Low Voltage Final Distribution

Acti9 Protection and Isolation

Low Voltage Final Distribution

Acti9 Control and signalling

Acti9 Protection and Isolation

General overview

Choice of Circuit Protective Devices

Protection of electrical circuits against short circuits and thermal 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:
  - Provide protection against fires that might be caused by a faulty electric circuit (short circuit, overload, insulation fault)
  - Provide protection against electric shock in the event of indirect contact.
- The choice of circuit breakers must be optimised to provide optimum protection while providing continuity of service.
- Although circuit breakers are sometimes used as circuit control devices, 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:

- breaking capacity
- max. voltage rating
- planned amperage for the circuit to be protected
- nature and cross section of cables
- ambient temperature (possible derating)
- the loads, which determine the number of poles of the protective circuit breaker installed on their power supply circuit and the tripping curve.

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 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 and short circuit current limiting, see module CA908025).

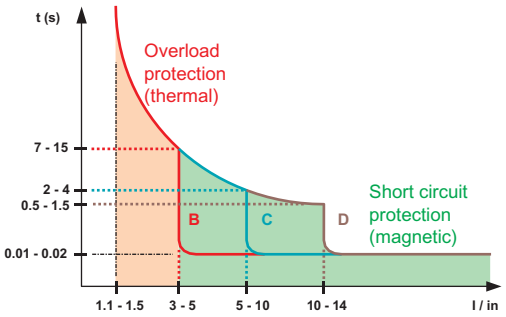
Choice of rating

- The rating (In) is chosen above all to protect the electrical connections:
  - for cables: it is chosen according to the current carrying capacity
  - for Canalis prefabricated busbar trunking: it must be simply less than or equal to the rating of the busbar trunking.
- Generally, the rating should be greater than the nominal current of the circuits.

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	**AS/NZS 60898 and AS/NZS IEC 60947-2**	**AS/NZS 60898 and AS/NZS IEC 60947-2**
B	Between 3 In and 5 In	Between 3.2 In and 4.8 In
C	Between 5 In and 10 In	Between 7 In and 10 In
D or K	-	Between 10 In and 14 In
MA	-	12 In
Z	-	Between 2.4 In and 3.6 In

- 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).

Acti9 Isolation and Overcurrent Protection

General overview

Choice of Circuit Protective Devices

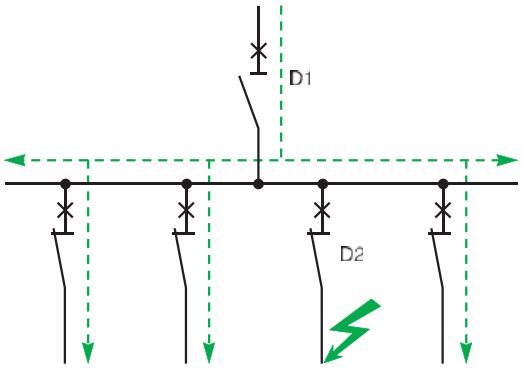
Continuity of service

C

- 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).

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.
- Energise the circuits in succession, using time delay auxiliaries on the control devices.
- Increase the rating of the circuit breaker to a greater value that will still maintain the protection of the downstream circuit.
- Ensure discrimination of the protective devices (see modules 557E4300/4305/4310/4320/4330).



Discrimination is the coordination of automatic breaking devices in such a way that a fault occurring at any point on the network is interrupted 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 specific case of three-phase circuits supplying single-phase non-linear loads such as single-phase VSD's or discharge lamps with electronic ballasts, harmonic currents of the third order and multiples of three are generated. The neutral cable must be sized to prevent it from overheating. However, 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 provide protection against indirect contact due to increased earth fault loop impedance

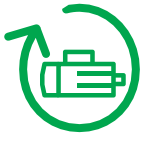
Circuit isolation

Switching and 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 provide safety for personnel having to work on the electrical installation for maintenance or repair.

- The circuit breaker must interrupt all active conductors. The neutral (1), may be interrupted according to the restrictions of AS/NZS 3000.
- It must be lockable or padlockable in "open" position in order to prevent any unintentional reclosing, at least in industrial environments.
- It must be suitable for isolation.

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



Motor protection

Motor protection

Protection of motors against risks of overheating due, for example, to an extended overload, rotor blocking or single-phase operation. Given the specific characteristics of motors:

- overload detection is provided by a thermal relay specially designed for their protection.
- in this case short circuit protection is provided by a circuit breaker without a thermal release (MA type).

Acti9 Protection and Isolation

General overview

iSW switches


PB110909

1P


PB110910

2P


PB110911

3P


PB110912

4P


PB104474-35

AS/NZS IEC 60947-3

As per the above standards:

The switch-disconnectors combine the following functions:

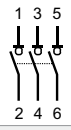
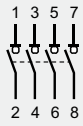
- Control (opening and closing of circuits under load).

iOF auxiliary

- Mounted on the left, it indicates the "open" or "closed" position of the switch and has a normally open (NO) or normally closed (NC) contact.

Catalog numbers

40 to 125 A iSW switch-disconnectors

Type		Rating	Voltage (Ue)	Reference	Width in 9 mm modules
1P		63 A	240 V AC	A9S66163	2
		100 A	240 V AC	A9S66191	
		125 A	240 V AC	A9S66192	
2P		63 A	415 V AC	A9S66263	4
		100 A	415 V AC	A9S66291	
		125 A	415 V AC	A9S66292	
3P		63 A	415 V AC	A9S66363	6
		100 A	415 V AC	A9S66391	
		125 A	415 V AC	A9S66392	
4P		63 A	415 V AC	A9S66463	8
		100 A	415 V AC	A9S66491	
		125 A	415 V AC	A9S66492	
Operating frequency			50/60 Hz		
Accessories			**Catalog page C63**		

Type		Voltage (Ue)	Reference	Width in 9 mm modules
iOF		240...415 V AC	A9A26924	1
		24...130 V DC		

Acti9 Protection and Isolation

General overview

iSW switches

Large circuit labelling area

Insulated terminals IP20

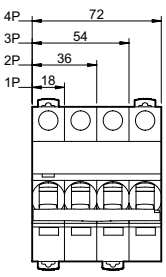
Clip for dismounting

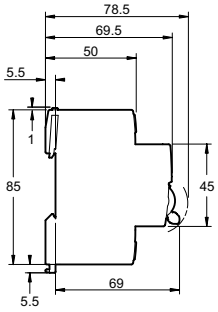
VISI-SAFE window

Positive contact indication

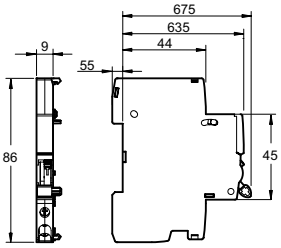
- Suitable for industrial isolation according to AS/NZS IEC 60947-2 standard.
- A green strip on the toggle indicates full opening of all the poles

Dimensions (mm)





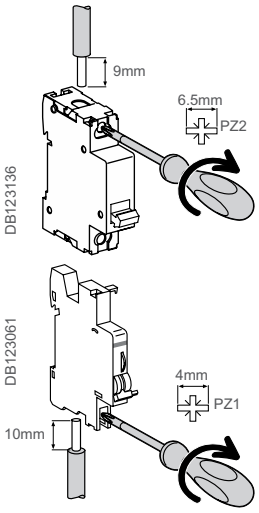
iSW

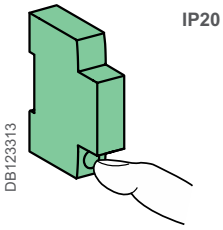


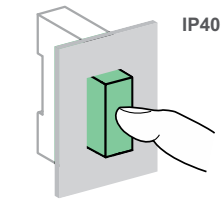
iOF

General overview

iSW switches







Connection

Type	Rating	Tightening torque	Copper cables	
			Rigid	Flexible or with ferrule
				
iSW	40 to 125 A	3.5 N.m	≤ 50 mm²	≤ 35 mm²

Type	Tightening torque	Copper cables		Multi-cables terminal	
		Rigid	Flexible	Rigid	With ferrule
					
iOF	1 N.m	1 to 4 mm²	0.5 to 2.5 mm²	2 x 2.5 mm²	2 x 1.5 mm²

Technical data

Main characteristics		
Insulation voltage (Ui)		500 VAC
Pollution degree		3
Power circuit		
Rated impulse withstand voltage (Uimp)		6 kV
Operating category		AC - 22 A
Permissible rated short-time withstand current (Icw)		1500 A
Conditional rated short-circuit current (Inc)		10 kA according to AS/NZS IEC 60947-3
Rated short-circuit closing current (Icm)		5 kA
Direct current use		**iSW40/63 A**
Operating category		DC-22A
Voltage rating (Ue)		48 V DC
		110 V DC with 2 poles in series

Additional characteristics			
Degree of protection	Device only	IP20	
	Device in modular enclosure	IP40 Insulation class II	
Endurance (O-C)	Mechanical	20,000 cycles	
	Electrical	40 A- 63 A	15,000 cycles
		80 A- 100 A	10,000 cycles
		125 A	2 500 cycles
Operating temperature		-25°C to +60°C	
Storage temperature		-40°C to +85°C	
Tropicalization		Treatment 2 (relative humidity 95% at 55°C)	

iOF characteristics		
Rated voltage (Ue)	240…415 VAC	
	24…130 V DC	
Operating frequency	50/60 Hz	
	24 V DC	6 A
	48 V DC	2 A
	60 V DC	1.5 A
	130 V DC	1 A
	240 VAC	6 A
	415 VAC	3 A
Number of contacts	1 NO/NC	
Operating temperature	-35°C to +70°C	
Storage temperature	-40°C to +85°C	

Acti9 Protection and Isolation

Accessories

Accessorisation / Auxiliarisation iSW

Connection accessories

1	50 mm² Al terminal		27060

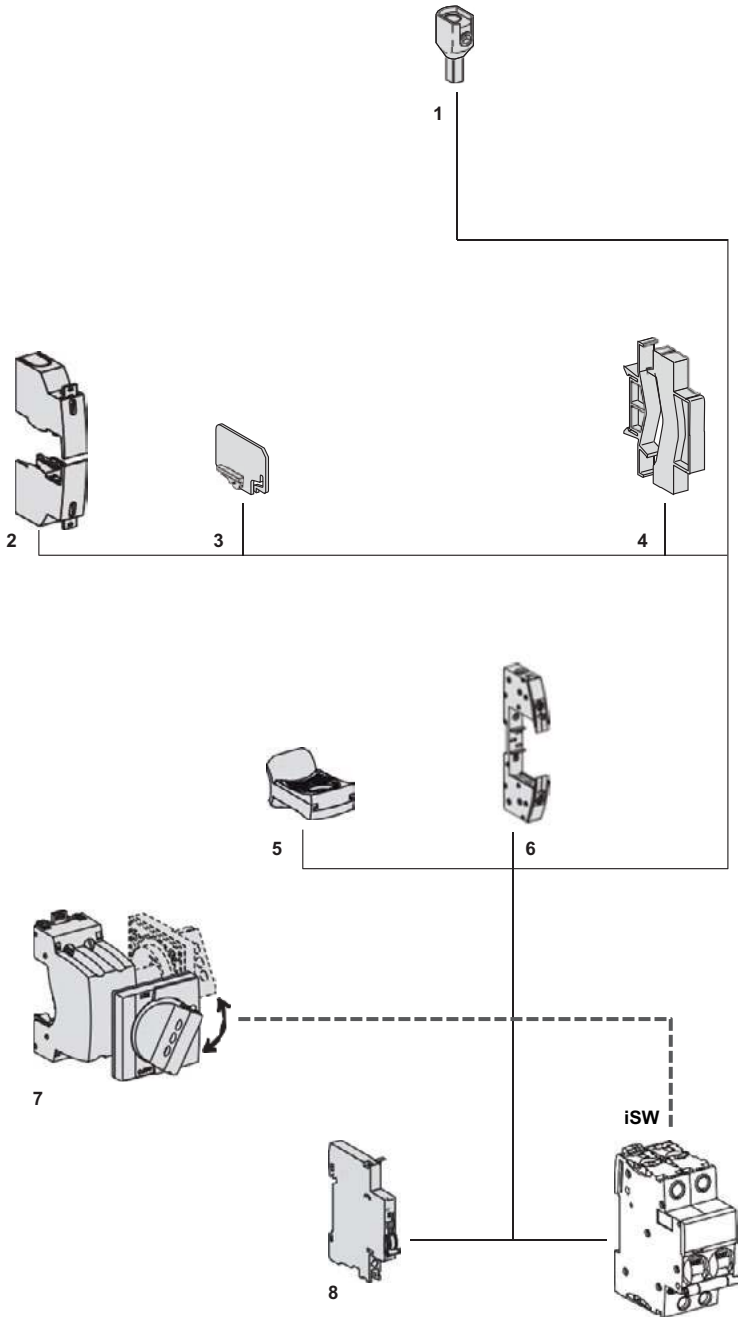
Mounting accessories

2	Sealable terminal shields for top and bottom connection	1P (set of 2)	A9A26975
		2P (set of 2)	A9A26976
		3P	1P + 2P
		4P	2P + 2P
3	Interpole barrier	(set of 10)	A9A27001
4	9 mm spacer		A9A27062
5	Padlocking device	(set of 10)	A9A26970
6		Plug-in base	A9A27003
7	Rotary handle	Black handle	A9A27005
		Red handle	A9A27006

Auxiliary

Indication

8	iOF open/close auxiliary contact	A9A26924



General overview

iC60N miniature circuit breakers (curve C, D)

AS/NZS IEC 60947-2
AS/NZS 60898-1

As per the above standards:

- 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 AS/NZS IEC 60947-2, standard.
  - fault tripping indication by a red mechanical indicator in circuit breaker front face.

PB104437-40

PB104450-40

Alternating current (AC) 50/60 Hz

Breaking capacity (Icu) according to AS/NZS IEC 60947-2					Service breaking capacity (Ics)
		Voltage (Ue)			
Ph/Ph (2P, 3P)		12 to 133 V	230 to 240V		
Ph/N (1P)		12 to 60 V	100 to 133 V		
Rating (In)	**1 to 4 A**	50 kA	50 kA	50 kA	100 % of Icu
	6 to 63 A	36 kA	20 kA	10 kA	75 % of Icu

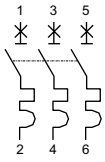
Breaking capacity (Icn) according to AS/NZS 60898-1		
	Voltage (Ue)	
Ph/Ph	400 to 415 V	
Ph/N	230 to 240 V	
Rating (In)	**1 to 63 A**	6000 A

Direct current (DC)

Breaking capacity (Icu) according to AS/NZS IEC 60947-2					Service breaking capacity (Ics)
		Voltage (Ue)			
Between +/-		250 V	500 V		
Number of poles		1P	2P		
Rating (In)	**1 to 63 A**	6 kA	6 kA		75% of Icu

Catalog numbers

iC60N circuit breaker

Type	1P		2P		3P	
	 Curve		 Curve		 Curve	
Rating (In)	**D**	**C**	**D**	**C**	**D**	**C**
1 A(1)		A9F44101		A9F44201		A9F44301
2 A(1)		A9F44102		A9F44202		A9F44302
4 A(1)		A9F44104		A9F44204		A9F44304
6 A	A9F45106	A9F44106	A9F45206	A9F44206	A9F45306	A9F44306
10 A	A9F45110	A9F44110	A9F45210	A9F44210	A9F45310	A9F44310
16 A	A9F45116	A9F44116	A9F45216	A9F44216	A9F45316	A9F44316
20 A	A9F45120	A9F44120	A9F45220	A9F44220	A9F45320	A9F44320
25 A	A9F45125	A9F44125	A9F45225	A9F44225	A9F45325	A9F44325
32 A	A9F45132	A9F44132	A9F45232	A9F44232	A9F45332	A9F44332
40 A	A9F45140	A9F44140	A9F45240	A9F44240	A9F45340	A9F44340
50 A	A9F45150	A9F44150	A9F45250	A9F44250	A9F45350	A9F44350
63 A	A9F45163	A9F44163	A9F45263	A9F44263	A9F45363	A9F44363
Width in 9-mm modules	2		4		6	

Acti9 Protection and Isolation

General overview

iC60N circuit breakers (curve C, D) (cont.)

Double clip for dismounting with comb busbar in place

Insulated terminals IP20

VISI-SAFE window

Fault tripping is indicated by a red mechanical indicator on the front face

Large circuit labelling area

Positive contact indication

- **Suitable for industrial isolation according to AS/NZS IEC 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**

Double clip for dismounting with comb busbar in place

Increased product service life thanks to:

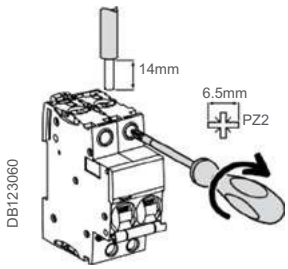
- overvoltage resistance by high level of industrial performances conception (pollution degree, rated impulse withstand voltage and insulation voltage),
- high performance limitation (see limitation curves),
- fast closing independent of the speed of actuation of the toggle.

- **Remote indication, open/closed/tripped, by optional auxiliary contacts.**
- **Top or bottom electrical feeding.**

General overview

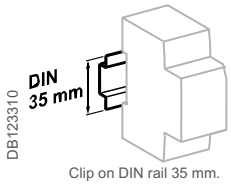
iC60N circuit breakers (curve C, D) (cont.)

Connection

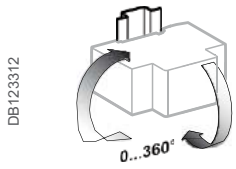


Rating	Tightening torque	Without accessory: Copper cables: Rigid	Without accessory: Copper cables: Flexible or with ferrule	With accessories: 50 mm² Al terminal	With accessories: Screw-on connection for ring terminal	With accessories: Multi-cables terminal: Rigid	With accessories: Multi-cables terminal: Flexible
				Al			
1 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

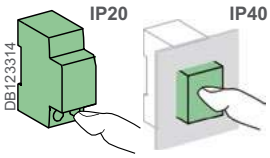
Technical data



Clip on DIN rail 35 mm.



Indifferent position of installation.



Main characteristics			
According to AS/NZS IEC 60947-2			
Insulation voltage (Ui)		500 VAC	
Pollution degree		3	
Rated impulse withstand voltage (Uimp)		6 kV	
Thermal tripping	Reference temperature	50 °C	
	Temperature derating	See module CA908007	
Magnetic tripping	C curve	8 In ± 20 %	
Utilization category		A	
According to AS/NZS 60898-1			
Limitation class		3	
Rated making and breaking capacity of an individual pole (Icn1)		Icn1 = Icn	

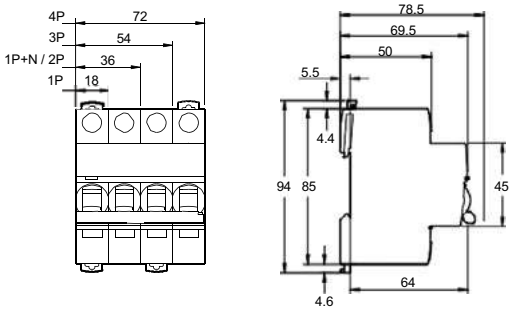
Additional characteristics			
Breaking capacity under 1 pole with IT 380-415 V isolated neutral system (case of double fault)	40 A	4 kA	
	50/63 A	3 kA	
Degree of protection (IEC 60529)	Device only	IP20	
	Device in modular enclosure	IP40	Insulation class II
Endurance (O-C)	Electrical	10,000 cycles	
	Mechanical	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% at 55°C)	

Weight (g)

Circuit-breaker

Type	iC60N
1P	125
2P	250
3P	375
4P	500

Dimensions (mm)



Acti9 Protection and Isolation

General overview

iC60H miniature circuit breakers (curve B, C, D)

AS/NZS IEC 60947-2
AS/NZS 60898-1

As per the above standards:

- 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 AS/NZS IEC 60947-2, standard.
  - fault tripping indication by a red mechanical indicator in circuit breaker front face.


PB104441-40


PB104451-40

Alternating current (AC) 50/60 Hz

Breaking capacity (Icu) according to AS/NZS IEC 60947-2						Service breaking capacity (Ics)
		Voltage (Ue)				
Ph/Ph (2P, 3P)		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)	**1 to 4 A**	70 kA	70 kA	70 kA	50 kA	100 % of Icu
	6 to 63 A	42 kA	30 kA	15 kA	10 kA	75 % of Icu

Breaking capacity (Icn) according to AS/NZS 60898-1		
		Voltage (Ue)
Ph/Ph		400 to 415 V
Ph/N		230 to 240 V
Rating (In)	**1 to 63 A**	10000 A

Direct current (DC)

Breaking capacity (Icu) according to AS/NZS IEC 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)	20 kA	15 kA	15 kA	15 kA	15 kA	100% of Icu

Catalog numbers

iC60H circuit breaker

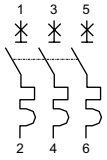
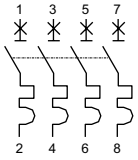
Type	1P			2P		
						
Rating (In)	**Curve**			**Curve**		
	B	**C**	**D(1)**	**B**	**C**	**D(1)**
1 A(1)	A9F53101	A9F54101	A9F55101	A9F53201	A9F54201	A9F55201
2 A(1)	A9F53102	A9F54102	A9F55102	A9F53202	A9F54202	A9F55202
4 A(1)	A9F53104	A9F54104	A9F55104	A9F53204	A9F54204	A9F55204
6 A	A9F53106	A9F54106	A9F55106	A9F53206	A9F54206	A9F55206
10 A	A9F53110	A9F54110	A9F55110	A9F53210	A9F54210	A9F55210
16 A	A9F53116	A9F54116	A9F55116	A9F53216	A9F54216	A9F55216
20 A	A9F53120	A9F54120	A9F55120	A9F53220	A9F54220	A9F55220
25 A	A9F53125	A9F54125	A9F55125	A9F53225	A9F54225	A9F55225
32 A	A9F53132	A9F54132	A9F55132	A9F53232	A9F54232	A9F55232
40 A	A9F53140	A9F54140	A9F55140	A9F53240	A9F54240	A9F55240
50 A	A9F53150	A9F54150	A9F55150	A9F53250	A9F54250	A9F55250
63 A	A9F53163	A9F54163	A9F55163	A9F53263	A9F54263	A9F55263
Width in 9-mm modules	2			4		

General overview

iC60H miniature circuit breakers (curve B, C, D) (cont.)

Catalog numbers

iC60H circuit breaker

Type	3P			4P		
						
Rating (In)	Curve			Curve		
	B	C	D[1]	B	C	D[1]
1 A[1]	A9F53301	A9F54301	A9F55301	A9F53401	A9F54401	N/A
2 A[1]	A9F53302	A9F54302	A9F55302	A9F53402	A9F54402	A9F55402
4 A[1]	A9F53304	A9F54304	A9F55304	N/A	A9F54404	A9F55404
6 A	A9F53306	A9F54306	A9F55306	A9F53406	A9F54406	A9F55406
10 A	A9F53310	A9F54310	A9F55310	A9F53410	A9F54410	A9F55410
16 A	A9F53316	A9F54316	A9F55316	A9F53416	A9F54416	A9F55416
20 A	A9F53320	A9F54320	A9F55320	A9F53420	A9F54420	A9F55420
25 A	A9F53325	A9F54325	A9F55325	A9F53425	A9F54425	A9F55425
32 A	A9F53332	A9F54332	A9F55332	A9F53432	A9F54432	A9F55432
40 A	A9F53340	A9F54340	A9F55340	A9F53440	A9F54440	A9F55440
50 A	A9F53350	A9F54350	A9F55350	A9F53450	A9F54450	A9F55450
63 A	A9F53363	A9F54363	A9F55363	A9F53463	A9F54463	A9F55463
Width in 9-mm modules	6			8		

Acti9 Protection and Isolation

General overview

iC60H circuit breakers (curve B, C, D) (cont.)

Insulated terminals IP20

Double clip for dismounting with comb busbar in place

VISI-SAFE window

Fault tripping is indicated by a red mechanical indicator on the front face

Large circuit labelling area

Positive contact indication

- **Suitable for industrial isolation according to AS/NZS IEC 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**

Double clip for dismounting with comb busbar in place

Increased product service life thanks to:

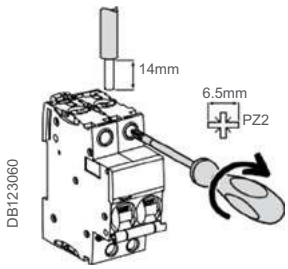
- overvoltage resistance by high level of industrial performances conception (pollution degree, rated impulse withstand voltage and insulation voltage),
- high performance limitation (see limitation curves),
- fast closing independent of the speed of actuation of the toggle.

- **Remote indication, open/closed/tripped, by optional auxiliary contacts.**
- **Top or bottom electrical feeding.**

General overview

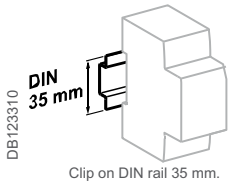
iC60H miniature circuit breakers (curve B, C, D) (cont.)

Connection

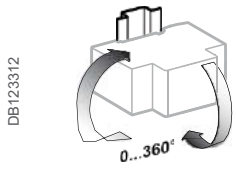


Rating	Tightening torque	Without accessory: Copper cables: Rigid	Without accessory: Copper cables: Flexible or with ferrule	With accessories: 50 mm² Al terminal	With accessories: Screw-on connection for ring terminal	With accessories: Multi-cables terminal: Rigid	With accessories: Multi-cables terminal: Flexible
				Al			
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

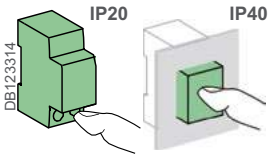
Technical data



Clip on DIN rail 35 mm.



Indifferent position of installation.



Main characteristics			
According to AS/NZS IEC 60947-2			
Insulation voltage (Ui)		500 VAC	
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 AS/NZS 60898-1			
Limitation class		3	
Rated making and breaking capacity of an individual pole (Icn1)		Icn1 = Icn	

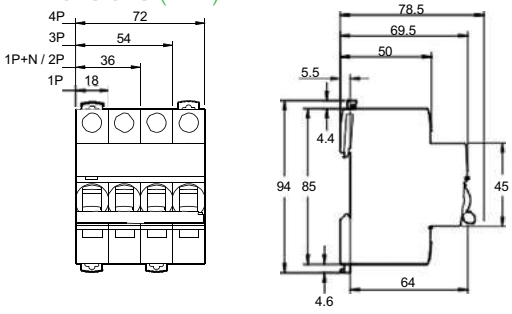
Additional characteristics			
Breaking capacity under 1 pole with IT 380-415 V isolated neutral system (case of double fault)	40 A	4 kA	
	50/63 A	3 kA	
Degree of protection (IEC 60529)	Device only	IP20	
	Device in modular enclosure	IP40	Insulation class II
Endurance (O-C)	Electrical	10,000 cycles	
	Mechanical	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% at 55°C)	

Weight (g)

Circuit-breaker

Type	iC60N
1P	125
2P	250
3P	375
4P	500

Dimensions (mm)



Acti9 Protection and Isolation

General overview

iC60L miniature circuit breakers (curve B, C)

AS/NZS IEC 60947-2
AS/NZS 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 AS/NZS IEC 60947-2, standard.
- fault tripping indication by a red mechanical indicator in circuit breaker front face.


PB104442-40


PB104452-40

Alternating current (AC) 50/60 Hz

Breaking capacity (Icu) according to AS/NZS IEC 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)		12 to 60 V	100 to 133 V	220 to 240 V	-	
Rating (In)	**1 to 4 A**	100 kA	100 kA	100 kA	70 kA	100 % of Icu
	6 to 63 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

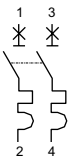
Breaking capacity (Icn) according to AS/NZS 60898-1		
		Voltage (Ue)
Ph/Ph		400 to 415 V
Ph/N		230 to 240 V
Rating (In)	**1 to 40 A**	15000 A

Direct current (DC)

Breaking capacity (Icu) according to AS/NZS IEC 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	25 kA	20 kA	20 kA	20 kA	20 kA	100% of Icu

Catalog numbers

iC60L circuit breaker

Type	1P		2P	
				
Rating (In)	**Curve**		**Curve**	
	B	**C**	**B**	**C**
1 A	A9F93101	A9F94101	A9F93201	A9F94201
2 A	A9F93102	A9F94102	A9F93202	A9F94202
4 A	A9F93104	A9F94104	A9F93204	A9F94204
6 A	A9F93106	A9F94106	A9F93206	A9F94206
10 A	A9F93110	A9F94110	A9F93210	A9F94210
16 A	A9F93116	A9F94116	A9F93216	A9F94216
20 A	A9F93120	A9F94120	A9F93220	A9F94220
25 A	A9F93125	A9F94125	A9F93225	A9F94225
32 A	A9F93132	A9F94132	A9F93232	A9F94232
40 A	A9F93140	A9F94140	A9F93240	A9F94240
50 A	A9F93150	A9F94150	A9F93250	A9F94250
63 A	A9F93163	A9F94163	A9F93263	A9F94263
Width in 9-mm modules	2		4	

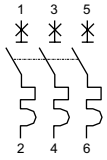
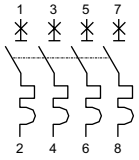
(1) 100 % of Icu for ratings 6 to 25 A under Ue 100 to 133 V AC Ph/Ph and Ue 12 to 60 V AC Ph/N.

General overview

iC60L circuit breakers (curve B, C) (cont.)

Catalog numbers

iC60L circuit breaker

Type	3P		4P	
				
Rating (In)	Curve		Curve	
	B	C	B	C
1 A	A9F93301	A9F94301	A9F93401	A9F94401
2 A	A9F93302	A9F94302	A9F93402	A9F94402
4 A	A9F93304	A9F94304	A9F93404	A9F94404
6 A	A9F93306	A9F94306	A9F93406	A9F94406
10 A	A9F93310	A9F94310	A9F93410	A9F94410
16 A	A9F93316	A9F94316	A9F93416	A9F94416
20 A	A9F93320	A9F94320	A9F93420	A9F94420
25 A	A9F93325	A9F94325	A9F93425	A9F94425
32 A	A9F93332	A9F94332	A9F93432	A9F94432
40 A	A9F93340	A9F94340	A9F93440	A9F94440
50 A	A9F93350	A9F94350	A9F93450	A9F94450
63 A	A9F93363	A9F94363	A9F93463	A9F94463
Width in 9-mm modules	6		8	

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.**

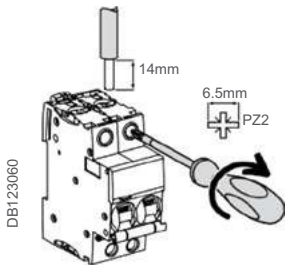
- **Suitable for industrial isolation according to AS/NZS IEC 60947-2 standard.**
- **The presence of the green strip guarantees physical opening of the contacts and allows operations to be performed on the downstream circuit in complete safety**

Acti9 Protection and Isolation

General overview

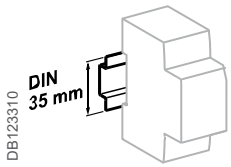
iC60L circuit breakers (curve B, C) (cont.)

Connection

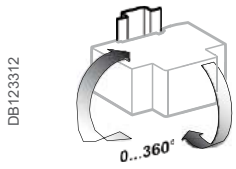


Rating	Tightening torque	Without accessory: Copper cables: Rigid	Without accessory: Copper cables: Flexible or with ferrule	With accessories: 50 mm² Al terminal	With accessories: Screw-on connection for ring terminal	With accessories: Multi-cables terminal: Rigid	With accessories: Multi-cables terminal: Flexible
				Al			
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

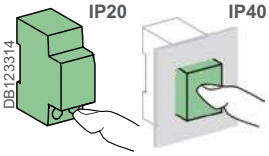
Technical data



Clip on DIN rail 35 mm.



Indifferent position of installation.



Main characteristics			
According to AS/NZS IEC 60947-2			
Insulation voltage (Ui)		500 VAC	
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 %	
Utilization category		A	
According to AS/NZS 60898-1			
Rated making and breaking capacity of an individual pole (Icn1)		Icn1 = Icn	

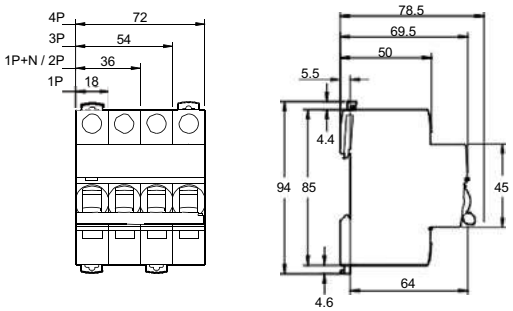
Additional characteristics			
Breaking capacity under 1 pole with IT 380-415 V isolated neutral system (case of double fault)	40 A	4 kA	
	50/63 A	3 kA	
Degree of protection (IEC 60529)	Device only	IP20	
	Device in modular enclosure	IP40	Insulation class II
Endurance (O-C)	Electrical	10,000 cycles	
	Mechanical	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% at 55°C)	

Weight (g)

Circuit-breaker

Type	iC60N
1P	125
2P	250
3P	375
4P	500

Dimensions (mm)



Accessories

Accessorisation / Auxiliarisation iC60

Connection accessories

1	50 mm² Al terminal	27060

Mounting accessories

2	Sealable terminal shields for top and bottom connection	1P (set of 2)	A9A26975
		2P (set of 2)	A9A26976
		3P	1P + 2P
		4P	2P + 2P
3	Screw shields	4P (set of 20)	A9A26981
4	Screw shields Vigi iC60	(set of 12)	A9A26982
5	9 mm spacer		A9A27062
6	Padlocking device	(set of 10)	A9A26970
7	Rotary handle	Black handle	A9A27005
		Red handle	A9A27006
8	Interpole barrier	(set of 10)	A9A27001

Electrical auxiliaries

Indication

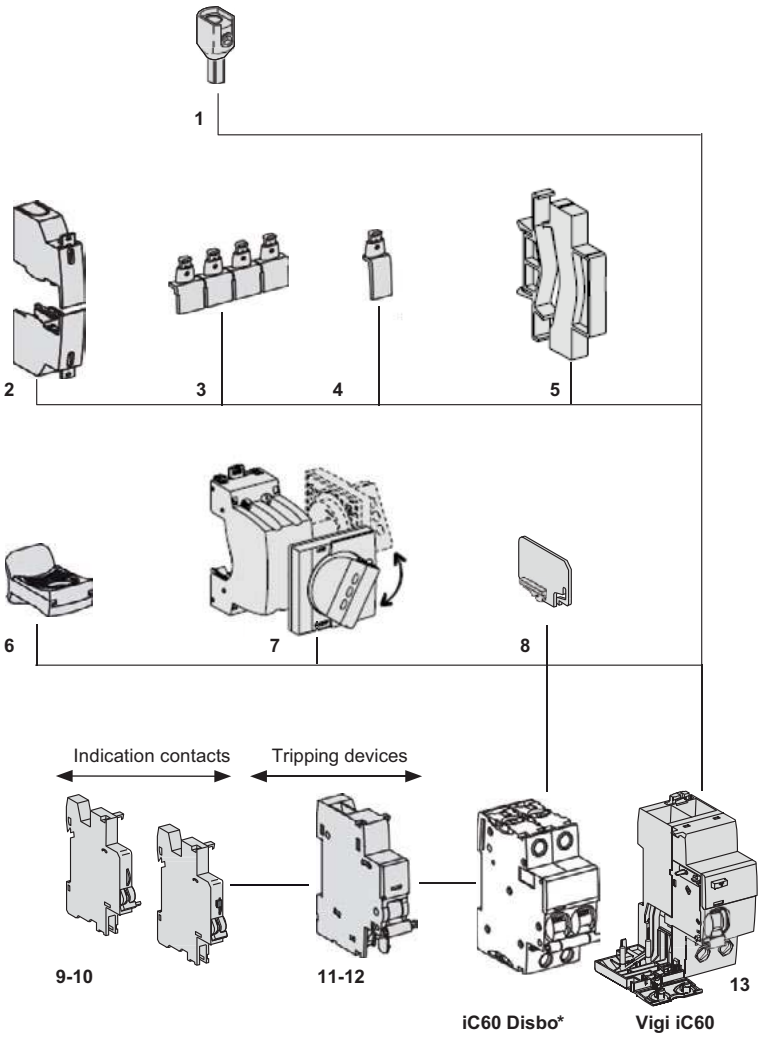
9-10	iSD+OF auxiliary contact	2 to 100 mA	A9A26919
	iOF/SD+OF auxiliary contact (OF+SD or OF+OF combination switch)	100 mA to 6 A	A9A26909
	iSD fault indicating contact	2 to 100 mA	A9A26917
		100 mA to 6 A	A9A26907
	iOF open/close auxiliary contact	2 to 100 mA	A9A26914
		100 mA to 6 A	A9A26904
	iOF+SD24 auxiliary contact		A9A2689•

Tripping devices

11	iMN undervoltage release or iMNx under-voltage release with external feeding	A9A2696•
		A9A26971
12	Shunt release iMX, iMX+OF overvoltage release iMSU	A9A2694•
		A9A26500

Vigi iC60

13	Vigi iC60 add-on residual current device



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	Vigi iC60
3	+ 2	+ 1		
1 iOF	1 (iSD or iOF)	2 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU)	iC60 Disbo	Vigi iC60
-	-	3 iMSU		

Acti9 Protection and Isolation

General overview

C60H-DC miniature circuit breakers (curve C)

DC circuit supplementary protectors for feeders / distribution systems

AS/NZS IEC 60947-2

C

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

PB107193-34.eps

PB107194-34.eps

Direct current (DC)

Breaking capacity (Icu) according to AS/NZS IEC 60947-2						Service breaking capacity (Ics)
Type	**Voltage**					
1P	**110 V**	**220 V**	**250 V**	**440 V**	**500 V**	
Rating (In) 1 to 63 A	20 kA	10 kA	6 kA	-	-	75% Icu
2P (in series)	**110 V**	**220 V**	**250 V**	**440 V**	**500 V**	
Rating (In) 1 to 63 A	-	20 kA	20 kA	10 kA	6 kA	75% Icu

Catalog numbers

C60H-DC

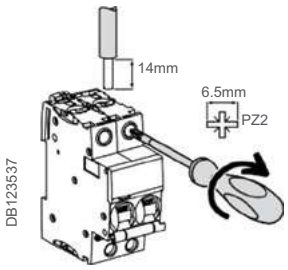
Type	1P	2P	
			
	Supply from above or below, observing the polarity	Supply from above	Supply from below
Rating (In)	**Curve**		
	C	**C**	
1 A	A9N61501	A9N61521	
2 A	A9N61502	A9N61522	
4 A	A9N61504	A9N61524	
6 A	A9N61506	A9N61526	
10 A	A9N61508	A9N61528	
16 A	A9N61511	A9N61531	
20 A	A9N61512	A9N61532	
25 A	A9N61513	A9N61533	
32 A	A9N61515	A9N61535	
40 A	A9N61517	A9N61537	
50 A	A9N61518	A9N61538	
63 A	A9N61519	A9N61539	
Number of modules of 9 mm	2	4	

General overview

C60H-DC circuit breakers (curve C) (cont.)

DC circuit supplementary protectors for feeders / distribution systems

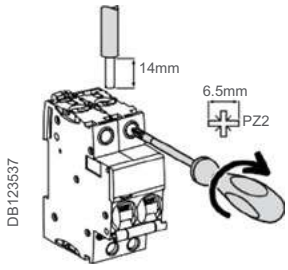
Connection



DB123537

Rating	Tightening torque	Without accessory: Copper cables: Rigid / Stranded	Without accessory: 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	With accessories: Multi-cables terminal: Flexible
							
y 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

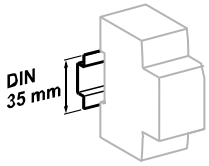
Multi-cables Connection



DB123537

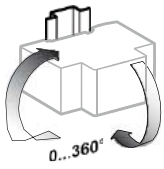
Rating	Tightening torque	Without accessory: 2 Copper cables: Rigid / Stranded	Without accessory: 2 Copper cables: Flexible or with ferrule	3 Multi-cables / Different wires: Flexible / Stranded	3 Multi-cables / Different wires: Flexible / Stranded / Rigid
					
y 25 A	2.5 N.m	2 x 1 mm² to 2 x 10 mm²		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

Technical data



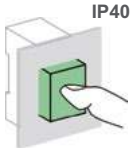
DB123310

Clip on DIN rail 35 mm.



DB123312

Indifferent position of installation.



DB123391

- 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 AS/NZS 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.

> 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.

Main characteristics		
According to AS/NZS IEC 60947-2		
Insulation voltage (Ui)		500 VAC
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 60068-1)		Treatment 2 (relative humidity 95% at 55°C)
Operating temperature		-25°C to +70°C
Storage temperature		-40°C to +85°C

Acti9 Protection and Isolation

General overview

C60H-DC circuit breakers (curve C) (cont.)

DC circuit supplementary protectors for feeders / distribution systems

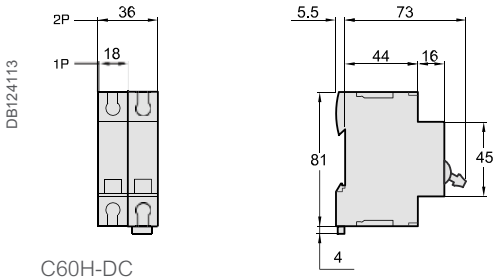
C

Weight (g)

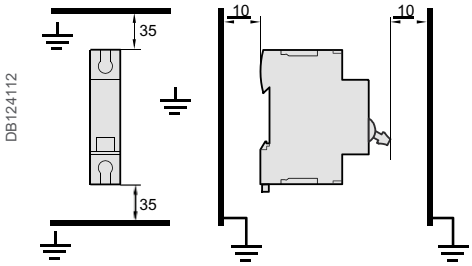
Circuit-breaker

Type	C60H-DC
1P	185g
2P	256g

Dimensions (mm)



C60H-DC



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

Accessories

Accessories and Auxiliaries for C60H-DC devices

Connection accessories

1	50 mm² Al terminal	27060

Mounting accessories

2	Sealable terminal shield		
3	Rotary handle	Switching sub-assembly	27046
		Disconnectable handle	27047
		Fixed handle	27048
4	Screw shield		
5	Padlocking accessory (to be locked in the "open" position)		26970

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

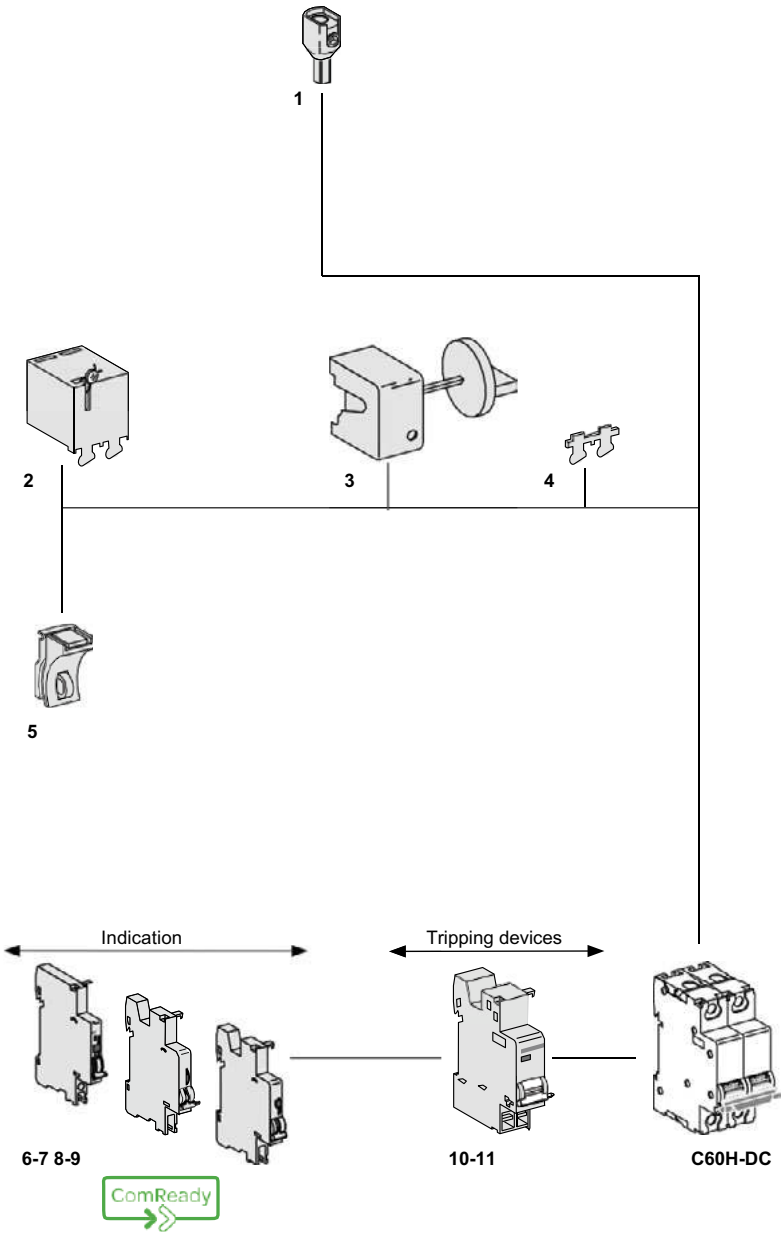
Electrical auxiliaries

Indication

6	SD fault indicating switch	A9N26927
7	OF+SD24 auxiliary contact	A9N26899
8	OF open/closed contact	A9N26924
9	OF+SD/OF auxiliary contact (OF+SD or OF+OF combination switch)	A9N26929

Tripping

10	MN, MNx, MNs undervoltage release	
11	MX, MX + OF shunt release	



> 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 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		Tripping 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)	

Acti9 Protection and Isolation

General Overview

C120N miniature circuit breakers (curve C)

PB107914-30

PB107917-40

PB107920 -30

PB107923-30

AS/NZS 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 60947.2
- fault tripping and indication by adding auxiliaries.

Alternating current (AC) 50/60 Hz

Breaking capacity (Icu) to IEC 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 and 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**	
Rating (In)	63 and 125 A	-	20 kA	10 kA	6 kA	75 % of Icu

Breaking capacity (Icn) according to AS/NZS 60898.1			Service breaking capacity (Ics)
Type		**Voltage (V)**	
1P, 2P, 3P, 4P		**230 - 240 V or 400-415 V**	
Rating (In)	63 and 125 A	10000 A	75 % of Icu

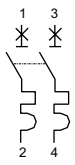
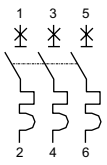
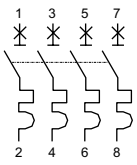
(1) One-pole breaking capacity in IT isolated neutral system (double fault).

Direct current (DC)

Breaking capacity (Icu) according to IEC 60947.2						Service breaking capacity (Ics)
	Voltage					
Between +/-	12 to 125 V	≤ 144 V	≤ 250 V	≤ 375 V	≤ 500 V	
Number of poles	1P		2P	3P	4P	
Rating (In) 63 and 125 A	15 kA	10 kA	10 kA	10 kA	10 kA	100% Icu

Catalog numbers

C120N circuit breaker

Type	1P	2P	3P	4P
				
Auxiliaries	Remote indication and tripping, refer page C96			
Vigi C120	Vigi C120 add-on residual current device,			
Rating (In)	**Curve**			
	C	**C**	**C**	**C**
63 A	A9N18356	A9N18360	A9N18364	A9N18371
80 A	A9N18357	A9N18361	A9N18365	A9N18372
100 A	A9N18358	A9N18362	A9N18367	A9N18374
125 A	A9N18359	A9N18363	A9N18369	A9N18376
Number of modules of 9 mm	3	6	9	12
Accessories	Refer to page C96			

General Overview

C120H miniature circuit breakers (curves B, C)

PB107913-30

PB107916-30

PB107919-30

PB107922-30

AS/NZS 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 60947.2
- fault tripping and indication by adding auxiliaries.

Alternating current (AC) 50/60 Hz

Breaking capacity (Icu) to IEC 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 and 125 A	30 kA	15 kA	4.5 kA (1)	-	75 % of Icu
2P, 3P, 4P		**12 to 130 V**	**220 to 240 V**	**380 to 415 V**	**440 V**	
Rating (In)	63 and 125 A	-	30 kA	15 kA	10 kA	75 % of Icu

Breaking capacity (Icn) according to AS/NZS 60898.1			Service breaking capacity (Ics)
Type		**Voltage (V)**	
1P, 2P, 3P, 4P		**230 - 240 V or 400-415 V**	
Rating (In)	63 and 125 A	15000 A	75 % of Icu

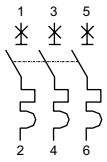
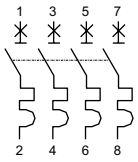
(1) One-pole breaking capacity in IT isolated neutral system (double fault).

Direct current (DC)

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

Catalog numbers

C120H circuit breaker

Type	**1P**		**2P**		**3P**		**4P**	
								
Auxiliaries	Remote indication and tripping, refer to page C-96							
Vigi C120	Vigi C120 add-on residual current device,							
Rating (In)	**Curve**							
	B	**C**	**B**	**C**	**B**	**C**	**B**	**C**
63 A	A9N18401	A9N18445	A9N18412	A9N18456	A9N18423	A9N18467	A9N18434	A9N18478
80 A	A9N18402	A9N18446	A9N18413	A9N18457	A9N18424	A9N18468	A9N18435	A9N18479
100 A	A9N18403	A9N18447	A9N18414	A9N18458	A9N18425	A9N18469	A9N18436	A9N18480
125 A	A9N18404	A9N18448	A9N18415	A9N18459	A9N18426	A9N18470	A9N18437	A9N18481
Number of modules of 9 mm	3		6		9		12	
Accessories	Refer to page C-96							

Acti9 Protection and Isolation

General overview

C120 miniature circuit breakers

C

Positive contact indication

- **Suitable for industrial isolation according to IEC 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**

Longer product service life thanks to:

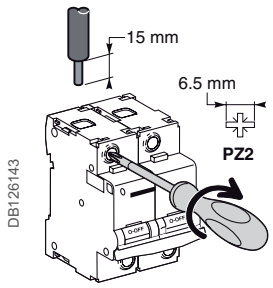
- good overvoltage withstand capacity: products designed to offer a high industrial
- performance level (degree of pollution, rated impulse withstand voltage and insulation voltage).
- high limitation performances (see limitation curves).
- fast closure independent of toggle operating speed.

- **Remote indication of the open/closed/tripped state by auxiliary contacts (optional).**
- **Power supply from above or below.**

General overview

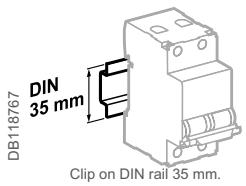
C120 miniature circuit breakers (cont.)

Connection

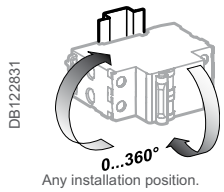


Rating	Tightening torque	Without accessory: Copper cables		With accessories: 50 mm² Al terminal	Screw-on connection for ring terminal (1)	Multi-cables terminal	
		Rigid	Flexible or with ferrule			Rigid	Flexible
							
63 and125A	3.5 N.m	1 to 50 mm²	1.5 to 35 mm²	16 - 50 mm²	Ø 5mm	3 x 16 mm²	3 x 10 mm²

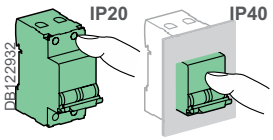
(1) For lugs up to 63 A, front or rear access.



Clip on DIN rail 35 mm.



Any installation position.



Technical data

Main characteristics		
According to IEC 60947-2		
Insulation voltage (Ui)		500 VAC
Pollution degree		3
Rated impulse withstand voltage (Uimp)		6 kV
Thermal tripping	Reference temperature	50 °C
Magnetic tripping	B curve	4 In ± 20 %
	C curve	8 In ± 20 %
Limitation class		3

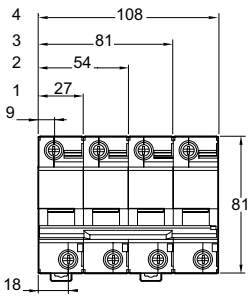
Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40
Endurance (O-C)	Electrical	5,000 cycles (O-C)
	Mechanical	20,000 cycles
Operating temperature		-30°C to +70°C
Storage temperature		-40°C to +80°C
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95% at 55°C)
According to AS/NZS 60898-1		
Rated making and breaking capacity of an individual pole (Icn1)		Icn1 = Icn

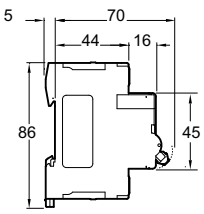
Weight (g)

Circuit-breaker

Type	C120
1P	205
2P	410
3P	615
4P	820

Dimensions (mm)





Acti9 Protection and Isolation

Accessories

Accessories and Auxiliaries for C120, Vigi C120 devices

Connection accessories

1	50 mm² Al terminal		27060

Mounting accessories

2	Sealable terminal shields for top and bottom connection	1P (set of 2)	18526
3	Interpole barrier	(set of 10)	27001
4	Screw shields	4P (set of 2)	18527
5	Padlocking device		27145
6	Rotary handle	Fixed	27048
7	Operating sub-assembly (1)		27046

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

Electrical auxiliaries

Indication

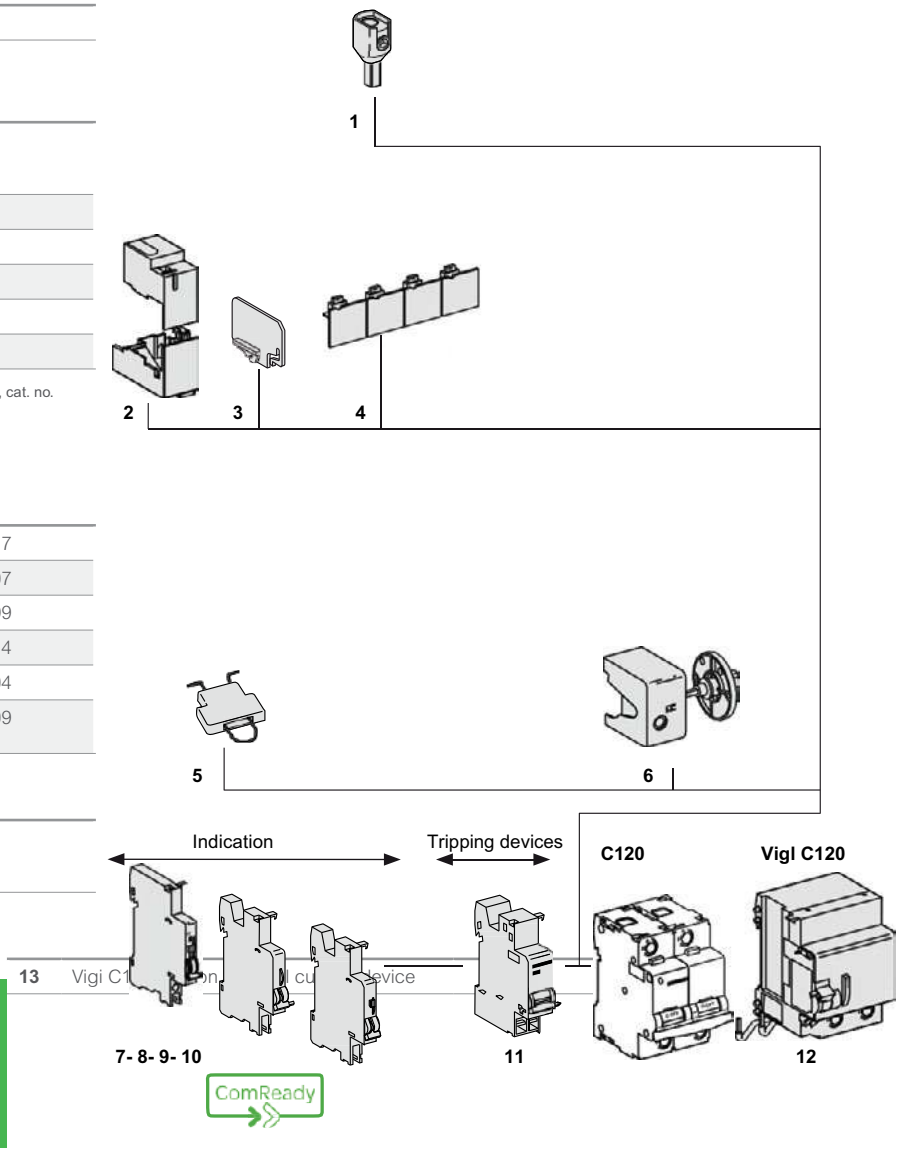
8	SD fault indicating contact	2 to 100 mA	A9N26917
		100 mA to 6 A	A9N26907
9	OF+SD24 auxiliary contact		A9N26899
10	OF open/close auxiliary contact	2 to 100 mA	A9N26914
		100 mA to 6 A	A9N26904
11	OF+SD/OF auxiliary contact (OF+SD or OF+OF combination switch)		A9N26909

Tripping

12	iMN undervoltage release or iMNs undervoltage release delayed or iMNx undervoltage release with external feeding	

Vigi C 120

13	Vigi C1 on cu device	



> 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, 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		

General Overview

STI isolatable fuse-carriers

Tertiary sector, Industry


PB110043-40


PB110044-40


PB110045-40


PB110046-40


PB110046-40

STI
AS/NZS IEC 60947-3,
IEC 60269-2

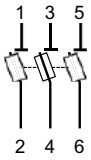
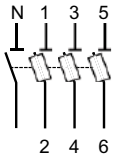
Cartridges
IEC 60269-1,
IEC 60269-2

- The STI isolatable fuse-carriers provide overload and short-circuit protection. b They are used for tertiary and industrial applications requiring a high breaking capacity.
- They perform the isolation function and must not be used as switches.
- To be equiped with aM or gG (gL - gl) type fuse cartridge without striker, with or without fuse blowing indicator.

The general purpose fuse (gG fuse) provides overload and short-circuit protection. The fuse for motor application (aM fuse) only provides short-circuit protection. It is used for protection of loads with a high peak current (motors, transformer primaries, etc.).

Catalog numbers

STI fuse holder

Type	1P	1P+N	2P	3P	3P+N
					
10.3 x 38 mm	A9N15636	A9N15646	A9N15651	A9N15656	A9N15658
Number of modules of 9 mm	2	2	4	6	6

Acti9 Protection and Isolation

General overview

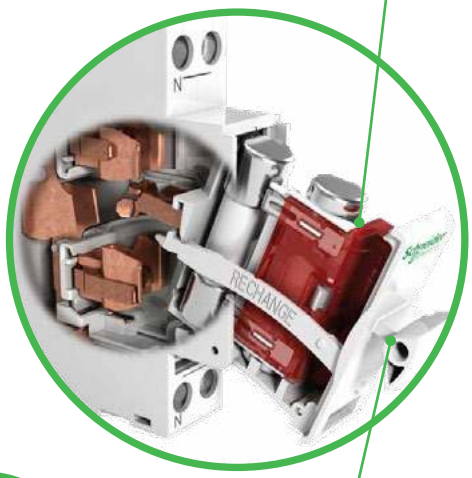
STI isolatable fuse-carriers (cont.)

Tertiary sector, Industry

C

230 V neon indicator light (Option)

- Indicates fuse blowing (off in normal operation and lit red after fuse blowing)
- 400 V maxi



Padlocking device

- Locks the toggle in the "open" or "closed" position. Used with an 8 mm max. diameter padlock (not supplied):
  - only one padlock for 1P, 1P+N and 2P products (on the left pole)
  - and two padlocks on the 3P and 3P+N products (on every extremity)

1P+N, 3P+N

- Phase opening causes compulsory opening of the neutral
- The phase opens before the neutral on isolation and closes after the neutral on circuit closing
- Small dimensions:
  - 1P+N in 18 mm
  - 3P+N in 54 mm

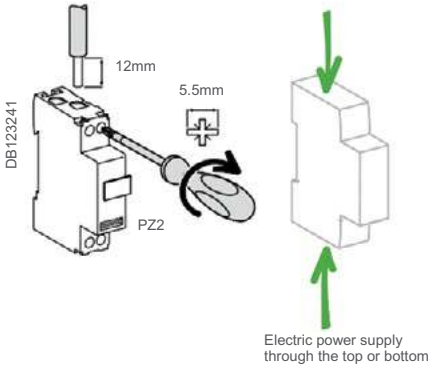
Clip-on markers

- Used to identify:
  - either on the front face
  - or on the downstream terminals

Fuse-carrier

- Captive
- Additional housing is provided for a spare fuse

Connection

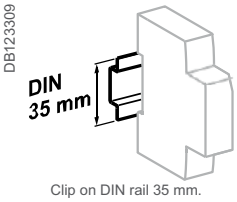


	Without accessory			With accessories
Tightening torque	**Copper cables**			**Screw-on connection for ring terminal**
	Rigid	**Flexible with ferrule**	**Flexible without ferrule**	
				
2 N.m	0.75 to 10mm² 2 x 0.75 mm² to 2 x 4 mm²	0.5 to 6mm² 2 x 0.5 mm² to 2 x 4 mm²	1 to 6mm² 2 x1 mm² to 2 x 4 mm²	Ø 5mm

General overview

STI isolatable fuse-carriers (cont.)

Tertiary sector, Industry



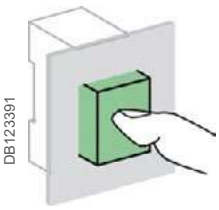
Clip on DIN rail 35 mm.

Technical data

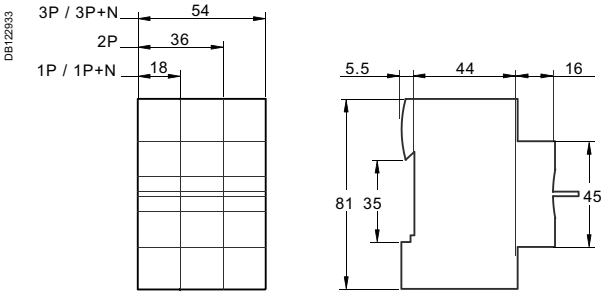
Main characteristics	
Insulation voltage (Ui)	500 VAC
Breaking capacity according to AS/NZS IEC 60947-2 ≤400 V	8 kA
Pollution degree	3
Operating frequency	50/60 Hz

Additional characteristics			
Degree of protection	Device in modular enclosure	IP40	Insulation class II
Operating temperature		-20°C to +60°C	
Storage temperature		-40°C to +80°C	
Maximum dissipated power per pole of STI isolatable fuse-carriers			
Fuse cartridge type		**Ith**	**Pmax**
10.3 x 38 mm	aM	16 A	3 W
	gG	25 A	3 W
Maximum dissipated power per fuse cartridges			
Fuse cartridge type		**Ith**	**Pmax**
10.3 x 38 mm	aM	2 to 25 A	1.2 W
	gG	2 to 25 A	3

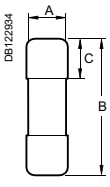
IP40



Dimensions (mm)



STI



aM, gG

aM, gG fuse cartridge

Type	A	B	C
10.3 x 38 mm	10.3	38	10.5

Acti9 Protection and Isolation

General Overview

Choice of Earth Leakage Protection Devices

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	Sensitivity (IΔn)		
	National standard AS/NZS:3000	**30 mA (*)**	**100 mA to 3000 mA**	**300 mA (or 500 mA)**
Protection from electric shock by direct contact				
DB123167 	• Basic protection shall be provided using insulation, barriers, enclosures, obstacles or by placing out of reach. • Additional protection shall be provided by a residual current device installed on circuits, socket outlets, lighting points and hand held equipment.	**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				
DB123168 	Shall be provided through means of: • A system of earthing • An automatic disconnection device residual current device or circuit breaker that will disconnect under earth fault conditions		**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				
DB123169 	Protection should be provided to prevent the risk of fire initiated or propagated by components of the electrical installation. If protection against initiation of fire is required, then a residual current device should be installed.			**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: health care 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.

General Overview

Nuisance tripping

Consequences: nuisance tripping

When the sum of the natural earth leakages reaches ~30% of the residual current devices rated sensitivity (e.g. 10mA for a 30mA RCD), any surge (e.g. caused by switching) may cause nuisance tripping of the RCD.

Example:

Number of loads depending on earthing systems

PC, office workstation, workstation	
with "si" RCD	**TNS**
Computer equipment	8-12
Office workstation	3-4
Workstation	1-2

Solutions:

- **Dividing up the circuits**
  Dividing up the circuits reduces the natural leakage on a single-phase residual current device. The figure of a maximum of 6 loads is usually suggested by assuming in the worst case, a leakage of 1.5 mA for each load, or a total leakage of 9 mA or 30% of the sensitivity threshold for a 30 mA residual current device.
- **Using SI residual current devices**
  Thanks to its improved immunity from transient surge currents, the "si" range is specially recommended for installations with computer equipment. It means that a greater number of machines may be installed (a maximum of around 12 machines) with the same residual current device, before nuisance tripping will occur.

Interference immunity

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

Operating conditions		Examples	Types			
			AC(1)	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.)	–	–	•	•

DB123165

(1) According to amendment 2 of the wiring rules AS/NZS 3000, Type AC RCD shall not be used for the following applications from 30 April 2023:
- Domestic and Residential, all final subcircuits
- Non-domestic and non-residential socket outlets and lighting, directly connected hand-held equipment and increased risk circuits up to 32A.
Recognising Type A RCDs as accepted general usage, Schneider doesn't carry any Type AC RCD in the Acti9 offer of RCCBs and RCBOs.

Acti9 Protection and Isolation

General Overview

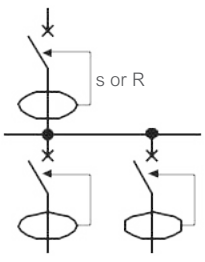
Operating conditions		Examples	Types			
			AC(1)	A	SI	B
Electrical environment						
 DB123166	Vicinity of equipment generating Vicinity of equipment generating	• High-powered switching devices • Reactive energy compensation banks	–	–	•	•
	Circuits powered by an uninterruptible power supply	• Backed-up networks	–	–	•	•
	"Isolated neutral" (IT) earthing system	–	–	–	•	•
	Major risk of lightning strikes	• 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	–	–	•	•	•
 DB123164	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	–	–	• (2)	–

(1) According to amendment 2 of the wiring rules AS/NZS 3000, Type AC RCD shall not be used for the following applications from 30 April 2023:
- Domestic and Residential, all final subcircuits
- Non-domestic and non-residential socket outlets and lighting, directly connected hand-held equipment and increased risk circuits up to 32A.

Recognising Type A RCDs as accepted general usage, Schneider doesn't carry any Type AC RCD in the Acti9 offer of RCCBs and RCBOs.
(2) 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						Selective s					Delayed R	
		30	100	300	500	1000	3000	100	300	500	1000	3000	1000	3000
Instantaneous	30	–	–	–	–	–	–							
	100	–	–	–	–	–	–	–						
	300	–	–	–	–	–	–	–	–	–				
	500	–	–	–	–	–	–	–	–	–	–		–	
	1000	–	–	–	–	–	–	–	–	–	–		–	
	3000	–	–	–	–	–	–	–	–	–	–	–	–	–
Selective s	100	–	–	–	–	–	–	–	–	–	–	–		
	300	–	–	–	–	–	–	–	–	–	–	–	–	
	500	–	–	–	–	–	–	–	–	–	–	–	–	
	1000	–	–	–	–	–	–	–	–	–	–	–	–	
	3000	–	–	–	–	–	–	–	–	–	–	–	–	–
Delayed R	1000						–	–	–	–	–	–	–	–
	3000						–	–	–	–	–	–	–	–

General Overview & Reference Numbers

iID residual current circuit breakers (A & SI types)

PB104472-40

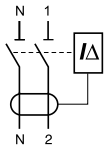
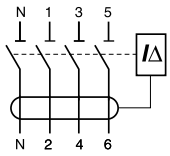
PB104473-40

AS/NZS 61008-1

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

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

ID residual current circuit breakers for 230/400 V network

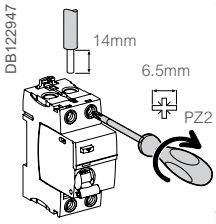
Type			A		SI		Width in 9mm module
Auxiliaries			**Refer to page C-45**		**Refer to page C-45**		
2P	**Sensitivity**		**30 mA**	**300 mA s**	**30 mA**	**300 mA s**	
DB122476 		40A	A9R51240	-	A9R91240	A9R35240	4
		63A	A9R51263	A9R25263	A9R91263	A9R35263	4
		100A	A9R21291	A9R25291	-	-	4
4P	**Sensitivity**		**30 mA**	**300 mA s**	**30 mA**	**300 mA s**	
DB122477 	Rating	40A	A9R51440	-	A9R91440	A9R35440	8
		63A	A9R51463	A9R25463	A9R91463	A9R35463	8
		80A	A9R21480	A9R25480	-	-	8
		100A	A9R21491	A9R25491	-	-	8
Voltage rating (Ue)		2P	230 - 240 V		230 - 240 V		
		4P	400 - 415 V		400 - 415 V		
Operating frequency			50/60 Hz		50/60 Hz		
Accessories			**Refer to page C-37**		**Refer to page C-37**		

Acti9 Protection and Isolation

General Overview

iID residual current circuit breakers (A, SI types)

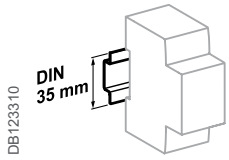
Connection



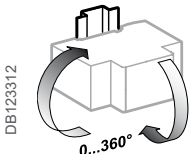
		Without accessory		With accessories*			
Type	Tightening torque	Copper cables		50 mm² Al terminal	Screw-on connection for ring terminal	Multi-cables terminal	
		Rigid	Flexible or with ferrule			Rigid cables	Flexible cables
		DB122945	DB122946	DB122935	DB118789	DB118787	
iID	3.5 N.m	1 to 35 mm²	1 to 25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

** See module CA907000*

Technical Data



Clip on DIN rail 35 mm.

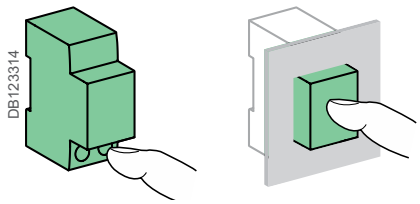


Indifferent position of installation.

Main characteristics		
Insulation voltage (Ui)		500 V
Pollution degree		3
Rated impulse withstand voltage (Uimp)		6 kV
According to AS/NZS 61008-1		
Making and breaking capacity (Im/IΔm)		1500 A
Surge current withstand (8/20 µs) without tripping	A types (no selective s)	250 Â
	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 100A	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	A and *SI* types		-25°C to +60°C
Storage temperature			-40°C to +85°C

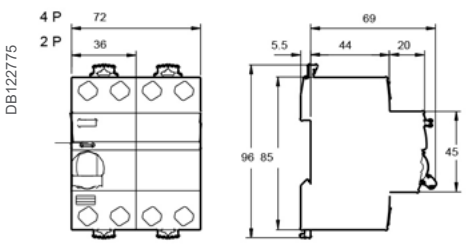
IP20 **IP40**



Weight (g)

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

Dimensions (mm)



General Overview

iID residual current circuit breakers (A, SI types) (cont).

PB104548-40

PB104472-40

SI type

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

Acti9 Protection and Isolation

General Overview & Reference Numbers

iID B-SI type residual current circuit breakers (RCCB)


A9Z61225-40

AS/NZS 61008-2-1, IEC/EN 62423, IEC 61543

As per the above standards:
- The Acti9 iID B-SI type residual current circuit breakers provide:
- protection of persons against electric shock by direct contact (30 mA),
- protection of installations against the risk of fire (300 mA or 500 mA).

B-SI type

The Acti9 iID B-SI type residual current circuit breakers provide:
- protection in the event of a continuous earth fault current on networks generated by:
- controllers and variable speed drives,
- battery chargers and inverters, such as used in photovoltaic application,
- backed-up power supplies.


A9Z61425-40

- They include protection against earth fault currents:
- sinusoidal AC residual currents (AC type),
- pulsed DC residual currents (A type),
- multi frequency residual current (F type).

- The use of Acti9 iID B-SI type residual current circuit breaker can be made mandatory, according to standards applicable in country.

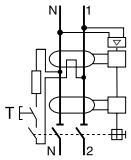
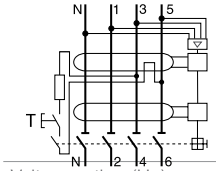
- For applications using 3-poles drives, such as:
- crane,
- lift,
- HVAC,
- pumping system.

B type is recommended.

For more information, see earth leakage protection guide CA908066E.

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

Acti9 iID B-SI type residual current circuit breakers

Type			B-SI				Width in 9 mm module
2P		**Sensitivity**	30 mA	300 mA	300 mAs	500 mA	
	Rating	25 A	A9Z61225		-	-	8
		40 A	A9Z61240				
		63 A	A9Z61263		-	-	
Voltage rating (Ue)			230 - 240V				
Operating frequency			50 Hz				
4P		**Sensitivity**	30 mA	300 mA	300 mAs	500 mA	
	Rating	40A	A9Z61440				8
		63A	A9Z61463	A9Z64463	A9Z65463	A9Z66463	
		80A	A9Z61480				
Voltage rating (Ue)			400-415 V				
Operating frequency			50 Hz				

General Overview & Reference Numbers

iID B type EV residual current circuit breakers (RCCB) for Electric Vehicle


A9Z51216-40

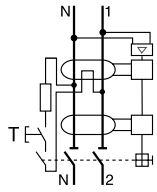
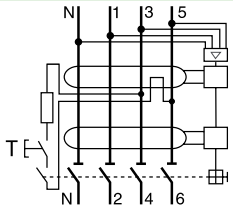

A9Z51440-40

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

As per the above standards:
- The Acti9 iID B type EV 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,
- protection of installations against the risk of fire.

B type

The Acti9 iID B type EV residual current circuit breakers provide:
- protection in the event of a continuous earth fault current on networks generated by electric car charging station.
- The use of Acti9 iID B type EV residual current circuit breaker can be made mandatory, according to standards applicable in country.
- The Acti9 iID B type EV is compatible with Schneider Electric AC and A types wired in parallel or in series in the installation, following coordination tables (refer to earth leakage protection guide CA908066E).

Acti9 iID B type EV residual current circuit breakers				
Type			**B**	**Width in 9 mm module**
2P		**Sensitivity**	**30 mA**	
	Rating	25A	A9Z51225	8
		40A	A9Z51240	
Voltage rating (Ue)			230-240 V	
Operating frequency			50 Hz	
4P		**Sensitivity**	**30 mA**	
	Rating	40A	A9Z51440	8
		63A	A9Z51463	
Voltage rating (Ue)			400 -415 V	
Operating frequency			50 Hz	

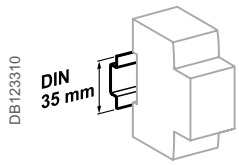
Acti9 Protection and Isolation

General Overview

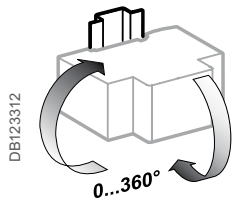
iID B type EV and iID B-SI type residual current circuit breakers (RCCB)

Technical Data

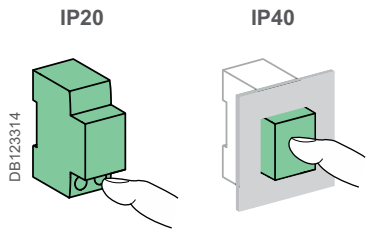
C



Clip on DIN rail 35 mm.

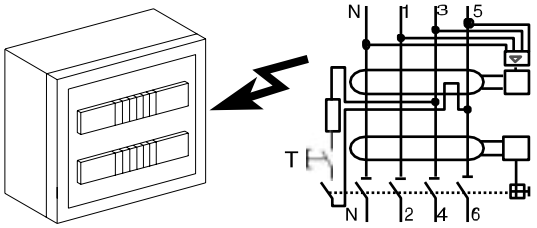


Indifferent position of installation.



Electrical characteristics			
Insulation voltage (Ui)		2P	250 V
		4P	500 V
Pollution degree			3
Rated impulse withstand voltage (Uimp)			6 kV
According to AS/NZS 61008-2-1			
Making and breaking capacity (Im/IDm)			1500 A
Surge current withstand (8/20 µs) without tripping	No selective s		3 kÂ
	Selective s		5 kÂ
Conditional rated short circuit current (Inc/IDc)	With 100 A gG fuse		10,000 A
Additional characteristics			
Degree of protection (IEC 60529)	Device only		IP20
	Device in modular enclosure		IP40
			Insulation class II
Endurance (O-C)	Electrical	y 63 A	15,000 cycles
		> 63 A	10,000 cycles
	Mechanical		20,000 cycles
Range of test button operating voltage	30 mA	2P	180...270 V AC
		4P	300...450 V AC
	300, 500 mA	2P	140...330 V AC
		4P	220...450 V AC
Impulse withstand according to IEC 60068-2-27			15 g
Vibration withstand according to IEC 60068-2-6			3 g
Electromagnetic compatibility			According to IEC 61543
Operating temperature			-25°C to +60°C
Storage temperature			-40°C to +85°C
Dissipated power			Module CA908009

Dielectric test

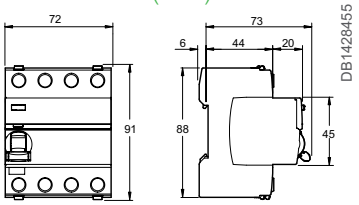


d **To perform the dielectric test, disconnect terminals:**
4P: 1, 3, 5 and 2, 4, 6
2P: 1 and 2

Weight (g)

Residual current circuit breakers	
Type	iID
2P	350
4P	415

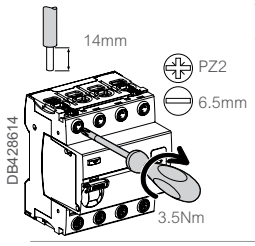
Dimensions (mm)



General Overview

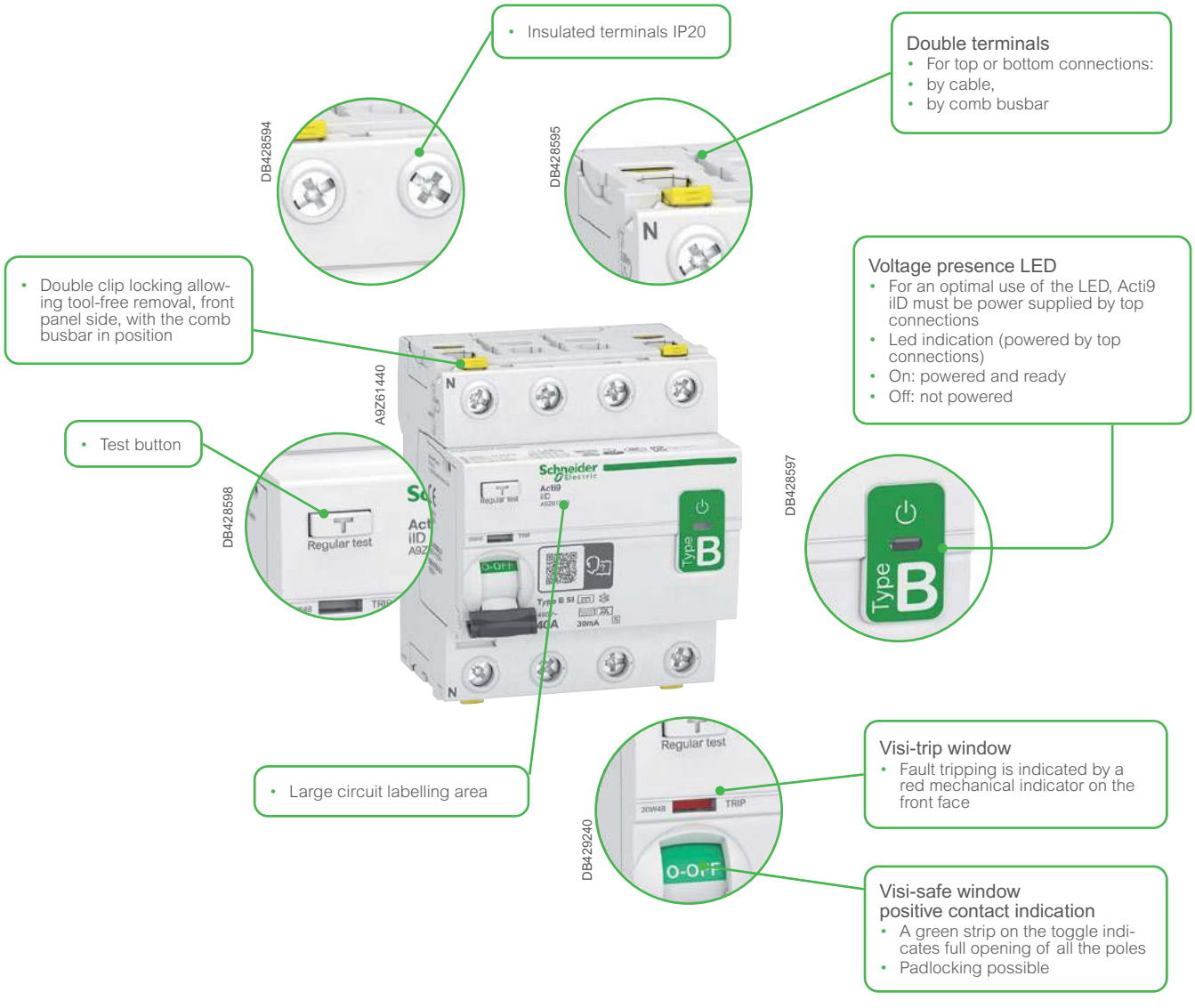
iID B type EV and iID B-SI type residual current circuit breakers (RCCB) (cont.)

Connection



	Without accessory				With accessories			
	Back		Front					
Rating	Copper cables		Copper cables		50 mm² Al terminal	Screw-on connection for ring terminal	Multi-cables terminal	
	Rigid	Flexible or with ferrule	Rigid	Flexible or with ferrule			Rigid cables	Flexible cables
	DB122945	DB122946	DB122945	DB122946	DB122935	DB118789	DB118787	
All	1 to 25 mm²	1 to 16 mm²	1 to 35 mm²	1 to 25 mm²	50 mm²	Ø 5 mm	3 x 16 mm²	3 x 10 mm²

Accessories: module CA907000 and CA907001



Acti9 Protection and Isolation

General Overview & Reference Numbers

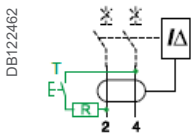
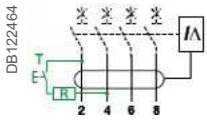
Vigi iC60 add-on residual current devices (A type)

PB104464-45

PB104469-45

AS/NZS 61009-1

- Combined with iC60 circuit breaker, the Acti9 Vigi iC60 provide:
- protection of persons against electric shock by direct contact (30 mA),
- protection of installations against the risk of fire (300 mA).
- With flexible neutral wire.

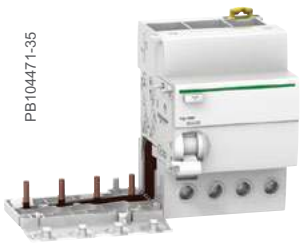
Vigi iC60 add-on residual current devices for 230/400 V network						
Type			**A**			**Width in 9 mm modules**
Auxiliaries			**Without auxiliaries**			
2P		**Sensitivity**	**30 mA**		**300 mA**	
DB122462 	Rating	63A	A9V02663		A9V06663	4
4P		**Sensitivity**	**30 mA**		**300 mA**	
DB122464 	Rating	63A	A9V02763	-	A9V06763	7
Voltage rating (Ue)		2P	230 - 240 V			
		4P	400 - 415 V			
Operating frequency			50/60 Hz			
Accessories			**Refer to catalogue page C-37**			

General Overview & Reference Numbers

Vigi iC60 add-on residual current devices (A type)

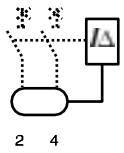
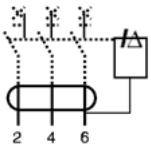
PB104466-35

PB104471-35



AS/NZS 61009-1

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

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**		**300 mA**				
Rating						-	-	3
DB122462  2 4	63A	A9V51263		A9V54263				4
4P	**Sensitivity**	**30 mA**		**300 mA**				
Rating						-	-	6
DB122464  2 4 6	63A	A9V51363		A9V54363				7
Voltage rating (Ue)	2P	230 - 240 V						
	3P	400 - 415 V						
Operating frequency	50/60 Hz							
Accessories	**Refer to catalogue page C-37**							

Acti9 Protection and Isolation

General Overview & Reference Numbers

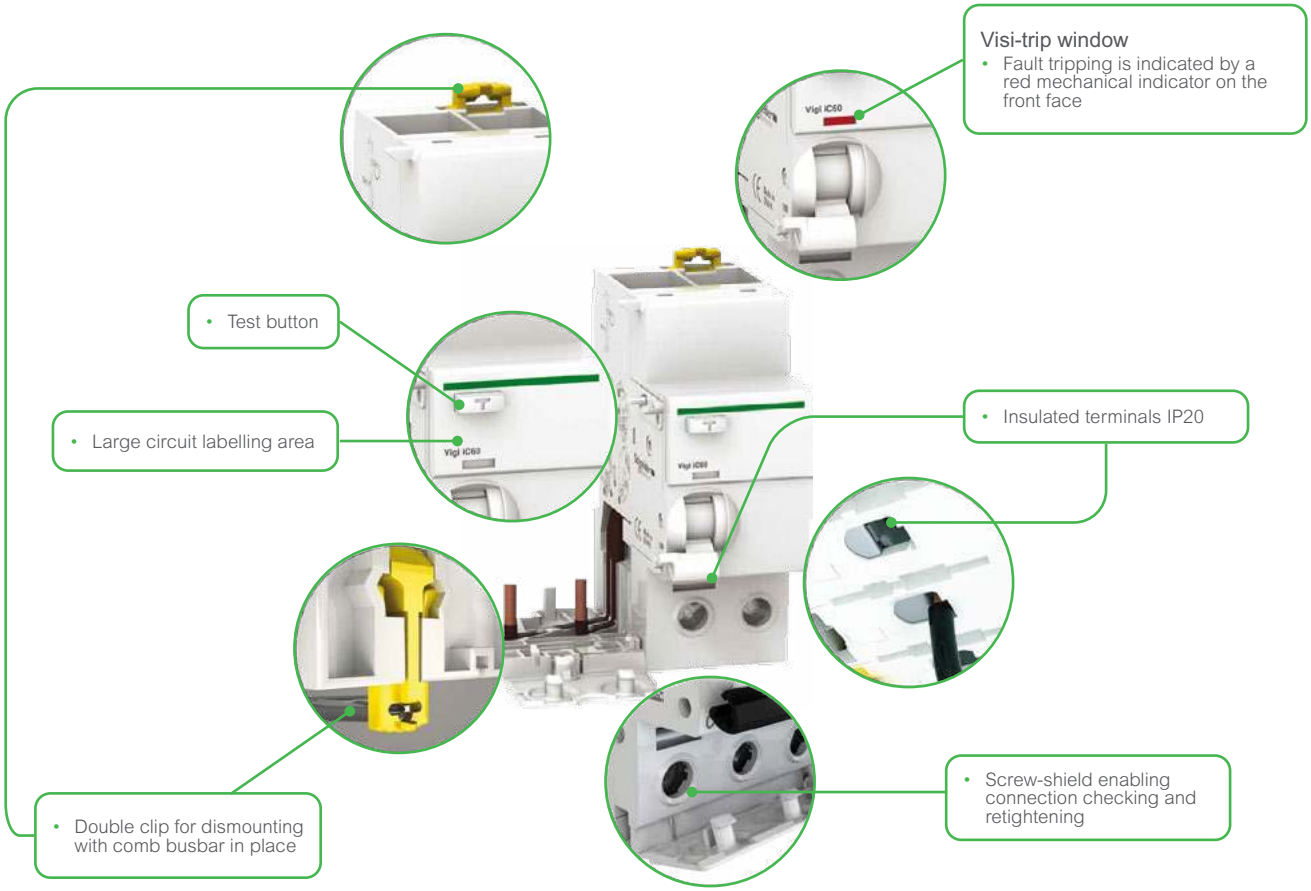
Vigi iC60 add-on residual current devices (A type) (cont.)

PB104556-51

Association iC60N, H, L + Vigi iC60

iC60	Vigi iC60 40 A	Vigi iC60 63 A
01A to 25 A	■	■
32 A - 40 A	■	■
50 A - 63 A	NO	■

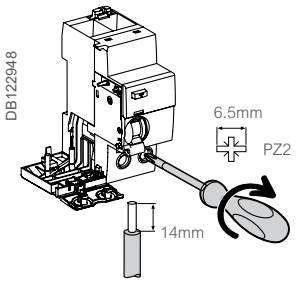
PB104466-40



General Overview

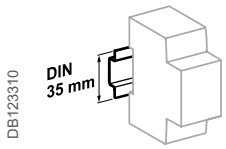
Vigi iC60 add-on residual current devices (A type) (cont.)

Connection

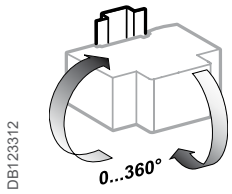


Type	Rating	Tightening torque	Copper cables	
			Rigid	Flexible or with ferrule
			 DB122945	 DB122946
Vigi iC60				
	40 to 63 A	3.5 N.m	1 to 35 mm²	1 to 25 mm²

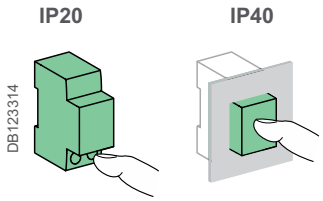
Technical Data



Clip on DIN rail 35 mm.



Indifferent position of installation.



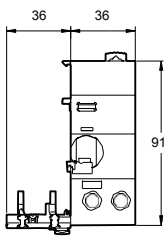
Main characteristics		
Insulation voltage (Ui)		500 V
Pollution degree		3
Rated impulse withstand voltage (Uimp)		6 kV
According to AS/NZS 61009-1		
Surge current withstand (8/20 µs) without tripping	A types (no selective s)	250 Â
	A types (selective s)	3 kÂ
Behaviour in case of voltage drop		Residual 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	A and A-SI types 	-25°C to +60°C
Storage temperature		-40°C to +85°C

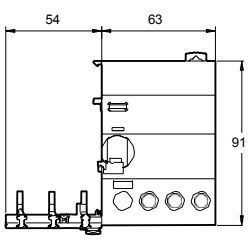
Weight (g)

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

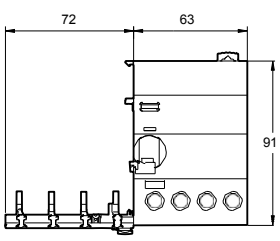
Vigi iC60 40 and 63A



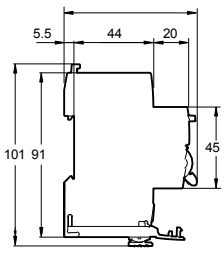
2P



3P



4P



Acti9 Protection and Isolation

General Overview & Reference Numbers

Vigi C120 add-on residual current devices (A type)

PB107924-30

2P

PB107925-30

3P

PB107926-30

4P

AS/NZS 61009

When a Vigi C120 device is combined with a C120 circuit breaker, it provides the following functions:

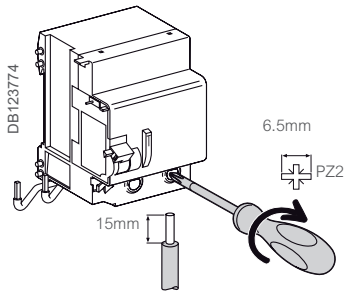
- protection of persons against electric shock by direct contact (30 mA)
- protection of installations against fire hazards (300 mA)

Vigi C120 add-on residual current devices				
Type		**A**		**Width in 9 mm modules**
Product		**Vigi C120**		
Auxiliaries		**Without auxiliary**		
2P	**Sensitivity**	**30 mA**	**300 mA**	
DB122462		A9N18572	A9N18573	7
3P	**Sensitivity**	**30 mA**	**300 mA**	
DB122463		A9N18575	A9N18576	10
4P	**Sensitivity**	**30 mA**	**300 mA**	
DB122464		A9N18578	A9N18579	10
Voltage rating (Ue)	2P	230 - 240 V		
	3P-4P	400 - 415 V		
Operating frequency		50/60 Hz		
Accessories		**Refer to catalogue page C-39**		

General Overview

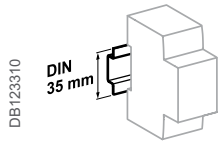
Vigi C120 add-on residual current devices (A type)

Connection

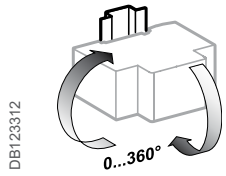


Type	Sensitivity	Tightening torque	Copper cables	
			Rigid	Flexible or with ferrule
				
Vigi C120	30...300 mA	3.5 N.m	1 to 50 mm²	1 to 35 mm²

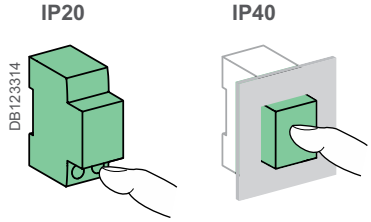
Technical Data



Clip on DIN rail 35 mm.



Indifferent position of installation.

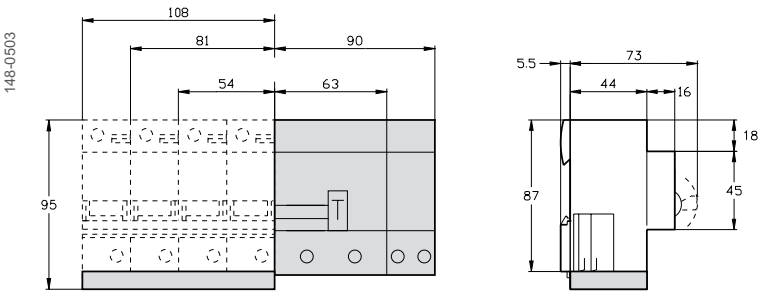


Main characteristics		
To IEC 60947-2		
Insulation voltage (Ui)		500 V AC
Degree of pollution		3
Rated impulse withstand voltage (Uimp)		6 kV
To AS/NZS 61009		
Impulse current withstand (8/20 µs) without tripping	Type A (non-selective s)	250 Â
Additional characteristics		
Degree of protection	Device only	IP20
	Device in a modular enclosure	IP40
		Insulation class II
Operating temperature	Type A	-25 °C to +60 °C
Storage temperature		-40 °C to +85 °C

Weight (g)

Add-on residual current devices	
Type	**Vigi C120**
2P	325
3P	500
4P	580

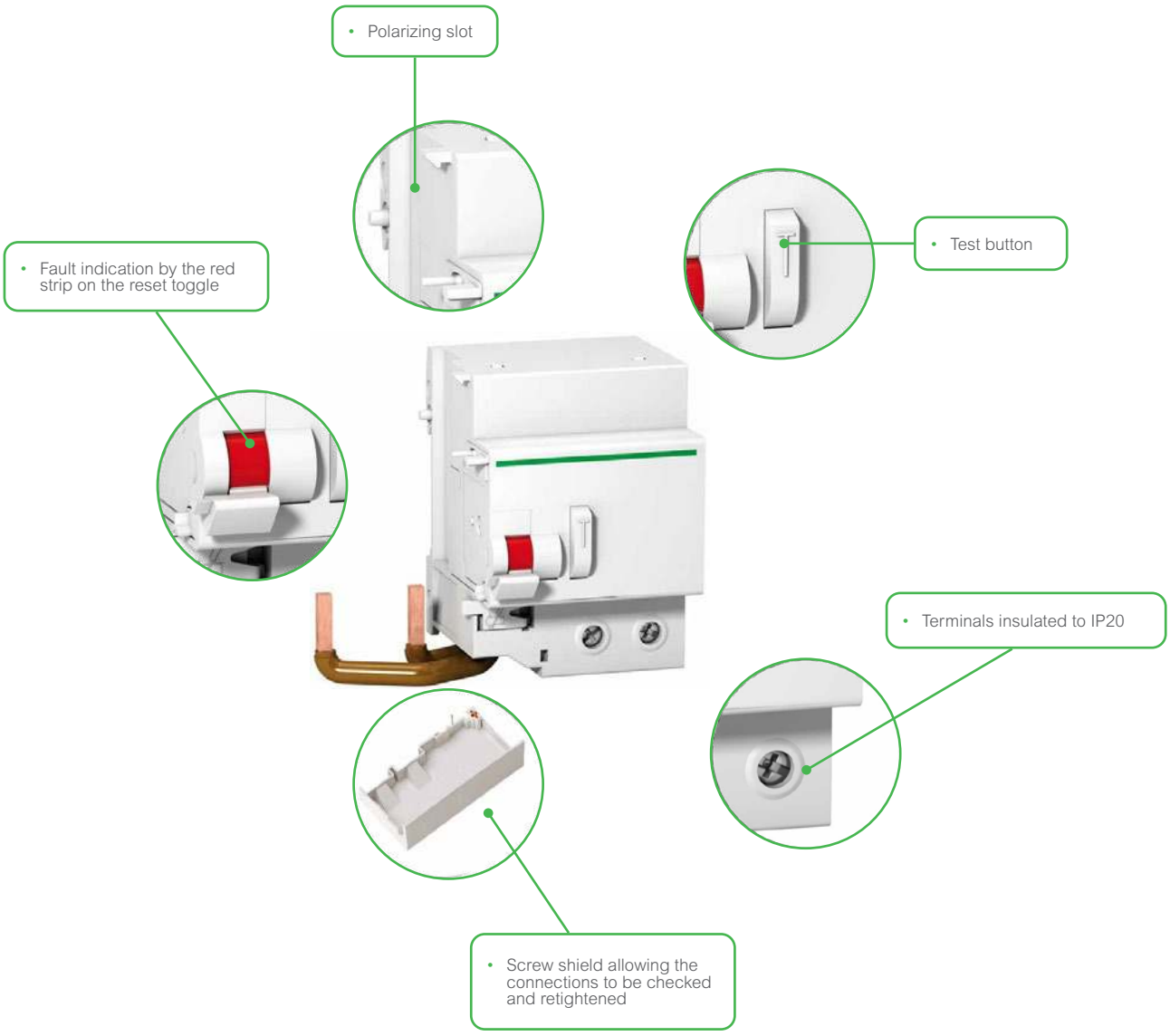
Dimensions (mm)
C120 + Vigi C120



Acti9 Protection and Isolation

General Overview

Vigi C120 add-on residual current devices (A type) (cont.)



General Overview

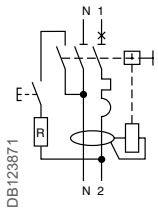
iDPN Vigi Residual current devices

iDPN N Vigi

AS/NZS 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 (≤ 30 mA)
- protection of the installations against fire risks (300 mA).

- The A-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.

iDPN N Vigi 6000						
Type				**A**	**A-SI**	**Width in 9 mm modules**
Auxiliaries				**Refer to catalogue page C-45**		
1P+N	**Curve C**		**Sensitivity**	**30 mA**	**30 mA**	
		Rating (In)	6 A	A9D32606		4
			10 A	A9D32610	A9D33610	
			13 A	A9D32613	A9D33613	
			16 A	A9D32616	A9D33616	
			20 A	A9D32620	A9D33620	
			25 A	A9D32625	A9D33625	
			32 A	A9D32632	A9D33632	
			40 A	A9D32640	A9D33640	
Voltage rating (Ue)				230...240 V AC		
Operating frequency				50 Hz		

Acti9 Protection and Isolation

General Overview

iDPN Vigi Residual current devices (cont.)

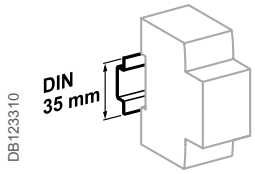
- Fast contact closure

- Insulated terminals IP20

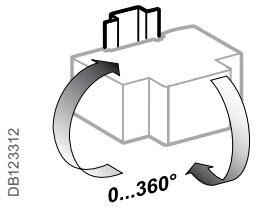
Visi-trip double window
- Fault tripping circuit breaker is indicated by a red mechanical indicator on the front face.
- Earth fault is indicated by a red mechanical indicator on the front face.

- Test button

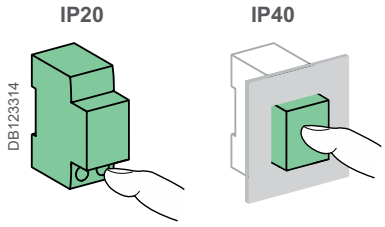
Positive contact indication
- A green strip on the toggle guarantees opening of all the poles in safety conditions (padlocking possible) for work to be carried out on live parts.



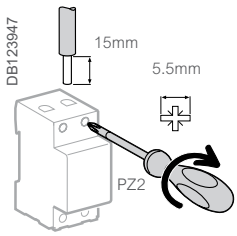
Clip on DIN rail 35 mm.



Indifferent position of installation.



Connection



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

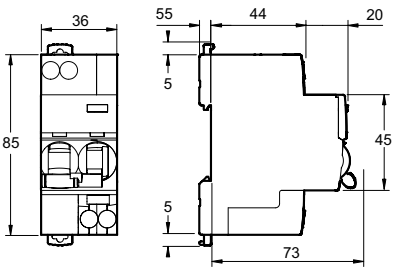
Technical Data

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 C	Between 5 and 10 In		
According to AS/NZS 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 with stand	Type AC		250 Â	250 Â
	Type A		250 Â	250 Â
	Type A-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 y 20 A	20,000 cycles		
	Electrical u 25 A	10,000 cycles		
	Mechanical	20,000 cycles		
Overvoltage category (IEC 60364)		III		
Operating temperature				
	Type A, A-SI	-25°C to +60°C		
Storage temperature		-40°C to +85°C		
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % to 55°C)		

Weight (g)

Residual current device	
Type	**iDPN Vigi**
1P+N	125

Dimensions (mm)



General Overview & Reference Numbers

iC60N RCBO 6000 A / 30 mA

PB107924-30

AS/NZS 61009.1

As per the above standards:

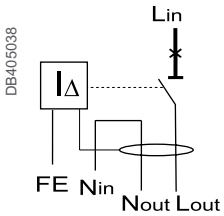
- The single-phase iC60N RCBO's self-contained residual current device carries
- out complete protection of final circuits:
- protection against short-circuits and cable overloads,
- protection against electrocution by direct contact.
- The neutral is not interrupted when the device is tripped. Hence iC60N RCBO can be used on most circuits, except for the ones operating under TT or IT earthing systems.

Alternating current (AC) 50/60 Hz	
Breaking capacity (Icn) according to AS/NZS 61009-1	
	Voltage (Ue)
Ph/N	**230 - 240 V**
Rating (In) 6 to 45 A	6000 A

Accessory

Padlocking device

- Used to lock the toggle in the "open" or "closed" position by 4 mm diameter padlock (not supplied).

iC60N RCBO 6000					
1P+N				**A**	**Width in 9-mm modules**
C curve	**Voltage rating (V)**		**Sensitivity (IΔn)**	**30 mA**	
DB405038 	230 - 240	Rating (In)	6 A	A9D61806	2
			10 A	A9D61810	
			16 A	A9D61816	
			20 A	A9D61820	
			25 A	A9D61825	
			32 A	A9D61832	
			40 A	A9D61840	
			45 A	A9D61845	
Operating frequency				50…60 Hz	
Auxiliaries				**Refer to catalogue page C-45**	
Accessories				**Refer to catalogue page C-37**	

Acti9 Protection and Isolation

General Overview & Reference Numbers

iC60H RCBO 10000 A / 10, 30 and 100 mA

PB111075-70

AS/NZS 61009.1

As per the above standards:

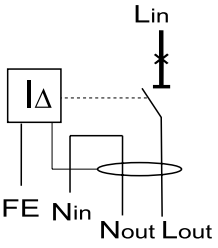
- The single-phase iC60H RCBO's self-contained residual current device carries out complete protection of final circuits:
- protection against short-circuits and cable overloads
- protection of persons against electric shock by direct contact (10, 30 mA sensitivities),
- protection of persons against electric shock by indirect contact (100 mA sensitivity),
- protection of equipment against fires set by leakage currents (100 mA sensitivity).
- The neutral is not interrupted when the device is tripped. Hence iC60H RCBO can be used on most circuits, except for the ones operating under TT or IT earthing systems.

Alternating current (AC) 50/60 Hz		
Breaking capacity (Icn) according to AS/NZS 61009-1		
	Voltage (Ue)	
Ph/N	**110V**	**230 - 240 V**
Rating (In) 6 to 45 A	10000 A	10000 A

Accessory

Padlocking device

- Used to lock the toggle in the "open" or "closed" position by 4 mm diameter padlock (not supplied).

iC60H RCBO 10000						
1P+N				**A**		**Width in 9-mm modules**
C curve	**Voltage rating (V)**		**Sensitivity (IΔn)**	**10 mA**	**30 mA**	**100 mA**	
	110	Rating (In)	10 A	-	A9D19810	-	2
			16 A	-	A9D19816	-	
			20 A	-	A9D19820	-	
			25 A	-	A9D19825	-	
			32 A	-	A9D19832	-	
	230 - 240	Rating (In)	6 A	A9D10806	A9D11806	A9D12806	
			10 A	A9D10810	A9D11810	A9D12810	
			16 A	A9D10816	A9D11816	A9D12816	
			20 A	A9D10820	A9D11820	A9D12820	
			25 A	A9D10825	A9D11825	A9D12825	
			32 A	A9D10832	A9D11832	A9D12832	
			40 A	-	A9D11840	A9D12840	
			45 A	-	A9D11845	A9D12845	
Operating frequency				50…60 Hz			
Auxiliaries				**Refer to catalogue page C-45**			
Accessories				**Refer to catalogue page C-37**			

DB405038

General Overview & Reference Numbers

iC60H2 RCBO 10000 A / 30 and 100 mA

PB111076-70

AS/NZS 61009.1

As per the above standards:

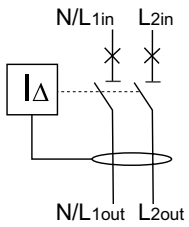
- The 2-poles iC60H2 RCBO's self-contained residual current device carries out
- complete protection of final circuits:
- protection against short-circuits and cable overloads,
- protection of persons against electric shock by direct contact (30 mA sensitivities),
- iC60H2 RCBO switches neutral, together with phase. It is therefore suitable for all circuits, whatever the earthing system (except for TN-C).

Alternating current (AC) 50/60 Hz		
Breaking capacity (Icn) according to IEC 61009-1	Voltage (Ue)	
Ph/N, Ph/Ph	**110 V**	**230 - 240 V**
Rating (In) 10 to 32 A	10000 A	10000 A

Accessory

Padlocking device

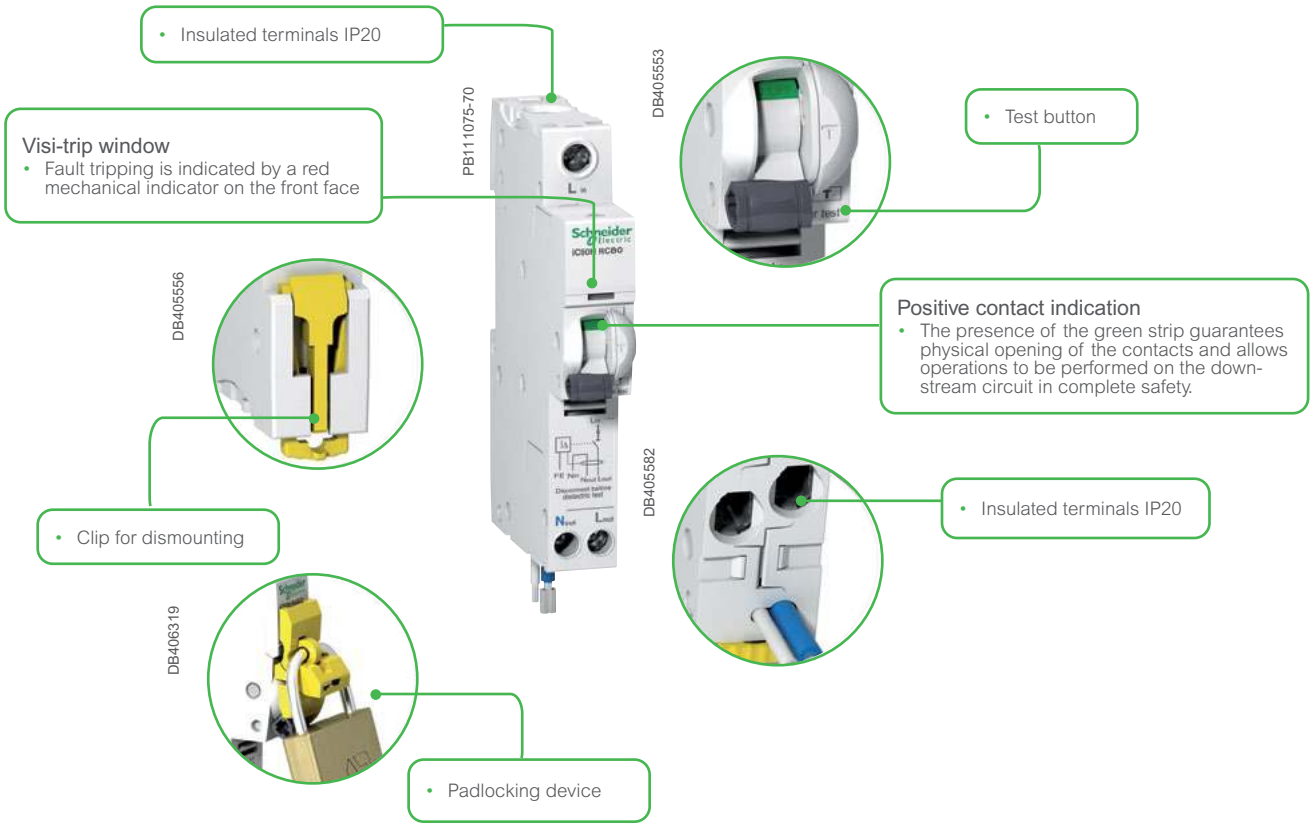
- Used to lock the toggle in the "open" or "closed" position by 4 mm diameter padlock (not supplied).

iC60H2 RCBO 10000					
2P				**A**	**Width in 9-mm modules**
C curve	**Voltage rating (V)**	**Sensitivity (IΔn)**		**30 mA**	
DB405040 	110	Rating (In)	10 A	A9D19210	4
			16 A	A9D19216	
			20 A	A9D19220	
			25 A	A9D19225	
			32 A	A9D19232	
	230 - 240	Rating (In)	10 A	A9D11210	
			16 A	A9D11216	
			20 A	A9D11220	
			25 A	A9D11225	
			32 A	A9D11232	
Operating frequency				50…60 Hz	
Auxiliaries				**Refer to catalogue page C-45**	
Accessories				**Refer to catalogue page C-37**	

Acti9 Protection and Isolation

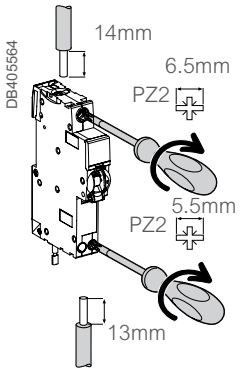
General Overview

iC60N, iC60H, iC60H2 RCBO 10, 30 and 100 mA



- Increased product service life thanks to fast closing independent of the speed of actuation of the toggle.
- Remote indication, open/closed/tripped, by optional auxiliary contacts.

Connection



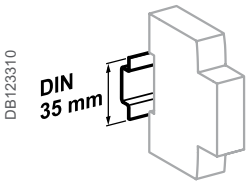
Type	Rating	Tightening torque	Copper cables	
			Rigid	Flexible
			DB122945	DB122946
N in and L in	6 to 45 A	3.5 N.m	1 to 25 mm²	1 to 16 mm²
L out and N out		2 N.m	1 to 16 mm²	1 to 10 mm²

Technical & Reference Numbers

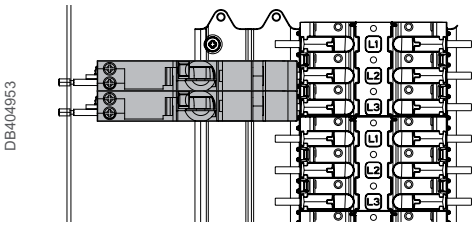
iC60N, iC60H, iC60H2 RCBO 10, 30 and 100 mA

Technical Data

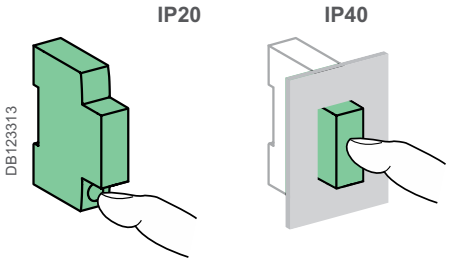
Main characteristics		iC60N RCBO	iC60H RCBO	iC60H2 RCBO
Insulation voltage (Ui)		400 V AC		
Rated impulse withstand voltage (Uimp)		4 kV		
Rated residual operating current (IΔn)		30 mA	10, 30, 100 mA	30 mA
Thermal tripping Reference temperature		50°C		
Temperature derating		See module CA908007		
Limitation class		3		
Surge current withstand (8/20 µs) without tripping		250 Â		
Rated nominal breaking capacity (Icn)		6,000 A	10,000 A	10,000 A
Phase/earth rated residual breaking and making capacity (IΔm)		6,000 A	7,500 A	7,500 A
Additional characteristics				
Degree of protection	Device only	IP20		
	Device in modular enclosure	IP40		
Endurance (O-C)	Electrical	5,000 cycles		
	Mechanical	20,000 cycles		
Operating temperature		-15°C to +60°C		
Storage temperature		-40°C to +85°C		
Tropicalization		Treatment 2 (relative humidity: 95 % at 55°C)		

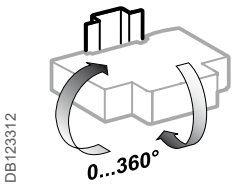


Clip on DIN rail 35 mm.



Installation on Fishbone



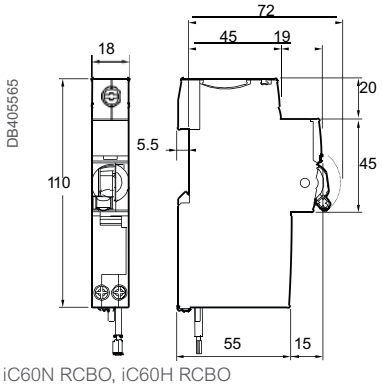


Indifferent position of installation.

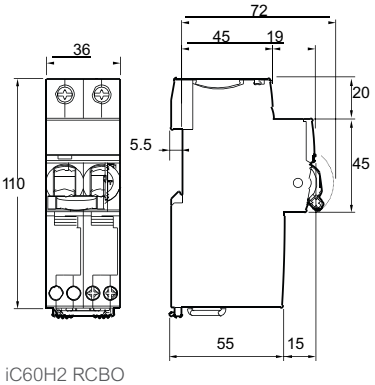
Weight (g)

iC60 RCBO	
iC60N RCBO	205
iC60H RCBO	205
iC60H2 RCBO	332

Dimensions (mm)



iC60N RCBO, iC60H RCBO



iC60H2 RCBO

Acti9 Protection and Isolation

General Overview & Reference Numbers

iSPN Vigi residual current devices 10mA, C curve

C

AS/NZS 61009.1

- The single-phase iSPN Vigi self-contained residual current device carries out:
  - protection of persons against direct and indirect contacts (10 mA)
  - complete protection of final circuits (overcurrents and insulation faults)
  - safety device to switch both of active and neutral.
- A class iSPN Vigi are sensitive to the pulsed type DC component.
- Overload, short circuit and earth fault currents are indicated by location of the handle in the OFF position.
- A push-test button "T" is positioned on the front of the device for testing that product is operational.
- This 10mA RCBO is also Type I (according to AS/NZS 3190) and complies with the requirements of the installation rules for Patient areas, AS/NZS 3003.

Accessories

Padlocking device

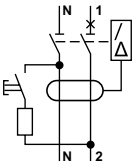
- Used to lock the toggle in the "open" or "closed" position by 8 mm diameter padlock (not supplied).

1P+N comb busbars

- The comb busbars make it easier to install Schneider Electric products.

Catalog numbers

iSPN Vigi

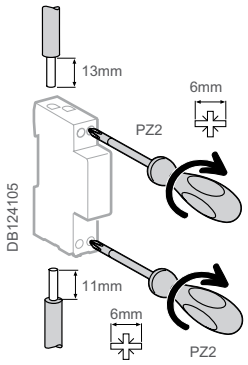
Type				A ~	Width in 9-mm modules
C curve	Voltage rating (V)	Sensitivity (IΔn)		10 mA	
	230/240 V AC	Rating (In)	6 A	A9D40606	2
			10 A	A9D40610	
			16 A	A9D40616	
			20 A	A9D40620	
			25 A	A9D40625	
			32 A	A9D40632	
Operating frequency				50 Hz	

Accessories

Type	
Padlocking device (bag of 2 pieces)	26970

General overview

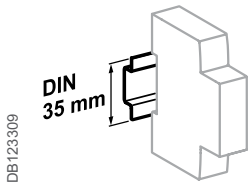
iSPN Vigi residual current devices 10mA, C curve (cont.)



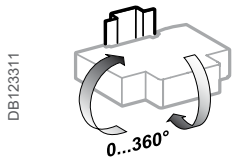
Connection

Type	Rating	Tightening torque	Copper cables	
			Rigid	Flexible
				
L and N upstream	6 to 32 A	2 N.m	1 to 16 mm²	1 to 16 mm²
L and N downstream		2 N.m	1 to 10 mm²	1 to 10 mm²

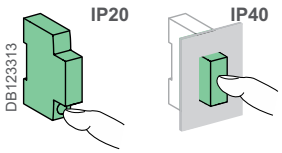
Note: for any case, isolate power before installation. Wire neutral prior to installing active.



Clip on DIN rail 35 mm.



Indifferent position of installation.



Technical data

Main characteristics		
Voltage rating (Ue)		230/240 V AC
Insulation voltage (Ui)		400 VAC
Rated impulse withstand voltage (Uimp)		4 kV
Rated residual operating current (IΔn)		10 mA
Thermal tripping	Reference temperature	30 °C
Magnetic tripping	C curve	Between 5 and 10 In
Limitation class		3
Rated nominal breaking capacity (Icn)		6000 A
Phase/earth rated residual breaking and making capacity (IΔm)		3000 A

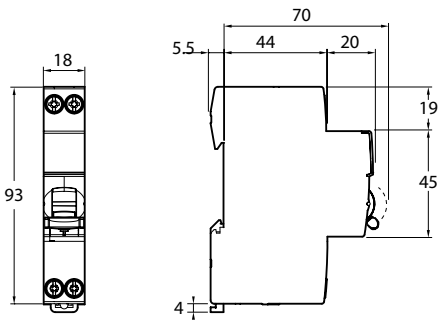
Additional characteristics		
Degree of protection	Device only	IP20
	Device in modular enclosure	IP40
Endurance (O-C)	Electrical	10,000 cycles
	Mechanical	20,000 cycles
Operating temperature		-25°C to +55°C
Storage temperature		-25°C to +70°C
Tropicalization		Treatment 2 (relative humidity 95% at 55°C)

Weight (g)

Residual current device

Type	iSPN Vigi
1P+N	136

Dimensions (mm)



Acti9 Protection and Isolation

General overview

iDPH VigiARC Arc fault detection RCBO

A9T26620-56

Acti9 iDPH VigiARC is an arc fault detection device with overload, short circuit and residual current protection, which aims to reduce the risk of electrical fire.

By continuously analyzing a large number of electrical parameters, it detects the appearance of electric arcs that are responsible for starting fires. It isolates the circuit concerned which reduces flame appearance occurrence.

The European installation standard IEC 60364- 4-42 recommends the use of AFDD to protect against arc fault in final circuit:

- in locations with sleeping accommodations (e.g. hotels, nursing homes, bedrooms in homes)
- in locations with risks of fire due to high quantities of flammable materials (e.g. barns, wood-working shops, stores of combustible materials)
- in locations with combustible constructional materials (e.g. wooden buildings)
- in fire propagating structures (e.g. high rise buildings)
- in locations where irreplaceable goods are housed (e.g. museums).

More specifically, the installation of Acti9 iDPH VigiARC is highly recommended to protect circuits with highest risk of fire, such as:

- protruding cables (risk of knocks)
- outside cables (greater risk of deterioration)
- unprotected cables in secluded areas (like storage rooms)
- aging, deteriorating wiring or wiring for which the connection boxes are inaccessible.

Acti9 iDPH VigiARC must not be installed on circuits requiring a high level of continuity of service.
Acti9 iDPH VigiARC is not compatible with ATEX regulations.

IEC 62606

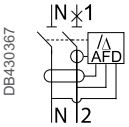
General requirements for arc fault detection devices.

AS/NZS 61009-1

Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs).

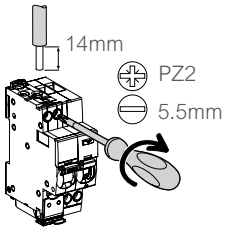
As per the above standards

- The Acti9 iDPH VigiARC provides a protection for final circuits against
- overcurrents and insulation faults (protection for people against electric shocks).
- In addition to these protections, the Acti9 iDPH VigiARC monitors for electric arcs
- that occur in cables and connections, that may cause a fire.
- These arcs are the result of localised cable deterioration or loose connections.
- It is used for three types of situations that can result in a fire:
  - parallel arc detection: insulation problems between two live conductors that cause a resistive short-circuit, too weak to be detected by a circuit breaker and with no earth leakage to be detected by a residual current circuit breaker,
  - series arc detection: a damaged conductor or connection that causes part of the current to flow through its carbonised insulation due to a local rise in temperature
  - overheating of electronic components in loads, when exposed to an overvoltage for several seconds.
- It combines the following functions:
  - circuit protection against overload and short-circuit currents (circuit breaker function),
  - protection for people against electric shocks by direct contacts and indirect contacts (30 mA),
  - protection against fire hazards by detection of abnormal electric arcs
  - protection against load fire hazards due to slow overvoltages (network overvoltage),
  - fire hazard tripping indication via the front panel indicator,
  - device diagnosis via the test button,
  - positive contact indication (green strip),
  - tripping faults diagnosis by LED blinking in front face.
- The Acti9 iDPH VigiARC should be installed in the place of the circuit's final protection device.
- Product is reverse feeding: it can be supplied either by the top or the bottom.

Acti9 iDPH VigiARC, C curve, 30 mA, type A				
Arc Fault Detection Devices (AFDD) to IEC 62606				Width in 9 mm modules
1P+N			iDPN H VigiARC	
			10000	
DB430367 	Rating (In)	6 A	A9T27606	4
		10 A	A9T27610	
		16 A	A9T27616	
		20 A	A9T27620	
		25 A	A9T27625	
Operating voltage	230/240 V AC			
Operating frequency	50 Hz			

Connection

DB428762



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

General overview

iDPH VigiARC Arc fault detection RCBO (cont.)

VISI-TRIP window
- Fault tripping is indicated by a red mechanical indicator on the front face

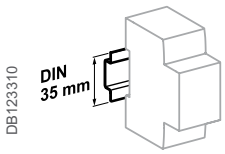
Multi-function button
- For tripping diagnosis
- For device test

Easy to install
- Reverse feeding: it can be supplied either by the top or the bottom

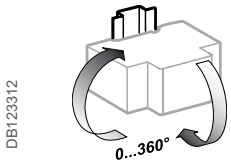
VISI-SAFE Window

Positive contact indication
- A green strip on the toggle indicates full opening of all the poles
- Padlocking possible

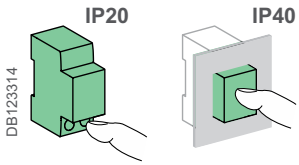
Diagnosis LED
- Tripping faults diagnosis by orange LED blinking



Clip on DIN rail 35 mm.



Indifferent position of installation.



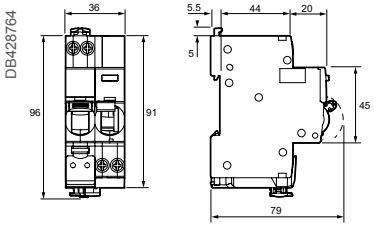
Technical Data

Main characteristics							
Tripping time/arc current value with Un = 230/240 V AC (to IEC/EN 62606)	Current before arc (RMS)		2.5 A	5 A	10 A	16 A	25 A
	Max. operating time		1 s	0.5 s	0.25 s	0.15 s	0.14 s
Overvoltage tripping threshold (neutral conductor break)			275 V AC ± 5 V				
Insulation voltage (Ui)			250 V AC				
Degree of pollution			2				
Rated impulse withstand voltage (Uimp)			4 kV				
Overvoltage category			III				
Thermal tripping Reference temperature	Reference temperature		30°C				
Magnetic tripping	Curve C		Between 5 and 10 In				
According to AS/NZS 61009-1							
Limitation class			3				
Rated breaking capacity (Icn)	iDPN H VigiARC		10 000 A				
8/20 µs impulse withstand current	A type		250 A				
Additional characteristics							
Earth leakage protection with instantaneous tripping			30 mA, type A				
Degree of protection	Device alone		IP20				
	Device in a modular enclosure		IP40 Insulation class II				
Endurance (O-C) (IEC 60529)	Electrical	y 20 A	20,000 cycles				
		25 A	10,000 cycles				
	Mechanical		20,000 cycles				
Operating temperature			-25°C to +60°C				
Storage temperature			-40°C to +80°C				
Tropicalization (to IEC 62606)			Severity B (to IEC 60068-2-30) during 28 days				

Weight (g)

Arc fault detection RCBO	
Type	RCBO Acti9 iDPH VigiARC
1P+N	237

Dimensions (mm)



Acti9 Protection and Isolation

General overview

iPRD1 12.5r Type 1 + 2 Low Voltage surge arresters

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).

iPRD1 12.5r surge arresters are fitted with a remote transfer contact to send "end-of-life indication" information.

They are also fitted with easy-to-replace withdrawable cartridges.

iPRD1 12.5r (3P+N)

iPRD1 12.5r

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.

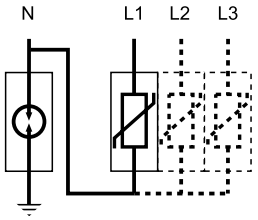
It protects electrical installations against direct lightning strikes.

It is used to conduct the direct lightning current, propagating from the earth conductor to the network conductors.

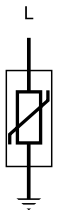
It must be installed with an upstream disconnection device, such as a fuse or circuit-breaker, whose breaking capacity must be at least equal to the maximum prospective short-circuit current at the installation point.

iPRD1 12.5r surge arresters also provide Type 2 protection and protect the electrical installation by inely clipping the lightning wave overvoltages.

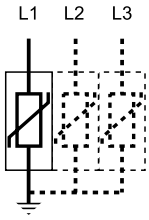
Cover all applications required by the MEN earthing system (Multiple Earthed Neutral) defined by AS/NZS 3000. 1P or 3P SPDs need to be installed in the main LV switchboard where the MEN link is connected. 1PN or 3PN are installed in the other distribution boards.



iPRD1 12.5r (1P+N, 3P+N)
(Neutral cartridge is fixed)



iPRD1 12.5r (1P)



iPRD1 12.5r (3P)

Type	Product Solution				Earthing system
Cartridge surge arrester	1P+N	3P+N	1P	3P	
iPRD1 12.5r	A9L16282	A9L16482			TT, TN-S
T1 + T2			A9L16182	A9L16382	TN-C

Type	No. of poles	Width 9 mm mod-ules	I imp (kA) (10/350) Impulse current	I max (kA) (8/20) Maximum discharge current	In - kA Nominal discharge current	Up - kV Voltage pro-tection level	Un - (V) Rated voltage net-work	Uc - V Maximum continious operating voltage (L-N)/(N-PE)	Cat. no.
Withdrawable surge arrester									
iPRD1 12.5r Type 1 + 2	1P	2	12.5 (L-N)/50 (N-PE)	50	20	≤ 1.5	230	350/255	A9L16182
	1P+N	4	12.5 (L-N)/50 (N-PE)	50	20	≤ 1.5	230	350/255	A9L16282
	3P	6	12.5	50	20	≤ 1.5	230/400	350	A9L16382
	3P+N	8	12.5 (L-N)/50 (N-PE)	50	20	≤ 1.5	230/400	350/255	A9L16482
Spare cartridge									
iPRD1 12.5r	-	2	-	-	20	≤ 1.5	-	350	A9L16082

Surge arresters	Spare cartridge	
	Phase	Neutral
iPRD1 12.5r	A9L16082	-

Technical Data

iPRD1 12.5r Type 1 + 2 Low Voltage surge arresters (cont.)

Technical Data

Main characteristics			
Operating frequency			50 Hz
Degree of protection		Front panel	IP40
		Terminals	IP20
		Impacts	IK05
Response time			< 25 ns
Short circuit withstand (Isccr)			50 kA
Temporary overvoltage withstand (U_T)		U_T (L-N)	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
		U_T (L-PE)	1455 V AC/200 ms
Ground residual current (I_{PE})		I_{PE} (L-PE)	0.009 mA for 1P, 3P
		I_{PE} (N-PE)	0.000003 mA for 1P+N,3P+N
Follow current interrupting rating (I_{fi})		I_{fi} (N-PE)	100 A
End-of-life indication			White: correct operation
			Red: at end of life
		Remote notification	1.5 A/250 V AC
By tunnel terminal	Live conductor	Rigid cable	10...35 mm²
		Flexible cable	10...25 mm²
	Earth cable	Rigid cable	16...35 mm²
		Flexible cable	16...25 mm²
Operating temperature			-25°C to +60°C
Humidity range			5 % to 95 %
Standards			IEC 61643-11: 2011 T1, T2 EN 61643-11: 2012 Type 1 + Type 2
Approvals			CE, EAC, VDE

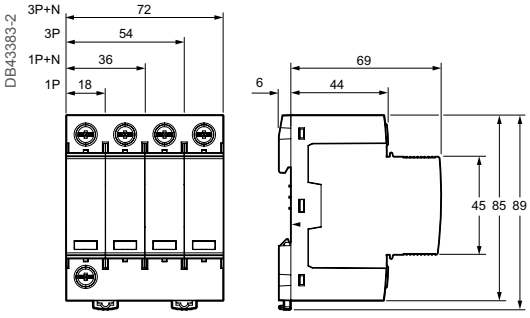
Choice of disconnector / surge arrester

Type	I imp: impulse current	Isc: prospective short circuit current at installation point					
		10 kA	15 kA	16 kA	25 kA	35 kA	50 kA	70 kA
iPRD1 12.5r	12.5 kA	C120N C80 A (1)	C120H C80 A (1)	NG125N C80 A (2)	Compact NSXm F TM80D	Compact NSXm N TM80D	Compact NSXm H TM80D	

(1): For lightning impulse current withstand use NSXm E TM80D range
(2): For lightning impulse current withstand use NSXm B TM80D range

iPRD1 12.5r
- The surge arrester base can be turned over to allow the phase/ neutral/earth cables to enter through either the top or the bottom

Dimensions (mm)



Weight (g)

Surge arresters		
Type		iPRD1 12.5r
1P		171
1P+N		299
3P		486
3P+N		619
Cartridge	Neutral	112
	Phase	

Acti9 Protection and Isolation

Reference Numbers

iPRD surge arresters

Type 2 or 3 LV withdrawable surge arresters

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.

C

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.

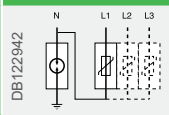
The iPRD surge arresters with “r” indication have remote transfer of the information: “cartridge to be replaced”.
Cover all applications required by the MEN earthing system (Multiple Earthed Neutral) defined by AS/NZS 3000. 1P or 3P SPDs need to be installed in the main LV switchboard where the MEN link is connected. 1PN or 3PN are installed in the other distribution boards.

PB110274-35

2P

PB110280-35

4P

Rated discharge current (Imax)	Nominal discharge current (In)	Type of protection		Network					
				DB122942 					
		Incoming	Secondary	1P+N	3P+N	1P	2P	3P	4P
iPRD65									
65 kA Very high risk level (strongly exposed site)	20 kA	iPRD65				A9L65101			
						A9L65121			
				A9L65501					
								A9L65301	
					A9L65601				
iPRD40									
40 kA High risk level	15 kA	iPRD40				A9L40101			
						A9L40100			
				A9L40501					
				A9L40500					
								A9L40301	
								A9L40300	
					A9L40601				
					A9L40600				
iPRD20									
20 kA Medium risk level	5 kA	iPRD20				A9L20100			
				A9L20501					
				A9L20500					
								A9L20300	
					A9L20601				
					A9L20600				
iPRD8									
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			
				A9L08501					
				A9L08500					
								A9L08300	
					A9L08601				
					A9L08600				

Reference Numbers

iPRD surge arresters

Type 2 or 3 LV withdrawable surge arresters (cont.)

PB110284-35

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

	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*
					L/t	N/t	L/N		L/t	N/t	L/N
iPRD65											
A9L65101	TT & TN	■	iPRD65r 1P	2	y 1.5	-	-	230	350	-	-
A9L65501	TT & TN-S	■	iPRD65r 1P+N	4	-	y 1.4	y 1.5		-	260	350
A9L65301	TN-C	■	iPRD65r 3P	6	y 1.5	-	-	230/400	350	-	-
A9L65601	TT & TN-S	■	iPRD65r 3P+N	8	-	y 1.4	y 1.5		-	260	350
iPRD40											
A9L40101	TT & TN	■	iPRD40r 1P	2	y 1.6	-	-	230	350	-	-
A9L40100	TT & TN		iPRD40 1P		y 1.6	-	-		350	-	-
A9L40501	TT & TN-S	■	iPRD40r 1P+N	4	-	y 1.4	y 1.6		-	260	350
A9L40500	TT & TN-S		iPRD40 1P+N		-	y 1.4	y 1.6		-	260	350
A9L40301	TN-C	■	iPRD40r 3P	6	y 1.6	-	-	230/400	350	-	-
A9L40300	TN-C		iPRD40 3P		y 1.6	-	-		350	-	-
A9L40601	TT & TN-S	■	iPRD40r 3P+N	8	-	y 1.4	y 1.6		-	260	350
A9L40600	TT & TN-S		iPRD40 3P+N		-	y 1.4	y 1.6		-	260	350
iPRD20											
A9L20100	TT & TN		iPRD20 1P	2	y 1.2	-	-	230	350	-	-
A9L20501	TT & TN-S	■	iPRD20r 1P+N	4	-	y 1.4	y 1.2		-	260	350
A9L20500	TT & TN-S		iPRD20 1P+N		-	y 1.4	y 1.2		-	260	350
A9L20300	TN-C		iPRD20 3P	6	y 1.2	-	-	230/400	350	-	-
A9L20601	TT & TN-S	■	iPRD20r 3P+N	8	-	y 1.4	y 1.2		-	260	350
A9L20600	TT & TN-S		iPRD20 3P+N		-	y 1.4	y 1.2		-	260	350
iPRD8 (1)					**Type 2 / Type 3 (1)**						
A9L08100	TT & TN		iPRD8 1P	2	y 1.2	-	-	230	350	-	-
A9L08501	TT & TN-S	■	iPRD8r 1P+N	4	-	y 1.4	y 1.2		-	260	350
A9L08500	TT & TN-S		iPRD8 1P+N		-	y 1.4	y 1.2		-	260	350
A9L08300	TN-C		iPRD8 3P	6	y 1.2	-	-	230/400	350	-	-
A9L08601	TT & TN-S	■	iPRD8r 3P+N	8	-	y 1.4	y 1.2		-	260	350
A9L08600	TT & TN-S		iPRD8 3P+N		-	y 1.4	y 1.2		-	260	350

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

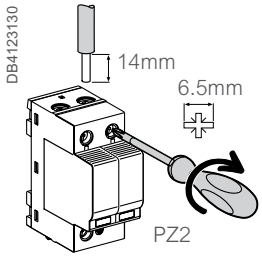
Acti9 Protection and Isolation

General overview

iPRD surge arresters

Type 2 or 3 LV withdrawable surge arresters

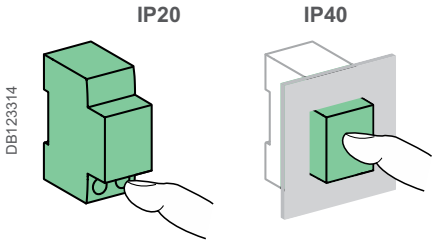
Connection



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

Technical Data iPRD surge arresters

Main characteristics		iPRD
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		-
Temporary overvoltage withstand (U_T)	U_T (L-N)	337 V AC / 5 s
	U_T (L-PE)	442 V AC / 120 min
Temporary overvoltage	U_T (N-PE)	1200 V AC / 200 ms
Safe failure mode (U_T)	U_T (L-PE)	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

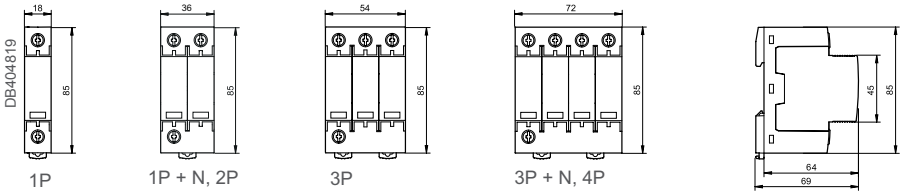


Surge arrester/circuit breaker association		
Surge arrester	Associated circuit breaker	
	iPRD	
	Isc y 25 kA	Isc y 50 kA
iPRD65	Curve C 50 A	Curve C 63 A
iPRD40	Curve C 40 A	Curve C 63 A
iPRD20	Curve C 20 A	Curve C 63 A
iPRD8	Curve C 10 A	Curve C 63 A

Weight (g)

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

iPRD dimensions (mm)



General overview

iPRD surge arresters

Type 2 or 3 LV withdrawable surge arresters (cont.)

iPRD surge arresters

PB110281-60

Terminals
- IP20

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

- Transfer to Acti9 Smartlink

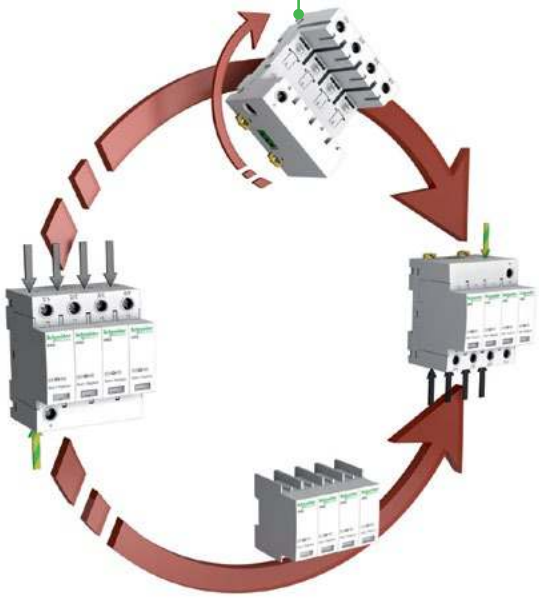
Connection iPRD surge arresters with its short circuit disconnector

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



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

PB1107290-50

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

Acti9 Protection and Isolation

Accessories

iC60, iID, iDPN Vigi, RCA, ARA, iSW

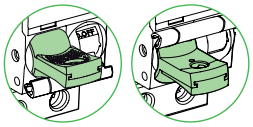
C

Accessories	Mounting	
	Rotary handle	Plug-in base
	PB104509-35 	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 • Push-button: iID test available in the front face of 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) v 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	A9A27003
	Operating sub-assembly		(1 per pole)
	+	+	
	Black handle	Red handle	
Set of	**1**	**1**	**1**
Suitability			
iC60	■ 2P, 3P, 4P		■
iC60 RCBO	–		–
iSW	■ 2P, 3P, 4P		■
iC60 + Vigi iC60	■ 2P, 3P, 4P		–
iID	■		■ ≤ 63 A
iDPN Vigi	–		–
RCA+iC60 or ARA+iC60	–		–
ARA+iID	–		–

Accessories

iC60, iID, iDPN Vigi, RCA, ARA, iSW (Cont.)

Accessories	Mounting				
	Padlocking device		Captive padlocking device		
	PB104492-15  DB123599 	PB111077-16 	A9A26380 	A9A26381	SAUA9PLDxx
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	**Used to padlock protection device in open position** • Padlock diameter: 3 mm • Suitable for IEC/EN 60947-2 compliant disconnection	**Used to padlock breaker in closed position** • Padlock diameter : 3 to 6 mm • Fixed mounting on the left side or right side of the device • 9 mm wide • Compatible with comb busbar		**Used to padlock breaker in closed position** • Padlock diameter : 3 to 6.5 mm • Fixed mounting on the line side of the device • Compatible with MSC chassis • Special Escutcheon Cut Out for SAUA9PLDx is 63mm (47mm + 16mm for padlocking device)
Catalogue numbers	A9A26970	A9A27049	A9A26380	A9A26381	SAUA9PLDF Front padlock device (set of 1), SAUA9PLDTC Padlock device terminal cover (set of 10), SAUA9PLDPF Padlock device pole filler (set of 2)
Set of	**10**	**10**	**1**		
Suitability					
	■	–	■ iC60, iC60 RCBO (left only) iC60+ Vigi iC60, iID		■ iC60, iC60 RCBO
	–	■			
	■	–			
	■	–			
	■	–			
	■	–			
	■	–			
	■	–			

Acti9 Protection and Isolation

Accessories

iC60, iSW

Accessories	Security				
	Screw shield		Terminal shield	Inter-pole barrier	Spacer
	PB104489-14 	PB104488-14 	PB104502-35 	PB104503-35 	PB104484-30 
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 power supply and output terminals • For 3 poles: A9A26975 + A9A26976 • For 4 poles: 2 X A9A26976	Enhances insulation between connections: cables, terminals, lugs, etc		

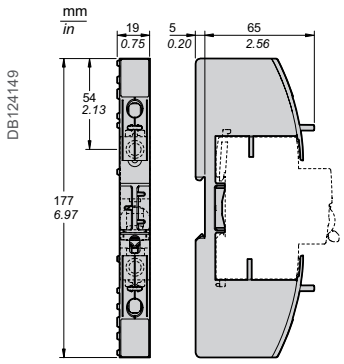
Catalogue numbers	A9A26982	A9A26981	A9A26975	A9A26976	A9A27001	A9A27062
Set of	**12 x 1 pole**	**20 x 4 poles (split-table)**	**2 x 1 pole**	**2 x 2 poles**	**10**	**5**
Suitability						
iC60	–	■	■	■	■	■
iSW	–	–	■	■	■	■
Vigi iC60	■	–	–	–	–	■
iID	–	■	–	■	■	■
iCV40,	–	–	–	–	–	■
iDPN Vigi	–	–	–	–	–	■
iID40	–	■ (2)	–	■ (2)	■ only on power supply terminals (bottom)	■
Reflex iC60 or RCA+iC60 or ARA+iC60	–	■	■	■	■	■
ARA+iID	–	■	–	■	■	■

(2) compatible only with power supply terminals (bottom), having removed the indication flap of connection direction.

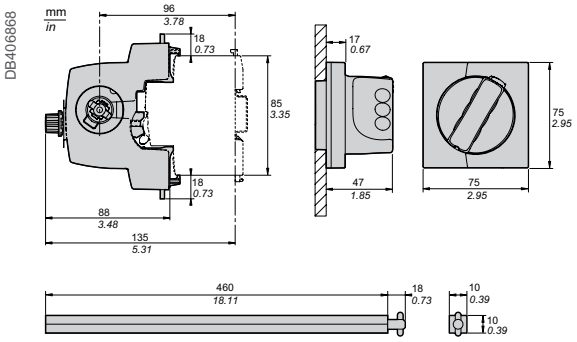
Accessories

iC60, iSW (cont.)

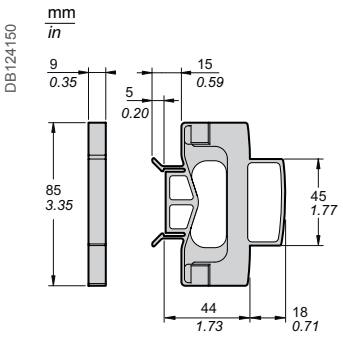
Dimensions (mm)



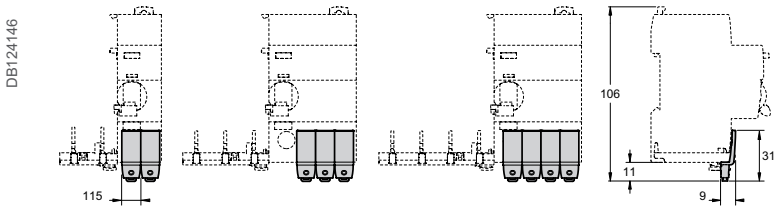
Plug-in base



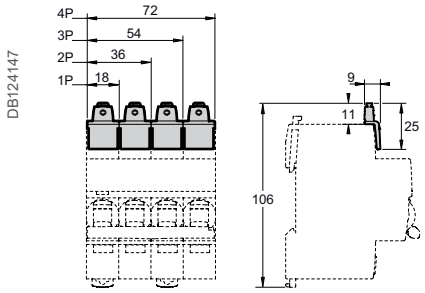
Rotary handle



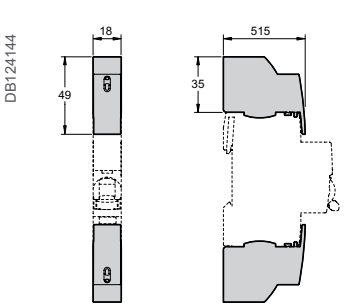
Spacer



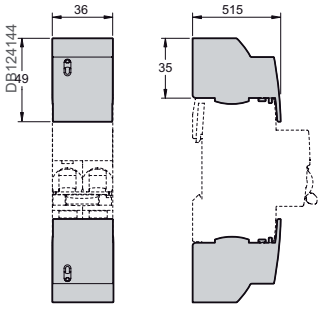
Screw shield 1P (A9A26982)



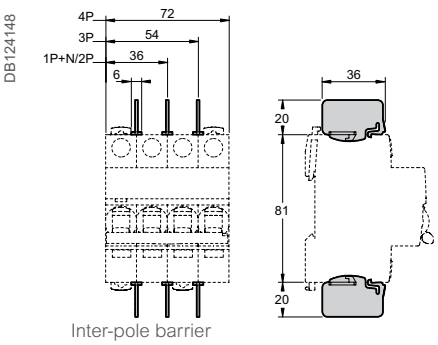
Screw shield 4P (A9A26981)



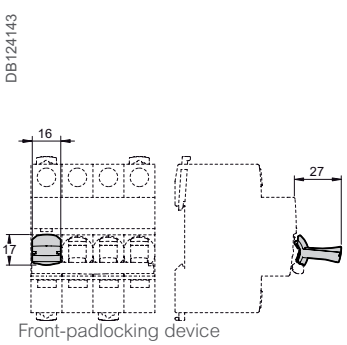
Terminal shield 1P



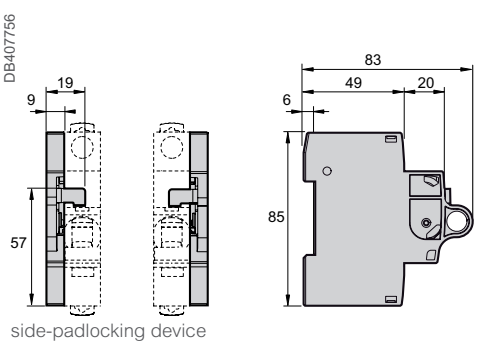
Terminal shield 2P



Inter-pole barrier



Front-padlocking device



side-padlocking device

Acti9 Protection and Isolation

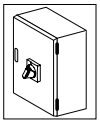
Accessories

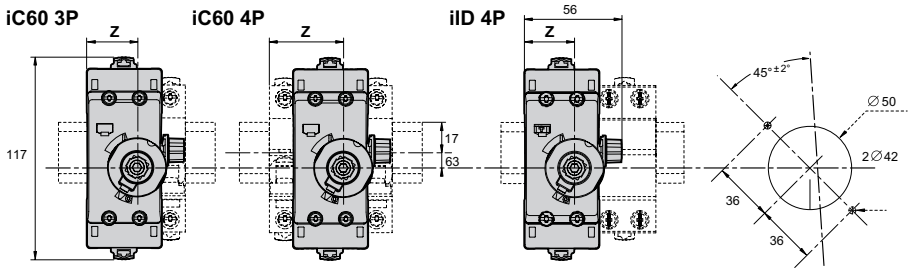
iC60, iSW (cont.)

Rotary handle installation

Dimensions (mm)

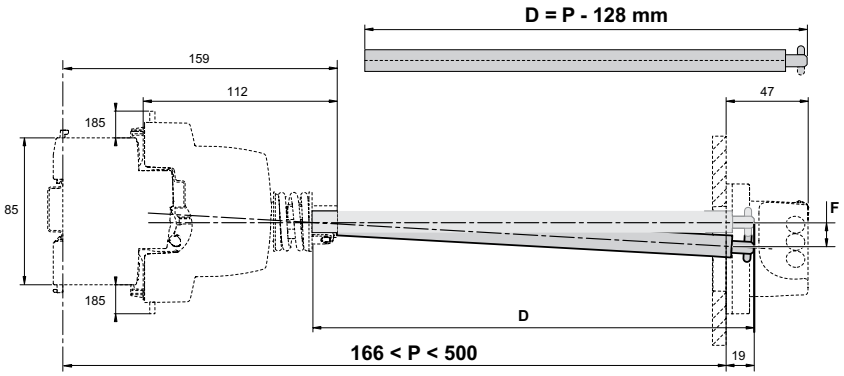
DB124142

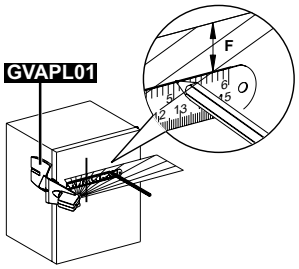




iC60	Z (mm)
2P	25
2P + Vigi	25
3P	25
3P + Vigi	43
4P	43
4P + Vigi	43

iID	Z (mm)
2P	25
4P	25

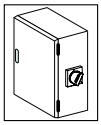


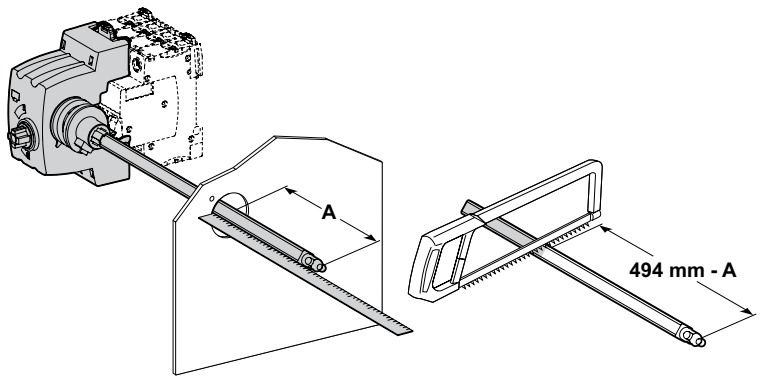


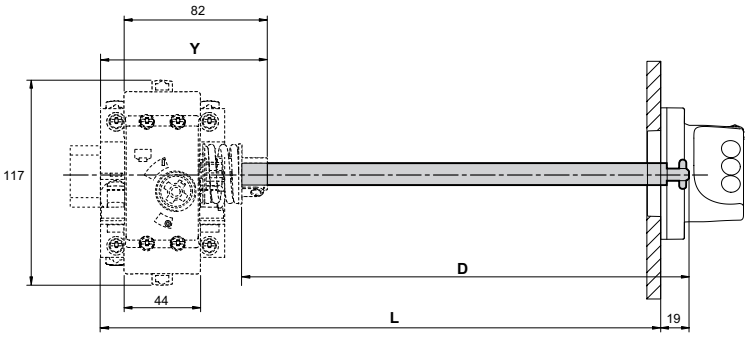
P (mm)	F (mm)
300	5
500	11

Rotary handle: front mounted control

DB124141

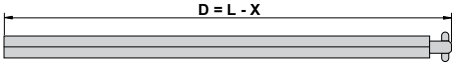






iC60	X (mm)	Y (mm)
2P	44	76
2P + Vigi	44	76
3P	44	76
3P + Vigi	62	94
4P	62	94
4P + Vigi	62	94

iID/iSW-NA	X (mm)	Y (mm)
2P	44	76
4P	44	76



Rotary handle: side mounted control

Accessories

C120, C60H-DC, iSW devices

Accessories

Installation

Rotary handle

PB100138_SE-24

PB100137_SE-24

Padlocking device

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

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	27145	26970
Set of	**1**	**1**	**1**	**4**	**2**
Suitable for the following devices:					
C60	■ 2P, 3P, 4P			-	■
C120	■ 2P, 3P, 4P			■	-
C120 + Vigi C120	■ 2P, 3P, 4P			■	-
DPN, DPN Vigi	■ 3P, 4P			-	■
C60H-DC	■ 2P			-	■
ID	–			-	■
iSW	■ iSW u at 4 modules of 9 mm			-	■
				-	■

Acti9 Protection and Isolation

Accessories

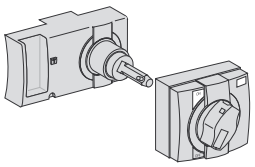
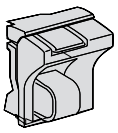
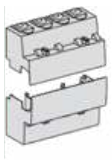
C120, C60H-DC, iSW devices (cont.)

C

Accessories	Safety				
	Screw shield		Terminal shield		
	 056870_SE-33	 PB124114	 056869_SE-38		
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		
			■ 1P	■ 1P ■ 3P: 1 x 26975 + 1 x 26976 ■ 4P: 2 x 26976	■ 2P
Cat. numbers	18527	26981	18526	26975	26976
Set of	**2 (4P dividable)**		**2 (for upstream/downstream terminal)**		
Suitable for the following devices:					
C120	■	–	■	–	–
Vigi C120	–	–	–	–	–
C60H-DC	–	■	–	■	■
iSW	–	■ iSW 40 to 125 A	–	■ iSW 40 to 125 A	

Accessories

NG125 Devices

Accessories	Mounting		
	Rotary handle	**Padlocking device**	**Circuit breaker terminal shield**
	DB123603 	DB123605 	DB123607 
Function			
	Extended rotary handle • Degree of protection: rotary button IP55 • Front installation • Prevents door opening when the circuit breaker is in position O • Keeps disconnection • Padlocking possible when the device is in position O • Padlock diameter: 3 to 6 mm	**Padlocking:** • In position I or O of NG125 1P or 2P circuit breakers • In position I of NG125 3P or 4P circuit breakers or switches • Padlock: dia. 5 to 8 mm (not supplied) *Note: NG125 3P/4P circuit breakers and switches are provided with padlocking in position O (disconnected) as original equipment.*	• Prevents any contact with the terminals • Installation: mounted upstream • and downstream of circuit breaker • phase-to-phase insulation • voltage Ui = 1000 V • Protection against direct contact • IP40 • Class II in steel or plastic • enclosures (up to 440 V) • Sealing possible • (max. diameter: 1.2 mm)
			1P / 2P / 3P / 4P
Catalogue numbers	19088 Extended standard black	19090	19080 / 19081 / 19082 / 19083
Pack of	**1**	**1**	**Set of 1 upstream / 1 downstream**
Suitable for the following devices:			
NG125	■ 3P, 4P	■	■

Acti9 Protection and Isolation

Auxiliaries

Electrical auxiliaries for iC60, iID, iDPN Vigi, iDPN VigiARC

- The electrical auxiliaries are combined with iC60, iDPN Vigi circuit breakers, iID, iDPN VigiARC
- 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 Acti9 Smartlink or a programmable logic controller via the TI24 interface (24 V DC).
- The low current auxiliaries iOF, iSD, iSD+OF (2 to 100 mA) are especially dedicated to low current application to report status information to a Programmable Logic Controller (Industry) or a Controller (Building/BMS).

Tripping auxiliaries:

IEC 60947-1 / AS/NZS 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.

IEC 63052

- iMSU: overvoltage release.

Indication auxiliaries:

AS/NZS IEC 60947-5-1

- iOF: open/close contact 0.1 - 6A
- iSD: fault indicating contact 0.1 - 6A
- iOF/SD+OF: open/close contact and switchable OF or SD contact 0.1 - 6A
- iOF+SD24: open/close contact OF and default indicating contact SD with Ti24 interface.

AS/NZS IEC 60947-5-4

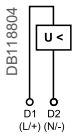
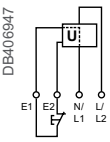
- iOF+SD24: open/close contact OF and default indicating contact SD with Ti24 interface.

DB404939

DB404940

Auxiliaries

Electrical auxiliaries for iC60, iID, iDPN Vigi, iDPN VigiARC (cont.)

Auxiliaries	Tripping		
	iMN	iMNs	iMNx
Type	**Undervoltage release**		
	Instantaneous	**Delayed**	**Independent of the supply voltage**
	PB104477-35 	PB104478-35 	PB104480-35 
Function			
	• Trips the device with which it is combined when its input voltage decreases (between 70 % and 35 % Un). • Prevents device closing again until its input voltage is restored		• Tripping of the associated device by opening of the control circuit • (e.g. push-button, dry contact)
		• Not tripping on transient voltage dip (up to 0.2 s)	• A drop in the supply voltage does not trip the associated device • b A locking push-button control allows the circuit protected (e.g. machine control) to be placed in safety configuration
Wiring Diagrams			
	DB118804 		DB406947 
Use			
	• Emergency stoppage by normally closed push button • Improve the safety of power supply circuits for several machines by preventing "uncontrolled" restarting		• Emergency stoppage with fail-safe • principle • Insensitive to control circuit voltage variation to increase service continuity **Important: Before any servicing operation switch off the mains power supply (voltage presence at terminals E1/E2)**

Catalogue numbers	A9A26960	A9A26961	A9A26963	A9A26969	A9A26971
iC60, iID, iDPN Vigi	■	■	■	■	■
iC60 RCBO	■	■	■	■	■
Technical specifications					
Rated voltage (Ue)	220…240 V AC	48 V AC	220…240 V AC	220…240 V AC	380…415 V AC
	–	48 V CC	–	–	
Standardised operating and non-response to voltage times (Ua)*	–	–	–	–	–
Maximum operating time	–	–	–	–	–
Minimum non-response time	–	–	–	–	–
Operating frequency	50/60 Hz		50/60 Hz	50/60 Hz	
Red mechanical indicator	On front face		On front face	On front face	
Test function	–		–	–	
Width in 9 mm modules	2		2	2	
Operating current	–		–	–	
Number of contacts	–		–	–	
Operating temperature	-35…+70°C		-35…+70°C	-35…+70°C	
Storage temperature	-40…+85°C		-40…+85°C	-40…+85°C	

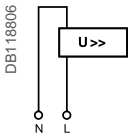
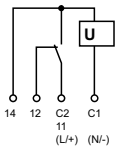
*(Ua)
Voltages measured between the phase and the neutral conductor, at which the iMSU device must control the associated protective device.

Acti9 Protection and Isolation

Auxiliaries

Electrical auxiliaries for iC60, iID, iDPN Vigi, iDPN VigiARC (cont.)

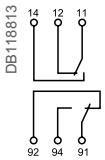
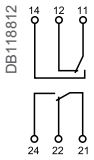
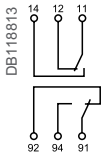
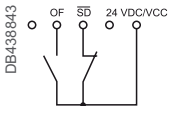
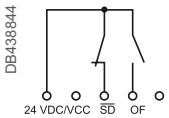
C

Auxiliaries	Tripping	
	iMSU	iMX+OF
Type	Overvoltage release	Shunt release
		With Open/Close auxiliary contact
	PB104479-35 	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 associated device when it is powered on
		• Includes an open/close contact (OF) to indicate the "open" or "closed" position of the device
Wiring Diagrams		
	DB118806 	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 • Remote indication of the position of the associated device

Catalogue numbers	A9A26500					A9A26946	A9A26947	A9A26948
iC60, iID, iDPN Vigi	■					■	■	■
iC60 RCBO	■					■	■	■
Technical specifications								
	230 V AC					100…415 V AC	48 V AC	12…24 V AC
	–					110…130 V DC	48 V DC	12…24 V DC
	255 V AC	275 V AC	300 V AC	350 V AC	400 V AC	–	–	–
	No tripping	15 s	5 s	0.75 s	0.20 s	–	–	–
		3 s	1 s	0.25 s	0.07 s	–	–	–
	50/60 Hz					50/60 Hz		
	On front face					On front face		
	–					–		
	2					2		
	–					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
	–					1 NO/NC		
	-35…+70°C					-35…+70°C		
	-40…+85°C					-40…+85°C		

Auxiliaries

Electrical auxiliaries for iC60, iID, iDPN Vigi, iDPN VigiARC (cont.)

Auxiliaries	Indication		
	iSD+OF	iOF/SD+OF	iOF+SD24
Type	Open/close and fault indicating contact	Double open/close or fault indicating contact	Double open/close and fault indicating contact
	 A9A26919		
Function			
	• The iSD+OF auxiliary is a 2-in-1 product: it provides an OF+SD contact • 2 contacts (2 NO/NC) can report the signalling information of the associated device to a Programmable Logic Controller (Industry) or a Controller (Building/BMS)	• The iOF/SD+OF auxiliary is a 2-in-1 product: via a mechanical selector switch, it provides 2 contacts, OF+SD or OF+OF	• 2 contacts (1 NO + 1 NC) can report the signalling information of the associated device to the Acti9 Smartlink, a Programmable Logic Controller (Industry) or a Controller (Building/BMS): • electrical fault • actuation of the tripping auxiliary • "Open" or "Closed" position of the associated device
Wiring Diagrams			
	 DB118813 SD+OF	 DB118812 OF+OF  DB118813 SD+OF	 DB438843  DB438844
Utilization			
	• Remote indication of position and tripping upon a fault of the associated device	• Remote indication of position and/or tripping upon a fault of the associated device	• Remote indication of position and tripping upon a fault of the associated device

Catalogue numbers		A9A26919	A9A26909		A9A26897	A9A26898
iC60, iID, iDPN Vigi, iDPN VigiARC		■	■		■	■
iC60, iID double terminals		■	■		■	■
iC60 RCBO, iKQE RCBO		■	■		■	-
Technical specifications						
Rated voltage (Ue)	V AC	24…250	24…415		-	-
	V DC	24…220	24…130		24	24
Operating frequency	Hz	50/60	50/60		-	-
Red mechanical indicator		On front face	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	24 V DC	2 mA to 100 mA	100 mA to 6 A		2 mA to 100 mA	2 mA to 100 mA
	48 V DC	2 mA to 100 mA	100 mA to 2 A		-	-
	60 V DC	2 mA to 100 mA	100 mA to 1.5 A		-	-
	130 V DC	2 mA to 100 mA	100 mA to 1 A		-	-
	220 V DC	2 mA to 100 mA	-		-	-
	24...240 V AC	2 mA to 100 mA	100 mA to 6 A		-	-
	415 V AC	-	100 mA to 3 A		-	-
Number of contacts		1 NO (OF) / NC 1 NO / NC (SD)	1 NO (OF) / NC 1 NO (OF) / NC	1 NO (OF) / NC 1 NO / NC (SD)	1 NO (OF) + 1 NC (SD)	
Connections - terminals		Screw clamp	Screw clamp		Spring-loaded Ti24 (sold separately)	
Wiring position		Top and bottom	Top and bottom		Top	Bottom
Busbar compatibility		-	-		Bottom	Top
Operating temperature	°C	-25…+70	-35…+70		-25…+70	-25…+70
Storage temperature	°C	-40…+85	-40…+85		-40…+85	-40…+85

Acti9 Protection and Isolation

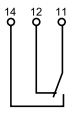
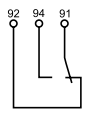
Auxiliaries

Electrical auxiliaries for iC60, iID, iDPN Vigi, iDPN VigiARC

C

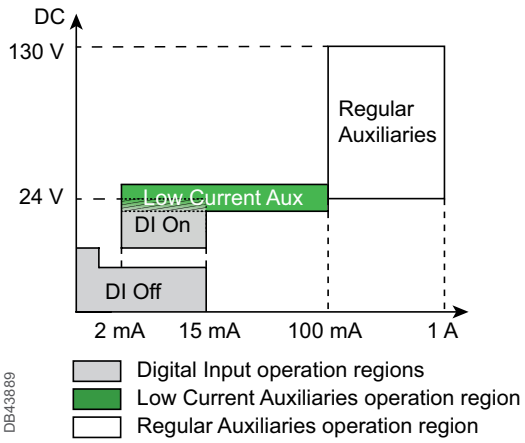
Auxiliaries	Indication			
	iOF		iSD	
Type	Open/closed auxiliary contact		Fault indicating contact	
	A9A26914 	A9A26904 	A9A26917 	A9A26907 
Function				

	• Changeover contact indicates "open" or "closed" position of the device
	• Low current auxiliary (2 to 100 mA): 1 contact (1 NO/NC) can report the signalling information to a Programmable Logic Controller (Industry) or a Controller (Building/BMS)
			• Changeover contact indicates position of the device upon:
			  • electrical fault
			  • action on tripping auxiliary
			• Same indication as VISI-TRIP
			• Low current auxiliary (2 to 100 mA): 1 contact (1 NO/NC) can report the signalling information to a Programmable Logic Controller (Industry) or a Controller (Building/BMS)	

Wiring Diagrams				
	DB438851 		DB438852 	
Utilization				
	• Remote indication of the position of the associated device		• Remote indication of tripping upon a fault of the associated device	
Catalogue numbers	**A9A26914**	**A9A26904**	**A9A26917**	**A9A26907**
iC60, iID, iDPN Vigi, iDPN VigiARC	■	■	■	■
iC60, iID double terminals	–	-	-	-
iC60 RCBO, iKQE RCBO	■	■	■	■
Technical specifications				
Rated voltage (Ue) V AC	24…250	24…415	24…250	24…415
Rated voltage (Ue) V DC	24…220	24…130	24…220	24…130
Operating frequency Hz	50/60	50/60	50/60	50/60
Red mechanical indicator	–	–	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 24 V DC	2 mA to 100 mA	100 mA to 6 A	2 mA to 100 mA	100 mA to 6 A
Operating current 48 V DC	2 mA to 100 mA	100 mA to 2 A	2 mA to 100 mA	100 mA to 2 A
Operating current 60 V DC	2 mA to 100 mA	100 mA to 1.5 A	2 mA to 100 mA	100 mA to 1.5 A
Operating current 130 V DC	2 mA to 100 mA	100 mA to 1 A	2 mA to 100 mA	100 mA to 1 A
Operating current 220 V DC	2 mA to 100 mA	-	2 mA to 100 mA	-
Operating current 24...240 V AC	2 mA to 100 mA	100 mA to 6 A	2 mA to 100 mA	100 mA to 6 A
Operating current 415 V AC	-	100 mA to 3 A	-	100 mA to 3 A
Number of contacts	1 NO (OF) / NC	1 NO (OF) / NC	1 NO / NC (SD)	1 NO / NC (SD)
Connections - terminals	Screw clamp	Screw clamp	Screw clamp	Screw clamp
Wiring position	Bottom	Bottom	Bottom	Bottom
Busbar compatibility	Top	Top	Top	Top
Operating temperature °C	-25…+70	-35…+70	-25…+70	-35…+70
Storage temperature °C	-40…+85	-40…+85	-40…+85	-40…+85

Auxiliaries

Electrical auxiliaries for iC60, iID, iDPN Vigi, iDPN VigiARC (cont.)

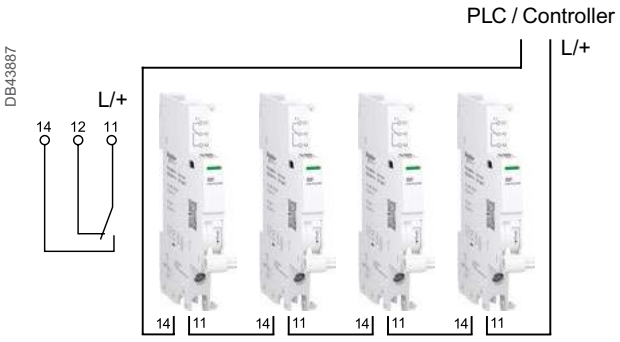


How to generate summary data using OF or SD contacts of low current electrical auxiliaries

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

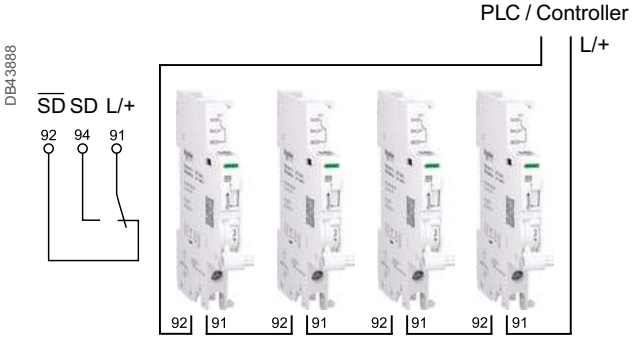
OF contacts within a daisy chain

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



SD contacts within a daisy chain

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

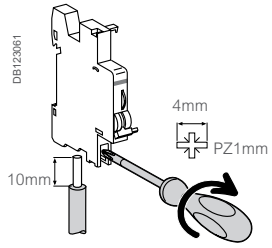


Acti9 Protection and Isolation

Auxiliaries

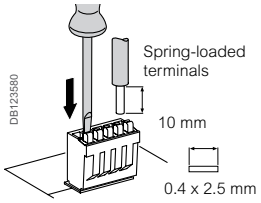
Electrical auxiliaries for iC60, iID, iDPN Vigi, iDPN VigiARC (cont.)

Connection



Type	Tightening torque	Copper cables		Multi-cables	
		Rigid	Flexible	Rigid	Cables with ferrule
					
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



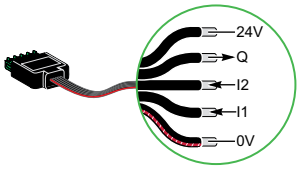
Type	Catalogue numbers	Copper cables	
		Rigid	Flexible
			
Ti24 interface	A9XC2412	1 x 0.5 to 1.5 mm²	1 x 0.5 to 1.5 mm²

Ti24 prefabricated cables connection

PB107754-10

PB107755-14

DB404941

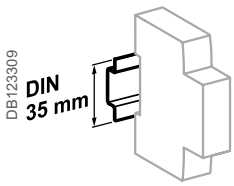


PB107756-7

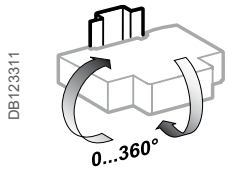
Type	Catalogue numbers	Length
Connection for Acti9 Smartlink		
6 prefabricated	A9XCAM06	160 mm
	A9XCAH06	450 mm
	A9XCAL06	870 mm
Connection for PLC type terminals		
6 long prefabricated on a single side	A9XCAU06	870 mm
12 connectors, 5-pins (Ti24)	A9XC2412	-

Auxiliaries

Electrical auxiliaries for iC60, iID, iDPN Vigi, iDPN VigiARC (cont.)



Clip on DIN rail 35 mm.



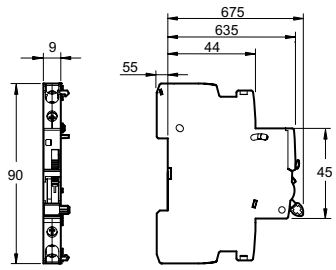
Indifferent position of installation.

Technical data

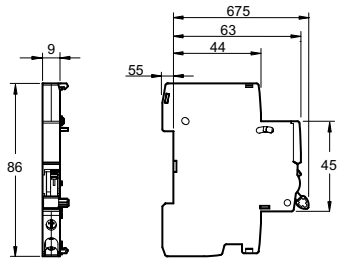
Weight (g)

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

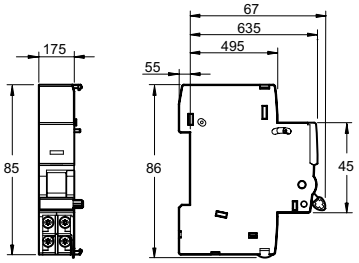
Dimensions (mm)



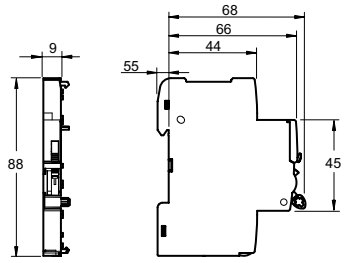
iOF/SD+OF



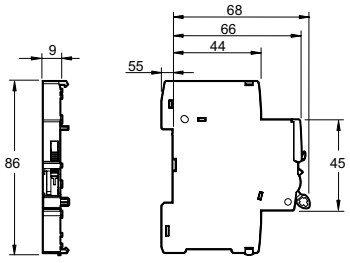
iOF, iSD



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



iOF+SD24 (A9A26897)



iOF+SD24 (A9A26898)

Acti9 Protection and Isolation

Auxiliaries

Electrical auxiliaries for C120, C60H-DC

- 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 low current auxiliaries OF, SD (2 to 100 mA) are especially dedicated to low current application to report status information to a Programmable Logic Controller (Industry) or a Controller (Building/BMS).

Tripping auxiliaries:

AS/NZS IEC 60947-1

- MN: undervoltage release
- MNs: delayed undervoltage release
- MNx: undervoltage release, independant from supply voltage
- MX: shunt release
- MX+OF: shunt release with open/close contact.

IEC 63052

- MSU: overvoltage release.

Indication auxiliaries:

AS/NZS IEC 60947-5-1

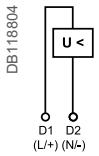
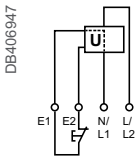
- OF.S: open/closed contact for ID
- OF: open/closed contact
- SD: fault indicating contact
- OF+SD/OF: choice of open/closed contact and OF or SD contact via the selector switch
- OF+SD24: open/close contact OF and cfault indicating contact SD with Ti24 interface.

AS/NZS IEC 60947-5-4

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

Auxiliaries

Electrical auxiliaries for C120, C60H-DC (cont.)

Auxiliaries	Tripping		
	MN	MNs	MNx
Type	**Undervoltage release**		
	Instantaneous	**Delayed**	**Independent of the supply voltage**
			
Function			
	• Causes the device with which it is associated to trip when its input voltage decreases (between 70 % and 35 % of Un). Prevents the device from closing until its input voltage has been restored	• No tripping in the event of transient voltage dips (up to 0.2 s)	• Tripping of the associated device by opening of the control circuit (e.g. push-button, dry contact) • 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			
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)		–			–	–	

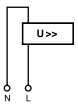
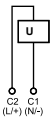
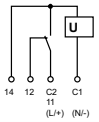
(1) For C120, DPN.
*(Ua): Voltages measured between the phase and the neutral conductor, at which the MSU device must control the associated protective device.

Acti9 Protection and Isolation

Auxiliaries

Electrical auxiliaries for C120, C60H-DC (cont.)

C

Auxiliaries	Tripping											
	MSU					MX			MX+OF			
	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**	
	■					■	■	■	■	■	■	
	–					■	■	■	■	■	■	
Technical specifications												
	230					100…415	48	12…24	100…415	48	12…24	
	–					110…130	48	12…24	110…130	48	12…24	
	255 V AC	275 V AC	300 V AC	350 V AC	400 V AC	–	–	–	–	–	–	
	No tripping	15 s	5 s	0.75 s	0.20 s	–	–	–	–	–	–	
		3 s	1 s	0.25 s	0.07 s	–	–	–	–	–	–	
	50/60					50/60			50/60			
	On front face					On front face			On front face			
	–					–			–			
	2					2			2			
	–					–			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		
	–					–			1 NO/NC			
	-25…+50					-25…+50			-25…+50			
	-40…+85					-40…+85			-40…+85			
Standards												
	■					■			■			
	–					–			–			
	–					–			–			
	–					–			–			

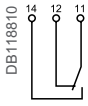
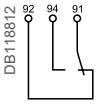
(1) For C120, DPN

Auxiliaries

Electrical auxiliaries for C120, C60H-DC, C60PV-DC (cont.)

Auxiliaries	Indication			
	OF	OF	SD	
Type	**Open/closed auxiliary contact**		**Fault indicating contact**	
	 A9N26914	 A9A26904	 A9N26917	 A9N2690
Function				

	• Changeover contact indicates the "open" or "closed" position of the device
	• Low current auxiliary (2 to 100 mA): 1 contact (1 NO/NC) can report the signalling information to a Programmable Logic Controller (Industry) or a Controller (Building/BMS)
			• Changeover contact indicates the position of the device upon:
			  • electrical fault
			  • action on tripping auxiliary
			• Low current auxiliary (2 to 100 mA): 1 contact (1 NO/NC) can report the signalling information to a pProgrammable Logic Controller (Industry) or a Controller (Building/BMS)	

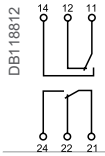
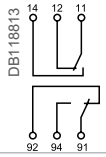
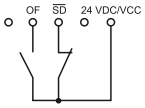
Wiring diagrams				
	 DB118810		 DB118812	
Use				
	• Remote indication of the position of the associated device		• Remote fault tripping indication of the associated device	
Catalogue numbers	**A9N26914**	**A9N26904**	**A9N26917**	**A9N26907**
ID	■	■	■	■
C60, C120, DPN, DPN Vigi, C60H-DC, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC	■	■	■	■
Technical specifications				
Rated voltage (Ue)	24…250 V AC	24…415 V AC	24…250 V AC	24…415 V AC
	24…220 V DC	24…130 V DC	24…220 V DC	24…130 V DC
Operating frequency	50/60 Hz	50/60 Hz	50/60 Hz	50/60 Hz
Mechanical state indicator	–	-	On front face	On front face
Test function	On front face	On front face	On front face	On front face
Width in 9 mm modules	1	1	1	1
Operating current 24 V DC	2 mA to 100 mA	100 mA to 6 A	2 mA to 100 mA	100 mA to 6 A
48 V DC	2 mA to 100 mA	100 mA to 2 A	2 mA to 100 mA	100 mA to 2 A
60 V DC	2 mA to 100 mA	100 mA to 1.5 A	2 mA to 100 mA	100 mA to 1.5 A
130 V DC	2 mA to 100 mA	100 mA to 1 A	2 mA to 100 mA	100 mA to 1 A
220 V DC	2 mA to 100 mA	-	2 mA to 100 mA	-
24...240 V AC	2 mA to 100 mA	100 mA to 6 A	2 mA to 100 mA	100 mA to 6 A
415 V AC	-	100 mA to 3 A	-	100 mA to 3 A
Number of contacts	1 NO (OF) / NC	1 NO (OF) / NC	1 NO / NC (SD)	1 NO / NC (SD)
Connections - terminals	Screw clamp	Screw clamp	Screw clamp	Screw clamp
Wiring position	Bottom	Bottom	Bottom	Bottom
Busbar compatibility	Top	Top	Top	Top
Operating temperature	-25…+70°C	-25…+70°C	-25…+70°C	-25…+70°C
Storage temperature	-40…+85°C	-40…+85°C	-40…+85°C	-40…+85°C
Standards				
IEC/EN 60947-1	-	-	-	-
IEC/EN 60947-5-1	■	■	■	■
IEC/EN 60947-5-4	■	-	■	-
EN 60947-2	-	-	-	-
EN 62019-2(1)	■	■	■	■

(1) For C120, DPN.

Acti9 Protection and Isolation

Auxiliaries

Electrical auxiliaries for C120, C60H-DC, C60PV-DC (cont.)

Auxiliaries	Indication	
	OF+SD/OF	OF+SD24
Type	Double open/closed or fault indicating contact	Double open/close and fault indicating contact
	 A9N26909	 PB107760-35
Function		
	• The OF+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 Acti9 Smartlink, a Programmable Logic Controller (Industry) or a Controller (Building/BMS): • electrical fault • actuation of the tripping auxiliary • "Open" or "Closed" position of the associated device
Wiring diagrams		
	 DB118812 OF+OF  DB118813 OF+SD	 DB438843
Use		
	• Remote indication of position and/or tripping upon a fault of the associated device	• Remote indication of position and tripping upon a fault of the associated breaker
Catalogue numbers	**A9N26914**	**A9N26917**
ID	■	■
C60, C120, DPN, DPN Vigi, C60H-DC, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC	■	■
Technical specifications		
Rated voltage (Ue)	24…415 V AC	-
	24…130 V DC	24 V DC
Operating frequency	50/60 Hz	-
Mechanical state indicator	On front face	On front face
Test function	On front face	On toggle
Width in 9 mm modules	1	1
Operating current 24 V DC	100 mA to 6 A	2 mA to 100 mA
Operating current 48 V DC	100 mA to 2 A	-
Operating current 60 V DC	100 mA to 1.5 A	-
Operating current 130 V DC	100 mA to 1 A	-
Operating current 220 V DC	-	-
Operating current 24...240 V AC	100 mA to 6 A	-
Operating current 415 V AC	100 mA to 3 A	-
Number of contacts	1 NO (OF) / NC 1 NO / NC (SD)	1 NO (OF) + 1 NC (SD)
Connections - terminals	Screw clamp	Spring-loaded Ti24 (sold separately)
Wiring position	Top and bottom	Top
Busbar compatibility	-	Bottom
Operating temperature	-25…+50°C	-25…+70°C
Storage temperature	-40…+85°C	-40…+85°C
Standards		
IEC/EN 60947-1	-	-
IEC/EN 60947-5-1	■	■
IEC/EN 60947-5-4	-	■
EN 60947-2	-	-
EN 62019-2(1)	■	-

(1) For C120, DPN.

Acti9 Control and signalling

General Overview & Reference Numbers

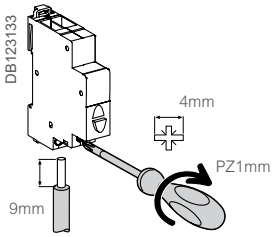
iPB Push-Buttons

IEC 60669-1, AS/NZS 60669.1 and AS/NZS IEC 60947-5-1

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

iPB push-buttons											
Type		**Single**				**Double**		**Single + indicator light**			
		PB105259-40				PB105260-40		PB105261-40			
Diagram		1 NC	1 NO	1 NO + 1 NC		1 NO / 1 NC	1 NO / 1	1 NO	1 NC	1 NO	1 NC
Push-button 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			

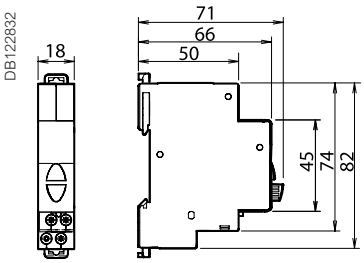
Connection



Tightening torque	Copper cables	
	Rigid	Flexible or with ferrule
	DB122945	DB122946
1 N.m	0.5 mm^2 min.	0.5 mm^2 min.
	2 x 2.5 mm^2 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	
Voltage rating (Ue)	250 V AC
Current rating (Ie)	20 A
Additional characteristics	
Endurance (O-C)	30,000 operations AC22 (cos cp = 0.8)
Operating temperature	-35°C...70°C
Storage temperature	-40°C...80°C
Tropicalisation	Treatment 2 (relative humidity 95 % at 55°C)
LED indicator light	Consumption: 0.3 W
	Service life: 100,000 hours of constant lighting efficiency
	Maintenance-free indicator light (non-interchangeable LEDs)

Acti9 Control and signalling

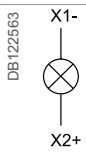
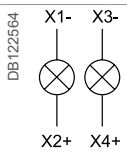
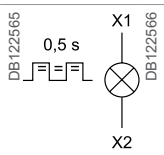
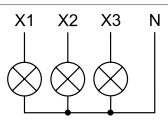
General overview

iIL indicator lights

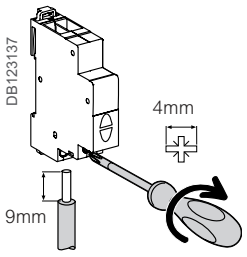
AS/NZS IEC 60947-5-1

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

C

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	-	-	-	-
110...230 V AC	A9E18320	A9E18321	A9E18322	A9E18323	A9E18324	A9E18325	-	-	-
110...130 V DC									
110...230 V AC	-	-	-	-	-	-	-	A9E18326	-
230...400 V AC (3 phases)	-	-	-	-	-	-	-	-	A9E18327
Width in 9 mm modules	2					2		2	2

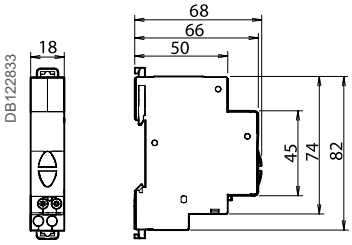
Connection



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

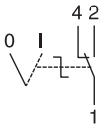
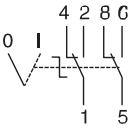
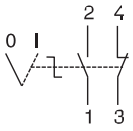
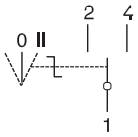
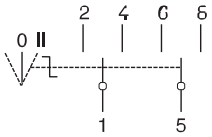
Main characteristics	
Pollution degree	3
Power circuit	
Operating frequency	50...60 Hz
Flashing frequency	2 Hz
Additional characteristics	
Operating temperature	-35°C... +70°C
Storage temperature	-40°C... +80°C
Tropicalization	Treatment 2 (relative humidity 95 % at 55°C)
LED indicator light	Consumption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

General Overview & Reference Numbers

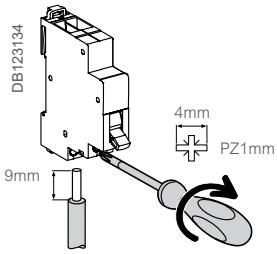
iSSW Linear Switches

IEC 60669-1, AS/NZS 60669.1 and AS/NZS IEC 60947-5-1

- iSSW linear switches are used for the manual control of electric circuits

iSSW linear switches					
Type	**2 positions**			**3 positions**	
	PB105262-40 			PB105263-40 	
Contact	1 changeover switch	2 changeover switches	1 NO + 1NC	1 changeover switch	2 changeover switches
Diagram					
Cat. no.	**A9E18070**	**A9E18071**	**A9E18072**	**A9E18073**	**A9E18074**
Width in 9 mm modules	2	4	2	2	4

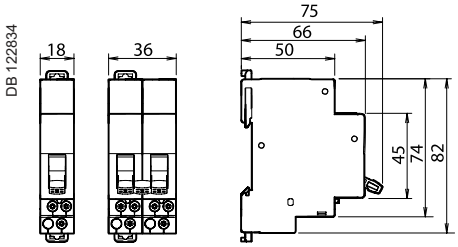
Connection



Tightening torque	Copper cables	
	Rigid	Flexible or with ferrule
		
1 N.m	0.5 mm^2 min.	0.5 mm^2 min.
	2 x 2.5 mm^2 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	
Voltage rating (Ue)	250 V AC
Current rating (Ie)	20 A
Additional characteristics	
Endurance (O-C)	30,000 operations AC22 (cos cp = 0.8)
Operating temperature	-20°C...50°C
Storage temperature	-40°C...70°C
Tropicalisation	Treatment 2 (relative humidity 95 % at 55°C)

Acti9 Control and signalling

General Overview

iCT contactors

IEC 61095

As per the above standards:

C

The breadth of the Acti9 iCT contactor range satisfies most application cases.
Acti9 iCT contactors can be combined with auxiliary control, protection and indication functions.

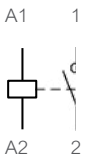
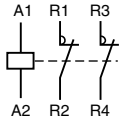
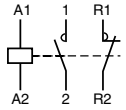
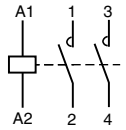
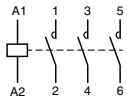
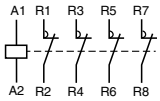
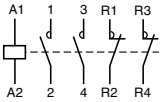
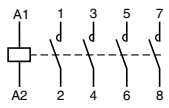
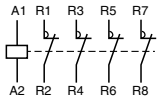
- Acti9 iCT contactors can be used to remote control applications in alternating current:
  - lighting, heating, ventilation, roller blinds, sanitary hot water,
  - mechanical ventilation systems, etc,
  - load-shedding of non-priority circuits.

• Consistent with the entire Acti9 offer and with all types of lighting

Reference Numbers

iCT contactors (cont.)

Acti9 iCT contactors - 50 Hz

Type						Width in 9 mm modules
1P	**Rating (In) AC7a**	**AC7b**	**Control voltage (V AC) (50 Hz)**	**Contact**		
DB103373-5 	25 A	8.5 A	230…240	1NO	A9C20731	2
2P						
DB122915 	16 A	6 A	24	2NO	A9C22112	2
			230...240	2NO	A9C22712	2
			230...240	1NO+1NC	A9C22715	2
	20 A	-	230...240	2NO	A9C22722	2
DB103377-11 	25 A	8.5 A	24	2NO	A9C20132	2
			230...240	2NO	A9C20732	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
DB103375-10 	100 A (*)	-	220...240	2NO	A9C20882	6
3P						
DB103378-14 	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						
DB122916 	16 A	6 A	24	4NO	A9C22114	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
DB122917 	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
DB103381-18 			220...240	4NC	A9C20867	6
			220...240	2NO+2NC	A9C20868	6
	100 A (*)	-	220...240	4NO	A9C20884	12
DB122918 						

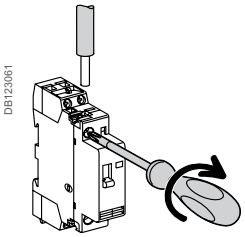
(*) do not use for lighting applications

Acti9 Control and signalling

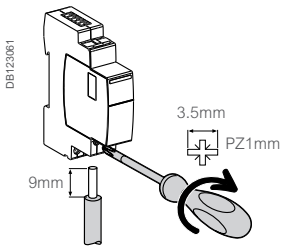
General Overview

iCT contactors (cont.)

Connection

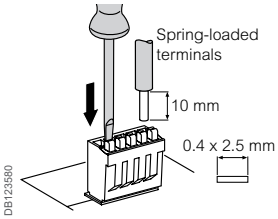


Type		Circuit	Rating	Length tripping	Tightening torque	Copper cables	
						Rigid	Flexible or with ferrule
							
Acti9 iCT	PZ1: 4 mm	Control	16 - 100 A	9 mm	0.8 N.m	1.5 to 2.5 mm: 2 x 1.5 mm²	1.5 to 2.5 mm: 2 x 1.5 mm²
		Power	16 and 25 A			1.5 to 6 mm²	1 to 4 mm²
	PZ2: 6 mm		40 A - 63 A	14 mm	3.5 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 1.5 mm²



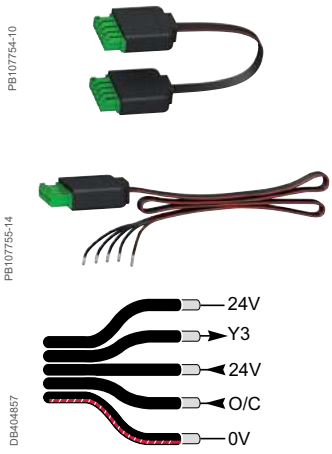
Type	Terminals	Tightening torque	Copper cables		
			Rigid		Flexible or with ferrule
					
iACT24	Power supply (N/P)	1 N.m	0.5 to 10 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 6 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 4 mm² 2 x 0.5 to 2 x 2.5 mm²
	Input (Y1/Y2)				

Ti24 connector connection



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

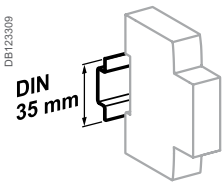


Type	Catalogue numbers	Length
Connection for Acti9 Smartlink		
6 short prefabricated	A9XCAS06	100 mm
6 medium-sized prefabricated	A9XCAM06	160 mm
6 long prefabricated	A9XCAL06	870 mm
Connection for PLC type terminals		
6 long prefabricated on a single side	A9XCAU06	870 mm

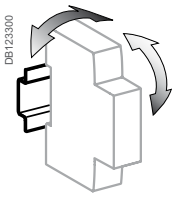
General Overview

iCT contactors (cont.)

Technical data

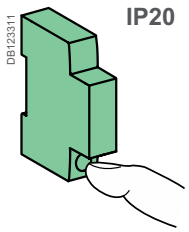


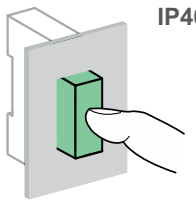
Clip on DIN rail 35 mm.



± 30° vertical.

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 operations per day		100
Additional characteristics		
Insulation voltage (Ui)		440 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
Storage temperature		-40°C to +70°C
Tropicalization (IEC 60068-2-30)		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		

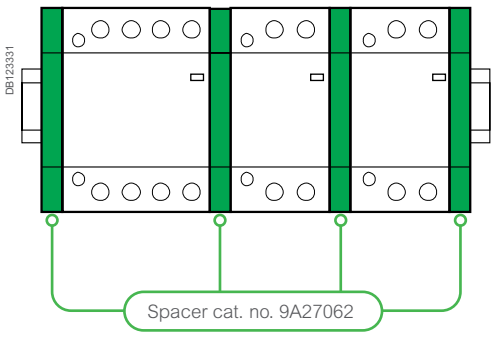




Temperature derating table

Acti9 iCT	Ambient temperature (°C)		
Rating (A)	≤ 40	50	60
63	63	59.8	50
40	40	38	32
25	25	23.8	20
16	16	15.2	12.8

If multiple iCTs side by side: install spacer and apply 0.8 coefficient on upper current values.



Acti9 Control and signalling

General Overview

iCT contactors (cont.)

Mounting accessories

1	9mm spacer	A9A27062

C

Auxiliaries

Indication

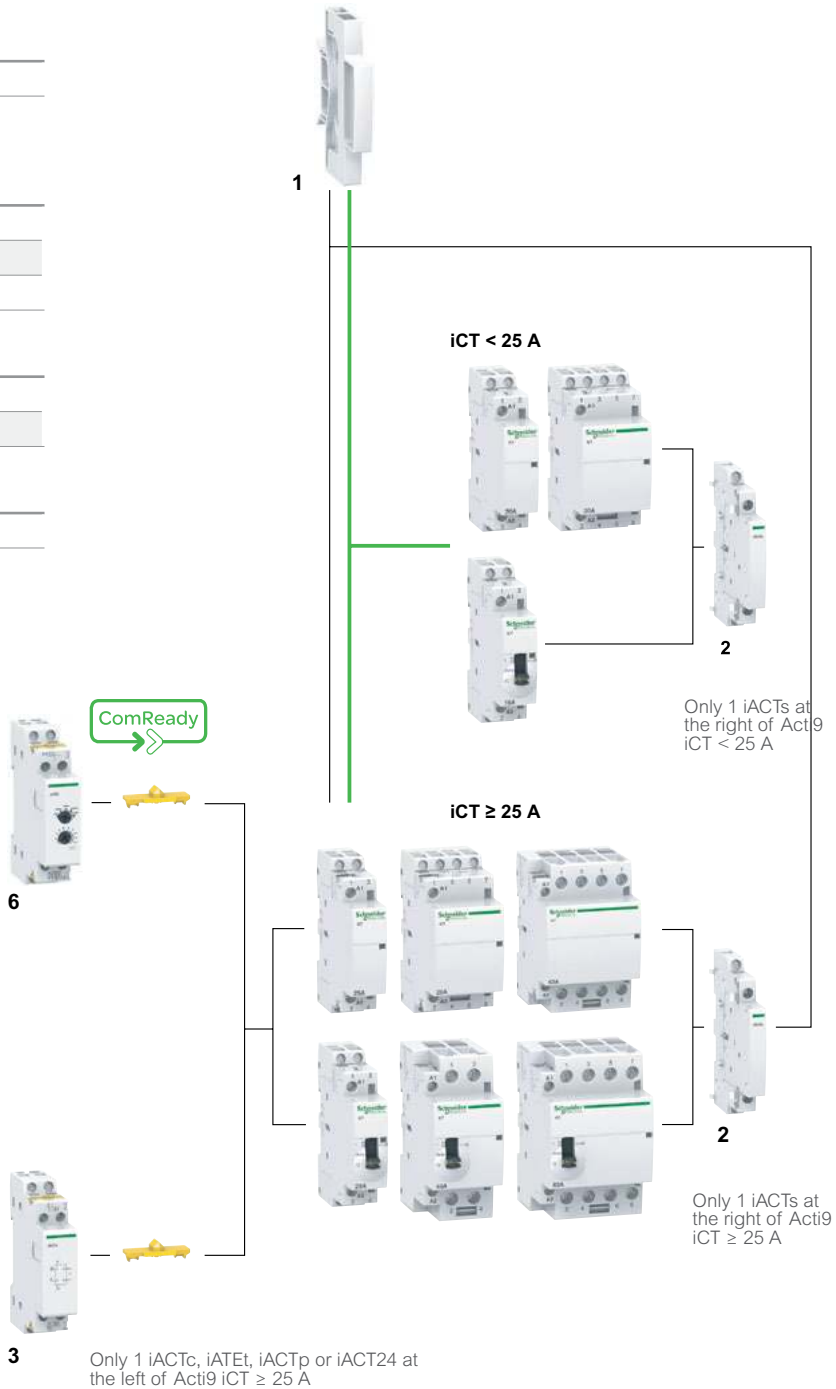
2	Acti9 iACTs	1NO + 1NC	A9C15914
		1CO	
		2NO	A9C15916

Double control inputs

3	Acti9 iACTs	230 V AC	A9C18308
		24 V AC	A9C18309

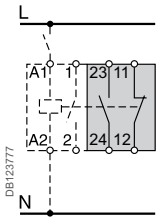
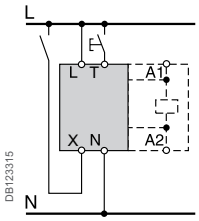
Control and indication

4	Acti9 iACTs	230 V AC	A9C15924



Auxiliaries

iCT contactors (cont.)

Auxiliaries	Indication	Control	
Type		**Impulse/latched control**	
	With Open/Close auxiliary contact		
	 PB106120-34	 PB106123-34	
Function			
	• This auxiliary allows indication of the "open" or "closed" position of the contactor power contacts	• 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	
Wiring diagrams			
	 DB123777	 DB123315	
Mounting			
	• Mounted to the right of Acti9 iCT	• Mounted to the left of Acti9 iCT by yellow clips (1)	
Utilization			
		• 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	
Catalog numbers		A9C15914	A9C18308	A9C18309
Technical specifications				
Control voltage (Ue)	V AC	24…240	230…240	24…48
	V DC	24…130	–	–
Control voltage frequency	Hz	50/60	50/60	50/60
Width in 9 mm modules		1	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	-	-
Operating temperature	°C	-5°C to +50°C	-5°C to +50°C	-5°C to +50°C
Storage temperature	°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
Consumption		-	OFF load: 3 VA Inrush (2): 2 VA Holding (2): 0.2 VA	OFF load: 3 VA Inrush (2): 2 VA Holding (2): 0.2 VA

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

Acti9 Control and signalling

General Overview

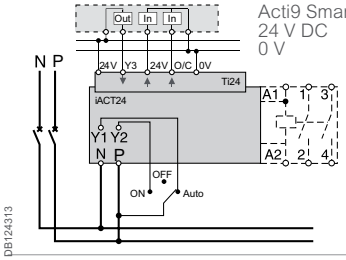
iCT contactors (cont.)

Auxiliaries	Control and indication
Type	**Control and indication 24 V DC**
	With Ti24 connector

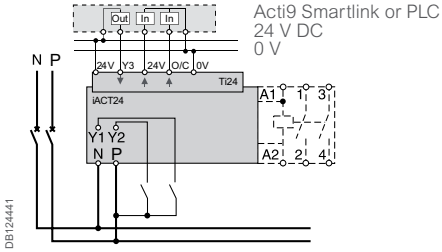
Function

- This auxiliary allows a contactor to be interfaced with the Acti9 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 Acti9 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 Acti9 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)

Catalog 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

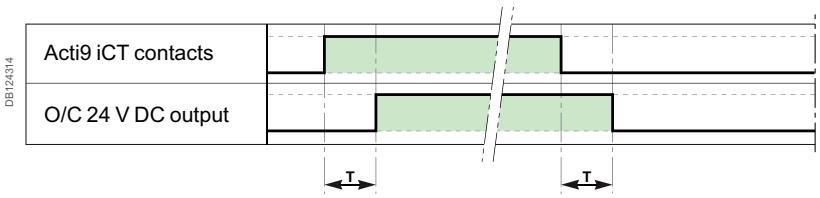
(1) Mechanical and electrical link.

Technical

iCT contactors (cont.)

Operation of the iACT24

O/C 24 V DC output

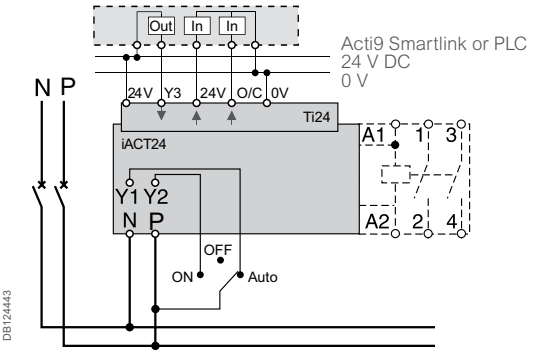


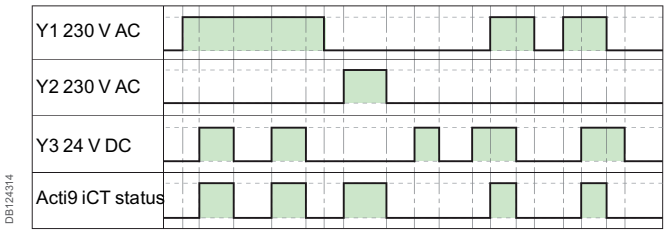
ComReady

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

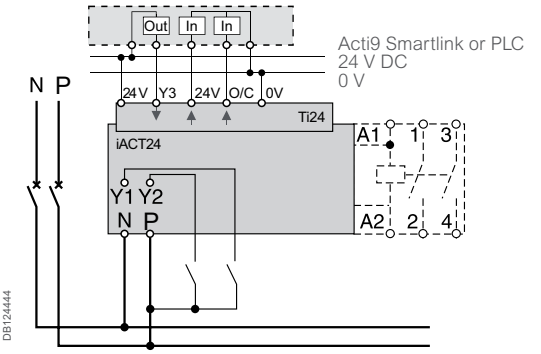
- Minimum duration of 230 V AC pulse (Y2): 200 ms.
- 30 iACT24 closing or opening actuations are authorized per minute:
  Minimum time delay between 2 actuations on the iACT4 via Y1,Y2, Y3 (closing or opening of the Acti9 iCT coil): 220 ms.
- 10 closing or opening actuations spaced 440 milliseconds apart are authorized following no loading of the iACT24 during a period of 20 seconds.

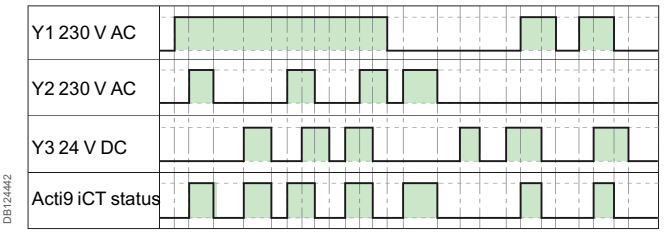
Wiring with exclusive selector
230 V AC control (Y1 = 0) / 24 V DC control (Y1 = 1)





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





Acti9 Control and signalling

Technical

iCT contactors (cont.)

Consumption

Acti9 iCT contactors - 50 Hz

C

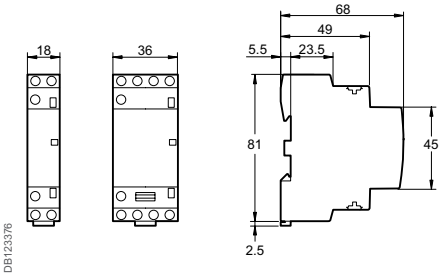
Type	Rating (In)		Control voltage (V AC) (50 Hz)	Consumption		Max.power	Reference
	AC7a	AC7b		Holding	Inrush		
1P							
	25 A	8.5 A	230…240	2.7 VA	9.2 VA	1.2 W	A9C20731
2P							
	16 A	5 A	24	3.8 VA	15 VA	1.3 W	A9C22112
			230...240	2.7 VA	9.2 VA	1.2 W	A9C22712
			230...240	2.7 VA	9.2 VA	1.2 W	A9C22715
	25 A	8.5 A	24	3.8 VA	15 VA	1.3 W	A9C20132
			230...240	2.7 VA	9.2 VA	1.2 W	A9C20732
			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							
	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
	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
	100 A (*)	-	220...240	13 VA	106 VA	4.2 W	A9C20884

(*) do not use for lighting applications

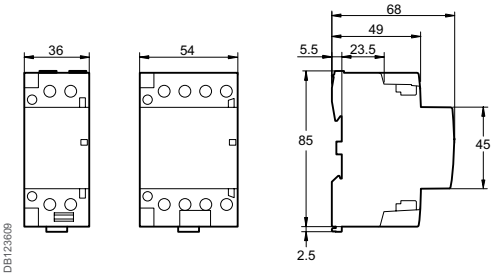
Technical

iCT contactors (cont.)

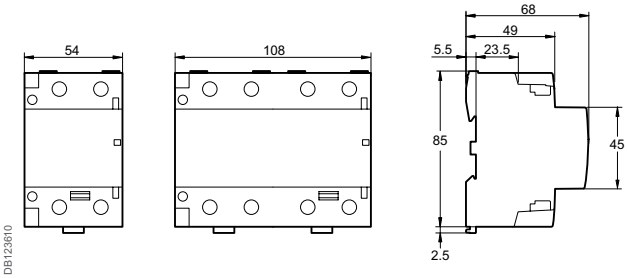
Dimensions (mm)



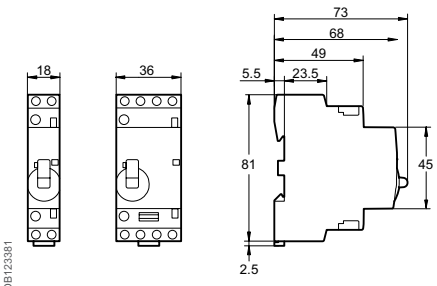
Acti9 iCT 16/25 A



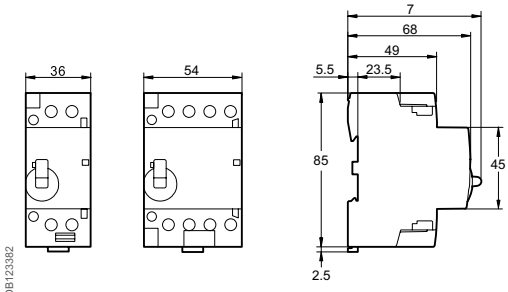
Acti9 iCT 40/63 A



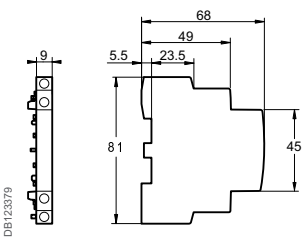
Acti9 iCT 100 A



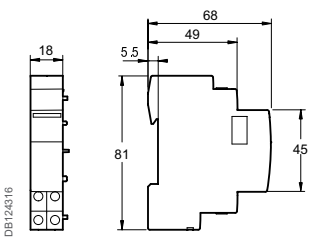
Acti9 iCT manual control contactor 16/25 A



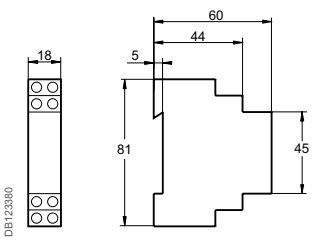
Acti9 iCT manual control contactor 40/63 A



iACTs



iACT24



iATEt
iACTp
iACTc

Acti9 Control and signalling

General overview

iCT+ high-performance contactors

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

PB107130-35

Standard 1P+N

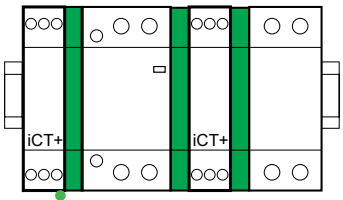
PB107131-35

1P+N with manual control

PB104483-35

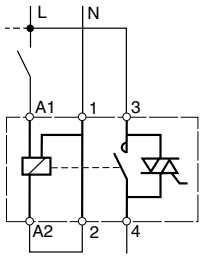
Spacer

DB124140



Spacer cat. no. A9N27062

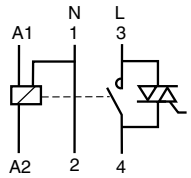
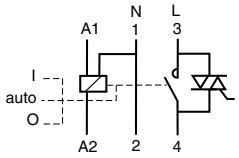
DB404607



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.

iCT+ 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)

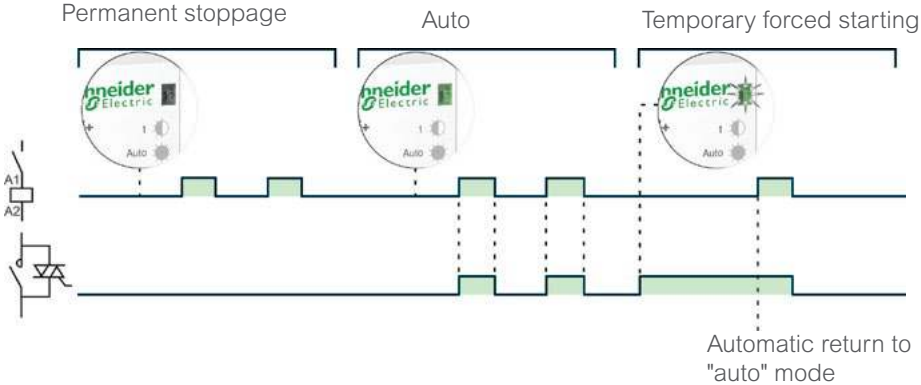
(1) Supplied with a 9 mm spacer (cat. no. A9N27062): to be used for mounting the iCT+ alongside a circuit breaker, contactor, impulse relay, etc., in order to maintain optimal operation.

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



General overview

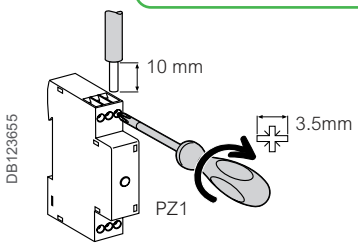
iCT+ high-performance contactors (cont.)

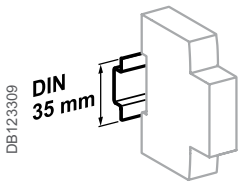
They combine the benefits of static switching and electromechanical technology: small size, little temperature rise.

- Silent
- Large number of switching operations

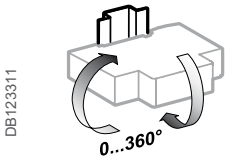
- Green indicator on the front panel:
  - fixed green: auto operation
  - flashing green: temporary forced starting
  - extinguished: permanent stoppage
- Operating mode selection push button:
  - auto operation
  - temporary forced starting*
  - permanent stoppage
- Orange indicator: output contact closed
- Equivalent performances with all types of lamps
- No derating

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

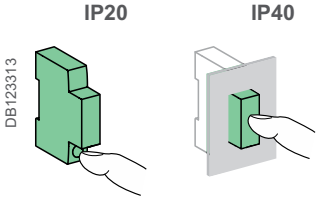




Clip on DIN rail 35 mm.



Indifferent position of installation.



Connection

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

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

Acti9 Control and signalling

General overview

iTL impulse relays

IEC 60669-2-2 iTLs:
AS/NZS IEC 60947-5-1

C

Impulse relays

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)

Remote indication

iTLs

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

Indication iATLs

- Allows remote indication of the associated impulse relay

Centralised control

iTLc

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

Latched control

iTLm

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

Latched control iATLm

- Controls the associ-ated impulse relay by latched orders from a changeover contact

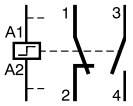
Impulse relays

General overview

iTL impulse relays (cont.)

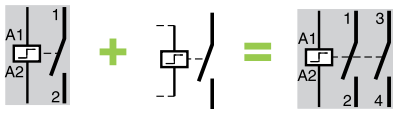
Changeover contact iTLi

- This impulse relay has a changeover contact



Extensions iETL

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



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

Multi-level centralised control iATLc+c

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

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

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.

Control iATLz

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

Step by step control iATL4

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

Impulse relays auxiliaries

Specific auxiliaries

Acti9 Control and signalling

General overview

iTL impulse relays (cont.)

Mounting accessories

1	Yellow clips		A9C15415
2	9 mm spacer		A9A27062

1

2

Auxiliaries
Indication

ComReady

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

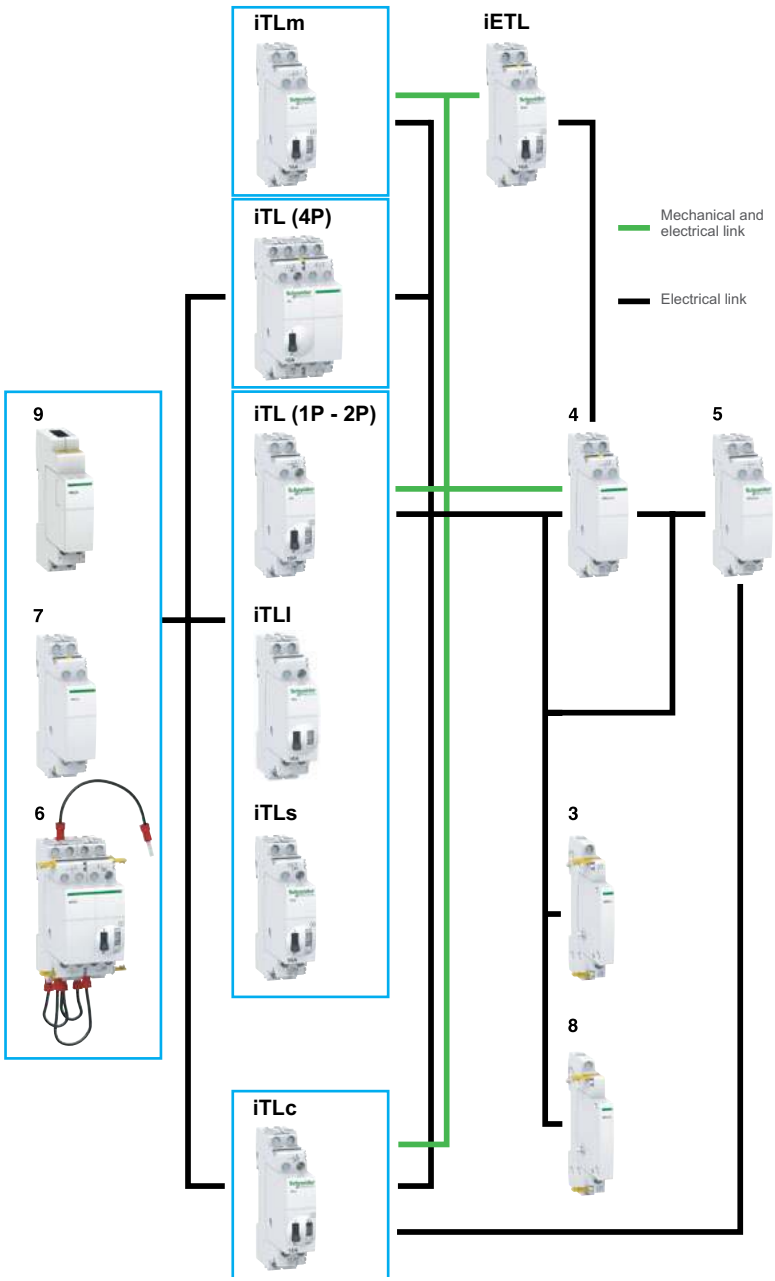
Latched control

8	iATLm (1)	12...240 V AC	A9C15414

Control and indication

9	iATL24	230 V AC	A9C15424

(1) The 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.



General overview

iTL impulse relays (cont.)

PB106126-41

Yellow clip

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

- Insulated terminals IP20

- Large circuit labeling area

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

- 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

Acti9 Control and signalling

Auxiliaries

iTL impulse relays (cont.)

Auxiliaries choice in V AC and V DC

C

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	■	-	-	-	-	■	■	-	-	-	-	■	-	-	-	■	-	-
Control and indication																		
iATL24	■	-	-	-	-	■	■	-	-	-	-	■	-	-	-	■	-	-

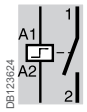
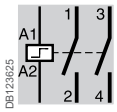
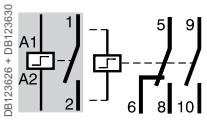
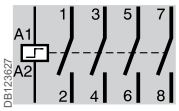
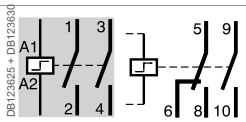
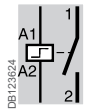
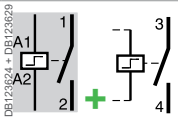
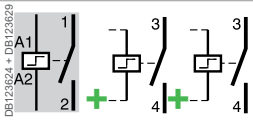
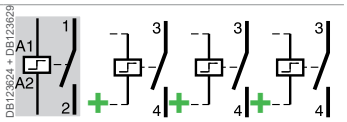
V DC	Choice impulse relays auxiliaries																	
Type	**Standard iTL**						**Changeover iTLI**					**iTLc centralised control**			**iTLm control on latched order**	**iTLs remote indication**		
Rating A	16					32	16					16			16	16		
Control voltage (Uc) V DC	110	48	24	12	6	110	110	48	24	12	6	-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

References

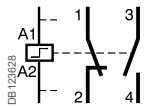
iTL impulse relays (cont.)

Catalogue numbers

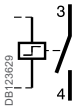
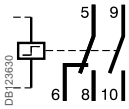
iTL impulse relays

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	
	48	24	A9C30211	A9C30212	A9C30211 + A9C32216	A9C30212 + A9C32216
	130	48	A9C30311	A9C30312	A9C30311 + A9C32316	A9C30312 + A9C32316
	230...240	110	A9C30811	A9C30812	A9C30811 + A9C32816	
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	24	12	A9C30115
	48	24	A9C30215
	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

Acti9 Control and signalling

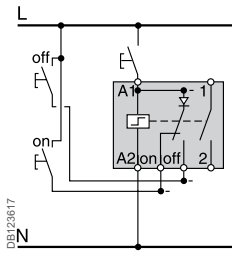
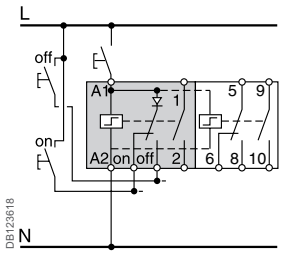
References

iTL impulse relays (cont.)

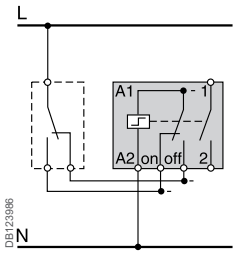
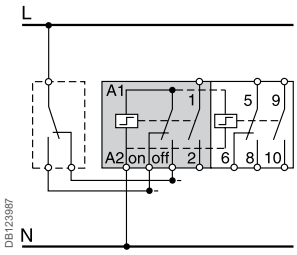
iTLc , iTLm, iTLs with built-in auxiliary function - Catalogue numbers

iTLc impulse relay with centralised control

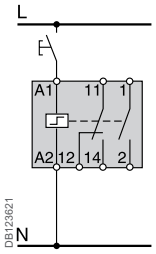
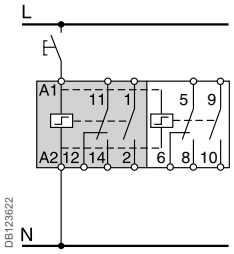
C

Type		1P	3P
			
		1 NO	1 NO + 1 NO/NC + 1 NO
Rating (In)	**Control voltage (Uc) (V AC) (50/60 Hz)**		
16 A	230...240	A9C33811	A9C33811 + A9C32816
Width in 9 mm modules		2	4

iTLm impulse relay with latched control

Type		1P	3P
			
		1 NO	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*

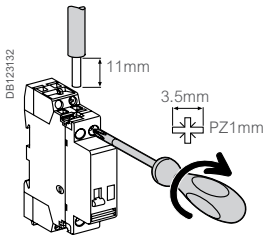
Type			1P	3P
				
			1 NO	1 NO + 1 NO/NC + 1 NO
Rating (In)	**Control voltage (Uc) (V AC) (50/60 Hz)**	**(V DC)**		
16 A	230...240	110	A9C32811	A9C32811 + A9C32816
Width in 9 mm modules			2	4

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

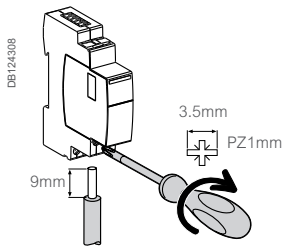
General Overview

iTL impulse relays (cont.)

Connection

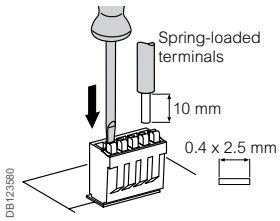


Type	Rating	Circuit	Tightening torque	Copper cables	
				Rigid or with ferrule	Flexible or with ferrule
				DB122945	DB123553
iTL, iTLi, iTLc, iTLm, iTLs, iETL	16 A	Control	1 N.m	0.5 to 4 mm²	1 to 4 mm²
		Power		1.5 to 4 mm²	1.5 to 4 mm²
iTL, iETL	32 A	Control	1 N.m	0.5 to 4 mm2	6 to 16 mm²
		Power	1.2 N.m	1.5 to 10 mm²	1.5 to 10 mm²
iATLs, iATLc, iATLc+s, iATLc+c, iATLm, iATL4, iATLz			1 N.m	0.5 to 4 mm²	1 to 4 mm²



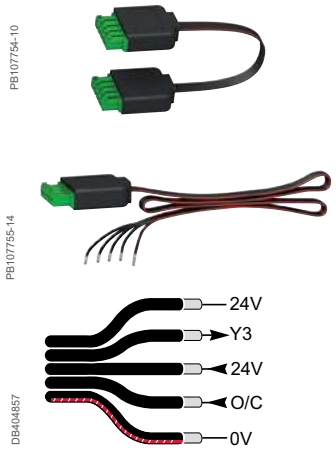
Type	Terminals	Tightening torque	Copper cables		
			Rigid	Flexible	Flexible or with ferrule
			DB122945	DB123553	DB123554
iACT24	Power supply (N/P)	1 N.m	0.5 to 10 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 6 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 4 mm² 2 x 0.5 to 2 x 2.5 mm²
	Input (Y1/Y2)				

Ti24 connector connection



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



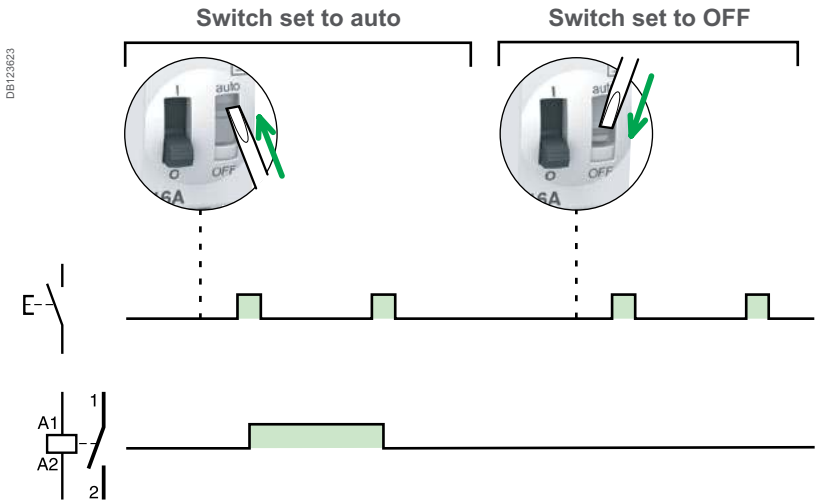
Type	Catalogue numbers	Length
Connection for Acti9 Smartlink		
6 short prefabricated	A9XCAS06	100 mm
6 medium-sized prefabricated	A9XCAM06	160 mm
6 long prefabricated	A9XCAL06	870 mm
Connection for PLC type terminals		
6 long prefabricated on a single side	A9XCAU06	870 mm

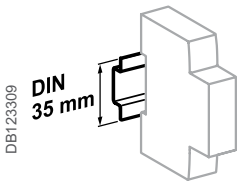
Acti9 Control and signalling

General Overview

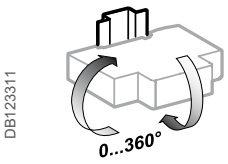
iTL impulse relays (cont.)

Operation

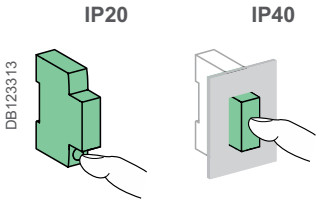




Clip on DIN rail 35 mm.



Indifferent position of installation.



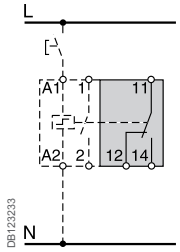
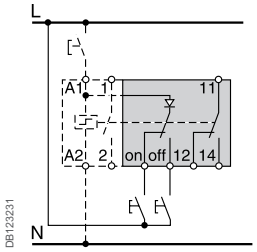
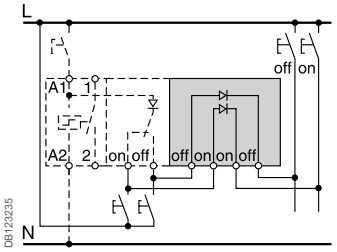
Technical data

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)	

Auxiliaries

iTL impulse relays (cont.)

Electrical auxiliaries for iTL impulse relays

	Indication	Control	
Auxiliaries	**iATLs**	**iATLc+s**	**iATLc+c**
Type	**Indication**	**Centralised control + indication**	**Multi-level centralised control**
	 PB106139-34	 PB106140-34	 PB106136-34
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	 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		• Without mechanical link with impulse relays and auxiliaries
Catalog numbers	A9C15405	A9C15409	A9C15410
Technical specifications			
Control voltage (Ue) V AC	-	24…240	24…240
V DC	-	–	–
Control voltage frequency Hz	-	50/60	50/60
Width in 9 mm modules	1	2	2

Auxiliary contact (breaking capacity)	• Mininimum: 10 mA at 24 V DC/AC
	• Maximum (IEC 60947-5-1):
	  • 6 A at 12…240 V AC
	  • 6 A at 12…24 V DC
	  • 2 A at 15…240 V AC
	  • 2 A at 13…24 V DC
		• Mininimum: 10 mA at 24 V DC/AC
		• Maximum (IEC 60947-5-1):
		  • 6 A at 12…240 V AC
		  • 6 A at 12…24 V DC
		  • 2 A at 15…240 V AC
		  • 2 A at 13…24 V DC
			-

Number of contacts	-	-	-
Operating temperature °C	-20°C to +50°C	-20°C to +50°C	-20°C to +50°C
Storage temperature °C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C

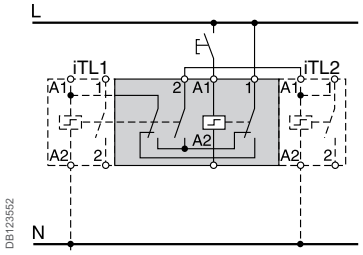
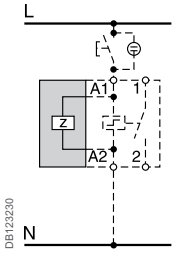
Acti9 Control and signalling

Auxiliaries

iTL impulse relays (cont.)

Electrical auxiliaries for iTL impulse relays (cont.)

C

	Control	
Auxiliaries	**iATL4**	**iATLz**
Type	**Step by step control**	**Control by illuminated push-buttons**
	 PB106142-63	 PB106141-34
Function		
	• Allows the step by step sequence over 2 circuits	• Used to control impulse relays by illuminated push-buttons, without operating risks
Wiring diagrams		
	 DB123552	 DB123230

	• 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		
	• Assembled between 2 impulse relays: according to the auxiliarisation table by yellow clips	• Mounted to the left of iTL by yellow clips
Catalog numbers	A9C15412	A9C15413
Technical specifications		
Control voltage (Ue) V AC	230	230…240
V DC	–	–
Control voltage frequency Hz	50/60	50/60
Width in 9 mm modules	4	2
Auxiliary contact (breaking capacity)	-	-
Number of contacts	-	-
Operating temperature °C	-20°C to +50°C	-20°C to +50°C
Storage temperature °C	-40°C to +70°C	-40°C to +70°C

Auxiliaries

iTL impulse relays (cont.)

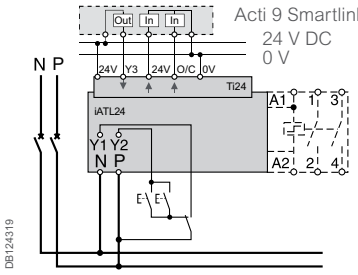
Electrical auxiliaries for iTL impulse relays (cont.)

	Control and indication
Auxiliaries	**iATL24**
Type	**Control and indication 24 V DC**
	With Ti24 connector

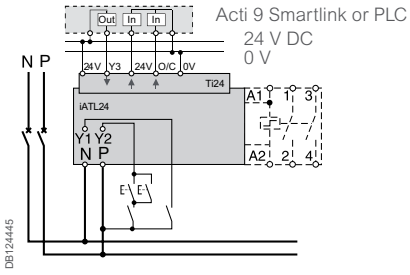
Function

- 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



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



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)

Catalog numbers		A9C15424
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		3
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.

Acti9 Control and signalling

Technical

iTL impulse relays (cont.)

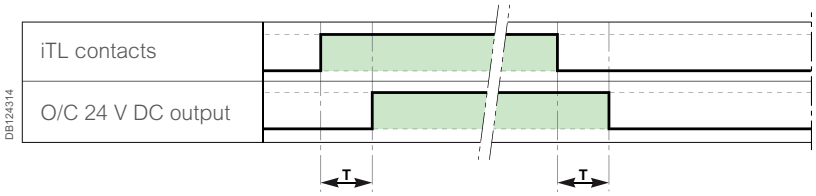
Electrical auxiliaries for iTL impulse relays (cont.)

C

ComReady

Operation of the iATL24

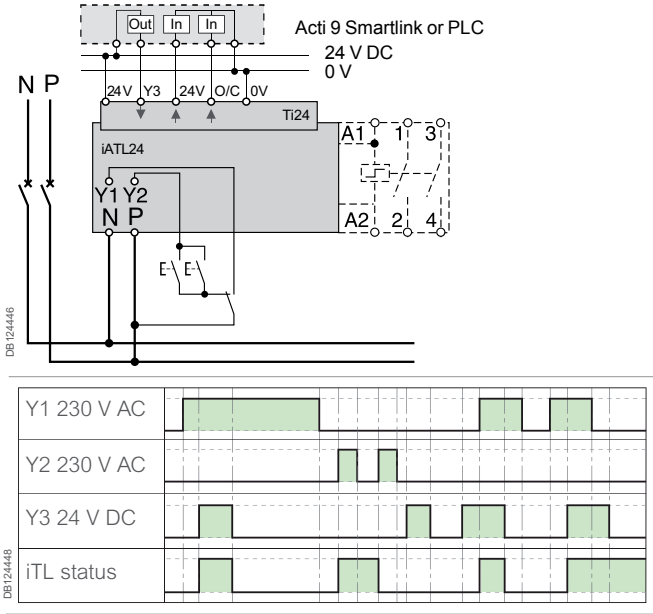
O/C 24 V DC output



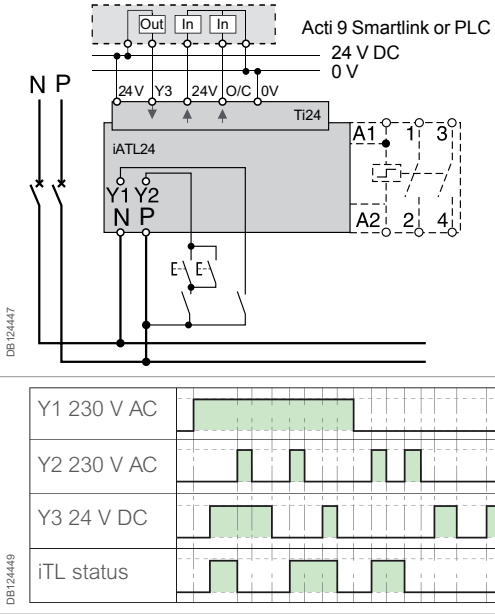
	Parameter	Min	Max
T	Time delay between iATL24 closing and indication	100 ms	200 ms

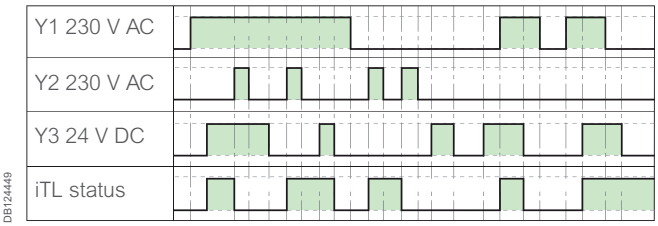
- Minimum duration of 230 V AC pulse (Y2): 200 ms.
- 30 iATL24 closing or opening actuations are authorized per minute: Minimum time delay between 2 actuations on the iATL24 via Y1,Y2, Y3 (closing or opening of the iTL coil): 440 ms.
- 10 closing or opening actuations spaced 440 milliseconds apart are 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



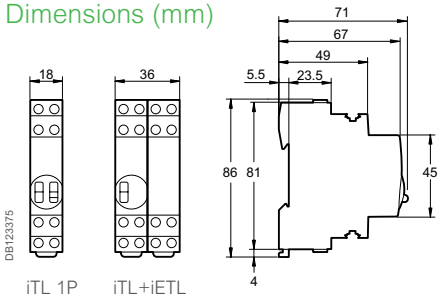


Accessories

iTL impulse relays (cont.)

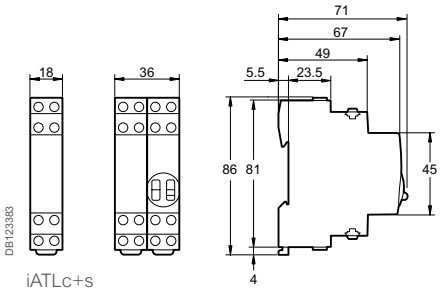
	Security	
Type	**Yellow clips**	**Spacer**
	 PB106143-10	 PB104483
Function		
	• Ensure the mechanical and/or electrical link between impulse relays and their auxiliaries (set of 10).	• Required to reduce temperature rise of modular devices installed side by side. • Recommended to separate electronic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

Dimensions (mm)

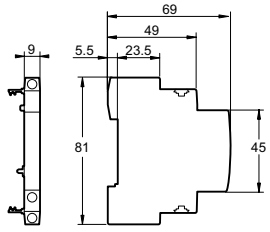


iTL 1P
iTLc
iTLm
iTLs
iTLi
iETL

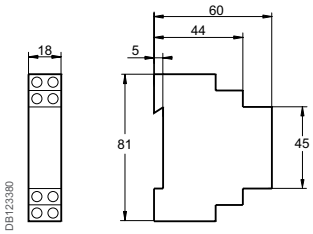
iTL+iETL
iTL 4P



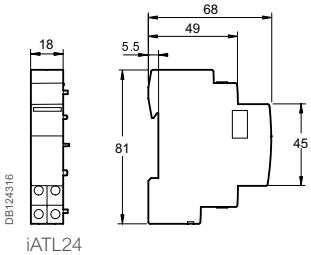
iATLc+s
iATLc+c
iATLz
iATL4



iATLc
iATLs
iATLm



iATEt



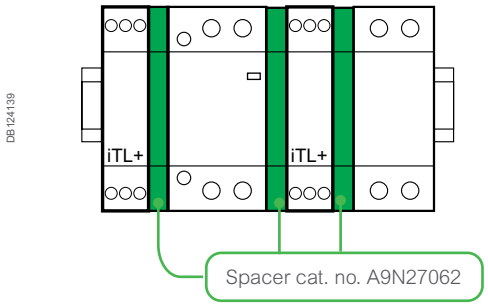
iATL24

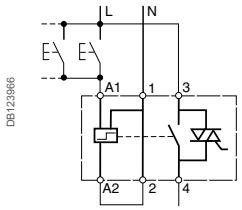
Acti9 Control and signalling

General overview

iTL+ high-performance impulse relays

The iTL+ high-performance impulse relay allows remote control of single-phase circuits. It is designed for demanding applications.



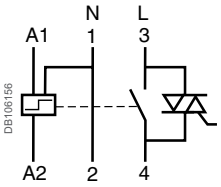


EN 60669-2-2

The iTL+ high-performance impulse relay is used for push-button control of lighting circuits consisting of:

- incandescent lamps, low-voltage halogen lamps, etc. (resistive loads)
- fluorescent tubes, discharge lamps, etc. (inductive loads).

iCT+			
Type	**Rating**		**Width in 9-mm modules**
1P+N			
	16 A	A9C15032	2+1 (1)

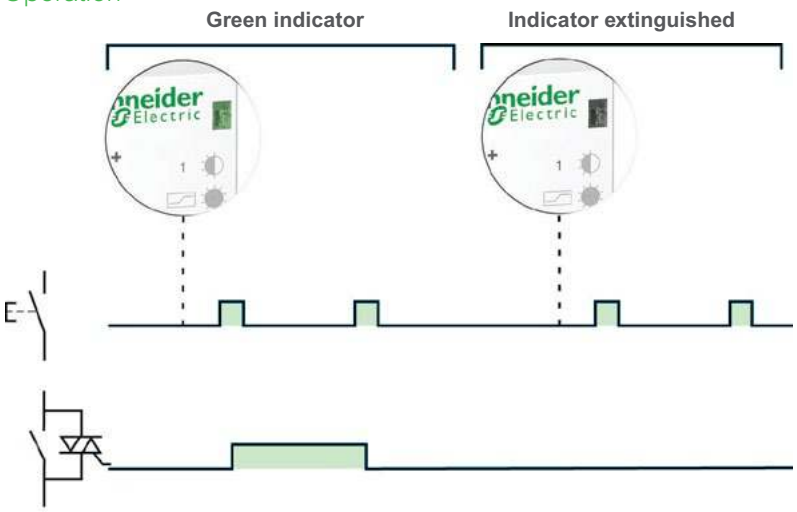


(1) Supplied with a 9 mm spacer (cat. no. A9N27062): to be used for mounting the iTL+ alongside a circuit breaker, contactor, impulse relay, etc., in order to maintain optimal operation.

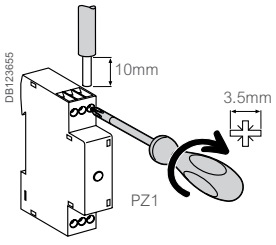
It is compulsory:

- 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



Connection



Type	Rating	Tightening torque	Copper cables	
			Rigid or flexible with ferrule	Rigid or flexible without ferrule
			DB123656	DB123657
iTL+	16 A	1 N.m	2 x 1.5 mm²	2 x 2.5 mm² 1 x 4 mm²

General overview

iTL+ high-performance impulse relays (cont.)

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

- Silent
- Large number of switching operations

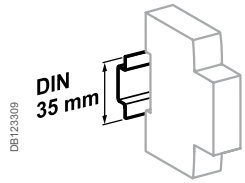
- Green indicator on the front panel:
  - fixed green: ON/OFF control by push button
  - flashing green: forced starting
  - extinguished: forced stoppage

- Operating mode selection push button:
  - ON/OFF control by push button
  - forced starting
  - forced stoppage

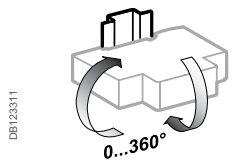
- Orange indicator: output contact closed

- Equivalent performances with all types of lamps

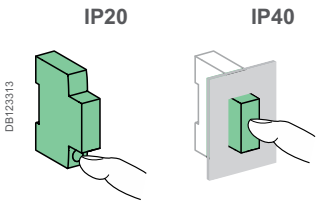
Following a mains failure, the iTL+ returns to 0 position (forced stoppage) irrespective of its initial state.



Clip on DIN rail 35 mm.



Indifferent position of installation.



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		
Endurance (O-C) Electrical		5.000.000 cycles (AC21 - AC22)
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
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 contactors	
Type	**iTL+**
1P+N	70

Acti9 Control and signalling

General overview

Time Delay Relays

Time Switches - Analogue & Digital

A9E16065

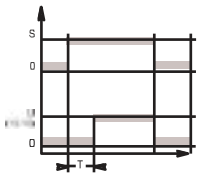
Time Delay Relays - 0.1s to 100h					
Type	**No. of contacts**	**Rating**	**Width in mod of 9mm**	**Coil voltage**	**Reference**
RTA	1 C/O	8A	2	24V DC or 24-240V AC	A9E16065
RTB	1 C/O	8A	2	24V DC or 24-240V AC	A9E16066
RTC	1 C/O	8A	2	24V DC or 24-240V AC	A9E16067
RTH	1 C/O	8A	2	24V DC or 24-240V AC	A9E16068
RTL	1 C/O	8A	2	24V DC or 24-240V AC	A9E16069
RTMF	1 C/O	8A	2	12-240V AC/DC	A9E16070

Note

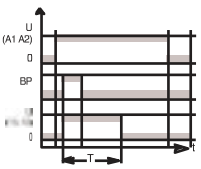
Function and use:

- RTA delay on make: allows a delay in the energisation of a load (coil of a contactor or relay). The time delay cycle begins at the energisation of the RTA and the load is switched on at the end of the time period.
- RTB single shot: energizes a load at the closing of an auxiliary push-button. The time delay starts at the closing of the auxilary push-button.
- RTC delay on break: energizes a load at the closing of an auxiliary push-button. The time delay starts at the opening of the auxiliary push-button. Mini impulse duration 6 200ms. Restart time delay any time with push button.
- RTH interval timer: timing of load from the energisation (coil of a contactor or relay). The time delay cycle begins, on the energisation of the RTH, by switching on the load. At the end of the time delay, the load is de-energized.
- RTL repeat cycle timer: repetitive cycle which alternatively energizes and de-energizes a load. From the energisation of RTL, the load is switched on.
- RTMF multi function timer: one relay providing functions A, B, C and H via a selector switch located in front.

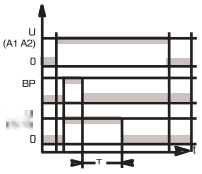
RTA



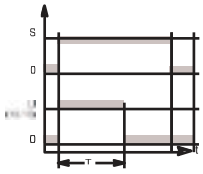
RTB



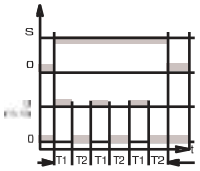
RTC



RTH



RTL



U : supply voltage ; UZ : load voltage ; S : signal from contact/pushbutton

General overview

Relays

Time delay relays are used in service sector and industrial buildings for small automatic control systems: ventilation, heating, animation, roller blind servo controls, escalators, pumps, lighting, signalling, monitoring, etc.

> Time delay relays

PB111581-35

iRTA

- Delays energizing of a load

PB111582-35

iRTB

- Delays de-energizing of a load upon closing of an auxiliary contact (push button)

PB111583-35

iRTC

- Delays de-energizing of a load upon opening of an auxiliary contact (push button)

Time delay

PB111584-35

iRTH

- Applies a time delay to de-energizing of a load

PB111585-35

iRTL

- Applies a time delay to energizing and de-energizing of a load during different times, repeatedly (flasher)

PB111586-35

iRTMF

- Allows one of the four types of time delay to be selected: A, B, C or H