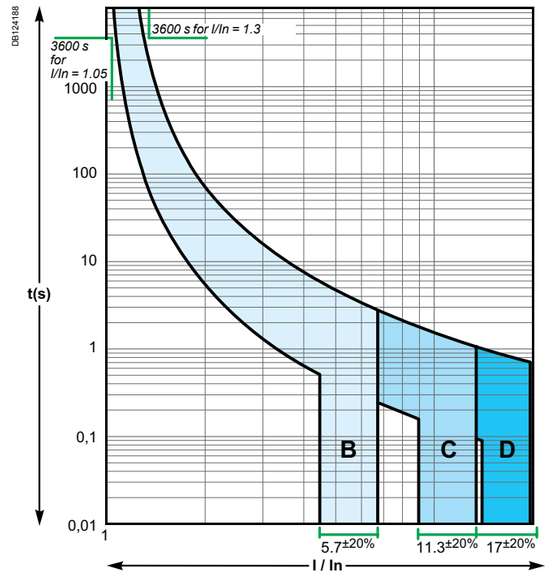
Curves B, C, D rating up to 4 A



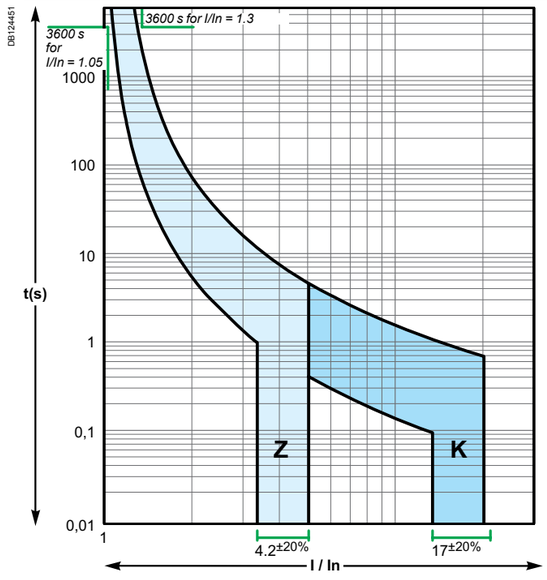
Curves Z, K rating up to 4 A



Curves B, C, D rating 6 A to 63 A



Curves Z, K rating 6 A to 63 A



Tripping curves

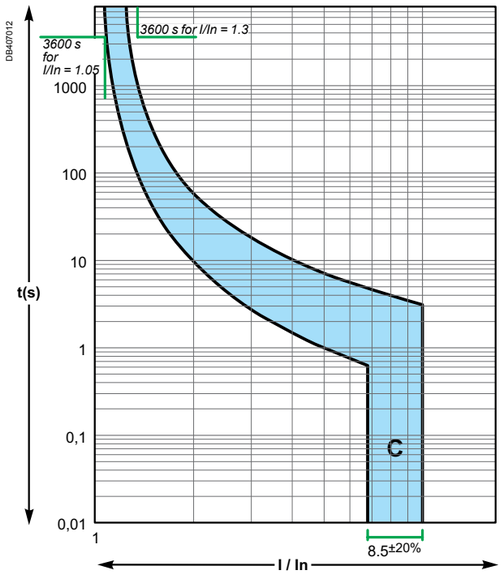
According to IEC/EN 60947-2 standards

Direct current

C60PV-DC

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

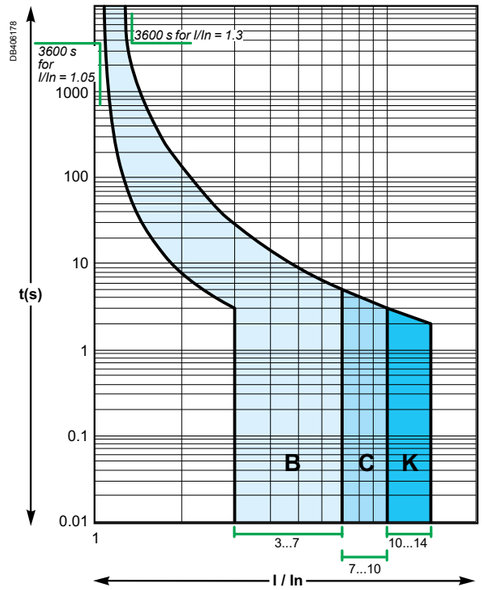
Curve C



C60H-DC

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

Curves B, C, K



Tripping curves

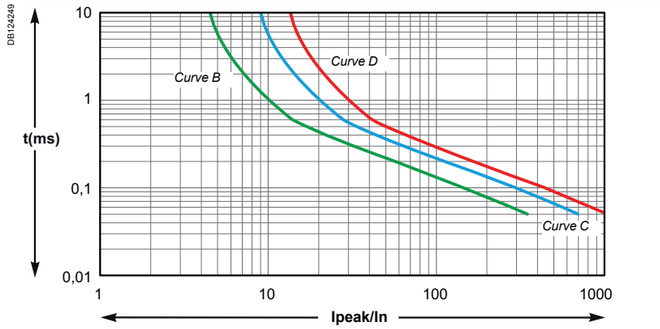
Coordination with loads

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.

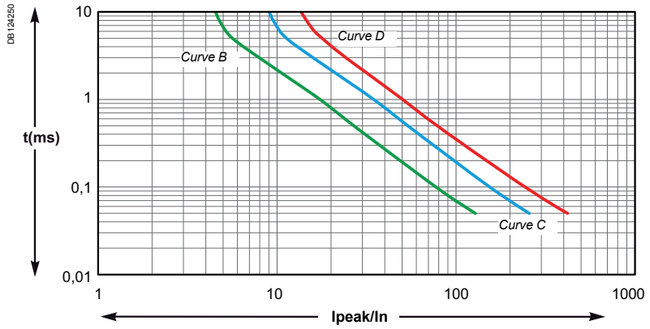
Product selection according to the load inrush current

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).

iC60



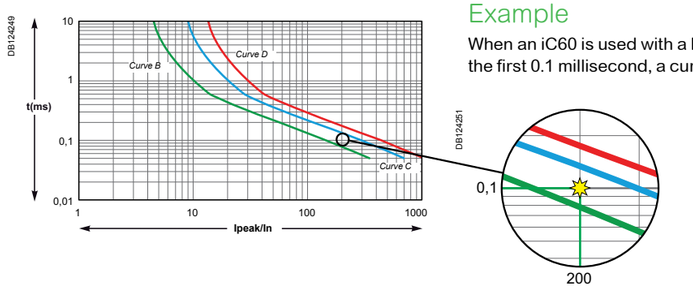
C120



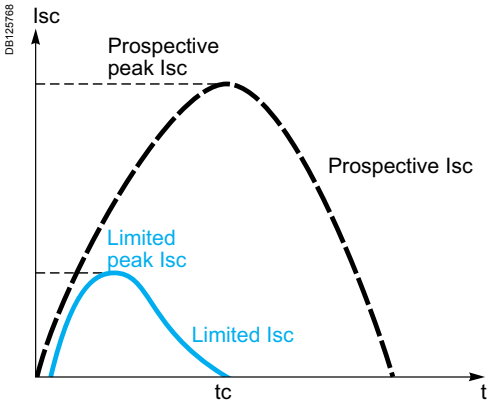
This information allows us to select the most appropriate product, according to the load specifications: curve and rating.

Example

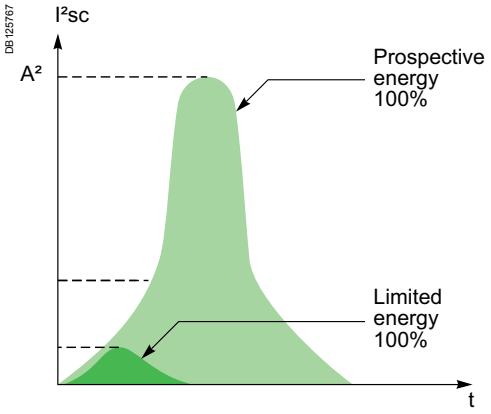
When an iC60 is used with a load with current peaks in the order of 200 In during the first 0.1 millisecond, a curve C or D product must be installed.



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

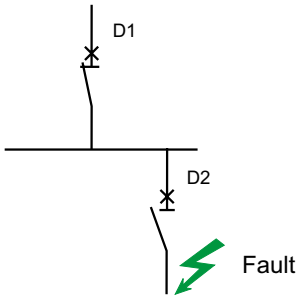
The circuit breakers' current limiting capacity improves discrimination with the protection devices located upstream: this is because the required energy passing through the upstream protection device is greatly reduced and can be not enough to cause it to trip. Discrimination can thus be natural without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

Acti 9 circuit breaker current limiting

Profiting from Schneider Electric's experience and expertise in the field of short-circuit current breaking, the circuit breakers of the Acti 9 range have a top-level current limiting characteristic for modular devices.
This assures them of optimal protection of the entire power distribution system.

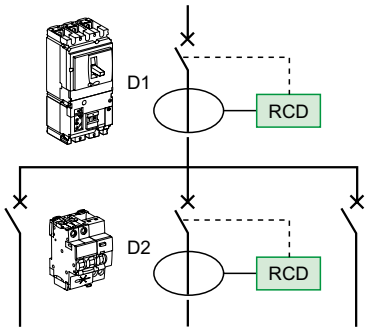
E002487-37.eps

DB421201.eps

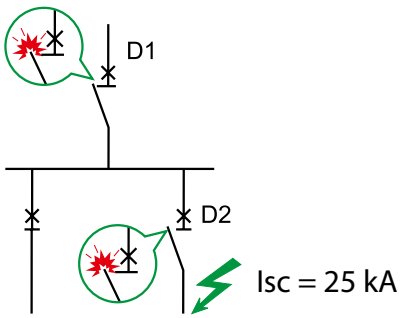


D1 and D2 in series.

DB421192.eps



DB421193.eps



IEC 60947-2, Annex A
IEC 60364-4-43 § 434.5.1

What is cascading?

Cascading is the use of the current limiting capacity of circuit breakers at a given point to permit installation of lower-rated and therefore lower-cost circuit breakers downstream.

The upstream Compact circuit breakers acts as a barrier against short-circuit currents. In this way, downstream circuit breakers with lower breaking capacities than the prospective short-circuit (at their point of installation) operate under their normal breaking conditions.

Since the current is limited throughout the circuit controlled by the limiting circuit breaker, cascading applies to all switchgear downstream. It is not restricted to two consecutive devices.

General use of cascading

With cascading, the devices can be installed in different switchboards. Thus, in general, cascading refers to any combination of circuit breakers where a circuit breaker with a breaking capacity less than the prospective Isc at its point of installation can be used. Of course, the breaking capacity of the upstream circuit breaker must be greater than or equal to the prospective short-circuit current at its point of installation.

The combination of two circuit breakers in cascading configuration is covered by the following standards of:
- design and manufacture of circuit breakers (IEC 60947-2, Annex A),
- electrical distribution networks (IEC 60364-4-43 § 434.5.1).

Coordination between circuit breakers

The use of a protective device possessing a breaking capacity less than the prospective short-circuit current at its installation point is permitted as long as another device is installed upstream with at least the necessary breaking capacity.

In this case, the characteristics of the two devices must be coordinated in such a way that the energy let through by the upstream device is not more than that which can be withstood by the downstream device and the cables protected by these devices without damage.

Cascading can only be checked by laboratory tests and the possible combinations can be specified only by the circuit breaker manufacturer.

Cascading and protection discrimination

In cascading configurations, due to the Roto-active breaking technique, discrimination is maintained and, in some cases, even enhanced.

Cascading tables

Schneider Electric cascading tables are:
- drawn up on the basis of calculations (comparison between the energy limited by the upstream device and the maximum permissible thermal stress for the downstream device)
- verified experimentally in accordance with IEC standard 60947-2.

For 50/60 Hz distribution systems with 220-240 V, 380-415 V and 440 V between phases, the tables of the following pages indicate cascading possibilities between upstream Compact and downstream Acti 9 and Compact circuit breakers as well as between upstream Masterpact and downstream Compact circuit breakers.

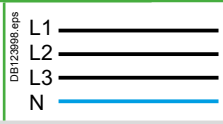
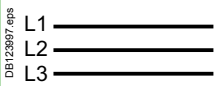
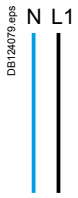
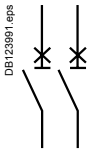
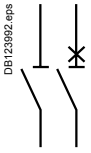
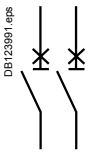
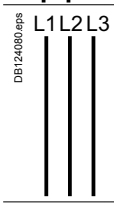
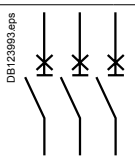
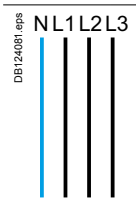
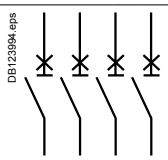
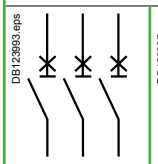
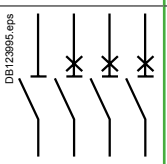
Circuit breaker with Vigi module (Add-On Residual Current Device - RCD):
When circuit breakers are equipped with Vigi module, the following cascading tables are still applicable.

Cascading

Using the cascading tables

This table takes in account all types of faults: between phases, phase and neutral, phase and earth in all earthing systems.
In IT the following cascading tables can not be used to improve performances in case of “double fault” between two different phases and earth in two different locations of the installation. Each breaker shall comply to IEC60947-2 Annex H to be used in such a system.
Depending on the network and the type of downstream circuit breaker, the selection table below indicates which table should be consulted to find out the cascading value.

Selection table

		Upstream network					
							
Type of Downstream network	Type of Downstream protection device	Type of circuit breaker upstream device: 1P, 2P, 3P or 4P circuit breaker					
		Ph/N 110-130 V	Ph/N 220-240 V	Ph/N 110-130 V Ph/Ph 220-240 V	Ph/N 220-240 V Ph/Ph 380-415 V	Ph/Ph 220-240 V	Ph/Ph 380-415 V
	 2P		(1) See table Ue: 380-415 V	See table Ue: 220-240 V	(1) See table Ue: 380-415 V		
	 1P  1P + N		(2) See table Ue: 380-415 V	See table Ue: 220-240 V	(2) See table Ue: 380-415 V		
	 2P			See table Ue: 220-240 V	See table Ue: 380-415 V	See table Ue: 220-240 V	See table Ue: 380-415 V
	 3P			See table Ue: 220-240 V	See table Ue: 380-415 V	See table Ue: 220-240 V	See table Ue: 380-415 V
	 4P			See table Ue: 220-240 V	See table Ue: 380-415 V		
	 3P  3P+N			See table Ue: 220-240 V	See table Ue: 380-415 V		

(1) For fault phase-neutral with upstream protection of neutral, please consult the table Ue: 220-240 V.
(2) For iC60 1P+N circuit breaker connected between phase and neutral under 220-240 V, consult the table Ue: 220-240 V (only for faults between phase and neutral).

Acti 9 Smartlink

Acti 9 Smartlink and enclosure/cubicle mounting compatibility

Enclosures configuration	Type of Acti 9 Smartlink mounting above DIN rail in all cases					
24-horizontal modules	Functional units Height in 50 mm Vertical modules	Power downstream cabling Power upstream cabling				
		Strands	Wiring band (cat. no. 04239)	Single cable trough support + cable trough 30 or 40	Adaptable cable trough support + cable trough 60	Cable trough behind the rail
Pragma Evolution - Surface mounting						
	3 modules 150 mm	●				
Prisma Plus Pack - 160 A and 250 A						
	3 modules 150 mm	●	●			
Prisma Plus G - Enclosure and cubicle						
	3 modules 150 mm	●	●			
	4 modules 200 mm	●	●	●		
	5 modules 250 mm	●	●	●	●	
Prisma Plus P – Cubicle						
	3 modules 150 mm	●	●			●
	4 modules 200 mm	●	●	●		●
	5 modules 250 mm	●	●	●	●	●

Key

☑	Compatible
	Incompatible or not applicable

Acti 9 Smartlink and enclosure/cubicle mounting compatibility

Enclosures configuration	TOP fed			Bottom fed			
24-horizontal modules	DIN rail	Linergy FM 80 A	Linergy FM 200 A	DIN rail (without comb busbar)		DIN rail + comb busbar (bottom position only)	
				Downstream cabling (in foot band)	Downstream cabling (in cable trough)	Downstream cabling (in foot band)	Downstream cabling (in cable trough)
Pragma Evolution - Surface mounting							
	☑	☑		☑			
Prisma Plus Pack - 160 A and 250 A							
	☑	☑		☑			
Prisma Plus G - Enclosure and cubicle							
	☑	☑		☑			
	☑	☑		☑	☑	☑	
	☑	☑	☑	☑	☑	☑	☑
Prisma Plus P – Cubicle							
	☑	☑		☑			
	☑	☑		☑	☑	☑	☑
	☑	☑	☑	☑	☑	☑	☑

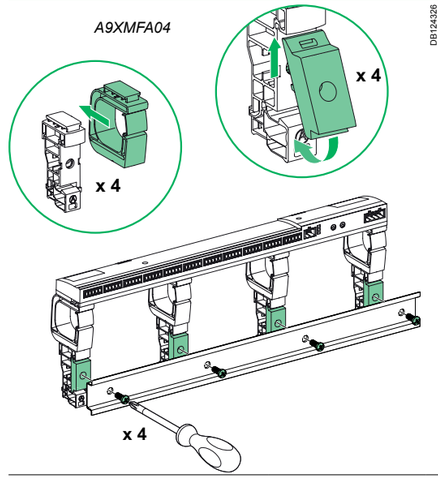
Key

☑	Compatible
	Incompatible or not applicable

Installation

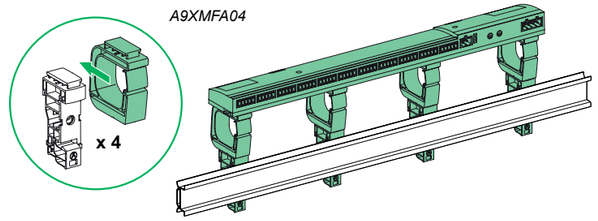
On DIN rail

DB124327



DB124326

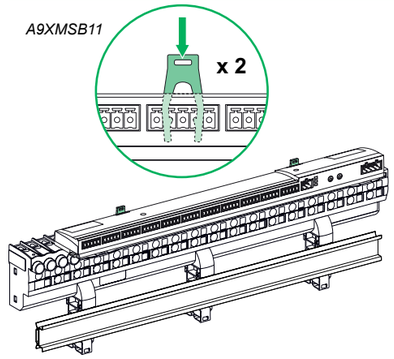
On asymmetrical DIN rail



PB107753-175

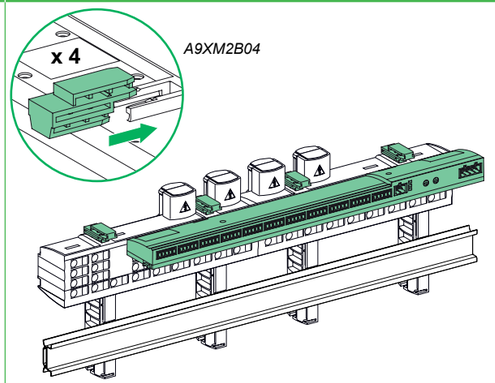
On Linergy FM 80 A cat. no.: 04000

DB124328

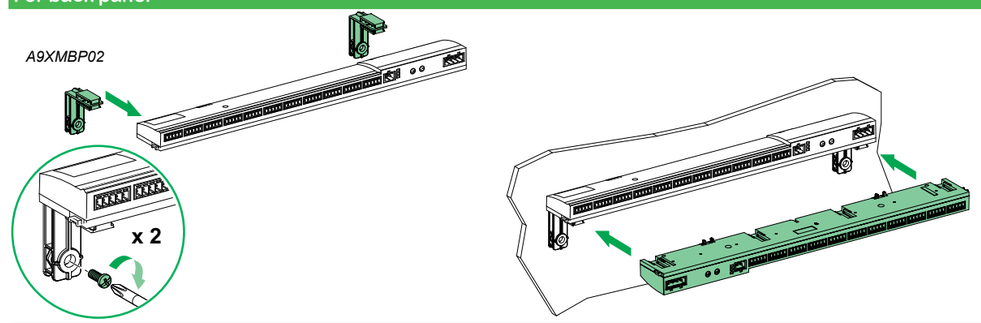


On Linergy FM 200 A cat. no.: 04012, 04013, 04014

DB124329



For back panel



PowerTag Compatibility

PB115448-40

PB115447-40

PowerTags are electrical quantity measuring modules for 1P, 1P+N, 2P, 3P and 3P+N networks.
They are mounted directly on equipment of the Acti 9 or Multi 9 range at intervals of 18 mm up to 63 A.

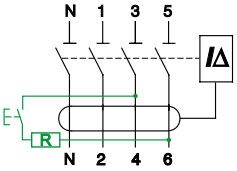
"Single terminal" devices at modules of 18 mm, rating y 63A	
Circuit breakers	
iC60	☑
Reflex iC60	☑
K60	☑
C120	☒
Residual current devices	
iC60 RCBO	☒
iC60 Vigi	☒
ISW 20/32 A	☒
iID	☑
RCCB-ID type B	☑ ⩽ 63 A
RCCB	☑
Switches	
iSW ⩾ 40 A	☑
iSW-NA	☑

Routine operating checks

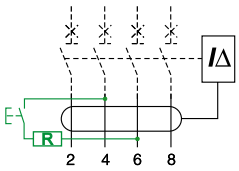
Residual current devices are vital for the safety of people.
That is why:
- *the electrical installation operation and maintenance standards require these protection devices to be tested at regular intervals,*
- *the product standards IEC 61008 and IEC 61009 require such devices to be fitted with a test button (marked "T") on the front panel.*

The user can therefore check and be certain that the device is working correctly.

The test button provides reliable information about how the device is working: tripping as soon as the button is pressed guarantees that the protection is working properly. If the device fails to trip, it must be examined to determine the cause of this malfunction.



Example iID

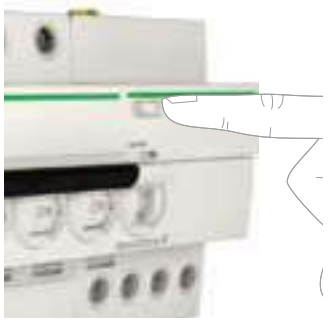
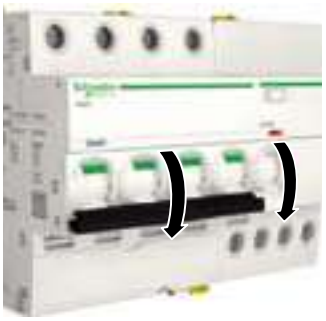
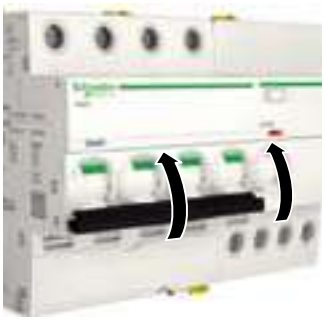


Example Vigi iC60

Test frequency

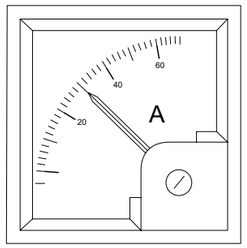
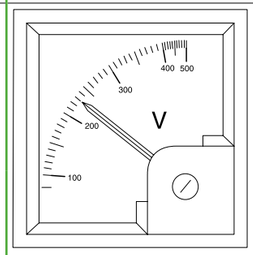
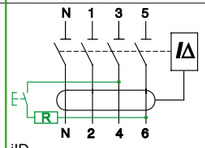
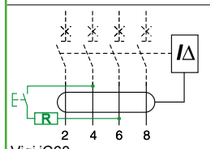
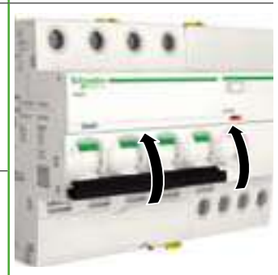
The residual current devices must be tested as frequently as required by the installation regulations and/or the safety regulations currently in force.
In the absence of any regulations, Schneider Electric recommends the test to be carried out:
- after initial connection and any subsequent reconnection,
- every years, for devices recently installed in good environmental conditions (no dust, corrosion, humidity, etc.),
- every 3 months, for devices that have been in use for seven years or more in good environmental conditions,
- every months, for devices used in corrosive or harsh environmental conditions or highly exposed to lightning strikes.

Procedure

The residual current device is powered on and the loads are connected.	Briefly press the test button marked "T" on the front panel. ⚠ Pressing the test button too long can seriously damage the device.	The residual current device should trip instantly. If it fails to trip, the additional checks described below should be performed.	When the test is finished, put the residual current device back into service.
			

Failure to trip during the test

Failure to trip during the test is often due to a cause that is external to the residual current device.
The table below shows the possible causes, the additional checks and tests to be carried out and the corrective actions to be taken, depending on the results.
After a corrective action has been performed, repeat the test until a correct result is obtained.

Cause of the malfunction			
Network frequency	Network voltage	Connection (three-pole or four-pole device)	Load leakage currents
Additional test			
Check that the network frequency is the same as the frequency read on the device.	Check that the mains voltage is the same as that indicated on the front face of the device.	Measure the voltage between terminals: • 3 and 6 for iID • 4 and 6 for Vigi iC60. This voltage must be between 85 % and 110 % of the voltage indicated on the device.	Disconnect the loads and press the test button again.
		 iID  Vigi iC60	
Incorrect test result			
If the network frequency is different, the button test is not significant.	• If the voltage measured is less than 85 % of that indicated on the device, the test button may not work, although the protection device will continue to function. • If the voltage measured is more than 110 % of the voltage indicated on the device there is a risk that the device will be destroyed.	The incorrect voltage may be due to a connection error (e.g. phase/neutral inversion/missing phase, etc.). The Acti 9 three-pole and four-pole residual current devices cannot be used on single-phase circuits. The Acti 9 four-pole residual current devices can be used normally on three-phase circuits without neutral.	If the device trips, the earth leakage protection is working correctly.
Corrective actions			
The device must be checked by an external device (see below).	If the voltage measured is different from the rated voltage of the mains, look for the problem on the power supply or on the downstream circuits (lines, loads): • if the rated voltage of the mains is lower than that indicated on the device it must be replaced by a device with a suitable rated voltage the next time it is shut down • if the rated voltage of the mains is higher than the voltage indicated on the device it must immediately be replaced by a device with a suitable rated voltage.	Modify the connection to obtain the rated voltage (phase-phase) between terminals.	Measure the permanent leakage current of each load. • in the event of abnormal load leakage, correct the insulation fault. • otherwise, separate the circuits to reduce the permanent leakage currents seen by each residual current device.

If none of the additional tests indicate a fault, the residual current device is faulty. Checking with an external device (see below) will show whether or not it has to be replaced urgently.

Test result	Positive	Negative
Diagnosis		
	• the earth leakage protection device is working properly • the test circuit is faulty	Earth leakage protection is not working
Corrective actions		
	The residual current device must be replaced quickly (as soon as it is no longer being used).	**The residual current device must be replaced immediately**

Some tertiary and industrial installation safety regulations require residual current devices to be checked with a specific device.

Checking with a specific test device

For the tests performed to be valid, these devices must comply with IEC 61557-6.

These devices are used to check:
- the operating voltage
- the tripping threshold (according to the sensitivity IΔn) of the residual current device
- the tripping times at IΔn, 2 x IΔn, 5 x IΔn, etc. The normal values are shown on pages CT6-1 and CT6-4.

With an IT earthing system (isolated neutral), a first insulation fault should be created artificially to allow a fault current to circulate during the tests.

Procedure

- Disconnect the fixed and mobile loads (if the residual current device protects the power outlets).
- Connect the test device to the downstream terminals of the residual current device or to a downstream power outlet.

Response time of high-sensitivity devices

Residual current devices 30 mA

All the high-sensitivity residual current devices (30 mA) in the Acti 9 range conform to the IEC/EN 61008 and IEC/EN 61009 standards. The response times defined by these standards guarantee their effectiveness in protecting people against direct contacts.

Response time

The response time of a residual current device is the time between the appearance of a dangerous leakage current and circuit power down.

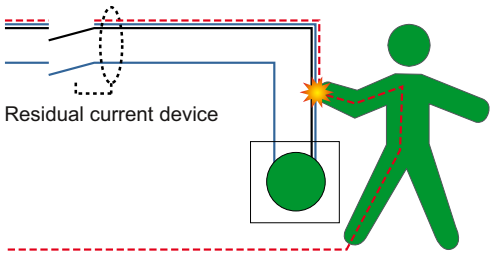
Types AC, A, Si

Fault current (mA)		Maximum response time (ms)
I∆n/2	15 mA	No tripping
I∆n	30 mA	300 ms (100ms for Singapore [SS97])
2 x I∆n	60 mA	150 ms
5 x I∆n	150 mA	40 ms

Type B, DC leakage current

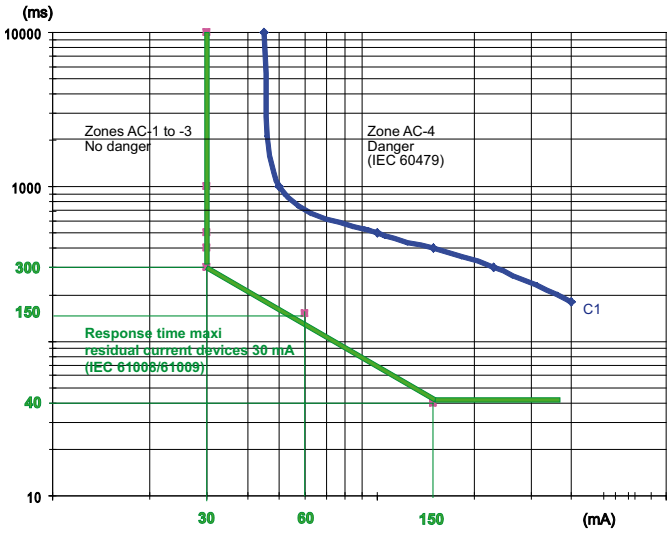
Fault current (mA)		Maximum response time (ms)
I∆n/2	15 mA	No tripping
2 x I∆n	60 mA	300 ms
4 x I∆n	120 mA	150 ms
10 x I∆n	300 mA	40 ms

These response times conform to the specifications of the IEC/EN 61008, IEC/EN 61009 and IEC/EN 62423 (DC leakage current) standards.



They guarantee protection of people against direct contacts for the following reasons :

- when a person comes into direct contact with a live conductor, the current passes directly through the human body,
- this current, with the same magnitude, is detected by the residual current device.



- The IEC 60479 technical report studies the sensitivity of the human body to the electric current. Curve c1 defines for each current value the maximum time before the current causes injury to a person.
- Superimposing the two curves shows that the above response times protects the users.

Measuring the response time

If the user wishes to check the response time of his residual current devices, he should follow a specific procedure to:

- establish a leakage current of calibrated magnitude,
- measure the exact response time.

Procedure

The measuring instruments must conform to IEC/EN 61557-6.
Carry out the operations in the following order according to the safety instructions:

- disconnect the loads,
- install the measuring instrument downstream of the residual current device to be tested (for example on a power outlet),
- perform the measurement.

Response time of medium-sensitivity devices

Residual current devices 100 mA...1000 mA

Response time of iC60 Vigi and iID residual current devices

The medium-sensitivity residual current devices (100…1000 mA) in the Acti 9 range conform to IEC/EN 61008, IEC/EN 61009 and IEC/EN 62423 (DC leakage current):

- their response time guarantees personal protection against indirect contacts and fire risks,
- in the case of selective versions (S), a “non-tripping time” guarantees discrimination with the residual current devices installed downstream.

Types AC, A, Si

Instantaneous residual current devices

Residual current device		Sensitivity (IΔn)			
		100 mA	300 mA	500 mA	
Fault current (mA)	IΔn/2	50	150	250	No tripping
					Max. response time
	IΔn	100	300	500	300 ms
	2 x IΔn	200	600	1000	150 ms
	5 x IΔn	500	1500	2500	40 ms
	500 A				40 ms

Selective (S) and time-delayed (R) residual current devices

Residual current device		Sensitivity (IΔn)				Type			
		100 mA	300 mA	500 mA	1000 mA	Selective (S)		Time-delayed (R)	
Fault current (mA)	IΔn/2	50	150	250	500	No tripping		No tripping	
						Non-tripping time	Response time	Non-tripping time	Response time
	IΔn	100	300	500	1000	130 ms	500 ms	300 ms	1000 ms
	2 x IΔn	200	600	1000	2000	60 ms	200 ms	150 ms	500 ms
	5 x IΔn	500	1500	2500	5000	50 ms	150 ms	150 ms	300 ms
	500 A					40 ms	150 ms	150 ms	300 ms

Type B, DC leakage current

Instantaneous residual current devices

Residual current device		Sensitivity (IΔn)		
		300 mA	500 mA	
Fault current (mA)	IΔn/2	150	250	No tripping
				Max. response time
	2 x IΔn	600	1000	300 ms
	4 x IΔn	1200	2000	150 ms
	10 x IΔn	3000	5000	40 ms
	5 A...200 A			40 ms

Selective (S) residual current devices

Residual current device		Sensitivity (IΔn) 300 mA		
Fault current (mA)	IΔn/2	150	No tripping	
			Non-tripping time	Response time
	2 x IΔn	600	130 ms	500 ms
	4 x IΔn	1200	60 ms	200 ms
	10 x IΔn	3000	50 ms	150 ms
	5 A...200 A		40 ms	150 ms

Definitions

Response time

Time between the appearance of a hazardous leakage current and circuit power down.

Non-tripping time

For selective and time-delayed devices, the non-tripping time is the time between the appearance of a hazardous leakage current and the device tripping. If the leakage current disappears before this time, the device does not trip.

This fast disappearance of the leakage current can be due to:

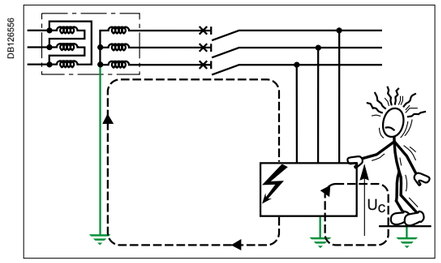
- the transient nature of the fault (e.g. the current generated by a switching surge),
- the interruption of the fault current by another faster residual current device situated downstream.

Selective and time-delayed devices therefore afford the user:

- better immunity against nuisance tripping,
- total discrimination between residual current devices.

Response time of medium-sensitivity devices

Residual current devices 100 mA...1000 mA



Protection against indirect contacts

The response times of residual current devices guarantee personal protection against indirect contacts, in conformance with the requirements of the installation standards (IEC 60364 or equivalent).

Indirect contacts

A person who comes into contact with an accidentally live frame caused by an insulation fault experiences an indirect contact: the contact voltage Uc creates a current that passes through the human body.

Maximum breaking time

The maximum breaking time required by the installation standards, in the event of an insulation fault, depends on:

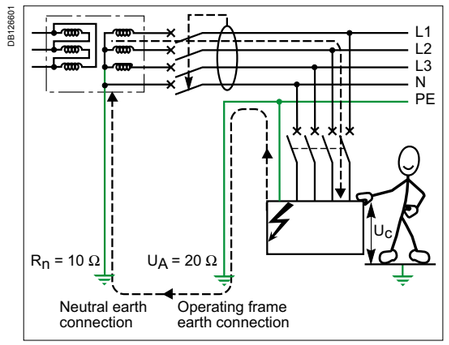
- the network voltage,
- the earthing system.

Maximum breaking time for terminating circuits (ms)

Earthing system	Network phase/neutral voltage 50...120V	120...230V	230...400V	> 400 V
TN or IT	800	400	200	100
TT	300	200	70	40

Note: A breaking time of no more than 5 s is permitted for distribution circuits to ensure discrimination with the devices installed on the terminating circuits. This time should be reduced to the essential minimum.

These times are based on the maximum prospective values of the contact voltage Uc and on the contact times authorised by technical report IEC 60479.



Example

On a three-phase phase/neutral voltage network Uo = 230 V in a TT system:

- the resistance of the neutral earth connection Rn is 10 Ω,
- the resistance of the operating frame earth connection RA is 100 Ω.

In the event of an insulation fault, the leakage current Id is equal to: Uo/ (RA + Rn) i.e. 230 V/110 Ω = 2.1 A.
The contact voltage Uc is therefore Id x RA i.e. 2.1 A x 100 Ω = 210 V.

Protection sensitivity

The residual current device must trip as soon as the leakage current corresponds to a hazardous situation, i.e. a contact voltage of 50 V (in a dry atmosphere).
Hence, IΔn = 50 V / RA, i.e. 50 V/100 Ω = 500 mA.

Maximum breaking time

For a 230 V phase/neutral voltage network in a TT system, the IEC 60364 standard requires a maximum breaking time of 200 ms.
For the 2.1 A leakage current:

- an instantaneous residual current device with a sensitivity of 300 mA will power down the circuit in less than 40 ms,
- an instantaneous residual current device with a sensitivity of 500 mA will power down the circuit in less than 60 ms.

Note: For well-designed and regularly maintained electrical installations, the resistance of the operating frame earth connection can be less than 100 Ω.

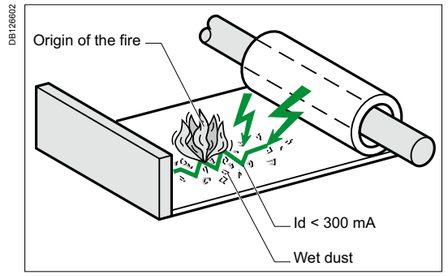
Use of the time-delayed residual current devices

In accordance with the breaking times required by the installation standards (above), the selective and time-delayed residual current devices can be used in the following cases:

Circuit	Network voltage (phase/neutral)	Residual current device Instantaneous I	Selective S	Time-delayed R
Terminating circuit	≤ 230 V	●	●	(1)
	> 230 V	●		
Sub-distribution or general		●	●	●

(1) Only in a TN system for a phase/neutral voltage < 120 V.

Response time of medium-sensitivity devices
Residual current devices 100 mA...1000 mA



The response times of residual current devices with a sensitivity of 300 mA guarantee protection against fires generated by leakage currents

Protection against fire hazards

Most fires of electrical origin are caused by the creation and propagation of electric arcs in building materials, in the presence of moisture, dust, pollution, etc. These arcs appear and develop due to the wear and tear or ageing of the insulating materials. The fire risk occurs when the leakage currents reach a few hundred milliamps for a few seconds.
For fault currents of this magnitude, residual current devices with a sensitivity of 300 or 500 mA trip in less than a second, whether they be instantaneous, selective or time-delayed.

IEC 60364-4-42 (subclause 422.3.10) states that it is mandatory to install a residual current device with a sensitivity less than or equal to 500 mA:

- on premises with a risk of explosion (BE3),
- on premises with a risk of fire (BE2),
- in agricultural and horticultural buildings,
- for circuits supplying fair, exhibition and entertainment equipment,
- on temporary outdoor leisure facilities.

In certain countries, the installation rules and/or local safety regulations require a sensitivity of 300 mA.

Discrimination of residual current devices

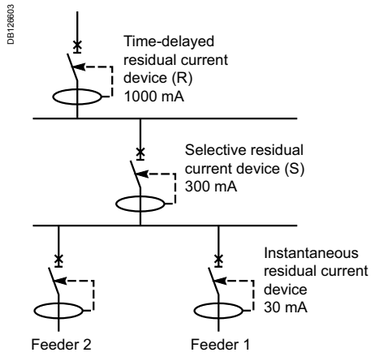
The non-tripping times of type (S) and (R) residual current devices ensure discrimination with the residual current devices located downstream.

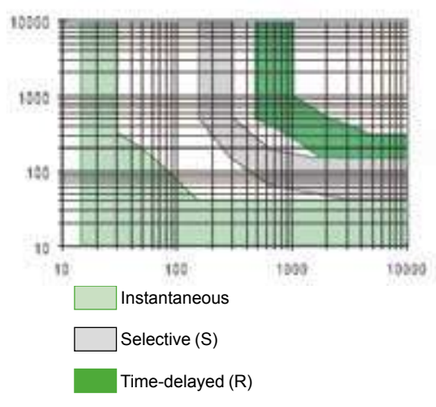
Combination rules

To ensure discrimination between two cascading residual current devices, the following two conditions must be met simultaneously:

- the sensitivity of the upstream device must be at least 3 times the sensitivity of the downstream residual current device,
- the upstream residual current device must be one of the following types:
  - Selective (S) if the downstream residual current device is instantaneous,
  - Time-delayed (R) if the downstream residual current device is selective (S).

The figure below shows how compliance with these rules provides discrimination on three levels: whatever the value of the fault current, it will be interrupted by the device situated immediately upstream of the fault and only by this device.



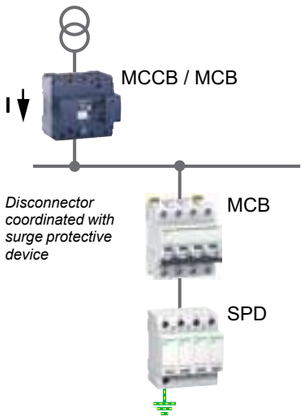


Example:

In the left diagram for a fault current of 1000 mA:

- if the fault occurs downstream of the 30 mA residual current device, the latter will interrupt the current in less than 40 ms, whereas type S and R devices “wait” for 80 ms and 200 ms respectively. Therefore, neither of the two devices trips,
- if the fault occurs downstream of the type S residual current device, the latter will interrupt the current in less than 175 ms, whereas the type R device “wait” for 200 ms and therefore does not trip.

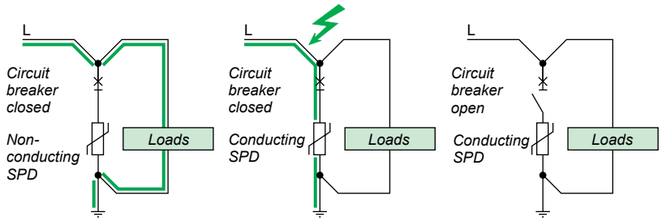
If these cascading combination rules are complied with, the level of continuity of service provided to the user depends on the way in which the “horizontal discrimination” is implemented: the terminal feeders must be divided into as many circuits as necessary, each protected by a residual current device.



MCCB = Molded-case circuit breaker.
MCB = Modular circuit breaker.
SPD = Surge protective device.

Coordination between the surge protective device and its disconnect circuit breaker

An external disconnecting device must be coordinated with a surge protective device in order to achieve:
- continuity of service:
  - do not trip due to surge current,
  - do not increase (Up) voltage protection level.
- effective protection against all types of overcurrents:
  - overload due to SPD aging,
  - short circuit of low intensity (impedant) due to temporary overvoltages,
  - short circuit of high intensity due to SPD degradation.



Surge protective device in normal operation

Surge protective device in operation during the lightning stroke

Surge protective device at end of life on short circuit

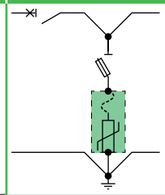
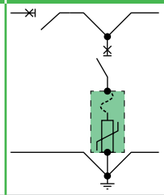
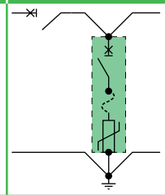
The disconnecting device must be coordinated with the surge protective device. It is designed to meet the following two constraints:

Resistance to lightning current

The resistance to lightning current is an essential characteristic of the surge protective device's external disconnecting device.
The device must be capable of passing the following standardized tests: not trip upon 15 successive impulse currents at In.

Resistance to short-circuit current

The breaking capacity is determined by the installation rules (IEC 60364 standard):
- the external disconnecting device must have a breaking capacity equal to or greater than the presumed short-circuit current Isc at the point of installation.
- when this device is integrated into the surge protective device, conformity with product standard IEC 61643-11 naturally ensures protection.

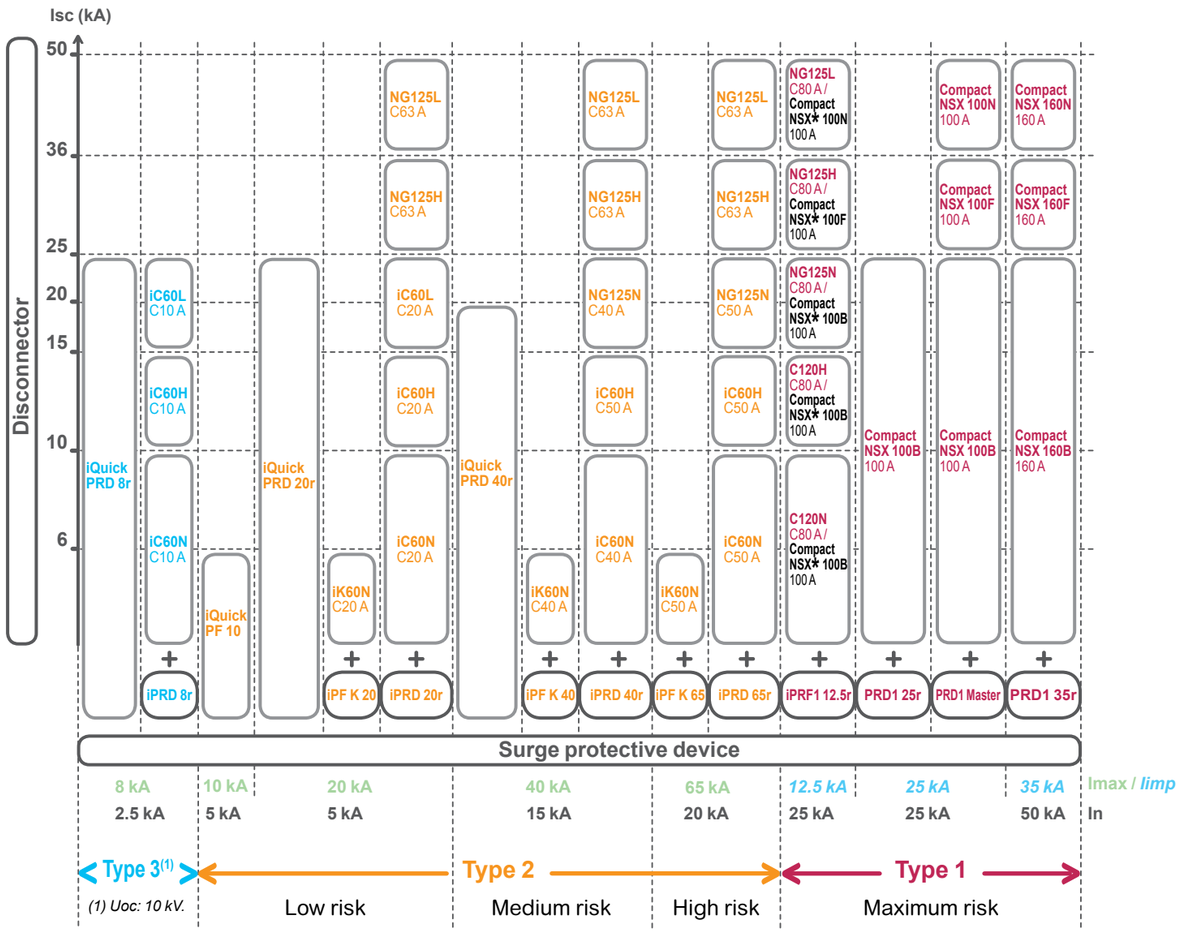
External disconnecting device	Fuse protection combined with the SPD	Circuit breaker protection combined with the SPD	Circuit breaker protection integrated into the SPD
			
Lightning protection of equipment	=	=	=
	All types of disconnecting devices protect the equipment satisfactorily		
Protection of installation (at end of the surge protective device's life)	=	+	++
	Achieved if compliance with the MCB/SPD coordination table		Achieved during product design
	Protection from (impedant) short circuits of low intensity not well ensured	Protection against (impedant) short circuits of low intensity	
Continuity of service (at end of the surge protective device's life)	+	+	+
	Only the surge protective device circuit is shut down		
Maintenance (at end of the surge protective device's life)	=	+	+
	Change of fuses	Immediate resetting	

Main reasons why the disconnecting device recommended by the manufacturer should be used:
- if the disconnecting device's rating is lower than the recommended rating: risk of the disconnecting device opening in normal operation.
- if the disconnecting device's rating is higher than the recommended rating: risk of non-disconnection during a temporary voltage surge.

Coordination of surge protection devices

Coordination between the surge protective device and its disconnect circuit breaker in the event of a short circuit

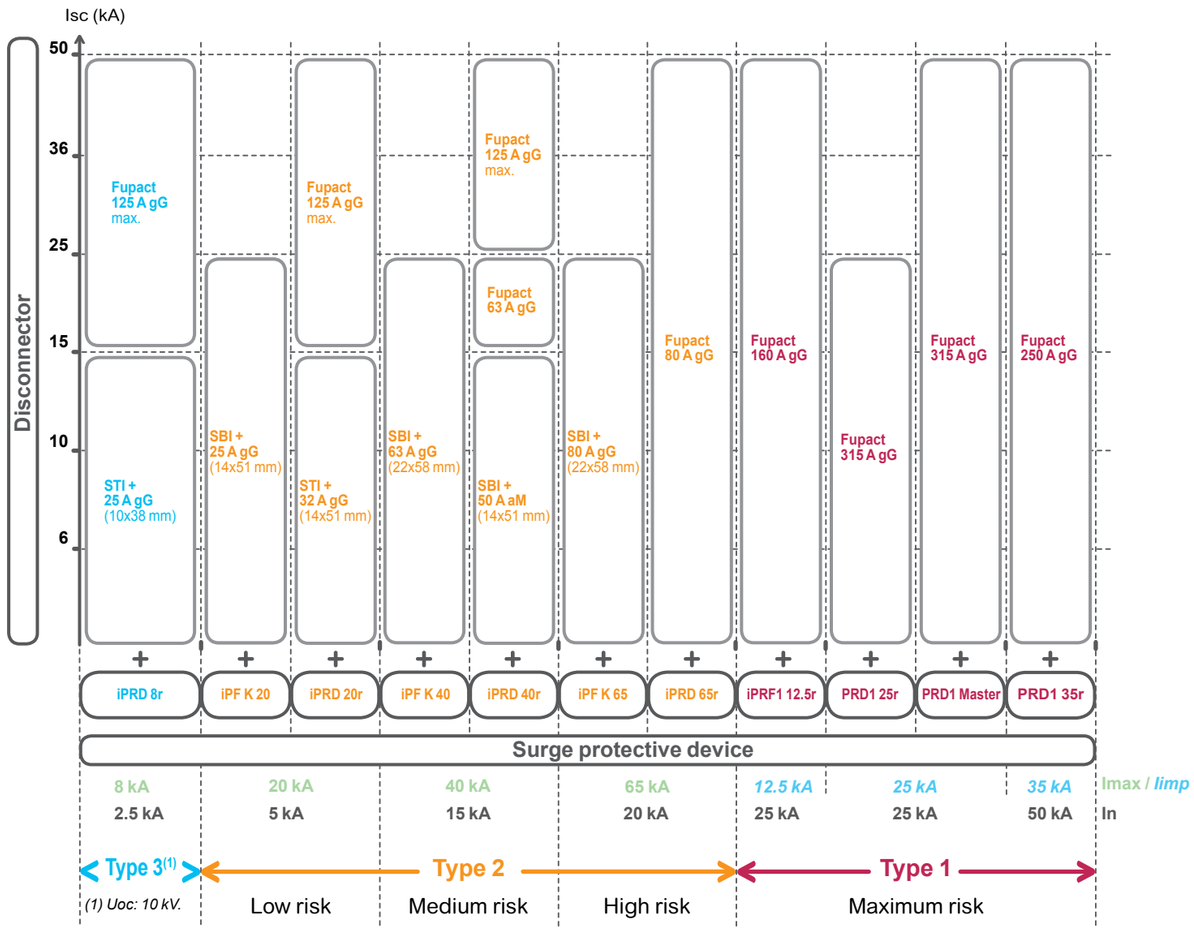
This table shows: the rating, curve and short circuit current level of the disconnector coordinated with the surge protective device.



(*) *For lightning impulse current withstand*

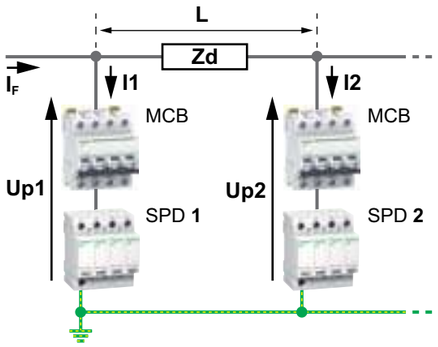
Coordination of surge protection devices

Coordination between the surge protective device and its disconnect fuse in the event of a short circuit



Coordination between two surge protective devices, upstream/downstream

When two surge protective devices are installed in an electrical installation, coordination is needed according to IEC 61643-12 to obtain an acceptable stress distribution between the two surge protective devices according to their permissible energy “E”.



L and Zd *represent the cable length and impedance respectively between the 2 surge protective devices.*
Up2: *level of protection of surge protective device SPD2.*
Uw: *impulse withstand voltage of the equipment to be protected.*
Imax: *maximum discharge current.*
I_F: *lightning current:*
≤ Imax of SPD1
= I1 + I2
E: *permissible energy.*
MCB: *modular circuit breaker.*
SPD: *surge protective device.*

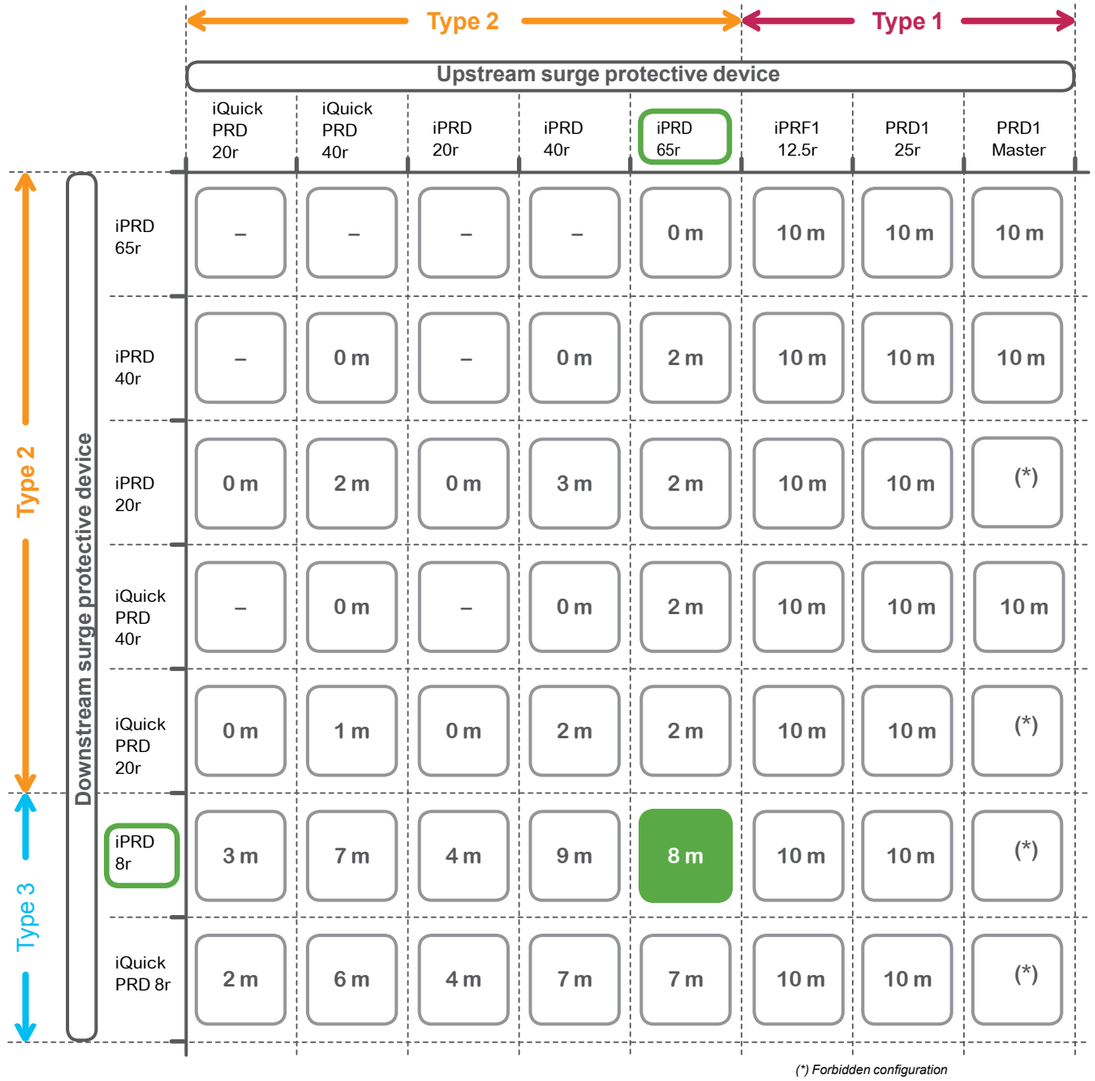
For coordination between two surge protective devices,
a minimum cable length between these 2 surge protective devices is needed to ensure that:

- **I2** < Imax SPD2.
- **Up2** < Uw.
- **E2** < E max SPD2.

Minimum distance between two surge protective devices, upstream/downstream

For a cable section of 16 mm² and an impulse current equal to the maximum discharge current (Imax) of the upstream surge protective device.

Example
If iPRD65r is installed in the incoming panelboard, the second SPD iPRD8r must be installed at a cable length of 8 meters from the first one.



(*) Forbidden configuration

Cascading in the event of a short circuit between the surge protective device disconnector and the upstream circuit breaker

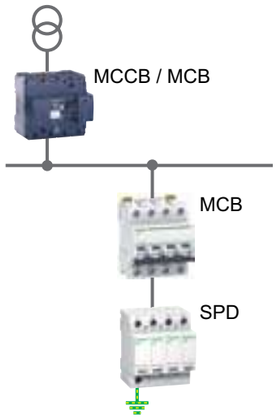
What is cascading?

Cascading means using the circuit breakers' limiting power, which allows circuit breakers of lower performance to be installed downstream.
The upstream circuit breakers then act as a barrier for major short-circuit currents. They thus enable circuit breakers of breaking capacity lower than the presumed short-circuit current (at their point of installation) to be loaded in their normal breaking conditions.
Since current limiting takes place all along the circuit controlled by the upstream current-limiting circuit breaker, cascading concerns all the devices located downstream of that circuit breaker.
It is not restricted to two consecutive devices.

Case 1

Disconnect circuit breaker not integrated into the surge protective device.

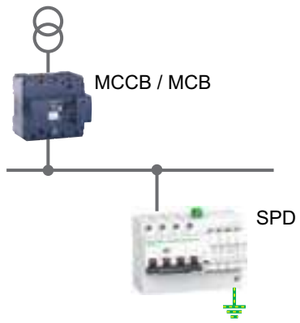
For this type of study, refer to the existing coordination tables.
> see 557F4200 catalogue module.



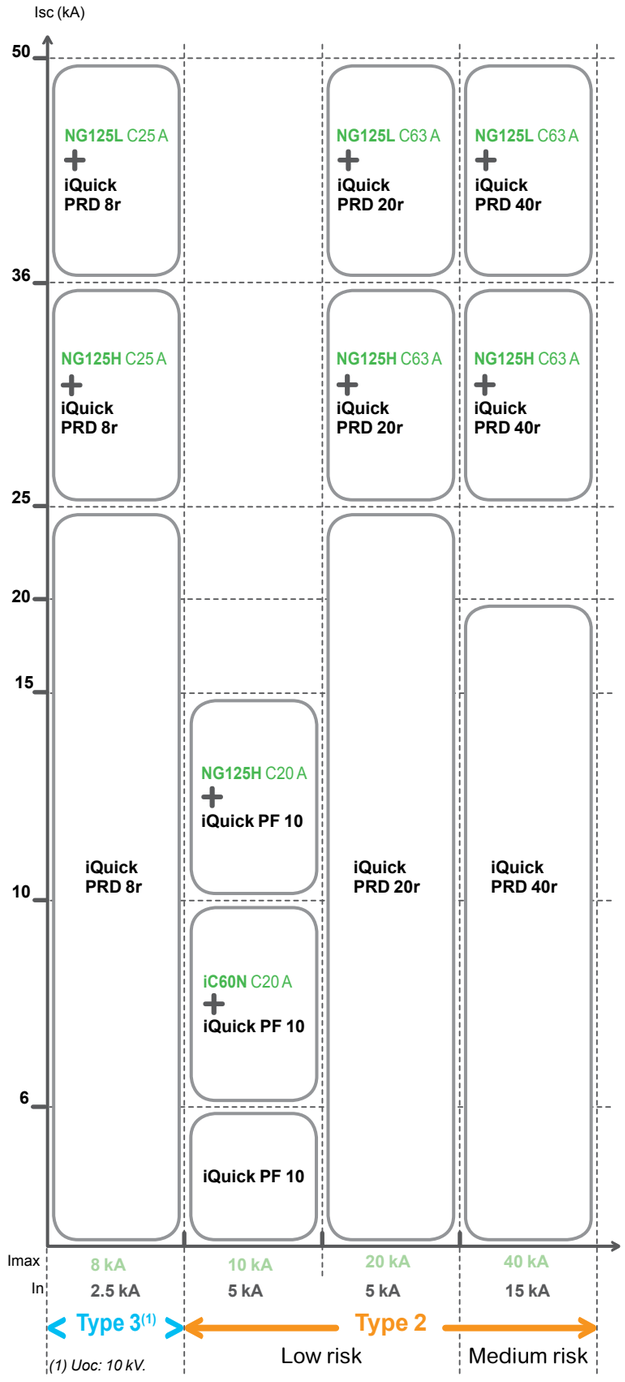
MCCB = Molded-case circuit breaker.
MCB = Modular circuit breaker.
SPD = Surge protective device.

Case 2

Disconnect circuit breaker integrated into the surge protective device.



MCCB = Molded-case circuit breaker.
MCB = Modular circuit breaker.
SPD = Surge protective device.



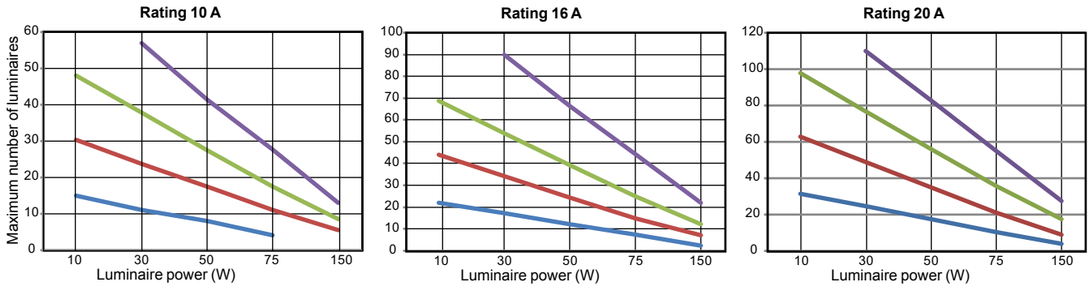
Coordination of switchgear with loads

Circuit breakers

Use of circuit breakers

The new lighting technologies with electronic interfaces (ballasts, drivers) cause a high transient inrush current at power up that can trip the circuit breaker. These phenomena are particularly increased with LED lighting.

Coordination curves between the number of LED luminaires and the circuit breaker rating:



Maximum number of luminaires depending on the circuit breaker rating and curve

	Circuit breaker rating	10 A				16 A				20 A			
Unit power of the luminaire (W)	Curve	B	C	D	B, C, D with iCT+ or iTL+	B	C	D	B, C, D with iCT+ or iTL+	B	C	D	B, C, D with iCT+
10		15	30	48	-	22	44	69	-	32	63	98	-
30		11	24	38	57	17	34	54	90	25	49	77	110
50		8	17	27	41	12	25	39	66	18	35	56	83
75		4	11	17	28	7	15	25	44	11	21	36	55
150		-	5	9	13	2	7	12	22	4	9	18	28

According to the control device used, the transient current surge may:
- require the circuit breaker to be derated according to the number of luminaires / circuit breaker rating coordination curves, when using standard control devices: CT, TL (electromechanical control device),
- be reduced by the use of the following technologies:
  - softStart: using a command integrated in the driver or a dimmer switch,
  - controlled contactor (iTL+, iCT+) (closes when the voltage passes through “0”, derating is related to the Cos phi of the lighting circuit).

These technologies allow circuit breakers without derating related to the technology of the lamps to be used.
Example:
Circuit rated power = 230 V AC x Circuit breaker rating x Cos phi.

Coordination of switchgear with loads

iCT, iCT+, iTL, iTL+, Reflex iC60

General comment
Modular contactors and impulse relays do not use the same technologies. Their rating is determined according to different standards and does not correspond to the rated current of the circuit.
For example, for a given rating, an impulse relay is more efficient than a modular contactor for the control of light fittings with a strong inrush current, or with a low power factor (non-compensated inductive circuit).

Choice table

Products		iCT contactors								iCT+ contactors
Type of lamp		Maximum number of light fittings for a single-phase circuit and maximum power output per circuit								
		16 A		25 A		40 A		63 A		20 A
Basic incandescent lamps, LV halogen lamps, replacement mercury vapour lamps (without ballast)										
	40 W	38	1550 W to 2000 W	57	2300 W to 2850 W	115	4600 W to 5250 W	172	6900 W to 7500 W	4660 W x Cos phi
	60 W	30		45		85		125		
	75 W	25		38		70		100		
	100 W	19		28		50		73		
ELV 12 or 24 V halogen lamps										
With ferromagnetic transformer	**20 W**	15	300 W to 600 W	23	450 W to 900 W	42	850 W to 1950 W	63	1250 W to 2850 W	
	50 W	10		15		27		42		
	75 W	8		12		23		35		
	100 W	6		8		18		27		
With electronic transformer	**20 W**	62	1250 W to 1600 W	90	1850 W to 2250 W	182	3650 W to 4200 W	275	5500 W to 6000 W	
	50 W	25		39		76		114		
	75 W	20		28		53		78		
	100 W	16		22		42		60		
Fluorescent tubes with starter and ferromagnetic ballast										
1 tube without compensation (1)	15 W	22	330 W to 850 W	30	450 W to 1200 W	70	1050 W to 2400 W	100	1500 W to 3850 W	
	18 W	22		30		70		100		
	20 W	22		30		70		100		
	36 W	20		28		60		90		
	40 W	20		28		60		90		
	58 W	13		17		35		56		
	65 W	13		17		35		56		
	80 W	10		15		30		48		
	115 W	7		10		20		32		
1 tube with parallel compensation (2)	15 W 5 µF	15	200 W to 800 W	20	300 W to 1200 W	40	600 W to 2400 W	60	900 W to 3500 W	
	18 W 5 µF	15		20		40		60		
	20 W 5 µF	15		20		40		60		
	36 W 5 µF	15		20		40		60		
	40 W 5 µF	15		20		40		60		
	58 W 7 µF	10		15		30		43		
	65 W 7 µF	10		15		30		43		
	80 W 7 µF	10		15		30		43		
	115 W 16 µF	5		7		14		20		
2 or 4 tubes with series compensation	2 x **18 W**	30	1100 W to 1500 W	46	1650 W to 2400 W	80	2900 W to 3800 W	123	4450 W to 5900 W	
	4 x **18 W**	16		24		44		68		
	2 x **36 W**	16		24		44		68		
	2 x **58 W**	10		16		27		42		
	2 x 65 W	10		16		27		42		
	2 x 80 W	9		13		22		34		
	2 x 115 W	6		10		16		25		
Fluorescent tubes with electronic ballast										
1 or 2 tubes	**18 W**	74	1300 W to 1400 W	111	2000 W to 2200 W	222	4000 W to 4400 W	333	6000 W to 6600 W	
	36 W	38		58		117		176		
	58 W	25		37		74		111		
	2 x **18 W**	36		55		111		166		
	2 x **36 W**	20		30		60		90		
	2 x **58 W**	12		19		38		57		

Coordination of switchgear with loads

iCT, iCT+, iTL, iTL+, Reflex iC60

Relay rating

- The table below shows the maximum number of light fittings for each relay, according to the type, power and configuration of a given lamp. As an indication, the total acceptable power is also mentioned.
- These values are given for a 230 V circuit with 2 active conductors (single-phase phase/neutral or two-phase phase/phase). For 110 V circuits, divide the values in the table by 2.

Choice table

Products			iTL impulse relays				iTL+ impulse relays	Reflex iC60 (C curve)									
Type of lamp			Maximum number of light fittings for a single-phase circuit and maximum power output per circuit														
			16 A		32 A		16 A	10 A		16 A		25 A		40 A		63 A	
Basic incandescent lamps, LV halogen lamps, replacement mercury vapour lamps (without ballast)																	
	40 W		40	1500W to 1600W	106	4000W to 4200W	3680 W x Cos phi	28	1120W to 2175W	46	1840W to 2600W	70	2800W to 3600W	140	5600W to 6800W	207	8280W to 9800W
	60 W		25		66			23		36		55		103		152	
	75 W		20		53			29		31		46		80		121	
	100 W		16		42			15		23		33		60		88	
ELV 12 or 24 V halogen lamps																	
With ferromagnetic transformer	**20 W**		70	1350W to 1450W	180	3600W to 3750W		11	220W to 500W	19	380W to 800W	27	540W to 1050W	50	1000W to 2200W	75	1500W to 3300W
	50 W		28		74			8		12		19		33		51	
	75 W		19		50			7		10		14		27		43	
	100 W		14		37			5		8		10		22		33	
With electronic transformer	**20 W**		60	1200W to 1400W	160	3200W to 3350W		47	940W to 1200W	74	1480W to 2000W	108	2160W to 2600W	220	4400W to 5100W	333	6660W to 7300W
	50 W		25		65			19		31		47		92		137	
	75 W		18		44			15		24		34		64		94	
	100 W		14		33			12		20		26		51		73	
Fluorescent tubes with starter and ferromagnetic ballast																	
1 tube without compensation[1]	15 W		83	1250W to 1300W	213	3200W to 3350W		16	244W to 647W	26	390W to 1035W	37	555W to 1520W	85	1275W to 2880W	121	1815W to 4640W
	18 W		70		186			16		26		37		85		121	
	20 W		62		160			16		26		37		85		121	
	36 W		35		93			15		24		34		72		108	
	40 W		31		81			15		24		34		72		108	
	58 W		21		55			9		15		21		43		68	
	65 W		20		50			9		15		21		43		68	
	80 W		16		41			8		12		19		36		58	
	115 W		11		29			6		9		12		24		38	
1 tube with parallel compensation[2]	15 W	5 µF	60	900W	160	2400W		11	165W to 640W	19	285W to 960W	24	360W to 1520W	48	720W to 2880W	72	1080W to 4080W
	18 W	5 µF	50		133			11		19		24		48		72	
	20 W	5 µF	45		120			11		19		24		48		72	
	36 W	5 µF	25		66			11		19		24		48		72	
	40 W	5 µF	22		60			11		19		24		48		72	
	58 W	7 µF	16		42			8		12		19		36		51	
	65 W	7 µF	13		37			8		12		19		36		51	
	80 W	7 µF	11		30			8		12		19		36		51	
	115 W	16 µF	7		20			4		7		9		17		24	
2 or 4 tubes with series compensation	2 x **18 W**		56	2000W	148	5300W		23	828W to 1150W	36	1296W to 1840W	56	2016W to 2760W	96	3456W to 4600W	148	5328W to 7130W
	4 x **18 W**		28		74			12		20		29		52		82	
	2 x **36 W**		28		74			12		20		29		52		82	
	2 x **58 W**		17		45			8		12		20		33		51	
	2 x 65 W		15		40			8		12		20		33		51	
	2 x 80 W		12		33			7		11		15		26		41	
	2 x 115 W		8		23			5		8		12		20		31	
Fluorescent tubes with electronic ballast																	
1 or 2 tubes	**18 W**		80	1450W to 1550W	212	3800W to 4000W		56	1008W to 1152W	90	1620W to 1798W	134	2412W to 2668W	268	4824W to 5336W	402	7236W to 8120W
	36 W		40		106			28		46		70		142		213	
	58 W		26		69			19		31		45		90		134	
	2 x **18 W**		40		106			27		44		67		134		201	
	2 x **36 W**		20		53			16		24		37		72		108	
	2 x **58 W**		13		34			9		15		23		46		70	

Coordination of switchgear with loads

iCT, iCT+, iTL, iTL+, Reflex iC60

- To obtain the equivalent values for the entire 230 V three-phase circuit, multiply the number of lamps and the maximum power output:
  - by 3 (1.73) for circuits with 230 V between phases without neutral;
  - by 3 for circuits with 230 V between phase and neutral or 400 V between phases.

Note: The power ratings of the lamps most commonly used are shown in bold. For powers not mentioned, use a proportional rule with the nearest values.

Choice table

Products			iCT contactors								iCT+ contactors
Type of lamp			Maximum number of light fittings for a single-phase circuit and maximum power output per circuit								
			16 A		25 A		40 A		63 A		20 A
Compact fluorescent lamps											
With external electronic ballast	**5 W**		210	1050 W to 1300 W	330	1650 W to 2000 W	670	3350 W to 4000 W		Non testé	4660 W x Cos phi
	7 W		150		222		478				
	9 W		122		194		383				
	11 W		104		163		327				
	18 W		66		105		216				
	26 W		50		76		153				
With integral electronic ballast (replacement for incandescent lamps)	**5 W**		160	800 W to 900 W	230	1150 W to 1300 W	470	2350 W to 2600 W	710	3550 W to 3950 W	
	7 W		114		164		335		514		
	9 W		94		133		266		411		
	11 W		78		109		222		340		
	18 W		48		69		138		213		
	26 W		34		50		100		151		
LED lamps											
With driver	**10 W**		48	500 W to 1400 W	69	700 W to 1950 W	98	1000 W to 3000 W	200	2000 W to 6200 W	
	30 W		38		54		77		157		
	50 W		27		39		56		114		
	75 W		17		25		36		73		
	150 W		9		12		18		37		
	200 W		7		9		15		31		
Low-pressure sodium vapour lamps with ferromagnetic ballast with external ignitor											
Without compensation [1]	**35 W**		5	270 W to 360 W	9	320 W to 720 W	14	500 W to 1100 W	24	850 W to 1800 W	
	55 W		5		9		14		24		
	90 W		3		6		9		19		
	135 W		2		4		6		10		
	180 W		2		4		6		10		
With parallel compensation [2]	**35 W**	20 µF	3	100 W to 180 W	5	175 W to 360 W	10	350 W to 720 W	15	550 W to 1100 W	
	55 W	20 µF	3		5		10		15		
	90 W	26 µF	2		4		8		11		
	135 W	40 µF	1		2		5		7		
	180 W	45 µF	1		2		4		6		
High-pressure sodium vapour lamps Metal-iodide lamps											
With ferromagnetic ballast with external ignitor, without compensation [1]	35 W		16	600 W	24	850 W to 1200 W	42	1450 W to 2000 W	64	2250 W to 3200 W	
	70 W		8		12		20		32		
	150 W		4		7		13		18		
	250 W		2		4		8		11		
	400 W		1		3		5		8		
	1000 W		0		1		2		3		
With ferromagnetic ballast with external ignitor and parallel compensation [2]	35 W	6 µF	12	450 W to 1000 W	18	650 W to 2000 W	31	1100 W to 4000 W	50	1750 W to 6000 W	
	70 W	12 µF	6		9		16		25		
	150 W	20 µF	4		6		10		15		
	250 W	32 µF	3		4		7		10		
	400 W	45 µF	2		3		5		7		
	1000 W	60 µF	1		2		3		5		
	2000 W	85 µF	0		1		2		3		
With electronic ballast	35 W		24	850 W to 1350 W	38	1350 W to 2200 W	68	2400 W to 4000 W	102	3600 W to 600 W	
	70 W		18		29		51		76		
	150 W		9		14		26		40		

(1) Circuits with non-compensated ferromagnetic ballasts consume twice as much current for a given lamp power output. This explains the small number of lamps in this configuration.
(2) The total capacitance of the power factor correction capacitors in parallel in a circuit limits the number of lamps that can be controlled by a contactor. The total downstream capacitance of a modular contactor of rating 16, 25, 40 or 63 A should not exceed 75, 100, 200 or 300 µF respectively. Allow for these limits to calculate the maximum acceptable number of lamps if the capacitance values are different from those in the table.

Coordination of switchgear with loads

iCT, iCT+, iTL, iTL+, Reflex iC60

Choice table

Products			iTL impulse relays				iTL+ impulse relays	Reflex iC60 (C curve)									
Type of lamp			Maximum number of light fittings for a single-phase circuit and maximum power output per circuit														
			16 A		32 A		16 A	10 A		16 A		25 A		40 A		63 A	
Compact fluorescent lamps																	
With external electronic ballast	**5 W**		240	1200W to 1450W	630	3150W to 3800W	3680 W x Cos phi	158	790W to 962W	251	1255W to 1560W	399	1995W to 2392W	810	4050W to 4706W	Usage peu fréquent	
	7 W		171		457			113		181		268		578			
	9 W		138		366			92		147		234		463			
	11 W		118		318			79		125		196		396			
	18 W		77		202			49		80		127		261			
	26 W		55		146			37		60		92		181			
With integral electronic ballast (replacement for incandescent lamps)	**5 W**		170	850W to 1050W	390	1950W to 2400W		121	605W to 650W	193	959W to 1044W	278	1390W to 1560W	568	2840W to 3146W	859	4295W to 4732W
	7 W		121		285			85		137		198		405		621	
	9 W		100		233			71		113		160		322		497	
	11 W		86		200			59		94		132		268		411	
	18 W		55		127			36		58		83		167		257	
	26 W		40		92			25		40		60		121		182	
LED lamps																	
With driver	**10 W**		69	700W to 1950W	98	1000W to 3000W		30	300W to 850W	44	450W to 1250W	71	700W to 2000W	108	1050W to 3050W	146	1450W to 4150W
	30 W		54		77			24		34		55		83		113	
	50 W		39		56			17		25		40		61		83	
	75 W		25		36			11		15		24		37		50	
	150 W		12		18			5		7		11		17		23	
	200 W		9		15			-		6		10		15		20	
Low-pressure sodium vapour lamps with ferromagnetic ballast with external ignitor																	
Without compensation[1]	**35 W**		Non testé, utilisation peu fréquente					4	153W to 253W	7	245W to 405W	11	385W to 792W	17	595W to 1198W	29	1015W to 2070W
	55 W							4		7		11		17		29	
	90 W							3		4		8		11		23	
	135 W							2		3		5		8		12	
	180 W							1		2		4		7		10	
With parallel compensation[2]	**35 W**	20 µF	38	1350W	102	3600W		3	88W to 169W	4	140W to 270W	7	245W to 450W	12	420W to 720W	19	665W to 1440W
	55 W	20 µF	24		63			3		4		7		12		19	
	90 W	26 µF	15		40			2		3		5		8		13	
	135 W	40 µF	10		26			1		2		3		5		9	
	180 W	45 µF	7		18			0		1		2		4		8	
High-pressure sodium vapour lamps Metal-iodide lamps																	
With ferromagnetic ballast with external ignitor, without compensation[1]	35 W		Non testé, utilisation peu fréquente					12	416W to 481W	19	400W to 750W	28	980W to 1350W	50	1750W to 2500W	77	2695W to 4000W
	70 W							7		11		15		24		38	
	150 W							3		5		9		15		22	
	250 W							2		3		5		10		13	
	400 W							0		1		3		6		10	
	1000 W							0		0		1		2		3	
With ferromagnetic ballast with external ignitor and parallel compensation[2]	35 W	6 µF	34	1200W to 1350W	88	3100W to 3400W		14	490W to 800W	17	595W to 1200W	26	910W to 2200W	43	1505W to 4400W	70	2450W to 7000W
	70 W	12 µF	17		45			8		9		13		23		35	
	150 W	20 µF	8		22			5		6		9		14		21	
	250 W	32 µF	5		13			3		4		5		10		14	
	400 W	45 µF	3		8			2		3		4		7		9	
	1000 W	60 µF	1		3			0		1		2		4		7	
	2000 W	85 µF	0		1			0		0		1		2		3	
With electronic ballast	35 W		38	1350W to 2200W	87	3100W to 5000W		15	525W to 844W	24	840W to 1350W	38	1330W to 2100W	82	2870W to 4650W	123	4305W to 7200W
	70 W		29		77			11		18		29		61		92	
	150 W		14		33			6		9		14		31		48	

(1) Circuits with non-compensated ferromagnetic ballasts consume twice as much current for a given lamp power output. This explains the small number of lamps in this configuration.

(2) The total capacitance of the power factor correction capacitors in parallel in a circuit limits the number of lamps that can be controlled by a contactor. The total downstream capacitance of a modular contactor of rating 16, 25, 40 or 63 A should not exceed 75, 100, 200 or 300 µF respectively. Allow for these limits to calculate the maximum acceptable number of lamps if the capacitance values are different from those in the table.

Note: Reflex iC60
High-pressure sodium vapour lamp with electronic ballast
For the 10 A and 16 A B-curve ratings, the number of lamps should be reduced by 10 % to limit unwanted magnetic tripping.
LED lamp
B-curve ratings, the number of lamps should be reduced by 50 %.
D-curve ratings, the number of lamps should be increased by 50 %.

Coordination of switchgear with loads

iTL, iCT

Heating application

- Impulse relay rating to be chosen according to the power to be controlled.

230 V heating		
Type	Maximum power for a given rating iTL impulse relays	
Single-phase circuit	16 A	32 A
Heating (AC1)	3.6 kW	7.2 kW

- Contactor rating to be chosen according to the power to be controlled and the number of operations a day.

230 V heating				
Type of heating application	Maximum power for a given rating iCT contactors			
Number of operations / day	25 A	40 A	63 A	100 A
25	5.4 kW	8.6 kW	14 kW	21.6 kW
50	5.4 kW	8.6 kW	14 kW	21.6 kW
75	4.6 kW	7.4 kW	12 kW	18 kW
100	4 kW	6 kW	9.5 kW	14 kW
250	2.5 kW	3.8 kW	6 kW	9 kW
500	1.7 kW	2.7 kW	4.5 kW	6.8 kW
400 V heating				
25	16 kW	26 kW	41 kW	63 kW
50	16 kW	26 kW	41 kW	63 kW
75	14 kW	22 kW	35 kW	52 kW
100	11 kW	17 kW	26 kW	40 kW
250	5 kW	8 kW	13 kW	19 kW
500	3.5 kW	6 kW	9 kW	14 kW

Small motor application

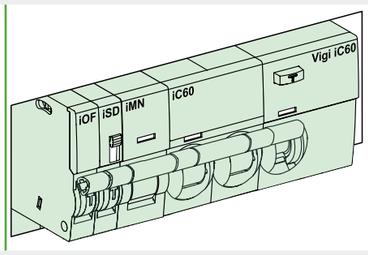
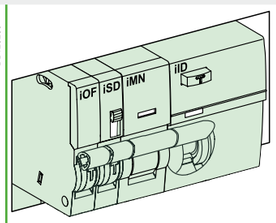
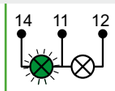
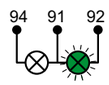
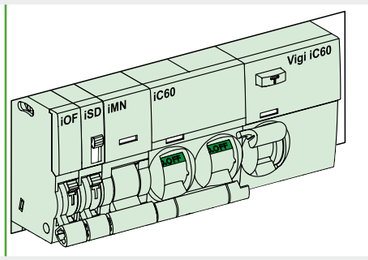
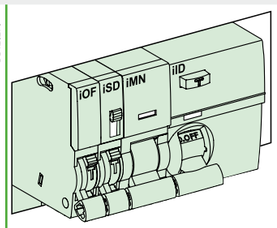
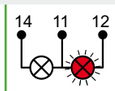
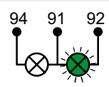
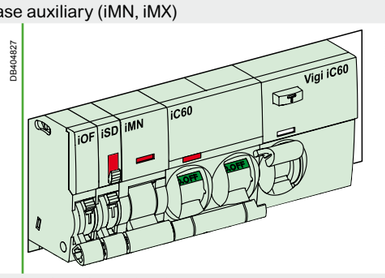
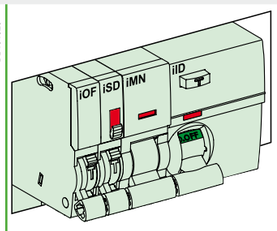
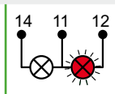
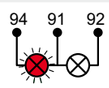
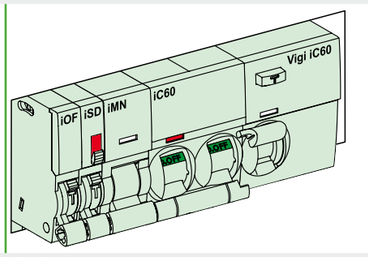
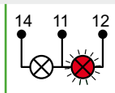
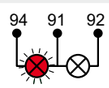
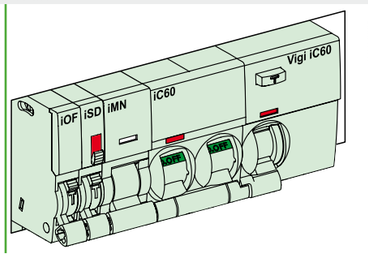
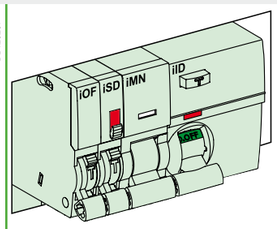
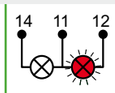
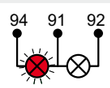
Contactor rating to be chosen according to the power to be controlled.

Asynchronous single-phase motor with capacitor			
Small motor application type	Maximum power for a given rating iCT contactors		
Voltage	25 A	40 A	63 A
230 V	1.4	2.5	4
Asynchronous three-phase motor			
400 V	4	7.5	15
Universal motor			
230 V	0.9	1.4	2.2

Auxiliary indicating contacts

Acti 9 protective devices

Table showing state of auxiliary contacts according to the main device and the type of fault.

	Main device		Auxiliary contacts	
Functions and use	**Circuit breaker**	**Residual current circuit breaker**	**OF**	**SD**
Closed	DB123288 	DB123289 	DB123292 	
Manually opened	DB123277 	DB123278 	DB123290 	
Tripped by release auxiliary (iMN, iMX)	DB404827 	DB404829 	DB123291 	
Tripped upon overload or short circuit	DB123285 	–	DB123291 	
Tripped upon earth fault	DB404828 	DB123287 	DB123291 	

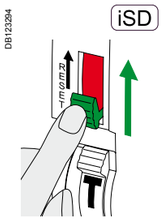
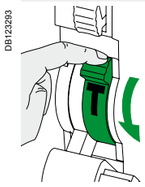
Auxiliary indicating contacts

Acti 9 protective devices

Function

RESET (SD contact)

When the main device is tripped and the fault has been eliminated, it is possible to switch the SD contact manually, via the "RESET" button on the front panel.
The unit is then in "device opened manually" configuration.

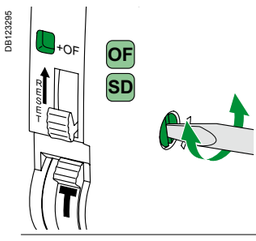
	iOF	iSD	iOF/SD+OF iOF+SD24
DB123294 	-	■	■ iSD only
DB123293 	■	■	■

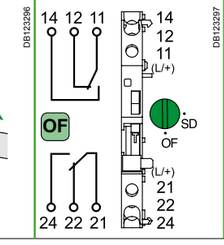
TEST (SD or OF contact)

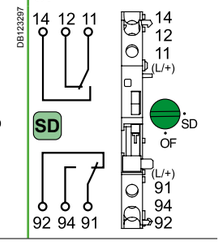
When the main device is opened or tripped, the TEST button can be used to check the satisfactory operation of the indicating circuit by simulating operation of the main device. This operation also modifies the position of the indicator on the front panel of the iSD auxiliary.
On the double contact (iOF/SD+OF or iOF+SD24), this function can be implemented only for the SD indicating circuit.

iOF/SD+OF double contact

Change of function of the second contact from OF to SD.

DB123295 

DB123296 

DB123297 

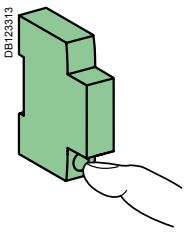
Auxiliary indicating contacts

Acti 9 protective devices

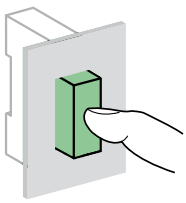
Technical data

Main characteristics		iOF, iSD, iOF/ SD+OF		iOF+SD24
		IEC/EN 60947-5-1		IEC/EN 60947-5-1, IEC/EN 60947-5-4
Insulation voltage (Ui)		400 V AC		500 V AC
Degree of pollution		3		3
Rated impulse withstand voltage (Uimp)		4 kV (6 kV relative to the associated protective device)		4 kV (6 kV relative to the associated protective device)
Current rating (A)	Min.	24 V, 10 mA		24 V ± 20 %, 2 mA mini, 100 mA maxi Low level contact: compatible with IEC/EN 61131-2 Programmable Controllers, suitable for any connection to 24 V DC PLCs
	Maxi	AC12 415 V AC	3 A	
		AC12 ≤ 240 V AC	6 A	
		DC12 130 V DC	1 A	
		DC12 60 V DC	1.5 A	
		DC12 48 V DC	2 A	
		DC12 24 V DC	6 A	
Additional characteristics				
Degree of protection (IEC 60529)	Device only	IP20		IP20
	Device in a modular enclosure	IP40 Insulation class II		IP40 Insulation class II
Endurance (O-C)	Electrical	10,000 cycles		10,000 cycles
Overvoltage category (IEC 60364)		III		III
Short-circuit resistance		1 kA		1 kA
Rating of device for auxiliary contact protection against short circuits	Circuit breaker	iC60 - C curve - 6 A		iC60 - C curve - 6 A
	Fuse	6 A, 500 V type Gg 10.3 x 38 mm		6 A, 500 V type Gg 10.3 x 38 mm
Operating temperature		-35°C to +70°C		-20°C to +60°C
Storage temperature		-40°C to +85°C		-40°C to +85°C

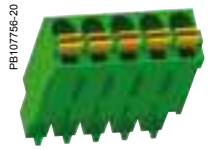
IP20



IP40



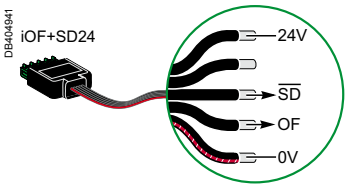
A9XCAU06



A9XC2412

iOF+SD24 connection

The indicating auxiliary iOF+SD24 can be connected with a factory-built link, A9XCAU06: moulded connector (iOF+SD24 side) and with the 5 wires (PLC side).



Or using a Ti24 5-point connector, **A9XC2412**

About Schneider Electric

Schneider Electric is the global specialist in energy management and automation. With revenues of ~€25 billion in FY2016, our 144,000 employees serve customers in over 100 countries, helping them to manage their energy and process in ways that are safe, reliable, efficient and sustainable. From the simplest of switches to complex operational systems, our technology, software and services improve the way our customers manage and automate their operations. Our connected technologies reshape industries, transform cities and enrich lives.

At Schneider Electric, we call this Life Is On.

Life Is On | Schneider Electric