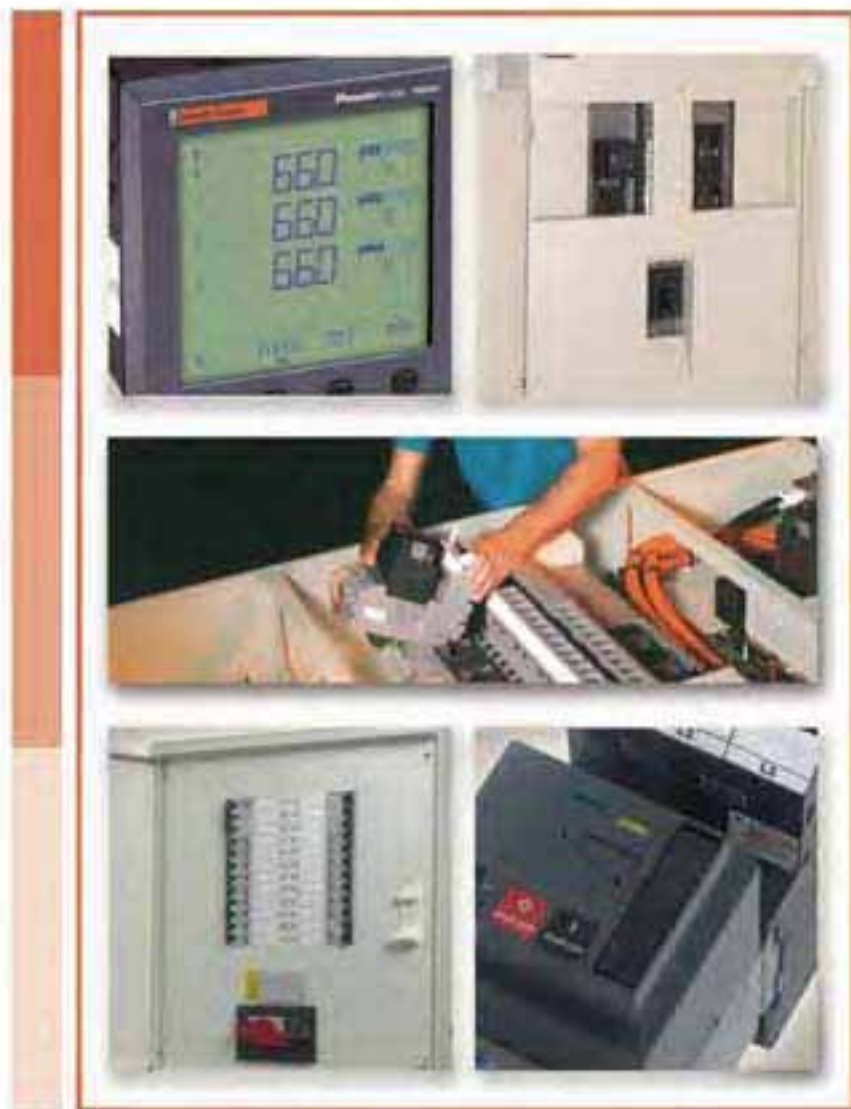


Ready to install

Distribution and control products





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Isobar 4c

Type A and Type B distribution boards

1

Type A distribution board



- Fully type tested conditional short circuit rating of 16kA to BS EN 60439
- 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 connection system 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

Type B distribution board with 125A incomer



- High performance MCB 10kA BS EN 60898 15kA BS EN 60947-2 in B, C or D curve 1, 2, 3 and 4 pole
- Fully type tested conditional short circuit rating of 25kA to BS EN 60439 when fed by MCCB
- 250A busbar rating
- Isobar connection system ensuring unused outgoing ways are isolated
- Option of switching outgoing neutral using distributed neutral kit
- Range of incomers
- Removable insulated pan assembly
- Fully shrouded neutral
- Split neutral bars
- Removable gland plates
- Optional metering, dual supply, surge protection and contactor on incoming

Type B distribution board with 250A incomer



- High performance MCB 10kA BS EN 60898 15kA BS EN 60947-2 in B, C or D curve 1, 2, 3 or 4 pole
- Fully type tested conditional short circuit rating of 25kA to BS EN 60439 when fed by MCCB
- 250A busbar rating
- Isobar connection system ensuring unused outgoing ways are isolated
- Option of switching outgoing neutral using distributed neutral kit
- Range of incomers up to 250A
- Removable insulated pan assembly
- Fully shrouded neutral
- Split neutral bars
- Removable gland plates
- Optional metering, dual supply, surge protection and contactor on incoming

Isobar 4c

SP&N Type A for use only with C60H range

1

Technical data

Designed, manufactured and tested to	BS EN 60439-3
Unique Isobar outgoing phase connection link	
Busbar rating	125A
Voltage rating	230/240Vac
Optional distributed neutral	Allowing 2 pole switching at any outgoing way using distributed neutral kit
Ingress protection	IP31 to BS EN 60529
Cable capacity neutral and earth bar	25mm ²
DIN rail mounting	With fully shrouded busbars
Surface or flush mounting	Using flush mounting kit
5 single pole blanking plates supplied	
Colour	RAL 9001 epoxy powder coated
IP2X with covers removed	

125A standard A boards (Incomers not included)

Part number	Number of outgoing ways	Dimensions (mm)		
		Height	Width	Depth
MGAN6	6	264	260	127
MGAN9	9	264	315	127
MGAN12	12	264	370	127
MGAN15	15	264	450	127
*MGAN23	23	494	370	127

* 2 row unit

125A split load A boards (Incomers not included)

Part number	Unprotected outgoing ways	Protected outgoing ways	Dimensions (mm)		
			Height	Width	Depth
MGAN46SL	4	6	264	450	127
MGAN48SL	4	8	264	450	127
MGAN66SL	6	6	264	450	127

125A dual incomer A boards (Incomers not included)

Part number	Number of outgoing ways Circuit A	Number of outgoing ways Circuit B	Dimensions (mm)		
			Height	Width	Depth
MGAN46DS	4	6	264	370	127
MGAN66DS	6	6	264	450	127
MGAN76DS	7	6	264	450	127

Loads should be evenly distributed across primary and secondary supplies

125A multi service A boards (Incomers not included)

Part number	Unprotected outgoing ways	Useable DIN rail SP way	Dimensions (mm)		
			Height	Width	Depth
MGAN416MS	4	8	264	370	127
MGAN520MS	5	10	264	450	127
MGAN716MS	7	8	264	450	127
MGAN96MS	9	3	264	370	127
MGAN912MS	9	6	264	450	127
MGAN1010MS	10	5	264	450	127
MGAN126MS	12	3	264	450	127
*MGAN1228MS	12	14	494	370	127

*2 row unit



Isobar 4c

SP&N Type A incomers

1



Switch disconnectors

Part number	Rating	Voltage	Number of poles
MGI1252	125A	230/240V	2

Technical data

Tested to	BS EN 60947-3
Category of duty	AC22
Positive contact indication	In accordance with BS 7671
Cable capacity	50mm ²
Terminal tightening torque	3.5Nm
Lockable in "ON" or "OFF" position	Using ref: MGLA

RCCBs

Part number	Rating	Voltage	Sensitivity
RMG630302	63A	230/240V	30mA
RMG631002	63A	230/240V	100mA
RMG633002	63A	230/240V	300mA
RMG800302	80A	230/240V	30mA
RMG801002	80A	230/240V	100mA
RMG803002	80A	230/240V	300mA
23111	80A	230/240V	100mA Time delayed
RMG1000302	100A	230/240V	30mA
RMG1001002	100A	230/240V	100mA
RMG1001002S	100A	230/240V	100mA Time delayed
RMG1003002	100A	230/240V	300mA
23116	100A	230/240V	300mA Time delayed

Technical data

Tested to	BS EN 61008
Positive contact indication	In accordance with BS 7671
Cable capacity	63A, 80A = up to 35mm ² 100A = up to 50mm ²
Terminal tightening torque	2Nm (35mm ²), 3.5Nm (50mm ²)

Terminal block

Part number	Rating	Voltage	Number of poles
MGTB1252	125A	230/240V	2

Technical data

Direct connection	Incoming lug unit, two pole suitable for use in any Isobar 4c A type board
Cable capacity	50mm ²
Terminal tightening torque	3.5Nm



Isobar 4c

TP&N Type B for use only with C60H range

1

Technical data

Designed, manufactured and tested to	BS EN 60439-3
Unique Isobar outgoing phase connection link	
Busbar rating	250A
Voltage rating	400/415Vac
Optional distributed neutral	Allowing 2 or 4 pole switching at any outgoing way using distributed neutral kit
Ingress protection	IP31 to BS EN 60529
Cable capacity neutral and earth bar	25mm ² 100% rated
DIN rail mounting with fully shrouded busbars	
Surface mounting	
Flush mounting available	
Blanking plates	5 single pole supplied
Colour	RAL 9001 epoxy powder coated
IP2X	With covers removed

Standard B boards

Part number	Number of TP outgoing ways	Dimensions (mm)		
		Height	Width	Depth
MGBN4	4	484	470	139
MGBN6	6	484	470	139
MGBN8	8	538	470	139
MGBN12	12	700	470	139
MGBN16	16	808	470	139
MGBN18	18	808	470	139
MGBN24	24	970	470	139

Split load B boards

These are achieved by selecting any 2 Isobar B boards and joining with either MGBNTJKN and feeding the top board via a outgoing 100 amp terminal block MGTB1001 for each phase or use MGBN63SPL split load kit which is supplied with a 63 amp C curve MCB.

Multi service B boards

Control products can be added to any B type distribution board using a modular extension box MGBNEX034N which will accept 17 single pole wide control products.

For flush mounting kits, please consult us.

Lighting and power metered B boards

Technical data

125A 3P+N switch disconnecter fitted	
Connections shrouded to IP2X	
All Isobar features are retained	
Standard incoming and outgoing devices may be fitted	
Metering of total load plus separate metering of section 2, all control wiring current transformers and protection for meters included and fitted, outputs wired to terminals	
Ethernet gateway and dc power supply can be supplied for retro-fit	
PM750MG meters have pulsed output and modbus connections	
Split neutral bars	
Split earth bars	
Size	H = 1290 x W = 470 x Depth = 139

Part number		Section 1 - Total load outgoing TP ways	Section 1 - Sub load outgoing TP ways
125A	MGBN12516S4	16	4
	MGBN12514S6	14	6
	MGBN12512S8	12	8
250A	MGBN25016S4	16	4
	MGBN25014S6	14	6
	MGBN25012S8	12	8



Isobar 4c

TP&N Type B for use only with C60H range

Technical data

Designed, manufactured and tested to	BS EN 60439-3
Unique Isobar outgoing phase connection link	
Busbar ratings	125A
Voltage rating	400/415Vac
Optional distributed neutral using	Allowing 2 or 4 pole switching at any outgoing way distributed neutral kit
Ingress protection	IP55 to BS EN 60529
Cable capacity neutral and earth bar	25mm²
DIN rail mounting with fully shrouded busbars	
Additional earth stud provided	
Blanking plates	5 single pole supplied
Colour	RAL 9001 epoxy powder coated
Door	Can be left or right handed
Key lockable enclosure	As standard



Heavy duty IP55 (125A) with plain door

Part number	Number of outgoing ways	Dimensions (mm)		
		Height	Width	Depth
MGBN6HDGR	6	650	600	330
MGBN8HDGR	8	650	600	330
MGBN12HDGR	12	850	600	330
MGBN16HDGR	16	850	600	330

Heavy duty IP55 (125A) with transparent door

Part number	Number of outgoing ways	Dimensions (mm)		
		Height	Width	Depth
MGBN6HDGK	6	650	600	330
MGBN8HDGK	8	650	600	330
MGBN12HDGK	12	850	600	330
MGBN16HDGK	16	850	600	330

Isobar 4c extension enclosures wwill not fit into IP55 versions

Isobar 4c

TP&N Type B incomers

1



Switch disconnectors 125A

Part number	Rating	Voltage	Number of poles
MG11253N	125A	415V	3+N
MG11254	125A	415V	4

Technical data

Tested to	BS EN 60947-3
Category of duty	AC22
Positive contact indication	In accordance with BS 7671
Cable capacity	50mm ²
Terminal tightening torque	3.5Nm
Lockable in "ON" or "OFF" position	Using ref: MGLA



Switch disconnectors 160A - 250A

Part number	Rating	Voltage	Number of poles
MGNI1603	160A	415V	3+N
MGNI2003	200A	415V	3+N
MGNI2503	250A	415V	3+N
MGNI1604	160A	415V	4
MGNI2004	200A	415V	4
MGNI2254	225A	415V	4
MGNI2504	250A	415V	4

29243 Bare cable connector set 95mm² 160A set of 4

29260 Bare cable connector set 185mm² 250A set of 4

MGALK Allen key kit for fitting devices >160A

Devices fit directly into distribution board and are supplied with 270mm extension box.

Technical data

Tested to	BS EN 60947-3
Copper pad for M8 lugs, tightening torque	15Nm
Lockable in "ON" or "OFF" position	
Category of duty	AC22
Positive contact indication in accordance with	BS 7671



Residual current circuit breakers RCCBs 63A - 160A

Part number	Rating	Voltage	Sensitivity	Number of poles
RMG630304	63A	415V	30mA	4
RMG631004	63A	415V	100mA	4
RMG633004	63A	415V	300mA	4
23146	63A	415V	300mA TD**	4
16261	80A	415V	30mA	4
23213	100A	415V	300mA	4
23227	100A	415V	300mA TD**	4
MGNI160RCCB*	160A	415V	Adjustable	4

* Item is supplied with 270mm extension box, non-auto MCCB and Vigibloc.

** Time delay as an element of discrimination.

Technical data

Tested to	BS EN 61008
Positive contact indication	In accordance with BS 7671
Lockable in "ON" or "OFF" position	
Trip free mechanism	
Cable capacity	63A/80A - 35mm ² , 100A - 50mm ²
Terminal tightening torque	2Nm (63/80A), 3.5Nm (100A), 15Nm (160A)

Isobar 4c

TP&N Type B incomers



Terminal blocks 125/250A

Part number	Rating	Voltage	Notes
MGTB1254	125A	415V	
MGNTB2504	250A	415V	With extension box
MGNPB250TB	250A	415V	Without extension box

Technical data

Cable capacity	125A - 50mm ² , 250A - M8 copper pad
Terminal tightening torque	125A - 3.5Nm, 250A - 15Nm

Moulded case circuit breakers MCCBs 100A - 250A

Part number	Rating	Voltage	Number of poles
MGNCB1004	100A	415V	4
MGNCB1604	160A	415V	4
MGNCB2004	200A	415V	4
MGNCB2504	250A	415V	4
MGALK	Allen key kit for fitting devices >160A		

- Devices fit directly into distribution board and are supplied with 270mm extension box and terminal shield
- Can be fitted with shunt trip, UVR and auxiliary switch
- Distribution boards fitted with a MCCB are suitable for installations with fault levels up to 25kA

Technical data

Tested to	BS EN 60947-2
Category of duty	AC22
Positive contact indication	In accordance with BS 7671
Cable capacity	50mm ² - 185mm ²
Terminal tightening torque	100A - 10Nm, 160, 200 and 250A - 15Nm

Surge arrester kit

Part number	Description
MGBNPRD	Supplied with extension box and protection device Type 2 PRD40 including disconnect MCB and interconnectors

Note: Voltage connection takes up 4 SP outgoing ways at bottom of stack

Dual source incomer

Part number	Rating	Voltage	Number of poles
MGND5I	≤125A	415V	4

To be used in dual source applications, with standby being a portable/fixed generator set or second transformer. Mechanically interlocks any combination of the following incoming 4P devices:

- MGI1254
 - C120
 - C60
- To be ordered separately.

A padlocking facility enables either one or both to be locked in the OFF position or using MGLA for locking ON.

Front cover is lockable using MGBL or MGPD.

Cable capacity 50mm².

Supplied complete with board connections.

Contactorm incomer 100A

Part number	Description
MGBN100CCI	Provides contactor control and isolation of Isobar 4c B type boards

Kit includes

- 100A contactor 240Vac coil (Part number 15978)
- Switch disconnect 100 amp 4 pole
- Extension box 270mm
- Interconnections
- 100A terminal block



Isobar 4c

MGB loose enclosures

1



Application

MGB loose enclosures are designed to accommodate DIN rail mounted products, primarily for control and metering. They may be mounted individually or attached to the side of an MGB board of equivalent height using the side joining kit **MGBNSJK**. Alternatively they may be attached to the top or bottom of an MGB board using the top/bottom joining kit **MGBNTJKN**.

Supplied with DIN rail, door and slotted front cover

Part number	Number of 18mm SP ways	Number of rows	Dimensions (mm)		
			Height	Width	Depth
MGBN4SXS	34	2	484	470	138
MGBN8SXS	34	2	538	470	138
MGBN12SXS	51	3	700	470	138
MGBN16SXS	68	4	808	470	138
MGBN24SXS	85	5	970	470	138



Supplied with DIN rail, door and plain front cover

Part number	Number of 18mm SP ways	Number of rows	Dimensions (mm)		
			Height	Width	Depth
MGBN4SXP	34	2	484	470	138
MGBN8SXP	34	2	538	470	138
MGBN12SXP	51	3	700	470	138
MGBN16SXP	68	4	808	470	138
MGBN24SXP	85	5	970	470	138

Technical data

Ingress protection	IP31 to BS EN 60529
Earth bar capacity	25mm ²
Surface or flush mounting	Using flush mounting kit
Colour	RAL 9001 epoxy powder coated



Extra terminal bar for earth

Type	Part number
For panel mounting	
12 holes	MG12EE
18 holes	MG18EE
24 holes	MG24EE
36 holes	MG36EE
48 holes	MG48EE
54 holes	MG54EE
72 holes	MG72EE

Technical data

Current rating	200A
Holes	25mm ²

Isobar 4c

B board extension boxes and metering

1

Application

The range of extension boxes are manufactured in a 270mm modular height, to allow the user greater flexibility, so enabling the inclusion of single phase distribution boards, multi service units, larger cabling arrangements etc. They may be fitted to any B board or MGB loose enclosure.

Enclosure extension

Part number	Description
MGBNEXN	Extension box with plain front cover. Provides additional wiring space or a housing for control or metering equipment.

Multi service unit

Part number	Description
MGBNEX034N	Extension box with DIN rail, slotted front cover and door. Provides space for up to 17 SP DIN mounted products. Includes gland plate and joining kit.

Single phase extension

Part number	Description
MGBNEXA15N	A 15 way Isobar 4c A type distribution board designed for fixing direct on to any Isobar 4c B type board.

3 phase power metering

Part number	Description
MGBNKGH	Extension box with PM700PMG multi-function meter, CT's, wiring loom and MCB to pick up voltage.

Meter provides

- Phase voltage
- kVAh
- Current
- Power factor
- kWh, kW per phase
- Pulsed output per kWh

Note: Voltage connection takes up 4 SP outgoing ways at bottom of stack

Extension box without meter

Part number	Description
MSIS971	Extension box without meter fitted with CT's, wiring loom and MCB to pick up voltage use with PM710MG, PM700MG



Isobar 4c

TP&N Type B distribution boards

1



Way labels

Part number	Description	SP circuits
MGBNWL	B board front cover way labels	72



Terminal block 100A

Part number	Description
MGTB1001	100A terminal block for installation in Isobar boards as an outgoing way. Supplied with identification labels. Note: cable must be provided with local protection to comply with BS 7671. Cable capacity 50mm².



Door lock

Part number	Description
MGBL	Door lock for A and B boards square sliding catch
MGK33	2 off spare keys for MGBL
MGPD	Padlock kit for door



Blanking plate

Part number	Description
BP	5 pole blanking plates (light grey).
MGBP25	Pack of 25 blanking plates



Blanking pole

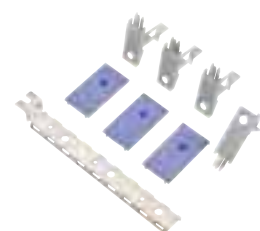
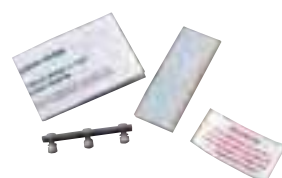
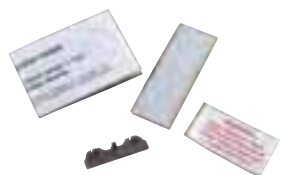
Part number	Description
MGBP	Single pole spare way blank

Spares

Part number	Description
MGBNGPN	Gland plate plain for B type distribution board
MGBGPEXN	Gland plate for Isobar extension box
	Gland plate for B board with knock out
MGBFCF	Front cover fixings (24 screws)
MGBNC	Incoming neutral cover

Isobar 4c

TP&N Type B distribution boards



Single phasing kit 125/250A

Part number	Rating	Voltage	Description
MG125SPEV	125A	415V	For 4P incomers up to 125A
MG250SPEV	250A	415V	For 4P incomers up to 250A

Converts a TP&N B board incomer into single phase applications when used in conjunction with the terminal blocks and switch disconnectors.

Joining kits

Part number	Description
MGBNTJKN	Joining kit for two type B distribution boards mounted above or below each other.
MGBNSJKN	Joining kit for two type B distribution boards mounted side by side.
MGBN63SPL	63amp split load kit kit.

Flush mounting kits

Part number	Description
MSIS954	Suitable for MGBN4, MGBN6
MSIS955	Suitable for MGBN8
MSIS956	Suitable for MGBN12
MSIS957	Suitable for MGBN16, MGBN18
MSIS958	Suitable for MGBN24

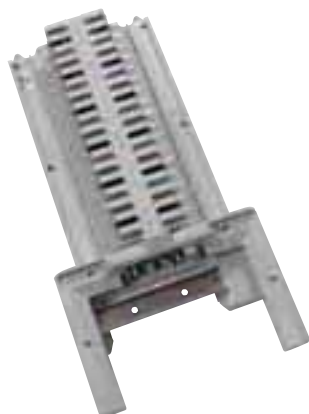
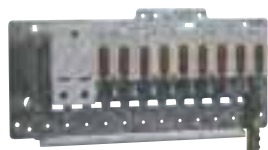
Distributed neutral bars

Part number	Description
MGNB4	Distributed neutral kit for 4 way TP+N
MGNB6	Distributed neutral kit for 6 way TP+N
MGNB8	Distributed neutral kit for 8 way TP+N
MGNB12	Distributed neutral kit for 12 way TP+N
MGNB16	Distributed neutral kit for 16 way TP+N
MGNB18	Distributed neutral kit for 18 way TP+N
MGNB24	Distributed neutral kit for 24 way TP+N
NKIT	Phase to neutral conversion kit (pack 4)
Note: One pack included in a distributed neutral kit	

Clean earth

Part number	Description
MGBNBCE7	For type B boards provides 7 clean earth or extra neutral/earth holes
MGBNBCE25	For type B boards provides 25 clean earth or extra neutral/earth holes

1



A board pan assembly for C60 MCBs

Part number	Description
MGAN6P	6 way SP&N pan assembly
MGAN9P	9 way SP&N pan assembly
MGAN12P	12 way SP&N pan assembly
MGAN15P	15 way SP&N pan assembly

B board pan assembly for C60 MCBs

Part number	Description
MGBN4P	4 way TP&N pan assembly
MGBN6P	6 way TP&N pan assembly
MGBN8P	8 way TP&N pan assembly
MGBN12P	12 way TP&N pan assembly
MGBN16P	16 way TP&N pan assembly
MGBN18P	18 way TP&N pan assembly
MGBN24P	24 way TP&N pan assembly



A board door and cover

Part number	Description
MGAN6C	Suitable for MGAN6
MGAN9C	Suitable for MGAN9
MGAN12C	Suitable for MGAN12
MGAN15C	Suitable for MGAN15
MGAN23C	Suitable for MGAN23

B board door and cover

Part number	Description
MGBN4C	Suitable for MGBN4
MGBN6C	Suitable for MGBN6
MGBN8C	Suitable for MGBN8
MGBN12C	Suitable for MGBN12
MGBN16C	Suitable for MGBN16
MGBN18C	Suitable for MGBN18
MGBN24C	Suitable for MGBN24

Application

Isolation protection and control of circuits against overloads and short circuits.

Installation

- In Merlin Gerin Isobar 4 distribution boards
- Symmetrical DIN rail
- Direct panel mounting
- Isobar 4 pan assemblies

Technical data

In applications with general load characteristics

Tripping characteristics	BS EN 60898 type B			magnetic setting between 3 and 5 In
	BS EN 60898 type C			magnetic setting between 5 and 10 In
	BS EN 60898 type D			magnetic setting between 10 and 14 In
Cable capacity	1 - 25A = 25mm ² , 32 - 63A = 35mm ²			
Tightening torque	≤ 25A = 2.5Nm, 32 - 63A = 3.5Nm			
Current ratings	1 - 63A at 30°C to BS EN 60898 (type D 40°C)			
Voltage ratings	240 - 440Vac			
Breaking capacity	BS EN 60898: 10,000 amp			
	BS EN 60947-2: 15kA			
See Section 7 for further information on breaking capacities and dc ratings.				
Operating cycles (O-C)	On load 20,000			
Operating temperature	-30°C to +70°C			
Positive contact indication	In accordance with BS 7671			
Current limitation	Class 3			
Width	Pole	18mm SP ways	mm	
	1	1	18	
	2	2	36	
	3	3	54	
	4	4	72	
Weight	Pole	Grams		
	1	110		
	2	220		
	3	340		
	4	450		
Electrical accessories	Add-on earth leakage			
	Under voltage release			
	Shunt release			
	Voltage threshold release			
	ON/OFF auxiliary switch			
Mechanical accessories	Alarm switch			
	Padlocking facility			
	Terminal covers			
	Cable terminals			
For current ratings greater than 63A	See Section 4			

Isobar 4

C60H outgoing 1 - 63A

1



C60HB type B (3 - 5In)

Ratings (A)	1P	2P	3P	4P
1	C60HB 101	C60HB 201	C60HB 301	C60HB 401
2	C60HB 102	C60HB 202	C60HB 302	C60HB 402
4	C60HB 104	C60HB 204	C60HB 304	C60HB 404
6	C60HB 106	C60HB 206	C60HB 306	C60HB 406
10	C60HB 110	C60HB 210	C60HB 310	C60HB 410
16	C60HB 116	C60HB 216	C60HB 316	C60HB 416
20	C60HB 120	C60HB 220	C60HB 320	C60HB 420
25	C60HB 125	C60HB 225	C60HB 325	C60HB 425
32	C60HB 132	C60HB 232	C60HB 332	C60HB 432
40	C60HB 140	C60HB 240	C60HB 340	C60HB 440
50	C60HB 150	C60HB 250	C60HB 350	C60HB 450
63	C60HB 163	C60HB 263	C60HB 363	C60HB 463



C60HC type C (5 - 10In)

Ratings (A)	1P	2P	3P	4P
1	C60HC 101	C60HC 201	C60HC 301	24872
2	C60HC 102	C60HC 202	C60HC 302	24873
4	C60HC 104	C60HC 204	C60HC 304	24875
6	C60HC 106	C60HC 206	C60HC 306	24876
10	C60HC 110	C60HC 210	C60HC 310	24877
16	C60HC 116	C60HC 216	C60HC 316	24878
20	C60HC 120	C60HC 220	C60HC 320	24879
25	C60HC 125	C60HC 225	C60HC 325	24880
32	C60HC 132	C60HC 232	C60HC 332	24881
40	C60HC 140	C60HC 240	C60HC 340	24882
50	C60HC 150	C60HC 250	C60HC 350	24883
63	C60HC 163	C60HC 263	C60HC 363	24884

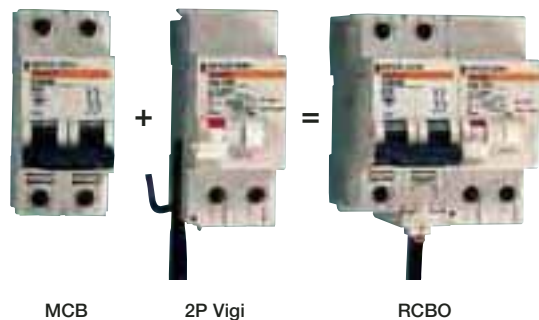


C60HD type D (10 - 14In)

Ratings (A)	1P	2P	3P	4P
1	C60HD 101	C60HD 201	C60HD 301	25211
2	C60HD 102	C60HD 202	C60HD 302	25212
4	C60HD 104	C60HD 204	C60HD 304	25214
6	C60HD 106	C60HD 206	C60HD 306	25215
10	C60HD 110	C60HD 210	C60HD 310	25216
16	C60HD 116	C60HD 216	C60HD 316	25217
20	C60HD 120	C60HD 220	C60HD 320	25218
25	C60HD 125	C60HD 225	C60HD 325	25219
32	C60HD 132	C60HD 232	C60HD 332	25220
40	C60HD 140	C60HD 240	C60HD 340	25221
50	C60HD 150	C60HD 250	C60HD 350	25222
63	C60HD 163	C60HD 263	C60HD 363	25223

Isobar 4

Add on residual current device for use with C60 MCBs only



Application

Clipped onto the side of any C60 MCB, add on Vigis provide a high level of protection against earth fault in addition to overload and short circuit protection provided by the MCB alone. Effectively creating an RCBO to BS EN 61009, C60 MCBs with add on Vigis can be used with any Isobar 4 distribution board, pan assemblies as well as a wide range of DIN enclosures.

Technical data

Standards Approval	BS EN 61008 (BS EN 61009 when fitted to MCB)
Operating voltage	2 pole = 110/240V, 50/60Hz
	4 pole = 240/415V, 50/60Hz
Cable capacity	2 pole = 25mm ²
	4 pole = 35mm ²
Tightening torque:	2.5Nm = 25mm ²
	3.5Nm = 35mm ²
Class AC	
Integral self test button	
Indication of earth fault trip	
Note: Must not be used as the sole means of protection against direct contact with live parts (BS 7671).	

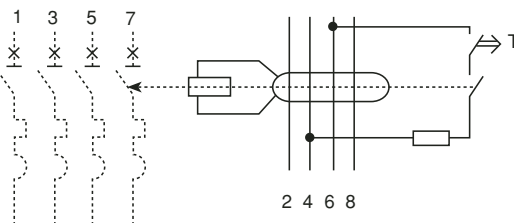
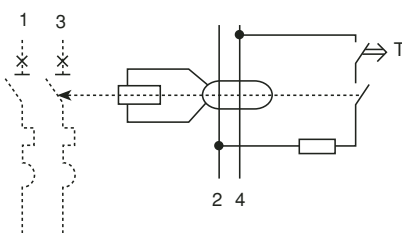
Viggi modules - 2 pole for assembly with 1 or 2 pole MCBs

Part number	Rating (A)	Sensitivity (mA)	Width in 18mm SP ways
MGV 25 010 2	25	10	2
MGV 63 030 2	63	30	2
MGV 63 100 2	63	100	2
MGV 63 300 2	63	300	2

Viggi modules - 4 pole for assembly with 3 or 4 pole MCBs

Part number	Rating (A)	Sensitivity (mA)	Width in 18mm SP ways
MGV 63 030 4	63	30	3
MGV 63 300 4	63	300	3

Terminal screw shields available for Viggi.



1



Application

Protection against overloads, short circuits and earth leakage faults.

Installation

■ Isobar 4 distribution boards, pan assemblies and standard enclosures on symmetrical DIN rail

Technical data

Protection against indirect contact	
protection against direct contact (BS 7671)	
Protection against insulation faults	
Finger safe terminals	
Reverse polarity protection	
Loss of neutral and earth protection	
Operating voltage	200Vac - 230Vac
Current ratings	6A - 45A
Tripping characteristics	BS EN 61009 (type C) magnetic setting between 5 - 10 In
Breaking capacity	BS EN 60898 10,000A, BS EN 60947 15kA
Class 3 current limiting	
Positive contact indication in accordance with BS 7671	
Lockable in "ON" or "OFF" position using MGLA	
Trip free mechanism	
Compatible with C60 auxiliaries and accessories e.g. alarm contact, shunt trip	
Load terminals cable capacity 16mm ²	

Trip sensitivity

AC class	Tripped by sinusoidal AC currents independent of rate of rise
A class	Tripped by sinusoidal AC pulsed DC and those containing DC component

Part number	Ratings (A)	Curve type	Class
C60HC6R30	6A 30mA	C	AC
C60HC10R30	10A 30mA	C	AC
C60HC16R30	16A 30mA	C	AC
C60HC20R30	20A 30mA	C	AC
C60HC32R30	32A 30mA	C	AC
C60HC45R30	45A 30mA	C	AC
C60HC6R100	6A 100mA	C	AC
C60HC10R100	10A 100mA	C	AC
C60HC16R100	16A 100mA	C	AC
C60HC20R100	20A 100mA	C	AC
C60HC32R100	32A 100mA	C	AC
C60HC45R100	45A 100mA	C	AC
C60HC6RA10	6A 10mA	C	A
C60HC10RA10	10A 10mA	C	A
C60HC16RA10	16A 10mA	C	A
C60HC20RA10	20A 10mA	C	A
C60HC32RA10	32A 10mA	C	A
C60HC45RA10	45A 10mA	C	A
C60HC6RA30	6A 30mA	C	A
C60HC10RA30	10A 30mA	C	A
C60HC16RA30	16A 30mA	C	A
C60HC20RA30	20A 30mA	C	A
C60HC32RA30	32A 30mA	C	A
C60HC45RA30	45A 30mA	C	A

Isobar 4

Electrical auxiliaries for C60

Function

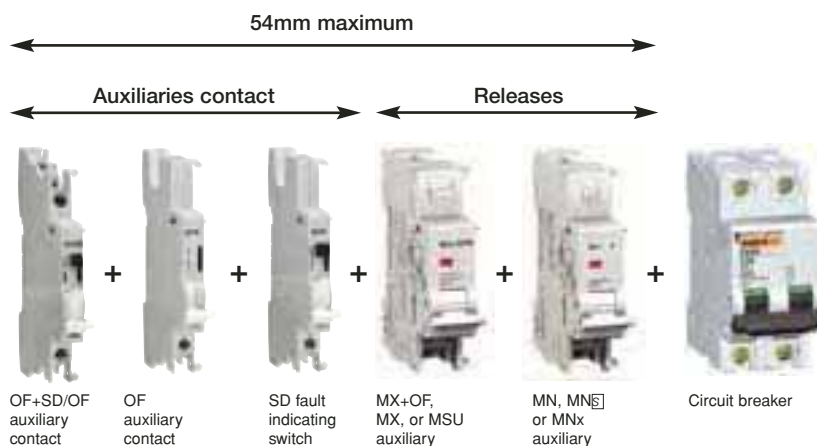
They remotely trip or indicate circuit breakers, with or without Vigi module.

Description

- They are mounted to the left of the circuit-breaker within a maximum width of 54mm
- Fixed using clips (no tools) onto the left side of the circuit breaker

Auxiliary combination

- A maximum of 3 indication auxiliaries OF, SD on the same circuit breaker
- A maximum of 2 changeover auxiliaries (OF+SD/OF) on the same circuit breaker
- A maximum of 1 OF+SD/OF switchover auxiliary and 1 indication auxiliary OF or SD on the same circuit breaker
- A maximum of 2 tripping auxiliaries (MX+OF, MX, MN, MNS, MNx) on the same circuit breaker
- A maximum of 3 tripping auxiliaries MSU on the same circuit breaker without other auxiliary



1



MX+OF



MX



MN

MN selective 

MNx



MSU

Tripping

Tripping indication on front panel by means of a red indicator.

- Auxiliaries conform with standard IEC60947-1

MX + OF shunt trip release

Controls tripping of the device with which it is combined when energised.

It is fitted out with a changeover contact (O + C) to indicate the circuit-breaker's position.

It is fitted with a self-interrupting contact allowing the control circuit to remain on (latching emergency stop).

MX shunt release

Controls tripping of the device with which it is combined at power-up.

It is fitted with a self-interrupting contact allowing the control circuit to remain on (latching emergency stop).

MN release

Controls tripping of the device with which it is combined when its supply voltage drops (threshold between 70 and 35 % of the U_n).

It allows the device to be manually closed if the voltage exceeds 85 % of the nominal voltage.

- Use:

- ☐ emergency stop pushbutton
- ☐ safety on supply circuits of several machines by preventing the "non-controlled" restart of all the motors

MN selective release

Undervoltage release that controls the opening of the device with which it is combined.

0.3 s time-delay on voltage dip: avoids tripping on brownouts or momentary voltage drops.

MNx release for pushbutton with opening

Completely insensitive to supply circuit interruptions.

It is recommended to connect it upstream of the circuit-breaker it protects in the event of fail-safe emergency stops.

MSU voltage threshold release

Especially designed to monitor the voltage between the neutral and phase(s) conductors.

It cuts off the supply by opening the protected device when a threshold level for overvoltages lasting more than a few tenths of a second is exceeded.

Connection

- Using screw clamp terminals:
 - ☐ for 1 or 2 cables of a max. of 2.5 mm²
 - ☐ 1.5 mm² with end
- Visible markers near the terminals



OF



SD



OF+SD/OF



OF.S

Remote indication

- All auxiliary contacts conform to standard IEC 60947-5-1
- The auxiliary contacts OF, SD, OF+SD/OF also conform with standard EN 62019 for C60, C120 and DPNN

OF open/closed contact

- Changeover contact that indicates the "open" or "closed" position of the device
- Test button on front panel enables verification of the indication circuit, without having to operate the device

SD fault indicating switch

- Changover contact that indicates the "tripped" position of the device
- Fault indication (SD) on front panel by means of a mechanical indicator
- Always mount to the left of one or more tripping auxiliaries

OF+SD/OF changeover contact

- Double changeover contact indicates:
 - ☐ the "open" or "closed" position of the circuit-breaker (OF)
 - ☐ the "tripped" position of the device (SD)
- 2 circuits:
 - ☐ upper: OF
 - ☐ lower: SD or OF
- Function choice using the rotary changeover switch on the right side
- Selected function is indicated on the front panel
- Fault indication (SD) on front panel by means of a mechanical red indicator
- Always mount to the left of one or more tripping auxiliaries
- Can not be mounted in Iso-bar boards

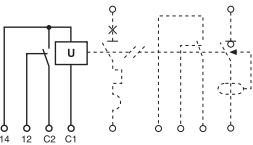
OF.S contact for ID

- Use of the OF.S auxiliary contact is mandatory when adding tripping and indication functions on a residual current circuit-breaker
- This contact is mounted to the left and indicates the "open" or "closed" position of the residual current circuit-breaker

Connection

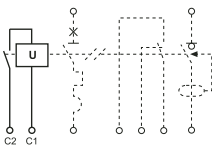
- Using screw clamp terminals:
 - ☐ for 1 or 2 cables of a max. of 2.5 mm²
 - ☐ 1.5 mm² with end
- Visible markers near the terminals

MX + OF shunt trip release



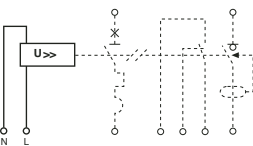
Control voltage (V AC)	Control voltage (V DC)	Width in 18mm SP ways	Part number
100-415	100-130	1	26946
48	48	1	26947
12/24	12/24	1	26948

MX shunt trip release



100-415	100-130	1	26476
48	48	1	26477
12/24	12/24	1	26478

MSU voltage threshold release

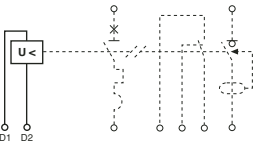


Tripping voltage (V AC)	Width in 18mm SP ways	Part number
275	1	26979
255	1	26479

MN undervoltage release

Selective 

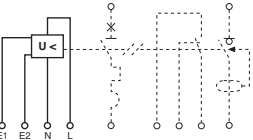
Instantaneous



Control voltage (V AC)	Control voltage (V DC)	Width in 18mm SP ways	Part number
220-240		1	26963
220-240		1	26960
48	48	1	26961
115 (400Hz)		1	26959

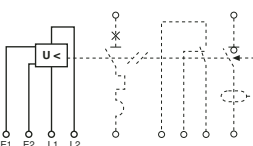
MNx release for BP with opening

Ph + N



230	1	26969
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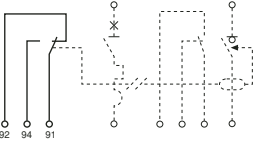
Ph Ph



400	1	26971
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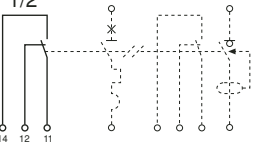
SD fault indicating switch

Width in 18mm SP ways	Part number
1/2	26927



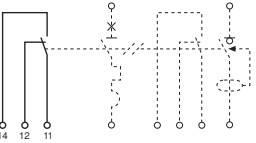
OF contact auxiliary

1/2	26924
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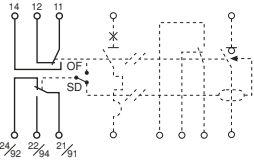


OF+SD/OF changeover contact

1/2	26929
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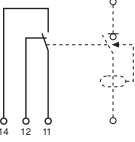
OF position



SD position

OF.S (ID) auxiliary contact

1/2	26923
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Blank module 9mm

Breaker	Width	Part number
C60>25A	9mm	27062



Accessories For C60

1



Padlocking facility

Breaker	Quantity	Part number
C60	Pack of 5	MGLA

Description	Part number
Padlock 4mm hasp for MGLA	MGLAP
For MCBs/RCDs (pack of 2)	26970

Note: MGLA is suitable for use with C60 MCBs/RCBOs mounted in Isobar 4 distribution boards.



Screw shield

Breaker	Quantity	Part number
C60	Sealable and dividable 2 x strips of 4	26981
C60 Vigi	Sealable 1P shields 20 off	26982



Terminal shield

Breaker	Pole	Part number
C60 pair	1	26975
	2	26976
	3	26975 + 26976
	4	26978



Insulated sub distribution terminal For 3 x cables up to 16mm² each

Breaker	Quantity	Part number
C60>25A	Pack of 4	19091



* Aluminium cable terminal For cables of 16 - 50mm²

Breaker	Quantity	Part number
C60>25A	Pack of 1	27060

* Not for use in Isobar 4 distribution boards

1



* Not for use in Isobar 4 distribution boards



Replacement cover for vigibloc

Breaker	Pole	Part number
C60	2	26483
Pack of 5	3	26484
replacements	4	26485

*Metering facilities for incoming and outgoing circuits*pages 2/18 to 2/20



The Merlin Gerin range of wall and floor mounted Powerpack 4 panelboards is designed, manufactured and tested to BS EN 60439-1. The structures are rigid sheet steel finished in a cream colour epoxy powder (RAL 9001).

All the boards contain a unique connection system which ensures that all busbar/breaker connections are tightened to the correct torque. The system comprises a tightening bolt head which shears off when the correct torque is reached. Facilities are provided to enable the breaker to be repositioned at a later time if so required.

The breaker range comprises single pole, single pole with switched neutral, double pole, triple pole and three pole with switched neutral and four pole. Incoming device ratings up to 1600A and outgoing ratings up to 630A.

The extremely flexible board design allows 1, 2, 3 and 4 pole breakers to be positioned in any order on the busbar stack thus allowing maximum use of the available space and also allowing breakers feeding associated loads to be positioned together.

For this reason the number of outgoing ways in the selection tables is expressed in single pole ways as well as three pole ways.

Full discrimination simply by missing a frame size.

Special breakers

Details of the standard breakers that may be fitted into the various sizes of panelboard are given on the following pages.

The full range of Compact NS moulded case circuit breakers includes a wide range of breakers for special applications, higher breaking capacities, additional ratings and adaptations including rotary handles and motor mechanisms for remote operation. Most of these breakers, of ratings up to 630A, can be adapted for use in the Powerpack 4 panelboards.

To order these special breakers add the words 'for use in Powerpack 4 panelboard' to your ordering description of the breaker.

Application

The Powerpack 4 is the straight forward answer to all power requirements. It provides an off-the-shelf solution for most standard distribution applications.

Range

Powerpack 4 is available in many styles to suit various applications in wall mounted and floor standing up to 1600 amps incoming

- Style A is a wall mounted Powerboard with 250amp main bars up to 17 single pole outgoing ways. There is no dedicated incomer position giving complete flexibility in the use of the board: splitter board, 2 incomers/1 outgoing or as a conventional board
- Style C is a wall mounted Panelboard with 250 amp main bars and side mounted incomer up to 13 outgoing triple pole ways
- Style D is a wall mounted Panelboard with up to 630 amp main bars and vertically mounted incomer up to 18 triple pole outgoing ways
- Style E is a wall mounted Panelboard with 800 amp main bars and vertically mounted incomer up to 18 triple pole outgoing ways
- Style G is a floor standing Panelboard with 1600 amp main bars and the incomer mounted in its own cubicle 14 outgoing triple pole ways extendible to 28 TP ways

Technical data

Incoming	Up to 1600A
Outgoing	Up to 28 triple pole ways (84 single pole ways)
Main cable entry	Top or bottom
Metering	Incoming metering and Outgoing metering as an option (incoming standard on style G)
Manufactured and tested to	BSEN60439-1
Busbars rated	Up to 1600A at 415V, 50Hz
Short circuit withstand	36 or 50kA for 1s
Construction	Rigid folded sheet steel with removable gland plates and end covers
Finish	Steelwork in polyester epoxy powder, cream colour RAL9001
Degree of protection	IP3X
Form 3b type 2	As standard
Form 4 type 2 & 6	Can be achieved by use of individual disconnectable neutral links adjacent to breakers or by the use of 4 pole breakers. Tunnel terminals are to be fitted on the breaker outgoing terminals and shrouded by short terminal shields. The main neutral bar either side of the incomer should be removed and discarded together with the connecting copper bar. The incoming breaker should be a 4 pole breaker
Extension cubicles	Side/top/bottom extension cubicle is available as an option for handling large cables

NS moulded case circuit breakers

Powerpact 4 panelboards have a unique interconnection system which automatically gives the correct torque settings. 1, 2, 3, and 4 pole devices may be mixed to suit the installation needs without loss of space.

Metering

- A PowerLogic PM700PMG multi-function digital meter is fitted as standard to monitor the incoming supply on style G and as an option on other styles. It is also used for all outgoing metering. Readings available voltage, current, frequency, power, energy, demand values and harmonic distortion. The meter also provides a pulse output for kWh and kVAh.
- A side extension cubicle may be fitted on styles D/E/G which has provision for metering outgoing circuits, refer to metering on page 2/18. This cubicle also acts as a cable extension box.

Technical data for circuit breakers

Manufactured and tested to	BS EN 60947-2
Ics	100% Icu 16 - 630A, 75% Icu 800 - 1600A
Calibration temperature	40°C
Thermal adjustment (3 and 4 pole)	16 - 250A = 0.8 - 1 x In 400 - 630A = 0.4 - 1 x In 800 - 1600A = 0.4 x In

MCCB Icu & terminal size

- 16 - 100A 36kA 6mm bolt
- 160 - 250A 36kA 8mm bolt
- 400 - 630A 45kA 10mm bolt
- 800 - 1600 50kA 2 x 12mm bolts

Earth fault protection

- May be added to any 4 pole MCCB
- Sensitivities 30, 300mA 1, 3, 10A
- Time delay 0, 60, 150, 310 milli - seconds

800/1250/1600A breakers

800/1250/1600A breakers are fitted with Micrologic 5.0 control units to enable full discrimination with the outgoing breakers to be obtained. Alternative control units may be fitted if required.

250A panelboards

The main incoming device is side mounted at the bottom right hand side. If a 4 pole incomer is used the number of outgoing ways available is reduced by one single pole way. The incoming terminal shroud can be positioned to suit a 3 or 4 pole incoming breaker.

250A powerboard

One 3 pole terminal shield for a 250A breaker is supplied as standard for the main incoming terminals. Two adjacent 3 or 4 pole toggle operated breakers may be mechanically interlocked using Part number 29354.

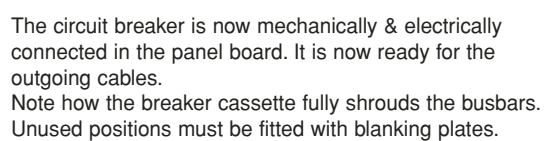
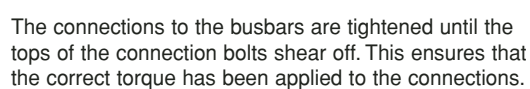
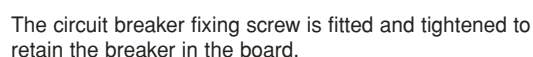
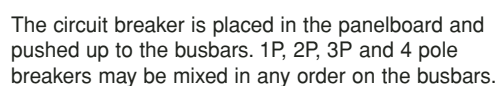
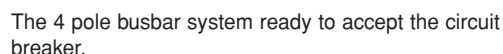
400/630A panelboard

The line (supply) terminals on the incoming device must be suitably shrouded. The board is supplied with 1 x 3 pole shroud for a 400/630A breaker. For other breakers suitable terminal shields should be ordered separately:

- 250A 3 pole 29323
- 250A 4 pole 29324
- 400/630A 4 pole 32565

These terminal shields are supplied in pairs.

		250A Powerboard	250A Panelboard	400/630A Panelboard	800A Panelboard	1600A Panelboard
Busbar short circuit withstand		36kA, 1s	36kA, 1s	36kA, 1s	50kA, 1s	50kA, 1s
Number of outgoing ways						
	13SP inc incomer	■				
	17SP inc incomer	■				
	15SP (5TP)		■			
	18SP (6TP)			■	■	
	21SP (7TP)		■			
	27SP (9TP)		■			
	36SP (12TP)			■	■	
	39SP (13TP)		■			
	42SP (14TP)					■
	54SP (18TP)			■	■	
	84SP (28 TP)					□
Incoming device						
Switch disconnector or MCCB	100A	□	□			
	160A	□	□			
	250A	□	□	□		
	400A			□		
	630A			□		
	800A				■	
	1250A					□
	1600A					□
	250A fuse switch		□			
Incomer - field installable		■	■	■	■	■
Two incomers, mechanically interlocked		□				
Main incoming cable entry						
	Top		□	□	□	□
	Bottom	■	□	□	□	□
Incoming metering		□		□	□	■
Outgoing metering		□		□	□	□
Top/bottom extension boxes			□	□	□	
Side extension boxes		□		□	□	□
Integrated control and distribution unit				□	□	
Earth leakage protection on outgoing circuits				□	□	□
Standard ■ Option □						



Powerpact 4 panelboards

Bottom entry boards

2

Main cable entry at bottom

250A Powerboard	Busbar short circuit withstand	Number of outgoing ways		Part number
		Single pole	Triple pole	
Style A	36kA, 1s	13	3	MG25C2
		17	4	MG25C4



Style C	36kA, 1s	15	5	MG2C5
		21	7	MG2C7
		27	9	MG2C9
		39	13	MG2C13



400/630A Panelboard

Style D	36kA, 1s	18	6	MG6C6
		36	12	MG6C12
		54	18	MG6C18



800A Panelboard

Style E	50kA, 1s	18	6	MG8C6
		36	12	MG8C12
		54	18	MG8C18



1600A Panelboard

Style G	50kA, 1s	42	14	MG16C14
		42	14 Extension cubicle	MG16CE14



Powerpact 4 panelboards

Bottom entry

moulded case circuit breakers

Incoming devices

Circuit breaker



Current rating	Number of poles	Style of board	Part number
100	3	A,C,D	MGP1003
160	3	A,C,D	MGP1603
250	3	A,C,D	MGP2503
400	3	D	MGP4003
630	3	D	MGP6303
800	3	E	MGP8003B5
1250	3	G	33564
1600	3	G	33568
100	4	A,C,D	MGP1004
160	4	A,C,D	MGP1604
250	4	A,C,D	MGP2504
400	4	D	MGP4004
630	4	D	MGP6304
800	4	E	MGP8004B5
1250	4	G	33566
1600	4	G	33570

If specifying alternative breakers for the 800A panelboard, one long terminal shield and one set of phase separators must also be ordered.

Switch disconnecter



100	3	A,C,D	MGP1003NA
160	3	A,C,D	MGP1603NA
250	3	A,C,D	MGP2503NA
400	3	D	MGP4003NA
630	3	D	MGP6303NA
800	3	E	MGP8003NA
1250	3	G	33489
1600	3	G	33490
100	4	A,C,D	MGP1004NA
160	4	A,C,D	MGP1604NA
250	4	A,C,D	MGP2504NA
400	4	D	MGP4004NA
630	4	D	MGP6304NA
800	4	E	MGP8004NA
1250	4	G	33494
1600	4	G	33495

Fuse switch

250	3	C	MG2C250FS
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This incoming unit is an additional enclosure that fits above or below the standard panelboard. It is supplied with all connections and accessories to electrically and mechanically join the enclosures.

Direct connection

250	3	C	MGP2503LL
250	4	C	MGP2504LL
630	4	D	MGPCIN

Protection must be provided upstream by a suitably rated breaker.

Disconnectable neutral link

250	1	A,C,D	MGP250NL
630	1	D	MGP630NL

Powerpact 4 panelboards

Top entry boards

2

Main cable entry at top

	Busbar short circuit withstand	Number of outgoing ways		Part number
		Single pole	Triple pole	
250A Panelboard				
	36kA, 1s	15	5	MG2C5
		21	7	MG2C7
		27	9	MG2C9
		39	13	MG2C13



400/630A Panelboard				
Style D	36kA, 1s	18	6	MG6C6
		36	12	MG6C12
		54	18	MG6C18



800A Panelboard				
Style E	50kA, 1s	18	6	MG8C6T
		36	12	MG8C12T
		54	18	MG8C18T



1600A Panelboard				
Style G	50kA, 1s	42	14	MG16C14T
		42	14 Extension cubicle	MG16CE14T



Powerpact 4 panelboards

Top entry

moulded case circuit breakers

Incoming devices

Circuit breaker



Current rating	Number of poles	Style of board	Part number
100	3	C	MGP1003
160	3	C	MGP1603
250	3	C	MGP2503
100	3	D	MGP1003T
160	3	D	MGP1603T
250	3	D	MGP2503T
400	3	D	MGP4003T
630	3	D	MGP6303T
800	3	E	MGP8003B5
1250	3	G	33564
1600	3	G	33568
100	4	C	MGP1004
160	4	C	MGP1604
250	4	C	MGP2504
100	4	D	MGP1004T
160	4	D	MGP1604T
250	4	D	MGP2504T
400	4	D	MGP4004T
630	4	D	MGP6304T
800	4	E	MGP8004B5
1250	4	G	33566
1600	4	G	33570

If specifying alternative breakers for the 800A panelboard, one long terminal shield and one set of phase separators must also be ordered.

Switch disconnecter



100	3	C	MGP1003NA
160	3	C	MGP1603NA
250	3	C	MGP2503NA
100	3	D	MGP1003NAT
160	3	D	MGP1603NAT
250	3	D	MGP2503NAT
400	3	D	MGP4003NAT
630	3	D	MGP6303NAT
800	3	E	MGP8003NA
1250	3	G	33489
1600	3	G	33490
100	4	C	MGP1004NA
160	4	C	MGP1604NA
250	4	C	MGP2504NA
100	4	D	MGP1004NAT
160	4	D	MGP1604NAT
250	4	D	MGP2504NAT
400	4	D	MGP4004NAT
630	4	D	MGP6304NAT
800	4	E	MGP8004NA
1250	4	G	33494
1600	4	G	33495

If specifying alternative breakers for the 800A panelboard, one long terminal shield and one set of phase separators must also be ordered.

Fuse switch

250	3	C	MG2C250FS
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This incoming unit is an additional enclosure that fits above or below the standard panelboard. It is supplied with all connections and accessories to electrically and mechanically join the enclosures.

Direct connection

250	3	C	MGP2503LL
250	4	C	MGP2504LL
630	4	D	MGPCIN

Protection must be provided upstream by a suitably rated breaker.

Disconnectable neutral link

250	1	C,D	MGP250NL
630	1	D	MGP630NL

Powerpact 4 panelboards

Moulded case circuit breakers

2

Type Rating Module width (35mm) Part number

Single pole

Breaking capacity 25kA at 230V



		L1	L2	L3
16	1	MGP0161L1	MGP0161L2	MGP0161L3
25	1	MGP0251L1	MGP0251L2	MGP0251L3
30	1	MGP0301L1	MGP0301L2	MGP0301L3
40	1	MGP0401L1	MGP0401L2	MGP0401L3
63	1	MGP0631L1	MGP0631L2	MGP0631L3
80	1	MGP0801L1	MGP0801L2	MGP0801L3
100	1	MGP1001L1	MGP1001L2	MGP1001L3
125	1	MGP1251L1	MGP1251L2	MGP1251L3
160	1	MGP1601L1	MGP1601L2	MGP1601L3

Two pole phase to neutral

Breaking capacity 85kA at 230V



		L1 - N	L2 - N	L3 - N
16	2	MGP0162L1N	MGP0162L2N	MGP0162L3N
25	2	MGP0252L1N	MGP0252L2N	MGP0252L3N
30	2	MGP0302L1N	MGP0302L2N	MGP0302L3N
40	2	MGP0402L1N	MGP0402L2N	MGP0402L3N
63	2	MGP0632L1N	MGP0632L2N	MGP0632L3N
80	2	MGP0802L1N	MGP0802L2N	MGP0802L3N
100	2	MGP1002L1N	MGP1002L2N	MGP1002L3N
125	2	MGP1252L1N	MGP1252L2N	MGP1252L3N
160	2	MGP1602L1N	MGP1602L2N	MGP1602L3N

Two pole phase to phase

Breaking capacity 25kA at 415V



		L1 - L2	L2 - L3	L3 - L1
16	2	MGP0162L12	MGP0162L23	MGP0162L31
25	2	MGP0252L12	MGP0252L23	MGP0252L31
30	2	MGP0302L12	MGP0302L23	MGP0302L31
40	2	MGP0402L12	MGP0402L23	MGP0402L31
63	2	MGP0632L12	MGP0632L23	MGP0632L31
80	2	MGP0802L12	MGP0802L23	MGP0802L31
100	2	MGP1002L12	MGP1002L23	MGP1002L31
125	2	MGP1252L12	MGP1252L23	MGP1252L31
160	2	MGP1602L12	MGP1602L23	MGP1602L31

Powerpact 4 panelboards

Moulded case circuit breakers

2

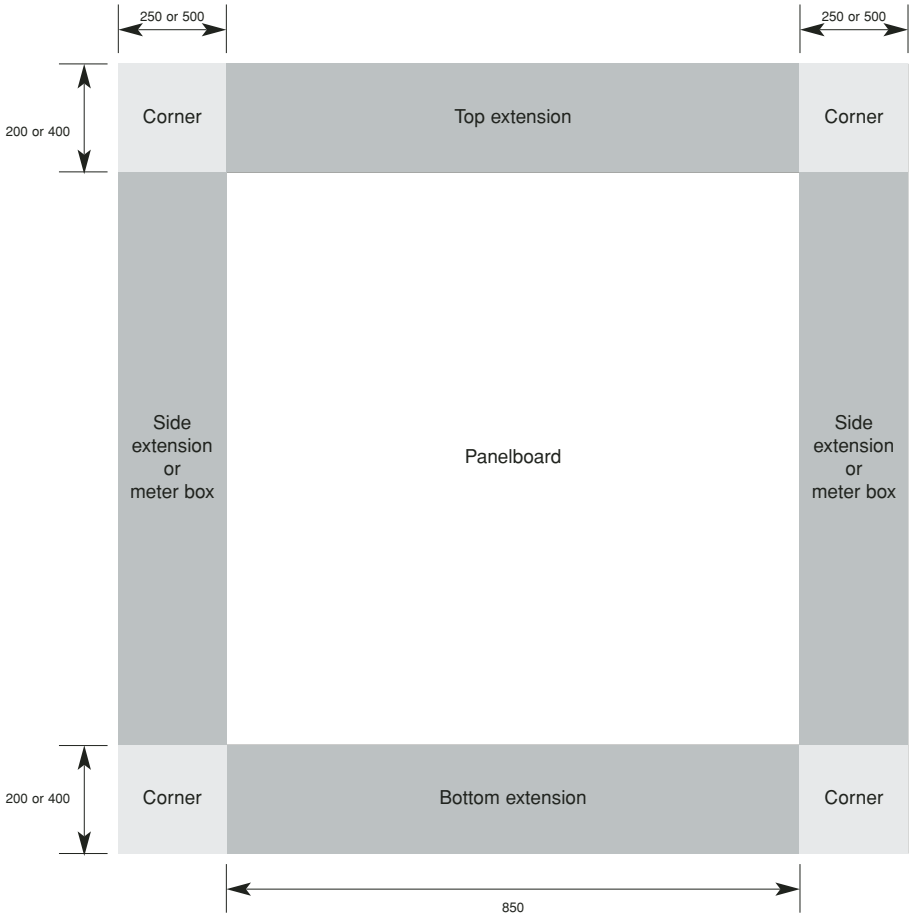
Type	Rating	Module width (35mm)	Part number
Three pole			
Breaking capacity 36kA at 415V			3 phase
	16	3	MGP0163
	25	3	MGP0253
	32	3	MGP0323
	40	3	MGP0403
	63	3	MGP0633
	80	3	MGP0803
	100	3	MGP1003
	100*	3	MGP1013 * Gives full discrimination with downstream C60H
	125	3	MGP1253
	160	3	MGP1603
	200	3	MGP2003
	250	3	MGP2503
	400	4 ^{(1) (2)}	MGP4003
	630	4 ^{(1) (2)}	MGP6303

Three pole			
Breaking capacity 16kA at 415V			3 phase
	16	3	MGPE0163
	25	3	MGPE0253
	40	3	MGPE0403
	63	3	MGPE0633
	80	3	MGPE0803
	100	3	MGPE1003
	125	3	MGPE1253

Four pole			
Breaking capacity 36kA at 415V			3 phase + neutral
	16	4	MGP0164
	25	4	MGP0254
	32	4	MGP0324
	40	4	MGP0404
	63	4	MGP0634
	80	4	MGP0804
	100	4	MGP1004
	100*	4	MGP1014 *Gives full discrimination with downstream C60H
	125	4	MGP1254
	160	4	MGP1604
	200	4	MGP2004
	250	4	MGP2504
	400	6 ^{(1) (2)}	MGP4004 One MGPBB25 also required
	630	6 ^{(1) (2)}	MGP6303 One MGPBB25 also required

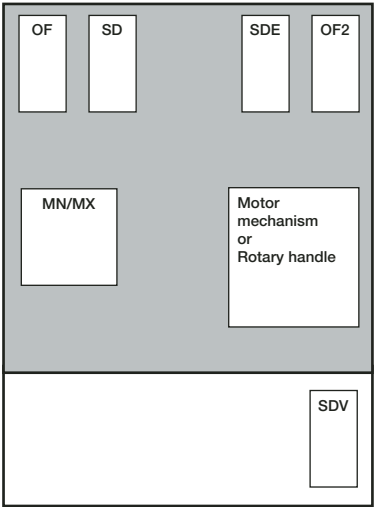
Disconnectable neutral links			
	250	1	MGP250NL
	630	2	MGP630NL One MGPBB25 also required
	(1) If fitted in 630 or 800A board a shrouding kit is required. (2) Breaking capacity 50kA at 415V.		

Dimensions					
		Height mm	Width mm	Depth mm	(1) Weight kg
Style A - 250A powerboard					
	3 way	650	600	268	32
	4 way	650	778	268	57
Style C - 250A panelboard					
	5 way	680	853	270	198 40
	7 way	785	853	270	198 44
	9 way	890	853	270	198 50
	13 way	1075	853	270	198 60
Style D - 400/620A panelboard					
	6 way	1178	850	270	290 66
	12 way	1493	850	270	290 89
	18 way	1808	850	270	290 98
Style E - 800A panelboard					
	6 way	1580	850	270	490 (3) 86
	12 way	1896	850	270	490 (3) 104
	18 way	2210	850	270	490 (3) 122
Style G - 1600A panelboard					
	14 way	2106	1256	450	708 (2) 375
	14 way extension	2106	850	450	200
(1) Distance from gland plate to incoming terminals					
(2) Terminals will accept up to 3 lugs 400mm² per phase					
(3) Main connection M12 bolt					

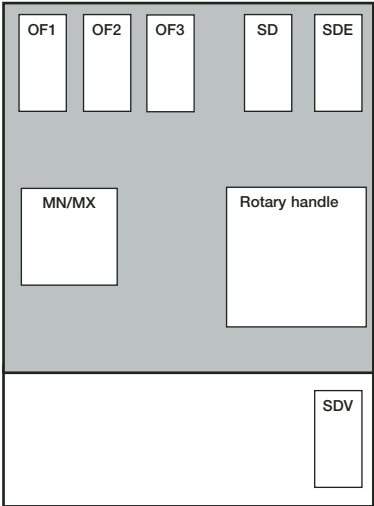


Note: Side extensions and corner units cannot be fitted to 250A panelboards

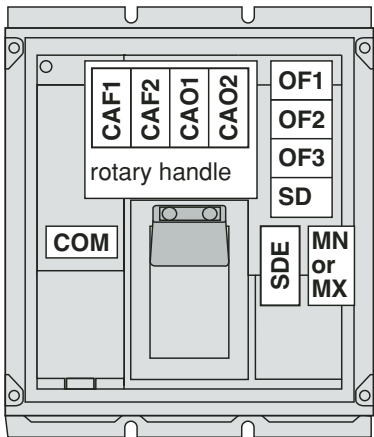
NS100/160/250



NS400/630



NS800/1600



Manually operated device

- OF Changeover auxiliary contact
- SD Changeover alarm switch
- MX Shunt trip
- MN Undervoltage release
- SDE Fault alarm
- SDV Earth fault alarm
- CAF Early make auxiliary contacts (with rotary handle)
- CAO Early break auxiliary contacts (with rotary handle)
- COM Communications function

All accessories are capable of being fitted on site. Full details may be obtained from the Compact NS moulded case circuit breaker catalogue.

Number of outgoing ways		Part number
SP	TB	
18	6	MGPCH6
36	12	MGPCH12
54	18	MGPCH18

TP ways	Mounting arrangement	Part number
Side	Top/bottom	
3	W600	MG25EXC
4	W600	MG25EXC

5,7,9,13	H200	MG6CEX
More than one extension can be added if required.		

6,12,18		H200	MG6CEX
6	W250		MGPXC206
12	W250		MGPXC212
18	W250		MGPXC218
6	W500		MGPXC506
12	W500		MGPXC512
18	W500		MGPXC518

More than one extension can be added if required. Side extensions are recommended when 400A and 630A outgoing are fitted or when outgoing circuit breakers have earth fault protection.

W250	H200	MGPC2025
W500	H200	MGPC2050
W250	H400	MGPC4025
W500	H400	MGCP4050

For squaring off a panelboard when a top or bottom extension and side extension are used together.

14	W400	MG16CEX4
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More than one extension can be added if required.

Integrated control and distribution systems (ICDS)



Side mounted on 400 - 800A panelboards. The ICDS unit offers the facility to incorporate MCBs, and command and control products into a single integrated unit. The ICDS has mounting rails to accept:

- An Isobar 4 TP&N pan assembly
- An Isobar 4 SP&N pan assembly or a DIN rail to accept 34 x 9mm modules
- A tray for control gear

Order references

To fit 6 way panelboard	
Enclosure	MGPXCA6
Pan assemblies	
8 way TP&N	MGBN8E
8 way TP&N	MGAN15P
To fit 12 way panelboard	
Enclosure	MGPXCB12
Pan assemblies	
16 way TP&N	MGBN16E
15 way SP&N	MGAN15P

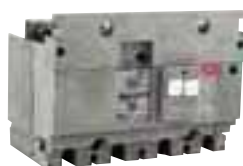
The Isobar 4c pan assemblies need to be ordered separately

Replacement items

Door and cover assembly

250A powerboard	9 way	MG25FCC2
	13 way	MG25FCC4
	9 way + metering	MG25FCC2M
	13 way + metering	MG25FCC4M
400/630A panelboard	18 way	MG6FCC6
	36 way	MG6FCC12
	54 way	MG6FCC18
800A panelboard	18 way	MG8FCC6
	36 way	MG8FCC12
	56 way	MG8FCC18
Gland plate for 400/630/800A panelboard		MGPGPC8
Door lock kit up to 800A		MGPP4S007
2 spare door keys		MGK33
Touch up paint RAL9001	Spray	08962
	Brush	08961
Adhesive drawing pocket	RAL9001	08963

Residual current protection modules



Using 4 pole residual current add-on modules (Vigi block) for incoming or outgoing ways (requires a 4 pole MCCB).

Frame rating	Earth leakage tripping current options (A)	Current rating MCCB	Vigi module Part number
Up to 160A	0.03 - 0.3 - 1 - 3 - 10*	NS100/160	29211
200 - 250A	0.03 - 0.3 - 1 - 3 - 10*	NS250	31536
400 - 630A	0.3 - 1 - 3 - 10 - 30*	NS400/630	32456

* Time delay settings (ms) 0 - 60 - 150 and 310 (30mA - instantaneous only).

(i) For combinations of items of RCD's, metering and remote metering please contact us for further information.

Ammeter



3 phase ammeter complete with CT's (mounted on the breaker). Can be fitted on incoming or outgoing device.

Current rating	Part number	
	3 pole	4pole
NS100	29455	29456
NS160	30555	30556
NS250	31565	31566
NS400	32655	32656
NS630	32855	32856

Metering facility



- 3 phase current transformer module with voltage measurement outputs.
- Fits directly on the terminals of the breaker.
- The voltage measurement outputs have inbuilt protection with automatic reset.
- Suitable for use with the PowerLogic range of meters.

Breaker	CT ratio	VA output	Class at VA output	Part number	
				3 pole	4 pole
NS100	125/5	1.1	1.0	29461	29462
NS160	150/5	1.1	1.0	30561	30562
NS250	250/5	1.1	0.5	31569	31570
NS400	400/5	2.0	0.5	32653	32654
NS630	600/5	2.0	0.5	32861	32862

Current transformer module



- 3 phase current transformer module.
- Fits directly on the terminals of the breaker.

Breaker	CT ratio	VA output	Class at VA output	Part number	
				3 pole	4 pole
NS100	125/5	1.6	3.0	29457	29458
NS160	150/5	3.0	3.0	30557	30558
NS250	250/5	5.0	3.0	31567	31568
NS400	400/5	8.0	3.0	32657	32658
NS630	600/5	8.0	3.0	32857	32858

Motor operator module



All 3 pole and 4 pole breakers up to 250A can be fitted with a motor operator mechanism allowing remote opening and closing of the circuit breaker.

Operating voltages

50Hz	a.c.	48 - 415V
	d.c.	24 - 250V

Specify requirements at time of ordering the breaker.

Rotary handles with inbuilt padlocking facilities



For 3 or 4 pole devices only.

Current rating	Part number	
	Black	Red/yellow
Up to 250A	29337	29339
400/630A	32597	32599

Toggle padlocking attachments Locking in OFF position

Current rating	Part number	
	Removable	Fixed
250A	29370	29371
630A	29370	32631
800A	44936	32631

Connection accessories

Bare cable connectors



Capacity	Breaker	Part number	
		Set of 3	Set of 4
1.5 - 95mm ²	160	29242	29243
10 - 185mm ²	250	29259	29260
35 - 300mm ²	630	32479	32480
2 x 95 - 240mm ²	630	32481	32482

Crimp cable lugs supplied with phase barriers

120mm ² copper	250	29252	29256
150mm ² copper	250	29253	29257
185mm ² copper	250	29254	29258
240mm ² copper	630	32500	32501
300mm ² copper	630	32502	32503
150mm ² aluminium	250	29504	29505
185mm ² aluminium	250	29506	29507
240mm ² aluminium	630	32504	32505
300mm ² aluminium	630	32506	32507

Spreaders



A	Pole pitch mm	Quantity	Part number
250	45	Set of 3	31563
250	45	Set of 4	31564
630	52.5	Set of 3	32490
630	52.5	Set of 4	32491

Auxiliary switch for 3 or 4 pole devices only



- For all MCCBs.
- Used to indicate open, closed or tripped status.
- SDE adaptor required for trip unit devices up to 250A TM or MA (to indicate trip on overcurrent). Two auxiliary switches will be needed to indicate open, closed and tripped status.

	Part number
Auxiliary changeover switch	29450
SDE adaptor	29451

Voltage releases to fit all MCCBs 16/630A for 3 or 4 pole devices only

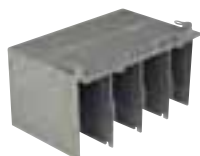
AC 50/60Hz



Voltage (V)	Part number	
	Shunt trip	Undervoltage release
200/240	29387	29407
380/415	29388	29408

Other voltages available - refer to Compact NS catalogue.

Terminal shields supplied in pairs



Current rating (A)	Part number
Up to 160A single pole and 250A neutral link	29320
Up to 160A 2 pole	29320 x 2
Up to 250A 3 pole	29323
Up to 250A 4 pole	29324
Up to 400/630A 3 pole	23564
Up to 400/630A 4 pole	32565

For shielding a TP MCCB with neutral link use the 4 pole terminal shield.

Single pole shrouding plates



MGPBBP	MGPBB25
Single pole shrouding plates are required for each unoccupied outgoing way.	In addition a 25mm shrouding plate is always required when 4 pole 400A or 630A circuit breakers are mounted on the outgoing pan assembly.
Boards up to 800A are supplied with 3 x MGPBBP. 1600A board is supplied with 6 x MGPBBP.	



To meet the requirements of Part L2 of the Building Regulations it is necessary for building owners and/or occupiers to monitor and control the energy used in every building. It is recommended that electrical distribution boards having a load of 50kW or more should have separate metering. On a three phase 400V supply this equates to 70A per phase so is likely to cover most loads from a panelboard with 630A incoming supply.

All kits either use or require the use of Merlin Gerin PM700 range of multi-function power meters. There are 3 models

PM700MG Basic meter

PM700PMG as the PM700MG but with pulse outputs for kWh and kVarh

PM710MG as the PM700MG but with MODBUS communications.

As standard, the meter fitted into incoming meter kits is the PM700PMG with pulse outputs. The meter accuracy is 0.5% of reading from 20% to 120% for current and voltage and 1% for power. The real energy reading complies with IEC 62053-21 Class 1.

The meter is in a DIN sized 96 mm sq. case fitting into a 92 mm sq. aperture.



The NS moulded case circuit breakers up to 630A have current transformer modules that fit directly on to the load terminals of the breaker. As well as the current transformer coils they also have self protected voltage connections off each phase. This eliminates the need to have additional overcurrent protection on these circuits. The meter is wired direct from this CT module without the need for any intermediate devices.

250A Powerboard

There are two versions of this equipment, basic or with the facility to have metering. The meter versions allow metering to be added to any 3 or 4 pole MCCB fitted in the board. All components are easily fitted; there are no extension boxes to fit or apertures to cut.

The meters are positioned behind the overall lockable door preventing unauthorised access to the meters. MG25C2M has 4 apertures, MG25C4M has 5.

Note: the meters and CT modules must be ordered separately. The wiring looms to link the CT modules to the meters are included with the panelboards

Metering options are not available for the 250A panelboard. It is recommended that a MG6Pxx board is used with a 250A incomer

250A powerboard with metering facility

13 SP positions	MG25C2M
17 SP positions	MG25C4M

630 & 800A Panelboards

Incoming metering

This is easily added to a board when it is first being installed. The kit comprises an extension box that houses the meter and, when fitted to the same end of the board as the incomer, provides additional space for the main incoming cables. All components including the meter, CTs and wiring is included in the kit. The meter is fully set up for the CT ratio and the voltage configuration.

Outgoing circuit metering

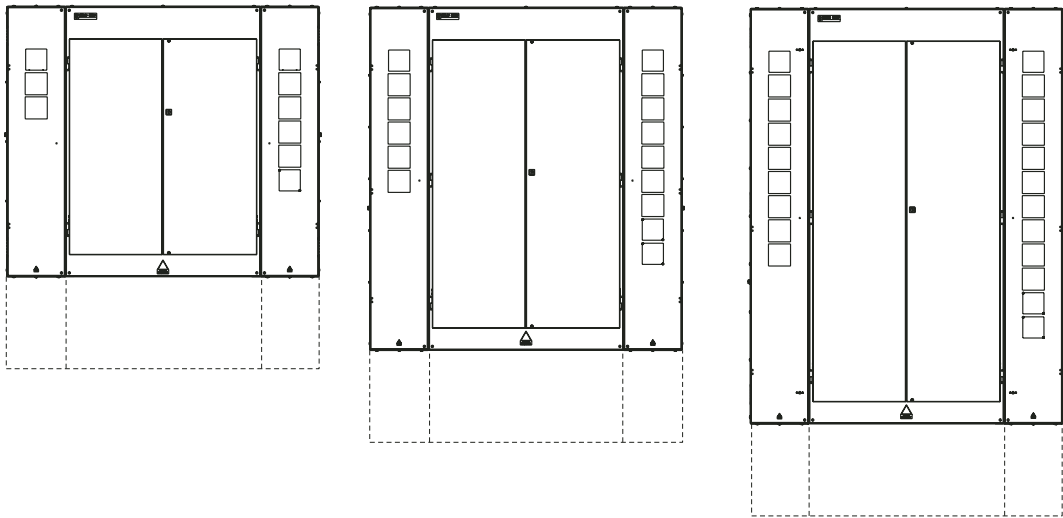
Metering can be fitted to some or all of the three phase outgoing circuits on 630A & 800A boards whether the boards are fitted with incoming metering or not.

The arrangement consists of side extension boxes that house the meters and also provide additional cabling space. Meters and current transformers are ordered separately to meet the needs of the installation. The necessary cable looms are included with the steelwork. The meters are mounted on hinged doors. The box also contains the auxiliary busbar that provides the 240V control supply for the meters. The left hand extensions have sufficient meter positions for half the number of outgoing ways. The right hand extensions have positions for half the number of outgoing ways plus three additional positions. These extra positions may be used for additional metering or mounting surge arresters, control fuses etc. The lower two positions have a transparent window and DIN rail. This can be removed if not required.
Note: the meters, CT modules and surge arresters must be ordered separately

Incoming and outgoing metering for boards up to 630A
(This arrangement is not applicable for boards fitted with MG PINC direct connections). When both incoming and outgoing metering is required there is a very cost effective solution by incorporating the incoming metering into the right hand side extension box. Components required are:

- Standard extension box MG6CEX to provide the required cable spreading space
- Current transformer module to fit on line side of incoming breaker.
- PM700 meter.
- Two MGPC2025 corner units, optional

The meter should be cabled to the CT module according to the diagram supplied. (loom not supplied). The auxiliary supply to the meter should be taken from one phase and neutral and must be suitably fused.
Note. A warning notice should be placed in the board as the voltage connections are taken off the live side of the main breaker.



MG6Cxx 630A board		
Incoming metering kit	400A	MG64M
	630A	MG66M

MG8Cxx 800A board		
Incoming metering kit	800A	MG88M

630A & 800A outgoing metering side extension boxes			
6 way board	Left hand side (*)	3 meter positions	MGPCM6L
	Right hand side (*)	6 meter positions	MGPCM6R
12 way board	Left hand side (*)	6 meter positions	MGPCM12L
	Right hand side (*)	9 meter positions	MGPCM12R
18 way board	Left hand side (*)	9 meter positions	MGPCM18L
	Right hand side (*)	12 meter positions	MGPCM18R

(*) When the board is inverted for top entry main cables these side extensions fit on the other side of the board.

1600A Panelboards

Incoming metering
A PM700PMG meter is fitted as standard in the board. The meter is fully set up for use on a 415V 3ph 4 wire system and for use with the 1600/5 current transformers that are installed on the busbars.

Outgoing circuit metering
Metering can be fitted to some or all of the three phase outgoing circuits in these boards. The arrangement consists of a side extension cubicle that houses the meters and also provides additional cabling space. Meters and current transformers are ordered separately to meet the needs of the installation. The necessary cable looms are included with the cubicle.
The meters are mounted on the front, hinged cover of the cubicle and can be aligned with their associated breaker. The cubicle also contains the auxiliary busbar that provides the 240V control supply for the meters

1600A panelboard	
Side extension cubicle	MG16CEM4

Current transformer modules for direct fitting to NS breakers in all boards

Breaker	Poles	CT ratio	Part number
NS100	3	125/5	29461
NS100	4	125/5	29462
NS160	3	150/5	30561
NS160	4	150/5	30562
NS250	3	250/5	31569
NS250	4	250/5	31570
NS400	3	400/5	32653
NS400	4	400/5	32654
NS630	3	600/5	32861
NS630	4	600/5	32862

Unused 92 x 92 metering apertures can be blanked off using Part number 03908
All these CT modules have voltage connections.



1600A panelboard with metering on side extension

Safepact 2	pages 3/2 to 3/5
Enclosed MCCBs 63 to 630A	page 3/2
Enclosed switch disconnectors 100 to 630A	page 3/3
Earth leakage	page 3/4
Auxiliaries and accessories	page 3/5
Enclosed Interpact	page 3/6
MGF Fusegear	pages 3/7 to 3/9
Switch disconnector fuse and switch disconnector	page 3/7
Fuse switch disconnector and switch disconnector	page 3/8
Busbar chambers	page 3/9
Accessories	page 3/9

Wall mounted switchgear

Enclosed MCCBs 63 to 630A

3



Application

- For use in commercial and industrial applications, providing protection isolation and control of motors and power circuits
- MCCBs can be supplied with adjustable Vigi earth leakage module for improving disconnection times and providing personnel and fire protection
- Suitable for switching inductive loads, AC23 contact rating and high mechanical endurance
- Security of isolation, positive contact indication in accordance with BS 7671 and padlockable rotary handle or toggle padlocking options

Offer

- ASTA certification of breaking capacity to BS EN 60947-2
- Supplied with line and load terminal shields
- Removable front cover provides all round cabling access
- Removable gland plates with optional extension boxes
- Trip indication and test button
- Shrouded disconnectable neutral with 3 pole device
- Steelwork finished in polyester epoxy powder, cream colour RAL9001

Technical data

Enclosure ingress protection	IP42
Rated operational voltage	Ue 415V
Rated current	at 40°C
Rated ultimate short-circuit breaking capacity	Icu = 70kA 2 pole units 85kA@240V
Rated service short-circuit breaking capacity	I _{su} = 100% Icu
Motor ratings	See Section 8
Voltage releases for remote tripping	220 to 415Vac
Auxiliary change over contacts for remote indication	ON, OFF Tripped
Connection accessories for ease of wiring	Cable clamps up to 185/240mm ² optional
Rotary handle provides padlocking and ease of operation	
Earth leakage	30mA to 30A See page 3/4

C-O operations in 000's	100A	160A	250A	400A	630A
Mechanical endurance	50	40	20	15	15
Electrical endurance	In/2 50 In 30	40 20	20 10	12 6	8 4

Range

MCCB				
Rating	Adjustment	Two Pole	3 pole + neutral	4 pole
63A	50 - 63	MGE0632C	MGE0633C	MGE0634C
100A	80 - 100	MGE1002C	MGE1003C	MGE1004C
125A	100 - 125	MGE1252C	MGE1253C	MGE1254C
160A	125 - 160	MGE1602C	MGE1603C	MGE1604C
200A	160 - 200		MGE2003C	MGE2004C
250A	200 - 250		MGE2503C	MGE2504C
400A	160 - 400		MGE4003C	MGE4004C
630A	250 - 630		MGE6303C	MGE6304C

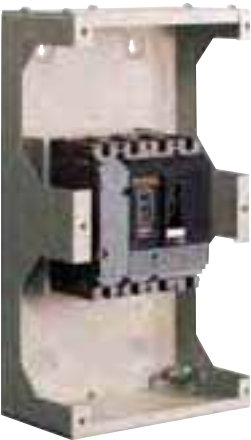
MCCB + earth leakage

Rating	4 pole
63A	MGE0634EC
100A	MGE1004EC
125A	MGE1254EC
160A	MGE1604EC
200A	MGE2004EC
250A	MGE2504EC
400A	MGE4004EC
630A	MGE6304EC

Wall mounted switchgear

Enclosed switch disconnectors

100 to 630A



Application

- For use in commercial and industrial applications, providing isolation and control of motors and power circuits
- Devices can be supplied with adjustable Vigi earth leakage module for personnel and fire protection
- Suitable for switching inductive loads, AC23 contact rating and high mechanical endurance
- Security of isolation, positive contact indication in accordance with BS 7671 and padlockable rotary handle

Offer

- Supplied with line and load terminal shields
- Removable front cover provides all round cabling access
- Removable gland plates and optional extension boxes
- Trip indication and test button
- Shrouded disconnectable neutral with 3 pole device
- Steelwork finished in polyester epoxy powder, cream colour RAL9001

Technical data

Enclosure ingress protection	IP42	
Rated operational voltage	Ue 415V	
Rated current	at 40°C	
Voltage releases for remote tripping	220 to 415Vac	
Auxiliary change over contacts for remote indication	ON, OFF, Tripped	
Connection accessories for ease of wiring	Cable clamps up to 185/240mm² optional	
Rotary handle provides padlocking and ease of operation		
Earth leakage	30mA to 30A	See page 3/4

C-O operations in 000's	100A	160A	250A	400A	630A
Mechanical endurance	50	40	20	15	15
Electrical endurance	In/2	50	40	20	12
	In	30	20	10	6

Range

Switch disconnector		
Rating	3 pole + neutral	4 pole
100A	MGE1003SC	MGE1004SC
160A	MGE1603SC	MGE1604SC
250A	MGE2503SC	MGE2504SC
400A	MGE4003SC	MGE4004SC
630A	MGE6303SC	MGE6304SC

Switch disconnector + earth leakage (RCCB)

Rating	4 pole
100A	MGE1004SEC
160A	MGE1604SEC
250A	MGE2504SEC
400A	MGE4004SEC
630A	MGE6304SEC

Wall mounted switchgear
Earth leakage
Extension boxes



Application

- The vigi earth leakage module option disconnects the circuit breaker when an electrical earth fault is detected
- Used to overcome high earth fault loop impedance and associated excessive disconnection times eg long cable runs
- Enhanced personal and equipment protection

Technical data

Adjustable sensitivity and

For discrimination with other RCDs

Protection against nuisance tripping due to transient overvoltages etc.	To IEC255-4 and IEC801-2 - 5
---	------------------------------

Class A	Immunity to DC components of up to 6mA
---------	--

Remote indication of tripping Using optional changeover contact SDV

Rating	Sensitivity settings (A)
--------	--------------------------

Up to 160A	0.03*, 0.3, 1, 3 and 10
------------	-------------------------

200 - 250	0.03*, 0.3, 1, 3, and 10
-----------	--------------------------

400 - 630	0.3, 1, 3, 10 and 30
-----------	----------------------

Time delay settings (ms)	0, 60, 150 and 310
--------------------------	--------------------

* If the sensitivity is set to 30mA there is no time delay whatever the time delay setting. For ordering references see previous pages.

Extension boxes

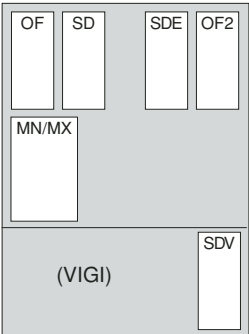
- Provide extra cabling space when using oversized cables. Colour RAL9001

Size	To fit rating	Part number
100mm	63 - 250A	MGEX160C
200mm	63 - 250A	MGEX250C
120mm	400 - 630A	MGEX630C

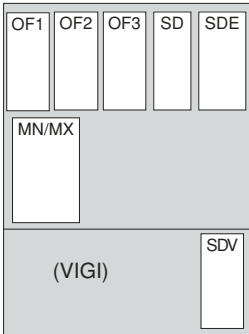


Application

These diagrams show the position of auxiliaries when fitted inside the MCCB or switch disconnecter.



MGE 100/160/250



MGE 400/630

Changeover contact



Auxiliary switch used for remote indication, electrical interlocking etc. Function is dependent upon position fitted within device.

- OF indicates contact position 'ON' and 'OFF'
- SD indicates device is in trip position
- SDE indicates device has tripped due to overcurrent or earth fault (100/160/250 requires SDE adaptor 29451)
- SDV indicates device has tripped due to earth fault

	Part number
OF/SD/SDE/SDV	29450
SDE adaptor for MGE 100/160/250	29451

Shunt trip (MX)



- Enables remote tripping on application of voltage from coil
- Coil permanently rated

Aux. supply voltage (V)	Part number
220/240	29387
380/415	29388

Undervoltage release (MN)



- Enables remote tripping on removal of voltage to coil
- Coil permanently rated
- Prevents reclosing of device before restoration of supply to undervoltage release

Aux. supply voltage (V)	Part number
220/240	29407
380/415	29408

Rotary handle



- Permits the device to be padlocked in OFF position by 1 - 3 padlocks, 5 - 8mm hasp
- Maintains indication of ON/OFF and TRIPPED positions
- Maintains access to 'push to trip' button
- Ronis/Profalux keylocks available on 400/630A

	Part number
For MGE 100/160/250	29337
For MGE 400/630	32597

Cable clamp



- For bare (uncrimped) cable connections
- See technical data for cable terminations in detail
- Other options available: refer to NS catalogue, or consult us

	Part number
For MGE 100/160	
up to 95mm ² (set of 4)	29243
120 to 185mm ² (set of 4)	29260
For MGE 250	
25 to 95mm ² (set of 4)	29228
120 to 185mm ² (set of 4)	29260
For MGE 400/630	
up to 2x240mm ² (set of 4)	32482

Wall mounted switchgear

Switch disconnectors



3

Application

Heavy duty sheet steel enclosures for use in commercial and industrial applications, providing isolation and control of electrical loads. Suitable for switching highly inductive loads without derating. For use in environments where a superior degree of protection is required. Four pole isolation with positive contact indication. Padlockable handle. Alternative red/yellow handle for use in industrial applications. 480V 3 ph 4 wire 50/60Hz systems.

Technical data

Degree of protection	IP55 to BS EN 60529
Sheet steel	Epoxy/polyester powder coated, beige colour
Door interlocked rotary handle	Padlockable
Black handle as standard	With Red/yellow handle option
Removable bottom gland plate	
Switch disconnector manufactured and tested to	BS EN 60947-3
4 pole switching	With fully rated neutral
Rated operational current at AC23A	Nominal rating up to 480V
Rated operational voltage	690V 50/60Hz (500V for 63A)

For further details of the switch disconnectors refer to Interpact catalogue.

Terminations

63A	Clamp connections accepting 1.5 - 16mm ² rigid cable
100 - 630A	Flat pads for crimped lugs

Termination details are identical to those of the Compact MCCBs

References

	Black rotary handle	Red rotary handle with yellow surround
Rating	Part number	Part number
63A	MGES063	MGES063R
100A	MGES100	MGES100R
160A	MGES160	MGES160R
250A	MGES250	MGES250R
320A	MGES320	MGES320R
400A	MGES400	MGES400R
500A	MGES500	MGES500R
630A	MGES630	MGES630R

Accessories

Rating	63A	100-160A	250A	320-630A
Auxiliary switch	29450	29450	29450	29450
Pair long terminal shields	28957	28958	29324	32565
Set of 4 crimp cable lugs for Cu cables c/w 3 phase barriers				
	95mm ²	28952		
	120mm ²		29256	
	150mm ²		29257	
	185mm ²		29258	
	240mm ²			32501
	300mm ²			32503

Wall mounted switchgear

Switch disconnecter fuse

Switch disconnecter



Application

Heavy duty fuse products for use in commercial and industrial environments, providing isolation and traditional fuse protection for electrical loads.

Features

- Rated for 240/415V 50/60Hz
- Ratings 20A, 32A, 63A, 100A, SP&SwN, TP&N
- Utilisation category AC20A, AC21A, AC22A, AC23B at rated current
- Degree of protection IP41
- Handle position provides positive contact indication
- Door handle prevents door being opened when switch is ON or padlocked
- Handle padlockable in ON and OFF positions
- Fuse links supplied as standard

Construction

- Live terminals fully shrouded
- Door interlock has integral defeat mechanism allowing door to be opened without switching OFF. This feature is not operable when the handle is padlocked
- Removable gland plates with cable knockouts
- Lift off door provides greater access for installation and cabling
- Door opens within the width of the unit allowing units to be mounted adjacent
- Neutral has disconnectable link and capacity for 3 outgoing cables
- Keyhole slots in the enclosure base allow easy installation
- Earthing kit provided as standard
- Easy access to fuse links
- Steelwork finished in polyester epoxy powder, cream colour RAL9001

Technical data

Standard	BS EN 60947-3
Rated operational voltage	415V 50/60Hz

Rating	20A	32A	63A	100A
Rated current at 40°C, A	20	32	63	100
Rated impulse voltage	6kV	6kV	6kV	6kV
Rated short time withstand Icw, A	416	416	756	1300
Rated short circuit making capacity Icm	1.35kA	1.35kA	1.35kA	3.5kA
Rated short circuit breaking capacity Icn	50kA	50kA	50kA	50kA
Utilisation category at rated current	AC-20A/ 21A/ 22A/ 23B			
Kilowatt rating	11kW	15kW	30kW	55kW
Cable size, maximum mm²	10mm²	10mm²	25mm²	50mm²

References

Rating (A)	Switch disconnecter fuse Part number	Switch disconnecter Part number
Single pole and switched neutral		
20	MGFA0201C	MGFL0201C
32	MGFA0321C	MGFL0321C
63	MGFA0631C	MGFL0631C
100	MGFA1001C	MGFL1001C
Three pole and neutral		
20	MGFA0203C	MGFL0203C
32	MGFA0323C	MGFL0323C
63	MGFA0633C	MGFL0633C
100	MGFA1003C	MGFL1003C

Fuse link data

Rating (A)	BS88 reference	Bussman reference
20	A1, A2	NITD20
32	A1, A2	AA032
63	A2, A3	BA063
100	A2, A3, A4	CEO100

Wall mounted switchgear

Fuse switch disconnecter

Switch disconnecter



Application

Heavy duty fuse products for use in commercial and industrial environments, providing isolation and traditional fuse protection for electrical loads.

Features

- Rated for 240/415V 50/60Hz
- Ratings 100A, 160A, 200A, 250A, 315A, 400A, 500A, 630A TP&N
- Utilisation category AC20A, AC21A, AC22A, AC23B at rated current, AC23A for ratings up to 160A
- Handle position provides positive contact indication
- Door handle prevents door being opened when switch is ON or padlocked
- Handle padlockable in ON and OFF positions
- Device may be fed to either top or bottom terminals
- Fuse links or copper links supplied as standard

Construction

- All terminals are fully shrouded
- Quick make and break silver plated contacts
- Door interlock has defeat mechanism allowing switch to be closed with door open
- Removable plain gland plates are fitted at top and bottom
- Cabling space may be increased by the addition of the cable boxes
- Lift off door provides greater access for installation and cabling
- Door opens within the width of the unit allowing units to be mounted adjacent
- Neutral is fitted with disconnectable link
- Earthing kit provided as standard
- Easy access to fuse links
- Removable cross rails allow cables to be laid in easily
- Direct front access to terminals without dismantling the mechanism
- Clear shrouds allow easy access for inspection and visual indication of contact position
- Steelwork finished in polyester epoxy powder, cream colour RAL9001

Technical data

Standard	BS EN 60947-3
Rated operational voltage	415V 50/60Hz

Rating	100A	160A	200A	250A	315A	400A	500A	630A
Rated current at 40°C, A	100	160	200	250	315	400	500	630
Rated impulse voltage	8kV	8kV	8kV	8kV	8kV	8kV	8kV	8kV
Rated short time withstand I _{cw} , A	3.4kA	3.4kA	5.23kA	5.23kA	12kA	12kA	12kA	12kA
Rated short circuit making capacity I _{cm}	5kA	5kA	8kA	8kA	24kA	24kA	24kA	24kA
Rated short circuit breaking capacity I _{cn}	50kA	50kA	50kA	50kA	50kA	50kA	50kA	50kA
Utilisation category at rated current	AC-23A	AC-23A	AC-23B	AC-23B	AC-23B	AC-23B	AC-23B	AC-23B
Kilowatt rating	55kW	90kW	110kW	130kW	175kW	220kW	250kW	300kW
Terminal stud	M8	M8	M10	M10	M12	M12	M12	M12
Terminal lug, maximum palm width	20mm	20mm	30mm	30mm	50mm	50mm	50mm	50mm
Maximum cable size	50mm ²	50mm ²	120mm ²	120mm ²	400mm ²	400mm ²	400mm ²	400mm ²

References

Rating (A)	Fuse switch disconnecter Part number	Switch disconnecter Part number	Cable box Part number
Three pole and neutral			
100	MGFS1003C	MGFD1003C	MGFX100C
160	MGFS1603C	MGFD1603C	MGFX160C
200	MGFS2003C		MGFX250C
250	MGFS2503C	MGFD2503C	MGFX250C
315	MGFS3153C		MGFX500C
400	MGFS4003C	MGFD4003C	MGFX500C
500	MGFS5003C	MGFD5003C	MGFX500C
630	MGFS6303C	MGFD6303C	MGFX630C

Fuse link data

Rating (A)	BS88 reference	Bussman reference	Cu links (Set of 3)
100	B1	CD100	MGFQ100
160	B2	DD160	MGFQ160
200	B2	DD200	MGFQ250
250	B3	ED250	MGFQ250
315	C1	EFS315	MGFQ400
400	C1	EF400	MGFQ400
500	C2	FF500	MGFQ630
630	C2	FF630	MGFQ630

Wall mounted switchgear

Busbar chambers and accessories



Application

The wall mounting busbar chambers provide an easy means of mounting and interconnecting fusegear products.

Range

Three ratings and three busbar lengths are available. Connection kits enable busbar chambers to be linked and all devices connected to the bars.

Technical data

Manufactured to	BS EN 60439-1
Rated voltage	415V 50/60Hz
Solid copper busbars rated at	200, 400 and 630A
Neutral bar	Fully rated
Busbar chamber lengths	750, 1200 and 1800mm
Chambers dimensions	Common depth (200mm) Common height (450mm)
End plates, top plates and bottom plates	Are fully removable for connections and for access
Steelwork finished	In polyester epoxy powder, cream colour RAL9001

Rating	Length (mm) 750 Part number	Length (mm) 1200 Part number	Length (mm) 1800 Part number
200	MGFB20007C	MGFB20012C	MGFB20018C
400	MGFB40007C	MGFB40012C	MGFB40018C
630	MGFB63007C	MGFB63012C	MGFB63018C

Busbar connection kits

Each kit comprises connections for three phases and neutral

Rating	Busbar interconnections to link busbar chambers*	Flexible busbar inter connections to link non Merlin Gerin busbar chambers	Cable connections to connect to busbars**
	Part number	Part number	Part number
200	MGFK200		MGFC200
400	MGFK400	MGFJ400	MGFC400
630	MGFK630	MGFJ630	MGFC630

* The busbar connection kits allow 2 or more Merlin Gerin busbar chambers to be electrically and mechanically joined together providing facilities for a greater number of outgoing circuits.

** The cable connection kits comprise 4 bolts, nuts and washers to connect a set of cables fitted with crimped lugs to the busbars.

Fuse switch connection kits

Each kit comprises connections for three phases and neutral

Rating	Top mounted Part number	Bottom mounted Part number
100, 160	MGFZ160	MGFZ160
200, 250	MGFZ250	MGFZ250
315 - 630	MGFZ630T	MGFZ630

Fuse switch connection kits comprise 4 copper links with connection hardware to connect a fuse switch to the busbars.

Note: the kit required for fitting devices of 315A or greater differs dependent on whether it is mounted above or below the busbar chamber.

Protection against earth leakagepages 4/2 to 4/26

 RCCB A, AC, si and SiE class 16-100Apage 4/2

 RCCB A, AC and si class 80-125Apage 4/4

 RCCB A class 25-63A recloserpage 4/5

 RED, REDs and REDtestpage 4/16

Protection against the effects of lightning strikes and overvoltagespages 4/27 to 4/48

 Type 1page 4/27

 Type 2page 4/32

Protection against overloads and short circuitspages 4/48 to 4/82

 DPN MCBpage 4/48

 C60H MCBSee Section 1

 C120H MCBpage 4/51

 NG125 MCBpage 4/63

Protection of motorspages 4/83 to 4/91

 P25M overloads and short circuitspage 4/83

 C60LMA short circuit onlypage 4/89

 NG125LMA short circuit onlypage 4/91

"si" and "SiE" type, A and AC class RCCB 10 mA, 30 mA, 100 mA, 300 mA and 500 mA instantaneous 100 mA_s, 300 mA_s, 500 mA_s

Function

Residual current circuit-breakers ensure:

- The control and isolation of electrical circuits
- The protection of persons against direct and indirect contacts
- The protection of installations against insulation faults.

They conform to both the residual current device standard BS EN 61008 and to switch standards BS EN 60947-1 and BS EN 60947-3.

Residual current circuit-breakers are used in the housing, commercial and industrial sectors.

AC class

Tripping is ensured for sinusoidal, alternating currents, whether they be quickly applied or slowly increase.

A class

Tripping is ensured for sinusoidal, alternating residual currents as well as for pulsed DC residual currents, whether they be quickly applied or slowly increase.

Application: loads with electronics, rectifiers, instruments.

"si" type

Reinforced continuity of supply on disturbed networks with:

- A high risk of nuisance tripping:

- ☐ Successive lightning strokes
- ☐ IT earthing system
- ☐ Variable speed controllers, frequency converters
- ☐ Presence of electronic ballasts
- ☐ Presence of switchgear that incorporates interference filters i.e. lighting, microcomputing, etc.

- Sources of blinding:

- ☐ Presence of harmonics or high frequency rejection
- ☐ Presence of DC components: diodes, thyristors, triacs
- ☐ Low temperature.

"SiE" type

The RCCB "SiE" types are particularly suitable for use in humid environments and/or environments polluted by aggressive agents, for example swimming pools, marinas, the food-processing industry, water treatment plants, industrial sites.

They also incorporate RCCB "si" functions.

Instantaneous

It ensures instantaneous tripping (no time-delay).

Selective _s

Total discrimination can be achieved using a non-selective residual current device placed downstream.

Description

The residual current trip unit is electromechanical. It functions without an auxiliary source.

Technical data

Voltage rating	230...400 V AC, -15...+10 %
Frequency rating	AC and A classes: 50/60 Hz "si" and "SiE" types: 50 Hz
Current rating (I _{th}) at 40 °C	16...100 A
As in IEC 61008	Breaking and making capacity Rated residual (I _{Δm}): 2.5 kA Rated (I _m): 1.5 kA
As in IEC 60947-3:	Isolation with positive break indication, opening is indicated by a green strip on the device operating handle. This indicator shows that all poles are open. Rated impulse withstand Voltage (U _{imp}): 6 kV Insulation voltage (U _i): 440 V Utilization category: AC 23A rating ≤ 63 A AC 22B ratings 80 and 100 A

"si" and "SiE" type, A and AC class
RCCB 10 mA, 30 mA, 100 mA,
300 mA and 500 mA instantaneous
100 mAs, 300 mAs, 500 mAs

Description cont..

- ☐ Padlocking in the "tripped" position is possible using the padlocking device (not supplied)
- Protected against nuisance tripping due to transient overvoltages (lightning, switchgear operation on the network, etc.)
- Impulse withstand level 8/20 µs:
- ☐ AC and A classes:
 - 250 A for instantaneous
 - 3 kA for s
- ☐ "si" and "SiE" type:
 - 3 kA for instantaneous
 - 5 kA for s
- Short-circuit current withstand (IΔc = Inc): 10 kA with 100 A fuse upstream
- Number of operations (O-C): 20 000
- Trip units with fixed sensitivities for all ratings:
- ☐ Instantaneous trip unit
- ☐ Selective trip unit: total vertical selectivity can be achieved using 30 mA residual current devices placed downstream
- Indication:
- ☐ Mechanical: earth fault indication on front panel by means of a mechanical indicator
- ☐ Electrical: using auxiliaries
- Remote tripping: using auxiliaries
- Environment:
- ☐ Tropicalisation: treatment 2 (relative humidity 95 % at 55°C)
- ☐ Operating temperature:
 - AC class: -5...+40°C
 - A class, "si" and "SiE" type: -25...+40°C
- ☐ Storage temperature: -40...+60°C

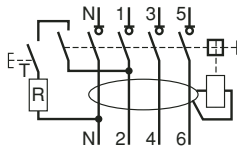
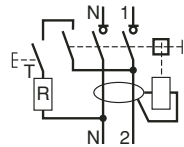
Weight (g)	2P	3P
	230	450

- Connection using tunnel terminals for flexible 35 mm² cable or rigid 50 mm² cable
- Can be directly connected using comb busbars.
- Conform with standards:
- ☐ BS EN 61008
- ☐ BS EN 60947-1
- ☐ BS EN 60947-3.

AC class RCCB
10 mA, 30 mA, 100 mA,
300 mA and 500 mA instantaneous
100 mAs, 300 mAs, 500 mAs

AC class RCCB residual current circuit breakers

Type	Voltage (V CA)	Rating (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
2P	230	16	10	RMG 160102	2
			25	RMG 250102	2
			30	RMG 250302	2
			300	23011	2
			500	23012	2
		40	30	RMG 400302	2
			100	23015	2
			300	RMG 403002	2
			500	23017	2
		63	30	RMG 630302	2
			100	RMG 631002	2
			300	RMG 633002	2
			300 S	23028	2
			500	23022	2
			500 S	23029	2
		80	30	RMG 800302	2
			100	RMG 801002	2
			300	RMG 803002	2
			100 S	23111	2
			500	23026	2
			500 S	23033	2
		100	30	RMG 100032	2
			100	RMG 1001002	2
			100	RMG 1001002s	2
			300	RMG 1003002	2
			300 S	23116	2
4P	230/400	25	30	RMG 250304	4
			300	RMG 253004	4
			500	23041	4
		40	30	RMG 400304	4
			100	23536	4
			300	RMG 403004	4
			300 S	23062	4
			500	23046	4
			500 S	23063	4
		63	30	RMG 630304	4
			100	RMG 631004	4
			300	RMG 633004	4
			300 S	23146	4
			500	23051	4
			500 S	23067	4
		80	30	23061	4
			300	23054	4
			300 S	23069	4
			500	23055	4
			500 S	23070	4
		100	300	23213	4
			300 S	23227	4



Type	Voltage (V CA)	Rating (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
2P	230	16	10	23415	2
			25	23353	2
			30	23249	2
			300	23356	2
		40	30	23358	2
			300	23360	2
			300 Ⓢ	23265	2
		63	30	23258	2
			300	23364	2
			300 Ⓢ	23370	2
			500 Ⓢ	23371	2
		80	300 Ⓢ	23272	2
		100	300 Ⓢ	23279	2
4P	230/400	25	30	23378	4
			300	23380	4
			500	23381	4
		40	30	23303	4
			100	23304	4
			100 Ⓢ	23490	4
			300	23384	4
			300 Ⓢ	23399	4
			500	23385	4
		63	30	23308	4
			100 Ⓢ	23494	4
			300	23388	4
			300 Ⓢ	23402	4
			500	23389	4
		80	300	23326	4
			300 Ⓢ	23284	4
			500 Ⓢ	23376	4
		100	300 Ⓢ	23294	4

"si" and "SiE" type RCCB
25-100A 10 mA, 30 mA, 100 mA,
300 mA and 500 mA instantaneous
100 mAs, 300 mAs, 500 mAs

4

Type	Voltage (V CA)	Rating (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
"si" type RCCB residual current circuit-breakers					
2P	230	25	30	23523	2
		40	30	23524	2
		63	30	23525	2
			300 S	23363	2
		80	300 S	23372	2
4P	230/400	25	30	23526	4
		40	30	23529	4
		63	30	23530	4
			300 S	23392	4
		80	30	23390	4
			300 S	23394	4
"SiE" type RCCB residual current circuit-breakers					
2P	230	25	30	23300	2
		40	30	23307	2
			300 S	23314	2
		63	30	23352	2
			300 S	23355	2
4P	230/400	25	30	23377	4
		40	30	23379	4
			300 S	23398	4
		63	30	23383	4
			300 S	23401	4

Terminal shields



- Two piece: completely covers terminals (cannot be fitted to 100A 2 pole unit)

Description	Part number
Two piece unit for use with 2P RCCB (except 100A unit)	26976
Two piece unit for use with 4P RCCB	26978

Sealable terminal screw shield



- Enables total isolation of the terminal screws

Description	Part number
For use with 2P and 4P RCCB (2 strips of 4)	26981

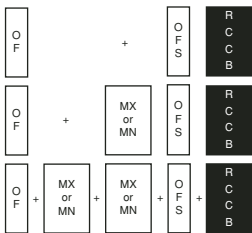
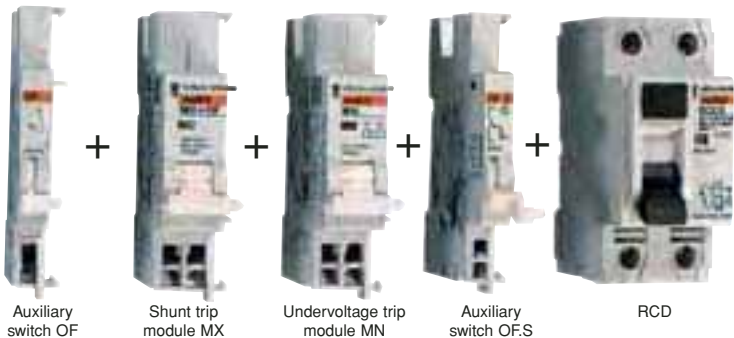
4

Padlocking facility

Description	Part number
Padlocking bag of 2	26970
Padlock + 2 keys	MGPL
Spare key for MGPL	MGPLSK

Electrical auxiliaries for 2 and 4 pole RCCB 16-100A

Arrangement of auxiliaries



Note: both 2P and 4P RCCB type residual current devices can be fitted with the above combinations of electrical auxiliaries.
Note: OFS required for all combinations.

Shunt trip release (MX)



- Enables remote tripping
- Is equipped with a cut off switch in series with the coil allowing control circuit to remain energised
- Includes one auxiliary changeover switch (OF)
- Red flag trip indicator
- Mounted on the LHS of the OFS
- Cable capacity 2.5mm²

Width in 18mm SP ways	Coil volt	Consumption Pickup W or VA	Part number
1	130Vdc	10	26946
1	240Vac	50	26946
1	415Vac	120	26946
1	48 - 60Vdc	22	26947
1	48 - 130Vac	200	26947
1	24Vac/dc	120	26948

Also requires OFS 26923

Under voltage release (MN)



- Enables the RCCD to be tripped either when the auxiliary supply voltage drops or by the opening operation of a normally closed remote pushbutton
- Prevents the RCCD from being switched 'ON' again if the undervoltage release supply is not present
- Red flag trip indicator
- Mounted on the LHS of the OFS
- Cable capacity 2.5mm²

Width in 18mm SP ways	Coil volt	Consumption Pickup W or VA	Part number
1	220/240Vac	4.1	26960
1	48Vac/dc	4.3	26961

Also requires OFS 26923

Electrical auxiliaries for 2 and 4 pole RCCB 16-100A

Auxiliary switch (OFS)



- A changeover switch which acts as an indicating or control device to monitor the ON or OFF positions of an RCD
- The OFS also acts as an adaptor mounted on the LHS of RCD, between the RCD and any other auxiliaries (additional OF, MX, MN, mounted on LHS of OFS). Indicates type of RCD
- Cable capacity 2.5mm²

Width in 18mm SP ways		Part number
0.5	OFS	26923

Contact ratings (A):

- 3A at 415Vac
- 1A at 125Vdc
- 6A at 24Vdc
- 6A at 240Vac
- 2A at 48Vdc

4

Auxiliary switch (OF)



- Changes main contacts to ON/OFF
- Test button on front face
- Cable capacity 2.5mm²

Width in 18mm SP ways		Part number
0.5	OFS	26924

Also requires OFS 26923

RCCB 80...125 A AC and A class, "si" type 30 mA, 100 mA, 300 mA and 500 mA instantaneous, 300 mA



Function

The residual current circuit-breakers are used to:

- Control electric circuits
- Protect people against direct and indirect contacts
- Protect installations against insulation faults.

The residual current circuit-breakers are used in the tertiary sector and industry

Technical data

The residual current release is electromechanical and operates without auxiliary supply source.

Voltage rating:	2P: 230 V AC, +10 %, -15 % 4P: 230/400 V AC, +10 %, -15 %.
Frequency rating:	50 Hz.
Current rating (In):	80, 100 or 125 A.
Making and breaking capacity, rated residual current (I _{Δm} =I _m) as per standard IEC 61008:	10 In.
Protected against nuisance tripping due to transient overvoltages (lightning stroke, device switching on the network, etc.).	
Level of immunity in 8/20 μs wave:	AC and A class: - 250 A for instantaneous - 3 kA for  "si" type: 3 kA
Tripping time at:	I _{Δn} : <300 ms 5I _{Δn} : <40 ms.
Short-circuit current withstand (I _{Δc} =I _{nc}):	see the circuit breaker or fuse coordination table with RCCB.
Number of operating cycles (O-C):	Mechanical: > 5 000 Electrical: > 2 000.
Releases with fixed sensitivities for all ratings:	Instantaneous release Selective release: allows total vertical discrimination with the 30 mA residual current devices placed downstream.
Test button used to check proper operation of the tripping mechanism.	
Indication of RCCB status by 3-position toggle and mechanical indicator on the front face:	Closed (red indicator) Tripped on fault (green indicator) Open (green indicator)
Environment :	Tropicalisation: treatment 2 (relative humidity: 95 % at 55°C) Operating temperature: -25°C to +40°C Storage temperature: -40°C to +60°C.
Weight (g):	2P: 230 4P: 420.
Connection:	By tunnel terminal for flexible or rigid cable: - 1x1.5 to 50 mm ² - 2x1.5 to 16 mm ² .
Degree of protection:	IP40 on front face IP20 at terminals
Complies with standards:	IEC 61008/EN 61008 VDE 0664

OFsp auxiliary

- Electrical indication: by OFsp auxiliary mounted to the left. It has a double changeover switch indicating the "open" or "closed" position of the RCCB
- Weight (g): 40
- Connection: by tunnel terminal for 0.5 to 1.5 mm² cable

Accessories

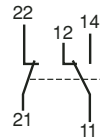
2P and 4P seable screw shield:

- Prevents all contact with device terminal screws, degree of protection IP40
- Optional sealing

4

RCCB 80...125 A AC and A class,
"si" type 30 mA, 100 mA, 300 mA and
500 mA instantaneous, 300 mA

OFsp auxiliary switch

Type	Voltage (V CA)	Contact (A)	Width in 18mm SP ways	Part number
	230 V AC (AC15)	6	1/2	16940
	230 V DC (DC13)	1		

Accessories

Type	Number of poles	Part number
Screw shield (set of 10) upstream/downstream	2	16938
	4	16939

RCCB 25...125 A B type
30 mA, 300 mA
and 500 mA instantaneous, 300 mA S



Description

B type

The RCCB B type residual current circuit-breakers provide specific protection of three-phase installations and people even in the presence of DC fault currents on the network generated by:

- Three-phase controllers and variable speed drives
- Three-phase battery chargers and inverters
- Three-phase backed-up power supplies

They are a requirement for three-phase supplied applications, when class I equipment installed downstream from the RCCB are likely to produce DC component fault currents (pure DC fault) .

They include and also guarantee protection against fault currents:

- Sinusoidal AC residual currents  (AC type)
- Pulsed DC residual currents  (A type)

They can be adapted, without exception, to all the application cases defined in standards IEC 60364 and EN 50178.

The B type RCCB combination with variable speed drives of the Telemecanique brand has been successfully tested and validated.

Instantaneous

It ensures instantaneous tripping (without time delay).

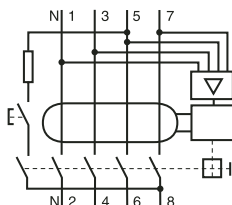
Selective s

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

Technical data

Compliance with standards	IEC 61008, EN 61008, VDE 0664
Voltage rating	230/400 V AC, +10%, -15%
Frequency rating	50 Hz
Current rating (In)	25, 40, 63, 80 or 125 A
Making and breaking capacity, rated residual current (I _{Δm} = I _m) as per standard IEC 61008	10 In with 500 A minimum
Protected against nuisance tripping due to transient overvoltages (lightning stroke, device switching on the network, etc.)	
Level of immunity in 8/20 μs wave	250 A for instantaneous 3 kA for $\frac{1}{2}$
Tripping time	I _{Δn} : ≤ 300 ms 5I _{Δn} : ≤ 40 ms
Short-circuit current withstand (I _{Δc} = I _{nc})	See the circuit breaker or fuse coordination table with B type RCCB
Number of operating cycles (O-C)	Mechanical: > 5 000 Electrical: > 2 000
Releases with fixed sensitivities for all ratings	Instantaneous release Selective release $\frac{1}{2}$ allows total vertical discrimination with the 30 mA RCDs placed downstream
Test button	Checks proper operation of the tripping mechanism Working range: 185...440 V AC
Indication of RCCB status	By 3-position toggle and mechanical indicator on the front face: closed (red indicator) tripped on fault (red indicator) open (green indicator) By OFsp auxiliary switch (optional)
Tropicalisation	Treatment 2 (relative humidity 95% at 55°C)
Operating temperature	-25°C to +40°C
Storage temperature	-40°C to +60°C
Weight (g)	500
Degree of protection	IP40 on front face IP20 at terminals
Connection by tunnel terminal	Flexible or rigid cable: 1 x 1.5 to 50 mm ² or 2 x 1.5 to 16 mm ²

Type	Voltage (V CA)	Rating (A)	Sensitivity (mA)	Width in 18mm SP ways	Part number
4P	230/400	25	30	4	16750
			300	4	16751
	40	30	4	16752	
		300	4	16753	
		300s	4	16754	
		500	4	16755	
		63	30	4	16756
	63	300	4	16757	
		300s	4	16758	
		500	4	16759	
		80	30	4	16760
	80	300	4	16761	
		300s	4	16762	
		125	30	4	16763
	125	300	4	16764	
		300s	4	16765	
500		4	16766		



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

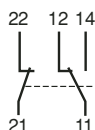
Weight (g)

40

Connection by tunnel terminal

Flexible or rigid cable: 0.5 to 1.5 mm²

Type	Voltage (V CA)	Contact (A)	Width in 18mm SP ways	Part number
OFsp	230 V AC (AC15)	6	1/2	16940
	230 V DC (DC13)	1		



4-pole sealable screw shield	Prevents contact with device terminal screws	
Degree of protection	IP40	
Screw shield (set of 10) upstream/downstream	2	16938
	4	16939





G9 enclosure IP30

For a more comprehensive range of enclosures please refer to Section seven.

- Made from folded steel, epoxy powder coated
- Degree of protection: IP30
- It consists of:
 - ☐ A back plate with DIN rail
 - ☐ A cover screwed to the back plate having 25mm knockouts top and bottom

Capacity in 18mm SP ways	Part number
3	99560
4	14599
5	14603



Mini opale IP30

Impact resistant, all insulated enclosure self extinguishing to 650°C.

- Degree of protection: IP30
- It consists of:
 - ☐ An insulated back plate with integral DIN rail
 - ☐ A cover clipped to the back plate

Capacity in 18mm SP ways	Part number
4	13394
6	13396
8	13398



Kaedra weatherproof IP65

- Degree of protection: IP65
- Protection against mechanical damage IK09
- Self extinguishing insulating material
- Flame and abnormal heat resistance 650°C, IEC 60695-2-1
- Class 2: total insulation
- They are supplied complete with:
- Built in dividable blanking plate
- Screwed cover with hinged transparent window

Capacity in 18mm SP ways	Part number
4	13976
6	13977
8	13978
12	13979
Lock & key	13948
Sealing kit	13947
Bag of membrane glands	14190

Residual current circuit breakers recloser type RED, REDs, REDtest Selection table

The RED, REDs and REDtest RESidual current Devices offer the following functions:

- Protection of people against direct and indirect contacts
- Protection of installations against insulation faults
- Disconnection of on-load electric circuits, already protected against overloads and short-circuits
- Automatic restart after insulation monitoring of the downstream circuit
- Automatic and periodical test of the device, without breaking downstream circuit (REDtest)

Selection table

Type	RED	REDs	REDtest
			
Technical data			
Earth leakage protection compliance with standards IEC 61008, EN 61008			
	■	■	■
Current rating (In)	25, 40, 63 A	25, 40, 63 A	25, 40 A
Sensibility	30 mA	30, 300 mA	30 mA
Type	A	A	A
Recloser			
	■	■ with 15 minutes time delay	■
Autotest			
	-	-	■
Power supply			
From the top	■	■	■
From the bottom	■	■	-
Indication			
Mechanical	By O-I (open-closed) 2-position lever	By O-I (open-closed) 2-position lever	By O-I (open-closed) 2-position lever
Luminous	1 LED	2 LEDs	2 LEDs
Remote	-	1 built-in auxiliary contact	1 built-in auxiliary contact



Description

The RED, REsidual current Device recloser, is made up of a residual current device and a recloser.

A class

The RED phase-to-neutral residual current devices provide A type earth leakage protection: tripping due to sinusoidal AC residual currents as well as by continuous pulsed residual currents, whether they are applied quickly or increased slowly.

Technical data

Common

Power supply	From top and bottom
Voltage rating (Ue)	230 V AC, +10 %, -15 %
Frequency rating	50 Hz
Current rating (In)	25, 40, 63 A
Impulse withstand voltage (Uimp)	4 kV
Insulation voltage (Ui)	500 V
8/20 µs wave immunity level	250 A
Tropicalisation	Treatment 2 (relative humidity: 95 % at 55°C)
Operating temperature	-5°C to +40°C
Storage temperature	-20°C to +60°C
Weight (g)	350
Protection class	IP20 at terminals
Connection by tunnel terminal with guard	25 mm² flexible cable or 35 mm² rigid cable
Mounting	On DIN rail

Residual current device

Compliance with standards	IEC 61008, EN 61008
Making and breaking capacity, rated residual current ($I_{\Delta m} = I_m$)	630 A
Breaking capacity in association with protection device	6000 A (gL)
Tripping time	$I_{\Delta n} : \leq 300 \text{ ms}$ $5I_{\Delta n} : \leq 40 \text{ ms}$
Short-circuit current withstand ($I_{\Delta c} = I_{nc}$)	See coordination table of circuit breaker or fuse with A type RED
Number of cycles (O-C)	Mechanical: 1,000
Fixed sensitivity releases for all ratings	Instantaneous release
Test button min operating voltage	100 V

Reclosure

Max duration of a restart cycle	90 s
Number of restart operations	15/hour
Maximum number of consecutive restart attempts (if no earth fault)	3
Min interval between 2 closings	180 s
Insulation fault presence monitoring	Yes
Restart in event of transient insulation fault	Yes
Stopping restart cycle if insulation fault present	Yes

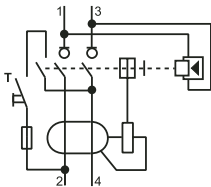
Indication

RED status indication	Mechanical: by O-I (open-closed) 2-position lever Electrical: by 1 red indicator light on the front panel
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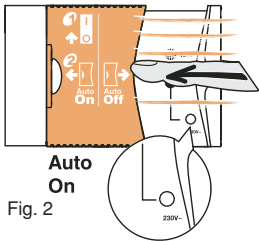
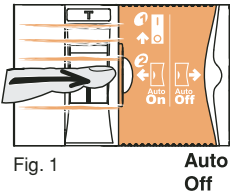
RED 25...63 A
A class
30 mA

RED residual current devices

Type	Voltage (V CA)	Rating (A)	Sensitivity (mA)	Width in 18mm SP ways	Part number
2P	230	25	30	4	18681
		40	30	4	18683
		63	30	4	18685



4



Operation

Recloser

The built-in automatic recloser automatically recloses the residual current device after checking insulation of the downstream circuit. If the circuit is faulty, then RCD reclosing is prohibited.

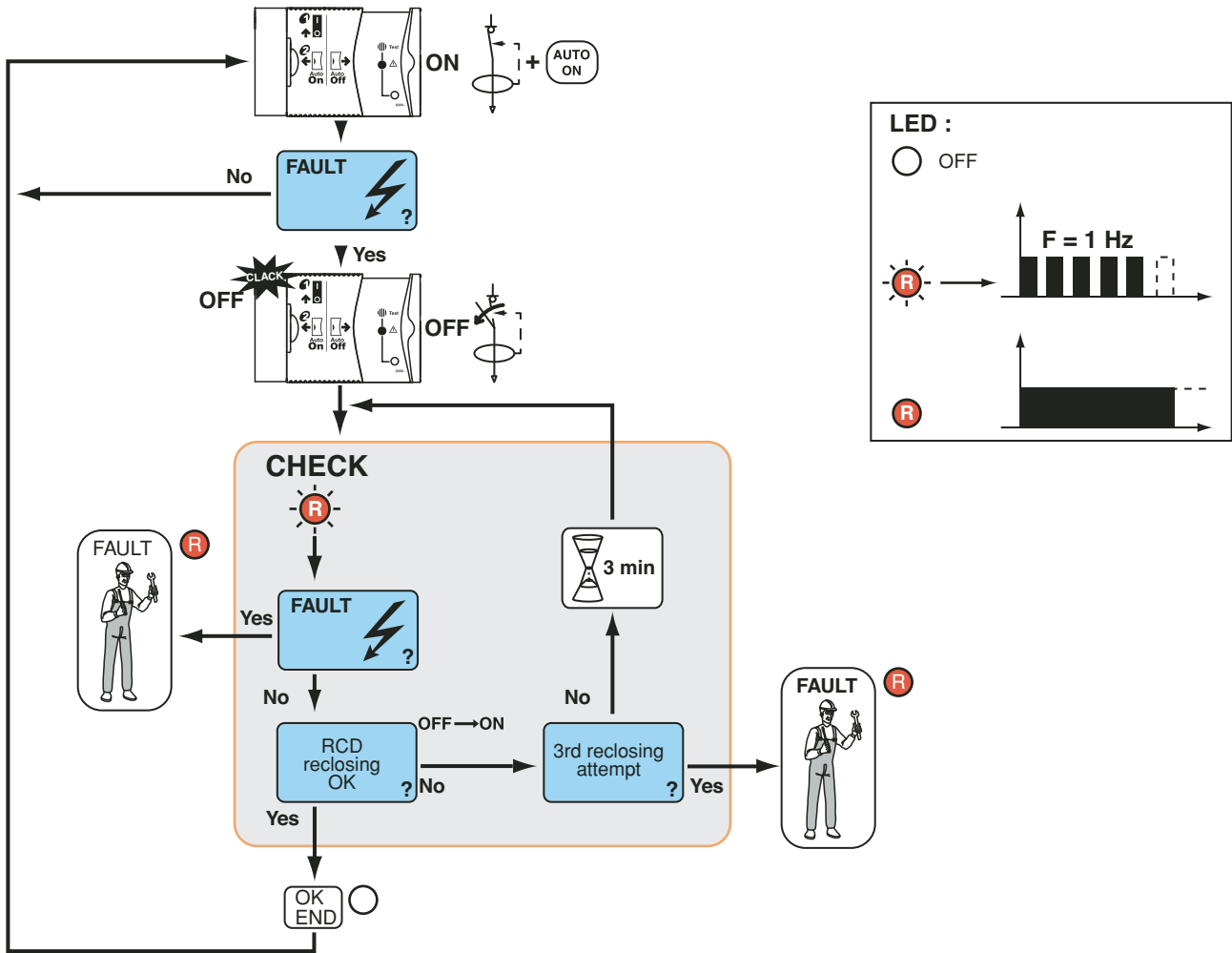
Residual current device

The RED operates in the residual current device mode without automatic restart when the sliding cover is open, i.e. to the right in the Auto Off position (Fig. 1). The automatic restart mode is activated when the sliding cover is closed, i.e. to the left in the Auto On position (Fig. 2).

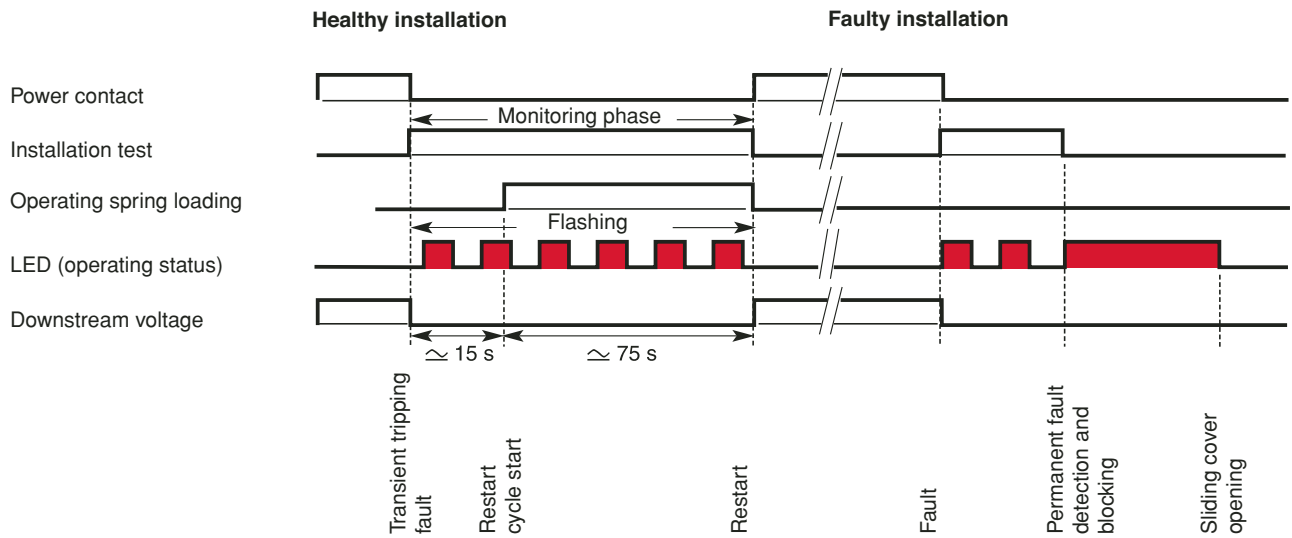
Test

■ This is only possible in manual mode, i.e. sliding cover open in the Auto Off position. You can then manually test the device by pressing the Test key. The downstream installation is then temporarily broken. You must then manually reclose the RED, by activating the O-I lever to restore the power to downstream circuit.

Operation cont..
Recloser
Operating diagram of the recloser



Operating and indicating diagram of a restart cycle





Description

The REDs, REsidual current Device recloser, is made up of a residual current device and a recloser.

A class

The REDs phase-to-neutral residual current devices provide A class earth leakage protection: tripping due to sinusoidal AC residual currents as well as by continuous pulsed residual currents, whether they are applied quickly or increased slowly.

Technical data

Common

Power supply	From top and bottom
Voltage rating (Ue)	230 V AC, +10 %, -15 %
Frequency rating	50 Hz
Current rating (In)	25, 40, 63 A
Impulse withstand voltage (Uimp)	4 kV
Insulation voltage (Ui)	500 V
8/20 µs wave immunity level	250 A
Tropicalisation	Treatment 2 (relative humidity: 95 % at 55°C)
Operating temperature	-5°C to +40°C
Storage temperature	-20°C to +60°C
Weight (g)	360
Protection class	IP20 at terminals
Connection by tunnel terminal with guard	25 mm ² flexible cable or 35 mm ² rigid cable
Mounting	On DIN rail

Residual current device

Compliance with standards	IEC 61008, EN 61008
Making and breaking capacity, rated residual current (I _{Δm} =I _m)	630 A
Breaking capacity in association with protection device	6000 A (gL)
Tripping time	I _{Δn} : ≤ 300 ms 5I _{Δn} : ≤ 40 ms
Short-circuit current withstand (I _{Δc} = I _{nc})	See coordination table of circuit breaker or fuse with A class REDs
Number of cycles (O-C)	Mechanical: 1,000
Fixed sensitivity releases for all ratings	Instantaneous release
Test button min operating voltage	100 V

Reclosure

Max duration of a restart cycle	90 s
Number of restart operations	15/hour
Maximum number of consecutive restart attempts (if no earth fault)	3
Min interval between 2 closings	180 s
Insulation fault presence monitoring	Yes
Restart in event of transient insulation fault	Yes
Stopping restart cycle if insulation fault present	Yes, during 15 minutes

Indication

REDs status indication	Mechanical: by O-I (open-closed) 2-position lever Electrical: by 2 indicator lights on the front panel: left: red LED right: green LED Remote: by 1 built-in auxiliary contact
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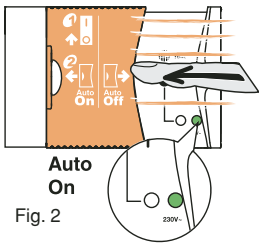
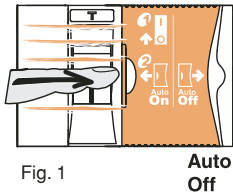
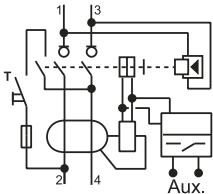
Auxiliary contact

Voltage rating (Ue)	5...230 V AC/DC
Insulation voltage (Ui)	350 V
Current rating (In)	Min: 0.6 mA Max: 100 mA, power factor = 1
Type	Configurable: NO or NC or intermittent 1 Hz
Connection by tunnel terminal	Flexible or rigid cable: max 2.5 mm ²

REDs 25...63 A
A class
30 mA

REDs residual current devices

Type	Voltage (V CA)	Rating (A)	Sensitivity (mA)	Width in 18mm SP ways	Part number
2P	230	25	30	4	18687
			300	4	18688
		40	30	4	18689
			300	4	18690
		63	30	4	18691
			300	4	18692



Operation

Recloser

The built-in automatic recloser automatically recloses the residual current device after checking insulation of the downstream circuit. If the circuit is faulty, then RCD reclosing is prohibited. After a 15-minute time delay, downstream circuit insulation is checked again.

There are then two possibilities:

- The installation is still faulty: in this case a new check will be carried out in 15 minutes
The sequence is locally reported by a 5-second intermittent red LED and remotely reported by the auxiliary contact.
- The fault was temporary and has disappeared: the recloser automatically recloses the RCD

Residual current device

The REDs operates in the residual current device mode without automatic restart when the sliding cover is open, i.e. to the right in the Auto Off position (Fig. 1). The automatic restart mode is activated when the sliding cover is closed, i.e. to the left in the Auto On position (Fig. 2).

Test

- This is only possible in manual mode, i.e. sliding cover open in the Auto Off position
You can then manually test the device by pressing the Test key. The downstream installation is then temporarily broken. You must then manually reclose the REDs by activating the O-I lever to restore the power to the downstream circuit.

Remote indication

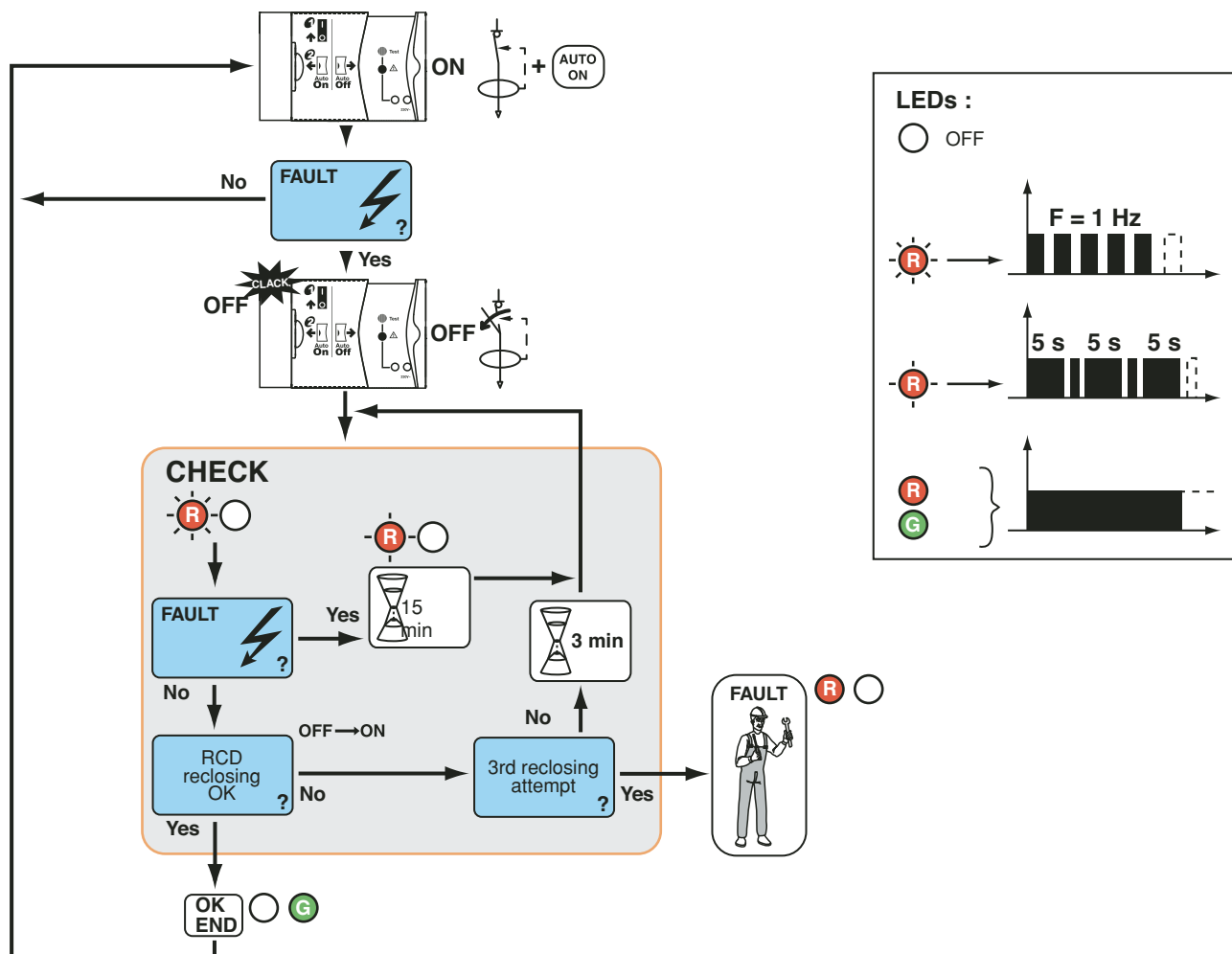
The auxiliary contact is activated in event of blocking on a residual current fault, during checking and time delay phases.
It can be configured according to 3 possibilities:

- Mode 1 : 1 NO contact for an indicator light
- Mode 2 : 1 NC contact for a telephone dialler
- Mode 3 : 1 intermittent contact, F = 1 Hz for a bell

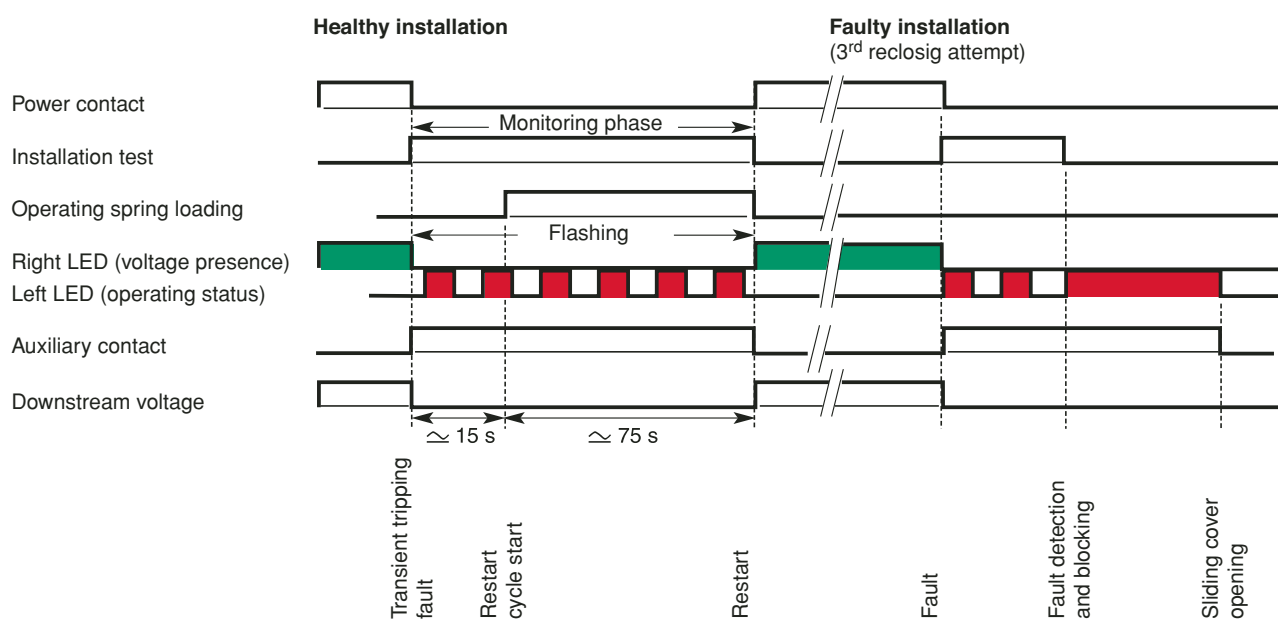
Operation cont..

Recloser

Operating diagram of the recloser



Operating and indicating diagram of a restart cycle



REDtest 25...40 A

A class

30 mA

Description

The REDtest, RESidual current Device recloser, is made up of a residual current device, a recloser and a product automatic test function (Autotest).

A class

The REDtest phase-to-neutral residual current devices provide A class earth leakage protection: tripping due to sinusoidal AC residual currents as well as by continuous pulsed residual currents, whether they are applied quickly or increased slowly.

Technical data

Common

Power supply	From top only
Voltage rating (Ue)	230 V AC, +10 %, -15 %
Frequency rating	50 Hz
Current rating (In)	25, 40, 63 A
Impulse withstand voltage (Uimp)	4 kV
Insulation voltage (Ui)	500 V
8/20 µs wave immunity level	250 A
Tropicalisation	Treatment 2 (relative humidity: 95 % at 55°C)
Operating temperature	-5°C to +40°C
Storage temperature	-20°C to +60°C
Weight (g)	370
Protection class	IP20 at terminals
Connection by tunnel terminal with guard	25 mm² flexible cable or 35 mm² rigid cable
Mounting	On DIN rail

Residual current device

Compliance with standards	IEC 61008, EN 61008
Making and breaking capacity, rated residual current (IΔm=Im)	630 A
Breaking capacity in association with protection device	6000 A (gL)
Tripping time	IΔn : ≤ 300 ms 5IΔn : ≤ 40 ms
Short-circuit current withstand (IΔc = Inc)	See coordination table of circuit breaker or fuse with A class REDtest
Number of cycles (O-C)	Mechanical: 1,000
Fixed sensitivity releases for all ratings	Instantaneous release
Test button min operating voltage	195 V

Autotest and recloser

Autotest

Automatic test	Yes, without power
Max duration of Autotest cycle	< 5 minutes

Reclosure

Max duration of a restart cycle	90 s
Number of restart operations	15/hour
Maximum number of consecutive restart attempts (if no earth fault)	3
Min interval between 2 closings	180 s
Insulation fault presence monitoring	Yes
Restart in event of transient insulation fault	Yes
Stopping restart cycle if insulation fault present	Yes

Indication

REDs status indication	Mechanical: by O-I (open-closed) 2-position lever Electrical: by 2 indicator lights on the front panel: left: red/yellow LED right: green LED Remote: by 1 built-in auxiliary contact
------------------------	---

Connection by tunnel terminal	Configurable: intermittent 1 Hz or 1 V Flexible or rigid cable: max 2.5 mm ²
-------------------------------	--

Type	Voltage (V CA)	Rating (A)	Sensitivity (mA)	Width in 18mm SP ways	Part number
2P	230	25	30	5	18280
		40	30	5	18281

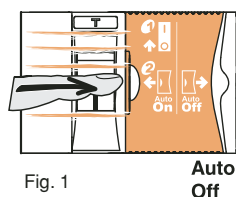
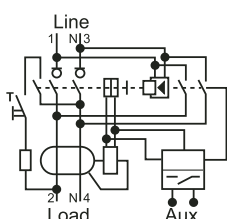


Fig. 1

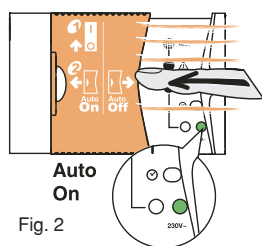


Fig. 2

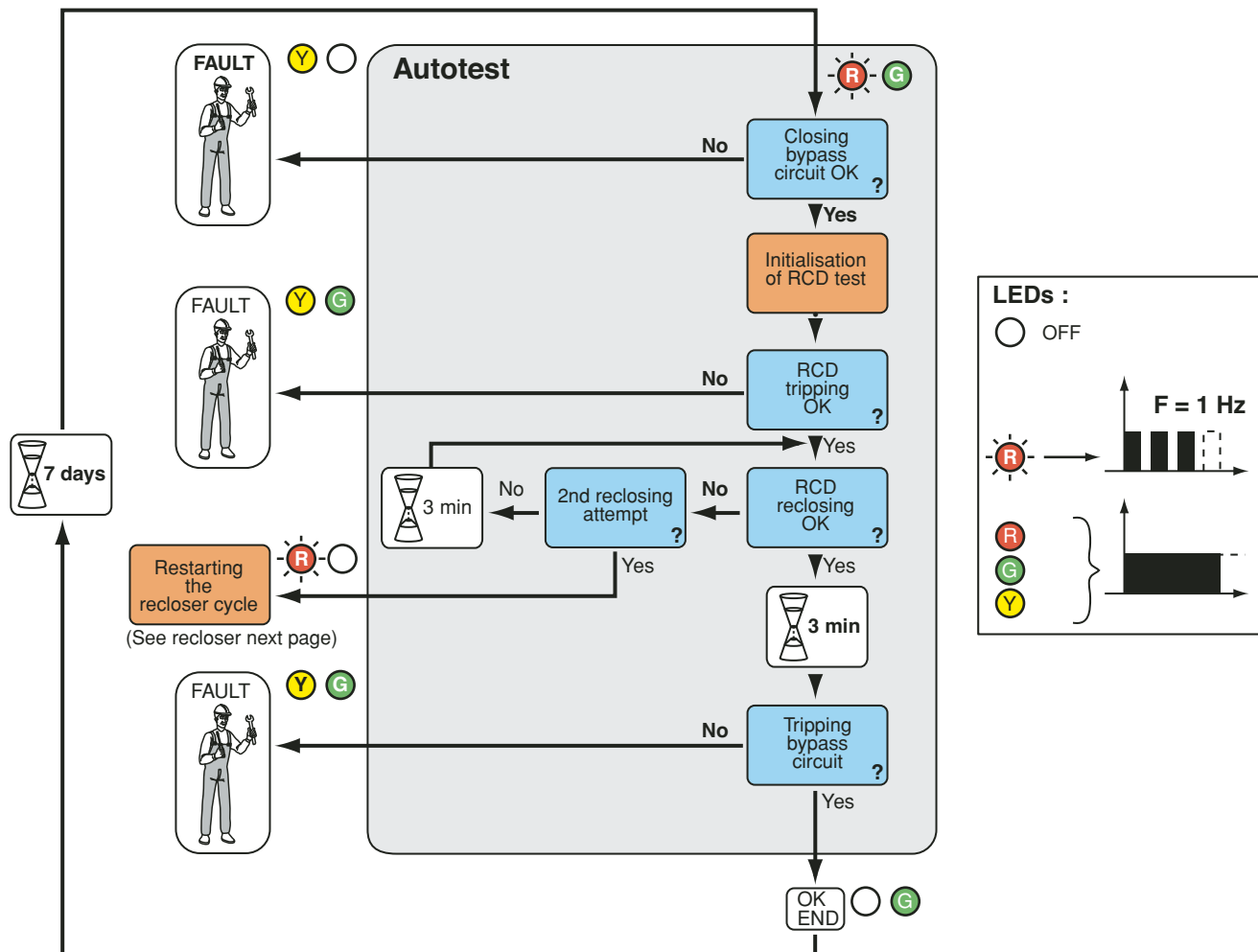
The built-in automatic recloser, automatically recloses the residual current device, after checking insulation of the downstream circuit. If the circuit is faulty, then RCD reclosing is prohibited.

The automatic restart mode and the Autotest are activated, when the sliding cover is closed, i.e. to the left in the Auto On position (Fig. 2).

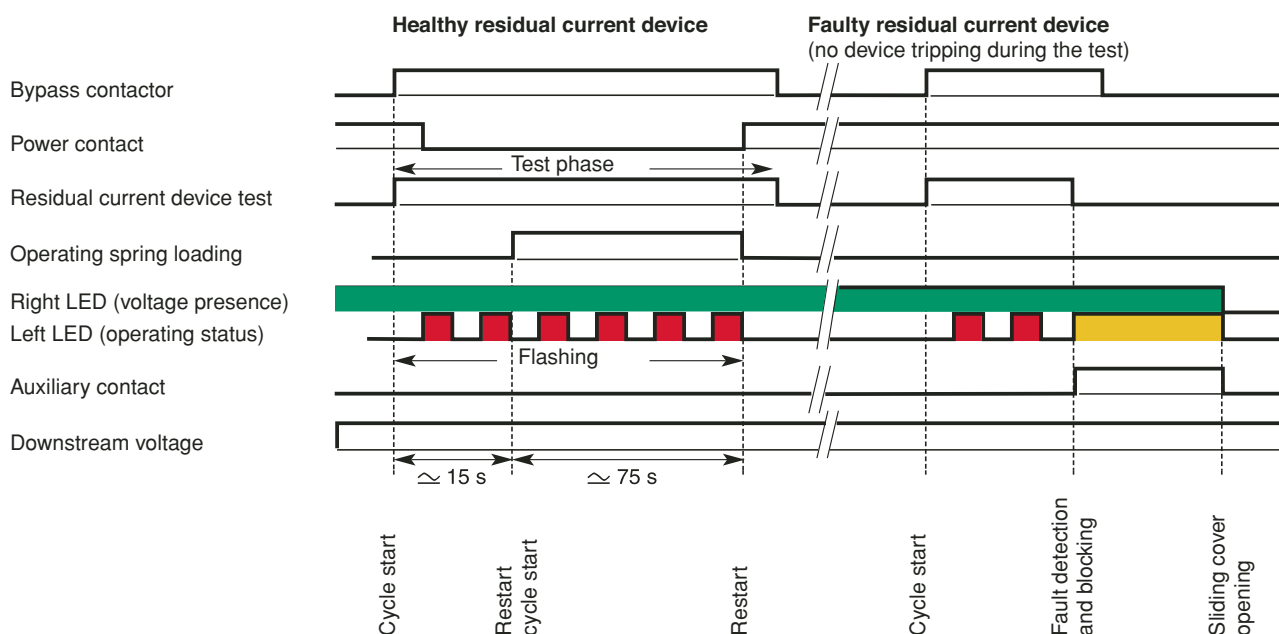
■ Autotest: after checking installation insulation, the REDtest monitors its residual current device, without breaking the downstream power supply (bypass by bypass contact). If the test is satisfactory, the right LED moves to green, while the left LED remains OFF. If the system is faulty, the left LED moves to yellow and the faulty device must be replaced.

- Mode 1: 1 intermittent contact, $F = 1 \text{ Hz}$ for a bell
- Mode 2: 1 NO contact for an indicator light
- Mode 3: not used

Operating diagram for autotest cycle



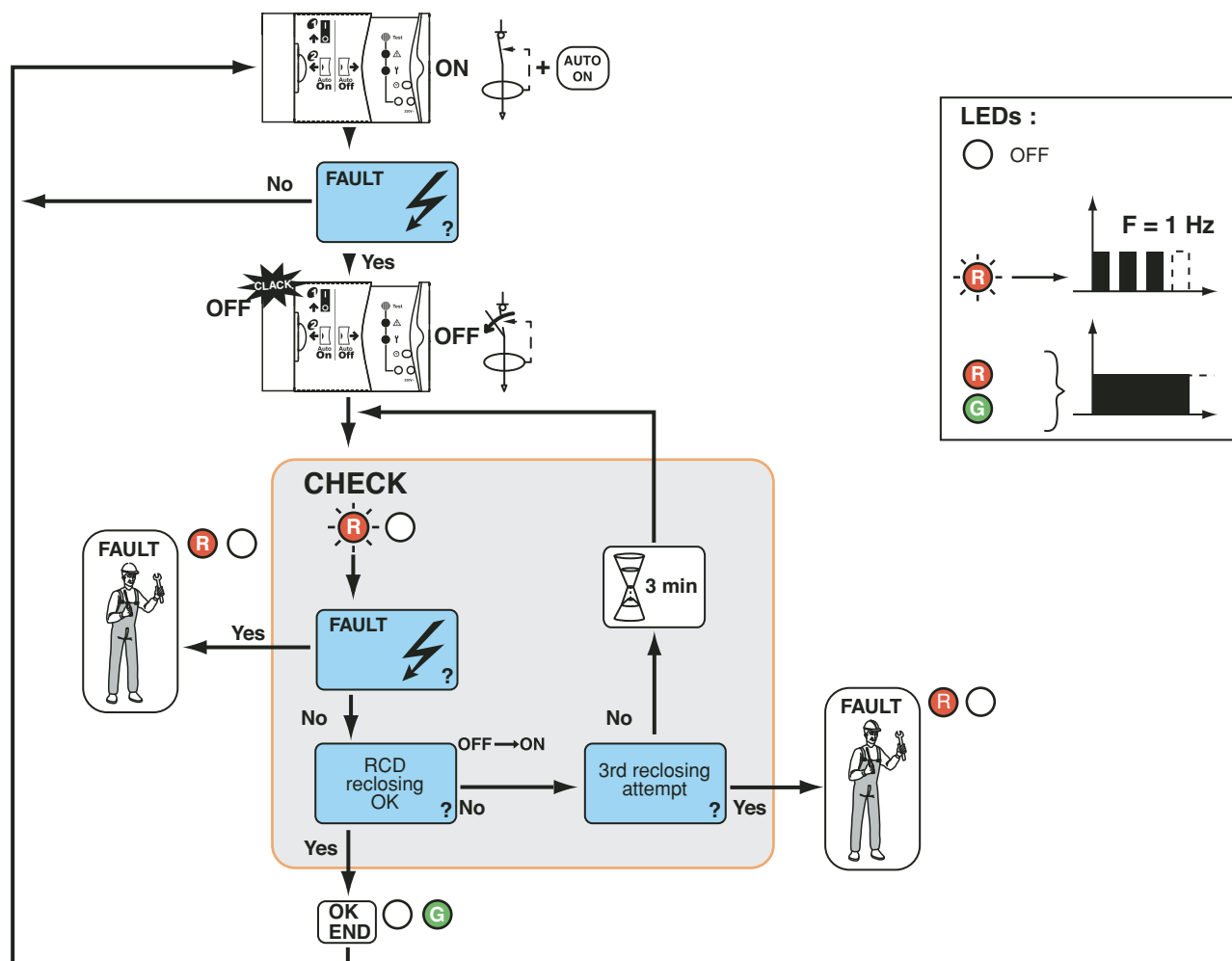
Operating and indicating diagram of an Autotest cycle



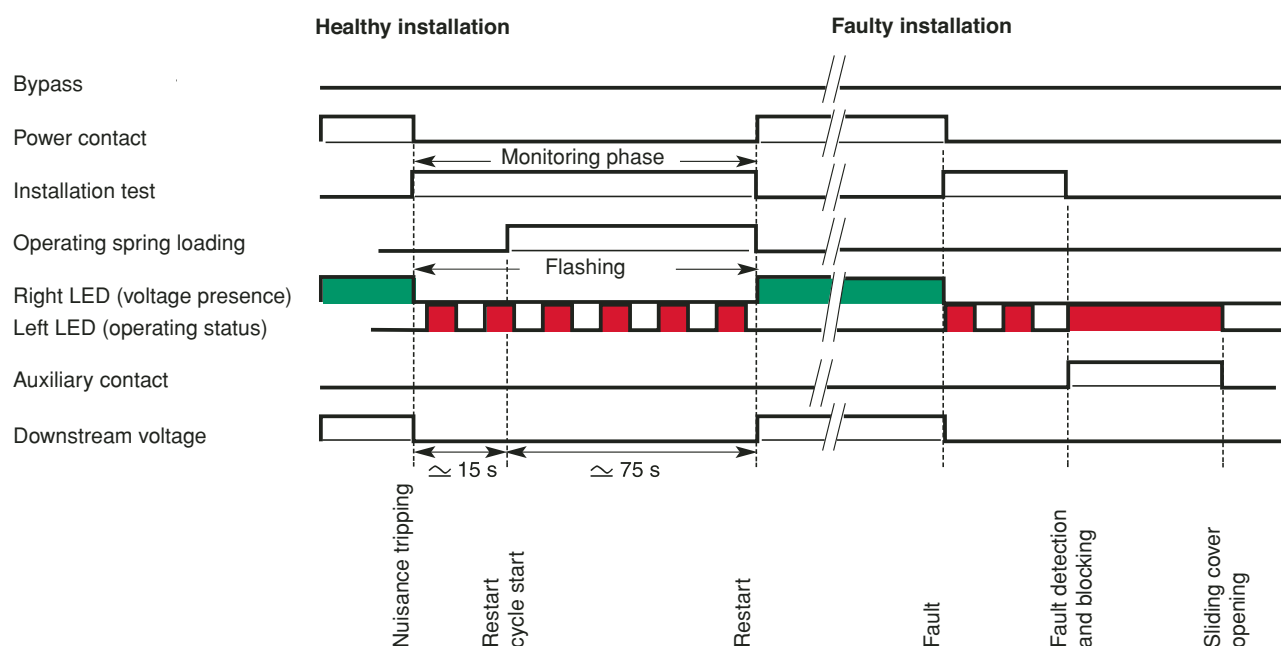
Operation cont..

Recloser

Operating diagram of the recloser



Operating and indicating diagram of a restart cycle



Exposed equipment such as antennas, satellite dishes and cameras must be protected from lightning strikes. Electronic equipment is also at risk, a direct strike to external equipment often results in damage to connected internal equipment but can also cause damage to unrelated equipment by flashovers in shared cable routes or cabinets. In addition to this the British Standards for the protection of a structure from a lightning strike and lightning surge protection devices are changing. Merlin Gerin, has developed a comprehensive range of surge protection equipment. For the protection of electrical installations and equipment from the effects of a direct or indirect lightning strike and from the effects of overvoltages caused by effects internal to the electrical system. The effectiveness of lightning protection is closely related to the installation and choice of the surge arresters.

To ensure the protection of equipment connected to

- Low voltage networks
- Telecommunications networks
- Computer networks
- Certified coordination between the surge arrester and its disconnection circuit breaker
- Protection against the nuisance tripping of "si" and "SiE" earth leakage protection devices during a lightning strike
- Easy to implement and use
- Compatibility with all earthing systems (TT, TNS, TNC, IT)
- Technical and aesthetic consistency
- Compliance with standards
- Availability of products and services

PRF1/PRF 1 Master surge arresters

The Type 1 PRF1 surge arrester protects electrical installations against direct lightning strikes. It is recommended for electrical installations in service sector and industrial buildings, protected by a lightning conductor or by a meshed cage. It is used to conduct a direct lightning current and is propagated through the live conductors and the earth conductor. It must be installed with an upstream fuse type or circuit breaker protection (disconnection) device whose breaking capacity must be at least equal to the maximum prospective shortcircuit current at the installation point.

PRD draw-out surge arresters

PRD removable surge arresters enable the rapid replacement of damaged cartridges. Removable surge arresters with local indication (PRD 65r, PRD 40r) have remote indication as well as the remote transfer of "cartridge to be replaced" information. The U_c voltage depends on:

- The earthing system
- The protection mode (MC/MD).

Each surge arrester in the range has a specific use:

- Incomer protection
- The PRD 65r is recommended for a very high risk level (highly exposed site)
- PRD 40r/PRD 40 are recommended for a high risk level
- The PRD 15 is recommended for a low risk
- Level secondary protection: the PRD 8 ensures secondary protection of loads to be protected and is placed in a cascading configuration with surge arresters at the incomer end

PF Fixed surge arresters

The PF all-contained, multiple pole surge arrester range is especially adapted to TT, TN-S and IT earthing systems. PF surge arresters with local indication (PF65r and PF30r) have remote indication.

Each surge arrester in the range has a specific use:

- Incomer end protection
- The PF65r is recommended for a very high risk level (highly exposed site)
- PF30r/PF30 are recommended for a high risk level
- The PF15 is recommended for a low risk level
- Secondary protection: the PF8 ensures the secondary protection of loads to be protected and is placed in a cascading configuration with surge arresters at the incomer end

PRC/PRI

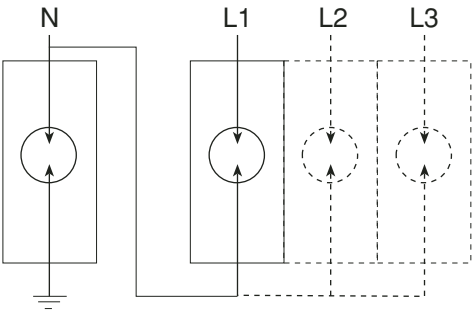
- Protection of telecommunications and computer equipment
- Lightning can also propagate through telecommunications and computer networks
- It can damage all the equipment connected to these networks: telephones, modems, computers, servers, etc
- PRC surge arresters are designed to protect equipment connected to analogue telephone networks: lines, current or transmitter loops
- PRI surge arresters are designed to protect sensitive equipment, on digital telephone and automated networks, and on computer or data networks



The PRF1/PRF1 Master surge arrester range is suitable for use with all earthing systems: TT, TNS, TNC, IT.

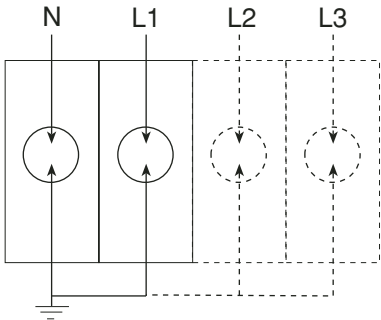
Type 1 surge arresters are tested with a 10/350µs current wave.

Type of surge arrester	Product solution	
	1P+N	3P+N
PRF1		
	16621 + 16623	
	16625	
PRF1 combined		3 x 16621 + 16624
		16628
	16626	
PRF1 Master		16629



Earthing system			Recommended fixing accessory	Disconnection circuit breaker
			Technical data	Part number
2P	3P	4P		
	3 x 16621	TNC	125A D curve	D125 part number 18533
	16627	TNC, IT non-distributed neutral		D125 part number 18533
		TT, TNS		D125 part number 18532
		TT, TNS distributed neutral		D125 part number 18532
		TT, TNS		D125 part number 18534
		TT, TNS distributed neutral		D125 part number 18534
		TT, TNS	Integrated	-
		TT, TNS		-
2 x 16630		TT, TNS, IT ⁽¹⁾ distributed neutral	160A D curve	NS160N TM160D part number 30620
3 x 16630		TNC, IT ⁽¹⁾ non-distributed neutral		NS160N TM160D part number 30630
	4 x 16630	TT, TNS, IT ⁽¹⁾ distributed neutral		NS160N TM160D part number 30650

(1) Without led version



Technical data

Operating frequency	50/60Hz	
Biconnect	By fork type comb busbar	
Degree of protection	Front panel IP40	
	Terminals IP20	
Response time	< 1μs	
End of life indication	Green	Correct operation
PRF1: 16621	Off	At end of life
Combi PRF1: 16626, 16629		
16630 with led		
Breaking capacity	PRF1,	6kA/230V, 3kA/440V
(with protection device)	PRF1 Master	36kA/230V, 8kA/440V
Connection by	PRF1,	Rigid cable 10-25mm ²
tunnel terminal	Combis PRF1	Flexible cable 10-25mm ²
	PRF1 Master	Rigid cable 10-50mm ²
		Flexible cable 10-35mm ²
Operating temperature	-40°C - +85°C	
Standards	IEC 61643 - 1 [T1]	
	EN 61643-11 Type 1	

Name of surge arrester	Number of poles	Width 9mm mods.	I imp (kA) (10/350)		In - kA Nominal discharge current	Up - kV Voltage protection level	Un - V Rated voltage network	Uc - V Maximum continuous operating voltage	Part number
			Surge arrester	Surge arrester+ disconnecter					
PRF1									
PRF1 1P 260V	1P	2	35	25	35	0.9	230	260	16621
PRF1 1P 440V	1P	2	35	25	35	1.5	230	440	16622
PRF1 N/PE 50 1P 260V	Neutral	2	50	50	50	1.5	230	260	16623
PRF1 N/PE 100 1P 260V	Neutral	4	100	100	100	1.5	230	260	16624
PRF1 1P+N 440V	3P+N	4	35/50 N/PE	25/50 N/PE	35/50 N/PE	1.5	230	440	16625
PRF1 3P 440V	3P	6	25	25	35	1.5	230/400	440	16627
PRF1 3P+N 440V	3P+N	10	25/100 N/PE	25/100 N/PE	35/100 N/PE	1.5	230/400	440	16628
PRF1 Master									
PRFI Master 1P 440V	1P	4	50	35	50	1.5	230	440	16630
Combi PRF1									
Combi PRF1 1P+N 260V	1P+N	10	-	25/50 N/PE	35/50 N/PE	0.9	230	260	16626
Combi PRF1 3P+N 260/440V	3P+N	20	-	25/50 N/PE	35/50 N/PE	0.9	230/400	260	16629



Disconnection circuit breaker for PRF1

This circuit breaker is tested in conjunction with the PRF1 surge arrester with a 10/350 waveform. It is used specifically for the protection of surge arresters from the PRF1 range.
The assembly conforms to IEC 61643-1 and EN 61643-11 standards.

Type	Number of poles	Rating (A)	Curve	Width in 9mm mods	Part number
D125	2	125	D	4	18532
	3	125	D	6	18533
	4	125	D	8	18534



D125 circuit breaker auxiliaries

Type	Width in 9mm mods	Part number
ATm	2	18316
Tm C120	7	18312
OF	1	26924
OF+SD/OF	1	26929

4



Disconnection circuit breaker for PRF1 Master

This circuit breaker is tested in conjunction with the PRF1 surge arrester with a 10/350 waveform.
The assembly conforms to IEC 61643-1 and EN 61643-11 standards.

Type	Number of poles	Rating (A)	Curve	Part number
NS160N TM160D	2	160	D	30620
	3	160	D	30630
	4	160	D	30650



Accessories

Type	Number of poles	Part number
2P wiring comb busbars	2	16641
3P wiring comb busbars	3	16642
4P wiring comb busbars	4	16643
6P wiring comb busbars	6	16644
8P wiring comb busbars	8	16645
200mm flexible cable (PRF1 Master)		16646

Function

PRD removable surge arresters enable the rapid replacement of damaged cartridges. Removable surge arresters with indication (PRD 65r, PRD 40r) have visualisation as well as the remote transfer of "cartridge to be replaced" information.

The U_c voltage depends on:

- The earthing system
- The protection mode (MC/MD).

Each surge arrester in the range has a specific use:

- Incomer end protection:

- ☐ The PRD 65r is recommended for a very high risk level (highly exposed site)
- ☐ PRD 40r/PRD 40 are recommended for a high risk level
- ☐ The PRD 15 is recommended for a low risk level

■ Secondary protection: the PRD 8 ensures secondary protection of loads to be protected and is placed in a cascading configuration with surge arresters at the incomer end.

Common technical data

Frequency:	50/60 Hz
Ic:	1P et 3P: < 800 μ A 1P+N and 3P+N: 0 μ A
Operation indication by means of a mechanical indicator:	White: normal operation White/red: cartridge replacement to be scheduled in the near future Red: cartridge must be immediately replaced
Response time:	< 25 ns
Permissible internal short-circuit current for PRD 8 and PRD 15:	1P+N, 3P and 3P+N: 10 kA 1P (230 V): 10 kA 1P (400): 3 kA
Permissible internal short-circuit current for PRD 40 and PRD 65:	1P+N, 3P and 3P+N: 25 kA 1P (230 V): 10 kA 1P (400): 3 kA
Downstream and upstream terminal connection:	> 4 mm ² flexible or rigid cable > 10 mm ² flexible or rigid cable if installation with lightning conductor
Operating temperature:	-25°C to +60°C.
Storage temperature:	-40°C to +70°C.
Protection class:	IP20 at terminals IP40 on front panel
Weight (g):	1P: 90 1P+N: 180 3P: 395 3P+N: 460.
Standards	EN 61643-11 and IEC 61643-1 type 2

Disconnection device

Max. lightning discharge current	Disconnection circuit-breaker	
	Rating	Curve
65 kA	50 A	C
40 kA	40 A	C
20 kA	25 A	C
8 kA	20 A	C

Specific technical data

PRD65r	
Imax (8/20 μs):	65 kA
In (8/20 μs):	20 kA
Operating back-up indicator on front panel	
Remote indication contact:	Electrical data:
	DC: 12 V, > 10 mA
	AC: 250 V, < 1 A
	Connection using 0.5 mm² to 1.5 mm² cable

PRD40r/PRD40	
Imax (8/20 μs):	40 kA
In (8/20 μs):	15 kA
The PRD 40r includes:	Operating back-up indicator on front panel
	Remote indication contact:
	Electrical data:
	DC: 12 V, > 10 mA
	AC: 250 V, < 1 A
	Connection using 0.5 mm² to 1.5 mm² cable

PRD15	
Imax (8/20 μs):	15 kA
In (8/20 μs):	5 kA

PRD8	
Imax (8/20 μs):	8 kA
In (8/20 μs):	2 kA

Spare cartridges

- 40, 15, 8 kA and neutral cartridges
- The C65r and C40r cartridges have operating back-up

Auxiliaries

- Adaptable remote indication modules, EM/RM

Disconnection device

Max. lightning discharge current	Disconnection circuit-breaker	
	Rating	Curve
65 kA	50 A	C
40 kA	40 A	C
20 kA	25 A	C
8 kA	20 A	C

PRD surge arresters

Type 2 or 3 LV withdrawable surge arresters

PRD withdrawable surge arresters allow quick replacement of damaged cartridges. Type 2 surge arresters are tested with a 8/20 μ s current wave.

Type 3 surge arresters are tested with a 12/50 μ s and 8/20 μ s combined wave.



Each surge arrester in the range has a specific application

- Incoming protection (type 2):
- The PRD65(r) is recommended for a very high risk level (strongly exposed site)
 - The PRD40(r) is recommended for a high risk level
 - The PRD20(r) is recommended for a medium risk level
- Secondary protection (type 2 or 3)
- The PRD8(r) ensures secondary protection of loads to be protected and is placed in cascade with the incoming surge arresters. This surge arrester is required close to the loads to be protected when they are at a distance of more than 30 m from the incoming surge arrester.

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

Rated discharge current (Imax)	Type of protection	
	Incoming	Secondary type 2 or 3
65kA		
Very high risk level (strongly exposed site)	PRD65	

40kA		PRD40
High risk level		

20kA		PRD20
Medium risk level		

8kA		PRD8
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Technical Section 7

PRD surge arresters

Type 2 or 3 LV withdrawable surge arresters

Surge arrester name	Number of poles	Width in 9mm modules	I _{max} - kA Maximum currenty discharge	I _n - kA Nominal discharge current	Up - kV Voltage protection level CM	DM
					L/⏏	L/N
PRD65						
PRD65r 1P IT	1P	2	65	20	≤2.0	
PRD65r 1P	1P	2	65	20	≤1.5	
PRD65r 1P+N	1P+N	4	65	20	≤1.5	≤1.5
PRD65r 2P	2P	4	65	20	≤1.5	
PRD65r 3P IT	3P	6	65	20	≤2.0	
PRD65r 3P	3P	6	65	20	≤1.5	
PRD65r 3P+N	3P+N	8	65	20	≤1.5	≤1.5
PRD65r 4P	4P	8	65	20	≤1.5	
PRD40						
PRD40r 1P	1P	2	40	15	≤1.4	
PRD40 1P	1P	2	40	15	≤1.4	
PRD40r 1P+N	1P+N	4	40	15	≤1.4	≤1.4
PRD40 1P+N	1P+N	4	40	15	≤1.4	≤1.4
PRD40r 2P	2P	4	40	15	≤1.4	
PRD40 2P	2P	4	40	15	≤1.4	
PRD40r 3P	3P	6	40	15	≤1.4	
PRD40 3P	3P	6	40	15	≤1.4	
PRD40r 3P IT	3P	6	40	15	≤2	
PRD40r 3P+N	3P+N	8	40	15	≤1.4	≤1.4
PRD40 3P+N	3P+N	8	40	15	≤1.4	≤1.4
PRD40r 4P IT	4P	8	40	15	≤2	
PRD40r 4P	4P	8	40	15	≤1.4	
PRD40 4P	4P	8	40	15	≤1.4	
PRD20						
PRD20 1P	1P	2	20	5	≤1.1	
PRD20r 1P+N	1P+N	4	20	5	≤1.4	≤1.1
PRD20 1P+N	1P+N	4	20	5	≤1.4	≤1.1
PRD20 2P	2P	4	20	5	≤1.1	
PRD20 3P	3P	6	20	5	≤1.1	
PRD20r 3P IT	3P	6	20	5	≤1.6	
PRD20r 3P+N	3P+N	8	20	5	≤1.4	≤1.1
PRD20 3P+N	3P+N	8	20	5	≤1.4	≤1.1
PRD20r 4P IT	4P	8	20	5	≤1.6	
PRD20 4P	4P	8	20	5	≤1.1	
PRD8 ⁽¹⁾					Type 2/Type 3	
PRD8 1P	1P	2	8	2.5	≤1.0 / ≤1.0	
PRD8r 1P+N	1P+N	4	8	2.5	≤1.4 / ≤1.1	≤1.0 / ≤1.1
PRD8 1P+N	1P+N	4	8	2.5	≤1.4 / ≤1.1	≤1.0 / ≤1.1
PRD8 2P	2P	4	8	2.5	≤1.0 / ≤1.0	
PRD8 3P	3P	6	8	2.5	≤1.0 / ≤1.0	
PRD8r 3P IT	3P	6	8	2.5	≤1.4 / ≤1.6	
PRD8r 3P+N	3P+N	8	8	2.5	≤1.4 / ≤1.1	≤1.0 / ≤1.1
PRD8 3P+N	3P+N	8	8	2.5	≤1.4 / ≤1.1	≤1.0 / ≤1.1
PRD8r 4P IT	4P	8	8	2.5	≤1.4 / ≤1.6	
PRD8 4P	4P	8	8	2.5	≤1.0 / ≤1.0	

CM: common mode (phase to earth and neutral to earth)

DM: differential mode (phase to neutral)

(1) U_{oc}: combined waveform voltage: 10kV

PRD surge arresters

Type 2 or 3 LV withdrawable surge arresters

Un - V Rated voltage network	Uc - V Maximum continuous operating voltage		Part number
	CM	DM	
	L/ $\frac{1}{2}$	L/N	
230	440		16555
230	340		16556
230	340	340	16557
230	340		16442
230/400	440		16558
230/400	340		16443
230/400	340	340	16559
230/400	340		16659

230	340		16561
230	340		16566
230	340	340	16562
230	340	340	16567
230	340		16444
230	340		16667
230/400	340		16445
230/400	340		16568
230/400	460		16563
230/400	340	340	16564
230/400	340	340	16569
230/400	460		16597
230/400	340		16664
230/400	340		16669

230	340		16571
230	340	340	16672
230	340	340	16572
230	340		16446
230/400	340		16447
230/400	460		16573
230/400	340	340	16674
230/400	340	340	16574
230/400	460		16599
230/400	340		16673

230	340		16576
230	340	340	16677
230	340	340	16577
230	340		16448
230/400	340		16449
230/400	460		16578
230/400	340	340	16679
230/400	340	340	16579
230/400	460		16678
230/400	340		16680

Technical data

Operating frequency	50/60Hz
Operating voltage	230/400 V AC
Ic permanent	<1mA
operating current	
Response time	<25ns
End of life indication	White In operation
by green/red	Red At end of life
mechanical indicator	
End of life	By contact NO
remote indication	250V/0.25A
Type of connection	Tunnel terminals,
terminals	2.5 to 35mm ²
Operating temperature	-25°C to +60°C
Standards	IEC 61463-1 T2 & EN 61643-11 Type 2

Spare cartridges

Type	Spare cartridges for	Part number
C65-440	PRD65r IT	16580
C65-340	PRD65r	16681
C40-460	PRD40r IT	16684
C40-340	PRD40, PRD40r	16685
C20-460	PRD20r IT	16686
C20-340	PRD20, PRD20r	16687
C8-460	PRD8r IT	16688
C8-340	PRD8, PRD8r	16689
C neutral	All products	16691

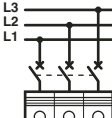
PRD draw-out surge arresters

Type 2

PRD						
Type		Un (V)	Uc (V) MC	Up (kV)	Width in modules of 18mm	Part number
	PRD 65r	230	440	2	1	16555
		230	275	1.5	1	16556
	PRD 40r	230	440	1.8	1	16560
		230	275	1.2	1	16561
	PRD 40	230	440	1.8	1	16565
		230	275	1.2	1	16566
	PRD 15	230	440	1.8	1	16570
		230	275	1.2	1	16571
	PRD 8	230	440	1.8	1	16575
		230	275	1.2	1	16576

PRD							
Type		Un (V)	Uc (V) MC/MD	Up (kV)	Width in modules of 18mm	Part number	
	1P+N	PRD 65r	230	440/275	(1)	2	16557
		PRD 40r	230	440/275	1.2	2	16562
		PRD 40	230	440/275	1.2	2	16567
		PRD 15	230	440/275	1.2	2	16572
		PRD 8	230	440/275	1.2	2	16577

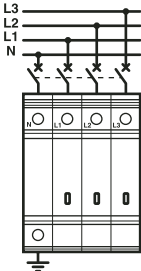
(1) Up: L/⏏=1.5 N/⏏ = 1.2
L/N=1.5

PRD							
Type		Un (V)	Uc (V) MC	Up (kV)	Width in modules of 18mm	Part number	
	3P	PRD 65r	400	440	2	3	16558
	L3 L2 L1	PRD 40r	400	440	1.8	3	16563
		PRD 40	400	440	1.8	3	16568
		PRD 15	400	440	1.8	3	16573
		PRD 8	400	440	1.8	3	16578

PF fixed surge arresters

Type 2

PRD

Type		Un (V)	Uc (V) MC/MD	Up (kV)	Width in modules of 18mm	Part number
3P+N 	PRD 65r	400	440/275	(1)	4	16559
	PRD 40r	400	440/275	1.2	4	16564
	PRD 40	400	440/275	1.2	4	16569
	PRD 15	400	440/275	1.2	4	16574
	PRD 8	400	440/275	1.2	4	16579

(1) Up:

$$L/ \text{⏏} = 1.5$$

$$L/N = 1.5$$

$$N/ \text{⏏} = 1.2$$

Cartridges

Type	Earthing system	Uc (V) MC	Up (kV)	Width in modules of 18mm	Part number
C65r-440	TN-C, IT non-distributed neutral	440	2	1	16580
C65r-275	TT, TN-S, IT distributed neutral	275	1.5	1	16581
C40r-440	TN-C, IT non-distributed neutral	440	1.8	1	16582
C40r-275	TT, TN-S, IT distributed neutral	275	1.2	1	16583
C40-440	TN-C, IT non-distributed neutral	440	1.8	1	16584
C40-275	TT, TN-S, IT distributed neutral	275	1.2	1	16585
C15-440	TN-C, IT non-distributed neutral	440	1.8	1	16586
C15-275	TT, TN-S, IT distributed neutral	275	1.2	1	16587
C8-440	TN-C, IT non-distributed neutral	440	1.8	1	16588
C8-275	TT, TN-S, IT distributed neutral	275	1.2	1	16589
C neutral	TT, TN-S, IT distributed neutral	440	1.2	1	16591

PF fixed surge arresters

Type 2

Function

The PF all-contained, multiple pole surge arrester range is especially adapted to TT, TN-S and IT earthing systems. PF surge arresters with indication (PF65r and PF30r) have visualisation as well as remote transfer of "cartridge to be replaced" information. Each surge arrester in the range has a specific use:

■ **Incomer end protection:**

- ☐ The PF65r is recommended for a very high risk level (highly exposed site)
- ☐ PF30r/PF30 are recommended for a high risk level
- ☐ The PF15 is recommended for a low risk level

■ **Secondary protection:** the PF8 ensures the secondary protection of loads to be protected and is placed in a cascading configuration with surge arresters at the incomer end.

Common technical data

Frequency:	50/60 Hz
Max. leakage current	< 200 µA
Operation indication	Not lit: ok
by means of an orange indicator:	Flashing: surge arrester must be immediately replaced
Disconnection upon thermal overload built-into the surge arrester	
Response time:	< 25 ns
Permissible internal short-circuit current for PF8 and PF15:	1P+N and 3P+N: 10 kA
Permissible internal short-circuit current for PF30 and PF65:	1P+N and 3P+N: 25 kA
Operating temperature:	-25°C to +60°C
Storage temperature:	-40°C to +70°C
Protection class:	IP20 at terminals IP40 on front panel
Weight (g):	1P+N: 475 3P+N: 650
Standards	EN 61643-11 and IEC 61643-1 type 2

Disconnection device

Max. lightning discharge current	Disconnection circuit-breaker	
	Rating	Curve
65 kA	50 A	C
40 kA	40 A	C
20 kA	25 A	C
8 kA	20 A	C

PF fixed surge arresters

Type 2

Specific technical data

PF65r

Common mode protection:	I_{max} (8/20 μ s): 65 kA
	I_n (8/20 μ s): 20 kA
	U_p : 2 kV
Test button for front panel indicator	
Remote indication contact:	Normally closed
	Connection using tunnel terminals 2 x 2.5 mm ²
Connection using tunnel terminals:	Phase and neutral: 25 mm ²
	Earth: 50 mm ²
	Flexible or rigid cable ≥ 10 mm ² if installation using lightning conductor

PF30r and PF30

Common mode protection:	I_{max} (8/20 μ s): 30 kA
	I_n (8/20 μ s): 10 kA
	U_p : 1.8 kV
Test button for front panel indicator	
The PF30r has a built-in remote indication contact:	Normally closed
	Connection using tunnel terminals 2 x 2.5 mm ²
Connection using tunnel terminals:	Phase and neutral: 25 mm ²
	Earth: 50 mm ²
	Flexible or rigid cable > 10 mm ² if installation using lightning conductor

PF15

Common mode protection:	I_{max} (8/20 μ s): 15 kA
	I_n (8/20 μ s): 5 kA
	U_p : 1.8 kV
Differential mode protection:	I_{max} (8/20 μ s): 8 kA
	I_n (8/20 μ s): 2 kA
	U_p : 1 kV
Connection using tunnel terminals:	Phase and neutral: 16 mm ²
	Earth: 25 mm ²
	Flexible or rigid cable > 10 mm ² if installation using lightning conductor

PF8

Common mode protection:	I_{max} (8/20 μ s): 8 kA
	I_n (8/20 μ s): 2 kA
	U_p : 1.5 kV
Differential mode protection:	I_{max} (8/20 μ s): 8 kA
	I_n (8/20 μ s): 2 kA
	U_p : 1 kV
Connection using tunnel terminals:	Phase and neutral: 16 mm ²
	Earth: 25 mm ²
	Flexible or rigid cable > 10 mm ² if installation using lightning conductor

Disconnection device

Max. lightning discharge current	Disconnection circuit-breaker	
	Rating	Curve
65 kA	50 A	C
40 kA	40 A	C
20 kA	25 A	C
8 kA	20 A	C

PF surge arresters

Type 2 or 3 LV withdrawable surge arresters

The PF multi-pole single piece surge arrester range is adapted for earthing systems: TT, TN-S, TN-C.

Type 2 surge arresters are tested with a 8/20 μ s current wave. Type 3 surge arresters are tested with a 12/50 μ s and 8/20 μ s combined wave.

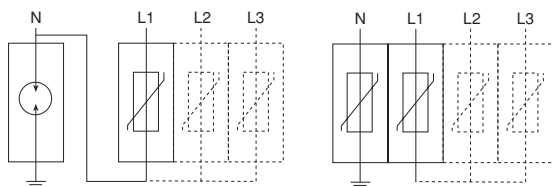


Each surge arrester in the range has a specific application

- Incoming protection (type 2):
- The PF65(r) is recommended for a very high risk level (strongly exposed site)
 - The PF40(r) is recommended for a high risk level
 - The PF20 is recommended for a medium risk level
- Secondary protection (type 2 or 3)
- The PF8 ensures secondary protection of loads to be protected and is placed in cascade with the incoming surge arresters. This surge arrester is required close to the loads to be protected when they are at a distance of more than 30 m from the incoming surge arrester.

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

Rated discharge current (Imax)	Type of protection	
	Incoming	Secondary type 2 or 3
65kA	Very high risk level (strongly exposed site) PF65	
40kA	High risk level PF40	
20kA	Medium risk level PF20	
8kA	PF8	

4

PF surge arresters

Type 2 or 3 LV withdrawable surge arresters

Surge arrester name	Number of poles	Width in 9mm modules	Imax - kA Maximum currenty discharge	In - kA Nominal discharge current	Up - kV Voltage protection level CM	DM
					L/⏏	L/N
PF65						
PF65 1P	1P	2	65	20	≤1.5	
PF65 1P+N	1P+N	4	65	20	≤1.5	≤1.5
PF65 2P	2P	4	65	20	≤1.5	
PF65 3P	3P	8	65	20	≤1.5	
PF65r 3P+N	3P+N	8	65	20	≤1.5	≤1.5
PF65 3P+N	3P+N	8	65	20	≤1.5	≤1.5
PF65r 4P	4P	8	65	20	≤1.5	
PF40						
PF40 1P	1P	2	40	15	≤1.5	
PF40 1P+N	1P+N	4	40	15	≤1.5	≤1.5
PF40 2P	2P	4	40	15	≤1.5	
PF40 3P	3P	8	40	15	≤1.5	
PF40r 3P+N	3P+N	8	40	15	≤1.5	≤1.5
PF40 3P+N	3P+N	8	40	15	≤1.5	≤1.5
PF40r 4P	4P	8	40	15	≤1.5	
PF40 4P	4P	8	40	15	≤1.5	
PF20						
PF20 1P	1P	2	20	5	≤1.1	
PF20 1P+N	1P+N	4	20	5	≤1.5	≤1.1
PF20 2P	2P	4	20	5	≤1.1	
PF20 3P	3P	8	20	5	≤1.1	
PF20 3P+N	3P+N	8	20	5	≤1.5	≤1.1
PF20 4P	4P	8	20	5	≤1.1	
PRD8 ⁽¹⁾					Type 2/Type 3	
PRD8 1P	1P	2	8	2.5	≤1 / ≤1.1	
PRD8 1P+N	1P+N	4	8	2.5	≤1.5 / ≤1.2	≤1.1 / ≤1
PRD8 2P	2P	4	8	2.5	≤1 / ≤1.1	
PRD8 3P	3P	8	8	2.5	≤1 / ≤1.1	
PRD8 3P+N	3P+N	8	8	2.5	≤1.5 / ≤1.2	≤1.1 / ≤1
PRD8 4P	4P	8	8	2.5	≤1 / ≤1.2	

CM: common mode (phase to earth and neutral to earth)

DM: differential mode (phase to neutral)

(1) Uoc: combined waveform voltage: 10kV

PF surge arresters

Type 2 or 3 LV withdrawable surge arresters

Un - V Rated voltage network	Uc - V Maximum continuous operating voltage		Part number
	CM	DM	
	L/ $\perp$	L/N	
230	340		15683
230	340	340	15684
230	340		15584
230/400	340		15581
230/400	340	340	15685
230/400	340	340	15586
230/400	340		15585
230	340		15686
230	340	340	15687
230	340		15587
230/400	340		15582
230/400	340	340	15690
230/400	340	340	15688
230/400	340		15590
230/400	340		15588
230	340		15691
230	340	340	15692
230	340		15592
230/400	340		15597
230/400	340	340	15693
230/400	340		15593
230	340		15694
230	340	340	15695
230	340		15595
230/400	340		15598
230/400	340	340	15696
230/400	340		15596

Technical data

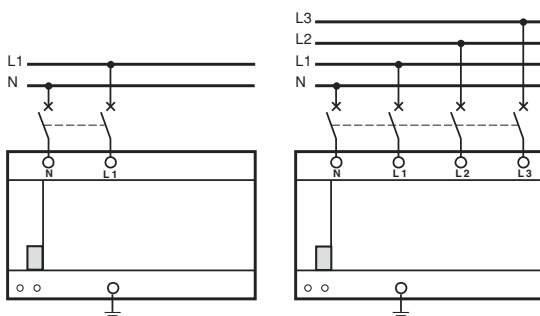
Operating frequency	50/60Hz
Operating voltage	230/400 V AC
Ic permanent	<1mA
operating current	
Response time	<25ns
End of life indication	Green In operation
by green/red	Red At end of life
mechanical indicator	
End of life	By contact NO
remote indication	250V/0.25A
Type of connection	Tunnel terminals,
terminals	2.5 to 35mm ²
Operating temperature	-25°C to +60°C
Standards	IEC 61463-1 T2 & EN 61643-11 Type 2

PF fixed surge arresters

Type 2

PF65r

Type	Un (V)	Uc (V) MC	Up (kV)	Width in modules of 18mm	Part number
1P+N	400	440	20	7	15684
3P+N	400	440	20	7	15685



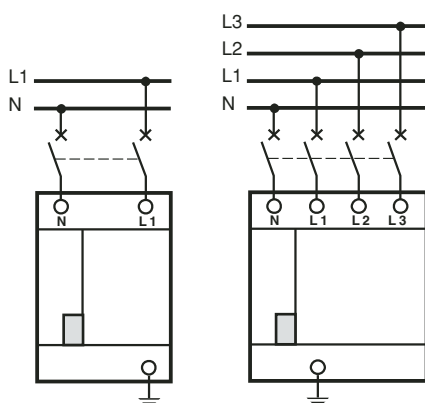
Type	Un (V)	Uc (V) MC	Up (kV)	Width in modules of 18mm	Part number
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PF30r

1P+N	400	440	10	3	15689
3P+N	400	440	10	4	15690

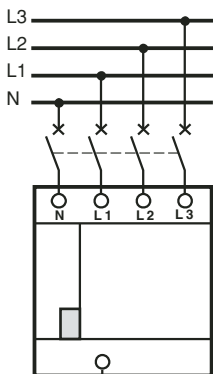
PF30

1P+N	400	440	10	3	15687
3P+N	400	440	10	4	15688



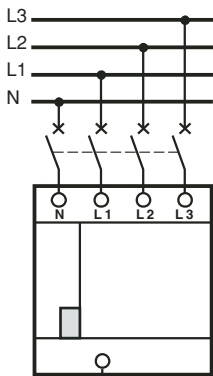
Type

1P+N



Type

1P+N



Function

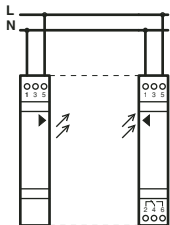
The adaptable EM/RM remote indication modules are made up of two optical blocks, a transmitter and a receiver. They are designed to remotely signal the transfer to back-up or the disconnection of the combined surge arrester.

- The EM transmitter is mounted to the left and the RM receiver to the right side of a PRD, PE, STH, STM or STD surge arrester
- The RM receiver has an output contact for the remote transfer of surge arrester disconnection information
- The module can monitor up to 15 surge arrester modules (18 mm) with a limit of 270 mm

Technical data

Voltage rating:	230 V AC
Frequency:	50/60 Hz
Surge arrester status indication:	By means of green and red indicators on the front panel
Output contact:	NO/NC (closed between terminals 2 and 4 if fault on surge arrester)
	Min. power: 6 V DC and 10 mA
	Max. power: 250 V AC and 5 A
	Insulation between contacts: 1 kV AC
	Insulation between the contacts and the coil: 2.5 kV AC
Flexible or rigid cable connection:	Up to 2.5 mm ²
Operating temperature:	-20°C to +40°C
Storage temperature:	-40°C to +70°C
Weight (g):	20

Type	Width in modules of 18mm	Part number
Remode indication module		
EM/RM	1+1	16592



Miniature circuit breakers 1P + N switched neutral Ratings 4 - 40A, breaking capacity 6kA



Applications

Protection and control of circuits against overloads and short circuits where switching of the neutral is required.

Technical data

Current rating:	1 to 40A at 300C	
Voltage rating:	240Vac	
Breaking capacity:	BS EN 60898,	6kA
Operating cycles:	Mechanical:	20,000
	Electrical:	20A, 20,000
		25A, 15,000
		32A, 10,000
		40A, 6,000
Positive contact indication:	In accordance with BS 7671	
Width:	18mm	
Weight:	120g	
Cable capacity:	16mm ²	
Tightening torque:	2.5Nm	

DPN type B

- For use in applications with general load characteristics
- 2 pole switching in single pole width. Phase only protected
- Tripping characteristics: BS EN 60898 type B magnetic setting between 3 and 5 In

Rating (A)	Part number	Width in 18mm SP ways
4	19249	1
6	19250	1
10	19252	1
16	19254	1
20	19255	1
25	19256	1
32	19257	1
40	19258	1

DPN type C

- For use in applications with moderate inrush currents
- 2 pole switching in single pole width. Phase only protected
- Tripping characteristics: BS EN 60898 type C magnetic setting between 3 and 10 In

Rating (A)	Part number	Width in 18mm SP ways
1	19260	1
2	19261	1
4	19263	1
6	19264	1
10	19266	1
16	19268	1
20	19269	1
25	19270	1
32	19271	1
40	19272	1

Installation

- Panel mounting on symmetrical DIN rail in extension enclosures

Protection against
overloads, short circuits
and earth leakage

DPN RCBO

Combined MCB/RCD

1P + switched neutral



4

Applications

Protection against the effects of earth leakage, overload and short circuit currents.

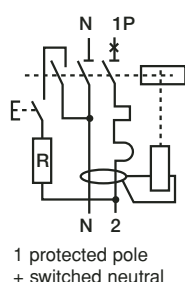
■ 2 pole switching of phase & neutral. Phase protected against overloads and short circuits

■ Commercial, industrial and domestic electrical distribution systems

Note: must not be used as the sole means of providing protection against direct contact (BS7671).

Technical data

Nominal voltage:	110/240V
Breaking capacity:	6000A lcs to BS EN 60898, and earth leakage tested to BS EN 61009
Tripping characteristics:	C curve: the magnetic release operates between 5 and 10 In
Positive contact indication of the phase conductor:	In accordance with the IEE Wiring Regulations BS7671
Sensitivity:	(Non-adjustable) 30mA: Unwanted tripping: The DPN rcbo incorporates a filtering device, preventing the risks of unwanted tripping due to transient voltages (lightning, line disturbances on other equipment and transient currents from high capacitive circuits)
Visual indication of trip due to earth faults	
AC Class	
Cable capacities:	Tunnel terminals up to 16mm ²
Weight:	190g
Installation:	Panel mounting on symmetrical DIN rail in multi-service type boards and standard enclosures
Padlocking in the ON/OFF position by using	Part number MGLA or 26970



Type	Width in 18mm SP ways	Sens. (mA)	Rat. (A)	Part number
N + 1P	2	30	6	19661
			10	19663
			16	19665
			20	19666
			25	19667
			32	19668
			40	19669

Comb busbars

Comb busbars enable several circuit breakers to be supplied with power.

■ The supply to the comb busbar can be connected:

☐ Directly across the circuit breaker terminals by a 16mm² cable
OR

☐ Via 25mm² connectors. Suitable for use with DPN MCBs and DPN vigi or combinations of both

Type	Number of MCBs	Part number
1P+N	13	14880
1P+N (bag of 2)	24	14890
25mm ² insulated connector (bag of 4)		14885

Characteristics

■ Current rating at 400C:

☐ 100A with a central connector

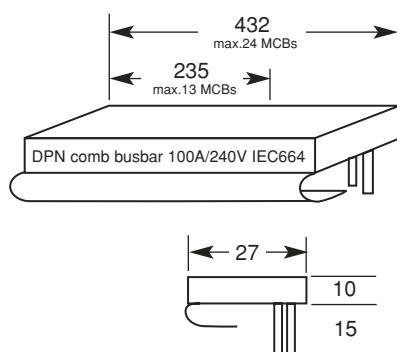
☐ 125A with two supply points

Clip-on markers

■ Markers can be installed:

☐ On the front face (max. 6 markers)

☐ Or above the downstream terminals (max. 4 markers)



C120H circuit breakers B, C and D curves Ratings 10 - 125A, breaking capacity 15kA



Applications

C120 MCBs provide high levels of current capacity, while maintaining a breaking capacity of 15kA. Available with a wide range of add on earth leakage and control accessories with B, C, and D type characteristics and 1 - 4 poles.

- Protection of cables against overloads and short circuits in final distribution
- Manual control and isolation
- Earth leakage protection when combined with a Vigi to BS EN 61009
- Remote tripping, indication, by adding auxiliaries common to the entire C60/C120 range

B curve

- Applications: Protection and control of circuits against overloads and short circuits in applications with general load characteristics
- Tripping characteristics: BS EN 60898 Type B. Magnetic setting between 3 and 5 In

C curve

- Applications: Protection and control of circuits against overloads and short circuits in applications with moderate inrush currents
- Tripping characteristics: BS EN 60898 Type C. Magnetic setting between 5 and 10 In

D curve

- Applications: Protection and control of circuits against overloads and short circuits in applications with high inrush currents
- Tripping characteristics: BS EN 60898 Type D. Magnetic setting between 10 and 14 In

Technical data

Current rating:	10 - 125A
Maximum voltage rating Ue:	440Vac
Insulation voltage Ui:	500V
Impulse withstand voltage Uimp:	6kV
Complies with:	BS EN 60898 and BS EN 60947-2
Service breaking capacity:	Ics = 50% Icu
Positive contact indication	
Fast closing ensures simultaneous closing of poles	
Electrical durability:	≤63A: 10,000 cycles (O-C) 80 - 125A: 5,000 cycles (O-C)
Limitation class:	3
Mechanical durability:	20,000 cycles (O-C)
Connection:	Flexible cables: 1.5 - 35mm² Rigid cables: 1 - 50mm² Tightening torque: 3.5Nm
Terminals ensure:	Degree of protection IP2X Clamping of wide cross section cables Automatic guiding of cable into the correct position
Markers:	4 marker clips next to the upstream terminal Label holder on handle (2, 3 and 4 pole)
Degree of pollution:	3

Breaking capacity:	BS EN 60898	
Type	Voltage (V)	Breaking capacity I _{cn} (A)
1, 2, 3, and 4P	230 - 400	15000

Breaking capacity:		BS EN 60947-2
Type	Voltage (V)	Breaking capacity I _{cu} (A)
1P	130	30000
	230 - 240	15000
	400 - 415	4500 ⁽¹⁾
2, 3 and 4P	230 - 240	30000
	400 - 415	15000
	440	10000

Weight:

Pole	Grams
1	205
2	410
3	615
4	820

C120H circuit breakers B, C and D curves Ratings 10 - 125A, breaking capacity 15kA

Ratings (A)	1P	Width in 18mm SP ways	2P	Width in 18mm SP ways	3P	Width in 18mm SP ways	4P	Width in 18mm SP ways
C120H Type B curve miniature circuit breaker								
10	18394	1.5	18405	3	18416	4.5	18427	6
16	18395	1.5	18406	3	18417	4.5	18428	6
20	18396	1.5	18407	3	18418	4.5	18429	6
25	18397	1.5	18408	3	18419	4.5	18430	6
32	18398	1.5	18409	3	18420	4.5	18431	6
40	18399	1.5	18410	3	18421	4.5	18432	6
50	18400	1.5	18411	3	18422	4.5	18433	6
63	18401	1.5	18412	3	18423	4.5	18434	6
80	18402	1.5	18413	3	18424	4.5	18435	6
100	18403	1.5	18414	3	18425	4.5	18436	6
125	18404	1.5	18415	3	18426	4.5	18437	6

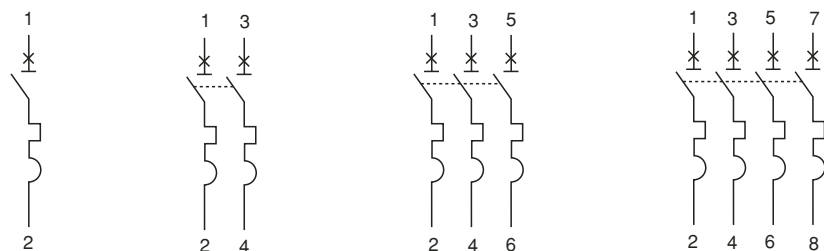
Note: These products are not suitable for use with Isobar 4 connection system.

C120H Type C curve miniature circuit breaker								
10	18438	1.5	18449	3	18460	4.5	18471	6
16	18439	1.5	18450	3	18461	4.5	18472	6
20	18440	1.5	18451	3	18462	4.5	18473	6
25	18441	1.5	18452	3	18463	4.5	18474	6
32	18442	1.5	18453	3	18464	4.5	18475	6
40	18443	1.5	18454	3	18465	4.5	18476	6
50	18444	1.5	18455	3	18466	4.5	18477	6
63	18445	1.5	18456	3	18467	4.5	18478	6
80	18446	1.5	18457	3	18468	4.5	18479	6
100	18447	1.5	18458	3	18469	4.5	18480	6
125	18448	1.5	18459	3	18470	4.5	18481	6

Note: These products are not suitable for use with Isobar 4 connection system.

C120H Type D curve miniature circuit breaker								
10	18482	1.5	18493	3	18504	4.5	18515	6
16	18483	1.5	18494	3	18505	4.5	18516	6
20	18484	1.5	18495	3	18506	4.5	18517	6
25	18485	1.5	18496	3	18507	4.5	18518	6
32	18486	1.5	18497	3	18508	4.5	18519	6
40	18487	1.5	18498	3	18509	4.5	18520	6
50	18488	1.5	18499	3	18510	4.5	18521	6
63	18489	1.5	18500	3	18511	4.5	18522	6
80	18490	1.5	18501	3	18512	4.5	18523	6
100	18491	1.5	18502	3	18513	4.5	18524	6
125	18492	1.5	18503	3	18514	4.5	18525	6

Note: These products are not suitable for use with Isobar 4 connection system.



Vigi C120 modules

Add on residual current devices for use with C120 MCBs Standard and si type

Common function

- The protection of electrical installations against earth faults
- The protection of persons against indirect contact: medium sensitivities (300, 500, 1000mA)
- Supplementary protection of persons against accidental direct contact: high sensitivity (30mA)

The C120 residual current device complies with BS EN 61009. It is equipped with a locating device that ensures the correct rating and number of poles.

The technical data of C120 circuit breakers when combined with Vigi modules remain unchanged and the circuit breakers remain compatible with indication or control auxiliaries.

Trip sensitivity

- AC class - Tripped by sinusoidal AC currents whether they are quickly applied or rise slowly
- A class - A  class: ensures tripping with a DC component current. Tripped by sinusoidal AC currents as well as by pulsed DC currents whether they are quickly applied or rise slowly

Trip type

Instantaneous

Provides a trip upon reaching threshold (no intentional time delay).

Selective

Provides discrimination with down stream device by introducing an intentional time delay. Down stream device must be instantaneous with a sensitivity of 1/2 the upstream device.

si

Provides continuity of supply on circuits with a disturbed supply network. Used where there is a high risk of nuisance tripping due to:

- Lightning strikes
- IT earthing systems
- Switched electronic ballasts

Desensitised by:

- Harmonics or high frequencies
- DC components

Combination of earth leakage modules with circuit breakers



C120 circuit breaker



Vigi C120 module



C120 residual current device

Vigi C120 modules

Add on residual current devices for use with C120 MCBs Standard and si type

Technical data

Common

The Vigi C120 module incorporates the residual current relay and toroid in a case. Its earth leakage module is electro-mechanical. It functions without an auxiliary power supply source and thus has a very wide operating range

Protected against nuisance tripping due to transient overvoltages (lightning strike, switchgear switching on the network, etc.)

Breaking and making capacity upon short circuit is equal to the breaking capacity of the circuit breaker

Instantaneous or Selective  trip units

Reinforced electromagnetic compatibility

Standard type

AC class:	Standard, 50 - 60Hz		
8/20ms impulse withstand:	Instantaneous: 250A peak		
	Selective: 3kA peak		
Impulse withstand:	Instantaneous: 3kA peak		
	Selective: 5kA peak		
Remote tripping:	Possible using an MX or MN release on circuit breaker		
Connection:	Identical to C120 circuit breakers:		
	Flexible cables: 1.5 - 35mm ²		
	Rigid cables: 1 - 50mm ²²		
	Tightening torque: 3.5Nm		
Fault indication by means of a red strip on the resetting handle			
Resetting the Vigi module, at user's convenience:	Either using the circuit breaker handle		
	Independently of the circuit breaker		
Test button	On front face for local operation check		
Width of C120 residual current device + Vigi module: (in number of 18mm SP ways)			
	2P	3P	4P
	6.5 (3+3.5)	9.5 (4.5+5)	11 (6+5)
Weight (g):	325	500	580

Vigi C120 modules Add on residual current devices for use with C120 MCBs AC, A, si class, BS EN 61009



Class AC, C120 Vigi module. 230 - 415V

Sens (mA)	2P	Width in 18mm SP ways	3P	Width in 18mm SP ways	4P	Width in 18mm SP ways
30	18563	3.5	18566	5	18569	5
300	18564	3.5	18567	5	18570	5
300	18544	3.5	18546	5	18548	5
500	18565	3.5	18568	5	18571	5
1000	18545	3.5	18547	5	18549	5



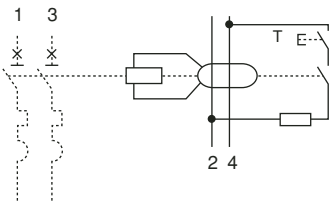
Class A, C120 Vigi module. 230 - 415V

Sens (mA)	2P	Width in 18mm SP ways	3P	Width in 18mm SP ways	4P	Width in 18mm SP ways
30	18572	3.5	18575	5	18578	5
300	18573	3.5	18576	5	18579	5
300	18581	3.5	18584	5	18587	5
500	18574	3.5	18577	5	18580	5
500	18582	3.5	18585	5	18588	5
1000	18583	3.5	18586	5	18589	5

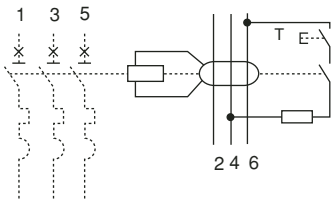


Class si, C120 Vigi module. 230 - 415V

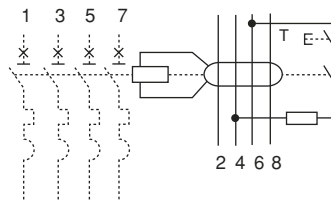
Sens (mA)	2P	Width in 18mm SP ways	3P	Width in 18mm SP ways	4P	Width in 18mm SP ways
30	18591	3.5	18594	5	18597	5
300	18592	3.5	18595	5	18598	5
300	18556	3.5	18558	5	18560	5
500	18593	3.5	18596	5	18599	5
1000	18557	3.5	18559	5	18561	5



2 pole devices



3 pole devices



4 pole devices

Applications

■ The TM unit provides remote control of C60 and C120 circuit breakers via an electrical signal. For security or energy management, TM can be used to control lighting motors or heating.

For the remote control and status indication of DPN, C60 or C120 MCBs.

■ They are mounted to the left of the circuit breaker within a maximum width of 54mm

■ Fixed using clips (no tools) onto the left side of the circuit breaker

■ Compatible with Vigi modules (fitted to the right side)

■ A maximum of 3 indication auxiliaries on the same circuit breaker

■ A maximum of 2 changeover auxiliaries (OF+SD/OF) on the same circuit breaker

■ A maximum of 2 tripping auxiliaries (MX + OF or MN) on the same circuit breaker

■ A maximum of 1 tripping auxiliary (MN s or MNx or MSU) on the same circuit breaker



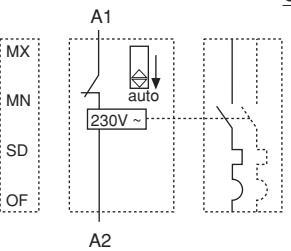
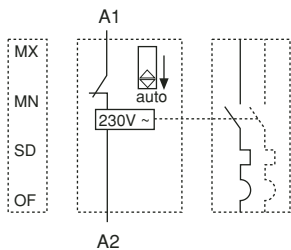
Tm modules allow

- Remote control of C60/C120 circuit breakers (with or without a Vigi module) via a latched order
- Circuit breaker resetting after tripping, while respecting safety rules and regulations in force
- A disconnection selector switch placed on the front panel is used to:
 - Disconnect the remote control
 - Lock the remote controlled circuit breaker in the "open" position (7 mm Ø padlock not supplied)
- A mechanical indicator shows the "open" or "closed" status of the Tm remote control
- Reclosing after a fault:
 - Must be carried out in manual mode, locally after search and clearance of the fault
 - To enable manual and local resetting, an SD auxiliary switch (part number 26927), cabled in series in the control line of the Tm to module, prevent automatic remote reclosing
 - Remote reclosing is possible provided regulations are complied with: resetting takes place by opening the control circuit for more than 1.5s

Technical data

Control voltage (Uc):	230Vac (-15% +10%)
Frequency:	50 - 60Hz
Consumption:	Inrush: -Tm C60:28VA, -Tm C120:35VA Holding: 2VA
Insensitive to brownouts:	0.45s
Undervoltage behaviour:	>0.45s, mechanical opening of poles Reclosing 2s after power is restored
Number of cycles (O-C) at 40°C:	Tm +C60:20 000 Tm +C120 (63A):10 000 Tm +C120 (80 - 125A): 5 000
Opening time by Tm:	0.5s
Closing time by Tm:	2s
Connection	Using tunnel terminals: 1 x 6mm ² cable 2 x 1.5mm ² or 2.5mm ² cables
Weight	1 - 2P: 300g 3 - 4P: 310g

Possible combinations	Voltage (V)	Part number	Width in 18mm SP ways
C60 1 - 2P	230	18310	3.5
C120 1 - 2P	230	18312	3.5



C60 3 - 4P	230	18311	3.5
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MX + OF shunt trip release

Control voltage (V AC)	Control voltage (V DC)	Width in 18mm SP ways	Part number
100-415	100-130	1	26946
48	48	1	26947
12/24	12/24	1	26948

Disconnects the MCB when a voltage is applied.
Indication of tripping and fitted with changeover contact for indication and self breaks control circuit allowing it to remain energised.

MX shunt trip release

100-415	100-130	1	26476
48	48	1	26477
12/24	12/24	1	26478

MSU voltage threshold release release

Tripping voltage (V AC)	Width in 18mm SP ways	Part number
275	1	26979
255	1	26479

MN undervoltage release

	Control voltage (V AC)	Control voltage (V DC)	Width in 18mm SP ways	Part number
Selective S	220-240		1	26963
Instantaneous	220-240		1	26960
	48	48	1	26961
	115 (400Hz)		1	26959

Disconnects the MCB when a voltage is removed.

MNx release for BP with opening

Ph + N	230	1	26969
	230 (C60)	1	26977
* For use with C60 only. Disconnects the MCB when the normally closed push button contact is opened. Does not trip in the event of power supply failure.			
Ph Ph	400	1	26971
	400 (C60)	1	26991



4



Padlocking facility

Breaker	Quantity	Part number
C60	Pack of 5	MGLA
C120	Pack of 2	27145



Screw shield

Breaker	Quantity	Part number
C60	Sealable and dividable 2 x strips of 4	26981
C60 Vigi	Sealable 1P shields 20 off	26982
C120	Sealable and dividable 2 strips of 4	18527

4



Terminal shield

Breaker	Pole	Part number
C60 pair	1	26975
	2	26976
	3	26975
	4	26976 + 26978
C120	1	18526
	2	2 x 18526
	3	3 x 18526
	4	4 x 18526



Insulated sub distribution terminal For 3 x cables up to 16mm² each

Breaker	Quantity	Part number
C60>25A	Pack of 4	19091

For 3 x cables up to 16mm² each.



Aluminium cable terminal

Breaker	Quantity	Part number
C60/C120	Pack of 1	27060

For cables 16 - 50mm².



* Not for use in Isobar 4 distribution boards

4

Replacement cover for vigibloc

Breaker	Pole	Part number
C60	2	26483
Pack of 5	3	26484
replacements	4	26485

Label holder

Breaker	Quantity	Part number
C120	Pack of 10 replacements	27150

Standard	Number of poles	Rating (A)	Type	Curves	Magnetic threshold In	Breaking capacity at 415V (kA)			
						16	25	36	50
BS EN 60947-2	1, 2	10 - 80	NG125N	C	8				
	3, 4	10 - 125	NG125N	C	8				
	3, 4	80 - 125	NG125N	B	4				
	3, 4	80 - 125	NG125N	D	12				
	1, 2, 3, 4	10 - 80	NG125H	C	8				
	2, 3	1.6 - 80	NG125LMA	MA	12				

Standard	Number of poles	Rating	Type
BS EN 60947-3	3, 4	80, 100, 125	NG125NA

Standard	Number of poles	Rating In at 40°C (A)	Vigi type	Sensitivity (mA)	Instantaneous or selective	Instantaneous or selective or delayed 150ms
				Instantaneous	Selective	
BS EN 60947-2	2, 3, 4	63	Vigi NG125	30 300	 300 1000	300-500-1000-3000 with fault threshold indication (1)
	3	125	Vigi NG125	30		300-500-1000-3000 with fault threshold indication
	4	125	Vigi NG125	30 300		300-500-1000-3000 with fault threshold indication

Note: This product is not suitable for use with Isobar 4 connection systems.

Choice of circuit breakers											
Type			NG125N			NG125H		NG125LMA			
Impulse voltage U _{imp} (kV)			8			8		8			
Insulation voltage U _i (V)			690			690		690			
Maximum voltage rating U _e (V)			500			500		500			
Number of poles			1	2, 3, 4		1	2, 3, 4		–	2, 3	
Breaking capacity (kA) IEC 947.2	I _{cu}	AC	110 - 130V	50	–		70	–		–	–
			220 - 240V	25	50		36	70		–	100
			380 - 415V	6	25		9	36		–	50
			440V	–	20			30		–	40
			500V	–	10		–	12		–	15
	DC	60V	25	–		36	–		–	–	
		125V	–	25 (2P)		–	36 (2P)		–	–	
		250V	–	25 (4P)		–	36 (4P)		–	–	
		500V	–	–		–	–		–	–	
		I _{cs}	AC	75% I _{cu}		75% I _{cu}	75% I _{cu}				
	DC		100% I _{cu}		100% I _{cu}	100% I _{cu}					
Tripping curves /ratings (A)	B curve	40°C			80 - 125		–				
	C curve	40°C	10 - 80	10 - 125		10 - 80	10 - 80				
	D curve	40°C			80 - 125		–				
	MA curve	40°C	–			–			1.6 - 80		
Fast closing			■			■		■			
Positive break indication			■			■		■			
Auxiliaries			■			■		■			
Degree of pollution 3			■			■		■			



NG125N circuit breakers
B, C and D curves
BS EN 60947-2: 25kA

Applications

This circuit breaker is specially designed for functions requiring a high breaking capacity (up to 25kA): modular enclosure incomer, main incomer in sub-distribution switchboards, outgoer, protection of loads directly supplied by a power switchboard.

Technical data

Rating:	10 - 125A
Reference temperature:	40°C
Uimp:	8kV
Ui:	690V
Maximum voltage rating:	500Vac

Breaking capacity:	as in BS EN 60947-2:	
Type	Voltage (Vac)	Breaking capacity (A)
1P	220 - 240	25000
1P	380 - 415	6000 (1)
2, 3, 4P	380 - 415	25000

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

Isolation with positive contact indication	
3 position toggle: open-tripped-closed	
Built-in padlocking facility on 3P and 4P	
Fault display on front face by:	Fault indicator Position of toggle: tripped
Test button to check proper operation of the tripping mechanism	
Fast closing	
Electrical durability:	10,000 cycles at In
Tropicalisation as in IEC 68.1:	Treatment 2 (relative humidity: 95% at 55°C)
Weight (g):	Type 1P 2P 3P 4P 240 480 720 960

Compatible with loose enclosures, refer to Section 6	
Degree of protection:	IP20B (IP40D for the part outside the enclosure)
Connection:	≤ 63A ratings: tunnel terminals for 1.5 - 50mm² copper cables 80 - 125A ratings: tunnel terminals for 16 - 70mm² copper cables Aluminium cables, copper cables with lug or busbar (see connection accessories) On 3P and 4P: upstream voltage connection on each pole, by 6.35mm Fast on lugs, for auxiliary circuit supply
B curve	The magnetic trip units operate at 4 In ± 20%
C curve	The magnetic trip units operate at 8 In ± 20%
D curve	The magnetic trip units operate at 12 In ± 20%

NG125N circuit breakers

B, C and D curves BS EN 60947-2: 25kA Ratings 10 - 125A



B curve NG125N

Rating (A)	3P	Width in 18mm SP ways	4P	Width in 18mm SP ways
80	18663	4.5	18666	6
100	18664	4.5	18667	6
125	18665	4.5	18668	6



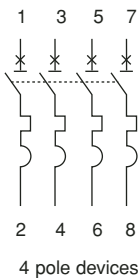
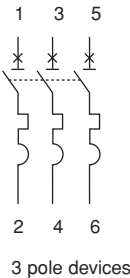
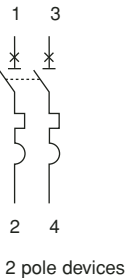
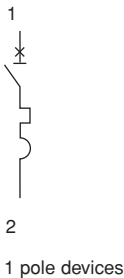
C curve NG125N

Rating (A)	1P	Width in 18mm SP ways	2P	Width in 18mm SP ways	3P	Width in 18mm SP ways	4P	Width in 18mm SP ways
10	18610	1.5	18621	3	18632	4.5	18649	6
16	18611	1.5	18622	3	18633	4.5	18650	6
20	18612	1.5	18623	3	18634	4.5	18651	6
25	18613	1.5	18624	3	18635	4.5	18652	6
32	18614	1.5	18625	3	18636	4.5	18653	6
40	18615	1.5	18626	3	18637	4.5	18654	6
50	18616	1.5	18627	3	18638	4.5	18655	6
63	18617	1.5	18628	3	18639	4.5	18656	6
80	18618	1.5	18629	3	18640	4.5	18658	6
100					18642	4.5	18660	6
125					18644	4.5	18662	6



D curve NG125N

Rating (A)	3P	Width in 18mm SP ways	4P	Width in 18mm SP ways
80	18669	4.5	18672	6
100	18670	4.5	18673	6
125	18671	4.5	18674	6



NG125H circuit breakers

C curve BS EN 60947-2: 36kA

Ratings 10 - 125A

Applications

This circuit breaker is specially designed for functions requiring a high breaking capacity (up to 36kA): main incomer in sub-distribution switchboards; outgoer, protection of loads directly supplied by a power switchboard.

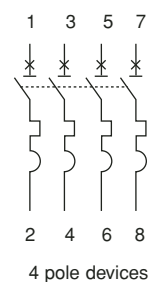
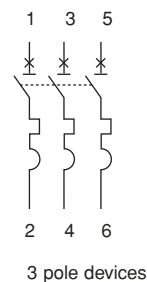
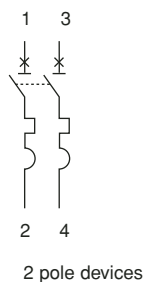
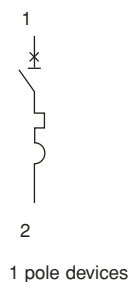
Common technical data

Rating:	10 - 80A				
Reference temperature:	40°C				
Uimp:	8kV				
Ui:	690V				
Maximum voltage rating:	500Vac				
Breaking capacity:	as in BS EN 60947-2:				
Type	Voltage (Vac)	Breaking capacity (A)			
1P	220 - 240	25000			
1P	380 - 415	6000 (1)			
2, 3, 4P	380 - 415	25000			
(1) 1 pole breaking capacity in IT isolated neutral systems (double fault).					
Isolation with positive break indication					
3 position toggle: open-tripped-closed					
Built-in padlocking facility on 3P and 4P					
Fault display on front face by: Fault indicator					
Position of toggle: tripped					
Test button to check proper operation of the tripping mechanism					
Fast closing					
Electrical durability:	10,000 cycles at In				
Tropicalisation as in IEC 68.1:	Treatment 2 (relative humidity: 95% at 55°C)				
Weight (g):	Type	1P	2P	3P	4P
	240	480	720	960	
Compatible with loose enclosures, refer to Section 6					
Degree of protection:	IP20B (IP40D for the part outside the enclosure)				
Connection:	≤ 63A ratings: tunnel terminals for 1.5 - 50mm² copper cables				
	80A rating: tunnel terminals for 16 - 70mm² copper cables				
	Connection of aluminium cables, copper cables with lug or busbar for 3P and 4P (see connection accessories)				
	Upstream voltage connection on each pole, by 6.35mm				
	Fast on lugs, for auxiliary circuit supply				
C curve	The magnetic trip units operate at 8 In ± 20%				



C curve NG125H

Rating (A)	1P	Width in 18mm SP ways	2P	Width in 18mm SP ways	3P	Width in 18mm SP ways	4P	Width in 18mm SP ways
10	18705	1.5	18714	3	18723	4.5	18732	6
16	18706	1.5	18715	3	18724	4.5	18733	6
20	18707	1.5	18716	3	18725	4.5	18734	6
25	18708	1.5	18717	3	18726	4.5	18735	6
32	18709	1.5	18718	3	18727	4.5	18736	6
40	18710	1.5	18719	3	18728	4.5	18737	6
50	18711	1.5	18720	3	18729	4.5	18738	6
63	18712	1.5	18721	3	18730	4.5	18739	6
80	18713	1.5	18722	3	18731	4.5	18740	6

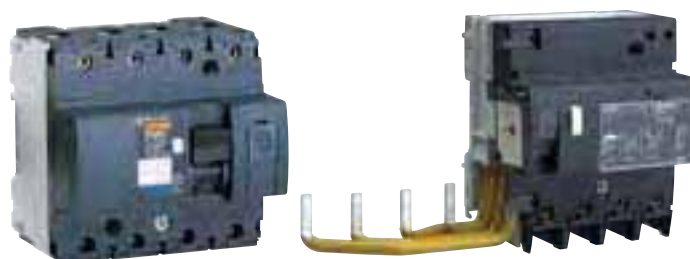


Note: This product is not suitable for use with Isobar 4 connection systems.

Vigi module A class		10 - 63A		80 - 125A	
		Pole	Page	Pole	Page
Adjustable	300, 500, 1000mA			3P, 4P	4/70
	instantaneous, selective s				
	300, 500, 1000, 3000mA	3P, 4P	4/70	3P, 4P	4/70
	instantaneous, selective, delayed				
Non adjustable	30mA	2P, 3P, 4P	4/67	3P, 4P	4/67
	300mA	2P, 3P, 4P	4/70	4P	4/70
	300mA selective s	2P, 3P, 4P	4/70		
	1000mA selective s	2P, 3P, 4P	4/70		

Vigi module AC class		10 - 63A	
		Pole	Page
Non adjustable	30mA	2P, 3P, 4P	4/66
	300mA	2P, 3P, 4P	4/69

Vigi module si class		80 - 125A	
		Pole	Page
Adjustable	300, 500, 1000, 3000mA instantaneous, selective, delayed	3P, 4P	4/70
Non adjustable	30mA	3P, 4P	4/67



NG125 high sensitivity Vigi

30mA instantaneous, BS EN 61008

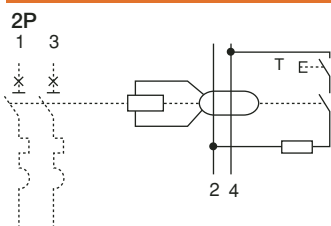
AC class

Applications

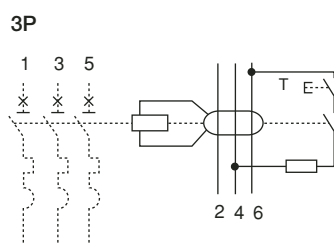
Combined with an NG125 MCB, vigi units provide protection against indirect and supplementary protection against contact with live parts.

Technical data

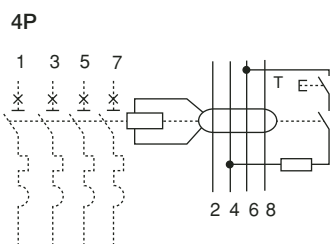
Class AC:	Sensitive to sinusoidal AC currents whether instantaneous or slowly rising fault		
Class A:	Sensitive to DC component sinusoidal AC or pulsed DC current whether instantaneous or slowly rising fault		
Incorporates in a single case:	The residual current relay The toroid		
Connection to the circuit breaker by rigid links (compact size) insulated by a shield (supplied) (degree of protection IP40D)			
Earth fault display on the front face of the Vigi module by reset handle			
Voltage rating:	230 - 415Vac		
Frequency:	50/60Hz		
Uimp:	8kV		
Ui:	690V		
Protection against nuisance tripping due to transient overvoltages (lightning, switchgear switching on the network, etc.)			
Tripping by direct mechanical action on the circuit breaker			
Rated current:	63A or 125A with locating device: For < 63A circuit breakers 125A for 80, 100 and 125A circuit breakers		
Auxiliaries that can be plugged onto Vigi 125A:	Remote tripping by MXV shunt trip Remote indication of earth fault trip by SDV auxiliary switch		
Weight (g) of Vigi only:			
Type	2P	3P	4P
5 mod.	250	-	-
9 mod.	-	410	450
11 mod.	-	750	800
Connection:	≤ 63A ratings: tunnel terminals for 1.5 - 50mm ² copper cables 80 - 125A ratings: tunnel terminals for 16 - 70mm ² copper cables Aluminium cables, copper cables with lug (see connection accessories)		



Sensitivity (mA)	I Max. (A)	Part number	Width in 18mm SP ways
30	63	19000	2.5



Sensitivity (mA)	I Max. (A)	Part number	Width in 18mm SP ways
30	63	19002	4.5



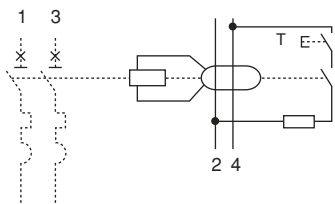
Sensitivity (mA)	I Max. (A)	Part number	Width in 18mm SP ways
30	63	19004	4.5

Protection against overloads
and short circuits

NG125 high sensitivity Vigi
30mA instantaneous, BS EN 61008
A class

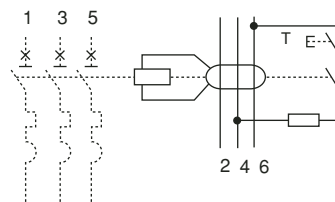


Class A



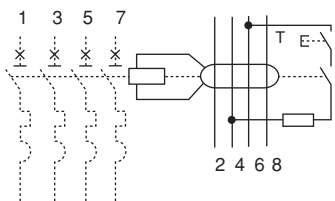
I Max. (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
63	30	19008 (1)	2.5

3P



I Max. (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
63	30	19013	4.5
125	30	19039	5.5

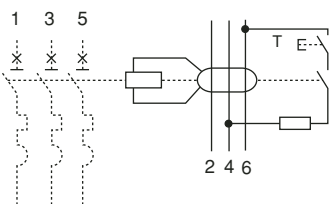
4P



I Max. (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
63	30	19015	4.5
125	30	19041	5.5

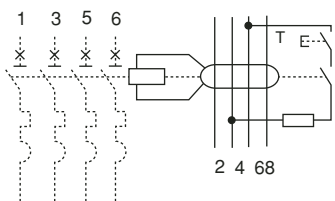
Class A si type

3P



I Max. (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
125	30	19100	5.5

4P



I Max. (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
125	30	19101	5.5

4

NG125 sensitivity Vigi

Instantaneous, selective, time delayed (300 - 300mA) BS EN 61008 AC class

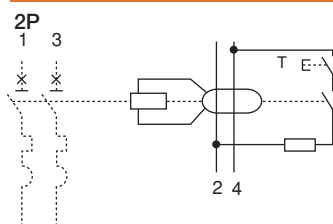
Technical data

Class AC:	Sensitive to sinusoidal AC currents whether instantaneous or slowly rising fault
Class A:	Sensitive to DC component sinusoidal AC or pulsed DC current whether instantaneous or slowly rising fault
Selective 	Provides discrimination with down stream device by introducing an intentional time delay. Down stream device must be instantaneous and 1/2 ΔI_n sensitivity
Si:	Provides continuity of supply on circuits with disturbed supply network i.e. areas with high risk of nuisance tripping
Incorporates in a single case:	The residual current relay The toroid
Connection to the circuit breaker by rigid links (compact size) insulated by a shield (supplied)	
Earth fault display:	On the front face of the Vigi by reset handle
Protection against nuisance tripping due to transient overvoltages (lightning, switchgear switching on the network, etc.)	
Rated current:	63 or 125A with locating device: 63A: for 63A circuit breakers 125A: for 80 - 100 - 125A circuit breakers
Frequency:	50/60Hz

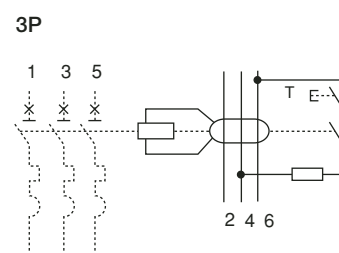
Specific technical data of the adjustable vigi

$I_{\Delta n}$ sensitivity adjustable by index:	300, 500, 1000, 3000mA		
Adjustable tripping time:	Instantaneous Selective: 60ms Delayed: 150ms		
Leakage current indication on 3P and 4P 300 - 3000 I/S/D :	On the front face by LED Remotely, by 250V - 1A (low level) volt free NO contact, connected by 2 x 1.5 mm ² plate terminal Threshold setting by potentiometer from 10 - 50% of $I_{\Delta n}$		
Disconnection essential for dielectric testing by built-in pushbutton			
Auxiliaries plugged onto 125A and 63A Vigi I/S/D	Remote tripping by MXV shunt trip Remote indication of earth fault trip by SDV auxiliary switch		
Weight (g) of Vigi only:			
Type	2P	3P	4P
2.5 ways	250	-	-
4.5 ways	-	410	450
5.5 ways	-	750	800

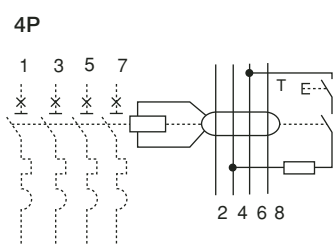
Class AC ~



I Max. (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
63	300	19001	2.5



I Max. (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
63	300	19003	4.5



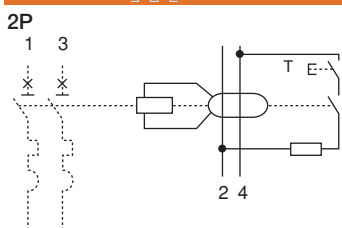
I Max. (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
63	300	19005	4.5

NG125 medium sensitivity Vigi

Instantaneous, selective, time delayed
(300 - 300mA) BS EN 61008 A class

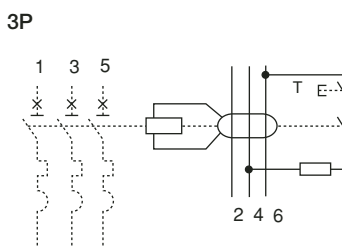


Class A



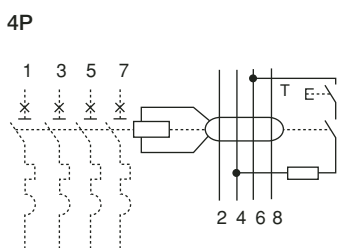
I Max. (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
63	300	19012	2.5
	300	19009 (1)	2.5
	300 [S]	19030	2.5
	1000 [S]	19031	2.5

(1) Voltage rating: 110 - 220Vac.



I Max. (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
63	300	19014	4.5
	300 [S]	19032	4.5
	1000 [S]	19033	4.5
	300 - 3000 I/S/D	19036	5.5
	300 - 3000 I/S/D	19053 (2)	5.5
125	300 - 1000 I/S	19044	5.5
	300 - 3000 I/S/D	19047	5.5
	300 - 3000 I/S/D	19055 (2)	5.5

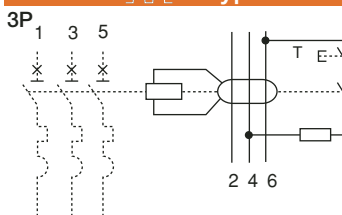
(2) Voltage rating: 440/415Vac, without early warning function.



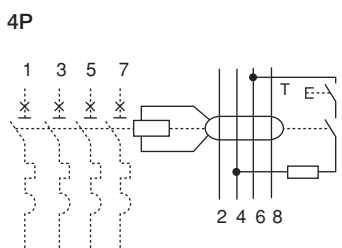
I Max. (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
63	300	19016	4.5
	300 [S]	19034	4.5
	1000 [S]	19035	4.5
	300 - 3000 I/S/D	19037	5.5
	300 - 3000 I/S/D	19054 (2)	5.5
125	300	19042	5.5
	300 - 1000 I/S	19046	5.5
	300 - 3000 I/S/D	19049	5.5
	300 - 3000 I/S/D	19056 (2)	5.5

(2) Voltage rating: 440/415Vac, without early warning function.

Class A si type



I Max. (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
125	300 - 3000 I/S/R	19106	5.5



I Max. (A)	Sensitivity (mA)	Part number	Width in 18mm SP ways
125	300 - 3000 I/S/R	19107	5.5



Trips the circuit breaker or Vigi (MXV) when a voltage is applied.

Trips the circuit breaker when the voltage is disconnected.

Provides delayed tripping of the circuit breaker to which it is attached.

Remotely indicates:

- ## Early warning

- This function is performed by light indication and fault free contact
- Built in adjustable Vigi modules, 300 - 3000mA, of the I/S/R/ type from 230-415Vac

Common

Circuit breaker auxiliaries

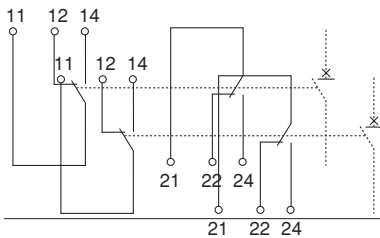
Viqi module auxiliaries

MXV	Shunt releases
Tripping:	On energisation
Equipped with a contact allowing self breaking	
Impulse withstand:	6kV
High impedance input:	Use an ACTp if leakage current is greater than 1mA see page 5/19

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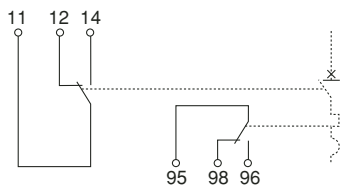
Auxiliaries for circuit breaker OF + OF



Voltage (Vac)	Part number	Width in 18mm SP ways
220 - 240 (6A)	19071	0.5



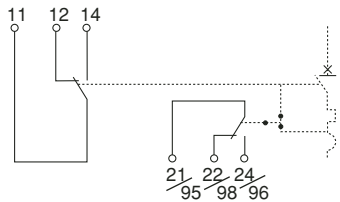
Fault indicating switch OF + SD



Voltage (Vac)	Part number	Width in 18mm SP ways
220 - 240 (6A)	19072	0.5



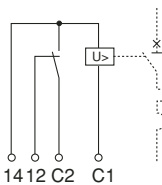
Fault indicating switch OF + OF or OF + SD



Voltage (Vac)	Part number	Width in 18mm SP ways
240 (6A)	19073	0.5



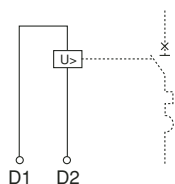
Shunt trip MX + OF



Voltage (Vac)	(Vdc)	Part number	Width in 18mm SP ways
230 - 415	110 - 130	19064	1
48 - 130	48	19065	1
24	24	19066	1



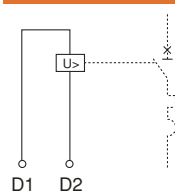
Undervoltage release MN



Voltage (Vac)	(Vdc)	Part number	Width in 18mm SP ways
220 - 240		19067	1
48		19069	1
	48	19070	1



Undervoltage release with 0.5s time delay MN s

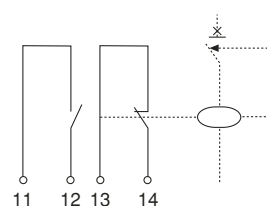


Voltage (Vac)	Part number	Width in 18mm SP ways
230 - 240	19068	2

4



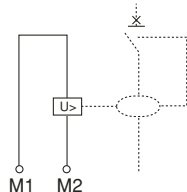
Auxiliary contacts for Vigi module SDV



Voltage (Vac)	Part number	Width in 18mm SP ways
NO 250 (0.1 - 2A)	19058	-
NC 250 (0.1 - 2A)	19059	-



Shunt trip for Vigi module MXV



Voltage (Vac)	Part number	Width in 18mm SP ways
110 - 240	19060	-

Note: High impedance output (use an ACTP Part number. **15919**, if the leakage current of the control device is greater than 1mA).

Applications

Distribloc is a fully insulated four pole modular splitters.
Connection by screw terminals or spring terminals.

Technical data

Rated insulation voltage:	690V
Permissible peak current:	Ipk = 20kA
Complies with the low voltage switchgear standard:	BS EN 60947-7-1
Rated current at 40°C:	125A
Installation:	Clipped onto a symmetrical rail Fits onto a row next to other modular device: - 45mm nose - 12 mod. of 9mm
Can be screwed onto a plain or mounting grid	
Connection	Incomer: Tunnel terminal for 35mm² flexible or rigid cables Optional factory built link for NG125 (Part number07054)
Outgoer in spring terminals:	Minimum cross section: 1mm² Simplifies rebalancing of phases and extensions Unaffected by temperature variations Spring contact pressure automatically adapted to conductor cross section A single cable without metal end per spring: - by flexible cables: 2 x 10mm² + 3 x 6mm² + 7 x 4 mm² - by rigid cables: 2 x 16mm² + 3 x 6mm² + 7 x 4mm²
Outgoer in screw terminals:	1x16mm² or 25mm² flexible or rigid cables



Distribloc

Type	Part number ways	Width in 18mm SP
Distribloc 125A	07105	6
Set of 4 125A flexible links	07054	-



The following NG125 accessories can be used to increase flexibility and simplify installation.

- Prevents contact with device terminal screws
- **Protection against direct contact:**
 - ☐ IP40D: on the front face
 - ☐ IP20B: at connection level
- **Optional sealing terminal shield for circuit breaker**

- **Installation:** mounted upstream and downstream of the circuit breaker/vigi
- **Phase-to-phase insulation voltage** $U_i = 1000V$
- **Protection against direct contact:** IP40D
- **Class II** in metal or plastic enclosures (up to 440V)
- **Optional sealing terminal shield** for residual current device

- **Cable cross section:**
 - ☐ For 63A ratings:
 - flexible cable: 1 - 35mm²
 - rigid cable: 1.5 - 50mm²
 - ☐ For 80-100-125A ratings:
 - flexible cable: 10 - 50mm²
 - rigid cable: 16 - 70mm²
- **Tightening torque and tool type:**
 - ☐ For ≤ 63A ratings: 3.5Nm with 6.5mm flat screwdriver or PZ N°. 2 (Pozidrive recessed head screw)
 - ☐ For 80-100-125A ratings: 6Nm with 4mm Allen wrench (hexagon socket screw)
- **Degree of protection:** IP20B

- **Installation:** front 3 & 4 pole devices
- **Utilisation:** circuit breaker control from outside the enclosure
- Retains isolation/padlocking in the O position (3 padlocks)
- IP55
- 3 positions
- Door interlocking: opening possible in O position only direct rotary handle

■ Enables padlocking (in I or O position) of 1P or 2P NG125 circuit breakers:
 □ In I position of 3P or 4P NG125 circuit breakers
Note: the 3P/4P NG125 circuit breakers are factory designed for padlocking in the O position (isolated)
 ■ Padlock: Ø 5 - 8mm (not supplied)

■ Holes for 3 cables:
 □ 16mm² rigid cables
 □ 10mm² flexible cables

- **Cable cross section for all ratings (circuit breaker only):**
 - ☐ Flexible cable: 1 - 10mm²
 - ☐ Rigid cable: 1.5 - 16mm²
 - ☐ With ends: up to 4mm² inclusive
- **Tightening torque and tool type:** 2Nm with 5.5mm flat screwdriver or PZ N°. 1 (Poizidrive recessed head screw)
- **Phase-to-phase insulation voltage:** U_i = 1000V

- Cable cross section for 80,100 and 125A ratings: 25 - 70mm²
- Tightening torque and tool type: 6Nm with 4mm Allen wrench (hexagon socket screw)



Screws and nuts for lug and bar connection

- Installation: upstream or downstream
- Connection of 80, 100 and 125A ratings:
- Copper lug:
 - flexible cable up to 35mm²
 - rigid cable up to 50mm²
- Bars: 16x3mm, 15x4mm
- Lugs with small eyelet hole
- Tightening torque and tool type: 6Nm with Allen 4mm wrench (M6 screw)
- Phase-to-phase insulation voltage: U_i = 1000V

Cable lugs

- Connection of 80, 100 and 125A ratings:
- Flexible copper cable: 50mm²
- Rigid copper cable: 70mm²

Comb busbar

- Utilisation: for NG125 circuit breaker up to 63A
- Direct supply by circuit breaker terminal (50mm² max. rigid cable)
- Tooth shield available for unused teeth
- Length (dividable): 16 modules of 27mm, i.e. 48 modules of 9mm
- 125A max. upstream
- Insulation voltage: 690V
- U_{imp}: 8kV
- Degree of protection when used with tooth-shield ends: IPXXB

Screw shield for circuit breaker

Pack of 10	Type	Part number
	1P	19084
	2P	19085
	3P	19086
	4P	19087

Terminal shield for circuit breaker

Pair	Type	Part number
	1P	19080
	2P	19081
	3P	19082
	4P	19083

Terminal shield for residual current device (Set of)

63A	Type	Part number
	2P	19074
	3P	19075
	3P adjustable	19077
	4P	19076
	4P adjustable	19078
125A	3P	19077
	4P	19078



Rotary handle

Type	Part number
Direct standard	19092
Extended standard, black	19088
Red handle yellow background	19089

Note: Not suitable for 1 & 2 pole devices



Padlocking accessory

Type	Part number
Pack of 4	19090



Insulated sub-distribution terminal

Type	Part number
Pack of 4	19091



Screws and nuts for lug or bar connection

Type	Part number
Pack of 4	19093



Cable lugs

Type	Part number
Pack of 4	19094
Pack of 4	19095



Comb busbar for NG125 and C120

Type	Part number
1P	14811
2P	14812
3P	14813
4P	14814
Tooth shield end (set of 20)	14818



The NG125NA is a trip free switch disconnecter for on load opening and closing.

- Vigi NG125 module for earth leakage protection
- OF + SD auxiliary contact
- MX or MN releases
- Various connection types (80, 100 and 125A ratings)
- Rotary handle. This modular device has the same auxiliary

Ratings: 63 - 125A

Maximum voltage rating U_e :	500Vac
Performance as in BS EN 60947.3	
Short time withstand current (50ms) I_{cw} :	1.5kA
Maximum making capacity:	See co-ordination tables
Maximum insulation voltage U_i :	690V
Impulse voltage U_{imp} :	8kV
Electrical durability:	

Voltage	Category	63/80A	100/125A
500Vac	AC22B	1500	1000
440Vac	AC22B	1500	1000
415Vac	AC22A-AC23B	1500	1000
125Vdc (2P series)	DC22A	1500	1000
250Vdc (4P series)	DC22A	1500	1000

Isolation with positive contact indication

Built-in padlocking facility

Weight (g):

Type	3P	4P
720	960	

Compatible with Pragma or Prisma G or P modular enclosures

Connection: Tunnel terminals for flexible and rigid copper cables up to 70 mm²

A diagram of a 3-strand braid. The strands are labeled 1, 2, and 3 at the top and bottom. The braid consists of three crossings: a crossing between strands 1 and 2, followed by a crossing between strands 2 and 3, followed by another crossing between strands 1 and 2.

Maximum rating (A)	Part number	Width in 18mm SP ways
63	18889	4.5
80	18890	4.5
100	18891	4.5
125	18892	4.5

Maximum rating (A)	Part number	Width in 18mm SP ways
63	18893	6
80	18894	6
100	18895	6
125	18896	6



Functions

These ensure the protection of single-phase or three-phase motors with local manual control.

This protection includes:

- Isolation
- Manual control or remote control
- Protection against short circuits (magnetic)
- Protection against overloads (thermal)

Technical data

Compliance with	IEC 947-2 and IEC 947-4- 1 standards (association with contactors)
Approvals:	CEBEC, DEMKO, NEMKO, SEMKO, FI.
Voltage rating (Ue):	690 V CA
Insulation voltage (Ui):	690 V
Impulse voltage (Uimp):	6 kV
Ratings (In):	Adjustable from 0.16 to 25 A
Thermal tripping:	Sensitive to phase failure Ratings (In): adjustable from 0.16 to 25 A Temperature compensation: - 20°C to + 40°C in an enclosure
Magnetic trip unit:	12 times the In rating (± 20 %)
Breaking capacity as per IEC 947-2 (kA)	
P25M circuit breaker:	

	Voltage (V)											
	230...		240	400...		415	440		500		690	
Rating (A)	Icu kA	Ics %	Icu kA	Ics %	Icu kA	Ics %	Icu kA	Ics %	Icu kA	Ics %	Icu kA	Ics %
0.16 to 1.6				unlimited								
2.5											3	75
4											3	75
6.3						50	100	50	100		3	75
10						15	100	10	100		3	75
14			15	50	8	50	6	75	3	75		
18			15	50	8	50	6	75	3	75		
23	50	100	15	40	6	50	4	75	3	75		
25	50	100	15	40	6	50	4	75	3	75		

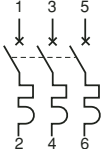
AC3 electrical durability:	100 000 O-C cycles
Padlocking device on front face	
Tropicalisation:	Treatment 2 (relative humidity: 95 % to 55 °C)
Environment:	Utilisation temperature: -20...+60 °C Storage: -40...+80 °C
Weight (g)	P25M 260 Limiter block 130
Connection:	Using terminal clamps: 2 x 1 mm² min. Rigid copper cables 2 x 6 mm² max. Flexible copper cables

Limiter block

Allows the breaking capacity to be increased up to 100 kA at 415 V. Individual mounting (upstream/downstream) or on a terminal block, part number 21144	
Connection:	Tunnel terminals for 25 mm² flexible cables



P25M circuit breaker

Type	Rating In (A)	Setting	Part number	Width in mods. of 18mm
	0.16	0.1-0.16	21100	2.5
	0.25	0.16-0.25	21101	2.5
	0.40	0.25-0.40	21102	2.5
	0.63	0.40-0.63	21103	2.5
	1.0	0.63-1	21104	2.5
	1.6	1-1.6	21105	2.5
	2.5	1.6-2.5	21106	2.5
	4.0	2.5-4	21107	2.5
	6.3	4-6.3	21108	2.5
	10	6-10	21109	2.5
	14	9-14	21110	2.5
	18	13-18	21111	2.5
	23	17-23	21112	2.5
	25	20-25	21113	2.5



Limiter block

Rating	Part	Width in
In (A)	number	mods. of 18mm
63	21115	2.5

Electrical auxiliaries allow remote tripping or fault or position indication of P25M circuit breakers.

This can be achieved using an MX or an MN release fixed to the right of the circuit breaker.

When energized, this device controls tripping and opening of the circuit breaker with which it is associated.

When its supply voltage decreases, this device controls tripping and opening of the circuit breaker with which it is associated.

4

These contacts are fixed to the right of the P25M (two blocks maximum).

These contacts are fixed to the left of the P25M, one "position-fault indication contact" block and one "position contact" block maximum.

Rated current (Ie) of auxiliary contacts under the rated voltage (Ue)

Voltage rating Ue		Current rating Ie position contact		Fault contact	
(V AC)	(V DC)	AC 15 (A AC)	DC 13 (A DC)	AC 14 (A AC)	DC 13 (A DC)
415	220	2.2	0.5	-	-
240	110	3.3	1.3	-	-
130	60	4.5	3	0.5	0.15
48	48	6	5	1	0.3
24	24	-	6	1.5	1

2 x 1.5 mm² flexible cable with end

Position contact + Position + fault contact + P25M circuit breaker + MX shunt release or MN undervoltage release

Functions

The accessories simplify circuit breaker integration and extend their use.

Comb busbars

- 63 A three-phase
- for fast supply of several P25M
- 54 mm module comb busbars for 2 or 4 P25M feeders
- For more feeders, comb busbars may be combined within the limit of the 63 A maximum current
- Possible mounting of an auxiliary contact between each P25M

Protective cable end

- Recommended to insulate comb busbar outlets on standby

Terminal block

- Downstream powering of comb busbars with 25 mm² diameter cables, and housing of the limiter block

Insulated connector

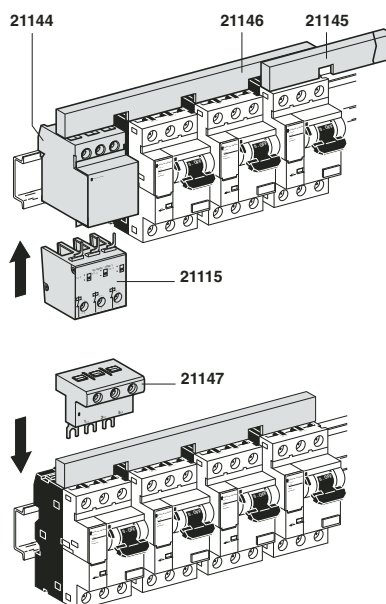
- upstream powering of comb busbars or powering of P25M with 25 mm² diameter cables

Clip-on terminal markers

- For identification on the front face:
 - ☐ Of the circuit breaker (4 markers max.)
 - ☐ Of the auxiliaries (3 markers max.)
- See page 4/84.

Insulation enclosure

- For individual installation of a P25M with a block («position contact», «position contact + fault tripping contact») and a release (MX or MN) in an IP 55 sealed double insulation «e» enclosure (sealable cover)
- This enclosure is equipped with neutral and earth strips. Its front face can be fitted with an ON/OFF indicator light (punch-out)
- Punch-outs for 4 x 16 mm diameter cable glands.





C60LMA circuit-breakers

IEC 60947-2: 25 kA ($\leq 25\text{ A}$) and 20 kA (40 A)



Functions

The C60LMA circuit-breakers are designed to protect motor supply circuits (cables and starters) against short-circuit currents. As they are equipped only with magnetic trip units, they must be combined with suitable thermal protection.

Tripping curves

MA curve

Cables feeding motor starters

■ Power circuit:

□ Rating: 1.6 to 40 A set at 40°C

□ Tripping curve: the magnetic trip units operate at $12\text{ In} \pm 20\%$

Technical data

Power circuit:	Voltage rating (U_e): 440 V AC
	Impulse voltage (U_{imp}): 6 kV
	Insulation voltage (U_i): 500 V AC

Breaking capacity:

According to IEC 60947-2, I_{cu} ultimate breaking capacity (O-CO cycle):

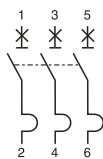
Rating (A)	Type	Voltage (V)	Breaking capacity I_{cu} (A)
1.6...25	2P, 3P	230...240	50
		400...415	25
		415	6 (1)
		440	20
40	2P, 3P	230...240	40
		400...415	20
		415	5 (1)
		440	15

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

General technical data

Fast closing:	Allows the high inrush currents of some loads to be better held.	
Isolation with positive break indication:	Opening is indicated by a green strip on the device operating handle. This indicator shows opening contacts of all the poles.	
Number of cycles (O-C):	20 000.	
Earth leakage protection provided by the C60LMA + Vigi module combination:		
MA release rating (A)	Vigi module (A)	
1.6...10	< 25	
12.5 and 16	< 40	
25 and 40	< 63	
Environment:	Tropicalisation: treatment 2 (relative humidity: 95 % at 55°C) according to IEC 60068-1	
Weight (g):		
Type	2P	3P
C60LMA	240	360
Connection:	Tunnel terminals for: 16 mm² flexible or 25 mm² rigid cables up to a rating of 10 A 25 mm² flexible or 35 mm² rigid cables for ≥ 12.5 A ratings	

C60LMA circuit-breakers
IEC 60947-2: 25 kA (< 25 A)
and 20 kA (40 A)

Type	Max. motor rating (A)	Width in mod. of 18mm	Release	I (A) magn.	Part number
	1.6	2	MA 1.6	20	26345
	2.5	2	MA 2.5	30	26346
	4	2	MA 4	50	26347
	6.3	2	MA 6.3	75	26348
	10	2	MA 10	120	26349
	12.5	2	MA 12.5	150	26350
	16	2	MA 16	190	26352
	25	2	MA 25	300	26353
	40	2	MA 40	480	26355
	1.6	3	MA 1.6	20	26357
	2.5	3	MA 2.5	30	26358
	4	3	MA 4	50	26359
	6.3	3	MA 6.3	75	26360
	10	3	MA 10	120	26361
	12.5	3	MA 12.5	150	26362
	16	3	MA 16	190	26368
	25	3	MA 25	300	26369
	40	3	MA 40	480	26370

NG125 circuit breakers
MA curve (magnetic trip)
BS EN 60947-2: 50kA

Applications

The NG125LMA circuit breakers are designed to protect motor supply circuits (cables and starters) against short circuit current. These devices can be used in conjunction with Telemecanique overload relays to achieve total motor protection.

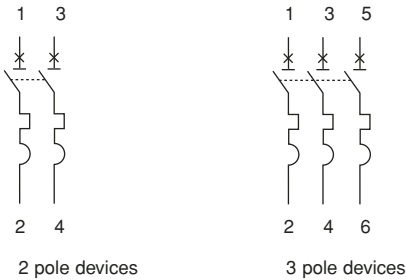
Common technical data

Rating:	1.4 - 80A	
Reference temperature:	40°C	
Uimp:	8kV	
Ui:	690V	
Maximum voltage rating:	500Vac	
Breaking capacity:	as in BS EN 60947-2:	
Type	Voltage (Vac)	Breaking capacity (A)
2, 3	380 - 415	50000
Isolation with positive break indication		
3 position toggle: open-tripped-closed		
Built-in padlocking facility on 3P		
Fault display on front face by: Fault indicator		
Position of toggle: tripped		
Test button to check proper operation of the tripping mechanism		
Fast closing		
Electrical durability:	10,000 cycles at In	
Tropicalisation as in IEC 68.1:	Treatment 2 (relative humidity: 95% at 55°C)	
Weight (g):	2P	3P
	480	720
Compatible with loose enclosures, refer to Section 6		
Degree of protection:	IP20B (IP40D for the part outside the enclosure)	
Connection:	Trip units up to MA63: tunnel terminals for 1.5 - 50mm² copper cables MA80 trip units: tunnel terminals for 16 - 70mm² copper cables On 3P, upstream voltage connection on each pole, by 6.35mm Fast on lugs, for auxiliary circuit supply	
MA curve	The magnetic trip units operate at 12 In ± 20%	



MA curve NG125H						
Rating (A)	Trip unit	Magn. Im (A)	2P	Width in 18mm SP ways	3P	Width in 18mm SP ways
4	MA4	50	18868	3	18879	4.5
6.3	MA6.3	75	18869	3	18880	4.5
10	MA10	120	18870	3	18881	4.5
12.5	MA12.5	150	18871	3	18882	4.5
16	MA16	190	18872	3	18883	4.5
25	MA25	300	18873	3	18884	4.5
40	MA40	480	18874	3	18885	4.5
63	MA63	750	18875	3	18886	4.5
80	MA80	960	18876	3	18887	4.5

Note: This product is not suitable for use with Isobar 4 connection systems.



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RBN/RTBT interface relays	page 5/23
RLI/ERL changeover relays	page 5/24
TL impulse relays	page 5/25
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I switches 20 to 125 A

Auxiliary and accessories

Function

I switches The I switches combine the following functions:

- Control (opening and closing of on-load circuits),
- Disconnection

Auxiliary

Changeover auxiliary switch

Indicates whether the switch is "open" or "closed".

Accessories

Sealable terminal shield (upstream/downstream)

Makes access to the device terminals impossible.

Screw cover

Prevents contact with the device terminal screws.

Rotary handle

Enables front or side control of the switches.

Padlocking device

Locks the switch in "open" or "closed" position.

Technical data

I switches

Compliance with standards:	I 20, 32, 40 and 63 A: EN 60669-1, IEC 669-1
	I 40, 63, 100 and 125 A, IEC 947-3:
	Degree of pollution 3
	Isolating voltage 500 V AC
	Impulse voltage 6 kV
	Degree of protection IP 4 on the front panel
	Frequency 50...60 Hz
Isolation with positive contact indication	
USE approved for I 20, 32 and 63 A	
DC application:	48 V (110 V with 2 series-connected poles)
Mechanical endurance:	I 20 and 32 A: 200,000 operating cycles
	I 40, 63, 100 and 125 A: 50,000 operating cycles
Electrical endurance:	AC22, p.f. = 0.6
	I = 20 and 32 A: 30,000 operating cycles
	I = 40 and 63 A: 20,000 operating cycles
	I = 100 A: 10,000 operating cycles
	I = 125 A: 2,500 operating cycles
Short-circuit withstand:	20 x In: 1 s
Tropicalisation:	Treatment 2 (relative humidity 95% at 55 °C)
Connection by tunnel terminals for:	10 mm ² flexible/rigid cables for I 20 and 32 A
	50 mm ² rigid cables or comb busbars, 35 mm ² supply cables for I 40, 63, 100 and 125 A
Switch with indicator light:	Supplied with 230 V neon red indicator light
	Interchangeable indicator light:
	12, 24, 48 V AC/DC incandescent bulb
	(P = 1.2 W)

Auxiliary

O.C. auxiliary switch

Contact breaking capacity:	3 A at 400 V AC
	6 A at 230 V AC

Fixing by clipping onto symmetrical rail on the left side of the switch

Connection by tunnel terminals for cables up to 10 mm²

Accessories

Screw covers	For I 40, 63, 100 and 125 A
	Sealable and divisible
Rotary handle	IP549
Composition:	A switch operating subassembly
	A front or side fixed handle (on the right only) or an extended withdrawable handle
Padlocking device	For 8 mm diameter padlock (not supplied) (provide two devices on the outer poles for 3P and 4P devices for I 40, 63, 100 and 125 A)
1P, 2P, 3P and 4P combs	For I 40, 63, 100 and 125 A
	Acceptable current strength at 140 °C
	100 A with a central power supply point
	125 A with two power supply points



Type	Rating (A)	Voltage (V AC)	Part number	Width in 18mm SP ways
I switches				
1P	20	250	15005	1
	32	250	15009	1
	40	250	15024	1
	63	250	15013	1
	100	250	15090	1
	125	250	15057	1



2P	<u>20</u>	415	15006	1
	<u>32</u>	415	15010	1
	<u>40</u>	415	15020	2
	<u>63</u>	415	15014	2
	<u>100</u>	415	15091	2
	<u>125</u>	415	15058	2



3P	20	415	15007	2
	32	415	15011	2
	40	415	15023	3
	63	415	15015	3
	100	415	15092	3
	125	415	15059	3



4P	20	415	15008	2
	32	415	15012	2
	40	415	15019	4
	63	415	15016	4
	100	415	15093	4
	125	415	15060	4

Switch with 230V indicator light



1P	20	250	15063	1
	32	250	15100	1
2P	20	250	15064	1
	32	250	15101	1



Auxiliary

O.C. auxiliary switch	15096	1
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I switches 20 to 125 A

Auxiliary and accessories

Type	Part number
Indicator light	
Neon supplied with red diffuser bag of 10 230 V AC	15111
Incandescent bulbs supplied with red diffuser	
Bag of 10 12 V AC/DC	15112
Bag of 10 24 V AC/DC	15113
Bag of 10 48 V AC/DC	15114

Common accessories

Rotary handle for 4 modules of 9 mm min. switch		
	Switch operating subassembly	27046
	Withdrawable handle	27047
	Fixed handle	27048



5



Padlocking device bag of 2 pcs	26970
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Accessories for I 20 and 32 A

Modular sealable terminal shield for 2 modules of 9 mm	15094
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Accessories for I 40, 63, 100 and 125 A

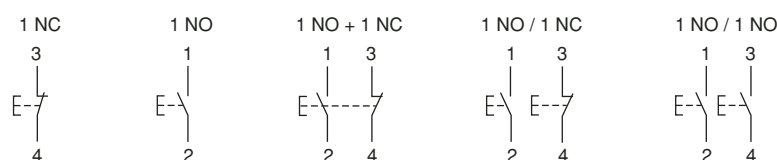
Screw covers bag of 2 pcs	26981
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Sealable terminal shield	1P	26975
	2P	26976
	3P	26975
		+ 26976
	4P	26978

Voltage rating:	250 V AC
Current rating:	20 A
Electrical durability:	30 000 switching operations AC22 ($\cos \varphi = 0.8$)
Complies with standard:	IEC 60669-1 and IEC 60947-5-1
Indicator light with	Consumption : 0.3 W
LED technology:	Service life: 100,000 hours with constant luminous efficiency
	Indicator light requires no maintenance (non-interchangeable LEDs)
Operating temperature:	-20°C... +50°C
Storage temperature:	-40°C... +80°C
Tropicalisation:	Treatment 2 (relative humidity: 95 % at 55°C)
Connection by rigid flexible cable with or without cable end:	Tunnel terminals up to 2 x 2.5 mm ² , +/- recess screw, Pozidriv N° 1 Staggered terminals simplifying cable connection

BP



Type	Width in 18mm SP ways		Colour BP	Circuit	Part number
Single BP					
	1		Grey	1NC	18030
			Red	1NC	18031
			Grey	1NO	18032
			Grey	1NO+1NC	18033
Double BP					
	1		Green/red	1NO / 1NC	18034
			Grey/grey	1NO / 1NO	18035

Type	Width in 18mm SP ways	Power light	Colour	Colour BP	Circuit	Part number
Single BP + indicator light						
	1	110...230 V AC	Green	Grey	1NO	18036
			Red	Grey	1NC	18037
		12...48 V AC/DC	Green	Grey	1NO	18038
			Red	Grey	1NC	18039

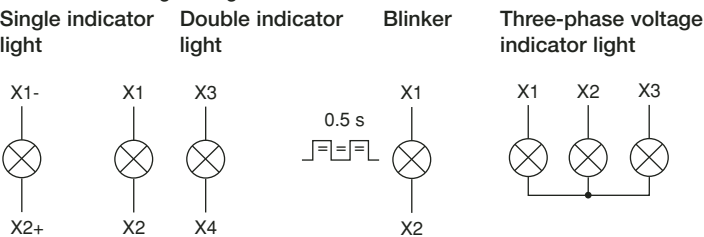
Indication switchgear

V indicator light

Technical data

Complies with standard	IEC 60947-5-1 (excepted part number 18327 complies with standard IEC 73 and IEC 1000-4)
Operating frequency:	50...60 Hz
Indicator light with LED technology:	Consumption by indicator light: 0.3 W (0.5 W for part number 18327) Service life: 100,000 hours with constant luminous efficiency Indicator light requires no maintenance (non-interchangeable LEDs)
Blinker frequency:	2 Hz
Degree of protection:	IP4/IPxxD for the part outside the enclosure IP2/IPxxB at the terminals
Divisible partition for the teeth	of any comb busbar to fit into
Degree of pollution:	3 (2 for part number 18325)
Operating temperature:	-20 °C... +50 °C
Storage temperature:	-40 °C... +100 °C
Tropicalisation:	Treatment 2 (relative humidity 95 % at 55 °C)
Connection by rigid or flexible cable with or without cable end:	Tunnel terminals up to 2 x 2.5 mm², +/- recess screw, Pozidriv N°1 Staggered terminals simplifying cable connection

The V indicator light range consists of:



Type	Width in 18mm SP ways	Colour	Part number 110-230V AC	Part number 12-48V AC/DC
Single indicator light				
	1	Red	18320	18330
		Green	18321	18331
		White	18322	18332
		Blue	18323	18333
		Yellow	18324	18334
Double indicator light				
	1	Green/red	18325	
	1	White/white	18328	
	1	Green/red		18335
Blinker				
	1	Red	18326	
Type	Width in 18mm SP ways	Colour	Part number 230-400V AC 3 phase	
Three-phase voltage indicator light				
	1	Red/red/red	18327	



Function

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).

Description

- All Multi 9 transformers are:
- Safe: primary and secondary circuits are perfectly insulated by each other.
 - Resistant to short-circuit currents thanks to the built-in device.
 - Class II with terminal shield (optional)

Technical data

Primary voltage:	230 V CA ± 10 %.
Secondary voltage on load:	8-12-24 V CA ± 15 % for bell transformers 12-24 V CA ± 5 % for safety transformers

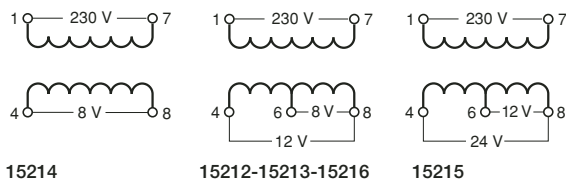
Transformer Part number	Rated secondary voltage (V)	Off load voltage (V)
15214	8	12
15213	8	12
	12	16
15216	8	13
	12	18
15212	8	13
	12	18
15215	12	16
	24	32
15218	12	14
	24	28
15219	12	14
	24	28
15220	12	14
	24	28
15222	12	14
	24	28

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.

Frequency:	50/60 Hz
Compliance with standards:	NF EN 60742, EN and IEC 61558-2-6
Approval NF USE	
Connection:	Tunnel terminals for cables up to 4 mm ²

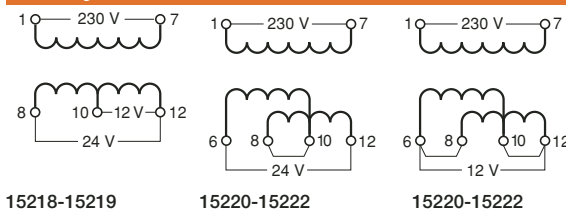
Type

Bell transformer



15214 15212-15213-15216 15215

Safety transformer



15218-15219 15220-15222 15220-15222

Terminal shield

2	15228
3	15229
5	15230

Function

SO and RO
Audible indication in housing and the tertiary sector.

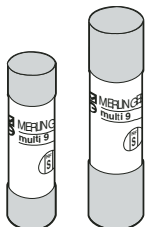
Description

- SO and RO
- Sound level (at a distance of 60 cm):
 - RO buzzer: 70 dBA
 - SO bell: 80 dBA
 - Frequency :50...60 Hz
 - consumption:
 - 3.6 VA: 8...12 A
 - 5 VA: 220...240 V
 - Connection: tunnel terminals for cables up to 4 mm²

Type	Voltage (VA C)	Part number	Width in 18mm SP ways
SO bell			
	230	15320	1
	8...12	15321	1

RO buzzer			
	230	15322	1
	8...12	15323	1

STI isolatable fuse carriers



Dimensions Ø x L (mm)	Rating (A)	Part number Box of 10 fuse links
aM fuse links		
8.5 x 31.5	2	15733
	4	15734
	6	15735
	10	15736
10.3 x 38	2	15742
	4	15743
	6	15744
	10	15746
	25	15750

gG (gl, gL) fuse-links		
8.5 x 31.5	2	15767
	4	15768
	6	15769
10.3 x 38	2	15775
	4	15776
	6	15777
	10	15779

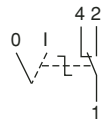


Indicator light (1-part blister)	230 V AC	15668
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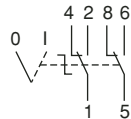
The CM selector switch range offers the following control types:

2 position selector switches

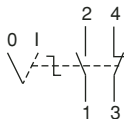
1 changeover
switch



2 changeover
switches

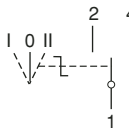


1NO + 1NC

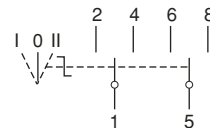


3 position selector switches

1 changeover
switch



2 changeover
switches



Technical data

Voltage rating:	250 V AC
Current rating:	20 A
Electrical durability:	30,000 cycles AC22
Complies with standard:	IEC 60669-1 and IEC 60947-5-1
Operating temperature:	-20°C... +50°C
Storage temperature:	-40°C... +80°C
Tropicalisation:	Treatment 2 (relative humidity 95 % at 55°C)
Connection by rigid or flexible cable with or without cable end:	Tunnel terminals up to 2 x 2.5 mm², +/- recess screw, Pozidriv n°1
Staggered terminals simplifying cable connection	

Type	Width in modules of 18 mm	Contact	Part number
2 positions CM			
	1	1 changeover switch	18070
	2	2 changeover switches	18071
	1	1 NO + 1 NC	18072



3 positions CM			
	1	1 changeover switch	18073
	2	2 changeover switches	18074



Control switchgear

Rotary selector switches CMB, CMC, CMD and CME



CMB

This 2-pole selector switch with reset manually controls a circuit with two operating directions with an OFF position.

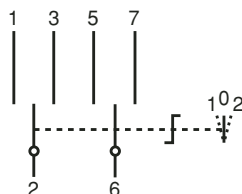
For example: Electrically controlled shutters

Position 1 = up

Position 0 = OFF

Position 2 = down.

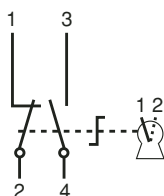
2 changeover switches



CMC

This 2-position changeover switch (ON-OFF) with key-lock, allows locking in either position.

1NC + 1NO



CMD

This 4-direction selector switch controls a circuit with operating priorities.

For example: fan control

Position 0 = OFF

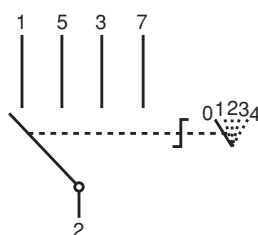
Position 1 = "ON" override, low speed

Position 2 = "ON" override, high speed

Position 3 = remote control

Position 4 = automatic operation.

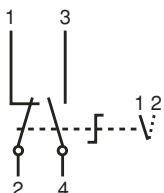
1 changeover switch



CME

This 2-position changeover switch is used specially to control electronic circuits with a low voltage and current level.

1NC + 1NO





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 multi 9 range)
Drilling diameter:	Ø 22.3
Self-extinguishing insulating material	
Colour:	Light grey RAL 7035

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	15151
Universal holder	3	15152



premanent ON override

Application

CT contactors equipped with one or more normally open (NO) or normally closed (NC) contacts are controlled by latched type electrical orders. On the front face a red indicator light indicates voltage presence at the coil terminals (A1-A2). 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

Technical data

Power circuit	
CT ratings	16 to 100 A (category AC7a)
Manually-operated CT ratings	16 to 63 A (category AC7a)
Voltage rating	250 V AC (1P and 2P), 400 V AC (3P and 4P)
Frequency	50 Hz or 60 Hz

Power circuit	
Voltage	12 V AC (±10 %), 24 V AC (±10 %), 230...240 V AC (-10 % +6 %)
Coil frequency	50 Hz

Inrush and holding power

Type	Rating (A)	Consumption inrush (VA)	holding (VA)	Max. power (W)
1P, 2P	16/25	15	3.8	1.1
3P, 4P	16/25	34	4.6	1.6
2P	40/63	34	4.6	1.6
3P, 4P	40/63	53	6.5	2.1
2P	100	53	6.5	2.1
4P	100	106	13	4.2

Operating temperature:	-5°C to +60°C.
Tropicalisation:	Treatment 2 (relative humidity: 95 % at 55°C)
Compliance with standards:	EN 60947-4-1, EN 61095, IEC 1095
Approvals:	NF, IMQ, VDE, GOST, CCC, CEBEC
ELSV compliance	For 25 A 2P versions with 24 V AC control
(Extra Low Safety Voltage):	

Connection by tunnel terminals

Cable type	Control circuit	Power circuit		
		16 and 25 A	40-63 A	100 A
Flexible	2 x 2.5 mm²	2 x 2.5 mm²	2 x 10 mm²	2 x 35 mm²
Rigid	2 x 1.5 mm²	6 mm²	25 mm²	50 mm²

Marking: Contactors can be equipped with clip-on markers

Accessories

Screw shields

- Designed to cover terminals to avoid contact with device screws
- Allow sealing

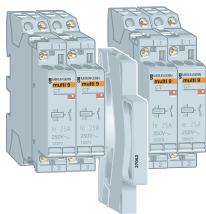
Spacer

- 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)

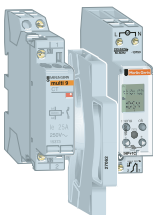
Derating of contactors mounted in modular enclosure if inside temperature is > 40°C

Contactor rating	40°C	50°C	60°C (1)
16 A	16 A	14 A	13 A
25 A	25 A	22 A	20 A
40 A	40 A	36 A	32 A
63 A	63 A	57 A	50 A
100 A	100 A	87 A	80 A

(1) Spacer compulsory between each product.

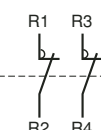
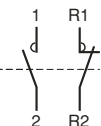
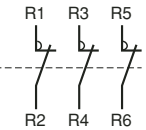
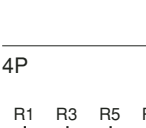
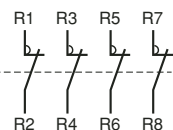
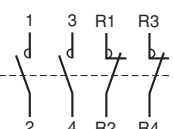


2 CT + spacer + 2 CT



CT + spacer + IHP



Type	Contact	Rating (A)	Voltage (V AC)	Width in mod. of 18 mm	Part number
50 Hz contactors					
1P  1NO	1NO	16	12	1	16110
	1NO	16	24	1	16111
	1NO	16	230...240	1	16113
	1NO	25	230...240	1	15958
2P  2NC  1NO + 1NC	2NO	16	12	1	16114
	2NO	16	24	1	16115
	2NO	16	230...240	1	15957
	1NO+1NC	16	12	1	16125
	1NO+1NC	16	24	1	16126
	1NO+1NC	16	230...240	1	15956
	2NO	25	24	1	16020
	2NO	25	230...240	1	15959
	2NC	25	230...240	1	15960
	2NO	40	220...240	2	15966
3P  3NC 	2NO	63	24	2	16024
	2NO	63	220...240	2	15971
	2NO	100	220...240	3	15977
	3NC	16	220...240	2	16120
	3NO	25	220...240	2	15961
	3NO	40	220...240	3	15967
	3NO	63	220...240	3	15972
	4NC	16	24	2	16122
	4NC	16	220...240	2	16124
	2NO+2NC	16	220...240	2	16130
4P  4NC  2NO + 2NC 	4NO	25	24	2	16022
	4NO	25	220...240	2	15962
	4NC	25	24	2	16023
	4NC	25	220...240	2	15963
	2NO+2NC	25	220...240	2	15964
	4NO	40	220...240	2	15968
	4NC	40	220...240	2	15969
	4NO	63	24	3	16025
	4NO	63	220...240	3	15973
	4NC	63	24	3	16026
	4NC	63	220...240	3	15974
	2NO+2NC	63	220...240	3	15975
	3NO+1NC	63	220...240	3	15976
	4NO	100	220...240	6	15978

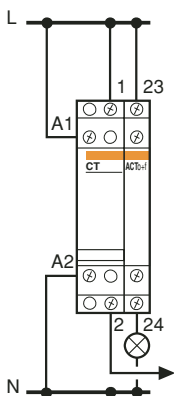


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Type	Contact	Rating (A)	Voltage (V AC)	Width in mod. of 18 mm	Part number	
50 Hz manually operated contactors						
 2P	2NO	16	220	1	18015	
	2NO	16	230...240	1	16116	
	1NO+1NC	16	230...240	1	16127	
	2NO	25	24	1	16490	
	2NO	25	230...240	1	15981	
	2NC	25	24	1	16491	
	2NO	40	24	2	16494	
	2NO	40	220...240	2	15984	
	2NO	63	24	2	16497	
 2NO	2NO	63	220...240	2	15987	
 1NO + 1NC						
 2NC						
 3P	3NO	25	220...240	2	15982	
 4P	4NO	25	24	2	16492	
	4NO	25	220...240	2	15983	
	4NC	25	24	2	16493	
	4NO	40	24	3	16495	
	4NO	40	220...240	3	15986	
	4NC	40	24	3	16496	
	4NO	63	24	3	16498	
	4NO	63	220...240	3	15988	
	 4NC					

CT contactor auxiliaries

ACTo+f, ACTp, ACTc, ATEt



Application

Various auxiliaries can be fixed to the sides of CT contactors to provide:

- Indication
- Interference filtering
- Impulse/latched control
- Time delay

CT+ contactors cannot accommodate these auxiliaries.

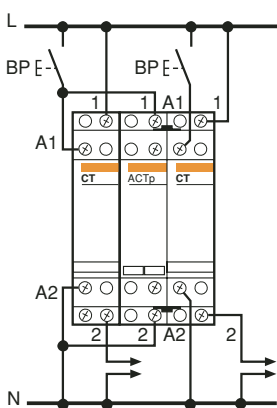
ACTo+f

This auxiliary allows indication or control of the "open" or "closed" position of the contactor power contacts.

Type	Width in mod. of 18 mm	Part number
ACTo+f	1/2	15914

Technical data

Voltage:	24...240 V AC/DC - 50/60 Hz.	
Contact:	1 NO + 1 NC:	
	Minimum	10 mA at 24 V DC/AC - cos φ = 1
	Maximum	2 A at 240 V DC/AC - cos φ = 1.
Combination with CT	Right side	
Connection	Tunnel terminals	
	Flexible cable: 2 x 2.5 mm²	
	Rigid cable: 2 x 1.5 mm²	



ACTp

This auxiliary is an interference suppressor which limits overvoltages on the control circuit.

Type	Width in mod. of 18 mm	Control voltage (V AC)	Part number
ACTp	1	24	15919
		110...240	15920

The ACTp has 2 separate and identical circuits, allowing it to be combined with 2 different CT contactors:

- One by clips, on the CT mounted to its right
- The other by wires

Technical data

Power supply Voltage:	24 V, 230 V	
Frequency:	50/60 Hz	
Combination with CT	Left side	
	By clips (1)	
Consumption Off-load:	3 VA	
Connection	Tunnel terminals	
	Flexible cable: 2 x 2.5 mm²	
	Rigid cable: 2 x 1.5 mm²	

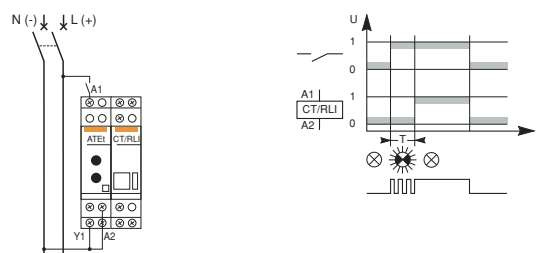
(1) electrical and mechanical link.

Operation

- There are 4 types of time delay:
 - The A type time delay is used to delay energisation of a load
 - The B type time delay is used, on closing of the control contact (pushbutton), to energise a load for a given time
 - The C type time delay is used to extend energisation of a load
 - The H type time delay is used, as long as the control contact remains closed, to energise a load for a given time
- Time delay range: 1 s to 10 h
- Repetition accuracy: $\pm 0.5\%$

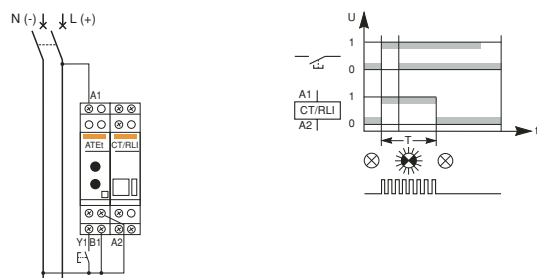
A type:

Delays energisation of the contactor or relay.



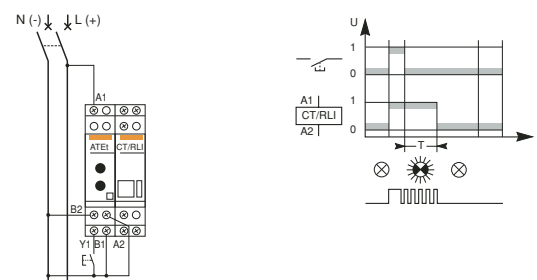
B type:

Energises the contactor or relay on closing of a pushbutton. The time delay starts on closing of the control order.



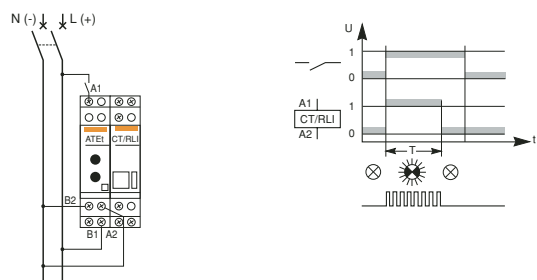
C type:

Energises the contactor or relay on closing of a pushbutton. The time delay starts on release of the control order.



H type:

Controls the contactor or relay for a given time on energisation.





CT+ high performance contactors combine the advantages of static switching and electromechanical technology: compact dimensions, minimum temperature rise. CT+ contactors provide a solution when high performance is required, particularly in terms of number of switching operations, lifetime, versatility with loads, minimum noise, absence of electromagnetic disturbances, installation in all positions and limited temperature rise.

Operation

CT+ high performance contactors have a NO contact and are controlled by latched type electrical orders. An orange indicator light comes ON on the front face when the output contact is closed.

The manually-operated CT+ contactors are equipped on their front face with an operating mode selection pushbutton. A green indicator light indicates the current mode:

- Automatic operating mode (green light ON)
- Temporary "ON" override (green light flashing)
- Permanent shutdown mode (light OFF)

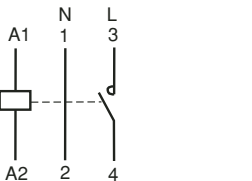
In ON override or permanent shutdown mode, the CT+ systematically returns to automatic operating mode further to a supply outage.

NB. It is compulsory to use the same phase for power and control connection.

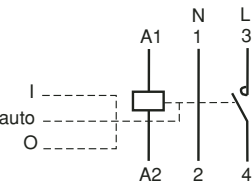
Technical data

Voltage rating	Control circuit:	230 V AC (±10 %) ; 50 Hz
	Power circuit:	230 V AC (±10 %) ; 50 Hz
Inrush power	11 VA	
Holding power	1.1 VA	
Maximum switching frequency	6 switching operations/minute	
Characterisation on load types	No derating	
Electrical durability	5,000,000 cycles	
Compliance with standard	EN 60947-2-1	
Approval	NF USE	
Operating temperature	-5°C to +55°C with use of a spacer	
Connection by tunnel terminals for flexible and rigid cables	Up to 2 x 1.5 mm² with end 2 x 2.5 mm² without end 1 x 4 mm² without end	

Type	Contact	Rating (A)	Control voltage (V AC)	Width in mod. modules of 18 mm	Part number
CT+					
1P+N standard	1NO	20	230	1+1/2 (1)	15030



1P+N with manual operation	1NO	20	230	1+1/2 (1)	15031
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(1) comes with a 9 mm spacer (part number 27062): to be used in case of mounting of the CT+ next to a circuit-breaker, contactor, impulse relay, etc. to guarantee optimum use.

The RBN and RTBT relays are used to interface automated system inputs and outputs with low voltage equipment.

This relay is used for the control of low power electronic circuits on receipt of a LV electrical order: these electronic circuits can be programmable logic controller (PLC) inputs, measurement or monitoring circuits, etc.

This relay is used for the control of LV circuits from an Extra Low Voltage control: these ELV controls can be issued by a PLC (24V DC static outputs), a fire detection unit, a regulation system, etc.

Frequency:	50...60 Hz
Green pilot light on the control circuit	
Enhanced isolation between ELV/LV circuits:	4 kV
Electrical durability:	100,000 switching operations
Connection:	Tunnel terminals for 0.5 to 6 mm ² cables

RBN		
Power circuit:	Rating (In):	-min. 5 mA, 5 V AC/DC -max. 2 A, 250 V AC
Control circuit:	Voltage:	230 V AC +/- 10%
	Consumption:	Inrush: 5 VA Holding: 2.5 VA
Complies with standards:	IEC 255 100	
	IEC 529	

Power circuit:	Rating (In):	- min. 10 mA, 10 V DC - max. 5 A, 250 V AC
Control circuit:	Voltage:	- 12...24 V AC -15...% +10% - 12...24 V DC $\pm$ 20%
	Consumption:	- inrush: 0.22 W - holding: 0.11 W



Operation

Closing of the impulse relay pole(s) is triggered by an impulse on the coil. Equipped in the factory with 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).

- Manual controls on front face:
 - Direct and priority manual control by O-I toggle
 - Disconnection of remote control by selector switch (except for single-piece TL)
- Indication: mechanical on front face by toggle position

Technical data

Rating	16 A, cos φ = 0.6
Voltage rating	1P and 2P: 250 V, 50/60 Hz 3P, 4P: 415 V, 50/60 Hz
Inrush power	1P and 2P: 19 VA 3P, 4P: 38 VA
Remote control	By pushbutton (illuminated up to 3 mA)
Control voltage (Uc)	Tolerance at 50 Hz: Uc +6 % -15 % Tolerance at 60 Hz: Uc ±6 % Tolerance in DC: +6 % -10 %
Impulse duration	50 ms (recommended value for automation system: 200 ms)
Maximum switching frequency	5 switching operations/minute
Noise level on energisation	< 60 dBA (at 1 m)
Electrical durability	200,000 cycles (AC21) 100,000 cycles (AC22)
Operating temperature	-20 °C to +50 °C
Tropicalisation	Treatment 2 (relative humidity 95 % at +55 °C)
Connection	Screw "±", Posidriv
Connection terminals	Power circuit: tunnel terminals for cables up to 10 mm2
Control circuit:	Tunnel terminals for 0.5 to 6 mm2 cables
Compliance with standard	EN 669-1, EN 669-2-2
Approvals	NF, CEBEC, IMQ, VDE, GOST



Type	Width in mod. of 18 mm	Coil voltage (V AC)	(V DC)	Part number
16 A TL impulse relay				
1P	1	230...240	110	15510
		130	48	15511
		48	24	15512
		24	12	15513
		12	6	15514
2P	1	230...240	110	15520
		130	48	15521
		48	24	15522
		24	12	15523
		12	6	15524
4P	1	230...240	110	15155
		24	12	15158





Type	Width in mod. of 18 mm	Coil voltage (V AC)	(V DC)	Part number
16 A TL impulse relay				
1P	1	230...240	110	15510
	1	130	48	15511
		48	24	15512
		24	12	15513
		12	6	15514



2P	1	230...240	110	15520
	1	130	48	15521
		48	24	15522
		24	12	15523
		12	6	15524



16 A TL impulse relay + ETL				
3P	1+1	230...240	110	15510 + 15530
	1+1	130	48	15511 + 15531
		48	24	15512 + 15532
		24	12	15513 + 15533
		12	6	15514 + 15534
4P	1+1	230...240	110	15520 + 15530
	1+1	130	48	15521 + 15531
		48	24	15522 + 15532
		24	12	15523 + 15533
		12	6	15524 + 15534

16 A TLI impulse relays

1P - 2P	1	230...240	110	15500
	1	48	24	15502
		24	12	15503
3P - 4P	1+1	230...240	110	15500 + 15530
	1+1	48	24	15502 + 15532
		24	12	15503 + 15533

ETL extensions for 16 A TL and 16 A TLI

1	230...240	110	15530
	130	48	15531
	48	24	15532
	24	12	15533
	12	6	15534

Accessories

Set of 10 clips	15415
Auxiliarisation: ATet, ATLz, ATL4, ATLC+s, ATLC+c, ATLC, ATLS, ATLM.	

Closing of the impulse relay pole(s) is triggered by an impulse on the coil. Equipped in the factory with 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).

- ## Technical data

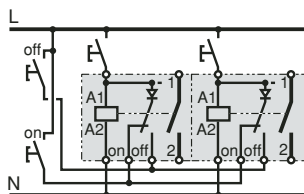
Rating	32 A, $\cos \varphi = 0.6$
Voltage rating	TL: 1P 250 V, 50/60 Hz TL: 2P, 3P, 4P (TL+ETL): 415 V, 50/60 Hz
Inrush power	1P: 19 VA, 2P: 38 VA, 3P: 57 VA, 4P: 76 VA
Control voltage (Uc)	Tolerance at 50 Hz: $U_c \pm 6\%$ -15 % Tolerance at 60 Hz: $U_c \pm 6\%$ Tolerance in DC: $\pm 6\%$ -10 %
Impulse duration	50 ms (recommended value for automation system: 200 ms)
Maximum switching frequency	5 switching operations/minute
Noise level on energisation	< 60 dBA (at 1 m)
Electrical durability	50,000 cycles (AC21), 20,000 cycles (AC22)
Operating temperature	-20 °C to +50 °C
Tropicalisation	Treatment 2 (relative humidity 95 % at +55 °C)
Connection	Screw "±", Posidriv
Connection	Terminals Power circuit: tunnel terminals for cables up to 10 mm ²
Control circuit:	Tunnel terminals for 0.5 to 6 mm ² cables



Accessories

Set of 10 clips	15415
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TLc, TLm, TLs impulse relays with built-in auxiliary function



TLc impulse relay with centralised control

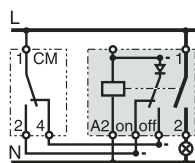
- Mechanically latched opening and closing of circuits remotely controlled by impulse
- Centralised control of a group of TLc impulse relays while at the same time maintaining local impulse control

Type	Width in mod. of 18 mm	Coil voltage U_c (V AC)	Part number
TLc 16 A	1	230...240	15518
		48	15526
		24	15525

Technical data

Rating	16 A, $\cos \varphi = 0.6$
Power circuit	1P: 250 V AC, 50/60 Hz, 2P, 3P, 4P: 415 V AC, 50/60 Hz
Inrush power	19 VA, 38 VA with ETL
Other data	Same as 16 A TL

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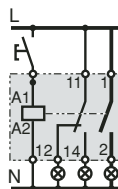
TLm impulse relay with latched control

- Operates on latched orders coming from a changeover switch (selector switch, time switches, thermostat)
- The manual control is inoperative

Type	Width in mod. of 18 mm	Coil voltage U_c (V AC)	(V DC)	Part number
TLm 16 A	1	230...240	110	15516

Technical data

Rating	16 A, $\cos \varphi = 0.6$
Power circuit	1P: 250 V AC, 50/60 Hz, 3P: 415 V AC, 50/60 Hz
Inrush power	19 VA, 38 VA with ETL
Other data	Same as 16 A TL



TLs impulse relay remote indication

- Mechanically latched opening and closing of circuits remotely controlled by impulses
- Remote indication of the mechanical status of the impulse relay

Type	Width in mod. of 18 mm	Coil voltage U_c (V AC)	(V DC)	Part number
TLs 16 A	1	230...240	110	15517
		48	24	15528
		24	12	15527

Technical data

Rating	16 A, $\cos \varphi = 0.6$
Power circuit	1P: 250 V AC, 50/60 Hz, 3P: 415 V AC, 50/60 Hz
Inrush power	19 VA, 38 VA with ETL
Auxiliary circuit	24 V CC, V AC / 10 mA à 240 V CC, V AC / 6 A
Other data	Same as 16 A TL

Impulse relay auxiliaries

ATEt, ATLz, ATLC+s

Add-on auxiliaries provide additional functions.
They allow:

- Time delay control
- Control by illuminated pushbuttons
- Centralised control + indication
- Multi-level centralised control
- Step by step control

ATEt time delay

Causes the automatic return of the impulse relay to the rest position after a time delay adjustable from 1 s to 10 h:

- The time delay cycle begins when the device closes
- A new impulse opens the impulse relay and interrupts the cycle

Type	Width in mod. of 18 mm	Coil voltage Uc (V AC)	(V DC)	Part number
ATEt	1	230...240	24...110	15419

ATLz control by illuminated pushbuttons

Used to control impulse relays by illuminated pushbuttons, without operating risks:

- Provide an ATLz when the current drawn up by the illuminated pushbuttons is higher than 3 mA (this current is sufficient to keep the coils energised). Above this value, fit one extra ATLz per 3 mA
- For example: for 7 mA, fit 2 ATLz.

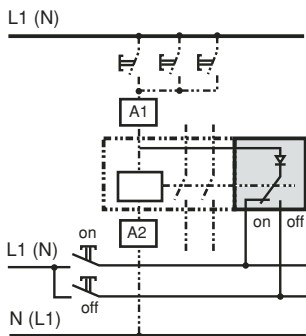
Type	Width in mod. of 18 mm	Coil voltage Uc (V AC)	Part number
ATLz	1	130...240	15413

ATLC+s centralised control + indication

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:

- Auxiliary contact: 24 V CC, V AC / 10 mA à 240 V CC, VAC / 6 A

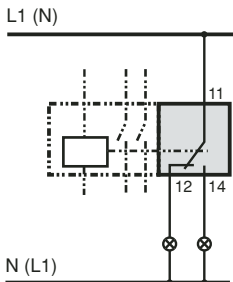
Type	Width in mod. of 18 mm	Coil voltage Uc (V AC)	Part number
ATLC+s	1	130...240	15409



ATLc centralised control

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.

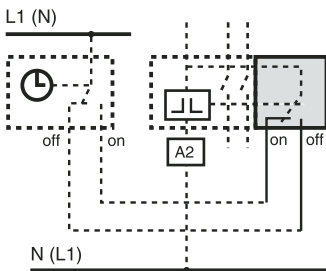
Type	Width in mod. of 18 mm	Coil voltage Uc (V AC)	Part number
ATLc	1/2	24...240	15404



ATLs indication

Allows remote indication of the associated impulse relay.

Type	Width in mod. of 18 mm	Voltage rating Current rating	Part number
ATLs	1/2	24 V...240 CA/CC 10 mA 6 A CA/CC	15405



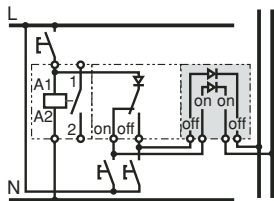
ATLm latched control

Combined with an impulse relay, it operates on latched orders.

Type	Width in mod. of 18 mm	Voltage rating Uc (V AC) (V DC)	Part number
ATLm	1/2	12...240 6...110	15414

Impulse relay auxiliaries

ATLc+c, ATL4

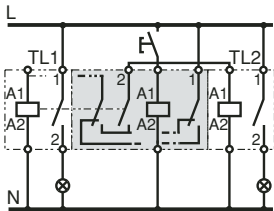


ATLc+c multi-level centralised control

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:

- Each group, made up of TLc or (TL or TLI or TLs) + ATLc+s, must only contain a single ATLc+c
- Mounting: without mechanical link with impulse relays and auxiliaries

Type	Width in mod. of 18 mm	Coil voltage Uc (V AC)	Part number
ATLc+c	1	24...240	15410



ATL4 step by step control

Allows the step by step sequence over 2 circuits:

- The cycle is as follows:
 - 1st impulse - TL 1 closed, TL 2 open
 - 2nd impulse - TL 1 open, TL 2 closed
 - 3rd impulse - TL 1 and 2 closed
 - 4th impulse - TL 1 and 2 open
 - 5th impulse - TL 1 closed, TL 2 open, etc.
- Mounting: assembled between 2 impulse relays: according to the auxiliarisation table

Type	Width in mod. of 18 mm	Coil voltage Uc (V AC)	(V DC)	Part number
ATL4	2	230...240	110	15412



Accessories

Yellow clips
Ensure the mechanical link (indicated in dotted lines on the diagrams) and/or the electrical link between impulse relays.

Type	Part number
Set of 10 clips (spare)	15415

The TL+ high performance impulse relay



The TL+ allows high performance, in particular in terms of the number of switching operations, equivalent performance with all lamp types, minimum noise, absence of electromagnetic disturbances.
It combines the advantages of static switching and electromechanical technology: compact size, minimum temperature rise.

Operation

The TL+ high performance impulse relay has a normally open contact and is controlled by impulse type electrical orders.

- One or more control points are possible.
- On the front face, an orange indicator light comes on when the output contact is closed

The TL+ impulse relay has a pushbutton on its front face allowing selection of the operating mode. A green indicator light indicates the current mode:

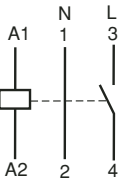
- ON/OFF control by room-mounted pushbutton (green light ON)
- "ON" override (green light flashing)
- "OFF" override (light OFF)

After a mains power outage, the TL+ returns to position 0, whatever its initial state.

Technical data

Voltage rating	230 V AC (±10 %), 50 Hz
Inrush power	11 VA
Holding power	1.1 VA
Impulse duration	50 ms (recommended value for automation system: 200 ms)
Control by illuminated pushbutton	Max. consumption 5 mA
Maximum switching frequency	6 switching operations/minute
Noise level on energisation	< 30 dBA
Characterisation on load types	No derating
Electrical durability	5,000,000 cycles
Compliance with standard	EN 669-2-2
Approval	NF
Operating temperature	-5 °C to +55 °C
Connection by tunnel terminals for flexible and rigid cables	Up to 2 x 1.5 mm ² with end 2 x 2.5 mm ² without end 1 x 4 mm ² without end

Type	Width in mod. of 18 mm	Coil voltage Uc (V AC)	Part number
TL+ 16 A 1P+N	1 (1)	230	15032



1) Comes with a 9 mm spacer (Part number. 27062): to be used in case of mounting of the TL+ next to a circuit-breaker, contactor, impulse relay, etc. to guarantee optimum use.

NB. The same phase must be used for power and control connection.

RTA, RTB, RTC, RTH, RTL and RTMF time delay relays

Technical data

Time delay range:	0.1 s to 100 h
Control circuit:	Control and supply voltage:
	- 24 V DC $\pm 10\%$
	- 24..40 V AC $\pm 10\%$
	- RTMF: 12..240 V AC/DC $\pm 10\%$
Frequency:	50...60 Hz
Operating temperature:	-5...+55 °C
Power circuit:	Changeover switch (without cadmium)
	- minimum rating: 10 mA/5 V DC
	- maximum rating: 8 A/250V DC and 8 A/250 V AC
Mechanical durability:	> 5.106 operations
Electrical durability:	> 105 operations (utilisation category AC1)
Accuracy:	$\pm 10\%$ full scale
Minimum control impulse duration:	100 ms
Maximum resetting time by voltage break:	100 ms
Repetition accuracy:	$\pm 0.5\%$ with constant parameters
Visualisation of contact status:	by green indicator light (flashing during the time delay)
Unaffected by brownouts:	<20 ms
Case protection:	IP40
Connection by tunnel terminals:	2 x 2.5 mm ² single-strand cable without end 2 x 1.5 mm ² multi-strand cable with end

Specific technical data

RTA

Delays energisation of a load

The single time delay cycle starts on energisation of the supply of the RTA relay

The load is energised at the end of time delay T

RTB

Applies a time delay to energisation of a load on closing of an auxiliary contact (pushbutton)

The single time delay cycle starts on closing of an auxiliary contact (pushbutton)

At the end of time delay T, the load is de-energised

RTC

Delays energisation of a load on closing of an auxiliary contact (pushbutton)

The single time delay cycle only starts when an auxiliary contact is released (pushbutton)

At the end of time delay T, the load is de-energised

RTH

Applies a time delay to energisation of a load

The single time delay cycle starts on energisation of the supply of the RTH relay

The load is de-energised at the end of time delay T

RTL

Applies a time delay to energisation and de-energisation of a load for different periods of time, repeatedly (flashing indicator)

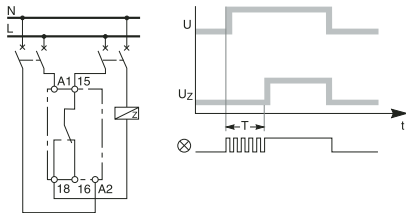
The time delay cycle starts on energisation

The load is energised for an adjustable time T1, then de-energised for an adjustable time T2. This cycle is repeated until the RTL relay supply is de-energised

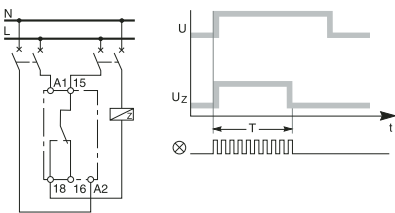
RTMF

Lets you select one of the 4 time delay types: A, B, C or H

As applicable, the RTMF generates the time delay cycles of the RTA, RTB, RTC or RTH relays

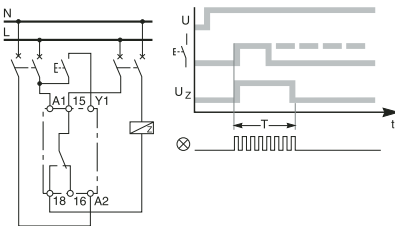


Type	Part number	Width in mod of 18 mm
RTA	16065	1

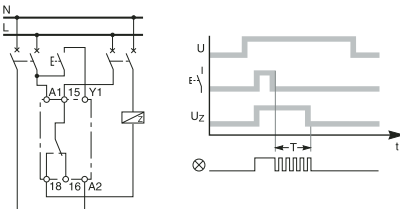


RTB	16066	1
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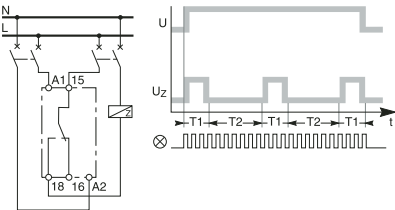
5



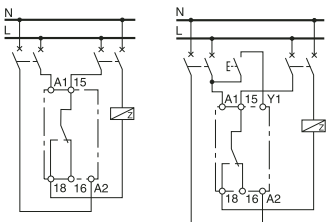
RTC	16067	1
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RTH	16068	1
-----	-------	---



RTL	16069	1
-----	-------	---



RTMF	16070	1
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This is used in association with MIN or MINs timers and only on incandescent lighting circuits (not used on fluorescent, fluocompact lamps and very low voltage halogen lamps). It provides warning that the lighting is about to be switched off by reducing the brightness by 50% during the 20 to 60 s warning time.

5

MIN
Technical data



Functions

These timers allow closing and then opening of a contact in a determined time.

Technical data

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

Voltage:	230 V AC $\pm$ 0 %
Frequency:	50 Hz.
Consumption during operation:	1 VA maximum
Consumption of connected luminous push-buttons:	50 mA maximum
Degree of protection:	IP 20B
Operating temperature:	-10°C to +50°C
Contact rating:	6 A, $\cos \varphi = 1$
Load table:	

Type of lighting	Maximum power
230 V incandescent and halogen lamps	2300 W
Non-corrected/ serial-corrected/ dual mounted fluorescent tubes with conventional ballast	2300 VA
Fluocompact lamps with conventional ballast	2000 VA
Parallel-corrected fluorescent tubes with conventional ballast	1300 VA (70 μ F)
Fluorescent tubes with electronic ballast	300 VA
Fluocompact lamps with electronic ballast	9 x 7W, 6 x 11W, 5 x 5W, 5 x 20W

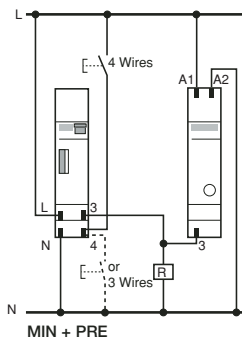
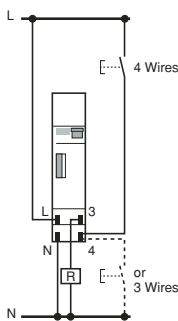
Control circuit:	Connected luminous push-buttons; timer inoperative via self-protection if consumption above 50 mA maximum
Switch-off warning:	External via use of PRE product

Connection

Connection terminals:	1 screw connection per pole for cables up to 6mm ²
Connection type:	3 or 4 wires with selector switch on the side of the product

Part numbers

Type	Part number
MIN	15363



MINp, MINt

Technical data



Functions

This 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 (see "MINt").

Technical data

Time delay adjustable from 0.5 to 20 min

Three operating modes triggered by switch on front face:

Timer mode with warning function built into the device.
The lamp blinks 40 and 30 s before the end of the time delay

Timer 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

For MINp, 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

For MINt, 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)

Voltage: 230 V AC +10 %, - 15%

Frequency: 50/60 Hz

Consumption during operation: < 6 VA

Consumption of connected luminous push-buttons: 50 mA maximum

Insulation class: Class II

Degree of protection: IP 20B

Operating temperature: -25°C to +50°C

Contact rating: 6 A, cos φ = 1

Load table:

Type of lighting	Maximum power
230 V incandescent and halogen lamps	3600 W
Non-corrected/ serial-corrected/ dual mounted fluorescent tubes with conventional ballast	3600 VA ⁽¹⁾
Fluocompact lamps with conventional ballast	500 VA ⁽¹⁾
Parallel-corrected fluorescent tubes with conventional ballast	1200 VA (120 mF) ⁽¹⁾
Fluorescent tubes with electronic ballast	1000 VA
Fluocompact lamps with electronic ballast	34 x 7W, 27 x 11W, 24 x 5W, 22 x 23W

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

Connection

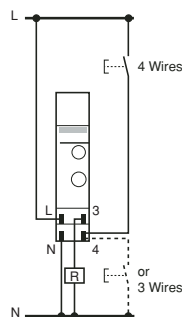
Connection terminals: 1 screw connection per pole for cables up to 6mm²

Connection type: 3 or 4 wires with selector switch on the side of the product

Mechanical compatibility with electrical distribution comb busbars

Part numbers

Type	Part number
MINp	CCT15233
MINt	CCT15234



MINs

Technical data



Functions

These timers allow closing and then opening of a contact in a determined time.

Technical data

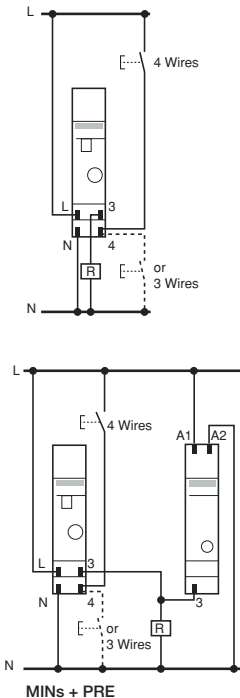
Two operating modes triggered by switch on front face:	timer mode: time delay adjustable from 0.5 to 20 min permanent mode: constant lighting
Pressing on a push-button renews the time delay	
Voltage:	230 V AC +10 %, - 15%
Frequency:	50/60 Hz
Consumption during operation:	< 6 VA
Consumption of connected luminous pushbuttons:	50 mA maximum
Insulation class:	Class II
Degree of protection:	IP 20B
Operating temperature:	-25°C to +50°C
Contact rating:	6 A, cos φ = 1
Switch-off warning:	External via use of PRE product

Type of lighting	Maximum power
230 V incandescent and halogen lamps	2300 W
Non-corrected/ serial-corrected/ dual mounted fluorescent tubes with conventional ballast	2300 VA
Fluocompact lamps with conventional ballast	1500 VA
Parallel-corrected fluorescent tubes with conventional ballast	400 VA (42 μ F)
Fluorescent tubes with electronic ballast	300 VA
Fluocompact lamps with electronic ballast	9 x 7W, 7 x 11W, 7 x 5W, 7 x 20W, 7 x 23W

Connection	
Connection terminals:	Screw connection per pole for cables up to 6 mm ²
Connection type:	3 or 4 wires with automatic selection of the control push-button connection
Mechanical compatibility with electrical distribution comb busbars	

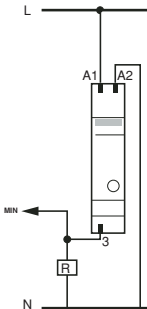
Part numbers

Type	Part number
MINs	CCT15232



PRE switch-off warning

Technical data



Functions

This is used in association with MIN or MINs timers and only on incandescent lighting circuits (not used on fluorescent, fluocompact lamps and very low voltage halogen lamps). It provides warning that the lighting is about to be switched off by reducing the brightness by 50% during the 20 to 60 s warning time.

Technical data

Only to be used with the MIN et MINs timers	
50% reduction in brightness during warning time	
Time adjustable	from 20 to 60 s
Voltage:	230 V AC $\pm$ 10 %
Frequency:	50/60 Hz
Operating temperature:	-10°C to +50°C
Maximum power:	2300 W for incandescent lamps only.
Not compatible with fluorescent lamps, fluocompact lamps and very low voltage halogen lamps	

Connection

Connection terminals:	Screw connection per pole for cables up to 6 mm ²
Connection type:	3 or 4 wires

Part numbers

Type	Part number
PRE	15376
Specific terminal shield for MIN	15359

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 switches
- By positioning of jumpers or captive segments on a programming dial for the mechanical IH switches

An IHP or IH 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 (mods. of 9mm)	Override controls On/Off	Output contact changeover switch (cos φ = 1)	Time changeover (summer/winter)
IHP 1c	1	24 h and/or 7 d	1 min	56	6 years	5	On/Off	16 A	Auto
IHP + c	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
18 mm intuitive switches									
IHP c 18 mm	1	24 h and/or 7 d	1 min	28	3 years	2	On/Off	16 A	Auto
IHP + c 8 mm	1	24 h and/or 7 d	1 min	42	3 years	2	On/Off	16 A	Auto
Annual switches									
IHP c annual ⁽¹⁾	1	7 d + dated d	1 min	6	4 years	10	On/Off	16 A	Auto
IHP 2c annual ⁽¹⁾	2	7 d + dated d	1 min	6	4 years	10	On/Off	16 A	Auto
Multifunctional switch									
ITM 4C-6E ⁽²⁾	4	60 min., 24 h, 7 d, 7 d + dated d	1 s	⁽³⁾	5 years	10	On/Off ⁽⁴⁾	10 A	Auto
Mechanical switches									
IH 60 mn c SRM	1	60 min.	1 min 15 s	24 On - 24 Off	None	6	On	16 A	Manual
IH 24h c SRM	1	24 h	30 min	24 On - 24 Off	None	6	On	16 A	Manual
IH 24h c ARM	1	24 h	30 min	24 On - 24 Off	50 h	6	On	16 A	Manual
IH 24h 2c ARM	2	24 h	30 min	24 On - 24 Off	50 h	6	On	16 A	Manual
IH 7d c ARM	1	7 days	4 h	2 On - 2 Off	50 h	6	On	16 A	Manual
IH 24 h + 7d + c ARM	1+1	24 h + 7 d	45 min + 12 h	16 On - 16 Off + 7 On - 7 Off	150 h	6	On	16 A	Manual
18 mm mechanical switches									
IHH 7d c ARM	1	7 days	2 h	42 On - 42 Off	100 h	2	On/Off	16 A	Manual
IH 24h c ARM	1	24 h	5 min	48 On - 48 Off	100 h	2	On/Off	16 A	Manual
IH 24h c SRM	1	24 h	5 min	48 On - 48 Off	None	2	On/Off	16 A	Manual

Accessories

Programming kit⁽⁵⁾

Memory key⁽⁵⁾

Memory cartridge⁽⁶⁾

(1) Programming of dated days allows specific switching operations on certain days.

(2) 4 output channels and 6 condition inputs.

(3) 45 time brackets in weekly time programming, 5 time brackets in annual time programming, 20 different pulses in pulse programming.

(4) On/Off via an override input or a condition input.

(5) For IHP + c and IHP+ 2c.

(6) For ITM 4c-6E.

(7) Pulse programming allows switching operations of a duration less than one minute (adjustable from to 59s); a pulse control always has priority.

(8) French, english, italian, spanish, german, portuguese languages.

Back-lit display random function and pulse programming ⁽⁷⁾	Absence for holidays function	Screwless connection	Mechanical compatability with electrical distribution comb busbar	Input for external control	Instruction manual holder in front face	Memory key integrated in front face	Part numbers ⁽⁸⁾
	■	■	■		■		CCT15720
■	■	■	■	1 input	■	■	CCT15721
	■	■	■		■		CCT15722
■	■	■	■	2 inputs	■	■	CCT15723
							15854
■	■	■					15837
	■						16355
	■						16356
Pulse function		■			■	■	15720
							15338
							16364
							15365
							15337
							15367
							15366
							15331
							15336
							15335
							CCT15860
							CCT15861
							15280



IHP 1C



IHP 2C



IHP + 1C



IHP + 2C



Programming kit for PC



Memory key

Application

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 overridden temporary or permanently by pressing 2 keys on the product
- The IHP 1C and 2C, as the IHP+ also offer holidays program, by configuring the starting and ending dates of the absence

Electrical data

Voltage:	230 V AC $\pm$ 10 %
Frequency:	50/60 Hz
Consumption:	4 VA for IHP 1c/+ 1c, 7 VA for IHP 2c/+2c
Saving of program and time by lithium battery:	Lifetime: 6 years for IHP 1c/2c, IHP+ 1c/2c Back-up time, cumulated mains cut off: 6 years for IHP 1c/2c and IHP+ 1c/2c
Time accuracy:	$\pm$ 1 s per day at 20°C
Contact rating:	16 A under 250 V AC ($\cos \varphi = 1$) 10 A under 250 V AC ($\cos \varphi = 0.6$)

Mechanical data

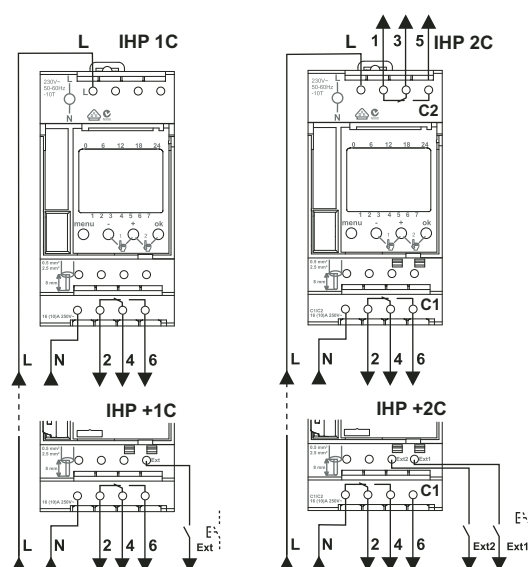
Overall dimensions:	5 modules of 9 mm
Degree of protection:	IP20B
Operating temperature:	- 10°C to + 50°C
Location for instruction manual on the front face for IHP 1c/2c, IHP + 1C/2c	
The IHP 1c/2c, IHP + 1c/2c are compatible with electrical distribution comb busbars (mechanical compatibility)	

Specific data for 1 and 2 channel IHP+

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 to 59 s (pulse takes priority over switching)
Back-lighting of the screen	
Memory key located on front face	
Supplementary inputs for external control with a switch or a push-button (input for IHP+ 1c and 2 inputs for IHP+ 2c)	
	Characteristics of the input:
	Voltage: 230 V AC, + 10%, -15%
	Frequency: 50/60 Hz
	Input current: max. 1.2 mA
	Consumption: max. 0.3 mW
	Cable length: max. 100 m
Accessory:	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

- 1 screw connection per pole for cables up to 6 mm² for IHP 1c/2c
- 2 screw-less connection per pole for cables up to 2.5 mm² for IHP 1c/2c and IHP+ 1c/2c

Designation	Part number
IHP 1c	CCT15720
IHP + 1c	CCT15721
IHP 2c	CCT15722
IHP + 2c	CCT15723
Programming kit for PC	CCT15860
Memory key	CCT15861





- 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 overridden temporary or permanently by pressing 2 keys on the product

Voltage:	230 V AC $\pm$ 10 %
Frequency:	50/60 Hz
Consumption:	2.5 VA for IHP 1c 8 mm, 3 VA for IHP + 1c 18 mm
Saving of program and time by lithium battery:	Lifetime: 10 years Back-up time, cumulated mains cut off: 3 years
Time accuracy:	$\pm$ 1 s per day at 20°C
Contact rating:	16 A under 250 V AC ($\cos \varphi = 1$) 4 A under 250 V AC ($\cos \varphi = 0.6$)

Overall dimensions:	2 modules of 9 mm
Degree of protection:	IP20B
Operating temperature:	- 10°C to + 50°C
Mechanical compatibility with electrical distribution comb busbars (only for IHP + 1 c 8 mm)	

- 1 screw connection per pole for cables up to 6 mm²

Designation	Part number
IHP 1c 18mm	15854
IHP + 1c 18mm	15857





IHP 1c annual



IHP 2c annual

Function

- These time switches automatically switch on and off loads according to the program entered by the user
- They operate on annual cycle: the same program is repeated year after year
- They offer automatic summer/winter time change and allow to adjust it according to where you are located
- The program can be overridden temporary or permanently by pressing keys on the product

Electrical data

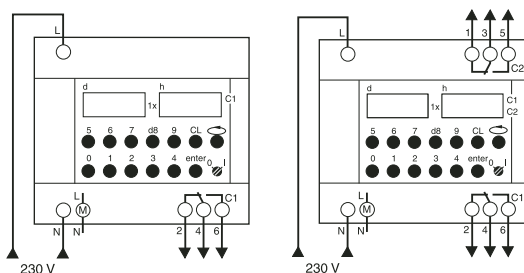
Voltage:	230 V AC $\pm 10\%$
Frequency:	50/60 Hz
Consumption:	3.5 VA
Saving of program and time by lithium battery:	Lifetime: 10 years Back-up time, cumulated mains cut off: 4 years
Time accuracy:	± 1 s per day at 20°C
Contact rating:	16 A under 250 V AC ($\cos \varphi = 1$) 10 A under 250 V AC ($\cos \varphi = 0.6$)

Mechanical data

Overall dimensions:	10 modules of 9 mm
Degree of protection:	Front face - IP40
	Terminals - IP20B
Operating temperature:	- 10°C to + 50°C

Connection

- 1 screw connection per pole for cables up to 6 mm²



IHP 1c annual

IHP 2c annual

Part numbers

Designation	Part number
IHP 1c annual	16355
IHP 2c annual	16356

Accessories

Lithium battery	16357
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IHH 7d 1c ARM



IH 24h 1c ARM

Function

- These time switches automatically switch on and off loads according to the program entered by the user
- They operate daily or weekly cycle: the same program is repeated hour after hour, day after day (IH 24 h), week after week (IH 7d)
- The program can be overridden on or off

Electrical data

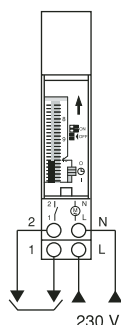
Voltage:	230 V AC $\pm$ 10 %
Frequency:	50/60 Hz
Consumption:	2.5 VA
Saving program and time:	Lifetime: 10 years Back-up time, cumulated mains cut off: 100 hours (except for IH 24 h C SRM).
Time accuracy:	$\pm$ 1 s per day at 20°C
Contact rating:	16 A under 250 V AC ($\cos \varphi = 1$) 4 A under 250 V AC ($\cos \varphi = 0.6$)

Mechanical data

Programming by captive segments	
Overall dimensions:	2 modules of 9 mm
Degree of protection:	Front face: IP40 Terminals: IP20B
Operating temperature:	- 10°C to + 50°C

Connection

- 1 screw connection per pole for cables up to 6 mm²



Part numbers

Designation	Part number
IHH 7d 1c ARM	15331
IH 24h 1c SRM	15335
IH 24h 1c ARM	15336

Mechanical switches

Technical data



IH 60 min. 1c SRM



IH 24 h 1c SRM



IH 24 h + 7d 1 + 1c ARM

Function

- These time switches automatically switch on and off loads according to the program entered by the user
- They operate on hourly, daily or weekly cycle: the same program is repeated hour after hour (IH 60 min), day after day (IH 24 h), week after week (IH 7d)
- The program can be overridden on

Electrical data

Voltage:	230 V AC $\pm$ 10 %
Frequency:	50/60 Hz (50 Hz for IH 60 min. 1c SRM, IH 24h + 7d + 1c SRM)
Consumption:	2.5 VA (VA for IH 60 min. 1c SRM)
Time accuracy:	$\pm$ 1 s per day at 20°C
Contact rating:	16 A under 250 VAC (cos φ = 1) 4 A under 250 VAC (cos φ = 0.6)

Mechanical data

Programming: By jumpers (supplied):

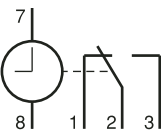
IH type	Number of jumpers supplied
IH 24h 2c ARM	4 red + 4 green + 2 white
IH 24h + 7d + 1c ARM	6 yellow (24 h) 12 blue + 2 red (7 white)
IH 7d 1c ARM	7 blue + 7 red

By captive segments for the other catalogue numbers

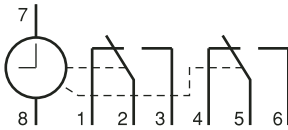
Overall dimensions:	6 modules of 9 mm
Degree of protection:	Front face: IP40 Terminals: IP20B
Operating temperature:	- 10°C to + 50°C
Accessories for Part. No.	IH 24h 2c ARM, IH 24h + 7d + c ARM, IH 7d c ARM: the additional jumpers are used to program a larger number of sequences

Connection

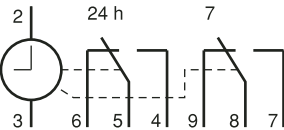
- 1 screw connection per pole for cables up to 6 mm²



IH 60 min 1c SRM,
IH 24h 1c SRM/ARM, IH 7d 1c ARM



IH 24h 2c ARM



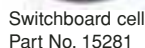
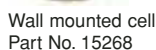
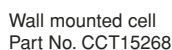
IH 24d +7d 1 + 1c ARM

Part numbers

Designation	Part number
IH 60 min 1c SRM	15338
IH 24h 1c SRM	16364
IH 24h 1c ARM	15365
IH 24h 2c ARM	15337
IH 7d 1c ARM	15367
IH 24h + 7d 1 + 1c ARM	15366

Accessories

Additional jumpers (1 bag containing: 5 red, 5 green, 5 white, 5 yellow)	15341
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5

Spare cell	Part number
Switchboard cell, IP65	15281
Wall-mounted cell, IP54 (compatible with all products)	CCT15268



IC100



Wall mounted cell

Function

The light sensitive switch 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.

Technical data

IC100

Adjustable brightness threshold:	2 to 100 lux
Time delay:	On closing: 20 s On contact breaking: 80 s
Contact opening:	< 3 mm
Insulation class:	Class II
Degree of protection:	IP20B
Compatible with electrical distribution comb busbars	
Delivered with wall mounted cell and its fixing device	
Contact rating:	16 A under 250 V AC ($\cos \varphi = 1$) 10 A under 250 V AC ($\cos \varphi = 0.6$)

IC100 load table:

Type of lighting	Maximum power
230 V incandescent and halogen lamps	2300 W
Non-corrected/ serial-corrected/ dual mounted fluorescent tubes with conventional ballast	2300 VA
Fluocompact lamps with conventional ballast	1500 VA
Non-corrected/ serial-corrected mercury and sodium vapour lamps	1000 VA
Parallel-corrected mercury/ sodium vapour lamps and parallel-corrected fluorescent tubes with conventional ballast	400 VA
Fluorescent tubes/ dual mounted with electronic ballast	300 VA
Fluocompact lamps with electronic ballast	9 x 7W, 7 x 11W, 7 x 5W, 7 x 20W, 7 x 23W

IC200

Adjustable brightness threshold:	2 to 200 lux
Time delay on contact closing and breaking:	> 40 s
Delivered with switchboard front face cell	
Contact rating:	16 A under 250 V AC ($\cos \varphi = 1$) 10 A under 250 V AC ($\cos \varphi = 0.6$)

IC200 load table:

Type of lighting	Maximum power
230 V incandescent, halogen lamps and fluocompact lamp with conventional ballast	2300 W
Non-corrected/ serial-corrected fluorescent tubes with conventional ballast	46 x 36W, 23 x 58W, 14 x 100W
Parallel-corrected fluorescent tubes with conventional ballast	10 x 36W, 6 x 58W, 2 x 100W
Dual-mounted fluorescent tubes with conventional ballast	11 x (2 x 58W), 6 x (2 x 100W)
Fluorescent tubes with electronic ballast	9 x 36W, 7 x 58W
Dual-mounted fluorescent tubes with electronic ballast	5 x (2 x 36W), 4 x (2 x 58W)
Fluocompact lamps with electronic ballast	6 x 7W, 8 x 11W, 6 x 15W, 6 x 20W
Parallel-corrected mercury and sodium vapour lamps	250 W

Wall mounted cell - Part No. 15268 (delivered with product and its fixing device)

- Cell connection: by double insulation 2-conductor cable, not to be laid next to mains cables or water ducts, maximum length: 25 m for IC100
- Degree of protection: IP54, IK05
- Operating temperature: -40°C to +70°C

Switchboard cell (delivered with product and its fixing device)

- Delivered with 1 m cable
- Degree of protection: IP65
- Operating temperature: -40°C to +70°C



IC200



Switchboard cell

IC2000

Technical data



IC2000



Wall mounted cell

Function

The light sensitive switch 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.

Technical data

Adjustable brightness threshold:	2 to 2000 lux
Time delay on contact closing and breaking	60 s
Contact opening:	< 3 mm
Insulation class:	Class II
Degree of protection:	IP20B
Delivered with wall mounted cell and its fixing device	
Contact rating:	16 A under 250 V AC (cos φ = 1) 10 A under 250 V AC (cos φ = 0.6)

Load table:

Type of lighting	Maximum power
230 V incandescent and halogen lamps	2300 W
Non-corrected/ serial-corrected/ dual mounted fluorescent tubes with conventional ballast	2300 VA
Fluocompact lamps with conventional ballast	1500 VA
Non-corrected/ serial-corrected mercury and sodium vapour lamps	1000 VA
Parallel-corrected mercury/ sodium vapour lamps and parallel-corrected fluorescent tubes with conventional ballast	400 VA
Fluorescent / dual-mounted fluorescent tubes with electronic ballast	300 VA
Fluocompact lamps with electronic ballast	9 x 7W, 7 x 11W, 7 x 15W, 7 x 20W, 7 x 23W

Wall mounted cell - Part No. CCT15268
(delivered with product and 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
- Horizontally orientable (90°)
- Degree of protection: IP54, IK05
- Operating temperature: -40°C to +70°C

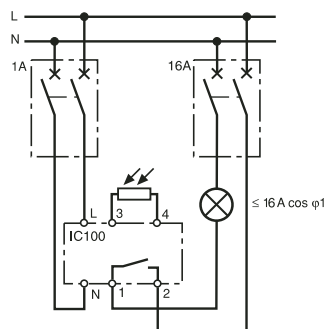


Fig. 1

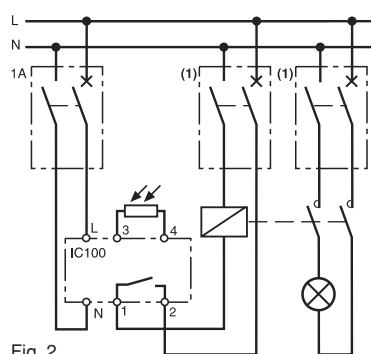


Fig. 2

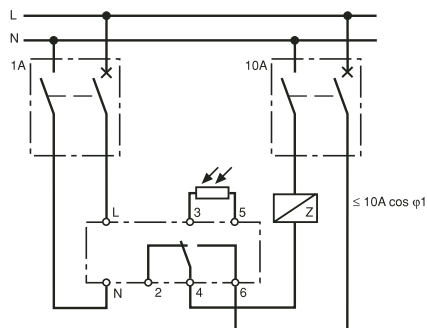


Fig. 3

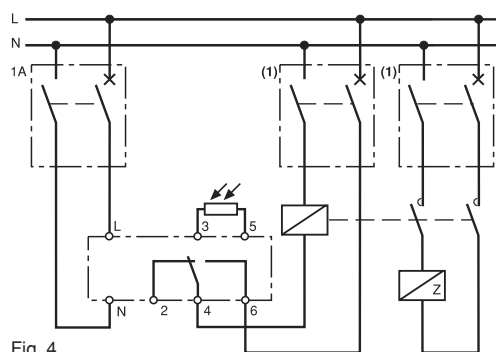


Fig. 4

(1) Determination of ratings according to the power of the load(s).

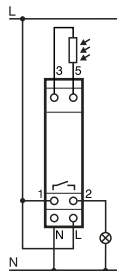
Connection

IC100, IC200, IC2000

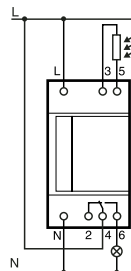
Connection terminals:

1 screw connection per pole for cables up to 6 mm² for IC100 and IC200

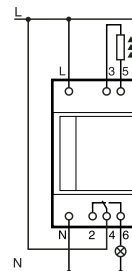
2 screw less connection per pole for cables up to 2.5 mm² for IC2000



IC100



IC200



IC2000

Technical data

IC100

To guarantee safety of people, it is essential to comply with positioning of the power supply (L and N terminal). Reversal of these two terminals is forbidden.

Determination of ratings Power ≤ 16 A, Cos φ = 1 (Fig. 1)

according to the power of the load(s) Power > 16 A, Cos φ = 1 (Fig. 2): you must relay with a contactor

IC200, IC2000

Determination of ratings Power ≤ 10 A, Cos φ = 1 (fig. 3).

according to the power of the load(s) Power > 10 A, Cos φ = 1 (fig. 4): you must relay with a contactor.

To facilitate threshold setting, mount the resistor (47 kW) supplied in place of the cell (terminals 3-5). Act on the threshold setting potentiometer until the red LED lights up

Part numbers

Type	Part number
IC100	15482
IC200	15284
IC2000	CCT15368



IC2000P+



Wall mounted cell

Function

The IC2000P+ controls lighting according to brightness and time. If brightness drops below the set threshold (light sensitive function: IC) and if the time program allows relay closing (time switch function), then the lighting circuit is activated.

Description

The IC2000P+ uses its time programming to define lighting On and Off periods:

- According to three pre-set time programs:
 - ☐ "DAYPROG": On time programming from 7 am to 8 pm a validation of the IC function from 7 am to 8 pm
 - ☐ "NIGHTPROG": On time programming from 5 am to 8 am and from 6 pm to 8 pm a validation of the IC function on these two operating periods
 - ☐ "EMPTYPROG": Off time programming throughout the day a no validation of the IC function. These programs can be modified if necessary
- According to a customised operating period, with possibility of copying to the other days. It is equipped with the following functions:
 - ☐ Consideration of periods of absence (holidays)
 - ☐ Temporary or permanent On or Off override
 - ☐ Remote control of lighting override by NO external contact
 - ☐ Consideration of change to "summer/winter" time, automatic or manual
 - ☐ Permanent liquid crystal display: of time and minutes

Technical data

Adjustable brightness threshold over 3 ranges:	Range 1 : 2 to 50 lx Range 2: 60 to 300 lx Range 3: 350 to 2100 lx
Time delay on contact closing and breaking:	Separate setting between 20 s and 40 s (80 s by default)
Contact:	Potential free.
Time base:	quartz.
Operating accuracy:	$< \pm 1 \text{ s} / \text{day}$ at 20°C.
Number of separate switching operations:	42
Minimum switching:	1 min
Switching accuracy:	1 s
Insulation class:	Class II
Degree of protection:	IP20B
Contact rating:	16 A under 250 V AC ($\cos \varphi = 1$) 10 A under 250 V AC ($\cos \varphi = 0.6$)

Type of lighting	Maximum power
230 V incandescent and halogen lamps	2300 W
Non corrected/serial corrected fluorescent tubes with conventional ballast	26 x 36W, 20 x 58W, 10 x 100W
Parallel corrected fluorescent tubes with conventional ballast	10 x 36W, 6 x 58W, 2 x 100W
Dual-mounted fluorescent tubes with conventional ballast	10 x (2 x 58W), 5 x (2 x 100W)
Fluorescent tubes with electronic ballast	9 x 36W, 6 x 58W
Dual-mounted fluorescent tubes with electronic ballast	5 x (2 x 36W), 3 x (2 x 58W)
Fluocompact lamps with electronic ballast	9 x 7W, 7 x 11W, 7 x 15W, 7 x 20W
Parallel-corrected mercurv and sodium vapour lamps	250 W

Wall mounted cell (delivered with product and its fixing device)

- Photoresistance, connection by 2-wire cable, 100 m max
Do not install parallel to mains cables

- Degree of protection: IP54, IK05
- Operating temperature: -40°C to +70°C

External input

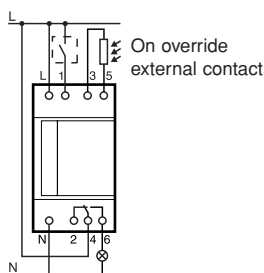
- Voltage: 230 V AC, + 10 %, - 15 %
- Frequency: 50/60 Hz
- Input current: max. 2.5 mA
- Consumption: max. 0.4 mW
- Cable length: max. 100 m

Connection

- Connection terminals: 1 screw connection per pole for cables up to 6 mm²

Part numbers

Type	Part number
IC2000P+	15483





IC Astro

Function

The IC Astro astronomic programmable light sensitive 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.

Description

The IC Astro is configured according to the place of installation.

■ The place of installation of the IC Astro can be configured:

- ☐ Either by selecting a country and a town
- ☐ Or by its geographic coordinates (latitude, longitude)

■ The IC Astro allows:

- ☐ Addition or deletion of a switch-off/switch-on switching operation (Off-On) between the sunset and sunrise times
- ☐ Different programmes each day
- ☐ Difference in sunset and/or sunrise times, adjustable separately by ± 120 min. according to local constraints (mountains, buildings, etc.)
- ☐ Consideration of periods of absence (holidays), remote control of lighting override by a NO contact
- ☐ Re-initialisation of programmes
- ☐ Automatic switching to "summer-winter" time
- ☐ Permanent display by liquid crystals: hours and minutes, day of the week, contact output status, and current programme
- ☐ Manual waiver of the lighting On/Off programme, permanently or temporarily (up to the next switching operation)

Technical data

Memory:	14 switching operations (not including sunrise/sunset)
Minimum time between 2 switching operations:	1 min
Switching accuracy:	1 s
Time accuracy:	± 1 s /day
Programming longitude:	- 80° (East) to + 80° (West) in steps of 1°
Programming latitude:	-90° (South) to +90° (North) in steps of 1°
Operating temperature:	-20°C to +50°C
Degree of protection:	IP20B
Consumption:	override input: < 0.5 mA
Contact rating:	16 A under 250 V AC ($\cos \varphi = 1$) 10 A under 250 V AC ($\cos \varphi = 0.6$)

Load table:

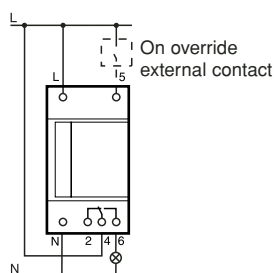
Type of lighting	Maximum power
230 V incandescent and halogen lamps	2300 W
Non-corrected/ serial-corrected fluorescent tubes with conventional ballast	26 x 36W, 20 x 58W, 10 x 100W
Parallel corrected fluorescent tubes with conventional ballast	10 x 36W, 6 x 58W, 2 x 100W
Dual-mounted fluorescent tubes with conventional ballast	10 x (2 x 58W), 5 x (2 x 100W)
Fluorescent tubes with electronic ballast	9 x 36W, 6 x 58W
Dual-mounted fluorescent tubes with electronic ballast	5 x (2 x 36W), 3 x (2 x 58W)
Fluocompact lamps with electronic ballast	9 x 7W, 7 x 11W, 7 x 15W, 7 x 20W
Parallel-corrected mercury and sodium vapour lamps	250 W

Connection

■ Connection terminals: 1 screw connection per pole for cables up to 6 mm²

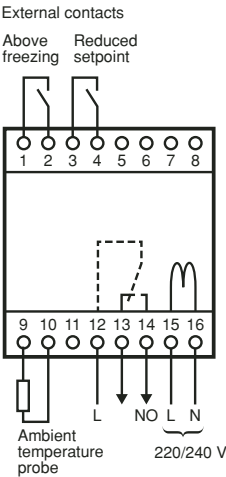
Part numbers

Type	Language	Part number
IC Astro	gb, fr, es, it, de, pt	15223





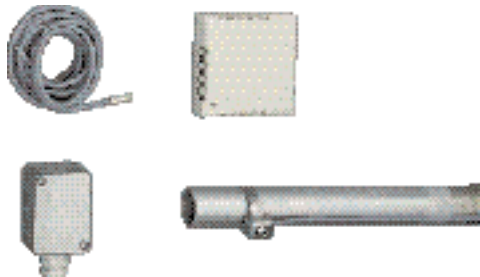
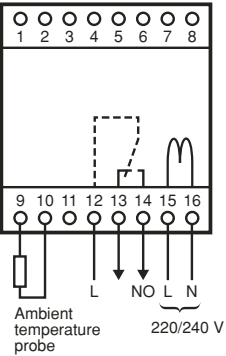
Type	Supply voltage (V AC)	Width mod. of 18 mm	Part number
TH3	220...240	4	15841



5



Type	Supply voltage (V AC)	Width mod. of 18 mm	Part number
TH6	220...240	4	15840



Probes	
Floor temperature probe with 2 m cable	15845
Ambient temperature probe	15846
Outside temperature probe	15847
Collar probe with 2m cable	15848

Function

THP

Monitors and regulates ambient temperature in 1 or 2 zones according to 3 operating modes:

- Comfort: 5 °C to 30 °C while the premises are occupied
- Reduced: 5 °C to 26 °C while the premises are unoccupied
- Above freezing: the temperature in the premises is maintained at approximately 6 °C

Ambient temperature probe

Installed inside buildings, this probe is used to measure temperature.

Operation

THP

- Choice of operating mode:
 - ☐ By local pushbutton: automatic, reduced, comfort, above freezing
 - ☐ By external remote contact overriding the local pushbutton
 - ☐ The comfort operating mode overrides the above freezing mode
- Programming:
 - ☐ Minimum programming time between 2 switching operations: 1 minute
- ☐ Memory:
 - THP1: up to 42 switching operations
 - THP2: up to 168 switching operations
- ☐ Programmes over 24 hours and 7 days with:
 - possible anticipation of switching
 - deletion of a switching operation in order to modify or cancel a sequence
- ☐ Changeover to "summer-winter" time in a single operation

Technical data

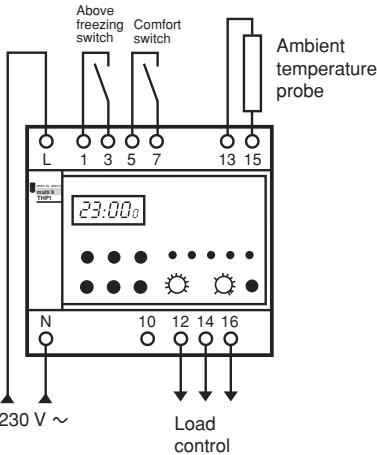
THP

Electrical data:	Consumption:	1 VA
	Output contact current:	5 A under 250 V $\cos \varphi = 1$, 1 A under 250 V $\cos \varphi = 0.6$
Display:	By liquid crystal display:	Of hour, minutes, day of the week and of contact status
	Indicator lights:	5 light-emitting diodes for 1 zone and 10 for 2 zones displaying: - the automatic, comfort and reduced operating modes (yellow), - the above freezing operating mode (green) - the make position of the output contact(s) (red)
General data:	A 6 year power reserve	
	A quartz time base,	
	Difference between tripping and activation: $\pm 0.2\text{ }^{\circ}\text{C}$	
	Degree of protection: IP 20.1	
Coming with:	4 mm ² tunnel terminals	
	A non-adjustable ambient temperature probe for the THP1	
	Two non-adjustable ambient temperature probes for the THP2 ambient temperature probe	
There are three types of probe:	Non-adjustable probes	
	$\pm 3\text{ }^{\circ}\text{C}$ adjustable probes	
	Tempo probes	
The probe-THP link is made of 1.5 mm ² copper cables less than 50 m long		

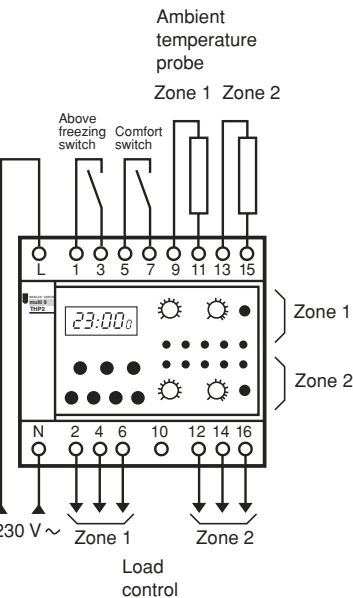
THP1 and THP2 programmable thermostats



Type	Technical data	Supply voltage (V AC)	Width mod. of 18 mm	Part number
THP1	1 zone	230	5	15833



Type	Technical data	Supply voltage (V AC)	Width mod. of 18 mm	Part number
THP2	2 zones	230	5	15834



Ambient temperature probes	
Non-adjustable probe	15835
± 3 °C adjustable probe	15836
Tempo probe	15893
Accessory	
Spare battery	16358

RCP phase control, RCI current control, RCU voltage control and RCC compressor control relays

Function

RCP

The phase control relay monitors phase order and asymmetry as well as voltage presence on all 3 phases of a three-phase circuit (motor supply, etc.). It reports phase loss or reversal.

RCI

The current control relay monitors the current flowing in a circuit and reports when the preset threshold is reached.

RCU

The voltage control relay monitors the potential difference of a circuit and reports when the preset threshold is reached.

RCC

The compressor control relay monitors the compressor power supply and prevents its immediate restart on detection of a voltage break or drop.

Common Technical data

Parameter setting:	On the front face
	By direct scale
	Using a screwdriver
Display accuracy:	±10 % full scale
Utilisation frequency:	50...60 Hz
Utilisation temperature:	-5...+55 °C
Consumption:	3 VA
Indication:	Green LED for power ON
	Red LED for fault
Output by 8 A changeover switch under 250 V AC ($\cos \varphi = 1$)	
Connection:	Tunnel terminals for rigid cables from 1.5 to 6mm ²

Specific technical data

RCP

Operating voltage:	400 V AC, ±15 %
Phase asymmetry threshold setting:	5...25 %
Hysteresis:	Fixed, 5% of asymmetry threshold
Phase rotation direction monitoring	
3 phase presence monitoring	
Time delay on tripping:	0.3 s

RCI

Measurement:	Range: 0.15...10 A
	Automatic recognition of ac and dc current
	2 measurement ranges selected by wiring:
	- 0.15...1.5 A
	- 1...10 A

Overcurrent and undercurrent monitoring (selection by selector switch)

Threshold	Adjustable from 10...100 %
Hysteresis	Adjustable from 5...50 %

Failsafe contact

Time delay on threshold reached:	0.1...10 s
----------------------------------	------------

Power supply: 230 V AC

Optional fault memorisation with reset

Compatible with TI current transformers with an X/5 ratio

RCU

Measurement:	Range: 10...500 V
	Automatic recognition of ac and dc voltage
	2 measurement ranges selected by wiring:
	- 10...50 V
	- 50...500 V

Overvoltage and undervoltage monitoring (selection by selector switch)

Threshold	Adjustable from 10...100 %
Hysteresis	Adjustable from 5...50 %

Failsafe contact

Time delay on threshold reached: 0.1...10s

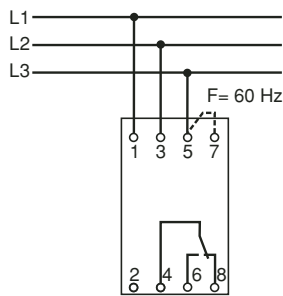
Supply voltage: 230 V AC

Optional fault memorisation with reset

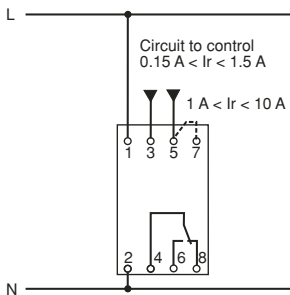
RCC

Operating voltage:	230 V AC
Threshold setting:	±5...±15 % voltage drop
Time delay on threshold reached:	3 or 6 minutes (selection by wiring)

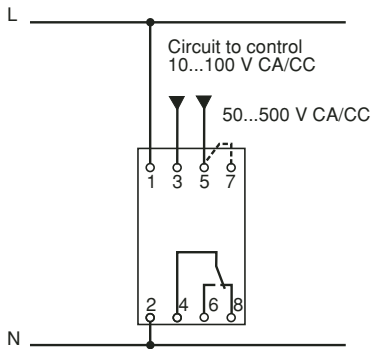
RCP phase control,
RCI current control,
RCU voltage control and
RCC compressor control relays



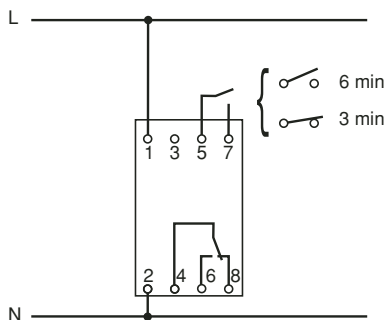
Type	Part number	Width mod. of 18 mm
RCP	21180	2



Type	Part number	Width mod. of 18 mm
RCI	21181	2



Type	Part number	Width mod. of 18 mm
RCU	21182	2



Type	Part number	Width mod. of 18 mm
RCC	21183	2

C movement detector

4 - 30 meters



Application

Automatic control of lighting or heating systems by the detection of movement or presence in a monitored area.

Technical data

Power supply: 230Vac $\pm$ 10%, 50Hz

Specific technical data

CE30

Output contacts:	10A cos ϕ = 1 5A cos ϕ = 0.5 Incandescent lights: Relays compulsory
Degree of protection:	IP43
Connection:	1.5mm ² spring tunnel type terminals
Consumption:	< 1W
Operating temperature:	- 25 to +55°C

CDM

Lighting power:	Incandescent lights: 1000W max Halogen lamps: 500W max Fluorescent and fluocompact lights: Relays compulsory
Degree of protection:	IP54
Connection:	Screw terminals up to 2.5mm ²
Consumption:	1.1VA
Operating temperature:	-25 to +50°C

CDP/CPDt

Degree of protection:	IP20
Operating temperature:	-15°C to +55°C
Storage temperature:	-25°C to +70°C
Weight:	144g
Dimensions:	Diameter: 120mm Height: 70mm Fixing centre distance: 81mm

CDP

Lighting power:	Incandescent lights: 2000W max
LV halogen lights (230V) and ELV (12V):	1000W max
Fluorescent lights with conventional ballast:	1000W max (cos ϕ = 0.5)
Fluorescent lights with parallel corrected ballast:	500W max (cos ϕ = 0.5)

CDPt

Lighting power	16 x (1 x 36W)
(max number of	12 x (1 x 58W)
1 - 10V ballasts):	12 x (2 x 36W)
	8 x (2 x 58W)

Type	Detection angle	Range (m)	Brightness threshold (Lux)	Time delay	Movement	Presence	Part number
CE30	20	30	5 - 300	40 sec - 8 min	x		57655
CDM	0 - 180	0 - 12	3 - 80	4 sec - 15 min	x		16990
CDP	180 - 360	4 - 24	20 - 1300	4 - 15 min	x	x	16992
CDPt	180 - 360	4 - 24	100 - 1300	4 - 15 min	x	x	16994
Accessories							
Additional Remote control for CDPt							16995



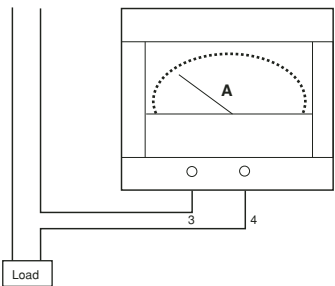
Application

The meters facilitate the real-time monitoring of current and voltage.

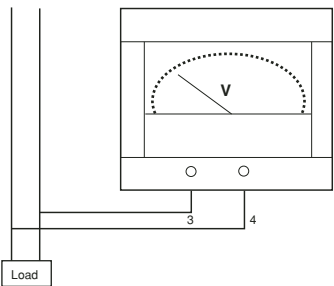
Technical data

Ferromagnetic device	
Connection:	Tunnel terminals for 1.5 - 6mm ² rigid cable
Pseudo-linear scale over 90°	
Overall dimensions:	H = 79, W = 72, D = 66mm
Weight (g):	170
Complied with standards:	IEC 51 - IEC 414
Degree of protection:	Terminal block IP40
Terminals IP20	
Installation temperature:	-25°C to +55°C
Storage temperature:	-40°C to +80°C
Reference temperature:	23°C
Effect of temperature on accuracy	± 0.03%/°C
Overload AMP ONLY	Maximum for 5 seconds: 10 I _n Permanence: 1.2 I _n
Consumption:	1.1VA
Accuracy class:	1.5

Type	Scale (A or V)	Connection with CT	Width in 18mm ways	Part number
Amp with direct connection				
	0 - 30	Direct	4	16029
AMP with connection via CT				
Basic device		xxx/5	4	16030
Dials	0 - 5	(See TI range on page 5/64)		16031
	0 - 50			16032
	0 - 75			16033
	0 - 100			16034
	0 - 150			16035
	0 - 200			16036
	0 - 250			16037
	0 - 300			16038
	0 - 400			16039
	0 - 500			16040
	0 - 600			16041
	0 - 800			16042
	0 - 1000			16043
	0 - 1500			16044
	0 - 2000			16045
VLT				
	Scale			
	0 - 300		4	16060
	0 - 500		4	16061



Analogue AMP



Analogue VLT



5

Application

The meters facilitate the real time monitoring of current, voltage and frequency.

Technical data

Supply voltage:	230Vac
Operating frequency:	50 - 60Hz
Display by red LED:	3 digits
Accuracy at full scale:	0.5% ± 1 digital
Consumption:	0.3VA
Connection:	Tunnel terminals for 2.5mm ² cables
EMC electromagnetic compatibility:	IEC EN 50081-1 and IEC EN 50082-2
Safety:	IEC EN 61010-1

Specific technical data

AMP 10A

Minimum value measured:	4% of rating
Measurement input consumption:	1VA

AMP Multirange

Ratings:	In direct reading: 5A By CT (not supplied) configurable on the front face of the ammeter: 10, 15, 20, 25, 40, 50, 60, 100, 150, 200, 250, 400, 500, 600, 800, 1000, 1500, 2000, 2500, 4000, 5000A
Minimum value measured:	4% of rating
Measurement input consumption:	0.55VA

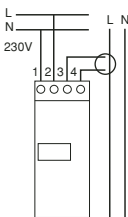
VLT

Direct measurement:	0 - 600Vac
Input impedance:	2 MΩ
Minimum value measured:	4% of rating

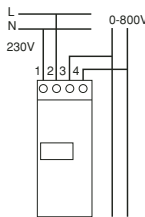
FRE

Minimum value measured:	20Hz
Maximum value measured:	100Hz
Full scale display:	99.9Hz

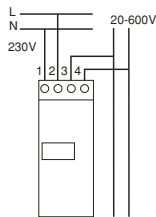
Type	Scale	Connection with CT	Width in 18mm ways	Part number
Amp with direct connection				
	0 - 10A	Direct	2	15202
AMP with multirating				
	0 - 5000A	As per rating	2	15209
VLT				
	0 - 600V	As per rating	2	15201
FRE				
	20 - 100Hz	As per rating	2	15208



Digital AMP + TI



Digital VLT



Digital FRE



Application

The PowerLogic® Power Meter Series PM9 offers the basic measurement capabilities required to monitor an electrical installation in a 4-module case (18mm modules). They can be used to monitor 2, 3 and 4 wire low voltage systems and connect to external current transformers. With the large backlit display, you can monitor all three phases at the same time.

Three versions are available for one or two supply voltages (220 to 240 V AC or 24 to 48 V DC):

- PM9 for basic measurements
- PM9P for basic measurements with pulse output
- PM9C for basic measurements with Modbus RS485 output

Part numbers

Type	Voltage	Width in 9mm modules	Part number
Power Meter PM9	220 to 240 V AC	8	15199
Power Meter PM9P	220 to 240 V AC	8	15197
Power Meter PM9C	220 to 240 V AC	8	15198

Selection guide

		PM9	PM9P	PM9C
General				
Use on LV systems only	1P + N, 3P, 3P + N	■	■	■
Current and voltage accuracy	0.5 %	0.5 %	0.5 %	
Energy and power accuracy		2 %	2 %	2 %
Direct voltage connection		450 V	450 V	450 V
Instantaneous rms values				
Current	3 phases and neutral	■	■	■
	Voltage Phase-to-neutral and phase-to-phase	■	■	■
Frequency		■	■	■
Active and reactive power	Total and per phase	■	■	■
Apparent power	Total	■	■	■
Power factor	Total	■	■	■
Energy values				
Active energy		■	■	■
Reactive energy		■	■	■
Demand values				
Active, reactive, apparent power	Present and max. values	■	■	■
Other measurements				
Hour counter		■	■	■
Display and I/O				
Backlit LCD display		■	■	■
Pulse output		-	1	-
Communication				
RS485 port		-	-	■
Modbus protocol		-	-	■

Characteristics

Electrical

Type of measurement	On single-phase (1P + N) or three phase (3P, 3P + N) AC systems	
Measurement accuracy	Current and voltage	0.5 % of reading
	Power	2 % of reading from pf 0.8 leading to lagging
	Frequency	0.2 Hz
	Power factor	2 % from 0.8 leading to 0.5 lagging
	Active energy	Class 2 as defined by IEC 62053-21
Input-voltage characteristics	Reactive energy	Class 2 as defined by IEC 62053-23
	Measured voltage	50 to 450 V AC (direct) and up to 1000 V AC (with external VT)
	Permissible overload	1.15 Un
	Frequency measurement range	45 to 65 Hz
	CT ratings	Adjustable from 5 to 10000 A
Input-current characteristics	Secondary	5 A
	Metering over-range	15 mA to 6 A
	Permissible overload	6 A continuous
		20 A 10 s
		50 A 1 s
Control Power	Load	0.55 VA
	Input current	Not isolated
	AC	220 to 240 V AC (± 10 %), < 5 VA
Pulse output (PM9P)	DC	24 to 48 V DC (± 20 %)
	Static output, 350 V AC/DC max., 130 mA max. at 25 °C, derating 1 mA/above 25 °C, 5 kV insulation	

Mechanical

Weight	0.3 kg
IP degree of protection	IP52 (front display)
Dimensions	72 x 90 x 66 (mm)
Connection	Tunnel terminals, 1 x 4 mm ²

Environmental conditions

Operating temperature		-5 °C to +55 °C
Pollution degree		2
Installation category		III for distribution systems up to 260/450 V
Electromagnetic compatibility	Electrostatic discharge	Level III (IEC 61000-4-2)
	Immunity to radiated fields	Level III (IEC 61000-4-3)
	Immunity to fast transients	Level IV (IEC 61000-4-4)
	Immunity to impulse waves	Level IV (IEC 61000-4-5)
	Conducted and radiated emissions	Class B (CISPR11)

Safety

CE

Communication

RS485 port (PM9C)	2-wire, 9600 or 19200 bauds,
remote reading and reset	Modbus RTU, ELSV circuit, 6 kV impulse withstand (double insulation)

Diagram illustrating the PM9 power distribution unit configuration. The unit is connected to a three-phase supply (N, L1, L2, L3).

The PM9 unit features two main output sections:

- Protection Section:** Outputs V1, V2, V3, and VN. This section is associated with a voltage range of 220 to 240 V AC and 24 to 48 V DC.
- Shorting Section:** Outputs S1 and S2, grouped into three sets (I1, I2, I3).

The PM9 unit is labeled with the identifier **PM9** and the output type **A U X**.

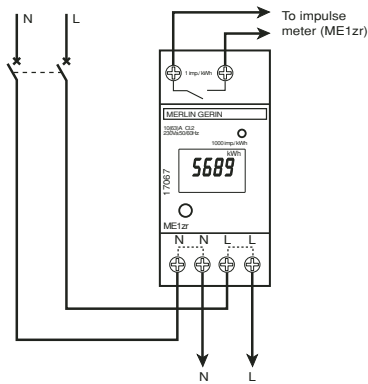
The diagram illustrates the internal wiring of the PM9P power supply unit. It is divided into three main functional areas:

- Input Section:** Features three input lines labeled N, L1, L2, and L3. The L1 line is connected to the top terminal of the Protection block. The L2 line is connected to the middle terminal of the Protection block. The L3 line is connected to the bottom terminal of the Protection block. The N line is connected to the bottom terminal of the Shorting block.
- Protection Section:** A dashed box labeled "Protection" containing three terminals. The top terminal is connected to the L1 input line. The middle terminal is connected to the L2 input line. The bottom terminal is connected to the L3 input line.
- Shorting Block Section:** A dashed box labeled "Shorting block" containing three terminals. The top terminal is connected to the L1 input line. The middle terminal is connected to the L2 input line. The bottom terminal is connected to the L3 input line.
- Output Section:** Labeled "PM9P" at the top. It contains two sets of output terminals:
 - V1, V2, V3, VN:** These terminals are connected to the top, middle, and bottom terminals of the Protection block, respectively. They are collectively labeled "AUX" with a double-headed arrow.
 - S1, S2:** These terminals are connected to the top, middle, and bottom terminals of the Shorting block, respectively. They are collectively labeled "I1, I2, I3" with a double-headed arrow.
- Pulse Receiver Section:** A box labeled "Pulse receiver" is connected to the bottom terminal of the Shorting block. It is also connected to a "Pulse" output terminal.

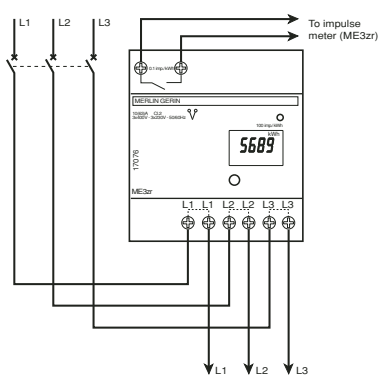


Specific technical data

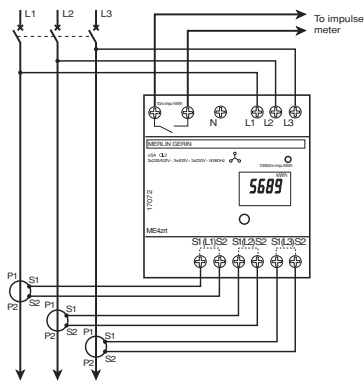
ME	
Accuracy class:	2
Frequency:	50/60Hz
Consumption:	2.5VA
Total meter:	On a phase (single phase network), on the 3 phases (three phase network)
Capacity	
ME1, ME1z, ME1zr, ME3, ME3zr, ME4, and ME4zr: 999.99 MWh	
ME4zrt associated with a CT rating < 150A: 999.99 MWh	
ME4zrt associated with a CT rating > 150A: 9999.99 MWh	
Display:	In kWh or MWh with 5 significant digits
Partial meter:	On a phase (single phase network), on the 3 phases (three phase network)
With RESET	
Capacity	
ME1z, ME1zr, ME3zr and ME4zr: 99.99 MWh	
ME4zrt associated with a CT rating < 150A: 999.99 MWh	
ME4zrt associated with a CT rating > 150A: 999.99 MWh	
Display:	In kWh or MWh with 4 significant digits
Flashing meter indicator	On front panel (yellow)
Operating temperature:	-25°C to +55°C
Connection using	Primary connection: 6mm²
tunnel terminals:	Secondary connection: 16mm²
Conform	To IEC 1036 standard (with a sealable enclosure)



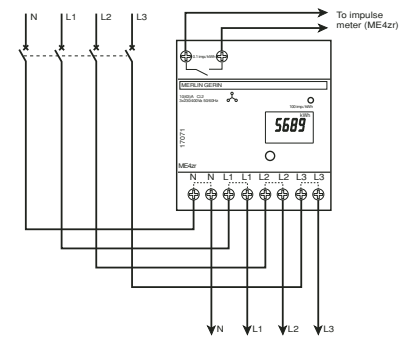
ME1zr



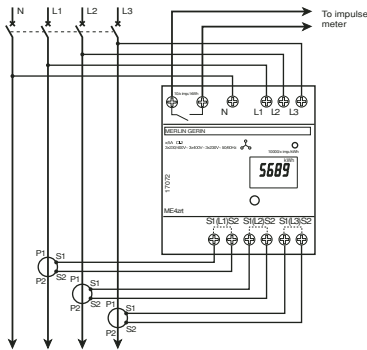
ME3
ME3zr



ME4zrt



ME4
ME4zr



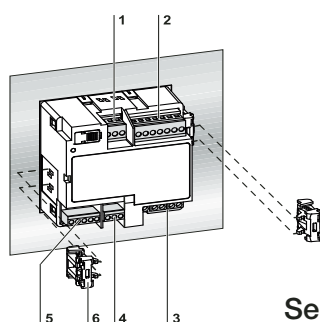
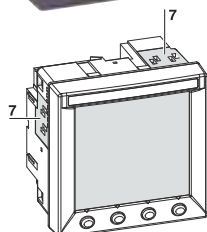
ME4zrt

Operation	ME1 ME1z ME1zr	ME3 ME3zr	ME4 ME4zr	ME4zrt
Single phase	■			
Three phase		■		■
Three phase + neutral			■	■
Rated voltage				
230V (1P+N)	■			
230V (3P)		■		■
400V (3P)		■		■
127/230V (3P+N)				
230/400V (3P+N)			■	■
Frequency (50/60Hz)	■	■	■	■
Direct measurement current (A)				
For single phase	63			
For three phase			63	63
Current measurement via CT (A)				40 - 6000
Total meter	■	■	■	■
Total meter capacity	999.99 MWh	999.99 MWh	999.99 MWh	With CT ≤150A 999.99 MWh With CT ≥ 150A 999.99 MWh
Partial meter (with RESET)	■ ME1z/ME1zr	■ ME3zr	■ ME4zr	
Digital (5 significant digits in kWh or MWh)	■	■	■	■
Remote transfer	■ ME1zr	■ ME3zr	■ ME4zr	■



Type	Rating (A)	Voltage rating (Vac)	Width in 18mm ways	Part number
Single phase				
ME1	63	230	2	17065
ME1z	63	230	2	17066
ME1zr	63	230	2	17067
Three phase three wire				
ME3	63	3x400	4	17075
ME3zr	63	3x400	4	17076
Three phase four wire				
ME4	63	3x230/400	4	17070
ME4zr	63	3x230/400	4	17071
ME4zrt	40 - 6000(via CT)	3x230/400	4	17072

For more information refer to publication Ref's: MGD 5171 and MGD 5195



Power Meter 750

- 1 Control power
- 2 Voltage inputs
- 3 Current inputs
- 4 RS 485 port
- 5 Digital input/output
- 6 Mounting clips
- 7 Mounting slot

Application

- Panel instrumentation
- Submetering and cost allocation
- Remote monitoring of an electrical installation
- Harmonic monitoring (THD)
- Contract optimisation and load profiling

Characteristics

Requires only 50 mm behind mounting surface

- The Power Meter Series 700 can be mounted on switchboard doors to maximise freespace for electrical devices

Large back lit display with integrated bar charts

- Displays 4 measurements at a time for fast readings

Intuitive use

- Easy navigation using context-sensitive menu

Power and current demand, THD and min/max reading in basic version

- A high-performance solution for trouble-free monitoring of your electrical installation
Active energy class IEC 62053-22 class 0.5S (PM750) and IEC 62053-21 class

Active energy class IEC 62053 Z2 class 0.05 (1 PM700) and IEC 62053 Z1 class 1 (PM700, PM700P, PM710)

Suitable for sub-billing and cost-allocation applications

- Innovative Power Meter RS 485 communications, alarming and digital I/O in a single Power Meter (PM750)

Part numbers

Description	Part number
PM700 Power Meter	PM700MG
PM700P Power Meter	PM700PMG
PM710 Power Meter	PM710MG
PM750 Power Meter	PM750MG

Selection guide

General		PM700MG	PM700PMG	PM710MG	PM750MG
Use on LV and HV systems		■	■	■	■
Current and voltage accuracy		0.5 %	0.5 %	0.5 %	0.5 %
Active energy accuracy		1.0 %	1.0 %	1.0 %	0.5 %
Reactive energy accuracy		2 %	2 %	2 %	2 %
Instantaneous rms values					
Current Phases and neutral		■	■	■	■
Voltage Ph-Ph and Ph-N		■	■	■	■
Frequency		■	■	■	■
Active, reactive, apparent power	Total and per phase	■	■	■	signed ⁽¹⁾
Power factor	Total	absolute	absolute	absolute	signed
Energy values					
Active, reactive, apparent energy		■	■	■	signed ⁽¹⁾
Demand values					
Current Present and max.		■	■	■	■
Active, reactive, apparent power	Present and max.	■	■	■	■
Setting of calculation mode	Block, sliding, input synchronisation mode	■	■	■	■
Other measurements					
Hour counter		■	■	■	■
Power quality measurements					
Harmonic distortion	Current and voltage	■	■	■	■
Data recording					
Min/max of instantaneous values		■	■	■	■
Alarms		-	-	-	■ ⁽²⁾
Display and I/O					
Backlit LCD display		■	■	■	■
Digital inputs		-	-	-	2 ⁽³⁾
Digital outputs		-	2 ⁽⁴⁾	-	1 ⁽⁵⁾
Communication					
RS 485 port		-	-	■	■
Modbus protocol		-	-	■	■

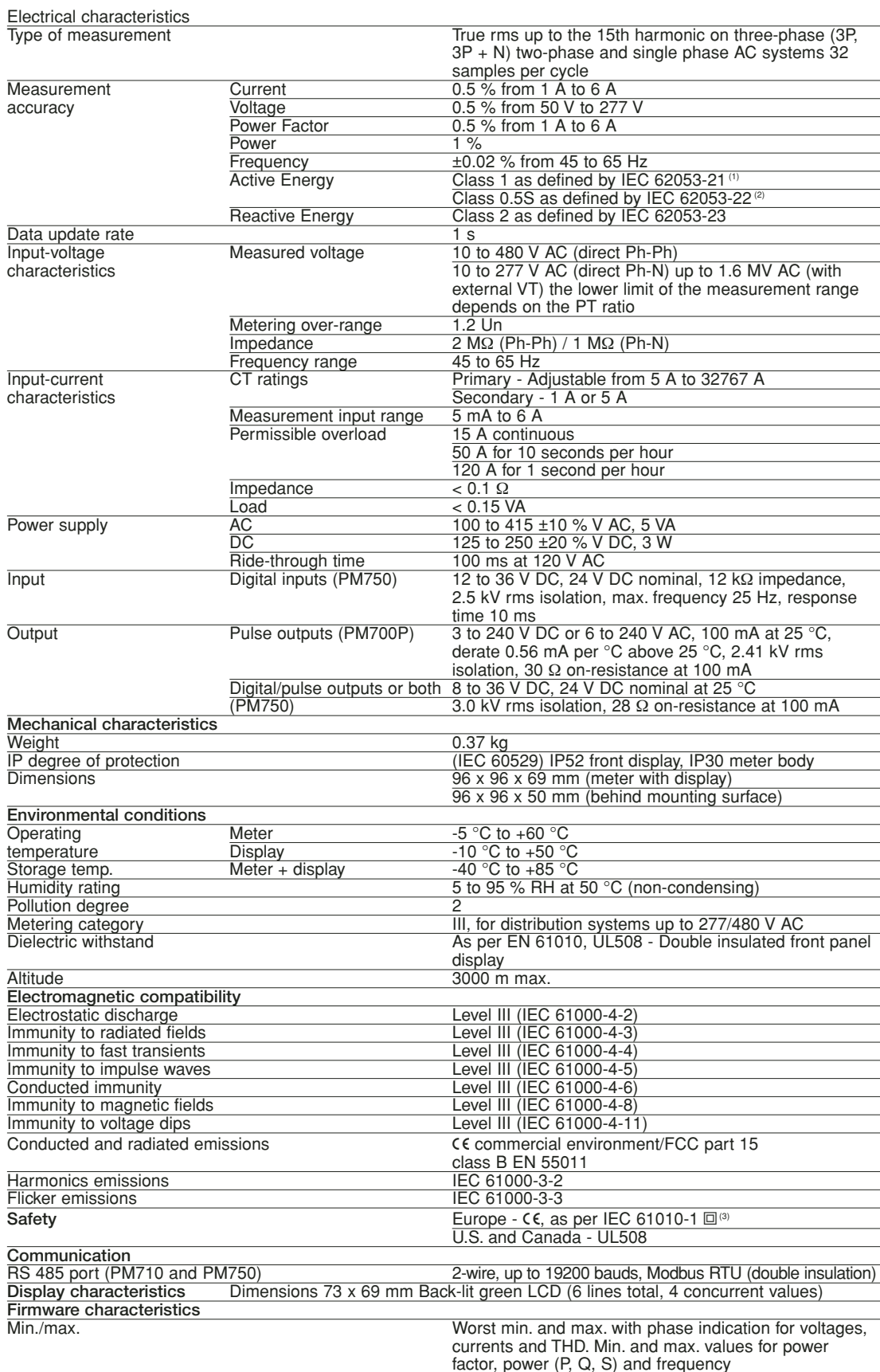
(1) kW, kVAR, kWh and kVARh are signed net consumption values.

(2) 15 user-configurable under and over conditions and in combination with digital inputs or outputs status.

(3) 2 operation modes are available: normal or input demand synchronisation.

(4) kWh and kVARh pulse output mode only.

(5) 3 operation modes are available: external, alarm or kWh pulse output.





Application

TI are a range of current transformers with a ratio of x/5 for use with measurement devices (AMP, ME) and control devices.

Technical data

Suited to all types of modular electrical switchboards and enclosures

Easy installation	On symmetrical rail
Easy, reliable connection	Using tunnel terminals, terminals for lugs or screw terminals
Compliance with standards:	IEC 44-1, NEF 42502, VDE 0414, BS 7626 and IEC 38-1
Degree of protection:	IP20
Ambient installation temperature:	Standard range: -5°C to +55°C, humidity < 95%
Storage temperature:	Tropicalised range: -25°C to +60°C humidity > 95%
	-40°C to +80°C

TI electrical data

Maximum voltage rating Ue:	720V
Secondary current:	5A
Frequency:	50 - 60Hz

TI mechanical data

Maximum dimensions of primary circuit opening and weight:

Part number	Opening (mm)	Diameter (mm)	Weight (g)
16500 - 16506 and 16451 - 16456	20x5	21	200
16509 - 16515 and 16459 - 16465	30x10	22	270
16518 - 16521 and 16468 - 16471	40x10	35	430
16523 - 16524 and 16473 - 16474	64x11 and 51x31		500
16526 - 16535 and 16476 - 16483	65x32	32	600
16537 - 16538		34x84	700
16540 - 16544		38x127	1500
16545 - 16547		52x127	1500
16548 - 16549		55x165	5000

Specific technical data

Ring type current transformers

Secondary connection Using terminals for crimped lugs, tunnel terminals or using studs (depending on Part number)

Delivered with:

Part number	Adaptor for fixing on a symmetrical rail	Adaptor for fixing on a plate	Insulated binding screw	Sealable cover
16500 - 16506 and 16451 - 16456	■	■		■
16509 - 16515 and 16459 - 16465	■	■	■	Optional
16518 - 16521 and 16468 - 16471	■	■	■	Optional
16523 - 16524 and 16473 - 16474		■	■	■
16526 - 16535 and 16476 - 16483			■	■
16537 - 16538				■ ■
16540 - 16544				■ ■
16545 - 16547				■ ■
16548 - 16549				■ ■



Rating	Part number standard TI	Part number tropicalised TI	Part number cylinder	Power (VA) Accuracy class		
				0.5	1	3
40/5A	16500		16550			1
50/5A	16501	16451	16550		1.25	1.5
75/5A	16502	16452	16550		1.25	3
100/5A	16503	16453	16550	2	2.5	4
125/5A	16504	16454	16550	2.5	4	5
150/5A	16505	16455	16550	3	4	6.5
	16509	16459		1.5	5.5	6.5
200/5A	16506	16456	16550	4	6	7
	16510	16460		4	7	8.5
	16526	16476			2	5
250/5A	16511	16461	16551	6	9	11
	16518	16468		2.5	5	8
	16527	16477		1	4	6
300/5A	16512	16462	16551	7.5	11	13.5
	16519	16469		4	8	12
	16528	16478		1.5	6	7
400/5A	16520	16470		8	12	15
	16529	16479		5	7.5	10
	16513*	16463	16551	10.5	15	18
500/5A	16521	16471		10	12	15
	16523	16473		2	4	6
	16530	16480		8	10	12
	16514*	16464	16551	12	18	22
600/5A	16524	16474		4	6	8
	16531	16481		8	10	12
	16515*	16465	16551	14.5	21.5	26
800/5A	16532	16482		12.5	15	20
1000/5A	16533	16483		15	20	25
1250/5A	16534			20	25	30
	16537			12	15	20
	16540			8	12	
1500/5A	16535			22.5	30	35
	16538			15	20	25
	16541			10	15	
2000/5A	16542			15	20	
2500/5A	16543			20	25	
	16545			40	50	60
300/5A	16544			25	30	
4000/5A	16547			60	80	100
5000/5A	16548			60	120	
6000/5A	16549			70	120	

* Only for use with cylinder

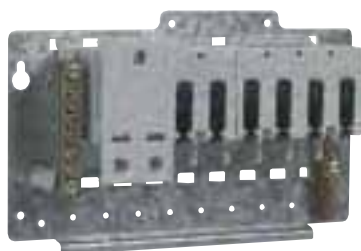
Accessories	Part number
Sealable cover for 16509 - 16515 and 16459 - 16465	16552
Sealable cover for 16518 - 16521 and 16468 - 16471	16553

6

Isobar 4 MCB pan assemblies

PS type single phase

PS type three phase



PS type single phase and neutral

Application (No neutral switching facility)

All pan assemblies incorporate the unique Isobar MCB way connection feature, which offers the user the highest levels of safety through electrical isolation of unused ways. The PS range of pan assemblies is designed to suit single pole applications, where switching and protection of the neutral is unnecessary.

Each pan assembly is comprised of a flat steel base incorporating DIN rail, incoming and outgoing busbar assembly with neutral and earth terminal bars. They can be easily incorporated into custom built enclosure systems.

Technical data

Standards:	BS EN 60439 - 1 and 3
Busbar rating:	125A
Operating Voltage:	230/240V also suitable for 110Vac operation
Frequency:	50Hz
Incomers:	As A type distribution boards, see page 1/4 Note: All Merlin Gerin 2 pole RCDs are available for use as incomers to PS pan assemblies
Outgoers:	SP C60H MCBs, SP C60H RCBO, C60H MCB & vigi combination

SP ways	Part number
6	MGAN6PS
9	MGAN9PS
12	MGAN12PS
15	MGAN15PS

PS pan assemblies

Application (No neutral switching facility)

The PS range of three phase pan assemblies is designed to suit applications where switching and protection of the neutral is deemed unnecessary. Each pan assembly is fully insulated incorporating DIN rail, incoming and outgoing busbar assembly. They can be easily and quickly incorporated into custom built enclosure systems.

PS pan assemblies are designed for use with SP and TP C60H MCB, and are also suitable for two pole two phase equipment.

Technical data

Standards:	BS EN 60439 - 1 and 3
Busbar rating:	250A
Operating Voltage:	400/415V
Frequency:	50Hz
Incomers:	MGI1253, MGNPB250TB, PS pan assemblies can utilise Multi 9, 3 or 4 pole devices as incomers - additional shroud must be used - ref. 80011
Outgoers:	SP C60H MCB, SP C60H RCBO TP C60H MCB SP C60H MCB and Vigi combination TP C60H MCB and Vigi combination

TP ways	Part number
4	MGBN4PS
6	MGBN6PS
8	MGBN8PS
12	MGBN12PS
16	MGBN16PS
18	MGBN18PS
24	MGBN24PS

TP ways	Front cover	Part number
		black sliders

Type TN

4	MGBN4TN
6	MGBN6TN
8	MGBN8TN
12	MGBN12TN
16	MGBN16TN
18	MGBN18TN
24	MGBN24TN

Isobar pan assemblies type TN use the same as PS, each pan is mounted on a metal top hat section.

Isobar 4 MCB pan assemblies

Type E

Type TN



Application

This range of pan assemblies is designed for use with Merlin Gerin's high quality Prisma range of enclosures or installations within a general purpose environment. Each pan assembly includes all components necessary for final distribution and protection of circuits, i.e. steel fixing plate, DIN rail busbar assembly, incoming connections, neutral and earth bars, optional distributed neutral busbar for switched neutral applications on type E/PEV.

Isobar pan assemblies type TN use the same as PS, each pan is mounted on a metal top hat section.

Technical data

Standards:	BS EN 60439 - 1 and 3		
Busbar rating:	250A		
Operating Voltage:	400/415V		
Frequency:	50Hz		
Incomers:	Switch disconnectors:	3 pole 125A MGI1253N	
		4 pole 125A MGI1254	
	Terminal block:	125A MGTB1254	
		250A MGNPB250TB	
	RCDs:	16261, 23213, 23227	
For MCCBs and switch disconnectors up to 250A use connection kit MSIS95AN			
Outgoers:	1, 2, 3 or 4P C60H MCBs, C60H RCBO, C60 MCB and Vigi combinations		
	Note: All 4 pole RMG RCDs can be used as incomers. Other incoming devices may be used by separately mounting them into the Prisma cubicle		

To install in prisma G use sp or kit MGBNSPA

TP ways	Front cover*	Prisma mods.	Part number coloured sliders	Part number black sliders
Type E				
4	-	-	MGBN4E	MGBN4PEV
6	07795P	8	MGBN6E	MGBN6PEV
8	07796P	9	MGBN8E	MGBN8PEV
12	07797P	11	MGBN12E	MGBN12PEV
16	07798P	13	MGBN16E	MGBN16PEV
18	-	-	MGBN18E	MGBN18PEV
24	07799P	18	MGBN24E	MGBN24PEV

* Cut-out only for 125 amp



A fast, reliable and maintenance free method of connecting outgoing circuits. Each connection is made in a spring front accessed connection rated at 40A. Contact pressure of the spring is automatically adjusted to suit the cross sections of the conductor.

Voltage rating:	440V
Current rating:	200A at 40°C
Incoming connection:	Direct by cable lugs, connectors or flexible bars
Outgoing connection:	Provides reliable, maintenance free electrical connecting independent of heat variations
	Rapid connection and reconnection after modification
	Automatic spring connections
	12 connection points for each phase and 18/or neutral
	Cable capacity 10mm ² max (supplied with 24 connections)
	52A max. current rating per connection
Fixing:	On Multifix rails (fixing brackets included)
	By screws on all standard supports

Rail only, drilled on each end	03004
With two fixed height mounting brackets	03001
With two adjustable height mounting brackets	03002

Type	Part number
2P Phase and Neutral	04012
3P	04013
4P 3 Phase and Neutral	04014

th = 2.3; h = 15

06603

th = 1.5; h = 15
06602

A distribution block patented by Merlin Gerin for 'wire to wire' connections, it consists of: Outgoing 6 x 10mm² and 3 x 16mm² cables per phase.

Type	Part number
Polybloc 3P	04033
Polybloc 4P	04034

This table indicates the short circuit withstand current (in kA rms) for various combinations of upstream and downstream devices on a 380/415V installation.

[illegible]

Technical Section 7

Dimensions Section 8



When fed by a single cable per phase the busbar is rated 100A at 40°C.

Technical data

Type suitable for C60H and STIType suitable for DPNType suitable for C120 NG125

Accessories

Set of 40 ends caps	
for 1P and 2P combs	14886
for 3P and 4P combs	14887
Set of 40 boots for unused teeth	14888
Incoming connectors - pack of 4	14885

Connectors and assembled terminals



Distribloc 125 and 160A

4 pole distribution block comprising:

- A fully insulated, one piece distribution complying with the degree of protection IPXXB (protection against direct contacts)
- A modular cover designed for a 45mm nose blends perfectly into a row comprising modular devices

Part numbers

Description	Part number
125A Distribloc distribution block	04045
125A Distribloc distribution block + connection	04046

Technical data

Electrical

Rated insulation level	Ui = 750V
Rated operational current	Ie (40°C) 125A for the 125A Distribloc 160A for the 160A Distribloc with its prefabricated connection for INS160 or NSA160
Short circuit withstand current	The reinforced breaking capacity due to cascading in circuit breaker combinations is maintained. The worst case situations have been tested
Standards	Complies with the low voltage device standard IEC 60947.7.1 and/or IEC 60439.1
Impulse withstand voltage	Uimp = 8kV

Supply

Tunnel terminals	On 125A Distribloc 125 for 6 to 35 [□] flexible cables (10 to 35 [□] rigid cables)
------------------	---

The 160A Distribloc is supplied with a prefabricated flexible connection. It is designed for an INS100/160 or NSA160 switch disconnector, installed on the left or right

Distribution (125A and 160A Distribloc)

Spring terminals	2 outgoers from 1 to 10 [□] , flexible or rigid
	3 outgoers from 1 to 6 [□] , flexible or rigid
	7 outgoers from 1 to 4 [□] , flexible or rigid
Tunnel terminals	1 outgoer from 4 to 16 [□] , flexible (4 to 25 [□] rigid)

Supply

An identification label
Adhesive labels for phase identification
A prefabricated flexible connection for the INS160 or NSA160 (160A Distribloc only)

Installation

Clipped onto a modular rail
Width occupied is 12 modules (9mm each)
Screwed to plain or slotted backplate. Distances between centres = 100 x 75mm

125A connection

Set of four flexible connections, 35°, L = 210mm. To supply a 125A Distribloc from an NG125 or an INS125.

Part numbers

Description	Part number
4 NG-INS125 connections for Distribloc	04047





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



End stop

For symmetrical/asymmetrical DIN rail.

Type	Part number
End stop (pack of 10)	14915



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)	6619

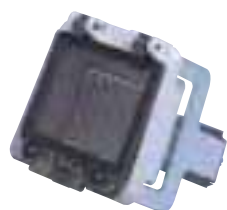


Flush mounting clamp

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

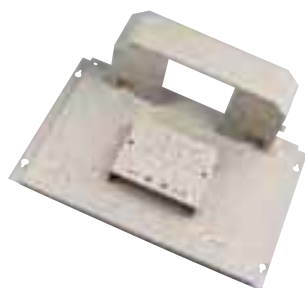


Application

Pan assemblies provide easy to connect high density connection independent of device mix for mounting of moulded case circuit breakers into a low voltage power distribution switchboard. Can be fed from the side or bottom fed using incoming pan assembly. For technical data see Section 2.

SP ways	Part number	
	630A busbar	800A busbar
18	MG6PAC6	MG8PAC6
36	MG6PAC12	MG8PAC12
54	MG6PAC18	MG8PAC18
72	MG6PAC24	MG8PAC24
90	MG6PAC30	MG8PAC30

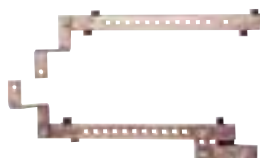
See Section 2 for outgoing and incoming devices



Application

Incoming section including mounting tray metal shroud and copper busbar 'T' section to allow cassetted breakers to feed pan from bottom.

Current rating (A)	Part number	
	3P	4P
630	MG6PACN	MG6PACN
800	MG8PACN3	MG8PACN4



Mounts on either side of incoming device when using incoming pan assembly. Includes disconnectable neutral link.

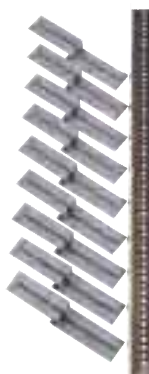
Type	Part number
630A	MG6PANKIT
800A	MG8PANKIT



Number of outgoing ways

Number of outgoing ways		Part number	Part number
SP	TP	630A interior	800A interior
18	6	MG6PAFC6	MG6PAFC6
36	12	MG6PAFC12	MG6PAFC12
54	18	MG6PAFC18	MG6PAFC18

Note: If RCD, metering, remote metering or 400/630A outgoing devices are fitted then a shrouding kit must be used.



Provides additional support for device and shrouding for front cover .One shrouding kit must be used per side when fitting either outgoing 400/630AMP MCCBs or outgoing ammeter and/or earth leakage protection. In addition to the shrouding kit a addition a 25mm three stage filler piece is required when 4 pole 400A or 630AMP circuit breakers are fitted on the outgoing pan assembly MGPTSF25.

Number of outgoing ways		Shrouding kit
SP	TP	Part number
18	6	MGPCH6
36	12	MGPCH12
54	18	MGPCH18

Mini Opale IP30

G9 IP30

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
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: moonstone beige. 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
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 (IP30)

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

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 drop down door with plastic latch. To lock enclosure use easily fitted key lock MGBL

Installation

- Wall mounting

SP 18mm ways	number of holes	Size (mm) H - W - D	Part number
8	9	264 x 260 x 127	MGN16DE
11	12	264 x 315 x 127	MGN22DE
14	18	264 x 370 x 127	MGN28DE
17	24	264 x 450 x 127	MGN34DE
28	36	494 x 370 x 127	MGN56DE*

Suitable for most DIN standard devices

* Two tier

Accessories

Key lock	MGBL
----------	------



Application

These enclosures are designed to accommodate DIN rail mounted products, primarily for control and metering. They may be mounted individually or attached to the side of an MGB board of equivalent height using the side joining kit MGBNSJK. For mounting above and below a standard B board use ref MGBNTJKN.

Technical data

Ingress protection:	IP31 to BS EN 60529
Earth bar capacity:	25mm²
Mounting:	Surface
Colour:	RAL 9001 epoxy powder coated



Supplied with DIN rail, door and slotted front cover

Part number	Capacity in 18mm SP ways	Number of rows	Dimensions in mm		
			Height	Width	Depth
MGBN4SXS	34	2	484	470	138
MGBN8SXS	34	2	538	470	138
MGBN12SXS	51	3	700	470	138
MGBN16SXS	68	4	808	470	138
MGBN24SXS	85	5	970	470	138



Supplied with DIN rail, door and plain front cover

Part number	Capacity in 18mm SP ways	Number of rows	Dimensions in mm		
			Height	Width	Depth
MGBN4SXP	34	2	484	470	138
MGBN8SXP	34	2	538	470	138
MGBN12SXP	51	3	700	470	138
MGBN16SXP	68	4	808	470	138
MGBN24SXP	85	5	970	470	138

Suitable for most DIN standard devices

Installation

- Wall mounting
- Flush mounting kit available

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

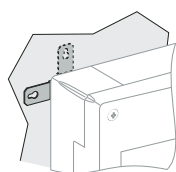
13 module enclosures technoplastic ⁽¹⁾ , metal grey and titanium white	
24 module enclosures: metal and technoplastic ⁽¹⁾ , metal grey and titanium white	
Transparent doors:	For 13 module enclosures: technoplastic ⁽¹⁾ , crystal For 24 module enclosures: metal and glass, titanium white and crystal
Opaque 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	

Enclosures											Part number	
Number of modules per row	Number of rows	Capacity in modules of 18mm	Rated current In	Neutral terminal block				Earth terminal block				Without door
				Number of connections				Number of connections				
				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	Opaque
		Part Number	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
	5 rows	PRA15524	PRA16524
	6 rows	PRA15624	PRA16624

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.



Range of weatherproof mini enclosures

1 row



Part number	13175	13176	13177	13975	13976	13977	13978	13979
Number of modules	4	4	4	3	4	6	8	12
Width	98	98	98	80	123	159	195	267
Height	248	310	392	150	200	200	200	200

Range of weatherproof enclosures

mm	138 5 modules	236 8 modules	340 12 modules per row	12 + 1 modules	448 18 modules per row (12 modules if interface)	18 + 1 modules
280			13981 		13982 13990 	
335				13180 13191 		
460	13178 13993 13185 13189 	13179 13186 13190 	13983 	13181 13195 13187 13192 	13984 13991 	13182 13197 13188 13193
610	13994 		13985 	13196 	13986 13992 	13198
842					13987 	13199

- 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 6/28		
Number of modules	4	4	4	5	8	12+1	12+1	18+1	0	0
										
	13175	13176	13177	13178	13179	13180	13181	13182	13983	13994

Self-extinguishing insulating material	
Operating temperature:	-25°C to +60°C
Colour:	Light grey RAL 7035 and transparent green wicket gate
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 atmospheric agents	

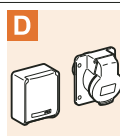
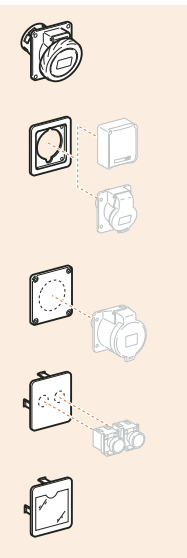
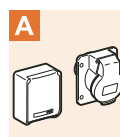
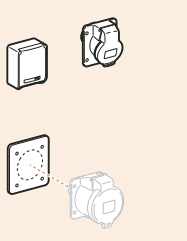
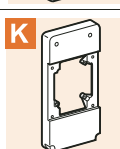
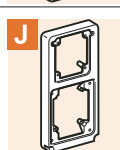
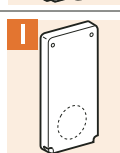
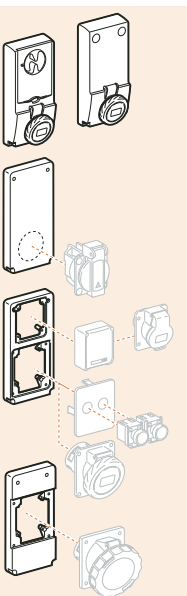
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Data		Pre-cutout (top and bottom) ⁽¹⁾						Dimensions (mm)			Accessories delivered with an enclosure part number												Part No.
Total mod.	open	M	16	20	25	32	50	W	H	D	Wiring strap	Terminal block support	Terminal block number of holes			Plates Part number							
		PG		11	16	21	29/36						4	8	16	13135	13136	13138	13143				
Mini enclosures for power outlets (65 x 85 mm openings)																							
4	1				1			98	248	98.5			1					13175					
4	2				1			98	310	98.5			1		1			13176					
4	3				1			98	392	98.5			1		1			13177					

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

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

- Enclosures: class II plugs, blanking plates (5 modules of 18 mm per row) and a marking kit

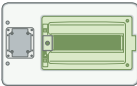
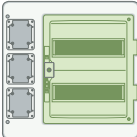
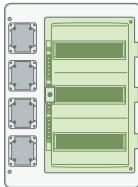
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Enclosure offering:

- 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	24	36
	1	3	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	

Enclosures catalogue 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 13138	65x85mm power outlet 13136	Part number
			M PG	20 11	25 16	32 21	50 29/36	W	H	D				4	8	16	22	32			
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		13992

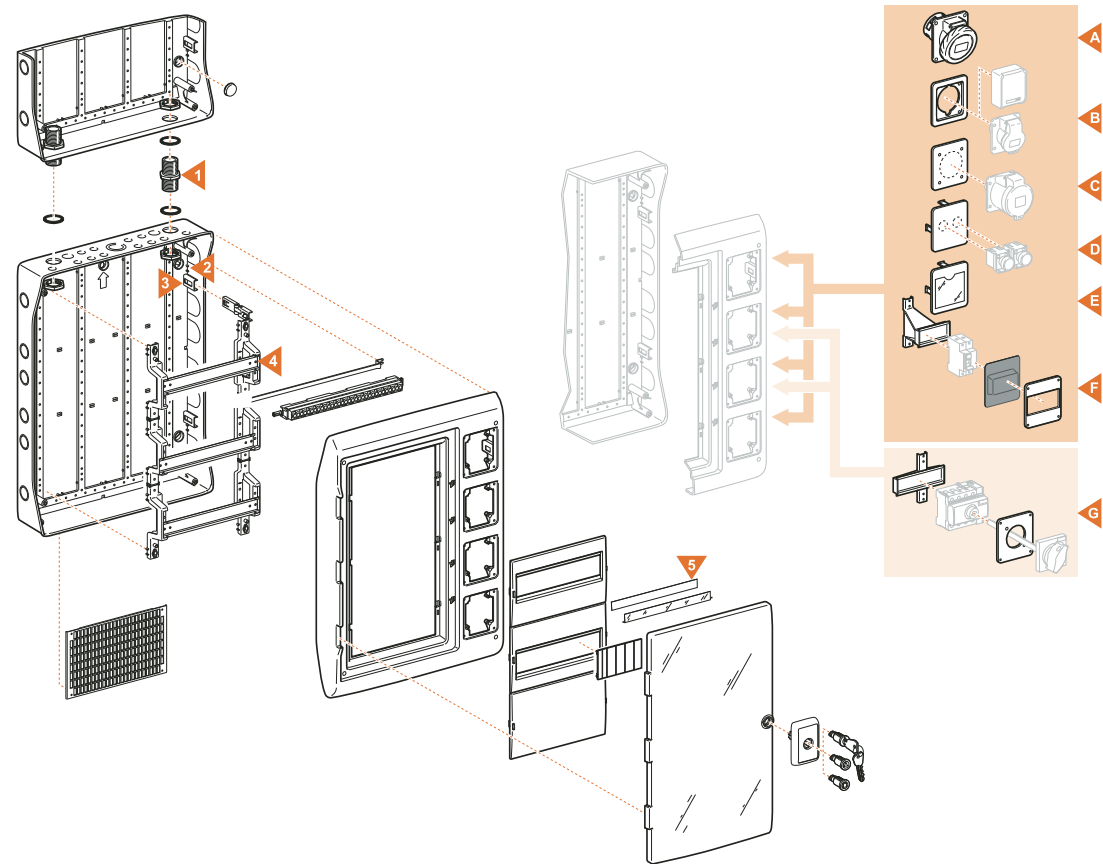
(1) Concentric pre-cutouts of the PG and ISO/metric type (EN 50262)
(2) Accessories also delivered: class II plugs and blanking plates (5 modules of 18 mm per row)

Catalogue numbers of the main accessories

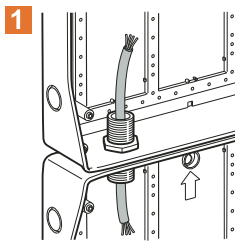
Name	Description	Part number
Association kit	2 sleeves + 4 nuts	13934
Wall mounting lugs		13935
Slotted mounting plate		13941
Plain front plate	12 modules	13944
Interface plate for	65 x 85 power outlets	13136
	65 x 65 or 75 x 75 power outlets	13137
	Pushbutton controls	13138
	Identification	13141
Interface 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:

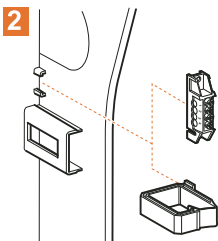
Row separator, jack-up block, junction for trunking, blanking plate, terminal block support, insulated terminal blocks, IP2 covers, cable support sleeves, cable gland, self-adhesive symbols, self-adhesive sheets.



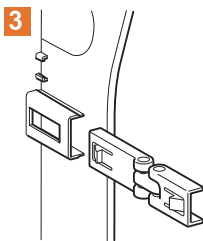
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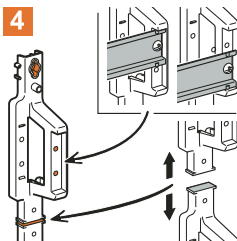
Add-on possibility
Enclosures can be horizontally or vertically associated keeping the IP65 and allowing cable insertion.



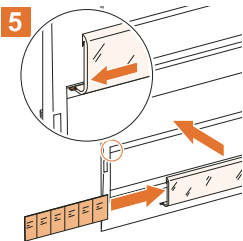
Dovetails
Arranged on the back and on the chassis, they can accommodate:
■ 4-hole terminal blocks
■ Wiring straps



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.

Everything for the interface

Direct mounting

With plate
Part no 13136

With plate
Part no 13137

With plate
Part no. 13138

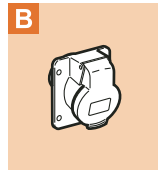
With plate
Part no 13141

With kit
Part no 13140

With kit
Part no 13139



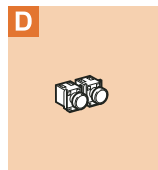
16/32 A slanting power outlets (90 x 100 mm).



LV power outlets (65 x 85 mm).



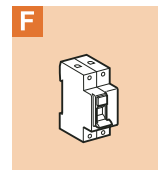
LV and ELV power outlets (65 x 65 mm and 75 x 75 mm).



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



Identification label



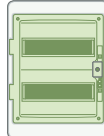
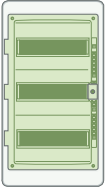
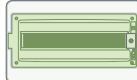
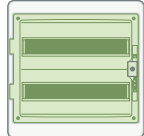
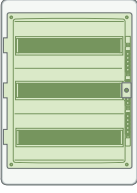
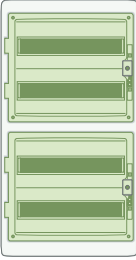
Modular switchgear up to 4 modules (e.g. residual current circuit breaker).



INS40/63/80 A.



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

Mini enclosures					
Number of modules	3	4	6	8	12
1 row					
	13975	13976	13977	13978	13979
Mini enclosures					
Number of rows	1	2	3	4	
12 modules per row					
	13981	13983	13985		
18 modules per row					
	13982	13984	13986	13987	

Enclosures catalogue numbers

Data													Accessories delivered with an enclosure part number ⁽²⁾									
Row	Total mod.	Pre-cutout (top and bottom) ⁽¹⁾							Dimensions (mm)			marking kit	wiring strap	Terminal block support	Terminal block number of holes					Part number		
		M PG	16	20	20 11	25 16	32 21	50 29/36	W	H	D				4	8	16	22	32			
Mini enclosures																						
1	4			2		1			123	200	112	1				2						13976
	6		1	1		1			159	200	112	1				2						13977
	8		2	2		1			195	200	112	1				4						13978
	12		2	2		2	1		267	200	112	1					2					13979
Enclosures																						
1	12		6		6	2	3		340	280	160	1	1	1		2						13981
	18				10	4	2	1	448	280	160	1	1	1			2					13982
2	24		6		6	2	3		340	460	160	2	2	1				2				13983
	36				10	4	2	1	448	460	160	2	2	1						2		13984
3	36		6		6	2	3		340	310	160	3	3	1					4	2		13985
	54				10	4	2	1	448	310	160	3	3	2								13986
4	72				10	4	2	1	448	842	160	4	4	2						4		13987

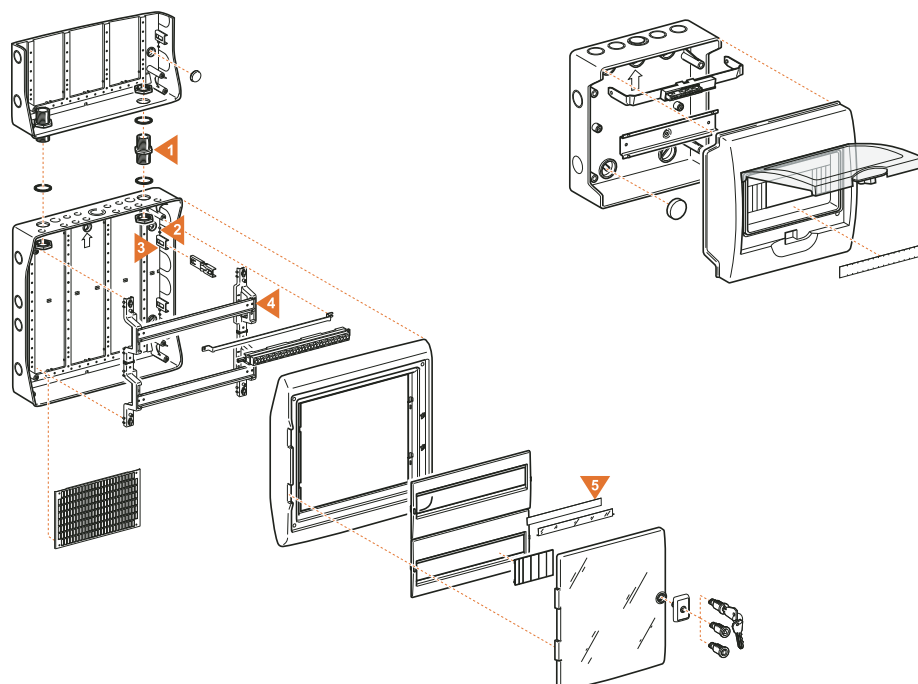
(1) Concentric pre-cutouts of the PG and ISO/metric type (EN 50262).
(2) Accessories also delivered:
■ Mini enclosures: class II plugs
■ Enclosures: class II plugs and blanking plates (5 modules of 18 mm per row)

Catalogue numbers of the main accessories

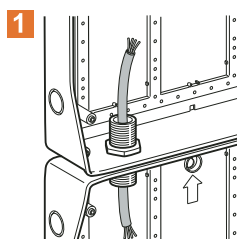
Name	Description	Mini enclosures	Enclosures	Part number
Association kit	2 sleeves + 4 nuts		■	13934
Wall mounting lugs			■	13935
Slotted mounting plate			■	13941
Plain plate	12 modules		■	13944
	18 modules		■	13945
Wiring strap		■	■	13946
Sealing kit		■	■	13947
Keylock		■	■	13948
Insert triangle		■	■	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.

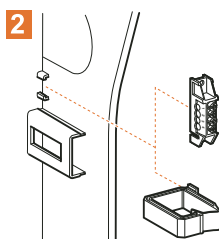


6



Add-on possibility

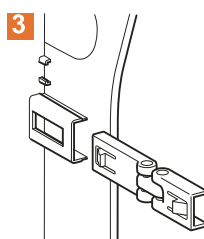
Enclosures can be horizontally or vertically associated keeping the IP65 and allowing cable insertion.



Dovetails

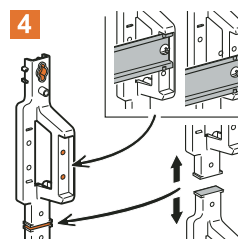
Arranged on the back and on the chassis, they can accommodate:

- 4-hole terminal blocks
- Wiring straps



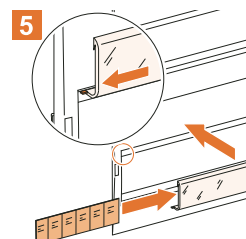
Back/front face hinges

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.

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

Operating temperature:	25 °C to 100 °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	650°C as per IEC 60695-2-1

heat resistance:

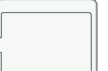
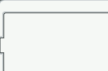
Complies with standard	IEC 60439-3
------------------------	-------------

Resistance to chemicals and atmospheric agents

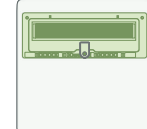


The opaque door universal enclosure provides a zone to install non-modular switchgear. The universal enclosure for power outlets provides a row for modular switchgear and a universal zone.

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

Operating temperature:	25 °C to +55 °C
Colour:	Light grey RAL 7035

Colour:	Light grey RAL 7035
IP65	As per IEC 60529

IK09	As per EN 50102
------	-----------------

Class 2:	Total insulation
----------	------------------

Flame and abnormal heat	650°C as per IEC 60695-2-1
-------------------------	----------------------------

resistance:

Complies with standard	IEC 60439-3
------------------------	-------------

Resistance to chemicals and atmospheric agents

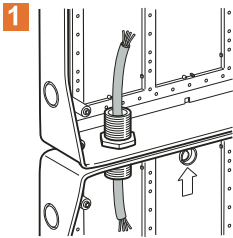
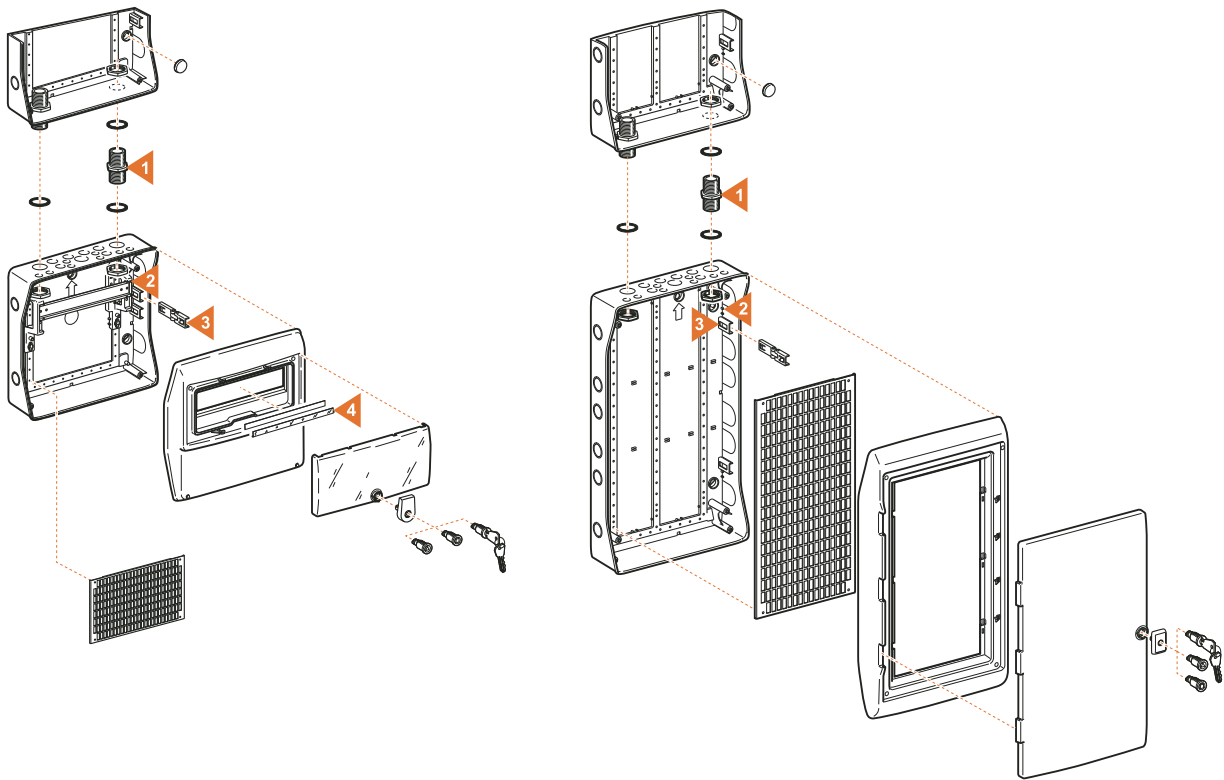
Note: universal enclosures for power outlets can accommodate power outlets up to 125A.

Dimensions (mm)			No of modules	Pre-cutout (top and bottom) ⁽¹⁾						Part number
W	H	D		M	16	20	25	32	50	
			PG			11	16	21	29/36	

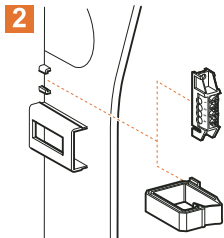
Universal enclosures for power outlets										
138	460	160	5			1	1	1		13189
236	460	160	8			2	2	3		13190
340	335	160	12+1		6	6	2	3		13191
340	460	160	12+1		6	6	2	3		13192
448	460	160	18+1			10	4	2	1	13193

- Universal enclosures for power outlets: class II plugs, blanking plates (5 modules of 18 mm) and marking kit

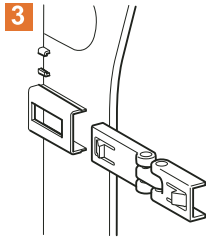
Name	Part number
Association kit	13934
Wall mounting lug	13935
Jack-up block	13938
Junction for trunking	13939
Wiring strap	13946
Slotted mounting plate 150 x 250	13941



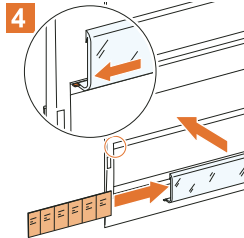
Add-on possibility
Enclosures can be horizontally or vertically associated keeping the IP65 and allowing cable insertion.



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.



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

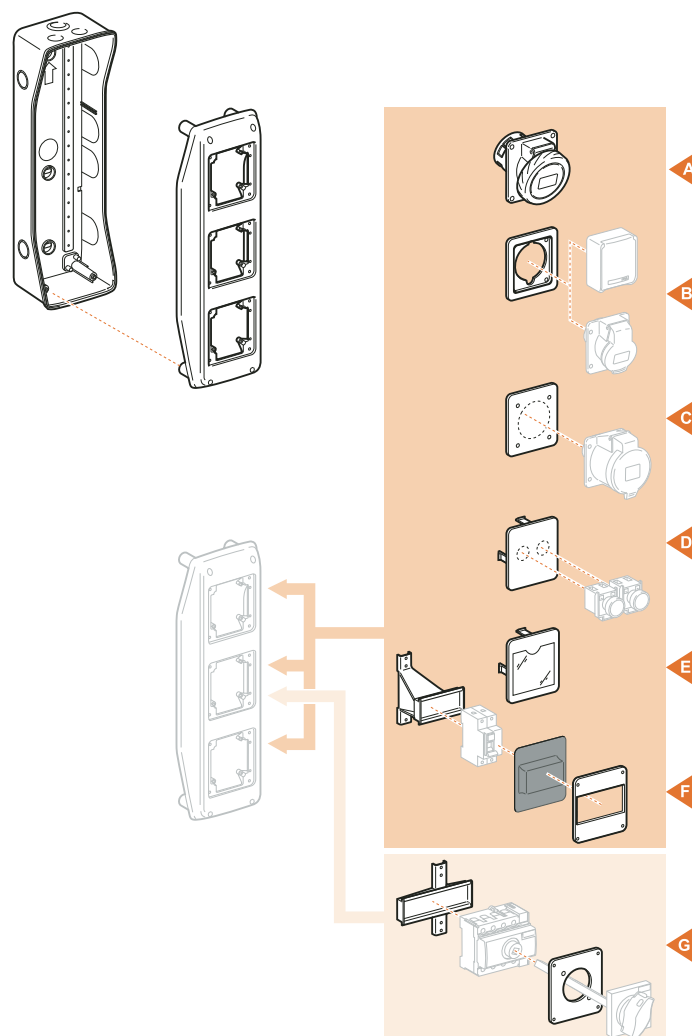
Self-extinguishing insulating material	
Operating temperature:	-25°C to +60°C
Colour:	Light grey RAL 7035
IP65	As per IEC 60529
IK09	As per EN 50102
Class 2:	Total insulation
Flame and abnormal heat resistance:	650°C as per IEC 60695-2-1
Complies with standard	IEC 60439-3
Resistance to chemicals and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

Catalogue 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.



Everything for the interface

Direct mounting

With plate
Part no 13136

With plate
Part no 13137

With plate
Part no. 13138

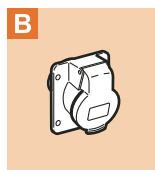
With plate
Part no 13141

With kit
Part no 13140

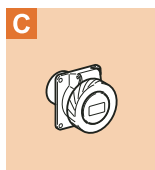
With kit
Part no 13139



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



LV power outlets
(65 x 85 mm).



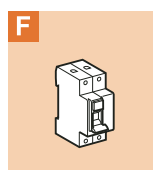
LV and ELV
power outlets
(65 x 65 mm and
75 x 75 mm).



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.

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

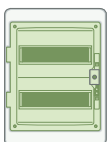
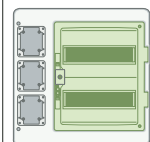
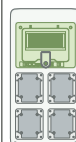
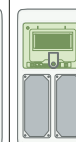
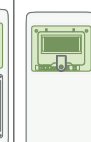
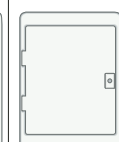
- Sealing kit: used to seal the front face on the back (2 screws) and the front plates on the front face (4 kits)
- Keylock: Eurolocks combination no. 850. Installed in the door
- Insert (male square or triangle, female key supplied): installed in the door

For enclosure maintenance

- Front plate
- Chassis 1 row: can be combined to obtain a multi row chassis

Terminal block composition

Number of holes		Width	
Total	Cross section in mm²	in mm	
	10	16	
4	2	2	85
8	4	4	85
32	16	16	202

Name	Description	Use mini enclosure	Enclosures							Part number	
											
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										13142
	blanking (blank to be slotted)										
	(for 65x65 or 75x75mm power outlet)										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

7

Note: For UL/CSA approved MCBs consult us.
Maximum operating voltage 440V + 10%

Note: BS EN 60898 calibration temperature 30°C
BS EN 60947-2 calibration temperature 40°C

Miniature circuit breakers listed in the service current tables may be used at temperatures ranging from -30°C - 60°C. The tables show the maximum current to be employed as a function of certain ambient temperatures. Figures in bold type are the nominal current ratings at the calibration temperature.

When a number of circuit breakers or combined RCD/MCBs that operate simultaneously are mounted side by side in a small enclosure, the temperature rise inside the enclosure may cause a reduction in the service current. The reduction can be calculated by multiplying the maximum service current by a 'grouping factor'.

C60HB } 0.8
C60HC }
C60HD }

	Temperature °C								
Rat. (A)	20	25	30	35	40	45	50	55	60
1	1.05	1.02	1.00	0.98	0.95	0.93	0.90	0.88	0.85
2	2.08	2.04	2.00	1.96	1.92	1.88	1.84	1.80	1.74
4	4.24	4.12	4.00	3.88	3.76	3.64	3.52	3.40	3.30
6	6.24	6.12	6.00	5.88	5.76	5.64	5.52	5.40	5.30
10	10.6	10.3	10.0	9.70	9.30	9.00	8.60	8.20	7.80
16	16.8	16.5	16.0	15.5	15.2	14.7	14.2	13.8	13.3
20	21.0	20.6	20.0	19.4	19.0	18.4	17.8	17.4	16.8
25	26.2	25.7	25.0	24.2	23.7	23.0	22.2	21.5	20.7
32	33.5	32.9	32.0	31.4	30.4	29.8	28.4	28.2	27.5
40	42.0	41.2	40.0	38.8	38.0	36.8	35.6	34.4	33.2
50	52.5	51.5	50.0	48.5	47.4	45.5	44.0	42.5	40.5
63	66.2	64.9	63.0	61.1	58.0	56.7	54.2	51.7	49.2

	Temperature °C								
Rat. (A)	20	25	30	35	40	45	50	55	60
1	1.10	1.08	1.05	1.03	1.00	0.97	0.95	0.92	0.89
2	2.18	2.14	2.08	2.04	2.00	1.96	1.90	1.86	1.80
4	4.52	4.40	4.24	4.12	4.00	3.88	3.72	3.56	3.44
6	6.48	6.36	6.24	6.12	6.00	5.88	5.76	5.58	5.46
10	11.4	11.1	10.7	10.4	10.0	9.60	9.20	8.80	8.40
16	17.9	17.4	16.9	16.4	16.0	15.5	15.0	14.4	13.9
20	22.2	21.6	21.2	20.6	20.0	19.4	18.8	18.2	17.6
25	27.7	27.0	26.5	25.7	25.0	24.2	23.5	22.7	21.7
32	35.2	34.2	33.6	32.9	32.0	31.0	30.4	29.4	28.4
40	44.4	43.6	42.4	41.2	40.0	38.8	37.6	36.4	34.8
50	56.0	54.5	53.0	51.5	50.0	48.5	46.5	45.0	43.0
63	71.8	69.9	67.4	65.5	63.0	60.4	57.9	55.4	52.9

Temperature °C									
Rat. (A)	20	25	30	35	40	45	50	55	60
1	1.04	1.02	1	0.98	0.96	0.93	0.91	0.89	0.86
2	2.08	2.04	2	1.96	1.91	1.87	1.82	1.77	1.72
6	6.26	6.13	6	5.87	5.73	5.60	5.45	5.31	5.16
10	10.5	10.3	10	9.73	9.45	9.17	8.87	8.57	8.25
16	16.7	16.4	16	15.6	16.2	14.8	14.4	14	13.5
20	20.9	20.4	20	19.5	19	18.7	18	17.5	17
25	26.1	25.5	25	24.4	23.8	23.3	22.7	22.1	21.4
32	33.6	32.8	32	31.2	30.3	29.4	28.5	27.6	26.7
40	42	41	40	39	37.9	36.8	35.7	34.6	33.4

DPN Vigi, DPN N Vigi, (30 and 300mA)

Rat. (A)	Temperature °C								
	20	25	30	35	40	45	50	55	60
6	6.26	6.13	6	5.87	5.73	5.60	5.45	5.31	5.16
10	10.5	10.2	10	9.75	9.49	9.23	8.96	8.67	8.38
16	16.8	16.4	16	15.6	16.25	14.8	14.3	14.9	13.4
20	21	20.5	20	19.5	19	18.5	17.9	17.4	16.8
25	26.1	25.5	25	24.4	23.9	23.3	22.7	22.1	21.4
32	33.4	32.7	32	31.2	30.5	29.7	28.9	28	27.1
40	41.6	41.8	40	38.2	38.3	37.4	36.5	35.6	34.6

NG125

Rat. (A)	Temperature °C								
	20	25	30	35	40	45	50	55	60
10	11	10.75	10.5	10.25	10	9.75	9.5	9.25	9
16	17.6	17.2	16.8	16.4	16	15.6	15.2	14.8	14.4
20	22	21.5	21	20.5	20	19.5	19	18.5	18
25	27.5	26.87	26.25	25.62	25	24.37	23.75	23.12	22.5
32	35.2	34.4	33.6	32.8	32	31.2	30.4	29.6	28.8
40	44	43	42	41	40	39	38	37	36
50	55	53.75	52.5	51.25	50	48.75	47.5	46.25	45
63	69.3	67.72	66.15	64.57	63	61.42	59.85	58.27	56.7
80	88	86	84	82	80	78	76	74	72
100	110	107.5	105	102.5	100	97.5	95	92.5	90
125	137.5	134.3	131.2	128.1	125	121.8	118.7	121.8	112.5

C120H

Rat. (A)	Temperature °C								
	20	25	30	35	40	45	50	55	60
10	10.7	10.4	10	9.4	9.2	8.8	8.4	8.1	7.8
16	17.1	16.6	16	15	14.7	14	13.4	13	12.6
20	21.3	20.7	20	18.7	18.3	17.5	16.7	16	15.5
25	27.1	26	25	23.8	22.7	21.2	20.2	19.6	19
32	34.7	33.3	32	30.5	29	27.1	25.8	25	24.2
40	43	41.5	40	38	36	34	32	31	30
50	53.9	51.9	50	47.8	45.7	43.3	41	39.8	38.6
63	68	65.5	63	60	57	54	51	49.5	48
80	85	82.5	80	77	74	60.5	57	55.3	53.6
100	107	103.5	100	96	92	87.5	83	80.5	78
125	135	130	125	118.5	114	108	102	99	96

Table 1: fluorescent lighting

Depending on the power supply and the number and types of lighting units, the table gives the circuit breaker rating based on the following assumptions:

■ Installation in an enclosure with an ambient temperature of 25°C (derating coefficient = 0.8)

■ Power of ballast: 25% of tube power

■ Power factor: 0.6 for non-compensated fluorescent lighting. 0.86 for compensated fluorescent lighting

Circuit breakers mounted in an enclosure with an ambient exterior temperature of 25°C: derating coefficient = 0.8.

Single phase system: 230V

Three phase + N system: 400V between phases

Three phase 4 W system: 100 W between phases														
Types of lighting unit	Power of tubes (W)		Number of lighting units per phase											
Single phase non-compensated	18	4	9	29	49	78	98	122	157	196	245	309	392	490
	36	2	4	14	24	39	49	61	78	98	122	154	196	245
	58	1	3	9	15	24	30	38	48	60	76	95	121	152
Single phase compensated	18	7	14	42	70	112	140	175	225	281	351	443	562	703
	36	3	7	21	35	56	70	87	112	140	175	221	281	351
	58	2	4	13	21	34	43	54	69	87	109	137	174	218
Two phase 2x18 =	36	3	7	21	35	56	70	87	112	140	175	221	281	351
compensated 2x36 =	72	1	3	10	17	28	35	43	56	70	87	110	140	175
2x58 =	118	1	2	6	10	17	21	27	34	43	54	68	87	109
MCB rating		1	2	6	10	16	20	25	32	40	50	63	80	100

Calculation: non-compensated fluorescent lighting example (star connection)

$$\text{Number} = \frac{(\text{rating} \times 0.8) (U \times 0.6)}{(P \times 1.25)}$$

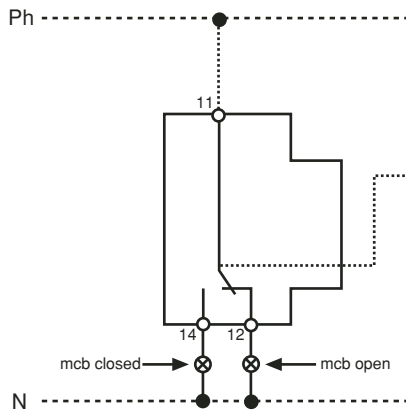
Table 2: high pressure discharge lamps

Table valid for 230V and 400V, with compensated or non-compensated ballast.

Mercury vapour + fluorescent substance	Rat. (A)
P(1) ≤ 700W	6
P(1) ≤ 1000W	10
P(1) ≤ 2000W	16
Mercury vapour + metal halides	
P(1) 375W	6
P(1) 1000W	10
P(1) 2000W	16
High pressure sodium vapour lamps	
P(1) 400W	6
P(1) 1000W	10

For C60/C120 MCBs

Auxiliary ON/OFF switch (OF), Alarm switch (SD), Shunt trip unit (MX), Under voltage release (MN)



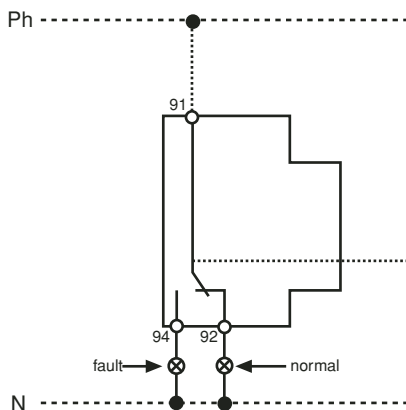
Auxiliary ON/OFF switch (OF) to indicate the 'open' or 'closed' position of a circuit breaker

Assembly

Clip on the left side of the circuit breaker.

Applications

Audible or visual indication of the open or closed state of the circuit. The indication can be given on the front of a cubicle or enclosure or grouped on a control desk. Can be used in conjunction with an alarm switch.



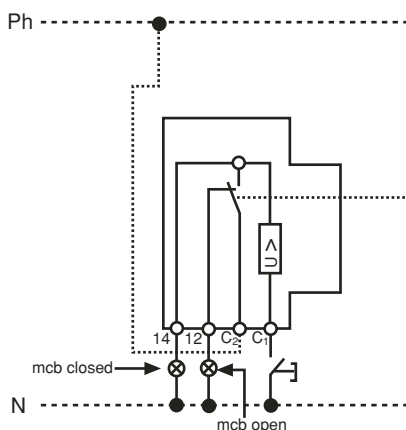
Alarm switch (SD) to indicate circuit breaker opening on a fault (tripped)

Assembly

Clip on the left side of the circuit breaker.

Applications

Audible or visual indication of a fault on an electrical circuit in air conditioned rooms, passenger and goods lifts, ventilation etc. May be used in conjunction with an auxiliary ON/OFF switch.



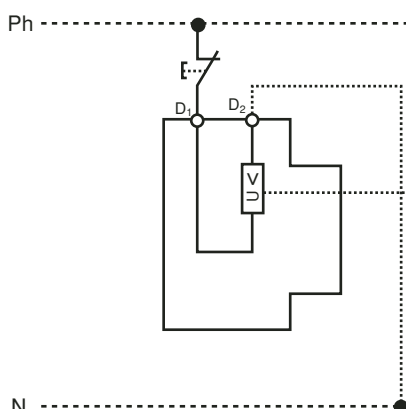
Shunt trip unit (MX) for remote tripping

Assembly

Clip on the left side of the circuit breaker.

Applications

remote opening of electrical circuits.



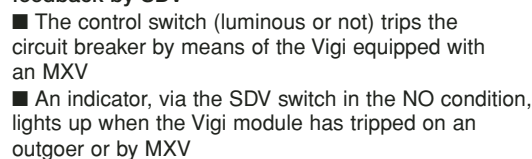
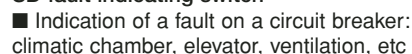
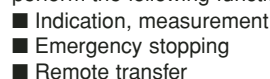
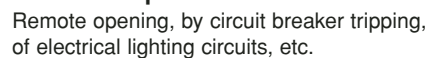
Under voltage release unit (MN) to ensure automatic tripping in case of under voltage and for remote tripping by EMERGENCY STOP push button

Assembly

Clip on the left side of the circuit breaker.

Applications

Automatic tripping of a circuit breaker whenever the voltage drops sufficiently below its nominal rated voltage. Remote tripping of a circuit breaker by 'emergency stop' or other N.C. push button.



Selecting the circuit breaker

The selection of the type of circuit breaker most suitable for protection of a d.c. installation depends mainly on the following criteria:

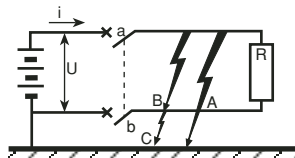
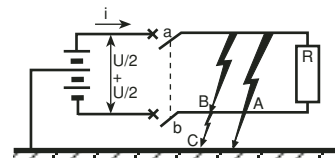
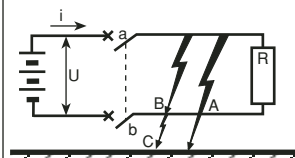
- The rated current, which determines the rating of the equipment
- The type of system (1,2 or 3), (see below)
- The rated voltage, which determines the number of poles to be involved in breaking

- The maximum short circuit current at the point of installation, which determines the breaking capacity. Magnetic trip threshold increases by 1.4

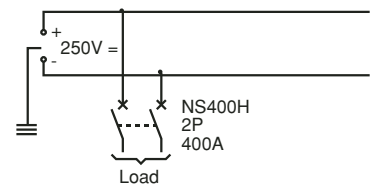
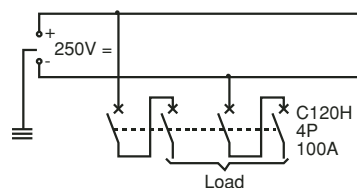
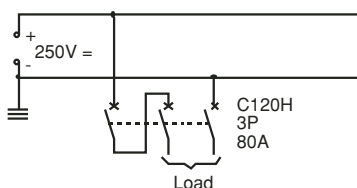
Breaking capacity of miniature circuit breakers on d.c.

(in brackets, the number of poles involved in breaking)

Type of circuit breaker	D.C. breaking capacity(kA)-L/R < 0.015s (IEC 947-2 ,Icu)			
Voltage	24/48V	125V	250V	500V
C60HB/HC	20 (1)	25 (2)	50 (4)	-
C60HD	20 (1)	25 (2)	50 (4)	-
C120	-	15,000	25,000	-
NG125N	-	36,000	36,000	-
NG125H	-	36,000	36,000	-

Type of system	Earthed systems		Insulated systems	
	One polarity of the DC supply is earthed	A centre point of the DC supply is earthed		
Diagrams and various cases of faults				
Fault effect	Fault A	Max. Isc the positive polarity is the only one involved	Isc close to max. Isc the positive polarity is the only one involved, voltage $U/2$	No effect
	Fault B	Max. Isc both polarities are involved	Max. Isc both polarities are involved	Max. Isc both polarities are involved
	Fault C	No effect	Same as fault A but this is the negative polarity which is involved	No effect
Most unfavourable case	Fault A	Faults A and C	Fault B	
Distribution of the breaking poles	The poles required to perform the break are in series on the positive polarity ^{(1),(2)}	On each polarity there must be the number of poles required to perform the break of max. Isc at $U/2$	the poles required to perform the break are shared between the 2 polarities	

(1) Or negative if the positive polarity is earthed.
(2) An extra pole will be needed on the earthed polarity to provide isolation



Calculation the short circuit current (Isc) across the terminals of a battery

When a short circuit occurs across its terminals, a battery discharges a current given by Ohm's law:

$$I_{sc} = \frac{V_b}{R_i}$$

Where V_b = the maximum discharge voltage (battery 100 % charged).
and R_i = the internal resistance equivalent to the sum of the cell resistances (figure generally given by the manufacturer according to the capacity of the battery).

Example

What is the short circuit current at the terminals of a standing battery with the following characteristics:

- Capacity: 500Ah
- Max. discharge voltage: 240V (110 cells of 2.2V)
- Discharge current: 300A
- Autonomy: 1/2 hour
- Internal resistance: 0.5mΩ per cell

$$R_i = 110 \times 0.5 \cdot 10^{-3} = 55 \cdot 10^{-3}$$

$$I_{sc} = \frac{240}{55 \cdot 10^{-3}} = 4.4 \text{ kA}$$

As the above calculation shows, the short circuit current is relatively weak.

Note: If the internal resistance is not known, the following approximate formula can be used: $I_{sc} = kC$, where C is the capacity of the battery expressed in Ampere hours, and k is a coefficient close to 10 but in any case always lower than 20.

240 Vdc
300A
500Ah
 $R_i = 0.5 \text{ m}\Omega/\text{cell}$



The greater part of multi 9 circuit breakers can be used on 400Hz networks. Short-circuit currents at 400Hz generator terminals do not, in general, exceed the nominal current by more than 4 times. Therefore, breaking capacity problems are very rare.

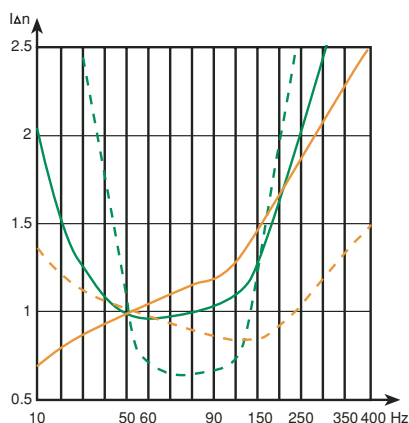
Multi 9 circuit breakers

- No thermal derating
- Increase of magnetic thresholds:
 - Coefficient 1.5 for DPN
 - Coefficient 1.48 for C60
- Residual current circuit-breakers from the multi 9 range can be used on 400Hz networks. It should be noted that the mA threshold varies depending on the network's frequency (see curves below)

Note:

In 400Hz, the test circuit for residual current devices may present the risk of not functioning when actioning the test button because of threshold variation. According to international studies (IEC 60479-2), the human body is less sensitive to a 400Hz current that passes through the body; so well that, even though the residual current device has had its frequency desensitised, these devices still ensure the protection of persons. The method for choosing residual current devices in 400Hz is thus the same as that for 50Hz.

RCCB

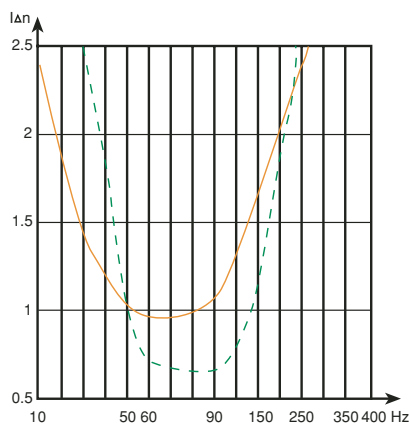


Operating residual current variation curves



Class	Rating	Curve N°.				
		Sensitivity (mA)				
	(A)	10	30	100	300	500
AC	25	2	1	-	1	1
	25-40	-	1	1	1	1
	63-80-100	-	2	1	1	1
A	16-25-40-63	-	3	-	2	2
si type			4	-	4	-
Selective S (AC, A)		-	-	-	2	2

Vigi C60



Operating residual current variation curves



Class	Rating	Curve N°.					
		Sensitivity (mA)			Sens. (A)		
	(A)	10	30	100	300	1A	3A
Vigi C60 110/220 V - 50Hz							
AC	25	2	1	1	-	-	
	63	-	2	1	-	-	
Vigi C60 2, 3 and 4P 220/415 V - 50Hz							
AC	25	2	1	1	-	-	
	40-63	-	2	1	-	-	
A	25-63	3	3	2	2	-	
All types							
Selective S		-	4	2	2	-	
C60 si							

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

kW	hHp	Running I	Recommended MCB		
			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	-	-	-

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

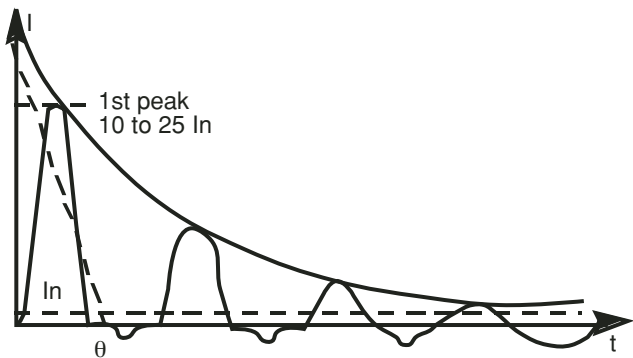
VA	Primary In (A)	C60HB	C60HC	C60HD
500	0.7	4	2	1
750	1.04	6	4	2
1000	1.39	10	6	4
2000	2.78	16	10	6
5000	6.95	40	25	16
10000	13.89	-	50	25
15000	20.84	-	63	32
20000	27.78	-	-	50
25000	34.73	-	-	63
30000	41.67	-	-	63

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).



Voltage drop

P25M motor circuit breaker

Applications

Thermal release settings

Ambient temperature compensation

Protection of the line supplying the motor

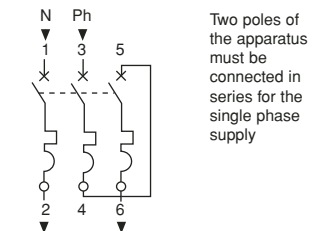
Phase failure protection

7/12

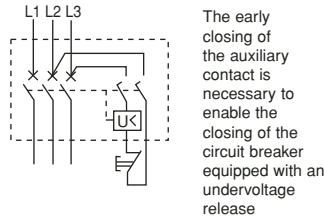
Auxiliaries:

- Alarm switch.
- ON/OFF switch.
- Shunt trip release or undervoltage release (emergency stop).

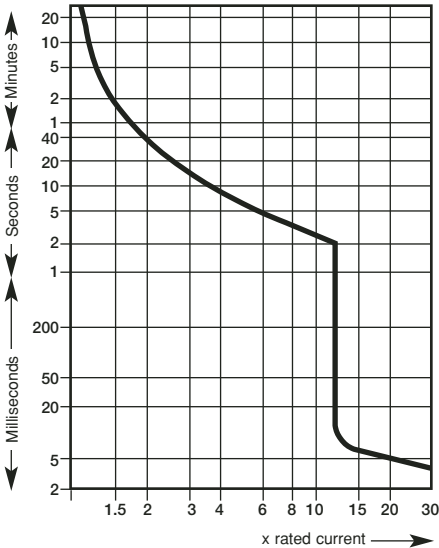
Single phase connection



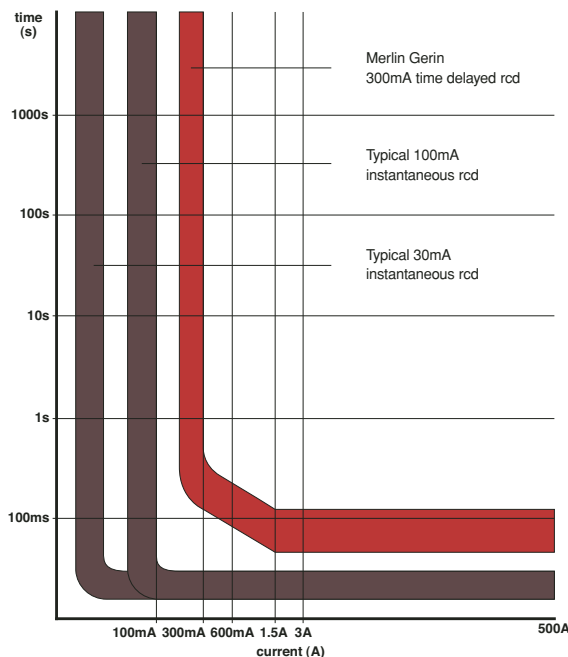
Emergency switch wiring



Time/current characteristics



Rating In (A)	Settings	Part N°.	Standard power ratings kW: of 3-phase motors 50 - 60Hz AC-3 category					
			230	400	415	440	500	690
0.16	0.1 - 0.16	21100	-	-	-	-	-	-
0.25	0.16 - 0.25	21101	-	-	-	-	-	-
0.40	0.25 - 0.40	21102	-	-	-	-	-	-
0.63	0.40 - 0.63	21103	-	-	-	-	-	0.37
1.0	0.63 - 1	21104	-	-	-	0.37	0.37	0.55
1.6	1 - 1.6	21105	-	0.37	-	0.55	0.75	1.1
2.5	1.6 - 2.5	21106	0.37	0.75	1.1	1.1	1.1	1.5
4.0	2.5 - 4	21107	0.75	1.5	1.5	1.5	2.2	3
6.3	4 - 6.3	21108	1.1	2.2	2.2	3	3.7	4
10	6 - 10	21109	2.2	4	4	4	5.5	7.5
14	9 - 14	21110	3	5.5	5.5	7.5	9	11
18	13 - 18	21111	4	7.5	9	9	10	15
23	17 - 23	21112	5.5	9	11	11	11	18.5
25	20 - 25	21113	5.5	11	11	11	15	22



Two families of RCD are offered in this catalogue

(1) Those without overcurrent protection (RCDs) e.g. RMGs

(2) Those with overcurrent protection (RCBOs) e.g. C60H rcbo's and DPN

Miniature circuit breakers combined with a residual current device, this RCD/MCB combination can be realised in the form of the C60H RCBO combined RCD/MCB or by combining a vigi module with an MCB. All of these units can be used to protect individual circuits or as devices mounted within individual enclosures. Individual outgoing circuits within type A or type B MCB distribution boards can be protected by installing RCD/MCB combinations on that particular outgoing way. Groups of circuits can be protected within distribution boards by selection of either split load or dual incomer units with selected circuits protected by RCD incoming devices. Complete distribution systems can be given RCD protection by installing an RMG RCD in a separate enclosure ahead of the distribution board or by using a distribution board having an incoming RCD.

Unwanted tripping

The principal reasons for unwanted tripping of RCDs are lack of discrimination between RCD's (see following paragraph) and transient earth leakage currents, which have various causes such as lightning strikes, switching surges (caused by switching inductive loads) or switching capacitive loads (RF filter networks, mineral insulated cables etc) All Merlin Gerin RCDs and RCD/MCBs incorporate a filtering device which minimises their response to transients, virtually eliminating unwanted tripping.

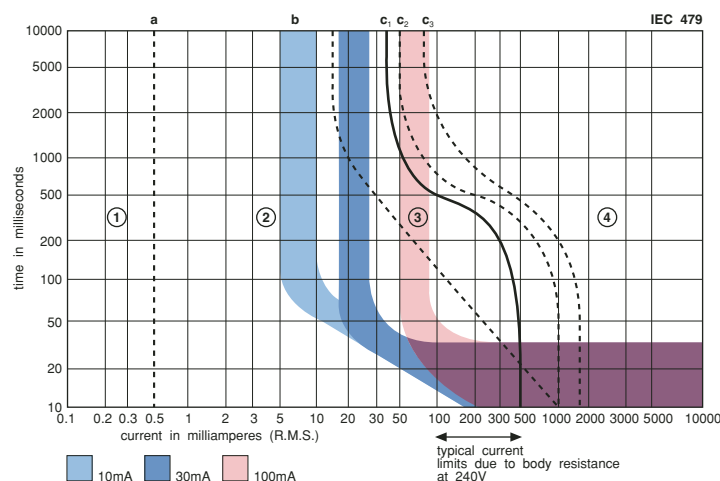
Discrimination of RCDs

Figure 3: characteristic of 231 16, 300mA time delayed RCD with 10, 30 and 100mA instantaneous devices superimposed to show discrimination. Wherever two or more RCDs are installed in series with one another, measures must be taken to ensure that they discriminate properly - in the event of an earth fault, only the device next upstream should operate. RCDs do not discriminate on rated residual operating current sensitivity alone. In other words, a 100mA device upstream of a 30mA device will not offer inherent discrimination. To provide the necessary discrimination, RCDs can be provided with an inbuilt time delay mechanism, usually 50ms. This inbuilt time delay is sufficient to allow the downstream device to open the circuit before the upstream device starts to operate. Such an RCD must be used as the incomer to a split load board incorporating two RCDs.

(fig. 3)

IEC publication 479 "effects of currents passing through the human body"

TIME/CURRENT ZONES OF EFFECTS OF A.C. CURRENT (15 - 100Hz) ON PERSONS WITH STANDARD RCD CHARACTERISTICS SUPERIMPOSED



Zone Physiological Effects

- ① Usually no reaction effects
- ② Usually no harmful physiological effects
- ③ Usually no organic damage to be expected. Likelihood of muscular contraction and difficulty of breathing reversible disturbances of formation and conduction of impulses in the heart and transient cardiac arrest without ventricular fibrillation increases with current magnitude and time
- ④ In addition to the effects of zone 3 probability of ventricular fibrillation increased up to 5% (Curve C2) up to 50% (Curve C3) and above 50% beyond Curve C3 Increasing with magnitude and time. pathophysiological effects such as cardiac arrest, breathing arrest and heavy burns may occur.

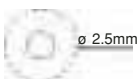
External influences
In many national and international standards, a large number of external influences to which an electrical installation can be subjected are indexed and coded: presence of water, presence of solid objects, risk of impact, vibrations, presence of corrosive substances, etc. These influences 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.

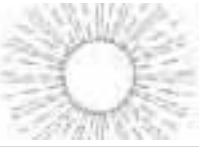
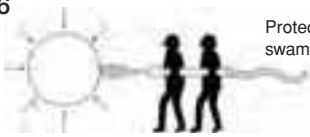
Protection index
European standard EN60529 gives a protection code (IP) which characterises the ability of equipment to withstand the following external influences:

- 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		
0		no protection
1		Protection against solid bodies greater than 50 mm
2		Protection against solid bodies greater than 12.5 mm
3		Protection against solid bodies greater than 2.5 mm
4		Protection against solid bodies greater than 1 mm
5		Protection against dust (no harmful deposits)
6		Total protection against dust

2nd digit		
Protection against liquids		
0		No protection
1		Protection against vertical drops of water (condensation)
2		Protection against drops of water falling up to 15° from vertical
3		Protection against rainwater up to 60° from vertical
4		Protection against water projected from all directions
5		protection against hosing with water from all directions
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

Choosing a surge arrester for LV networks

Load considerations

- The surge arrester's level of protection (U_p) depends on the installed equipment and the rated voltage of the installation
- U_p must lie between
 - ☐ The full voltage of the permanent operating conditions (U_c)
 - ☐ The impulse withstand voltage (U_{choc}) of the equipment to be protected:
 $U_c < U_p < U_{choc}$

8/20 impulse withstand table for equipment to be protected

- General standard: IEC 60364-4

Rated voltage of the installation	Equipment sensitivity withstand (Uchoc)			
Three phase networks	Reduced electronic circuit devices: televisions, alarms, HiFi, video recorders, computers telecommunication	Normal electrical household appliances: dishwashers, ovens, refrigerators, portable tools	High industrial devices: motors, cabinets, current sockets, transfos.	Very high industrial devices: distribution electric meters, telemeters
400/690/1000 V	2.5 kV	4 kV	6 kV	8 kV
230/440 V	1.5 kV	2.5 kV	4 kV	6 kV
	shock wave category I	shock wave category II	shock wave category III	shock wave category IV

Earthing systems	TT	TN-S	TN-C	IT
Uc value for common mode (protection between live conductors and earth)	$\geq 1.5 U_0$	$\geq 1.5 U_0$	$\geq 1.5 U_0$	$\geq 1.732 U_0$
Uc value for differential mode (protection between phase and neutral)	$\geq 1.1 U_0$	$\geq 1.1 U_0$		$\geq 1.1 U_0$

U_0 : Simple network voltage between phase and neutral.

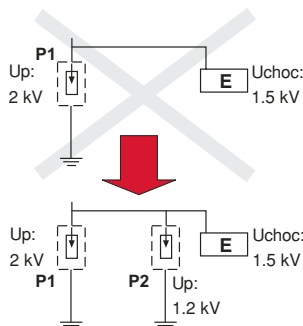
Uc: Full voltage under permanent operating conditions.

Uc: Value as in the French standard: NF C 15100 section 534.

The incoming surge arrester (P1) is dimensioned to run off lightning currents at the source of the installation, 2 cases are possible:

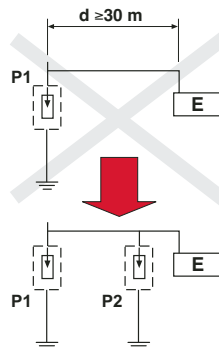
- If there is a level of protection (Up) too high for the impulse withstand voltage (Uchoc) of the installation's equipment:
 - A secondary protection surge arrester (P2) placed near loads is sufficient, to lower the voltage and make it compatible with the impulse withstand voltage of the equipment to be protected
- If sensitive equipment is too far from the incoming surge arrester ($d \geq 30$ m figure 2):
 - A secondary protection surge arrester (P2) placed near loads suffices, to lower the voltage and make it compatible with the impulse withstand voltage of the equipment to be protected

Example figure 1



- E: Equipment to be protected with impulse withstand of 1.5 kV
- P1: incoming surge arrester dimensioned with I_n and I_{max} that are sufficient enough to face lightning currents that may appear and with a level of protection of 2.5 kV
- P2: Surge arrester near equipment to be protected with an adapted level of protection and which is co-ordinated with P1

Example figure 2



- E: Equipment to be protected with impulse withstand of 1.5 kV
- P1: Incoming surge arrester dimensioned with I_n and I_{max} that are sufficient enough to face lightning currents that may appear and with a level of protection of 1.5 kV. This level of 1.5 kV is acceptable in principle (even though there is no margin), but the distance d is too great
- P2: Surge arrester near equipment to be protected with an adapted level of protection and which is co-ordinated with P1

- If a lightning rod is planned or has already been installed on the building (or in a 50 m radius):
 - Choose an incoming protection device with an I_{max} of 65 kA, lightning flash density (N_g)
- Mount a surge arrester I_{max} : 8 kA in a cascading configuration if:
 - The distance between the incoming surge arrester and loads is ≥ 30 m
 - The surge arrester's voltage U_p is too high in regards to the sensitivity of the load to be protected (Uchoc)

Installation without a lighting conductor

Geographical location	Urban			Rural		
Lightning flash density (Ng)	≤ 0.5	$0.5 < Ng < 1.6$	≥ 1.6	≤ 0.5	$0.5 < Ng < 1.6$	≥ 1.6
I _{max} (kA) incoming protection	15*	15	15	15	30 - 40	65
I _{max} (kA) secondary protection if:					8	8
Up too high and/or d $\geq$ 30 m						
(*) recommended						

Continuity of supply of the operation	Not necessary			Partial			Essential		
Consequence (financial) of a lightning stroke on equipment to be protected	Low			High			Very high		
Lightning flash density (Ng)	≤0.5	0.5<Ng<1.6	≥1.6	≤0.5	0.5<Ng<1.6	≥1.6	≤0.5	0.5<Ng<1.6	≥1.6
I _{max} (kA) incoming protection	15	15	30 - 40	15	30 - 40	65	30 - 40	65	65
I _{max} (kA) secondary protection if: Up too high and/or d ≥ 30 m			8		8	8	8	8	8

(1) since in the tertiary/industrial sector the cost of equipment to be protected is higher, damage due to lightning is more significant

Earthing systems		TT	TN-S	TN-C	IT distributed neutral	IT non-distributed neutral
Draw out surge arresters						
PRD	MC			1P		
	Uc = 275 V					
	MC			3P		
	Uc = 440 V					3P
	MC/MD	1P+N	1P+N		1P+N	
	Uc = 440/275 V	3P+N	3P+N		3P+N	
Fixed surge arresters						
PF 30 - 65 kA	MC	1P+N	1P+N		1P+N	
	Uc = 440 V	3P+N	3P+N		3P+N	
PF 8 - 15 kA	MC/MD	1P+N	1P+N		1P+N	
	Uc = 440/275 V	3P+N	3P+N		3P+N	
PE	MC			1P		
	(Uc = 440 V)			3x1P		3x1P

Choosing a surge arrester for LV networks

PRD/PF

Choosing a disconnection circuit breaker

After having chosen the surge arrester(s) needed to protect the installation, the appropriate disconnection circuit breaker is to be chosen from the opposite table:

- Its breaking capacity must be compatible with the installation's breaking capacity
- Each live conductor must be protected example: a 1P+N surge arrester must be combined with a 2P disconnection circuit breaker (2 protected poles)

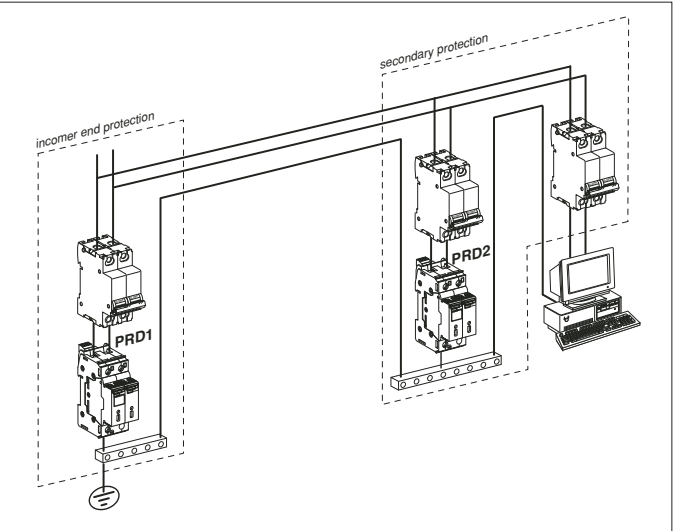
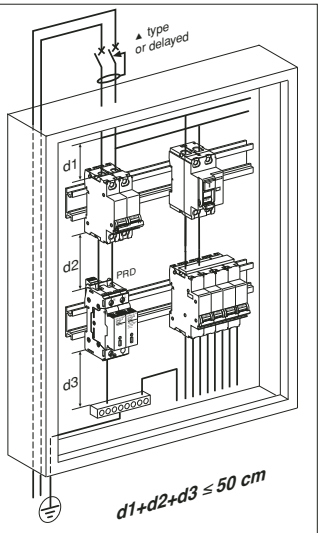
Maximum lightning discharge current	Disconnection circuit breaker		
	Rating	Curve	Range
8-15-30-40 kA	20 A	C	-
65 kA	50 A	C	-

Installation constraints

The 50 cm rule in the switchboard
Connections must be as short as possible.
Do not exceed a distance of 50 cm, to efficiently protect electrical loads.

Co-ordinating 2 surge arresters (the 10 m rule)

In the case of an exposed site and the presence of sensitive loads, it is recommended to co-ordinate upstream and downstream protection in a cascading configuration.



CT 2000 contactor applications

Choice of contactor

■ Heating circuits: (AC7a table 1) **Table 1:** maximum power (kW) controlled by a contactor as a function of contactor rating and service voltage. Example of use: electric heating units, water heaters

■ Lighting circuits: (AC5, table 2 and 3) choice of contactor and maximum number of load devices controlled as a function of the unit power (W) of the load devices and the service voltage: incandescent lamps, fluorescent lamps with starter, (individual mounting), sodium vapour lamps

■ Utility motors (AC7b, table 4) maximum power (kW) controlled by a contactor as a function of contactor rating and operating voltage. Typical applications: small pumps, compressors and machine tools

Grouping of contactors

When contactors are mounted side by side on the same DIN rail, a spacer must be fitted between every pair of contactors. Contactor bank spacer cat. ref. 27062 enables contactors to be spaced 9mm apart to improve ventilation and prevent overheating.

Note:

For normal usage there is generally no requirement to derate due to the high calibration temperature employed.

Installation recommendations for

contactors - when sited in close proximity to electronic equipment i.e. remote control switches, programmable timers etc.

1. Install two contactor spacers between the contactor and the electronic equipment.
2. Ensure contactor coil circuit and electronic equipment supply circuit are separated.
3. Where more than one DIN rail is available the contactor must be mounted on the upper rail and the electronic equipment on the lower rail.
4. Where only one DIN rail is available, the contactor must be mounted to the RHS of electronic equipment on horizontal rails and above electronic equipment on vertical rails.

Inrush and holding power

Type	Rating (A)	Consumption inrush (VA)	holding (VA)	Maximum power
1P, 2P	16/25	15	3.8	1.3
3P, 4P	16/25	34	4.6	1.6
2P	40/63	34	4.6	1.6
3P, 4P	40/63	53	6.5	2.1
2P	100	53	6.5	2.1
4P	100	106	13	4.2

Table 1: Heating

Maximum power (kW) for a given rating

Type of heating (AC1 - AC7a categories)		Contactor rating (A)				
		25	40	63	100	
400/415V heating						
N°. of ops per day	25	5.4	8.6	14	21.6	
	50	5.4	8.6	14	21.6	
	75	4.6	7.4	12	18	
	100	4	6	9.5	14	
	250	2.5	3.8	6	9	
	500	1.7	2.7	4.5	6.8	
230/240V heating						
N°. of ops per day	25	16	26	41	63	
	50	16	26	41	63	
	75	14	22	35	52	
	100	11	17	26	40	
	250	5	8	13	19	
	500	3.5	6	9	14	

Table 2: Lighting

Table 2: Lighting		Maximum number of lamps for a given rating				
230/240V	Power (W)	Contactor rating (A)				
		16	25	40	63	100
Incandescent lamp with/without halogen gas						
	40	38	57	115	172	250
	60	30	45	85	125	187
	75	25	38	70	100	150
	100	19	28	50	73	110
	150	12	18	35	50	75
	200	10	14	26	37	55
	300	7	10	18	25	37
	500	4	6	10	15	22
	1000	2	3	6	8	12
12V halogen lamp (with ELV transformer)						
	20	15	23	42	63	94
	50	10	15	27	42	63
	75	8	12	23	35	52
	100	6	9	18	27	40
	150	4	6	13	19	28
26mm fluorescent (single tube with parallel capacitor)						
	15	15	20	40	60	90
	18	15	20	40	60	90
	20	15	20	40	60	90
	36	15	20	40	60	90
	40	15	20	40	60	90
	58	10	15	30	43	64
	65	10	15	30	43	64
	115	5	7	14	20	30
	140	5	7	14	20	30
26mm fluorescent tube (single tube without capacitor)						
	15	22	30	70	100	150
	18	22	30	70	100	150
	20	22	30	70	100	150
	36	20	28	60	90	135
	40	20	28	60	90	135
	58	13	17	35	56	84
	65	13	17	35	56	84
	115	7	10	20	32	48
	140	7	10	20	32	48
26mm fluorescent (twin tube with parallel capacitor)						
	2x18	30	46	80	123	180
	2x20	30	46	80	123	180
	2x36	17	25	43	67	100
	2x40	17	25	43	67	100
	2x58	10	16	27	42	63
	2x65	10	16	27	42	63
	2x118	6	10	16	25	37
	2x140	6	10	16	25	37
26mm fluorescent (four tube with parallel capacitor)						
	4x18	15	23	46	69	100
Electronic ballast (1 x 26mm tube)						
	18	74	111	222	333	500
	36	38	58	117	176	260
	58	25	37	74	111	160
Electronic ballast (2 x 26mm tube)						
	2x18	36	55	111	166	250
	2x36	20	30	60	90	135
	2x58	12	19	38	57	85
Electronic compact						
	7	133	200	400	600	900
	11	80	120	240	360	540
	15	58	88	176	264	396
	20	44	66	132	200	300
	23	38	57	114	171	256

Table 3: Sodium lighting

Table 3: Sodium lighting		Maximum number of lamps for a given rating					
230/240V	Power (W)	Contactor rating (A)					
		16	25	40	63	100	
Low pressure sodium (with compensation)							
	18	14	21	40	60	60	
	35	3	5	10	15	15	
	55	3	5	10	15	15	
	90	2	5	6	11	11	
	135	1	2	4	6	6	
	180	1	2	4	6	6	
High pressure sodium (without compensation)							
	70	8	12	20	32	32	
	150	4	7	13	18	18	
	250	2	4	8	11	11	
	400	1	3	5	8	8	
	1000	-	1	2	3	3	
High pressure sodium (with compensation)							
	70	6	9	18	25	25	
	150	6	9	18	25	25	
	250	2	4	8	12	12	
	400	2	3	6	9	9	
	1000	1	2	4	6	6	

To obtain the maximum number of lamps on three phase four wire circuits, multiply the maximum number of lights for single phase by three.

For three phase, three wire, the following formula must be applied

$$\text{Single phase quantity} \times 3 \\ 1,732$$

Table 4: Utility motors

		Maximum power (kW) for a given rating					
Type of motor (AC7b category)	230/240V	Contactor rating (A)					
		16	25	40	63	100	
230/240V	-	1.4	2.5	4	4		
400/415V	-	4	7.5	15	15		

ACTt

■ 4 types of delay:

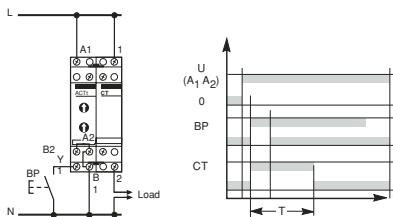
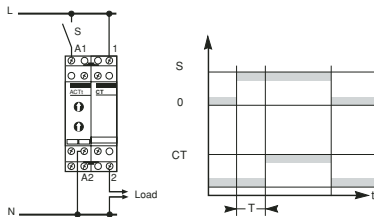
- ☐ Type A time delay puts back loads energisation
- ☐ Type B time delay energises a load for a given time, once the control contact has closed (push button)
- ☐ Type C time delay extends load energisation
- ☐ Type H time delay energises a load for a given time, as long as the control contact remains closed

■ Time delay range: 1s - 10h

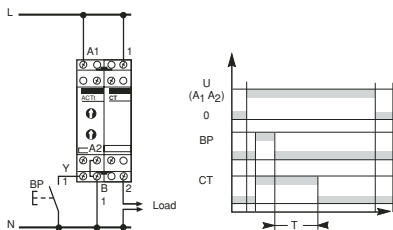
■ Accuracy: +/- 0.5%

Type A

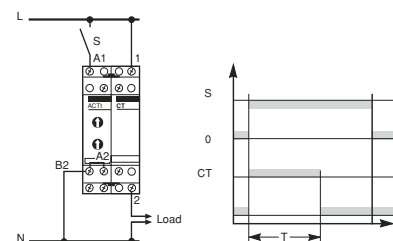
The single time delay cycle begins on energisation and the load is energised at the end of time delay T

**Type B**

The single time delay cycle begins when the control contact is closed

**Type C**

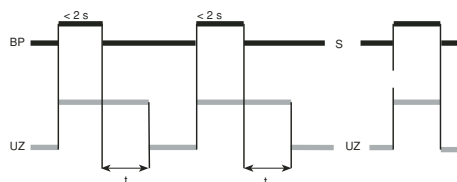
The single time delay cycle begins when the control contact is (pushbutton) is released, at the end of time delay T, the load is de-energised again

**Type D**

The single time delay cycle begins on energisation. the load is de-energised again at the end of time delay T or when the control contact is released

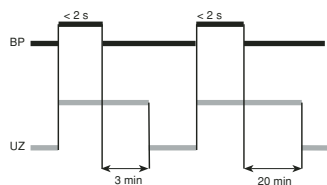
MIN timer

- Time delay of 1 - 7 min
- Pressing one of the push buttons again restarts the timer
- Continuous mode by pressing switch (S) on front face



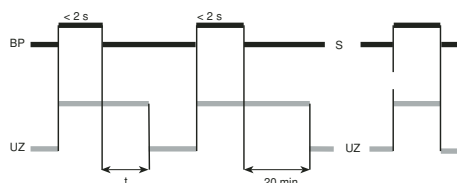
MINE timer

- Time delay of 3 or 20 min
- Pressing one of the push buttons again restarts the timer



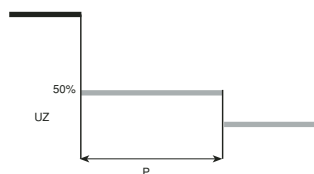
MINs timer

- Time delay of 30s - 8 min
- Pressing one of the push buttons again restarts the timer
- Continuous mode by pressing switch (S) on front face



PRE switch off warning

- Switch off warning (P) of 20 - 40 s 50% reduction in luminous flux



Function

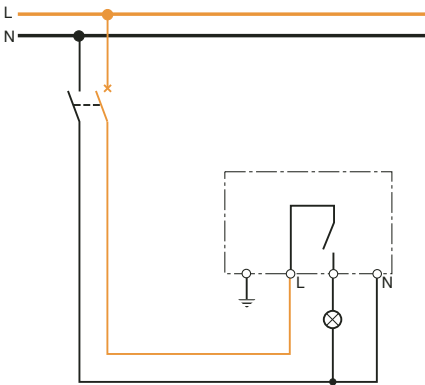
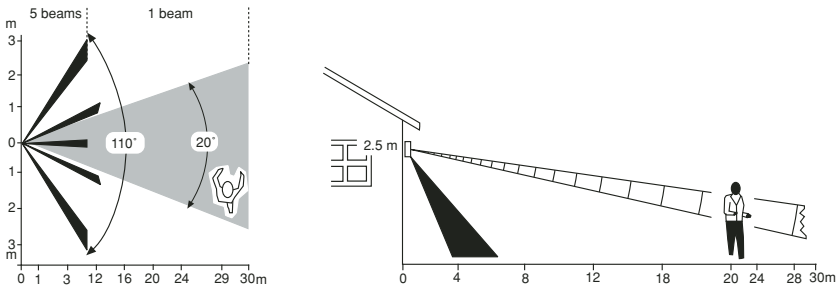
The CE30 controls switching on and off of lighting by detection of movements of people and according to ambient brightness.

The CE30 controls switching on of lighting if a movement is detected and if the ambient brightness is less than the pre-set threshold.

After the last movement detected, it controls switching off of lighting on completion of a time delay that can be set beforehand.

Technical data

Power supply:	230V +/- 10%, 50 - 60Hz
Detection angle:	20°
	Configuration of detection angle by cover cut out
Setting of the brightness threshold for lighting control:	5 - 300lux
Setting of the time delay between the last movement detected and switching off of lighting:	40 seconds - 8 minutes
Output contact:	10A cos Ø = 1 5A cos Ø = 0.5
Incandescent lights:	Relays compulsory
Degree of protection:	IP43
Connection:	1.05mm² spring tunnel type terminals
Consumption:	< 1W
Operating temperature:	-25 to +55°C
Approvals:	VDE-SEMKO-KEMA-KEUR



Function

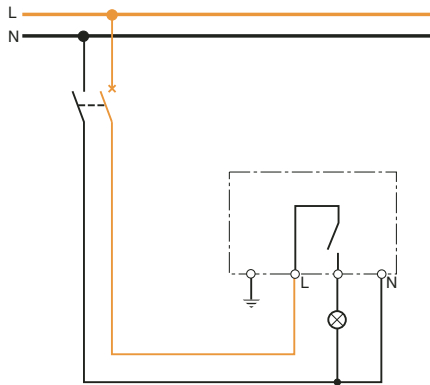
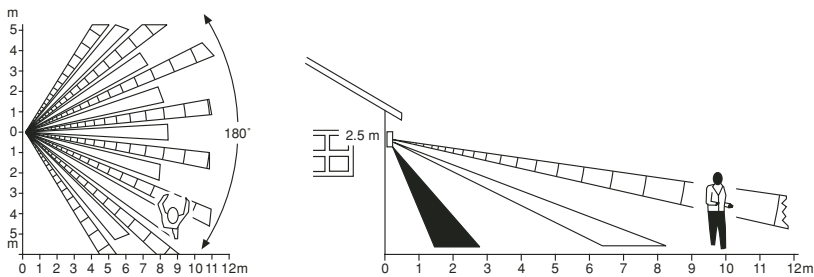
The CDM controls switching on and off of lighting by detection of movements of people and according to ambient brightness.

The CDM controls switching on of lighting if a movement is detected and if the ambient brightness is less than the pre-set threshold.

After the last movement detected, it controls switching off of lighting on completion of a time delay that can be set beforehand.

Technical data

Power supply:	230 V -10% +6%, 50 - 60Hz
Detection angle:	0° - 180°
	Configuration of detection angle by cover cut-out
Range:	0 - 12 m according to slope adjustment
Setting of the brightness threshold for lighting control:	3 - 80 lux
Setting of the time delay between the last movement detected and switching off of lighting:	4 seconds - 15 minutes
Lighting power	Incandescent lights: 1000 W max Halogen lamps: 500 W max Fluorescent and fluocompact lights: relays compulsory
Degree of protection:	IP54
Connection:	Screw terminals up to 205 mm²
Consumption:	1.1 VA
Operating temperature:	-25 to +50° C
Approvals:	VDE-SEMKO-KEMA-KEUR



Function

The CDP controls switching on and off lighting according to the presence of a person and ambient brightness.

It allows detection:

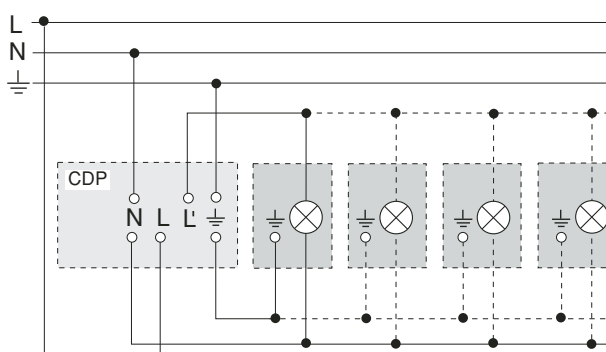
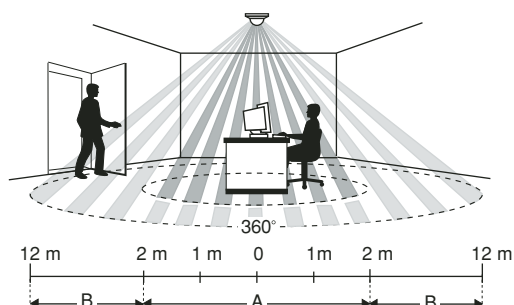
- Of presence (zone A), the system detects the slightest motions,
- Of movements (zone B), the system detects movements.

The CDP controls switching on if presence is detected and if ambient brightness is less than the set threshold.

It controls switching off of lighting if the outside light becomes greater than the threshold, even in the event of movement.

Technical data

Power supply:	230 V +/- 10%, 50 Hz
Detection angle:	Horizontal 360°, vertical 180°
Recommended floor/ceiling clearance:	2.2 - 3 m
Maximum range for recommended clearance:	4m diameter presence detection zone (small motions) 24m diameter movement detection zone (movements)
Setting the brightness threshold for lighting control:	20 - 1300 lux
Setting the time delay between the last movement detected and switch off of lighting:	4 - 15 min
Lighting power	Incandescent lights: 2000W max LV halogen lights (230V) and ELV (12V): 1000W max Fluorescent lights with conventional ballast: 1000W max (cos Ø = 0.5) Fluorescent lights with parallel corrected ballast: 500W max (cos Ø = 0.5)
Degree of protection:	IP20
Operating temperature:	-25°C to +55°C
Storage temperature:	-25°C to +70°C
Weight:	144g
Dimensions:	Diameter: 120mm Height: 70mm Fixing centre distance: 81mm



Function

The CDpt reserved for installations with 1 - 10V control ballast, regulates lighting intensity according to the presence of a person and ambient lighting.

It maintains ambient brightness at a level set by lighting variation.

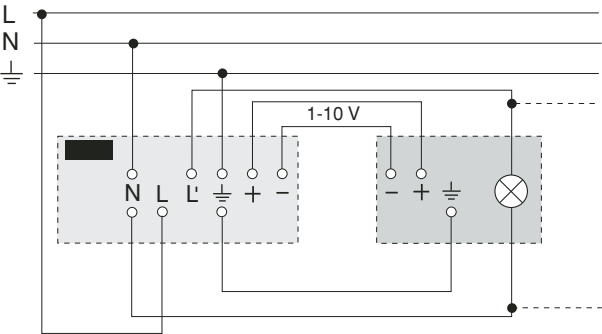
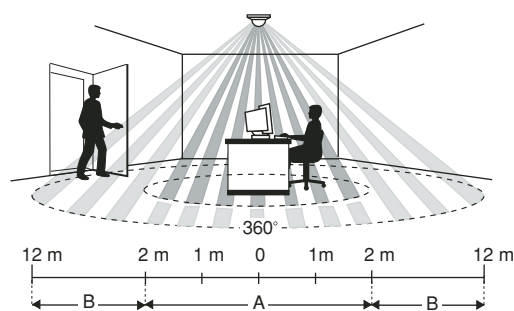
The TDP remote control allows manual monitoring of lighting independently of detector settings.

It allows detection

- Of presence (zone A) the system detects the slightest motions
- Of movements (zone B), the system detects movements

Technical data

Power supply:	230V +/- 10%, 50Hz
Detection angle:	Horizontal 360°, vertical 180°
Recommended floor/ceiling clearance:	2.5 - 3m
Maximum range for recommended clearance:	4m diameter motion detection zone (small motions) 24m diameter movement detection zone (movements)
Setting the brightness threshold for lighting control:	100 - 1300 lux
Setting the time delay between the last movement detected and switch off of lighting:	4 - 15 min
Lighting power (max. number of 1 - 10V ballasts)	16 x (1 x 36W) 12 x (1 x 58W) 12 x (2 x 36W) 8 x (2 x 58W)
Degree of protection:	IP20
Operating temperature:	-15°C to +55°C
Storage temperature:	-25°C to +70°C
Weight:	144g
Dimensions:	Diameter: 120mm Height: 70mm Fixing centre distance: 81mm
Remote control (TDP)	Range: 4m Power supply: 2 xLR03-1.5V batteries (not supplied)



The diagram illustrates the wiring for the PM700 device. It shows three main power lines: L1, L2, and L3. L1 is connected to terminal 8 (V1). L2 is connected to terminal 9 (V2). L3 is connected to terminal 10 (V3). A fourth line, labeled 'Protection', is connected to terminal 11 (VN). Below these, there are three sets of connections for current sensing. Each set consists of a switch S1 and a switch S2. The first set (S1, S2) is connected to terminals 12 and 13 (I1). The second set (S1, S2) is connected to terminals 14 and 15 (I2). The third set (S1, S2) is connected to terminals 16 and 17 (I3). A 'Shorting block' is shown between the current sensing lines. The PM700 device is represented by a grey block on the right with terminals 8 through 17.

The schematic diagram illustrates the connection of the PM700 power supply system. The PM700 unit is represented by a grey block with terminals 8 through 17. The connections are as follows:

- Power Supply Connections:**
 - Terminal 8 is connected to the L1 line.
 - Terminal 9 is connected to the L2 line.
 - Terminal 10 is connected to the L3 line.
 - Terminal 11 is connected to the ground (GN) line.
- Protection and Shorting Block Connections:**
 - Terminal 12 is connected to the L1 line through a switch S1.
 - Terminal 13 is connected to the L2 line through a switch S2.
 - Terminal 14 is connected to the L3 line through a switch S1.
 - Terminal 15 is connected to the ground (GN) line through a switch S2.
 - Terminal 16 is connected to the L1 line through a switch S1.
 - Terminal 17 is connected to the L2 line through a switch S2.
- Internal Components:**
 - The diagram shows two "Protection" blocks and a "Shorting block" connected to the power supply lines.
 - The "Shorting block" is connected to the L1, L2, and L3 lines and the ground line.

Choosing a current transformer 2 criteria exist for choosing a TI:

- The Ip/5A ratio
- The type of installation

The Ip/5A ratio:
It is recommended that a ratio immediately superior to the measured current (In) be chosen. Ex: In = 1103 A; ratio chosen: 1250/5

Type of installation:
Which TI model to choose depends on the type of installation:

- Insulated cables
- Prisma vertical busbars
- Insulated flexible busbars
- Linergy vertical busbars
- Rigid busbars

Important warning:
Never open the secondary circuit of a current transformer while the primary circuit is energised. Before any kind of maintenance service on the secondary circuit, the secondary terminals on the transformer must be short circuited.

Determining the accuracy class of a TI:
The accuracy class is a function of the transformer's power and the consumption of the the weighing system. The latter takes device and cable consumption into account. For a given accuracy class, consumption of the weighing system must not exceed the power on the TI transformer.

Primary copper cable cross section in mm²	Power in VA doubled meter at 20°C
1	1
1.5	0.685
2.5	0.41
4	0.254
6	0.169
10	0.0975

For each temperature variation of 10°C, the power absorbed by the cables rises by 4%

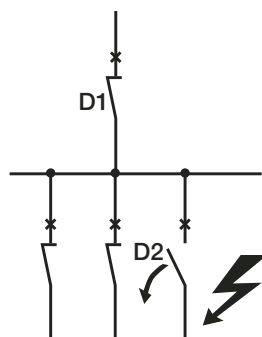
Merlin Gerin device	Consumption (VA)
Ammeter 72 x 72	0.75
Analogue ammeter	1.25
Ammeter Digipact IM100	0.5
Digital ammeter	0.3
PM measurement centre	0.25
CDS	0.25
RCI	0.5
CE tri	1
CEr tri	1
Varlogic regulator	0.7

Example

Consumption of a weighing system at 20°C		
CDS		0.25VA
Digital ammeter	+	0.30VA
2 meters of doubled wire 2.5mm²	+	0.82VA
Weighing system consumption	=	1.37VA

Discrimination

The table below indicates where total discrimination exists between devices.



Upstream	Compact rating (A)		MGE1003	MGE1253	MGE1603	MGE2003	MGE2503	MGE4003	MGE6303
Downstream circuit breaker		Rating (A)							
multi 9	C60H	10 - 16	■	■	■	■	■	■	■
		20 - 25		■	■	■	■	■	■
		32 - 40		■	■	■	■	■	■
		50 - 63		■	■	■	■	■	■
Compact	NS80H	2.5 - 6.3	■	■	■	■	■	■	■
		12.5		■	■	■	■	■	■
		25 - 80			■	■	■	■	■
	NS100N	16 - 100				■	■	■	■
	NS160N	125 - 160					■	■	■
	NS250N	200 - 250							■

Note: For further information on this product range: consult us.

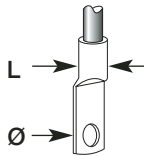
Guidance for motor loads

Specific “magnetic only” MCCBs are available for short circuit protection of motors. However, the standard MCCB may be used, as detailed below.

	Max motor size (kW)	Running current (A) @ 415V
16A	2.2	5.0
25A	3.7	7.5
40A	4	8.4
63A	9	17
80A	15	28
100A	22	40
125A	25	47
160A	33	60
200A	45	80
250A	69	128

Note:

- These tables offer guidance only, for DOL starting assuming:
- ☐ A starting current of $7 \times \text{FLC}$
 - ☐ Run-up time = 8 seconds for motors
 < 3kW
 10 seconds for motors
 > 3kW
- The running current is a typical value and may vary from manufacturer to manufacturer



Current device		Possible terminal capacity for crimped lug (mm)		Breaking capacity 415V
		Ø	@ L	
100A	MGP100	MCCB SP	6 25	25,000A @ 240V
100A	MGP100	MCCB TP	6 25	36,000A
100A	MGPE125	MCCB TP	6 25	16,000A
160A	MGP160	MCCB TP	6 25	36,000A
250A	MGP250	MCCB	8 25	36,000A
	MGP250NA	Switch disconnect	8 25	—
400A	MGP400	MCCB	10 32	50,000A
	MGP400A	Switch disconnect	10 32	—
630A	MGP630	MCCB	10 32	50,000A
	MGP630NA	Switch disconnect	10 32	—
800A	NS800		12 44	50,000A
	NS800NA	Switch disconnect	12 44	—
MGP INC		Direct connection	10 32	—
Outgoing	Earth connection	6	25mm tunnel	—
Outgoing	Neutral connection	6	25	—
Incoming	Earth connection	10	32	—
Incoming	Neutral connection	12	40	—

Other connections available on request. If you require higher breaking capacity, consult us.

1600A Panelboard

Incoming connection details
4 - Ø12.5 holes on 50 mm pitch
Pole pitch = 70mm
Distance to gland plate = 708mm

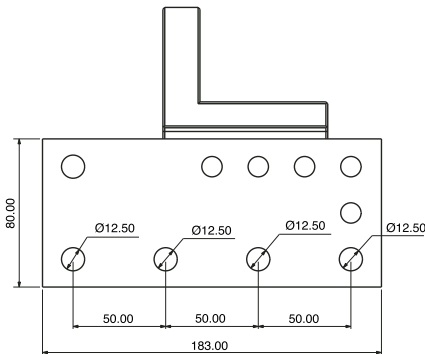


Diagram illustrating a power system configuration with two buses and three breakers (D1, D2, D3). Breaker D1 is on a line from a top bus to a middle bus. Breakers D2 and D3 are on lines from the middle bus to a bottom bus. A lightning bolt symbol is shown near D3.

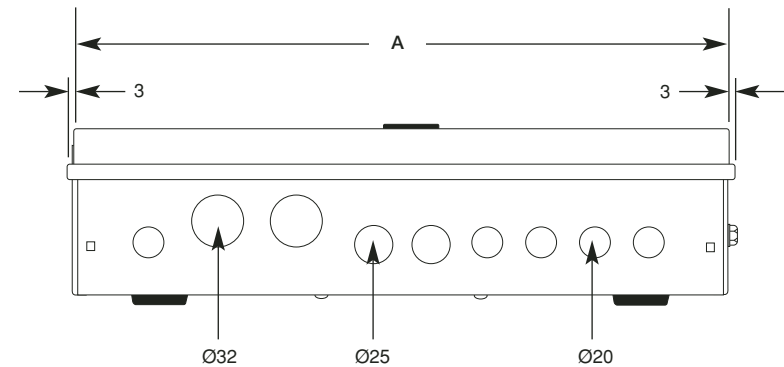
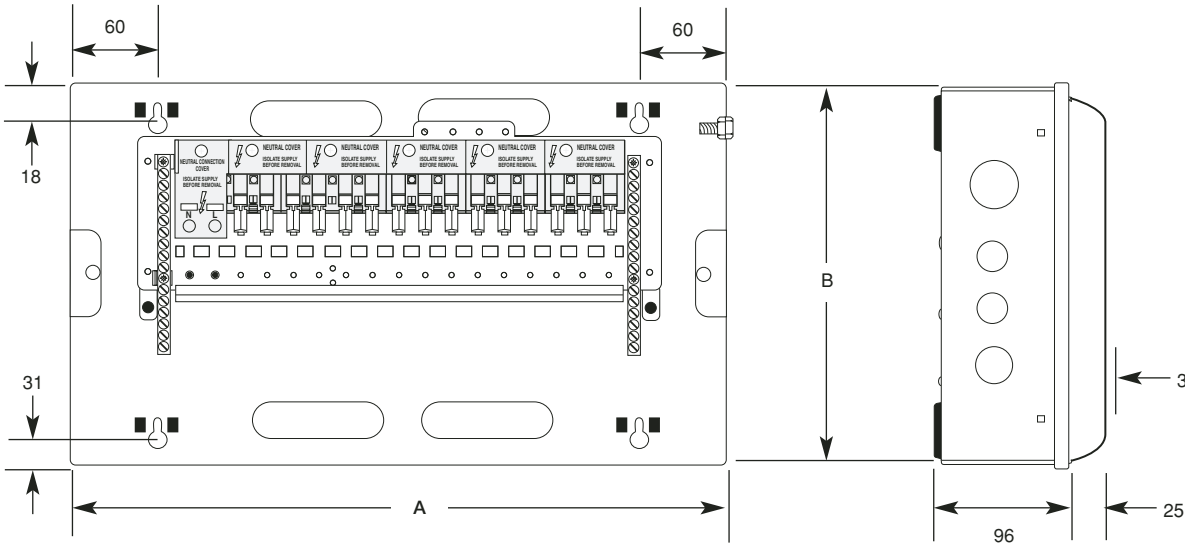
Consult us for full details of discrimination/cascading.

Breakers up to 250A	20Nm
Breakers 400 & 630A	28Nm

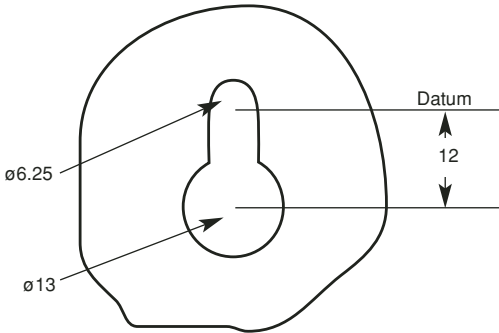
<i>Isobar A type</i>	<i>.page 8/2</i>
<i>Isobar B type</i>	<i>.page 8/3</i>
<i>Power distribution boards</i>	<i>.page 8/4</i>
<i>PowerPact panelboards</i>	<i>.page 8/5</i>
<i>Safepact 2 enclosed circuit breakers</i>	<i>.page 8/10</i>
<i>MGF wall mounted fusegear</i>	<i>.page 8/11</i>
<i>Isobar pan assemblies</i>	<i>.page 8/13</i>
<i>PowerPact pan assemblies</i>	<i>.page 8/17</i>
<i>Modular DIN enclosures</i>	<i>.page 8/20</i>
<i>Kaedra enclosures</i>	<i>.page 8/23</i>
<i>Miniature circuit breakers</i>	<i>.page 8/27</i>
<i>Control and command devices</i>	<i>.page 8/33</i>
<i>PowerLogic</i>	<i>.page 8/40</i>
<i>Current transformers</i>	<i>.page 8/41</i>
<i>TH thermostats</i>	<i>.page 8/42</i>

Distribution boards
A type

Part number	A	B
MGAN6	260	264
MGAN9, MGAN42SL	315	264
MGAN12, MGAN46DS, MGAN416/96MS	370	264
MGAN15, MGAN66/76DS, MGAN48/66DS, MGAN520/716/912/1010/126MS,	450	264
MGAN23, MGAN1228MS (two row unit)	370	494



Key hole slot dimensions



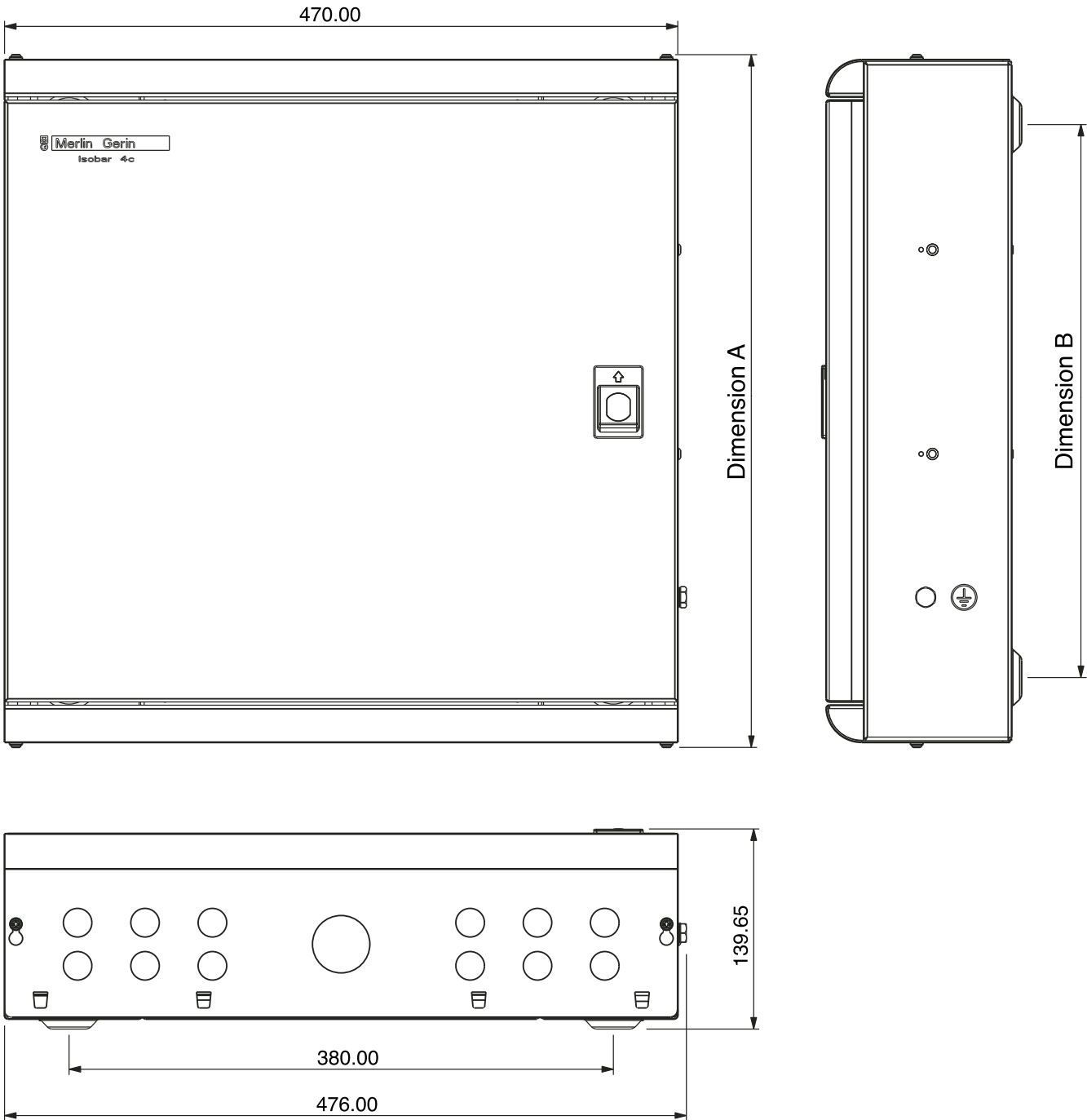
A series enclosure

Part number	A	B
MGAN16DE	260	264
MGAN22DE	315	264
MGAN28DE	370	264
MGAN34DE	450	264
MGAN56DE*	370	494

* 2 row enclosure
All other dimensions as A type distribution board

Distribution boards
B type

Part number	A	B
MGBN4,MGBN6	484	386
MGBN8	538	440
MGBN12	700	602
MGBN16, MGBN18	808	710
MGBN24	970	872
MGBN split metering	1290	1192



The diagram shows a rectangular plate with four corner points marked with crosses. The dimensions are labeled as follows:

- A**: Total height of the plate, indicated by a vertical double-headed arrow on the right side.
- B**: Total width of the plate, indicated by a horizontal double-headed arrow at the bottom.
- C**: Distance from the top edge to the bottom corner point on the right side, indicated by a vertical double-headed arrow.
- D**: Distance from the left corner point to the right edge on the top side, indicated by a horizontal double-headed arrow.

C and D are the fixing dimensions about the centre line

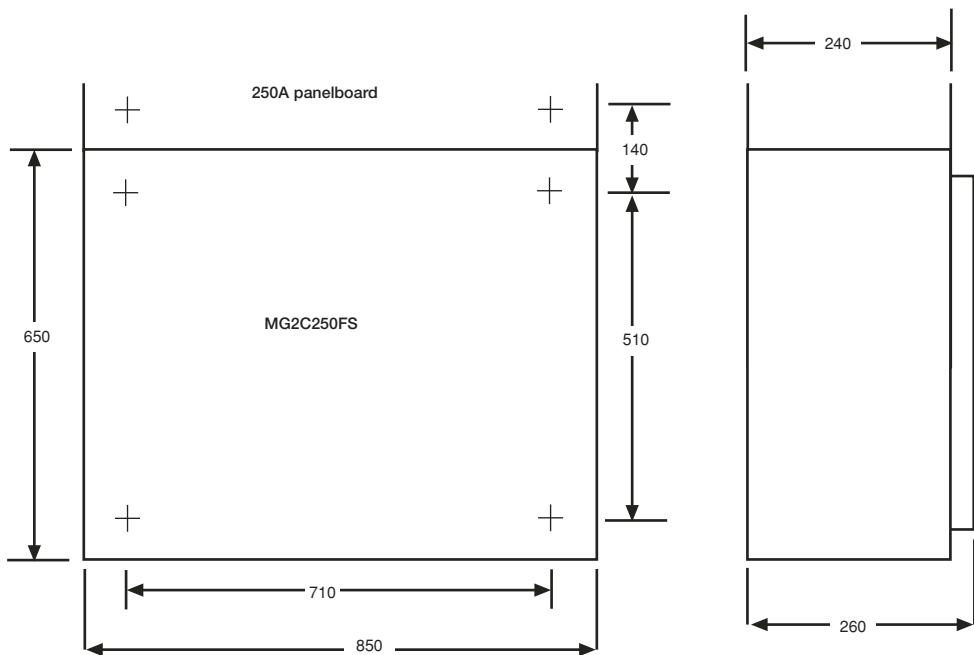
Technical drawing of a rectangular object, showing dimensions A, B, C, D, and 240. The drawing includes a front view and a side view. The front view is a rectangle with a vertical centerline. Dimension A is the total height, B is the total width, C is the height of the lower section, and D is the width of the lower section. The side view is a rectangle with a width of 240.

C and D are the fixing dimensions about the centre line

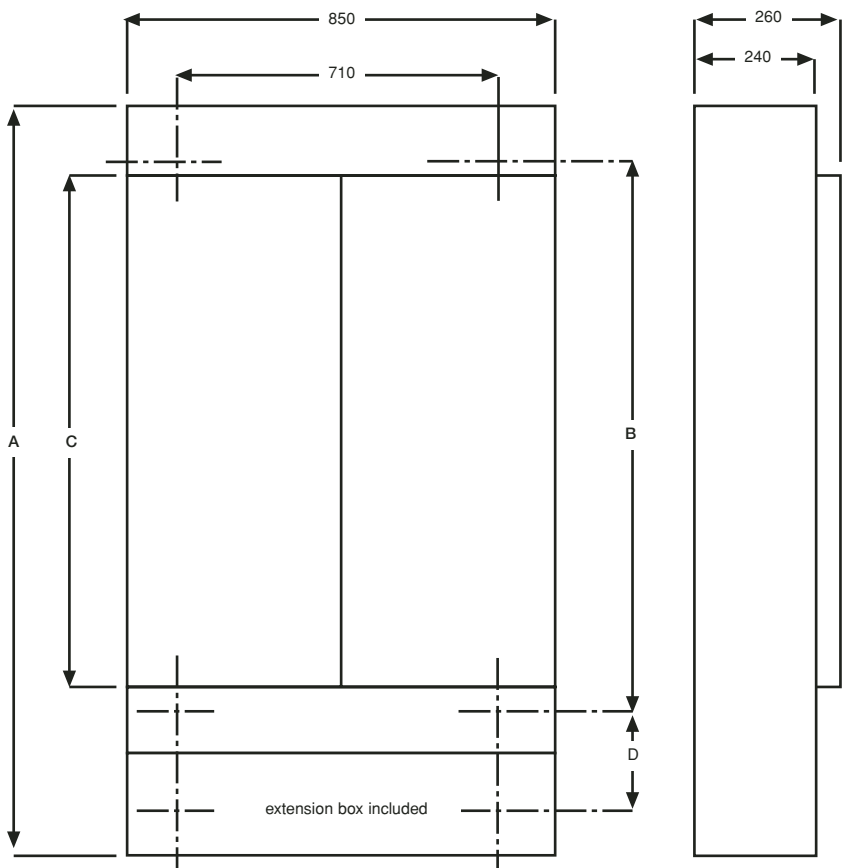
1.2mm cover
1.6mm enclosure

Powerpack 4 powerboards and panelboards
250A, 400/630A and 800A

Fuse switch incomer for 250A panelboard



800A panelboard



Board ref.	A	B	C	D
MG8C6	1578	1035	991	172
MG8C12	1893	1350	1306	172
MG8C18	2208	1665	1621	172

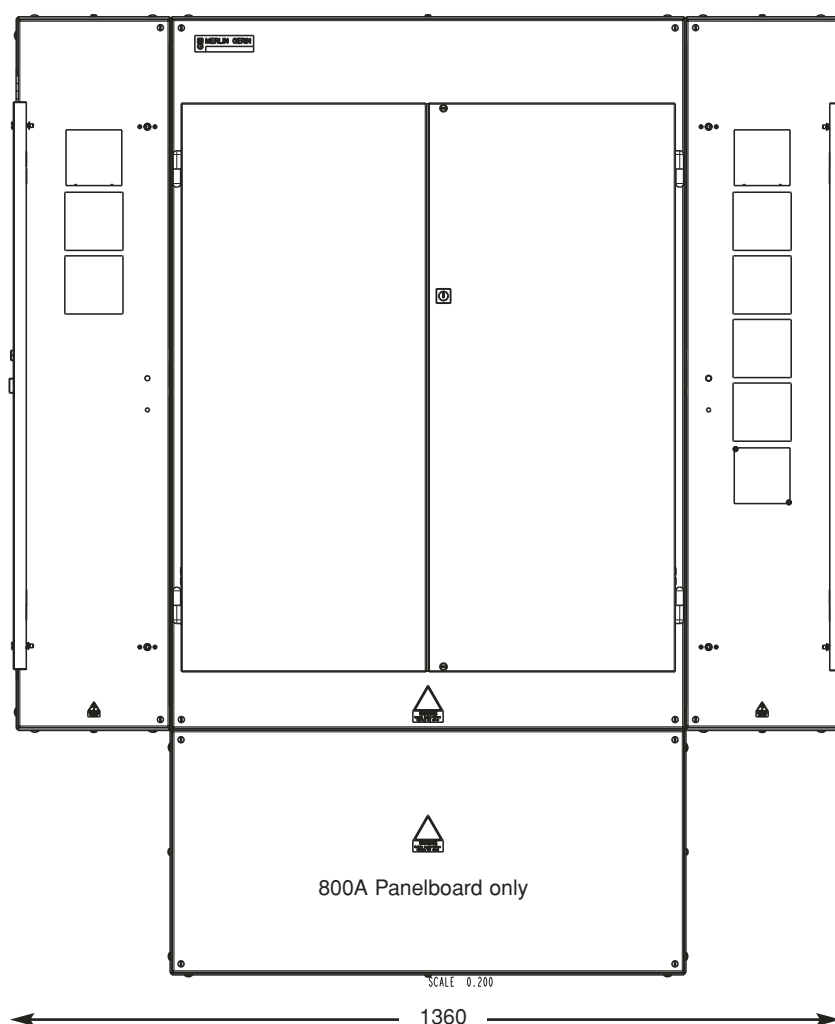
Material thickness
1.2mm cover
1.6mm enclosure



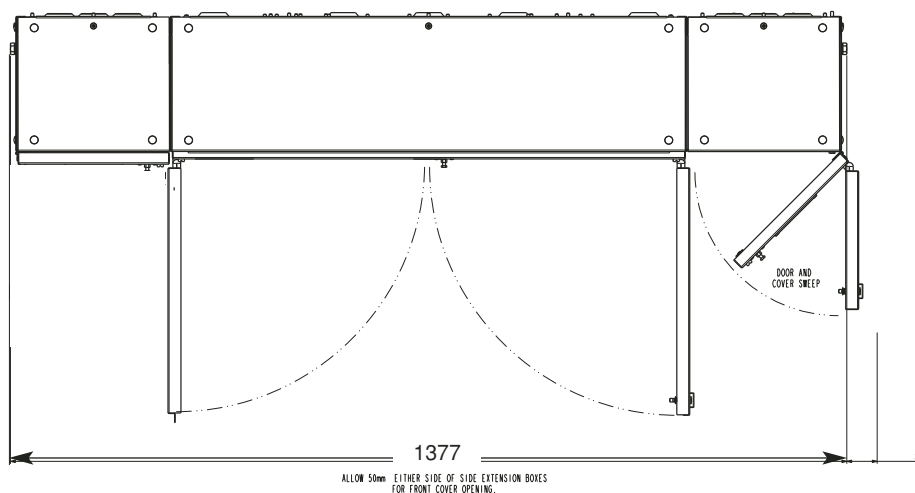
Corner units are available to suit all combinations of top/bottom and side extension boxes.

[illegible]

Powerpact 4 metering extensions 630, 800A panelboard with side extension metering boxes

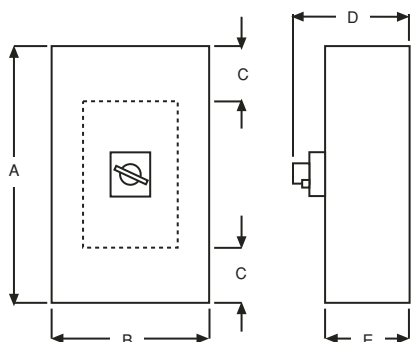


The side extensions with metering are dimensionally the same as standard 250mm side extensions



All apertures are 92mmsq. to accept standard DIN 96 meters.

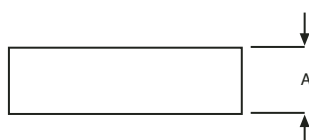




Safepact 2 MCCB or switch disconnect general purpose enclosure IP40

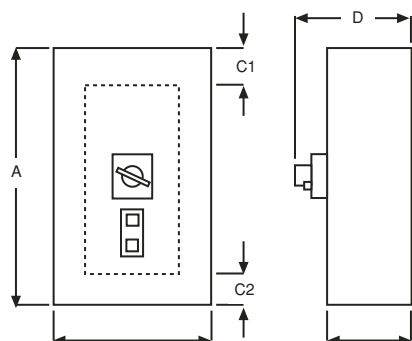
	Height	Width	Cable space	Overall depth	Enclosure depth
Rating	A	B	C*	D	E
Up to 100A 160A 250A	420	230	140	211	145
400A 630A	700	356	236	235	169

Note: C* - we recommend fitting cable extension boxes on each end of the 160, 250 and 630A ratings, unless utilising trunking



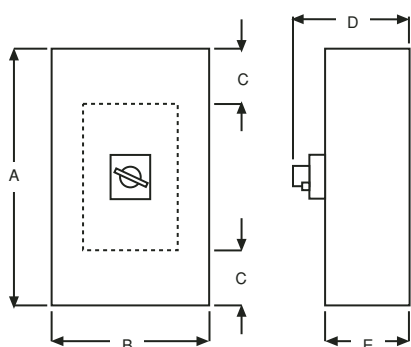
Extension boxes for Safepact 2 MCCB enclosures

Height (A)	Part number
100	MGEX 160C
200	MGEX 250C
120	MGEX 630C



Safepact 2 MCCB or switch disconnecter general purpose enclosure IP40 including earth leakage protection

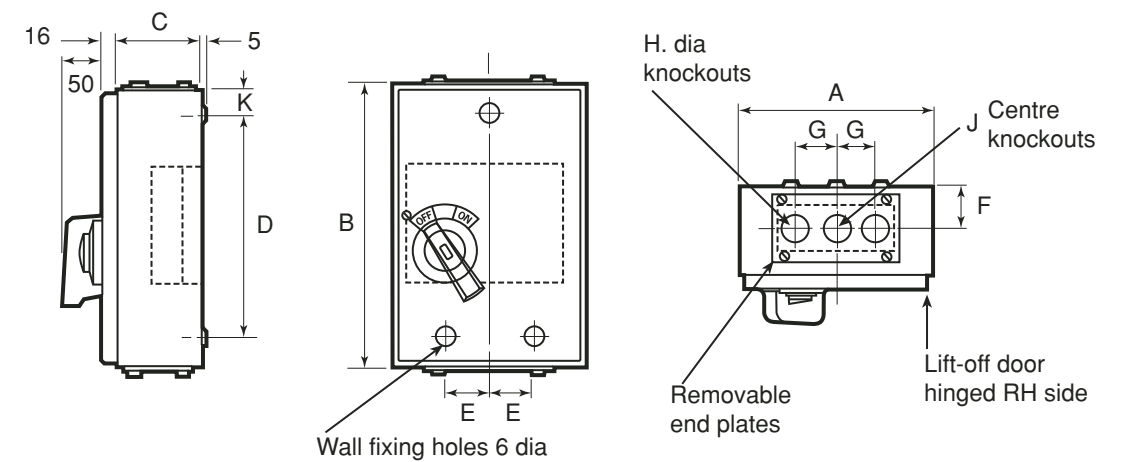
		Height	Width	Cable space		Overall depth	Enclosure depth
Rating		A	B	C1	C2	D	E
Up to	100A	420	230	140	65	211	145
	160A	520	230	140	165		
	250A	620	230	140	265		
	400A	820	356	236	256	235	169
	630A						



Enclosed Interpact

	Height	Width	Cable space	Overall depth	Enclosure depth
Rating	A	B	C	D	E
63A	350	350	130	300	250
100A	350	350	125	300	250
160A	350	350	125	300	250
250A	450	350	165	300	250
320A	650	350	235	300	250
400A	650	350	235	300	250
500A	650	350	235	300	250
630A	650	350	235	300	250

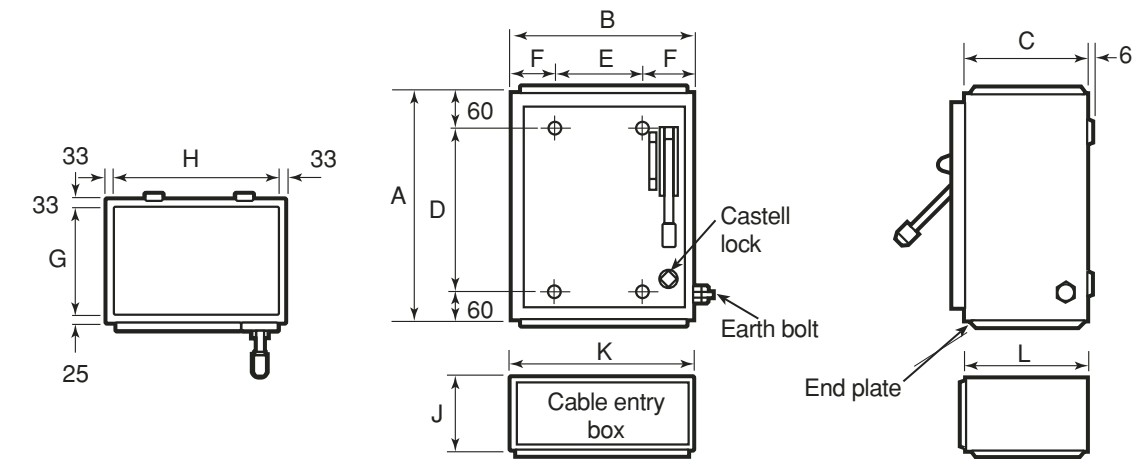
Switch disconnecter fuse MGFA
Switch disconnecter MGFL



Rating	A	B	C	D	E	F	G	H	J	Weight Kg*
20A	210	240	105	160	50	51	44	20	25	4.10
32A	210	240	105	160	50	51	44	20	25	4.82
63A	235	350	105	270	55	51	50	32	32	5.34
100A	260	400	120	320	65	51	60	38	40	7.37

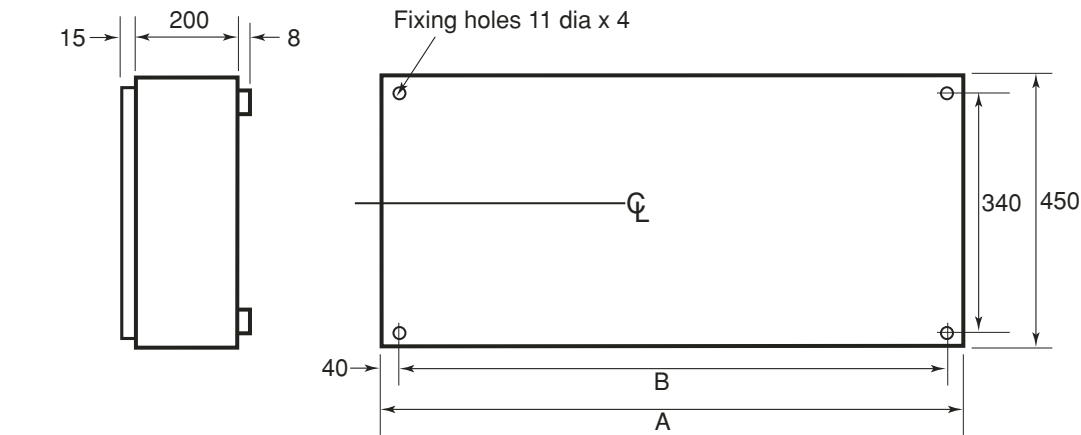
* Weights do not include the fuse links

Fuse switch disconnecter MGFS
Switch disconnecter MGFD



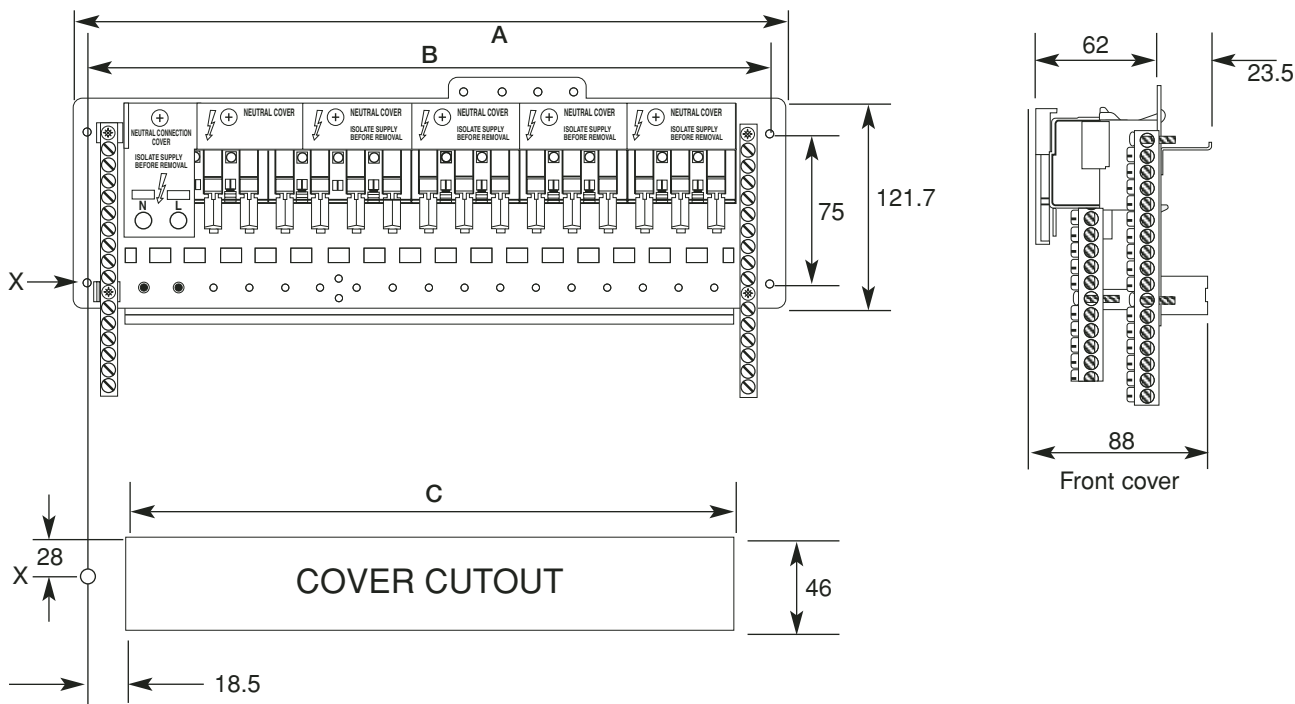
Rating	A	B	C	D	E	F	G	H	J	K	L	Weight Kg*
100A	380	292	200	260	130	81	142	226	100	292	220	15.6
160A	380	292	200	260	130	81	142	226	150	292	220	15.6
200/250A	380	340	200	260	180	80	142	274	180	340	220	19.5
400A	455	489	270	335	289	100	212	423	300	489	290	36.2
500A	455	489	270	335	289	100	212	423	300	489	290	36.2
630A	455	489	270	335	289	100	212	423	400	489	290	36.2

* Weights do not include the fuse links

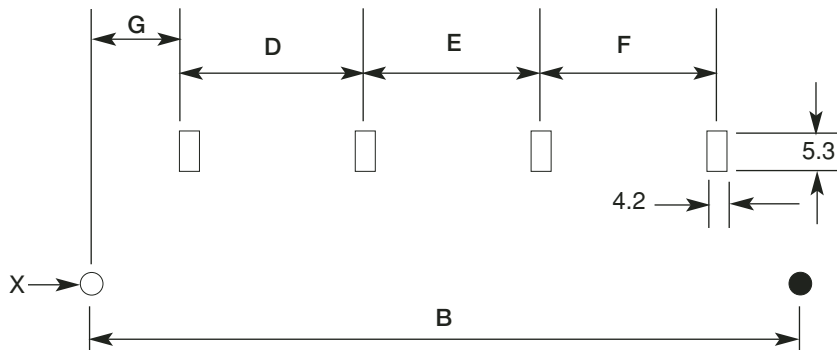


Type	A	B
MBFB...07TN	750	670
MBFB...12TN	1200	1120
MBFB...18TN	1800	1720

Reference	A	B	C	D	E	F	G
MGAN6P/PS	196	182	145	70.12	70.12	-	18.5
MGAN9P/PS	250	236	199	70.12	36.01	70.12	27.5
MGAN12P/PS	304	290	253	70.12	108.01	70.12	18.5
MGAN15P/PS	358	344	307	97.12	108.01	97.12	18.5

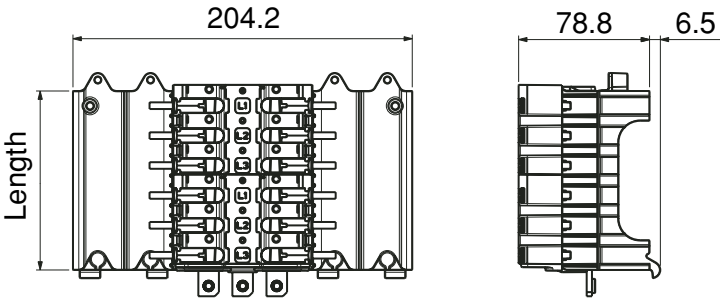


Fixing details

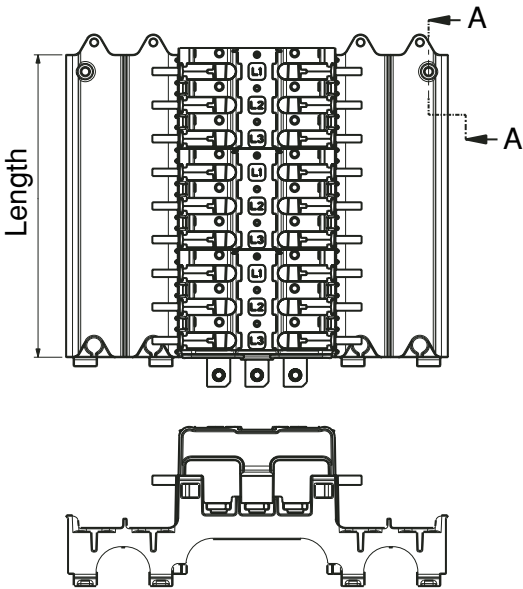


Reference	Length	
MGBN4PS	108.0	1 x 4 way
MGBN6PS	162.0	1 x 6 way
MGBN8PS	216.0	2 x 4 way
MGBN12PS	324.0	2 x 6 way
MGBN16PS	432.0	2 x 6 way + 1 x 4 way
MGBN18PS	486.0	3 x 6 way
MGBN24PS	648.0	4 x 6 way

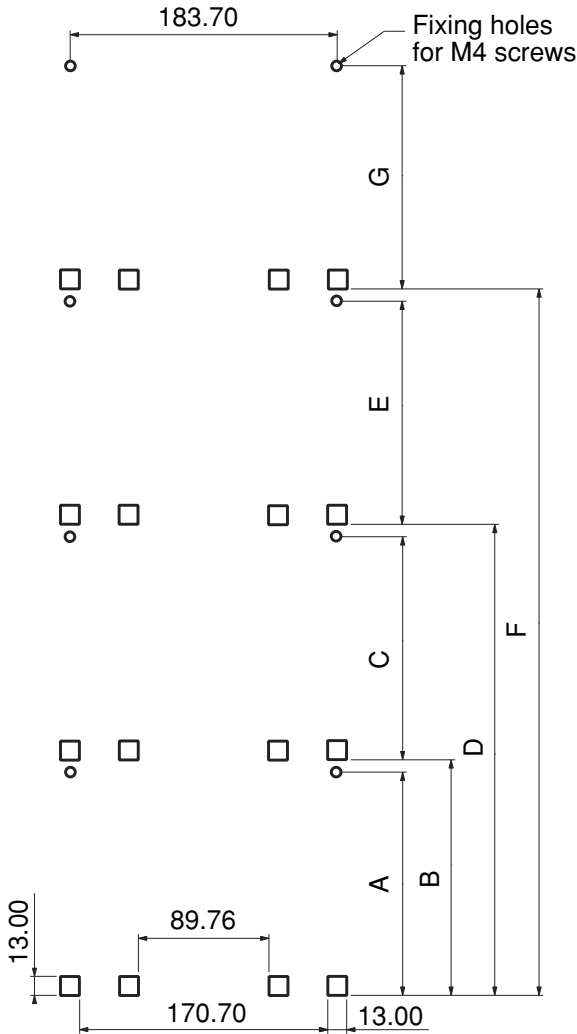
Reference	A	B	C	D	E	F	G
MGBN4PS	99.58						
MGBN6PS	153.52						
MGBN8PS	99.52	108.0	99.52				
MGBN12PS	153.52	162.0	153.52				
MGBN16PS	153.52	162.0	153.52	324.0	99.52		
MGBN18PS	153.52	162.0	153.52	324.0	153.52		
MGBN24PS	153.52	162.0	153.52	324.0	153.52	486.0	153.52



4 Way Assembly

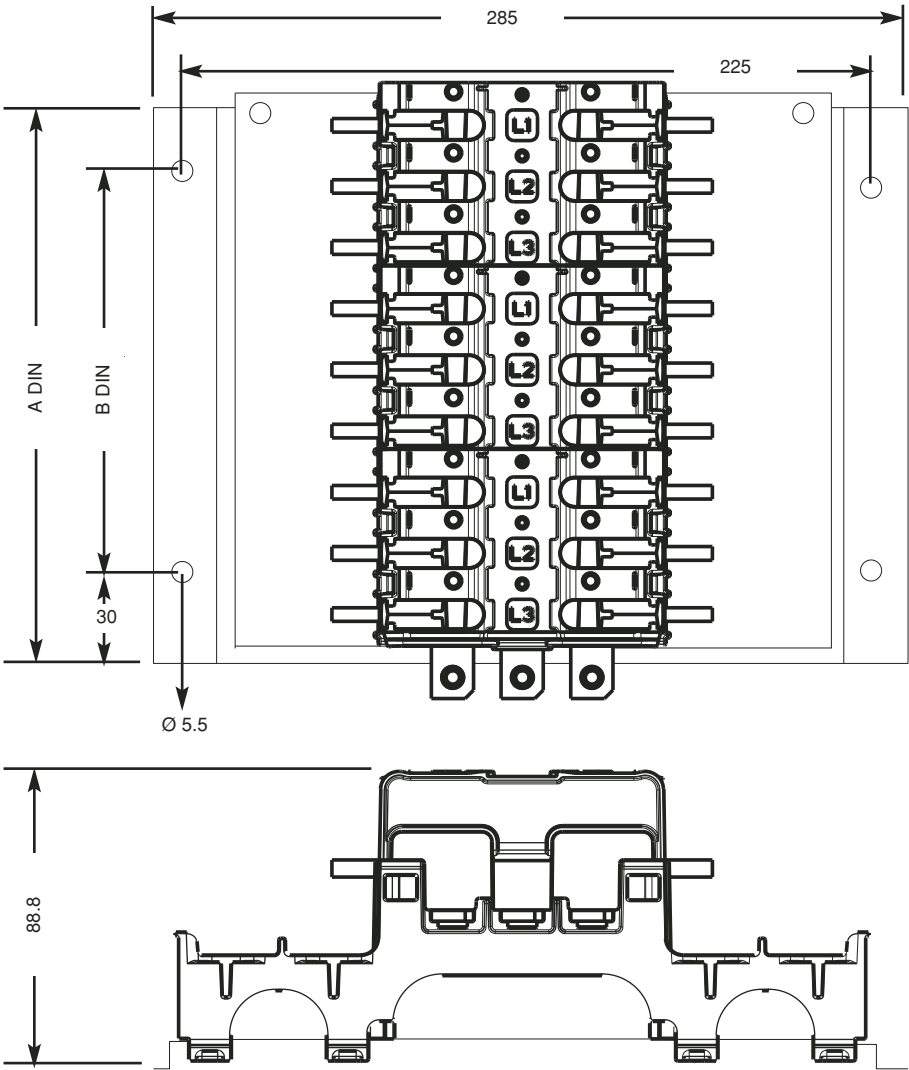


6 Way Assembly



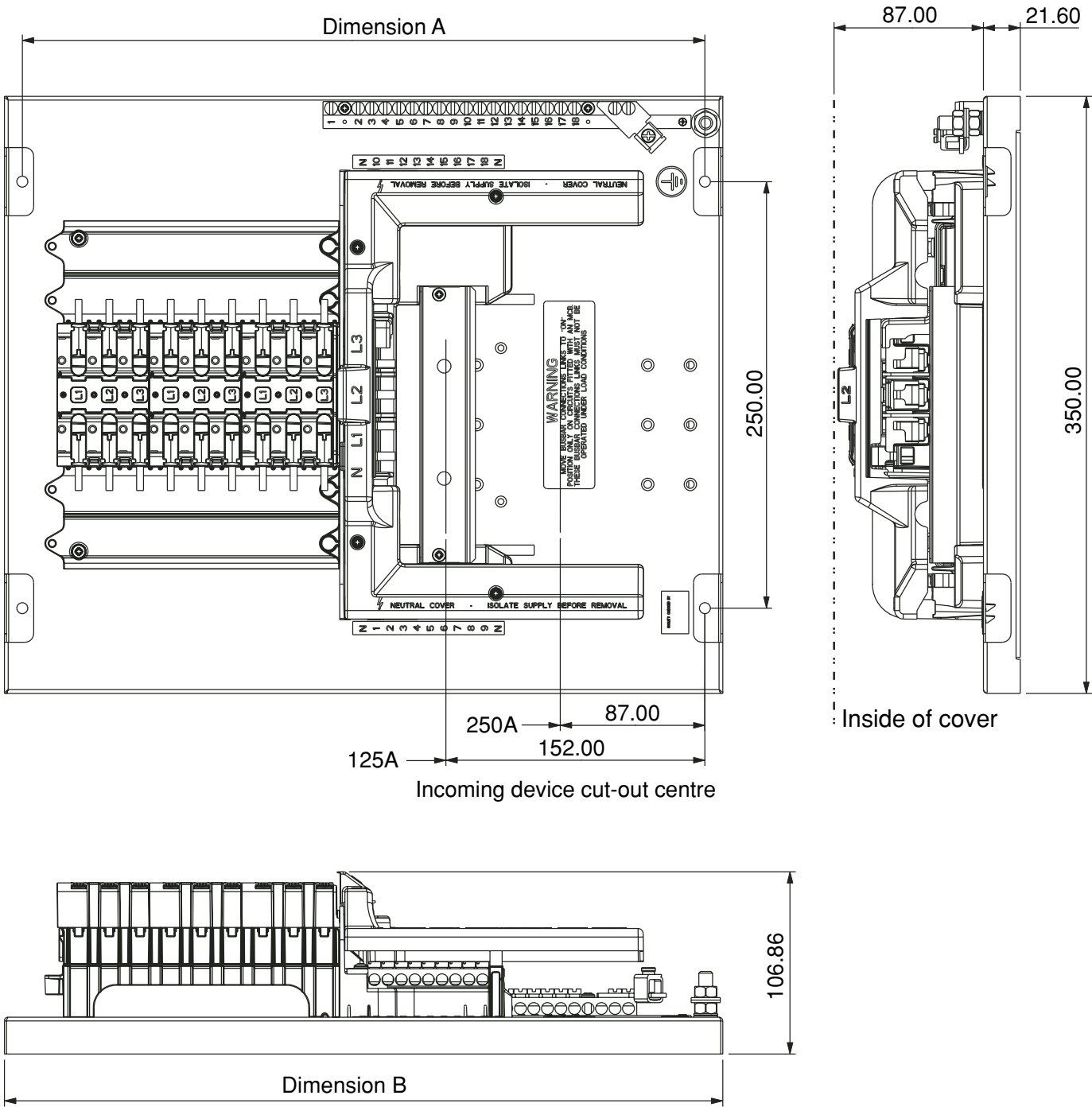
Three phase Type TN

Reference	A	B
MGBN4TN	112	54
MGBN6TN	188	108
MGBN8TN	220	162
MGBN12TN	328	270
MGBN16TN	465	378
MGBN18TN	490	452
MGBN24TN	652	584



Three phase
Type E/EV/PEV

Part number	A	B
MGBN4EV	325	346
MGBN6EV	400	421
MGBN8EV	450	471
MGBN12EV	550	571
MGBN16EV	650	671
MGBN18EV	725	746
MGBN24EV	875	896



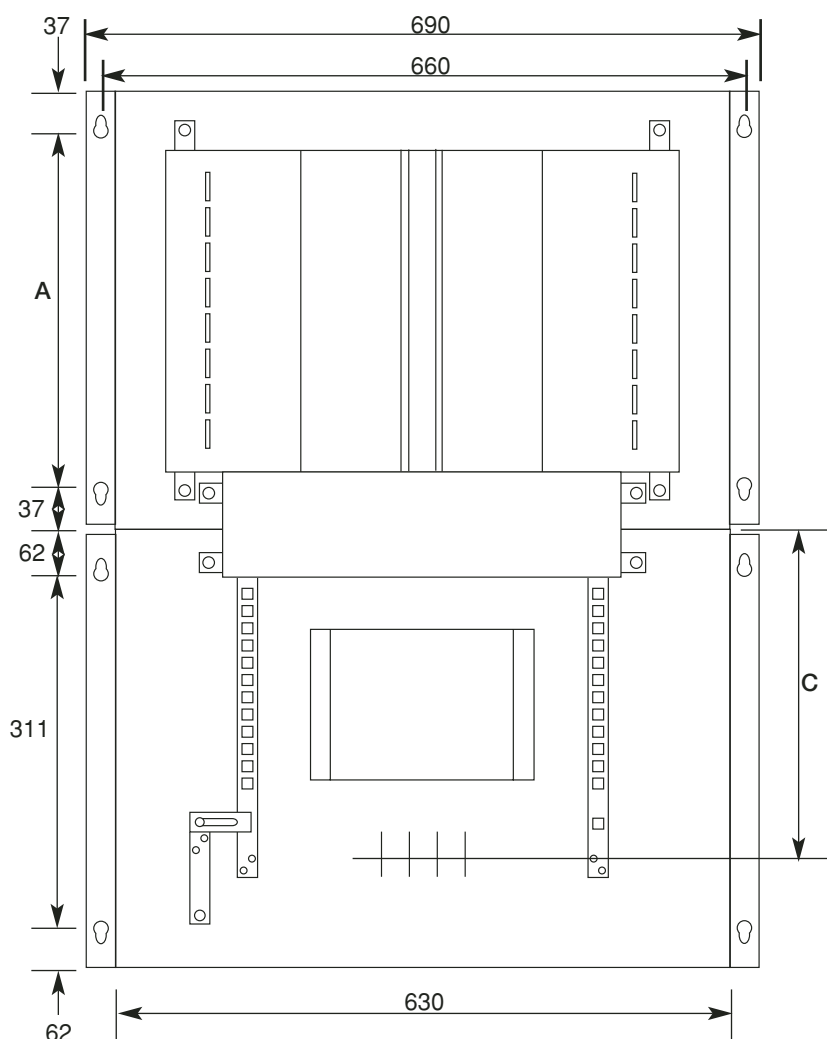
Powerpact 4

Pan assembly and incoming MCCB

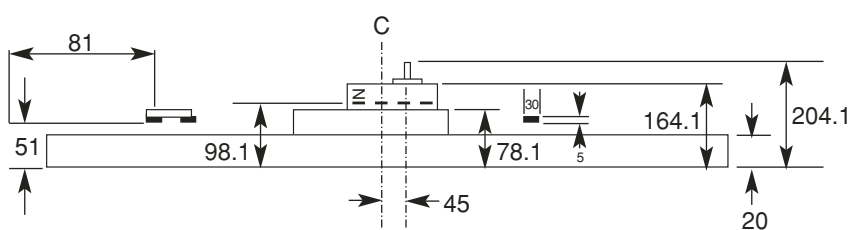
Reference	A
6 way	346
12 way	661
18 way	976
24 way	1291
30 way	1606

Reference	C
NS800	475
NS630	330
NS250	228

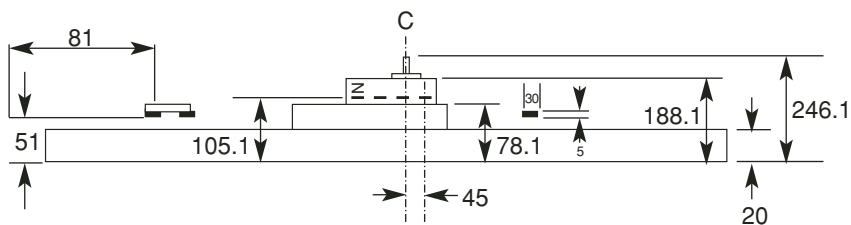
Dimension C = centre line of incoming breaker terminals (plan view).



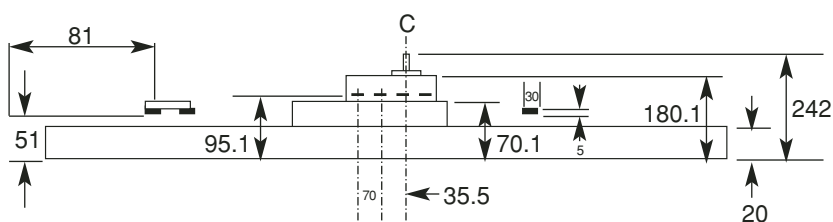
NS250 incoming MCCB connections



NS630 incoming MCCB connections

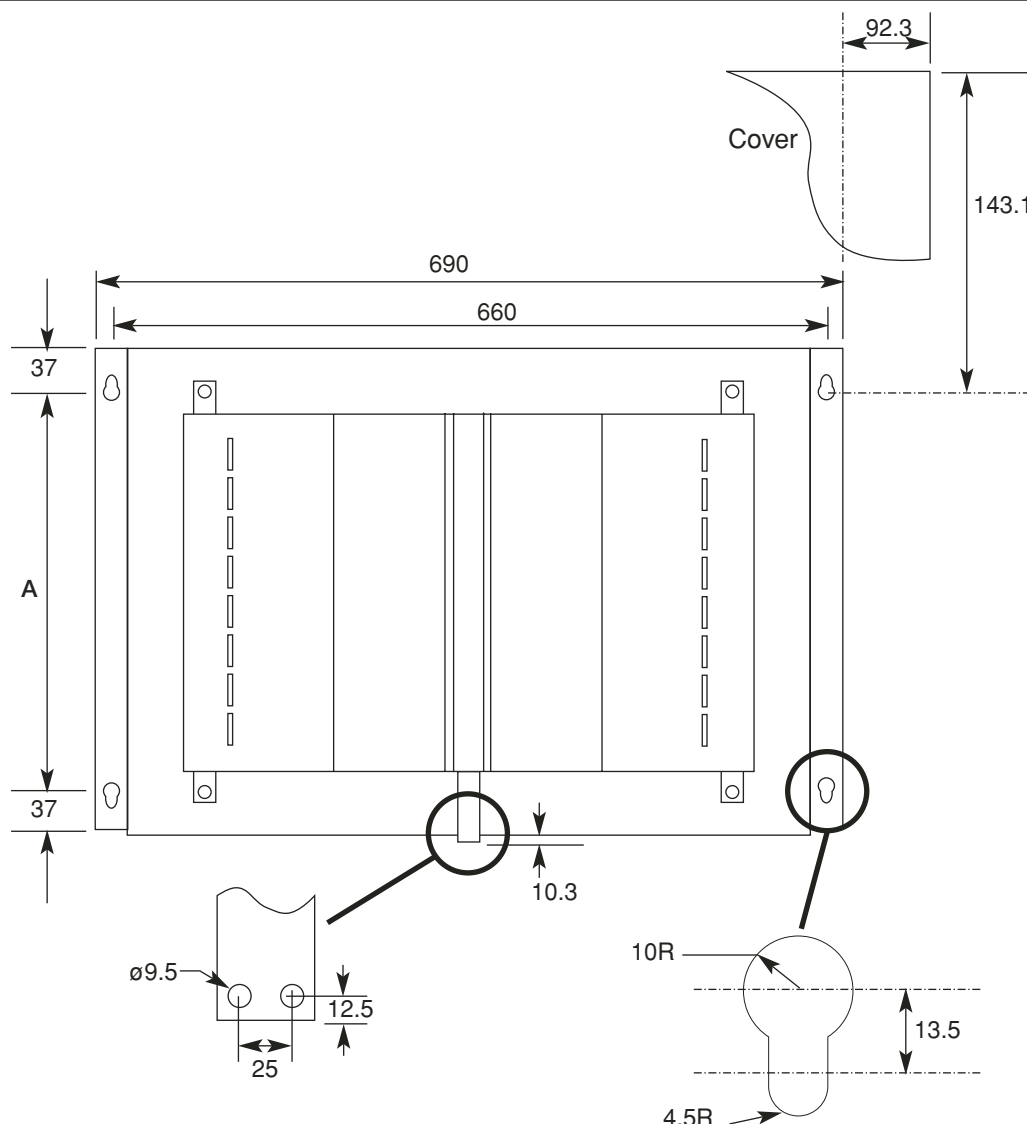


NS800 incoming MCCB connections

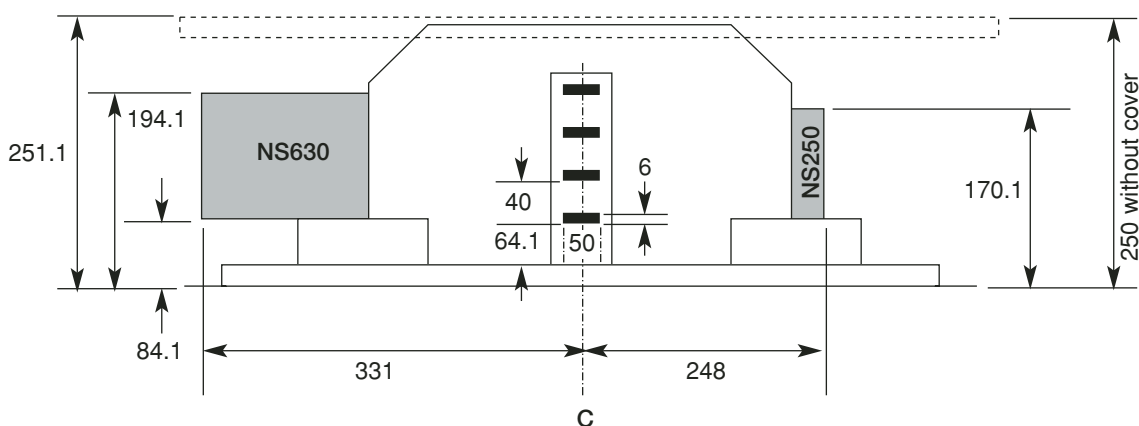


Outgoing pan assembly 630A only

Reference	A
6 way	346
12 way	661
18 way	976
24 way	1291
30 way	1606



Incoming busbar connections direct to outgoing panel assembly



The drawing consists of two views: a front view (top) and a side view (bottom).

Front View Dimensions:

- Overall width: 690
- Internal width: 660
- Top flange thickness: 37
- Bottom flange thickness: 37
- Overall height: 143.1
- Right side flange thickness: 92.3
- Internal vertical spacing: 10.3
- Label "Cover" points to the top right corner.
- Label "A" points to the overall height dimension.
- Label "C" points to the central vertical axis.

Side View Dimensions:

- Overall width: 114.5
- Top flange thickness: 25.5
- Internal width: 44.5
- Overall height: 13.5
- Internal vertical spacing: 95.5
- Label "Phase bars only" points to the top flange.
- Label "ø9" points to the central vertical axis.
- Label "ø10" points to the top flange.
- Label "ø4.5" points to the bottom flange.

Technical drawing of the NS630 and NS250 components showing dimensions in mm.

Dimensions:

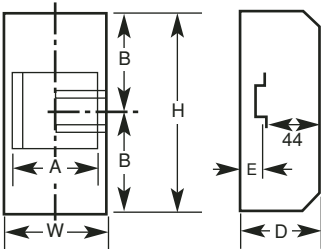
- Overall height: 251.1
- Base height: 84.1
- Main body height: 194.1
- NS630 height: 170.1
- NS250 height: 170.1
- Total height without cover: 250
- Top view width: 331
- Central section width: 64.1
- Side section width: 248
- Distance between base and main body: 130.1
- Distance between main body and top cover: 90.1
- Distance between base and top cover: 50.1
- Distance between base and side section: 84.1

Enclosures

Mini Opale, G9

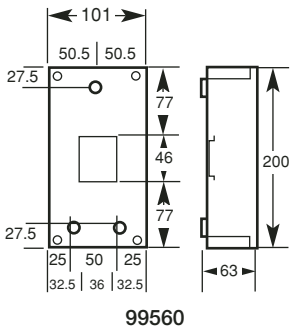
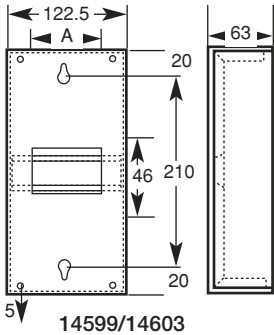
Mini Opale enclosures

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

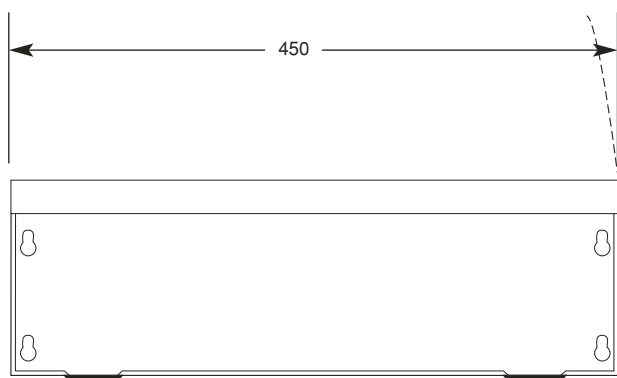
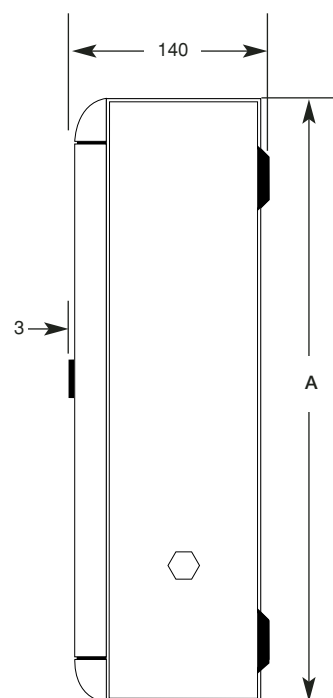
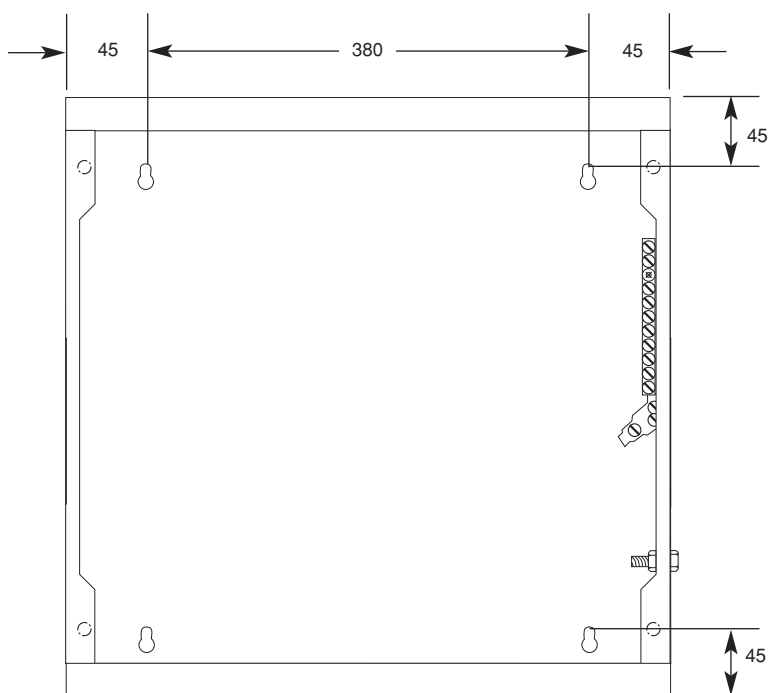


G9 enclosures

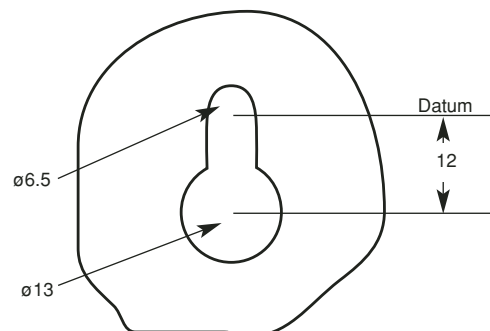
Part number	A
14599	72
14603	99



Part number	A
MGBN4SXS/SXP	484
MGBN8SXS/SXP	538
MGBN12SXS/SXP	700
MGBN16SXS/SXP	808
MGBN24SXS/SXP	970

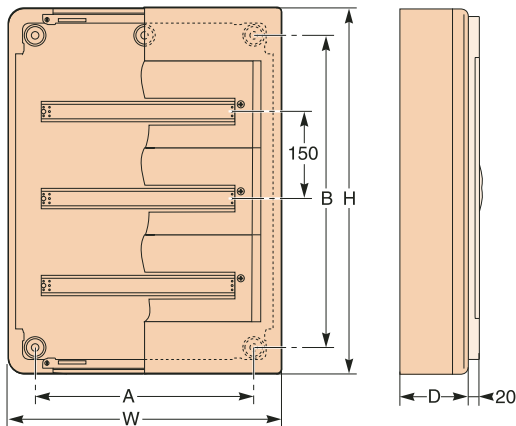


Key hole slot dimensions



Enclosures

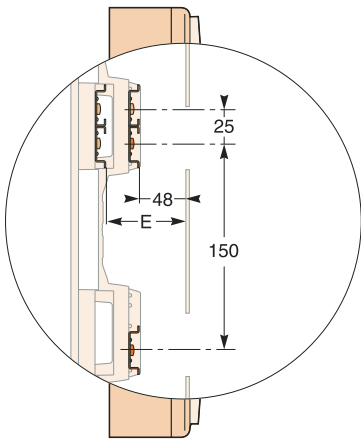
Pragma surface mounted enclosures and interfaces



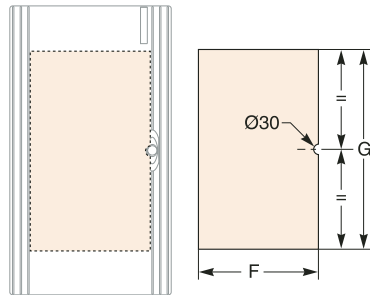
Surface mounted enclosures

Enclosure		Dimensions (mm)								
		H	W	D	A	B	E	F	G	J
13 modules	1R	300	336	123 (115)	160	200	73	253	149	
	2R	450				350			299	
	3R	600				500			449	
	4R	750				650			599	
24 modules	1R	300	550	148 (136)	340	150	84			121
	2R	450				300				271
	3R	600				450				421
	4R	750				600				571
	5R	900				750				721
	6R	1050				900				871

Panel for customisation of the transparent door 13 module enclosures

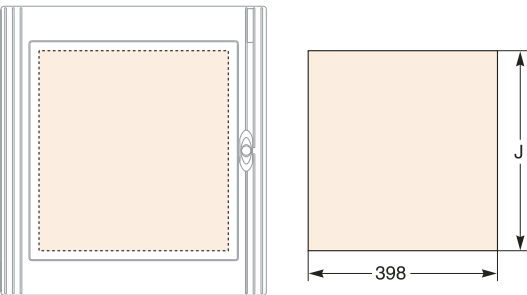


The different positions of the DIN rail in height and depth.



Panel thickness: 0.5 mm max.

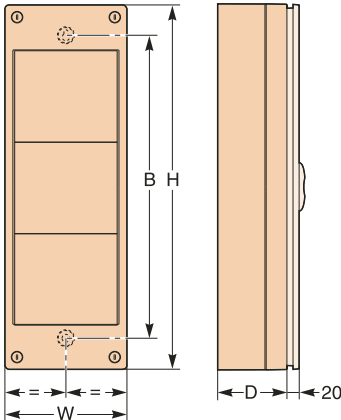
24 module enclosures



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



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

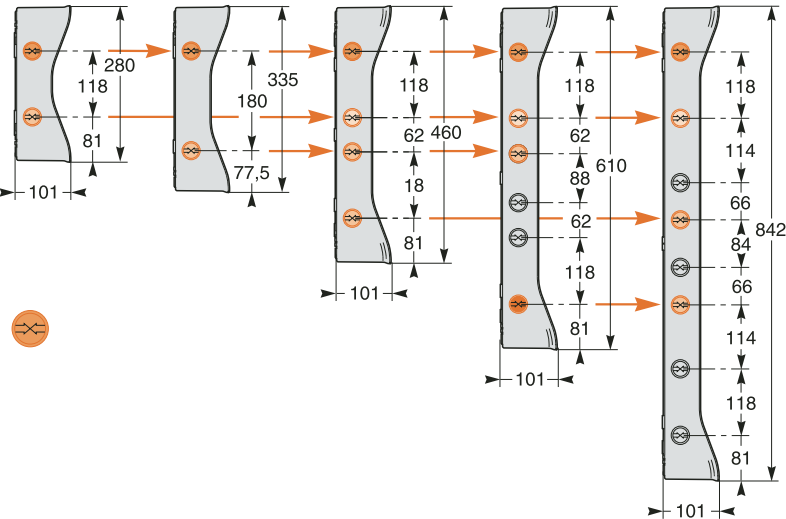


Cable glands

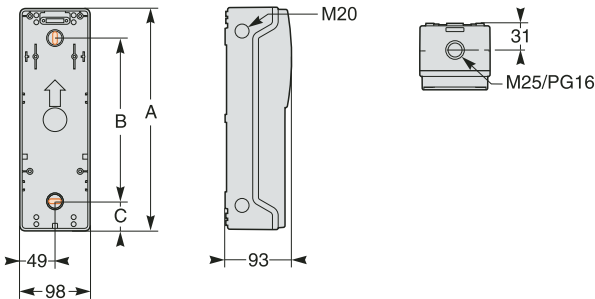
Type of pre-cutout	For cables of diameter (mm)
M16	4 - 8
M20	6 - 12
M25	12 - 18
M32	18 - 25
M50	30 - 38
PG11	5 - 10
PG16	10 - 14
PG21	14 - 17
PG29	19 - 26
PG36	22 - 32

Associations

The enclosures can be associated:
■ Horizontally, regardless of their height (see diagram below)
■ Vertically, if their width is identical.
Use the association kit, cat. no. 13934 (2 sleeves + 4 nuts + 4 seals) in the M32 pre-cutouts marked with a double arrow.
Insertion of cables between the enclosures is possible, while preserving the degree of protection IP65.



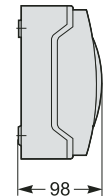
Weatherproof mini enclosures
Weatherproof mini enclosures for power outlets



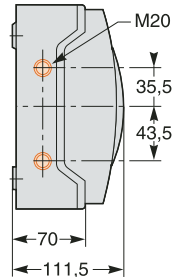
A	B	C	Weight (g)
248	166	41	550
310	228	41	600
392	310	41	700

Weatherproof mini enclosures for modular switchgear

3 modules

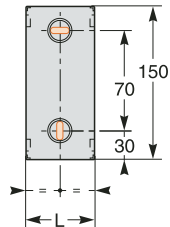


4, 6, 8 and 12 modules

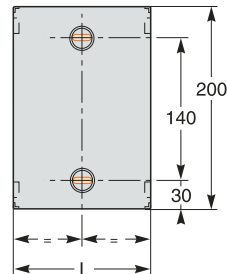


Number of modules	A	L	Weight (g)
3	-	80	300
4	-	123	500
6	-	159	650
8	88	195	850
12	160	267	1050

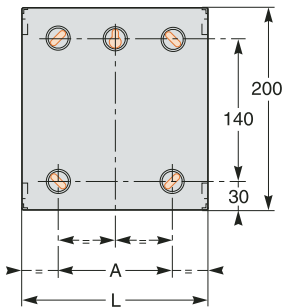
3 modules



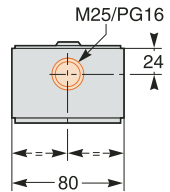
4 and 6 modules



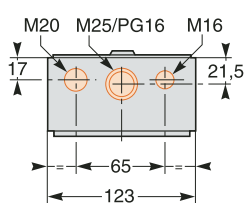
8 and 12 modules



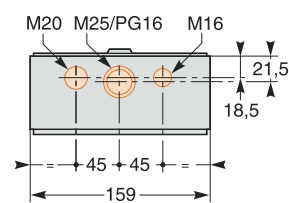
3 modules



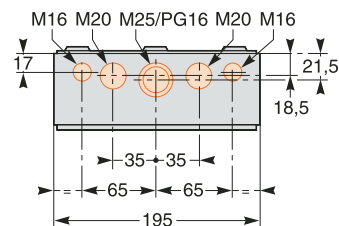
4 modules



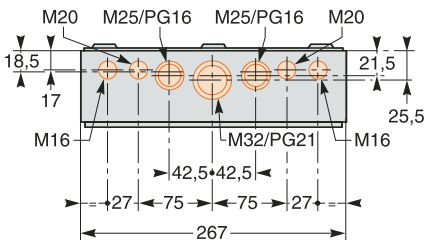
6 modules



8 modules

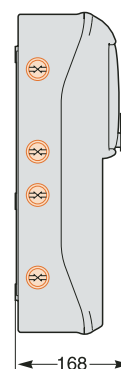
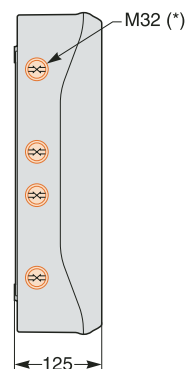
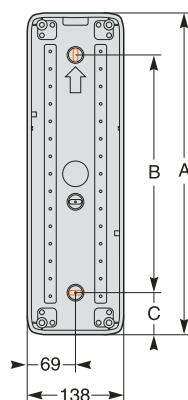
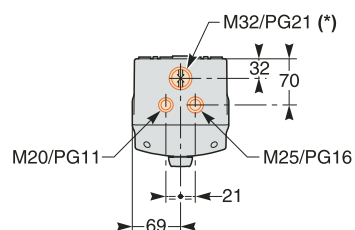


12 modules



5 modules

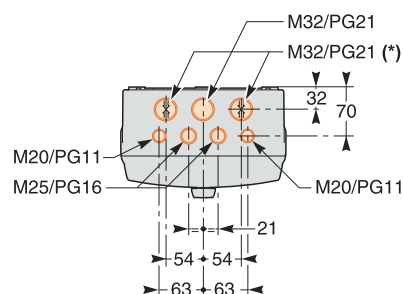
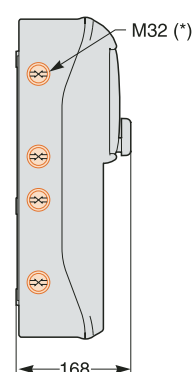
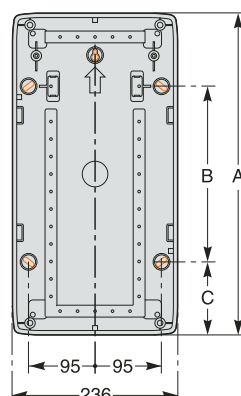
A	B	C	Weight (g)
460	251	104.5	1450
460	251	104.5	1250
460	251	104.5	1400
460	251	104.5	1400
610	490	60	1650



(*) pre-punchout also used for enclosure association

8modules

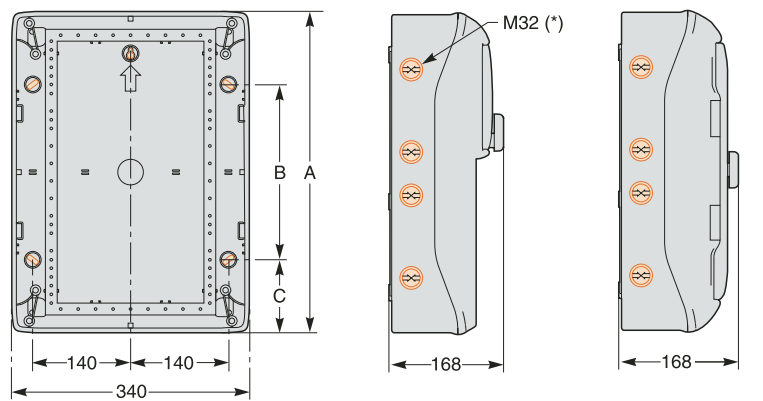
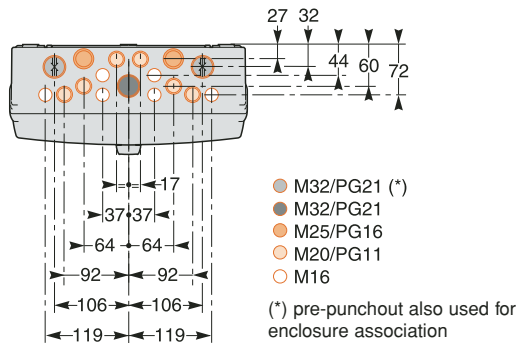
A	B	C	Weight (g)
460	251	104.5	2050
460	251	104.5	1900
460	251	104.5	1900



(*) pre-punchout also used for enclosure association

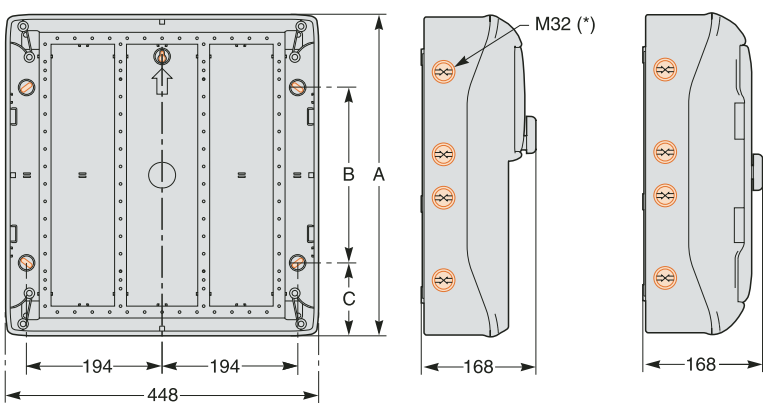
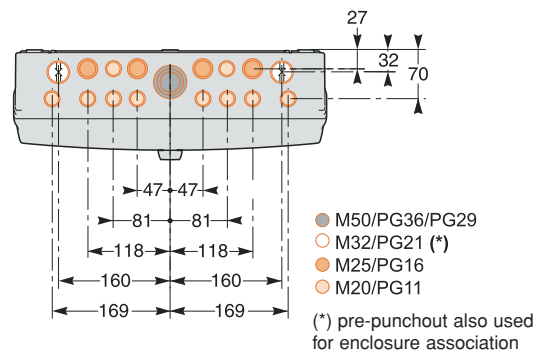
Weatherproof enclosures
12-13 modules

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

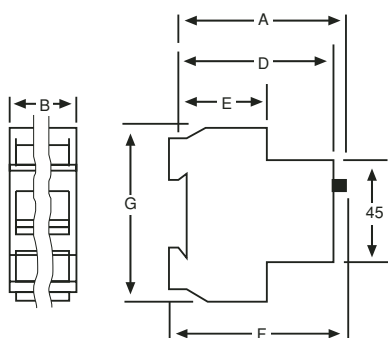


18-19 modules

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

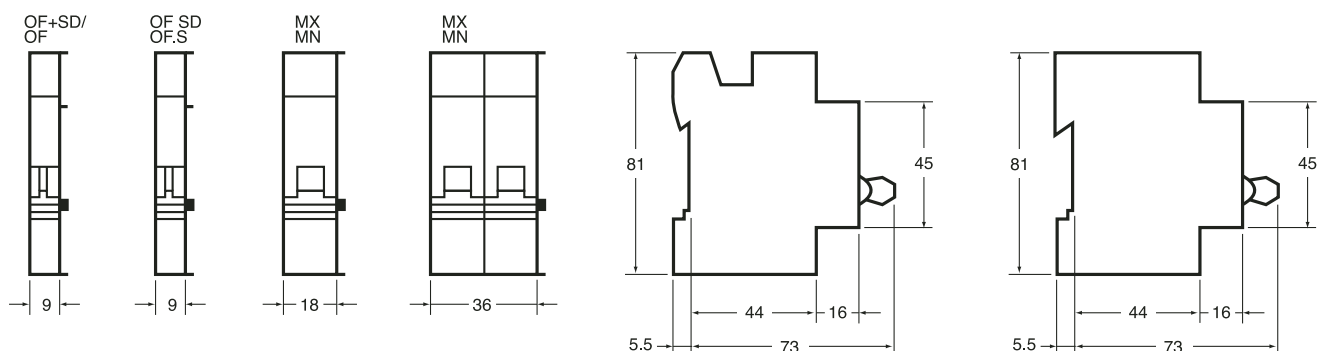


C60/RMG/MGV/DPN/DPN+Vigi

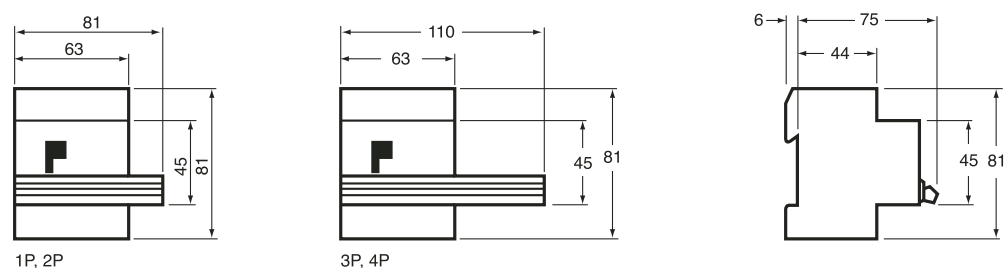


Part number	Description	Width in 18mm SP ways	A	B 1P	B 2P	B 3P	B 4P	D	E	F	G
C60+any code	Miniature circuit breakers	1,2,3,4	70	18	36	54	72	60	44	76	81
RMG+any code	Residual current devices	2,4	69		36		72	60	44	76	81
MGV+any code	Vigi rcd for C60H MCBs		70		36		72	60	44	75	81
DPN	1Ph+N MCB	1	70	18				60	44	75	81
DPN+Vigi	1Ph+N RCBO	2		36				60	44	75	81

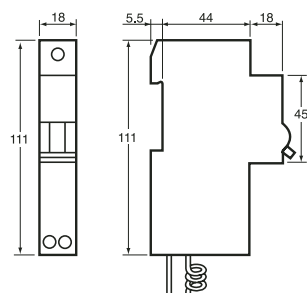
OF, SD, OF+SD/OF, MX, MN auxiliaries for C60H, C60H RCBOs



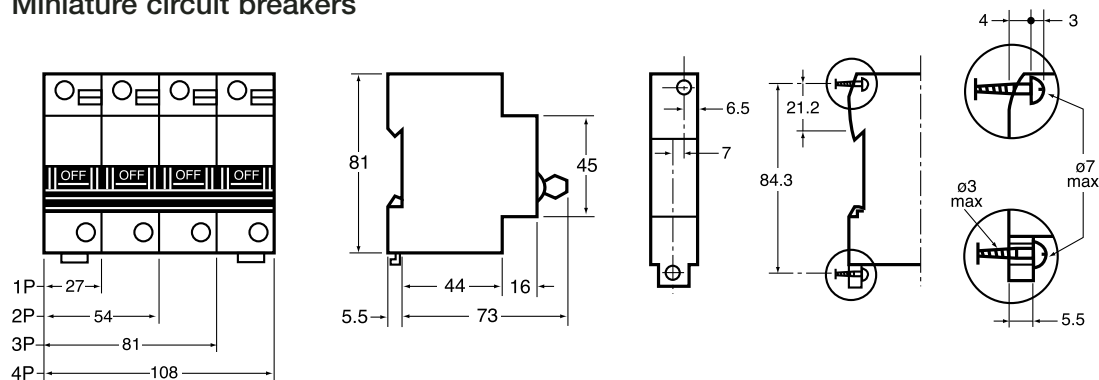
TM C60 auxiliaries



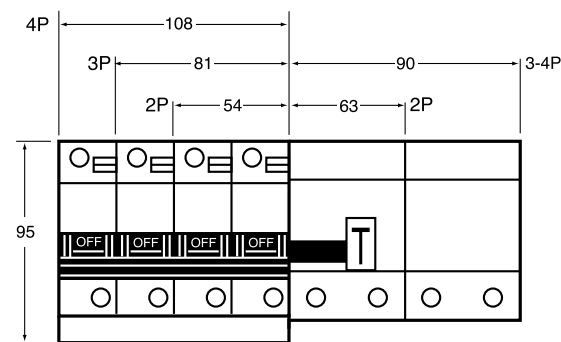
C60 RCBO



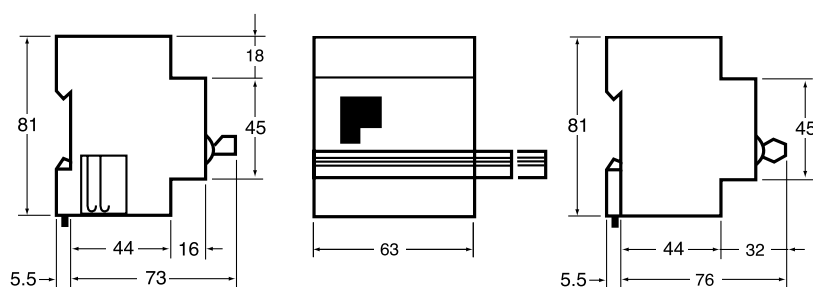
Miniature circuit breakers



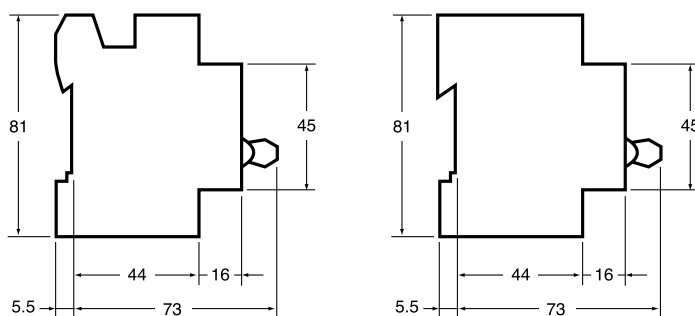
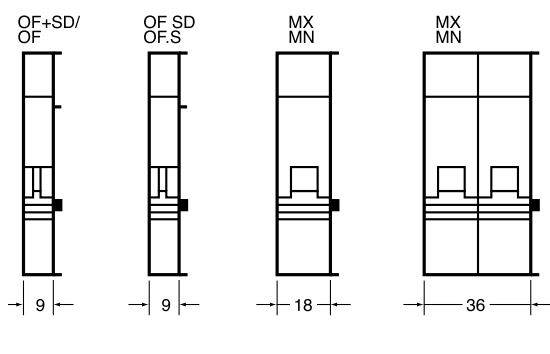
Vigi



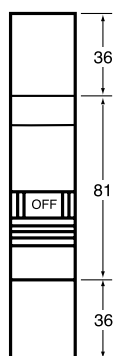
Tm C120 auxiliaries



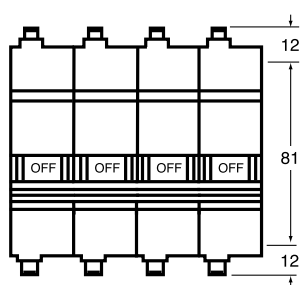
OF, SD, OF+SD/OF, MX, MN auxiliaries



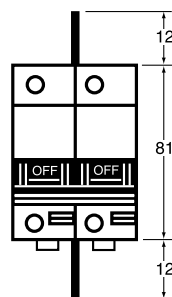
Terminal shield



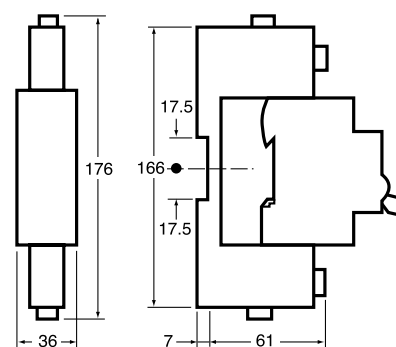
Screw shield



Inter-pole barriers

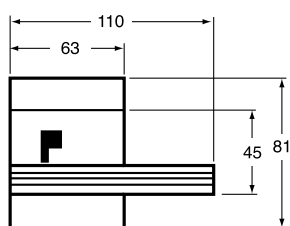


Plug in base

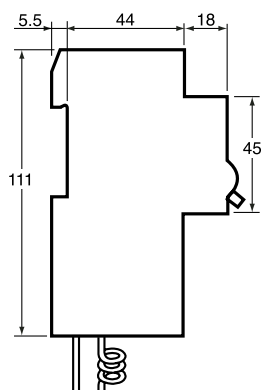
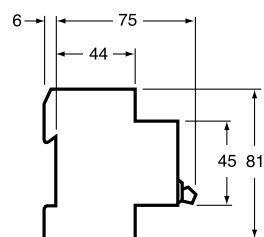


Technical drawing of a mechanical part. The drawing shows a cross-section of a component with a total width of 81 and a total height of 81. A horizontal dimension of 63 is shown for the upper section, and a vertical dimension of 45 is shown for the lower section. A small black square is located in the upper left corner of the 63x45 area.

1P, 2P

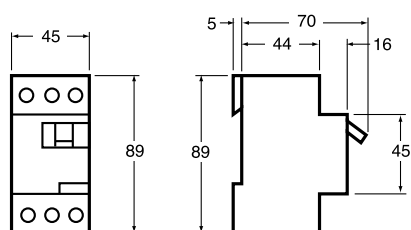


3P, 4P

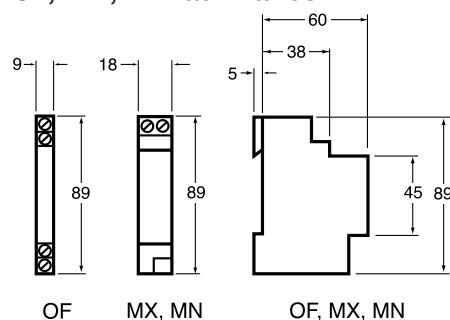


Circuit breakers P25M and Vigî

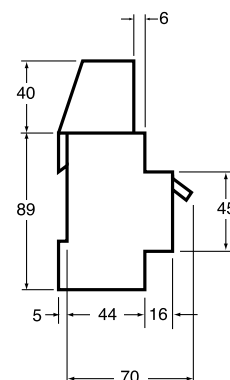
P25M circuit breaker



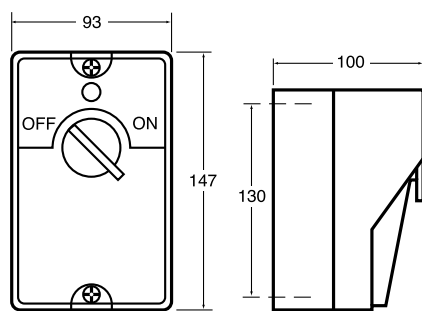
OF, MX, MN auxiliaries



Limiter block

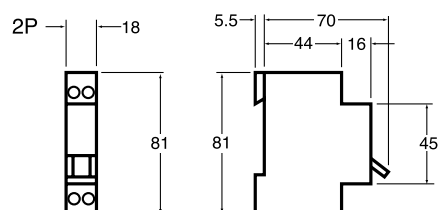


Insulated enclosure

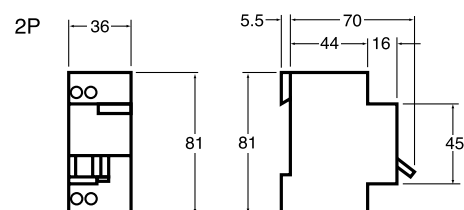


Vigî circuit breakers

DPN and DPN N circuit breakers



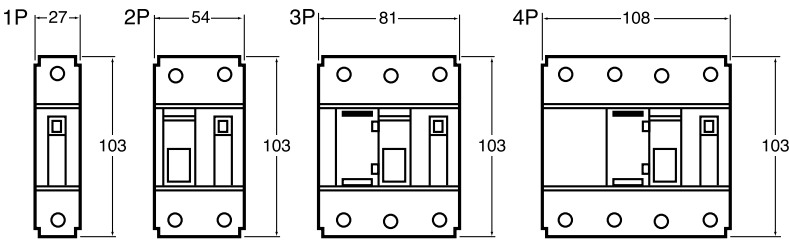
DPN vigî and DPN n vigî circuit breakers



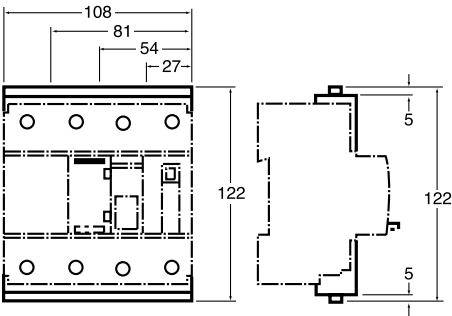
Circuit breakers

NG125

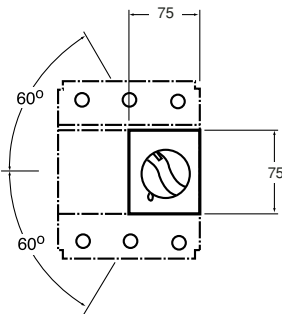
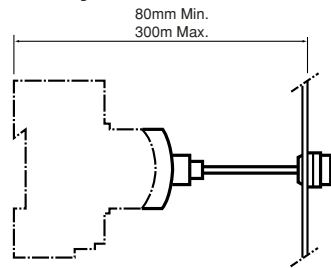
NG125 circuit breakers



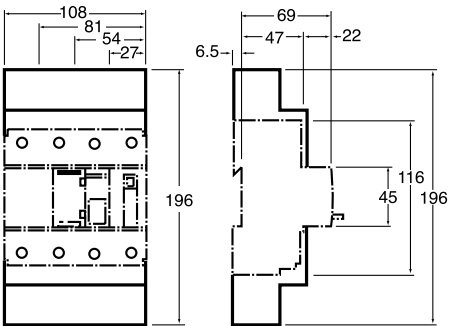
Screw shield



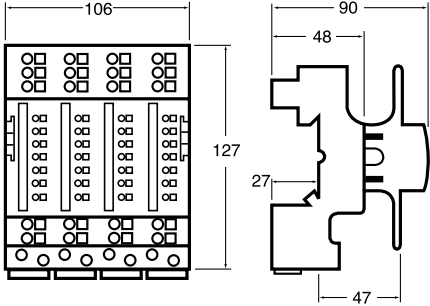
Rotary handle



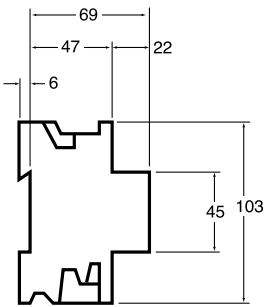
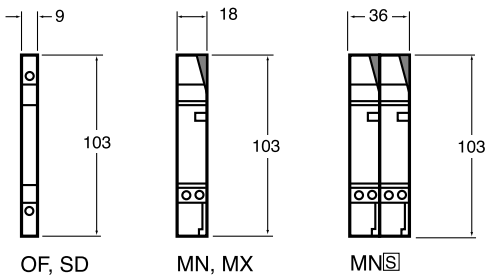
Terminal shield



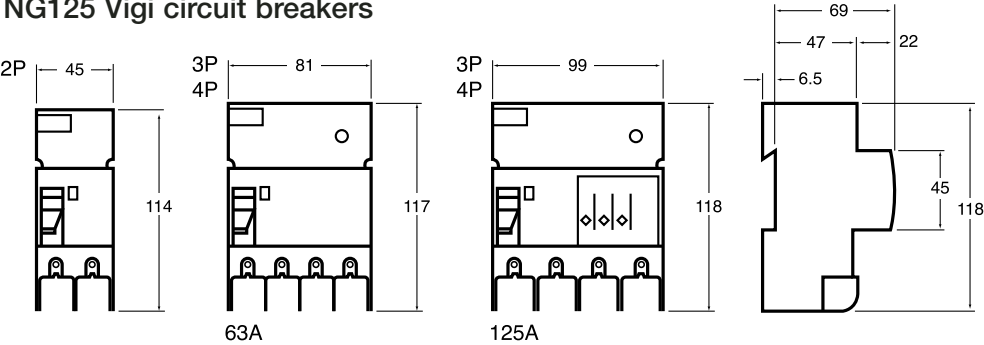
Distribloc



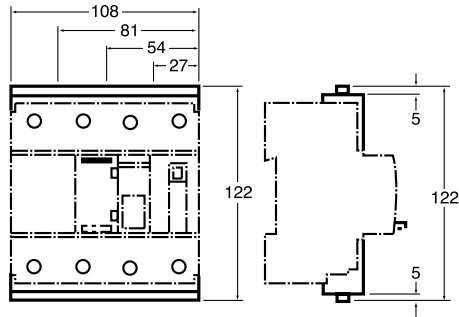
MN, MX, OF and SD



NG125 Vigi circuit breakers

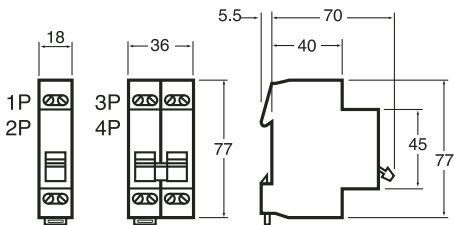


Screw shield

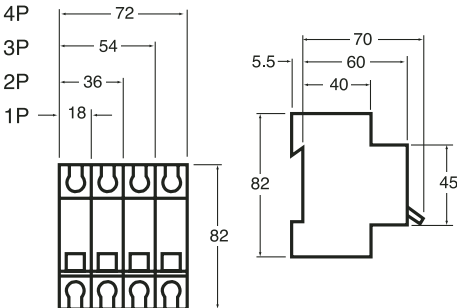


I switch disconnectors

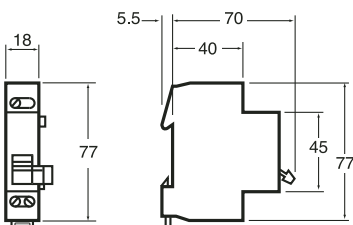
20 and 32A



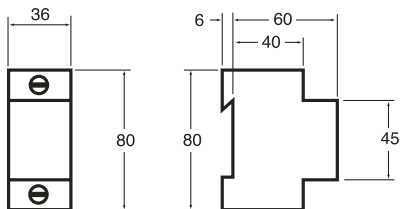
40 - 125A



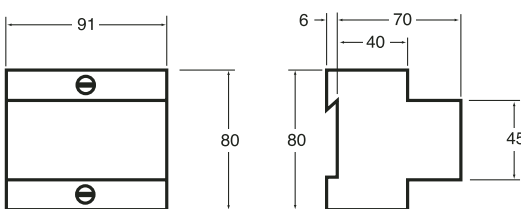
NO, NF auxiliaries



Bell and safety transformers

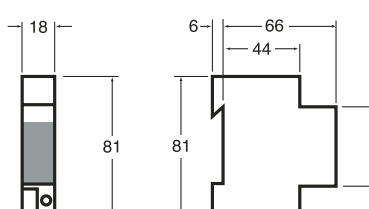


15213, 15216



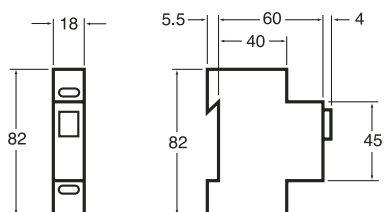
15212, 15218, 15219, 15220, 15222

SO bell and RO buzzer

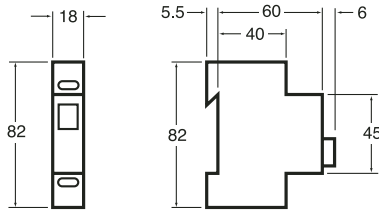


15320, 15321, 15322, 15323

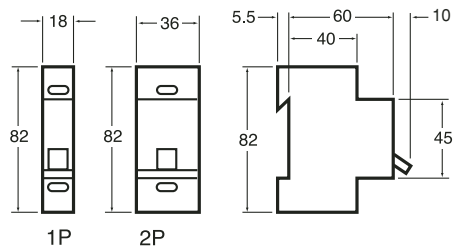
V indicator lights



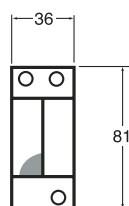
BP pushbuttons



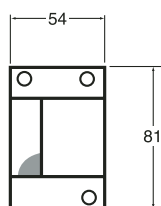
CM selector switches



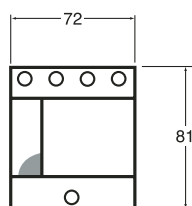
PF8, PF30 and PF30r



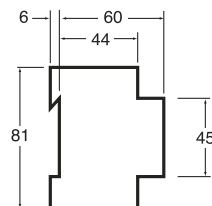
PF8 1P+N



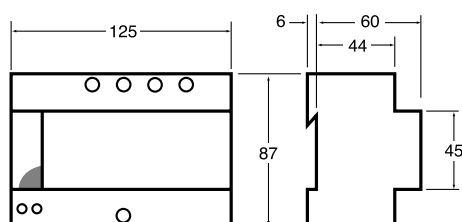
PF30 1P+N
PF30r 1P+N



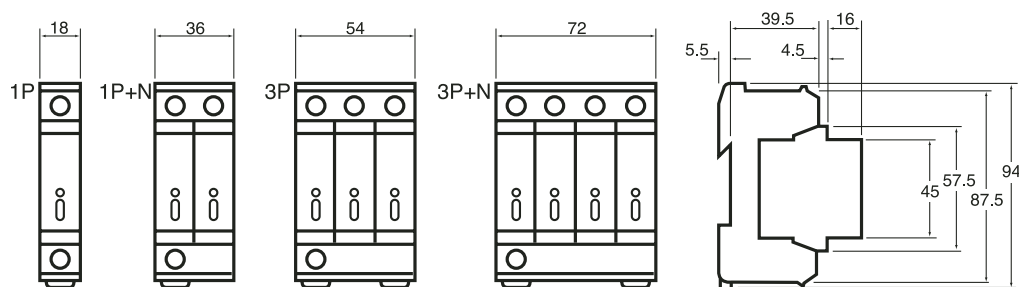
PF8 3P+N
PF30 3P+N
PF30r 3P+N



PF65r

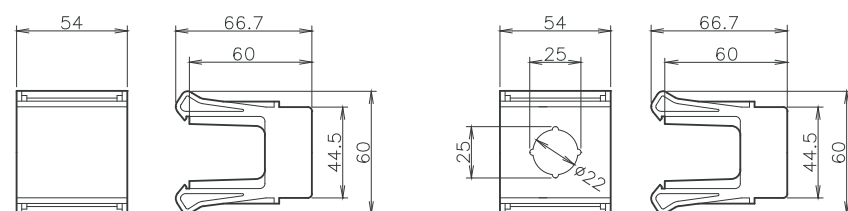


PRD



8

XB device holder



ACTo+f, ACTt and ACTp



RLI changeover relay

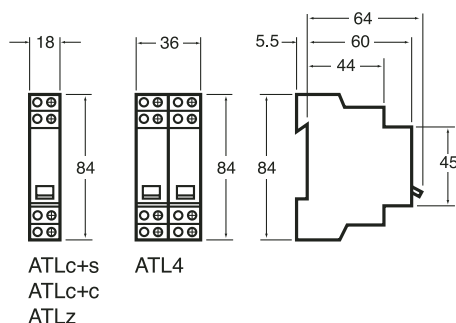


Impulse relays

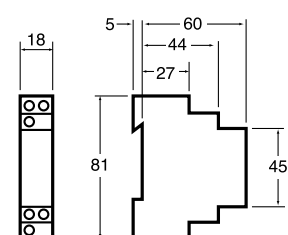
TL and ETL extensions



ATLc+s add-on auxiliaries

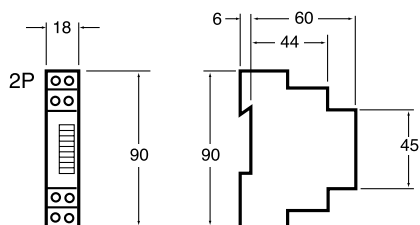


RT, etc. time delay relays

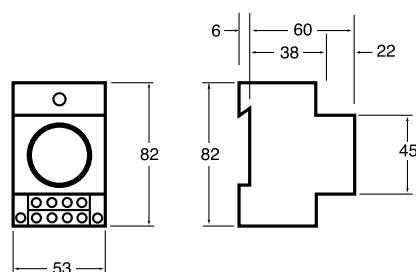


Time switches

IH time switch 24 hours

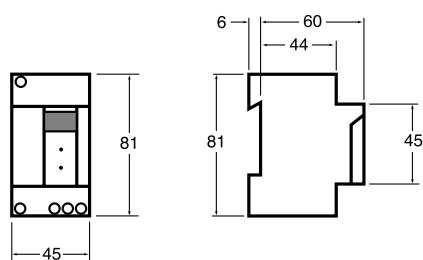


IH time switch 60 min, 24h, 24h+7d, 7d

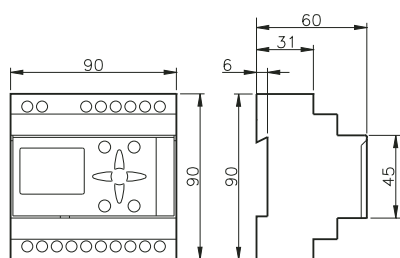


IHP programmable time switches

15720, 15721, 15722, 15723

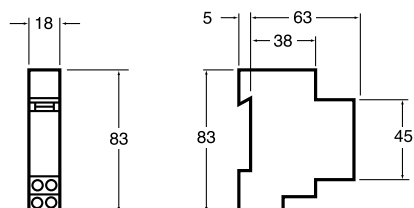


ITM multifunction time switch



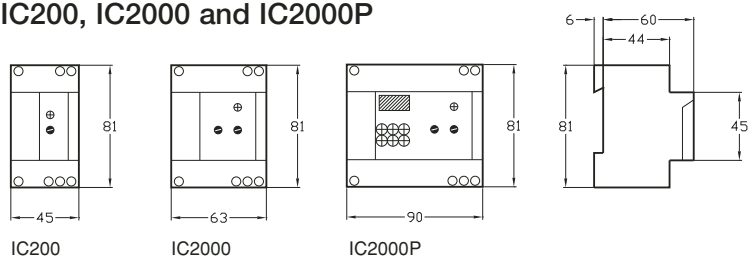
Timer and switch off warning

MIN timers 15231, 15232, 15363 and PRE timer 15233

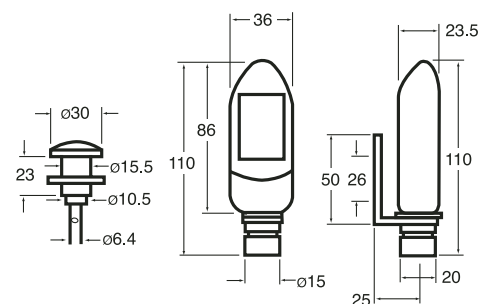


IC light sensitive switches

IC200, IC2000 and IC2000P

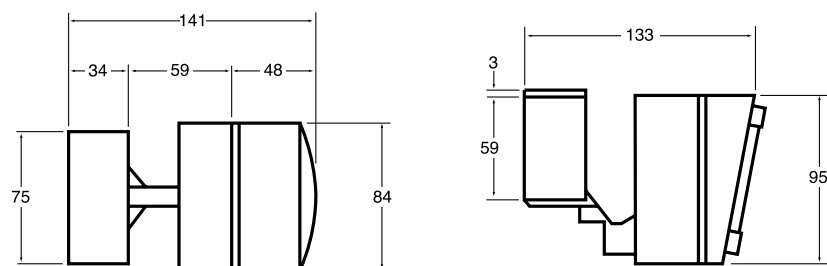


Front face and wall mounted cells

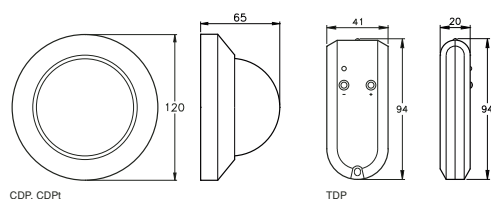


CDM and CE30 movement detection control switches

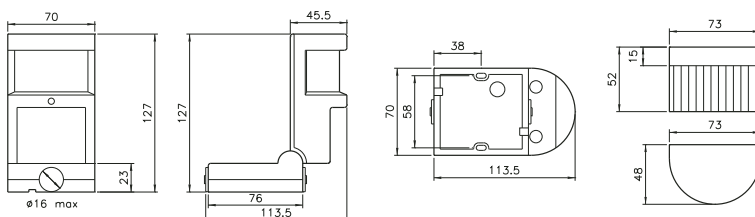
CE



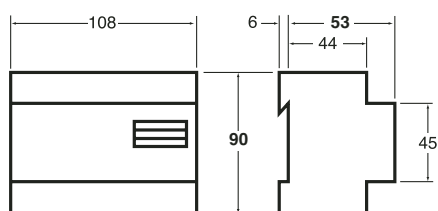
CDP, CDPt and TDP



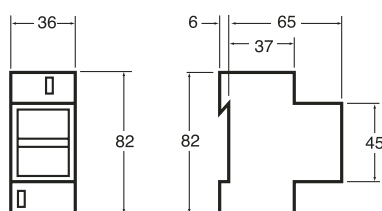
CDM



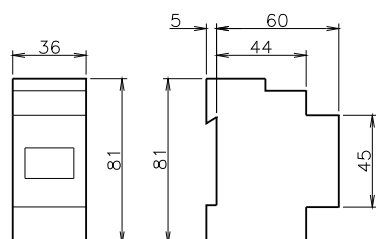
CE and CEr kilowatt hour meters



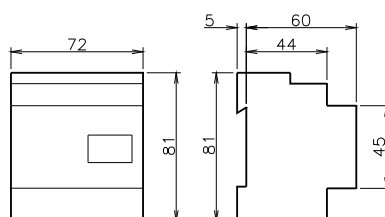
CI/CH counters



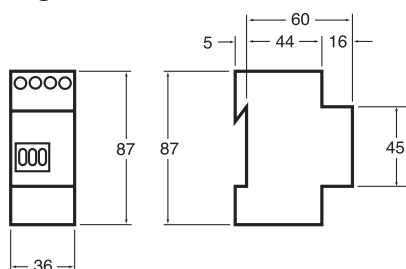
ME3, ME4 watt hour meters



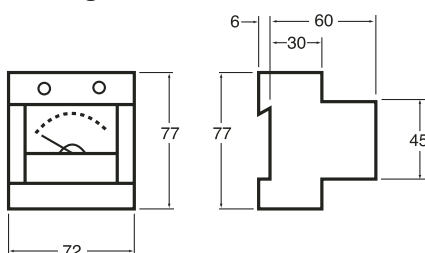
ME1 watt hour meters



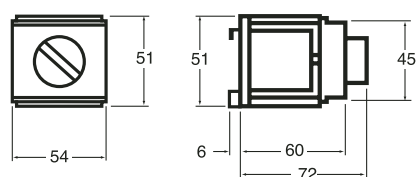
Digital VLT and AMP



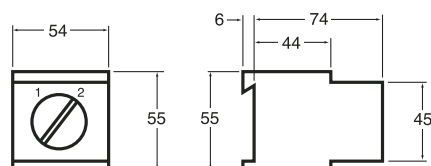
Analogue VLT and AMP



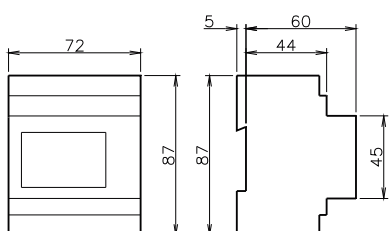
CMA and CMV



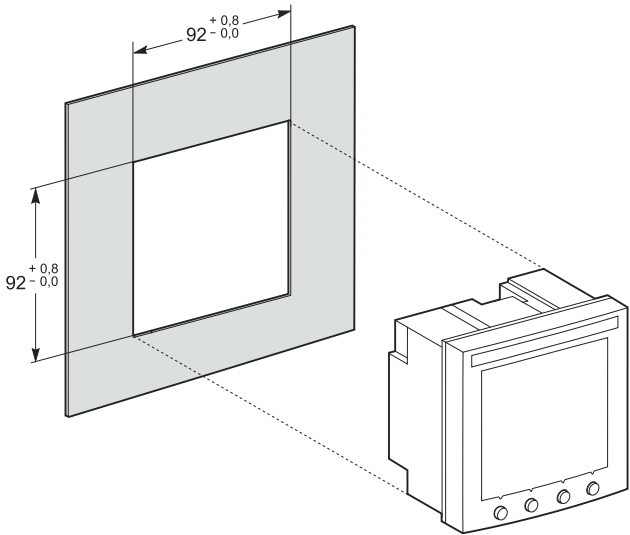
CME



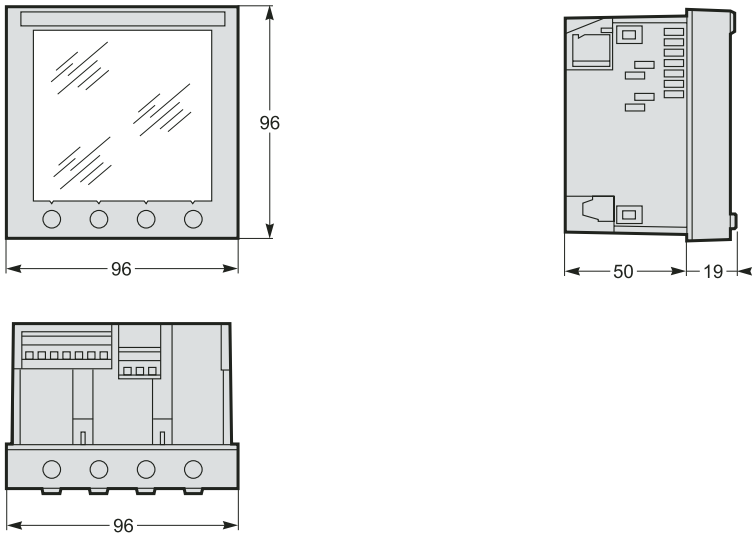
PM9 multimeter



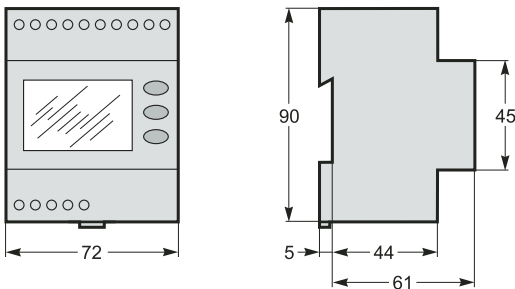
PM700 multimeter
Front panel mounting



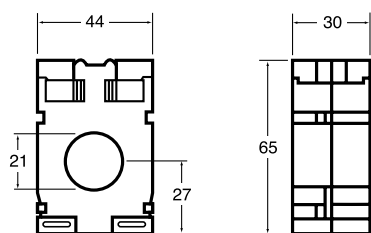
Series PM700 dimensions



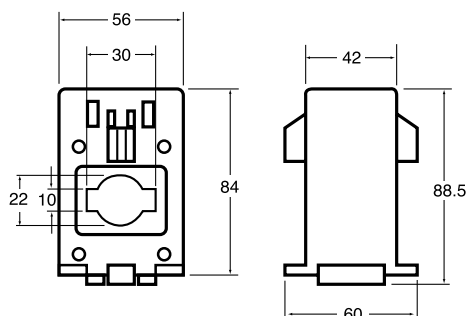
PM9 multimeter



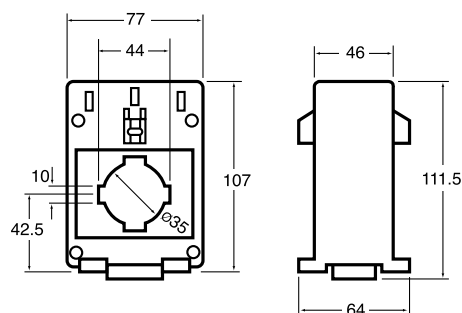
16500 - 16506 and 16541 - 16456



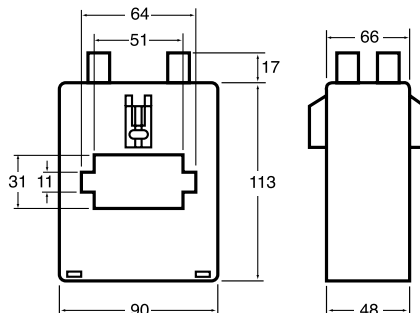
16509 - 16515 and 16459 - 16465



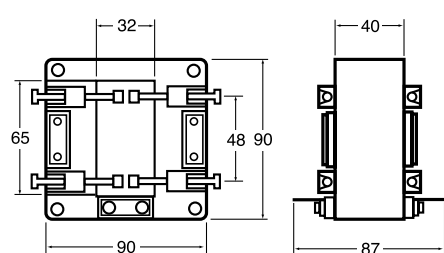
16518 - 16521 and 16468 - 16471



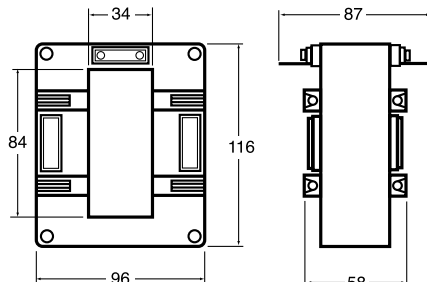
16523 - 16524 and 16473 - 16474



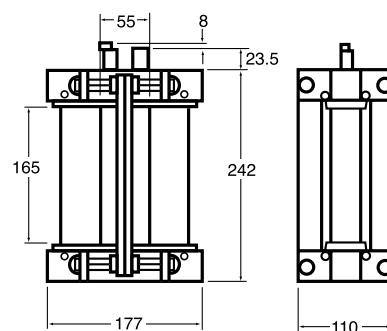
16526 - 16535 and 16476 - 16483



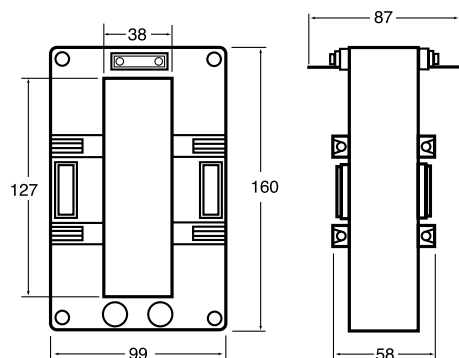
16537 - 16538



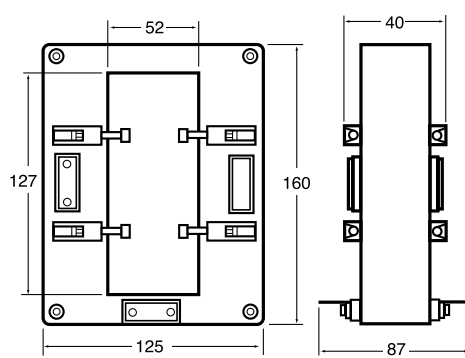
16548 - 16549



16540 - 16544



16545 - 16547



TH3 thermostat



As standards, specifications and designs change from time to time, please ask for confirmation of the information given in this publication.

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