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# Acti 9

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## General



## Circuit protection



## Earth leakage protection



## Load protection



## Install, connection, power distribution



## Supervision and switchboard control



## Monitoring and control of protections



## Electrical circuit control





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Acti9
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## Indication



## Complementary technical information

# Principle of catalogue numbers

## Circuit and earth leakage protection

### iID, iC60, Vigi iC60, Reflex iC60, switches


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

| Internal code |
|---|

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

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

### Comb busbar and comb busbar accessories


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

# Choice of circuit protective devices


Protection of electrical connections against short circuits and overloads


Protection of loads against overloads


Protection of control devices


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

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

## Choice of protective circuit breakers

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

### Choice of breaking capacity

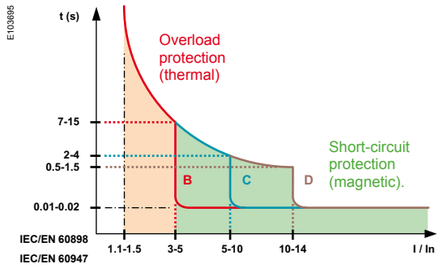
- The breaking capacity must be greater than or equal to the prospective short-circuit current (Isc) upstream of the circuit-breaker (Isc depends on the length, type of conductor and cross section of the cable and the power of the source).
- However, in the event of use in combination with an upstream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

### Choice of rating

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

### Choice of tripping curve

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



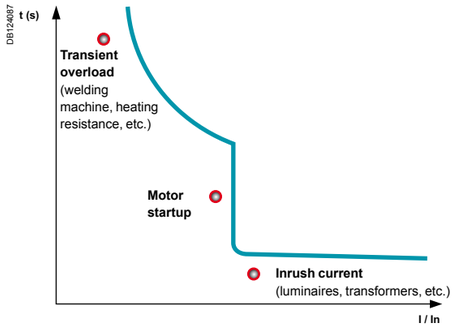

| Tripping thresholds (x In) | | |
|---|---|---|
| Curves | IEC /EN 60898 | IEC/EN 60947-2 |
| B | Between 3 In and 5 In | 4 ±20 % |
| C | Between 5 In and 10 In | 8 ±20 % |
| D or K | Between 10 In and 14 In | 12 ±20 % |
| MA | - | 12 ±20 % |
| Z | - | 3 ±20 % |

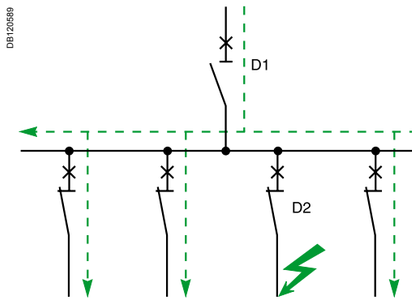
- To prevent nuisance tripping, it may be advisable to choose a less sensitive curve, e.g. change from B to C (tripping curves, see module **CA908024**).





Choice of circuit protective devices





Circuit disconnection

## Continuity of service

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

### Solutions

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

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

**Total Discrimination**

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

**Partial Discrimination**

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

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

## Disconnection

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

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

# Circuit breaker panorama

## Selection guide

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

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





# Circuit breaker panorama

## Selection guide

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

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

# Circuit breaker panorama

## Selection guide

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





# Circuit breaker panorama

## Selection guide

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

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

# iC60N circuit breakers

## Curve B, C, D

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

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

PB104437-40

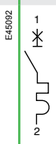
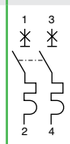
PB104460-40

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

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

## Catalogue numbers

**iC60N circuit breaker**

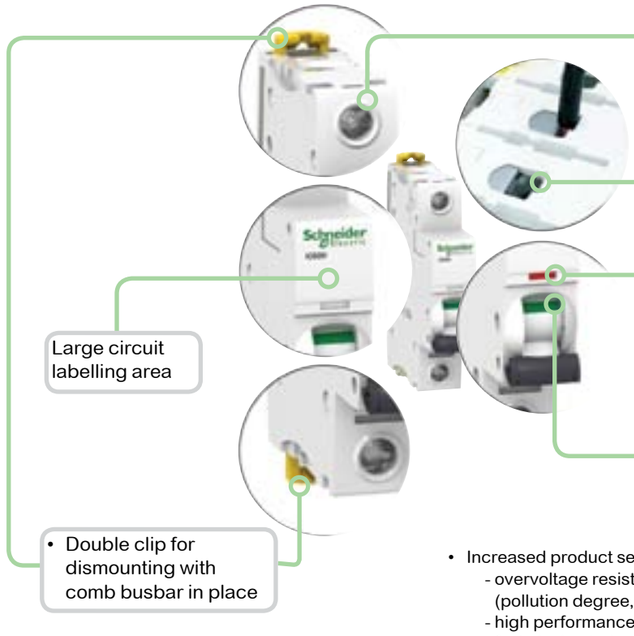
| Type | 1P | | | 2P | | |
|---|---|---|---|---|---|---|
| | E45092  | | | E45094  | | |
| Auxiliaries | Remote tripping and indication, module CA907000 and CA907002 | | | Remote tripping and indication, module CA907000 and CA907002 | | |
| Vigi iC60 | Vigi iC60 add-on residual current device, module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





# iC60N circuit breakers

## Curve B, C, D



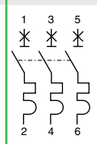
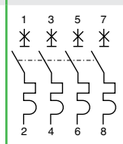

- Insulated terminals IP20

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

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

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

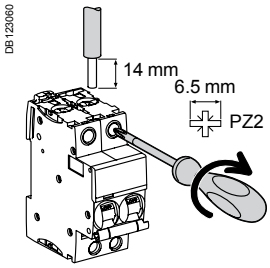
Top or bottom electrical feeding.

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

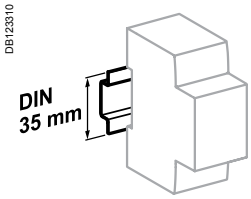
# iC60N circuit breakers

## Curve B, C, D

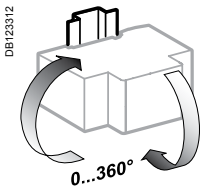
## Connection



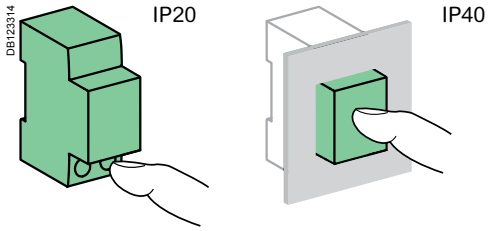

| Rating | Tightening torque | Without accessories: Copper cables – Rigid | Without accessories: Copper cables – Flexible or with ferrule | With accessories: 50 mm² Al terminal | With accessories: Screw-on connection for ring terminal | With accessories: Multi-cables terminal – Rigid cables | With accessories: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




*Clip on DIN rail 35 mm.*




*Indifferent position of installation.*



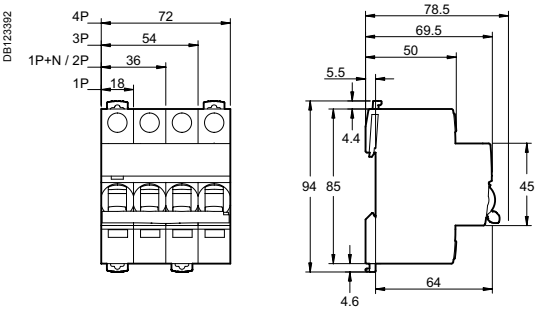

## Technical data

| Main characteristics | | |
|---|---|---|
| According to IEC/EN 60947-2 | | |
| Insulation voltage (Ui) | | 500 V AC |
| Pollution degree | | 3 |
| Rated impulse withstand voltage (Uimp) | | 6 kV |
| Thermal tripping | Reference temperature | 50 °C |
| | Temperature derating | See module CA908007 |
| Magnetic tripping | B curve | 4 In ± 20 % |
| | C curve | 8 In ± 20 % |
| | D curve | 12 In ± 20 % |
| Utilization category | | A |
| According to IEC/EN 60898-1 | | |
| Limitation class | | 3 |
| Rated making and breaking capacity of an individual pole (Icn1) | | Icn1 = Icn |
| **Additional characteristics** | | |
| Breaking capacity under 1 pole with IT 380-415 V isolated neutral system (case of double fault) | 40 A | 4 kA |
| | 50/63 A | 3 kA |
| Degree of protection (IEC 60529) | Device only | IP20 |
| | Device in modular enclosure | IP40<br>Insulation class II |
| Endurance (O-C) | Electrical | 10,000 cycles |
| | Mechanical | 20,000 cycles |
| Overvoltage category (IEC 60364) | | IV |
| Operating temperature | | -35°C to +70°C |
| Storage temperature | | -40°C to +85°C |
| Tropicalization (IEC 60068-1) | | Treatment 2 (relative humidity 95 % to 55°C) |

## Weight (g)

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

## Dimensions (mm)



# iC60H circuit breakers

## Curve B, C, D

PB104441-40

PB104451-40

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

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

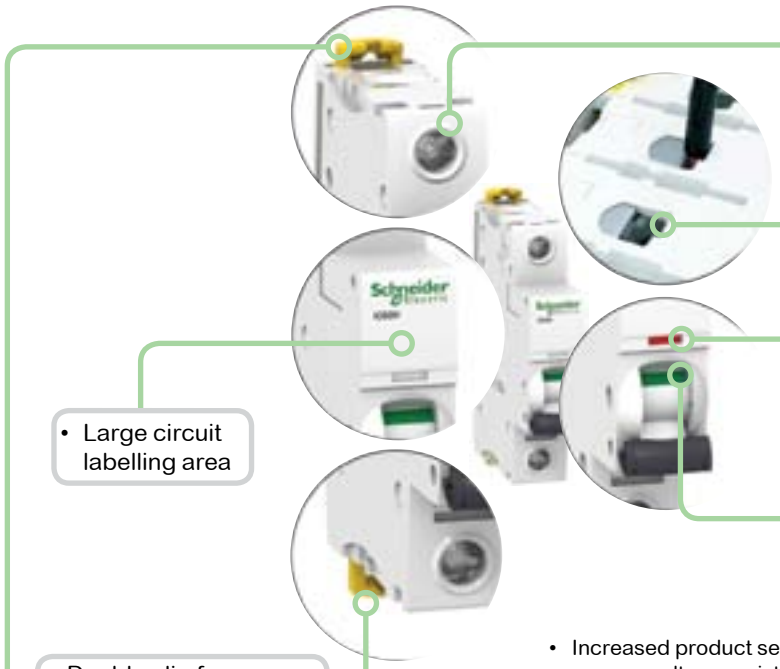
**Alternating current (AC) 50/60 Hz**

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

| Breaking capacity (Icn) according to IEC/EN 60898-1 | | |
|---|---|---|
| | | Voltage (Ue) |
| Ph/Ph | | 400 V |
| Ph/N | | 230 V |
| Rating (In) | 0.5 to 63 A | 10000 A |

**Direct current (DC)**

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



- Insulated terminals IP20

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

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

- Large circuit labelling area

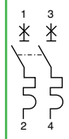
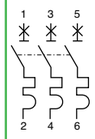
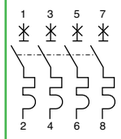
- Double clip for dismounting with comb busbar in place

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

# iC60H circuit breakers

## Curve B, C, D

## Catalogue numbers

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

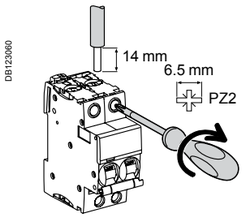




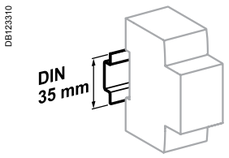
# iC60H circuit breakers

## Curve B, C, D

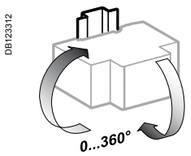
## Connection



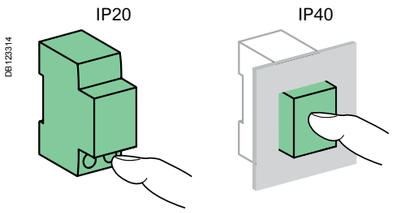

| Rating | Tightening torque | Without accessories: Copper cables, Rigid | Without accessories: Copper cables, Flexible or with ferrule | With accessories: 50 mm² Al terminal | With accessories: Screw-on connection for ring terminal | With accessories: Multi-cables terminal, Rigid cables | With accessories: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




*Clip on DIN rail 35 mm.*




*Indifferent position of installation.*



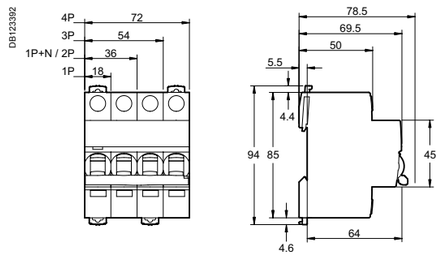

## Technical data

| Main characteristics | | |
|---|---|---|
| According to IEC/EN 60947-2 | | |
| Insulation voltage (Ui) | | 500 V AC |
| Pollution degree | | 3 |
| Rated impulse withstand voltage (Uimp) | | 6 kV |
| Thermal tripping | Reference temperature | 50 °C |
| | Temperature derating | See module CA908007 |
| Magnetic tripping | B curve | 4 In ± 20 % |
| | C curve | 8 In ± 20 % |
| | D curve | 12 In ± 20 % |
| Utilization category | | A |
| According to IEC/EN 60898-1 | | |
| Limitation class | | 3 |
| Rated making and breaking capacity of an individual pole (Icn1) | | Icn1 = Icn |
| **Additional characteristics** | | |
| Breaking capacity under 1 pole with IT 380-415 V isolated neutral system (case of double fault) | 40 A | 4 kA |
| | 50/63 A | 3 kA |
| Degree of protection (IEC 60529) | Device only | IP20 |
| | Device in modular enclosure | IP40<br>Insulation class II |
| Endurance (O-C) | Electrical | 10,000 cycles |
| | Mechanical | 20,000 cycles |
| Overvoltage category (IEC 60364) | | IV |
| Operating temperature | | -35°C to +70°C |
| Storage temperature | | -40°C to +85°C |
| Tropicalization (IEC 60068-1) | | Treatment 2 (relative humidity 95 % to 55°C) |

## Weight (g)

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

## Dimensions (mm)



# iC60L circuit breakers

## Curve B, C, K, Z

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

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

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

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

## Catalogue numbers

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

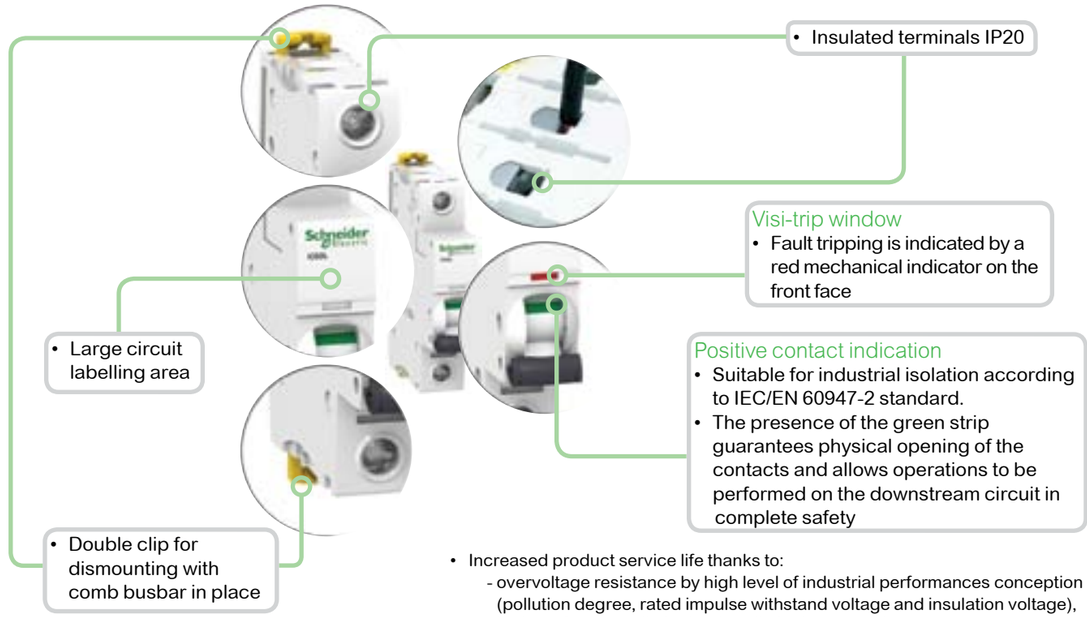
*(1) 100 % of Icu for ratings 6 to 25 A under Ue 100 to 133 V AC Ph/Ph and Ue 12 to 60 V AC Ph/N.*
*(2) Information to be provided by the country.*
*(3) Without approval.*





# iC60L circuit breakers

## Curve B, C, K, Z




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

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

# iC60L circuit breakers

## Curve MA, instantaneous circuit breakers (ICB)

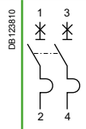
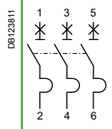
### IEC/EN 60947-2

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



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

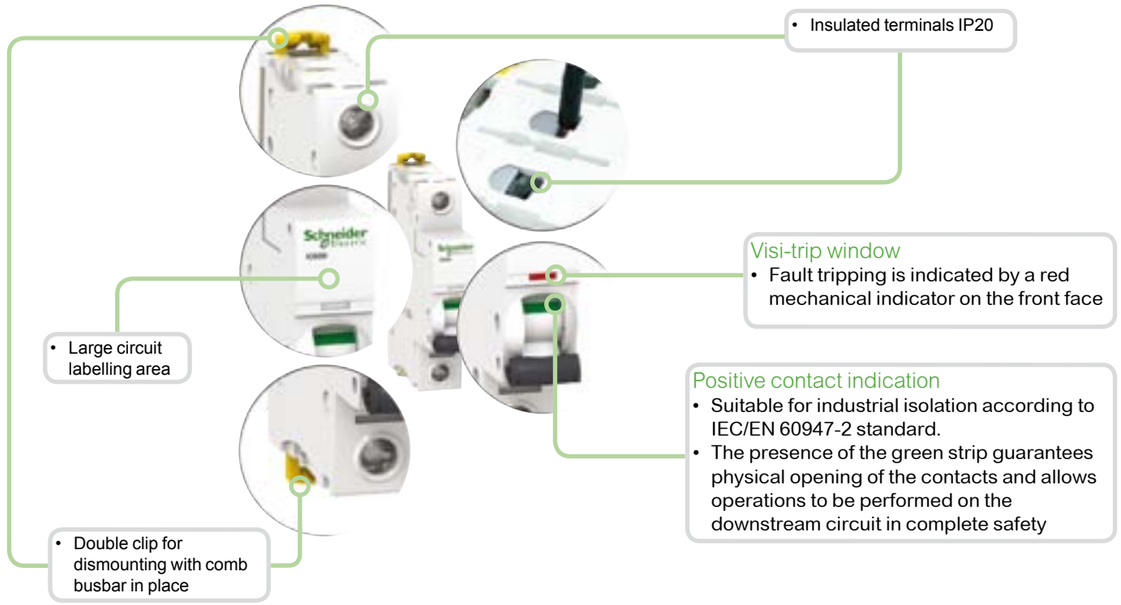
### Catalogue numbers

| iC60L instantaneous trip circuit breaker | | | |
|---|---|---|---|
| Type | | 2P | 3P |
| | |   |   |
| Auxiliaries | | Remote tripping and indication, module CA907000 and CA907002 | Remote tripping and indication, module CA907000 and CA907002 |
| Vigi iC60 | | Vigi iC60 add-on residual current device, module CA902005 | Vigi iC60 add-on residual current device, module CA902005 |
| Rating (In) | Quality label (1) | Curve MA | Curve MA |
| 1.6 A | | A9F90272 | A9F90372 |
| 2.5 A | | A9F90273 | A9F90373 |
| 4 A | | A9F90204 | A9F90304 |
| 6.3 A | | A9F90276 | A9F90376 |
| 10 A | | A9F90210 | A9F90310 |
| 12.5 A | | A9F90282 | A9F90382 |
| 16 A | | A9F90216 | A9F90316 |
| 25 A | | A9F90225 | A9F90325 |
| 40 A | | A9F90240 | A9F90340 |
| Width in 9-mm modules | | 4 | 6 |
| Accessories | | Module CA907000 and CA907001 | Module CA907000 and CA907001 |

*(1) Information to be provided by the country.*



Circuit protection
www.schneider-electric.com/sg
iC60L circuit breakers
Curve MA, instantaneous circuit breakers (ICB)

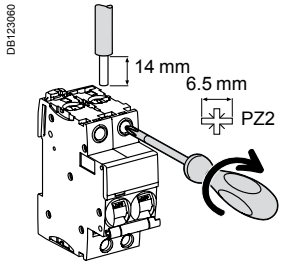



- Increased product service life thanks to:
  - overvoltage resistance by high level of industrial performances conception (pollution degree, rated impulse withstand voltage and insulation voltage),
  - high performance limitation (see limitation curves),
  - fast closing independent of the speed of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

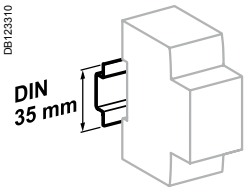
# iC60L circuit breakers

## Curve MA, instantaneous circuit breakers (ICB)

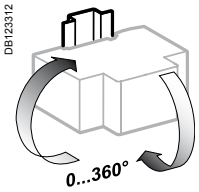
## Connection



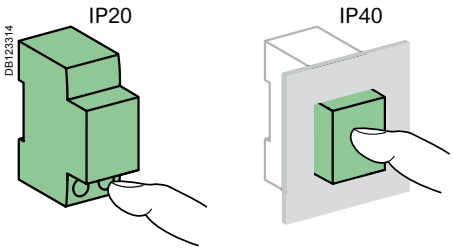

| Rating | Tightening torque | Without accessories: Copper cables – Rigid | Without accessories: Copper cables – Flexible or with ferrule | With accessories: 50 mm² Al terminal | With accessories: Screw-on connection for ring terminal | With accessories: Multi-cables terminal – Rigid cables | With accessories: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




*Clip on DIN rail 35 mm.*




*Indifferent position of installation.*



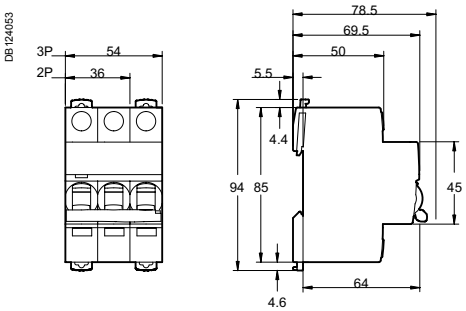

## Technical data

| Main characteristics | | |
|---|---|---|
| According to IEC/EN 60947-2 | | |
| Insulation voltage (Ui) | | 500 V AC |
| Pollution degree | | 3 |
| Rated impulse withstand voltage (Uimp) | | 6 kV |
| Thermal tripping | Reference temperature | 50 °C |
| | Temperature derating | See module CA908007 |
| Magnetic tripping | MA curve | 12 In ± 20 % |
| Utilization category | | A |
| **Additional characteristics** | | |
| Degree of protection (IEC 60529) | Device only | IP20 |
| | Device in modular enclosure | IP40<br>Insulation class II |
| Endurance (O-C) | Electrical | 10,000 cycles |
| | Mechanical | 20,000 cycles |
| Overvoltage category (IEC 60364) | | IV |
| Operating temperature | | -35°C to +70°C |
| Storage temperature | | -40°C to +85°C |
| Tropicalization (IEC 60068-1) | | Treatment 2 (relative humidity 95 % to 55°C) |

## Weight (g)

| Circuit-breaker | |
|---|---|
| Type | iC60L |
| 2P | 250 |
| 3P | 375 |

## Dimensions (mm)



# K60N Biconnect circuit breakers


PB114837-40

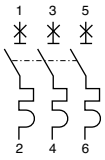
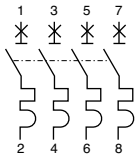
## IEC/EN 60898-1

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

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

## Catalogue numbers

**K60N Biconnect circuit breaker**

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

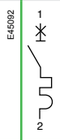
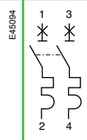
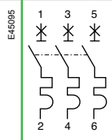
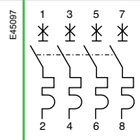
# K60H Biconnect circuit breakers


## IEC/EN 60898-1

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

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

## Catalogue numbers

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





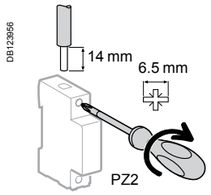
# K60 Biconnect circuit breakers

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


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

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


## Connection

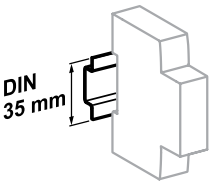



| Type | Rating | Tightening torque | Copper cables | |
|---|---|---|---|---|
| | | | Rigid | Flexible or with ferrule |
| | | DB122945 | DB122946 | |
| K60 Biconnect | 6 to 20 A | 2 N.m | 0.5 to 25 mm² | 0.5 to 16 mm² |
| | 32 to 63 A | 3.5 N.m | 0.5 to 35 mm² | 0.5 to 25 mm² |

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

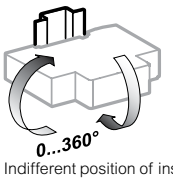
# K60 Biconnect circuit breakers

DB123309



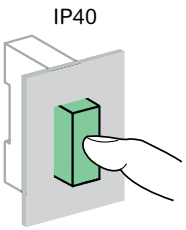

Clip on DIN rail 35 mm.

DB123311




Indifferent position of installation.

DB406666




## Technical data

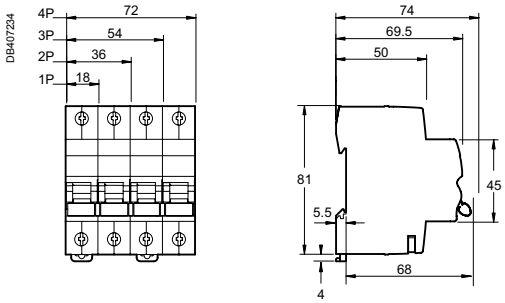
| Main characteristics | | | K60N | K60H |
|---|---|---|---|---|
| Insulation voltage (Ui) | Phase-to-phase | | 440 V AC | |
| Voltage rating (Ue) | Phase-to-neutral | | 230 V AC | |
| | Phase-to-phase | | 400 V AC | |
| Magnetic tripping | B curve | 3 to 5 In | ● | |
| | C curve | 5 to 10 In | ● | |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

## Weight (g)

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

## Dimensions (mm)

DB407234



# C120N circuit breakers

## Curves B, C, D

PB107914-30

PB107917-40

PB107920-30

PB107923-30

## IEC/EN 60898-1

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

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

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

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

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

## Catalogue numbers

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

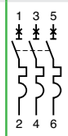
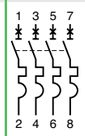
*(1) Country France only*

# C120N circuit breakers
## Curves B, C, D

PB107917-40


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

## Catalogue numbers

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

*(1) Country France only*

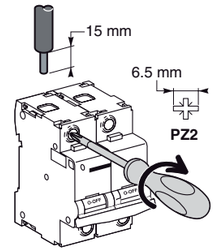




# C120N circuit breakers
## Curves B, C, D

## Connection

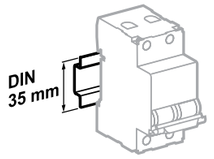
DB125143




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

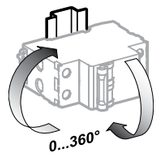
*(1) For lugs up to 63 A, front or rear access.*

DB118767



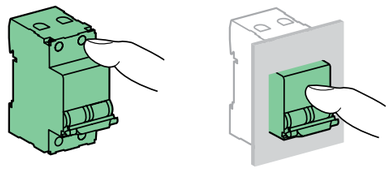

*Clips onto 35 mm DIN rail.*

DB122831




*Any installation position.*

DB122932




## Technical data

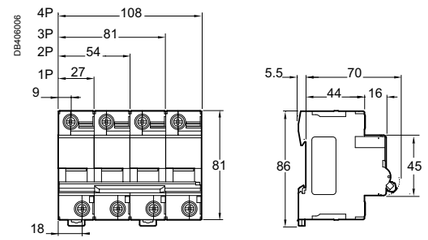
| Main characteristics | | | |
|---|---|---|---|
| To IEC/EN 60947-2 | | | |
| Insulation voltage (Ui) | | | 500 V AC |
| Degree of pollution | | | 3 |
| Rated impulse withstand voltage (Uimp) | | | 6 kV |
| Thermal tripping | Reference temperature | | 50°C |
| To IEC/EN 60898-1 | | | |
| Magnetic tripping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

## Weight (g)

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

## Dimensions (mm)

DB406006



# C120H circuit breakers

## Curves B, C, D

PB107913-30

PB107916-30

PB107919-30

PB107922-30

## IEC/EN 60898-1

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

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

**Alternating current (AC) 50/60 Hz**

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

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

**Direct current (DC)**

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


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

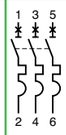
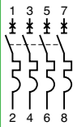




C120H circuit breakers
Curves B, C, D

## Catalogue numbers

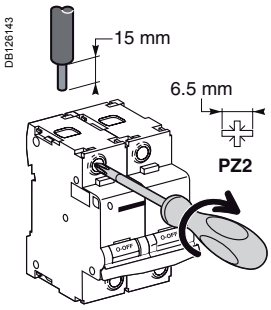
**C120H circuit breaker**

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

# C120H circuit breakers

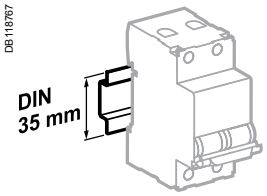
## Curves B, C, D

## Connection

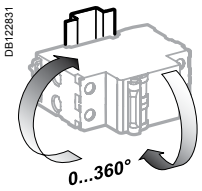



| Rating | Tightening torque | Without accessories: Copper cables – Rigid | Without accessories: Copper cables – Flexible or with ferrule | With accessories: 50 mm² Al term. | With accessories: Screw-on connection for ring terminal (1) | With accessories: Multi-cable terminal – Rigid cables | With accessories: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

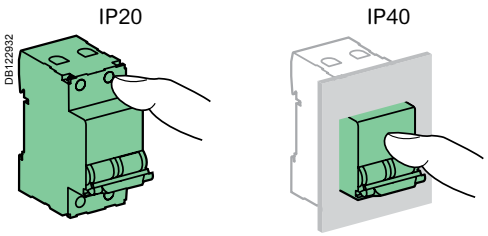
*(1) For lugs up to 63 A, front or rear accessories.*




*Clips onto 35 mm DIN rail.*




*Any installation position.*



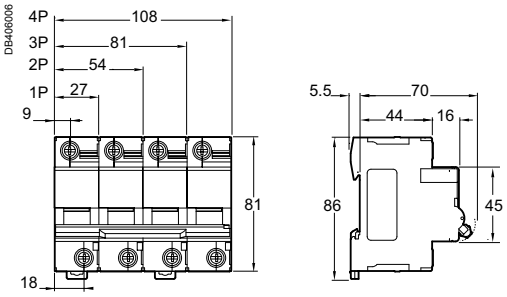

## Technical data

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

## Weight (g)

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

## Dimensions (mm)



# C60H-DC circuit breakers

## C curve, supplementary protectors for feeders / distribution systems

PB107193-34.eps

PB107194-34.eps

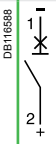
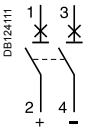
CE

## IEC 60947-2

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

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

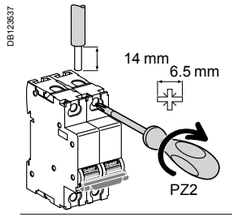
## Catalogue numbers

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

# C60H-DC circuit breakers

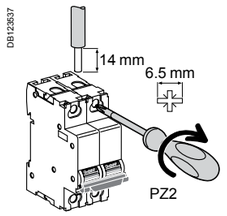
## C curve, supplementary protectors for feeders / distribution systems

### Connection

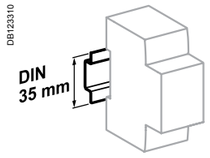



| Rating | Tightening torque | Without accessories: Copper cables – Rigid / Stranded | Without accessories: Copper cables – Flexible or with ferrule | With accessories: 50 mm² Al terminal | With accessories: Screw-on connection for ring terminal | With accessories: Multi-cables terminal – Rigid cables | With accessories: Multi-cables terminal – Flexible cables |
|---|---|---|---|---|---|---|---|
| | | DB122945 | DB122946 | DB122935 Al | DB118789 Ø | DB118787 | |
| ≤ 25 A | 2.5 N.m | 1 to 25 mm² | 1 to 16 mm² | - | Ø 5 mm | - | - |
| > 25 A | 3.5 N.m | 1 to 35 mm² | 1 to 25 mm² | 50 mm² | | 3 x 16 mm² | 3 x 10 mm² |

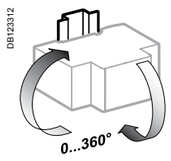
### Multi-cables connection




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

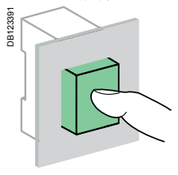



*Clip on DIN rail 35 mm.*




*Indifferent position of installation.*

IP40





### Technical data

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

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

*Failure to match polarity during connection may lead to a fire hazard and/or serious injury.*
*• The connection polarity must be observed (marked on the front panel).*
*• Use only with direct current.*



Circuit protection
www.schneider-electric.com/sg

C60H-DC circuit breakers

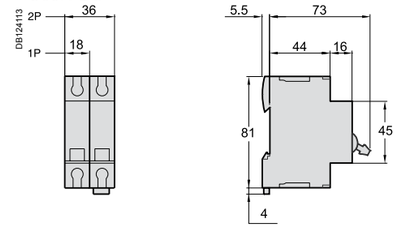
C curve, supplementary protectors for feeders / distribution systems

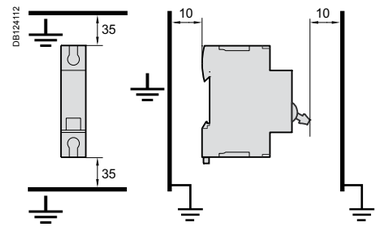
### Weight (g)

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

### Dimensions (mm)

C60H-DC




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

# C60PV-DC circuit breakers

## Supplementary protectors for photovoltaic installations

PB108403-50

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

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

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

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

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

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

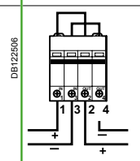
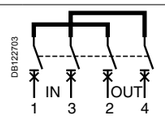
C60PV-DC is not polarity sensitive: (+) and (-) wires can inversed without any risk.

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

IEC / EN 60947-2

CE

DB404840

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



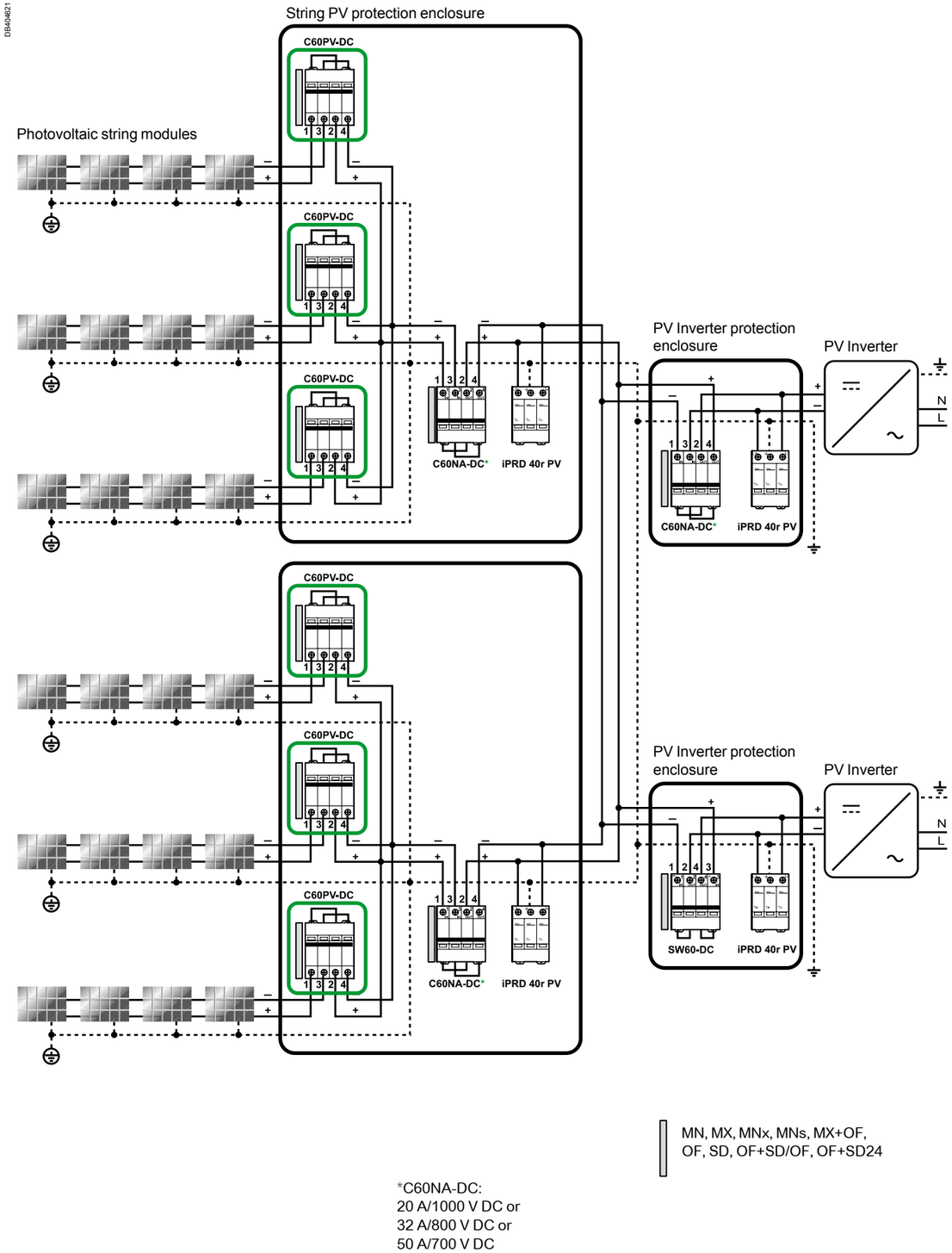


# C60PV-DC circuit breakers

## Supplementary protectors for photovoltaic installations

## Application diagram

DB404621




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

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

## Technical data

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

### Main characteristics

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

### Additional characteristics

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

### Derating table (A)

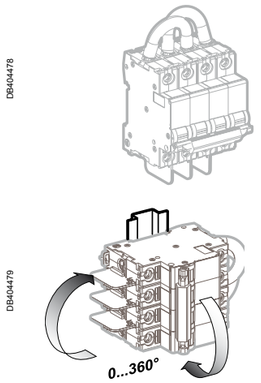
| C60PV-DC | Ambient temperature (°C) | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rating | -30 | -25 | -20 | -15 | -10 | -5 | 0 | +5 | +10 | +15 | +20 | +25 | +30 | +35 | +40 | +45 | +50 | +55 | +60 | +65 | +70 |
| 1 A | 1.18 | 1.17 | 1.15 | 1.14 | 1.12 | 1.1 | 1.09 | 1.07 | 1.05 | 1.04 | 1.02 | 1 | 0.98 | 0.96 | 0.94 | 0.92 | 0.9 | 0.88 | 0.86 | 0.84 | 0.82 |
| 2 A | 2.54 | 2.5 | 2.45 | 2.41 | 2.36 | 2.31 | 2.26 | 2.21 | 2.16 | 2.11 | 2.06 | 2 | 1.94 | 1.88 | 1.82 | 1.76 | 1.7 | 1.63 | 1.56 | 1.48 | 1.41 |
| 3 A | 3.78 | 3.71 | 3.65 | 3.58 | 3.51 | 3.45 | 3.38 | 3.3 | 3.23 | 3.16 | 3.08 | 3 | 2.92 | 2.84 | 2.75 | 2.66 | 2.57 | 2.48 | 2.38 | 2.27 | 2.17 |
| 5 A | 6 | 5.92 | 5.83 | 5.74 | 5.66 | 5.57 | 5.48 | 5.39 | 5.29 | 5.2 | 5.1 | 5 | 4.9 | 4.8 | 4.69 | 4.58 | 4.47 | 4.36 | 4.24 | 4.12 | 4 |
| 8 A | 9.64 | 9.5 | 9.36 | 9.22 | 9.08 | 8.93 | 8.78 | 8.63 | 8.48 | 8.32 | 8.16 | 8 | 7.83 | 7.67 | 7.49 | 7.31 | 7.13 | 6.95 | 6.76 | 6.56 | 6.36 |
| 10 A | 12.6 | 12.4 | 12.2 | 11.9 | 11.7 | 11.5 | 11.2 | 11 | 10.8 | 10.5 | 10.3 | 10 | 9.7 | 9.4 | 9.2 | 8.9 | 8.6 | 8.2 | 7.9 | 7.6 | 7.2 |
| 13 A | 15.5 | 15.3 | 15.1 | 14.8 | 14.6 | 14.4 | 14.2 | 14 | 13.7 | 13.5 | 13.2 | 13 | 12.7 | 12.5 | 12.2 | 12 | 11.7 | 11.4 | 11.1 | 10.8 | 10.5 |
| 15 A | 18.6 | 18.3 | 18 | 17.7 | 17.4 | 17.1 | 16.7 | 16.4 | 16.1 | 15.7 | 15.4 | 15 | 14.6 | 14.3 | 13.9 | 13.5 | 13.0 | 12.6 | 12.2 | 11.7 | 11.2 |
| 16 A | 19.4 | 19.1 | 18.9 | 18.6 | 18.3 | 18.0 | 17.6 | 17.3 | 17.0 | 16.7 | 16.3 | 16 | 15.7 | 15.3 | 14.9 | 14.6 | 14.2 | 13.8 | 13.4 | 13.0 | 12.5 |
| 20 A | 24.1 | 23.7 | 23.4 | 23.0 | 22.7 | 22.3 | 21.9 | 21.6 | 21.2 | 20.8 | 20.4 | 20 | 19.6 | 19.2 | 18.7 | 18.3 | 17.9 | 17.4 | 16.9 | 16.4 | 15.9 |
| 25 A | 30.4 | 29.9 | 29.5 | 29.0 | 28.5 | 28.1 | 27.6 | 27.1 | 26.6 | 26.1 | 25.5 | 25 | 24.5 | 23.9 | 23.3 | 22.7 | 22.1 | 21.5 | 20.9 | 20.2 | 19.6 |

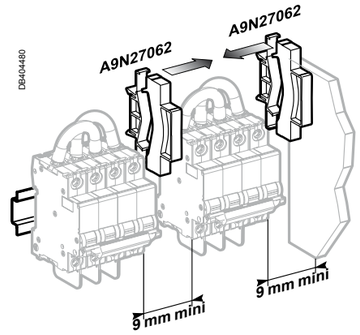




## Technical data

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



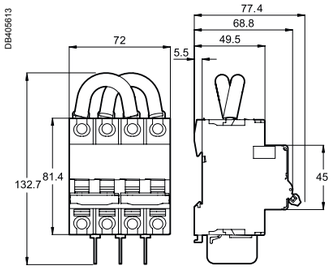




⚠ *Required to have a 9 mm space isolation in each side"*

## Weight (g)

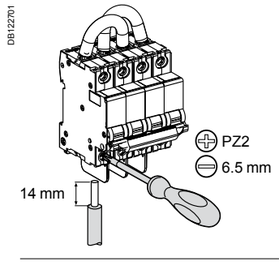
| Circuit breaker | |
|---|---|
| Type | C60PV-DC |
| | 545 |

## Dimensions (mm)




*C60PV-DC ≤ 25 A*

## Connection




| | | Without accessories | | | With accessories | |
|---|---|---|---|---|---|---|
| Rating | Tightening torque | Copper cables UL 486A file no. #E216919 | | | 50 mm² Cu/Al Terminal | Ring tongue terminal screw connection |
| | | Rigids | Flexibles with ferrule | | | |
| | | DB112804 | DB112805 | DB116755 | DB116756 | |
| ≤25 A | 2.5 N.m | 1 to 25 mm² | 1 to 16 mm² | | 50 mm² | Ø 5 mm |

# C60NA-DC circuit breakers

## DC main switch for photovoltaic installations

PB108404-50

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

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

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

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

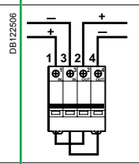
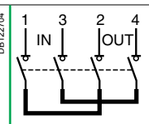
C60NA-DC is not polarity sensitive: (+) and (-) wires can inversed without any risk.

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

### IEC / EN 60947-3

CE

DB404841


| Main characteristics | |
|---|---|
| Operating voltage (Ue) | 20 A: 1000 V CC |
| | 32 A: 800 V CC |
| | 50 A: 700 V CC |
| Rated insulation voltage (Ui) | 1,000 V DC |
| Rated operational current (Ie) | 50 A |
| Impulse voltage (Uimp) | 6 kV |
| Permissible rated short-time withstand current (Icw) | 600 A |
| Rated short-circuit closing current (Icm) | 1 kA |
| Electrical connection | By the top for In and Out |
| Number of poles | 2P |
| Number of modules of 9 mm | 8 |
| Diagrams | DB122506  DB122704  |
| Standards | IEC 60947-3<br>EN 60947-3 |
| Catalogue number | A9N61690 |
| Auxiliaries | See modules CA907008 and CA907013 |

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

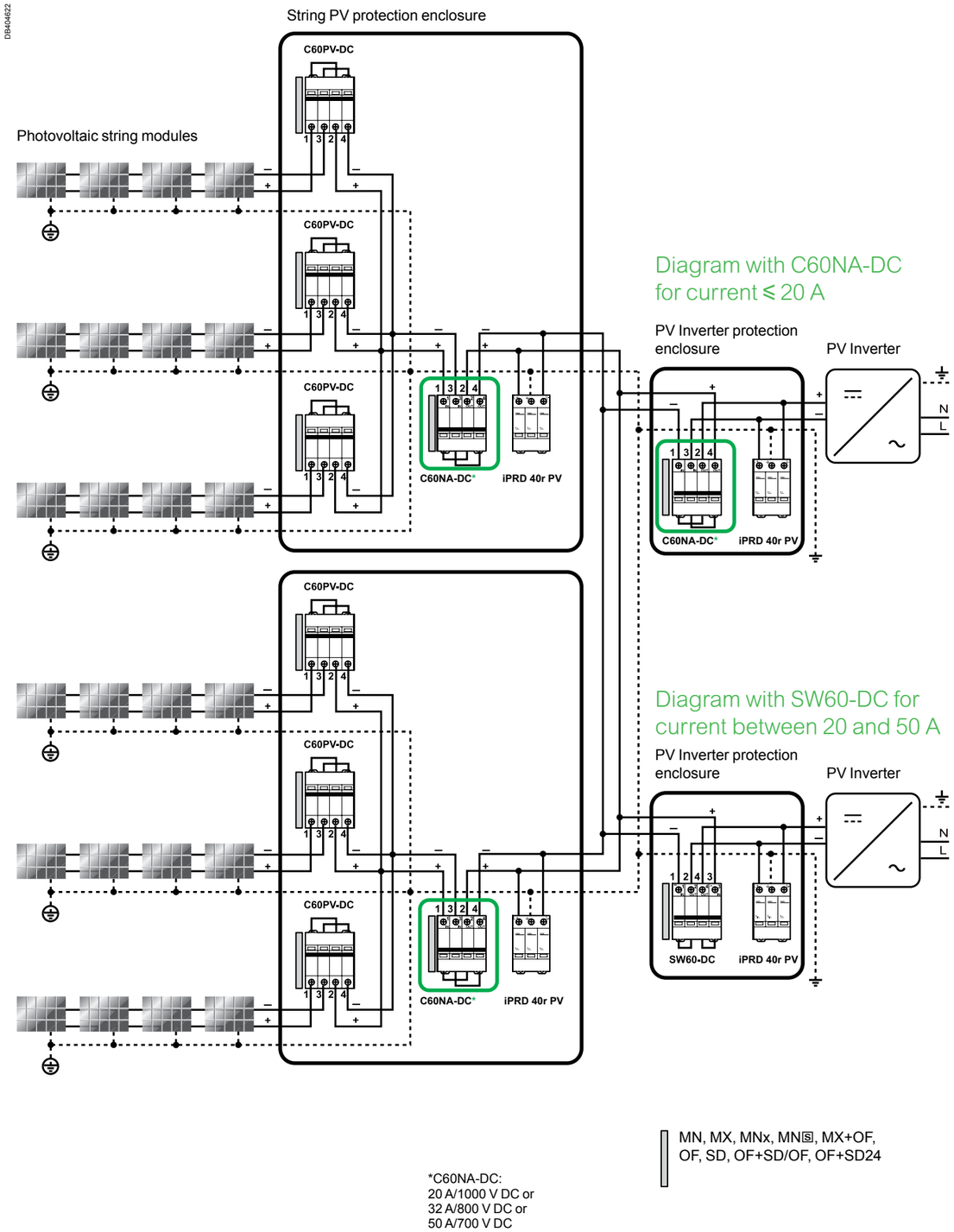




C60NA-DC circuit breakers
DC main switch for photovoltaic installations

## Application diagram

DB404622



# C60NA-DC circuit breakers

## DC main switch for photovoltaic installations

### Technical data

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

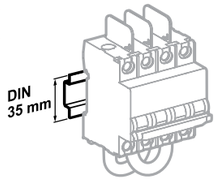
| | | |
|---|---|---|
| Endurance (O-C) | Electrical | 300 cycles |
| | Mechanical | 20,000 cycles |
| Degree of pollution | | 2 |
| Category | | DC21B |
| Degree of protection (IEC 60529) | Device in modular enclosure | IP40 |
| Tropicalisation | | Relative humidity: 95 % at 55°C in accordance with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

**Derating table (A)**

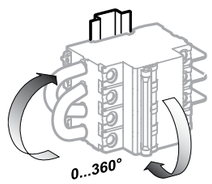
| C60NA-DC | Ambient temperature (°C) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rating | +5 | +10 | +15 | +20 | +25 | +30 | +35 | +40 | +45 | +50 | +60 | +70 |
| 50 A | 63 | 61 | 60 | 58 | 56 | 54 | 52 | 50 | 48 | 46 | 41 | 35 |

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

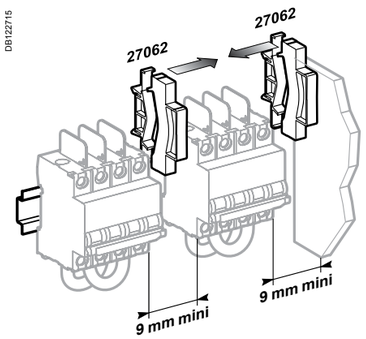
DB122713




DB122714




DB122715




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





# C60NA-DC circuit breakers

## DC main switch for photovoltaic installations

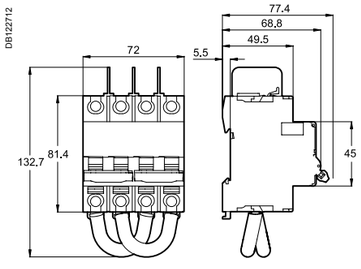
### Technical data

#### Weight (g)

| Switch disconnector | |
|---|---|
| Type | C60NA-DC |
| | 530 |

#### Dimensions (mm)

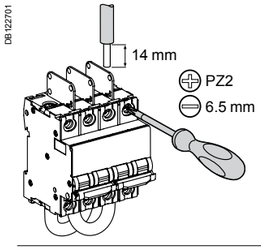
DB122712




*C60NA-DC*

#### Connection

DB122701




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

# Switch SW60-DC circuit breakers

## DC main switch for photovoltaic installations


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

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

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

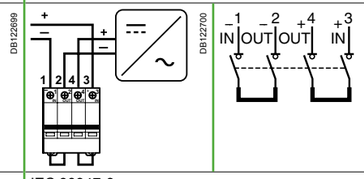
It can be locked (by a padlocking device) in OFF position to ensure safety when removing the PV inverter.

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

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


### IEC / EN 60947-3

CE

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





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

## Applications

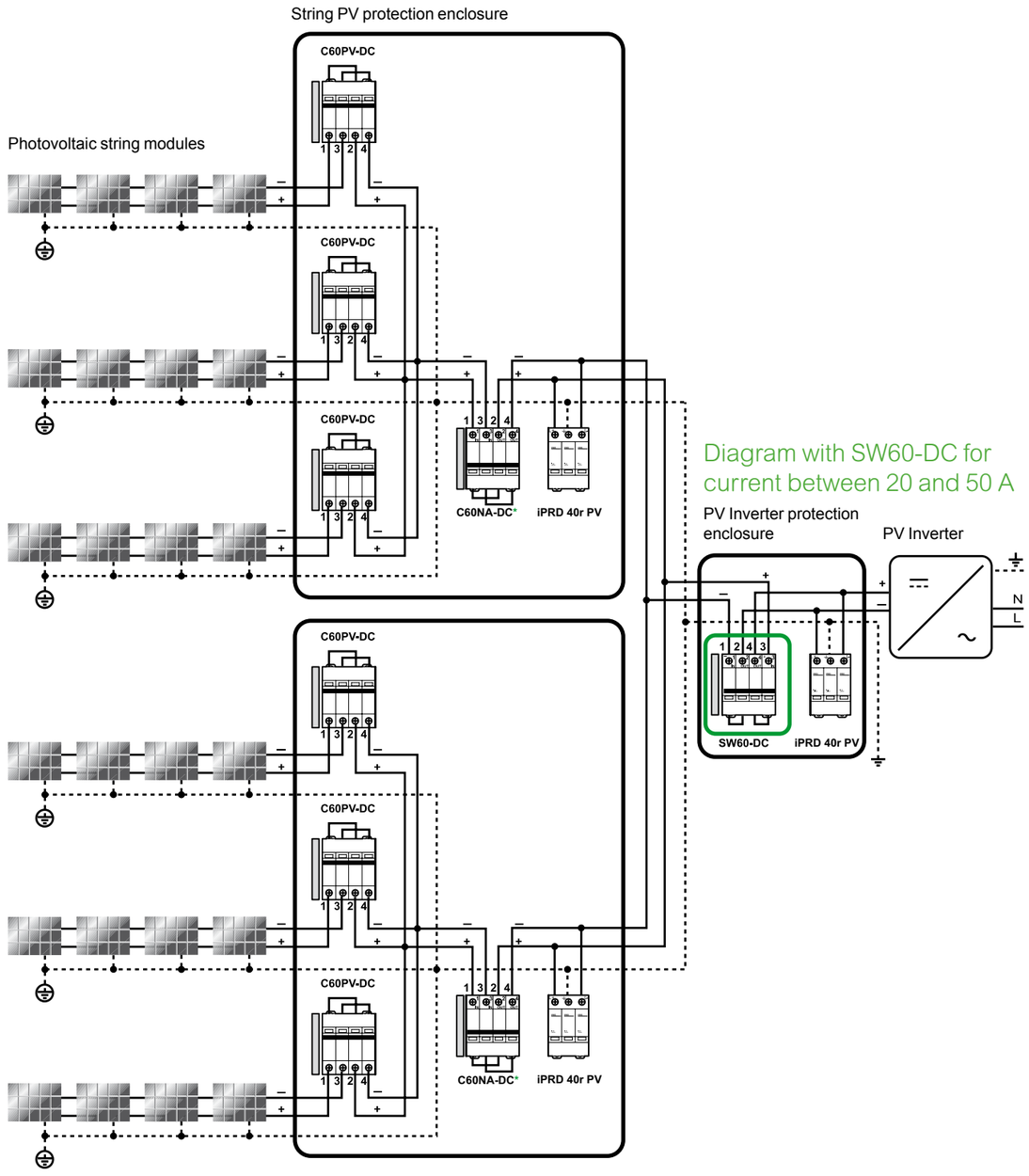



Diagram with SW60-DC for current between 20 and 50 A

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

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

# Switch SW60-DC circuit breakers

## DC main switch for photovoltaic installations

### Technical data

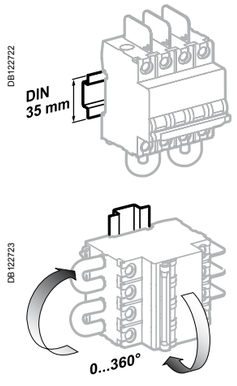
- Position contact indication - suitability for isolation according to IEC/EN 60947-3 standard.
- The presence of the green strip guarantees physical opening of the contacts and allows operations to be performed on the downstream circuit in complete safety.
- Increased product service life thanks to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

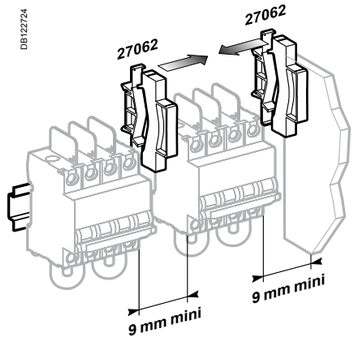
| Main characteristics | | |
|---|---|---|
| Endurance (O-C) | Electrical | 1,500 cycles |
| | Mechanical | 20,000 cycles |
| Degree of pollution | | 2 |
| Category | | DC21A |
| Degree of protection (IEC 60529) | Device in modular enclosure | IP40 |
| Tropicalisation | | Relative humidity: 95 % at 55°C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

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

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

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




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

*Failure to match polarity during connection may lead to a fire hazard and/or serious injury.*
*The connection polarity must be observed (marked on the front panel).*
*Use only with direct current.*





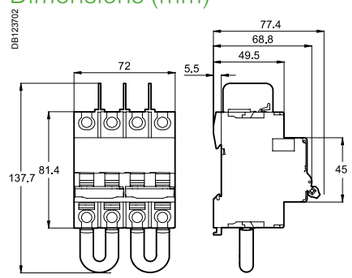
Switch SW60-DC circuit breakers
DC main switch for photovoltaic installations

## Technical data

### Weight (g)

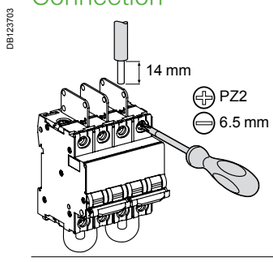
| Switch disconnector | |
|---|---|
| Type | SW60-DC |
| | 530 |

### Dimensions (mm)




*SW60-DC*

### Connection




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

# C120NA-DC circuit breakers

## DC main switch for photovoltaic installations


### IEC / EN 60947-3

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

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

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

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

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

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

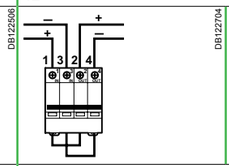
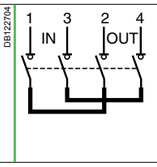

**Prewired**
- The cables crosssection is suitable
- The tightening torque is mastered





# C120NA-DC circuit breakers

## DC main switch for photovoltaic installations

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

### Additional technical data

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

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

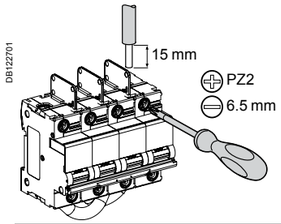
**Derating table (A)**

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

# C120NA-DC circuit breakers

## DC main switch for photovoltaic installations

### Upstream connection



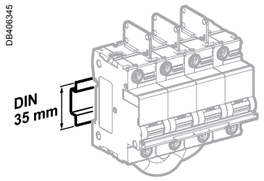

| Tightening torque | Without accessories: Copper cables – Rigids | Without accessories: Copper cables – Flexibles with ferrule | With accessories: 50 mm² Cu/Al Terminal | With accessories: Screw on connection for ring terminal | With accessories: Multi-cables terminal – Rigid cables | With accessories: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

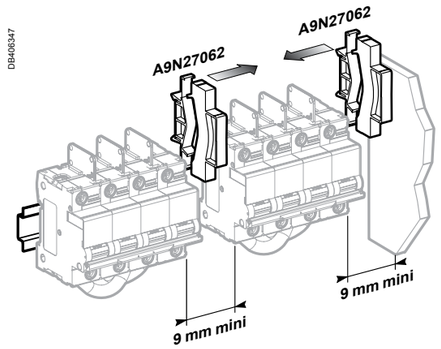
Downstream connection

Prewired delivered product: Do not remove

Moreover it is recommended to use:

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



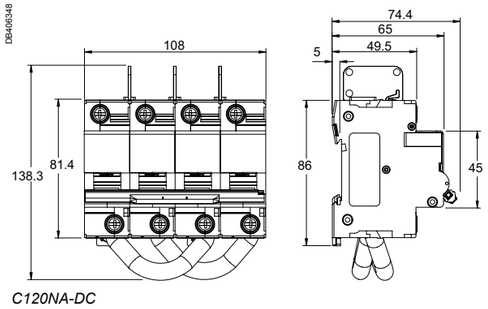




*Required: to have a 9 mm space isolation in each side"*

### Weight (g)

| Switch disconnector | |
|---|---|
| Type | C120NA-DC |
| | 910 |

### Dimensions (mm)




*C120NA-DC*



Circuit protection
www.schneider-electric.com/sg

# C120NA-DC circuit breakers

## DC main switch for photovoltaic installations

### Application diagram

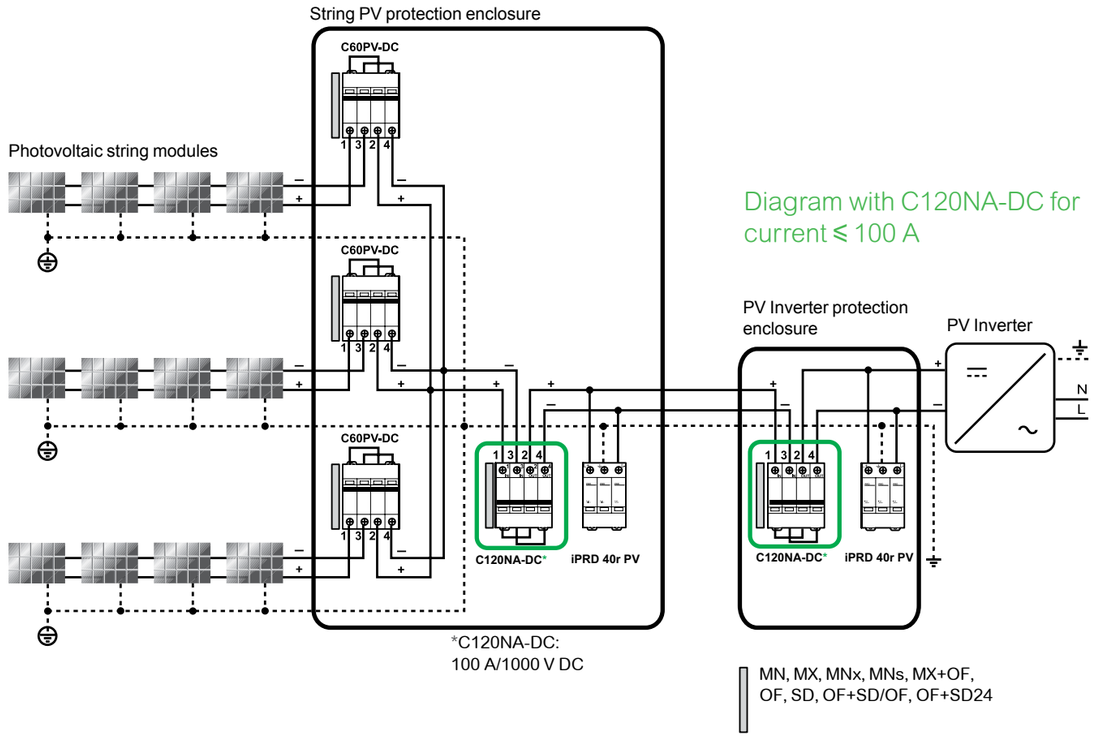



Diagram with C120NA-DC for current ⩽ 100 A

# Choice of earth leakage protection devices

## Choice of sensitivity

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

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

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

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





# Choice of earth leakage protection devices

## Interference immunity

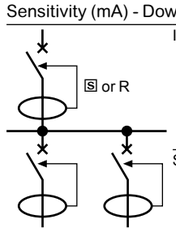
Schneider Electric provides various equipment technologies capable of overcoming the consequences of interference of all kinds.

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

*(1) SiE for C120 and NG125 circuit-breakers*

## Discrimination

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




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

# Overview of the earth leakage protection product range

## Selection guide

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

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

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

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

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

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



Version 2.0 - May 2017
Acti9

# iID residual current circuit breakers

## AC type

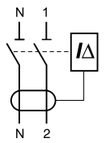
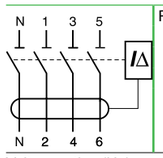


### IEC/EN 61008-1

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

### Catalogue numbers

**iID residual current circuit breakers for 230/400 V network**

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





# iID residual current circuit breakers

## A type

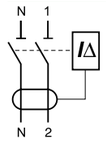
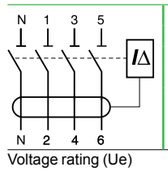


### IEC/EN 61008-1

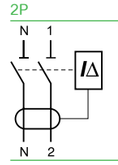
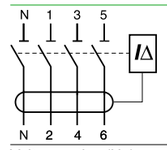
- The iID residual current circuit breakers provide:
  - protection of persons against electric shock by direct contact (y 30 mA),
  - protection of persons against electric shock by indirect contact (u 100 mA),
  - protection of installations against the risk of fire (300 mA or 500 mA).

### Catalogue numbers

**iID residual current circuit breakers for 230/400 V network**

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

**iID residual current circuit breakers for 110/230 V network**

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

# iID residual current circuit breakers

## SI type


PB104472-40


PB104473-40

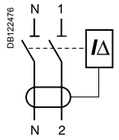
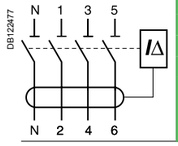
### IEC/EN 61008-1

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

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

## Catalogue numbers

**iID residual current circuit breakers for 230/400 V network**

| Type | | | SI | | | | | Width in 9 mm module |
|---|---|---|---|---|---|---|---|---|
| Auxiliaries | | | Module CA907002 | | | | | |
| 2P | | Sensitivity | 10 mA | 30 mA | 300 mA | 300 mA S | 500 mA S | |
|  DB122476 | Rating | 16 A | - | - | - | - | - | 4 |
| | | 25 A | A9R30225 | A9R91225 | - | - | - | |
| | | 40 A | - | A9R91240 | - | A9R35240 | - | |
| | | 63 A | - | A9R91263 | - | A9R35263 | - | |
| | | 100 A | - | - | - | A9R35291 | - | |
| 4P | | Sensitivity | 10 mA | 30 mA | 300 mA | 300 mA S | 500 mA S | |
|  DB122477 | Rating | 25 A | - | A9R91425 | - | - | - | 8 |
| | | 40 A | - | A9R91440 | - | A9R35440 | A9R37440 | |
| | | 63 A | - | A9R91463 | A9R34463 | A9R35463 | A9R37463 | |
| | | 80 A | - | A9R31480 | - | A9R35480 | A9R37480 | |
| | | 100 A | - | A9R31491 | A9R34491 | A9R35491 | - | |
| Voltage rating (Ue) | | 2P | 230 - 240 V | | | | | |
| | | 4P | 400 - 415 V | | | | | |
| Operating frequency | | | 50/60 Hz | | | | | |
| Accessories | | | Module CA907000 and CA907001 | | | | | |

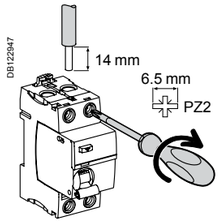




# iID residual current circuit breakers

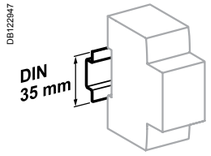
## AC, A, SI types

### Connection

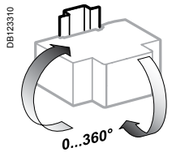



| Type | Tightening torque | Without accessories: Copper cables: Rigid | Without accessories: Copper cables: Flexible or with ferrule | With accessories*: 50 mm² Al terminal | With accessories*: Screw-on connection for ring terminal | With accessories*: Multi-cables terminal: Rigid cables | With accessories*: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

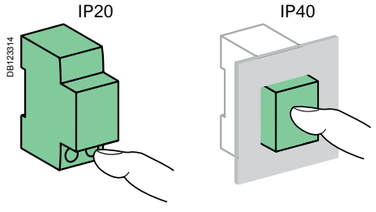
** See module CA907000*




*Clip on DIN rail 35 mm.*




*Indifferent position of installation.*




### Technical data

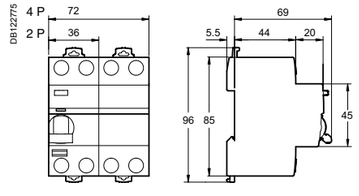
| Main characteristics | | | |
|---|---|---|---|
| Insulation voltage (Ui) | | | 500 V |
| Pollution degree | | | 3 |
| Rated impulse withstand voltage (Uimp) | | | 6 kV |
| According to IEC/EN 61008-1 | | | |
| Making and breaking capacity (Im/IΔm) | | | 1500 A |
| Surge current withstand (8/20 µs) without tripping | AC and A types (no selective s) | | 250 Â |
| | AC, A types (selective S) | | 3 kÂ |
| | SI type | | 3 kÂ |
| Conditional rated short circuit current (Inc/IΔc) | With iC60N/H/L | | Equal to breaking capacity of iC60 |
| | With fuse | 100 A | 10,000 A |
| Behaviour in case of voltage drop | | | Residual current protection down to 0 V according to IEC/EN 61008-1 § 3.3.4 |

| Additional characteristics | | | |
|---|---|---|---|
| Degree of protection | Device only | | IP20 |
| | Device in modular enclosure | | IP40<br>Insulation class II |
| Endurance (O-C) | Electrical (AC1) | 16 to 63 A | 15,000 cycles |
| | | 80 to 100 A | 10,000 cycles |
| | Mechanical | | 20,000 cycles |
| Operating temperature | AC type | | -5°C to +60°C |
| | A and SI types | -25°C | -25°C to +60°C |
| Storage temperature | | | -40°C to +85°C |

### Weight (g)

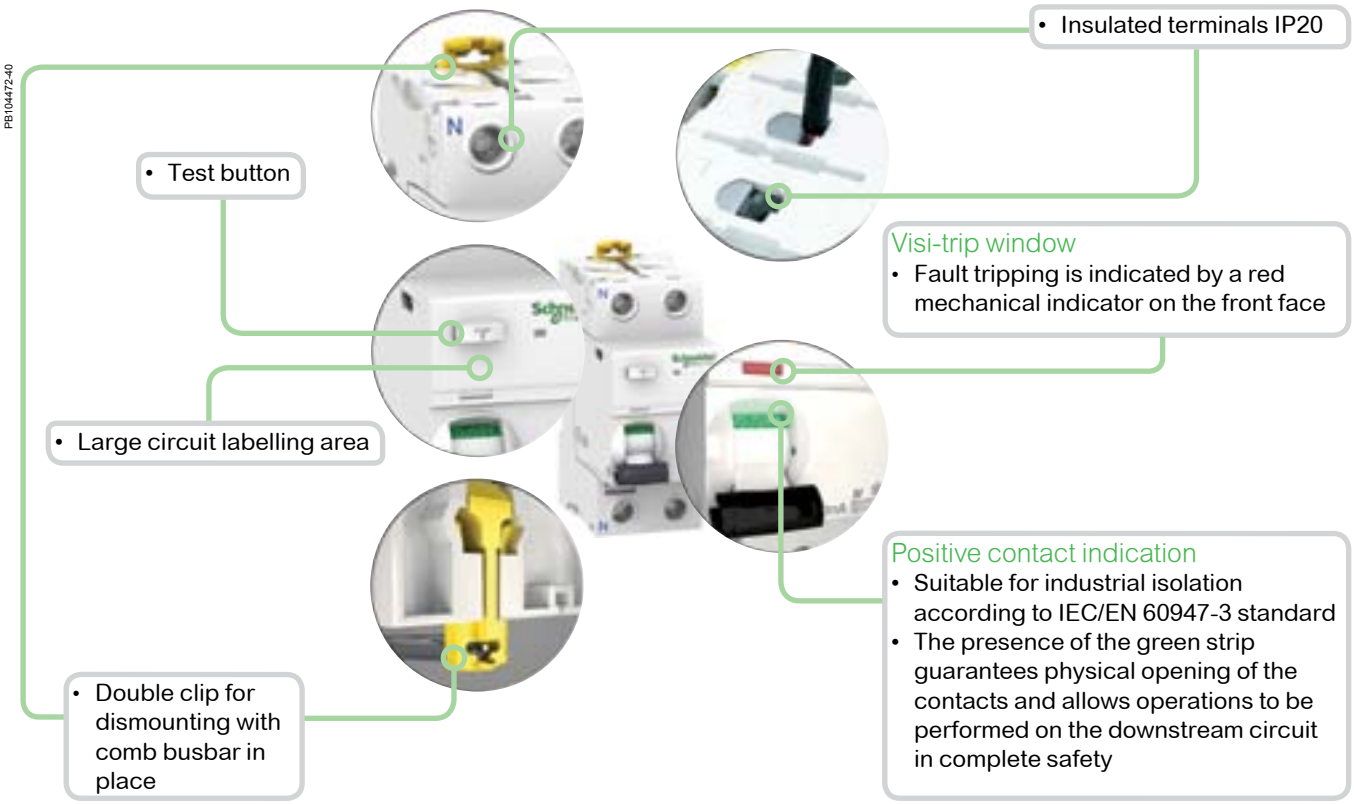
| Residual current circuit breakers | |
|---|---|
| Type | iID |
| 2P | 210 |
| 4P | 370 |

### Dimensions (mm)



# iID residual current circuit breakers

## AC, A, SI types


### SI type

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

# RCCB-ID residual current circuit breakers

## B type

PB111261-35

*16766*

PB107510-33

*16940*

PB100572-18

*16939*

## IEC/EN 61008-1, VDE 0664

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

**B type**

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

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

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

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

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

### OFsp auxiliary

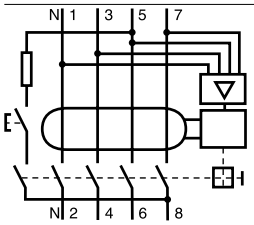
- Electrical indication: by OFsp auxiliary mounted to the left.
  It has a double changeover switch indicating the "open" or "closed" position of the RCCB-ID B type.

### Accessories

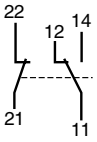
- 4P sealable screw shield.

## Catalogue numbers

**RCCB-ID B type residual current circuit breakers**

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

**Auxiliary**

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

**Accessory**

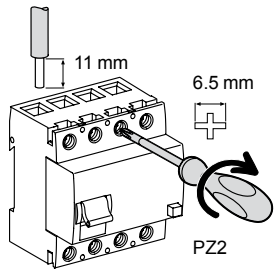
| Type | Number of pole | |
|---|---|---|
| Screw shield (set of 10) for upstream or downstream | 4P | 16939 |

# RCCB-ID residual current circuit breakers

## B type

## Connection

DB123736

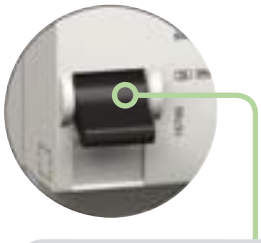



| Type | Tightening torque | Copper cables | | | |
|---|---|---|---|---|---|
| | | Rigid | | Flexible or with ferrule | |
| | | DB122945 | | DB122946 | |
| RCCB-ID B type | 3 N.m (27 lb.in) | 1 x 1.5 to 50 mm² | 1 x AWG #16 to #1 | 1 x 1.5 to 35 mm² | 1 x AWG #16 to #2 |
| | | 2 x 1.5 to 16 mm² | 2 x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

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

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

DB122842



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

## Technical data

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

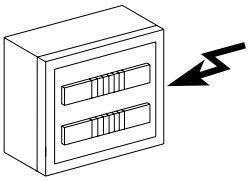
| Additional characteristics | | |
|---|---|---|
| Degree of protection (IEC 60529) | Device only | IP20 |
| | Device in modular enclosure | IP40<br>Insulation class II |
| Endurance (O-C) | Electrical | > 2 000 cycles |
| | Mechanical | > 5 000 cycles |
| Range of test button operating voltage | 30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

## Weight (g / oz)

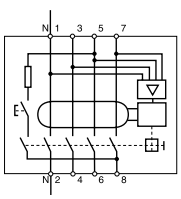
| Residual current circuit breakers and auxiliary | | |
|---|---|---|
| Type | RCCB-ID B type | OFsp |
| 4P | 450 g / 15.87 oz | 40 g / 1.41 oz |

## Dielectric test

E63606



DB109414

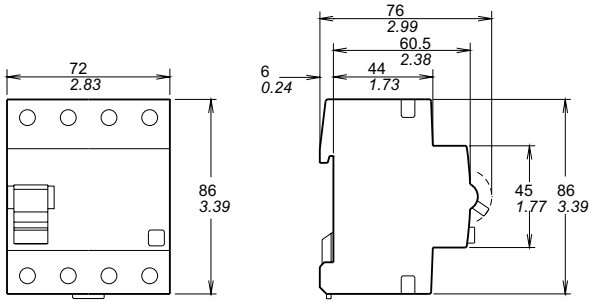



⚠ *To perform the dielectric test, disconnect terminals 3, 5, 7 and 4, 6, 8.*

## Dimensions (mm / inches)

DB122838

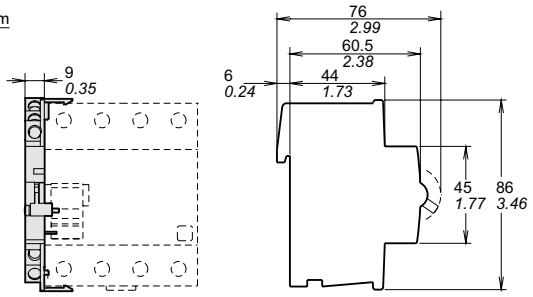
mm
in




*RCCB-ID B type*

DB124102

mm
in




*Contact OFsp*

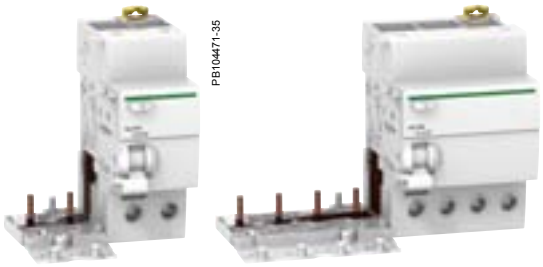
# Vigi iC60 residual current devices add-on

## AC type

DB116619 DB123430

*Country approval pictograms*

PB104466-35 PB104471-35



## IEC/EN 61009-1

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

## Catalogue numbers

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

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

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

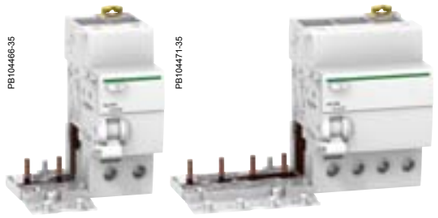
| Type | | | AC ~ | | Width in 9 mm modules |
|---|---|---|---|---|---|
| Auxiliaries | | | Without auxiliaries | | |
| 2P | | Sensitivity | 30 mA | 300 mA | |
| DB122462 | Rating | 25 A | A9V01225 | A9V04225 | 3 |
| | | 40 A | A9V01240 | A9V04240 | 4 |
| | | 63 A | A9V01263 | A9V04263 | 4 |
| Voltage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

# Vigi iC60 residual current devices add-on

## A type

DB116619 DB123430

*Country approval pictograms*

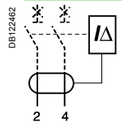
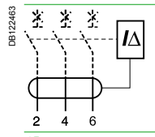
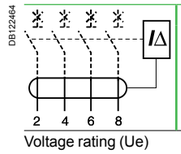



### IEC/EN 61009-1

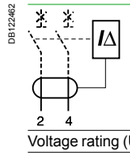
- Combined with iC60 circuit breaker, the Vigi iC60 provide:
  - protection of persons against electric shock by direct contact (30 mA),
  - protection of persons against electric shock by indirect contact (u 100 mA),
  - protection of installations against the risk of fire (300 mA or 500 mA).

## Catalogue numbers

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

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

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

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



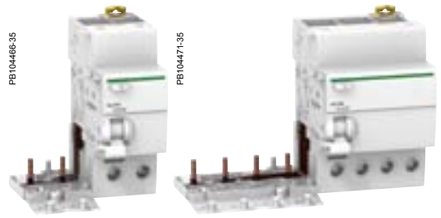


# Vigi iC60 residual current devices add-on

## SI type

DB116619 DB123430

*Country approval pictograms*



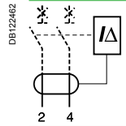
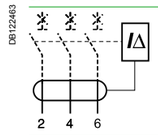
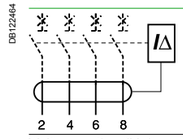

### IEC/EN 61009-1

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

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

## Catalogue numbers

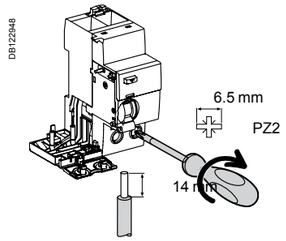
**Vigi iC60 add-on residual current devices for 230/400 V network**

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

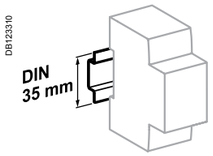
# Vigi iC60 residual current devices add-on

## AC, A, SI types

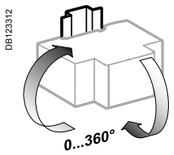
### Connection



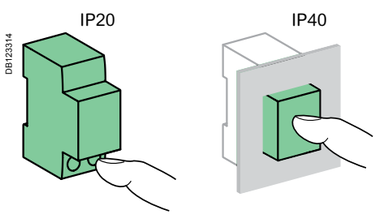

| Type | Rating | Tightening torque | Copper cables | |
|---|---|---|---|---|
| | | | Rigid | Flexible or with ferrule |
| | | |  |  |
| Vigi iC60 | 25 A | 2 N.m | 1 to 25 mm² | 1 to 16 mm² |
| | 40 to 63 A | 3.5 N.m | 1 to 35 mm² | 1 to 25 mm² |




*Clip on DIN rail 35 mm.*




*Indifferent position of installation.*




### Technical data

| Main characteristics | | |
|---|---|---|
| Insulation voltage (Ui) | | 500 V |
| Pollution degree | | 3 |
| Rated impulse withstand voltage (Uimp) | | 6 kV |
| According to IEC/EN 61009-1 | | |
| Surge current withstand (8/20 µs) without tripping | AC and A types (no selective s) | 250 Â |
| | AC, A types (selective s) | 3 kÂ |
| | SI type | 3 kÂ |
| Behaviour in case of voltage drop | | Residual current protection down to 0 V according to IEC/EN 61009-1 § 3.3.8 |
| **Additional characteristics** | | |
| Degree of protection | Device only | IP20 |
| | Device in modular enclosure | IP40<br>Insulation class II |
| Operating temperature | AC type | -5°C to +60°C |
| | A and SI types | -25°C to +60°C |
| Storage temperature | | -40°C to +85°C |





# Vigi iC60 residual current devices add-on

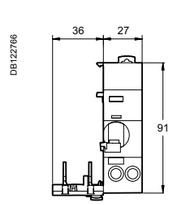
## AC, A, SI types

### Weight (g)

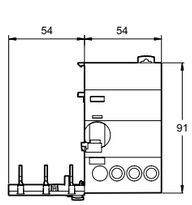
| Add-on residual current devices | |
|---|---|
| Type | Vigi iC60 |
| 2P | 165 |
| 3P | 210 |
| 4P | 245 |

### Dimensions (mm)

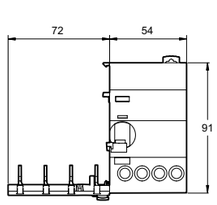
Vigi iC60 25 A



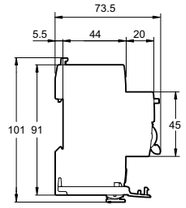

*2P*



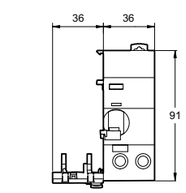

*3P*



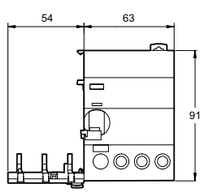

*4P*



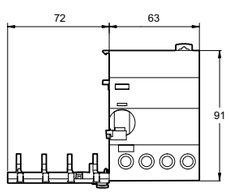

Vigi iC60 40 and 63 A



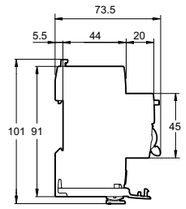

*2P*




*3P*




*4P*



# iDPN Vigi residual current devices


*iDPN H Vigi*

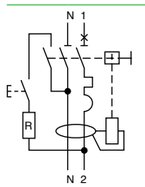

*iDPN N Vigi*

## IEC/EN 61009-1

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

## Catalogue numbers

**iDPN N Vigi 6000**

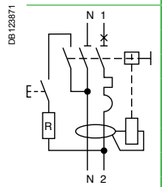
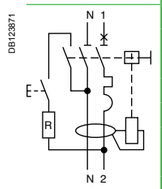
| Type | | | A ~ | Width in 9 mm modules |
|---|---|---|---|---|
| Auxiliaries | | | Module CA907000 and CA907013 | |
| 1P+N Curve B | | Sensitivity | 30 mA | |
|  | Rating (In) | 10 A | A9D06610 | 4 |
| | | 16 A | A9D06616 | |
| | | 20 A | A9D06620 | |
| 1P+N Curve C | | Sensitivity | 30 mA | |
|  |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





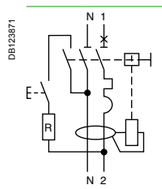
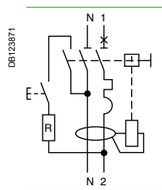
# iDPN Vigi residual current devices

**iDPN N Vigi 6000**

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

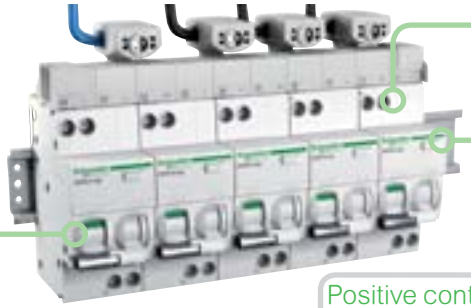
## Catalogue numbers

**iDPN H Vigi 10000**

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

# iDPN Vigi residual current devices

- Fast contact closure

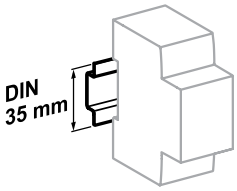


- Insulated terminals IP20
- Test button

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

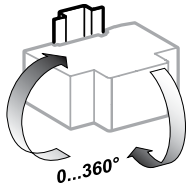
**Positive contact indication**
- A green strip on the toggle guarantees opening of all the poles in safety conditions (padlocking possible) for work to be carried out on live parts

DB123310



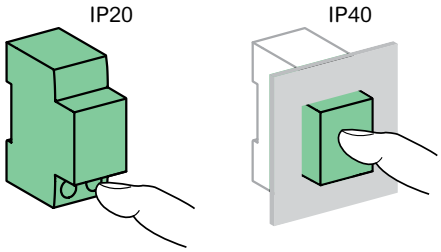

*Clip on DIN rail 35 mm.*

DB123312




*Indifferent position of installation.*

DB123314

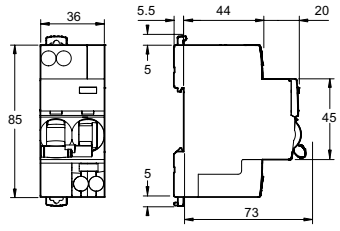



## Weight (g)

| Residual current device | |
|---|---|
| Type | iDPN Vigi |
| 1P+N | 125 |

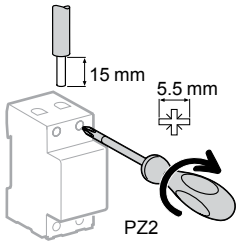
## Dimensions (mm)

DB124454




## Connection

DB123947




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

## Technical data

| Main characteristics | | | |
|---|---|---|---|
| Type | | iDPN N Vigi | iDPN H Vigi |
| Insulation voltage (Ui) | | 400 V AC | |
| Pollution degree | | 3 | |
| Rated impulse withstand voltage (Uimp) | | 4 kV | |
| Setting temperature for ratings | | 30°C | |
| Magnetic tripping | Curve B | Between 3 and 5 In | |
| | Curve C | Between 5 and 10 In | |
| According to IEC/EN 61009-1 | | | |
| Limitation class | | 3 | |
| Rated breaking capacity (Icn) | | 6000 A | 10,000 A |
| Rated residual breaking and making capacity (IDm) | | 6000 A | 10,000 A |
| 8/20 µs impulse withstand | Type AC | 250 Â | 250 Â |
| | Type A | 250 Â | 250 Â |
| | Type SI | 3 kÂ | 3 kÂ |
| Behaviour in case of voltage drop | | Residual current protection down to 0 V according to IEC/EN 61009-1 § 3.3.8 | |

| Additional characteristics | | | | |
|---|---|---|---|---|
| Earth leakage protection with instantaneous tripping | | | 10, 30, 100, 300 mA | 30, 300 mA |
| Degree of protection (IEC 60529) | Device only | | IP20 | |
| | Device in modular enclosure | | IP40<br>Insulation class II | |
| Endurance (O-C) | Electrical | ⩽ 20 A | 20,000 cycles | |
| | | ⩾ 25 A | 10,000 cycles | |
| | Mechanical | | 20,000 cycles | |
| Overvoltage category (IEC 60364) | | | III | |
| Operating temperature | Type AC | | -5°C to +60°C | |
| | Type A, SI | -25°C | -25°C to +60°C | |
| Storage temperature | | | -40°C to +85°C | |
| Tropicalization (IEC 60068-1) | | | Treatment 2 (relative humidity 95 % to 55°C) | |

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

## Type 1 and 2

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

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

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

Refer to Page 232 for Surge Arrester Guide.

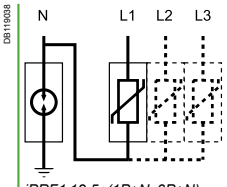


*iPRF1 12.5r (3P+N)*

*PRD1 35r (1P)*

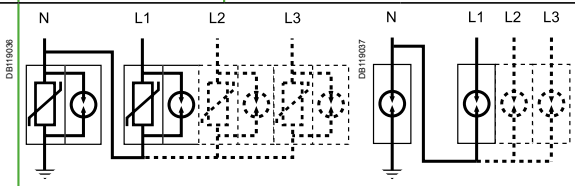
*PRD1 25r (3P+N)*

*PRD1 Master (3P+N)*




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

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

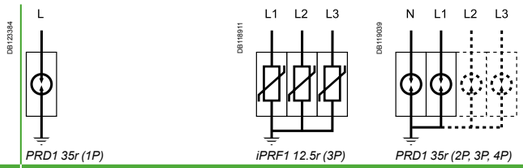



*PRD1 25r (1P+N, 3P+N)* *PRD1 Master (1P+N, 3P+N)*

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

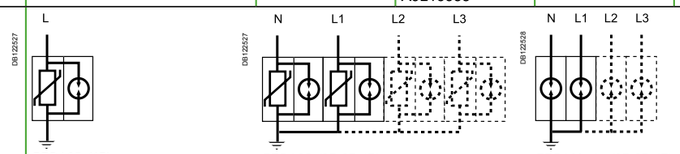
# iPRF1 12.5r/PRD1 35r/PRD1 25r/PRD1 Master LV surge arresters

## Type 1 and 2




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

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




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

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





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

## Type 1 and 2

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


*C1 Neutral-350*

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


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

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

## Type 1 and 2

## Technical data

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

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

*(*) For lightning impulse current withstand*

### PRD1 25r / PRD1 Master / PRD1 35r Reversible

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

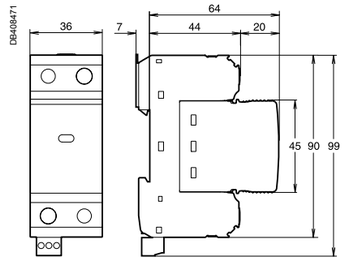





iPRF1 12.5r/PRD1 35r/PRD1 25r/PRD1 Master LV surge arresters

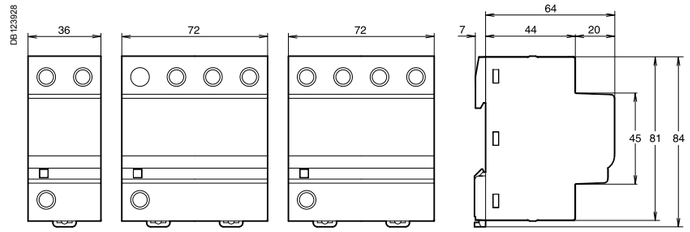
Type 1 and 2

## Dimensions (mm)



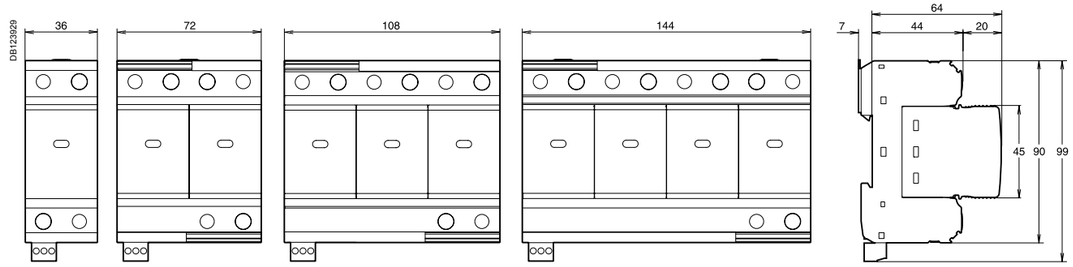

1P

*PRD1 35r*



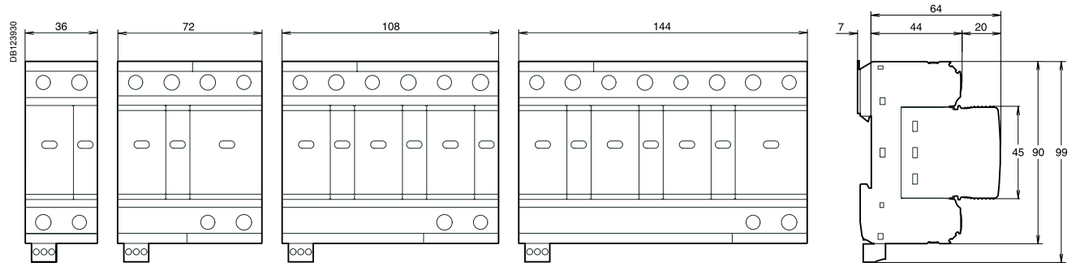

1P + N 3P 3P + N

*iPRF1 12.5r*




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

*PRD1 Master*




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

*PRD1 25r*

## Weight (g)

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

# iPF LV surge arresters

## Type 2 or 3



www.schneider-electric.com/sg

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

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

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


*1P+N.*


*3P+N.*

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

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

### Surge arrester/circuit breaker association

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



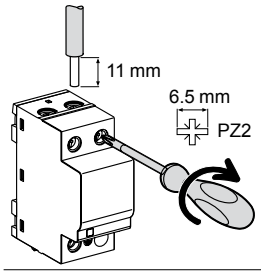
Version 2.0 - May 2017
Acti9

# iPF LV surge arresters

## Type 2 or 3

## Connection

DB123129




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

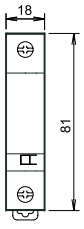
## Technical data

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

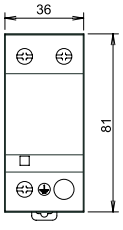
## Weight (g)

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

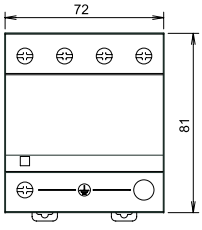
## Dimensions (mm)



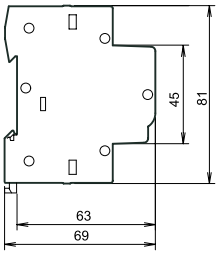

1P




1P+N
2P




3P
3P+N
4P



# iPF K LV surge arresters

## Type 2

DB406142

*Country approval pictograms*

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

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

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

PB114703-40

*1P*

PB114702-40

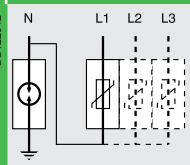
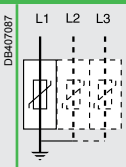
*1P+N*

PB114701-40

*3P*

PB114700-40

*3P+N*

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

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

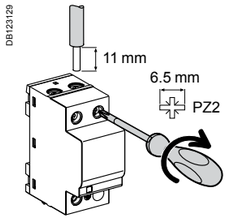
# iPF K LV surge arresters

## Type 2

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

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

## Connection



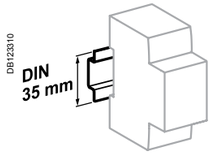

| Type | Tightening torque | Copper cables | |
|---|---|---|---|
| | | Rigid | Flexible or with ferrule |
| | | DB122945 | DB122946 |
| iPF K | 3.5 N.m | 25 mm² max. | 16 mm² max. |



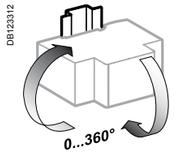


# iPF K LV surge arresters

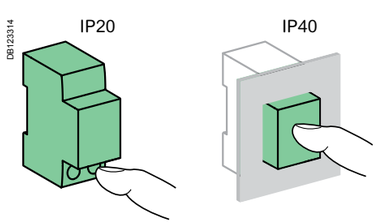
## Type 2




*Clip on DIN rail 35 mm.*




*Indifferent position of installation.*



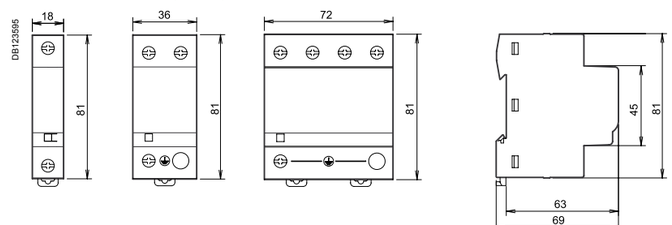

## Technical data

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

## Weight (g)

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

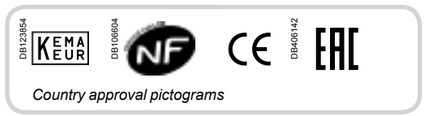
## Dimensions (mm)




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

# iPRD LV withdrawable surge arresters

## Type 2 or 3



*Country approval pictograms*

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

Each surge arrester in the range has a specific application:

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

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

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

*Cartridge*

**Spare cartridges iPRD**

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

**Spare cartridges iPRD IT**

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

## Catalogue number iPRD surge arresters

*2P*

*4P*

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

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

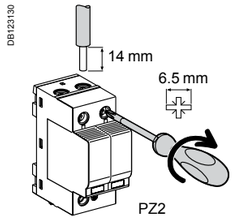


www.schneider-electric.com/sg

# iPRD LV withdrawable surge arresters

## Type 2 or 3

### Connection iPRD surge arresters

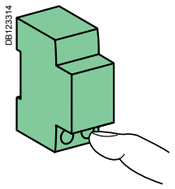



| Type | Tightening torque | Copper cables | |
|---|---|---|---|
| | | Rigid | Flexible or with ferrule |
| | |  |  |
| iPRD | 3.5 N.m | 2.5 to 25 mm² | 4 to 16 mm² |

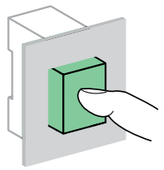
### Technical data iPRD surge arresters

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

IP20

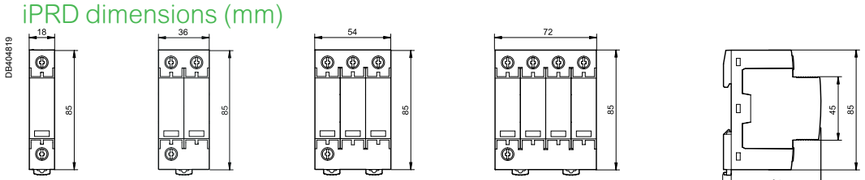



IP40



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

### iPRD dimensions (mm)




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

### Weight (g)

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

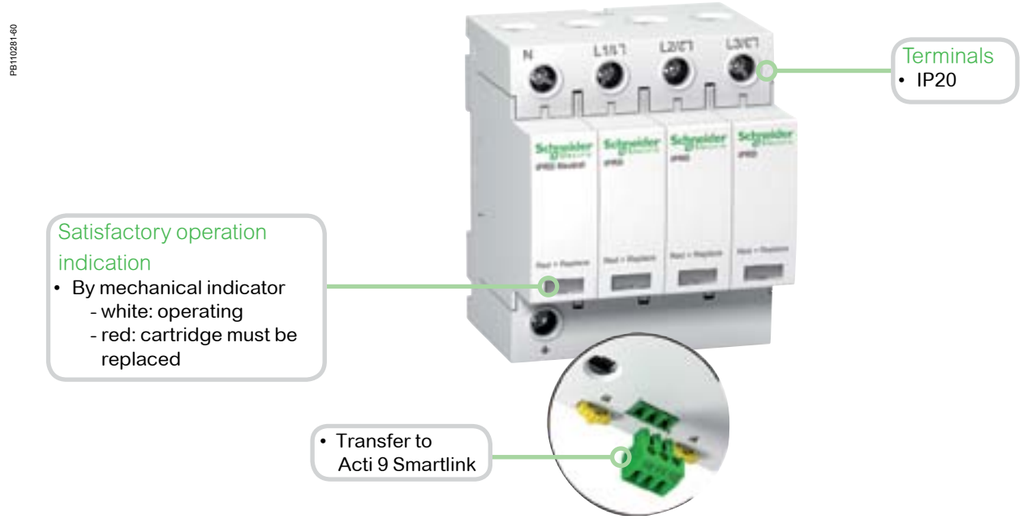




# iPRD LV withdrawable surge arresters

## Type 2 or 3

### iPRD surge arresters

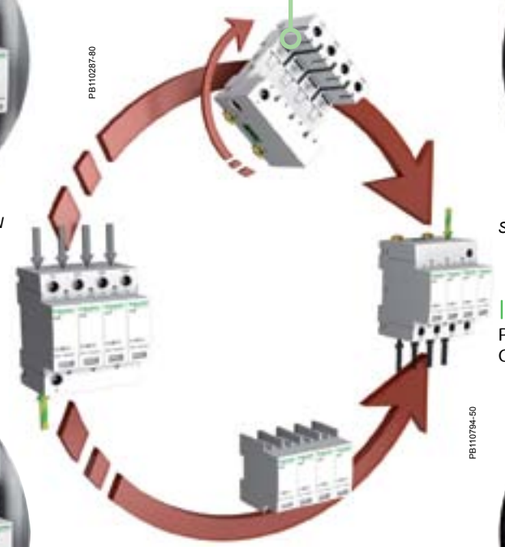



### Connection iPRD surge arrester with its short circuit disconnector

**TT / TN-S**
Power supply through the top
Connection with cables


*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


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

**IT/TNC-S with neutral**
Power supply through the top
Connection with comb busbar


*Surge arrester iPRD 4P + iC60N 4P*

**IT/TNC-S with neutral**
Power supply through the bottom
Connection with comb busbar


*Surge arrester iPRD 4P + iC60N 4P*

# iPRD LV withdrawable surge arresters

## Type 2 or 3

iPRD withdrawable surge arresters allow quick replacement of damaged cartridges.


PB105274-35

*1P+N*


PB105275-35

*3P*


PB105276-35

*3P+N*


PB105272-35

*Cartridge*

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

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

### Spare cartridges

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

### Surge arrester/circuit breaker association

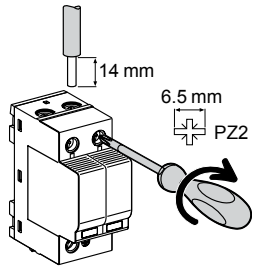
| Surge arrester | Associated circuit breaker | | |
|---|---|---|---|
| | iPRD | | iPRD IT |
| | Isc ≤ 25 kA | Isc ≤ 50 kA | Isc (IT 400 V AC) ≤ 5 kA |
| iPRD65 | Curve C 50 A | Curve C 63 A | Curve C 25 A |
| iPRD40 | Curve C 40 A | Curve C 63 A | Curve C 20 A |
| iPRD20 | Curve C 20 A | Curve C 63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

# iPRD LV withdrawable surge arresters

## Type 2 or 3

## Connection

DB123130




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

## Technical data

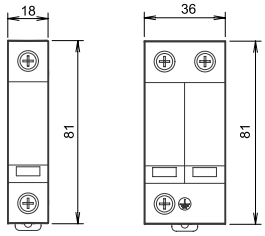
| Main characteristics | | |
|---|---|---|
| Operating frequency | | 50/60 Hz |
| Operating voltage (Ue) | | 230/400 V AC |
| Permanent operating current (Ic) | | < 1 mA |
| Response time | | < 25 ns |
| End of life indication: by mechanical indicator | White | In operation |
| | Red | At end of life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

## Weight (g)

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

## Dimensions (mm)

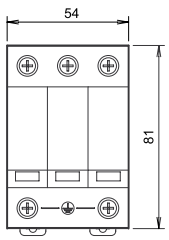
DB123596



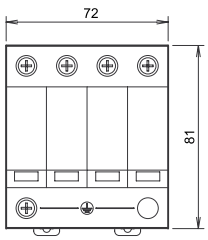

*1P*



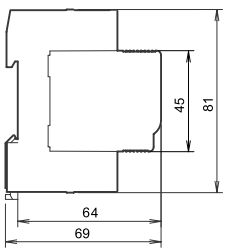

*1P+N*
*2P*




*3P*




*3P+N*
*4P*



# iPRC, iPRI surge arresters

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

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

PB104269-35

**A9L16337**

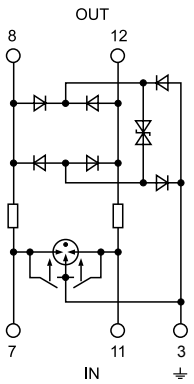
DB122624

DSL

PB104270-35

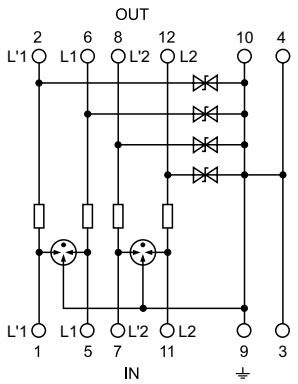
**A9L16339**

DB122585




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

DB126523



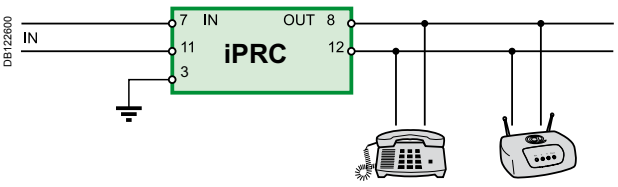

| | |
|---|---|
| Line L1 | Cables 5-6 |
| Line L2 | Cables 11-12 |
| Line L'1 | Cables 1-2 |
| Line L'2 | Cables 7-8 |
| ⏚ | Cables 3-4-9-10 |
| IN | Ligne side |
| OUT | Protected side |

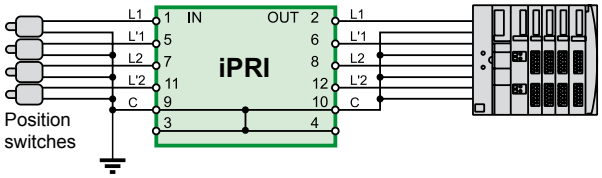
## Catalogue numbers

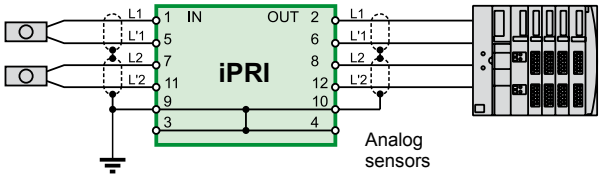
| Surge arresters | iPRC | iPRI |
|---|---|---|
| Mains voltage (Un) | <130 V AC | 48 V DC |
| Analogue telephone system | ● | – |
| Telephone transmitter | ● | – |
| Digital telephone system | – | ● |
| Automation network | – | ● |
| VLV load power supply (12…48 V) | – | ● |
| xDSL compatibility | ●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

## Diagrams

DB122600

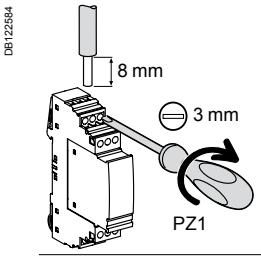


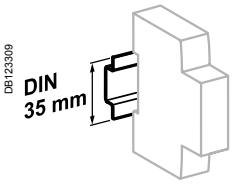



# iPRC, iPRI surge arresters

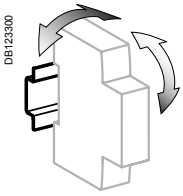
## Connection



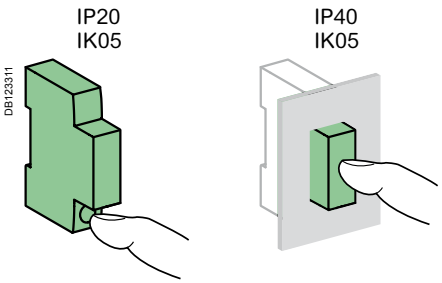

| Tightening torque | Copper cables | |
|---|---|---|
| | Rigid | Flexible or with ferrule |
| |  |  |
| 0.8 N.m | 0.2 to 4 mm² | 0.2 to 2,5 mm² |




*Clip on DIN rail 35 mm.*




*± 30° vertical.*



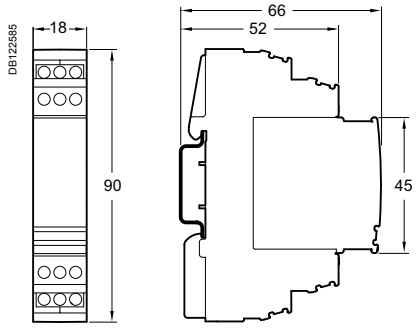

## Technical data

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

## Weight (g)

| Surge arresters | | |
|---|---|---|
| Type | iPRC | iPRI |
| | 25 | 65 |

## Dimensions (mm)



# iPRD-DC surge arresters

## Withdrawable type 2 for photovoltaic applications

CE

*Country approval pictograms*

PB107595-40

*iPRD-DC40r 600PV*

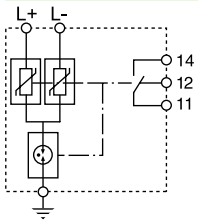
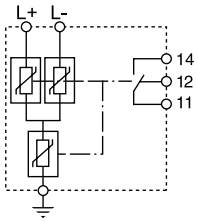
### IEC 61643-1 T2, EN 61643-11 Type 2, UTE C 61740-51 T2, prEN 50539-11 T2

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

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

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

## Catalogue numbers

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

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

PB107598-30

PB107597-30

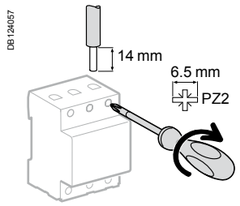
*Replacement cartridges*

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

# iPRD-DC surge arresters

## Withdrawable type 2 for photovoltaic applications

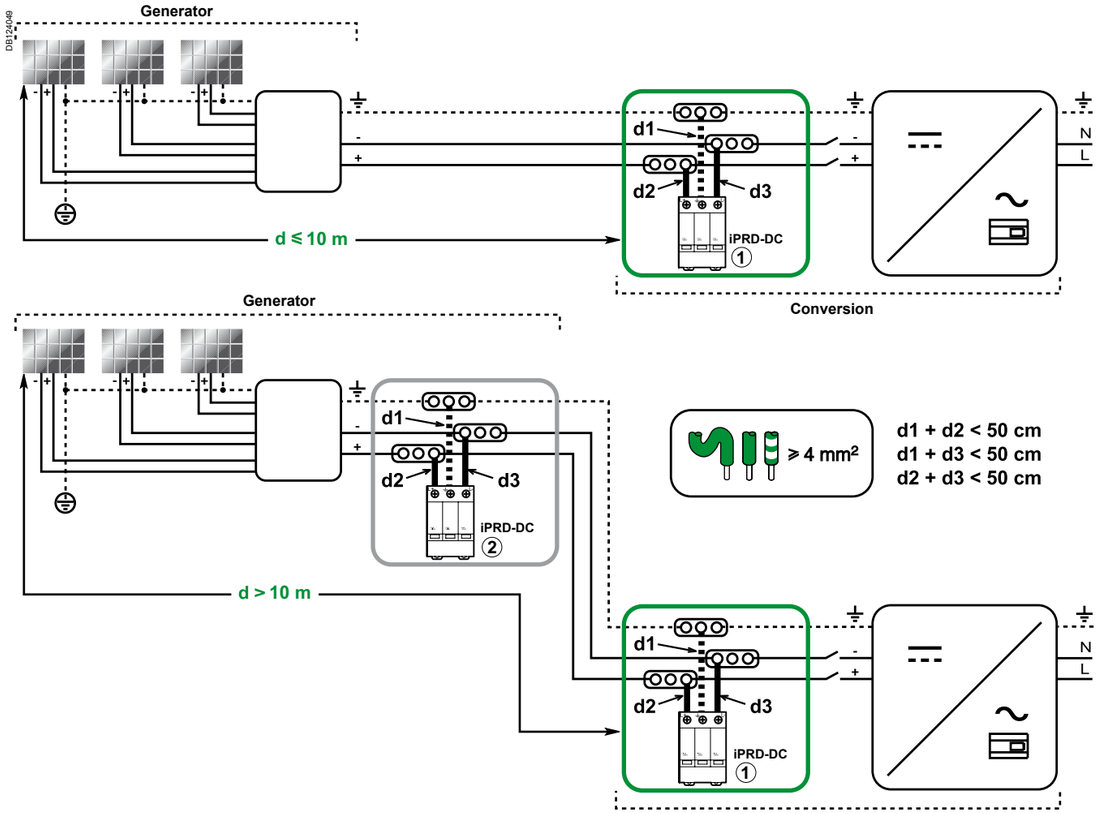
## Connection




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



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







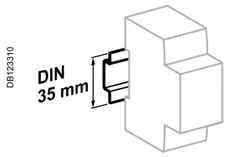
d1 + d2 < 50 cm
d1 + d3 < 50 cm
d2 + d3 < 50 cm



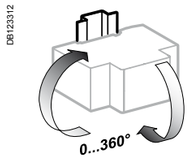


# iPRD-DC surge arresters

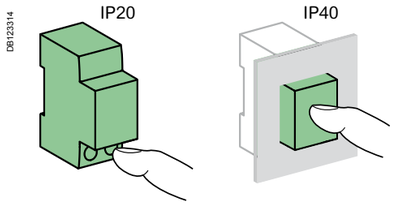
## Withdrawable type 2 for photovoltaic applications




*Clip on DIN rail 35 mm.*




*Indifferent position of installation.*



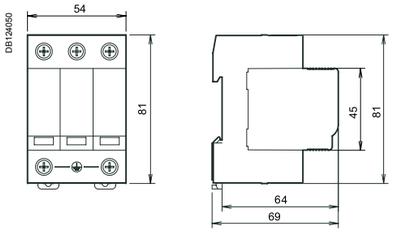

## Technical data

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

## Weight (g)

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

## Dimensions (mm)



## Connection accessories

See module CA907001

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

## Mounting accessories

See module CA907001

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

## Electrical auxiliaries

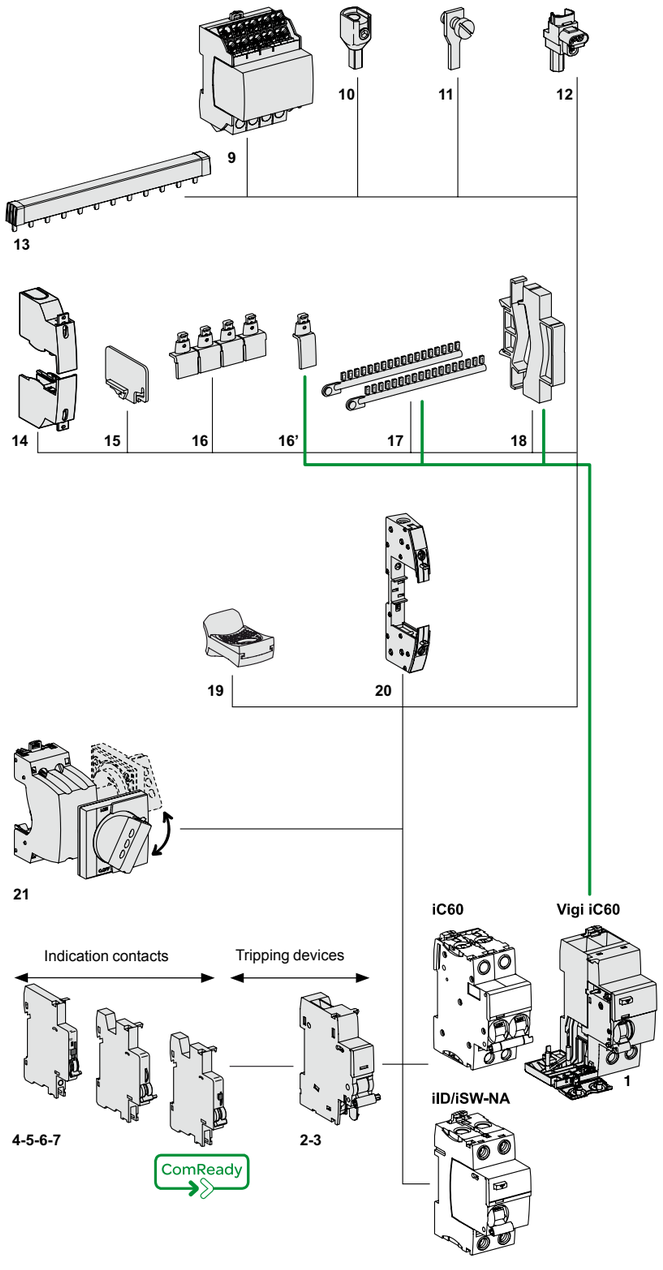
See module CA907002

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

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

## Vigi iC60

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




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

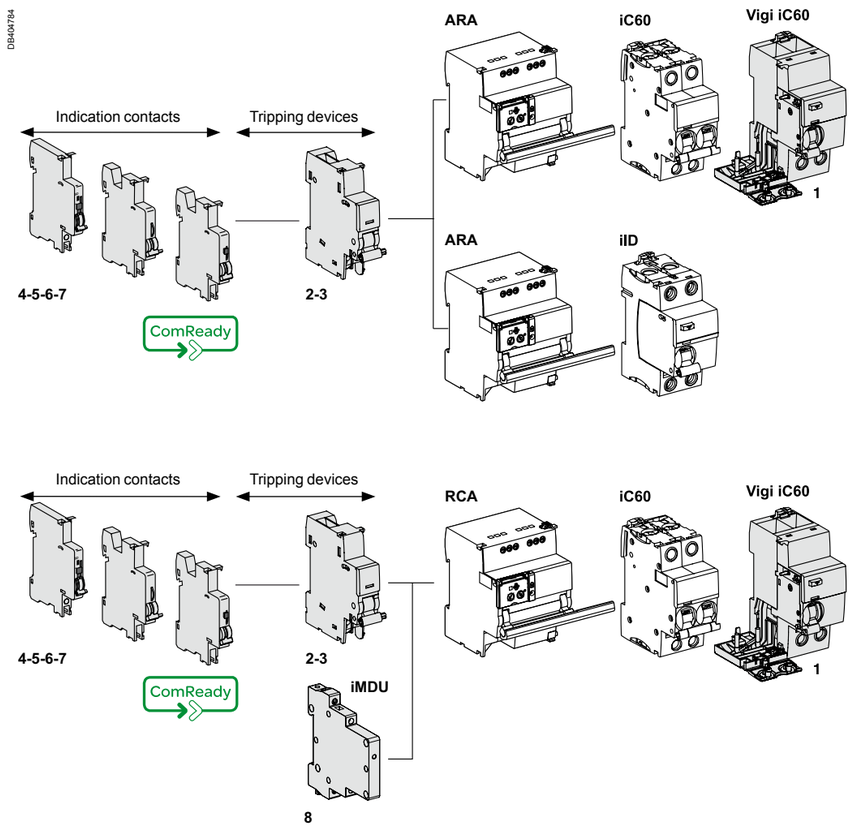


Install, connection, power distribution
www.schneider-electric.com/sg
iC60, iID, Vigi iC60, iSW-NA accessorisation/auxiliarisation

## Assembly rule

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

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



# iDPN Vigi accessorisation/auxiliarisation

## Connection accessories

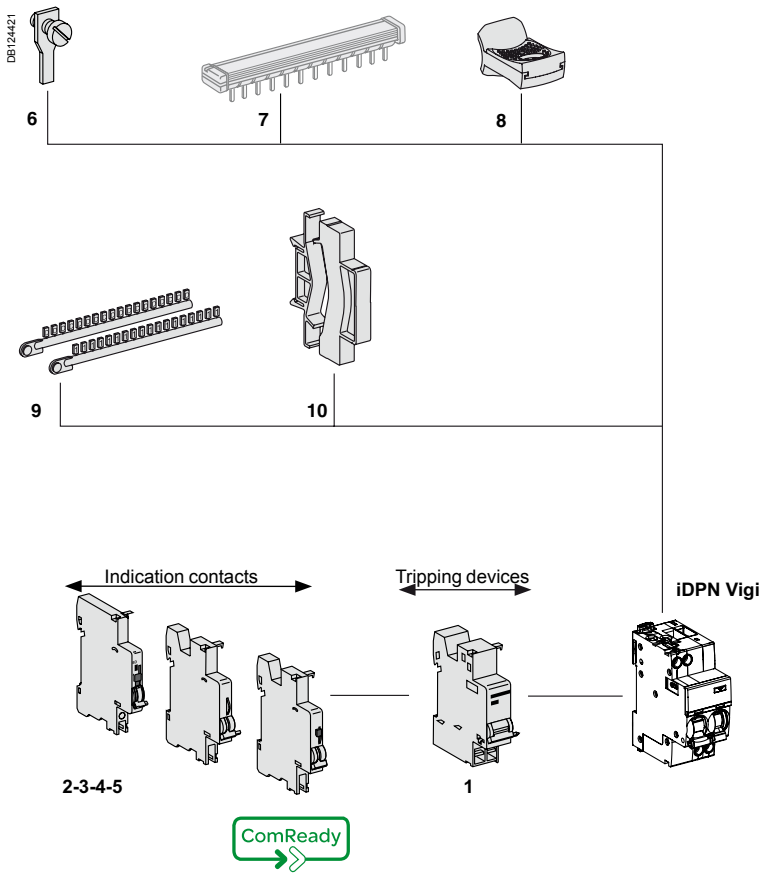
See module CA907001

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

## Mounting accessories

See module CA907001

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




## Electrical auxiliaries

See module CA907002

| | | | |
|---|---|---|---|
| **Indication** | | | |
| 2 | iOF/SD+OF auxiliary contact (OF+SD or OF+OF combination switch) | | A9A26929 |
| 3 | iSD fault indicating contact | | A9A26927 |
| 4 | iOF open/close auxiliary contact | | A9A26924 |
| 5 | iOF+SD24 auxiliary contact | | A9A26897 |
| **Tripping devices** | | | |
| 1 | iMN undervoltage release or iMNs undervoltage release delayed or iMNx undervoltage release with external feeding or shunt release iMX, iMX+OF overvoltage release iMSU | See module | CA907002 |

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

## Assembly rule

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

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

# C120, Vigi C120 devices accessorisation/auxiliarisation

## Connection accessories

See module CA907012

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

## Mounting accessories

See module CA907012

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

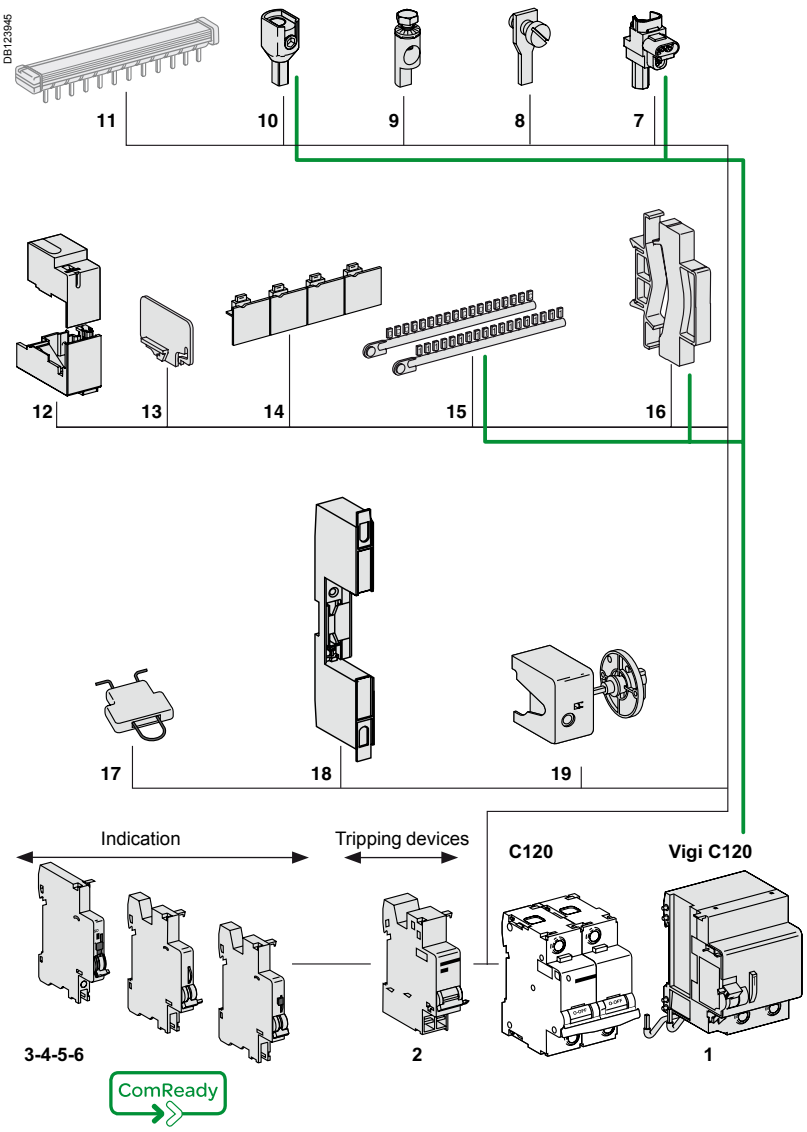
*(1) For 1P, centreline between two rows: 200 mm*
*(2) A complete rotary handle consists of a circuit-breaker operating sub-assembly, cat. no. 27046,*
*a handle cat. no. 27047 or a handle cat. no. 27048.*

## Electrical auxiliaries

See module CA907008

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

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




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

## Vigi C120

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

## Assembly rule

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

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

# C60H-DC devices accessorisation/auxiliarisation

## Connection accessories

See module CA907012

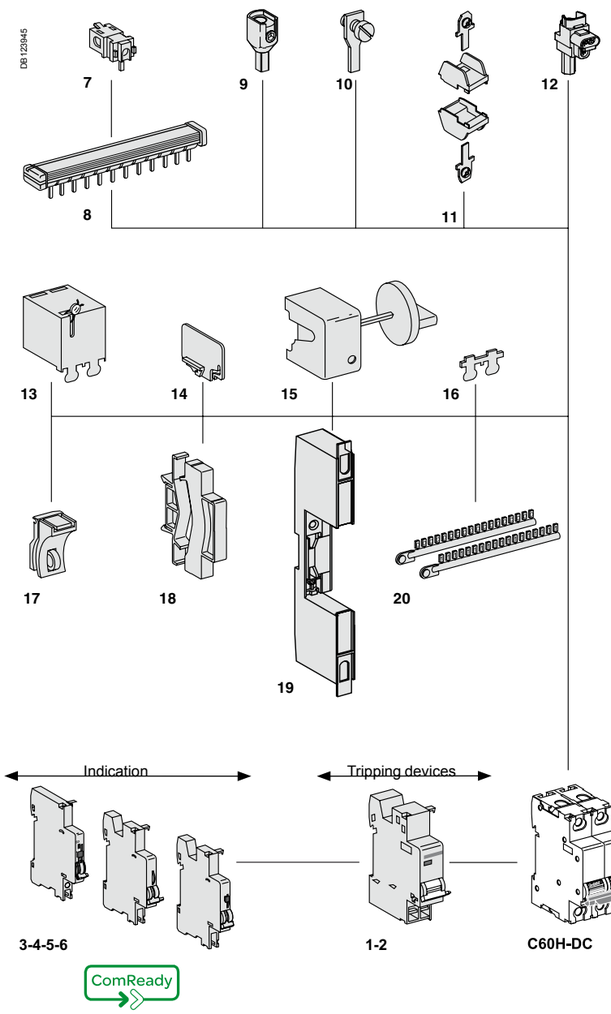
| | | | |
|---|---|---|---|
| 7 | Insulated connector | See module | LIN001 |
| 8 | Comb busbar | See module | LIN001 |
| 9 | 50 mm² Al terminal | | 27060 |
| 10 | Ring tongue terminal screw connection | | 27053 |
| 11 | Ring tongue terminal connections kit Ø 5 mm, (upstream/downstream) | | 17400 |
|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

## Mounting accessories

See module CA907012

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

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




## Electrical auxiliaries

See module CA907008

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

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

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

## Assembly rule

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

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





# iSW devices accessorisation/auxiliarisation

## Connection accessories

See module CA907012

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

## Mounting accessories

See module CA907012

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

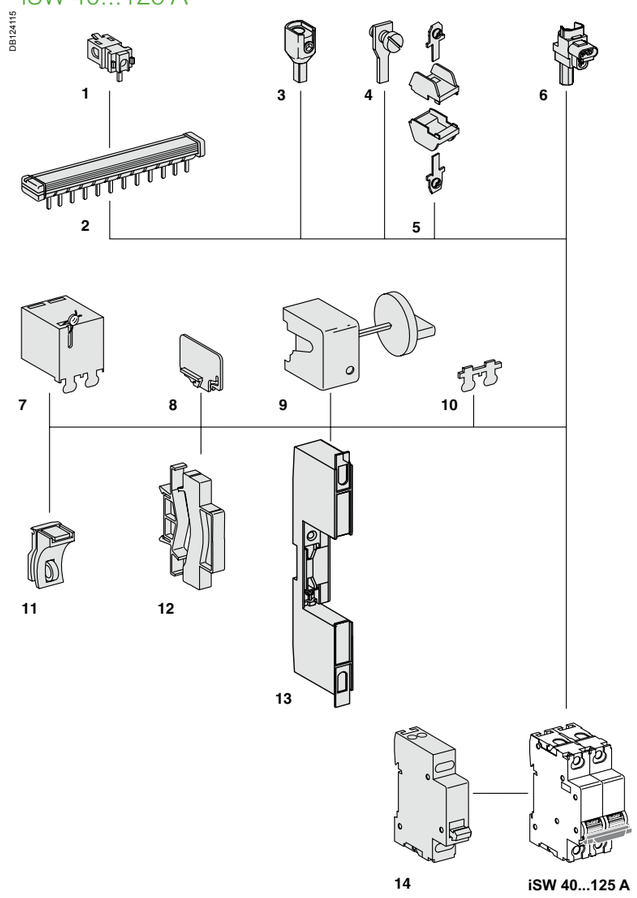
*(1) A complete rotary handle consists of a circuit-breaker operating sub-assembly, cat. no. 27046, a handle cat. no. 27047 or a handle cat. no. 27048.*

## Electrical auxiliary

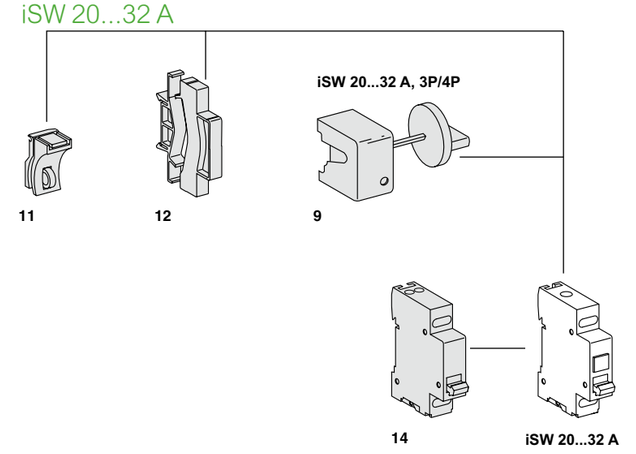
See module iSW CA904005

| | | |
|---|---|---|
| Indication | | |
| 14 | OF iSW open/closed contact | A9A15096 |

## iSW 40...125 A




## iSW 20...32 A



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

## Connection accessories

See module CA907012

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

## Mounting accessories

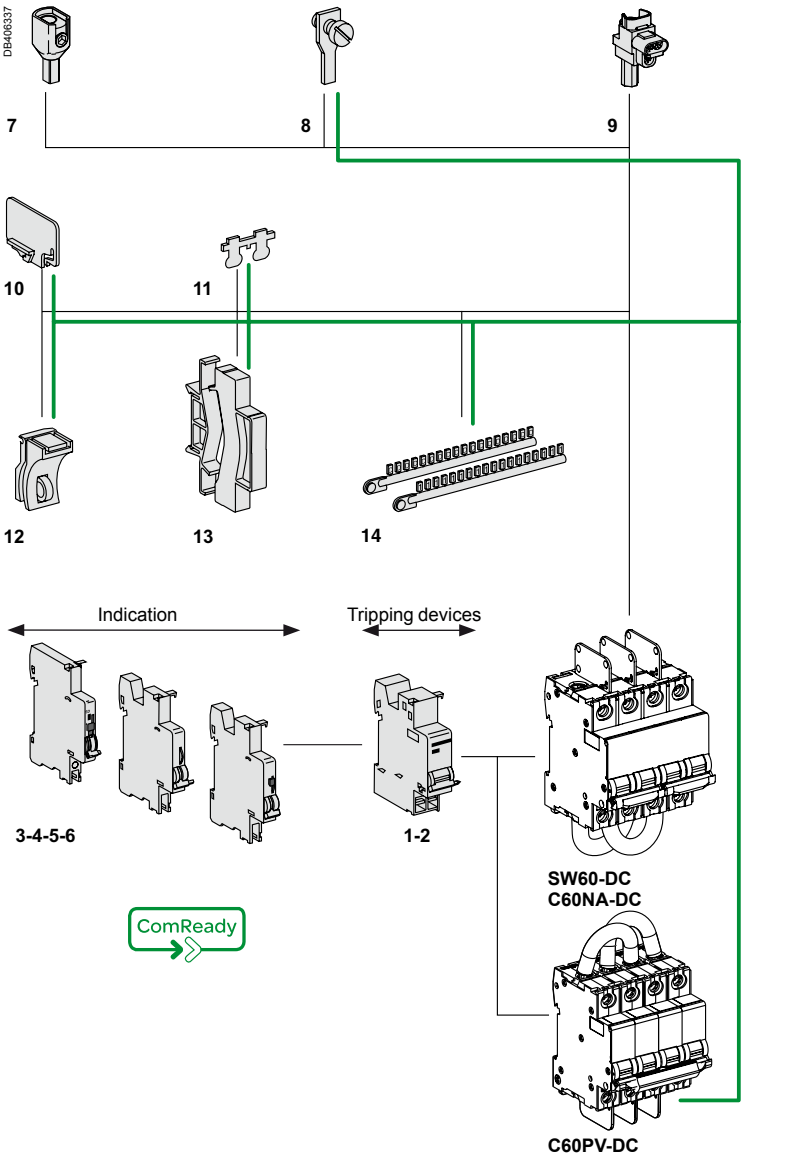
See module CA907012

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

## Electrical auxiliaries

See module CA904005

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




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

## Assembly rule

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

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

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

| | Mounting | | | | |
|---|---|---|---|---|---|
| **Accessories** | **Rotary handle** | | | | **Plug-in base** |
| | PB104509-35  | | | PB106297_10  | PB104508-35  |
| Function | | | | | |
| | Front or side-mounted control<br>• Degree of protection: IP55 rotary handle<br>• Installation:<br>- the control mechanism is mounted on the device<br>- the rotary handle is fixed to the front or side of the enclosure<br>- Front-mounted (on door or faceplate)<br>• Prevents the door from opening when the device is in the ON position (can be deactivated)<br>• Can be padlocked when the device is in the “open” position (can be padlocked with the device in the “closed” position subject to adaptation)<br>• Can be locked by padlock of (dia. 5 to 8 mm), not supplied with the device<br>• Pushbutton: iID test available in the front face of the rotary handle | | | • The Laser Square tool brings the accurency to align the circuit breaker and the rotary handle | Allows a breaker to be removed or replaced quickly, without handling the connections<br>• Degree of protection: IP20<br>• Consists of:<br>- a base to be fastened on a rail (or panel)<br>- 2 “blades” to be fastened in the device’s terminals<br>- Connection: tunnel terminals for cable up to 35 $mm^2$ rigid, 25 $mm^2$ flexible,<br>• Installation:<br>- in universal enclosure<br>- on horizontal rail<br>• Height: 178 mm<br>• Not compatible with Vigi iC60 and auxiliaries<br>• Can be locked by padlock of (dia. 6 mm), not supplied with the device |
| Catalogue numbers | A9A27005 | A9A27006 | A9A27008 | GVAPL01 | A9A27003<br>(1 per pole) |
| | Operating sub-assembly | | | | |
| | + | + | | | |
| | Black handle | Red handle | No handle | | |
| Set of | 1 | 1 | 1 | 1 | 1 |
| Suitability | | | | | |
| iC60 | ● 2P, 3P, 4P | | | | ● |
| iSW | ● 2P, 3P, 4P | | | | ● |
| iC60 + Vigi iC60 | ● 2P, 3P, 4P | | | | – |
| iID | ● | | | | ● ⩽ 63 A |
| iDPN Vigi | – | | | | – |
| Reflex iC60 or RCA+iC60 or ARA+iC60 | – | | | | – |
| ARA+iID | – | | | | – |
| iSW-NA | ● | | | | ● |

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

| | Mounting | | | | Spare part |
|---|---|---|---|---|---|
| **Accessories** | **Padlocking device** | | | **Wall mounting** | **Locking clips** |
| | Front | Side | | | |
| | PB104492-15 DB123599 | A9A26380-40 | A9A26381-40 P135159-40 | A9A27052-25 | |
| Function | | | | | |
| | Used to padlock breaker in open or closed position<br>• Padlock diameter: 3 to 6 mm<br>• Sealable (max. diameter: 1.2 mm)<br>• Locking in ON position does not prevent tripping of the breaker in the event of faults<br>• Suitable for IEC/EN 60947-2 compliant disconnection | Can be used to padlock a circuit breaker in open position<br>• Attached directly to the circuit breaker, it cannot be lost<br>• Padlock diameter: 6 mm | | Can be used for wall mounted installation of any 18 mm DIN rail devices<br>• Degree of protection: IP40<br>• Sealable: (max. diameter: 1.5 mm) | Top and bottom locking clips for monoconnect iC60 |
| Catalogue numbers | A9A26970 | A9A26380<br>Left-hand mounting | A9A26381<br>Right-hand mounting | 15359 | A9A27052 |
| Set of | 10 | 1 | 1 | 1 | 10 |
| Suitability | | | | | |
| iC60 | ● | ● | ● | ● All products up to 18 mm<br>● Except iCT | ● |
| iSW | ● | – | – | | – |
| iC60 + Vigi iC60 | ● | – | – | | – |
| iID | ● | ● | – | | – |
| iDPN Vigi | ● | – | – | | – |
| Reflex iC60 or RCA+iC60 or ARA+iC60 | ● | – | – | | – |
| ARA+iID | ● | – | – | | – |
| iSW-NA | ● | – | – | | – |

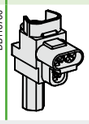
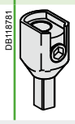
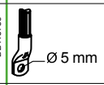


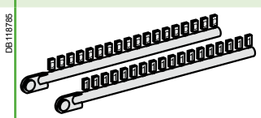


# iC60, iID, iDPN Vigi, iSW-NA, Reflex iC60, RCA, ARA, iSW accessories

| | Security | | | | | |
|---|---|---|---|---|---|---|
| **Accessories** | **Screw shield** | | **Terminal shield** | | **Inter-pole barrier** | **Spacer** |
| | PB104489-14 | PB104488-14 | PB104502-35 | PB104503-35 | PB104494-30 | PB104493-35 |
| Function | | | | | | |
| | Prevents any contact with the connecting screws<br>• Upgrades degree of protection to IP20D<br>• Sealable, max. diameter 1.2 mm | | Prevents any contact with the terminals<br>• Upgrades degree of protection to IP20D<br>• Sealable, max. diameter 1.2 mm<br>• Set of two, for upstream and downstream terminals<br>• For 3 poles: A9A26975 + A9A26976<br>• For 4 poles: 2 X A9A26976 | | Enhances insulation between connections: cables, terminals, lugs, etc | • Used to:<br>- complete rows<br>- separate devices. Width: 1 x 9 mm module<br>• Allows cable routing from one row to another, (above and below), up to 6 $mm^2$ |
| Catalogue numbers | A9A26982 | A9A26981 | A9A26975 | A9A26976 | A9A27001 | A9A27062 |
| Set of | 12 x 1 pole | 20 x 4 poles (splittable) | 2 x 1 pole | 2 x 2 poles | 10 | 5 |
| Suitability | | | | | | |
| iC60 | – | ● | ● | ● | ● | ● |
| iSW | – | – | ● | ● | ● | ● |
| Vigi iC60 | ● | – | – | – | – | ● |
| iID | – | ● | – | ● | ● | ● |
| iDPN Vigi | – | – | – | – | – | ● |
| Reflex iC60 or RCA+iC60 or ARA+iC60 | – | ● | ● | ● | ● | ● |
| ARA+iID | – | ● | – | ● | ● | ● |
| iSW-NA | – | ● | – | ● | ● | ● |

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

| | Connection | | | |
|---|---|---|---|---|
| **Accessories** | **Multi-cable terminal** | | **50 mm² terminal Al** | **Screw-on connection for ring terminal** |
| | DB118780  | | DB118781  | DB118783  |
| Function | | | | |
| | For 3 copper cables:<br>• Rigid up to 16 mm²<br>• Flexible up to 10 mm² | | For aluminium cables from 16 to 50 mm² | For lug tipped cables, front or rear mounting |
| | DB118787  | | DB122935  Al | DB118789  Ø 5 mm |
| Catalogue numbers | 19091 | 19096 | 27060 | 27053 |
| Set of | 4 | 3 | 1 | 8 |
| Suitability | | | | |
| iC60 ⩽ 25 A<br>Reflex iC60 ⩽ 25 A | – | – | – | • |
| iC60 >25 A<br>Reflex iC60 40 A, iSW | • | • | • | • |
| Vigi iC60 | – | – | – | – |
| iID | • | • | • | • |
| iDPN Vigi | – | – | – | • |
| iSW-NA | • | • | • | • |
| Tightening torque | 2 N.m | | 10 N.m | 2 N.m |
| Lenght stripping | 11 mm | | 13 mm | – |
| **Tools to use** | Dia. 5 mm or PZ2 | | Hc 1/5" or 5 mm | Dia. 5mm |

| | Marking | | | | | |
|---|---|---|---|---|---|---|
| **Accessories** | **Marker strip** | | | | | |
| | DB118785  | | | | | |
| | Used for connection identification | | | | | |
| Catalogue numbers | 0: AB1-R0<br>1: AB1-R1<br>2: AB1-R2<br>3: AB1-R3<br>4: AB1-R4 | 5: AB1-R5<br>6: AB1-R6<br>7: AB1-R7<br>8: AB1-R8<br>9: AB1-R9 | A: AB1-GA<br>B: AB1-GB<br>C: AB1-GC<br>D: AB1-GD<br>E: AB1-GE<br>F: AB1-GF<br>G: AB1-GG<br>H: AB1-GH<br>I: AB1-GI | J: AB1-GJ<br>K: AB1-GK<br>L: AB1-GL<br>M: AB1-GM<br>N: AB1-GN<br>O: AB1-GO<br>P: AB1-GP<br>Q: AB1-GQ<br>R: AB1-GR | S: AB1-GS<br>T: AB1-GT<br>U: AB1-GU<br>V: AB1-GV<br>W: AB1-GW<br>X: AB1-GX<br>Y: AB1-GY<br>Z: AB1-GZ | +: AB1-R12<br>-: AB1-R13<br>Blank: AB1-RV |
| Set of | 250 | | | | | |
| Suitability | | | | | | |
| iC60, Reflex iC60, iSW | • 4 markers max. per pole | | | | | |
| Vigi iC60 | • 4 markers max. per device | | | | | |
| iID | • 4 markers max. per device | | | | | |
| iDPN Vigi | • 4 markers max. per device | | | | | |
| iSW-NA | • 4 markers max. per device | | | | | |

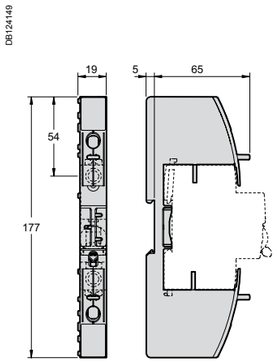




# iC60, iID, iDPN Vigi, iSW-NA, Reflex iC60, RCA, ARA, iSW accessories

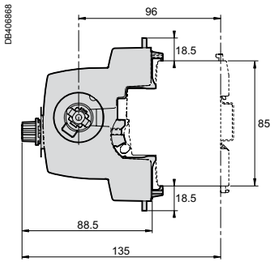
## Dimensions (mm)

DB124149

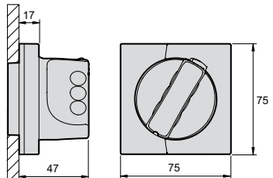



*Plug-in base*

DB405868

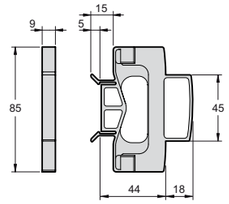



*Control mechanism*



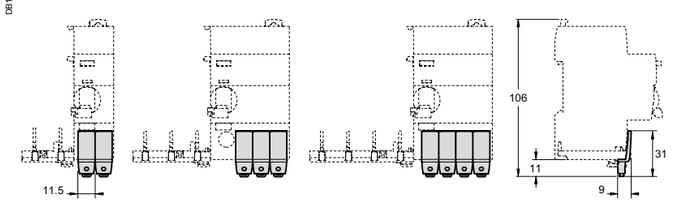

*Handle*

DB124150



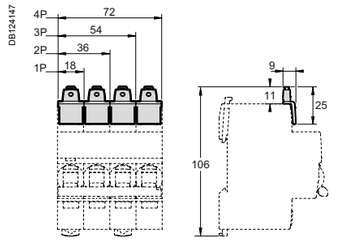

*Spacer*

DB124146



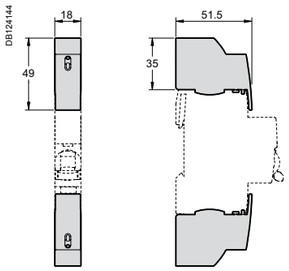

*Screw shield 1P (A9A26982)*

DB124147



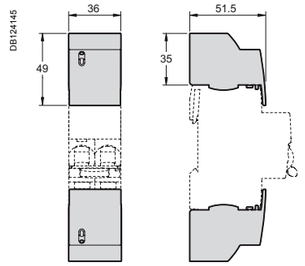

*Screw shield 4P (A9A26981)*

DB124144



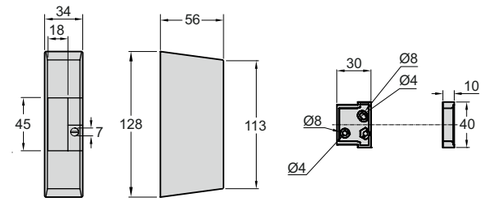

*Terminal shield 1P*

DB124145



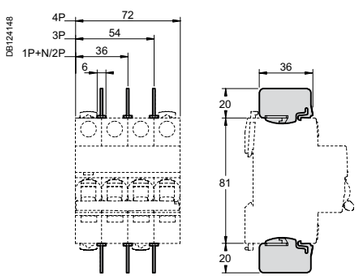

*Terminal shield 2P*

DB405964



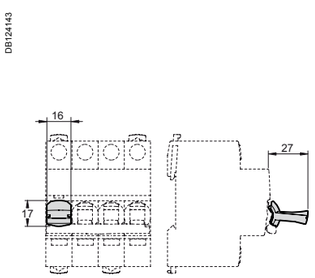

*Wall mounted*

DB124148



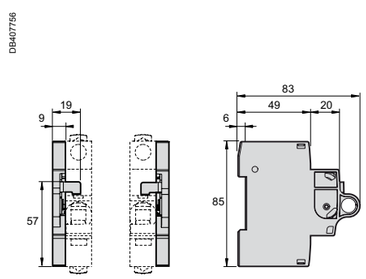

*Inter-pole barrier*

DB124143




*Front padlocking device*

DB407756

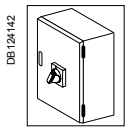


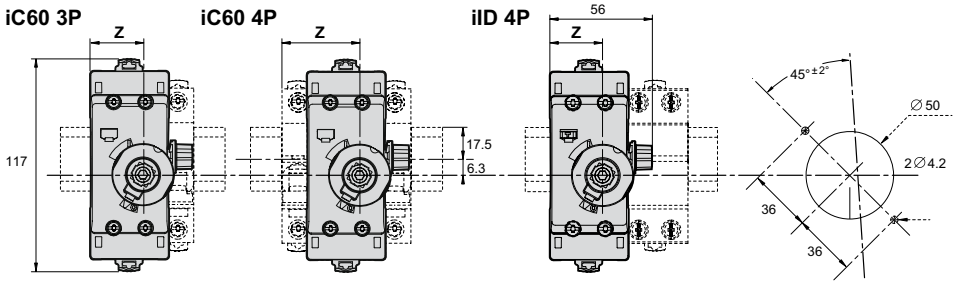

*Side padlocking device*

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

## Rotary handle installation

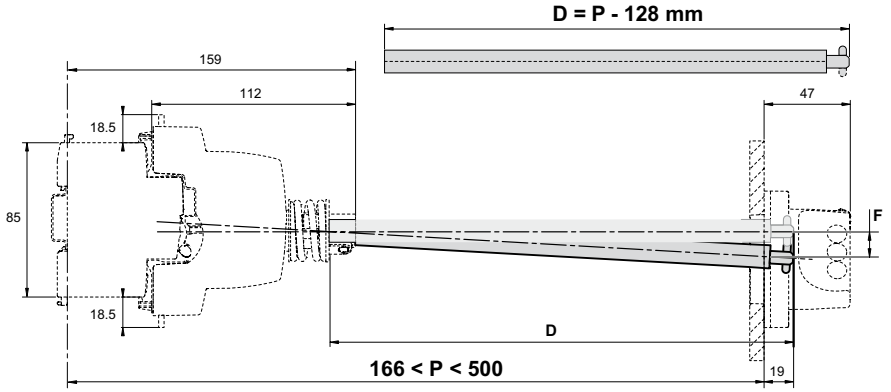
### Dimensions (mm)

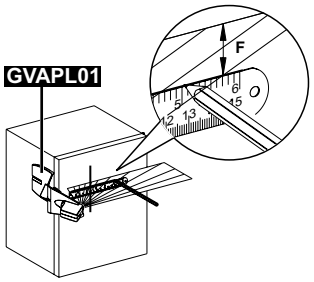



| iC60 | Z (mm) |
|---|---|
| 2P | 25.3 |
| 2P + Vigi | 25.3 |
| 3P | 25.3 |
| 3P + Vigi | 43 |
| 4P | 43 |
| 4P + Vigi | 43 |

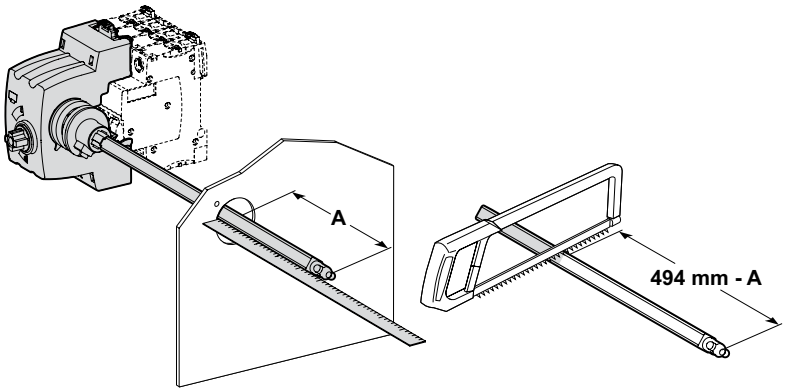
| iID | Z (mm) |
|---|---|
| 2P | 25.3 |
| 4P | 25.3 |

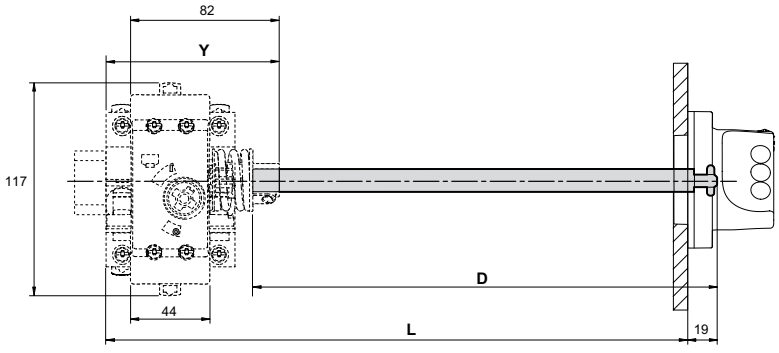



| P (mm) | F (mm) |
|---|---|
| 300 | 5 |
| 500 | 11 |

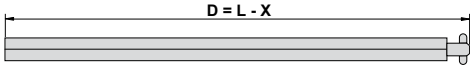
*Rotary handle: front mounted control*


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

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




*Rotary handle: side mounted control*

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

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

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

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





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

| | Connection | | | | | |
|---|---|---|---|---|---|---|
| **Accessories** | **Multi-cable terminal** | | **50 mm² Al terminal** | **Screw-on connection for ring terminal** | **Connection kit for ring terminals** | **Terminal for rear connector** |
| | DB118780 | | DB118782 | DB123897 | 058967N-23 | DB118784 |
| Function | | | | | | |
| | For 3 copper cables:<br>• Rigid up to 16 mm²<br>• Flexible up to 10 mm² | | For 16 to 50 mm² aluminium cables | For lug tipped cables, front or rear mounting | For terminal up to 63 A, front or rear access (screw Ø 5 mm)<br>• It incorporates a "conductive" part and an "insulating" part which ensures the phase-to-phase clearance | For cable up to 50 mm² or by terminal<br>• Supplied with a 1P terminal shield |
| | DB118787 | | DB122935 Al | DB118788 Ø 5 mm | | |
| Cat. numbers | 19091 | 19096 | 27060 | 27053 | 17400 | 18528 |
| Set of | 4 | 3 | 1 | 8 | 2 | 2 |
| Suitable for the following devices: | | | | | | |
| C60 ⩽ 25 A | – | – | – | ● | ● | – |
| C60 > 25 A | ● | ● | ● | ● | ● | – |
| C120, C120NA-DC | ● | ● | ● | ● | – | ● |
| Vigi C120 | ● | ● | ● | – | – | – |
| DPN, DPN Vigi | – | – | – | ● | – | – |
| C60H-DC, ID iSW 40 to 125 A | ● | ● | ● | ● | ● | – |
| SW60-DC, C60NA-DC | ● | ● | ● | ● | – | – |
| C60PV-DC | – | – | – | ● | – | – |
| Tightening torque | 2 N.m | | 10 N.m | 2 N.m | – | – |
| Stripping length | 11 mm | | 13 mm | – | – | – |
| Tools to be used | Diameter 5 mm or PZ2 | | Hc 1/5" or 5 mm | Diameter 5 mm | Diameter 5 mm | 13 mm spanner |

| | Identification | | | |
|---|---|---|---|---|
| **Accessories** | **Clip-on terminal marker strip** | | | |
| | 03120AD_SE-23 | | | |
| Function | For connection identification | | | |
| Cat. numbers | 0: AB1-R0 | A: AB1-GA | K: AB1-GK | U: AB1-GU |
| | 1: AB1-R1 | B: AB1-GB | L: AB1-GL | V: AB1-GV |
| | 2: AB1-R2 | C: AB1-GC | M: AB1-GM | W: AB1-GW |
| | 3: AB1-R3 | D: AB1-GD | N: AB1-GN | X: AB1-GX |
| | 4: AB1-R4 | E: AB1-GE | O: AB1-GO | Y: AB1-GY |
| | 5: AB1-R5 | F: AB1-GF | P: AB1-GP | Z: AB1-GZ |
| | 6: AB1-R6 | G: AB1-GG | Q: AB1-GQ | +: AB1-R12 |
| | 7: AB1-R7 | H: AB1-GH | R: AB1-GR | -: AB1-R13 |
| | 8: AB1-R8 | I: AB1-GI | S: AB1-GS | Blank : AB1-RV |
| | 9: AB1-R9 | J: AB1-GJ | T: AB1-GT | |
| Set of | 250 | | | |
| Suitable for the following devices: | | | | |
| C60, ID | • 4 markers max. per pole | | | |
| C120, C120NA-DC | • 4 markers max. per pole | | | |
| Vigi C120 | • 4 markers max. per device | | | |
| DPN, DPN Vigi | • 4 markers max. per pole | | | |
| C60H-DC, SW60-DC, C60NA-DC, C60PV-DC | • 4 markers max. per pole | | | |

# Vertical comb busbars

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

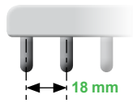
| **Technical specifications** | | | | | |
|---|---|---|---|---|---|
| Rated voltage (Ue) | 415 V | | | | |
| Insulation voltage (Ui) | 500 V | | | | |
| Permissible current at 40°C | 80 A | | | | |
| Short-circuit current withstand | Compatible with the breaking capacity of Schneider Electric modular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





# Acti 9: iC60 horizontal comb busbars

## 18 mm modules




IEC 60947-7-1, IEC 61439-2

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

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

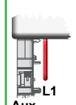
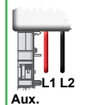
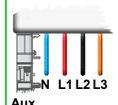
End-pieces
- essential to ensure the correctly comb busbars insulation

Connectors
- facilitate comb busbar power supply

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

# Acti 9: iC60 horizontal comb busbars

## 18 mm modules

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

## Technical data

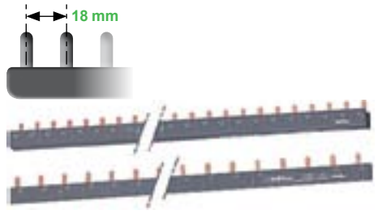
| | | |
|---|---|---|
| Operating current at 40°C | (Ie) | 100 A |
| Short circuit current | (Isc) | Compatible with the breaking capacity of Schneider Electric circuit breakers |
| Rated insulation voltage | (Ui) | 500 V AC |
| Operating voltage | (Ue) | 415 V AC |
| Pollution degree | | 3 |
| Fire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





# Acti 9: iC60 horizontal comb busbars

## 18 mm modules




IEC 60947-7-1, IEC 61439-2

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

## Technical data

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

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

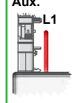
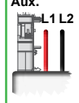
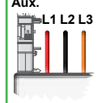
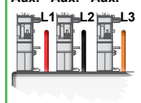
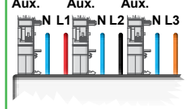
Tooth covers
- Insulate teeth that have been left free

## Accessories

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

# Acti 9: iC60 horizontal comb busbars

## 18 mm modules

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

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

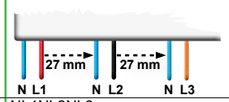
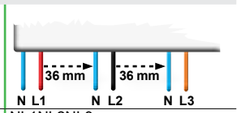





# Acti 9: iC60 + Vigi iC60 horizontal comb busbars

## 18 mm modules


IEC 60947-7-1, IEC 61439-2

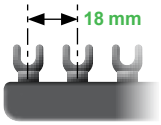

| Acti 9 Vigi iC60 1P+N | 18 mm poles, cuttable | |
|---|---|---|
| Number of poles | 3 (N+P) | |
| |  |  |
| Type | NL1NL2NL3, ... | NL1NL2NL3, ... |
| Set of | 1 | 1 |
| Rating of Vigi | 25 A | 40 A - 63 A |
| Catalogue numbers | | |
| 21 modules of 18 mm | A9XPF521 | - |
| 24 modules of 18 mm | -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

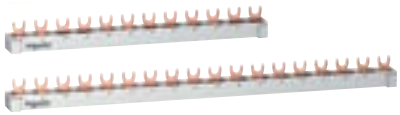
| Technical data | | |
|---|---|---|
| Operating current at 40°C | (Ie) | 100 A |
| Short circuit current | (Isc) | Compatible with the breaking capacity of Schneider Electric circuit breakers |
| Rated insulation voltage | (Ui) | 500 V AC |
| Operating voltage | (Ue) | 415 V AC |
| Pollution degree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


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

# K60 Biconnect horizontal comb busbars

## 18 mm modules



IEC 60664-1

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

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

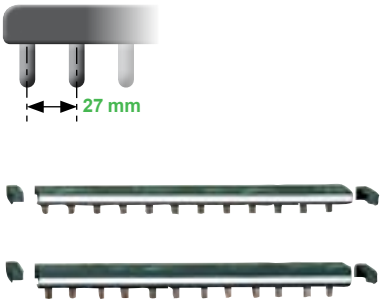
Tooth covers
- Insulate teeth that have been left free

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

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

# C120 horizontal comb busbars

## 27 mm modules




IEC 60664-1

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

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

Power supply
- directly in the circuit breaker terminals

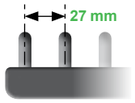
Tooth covers
- Insulate teeth that have been left free

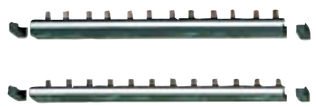
End-pieces
- essential to ensure the correctly comb busbars insulation

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

# C120 horizontal comb busbars

## 27 mm modules



IEC 60664-1

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

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

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

**Tooth covers**
- Insulate teeth that have been left free

**Power supply**
- directly in the circuit breaker terminals

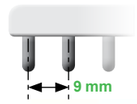
| Accessories | |
|---|---|
| Number of poles | 1P, 2P, 3P, 4P |
| |  |
| | Tooth covers<br>Insulate teeth that have been left free |
| Set of | 20 |
| Catalogue numbers | 14818 |





# Acti 9: iDPN, iDPN Vigi horizontal comb busbars

## 9 mm modules




IEC 60439-1

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

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

**Connectors**
- facilitate comb busbar power supply

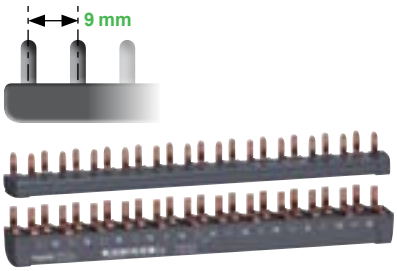
**End-pieces**
- essential to ensure the correctly comb busbars insulation

**Tooth covers**
- Insulate teeth that have been left free

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

# Acti 9 : iDPN, iDPN Vigi horizontal comb busbars

## 9 mm modules




IEC 60947-7-1, IEC 61439-1

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

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

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

**Connectors**
- facilitate comb busbar power supply

**Tooth covers**
- Insulate teeth that have been left free

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

# Acti 9 Smartlink

PB107797-47

DB404502

ComReady

## IEC/EN 61131-2

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

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

## Functions

**Data transmission between the network and Acti 9 devices**

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

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

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

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

DB405140

**Acti 9 Smart Test software**

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

DB406513

## Installation

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

## Test

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

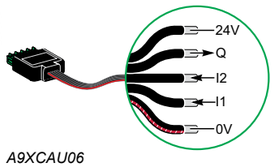
PB107753-68

*Acti 9 Smartlink Modbus Slave*

PB113286-68

*Acti 9 Smartlink Ethernet*

DB404941




*A9XCAU06*

PB107804-43

## Catalogue numbers

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

PB113754-12

PB107755-5

PB107756-7

## Connectable devices

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

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

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





## Example of an installation

DB406505

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

1 analog input channel
- Example: temperature sensor connection

Prefabricated cables
- Simplified cabling
- Fast and safe

DB406507

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

## Connection to the Ethernet network

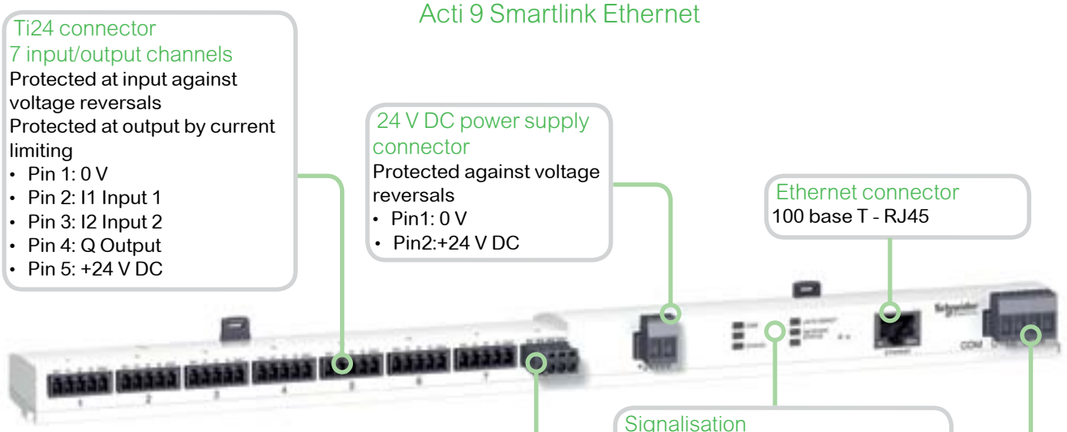
Acti 9 Smartlink Ethernet has an embedded web server that can be used to configure the connection to the Ethernet network

DB406473

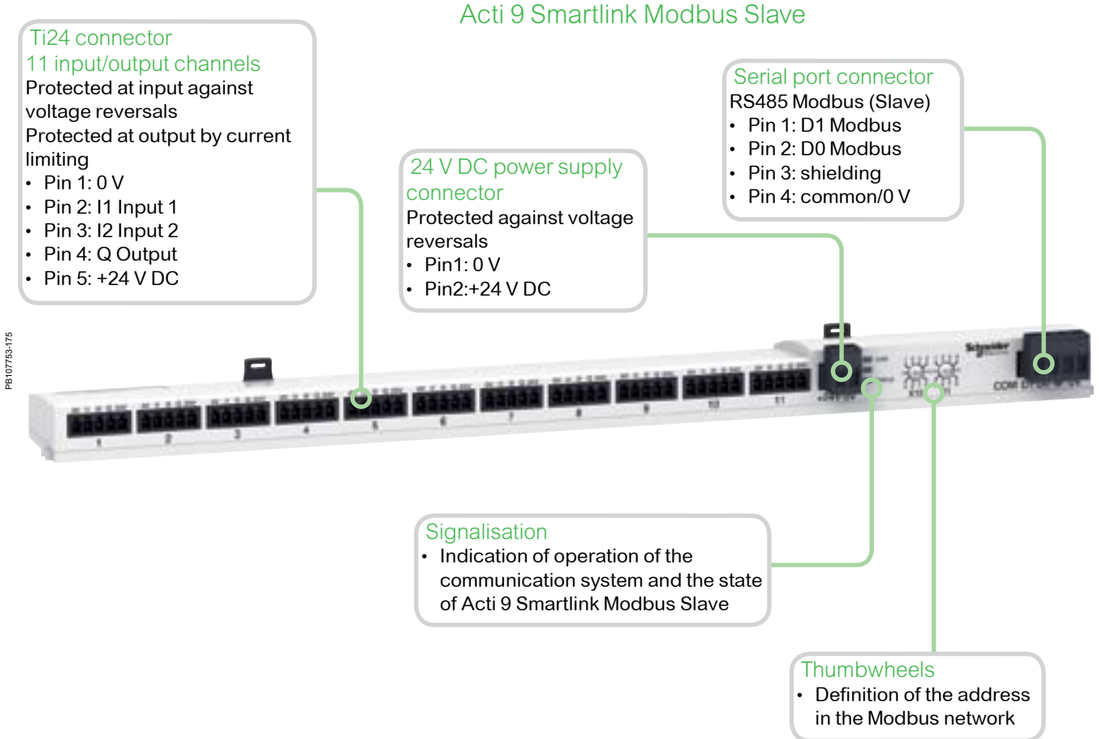
**Web page**

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

## Acti 9 Smartlink Ethernet




## Acti 9 Smartlink Modbus Slave








## Common technical characteristics

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

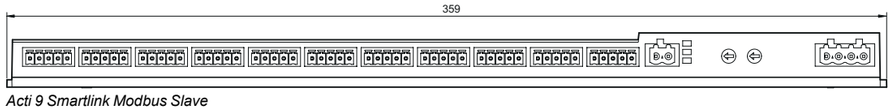
## Acti 9 Smartlink Modbus Slave technical characteristics

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

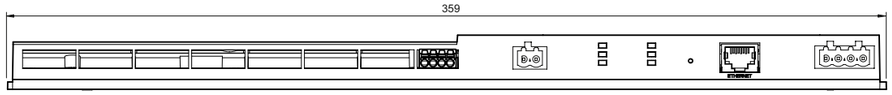
## Acti 9 Smartlink Ethernet technical characteristics

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

## Dimensions (mm)




*Acti 9 Smartlink Modbus Slave*




*Acti 9 Smartlink Ethernet*

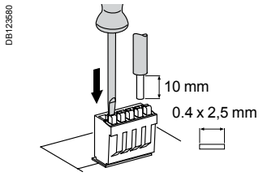
## Weight (g)

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

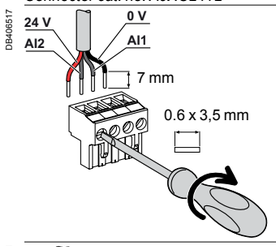


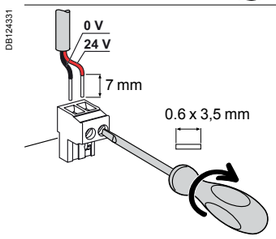


## Connection



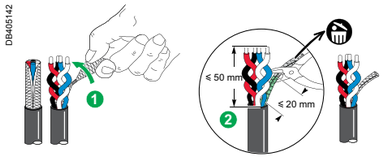

*Connector cat. no: A9XC2412*










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

CE

*Country approval pictograms*

PB107797-47

DB404502

ComReady

## IEC/EN 61131-2

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

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

## Functions

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



Supervision and switchboard control
Acti 9 Smartlink
www.schneider-electric.com/sg

DB408571

## Functions (cont.)

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

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

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

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

## Installation

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

DB405140

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

## Test

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

# Acti 9 Smartlink

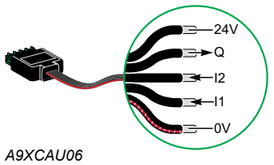
PB113286-68

*Acti 9 Smartlink SI B Ethernet*

PB107753-68

Acti 9 Smartlink Modbus Slave

DB404941




*A9XCAU06*

## Catalogue numbers

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

PB107754-12

PB107755-5

PB107756-7

## Connectable devices

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

| Without Ti24 interface |
|---|
| Power meters with pulse output, e.g. iEM2000T |
| Pulse meters complying with the IEC 62053-21 standard |
| 24 V DC indicator lamps, Harmony range type XVL |
| All loads not exceeding 100 mA, 24 V DC |
| Timers, thermostats, time switches, load shedding devices |
| All 24 V DC auxiliary contacts, IEC 61131-2 type 1 |

| With Modbus connector systems |
|---|
| Power meters: iEM3150, iEM3250, iEM3350, iEM3155, iEM3255, iEM3355, all Modbus slave RS485 equipment |

| With wireless connector systems |
|---|
| PowerTag wireless energy sensors. See module CA907029 |

| With analog outputs |
|---|
| Any 0...10 V and 4...20 mA compatible sensor (temperature, humidity, luminosity, etc.) |

PB107804-43

PB115448-40

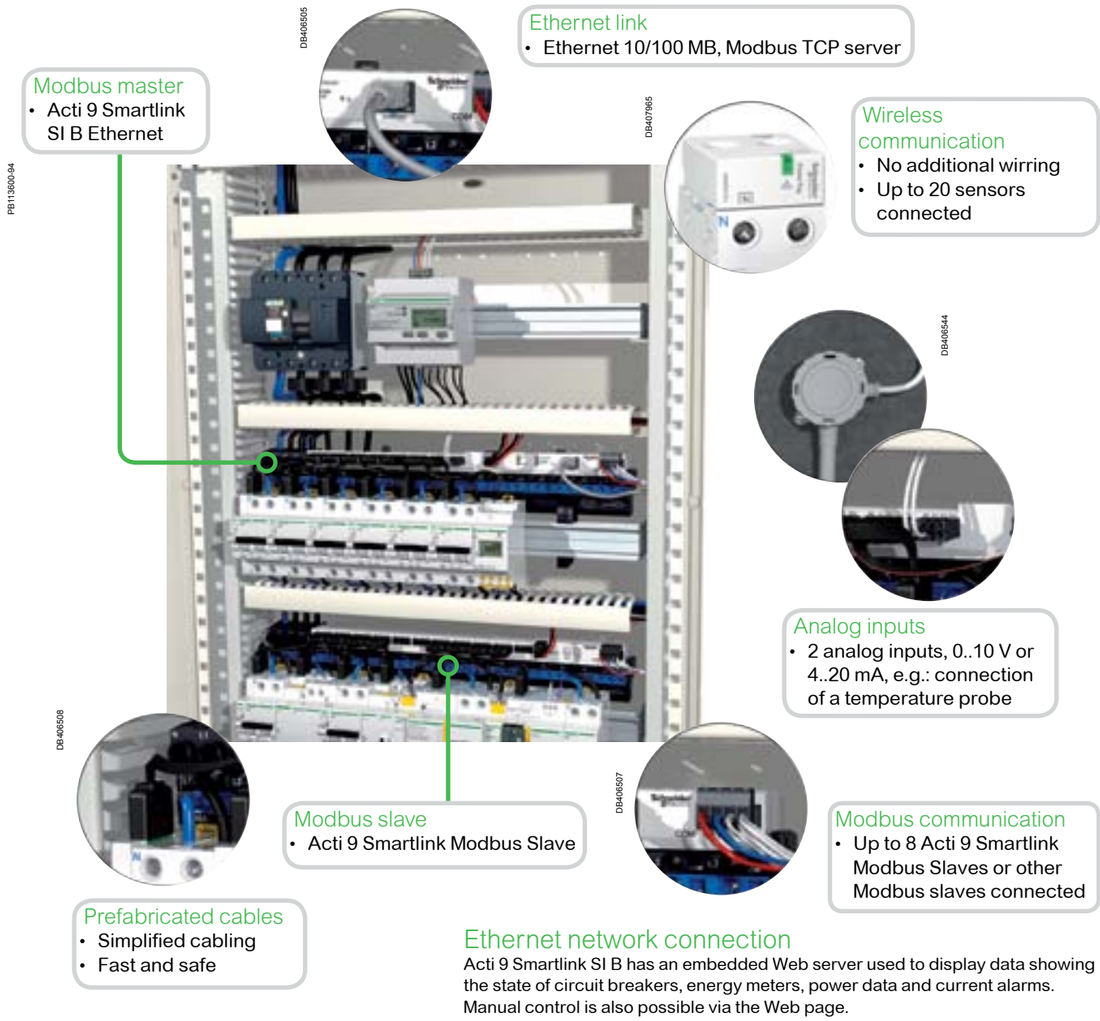




# Acti 9 Smartlink

## Example of an installation

PB113600-94




## Ethernet network connection

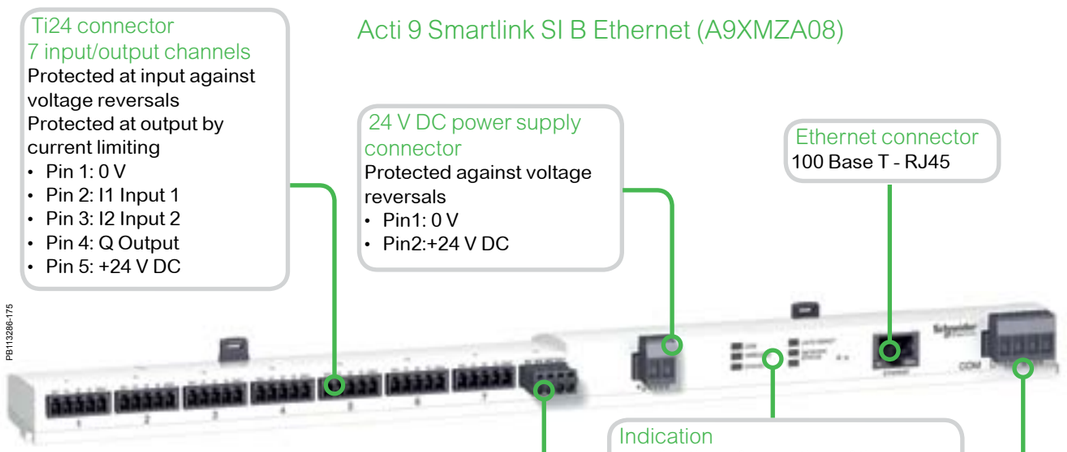
Acti 9 Smartlink SI B has an embedded Web server used to display data showing the state of circuit breakers, energy meters, power data and current alarms. Manual control is also possible via the Web page.

DB408572

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

# Acti 9 Smartlink

## Acti 9 Smartlink SI B Ethernet (A9XMZA08)




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

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

**Ethernet connector**
100 Base T - RJ45

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

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




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

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

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

## Acti 9 Smartlink Modbus Slave (A9XMSB11)

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

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

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


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

**Thumbwheels**
- Definition of the address in the Modbus network





# Acti 9 Smartlink

## Common technical characteristics

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

## Acti 9 Smartlink Modbus Slave (A9XMSB11) technical characteristics

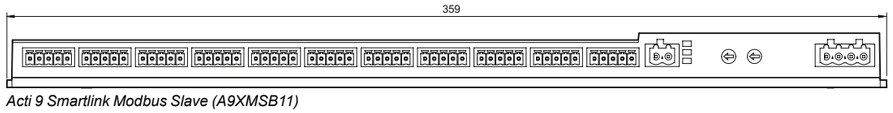
| Characteristics of the Modbus link | | |
|---|---|---|
| Link | | Modbus, RTU, RS485 serial connection |
| Transmission | Transfer rate | 9600 baud ... 19200 baud, self-adaptable |
| | Medium | Shielded cable, double twisted pair |
| Protocol | | Master/Slave |
| Type of device | | Slave |
| Modbus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

## Acti 9 Smartlink SI B Ethernet (A9XMZA08) technical characteristics

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

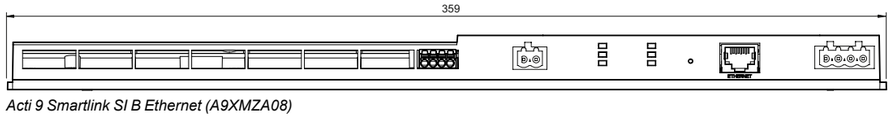
## Dimensions (mm)

DB124330




*Acti 9 Smartlink Modbus Slave (A9XMSB11)*

DB406390




*Acti 9 Smartlink SI B Ethernet (A9XMZA08)*

## Weight (g)

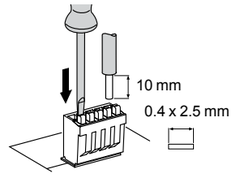
| Acti 9 Smartlink | |
|---|---|
| Type | |
| Acti 9 Smartlink Modbus Slave (A9XMSB11) | 195 |
| Acti 9 Smartlink SI B Ethernet (A9XMZA08) | 180 |





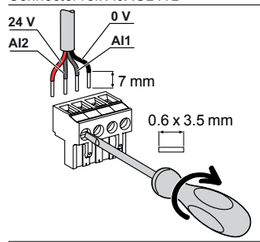
## Connection

DB123580

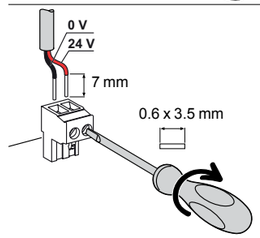



*Connector ref: A9XC2412*

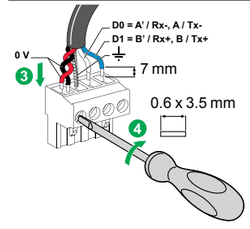
DB406517



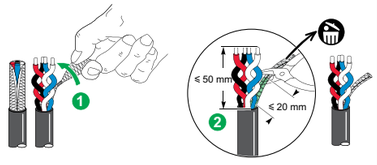

DB124331




DB405141




DB405142




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

# Acti 9 Smartlink
## SI D

A9XMWA20-35

*A9XMWA20*

A9XMWA20-24


A9MEM1521-18

DB405140

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

DB408571

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

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

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

### Functions

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

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

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

## Catalogue numbers

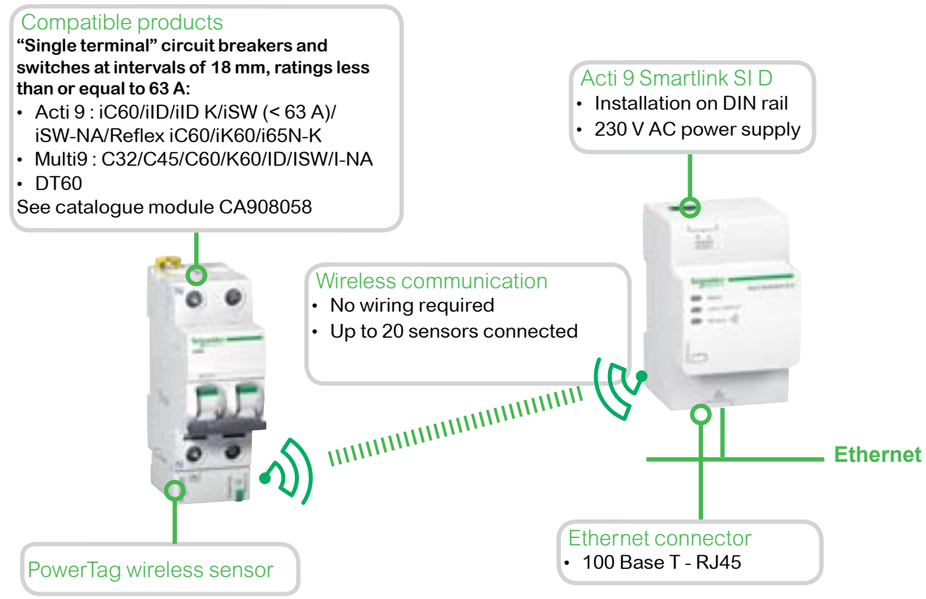
| Acti 9 Smartlink SI D | | |
|---|---|---|
| Type | | Width in 9-mm modules |
| Ethernet connection gateway (Modbus TCP/IP) | A9XMWA20 | 6 |





# Acti 9 Smartlink
## SI D

### Acti 9 Smartlink SI D

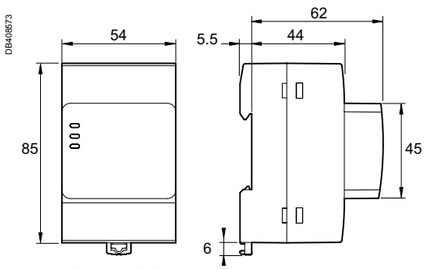



## Weight (g)

| Acti 9 Smartlink SI D | |
|---|---|
| Type | |
| Acti 9 Smartlink SI D | 133 |

## Dimensions (mm)

DB408573




*Acti 9 Smartlink SI D*

## Technical characteristics

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

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

A9MEM1520-18

*A9MEM1520*

A9MEM1521-18

*A9MEM1521*

A9MEM1540-18

*A9MEM1540*

A9MEM1522-18

*A9MEM1522*

A9MEM1541-18

*A9MEM1541*

A9MEM1542-18

*A9MEM1542*

DB405140

**Test software: Acti 9 Smart Test**

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

DB405571

## IEC 61557-12 PMD/DD/K55/1

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

### Functions

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

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

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

**Configuration**

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

**Integration in Acti 9 Smartlink**

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

## Catalogue numbers

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





## Metering and monitoring and control

Acti 9 Smartlink SI B (Ethernet)

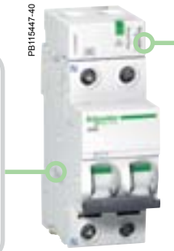
PB113286-175

**Embedded web pages**
- Monitoring display
- Alarm management and display
- E-mail sending

**Integrated Modbus gateway**

**Channels for monitoring/control**
- Contactors, OF/SD devices, analog sensors

PB115447-40



**Compatible products**

**"Single terminal" circuit breakers and switches at intervals of 18 mm, ratings less than or equal to 63 A:**
- Acti 9 : iC60/iID/iID K/iSW (< 63 A)/iSW-NA/ Reflex iC60/iK60/i65N-K
- Multi9 : C32/C45/C60/K60/ID/ISW/I-NA
- DT60

See catalogue module CA908058

**PowerTag**
- Radio frequency communication
- Up to 20 sensors connected

## Metering and monitoring only

Acti 9 Smartlink SI D (Ethernet)

**Embedded web pages**
- Monitoring display
- Alarm management and display
- E-mail sending

A9XMWA20-35

**PowerTag**
- Radio frequency communication
- Up to 20 sensors connected

- Installation on DIN rail
- 230 V AC power supply

PB115447-40

**Compatible products**

**"Single terminal" circuit breakers and switches at intervals of 18 mm, ratings less than or equal to 63 A:**
- Acti 9 : iC60/iID/iID K/iSW (< 63 A)/iSW-NA/Reflex iC60/iK60/i65N-K
- Multi9 : C32/C45/C60/K60/ID/ISW/I-NA
- DT60

See catalogue module CA908058

PB115448-40

## Technical characteristics

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

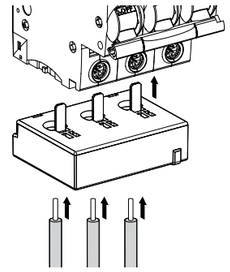
| Characteristics of measuring functions | | | |
|---|---|---|---|
| Function | | Performance category as per IEC 61557-12 | |
| Active power | P | 1 | 9 W to 63 kW |
| Active energy | Ea | 1 | Total and partial 0 to 99999999.9 kWh |
| Current | I | 1 | 2 A to 63 A |
| Voltage | U | 0.5 | Un ± 20 % |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





## Connection

DB407926

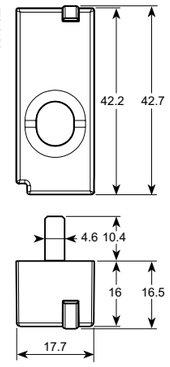


| Stripping length | Copper cables | | | | | |
|---|---|---|---|---|---|---|
| | Rigid | | Flexible | | Flexible with ferrule | |
| | DB122945 | DB112804 DB123553 | DB112805 | DB123554 | DB123008 | |
| 18 mm(*) | 1.5 to 16 mm² | 2 x 1.5 to 2.5 mm² | 1.5 to 16 mm² | 2 x 1.5 to 2.5 mm² | - | - |
| 18 mm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

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

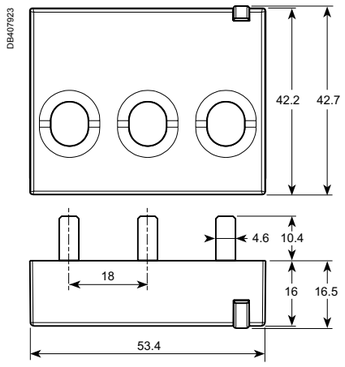
## Dimensions (mm)

DB407922



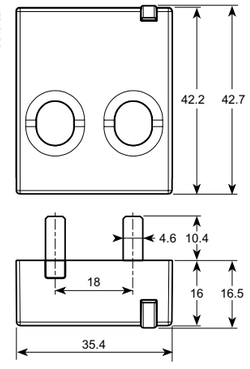

*1P*

DB407923



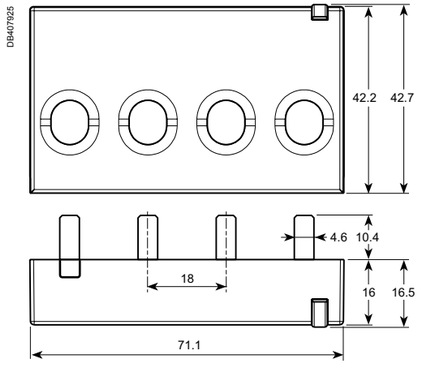

*3P*

DB407924




*1P+N*

DB407925




*3P+N*

## Weight (g)

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

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

*• The electrical auxiliaries are combined with iC60 circuit breakers, iID residual current circuit breakers, remote tripping switch disconnector iSW-NA; they enable tripping or remote indication of their position (open/closed/tripped) upon a fault.*
*• They are fastened by clips (without tools) to the left side of the breaker.*
*• The iOF/SD+OF auxiliary is a 2-in-1 product: via a mechanical selector switch, it provides two contacts, OF+SD or OF+OF.*
*• The iOF+SD24 auxiliary can report open/closed (OF) status information and intentional or fault tripping of the associated device (SD) to the Acti 9 Smartlink or a programmable logic controller via the TI24 interface (24 V DC).*

## Tripping auxiliaries:

### IEC/EN 60947-1

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

### EN 50550

- iMSU: overvoltage release.

## Indication auxiliaries:

### IEC/EN 60947-5-1

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

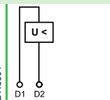
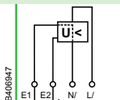
### IEC/EN 60947-5-4

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



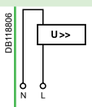
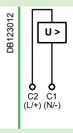
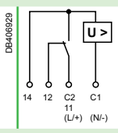


# iC60, iID, iDPN Vigi, iSW-NA electrical auxiliaries

| | | Tripping | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Auxiliaries** | | **iMN** | | **iMNs** | | **iMNx** | | |
| Type | | Undervoltage release | | | | | | |
| | | Instantaneous | | Delayed | | Independent of the supply voltage | | |
| | | PB104477-35  | | PB104479-35  | | PB104480-35  | | |
| Function | | | | | | | | |
| | | • Trips the device with which it is combined when its input voltage decreases (between 70 % and 35 % Un). Prevents device closing again until its input voltage is restored | | | | • Tripping of the associated device by opening of the control circuit (e.g. push-button, dry contact) | | |
| | | | | • Not tripping on transient voltage dip (up to 0.2 s) | | • A drop in the supply voltage does not trip the associated device<br>• 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<br>• Ensures the safety of power supply circuits for several machines by preventing "uncontrolled" restarting | | | | • Emergency stoppage with fail-safe principle<br>• Insensitive to control circuit voltage variation to increase service continuity<br>Important: Before any servicing operation switch off the mains power supply (voltage presence at terminals E1/E2) | | |
| Catalogue numbers | | A9A26960 | A9A27108 | A9A26961 | A9A26959 | A9A26963 | A9A26969 | A9A26971 |
| iC60, iID, iDPN Vigi, iSW-NA | | ● | ● | ● | ● | ● | ● | ● |
| iC60, iID double terminals | | ● | ● | ● | ● | ● | ● | ● |
| Technical specifications | | | | | | | | |
| Rated voltage (Ue) | V AC | 220…240 | 24 | 48 | 115 | 220…240 | 220…240 | 380…415 |
| | V DC | – | 24 | 48 | | – | – | |
| Standardised operating and non-response to voltage times (Ua)* | | – | – | – | – | – | – | – |
| Maximum operating time | | – | – | – | – | – | – | – |
| Minimum non-response time | | – | – | – | – | – | – | – |
| Operating frequency | Hz | 50/60 | | | 400 | 50/60 | 50/60 | |
| Red mechanical indicator | | On front face | | | | On front face | On front face | |
| Test function | | – | | | | – | – | |
| Width in 9 mm modules | | 2 | | | | 2 | 2 | |
| Operating current | | – | | | | – | – | |
| Number of contacts | | – | | | | – | – | |
| Operating temperature | °C | -35…+70 | | | | -35…+70 | -35…+70 | |
| Storage temperature | °C | -40…+85 | | | | -40…+85 | -40…+85 | |

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

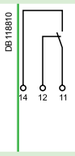
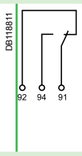
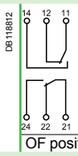
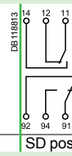
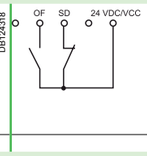
# iC60, iID, iDPN Vigi, iSW-NA electrical auxiliaries

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



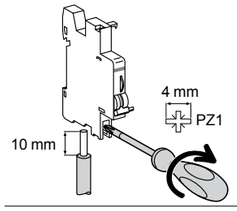


# iC60, iID, iDPN Vigi, iSW-NA electrical auxiliaries

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

## Connection

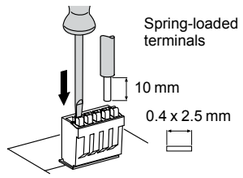
DB123061




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

## Ti24 connector connection

DB123560



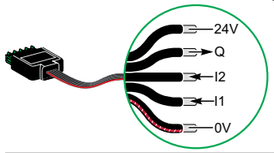

| Type | Catalogue numbers | Copper cables | |
|---|---|---|---|
| | | Rigid | Flexible |
| | DB122945 | | DB123553 |
| Ti24 interface | A9XC2412 | 1 x 0.5 to 1.5 mm² | 1 x 0.5 to 1.5 mm² |

## Ti24 prefabricated cables connection

PB107754-10

PB107755-14

DB404941



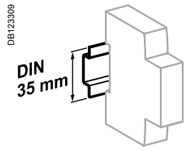

PB107756-7

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



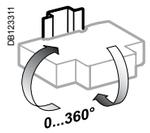


DB123309




*Clip on DIN rail 35 mm.*

DB123311




*Indifferent position of installation.*

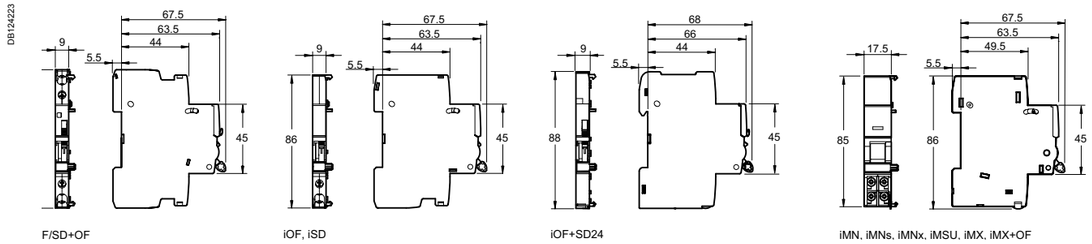
## Technical data

### Weight (g)

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

## Dimensions (mm)

DB124223



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

*• The electrical auxiliaries provide the remote tripping or position (open/closed/tripped) indication functions of these devices in the event of a fault.*
*• They clip on (no tool required) to the left-hand side of the associated device.*
*• The OF+SD/OF auxiliary is a two-in-one product: a mechanical selector switch is used to select one of two contacts: OF+SD or OF+OF.*
*• The OF+SD24 auxiliary can report open/closed (OF) status information and intentional or fault tripping of the associated device (SD) to the Acti 9 Smartlink or a programmable logic controller via the TI24 interface (24 V DC).*

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

## Tripping auxiliaries:

### IEC/EN 60947-1

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

### EN 50550

- MSU: overvoltage release.

## Indication auxiliaries:

### IEC/EN 60947-5-1

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

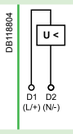
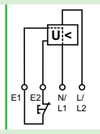
### IEC/EN 60947-5-4

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



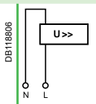
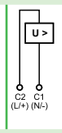
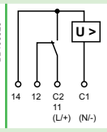


# C60, C120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC electrical auxiliaries

| | | Tripping | | | | | |
|---|---|---|---|---|---|---|---|
| **Auxiliaries** | | **MN** | | **MNs** | | **MNx** | |
| Type | | Undervoltage release | | | | | |
| | | Instantaneous | | Delayed | | Independent of the supply voltage | |
| | | PB107151-30  | | PB107152-30  | | PB107149-30  | |
| Function | | | | | | | |
| | | • Causes the device with which it is associated to trip when its input voltage decreases (between 70 % and 35 % of Un). Prevents the device from closing until its input voltage has been restored | | | | • Tripping of the associated device by opening of the control circuit (e.g. push-button, dry contact) | |
| | | | | • No tripping in the event of transient voltage dips (up to 0.2 s) | | • A drop in the supply voltage does not trip the associated device<br>• A locking push-button control allows the circuit protected (e.g. machine control) to be placed in safety configuration | |
| Wiring diagrams | | | | | | | |
| | | DB118804   | | | | DB406947   | |
| Utilization | | | | | | | |
| | | • Emergency stop via a normally-closed pushbutton<br>• Ensures the safety of the power supply circuits of several machines by preventing accidental startups | | | | • Fail-safe emergency stop<br>• Insensitive to the variation in the control circuit voltage to improve continuity of service<br>Important: Before any servicing operation switch off the mains power supply (voltage presence at terminals E1/E2) | |
| Catalogue numbers | | A9N26960 | A9N26961 | A9N26959 | A9N26963 | A9N26969 | A9N26971 |
| C60, C120, DPN, DPN Vigi, ID | | ● | ● | ● | ● | ● | ● |
| C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC | | ● | ● | ● | ● | ● | ● |
| Technical specifications | | | | | | | |
| Rated voltage (Ue) | V AC | 220…240 | 48 | 115 | 220…240 | 230 | 400 |
| | V DC | – | 48 | – | – | – | |
| Standardised operating and non-response to voltage times (Ua)* | | – | – | – | – | – | – |
| Maximum operating time | | – | – | – | – | – | – |
| Minimum non-response time | | – | – | – | – | – | – |
| Operating frequency | Hz | 50/60 | | 400 | 50/60 | 50/60 | |
| Mechanical state indicator light, red | | On front face | | | On front face | On front face | |
| Test function | | – | | | – | – | |
| Width in 9 mm modules | | 2 | | | 2 | 2 | |
| Operating current | | – | | | – | – | |
| Number of contacts | | – | | | – | – | |
| Operating temperature | °C | -25…+50 | | | -25…+50 | -25…+50 | |
| Storage temperature | °C | -40…+85 | | | -40…+85 | -40…+85 | |
| Standards | | | | | | | |
| IEC/EN 60947-1 | | ● | | | ● | ● | |
| IEC/EN 60947-5-1 | | – | | | – | – | |
| EN 60947-2 | | ● | | | ● | – | |
| EN 62019-2(1) | | – | | | – | – | |

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

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

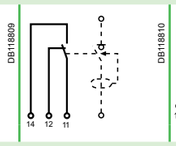
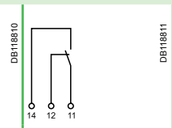
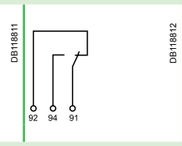
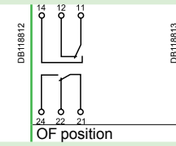
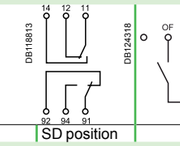
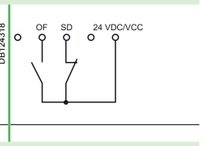
| | | Tripping | | |
|---|---|---|---|---|
| **Auxiliaries** | | **MSU** | **MX** | **MX+OF** |
| Type | | Voltage threshold release | Shunt release | |
| | | | | With Open/Close auxiliary contact |
| | | PB107153-30  PB107150-30 | PB107148-30  | PB107148-30  |
| Function | | | | |
| | | • Cuts off the 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)<br>• 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<br>• Remote indication of the position of the associated device |
| Catalogue numbers | | A9N26500 | A9N26476 | A9N26477 | A9N26478 | A9N26946 | A9N26947 | A9N26948 |
| C60, C120, DPN, DPN Vigi, ID | | ● | ● | ● | ● | ● | ● | ● |
| C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC | | – | ● | ● | ● | ● | ● | ● |
| Technical specifications | | | | | | | | |
| Rated voltage (Ue) | V AC | 230 | 100…415 | 48 | 12…24 | 100…415 | 48 | 12…24 |
| | V DC | – | 110…130 | 48 | 12…24 | 110…130 | 48 | 12…24 |
| Standardised operating and non-response to voltage times (Ua)* | | 255 V AC / 275 V AC / 300 V AC / 350 V AC / 400 V AC | – | – | – | – | – | – |
| Maximum operating time | | No tripping / 15 s / 5 s / 0.75 s / 0.20 s | – | – | – | – | – | – |
| Minimum non-response time | | 3 s / 1 s / 0.25 s / 0.07 s | – | – | – | – | – | – |
| Operating frequency | Hz | 50/60 | 50/60 | | | 50/60 | | |
| Mechanical state indicator light, red | | On front face | On front face | | | On front face | | |
| Test function | | – | – | | | – | | |
| Width in 9 mm modules | | 2 | 2 | | | 2 | | |
| Operating current | | – | – | | | 10 mA mini, 6 A maxi<br>≤ 24 V DC 6 A<br>48 V DC 2 A<br>≤ 130 V DC 1 A<br>≤ 240 V AC 6 A<br>415 V AC 3 A | | |
| Number of contacts | | – | – | | | 1 NO/NC | | |
| Operating temperature | °C | -25…+50 | -25…+50 | | | -25…+50 | | |
| Storage temperature | °C | -40…+85 | -40…+85 | | | -40…+85 | | |
| Standards | | | | | | | | |
| IEC/EN 60947-1 | | ● | ● | | | ● | | |
| IEC/EN 60947-5-1 | | – | – | | | – | | |
| EN 60947-2 | | – | – | | | – | | |
| EN 62019-2(1) | | – | – | | | – | | |

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





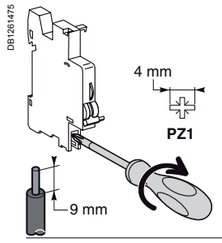
# C60, C120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC electrical auxiliaries

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

*(1) For C120, DPN.*

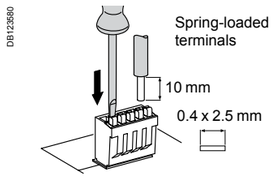
# C60, C120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC electrical auxiliaries

## Connection




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

## Ti24 connector connection




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

## Ti24 prefabricated cables connection

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

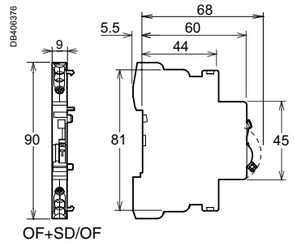




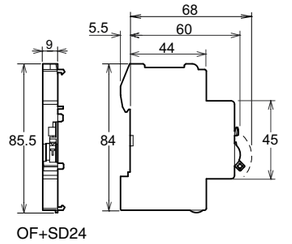


# C60, C120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC, C120NA-DC electrical auxiliaries

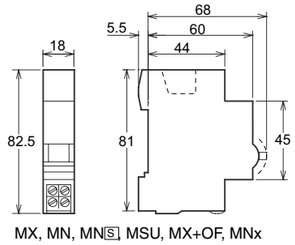
## Dimensions



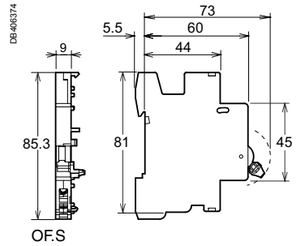

OF+SD/OF



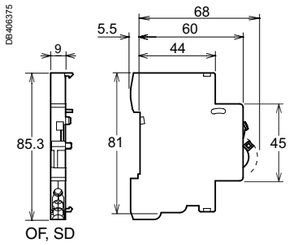

OF+SD24



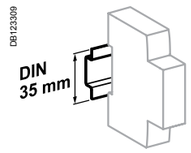

MX, MN, MN[S], MSU, MX+OF, MNx



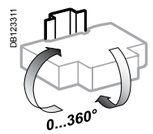

OF.S




OF, SD




*Clip on DIN rail 35 mm.*




*Indifferent position of installation.*

## Weight (g)

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

# RCA remote controls

## iC60 circuit breakers

PB106253-40


PB106251-40

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

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

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

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

## Catalogue numbers

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

DB123613

*Without Ti24 interface*

DB123572


DB123573

*With Ti24 interface*

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





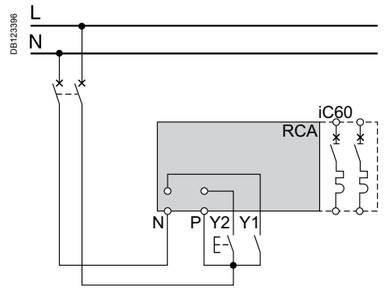
# RCA remote controls

## iC60 circuit breakers

### Standard RCA

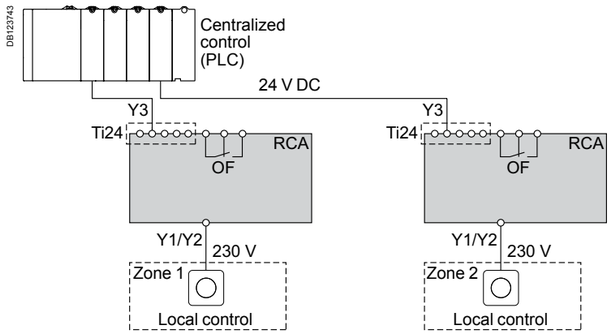
- The orders received on terminals Y1 and Y2 are taken into account progressively in their order of arrival.

DB123396




### RCA Ti24

DB123743

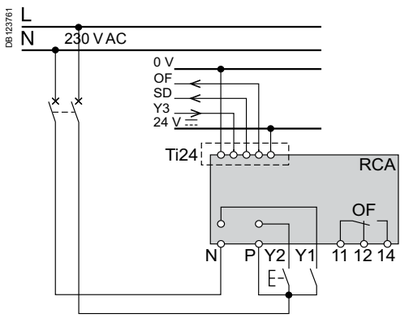



**Mode 1: Locally or centrally controlled circuit-breaker opening/closing**

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

### RCA Ti24 mode 1

DB123761

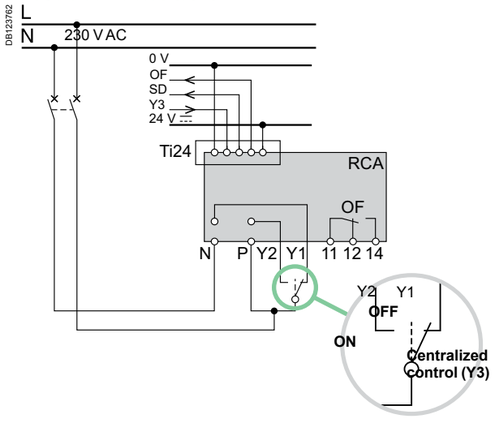



**Mode 3: Centrally controlled opening/closing + local override**

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

### RCA Ti24 mode 3

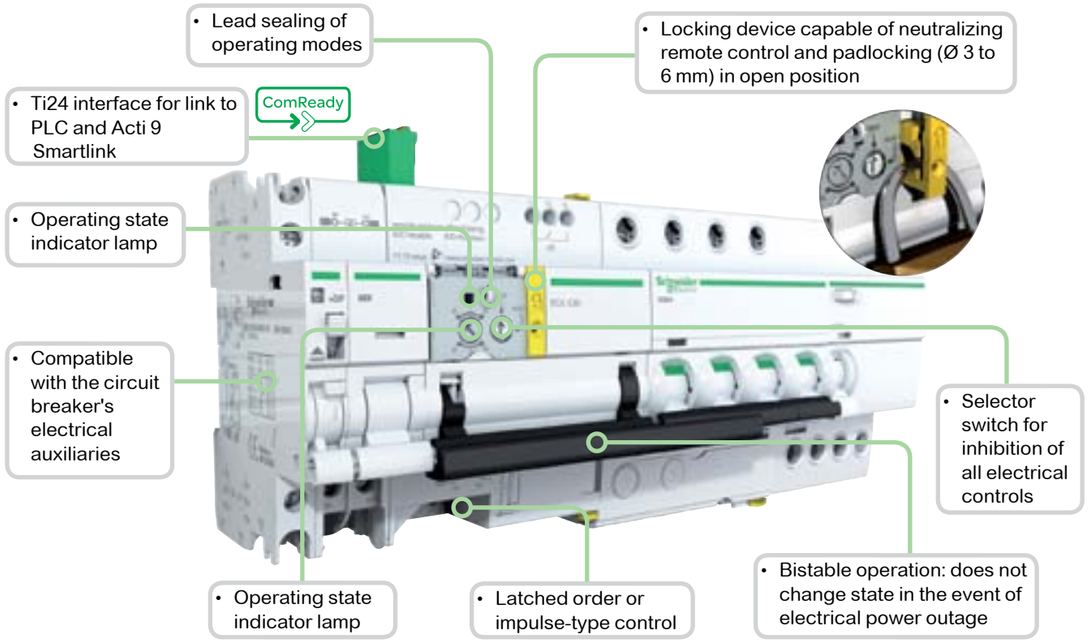
DB123762



# RCA remote controls

## iC60 circuit breakers

DB123576




DB123763

| Legend | |
|---|---|
| Type | Application |
| +24VDC | V DC power supply |
| Y3 | Latched order centralized control |
| SD | Circuit-breaker tripping information |
| OF | Control circuit state information (open/closed) |
| 0 V | V DC power supply |

DB123578


DB123579

| | |
|---|---|
| Y1 | Latched order local control |
| Y2 | Impulse-type or latched order local control (depending on mode) |
| N | 230 V AC power supply |
| P | |
| OF  11 12 14 | Circuit-breaker state indication contact (open/closed) |



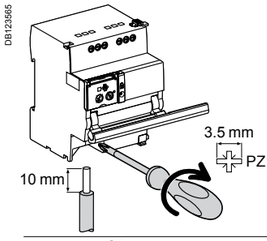


# RCA remote controls

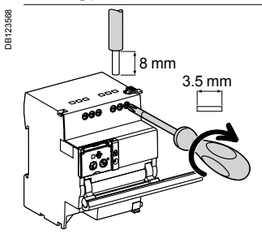
## iC60 circuit breakers

## Connection

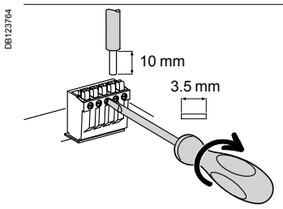
DB123565




DB123568

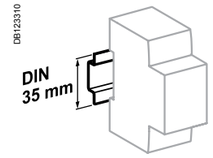



DB123784



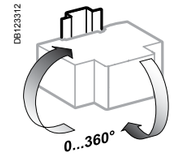

| Terminal | Tightening torque | Without accessories: Copper cables | | |
|---|---|---|---|---|
| | | Rigid | Flexible | Flexible with ferrule |
| | | DB122945 | DB123553 | DB123554 |
| Power supply (N/P)<br>Inputs (Y1/Y2) | 1 N.m | 0.5 to 10 mm²<br>2 x 0.5 to 2 x 2.5 mm² | 0.5 to 6 mm²<br>2 x 0.5 to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

DB123310



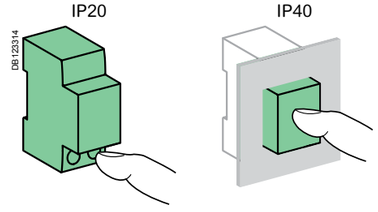

*Clip on DIN rail 35 mm.*

DB123312




*Indifferent position of installation.*

DB123314




## Technical data

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

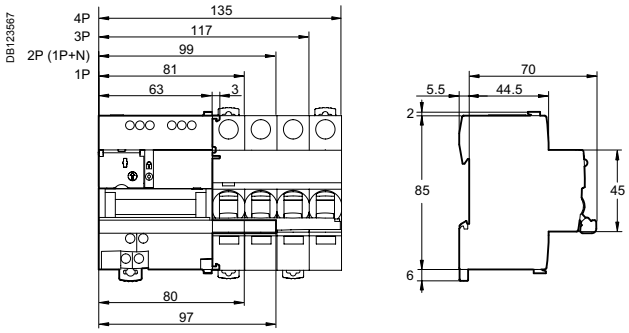
# RCA remote controls

## iC60 circuit breakers

### Weight (g)

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

### Dimensions (mm)



# ARA automatic reclosers

## iC60 circuit breakers and iID residual current circuit breakers

PB106254-40

*ARA iC60*

PB106257-40

*ARA iID*

The ARA reclosing auxiliary can:

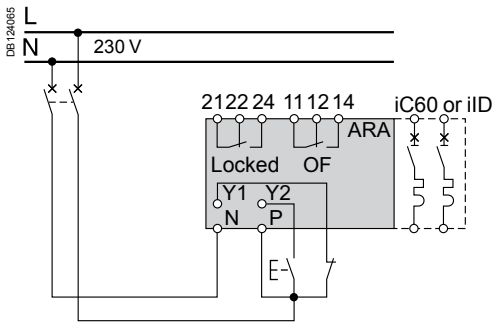
- Perform automatic reclosing of the associated protection device, after tripping.
- Increase the availability of installations without supervision, isolated, hard of access and demanding very great availability (mobile telephony systems, motorways, pumping stations, airports, railways, meteorological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

## Catalogue numbers

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

## Diagram

DB124065




DB124060

DB123582

*ARA iC60*

DB123583

DB406179


*ARA iID*

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

# ARA automatic reclosers

## iC60 circuit breakers and iID residual current circuit breakers

### Operating principle

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

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

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

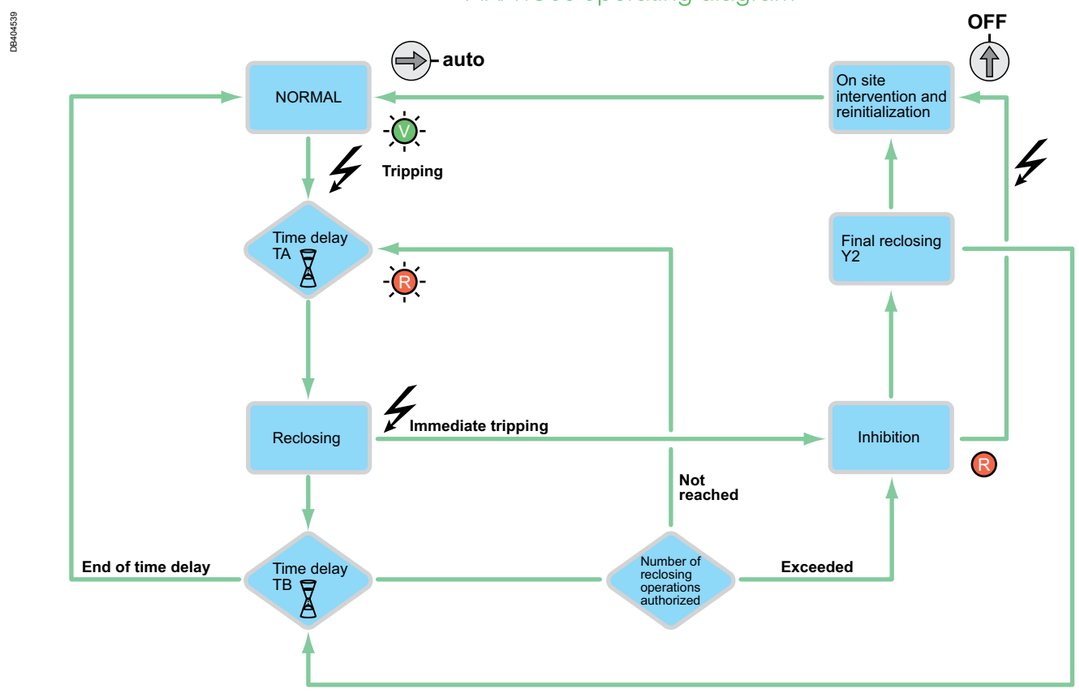
| ARA iID | Number of reclosing attempts | Delay before reclosing | Check time | Final reclosing Y2 |
|---|---|---|---|---|
| | | TA | TB | |
| Only 1 program available | 15 | 10 s<br>20 s<br>40 s<br>3 min.<br>... | 30 min.<br>30 min.<br>... | Once per cycle |



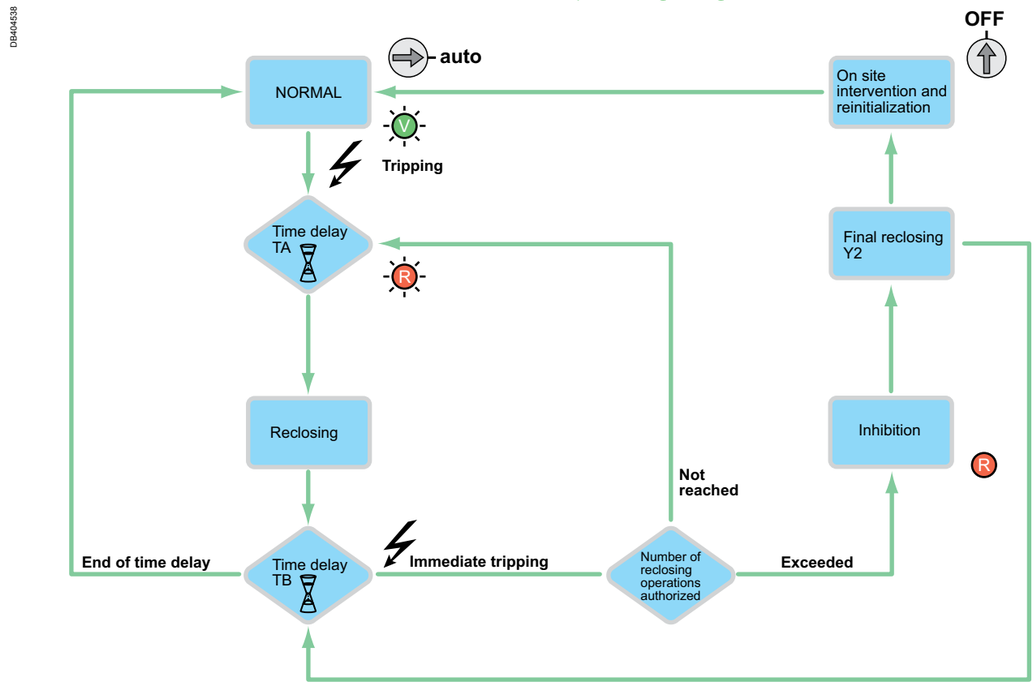


ARA automatic reclosers
iC60 circuit breakers and iID residual current circuit breakers

### ARA iC60 operating diagram

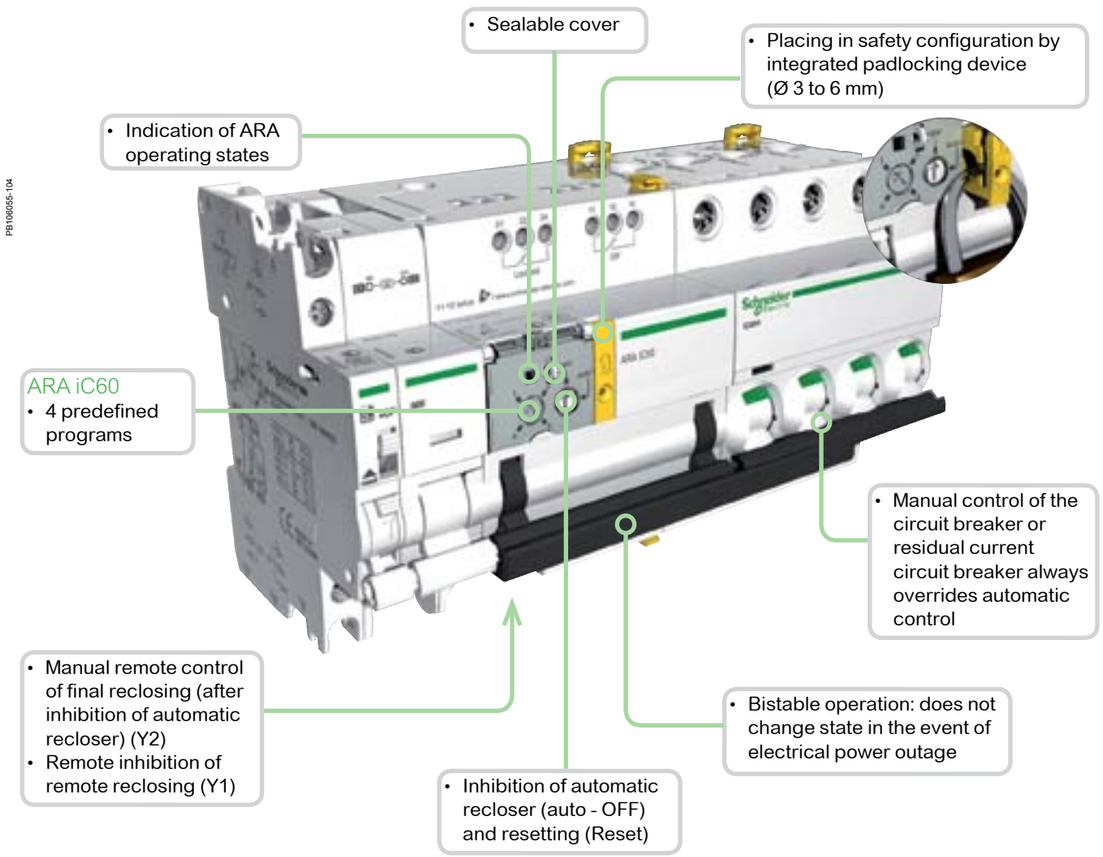



### ARA iID operating diagram



# ARA automatic reclosers

## iC60 circuit breakers and iID residual current circuit breakers



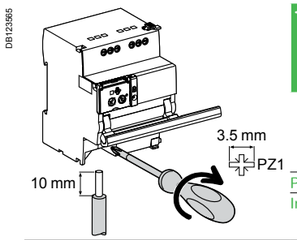


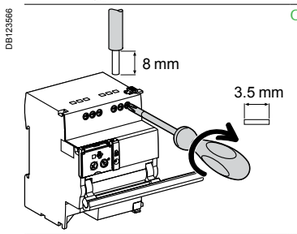



# ARA automatic reclosers

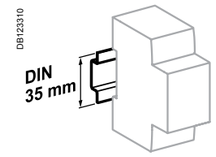
## iC60 circuit breakers and iID residual current circuit breakers

## Connection

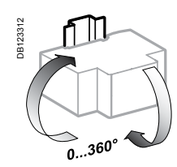


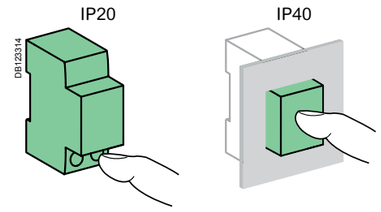

| Terminal | Tightening torque | Copper cables | | |
|---|---|---|---|---|
| | | Rigid | Flexible | Flexible with ferrule |
| | | DB122945 | DB123553 | DB123554 |
| Power supply (N/P)<br>Inputs (Y1/Y2) | 1 N.m | 0.5 to 10 mm²<br>2 x 0.5 to 2 x 2.5 mm² | 0.5 to 6 mm²<br>2 x 0.5 to 2 x 2.5 mm² | 0.5 to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




*Clip on DIN rail 35 mm.*




*Indifferent position of installation.*



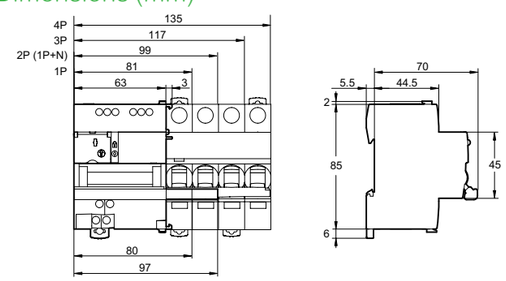

## Technical data

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

## Weight (g)

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

## Dimensions (mm)



# iPB pushbuttons

## Local control

### IEC 60669-1, IEC 60947-5-1

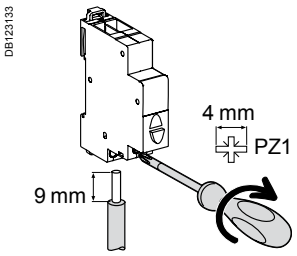
- iPB pushbuttons are used to control electric circuits by means of pulses.

## Catalogue numbers

**iPB pushbuttons**

| Type | | Single | | | | Double | | Single + indicator light | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | PB105259-40 | | PB105260-40 | | PB105261-40 | | | | | |
| Diagram | | 1 NC | | 1 NO | 1 NO + 1 NC | 1 NO / 1 NC | 1 NO / 1 NO | 1 NO | 1 NC | 1 NO | 1 NC |
| Pushbutton | Colour | Grey | Red | Grey | Grey | Green/red | Grey/grey | Grey | Grey | Grey | Grey |
| Indicator light | Power supply | - | - | - | - | - | - | 110…230 V AC | | 12…48 V AC/DC | |
| | Colour | - | - | - | - | - | - | Green | Red | Green | Red |
| Cat. no. | | A9E18030 | A9E18031 | A9E18032 | A9E18033 | A9E18034 | A9E18035 | A9E18036 | A9E18037 | A9E18038 | A9E18039 |
| Width in 9 mm modules | | 2 | | | | 2 | | 2 | | | |

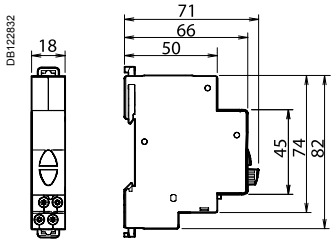
## Connection




| Tightening torque | Copper cables | |
|---|---|---|
| | Rigid | Flexible or with ferrule |
| | DB122945 | DB122946 |
| 1 N.m | 0.5 mm² min. | 0.5 mm² min. |
| | 2 x 2.5 mm² max. | 2 x 2.5 mm² max. |

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

## Dimensions (mm)




## Technical data

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

# Reflex iC60N, iC60H integrated control circuit breakers

## Curves B, C, D

PB115437-40

ComReady

PB115442-40

## IEC/EN 60947-2

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

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

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

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

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

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

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

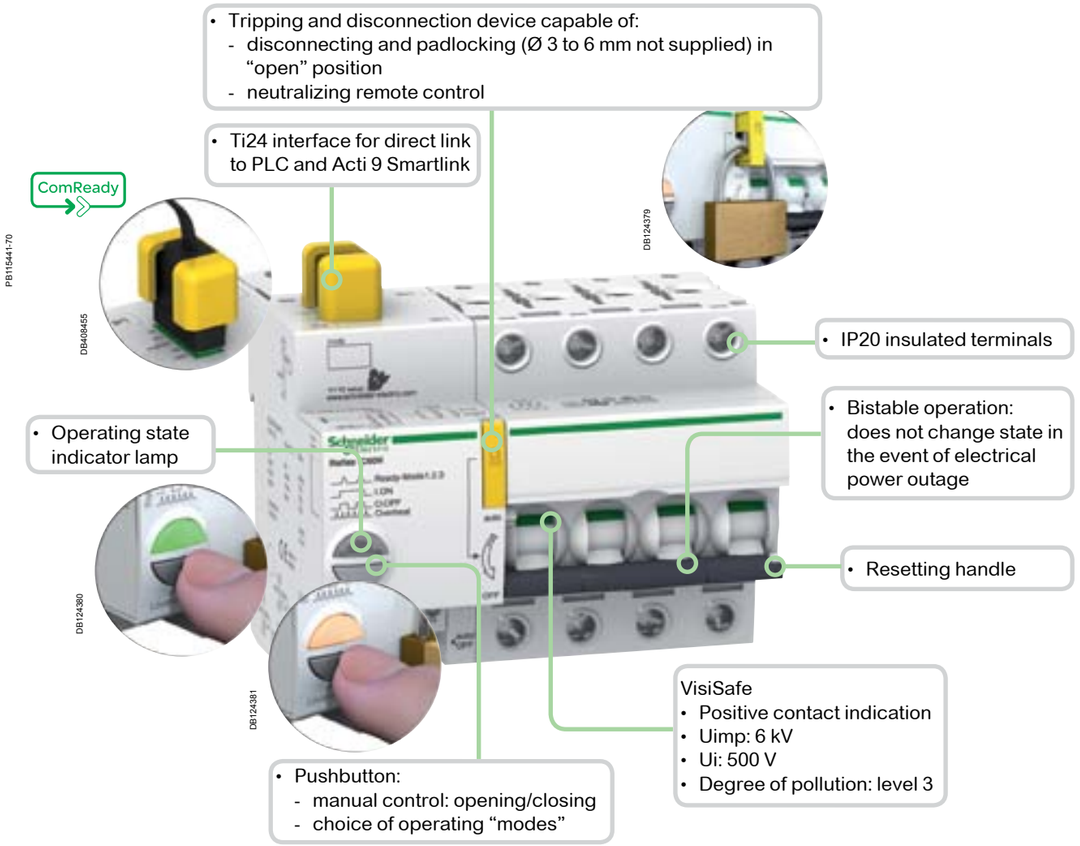
## Catalogue numbers

**Reflex iC60 circuit breaker**

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

# Reflex iC60N, iC60H integrated control circuit breakers

## Curves B, C, D




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



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



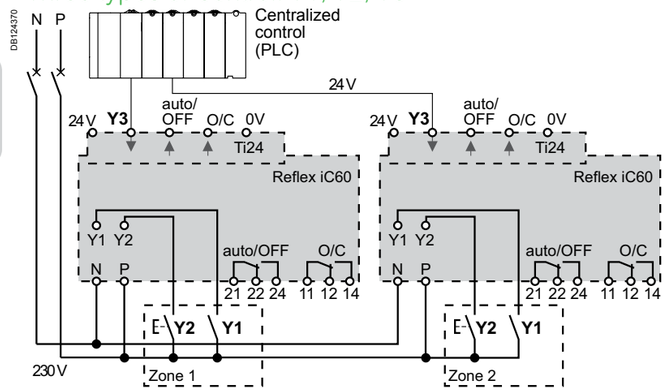


# Reflex iC60N, iC60H integrated control circuit breakers

## Curves B, C, D


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

### Three types of control: Y1, Y2, Y3




### Operating modes

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

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

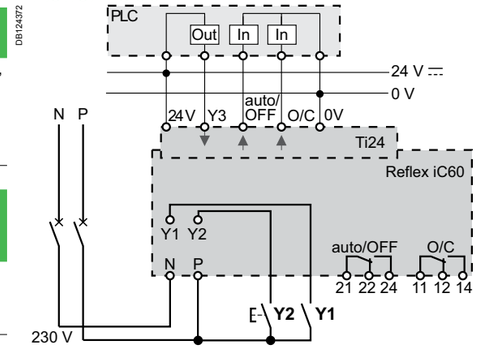
**Mode 2: Reflex iC60 opening/closing, possible inhibition of local impulse-type control**

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

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

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

### Reflex iC60



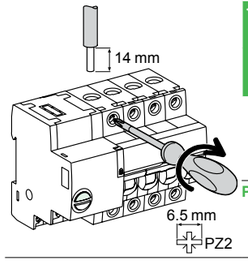

| Table of modes | | | |
|---|---|---|---|
| | Mode 1 | Mode 2 | Mode 3 |
| Reflex iC60 | • Possible mode | • Possible mode | • Default mode |

# Reflex iC60N, iC60H integrated control circuit breakers

## Curves B, C, D

### Power connection

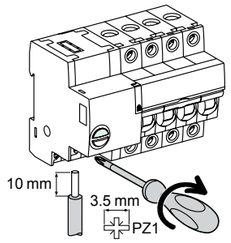
DB123561




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

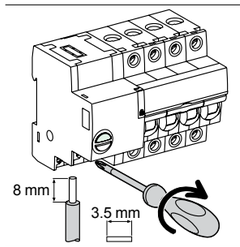
### Control connection

DB123562

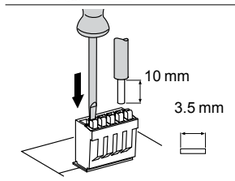



| Terminal | Tightening torque | Without accessories: Copper cables – Rigid | Without accessories: Copper cables – Flexible | Without accessories: Copper cables – Flexible with ferrule |
|---|---|---|---|---|
| | | DB122945 | DB123553 | DB123554 |
| Power supply (N/P)<br>Inputs (Y1/Y2) | 1 N.m | 1 to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

DB123563




DB123580

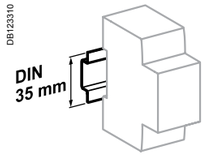






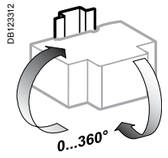

Reflex iC60N, iC60H integrated control circuit breakers
Curves B, C, D

DB123310



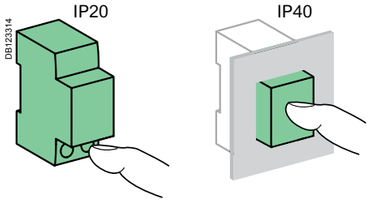

*Clip on DIN rail 35 mm.*

DB123312




*Indifferent position of installation.*

DB123314

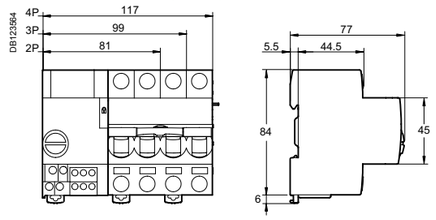



## Weight (g)

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

## Dimensions (mm)

DB123564




## Technical data

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

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

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

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

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

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

# iCT contactors
## Remote control

DB123399 DB116619 DB106604

*Country approval pictograms*

### EN 61095, IEC 1095

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

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

## Contactors

### iCT 2P

PB106115-35

manual control

### iCT 4P

PB106105-35

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

## Contactors auxiliaries

PB106120-34

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

PB106124-34

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

PB106123-34

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

PB107751-34


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

PB106125-34

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

Function type A:
late closing
Delay energizing of contactor

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

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

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

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





# iCT contactors
## Remote control

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

- Insulated terminals IP20

PB106115-39


- Minimum noise

- Large circuit labeling area

- Mechanical contact position indicator

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

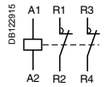
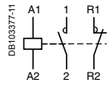
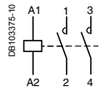
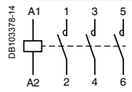
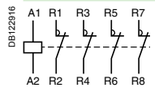
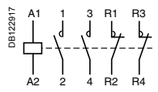
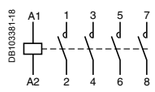
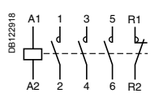
- Manually-operated contactors have a 4-position selector switch on their front face:
  - automatic operating mode
  - temporary "ON" override
  - permanent "ON" override: used to lock the contactor in the ON position during installation maintenance
  - shutdown

# iCT contactors

## Remote control

### Catalogue numbers

**iCT contactors - 50 Hz**

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

*(*) do not use for lighting applications*



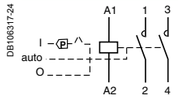
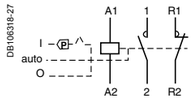
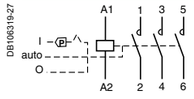
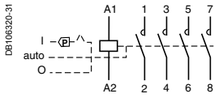


# iCT contactors

## Remote control

### Catalogue numbers

**iCT manual control contactor 50 Hz**

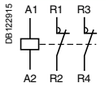
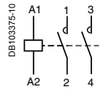
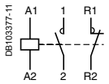
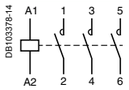
| Type | | | | | | Width in 9 mm modules |
|---|---|---|---|---|---|---|
| 2P | Rating (In) AC7a | AC7b | Control voltage (V AC) (50/60 Hz) | Contact | | |
|  | 16 A | 6 A | 220 | 2NO | A9C23512 | 2 |
| | | | 230...240 | 2NO | A9C23712 | 2 |
| | | | 220 | 1NO+1NC | A9C23515 | 2 |
| | | | 230...240 |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

# iCT contactors

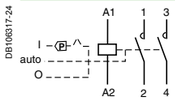
## Remote control

### Catalogue numbers

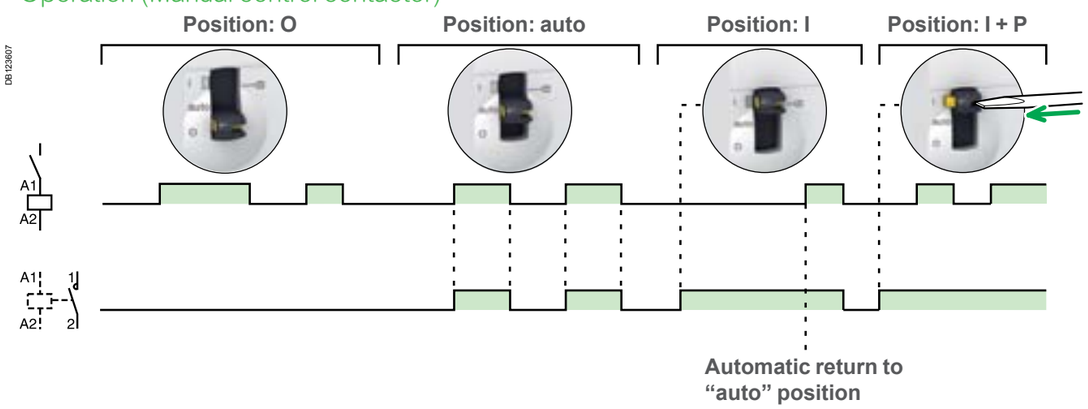
**iCT contactors - 60 Hz**

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

**iCT manual control contactor 60 Hz**

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

### Operation (Manual control contactor)



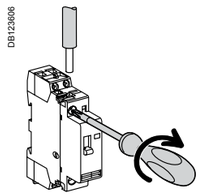




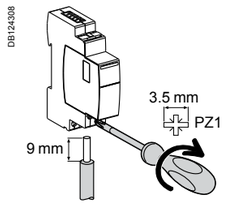

# iCT contactors

## Remote control

### Connection

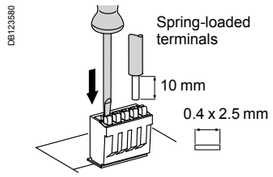


| Type | | Rating | Lenght tripping | Circuit | Tightening torque | Copper cables | |
|---|---|---|---|---|---|---|---|
| | | | | | | Rigid | Flexible or with ferrule |
| | | | | | |  |  |
| iCT | PZ1: 4 mm | 16 - 100 A | 9 mm | Control | 0.8 N.m | 1.5 to 2.5 mm: 2 x 1.5 mm² | 1.5 to 2.5 mm: 2 x 2.5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



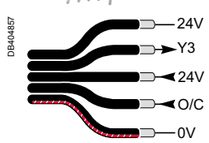

| Type | Terminals | Tightening torque | Copper cables | | |
|---|---|---|---|---|---|
| | | | Rigid | Flexible | Flexible or with ferrule |
| | | |  |  |  |
| iACT24 | Power supply (N/P) Input (Y1/Y2) | 1 N.m | 0.5 to 10 mm² 2 x 0.5 to 2 x 2.5 mm² | 0.5 to 6 mm² 2 x 0.5 to 2 x 2.5 mm² | 0.5 to 4 mm²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

### Ti24 connector connection




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

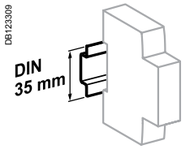
### Ti24 prefabricated cables connection




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

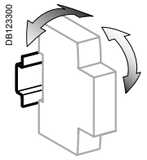
# iCT contactors
## Remote control

DB123309

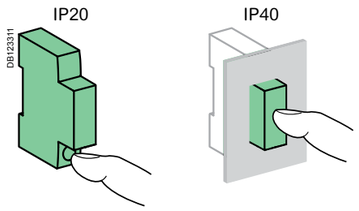



*Clip on DIN rail 35 mm.*

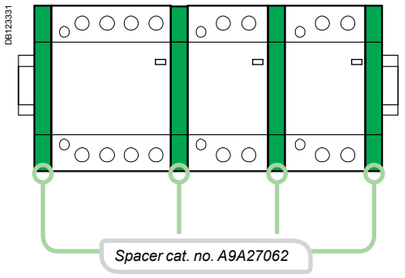
DB123300



*± 30° vertical.*




DB123331




## Technical data

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

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





# iCT contactors
## Remote control

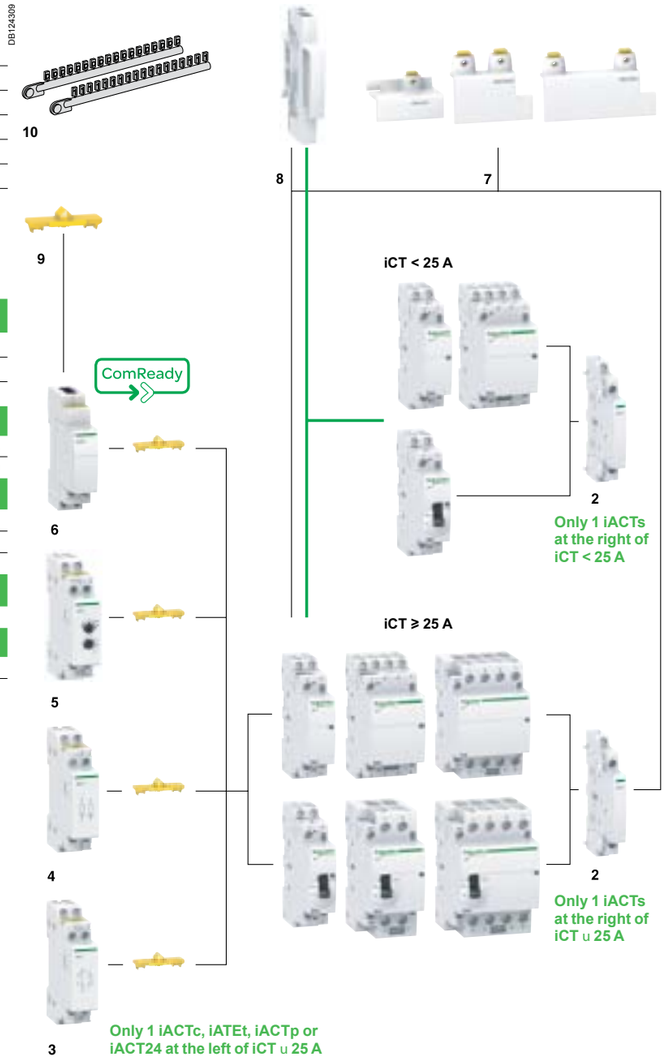
## Mounting accessories

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

## Auxiliaries

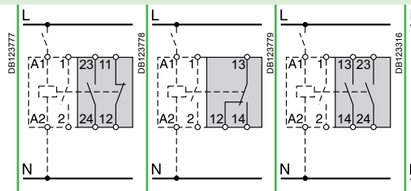
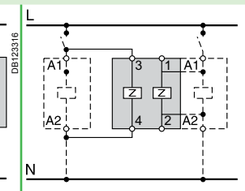
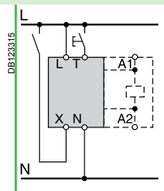
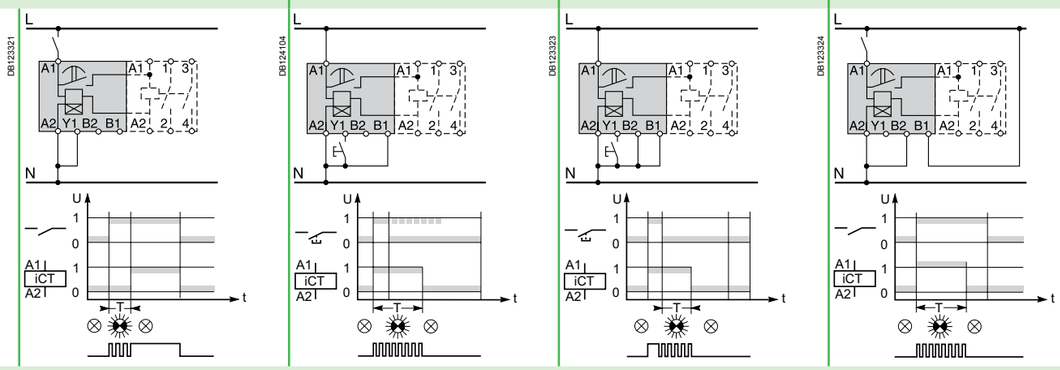
| | | | |
|---|---|---|---|
| **Indication** | | | |
| 2 | iACTs | 1NO + 1NC | A9C15914 |
| | | 1CO | A9C15915 |
| | | 2NO | A9C15916 |
| **Double control inputs** | | | |
| 3 | iACTc | 230 V AC | **A9C18308** |
| | | 24 V AC | **A9C18309** |
| **Coil suppression blocs** | | | |
| 4 | iACTp | 12...48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

DB124309



# iCT contactors

## Electrical auxiliaries

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

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

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



Version 2.0 - May 2017
Acti9

# iCT contactors

## Electrical auxiliaries

| | Control and indication |
|---|---|
| **Auxiliary** | **iACT24** |
| Type | Control and indication 24 V DC |
| | With Ti24 connector |

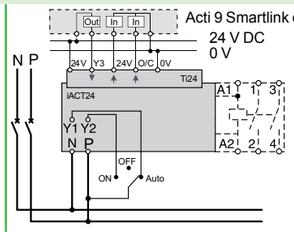
PB107751-34


**Function**

- This auxiliary allows a contactor to be interfaced with the Acti 9 Smartlink interface or a programmable logic controller (PLC) in 24 V DC (control, O/C indication)
- 230 V AC control

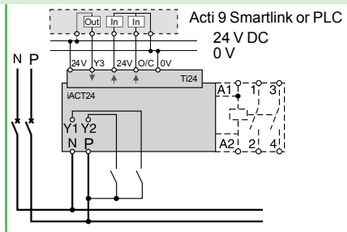
**Wiring diagrams**

DB124313




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

DB124441




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

**Mounting**

- To the left of the iCT contactor using the yellow clips (1).
- When an iACT24 is used, the A1/A2 terminals of the contactors should not be wired. Only the yellow clips integral with the iACT24 should be used for connection to the coil.

**Utilization**

- 230 V AC interface:
  - Y1: enabling of 24 V DC control (Y1 = 1) or inhibition of 24 V DC control (Y1 = 0).
  - Y2: 230 V pulse control
- "Ti24" 24 V DC interface:
  - Y3: 24 V DC control of iCT closing on rising edge and opening on falling edge
  - reading of the contactor status (opened or closed) from the position of the integrated O/C auxiliary contact
  - monitoring of connection of the "Ti24" terminal block by the upstream system (PLC, supervision system) via the 24 V terminal (in the centre of the Ti24 terminal block)

| | | |
|---|---|---|
| Catalogue numbers | | A9C15924 |
| **Technical specifications** | | |
| Control voltage (Ue) | V AC | 230, +10 %, -15 % (Y2) |
| | V DC | 24, ± 20 % (Y3) |
| Control voltage frequency | Hz | 50/60 |
| Insulation voltage (Ui) | V AC | 250 |
| Rated impulse withstand voltage (Uimp) | kV | 8 (OVC IV) |
| Pollution degree | | 3 |
| Degree of protection | | IP20B device only |
| | | IP40 device in modular enclosure |
| Width in 9 mm modules | | 2 |
| Auxiliary contact (O/C) Ti24 | | 24 V DC protected output, min. 2 mA, max. 100 mA |
| Contact | | 1 O/C operating category AC 14 |
| Operating temperature | °C | -25°C to +60°C |
| Storage temperature | °C | -40°C to +80°C |
| Consumption | | <1 W |
| Standard | | IEC/EN 60947-5-1 |

*(1) Mechanical and electrical link.*





# iCT contactors

## Accessories

| | Security | | | | |
|---|---|---|---|---|---|
| **Accessories** | **Sealable screw shields** | | | **Yellow clips** | **Spacer** |

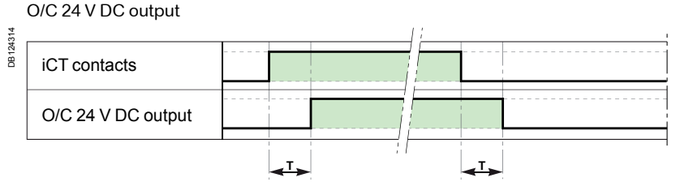
PB104485-15 PB104486-15 PB104487-15 PB106143-10 PB104483-40

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

ComReady

## Operation of the iACT24

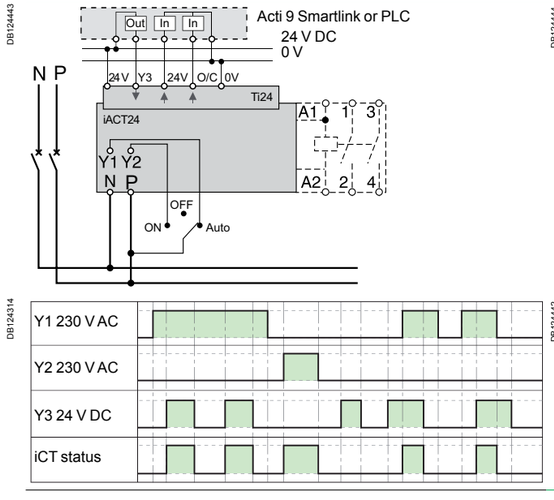
O/C 24 V DC output



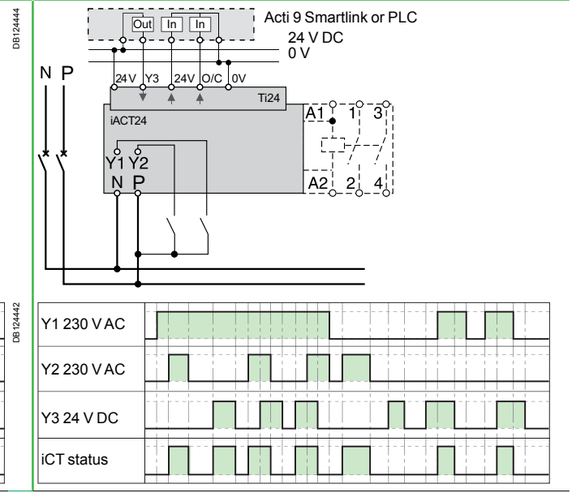

| | Parameter | Min | Max |
|---|---|---|---|
| T | Time delay between iACT24 closing and indication | 100 ms | 200 ms |

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

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




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








## Consumption

**iCT contactors - 50 Hz**

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

*(*) do not use for lighting applications*

# iCT contactors

## Technical advice for iCT

### Consumption (cont.)

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

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

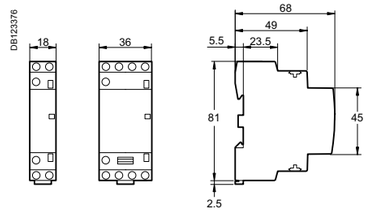




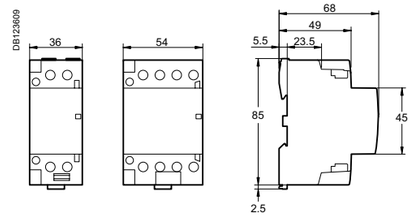
# iCT contactors

## Dimensions for iCT

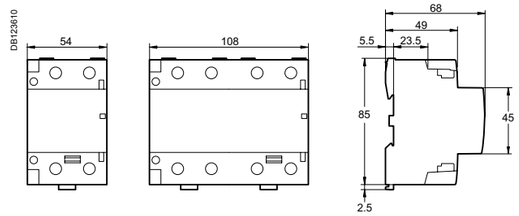
### Dimensions (mm)



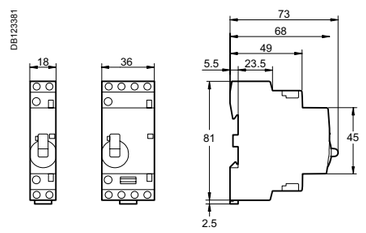

*iCT 16/25 A*



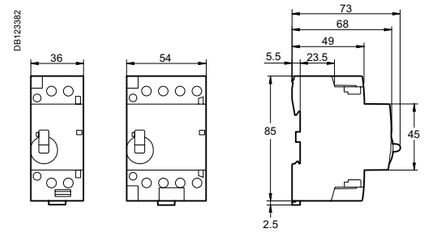

*iCT 40/63 A*



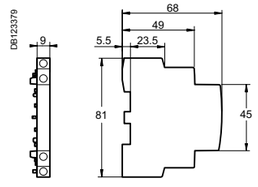

*iCT 100 A*



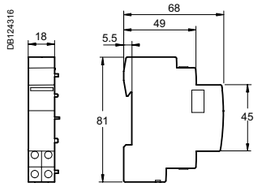

*iCT manual control contactor 16/25 A*



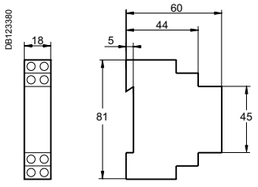

*iCT manual control contactor 40/63 A*




*iACTs*




*iACT24*




*iATEt*
*iACTp*
*iACTc*

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

DB123399 DB116619

iTL, iTLI, iTLs, iTLc, iTLm

*Country approval pictograms*

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

## Impulse relays are used:

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

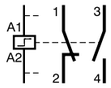
## Impulse relays

PB106126-34 PB106128-34

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

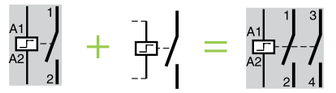
PB106131-34

### Changeover contact iTLi
- This impulse relay has a changeover contact




PB106134-34

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




## Remote indication

PB106133-34

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

PB106139-34

### Indication iATLs
- Allows remote indication of the associated impulse relay

PB106140-34

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

PB107752-34


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

PB106125-34

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

PB106141-34

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

## Centralised control

PB106130-34

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

PB106137-34

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

PB106136-34

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

## Latched control

PB106132-34

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

PB106138-34

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

PB106142-63

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

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



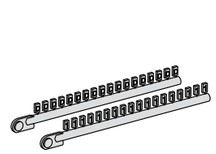
Version 2.0 - May 2017
Acti9

# iTL impulse relays

## Mounting accessories

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

DB123631



13

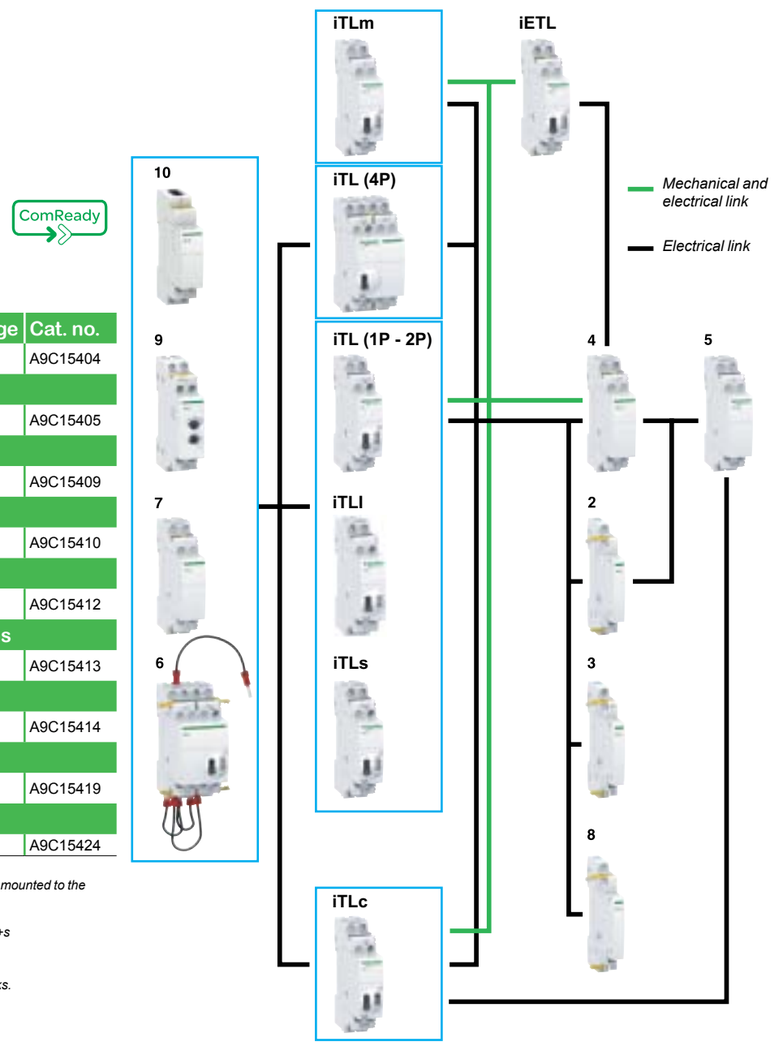
12

11

## Auxiliaries

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

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








# iTL impulse relays

PB106126-41

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

- Large circuit labeling area

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


- Insulated terminals IP20

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

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

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

# iTL impulse relays

## Auxiliaries choice in V AC and V DC

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

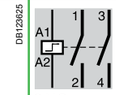
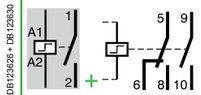
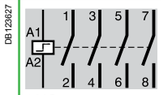
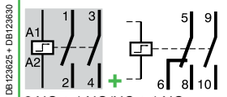
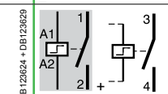
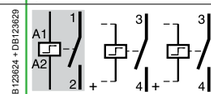
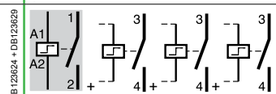
| V DC | | Choice impulse relays auxiliaries | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type | | Standard iTL | | | | | | Changeover iTLI | | | | | | iTLc centralised control | | | iTLm control on latched order | iTLs remote indication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

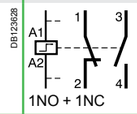


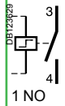
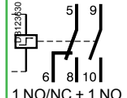


# iTL impulse relays

## Catalogue numbers

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

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

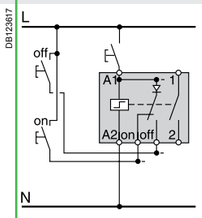
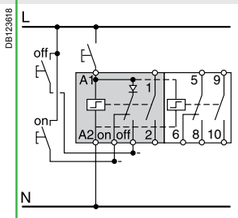
| iETL extensions for iTL and iTLI | | | | |
|---|---|---|---|---|
| Type | | | 1P | 2P |
| | | |  1 NO |  1 NO/NC + 1 NO |
| Rating (In) | Control voltage (Uc) (V AC) (50/60 Hz) | (V DC) | | |
| 16 A | 12 | 6 | - | A9C32016 |
| | 24 | 12 | - | A9C32116 |
| | 48 | 24 | - | A9C32216 |
| | 130 | 48 | -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

# iTL impulse relays

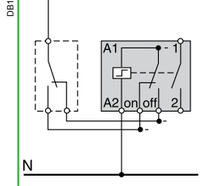
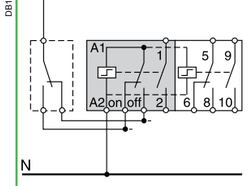
## iTLc , iTLm, iTLs with built-in auxiliary function

## Catalogue numbers

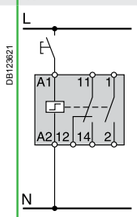
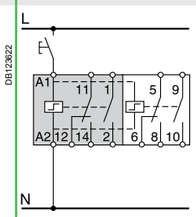
### iTLc impulse relay with centralised control

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

### iTLm impulse relay with latched control

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

### iTLs impulse relay with remote indication*

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

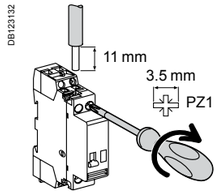
*(*) Short circuit protection device for indication contacts : 6 A gG fuse.*



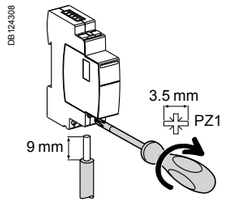


# iTL impulse relays

## Connection

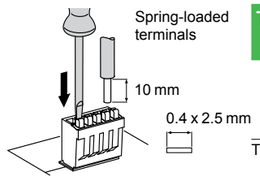
DB123132



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

DB124308



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

## Ti24 connector connection

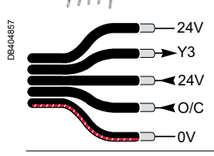
DB123580



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

## Ti24 prefabricated cables connection

PB107754-10

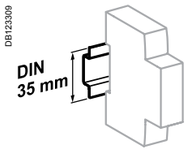

PB107755-14


DB404857


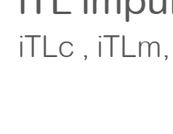

| Type | Catalogue numbers | Length |
|---|---|---|
| Connection for Acti 9 Smartlink | | |
| 6 short prefabricated | A9XCAS06 | 100 mm |
| 6 medium-sized prefabricated | A9XCAM06 | 160 mm |
| 6 long prefabricated | A9XCAL06 | 870 mm |
| Connection for PLC type terminals | | |
| 6 long prefabricated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

# iTL impulse relays

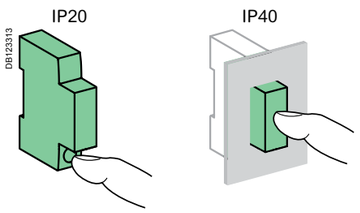
## iTLc , iTLm, iTLs with built-in auxiliary function



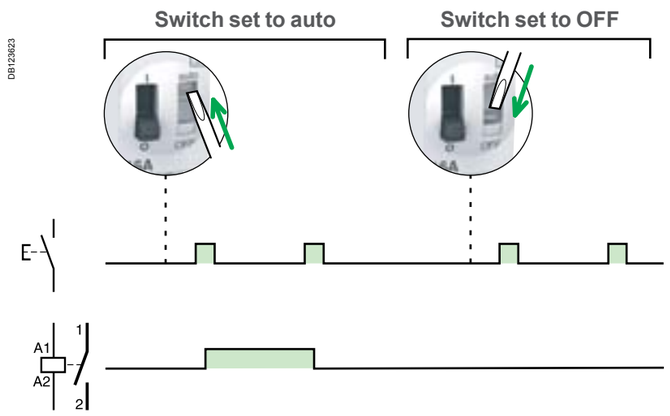

*Clip on DIN rail 35 mm.*




*Indifferent position of installation.*




## Operation




## Technical data

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





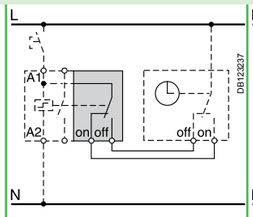
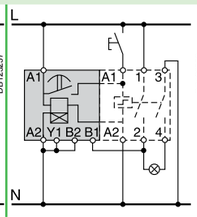
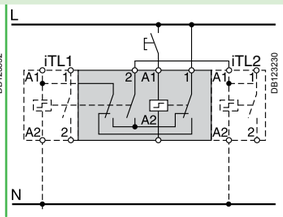
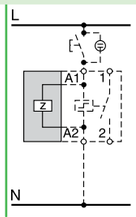
# iTL impulse relays

## Electrical auxiliaries for iTL impulse relays

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

# iTL impulse relays

## Electrical auxiliaries for iTL impulse relays

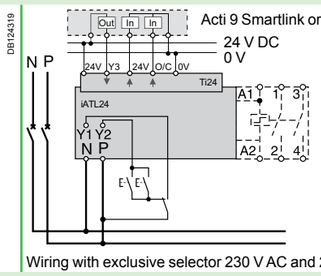
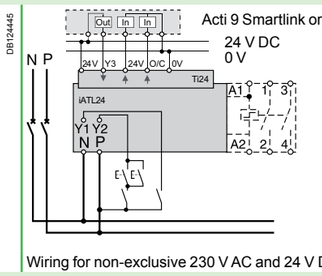
| | Control | | | |
|---|---|---|---|---|
| **Auxiliaries** | **iATLm** | **iATEt** | **iATL4** | **iATLz** |
| Type | Latched control | Time delay | Step by step control | Control by illuminated push-buttons |
| | PB106125-34  | PB106142-63  |  | PB106141-34  |
| Function | • Combined with an impulse relay, it operates on latched orders | • Combined with an impulse relay, it automatically disconnects the circuit after a preset time | • Allows the step by step sequence over 2 circuits | • Used to control impulse relays by illuminated push-buttons, without operating risks |
| Wiring diagrams | DB408601   | DB123237   | DB123652   | DB123230   |
| | – | • 5 time setting ranges:<br>- 1 to 10 s<br>- 6 to 60 s<br>- 2 to 10 min<br>- 6 to 60 min<br>- 2 to 10 h | • The cycle is as follows:<br>- 1st impulse - iTL 1 closed, iTL 2 open<br>- 2nd impulse - iTL 1 open, iTL 2 closed<br>- 3rd impulse - iTL 1 and 2 closed<br>- 4th impulse - iTL 1 and 2 open<br>- 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.<br>• For example: for 7 mA, fit 2 iATLz |
| Mounting | • Mounted to the right of iTL by yellow clips | • Mounted to the left of iTL by yellow clips | • Assembled between 2 impulse relays: according to the auxiliarisation table by yellow clips | • Mounted to the left of iTL by yellow clips |
| Catalogue numbers | A9C15414 | A9C15419 | A9C15412 | A9C15413 |
| Technical specifications | | | | |
| Control voltage (Uc) V AC | 12…240 | 24…240 | 230 | 230…240 |
| Control voltage (Uc) V DC | – | 24…110 | – | – |
| Control voltage frequency Hz | 50/60 | 50/60 | 50/60 | 50/60 |
| Width in 9 mm modules | 1 | 2 | 4 | 2 |
| Auxiliary contact (breaking capacity) | – | – | – | – |
| Number of contacts | – | – | – | – |
| Operating temperature °C | -20°C to +50°C | | | |
| Storage temperature °C | -40°C to +70°C | | | |





# iTL impulse relays

## Electrical auxiliaries for iTL impulse relays

| | Control and indication |
|---|---|
| **Auxiliaire** | **iATL24** |
| Type | Control and indication 24 V DC |
| | With Ti24 connector |
| | PB107752-34   |
| Function | • This auxiliary allows a impulse relay to be interfaced with the Acti 9 Smartlink interface or a programmable logic controller (PLC) in 24 V DC (control, O/C indication)<br>• 230 V AC control |
| Wiring diagrams | DB124319   Wiring with exclusive selector 230 V AC and 24 V DC controls<br>DB124445   Wiring for non-exclusive 230 V AC and 24 V DC controls |
| Mounting | • To the left of the iTL impulse relay using the yellow clips (1).<br>• 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:<br>- Y1: enabling of 24 V DC control (Y1 = 1) or inhibition of 24 V DC control (Y1 = 0).<br>- Y2: 230 V pulse control<br>• "TI24" 24 V DC interface:<br>- Y3: 24 V DC control of iTL closing on rising edge and opening on falling edge<br>- reading of the impulse relay status (opened or closed) from the position of the integrated O/C auxiliary contact<br>- monitoring of connection of the "Ti24" terminal block by the upstream system (PLC, supervision system) via the 24 V terminal (in the centre of the Ti24 terminal block) |
| Catalogue numbers | A9C15424 |
| Technical specifications | |
| Control voltage (Uc) V AC | 230, +10 %, -15 % (Y2) |
| Control voltage (Uc) V DC | 24, ± 20 % (Y3) |
| Control voltage frequency Hz | 50/60 |
| Insulation voltage (Ui) V AC | 250 |
| Rated impulse withstand voltage (Uimp) kV | 8 (OVC IV) |
| Pollution degree | 3 |
| Degree of protection | IP20B device only |
| | IP40 device in modular enclosure |
| Width in 9 mm modules | 2 |
| Auxiliary contact (O/C) Ti24 | 24 V DC protected output, min. 2 mA, max. 100 mA |
| Contact | 1 O/C operating category AC 14 |
| Operating temperature °C | -25°C to +60°C |
| Storage temperature °C | -40°C to +80°C |
| Consumption | <1 W |
| Standard | IEC/EN 60947-5-1 |

*(1) Mechanical and electrical connection.*

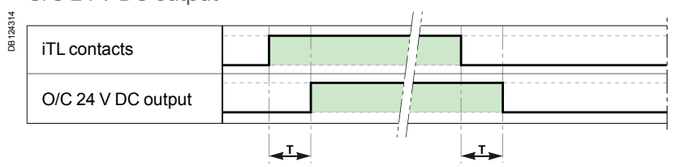
# iTL impulse relays

## Electrical auxiliaries for iTL impulse relays

ComReady

### Operation of the iATL24

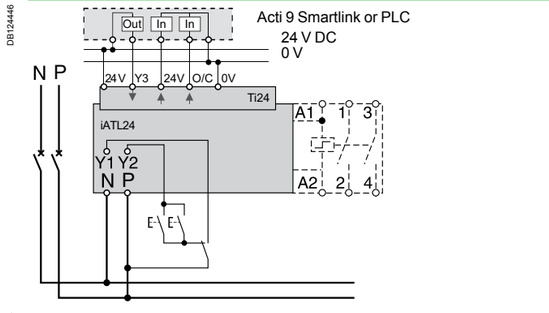
O/C 24 V DC output

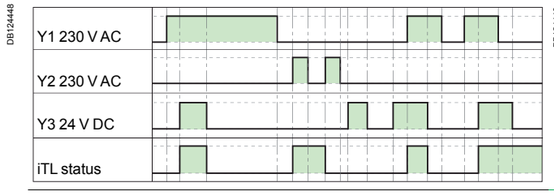



| | Parameter | Min | Max |
|---|---|---|---|
| T | Time delay between iATL24 closing and indication | 100 ms | 200 ms |

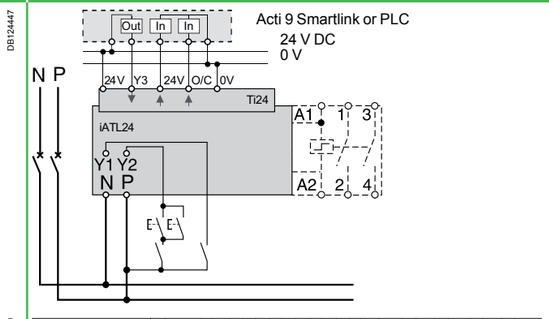
- Minimum duration of 230 V AC pulse (Y2): 200 ms.
- 30 iATL24 closing or opening actuations are authorized per minute: Minimum time delay between 2 actuations on the iATL24 via Y1,Y2, Y3 (closing or opening of the iTL coil): 440 ms.
- 10 closing or opening actuations spaced 440 milliseconds apart are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

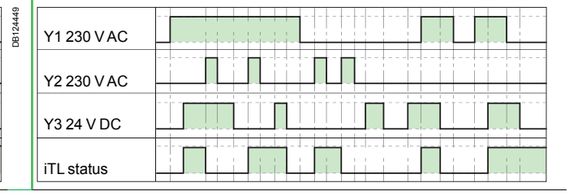
### Wiring with exclusive selector 230 V AC and 24 V DC controls




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





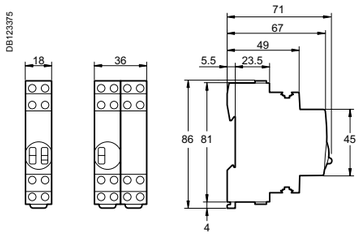



# iTL impulse relays

## Accessories for iTL impulse relays

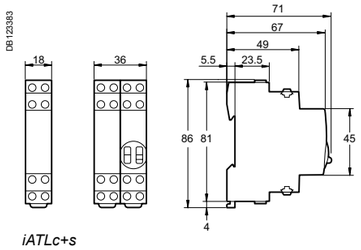
| Accessories | Security<br>Yellow clips | Spacer |
|---|---|---|
| | PB106143-10<br>  | PB104483<br>  |
| **Function** | | |
| | • Ensure the mechanical and/or electrical link between impulse relays and their auxiliaries (set of 10). | • Required to reduce temperature rise of modular devices installed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

### Dimensions (mm)

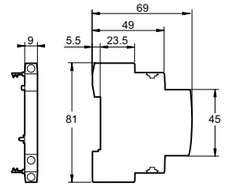



*iTL 1P*
*iTLc*
*iTLm*
*iTLs*
*iTLi*
*iETL*

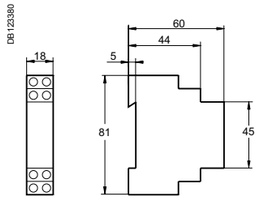
*iTL+iETL*
*iTL 4P*



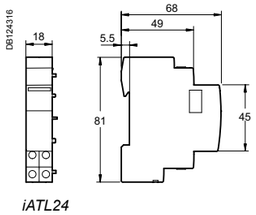

*iATLc+s*
*iATLc+c*
*iATLz*
*iATL4*




*iATLc*
*iATLs*
*iATLm*




*iATEt*




*iATL24*

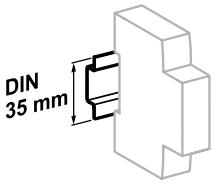
# iTL+ high-performance impulse relays

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

PB107132-40

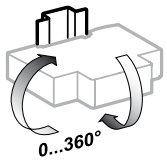

Following a mains failure, the iTL+ returns to 0 position (forced stoppage) irrespective of its initial state.

DB123309



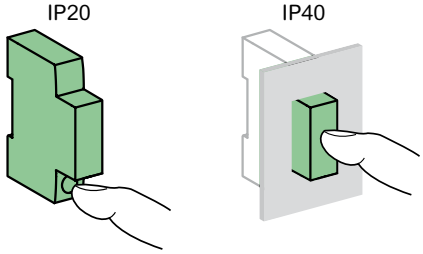

*Clip on DIN rail 35 mm.*

DB123311




*Indifferent position of installation.*

DB123313




## Technical data

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

## Weight (g)

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

# iCT+ high-performance contactors

DB106604

*Country approval pictograms*

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

## EN 60669-2-2

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

PB107130-35

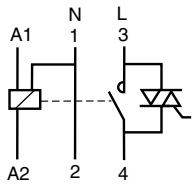
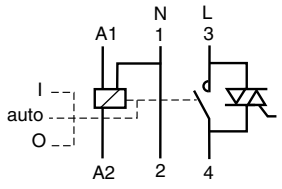
*Standard 1P+N*

PB107131-35

*1P+N with manual control*

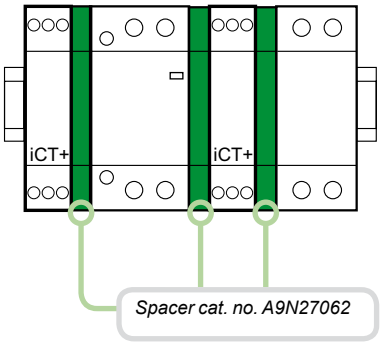
PB104483-35

*Spacer*

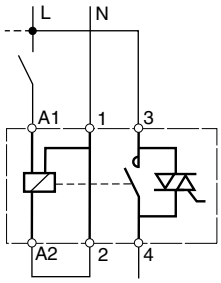
| iCT+ | | | | V |
|---|---|---|---|---|
| Type | Rating | Contact | | Width in 9-mm modules |
| Standard 1P+N | | | | |
| E57636   | 20 A | 1 NO | A9C15030 | 2+1 (1) |
| 1P+N with manual control | | | | |
| E57646   | 20 A | 1 NO | A9C15031 | 2+1 (1) |

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

DB124140



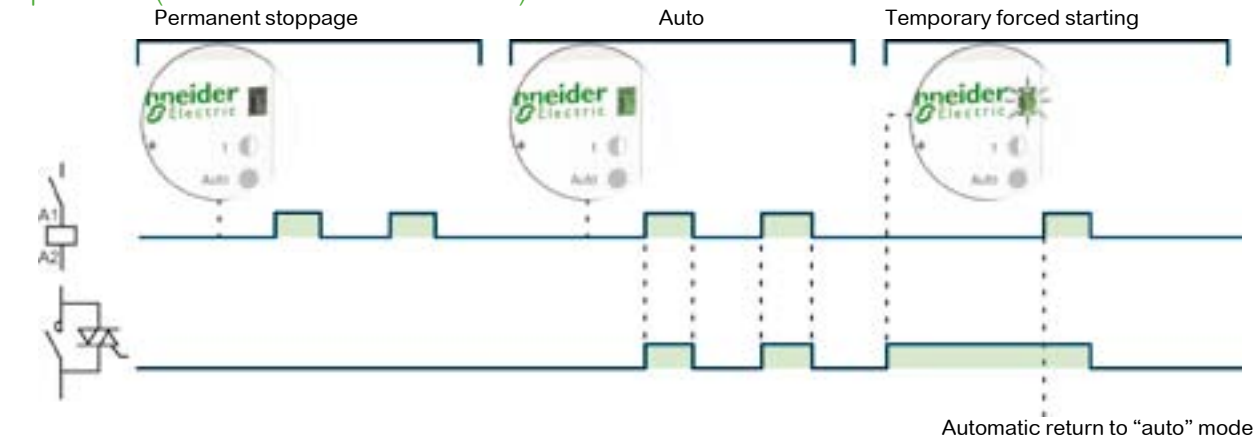

DB404607




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

## Operation (manual-control contactor)

DB124156



# iCT+ high-performance contactors

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

PB137131-40


- Silent
- Large number of switching operations

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

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

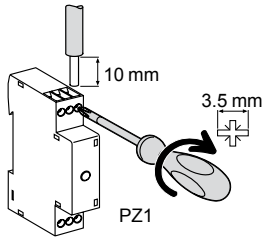
- Orange indicator: output contact closed

- 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.*

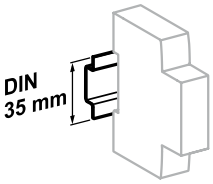
## Connection

DB123665



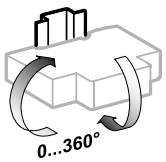

| Type | Tightening torque | Copper cables | |
|---|---|---|---|
| | | Rigid or flexible with ferrule | Rigid or flexible without ferrule |
| | | DB123656 | DB123657 |
| iCT+ | 1 N.m | 2 x 1.5 mm² | 2 x 2.5 mm²<br>1 x 4 mm² |

DB123309



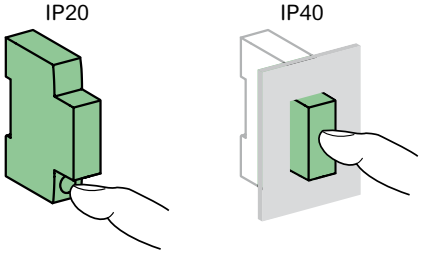

*Clip on DIN rail 35 mm.*

DB123311




*Indifferent position of installation.*

DB123313




## Technical data

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

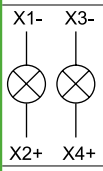
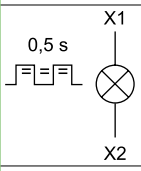
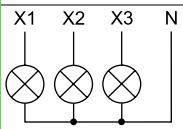
## Weight (g)

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

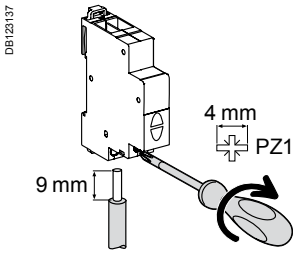
# iIL indicator lights

## IEC 60947-5-1

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

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

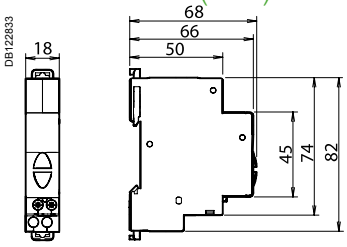
## Connection




| Tightening torque | Copper cables | |
|---|---|---|
| | Rigid | Flexible or with ferrule |
| |  |  |
| 1 N.m | 0.5 $mm^2$ min. | 0.5 $mm^2$ min. |
| | 2 x 2.5 $mm^2$ max. | 2 x 2.5 $mm^2$ max. |

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

## Dimensions (mm)




## Technical data

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

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

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

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

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

## Circuit breakers

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

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

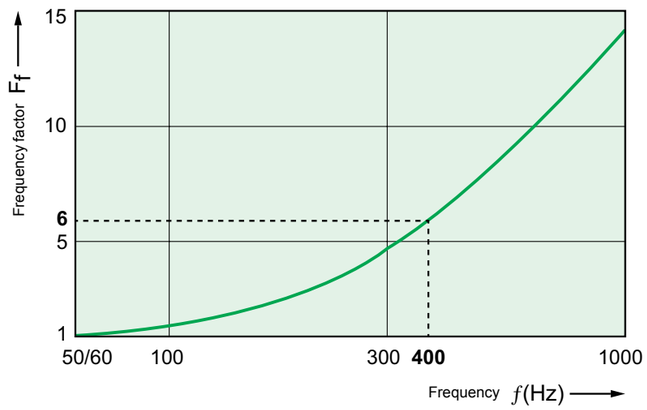
| Circuit breaker | Curve | Magnetic trip thresholds | | |
|---|---|---|---|---|
| | | 50 Hz | 400 Hz | Tolerance |
| iDPN, DPN | B | 4 In | 6 In | ± 20 % |
| | C | 8 In | 12 In | |
| | D | 12 In | 18 In | |
| iC60 | B | 4 In | 5.6 In | |
| | C | 8 In | 11.2 In | |
| | D | 12 In | 16.8 In | |
| C60 |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





## Earth leakage protection devices

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




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

### Compatibility of residual current devices at 400 Hz:

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

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

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

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

## Auxiliary function

### Voltmetric releases

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

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

# Influence of ambient temperature

## Influence of temperature on the operation

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

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

## Circuit breakers

### High temperatures

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

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

### Low temperatures

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

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

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

# Resistance to environmental conditions

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

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

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

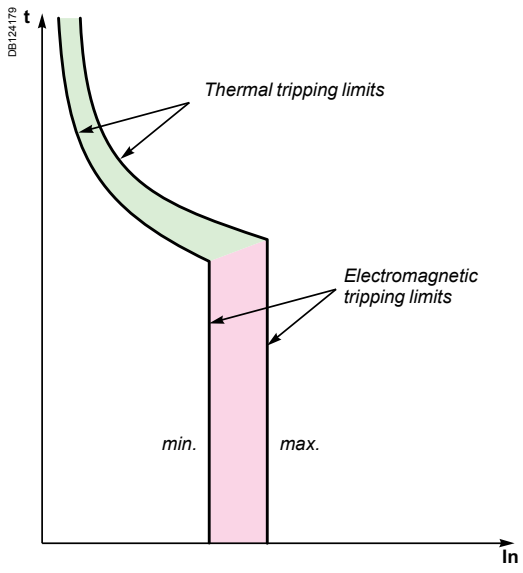
Additional checks were performed for certain tests, mentioned in the tables below.

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

# Resistance to environmental conditions

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

# Tripping curves




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

The circuit breakers' tripping curves consist of two parts:
- tripping of overload protection (thermal tripping device): the higher the current, the shorter the tripping time
- tripping of short-circuit protection (magnetic tripping device): if the current exceeds the threshold of this protection device, the breaking time is less than 10 milliseconds.

For short-circuit currents exceeding 20 times the rated current, the time-current curves do not give a sufficiently precise representation. The breaking of high short-circuit currents is characterized by the current limiting curves, in peak current and in energy. The total breaking time can be estimated at 5 times the value of the ratio $(I^2t)/(\hat{I})^2$.

## Verification of the discrimination between two circuit breakers

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

# Tripping curves

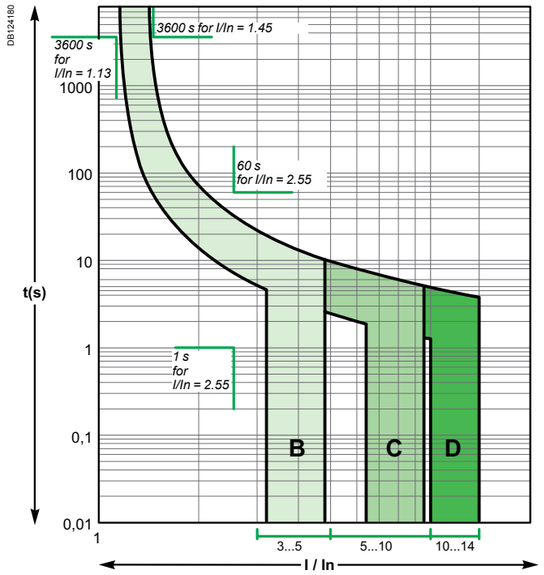
## According to IEC/EN 60898-1 standards

### Alternative current 50/60 Hz

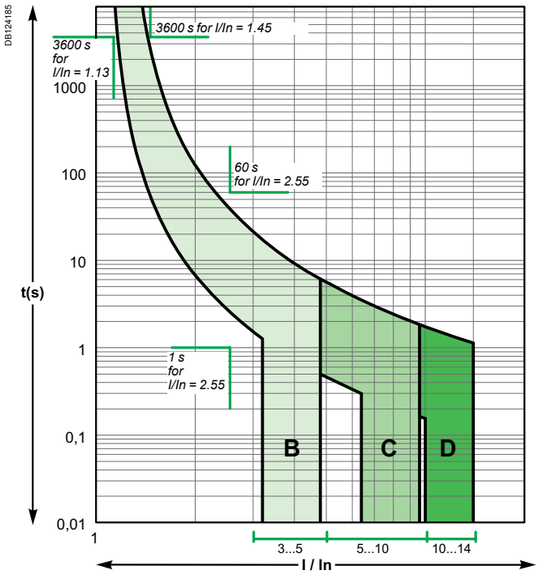
**iC60a/N/H/L**

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

Curves B, C, D rating up to 4 A



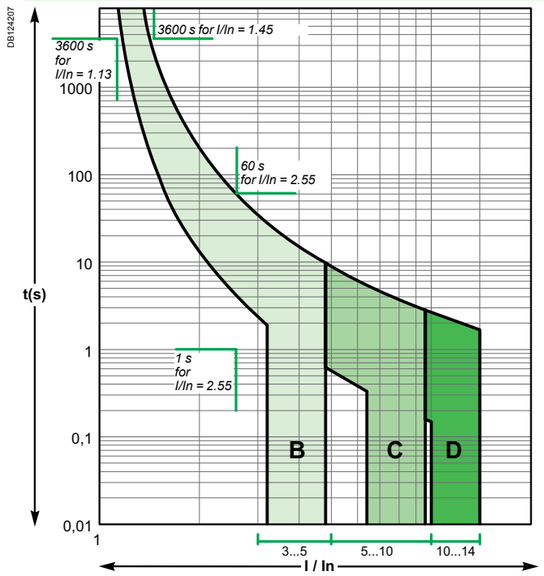

Curves B, C, D rating 6 A to 63 A




**C120N/H**

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

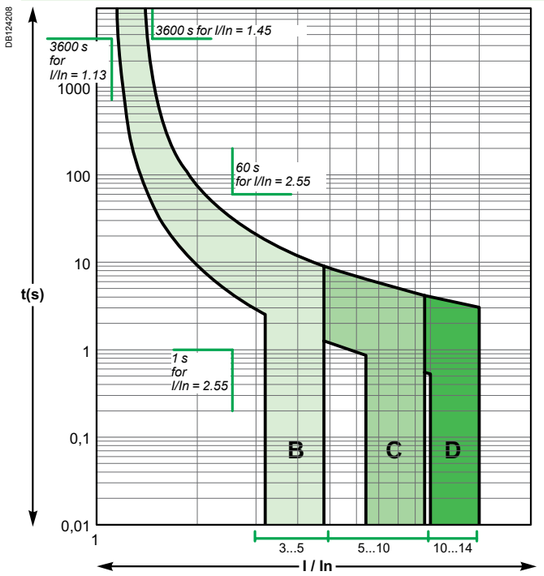
Curves B, C, D




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

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

Curves B, C, D








# Tripping curves

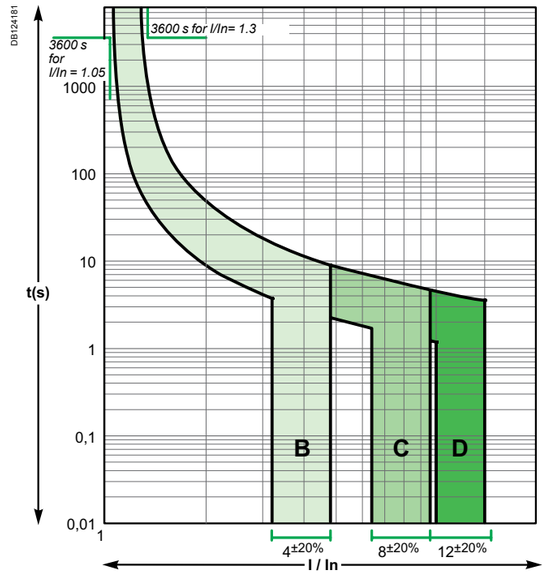
## According to IEC/EN 60947-2 standards

### Alternative current 50/60 Hz

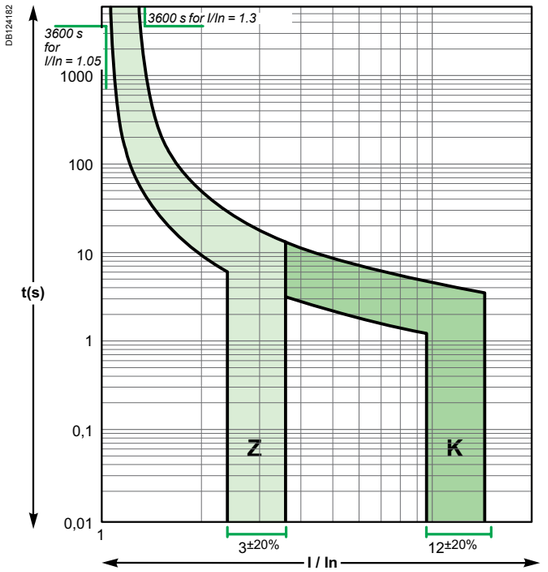
**iC60N/H/L MCB and iC60 RCBO**

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

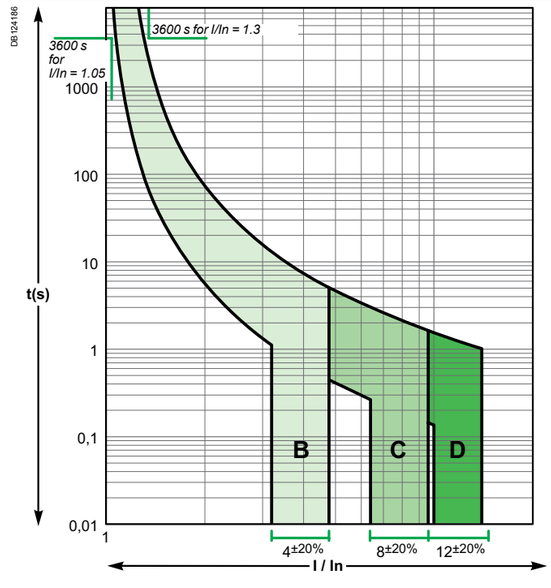
Curves B, C, D rating up to 4 A



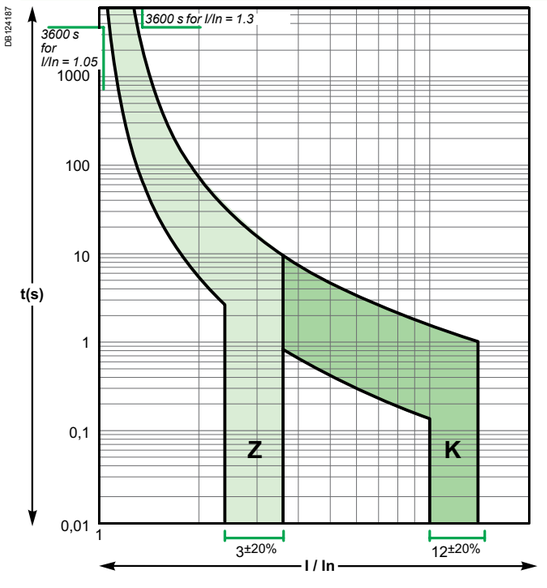

Curves Z, K rating up to 4 A




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




Curves Z, K rating 6 A to 63 A



# Tripping curves

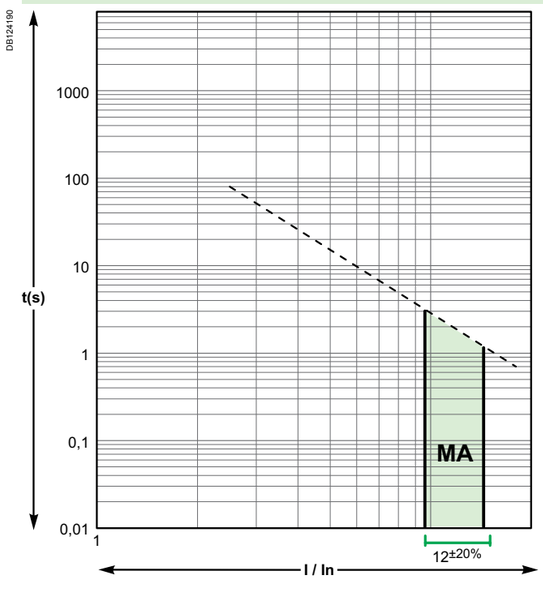
## According to IEC/EN 60947-2 standards

### Motor curve

**iC60L-MA**

According to IEC/EN 60947-2

Curve MA








# Tripping curves

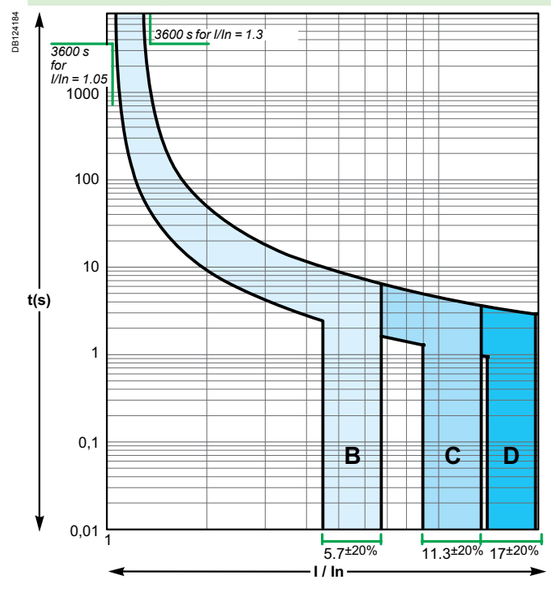
## According to IEC/EN 60947-2 standards

### Direct current

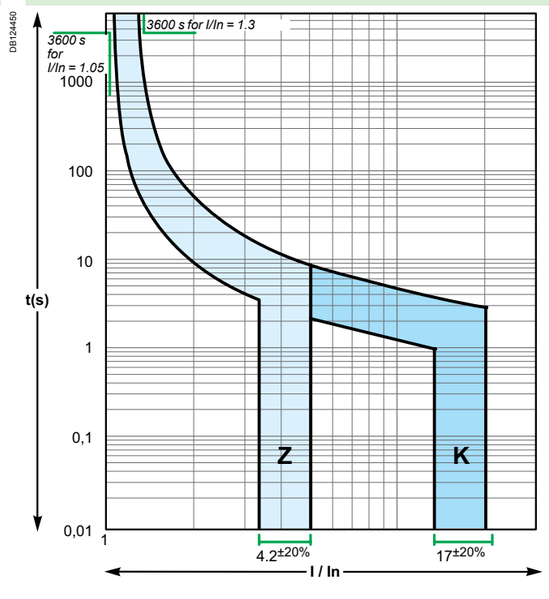
**iC60N/H/L**

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

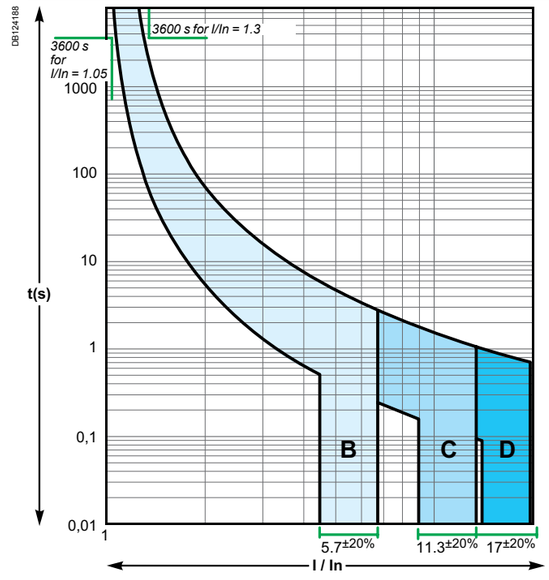
Curves B, C, D rating up to 4 A



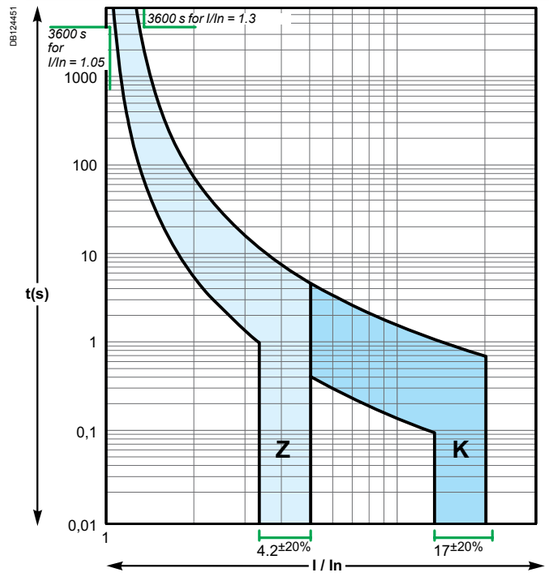

Curves Z, K rating up to 4 A




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




Curves Z, K rating 6 A to 63 A



# Tripping curves

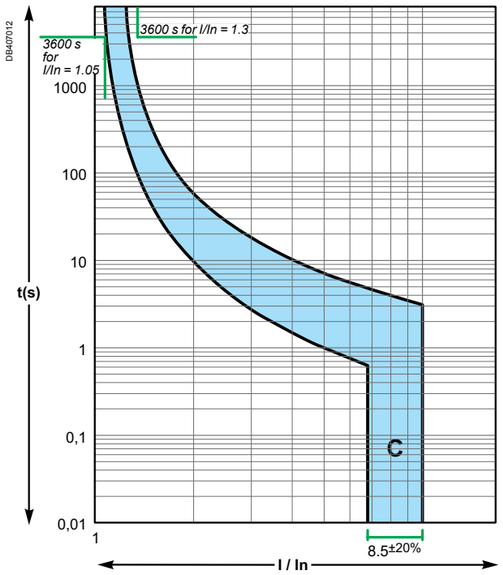
## According to IEC/EN 60947-2 standards

### Direct current

**C60PV-DC**

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

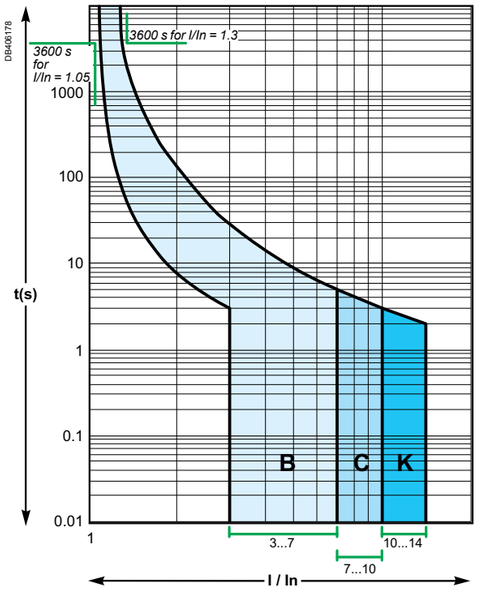
Curve C




**C60H-DC**

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

Curves B, C, K








# Tripping curves

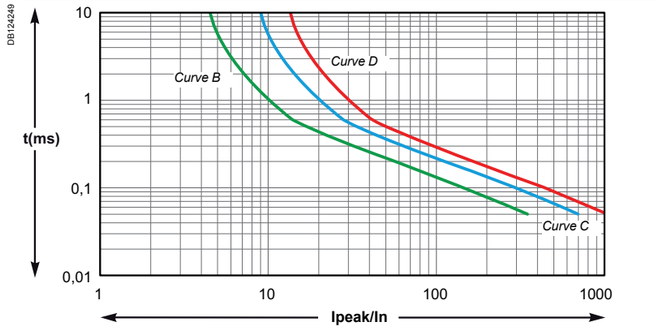
## Coordination with loads

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

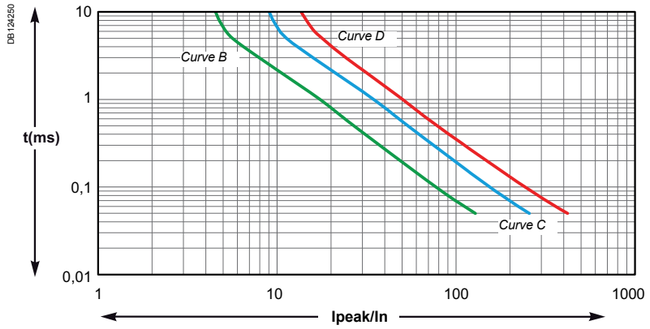
### Product selection according to the load inrush current

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

**iC60**



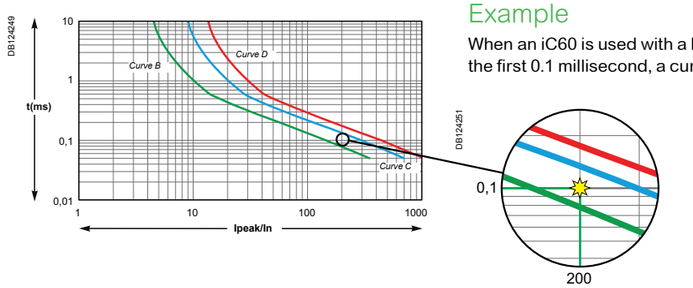

**C120**



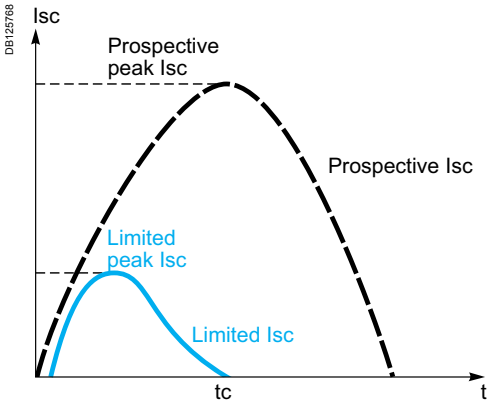

This information allows us to select the most appropriate product, according to the load specifications: curve and rating.

### Example

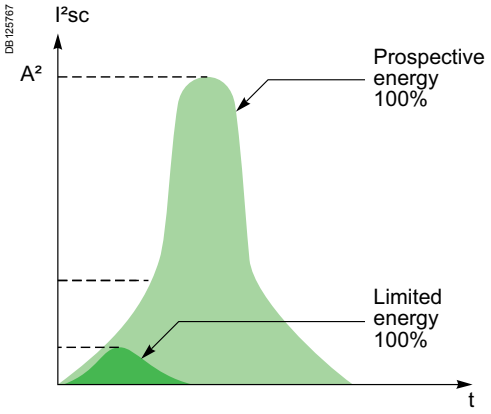
When an iC60 is used with a load with current peaks in the order of 200 In during the first 0.1 millisecond, a curve C or D product must be installed.



# Short-circuit current limiting




Prospective current and real limit current.




## Definition

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

## Benefits of limiting

### Long installation service life

**Thermal effects**

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

**Mechanical effects**

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

**Electromagnetic effects**

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

### Savings through cascading

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

### Discrimination of protection devices

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

## Acti 9 circuit breaker current limiting

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

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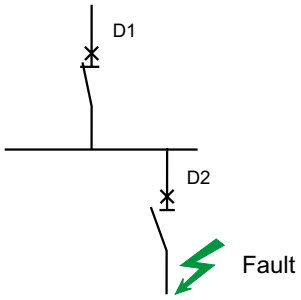
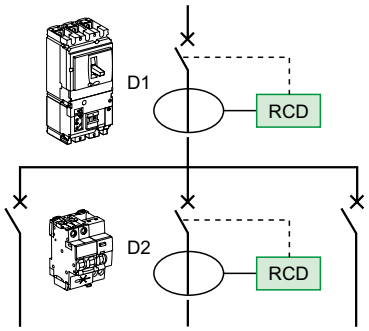
DB421201.eps




*D1 and D2 in series.*

DB421192.eps

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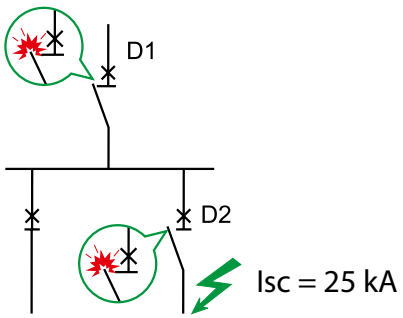



## IEC 60947-2, Annex A
## IEC 60364-4-43 § 434.5.1

### What is cascading?

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

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

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

### General use of cascading

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

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

#### Coordination between circuit breakers

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

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

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

#### Cascading and protection discrimination

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

#### Cascading tables

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

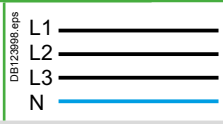
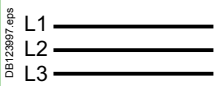
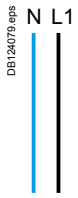
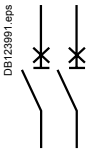
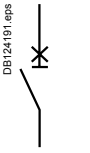
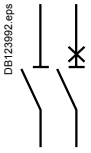
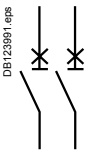
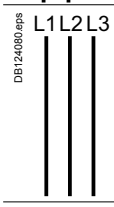
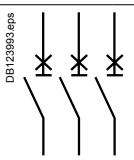
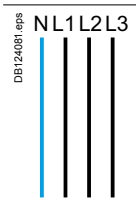
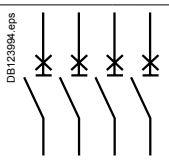
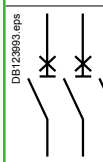
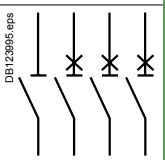
For 50/60 Hz distribution systems with 220-240 V, 380-415 V and 440 V between phases, the tables of the following pages indicate cascading possibilities between upstream Compact and downstream Acti 9 and Compact circuit breakers as well as between upstream Masterpact and downstream Compact circuit breakers.

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

## Using the cascading tables

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

## Selection table

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

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

# Acti 9 Smartlink

## Acti 9 Smartlink and enclosure/cubicle mounting compatibility

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

**Key**

| | |
|---|---|
| ☑ | Compatible |
| | Incompatible or not applicable |

## Acti 9 Smartlink and enclosure/cubicle mounting compatibility

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

**Key**

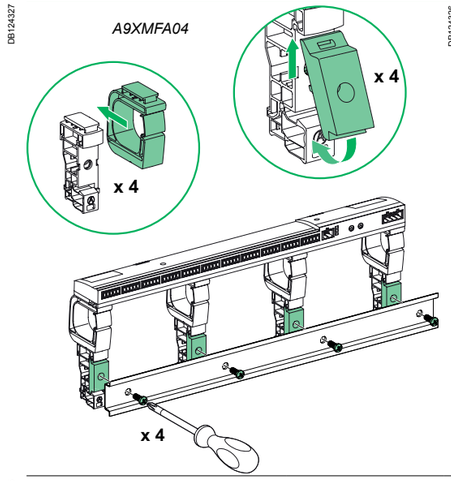
| | |
|---|---|
| ☑ | Compatible |
| | Incompatible or not applicable |



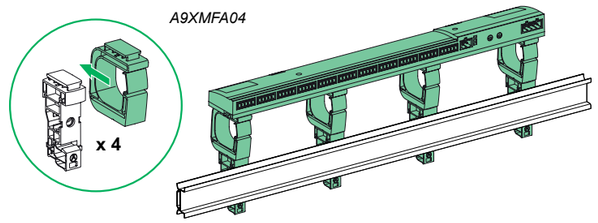


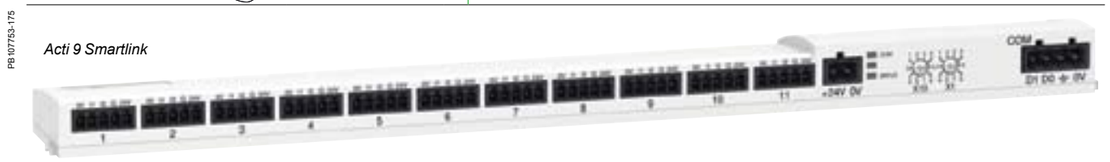
## Installation

### On DIN rail

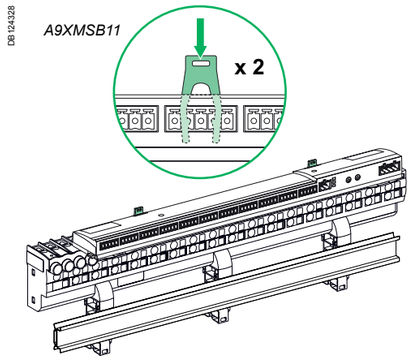



### On asymmetrical DIN rail

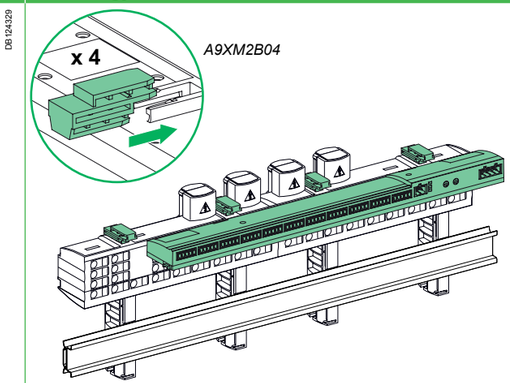


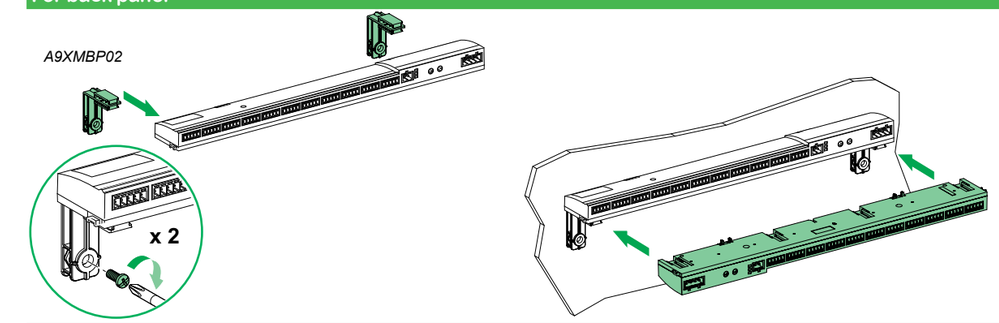

### On Linergy FM 80 A cat. no.: 04000




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




### For back panel



# PowerTag Compatibility

PB115448-40

PB115447-40

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

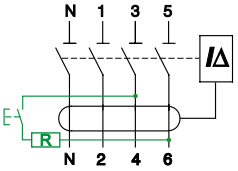
| "Single terminal" devices at modules of 18 mm, rating y 63A | |
|---|---|
| **Circuit breakers** | |
| iC60 | ☑ |
| Reflex iC60 | ☑ |
| K60 | ☑ |
| C120 | ☒ |
| **Residual current devices** | |
| iC60 RCBO | ☒ |
| iC60 Vigi | ☒ |
| ISW 20/32 A | ☒ |
| iID | ☑ |
| RCCB-ID type B | ☑ ⩽ 63 A |
| RCCB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

# Routine operating checks

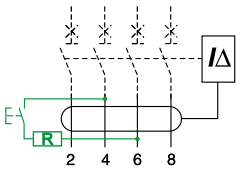
*Residual current devices are vital for the safety of people.*
*That is why:*
- *the electrical installation operation and maintenance standards require these protection devices to be tested at regular intervals,*
- *the product standards IEC 61008 and IEC 61009 require such devices to be fitted with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

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

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



*Example iID*

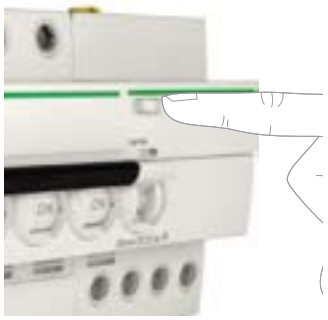


*Example Vigi iC60*

## Test frequency

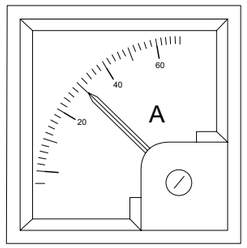
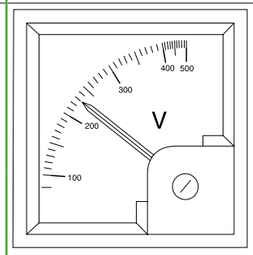
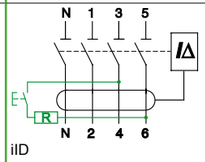
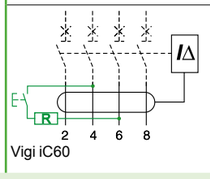
The residual current devices must be tested as frequently as required by the installation regulations and/or the safety regulations currently in force.
In the absence of any regulations, Schneider Electric recommends the test to be carried out:
- after initial connection and any subsequent reconnection,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

## Procedure

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

## Failure to trip during the test

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

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

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

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





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

## Checking with a specific test device

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

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

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

## Procedure

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

# Response time of high-sensitivity devices

## Residual current devices 30 mA

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

## Response time

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

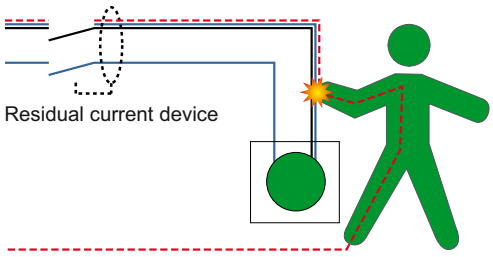
### Types AC, A, Si

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

### Type B, DC leakage current

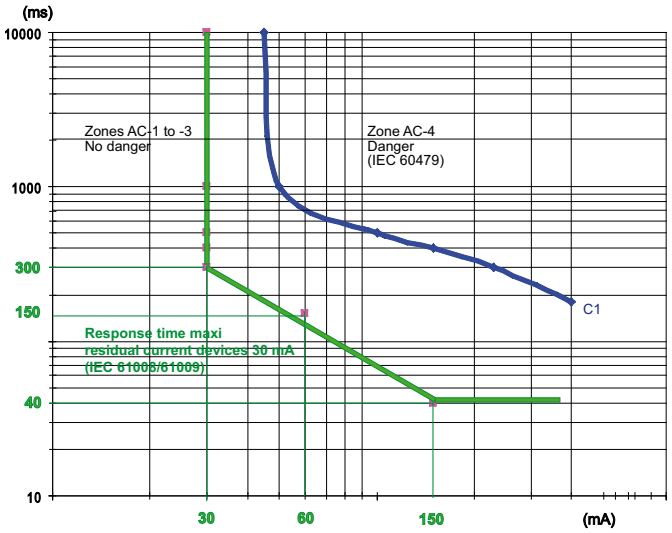
| Fault current (mA) | | Maximum response time (ms) |
|---|---|---|
| I∆n/2 | 15 mA | No tripping |
| 2 x I∆n | 60 mA | 300 ms |
| 4 x I∆n | 120 mA | 150 ms |
| 10 x I∆n | 300 mA | 40 ms |

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




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

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




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

## Measuring the response time

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

- establish a leakage current of calibrated magnitude,
- measure the exact response time.

### Procedure

The measuring instruments must conform to IEC/EN 61557-6.
Carry out the operations in the following order according to the safety instructions:

- disconnect the loads,
- install the measuring instrument downstream of the residual current device to be tested (for example on a power outlet),
- perform the measurement.

# Response time of medium-sensitivity devices

## Residual current devices 100 mA...1000 mA

### Response time of iC60 Vigi and iID residual current devices

The medium-sensitivity residual current devices (100…1000 mA) in the Acti 9 range conform to IEC/EN 61008, IEC/EN 61009 and IEC/EN 62423 (DC leakage current):

- their response time guarantees personal protection against indirect contacts and fire risks,
- in the case of selective versions (S), a “non-tripping time” guarantees discrimination with the residual current devices installed downstream.

#### Types AC, A, Si

Instantaneous residual current devices

| Residual current device | | Sensitivity (IΔn) | | | |
|---|---|---|---|---|---|
| | | 100 mA | 300 mA | 500 mA | |
| Fault current (mA) | IΔn/2 | 50 | 150 | 250 | No tripping |
| | | | | | Max. response time |
| | IΔn | 100 | 300 | 500 | 300 ms |
| | 2 x IΔn | 200 | 600 | 1000 | 150 ms |
| | 5 x IΔn | 500 | 1500 | 2500 | 40 ms |
| | 500 A | | | | 40 ms |

Selective (S) and time-delayed (R) residual current devices

| Residual current device | | Sensitivity (IΔn) | | | | Type | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 100 mA | 300 mA | 500 mA | 1000 mA | Selective (S) | | Time-delayed (R) | |
| Fault current (mA) | IΔn/2 | 50 | 150 | 250 | 500 | No tripping | | No tripping | |
| | | | | | | Non-tripping time | Response time | Non-tripping time | Response time |
| | IΔn | 100 | 300 | 500 | 1000 | 130 ms | 500 ms | 300 ms | 1000 ms |
| | 2 x IΔn | 200 | 600 | 1000 | 2000 | 60 ms | 200 ms | 150 ms | 500 ms |
| | 5 x IΔn | 500 | 1500 | 2500 | 5000 | 50 ms | 150 ms | 150 ms | 300 ms |
| | 500 A | | | | | 40 ms | 150 ms | 150 ms | 300 ms |

#### Type B, DC leakage current

Instantaneous residual current devices

| Residual current device | | Sensitivity (IΔn) | | |
|---|---|---|---|---|
| | | 300 mA | 500 mA | |
| Fault current (mA) | IΔn/2 | 150 | 250 | No tripping |
| | | | | Max. response time |
| | 2 x IΔn | 600 | 1000 | 300 ms |
| | 4 x IΔn | 1200 | 2000 | 150 ms |
| | 10 x IΔn | 3000 | 5000 | 40 ms |
| | 5 A...200 A | | | 40 ms |

Selective (S) residual current devices

| Residual current device | | Sensitivity (IΔn) 300 mA | | |
|---|---|---|---|---|
| Fault current (mA) | IΔn/2 | 150 | No tripping | |
| | | | Non-tripping time | Response time |
| | 2 x IΔn | 600 | 130 ms | 500 ms |
| | 4 x IΔn | 1200 | 60 ms | 200 ms |
| | 10 x IΔn | 3000 | 50 ms | 150 ms |
| | 5 A...200 A | | 40 ms | 150 ms |

### Definitions

#### Response time

Time between the appearance of a hazardous leakage current and circuit power down.

#### Non-tripping time

For selective and time-delayed devices, the non-tripping time is the time between the appearance of a hazardous leakage current and the device tripping. If the leakage current disappears before this time, the device does not trip.

This fast disappearance of the leakage current can be due to:

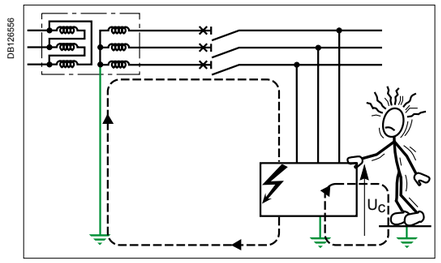
- the transient nature of the fault (e.g. the current generated by a switching surge),
- the interruption of the fault current by another faster residual current device situated downstream.

Selective and time-delayed devices therefore afford the user:

- better immunity against nuisance tripping,
- total discrimination between residual current devices.

# Response time of medium-sensitivity devices

## Residual current devices 100 mA...1000 mA




## Protection against indirect contacts

The response times of residual current devices guarantee personal protection against indirect contacts, in conformance with the requirements of the installation standards (IEC 60364 or equivalent).

### Indirect contacts

A person who comes into contact with an accidentally live frame caused by an insulation fault experiences an indirect contact: the contact voltage Uc creates a current that passes through the human body.

### Maximum breaking time

The maximum breaking time required by the installation standards, in the event of an insulation fault, depends on:

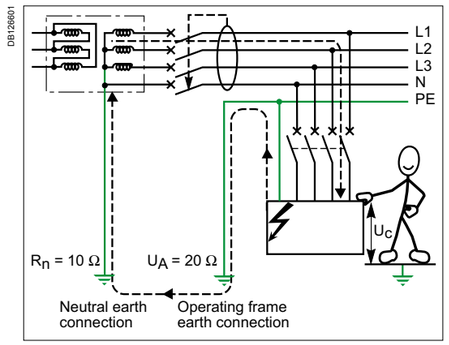
- the network voltage,
- the earthing system.

### Maximum breaking time for terminating circuits (ms)

| Earthing system | Network phase/neutral voltage 50...120V | 120...230V | 230...400V | > 400 V |
|---|---|---|---|---|
| TN or IT | 800 | 400 | 200 | 100 |
| TT | 300 | 200 | 70 | 40 |

*Note: A breaking time of no more than 5 s is permitted for distribution circuits to ensure discrimination with the devices installed on the terminating circuits. This time should be reduced to the essential minimum.*

These times are based on the maximum prospective values of the contact voltage Uc and on the contact times authorised by technical report IEC 60479.




### Example

On a three-phase phase/neutral voltage network Uo = 230 V in a TT system:

- the resistance of the neutral earth connection Rn is 10 Ω,
- the resistance of the operating frame earth connection RA is 100 Ω.

In the event of an insulation fault, the leakage current Id is equal to: Uo/ (RA + Rn) i.e. 230 V/110 Ω = 2.1 A.
The contact voltage Uc is therefore Id x RA i.e. 2.1 A x 100 Ω = 210 V.

### Protection sensitivity

The residual current device must trip as soon as the leakage current corresponds to a hazardous situation, i.e. a contact voltage of 50 V (in a dry atmosphere).
Hence, IΔn = 50 V / RA, i.e. 50 V/100 Ω = 500 mA.

### Maximum breaking time

For a 230 V phase/neutral voltage network in a TT system, the IEC 60364 standard requires a maximum breaking time of 200 ms.
For the 2.1 A leakage current:

- an instantaneous residual current device with a sensitivity of 300 mA will power down the circuit in less than 40 ms,
- an instantaneous residual current device with a sensitivity of 500 mA will power down the circuit in less than 60 ms.

*Note: For well-designed and regularly maintained electrical installations, the resistance of the operating frame earth connection can be less than 100 Ω.*

### Use of the time-delayed residual current devices

In accordance with the breaking times required by the installation standards (above), the selective and time-delayed residual current devices can be used in the following cases:

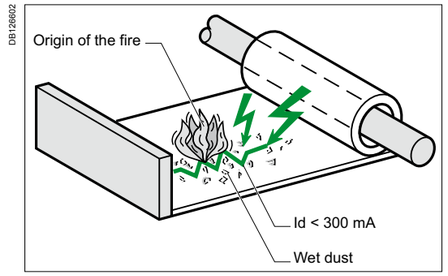
| Circuit | Network voltage (phase/neutral) | Residual current device Instantaneous I | Selective S | Time-delayed R |
|---|---|---|---|---|
| Terminating circuit | ≤ 230 V | ● | ● | (1) |
| | > 230 V | ● | | |
| Sub-distribution or general | | ● | ● | ● |

*(1) Only in a TN system for a phase/neutral voltage < 120 V.*





Response time of medium-sensitivity devices
Residual current devices 100 mA...1000 mA




*The response times of residual current devices with a sensitivity of 300 mA guarantee protection against fires generated by leakage currents*

## Protection against fire hazards

Most fires of electrical origin are caused by the creation and propagation of electric arcs in building materials, in the presence of moisture, dust, pollution, etc. These arcs appear and develop due to the wear and tear or ageing of the insulating materials. The fire risk occurs when the leakage currents reach a few hundred milliamps for a few seconds.
For fault currents of this magnitude, residual current devices with a sensitivity of 300 or 500 mA trip in less than a second, whether they be instantaneous, selective or time-delayed.

IEC 60364-4-42 (subclause 422.3.10) states that it is mandatory to install a residual current device with a sensitivity less than or equal to 500 mA:

- on premises with a risk of explosion (BE3),
- on premises with a risk of fire (BE2),
- in agricultural and horticultural buildings,
- for circuits supplying fair, exhibition and entertainment equipment,
- on temporary outdoor leisure facilities.

In certain countries, the installation rules and/or local safety regulations require a sensitivity of 300 mA.

## Discrimination of residual current devices

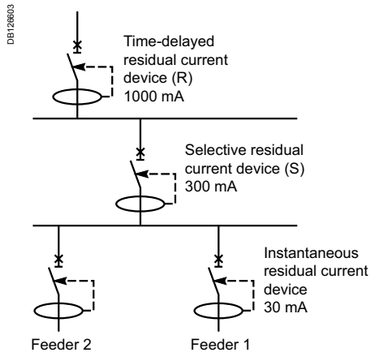
The non-tripping times of type (S) and (R) residual current devices ensure discrimination with the residual current devices located downstream.

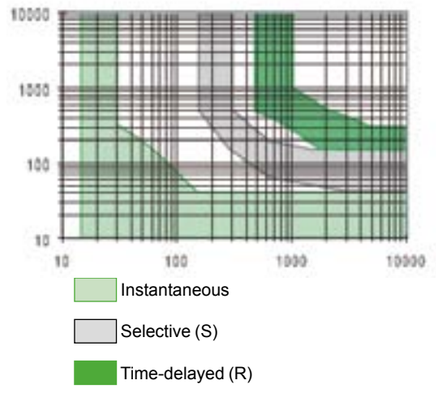
### Combination rules

To ensure discrimination between two cascading residual current devices, the following two conditions must be met simultaneously:

- the sensitivity of the upstream device must be at least 3 times the sensitivity of the downstream residual current device,
- the upstream residual current device must be one of the following types:
  - Selective (S) if the downstream residual current device is instantaneous,
  - Time-delayed (R) if the downstream residual current device is selective (S).

The figure below shows how compliance with these rules provides discrimination on three levels: whatever the value of the fault current, it will be interrupted by the device situated immediately upstream of the fault and only by this device.



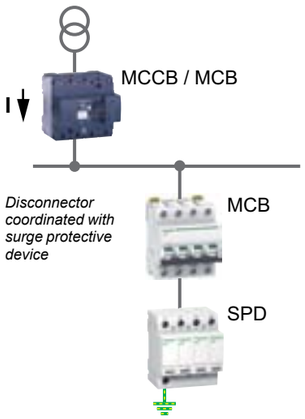




### Example:

In the left diagram for a fault current of 1000 mA:

- if the fault occurs downstream of the 30 mA residual current device, the latter will interrupt the current in less than 40 ms, whereas type S and R devices “wait” for 80 ms and 200 ms respectively. Therefore, neither of the two devices trips,
- if the fault occurs downstream of the type S residual current device, the latter will interrupt the current in less than 175 ms, whereas the type R device “wait” for 200 ms and therefore does not trip.

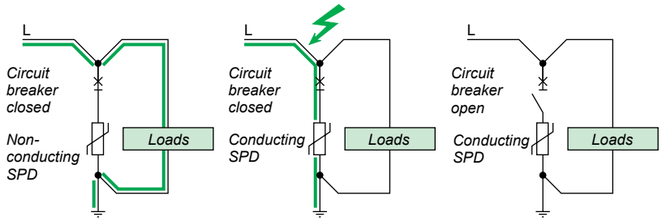
If these cascading combination rules are complied with, the level of continuity of service provided to the user depends on the way in which the “horizontal discrimination” is implemented: the terminal feeders must be divided into as many circuits as necessary, each protected by a residual current device.




*MCCB = Molded-case circuit breaker.*
*MCB = Modular circuit breaker.*
*SPD = Surge protective device.*

## Coordination between the surge protective device and its disconnect circuit breaker

An external disconnecting device must be coordinated with a surge protective device in order to achieve:
- continuity of service:
  - do not trip due to surge current,
  - do not increase (Up) voltage protection level.
- effective protection against all types of overcurrents:
  - overload due to SPD aging,
  - short circuit of low intensity (impedant) due to temporary overvoltages,
  - short circuit of high intensity due to SPD degradation.




*Surge protective device in normal operation*

*Surge protective device in operation during the lightning stroke*

*Surge protective device at end of life on short circuit*

The disconnecting device must be coordinated with the surge protective device. It is designed to meet the following two constraints:

### Resistance to lightning current

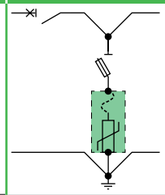
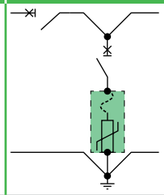
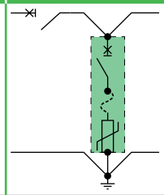
The resistance to lightning current is an essential characteristic of the surge protective device's external disconnecting device.
The device must be capable of passing the following standardized tests: not trip upon 15 successive impulse currents at In.

### Resistance to short-circuit current

**The breaking capacity is determined by the installation rules (IEC 60364 standard):**
- the external disconnecting device must have a breaking capacity equal to or greater than the presumed short-circuit current Isc at the point of installation.
- when this device is integrated into the surge protective device, conformity with product standard IEC 61643-11 naturally ensures protection.





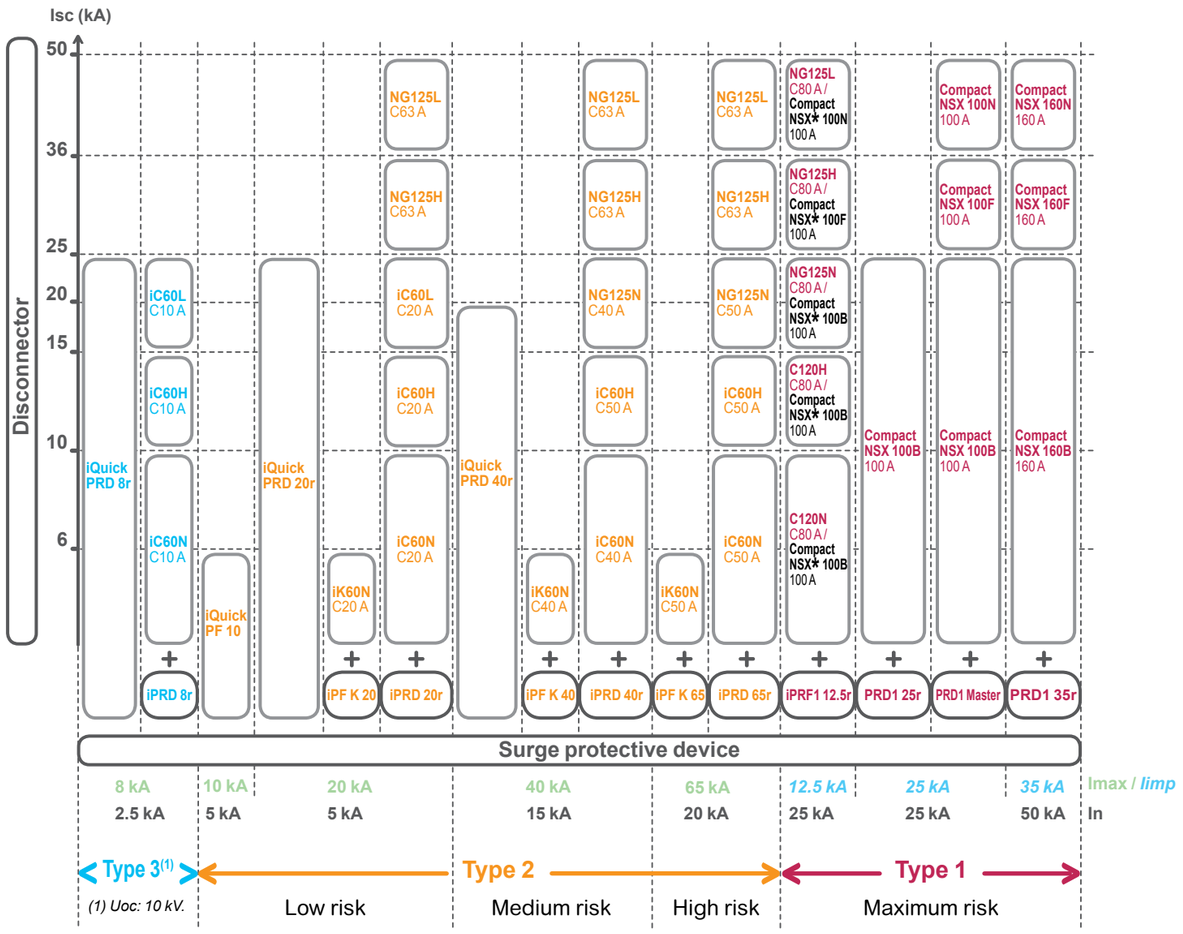
| External disconnecting device | Fuse protection combined with the SPD | Circuit breaker protection combined with the SPD | Circuit breaker protection integrated into the SPD |
|---|---|---|---|
| |  |  |  |
| Lightning protection of equipment | = | = | = |
| | All types of disconnecting devices protect the equipment satisfactorily | | |
| Protection of installation (at end of the surge protective device's life) | = | + | ++ |
| | Achieved if compliance with the MCB/SPD coordination table | | Achieved during product design |
| | Protection from (impedant) short circuits of low intensity not well ensured | Protection against (impedant) short circuits of low intensity | |
| Continuity of service (at end of the surge protective device's life) | + | + | + |
| | Only the surge protective device circuit is shut down | | |
| Maintenance (at end of the surge protective device's life) | = | + | + |
| | Change of fuses | Immediate resetting | |

Main reasons why the disconnecting device recommended by the manufacturer should be used:
- if the disconnecting device's rating is lower than the recommended rating: risk of the disconnecting device opening in normal operation.
- if the disconnecting device's rating is higher than the recommended rating: risk of non-disconnection during a temporary voltage surge.

# Coordination of surge protection devices

## Coordination between the surge protective device and its disconnect circuit breaker in the event of a short circuit

This table shows: the rating, curve and short circuit current level of the disconnector coordinated with the surge protective device.



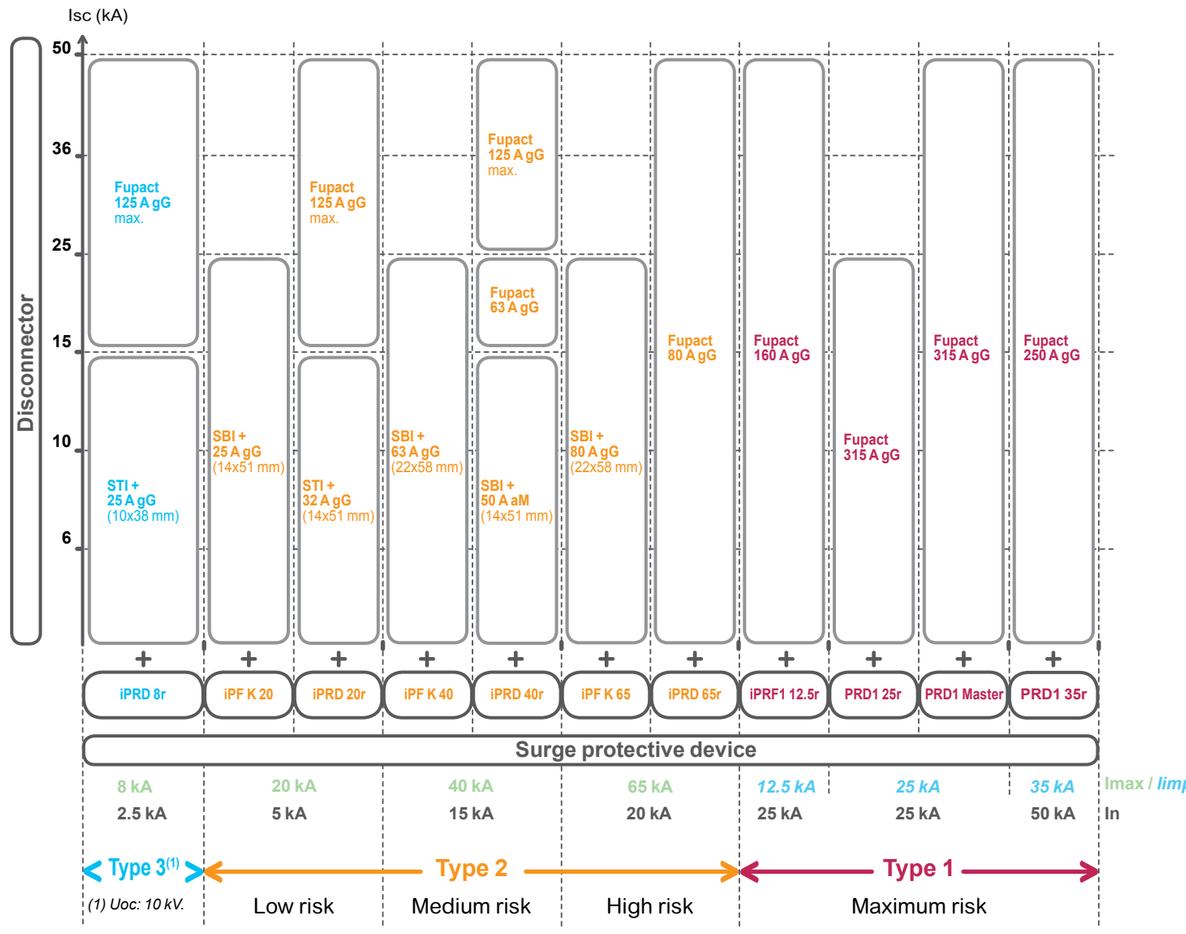

(*) *For lightning impulse current withstand*





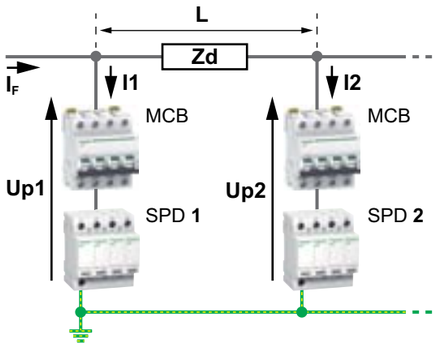
# Coordination of surge protection devices

## Coordination between the surge protective device and its disconnect fuse in the event of a short circuit



## Coordination between two surge protective devices, upstream/downstream

When two surge protective devices are installed in an electrical installation, coordination is needed according to IEC 61643-12 to obtain an acceptable stress distribution between the two surge protective devices according to their permissible energy “E”.




*L and Zd* *represent the cable length and impedance respectively between the 2 surge protective devices.*
*Up2:* *level of protection of surge protective device SPD2.*
*Uw:* *impulse withstand voltage of the equipment to be protected.*
*Imax:* *maximum discharge current.*
*$I_F$:* *lightning current:*
*≤ Imax of SPD1*
*= I1 + I2*
*E:* *permissible energy.*
*MCB:* *modular circuit breaker.*
*SPD:* *surge protective device.*

For coordination between two surge protective devices,
a minimum cable length between these 2 surge protective devices is needed to ensure that:

- **I2** < Imax SPD2.
- **Up2** < Uw.
- **E2** < E max SPD2.

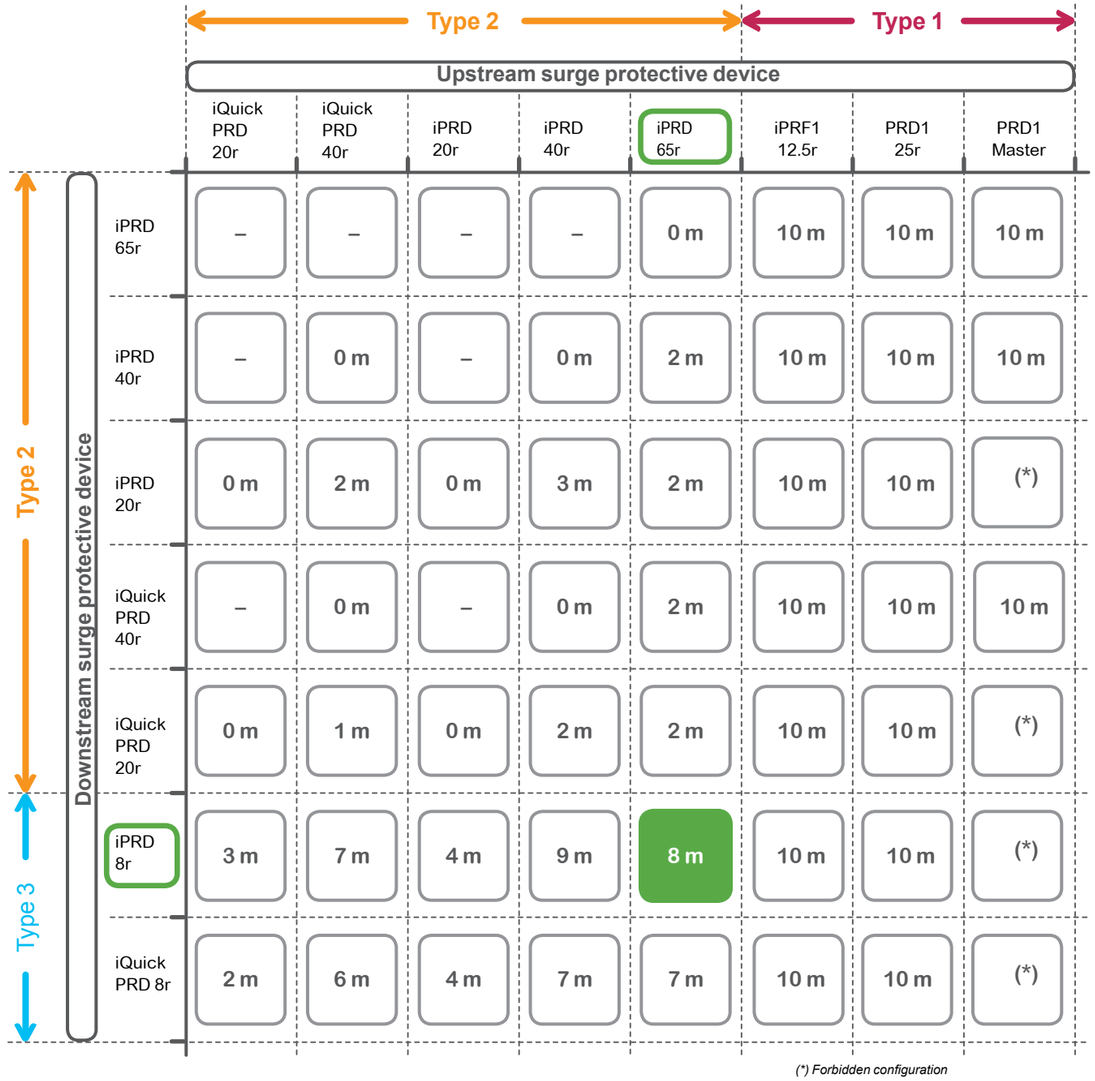




## Minimum distance between two surge protective devices, upstream/downstream

For a cable section of 16 mm² and an impulse current equal to the maximum discharge current (Imax) of the upstream surge protective device.

**Example**
If iPRD65r is installed in the incoming panelboard, the second SPD iPRD8r must be installed at a cable length of 8 meters from the first one.




*(*) Forbidden configuration*

## Cascading in the event of a short circuit between the surge protective device disconnector and the upstream circuit breaker

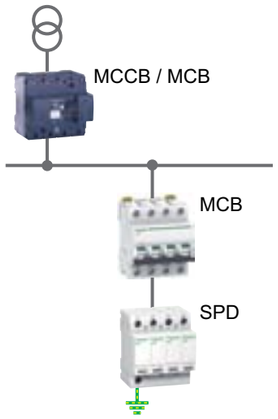
### What is cascading?

Cascading means using the circuit breakers' limiting power, which allows circuit breakers of lower performance to be installed downstream.
The upstream circuit breakers then act as a barrier for major short-circuit currents. They thus enable circuit breakers of breaking capacity lower than the presumed short-circuit current (at their point of installation) to be loaded in their normal breaking conditions.
Since current limiting takes place all along the circuit controlled by the upstream current-limiting circuit breaker, cascading concerns all the devices located downstream of that circuit breaker.
It is not restricted to two consecutive devices.

### Case 1

**Disconnect circuit breaker not integrated into the surge protective device.**

For this type of study, refer to the existing coordination tables.
> see 557F4200 catalogue module.



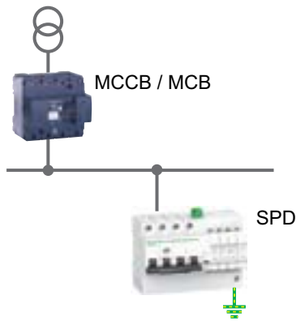

*MCCB = Molded-case circuit breaker.*
*MCB = Modular circuit breaker.*
*SPD = Surge protective device.*





### Case 2

**Disconnect circuit breaker integrated into the surge protective device.**




*MCCB = Molded-case circuit breaker.*
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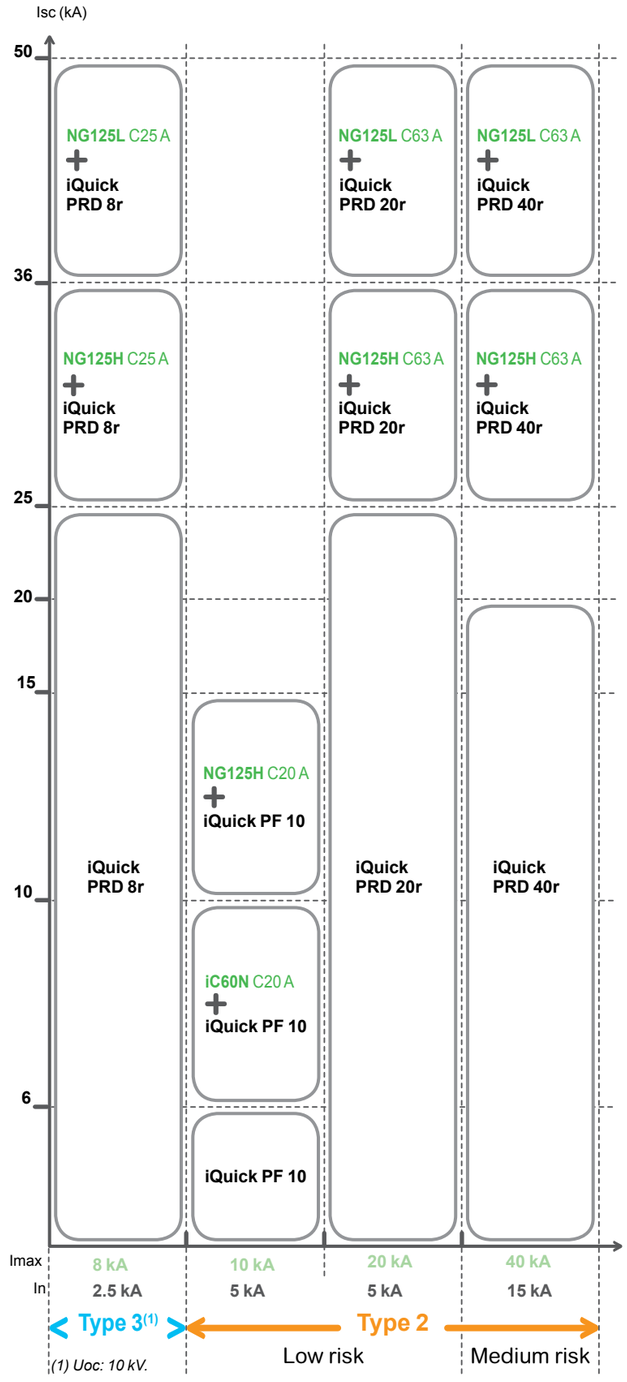
*SPD = Surge protective device.*



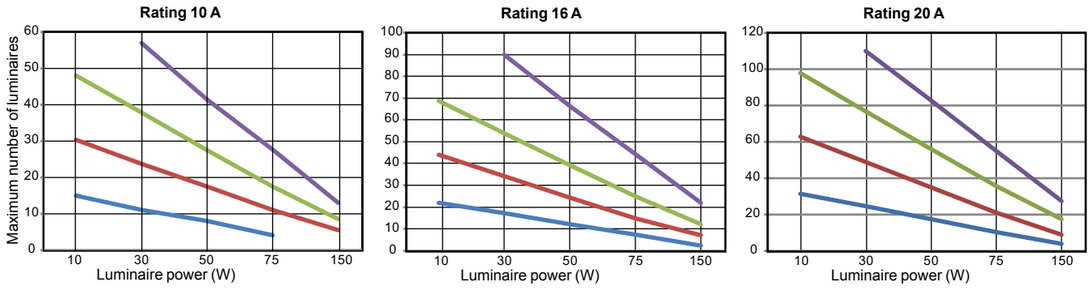
# Coordination of switchgear with loads

## Circuit breakers

### Use of circuit breakers

The new lighting technologies with electronic interfaces (ballasts, drivers) cause a high transient inrush current at power up that can trip the circuit breaker. These phenomena are particularly increased with LED lighting.

Coordination curves between the number of LED luminaires and the circuit breaker rating:




### Maximum number of luminaires depending on the circuit breaker rating and curve

| | Circuit breaker rating | 10 A | | | | 16 A | | | | 20 A | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit power of the luminaire (W) | Curve | B | C | D | B, C, D with iCT+ or iTL+ | B | C | D | B, C, D with iCT+ or iTL+ | B | C | D | B, C, D with iCT+ |
| 10 | | 15 | 30 | 48 | - | 22 | 44 | 69 | - | 32 | 63 | 98 | - |
| 30 | | 11 | 24 | 38 | 57 | 17 | 34 | 54 | 90 | 25 | 49 | 77 | 110 |
| 50 | | 8 | 17 | 27 | 41 | 12 | 25 | 39 | 66 | 18 | 35 | 56 | 83 |
| 75 | | 4 | 11 | 17 | 28 | 7 | 15 | 25 | 44 | 11 | 21 | 36 | 55 |
| 150 | | - | 5 | 9 | 13 | 2 | 7 | 12 | 22 | 4 | 9 | 18 | 28 |

According to the control device used, the transient current surge may:
- require the circuit breaker to be derated according to the number of luminaires / circuit breaker rating coordination curves, when using standard control devices: CT, TL (electromechanical control device),
- be reduced by the use of the following technologies:
  - softStart: using a command integrated in the driver or a dimmer switch,
  - controlled contactor (iTL+, iCT+) (closes when the voltage passes through “0”, derating is related to the Cos phi of the lighting circuit).

These technologies allow circuit breakers without derating related to the technology of the lamps to be used.
Example:
Circuit rated power = 230 V AC x Circuit breaker rating x Cos phi.





# Coordination of switchgear with loads

## iCT, iCT+, iTL, iTL+, Reflex iC60

*General comment*
*Modular contactors and impulse relays do not use the same technologies. Their rating is determined according to different standards and does not correspond to the rated current of the circuit.*
*For example, for a given rating, an impulse relay is more efficient than a modular contactor for the control of light fittings with a strong inrush current, or with a low power factor (non-compensated inductive circuit).*

### Choice table

| Products | | iCT contactors | | | | | | | | iCT+ contactors |
|---|---|---|---|---|---|---|---|---|---|---|
| Type of lamp | | Maximum number of light fittings for a single-phase circuit and maximum power output per circuit | | | | | | | | |
| | | 16 A | | 25 A | | 40 A | | 63 A | | 20 A |
| Basic incandescent lamps, LV halogen lamps, replacement mercury vapour lamps (without ballast) | | | | | | | | | | |
| | **40 W** | 38 | 1550 W to 2000 W | 57 | 2300 W to 2850 W | 115 | 4600 W to 5250 W | 172 | 6900 W to 7500 W | 4660 W x Cos phi |
| | **60 W** | 30 | | 45 | | 85 | | 125 | | |
| | **75 W** | 25 | | 38 | | 70 | | 100 | | |
| | **100 W** | 19 | | 28 | | 50 | | 73 | | |
| ELV 12 or 24 V halogen lamps | | | | | | | | | | |
| With ferromagnetic transformer | **20 W** | 15 | 300 W to 600 W | 23 | 450 W to 900 W | 42 | 850 W to 1950 W | 63 | 1250 W to 2850 W | |
| | **50 W** | 10 | | 15 | | 27 | | 42 | | |
| | 75 W | 8 | | 12 | | 23 | | 35 | | |
| | 100 W | 6 | | 8 | | 18 | | 27 | | |
| With electronic transformer | **20 W** | 62 | 1250 W to 1600 W | 90 | 1850 W to 2250 W | 182 | 3650 W to 4200 W | 275 | 5500 W to 6000 W | |
| | **50 W** | 25 | | 39 | | 76 | | 114 | | |
| | 75 W | 20 | | 28 | | 53 | | 78 | | |
| | 100 W | 16 | | 22 | | 42 | | 60 | | |
| Fluorescent tubes with starter and ferromagnetic ballast | | | | | | | | | | |
| 1 tube without compensation (1) | 15 W | 22 | 330 W to 850 W | 30 | 450 W to 1200 W | 70 | 1050 W to 2400 W | 100 | 1500 W to 3850 W | |
| | **18 W** | 22 | | 30 | | 70 | | 100 | | |
| | 20 W | 22 | | 30 | | 70 | | 100 | | |
| | **36 W** | 20 | | 28 | | 60 | | 90 | | |
| | 40 W | 20 | | 28 | | 60 | | 90 | | |
| | **58 W** | 13 | | 17 | | 35 | | 56 | | |
| | 65 W | 13 | | 17 | | 35 | | 56 | | |
| | 80 W | 10 | | 15 | | 30 | | 48 | | |
| | 115 W | 7 | | 10 | | 20 | | 32 | | |
| 1 tube with parallel compensation (2) | 15 W 5 µF | 15 | 200 W to 800 W | 20 | 300 W to 1200 W | 40 | 600 W to 2400 W | 60 | 900 W to 3500 W | |
| | **18 W** 5 µF | 15 | | 20 | | 40 | | 60 | | |
| | 20 W 5 µF | 15 | | 20 | | 40 | | 60 | | |
| | **36 W** 5 µF | 15 | | 20 | | 40 | | 60 | | |
| | 40 W 5 µF | 15 | | 20 | | 40 | | 60 | | |
| | **58 W** 7 µF | 10 | | 15 | | 30 | | 43 | | |
| | 65 W 7 µF | 10 | | 15 | | 30 | | 43 | | |
| | 80 W 7 µF | 10 | | 15 | | 30 | | 43 | | |
| | 115 W 16 µF | 5 | | 7 | | 14 | | 20 | | |
| 2 or 4 tubes with series compensation | 2 x **18 W** | 30 | 1100 W to 1500 W | 46 | 1650 W to 2400 W | 80 | 2900 W to 3800 W | 123 | 4450 W to 5900 W | |
| | 4 x **18 W** | 16 | | 24 | | 44 | | 68 | | |
| | 2 x **36 W** | 16 | | 24 | | 44 | | 68 | | |
| | 2 x **58 W** | 10 | | 16 | | 27 | | 42 | | |
| | 2 x 65 W | 10 | | 16 | | 27 | | 42 | | |
| | 2 x 80 W | 9 | | 13 | | 22 | | 34 | | |
| | 2 x 115 W | 6 | | 10 | | 16 | | 25 | | |
| Fluorescent tubes with electronic ballast | | | | | | | | | | |
| 1 or 2 tubes | **18 W** | 74 | 1300 W to 1400 W | 111 | 2000 W to 2200 W | 222 | 4000 W to 4400 W | 333 | 6000 W to 6600 W | |
| | **36 W** | 38 | | 58 | | 117 | | 176 | | |
| | **58 W** | 25 | | 37 | | 74 | | 111 | | |
| | 2 x **18 W** | 36 | | 55 | | 111 | | 166 | | |
| | 2 x **36 W** | 20 | | 30 | | 60 | | 90 | | |
| | 2 x **58 W** | 12 | | 19 | | 38 | | 57 | | |

# Coordination of switchgear with loads

## iCT, iCT+, iTL, iTL+, Reflex iC60

### Relay rating

- The table below shows the maximum number of light fittings for each relay, according to the type, power and configuration of a given lamp. As an indication, the total acceptable power is also mentioned.
- These values are given for a 230 V circuit with 2 active conductors (single-phase phase/neutral or two-phase phase/phase). For 110 V circuits, divide the values in the table by 2.

### Choice table

| Products | | | iTL impulse relays | | | | iTL+ impulse relays | Reflex iC60 (C curve) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type of lamp | | | Maximum number of light fittings for a single-phase circuit and maximum power output per circuit | | | | | | | | | | | | | | |
| | | | 16 A | | 32 A | | 16 A | 10 A | | 16 A | | 25 A | | 40 A | | 63 A | |
| Basic incandescent lamps, LV halogen lamps, replacement mercury vapour lamps (without ballast) | | | | | | | | | | | | | | | | | |
| | **40 W** | | 40 | 1500W to 1600W | 106 | 4000W to 4200W | 3680 W x Cos phi | 28 | 1120W to 2175W | 46 | 1840W to 2600W | 70 | 2800W to 3600W | 140 | 5600W to 6800W | 207 | 8280W to 9800W |
| | **60 W** | | 25 | | 66 | | | 23 | | 36 | | 55 | | 103 | | 152 | |
| | **75 W** | | 20 | | 53 | | | 29 | | 31 | | 46 | | 80 | | 121 | |
| | **100 W** | | 16 | | 42 | | | 15 | | 23 | | 33 | | 60 | | 88 | |
| ELV 12 or 24 V halogen lamps | | | | | | | | | | | | | | | | | |
| With ferromagnetic transformer | **20 W** | | 70 | 1350W to 1450W | 180 | 3600W to 3750W | | 11 | 220W to 500W | 19 | 380W to 800W | 27 | 540W to 1050W | 50 | 1000W to 2200W | 75 | 1500W to 3300W |
| | **50 W** | | 28 | | 74 | | | 8 | | 12 | | 19 | | 33 | | 51 | |
| | 75 W | | 19 | | 50 | | | 7 | | 10 | | 14 | | 27 | | 43 | |
| | 100 W | | 14 | | 37 | | | 5 | | 8 | | 10 | | 22 | | 33 | |
| With electronic transformer | **20 W** | | 60 | 1200W to 1400W | 160 | 3200W to 3350W | | 47 | 940W to 1200W | 74 | 1480W to 2000W | 108 | 2160W to 2600W | 220 | 4400W to 5100W | 333 | 6660W to 7300W |
| | **50 W** | | 25 | | 65 | | | 19 | | 31 | | 47 | | 92 | | 137 | |
| | 75 W | | 18 | | 44 | | | 15 | | 24 | | 34 | | 64 | | 94 | |
| | 100 W | | 14 | | 33 | | | 12 | | 20 | | 26 | | 51 | | 73 | |
| Fluorescent tubes with starter and ferromagnetic ballast | | | | | | | | | | | | | | | | | |
| 1 tube without compensation[1] | 15 W | | 83 | 1250W to 1300W | 213 | 3200W to 3350W | | 16 | 244W to 647W | 26 | 390W to 1035W | 37 | 555W to 1520W | 85 | 1275W to 2880W | 121 | 1815W to 4640W |
| | **18 W** | | 70 | | 186 | | | 16 | | 26 | | 37 | | 85 | | 121 | |
| | 20 W | | 62 | | 160 | | | 16 | | 26 | | 37 | | 85 | | 121 | |
| | **36 W** | | 35 | | 93 | | | 15 | | 24 | | 34 | | 72 | | 108 | |
| | 40 W | | 31 | | 81 | | | 15 | | 24 | | 34 | | 72 | | 108 | |
| | **58 W** | | 21 | | 55 | | | 9 | | 15 | | 21 | | 43 | | 68 | |
| | 65 W | | 20 | | 50 | | | 9 | | 15 | | 21 | | 43 | | 68 | |
| | 80 W | | 16 | | 41 | | | 8 | | 12 | | 19 | | 36 | | 58 | |
| | 115 W | | 11 | | 29 | | | 6 | | 9 | | 12 | | 24 | | 38 | |
| 1 tube with parallel compensation[2] | 15 W | 5 µF | 60 | 900W | 160 | 2400W | | 11 | 165W to 640W | 19 | 285W to 960W | 24 | 360W to 1520W | 48 | 720W to 2880W | 72 | 1080W to 4080W |
| | **18 W** | 5 µF | 50 | | 133 | | | 11 | | 19 | | 24 | | 48 | | 72 | |
| | 20 W | 5 µF | 45 | | 120 | | | 11 | | 19 | | 24 | | 48 | | 72 | |
| | **36 W** | 5 µF | 25 | | 66 | | | 11 | | 19 | | 24 | | 48 | | 72 | |
| | 40 W | 5 µF | 22 | | 60 | | | 11 | | 19 | | 24 | | 48 | | 72 | |
| | **58 W** | 7 µF | 16 | | 42 | | | 8 | | 12 | | 19 | | 36 | | 51 | |
| | 65 W | 7 µF | 13 | | 37 | | | 8 | | 12 | | 19 | | 36 | | 51 | |
| | 80 W | 7 µF | 11 | | 30 | | | 8 | | 12 | | 19 | | 36 | | 51 | |
| | 115 W | 16 µF | 7 | | 20 | | | 4 | | 7 | | 9 | | 17 | | 24 | |
| 2 or 4 tubes with series compensation | 2 x **18 W** | | 56 | 2000W | 148 | 5300W | | 23 | 828W to 1150W | 36 | 1296W to 1840W | 56 | 2016W to 2760W | 96 | 3456W to 4600W | 148 | 5328W to 7130W |
| | 4 x **18 W** | | 28 | | 74 | | | 12 | | 20 | | 29 | | 52 | | 82 | |
| | 2 x **36 W** | | 28 | | 74 | | | 12 | | 20 | | 29 | | 52 | | 82 | |
| | 2 x **58 W** | | 17 | | 45 | | | 8 | | 12 | | 20 | | 33 | | 51 | |
| | 2 x 65 W | | 15 | | 40 | | | 8 | | 12 | | 20 | | 33 | | 51 | |
| | 2 x 80 W | | 12 | | 33 | | | 7 | | 11 | | 15 | | 26 | | 41 | |
| | 2 x 115 W | | 8 | | 23 | | | 5 | | 8 | | 12 | | 20 | | 31 | |
| Fluorescent tubes with electronic ballast | | | | | | | | | | | | | | | | | |
| 1 or 2 tubes | **18 W** | | 80 | 1450W to 1550W | 212 | 3800W to 4000W | | 56 | 1008W to 1152W | 90 | 1620W to 1798W | 134 | 2412W to 2668W | 268 | 4824W to 5336W | 402 | 7236W to 8120W |
| | **36 W** | | 40 | | 106 | | | 28 | | 46 | | 70 | | 142 | | 213 | |
| | **58 W** | | 26 | | 69 | | | 19 | | 31 | | 45 | | 90 | | 134 | |
| | 2 x **18 W** | | 40 | | 106 | | | 27 | | 44 | | 67 | | 134 | | 201 | |
| | 2 x **36 W** | | 20 | | 53 | | | 16 | | 24 | | 37 | | 72 | | 108 | |
| | 2 x **58 W** | | 13 | | 34 | | | 9 | | 15 | | 23 | | 46 | | 70 | |





# Coordination of switchgear with loads

## iCT, iCT+, iTL, iTL+, Reflex iC60

- To obtain the equivalent values for the entire 230 V three-phase circuit, multiply the number of lamps and the maximum power output:
  - by 3 (1.73) for circuits with 230 V between phases without neutral;
  - by 3 for circuits with 230 V between phase and neutral or 400 V between phases.

*Note: The power ratings of the lamps most commonly used are shown in bold. For powers not mentioned, use a proportional rule with the nearest values.*

### Choice table

| Products | | | iCT contactors | | | | | | | | iCT+ contactors |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Type of lamp | | | Maximum number of light fittings for a single-phase circuit and maximum power output per circuit | | | | | | | | |
| | | | 16 A | | 25 A | | 40 A | | 63 A | | 20 A |
| Compact fluorescent lamps | | | | | | | | | | | |
| With external electronic ballast | **5 W** | | 210 | 1050 W to 1300 W | 330 | 1650 W to 2000 W | 670 | 3350 W to 4000 W | | Non testé | 4660 W x Cos phi |
| | **7 W** | | 150 | | 222 | | 478 | | | | |
| | **9 W** | | 122 | | 194 | | 383 | | | | |
| | **11 W** | | 104 | | 163 | | 327 | | | | |
| | **18 W** | | 66 | | 105 | | 216 | | | | |
| | **26 W** | | 50 | | 76 | | 153 | | | | |
| With integral electronic ballast (replacement for incandescent lamps) | **5 W** | | 160 | 800 W to 900 W | 230 | 1150 W to 1300 W | 470 | 2350 W to 2600 W | 710 | 3550 W to 3950 W | |
| | **7 W** | | 114 | | 164 | | 335 | | 514 | | |
| | **9 W** | | 94 | | 133 | | 266 | | 411 | | |
| | **11 W** | | 78 | | 109 | | 222 | | 340 | | |
| | **18 W** | | 48 | | 69 | | 138 | | 213 | | |
| | **26 W** | | 34 | | 50 | | 100 | | 151 | | |
| LED lamps | | | | | | | | | | | |
| With driver | **10 W** | | 48 | 500 W to 1400 W | 69 | 700 W to 1950 W | 98 | 1000 W to 3000 W | 200 | 2000 W to 6200 W | |
| | **30 W** | | 38 | | 54 | | 77 | | 157 | | |
| | **50 W** | | 27 | | 39 | | 56 | | 114 | | |
| | **75 W** | | 17 | | 25 | | 36 | | 73 | | |
| | **150 W** | | 9 | | 12 | | 18 | | 37 | | |
| | **200 W** | | 7 | | 9 | | 15 | | 31 | | |
| Low-pressure sodium vapour lamps with ferromagnetic ballast with external ignitor | | | | | | | | | | | |
| Without compensation[1] | **35 W** | | 5 | 270 W to 360 W | 9 | 320 W to 720 W | 14 | 500 W to 1100 W | 24 | 850 W to 1800 W | |
| | **55 W** | | 5 | | 9 | | 14 | | 24 | | |
| | 90 W | | 3 | | 6 | | 9 | | 19 | | |
| | **135 W** | | 2 | | 4 | | 6 | | 10 | | |
| | 180 W | | 2 | | 4 | | 6 | | 10 | | |
| With parallel compensation[2] | **35 W** | 20 µF | 3 | 100 W to 180 W | 5 | 175 W to 360 W | 10 | 350 W to 720 W | 15 | 550 W to 1100 W | |
| | **55 W** | 20 µF | 3 | | 5 | | 10 | | 15 | | |
| | 90 W | 26 µF | 2 | | 4 | | 8 | | 11 | | |
| | **135 W** | 40 µF | 1 | | 2 | | 5 | | 7 | | |
| | 180 W | 45 µF | 1 | | 2 | | 4 | | 6 | | |
| High-pressure sodium vapour lamps Metal-iodide lamps | | | | | | | | | | | |
| With ferromagnetic ballast with external ignitor, without compensation[1] | 35 W | | 16 | 600 W | 24 | 850 W to 1200 W | 42 | 1450 W to 2000 W | 64 | 2250 W to 3200 W | |
| | **70 W** | | 8 | | 12 | | 20 | | 32 | | |
| | **150 W** | | 4 | | 7 | | 13 | | 18 | | |
| | **250 W** | | 2 | | 4 | | 8 | | 11 | | |
| | 400 W | | 1 | | 3 | | 5 | | 8 | | |
| | 1000 W | | 0 | | 1 | | 2 | | 3 | | |
| With ferromagnetic ballast with external ignitor and parallel compensation[2] | 35 W | 6 µF | 12 | 450 W to 1000 W | 18 | 650 W to 2000 W | 31 | 1100 W to 4000 W | 50 | 1750 W to 6000 W | |
| | **70 W** | 12 µF | 6 | | 9 | | 16 | | 25 | | |
| | **150 W** | 20 µF | 4 | | 6 | | 10 | | 15 | | |
| | **250 W** | 32 µF | 3 | | 4 | | 7 | | 10 | | |
| | 400 W | 45 µF | 2 | | 3 | | 5 | | 7 | | |
| | 1000 W | 60 µF | 1 | | 2 | | 3 | | 5 | | |
| | 2000 W | 85 µF | 0 | | 1 | | 2 | | 3 | | |
| With electronic ballast | 35 W | | 24 | 850 W to 1350 W | 38 | 1350 W to 2200 W | 68 | 2400 W to 4000 W | 102 | 3600 W to 600 W | |
| | **70 W** | | 18 | | 29 | | 51 | | 76 | | |
| | **150 W** | | 9 | | 14 | | 26 | | 40 | | |

*(1) Circuits with non-compensated ferromagnetic ballasts consume twice as much current for a given lamp power output. This explains the small number of lamps in this configuration.*
*(2) The total capacitance of the power factor correction capacitors in parallel in a circuit limits the number of lamps that can be controlled by a contactor. The total downstream capacitance of a modular contactor of rating 16, 25, 40 or 63 A should not exceed 75, 100, 200 or 300 µF respectively. Allow for these limits to calculate the maximum acceptable number of lamps if the capacitance values are different from those in the table.*

# Coordination of switchgear with loads

## iCT, iCT+, iTL, iTL+, Reflex iC60

### Choice table

| Products | | | iTL impulse relays | | | | iTL+ impulse relays | Reflex iC60 (C curve) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type of lamp | | | Maximum number of light fittings for a single-phase circuit and maximum power output per circuit | | | | | | | | | | | | | | |
| | | | 16 A | | 32 A | | 16 A | 10 A | | 16 A | | 25 A | | 40 A | | 63 A | |
| **Compact fluorescent lamps** | | | | | | | | | | | | | | | | | |
| With external electronic ballast | **5 W** | | 240 | 1200W to 1450W | 630 | 3150W to 3800W | 3680 W x Cos phi | 158 | 790W to 962W | 251 | 1255W to 1560W | 399 | 1995W to 2392W | 810 | 4050W to 4706W | Usage peu fréquent | |
| | **7 W** | | 171 | | 457 | | | 113 | | 181 | | 268 | | 578 | | | |
| | **9 W** | | 138 | | 366 | | | 92 | | 147 | | 234 | | 463 | | | |
| | **11 W** | | 118 | | 318 | | | 79 | | 125 | | 196 | | 396 | | | |
| | **18 W** | | 77 | | 202 | | | 49 | | 80 | | 127 | | 261 | | | |
| | **26 W** | | 55 | | 146 | | | 37 | | 60 | | 92 | | 181 | | | |
| With integral electronic ballast (replacement for incandescent lamps) | **5 W** | | 170 | 850W to 1050W | 390 | 1950W to 2400W | | 121 | 605W to 650W | 193 | 959W to 1044W | 278 | 1390W to 1560W | 568 | 2840W to 3146W | 859 | 4295W to 4732W |
| | **7 W** | | 121 | | 285 | | | 85 | | 137 | | 198 | | 405 | | 621 | |
| | **9 W** | | 100 | | 233 | | | 71 | | 113 | | 160 | | 322 | | 497 | |
| | **11 W** | | 86 | | 200 | | | 59 | | 94 | | 132 | | 268 | | 411 | |
| | **18 W** | | 55 | | 127 | | | 36 | | 58 | | 83 | | 167 | | 257 | |
| | **26 W** | | 40 | | 92 | | | 25 | | 40 | | 60 | | 121 | | 182 | |
| **LED lamps** | | | | | | | | | | | | | | | | | |
| With driver | **10 W** | | 69 | 700W to 1950W | 98 | 1000W to 3000W | | 30 | 300W to 850W | 44 | 450W to 1250W | 71 | 700W to 2000W | 108 | 1050W to 3050W | 146 | 1450W to 4150W |
| | **30 W** | | 54 | | 77 | | | 24 | | 34 | | 55 | | 83 | | 113 | |
| | **50 W** | | 39 | | 56 | | | 17 | | 25 | | 40 | | 61 | | 83 | |
| | **75 W** | | 25 | | 36 | | | 11 | | 15 | | 24 | | 37 | | 50 | |
| | **150 W** | | 12 | | 18 | | | 5 | | 7 | | 11 | | 17 | | 23 | |
| | **200 W** | | 9 | | 15 | | | - | | 6 | | 10 | | 15 | | 20 | |
| **Low-pressure sodium vapour lamps with ferromagnetic ballast with external ignitor** | | | | | | | | | | | | | | | | | |
| Without compensation[1] | **35 W** | | Non testé, utilisation peu fréquente | | | | | 4 | 153W to 253W | 7 | 245W to 405W | 11 | 385W to 792W | 17 | 595W to 1198W | 29 | 1015W to 2070W |
| | **55 W** | | | | | | | 4 | | 7 | | 11 | | 17 | | 29 | |
| | 90 W | | | | | | | 3 | | 4 | | 8 | | 11 | | 23 | |
| | **135 W** | | | | | | | 2 | | 3 | | 5 | | 8 | | 12 | |
| | 180 W | | | | | | | 1 | | 2 | | 4 | | 7 | | 10 | |
| With parallel compensation[2] | **35 W** | 20 µF | 38 | 1350W | 102 | 3600W | | 3 | 88W to 169W | 4 | 140W to 270W | 7 | 245W to 450W | 12 | 420W to 720W | 19 | 665W to 1440W |
| | **55 W** | 20 µF | 24 | | 63 | | | 3 | | 4 | | 7 | | 12 | | 19 | |
| | 90 W | 26 µF | 15 | | 40 | | | 2 | | 3 | | 5 | | 8 | | 13 | |
| | **135 W** | 40 µF | 10 | | 26 | | | 1 | | 2 | | 3 | | 5 | | 9 | |
| | 180 W | 45 µF | 7 | | 18 | | | 0 | | 1 | | 2 | | 4 | | 8 | |
| **High-pressure sodium vapour lamps Metal-iodide lamps** | | | | | | | | | | | | | | | | | |
| With ferromagnetic ballast with external ignitor, without compensation[1] | 35 W | | Non testé, utilisation peu fréquente | | | | | 12 | 416W to 481W | 19 | 400W to 750W | 28 | 980W to 1350W | 50 | 1750W to 2500W | 77 | 2695W to 4000W |
| | **70 W** | | | | | | | 7 | | 11 | | 15 | | 24 | | 38 | |
| | **150 W** | | | | | | | 3 | | 5 | | 9 | | 15 | | 22 | |
| | **250 W** | | | | | | | 2 | | 3 | | 5 | | 10 | | 13 | |
| | 400 W | | | | | | | 0 | | 1 | | 3 | | 6 | | 10 | |
| | 1000 W | | | | | | | 0 | | 0 | | 1 | | 2 | | 3 | |
| With ferromagnetic ballast with external ignitor and parallel compensation[2] | 35 W | 6 µF | 34 | 1200W to 1350W | 88 | 3100W to 3400W | | 14 | 490W to 800W | 17 | 595W to 1200W | 26 | 910W to 2200W | 43 | 1505W to 4400W | 70 | 2450W to 7000W |
| | **70 W** | 12 µF | 17 | | 45 | | | 8 | | 9 | | 13 | | 23 | | 35 | |
| | **150 W** | 20 µF | 8 | | 22 | | | 5 | | 6 | | 9 | | 14 | | 21 | |
| | **250 W** | 32 µF | 5 | | 13 | | | 3 | | 4 | | 5 | | 10 | | 14 | |
| | 400 W | 45 µF | 3 | | 8 | | | 2 | | 3 | | 4 | | 7 | | 9 | |
| | 1000 W | 60 µF | 1 | | 3 | | | 0 | | 1 | | 2 | | 4 | | 7 | |
| | 2000 W | 85 µF | 0 | | 1 | | | 0 | | 0 | | 1 | | 2 | | 3 | |
| With electronic ballast | 35 W | | 38 | 1350W to 2200W | 87 | 3100W to 5000W | | 15 | 525W to 844W | 24 | 840W to 1350W | 38 | 1330W to 2100W | 82 | 2870W to 4650W | 123 | 4305W to 7200W |
| | **70 W** | | 29 | | 77 | | | 11 | | 18 | | 29 | | 61 | | 92 | |
| | **150 W** | | 14 | | 33 | | | 6 | | 9 | | 14 | | 31 | | 48 | |

*(1) Circuits with non-compensated ferromagnetic ballasts consume twice as much current for a given lamp power output. This explains the small number of lamps in this configuration.*

*(2) The total capacitance of the power factor correction capacitors in parallel in a circuit limits the number of lamps that can be controlled by a contactor. The total downstream capacitance of a modular contactor of rating 16, 25, 40 or 63 A should not exceed 75, 100, 200 or 300 µF respectively. Allow for these limits to calculate the maximum acceptable number of lamps if the capacitance values are different from those in the table.*

*Note: Reflex iC60*
*High-pressure sodium vapour lamp with electronic ballast*
*For the 10 A and 16 A B-curve ratings, the number of lamps should be reduced by 10 % to limit unwanted magnetic tripping.*
*LED lamp*
*B-curve ratings, the number of lamps should be reduced by 50 %.*
*D-curve ratings, the number of lamps should be increased by 50 %.*





# Coordination of switchgear with loads

## iTL, iCT

### Heating application

- Impulse relay rating to be chosen according to the power to be controlled.

| 230 V heating | | |
|---|---|---|
| Type | Maximum power for a given rating iTL impulse relays | |
| Single-phase circuit | 16 A | 32 A |
| Heating (AC1) | 3.6 kW | 7.2 kW |

- Contactor rating to be chosen according to the power to be controlled and the number of operations a day.

| 230 V heating | | | | |
|---|---|---|---|---|
| Type of heating application | Maximum power for a given rating iCT contactors | | | |
| Number of operations / day | 25 A | 40 A | 63 A | 100 A |
| 25 | 5.4 kW | 8.6 kW | 14 kW | 21.6 kW |
| 50 | 5.4 kW | 8.6 kW | 14 kW | 21.6 kW |
| 75 | 4.6 kW | 7.4 kW | 12 kW | 18 kW |
| 100 | 4 kW | 6 kW | 9.5 kW | 14 kW |
| 250 | 2.5 kW | 3.8 kW | 6 kW | 9 kW |
| 500 | 1.7 kW | 2.7 kW | 4.5 kW | 6.8 kW |
| **400 V heating** | | | | |
| 25 | 16 kW | 26 kW | 41 kW | 63 kW |
| 50 | 16 kW | 26 kW | 41 kW | 63 kW |
| 75 | 14 kW | 22 kW | 35 kW | 52 kW |
| 100 | 11 kW | 17 kW | 26 kW | 40 kW |
| 250 | 5 kW | 8 kW | 13 kW | 19 kW |
| 500 | 3.5 kW | 6 kW | 9 kW | 14 kW |

### Small motor application

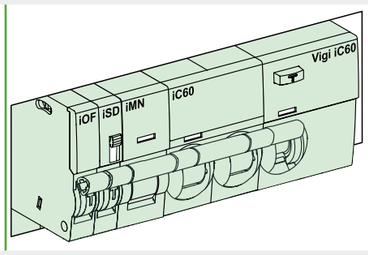
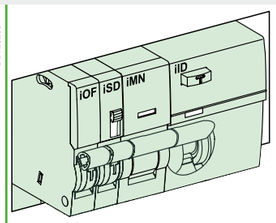
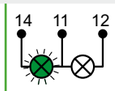
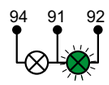
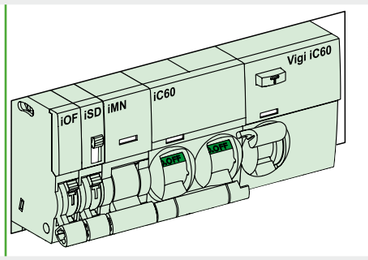
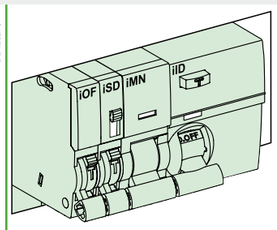
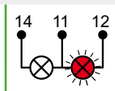
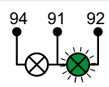
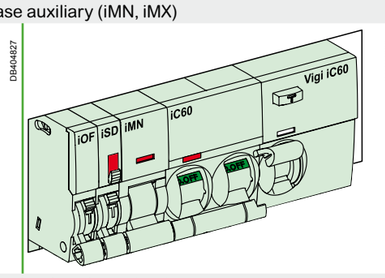
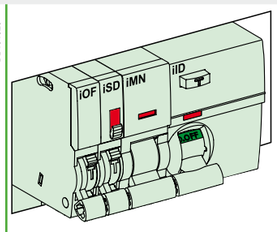
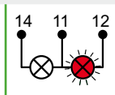
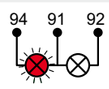
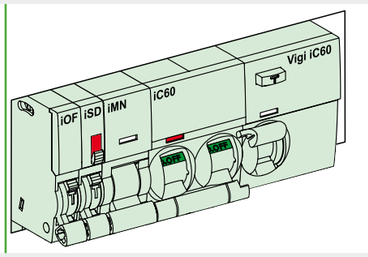
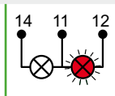
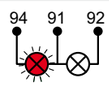
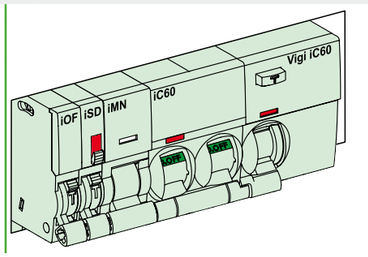
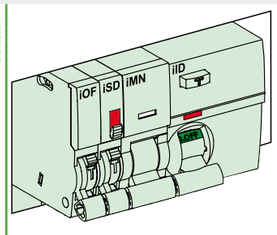
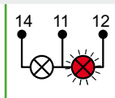
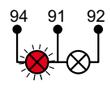
Contactor rating to be chosen according to the power to be controlled.

| Asynchronous single-phase motor with capacitor | | | |
|---|---|---|---|
| Small motor application type | Maximum power for a given rating iCT contactors | | |
| Voltage | 25 A | 40 A | 63 A |
| 230 V | 1.4 | 2.5 | 4 |
| **Asynchronous three-phase motor** | | | |
| 400 V | 4 | 7.5 | 15 |
| **Universal motor** | | | |
| 230 V | 0.9 | 1.4 | 2.2 |

# Auxiliary indicating contacts

## Acti 9 protective devices

Table showing state of auxiliary contacts according to the main device and the type of fault.

| | Main device | | Auxiliary contacts | |
|---|---|---|---|---|
| **Functions and use** | **Circuit breaker** | **Residual current circuit breaker** | **OF** | **SD** |
| Closed | DB123288  | DB123289  | DB123292  |  |
| Manually opened | DB123277  | DB123278  | DB123290  |  |
| Tripped by release auxiliary (iMN, iMX) | DB404827  | DB404829  | DB123291  |  |
| Tripped upon overload or short circuit | DB123285  | – | DB123291  |  |
| Tripped upon earth fault | DB404828  | DB123287  | DB123291  |  |





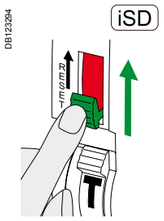
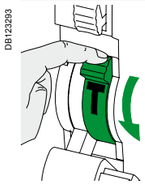
# Auxiliary indicating contacts

## Acti 9 protective devices

## Function

### RESET (SD contact)

When the main device is tripped and the fault has been eliminated, it is possible to switch the SD contact manually, via the "RESET" button on the front panel.
The unit is then in "device opened manually" configuration.

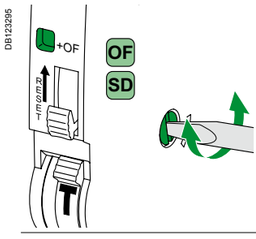
| | iOF | iSD | iOF/SD+OF<br>iOF+SD24 |
|---|---|---|---|
| DB123294  | - | ■ | ■ iSD only |
| DB123293  | ■ | ■ | ■ |

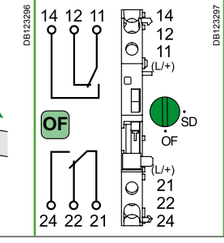
### TEST (SD or OF contact)

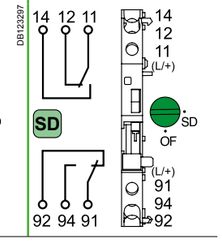
When the main device is opened or tripped, the TEST button can be used to check the satisfactory operation of the indicating circuit by simulating operation of the main device. This operation also modifies the position of the indicator on the front panel of the iSD auxiliary.
On the double contact (iOF/SD+OF or iOF+SD24), this function can be implemented only for the SD indicating circuit.

### iOF/SD+OF double contact

Change of function of the second contact from OF to SD.

DB123295 


DB123296 


DB123297 

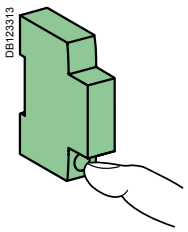
# Auxiliary indicating contacts

## Acti 9 protective devices

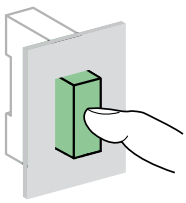
## Technical data

| Main characteristics | | iOF, iSD, iOF/ SD+OF | | iOF+SD24 |
|---|---|---|---|---|
| | | IEC/EN 60947-5-1 | | IEC/EN 60947-5-1, IEC/EN 60947-5-4 |
| Insulation voltage (Ui) | | 400 V AC | | 500 V AC |
| Degree of pollution | | 3 | | 3 |
| Rated impulse withstand voltage (Uimp) | | 4 kV (6 kV relative to the associated protective device) | | 4 kV (6 kV relative to the associated protective device) |
| Current rating (A) | Min. | 24 V, 10 mA | | 24 V ± 20 %, 2 mA mini, 100 mA maxi Low level contact: compatible with IEC/EN 61131-2 Programmable Controllers, suitable for any connection to 24 V DC PLCs |
| | Maxi | AC12 415 V AC | 3 A | |
| | | AC12 ≤ 240 V AC | 6 A | |
| | | DC12 130 V DC | 1 A | |
| | | DC12 60 V DC | 1.5 A | |
| | | DC12 48 V DC | 2 A | |
| | | DC12 24 V DC | 6 A | |
| **Additional characteristics** | | | | |
| Degree of protection (IEC 60529) | Device only | IP20 | | IP20 |
| | Device in a modular enclosure | IP40 Insulation class II | | IP40 Insulation class II |
| Endurance (O-C) | Electrical | 10,000 cycles | | 10,000 cycles |
| Overvoltage category (IEC 60364) | | III | | III |
| Short-circuit resistance | | 1 kA | | 1 kA |
| Rating of device for auxiliary contact protection against short circuits | Circuit breaker | iC60 - C curve - 6 A | | iC60 - C curve - 6 A |
| | Fuse | 6 A, 500 V type Gg 10.3 x 38 mm | | 6 A, 500 V type Gg 10.3 x 38 mm |
| Operating temperature | | -35°C to +70°C | | -20°C to +60°C |
| Storage temperature | | -40°C to +85°C | | -40°C to +85°C |

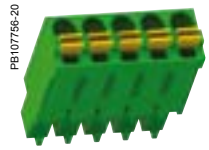
IP20




IP40



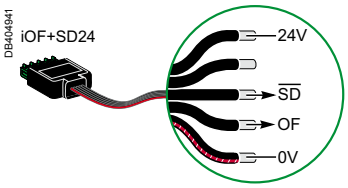

*A9XCAU06*




*A9XC2412*

## iOF+SD24 connection

The indicating auxiliary iOF+SD24 can be connected with a factory-built link, A9XCAU06: moulded connector (iOF+SD24 side) and with the 5 wires (PLC side).




Or using a Ti24 5-point connector, **A9XC2412**

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