Low voltage

Acti 9

Ready to Install
Distribution & Control Products

Catalogue
2016

Life Is On Schneider Electric

Introduction

Schneider Electric's Ready to Install offer brings together the company's range of solutions for the distribution, protection, control and management of electrical systems. As a global specialist in energy management, Schneider Electric offers integrated solutions making energy safer, more reliable, efficient and productive.

The Ready to Install offer includes a comprehensive range of distribution boards, panel boards, switchgear, protection devices, control and command solutions, metering and measurement products and Integrated Installation Solutions.

Our products are highly compatible and complement each other, allowing you to provide your customers with integrated, tailored solutions. For easy identification, products previously known under the Merlin Gerin and Mita brands are now being labelled as Schneider Electric so customers can spot our quality solutions at a glance.

Whether you're specifying equipment for a major project or buying a selection of components for a simple maintenance installation, our range is unequalled. When you choose a system bearing our name you have the reassurance it is of the highest quality. Wherever you are located and whatever your need, we are committed to meeting your requirements.

The Ready to Install offer now includes our award winning Acti 9 product range, winner of Select's Best New Product category.

Contents

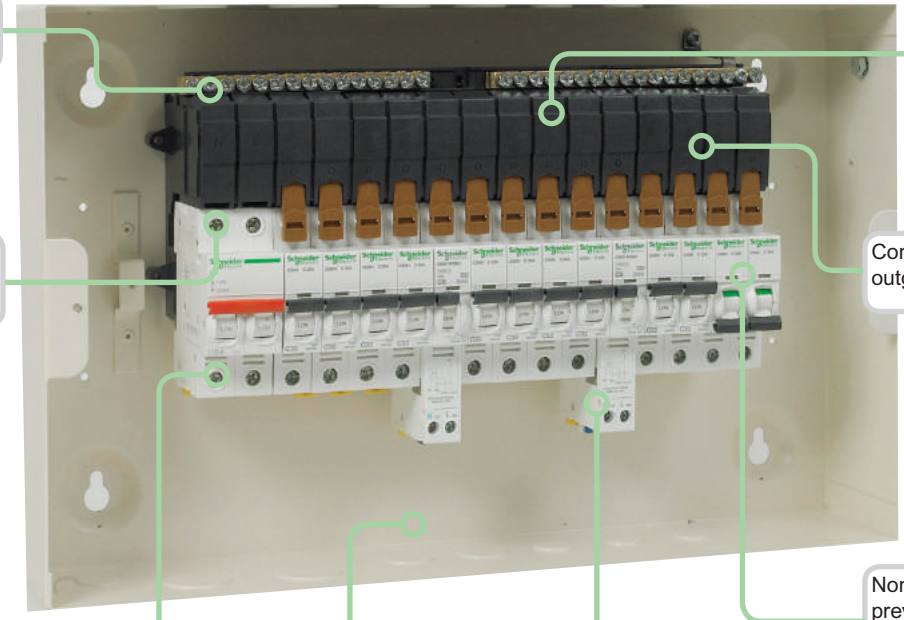
Contents

Acti 9 Isobar distribution boards

1

Acti 9 Isobar distribution boards

A type single phase distribution boards

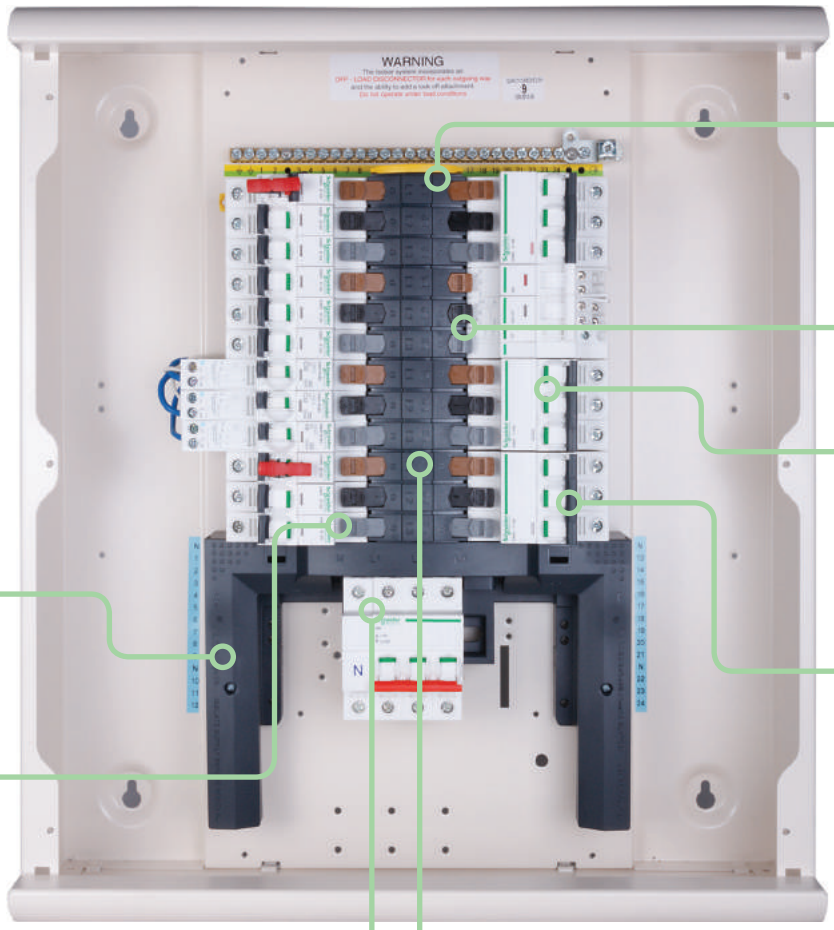


- Fully type tested conditional short circuit rating of 16kA to BS EN 61439-3
- High performance MCB 10kA BS EN 60898 15kA BS EN 60947-2 in B, C or D curve single and double pole
- 125A busbar rating
- Isobar disconnection to BS EN 60947-3 ensuring unused outgoing ways are isolated
- Option of switching outgoing neutral on all boards using distributed neutral kit
- Terminal block for feeding up to 100A
- Range of incomers: switch disconnectors, residual current devices, terminal blocks
- Single pole RCBO for new or retrofit maintaining device density
- Full range of device accessories and auxiliaries
- Knockouts for cable gland and conduit mixed to suit the installation needs without loss of space
- Split metering options

Technical Section 10
Dimensions Section 11

Acti 9 Isobar distribution boards

B type 3 phase distribution boards



Standard, meter ready, split metered and multi service options

Fully encapsulated busbar system

Conversion of any outgoing way into neutral

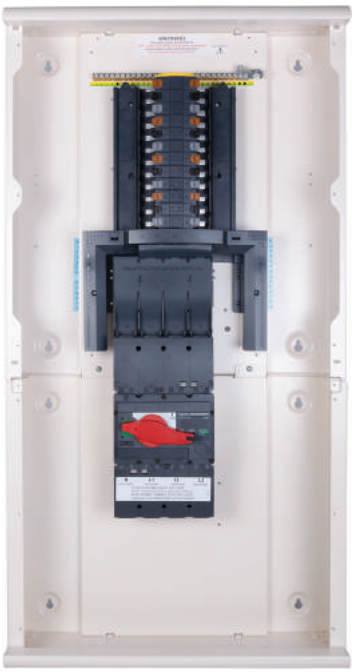
Fully shrouded neutral bars

Wide range of add-on auxiliaries, e.g. shunt trips, auxiliary switches, add-on earth leakage modules, etc

Wide range of incomers

Fully shrouded connections when main switch is fitted

Non removable interlock to prevent operation unless an outgoing device is fitted



- Fully type tested conditional short circuit rating of 25kA to BS EN 61439-3
- High performance MCB 10kA BS EN 60898 15kA BS EN 60947-2 in B, C or D curve 1, 2, 3, 4 pole
- 250A busbar rating
- Isobar disconnection to BS EN 60947-3 ensuring unused outgoing ways are isolated
- Option of switching outgoing neutral on all boards using distributed neutral kit
- Terminal block for feeding up to 100A
- Range of incomers: switch disconnectors, residual current devices, terminal blocks, mccb
- Single pole RCBO for new or retrofit maintaining device density
- Full range of device accessories and auxiliaries
- Knockouts for cable gland and conduit mixed to suit the installation needs without loss of space
- Removable insulated pan assembly
- Fully shrouded neutral
- Split neutral bars
- Removable gland plates
- Optional metering, dual supply, surge protection and contactor on incoming
- Metered extension enclosures

Technical
Section 10

Dimensions
Section 11

Acti 9 Isobar distribution boards

A type distribution boards

BS EN 61439-3
IEC 61439-3

- ■ Acti 9 Isobar is a complete range of single and 3 phase distribution boards for commercial and industrial applications
- □ Standard distribution boards up to 24 ways
- □ Multi service distribution boards up to 24 ways
- □ Dual incomer distribution boards up to 24 ways
- □ Split load distribution boards up to 24 ways
- □ Split metered distribution boards up to 20 ways
- □ Any outgoing way can be converted to switch the Neutral

SEA9AN18

Alternating current (AC) 50Hz		
withstand	**110v**	**230/240v**
conditional	25kA	25kA
unconditional	25kA/50mS	25kA/50mS
	17kA/200mS	17kA/200mS
Direct current (DC)		
	24v	48v
unconditional	25kA/50mS	25kA/50mS

SEA9AN27

Catalogue numbers

Acti 9 Isobar Standard distribution boards busbar rating 125 amp		
Incomers not included	**No of SP ways**	**No of DP ways***
SEA9AN2	2	1
SEA9AN6	6	3
SEA9AN10	10	5
SEA9AN14	14	7
SEA9AN18	18	9
SEA9AN27	27	12

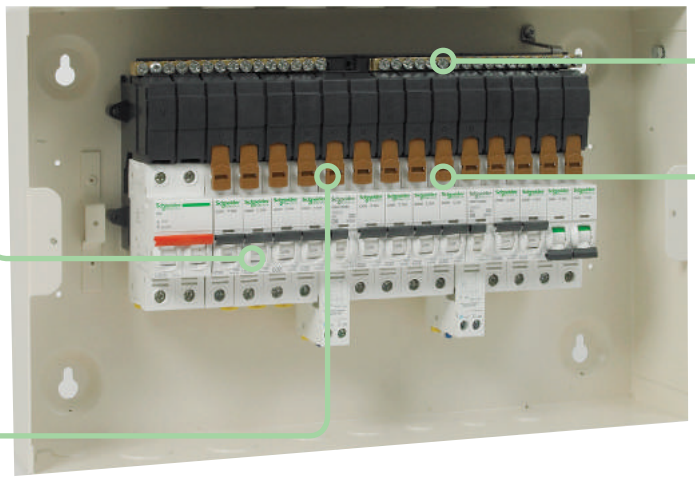
*When used with distributed neutral

Acti 9 Isobar Multi service distribution boards busbar rating 125 amp		
Incomers not included	**No of SP ways**	**Useable DIN rail 18mm ways**
SEA9AN108MS	10	4
SEA9AN1432MS	14	16
SEA9AN616MS	6	8
SEA9AN624MS	6	12
SEA9AN148MS	14	4
SEA9AN1016MS	10	8

Acti 9 Isobar Split load distribution boards busbar rating 125 amp		
Incomers not included	**Unprotected way**	**RCCB protected ways**
SEA9AN96SL	9	6
SEA9AN510SL	5	10
SEA9AN56SL	5	6

Technical Section 10
Dimensions Section 11

Acti 9 Isobar distribution boards
A type distribution boards (cont.)



Technical data Standard, Meter ready, Split metered Acti 9 Isobar

Main characteristics		110v		230/240v
According to BE EN 61439-3				
Withstand	conditional	25kA		25kA
	unconditional	25kA/50mS		25kA/50mS
		17kA/200mS		17kA/200mS
insulation voltage (Ui)		500V		500V
Pollution degree		3		3
Rated inpulse withstand voltage (Uimp)		6kV		6kV
Current rating (A)	direct connection	125A	Terminal block	125A
	Switch disconnector	125A	Power switch	125A
	RCCB sensitivites (mA)	30, 100, 300, 300TD, 100A		
Degree of protection		External IP3X		
(IEC 60529)		Internal IP20		
Endurance (O-C) Isobar switch disconnector		3000		
Overvoltage category		IV		
Operating temperature		-35 to +70°C		
Storage teperature		-40 to +80°C		

Connections				
Rating	**Tightening torque**	**Copper lugs**	**Cables bare**	**Device**
125 amp		■	50mm	DIN switch disconnector
125 amp		■	50mm	Terminal block
100 amp		■	35mm	RCCB

SEA9AN10S10

Acti 9 Isobar Dual supply distribution boards busbar rating 125 amp		
Incomers not included	**Section 1 SP ways**	**Section 2 SP ways**
SEA9AN106DS	10	6
SEA9AN26DS	2	6
SEA9AN66DS	6	6

Acti 9 Isobar Split metered distribution boards busbar rating 100 amp direct connected meters			
Incoming switch disconnector included	**Meter type**	**No of SP ways**	**No of SP ways**
SEA9AN6S6	40A direct connected	6	6
SEA9AN10S10	63A direct connected	10	10
SEA9AN14S14	63A direct connected	14	14
Total load	2 row 50A per row 1 row 40A per split	Meter used	A9M17067 A9MEM2010

Technical Section 10
Dimensions Section 11

Acti 9 Isobar distribution boards

A type distribution boards (cont.)

Weight (kG) - Dimensions (mm)								
Standard	**Multi service**	**Split load**	**Dual Incomer**	**Split metered**	**kG**	**Height**	**Width**	**Depth**
2 way	■	■	■	■	1.8	300	200	117
6 way	■	■	■	■	2.5	300	273	117
10 way	■	■	2 - 6	■	3.0	300	345	117
14 way	6 - 16, 10 - 8	5 - 6	6 - 6	■	4.8	300	417	117
18 way	6 - 24, 10 - 16, 14 - 8	5 - 10, 9 - 6	10 - 6	6 - 6	5.7	300	489	117
27 way	14 - 32	10 - 10, 14 - 14	■	10 - 10	8.9	530	417	117

SEA91252

SEA9R41263

SEA9TB1252

Incomers			
Switch disconnector		**Rating (A)**	**No of poles**
SEA91252		125	2
Residual current circuit breaker 230/240vAC	**Sensitivity (mA)**	**Rating (A)**	**No of poles**
SEA9R41263	30	63	2
SEA9R12263	100	63	2
SEA9R44263	300	63	2
SEA9R11280	30	80	2
SEA9R12280	100	80	2
SEA9R14280	300	80	2
SEA9R15280	300 TD	80	2
SEA9R11291	30	100	2
SEA9R12291	100	100	2
SEA9R14291	300	100	2
SEA9R15291	300 TD	100	2
Terminal block		**Rating (A)**	**No of poles**
SEA9TB1252		125	2

DIN rail only enclosures			
Reference	**Description**	**Number of rows**	**Dimensions as**
SEA9DE16	8 SP way module enclosure	1	SEA9AN6
SEA9DE24	12 SP way module enclosure	1	SEA9AN10
SEA9DE32	16 SP way module enclosure	1	SEA9AN14
SEA9DE40	20 SP way module enclosure	1	SEA9AN18
SEA9DE64	32 SP way module enclosure	2	SEA9AN27

Technical Section 10
Dimensions Section 11

Acti 9 Isobar distribution boards

A type distribution boards (cont.)

SEA9BP5

SEA9NKIT

SEA9TB1001

Accessories

Flush mounting kits (overall dimensions add 50mm to width and height)		
Reference		**No of ways**
SEA9AN6FK	Flush mounting kit	6
SEA9AN10FK	Flush mounting kit	10
SEA9AN14FK	Flush mounting kit	14
SEA9AN18FK	Flush mounting kit	18
Distributed neutral kits		
Reference		**No of ways**
SEA9NA6	Distributed neutral for 6 way SP+N	6
SEA9NA10	Distributed neutral for 10 way SP+N	10
SEA9NA14	Distributed neutral for 14 way SP+N	14
SEA9NA18	Distributed neutral for 18 way SP+N	18
SEA9NA27	Distributed neutral for 27 way SP+N	27
SEA9NKIT	Phase to neutral conversion kit (pack 4)	
Reference	**Description**	
SEA9BL	Door lock	
SEA9PD	Padlock kit for door	
SEA9BP	Blank pole	
SEA9BP25	Pack of 25 x 5 pole filler	
SEA9BP5	single 5 pole filler	
SEA9TB1001	100 amp terminal block 1 pole	
SEA9ANWL	SP&N LABELS	

Acti 9 Isobar A type pan assemblies					
Reference		**No of ways**	**Height**	**Width**	**Depth**
SEA9AN6PS	Supplied without distributed neutral	6	202	200	87
SEA9AN10PS	Supplied without distributed neutral	10	202	272	87
SEA9AN14PS	Supplied without distributed neutral	14	202	344	87
SEA9AN18PS	Supplied without distributed neutral	18	202	416	87

SEA9AN18C

Doors and covers	
Reference	
SEA9AN6C	6 way door and cover
SEA9AN10C	10 way door and cover
SEA9AN14C	14 way door and cover
SEA9AN18C	18 way door and cover
SEA9AN27C	27 way door and cover

Technical Section 10
Dimensions Section 11

Acti 9 Isobar distribution boards

B type distribution boards

BS EN 61439-3
IEC 61439-3

- ■ Acti 9 Isobar is a complete range of single and 3 phase
- □ distribution boards for commercial and industrial
- □ applications
- □ Standard distribution boards up to 24 ways
- □ Meter ready distribution boards up to 24 ways
- □ Split metered distribution boards up to 22 ways
- □ Any outgoing way can be converted to switch the Neutral

Alternating current (AC) 50Hz			
withstand	**230/240v**	**400v**	**415v**
conditional	25kA	25kA	25kA
unconditional	25kA/50mS	25kA/50mS	25kA/50mS
	17kA/200mS	17kA/200mS	17kA/200mS
Direct current (DC)			
	24v	**48v**	
unconditional	25kA/50mS	25kA/50mS	

Catalogue numbers

Acti 9 Isobar Standard distribution boards busbar rating 250 amp			
	No of TP ways	**No of SP ways**	**No of DP ways***
SEA9BN4	4	12	6
SEA9BN6	6	18	9
SEA9BN8	8	24	12
SEA9BN12	12	36	18
SEA9BN16	16	48	24
SEA9BN18	18	54	26
SEA9BN24	24	72	36
Acti 9 Isobar Meter ready distribution boards busbar rating 250 amp			
	No of TP ways	**No of SP ways**	**No of DP ways**
SEA9BN6M	6	18	9
SEA9BN8M	8	24	12
SEA9BN12M	12	36	18
SEA9BN16M	16	48	24
SEA9BN18M	18	54	26
SEA9BN24M	24	72	36

*Metering kits page 1/10

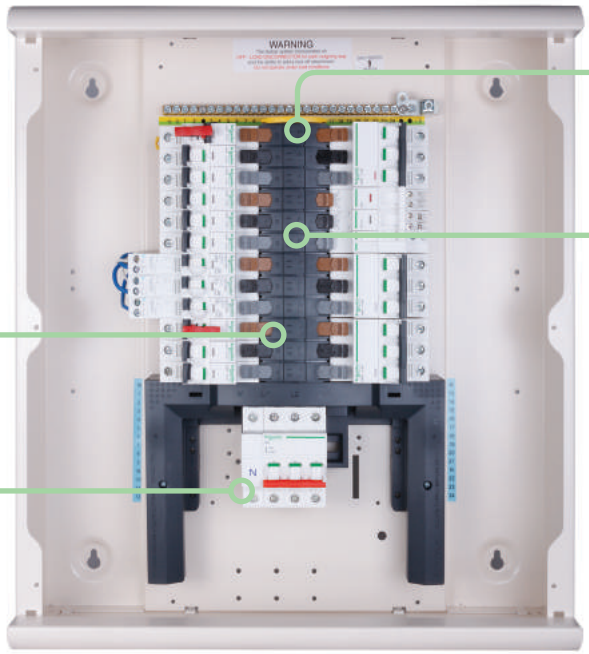
Acti 9 Isobar Split metered* distribution boards busbar rating 125 amp switch disconnector fitted				
	Lower pan assembly No of TP ways	**No of SP ways**	**Upper pan assembly No of TP ways**	**No of SP ways**
SEA9BN1256S8	8	24	8	24
SEA9BN12512S8	14	42	8	24
SEA9BN12514S6	16	48	6	18
SEA9BN12516S4	18	54	4	12
Acti 9 Isobar Split metered* distribution boards busbar rating 250 amp - incomer supplied separately				
	Lower pan assembly No of TP ways	**No of SP ways**	**Upper pan assembly No of TP ways**	**No of SP ways**
SEA9BN2506S8	8	24	8	24
SEA9BN25012S8	14	42	8	24
SEA9BN25014S6	16	48	6	18
SEA9BN25016S4	18	54	4	12

*MID 3 Phase kWh kit Modbus communications and pulsed output

Technical Section 10 Dimensions Section 11

Acti 9 Isobar distribution boards

B type distribution boards (cont.)

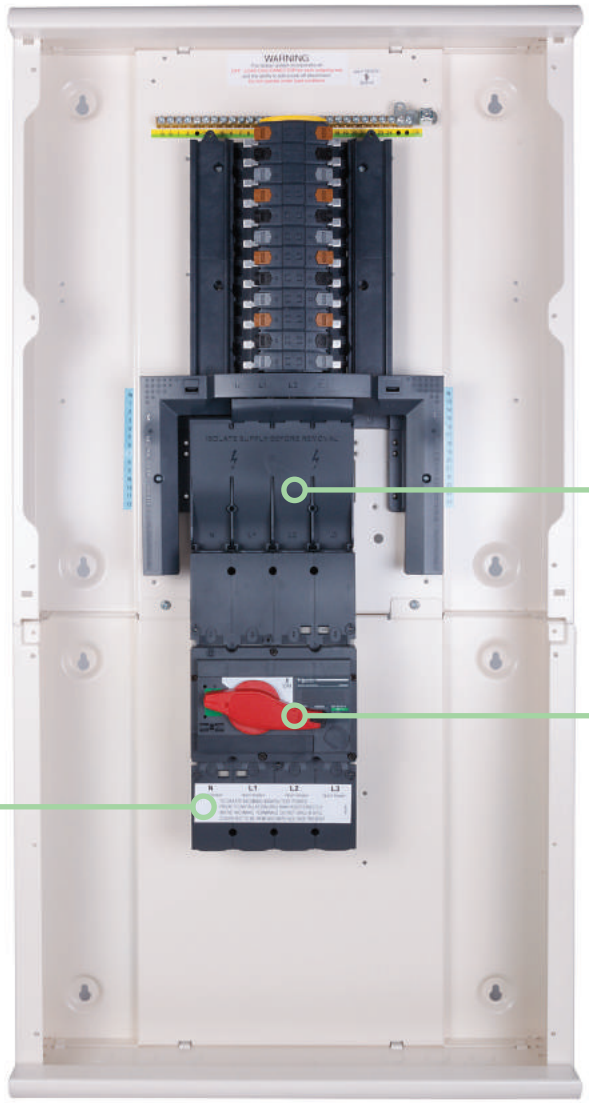


250 amp rated bars with non removable covers

fully insulated construction

interlocked switch disconnector for each outgoing way

padlockable in the off position only



fully shrouded connections

padlockable handle

voltage test points

Acti 9 Isobar distribution boards

B type distribution boards (cont.)

Metering kits				
Acti 9 Standard distribution boards			**Rating (A)**	**Connection**
SEA9BNKWH	MID 3 Phase kWh kit Modbus communications and pulsed output	Height 270 (mm)	250	via CT
SEA9BNKWHP	MID 3 Phase kWh kit pulsed output	Height 270 (mm)	250	via CT
SEA9BNMETE	Metering enclosure for standard Acti 9 Isobar boards for PM meters	height 270 (mm)	250	via CT
Acti 9 Meter ready distribution boards			**Rating (A)**	**Connection**
SEA9BN3155	MID 3 Phase kWh kit Modbus communications	Integral	63	direct
SEA9BN3110	MID 3 Phase kWh kit pulsed output	Integral	63	direct
SEA9BN3255	MID 3 Phase kWh kit Modbus communications	Height 135 (mm)	125	via CT
SEA9BN3210	MID 3 Phase kWh kit pulsed output	Height 135 (mm)	125	via CT

Incomers for 250 amp split metered boards			
		Rating (A)	**No. of poles**
SEA9NCB1604SM	160A 4P MCCB for A9 split meter board	160	4
SEA9NCB2004SM	200A 4P MCCB for A9 split meter board	200	4
SEA9NCB2504SM	250A 4P MCCB for A9 split meter board	250	4
SEA9NI1604SM	160A 4P Switch for A9 split meter board	160	4
SEA9NI2004SM	200A 4P Switch for A9 split meter board	200	4
SEA9NI2504SM	250A 4P Switch for A9 split meter board	250	4

Connections

Rating	Copper lugs	Bare cables	Device
125 amp		50mm	DIN switch disconnector/Terminal block
		95mm with spreader connection	Interpact DIN Switch Disconnector
160 -250 amp	95mm	185mm with cable clamps	Interpact Switch Disconnector
	95mm	185mm with cable clamps	NSX Moulded case circuit breaker
	120 mm		Terminal block

Technical data Standard, Meter ready, Split metered Acti 9 Isobar

Main characteristics		230/240v	400v	415v
Withstand	conditional	25kA	25kA	25kA
	unconditional	25kA/50mS	25kA/50mS	25kA/50mS
		17kA/200mS	17kA/200mS	17kA/200mS
Insulation voltage (Ui)		500vAC	500vAC	500vAC
Pollution degree		3	3	3
Rated inpulse withstand voltage (Uimp)		6kV	6kV	6kV
Current rating (A)	direct connection	125/250	6kV	6kV
	Switch disconnector	125	DIN mounted Power switch	
		160-200-250	Interpact	
	MCCB	100-160-200-225-250		
Degree of protection		External IP3X or IP55		
(IEC 60529)		Internal IP20		
Endurance (O-C) Isobar switch disconnector		3000		
Overvoltage category		IV		
Operating temperature		-35 to +70°C		
Storage teperature		-40 to +80°C		

Technical Section 10 Dimensions Section 11

Acti 9 Isobar distribution boards

B type distribution boards (cont.)

SEA9BN8HDGK

Main characteristics Acti 9 Isobar Heavy Duty

According to BE EN 61439-3		230/240v	400v	415v
Withstand	conditional	25kA	25kA	25kA
	unconditional	25kA/50mS	25kA/50mS	25kA/50mS
		17kA/200mS	17kA/200mS	17kA/200mS
Insulation voltage (Ui)		500vAC		
Pollution degree		3		
Rated inpulse withstand voltage (Uimp)		6kV		
Current rating (A)		125A		
Degree of protection		External IP55		
(IEC 60529)		Internal IP20		
Endurance (O-C) Isobar switch disconnector		3000		
Overvoltage category		IV		
Operating temperature		-35 to +70^{0}C		
Storage teperature		-40 to +80^{0}C		

Anti condensation measures should be taken if installed in an external location

Catalogue numbers

Acti 9 Isobar Standard IP55 distribution boards busbar rating 125 amp steel door			
	No of TP ways	**No of SP ways**	**No of DP ways**
SEA9BN6HDGR	6	18	9
SEA9BN8HDGR	8	24	12
SEA9BN12HDGR	12	36	18
SEA9BN16HDGR	16	48	24
Acti 9 Isobar Standard IP55 distribution boards busbar rating 125 amp transparent door			
	No of TP ways	**No of SP ways**	**No of DP ways**
SEA9BN6HDGK	6	18	9
SEA9BN8HDGK	8	24	12
SEA9BN12HDGK	12	36	18
SEA9BN16HDGK	16	48	24

Acti 9 Isobar and Acti 9 Isobar IP55

Weight (kG) - Dimensions (mm)						
Standard	**Meter ready**	**Split meter**	**kG**	**Height**	**Width**	**Depth**
4 way	■	■	9	484	470	139
6 way	6 way	■	10.5	484	470	138
8 way	6 way	■	11	538	470	138
12 way	12 way	■	13.5	700	470	139
16 way	16 way	■	16	808	470	139
18 way	18 way	■	16.2	862	470	139
24 way	24 way	■	22	1024	470	139
■	■	125 amp	28	1290	470	139
■	■	250 amp	32	1694	470	139
250 amp incoming section		■	4	405	470	130

IP55			**kG**	**Height**	**Width**	**Depth**
6 way		■	32.4	650	600	330
8 way		■	32.9	650	600	330
12 way		■	40.1	800	600	330
16 way		■	41.4	800	600	330

Acti 9 Isobar distribution boards

B type distribution boards (cont.)

SEA91253N

SEA9NI2504

SEA9R44463

SEA9TB1254

SEA9BNDM250SD

Int= Internal to the distribtion board
Ext = in 400mm high extension enclouseres
■ = not applicable

Incomers							
Switch disconnector		**Rating (A)**	**No of poles**	**Standard**	**Meter ready**	**Split Metered**	**IP55**
SEA91253N		125	3P+N	Int	Int	Int	Int
SEA91254		125	4	Int	Int	Int	Int
SEA9NI1603		160	3P+N	Ext	Ext	Ext	■
SEA9NI1604		160	4	Ext	Ext	Ext	■
SEA9NI2003		200	3P+N	Ext	Ext	Ext	■
SEA9NI2004		200	4	Ext	Ext	Ext	■
SEA9NI2254		225	4	Ext	Ext	Ext	■
SEA9NI2503		250	3P+N	Ext	Ext	Ext	■
SEA9NI2504		250	4	Ext	Ext	Ext	n ■
Moulded Case Circuit Breaker		**Rating (A)**	**No of poles**	**Standard**	**Meter ready**	**Split metered**	**IP55**
SEA9NCB1004		70-100	4	Ext	Ext	Ext	■
SEA9NCB1604		112-160	4	Ext	Ext	Ext	■
SEA9NCB2004		140-200	4	Ext	Ext	Ext	■
SEA9NCB2504		175-250	4	Ext	Ext	Ext	■
Residual current circuit breaker	**sensitivity (mA)**	**Rating (A)**	**No of poles**	**Standard**	**Meter ready**	**Split metered**	**IP55**
A9R41463	30	63	4	Int	Int	Int	Int
A9R12463	100	63	4	Int	Int	Int	Int
A9R44463	300	63	4	Int	Int	Int	Int
A9R15463	300/time delayed	63	4	Int	Int	Int	Int
A9R11480	30	80	4	Int	Int	Int	Int
A9R14491	300	100	4	Int	Int	Int	Int
A9R15491	300/time delayed	100	4	Int	Int	Int	Int
SEA9NI160RCCB	adjustable	160	■	Ext	Ext	Ext	■
Terminals for direct connection		**Rating (A)**	**No of poles**	**Standard**	**Meter ready**	**Split metered**	**IP55**
SEA9TB1254		125	4	Int	Int	Int	Int
SEA9NTB2504		250	4	Ext	Ext	Ext	■
Dual source incomer		**Rating (A)**	**No of poles**	**Standard**	**Meter ready**	**Split metered**	**IP55**
SEA9NDSI	*270mm enclosure	125	4	Ext	Ext	Ext	■
Contactor incomer		**Rating (A)**	**No of poles**	**Standard**	**Meter ready**	**Split metered**	**IP55**
SEA9BN100CCI	*270mm enclosure	100	4	Ext	Ext	Ext	■
Dual metered extension enclosure MID 3 Phase kWh kit Modbus communications and pulsed output 270mm enclosures		**Rating (A)**	**No of poles**	**Standard**	**Meter ready**	**Split metered**	**IP55**
SEA9BNDM160SD	Interpact SD	160	4	Ext 270mm	■	■	■
SEA9BNDM200SD	Interpact SD	200	4	Ext 270mm	■	■	■
SEA9BNDM250SD	Interpact SD	250	4	Ext 270mm	■	■	■
SEA9BNDM160M	NSX MCCB	160	4	Ext 270mm	■	■	■
SEA9BNDM200M	NSX MCCB	200	4	Ext 270mm	■	■	■
SEA9BNDM250M	NSX MCCB	250	4	Ext 270mm	■	■	■
Single phasing kits		**Rating (A)**	**No of poles**	**Standard**	**Meter ready**	**Split metered**	**IP55**
SEA9125SPEV		125	4	Int	Int	Int	Int
SEA9250SPEV		250	4	Int	Int	Int	■

Technical Section 10
Dimensions Section 11

Acti 9 Isobar distribution boards

B type distribution boards (cont.)

SEA9BNEX034N

Top or bottom extension enclosures height 270 (mm)		■ not applicable		
Switch disconnector	**Description**			
SEA9BNEXN	Plain front cover for additional wiring space			
SEA9BNEX034N	Mounting of DIN devices, overall door and cutout for 17 x 18mm poles			
SEA9BNEXA14N	Single phase add on distribution board 14 way			

SEA9BN8SXS

SEA9BN8SXP

Side extension enclosures				
Reference	**Description**	**No of rows**	**Total 18mm SP ways**	**Dimensions as**
SEA9BN4SXS	Slotted front cover + overall door	2	34	SEA9BN4
SEA9BN8SXS	Slotted front cover + overall door	2	34	SEA9BN8
SEA9BN12SXS	Slotted front cover + overall door	3	51	SEA9NB12
SEA9BN16SXS	Slotted front cover + overall door	4	68	SEA9NB16
SEA9BN24SXS	Slotted front cover + overall door	5	85	SEA9NB24
SEA9BN4SXP	Plain front cover + overall door	2	34	SEA9BN4
SEA9BN8SXP	Plain front cover + overall door	2	34	SEA9BN8
SEA9BN12SXP	Plain front cover + overall door	3	51	SEA9NB12
SEA9BN16SXP	Plain front cover + overall door	4	68	SEA9NB16
SEA9BN24SXP	Plain front cover + overall door	5	85	SEA9NB24

SEA9NEK2

SEA9TB1001

SEA9NKIT

Accessories	
Reference	**Description**
SEA9BL	Door lock
SEA9PD	Padlock kit for door
SEA9NEK1	Extra earth terminal bar 14 hole
SEA9NEK2	Extra earth terminal bar 20 hole
SEA9NEK3	Extra earth terminal 26 hole
SEA9LA	Pack of 3 padlock attachment MCB
SELACK	15mm padlock common key
SELADK	15mm padlock different key
SEA9BN63SPL	Split load kit 63 amp
SEA9BNSJKN	Side joining kit
SEA9BNTJKA	Top/bottom joining kit for enc/ext/enc
SEA9BNTJKB	Top bottom kit replacing gland plate
SEA9BNTJKN	Joining kit B board top/bottom
SEA9BP	Blank pole
SEA9BP25	Pack of 25 x 5 pole filler
SEA9BP5	Single 5 pole filler
SEA9TB1001	100 amp terminal block 1 pole
SEA9BNBCE25	Clean earth B boards 25 hole
SEA9BNWL	TP&N Labels
SEA9BNC	Neutral shroud (spare)
SEA9NB4	Distributed neutral for 4 way TP+N
SEA9NB6	Distributed neutral for 6 way TP+N
SEA9NB8	Distributed neutral for 8 way TP+N
SEA9NB12	Distributed neutral for 12 way TP+N
SEA9NB16	Distributed neutral for 16 way TP+N
SEA9NB18	Distributed neutral for 18 way TP+N
SEA9NB24	Distributed neutral for 24 way TP+N
SEA9NKIT	Phase to neutral conversion kit (pack 4)
SEA9ISOKEY	Pack of 5 disconnector keys
SEA9BGPEXN	Gland plate for Acti9 Isobar 4 extension
SEA9FCF	Pack of 10 cover fixing screws

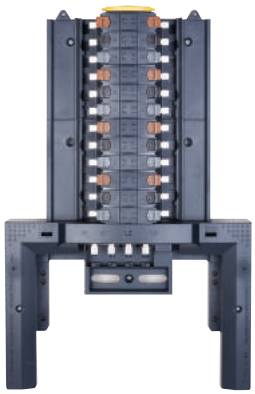
Technical Section 10 Dimensions Section 11

Acti 9 Isobar distribution boards

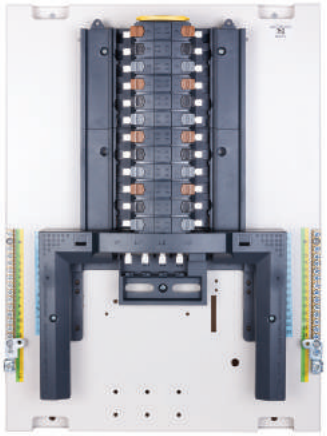
B type distribution boards (cont.)

SEA9BN6PS

SEA9BN8P



SEA9BN8E



SEA9BN6TN

Pan assemblies - 3 phase without distributed neutral, supplied without mounting plate	
Reference	**Description**
SEA9BN4PS	Pan assembly 4 way TP&N
SEA9BN6PS	Pan assembly 6 way TP&N
SEA9BN8PS	Pan assembly 8 way TP&N
SEA9BN12PS	Pan assembly 12 way TP&N
SEA9BN16PS	Pan assembly 16 way TP&N
SEA9BN18PS	Pan assembly 18 way TP&N
SEA9BN24PS	Pan assembly 24 way TP&N

Pan assemblies - replacement for Acti 9 Isobar and Isobar 4c distribution boards	
Reference	**Description**
SEA9BN4P	B board replacement pan assembly
SEA9BN6P	B board replacement pan assembly
SEA9BN8P	B board replacement pan assembly
SEA9BN12P	B board replacement pan assembly
SEA9BN16P	B board replacement pan assembly
SEA9BN18P	B board replacement pan assembly
SEA9BN24P	B board replacement pan assembly

Pan assemblies - for switchboard mounting supplied with earths and neutral, phase coloured Isobar switch disconnectors	
Reference	**Description**
SEA9BN4E	Pan assembly 4 way TP+ earth and neutral
SEA9BN6E	Pan assembly 6 way TP+ earth and neutral
SEA9BN8E	Pan assembly 8 way TP+ earth and neutral
SEA9BN12E	Pan assembly 12 way TP+ earth and neutral
SEA9BN16E	Pan assembly 16 way TP+ earth and neutral
SEA9BN18E	Pan assembly 18 way TP+ earth and neutral
SEA9BN24E	Pan assembly 24 way TP+ earth and neutral

Pan assemblies - for switchboard mounting supplied with earths and neutral, black Isobar switch disconnectors	
Reference	**Description**
SEA9BN4PEV	Pan assembly 4 way TP+ earth and neutral
SEA9BN6PEV	Pan assembly 6 way TP+ earth and neutral
SEA9BN8PEV	Pan assembly 8 way TP+ earth and neutral
SEA9BN12PEV	Pan assembly 12 way TP+ earth and neutral
SEA9BN16PEV	Pan assembly 16 way TP+ earth and neutral
SEA9BN18PEV	Pan assembly 18 way TP+ earth and neutral
SEA9BN24PEV	Pan assembly 24 way TP+ earth and neutral

Pan assemblies - 3 phase without distributed neutral, supplied fitted on a mounting plate	
Reference	**Description**
SEA9BN4TN	4 TP&N way panel fixing pan assembly
SEA9BN6TN	6 TP&N way panel fixing pan assembly
SEA9BN8TN	8 TP&N way panel fixing pan assembly
SEA9BN12TN	12 TP&N way panel fixing pan assembly
SEA9BN16TN	16 TP&N way panel fixing pan assembly
SEA9BN18TN	18 TP&N way panel fixing pan assembly
SEA9BN24TN	24 TP&N way panel fixing pan assembly

Door and cover assemblies	
Reference	**Description**
SEA9BN4C	4 way door and cover
SEA9BN6C	6 way door and cover
SEA9BN8C	8 way door and cover
SEA9BN12C	12 way door and cover
SEA9BN16C	16 way door and cover
SEA9BN18C	18 way door and cover
SEA9BN24C	24 way door and cover

Technical Section 10

Dimensions Section 11

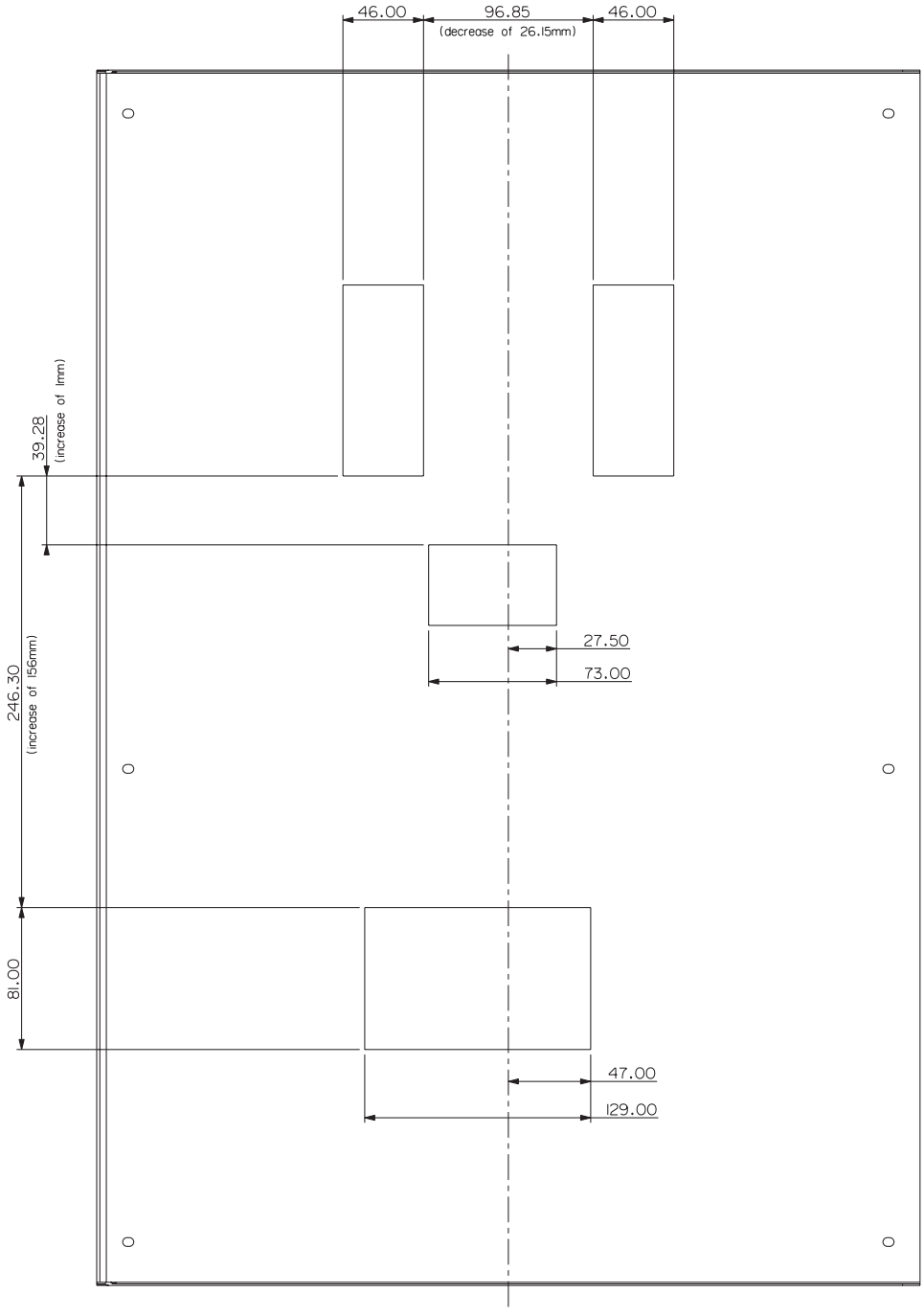
Acti 9 Isobar distribution boards

B type distribution boards (cont.)

SEA9BINCKIT

Pan assemblies - accessories	
Reference	**Description**
SEA9NPB250TB	250 amp incoming terminal block for E/PEV
SEA9BINCKIT	MCCB/Interpact connection kit for use with SEA9NPB250TB
SEA9TB2253	225 amp terminal block for PS/TN

Dimensions (mm)



Contents

Acti 9 miniature circuit breakers

iC60N circuit breakers
(curves B, C, D)

IEC/EN 60947-2
IEC/EN/BS 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.

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)		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

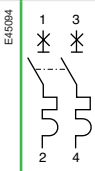
Breaking capacity (Icn) according to IEC/EN 60898-1		
		Voltage (Ue)
Ph/Ph		415 V
Ph/N		240 V
Rating (In)	0.5 to 63 A	6000 A

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

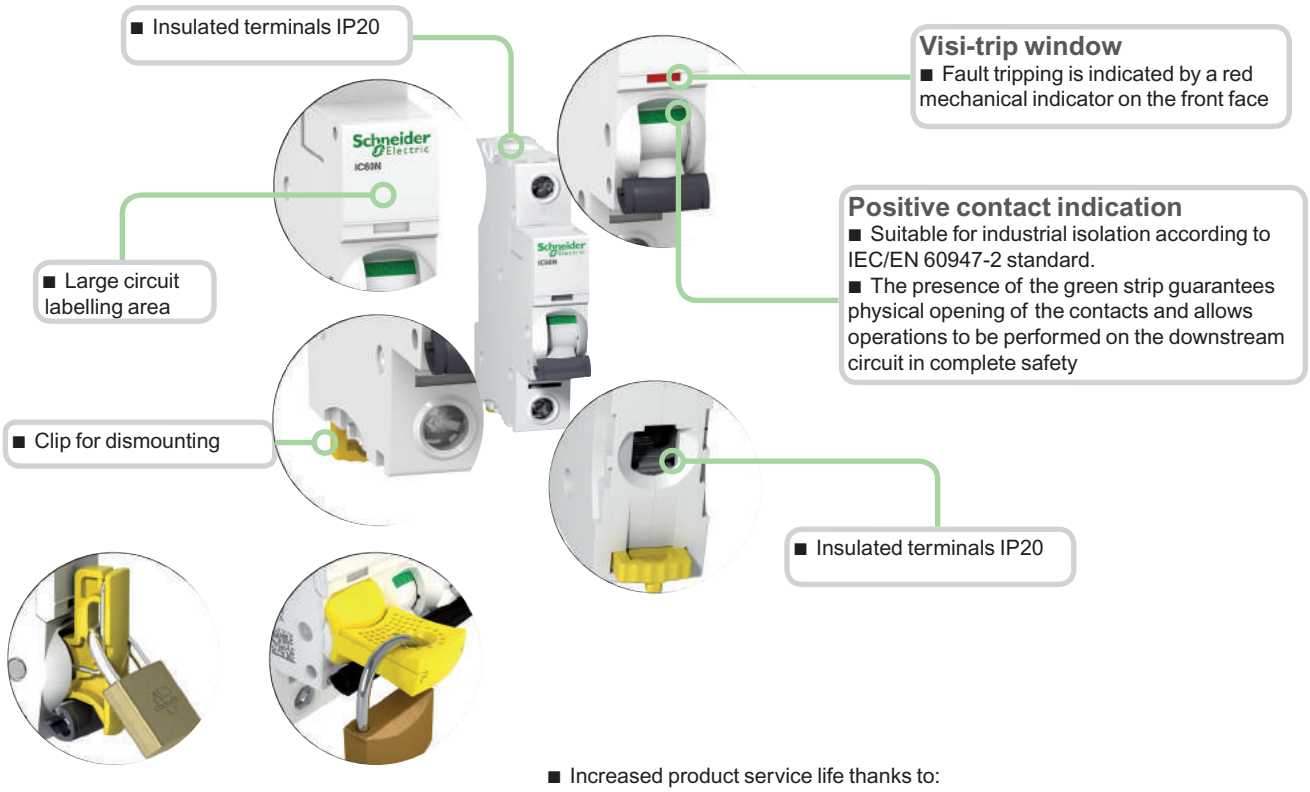
iC60N circuit breaker

Type	1P			2P		
						
Auxiliaries	Section 5			Section 5		
Vigi iC60	Section 3			Section 3		
Calibre (In)	Courbe			Courbe		
	B	C	D	B	C	D
0.5 A	A9F43170	A9F44170	A9F45170	A9F43270	A9F44270	A9F45270
1 A	A9F43101	A9F44101	A9F45101	A9F43201	A9F44201	A9F45201
2 A	A9F43102	A9F44102	A9F45102	A9F43202	A9F44202	A9F45202
3 A	A9F43103	A9F44103	A9F45103	A9F43203	A9F44203	A9F45203
4 A	A9F43104	A9F44104	A9F45104	A9F43204	A9F44204	A9F45204
6 A	A9F43106	A9F44106	A9F45106	A9F43206	A9F44206	A9F45206
10 A	A9F43110	A9F44110	A9F45110	A9F43210	A9F44210	A9F45210
16 A	A9F43116	A9F44116	A9F45116	A9F43216	A9F44216	A9F45216
20 A	A9F43120	A9F44120	A9F45120	A9F43220	A9F44220	A9F45220
25 A	A9F43125	A9F44125	A9F45125	A9F43225	A9F44225	A9F45225
32 A	A9F43132	A9F44132	A9F45132	A9F43232	A9F44232	A9F45232
40 A	A9F43140	A9F44140	A9F45140	A9F43240	A9F44240	A9F45240
50 A	A9F43150	A9F44150	A9F45150	A9F43250	A9F44250	A9F45250
63 A	A9F43163	A9F44163	A9F45163	A9F43263	A9F44263	A9F45263
Width in 9-mm modules	2			4		
Accessories	Section 5			Section 5		

Technical
Section 10

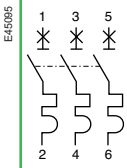
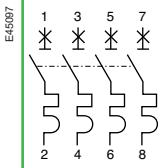
Dimensions
Section 11

iC60N circuit breakers
(curves B, C, D) (cont.)



Padlocking devices
■ Padlocking possible for work to be carried out on live parts

■ 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.

	3P			4P		
						
	Section 5			Section 5		
	Section 3			Section 3		
	Courbe			Courbe		
	B	C	D	B	C	D
	A9F43370	A9F44370	A9F45370	A9F43470	A9F44470	A9F45470
	A9F43301	A9F44301	A9F45301	A9F43401	A9F44401	A9F45401
	A9F43302	A9F44302	A9F45302	A9F43402	A9F44402	A9F45402
	A9F43303	A9F44303	A9F45303	A9F43403	A9F44403	A9F45403
	A9F43304	A9F44304	A9F45304	A9F43404	A9F44404	A9F45404
	A9F43306	A9F44306	A9F45306	A9F43406	A9F44406	A9F45406
	A9F43310	A9F44310	A9F45310	A9F43410	A9F44410	A9F45410
	A9F43316	A9F44316	A9F45316	A9F43416	A9F44416	A9F45416
	A9F43320	A9F44320	A9F45320	A9F43420	A9F44420	A9F45420
	A9F43325	A9F44325	A9F45325	A9F43425	A9F44425	A9F45425
	A9F43332	A9F44332	A9F45332	A9F43432	A9F44432	A9F45432
	A9F43340	A9F44340	A9F45340	A9F43440	A9F44440	A9F45440
	A9F43350	A9F44350	A9F45350	A9F43450	A9F44450	A9F45450
	A9F43363	A9F44363	A9F45363	A9F43463	A9F44463	A9F45463
	6			8		
	Section 5			Section 5		

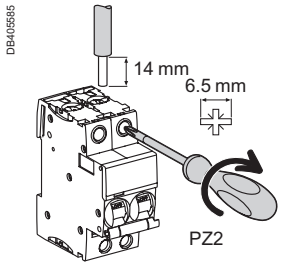
Technical
Section 10

Dimensions
Section 11

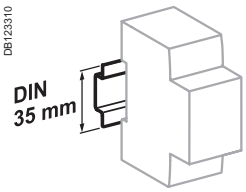
iC60N circuit breakers
(curves B, C, D) (cont.)

2

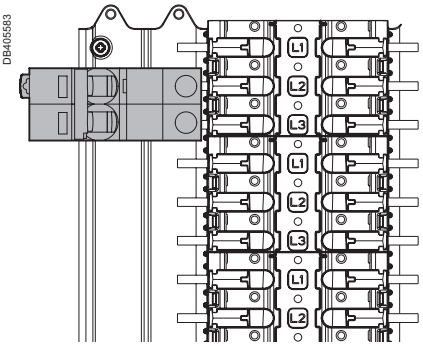
Connection



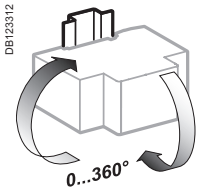
Rating	Tightening torque	Without accessory: Copper cables – Rigid	Without accessory: Copper cables – Flexible or with ferrule	With accessories: 50 mm² Al terminal	With accessories: Screw-on connection for ring terminal	With accessories: Multi-cables terminal – Rigid cables	With accessories: Multi-cables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



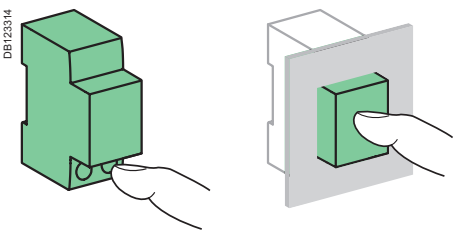
Clip on DIN rail 35 mm.



Installation on Fishbone.



Indifferent position of installation.



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

Technical
Section 10

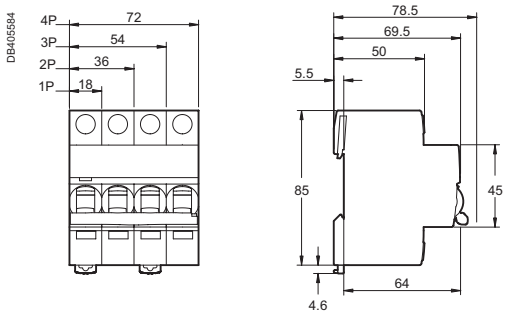
Dimensions
Section 11

iC60N circuit breakers
(curves B, C, D) (cont.)

Weight (g)

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

Dimensions (mm)



iC60H circuit breakers
(curves B, C, D)

PB111065-40

PB111069-40

IEC/EN 60947-2
IEC/EN/BS 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)		**12 to 60 V**	**100 to 133 V**	**220 to 240 V**	**-**	
Rating (In)	1 to 4 A	70 kA	70 kA	70 kA	50 kA	100 % of Icu
	6 to 63 A	42 kA	30 kA	15 kA	10 kA	50 % of Icu
Breaking capacity (Icn) according to IEC/EN 60898-1						
		Voltage (Ue)				
Ph/Ph		**415 V**				
Ph/N		**240 V**				
Rating (In)	1 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)	1 to 63 A	20 kA	15 kA	15 kA	15 kA	15 kA	100 % of Icu

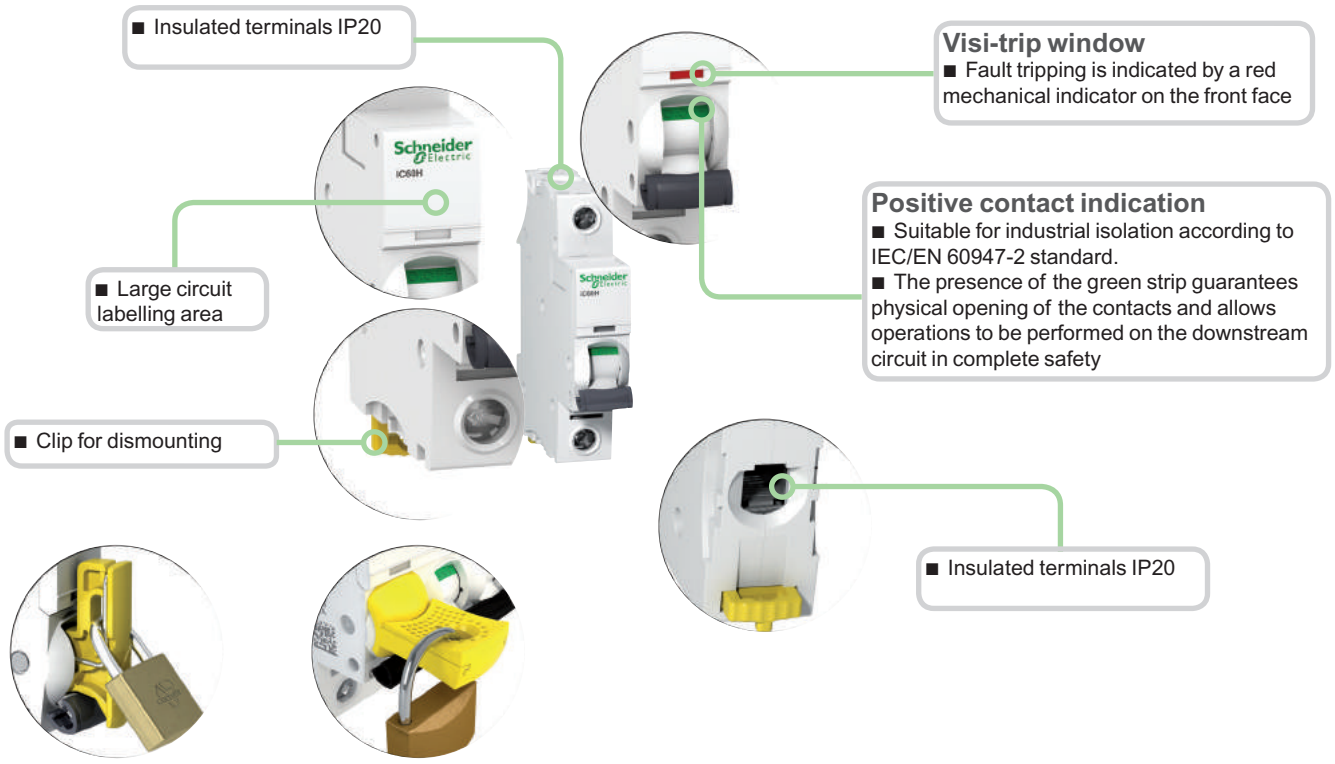
Catalogue numbers

iC60H circuit breaker						
Type	**1P**			**2P**		
	E45092 			E45094 		
Auxiliaries	**Section 5**			**Section 5**		
Vigi iC60	**Section 3**			**Section 3**		
Calibre (In)	**Courbe**			**Courbe**		
	B	**C**	**D**	**B**	**C**	**D**
1 A	**A9F53101**	**A9F54101**	**A9F55101**	**A9F53201**	**A9F54201**	**A9F55201**
2 A	**A9F53102**	**A9F54102**	**A9F55102**	**A9F53202**	**A9F54202**	**A9F55202**
3 A	**A9F53103**	**-**	**-**	**-**	**-**	**-**
4 A	**A9F53104**	**A9F54104**	**A9F55104**	**A9F53204**	**A9F54204**	**A9F55204**
6 A	**A9F53106**	**A9F54106**	**A9F55106**	**A9F53206**	**A9F54206**	**A9F55206**
10 A	**A9F53110**	**A9F54110**	**A9F55110**	**A9F53210**	**A9F54210**	**A9F55210**
16 A	**A9F53116**	**A9F54116**	**A9F55116**	**A9F53216**	**A9F54216**	**A9F55216**
20 A	**A9F53120**	**A9F54120**	**A9F55120**	**A9F53220**	**A9F54220**	**A9F55220**
25 A	**A9F53125**	**A9F54125**	**A9F55125**	**A9F53225**	**A9F54225**	**A9F55225**
32 A	**A9F53132**	**A9F54132**	**A9F55132**	**A9F53232**	**A9F54232**	**A9F55232**
40 A	**A9F53140**	**A9F54140**	**A9F55140**	**A9F53240**	**A9F54240**	**A9F55240**
50 A	**A9F53150**	**A9F54150**	**A9F55150**	**A9F53250**	**A9F54250**	**A9F55250**
63 A	**A9F53163**	**A9F54163**	**A9F55163**	**A9F53263**	**A9F54263**	**A9F55263**
Width in 9-mm modules	2			4		
Accessories	**Section 5**			**Section 5**		

Technical
Section 10

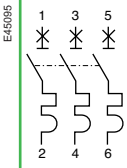
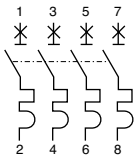
Dimensions
Section 11

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



Padlocking devices
■ Padlocking possible for work to be carried out on live parts

■ 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.

	3P			4P		
						
	Section 5			**Section 5**		
	Section 3			**Section 3**		
	Courbe			**Courbe**		
	B	**C**	**D**	**B**	**C**	**D**
	A9F53301	**A9F54301**	**A9F55301**	**A9F53401**	**A9F54401**	**A9F55401**
	A9F53302	**A9F54302**	**A9F55302**	**A9F53402**	**A9F54402**	**A9F55402**
	-	**-**	**-**	**-**	**-**	**-**
	A9F53304	**A9F54304**	**A9F55304**	**A9F53404**	**A9F54404**	**A9F55404**
	A9F53306	**A9F54306**	**A9F55306**	**A9F53406**	**A9F54406**	**A9F55406**
	A9F53310	**A9F54310**	**A9F55310**	**A9F53410**	**A9F54410**	**A9F55410**
	A9F53316	**A9F54316**	**A9F55316**	**A9F53416**	**A9F54416**	**A9F55416**
	A9F53320	**A9F54320**	**A9F55320**	**A9F53420**	**A9F54420**	**A9F55420**
	A9F53325	**A9F54325**	**A9F55325**	**A9F53425**	**A9F54425**	**A9F55425**
	A9F53332	**A9F54332**	**A9F55332**	**A9F53432**	**A9F54432**	**A9F55432**
	A9F53340	**A9F54340**	**A9F55340**	**A9F53440**	**A9F54440**	**A9F55440**
	A9F53350	**A9F54350**	**A9F55350**	**A9F53450**	**A9F54450**	**A9F55450**
	A9F53363	**A9F54363**	**A9F55363**	**A9F53463**	**A9F54463**	**A9F55463**
	6			8		
	Section 5			**Section 5**		

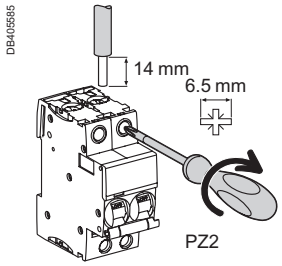
Technical
Section 10

Dimensions
Section 11

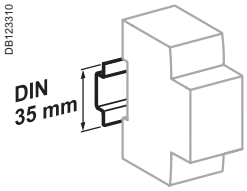
iC60H circuit breakers
(curves B, C, D) (cont.)

2

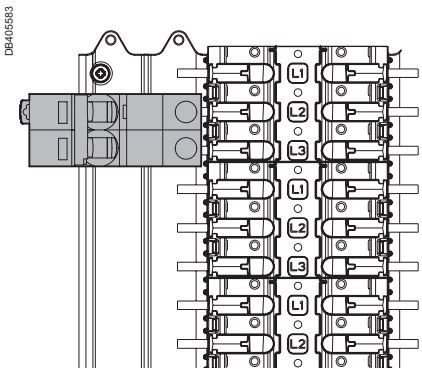
Connection



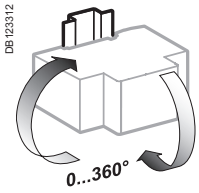
Rating	Tightening torque	Without accessory: Copper cables – Rigid	Without accessory: Copper cables – Flexible or with ferrule	With accessories: 50 mm² Al terminal	With accessories: Screw-on connection for ring terminal	With accessories: Multi-cables terminal – Rigid cables	With accessories: Multi-cables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



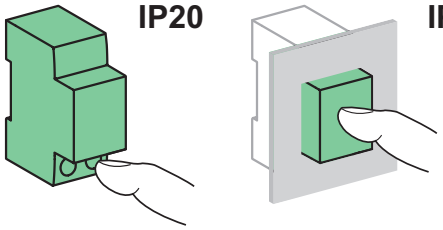
Clip on DIN rail 35 mm.



Installation on Fishbone.



Indifferent position of installation.



Technical data

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

Technical
Section 10

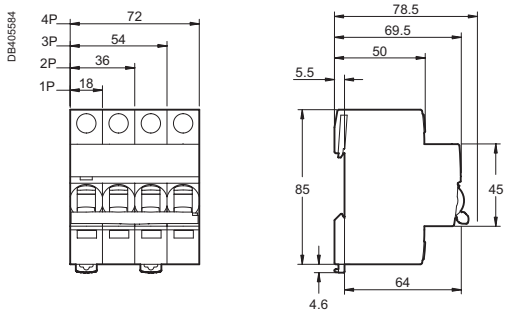
Dimensions
Section 11

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

Weight (g)

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

Dimensions (mm)



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

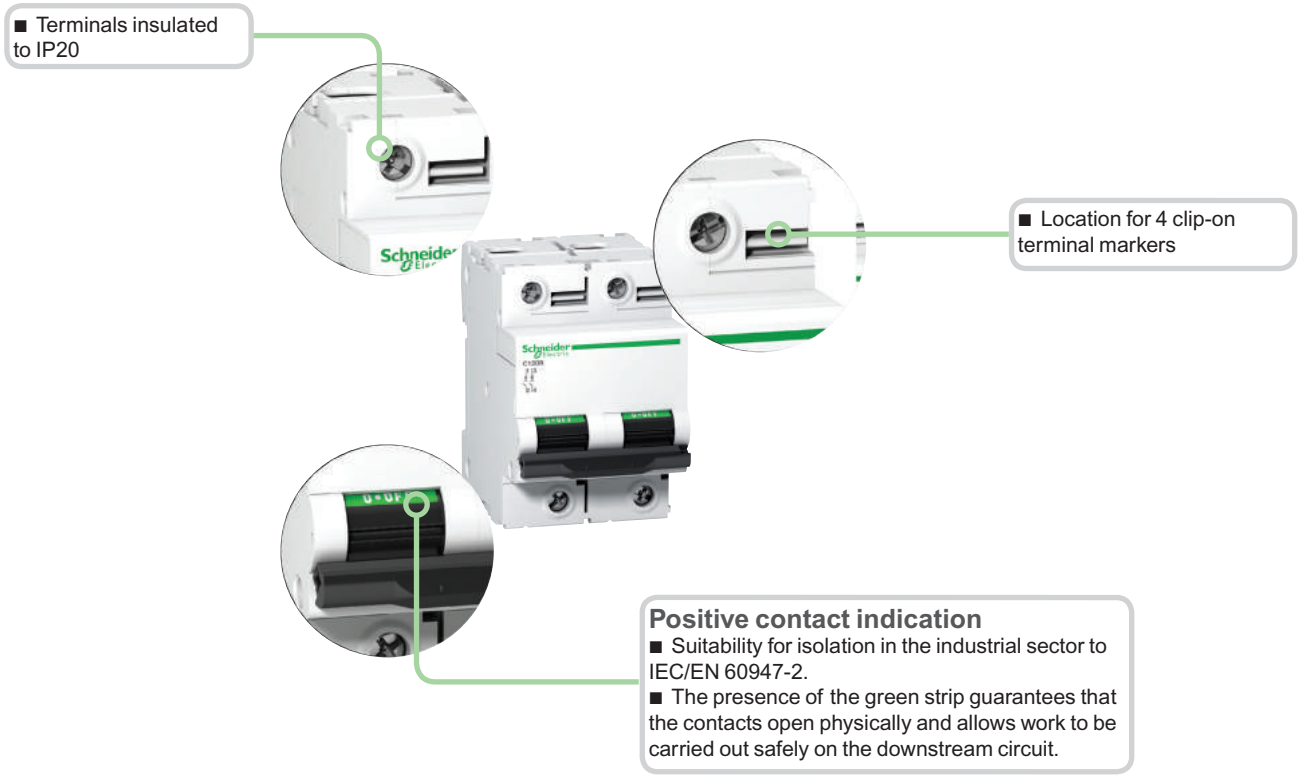
C120N circuit breaker						
Type	**1P**			**2P**		
						
Auxiliaries	**Remote indication and tripping, Section 5**			**Remote indication and tripping, Section 5**		
Vigi C120	**Vigi C120 add-on residual current device, Section 3**			**Vigi C120 add-on residual current device, Section 3**		
Rating (In)	**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	**Section 5**			**Section 5**		

Technical
Section 10

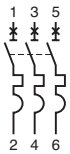
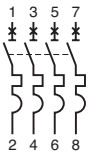
Dimensions
Section 11

C120N circuit breakers
(curves B, C, D) (cont.)

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.

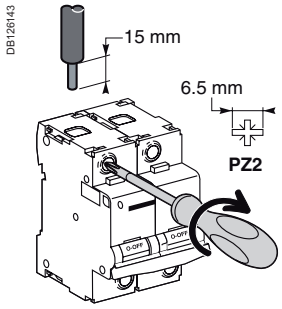
	3P			4P		
						
	Remote indication and tripping, Section 5			**Remote indication and tripping, Section 5**		
	Vigi C120 add-on residual current device, Section 3			**Vigi C120 add-on residual current device, Section 3**		
	Curve			**Curve**		
	B	**C**	**D**	**B**	**C**	**D**
	A9N18348	**A9N18364**	**A9N18386**	**A9N18352**	**A9N18371**	**A9N18390**
	A9N18349	**A9N18365**	**A9N18387**	**A9N18353**	**A9N18372**	**A9N18391**
	A9N18350	**A9N18367**	**A9N18388**	**A9N18354**	**A9N18374**	**A9N18392**
	A9N18351	**A9N18369**	**A9N18389**	**A9N18355**	**A9N18376**	**A9N18393**
	9			12		
	Section 5			**Section 5**		

Technical
Section 10

Dimensions
Section 11

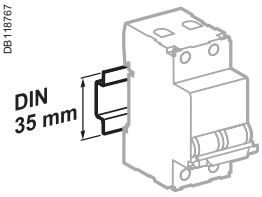
C120N circuit breakers
(curves B, C, D) (cont.)

Connection

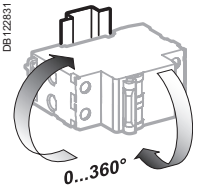


		Without access.		With accessories			
Rating	Tightening torque	Copper cables		50 mm² Al Terminal	Screw-on connection for ring terminal (1)	Multi-cable terminal	
		Rigid/ semi-rigid	Flexible or with ferrule			Rigid cables	Flexible cables
		DB122945	DB122946 DB122935	Al DB118789	DB118787 Ø		
63 to 125 A	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

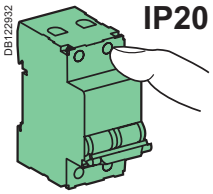
(1) *For lugs up to 63 A, front or rear access.*

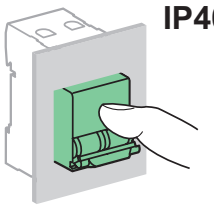


Clips onto 35 mm DIN rail.



Any installation position.





Technical data

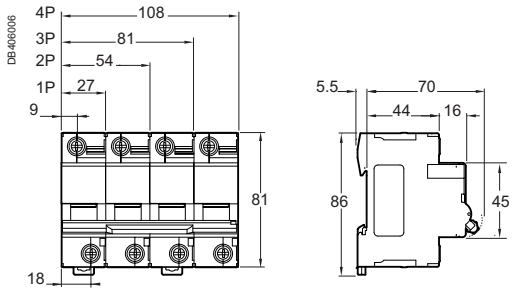
Main characteristics			
To IEC/EN 60947-2			
Insulation voltage (Ui)			500 V AC
Degree of pollution			3
Rated impulse withstand voltage (Uimp)			6 kV
Thermal tripping	Reference temperature		50°C
To IEC/EN 60898-1			
Magnetic tripping	Curve B		3 and 5 In
	Curve C		5 and 10 In
	Curve D		10 and 14 In
Limitation class			3
Additional characteristics			
Degree of protection (IEC 60529)	Device only		IP20
	Device in a modular enclosure		IP40
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)

C120N circuit breakers
(curves B, C, D) (cont.)

Weight (g)

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

Dimensions (mm)



C120H circuit breakers
(curves B, C, D)


PB107913-30


PB107916-30


PB107919-30


PB107922-30

IEC/EN 60898-1

C120H circuit breakers are multistandard circuit breakers that combine the following functions:
- circuit protection against short-circuit currents
- circuit protection against overload currents
- suitability for isolation in the industrial sector to IEC/EN 60947-2
- fault tripping and indication by adding auxiliaries.

Alternating current (AC) 50/60 Hz

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

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

Direct current (DC)

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

Catalogue numbers

C120H circuit breaker

Type	**1P**			**2P**		
						
Auxiliaries	**Remote indication and tripping, Section 5**			**Remote indication and tripping, Section 5**		
Vigi C120	**Vigi C120 add-on residual current device, Section 3**			**Vigi C120 add-on residual current device, Section 3**		
Rating (In)	**Curve**			**Curve**		
	B	**C**	**D**	**B**	**C**	**D**
63 A	**A9N18401**	**A9N18445**	**A9N18489**	**A9N18412**	**A9N18456**	**A9N18500**
80 A	**A9N18402**	**A9N18446**	**A9N18490**	**A9N18413**	**A9N18457**	**A9N18501**
100 A	**A9N18403**	**A9N18447**	**A9N18491**	**A9N18414**	**A9N18458**	**A9N18502**
125 A	**A9N18404**	**A9N18448**	**A9N18492**	**A9N18415**	**A9N18459**	**A9N18503**
Width in 9 mm modules	3			6		
Accessories	**Section 5**			**Section 5**		

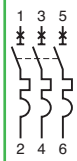
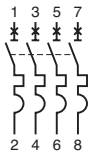
Technical
Section 10

Dimensions
Section 11

C120H circuit breakers
(curves B, C, D) (cont.)

PB107916-40

■ 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.

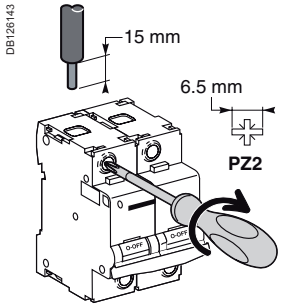
	3P			4P		
						
	Remote indication and tripping, Section 5			**Remote indication and tripping, Section 5**		
	Vigi C120 add-on residual current device, Section 3			**Vigi C120 add-on residual current device, Section 3**		
	Curve			**Curve**		
	B	**C**	**D**	**B**	**C**	**D**
	A9N18423	**A9N18467**	**A9N18511**	**A9N18434**	**A9N18478**	**A9N18522**
	A9N18424	**A9N18468**	**A9N18512**	**A9N18435**	**A9N18479**	**A9N18523**
	A9N18425	**A9N18469**	**A9N18513**	**A9N18436**	**A9N18480**	**A9N18524**
	A9N18426	**A9N18470**	**A9N18514**	**A9N18437**	**A9N18481**	**A9N18525**
	9			12		
	Section 5			**Section 5**		

Technical
Section 10

Dimensions
Section 11

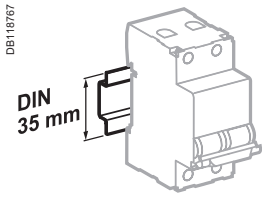
C120H circuit breakers
(curves B, C, D) (cont.)

Connection

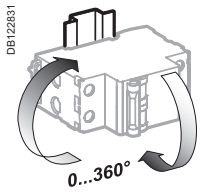


Rating	Tightening torque	Without access. Copper cables Rigid	Without access. Copper cables Flexible or with ferrule	With accessories 50 mm² Al term.	With accessories Screw-on connection for ring terminal (1)	With accessories Multi-cable terminal Rigid cables	With accessories Multi-cable terminal Flexible 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

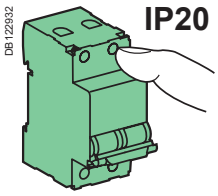
(1) *For lugs up to 63 A, front or rear accessories.*

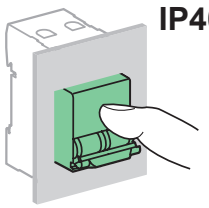


Clips onto 35 mm DIN rail.



Any installation position.





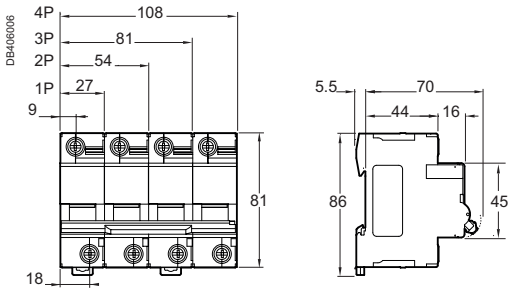
Technical data

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)



NG125N circuit breakers
(curves B, C, D)

NG125N 1P

NG125N 2P

NG125N 3P

NG125N 4P

IEC/EN 60947-2

■ NG125N circuit breakers are circuit breakers which 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,
□ tripping upon fault is indicated by a red mechanical state indicator light on the front face of the circuit breaker.

Alternating current (AC) 50/60 Hz

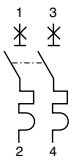
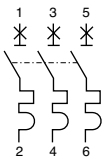
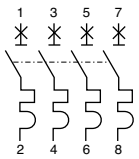
Breaking capacity (Icu) to IEC/EN 60947-2								Service breaking capacity (Ics)
	Voltage (Ue)							
Ph/Ph (2P, 3P, 3P+N, 4P)	-	-	220 to 240 V	-	380 to 415 V	440 V	500 V	
Ph/N (1P)	110 to 130 V	220 to 240 V	-	380 to 415 V	-	-	-	
Rating (In) 10 to 125 A	50 kA	25 kA	50 kA	6 kA(1)	25 kA	20 kA	10 kA	75 % of Icu

Direct current (DC)

Breaking capacity (Icu) according to IEC/EN 60947-2						Service breaking capacity (Ics)
	Voltage (Ue)					
	12 to 125 V	⩽ 144 V	⩽ 250 V	⩽ 375 V	⩽ 500 V	
Number of poles	1P		2P	3P	4P	
Rating (In) 10 to 125 A	25 kA	20 kA	20 kA	20 kA	20 kA	100 % of Icu

Catalogue numbers

NG125N circuit breaker

Type	1P	2P	3P			4P		
								
Auxiliaries	Remote indication and tripping, Section 5							
Vigi NG125	Vigi NG125 add-on residual current device, Section 3							
Rating (In)	Curve	Curve	Curve			Curve		
	C	C	B	C	D	B	C	D
10 A	18610	18621	-	18632	-	-	18649	-
16 A	18611	18622	-	18633	-	-	18650	-
20 A	18612	18623	-	18634	-	-	18651	-
25 A	18613	18624	-	18635	-	-	18652	-
32 A	18614	18625	-	18636	-	-	18653	-
40 A	18615	18626	-	18637	-	-	18654	-
50 A	18616	18627	-	18638	-	-	18655	-
63 A	18617	18628	-	18639	-	-	18656	-
80 A	18618	18629	18663	18640	18669	18666	18658	18672
100 A	-	-	18664	18642	18670	18667	18660	18673
125 A	-	-	18665	18644	18671	18668	18662	18674
Width in 9 mm modules	3	6	9			12		
Accessories	Section 5							

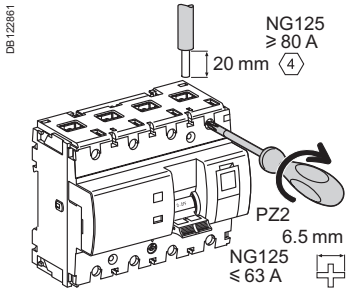
(1) Breaking capacity under 1 pole in IT isolated neutral system (case of a double fault).

Technical
Section 10

Dimensions
Section 11

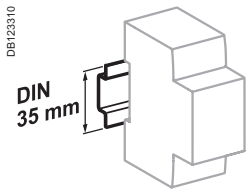
NG125N circuit breakers
(curves B, C, D) (cont.)

Connection

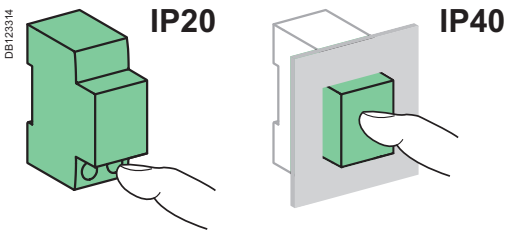


Rating	Tightening torque	Without accessories: Copper cables: Rigid	Without accessories: Copper cables: Flexible or with ferrule	With accessories: 70 mm² Al terminal	With accessories: Screw-on connection for ring terminal	With accessories: Small ring terminal	With accessories: Multi-cable terminal: Rigid cables	With accessories: Multi-cable terminal: Flexible cables
		DB122945	DB122946 / DB123410	DB123488	DB116789	DB116787 Ø 6 mm		
10 to 63 A	3.5 N.m	1.5 to 50 mm²	1.5 to 35 mm²	-	-	-	3 x 16 mm²	3 x 10 mm²
80 to 125 A	6 N.m	16 to 70 mm²	10 to 50 mm²	25 to 70 mm²	2 x 35 mm² 1 x 50 mm²	1 x 70 mm²		

■ On 3P, 3P+N and 4P ≥ 80 A: upstream voltage taps for each pole, by 6.35 mm Fast-on terminal.



Clips on to 35 mm DIN rail.



Technical data

Main characteristics		
According to IEC/EN 60947-2		
Insulation voltage (Ui)		690 V AC
Degree of pollution		3
Rated impulse withstand voltage (Uimp)		8 kV
Thermal tripping	Reference temperature	40°C
Magnetic tripping (Ii)	Curve B	4 In ± 20 %
	Curve C	8 In ± 20 %
	Curve D	12 In ± 20 %
Utilization category		A
Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40
Endurance (O-C)	Electrical	≤ 63 A: 10,000 cycles
		≥ 63 A: 5000 cycles
	Mechanical	20,000 cycles
Operating temperature		-30°C to +70°C
Storage temperature		-40°C to +70°C
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity of 95 % at 55°C)

Technical
Section 10

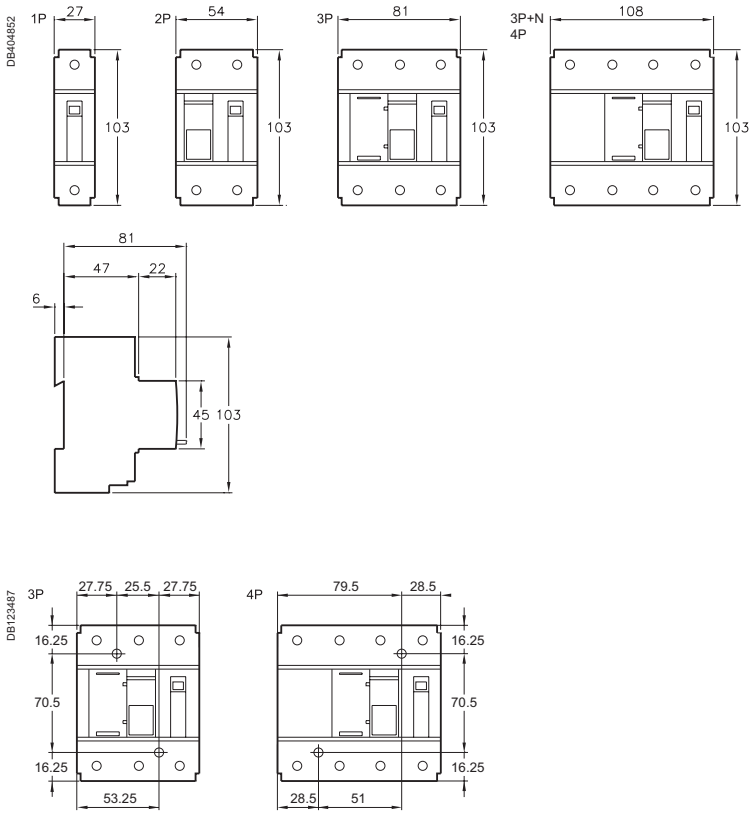
Dimensions
Section 11

NG125N circuit breakers
(curves B, C, D) (cont.)

Weight (g)

Circuit breaker	
Type	**NG125N**
1P	240
2P	480
3P	720
3P+N	960
4P	960

Dimensions (mm)



Spacing for mounting on panel

NG125N circuit breakers
(curves B, C, D) (cont.)

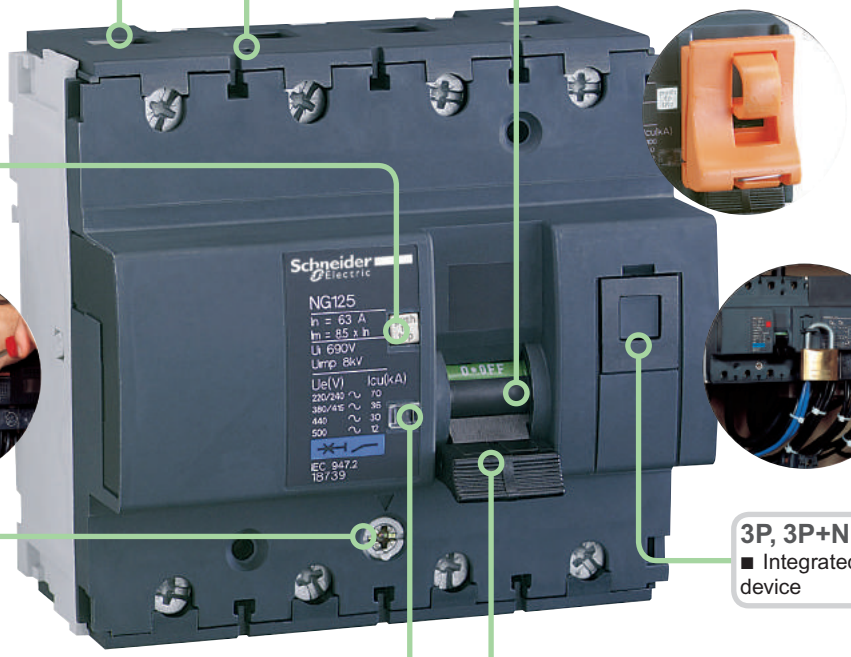
2

056918N_SE-90

3P, 3P+N, 4P ⩾ 80 A
■ Voltage taps:
□ auxiliaries power supply
□ measurement
□ emergency stop
□ remote reporting

■ Cable strength:
□ ribbed cage
□ terminal depth
□ tightening by Allen hex key (NG125 ⩾ 80 A)

1P, 2P
■ Padlocking in position:
O or I, manual control is inhibited, tripping is enabled



■ Test button to check satisfactory operation of the tripping mechanism

■ Pull-out strength
□ metallic lock

3P, 3P+N, 4P
■ Integrated padlocking device

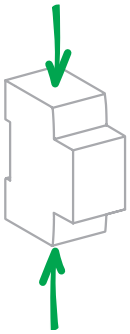
■ Central manual control, 3 positions:
□ ON
□ tripped on fault
□ open

■ Impact and vibration resistance:
□ high-strength enclosure
□ IK 05

■ Circuit breaker tripped indicator

DB123493

■ Electric power supply through the top or bottom



■ Positive contact indication:
□ suitability for isolation in the industrial sector to IEC/EN 60947-2
□ the presence of the green strip guarantees that the contacts open physically and allows work to be carried out safely on the downstream circuit

■ Longer product service life due to:
□ good overvoltage withstand capacity,
□ high limitation performances,
□ fast closure independent of the speed of actuation of the toggle.

Contents

Acti 9 earth leakage protection

iID residual current device (RCD)

PB104472-40

PB104473-40

IEC/EN 61008-1

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

3

Catalogue numbers

iID residual current circuit breakers

Type			A ~						Width in 9 mm module
Product			iID						
Auxiliaries									
2P		Sensitivity	10 mA	30 mA	100 mA	300 mA	500 mA	300 mA S	
DB122476	Rating	16 A	A9R20216	-	-	-	-	-	4
		25 A	A9R20225	A9R21225	-	A9R24225	-	-	
		40 A	-	A9R21240	-	A9R24240	-	A9R25240	
		63 A	-	A9R21263	-	A9R24263	-	A9R25263	
		100 A	-	A9R21291	-	A9R24291	-	A9R25291	
4P		Sensitivity	10 mA	30 mA	100 mA	300 mA	500 mA	300 mA S	
DB122477	Rating	25 A	-	A9R21425	-	A9R24425	-	-	8
		40 A	-	A9R21440	A9R22440	A9R24440	A9R26440	A9R25440	
		63 A	-	A9R21463	A9R22463	A9R24463	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						

iID residual current circuit breakers for 110/230 V

Type			A ~	Width in 9 mm module
Product			iID	
Auxiliaries				
2P		Sensitivity	30 mA	
DB122476	Rating	63 A	A9R08263	4
4P		Sensitivity	30 mA	
DB122477	Rating	63 A	A9R08463	8
Voltage rating (Ue)		2P	110 V	
		4P	230 V	
Operating frequency			50/60 Hz	

Technical Section 10
Dimensions Section 11

iID residual current device (RCD) (cont.)

PB104472-40

PB104473-40

IEC/EN 61008-1

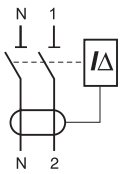
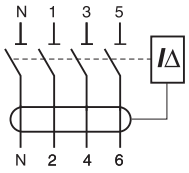
■ The iID residual current circuit breakers provide:
□ protection of persons against electric shock by direct contact (≤ 30 mA),
□ protection of persons against electric shock by indirect contact (≥ 300 mA),
□ protection of installations against the risk of fire (300 mA or 500 mA).

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

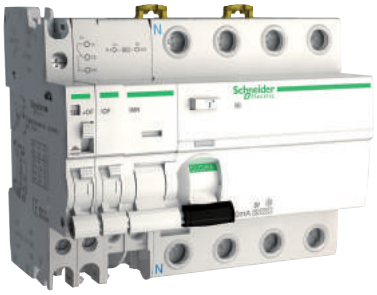
3

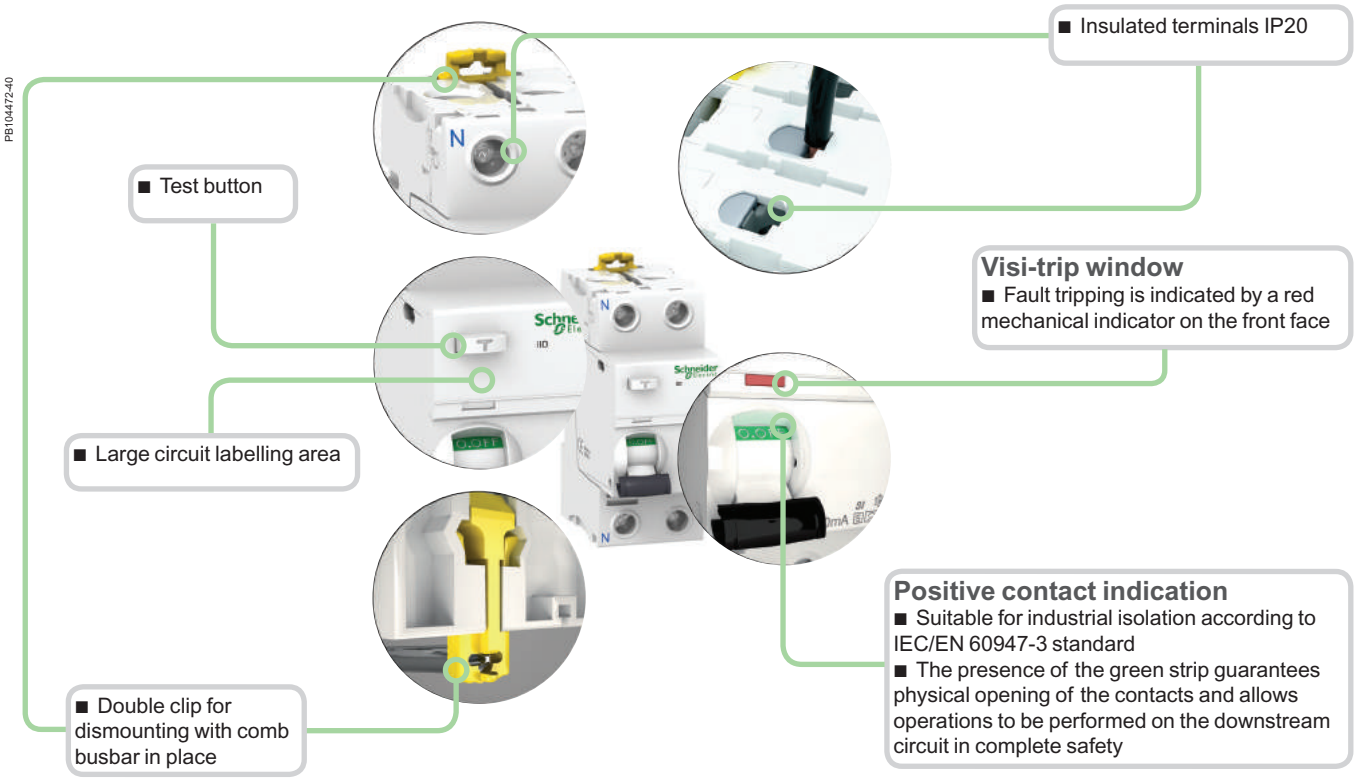
Catalogue numbers

iID residual current circuit breakers

Type			***SI***					Width in 9 mm module
Product			iID					
Auxiliaries								
2P		Sensitivity	10 mA	30 mA	300 mA	300 mA S	500 mA S	
DB122476 	Rating	16 A	-	-	-	-	-	4
		25 A	A9R30225	A9R61225	-	-	-	
		40 A	-	A9R61240	-	A9R35240	-	
		63 A	-	A9R61263	-	A9R35263	-	
		100 A	-	-	-	A9R35291	-	
4P		Sensitivity	10 mA	30 mA	300 mA	300 mA S	500 mA S	
DB122477 	Rating	25 A	-	A9R61425	-	-	-	8
		40 A	-	A9R61440	-	A9R35440	A9R37440	
		63 A	-	A9R61463	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					

iID residual current device (RCD) (cont.)





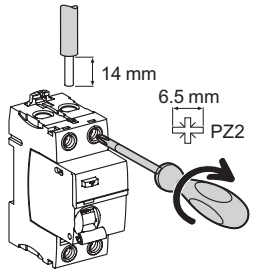
SI type

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

iID residual current device (RCD) (cont.)

Connection

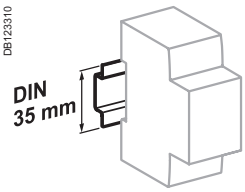
DB122947



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

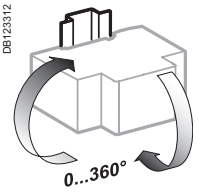
3

DB123310



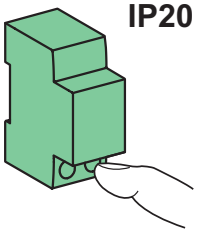
Clip on DIN rail 35 mm.

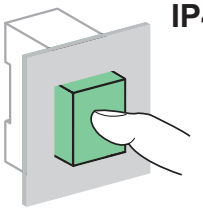
DB123312



Indifferent position of installation.

DB123314





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 A
	AC, A types (selective S)		3 kA
	SI type		3 kA
Conditional rated short circuit current (Inc/IΔc)	With C60H		15 kA
	With fuse		10,000 A
Additional characteristics			
Degree of protection	Device only		IP20
	Device in modular enclosure		IP40 Insulation classe 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 to +60°C
Storage temperature			-40°C to +85°C

iDPN Vigi RCBO

PB110002-40

iDPN N Vigi

PB110001-40

iDPN H Vigi

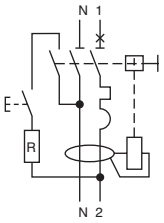
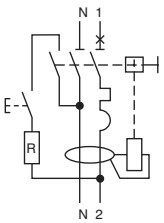
IEC/EN 61009-1

■ 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 (≤ 30 mA),
□ protection for users against electric shocks by indirect contacts (300 mA),
□ protection of the installations against fire risks (300 mA).

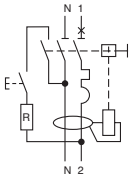
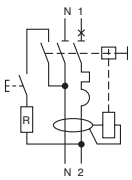
■ The ***SI*** range has been designed to maintain a network with optimum safety and continuity of service in installations disturbed by:
□ extreme atmospheric conditions,
□ harmonic generating loads,
□ transient operating currents.

Catalogue numbers

iDPN N Vigi 6000

Type			A				SI			Width in 9 mm modules
Auxiliaries			**Section 5**							
1P+N Curve B		**Sensitivity**	**10 mA**	**30 mA**	**100 mA**	**300 mA**	**30 mA**	**100 mA**	**300 mA**	
DB123871 	Rating (In)	4 A	-	A9D56604	A9D60604	A9D69604	-	-	-	4
		6 A	-	A9D56606	A9D60606	A9D69606	-	-	-	
		10 A	A9D08610	A9D56610	A9D60610	A9D69610	-	-	-	
		13 A	-	A9D56613	A9D60613	A9D69613	-	-	-	
		16 A	A9D08616	A9D56616	A9D60616	A9D69616	-	-	-	
		20 A	-	A9D56620	A9D60620	A9D69620	-	-	-	
		25 A	-	A9D56625	A9D60625	A9D69625	-	-	-	
		32 A	-	A9D56632	A9D60632	A9D69632	-	-	-	
		40 A	-	A9D56640	A9D60640	A9D69640	-	-	-	
1P+N Curve C		**Sensitivity**	**10 mA**	**30 mA**	**100 mA**	**300 mA**	**30 mA**	**100 mA**	**300 mA**	
DB123871 	Rating (In)	6 A	-	A9D32606	A9D52606	A9D42606	A9D33606	A9D53606	A9D43606	4
		10 A	A9D02610	A9D32610	A9D52610	A9D42610	A9D33610	A9D53610	A9D43610	
		13 A	-	A9D32613	A9D52613	A9D42613	A9D33613	A9D53613	A9D43613	
		16 A	A9D02616	A9D32616	A9D52616	A9D42616	A9D33616	A9D53616	A9D43616	
		20 A	-	A9D32620	A9D52620	A9D42620	A9D33620	A9D53620	A9D43620	
		25 A	-	A9D32625	A9D52625	A9D42625	A9D33625	A9D53625	A9D43625	
		32 A	-	A9D32632	A9D52632	A9D42632	A9D33632	A9D53632	A9D43632	
		40 A	-	A9D32640	A9D52640	A9D42640	A9D33640	A9D53640	A9D43640	
Voltage rating (Ue)			230...240 V AC							
Operating frequency			50 Hz							
Accessories			**Section 5**							

iDPN N Vigi 6000

Type			A	Width in 9 mm modules
Auxiliaries			**Section 5**	
1P+N Curve B		**Sensitivity**	**30 mA**	
DB123871 	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			**Section 5**	

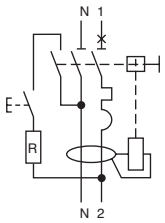
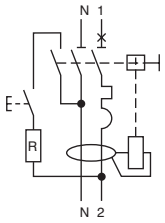
Technical **Section 10**

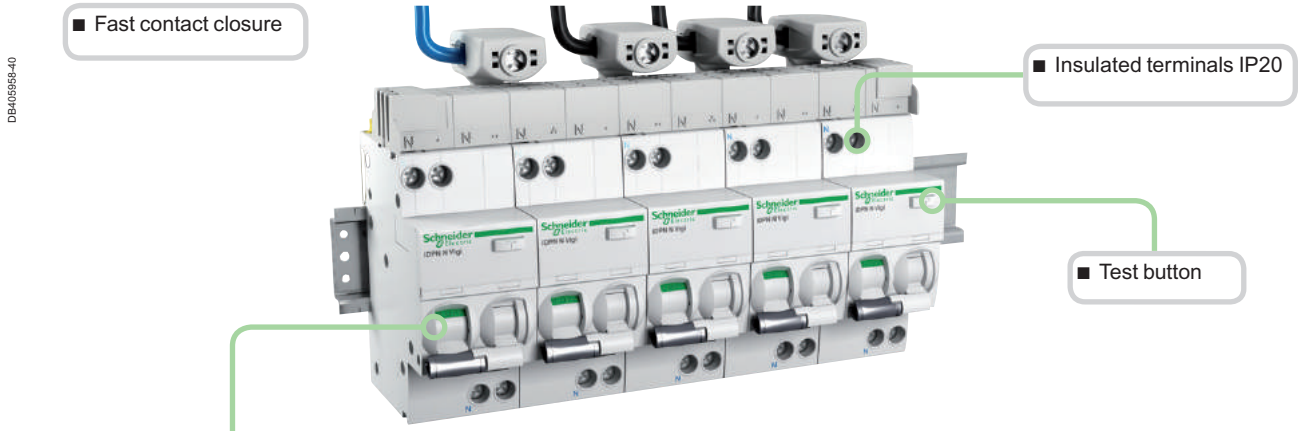
Dimensions **Section 11**

iDPN Vigi RCBO (cont.)

Catalogue numbers

iDPN H Vigi 10000

Type			A		SI		Width in 9 mm modules
Auxiliaries			**Section 5**				
1P+N Curve B		**Sensitivity**	**30 mA**	**300 mA**	**30 mA**	**300 mA**	
 DB123871	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**	
 DB123871	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			**Section 5**				



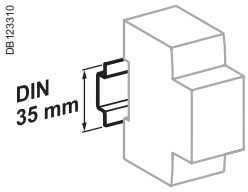
Visi-trip double window

■ 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

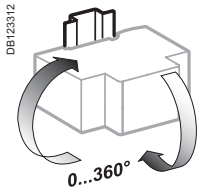
Positive contact indication

■ 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

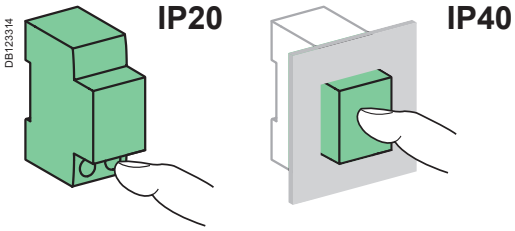
iDPN Vigi RCBO (cont.)



Clip on DIN rail 35 mm.



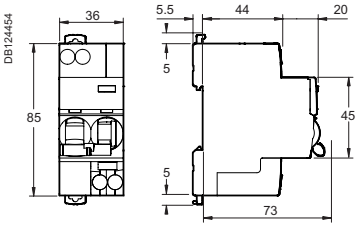
Indifferent position of installation.



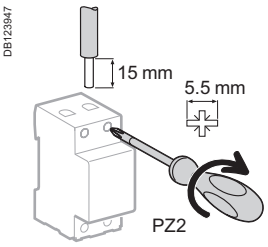
Weight (g)

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

Dimensions (mm)



Connection



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

Technical data

Main characteristics				
Type		**iDPNa Vigi**	**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)		4500 A	6000 A	10,000 A
Rated residual breaking and making capacity (IΔm)		4500 A	6000 A	10,000 A
8/20 µs impulse withstand	Type AC	250 A	250 A	250 A
	Type A	250 A	250 A	250 A
	Type *SI*	-	3 kA	3 kA
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, 300 mA	10, 30, 100, 300 mA	30, 300 mA
Degree of protection (IEC 60529)	Device only	IP20		
	Device in modular enclosure	IP40 Insulation class II		
Endurance (O-C)	Electrical ≤ 20 A	20,000 cycles		
	Electrical ≥ 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)		

iSPN Vigi RCBO

IEC 61009-1, IEC 61009-2-2

■ The single-phase iSPN Vigi self-contained residual current device carries out:
□ protection of persons against direct and indirect contacts (10 mA and 30 mA)
□ complete protection of final circuits (overcurrents and insulation faults)
□ safety device to switch both of active and neutral.
■ A class iSPN Vigi are sensitive to the pulsed type DC component.
■ Overload, short circuit and earth fault currents are indicated by location of the handle in the OFF position.
■ A push-test button "T" is positioned on the front of the device for testing that product is operational.

Accessories

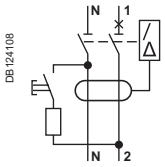
Padlocking device

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

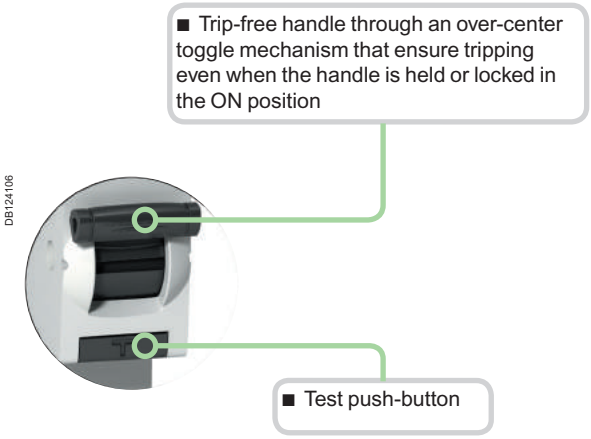
3

Catalogue numbers

iSPN Vigi

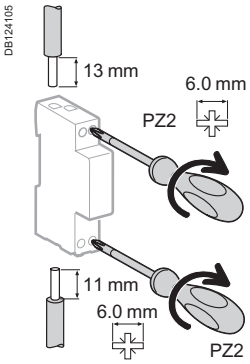
Type				A ~	Width in 9-mm modules
C curve	Voltage rating (V)		Sensitivity (IΔn)	30 mA	
	240	Rating (In)	6 A	A9D73606	2
			10 A	A9D73610	
			16 A	A9D73616	
			20 A	A9D73620	
			25 A	A9D73625	
			32 A	A9D73632	
Operating frequency				50 Hz	

Accessory	
Type	
Padlocking device (bag of 2 pieces)	26970



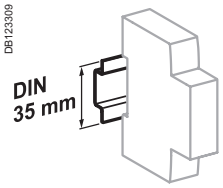
iSPN Vigi RCBO (cont.)

Connection

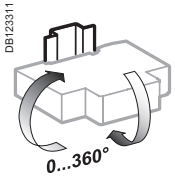


Type	Rating	Tightening torque	Copper cables	
			Rigid	Flexible
			DB122945	DB122946
L and N upstream	6 to 32 A	2 N.m	1 to 16 mm²	1 to 16 mm²
L and N downstream		2 N.m	1 to 10 mm²	1 to 10 mm²

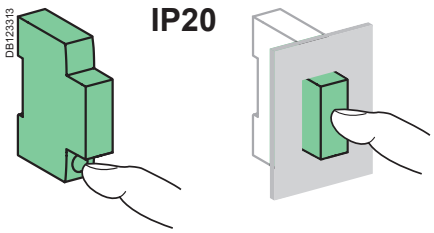
Note: for any case, isolate power before installation. Wire neutral prior to installing active.



Clip on DIN rail 35 mm.



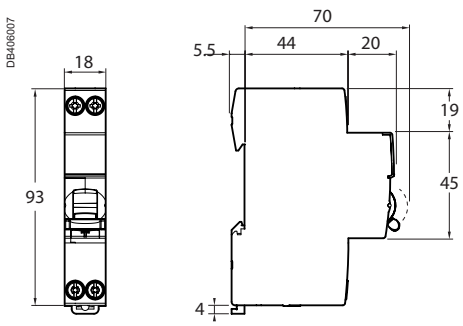
Indifferent position of installation.



Technical data

Main characteristics		
Voltage rating (Ue)		240 V
Insulation voltage (Ui)		400 V
Rated impulse withstand voltage (Uimp)		4 kV
Rated residual operating current (IΔn)		10 mA, 30 mA
Thermal tripping	Reference temperature	30°C
Magnetic tripping	C curve	Between 5 and 10 In
Limitation class		3
Surge current withstand (8/20 µs) without tripping		3000 A
Rated nominal breaking capacity (Icn)		6000 A
Phase/earth rated residual breaking and making capacity (IΔm)		500 A
Additional characteristics		
Degree of protection	Device only	IP20
	Device in modular enclosure	IP40
Endurance (O-C)	Electrical	10,000 cycles
	Mechanical	20,000 cycles
Operating temperature		-25°C to +55°C
Storage temperature		-25°C to +70°C
Tropicalization		Treatment 2 (relative humidity: 95 % at 55°C)

Dimensions (mm)



Weight (g)

Residual current device	
Type	iSPN Vigi
1P+N	136

Technical
Section 10

Dimensions
Section 11

DPN N Vigi RCBO 3P+N

PB112070-40

DPN N Vigi

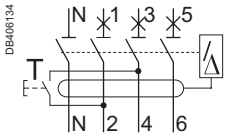
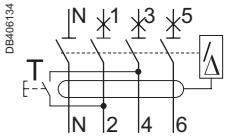
IEC/EN 61009-1

■ The DPN N Vigi residual current device provide complete protection for final circuits (against overcurrents and insulation faults):
□ protection for users against electric shocks by direct contacts (30 mA),
□ protection for users against electric shocks by indirect contacts (300 mA),
□ protection of the installations against fire risks (300 mA).

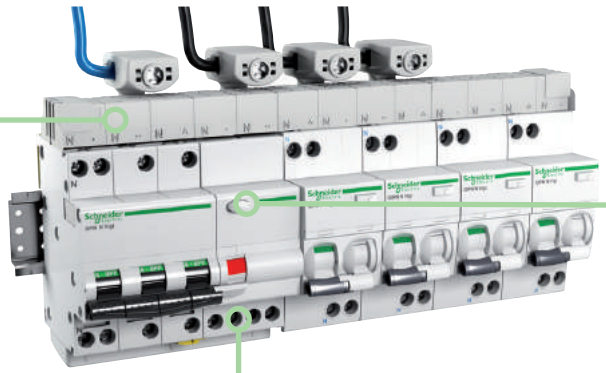
■ The ***SI*** range has been designed to maintain a network with optimum safety and continuity of service in installations disturbed by:
□ extreme atmospheric conditions,
□ harmonic generating loads,
□ transient operating currents.

Catalogue numbers

DPN N Vigi 6000

Type			A		SI	Width in 9 mm modules
Auxiliaries			**Section 5**			
3P+N Curve B		**Sensitivity**	**30 mA**	**300 mA**	**30 mA**	
DB406134 	Rating (In)	6 A	**A9D56706**	-	-	10
		10 A	**A9D56710**	-	-	
		13 A	**A9D56713**	-	-	
		16 A	**A9D56716**	-	-	
		20 A	**A9D56720**	-	-	
		25 A	**A9D56725**	-	-	
		32 A	**A9D56732**	-	-	
		40 A	**A9D56740**	-	-	
3P+N Curve C		**Sensitivity**	**30 mA**	**300 mA**	**30 mA**	
DB406134 	Rating (In)	6 A	**A9D32706**	-	-	10
		10 A	**A9D32710**	**A9D42710**	**A9D33710**	
		13 A	**A9D32713**	-	**A9D33713**	
		16 A	**A9D32716**	**A9D42716**	**A9D33716**	
		20 A	**A9D32720**	**A9D42720**	**A9D33720**	
		25 A	**A9D32725**	**A9D42725**	**A9D33725**	
		32 A	**A9D32732**	**A9D42732**	**A9D33732**	
		40 A	**A9D32740**	**A9D42740**	**A9D33740**	
Voltage rating (Ue)			400 V AC			
Operating frequency			50 Hz			
Accessories			**Section 5**			

DB405958-40



■ Fast contact closure

■ Possibility of mixing iDPN Vigi 1P+N and DPN Vigi 3P+N devices on the same row and on the same comb busbar.

■ Insulated terminals IP20

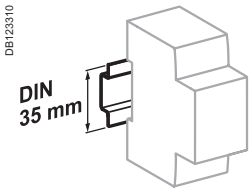
■ Double clip for dismounting with comb busbar in place

■ Test button

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

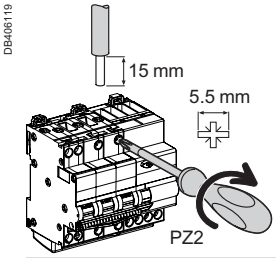
Technical Section 10
Dimensions Section 11

DPN N Vigi RCBO 3P+N (cont.)

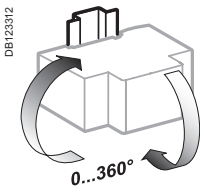


Clip on DIN rail 35 mm.

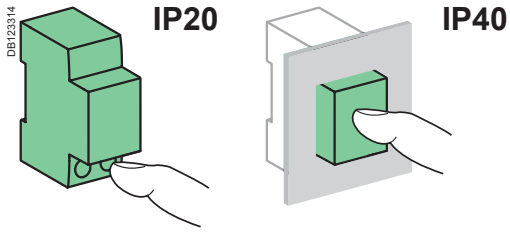
Connection



Rating	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
		DB122945	DB122946
6 to 40 A	2 N.m	0.75 to 16 mm²	0.33 to 10 mm²



Indifferent position of installation.



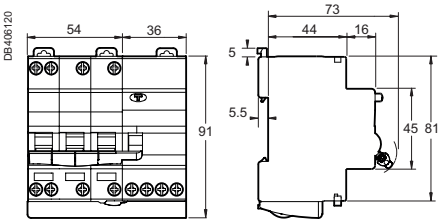
Technical data

Main characteristics			
Type			**DPN N Vigi**
Insulation voltage (Ui)			440 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
Rated residual breaking and making capacity (IΔm)			6000 A
8/20 µs impulse withstand	Type AC		250 A
	Type A		250 A
	Type *SI*		-
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			30, 300 mA
Degree of protection (IEC 60529)	Device only		IP20
	Device in modular enclosure		IP40 Insulation class II
Endurance (O-C)	Electrical	⩽ 20 A	20,000 cycles
		⩾ 25 A	10,000 cycles
	Mechanical		20,000 cycles
Overvoltage category (IEC 60364)			III
Operating temperature	Type AC		-5°C to +60°C
	Type A, *SI*	-25°C	-25°C to +60°C
Storage temperature			-40°C to +70°C
Tropicalization (IEC 60068-1)			Treatment 2 (relative humidity 95 % to 55°C)

Weight (g)

Residual current device	
Type	**DPN N Vigi**
3P+N	498

Dimensions (mm)



Technical
Section 10

Dimensions
Section 11

iC60H and iC60H2 RCBO (Isobar)

IEC 61009-1, IEC 61009-2-2, BS EN 61009-1

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

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

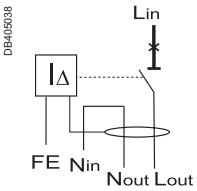
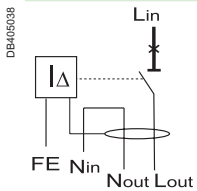
Accessory

Padlocking device

- A9A27049 for pack of 10. Used to lock the toggle in the "open" or "closed" position by 4 mm diameter padlock (not supplied).

Catalogue numbers

iC60H RCBO 10000

1P+N				A			Width in 9-mm modules
B curve	Voltage rating (V)		Sensitivity (IΔn)	10 mA	30 mA	100 mA	
 DB405038	240	Rating (In)	6 A	-	A9D31806	-	2
			10 A	-	A9D31810	-	
			16 A	-	A9D31816	-	
			20 A	-	A9D31820	-	
			25 A	-	A9D31825	-	
			32 A	-	A9D31832	-	
			40 A	-	A9D31840	-	
			45 A	-	A9D31845	-	
C curve	Voltage rating (V)		Sensitivity (IΔn)	10 mA	30 mA	100 mA	
 DB405038	110	Rating (In)	10 A	-	A9D19810	-	2
			16 A	-	A9D19816	-	
			20 A	-	A9D19820	-	
			25 A	-	A9D19825	-	
			32 A	-	A9D19832	-	
	240	Rating (In)	6 A	A9D10806	A9D11806	A9D12806	
			10 A	A9D10810	A9D11810	A9D12810	
			16 A	A9D10816	A9D11816	A9D12816	
			20 A	A9D10820	A9D11820	A9D12820	
			25 A	A9D10825	A9D11825	A9D12825	
			32 A	A9D10832	A9D11832	A9D12832	
			40 A	A9D10840	A9D11840	A9D12840	
			45 A	A9D10845	A9D11845	A9D12845	
Operating frequency				50…60 Hz			

Accessory	
Type	
Padlocking device (bag of 10 pieces)	A9A27049

Technical Section 10
Dimensions Section 11

iC60H and iC60H2 RCBO (Isobar) (cont.)

PB111076-70

IEC 61009-1, IEC 61009-2-2, AS/NZS 61009.1

- The 2-pole iC60H2 RCBO's self-contained residual current device carries out
- complete protection of final circuits:
  - protection against short-circuits and cable overloads,
  - protection of persons against electric shock by direct contact (30 mA sensitivities),
  - protection of equipment against fires set by leakage currents (300 mA sensitivity).
- iC60H2 RCBO switches neutral, together with phase. It is therefore suitable for all circuits, whatever the earthing system (except for TN-C).

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

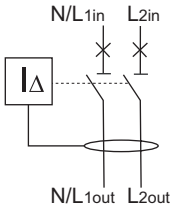
Accessory

Padlocking device

- A9A27049 for pack of 10. Used to lock the toggle in the "open" or "closed" position by 4 mm diameter padlock (not supplied).

Catalogue numbers

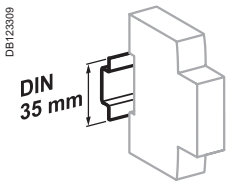
iC60H2 RCBO 10000

2P				A ~	Width in 9-mm modules
C curve	**Voltage rating (V)**		**Sensitivity (IΔn)**	**30 mA**	
DB405040 	110	Rating (In)	10 A	**A9D19210**	4
			16 A	**A9D19216**	
			20 A	**A9D19220**	
			25 A	**A9D19225**	
			32 A	**A9D19232**	
	240	Rating (In)	10 A	**A9D11210**	
			16 A	**A9D11216**	
			20 A	**A9D11220**	
			25 A	**A9D11225**	
			32 A	**A9D11232**	
Operating frequency				50…60 Hz	

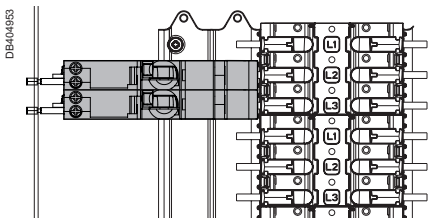
iC60H and iC60H2 RCBO (Isobar) (cont.)

Technical data

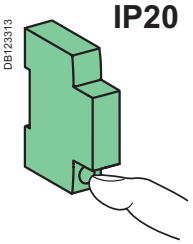
Main characteristics		iC60H RCBO	iC60H2 RCBO
Insulation voltage (Ui)		400 V AC	
Rated impulse withstand voltage (Uimp)		4 kV	
Rated residual operating current (IΔn)		10, 30, 100 mA	30 mA
Thermal tripping	Reference temperature	50°C	
Limitation class		3	
Surge current withstand (8/20 µs) without tripping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

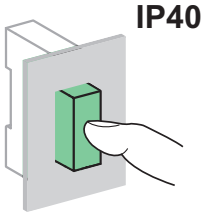


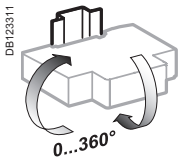
Clip on DIN rail 35 mm.



Installation on Isobar.





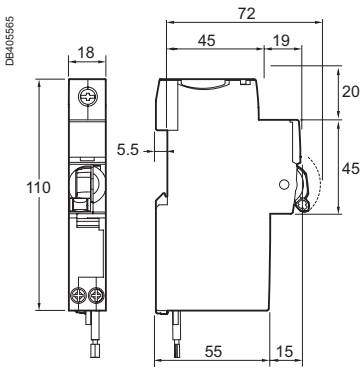


Indifferent position of installation.

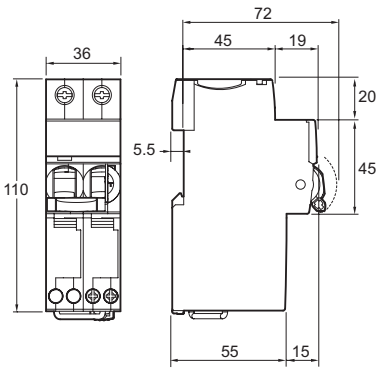
Weight (g)

iC60 RCBO	
iC60H RCBO	205
iC60H2 RCBO	332

Dimensions (mm)



iC60H RCBO

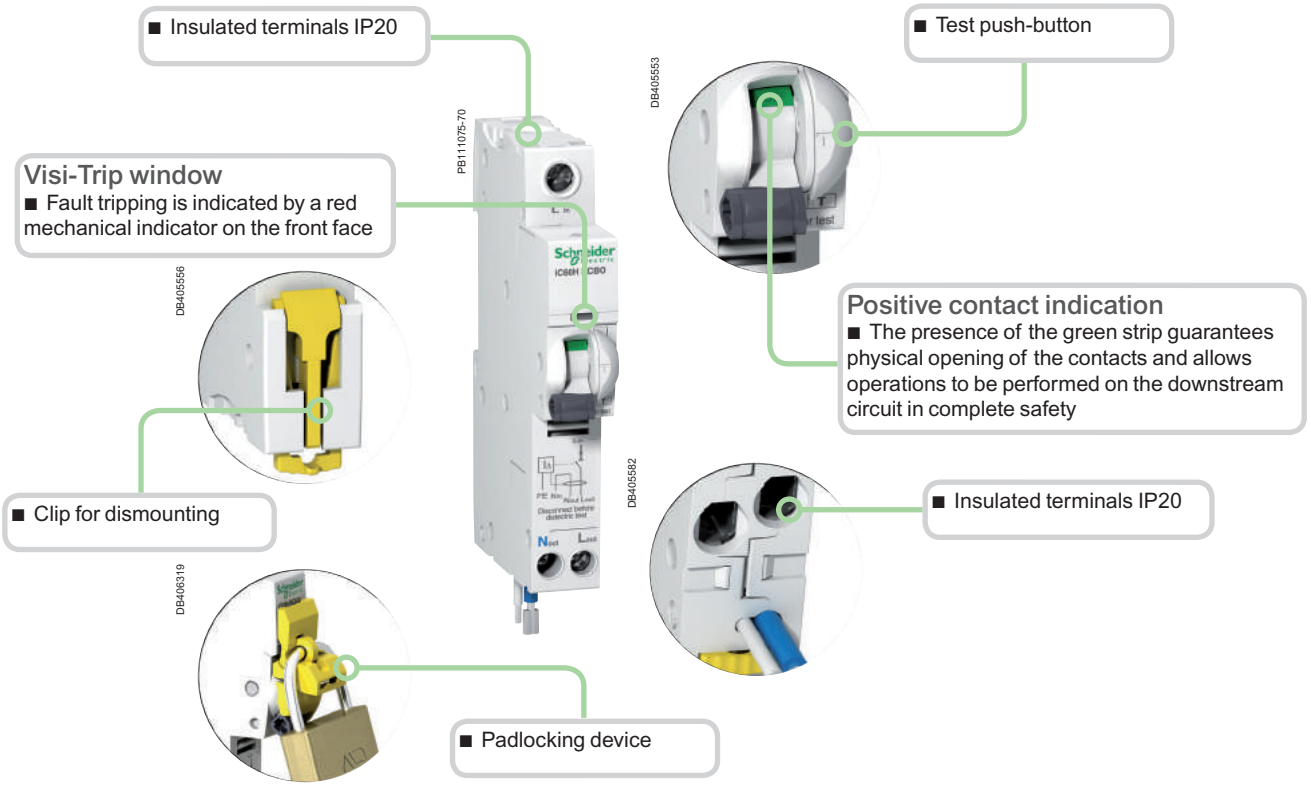


iC60H2 RCBO

Technical
Section 10

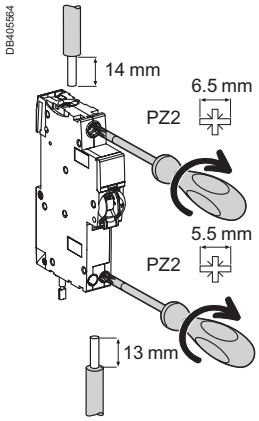
Dimensions
Section 11

iC60H and iC60H2 RCBO (Isobar) (cont.)



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

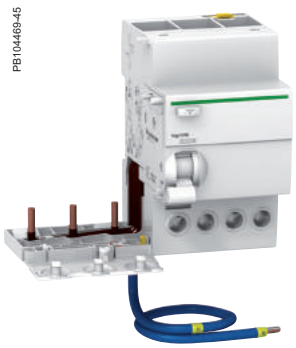
Connection



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

Vigi iC60 add-on residual current devices


PB104464-45

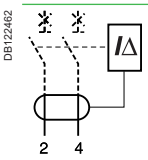
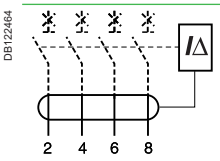

PB104469-45

IEC/EN 61009-1

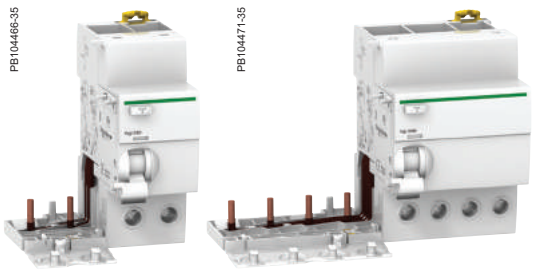
- Combined with iC60 circuit breaker, the Vigi iC60 provide:
  - protection of persons against electric shock by direct contact (30 mA),
  - protection of persons against electric shock by indirect contact (≥ 100 mA),
  - protection of installations against the risk of fire (300 mA),
  - use with 1/2 pole or 3/4 pole iC60H.

Catalogue numbers

Vigi iC60 add-on residual current devices

Type			A			Width in 9 mm modules
Product			Vigi iC60			
Auxiliaries			Without auxiliaries			
2P		Sensitivity	30 mA	100 mA	300 mA	
 DB122462	Rating	25 A				3
		63 A	**A9V02663** *A9V01663**	**A9V03663**	**A9V06663**	4
4P		Sensitivity	30 mA	100 mA	300 mA	
 DB122464	Rating	63 A	**A9V02763**	-	**A9V06763**	6
Voltage rating (Ue)			230 - 240 V, 400 - 415 V *Except * 110 V*			
Operating frequency			50/60 Hz			

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



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 (≥ 100 mA),
- □ protection of installations against the risk of fire (300 mA or 500 mA)),
- □ use with 2 pole or 4 pole iC60H only.

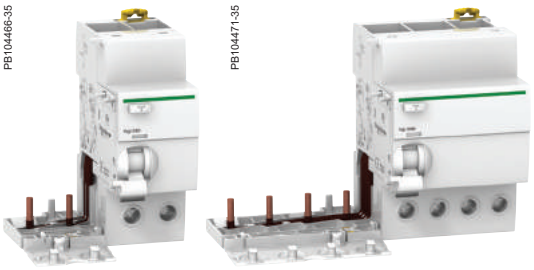
3

Catalogue numbers

Vigi iC60 add-on residual current devices

Type			A						Width in 9 mm modules
Product			Vigi iC60						
Auxiliaries			Without auxiliaries						
2P		Sensitivity	30 mA	100 mA	300 mA	500 mA	300 mA Ⓢ	1000 mA Ⓢ	
DB122462	Rating	25 A	A9V51225	A9V22225	A9V54225	A9V26225	-	-	3
		63 A	A9V51263	A9V22263	A9V54263	A9V26263	A9V25263	A9V29263	4
4P		Sensitivity	30 mA	100 mA	300 mA	500 mA	300 mA Ⓢ	1000 mA Ⓢ	
DB122464	Rating	25 A	A9V51425	A9V22425	A9V54425	A9V26425	-	-	6
		63 A	A9V51463	A9V22463	A9V54463	A9V26463	A9V25463	A9V29463	7
Voltage rating (Ue)			230 - 240 V, 400 - 415 V						
Operating frequency			50/60 Hz						

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



IEC/EN 61009-1

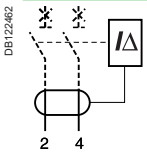
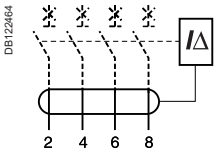
- Combined with iC60 circuit breaker, the Vigi iC60 provide:
  - protection of persons against electric shock by direct contact (≤ 30 mA),
  - protection of persons against electric shock by indirect contact (≥ 300 mA),
  - protection of installations against the risk of fire (300 mA),
  - use with 2 pole or 4 pole iC60H only.

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

3

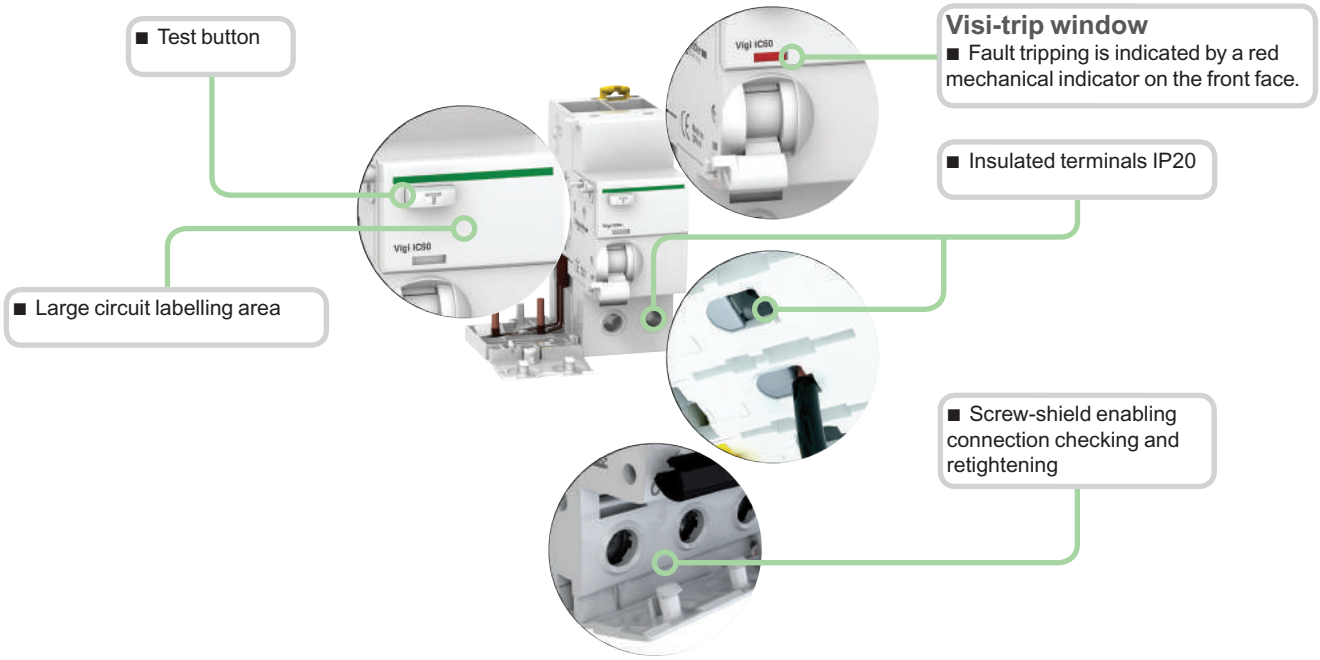
Catalogue numbers

Vigi iC60 add-on residual current devices

Type			*SI*				Width in 9 mm modules
Product			Vigi iC60				
Auxiliaries			Without auxiliaries				
2P		Sensitivity	10 mA	30 mA	300 mA S	1000 mA S	
 DB122462	Rating	25 A	**A9V30225**	**A9V61225**	-	-	3
		40 A	-	**A9V61240**	-	-	4
		63 A	-	**A9V61263**	**A9V65263**	**A9V39263**	4
4P		Sensitivity	10 mA	30 mA	300 mA S	1000 mA S	
 DB122464	Rating	25 A	-	**A9V61425**	-	-	6
		40 A	-	**A9V61440**	-	-	7
		63 A	-	**A9V61463**	**A9V65463**	**A9V39463**	7
Voltage rating (Ue)			230 - 240 V, 400 - 415 V				
Operating frequency			50/60 Hz				

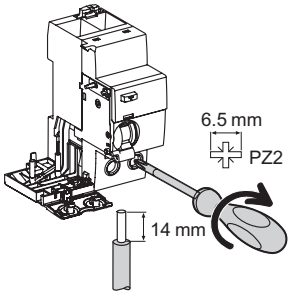
Vigi iC60 add-on residual current devices (cont.)

PB104466-40



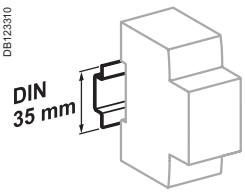
Connection

DB122948



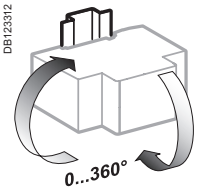
Type	Rating	Tightening torque	Copper cables	
			Rigid	Flexible or ferrule
		DB122945	DB122946	
Vigi iC60	25 A	2 N.m	1 to 25 mm²	1 to 16 mm²
	40 to 63 A	3.5 N.m	1 to 35 mm²	1 to 25 mm²

DB123310



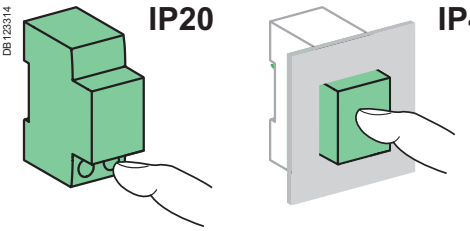
Clip on DIN rail 35 mm.

DB123312



Indifferent position of installation.

DB123314



Technical data

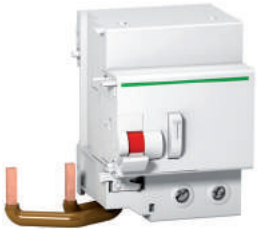
Main characteristics		
Insulation voltage (Ui)		500 V
Pollution degree		3
Rated impulse withstand voltage (Uimp)		6 kV
According to IEC/EN 61009-1		
Surge current withstand (8/20 µs) without tripping	A type (no selective Ⓢ)	250 A
	A type (selective Ⓢ)	3 kA
Additional characteristics		
Degree of protection	Device only	IP20
	Device in modular enclosure	IP40 Insulation classe 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

Technical
Section 10

Dimensions
Section 11

Vigi iC120 add-on residual current devices

PB107924-30



2P

PB107925-30

3P

PB107926-30

4P

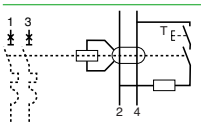
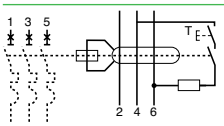
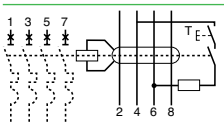
EN 61009

When a Vigi iC120 device is combined with a iC120 circuit breaker, it provides the following functions:

- protection of persons against electric shock by direct contact (30 mA),
- protection of persons against electric shock by indirect contact (≥ 300 mA),
- protection of installations against fire hazards (300 mA to 1000 mA).

Catalogue numbers

Vigi iC120 add-on residual current devices

Type Product		A Vigi iC120						Width in 9 mm modules
2P	Sensitivity	30 mA	300 mA	500 mA	300 mA S	500 mA S	1000 mA S	
dess. 077 		A9N18572	A9N18573	A9N18574	-	-	-	7
3P	Sensitivity	30 mA	300 mA	500 mA	300 mA S	500 mA S	1000 mA S	
dess. 079 		A9N18575	A9N18576	A9N18577	-	-	-	10
4P	Sensitivity	30 mA	300 mA	500 mA	300 mA S	500 mA S	1000 mA S	
dess. 078B 		A9N18578	A9N18579	A9N18580	A9N18587	A9N18588	A9N18589	10
Operating voltage (Ue)		230...415 V						
Operating frequency		50/60 Hz						

Technical
Section 10

Dimensions
Section 11

Vigi iC120 add-on residual current devices (cont.)

2P

3P

4P

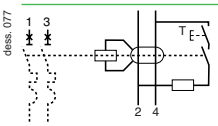
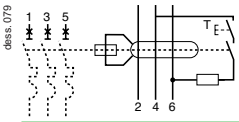
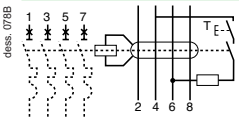
EN 61009

When a Vigi iC120 device is combined with a iC120 circuit breaker, it provides the following functions:
- protection of persons against electric shock by direct contact (30 mA),
- protection of persons against electric shock by indirect contact (≥ 300 mA),
- protection of installations against fire hazards (300 mA to 1000 mA).

Special feature of type *SI* :
They are appropriate for operating in environments with:
- high risk of unwanted tripping: frequent lightning strikes, IT system, presence of electronic ballasts, frequency converters, presence of switchgear incorporating lighting type interference filters, computer system, etc.
- blind sources:
  - presence of harmonics or high frequency rejections
  - presence of DC components: diodes, diode bridges, switch-mode power supplies, etc.
- protected against unwanted tripping caused by transient voltage surges (lightning strike, operation of switchgear on the network, etc.)

Catalogue numbers

Vigi iC120 add-on residual current devices

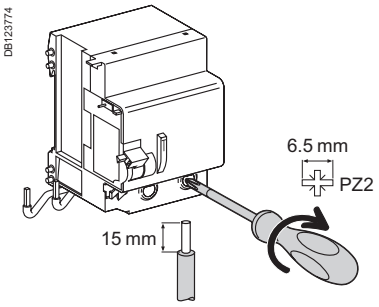
Type Product		*SI* Vigi iC120					Width in 9 mm modules
2P	Sensitivity	30 mA	300 mA	500 mA	300 mA Ⓢ	1000 mA Ⓢ	
		A9N18591	A9N18592	-	A9N18556	A9N18557	7
3P	Sensitivity	30 mA	300 mA	500 mA	300 mA Ⓢ	1000 mA Ⓢ	
		A9N18594	A9N18595	-	A9N18558	A9N18559	10
4P	Sensitivity	30 mA	300 mA	500 mA	300 mA Ⓢ	1000 mA Ⓢ	
		A9N18597	A9N18598	A9N18599	A9N18560	A9N18561	10
Operating voltage (Ue)		230...415 V					
Operating frequency		50/60 Hz					

Technical
Section 10

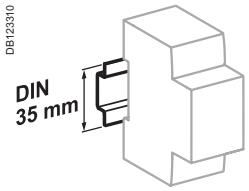
Dimensions
Section 11

Vigi iC120 add-on residual current devices (cont.)

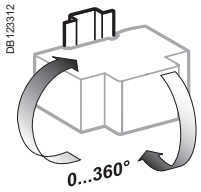
Connection



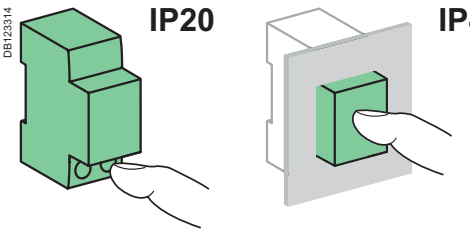
Type	Sensitivity	Tightening torque	Copper cables	
			Rigid	Flexible or with ferrule
		DB122945	DB122946	
Vigi iC120	30...1000 mA	3.5 N.m	1 to 50 mm²	1 to 35 mm²



Clips onto 35 mm DIN rail.



Any installation position.



Technical data

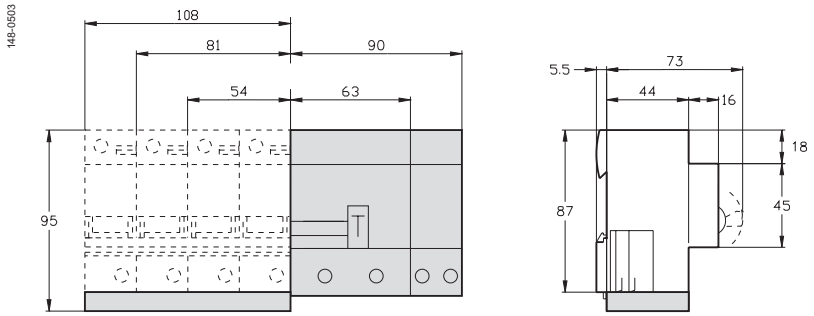
Main characteristics		
To IEC 60947-2		
Insulation voltage (Ui)		500 V AC
Degree of pollution		3
Rated impulse withstand voltage (Uimp)		6 kV
To EN 61009		
Impulse current withstand (8/20 µs) without tripping	Types AC and A (non-selective Ⓢ)	250 A
	Types AC and A (selective Ⓢ)	3 kA
	Types *SI* (non-selective Ⓢ)	3 kA
	Types *SI* (selective Ⓢ)	5 kA
Additional characteristics		
Degree of protection	Device only	IP20
	Device in a modular enclosure	IP40 Insulation class II
Operating temperature	Type AC	-5°C to +60°C
	Types A and *SI*	-25°C to +60°C
Storage temperature		-40°C to +85°C

Weight (g)

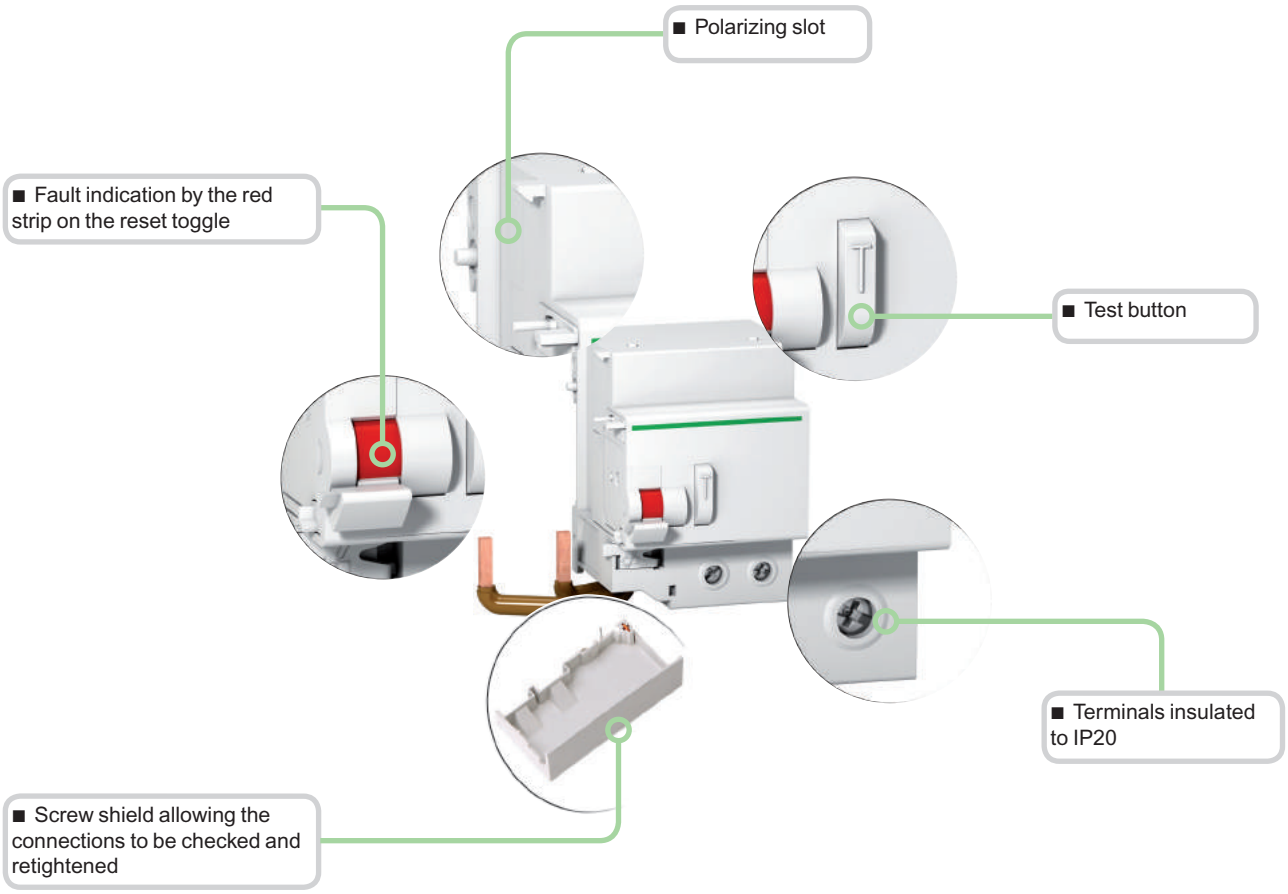
Add-on residual current devices	
Type	**Vigi iC120**
2P	325
3P	500
4P	580

Dimensions (mm)

iC120 + Vigi iC120



Vigi iC120 add-on residual current devices (cont.)

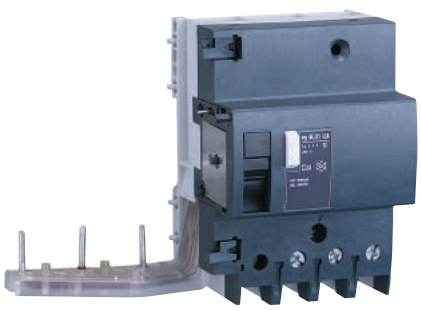


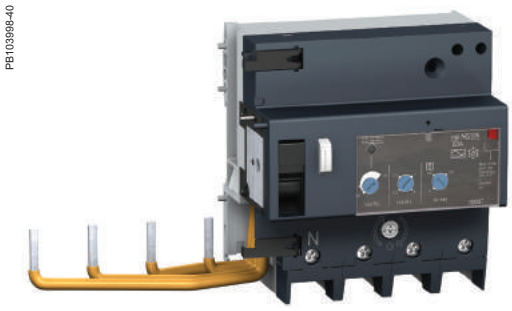
Type *SI*

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

Vigi NG125 add-on residual current devices

IEC/EN 61009-1





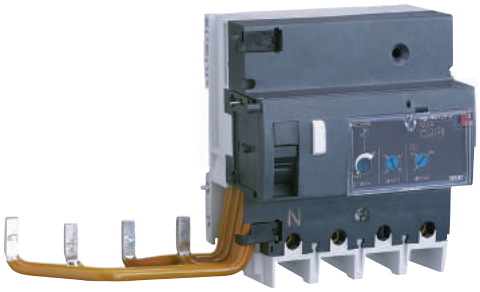
■ When it is combined with an NG125 circuit breaker, the Vigi NG125 add-on residual current device offers the following functions:
□ protection of persons against electric shocks by direct contact (30 mA),
□ protection of persons against electric shocks by indirect contact (≥ 300 mA),
□ protection of installations against fire risks (300 mA or 500 mA).

Catalogue numbers

Vigi NG125 add-on residual current devices									
Type			**A**						**Width in 9 mm modules**
Product			**Vigi NG125**						
Auxiliaries			**Section 5**						
2P		**Sensitivity**	**30 mA**	**300 mA**	**300 mA S**	**1000 mA S**	**300…1000 I/S**	**300…3000 I/S/R**	
DB122462	Rating	63 A	**19010** *19008 (1)*	**19012** *19009 (1)*	**19030**	**19031**	-	-	5
3P		**Sensitivity**	**30 mA**	**300 mA**	**300 mA S**	**1000 mA S**	**300…1000 I/S**	**300…3000 I/S/R**	
DB122463	Rating	63 A	**19013**	**19014**	**19032**	**19033**	-	-	9
			-	-	-	-	-	**19036** *19053 (2)*	11
		125 A	**19039**	-	-	-	**19044**	**19047** *19055 (2)*	11
4P		**Sensitivity**	**30 mA**	**300 mA**	**300 mA S**	**1000 mA S**	**300…1000 I/S**	**300…3000 I/S/R**	
DB122464	Rating	63 A	**19015**	**19016**	**19034**	**19035**	-	-	9
			-	-	-	-	-	**19037** *19054 (2)*	11
		125 A	**19041**	**19042**	-	-	**19046**	**19049** *19056 (2)*	11
Voltage rating (Ue)			230 - 240 V, 400 - 415 V *Except: (1) 110…220 V and (2) 440…500 V*						
Operating frequency			50/60 Hz						
Accessories			**Section 5**						

Vigi NG125 add-on residual current devices (cont.)

057484-40



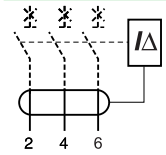
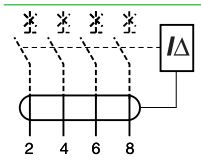
IEC/EN 61009-1 IEC/EN 61008-1

■ When it is combined with an NG125 circuit breaker, the Vigi NG125 add-on residual current device offers the following functions:
□ protection of persons against electric shocks by direct contact (30 mA),
□ protection of persons against electric shocks by indirect contact (≥ 300 mA),
□ protection of installations against fire risks (300 mA or 500 mA).

SI types are appropriate for operating in environments with:
■ High risk of nuisance tripping: frequent lightning strikes, IT system, presence of electronic ballasts, frequency converters, presence of switchgear incorporating lighting type interference filters, computer system, etc.
■ Blind sources
□ presence of harmonics or high frequency rejections,
□ presence of DC components: diodes, diode bridges, switch-mode power supplies, etc.
■ Protected against nuisance tripping caused by transient voltage surges (lightning strike, operation of switchgear on the network, etc.).

Catalogue numbers

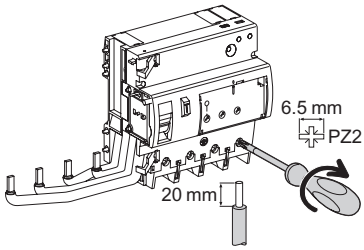
Vigi NG125 add-on residual current devices

Type Product			*SI* Vigi NG125		Width in 9 mm modules
Auxiliaries			**Section 5**		
3P		**Sensitivity**	**30 mA**	**300…3000 I/S/R**	
DB122463 	Rating	125 A	**19100**	**19106**	11
4P		**Sensitivity**	**30 mA**	**300…3000 I/S/R**	
DB122464 	Rating	125 A	**19101**	**19107**	11
Voltage rating (Ue)			230 - 240 V, 400 - 415 V		
Operating frequency			50/60 Hz		
Accessories			**Section 5**		

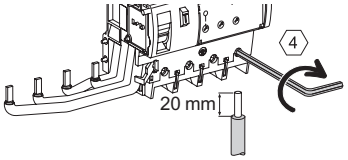
Vigi NG125 add-on residual current devices (cont.)

Connection

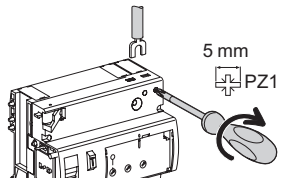
DB123404



DB123405

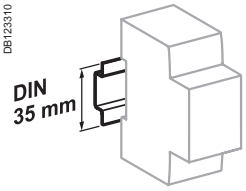


DB123408



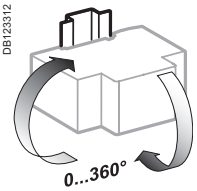
Rating	Tightening torque	Without accessories: Copper cables: Rigid	Without accessories: Copper cables: Flexible or with ferrule	Without accessories: Copper cables: Screw clamp terminal	With accessories: 70 mm² Al terminal	With accessories: Screw-on connection for ring terminal
		DB122945	DB122946	DB123409 DB123410	DB123488	
63 A	3.5 N.m	1.5 to 50 mm²	1 to 35 mm²	-	-	-
125 A	6 N.m	16 to 70 mm²	10 to 50 mm²	-	25 to 70 mm²	2 x 35 mm² 1 x 50 mm²
Pre-alarm	1 N.m	2 x 2.5 mm²	2 x 1.5 mm²	2 x 1.5 mm²	-	-

DB123310



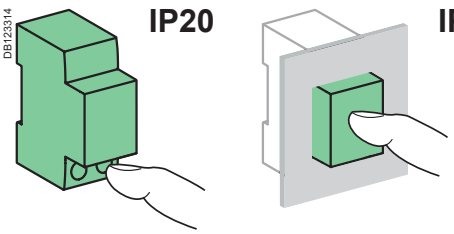
Clip on DIN rail 35 mm.

DB123312



Indifferent position of installation.

DB123314



Technical data

Main characteristics		
Insulation voltage (Ui)		690 V
Pollution degree		3
Rated impulse withstand voltage (Uimp)		8 kV
According to IEC/EN 61009-1		
Surge current withstand (8/20 µs) without tripping	Selective Ⓢ or R	5 kA
	Instantaneous	3 kA
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
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
Additional characteristics		
Vigi 125 A and adjustable		
Plug-in auxiliaries	MXV	Remote tripping
	SDV	Indication of tripping upon earth fault
Adjustable Vigi		
Sensitivity adjustable by notch (IΔn)		300, 500, 1000, 3000 mA
Tripping time	Instantaneous	
	Selective Ⓢ	60 ms
	Time-delayed	150 ms
Leakage current indication on 3P and 4P 300...3000 I/S/R (pre-alarm)		On front face by LED
		Remote, by potential-free normally-open contact 250 V - 1 A (low level)
		Threshold setting by potentiometer from 10 % to 50 % of IΔn
Disconnection essential for dielectric test		By integral pushbutton

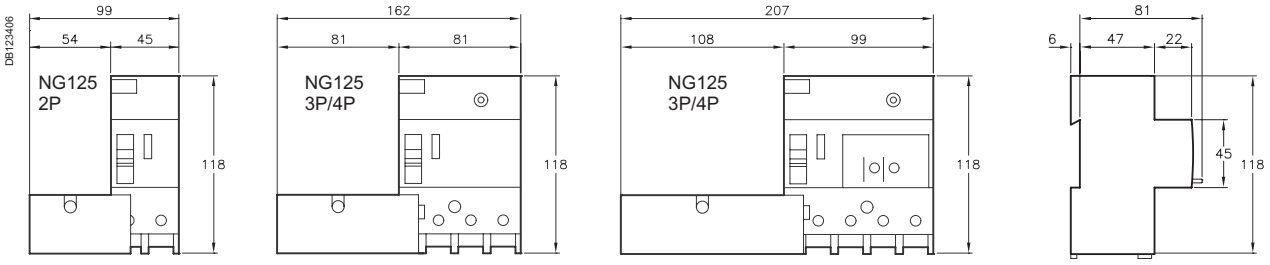
Technical Section 10
Dimensions Section 11

Vigi NG125 add-on residual current devices (cont.)

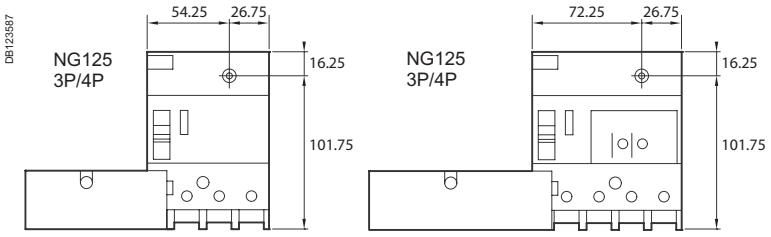
Weight (g)

Add-on residual current devices			
Number of 9 mm modules	**2P**	**3P**	**4P**
5 modules	250	-	-
9 modules	-	410	450
11 modules	-	750	800

Dimensions (mm)



2P (5 modules) *63, 125 A (9 modules)* *63, 125 A (11 modules)*



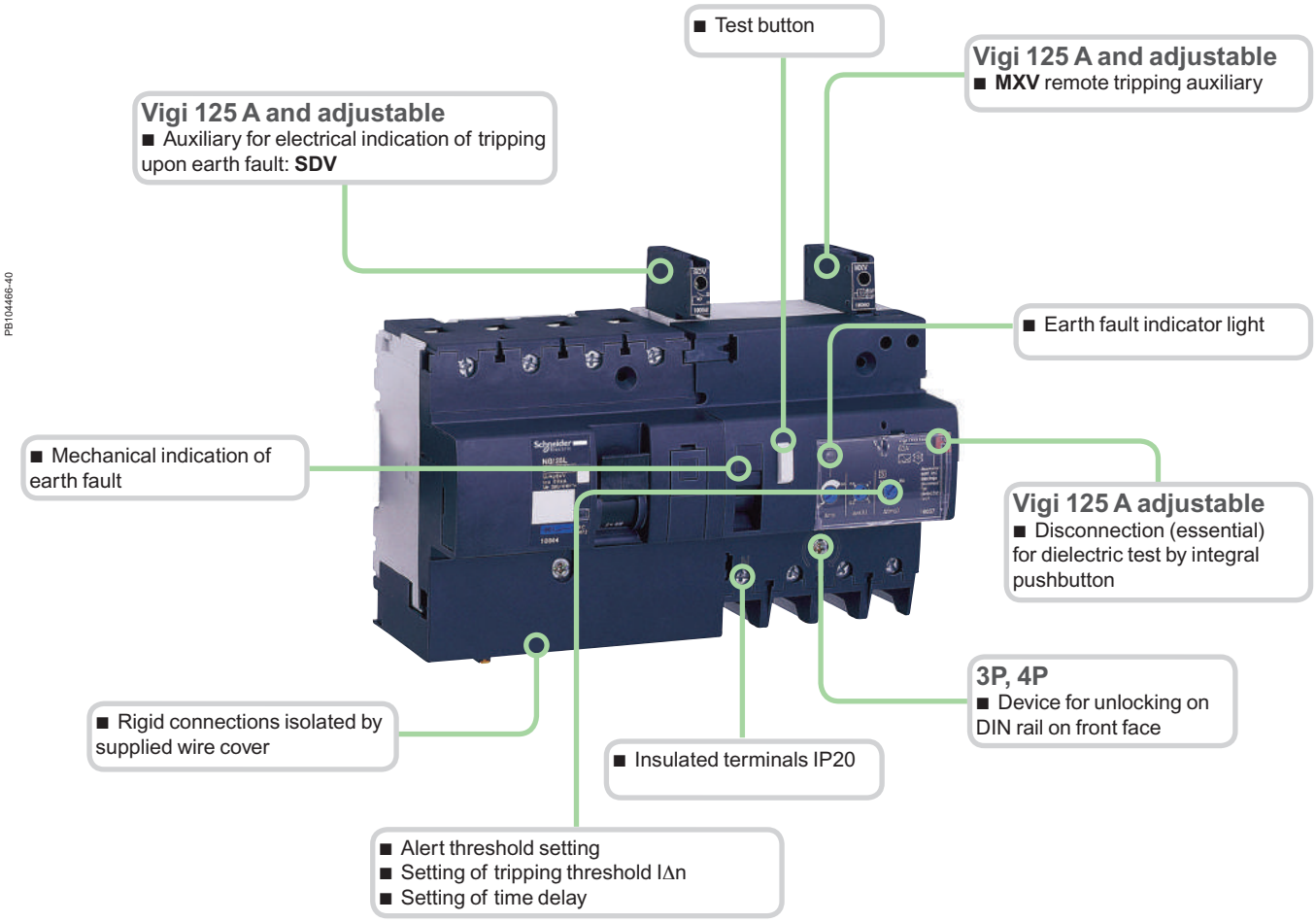
Spacing for mounting on panel

Vigi NG125 add-on residual current devices (cont.)

Association NG125 + Vigi NG125

	Vigi NG125 63 A	Vigi NG125 125 A
NG125 ⩽ 63 A	■	**NO**
NG125 80…125 A*	**NO**	■

(*) No Vigi add-on residual current device for 2P circuit breakers of rating 80 A.



SI type

SI types are appropriate for operating in environments with:
■ High risk of nuisance tripping: frequent lightning strikes, IT system, presence of electronic ballasts, frequency converters, presence of switchgear incorporating lighting type interference filters, computer system, etc.
■ Blind sources
□ presence of harmonics or high frequency rejections,
□ presence of DC components: diodes, diode bridges, switch-mode power supplies, etc.
■ Protected against nuisance tripping caused by transient voltage surges (lightning strike, operation of switchgear on the network, etc.).

Contents

Remote operated MCBs

4

Reflex iC60H
(curves B, C, D)

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 version with Ti24 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).

The Ti24 interface also allows fast, reliable connection of 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 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 iC60H				
Rating (In)	10 to 40 A	30 kA	15 kA	50 % of Icu

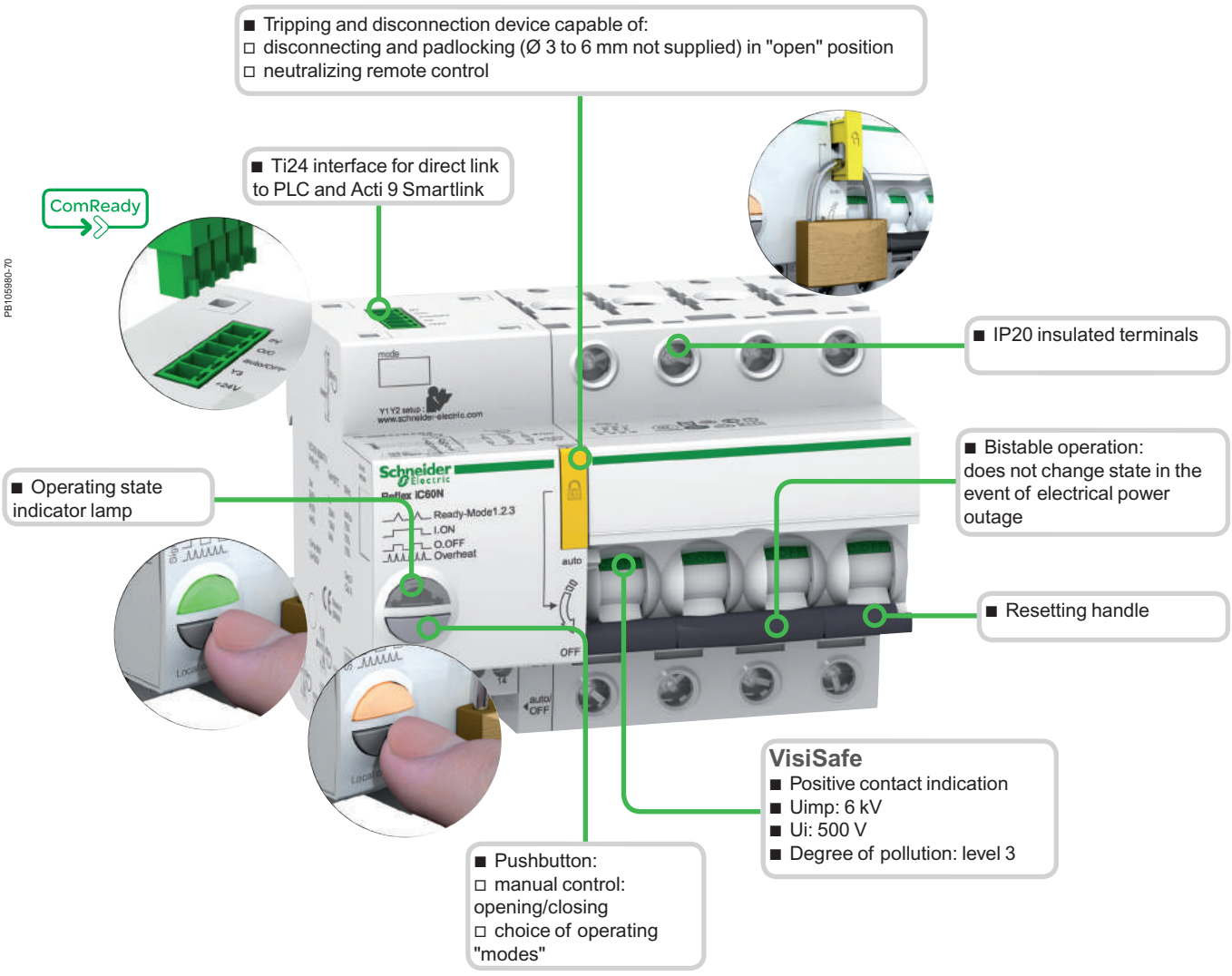
Catalogue numbers

Reflex iC60 circuit breaker									
Type	2P			3P			4P		
Rating (In)	Curve			Curve			Curve		
	B	C	D	B	C	D	B	C	D
Reflex iC60H									
With Ti24 interface									
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		

Technical Section 10
Dimensions Section 11

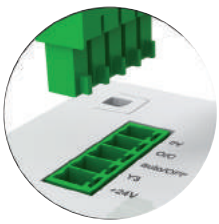
Reflex iC60H
(curves B, C, D) (cont.)

PB105980-70



■ 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.

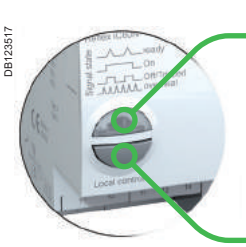
DB123765



DB123516

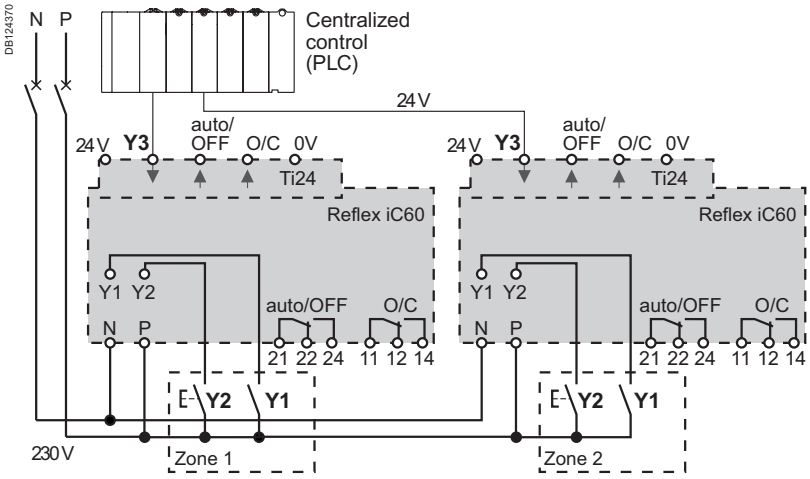
Legend	
Ti24 interface	
+24VDC	V DC power supply
Y3	Remote control by latched order
auto/OFF	Circuit-breaker state information
O/C	Control circuit state information (open/closed)
0 V	V DC power supply
Y1	Latched order control
Y2	Control by impulse-type
N	230 V AC power supply
P	
O/C 11 12 14	Control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

Reflex iC60H
(curves B, C, D) (cont.)



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 with Ti24 interface

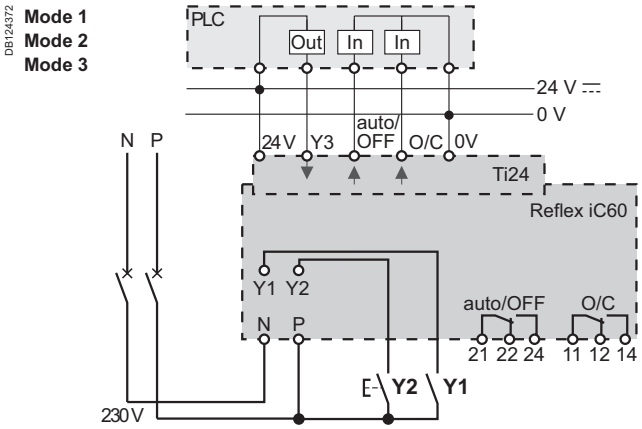


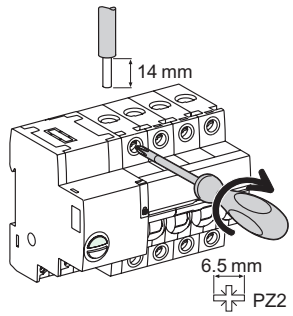
Table of modes

	Mode 1	Mode 2	Mode 3
Reflex iC60 with interface Ti24	■ Possible mode	■ Possible mode	■ Default mode

Reflex iC60H
(curves B, C, D) (cont.)

Power connection

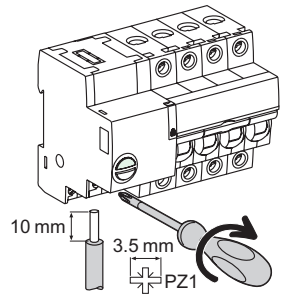
DB123561



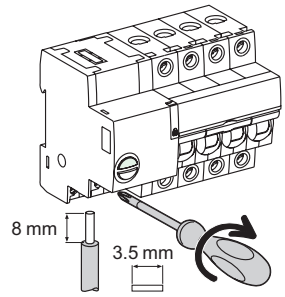
Terminal	Rating	Tightening torque	Without accessories: Copper cables – Rigid	Without accessories: Copper cables – Flexible or with ferrule	With accessories: Al terminal 50 mm²	With accessories: Screw-on connection for ring terminal	With accessories: Multi-cable terminal – Rigid cables	With accessories: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

Control connection

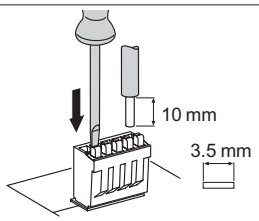
DB123562



DB123563



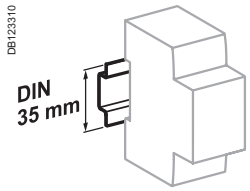
DB123580



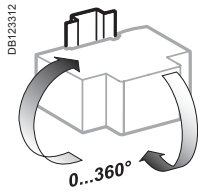
Terminal	Tightening torque	Without accessories: Copper cables – Rigid	Without accessories: Copper cables – Flexible	Without accessories: Copper cables – Flexible with ferrule
	DB122945	DB123553	DB123554	
Power supply (N/P) Inputs (Y1/Y2)	1 N.m	1 to 10 mm²	1 to 6 mm²	1 to 4 mm²
Outputs (O/C, auto/OFF)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

4

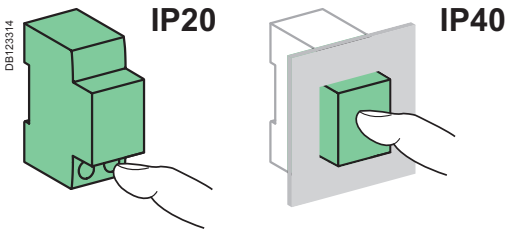
Reflex iC60H
(curves B, C, D) (cont.)



Clip on DIN rail 35 mm.



Indifferent position of installation.



Technical data

Control circuit		
Supply voltage (Ue) (N/P)		230 V AC - 50 Hz
Control voltage (Uc)	Inputs (Y1/Y2)	230 V AC - 5 mA (24…48 V AC/DC, with iMDU auxiliary)
	Input (Y3)	24 V DC - 5.5 mA
Min. duration of control impulse (Y2)		≥ 250 ms
Response time (Y2)		≤ 200 ms
Consumption		≤ 1 W
Inrush consumption		< 1000 VA
Length of control wires	Inputs (Y1/Y2)	Cable: 100 m
		Wires in a sheath: 500 m
	Input (Y3)	500 m
Inrush current at 230 V - 50 Hz	2P	4.2 Â
	3P	8.2 Â
	4P	16.2 Â
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 (1)
	AC5a - AC5b	Up to15,000 cycles (1)
	AC7c	Up to 20,000 cycles (1)
Mechanical		50,000 cycles
Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in a modular enclosure	IP40 Insulation class II
Degree of pollution		3
Operating temperature		-25°C to +60°C
Storage temperature		-40°C to +85°C
Tropicalization		Treatment 2 (relative humidity of 93 % at 40°C)
Immunity to voltage dips		IEC 61000-4-11 class III
Immunity to power supply frequency variations		IEC 61000-4-28 and IACS E10
Immunity to harmonics		IEC 61000-4-13 class 2
Immunity to electrostatic discharges	Air	8 kV, IEC 61 000-4-2
	Contacts	4 kV, IEC 61 000-4-2
Immunity to stray magnetic fields		10 V/m up to 3 GHz, IEC 61000-4-3
Immunity to fast transients		4 kV from 5 to 100 kHz, IEC 61000-4-4
Immunity to shock waves		IEC 61000-4-5
Immunity to power frequency magnetic fields		10 V from 150 kHz to 80 MHz, IEC 61000-4-6
Immunity to grid frequency magnetic fields		Level 4 30 A/m to IEC 61000-4-8 and IEC 61000-4-9
Conducted emissions		CISPR 11/22
Radiated emissions		CISPR 11/22

(1) See the derating table according to the load types and ratings

ARA automatic reclosers

For iC60 circuit breakers and iID residual current circuit breakers

PB106256-40

ARA iC60

PB106257-40

ARA iID

The ARA reclosing auxiliary can:

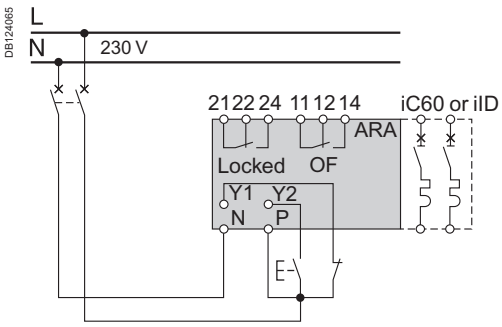
- Perform automatic reclosing of the associated protection device, after tripping.
- Increase the availability of installations without supervision, isolated, hard of access and demanding very great availability (mobile telephony systems, motorways, pumping stations, airports, railways, meteorological 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	 21 22 24	Automatic recloser inhibition indication contact
OF	 11 12 14	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

Technical Section 10
Dimensions Section 11

ARA automatic reclosers
For iC60 circuit breakers and iID residual current circuit breakers (cont.)

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).

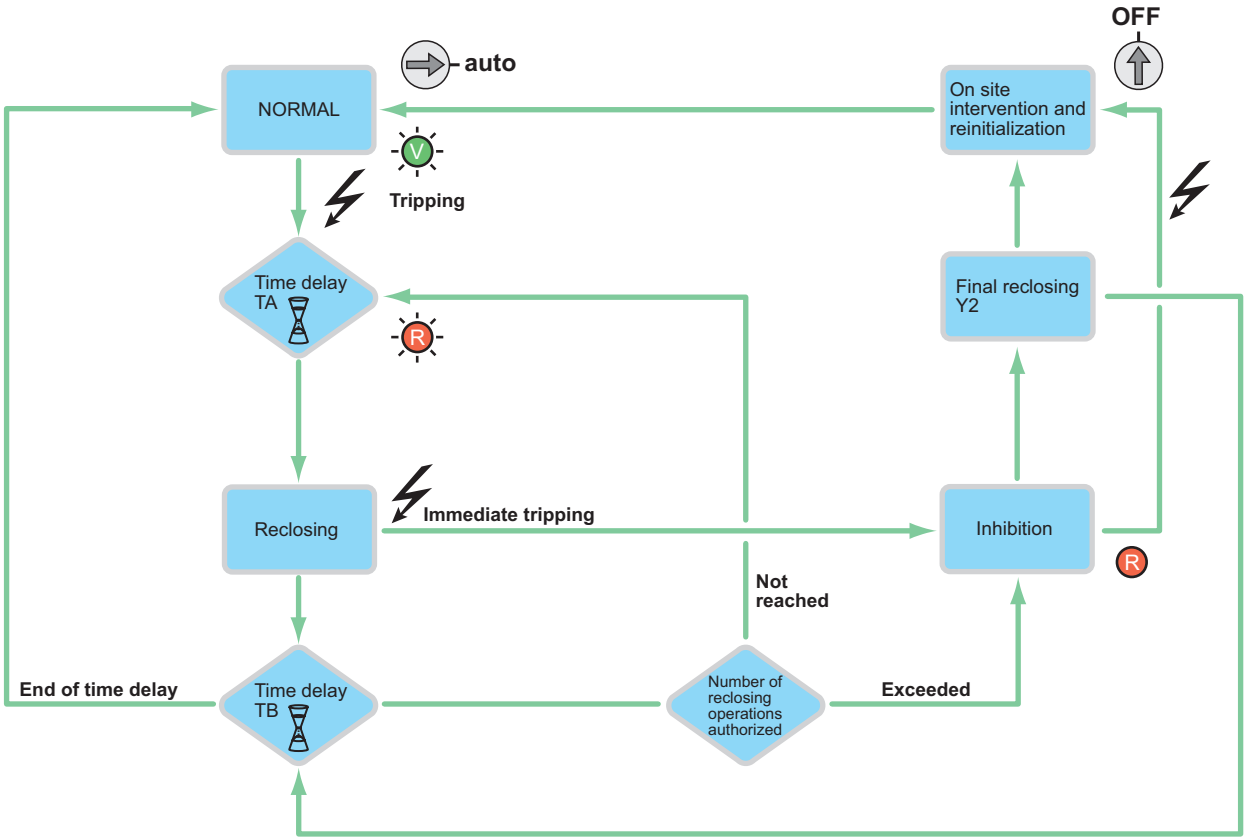
ARA iC60	Number of reclosing attempts	Delay before reclosing	Check time	Final reclosing Y2
		TA	TB	
Program				
DB124061 1 2 4 3	1	60 s	6 min.	Once after inhibition
DB124062 1 2 4 3	3	60 s 3 min. 3 min.	2 min. 6 min. 6 min.	
DB124063 1 2 4 3	5	60 s 3 min. 3 min. 3 min. 3 min.	2 min. 6 min. 6 min. 6 min. 6 min.	
DB124064 1 2 4 3	5	60 s 3 min. 4 min. 5 min. 6 min.	2 min. 6 min. 8 min. 10 min. 12 min.	

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

ARA automatic reclosers
For iC60 circuit breakers
and iID residual current circuit breakers (cont.)

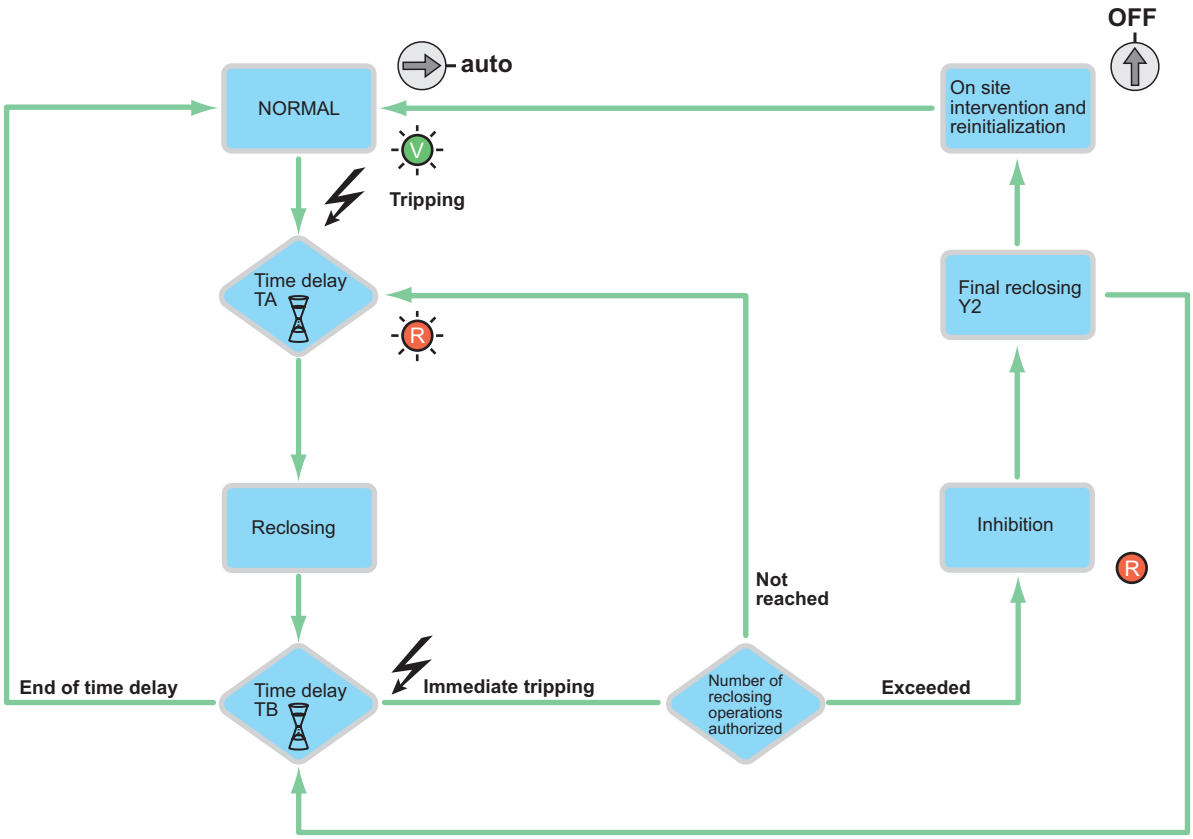
ARA iC60 operating diagram

DB404539



ARA iID operating diagram

DB404538



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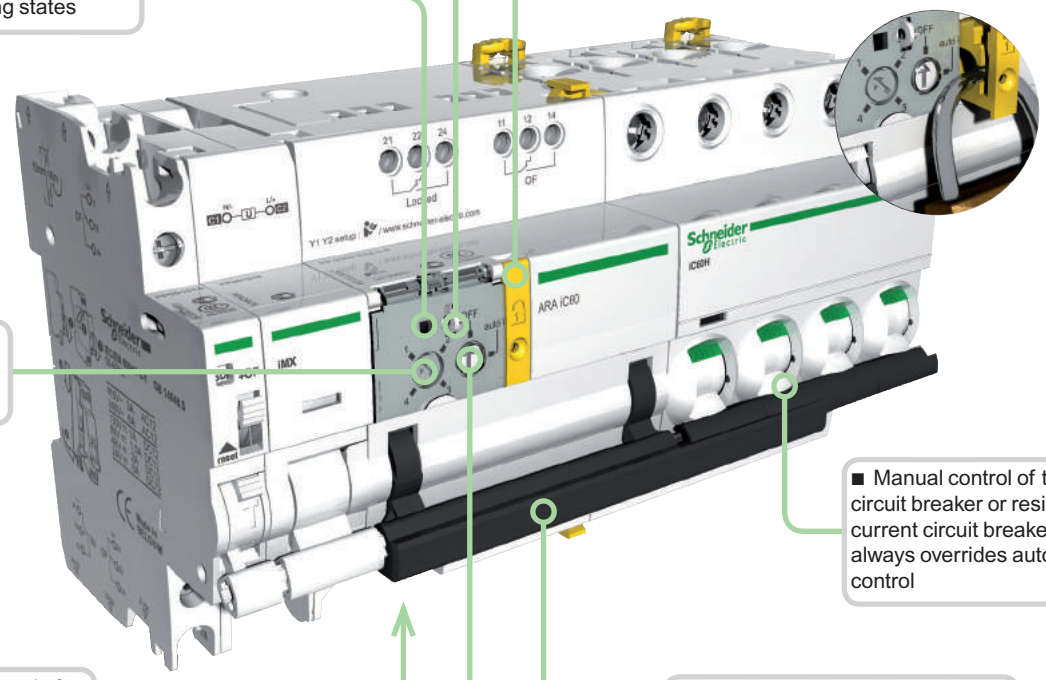
ARA automatic reclosers
For iC60 circuit breakers and iID residual current circuit breakers (cont.)

PB106055-104



■ Sealable cover

■ Placing in safety configuration by integrated padlocking device (Ø 3 to 6 mm)

■ Indication of ARA operating states

ARA iC60
■ 4 predefined programs

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

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

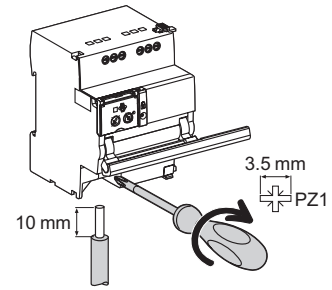
■ Bistable operation: does not change state in the event of electrical power outage

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

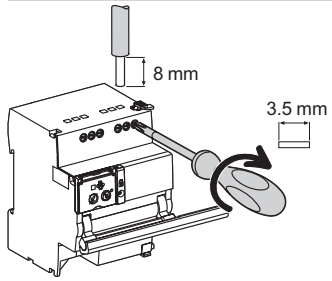
ARA automatic reclosers
For iC60 circuit breakers and iID residual current circuit breakers (cont.)

Connection

DB123565

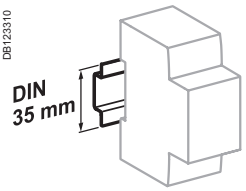


DB123566



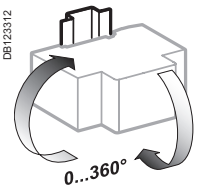
Terminal	Tightening torque	Copper cables		
		Rigid	Flexible	Flexible with ferrule
		DB122945	DB123553	DB123554
Power supply (N/P) Inputs (Y1/Y2)	1 N.m	0.5 to 10 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 6 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 4 mm² 2 x 0.5 to 2 x 2.5 mm²
Outputs (OF/Locked)	0.7 N.m	0.5 to 2.5 mm²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

DB123310



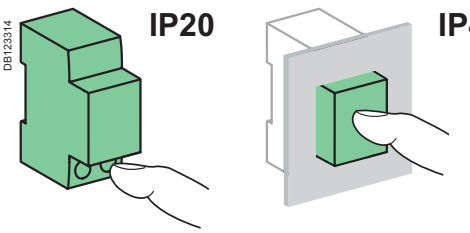
Clip on DIN rail 35 mm.

DB123312



Indifferent position of installation.

DB123314



Technical data

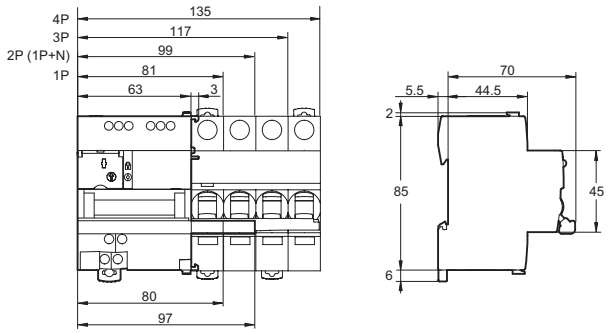
Control circuit		
Supply voltage (Ue) (N/P)		230 V AC, 50/60 Hz
Control voltage (Uc)	Type 1 inputs (Y1/Y2)	230 V AC (as per IEC 61131-2)
Min. duration of control order (Y2)		≥ 200 ms
Response time (Y2)		< 500 ms
Consumption		< 2 W
Endurance (O-C) (ARA combined with a circuit breaker)		
Electrical		5000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

Weight (g)

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

Dimensions (mm)

DB123567



Technical
Section 10

Dimensions
Section 11

RCA remote controls
For iC60 circuit breakers

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**	

DB123813

Without Ti24 interface

DB123572

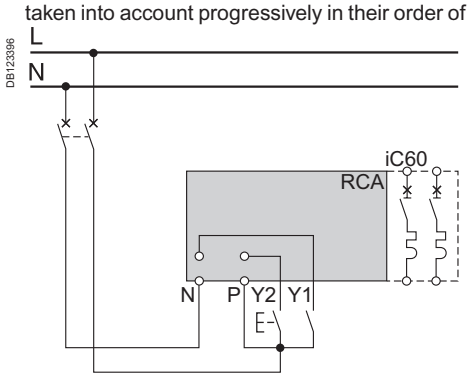
DB123573

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

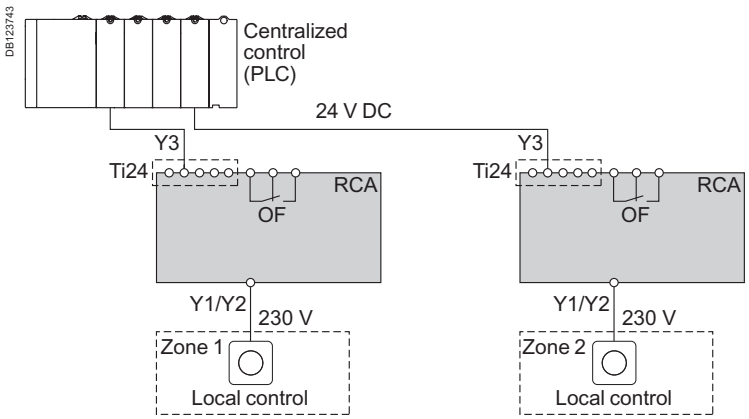
RCA remote controls
For iC60 circuit breakers (cont.)

Standard RCA

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



RCA Ti24

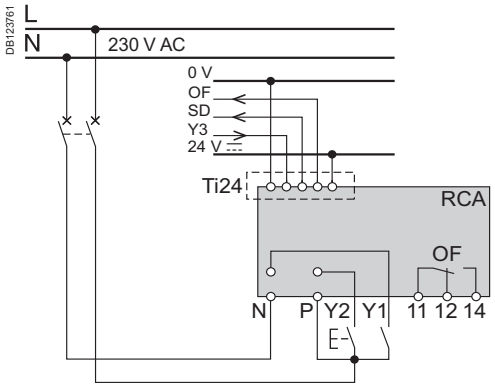


4

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

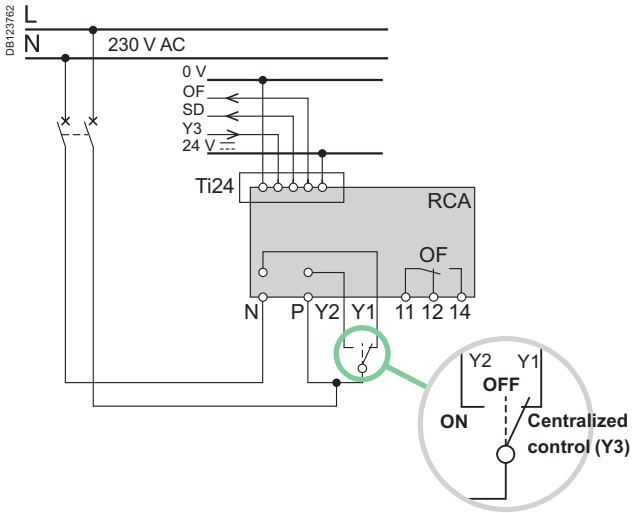
RCA Ti24 mode 1



Mode 3: Centrally controlled opening/closing + local override

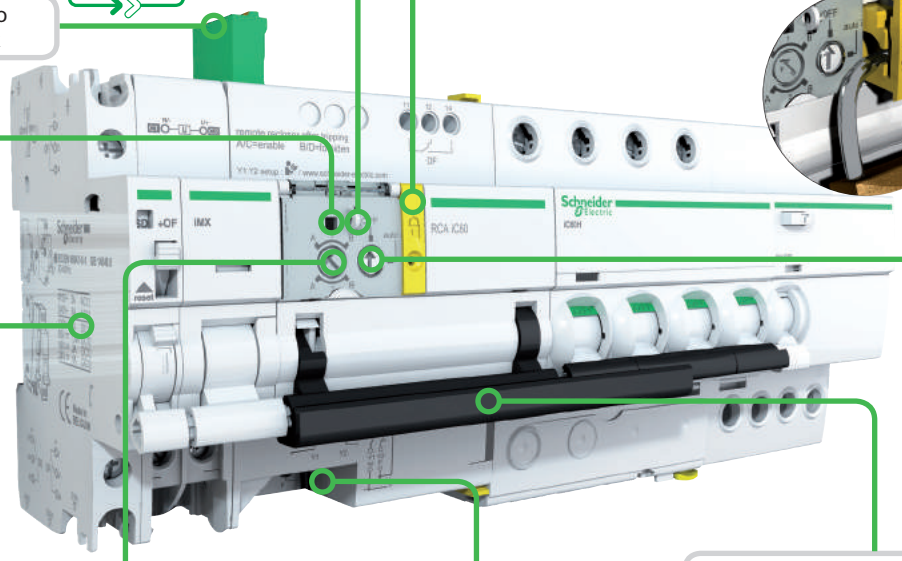
■ 3 positions allowing a choice between override and centralized control:
■ Y1: Latched order local control
■ Y2: Latched order local control
■ Y3: Latched order centralized control

RCA Ti24 mode 3

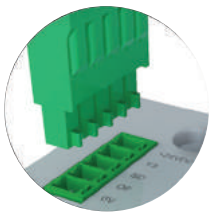


RCA remote controls
For iC60 circuit breakers (cont.)

DB123576



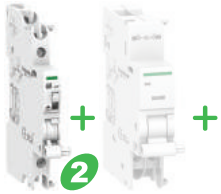
DB123763



DB123578

DB123579

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

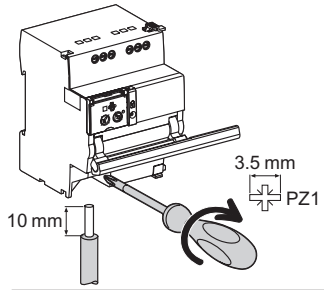
Indication auxiliaries		Tripping auxiliaries	RCA remote control	iC60 circuit breaker	Vigi iC60 add-on RCD
PB104474-25 	PB104475-25 	PB104496-25 			
No	1 (iSD or iOF or iOF/SD+OF or iOF+SD24)	1 (iMX or iMN) max.	PB106253-25  *RCA*	PB104437-25  *iC60*	PB104437-25  *Vigi iC60*
1 iOF	1 (iSD or iOF or iOF/SD+OF)	No			

Technical Section 10 **Dimensions Section 11**

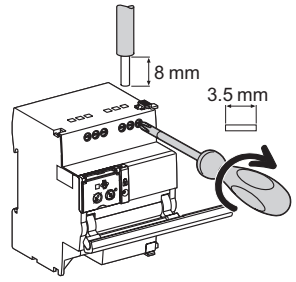
RCA remote controls
For iC60 circuit breakers (cont.)

Connection

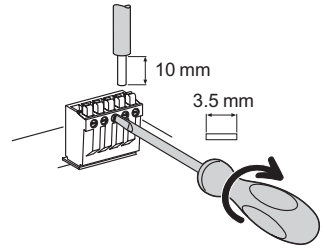
DB123565



DB123568



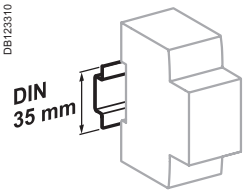
DB123764



Without accessories

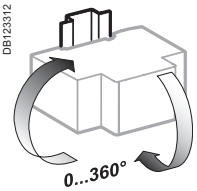
Terminal	Tightening torque	Copper cables		
		Rigid	Flexible	Flexible with ferrule
		DB122945	DB123553	DB123554
Power supply (N/P) Inputs (Y1/Y2)	1 N.m	0.5 to 10 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 6 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 4 mm² 2 x 0.5 to 2 x 2.5 mm²
Outputs (OF)	0.7 N.m	0.5 to 2.5 mm² 2 x 0.5 to 2 x 1.5 mm²	0.5 to 2.5 mm² 2 x 0.5 to 2 x 1.5 mm²	0.5 to 1.5 mm² 2 x 0.5 to 2 x 1.5 mm²
Ti24 interface	Spring-loaded terminals	0.5 to 1.5 mm²	0.5 to 1.5 mm²	-

DB123310



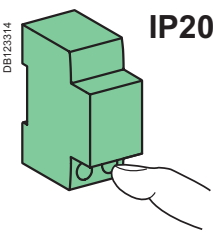
Clip on DIN rail 35 mm.

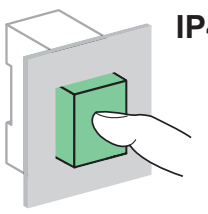
DB123312



Indifferent position of installation.

DB123314





Technical data

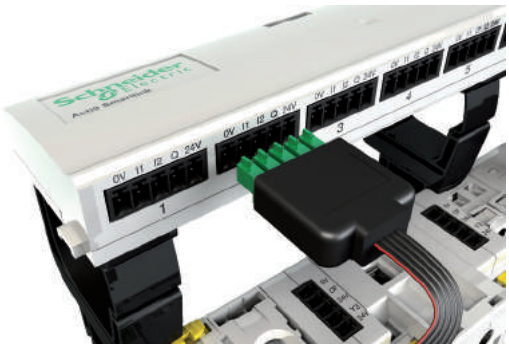
Control circuit		
Supply voltage (Ue) (N/P)		230 V AC, 50/60 Hz
Control voltage (Uc)	Type 1 inputs (Y1/Y2)	230 V AC (as per IEC 61131-2)
Min. duration of control order (Y2)		≥ 200 ms
Response time (Y2)		< 500 ms
Consumption		≤ 1 W
Thermal self-protection with automatic Reset against overheating of the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

Technical
Section 10

Dimensions
Section 11

Acti 9 smartlink

PB107797-47



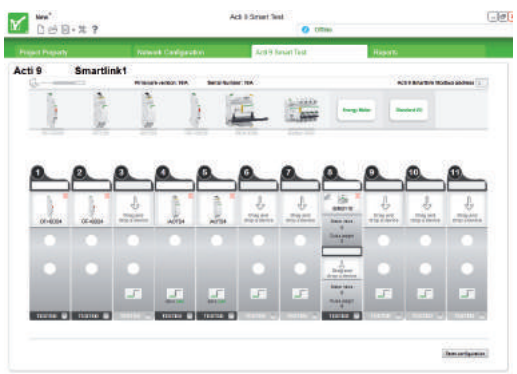
DB404502

ComReady

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



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.

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

Technical Section 10
Dimensions Section 11

Acti 9 smartlink (cont.)

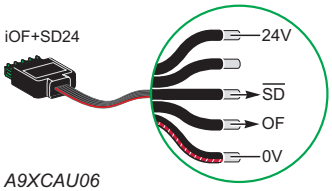
PB107753-68

Acti 9 Smartlink Modbus Slave

PB113286-68

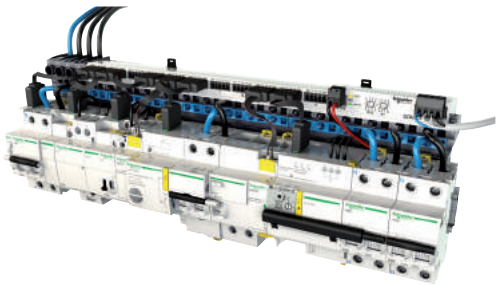
Acti 9 Smartlink Ethernet

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	Short: 100 mm	6	**A9XCAS06**
	Medium-sized: 160 mm	6	**A9XCAM06**
	Long: 870 mm	6	**A9XCAL06**
With 1 connector	Long: 870 mm	6	**A9XCAU06**
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**
Spare parts	Lock for Linergy FM 80 A (2 clips)	1	**A9XMLA02**

PB107754-12

PB107755-5

PB107756-7

Connectable devices

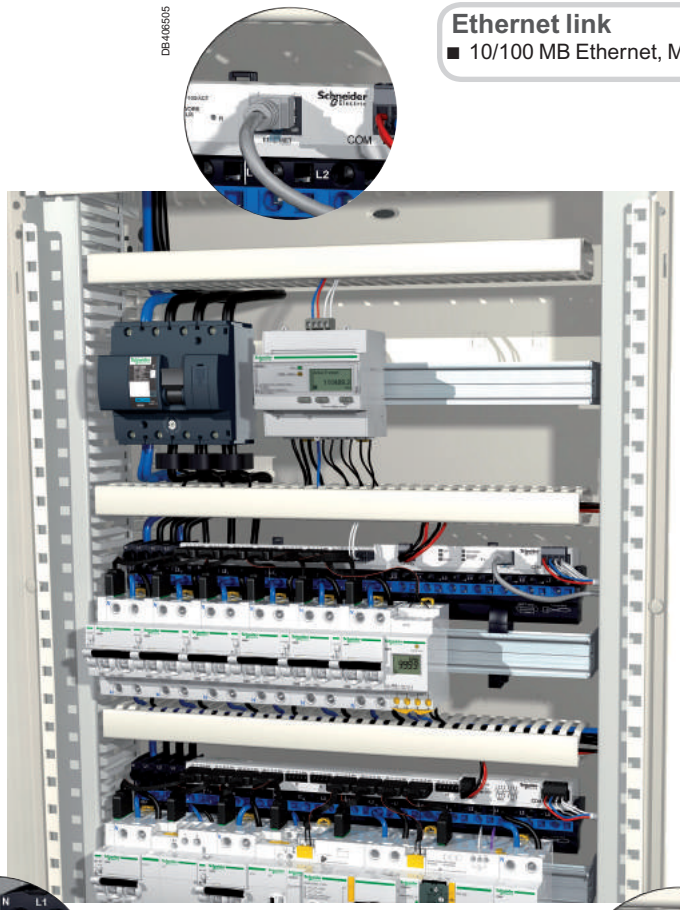
With Ti24 interface		
Type	**Reference**	**Description**
iACT24	A9C15924	Low-level control and indication auxiliary for iCT contactors
iATL24	A9C15424	Low-level control and indication auxiliary for iTL impulse relays
iOF+SD24	A9A26897	Low-level indication auxiliary for iC60, iID, ARA, RCA, iSW-NA
OF+SD24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

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

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

Acti 9 smartlink (cont.)

Example of an installation



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

1 analog input channel
- Example: temperature sensor connection

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

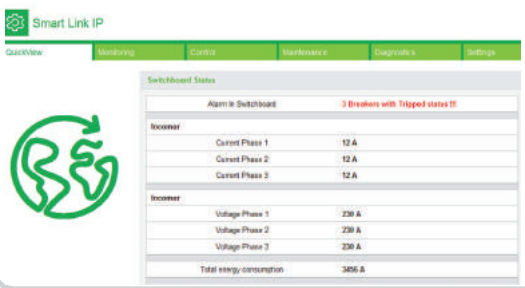
Prefabricated cables
- Simplified cabling
- Fast and safe

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

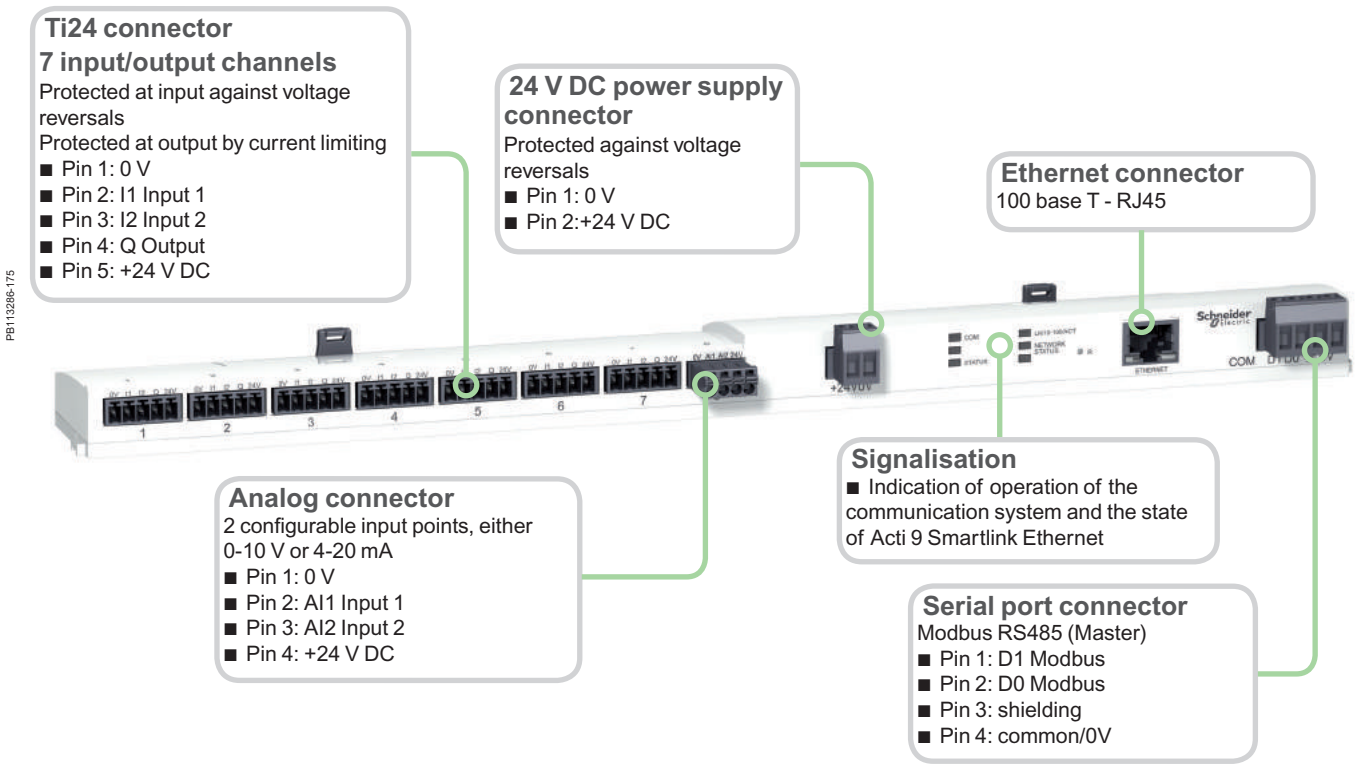


- Web Page available, to configure Acti 9 Smartlink Ethernet communication Ethernet parameter, to visualize or control data

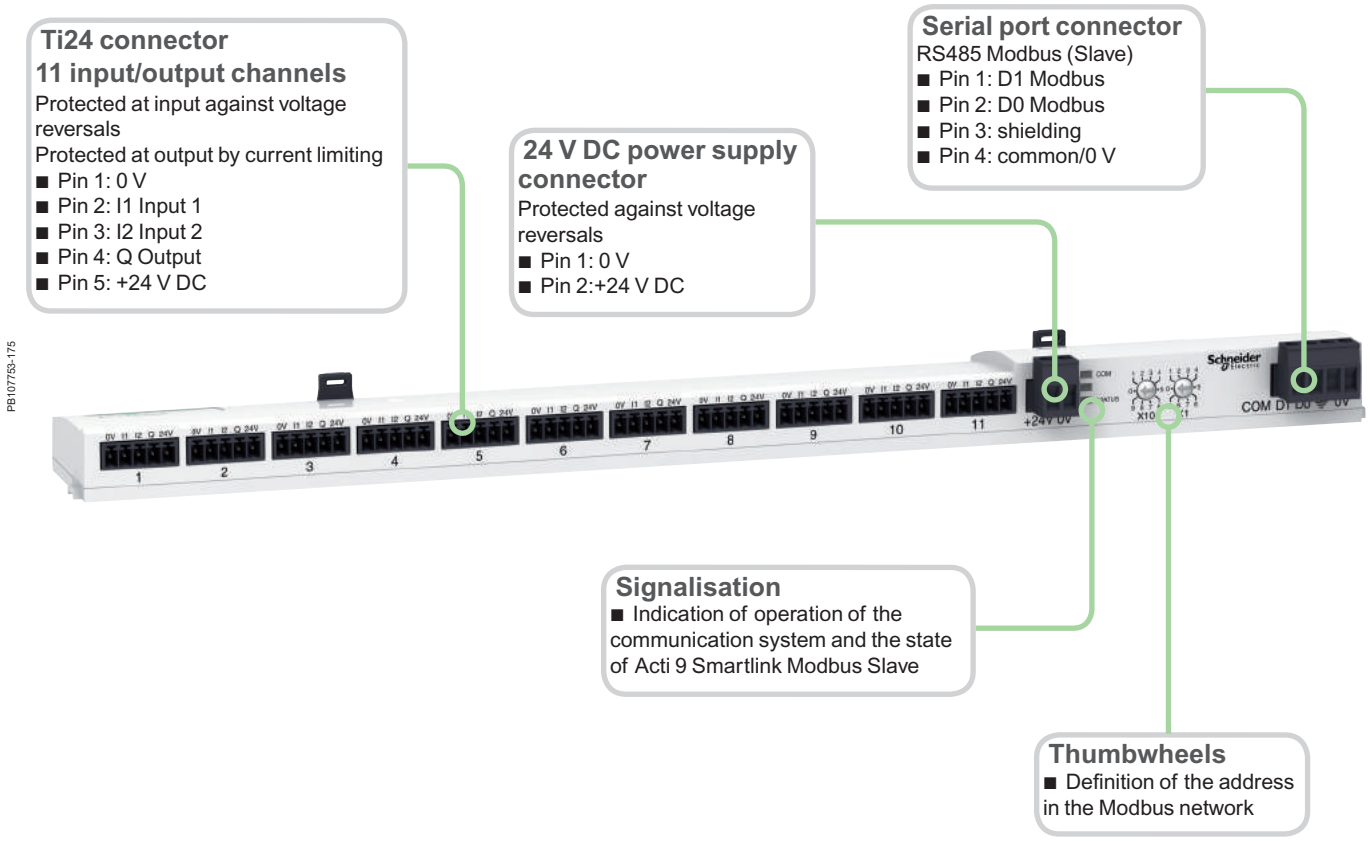
Technical Section 10
Dimensions Section 11

Acti 9 smartlink (cont.)

Acti 9 Smartlink Ethernet



Acti 9 Smartlink Modbus Slave



Technical Section 10
Dimensions Section 11

Acti 9 smartlink (cont.)

Common technical characteristics

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

4

Technical Section 10

Dimensions Section 11

Acti 9 smartlink (cont.)

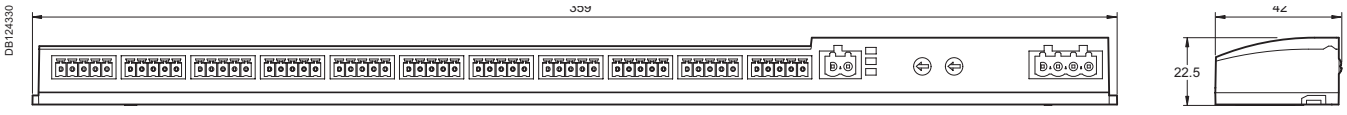
Acti 9 Smartlink Modbus Slave technical characteristics

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

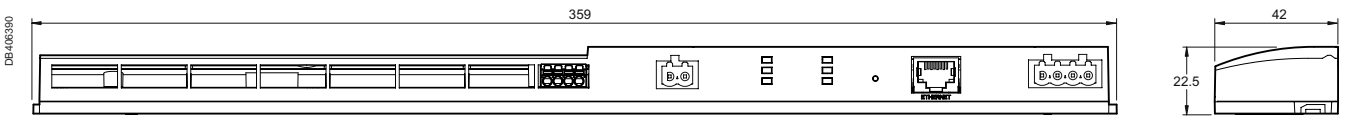
Acti 9 Smartlink Ethernet technical characteristics

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

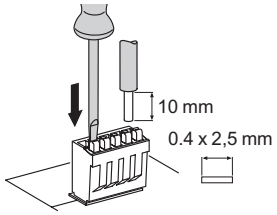
Weight (g)

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

Technical Section 10
Dimensions Section 11

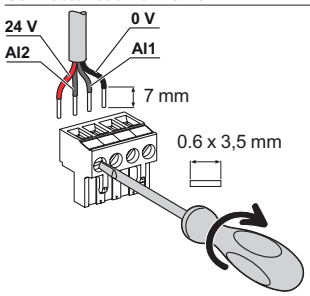
Connection

DB123560

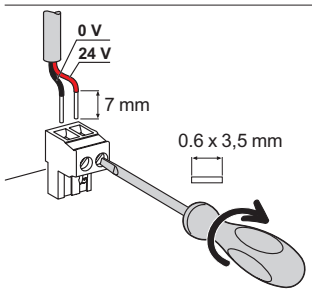


Connector cat. no: A9XC2412

DB406517



DB124331



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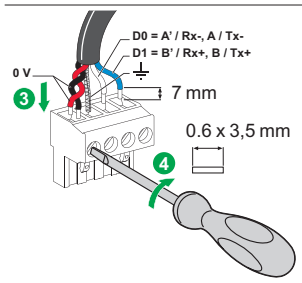
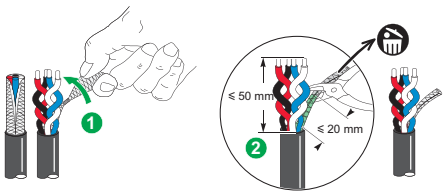


DB405142



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

Contents

Electrical accessories and auxiliaries

5

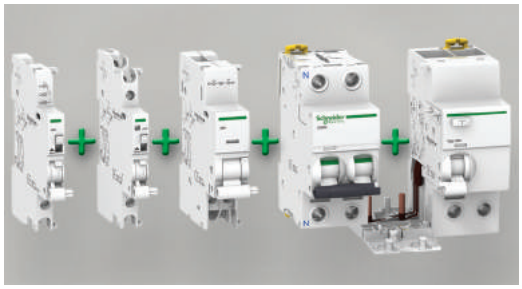
Electrical auxiliaries

For iC60, iID, iDPN Vigi, RCA and ARA

■ The electrical auxiliaries are combined with iC60 circuit breakers, iID residual current circuit breakers, remote tripping switch disconnector iSW-NA , RCA remote controls and ARA automatic reclosers; 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).

The mounting order for the various auxiliaries must be complied with.
The tripping auxiliaries (iMN, iMX) should be mounted first, as close as possible to the circuit breaker or the residual current circuit breaker. Then, the indicating auxiliaries (iOF, iSD) should be mounted, complying with their position shown in the following table.

DB123593



Tripping devices must be mounted first. Comply with the position of the SD function. *iSW-NA : the iSD auxiliary contact must be associated with an auxiliary (iMN, iMX, iMX+OF); it indicates that the remote tripping switch disconnector has been tripped open.

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.

IEC/EN 60947-5-4

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

Indicating auxiliaries

PB104474-25

PB104475-25

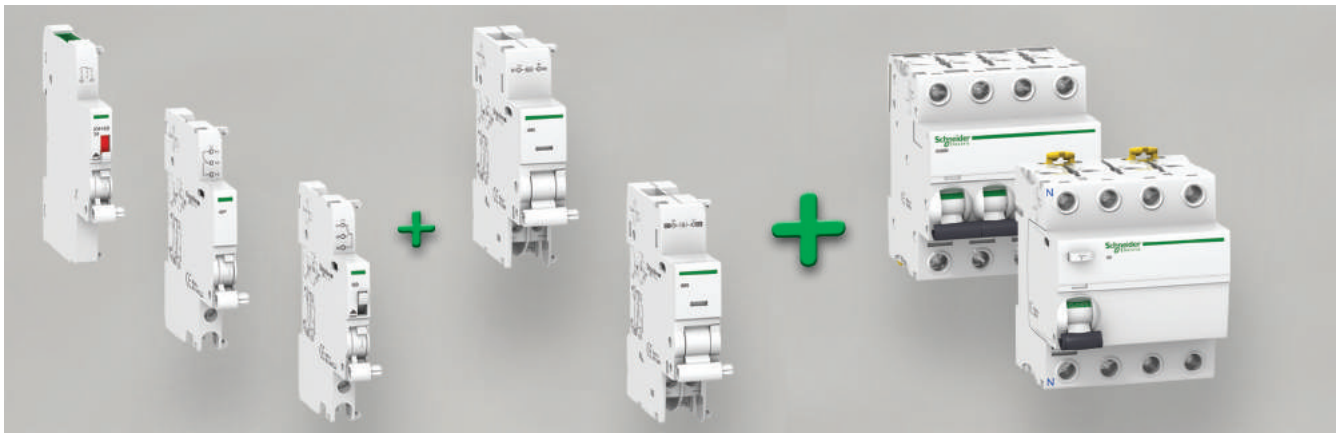
3	2
1 (iOF/SD+OF or iOF+SD24 or iSD)	1 iOF/SD+OF
1 iOF	1 (iSD or iOF or iOF/SD+OF)
None	1 iOF+SD24
None	None
1 iSD	1 iSD
None	1 (iSD or iOF or iOF/SD+OF or iOF+SD24)
1 iOF	1 (iSD or iOF or iOF/SD+OF)
None	1 (iSD or iOF or iOF/SD+OF or iOF+SD24)
1 iOF	1 (iSD or iOF or iOF/SD+OF)

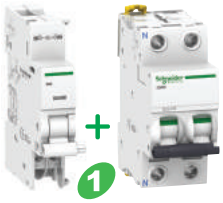
Technical Section 10
Dimensions Section 11

Electrical auxiliaries

For iC60, iID, iDPN Vigi, RCA and ARA (cont.)

DB404939



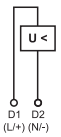
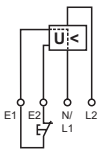
	Tripping auxiliaries	Remote control	Device	Vigi iC60
	PB104496-25 	ARA automatic recloser or RCA remote control	iC60 circuit breaker or iID residual current circuit breaker	Vigi iC60 add-on residual current device
	1 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU) max.	–	PB104437-25  *iC60*	PB104466-25  *Vigi iC60*
	2 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU) max.			
	2 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU) max.			
	3 iMSU max.			
	1 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU) max.			
		–	PB104472-25  *iID/iSW-NA*	–
	1 (iMN, iMNs, iMNx or iMX, iMX+OF or iMSU) max.	PB106256-25  *ARA*	PB104437-25  *iC60*	PB104466-25  *Vigi iC60*
	None		PB104472-25  *iID*	–
	1 (iMX or iMN or iMSU) max.	PB106253-25  *RCA*	PB104437-25  *iC60*	PB104437-25  *Vigi iC60*
	None			

Technical
Section 10

Dimensions
Section 11

Electrical auxiliaries

For iC60, iID, iDPN Vigi, RCA and ARA (cont.)

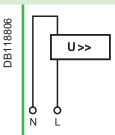
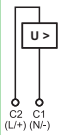
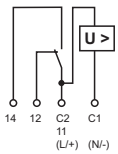
		Tripping						
Auxiliaries		**iMN**			**iMNs**		**iMNx**	
Type		**Undervoltage release**						
		Instantaneous			Delayed		Independent of the supply voltage	
		PB104477-35 			PB104478-35 		PB104480-35 	
Function								
		■ Trips the device with which it is combined when its input voltage decreases (between 70 % and 35 % Un). Prevents device closing again until its input voltage is restored					■ Tripping of the associated device by opening of the control circuit (e.g. push-button, dry contact)	
					■ Not tripping on transient voltage dip (up to 0.2 s)		■ A drop in the supply voltage does not trip the associated device ■ A locking push-button control allows the circuit protected (e.g. machine control) to be placed in safety configuration	
Wiring diagrams								
		DB118804 					DB118805 	
Use								
		■ Emergency stoppage by normally closed push button ■ Ensures the safety of power supply circuits for several machines by preventing "uncontrolled" restarting					■ Emergency stoppage with fail-safe principle ■ Insensitive to control circuit voltage variation to increase service continuity **Important: Before any servicing operation switch off the mains power supply (voltage presence at terminals E1/E2)**	
Catalogue numbers		**A9A26960**	**A9A26961**	**A9A26959**	**A9A26963**	**A9A27108**	**A9A26969**	**A9A26971**
iC60, iID, iDPN Vigi, RCA and ARA		■	■	■	■	■	■	■
Technical specifications								
Rated voltage (Ue)	V AC	220…240	48	115	220…240	24	220…240	380…415
	V DC	–	48		–	24	–	
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.

Technical Section 10 **Dimensions Section 11**

Electrical auxiliaries

For iC60, iID, iDPN Vigi, RCA and ARA (cont.)

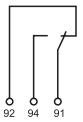
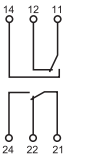
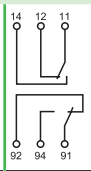
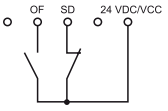
	iMSU					iMX			iMX+OF		
	Overvoltage release					Shunt release					
									With Open/Close auxiliary contact		
	PB104479-35 					PB104496-35 			PB104481-35 		
	■ Switches off the power supply by opening the breaker with which it is combined, in the event that the phase/neutral voltage is exceeded (loss of neutral). For a four-phase network, use three iMSU tripping auxiliaries					■ Trips the breaker when powered					
									■ Includes an open/close contact (OF) to indicate the "open" or "closed" position of the breaker		
	DB118806 					DB123012 			DB118808 		
	■ Protection of equipment against overvoltages on the electrical network (neutral conductor break) ■ Voltage monitoring between phase and neutral conductors					■ Emergency stoppage by normally open push button			■ Emergency stoppage by normally open push button ■ Remote indication of the position of the associated breaker		
	A9A26500					A9A26476	A9A26477	A9A26478	A9A26946	A9A26947	A9A26948
	■					■	■	■	■	■	■
	230					100…415	48	12…24	100…415	48	12…24
	–					110…130	48	12…24	110…130	48	12…24
	255 V AC	275 V AC	300 V AC	350 V AC	400 V AC	–	–	–	–	–	–
	No tripping	15 s	5 s	0.75 s	0.20 s	–	–	–	–	–	–
		3 s	1 s	0.25 s	0.07 s	–	–	–	–	–	–
	50/60					50/60			50/60		
	On front face					On front face			On front face		
	–					–			–		
	2					2			2		
	–					–			≤ 24 V DC	10 mA mini, 6 A maxi	
									48 V DC	2 A	
									≤ 130 V DC	1 A	
									≤ 240 V AC	6 A	
									415 V AC	3 A	
	–					–			1 NO/NC		
	-35…+70					-35…+70			-35…+70		
	-40…+85					-40…+85			-40…+85		

Technical
Section 10

Dimensions
Section 11

Electrical auxiliaries

For iC60, iID, iDPN Vigi, RCA and ARA (cont.)

	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
	 PB104474-35	 PB104476-35	 PB104475-35	 PB107750-35
Function				
	■ Changeover contact indicates "open" or "closed" position of the breaker	■ Changeover contact indicates position of the breaker; upon: □ electrical fault □ action on tripping auxiliary ■ Same indication as VISI-TRIP	■ The iOF/SD+OF auxiliary is a 2-in-1 product: via a mechanical selector switch, it provides two contacts, OF+SD or OF+OF	■ 2 contacts (1 NO + 1 NC) can report the signalling information of the associated device to the Acti 9 Smartlink or a programmable logic controller: □ electrical fault □ actuation of the tripping auxiliary □ "Open" or "Closed" position of the associated device
Wiring diagrams	 DB118810	 DB118811	 DB118812 OF position  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**	**A9A26927**	**A9A26929**	**A9A26897**
iC60, iID, iDPN Vigi, RCA and ARA	■	■	■	■

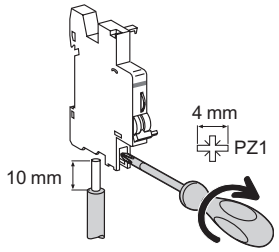
Technical specifications					
Rated voltage (Ue)	V AC	240…415	240…415	240…415	-
	V DC	24…130	24…130	24…130	24
Operating frequency	Hz	50/60	50/60	50/60	-
Red mechanical indicator		–	On front face	On front face	On front face
Test function		On toggle	On toggle	On toggle	On toggle
Width in 9 mm modules		1	1	1	1
Operating current		24 V DC 10 mA mini, 6 A maxi			2 mA mini, 50 mA maxi
		48 V DC 2 A			-
		60 V DC 1.5 A			-
		130 V DC 1 A			-
		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

Technical Section 10 **Dimensions Section 11**

Electrical auxiliaries
For iC60, iID, iDPN Vigi, RCA and ARA (cont.)

Connection

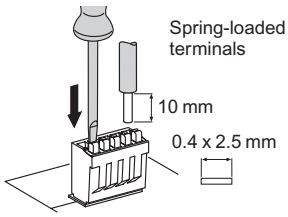
DB123061



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

Ti24 connector connection

DB123580



Type	Catalogue numbers	Copper cables	
		Rigid	Flexible
	DB122945	DB123553	
Ti24 interface	A9XC2412	1 x 0.5 to 1.5 mm^2	1 x 0.5 to 1.5 mm^2

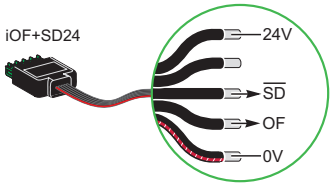
5

Ti24 prefabricated cables connection

PB107754-10

PB107755-14

DB404941



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

Accessories

For iC60, iID, iDPN Vigi, Reflex iC60, RCA, ARA and iSW

Mounting

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

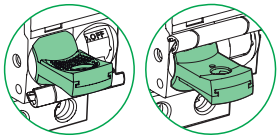
Technical Section 10
Dimensions Section 11

Accessories
For iC60, iID, iDPN Vigi, Reflex iC60, RCA, ARA and iSW (cont.)

Padlocking device

PB104492-15

DB123599



Used to padlock breaker in open or closed position
- Padlock diameter: 3 to 6 mm
- Sealable (max. diameter: 1.2 mm)
- Locking in ON position does not prevent tripping of the breaker in the event of faults
- Suitable for IEC/EN 60947-2 compliant disconnection

	MCB/RCCB	MCB in ISOBAR	RCBO in ISOBAR
	A9A26970	SEA9LA	A9A27049
	10	3	10

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Accessories

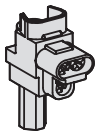
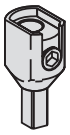
For iC60, iID, iDPN Vigi, Reflex iC60, RCA, ARA and iSW (cont.)

	Security					
Accessories	**Screw shield**		**Terminal shield**		**Inter-pole barrier**	**Spacer**
	PB104489-14 	PB104488-14 	PB104502-35 	PB104503-35 	PB104484-30 	PB111071 
Function						
	Prevents any contact with the connecting screws ■ Upgrades degree of protection to IP20D ■ Sealable, max. diameter 1.2 mm		**Prevents any contact with the terminals** ■ Upgrades degree of protection to IP20D ■ Sealable, max. diameter 1.2 mm ■ Set of two, for upstream and downstream terminals ■ For 3 poles: **A9A26975** + **A9A26976** ■ For 4 poles: 2 X **A9A26976**		**Enhances insulation between connections: cables, terminals, lugs, etc**	■ Used to: □ complete rows □ separate devices. Width: 1 x 9 mm module ■ Allows cable routing from one row to another, (above and below), up to 6 mm^2
Catalogue numbers	**A9A26982**	**A9A26981**	**A9A26975**	**A9A26976**	**A9A27001**	**A9A27062** **DIN mounted** **A9A27063** **Breaker mounted**
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	–	■	–	■	■	■
Reflex iC60 or RCA+iC60 or ARA+iC60	–	■	■	■	■	■
ARA+iID	–	■	–	■	■	■

Technical Section 10 **Dimensions Section 11**

Accessories

For iC60, iID, iDPN Vigi, Reflex iC60, RCA, ARA and iSW (cont.)

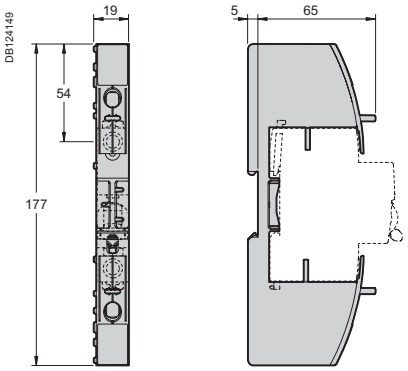
	Connection			
Accessories	**Multi-cable terminal**		**50 mm² terminal Al**	**Screw-on connection for ring terminal**
	DB118780 		DB118781 	DB118783 
Function				
	For 3 copper cables: ■ Rigid up to 16 mm² ■ Flexible up to 10 mm²		For aluminium cables from 16 to 50 mm²	For lug tipped cables, front or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

5

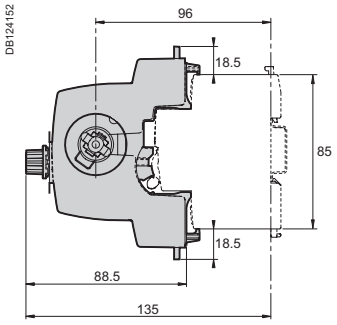
Accessories

For iC60, iID, iDPN Vigi, Reflex iC60, RCA, ARA and iSW (cont.)

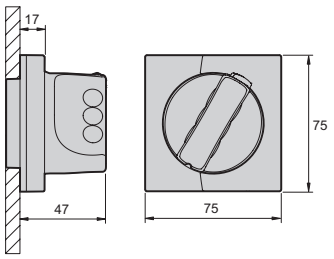
Dimensions (mm)



Plug-in base

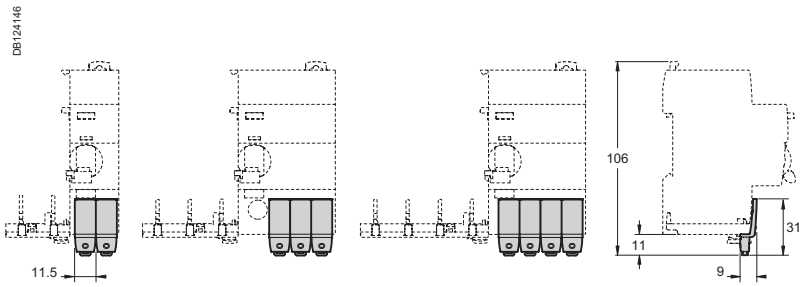


Adapter mechanism

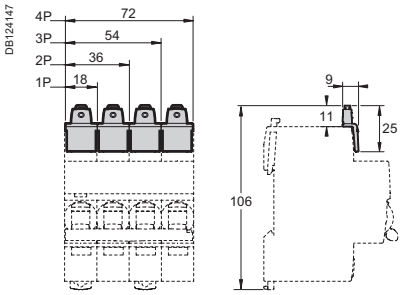


Handle

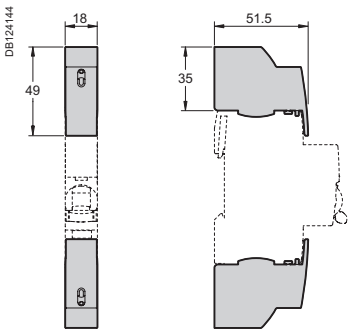
Rotary handle



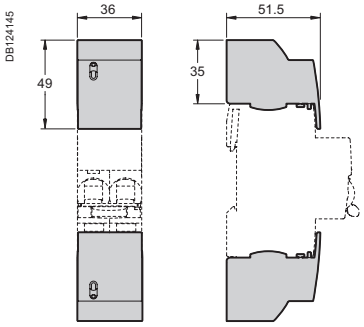
Screw shield 1P (A9A26982)



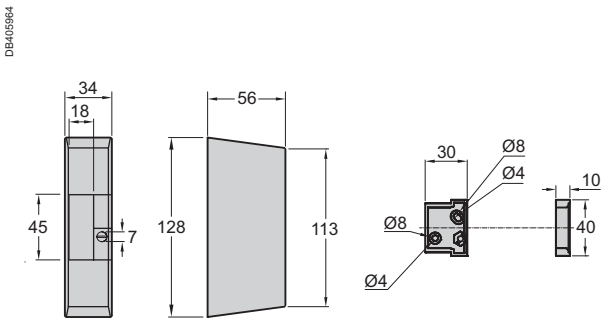
Screw shield 4P (A9A26981)



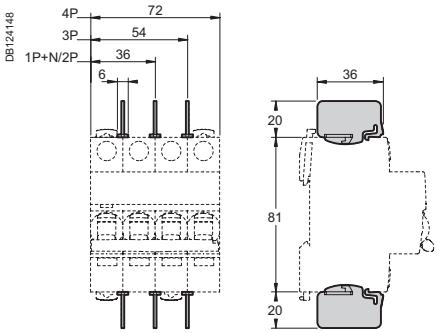
Terminal shield 1P



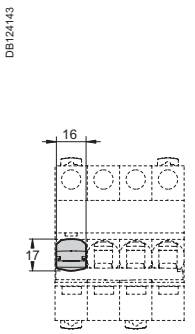
Terminal shield 2P



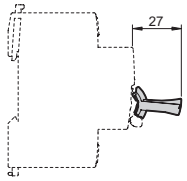
Wall mounted

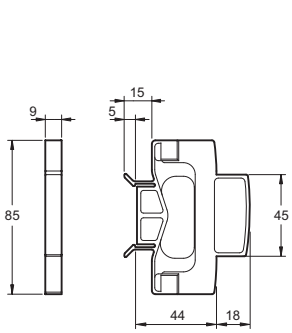


Inter-pole barrier



Padlocking device





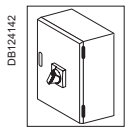
Spacer

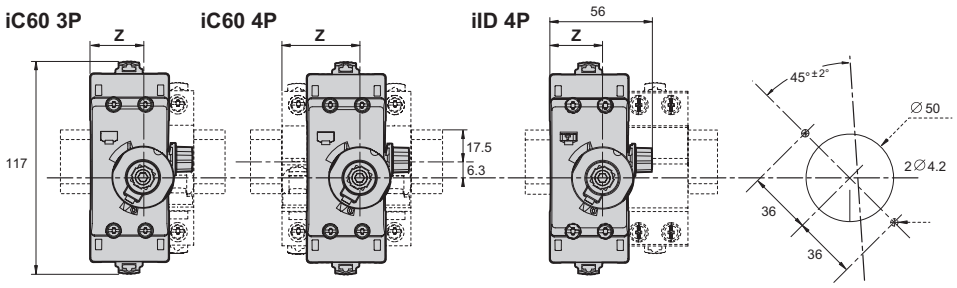
Accessories

For iC60, iID, iDPN Vigi, Reflex iC60, RCA, ARA and iSW (cont.)

Rotary handle installation

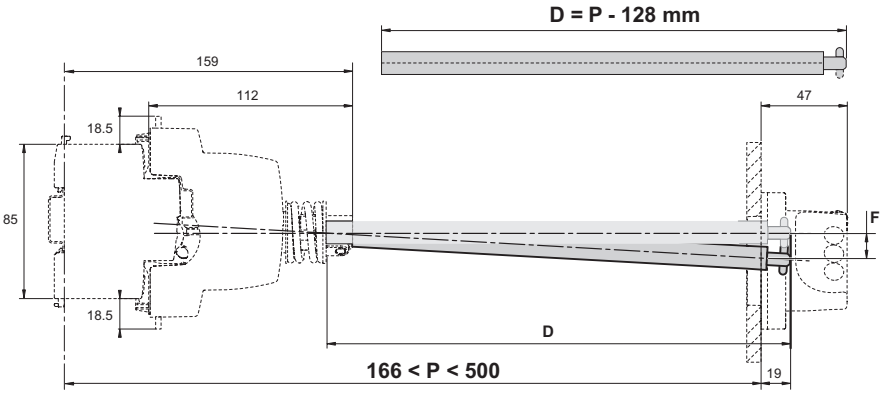
Dimensions (mm)

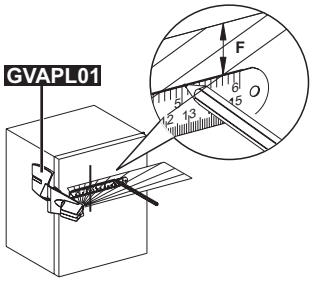




iC60	Z (mm)
2P	25.3
2P + Vigi	25.3
3P	25.3
3P + Vigi	43
4P	43
4P + Vigi	43

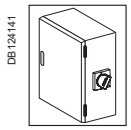
iID	Z (mm)
2P	25.3
4P	25.3

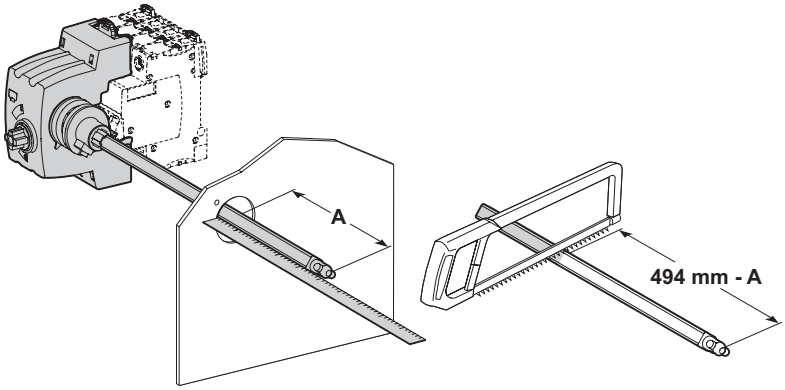


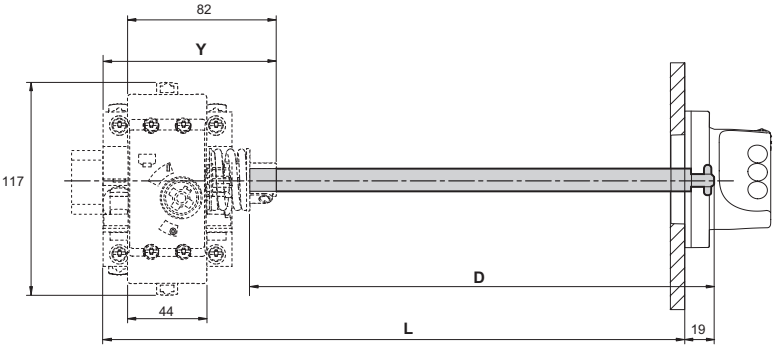


P (mm)	F (mm)
300	5
500	11

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

Technical
Section 10

Dimensions
Section 11

Accessories

For iC120, DPN, DPN Vigi, C60H-DC, SW60-DC, C60NA-DC, C60PV-DC, iSW devices

Installation

Accessories	Rotary handle			Plug-in base		Padlocking device	
	PB100137_SE-24 PB100138_SE-24 			PB111764-40 		056886_SE  057209J_SE-20 	
Function							
	Front or side control of 2, 3 and 4-pole circuit breakers ■ Degree of protection: IP40 ■ A complete rotary handle consists of: □ a circuit-breaker operating sub-assembly, cat. no. **27046**, □ a handle cat. no. **27047** or a handle cat. no. **27048** ■ Installation: □ the circuit-breaker operating sub-assembly cat. no. **27046** is fixed to the circuit breaker □ the removable handle cat. no. **27047** is mounted on the removable front panel or on the enclosure door □ the fixed handle cat. no. **27048** is fixed to the front or side panel of the enclosure			**Allows a circuit breaker to be quickly removed or replaced, without touching the connections** ■ Degree of protection: IP20 ■ It consists of: □ a base to be fixed to a rail (or panel) □ 2 "blades" to be fixed in the device terminals ■ Connection: tunnel terminals for cables up to 50 mm² (rigid) or 35 mm² (flexible) ■ Installation: □ on backplate □ on a horizontal rail ■ Centreline between two rows: 200 mm ■ Only on the circuit breaker, without a Vigi device or auxiliary ■ Padlocking option (8 mm dia. padlock not supplied)		**Used to padlock a circuit breaker in the "open" or "closed" position** ■ Diameter of the padlock: 8 mm max. ■ Locking in the ON position does not prevent the circuit breaker from tripping in the event of a fault ■ Isolation: in conformity with IEC/EN 60947-2.	
Cat. numbers	**27047** Removable extended handle	**27048** Fixed handle	**27046** Operating sub-assembly	**26996** (1 per pole)	**26997** (1 per pole)	**27145**	**26970**
Set of	**1**	**1**	**1**	**1**	**1**	**4**	**2**
Suitable for the following devices:							
iC120	■ 2P, 3P, 4P			–	■ ⩽ 63 A	■	–
iC120 + Vigi iC120	■ 2P, 3P, 4P			–	–	■	–
DPN, DPN Vigi	■ 3P, 4P			–	–	–	■
C60H-DC	■ 2P			■	–	–	■
SW60-DC, C60NA-DC, C60PV-DC	–			–	–	–	■
iSW	■ iSW ⩾ at 4 modules of 9 mm			■ iSW 40 to 63 A	–	–	■

5

Technical Section 10
Dimensions Section 11

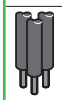
Accessories

For iC120, DPN, DPN Vigi, C60H-DC, SW60-DC, C60NA-DC, C60PV-DC, iSW devices (cont.)

Safety

Accessories	Screw shield		Terminal shield			Interpole barrier	Spacer
							
Function							
	Prevents all contact with the fixing screws ■ The degree of protection becomes IP40 ■ Sealable, max. diameter 1.2 mm ■ Dividable		**Prevents all contact with the terminals** ■ Degree of protection becomes IP40 ■ Sealable, max. diameter 1.2 mm			**Improves the insulation between the connections: cables, terminals, lugs, etc.**	■ Used to: □ complete the rows □ separate the devices ■ Width: 1 x 9 mm module ■ Allows that 2 cables are routed from one row to another (above and below), up to 6 mm²
			■ 1P	■ 1P	■ 2P		
				■ 3P: 1 x 26975 + 1 x 26976 ■ 4P: 2 x 26976			
Cat. numbers	**18527**	**26981**	**18526**	**26975**	**26976**	**27001**	**A9N27062**
Set of	**2 (4P dividable)**		**2 (for upstream/downstream terminal)**			**10**	**1**
Suitable for the following devices:							
iC120	■	–	■	–	–	■	■
Vigi iC120	–	–	–	–	–	–	■
DPN, DPN Vigi	–	–	–	–	–	–	■
C60H-DC	–	■	–	■	■	■	■
SW60-DC, C60NA-DC, C60PV-DC	–	■	–	–	–	■	■
iSW	–	■ iSW 40 to 125 A	–	■ iSW 40 to 125 A		■ iSW 40 to 125 A	■

Connection

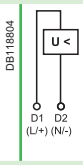
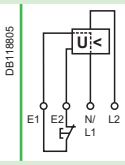
Accessories	Multi-cable terminal		50 mm² Al terminal	Screw-on connection for ring terminal	Connection kit for ring terminals	Terminal for rear connector
						
Function						
	For 3 copper cables: ■ Rigid up to 16 mm² ■ Flexible up to 10 mm²		**For 16 to 50 mm² aluminium cables**	**For lug tipped cables, front or rear mounting**	**For terminal up to 63 A, front or rear access (screw Ø 5 mm)** ■ It incorporates a "conductive" part and an "insulating" part which ensures the phase-to-phase clearance	**For cable up to 50 mm² or by terminal** ■ Supplied with a 1P terminal shield
						
Cat. numbers	**19091**	**19096**	**27060**	**27053**	**17400**	**18528**
Set of	**4**	**3**	**1**	**8**	**2**	**2**
iC120	■	■	■	■ 5 mm	–	■
Vigi iC120	■	■	■	–	–	–
DPN, DPN Vigi	–	–	–	■	–	–
C60H-DC, 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	–

Technical Section 10
Dimensions Section 11

Electrical auxiliaries

For iC120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC devices

Tripping

Auxiliaries	MN	MNs	MNx
Type	**Undervoltage release**		
	Instantaneous	Delayed	Independent of the supply voltage
	 PB107151-30	 PB107152-30	 PB107149-30
Function			
	■ Causes the device with which it is associated to trip when its input voltage decreases (between 70 % and 35 % of Un). Prevents the device from closing until its input voltage has been restored		■ Tripping of the associated device by opening of the control circuit (e.g. push-button, dry contact)
		■ No tripping in the event of transient voltage dips (up to 0.2 s)	■ A drop in the supply voltage does not trip the associated device ■ A locking push-button control allows the circuit protected (e.g. machine control) to be placed in safety configuration
Wiring diagrams			
	 DB118804		 DB118805
Utilization			
	■ Emergency stop via a normally-closed pushbutton ■ Ensures the safety of the power supply circuits of several machines by preventing accidental startups		■ Fail-safe emergency stop ■ Insensitive to the variation in the control circuit voltage to improve continuity of service **Important: Before any servicing operation switch off the mains power supply (voltage presence at terminals E1/E2)**

Catalogue numbers	A9N26960	A9N26961	A9N26959	A9N26963	A9N26969	A9N26971
iC120, DPN, DPN Vigi, ID	■	■	■	■	■	■
C60H-DC, SW60-DC, C60PV-DC, C60NA-DC	■	■	■	■	■	■

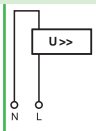
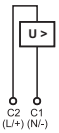
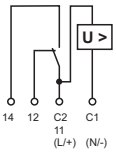
Technical specifications							
Rated voltage (Ue)	V AC	220…240	48	115	220…240	230	400
	V DC	–	48	–	–	–	
Standardised operating and non-response to voltage times (Ua)*		–	–	–	–	–	–
Maximum operating time		–	–	–	–	–	–
Minimum non-response time		–	–	–	–	–	–
Operating frequency	Hz	50/60		400	50/60	50/60	
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 iC120, DPN.
**(Ua): Voltages measured between the phase and the neutral conductor, at which the MSU device must control the associated protective device.*

Technical Section 10 Dimensions Section 11

Electrical auxiliaries

For iC120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC devices (cont.)

	MSU	MX	MX+OF
	Voltage threshold release	**Shunt release**	
			With Open/Close auxiliary contact
	PB107153-30 	PB107150-30 	PB107148-30 
	■ 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
	DB118806 	DB123012 	DB118808 
	■ Protection of the devices against overvoltages on the electrical network (break in the neutral conductor) ■ Monitoring the voltage between the phase conductor and the neutral conductor	■ Emergency stop via a normally-open pushbutton.	■ Emergency stop via a normally-open pushbutton ■ Remote indication of the position of the associated device
	A9N26500	**A9N26476** / **A9N26477** / **A9N26478**	**A9N26946** / **A9N26947** / **A9N26948**
	■	■ / ■ / ■	■ / ■ / ■
	–	■ / ■ / ■	■ / ■ / ■
	230	100…415 / 48 / 12…24	100…415 / 48 / 12…24
	–	110…130 / 48 / 12…24	110…130 / 48 / 12…24
	255 V AC / 275 V AC / 300 V AC / 350 V AC / 400 V AC	– / – / –	– / – / –
	No tripping / 15 s / 5 s / 0.75 s / 0.20 s	– / – / –	– / – / –
	3 s / 1 s / 0.25 s / 0.07 s	– / – / –	– / – / –
	50/60	50/60	50/60
	On front face	On front face	On front face
	–	–	–
	2	2	2
	–	–	3 A / 415 V AC 6 A / ≤ 240 V AC
	–	–	1 NO/NC
	-25…+50	-25…+50	-25…+50
	-40…+85	-40…+85	-40…+85
	■	■	■
	–	–	–
	–	–	–
	–	–	–

Technical Section 10
Dimensions Section 11

Electrical auxiliaries

For iC120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC devices (cont.)

	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 ComReady
Function					
	■ Changeover contact indicating the "open" or "closed" position of the associated device	■ Changeover contact indicating the "open" or "closed" position of the associated device	■ Changeover contact indicating the position of the associated device in the event of: □ electrical fault □ action on the tripping auxiliary	■ The OF+SD/OF auxiliary is a two-in-one product: choice of OF + SD or OF + OF contact via the selector switch	■ 2 contacts (1 NO + 1 NC) can report the signalling information of the associated device to the Acti 9 Smartlink or a programmable logic controller: □ electrical fault □ actuation of the tripping auxiliary □ "Open" or "Closed" position of the associated device
	⚠ **Compulsory for the addition of tripping or indication auxiliaries on a residual current circuit breaker ID**		⚠ **Not compatible with a ID residual current circuit breaker, use an OF+SD/OF in the SD position**		
Wiring diagrams					
	DB118809 14 12 11	DB118810 14 12 11	DB118811 92 94 91	DB118812 14 12 11 / 24 22 21 (OF position); DB118813 14 12 11 / 92 94 91 (SD position)	DB124318 OF SD 24 VDC/VCC
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	■	■	■	■	■
iC120, DPN, DPN Vigi, C60H-DC, C60H-DC, SW60-DC, C60PV-DC, C60NA-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		3 A /415 V AC 6 A / ⩽ 240 V AC				2 mA mini, 100 mA maxi
Number of contacts		1 NO/NC	1 NO/NC	1 NO/NC	1 NO/NC + 1 NO/NC	1 NO + 1 NC
Operating temperature	°C	-25…+50	-25…+50	-25…+50	-25…+50	-25…+70
Storage temperature	°C	-40…+85	-40…+85	-40…+85	-40…+85	-40…+85
Standards						
IEC/EN 60947-1		–	–	–	–	–
IEC/EN 60947-5-1		■	■	■	■	■ IEC 60947-5-4
EN 60947-2		–	–	–	–	–
EN 62019-2(1)		■	■	■	■	–

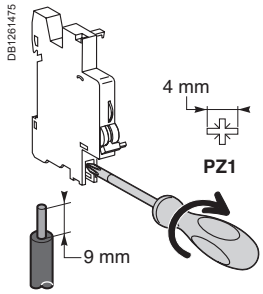
(1) For iC120, DPN.

Technical Section 10 **Dimensions Section 11**

Electrical auxiliaries

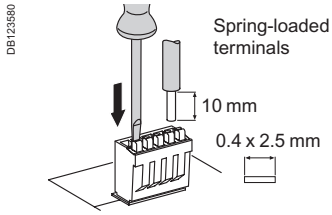
For iC120, DPN, DPN Vigi, ID, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC devices (cont.)

Connection



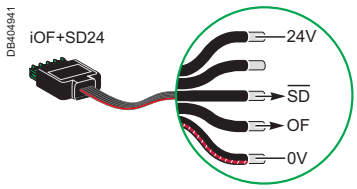
Type	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
			
Indication and tripping auxiliaries	1 N.m	0.5 to 2.5 mm²	2 x 1.5 mm²

Ti24 connector connection



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

Ti24 prefabricated cables connection

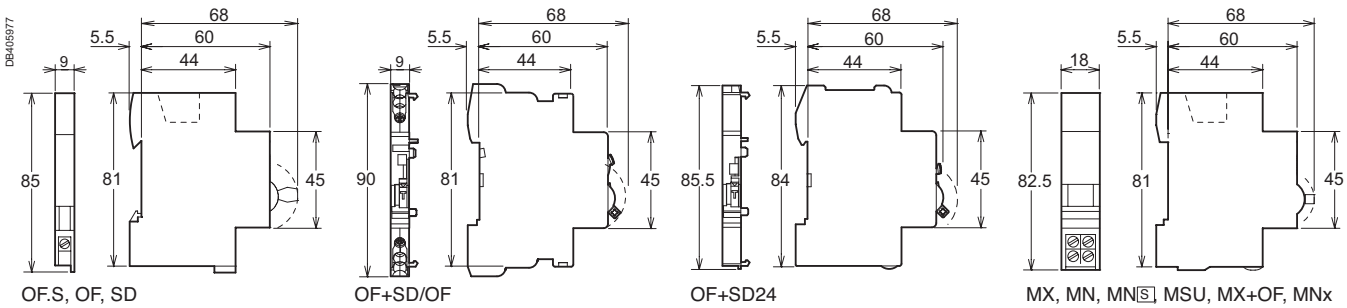


Type	Cat. no.	Length
Connection for Acti 9 Smartlink		
6 short prefabricated	**A9XCAS06**	100 mm
6 medium-sized prefabricated	**A9XCAM06**	160 mm
6 long prefabricated	**A9XCAL06**	870 mm
Connection for PLC type terminals		
6 long prefabricated on a single side	**A9XCAU06**	870 mm

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

Dimensions (mm)



Technical Section 10
Dimensions Section 11

Accessories and auxiliaries

For NG125 devices

Connection

6	Comb busbar			see **Section 7**
7	Splitter blocks	Linergy DX 125 A		see **Section 7**
8	70 mm² Al terminal			**19095**
9	Multi-cable terminal		4 parts	**19091**
			3 parts	**19096**
10	Screw-on connection for ring	125 A	(pack of 4)	**19093**
11	Small ring terminal		(pack of 4)	**19094**

Mounting accessories

12	Sealable terminal shield (upstream/downstream)		1P	**19080**
			2P	**19081**
			3P	**19082**
			4P	**19083**
13	Residual current device terminal shield (upstream of circuit breaker / downstream of Vigi device)	63 A	2P	**19074**
			3P	**19075**
			3P adjustable	**19077**
			4P	**19076**
			4P adjustable	**19078**
		125 A	3P	**19077**
			4P	**19078**
14	Circuit breaker screw shield		1P (pack of 10)	**19084**
			2P	**19085**
			3P	**19086**
			4P	**19087**
15	Rotary handle			
	Extended standard	Black		**19088**
	Extended safety	Red handle, yellow		**19089**
	Direct standard	Black		**19092**
	Direct safety	Red handle, yellow background		**19097**
16	Padlocking device		(pack of 10)	**19090**
17	White toggle		(pack of 10)	**19099**

Electrical auxiliaries

Indication

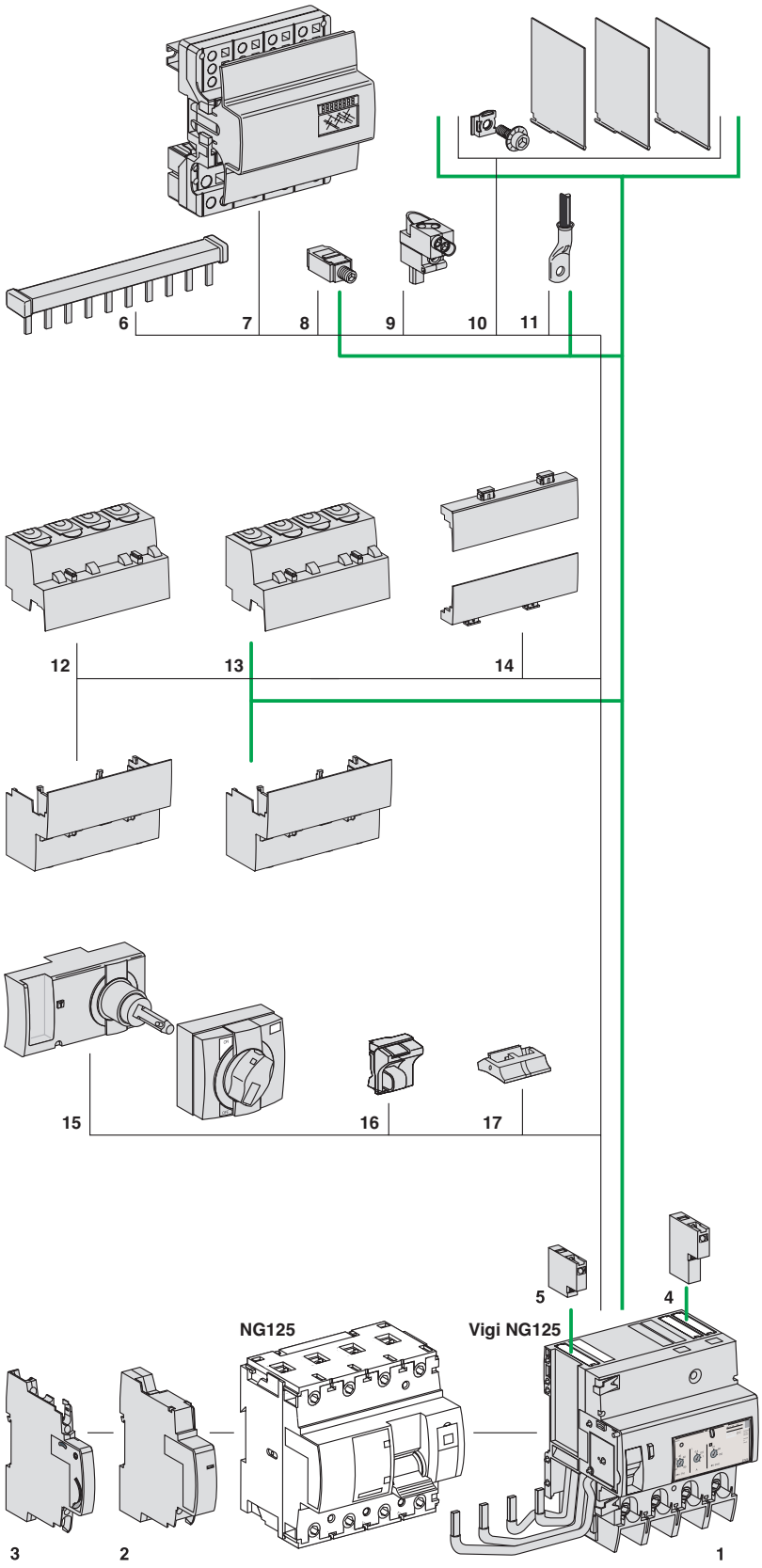
3	Fault indicating auxiliary contact OF+SD	**19071**
	Open/closed auxiliary contact OF+OF	**19072**

Tripping devices

2	Undervoltage release MN 230 - 240V AC Undervoltage release MNx with external power supply 220 -240V AC	**19067** **19061**
	Shunt release MX+OF 230 - 415V AC	**19064**

Vigi NG125

1	Vigi NG125 add-on residual current devices		see **Section 3**
4	MXV		**19060**
5	SDV	NO NC	**19058** **19059**



Contents

Control and command

6

iCT contactors

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

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

Contactors

Contactors auxiliaries

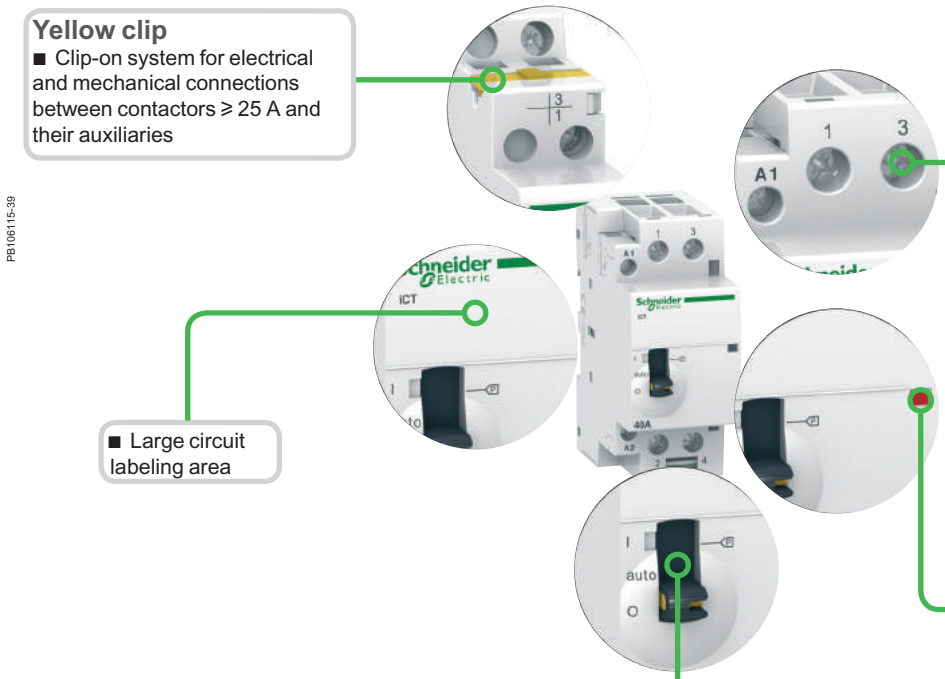
		Choice of 50 Hz contactors									
Type		**Contactor**						**Manually-operated contactors**			
Rating	A	16	20	25	40	63	100	16	25	40	63
Auxiliaries								**Contactors that can be equipped with auxiliaries**			
iACTs indication auxiliary		Yes	Yes	Yes				Yes			
iACTp protection auxiliary	By yellow clips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

Technical Section 10
Dimensions Section 11

iCT contactors (cont.)

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

■ Insulated terminals IP20



■ Minimum noise

■ Large circuit labeling area

■ Mechanical contact position indicator

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

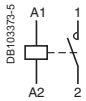
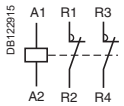
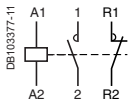
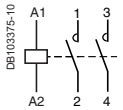
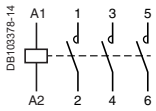
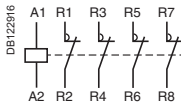
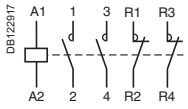
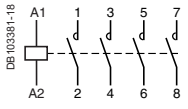
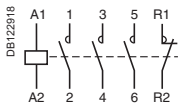
■ Manually-operated contactors have a 4-position selector switch on their front face:
□ automatic operating mode
□ temporary "ON" override
□ permanent "ON" override: used to lock the contactor in the ON position during installation maintenance
□ shutdown

6

iCT contactors (cont.)

Catalogue numbers

iCT contactors - 50 Hz

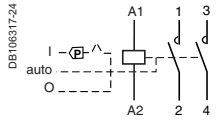
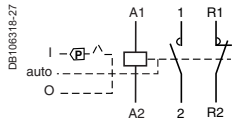
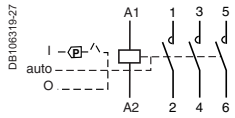
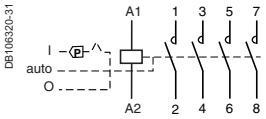
Type						Width in 9 mm modules
1P	Rating (In) AC7a	AC7b	Control voltage (V AC) (50 Hz)	Contact		
	16 A	6 A	12	1NO	**A9C22011**	2
			24	1NO	**A9C22111**	2
			48	1NO	**A9C22211**	2
			220	1NO	**A9C22511**	2
			230…240	1NO	**A9C22711**	2
	25 A	8.5 A	220	1NO	**A9C20531**	2
			230…240	1NO	**A9C20731**	2
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

6

iCT contactors (cont.)

Catalogue numbers

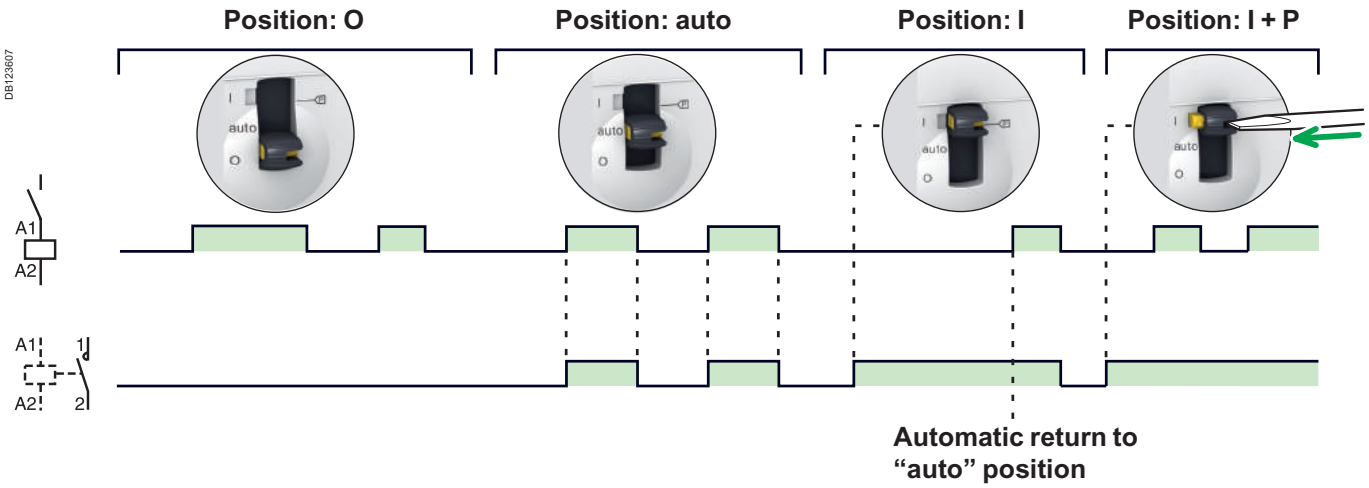
iCT manual control contactor 50 Hz

Type						Width in 9 mm modules
2P	Rating (In) AC7a	AC7b	Control voltage (V AC) (50/60 Hz)	Contact		
 DB106317-24	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
 DB106318-27			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						
 DB106319-27	25 A	8.5 A	220...240	3NO	**A9C21833**	4
	40 A	15 A	220...240	3NO	**A9C21843**	6
4P						
 DB106320-31	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

6

iCT contactors (cont.)

Operation (Manual control contactor)



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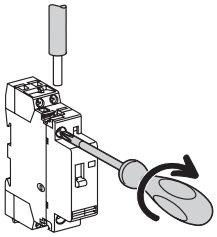
iCT contactors (cont.)

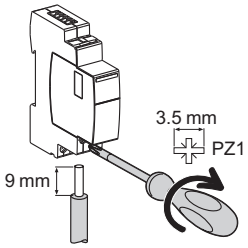
Connection

DB123606



Type		Rating	Lenght tripping	Circuit	Tightening torque	Copper cables	
						Rigid	Flexible or ferrule
					DB122945	DB122946	
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

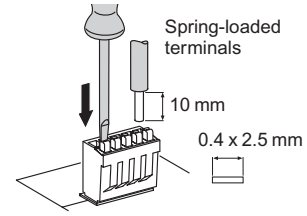
DB124308



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

Ti24 connector connection

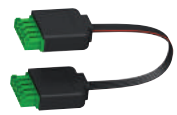
DB123580



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

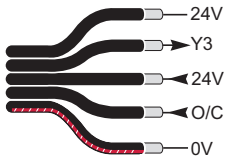
Ti24 prefabricated cables connection

PB107754-10



PB107755-14

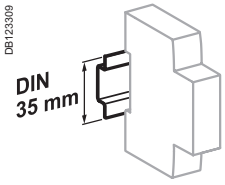
DB404857



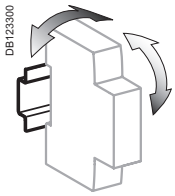
Type	Catalogue numbers	Length
Connection for Acti 9 Smartlink		
6 short prefabricated	**A9XCAS06**	100 mm
6 medium-sized prefabricated	**A9XCAM06**	160 mm
6 long prefabricated	**A9XCAL06**	870 mm
Connection for PLC type terminals		
6 long prefabricated on a single side	**A9XCAU06**	870 mm

6

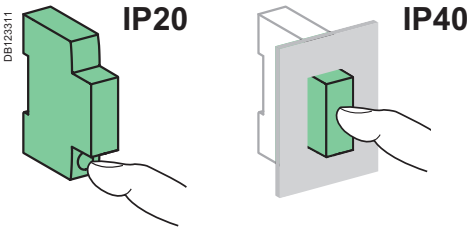
iCT contactors (cont.)

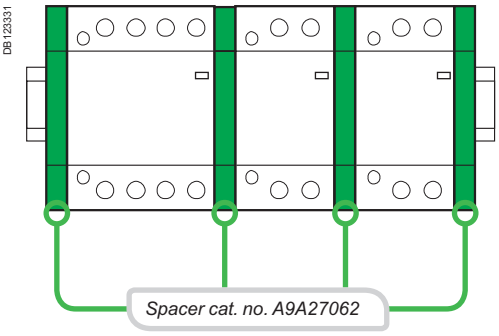


Clip on DIN rail 35 mm.



± 30° vertical.





Technical data

Power circuit		
Voltage rating (Ue)	1P, 2P	250 V AC
	3P, 4P	400 V AC
Frequency		50 Hz
Type of load		See technical section
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

6

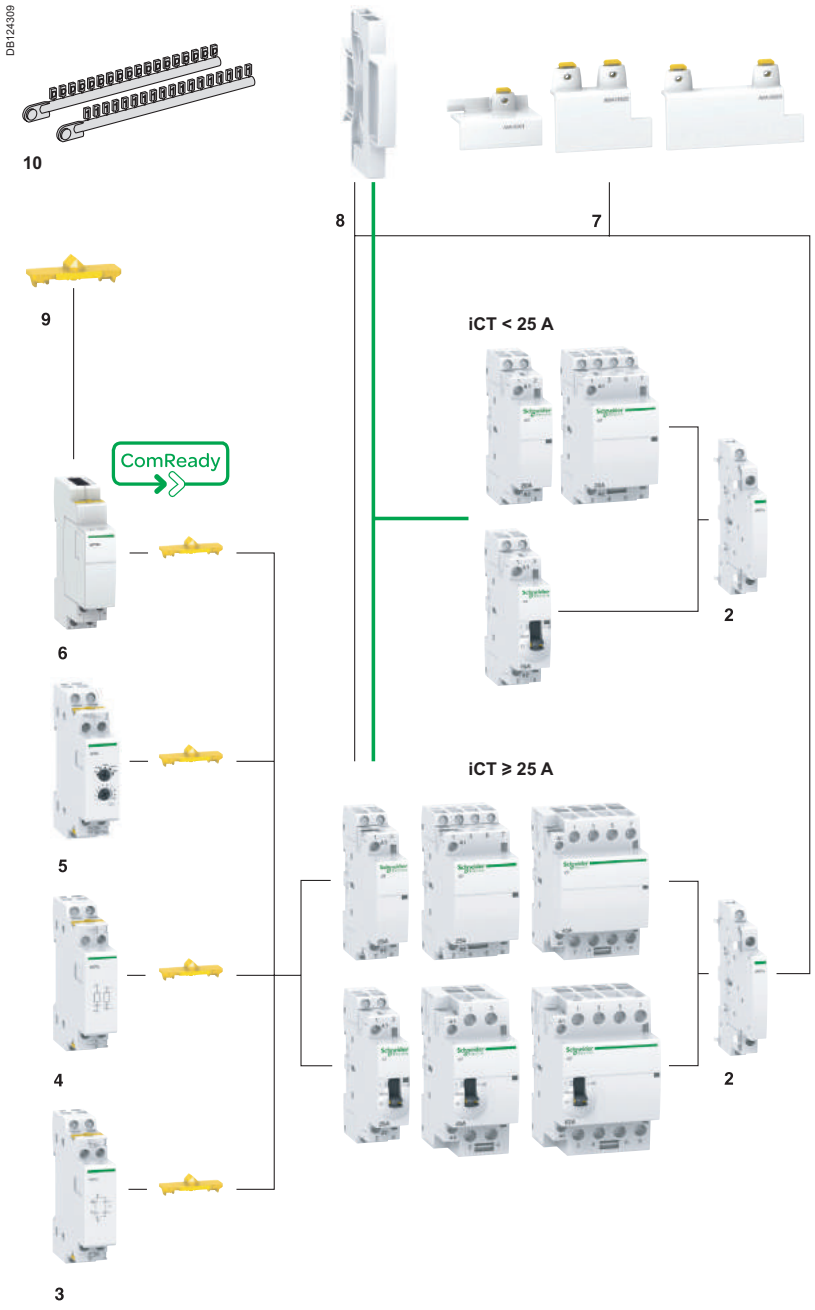
iCT contactors (cont.)

Mounting accessories

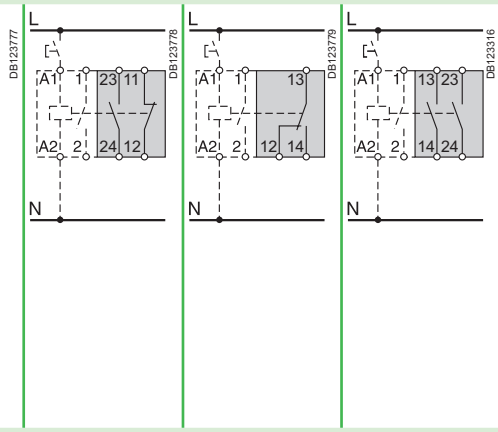
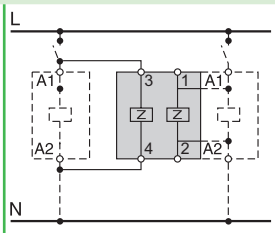
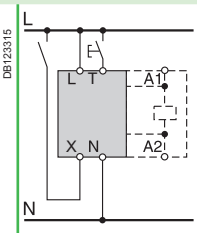
7	Sealable screw shields for top and bottom	3P, 4P 25 A	**A9A15921**
		2P 40/63 A	**A9A15922**
		3P, 4P 40/63 A	**A9A15923**
8	9 mm spacer		**A9A27062**
9	Yellow clips		**A9C15415**
10	Clip-on terminal markers	see module	**CA907001**

Auxiliaries

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



iCT contactors
Electrical auxiliaries for iCT

	Indication			Protection			Control	
Auxiliaries	**iACTs**			**iACTp**			**iACTc**	
Type	**Indication**			**Interference filtering**			**Impulse/latched control**	
	With Open/Close auxiliary contact			2 protection circuits				
								
Function								
	■ This auxiliary allows indication of the "open" or "closed" position of the contactor power contacts			■ This auxiliary is an interference suppressor which limits overvoltages on the control circuit			■ This auxiliary, combined with contactors, enables them to be controlled by 2 order types: □ impulse order for local control (input T) □ latched order for centralised control (input X) □ the last order received takes priority	
Wiring diagrams								
Mounting								
	■ Mounted to the right of iCT			■ Mounted to the left of iCT by yellow clips (1) ■ By wires			■ Mounted to the left of iCT by yellow clips (1)	
Use								
	–			■ The iACTp has 2 separate and identical circuits, allowing it to be combined with 2 different one on the iCT the other by wires			■ Mains power outages: □ < 70 ms: keeps its initial status □ > 80 ms: reset □ put back into operation by manual operation on input X or T. ■ Minimum impulse duration: 250 ms	
Catalogue numbers	**A9C15914**	**A9C15915**	**A9C15916**	**A9C15918**	**A9C15919**	**A9C15920**	**A9C18308**	**A9C18309**
Technical specifications								
Control voltage (Ue)	V AC	24…240		48 …127	12 …48	220 …240	230…240	24…48
	V DC	24…130		–			–	
Control voltage frequency	Hz	50/60		50/60			50/60	
Width in 9 mm modules		1		2			2	
Auxiliary contact (breaking capacity)		■ Mininimum: 10 mA at 24 V DC/AC - cos φ = 1 ■ Maximum: □ 5 A at 240 V AC - cos φ = 1 □ 1 A at 130 V DC		–			–	
Number of contacts		1NO + 1NC	1CO	2NO	–		–	
Operating temperature	°C	-5°C to +50°C						
Storage temperature	°C	-40°C to +70°C						
Consumption		–		–			OFF load: 3 VA Inrush (2): 2 VA Holding (2): 0.2 VA	

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

Technical Section 10 **Dimensions Section 11**

iCT contactors
Electrical auxiliaries for iCT (cont.)

Control (cont.)

iATEt

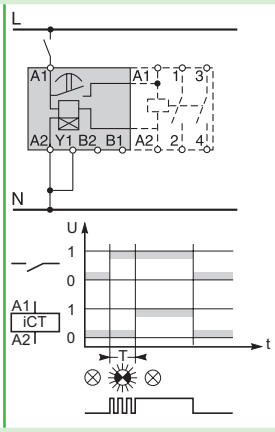
Time delay

PB106125-34

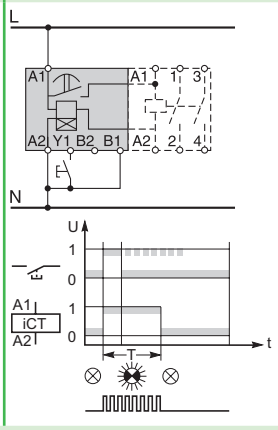
■ This auxiliary is used to time delay for iCT and iTL. According to cabling, there are 5 possible time delay types:
□ 1 for iTL
□ 4 for iCT.

Function type A: late closing	**Function type B: time delay**	**Function type C: late opening**	**Function type H: fixed time operation**
■ Delay energizing of contactor.	■ Energize the contactor by closing a push button. ■ The time delay starts as soon as the control contacts are closed.	■ Energize the contactor by closing a push button. ■ The time delay starts when the control contacts are opened.	■ Operate the contactor for a pre-determined time from the moment of energizing.

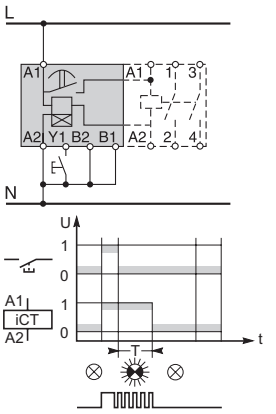
DB123321



DB124104



DB123323



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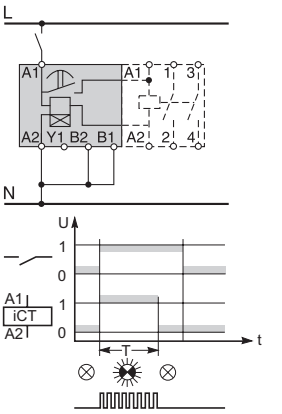


■ Mounted to the left of iCT by yellow clips (1)

–

A9C15419

24…240

24…110

50/60

2

–

–

-20°C to +50°C

-40°C to +80°C

Off-load: 5 VA
Inrush (2): 3 A
Holding (2): 0.2 A

Technical
Section 10

Dimensions
Section 11

iCT contactors
Electrical auxiliaries for iCT (cont.)

Control and indication

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

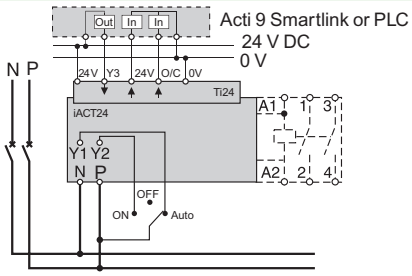
PB107751-34

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

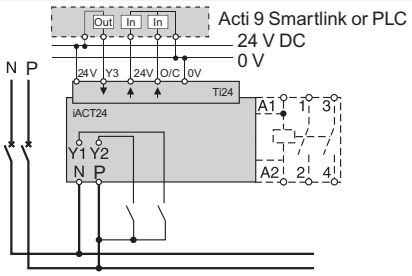
Wiring diagrams

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.

Technical
Section 10

Dimensions
Section 11

iCT contactors
Accessories for iCT

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

6

Technical
Section 10

Dimensions
Section 11

iTL impulse relays

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

Impulse relays

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

Remote indication

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

Indication iATLs
■ Allows remote indication of the associated impulse relay

Centralised control

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

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

Latched control

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

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

Impulse relays

iTL impulse relays (cont.)

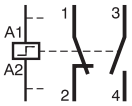
Impulse relays are used:

- 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.

PB106131-34

Changeover contact iTLi

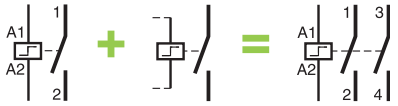
- This impulse relay has a changeover contact



PB106134-34

Extensions iETL

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



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

PB106136-34

Multi-level centralised control iATLc+c

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

PB107752-34

ComReady

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)

PB106142-63

Step by step control iATL4

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

6

Impulse relays auxiliaries

Specific auxiliaries

Technical Section 10

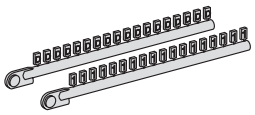
Dimensions Section 11

iTL impulse relays (cont.)

Mounting accessories

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

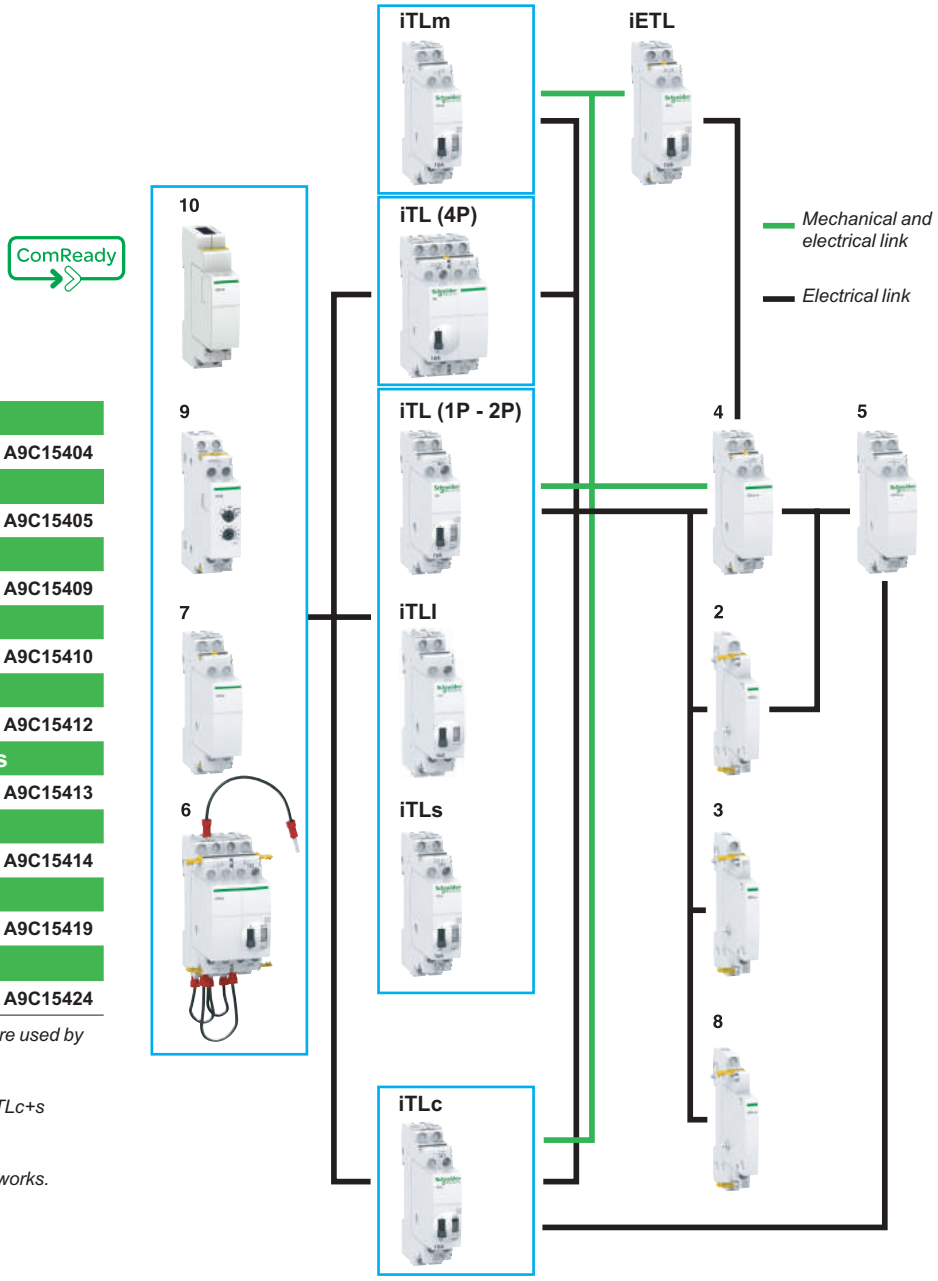
DB123631



13

12

11



ComReady

Auxiliaries

Centralised control			
2	iATLc (1), (3)	24...240 V AC	**A9C15404**
Indication			
3	iATLs (1)	24...240 V AC	**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	130...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 are used by themselves 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 (cont.)

PB106126-41

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

■ Insulated terminals IP20

■ Large circuit labeling area

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

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

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

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

6

		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	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
	V DC	110	48	24	12	6	110	110	48	24	12	6		-			-	110	24	12
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		■	-	-	-	-	■	■	-	-	-	-		■	-	-	-	■	-	-

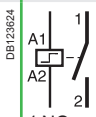
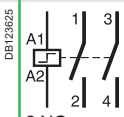
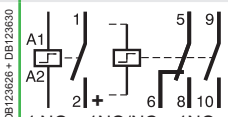
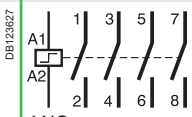
(*) iATEt : does not operate on 12 V DC.

Technical Section 10 **Dimensions Section 11**

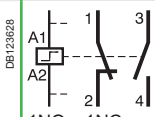
iTL impulse relays (cont.)

Catalogue numbers

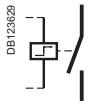
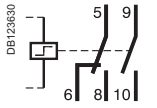
iTL impulse relays

Type			1P	2P	3P	4P
			 1 NO	 2 NO	 1 NO + 1NO/NC + 1NO	 4 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**
32 A	230...240	110	**A9C30831**	**A9C30831 + A9C32836**	**A9C30831 + 2 x A9C32836**	**A9C30831 + 3 x A9C32836**
Width in 9 mm modules			2	2	4	4

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

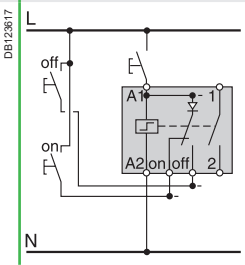
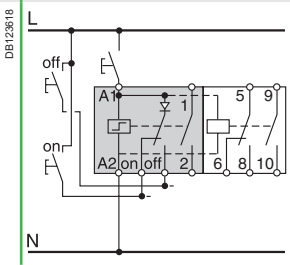
Type					Width in 9 mm modules
1P	Rating (In)	Control voltage (Uc) (V AC) (50/60 Hz)	(V DC)		
 1NO	32 A	230...240	110	**A9C32836**	2
2P					
 1NO/NC + 1NO	16 A	12	6	**A9C32016**	2
		24	12	**A9C32116**	2
		48	24	**A9C32216**	2
		130	48	**A9C32316**	2
		230...240	110	**A9C32816**	2

6

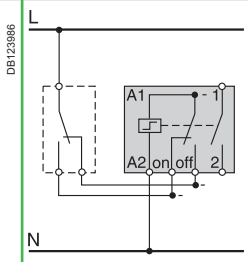
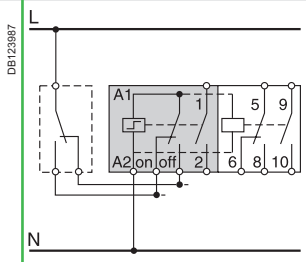
iTLc, iTLm, iTLs
with built-in auxiliary function

Catalogue numbers (cont.)

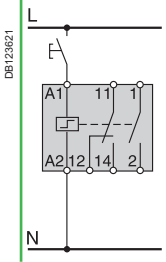
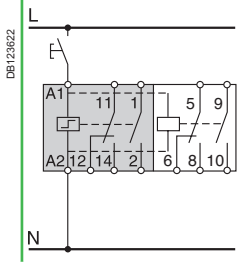
iTLc impulse relay with centralised control

Type		1P	3P
		 1NO	 3P
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
		 1NO	 3P
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
			 1NO	 3P
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

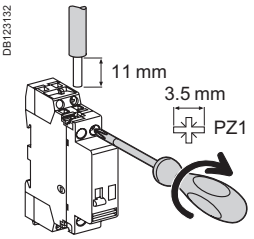
(*) Short circuit protection device for indication contacts : 6 A gG fuse.

Technical Section 10 Dimensions Section 11

iTL impulse relays (cont.)

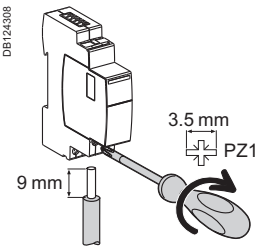
Connection

DB123132



Type	Rating	Circuit	Tightening torque	Copper cables	
				Rigid or ferrule	Flexible or 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

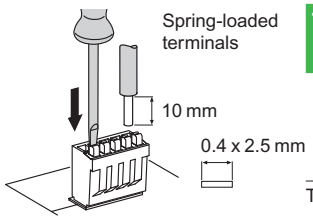


Type	Terminals	Tightening torque	Copper cables		
			Rigid	Flexible	Flexible or ferrule
		DB122945	DB123553	DB123554	
iATL24	Power supply (N/P)	1 N.m	0.5 to 10 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 6 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 4 mm² 2 x 0.5 to 2 x 2.5 mm²
	Input (Y1/Y2)				

6

Ti24 connector connection

DB123580



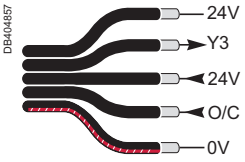
Type	Catalogue numbers	Copper cables	
		Rigid	Flexible
	DB122945	DB123553	
Ti24 interface	**A9XC2412**	1 x 0.5 to 1.5 mm²	1 x 0.5 to 1.5 mm²

Ti24 prefabricated cables connection

PB107754-10

PB107755-14

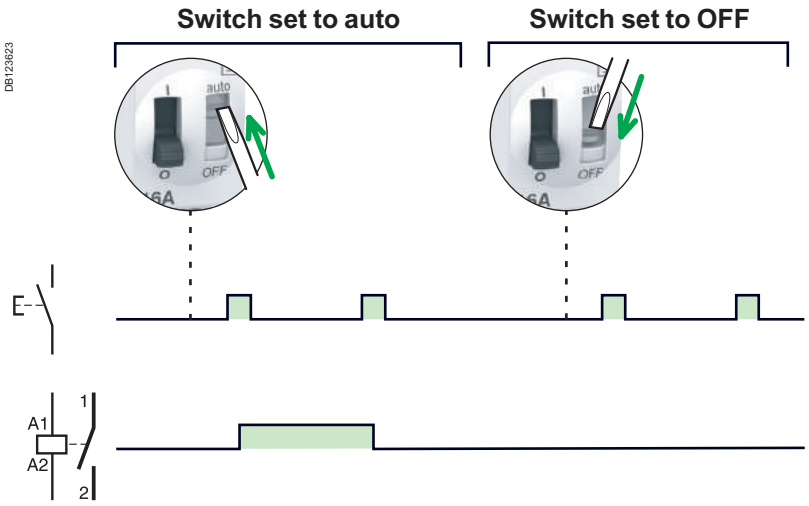
DB404857

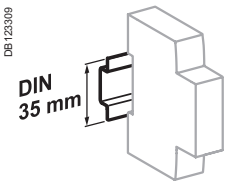


Type	Catalogue numbers	Length
Connection for Acti 9 Smartlink		
6 short prefabricated	**A9XCAS06**	100 mm
6 medium-sized prefabricated	**A9XCAM06**	160 mm
6 long prefabricated	**A9XCAL06**	870 mm
Connection for PLC type terminals		
6 long prefabricated on a single side	**A9XCAU06**	870 mm

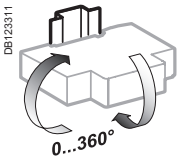
iTL impulse relays (cont.)

Operation

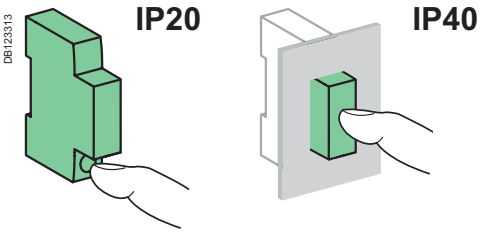




Clip on DIN rail 35 mm.



Indifferent position of installation.

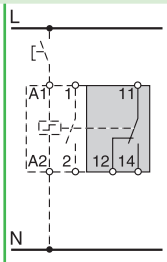
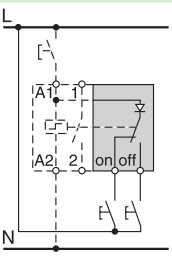
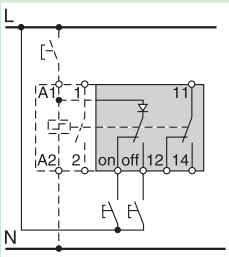
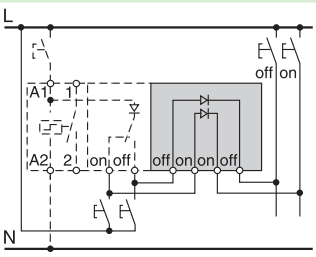


Technical data

Control circuit			
		iTL and iTLI 16 A iTLc, iTLm, iTLs, iETL 16 A	**iTL 32 A, iETL 32 A**
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 to IEC/EN 60947-3			
Insulation voltage (Ui)		440 V AC	
Pollution degree		3	
Rated impulse withstand voltage (Uimp)		6 kV	
Endurance (O-C)			
Electrical to IEC/EN 60947-3		200,000 cycles (AC21)	50,000 cycles (AC21)
		100,000 cycles (AC22)	20,000 cycles (AC22)
Overvoltage category		IV	
Other characteristics			
Degree of protection (IEC 60529)	Device only	IP20	
	Device in modular enclosure	IP40 Insulation class II	
Operating temperature		-20°C to +50°C	
Storage temperature		-40°C to +70°C	
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C)	

6

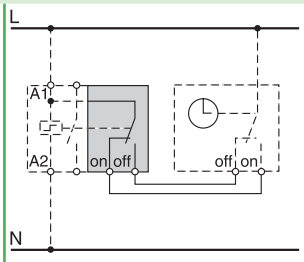
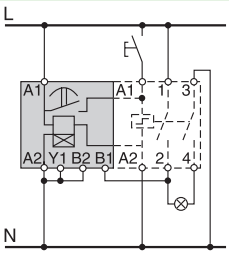
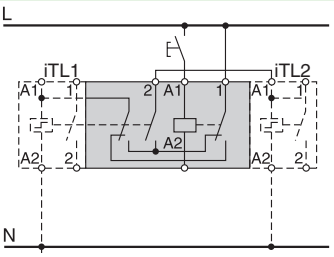
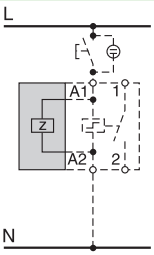
iTL impulse relays
Electrical auxiliaries for iTL impulse relays

	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 	PB106136-34 
Function				
	■ Allows remote indication of the associated impulse relay	■ Used for centralised control, thanks to a "pilot line", of a group of impulse relays controlling separate networks, while at the same time maintaining local individual control of each impulse relay	■ And for remote indication of the mechanical status of each relay	■ Used to control the centralised controls of a number of impulse relay groups, while at the same time maintaining local individual control and centralised control by level
Wiring diagrams				
	DB123233 	DB123232 	DB123231 	DB123235 
	–	–	–	■ Each group, made up of iTLc or (iTL or iTLI or iTLs) + iATLc+s, must only contain a single iATLc+c ■ Maximum number of impulse relays that can be controlled: □ 230 V AC: 24 □ 130 V AC: 12 □ 48 V AC: 5
Mounting				
	■ Mounted to the right of iTL by yellow clips	■ Mounted to the right of iTL by yellow clips	■ Mounted to the right of iTL by yellow clips	■ Without mechanical link with impulse relays and auxiliaries
Catalogue numbers	**A9C15405**	**A9C15404**	**A9C15409**	**A9C15410**

Technical specifications					
Control voltage (Ue)	V AC	24…240	24…240	24…240	24 …240
	V DC	24…240	–	–	–
Control voltage frequency	Hz	50/60	50/60	50/60	50/60
Width in 9 mm modules		1	1	2	2
Auxiliary contact (breaking capacity)		■ Mininimum: 10 mA at 24 V AC/DC ■ Maximum (IEC 60947-5-1): □ 12…240 V AC 6 A □ 12…24 V DC 6 A □ 15…240 V AC 2 A □ 13…24 V DC 2 A	–	■ Mininimum: 10 mA at 24 V AC/DC ■ Maximum (IEC 60947-5-1): □ 12…240 V AC 6 A □ 12…24 V DC 6 A □ 15…240 V AC 2 A □ 13…24 V DC 2 A	–
Number of contacts		–	–	–	–
Operating temperature	°C	-20°C to +50°C			
Storage temperature	°C	-40°C to +70°C			

Technical Section 10 Dimensions Section 11

iTL impulse relays
Electrical auxiliaries for iTL impulse relays (cont.)

	iATLm	iATEt	iATL4	iATLz
	Latched control	**Time delay**	**Step by step control**	**Control by illuminated push-buttons**
	PB106138-34 	PB106125-34 	PB106142-63 	PB106141-34 
	■ 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
	DB123234 	DB123237 	DB123552 	DB123230 
	–	■ 5 time setting ranges: □ 1 to 10 s □ 6 to 60 s □ 2 to 10 min □ 6 to 60 min □ 2 to 10 h	■ The cycle is as follows: □ 1st impulse - iTL 1 closed, iTL 2 open □ 2nd impulse - iTL 1 open, iTL 2 closed □ 3rd impulse - iTL 1 and 2 closed □ 4th impulse - iTL 1 and 2 open □ 5th impulse - iTL 1 closed, iTL 2 open, etc	■ Provide an iATLz when the current drawn up by the illuminated push-buttons is higher than 3 mA (this current is sufficient to keep the coils energised). Above this value, fit one extra iATLz per 3 mA. ■ For example: for 7 mA, fit 2 iATLz
	■ 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
	A9C15414	**A9C15419**	**A9C15412**	**A9C15413**
	12…240	24…240	230	130…240
	6…110	24…110	–	–
	50/60	50/60	50/60	50/60
	1	2	4	2
	–	–	–	–
	–	–	–	–
	-20°C to +50°C			
	-40°C to +70°C			

Technical Section 10 **Dimensions Section 11**

iTL impulse relays
Electrical auxiliaries for iTL impulse relays (cont.)

Control and indication

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

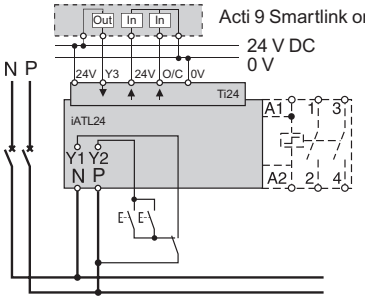
PB107752-34

Function

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

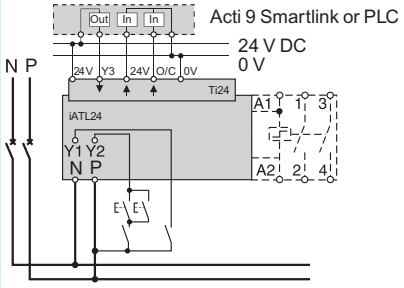
Wiring diagrams

DB124319



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

DB124445



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

Mounting

- To the left of the iTL impulse relay using the yellow clips (1).
- When an iATL24 is used, the A1/A2 terminals of the impulse relay should not be wired. Only the yellow clips integral with the iATL24 should be used for connection to the coil.

Utilization

- 230 V AC interface:
  - Y1: enabling of 24 V DC control (Y1 = 1) or inhibition of 24 V DC control (Y1 = 0).
  - Y2: 230 V pulse control
- "TI24" 24 V DC interface:
  - Y3: 24 V DC control of iTL closing on rising edge and opening on falling edge
  - reading of the impulse relay status (opened or closed) from the position of the integrated O/C auxiliary contact
  - monitoring of connection of the "Ti24" terminal block by the upstream system (PLC, supervision system) via the 24 V terminal (in the centre of the Ti24 terminal block)

Catalogue numbers		**A9C15424**
Technical specifications		
Control voltage (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 connection.

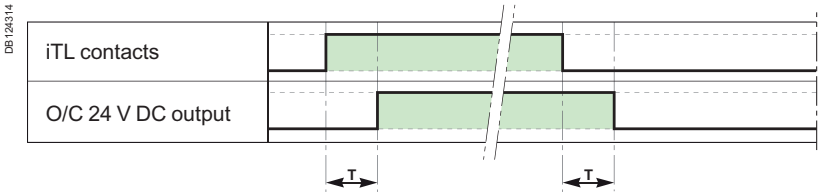
Technical Section 10 Dimensions Section 11

iTL impulse relays
Electrical auxiliaries for iTL impulse relays (cont.)

ComReady

Operation of the iATL24

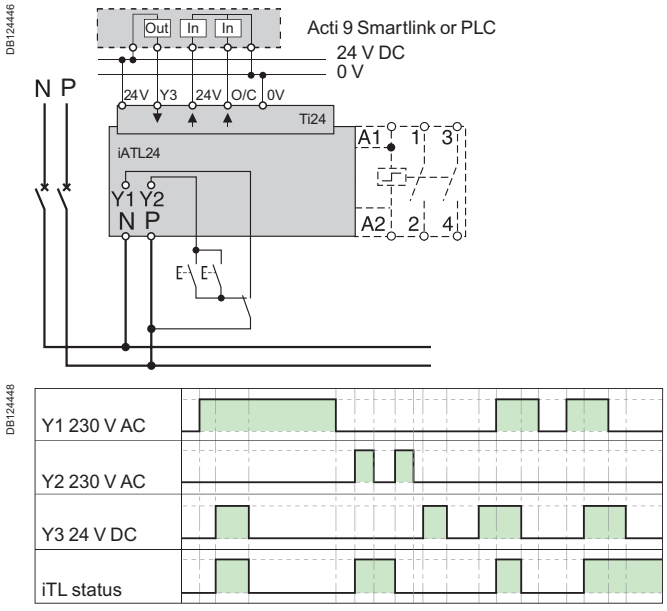
O/C 24 V DC output



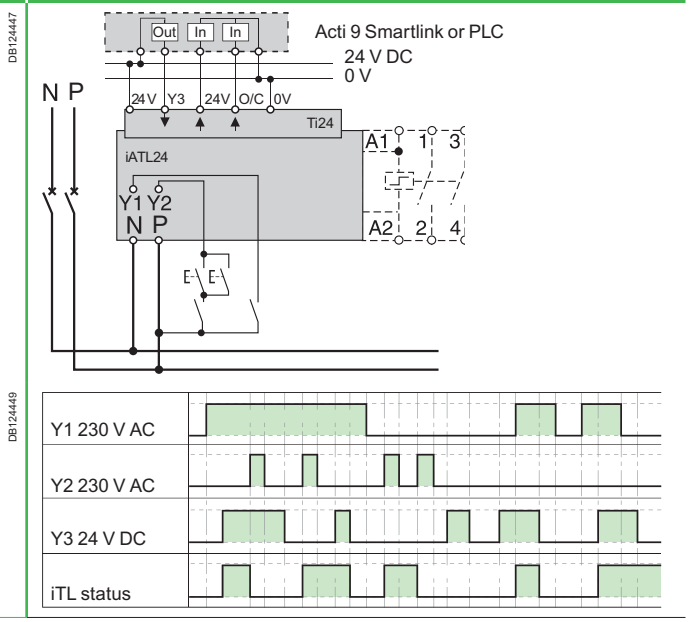
	Parameter	Min	Max
T	Time delay between iATL24 closing and indication	100 ms	200 ms

- 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



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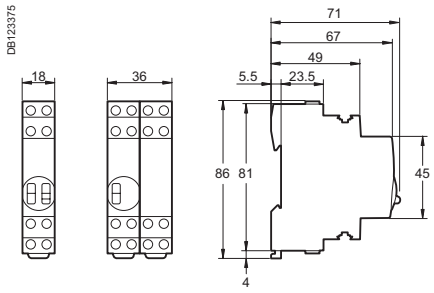
iTL impulse relays

Security

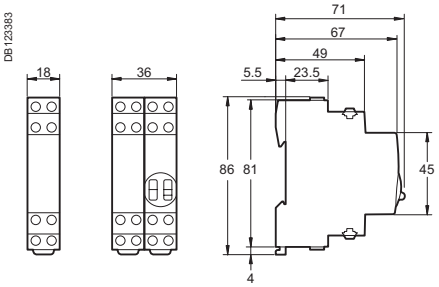
Accessories	Yellow clips	Spacer
	 PB106143-10	 PB104483
Function		
	■ Ensure the mechanical and/or electrical link between impulse relays and their auxiliaries (set of 10).	■ Required to reduce temperature rise of modular devices installed side by side. ■ Recommended to separate electronic devices (thermostat,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

Dimensions (mm)

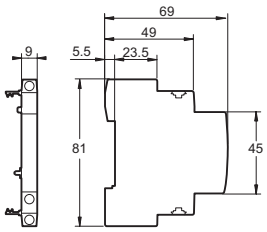


iTL 1P
iTLc
iTLm
iTLs
iTLi
iETL

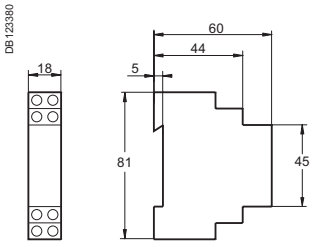
iTL+iETL
iTL 4P



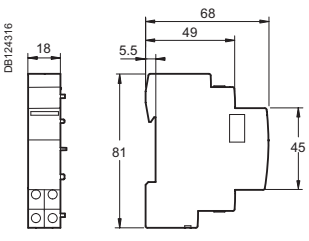
iATLc+s
iATLc+c
iATLz
iATL4



iATLc
iATLs
iATLm



iATEt



iATL24

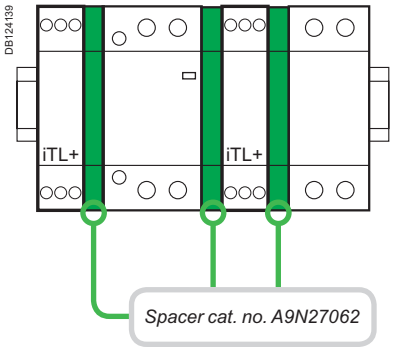
Technical Section 10 **Dimensions Section 11**

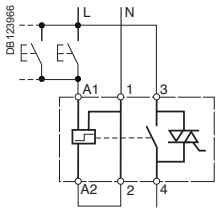
iTL+ high-performance impulse relays

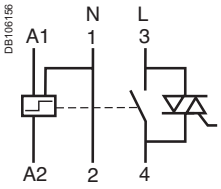
EN 60669-2-2

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

The iTL+ high-performance impulse relay is used for push-button control of lighting circuits consisting of:
- incandescent lamps, low-voltage halogen lamps, etc. (resistive loads)
- fluorescent tubes, discharge lamps, etc. (inductive loads).



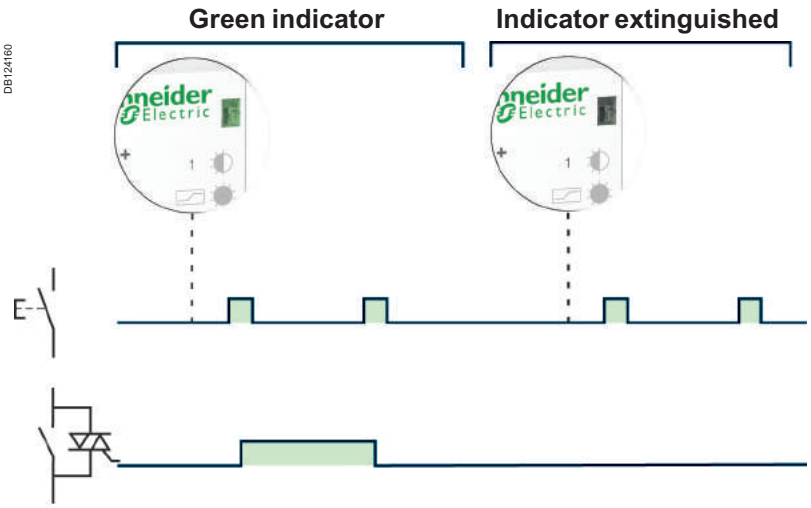


iTL+			
Type	**Rating**		**Width in 9 mm modules**
1P+N			
	16 A	**A9C15032**	2+1 (1)

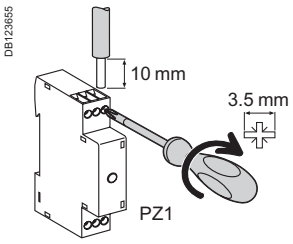
(1) Supplied with a 9 mm spacer (cat. no. **A9N27062***): to be used for mounting the iTL+ alongside a circuit breaker, contactor, impulse relay, etc., in order to maintain optimal operation.*

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

Operation



Connection

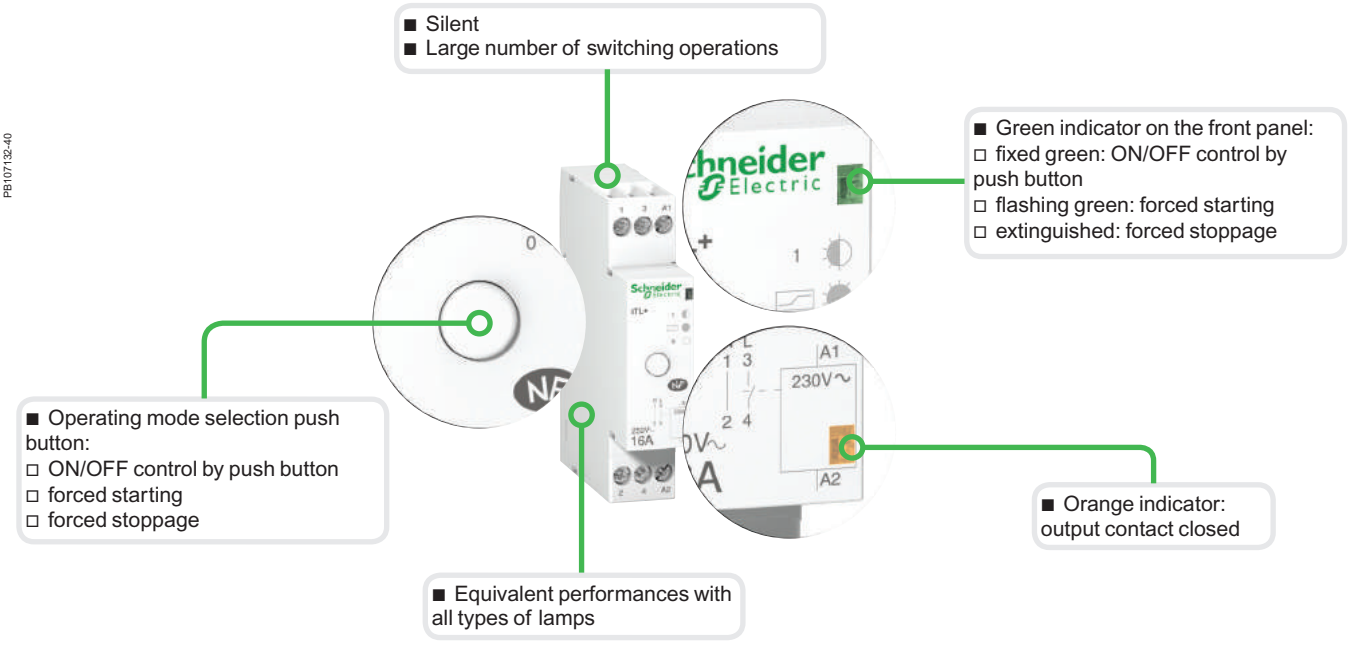


Type	Rating	Tightening torque	Copper cables	
			Rigid or flexible with ferrule	Rigid or flexible without ferrule
		DB123656	DB123657	
iTL+	16 A	1 N.m	2 x 1.5 mm²	2 x 2.5 mm² 1 x 4 mm²

Technical Section 10
Dimensions Section 11

iTL+ high-performance impulse relays (cont.)

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



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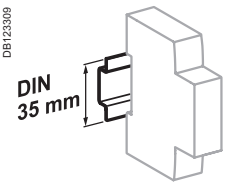
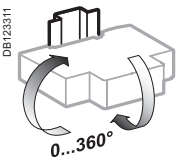
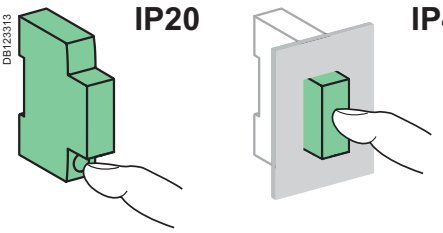
Following a mains failure, the iTL+ returns to 0 position (forced stoppage) irrespective of its initial state.



Clip on DIN rail 35 mm.



Indifferent position of installation.



Technical data

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

Weight (g)

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

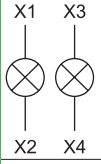
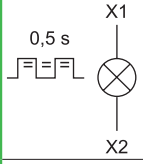
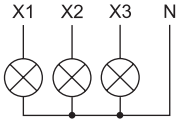
Technical Section 10
Dimensions Section 11

iIL indicator lights

IEC 60947-5-1

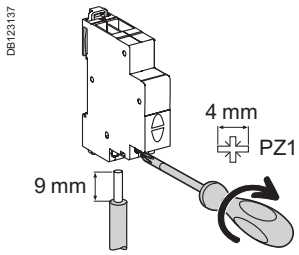
- iIL indicator lights light up to indicate that a voltage is present.

Catalogue numbers

iIL indicator lights									
Type	**Single**					**Double**		**Flashing light**	**Three-phase voltage presence indicator light**
	PB 105256-40				PB 105257-40	PB 105256-40		PB 105258-40	
									
Diagram	DB122563 				DB122564 	DB122565		DB122566 	
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	**A9E18320**	**A9E18321**	**A9E18322**	**A9E18323**	**A9E18324**	**A9E18325**	**A9E18328**	**A9E18326**	**-**
230...400 V AC (3 phases)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**A9E18327**
Width in 9 mm modules	2					2		2	2

6

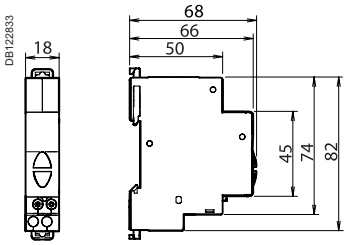
Connection



Tightening torque	Copper cables	
	Rigid	Flexible or ferrule
	DB122945 	DB122946 
1 N.m	0.5 mm^2 min. 2 x 2.5 mm^2 max.	0.5 mm^2 min. 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)

Technical
Section 10

Dimensions
Section 11

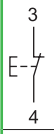
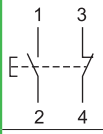
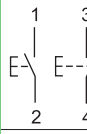
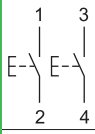
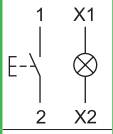
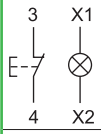
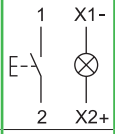
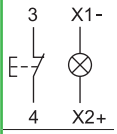
iPB pushbuttons

IEC 60669-1 and IEC 60947-5-1

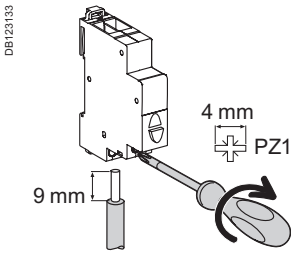
■ iPB pushbuttons are used to control electric circuits by means of pulses.

Catalogue numbers

iPB pushbuttons

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

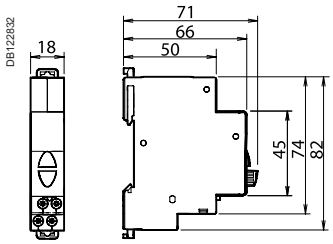
Connection



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

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

Dimensions (mm)



Technical data

Main characteristics	
Pollution degree	3
Power circuit	
Voltage rating (Ue)	250 V AC
Current rating (Ie)	20 A
Additional characteristics	
Endurance (O-C)	30,000 operations AC22 (cos φ = 0.8)
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: 0.3 W
	Service life: 100,000 hours of constant lighting efficiency
	Maintenance-free indicator light (non-interchangeable LEDs)

Technical
Section 10

Dimensions
Section 11

iSW switches

RCM

IEC/EN 60947-3
BSEN 60947-3
AS/NZS 60947-3

The switch-disconnectors combine the following functions:
■ Control (opening and closing of circuits under load).

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

PB110909

1P

PB110910

2P

PB110911

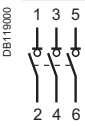
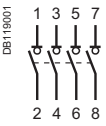
3P

PB110912

4P

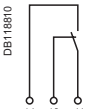
Catalogue numbers

40 to 125 A iSW switch-disconnectors

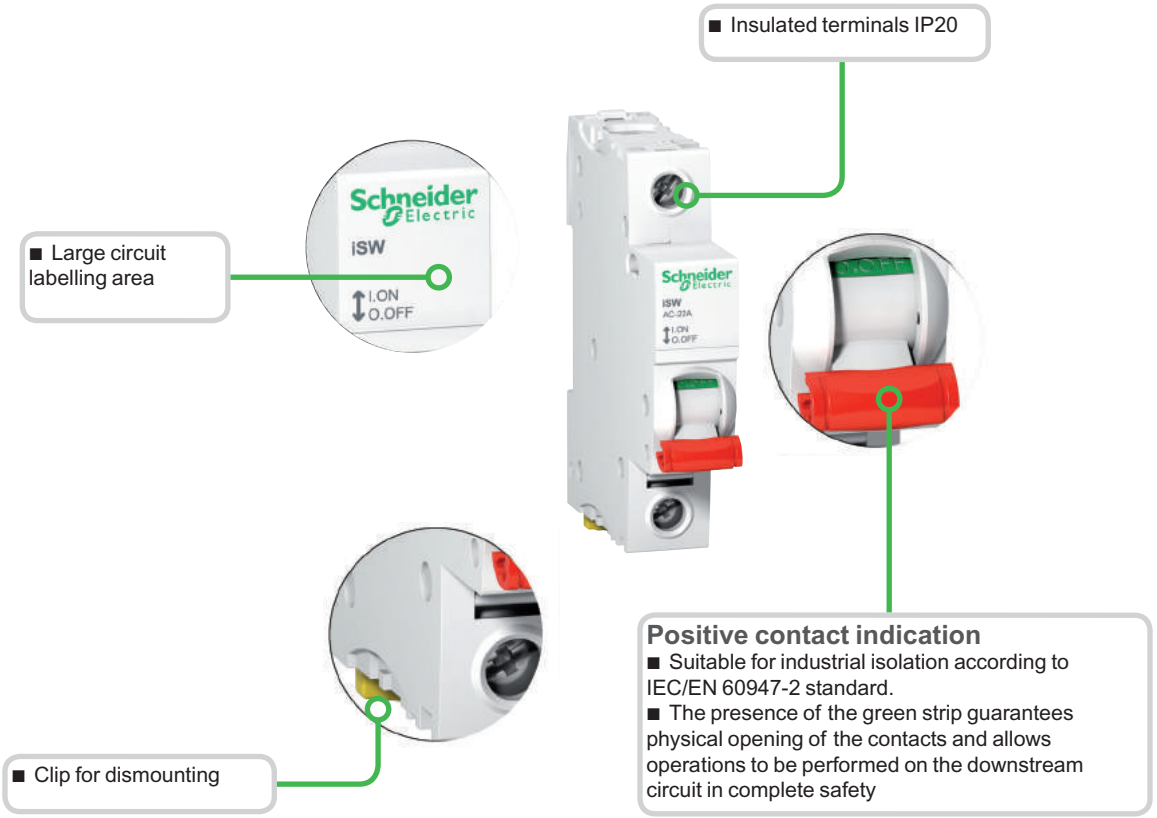
Type				Width in 9 mm modules
1P	**Rating**	**Voltage (Ue)**		
DB116998 	40 A	240 V AC	**A9S66140**	2
	63 A	240 V AC	**A9S66163**	
	100 A	240 V AC	**A9S66191**	
	125 A	240 V AC	**A9S66192**	
2P				
DB116999 	40 A	415 V AC	**A9S66240**	4
	63 A	415 V AC	**A9S66263**	
	100 A	415 V AC	**A9S66291**	
	125 A	415 V AC	**A9S66292**	
3P				
DB119000 	40 A	415 V AC	**A9S66340**	6
	63 A	415 V AC	**A9S66363**	
	100 A	415 V AC	**A9S66391**	
	125 A	415 V AC	**A9S66392**	
4P				
DB119001 	40 A	415 V AC	**A9S66440**	8
	63 A	415 V AC	**A9S66463**	
	100 A	415 V AC	**A9S66491**	
	125 A	415 V AC	**A9S66492**	
Operating frequency		50/60 Hz		
Accessories		**Module CA907000 and CA907001**		

PB104474-35


Auxiliary

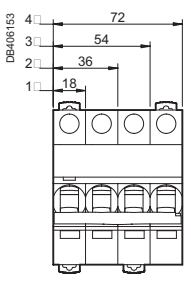
Type			Width in 9 mm modules
iOF	**Voltage (Ue)**		
DB118810 	240...415 V AC 24...130 V DC	**A9A26924**	1

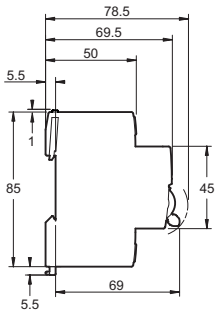
iSW switches (cont.)



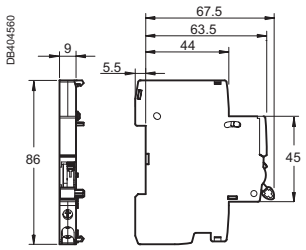
6

Dimensions (mm)





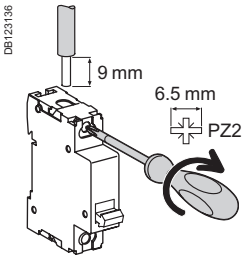
iSW



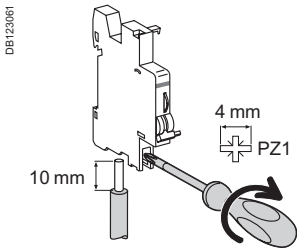
iOF

iSW switches (cont.)

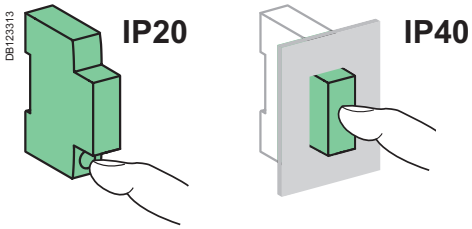
Connection



Type	Rating	Tightening torque	Copper cables	
			Rigid	Flexible or with ferrule
			DB122945	DB122946
iSW	40 to 125 A	3.5 N.m	⩽ 50 mm²	⩽ 35 mm²



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



Technical data

Main characteristics			
Insulation voltage (Ui)		1P: 250 V AC 2P, 3P, 4P: 500 V AC	
Pollution degree		3	
Power circuit			
Rated impulse withstand voltage (Uimp)		6 kV	
Operating category		AC - 22 A	
Permissible rated short-time withstand current (Icw)		1500 A	
Conditional rated short-circuit current (Inc)		10 kA according to IEC 60947-3	
Rated short-circuit closing current (Icm)		5 kA	
Additional characteristics			
Degree of protection	Device only	IP20	
	Device in modular enclosure	IP40 Insulation class II	
Endurance (O-C)	Mechanical	20,000 cycles	
	Electrical	40 A - 63 A	15,000 cycles
		80 A - 100 A	10,000 cycles
		125 A	2 500 cycles
Operating temperature		-25°C to +60°C	
Storage temperature		-40°C to +85°C	
Tropicalization		Treatment 2 (relative humidity 95% at 55°C)	

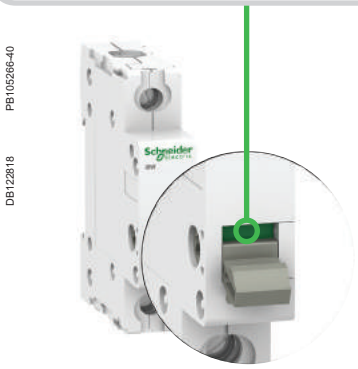
iOF characteristics		
Rated voltage (Ue)	240…415 V AC	
	24…130 V DC	
Operating frequency	50/60 Hz	
Operating current	24 V DC	6 A
	48 V DC	2 A
	60 V DC	1.5 A
	130 V DC	1 A
	240 V AC	6 A
	415 V AC	3 A
Number of contacts	1 NO/NC	
Operating temperature	-35°C to +70°C	
Storage temperature	-40°C to +85°C	

Technical
Section 10

Dimensions
Section 11

iSW switches (cont.)

Position contact indication
■ Suitable for industrial 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.



Control switches

iSW control switches (20, 32 A)

IEC/EN 60669-1, iSW switch with indicator light.
IEC/EN 60669-2-4, iSW switch without indicator light.

These switches are used for:
■ Control (opening and closing of circuits under load).
The 1P and 2P switches are available with or without indicator light.
■ Disconnection, for switches without indicator light IEC/EN 60669-2-4.

iSW switch-disconnectors (40 to 125 A)

IEC 60947-3

The switch-disconnectors combine the following functions:
■ Control (opening and closing of circuits under load).

OF iSW auxiliary

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

Catalogue numbers

20, 32 A iSW control switches

Type				Width in 9 mm modules
1P	**Rating**	**Voltage (Ue)**		
	20 A	250 V AC	**A9S60120**	2
	32 A	250 V AC	**A9S60132**	
2P				
	20 A	250 V AC	-	2
		415 V AC	**A9S60220**	
	32 A	250 V AC	-	
		415 V AC	**A9S60232**	
3P				
	20 A	415 V AC	**A9S60320**	4
	32 A	415 V AC	**A9S60332**	
4P				
	20 A	415 V AC	**A9S60420**	4
	32 A	415 V AC	**A9S60432**	
Operating frequency			50/60 Hz	
Accessories			**Module CA907012**	

iSW switches (cont.)

PB105264-40

Control switches with indicator light

Catalogue numbers (cont.)

20, 32 A iSW control switches with indicator light			
Type			**Width in 9 mm modules**
1P	**Rating**	**230 V indicator light**	
DB122819 	20 A	**A9S61120**	2
	32 A	**A9S61132**	
2P			
DB122820 	20 A	**A9S61220**	2
	32 A	**A9S61232**	
Operating frequency		50/60 Hz	
Accessories		**Module CA907012**	

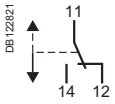
Spare indicator lights for 20, 32 A iSW switches		
Type		
Neon	**Voltage (Ue)**	
Supplied with a red diffuser (Pack of 10)	230 V AC	**15111**
Incandescent bulb (P=1.2 W)		
Supplied with a red diffuser (Pack of 10)	12 V DC/AC	**15112**
	24 V DC/AC	**15113**
	48 V DC/AC	**15114**

6

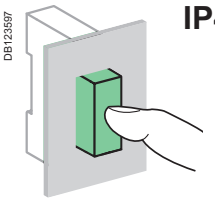
iSW switches (cont.)

OF iSW

Catalogue numbers (cont.)

Auxiliary				
Type				**Width in 9 mm modules**
OF iSW	**Rating**	**Voltage (Ue)**		
	3 A	415 V AC	**A9A15096**	2
	6 A	250 V AC		

Technical data

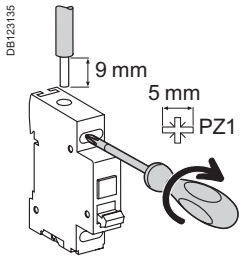


IP40

Main characteristics	20, 32 A iSW	
Insulation voltage (Ui)	**Without indicator light** ■ 1P: 250 V AC ■ 2P, 3P, 4P: 500 V AC	**With indicator light** 250 V AC
Pollution degree	2	
Power circuit		
Rated impulse withstand voltage (Uimp)	4 kV	
Operating category	AC - 22 A	
Permissible rated short-time withstand current (Icw)	-	
Conditional rated short-circuit current (Inc)	3 kA to IEC/EN 60669-2-4	
Rated short-circuit closing current (Icm)	-	
Using direct current	48 V (110 V with 2 poles in series)	
Additional characteristics		
Degree of protection	IP40 on the front panel	
Endurance (O-C) Mechanical	300,000 cycles	
Electrical	30,000 cycles	
Operating temperature	-20°C to +50°C	
Storage temperature	-40°C to +70°C	
Tropicalization	Treatment 2 (relative humidity 95% at 55°C)	

iSW switches (cont.)

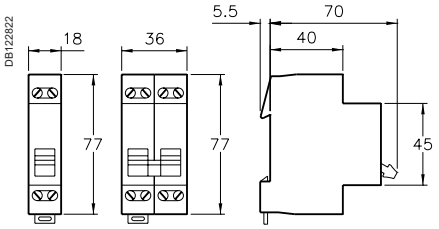
Connection



20, 32 A iSW

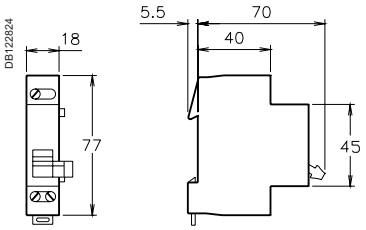
Type	Rating	Tightening torque	Copper cables	
			Rigid	Flexible or ferrule
		DB122945	DB122946	
iSW	**20, 32 A**	1.2 N.m	10 mm²	10 mm²
OF iSW	-	1.2 N.m	10 mm²	10 mm²

Dimensions (mm)



1P, 2P *3P, 4P*

20, 32 A iSW



OF iSW

6

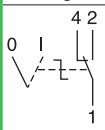
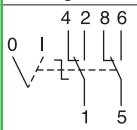
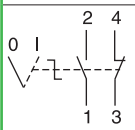
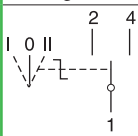
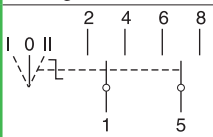
iSSW linear switches

IEC 60669-1 and IEC 60947-5-1

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

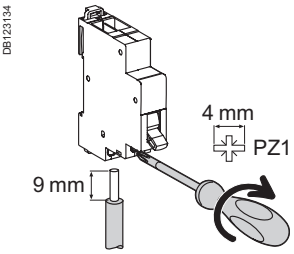
Catalogue numbers

iSSW linear switches

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

6

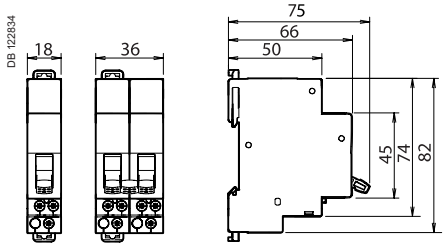
Connection

DB123134 

Tightening torque	Copper cables	
	Rigid	Flexible or ferrule
	DB122945  DB122946 	
1 N.m	0.5 mm^2 min. 2 x 2.5 mm^2 max.	0.5 mm^2 min. 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)

DB 122834 

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 cycles AC22 (cos φ = 0.8)
Operating temperature	-20°C... +50°C
Storage temperature	-40°C... +70°C
Tropicalization	Treatment 2 (relative humidity 95 % at 55°C)

Technical
Section 10

Dimensions
Section 11

iTR transformers

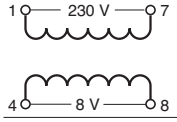
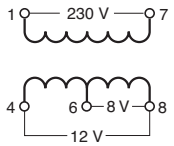
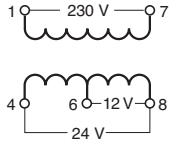
Bell transformers: NF EN 60742, EN/IEC 61558-2-8. Safety transformers: NF EN 60742, EN/IEC 61558-2-6.

Bell transformers and safety transformers allow for a very low voltage (ELV 8 V, 12 V or 24 V) to be obtained from a low voltage network (LV 230 V).

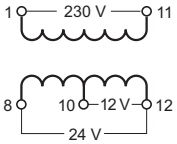
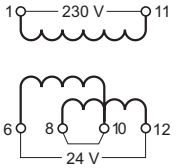
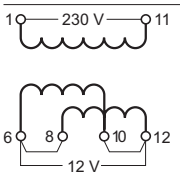
All Schneider Electric transformers are:
- safe: primary and secondary circuits are perfectly insulated by each other
- resistant to short-circuit currents thanks to the built-in device.

Catalogue numbers

Bell transformer

Type	Power	Secondary voltage		Width in 9 mm modules
E56759 	4 VA	8 V AC	**A9A15214**	4
E56760 	4 VA	8-12 V AC	**A9A15213**	4
	8 VA	8-12 V AC	**A9A15216**	4
	16 VA	8-12 V AC	**A9A15212**	4
E56761 	25 VA	12-24 V AC	**A9A15215**	6

Safety transformer

Type	Power	Secondary voltage		Width in 9 mm modules
DB124153 	16 VA	12-24 V AC	**A9A15218**	10
	25 VA	12-24 V AC	**A9A15219**	10
DB124154 	40 VA	12-24 V AC	**A9A15220**	10
	63 VA	12-24 V AC	**A9A15222**	10
DB124155 				
Operating frequency	50/60 Hz			

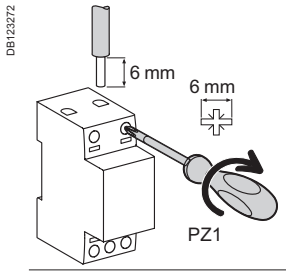
Terminal shield

Type		Width in 9 mm modules
	15228	4
	15229	6

6

iTR transformers (cont.)

Connection



Tightening torque	Copper cables	
	Rigid	Flexible or with ferrule
	 DB122945	 DB122946
0.5 N.m	< 2.5 mm²	< 2.5 mm²

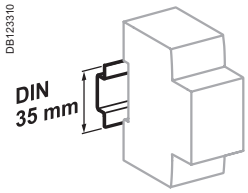
Technical data

Main characteristics		
Primary voltage		230 V AC ±10 %
Secondary voltage on load	For bell transformers	8-12-24 V AC ±15 %
	For safety transformers	12-24 V AC ±5 %

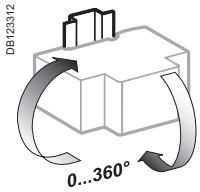
Transformer catalogue numbers	Rated secondary voltage	Off load voltage
A9A15214	8 V	12 V
A9A15213	8 V	12 V
	12 V	16 V
A9A15216	8 V	13 V
	12 V	18 V
A9A15212	8 V	13 V
	12 V	18 V
A9A15215	12 V	16 V
	24 V	32 V
A9A15218	12 V	14 V
	24 V	28 V
A9A15219	12 V	14 V
	24 V	28 V
A9A15220	12 V	14 V
	24 V	28 V
A9A15222	12 V	14 V
	24 V	28 V

Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20 with terminal shield
Operating temperature		-20°C to +55°C
Storage temperature		-25°C to +80°C

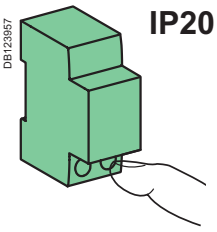
Note: Transformers have an off load operating voltage that is higher than the rated voltage. For loads that are sensitive to overloads (electro-magnetic circuits), the transformer must be made to operate at In. After operation of the protection device upon an overload, cut-off the power supply and let the transformer cool down before restart.



Clip on DIN rail 35 mm.



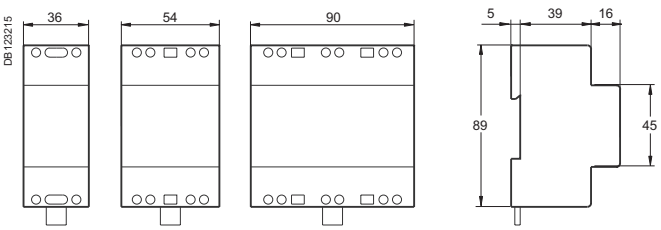
Bell transformer: indifferent position of installation.
Safety transformer: vertical position.



Weight (g)

iTR		
Type	**Cat. no.**	**Weight**
Bell	**A9A15212**	384
	A9A15213	240
	A9A15214	237
	A9A15215	633
	A9A15216	275
Safety	**A9A15218**	1082
	A9A15219	1125
	A9A15220	1190
	A9A15222	1309

Dimensions (mm)



A9A15212
A9A15213
A9A15214
A9A15216

A9A15215

A9A15218
A9A15219
A9A15220
A9A15222

6

iSO bells and iRO buzzers

iSO

iRO

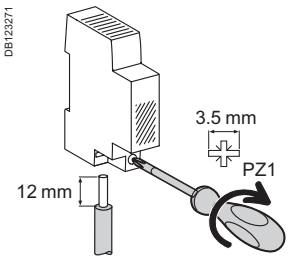
iSO and iRO

Audible indication in housing and the tertiary sector.

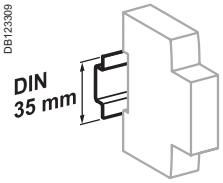
Catalogue numbers

Bell and buzzer			
Type			**Width in 9 mm modules**
iSO bell	**Voltage (Ue)**		
	230 V AC	**A9A15320**	2
	8…12 V AC	**A9A15321**	2
iRO buzzer			
	230 V AC	**A9A15322**	2
	8…12 V AC	**A9A15323**	2
Operating frequency	50...60 Hz		

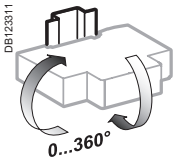
Connection



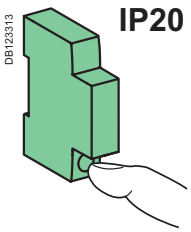
Tightening torque	Copper cables	
	Rigid	Flexible or ferrule
		
1.3 N.m	< 4 mm²	< 4 mm²

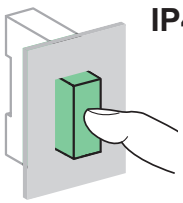


Clip on DIN rail 35 mm.



Indifferent position of installation.





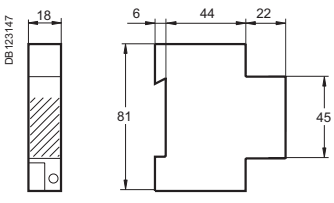
Technical data

Main characteristics		iSO	iRO
Consumption	8…12 V AC	3.6 VA	
	220…240 V AC	5 VA	
Additional characteristics			
Degree of protection (IEC 60529)	Device only	IP40	
	Device in modular enclosure	IP20	
Operating temperature		-10°C to +40°C	
Storage temperature		-25°C to +60°C	
Sound level (at a distance of 60 cm)		80 dBA	70 dBA

Weight (g)

Bell and buzzer	
Type	
iSO	77
iRO	64

Dimensions (mm)



iSO bell and iRO buzzer

Technical Section 10
Dimensions Section 11

STI isolatable fuse carriers

Function

STI

The isolatable fuse-carriers provide overload and short-circuit protection and are used in the tertiary and industrial sectors.

Fuse-links

aM, gG (gl, gL) types for STI.

Indicator light

230 V neon indicator adaptable on STI.

Description

STI

- Isolation of all poles is guaranteed for the 2P, 3P, and 3P + N versions during factory assembly
- Positive contact indication
- To be equiped with aM or gG (gL - gl) type fuse-links, with or without fuse blowing indicator

Rating (A)	Size (mm)	aM fuse	gG fuse
0.5 to 20	8.5 x 31.5		■
1 to 20	10.3 x 38	■	
25 to 32	10.3 x 38		■

- Fuse-carrier: Captive, additional housing is provided for a spare fuse
- Optional indication by indicator lights (see accessories)
- Connection by tunnel terminals for rigid cables up to 10 mm^2 and flexible cables up to 6 mm^2
- Complies with standard IEC 947.3

Fuse-links

- aM, gG (gL - gl) types
- Fuse-link without striker pin
- Breaking capacity as in the standards

Dimensions (ø x L) (mm)	Rating (A)	Operating voltage (V AC)	Breaking capacity (kA) aM	gG
8.5 x 31.5	All	380	20	20
10 x 38	<10	500	80	80
	25	660	80	80

- Complies with standards NF C 60 200 and NF C 63 210
- Véritas and Lloyds approved

Indicator light (option)

Technical data

230V AC neon (400V AC maximum)
Allows indication of fuse blowing (lift after blowing)

Specific characteristics

STI 1P + N and 3P + N

- Disconnection of the phase and neutral in the normal dimensions of the phase (2 modules of 9 mm)
- Phase opening causes compulsory opening of the neutral
- The phase opens before the neutral on isolation and closes after the neutral on circuit closing

STI isolatable fuse carriers (cont.)


PB110043-40


PB110044-40

STI	Cartridges
IEC/EN 60947-3, IEC/EN 60269-2	IEC 60269-1, IEC 60269-2, NF C 60-200-2


PB110045-40


PB110046-40

- The STI isolatable fuse-carriers provide overload and short-circuit protection.
- They are used for industrial applications requiring a high breaking capacity.
- They perform the isolation function and must not be used as switches.
- To be equiped with aM or gG (gL - gl) type fuse cartridge without striker, with or without fuse blowing indicator.
- Isolation of all poles is guaranteed for the 2P, 3P, and 3P+N versions during factory assembly.

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


PB110047-28

Catalogue numbers

Fuse cartridge (Type F)							STI fuse holder				
Type							Network type				
	Rating	Voltage rating (Ue)	Short-circuit current (Isc)								
			aM	gG	aM	gG	1P	1P+N (1)	2P	3P	3P+N (1)
PB102098-20							DB112797	DB112798	DB112799	DB112800	DB110801
8.5 x 31.5 mm	2 A	400 V AC	20 kA	20 kA	DF2BA0200	DF2BN0200	A9N15635	A9N15645	A9N15650	A9N15655	A9N15657
	4 A	400 V AC	20 kA	20 kA	DF2BA0400	DF2BN0400					
	6 A	400 V AC	20 kA	20 kA	DF2BA0600	DF2BN0600					
	8 A	400 V AC	20 kA	20 kA	DF2BA0800	DF2BN0800					
	10 A	400 V AC	20 kA	20 kA	DF2BA1000	DF2BN1000					
10.3 x 38 mm	2 A	500 V AC	120 kA	120 kA	DF2CA02	DF2CN02	A9N15636	A9N15646	A9N15651	A9N15656	A9N15658
	4 A	500 V AC	120 kA	120 kA	DF2CA04	DF2CN04					
	6 A	500 V AC	120 kA	120 kA	DF2CA06	DF2CN06					
	10 A	500 V AC	120 kA	120 kA	DF2CA10	DF2CN10					
	16 A	500 V AC	120 kA	120 kA	DF2CA16	DF2CN16					
	20 A	500 V AC	120 kA	120 kA	DF2CA20	DF2CN20					
	25 A	400 V AC	120 kA	120 kA	DF2CA25	DF2CN25					

(1) The neutral pole comes equipped with a locked tube.

Technical
Section 10

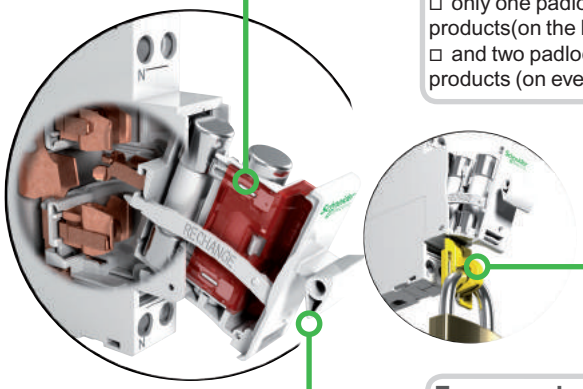
Dimensions
Section 11

STI isolatable fuse carriers (cont.)

230 V neon indicator light (Option)
- Indicates fuse blowing (off in normal operation and lit red after fuse blowing)
- 400 V maxi

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

PB110050-50



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

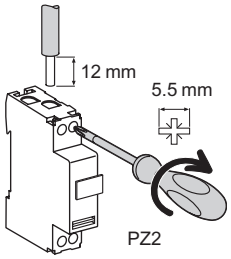
Fuse-carrier
- Captive
- Additional housing is provided for a spare fuse

Clip-on markers

6

Connection

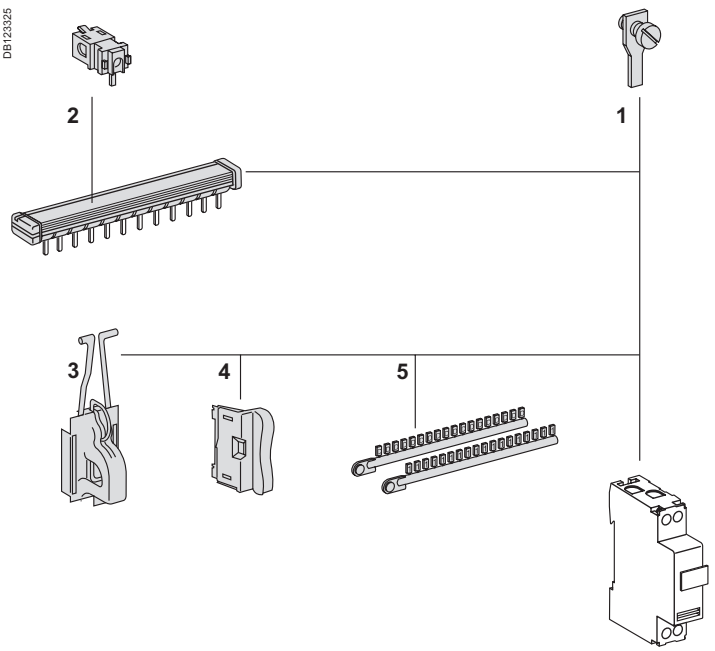
DB123241



Type	Rating	Tightening torque	Without accessory: Copper cables – Rigid	Without accessory: Copper cables – Flexible or ferrule	With accessories: Screw-on connection for ring terminal
			DB122945	DB122946	DB118789
STI	All	2 N.m	0.75 to 10 mm² 2 x 0.75 mm² to 2 x 4 mm²	0.5 to 6 mm² 2 x 0.5 mm² to 2 x 4 mm²	Ø 5 mm

1	Screw-on connection for ring terminal		27053

DB123325



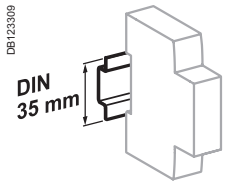
Mounting accessories

2	Comb busbar	See section 10	
3	Padlocking device		15669
4	Neon indicator light	1 piece blister	15668
5	Clip-on terminal markers	Use AB1 range	

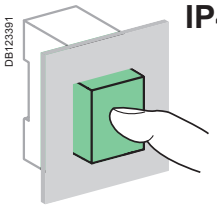
Technical
Section 10

Dimensions
Section 11

STI isolatable fuse carriers (cont.)



Clip on DIN rail 35 mm.



Technical data

Main characteristics	
Insulation voltage (Ui)	500 V
Breaking capacity according to IEC 60269-2 ⩽ 400 V	50 kA
Pollution degree	3
Operating frequency (Hz)	50/60

Additional characteristics	
Degree of protection Device in modular enclosure	IP40 Insulation classe II
Operating temperature	-20°C to +60°C
Storage temperature	-40°C to +80°C

Maximum dissipated power per pole of STI isolatable fuse-carriers

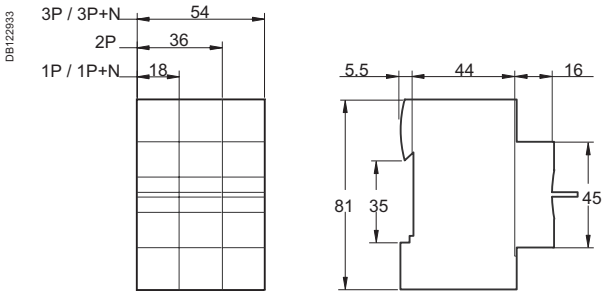
Fuse cartridge type		Ith	Pmax
8.5 x 31 mm	aM	10 A	2.5 W
	gG	20 A	2.5 W
10.3 x 38 mm	aM	16 A	3 W
	gG	25 A	3 W

Maximum dissipated power per fuse cartridges

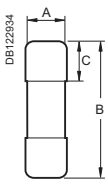
Fuse cartridge type		Ith	Pmax
8.5 x 31 mm	aM	2 to 10 A	0.9 W
	gG	2 to 10 A	2.5 W
10.3 x 38 mm	aM	2 to 25 A	1.2 W
	gG	2 to 25 A	3 W

6

Dimensions (mm)



STI



aM, gG

aM, gG fuse cartridge			
Type	A	B	C
8.5 x 31.5 mm	8.5	31.5	10.3
10.3 x 38 mm	10.3	38	10.5

SBI fuse holder with indicator light

PB102092_SE

MGN15707

PB102097_SE

MGN15712

PB102100_SE

MGN15714

PB102104_SE

MGN15718

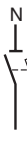
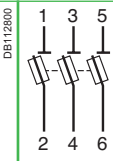
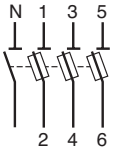
IEC EN 60947-3

- SBI fuse holders provide overload and short-circuit protection.
- They are used for industrial applications requiring a high breaking capacity.
- They perform the isolation function and must not be used as switches.
- They are equipped with an indicator light indicating blowing of the fuse cartridge: to be equipped with aM or gG (gL-gI) type fuse cartridge without striker.

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

6

Catalogue numbers

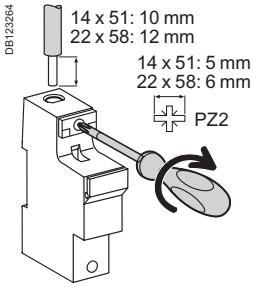
Fuse cartridge							SBI fuse holder					
Type							Network type					
	Rating	Voltage rating (Ue)	Short-circuit current (Isc)									
			aM	gG	aM	gG	N	1P	1P+N (1)	2P	3P	3P+N (1)
PB102098-20 							DB112796 	DB112797 	DB112798 	DB112799 	DB112800 	DB110801 
14 x 51 mm	10 A	690 V CA	120 kA	120 kA	DF2EA10	DF2EN10	MGN15708	MGN15707	MGN15709	MGN15710	MGN15711	MGN15712
	12 A	690 V CA	120 kA	-	DF2EA12	-						
	16 A	690 V CA	120 kA	120 kA	DF2EA16	DF2EN16	3 modules of 9 mm	3 modules of 9 mm	6 modules of 9 mm	6 modules of 9 mm	9 modules of 9 mm	12 modules of 9 mm
	20 A	690 V CA	120 kA	120 kA	DF2EA20	DF2EN20						
	25 A	690 V CA	120 kA	120 kA	DF2EA25	DF2EN25						
	32 A	500 V CA	120 kA	120 kA	DF2EA32	DF2EN32						
	40 A	500 V CA	120 kA	120 kA	DF2EA40	DF2EN40						
	50 A	400 V CA	120 kA	120 kA	DF2EA50	DF2EN50						
22 x 58 mm	32 A	690 V CA	80 kA	80 kA	DF2FA32	DF2FN32	MGN15714	MGN15713	MGN15715	MGN15716	MGN15717	MGN15718
	40 A	690 V CA	80 kA	80 kA	DF2FA40	DF2FN40						
	50 A	690 V CA	80 kA	80 kA	DF2FA50	DF2FN50	4 modules of 9 mm	4 modules of 9 mm	8 modules of 9 mm	8 modules of 9 mm	12 modules of 9 mm	16 modules of 9 mm
	63 A	690 V CA	80 kA	80 kA	DF2FA63	DF2FN63						
	80 A	690 V CA	80 kA	80 kA	DF2FA80	DF2FN80						
	100 A	400 V CA	120 kA	120 kA	DF2FA100	DF2FN100						
	125 A	400 V CA	120 kA	-	DF2FA125	-						
							Operating frequency: 50/60 Hz					

(1) The neutral pole comes equipped with a locked tube.

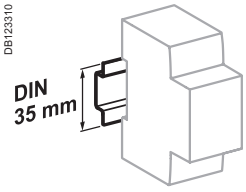
Technical Section 10
Dimensions Section 11

SBI fuse holder with indicator light (cont.)

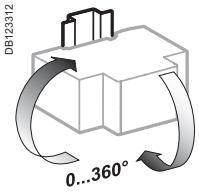
Connection



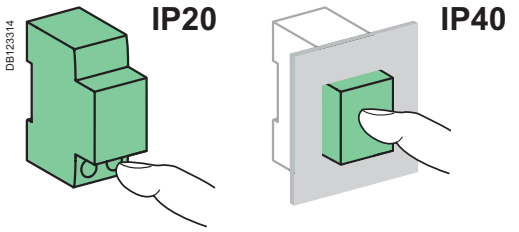
Type of fuse cartridge	Tightening torque	Copper cables		Multi-cables terminal	
		Rigid	Flexible or ferrule	Rigid cables	Flexible cables
		DB122945	DB122946	DB118787	
14 x 51 mm	3.5 N.m	2.5 to 25 mm²	2.5 to 25 mm²	2.5 to 10 mm²	2.5 to 10 mm²
22 x 58 mm	3.5 N.m	2.5 to 35 mm²	2.5 to 35 mm²	2.5 to 25 mm²	2.5 to 16 mm²



Clip on DIN rail 35 mm.



Indifferent position of installation.



Technical data

Main characteristics	
Insulation voltage (Ui)	690 V
Utilization category	AC20B isolation by switching the drawer, must not be operated under load

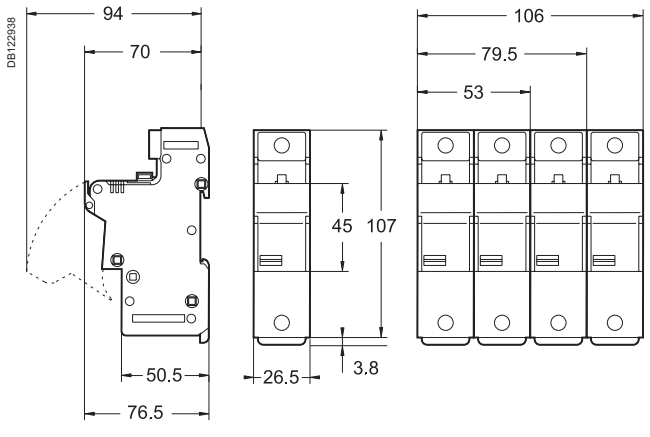
Additional characteristics		
Degree of protection	Device only	IP20
	Device in modular enclosure	IP40
Operating temperature		-20°C to +60°C
Storage temperature		-40°C to +80°C
Cartridge blowing signalling		By indicator light ON (neon)

Maximum permissible characteristics of the fuse cartridges:

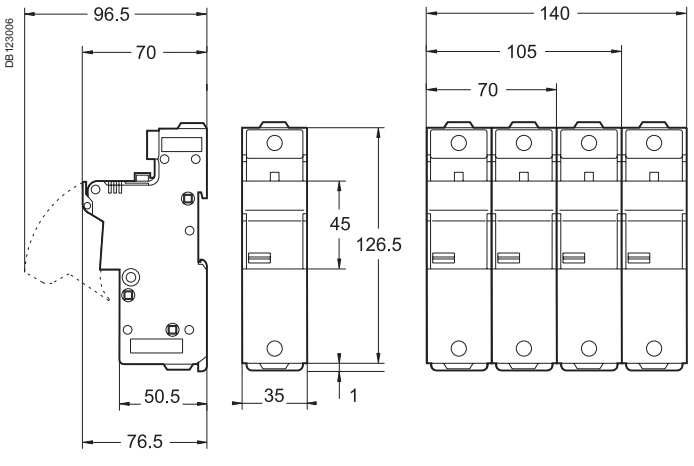
Fuse cartridge type		Ith	Pmax*
14 x 51 mm	aM	50 A	3 W
	gG	50 A	5 W
22 x 58 mm	aM	125 A	9.5 W
	gG	100 A	9.5 W

**Pmax: maximum dissipated power per fuse cartridge.*

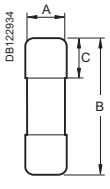
Dimensions (mm)



14 x 51 mm



22 x 58 mm



aM, gG

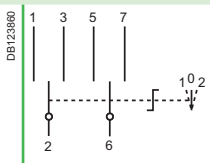
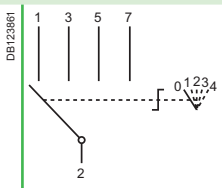
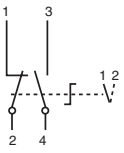
aM, gG fuse cartridge			
Type	A	B	C
14 x 51 mm	14.3	51	13.8
22 x 58 mm	22.2	58	16.2

Technical
Section 10

Dimensions
Section 11

DIN rail selector switches

iCMB, iCMD, iCME, iCMC, iCMV and iCMA

	Control		
Selector switches	**iCMB**	**iCMD**	**iCME**
Type	**Two-pole with zero setting**	**4-way**	**2-way for electronic circuits**
In compliance with standards	IEC 60947-3 (EN 60947-3) VDE 0660 part. 107 UL	IEC 60947-3 (EN 60947-3) VDE 0660 part. 107 UL	IEC 60947-3 (EN 60947-3) VDE 0660 part. 107 UL
	PB107120-38 	PB107121-38 	PB107122-38 
Function			
	■ This two-pole selector switch with zero setting allows manual control of a circuit with 2-way operation with a stop position Key type Ronis 455	■ This 4-way selector switch allows control of a circuit with operating priorities	■ This 2-way selector switch is used specially for the control of electronic circuits of low voltage and current level
Wiring diagrams			
	DB123860 	DB123861 	DB123862 
Use			
	Example: electrically controlled metal screen: ■ position 1 = raising ■ position 0 = stop ■ position 2 = lowering	Example: fan control: ■ position 0 = stop ■ position 1 = override operation, slow speed ■ position 2 = override operation, high speed ■ position 3 = remote control ■ position 4 = automatic operation	■ Voltage range from 30 mV to 600 V AC
Catalogue numbers	**A9E15120**	**A9E15121**	**A9E15122**

Technical specifications

Rated voltage (Ue)	V AC	415	415	See following table
Maximum operating voltage	V	440	440	440
Rating	A	10	10	See following table
Operating frequency	Hz	50/60	50/60	50/60
Width in 9-mm modules		4	4	4
Breaking capacity (resistive load)		–	–	

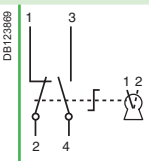
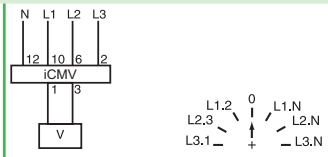
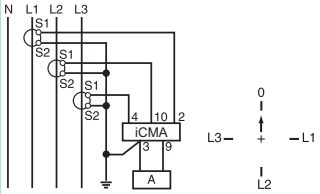
	V AC	V DC
1 V	5 A	3 A
12 V	1.2 A	0.7 A
24 V	0.7 A	0.4 A
48 V	0.45 A	0.25 A
110 V	0.25 A	0.13 A
240 V	0.15 A	0.08 A
300 V	0.13 A	0.07 A
440 V	0.1 A	0.05 A

Operating temperature	°C	-20…+55	-20…+55	-20…+55
Storage temperature	°C	-25…+80	-25…+80	-25…+80

Technical Section 10 Dimensions Section 11

DIN rail selector switches

iCMB, iCMD, iCME, iCMC, iCMV and iCMA (cont.)

	iCMC	iCMV	iCMA
	2-way key-actuated	**7-position voltmeter**	**4-position ammeter**
	IEC 60947-3 (EN 60947-3) VDE 0660 part. 107 UL	IEC 60947-3 (EN 60947-3) VDE 0660 part. 107 UL	IEC 60947-3 (EN 60947-3) VDE 0660 part. 107 UL
	PB107123-38 	PB107118-38 	PB107119-38 
	■ 2-way key-actuated selector switch with locking in one or the other position	■ This 7-position voltmeter selector switch makes it possible, with a single voltmeter, to measure in succession the voltages (phase-to-phase and phase-to-neutral) of a three-phase circuit	■ This 4-position ammeter selector switch makes it possible, with a single ammeter (using current transformers), to measure in succession the currents of a three-phase circuit
	DB123869 	DB123146 	DB123145 
	–	–	–
	A9E15123	**15125**	**15126**
	415	415	415
	440	440	440
	10	10	10
	50/60	50/60	
	4	4	4
	–	–	–
	-20…+55	-20…+55	-20…+55
	-25…+80	-25…+80	-25…+80

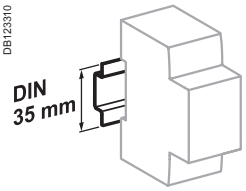
6

Technical Section 10 Dimensions Section 11

DIN rail selector switches

iCMB, iCMD, iCME, iCMC, iCMV and iCMA (cont.)

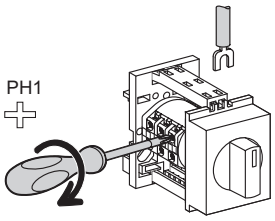
DB123310



Clip on DIN rail 35 mm.

Connection

DB123270



Tightening torque	Copper cables
	Flexible or rigid with ferrule
DB122945	
0.35 N.m	< 1.5 mm²

■ Connection by jumper terminals with captive screws.

Technical data

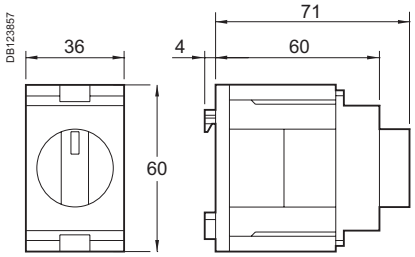
Additional characteristics		
Degree of protection	Device only	IP20
Endurance (O-C)	Electrical	1,000,000 switching operations
	Mechanical	2,000,000 switching operations (AC21A-3 x 440 V)

Weight (g)

Selector switches	
Type	
iCMA	58
iCMB	58
iCMC	70
iCMD	58
iCME	44
iCMV	58

Dimensions (mm)

DB123857



XB device holder

Application

The device holders can be mounted on 35mm rail to facilitate mounting of pushbuttons, indicators or other devices.

Technical data

Button holder

For buttons, switches and indicators with metal or plastic flange Ø 22 of the Telemecanique XB4 / XB5 type

Depth under rail:	60mm (same as products in the Acti 9 range)
Drilling diameter:	Ø 22.3
Self-extinguishing insulating material	
Colour:	White RAL 9003

Universal holder

For buttons, indicators, light emitting diodes (LED), potentiometers

Easy drilling	To be adapted depending on use
Depth under rail	60 mm (same as products in the multi 9 range)
Self extinguishing insulating material	
Colour:	Light grey RAL 7035

Type	Width in 18mm ways	Part number
22mm button holder	3	**A9A15151**
Universal holder	3	**A9A15152**

6

Relays

Time delay relays

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

iRTA
■ Delays energizing of a load

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

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

Interface relays

iRBN and iRTBT relays can interface automatic control system inputs/outputs with low-voltage devices.

iRBN
Low level relay
■ Actuation of low-amperage electronic circuits upon receiving an LV electrical order

iRTBT
Extra low voltage relay
■ Actuation of LV circuits based on an extra low voltage order

Control relays

Control relays monitor electrical parameters and indicate when they are exceeded

iRCP
Phase control
■ Monitors the order and asymmetry of phases and the presence of voltage on the 3 phases of a three-phase circuit (power supply of a motor, etc.)

iRCI
Current control
■ Monitors the current flowing in a circuit and indicates any crossing of the set threshold

Time delay

Control

Monitoring

Technical Section 10 **Dimensions Section 11**

Relays (cont.)

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

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

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

iRLI and iERL relays are used to relay ON or OFF information to the auxiliary circuits and actuate low-power loads

Changeover relays

iRLI

iERL extension

Changeover
■ Relays ON or OFF information to the auxiliary circuits
■ Actuates low-power loads

6

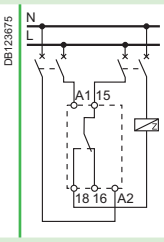
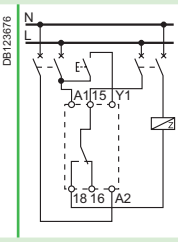
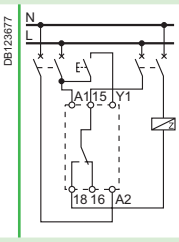
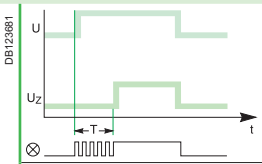
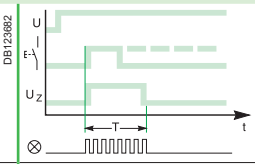
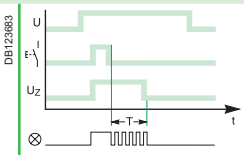
Relaying and control

iRCU
Voltage control
■ Monitors the potential difference of a circuit and indicates any crossing of the set threshold

iRCC
Compressor control
■ Monitors the compressor power supply and prevents its immediate restarting upon detection of a power cut or voltage dip

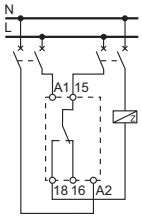
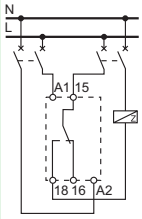
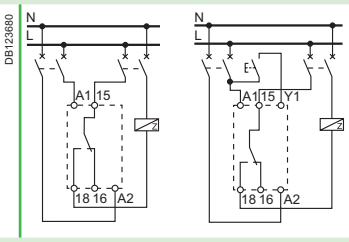
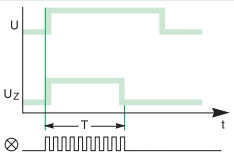
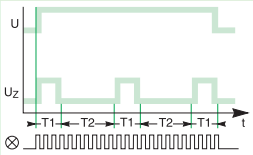
Time delay relays
iRTA, iRTB, iRTC, iRTH, iRTL and iRTMF

Time delay relays

		iRTA	iRTB	iRTC
Type				
		 PB111581-35	 PB111582-35	 PB111583-35
Function				
		■ Delays energizing of a load	■ Delays de-energizing of a load upon closing of an auxiliary contact (push button)	■ Delays de-energizing of a load upon opening of an auxiliary contact (push button)
Wiring diagrams		 DB123675	 DB123676	 DB123677
Use		 DB123681	 DB123682	 DB123683
		■ The single time delay cycle starts at switching on of the iRTA relay power supply ■ The load is energized at the end of time delay T	■ The single time delay cycle starts at closing of an auxiliary contact (push button) ■ The load is de-energized at the end of time delay T	■ The single time delay cycle starts only upon release of an auxiliary contact (push button) ■ The load is de-energized at the end of time delay T
Catalogue numbers		**A9E16065**	**A9E16066**	**A9E16067**
Technical specifications				
Control and power supply voltage (Uc)	V AC	24…240, ±10 %	24…240, ±10 %	24…240, ±10 %
	V DC	24, ±10 %	24, ±10 %	24, ±10 %
Operating frequency	Hz	50/60	50/60	50/60
Time delay range		0.1 s to 100 h	0.1 s to 100 h	0.1 s to 100 h
Precision		±10 % of full scale	±10 % of full scale	±10 % of full scale
Minimum duration of control impulse		100 ms	100 ms	100 ms
Insensitive to brownouts		≤ 20 ms	≤ 20 ms	≤ 20 ms
Max. resetting time per voltage interruption		100 ms	100 ms	100 ms
Accuracy of repetition		±0.5 % at constant parameters	±0.5 % at constant parameters	±0.5 % at constant parameters
Changeover contact (cadmium free)	Mini	Rating 10 mA/5 V DC	Rating 10 mA/5 V DC	Rating 10 mA/5 V DC
	Maxi	Rating 8 A/250 V AC/DC	Rating 8 A/250 V AC/DC	Rating 8 A/250 V AC/DC
Endurance	Mechanical	> 5 x 10^6 switching operations	> 5 x 10^6 switching operations	> 5 x 10^6 switching operations
	Electrical	> 10^5 switching operations (utilization category AC1)	> 10^5 switching operations (utilization category AC1)	> 10^5 switching operations (utilization category AC1)
Display of contact status by green indicator lamp		Flashing during time delay	Flashing during time delay	Flashing during time delay
Degree of protection	Device only	IP20	IP20	IP20
Connection by tunnel terminals	Without ferrule	2 x 2.5 mm^2 single-strand	2 x 2.5 mm^2 single-strand	2 x 2.5 mm^2 single-strand
	With ferrule	2 x 1.5 mm^2 multi-strand	2 x 1.5 mm^2 multi-strand	2 x 1.5 mm^2 multi-strand
Width in 9-mm modules		2	2	2
Operating temperature	°C	-5 … +55	-5 … +55	-5 … +55
Storage temperature	°C	-40 … +70	-40 … +70	-40 … +70

Technical Section 10 **Dimensions** Section 11

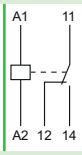
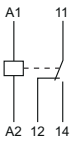
Time delay relays
iRTA, iRTB, iRTC, iRTH, iRTL and iRTMF (cont.)

	iRTH	iRTL	iRTMF
	PB111584-35 	PB111585-35 	PB111586-35 
	■ Applies a time delay to de-energizing of a load	■ Applies a time delay to energizing and de-energizing of a load during different times, repeatedly (flasher)	■ Allows one of the four types of time delay to be selected: A, B, C or H
	DB123678 	DB123679 	DB123680 
	DB123684 	DB123685 	
	■ The single time delay cycle starts at switching on of the iRTH relay power supply ■ The load is de-energized at the end of time delay T	■ The time delay cycle starts at energizing ■ The load is energized during an adjustable time T1 and then de-energized during an adjustable time T2. This cycle is reproduced until de-energizing of the iRTL relay power supply	■ Depending on the choice, the iRTMF generates time delay cycles for the iRTA, iRTB, iRTC or iRTH relays
	A9E16068	**A9E16069**	**A9E16070**
	24…240, ±10 %	24…240, ±10 %	12…240, ±10 %
	24, ±10 %	24, ±10 %	12…240, ±10 %
	50/60	50/60	50/60
	0.1 s to 100 h	0.1 s to 100 h	0.1 s to 100 h
	±10 % of full scale	±10 % of full scale	±10 % of full scale
	100 ms	100 ms	100 ms
	≤ 20 ms	≤ 20 ms	≤ 20 ms
	100 ms	100 ms	100 ms
	±0.5 % at constant parameters	±0.5 % at constant parameters	±0.5 % at constant parameters
	Rating 10 mA/5 V DC	Rating 10 mA/5 V DC	Rating 10 mA/5 V DC
	Rating 8 A/250 V AC/DC	Rating 8 A/250 V AC/DC	Rating 8 A/250 V AC/DC
	> 5 x 10^6 switching operations	> 5 x 10^6 switching operations	> 5 x 10^6 switching operations
	> 10^5 switching operations (utilization category AC1)	> 10^5 switching operations (utilization category AC1)	> 10^5 switching operations (utilization category AC1)
	Flashing during time delay	Flashing during time delay	Flashing during time delay
	IP20	IP20	IP20
	2 x 2.5 mm^2 single-strand	2 x 2.5 mm^2 single-strand	2 x 2.5 mm^2 single-strand
	2 x 1.5 mm^2 multi-strand	2 x 1.5 mm^2 multi-strand	2 x 1.5 mm^2 multi-strand
	2	2	2
	-5 … +55	-5 … +55	-5 … +55
	-40 … +70	-40 … +70	-40 … +70

Technical **Dimensions**
Section 10 **Section 11**

Interface relays
iRBN and iRTBT

Interface relays

		iRBN	iRTBT
Type		**Low level**	**Extra low voltage**
		PB107144-35 	PB107164-35 
Standard		IEC 255 100 and IEC 529	IEC 255 100 and IEC 529
Function			
		■ Actuation of low-amperage electronic circuits upon receiving an LV electrical order	■ Actuation of LV circuits based on an extra low voltage order
Wiring diagrams			
		DB123686 	DB123686 
Use			
		■ Inputs of programmable logic controllers, of measuring or supervision circuits, etc.	■ ELV orders can be issued by a programmable logic controller (24 V DC static outputs), a central fire detection unit, a regulation system, etc.
Catalogue numbers		**A9A15393**	**A9A15416**
Technical specifications			
Input control voltage (Uc)	V AC	230, ±10 %	12...24, -15 to +10 %
	V DC	-	12...24, ±20 %
Output contact rating	Mini	5 mA/5 V DC (DC12) 5 mA/5 V AC	10 mA/10 V DC (DC12) 10 mA/10 V AC
	Maxi	1 A/24 V DC (DC12) 5 A/250 V AC	1 A/24 V DC (DC12) 5 A/250 V AC
Operating frequency	Hz	50/60	0…60
Strengthened insulation between ELV/LV circuits		4 kV	4 kV
Consumption	At inrush	5 VA	0.22 W
	At holding	2.5 VA	0.11 W
Endurance	Electrical	100,000 switching operations	100,000 switching operations
Display of voltage presence on the control circuit		By green indicator lamp	By green indicator lamp
Degree of protection	Device only	IP20	IP20
Connection by tunnel terminals		0.5 x 6 mm^2	0.5 x 6 mm^2
Width in 9-mm modules		2	2
Operating temperature	°C	-5 … +55	-5 … +55
Storage temperature	°C	-40 … +70	-40 … +70

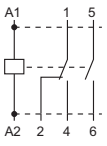
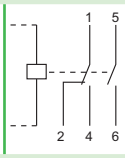
6

Technical
Section 10

Dimensions
Section 11

iRLI changeover and iERL extension relays

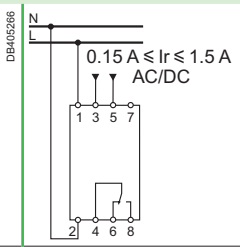
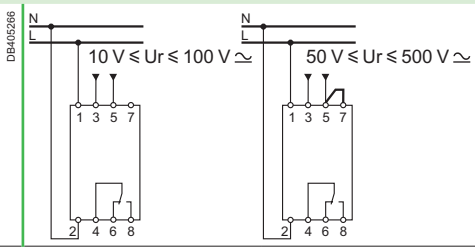
Changeover and extension relays

		iRLI				iERL			
Type		**Changeover relay**				**Extension for RLI**			
		PB107108-35 				PB107109-35 			
Standard		IEC 255 and NF C 45-250				IEC 255 and NF C 45-250			
Function									
		■ Relaying of ON or OFF information to the auxiliary circuits and actuation of low-power loads				■ Extension allowing additional contacts to be added to the iRLI changeover relays			
Wiring diagrams									
		DB123687 				DB123688 			
Use									
		■ The iRLI relay contains 1 changeover contact (O-C) and 1 normally open contact (N/O)				■ The iERL extension (max. 3 iERLs for 1 iRLI) contains 1 changeover contact (O-C) and 1 normally open contact (N/O) ■ Can be mounted without any tool and without additional cabling using a yellow clip which performs mechanical assembly and electrical connection between the coils			
Catalogue numbers		**A9E15535**	**A9E15536**	**A9E15537**	**A9E15538**	**A9E15539**	**A9E15540**	**A9E15541**	**A9E15542**
Technical specifications									
Control voltage (Uc)	V AC	230…240	48	24	12	230…240	48	24	12
Voltage rating (Ue)	V AC	230				230			
Insulation voltage (Ui)	V AC	250				250			
Rating (In)	A	10, cos φ = 1				10, cos φ = 1			
Operating frequency	Hz	50/60				50/60			
Inrush and holding power		4 VA				iRLI + iERL : 8 VA			
Endurance	Electrical	100,000 cycles AC21 (cos φ = 1)				100,000 cycles AC21 (cos φ = 1)			
Operation on front face	Power	By push button				By push button			
	Coil	By selector switch (disconnection)				By selector switch (disconnection)			
Position indicator		Mechanical indicator				Mechanical indicator			
Marking		Clip-on markers on the front panel				Clip-on markers on the front panel			
Degree of protection	Device only	IP20				IP20			
Connection by tunnel terminals		0.5 x 6 mm²				0.5 x 6 mm²			
Width in 9-mm modules		2				2			
Operating temperature	°C	-5 … +55				-5 … +55			
Storage temperature	°C	-40 … +70				-40 … +70			

6

iRCP phase control, iRCI current control, iRCU voltage control and iRCC compressor control relays

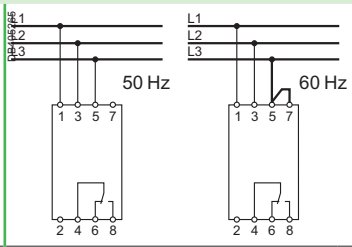
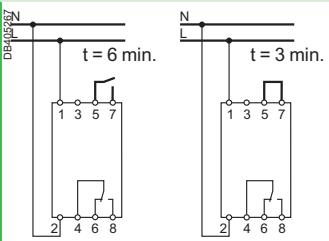
Control relays

	iRCI	iRCU
Type	**Current control**	**Voltage control**
		
Function		
	■ Monitors the current (Ir) flowing in an AC or DC circuit and indicates any crossing of the set threshold	■ Monitors the voltage variation (Ur) of an AC or DC circuit and indicates any crossing of the set threshold
Wiring diagrams		
Catalogue numbers	**A9E21181**	**A9E21182**

Common technical specifications			
Supply voltage (Uc)	V AC	230, -15 % to +10 %	
Frequency	Hz	50/60	
Parameter setting		■ On the front panel, by direct scale, using a screwdriver	
Precision of display		±10 % of full scale	
Output by changeover contact		8 A under 250 V AC (cos φ = 1)	
Indications by LED	Green	Voltage presence	
	Red	Fault	
Consumption	VA	3	
Dissipated power	W	2	
Degree of protection	Device only	IP20	
Connection by tunnel terminals	Rigid cable	1.5 x 6 mm^2	
Width in 9-mm modules		4	
Operating temperature	°C	-5 … +55	
Storage temperature	°C	-40 … +80	
Particular technical specifications			
		Threshold adjustable from 10 % to 100 % of Ir	Threshold adjustable from 10 % to 100 % of Ur
		Hysteresis adjustable from 5 % to 50 % of Ir	Hysteresis adjustable from 5 % to 50 % of Ur
		Monitoring of overcurrent and undercurrent (selection by selector switch)	
		Fail-safe contact	
		De-energized / Energized with fault 	
		Energized without fault 	
		Time delay on crossing threshold: 0.1 s to 10 s	
		Possibility of memorizing fault with resetting	
		Compatible with current transformers (CTs) of ratio X/5	■ Automatic recognition of AC voltage or DC voltage. ■ 2 measuring ranges selected by cabling: □ 10 V to 50 V □ 50 V to 500 V
		■ Automatic recognition of alternating or direct current. ■ 2 measuring ranges selected by cabling: □ 0.15 A to 1.5 A □ 1 A to 10 A	

Technical Section 10
Dimensions Section 11

iRCP phase control, iRCI current control, iRCU voltage control and iRCC compressor control relays (cont.)

	iRCP	iRCC
	Phase control	**Compressor control**
		
	■ Monitors phases and the presence of voltage on the 3 phases of a three-phase circuit (power supply of a motor, etc.). It indicates any phase loss or inversion	■ Monitors the compressor's power supply and prevents its immediate restarting upon detection of a power cut or voltage dip
		
	A9E21180	**A9E21183**
	400, ±15 %	230, -15 % to +10 %
	50/60	
	■ On the front panel, by direct scale, using a screwdriver	
	±10 % of full scale	
	8 A under 250 V AC (cos φ = 1)	
	Voltage presence	
	Fault	
	3	
	3 (total on the 3 phases)	2
	IP20	
	1.5 x 6 mm^2	
	4	
	-5 … +55	
	-40 … +80	
	Setting of phase asymmetry threshold: 5 % to 2 5% of 400 V	Threshold setting: ±5 % to ±15 % of 230 V
	Hysteresis: fixed, 5 % of asymmetry threshold	
	Monitoring of direction of phase rotation	
	Monitoring of presence of the 3 phases	
	Fail-safe contact	Fail-safe contact
	De-energized Energized with fault 	De-energized Energized with fault 
	Energized without fault 	Energized without fault 
	Time delay on tripping: 0.3 s	Time delay on overshoot: 3 or 6 minutes (selection by cabling)

Technical Section 10 Dimensions Section 11

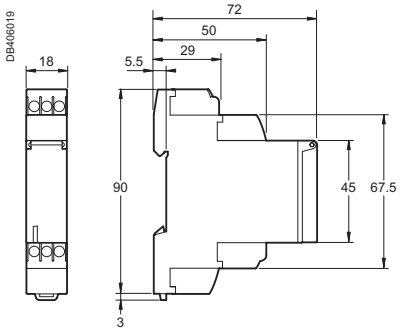
Relays

Technical data

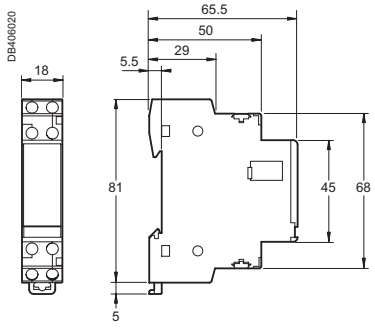
Weight (g)

Relays	
Type	
iRTA, iRTB, iRTC, iRTH, iRBN	65
iRTL	66
iRTMF	68
iRTBT	63
iRLI, iERL	112
iRCP, iRCC	210
iRCI, iRCU	215

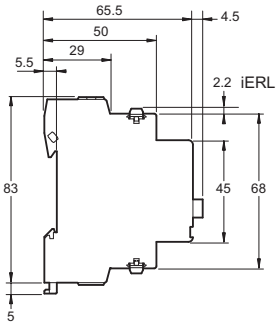
Dimensions (mm)



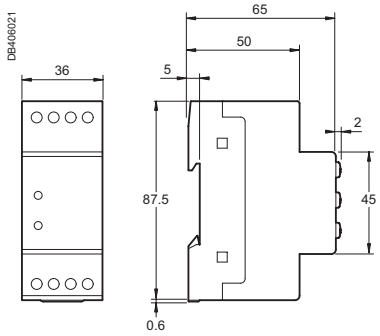
iRTA, iRTB, iRTC, iRTH, iRTL, iRTMF



iRBN, iRTBT



iRLI, iERL



iRCP, iRCI, iRCU, iRCC

MIN, MINs, MINp and MINt

Timers

Electromechanical timer

MIN
Adjustable time delay from 1 to 7 min.

Silent electronic timers

MINs
Adjustable time delay from 0.5 to 20 min.

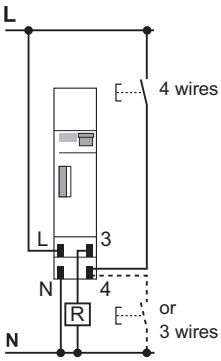
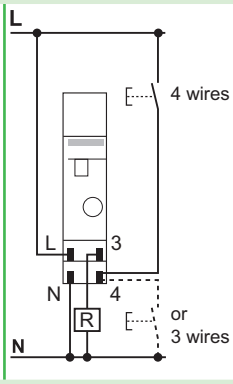
MINp
Adjustable time delay from 0.5 to 20 min. with switch-off warning.

MINt
Adjustable time delay from 0.5 to 20 min. with switch-off warning and impulse relay function.

6

MIN, MINs, MINp and MINt (cont.)

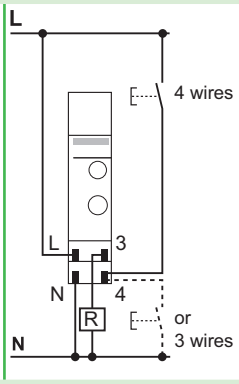
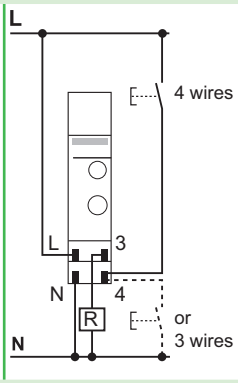
Selection table

	MIN	MINs
Type	**Electromechanical timer**	**Silent electronic timer**
	P111648 	P111642 
Function		
	These timers allow closing and then opening of a contact in a determined time	
	Control circuit: connected standard or luminous push-buttons. Timer inoperative via self-protection if consumption above 50 mA maximum	
Wiring diagrams		
	P106867 	P106869 
Mounting		
	Two operating modes triggered by switch on front face: ■ Automatic mode: □ operation in timing mode □ time delay adjustable from 1 to 7 min. □ setting in steps of 15 s using knob □ pressing a push-button renews the time delay ■ Manual override mode: constant lighting	Two operating modes triggered by switch on front face: ■ Timer mode: time delay adjustable from 0.5 to 20 min. ■ Permanent mode: constant lighting
Catalogue numbers	**15363**	**CCT15232**

Technical specifications			
Voltage rating (Ue) (+10 %, -15 %)		230 V AC, 50 Hz	230 V AC, 50/60 Hz
Consumption		1 VA	< 6 VA
Output contact current	Cos φ = 1	16 A	16 A
Degree of protection		IP20B	IP20B
Operating temperature		-10°C to +50°C	-10°C to +50°C
Width (9 mm modules)		2	2
Consumption of connected luminous push-buttons		50 mA maxi	150 mA maxi
Adjustable time delay		1 to 7 min.	0.5 to 20 min.
Long time delay		–	–
Insulation class		–	Class II
1 screw connection per pole for cables up to 6 mm²		■	■
Selection of the type of connection (3 or 4 wires)		Selector switch	Automatic
Mechanical compatibility with electrical distribution comb busbar		–	■
Switch-off warning function		–	–
Impulse relay function		–	–

Technical Section 10 Dimensions Section 11

MIN, MINs, MINp and MINt (cont.)

	MINp	MINt	Accessory
	Silent electronic timer		**Wall mount accessory**
	P111643 	P111644 	P135159 
	The MINp timer allows closing and then opening of a contact in a determined time, and it also provides warning that the lighting is about to be switched off by flickering of the lamplight (switch-off warning)	The MINt timer is the same as MINp with an "impulse relay" additional function	The MIN timers can be mounted on a wall by using 15359 reference. The protection cover is sealable.
	P106871 	P106871 	The 15359 accessory can be also used to mount others 18 mm DIN rail devices (for example: time switches, circuit breakers...).
	■ Time delay adjustable from 0.5 to 20 min. ■ Three operating modes triggered by switch on front face: □ timer mode with "switch-off warning" function built into the device. The lamp blinks 40 and 30 s before the end of the time delay □ timer mode mode without "switch-off warning" function □ permanent mode : constant lighting		
	■ Timer mode operation: □ pressing a push-button for longer than 2 s: lighting will last for 1 h. Pressing again a push-button for less than 2 s relaunch the time delay of 1 h and pressing again a push-button for more than 2 s switches off the light □ pressing a push-button for less than 2 s launch the pre-set time delay, pressing again a push-button for less than 2 s relaunch the pre-set time delay	■ Timer mode operation: □ pressing a push-button for longer than 2 s: lighting will last for 1 h. Pressing again a push-button for less than 2 s relaunch □ the time delay of 1 h and pressing again a push-button for more than 2 s switches off the light □ pressing a push-button for less than 2 s launch the pre-set time delay, pressing again a push-button for less than 2 s, switches off the light (impulse relay mode)	
	CCT15233	**CCT15234**	**15359**
	230 V AC, 50/60 Hz	230 V AC, 50/60 Hz	
	< 6 VA	< 6 VA	
	16 A	16 A	
	IP20B	IP20B	
	-25°C to +50°C	-25°C to +50°C	
	2	2	See § dimensions
	150 mA maxi	150 mA maxi	
	0.5 to 20 min.	0.5 to 20 min.	
	1 h	1 h	
	Class II	Class II	
	■	■	
	Automatic	Automatic	
	■	■	
	■	■	
	–	■	

Technical Section 10 **Dimensions Section 11**

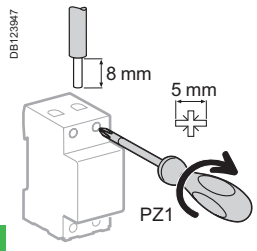
MIN, MINs, MINp and MINt (cont.)

Load table

Products	MIN	MINs	MINp, MINt
Type of lighting	**Maximum power**		
230 V incandescent and halogen lamps	2300 W	2300 W	3600 W
Non-corrected / serial-corrected / dual mounted fluorescent tubes with conventional ballast	2300 VA	2300 VA	3600 VA (1)
Fluocompact lamps with conventional ballast	2000 VA	1500 VA	1500 VA (1)
Parallel-corrected fluorescent tubes with conventional ballast	1300 VA (70 F)	400 VA (42 µF)	1200 VA (120 µF) (1)
Fluorescent tubes with electronic ballast	300 VA	300 VA	1000 VA
Fluocompact lamps with electronic ballast	9 x 7 W, 6 x 11 W, 5 x 15 W, 5 x 20 W	9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W	34 x 7 W, 27 x 11 W, 24 x 15 W, 22 x 23 W

(1) *The "switch-off warning" function is not available for these types of loads.*

Connection



Type	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
		 DB122945	 DB122946
MIN, MINs, MINp, MINt	1.2 N.m	≤ 6 mm²	≤ 6 mm²

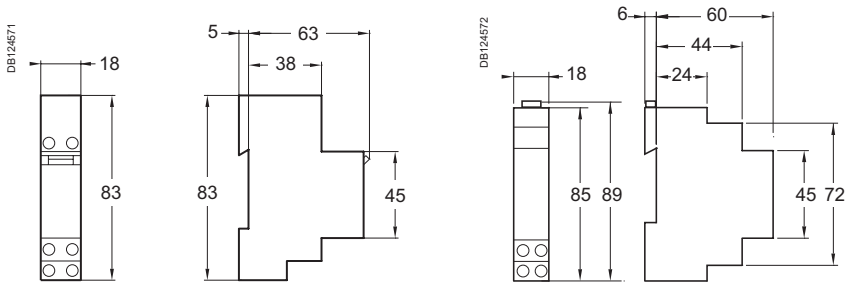
6

MIN, MINs, MINp and MINt (cont.)

Weight (g)

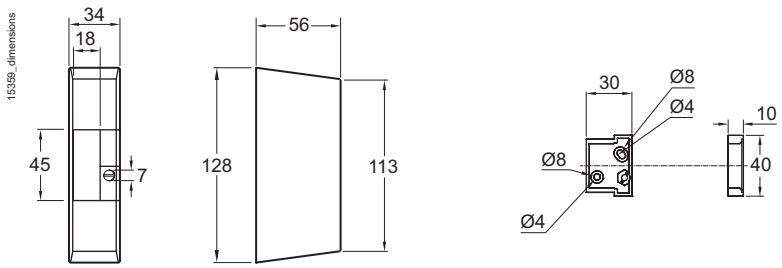
Time switches	
MIN	84
MINs	75
MINp	103
MINt	76

Dimensions (mm)



MIN

MINs, MINp, MINt



Wall mount accessory

6

IHP, IH, IHH and ITA

Time switches

The 45 mm digital time switches

IHP 1c

IHP 2c

IHP+1c

IHP+2c

Automatically switch On and Off loads according to the program entered by the user with 4 keys and a display, they operate on a weekly cycle: the same program is repeated week after week.

The 18 mm digital time switches

IHP 1c/+ 1c

Automatically switch On and Off loads according to the program entered by the user with 4 keys and a display, they operate on a weekly cycle: the same program is repeated week after week.

6

IHP, IH, IHH and ITA (cont.)

The 54 mm mechanical time switches

IH 60mn 1c SRM

IH 24h 1c SRM/ ARM

IH 24h 2c ARM

IH 24h + 7j 1+1c ARM

IH 7j 1c ARM

Automatically switch On and Off loads according to the program entered by the user they operate on an hourly, daily or weekly cycle: the same program is repeated hour after hour (IH 60mn), day after day (IH 24h) or week after week (IH 7j).

The 18 mm mechanical time switches

IH 24h 1c SRM/ ARM

IHH 7j 1c ARM

Automatically switch On and Off loads according to the program entered by the user they operate daily on a weekly cycle.

The digital yearly time switches

ITA 1C

ITA 4C

They operate on an daily, weekly or yearly program
(ITA 1c: 1 channel, ITA 4c: 1, 2, 3 or 4 channels - 2 external inputs).

IHP, IH, IHH and ITA (cont.)

Selection table

The time switches control opening and closing of one or more separate circuits according to a programming pre-set by the user:
- by memorisation of On and Off switching operations for the IHP and ITA digital time switches
- by positioning of jumpers or captive segments on a programming dial for the IH mechanical time switches.

An IHP, IH or ITA time switch is chosen according to the following criteria:

Designation	Number of channels	Cycle period (d: day)	Minimum time between 2 switching operations	Number of switching operations	Saving on mains cut off	Width (modules of 9 mm)	Override controls On / Off	Output contact changeover switch (cos φ =1)	Time changeover (summer / winter)
The 45 mm digital time switches									
IHP 1c	1	24 h and/or 7 d	1 min.	56	6 years	5	On / Off	16 A	Auto
IHP + 1c	1	24 h and/or 7 d	1 s	84	6 years	5	On / Off	16 A	Auto
IHP 2c	2	24 h and/or 7 d	1 min.	56	6 years	5	On / Off	16 A	Auto
IHP + 2c	2	24 h and/or 7 d	1 s	84	6 years	5	On / Off	16 A	Auto
The 18 mm digital time switches									
IHP 1c 18 mm	1	24 h and/or 7 d	1 min.	56	10 years	2	On / Off	16 A	Auto
IHP + 1c 18 mm	1	24 h and/or 7 d	1 min.	84	10 years	2	On / Off	16 A	Auto
The 36 or 72 mm digital yearly time switches									
ITA 1c	1	24 h, 7 d, year	1 min.	300	10 years	4	On/Off	16 A	Manual / Auto
ITA 4c	4	24 h, 7 d, year	1 min.	300	10 years	8	On/Off	10 A	Manual / Auto
The 54 mm mechanical time switches									
IH 60mn 1c SRM	1	60 min.	37.5 s	48 On - 48 Off	none	6	On / Off	10 A	Manual
IH 24h 1c SRM	1	24 h	15 min.	48 On - 48 Off	none	6	On / Off	16 A	Manual
IH 24h 1c ARM	1	24 h	15 min.	48 On - 48 Off	200 h (1)	6	On / Off	16 A	Manual
IH 24h 2c ARM	2	24 h	30 min.	24 On - 24 Off	150 h	6	On	16 A	Manual
IH 7j 1c ARM	1	7 days	2 h	42 On - 42 Off	200 h (1)	6	On / Off	16 A	Manual
IH 24h + 7j 1+1c ARM	1+1	24 h + 7 days	45 min. + 12 h	16 On -16 Off + 7 On -7 Off	150 h	6	On	16 A	Manual
The 18 mm mechanical time switches									
IHH 7j 1c ARM	1	7 days	2 h	42 On - 42 Off	100 h	2	On / Off	16 A	Manual
IH 24h 1c ARM	1	24 h	15 min.	48 On - 48 Off	100 h	2	On / Off	16 A	Manual
IH 24h 1c SRM	1	24 h	15 min.	48 On - 48 Off	none	2	On / Off	16 A	Manual

(1) 10 h for 100 V CA supply voltage.

Technical Section 10
Dimensions Section 11

IHP, IH, IHH and ITA (cont.)

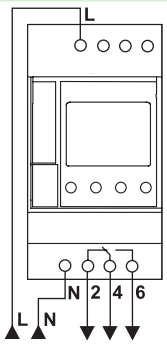
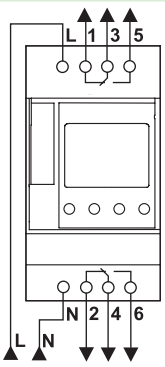
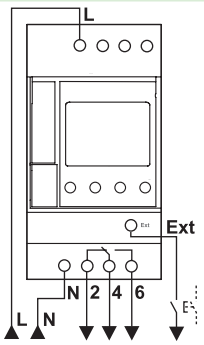
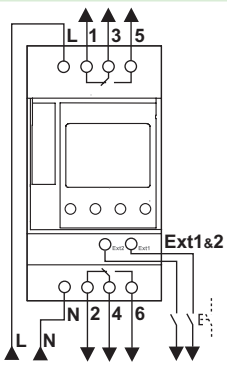
	Back-lit display, random function and pulse programming	"Absence for holidays" function	Screwless connection	Mechanical compatibility with electrical distribution comb busbars	Input for external control	Instruction manual holder on front face	Memory key supplied with the product	Cat. no.
		■	■	■		■		**CCT15720** (4)
	■	■	■	■	1 input	■	■	**CCT15721** (4)
		■	■	■		■		**CCT15722** (4)
	■	■	■	■	2 inputs	■	■	**CCT15723** (4)
		■	■				(5)	**CCT15854** (4)
	■+ Cycle programming	■	■		1 input		■	**CCT15838** (4)
	Back-lit display, pulse and cycle programming	■(3)					(6)	**CCT15910**
	Back-lit display, pulse and cycle programming	■(3)			2 inputs		(6)	**CCT15940**
			■					**CCT15338**
			■					**CCT16364**
			■					**CCT15365**
								15337
			■					**CCT15367**
								15366
								15331
								15336
								15335

(2) French, English, Italian, Spanish, German, Portuguese languages.
(3) Function included and can be realized through special program entry.
(4) French, English, Italian, Spanish, German, Portuguese, Dutch languages.
(5) Memory key (CCT15861) is not supplied with IHP 1c 18mm (CCT15854) but this memory key and the programming kit (CCT15860) can be used and operate on IHP 1c 18mm (see "Accessories selection table").
(6) Memory key (CCT15955) is not supplied with ITA 1c /4c but this memory key and the programming kit (CCT15950) can be used and operate on ITA 1c/4c (see "Accessories selection table").

IHP and ITA

Selection table

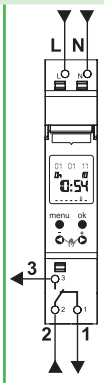
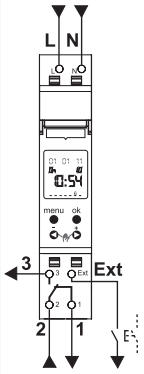
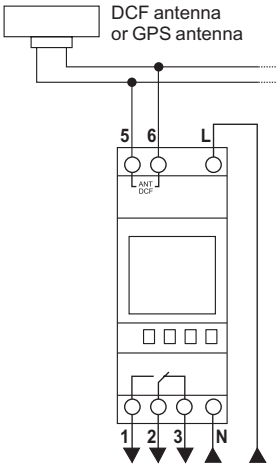
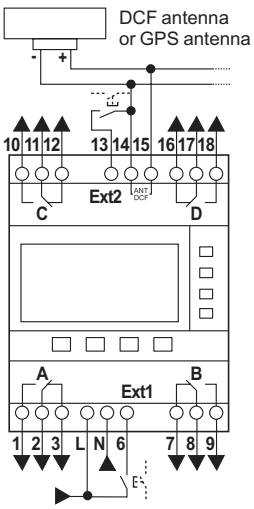
Programmable time switches

	IHP 1c	IHP2c	IHP+1c	IHP+2c
	P140626 	P140627 	P111624 	P111626 
Function				
	■ These time switches automatically switch on and off loads according to the program entered by the user ■ They operate on weekly cycle: the same program is repeated week after week ■ They offer automatic summer/winter time change and allow to adjust it according to where you are located ■ The program can be overriden temporary or permanently by pressing 2 keys on the product ■ They also offer holidays program, by configuring the starting and ending dates of the absence.			
			■ A memory key and a programming kit can be used to duplicate on another IHP+ or to save the program created by the contractor (see "Accessories selection table") ■ Override control with switch or push-button via external input (1 external input for IHP+1c and 2 externals inputs for IHP+ 2c)	
Wiring diagrams				
				
Catalogue numbers	**CCT15720**	**CCT15722**	**CCT15721**	**CCT15723**
Technical specifications				
Voltage rating (Ue)	230 V AC, ±10 %, 50/60 Hz	230 V AC, ±10 %, 50/60 Hz	230 V AC, ±10 %, 50/60 Hz	230 V AC, ±10 %, 50/60 Hz
Consumption	4 VA	7 VA	4 VA	7 VA
Output contact current (250 V AC) Cos φ = 1	16 A	16 A	16 A	16 A
Output contact current (250 V AC) Cos φ = 0.6	10 A	10 A	10 A	10 A
Degree of protection	IP20B	IP20B	IP20B	IP20B
Operating temperature	-10°C to +50°C	-10°C to +50°C	-10°C to +50°C	-10°C to +50°C
Time accuracy	± 1 s per day at 20°C	± 1 s per day at 20°C	± 1 s per day at 20°C	± 1 s per day at 20°C
Program saving and time by lithium battery — Lifetime	6 years	6 years	6 years	6 years
Program saving and time by lithium battery — Back-up time, cumulated mains cut off	6 years	6 years	6 years	6 years

6

Technical Section 10 Dimensions Section 11

IHP and ITA (cont.)

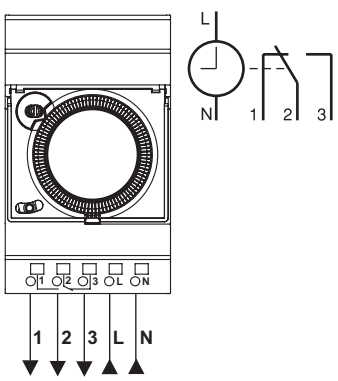
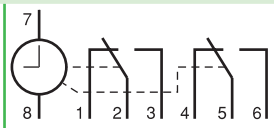
	IHP 1c 18 mm	IHP+1c 18 mm	Yearly programmable time switches ITA 1c	ITA 4c
	P111630 	P131535 	P140490 	P140489 
			■ Weekly or yearly time programming to be distributed over 1 channel	■ Weekly or yearly time programming to be distributed over 1, 2, 3 or 4 channels ■ Override control with switch or push-button via external inputs
	■ A memory key and a programming kit can be used to duplicate on another IHP or to save the program created by the contractor (see "Accessories selection table")		■ A memory key and a programming kit can be used to duplicate on another ITA or to save the program created by the user (see "Accessories selection table").	
				
	CCT15854	**CCT15838**	**CCT15910**	**CCT15940**
	230 V AC, +10 %, -15 %, 50/60 Hz	230 V AC, +10 %, -15 %, 50/60 Hz	230 V AC, 50/60 Hz	230 V AC, 50/60 Hz
	2.3 VA	2.3 VA	1.4 - 1.9 W (depending on the switching status)	1.2 - 3,2 W (depending on the switching status)
	16 A	16 A	16 A	10 A
	4 A	4 A	6 A	6 A
	IP20B	IP20B	IP20	IP20
	-25°C to +55°C	-25°C to +55°C	-30 °C to +55 °C	-30 °C to +55 °C
	± 0.5 s per day at 25°C	± 0.5 s per day at 25°C	Without antenna: ± 0.5 s per day at 20 °C With antenna: 1 s on 1 million years	Without antenna: ± 0.5 s per day at 20 °C With antenna: 1 s on 1 million years
	10 years	10 years	10 years	10 years
	10 years	10 years	10 years	10 years

6

Technical Section 10 Dimensions Section 11

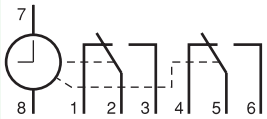
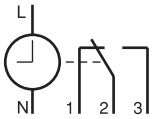
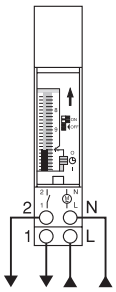
IH and IHH

Selection table | Mechanical time switches

	IH 60mn 1c SRM	IH 24h 1c SRM	IH 24h 1c ARM	IH 24h 2c ARM
	P116860 	P116861 	P116862 	P116816 
Function				
	■ They operate on hourly, daily or weekly cycle: the same program is repeated hour after hour (IH 60mn), day after day (IH 24h) or week after week (IH 7j, (IHH 7j) ■ The program can be overriden On			
Wiring diagrams				
Catalogue numbers	**CCT15338**	**CCT16364**	**CCT15365**	**15337**
Technical specifications				
Voltage rating (Ue)	230 V AC +10 %, -15%, 50 Hz	230 V AC +10 %, -15%, 50/60 Hz	110-230 V AC +10 %, -15%, 50/60 Hz	230 V AC +10 %, -15%, 50/60 Hz
Consumption	1 VA	2.5 VA	2.5 VA	2.5 VA
Output contact current under 250 VAC – Cos φ = 1	10 A	16 A	16 A	16 A
Output contact current under 250 VAC – Cos φ = 0.6	4 A	4 A	4 A	4 A
Degree of protection	IP20B	IP20B	IP20B	IP20B
Operating temperature	-20°C to +55°C	-20°C to +55°C	-20°C to +55°C	-20°C to +55°C
Time accuracy	±1 s per day at 20°C	±1 s per day at 20°C	±1 s per day at 20°C	±1 s per day at 20°C
Saving of program and time by lithium battery – Lifetime	–	–	6 years	6 years
Saving of program and time by lithium battery – Back-up time, cumulated mains cut off	–	–	200 h with 230 V AC 100 h with 100 V AC	150 h
Programming by: – Jumpers (supplied)	–	–	–	4 red + 4 green + 2 white
Programming by: – Captive segments	96	96	96	–

Technical Section 10 Dimensions Section 11

IH and IHH (cont.)

	IH 24h + 7j 1+1c ARM	IH 7j 1c ARM	IH24h 1c SRM 18 mm	IH 24h 1c ARM 18 mm	IHH 7j 1c ARM 18 mm
	P111619 	P116863 	P111614 	P111615 	P111613 
					
	15366	**CCT15367**	**15335**	**15336**	**15331**
	230 V AC +10 %, -15%, 50 Hz	110-230 V AC +10 %, -15%, 50/60 Hz	230 V AC, ±10 %, 50/60 Hz	230 V AC, ±10 %, 50/60 Hz	230 V AC, ±10 %, 50/60 Hz
	2.5 VA	2.5 VA	2.5 VA	2.5 VA	2.5 VA
	16 A	16 A	16 A	16 A	16 A
	4 A	4 A	4 A	4 A	4 A
	IP20B	IP20B	IP20B	IP20B	IP20B
	-20°C to +55°C	-20°C to +55°C	-10°C to +50°C	-10°C to +50°C	-10°C to +50°C
	±1 s per day at 20°C	±1 s per day at 20°C	±1 s per day at 20°C	±1 s per day at 20°C	±1 s per day at 20°C
	6 years	6 years	10 years	10 years	10 years
	150 h	200 h with 230 V AC 100 h with 110 V AC	–	100 h	100 h
	6 yellow (24 h), 12 blue + 2 red (7 days)	–	–	–	–
	–	84	96	96	84

6

IHP, IH, IHH and ITA

Accessories selection table

	Programming kits for PC		Memory keys	
	IHP+	ITA	IHP+	ITA
	P93580 	P140493 	P93581 	P140494 
Function				
	Consists of a programming device, a memory key, a CDROM and a 2 m USB cable For IHP+ 1c/2c, IHP 1c 18 mm, IHP+ 1c 18 mm	Consists of a programming device, a CDROM and a 1.5 m USB cable For ITA 1c and ITA 4c	Saving and duplicating programs For IHP+ 1c/2c, IHP 1c 18 mm, IHP+ 1c 18 mm	For ITA 1c and ITA 4c
Mounting				
	–		Located on front face	
Catalogue numbers	**CCT15860**	**CCT15950**	**CCT15861**	**CCT15955**
Technical spécifications				
Degree of protection	–		–	–
Operating temperature	–		–	–

6

Specific technical data

IHP+ 1c, IHP+ 2c	
Manual functions	Temporary cancellation of programming for holidays, public holidays, etc. by configuration of the 2 dates - start and end of absence
	Simulation of presence thanks to random operation during On periods
Pulse functions	Programming of pulses adjustable from 1 to 59 s (pulse takes priority over switching)
Back-lighting of the screen	
External input (only for IHP+ 1c, IHP+ 2c)	
External inputs for external control with a standard switch or a push-button	1 input for IHP+ 1c 2 inputs for IHP+ 2c
Voltage rating (Ue)	230 V AC, +10 %, -15 %
Frequency	50/60 Hz
Input current	≤ 1.2 mA
Consumption	≤ 0.3 mW
Cable length	≤ 100 m

Technical Section 10 Dimensions Section 11

IHP, IH, IHH and ITA (cont.)

Antenna

Additional jumpers

	GPS antenna for ITA	IH jumpers
	 P140491	
	Antenna for ITA 1c and ITA 4c	They are used to program a larger number of sequences for: ■ IH 24h 2c ARM (**15337**) ■ IH 24h + 7j 1+1c ARM (**15366**)
	■ 10 ITA maximum per antenna, maximum distance between the ITA and the antenna: 200 m ■ Outside the electrical switchboard, outdoors, under shelter	1 bag containing: ■ 5 red ■ 5 green ■ 5 white ■ 5 yellow
	CCT15970 (1)	**15341**
	IP54	–
	-30 °C to +55 °C	–

(1) *external 12-30 V DC power supply needed*

ITA 1c, ITA 4c	
Switching functions	On, Off, pulse, cycle, yearly program
Pulse lenght pulse function (switching time)	1 s to 59 min 59s
Pulse lenght timer (manual switching)	1 s to 9 h 59 min 59 s
Pulse/pause length cycle	1 s to 9 h 59 min 59 s
Minimum interval	1 min
External inputs (only for ITA 4c)	
External inputs for external control with a standard switch or a push-button	2 inputs : ■ **Ext1** input: supplied with 230 V AC, ±10%- 50/60 Hz ■ **Ext2** input Ext2: potential free
Antennas	**GPS- ITA**
Power supply	External 12 - 30 VDC
Output	DCF time telegraph (no weather data)
Receiver	–
Operation indicator	Flashing LED on receiving

6

IHP, IH, IHH and ITA (cont.)
Practical advice

Programming principle

- For the digital time switches, this consists of memorising the days and times of the required switching operations.
- For the mechanical time switches, this is performed by positioning captive segments or jumpers on a switching dial.

Example

- Controlling an air conditionner in a hairdressing salon:

	Monday (1)	Tuesday	Wednesday	Thursday (2)	Etc.	
On n° 1		08 h 30	08 h 30	08 h 30		Switch on
Off n° 1		12 h 00	12 h 00			Switch off
On n° 2		13 h 30	13 h 30			Switch on
Off n° 2		20 h 00	20 h 00	20 h 00		Switch off

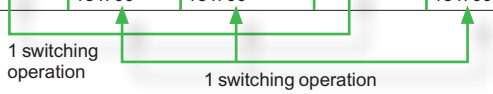
(1) *Closed on Mondays*
(2) *Non-stop*

Programming by copying or blocks

Whenever identical switching operations are found at the same times, several days in the week, this function lets you program these operations once only.
In this case a single switching operation is used. If this function is used wisely, the number of possible switching operations can be greatly increased.

Example

	Monday	Tuesday	Wednesday	Thursday	Friday	
On n°1	10 h 00			10 h 00		Switch on
Off n°1		18 h 00	18 h 00		18 h 00	Switch off



Number of switching operations

Designation	Number of switching operations
IHP 1c	56
IHP + 1c	84
IHP 2c	56
IHP + 2c	84
IHP 1c 18 mm	56
IHP + 1c 18 mm	84
ITA 1c, **ITA** 4c	300
IH 24h 1c ARM	48 On - 48 Off
IH 24h 1c SRM	48 On - 48 Off
IH 60mn 1c SRM	48 On - 48 Off
IH 24h 1c SRM	48 On - 48 Off
IH 24h 1c ARM	48 On - 48 Off
IH 24h 2c ARM	24 On - 24 Off
IH 7j 1c ARM	42 On - 42 Off
IH 24 h + 7j 1+1c ARM	16 On - 16 Off + 7 On - 7 Off

Saving on mains cut off

For digital switches equipped with this function, a lithium battery is used for saving. The program, date and time are preserved. Switching operations are not performed.

IHP, IH, IHH and ITA (cont.)
Practical advice

Lets you control starting and stopping of a group of loads according to a cycle that is repeated every 60 minutes.

60 min. time programming
Example

Controlling automatic watering	
On n° 1	2 min. 30 s
Off n° 1	5 min.
On n° 2	25 min.
Off n° 2	37 min. 30 s

Relevant time switches
IH 60mn 1c SRM.

Lets you control starting and stopping of one or two groups of loads according to a daily cycle that is repeated, in identical manner, every day of the week.

24 h daily programming
Example

- Controlling a door of a block of flats:
  - from 8 am to 7.30 pm: contact on "On", free access,
  - from 7.30 pm to 8 am the next day: contact on "Off", access by confidential code every day of the week:

	From Monday to Sunday
On n° 1	8 am
Off n° 1	7.30 pm

Relevant time switches
- IH 24h 1c SRM/ARM.
- IH 24h 2c ARM.
- IHP 1c 18 mm.
- IHP + 1c 18 mm.
- IHP 1c, IHP + 1c.
- IHP 2c, IHP + 2c.
- ITA 1c, ITA 4c.

Lets you control starting and stopping of one to 4 groups of loads according to a weekly cycle, that can be different each day, repeated each week.

7 days weekly programming
Example

- Controlling an air conditionner in a hairdressing salon:

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
On n° 1		09 h 00	09 h 00	09 h 00		
Off n° 1		12 h 00	12 h 00			
On n° 2		14 h 00	14 h 00			
Off n° 2		20 h 00	20 h 00	20 h 00		
On n° 3					8 h 30	8 h 30
Off n° 3					12 h 30	12 h 30
On n° 4					14 h 30	14 h 30
Off n° 4					21 h 00	21 h 00

Relevant time switches
- IH 7j 1c ARM.
- IHP 1c, IHP + 1c.
- IHP 2c, IHP + 2c.
- IHP 1c 18 mm.
- IHP + 1c 18 mm.
- ITA 1c, ITA 4c.

IHP, IH, IHH and ITA (cont.)

Lets you control by pulses (adjustable from 1 to 59 s) one to four groups of loads (pulse relays, bells, etc.).

Pulse programming

Example

- Automatic controlling of bells, lighting and distribution of food: bells sounding the resumption and finish of work (channel 1), lighting of premises (channel 2), feeding fish in the aquarium (channel 3):

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Channel 1: bell (20 s pulse order)							
On	08 h 00	08 h 00	08 h 00	08 h 00	07 h 00	09 h 00	–
Duration	20 s	20 s	20 s	20 s	20 s	20 s	–
On	12 h 00	12 h 00	12 h 00	12 h 00	11 h 00	13 h 00	–
Duration	20 s	20 s	20 s	20 s	20 s	20 s	–
On	14 h 00	14 h 00	14 h 00	14 h 00	13 h 00	–	–
Duration	20 s	20 s	20 s	20 s	20 s	–	–
On	18 h 00	18 h 00	18 h 00	18 h 00	16 h 00	–	–
Duration	20 s	20 s	20 s	20 s	20 s	–	–
Channel 2: lighting (latched order)							
On	07 h 30	07 h 30	07 h 30	07 h 30	06 h 30	08 h 30	–
Off	18 h 30	18 h 30	18 h 30	18 h 30	17 h 00	13 h 30	–
Channel 3: aquarium (15 s pulse order)							
On	10 h 00	–	10 h 00	–	10 h 00	–	10 h 00
Duration	15 s	–	15 s	–	15 s	–	15 s

Programming

- Programming of a pulse takes up 2 memory spaces.
- Combination of the two order types (pulse and latched) is possible on the same channel.

Relevant time switches

- IHP + 1c.
- IHP + 1c 18 mm.
- IHP + 2c.
- ITA 1c, ITA 4c.

Lets you create special programs for dated days.

Programming special days.

Example

- Controlling lighting and heating in a school:
- □ basic programming: program lighting (channel 1) and heating (channel 2):

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Channel 1: lighting							
On	07 h 00	07 h 00	07 h 00	07 h 00	07 h 00	–	–
Off	20 h 00	20 h 00	16 h 00	20 h 00	16 h 00	–	–
Channel 2: heating							
On	06 h 00	06 h 00	06 h 00	06 h 00	06 h 00	–	–
Off	18 h 00	18 h 00	12 h 00	18 h 00	12 h 00	–	–

□ dated programming: periods of non-operation, school holidays, etc.
Just memorise an Off at the start and another Off at the end of each period of absence:

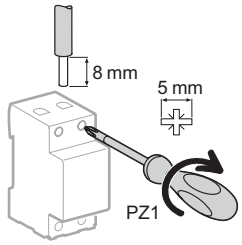
		Holidays				
		Winter	Spring	Summer	Autumn	End of year
Channel 1: lighting						
Off	Date	20 feb.	17-apr	07-july	23 oct.	18 dec.
	Time	12 h 00	17 h 00	12 h 00	17 h 00	12 h 00
Off	Date	08-march	03-may	9 sept.	2 nov.	4 jan.
	Time	01 h 00	01 h 00	01 h 00	01 h 00	01 h 00
Channel 2: heating						
Off	Date	20 feb.	17-apr		23 oct.	18 dec.
	Time	12 h 00	17 h 00		17 h 00	12 h 00
Off	Date	08-march	03-may		2 nov.	4 jan.
	Time	01 h 00	01 h 00		01 h 00	01 h 00

Relevant time switches

- ITA 1c, ITA 4c.

IHP, IH, IHH and ITA (cont.)

Connection



Type		Tightening torque	Copper cables	
			Rigid	Flexible or with ferrule
				
IHP	1c, 2c, +1c, +2c	2 screwless / pole	2 x 2.5 mm²	2 x 2.5 mm²
IHP 18 mm	1c, +1c	2 screwless / pole	2 x 2.5 mm²	2 x 2.5 mm²
IH	60mn 1c SRM	2 screwless / pole	2 x 2.5 mm²	2 x 2.5 mm²
	24h 1c SRM, ARM	2 screwless / pole	2 x 2.5 mm²	2 x 2.5 mm²
	24h 2c ARM	1.2 N.m	≤ 6 mm²	≤ 6 mm²
	7j 1c ARM	2 screwless / pole	2 x 2.5 mm²	2 x 2.5 mm²
	24h + 7j 1+1c ARM	1.2 N.m	≤ 6 mm²	≤ 6 mm²
IH 18 mm	24h 1c SRM/ ARM	1.2 N.m	≤ 6 mm²	≤ 6 mm²
IHH 18 mm	7j 1c ARM	1.2 N.m	≤ 6 mm²	≤ 6 mm²
ITA 1c, ITA 4c		1.2 N.m	≤ 6 mm²	≤ 6 mm²

IHP 1c/2c, IHP+ 1c/2c are mechanical compatible with electrical distribution comb busbar.

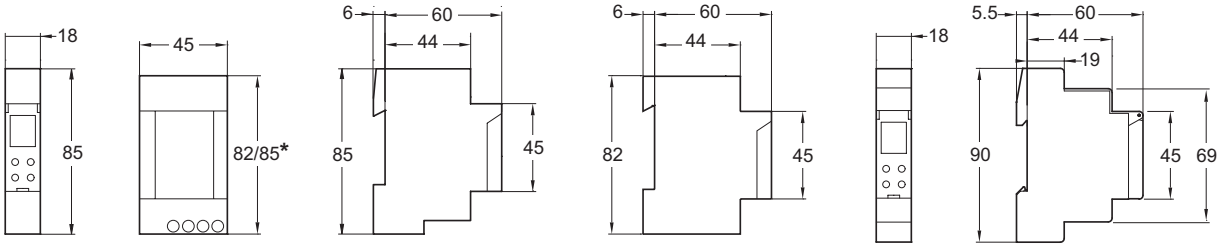
Weight (g)

Time switches		
IHP	1c / 2c	170/ 205
IHP+	1c / 2c	190/ 211
IHP 18 mm	1c / +1c	90
IHP DCF		244
IH 54 mm	60mn 1c SRM	208
	24h 1c SRM/ARM	212 / 119
	24h 2c ARM	216
	7j 1c ARM	119
	24h + 7j 1+1c ARM	223
IH 18 mm	24h 1c SRM / ARM	97
IHH 18 mm	7j 1c ARM	101
ITA 1c		152
ITA 4c		303

IHP, IH, IHH and ITA (cont.)

Dimensions (mm)

IHP time switches



2P (18 mm)

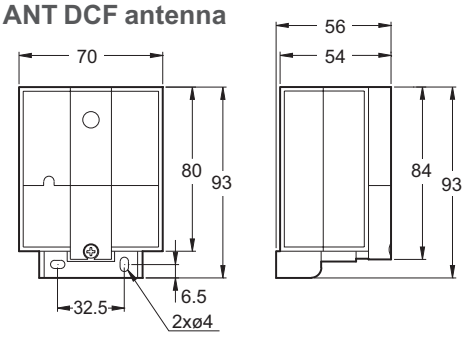
5P: IHP DCF
*5P: IHP 1C/2C/+1C/+2C

2P (18 mm)
5 P: IHP 1C/2C/+1C/+2C

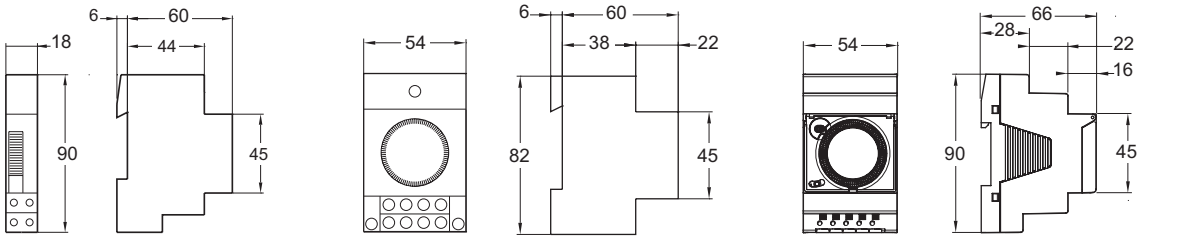
5P : IHP DCF

2P (18 mm)
IHP 1C /+

ANT DCF antenna



IH, IHH time switches

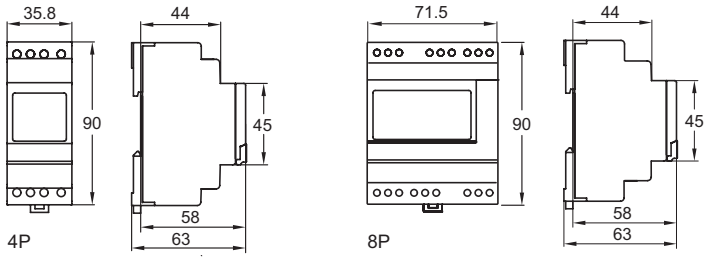


2P (18 mm)

6P (IH 24h 2c ARM,
IH 24h +7j 1+1c ARM)

6P (IH 60m□ 1c □RM, IH 24h 1c □RM□ARM
IH 7j 1c ARM)

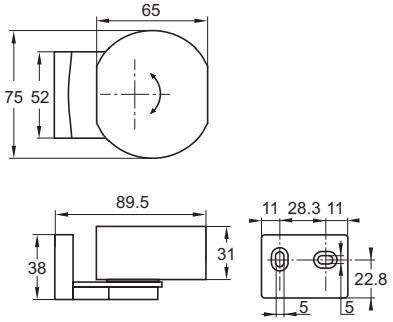
ITA yearly time switches



4P

8P

DCF antenna and GPS antenna for ITA



IC100, 1C2000, IC2000P+, IC100k, abd IC Astro

Twilight switches

IC100

Adjustable from 2 to 100 lux.
It comes with a wall-mounted cell.

IC2000

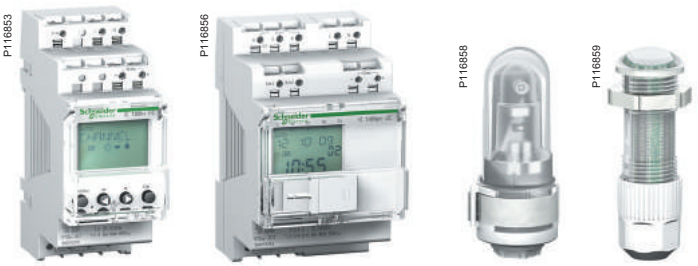
Adjustable from 2 to 2000 lux. It comes with a standard wall-mounted or switchboard cell.

IC2000P+

It has 3 customisable pre-set programs and 3 setting ranges from 2 to 2100 lux.
Its 4 keys and large screen facilitate its programming.
It comes with a wall-mounted cell.

IC Astro

It operates without photoelectric cell and calculates sunrise and sunset times according to its geographic position.
It can be customised by using its programmation function.



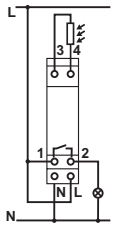
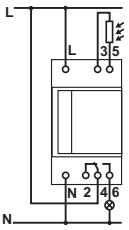
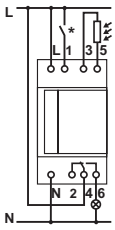
IC 100k

Adjustable from 2 to 99000 lux.
Its 4 keys and large screen facilitate its programming.
It comes with a digital wall-mounted or a switchboard cell.

6

IC100, 1C2000, IC2000P+, IC100k, abd IC Astro (cont.)

Selection table

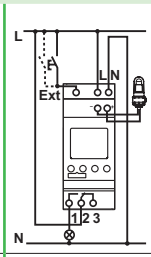
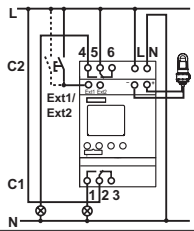
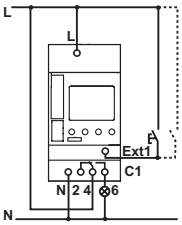
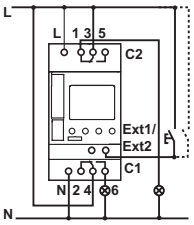
	IC100	IC2000		IC2000P+
	P111637 + P83237 	P111639 + P116858 + P106856 		P111640 + P83237 
Function				
	The IC100 controls closing of a contact when brightness decreases and drops below the selected threshold. It controls opening of a contact when brightness increases and rises above the selected threshold	The IC2000 control closing of a contact when brightness decreases and drops below the selected threshold. They control opening of a contact when brightness increases and rises above the selected threshold		The IC2000P+ controls lighting according to brightness and time. If brightness drops below the set threshold (twilight function: IC) and if the time program allows relay closing (time switch function), then the lighting circuit is activated
Wiring diagrams				
	P106857 	P106858 		P106859 
Catalogue numbers	**15482**	**CCT15284**	**CCT15368**	**15483** (1)

Technical specifications				
Delivered with	Wall-mounted cell	Switchboard cell (**CCT15281**)	Wall-mounted cell (**CCT15268**)	Wall-mounted cell
Optional accessories	Wall-mounted cell (**CCT15268**)	Switchboard cell (**CCT15281**) Wall-mounted cell (**CCT15268**)	Wall-mounted cell (**CCT15268**) Switchboard cell (**CCT15281**)	Wall-mounted cell (**CCT15268**)
Adjustable brightness threshold	2 to 100 lx	2 to 2000 lx		Range 1: 2 to 50 lx Range 2: 60 to 300 lx Range 3: 350 to 2100 lx
Voltage rating (Ue) (+10 %, -15 %)	230 V AC, 50/60 Hz	230 V AC, 50/60 Hz		230 V AC, 50/60 Hz
Consumption	6 VA	6 VA		3 VA
Operating temperature	-20°C to +50°C	-25°C to +50°C		-20°C to +50°C
Width (9 mm modules)	2	5		5
Insulation class	Class II	Class II		Class II
Degree of protection	IP20B	IP20B		IP20B
Output contact rating (under 250 VAC) cos φ = 1	16 A	16 A		16 A
Output contact rating (under 250 VAC) cos φ = 0.6	10 A	10 A		10 A
Time delays (On and Off)	20 s (On) 80 s (Off)	≥ 60 s		Adjustable from 20 to 140 s (80 s by default)
Operating accuracy	–	–		< ±1 s / day at 20 °C.
Monitoring indicator light, not time delayed, lit when brightness is less than the threshold	Red	Red		–
Contact switching indicator light	Green	Green		–
LCD liquid crystal display	–	–		Back-lit
Program saving by lithium battery	–	–		■
Operating reserve	–	–		5-6 years
Location for instruction manual on front face	–	■		■
Cabling test function with a push-button on front face	–	■		–
Number of channels	1	1		1
Control by brightness detection	■	■		■
Coupling with weekly programming	–	–		42 switching times Minimum switching: 1 min Switching accuracy: 1 s
Control by calculation of sunrise/sunset times	–	–		–

Languages: *(1) English, french, spanish, italian, german, portuguese, swedish, dutch, finnish, norwegian/danish.* *(2) English, french, spanish, portuguese, hungarian, polish romanian,*

Technical Section 10 **Dimensions Section 11**

IC100, 1C2000, IC2000P+, IC100k, abd IC Astro (cont.)

	IC100kp+		IC Astro	
	IC100kp+ 1C	IC100kp+ 2C	IC Astro 1C	IC Astro 2C
	P116855 + P116858 	P116856 + P116858 	P116866 	P116867 
	The IC100kp+ 1C/2C control lighting according to brightness and time. If brightness drops below the set threshold (twilight function: IC) and if the time program allows relay closing (time switch function), then the lighting circuit is activated		The IC Astro astronomic programmable twilight switch is used to start and stop an electric load (e.g. lighting) according to sunrise and sunset times, without a brightness detector.Sunrise and sunset times are calculated automatically by the IC Astro according to the geographic parameters configured by the user	
	P106862 	P106863 	P106860 	P106861 
	CCT15490 (2) **CCT15491** (3)	**CCT15492** (2) **CCT15493** (3)	**CCT15223** (2) **CCT15224** (3)	**CCT15243** (2) **CCT15244** (3)
	Digital wall-mounted cell (**CCT15260**) Memory key (alone) (**CCT15861**)		–	Memory key (alone) (**CCT15861**)
	Digital wall-mounted cell (**CCT15260**) Digital switchboard cell (**CCT15261**) Programming kit for PC (**CCT15860**) Memory key (alone) (**CCT15861**)		Programming kit for PC (**CCT15860**) Memory key (alone) (**CCT15861**)	
	1 to 99000 lx		According to sunrise/sunset times	
	230 V AC, 50/60 Hz	100-240 V AC, 50/60 Hz	230 V AC, 50/60 Hz	
	3 VA		3 VA	6 VA
	-30°C to +50°C		-25°C to +45°C	
	4	6	5	
	Class II		Class II	
	IP20C		IP20B	
	16 A		16 A	
	10 A		10 A	
	Adjustable from 0 to 59.59 min.		Difference in sunset and/or sunrise times adjustable separately by ±120 min.	
	–		–	
	–		–	
	–		–	
	Back-lit		Back-lit	
	■		■	
	10 years		6 years	
	–		■	
	–		–	
	1	2	1	2
	■		–	
	84 switching times Operating accuracy: < ±1 s / day at 20°C Minimum switching: 1 min Switching accuracy: 1 s		84 switching times (not including sunrise/sunset) Minimum time between 2 switching operations: 1 min. Switching accuracy: 1 s Time accuracy: ±1 s /day	
	–		■	

czech, slovak, bulgarian, greek, slovene, serbian, croatian. *(3) English, french, italian, german, swedish,dutch, finnish, danish, russian, ukrainian, latvian, lituanien, estonian.*

Technical Section 10 **Dimensions Section 11**

IC100, 1C2000, IC2000P+, IC100k, abd IC Astro (cont.)

Accessories selection table

	Wall-mounted cell		Switchboard cell	Programming kit for PC	Memory key	Digital wall-mounted cell	Digital switchboard cell
	P83237 P116858	P106856	P93580	P93581	P116858	P116859	
Function							
	Wall-mounted photoelectric cell		Switchboard photoelectric cell	Consists of a programming device, a memory key, a CDROM and a 2 m USB cable	Saving and duplicating programs	Digital wall-mounted photoelectric cell	Digital wall-mounted photoelectric cell
Mounting							
	■ Delivered with its fixing device for IC100 and IC200P+ ■ Replaced by CCT15268 for spare part use ■ Cell connection: by double insulation 2-conductor cable, not to be laid next to mains cables or water ducts, maximum length: 25 m	Delivered with 1 m cable and its fixing device	■ Delivered with its fixing device ■ Cell connection: by double insulation 2-conductor cable, not to be laid next to mains cables or water ducts, maximum length: 100 m	–	–	■ Delivered with its fixing device. ■ Cell connection: □ by double insulation 2-conductor cable: - 0.5 - 2.5 mm² for **CCT15260** - 0.25 - 1.5 mm² for **CCT15261** □ Not to be laid next to mains cables or water ducts, maximum length: - 100 m (2 x 1.5 mm²) - 50 m (2 x 0.75 mm²)	
Catalogue no.	–	**CCT15268**	**15281**	**CCT15860**	**CCT15861**	**CCT15260**	**CCT15261**
Technical spécifications							
Degree of protection	IP54	IP65	IP54	–	–	IP55	IP66
	IK05	–	IK05	–	–	–	–
Operating temperature	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	–	–	-40°C to +70°C	-40°C to +70°C
Horizontally orientable	–	–	90°	–	–	90°	90°

Load table

Type of lighting (230 V AC)	**Max. power** (for higher power, relay with a contactor)				
	IC100	**IC2000**	**IC2000P+**	**IC Astro**	**IC 100k**
Incandescent and halogen lamps	2300 W	2300 W	2300 W	2300 W	2600 W
Non-corrected / serial-corrected / dual mounted fluorescent tubes with conventional ballast	2300 VA	2300 VA	26 x 36 W, 20 x 58 W, 10 x 100 W	26 x 36 W, 20 x 58 W, 10 x 100 W	26 x 36 W, 20 x 58 W, 10 x 100 W
Parallel corrected fluorescent tubes with conventional ballast	400 VA	400 VA	10 x 36 W, 6 x 58 W, 2 x 100 W	10 x 36 W, 6 x 58 W, 2 x 100 W	10 x 36 W, 6 x 58 W, 2 x 100 W
Fluorescent tubes with electronic ballast	–	–	9 x 36 W, 6 x 58 W	9 x 36 W, 6 x 58 W	650 VA max.
Dual-mounted fluorescent tubes with electronic ballast	300 VA	300 VA	5 x (2 x 36 W), 3 x (2 x 58 W)	5 x (2 x 36 W), 3 x (2 x 58 W)	–
Fluocompact lamps with electronic ballast	9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W	9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W	9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W	9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W	22 x 7 W, 18 x 11 W, 16 x 15 W, 16 x 20 W, 14 x 23 W
Fluocompact lamps with conventional ballast	1500 VA	1500 VA	–	–	–
Parallel-corrected mercury and sodium vapour lamps	400 VA	400 VA	250 VA	250 VA	800 VA max. (80uF)
Non-corrected/ serial-corrected mercury and sodium vapour lamps	1000 VA	1000 VA	–	–	–
Motor	–	–	–	–	2300 VA max.

6

Technical Section 10

Dimensions Section 11

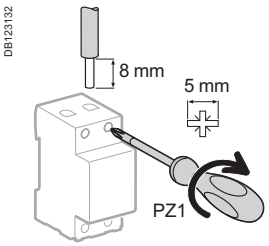
IC100, 1C2000, IC2000P+, IC100k, abd IC Astro (cont.)

Specific technical data

IC2000P+	
External input	
Voltage rating (Ue)	230 V AC, +10 %, -15 %
Frequency	50/60 Hz
Input current	⩽ 2.5 mA
Consumption	⩽ 0.4 mW
Cable length	⩽ 100 m
IC Astro	
Programming longitude	-180° (East) to +180° (West) in steps of 1°
Programming latitude	-90° (South) to +90° (North) in steps of 1°
External inputs for external control with a standard switch or a push-button	■ 1 input "Ext1" for IC Astro 1C ■ 2 inputs "Ext1" and "Ext2" for IC Astro 2C □ consumption: < 0.5 mA □ cable length: ⩽ 100 m
Programming accessories	■ Programming kit for PC consists of a programming device, a memory key, a CDROM and a 2 m USB cable ■ Memory key for saving and duplicating programs
IC 100k, IC Astro	
Programming accessories	■ Programming kit for PC consists of a programming device, a memory key, a CDROM and a 2 m USB cable ■ Memory key for saving and duplicating programs
Memory key delivered on front face for IC100kp+ 1C, IC100kp+ 2C and IC Astro	
External inputs	
External inputs for external control with a standard switch or a push-button	■ 1 input "Ext" for 1 channel versions ■ 2 inputs "Ext1" and "Ext2"for 2 channels versions
Voltage rating (Ue)	■ 230 V AC, +10 %, -15 % for 1 channel versions ■ 100-240 V AC +10 %, -15 % for 2 channels versions
Frequency	50/60 Hz
Input current	⩽ 0.5 mA
Consumption	⩽ 130 mW
Cable length	⩽ 100 m

IC100, 1C2000, IC2000P+, IC100k, abd IC Astro (cont.)

Connection



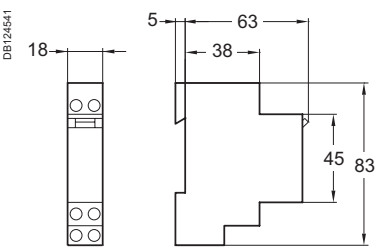
Type	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
	DB122945	 DB123553	
IC100, IC2000P+	1.2 N.m	≤ 6 mm²	≤ 6 mm²
IC2000, IC Astro, IC 100k	2 screwless / pole	2 x 2.5 mm²	2 x 2.5 mm²

IC100, IC Astro are mechanical compatible with electrical distribution comb busbar.

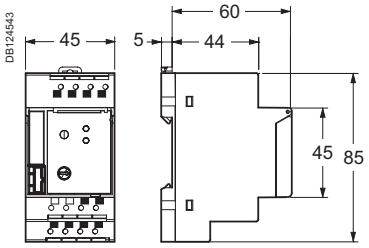
Weight (g)

Twilight switches	
IC100	173
IC2000	280
IC2000P+	323
IC Astro	132
IC 100k+/kp+ 1C / IC 100k+/kp+ 2C	183/ 352

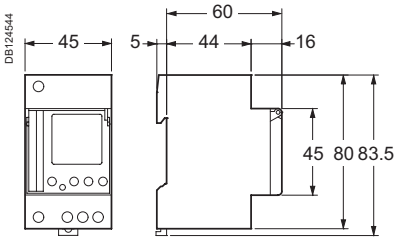
Dimensions (mm)



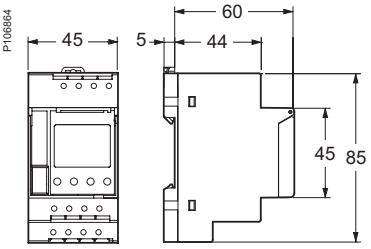
IC100



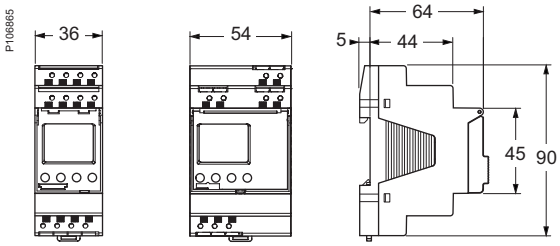
IC2000



IC2000P+

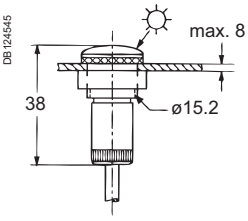


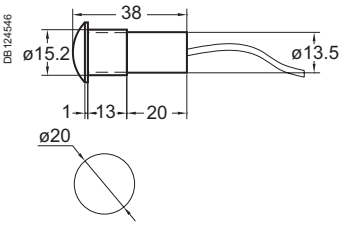
IC Astro 1C/2C



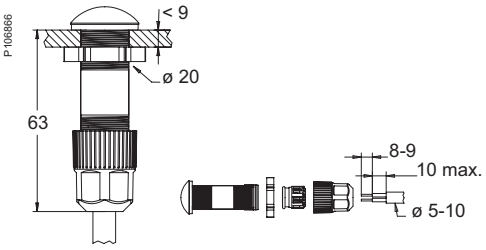
IC 100k+ 1C/2C, IC100kp+ 1C/2C

Cells

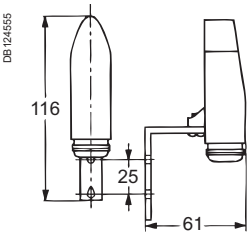


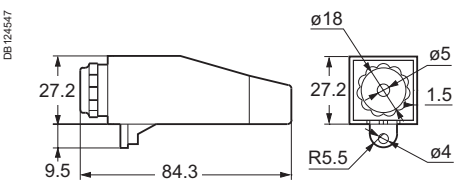


Standard switchboard cell (15281) Fixed externally in vertical position by 2 ø 4 mm screws

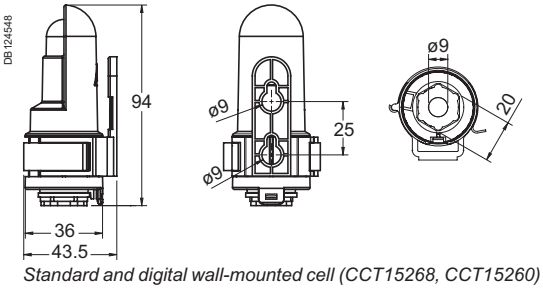


Digital switchboard cell (CCT15261)





Wall-mounted cell (delivered with IC100, IC2000P+)



Standard and digital wall-mounted cell (CCT15268, CCT15260)

Technical Section 10
Dimensions Section 11

Contents

Linergy distribution and connection systems

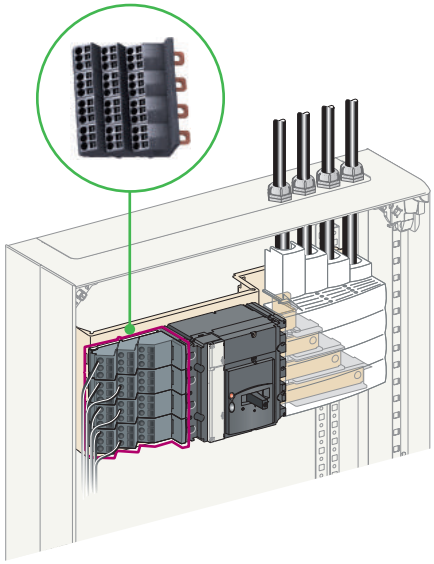
7

Panorama of the solution

Linergy and Prisma G: an optimised and high-performance type-tested offer (IEC 61439-1 & 2 standard)

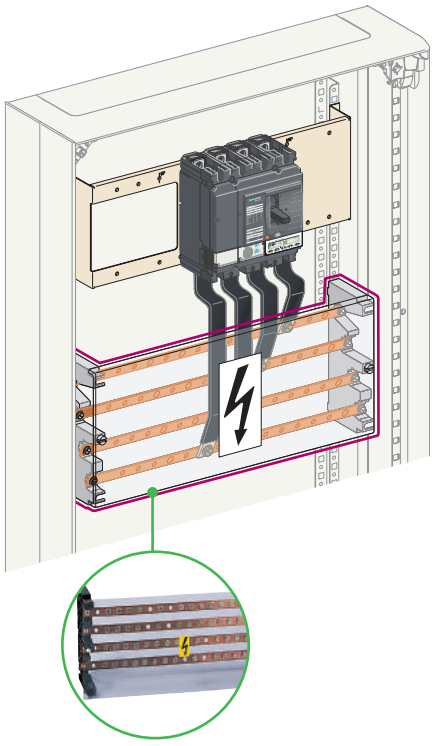
> For incoming devices

Linergy DX 160 A and Linergy DP 250 A distribution block



- Reliable spring-terminal connections for outgoing circuits, requiring no maintenance
- Horizontal or vertiical installation in minimum space

Linergy BS 160 to 630 A distribution block

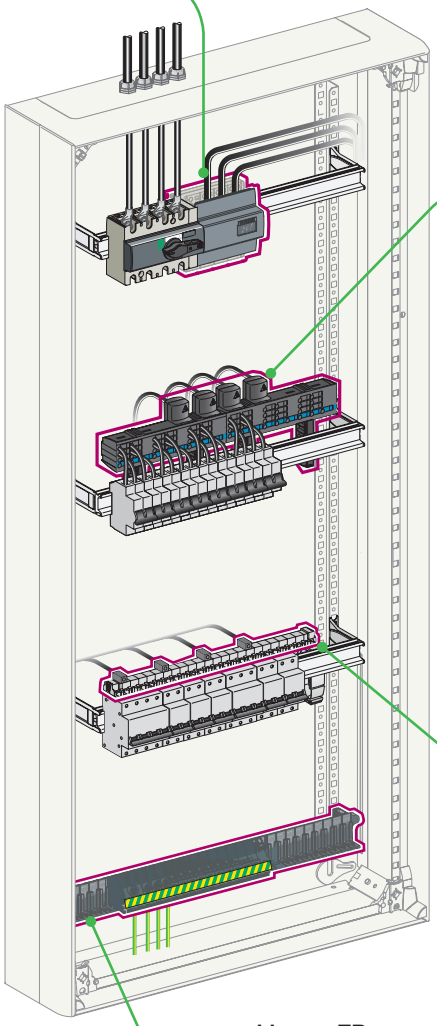


- Traditional, highly polyvalent solution
- Many installation possibilities

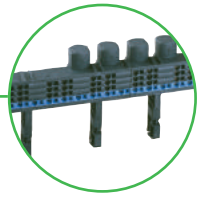
> For rows of modular devices

Linergy DX 125 at 160 A distribution block

- Spring terminals for electrical connections that stay tight
- Front designed to integrate perfectly with modular devices

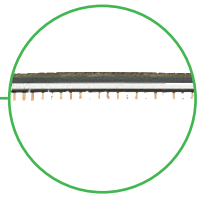


Linergy FM 63/200 A



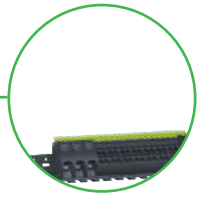
- Reliable spring-terminal connections requiring no maintenance
- Fast installation
- Easy upgrades through replacement or addition of devices
- Easy balancing of phases

Linergy FH 100 to 125 A comb busbars



- Fast and direct connections, adaptable to all needs
- Easy, economical connections

Linergy TR



- Fast and simple installation
- Multiple connection options (screw, spring or push-in connections)

7

Technical
Section 10

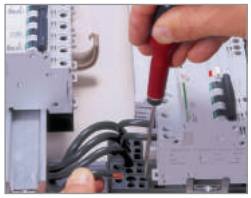
Dimensions
Section 11

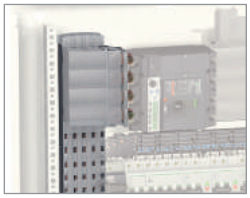
Panorama of the solution (cont.)

Customised organisation of your switchboard

> Busbars up to 630 A for all switchboard architectures

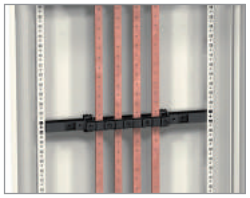
Linergy BW busbars:
compact and insulated for fast upgrades.



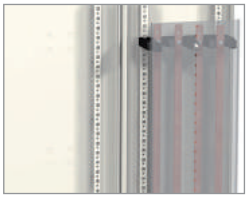


Prefabricated connections, optimised and fully insulated.

Linergy BS busbars:
for traditional distribution.



Rear Linergy BS busbars.



Lateral busbars. The bars are staggered for easy access to connection points.

> Row distribution blocks for modular devices

Linergy FH comb busbars:
a simple, cost-effective solution.

Linergy FH comb busbars.

Linergy FH comb busbars are fully insulated.
Device can de connected in a single operation.

Linergy FM device feeder:
a fast, flexible and reliable solution.

Linergy FM device feeder 80 A.

Linergy FM device feeder 200 A.

The Linergy FM device feeder snaps easily onto the back of the rails.
All types of modular devices can be mixed in the same row and phase balancing is simple. It's easy to change or add devices.

> Centralised distribution blocks for switchboard incomers

Linergy DX 160 A 4P: practical and aesthetic.

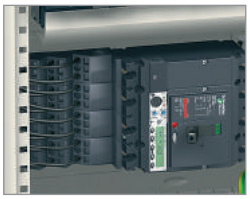
Modular monobloc distribution block for fast connections

Linergy DX 160 A 1P: "à la carte" distribution block.

Modular combinable components for fast connections.

Linergy DS 160 A: a traditional solution.

Installation on modular rail on mounting-plate.
Screw-terminal connections.

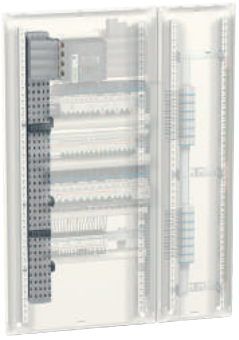


Linergy DP 250 A: modular and compact.

Installed directly downstream of Compact circuit breakers and switches without taking up any extra vertical modules.
Fast connections in spring-loaded terminals.

7

Linergy BW
Insulated busbars up to 630 A


PD390337.eps

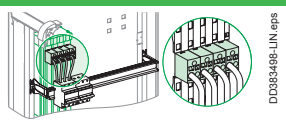
Description

- Compact busbar, **IPxxB**, ready for installation (supplied complete with supports and end caps)
- Shaped busbar, threaded M6 with 25-mm pitch, can be cut with 200-mm pitch (150 mm for the 125 A)
- Busbar installed on insulating supports, screwed onto the rear uprights
- Wide selection of tested pre-wired connectors
- Clip-on covers to protect against direct contact (IPxxB). Can easily be cut to allow connections to pass through to the switchgear
- Ends protected by end caps

Linergy BW busbar

		125 A		160 A		250 A		400 A		630 A	
Rated peak withstand current	(Ipk)	20 kA		30 kA		30 kA		52.5 kA		52.5 kA	
Rated insulation voltage	(Ui)	500 V AC		750 V AC		750 V AC		750 V AC		1000 V AC	
Rated impulse withstand voltage	(Uimp)	8 kV		8 kV		8 kV		8 kV		8 kV	
Rated short-time current	(Icw)	8.5 kA rms / 1 s		10 kA rms / 1 s		13 kA rms / 1 s		20 kA rms / 1 s		25 kA rms / 1 s	
Thermal stress	($A^2.s$)	7.225 x 10^7		1.000 x 10^8		1.690 x 10^8		4.000 x 10^8		6.250 x 10^8	
Length (mm)		**450**	**750**	**1000**	**1400**	**1000**	**1400**	**1000**	**1400**	**1000**	**1400**
Catalogue numbers	**3P**	**04103**	**04107**	**04111**	**04116**	**04112**	**04117**	**04113**	**04118**	**04114**	**04119**
	4P	**04104**	**04108**	**04121**	**04126**	**04122**	**04127**	**04123**	**04128**	**04124**	**04129**

Accessories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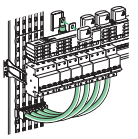
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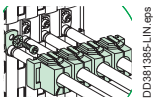
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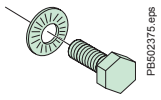
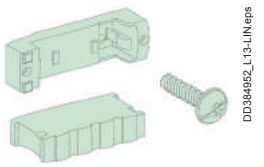

PB502375.eps

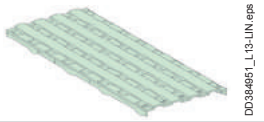
	IPxxB tap-off terminals		**200 A connections**	**IPxxB insulating covers**	**Class 8.8 fixing accessories**
	12 tap-off blocks For 1 cable of 6 mm^2 (32 A max.) and 1 cable of 10 mm^2 (40 A max.) Ui: 750 V In: 55 A max. (1)	12 tap-off blocks For 1 cable of 1 to 16 mm^2 Ui: 750 V In: 55 A max. with only 1 cable		Covers which can be clipped on and cut to size are used to isolate the connectors of a connection with cables of cross-section 10 to 25 mm^2	M6 x 12 + 20 M6 contact washers
Used for connecting	■ All switchgear equipped with enclosed terminals ■ Linergy FM 160/200 A	■ All switchgear equipped with enclosed terminals ■ Linergy FM 63/80/160/200 A	■ Linergy FM 200 A		
Set of	12	12	4	8	20
Catalogue numbers	**04151**	**04152**	**04021**	**04150**	**04158**

(1) Imax = 55 A for all connected cables.

Spare parts


DD384952_L13-LIN.eps

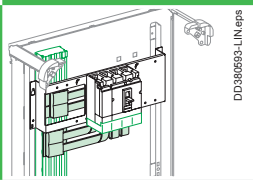
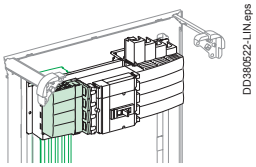
		Linergy BW busbar supports				
Rated operational current at 40 °C	(Ie)	125 A	160 A	250 A	400 A	630 A
Composition		2 busbar supports + 2 end caps + packet of fixing accessories				
Catalogue numbers		-	**01210**	**01210**	**01210**	**01211**


DD384951_L13-LIN.eps

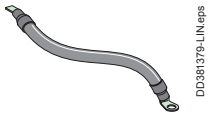
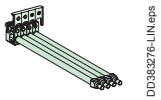
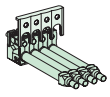
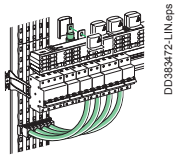
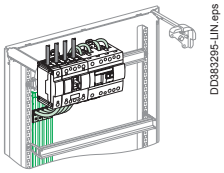
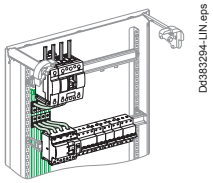
	IPxxB clip-on covers
Length (mm)	200
Set of	2
Catalogue numbers	- **01201** **01201** **01201** **01201**

Technical Section 10 **Dimensions Section 11**

Linergy BW (cont.)
Insulated busbars up to 630 A

Mounting	Vertical					Horizontal		
	 DD380693-LIN.eps					 DD380522-LIN.eps		
	Power supply units without connections		**Universal power supply units**			**Universal power supply units with connections**		
Switchgear	**Fixed** ■ Enclosed horizontal NSX100/250 with rotary handle or remote control ■ Vertical Fupact INF100/160, Fupact ISFT100/250	**Fixed** ■ Enclosed NSX400/630 with or without Vigi ■ Enclosed INS-INV320/630	**Fixed** ■ Enclosed NSX100/250 with toggle switch ■ Enclosed Vertical INS-INV250	**Fixed** ■ In duct NSX100/250 with or without Vigi ■ In duct Vertical INS-INV250	**Fixed** ■ In duct NSX400/630 with or without Vigi ■ In duct INS-INV320/630	**Fixed** ■ NSX100/250 horizontal with or without Vigi ■ INS-INV250 horizontal	**Fixed** ■ NSX400 horizontal ■ INS-INV320/400 horizontal	**Fixed** ■ NSX630 horizontal ■ INS-INV500/630 horizontal
Catalogue numbers	**04061**	**04074**	**04062**	**04064**	**04073**	**04060**	**04070**	**04071**

Pre-wired connectors

	 DD381379-LIN.eps		 DD383276-LIN.eps	 DD383274-LIN.eps	 DD383472-LIN.eps
	Connections		**IPxxB 3/4P monobloc connection**	**IPxxB 3/4P monobloc connection**	**Connections 4P**
	35 mm² ferrule + 45° angled connector	45 mm² ferrule + 45° angled connector	Quick connection on the busbar equipped with a male ferrule for enclosed terminals. Neutral identified by the colour blue.		Supplied with mounting hardware
Rated operational current at 40 °C (Ie)	125 A	160 A	160 A	160 A	200 A
Length	230 mm	250 mm	440 mm	165 mm	230 to 330 mm
Used for connecting	■ NG125, INS with enclosed terminals cat. no. **28947** or **28948**	■ INS160, NG125, NG160	■ NG160 (left-hand position), Vigi NG160 (middle position), ■ NG125, INS160, C120, iC120  DD383295-LIN.eps	■ NG160 (left-hand position), NG125, INS160, C120, iC120  Dd383294-LIN.eps	■ Linergy FM 200 A
Set of	4	4	1	1	4
Catalogue numbers	**04145**	**04146**	**04148**	**04147**	**04021** **+ 04150 insulated covers**

7

Linergy BS
Rear flat busbars up to 400 A

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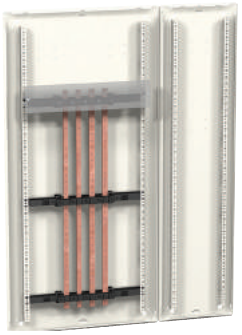
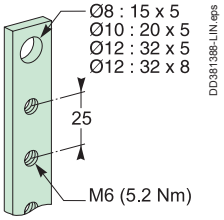


IEC 61439-1 and 2

Description

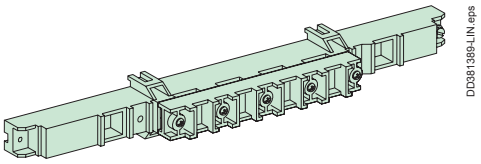
The busbar can be 3-pole or 4-pole with ratings between 160 A and 400 A.
2 lengths are available: 1000 and 1400 mm, which can be cut as required.
The number of supports depends on the installation maximum rated current.
The supports allow installation of a 5th busbar with 15 or 20 x 5 mm cross-section to create the earth collector.

Copper busbars 160 à 400 A



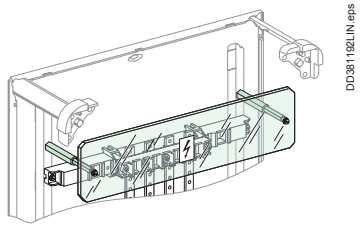
		160 A	250 A	400 A
Rated peak withstand current	(Ipk)	30 kA	40 kA	55 kA
Rated insulation voltage	(Ui)	1000 V AC	1000 V AC	1000 V AC
Rated short-time current	(Icw)	10 kA rms / 1s	13 kA rms / 1s	25 kA rms / 1s
Thermal stress	(A².s)	1.000 x 10^8	1.690 x 10^8	6.250 x 10^8
Conductor cross-section		15 x 5 mm	20 x 5 mm	32 x 5 mm
Installation		Threaded M6 holes every 25 mm all the way up Connection by: 16 to 50 mm² flexible cables with crimped lugs		
Set of		4		
Length (mm)		**1000** / **1400**	**1000** / **1400**	**1000** / **1400**
Catalogue numbers		**04161** / **04171**	**04162** / **04172**	**04163** / **04173**

Insulating busbar support



Distance between supports depending on Icw (1)	≤ 10 kA rms / 1 s	450 mm	450 mm	450 mm
	≤ 13 kA rms / 1 s	-	450 mm	450 mm
	≤ 15 kA rms / 1 s	-	450 mm	450 mm
	≤ 20 kA rms / 1 s	-	-	300 mm
	≤ 25 kA rms / 1 s	-	-	225 mm
Installation		On the rear uprights Screwed onto a solid or pre-slotted plate (fixing centres 450 x 200 mm)		
Catalogue numbers		**04191**	**04191**	**04191**

IPxxB insulating protective shield

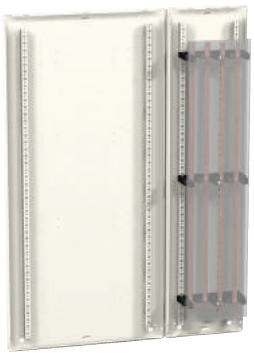


Length	470 mm
Height	100 mm
Composition	Supplied with fixings
Catalogue numbers	**04198**

(1) Linergy FM 200 A distribution blocks with connections ref. ***04029*** *can act as intermediate supports (max. distance apart 200 mm) in addition to the support ref.* ***04191*** *at the top and bottom.*

Technical **Section 10**
Dimensions **Section 11**

Linergy BS (cont.)
Multi-stage busbars up to 630 A

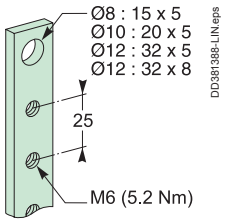


IEC 61439-1 and 2

Description

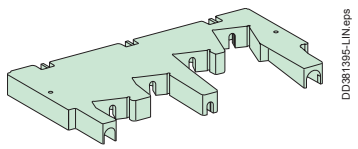
Multi-stage busbars are installed in a sheath L = 300 mm.
We strongly recommend dividing the current between 2 cubicles or enclosures joined on either side.
All the connection points are easily accessible from the front.
The busbar orientation makes them easier to tighten and facilitates running the cables between them.
The current can be 3-pole or 4-pole with ratings between 160 A and 630 A.
2 lengths are available: 1000 and 1400 mm, which can be cut as required.
The number of supports depends on the installation maximum rated current.

160 to 630 A copper busbars



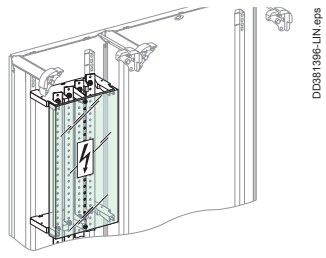
		160 A		250 A		400 A		630 A	
Rated peak withstand current	(Ipk)	30 kA		40 kA		55 kA		55 kA	
Rated insulation voltage	(Ui)	750 V AC		750 V AC		750 V AC		750 V AC	
Rated short-time current	(Icw)	10 kA rms / 1s		13 kA rms / 1s		20 kA rms / 1s		25 kA rms / 1s	
Thermal stress	($A^2.s$)	1.000×10^8		1.690×10^8		4.000×10^8		6.250×10^8	
Supply at incoming terminals		Connection by: 16 to 50 mm^2 flexible cables with crimped lugs							
Conductor cross-section		15 x 5 mm		20 x 5 mm		32 x 5 mm		32 x 8 mm	
Installation		Flat copper busbar with threaded M6 holes every 25 mm^2 all the way up							
Set of		4							
Length (mm)		**1000**	**1400**	**1000**	**1400**	**1000**	**1400**	**1000**	**1400**
Catalogue numbers		**04161**	**04171**	**04162**	**04172**	**04163**	**04173**	must be made	**04174**

Insulating busbar support



Distance between supports depending on Icw (1)	≤ 10 kA rms / 1 s	450 mm	450 mm	450 mm	450 mm
	≤ 13 kA rms / 1 s	-	450 mm	450 mm	450 mm
	≤ 15 kA rms / 1 s	-		450 mm	450 mm
	≤ 20 kA rms / 1 s	-	-	300 mm	300 mm
	≤ 25 kA rms / 0.6 s	-	-	300 mm	-
	≤ 25 kA rms / 1 s	-	-	-	300 mm
Installation		Installation on functional uprights of duct (Prisma G). Screwed onto a solid or pre-slotted plate (450 x 200 mm fixing centres)			
Catalogue numbers		**04192**	**04192**	**04192**	**04192**

IPxxB insulating protective shield



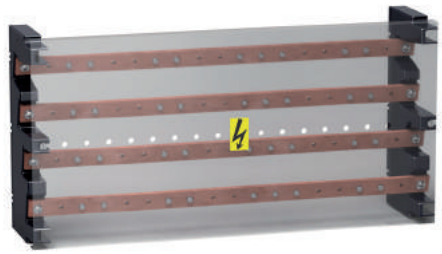
Length	250 mm
Height	1500 mm
Composition	Fixing accessories supplied with support ref. **04192**
Catalogue numbers	**04197**

Technical Section 10
Dimensions Section 11

Linergy BS (cont.)

Multi-stage distribution blocks up to 630 A

PB502514_60.eps



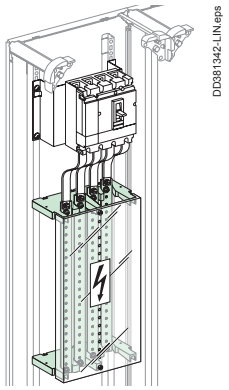
IEC 61439-1 and 2

Description

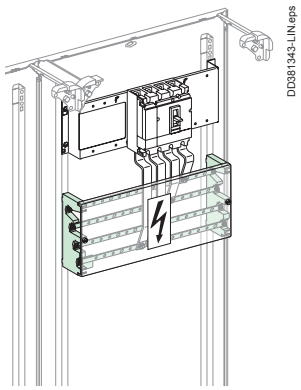
The multi-stage distribution block can be installed horizontally in the device zone or vertically in the 300 mm wide duct of enclosures and cubicles.
The distribution block is made up of:

- two staggered supports made of an insulating material
- four slanted copper bars with holes every 25 mm.

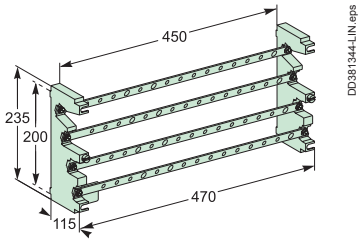
Multi-stage distribution blocks



DD381342-LIN.eps

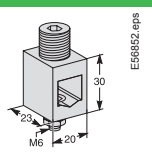


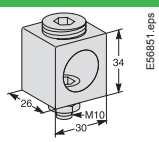
DD381343-LIN.eps

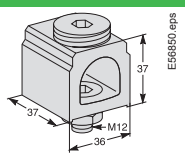
		160 A	250 A	400 A	630 A
Rated peak withstand current	(Ipk)	30 kA	30 kA	40 kA	40 kA
Rated insulation voltage	(Ui)	750 V AC			
Rated operational voltage	(Ue)	440 V AC			
Rated impulse withstand voltage	(Uimp)	8 kV			
Rated short-time current	(Icw)	10 kA rms/1 s	13 kA rms/1 s	20 kA rms/1 s	25 kA rms/1 s
Thermal stress	(A^2.s)	1.000 x 10^8	1.690 x 10^8	4.000 x 10^8	6.250 x 10^8
Total connection capacity		4 incomers per phase: Ø 12.2 mm clearance holes 13 outgoers per phase 16 to 50 mm^2: M6 tapped holes			
Busbar cross-section		15 x 5 mm	20 x 5 mm	32 x 5 mm	32 x 8 mm
Dimensions (mm)		 DD381344-LIN.eps			
Installation		Screwed in horizontal position on functional uprights in enclosures and cubicles (Prisma G) Screwed in vertical position on sheathed uprights (Prisma G) Screwed onto a solid or pre-slotted plate (fixing centres 450 x 200 mm)			
Composition		2 multi-stage supports made of an insulating material 4 slanted copper busbars, with holes every 25 mm 1 pack of 36 M6 x 16 screws + contact washers 1 IPxxB front insulating shield			
Catalogue numbers		**04052**	**04053**	**04054**	**04055**

Linergy BS (cont.)
Common accessories up to 630 A

Incomer accessories

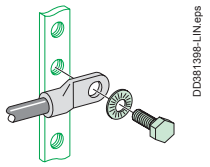






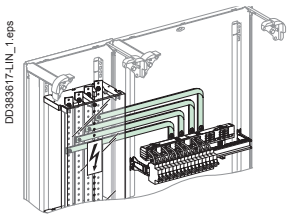
	Connectors for copper or aluminium cables		
Rated operational current at (Ie) 40 °C	160 A	250 A	400 A
Supply at incoming terminals	16 to 70 mm² cables	16 to 185 mm² cables	70 to 300 mm² cables
Composition	Supplied with fixings at busbar end		
Set of	4		
Catalogue numbers	**07051**	**07052**	**07053**

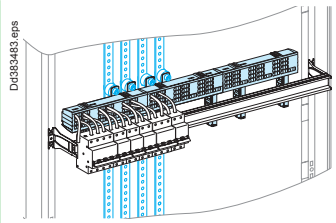
Outgoer accessories



	Class 8.8 fixings	
Composition	20 M6 x 20 screws + 20 nuts + 40 contact washers	40 M6 x 16 screws + 40 contact washers
Catalogue numbers	**04194**	**04195**

Connections to the distribution block



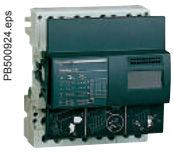


	4P 200 A connection (supplied with fixings)	4P 200 A connection (supplied with fixings)
Allows supply of	Linergy BS busbars in duct	Rear Linergy BS busbars
Catalogue numbers	**04024**	**04029**

7

Linergy DX
Quick distribution blocks


PB104499-7.eps


PB500924.eps

IEC 60947-7-1, IEC 61439-2

Description

- Downstream circuits are connected from the front, to spring terminals.
- Contact pressure automatically adapts to the size of the conductor.
- Contacts are insensitive to vibrations and thermal variations.
- Only one cable (flexible or rigid) can be inserted per terminal.

Quick distribution blocks

Number of poles		4P, upstream incoming	4P, downstream incoming
		 PB104500-6.eps	 PB104499-6.eps
Rated operational current at 40 °C	(Ie)	63 A	63 A
Rated conditional short-circuit breaker of an assembly	(Isc)	The reinforced breaking capacity due to cascading in circuit breaker combinations is maintained. The worst-case situations have been tested.	The reinforced breaking capacity due to cascading in circuit breaker combinations is maintained. The worst-case situations have been tested.
Rated peak withstand current	(Ipk)	-	-
Rated insulation voltage	(Ui)	500 V AC	500 V AC
Rated operational voltage	(Ue)	440 V AC	440 V AC
Rated impulse withstand voltage	(Uimp)	6 kV	6 kV
Rated short-time current Icw	(Icw)		
Thermal stress	($A^2.s$)	-	-
Rated operational frequency		50/60 Hz	50/60 Hz
Degree of protection		IPxxB	IPxxB
Incoming terminals		1 tunnel terminal 25²/Ph	1 tunnel terminal 25²/Ph
Total connection capacity, outgoing terminals		24 connections: 4 x 6²/phase 12 x 6²/neutral	24 connections: 4 x 6²/phase 12 x 6²/neutral
Dimensions (H x W x D)		96.5 x 72 x 62 8 x 9 mm pitch	96.5 x 72 x 62 8 x 9 mm pitch
Installation		Clipped onto a DIN rail	Clipped onto a DIN rail
Other			
Standard for installation inside Prisma		IEC 61439-2	IEC 61439-2
Glow-wire 60695-2-11		960 °C	960 °C
Degree of pollution		3	3
Catalogue numbers		**04040**	**04041**

Accessories

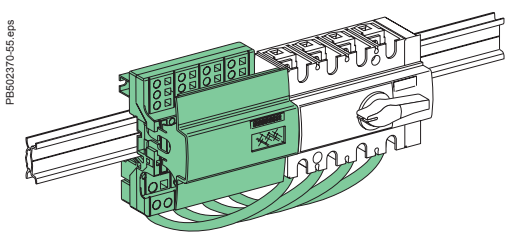
Catalogue numbers		**-**	**-**

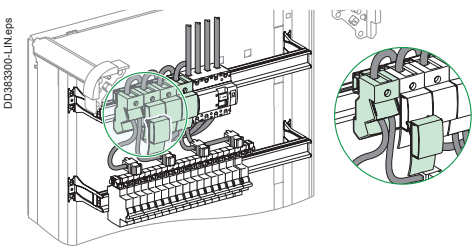
Linergy DX (cont.)
Quick distribution blocks

Advantages

- A reliable electrical connection, no maintenance required (tightness guaranteed over time).
- Quick connection.
- Easy phase balancing.
- Ease of rewiring if the switchboard is expanded or modified.

	4P		1P
	 PB500924-75.eps	 PD400106.eps	 PB111453_10.eps
	125 A	160 A	160 A
	20 kA/60 ms max according to IEC 61439-1	20 kA/60 ms max according to IEC 61439-1	32 kA
	20 kA	20 kA	24 kA
	750 V AC	750 V AC	750 V AC
	690 V AC	690 V AC	690 V AC
	8 kV	8 kV	8 kV
	4.5 kA rms/1s	4.5 kA rms/1s	5.5 kA rms/1s
	2.025 x 10^7	2.025 x 10^7	3.025 x 10^7
	50/60 Hz	50/60 Hz	50/60 Hz
	IPxxB	IPxxB	IPxxB
	1 tunnel terminal 35²/Ph	Supplied with a prefabricated flexible connection (with lugs) designed for INS100/160 switch-disconnector installed on the left or right	1 tunnel terminal 70²/Ph
	52 connections: 7 x 4²/phase 3 x 6²/phase 2 x 10²/phase 1 x 16²/phase (screw terminal)	52 connections: 7 x 4²/phase 3 x 6²/phase 2 x 10²/phase 1 x 16²/phase (screw terminal)	6 connections: 6 x 16²/phase
	127 x 108 x 48 8 x 9 mm pitch	127 x 108 x 48 8 x 9 mm pitch	95 x 36 x 70 4 x 9 mm pitch
	Screwed to plain or slotted backplate or onto DIN rail	Screwed to plain or slotted backplate or onto DIN rail	Onto DIN rail
	Possible to combine 2 terminal blocks (2nd terminal block supplied from enclosed terminals in the 1st, Imax of 2nd terminal block: 80 A)		
	IEC 61439-2	IEC 61439-2	IEC 61439-2
	960 °C	960 °C	960 °C
	3	3	3
	04045	**04046**	**04031**
	4 x 125 A flexible connections, L = 210 mm with 1 end fitting for tunnel terminal and 1 end 45 ° angle lug		4 x 160 A flexible connections, L = 380 mm with 2 x 45 mm² end fittings for tunnel terminals
	04047	**-**	**04149**

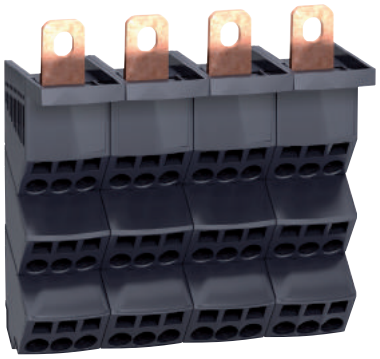

PB502370-55.eps


DD383300-LIN.eps

Technical Section 10
Dimensions Section 11

Linergy DP
Quick distribution blocks

PB111455_50.eps



IEC 60947-7-1, IEC 61439-1 and 2

Description

■ The Linergy DP quick distribution block is designed for installation directly downstream of Compact NSX and INS up to 250 A. It can also be clipped onto a modular rail.

Avantages

■ It is quick to mount in the horizontal position. Electrical connections are made directly to the device terminals.
■ It is the same width as the devices and does not take up any additional space in the switchboard.
■ The connection terminals are slanted to facilitate cable entry and avoid exceeding the bending radius of the flexible and rigid cables.

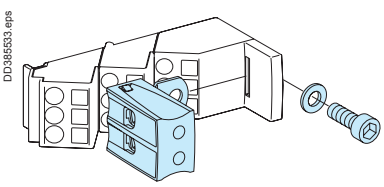
Quick distribution blocks for Compact devices

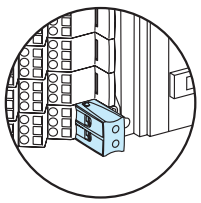
Number of poles		3P	4P	3P	4P
		 PB111454-15-r.eps	 PB111455-15-r.eps	 PB502519-11_r.eps	 PB502519-11_r.eps
Rated operational current	(Ie)	250 A	250 A	250 A	250 A
Rated peak withstand current	(Ipk)	30 kA	30 kA		
Rated short-time current	(Icw)	8.5 kA rms/1 s	8.5 kA rms/1 s		
Thermal stress	(A^2.s)	7.225 x 10^7	7.225 x 10^7		
Total connection capacity, outgoing terminals		27 connections: 6 x 10^2/phase 3 x 16^2/phase	36 connections: 6 x 10^2/phase 3 x 16^2/phase	2 connections: 2 x 35^2/pole	2 connections: 2 x 35^2/pole
Incomer terminals		1 cable lug 120 mm² per pole			
Dimensions (H x W x D)		105 x 138 x 63	140 x 138 x 64		
Installation		On mounting plate or DIN rail		On mounting plate	
Product certifications		ASEFA - KEMA			
Standard for installation inside Prisma		IEC 61439-1-2			
Glow-wire 60695-2-11		960 °C			
Catalogue numbers		**04033**	**04034**	**04155**	**04156**

Additional block

		 PB502519-11_r.eps	 PB502519-11_r.eps
Description		2 x 35^2 3P for Linergy DP 250 A	2 x 35^2 4P for Linergy DP 250 A
Catalogue numbers		**04155**	**04156**

DD385533.eps





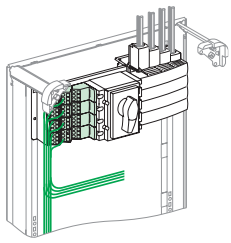
7

Linergy DP (cont.)
Quick distribution blocks

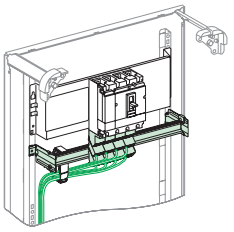
Technical data

Common characteristics		
Rated conditional short-circuit current of an assembly	(Isc)	The reinforced breaking capacity due to cascading in circuit-breaker combinations is maintained. The worst-case situations have been tested.
Rated insulation voltage	(Ui)	750 V AC
Rated operational voltage	(Ue)	690 V AC
Rated impulse withstand voltage	(Uimp)	8 kV
Network frequency		50/60 Hz
Degree of protection		IPxxB
Degree of pollution		3
Overvoltage category		III
Additional technical characteristics		
Reference temperature		40 °C
Operating temperature		-25 °C to 55 °C

Installation



Directly on the mounting plates of horizontally mounted Compact **NSX100/250** and Compact **INS250** devices in the enclosures.



It can also be mounted downstream of vertically mounted Compact **NSX100/250** and Compact **INS250** devices in the enclosures.
In this case, the Linergy DP is mounted on a depth-adjustable modular rail.

7

Linergy DS


PB111254-30.eps


PB111253-30.eps

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

Description

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

Avantages

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

Screw distribution blocks

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

7

Technical
Section 10

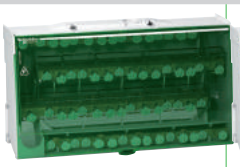
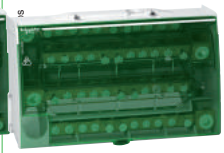
Dimensions
Section 11

Linergy DS (cont.)

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

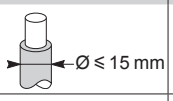
Technical data

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

				Neutral terminal strip		
	 PB111244-20.eps			 PB111247-20.eps	 PB111248-20.eps	 PB111249-20.eps
	125 A		160 A	100 A	125 A	
	4 x 12	4 x 15	4 x 12	7	12	15
	1 x Ø 9 mm	1 x Ø 9.5 mm	1 x Ø 12 mm	2 x Ø 7.5 mm	1 x Ø 9 mm	1 x Ø 9.5 mm
	7 x Ø 7.5 mm	3 x Ø 8.5 mm	3 x Ø 9 mm	5 x Ø 5.5 mm	7 x Ø 7.5 mm	3 x Ø 8.5 mm
	4 x Ø 6.5 mm	11 x Ø 6.5 mm	8 x Ø 7.5 mm	-	4 x Ø 6.5 mm	11 x Ø 6.5 mm
	-	-	-	-	-	-
	18 kA	18 kA	22 kA	-	-	-
	26 kA	28 kA	36 kA	-	-	-
	4.2 kA rms/1 s	4.2 kA rms/1 s	8.4 kA rms/1 s	-	-	-
	14	20	18	7	14	17
	100 x 126 x 50.5	100 x 162 x 50.5	100 x 174 x 50.5	20 x 70 x 35	20 x 125 x 35	20 x 155 x 35
	390	559	567	63	111	149
	LGYN12512	LGYN12515	LGYN12512	-	-	-
	LGY412548	**LGY412560**	**LGY416048**	**LGYN1007**	**LGYN12512**	**LGYN12515**

Terminal technical data

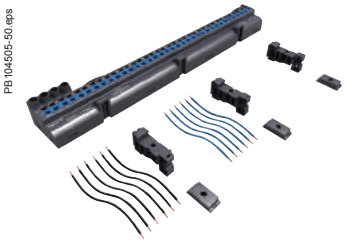
Type	**PZ2 screw**							
Diameter	Ø 5.5 mm	Ø 5.8 mm	Ø 6 mm	Ø 6.5 mm	Ø 7.5 mm	Ø 8.5 mm	Ø 9 mm	Ø 9.5 mm
Section Rigid cable	1.5 to 16 mm²	1.5 to 16 mm²	1.5 to 16 mm²	1.5 to 16 mm²	2.5 to 25 mm²	6 to 35 mm²	10 to 35 mm²	10 to 35 mm²
Section Flexible cable or with ferrule	1.5 to 10 mm²	1.5 to 10 mm²	1.5 to 10 mm²	1.5 to 10 mm²	1.5 to 16 mm²	4 to 25 mm²	4 to 25 mm²	6 to 35 mm²
Tightening torque	2 N.m	2 N.m	2 N.m	2 N.m	2 N.m	2 N.m	2.5 N.m	2.5 N.m

Type	**Hc screw**				
Diameter	Ø 9.5 mm	Ø 10 mm	Ø 12 mm		Ø 15.3 mm
Section Rigid cable	10 to 35 mm²	1.5 to 50 mm²	25 to 70 mm² 		35 to 120 mm²
Section Flexible cable or with ferrule	6 to 35 mm²	1.5 to 35 mm²	16 to 50 mm²		25 to 95 mm²
Tightening torque	8 N.m	4 N.m	1P: 10 N.m	4P: 5 N.m	14 N.m

Technical
Section 10

Dimensions
Section 11

Linergy FM
Quick device feeders


PB 104505-50.eps

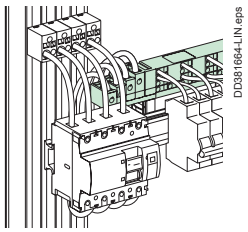
Description

- Distribution over full rows of modular devices.
- The distribution block is generally supplied by busbars in enclosures and cubicles.
- Easy phase balancing.
- Mix of devices and functions in the same row.
- Installation ≥ 160 A: clipped onto the back of a modular rail or screwed onto a solid or pre-slotted plate.

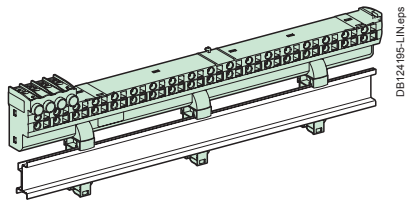
Distribution blocks

Number of poles			4P	4P
			 PBS02496-31_r.eps	 PB104501-52-r.eps
			63 A	**80 A**
Rated peak withstand current		(Ipk)	15 kA	16 kA
Rated conditional short-circuit current of an assembly		(Isc)	The cascading reinforced breaking capacity when combining circuit breakers is maintained. The worst-case scenarios have been tested. The characteristics are exactly right for the connected devices. Circuit breakers and switches still have their temperature derating curves, and their whole performance is maintained.	
Insulation voltage		(Ui)	500 V AC	500 V AC
Rated voltage		(Ue)	440 V AC	440 V AC
Rated impulse withstand voltage		(Uimp)	6 kV	6 kV
Maximum current		(Imax)	-	-
Thermal stress		($A^2.s$)	2.400 x 10^6	2.400 x 10^6
Rated operational frequency			50/60 Hz	
Degree of protection			IPxxB	IP20
Width	9 mm modules		24	48
	18 mm modules		12	24
Supply at incoming terminals			Enclosed terminals for cables up to 25 mm^2	Enclosed terminals for flexible cables 6 to 25 mm^2 or rigid cables 10 to 35 mm^2
Downstream connection capacity, cable to be used without ferrules	Max. 4 mm^2	Phase	2	-
		Neutral	4	-
	Max. 6 mm^2	Phase	2	-
		Neutral	4	-
	Max. 10 mm^2	Phase	-	18
		Neutral	-	18
Accessories included	Pre-stripped copper connections		10 x 4 mm^2 + 6 x 6 mm^2 (W = 100 mm)	12 blue + 12 black
	Protection cover		-	-
	Fixings		-	-
Catalogue numbers			**04008**	**04000**

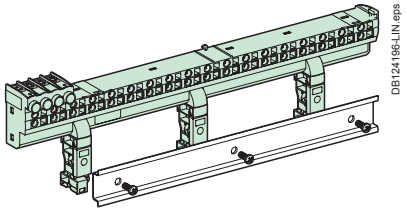
Installation


DD381664-LIN.eps

Clipped onto the back of a modular rail, or screw fixing.


DB124195-LIN.eps

Clipped onto the back of a modular rail, or screw fixing.


DB124196-LIN.eps

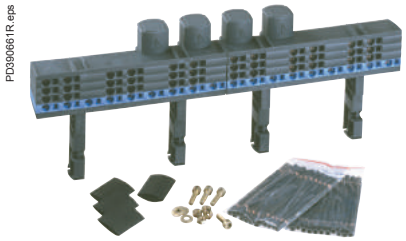
Can be mounted in Pragma Evolution enclosures and in Prisma Pack 160.

7

Technical
Section 10

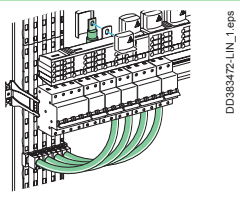
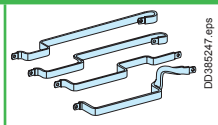
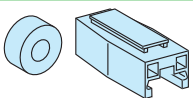
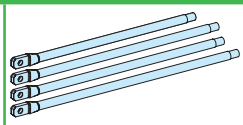
Dimensions
Section 11

Linergy FM (cont.)
Quick device feeders



	4P 	**2P** 	**3P** 	**4P** 	**4P** 
	160 A	**200 A**	**200 A**	**200 A**	**200 A**
	27 kA	25 kA	25 kA	30 kA	20 kA
	The cascading reinforced breaking capacity when combining circuit breakers is maintained. The worst-case scenarios have been tested.				
	750 V AC	750 V AC	750 V AC		750 V AC
	690 V AC	690 V AC	690 V AC		690 V AC
	8 kV	8 kV	8 kV		8 kV
	50 A for feeder for 10 mm² cable/63 A for feeder for 2 10 mm² cables				
	6.700 x 10^6	6.700 x 10^6	6.700 x 10^6		6.700 x 10^6
	50/60 Hz				
	IPxxB				
	24	48			72
	12	24			36
	Direct onto the row by cable 50 mm² with crimped lug, or flexible bar 20 x 3 from busbar with prefabricated connection				-
	-	-			-
	-	-			-
	-	-			-
	-	-			-
	6	12			18
	6	18			27
	20 x 4 mm² + 6 x 6 mm² (W = 100 mm)				-
	For rows (IPxxB)	-			-
	For rows	-			-
	04018	**04012**	**04013**	**04014**	**04026**

Connections to the device feeders

					
	4P 200 A connection (supplied with fixing accessories)	4P 200 A connection (supplied with fixing accessories)	4P 200 A connection (supplied with fixing accessories)	4P 160 A connection for Linergy FM 1/2 row	200 A connection (20 x 3) for Linergy FM
Allows power supply from	Linergy BW busbar	Multi-stage Linergy BS busbar	Rear Linergy BS busbar	Device	Device
Catalogue numbers	**04021** **04150 insulating covers**	**04024**	**04029**	**04030**	**04743**

Spare parts

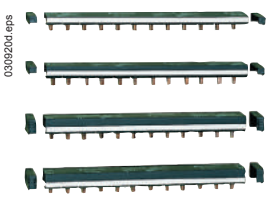
	
	4 covers for 160/200 A Linergy FM rows
Catalogue number	**01202**

Technical
Section 10

Dimensions
Section 11

Linergy FH

Horizontal comb busbar for 27 mm pitch for NG125



IEC 60664-1

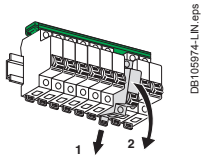
Description

Comb busbars make it easier to install C120 and NG125 circuit breakers.

- Supplied with 2 lateral end-caps, IP 2.
- Outgoing feeders can be marked.
- Cutting markings on the copper bars and the insulating material.

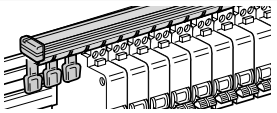
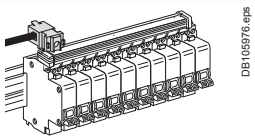
NG125	27 mm poles, cuttable			
Number of poles	**1P**	**2P**	**3P**	**4P**
				
	Each com busbar reference includes: ■ 1 x single or 2 pole comb busbar + 8 tooth-caps + 2 side plates ■ 1 x 3 or 4 pole comb busbar + 4 tooth-caps + 2 side plates To insulate teeth that have been left free can be insulated by tooth-caps			
Rated operational current at 40 °C (Ie)	125 A (63 A max by outgoer)			
Rated conditional short-circuit current of an assembly (Isc)	Compatible with the breaking capacity of C120 and NG125 circuit breakers			
Insulation voltage (Ui)	620 V AC			
Rated voltage (Ue)	500 V AC			
Fire resistance to IEC 695-2-1	Self-extinguishing 960 °C, 30 s			
Colour	RAL 7016 (anthracite grey)			
Use				
	Power supply by connector recommended			
Number of 27 mm modules	16	16	15	16
Set of	1			
Catalogue numbers	**14811**	**14812**	**14813**	**14814**

Installation



Comb busbars allow dismountability (1-2)

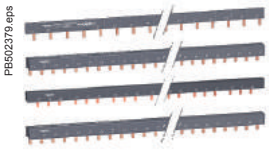
Accessories

Number of poles	**1P, 2P, 3P, 4P**	
		
	Tooth covers	**Insulated connector**
		Compatible with all Schneider Electric comb busbars. Clip onto the comb busbar's insulating material, which gives them very great stability Receive clip-on markers allowing circuit identific
Use		
		For 25 mm² semi-rigid cable
Set of	20	4
Catalogue numbers	**14818**	**14885**
Installation		
		

Technical Section 10
Dimensions Section 11

Linergy FH (cont.)

Horizontal comb busbar for 18 mm pitch for Acti 9



IEC 60947-7-1, IEC 61439-2

Description

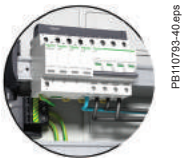
Comb busbars make it easier to install Acti 9 circuit breaker.

- Can be sawn and cut in a single pass.
- Supplied with two IP20 lateral end-caps except for 57 module references.
- The side plates are compulsory after cutting.
- The phases are identified by symbols on each side of the comb busbar for installation in all positions.
- Cutting marks on the insulating material.
- The special comb busbars for circuit breakers with 9 mm auxiliaries have a 9 mm gap for inserting iOF and iSD.

Acti 9	18 mm poles, cuttable										
Number of poles	**1P**	**2P**	**3P**	**4P**	**3 (N+P)**	**Aux+1P**	**Aux+2P**	**Aux+3P**	**Aux+4P**	**3 (Aux+1P)**	**3 (Aux+N+1P)**
	 PB110252-24.eps										
Rated operational current at 40 °C (Ie)	100 A										
Rated conditional short-circuit current of an assembly (Isc)	Compatible avec le pouvoir de coupure des disjoncteurs Acti 9										
Insulation voltage (Ui)	500 V AC										
Rated voltage (Ue)	415 V AC										
Fire resistance to IEC 695-2-1	Self-extinguishing 960 °C, 30 s										
Colour	RAL 7016 (anthracite grey)										
Use											
	Power supply by connector recommended										
Type	L1…	L1L2…	L1L2L3...	NL1L2L3…	NL1NL2… …NL3	AuxL1...	AuxL1L2…	AuxL1L2L3	AuxNL1… …L2L3	AuxL1… …AuxL2… …AuxL3	AuxL1… …AuxL2… …AuxL3
Set of	1	1	1	1	1	1	1	1	1	1	1
Catalogue numbers											
6 modules of 18 mm	**A9XPH106**	-	-	-	-	-	-	-	-	-	-
12 modules of 18 mm	**A9XPH112**	**A9XPH212**	**A9XPH312**	**A9XPH412**	**A9XPH512***	-	-	-	-	-	-
18 modules of 18 mm	-	-	-	-	**A9XPH518***	-	-	-	-	-	-
24 modules of 18 mm	**A9XPH124**	**A9XPH224**	**A9XPH324**	**A9XPH424**	**A9XPH524***	-	-	-	-	-	-
57 modules of 18 mm	**A9XPH157**	**A9XPH257**	**A9XPH357**	**A9XPH457**	**A9XPH557***	**A9XAH157**	**A9XAH257**	**A9XAH357**	**A9XAH457**	**A9XAH657**	**A9XAH557***

* This comb busbar is only compatible in top feeding for simple lug devices and bottom feeding on double lug devices.

Installation



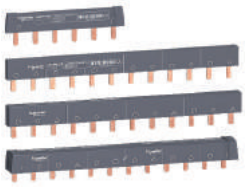
Accessories

Number of poles	**1P**	**2P**	**3P**	**4P**	**-**	**-**	**-**
	 DB404806.eps				 DB404808.eps	 PB110258-22.eps	 PB110259-15.eps
	Side plates				**Tooth covers**	**Connectors**	
						Monoconnect	**Double terminals**
	Lateral end-caps providing IP20 protection				To 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  PB108138-25.eps	
Set of	10	10	10	10	20	4	4
Catalogue numbers	**A9XPE110**	**A9XPE210**	**A9XPE310**	**A9XPE410**	**A9XPT920**	**A9XPCM04**	**A9XPCD04**

Technical Section 10 **Dimensions Section 11**

Linergy FH (cont.)

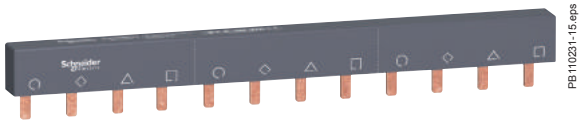
Horizontal comb busbar for 18 mm pitch for Acti 9



IEC 60947-7-1, IEC 61439-2

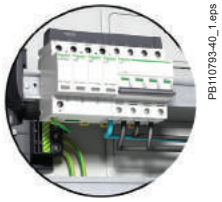
Description

Comb busbars make it easier to install Acti 9 circuit breakers.
The phases are identified by symbols on each side of the comb busbar.
Dismountability of devices with Acti 9.

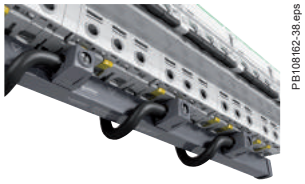
Acti 9	18 mm poles, not cuttable				
Number of poles	**1P**	**2P**	**3P**	**4P**	**3 (N+P)**
					
Rated operational current at 40 °C (Ie)	100 A				
Rated conditional short-circuit current of an assembly (Isc)	Compatible with the breaking capacity of Acti 9 circuit breaker				
Insulation voltage (Ui)	500 V AC				
Rated voltage (Ue)	415 V AC				
Fire resistance to IEC 695-2-1	Self-extinguishing 960 °C, 30 s				
Colour	RAL 7016 (anthracite grey)				
Use					
	Power supply by connector recommended				
Type	L1	L1L2	L1L2L3	NL1L2L3	NL1NL2NL3
Set of	1	1	1	1	1
Catalogue numbers					
12 modules of 18 mm	**A9XPM112**	**A9XPM212**	**A9XPM312**	**A9XPM412**	**A9XPM512** (1)

(1) This comb busbar is only compatible in top feeding for simple lug devices and bottom feeding on double lug devices.

Installation



Accessories

	Tooth covers	**Connectors**	
		Double terminals	**Monoconnect**
	To insulate teeth that have been left free	Comb busbar power supply	
Use			
		Horizontal incomer on each side For 35 mm² cable Tightening torque 4 N.m	
Set of	20	4	4
Catalogue numbers	**A9XPT920**	**A9XPCD04**	**A9XPCM04**
Installation			
			

Technical Section 10
Dimensions Section 11

Linergy FH (cont.)

Horizontal comb busbar for 9 mm pitch for Acti 9, C60

IEC 60439-1

Description

Comb busbars ensure:

- Easy, reliable mounting of 1P+N and 3P+N, TL, CT, ID, V, BP and Cm switchgear: tooth positioning opposite the device terminals is ensured by indexing of copper parts C60/ID Group Feeder comb busbars contain two different parts:
- connection of Group Feeder switchgear: C60 (3P + N) or ID (3P + N) circuit breaker in 18 mm modules, powered by cables, through the bottom, directly by the terminals
- connection of Acti 9 switchgear in 9 mm modules.

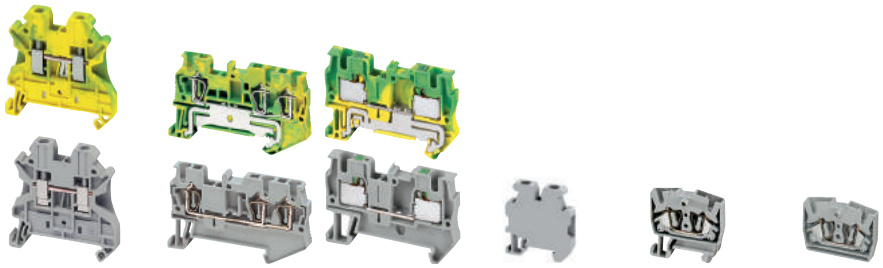
Acti 9 Ph+N		9 mm poles, cuttable					
Number of poles		**1P+N**			**3P+N**		
		 DB123729.eps 21501			 DB123730.eps 21505		
		Complete comb busbars (supplied with 4 side plates and 1 tooth-cover)					
Rated operational current at 40 °C	(Ie)	80 A					
Rated conditional short-circuit current of an assembly	(Isc)	Compatible with the breaking capacity of Acti 9 and C60 circuit breakers					
Insulation voltage	(Ui)	440 V AC					
Rated voltage	(Ue)	230 V AC (P + N) - 400 V AC (3P + N)					
Rated impulse withstand voltage	(Uimp)	6 kV					
Degree of protection		IP20					
Fire resistance to IEC 695-2-1		Self-extinguishing 960 °C, 30 s					
Colour		RAL 7035					
Number of 18 mm modules	Comb busbar	12	18	24	12	18	24
	Tooth cover	3	3	6	3	3	6
Catalogue numbers		**21501**	**19512**	**21503**	**21505**	**19516**	**21507**
Comb busbars alone							
Number of 18 mm modules	Comb busbar	48			48		
Catalogue numbers		**21089**			**21093**		

C60/ID Group Feeder comb busbars alone				
Number of poles		**3P+N**		
		 PB101184-10.eps		
Rated operational current at 40 °C	(Ie)	80 A		
Rated conditional short-circuit current of an assembly	(Isc)	Compatible with the breaking capacity of Schneider Electric circuit breakers		
Insulation voltage	(Ui)	440 V AC		
Rated voltage	(Ue)	230 V AC (P + N) - 400 V AC (3P + N)		
Rated impulse withstand voltage	(Uimp)	6 kV		
Degree of protection		IP20		
Fire resistance to IEC 695-2-1		Self-extinguishing 960 °C 30 s		
Colour		RAL 7035		
Number of 18 mm modules		12	48	48
Power supply		Through left-hand	Through left-hand	Through right-hand
Catalogue numbers		**10545**	**10546**	**10547**

Accessories					
Number of poles	**1P+N**	**3P+N**			
	 DB123732.eps		 DB123733.eps		 DB123731.eps
	Side plates		**Tooth caps (3 x 18-mm module)**	**Tooth caps (1 x 18-mm module)**	**Connectors (grey)**
Set of	40		12	10	4
Catalogue numbers	**21094**	**21095**	**21096**	**10405**	**21098**

Technical Section 10
Dimensions Section 11

Linergy TR (cont.)
Terminal blocks



			Connection technology					
Type of terminal block	**Cross-section area**	**Colour**	**Screw tech**	**Spring tech**	**Push-in tech**	**Miniature screw for 15 mm DIN rail**	**Miniature spring for 15 mm DIN rail**	**Miniature spring for direct mount**
Passthrough	2.5 mm² (2 pts)	Grey	**NSYTR V22**	**NSYTR R22**	**NSYTR P22**	**NSYTR V22M**	**NSYTR R22M**	**NSYTR R22MF**
		Blue	**NSYTR V22BL**	**NSYTR R22BL**	**NSYTR P22BL**	**NSYTR V22MBL**	**NSYTR R22MBL**	**NSYTR R22MFBL**
		Orange	**NSYTR V22AR**	**NSYTR R22AR**	**NSYTR P22AR**	-	-	**NSYTR R22MFF***
	2.5 mm² (3 pts)	Grey	-	**NSYTR R23**	**NSYTR P23**	-	-	-
		Blue	-	**NSYTR R23BL**	**NSYTR P23BL**	-	-	-
		Orange	-	**NSYTR R23AR**	**NSYTR P23AR**	-	-	-
	2.5 mm² (4 pts, 1 level)	Grey	-	**NSYTR R24**	**NSYTR P24**	-	**NSYTR R24M**	**NSYTR R24M**
		Blue	-	**NSYTR R24BL**	**NSYTR P24BL**	-	**NSYTR R24MBL**	**NSYTR R24MBL**
	2.5 mm² (4 pts, 2 levels)	Grey	**NSYTR V24D**	**NSYTR R24D**	**NSYTR P24D**	-	-	-
		Blue	**NSYTR V24DBL**	**NSYTR R24DBL**	**NSYTR P24DBL**	-	-	-
	4 mm² (2 pts)	Grey	**NSYTR V42**	**NSYTR R42**	**NSYTR P42**	**NSYTR V42M**	-	-
		Blue	**NSYTR V42BL**	**NSYTR R42BL**	**NSYTR P42BL**	**NSYTR V42MBL**	-	-
		Orange	**NSYTR V42AR**	**NSYTR R42AR**	-	-	-	-
	4 mm² (3 pts)	Grey	**NSYTR V43**	**NSYTR R43**	**NSYTR P43**	-	-	-
		Blue	**NSYTR V43BL**	**NSYTR R43BL**	**NSYTR P43BL**	-	-	-
		Orange	-	-	-	-	-	-
	4 mm² (4 pts, 1 level)	Grey	**NSYTR V44**	**NSYTR R44**	**NSYTR P44**	-	-	-
		Blue	**NSYTR V44BL**	**NSYTR R44BL**	**NSYTR P44BL**	-	-	-
	4 mm² (4 pts, 2 levels)	Grey	**NSYTR V44D**	**NSYTR R44D**	-	-	-	-
		Blue	**NSYTR V44DBL**	**NSYTR R44DBL**	-	-	-	-
	6 mm² (2 pts)	Grey	**NSYTR V62**	**NSYTR R62**	-	-	-	-
		Blue	**NSYTR V62BL**	**NSYTR R62BL**	-	-	-	-
	10 mm² (2 pts)	Grey	**NSYTR V102**	**NSYTR R102**	-	-	-	-
		Blue	**NSYTR V102BL**	**NSYTR R102BL**	-	-	-	-
	16 mm² (2 pts)	Grey	**NSYTR V162**	**NSYTR R162**	-	-	-	-
		Blue	**NSYTR V162BL**	**NSYTR R162BL**	-	-	-	-
	150 mm² (2 pts)	Grey	**NSYTRV1502BB**	-	-	**NSYTR V22MPE**	**NSYTR R22MPE**	
Earth protection	2.5 mm² (2 pts)	Green	**NSYTR V22PE**	**NSYTR R22PE**	**NSYTR P22PE**	-	-	-
	2.5 mm² (3 pts)	Green	-	**NSYTR R23PE**	**NSYTR P23PE**	-	-	-
	2.5 mm² (4 pts)	Green	-	**NSYTR R24PE**	**NSYTR P24PE**	-	-	-
	4 mm² (2 pts)	Green	**NSYTR V42PE**	**NSYTR R42PE**	**NSYTR P42PE**	**NSYTR V42MPE**	-	-
	4 mm² (3 pts)	Green	**NSYTR V43PE**	**NSYTR R43PE**	**NSYTR P43PE**	-	-	-
	4 mm² (4 pts)	Green	**NSYTR V44PE**	**NSYTR R44PE**	**NSYTR P44PE**	-	-	-
	6 mm² (2 pts)	Green	**NSYTR V62PE**	**NSYTR R62PE**	-	-	-	-
	10 mm² (2 pts)	Green	**NSYTR V102PE**	**NSYTR R102PE**	-	-	-	-
	16 mm² (2 pts)	Green	**NSYTR V162PE**	**NSYTR R162PE**	-	-	-	-
Knife disconnect	2.5 mm² (2 pts)	Grey	**NSYTR V42ST** (1)	**NSYTR R22SC**	**NSYTR P22SC**	-	-	-
		Orange	**NSYTR V42STAR** (1)	**NSYTR R22SCAR**	-	-	-	-
	2.5 mm² (3 pts)	Grey	-	**NSYTR R23SC**	**NSYTR P23SC**	-	-	-
		Orange	-	**NSYTR R23SCAR**	-	-	-	-
	2.5 mm² (2 levels)	Grey	**NSYTRV42SCD** (1)	**NSYTRR24SCD**	-	-	-	-
Fuse disconnect	4 mm² (2 pts) Fusible 5 x 20 mm	Black	**NSYTR V42SF5**	-	-	-	-	-
		Black (12 V)	**NSYTR V42SF5LD** (2)	-	-	-	-	-
		Black (230 V)	**NSYTR V42SF5LA** (2)	-	-	-	-	-
Basic disconnect (3)	4 mm² (2 pts)	Grey	**NSYTRV 42TB**	**NSYTR R22TB**	**NSYTR P42TB**	-	-	-
Measuring transducer	6 mm² (2 pts) Disconnect	Grey/Orange	**NSYTR V62TTD**	-	-	-	-	-
	6 mm² (2 pts)	Grey	**NSYTR V62TT**	-	-	-	-	-
	6 mm² (2 pts)	Green	**NSYTR V62TTPE**	-	-	-	-	-

** Grey terminal with flange.*

(1) 4 mm² terminal, with 2 test points.
(2) With light indicator.
(3) Fuse or component carrier not supplied.

Technical Section 10 **Dimensions Section 11**

Linergy TR (cont.)
Terminal blocks

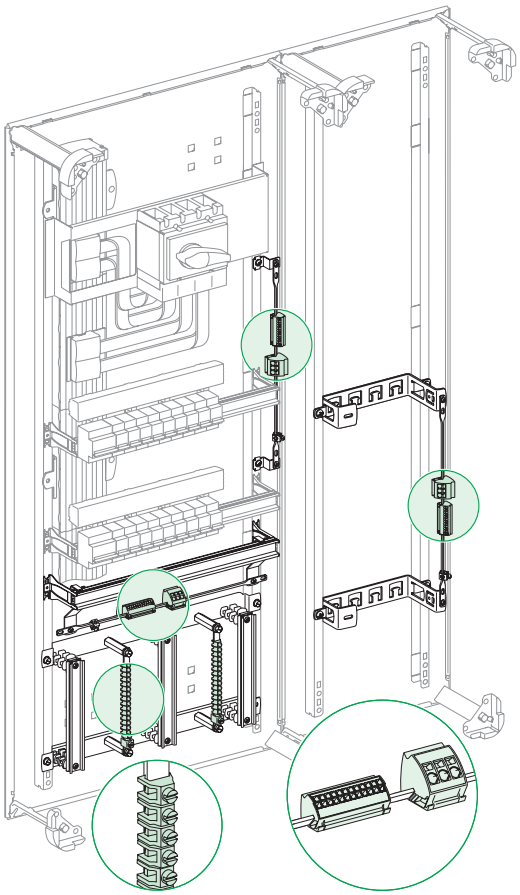




Connection technology	Accessories				
Miniature spring for direct mount	End plate for screw TBs	End plate for spring TBs	End plate for push-in TBs	Plug-in bridge	Marking strips 10 characters
NSYTR R22MP	NSYTRA C22	NSYTRA CR22	NSYTRA CR22	NSYTRA L22	NSYTRA B510
NSYTR R22MPBL	NSYTRA C22BL	NSYTRA CR22BL	NSYTRA CR22BL	NSYTRA L23	NSYTRA B520
-	-	-		NSYTRA L24	NSYTRA B530
-	-	NSYTRA CR23	NSYTRA CR23	NSYTRA L25	NSYTRA B540
-	-	NSYTRA CR23BL	NSYTRA CR23BL	NSYTRA L210	NSYTRA B550
-	-	-	-	NSYTRA L210BL	...
NSYTR R24MP	-	NSYTRA CR24	NSYTRA CR24	NSYTRA L210GR	NSYTRA B590
NSYTR R24MPBL	-	NSYTRA CR24BL	NSYTRA CR24BL	NSYTRA L220	NSYTRA B5100
-	NSYTRA CE24	NSYTRA CRE24	NSYTRA CRE24		NSYTRA B51100
-	-	-	-		
-	NSYTRA C22	NSYTRA CR42	NSYTRA CR42	NSYTRA L42	NSYTRA B610
-	NSYTRA C22BL	-	-	NSYTRA L43	NSYTRA B620
-	-	-	-	NSYTRA L44	NSYTRA B630
-	NSYTRA C23	NSYTRA CR43	NSYTRA CP43	NSYTRA L45	NSYTRA B640
-	-	-	-	NSYTRA L410	NSYTRA B650
-	-	-	-	NSYTRA L410BL	...
-	NSYTRA C24	NSYTRA CR44	NSYTRA CP44	NSYTRA L410GR	NSYTRA B690
-	-	-	-	NSYTRA L420	NSYTRA B6100
-	NSYTRA CE24	NSYTRA CRE44	-		NSYTRA B61100
-	-	-	-		
-	NSYTRA C22	NSYTRA CR62	-	NSYTRA L62	NSYTRA B810
-	NSYTRA C22BL	-	-	NSYTRA L610	NSYTRA B820
-	NSYTRA C22	NSYTRA CR102	-	NSYTRA L102	NSYTRA B1010
-	NSYTRA C22BL	-	-		NSYTRA B1020
-	NSYTRA C162	NSYTRA CR162	-	NSYTRA L162	NSYTRA B1010
-	-	-	-		NSYTRA B1020
	NSYTRAC952	-	-	NSYTRA L1502	-
-	NSYTRA C22	NSYTRA CR22	NSYTRA CR22		
-	-	NSYTRA CR23	NSYTRA CR23		
-	-	NSYTRA CR24	NSYTRA CR24		
-	NSYTRA C22	NSYTRA CR42	NSYTRA CR42		
-	NSYTRA C23	NSYTRA CR43	NSYTRA CP43		
-	NSYTRA C24	NSYTRA CR44	NSYTRA CP44		
-	NSYTRA C22	NSYTRA CR62	-		
-	NSYTRA C22	NSYTRA CR102	-		
-	NSYTRA C162	NSYTRA CR162	-		
-	Included	NSYTRA CR23	NSYTRA CPK22		
-	Included	-	-		
-	-	NSYTRA CR24	NSYTRA CPK23		
-	-	-	-		
-	NSYTRA CE24	Included	-		
-	Included	-	-		
-	Included	-	-		
-	Included	-	-		
-	Included	NSYTRA CR23	NSYTRA CR42		
-	NSYTRA CT22	-	-		
-	NSYTRA CT22	-	-		
-	NSYTRA CT22	-	-		

7

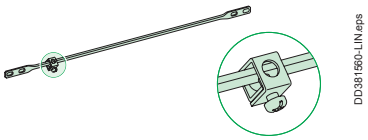
Linergy TB
Earth bars



Description

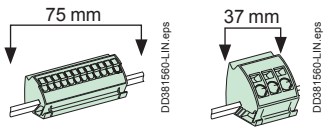
This range of earth bars is installed:
- in the duct which can constitute a dedicated area, completely separate from the equipment
- or in the switchgear compartment, at the top or the bottom.

Fast-connecting earth bar



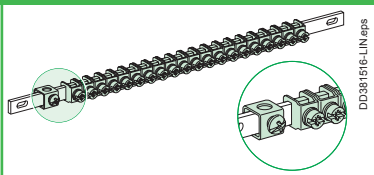
	Copper earth bar
Cross-section (mm)	12 x 3
Effective length (mm)	330
Total length (mm)	450
Composition	Copper bar with 1 terminal 16 to 35 mm²
Catalogue numbers	**04201**

Accessories



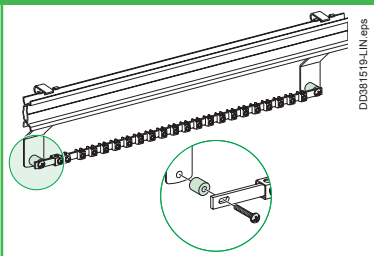
	Earth blocks with terminals	
	Spring-fixing (clip onto the earth bar)	
Total connection capacity	12 x 4 mm²	3 x 16 mm²
Composition	4 earth blocks	4 earth blocks
Catalogue numbers	**04214**	**04215**

Accessories



	Earth bar with jumper	
Total connection capacity	40 x 2.5 to 16 mm²	20 x 2.5 to 16 mm²
Cross-section (mm)	12 x 3	12 x 3
Length (mm)	450	200
Composition	40 jumpers and a terminal (16 to 35 mm²)	20 jumpers and a terminal (16 to 35 mm²)
Catalogue numbers	**04200**	**04202**

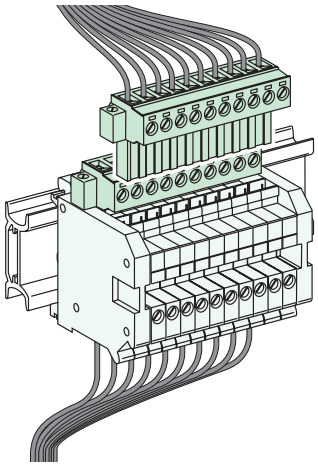
Accessories



	Neutral bar
	Converts an earth bar to a neutral bar
Composition	2 insulating spacers
Catalogue numbers	**04210**

7

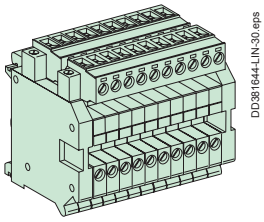
Linergy TA
Auxiliary connections



Description

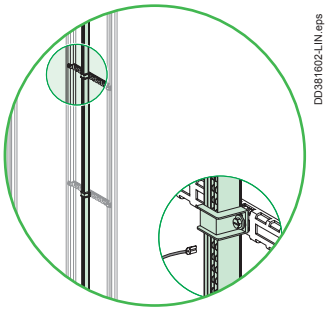
For distributing auxiliary voltages in power and regulation equipment.

Terminal block for auxiliary wiring



Standards		IEC	UL
Rated operational current at 40 °C	(Ie)	12 A	20 A
Rated operational voltage	(Ue)	250 V AC	300 V AC
Rated impulse withstand voltage	(Uimp)	4 kV	
Connection capacity	Input	10 (grey)	
	Output	2 x 10 (grey)	
Dimensions (H x W x D)	(mm)	61 x 48 x 45	
Cross-section		0.2 to 4 mm	
Tightening torque		0.5 to 0.6 Nm	
Composition		3.5 18-mm modules	
Catalogue numbers		**04228**	

Four-pole auxiliary bus duct



		Duct for 4 conductors
		166 tap-off points with Faston connectors, per linear meter
Rated operational current at 40 °C	(Ie)	32 A
Rated insulation voltage	(Ui)	660 V AC
Length (mm)		1755
Composition		Supplied with 2 end clamps and 1 lateral clamp for mounting on cable-tie supports
Catalogue numbers		**04203**

Terminals and installation accessories

Connection strips 80 - 125A (40°C)

Cross section for stranded cables.
Each strip has one M4 threaded hole for screw attachment to any support.

	Part number
80A connection strip	
4 holes (2 x 10mm² + 2 x 16mm²) length 32mm	**14962**
6 holes (3 x 10mm² + 2 x 16mm² + 1 x 35mm²) length 50mm	**14963**
10 holes (5 x 10mm² + 4 x 16mm² + 1 x 35mm²) length 74mm	**14964**
125A connection strip	
14 holes (7 x 10mm² + 6 x 16 mm² + 1 x 35mm²) length 98mm	**14965**

Terminal block supports

Terminal block support made of self extinguishing insulating material: 960°C/5s.
Beige in colour.
Each support can be individually identified using clip-on markers (optional):
- ■ Blue for neutral
- ■ Yellow/green for earth

Fixing:
- ■ **Clipped on to:**
- ☐ 12 x 2 flat bar
- ☐ Multifix or symmetrical rail
- ■ Screwed on to any support (plain or slotted plate) using 2 ears

Cross section for stranded cables

	Part number
80A terminal block	
4 holes (2 x 10mm² + 2 x 16mm²) length 68mm	**14975**
6 holes (3 x 10mm² + 2 x 16mm² + 1 x 35mm²) length 68mm	**14976**
10 holes (5 x 10mm² + 4 x 16mm² + 1 x 35mm²) length 115mm	**14977**
125A terminal block	
14 holes (7 x 10mm² + 6 x 16mm² + 1 x 35 mm²) length 115mm	**14979**

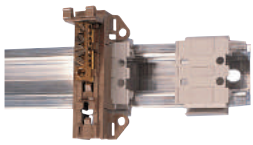
7

Terminals and installation accessories (cont.)

Terminal bar for earth/neutral connections

- For panel mounting
- Including support
- Current rating 200A

Type	Part number
For panel mounting	
1 x 20 holes, length 183mm (19 x 16^2+ 1 x 120^2)	**99217**
1 x 25 holes, length 222mm (24 x 16^2+ 1 x 120^2)	**99219**
1 x 38 holes, length 332mm (37 x 16^2 + 1 x 120^2)	**99221**
1 x 49 holes, length 419mm (48 x 16^2 + 1 x 120^2)	**99223**
1 x 73 holes, length 624mm (72 x 16+1 x 120^2)	**99225**

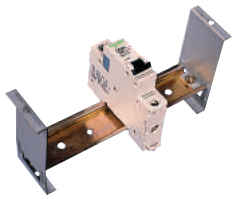


Universal terminal support

This unit can be installed on:

- Symmetrical DIN rail
- Slotted mounting plate
- Asymmetrical DIN rail width: 3 modules of 9mm

Type	Part number
Universal terminal support (pack of 5)	**4224**



Flush mounting clamp

Allows the installation of all DIN standard devices on an enclosure door.
The depth is adjustable by turning the bracket round. DIN rail not included.

Type	Part number
Flush mounting clamp (pack of 4)	**20267**

Transparent hinged weatherproof covers for enclosure doors - IP55

Allows the installation of DIN standard devices up to 10 SP ways (twenty 9mm modules) on an enclosure door.
Degree of protection IP55.

- External dimensions (mm): w 235 x h 126 x d 33
- Dimensions of the hole on the door (mm): w 186 x h 96

Supplied with a blanking plate (to cover up to ten 9mm modules) and fixing and drilling template.

Type	Part number
Transparent hinged cover (10 x 18mm ways)	**14210**
DIN rail support (and fixing)	**14211**
Transparent hinged cover (4 x 18mm ways)	**99246A**
Transparent hinged cover complete with DIN support bracket (4 x 18mm ways)	**99246B**

Contents

Enclosures

8

Plastic Mini Opale IP30
Metal G9 IP30
Metal A-Series IP30

Mini Opale enclosures (IP30)

Mini Opale enclosures are all insulated and made of an impact resistant material which is self extinguishing to 650°C. Degree of protection: IP30

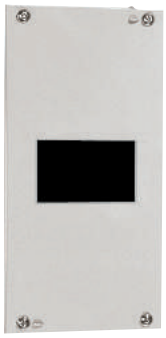
They consist of:
- An insulated back plate incorporating a DIN rail
- A cover clipped to the back plate
- Two 4 hole terminal bars built in, 13396 and 13398 only. (1 X 16mm² + 3 X 10mm²)

Installation

- Wall mounting, 2 or 4 screws supplied.

SP 18mm ways	Size (mm) H - W - D	Part number 18mm
2	130 x 44 x 57	**13392**
4	130 x 80 x 57	**13394**
6	160 x 119 x 65	**13396**
8	160 x 155 x 65	**13398**

Suitable for most DIN standard devices



G9 enclosures (IP30)

These enclosures are made from pressed sheet steel, epoxy powder coated. Colour: RAL 9001. Degree of protection: IP30.

They consist of:
- A back plate with DIN rail
- A cover, screwed to the back plate, having 25mm knockouts top and bottom

Installation

- Wall mounting

SP 18mm ways	Size (mm) H - W - D	Part number 18mm
3	200 x 101 x 63	**99560**
4	250 x 122.5 x 63	**14599**
5	250 x 122.5 x 63	**14603**

Suitable for most DIN standard devices

A series enclosures (IP 30)

These enclosures are made from folded sheet steel, epoxy powder coated. Colour: RAL 9001. Degree of protection: IP3X.

They consist of:
- An enclosure having a back plate with DIN rail 25mm knockouts in top, bottom, sides and rear of enclosure built-in earth terminal bar
- A cover having a left handed hinged door with plastic latch

Installation

- Wall mounting

SP 18mm ways	Dimensions (as)	Part number
8	SEA9AN6	**SEA9DE16**
12	SEA9AN10	**SEA9DE24**
16	SEA9AN14	**SEA9DE32**
20	SEA9AN18	**SEA9DE40**
32	SEA9AN27	**SEA9DE64***

* 2 row

Accessories

Key lock	**SEA9BL**

Pack 160 enclosures
Presentation

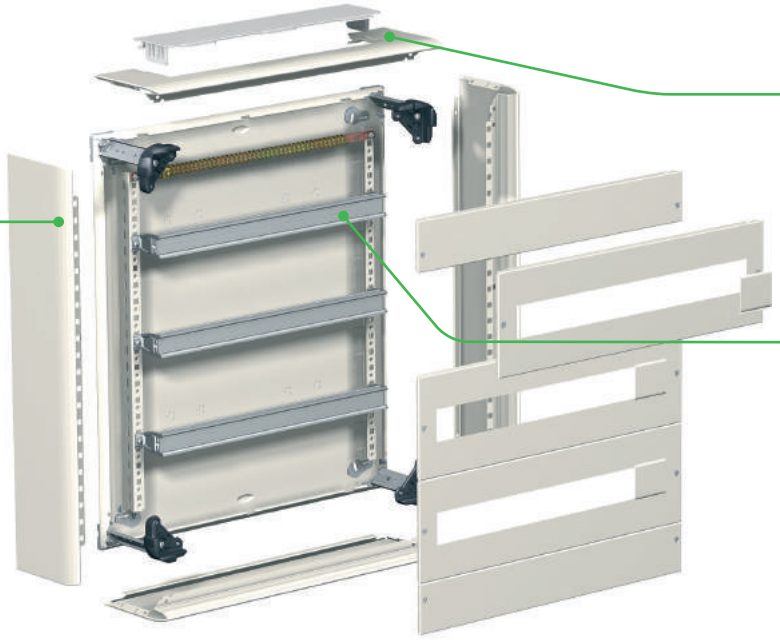
Premounted metallic indoor enclosures can be ordered with a single catalogue number.

An enclosure + modular rails + front plates + blanking plates + a plastic gland plate + an earth bar + a template for drilling wall-mounting holes.

1 product reference = a complete modular enclosure ready to be equipped

- 160 A
- IP30
- IK07/08

PD391279



Gland plate
- Removable, easy-to-install and easy-to-cut

Accessibility
- Side panels dismountable for full access

Double rail
- Double rail supplied premounted in the 4-, 5- and 6-row enclosures allowing mixing of devices of different depths

Installation
- Door easy to install without tools
- Plain or transparent reversible door

PD390161

Description

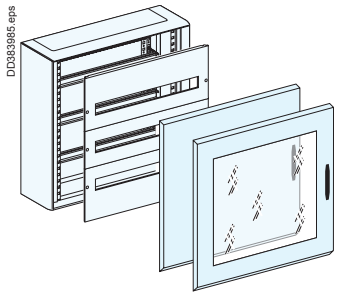
Steel sheet metal with electrophoresis treatment + hot-polymerised polyester epoxy powder.
Enclosure:
- width: 555 mm
- height: 480 to 1080 mm
- depth: 157 mm without door / 186 mm with door
- properties of metal enclosures *> see Prisma G catalogue.*

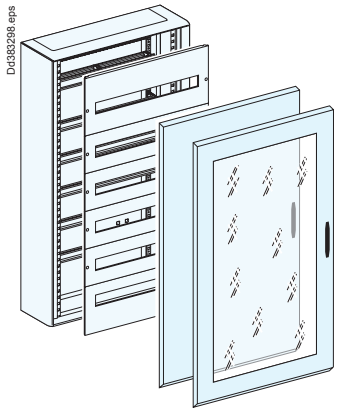
Main characteristics

Pack enclosures	
Rated operational current	160 A - Isc = 50 kA, Icw =10 kA rms/1s, Ipk = 30 kA
Colour	White RAL 9001
Compliance with standards	EN 62208, IEC 61439-2, NFC 61-910
Degree of protection	IP30 with or without door
Degree of protection against mechanical impact	IK08 with door IK07 without door
Insulation	Class 1
Doors	■ Plain or transparent, opening to right or left ■ By design, electrical continuity of moving parts (hinges…) ■ Supplied with a handle and keylock (key 405) ■ No possibility to install push buttons (distance behind door = 42 mm)
Mounting	Pact enclosures easily integrated in using flush-mounting kit

The design of Pack enclosures ensures easy device access and mounting. Optimised depth and an extra-thin door ensure perfect integration in all environments.
Models with 4, 5 and 6 rows are particularly well-suited for the incomer function:
- more space available for wiring of the incoming device
- optimised number of front plates.

Pack 160 enclosures
Wall mounted & flush mounted





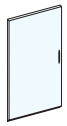
Wall-mounted enclosures for modular devices

Enclosures include:
- 1 modular rail per row (L= 24 modules of 18mm).

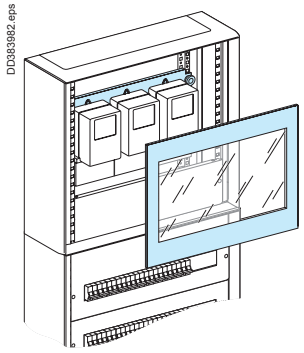
The recessed rail at the top of 4, 5, 6-row enclosures is for NG160 installation and supplied with another rail + 4 raisers to complete the row with modular devices.
- 1 front plate with cut-out per row (height depending on model)
- 1 plastic gland plate
- divisible blanking plates: 3 for 2 and 3 rows enclosures, 6 for 4 to 6 rows enclosures
- earth bar with 40 straples

Doors are:
- reversible, opening to left or right,
- supplied with a handle and barrel with keylock (key 405)
- **barrel locks and inserts** *> see Prisma G catalogue*

Enclosure W555

Nb. of rows	Nb. of vertical modules of 50 mm	Height in mm	Enclosure 	Plain door 	Transparent door 
2	9	480	**08002KIT**	**08082**	**08092**
3	12	630	**08003KIT**	**08083**	**08093**
4	15	780	**08004KIT**	**08084**	**08094**
5	18	930	**08005KIT**	**08085**	**08095**
6	21	1080	**08006KIT**	**08086**	**08096**

Flush-mounting kit *> see page 8/7*



Enclosure extension

Meters can be installed at different levels on the functional uprights of enclosures.
Class 1: Depending on preferences and needs, meters can be installed directly on mounting plates equipped with earthing braids and combined with partitioning or front plates.
The mounting plates can be raised using M5 spacers.

Doors are:
- reversible, opening to left or right
- supplied with a handle and barrel with keylock (key 405),
- **barrel locks and inserts** *> see Prisma G catalogue*

Enclosure extension W555

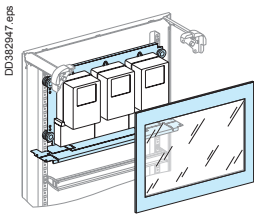
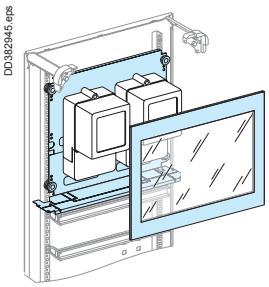
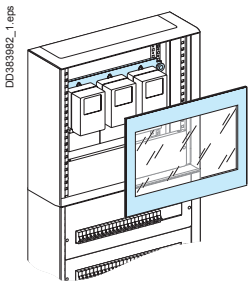
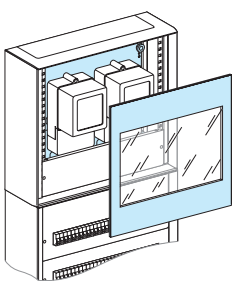
Nb. of vertical modules of 50 mm	Height in mm	Enclosure 	Plain door 	Transparent door 
9	480	**08012**	**08082**	**08092**
12	630	**08013**	**08083**	**08093**

8

Pack 160 enclosures
Kilowatt-hour meters & modular rails

Kilowatt-hour meters, Class 2

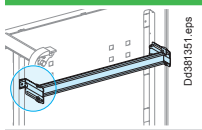
Class 1: Depending on preferences and needs, meters can be installed directly on mounting plates (without insulating plate) equipped with earthing braids of 6 mm² (08910) and combined with partitioning or front plates. The mounting plates can be raised using **M5 spacers** *> see Prisma G catalogue.*

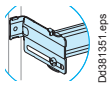
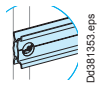
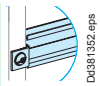
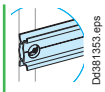
Installation	In Pack wall-mounted enclosures		In an enclosure extension	
	 DD382947.eps	 DD382945.eps	 DD383982_1.eps	 DD383981.EPS
Device	**Single-phase meters**	**3-phase meters**	**Single-phase meters**	**3-phase meters**
Nb. of devices per row	3	2	3	2
Nb. of vertical modules	6	9	6	9
Mounting plate	**03157**	**03152**	**03157**	**03152**
Insulating plate	**03154**	**03154**	**03154**	**03154**
Horizontal partitioning (1)	**04333**	**04333**	-	-
Front plate transparent	**03343** or **03806**	**03344** or **03807**	**03343** or **03806**	**03344** or **03807**
Front plate plain				
Enclosure	Pack enclosure	Pack enclosure	**08012**	**08013**
Door	Depending on enclosure	Depending on enclosure	**08092** (transparent) or **08082** (plain)	**08093** (transparent) or **08083** (plain)
Earthing wire 6 mm²	**08911**	**08911**	**08911**	**08911**
Combination uprights (set of 2)	-	-	**08817** (2)	**08817** (2)

(1) If not installed at the top of a Pack enclosure, order an addition horizontal partition (04333).

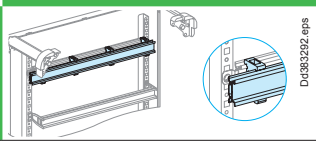
(2) To make the combination more rigid, particularly during transport, it is mandatory to use a set of combination uprights secured to the rear of the switchboard.

Modular rails, L555

 Dd381351.eps

	 Dd381351.eps Fixed	 Dd381353.eps Rear	 Dd381352.eps Recessed	 Dd381353.eps For NG160
Catalogue numbers	**01260**	**03004**	**03003**	**03008**
Useful length	432 mm	432 mm	432 mm	432 mm
9 mm modules number	48	48	48	48
Depth behind front plate	50 mm	80 mm	110 mm	83 mm

DIN rail + 4 raisers

 Dd383292.eps

Catalogue numbers	**04227**
Characteristics	Raiser height: + 33 mm Rail length: 342 mm (19 modules of 18 mm)

Use

Allows adding modular devices to the row, if the 03008 rail is used.

Front plates, W600

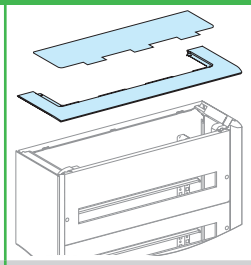
> see page 8/8.

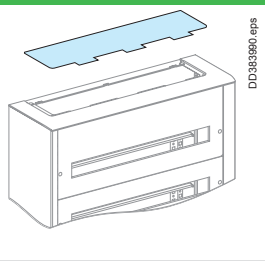
8

Pack 160 enclosures
Accessories

Gland plates

Gland plates



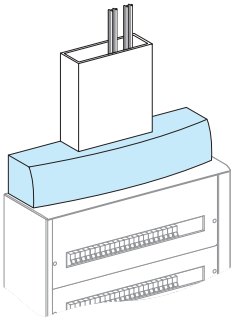


	Top or bottom plate with plastic gland plate	Metal gland plate
Catalogue numbers	**08878**	**08879**
Characteristics	-	Plain metal gland plate

Trunking spreader

Trunking spreader

DD383991.eps

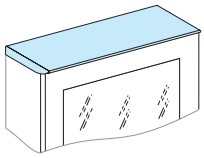


Catalogue numbers	**08821**

Canopy

Canopy for IP31

DD383933.eps

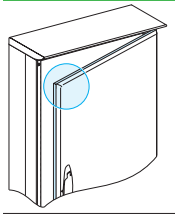


Catalogue numbers	**08823**
Characteristics	The canopy cannot be mounted on the existing top plate. It therefore comes with a special top plate that must be mounted in place of the existing top plate. The existing top plate is remounted at the bottom of the enclosure to allow cable entry and exit via the bottom. The addition of a canopy over a wall-mounted or floor-standing enclosure equipped with a door ensures compliance with the degree of protection IP31.

Gasket

Gasket for IP43

Dd381268.eps



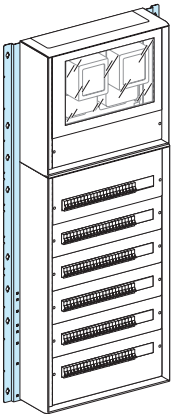
Catalogue numbers	**08841**
Characteristics	When the switchboard is equipped with a canopy, a gasket for the doors ensures compliance with the degree of protection IP43. L = 5.3 m

Pack 160 enclosures
Accessories (cont.)

Combination uprights

Combination uprights

DD383984.EPS

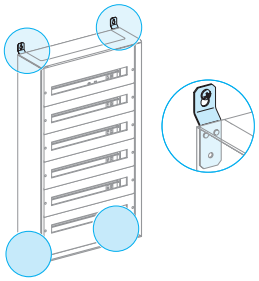


Catalogue numbers	08817
Characteristics	Set of 2 uprights. Particularly during transport, it is mandatory to use a set of combination uprights secured to the rear of the switchboard, to make the combination more rigid.

Wall mounting

Wall mounting

DD385482.eps

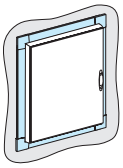


Catalogue numbers	08803
Characteristics	4 external wall-mounted brackets

Flush-mounting kit

Flush-mount kit

Dd381256.eps

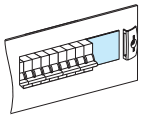


Catalogue numbers	08822

Blanking plates

Blanking plates

DD384029.eps



Catalogue numbers	03220	03221
Characteristics	■ Blanking strip ■ H = 46 mm, L = 1 m	■ Divisible ■ Set of 4 ■ H = 46 mm, L = 90 mm

Finishing parts > *see Prisma G catalogue*

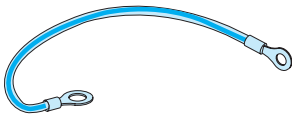
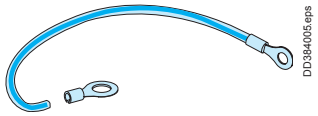
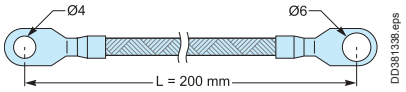
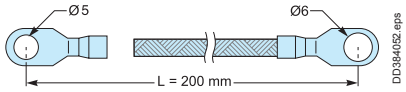
8

Pack 160 enclosures
Accessories & spare-parts

Cable-tie supports
> see Prisma G catalogue.

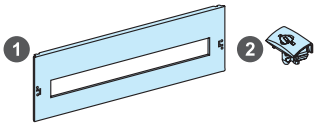
Cable running
> see Prisma G catalogue.

Earthing braid
The earthing braid is used to earth a door or wicket door with devices.

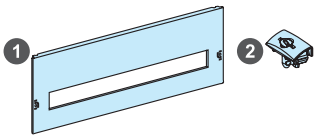
	Earthing braid, 6 mm²	Earthing wire, 6 mm²
	 DD384005.eps	 DD384005.eps
Catalogue numbers	**08910**	**08911**
Characteristics	The braid is equipped with a 4 mm diameter lug at one end and a 6 mm diameter lug on the other	Equipped with a 5 mm diameter lug at one end and a 6 mm diameter lug on the other
	 DD381338.eps	 DD384052.eps

Spare-parts

Front plate (IP30)

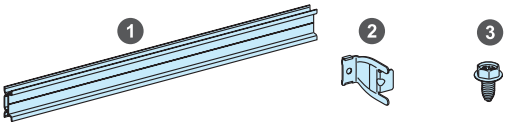
 DD384498nb.eps

4 modules Pack decentered plate	01264
1 1 front plate	
2 2 front plates locking mechanisms	

 DD384499nb.eps

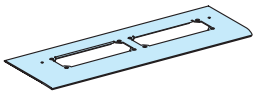
4.5 modules Pack decentered plate	01265
1 1 front plate	
2 2 front plates locking mechanisms	

Modular rail

 DD384506nb.eps

Pack modular rail	01260
1 1 DIN rail 432 mm lenght	
2 2 fixing brackets	
3 2 self threading screws M5 x 10	

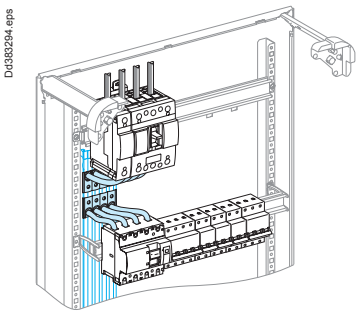
Gland plate (IP30)

 DD384489.EPS

Cut-out gland plate for Pack enclosure	01020

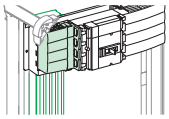
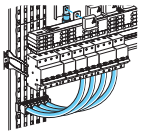
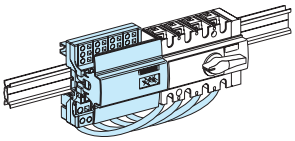
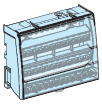
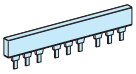
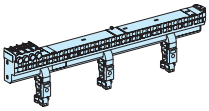
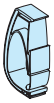
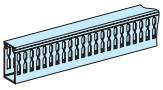
8

Pack 160 enclosures
Distribution & connection with Linergy


Dd388294.eps

Presentation

At the head of a switchboard, the incoming device can be supplied by one of the following:
- busbars mounted in rear of the enclosure
- centralised distribution blocks
- row distribution blocks.

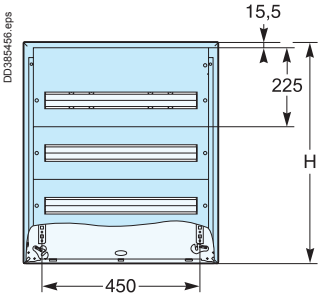
Linergy distribution	Catalogue numbers	Pages
Linergy BW busbars 125 to 160 A		
 DD380522-LIN.eps	**04103, 04107, 04104, 04108, 01210, 01201**	7/4
Prefabricated connections 125 to 160 A		
 Dd383472.eps	**04145, 04146, 04147, 04148, 04151, 04152**	7/5
Linergy DX distribution block		
 PB502370-55.eps	**04031, 04149, 04040, 04041, 04045, 04047, 04046**	7/10 & 7/11
Linergy DS distribution block		
 DD385267.eps	**LGY112510, LGY116013, LGY125014, LGY410028, LGYN1007, LGY412548, LGYN12512, LGY412560, LGY416048, LGYN12515**	7/14 & 7/15
Linergy FH comb busbars		
 DD382484.eps		7/18 to 7/21
Linergy FM distribution block		
 DD384088-LIN.eps	**04008, 04000, 04018, 04012, 04013, 04014, 04026**	7/16 & 7/17
Cable straps		
 Dd381618.eps	**04239, 04243**	See Prisma G catalogue
Trunking		
 Dd381639.eps	**04257, 04255, 04206, 04265, 04267, 04256**	See Prisma G catalogue
Cable-tie supports		
Dd381820.eps	**08867**	See Prisma G catalogue

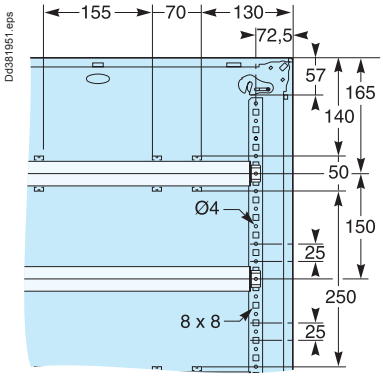
8

Pack 160 enclosures
Dimensions

Wall-mounted enclosures of 2 and 3 rows

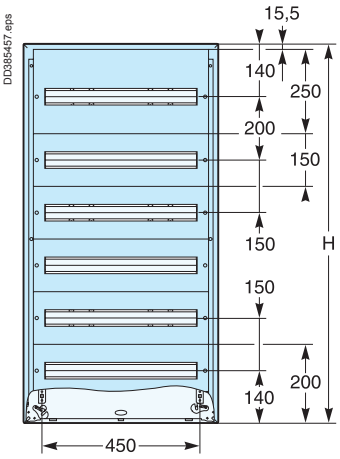
Nb. of rows	H
2	480
3	630

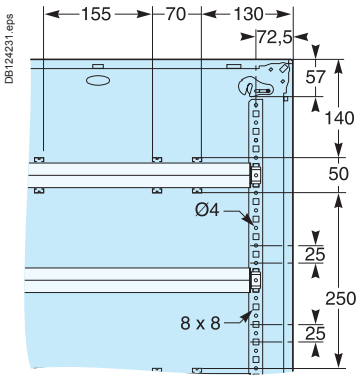


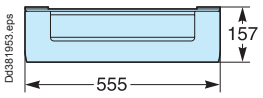


Wall-mounted enclosures of 4, 5 and 6 rows

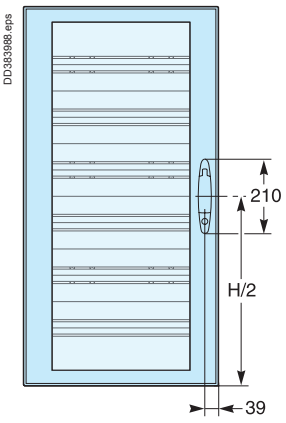
Nb. of rows	H
4	780
5	930
6	1080

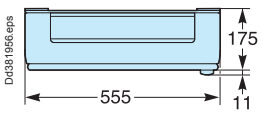






Door

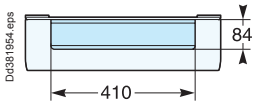




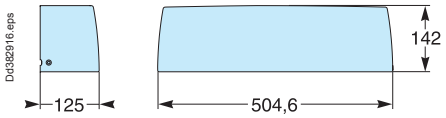
8

Pack 160 enclosures
Dimensions (cont.)

Gland plates

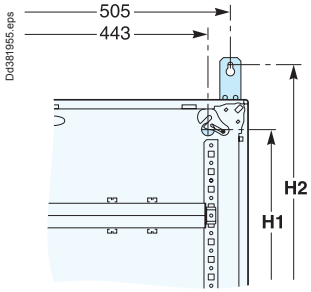


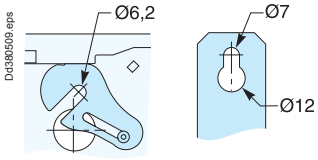
Trunking spreader



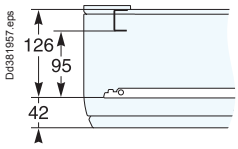
Wall-mounted

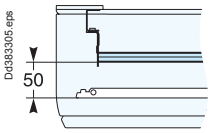
Nb. of rows	H1	H2
2	396	546
3	546	696
4	696	846
5	846	996
6	996	1146



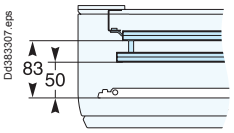


Useful depth behind front plate

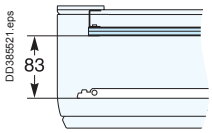




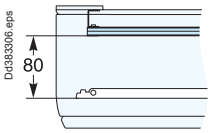
Supplied modular rail.



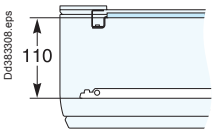
Upper rail in wall-mounted enclosures of 4, 5 and 6 rows.



Rail cat. no. 03008.



Rail cat. no. 03004.



Rail cat. no. 03003.

8

Pragma
Surface mounted enclosures

24 module enclosures

13 module enclosures

Customisable transparent door

Modular terminal blocks with screwless quick connections for small cables - earth and neutral terminal blocks

Neutral terminal blocks easy to split to adapt to earth leakage protection

Function
A range of ready-to-install enclosures devised for electricians: ergonomics and flexibility of installation. The Pragma offer is particularly robust, especially the 24-module enclosures thanks to their metal structure and their reinforced front face.

Application
This distribution enclosure is intended for top of the range residential and tertiary sectors. The 24-module enclosures can accommodate the NG125 incoming circuit breaker or switch, equipped if necessary with an earth leakage protection module.

Technical data

13 module enclosures technoplastic (1), metal grey and titanium white	
24 module enclosures: metal and technoplastic (1), metal grey and titanium white	
Transparent doors:	For 13 module enclosures: technoplastic (1), crystal
	For 24 module enclosures: metal and glass, titanium white and crystal
Opaque doors:	For 13 module enclosures: technoplastic (1), titanium white
	For 24 module enclosures: metal, titanium white
Withstand fire and abnormal heat at 650 °C as per IEC 60695-2-11/EN 60695-2-11	
Total insulation class II:	Conform to IEC 60439-3/EN 60439-3 § 7.4.3.2.2.
Advantage:	Thanks to its design, the entire Pragma range has “total insulation”: no components on the enclosure, interface or door need be earthed.
Degree of protection as per IEC 60529:	Without door: IP30
	With door: IP40
Degree of protection against mechanical impacts as per IEC 62262:	Without door: IK08
	With door: IK09
Operating temperature:	-25 °C to +60 °C.

(1) Technoplastic material specially developed by Merlin Gerin.

Components delivered with each enclosure and interface

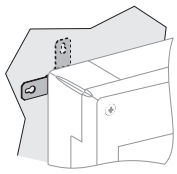
Marking strips + label-guard	
Blanking plate strip	
Earth and neutral terminal blocks:	See part number table
Identification label	
Front face and back connection	
1 plain plate per row	

8

Pragma

Surface mounted enclosures (cont.)

Enclosures												Part number
Number of modules per row	Number of rows	Capacity in modules of 18mm	Rated current In	Neutral terminal block Number of connections				Earth terminal block Number of connections				Without door
				Total	50°	25°	6°	Total	50°	25°	6°	
13 modules	1	13	63 A	11	-	3	2 x 4	13	-	1	3 x 4	**PRA20113**
	2	26	63 A	19	-	3	4 x 4	17	-	1	4 x 4	**PRA20213**
	3	39	90 A	23	-	3	5 x 4	22	-	2	5 x 4	**PRA20313**
	4	52	90 A	27	-	3	6 x 4	26	-	2	6 x 4	**PRA20413**
24 modules	1	24	125 A	23	1	2	5 x 4	22	1	1	5 x 4	**PRA20124**
	2	48	125 A	29	1	4	6 x 4	27	1	2	6 x 4	**PRA20224**
	3	72	160 A	29	1	4	6 x 4	27	1	2	6 x 4	**PRA20324**
	4	96	160 A	35	1	6	7 x 4	32	1	3	7 x 4	**PRA20424**



Externall wall mounting lugs

Accessories	
Mounting in interfaces	**Part Number**
Externall wall mounting lugs	**PRA90009**
Door lock - key 405	**PRA90039**
13 module blank	**PRA91020**

Door for enclosures			
Mounting in interfaces		**Customisable transparent Part Number**	**Opaque Part Number**
13 modules	1 row	**PRA15113**	**PRA16113**
	2 rows	**PRA15213**	**PRA16213**
	3 rows	**PRA15313**	**PRA16313**
	4 rows	**PRA15413**	**PRA16413**
24 modules	1 row	**PRA15124**	**PRA16124**
	2 rows	**PRA15224**	**PRA16224**
	3 rows	**PRA15324**	**PRA16324**
	4 rows	**PRA15424**	**PRA16424**

8

Kaedra
Offer overview

The most comprehensive enclosure range
- Enclosure for modular switchgear
- Enclosures for modular switchgear with interface
- Enclosures for power outlets
- Universal enclosures

For the production of electrical switchboards incorporating protection, control and distribution
- Modular protection devices
- Power outlets
- Pushbuttons and indicator lights, etc
- Non-modular switchgear (transformer, motor control, etc.)

For tertiary, small contracting and industrial sectors
For environments requiring optimum protection of persons and electrical switchgear.

Safety
Kaedra switchboards guarantee a high degree of protection and increased dependability thanks to:
- Their degree of protection (IP65)
- Their high impact strength (IK09) and resistance to chemical and atmospheric agents, UVs, etc
- Class 2 insulating material
- Optional locking of the door and sealing of the front face and front plates
- Conformity with IEC 670 standard for empty enclosures and with IEC 439-3 standard for equipped boards

Ergonomics
Kaedra switchboards offer remarkable cabling space.
Both the cable inlet and internal distribution is simplified.
The transparent doors enable permanent, immediate checking of operating conditions. The interface zones offer quick access to power outlets and control devices. The functional openings allow rapid installation of all devices directly or using matching plates. The frame and all its possibilities guarantee assembly time savings.

Attractive design
Their modern, rounded shape, result of in-depth design and ergonomic studies, make the Kaedra switchboards ideal for use even in places visible to the general public. Their innovating colours ensure enhanced integration, while at the same time guaranteeing the basic requirements of visibility and inspection of switchgear.

Enclosures for modular switchgear
Available in 7 versions from 3 to 72 modules. They allow installation of modular switchgear up to 125 A, as well as non-modular switchgear on slotted mounting plate.

Enclosures for modular switchgear with interface
Available in 3 versions of 12, 24 and 36 modules. The interface zone offers the possibility, thanks to the functional plates, of installing on the switchboard front face, control or protection devices, indicator lights and PK series power outlets of the domestic or industrial type.

Interface enclosures
Available in 2 versions with 2 or 3 openings. They can be used by themselves, horizontally or vertically, or associated with other enclosures as cable trunking or interface zone (control devices, indicator lights, power outlets, etc.).
Universal enclosures, Available in 5 sizes. They are designed for production of control and monitoring switchboards with non-modular type devices.

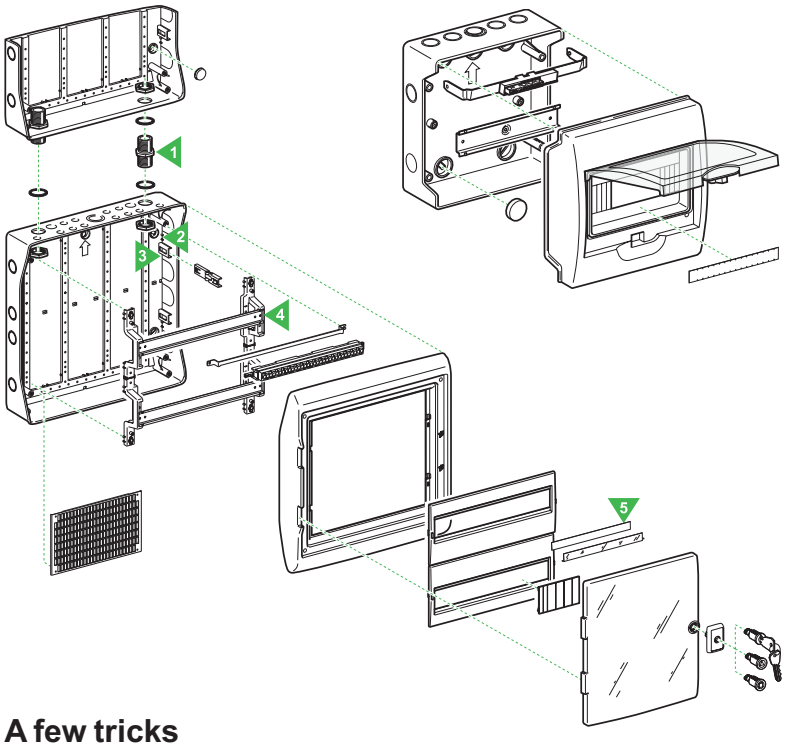
Enclosures for power outlets
90 x 100 mm openings. Available in versions with 1 to 8 openings.
They are characterised for the new functional feature with openings allowing installation of all PK power socket outlets or the incorporation of control and indicator light functions.
103 x 225 mm opening, Available in versions with 1 to 4 openings.
They can accommodate the new PK Unika interlockable power outlets.

Universal
Available in 5 sizes.
They allow mounting of flush-mountable power socket outlets up to 125 A.

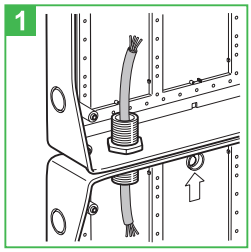
Technical
Section 10

Dimensions
Section 11

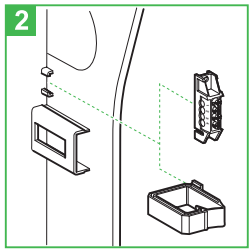
Kaedra
Enclosures for modular switchgear



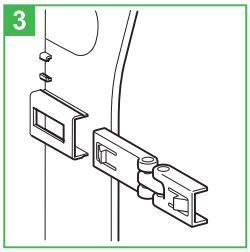
A few tricks



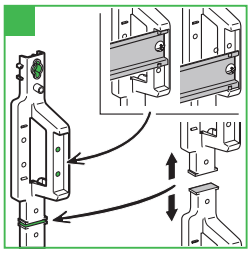
Add-on possibility
Enclosures can be horizontally or vertically associated keeping the IP65 and allowing cable insertion.



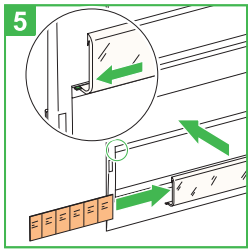
Dovetails
Arranged on the back and on the chassis, they can accommodate:
- 4-hole terminal blocks
- wiring straps.



Back/front face hinges
Clipped onto the right or left, they simplify cabling and working on the interface zone.



Chassis
- DIN symmetrical rails positionable in 2 depths and 2 heights to privilege cabling room
- Chassis that can be severed to install a mounting plate on the back.



Marking
Clip-on label covers ensure neat, quick and upgradeable marking.

8

Mechanical data

Enclosure
- Reversible front face for opening of door to the left or right
- Inside depth available for installation of non-modular switchgear between the slotted mounting plate and the plain front plate: 100 mm
- Reversible front plate according to distance between axes of rails (125, 150, 175 mm).

Mini enclosure
- Clip-on terminal block support
- Back with dovetail to accommodate 4-hole terminal block and wiring strap.

Technical data
- Self-extinguishing insulating material
- Operating temperature: -25 °C to +60 °C
- Colour: light grey RAL 7035 and transparent green door
- IP65 as per IEC 60529
- IK09 as per EN 50102
- Class 2: total insulation
- Flame and abnormal heat resistance: 650 °C as per IEC 60695-2-1
- Complies with standard IEC 60439-3
- Resistance to chemicals and atmospherics agents: see Kaedra catalogue.

Technical Section 10
Dimensions Section 11

Kaedra
Enclosures for modular switchgear (cont.)

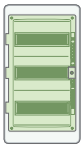
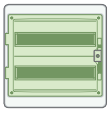
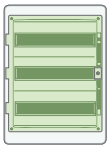
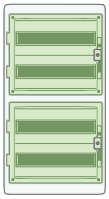
3 to 12 module mini enclosures, economic and compact.
Add-on 12 to 72 module enclosures.

Kaedra enclosures and mini enclosures for modular switchgear.

Mini enclosures

Nbr of modules	4	6	8	12
1 row				
	13441	13442	13443	13444

Enclosures

Nbr of rows	1	2	3	4
12 modules				
	13431	13433	13435	
18 modules per row				
	13432	13434	13436	13437

Enclosure catalogue numbers

Data												Accessories with an enclosure catalogue number (2)								Cat. No.
Row	Total mod.	Pré-cutout (top and bottom) (1) M / PG	16	20	20 / 11	25 / 16	32 / 21	50 / 29/36	Dimensions (mm) W	H	D	Marking kit	Wiring strap	Terminal block support	Terminal block number of holes 4	8	16	22	32	
Mini enclosures																				
1	4		1	1		1			123	200	112	1		1	2					13441
	6		1	1		1			159	200	112	1		1	2					13442
	8		2	2		1			195	200	112	1		1	4					13443
	12		2	2		2	1		267	200	112	1		1		2				13444
Enclosures																				
1	12		6		6	2	3		340	280	160	1	1	1		2				13431
	18				10	4	2	1	448	280	160	1	1	1			2			13432
2	24		6		6	2	3		340	460	160	2	2	1				2		13433
	36				10	4	2	1	448	460	160	2	2	1					2	13434
3	36		6		6	2	3		340	610	160	3	3	1					2	13435
	54				10	4	2	1	448	610	160	3	3	2				4		13436
4	72				10	4	2	1	448	842	160	4	4	2					4	13437

(1) Concentric pre-cutouts of the PG and ISO/metric type (EN 50262).
(2) Accessories also delivered:
- *mini enclosures: class II plugs*
- *enclosures: class II plugs and blanking plates (5 modules of 18 mm per row).*

Catalogue numbers of the main accessories (1)

Name	Description	Mini-enclosures	Enclosures	Cat. No.
Association kit	2 sleeves + 4 nuts		■	13934
Wall mounting lugs			■	13935
Slotted mounting plate			■	13941
Pain plate	12 modules		■	13944
	18 modules		■	13945
Wiring strap de filerie		■	■	13946
Sealing kit		■	■	13947
Keylock		■	■	13948
Insert	triangle	■	■	13949
	square	■	■	13950

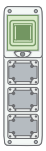
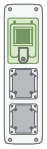
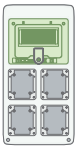
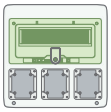
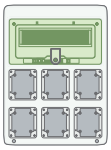
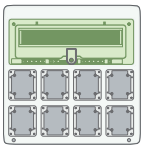
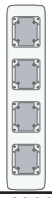
Other accessories available for these enclosures (1) :
Row separator, jack-up block, junction for trunking, blanking plate, terminal block support, insulated terminal blocks, IP2 covers, cable support sleeves, cable gland, self-adhesive symbols, self-adhesive sheets.

(1) The complete description of the various accessories is given on pages 8/25 & 8/26.

Kaedra
Enclosures for power outlets

Enclosures offering:
- A zone for industrial or domestic power outlets, buttons or indicator lights
- A row for modular switchgear protecting power outlets

Mini enclosures **Enclosures** **See page 8/23**

Number of modules	4	4	4	5	8	12+1	12+1	18+1	0	0
										
	13175	**13176**	**13177**	**13178**	**13179**	**13180**	**13181**	**13182**	**13993**	**13994**

Technical data

Self-extinguishing insulating material

Operating temperature:	-25˚C to +60˚C
Colour: gate	Light grey RAL 7035 and transparent green wicket
IP65	As per IEC 60529
IK09	As per EN 50102
Class 2:	Total insulation
Flame and abnormal heat resistance:	650˚C as per IEC 60695-2-1
Complies with standard	IEC 60439-3
Resistance to chemicals and atmospherics agents	

Enclosures part numbers

Data											Accessories delivered with an enclosure part number (2)									Part No.
Total mod.	open	Pre-cutout (top and bottom)(1) M PG	16	20 11	25 16	32 21	50 29/36	Dimensions (mm) W	H	D	Wiring strap	Terminal block support	Terminal block number of holes 4	8	16	Plates Part number 13135	13136	13138	13143	
Mini enclosures for power outlets (65 x 85 mm openings)																				
4	1				1			98	248	98.5										**13175**
4	2				1			98	310	98.5						1				**13176**
4	3				1			98	392	98.5						1				**13177**
Enclosures for power outlets (90 x 100 mm openings)																				
5	2			1	1	1		138	460	160			1				2	1		**13178**
8	4			2	2	3		236	460	160	2	1		1			4	1		**13179**
12+1	3		6	6	2	3		340	335	160	2	1		1			3	1		**13180**
12+1	6		6	6	2	3		340	460	160	2	1		1			6	2		**13181**
18+1	8			10	4	2	1	448	460	160	2	1			1		8	2		**13182**
Enclosures for interlocked power outlets (103 x 225 mm openings)																				
5	1			1	1	1		138	460	160			1							**13185**
8	2			2	2	3		236	460	160	2	1		1					1	**13186**
12+1	3		6	6	2	3		340	460	160	2	1		1					1	**13187**
18+1	4			10	4	2	1	448	460	160	2	1		1					1	**13188**

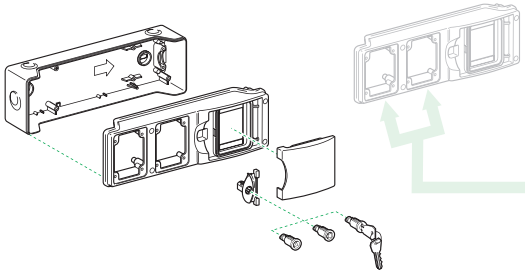
(1) Concentric pre-cutouts of the PG and ISO/metric type (EN 50262).
(2) Accessories also delivered:
- Mini enclosures: class II plugs
- Enclosures: class II plugs, blanking plates (5 modules of 18 mm per row) and a marking kit

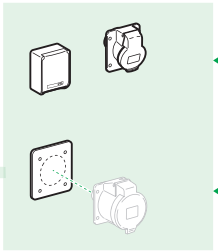
8

Technical Section 10 Dimensions Section 11

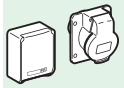
Kaedra
Enclosures for power outlets (cont.)

Mini enclosures with 65 x 85 mm openings





Direct mounting

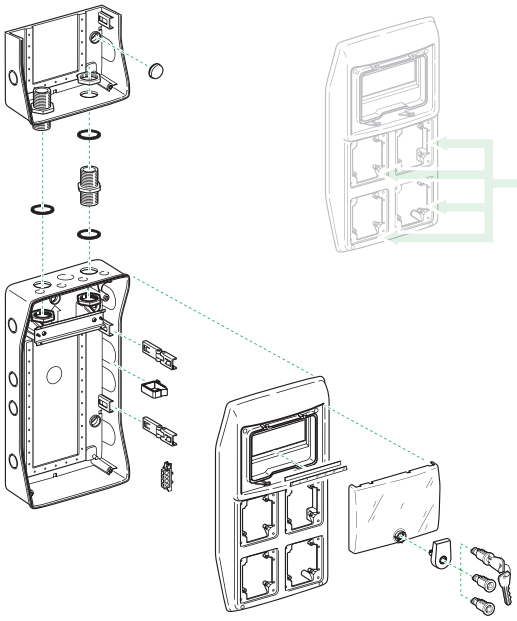


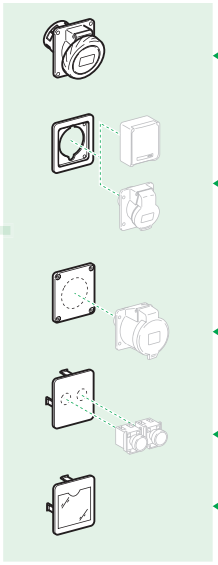
Domestic and LV power outlets (65 x 85 mm).

With plate Part no. 13135

Power outlets (50 x 50 mm).

Enclosures with 90 x 100 mm openings





Direct mounting

16/32 A slanting power outlets (90 x 100 mm).

With plate Part no. 13136

Domestic and LV power outlets (65 x 85 mm).

With plate Part no. 13137

LV and ELV power outlets (65 x 65 mm and 75 x 75 mm).

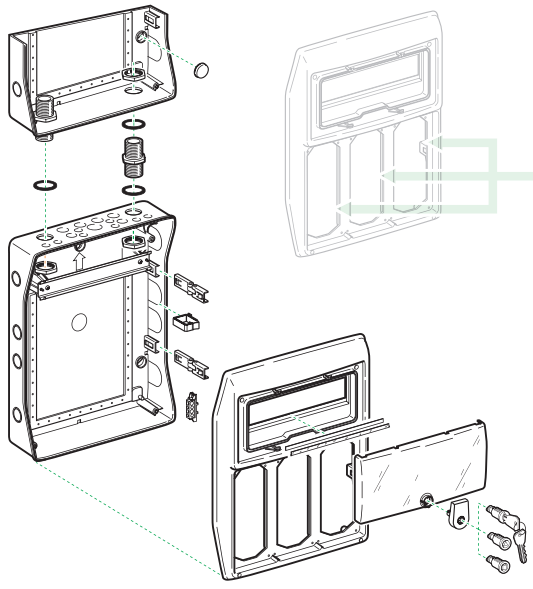
With plate Part no. 13138

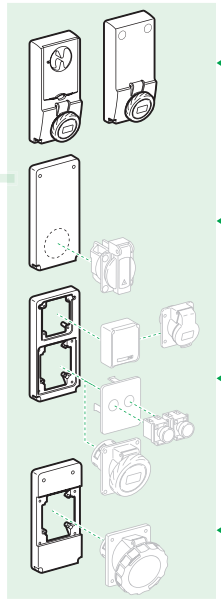
Buttons, indicator lights and switches 16 and 22 mm diameter.

With plate Part no. 13141

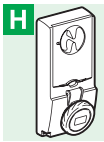
Identification label.

Enclosures with 103 x 225 mm openings



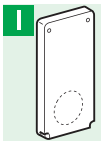


Direct mounting



Power outlet interlocked or with safety transformer.

With plate Part no. 13143



Blanking and adaptation plate to be drilled for 65 x 65 mm or 75 x 75 mm power outlet.

With plate Part no. 13142

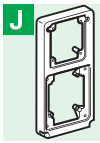


Plate with 2 openings:
- 65 x 85 mm
- 90 x 100 mm.

With plate Part no. 13144

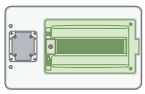
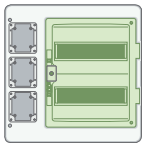
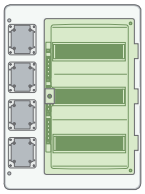
63 A LV power outlet (100 x 107 mm).

Kaedra

Enclosures for modular switchgear with interface

Enclosure offering:

- An interface zone always available for user and that can accomodate buttons, indicator lights, power outlets or modular switchgear
- A zone, behind the door, to install the modular switchgear

Number of modules	12 1	24 3	36 4
			
	13990	**13991**	**13992**

Mechanical data

Self-extinguishing insulating material

Reversible front face	Interface zone to the left or right. It is also an excellent cable duct
	Door opening in either direction

Inside depth available for installation of non-modular switchgear between the slotted mounting plate and the plain front plate: 100 mm

In enclosures with 3 or 4 openings, the kit for INS40/63/80 A must be mounted in the central openings

Technical data

Self-extinguishing insulating material

Operating temperature:	-25°C to +60°C
Colour:	Light grey RAL 7035 and transparent green door
IP65	As per IEC 60529
IK09	As per EN 50102
Class 2:	Total insulation
Flame and abnormal heat resistance:	650°C as per IEC 60695-2-1
Complies with standard	IEC 60439-3

Resistance to chemicals and atmospherics agents

Kaedra
Enclosures for modular switchgear with interface (cont.)

Enclosures part numbers

Data										Accessories delivered with an enclosure part number (2)										
Row	Total mod.	Slot for plate	Pre-cutout (top and bottom)(1)					Dimensions (mm)			marking kit	wiring strap	Terminal block support	Terminal block number of holes					Plates for buttons, indicator lights	65x85mm power outlet	Part number
			M PG	20 11	25 16	32 21	50 29/36	W	H	D				4	8	16	22	32	13138	13136	
1	12	1		10	4	2	1	448	280	160	1	1	1	1		1			1		**13990**
2	24	3		10	4	2	1	448	460	160	2	2	1	1			1		3	1	**13991**
3	36	4		10	4	2	1	448	610	160	3	3	1	1				1	4	1	**13992**

(1) Concentric pre-cutouts of the PG and ISO/metric type (EN 50262)
(2) Accessories also delivered: class II plugs and blanking plates (5 modules of 18 mm per row)

Part numbers of the main accessories

Name	Description	Part number
Association kit	2 sleeves + 4 nuts	**13934**
Wall mounting lugs		**13935**
Slotted mounting plate		**13941**
Plain front plate	12 modules	**13944**
Interface plate for	65 x 85 power outlets	**13136**
	65 x 65 or 75 x 75 power outlets	**13137**
	Pushbutton controls	**13138**
	Identification	**13141**
Interface kit	INS40/63/80 A	**13139**
	Modular switchgear up to 4 modules (e.g. residual current circuit breaker)	**13140**
Wiring strap		**13946**
Sealing kit		**13947**
Keylock		**13948**
Insert	Triangle	**13949**
	Square	**13950**

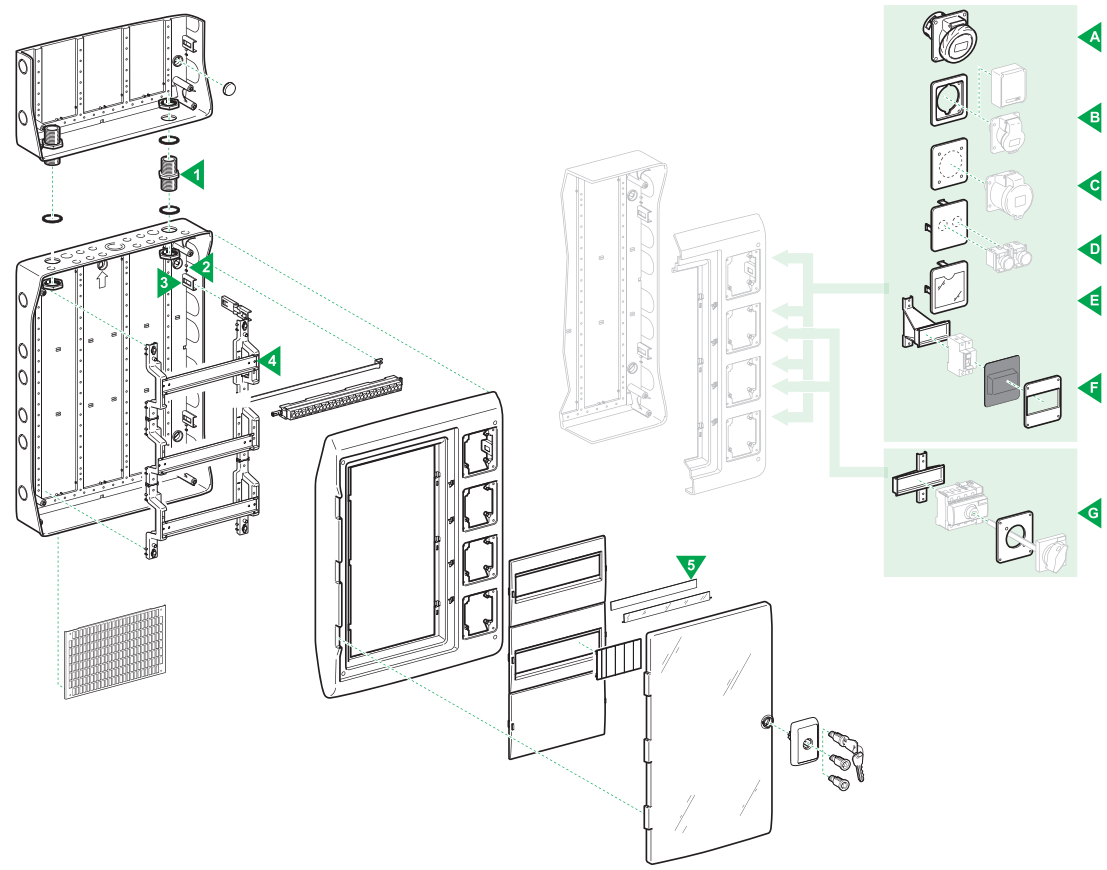
Other accessories available for these enclosures:

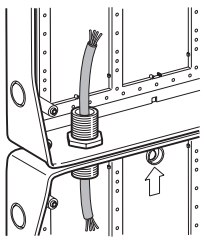
Row separator, jack-up block, junction for trunking, blanking plate, terminal block support, insulated terminal blocks, IP2 covers, cable support sleeves, cable gland, self-adhesive symbols, self-adhesive sheets.

8

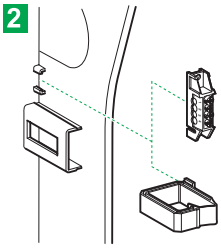
Kaedra

Enclosures for modular switchgear with interface (cont.)

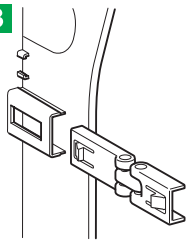




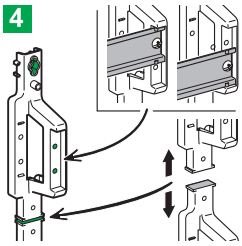
Add-on possibility
Enclosures can be horizontally or vertically associated keeping the IP65 and allowing cable insertion.



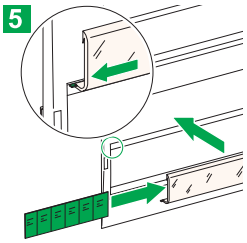
Dovetails
Arranged on the back and on the chassis, they can accommodate:
- 4-hole terminal blocks
- Wiring straps



Back/front face hinges
Clipped onto the right or left, they simplify cabling and working on the interface zone.



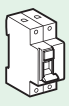
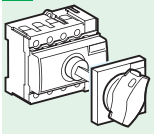
Chassis
- DIN symmetrical rails positionable in 2 depths and 2 heights to privilege cabling room
- Chassis that can be severed to install a mounting plate on the back



Marking
Clip-on label covers ensure neat, quick and upgradeable marking.

8

Everything for the interface

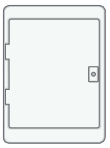
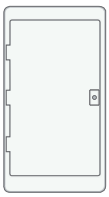
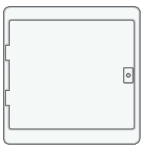
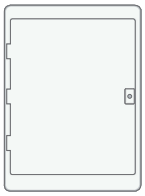
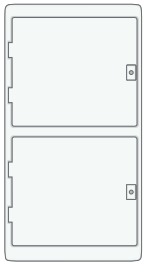
Direct mounting	With plate Part no 13136	With plate Part no 13137	With plate Part no. 13138	With plate Part no 13141	With kit Part no 13140	With kit Part no 13139
A	B	C	D	E	F	G
						
16/32 A slanting power outlets (90 x 100 mm).	LV power oultets (65 x 85 mm).	LV and ELV power outlets (65 x 65 mm and 75 x 75 mm).	Buttons, indicator lights and switches 16 and 22 mm diameter.	Identification label	Modular switchgear up to 4 modules (e.g. residual current circuit breaker).	INS40/63/80 A.

Technical Section 10
Dimensions Section 11

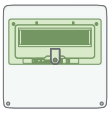
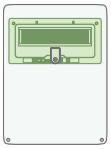
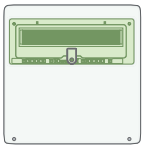
Kaedra
Universal enclosures

The opaque door universal enclosure provides a zone to install non-modular switchgear. The universal enclosure for power outlets provides a row for modular switchgear and a universal zone.

Opaque door universal enclosures

340 x 460	340 x 610	448 x 460	448 x 610	448 x 842
				
13195	**13196**	**13197**	**13198**	**13199**

Universal enclosures for power outlets

138 x 460 5 modules	236 x 460 8 modules	340 x 335 12+1 modules	340 x 460 12+1 modules	448 x 460 18+1 modules
				
13189	**13190**	**13191**	**13192**	**13193**

Mechanical data

Opaque door universal enclosure

Delivered with a slotted mounting plate mounted at the back
Available depth for installation of non-modular switchgear on mounting plate: 130 mm
Reversible front face to change door opening direction

Technical data

Self-extinguishing insulating material	
Operating temperature:	-25°C to +60°C
Colour:	Light grey RAL 7035
IP65	As per IEC 60529
IK09	As per EN 50102
Class 2:	Total insulation
Flame and abnormal heat resistance:	650°C as per IEC 60695-2-1
Complies with standard	IEC 60439-3
Resistance to chemicals and atmospherics agents	

Note: *universal enclosures for power outlets can accommodate power outlets up to 125A.*

Technical Section 10
Dimensions Section 11

Kaedra
Universal enclosures (cont.)

Enclosures part numbers

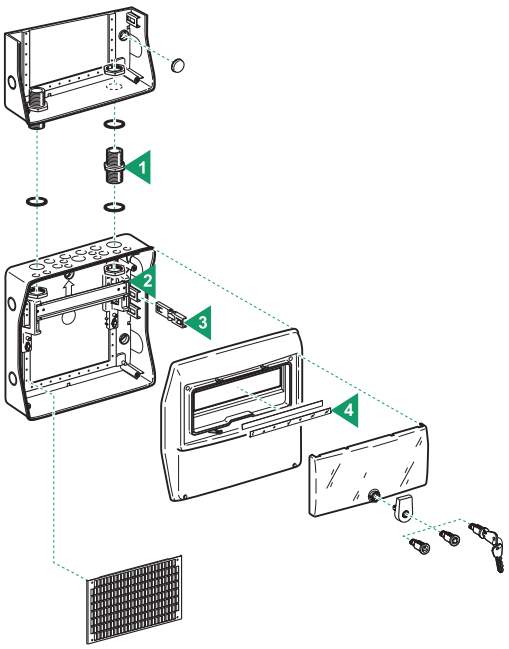
Dimensions (mm) W	H	D	No of modules	Pre-cutout (top and bottom)(1) M PG	16	20 11	25 16	32 21	50 29/36	Part number
Opaque door universal enclosures										
340	460	160			6	6	2	3		**13195**
340	610	160			6	6	2	3		**13196**
448	460	160				10	4	2	1	**13197**
448	610	160				10	4	2	1	**13198**
448	842	160				10	4	2	1	**13199**
Universal enclosures for power outlets										
138	460	160	5			1	1	1		**13189**
236	460	160	8			2	2	3		**13190**
340	335	160	12+1		6	6	2	3		**13191**
340	460	160	12+1		6	6	2	3		**13192**
448	460	160	18+1			10	4	2	1	**13193**

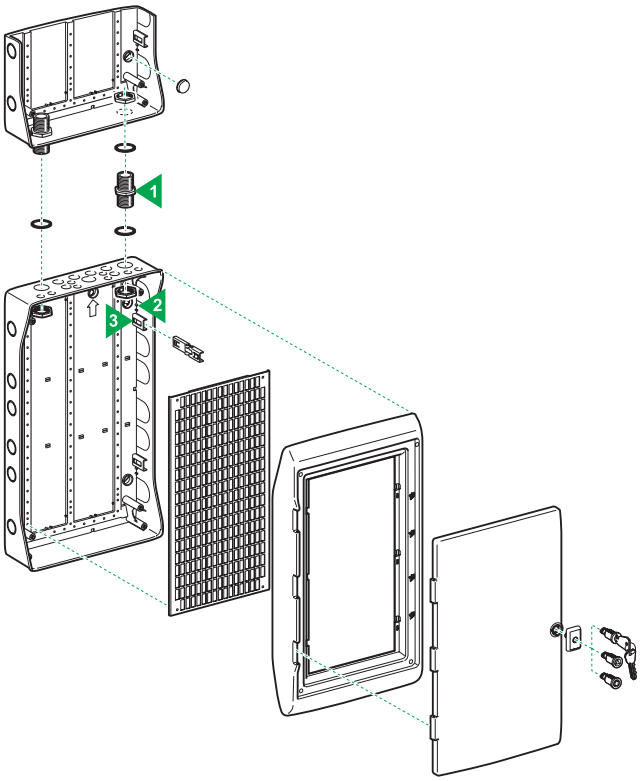
1) Concentric pre-cutouts of the PG and ISO/metric type (EN 50262).
(2) Accessories also delivered:
- Opaque door universal enclosures: class II plugs, mounting plate
- Universal enclosures for power outlets: class II plugs, blanking plates (5 modules of 18 mm) and marking kit

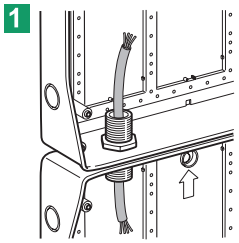
Part numbers of the main accessories

Name	Part number
Association kit	**13934**
Wall mounting lug	**13935**
Jack-up block	**13938**
Junction for trunking	**13939**
Wiring strap	**13946**
Slotted mounting plate 150 x 250	**13941**

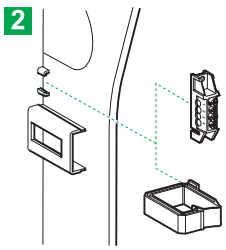
Kaedra
Universal enclosures (cont.)



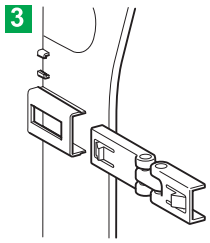




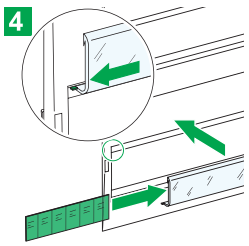
Add-on possibility
Enclosures can be horizontally or vertically associated keeping the IP65 and allowing cable insertion.



Dovetails
Arranged on the back and on the chassis, they can accommodate:
- 4-hole terminal blocks
- wiring straps



Back/front face hinges
Clipped onto the right or left, they simplify cabling and working.

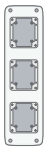
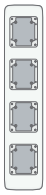


Marking
Clip-on label covers ensure neat, quick and upgradeable marking.

Kaedra
Interface enclosures

Enclosures that can be installed alone, but also as an extension of another enclosure.

Number of 50 x 100 mm openings

	3	4
		
	13993	**13994**

Mechanical data

This enclosure can also act as a cable duct

In enclosures with 3 or 4 openings, the kit for INS40/63/80 A must be mounted in the central openings

Technical data

Self-extinguishing insulating material

Operating temperature:	-25°C to +60°C
Colour:	Light grey RAL 7035
IP65	As per IEC 60529
IK09	As per EN 50102
Class 2:	Total insulation
Flame and abnormal heat resistance:	650°C as per IEC 60695-2-1
Complies with standard	IEC 60439-3

Resistance to chemicals and atmospherics agents

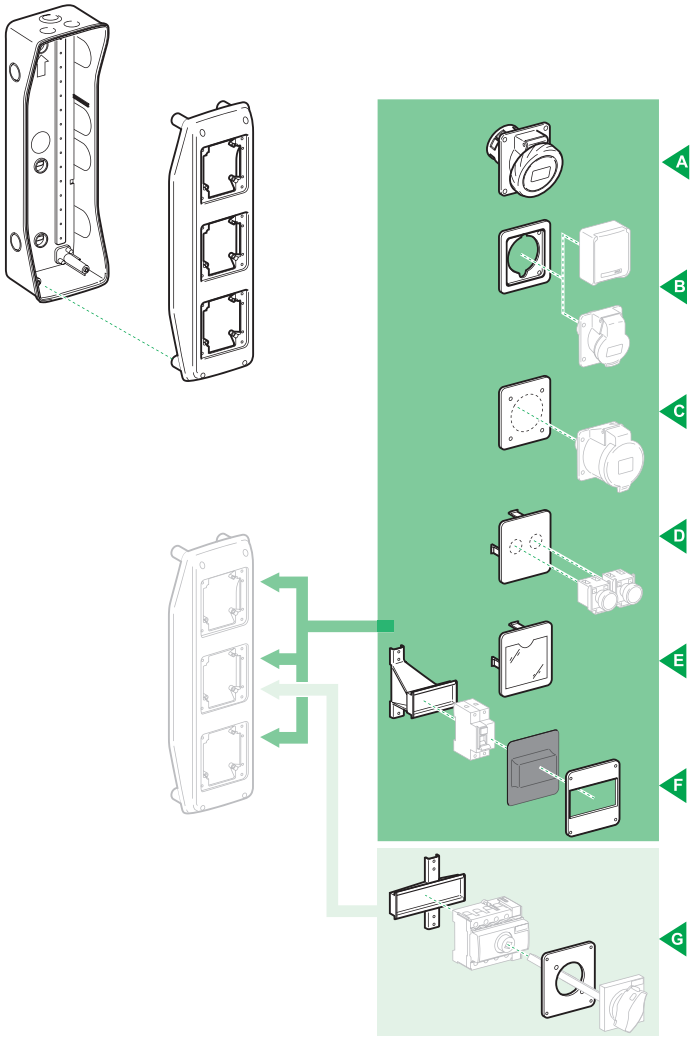
Part numbers of the main accessories

Name	Description	Part number
Association kit	2 sleeves + 4 nuts	**13934**
Wall mounting lugs		**13935**
Slotted mounting plate		**13941**
Plain front plate	12 modules	**13944**
Interface plate for	65 x 85 power outlets	**13136**
	65 x 65 or 75 x 75 power outlets	**13137**
	Pushbutton controls	**13138**
	Identification	**13141**
Interface kit	INS40/63/80 A	**13139**
	Modular switchgear up to 4 modules (e.g. residual current circuit breaker)	**13140**
Wiring strap		**13946**
Sealing kit		**13947**

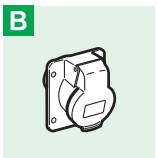
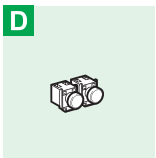
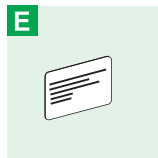
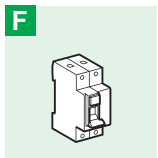
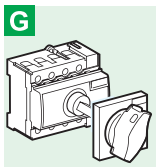
Other accessories available for these enclosures:

Jack-up block, insulated terminal blocks, cable support sleeves, cable gland.

Kaedra
Interface enclosures (cont.)



Everything for the interface

Direct mounting	With plate Part no 13136	With plate Part no 13137	With plate Part no. 13138	With plate Part no 13141	With kit Part no 13140	With kit Part no 13139
A 	B 	C 	D 	E 	F 	G 
16/32 A slanting power outlets (90 x 100 mm).	LV power oultets (65 x 85 mm).	LV and ELV power outlets (65 x 65 mm and 75 x 75 mm).	Buttons, indicator lights and switches 16 and 22 mm diameter.	Identification label.	Modular switchgear up to 4 modules (e.g. residual current circuit breaker).	INS40/63/80 A.

Kaedra
Accessories

Description

For enclosure installation

- ■ Association kit: used for horizontal or vertical association of two enclosures with one another while preserving IP65
- ■ Wall mounting lugs: used to fix the enclosure to the wall without using holes in the back of the enclosure
- ■ Row separator: used to create IP2 insulated zones. For example: separate strong and weak current zones
- ■ Jack-up block: used to detach the enclosure from the wall in order to route cables behind the enclosure (2 lengths of 1 metre to be cut)
- ■ Plain front plate: used to hide a zone without modular switchgear
- ■ Blanking plate: clipped onto the front plates to conceal slots with no devices
- ■ Junction for trunking: allows tidy incoming of cables in a trunking

For switchgear installation

- ■ Functional plates for 90 x 100 mm slot:
- ☐ Adaptation (screwed on) for 65 x 85 mm power outlets
- ☐ Blanking or adaptation (screwed on) for 65 x 65 mm or 75 x 75 mm power outlets (slot to be punched out)
- ☐ Blanking or adaptation (clipped on) for buttons, indicator lights and switches of diameters 16 and 22 mm (1 central slot or 2 side by side to punch out).
- ☐ Blanking for identification (clipped on)
- ■ Functional plates for 103 x 225 mm slot:
- ☐ Adaptation (screwed on) with 2 openings: 65 x 85 mm and 90 x 100 mm.
- ☐ Blanking or adaptation (screwed on) offering 1 slot for 65 x 65 mm or 75 x 75 mm power outlets (to be punched out) and a universal zone
- ☐ Adaptation (screwed in) for 63 A 100 x 107 mm LV power outlet
- ■ Interface kit for 90 x 100 mm slot for:
- ☐ INS40 to 80 A (chassis + plate)
- ☐ Modular switchgear up to 4 modules
  e.g. residual current circuit breaker (chassis + plate + membrane)
- ■ Slotted plate (150 x 250 mm): screwed onto the back of the enclosure, used to fix non-modular devices

For electrical connection

- ■ Terminal block support: flat iron (12 x 2 mm), 2 versions: screwed onto the pins or onto the chassis
- ■ Set of insulated terminal blocks with IP42 covers:
- ☐ 4 holes: clipped onto the terminal block supports, fixed onto walls by dovetails,
- ☐ 8 holes: clipped onto the terminal block supports, clipped onto DIN symmetrical rail, screwed onto the back
- ☐ 32 holes: clipped onto the terminal block supports
- ■ Wiring strap: used to guide cables along walls for simplified cabling (set of 5)
- ■ Cable support sleeves: used for incoming flexible cables
- ■ Cable glands: used for cable and tube incoming, guaranteeing tightness and mechanical withstand

For identification

- ■ Self-adhesive symbol: allows identification of feeders by symbols:
- ☐ Currents: loads (power outlet, lighting, convector, etc.), places (bedroom, bathroom, etc.)
- ☐ Special: loads (surge arrester, gate, swimming pool, etc.), places (technical room, computer room, etc.)
- ■ Self-adhesive sheets for SISmarker printing: allows printing of customised labels using the SISmarker software

For enclosure protection

- ■ Sealing kit: used to seal the front face on the back (2 screws) and the front plates on the front face (4 kits)
- ■ Keylock: Eurolocks combination no. 850. Installed in the door
- ■ Insert (male square or triangle, female key supplied): installed in the door

For enclosure maintenance

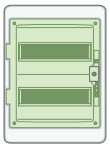
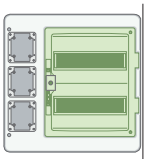
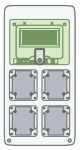
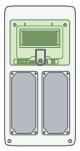
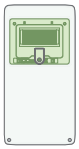
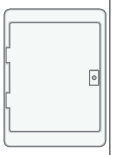
- ■ Front plate
- ■ Chassis 1 row: can be combined to obtain a multi row chassis

Terminal block composition

Number of holes Total	Cross section in mm²		Width in mm
	10	16	
4	2	2	85
8	4	4	85
32	16	16	202

8

Kaedra
Accessories (cont.)

Name	Description		Use mini enclosure		Enclosures								Part no.
													
For enclosure implementation													
Association kit	2 sleeves + 4 nuts + 4 joints				■	■	■	■	■	■	■	■	**13934**
Wall mounting lugs (set of 4)					■	■	■	■	■	■	■	■	**13935**
Row separator	12 modules wide				■								**13936**
	18 modules wide				■								**13937**
Jack-up block					■	■	■	■	■	■	■	■	**13938**
Junction for trunking	enclosure 340 mm wide				■			■	■	■	■		**13939**
	enclosure 448 mm wide				■	■		■	■	■	■		**13929**
Blanking plate (set of 10 x 5 modules)			■	■	■	■		■	■	■			**13940**
For switchgear implementation													
Plate for 85 x 65 slot for 50 x 50 power outlets			■										**13135**
Plate for 90 x 100 slot for	65 x 85 power outlets				■	■	■						**13136**
	65 x 65 and 75 x 75 power outlets				■	■	■						**13137**
	ø 16 & 22mm pushbutton controls				■	■	■						**13138**
	blanking and identification				■	■	■						**13141**
Kit for 90 x 100 slot for INS40/63/80 A					■	■							**13139**
	residual current circuit-breakers				■	■							**13140**
Plate for 103 x 225 slot for	one 85 x 65 + one 90 x 100 slot blanking (blank to be slotted) (for 65x65 or 75x75mm power outlet)							■					**13142**
								■					**13143**
	63A LV power outlet (100x107 mm)							■					**13144**
Front plate	plain	12 modules			■	■							**13944**
		18 modules			■								**13945**
Slotted plate		150 x 250 mm			■	■				■			**13941**
For electrical connection													
Terminal blocks kit	5 x 4 holes (2 blue, 3 black) 2 black covers 2 green covers			■	■	■	■	■	■	■	■	■	**13445**
Terminal blocks kit	1 x 8 holes (blue) 1 green cover 1 support for 8 back mounting							■	■	■			**13446**
Terminal blocks kit	1 x 8 holes (blue) 1 green cover 1 support for 12 back mounting							■	■	■			**13448**
Terminal blocks kit	1 x 32 holes (blue) 1 green cover 1 support for 18 back mounting				■	■		■	■	■	■		**13450**
Terminal block support for mini enclosure		4 modules		■									**13361**
		6 modules		■									**13362**
		8 modules		■									**13363**
		12 modules		■									**13364**
Terminal block support for mounting on chassis		12 modules			■	■		■	■	■			**13599**
		18 modules			■			■	■	■			**13595**
Cable support sleeves varied diameter bag			■	■	■	■	■	■	■	■	■	■	**14190**
Cable gland		PG11	■		■	■	■	■	■	■	■	■	**83992**
		PG13,5	■										**83993**
		PG16	■	■	■	■	■	■	■	■	■	■	**83994**
		PG21	■	■	■	■	■	■	■	■	■	■	**83995**
		PG29			■	■	■		■	■	■	■	**83996**
		PG36			■	■		■	■	■	■	■	**83997**
Wiring strap (set of 5)			■	■	■	■	■	■	■	■	■	■	**13946**
For marking													
Self-adhesive symbols	standard		■	■	■	■		■	■	■	■	■	**13735**
	special		■	■	■	■		■	■	■	■	■	**13736**
Self-adhesive sheets for SISmarker printing			■	■	■	■		■	■	■	■	■	**13260**
For enclosure protection													
Sealing kit			■	■	■	■	■	■	■	■	■	■	**13947**
Keylock			■	■	■	■		■	■	■	■	■	**13948**
Insert	triangle		■	■	■	■		■	■	■	■	■	**13949**
	square		■	■	■	■		■	■	■	■	■	**13950**
For enclosure maintenance													
Front plate		12 modules			■	■					■		**10200**
		18 modules			■						■		**10209**
Chassis 1 row		12 modules			■	■		■	■	■	■		**10210**
		18 modules			■						■		**10220**

8

Contents

Metering and measurement

Acti 9 iEM2000 Series
Energy meters

PB110836

iEM2000T

PB108401

iEM2010

PB115002

iEM2105

PB115001

iEM2155

The Acti 9 iEM2000 and iEM2100 Series Energy Meters offer a cost-attractive, competitive range of single-phase DIN rail-mounted energy meters ideal for sub-billing and cost allocation applications.

Combined with communication systems, like Smart Link, the Acti 9 iEM2000 Series makes it easy to integrate electrical distribution measurements into customer's energy management systems. It's the right energy meter at the right price for the right job.

Two versions are available: 40 A direct measure (iEM2000 models), and 63 A direct measure (iEM2100 models). Within each set of models, there are different versions to match the specific application, from basic to more advanced:

- iEM2000T single-phase kilowatt-hour meter without display, with kWh pulse output.
- iEM2000 single-phase kilowatt-hour meter, MID certified.
- iEM2100 single-phase kilowatt-hour meter.
- iEM2105 single-phase kilowatt-hour meter, with partial counter, kWh pulse output.
- iEM2010 single-phase kilowatt-hour meter, kWh pulse output, MID certified.
- iEM2110 single-phase kilowatt-hour meter, multi-tariffs with partial counter and current, voltage, power measurement, pulse outputs, MID certified.
- iEM2135 single-phase kilowatt-hour meter, multi-tariffs with partial counter and current, voltage, power measurement. M-Bus communication, MID certified.
- iEM2150 single-phase kilowatt-hour meter with partial counter and current, voltage, power measurement. Modbus communication.
- iEM2155 single-phase kilowatt-hour meter, multi-tariffs with partial counter and current and voltage, power measurement. Modbus communication, MID certified.

Innovative design makes the meters smart and simple:
- Easy to install for panel builders.
- Easy to commission for contractors and installers.
- Easy to operate for end users.

Applications
- Cost management applications.
- Bill verification.
- Sub-billing and cost allocation, including two tariffs.

Network management applications.
- Basic electrical parameters like current, voltage and power.

Market segments
- Buildings & Industry.
- Data centres and networks.
- Infrastructure (airports, road tunnels, telecom).

Characteristics
- Self-powered meters.
- Compliance with IEC 62053-21, IEC 62053-23, EN50470-3.
- Compact, 1 or 2 module width.
- Onboard Modbus or M-Bus communication.
- Anti-tamper security features ensure the integrity of your data.
- Single phase circuit plus neutral.
- IP40 front panel and IP20 casing.
- Operating frequency 50/60 Hz.
- MID compliant (selected models) providing certified accuracy and data security.

Meter model and description	Current measurement	Part number
iEM2000T basic energy meter, without display	Direct connected to 40 A	A9MEM2000T
iEM2000 basic energy meter, MID certified	Direct connected to 40 A	A9MEM2000
iEM2010 energy meter, kWh pulse output, MID certified	Direct connected to 40 A	A9MEM2010
iEM2100 basic energy meter	Direct connected to 63 A	A9MEM2100
iEM2105 energy meter, kWh pulse output with partial meter	Direct connected to 63 A	A9MEM2105
iEM2110 energy meter, kWh and kvarh pulse outputs with two tariffs, four quadrant energy measurement, MID certified	Direct connected to 63 A	A9MEM2110
iEM2135 energy meter, M-Bus communication, four quadrant energy measurement, two tariffs, MID certified	Direct connected to 63 A	A9MEM2135
iEM2150 energy meter, Modbus communication, four quadrant energy measurement	Direct connected to 63 A	A9MEM2150
iEM2155 energy meter, Modbus communication, four quadrant energy measurement, two tariffs, MID certified	Direct connected to 63 A	A9MEM2155

Technical
Section 10

Dimensions
Section 11

Acti 9 iEM2000 Series
Energy meters (cont.)

iEM2000 & iEM2100 technical specifications

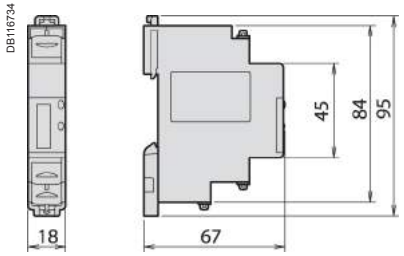
FUNCTION GUIDE	iEM2000T	iEM2000	iEM2010	iEM2100	iEM2105	iEM2110	iEM2135	iEM2150	iEM2155
Direct connection	Up to 40 A			Up to 63 A					
Width	1 x 18 mm module (18 mm)			2 x 18 mm modules (36 mm)					
MID compliance		■	■			■	■		■
Multi-tariff						2 tariffs	2 tariffs		2 tariffs
Four quadrant energy measurement						■	■	■	■
Communication							M-Bus	Modbus	
Digital input (tariff switching)						1	1		1
Pulse output for kWh/ kvarh	1		1		1	2			
Pulse output operation	100 pulses / kWh (120 ms long)				1 pulse / kWh (200 ms long)	1 to 1000 pulses / kWh or kvarh (30 to 100 ms long)			
Accuracy class: Active Energy	Class 1 IEC 62053-21	Class 1 IEC 62053-21 Class B EN50470-3	Class 1 IEC 62053-21 Class B EN50470-3	Class 1 IEC 62053-21	Class 1 IEC 62053-21	Class 1 IEC 62053-21 Class B EN50470-3	Class 1 IEC 62053-21 Class B EN50470-3	Class 1 IEC 62053-21	Class 1 IEC 62053-21 Class B EN50470-3
Accuracy class: Reactive Energy						Class 2 (according to IEC62053-23)			
Display capacity		999999.9 kWh		99999 kWh or 999.99 MWh		999999.99 kWh			
Voltage range (L-N)	184 to 276 Vac			184 to 276 Vac		92 to 276 Vac			
Meter constant LED	3200 flashes per kWh			1000 flashes per kWh					
Wiring capacity (Top)	4 mm^2			6 mm^2		4 mm^2			
Wiring capacity (Bottom)	10 mm^2			16 mm^2		32 mm^2			
Consumption	<10 VA			2.5 VA		3 VA			
Temperature	-10°C to +55°C			-25°C to +55°C					
kWh	■	■	■	■	■	■	■	■	■
kVARh						■	■	■	■
Active power						■	■	■	■
Reactive power						■	■	■	■
Power Factor						■	■	■	■
Current and voltage						■	■	■	■
Frequency						■	■	■	■

Technical Section 10 Dimensions Section 11

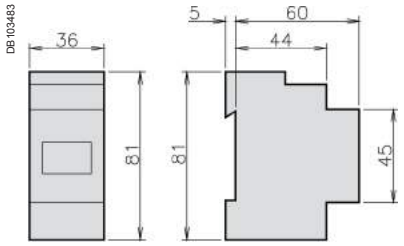
Acti 9 iEM2000 Series

Energy meters (cont.)

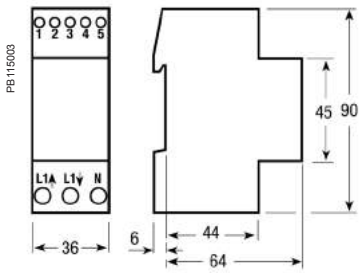
iEM2000 dimensions



iEM2100/iEM2105 dimensions



iEM2110/iEM2135/iEM2150/iEM2155 dimensions



NOTE: See the appropriate product *Installation Guide* for complete instructions.

9

Acti 9 iEM3000 Series

Energy meters
Functions and characteristics

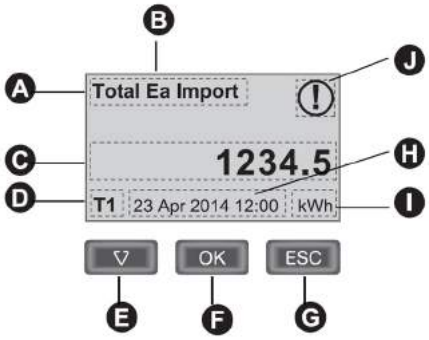
PB108410

Acti 9 iEM3100/3200 energy meter

PB113590

Acti 9 iEM3300 energy meter

PB105323



Front Panel Display and Buttons

A Measurement
B Ea /Er = active / reactive energy (if available)
C Value
D Active tariff (if applicable)
E Scroll through the available screens
F View more screens related to the measurement category (if available)
G Go back to previous screen
H Date and time (if applicable)
I Unit
J Icon indicating date / time not set

■ The Acti 9 iEM3000 Energy Meter Series offers a cost-attractive, competitive range of DIN rail-mounted energy meters ideal for sub-billing and cost allocation applications. Combined with communication systems, like Smart Link, the Acti 9 iEM3000 Series makes it easy to integrate electrical distribution measurements into customer's facility management systems. It's the right energy meter at the right price for the right job.

Several versions are available: 63A direct measure (iEM3100 models), current transformers associated meter (iEM3200 models), and 125A direct measure (iEM3300 models). low voltage current transformers (iEM3400 models), and Rogowski coils (iEM3500 models). For each range, eight versions are available (seven for the iEM3300) to satisfy basic to advanced applications:

■ iEM3100/iEM3200/iEM3300: kWh meter with partial counter
■ iEM3110/iEM3210/iEM3310: kWh meter with partial counter and pulse output. MID certified.
■ iEM3115/iEM3215: multi-tariff meter controlled by digital input or internal clock, MID certified.
■ iEM3135/iEM3235/iEM3335: energy meter, four quadrant, multi-tariffs with partial counter and current, voltage, power measurement. M-Bus communication, digital I/O and MID certified.
■ iEM3150/iEM3250/iEM3350: kWh meter with partial counter and current, voltage, power measurement. Modbus communication.
■ iEM3155/iEM3255/iEM3355/iEM3455/iEM3555: energy meter, four quadrant, multi-tariffs with partial counter and current, voltage, power measurement. Modbus communication, digital I/O, MID certified (iEM3155, iEM3255, iEM3355 only).
■ iEM3165/iEM3265/iEM3365/iEM3465/iEM3565: energy meter, four quadrant, multi-tariffs with partial counter and current, voltage, power measurement. BACnet communication, digital I/O and MID certified (iEM3165, iEM3265, iEM3365 only).
■ iEM3175/iEM3275/iEM3375: energy meter, four quadrant, multi-tariffs with partial counter and current, voltage, power measurement. LON communication, digital input and MID certified.

Innovative design makes the meters smart and simple:
■ Easy to install for panel builders (LVCT safer to install)
■ Easy to commission for contractors and installers
■ Easy to operate for end users

Applications

Cost management applications
■ Bill verification
■ Sub-billing, including WAGES view (four user-defined tariffs)
■ Cost allocation, including WAGES view

Network management applications
■ Basic electrical parameters like current, voltage and power
■ Onboard overload alarm to avoid circuit overload and trip
■ Easy integration with PLC systems by input/output interface

Market segments
■ Buildings & Industry
■ Data centres and networks
■ Infrastructure (airports, road tunnels, telecom)

Characteristics
■ Self-powered meters
■ Chain measurement (meters + CTs) accuracy Class 1 (selected models)
■ Compliance with IEC 61557-12, IEC 62053-21/22, IEC 62053-23, EN50470-3
■ Compact, 5 module width
■ Graphical display for easy viewing
■ Onboard Modbus, LON, M-Bus or BACnet communication
■ Easy wiring (without CTs) Acti 9 iEM3100 and iEM3300 models
■ Double fixation on DIN rail (horizontal or vertical)
■ Anti-tamper security features ensure the integrity of your data
■ MID compliant (selected models) providing certified accuracy and data security
■ LVCT support (iEM3455 and iEM3465)
■ Rogowski support (iEM3555 and iEM3565)

Technical Section 10
Dimensions Section 11

Acti 9 iEM3000 Series

Energy meters

Functions and characteristics (cont.)

Function guide

		iEM3100 iEM3200 iEM3300	iEM3110 iEM3210 iEM3310	iEM3115 iEM3215	iEM3135 iEM3235 iEM3335	iEM3150 iEM3250 iEM3350	iEM3155 iEM3255 iEM3355 iEM3455 iEM3555	iEM3165 iEM3265 iEM3365 iEM3465 iEM3565	iEM3175 iEM3275 iEM3375
Width (18 mm module, DIN rail mounting)		5 / 5 / 7	5 / 5 / 7	5 / 5	5 / 5 / 7	5 / 5 / 7	5 / 5 / 7 / 5 / 5	5 / 5 / 7 / 5 / 5	5 / 5 / 7
Direct measurement (up to 63A or 125A)		63A / – / 125A	63A / – / 125A	63A / –	63A / – / 125A	63A / – / 125A	63A / – / 125A / LVCT / Rog.	63A / – / 125A / LVCT / Rog.	63A / – / 125A
Measurement inputs through CTs (1A, 5A)		– / ■ / –	– / ■ / –	– / ■	– / ■ / –	– / ■ / –	– / ■ / – / LVCT / Rog.	– / ■ / – / LVCT / Rog.	– / ■ / –
Measurement inputs through VTs					– / ■ / –	– / ■ / –	– / ■ / – / ■ / ■	– / ■ / – / ■ / ■	– / ■ / –
Active Energy measurements class (Total & partial kWh)		1 / 0.5S / 1	1 / 0.5S / 1	1 / 0.5S	1 / 0.5S / 1	1 / 0.5S / 1	1 / 0.5S / 1 / 0.5S / 0.5S	1 / 0.5S / 1 / 0.5S / 0.5S	1 / 0.5S / 1
Four Quadrant Energy measurements					■		■	■	■
Electrical measurements (I, V, P, ...)					■	■	■	■	■
Multi-tariff (internal clock)				4	4		4	4	4
Multi-tariff (external control)				4	2		2	2	2
Measurement display (number of lines)		3	3	3	3	3	3	3	3
Digital inputs	Programmable (Tariff control or WAGES input)				1		1	1	1
	Tariff control only			2					
Digital ouputs	Programmable (kWh pulse or kW alarm)				1		1	1	
	kWh pulse only		1						
kW overload alarm					1		1	1	
M-Bus protocol					■				
Modbus protocol						■	■		
BACnet protocol								■	
LON									■
MID (legal metrology certification)			■	■	■		3155 / 3255 / 3355	3165 / 3265 / 3365	■

PB108423

Acti 9 iEM3100 models direct connected (63 A) Direct connected up to 63 A

PB108424

Acti 9 iEM3200 models (1 A / 5 A CT connected)

Connectivity advantages

Programmable digital input	External tariff control signal (4 tariffs) Remote Reset partial counter External status, e.g. breaker status Collect WAGES pulses
Programmable digital output	kWh overload alarm (iEM3135, iEM3155, iEM3165 iEM3235, iEM3255, iEM3265, EM3335, iEM3355, iEM3365, iEM3455, iEM3465, iEM3555, iEM3565) kWh pulses
Graphic LCD display	Scroll energies Current, voltage, power, frequency, power factor
Communication	Serial communication options are available with M-Bus, Modbus, BACnet or LON protocols

Standards

Industry standards	IEC 61557-12, IEC 61036, IEC 61010, UL61010-1, IEC 62053-21/22 Class 1 and Class 0.5S, IEC 62053-23 ANSI C12.20 0.5%

Multi-tariff capability

The Acti 9 iEM3000 Series allows arrangement of kWh consumption in four different registers. This can be controlled by:

- Digital Inputs. Signal can be provided by PLC or utilities
- Internal clock programmable by HMI
- Through communication

This function allows users to:

- Make tenant metering for dual source applications to differentiate backup source or utility source
- Understand well the consumption during working time and non working time, and between working days and weekends
- Follow up feeders consumption in line with utility tariff rates

Technical Section 10

Dimensions Section 11

Acti 9 iEM3000 Series

Energy meters

Functions and characteristics (cont.)

Specification guide	iEM3100/iEM3300 Models							
	iEM3100 iEM3300	**iEM3110 iEM3310**	**iEM3115**	**iEM3135 iEM3335**	**iEM3150 iEM3350**	**iEM3155 iEM3355**	**iEM3165 iEM3365**	**iEM3175 iEM3375**
Current (max.) Direct connected (iEM31xx)	63A for iEM3100 models, 125A for iEM3300 models							
Meter constant LED	500/kWh							
Pulse output		Up to 1000p/kWh		Up to 1000p/kWh		Up to 1000p/kWh		
Multi-tariff			4 tariffs	4 tariffs		4 tariffs		
Communication				M-bus	Modbus	Modbus	BACnet	LON
DI/DO		0/1	2/0	1/1		1/1	1/1	1/0
MID (EN50470-3)		■		■		■	■	■
Network	1P+N, 3P, 3P+N							
Accuracy class	Class 1 (IEC 62053-21 and IEC61557-12) Class B (EN50470-3)							
Wiring capacity	16 mm² for iEM3100 models, 50 mm² for iEM3300 models							
Display max.	LCD 99999999.9kWh							
Voltage (L-L)	3 x 100/173 V AC to 3 x 277/480 V AC (50/60 Hz)							
IP protection	IP40 front panel and IP20 casing							
Temperature	-25°C to 55°C (K55)							
Product size	5 x 18 mm for iEM3100 models, 8 x 18 mm for iEM3300 models							
Overvoltage and measurement	Category III, Degree of pollution 2							
kWh	■	■	■	■	■	■	■	■
kVARh				■		■	■	■
Active power				■	■	■	■	■
Reactive power				■		■	■	■
Currents and voltages				■	■	■	■	■
Overload alarm				■		■	■	■
Hour counter				■		■	■	■

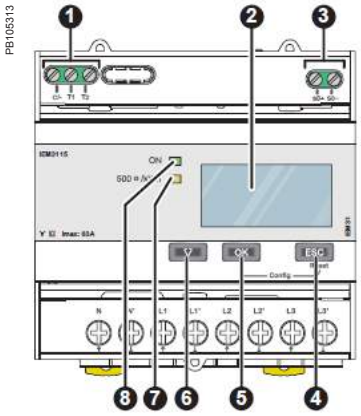
Specification guide	iEM3200 Models							
	iEM3200	**iEM3210**	**iEM3215**	**iEM3235**	**iEM3250**	**iEM3255**	**iEM3265**	**iEM3275**
1 A / 5 A CTs (max current)	6 A							
Meter constant LED	5000/kWh							
Pulse output frequency		Up to 500p/kWh		Up to 500p/kWh		Up to 500p/kWh		
Multi-tariff			4 tariff	4 tariffs		4 tariffs		
Communication				M-bus	Modbus	Modbus	BACnet	LON
DI/DO		0/1	2/0	1/1		1/1	1/1	1/0
MID (EN50470-3)		■	■	■		■	■	■
Network	1P+N, 3P, 3P+N support CTs			1P+N, 3P, 3P+N support CTs & VTs				
Accuracy class	Class 0.5S (IEC 62053-22 and IEC61557-12) Class C (EN50470-3)(1)							
Wiring capacity	6 mm² for currents and 4 mm² for voltages							
Display max.	LCD 99999999.9kWh or 99999999.9MWh							
Voltage (L-L)	3 x 100/173 V AC to 3 x 277/480 V AC (50/60 Hz)							
IP protection	IP40 front panel and IP20 casing							
Temperature	-25°C to 55°C (K55)							
Product size	5 steps of 18 mm							
Overvoltage & measurement	Category III, Degree of pollution 2							
kWh	■	■	■	■	■	■	■	■
kVARh				■		■	■	■
Active power				■	■	■	■	■
Reactive power				■		■	■	■
Currents and voltages				■	■	■	■	■
Overload alarm				■		■	■	■
Hour counter				■		■	■	■

(1) For 1 A CTs Class 1 (IEC6253-21 and IEC61557-12 Class B (EN50470-3)

Technical Section 10 Dimensions Section 11

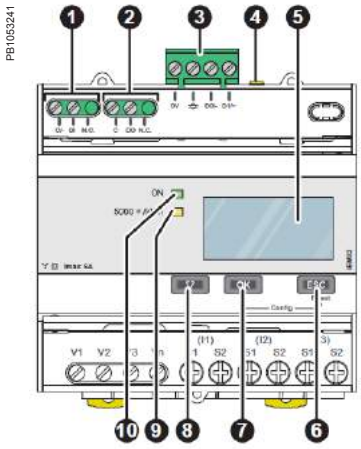
Acti 9 iEM3000 Series

Energy meters
Dimensions



Acti 9 iEM3000 Series parts

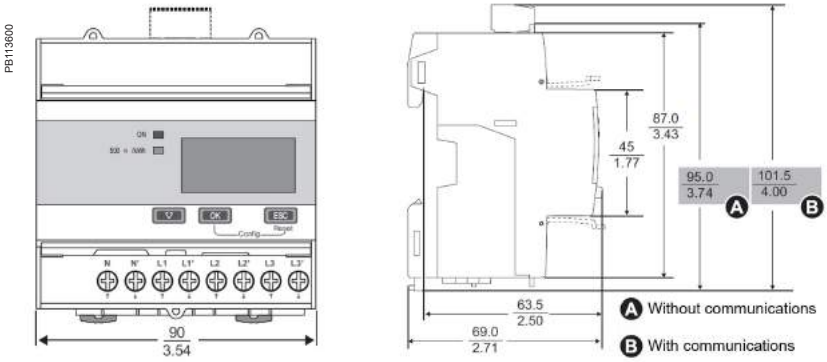
1. Digital inputs for tariff control (iEM3115 / iEM3215)
2. Display for measurement and configuration
3. Pulse out for remote transfer (iEM3110 / iEM3210)
4. ESC Cancellation
5. OK Confirmation
6. Selection
7. Flashing yellow meter indicator to check accuracy
8. Green indicator: on/off, error



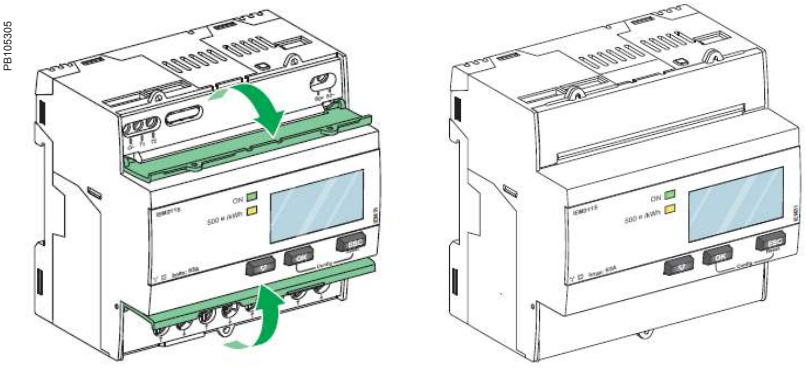
Acti 9 iEM3000 Series parts

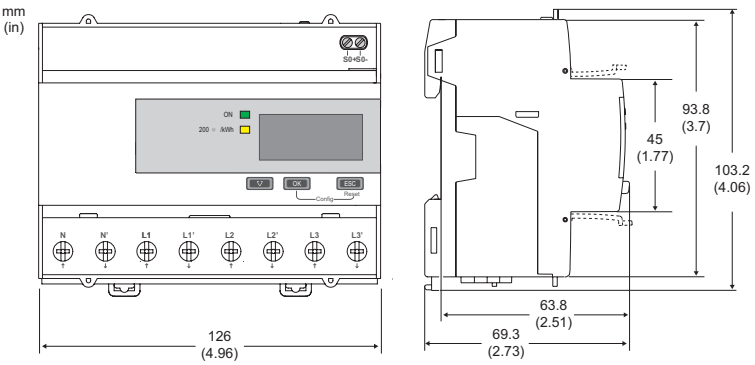
1. Digital inputs for tariff control (iEM3155 / iEM3255)
2. Digital output (iEM3155 / iEM3255)
3. Communication port
4. Yellow indicator for communication diagnosis
5. Display for measurement and configuration
6. ESC Cancellation
7. OK Confirmation
8. Selection
9. Flashing yellow meter indicator to check accuracy
10. Green indicator: on/off, error

iEM3200/iEM3400/iEM3500 series dimensions



iEM3100/iEM3200/iEM3400/iEM3500 Series front sealing covers open and closed





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Acti 9 iEM3000 Series

Energy meters

Commercial reference numbers

iEM31xx / iEM32xx / iEM33xx Meter model and description	Current measurement	Ref. no.
iEM3100 basic energy meter	Direct connected 63 A	**A9MEM3100**
iEM3110 energy meter with pulse output	Direct connected 63 A	**A9MEM3110**
iEM3115 multi-tariff energy meter	Direct connected 63 A	**A9MEM3115**
iEM3135 advanced multi-tariff energy meter & electrical parameter plus M-Bus comm port	Direct connected 63 A	**A9MEM3135**
iEM3150 energy meter & electrical parameter plus Modbus RS485 comm port	Direct connected 63 A	**A9MEM3150**
iEM3155 advanced multi-tariff energy meter & electrical parameter plus Modbus RS485 comm port	Direct connected 63 A	**A9MEM3155**
iEM3165 advanced multi-tariff energy meter & electrical parameter plus BACnet MS/TP comm port	Direct connected 63 A	**A9MEM3165**
iEM3175 advanced multi-tariff energy meter & electrical parameter plus LON TP/FT-10 comm port	Direct connected 63 A	**A9MEM3175**
iEM3200 basic energy meter	Transformer connected 5 A	**A9MEM3200**
iEM3210 energy meter with pulse output	Transformer connected 5 A	**A9MEM3210**
iEM3215 multi-tariff energy meter	Transformer connected 5 A	**A9MEM3215**
iEM3235 advanced multi-tariff energy meter & electrical parameter plus M-Bus comm port	Transformer connected 5 A	**A9MEM3235**
iEM3250 energy meter & electrical parameter plus Modbus RS485 comm port	Transformer connected 5 A	**A9MEM3250**
iEM3255 advanced multi-tariff energy meter & electrical parameter plus Modbus RS485 comm port	Transformer connected 5 A	**A9MEM3255**
iEM3265 advanced multi-tariff energy meter & electrical parameter plus BACnet MS/TP comm port	Transformer connected 5 A	**A9MEM3265**
iEM3275 advanced multi-tariff energy meter & electrical parameter plus LON TP/FT-10 comm port	Transformer connected 5 A	**A9MEM3275**
iEM3300 basic energy meter	Direct connected 125 A	**A9MEM3300**
iEM3310 energy meter with pulse output	Direct connected 125 A	**A9MEM3310**
iEM3335 advanced multi-tariff energy meter & electrical parameter plus M-Bus comm port	Direct connected 125 A	**A9MEM3335**
iEM3350 energy meter & electrical parameter plus Modbus RS485 comm port	Direct connected 125 A	**A9MEM3350**
iEM3355 advanced multi-tariff energy meter & electrical parameter plus Modbus RS485 comm port	Direct connected 125 A	**A9MEM3355**
iEM3365 advanced multi-tariff energy meter & electrical parameter plus BACnet MS/TP comm port	Direct connected 125 A	**A9MEM3365**
iEM3375 advanced multi-tariff energy meter & electrical parameter plus LON TP/FT-10 comm port	Direct connected 125 A	**A9MEM3375**

See your Schneider Electric representative for complete ordering information.

Power Meter Series PM3200

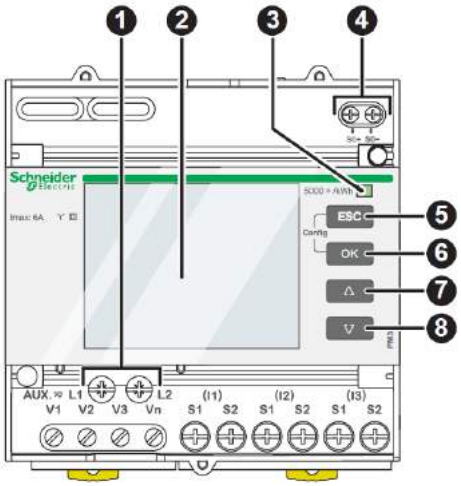
Functions and characteristics

PB108433

Power Meter Series PM3200

PB108435

Power Meter Series PM3255



Front of meter parts
1 Control power
2 Display with white backlit
3 Flashing yellow meter indicator (to check accuracy)
4 Pulse output for remote transfer (PM3210)
5 ESC Cancellation
6 OK Confirmation
7 Δ Up
8 ∇ Down

This PowerLogic Power meter offers basic to advanced measurement capabilities. With compact size and DIN rail mounting, the PM3200 allows mains and feeders monitoring in small electrical cabinets. Combined with current transformers and voltage transformers, these meters can monitor 2-, 3- and 4-wire systems. The graphic display has intuitive navigation to easily access important parameters.

Four versions are available offering basic to advanced applications:
- ■ PM3200
- □ Electrical parameters I, In, U, V, PQS, E, PF, Hz
- □ Power/current demand
- □ Min/max.
- ■ PM3210
- □ Electrical parameters I, In, U, V, PQS, E, PF, Hz, THD
- □ Power/current demand, peak demand
- □ Min/max.
- □ 5 timestamped alarms
- □ kWh pulse output
- ■ PM3250
- □ Electrical parameters I, In, U, V, PQS, E, PF, Hz, THD
- □ Power/current demand, peak demand
- □ Min/max.
- □ 5 timestamped alarms
- □ LED to indicate communications
- □ RS485 port for Modbus communication
- ■ PM3255
- □ Electrical parameters I, In, U, V, PQS, E, PF, Hz, THD
- □ Power/current demand and peak demand
- □ Min/max. and 15 timestamped alarms
- □ LED to indicate communications
- □ Up to 4 tariffs management
- □ 2 digital inputs, 2 digital outputs
- □ Memory for load profile (demand 10mn to 60mn)
- □ RS485 port for Modbus communication

- ■ Innovative design makes the meters smart and simple:
- ■ Easy to install for panel builders
- ■ Easy to commission for contractors and installers
- ■ Easy to operate for end users

Applications

Cost management applications
- ■ Bill checking
- ■ Sub-billing, including WAGES view
- ■ Cost allocation, including WAGES view

Network management applications
- ■ Panel instrumentation
- ■ Up to 15 onboard timestamped alarms to monitor events
- ■ Easy integration with PLC system by input/output interface

Market segments
- ■ Buildings
- ■ Industry
- ■ Data centres and networks
- ■ Infrastructure (airports, road tunnels, telecom)

Part numbers

Meter model and description	Performance	Part no.
PM3200 basic power meter	Basic power meter	**METSEPM3200**
PM3210 power meter with pulse output	Power, current, THD, peak demand	**METSEPM3210**
PM3250 power meter with RS485 port	Power, current, THD, peak demand	**METSEPM3250**
PM3255 power meter plus 2 digital inputs, 2 digital outputs with RS485 port	Power, current, THD, peak demand, memory for load profile	**METSEPM3255**

9

Technical Section 10
Dimensions Section 11

Power Meter Series PM3200

Functions and characteristics (cont.)

Function guide		PM3200 Range			
		PM3200	PM3210	PM3250	PM3255
Performance standard					
IEC61557-12 PMD/Sx/K55/0.5		■	■	■	■
General					
Use on LV and HV systems		■	■	■	■
Number of samples per cycle		32	32	32	32
CT input 1A/5A		■	■	■	■
VT input		■	■	■	■
Multi-tariff		4	4	4	4
Multi-lingual backlit display		■	■	■	■
Instantaneous rms values					
Current, voltage	Per phase and average	■	■	■	■
Active, reactive, apparent power	Total and per phase	■	■	■	■
Power factor	Total and per phase	■	■	■	■
Energy values					
Active, reactive and apparent energy; import and export		■	■	■	■
Demand value					
Current, power (active, reactive, apparent) demand; present		■	■	■	■
Current, power (active, reactive, apparent) demand; peak			■	■	■
Power quality measurements					
THD Current and voltage			■	■	■
Data recording					
Min/max of the instantaneous values		■	■	■	■
Power demand logs					■
Energy consumption log (day, week, month)					■
Alarms with time stamping			5	5	15
Digital inputs/digital outputs			0/1		2/2
Communication					
RS-485 port				■	■
Modbus protocol				■	■

PB108434

Power Meter Series PM3210

Connectivity advantages	
Programmable digital input	External tariff control signal (4 tariffs) Remote Reset partial counter External status like breaker status Collect WAGES pulses
Programmable digital output	Alarm (PM3255) kWh pulses
Graphic LCD display	Backlit graphic display allows smart navigation in relevant information and in multi languages
Communication	Modbus RS485 with screw terminals allows connection to a daisy chain

9

Power Meter Series PM3200

Functions and characteristics (cont.)

Specifications	PM3200 Range
Type of measurement	True rms up to the 15th harmonic on three-phase (3P,3P+N) and single-phase AC systems. 32 samples per cycle
Measurement accuracy	
Current with x/5A CTs	0.3% from 0.5A to 6A
Current with x/1A CTs	0.5% from 0.1A to 1.2A
Voltage	0.3% from 50V to 330V (Ph-N), from 80V to 570V (Ph-Ph)
Power factor	±0.005 from 0.5A to 6A with x/5A CTs; from 0.1A to 1.2A with x/1A CTs and from 0.5L to 0.8C
Active/Apparent Power with x/5A CTs	Class 0.5
Active/Apparent Power with x/1A CTs	Class 1
Reactive power	Class 2
Frequency	0.05% from 45 to 65Hz
Active energy with x/5A CTs	IEC62053-22 Class 0.5s
Active energy with x/1A CTs	IEC62053-21 Class 1
Reactive energy	IEC62053-23 Class 2
Data update rate	
Update rate	1s
Input-voltage characteristics	
Measured voltage	50V to 330V AC (direct / VT secondary Ph-N) 80V to 570V AC (direct / VT secondary Ph-Ph) up to 1MV AC (with external VT)
Frequency range	45Hz to 65Hz
Input-current characteristics	
CT primary	Adjustable from 1A to 32767A
CT secondary	1A or 5A
Measurement input range with x/5A CTs	0.05A to 6A
Measurement input range with x/1A CTs	0.02A to 1.2A
Permissible overload	10A continuous, 20A for 10s/hour
Control Power	
AC	100/173 to 277/480V AC (+/-20%), 3W/5VA; 45Hz to 65Hz
DC	100 to 300V DC, 3W
Input	
Digital inputs (PM3255)	11 to 40V DC, 24V DC nominal, <=4mA maximum burden, 3.5kVrms insulation
Output	
Digital output (PM3210)	Optocoupler, polarity sensitive, 5 to 30V, 15mA max, 3.5kVrms insulation
Digital outputs (PM3255)	Solid state relay, polarity insensitive, 5 to 40V, 50mA max, 50Ω max, 3.5kVrms insulation

Power Meter Series PM3200
Functions and characteristics (cont.)

Specifications (continued)	PM3200 Range
Mechanical characteristics	
Weight	0.26kg
IP degree of protection (IEC60529)	IP40 front panel, IP20 meter body
Dimension	90 x 95 x 70mm
Environmental conditions	
Operating temperature	-25 °C to +55 °C
Storage temperature	-40 °C to +85 °C
Humidity rating	5 to 95% RH at 50°C (non-condensing)
Pullution degree	2
Metering category	III, for distribution systems up to 277/480VAC
Dielectric withstand	As per IEC61010-1, Doubled insulated front panel display
Altitude	3000m max
Electromagnetic compatibility	
Electrostatic discharge	Level IV (IEC61000-4-2)
Immunity to radiated fields	Level III (IEC61000-4-3)
Immunity to fast transients	Level IV (IEC61000-4-4)
Immunity to surge	Level IV (IEC61000-4-5)
Conducted immunity	Level III (IEC61000-4-6)
Immunity to power frequency magnetic fields	0.5mT (IEC61000-4-8)
Conducted and radiated emissions	Class B (EN55022)
Safety	
	CE as per IEC61010-1 (1)
Communication	
RS485 port	Half duplex, from 9600 up to 38400 bauds, Modbus RTU (double insulation)
Display characteristics	
Dimensions (VA)	43mm x 34.6mm
Display resolution	128 x 96 dots
Standard compliance	
	IEC61557-12, EN61557-12 IEC61010-1, UL61010-1 IEC62052-11, IEC62053-21, IEC62053-22, IEC62053-23 EN50470-1, EN50470-3

(1) Protected throughout by double insulation

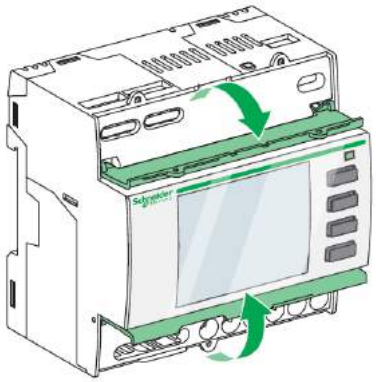
Power Meter Series PM3250

Multi-tariff capability
The PM3200 range allows arrangement of kWh consumption in four different registers. This can be controlled by:
- Digital Inputs. Signal can be provided by PLC or utilities
- Internal clock programmable by HMI
- Through communication

This function allows users to:
- Make tenant metering for dual source applications to differentiate backup source or utility source
- Understand well the consumption during working time and non working time, and between working days and weekends
- Follow up feeders consumption in line with utility tariff rates

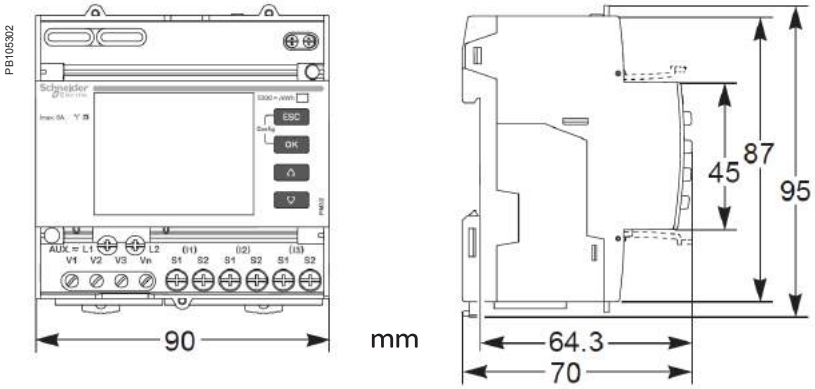
Power Meter Series PM3200

Dimensions and connection

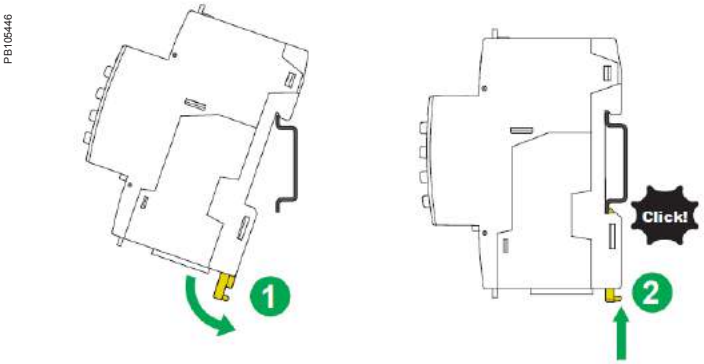


PM3200 top and lower flaps

PM3200 series dimensions



PM3200 series easy installation



9

PM5000 Series
Functions and characteristics

PB111777

PowerLogic™ PM5000 Series meter

PB111784

PowerLogic™ PM5563 remote dispaly

PowerLogic™ PM5100, PM5300 and PM5500 series

The PowerLogic™ PM5000 power meter is the ideal fit for cost management applications. It provides the measurement capabilities needed to allocate energy usage, perform tenant metering and sub-billing, pin-point energy savings, optimize equipment efficiency and utilization, and perform a high level assessment of the power quality of the electrical network.
In a single 96 x 96 mm unit, with a graphical display, (plus optional remote display) all three phases, neutral and ground can be monitored simultaneously.
The bright, anti-glare display features large characters and powerful backlighting for easy reading even in extreme lighting conditions and viewing angles. Easy to understand menus, text in 8 selectable languages, icons and graphics create a friendly environment to learn about your electrical network. Ethernet gateway and enhanced cyber security.
Highly accurate devices with global billing certifications.

Applications

Cost management: Cost saving opportunities become clear once you understand how and when your facility uses electricity. The PowerLogic™ PM5000 series meters are ideal for:
Sub billing / tenant metering: allows a landlord, property management firm, condominium association, homeowners association, or other multi-tenant property to bill tenants for individual measured utility (electricity) usage. MID approved meters for billing applications across Europe.
Cost allocation: allocate energy costs between different departments (HVAC, indoor and outdoor lighting, refrigeration, etc), different parts of an industrial process or different cost centres. Cost allocation systems can help you save money by making changes to your operation, better maintaining your equipment, taking advantage of pricing fluctuations, and managing your demand.

Network management: Improving reliability of the electrical network is key for success in any business. Monitoring values such as voltage levels, harmonic distortion and voltage unbalance will help you to ensure proper operation and maintenance of your electrical network and equipment. PowerLogic™ PM5000 series meters are the perfect tool for:
Basic Power Quality monitoring: power quality phenomena can cause undesirable effects such as heating in transformers, capacitors, motors, generators and misoperation of electronic equipment and protection devices.
Min/ Max monitoring (with timestamp): understanding when electrical parameters, such as voltage, current and power demand, reach maximum and minimum values will give you the insight to correctly maintain your electrical network and assure equipment will not be damaged.
Alarming: alarms help you to be aware of any abnormal behavior on the electrical network in the moment it happens.
WAGES monitoring: take advantage of the input metering on PM5000 meters to integrate measurements from 3rd party devices such as water, air, gas, electricity or steam, meters.

Main characteristics

Easy to install
Mounts using two clips, in standard cut out for DIN 96 x 96mm, no tools required. Compact meter with 72mm (77mm for PM5500) depth connectable up to 690 VL-L without voltage transformers for installations compliant with category III. Optional remote display (PM5563). Ethernet gateway functionality via RS-485 port.

Easy to operate
Intuitive navigation with self-guided, language selectable menus, six lines, four concurrent values. Two LEDs on the meter face help the user confirm normal operation with a green LED - heartbeat/communications indicator, and the amber LED - customizable either for alarms or energy pulse outputs. Onboard web pages (PM5500) show real-time and logged information, and verify communications.

Easy circuit breaker monitoring and control
The PM5300 provides two relay outputs (high performance Form A type) with capability to command most of the circuit breaker coils directly. For Digital Inputs, monitored switches can be wired directly to the meter without external power supply. PM5500 series have 4 status inputs (digital) and 2 digital output (solid state) to use for WAGES monitoring, control and alarm annunciation.

Accurate energy measurement for precise cost allocation:

	PM5100	PM5300	PM5500
IEC 62053-22 (Active Energy)	Class 0.5S	Class 0.5S	Class 0.2S
IEC 62053-23 (Reactive Energy)	Class 2	Class 2	Class 1

Technical Section 10
Dimensions Section 11

PM5000 Series
Functions and characteristics (cont.)

PB111777

PowerLogic™ PM5500 meter

PB111772

PowerLogic™ PM5300 meter

PB111768

PowerLogic™ PM5100 meter

MID Certified according to MID Directive, Annex "B" + Annex "D" for legal metrology relevant to active electrical energy meters (see Annex MI-003 of MID). Can be used for fiscal (legal) metrology.

Direct metering of neutral current
The PM5500 has a fourth CT for measuring neutral current. In demanding IT applications, where loads are non-linear (i.e. switching power supplies on computers/ servers), measuring neutral current is essential to avoid overload and resulting outage. In addition, the PM5500 provides a calculated ground current value, not available in meters with 3 CTs.

Power Quality analysis
The PM5000 offers Total Harmonic Distortion (THD/thd), Total Demand Distortion (TDD) measurements and individual harmonics (odd) magnitudes and angles for voltage and current:

	PM5100	PM5300	PM5500
Individual Harmonics	magnitudes up to 15th	magnitudes up to 31st	magnitudes & angles up to 63rd

These types of power quality parameters help to identify the source of harmonics that can harm transformers, capacitors, generators, motors and electronic equipment.

Load management
Peak demands with time stamping are provided. Predicted demand values can be used in combination with alarms for basic load shedding applications.

Alarming with time stamping
A different combination of set point driven alarms and digital alarms with 1s time stamping are available in the PM5000 family:

	PM5100	PM5300	PM5500
Set point driven alarms	**29**	**29**	**29**
Unary	**4**	**4**	**4**
Digital	**–**	**2**	**4**
Boolean / Logic	**–**	**–**	**10**
Custom defined	**–**	**–**	**5**

Alarms can be visualized as Active (the ones that have picked up and did not drop out yet) or Historical (the ones that happened in the past). Alarms can be programmed and combined to trigger digital outputs and mechanical relays (PM5300).
The PM5000 series keeps an alarm log with the active and historical alarms with date and time stamping. SMTP protocol for receiving alarm conditions via email and text. SNTP protocol for date/time network synchronization.

Load timer
A load timer can be set to count load running hours based on a minimum current withdraw, adjustable to monitor and advise maintenance requirements on the load.

High Performance and accuracy
IEC 61557-12 Performance measuring and monitoring devices (PMD)
Defines the performance expectation based on classes. It defines the allowable error in the class for real and reactive power and energy, frequency, current, voltage, power factor, voltage unbalance, voltage and current harmonics (odds), voltage THD, current THD, as well as ratings for temperature, relative humidity, altitude, start-up current and safety. It makes compliant meters readings comparable - they will measure the same values when connected to the same load.

Meets IEC 61557-12 PMD/[SD|SS]/K70/0.5 for PM5100 and PM5300

Meets IEC 61557-12 PMD/[SD|SS]/K70/0.2 for PM5500

Legal billing compliance
MID compliance is compulsory for billing applications across Europe.
In addition to billing applications, for facility managers responsible for energy cost MID means same level of quality as a billing meter.

MID ready compliance, EN50470-1/3 – Class C

PM5000 Series
Functions and characteristics (cont.)

General		PM5100	PM5300	PM5500
Use on LV and MV systems			■	
Basic metering with THD and min/max readings			■	
Instantaneous rms values				
Current	per phase, neutral and ground (PM5500)		■	
Voltage	Total, per phase L-L and L-N		■	
Frequency			■	
Real, reactive, and apparent power	Total and per phase		Signed, Four Quadrant	
True Power Factor	Total and per phase		Signed, Four Quadrant	
Displacement PF	Total and per phase		Signed, Four Quadrant	
% Unbalanced I, VL-N, VL-L			■	
Direct monitoring of neutral current				■
Energy values*				
Accumulated Active, Reactive and Apparent Energy			Received/Delivered; Net and absolute; Time Counters	
Demand values*				
Current average			Present, Last, Predicted, Peak, and Peak Date Time	
Active power			Present, Last, Predicted, Peak, and Peak Date Time	
Reactive power			Present, Last, Predicted, Peak, and Peak Date Time	
Apparent power			Present, Last, Predicted, Peak, and Peak Date Time	
Peak demand with time stamping D/T for current and powers			■	
Demand calculation	Sliding, fixed and rolling block, thermal methods		■	
Synchronization of the measurement window to input, communication command or internal clock			■	
Settable Demand intervals			■	
Demand calculation for Pulse input (WAGES)				■
Other measurements*				
I/O timer			■	
Operating timer			■	
Load timer			■	
Alarm counters and alarm logs			■	
Power quality measurements				
THD, thd (Total Harmonic Distortion) I, VLN, VLL per phase			I, VLN, VLL	
TDD (Total Demand Distortion)			■	
Individual harmonics (odds)		15th	31st	63rd
Neutral Current metering with ground current calculation				■
Data recording				
Min/max of instantaneous values, plus phase identification*			■	
Alarms with 1s timestamping*			■	
Data logging			2 selectable parameters from kWh, kVAh, kVARh with configurable interval and duration (e.g. 2 parameters for 60 days at 15 minutes interval)	Up to 14 selectable parameters with configurable interval and duration (e.g. 6 parameters for 90 days at 15 minutes interval)
Memory capacity			256 kB	1.1 MB
Min/max log		■	■	■
Maintenance, alarm and event logs			■	■
Customizable data logs				■
Inputs / Outputs / Mechanical Relays				
Digital inputs			2	4
Digital outputs		1 (kWh only)	2 (configurable)	
Form A Relay outputs			2	
Timestamp resolution in seconds			1	
Whetting voltage			■	

**Stored in non-volatile memory*

9

Technical Section 10 Dimensions Section 11

PM5000 Series
Functions and characteristics (cont.)

Electrical characteristics			PM5100	PM5300	PM5500
Type of measurement: True rms on three-phase (3P, 3P + N), zero blind			64 samples per cycle		128 samples per cycle
Measurement accuracy	Active Energy		0.5%		0.2%
	Reactive Energy		2%		1%
	Active Power		0.5%		0.2%
	Apparent Power		0.5%		
	Current, Phase		0.5%		0.15%
	Voltage, L-N		0.5%		0.1%
	Frequency		0.05%		
Measurement accuracy compliance	Measurement accuracy		IEC 61557-12 PMD/[SD|SS]/K70/0.5		IEC 61557-12 PMD/[SD|SS]/ K70/0.2
	Active energy accuracy		IEC 62053-22 Class 0.2 S ANSI C12.20 Class 0.5		IEC 62053-22 Class 0.2 S ANSI C12.20 Class 0.2
	Reactive energy accuracy		IEC 62053-23 Class 2		
Input-voltage (up to 1.0 MV AC max, with voltage transformer)	Nominal Measured Voltage range		20 V L-N / 35 V L-L to 400 V L-N /690 V L-L absolute range 35 V L-L to 760 V L-L		20 V L-N / 20 V L-L to 400 V L-N /690 V L-L absolute range 20 V L-L to 828 V L-L
	Impedance		5 M Ω		
	F nom		50 or 60 Hz ±2%		50 or 60 Hz ±10%
Input-current	I nom		1 A or 5 A		
	Measured Amps with over range and Crest Factor		Starting current: 5mA Operating range: 50mA to 8.5A		Starting current: 5m A Operating range: 50 mA to 10 A
	Withstand		Continuous 20A, 10s/hr 50A, 1s/hr 500A		
	Impedance		< 0.3 mΩ		
	F nom		50 or 60 Hz ±2%		50 or 60 Hz ±10%
	Burden		<0.026VA at 8.5A		< 0.024 VA at 10 A
AC control power	Operating range		100-415 VAC +/- 10% CAT III 300V class per IEC 61010		100-480 V AC ±10% CAT III 600V class per IEC 61010
	Burden		<5 W,11 VA at 415V L-L		<5W/16.0 VA at 480 V AC
	Frequency		45 to 65 Hz		
	Ride-through time		80 mS typical at 120V AC and maximum burden. 100 mS typical at 230 V AC and maximum burden 100 mS typical at 415 V AC and maximum burden		35 ms typical at 120 V L-N and maximum burden 129 ms typical at 230 V L-N and maximum burden
DC control power	Operating range		125-250 V DC ±20%		
	Burden		4W max at 125V DC		typical 3.1W at 125 V DC, max. 5W
	Ride-through time		50 mS typical at 125 V DC and maximum burden		
Outputs	Relay	Max output frequency		0.5 Hz maximum (1 second ON / 1 second OFF - minimum times)	
		Switching current		250 V AC at 8.0 Amps, 25 k cycles, resistive 30 V DC at 2.0 Amps, 75 k cycles, resistive 30 V DC at 5.0 Amps, 12.5 k cycles, resistive	
		Isolation		2.5 kV rms	
	Digital outputs		1	2	2
		Max load voltage	40 V DC		30 V AC / 60 V DC
		Max load current	20 mA		125 mA
		On Resistance	50 Ω max		8 Ω
		Meter constant	from 1 to 9,999,999 pulses per kWh k_h (Configurable for delivered or received or delivered+received energy for kWh or kVARh or kVAh)		
		Pulse width for Digital Output	50% duty cycle		
		Pulse frequency for Digital Output	25 Hz max.		
		Leakage current	0.03 micro Amps		1 micro Amps
		Isolation	5 kV rms		2.5 kV rms
	Optical outputs				
		Pulse width (LED)	200 micro seconds		
		Pulse frequency	50 Hz. max.		2.5 kHz. max
		Meter constant	from 1 to 9,999,999 pulses per kWh k_h (Configurable for delivered or received or delivered+received energy for kWh or kVARh or kVAh)		

9

Technical Section 10

Dimensions Section 11

PM5000 Series
Functions and characteristics (cont.)

Electrical characteristics (cont'd)		PM5100	PM5300	PM5500
Status Inputs	ON Voltage		18.5 to 36 V DC	30 V AC / 60 V DC max
	OFF Voltage		0 to 4 V DC	
	Input Resistance		110 k Ω	100 k Ω
	Maximum Frequency		2 Hz (T ON min = T OFF min = 250 ms)	25 Hz (T ON min = T OFF min = 20 ms)
	Response Time		20 ms	10 ms
	Opto Isolation		5 kV rms	2.5 kV rms
	Whetting output		24 V DC/ 8mA max	
	Input Burden		2mA @24V DC	2 mA @ 24 V AC/DC
Mechanical characteristics				
Product weight		380 g	430 g	450 g
IP degree of protection (IEC 60529)		IP52 front display, IP20 meter body		
Dimensions W x H x D [protrusion from cabinet] *		96 x 96 x 72mm (77mm for PM5500) (depth of meter from housing mounting flange) [13mm]		
Mounting position *		Vertical		
Panel thickness		6 mm maximum		
Environmental characteristics				
Operating temperature	Meter	-25 °C to 70 °C		
	Display (Display functions to -25° with reduced performance)	-25 °C to +70 °C		
Storage temp.		-40 °C to +85 °C		
Humidity range		5 to 95 % RH at 37 °C (non-condensing)		
Polution degree		2		
Altitude		2000 m CAT III / 3000 m CAT II		3000 m max. CAT III
Electromagnetic compatibility**				
Harmonic current emissions		IEC 61000-3-2		
Flicker emissions		IEC 61000-3-3		
Electrostatic discharge		IEC 61000-4-2		
Immunity to radiated fields		IEC 61000-4-3		
Immunity to fast transients		IEC 61000-4-4		
Immunity to surge		IEC 61000-4-5		
Conducted immunity 150kHz to 80MHz		IEC 61000-4-6		
Immunity to magnetic fields		IEC 61000-4-8		
Immunity to voltage dips		IEC 61000-4-11		
Radiated emissions		FCC part 15, EN 55022 Class B		
Conducted emissions		FCC part 15, EN 55022 Class B		

* PM5563 is DIN mounted

** Tests are conducted as per IEC 61557-12 (IEC 61326-1), 62052-11 and EN50470

PM5000 Series
Functions and characteristics (cont.)

	PM5100	PM5300	PM5500
Safety			
Europe	CE, as per IEC 61010-1 Ed. 3, IEC 62052-11 & IEC61557-12		
U.S. and Canada	cULus as per UL61010-1 (3rd Edition)		
Measurement category (Voltage and Current inputs)	CAT III up to 400 V L-N / 690 V L-L		
Dielectric	As per IEC/UL 61010-1 Ed. 3		
Protective Class	II, Double insulated for user accessible parts		
Communication			
RS 485 port Modbus RTU, Modbus ASCII (7 or 8 bit), JBUS	2-Wire, 9600,19200 or 38400 baud, Parity - Even, Odd, None, 1 stop bit if parity Odd or Even, 2 stop bits if None; (Optional in PM51x and PM53x)		
Ethernet port: 10/100 Mbps; Modbus TCP/IP		1 Optional	2 (for daisy chain only, one IP address)
Firmware and language file update	Meter firmware update via the communication ports		
Isolation	2.5 kVrms, double insulated		
Human machine interface			
Display type	Monochrome Graphics LCD		
Resolution	128 x 128		
Backlight	White LED		
Viewable area (W x H)	67 x 62.5 mm		
Keypad	4-button		
Indicator Heartbeat / Comm activity	Green LED		
Energy pulse output / Active alarm indication (configurable)	Optical, amber LED		
Wavelength	590 to 635 nm		
Maximum pulse rate	2.5 kHz		

	PM5100		PM5300				PM5500	
Features and Options	**PM5100**	**PM5110**	**PM5310**	**PM5320**	**PM5330**	**PM5340**	**PM5560**	**PM5563**
Installation								
Fast panel mount with integrated display	■	■	■	■	■	■	■	–
Remote display (optional)	–	–	–	–	–	–	–	■
Fast installation, DIN rail mountable	–	–	–	–	–	–	–	■
Accuracy	**Cl 0.5S**	**Cl 0.5S**	**Cl 0.5S**	**Cl 0.5S**	**Cl 0.5S**	**Cl 0.5S**	**Cl 0.2S**	**Cl 0.2S**
Display								
Backlit LCD, multilingual, bar graphs, 6 lines, 4 concurrent values	■	■	■	■	■	■	■	–
Power and energy metering								
3-phase voltage, current, power, demand, energy, frequency, power factor	■	■	■	■	■	■	■	■
Multi-tariff	–	–	4	4	4	4	8	8
Power quality analysis								
THD, thd, TDD	■	■	■	■	■	■	■	■
Harmonics, individual (odd) up to	15th	15th	31st	31st	31st	31st	63rd	63rd
I/Os and relays								
I/Os	1DO	1DO	2DI/2DO	2DI/2DO	2DI/2DO	2DI/2DO	4DI/2DO	4DI/2DO
Relays	0	0	0	0	2	2	0	0
Alarms and control								
Alarms	33	33	35	35	35	35	52	52
Set point response time, seconds	1	1	1	1	1	1	1	1
Single and multicondition alarms	–	–	■	■	■	■	■	■
Boolean alarm logic	–	–	–	–	–	–	■	■
Communications								
Serial ports with modbus protocol	–	1	1	–	1	–	1	1
Ethernet port with Modbus TCP protocol	–	–	–	1	–	1	2**	2**
Ethernet-to-serial gateway	–	–	–	–	–	–	■	■
Onboard web server with web pages	–	–	–	–	–	–	■	■
MID ready compliance, EN50470-1/3, Annex B and Annex D Class C		**PM5111**			**PM5331**	**PM5341**	**PM5561**	

** 2 Ethernet ports for daisy chain, one IP address.

9

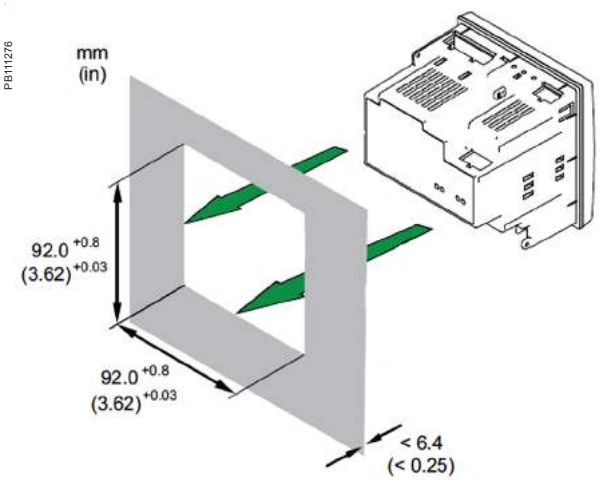
Technical Section 10 Dimensions Section 11

PM5000 Series
Commercial reference numbers

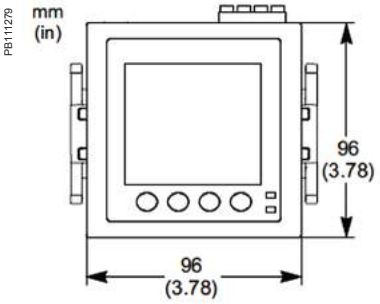
Commercial reference numbers	
Reference no.	**Part description**
METSEPM5100	PM5100 power meter, pulse out
METSEPM5110	PM5100 power meter, pulse + serial out
METSEPM5111	PM5100 power meter, pulse + serial out, MID
METSEPM5310	PM5300 power meter, serial + 2DI-2DO out
METSEPM5320	PM5300 power meter, ETH + 2DI-2DO out
METSEPM5330	PM5300 power meter, serial + 2DI-2DO-2relay out
METSEPM5331	PM5300 power meter, serial + 2DI-2DO-2relay out, MID
METSEPM5340	PM5300 power meter, ETH + 2DI-2DO-2relay out
METSEPM5341	PM5300 power meter, ETH + 2DI-2DO-2relay out, MID
METSEPM5560	PM5560 power meter, ETH-serial + 4DI-2DO out
METSEPM5561	PM5561 power meter, ETH-serial + 4DI-2DO out, MID
METSEPM5563	PM5563 power meter, ETH-serial + 4DI-2DO out, no disp
METSEPM5563RD	PM5500 power meter, ETH-serial + 4DI-2DO out, remote display
METSEPM5RD	Remote display for PM5563 power meter
METSEPM51HK	Hardware kit for PM51XX (voltage, current, comms & IO connectors + moulding clips)
METSEPM53HK	Hardware kit for PM53XX (voltage, current, comms & IO connectors + moulding clips)
METSEPM51-3RSK	Revenue sealing kit for PM51XX & PM53XX (sealing covers for voltage & current connectors)
METSEPM55HK	Hardware kit for PM55XX (voltage, current, comms & IO connectors + moulding clips)
METSEPM55RSK	Revenue sealing kit for PM55XX (sealing covers for voltage & current connectors)

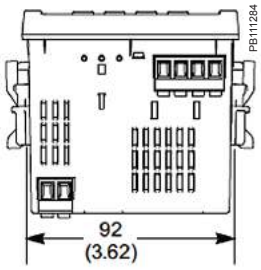
PM5000 Series
Functions and characteristics (cont.)

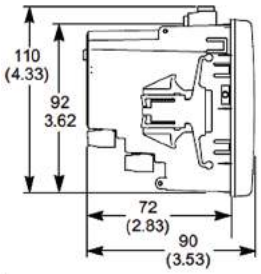
PM5000 Series meter flush mounting*



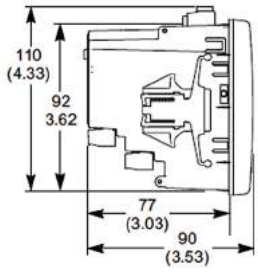
PM5000 Series meter dimensions





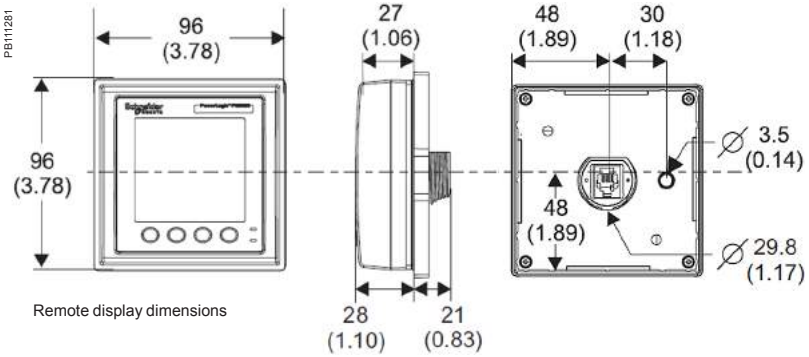


PM5100 / PM5300

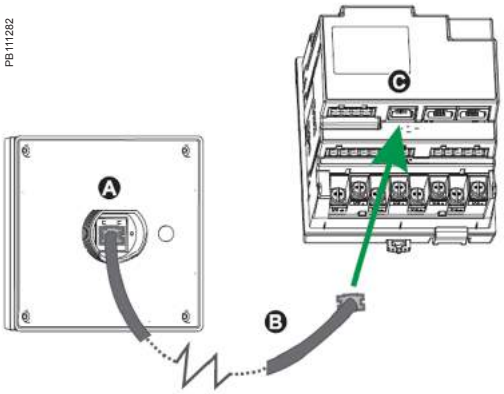


PM5500

PM5000 Series remote display dimensions



Remote display dimensions



Remote display connection

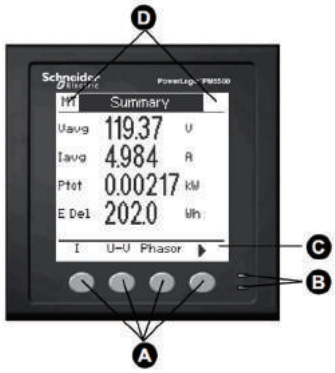
A Remote display connector
B Connection cable (provided)
C DIN-mount meter connector
Display power provided by meter

** PM5563 is DIN mounted

PM5000 Series
Functions and characteristics (cont.)

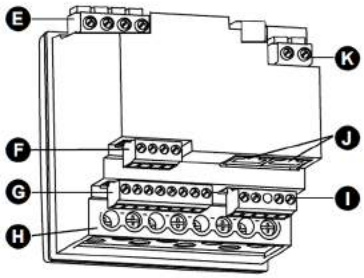
PM5000 Series meter parts

PB111278



PM5000 meter parts
A Menu selection buttons
B LED indicators
C Navigation or menu selections
D Maintenance and alarm notification area

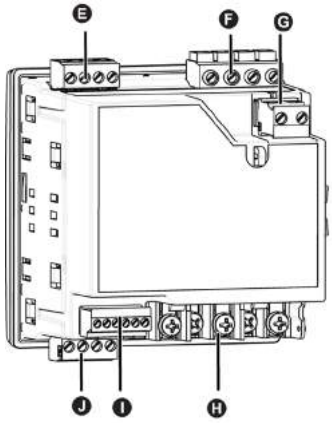
PB111277



PM5500

PM5500 meter parts
E Voltage inputs
F RS-485 comms
G Digital inputs
H Current inputs
I Digital outputs
J Ethernet ports
K Control power

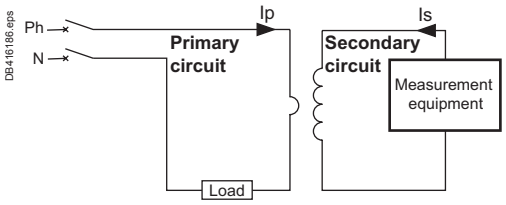
PB111283



PM5100 / PM5300 meter parts
E Relay output (PM5300 only)
F Voltage inputs
G Control power
H Current inputs
I Status inputs/digital outputs
J Communications port: Ethernet (PM5300 only) or RS-485)

9

CT,
Ip/5 A ratio



Application diagram of a CT.

The Ip/5A ratio current transformer delivers at the secondary a current (Is) of 0 to 5 A that is proportional to the current measured at the primary (Ip).
This allows them to be used in combination with measurement equipment:

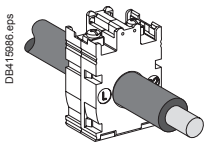
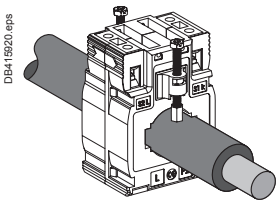
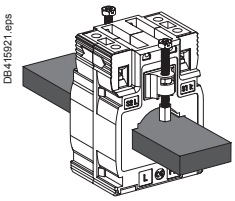
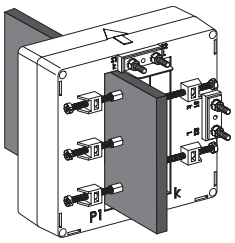
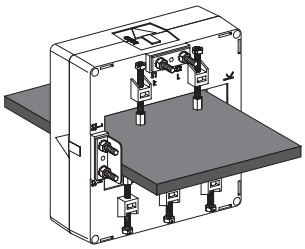
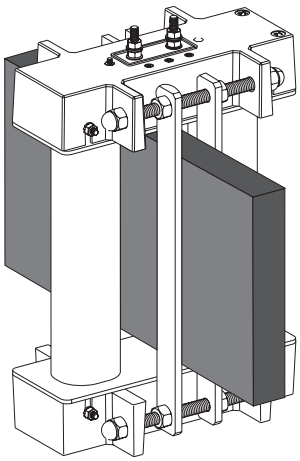
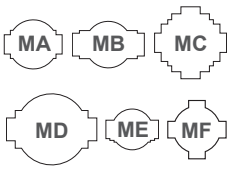
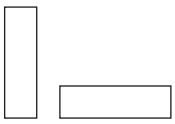
- ammeters
- kilowatt-hour meters
- measurement units
- control relays
- etc.

When the primary is energized, the measurement equipment nearly acts as a short circuit which keeps the secondary voltage very low. This voltage will increases significantly if the short circuit is removed.

CT selection - conductor rating aspects

The choice depends on the conductor profile and the maximum intensity of the primary circuit.

CT with let-through primary

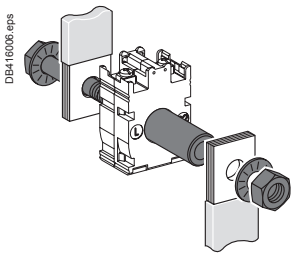
Conductor type	Cable	Mixed, bars or cables	Vertical or horizontal bars	Vertical bars	
Suggested Current Transformer and mounting		 	 		
Ratings (A)	40 to 250	150 to 800	200 to 4000	500 to 600	5000 to 6000
CT internal profile	**Type C**	**Type M**	**Type D** (1)	**Type V**	
				 VF	 VV

(1) Two secondary connectors (parallel internal wiring - only one secondary winding) for easier cable access. 1 lateral + 1 on one extremity. Warning: only one must be used at a time.

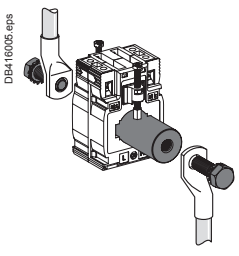
Specific mounting: use of cylinder

A cylindrical metallic spacer ensures a proper CT positioning when the conductor or the CT cannot be positioned perpendicular. Secured by bolt + nut.

CT with primary connection by screw and nut
(example: use of cylinder with bar or cable)



16550 (brass)



METSECT5CYL1 (aluminium)

9

CT,
Ip/5 A ratio (cont.)

CT selection - Electrical aspect Ip/5 A

■ We recommend that you choose the ratio immediately higher than the maximum measured current (In).

Example:
In = 1103 A; ratio chosen = 1250/5.

■ For small ratings:
from 40/5 to 75/5 and for an application with digital devices, we recommend that you choose a higher rating, for example 100/5.

This is because small ratings are less accurate and the 40 A measurement, for example, will be more accurate with a 100/5 CT than with a 40/5 CT.

■ Specific case of the motor starter:
to measure motor starter current, you must choose a CT with primary current Ip = Id/2 (Id = motor starting current).

Validation of measurement solution according accuracy class

It consists in controlling the right adaptation of the CT on the assucary class aspect. The accuracy class is specified in the project. The total dissipated power of the measurement circuit (meter + cables) should not be superior to the specified limit of the CT. This limit is for different standard classes. If necessary, the choice of the cable section, the CT or meter should be modify to fit the requirement.

Copper cable cross-section (mm^2)	Power per doubled meter at 20 °C (VA)
1	**1**
1.5	**0.685**
2.5	**0.41**
4	**0.254**
6	**0.169**
10	**0.0975**
16	**0.062**

For each temperature variation per 10 °C bracket, the power drawn up by the cables increases by 4 %.

Schneider Electric device	Consumption of the current input (VA)
Ammeter 72 x 72 / 96 x 96	**1.1**
Analogue ammeter	**1.1**
Digital ammeter	**0.3**
PM700, PM800	**0.15**
PM3000	**0.3**

Application example
Project specification: **200 A**, in **Ø27** mm cable, accuracy class 1.
Our choice is **METSECT5MA020**.

For this CT selected on the chart (next page), the max acceptable power is **7 VA** (for "Accuracy class 1" which is specified in the project).

Internal profile type	Cables (mm)	Bars (mm)	Rating Ip/5 A (A)	Cat. no.	Accuracy class 0.5	1	3
					Max. power (VA)		
MA							
	Ø27	10 x 32	150	METSECT5MA015	3	4	-
		15 x 25	200	METSECT5MA020	4	7	-
			250	METSECT5MA025	6	8	-
			300	METSECT5MA030	8	10	-
			400	METSECT5MA040	10	12	-

Control of the conformity of the measurement chain:
■ PM3000 multi-meter: 0.3 VA.
■ 4 meters of 2.5 mm^2, doubled wires: 0.41 x 4 = 1.64 VA.

Total: *0.3 + 1.64 = 1.94 VA (< 7 VA)*

Conclusion: *this CT is well adapted as the accuracy class will be even better than 1.*

CT, Ip/5 A ratio
Catalogue numbers

Presentation of catalogue numbers

MET SE CT R FF XXX

- R: First digit = secondary rating, R = 5 Amps
- FF: 2 letters = Form Factor
- XXX: Last 3 digits = primary rating/10

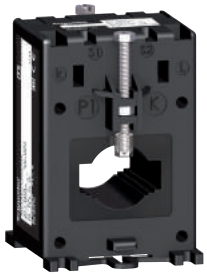
Examples:

- METSECT5CC008 = 5 A secondary, Cables only, 75 A primary
- METSECT5MC080 = 5 A secondary, Mixed for cables and bars, 800 A primary.

PB112446.eps

METSECT5CC●●●

PB112464.eps



METSECT5ME●●●

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METSECT5MB●●●

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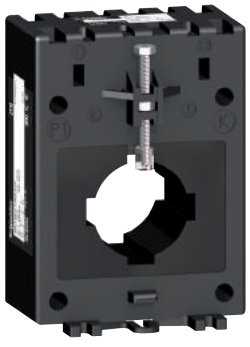
METSECT5MA●●●

PB112462.eps

METSECT5MC●●●

PB112465.eps



METSECT5MF●●●

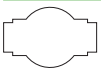
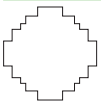
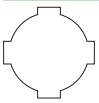
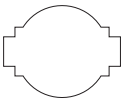
PB112463.eps

METSECT5MD●●●

Type C - current transformer (cable profile)

Internal profile type	Cables (mm)	Bars (mm)	Rating Ip/5 A (A)	Cat. no.
CC				
	Ø21	-	40	METSECT5CC004
			50	METSECT5CC005
			60	METSECT5CC006
			75	METSECT5CC008
			100	METSECT5CC010
			125	METSECT5CC013
			150	METSECT5CC015
			200	METSECT5CC020
			250	METSECT5CC025

Type M - current transformers (mixed: cable/bar profile)

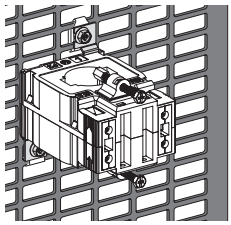
Internal profile type	Cables (mm)	Bars (mm)	Rating Ip/5 A (A)	Cat. no.
ME				
	Ø22	10 x 30 11 x 25 12 x 20	150	METSECT5ME015
			200	METSECT5ME020
			250	METSECT5ME025
			300	METSECT5ME030
			400	METSECT5ME040
			500	METSECT5ME050
			600	METSECT5ME060
MB				
	Ø26	12 x 40 15 x 32	250	METSECT5MB025
			300	METSECT5MB030
			400	METSECT5MB040
MA				
	Ø27	10 x 32 15 x 25	150	METSECT5MA015
			200	METSECT5MA020
			250	METSECT5MA025
			300	METSECT5MA030
			400	METSECT5MA040
MC				
	Ø32	10 x 40 20 x 32 25 x 25	250	METSECT5MC025
			300	METSECT5MC030
			400	METSECT5MC040
			500	METSECT5MC050
			600	METSECT5MC060
			800	METSECT5MC080
MF				
	Ø35	10 x 40	250	METSECT5MF025
			300	METSECT5MF030
			400	METSECT5MF040
			500	METSECT5MF050
MD				
	Ø40	12 x 50 20 x 40	500	METSECT5MD050
			600	METSECT5MD060
			800	METSECT5MD080

9

Technical Section 10

Dimensions Section 11

DB415926.eps



Mounting plate installation.

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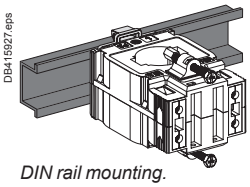


DIN rail mounting.

Common characteristics

Secondary current Is (A)	5
Maximum voltage rating Ue (V)	720
Frequency (Hz)	50/60
Safety factor (sf)	■ 40 to 4000 A: sf ≤ 5 ■ 5000 to 6000 A: sf ≤ 10
Degree of protection	IP20
Operating temperature	■ tropicalised range ■ -25 °C to +60 °C (1) ■ relative humidity > 95 %
Compliance with standards	■ IEC 61869-2 ■ VDE 0414
Secondary connection (as per model)	■ by terminals for lug ■ by tunnel terminals ■ by screws

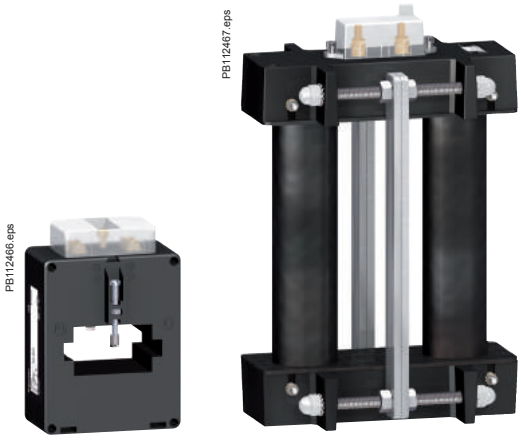
(1) ***Warning:*** *some products are limited to +50 °C.*

Accuracy class 0.5	1	3 (Max. power (VA))	Overall dimensions (refer to drawing pages for details) W x H x D (mm)	Fastening mode	Accessories Cylinder 	Sealable cover 
-	-	1	**44 x 66 x 37**	■ Adapter for DIN rails. ■ Mounting plate.	**16550** **METSECT5CYL1**	**Included**
-	1.25	1.5				
-	1.25	2				
-	1.5	2.5				
2	2.5	3.5				
2.5	3.5	4				
3	4	5				
4	5.5	6				
5	6	7				
1.5	5.5	6.5	**56 x 84 x 60**	■ Adapter for DIN rails. ■ Mounting plate. ■ Insulated locking screw.	**16551**	**16552**
4	7	8.5				
6	9	11				
7.5	11	14				
10.5	15	18				
12	18	22				
14.5	21.5	26				
3	4	-	**60 x 85 x 63**	■ Adapter for DIN rails. ■ Mounting plate.	-	**METSECT5COVER**
4	6	-				
6	8	-				
3	4	-	**56 x 80 x 63**	■ Adapter for DIN rails. ■ Mounting plate.	**METSECT5CYL2**	**METSECT5COVER**
4	7	-				
6	8	-				
8	10	-				
10	12	-				
3	5	-	**70 x 95 x 65**	■ Adapter for DIN rails. ■ Mounting plate.	-	**METSECT5COVER**
5	8	-				
8	10	-				
10	12	-				
12	15	-				
10	12	-				
2.5	5	8	**77 x 107 x 64**	■ Adapter for DIN rails. ■ Mounting plate. ■ Insulated locking screw.	-	**16553**
4	8	12				
8	12	15				
10	12	15				
4	6	-	**70 x 95 x 65**	■ Adapter for DIN rails. ■ Mounting plate.	-	**METSECT5COVER**
6	8	-				
8	12	-				

Technical Section 10 **Dimensions Section 11**

CT, Ip/5 A ratio

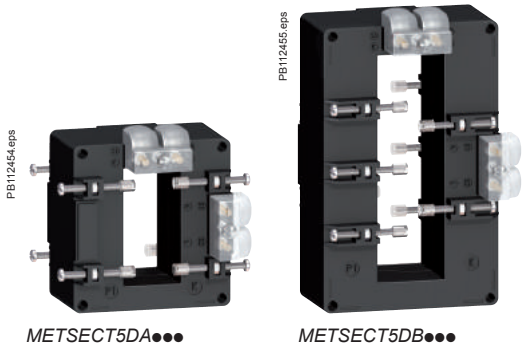
Catalogue numbers (cont.)



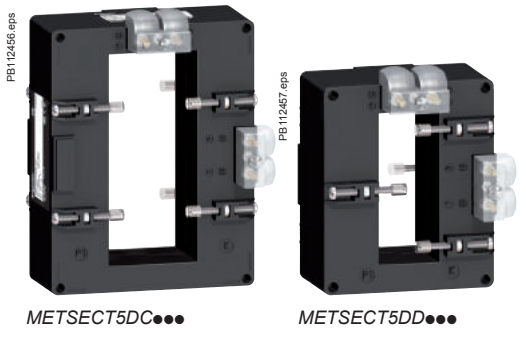
METSECT5VF●●● *METSECT5VV●●●*

Type V current transformers (vertical bar profile)

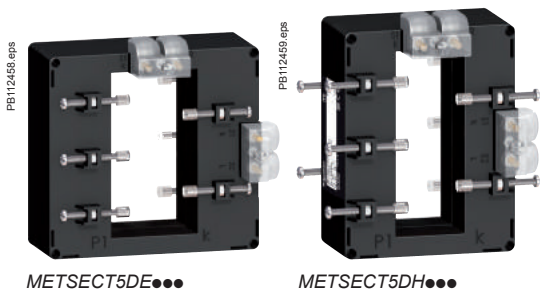
Internal profile type	Cables (mm)	Bars (mm)	Rating Ip/5 A (A)	Cat. no.
VF				
	-	11 x 64 31 x 51	500 600	METSECT5VF050 METSECT5VF060
VV				
	-	55 x 165	5000 6000	METSECT5VV500 ★ METSECT5VV600 ★



METSECT5DA●●● *METSECT5DB●●●*



METSECT5DC●●● *METSECT5DD●●●*



METSECT5DE●●● *METSECT5DH●●●*

Type D - current transformers (vertical or horizontal bar - dual secondary terminals)

DA				
	-	32 x 65	200	METSECT5DA020
			250	METSECT5DA025
			300	METSECT5DA030
			400	METSECT5DA040
			500	METSECT5DA050
			600	METSECT5DA060
			800	METSECT5DA080
			1000	METSECT5DA100
			1250	METSECT5DA125 ★
			1500	METSECT5DA150 ★
DB				
	-	38 x 127	1000	METSECT5DB100
			1250	METSECT5DB125 ★
			1500	METSECT5DB150 ★
			2000	METSECT5DB200 ★
			2500	METSECT5DB250 ★
			3000	METSECT5DB300 ★
DC				
	-	52 x 127	2000	METSECT5DC200 ★
			2500	METSECT5DC250 ★
			3000	METSECT5DC300 ★
			4000	METSECT5DC400 ★
DD				
	-	34 x 84	1000	METSECT5DD100
			1250	METSECT5DD125 ★
			1500	METSECT5DD150 ★
DE				
	-	54 x 102	1000	METSECT5DE100
			1250	METSECT5DE125 ★
			1500	METSECT5DE150 ★
			2000	METSECT5DE200 ★
DH				
	-	38 x 102	1250	METSECT5DH125 ★
			1500	METSECT5DH150 ★
			2000	METSECT5DH200 ★

★ *Operating temperature: -25 °C to +50 °C.*

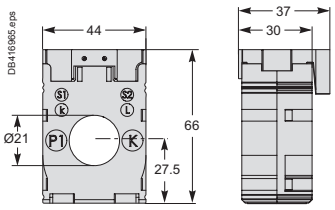
Technical Section 10 Dimensions Section 11

Accuracy class			Overall dimensions (refer to drawing pages for details) W x H x D (mm)	Fastening mode	Accessories	
0.5	1	3			Cylinder 	Sealable cover 
Max. power (VA)						
2	4	-	**90 x 130 x 66**	■ Mounting plate. ■ Insulated locking screw.	-	**Included**
4	6	-				
60	-	-	**175 x 273.5 x 110**	■ Insulated locking screw.	-	**Included**
70	-	-				
-	2	5	**90 x 94 x 90**	■ Insulated locking screw.	-	**Included**
1	4	-				
1.5	6	-				
4	8	-				
8	10	-				
8	12	-				
12	15	-				
15	20	-				
15	20	-				
20	25	-				
6	10	-	**99 x 160 x 87**	■ Insulated locking screw.	-	**Included**
8	12	-				
10	15	-				
15	20	-				
20	25	-				
25	30	-				
25	30	-	**125 x 160 x 87**	■ Insulated locking screw.	-	**Included**
30	50	-				
30	50	-				
30	50	-				
10	15	-	**96 x 116 x 87**	■ Insulated locking screw.	-	**Included**
12	15	-				
15	20	-				
12	15	-	**135 x 129 x 85**	■ Insulated locking screw.	-	**Included**
15	20	-				
20	25	-				
20	25	-				
12	15	-	**98 x 129 x 75**	■ Insulated locking screw.	-	**Included**
12	15	-				
20	25	-				

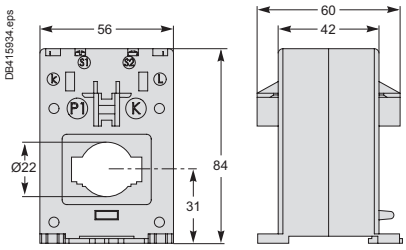
CT,
Ip/5 A ratio
Dimensions

CT current transformers

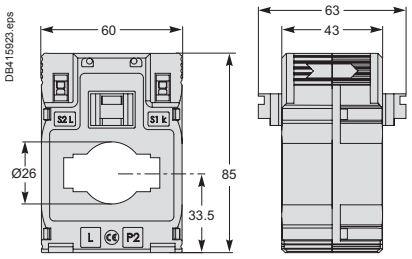
CC internal profile type



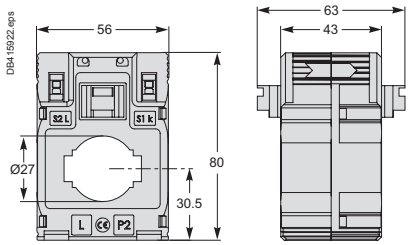
ME internal profile type



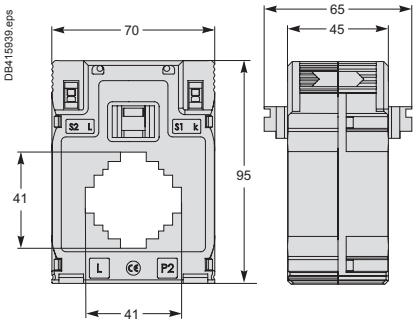
MB internal profile type



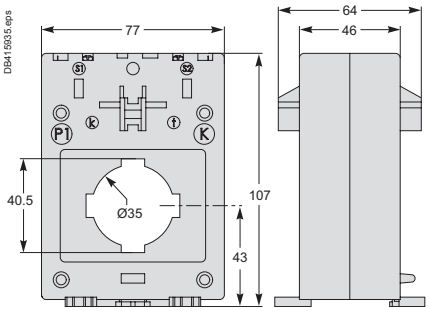
MA internal profile type



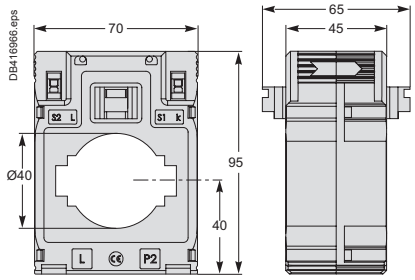
MC internal profile type



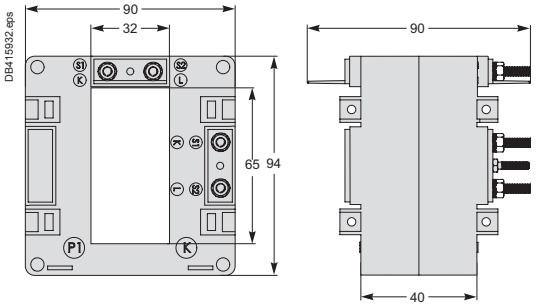
MF internal profile type



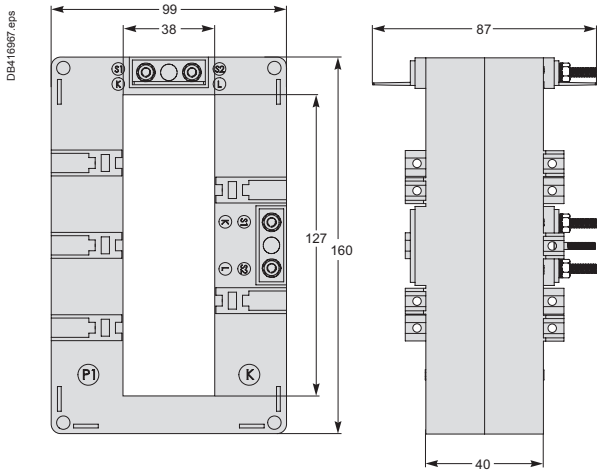
MD internal profile type



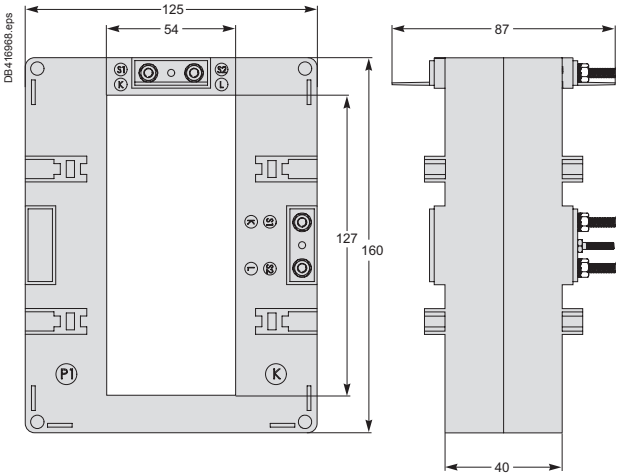
DA internal profile type



DB internal profile type



DC internal profile type

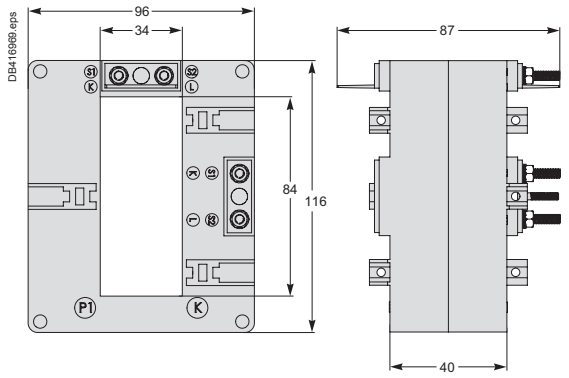


9

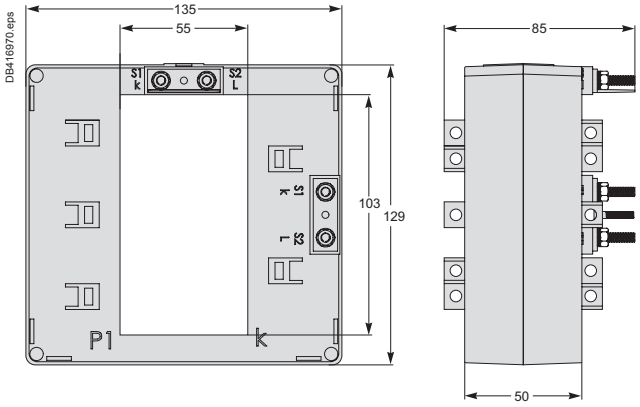
CT,
Ip/5 A ratio
Dimensions (cont.)

CT current transformers

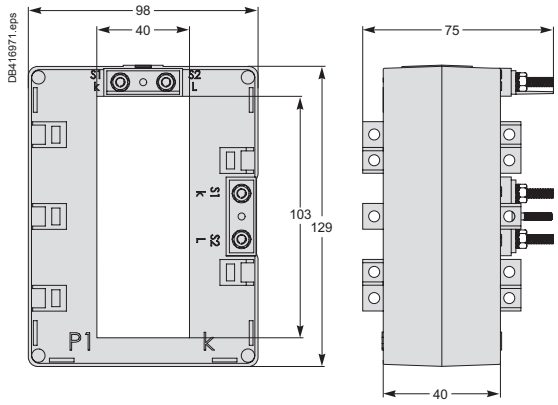
DD internal profile type



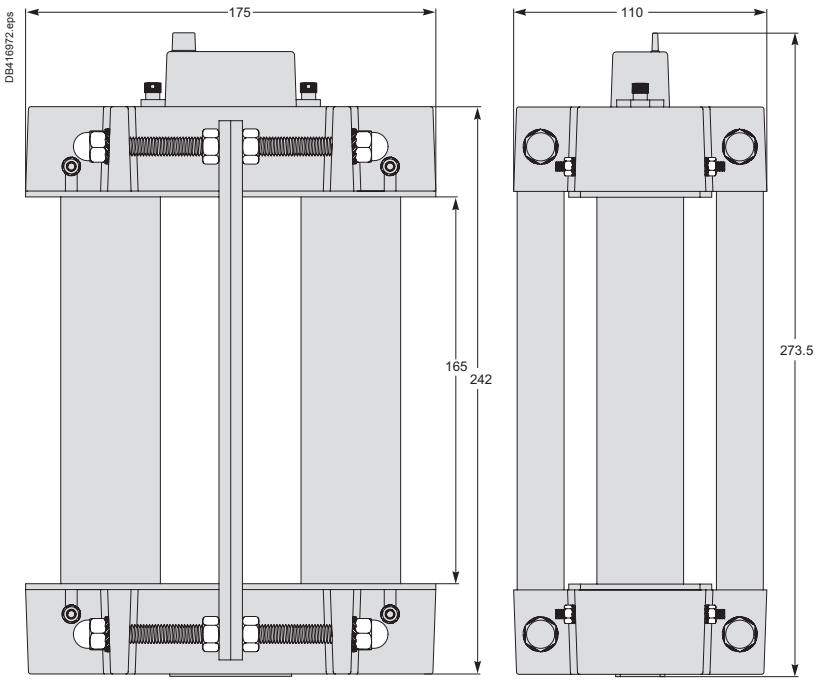
DE internal profile type



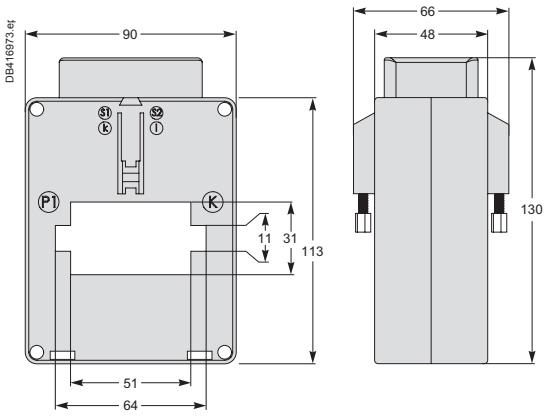
DH internal profile type



VV internal profile type



VF internal profile type



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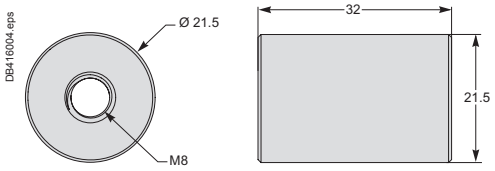
CT,
Ip/5 A ratio
Accessories and dimensions

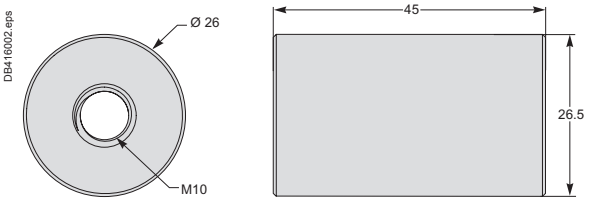
Cylinders

METSECT5CYL1



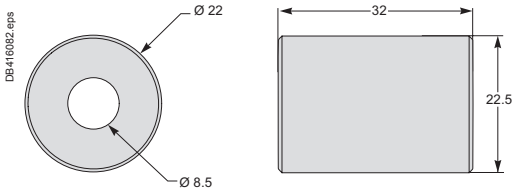
Aluminium

METSECT5CYL2



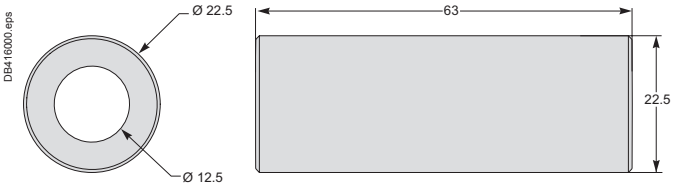
Aluminium

16550



Brass

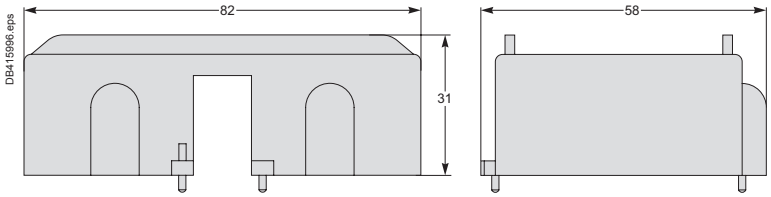
16551



Brass

Covers

16552



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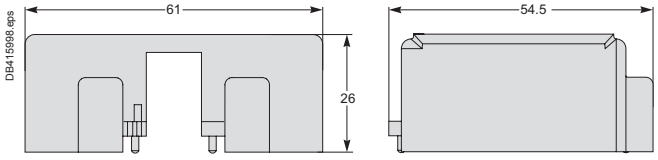
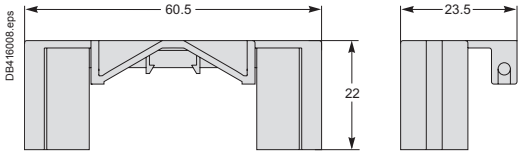


METSECT5COVER



9

Contents

Technical data

10

Dissipated power, impedance and voltage drop

Acti 9 products

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

Rating (A)		0.5	1	1.6	2	2.5	3	4	6	6.3	10	12.5	13	16	20	25	32	40	50	63	80	100	125
Circuit breakers																							
iC60		2.3	2.3		1.9		2.2	2.4	1.3		2		2	2.1	2.2	2.7	2.8	3.6	4	5.6			
iC60L-MA				0.7		0.2		0.6		0.9	1.1	1.5		1.6		0.8		2					
			2.3		1.9		2.2	2.4	2.7		1.8			2.5	3	3.1	3.5	3.6	4	5.6			
RCCB																							
iID	2P													0.8		0.9		2.6		2.6	3	5	
	4P															0.7		1.9		1.5	2.6	4.3	
																2.7		3.6		5.6			
Add-on residual current devices																							
Vigi iC60	10 mA															3							
	30 mA															1.4		1.1		2.3			
	100 mA															1.1				2.3			
	300 mA															1.3		0.9		2.3			
	500 mA															1.1		0.9		2.3			
	1000 mA																			2.3			
Contactors																							
iCT/iCT+	Power circuit													0.6	0.9	1.4		1.5		3.4		4	
Impulse relays																							
iTL/iTL+	Power circuit													0.6			1.5						
Push-buttons																							
iPB															0.6								
Selector switches																							
iSSW															0.8								
iCMA/iCMB/iCMC/iCMD/ iCMV											0.4												
Switch-disconnectors																							
iSW															0.8		1.3	1.1		1.8		3.4	4.2
iSW-NA	2P																	0.7		1.8		3	5
	4P																	0.6		1.5		2.5	4.1

Indicator lights	
iIL	0.3

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

Impedance calculation:

$Z = P / I^2$

Z: impedance in Ohms
P: dissipated power in Watts (table values)
I: rating in Amperes

Voltage drop calculation:

$U = P / I$

U: voltage drop in Volts
P: dissipated power in Watts (table values)
I: rating in Amperes

Dissipated power, impedance and voltage drop (cont.)

Multi 9 products

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

Rating (A)	0.5	1	1.6	2	2.5	3	4	6	6.3	10	12.5	13	16	20	25	32	40	50	63	80	100	125
Circuit breakers																						
iDPN		2.5		1.9		2.1	2.6	2.7		2.7		3.3	3.2	4.7	4.7	4.6	5.8					
C60/C60H-DC	2.2	2.3		2.6		2.2	2.4	2.7		1.8		2.5	2.5	3	3.1	3.5	4.3	4.8	6.1			
C120										1.3			2.1	2.3	2.5	3.2	3.1	3.2	3	3.2	2	4.1
NG125										1.7			2.4	2.7	2.7	3.8	3.8	4.2	3.8	4.8	4.3	7.9
C60L-MA			2.4		2.5		2.4		3	2	2.5		2.6		3		4.6					
NG125L-MA							3		2	2	3.1		2.5		3.2		4		5.5	6		
RCCB																						
ID Type A/AC															1.4		3.6		4.4	7.2	18	28
ID Type B															1.2		2.9		7.2	12	18	28
Contactors																						
CT/CT+ Power circuit													0.9				1.4					
Impulse relays																						
TL/TL+ Power circuit													0.9			1.4						
Push-buttons																						
PB														0.6								
Selector switches																						
CM														0.8								
CMA/CMB/CMC/CMD/ CMV										0.4												
Switch-disconnectors																						
I														0.8		1.3	1.1		1.8		3.4	4.2
I-NA																	3.2		3.2			
NG125NA																			5.5	6	7	9
Indicator lights																						
V	0.3																					

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

Impedance calculation:

$Z = P / I^2$

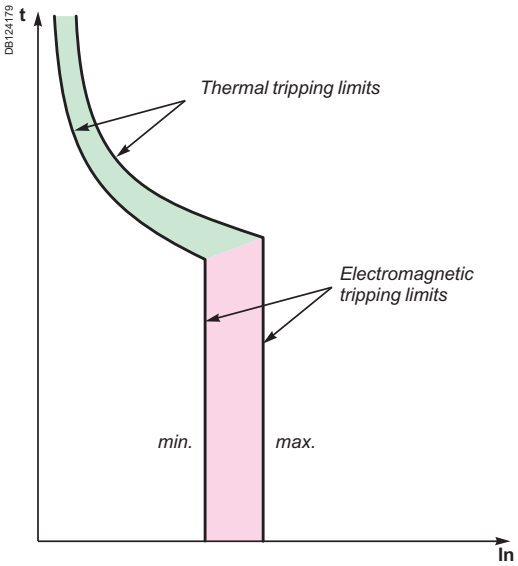
Z: impedance in Ohms
P: dissipated power in Watts (table values)
I: rating in Amperes

Voltage drop calculation:

$U = P / I$

U: voltage drop in Volts
P: dissipated power in Watts (table values)
I: rating in Amperes

Tripping curves



The following curves show the total fault current breaking time, depending on its amperage. For example: based on the curve on page 11/5, 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

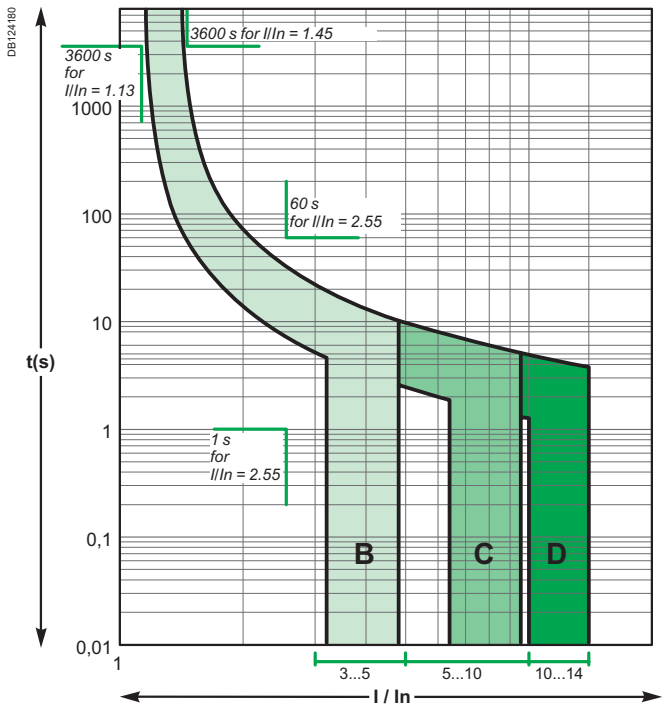
By superimposing the curve of a circuit breaker on that of the circuit breaker installed upstream, one can check whether this combination will be discriminating in cases of overload (discrimination for all current values, up to the magnetic threshold of the upstream circuit breaker). This verification 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 (cont.)
According to IEC/EN 60898-1 standards

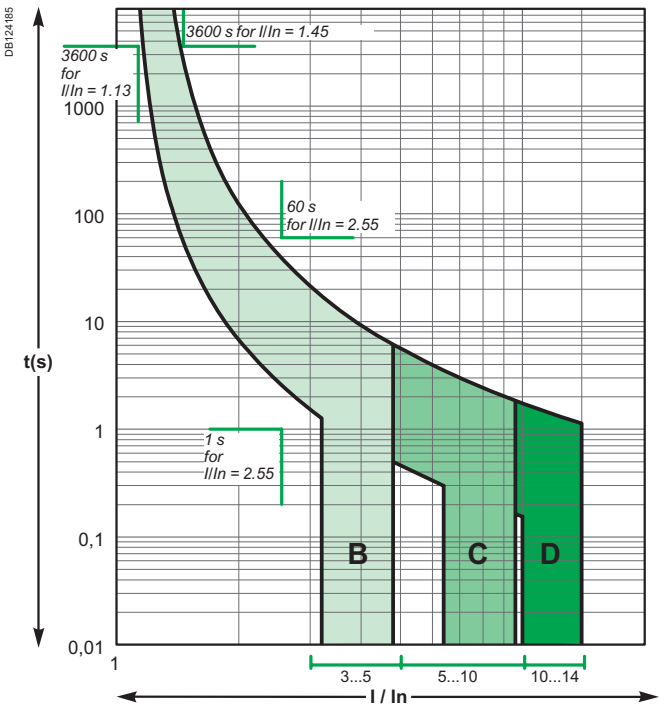
Alternative current 50/60 Hz

iC60
According to IEC/EN 60898-1 (reference temperature 30°C)

Curves B, C, D rating up to 4 A

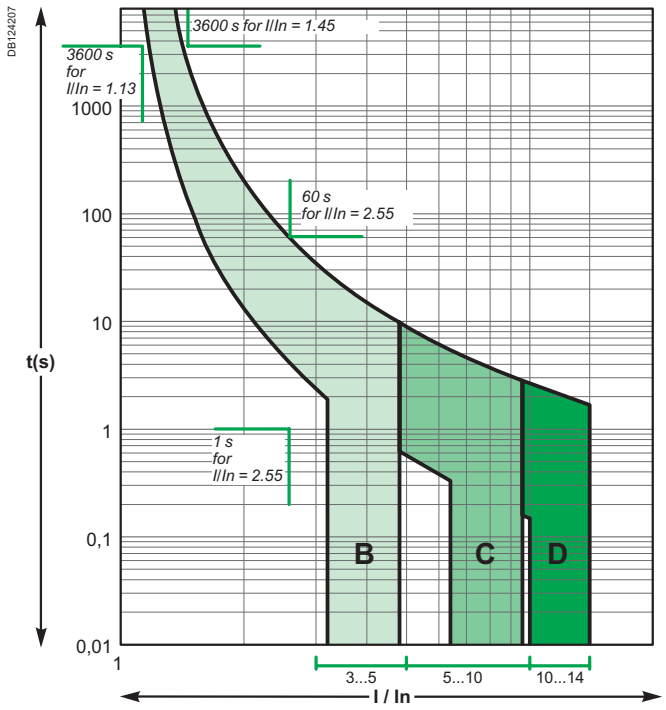


Curves B, C, D rating 6 A to 63 A



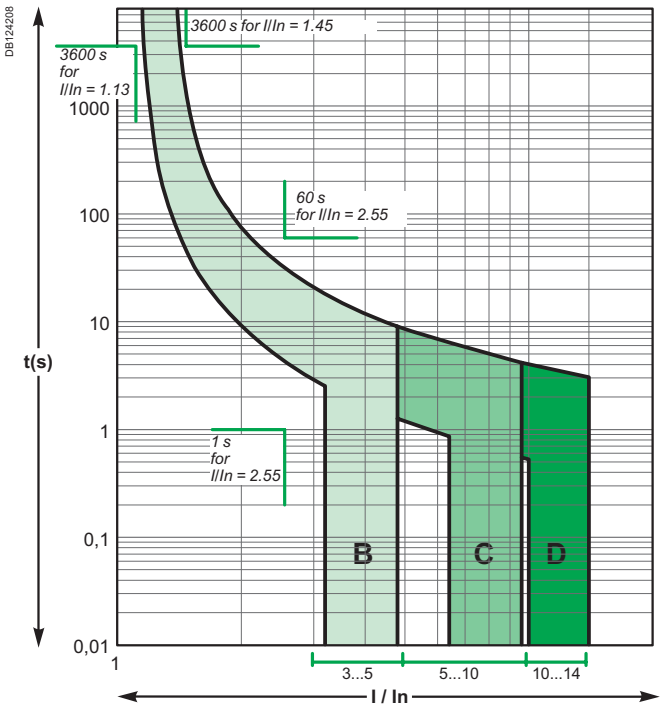
C120N/H
According to IEC/EN 60898-1 (reference temperature 30°C)

Curves B, C, D



iDPN, DPN N (circuit-breaker and residual current device)
According to IEC/EN 60898-1 (reference temperature 30°C)

Curves B, C, D



10

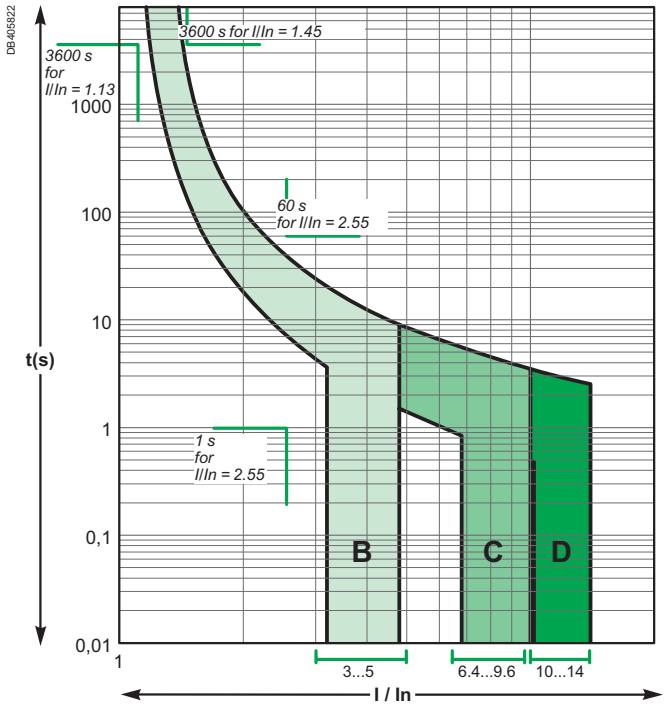
Tripping curves (cont.)
According to IEC/EN 60898-1 standards

Alternative current 50/60 Hz

C60

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

Curves B, C, D



10

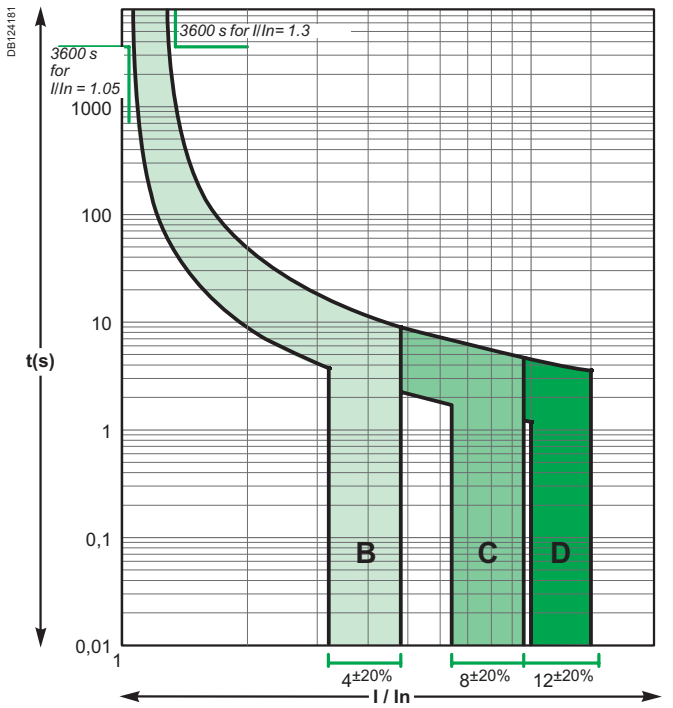
Tripping curves (cont.)
According to IEC/EN 60947-2 standards

Alternative current 50/60 Hz

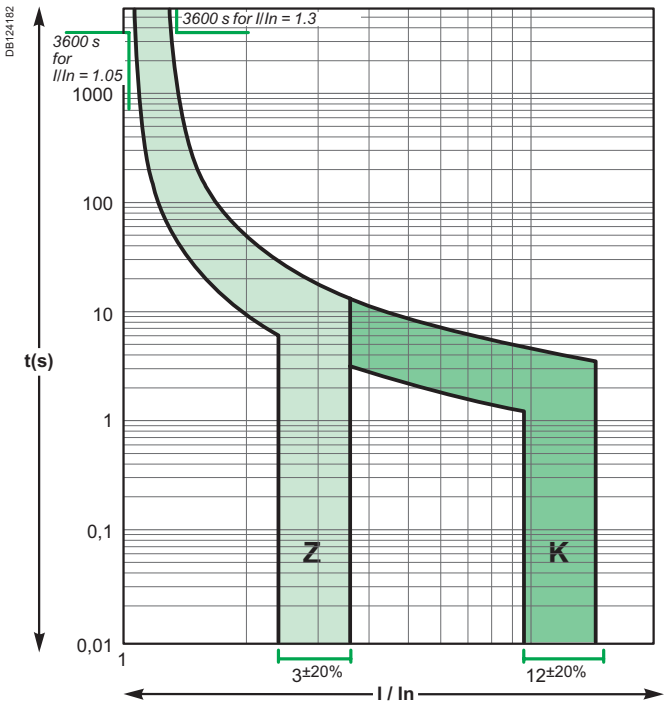
iC60

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

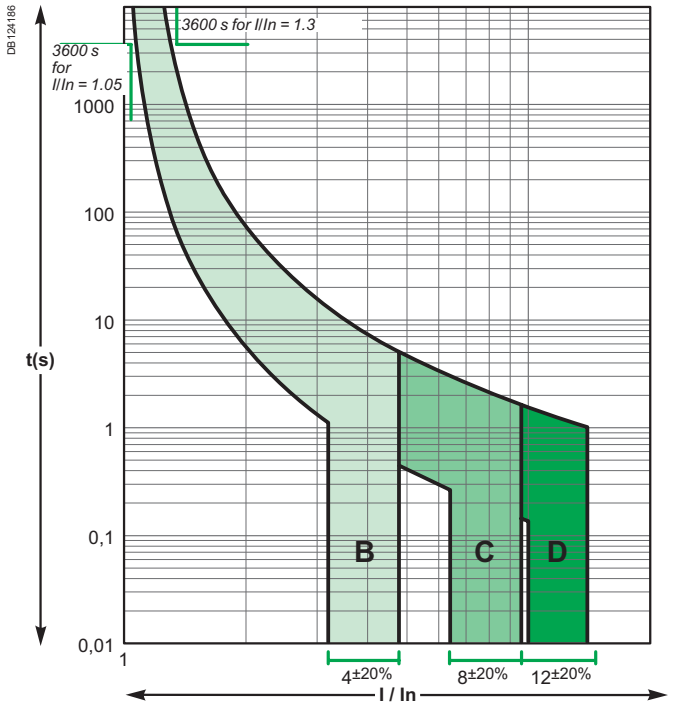
Curves B, C, D rating up to 4 A



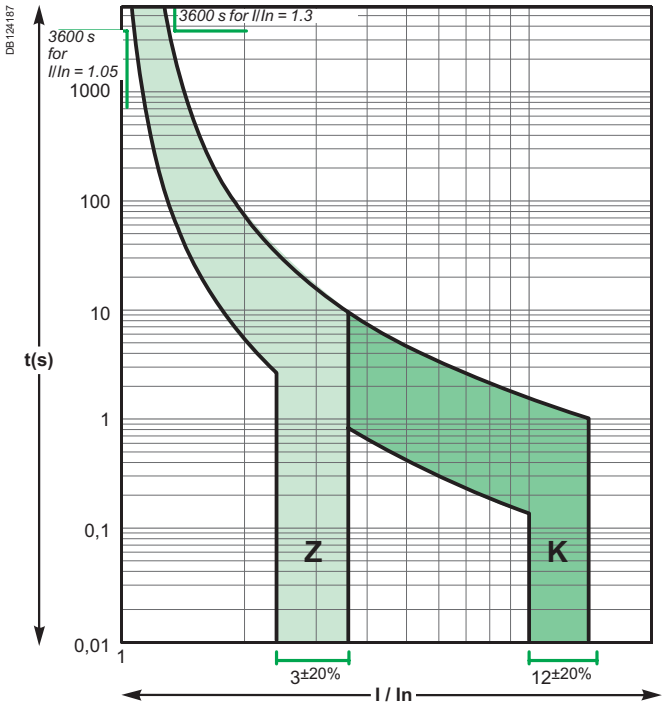
Curves Z, K rating up to 4 A



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



Curves Z, K rating 6 A to 63 A



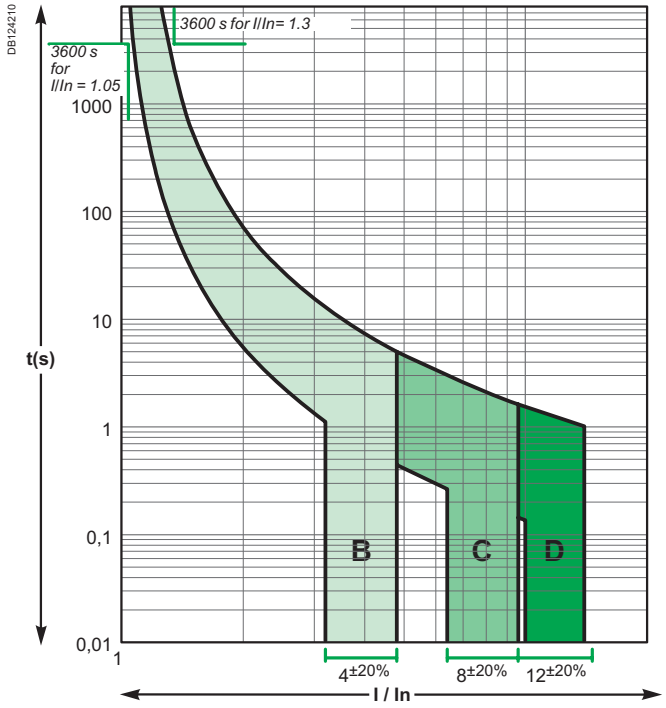
10

Tripping curves (cont.)
According to IEC/EN 60947-2 standards

Alternative current 50/60 Hz

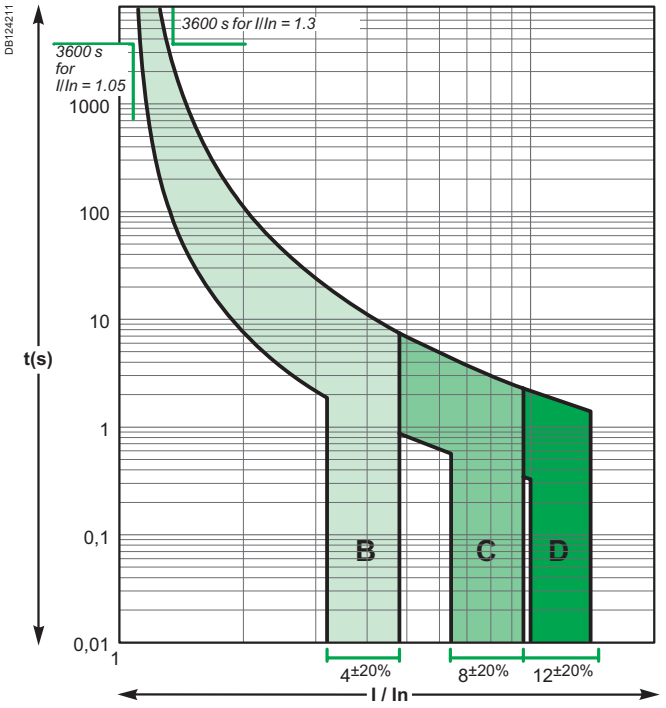
Reflex iC60N/H
According to IEC/EN 60947-2 (reference temperature 50°C)

Curves B, C, D



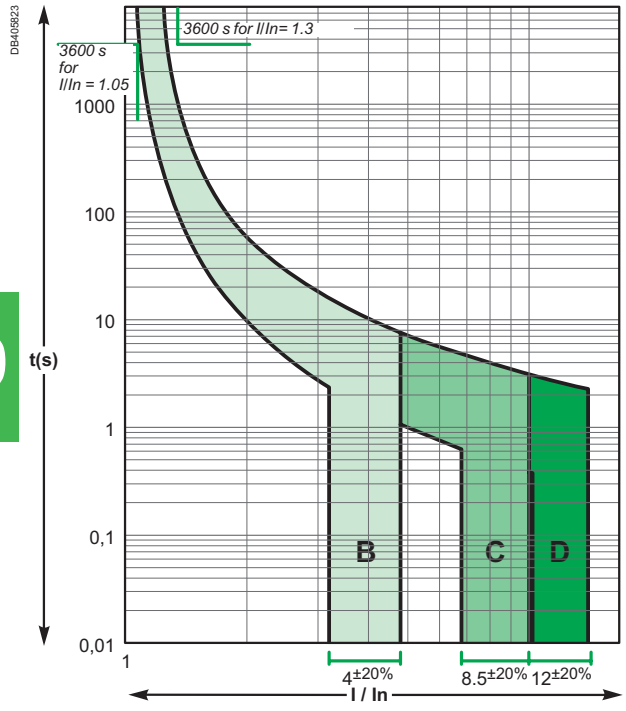
NG125a/N/H/L
According to IEC/EN 60947-2 (reference temperature 40°C)

Curves B, C, D



C60
According to IEC/EN 60947-2 (reference temperature 50°C)

Curves B, C, D



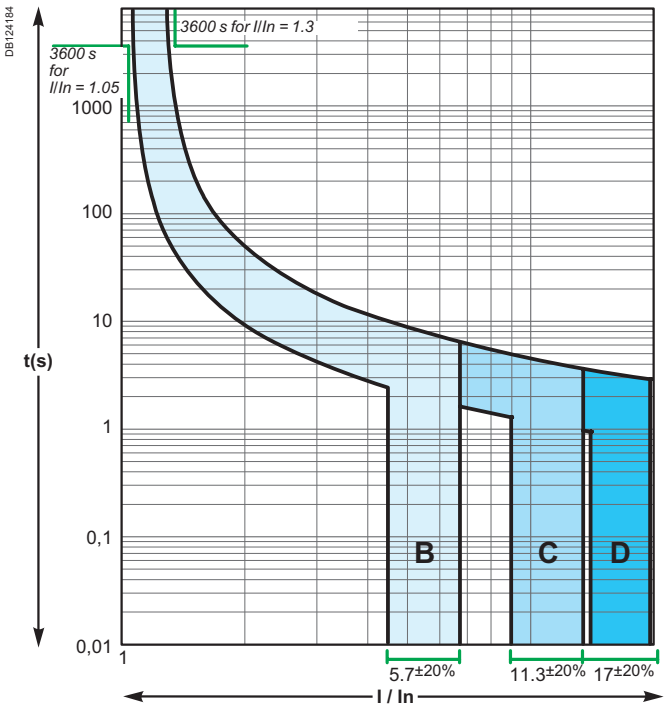
Tripping curves (cont.)
According to IEC/EN 60947-2 standards

Direct current

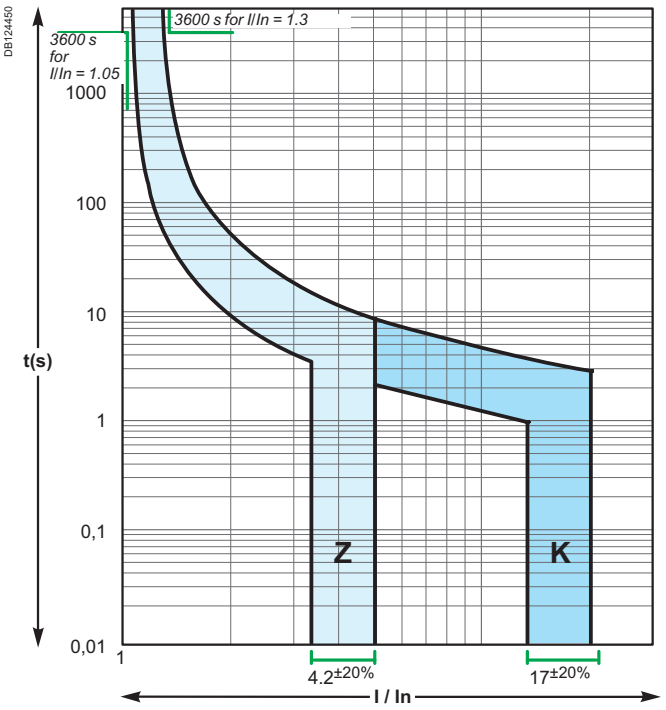
iC60N/H/L

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

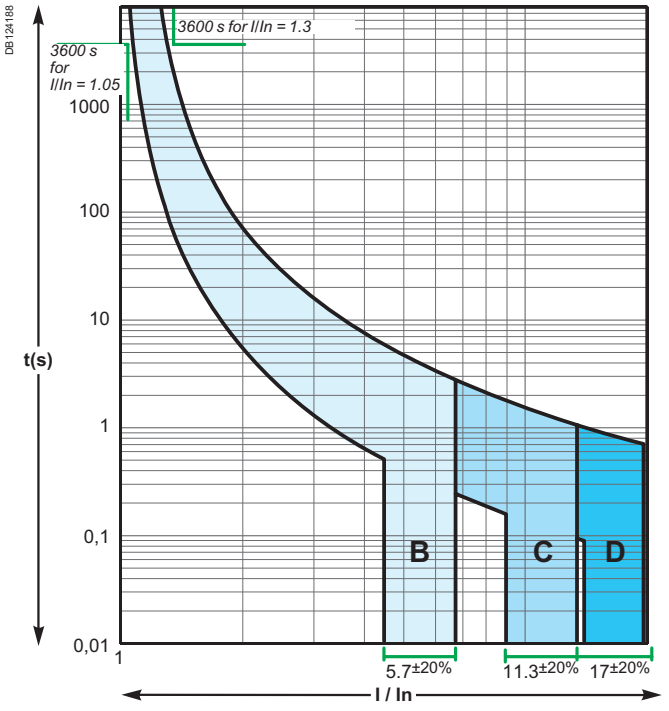
Curves B, C, D rating up to 4 A



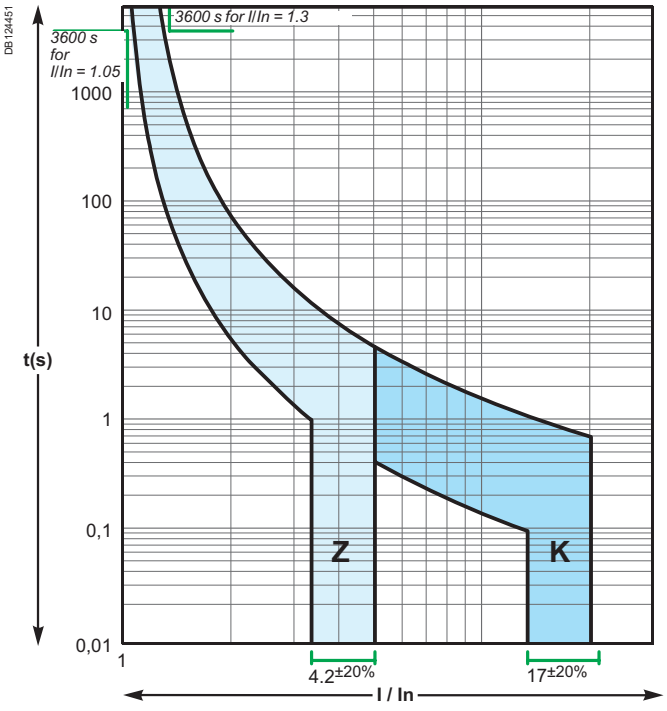
Curves Z, K rating up to 4 A



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



Curves Z, K rating 6 A to 63 A



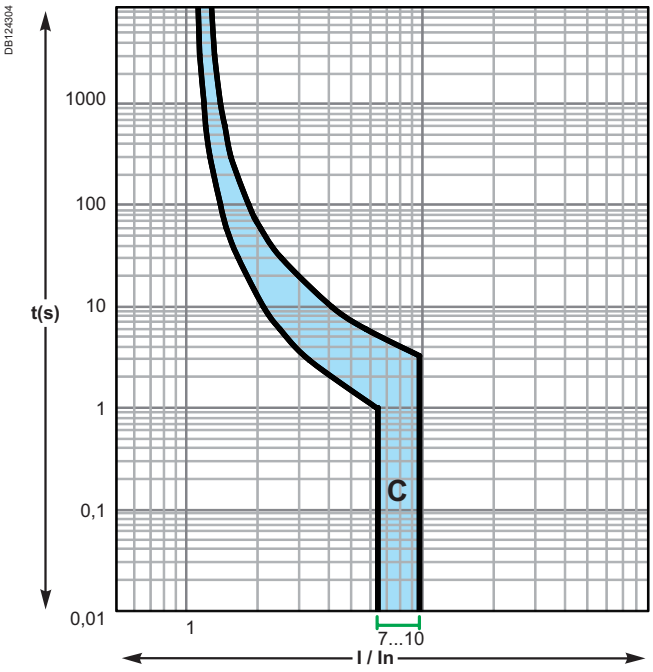
10

Tripping curves (cont.)
According to IEC/EN 60947-2 standards

Direct current

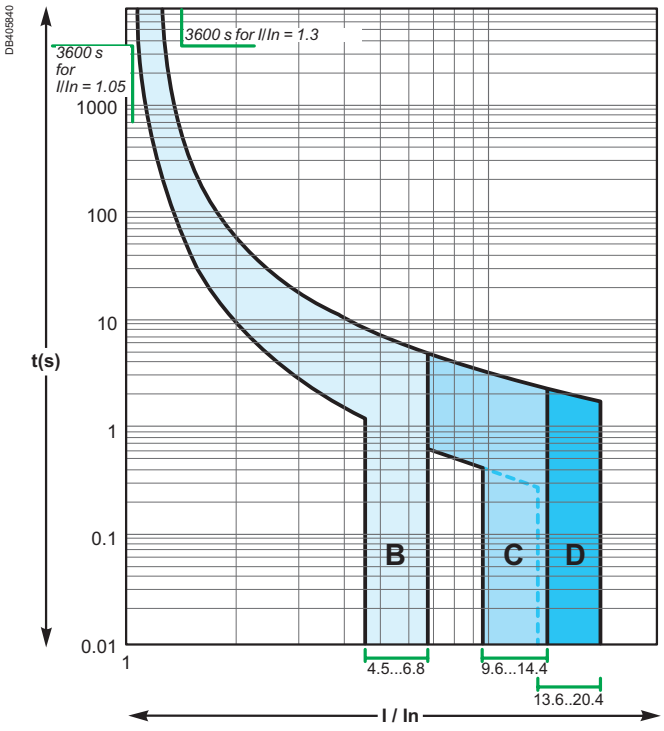
C60H-DC
According to IEC/EN 60947-2 (reference temperature 25°C)

Curve C



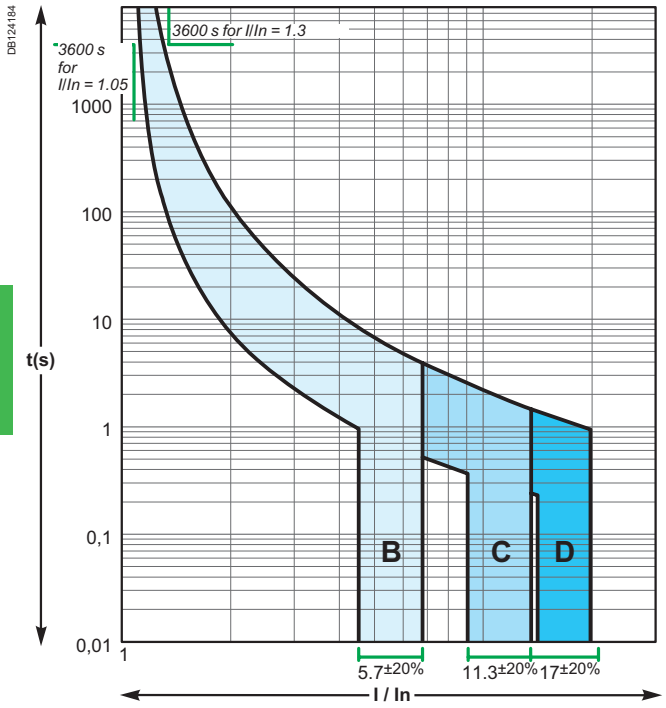
C60
According to IEC/EN 60947-2 (reference temperature 50°C)

Curves B, C, D



NG125a/N/H/L
According to IEC/EN 60947-2 (reference temperature 40°C)

Curves B, C, D



10

Dimensions
Section 11

Influence of ambient temperature

Influence of temperature on the operation

Devices		Characteristics influenced by temperature	Temperature	
			Min.	Max.
iDPN, C60H-DC, C60, C120, NG125, C60PV-DC circuit breakers		Tripping on overload	-30°C	+70°C
		Tripping on overload	-25°C	+60°C
iC60N 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
iC60H RCBO,		Tripping on overload	-15°C	+60°C
C60NA-DC, SW60PV-DC switch-disconnectors		Maximum operating current	-25°C	+70°C
		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	Maximum operating current	-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
iCT, iTL auxiliaries		None	-20°C	+50°C
Distribloc		Maximum operating current	-25°C	+60°C
Multiclip		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 causes lowering of the thermal threshold (tripping on overload).
- 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 thermal tripping threshold of the circuit breaker.
- There is no risk of nuisance tripping: the threshold remains higher than the maximum operating current of the circuit (I_B) demanded by the loads.
- It should be checked that the cable remains suitably protected, i.e. that its acceptable current (I_z) is higher than the values shown in the following tables (in amperes).

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

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

Influence of ambient temperature (cont.)

Maximum permissible current

- The maximum current allowed to flow through the device depends on the ambient temperature in which it is placed.
- The ambient temperature is the temperature inside the enclosure or switchboard in which the devices are installed.
- The reference temperature is in a halftone colour for the different devices.

- When several devices operating simultaneously are mounted side by side in a small enclosure, a temperature rise in the enclosure results in a reduction in the operating current. A reduction coefficient of 0.8 will then have to be assigned to the rating (already derated, if applicable, depending on the ambient temperature).

- Example:

Depending on the ambient temperature and the method of installation, the table below shows how to determine, for an iC60, the operating currents not to be exceeded for ratings 25 A, 32 A and 40 A (reference temperature 50°C).

Operating current not to be exceeded (A)							
Installation conditions (IEC 60947-2)		iC60 alone			Several iC60 in the same enclosure (calculate with the reduction coefficient indicated below)		
Ambient temperature (°C)		35°C	50°C	65°C	35°C	50°C	65°C
Type	Nominal rating (A)	Actual rating (A)					
iC60	25	26.35	25	23.57	26.35 x 0.8 = 21	25 x 0.8 = 20	23.57 x 0.8 = 19
	32	34	32	29.9	34 x 0.8 = 27	32 x 0.8 = 25.6	29.9 x 0.8 = 24
	40	42.5	40	37.34	42.5 x 0.8 = 34	40 x 0.8 = 32	37.34 x 0.8 = 30

Influence of ambient temperature (cont.)

IEC 60898-1

C120 derating table (IEC 60898-1)

C120	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
10 A	12.9	12.7	12.5	12.2	12	11.8	11.5	11.3	11	10.8	10.5	10.3	10	9.7	9.4	9.1	8.8	8.5	8.2	7.9	7.5
16 A	19.4	19.1	18.8	18.6	18.3	18	17.8	17.5	17.2	16.9	16.6	16.3	16	15.7	15.4	15.1	14.7	14.4	14	13.7	13.3
20 A	24.6	24.2	23.9	23.5	23.2	22.8	22.4	22	21.6	21.2	20.8	20.4	20	19.6	19.1	18.7	18.2	17.7	17.3	16.8	16.2
25 A	30.9	30.5	30	29.5	29.1	28.6	28.1	27.6	27.1	26.6	26.1	25.5	25	24.4	23.9	23.3	22.7	22.1	21.5	20.8	20.1
32 A	38.9	38.4	37.9	37.3	36.8	36.2	35.6	35	34.5	33.9	33.3	32.6	32	31.4	30.7	30	29.3	28.6	27.9	27.2	26.4
40 A	49.8	49.1	48.3	47.6	46.8	46	45.2	44.4	43.5	42.7	41.8	40.9	40	39.1	38.1	37.1	36.1	35.1	34.1	33	31.8
50 A	62.2	61.3	60.4	59.4	58.4	57.5	56.5	55.4	54.4	53.3	52.2	51.1	50	48.8	47.7	46.4	45.2	43.9	42.6	41.2	39.8
63 A	78.6	77.5	76.3	75	73.8	72.5	71.3	69.9	68.6	67.3	65.9	64.5	63	61.5	60	58.4	56.8	55.2	53.5	51.7	49.9
80 A	98.4	97	95.6	94.2	92.7	91.2	89.7	88.1	86.6	85	83.4	81.7	80	78.3	76.5	74.7	72.8	70.9	69	67	64.9
100 A	124.5	122.6	120.7	118.8	116.9	114.9	112.9	110.9	108.8	106.6	104.5	102.3	100	97.7	95.3	92.9	90.4	87.8	85.2	82.5	79.6
125 A	157	154.6	152.2	149.7	147.1	144.6	141.9	139.2	136.5	133.7	130.9	128	125	122	118.8	115.6	112.3	108.9	105.4	101.8	98

Influence of ambient temperature (cont.)

Tertiary/Industry (IEC 60947-2)

iDPN derating table (IEC 60947-2)

iDPN		Ambient temperature (°C)																				
Rating	Curve	-30	-25	-20	-15	-10	-5	0	+5	+10	+15	+20	+25	+30	+35	+40	+45	+50	+55	+60	+65	+70
1 A	B, C, D	1.69	1.66	1.62	1.59	1.55	1.51	1.47	1.43	1.39	1.35	1.3	1.26	1.21	1.16	1.11	1.06	1	0.94	0.88	0.81	0.73
2 A	B, C, D	2.68	2.64	2.6	2.56	2.52	2.48	2.44	2.4	2.36	2.32	2.28	2.23	2.19	2.14	2.1	2.05	2	1.95	1.9	1.85	1.79
3 A	B, C, D	4.03	3.97	3.91	3.86	3.8	3.74	3.68	3.61	3.55	3.49	3.42	3.36	3.29	3.22	3.15	3.07	3	2.92	2.85	2.77	2.68
4 A	B, C, D	5.26	5.19	5.12	5.05	4.98	4.9	4.83	4.75	4.67	4.6	4.52	4.43	4.35	4.27	4.18	4.09	4	3.91	3.81	3.72	3.62
6 A	B, C, D	7.51	7.42	7.34	7.25	7.16	7.07	6.98	6.89	6.8	6.7	6.61	6.51	6.41	6.31	6.21	6.11	6	5.89	5.78	5.67	5.56
10 A	B	12.5	12.3	12.2	12.1	11.9	11.8	11.6	11.5	11.3	11.2	11	10.8	10.7	10.5	10.3	10.2	10	9.8	9.7	9.5	9.3
10 A	C, D	13	12.9	12.7	12.5	12.3	12.2	12	11.8	11.6	11.4	11.2	11	10.8	10.6	10.4	10.2	10	9.8	9.6	9.3	9.1
13 A	B	17	16.7	16.5	16.3	16.1	15.8	15.6	15.4	15.1	14.9	14.6	14.4	14.1	13.8	13.6	13.3	13	12.7	12.4	12.1	11.8
13 A	C, D	17.2	16.9	16.7	16.5	16.2	16	15.7	15.5	15.2	15	14.7	14.4	14.2	13.9	13.6	13.3	13	12.7	12.4	12.1	11.7
16 A	B, C	20.6	20.4	20.1	19.8	19.6	19.3	19	18.7	18.5	18.2	17.9	17.6	17.3	17	16.7	16.3	16	15.7	15.3	15	14.6
16 A	D	20.8	20.5	20.2	20	19.7	19.4	19.1	18.8	18.5	18.2	17.9	17.6	17.3	17	16.7	16.3	16	15.7	15.3	14.9	14.6
20 A	B	25.7	25.3	25	24.7	24.4	24	23.7	23.4	23	22.7	22.3	21.9	21.6	21.2	20.8	20.4	20	19.6	19.2	18.8	18.3
20 A	C, D	26	25.7	25.3	25	24.6	24.3	23.9	23.6	23.2	22.8	22.4	22	21.7	21.3	20.8	20.4	20	19.6	19.1	18.7	18.2
25 A	B, C, D	32	31.6	31.2	30.8	30.4	30	29.6	29.2	28.7	28.3	27.8	27.4	26.9	26.5	26	25.5	25	24.5	24	23.5	22.9
32 A	B, C, D	41.6	41.1	40.5	40	39.4	38.9	38.3	37.7	37.1	36.5	35.9	35.3	34.7	34	33.4	32.7	32	31.3	30.6	29.9	29.1
40 A	B, C, D	52.7	52	51.3	50.6	49.8	49.1	48.3	47.6	46.8	46	45.2	44.4	43.5	42.7	41.8	40.9	40	39.1	38.1	37.1	36.1

iC60, Reflex iC60 derating table (IEC 60947-2)

iC60	Ambient temperature (°C)																					
Rating	-35	-30	-25	-20	-15	-10	-5	0	+5	+10	+15	+20	+25	+30	+35	+40	+45	+50	+55	+60	+65	+70
0.5 A	0.66	0.65	0.64	0.63	0.63	0.62	0.61	0.6	0.59	0.58	0.57	0.56	0.55	0.54	0.53	0.52	0.51	0.5	0.49	0.48	0.47	0.45
1 A	1.32	1.3	1.28	1.27	1.25	1.23	1.21	1.2	1.18	1.16	1.14	1.12	1.1	1.08	1.06	1.04	1.02	1	0.98	0.96	0.93	0.91
2 A	2.79	2.75	2.71	2.67	2.63	2.58	2.54	2.5	2.45	2.4	2.36	2.31	2.26	2.21	2.16	2.11	2.05	2	1.94	1.89	1.83	1.76
3 A	4.21	4.15	4.08	4.02	3.96	3.89	3.83	3.76	3.69	3.62	3.55	3.48	3.4	3.32	3.25	3.17	3.08	3	2.91	2.82	2.73	2.64
4 A	5.62	5.54	5.46	5.37	5.29	5.2	5.11	5.02	4.93	4.83	4.74	4.64	4.54	4.44	4.33	4.22	4.11	4	3.88	3.76	3.64	3.51
6 A	8.55	8.42	8.29	8.16	8.03	7.89	7.75	7.61	7.46	7.31	7.16	7.01	6.85	6.69	6.52	6.35	6.18	6	5.81	5.62	5.43	5.22
10 A	13.3	13.2	13	12.8	12.6	12.5	12.3	12.1	11.9	11.7	11.5	11.3	11.1	10.9	10.7	10.5	10.2	10	9.8	9.5	9.3	9
13 A	17.1	16.9	16.7	16.4	16.2	16	15.8	15.5	15.3	15.1	14.8	14.6	14.3	14.1	13.8	13.6	13.3	13	12.7	12.4	12.1	11.8
16 A	21.1	20.8	20.6	20.3	20	19.7	19.5	19.2	18.9	18.6	18.3	18	17.7	17.3	17	16.7	16.3	16	15.7	15.3	14.9	14.5
20 A	26	25.7	25.4	25	24.7	24.4	24.1	23.7	23.4	23	22.7	22.3	21.9	21.6	21.2	20.8	20.4	20	19.6	19.2	18.7	18.3
25 A	31.9	31.6	31.2	30.8	30.4	30.1	29.7	29.3	28.9	28.5	28.1	27.6	27.2	26.8	26.4	25.9	25.5	25	24.5	24.1	23.6	23.1
32 A	42	41.5	41	40.5	39.9	39.4	38.8	38.2	37.7	37.1	36.5	35.9	35.3	34.6	34	33.3	32.7	32	31.3	30.6	29.9	29.1
40 A	52.6	51.9	51.3	50.6	49.9	49.2	48.5	47.8	47.1	46.4	45.6	44.9	44.1	43.3	42.5	41.7	40.9	40	39.1	38.2	37.3	36.4
50 A	67.1	66.3	65.4	64.5	63.5	62.6	61.6	60.7	59.7	58.7	57.7	56.7	55.6	54.5	53.4	52.3	51.2	50	48.8	47.6	46.3	45
63 A	86.3	85.1	83.9	82.7	81.4	80.1	78.9	77.6	76.2	74.9	73.5	72.1	70.7	69.2	67.7	66.2	64.6	63	61.4	59.7	57.9	56.1

Reflex iC60

C60 derating table (IEC 60947-2)

C60	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
0.5 A	0.68	0.67	0.66	0.65	0.64	0.63	0.62	0.61	0.6	0.59	0.58	0.56	0.55	0.54	0.53	0.51	0.5	0.49	0.47	0.46	0.44
0.75 A	0.93	0.92	0.91	0.9	0.89	0.88	0.87	0.86	0.85	0.83	0.82	0.81	0.8	0.79	0.78	0.76	0.75	0.74	0.72	0.7	0.68
1 A	1.31	1.3	1.28	1.27	1.25	1.23	1.21	1.19	1.17	1.15	1.13	1.11	1.09	1.07	1.05	1.02	1	0.98	0.95	0.93	0.91
2 A	2.55	2.59	2.56	2.52	2.49	2.45	2.41	2.37	2.34	2.3	2.26	2.22	2.17	2.13	2.09	2.04	2	1.95	1.91	1.88	1.84
3 A	3.81	4.04	3.98	3.92	3.85	3.79	3.73	3.66	3.59	3.52	3.45	3.38	3.31	3.23	3.16	3.08	3	2.92	2.83	2.82	2.76
4 A	4.9	4.86	4.81	4.76	4.7	4.65	4.59	4.54	4.48	4.42	4.37	4.31	4.25	4.19	4.13	4.06	4	3.94	3.87	3.81	3.74
6 A	7.93	7.82	7.71	7.6	7.49	7.38	7.27	7.15	7.03	6.91	6.79	6.66	6.54	6.41	6.27	6.14	6	5.86	5.71	5.56	5.42
8 A	10.37	10.23	10.09	9.96	9.82	9.68	9.54	9.4	9.25	9.11	8.96	8.81	8.65	8.49	8.33	8.17	8	7.83	7.65	7.47	7.31
10 A	13.3	13.2	13	12.8	12.6	12.4	12.2	12	11.8	11.6	11.4	11.2	10.9	10.7	10.5	10.2	10	9.8	9.5	9.2	9
13 A	17	16.9	16.6	16.4	16.2	15.9	15.7	15.4	15.2	14.9	14.7	14.4	14.1	13.9	13.6	13.3	13	12.7	12.4	12.1	11.8
16 A	20	19.8	19.5	19.3	19.1	18.8	18.6	18.4	18.1	17.9	17.6	17.3	17.1	16.8	16.6	16.3	16	15.7	15.4	15.1	14.8
20 A	26.9	26.6	26.2	25.8	25.4	25	24.6	24.2	23.7	23.3	22.9	22.4	22	21.5	21	20.5	20	19.5	18.9	18.4	17.9
25 A	32.9	32.5	32.1	31.6	31.1	30.7	30.2	29.7	29.2	28.7	28.2	27.7	27.2	26.7	26.1	25.6	25	24.4	23.8	23.2	22.6
32 A	41.5	41.1	40.5	40	39.4	38.9	38.3	37.7	37.1	36.5	35.9	35.3	34.7	34	33.4	32.7	32	31.3	30.6	29.9	29.1
40 A	53.7	52.9	52.2	51.4	50.6	49.8	49	48.2	47.3	46.5	45.6	44.7	43.8	42.9	42	41	40	39	37.9	36.9	35.8
45 A	60.8	60.1	59.2	58.3	57.4	56.5	55.5	54.6	53.6	52.6	51.6	50.5	49.5	48.4	47.3	46.2	45	43.8	42.6	41.4	40.1
50 A	65	64.3	63.5	62.6	61.7	60.8	59.9	59	58.1	57.1	56.2	55.2	54.2	53.2	52.1	51.1	50	48.9	47.8	46.7	45.5
63 A	85.5	84.6	83.3	82	80.7	79.4	78	76.7	75.3	73.9	72.4	70.9	69.4	67.9	66.3	64.7	63	61.3	59.5	57.8	56

Dimensions
Section 11

Influence of ambient temperature (cont.)

Tertiary/Industry (IEC 60947-2) (cont.)

C60H-DC derating table (IEC 60947-2)

C60H-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
0.5 A	0.63	0.62	0.61	0.6	0.59	0.58	0.56	0.55	0.54	0.53	0.51	0.5	0.49	0.47	0.46	0.44	0.43	0.41	0.39	0.38	0.36
1 A	1.18	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
4 A	5.08	4.99	4.9	4.81	4.71	4.62	4.52	4.42	4.32	4.22	4.11	4	3.89	3.77	3.65	3.53	3.4	3.27	3.13	2.98	2.83
5 A	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
6 A	7.26	7.15	7.04	6.94	6.83	6.71	6.6	6.48	6.37	6.25	6.12	6	5.87	5.74	5.61	5.47	5.33	5.19	5.04	4.89	4.73
10 A	12.6	12.4	12.2	11.9	11.7	11.5	11.3	11	10.8	10.5	10.3	10	9.7	9.5	9.2	8.9	8.6	8.3	7.9	7.6	7.2
13 A	15.5	15.3	15.1	14.9	14.6	14.4	14.2	14	13.7	13.5	13.3	13	12.8	12.5	12.2	12	11.7	11.4	11.1	10.8	10.5
15 A	18.6	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	12.6	12.2	11.7	11.2
16 A	19.4	19.1	18.9	18.6	18.3	18	17.6	17.3	17	16.7	16.3	16	15.7	15.3	14.9	14.6	14.2	13.8	13.4	13	12.5
20 A	24.1	23.7	23.4	23	22.7	22.3	21.9	21.6	21.2	20.8	20.4	20	19.6	19.2	18.7	18.3	17.9	17.4	16.9	16.4	15.9
25 A	30.4	29.9	29.5	29	28.5	28.1	27.6	27.1	26.6	26.1	25.5	25	24.5	23.9	23.3	22.7	22.1	21.5	20.9	20.2	19.6
30 A	37.4	36.7	36.1	35.5	34.9	34.2	33.5	32.9	32.2	31.5	30.7	30	29.2	28.5	27.7	26.8	26	25.1	24.2	23.2	22.3
32 A	38.5	37.9	37.4	36.8	36.2	35.7	35.1	34.5	33.9	33.3	32.6	32	31.4	30.7	30	29.3	28.6	27.9	27.1	26.3	25.5
40 A	48.9	48.2	47.4	46.7	45.9	45.1	44.3	43.5	42.6	41.8	40.9	40	39.1	38.2	37.2	36.2	35.2	34.2	33.1	32	30.8
50 A	59.9	59.1	58.3	57.4	56.5	55.6	54.7	53.8	52.9	52	51	50	49	48	46.9	45.9	44.8	43.6	42.5	41.3	40.1
63 A	78.2	76.9	75.6	74.3	73	71.7	70.3	68.9	67.5	66	64.5	63	61.4	59.8	58.2	56.5	54.7	52.9	51.1	49.1	47.1

C60PV-DC derating table (IEC 60947-2)

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	11.8	10.5	10.3	10	9.7	9.4	9.2	9.9	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	16.7	15.4	15	14.6	14.3	13.9	13.5	13	12.6	12.2	11.7	11.2
16 A	19.4	19.1	18.9	18.6	18.3	18	17.6	17.3	17	16.7	16.3	16	15.7	15.3	14.9	14.6	14.2	13.8	13.4	13	12.5
20 A	24.1	23.7	23.4	23	22.7	22.3	21.9	21.6	21.2	20.8	20.4	20	19.6	19.2	18.7	18.3	17.9	17.4	16.9	16.4	15.9
25 A	30.4	29.9	29.5	29	28.5	28.1	27.6	27.1	26.6	26.1	25.5	25	24.5	23.9	23.3	22.7	22.1	21.5	20.9	20.2	19.6
30 A	37.4	36.7	36.1	35.5	34.9	34.2	33.5	32.9	32.2	31.5	30.7	30	29.2	28.5	27.7	26.8	26	25.1	24.2	23.2	22.3

C120 derating table (IEC 60947-2)

C120	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
10 A	14.5	14.3	14	13.8	13.5	13.3	13	12.7	12.5	12.2	11.9	11.6	11.3	11	10.7	10.3	10	9.7	9.3	8.9	8.5
16 A	21.2	21	20.7	20.4	20.1	19.8	19.4	19.1	18.8	18.5	18.2	17.8	17.5	17.1	16.8	16.4	16	15.6	15.2	14.8	14.4
20 A	27	26.6	26.3	25.9	25.5	25	24.6	24.2	23.8	23.3	22.9	22.4	22	21.5	21	20.5	20	19.5	18.9	18.4	17.8
25 A	33.7	33.3	32.8	32.3	31.8	31.3	30.8	30.2	29.7	29.1	28.6	28	27.5	26.9	26.3	25.6	25	24.4	23.7	23	22.3
32 A	42.7	42.1	41.5	40.9	40.3	39.7	39	38.4	37.7	37.1	36.4	35.7	35	34.3	33.5	32.8	32	31.2	30.4	29.6	28.7
40 A	54.8	54	53.2	52.4	51.5	50.7	49.8	48.9	48	47.1	46.1	45.2	44.2	43.2	42.1	41.1	40	38.9	37.7	36.6	35.3
50 A	69.1	68.1	67	65.9	64.8	63.7	62.6	61.5	60.3	59.1	57.9	56.7	55.4	54.1	52.8	51.4	50	48.6	47.1	45.5	43.9
63 A	87.1	85.8	84.5	83.1	81.8	80.4	78.9	77.5	76	74.5	73	71.4	69.8	68.2	66.5	64.8	63	61.2	59.3	57.4	55.4
80 A	103.7	102.4	101	99.7	98.3	96.9	95.5	94.1	92.6	91.1	89.6	88.1	86.5	84.9	83.3	81.7	80	78.3	76.5	74.7	72.9
100 A	137.6	135.5	133.5	131.4	129.2	127.1	124.8	122.6	120.3	118	115.6	113.1	110.6	108.1	105.5	102.8	100	97.2	94.2	91.2	88.1
125 A	174.6	171.9	169.2	166.4	163.6	160.7	157.8	154.9	151.8	148.7	145.6	142.4	139.1	135.7	132.2	128.7	125	121.2	117.3	113.3	109.1

Influence of ambient temperature (cont.)

Tertiary/Industry (IEC 60947-2) (cont.)

NG125 derating table (IEC 60947-2)

NG125	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
10 A	13.7	13.5	13.2	13	12.8	12.5	12.3	12	11.7	11.5	11.2	10.9	10.6	10.3	10	9.7	9.4	9	8.7	8.3	7.9
16 A	20.3	20.1	19.8	19.5	19.2	18.9	18.6	18.3	18	17.7	17.4	17	16.7	16.4	16	15.7	15.3	14.9	14.5	14.1	13.7
20 A	26	25.6	25.3	24.9	24.5	24	23.6	23.2	22.8	22.3	21.9	21.4	21	20.5	20	19.5	19	18.5	17.9	17.4	16.8
25 A	33.8	33.2	32.7	32.1	31.5	30.9	30.3	29.7	29.1	28.4	27.8	27.1	26.4	25.7	25	24.3	23.5	22.7	21.9	21	20.1
32 A	41.2	40.6	40	39.4	38.8	38.2	37.5	36.9	36.2	35.6	34.9	34.2	33.5	32.7	32	31.2	30.5	29.7	28.8	28	27.1
40 A	53.5	52.7	51.8	51	50.1	49.1	48.2	47.3	46.3	45.3	44.3	43.3	42.2	41.1	40	38.9	37.7	36.5	35.2	33.9	32.5
50 A	66.3	65.2	64.2	63.1	62.1	61	59.8	58.7	57.5	56.4	55.1	53.9	52.6	51.3	50	48.6	47.2	45.8	44.3	42.7	41.1
63 A	83.4	82.1	80.8	79.5	78.1	76.8	75.4	73.9	72.5	71	69.5	67.9	66.3	64.7	63	61.3	59.5	57.7	55.8	53.9	51.8
80 A	100.4	99.1	97.8	96.4	95	93.6	92.2	90.8	89.3	87.8	86.3	84.8	83.2	81.6	80	78.3	76.6	74.9	73.1	71.3	69.4
100 A	133.4	131.3	129.1	127	124.8	122.5	120.2	117.9	115.5	113.1	110.6	108	105.4	102.7	100	97.2	94.3	91.3	88.2	85	81.6
125 A	165.2	162.7	160.1	157.5	154.8	152.1	149.3	146.5	143.6	140.7	137.7	134.6	131.5	128.3	125	121.6	118.1	114.6	110.9	107	103.1

Tertiary/Industry (IEC 60947-3)

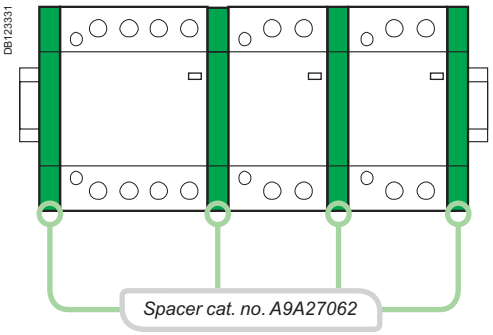
SW60-DC derating table (IEC 60947-3)

SW60PV-DC	Ambient temperature (°C)											
50 A	63	61	60	58	56	54	52	50	48	46	41	35

iC60H RCBO derating table (IEC 61009-1)

iC60H RCBO	Ambient temperature (°C)														
	-15	-10	-5	0	+5	+10	+15	+20	+25	+30	+35	+40	+45	+50	+55	+60
6 A	8.3	8.15	7.99	7.83	7.67	7.50	7.33	7.16	6.98	6.79	6.6	6.41	6.21	6	5.78	5.56
10 A	12.9	12.7	12.5	12.3	12.1	11.9	11.6	11.4	11.2	11	10.7	10.5	10.3	10	9.7	9.5
16 A	20.9	20.6	20.3	19.9	19.6	19.2	18.8	18.4	18.1	17.7	17.3	16.9	16.4	16	15.6	15.1
20 A	26.3	25.9	25.4	25	24.5	24.1	23.6	23.1	22.6	22.1	21.6	21.1	20.6	20	19.4	18.8
25 A	31.5	31	30.6	30.1	29.6	29.2	28.7	28.2	27.7	27.2	26.6	26.1	25.6	25	24.4	23.8
32 A	39.2	38.7	38.2	37.7	37.2	36.6	36.1	35.5	35	34.4	33.8	33.2	32.6	32	31.4	30.7
40 A	50.2	49.5	48.8	48	47.3	46.5	45.8	45	44.2	43.4	42.6	41.7	40.9	40	39.1	38.2
45 A	55.5	54.7	54	53.2	52.5	51.7	50.9	50.1	49.3	48.5	47.6	46.8	45.9	45	41.9	41

Influence of ambient temperature (cont.)



Switches

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

iCT contactors

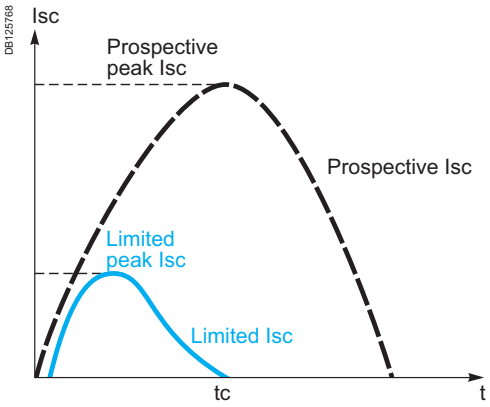
In the case of contactor mounting in an enclosure for which the interior temperature is in a range between 50°C and 60°C, it is necessary to use a spacer, cat. no. A9A27062, between each contactor.

Splitter blocks

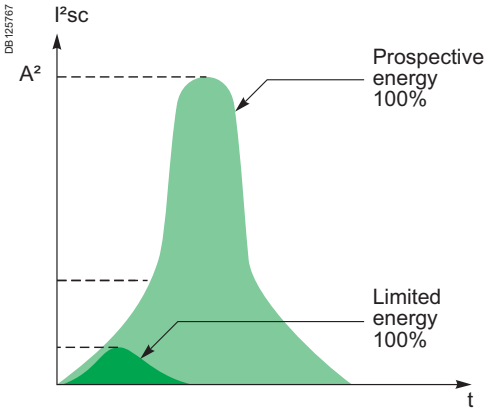
In the event of a temperature higher than 40°C, the maximum acceptable current is limited to the values in the table below:

Type	Temperature				
	40°C	45°C	50°C	55°C	60°C
Multiclip 80 A	80	76	73	69	66
Distribloc 63 A	63	60	58	55	53

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.

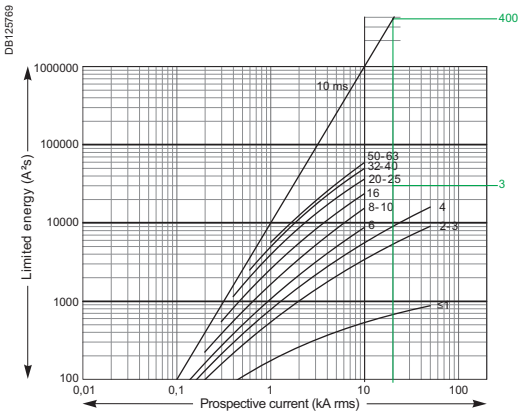
Discrimination of protection devices

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.

Short-circuit current limiting (cont.)



Representation: Current limiting curves

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

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

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

Example

What is the energy limited by an iC60N 25 A circuit breaker for a prospective short-circuit current of 10 kA rms. What is the quality of current limiting?

> as shown in the graph opposite:

- this short-circuit current (10 kA rms) is likely to dissipate up to 1,000 kA^2s
- the iC60N circuit breaker reduces this thermal stress to: 35 kA^2s, which is 22 times less.

Example of use: Stresses acceptable by the cables

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

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

Example

Is a Cu/PVC cable of cross section 10 mm² protected by a NG125L device?

The above table shows that the acceptable stress is 1.32×10^6 A²s. Any short-circuit current at the point where a NG125L device (Icu = 25 kA) is installed will be limited, with a thermal stress of less than 2.2×10^5 A²s. (Curve on page 11/26).

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

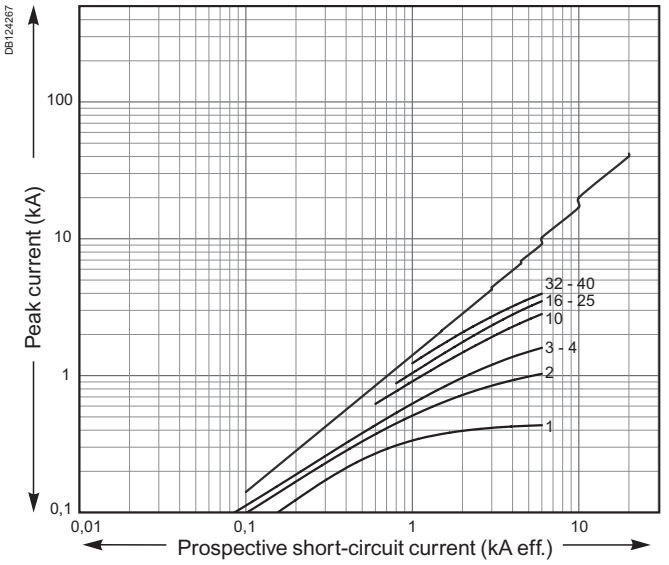
Short-circuit current limiting (cont.)

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

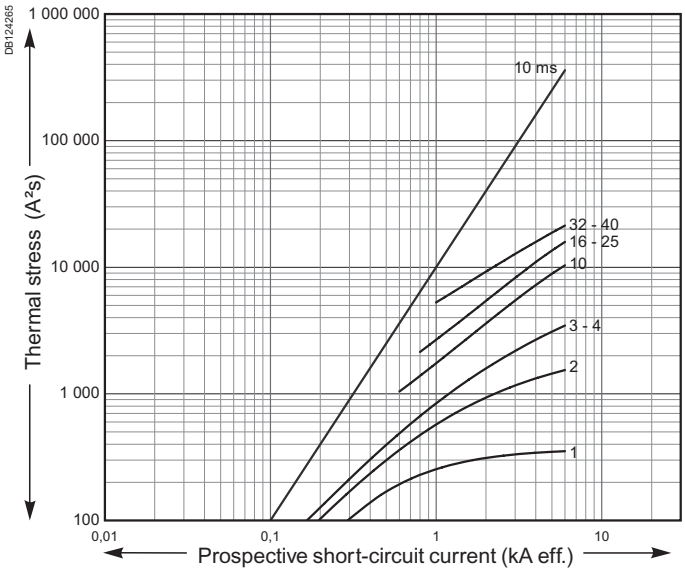
iDPN (MCB and RCBO)

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

Peak current



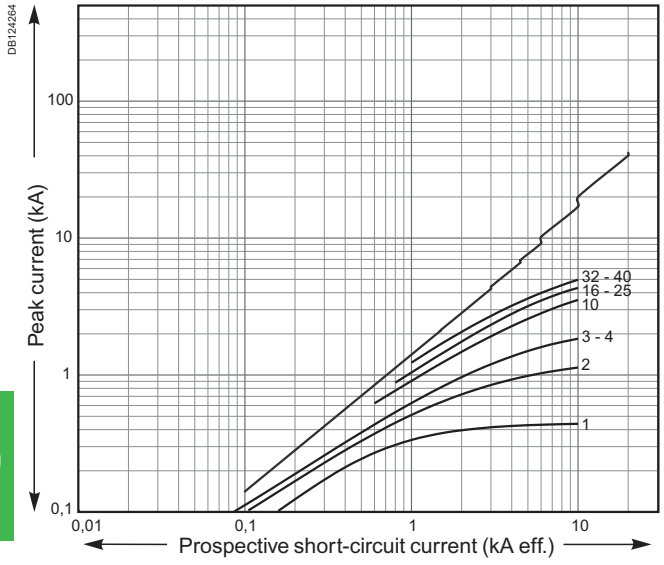
Thermal stress



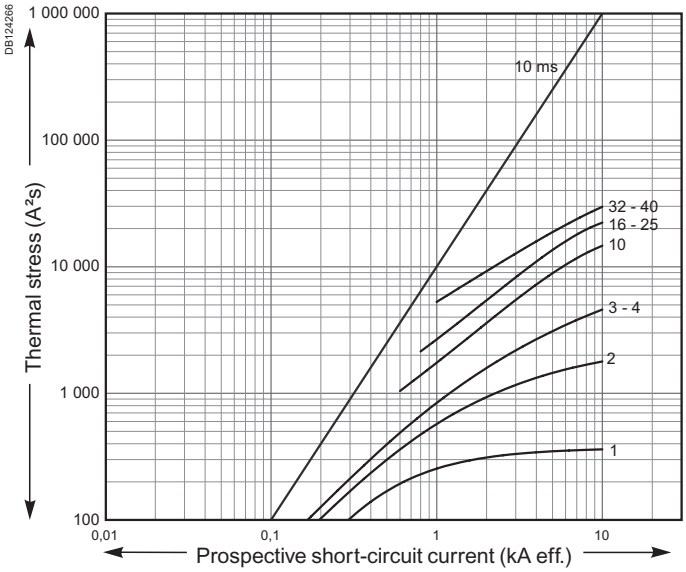
DPN N (MCB and RCBO)

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

Peak current



Thermal stress



10

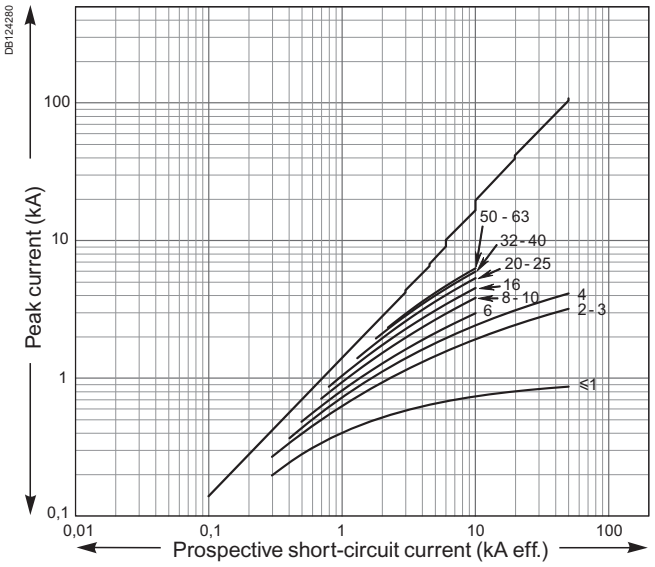
Short-circuit current limiting (cont.)

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

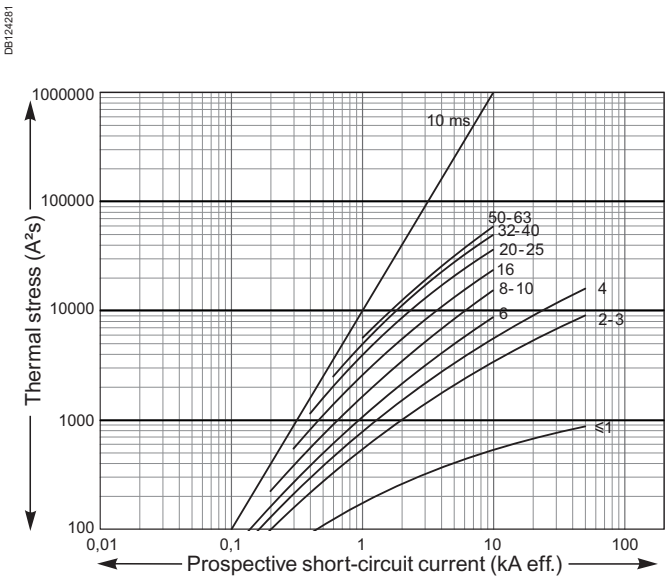
iC60N

1P / 1P+N / 2P / 3P / 4P

Peak current



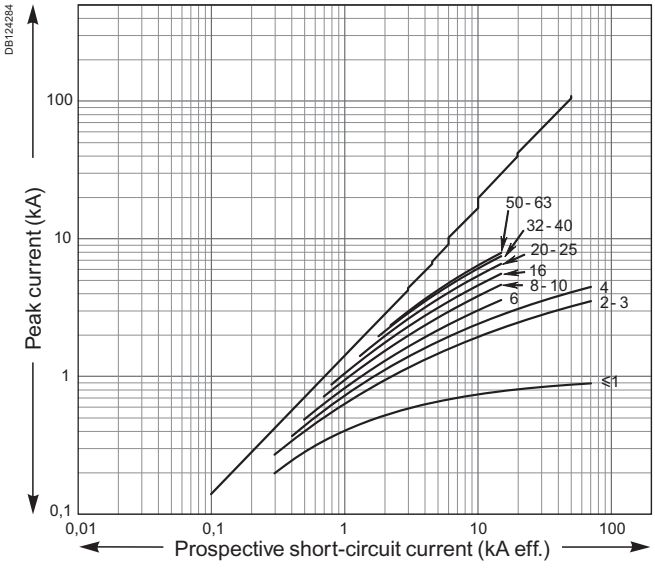
Thermal stress



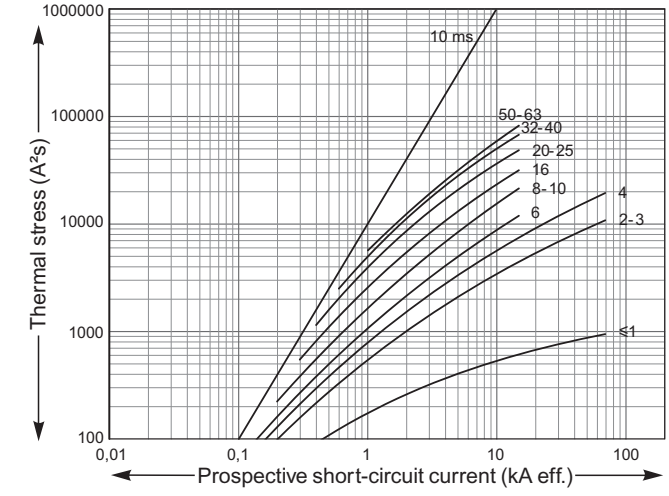
iC60H

1P / 1P+N / 2P / 3P / 4P

Peak current



Thermal stress



10

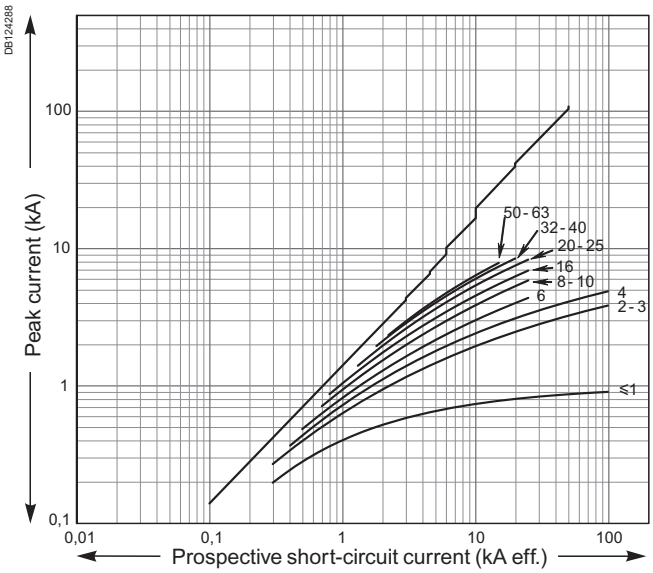
Short-circuit current limiting (cont.)

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

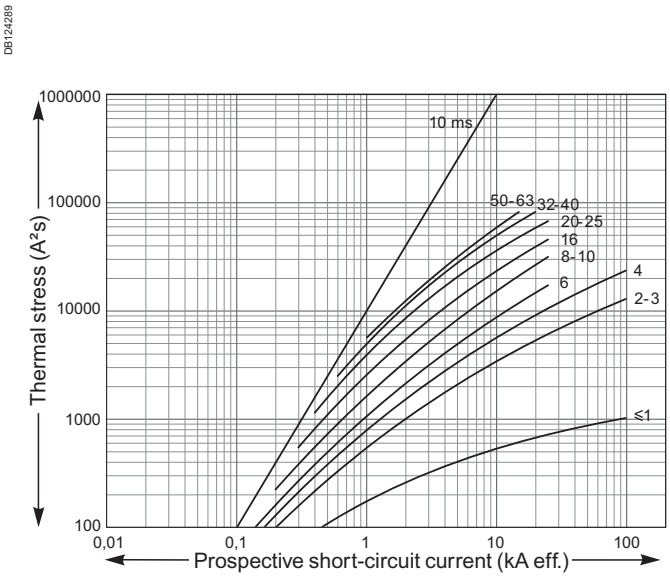
iC60L

1P / 2P / 3P / 4P

Peak current



Thermal stress



10

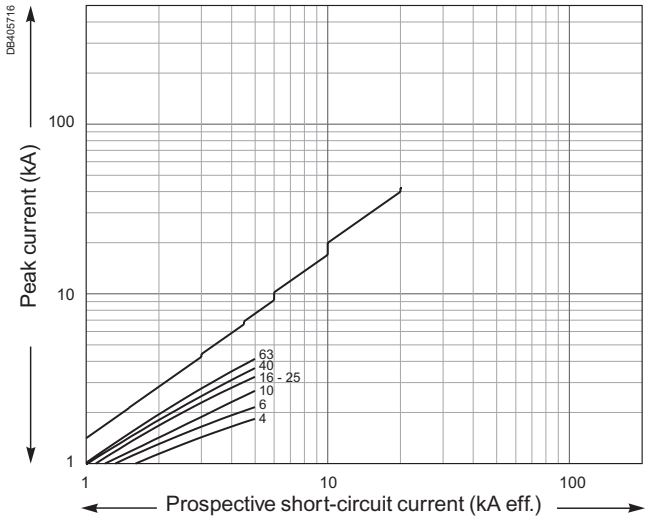
Short-circuit current limiting (cont.)

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

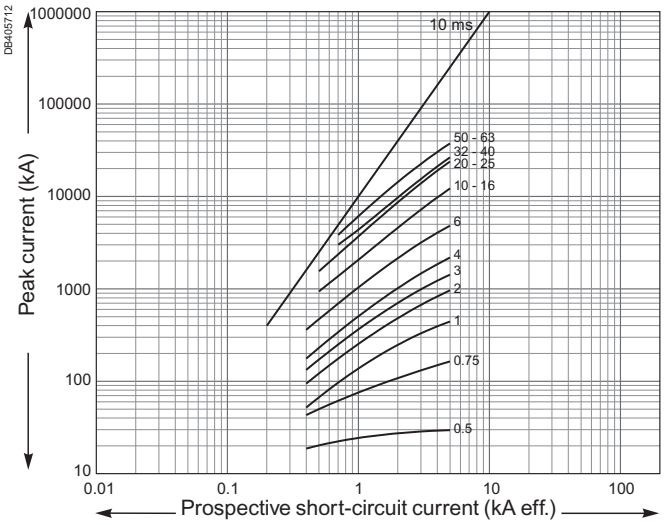
C60a

1P / 2P / 3P / 3P+N / 4P

Peak current



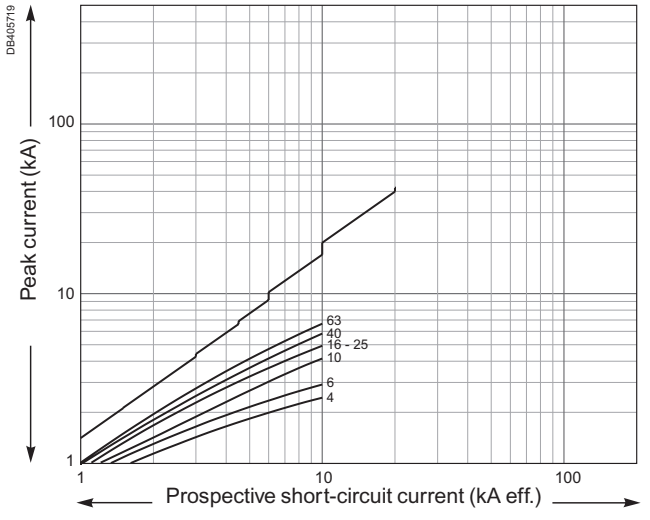
Thermal stress



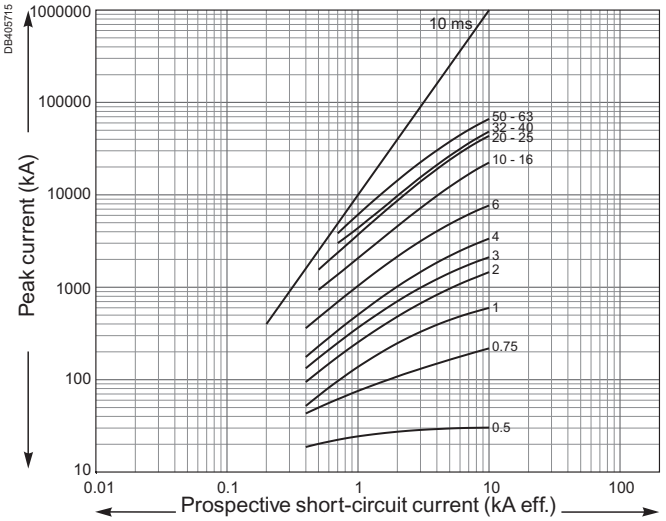
C60N

1P / 1P+N / 2P / 3P / 3P+N / 4P

Peak current



Thermal stress



10

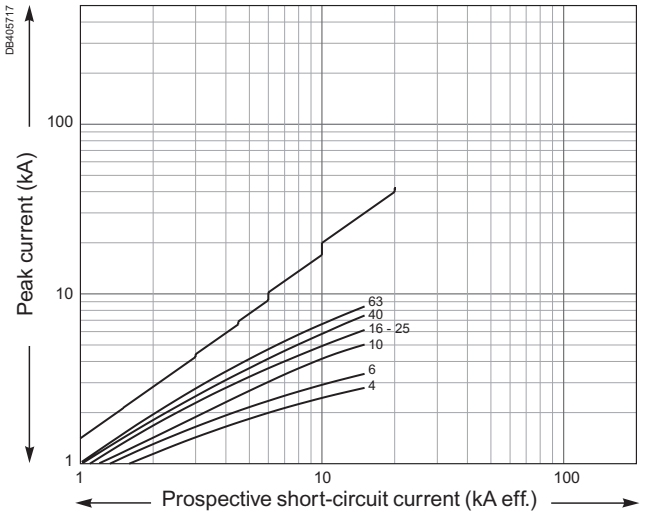
Short-circuit current limiting (cont.)

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

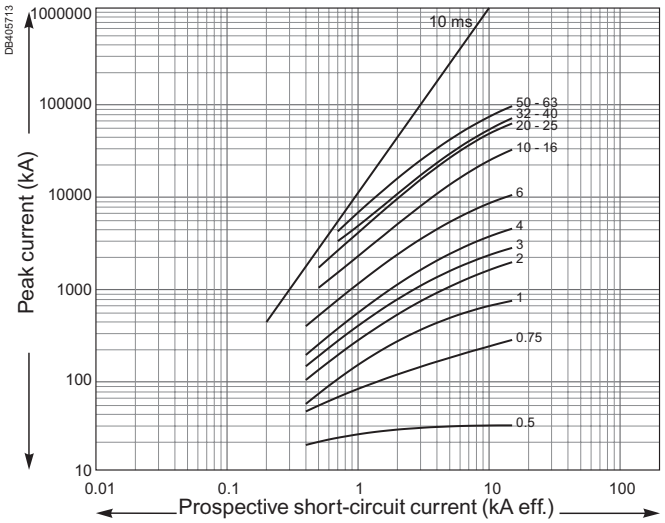
iC60H

1P / 1P+N / 2P / 3P / 3P+N / 4P

Peak current



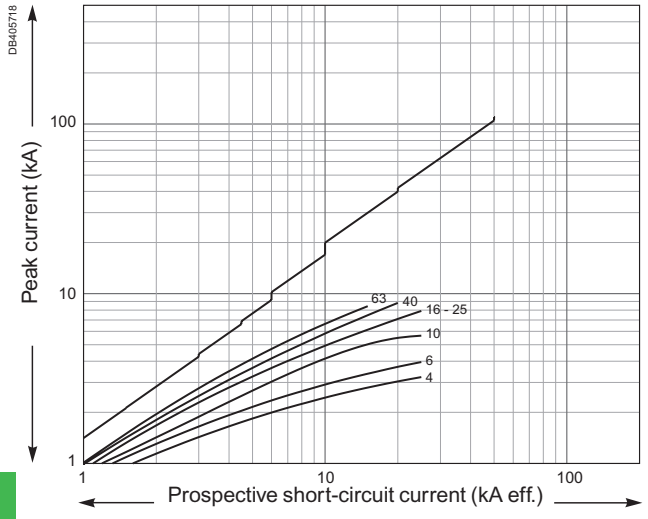
Thermal stress



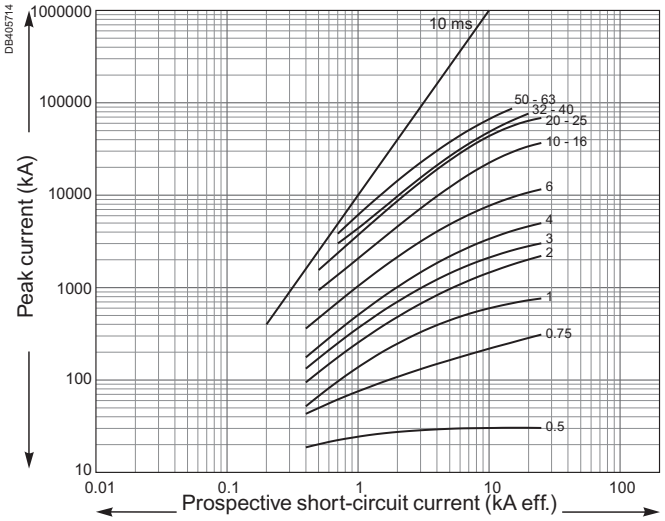
C60L

1P / 2P / 3P / 4P

Peak current



Thermal stress



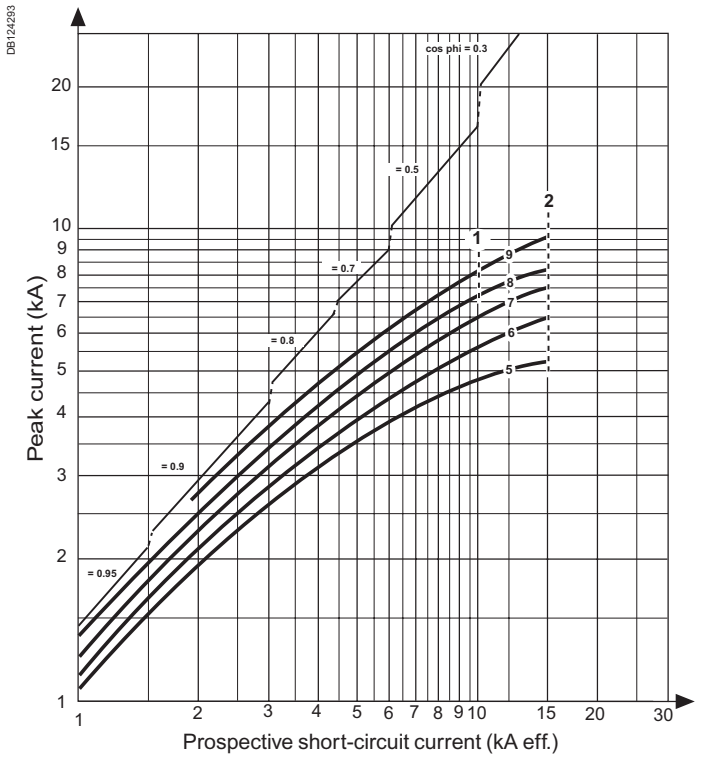
Short-circuit current limiting (cont.)

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

C120N, H

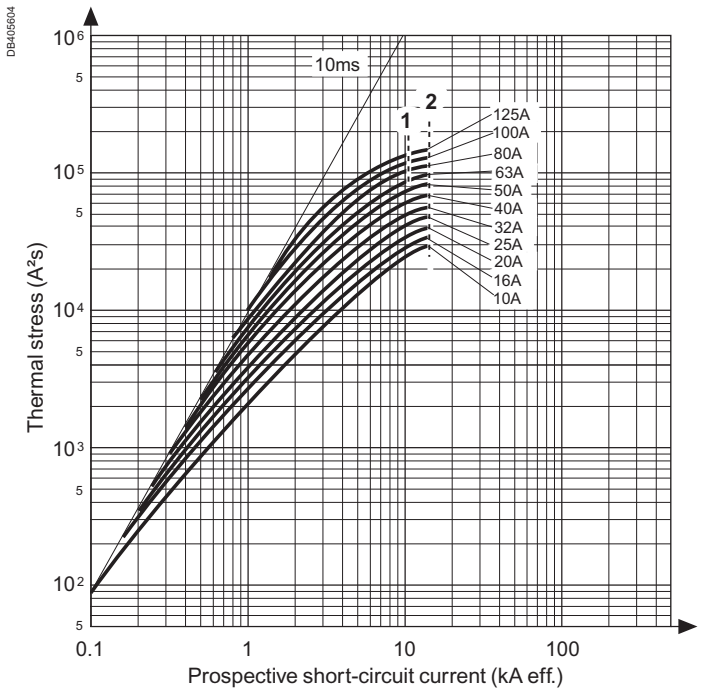
1P / 2P / 3P / 4P

Peak current



■ Circuit breaker type in accordance with the mark:
- □ 1: C120N
- □ 2: iC120H
- □ 5: 10-16 A
- □ 6: 20-25 A
- □ 7: 32-40 A
- □ 8: 50-63 A
- □ 9: 80-125 A

Thermal stress



■ Circuit breaker type in accordance with the mark:
- □ 1: C120N
- □ 2: iC120H

10

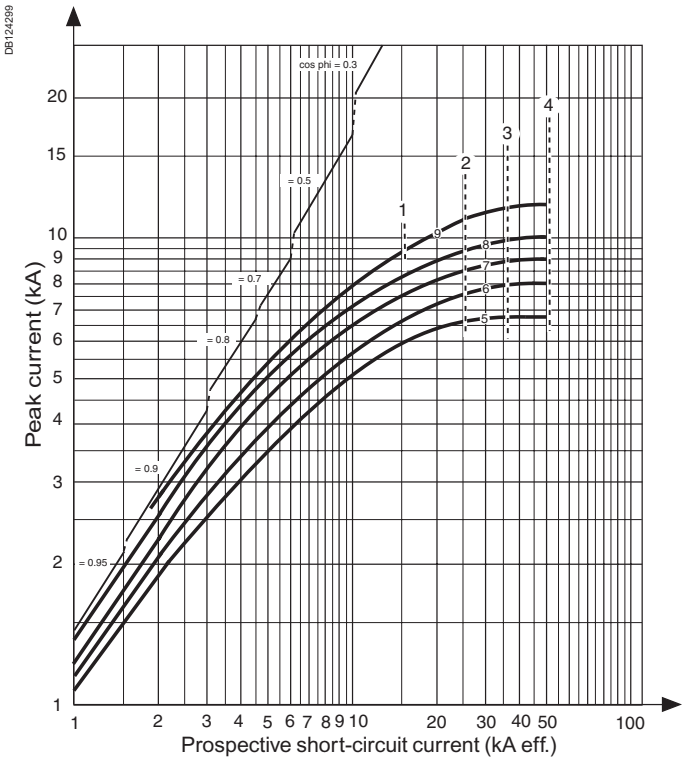
Short-circuit current limiting (cont.)

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

NG125a, N, H, L

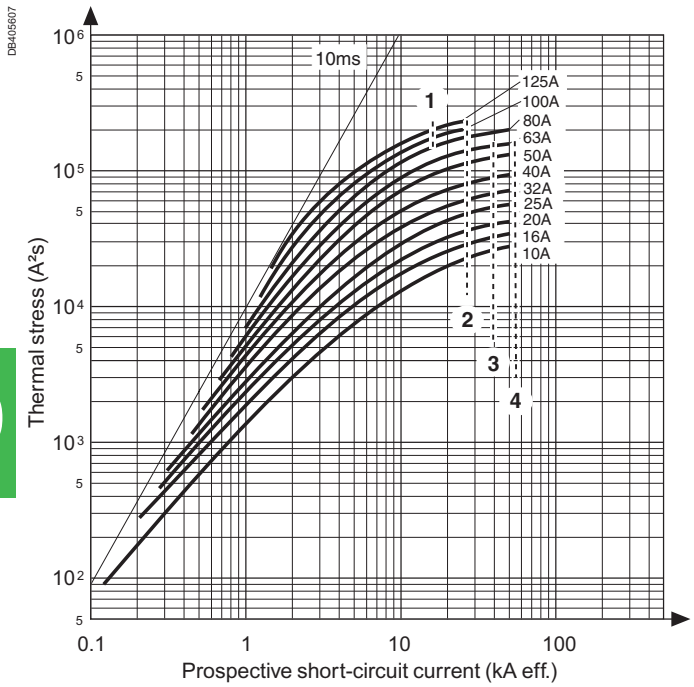
1P / 2P / 3P / 4P

Peak current



■ Circuit breaker type in accordance with the mark:
- □ 1: NG125a
- □ 2: NG125N
- □ 3: NG125H
- □ 4: NG125L
- □ 5: 10 -16 A
- □ 6: 20-25 A
- □ 7: 32-40 A
- □ 8: 50-63 A
- □ 9: 80-125 A

Thermal stress



■ Circuit breaker type in accordance with the mark:
- □ 1: NG125a 80-100-125 A
- □ 2: NG125N
- □ 3: NG125H
- □ 4: NG125L

10

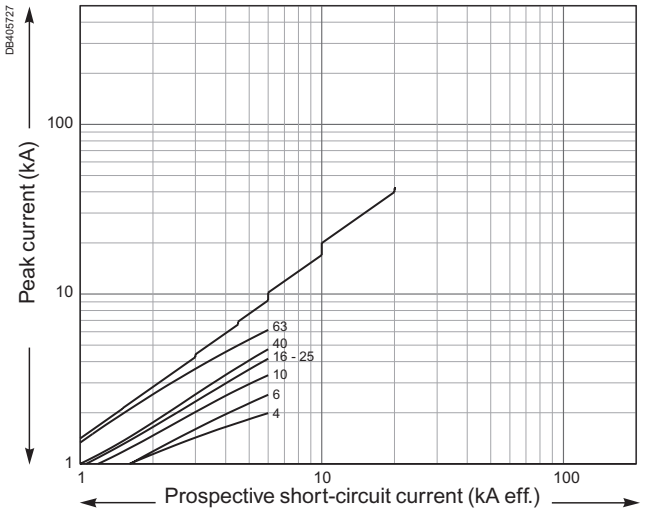
Short-circuit current limiting (cont.)

Limitation curves for network
Ue: 440 V AC

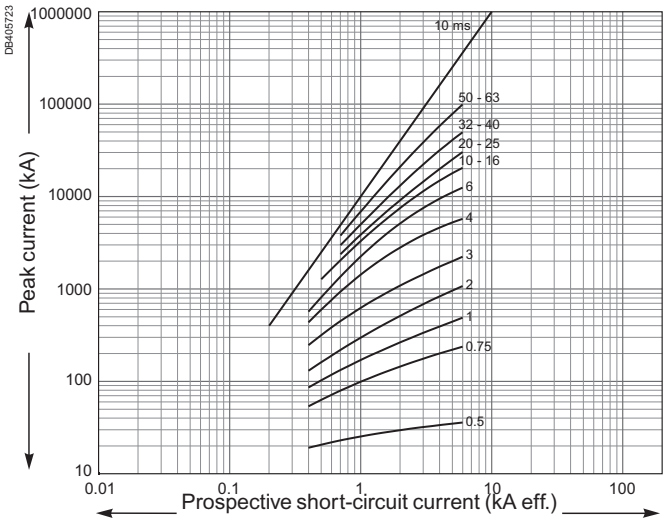
C60N

2P / 3P / 4P

Peak current



Thermal stress



10

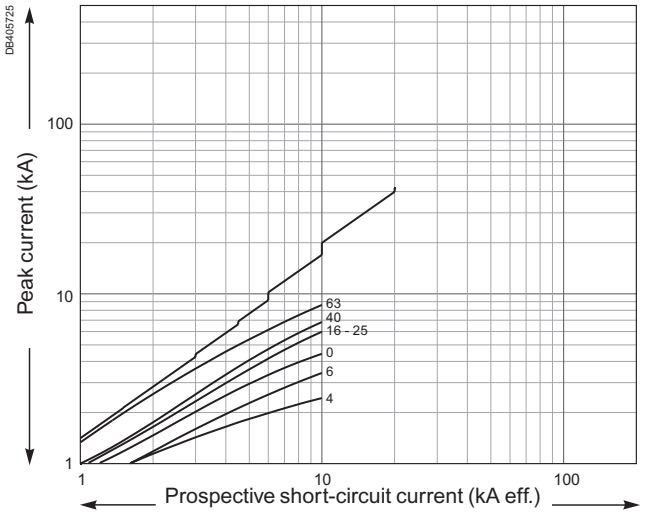
Short-circuit current limiting (cont.)

Limitation curves for network
Ue: 440 V AC

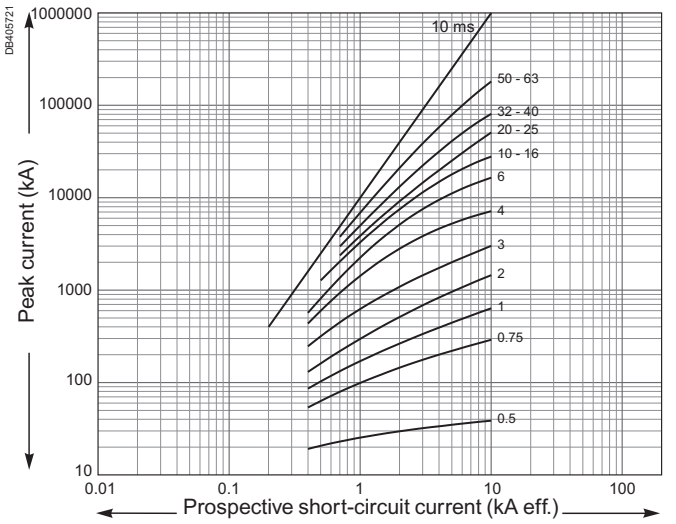
iC60H

2P / 3P / 4P

Peak current



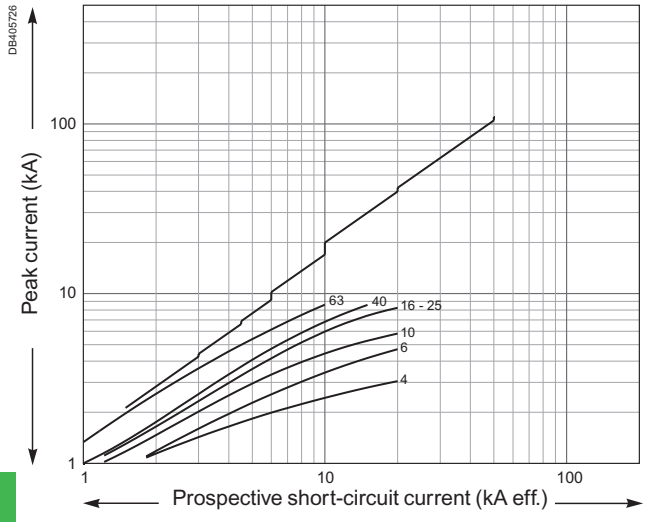
Thermal stress



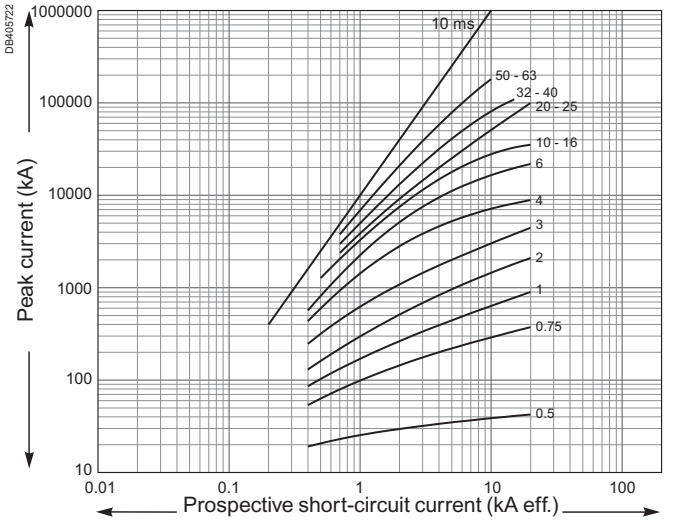
C60L

2P / 3P / 4P

Peak current



Thermal stress



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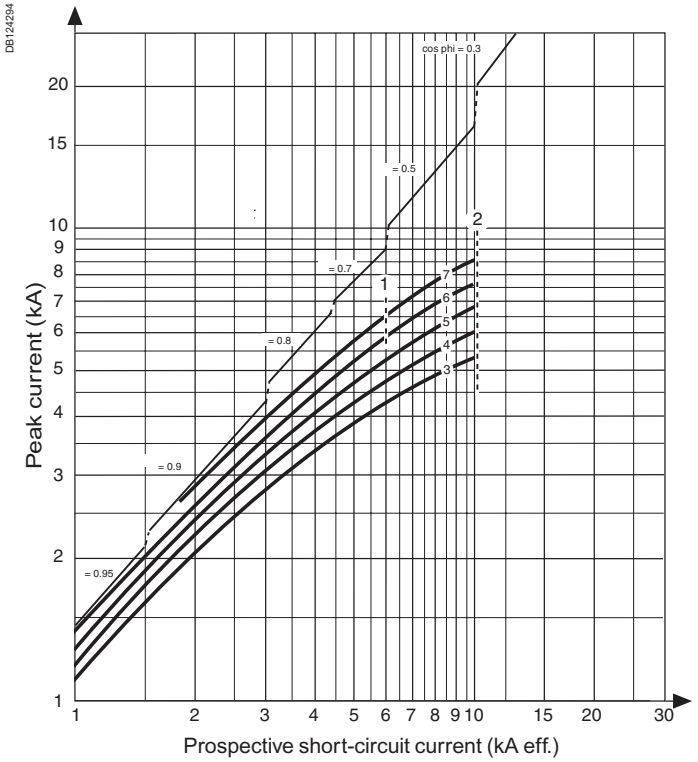
Short-circuit current limiting (cont.)

Limitation curves for network
Ue: 440 V AC

C120N, H

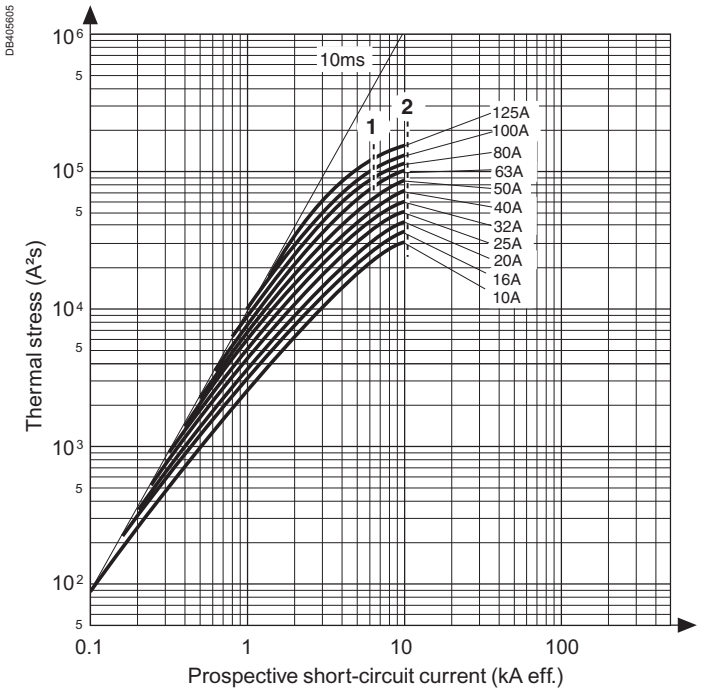
2P / 3P / 4P

Peak current



■ Circuit breaker type in accordance with the mark:
□ 1: C120N
□ 2: iC120H
□ 3: 0-16 A
□ 4: 20-25 A
□ 5: 32-40 A
□ 6: 50-63 A
□ 7: 80-125 A

Thermal stress



■ Circuit breaker type in accordance with the mark:
□ 1: C120N
□ 2: iC120H

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Short-circuit current limiting (cont.)

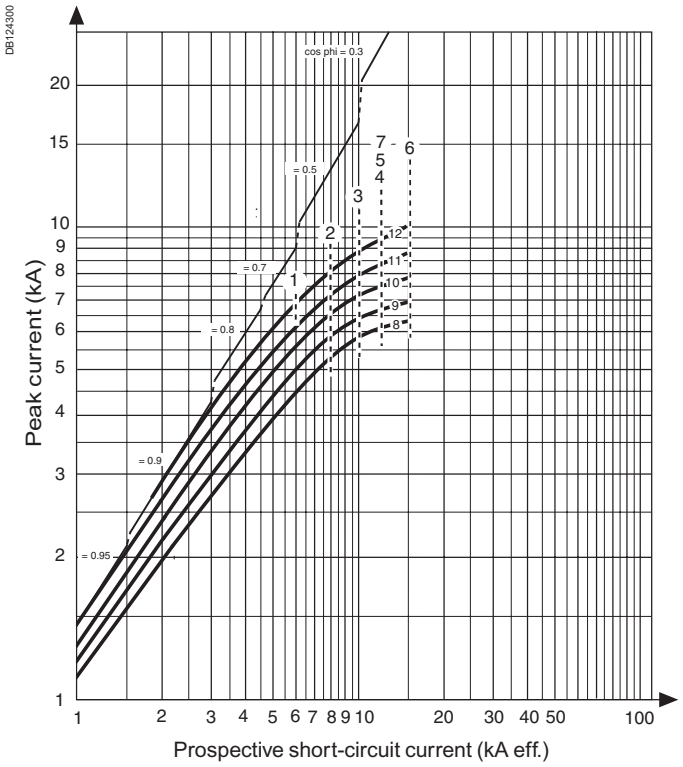
Limitation curves for network

Ue: 550 V AC

NG125a, N, H, L

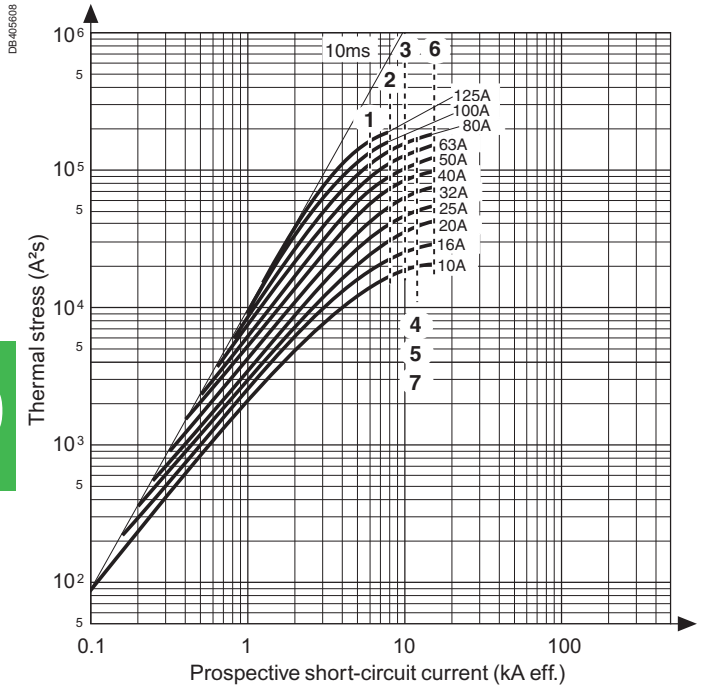
2P / 3P / 4P

Peak current



- ■ Circuit breaker type in accordance with the mark:
- □ 1: NG125a 3, 4P
- □ 2: NG125N 2, 3, 4P
- □ 3: NG125H 3, 4P
- □ 4-5: NG125H 2P/NG125L 3, 4P
- □ 6: NG125L 2P
- □ 7: NG125 LMA 2, 3, 4P
- □ 8: 10 -16 A
- □ 9: 20-25 A
- □ 10: 32-40 A
- □ 11: 50-63 A
- □ 12: 80-125 A

Thermal stress



- ■ Circuit breaker type in accordance with the mark:
- □ 1: NG125a 3, 4P
- □ 2: NG125N 2, 3, 4P
- □ 3: NG125H 3, 4P
- □ 4-5: NG125H 2P/NG125L 3, 4P
- □ 6: NG125L 2P
- □ 7: NG125LMA 2, 3, 4P

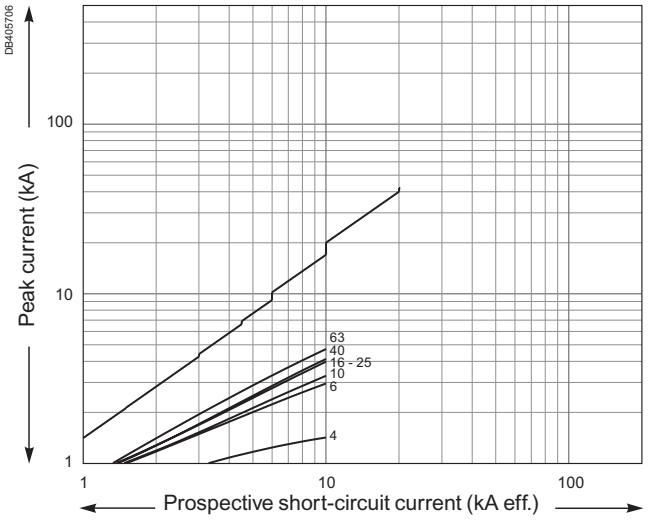
Short-circuit current limiting (cont.)

Limitation curves for network
Ue: 220-240 V AC (Ph/N 110-130 V AC)

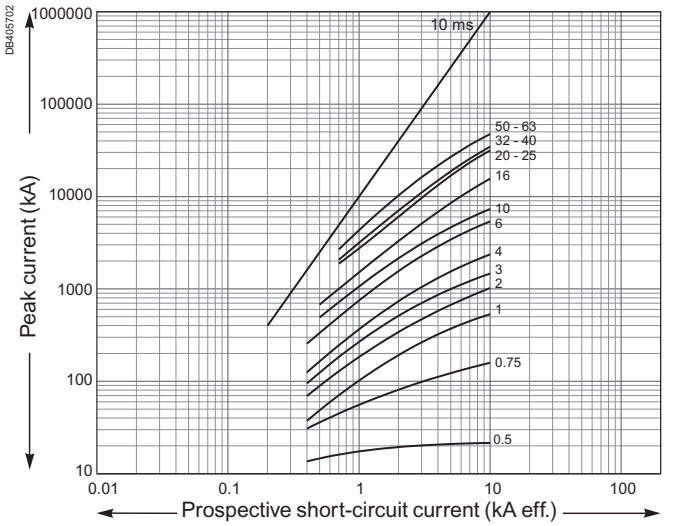
C60a

1P / 2P / 3P / 3P+N / 4P

Peak current



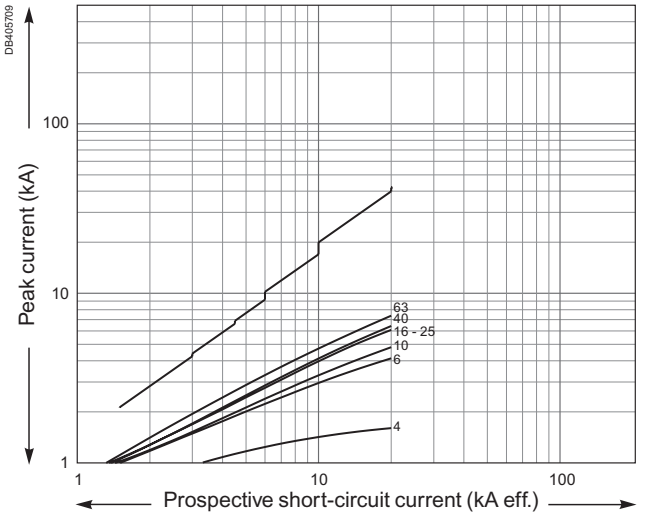
Thermal stress



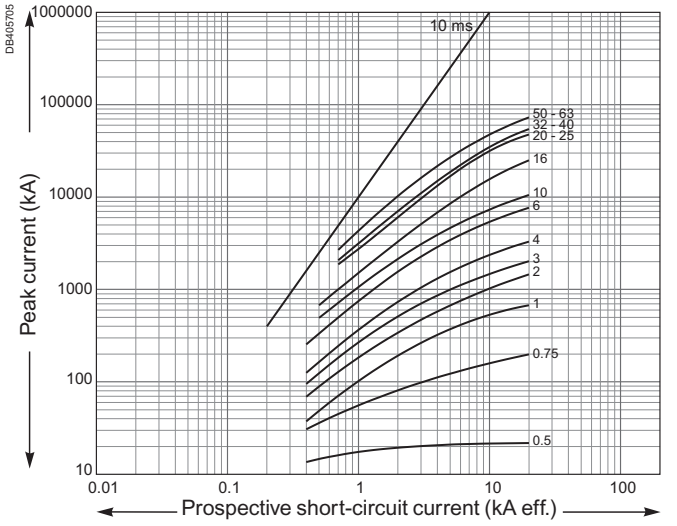
C60N

1P / 1P+N / 2P / 3P / 3P+N / 4P

Peak current



Thermal stress



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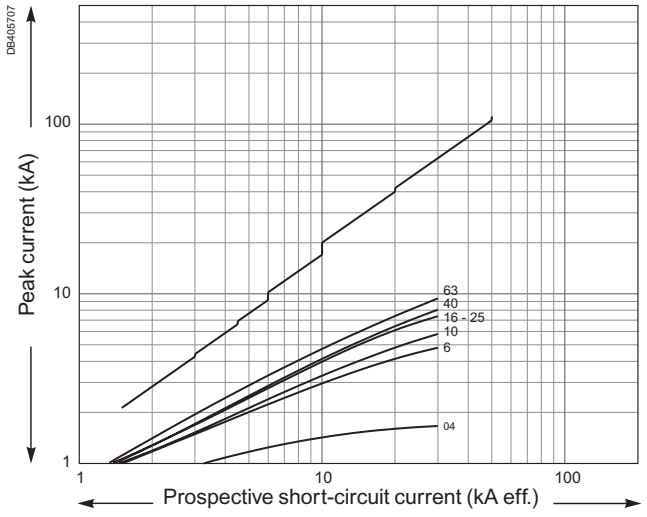
Short-circuit current limiting (cont.)

Limitation curves for network
Ue: 220-240 V AC (Ph/N 110-130 V AC)

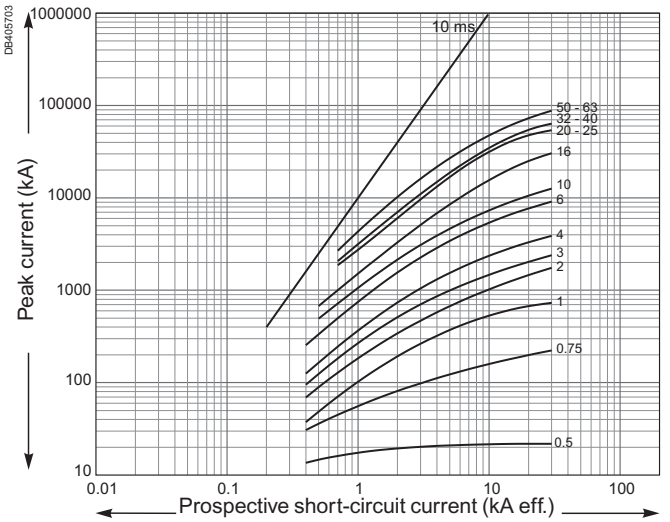
iC60H

1P / 1P+N / 2P / 3P / 3P+N / 4P

Peak current



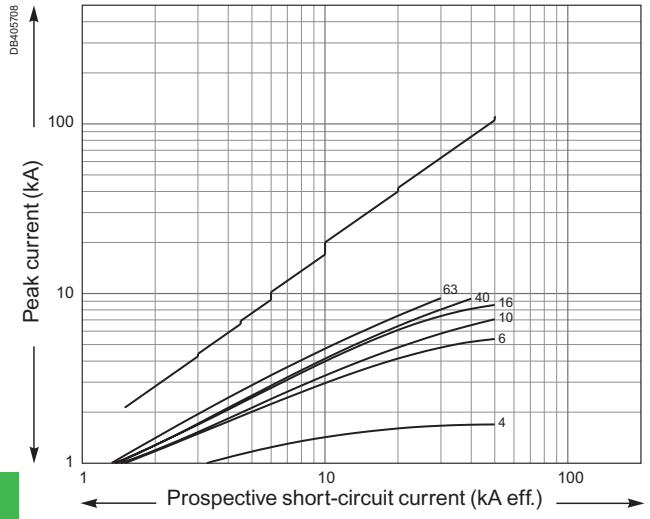
Thermal stress



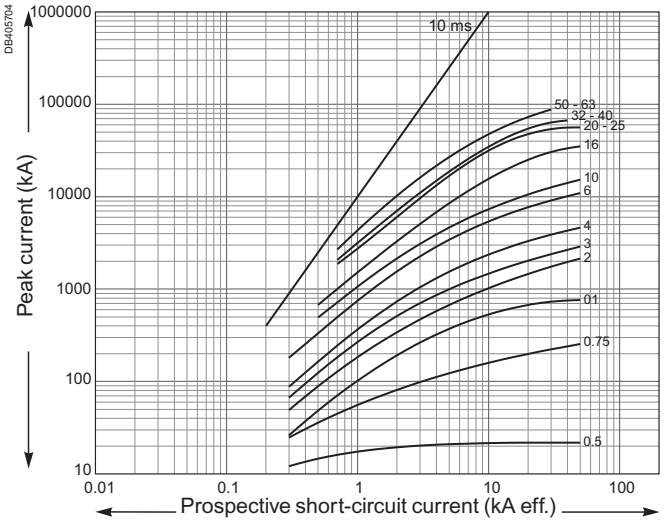
C60L

1P / 2P / 3P / 4P

Peak current



Thermal stress



10

Short-circuit current limiting (cont.)

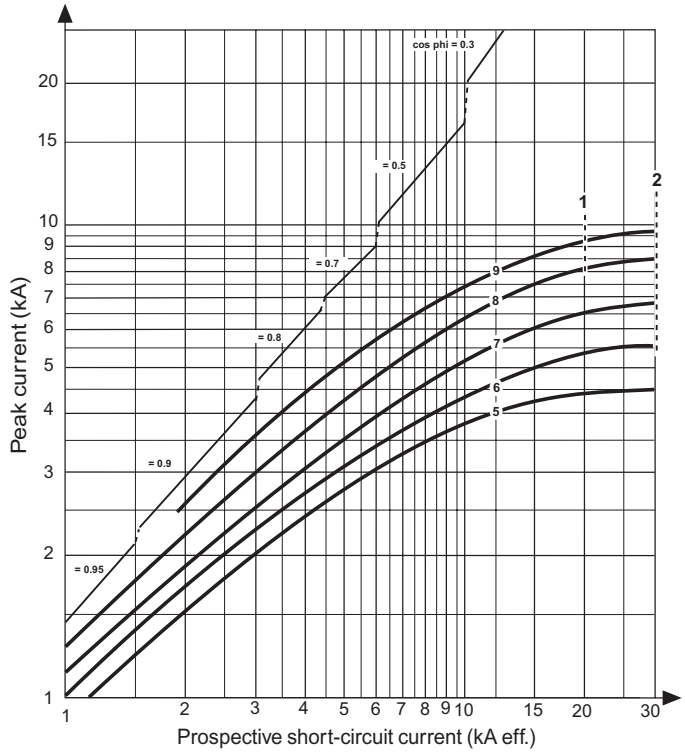
Limitation curves for network
Ue: 220-240 V AC (Ph/N 110-130 V AC)

C120N, H

1P / 2P / 3P / 4P

Peak current

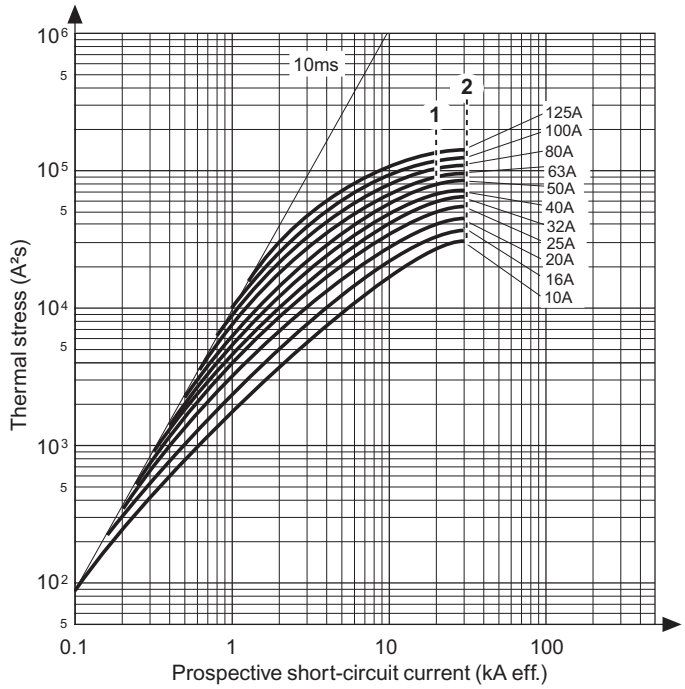
DB124292



■ Circuit breaker type in accordance with the mark:
- □ 1: C120N
- □ 2: iC120H
- □ 5: 10-16 A
- □ 6: 20-25 A
- □ 7: 32-40 A
- □ 8: 50-63 A
- □ 9: 80-125 A

Thermal stress

DB405603



■ Circuit breaker type in accordance with the mark:
- □ 1: C120N
- □ 2: iC120H

10

Short-circuit current limiting (cont.)

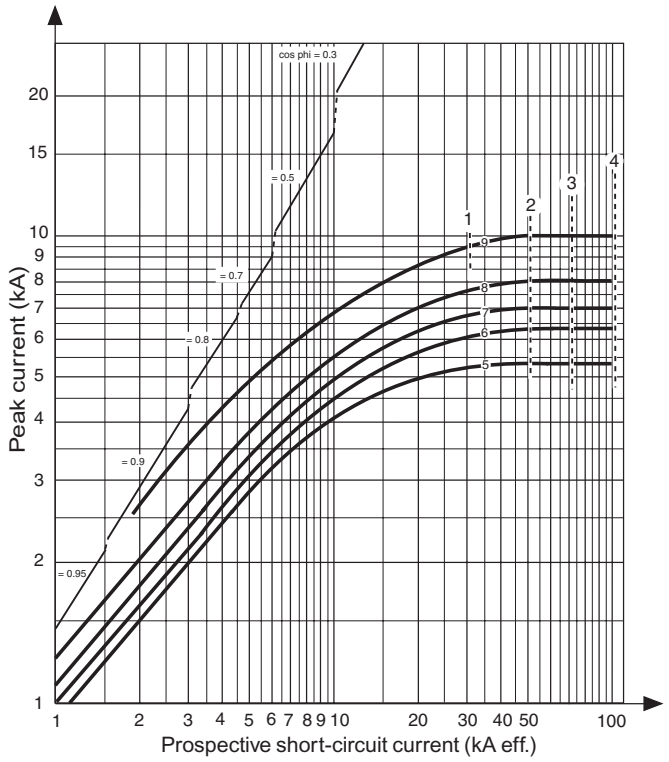
Limitation curves for network
Ue: 220-240 V AC (Ph/N 110-130 V AC)

NG125a, N, H, L

1P / 2P / 3P / 4P

Peak current

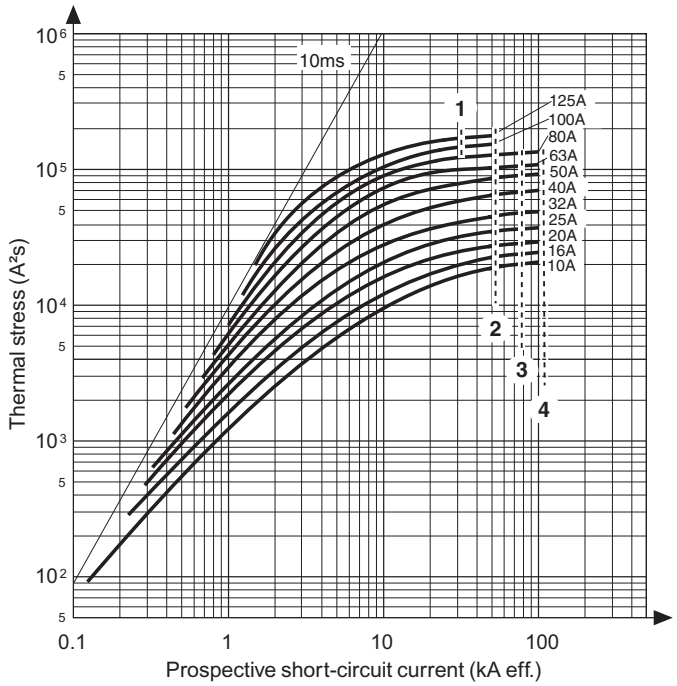
DB124298



■ Circuit breaker type in accordance with the mark:
- □ 1: NG125a
- □ 2: NG125N
- □ 3: NG125H
- □ 4: NG125L
- □ 5: 10-16 A
- □ 6: 20-25 A
- □ 7: 32-40 A
- □ 8: 50-63 A
- □ 9: 80-125 A

Thermal stress

DB405606



■ Circuit breaker type in accordance with the mark:
- □ 1: NG125a 80-100-125 A
- □ 2: NG125N
- □ 3: NG125H
- □ 4: NG125L

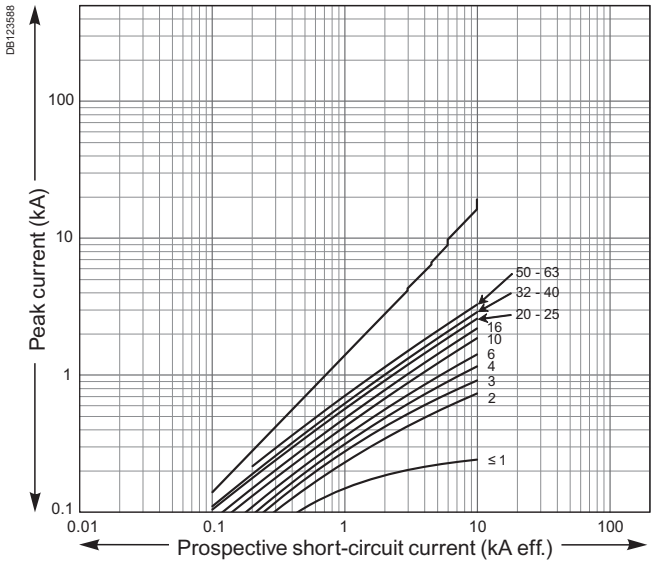
Short-circuit current limiting (cont.)

Limitation curves for direct current network

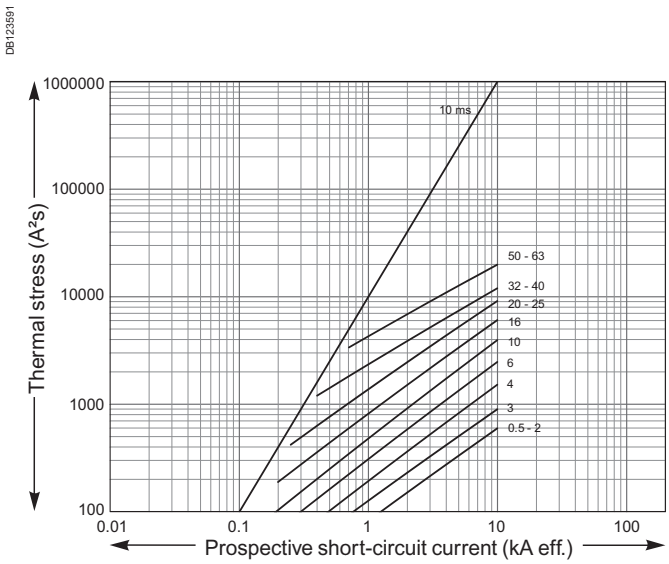
C60H-DC curve C

1P (220 V) - 2P (440 V)

Peak current



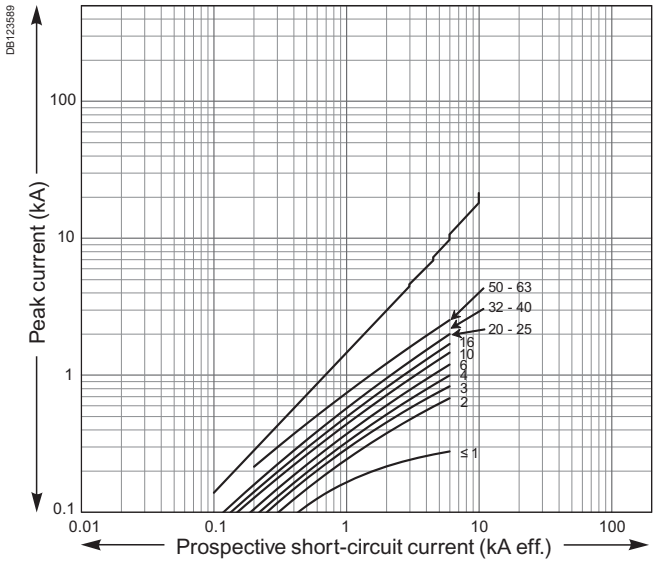
Thermal stress



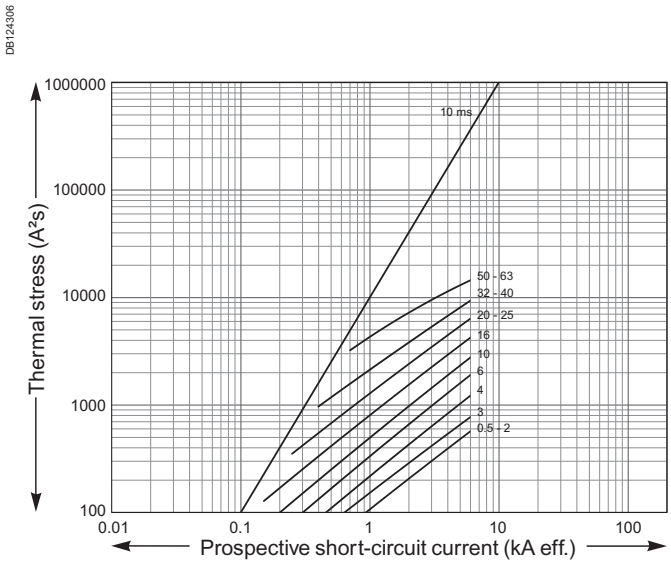
C60H-DC curve C

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

Peak current



Thermal stress



10

Circuit breakers for direct current applications

24 V - 48 V direct current applications

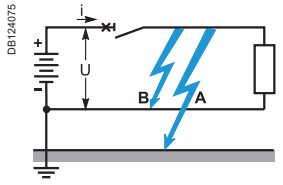
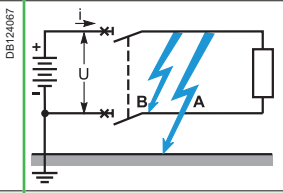
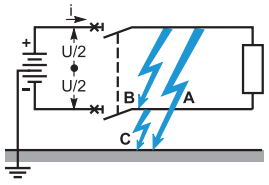
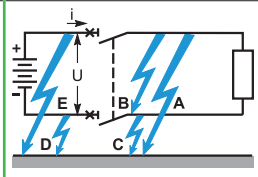
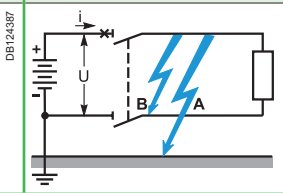
Typical applications

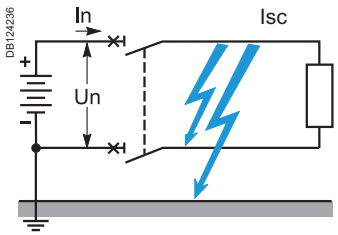
Direct current has been used for a long time and in many fields. It offers major advantages, in particular immunity to electrical interference. Moreover, direct-current installations are now simpler, because they benefit from the development of power supplies with electronic converters and batteries.

- ■ Communication or measurement network:
  - □ 48 V DC switched telephone network,
  - □ 4-20 mA current loop.
- ■ Electrical supply for industrial PLCs:
  - □ PLCs and peripheral devices (24 or 48 V DC).
- ■ Auxiliary uninterruptible direct current power supply:
  - □ relays or electronic protection units for MV cubicles,
  - □ switchgear opening / closing trip units,
  - □ LV control and monitoring relays,
  - □ indicator lights,
  - □ circuit-breaker or on/off switch motor drives,
  - □ power contactor coils,
  - □ control/monitoring and supervision devices with communication that can be powered via a separate uninterruptible power supply.
- ■ 24 to 48 V DC wind application:
  - □ isolated homes,
  - □ cottages, bungalows, mountain refuges,
  - □ pumps, street lighting,
  - □ measuring instruments, data acquisition,
  - □ telecommunication relays,
  - □ industrial applications.

Types of direct current networks

According to the types of DC networks illustrated below, we can identify the risks to the installation and define the best means of protection.

Earthed			Isolated from earth
I: Earthed (or grounded) polarity (in this case negative)		II: Earthed mid-point	III: Isolated polarities
1 pole (1P isolation)	2 poles (2P isolation)	2 poles	2 poles
			
	2 poles (1P isolation 1P+N)		
			
Worst-case faults			
Fault A and fault B (if only one polarity is protected)		Fault B	Double fault A and D or C and E



For further information on the types of networks and the faults that characterise them, refer to the direct current circuit breaker (LV) selection guide, 220E2100.indd.

For all these configurations, we propose a single protection solution that depends only on the requirement for the nominal current In and the short-circuit current Isc at the installation point concerned.

The second important point in our solution is the fact that the protection is implemented by non-polarised circuit breakers that can operate efficiently, whatever the direction of the direct current.

Circuit breakers for direct current applications (cont.)

24 V - 48 V direct current applications

24 - 48 V direct current protection solution

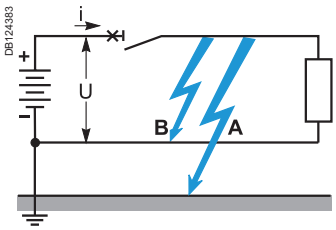
The performance levels shown in the tables below correspond to the most critical faults according to the network configuration.

- Breaking on one pole.
- Fault between polarity and earth (Fault A).

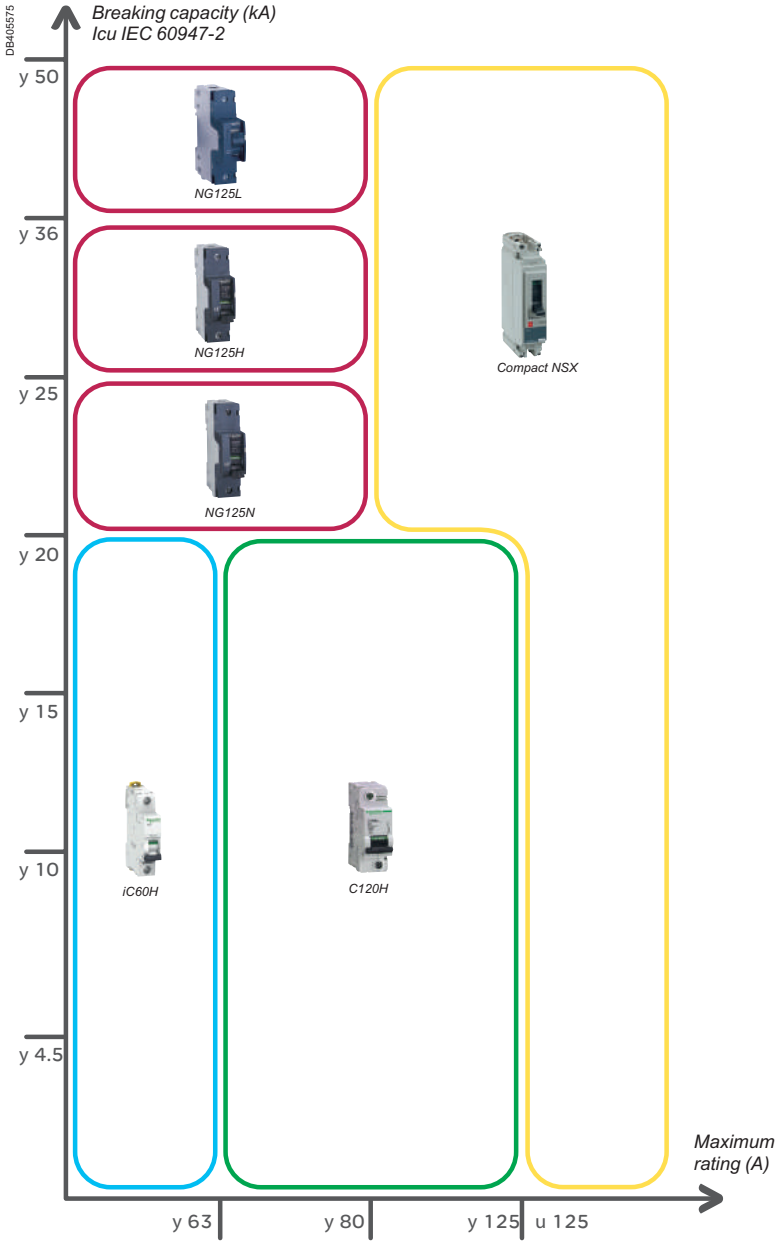
Standard solution depending on the network and the requirements of the installation (In / Isc)

In addition to the parameters shown on the following pages, the tables below illustrate our range of circuit breakers according to the nominal current of the load and short-circuit current at the point of installation.

- Circuit breaker rating.
- Breaking capacity of the circuit breaker.



1 pole isolation solution (1P)



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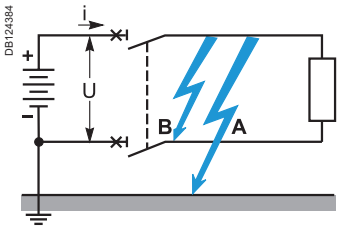
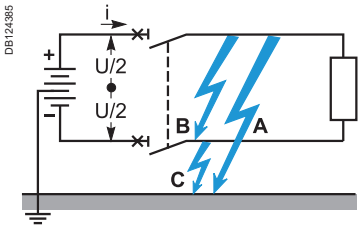
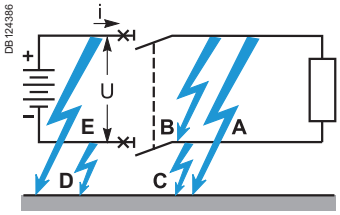
Circuit breakers for direct current applications (cont.)

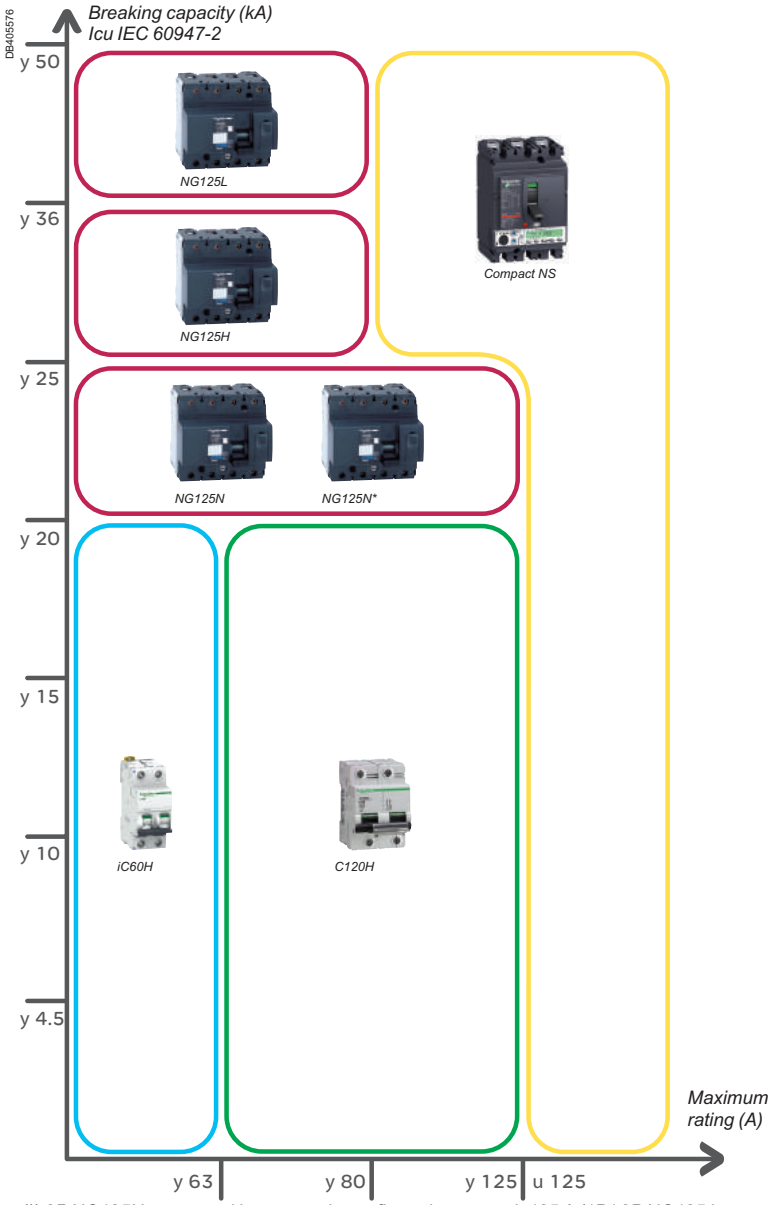
24 V - 48 V direct current applications







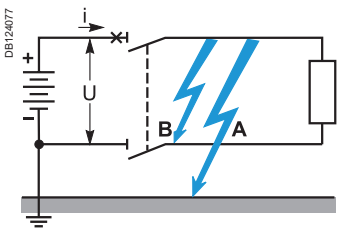
2 poles isolation solution (2P)

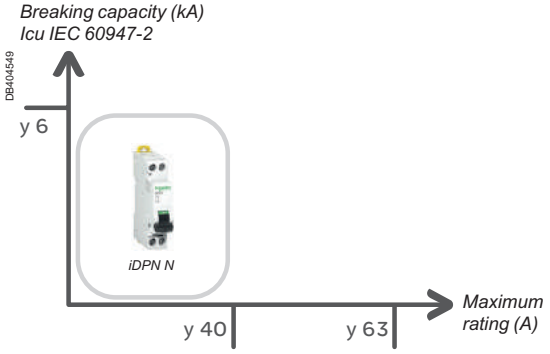


(*) 3P NG125N connected in a two-pole configuration to reach 125 A (1P / 2P NG125 has a maximum rating of 80 A).

1 pole isolation solution (1P+N)

Specific use of the iDPN range in a network with one polarity earthed and both poles isolated: compact solution (1P+N in 18 mm).





(*) iC60a breaking capacity Icu = 10 kA.

Circuit breakers for direct current applications (cont.)

24 V - 48 V direct current applications

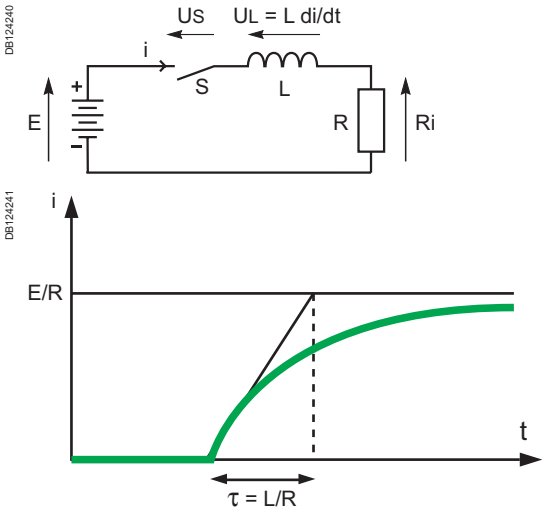
Constraints related to "direct current" applications

In direct current, inductors and capacitors do not disturb the operation of the installation in steady state. Capacitors are charged and inductors no longer oppose changes in the current.
However, they create transient phenomena when the circuit opens or closes, during which time the current varies. Actual loads have both characteristics and generate oscillatory phenomena.

Type of load

Inductive load

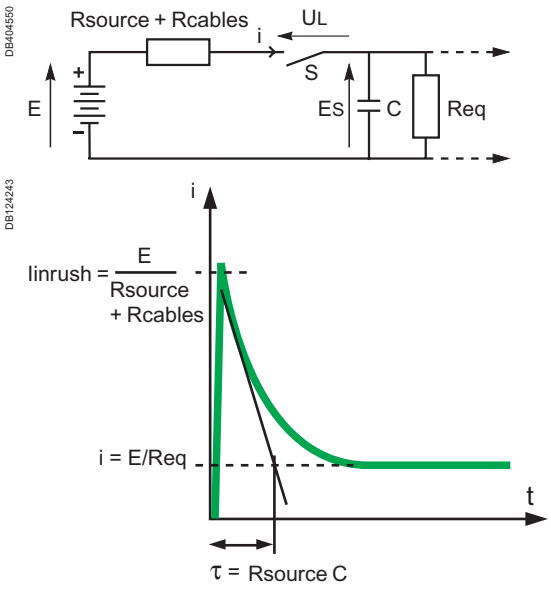
An inductive load will tend to lengthen the current interrupt or establishment time, because the inductance **L** then opposes the change in the current (**Ldi/dt**).
The transient phenomenon will mainly be characterised by a time constant imposed by the load and whose value corresponds approximately to the interrupt or closing time that the switchgear has to withstand. In addition, during the interrupt time, the switchgear must be able to withstand the additional energy stored in the inductor in steady state.
An inductive load therefore requires particular attention with respect to its time constant.
A low value (typically < 5 ms) facilitates interruption.



Inductive load

Capacitive load

During a closing operation, a capacitive load will cause an inrush current due to the load on the capacitor, virtually under short-circuit condition at the beginning of the phenomenon.
On opening, it will tend to discharge. The time constant is generally very low (< 1 ms) and its effect is secondary with respect to the inrush current. A capacitive load will require particular attention to the inrush or discharge current surges.



Capacitive load

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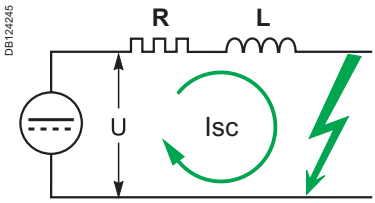
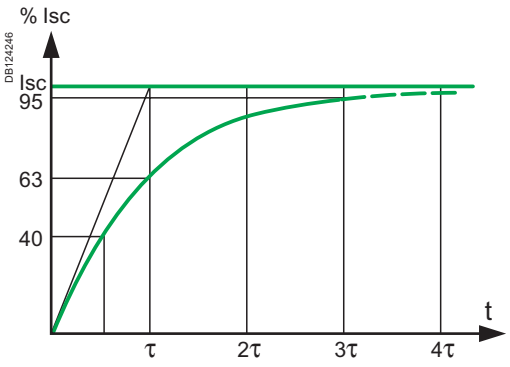
Circuit breakers for direct current applications (cont.)

24 V - 48 V direct current applications





Time constant L/R

When a short-circuit occurs across the terminals of a direct current circuit, the current increases from the operating current (< In) to the short-circuit current Isc during a time depending on the resistance **R** and the inductance **L** of the short-circuited loop.

The equation that governs the current in this loop is: $U = Ri + Ldi/dt$.

A short-circuit current is established (neglecting In with respect to Isc) by the equation:
$i = Isc\ (1 - exp(-t/\tau))$,
where $\tau = L/R$ is the time constant used to establish the short-circuit.

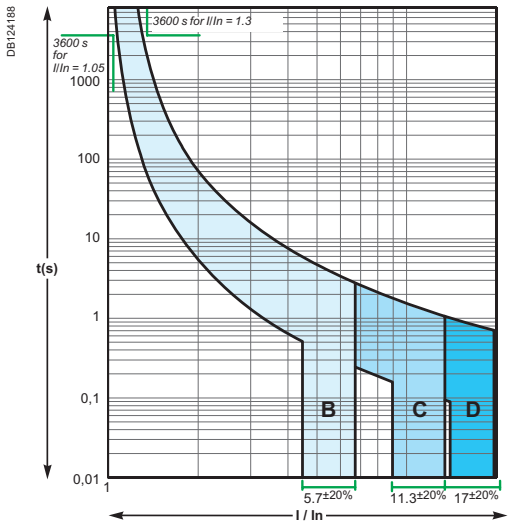
In practice, after a time $t = 3\tau$ the short-circuit is considered to be established, because the value of exp(-3) = 0.05 is negligible compared to 1.
The lower the corresponding time constant (e.g. battery circuit), the faster a short-circuit is established.

L/R	Description	DC applications
2 ms	Very fast short-circuit	■ Photovoltaic applications
5 ms	Fast short-circuit established	■ Resistive or slightly inductive circuits: □ indicator light □ trip units (MN, MX) □ motor armatures □ battery charger/uninterruptible power supply (UPS) ■ Capacitive circuits: electronic controller
15 ms	Standardised value used in standard IEC 60947-2	■ Inductive circuits: □ electromagnetic coil □ contactor coil □ motor inductor
30 ms	Slower short-circuit established	■ Highly inductive circuits: □ electromagnetic coil □ contactor coil □ motor inductor

In general, the system time constant is calculated under worst case conditions, across the terminals of the generator.

Circuit breakers for direct current applications (cont.)

24 V - 48 V direct current applications



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

Tripping curves

We can choose our solution according to the inrush currents generated by our loads, in the same way as for alternating current. In direct current, the same thermal tripping curves are obtained as in alternating current. The only difference is that the magnetic thresholds are offset by a coefficient √2 compared to the curves obtained in alternating current.

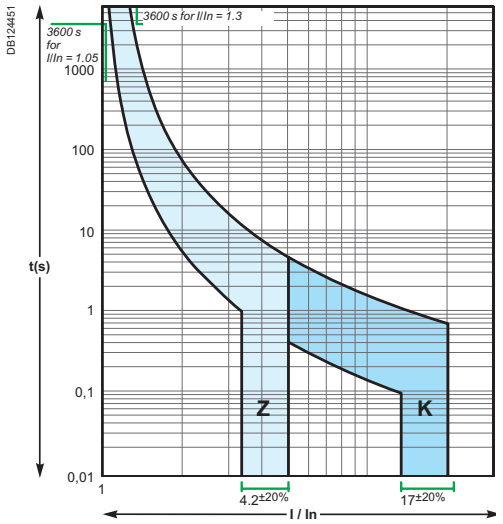
Characteristics of the various curves and their applications:

Curves	Magnetic thresholds		DC applications
	AC	DC	
Z	2.4 to 3.6 In	3.4 to 5 In	■ Resistive loads ■ Loads with electronic circuits
B	3.2 to 4.8 In	4.5 to 6.8 In	■ Motor inductor: starting current 2 to 4 In ■ Battery charger/Uninterruptible power supply (UPS)
C	6.4 to 9.6 In	9.05 to 13.6 In	■ Electronic controller
D et K	9.6 to 14.4 In	13.6 to 20.4 In	■ Electromagnetic coil: inrush overvoltage 10 to 20 Un ■ LV relay ■ Trip units (MN, MX) ■ Indicator light ■ PLCs (industrial programmable logic controllers)

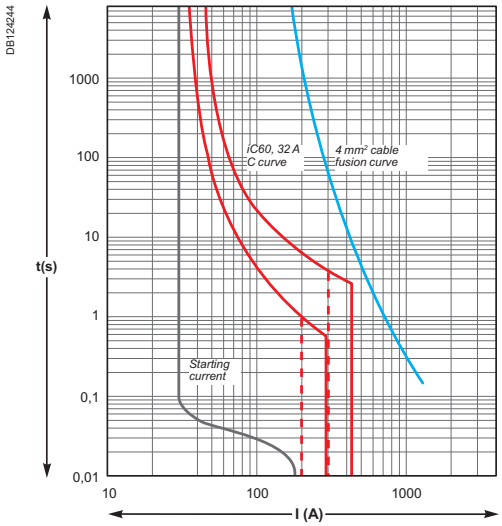
The figures opposite are iC60 tripping curves showing DC magnetic thresholds and normative limits

Example

Protection of the 4 mm² cable supplying a load at In = 30 A with a 32 A rating and a tripping curve that allows the starting current for this load to be absorbed.



Curves Z, K, ratings 6 A to 63 A



Curve C, rating 32 A (AC magnetic thresholds in dotted lines)

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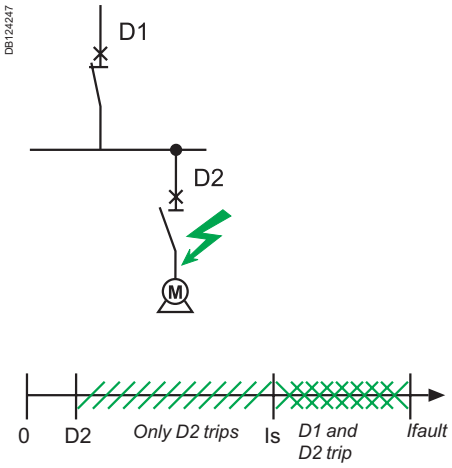
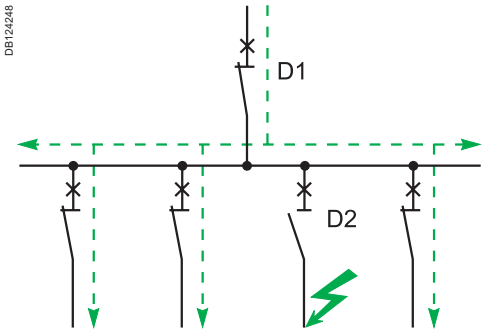
Circuit breakers for direct current applications (cont.)

24 V - 48 V direct current applications





Continuity of service of the solutions

Discrimination of the direct current protection devices

Discrimination is a key element that must be taken into account right from the design stage of a low-voltage installation to allow continuity of service of the electrical power.

Discrimination involves coordination between two circuit breakers connected in series, so that in the event of a fault, only the circuit breaker positioned immediately upstream of the fault trips. A discrimination current Is is defined as:
- I fault < Is: only D2 removes the fault, discrimination ensured,
- I fault > Is: both circuit breakers may trip, discrimination not ensured.

Discrimination may be partial or total, up to the breaking capacity of the downstream circuit breaker. To ensure total discrimination, the characteristics of the upstream device must be higher than those of the downstream one.

The same principles apply to designing both direct current and alternating current installations. Only the limit currents change when direct current is used.

Once again, we find the same concepts of discrimination:
- **total**: up to the breaking capacity of the downstream device. Our tests have been performed at up to 25 kA or 50 kA depending on the breaking capacity of the devices in question.
- **partial**: indication of the discrimination limit current **Is**. Discrimination is ensured below this value; above this value, the upstream device participates in the breaking process,
- **none**: no discrimination ensured, the upstream and downstream circuit breakers will trip.

For further information about the discrimination concept for protection devices in general, refer to technical supplement 557E4300, "Discrimination of modular circuit breakers".

Total discrimination solutions

In the following tables, we offer you solutions that favour continuity of service (total discrimination between circuit breakers), for different short-circuit currents.

Circuit breakers for direct current applications (cont.)

24 V - 48 V direct current applications

Total discrimination: 20 kA

		Upstream	Curve C	Time constant (L/R) = 15 ms						
	In (A)	iC60H 10 - 16	20 - 25	32	40	50 - 63	iC120H 80	100	125	NS ⩾ 100
Downstream										
iC60H Curves B,C	⩽ 3	T	T	T	T	T	T	T	T	T
	4		T	T	T	T	T	T	T	T
	6				T	T	T	T	T	T
	10						T	T	T	T
	13						T	T	T	T
	16 to 25						T	T	T	T
	32							T	T	T
	40								T	T
	50 - 63								T	T

Total discrimination: 36 kA

		Upstream	Curve C	Time constant (L/R) = 15 ms
	In (A)	NG125H 80		NS ⩾ 100
Downstream				
NG125H Curves B,C	10	T		T
	16 to 63			T

Total discrimination: 50 kA

		Upstream	Curve C	Time constant (L/R) = 15 ms
	In (A)	NG125L 80		NS ⩾ 100
Downstream				
NG125L Curves B,C	10	T		T
	16 to 63			T

T *Total discrimination.*

No discrimination.

Circuit breakers for direct current applications (cont.)

24 V - 48 V direct current applications

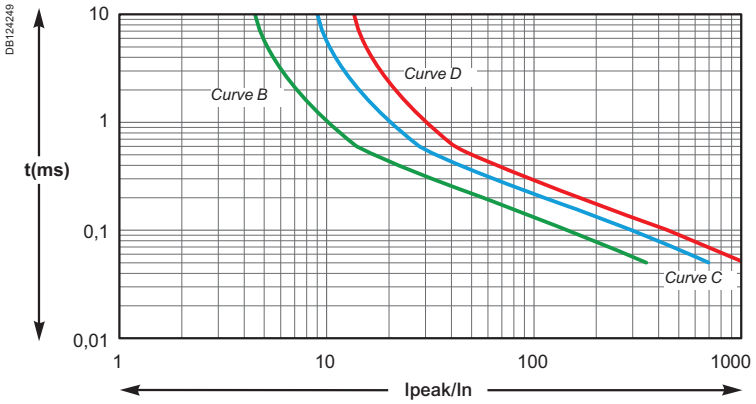
Coordination with loads

As seen above, 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.

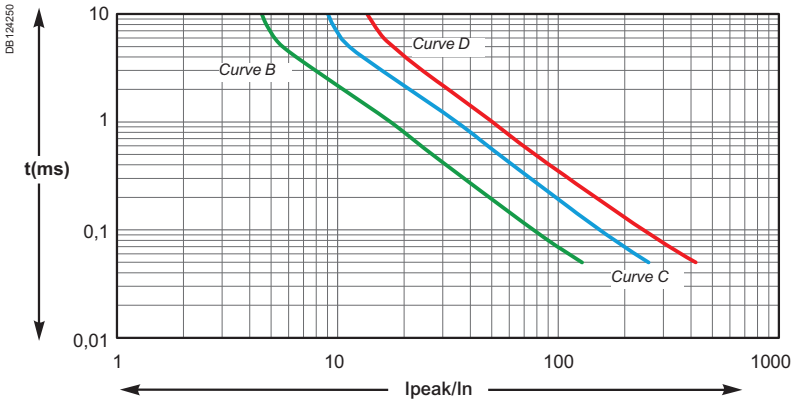
Product selection according to the load inrush current

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

iC60



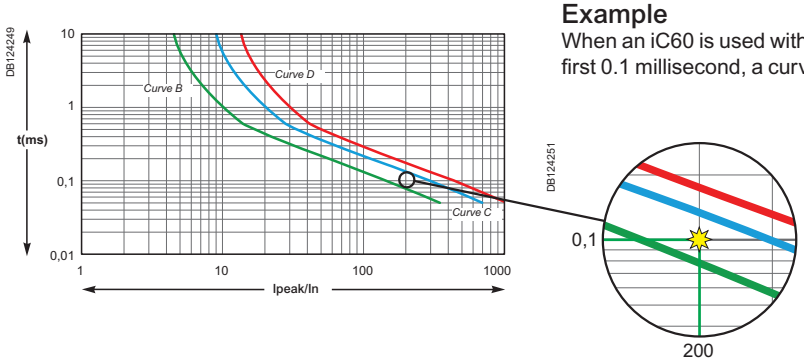
NG125 / C120



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.



Circuit breakers for direct current applications (cont.)

24 V - 48 V direct current applications

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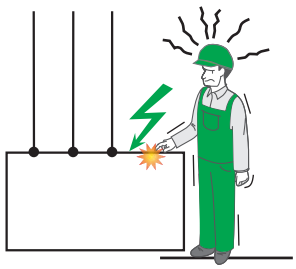

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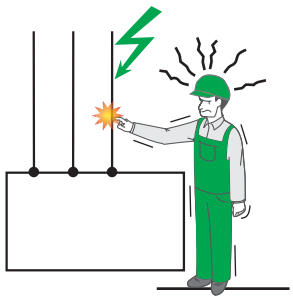

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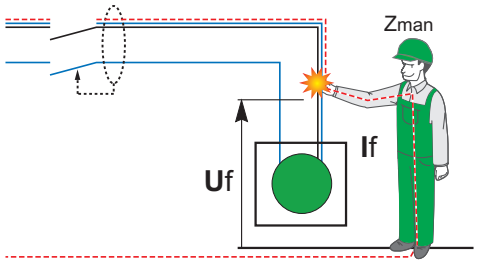


Standards: IEC 60479-2, NF C 15100, IEC 60755.

Personal protection

Personal protection (earth-leakage protection) is not mandatory for this voltage range (24-48 V DC).
In fact, according to the standards currently in force, the minimum ventricular fibrillation current **If** for human beings is in the order of 25 mA for alternating current (50 Hz), whereas for direct current, it is more than 50 mA.
The table below shows the data according to the standards and conditions:

Environment		Voltage specifications	
		AC	DC
Dry environment Zman = 2000 Ohm	Uf = Z x If	50 V	100 V
Wet environment Zman = 1000 Ohm	Uf = Z x If	25 V	50 V

*With **Z** corresponding to the impedance of the human body in the different types of environment, **If** being the current passing through the body and **Uf** the minimum contact voltage required to reach the danger current.*

Under normal operating conditions, this voltage range (< 50 V) is therefore not dangerous to human beings.

Circuit breakers for direct current applications (cont.)

24 V - 48 V direct current applications

Examples of applications

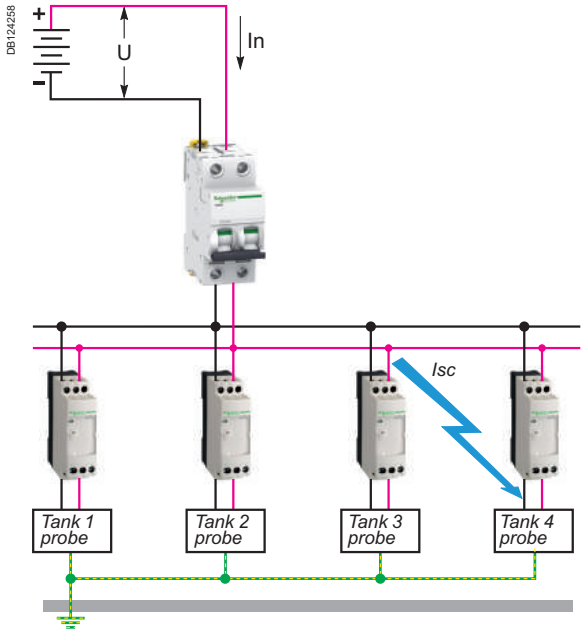
Industrial applications

Monitoring of agro-food tanks with 24 V DC converters for probes and other sensors

- ■ Isolated network:
- □ Isc = 20 kA,
- □ In = 40 A.

Solution

iC60H 2P 40 A + 24 V converters

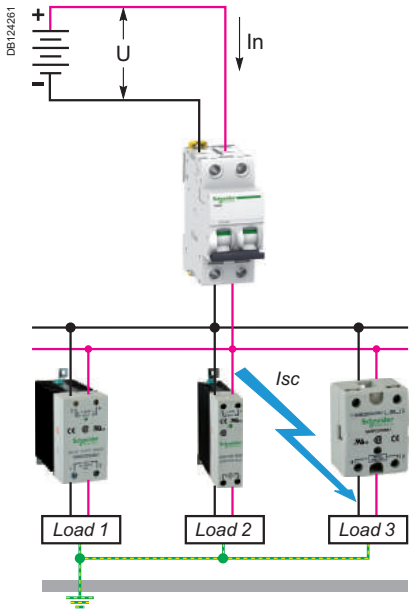


Control of industrial process measurement by 12/24/48 V DC control

- ■ Isolated network:
- □ Isc = 20 kA,
- □ In = 40 A.

Solution

iC60H 2P 40 A + DC solid-state relays



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Circuit breakers for direct current applications (cont.)

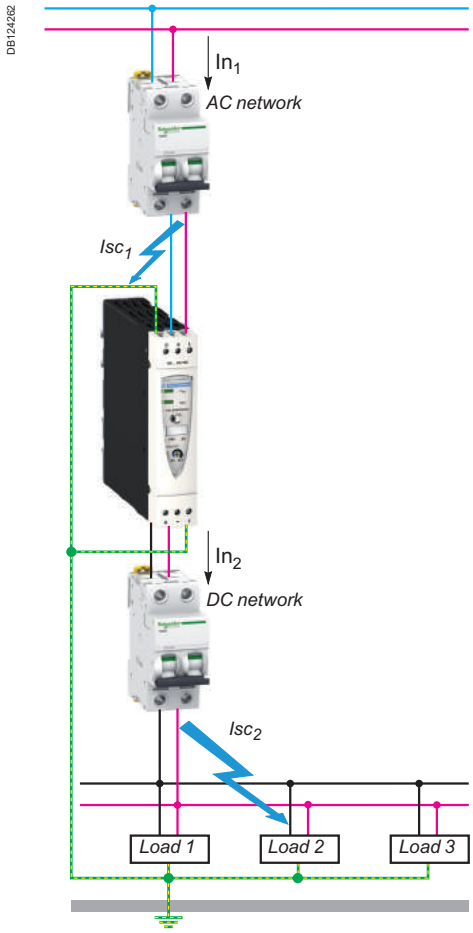
24 V - 48 V direct current applications

24 V DC generator power supply protection

- ■ Earthed network:
- □ Isc = 10 kA / In = 63 A,
- □ Isc = 10 kA / In = 20 A.

Solution

iC60H 2P 63 A + iC60N 2P 20 A + DC loads



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Circuit breakers for direct current applications (cont.)

24 V - 48 V direct current applications

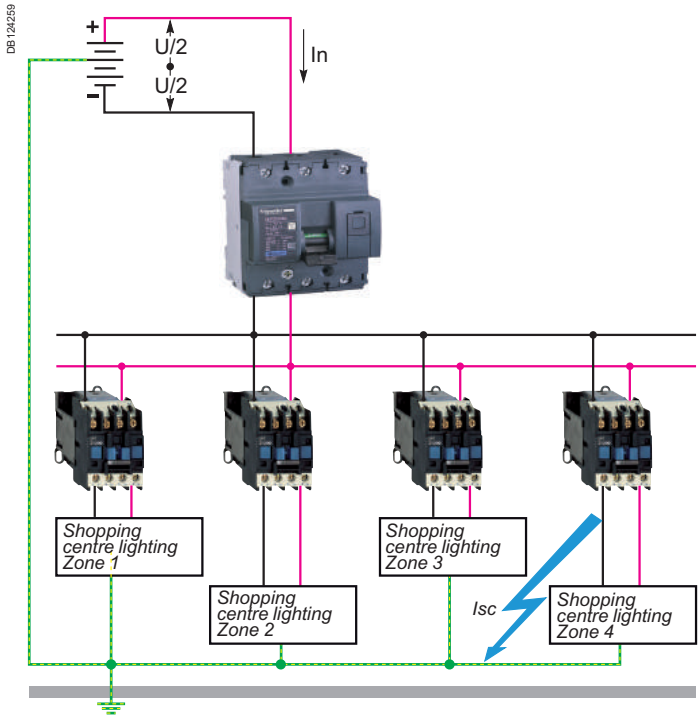
Tertiary applications

Control and monitoring of the 48 V DC emergency lighting distribution for a shopping centre

- ■ Mid-point of the network:
- □ Isc = 20 kA,
- □ In = 125 A.

Solution

NG125H 3P 125 A + power contactors



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Circuit breakers for direct current applications (cont.)

24 V - 48 V direct current applications

Power supply protection by 24 V DC direct current generator

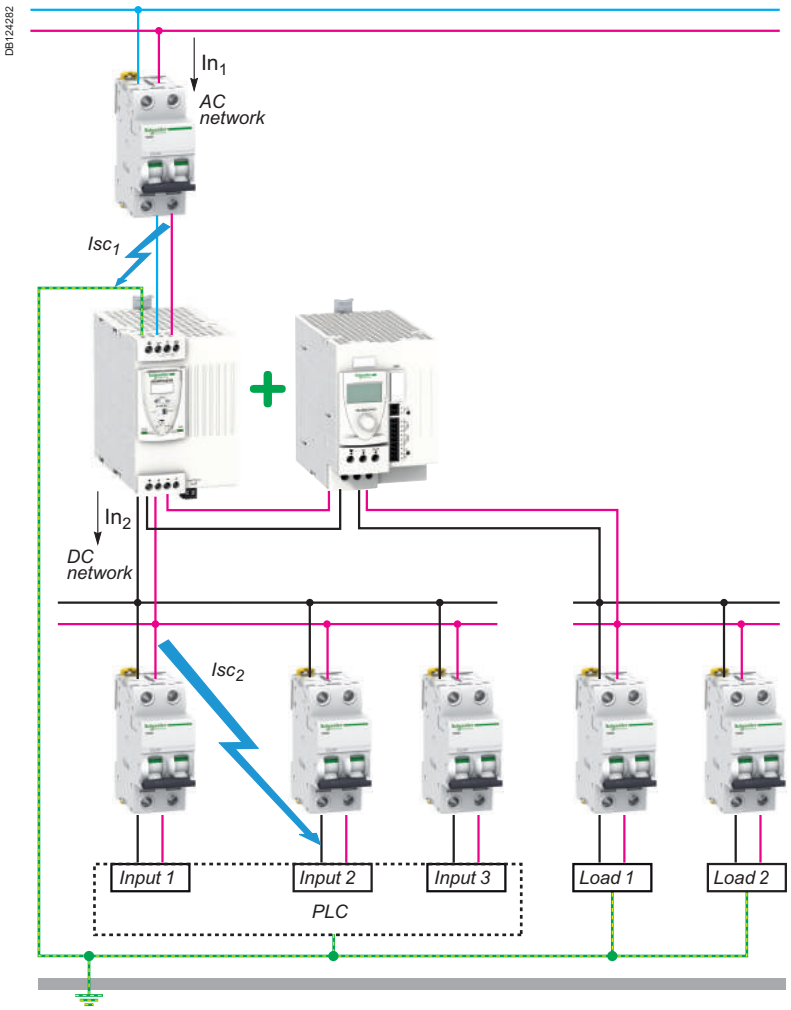
- ■ Earthed network:
- □ Isc_1 = 10 kA / In = 40 A,
- □ Isc_2 = 10 kA / In = 2/4/6 A.

Solution

iC60H 2P 40 A + iC60H 2P 2/4/6 A + PLC inputs + DC loads

The Phaseo network failure solution provides the installation (or part thereof) with a 24 V DC power supply in the event of a mains voltage failure:

- ■ throughout the mains failure, to ensure the continuity of service of the installation.
- ■ during a limited time to allow:
- □ data to be backed up,
- □ actuators to be put in the fallback position,
- □ a generating set to be started up,
- □ the operating systems to be shut down,
- □ remote supervision data to be transmitted.



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400 Hz network

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:

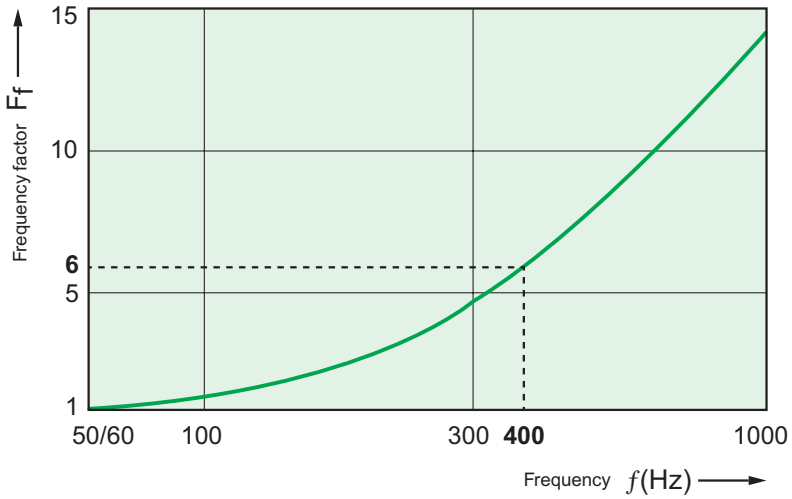
- do not take any thermal derating into account (In at 400 Hz is equivalent to In at 50 Hz).
- increase the magnetic tripping threshold, according to the table below.
- check that the short-circuit current on the installation is less than the breaking capacity of the circuit breaker. The breaking capacity 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	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				

400 Hz network (cont.)

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	YES	
	Vigi iC60	Not compatible	Trip threshold exceeding the limit given by the curve
	iDPN Vigi,	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

For use in conjunction with motor starters and transformers

Motor starters

In general miniature circuit breakers can give only short circuit protection to motor loads due to the high starting currents which may be encountered; typically 3 - 12 times full load current (FLC).

Assumptions

The tables give recommended MCB ratings for motors up to 37kW based on the following assumptions:

■ **Direct-on-line starting**

☐ Starting current = 7 x FLC
☐ Run up time = 6seconds, motors <3kW
☐ 10 seconds, motors < 22kW
☐ Running currents = average values only (individual manufacturer's figures will vary). four pole motors, i.e. speed approx. 1500rpm

For higher inertia loads, i.e. hoists or fans, run up times may be considerably longer than those assumed above. The rating of the MCB must take account of the greater run up time and starting current. The required MCB rating can be determined by reference to time/current curves (consult us).

■ **Star/delta starting**

Since, during the changeover from star to delta, a high current surge in the order of DOL values may be met, the MCB rating selected should be the same as that recommended for DOL starting.

Table 1 - 3 phase 415Vac D.O.L. starting

			Recommended MCB		
kW	hHp	Running I	**C60HB**	**C60HC**	**C60HD**
0.12	0.166	0.65	2	2	1
0.18	0.25	0.7	2	2	1
0.25	0.33	0.87	4	2	1
0.37	0.5	1.35	4	4	2
0.55	0.75	1.55	4	4	2
0.75	1.0	1.93	6	4	4
1.1	1.5	2.5	6	6	4
1.5	2	3.5	10	10	6
2.2	3	4.8	16	10	10
3	4	6.4	20	20	10
3.75	5	7.8	25	25	16
4	5.5	8.1	25	25	16
5.5	7.5	11	32	32	16
7.5	10	14.4	50	50	20
9.33	12.5	17.3	63	50	20
11	15	21	63	63	25
13	17.5	25	-	-	32
15	20	28	-	-	40
18.5	25	35	-	-	50
22	30	40	-	-	50
30	40	54	-	-	63
37	50	65.5	-	-	-

Table 2 - 1 phase 240Vac D.O.L. starting

kW	Hp	Running I	**C60HB**	**C60HC**	**C60HD**
0.12	0.166	0.95	4	2	1
0.18	0.25	1.5	4	4	2
0.25	0.33	1.7	6	4	2
0.37	0.5	3	10	6	4
0.55	0.75	4.5	16	10	6
0.75	1	5.5	16	16	10
1.1	1.5	8.5	25	25	16
1.5	2	10.5	32	32	20
2.2	3	15.5	40	40	25
3	4	20	63	63	32
3.75	5	24	-	63	40
5.5	7.5	34	-	-	50
6.3	8.5	36.5	-	-	63
7.5	10	45	-	-	63
11	15	66.5	-	-	-

For use in conjunction with motor starters and transformers (cont.)

Transformers

High inrush currents are also produced when transformers are switched on, typically 10 - 15 times full load current.

Assumptions

The tables give recommended MCB ratings for single phase transformers up to 12500VA and three phase transformers up to 30000VA based on the following formula.

Table 3 - 3 phase transformers 415Vac supply

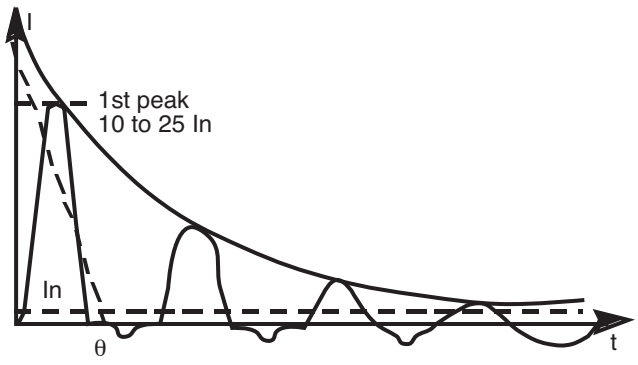
VA	Primary In (A)	C60HB	C60HC	C60HD
500	0.7	4	2	1
750	1.04	6	4	2
1000	1.39	10	6	4
2000	2.78	16	10	6
5000	6.95	40	25	16
10000	13.89	-	50	25
15000	20.84	-	63	32
20000	27.78	-	-	50
25000	34.73	-	-	63
30000	41.67	-	-	63

Table 4 - 1 phase transformers 240Vac supply

VA	Primary In (A)	C60HB	C60HC	C60HD
50	0.21	2	-	-
100	0.42	4	2	1
250	1.04	6	4	2
500	2.08	16	10	4
1000	4.17	25	16	10
2500	10.42	63	32	16
5000	20.84	-	63	32
10000	41.66	-	-	63
12500	52.08	-	-	-

Inrush currents

When LV/LV transformers are switched on, very high inrush currents are produced which must be taken into account when choosing overcurrent protection devices. The peak value of the first current wave often reaches 10 - 15 times the rated rms current of the transformer and may reach values of 20 - 25 times the rated current even for transformers rated less than 50kVA. This transient inrush current decays very quickly (in a few milliseconds).



Provided by enclosures

External influences

In many national and international standards, a large number of external influences to which an electrical installation can be subjected are indexed and coded: presence of water, presence of solid objects, risk of impact, vibrations, presence of corrosive substances, etc. These influences may be present with variable intensity depending on the conditions of installation: The presence of water may be in the form of a few drops or total immersion.

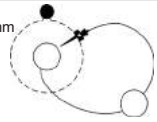
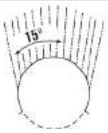
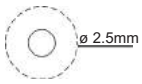
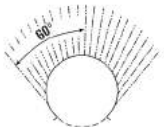
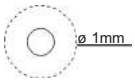
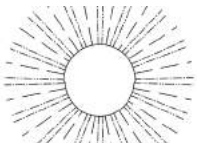
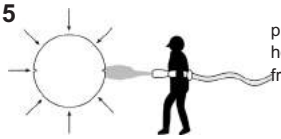
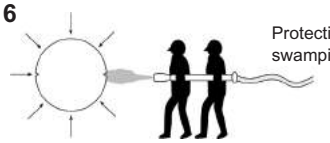
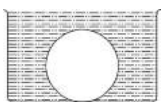
Protection index

European standard EN60529 gives a protection code (IP) which characterises the ability of equipment to withstand the following external influences:

- Presence of solid bodies
- Presence of water

This code comprises two digits, depending on these external influences. The protection index is assigned to the equipment following a series of tests laid down in the respective standards.

Test according to EN60529

1st digit **Protection against solid bodies**		2nd digit **Protection against liquids**	
0	no protection	**0**	No protection
1 	Protection against solid bodies greater than 50 mm	**1** 	Protection against vertical drops of water (condensation)
2 	Protection against solid bodies greater than 12.5mm	**2** 	Protection against drops of water falling up to 15° from vertical
3 	Protection against solid bodies greater than 2.5 mm	**3** 	Protection against rainwater up to 60° from vertical
4 	Protection against solid bodies greater than 1 mm	**4** 	Protection against water projected from all directions
5 	Protection against dust (no harmful deposits)	**5** 	protection against hosing with water from all directions
6 	Total protection against dust	**6** 	Protection against swamping with water
		7 	Protection against immersion

Example
IP 55

- Protection against dust (no harmful deposits)
- Protection against hosing with water from all directions

10

Earth Loop Impedance Values for Miniature Circuit Breakers

Type iC60H		
Type B		
Rating	0.4 Sec	5 Sec
1A	43.70	43.70
2A	21.85	21.85
4A	10.93	10.93
6A	7.22	7.22
10A	4.37	4.37
16A	2.74	2.74
20A	2.19	2.19
25A	1.75	1.75
32A	1.37	1.37
40A	1.09	1.09
50A	0.87	0.87
63A	0.69	0.69

Type iC60H		
Type C		
Rating	0.4 Sec	5 Sec
1A	21.85	28.02
2A	10.93	13.66
4A	5.46	7.05
6A	3.69	4.65
10A	2.19	2.80
16A	1.37	1.75
20A	1.09	1.40
25A	0.87	1.12
32A	0.68	0.87
40A	0.55	0.70
50A	0.44	0.56
63A	0.35	0.45

Type iC60H		
Type D		
Rating	0.4 Sec	5 Sec
1A	15.61	28.02
2A	7.80	13.66
4A	3.90	7.05
6A	2.60	4.65
10A	1.56	2.80
16A	0.98	1.75
20A	0.78	1.40
25A	0.63	1.12
32A	0.48	0.87
40A	0.39	0.70
50A	0.31	0.56
63A	0.25	0.45

Type iC120H		
Type B		
Rating	0.4 Sec	5 Sec
63A	0.69	0.69
80A	0.54	0.54
100A	0.44	0.44
125A	0.34	0.34

Type iC120H		
Type C		
Rating	0.4 Sec	5 Sec
63A	0.35	0.43
80A	0.28	0.33
100A	0.22	0.27
125A	0.17	0.22

Type iC120H		
Type D		
Rating	0.4 Sec	5 Sec
63A	0.25	0.43
80A	0.20	0.33
100A	0.15	0.27
125A	0.12	0.22

Contents

Dimensions

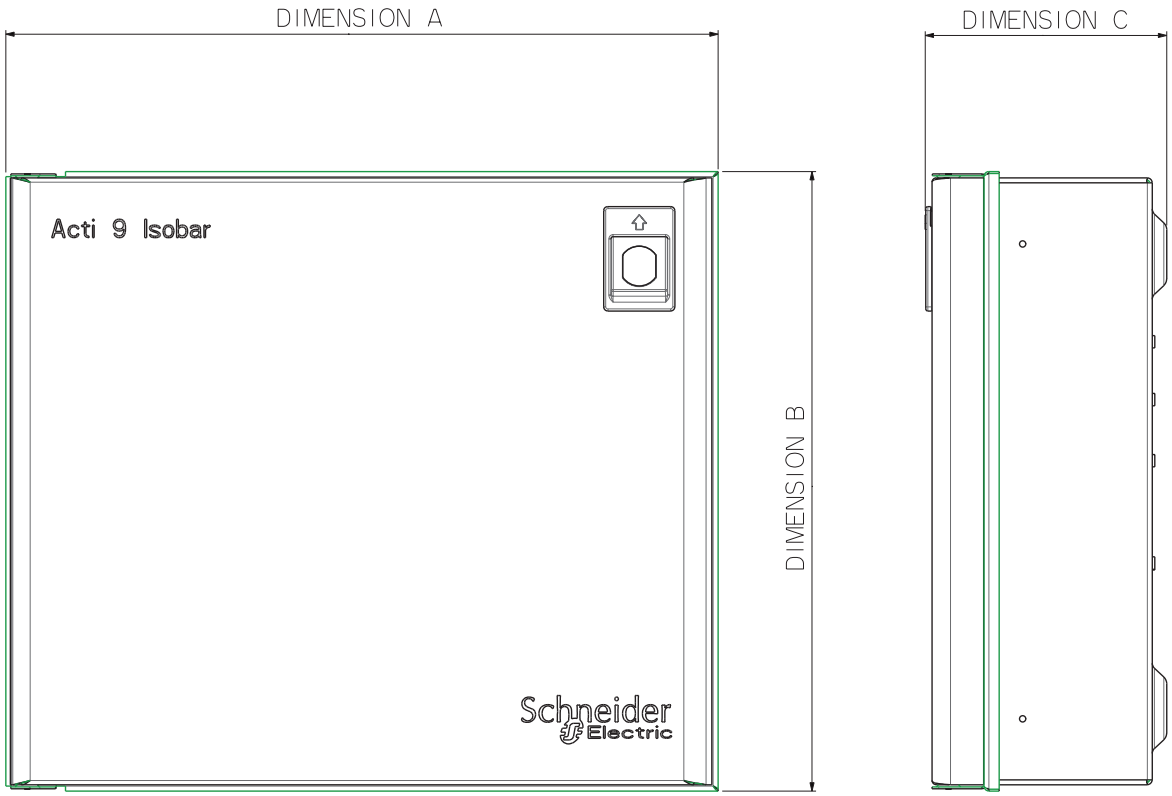
BIM models are available on the Schneider Electric website
www.schneider-electric.co.uk

11

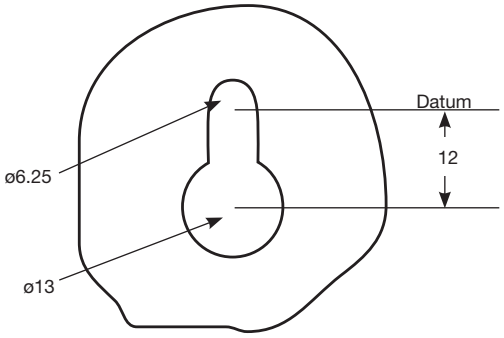
Acti 9 Isobar distribution boards

A type distribution boards

Part number	A	B	C
SEA9AN2	200	300	117
SEA9AN6	273	300	117
SEA9AN10, SEA9AN26DS	345	300	117
SEA9SNI4, SEA9AN26SL, SEA9AN66DS, SEA9AN616MS, SEA9ANI08MS	417	300	117
SEA9ANI8, SEA9AN6S6, SEA9AN5I0SL, SEA9AN96SL, SEA9ANI06DS, SEA9AN624MS, SEA9ANI016MS, SEA9ANI48MS	489	300	117
SEA9AN27, SEA9ANI0SI0, SEA9ANI432MS	417	530	117



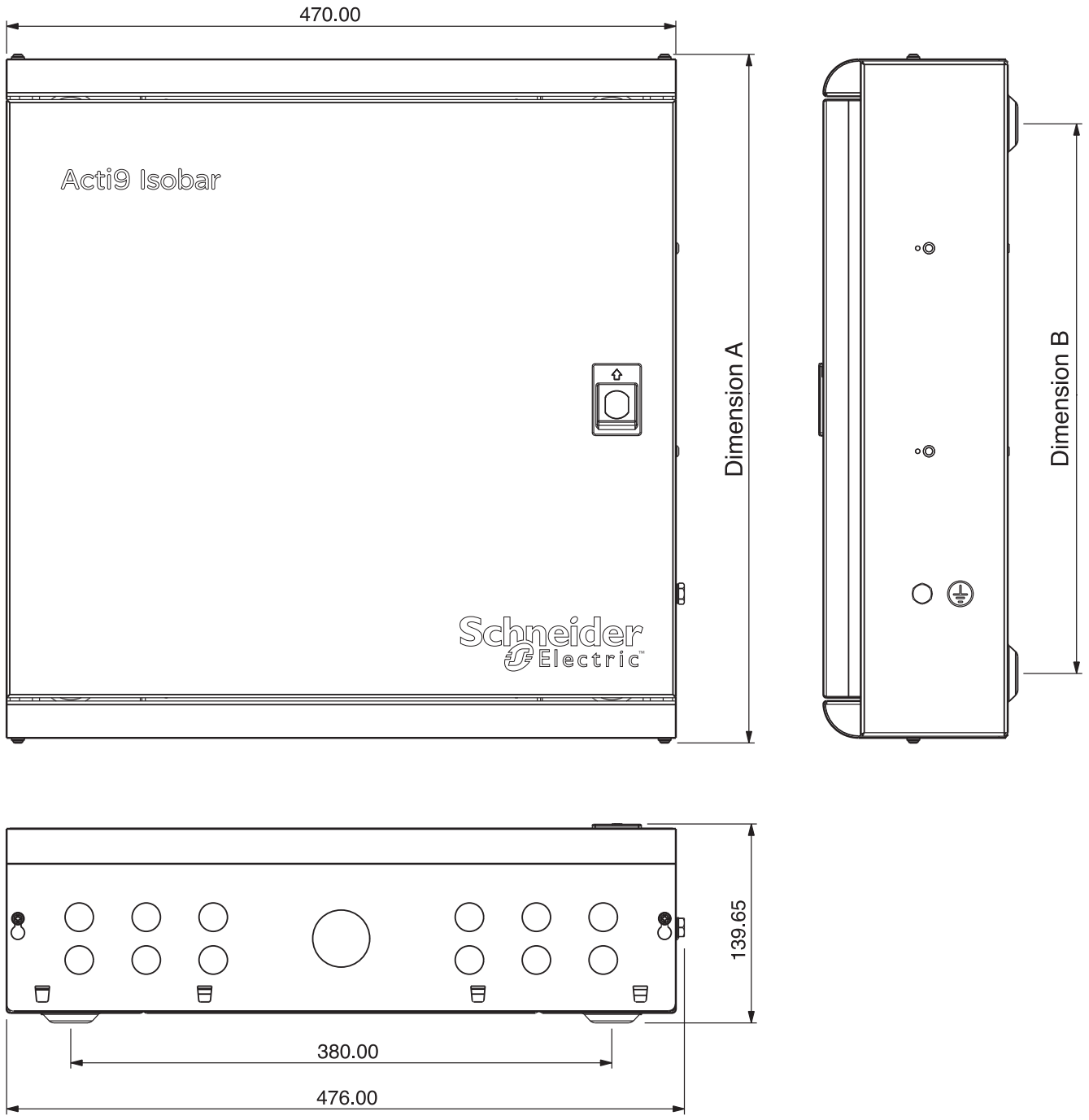
Key hole slot dimensions



Acti 9 Isobar distribution boards

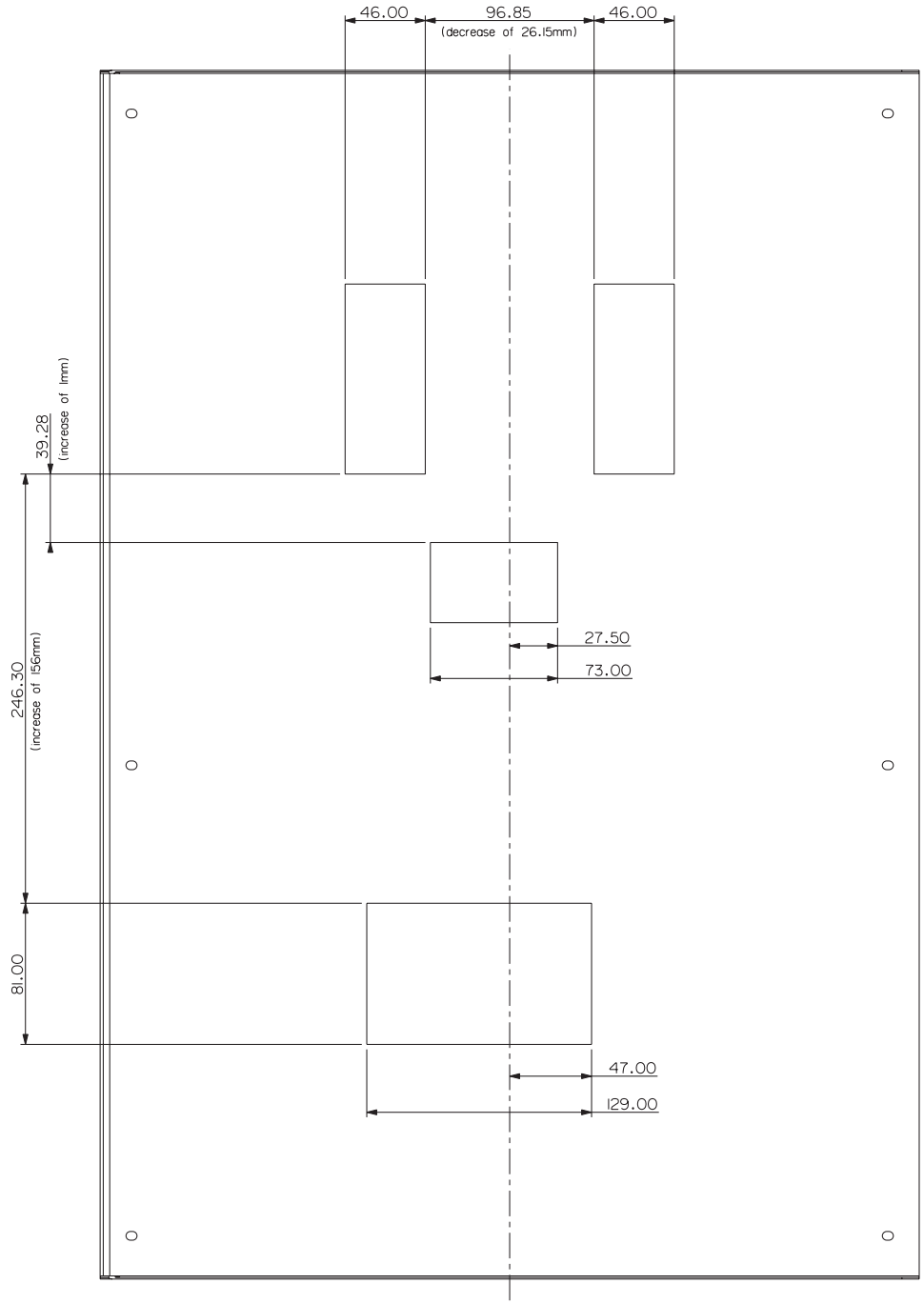
B type distribution boards

Part number	A	B
SEA9BN4, SEA9BN6, SEA9BN6M	484	386
SEA9BN8, SEA9BN8M	538	440
SEA9BN12, SEA9BN12M	700	602
SEA9BN16, SEA9BN16M	808	710
SEA9BN18, SEA9BN18M	862	764
SEA9BN24, SEA9BN24M	1024	926



Acti 9 Isobar distribution boards

B type distribution boards (cont.)

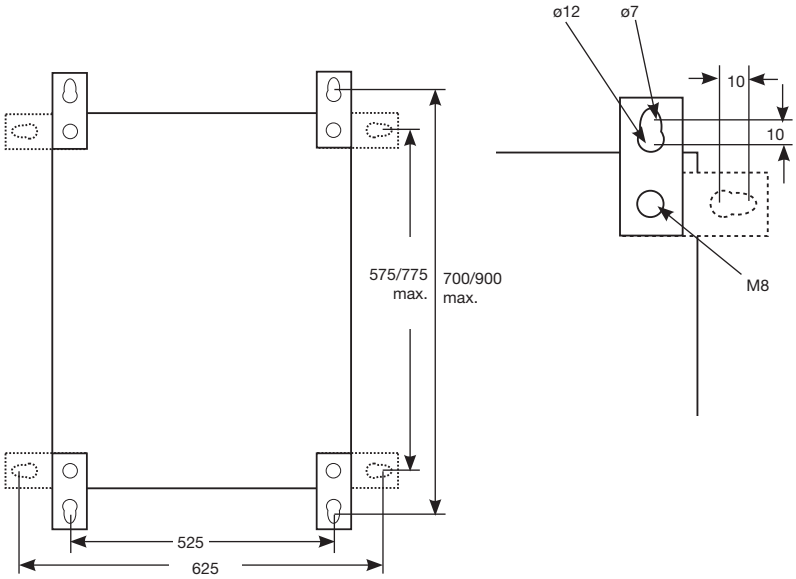


Heavy duty distribution board (100A)

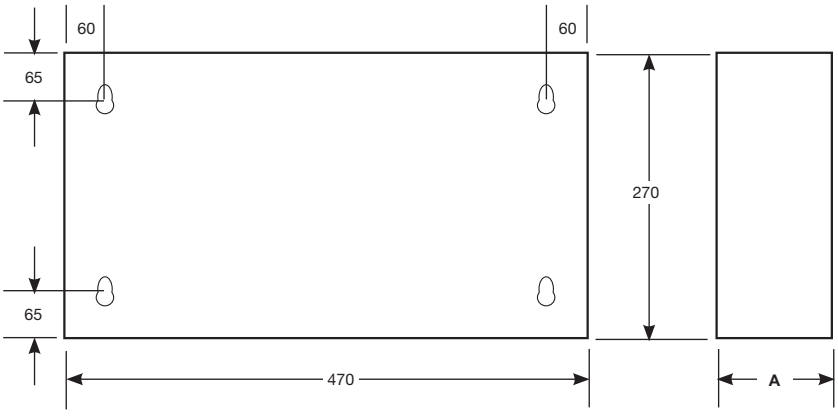
IP55 weatherproof

Part number	Number of	Dimensions (mm)		
		Height	Width	Depth
SEA9BN6HDGK/G-R	6	650	600	290*
SEA9BN8HDGK/G-R	8	650	600	290*
SEA9BN12HDGK/G-R	12	850	600	290*
SEA9BN16HDGK/G-R	16	850	600	290*

* Denotes the maximum depth dimensions with key fitted.

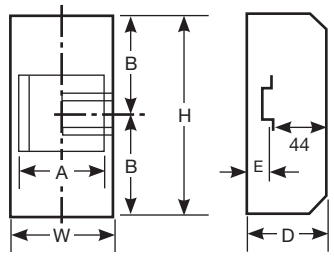


B board extension box enclosures	
Part number	**A**
SEA9BNEXN	124
SEA9BNEX034N	140
SEA9BNKWH	124
SEA9BNEXA14N	140
SEA9BN100CCI	140
SEA9BNDSI	124

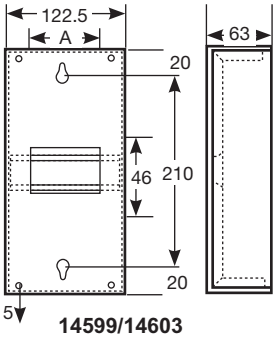


Enclosures
Mini Opale, G9

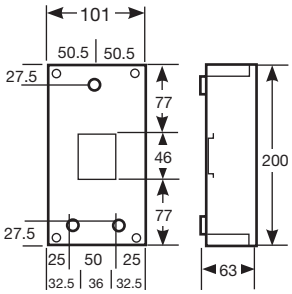
Mini Opale enclosures						
Part number	**H**	**W**	**D**	**A**	**B**	**E**
13392	130	44	57	36	65	11
13394	130	80	57	72	65	11
13396	160	119	65	108	80	19
13398	160	155	65	151	80	19



G9 enclosures	
Part number	**A**
14599	72
14603	99



14599/14603

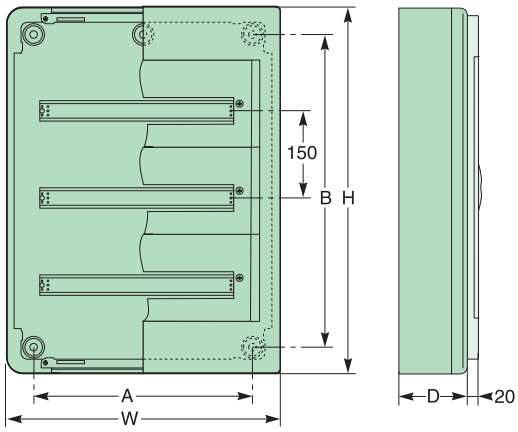


99560

11

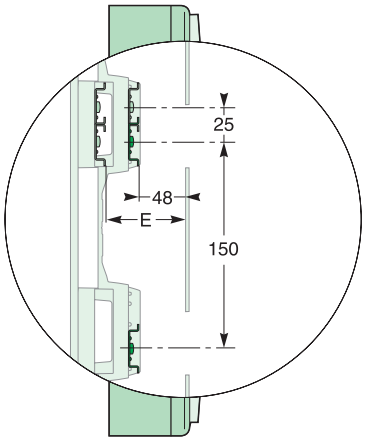
Enclosures

Pragma surface mounted enclosures and interfaces



Surface mounted enclosures

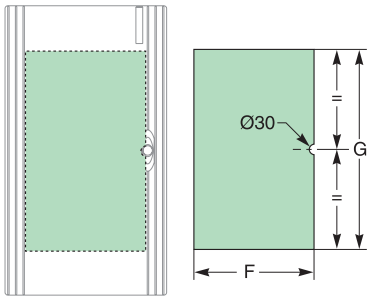
Enclosure		Dimensions (mm)								
		H	W	D	A	B	E	F	G	J
13 modules	1R	300	336	123	160	200	73	253	149	
	2R	450		(115)		350			299	
	3R	600				500			449	
	4R	750				650			599	
24 modules	1R	300	550	148	340	150	84			121
	2R	450		(136)		300				271
	3R	600				450				421
	4R	750				600				571
	5R	900				750				721
	6R	1050				900				871



The different positions of the DIN rail in height and depth.

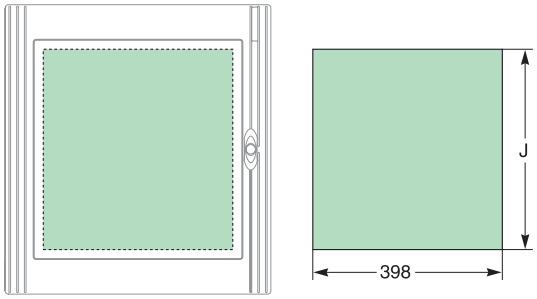
Panel for customisation of the transparent door

13 module enclosures

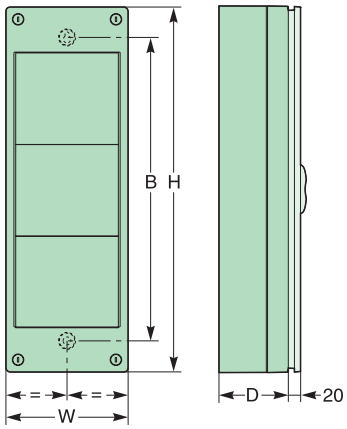


Panel thickness: 0.5 mm max.

24 module enclosures



Panel thickness: 0.5 mm max.



Interfaces

Enclosure	Associated with enclosure	Dimensions (mm)			
		H	W	D	B
1R	13 modules	300	200	115	206
2R		450			356
3R		600			506
1R	24 modules	300	200	136	175
2R		450			325
3R		600			475

11

Pre-cutouts

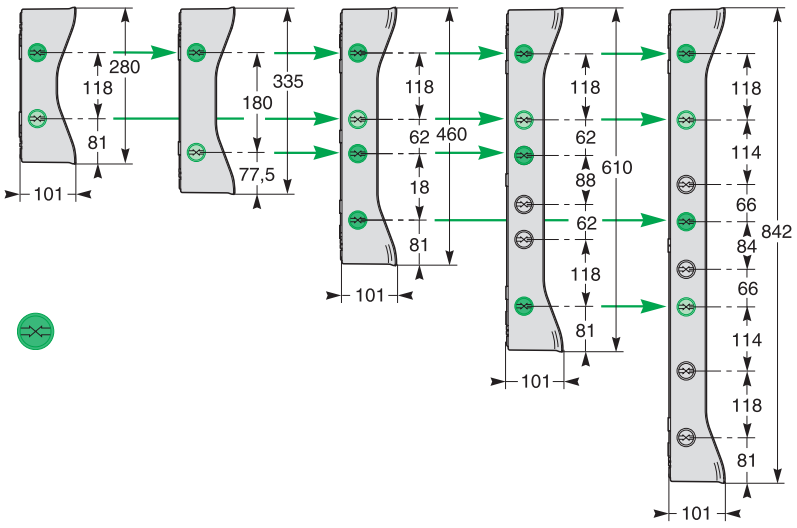
The new European standard EN 50262 generalises metric dimensions for cable glands.
To simplify the transition, the entire Kaedra range is equipped with pre-cutouts both in ISO/metric standardisation and in PG standardisation. Each pre-cutout is marked:
■ Simple pre-cutout adapted to the metric cable gland:

■ Double pre-cutout:
☐ External: pre-cutout adapted to the metric cable gland/ISO
☐ Internal: pre-cutout adapted to the PG cable gland

Cable glands	
Type of pre-cutout	**For cables of diameter (mm)**
M16	4 - 8
M20	6 - 12
M25	12 - 18
M32	18 - 25
M50	30 - 38
PG11	5 - 10
PG16	10 - 14
PG21	14 - 17
PG29	19 - 26
PG36	22 - 32

Associations

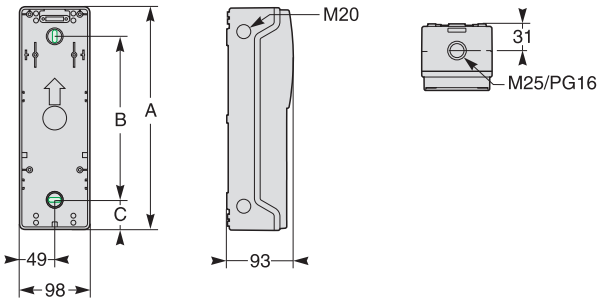
The enclosures can be associated:
■ Horizontally, regardless of their height (see diagram below)
■ Vertically, if their width is identical.
Use the association kit, Part number 13934 (2 sleeves + 4 nuts + 4 seals) in the M32 precutouts marked with a double arrow.
Insertion of cables between the enclosures is possible, while preserving the degree of protection IP65.



Kaedra (cont.)

Weatherproof mini enclosures

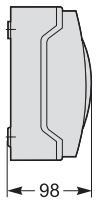
Weatherproof mini enclosures for power outlets



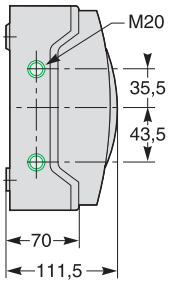
A	B	C	Weight (g)
248	166	41	550
310	228	41	600
392	310	41	700

Weatherproof mini enclosures for modular switchgear

3 modules

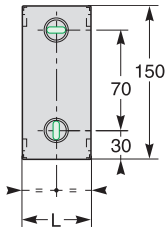


4, 6, 8 and 12 modules

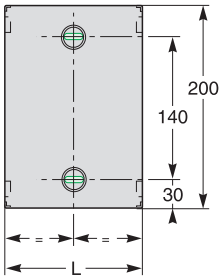


Number of modules	A	L	Weight (g)
3	-	80	300
4	-	123	500
6	-	159	650
8	88	195	850
12	160	267	1050

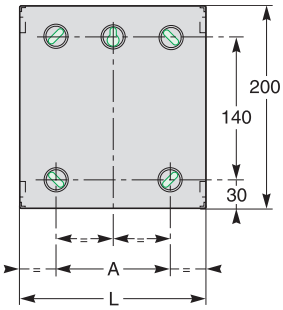
3 modules



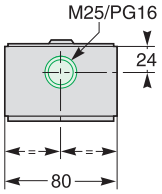
4 and 6 modules



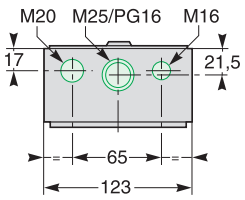
8 and 12 modules



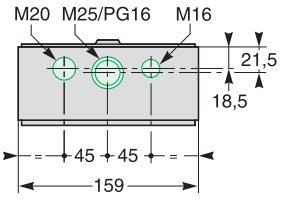
3 modules



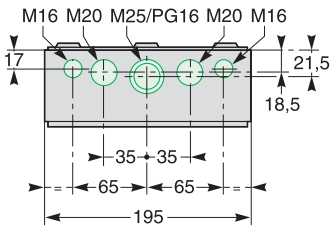
4 modules



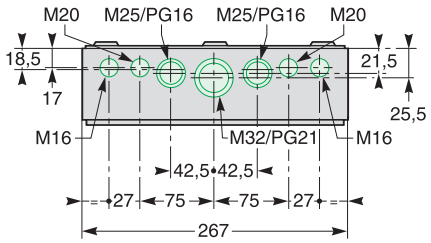
6 modules



8 modules



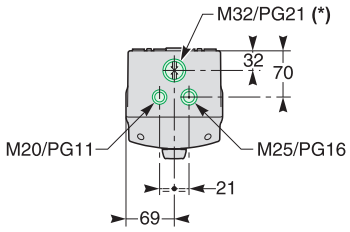
12 modules



11

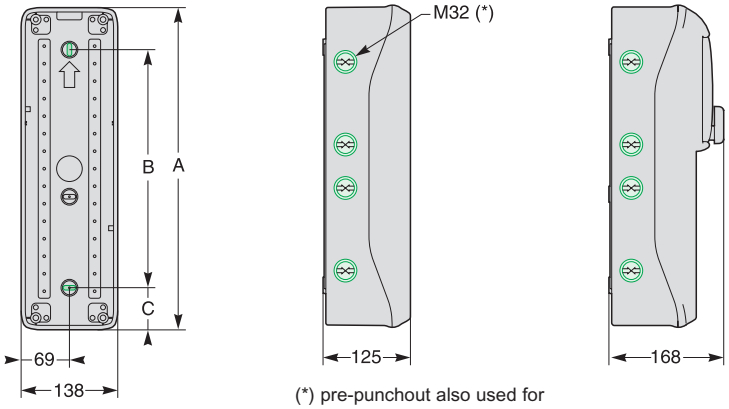
Kaedra (cont.)

A	B	C	Weight (g)
460	251	104.5	1450
460	251	104.5	1250
460	251	104.5	1400
460	251	104.5	1400
610	490	60	1650



Weatherproof enclosures

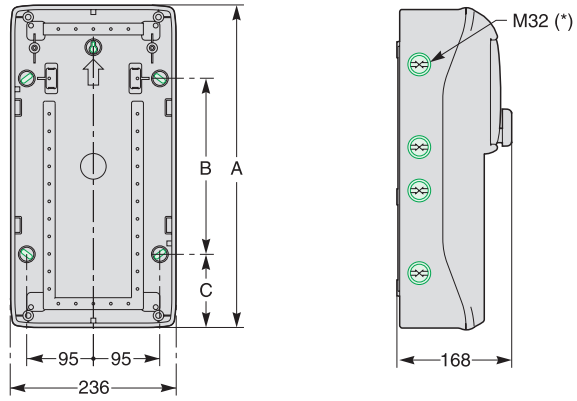
5 modules

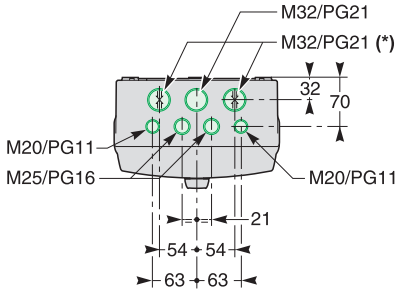


(*) pre-punchout also used for enclosure association

A	B	C	Weight (g)
460	251	104.5	2050
460	251	104.5	1900
460	251	104.5	1900

8 modules

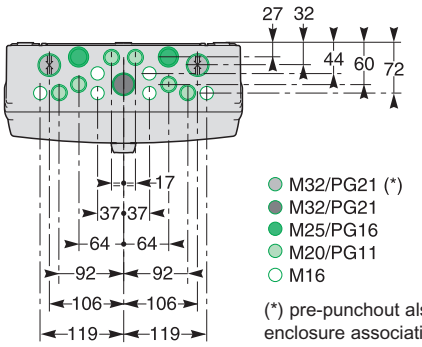




(*) pre-punchout also used for enclosure association

Kaedra (cont.)

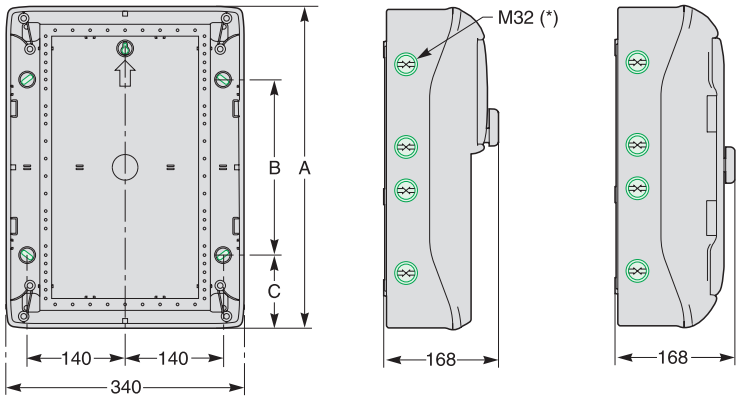
A	B	C	Weight (g)
280	118	81	1900
335	170	82.5	2200
335	170	82.5	2150
460	251	104.5	3100
460	251	104.5	2850
460	251	104.5	3300
460	251	104.5	2650
460	251	104.5	2700
610	401	104.5	4100
460	251	104.5	4550



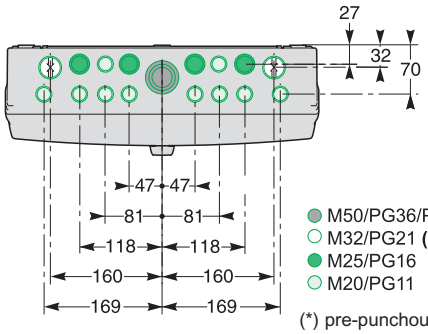
(*) pre-punchout also used for enclosure association

Weatherproof enclosures

12-13 modules

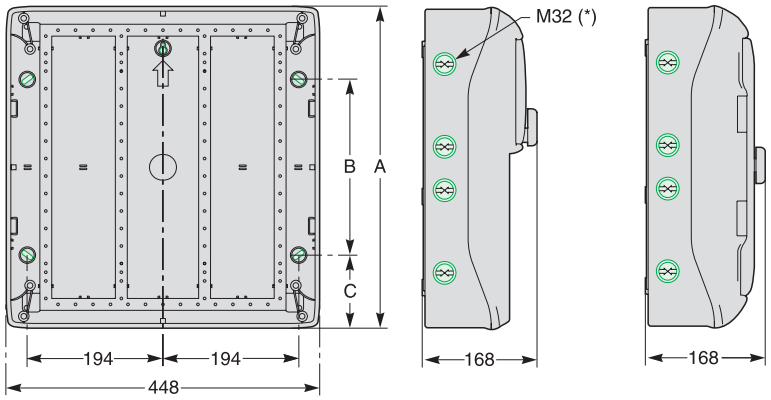


A	B	C	Weight (g)
280	118	81	2400
280	118	81	1950
460	251	104.5	3850
460	251	104.5	3550
460	251	104.5	4150
460	251	104.5	3200
460	251	104.5	3150
460	251	104.5	3300
610	401	104.5	3150
610	401	104.5	5600
610	401	104.5	4050
842	633	104.5	6500
842	633	104.5	6600



(*) pre-punchout also used for enclosure association

18-19 modules



11

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About Schneider Electric

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March, 2016
SE9319