

GE Consumer & Industrial
Power Protection

Redline

ED.05

Modular DIN-rail devices
and residential enclosures

Just feel protected



GE imagination at work

Modular DIN-rail devices and residential enclosures

Circuit ProtectionA

People ProtectionB

Add-on DevicesC

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Selection table of MCB's

Page no.	Series	Applications	Poles	Add-on devices	Tripping characteristic	Rating current (A)	Short-circuit capacity (kA)
A.14	G30		1, 2, 3, 4	yes	B	6 - 40	3 5 10
				yes	C	2 - 40	3 5 10
A.16	G45		1, 2, 3, 4	yes	B	6 - 40	4.5 6 14
				yes	C	2 - 40	4.5 6 14
A.18	G60	  	1, 1+N, 2, 3, 4	yes	B	6 - 63	6 10 ⁽¹⁾ 20
				yes	C	0.5 - 63	6 10 ⁽¹⁾ 20
				yes	D	0.5 - 63	6 10 ⁽¹⁾ 20
A.20	EP60	 	1, 2, 3, 4	yes	K	0.5 - 63	6 10 ⁽¹⁾ 20
A.22	G100	 	1, 1+N, 2, 3, 4	yes	B	6 - 63	10 ⁽¹⁾ 15 ⁽²⁾ 30
				yes	C	0.5 - 63	10 ⁽¹⁾ 15 ⁽²⁾ 30
				yes	D	0.5 - 63	10 ⁽¹⁾ 15 ⁽²⁾ 30
A.24	EP100	 	1, 2, 3, 4	yes	K	0.5 - 63	10 15 ⁽²⁾ 30 ⁽²⁾
A.26	GT10	 	1, 2, 3, 4	yes	B	6 - 63	10 ⁽¹⁾ 30
				yes	C	0.5 - 63	10 ⁽¹⁾ 30
				yes	D	0.5 - 63	10 ⁽¹⁾ 30
A.28	GT25		1, 2, 3, 4	yes	B	6 - 63	15 ⁽²⁾ 20 ⁽²⁾ 25 ⁽²⁾
				yes	C	0.5 - 63	15 ⁽²⁾ 20 ⁽²⁾ 25 ⁽²⁾
				yes	D	0.5 - 63	15 ⁽²⁾ 20 ⁽²⁾ 25 ⁽²⁾
A.30	EP100UC		1, 2	yes	B	6 - 63	6 10
				yes	C	0.5 - 63	6 10
A.32	Hti	 	1, 2, 3, 4	yes	B	80 - 125	10 15
				yes	C	80 - 125	10 15
				yes	D	80 - 125	10 15
A.36	EP60UL	  	1, 2, 3, 4	yes	B	6 - 63	6 6 10 ⁽¹⁾
				yes	C	0.5 - 63	6 6 10 ⁽¹⁾
				yes	D	0.5 - 63	6 6 10 ⁽¹⁾
A.38	EP100UL	 	1, 2, 3, 4	yes	B	6 - 63	10 10 15 ⁽¹⁾
				yes	C	0.5 - 63	10 10 15 ⁽¹⁾
				yes	D	0.5 - 63	10 10 15 ⁽¹⁾
A.40	EP100ULH		1, 2, 3	yes	B	5 - 32	10 15 ⁽²⁾
				yes	C	0.5 - 32	10 15 ⁽²⁾
				yes	D	0.5 - 32	10 15 ⁽²⁾



B: 3-5 In
C: 5-10 In
D: 10-20 In
K: 8-12 In

EN/IEC 60898-1  NEMA AB1
EN/IEC 60947-2  UL 489
UL 1077 

(1) Ics = 75% Icu
(2) Ics = 50% Icu



Selection table of MCB's - continued

Page no.	Series	Applications	Poles	Add-on devices	Tripping characteristic	Rating current (A)	Short-circuit capacity (kA)
A.42	EP100R		3	yes	B	0.5 - 63	10 15
				yes	C	0.5 - 63	10 15
A.44	EP100UCR		1,2	yes	B	2 - 63	6 10
				yes	C	0.5 - 63	6 10
				yes	K	0.5 - 63	6 10
A.46	EP100T		1, 2, 3, 4	yes	Z	0.5 - 63	10 15
				yes	B	6 - 63	10 15
				yes	C	0.5 - 63	10 15
				yes	K	0.5 - 63	10 15
A.48	EP100UCT		1, 2	yes	Z	0.5 - 63	6 10
				yes	B	6 - 63	6 10
				yes	C	0.5 - 63	6 10
				yes	K	0.5 - 63	6 10

Selection table of compact MCB's - Unibis™

Page no.	Series	Applications	Poles	Add-on devices	Tripping characteristic	Rating current (A)	Short-circuit capacity (kA)
A.60	EPC 451N		1+N(1mod)	yes	B-C	2 - 40	4.5 6
A.61	EPC 61N		1+N(1mod)	yes	B-C	2 - 40	6 7.5
A.62	EPC 101N		1+N(1mod)	yes	B-C	2 - 40	10 10
A.63	EPC 611		1P+1P(1mod)	yes	B-C	2 - 40	6 6
A.64	EPC 45		2,3,4	yes	B-C	2 - 40	4.5 6
A.66	EPC 60		2,3,4	yes	B-C	2 - 40	3 6 7.5

Selection table of screwless MCB's - Fixwell™

Page no.	Series	Applications	Poles	Add-on devices	Tripping characteristic	Rating current (A)	Short-circuit capacity (kA)
A.76	EPP60		1, 1+N, 2, 3, 3+N, 4	yes	C	2 - 40	6 ⁽¹⁾ 10
A.78	EPP100		1, 2, 3, 3+N, 4	yes	B-C	2 - 40	10 ⁽¹⁾ 15 ⁽²⁾



B: 3-5 In
 C: 5-10 In
 K: 8-12 In
 Z: 2-3 In

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

(1) Ics = 75% Icu
 (2) Ics = 50% Icu



Technical data of MCB's

Series			G30/G45	G60/EP60 K	G100/EP100 K
Standards			EN/IEC 60898-1	EN/IEC 60898-1	EN/IEC 60898-1
Tripping characteristics			B, C	B, C, D, K ⁽²⁾	B, C, D, K ⁽²⁾
Nominal current			2-40	B(6-63), C/D/K(0.5-63)	B(6-63), C/D/K(0.5-63)
Calibration temperature			30	30	30
Number of poles (# mod)			1/2/3/4	1/1+N/2/3/4 ⁽²⁾	1/1+N/2/3/4 ⁽²⁾
Neutral pole protected			-	yes	yes
Nominal voltage Un	AC 1P	V	240/415	240/415	240/415
	1P+N	V	240	-	-
	2P	V	415	415	415
	3P/3P+N/4P	V	415	415	415
	DC 1P (1)	VDC	48	48	48
	2P (in series) (1)	VDC	110	110	110
Frequency		Hz	50/60	50/60	50/60
		Hz	DC: magn.trip +40%	DC: magn.trip +40%	DC: magn.trip +40%
		Hz	400: magn.trip +50%	400: magn.trip +50%	400: magn.trip +50%
Maximum service voltage U _{bmax} between two wires			V	250/440; 53/120 ≡	250/440; 53/120 ≡
Minimum service voltage U _{bmin}			V	12; 12 ≡	12; 12 ≡
Selectivity class (EN/IEC 60898-1)			3	3	3
Isolator application EN/IEC 60947-2			yes	yes	yes
Rated insulation voltage	Pollution degree 2	V	500	500	500
	Pollution degree 3	V	440	440	440
Impulse withstand test voltage			kV	6	6
Insulation resistance			MΩ	10000	10000
Dielectric rigidity			kV	2.5	2.5
Vibrations resistance (in x, y, z direction) (EN/IEC 77/16.3)			3g	3g	3g
Endurance	electrical at Un, In		10000	10000	10000
	mechanical		20000	20000	20000
Utilisation category (EN/IEC 60947-2)			A	A	A
Mounting position (for all devices): any except upside down			any	any	any
Incoming top or bottom			yes	yes	yes
Protection degree (outside / inside enclosure with door)			IP20/IP40	IP20/IP40	IP20/IP40
Self-extinguish degree (according to UL94)			V2	V2	V2
Tropicalisation (according to EN/IEC 60068-2 / DIN 40046) °C/RH			+55°C/95% RH	+55°C/95% RH	+55°C/95% RH
Operating temperature			°C	-25/+55	-25/+55
Storage temperature			°C	-55/+55	-55/+55
Terminal capacity	Rigid cable min/max (top)	mm ²	1/35	1/35	1/35
	Flexible cable min*/max (top)	mm ²	0.75/25	0.75/25	0.75/25
	Rigid cable min/max (bottom)	mm ²	1/35	1/35	1/35
	Flexible cable min*/max (bottom)	mm ²	0.75/25	0.75/25	0.75/25
	(* Flexible cable 0.75/1/1.5 mm ² with cable lug)				
	Torque	Nm	4.5	4.5	4.5
Add-on devices (side add-on)	Auxiliary contacts		yes	yes	yes
	Tele U		yes	yes	yes
	Tele L		yes	yes	yes
	Tele MP		yes	yes	yes
	PBS		yes	yes	yes
Busbar systems	Pin (top/bottom)		yes/yes	yes/yes	yes/yes
	Fork (top/bottom)		-/yes	-/yes	-/yes
Accessories			yes	yes	yes
Dimensions (HxDxW) 86x68xW			mm/mod.	18	18
Weight/mod.			g	120	120
Package			mod.	12	12
Approvals			KEMA	KEMA	KEMA
CE-marking			yes	yes	yes
Page			A.14/A.16	A.18/A.20 ⁽²⁾	A.22/A.24 ⁽²⁾

(1) Preferred values of rated control supply voltage (EN/IEC 60947-2): 24V, 48V, 110V, 125V, 220V, 250V



GT10/GT25	EP100 UC	Hti	EP100 R/EP100 T	EP100 UCR/EP100 UCT
EN/IEC 60947-2 3-5In/5-10In/10-20In	(3) B, C	EN/IEC 60947-2 3-5In/5-10In/10-20In	EN/IEC 60898-1 Z, B, C, D, K ⁽⁵⁾	EN/IEC 60947-2 ⁽³⁾ Z, B, C, K ⁽⁴⁾
0.5-63	B(6-63), C(0.5-63)	80 upto 125	B(6-63), C/D/K(0.5-63)	0.5 - 63
40	30	40	30	30
1/2/3/4	1/2/4	1/2/3/4	1/2/3/4 ⁽⁶⁾	1/2
-	-	-	yes	-
240/415	240/415	230/400	240/415	240/415
-	-	-	-	-
415	415	415	415	415
415	415	415	415	415
48	250	48	48	250
110	500	110	110	500
50/60	50/60	50/60	50/60	50/60
DC: magn.trip +40%	DC: magn.trip +40%	DC: magn.trip +40%	DC: magn.trip +40%	DC: magn.trip +40%
400: magn.trip +50%	400: magn.trip +50%	400: magn.trip +50%	400: magn.trip +50%	400: magn.trip +50%
250/440: 53/120 ==	250/440: 250/440 ==	250/440: 53/120 ==	250/440: 53/120 ==	250/440: 250/440 ==
12: 12 ==	12: 12 ==	12: 12 ==	12: 12 ==	12: 12 ==
-	3	-	3	3
yes	yes	yes	yes	yes
500	500	500	500	500
440	440	440	440	440
6	6	6	6	6
10000	10000	10000	10000	10000
2.5	2.5	2.5	2.5	2.5
3g	5g	3g	3g	5g
4000	1000	4000	10000	1000
20000	20000	20000	20000	20000
A	A	A	A	A
any	any	any	any	any
yes	follow polarity	yes	yes	follow polarity
IP20/IP40	IP20/IP40	IP20/IP40	IP20/IP40	IP20/IP40
V2	V2	V2	V2	V2
+55°C/95% RH	+55°C/95% RH	+55°C/95% RH	+55°C/95% RH	+55°C/95% RH
-25/+55	-25/+55	-25/+55	-25/+55	-25/+55
-55/+55	-55/+55	-55/+55	-55/+55	-55/+55
1/35	1/35	70	1/35	1/35
0.75/25	0.75/25	-	0.75/25	0.75/25
1/35	1/35	70	1/35	1/35
0.75/25	0.75/25	-	0.75/25	0.75/25
4.5	4.5	5	4.5	4.5
yes	yes	yes	yes	yes
yes	yes	-	yes	yes
yes	yes	yes	yes	yes
yes	yes	-	yes	yes
yes	yes	yes	yes	yes
yes/yes	yes/yes	-	yes/yes	yes/yes
-/yes	yes/yes	-	-/yes	yes/yes
yes	yes	-	yes	yes
18	18	27	18	18
120	125	210	120	125
12	12	1/4/8	12	12
-	-	-	KEMA	-
yes	yes	yes	yes	yes
A.26/A.28	A.30	A.32	A.42/A.46	A.44/A.48

(2) Motor lines application
 no I+N execution in K curve
 EP60K in page A.21
 EP100K in page A.25

(3) EN/IEC 60898-2 and VDE 0641-2/3
 (4) For EP100 UCR no K curve
 (5) For EP100 R only B-C curves
 (6) For EP100 R only 3

MCB's

A

B

C

D

E

F

G

X



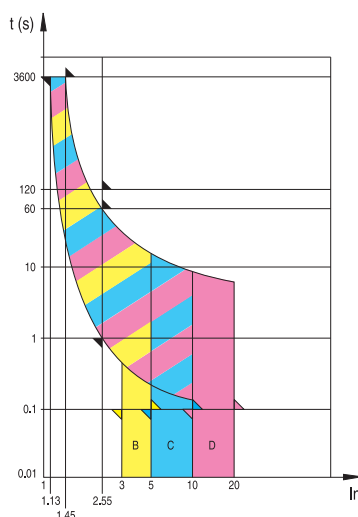
Short-circuit capacity of MCB's

Series			G30	G45	G60/EP60 K
Short-circuit capacity AC (kA)					
EN/IEC 60898-1	Icn	1P 230/400V	3	4.5	6
		1P+N 230V	3	4.5	6
		2P 230/400V	3	4.5	6
		3P/3P+N/4P 230/400V	3	4.5	6
	Ics (service)		100% Icn	100% Icn	100% Icn
EN/IEC 60947-2	Icu (ultimate)	1P 127V	-	-	20
		240V	5	6	10
		415V	3	3	3
		1P+N/2P 127V	-	15	30
		240V	10	10	20
		2P 415V	5	6	10
		3P, 4P 240V	10	10	20
		415V	5	6	10
		440V	-	-	6
		Ics (service)		75% Icu	75% Icu
NEMA AB1 (120/240V)			10	14	20
Short-circuit capacity DC (kA)					
EN/IEC 60947-2	Icu (ultimate)	1P ≤60V ==	-	-	20
		≤220V ==	-	-	-
		2P ≤125V ==	-	-	25
		≤440V ==	-	-	-
	Ics (service)		-	-	100% Icu
Page			A.14	A.16	A.18/A.20

Characteristics according to EN/IEC 60898-1

Miniature Circuit Breakers (MCB) are intended for the protection of wiring installations against both overloads and short-circuits in domestic or commercial wiring installations where operation is possible by uninstructed people.

Tripping characteristic curves (EN/IEC 60898-1)



Magnetic release

An electromagnet with plunger ensures instantaneous tripping in the event of short-circuit. The standard distinguishes three different types, following the current for instantaneous release: type B,C,D.

Icn (A)	Test current	Tripping time	Applications
B	3 x In	0.1 < t < 45s (In ≤ 32A)	Only for resistive loads such as: - electrical heating - water heater - stoves
	5 x In	0.1 < t < 90s (In > 32A)	
		t < 0.1s	
C	5 x In	0.1 < t < 15s (In ≤ 32A)	Usual loads such as: - lighting - socket-outlets - small motors
	10 x In	0.1 < t < 30s (In > 32A)	
		t < 0.1s	
D	10 x In	0.1 < t < 4s ⁽¹⁾ (In ≤ 32A)	Control and protection of circuits having important transient inrush currents
	20 x In	0.1 < t < 8s (In > 32A)	
		t < 0.1s	

(1) if In ≤ 10A, t < 8s

Thermal release

The release is initiated by a bimetal strip in case of overload. The standard defines the range of releases for specific overload values.

Reference ambient temperature is 30°C.

Test current	Tripping time
1.13 x In	t ≥ 1h (In ≤ 63A) t ≥ 2h (In > 63A)
1.45 x In	t < 1h (In ≤ 63A) t < 2h (In > 63A)
2.55 x In	1s < t < 60s (In ≤ 32A) 1s < t < 120s (In > 32A)

G100/EP100 K EP100 T/EP100 R	GT10	GT25	EP100 UC/ EP100 UCR	Hti
10	-	-	6 (220VDC) ⁽²⁾	-
10	-	-	-	-
10	-	-	6 (440VDC) ⁽³⁾	-
10	-	-	-	-
75% Icn	-	-	100% Icn	-
30	25	50	-	-
15	10	50/25/20/15 ⁽¹⁾	6 ⁽⁵⁾	B/C 10; D 7.5
4	-	-	-	4.5
40	30	-	-	-
30	20	50/50/40/30 ⁽¹⁾	-	B/C 15
15	10	50/25/20/15 ⁽¹⁾	6 ⁽⁵⁾	B/C 10; D 7.5
30	20	50/50/40/30 ⁽¹⁾	-	B/C 15
15	10	50/25/20/15 ⁽¹⁾	-	B/C 10; D 7.5
10	-	50/20/15/10 ⁽¹⁾	-	-
50% Icu	75% Icu	50% Icu	-	100% Icu
30	30	-	-	-
25	20	25	-	10
-	-	-	10 ⁽⁴⁾	-
30	25	30	20 ⁽⁴⁾	15
-	-	-	10 ⁽⁴⁾	-
100% Icu	100% Icu	100% Icu	-	100% Icu
A.22/A.24/A.42/A.46	A.26	A.28	A.30/A.44	A.32

(1) 0.5-4A/6-25A/32-40A/50-63A
 (2) 10 (125VDC)
 (3) 10 (250VDC)

(4) T = 4ms
 (5) 4.5kA for 50A & 63A

Characteristics according to EN/IEC 60947-2

Magnetic release

An electromagnet with plunger ensures instantaneous tripping in the event of short-circuit. The standard leaves the calibration of magnetic release to the manufacturer's discretion.

GE offers instantaneous tripping ranges:

- B: 4 In
- C: 8.5 In (7.5 In for 63A)
- D and M: 14 In
- K: 10 In (6 In $\geq$ 2 s.)

Thermal release

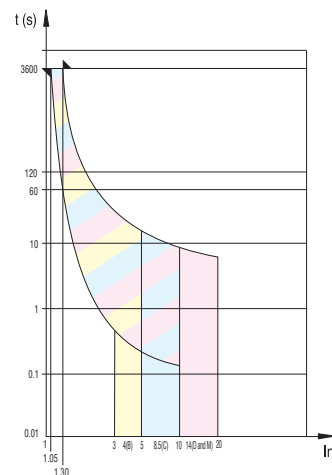
The release is initiated by a bimetal strip in case of overload. The standard defines the range of releases for two special overload values.

Reference ambient temperature is:

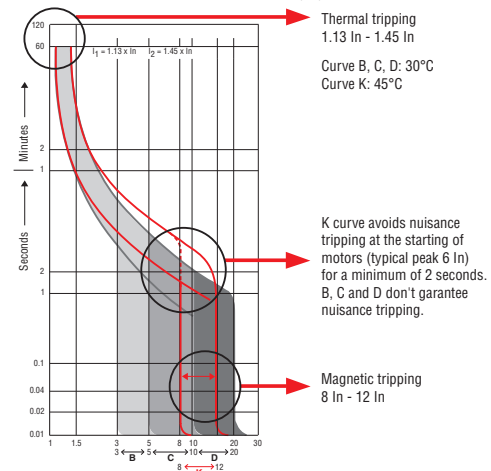
- 40°C for GT10 and GT25
- 50°C for G60 and G100, except for K: 45°C

Test current		Tripping time
B - C - D	K	
1.05 x In	1.13 x In	t $\geq$ 1h (In $\leq$ 63A) t $\geq$ 2h (In > 63A)
1.30 x In	1.45 x In	t < 1h (In $\leq$ 63A) t < 2h (In > 63A)

Tripping characteristic curves (EN/IEC 60947-2)



Curve K (EN/IEC 60947-2) versus B,C,D (EN/IEC 60898-1)



Technical data of MCB's

Series			EP60 UL	EP100 UL	EP100 ULH
Standards UL 1077 (recognized) & CSA C22.2			yes	yes	-
Standards UL 489 (listed)			-	-	yes
UL file			E151139	E151139	E256870
CSA file			235-04	235-04	-
Nominal voltage acc. UL & CSA	1P		277VAC/50VDC	277VAC/50VDC	120VAC/50VDC
	2P		480VAC/110VDC	480VAC/110VDC	240VAC/110VDC
	3P		480VAC/110VDC	480VAC/110VDC	240VAC/110VDC
	4P		480VAC/110VDC	480VAC/110VDC	-
Reference temperature	°C		25	25	25
Terminal capacity	60/75°C		14-4 AWG	14-4 AWG	14-8 AWG
Torque	N.m/lbs.in		2.5/22.5	2.5/22.5	2.5/22.5
Standards EN/IEC 60947-2			yes	yes	yes
Tripping characteristics			B,C,D	B,C,D	B,C,D
Nominal current			B 6-63, C/D 0.5-63	B 6-63, C/D 0.5-63	B 5-32, C/D 0.5-32
Calibration temperature	°C		50	50	50
Number of poles			1/2/3/4	1/2/3/4	1/2/3
Number of modules			1,2,3,4	1,2,3,4	1,2,3
Nominal voltage Un					
AC	1P	V	230/400	230/400	230/400
	1P+N	V	-	-	-
	2P	V	400	400	400
	3P	V	400	400	400
	3P+N/4P	V	400	400	400
DC	1P ⁽¹⁾	VDC	48	48	48
	2P (in series) ⁽¹⁾	VDC	110	110	110
Frequency	Hz		50/60	50/60	50/60
Maximum service voltage U _{bmax} between two wires	V		250/440; 53/120 ==	250/440; 53/120 ==	250/440; 53/120 ==
Minimum service voltage U _{bmin}	V		12 and 12 ==	12 and 12 ==	12 and 12 ==
Selectivity class (EN/IEC 60898)			3	3	3
Isolator application EN/IEC 60947-2			yes	yes	yes
Rated insulation voltage	Pollution degree 2	V	500	500	500
	Pollution degree 3	V	440	440	440
Impulse withstand test voltage	kV		6	6	6
Insulation resistance	MΩ		10000	10000	10000
Dielectric rigidity	kV		2.5	2.5	2.5
Mounting position			Any	Any	Any
Incoming top or bottom			Any	Any	Any
Vibrations resistance (in x, y, z direction) (EN/IEC 77/16.3)			3g	3g	3g
Endurance	electrical at Un, In		10000	10000	10000
	mechanical		20000	20000	20000
Utilisation category (EN/IEC 60947-2)			A	A	A
Protection distance (EN/IEC 60947-2)			12	12	12
Protection degree (outside / inside enclosure with door)			IP20/IP40	IP20/IP40	IP20/IP40
Self-extinguish degree (according to UL94)			V0	V0	V0
Tropicalisation (according to EN/IEC 60068-2 / DIN 40046)			+55°C / 95%RH	+55°C / 95%RH	+55°C / 95%RH
Operating temperature	°C		-25/+55	-25/+55	-25/+55
Storage temperature	°C		-55/+55	-55/+55	-55/+55
Terminal capacity					
	Rigid cable min/max (top)	mm ²	1/35	1/35	1/35
	Flexible cable min*/max (top)	mm ²	0.75/25	0.75/25	0.75/25
	Rigid cable min/max (bottom)	mm ²	1/35	1/35	1/35
	Flexible cable min*/max (bottom)	mm ²	0.75/25	0.75/25	0.75/25
	(* Flexible cable 0.75/1/1.5 mm ² with cable lug)				
	Torque	Nm	max 4.5	max 4.5	max 4.5
Add-on devices (side add-on)	Auxiliary contacts		yes	yes	yes
	Tele L		yes	yes	yes
	Tele MP		yes	yes	yes
Dimensions (HxDxW) 86x68xW ⁽²⁾			18	18	18
Weight/mod.	g		125	125	130
Package	mod.		see page A.37	see page A.39	see page A.41
Approvals			UL/CSA/VDE	UL/CSA/VDE	UL
CE-marking			yes	yes	yes
Page			A.36	A.38	A.40

(1) Preferred values of rated control supply voltage (EN/IEC 60947-2): 24VDC, 48VDC, 110VDC, 125VDC, 220VDC, 250VDC

(2) EP100ULH executions 2P & 3P: H = 116 mm

Short-circuit capacity of MCB's

Series			EP60 UL	EP100 UL	EP100 ULH
Interrupting capacity acc. to			UL1077	UL1077	UL489
UL	1P	277VAC	6	10	-
	2P/3P/4P	480VAC	6	10	-
	1P	120VAC	6	10	10
	2P/3P	240VAC	6	10	10
	1P	50VDC	6	10	10
	2P	110VDC	6	10	10
Short-circuit capacity AC					
EN/IEC 60947-2	Icu (ultimate)	kA			
	1 P	127 V	20	30	30
		240V	10	15	15
		415 V	3	4	4
	1+N /2P	127 V	30	40	40
		240 V	20	30	30
	2 P	415 V	10	15	15
	3/3+N/4P	240 V	20	30	30
		415 V	10	15	15
		440 V	6	10	10
	Ics (service)		75% Icu	50% Icu	50% Icu
Short-circuit capacity DC					
EN/IEC 60947-2	Icu (ultimate)	kA			
	1 P	≤ 60 V $\overline{=}$	20	25	25
		≤ 220 V $\overline{=}$	-	-	-
	2 P	≤ 125 V $\overline{=}$	25	30	30
		≤ 440 V $\overline{=}$	-	-	-
	Ics (service)		100%Icu	100%Icu	10%Icu
Page			A.36	A.38	A.40

Characteristics according to EN/IEC 60947-2

Magnetic release

An electromagnet with plunger ensures instantaneous tripping in the event of short-circuit. The standard leaves the calibration of magnetic release to the manufacturer's discretion.

GE offers instantaneous tripping ranges:

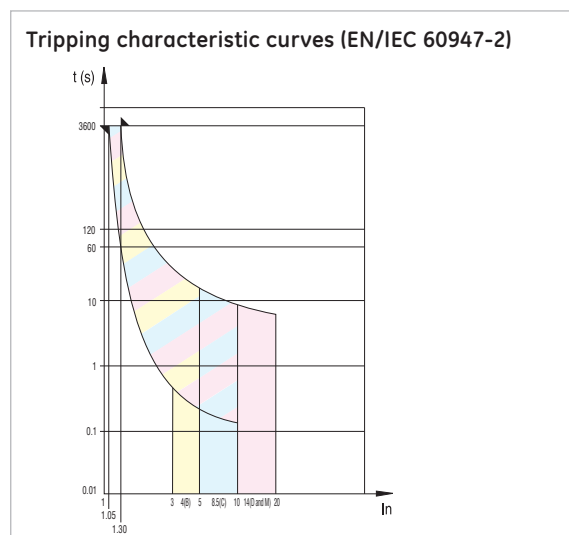
- B: 4 I_n
- C: 8.5 I_n (7.5 I_n for 63A)
- D: 14 I_n

Thermal release

The release is initiated by a bimetal strip in case of overload. The standard defines the range of releases for two special overload values.

Reference ambient temperature is 50°C

Test current	Tripping time
B - C - D	
1.05 × I _n	t ≥ 1h (I _n ≤ 63A) t ≥ 2h (I _n > 63A)
1.30 × I _n	t < 1h (I _n ≤ 63A) t < 2h (I _n > 63A)



Back-up protection (association)

Downstream: MCB's - Upstream: MCB's

Redline		U 230V						
Downstream MCB		Upstream MCB (kA)						
Types	In (A)	G60 & EPP60	G100 & EPP100	GT25	GT25	GT25	Hti	
		0.5-63	0.5-63	< 32	32-40	50-63	80-125	
EPC 451N - EPC45	2-40	22	25	25	25	25	-	
EPC 61N - EPC60	2-10	25	30	30	30	30	-	
	16-20	25	30	30	30	30	-	
	25-40	25	30	30	30	30	-	
EPC 101N	2-10	25	30	30	30	30	-	
	16-20	25	30	30	30	30	-	
	25-40	25	30	30	30	30	-	
DM60	4-10	15	15	15	15	15	-	
	16-20	15	15	15	15	15	-	
	25-40	15	15	15	15	15	-	
DM100	4-10	15	15	15	15	15	-	
	16-20	15	20	20	20	20	-	
	25-40	15	20	22	22	22	-	
G45	6-40	15	20	22	22	22	16	
G60	0.5-63	-	20	22	22	22	-	
G100	0.5-63	-	-	50	35	30	-	

Record Plus™ MCCB's at 220/240V AC

Upstream Downstream		MCCB's Record Plus™																											
		Icu	FD63/160C	FD63/160E	FD63/160S	FD63/160N	FD63/160H	FD63/160L	FE160N	FE160H	FE160L	FE150V	FE250N	FE250H	FE250L	FG400N	FG400H	FG400L	FG630N	FG630H	FG630L	FK800N	FK800H	FK800L	FK1250N	FK1250H	FK1250L	FK1600N	FK1600H
		In (kA)	25	40	50	85	100	200	85	100	200	65	85	100	200	85	100	200	85	100	200	80	100	170	80	100	170	80	100
		Icu of the combination (kA)																											
Redline																													
EPC 451N / EPC 45		6	15	18	18	18	18	18	15	15	12	12	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DP45		6	15	18	22	22	22	22	18	18	18	15	15	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPC 61N / EPC 60		7.5	16	20	23	23	23	23	20	20	20	16	16	16	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DP(A) 60		10	22	25	30	36	85	85	36	85	85	30	36	65	65	16	16	16	14	14	14	-	-	-	-	-	-	-	-
DPE100 / EPC 101N		10	18	22	25	25	25	25	22	22	22	18	18	18	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DP(A)100 & DPT 100		15	25	36	42	50	100	100	42	100	100	30	36	65	65	18	18	18	16	16	16	-	-	-	-	-	-	-	-
G60 & EPP60		20	25	36	42	50	100	100	50	100	100	36	42	85	85	22	22	22	18	18	18	-	-	-	-	-	-	-	-
G100 & EPP100		30	-	42	50	65	100	100	65	100	100	42	50	85	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GT25	≤25A	50	-	-	-	65	100	100	65	100	100	-	65	100	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GT25, 32 & 40A		40	-	-	50	65	100	100	65	100	100	42	50	85	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GT25, 50 & 63A		30	-	42	50	65	100	100	65	100	100	42	50	85	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Series Hti		15	22	36	42	50	100	100	50	100	100	36	42	80	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Series S90		25	-	36	42	85	100	100	85	100	100	36	50	85	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Surion																													
GPS1BS	≤16A	100	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS1BS	>16A	50	-	-	-	85	100	150	-	100	150	-	-	100	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS1BH	all	100	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS2BS	≤16A	100	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS2BS	>16A	50	-	-	-	85	100	150	-	100	150	-	-	100	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS2BH	all	100	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Record Plus™																													
FD63/160C		18	-	30	36	42	50	65	42	50	65	36	42	50	65	42	50	65	42	50	65	-	-	-	-	-	-	-	-
FD63/160E		36	-	-	50	65	85	100	65	85	100	50	65	85	100	65	85	100	65	85	100	-	-	-	-	-	-	-	-
FD63/160S		50	-	-	-	-	85	100	-	85	100	-	-	85	100	-	85	100	-	85	100	-	-	-	-	-	-	-	-
FD63/160N		85	-	-	-	-	100	200	-	100	200	-	-	100	200	-	100	200	-	100	200	80	100	150	80	100	150	80	100
FD63/160H		100	-	-	-	-	-	200	-	-	200	-	-	-	200	-	-	200	-	-	200	-	100	150	-	100	150	-	100
FE160N		85	-	-	-	-	-	-	-	100	200	-	-	100	200	-	100	200	-	100	200	80	100	150	80	100	150	80	100
FE160H		100	-	-	-	-	-	-	-	-	200	-	-	-	200	-	-	200	-	-	200	-	100	150	-	100	150	-	100
FE250N		85	-	-	-	-	-	-	-	-	-	-	-	-	100	200	-	100	200	-	100	200	80	100	150	80	100	150	80
FE250H		100	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	200	-	-	200	-	100	150	-	100	150	-
FG400N		85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	200	-	100	200	80	100	150	80	100	150	80
FG400H		100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	200	-	100	150	-	100	150	-
FG630N		85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	200	80	100	150	80	100	150	80
FG630H		100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	100	150	-	100	150	-	100
FK800N		80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	100	150	80	100	150	80	100
FK800H		100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	170	-	100	170	-	100
FK1250N		80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	100	170	80	100	170	80	100
FK1250H		100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	170	-	100	170	-	100

Record Plus™ MCCB's at 400/415V AC

Upstream Downstream		MCCB's Record Plus™																											
		Icu	FD63/160C	FD63/160E	FD63/160S	FD63/160N	FD63/160H	FD63/160L	FE160N	FE160H	FE160L	FE250V	FE250N	FE250H	FE250L	FG400N	FG400H	FG400L	FG630N	FG630H	FG630L	FK800N	FK800H	FK800L	FK1250N	FK1250H	FK1250L	FK1600N	FK1600H
		In (kA)	18	25	36	50	80	150	50	80	150	36	50	80	150	50	80	150	50	80	150	50	80	100	50	80	100	50	80
		Icu of the combination (kA)																											
Redline																													
EPC 452, 453 & 454		6	15	18	22	25	30	36	25	30	36	18	22	25	30	12	12	12	10	10	10	-	-	-	-	-	-	-	-
EPC60		7.5	16	20	23	25	34	40	28	34	40	20	25	30	32	15	15	15	10	10	10	-	-	-	-	-	-	-	-
G60		10	18	22	25	30	36	42	30	36	42	22	30	36	36	16	16	16	12	12	12	-	-	-	-	-	-	-	-
G100		15	18	25	30	36	42	50	36	42	50	25	30	36	36	22	22	22	16	16	16	-	-	-	-	-	-	-	-
GT25 ≤25A		25	-	-	36	42	50	65	42	50	65	-	36	42	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GT25, 32 & 40A		20	-	-	30	36	42	50	36	42	50	-	36	42	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GT25, 50 & 63A		15	18	25	30	36	42	50	36	42	50	25	30	36	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Series Hti		10	15	18	25	30	36	42	30	36	42	18	30	36	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Series S90		15	18	25	30	36	42	50	36	42	50	25	36	42	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Surion																													
GPS1B/MS ≤10A		100	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS1B/MS 12.5A		50	-	-	-	-	80	150	-	80	150	-	-	80	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS1B/MS ≥16A		25	-	-	-	42	50	65	42	50	65	-	42	50	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS1B/MH ≤12.5A		100	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS1B/MH >12.5A		50	-	-	-	-	80	150	-	80	150	-	-	80	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS2B/MS 10A		100	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS2B/MS >10A		25	-	-	-	42	50	65	42	50	65	-	42	50	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS2B/MH 10A		100	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS2B/MH >10A		50	-	-	-	-	80	150	-	80	150	-	-	80	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Record Plus™																													
FD63/160C		18	-	22	25	30	36	42	30	36	42	22	30	36	42	30	36	42	30	36	42	-	-	-	-	-	-	-	-
FD63/160E		25	-	-	30	36	42	50	36	42	50	-	36	42	50	36	42	50	36	42	50	-	-	-	-	-	-	-	-
FD63/160S		36	-	-	-	42	50	65	42	50	65	-	42	50	65	42	50	65	42	50	65	-	-	-	-	-	-	-	-
FD63/160N		50	-	-	-	-	80	150	-	80	150	-	-	80	150	-	80	150	-	80	150	-	80	100	-	80	100	-	80
FD63/160H		80	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	150	-	-	150	-	-	100	-	-	100	-	-
FE160N		50	-	-	-	-	-	-	-	80	150	-	-	80	150	-	80	150	-	80	150	-	80	100	-	80	100	-	80
FE160H		80	-	-	-	-	-	-	-	-	150	-	-	-	150	-	-	150	-	-	150	-	-	100	-	-	100	-	-
FE250N		50	-	-	-	-	-	-	-	-	-	-	-	80	150	-	80	150	-	80	150	-	80	100	-	80	100	-	80
FE250H		80	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-	150	-	-	150	-	-	100	-	-	100	-	-
FG400N		50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	150	-	80	150	-	80	100	-	80	100	-	80
FG400H		80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-	150	-	-	100	-	-	100	-	-
FG630N		50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	150	-	80	100	-	80	100	-	80
FG630H		80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-	100	-	-	100	-	-
FK800N		50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	100	-	80	100	-	80
FK800H		80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	100	-	-
FK1250N		50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	100	-	80	100	-	80
FK1250H		80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	100	-	-

Selectivity

Record Plus™ MCCB's

	Upstream	MCCB's Record Plus™																	
		FDC & FDE 63/160 LTM						FDS 63/160 LTMD						FDN, H & L 63/160 LTMD					
Downstream	In (A)	40	50	63	80	100	125	40	50	63	80	100	125	40	50	63	80	100	125
		Selectivity limit (kA) ⁽¹⁾																	
Redline EPC45 B/C curve	≤16	0.6	2.5	T	T	T	T		T	T	T	T	T		T	T	T	T	T
	20	0.6	2.5	3	T	T	T	3.5	T	T	T	T	T	3.5	T	T	T	T	T
	25	-	0.8	1.2	T	T	T	1.6	3.5	T	T	T	T	1.6	3.5	T	T	T	T
	32	-	-	1.2	3	T	T	-	-	T	T	T	T	-	-	T	T	T	T
Redline EPC60 & DME60 B/C curve	40	-	-	-	3	4	T	-	-	-	T	T	T	-	-	-	T	T	T
	≥16	0.6	2.5	6	6	T	T		T	T	T	T	T		T	T	T	T	T
	20	0.6	2.5	3	6	T	T	3.5	T	T	T	T	T	3.5	T	T	T	T	T
	25	-	0.8	1.2	6	6	T	1.6	3.5	T	T	T	T	1.6	3.5	T	T	T	T
Redline DM60 DME100 B/C curve	32	-	-	1.2	3	6	T	-	-	T	T	T	T	-	-	T	T	T	T
	40	-	-	-	3	4	6	-	-	-	T	T	T	-	-	-	T	T	T
	50	-	-	-	-	4	6	-	-	-	T	T	T	-	-	-	T	T	T
	63	-	-	-	1.2	1.5	6	-	-	-	3.5	T	T	-	-	-	3.5	T	T
Redline G60 EPC 101N DM100 B/C curve	≤16	0.6	2.5	6	6	10	T	10	10	T	T	T	T	10	10	T	T	T	T
	20	0.6	2.5	3	6	8	T	3.5	10	T	T	T	T	3.5	10	T	T	T	T
	25	-	0.8	1.2	6	6	T	1.6	3.5	T	T	T	T	1.6	3.5	T	T	T	T
	32	-	-	1.2	3	6	8	-	-	10	10	T	T	-	-	10	10	T	T
Redline G100 GT25 B/C curve	40	-	-	-	3	4	6	-	-	-	10	15	T	-	-	-	10	15	T
	50	-	-	-	1.2	1.5	6	-	-	-	3.5	10	T	-	-	-	3.5	10	T
	63	-	-	-	-	1.5	2	-	-	-	-	8	T	-	-	-	-	8	T
	100	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	15
Hti C curve S90 C curve	≤25	-	0.8	0.9	1.2	1.5	1.9	-	1	1.2	15	15	15	-	1	1.2	15	15	15
	32	-	-	0.9	1.2	1.5	1.9	-	-	1.2	15	15	15	-	-	1.2	15	15	15
	40	-	-	-	1.2	1.5	1.9	-	-	-	15	15	15	-	-	-	15	15	15
	50	-	-	-	1.2	1.5	1.9	-	-	-	15	15	15	-	-	-	15	15	15
Surion GPS1BS & GPS1MS GPS2BS & GPS2MS	63	-	-	-	-	1.5	1.9	-	-	-	-	15	15	-	-	-	-	15	15
	80	-	-	-	-	-	1.9	-	-	-	-	-	15	-	-	-	-	-	15
	100	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	15
	≤20	0.6	2.5	6	6	10	T	10	10	T	T	T	T	10	10	T	T	T	T
Surion GPS1BH & GPS1MH GPS2BH & GPS2MH	25	-	1	1.2	6	6	T	-	3.5	15	15	T	T	-	3.5	15	15	T	T
	32	-	-	1.2	3	6	10	-	6	6	T	T	T	-	-	6	6	T	T
	40	-	-	-	3	4	6	-	-	-	6	T	T	-	-	-	6	T	T
	50	-	-	-	1.2	1.6	6	-	-	-	3.5	T	T	-	-	-	3.5	T	T
Record Plus™ FD63/160E LTM	63	-	-	-	-	1.6	2	-	-	-	-	8	T	-	-	-	-	8	T
	≤20	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
	25	-	2.5	15	15	T	T	-	3.5	T	T	T	T	-	3.5	T	T	T	T
	32	-	-	6	6	8	T	-	-	T	T	T	T	-	-	T	T	T	T
	40	-	-	-	6	8	T	-	-	T	T	T	T	-	-	T	T	T	T
	50	-	-	-	-	6	T	-	-	-	3.5	T	T	-	-	-	3.5	T	T
	63	-	-	-	-	-	T	-	-	-	-	8	T	-	-	-	-	8	T
	≤25	0.4	0.5	0.6	0.8	1	1.3	0.6	0.8	0.9	1.2	1.5	3.5	0.6	0.8	0.9	1.2	1.5	3.5
	32	-	0.5	0.6	0.8	1	1.3	-	0.8	0.9	1.2	1.5	3.5	-	0.8	0.9	1.2	1.5	3.5
	40	-	-	-	0.8	1	1.3	-	-	-	1.2	1.5	3.5	-	-	-	1.2	1.5	3.5
	50	-	-	-	0.8	1	1.3	-	-	-	1.2	1.5	3.5	-	-	-	1.2	1.5	3.5
	63	-	-	-	-	1	1.3	-	-	-	-	1.5	3.5	-	-	-	-	1.5	3.5
	80	-	-	-	-	-	1.3	-	-	-	-	-	3.5	-	-	-	-	-	3.5

(1) T = Full selectivity until the Icu of the downstream device.

Remark: For MCCB's with D curve assume a C curve type with a one step higher rating.

Example: Selectivity FD160 80Amp LTM with downstream C curve 40A MCCB = 3kA, for D curve 40A, take the value mentioned for 50A C curve, here 1.2kA.

X



Miniature Circuit Breakers

G30

EN/IEC 60898-1	3000
	3
EN/IEC 60947-2	5kA

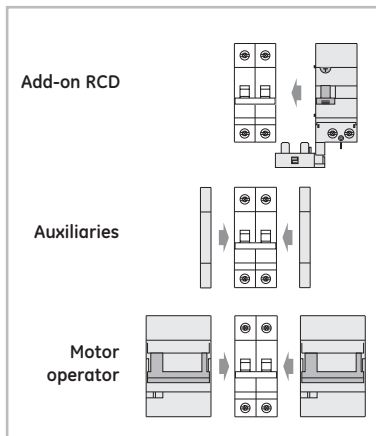
Applications



Approval / Marking



Add-on devices



- Add-on RCD ● pg B.16
- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel board switch ● pg C.8

- Accessories ● pg A.50
- Busbars ● pg E.2
- More technical data ● website
- Dimensions ● pg A.80

Performances

Thermal setting In	(A)	2-40
Rated voltage AC Un	(V)	240/415
Minimum operating voltage $U_{8\ min}$	(V)	12
Tripping characteristics		B-C
Selectivity class		3
Mechanical/electrical endurance		20000/10000
Tropicalisation acc.to EN/IEC 60068-2		95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²)	25-35
Poles		1, 2, 3, 4
Weight	(g/pole)	120

Short-circuit capacity

Acc. to EN/IEC 60898-1

Poles	V	I_{cn}/I_{cs} (kA)
1-4	230/400	3

Acc. to EN/IEC 60947-2

Poles	V	I_{cu} (kA)
1	240	5
2	127	-
	240	10
	415	5
3, 4	240	10
	415	5

Series G30 - 3kA - characteristics B-C



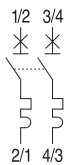
1P
1 mod.



In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
2	-	-	G31C02	674381	12
4	-	-	G31C04	674383	12
6	G31B06	674443	G31C06	674384	12
10	G31B10	674445	G31C10	674386	12
16	G31B16	674447	G31C16	674388	12
20	G31B20	674448	G31C20	674389	12
25	G31B25	674449	G31C25	674390	12
32	G31B32	674450	G31C32	674391	12
40	G31B40	674451	G31C40	674392	12



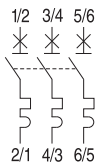
2P
2 mod.



2	-	-	G32C02	674397	6
4	-	-	G32C04	674399	6
6	G32B06	674454	G32C06	674400	6
10	G32B10	674456	G32C10	674402	6
16	G32B16	674458	G32C16	674404	6
20	G32B20	674459	G32C20	674405	6
25	G32B25	674460	G32C25	674406	6
32	G32B32	674461	G32C32	674407	6
40	G32B40	674462	G32C40	674408	6



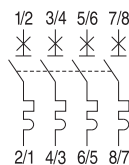
3P
3 mod.



2	-	-	G33C02	674413	4
4	-	-	G33C04	674415	4
6	G33B06	674466	G33C06	674416	4
10	G33B10	674468	G33C10	674418	4
16	G33B16	674470	G33C16	674420	4
20	G33B20	674471	G33C20	674421	4
25	G33B25	674472	G33C25	674422	4
32	G33B32	674473	G33C32	674423	4
40	G33B40	674474	G33C40	674424	4



4P
4 mod.



2	-	-	G34C02	674429	3
4	-	-	G34C04	674431	3
6	G34B06	674477	G34C06	674432	3
10	G34B10	674479	G34C10	674434	3
16	G34B16	674481	G34C16	674436	3
20	G34B20	674482	G34C20	674437	3
25	G34B25	674483	G34C25	674438	3
32	G34B32	674484	G34C32	674439	3
40	G34B40	674485	G34C40	674440	3

Series G30

A

B

C

D

E

F

G

X



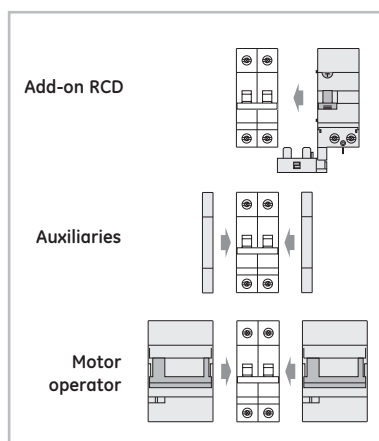
Applications



Approval / Marking



Add-on devices



- Add-on RCD ● pg B.16
- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel board switch ● pg C.8

- Accessories ● pg A.50
- Busbars ● pg E.2
- More technical data ● website
- Dimensions ● pg A.80

Miniature Circuit Breakers

G45

EN/IEC 60898-1	4500
	3
EN/IEC 60947-2	6kA

Performances

Thermal setting In	(A)	2-40
Rated voltage AC Un	(V)	240/415
Minimum operating voltage $U_{8 min}$	(V)	12
Tripping characteristics		B-C
Selectivity class		3
Mechanical/electrical endurance		20000/10000
Tropicalisation acc.to EN/IEC 60068-2		95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²)	25-35
Poles		1, 2, 3, 4
Weight	(g/pole)	120

Short-circuit capacity

Acc. to EN/IEC 60898-1

Poles	V	I_{cn}/I_{cs} (kA)
1-4	230/400	4.5

Acc. to EN/IEC 60947-2

Poles	V	I_{cu} (kA)
1	240	6
2	127	15
	240	10
	415	6
3, 4	240	10
	415	6

Compact MCB's 4,5 kA, see page A.60

Series G45 - 4.5kA - characteristics B-C



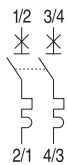
1P
1 mod.



In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
2	-	-	G41C02	674490	12
4	-	-	G41C04	674492	12
6	G41B06	674552	G41C06	674493	12
10	G41B10	674554	G41C10	674495	12
16	G41B16	674556	G41C16	674497	12
20	G41B20	674557	G41C20	674498	12
25	G41B25	674558	G41C25	674499	12
32	G41B32	674559	G41C32	674500	12
40	G41B40	674560	G41C40	674501	12



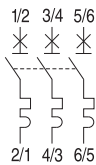
2P
2 mod.



2	-	-	G42C02	674506	6
4	-	-	G42C04	674508	6
6	G42B06	674563	G42C06	674509	6
10	G42B10	674565	G42C10	674511	6
16	G42B16	674567	G42C16	674513	6
20	G42B20	674568	G42C20	674514	6
25	G42B25	674569	G42C25	674515	6
32	G42B32	674570	G42C32	674516	6
40	G42B40	674571	G42C40	674517	6



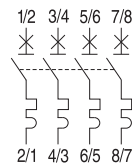
3P
3 mod.



2	-	-	G43C02	674522	4
4	-	-	G43C04	674524	4
6	G43B06	674574	G43C06	674525	4
10	G43B10	674576	G43C10	674527	4
16	G43B16	674578	G43C16	674529	4
20	G43B20	674579	G43C20	674530	4
25	G43B25	674580	G43C25	674531	4
32	G43B32	674581	G43C32	674532	4
40	G43B40	674582	G43C40	674533	4



4P
4 mod.



2	-	-	G44C02	674538	3
4	-	-	G44C04	674540	3
6	G44B06	674585	G44C06	674541	3
10	G44B10	674587	G44C10	674543	3
16	G44B16	674589	G44C16	674545	3
20	G44B20	674590	G44C20	674546	3
25	G44B25	674591	G44C25	674547	3
32	G44B32	674592	G44C32	674548	3
40	G44B40	674593	G44C40	674549	3

Series G45

A

B

C

D

E

F

G

X



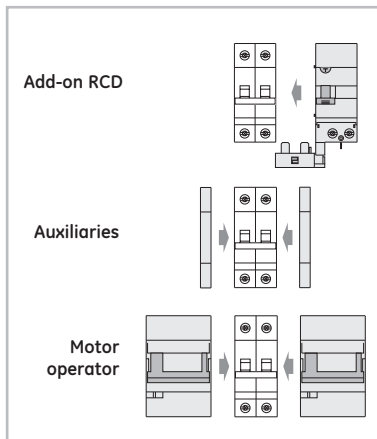
Applications



Approval / Marking



Add-on devices



- Add-on RCD ● pg B.16
- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel board switch ● pg C.8

- Accessories ● pg A.50
- Busbars ● pg E.2
- More technical data ● website
- Dimensions ● pg A.80

Miniature Circuit Breakers

G60

EN/IEC 60898-1	6000
	3
EN/IEC 60947-2	10kA

Special executions G60S for Shipping application in separate document.

Performances

Thermal setting In	(A)	2-63
Rated voltage AC Un	(V)	240/415
Minimum operating voltage $U_{8 min}$	(V)	12
Tripping characteristics		B-C-D
Selectivity class		3
Mechanical/electrical endurance		20000/10000
Tropicalisation acc.to EN/IEC 60068-2		95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²)	25-35
Poles		1, 1+N, 2, 3, 4
Weight	(g/pole)	120

Short-circuit capacity

AC acc. to EN/IEC 60898-1

Poles	V	I_{cn}/I_{cs} (kA)
1-4	230/400	6

AC acc. to EN/IEC 60947-2

Poles	V	I_{cu} (kA) ⁽¹⁾
1	240	10
1+N, 2	127	30
	240	20
2	415	10
3, 4	240	20
	415	10

DC acc. to EN/IEC 60947-2

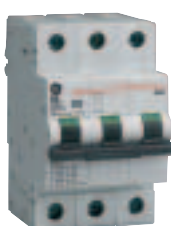
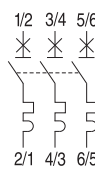
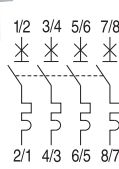
Poles	V_{DC} ⁽²⁾	I_{cu}/I_{cs} (kA)
1	60	20
2	125	25

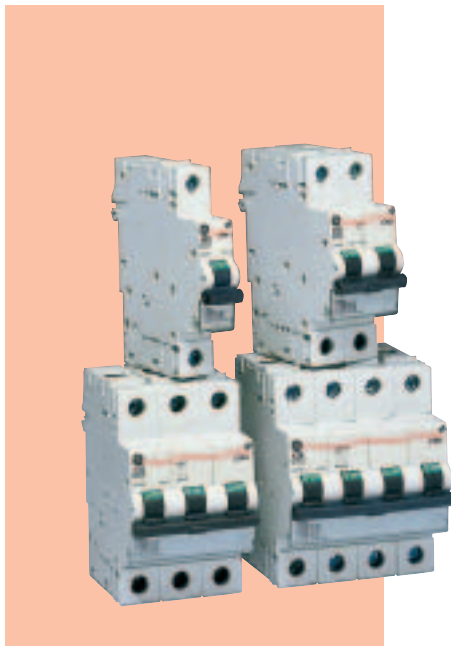
(1) $I_{cs} = 75\% I_{cu}$

(2) Nominal and Maximum VDC on page A.4-A.5

Compact MCB's 6 kA, see page A.66
Screwless MCB's 6 kA, see page A.76

Series G60 - 6kA - characteristics B-C-D

	In (A)	B		C		D		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
 1P 1 mod. 	2	-	-	G61C02	674598	G61D02	674760	12
	4	-	-	G61C04	674600	G61D04	674762	12
	6	G61B06	674692	G61C06	674601	G61D06	674763	12
	10	G61B10	674694	G61C10	674603	G61D10	674765	12
	16	G61B16	674696	G61C16	674605	G61D16	674767	12
	20	G61B20	674697	G61C20	674606	G61D20	674768	12
	25	G61B25	674698	G61C25	674607	G61D25	674769	12
	32	G61B32	674699	G61C32	674608	G61D32	674770	12
	40	G61B40	674700	G61C40	674609	G61D40	674771	12
	50	G61B50	674701	G61C50	674610	G61D50	674772	12
	63	G61B63	674702	G61C63	674611	G61D63	674773	12
 1P+N 2 mod. 	2	-	-	G61NC02	674614	G61ND02	674776	6
	4	-	-	G61NC04	674616	G61ND04	674778	6
	6	G61NB06	674703	G61NC06	674617	G61ND06	674779	6
	10	G61NB10	674705	G61NC10	674619	G61ND10	674781	6
	16	G61NB16	674707	G61NC16	674621	G61ND16	674783	6
	20	G61NB20	674708	G61NC20	674622	G61ND20	674784	6
	25	G61NB25	674709	G61NC25	674623	G61ND25	674785	6
	32	G61NB32	674710	G61NC32	674624	G61ND32	674786	6
	40	G61NB40	674711	G61NC40	674625	G61ND40	674787	6
	50	G61NB50	674712	G61NC50	674626	G61ND50	674788	6
	63	G61NB63	674713	G61NC63	674627	G61ND63	674789	6
 2P 2 mod. 	2	-	-	G62C02	674630	G62D02	674792	6
	4	-	-	G62C04	674632	G62D04	674794	6
	6	G62B06	674714	G62C06	674633	G62D06	674795	6
	10	G62B10	674716	G62C10	674635	G62D10	674797	6
	16	G62B16	674718	G62C16	674637	G62D16	674799	6
	20	G62B20	674719	G62C20	674638	G62D20	674800	6
	25	G62B25	674720	G62C25	674639	G62D25	674801	6
	32	G62B32	674721	G62C32	674640	G62D32	674802	6
	40	G62B40	674722	G62C40	674641	G62D40	674803	6
	50	G62B50	674723	G62C50	674642	G62D50	674804	6
	63	G62B63	674724	G62C63	674643	G62D63	674805	6
 3P 3 mod. 	2	-	-	G63C02	674646	G63D02	674808	4
	4	-	-	G63C04	674648	G63D04	674810	4
	6	G63B06	674725	G63C06	674649	G63D06	674811	4
	10	G63B10	674727	G63C10	674651	G63D10	674813	4
	16	G63B16	674729	G63C16	674653	G63D16	674815	4
	20	G63B20	674730	G63C20	674654	G63D20	674816	4
	25	G63B25	674731	G63C25	674655	G63D25	674817	4
	32	G63B32	674732	G63C32	674656	G63D32	674818	4
	40	G63B40	674733	G63C40	674657	G63D40	674819	4
	50	G63B50	674734	G63C50	674658	G63D50	674820	4
	63	G63B63	674735	G63C63	674659	G63D63	674821	4
 4P 4 mod. 	0.5	-	-	G64C0.5	674660			3
	2	-	-	G64C02	674662	G64D02	674824	3
	4	-	-	G64C04	674664	G64D04	674826	3
	6	G64B06	674736	G64C06	674665	G64D06	674827	3
	10	G64B10	674738	G64C10	674667	G64D10	674829	3
	16	G64B16	674740	G64C16	674669	G64D16	674831	3
	20	G64B20	674741	G64C20	674670	G64D20	674832	3
	25	G64B25	674742	G64C25	674671	G64D25	674833	3
	32	G64B32	674743	G64C32	674672	G64D32	674834	3
	40	G64B40	674744	G64C40	674673	G64D40	674835	3
	50	G64B50	674745	G64C50	674674	G64D50	674836	3
	63	G64B63	674746	G64C63	674675	G64D63	674837	3



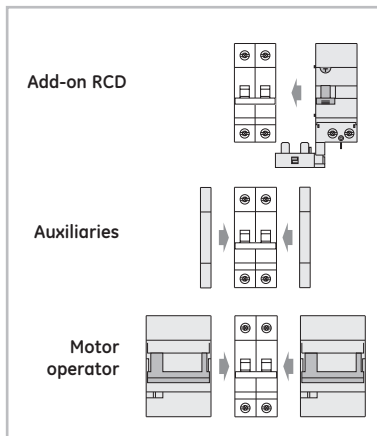
Applications



Approval / Marking



Add-on devices



- Add-on RCD ● pg B.16
- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel board switch ● pg C.8

- Accessories ● pg A.50
- Busbars ● pg E.2
- More technical data ● website
- Dimensions ● pg A.80

Miniature Circuit Breakers

EP60

EN/IEC 60898-1 6000

EN/IEC 60947-2 10kA

Performances

Thermal setting I_n	(A) 2-63
Rated voltage AC U_n	(V) 240/415
Minimum operating voltage $U_{8\ min}$	(V) 12
Tripping characteristics	8-12 I_n (K) and 6 I_n non tripping ≤ 2 sec.
Mechanical/electrical endurance	20000/10000
Tropicalisation acc.to EN/IEC 60068-2	95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²) 25-35
Poles	1, 2, 3, 4
Weight	(g/pole) 120

Short-circuit capacity

AC acc. to EN/IEC 60947-2

Poles	V	I_{cu} (kA) ⁽¹⁾
1	240	10
1+N, 2	127	30
	240	20
2	415	10
3, 4	240	20
	415	10

DC acc. to EN/IEC 60947-2

Poles	V_{DC} ⁽²⁾	I_{cu}/I_{cs} (kA)
1	60	20
2	125	25

(1) $I_{cs} = 75\% I_{cu}$

(2) Nominal and Maximum VDC on page A.4-A.5

Series EP60 - 6kA - characteristics K



1P
1 mod.



In (A)	K		Pack.
	Cat. No.	Ref. No.	
0.5	EP61K0.5	681600	12
1	EP61K01	681601	12
1.6	EP61K1.6	681602	12
2	EP61K02	681603	12
3	EP61K03	681604	12
4	EP61K04	681605	12
6	EP61K06	681606	12
8	EP61K08	681607	12
10	EP61K10	681608	12
16	EP61K16	681609	12
20	EP61K20	681610	12
25	EP61K25	681611	12
32	EP61K32	681612	12
40	EP61K40	681613	12
50	EP61K50	681614	12
63	EP61K63	681615	12



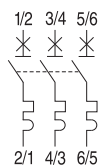
2P
2 mod.



0.5	EP62K0.5	681616	6
1	EP62K01	681617	6
1.6	EP62K1.6	681618	6
2	EP62K02	681619	6
3	EP62K03	681620	6
4	EP62K04	681621	6
6	EP62K06	681622	6
8	EP62K08	681623	6
10	EP62K10	681624	6
16	EP62K16	681625	6
20	EP62K20	681626	6
25	EP62K25	681627	6
32	EP62K32	681628	6
40	EP62K40	681629	6
50	EP62K50	681630	6
63	EP62K63	681631	6



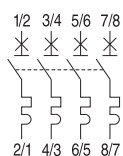
3P
3 mod.



0.5	EP63K0.5	681632	4
1	EP63K01	681633	4
1.6	EP63K1.6	681634	4
2	EP63K02	681635	4
3	EP63K03	681636	4
4	EP63K04	681637	4
6	EP63K06	681638	4
8	EP63K08	681639	4
10	EP63K10	681640	4
16	EP63K16	681641	4
20	EP63K20	681642	4
25	EP63K25	681643	4
32	EP63K32	681644	4
40	EP63K40	681645	4
50	EP63K50	681646	4
63	EP63K63	681647	4



4P
4 mod.



0.5	EP64K0.5	681648	3
1	EP64K01	681649	3
1.6	EP64K1.6	681650	3
2	EP64K02	681651	3
3	EP64K03	681652	3
4	EP64K04	681653	3
6	EP64K06	681654	3
8	EP64K08	681655	3
10	EP64K10	681656	3
16	EP64K16	681657	3
20	EP64K20	681658	3
25	EP64K25	681659	3
32	EP64K32	681660	3
40	EP64K40	681661	3
50	EP64K50	681662	3
63	EP64K63	681663	3

Series EP60

A

B

C

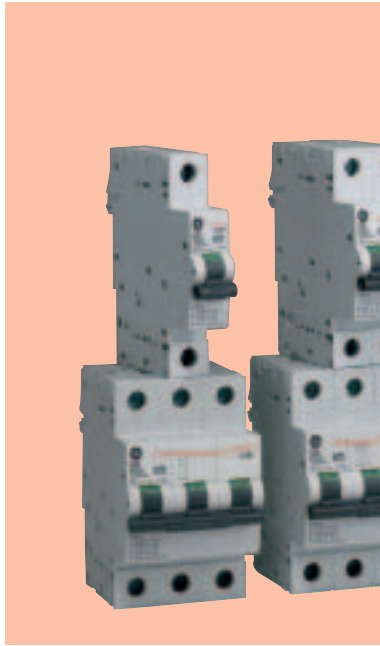
D

E

F

G

X



Miniature Circuit Breakers

G100

EN/IEC 60898-1	10000
	3
EN/IEC 60947-2	15kA

Special executions G100S for Shipping application and EP100R for Railways application in separate document.

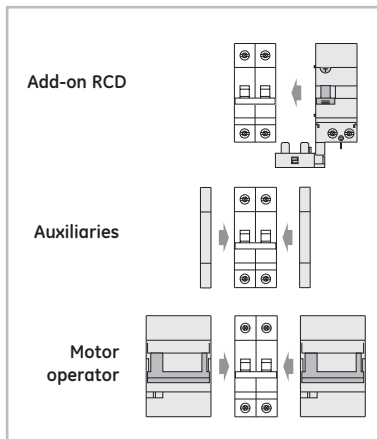
Applications



Approval / Marking



Add-on devices



- Add-on RCD ● pg B.16
- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel board switch ● pg C.8

- Accessories ● pg A.50
- Busbars ● pg E.2
- More technical data ● website
- Dimensions ● pg A.80

Performances

Thermal setting I_n	(A)	0.5-63
Rated voltage AC U_n	(V)	240/415
Minimum operating voltage $U_{8\ min}$	(V)	12
Tripping characteristics		B-C-D
Selectivity class		3
Mechanical/electrical endurance		20000/10000
Tropicalisation acc.to EN/IEC 60068-2		95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²)	25-35
Poles		1, 1+N, 2, 3, 4
Weight	(g/pole)	120

Short-circuit capacity

AC acc. to EN/IEC 60898-1

Poles	V	I_{cn} (kA) ⁽¹⁾
1-4	230/400	10

AC acc. to EN/IEC 60947-2

Poles	V	I_{cu} (kA) ⁽²⁾
1	240	15
1+N, 2	127	40
	240	30
2	415	15
3, 4	240	30
	415	15

DC acc. to EN/IEC 60947-2

Poles	V _{DC} ⁽³⁾	I_{cu}/I_{cs} (kA)
1	60	25
2	125	30

(1) $I_{cs} = 75\% I_{cu}$

(2) $I_{cs} = 50\% I_{cu}$

(3) Nominal and Maximum VDC on page A.4-A.5

Screwless MCB's 10 kA, see page A.78

Series G100 - 10kA - characteristics B-C-D



1P
1 mod.



In (A)	B		C		D		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	G101C0.5	674854	G101D0.5	675016	12
1	-	-	G101C01	674855	G101D01	675017	12
2	-	-	G101C02	674856	G101D02	675018	12
3	-	-	G101C03	674857	G101D03	675019	12
4	-	-	G101C04	674858	G101D04	675020	12
6	G101B06	674950	G101C06	674859	G101D06	675021	12
10	G101B10	674952	G101C10	674861	G101D10	675023	12
13	G101B13	674953	G101C13	674862	G101D13	675024	12
16	G101B16	674954	G101C16	674863	G101D16	675025	12
20	G101B20	674955	G101C20	674864	G101D20	675026	12
25	G101B25	674956	G101C25	674865	G101D25	675027	12
32	G101B32	674957	G101C32	674866	G101D32	675028	12
40	G101B40	674958	G101C40	674867	G101D40	675029	12
50	G101B50	674959	G101C50	674868	G101D50	675030	12
63	G101B63	674960	G101C63	674869	G101D63	675031	12



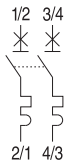
1P+N
2 mod.



In (A)	B		C		D		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	-	-	G101ND0.5	675032	6
1	-	-	-	-	G101ND01	675033	6
2	-	-	G101NC02	674872	G101ND02	675034	6
3	-	-	G101NC03	674873	G101ND03	675035	6
4	-	-	G101NC04	674874	G101ND04	675036	6
6	G101NB06	674961	G101NC06	674875	G101ND06	675037	6
10	G101NB10	674963	G101NC10	674877	G101ND10	675039	6
13	G101NB13	674964	G101NC13	674878	G101ND13	675040	6
16	G101NB16	674965	G101NC16	674879	G101ND16	675041	6
20	G101NB20	674966	G101NC20	674880	G101ND20	675042	6
25	G101NB25	674967	G101NC25	674881	G101ND25	675043	6
32	G101NB32	674968	G101NC32	674882	G101ND32	675044	6
40	G101NB40	674969	G101NC40	674883	G101ND40	675045	6
50	G101NB50	674970	G101NC50	674884	G101ND50	675046	6
63	G101NB63	674971	G101NC63	674885	G101ND63	675047	6



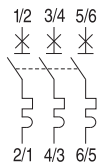
2P
2 mod.



In (A)	B		C		D		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	G102C0.5	674886	G102D0.5	675048	6
1	-	-	G102C01	674887	G102D01	675049	6
2	-	-	G102C02	674888	G102D02	675050	6
3	-	-	G102C03	674889	G102D03	675051	6
4	-	-	G102C04	674890	G102D04	675052	6
6	G102B06	674972	G102C06	674891	G102D06	675053	6
10	G102B10	674974	G102C10	674893	G102D10	675055	6
13	G102B13	674975	G102C13	674894	G102D13	675056	6
16	G102B16	674976	G102C16	674895	G102D16	675057	6
20	G102B20	674977	G102C20	674896	G102D20	675058	6
25	G102B25	674978	G102C25	674897	G102D25	675059	6
32	G102B32	674979	G102C32	674898	G102D32	675060	6
40	G102B40	674980	G102C40	674899	G102D40	675061	6
50	G102B50	674981	G102C50	674900	G102D50	675062	6
63	G102B63	674982	G102C63	674901	G102D63	675063	6



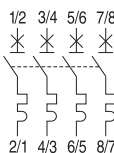
3P
3 mod.



In (A)	B		C		D		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	G103C0.5	674902	G103D0.5	675064	4
1	-	-	G103C01	674903	G103D01	675065	4
2	-	-	G103C02	674904	G103D02	675066	4
3	-	-	G103C03	674905	G103D03	675067	4
4	-	-	G103C04	674906	G103D04	675068	4
6	G103B06	674983	G103C06	674907	G103D06	675069	4
10	G103B10	674985	G103C10	674909	G103D10	675071	4
13	G103B13	674986	G103C13	674910	G103D13	675072	4
16	G103B16	674987	G103C16	674911	G103D16	675073	4
20	G103B20	674988	G103C20	674912	G103D20	675074	4
25	G103B25	674989	G103C25	674913	G103D25	675075	4
32	G103B32	674990	G103C32	674914	G103D32	675076	4
40	G103B40	674991	G103C40	674915	G103D40	675077	4
50	G103B50	674992	G103C50	674916	G103D50	675078	4
63	G103B63	674993	G103C63	674917	G103D63	675079	4



4P
4 mod.



In (A)	B		C		D		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	G104C0.5	674918	G104D0.5	675080	3
1	-	-	G104C01	674919	G104D01	675081	3
2	-	-	G104C02	674920	G104D02	675082	3
3	-	-	G104C03	674921	G104D03	675083	3
4	-	-	G104C04	674922	G104D04	675084	3
6	G104B06	674994	G104C06	674923	G104D06	675085	3
10	G104B10	674996	G104C10	674925	G104D10	675087	3
13	G104B13	674997	G104C13	674926	G104D13	675088	3
16	G104B16	674998	G104C16	674927	G104D16	675089	3
20	G104B20	674999	G104C20	674928	G104D20	675090	3
25	G104B25	675000	G104C25	674929	G104D25	675091	3
32	G104B32	675001	G104C32	674930	G104D32	675092	3
40	G104B40	675002	G104C40	674931	G104D40	675093	3
50	G104B50	675003	G104C50	674932	G104D50	675094	3
63	G104B63	675004	G104C63	674933	G104D63	675095	3

Series G100

A

B

C

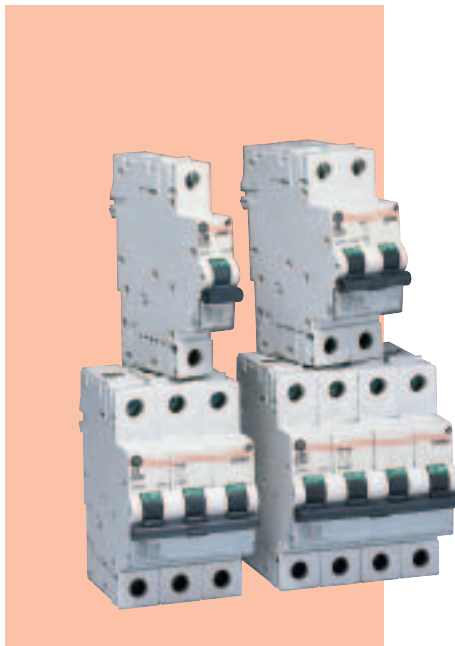
D

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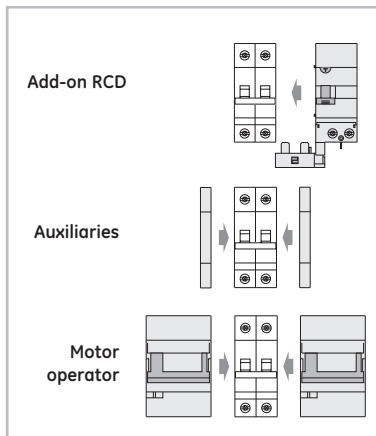
Applications



Approval / Marking



Add-on devices



- Add-on RCD ● pg B.16
- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel board switch ● pg C.8

- Accessories ● pg A.50
- Busbars ● pg E.2
- More technical data ● website
- Dimensions ● pg A.80

Miniature Circuit Breakers

EP100

EN/IEC 60898-1 10000

EN/IEC 60947-2 15kA

Performances

Thermal setting I_n	(A) 0.5-63
Rated voltage AC U_n	(V) 240/415
Minimum operating voltage $U_{8\ min}$	(V) 12
Tripping characteristics	8-12 I_n (K) and 6 I_n non tripping ≤ 2 sec.
Mechanical/electrical endurance	20000/10000
Tropicalisation acc.to EN/IEC 60068-2	95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²) 25-35
Poles	1, 2, 3, 4
Weight	(g/pole) 120

Short-circuit capacity

AC acc. to EN/IEC 60947-2

Poles	V	I_{cu} (kA) ⁽¹⁾
1	240	15
1+N, 2	127	40
	240	30
2	415	15
3, 4	240	30
	415	15

DC acc. to EN/IEC 60947-2

Poles	V_{DC} ⁽²⁾	I_{cu}/I_{cs} (kA)
1	60	25
2	125	30

(1) $I_{cs} = 50\% I_{cu}$

(2) Nominal and Maximum VDC on page A.4-A.5

Series EP100 - 10kA - characteristics K

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Series EP100

A

B

C

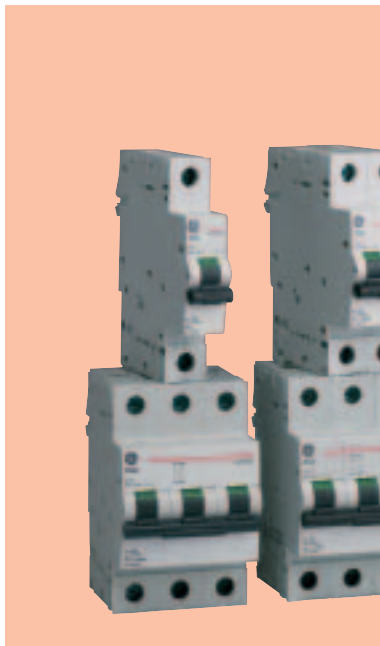
D

E

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X



Miniature Circuit Breakers

GT10

EN/IEC 60947-2

10kA

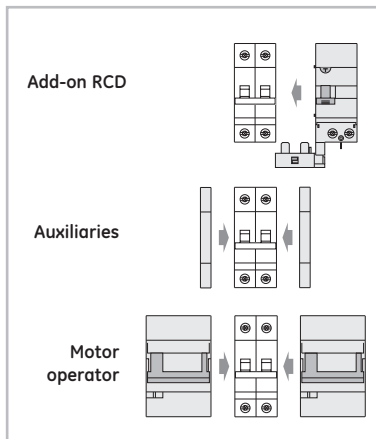
Applications



Marking



Add-on devices



- Add-on RCD ● pg B.16
- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel board switch ● pg C.8

- Accessories ● pg A.50
- Busbars ● pg E.2
- More technical data ● website
- Dimensions ● pg A.80

Performances

Thermal setting I_n	(A)	0.5-63
Rated voltage AC U_n	(V)	240/415
Minimum operating voltage $U_{8 min}$	(V)	12
Tripping characteristics		3-5In (B) 5-10In (C) 10-20In (D)
Mechanical/electrical endurance		20000/10000
Tropicalisation acc.to EN/IEC 60068-2		95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²)	25-35
Poles		1, 2, 3, 4
Weight	(g/pole)	120

Short-circuit capacity

AC according to EN/IEC 60947-2

Poles	V	I_{cu} (kA) ⁽¹⁾
1	240	10
2	127	30
	240	20
	415	10
3, 4	240	20
	415	10

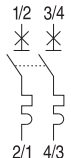
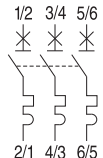
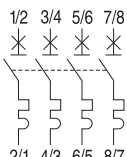
DC according to EN/IEC 60947-2

Poles	V_{DC} ⁽²⁾	I_{cu} (kA)/ I_{cs} (kA)
1	60	20
2	125	25

(1) $I_{cs} = 75\% I_{cu}$

(2) Nominal and Maximum VDC on page A.4-A.5

Series GT10 - 10kA - 3-5In (B), 5-10In (C), 10-20In (D)

	In (A)	3-5In (B)		5-10In (C)		10-20In (D)		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
1P 1 mod.  	0.5	-	-	GT101C0.5	675112	GT101D0.5	675220	12
	1	-	-	GT101C01	675113	GT101D01	675221	12
	2	-	-	GT101C02	675114	GT101D02	675222	12
	3	-	-	GT101C03	675115	GT101D03	675223	12
	4	-	-	GT101C04	675116	GT101D04	675224	12
	6	GT101B06	675176	GT101C06	675117	GT101D06	675225	12
	10	GT101B10	675178	GT101C10	675119	GT101D10	675227	12
	13	GT101B13	675179	GT101C13	675120	GT101D13	675228	12
	16	GT101B16	675180	GT101C16	675121	GT101D16	675229	12
	20	GT101B20	675181	GT101C20	675122	GT101D20	675230	12
	25	GT101B25	675182	GT101C25	675123	GT101D25	675231	12
	32	GT101B32	675183	GT101C32	675124	GT101D32	675232	12
	40	GT101B40	675184	GT101C40	675125	GT101D40	675233	12
	50	GT101B50	675185	GT101C50	675126	GT101D50	675234	12
	63	GT101B63	675186	GT101C63	675127	GT101D63	675235	12
2P 2 mod.  	0.5	-	-	GT102C0.5	675128	GT102D0.5	675236	6
	1	-	-	GT102C01	675129	GT102D01	675237	6
	2	-	-	GT102C02	675130	GT102D02	675238	6
	3	-	-	GT102C03	675131	GT102D03	675239	6
	4	-	-	GT102C04	675132	GT102D04	675240	6
	6	GT102B06	675187	GT102C06	675133	GT102D06	675241	6
	10	GT102B10	675189	GT102C10	675135	GT102D10	675243	6
	13	GT102B13	675190	GT102C13	675136	GT102D13	675244	6
	16	GT102B16	675191	GT102C16	675137	GT102D16	675245	6
	20	GT102B20	675192	GT102C20	675138	GT102D20	675246	6
	25	GT102B25	675193	GT102C25	675139	GT102D25	675247	6
	32	GT102B32	675194	GT102C32	675140	GT102D32	675248	6
	40	GT102B40	675195	GT102C40	675141	GT102D40	675249	6
	50	GT102B50	675196	GT102C50	675142	GT102D50	675250	6
	63	GT102B63	675197	GT102C63	675143	GT102D63	675251	6
3P 3 mod.  	0.5	-	-	GT103C0.5	675144	GT103D0.5	675252	4
	1	-	-	GT103C01	675145	GT103D01	675253	4
	2	-	-	GT103C02	675146	GT103D02	675254	4
	3	-	-	GT103C03	675147	GT103D03	675255	4
	4	-	-	GT103C04	675148	GT103D04	675256	4
	6	GT103B06	675198	GT103C06	675149	GT103D06	675257	4
	10	GT103B10	675200	GT103C10	675151	GT103D10	675259	4
	13	GT103B13	675201	GT103C13	675152	GT103D13	675260	4
	16	GT103B16	675202	GT103C16	675153	GT103D16	675261	4
	20	GT103B20	675203	GT103C20	675154	GT103D20	675262	4
	25	GT103B25	675204	GT103C25	675155	GT103D25	675263	4
	32	GT103B32	675205	GT103C32	675156	GT103D32	675264	4
	40	GT103B40	675206	GT103C40	675157	GT103D40	675265	4
	50	GT103B50	675207	GT103C50	675158	GT103D50	675266	4
	63	GT103B63	675208	GT103C63	675159	GT103D63	675267	4
4P 4 mod.  	0.5	-	-	GT104C0.5	675160	GT104D0.5	675268	3
	1	-	-	GT104C01	675161	GT104D01	675269	3
	2	-	-	GT104C02	675162	GT104D02	675270	3
	3	-	-	GT104C03	675163	GT104D03	675271	3
	4	-	-	GT104C04	675164	GT104D04	675272	3
	6	GT104B06	675209	GT104C06	675165	GT104D06	675273	3
	10	GT104B10	675211	GT104C10	675167	GT104D10	675275	3
	13	GT104B13	675212	GT104C13	675168	GT104D13	675276	3
	16	GT104B16	675213	GT104C16	675169	GT104D16	675277	3
	20	GT104B20	675214	GT104C20	675170	GT104D20	675278	3
	25	GT104B25	675215	GT104C25	675171	GT104D25	675279	3
	32	GT104B32	675216	GT104C32	675172	GT104D32	675280	3
	40	GT104B40	675217	GT104C40	675173	GT104D40	675281	3
	50	GT104B50	675218	GT104C50	675174	GT104D50	675282	3
	63	GT104B63	675219	GT104C63	675175	GT104D63	675283	3

Series GT10

A

B

C

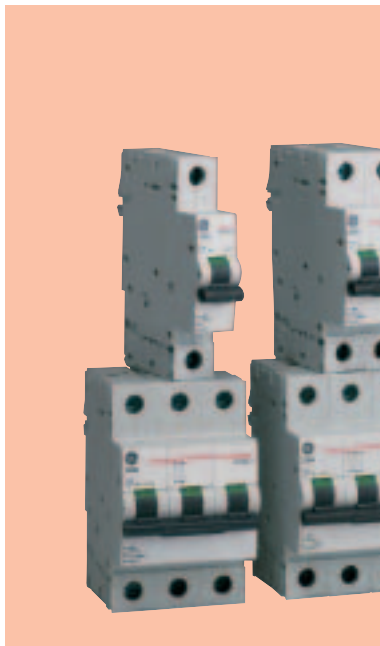
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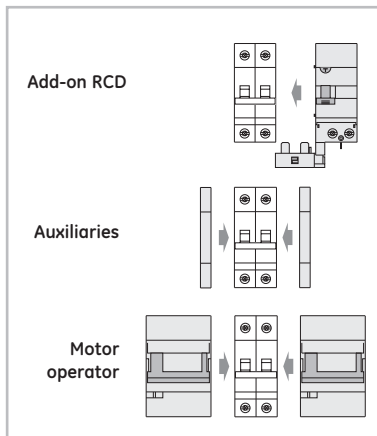
Applications



Marking



Add-on devices



- Add-on RCD ● pg B.16
- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel board switch ● pg C.8

- Accessories ● pg A.50
- Busbars ● pg E.2
- More technical data ● website
- Dimensions ● pg A.80

Miniature Circuit Breakers

GT25

EN/IEC 60947-2	100kA
	25kA
	20kA
	15kA

Performances

Thermal setting I_n	(A) 0.5-63
Rated voltage AC U_n	(V) 240/415
Minimum operating voltage $U_{8 min}$	(V) 12
Tripping characteristics	3-5 I_n (B) 5-10 I_n (C) 10-20 I_n (D)
Mechanical/electrical endurance	20000/10000
Tropicalisation acc.to EN/IEC 60068-2	95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²) 25-35
Poles	1, 2, 3, 4
Weight	(g/pole) 120

Short-circuit capacity

Acc. to EN/IEC 60947-2

I_n (A)	Poles	V	I_{cu} (kA) ⁽¹⁾
0.5-4	1	240	100
	2-4	415	100
6-25	1	240	25
	2-4	240	50
		415	25
32-40	1	240	20
	2-4	240	40
		415	20
50-63	1	240	15
	2-4	240	30
		415	15

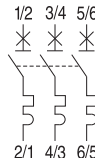
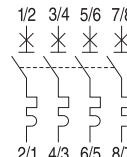
DC acc. to EN/IEC 60947-2

Poles	V_{DC} (2)	I_{cu}/I_{cs} (kA)
1	60	25
2	125	30

(1) $I_{cs} = 50\% I_{cu}$

(2) Nominal and Maximum VDC on page A.4-A.5

Series GT25 - 25kA - 3-5In (B), 5-10In (C), 10-20In (D)

	In (A)	3-5In (B)		5-10In (C)		10-20In (D)		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
1P 1 mod.  	0.5	-	-	GT251C0.5	675284	GT251D0.5	675392	12
	1	-	-	GT251C01	675285	GT251D01	675393	12
	2	-	-	GT251C02	675286	GT251D02	675394	12
	4	-	-	GT251C04	675288	GT251D04	675396	12
	6	GT251B06	675348	GT251C06	675289	GT251D06	675397	12
	10	GT251B10	675350	GT251C10	675291	GT251D10	675399	12
	16	GT251B16	675352	GT251C16	675293	GT251D16	675401	12
	20	GT251B20	675353	GT251C20	675294	GT251D20	675402	12
	25	GT251B25	675354	GT251C25	675295	GT251D25	675403	12
	32	GT251B32	675355	GT251C32	675296	GT251D32	675404	12
	40	GT251B40	675356	GT251C40	675297	GT251D40	675405	12
	50	GT251B50	675357	GT251C50	675298	GT251D50	675406	12
	63	GT251B63	675358	GT251C63	675299	GT251D63	675407	12
2P 2 mod.  	0.5	-	-	GT252C0.5	675300	GT252D0.5	675408	6
	1	-	-	GT252C01	675301	GT252D01	675409	6
	2	-	-	GT252C02	675302	GT252D02	675410	6
	4	-	-	GT252C04	675304	GT252D04	675412	6
	6	GT252B06	675359	GT252C06	675305	GT252D06	675413	6
	10	GT252B10	675361	GT252C10	675307	GT252D10	675415	6
	16	GT252B16	675363	GT252C16	675309	GT252D16	675417	6
	20	GT252B20	675364	GT252C20	675310	GT252D20	675418	6
	25	GT252B25	675365	GT252C25	675311	GT252D25	675419	6
	32	GT252B32	675366	GT252C32	675312	GT252D32	675420	6
	40	GT252B40	675367	GT252C40	675313	GT252D40	675421	6
	50	GT252B50	675368	GT252C50	675314	GT252D50	675422	6
	63	GT252B63	675369	GT252C63	675315	GT252D63	675423	6
3P 3 mod.  	0.5	-	-	GT253C0.5	675316	GT253D0.5	675424	4
	1	-	-	GT253C01	675317	GT253D01	675425	4
	2	-	-	GT253C02	675318	GT253D02	675426	4
	4	-	-	GT253C04	675320	GT253D04	675428	4
	6	GT253B06	675370	GT253C06	675321	GT253D06	675429	4
	10	GT253B10	675372	GT253C10	675323	GT253D10	675431	4
	16	GT253B16	675374	GT253C16	675325	GT253D16	675433	4
	20	GT253B20	675375	GT253C20	675326	GT253D20	675434	4
	25	GT253B25	675376	GT253C25	675327	GT253D25	675435	4
	32	GT253B32	675377	GT253C32	675328	GT253D32	675436	4
	40	GT253B40	675378	GT253C40	675329	GT253D40	675437	4
	50	GT253B50	675379	GT253C50	675330	GT253D50	675438	4
	63	GT253B63	675380	GT253C63	675331	GT253D63	675439	4
4P 4 mod.  	0.5	-	-	GT254C0.5	675332	GT254D0.5	675440	3
	1	-	-	GT254C01	675333	GT254D01	675441	3
	2	-	-	GT254C02	675334	GT254D02	675442	3
	4	-	-	GT254C04	675336	GT254D04	675444	3
	6	GT254B06	675381	GT254C06	675337	GT254D06	675445	3
	10	GT254B10	675383	GT254C10	675339	GT254D10	675447	3
	16	GT254B16	675385	GT254C16	675341	GT254D16	675449	3
	20	GT254B20	675386	GT254C20	675342	GT254D20	675450	3
	25	GT254B25	675387	GT254C25	675343	GT254D25	675451	3
	32	GT254B32	675388	GT254C32	675344	GT254D32	675452	3
	40	GT254B40	675389	GT254C40	675345	GT254D40	675453	3
	50	GT254B50	675390	GT254C50	675346	GT254D50	675454	3
	63	GT254B63	675391	GT254C63	675347	GT254D63	675455	3

Series GT25

A

B

C

D

E

F

G

X



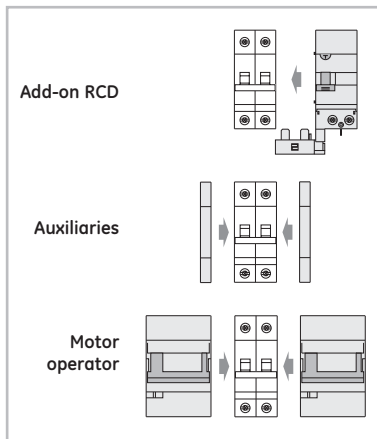
Applications



Standards / Marking

EN/IEC 60898-2, DIN VDE 0641

Add-on devices



- Add-on RCD ● pg B.16
- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel board switch ● pg C.8

- Accessories ● pg A.50
- Busbars ● pg E.2
- More technical data ● website
- Dimensions ● pg A.80

Miniature Circuit Breakers

EP100 UC

EN/IEC 60898-2 6000 T15

DIN VDE 0641

EN/IEC 60947-2 10kA

Performance

Thermal setting In	(A) 0.5 -63
Rated voltage AC Un	(V) 230/400 250/500/880 $\equiv$
Minimum operating voltage U_{Bmin}	(V) 12 12 $\equiv$
Tripping characteristics	B-C
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. to EN/IEC 60068-2	95%RH at 55°C
Terminal capacity flexible/rigid cable (mm ²)	25-35
Poles ⁽¹⁾	1, 2, 4 ⁽²⁾
Weight	(g/pole) 120

Short-circuit capacity

AC/DC acc. to EN/IEC 60898-2⁽⁵⁾

Poles	V	$I_{cn}=I_{cs}$ (kA)
1	125 DC	10
	250 DC	6
	230/400 AC	6
2	250 DC	10
	500 DC	6
	400 AC	6
4	800 DC	6

AC/DC acc. to EN/IEC 60947-2

Poles	V	I_{cu} (kA)
1	220 DC	10 ⁽³⁾
2	440 DC	10 ⁽³⁾
1	230 AC	6 ⁽⁴⁾
2	400 AC	6 ⁽⁴⁾

(1) Polarity labeling to be respected due to the permanent magnet in the MCB

(2) For 4P execution open circuit voltage $U_{CO} = 1000 \equiv$

(3) T = 4ms

(4) 4.5kA for 50A & 63A

(5) After a switching of the net with more than 6kA in AC it should not be used in DC

Series EP100 UC - 10kA - characteristic B-C



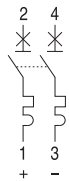
1P
1 mod.



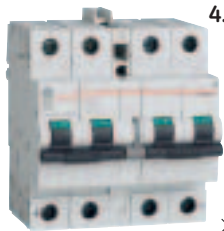
In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	EP101UCC0.5	673301	12
1	-	-	EP101UCC01	673302	12
2	-	-	EP101UCC02	673303	12
4	-	-	EP101UCC04	673305	12
6	EP101UCB06	673333	EP101UCC06	673306	12
10	EP101UCB10	673334	EP101UCC10	673308	12
16	EP101UCB16	673335	EP101UCC16	673310	12
20	EP101UCB20	673336	EP101UCC20	673311	12
25	EP101UCB25	673337	EP101UCC25	673312	12
32	EP101UCB32	673338	EP101UCC32	673313	12
40	EP101UCB40	673339	EP101UCC40	673314	12
50	EP101UCB50	673340	EP101UCC50	673315	12
63	EP101UCB63	673341	EP101UCC63	673316	12



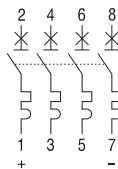
2P
2 mod.



0.5	-	-	EP102UCC0.5	673317	6
1	-	-	EP102UCC01	673318	6
2	-	-	EP102UCC02	673319	6
4	-	-	EP102UCC04	673321	6
6	EP102UCB06	673342	EP102UCC06	673322	6
10	EP102UCB10	673343	EP102UCC10	673324	6
16	EP102UCB16	673344	EP102UCC16	673326	6
20	EP102UCB20	673345	EP121UCC20	673327	6
25	EP102UCB25	673346	EP102UCC25	673328	6
32	EP102UCB32	673347	EP102UCC32	673329	6
40	EP102UCB40	673348	EP102UCC40	673330	6
50	EP102UCB50	673349	EP102UCC50	673331	6
63	EP102UCB63	673350	EP102UCC63	673332	6



4P
4.5 mod. (1)

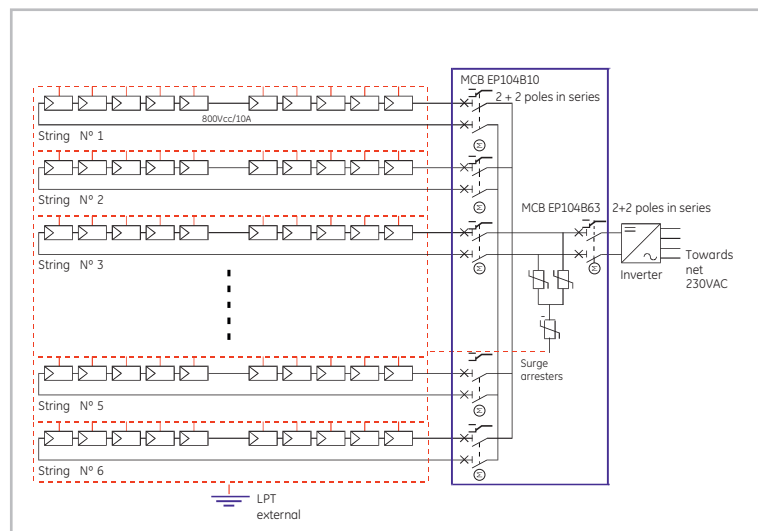
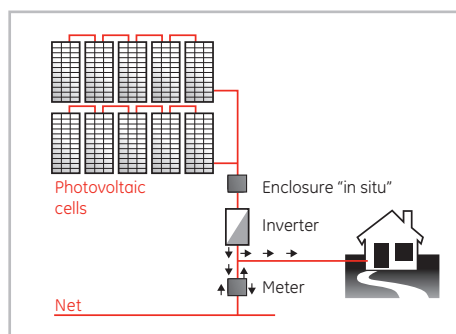


10	EP104 UC B10	690200			3
16	EP104 UC B16	688029			3
20	EP104 UC B20	688026			3
25	EP104 UC B25	691580			3
32	EP104 UC B32	691581			3
40	EP104 UC B40	688027			3
63	EP104 UC B63	688028			3

New

(1) Including auxiliary contact CAH (central half module)
Line to be connected to bottom terminals 1, 7 load to 3, 5.

Example of wiring in Photovoltaic Application



Example of installation in enclosure "in situ"

Series EP100 UC

A

B

C

D

E

F

G

X



Miniature Circuit Breakers

Series Hti

EN/IEC 60947-2 10kA

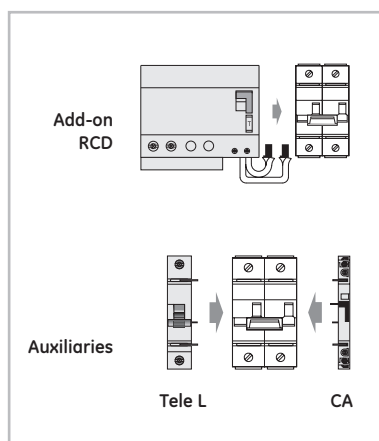
Applications



Standard / Marking

EN/IEC 60947-2 

Add-on devices



Add-on RCD  pg A.34
 Auxiliary contacts  pg A.35
 Shunt trip  pg A.35

More technical data  website
 Dimensions  pg A.81

Performance

Thermal setting In	(A)	80-100-125
Rated voltage AC Un	(V)	230/400
Tripping characteristics		3-5 In (B)
		5-10 In (C)
		10-20 In (D)
Mechanical/electrical endurance		10000/4000
Operating temperature	(°C)	-25°C up to 55°C
Terminal capacity flexible/rigid cable	(mm ²)	70
Poles		1, 2, 3, 4
Weight	(g/pole)	210

Short-circuit capacity

Acc. to EN/IEC 60947-2 (B, C)

Poles	V	Icu (kA) ⁽¹⁾
1	230/400	10 ⁽²⁾
2	230	15 ⁽³⁾
3, 4	230	15 ⁽³⁾
3, 4	400	10 ⁽²⁾

Add-on RCD - technical performances

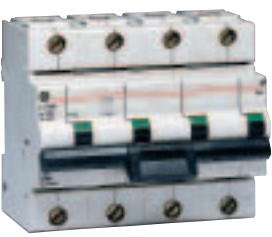
Standard	EN/IEC 60947-2
Nominal current In	(A) 80-125
Residual current IΔn	(mA) 30, 300
Rated voltage AC Un	(V) 2P: 230/400 3P-4P: 400
Resistance against unwanted tripping	Type A, AC: 250A 8/20 μs Type S: 3000A 8/20 μs
Terminal capacity flexible/rigid cable	(mm ²) 70
Poles	2, 3, 4

(1) Only for 3-5 In (B) and 5-10 In (C)

(2) 7.5kA for 10-20 In (D)

(3) 10kA for 10-20 In (D)

Series Hti - 10kA - characteristics B-C-D

	In (A)	3-5 In (B)		5-10 In (C)		10-20 In (D)		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
 1P 1.5 mod.	80	Hti 101 B080	671504	Hti 101 C080	671528	Hti 101 D080	671552	8
	100	Hti 101 B100	671505	Hti 101 C100	671529	Hti 101 D100	671553	1
	125	Hti 101 B125	671506	Hti 101 C125	671530	Hti 101 D125	671554	1
 2P 3 mod.	80	Hti 102 B080	671510	Hti 102 C080	671534	Hti 102 D080	671558	4
	100	Hti 102 B100	671511	Hti 102 C100	671535	Hti 102 D100	671559	1
	125	Hti 102 B125	671512	Hti 102 C125	671536	Hti 102 D125	671560	1
 3P 4.5 mod.	80	Hti 103 B080	671516	Hti 103 C080	671540	Hti 103 D080	671564	1
	100	Hti 103 B100	671517	Hti 103 C100	671541	Hti 103 D100	671565	1
	125	Hti 103 B125	671518	Hti 103 C125	671542	Hti 103 D125	671566	1
 4P 6 mod.	80	Hti 104 B80	671522	Hti 104 C080	671546	Hti 104 D080	671570	1
	100	Hti 104 B100	671523	Hti 104 C100	671547	Hti 104 D100	671571	1
	125	Hti 104 B125	671524	Hti 104 C125	671548	Hti 104 D125	671572	1

Only for 3-5 In (B) and 5-10 In (C)
 For D see page A.32

Series Hti

A

B

C

D

E

F

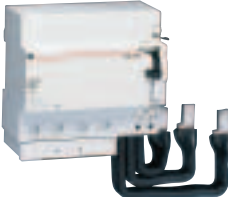
G

X

Series Hti - Add-on RCD - Type AC

	In (A)	30 mA		300 mA		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	
 2P 6 mod.	80-125	DOC 2125/030	671574	DOC 2125/300	671576	1
 3P 6 mod.	80-125	DOC 3125/030	671582	DOC 3125/300	671584	1
 4P 6 mod.	80-125	DOC 4125/030	671590	DOC 4125/300	671592	1

Series Hti - Add-on RCD - Type A

	In (A)	30 mA		300 mA		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	
 3P 6 mod.	80-125	DOCA 3125/030	671581	DOCA 3125/300	671583	1
 4P 6 mod.	80-125	DOCA 4125/030	671589	DOCA 4125/300	671591	1

Series Hti - Add-on RCD - Type S

	In (A)	30 mA		300 mA		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	
 3P 6 mod.	80-125	-	-	DOCS 3125/300	671585	1
 4P 6 mod.	80-125	-	-	DOCS 4125/300	671593	1

On demand: 2P type A and S

Series Hti - Auxiliary contacts

	Mod.	Functions	Description	Cat. No.	Ref. No.	Pack.
	1/2	H	Auxiliary contact	Hti H	671597	1
	1/2	S	Signal contact S + test + reset	Hti S	671598	12
	1/2	H/S	Changeable auxiliary/signal contact	Hti H/S	671599	1
	1/2	H+H/S	Auxiliary contact and changeable auxiliary/signal contact	Hti HH/HS	671600	1
	1/2	H+S	Auxiliary contact and signal contact H + S + test + reset	Hti HSR	671602	1

Series Hti - Shunt trip

	Rated voltage	Closing current	Operating time	Coil impedance at 50Hz	Cat. No.	Ref. No.	Pack.
1 mod.	110 to 415V	0.3A at 110V	10 ms	ca. 29 Ohm	TELE L 110	624945	8
	110 to 125VDC	0.6A at 230V	4ms	ca. 29 Ohm			
		1A at 400V	2ms	ca. 29 Ohm			
1 mod.	24 to 48VDC	1A at 24VDC	10ms	ca. 24 Ohm	TELE L 24	624946	8
	24 to 60V	2A at 48VDC	4ms	ca. 24 Ohm			

Series Hti

A

B

C

D

E

F

G

X



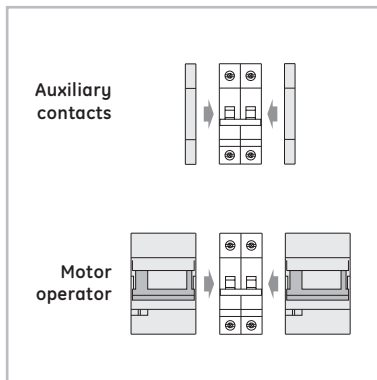
Applications



Approval / Marking



Add-on devices



Auxiliary contacts ● pg C.4
Motor operator ● pg C.7
Shunt trip ● pg C.8

Dimensions ● pg A.80

Miniature circuit breakers with UL approval

EP60 UL (Supplementary protection)

Recognized UL 1077 6 kA

EN/IEC 60898-1 **6000**
3

EN/IEC 60947-2 **10 kA**

Performances

Thermal setting In	(A) 0.5-63
Rated voltage AC Un	(V) 277/480; 110V $\equiv$
Minimum operating voltage U _{8min}	(V) 12
Tripping characteristics	B-C-D
Selectivity class	3
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. EN/IEC 60068-2-28/2-30	95%RH at 55°C
Terminal capacity flexible/rigid cable (mm ²)	25-35
Poles	1, 2, 3, 4
Weight/pole	(g) 125

Short-circuit capacity

According to UL 1077

Poles	V	I _{cc} (kA)
1	277	6
2, 3, 4	277/480	6

According to EN/IEC 60898-1

Poles	V	I _{cn} /I _{cs} (kA)
1	230/400	6
2, 3, 4	400	6

According to EN/IEC 60947-2

Poles	V	I _{cu} (kA) ⁽¹⁾
1	127	20
	240	10
	415	3
2	127	30
	240	20
	415	10
2, 3, 4	415	10
	440	6

DC according to EN/IEC 60947-2

Poles	Un (V $\equiv$)	I _{cu} (kA)/I _{cs} (kA)
1	60	25
2	125	30

(1) I_{cs} = 75% I_{cu}

with UL 1077 approval

Series EP60 UL - 6kA - characteristics B-C-D



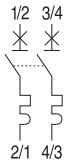
1P
1 mod.



In (A)	B		C		D		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	EP61ULC0.5	686656	EP61ULD0.5	686732	12
1	-	-	EP61ULC01	686657	EP61ULD01	686733	12
2	-	-	EP61ULC02	686658	EP61ULD02	686734	12
4	-	-	EP61ULC04	686660	EP61ULD04	686736	12
6	EP61ULB06	686601	EP61ULC06	686662	EP61ULD06	686738	12
10	EP61ULB10	686602	EP61ULC10	686663	EP61ULD10	686739	12
16	EP61ULB16	686605	EP61ULC16	686666	EP61ULD16	686742	12
20	EP61ULB20	686606	EP61ULC20	686667	EP61ULD20	686743	12
25	EP61ULB25	686607	EP61ULC25	686668	EP61ULD25	686744	12
32	EP61ULB32	686609	EP61ULC32	686670	EP61ULD32	686746	12
40	EP61ULB40	686610	EP61ULC40	686671	EP61ULD40	686747	12
50	EP61ULB50	686611	EP61ULC50	686672	EP61ULD50	686748	12
63	EP61ULB63	686613	EP61ULC63	686674	EP61ULD63	686750	12



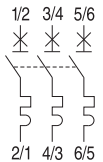
2P
2 mod.



0.5	-	-	EP62ULC0.5	686675	EP62ULD0.5	686751	6
1	-	-	EP62ULC01	686676	EP62ULD01	686752	6
2	-	-	EP62ULC02	686677	EP62ULD02	686753	6
4	-	-	EP62ULC04	686679	EP62ULD04	686755	6
6	EP62ULB06	686615	EP62ULC06	686681	EP62ULD06	686757	6
10	EP62ULB10	686616	EP62ULC10	686682	EP62ULD10	686758	6
16	EP62ULB16	686619	EP62ULC16	686685	EP62ULD16	686761	6
20	EP62ULB20	686620	EP62ULC20	686686	EP62ULD20	686762	6
25	EP62ULB25	686621	EP62ULC25	686687	EP62ULD25	686763	6
32	EP62ULB32	686623	EP62ULC32	686689	EP62ULD32	686765	6
40	EP62ULB40	686624	EP62ULC40	686690	EP62ULD40	686766	6
50	EP62ULB50	686625	EP62ULC50	686691	EP62ULD50	686767	6
63	EP62ULB63	686627	EP62ULC63	686693	EP62ULD63	686769	6



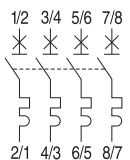
3P
3 mod.



0.5	-	-	EP63ULC0.5	686694	EP63ULD0.5	686770	4
1	-	-	EP63ULC01	686695	EP63ULD01	686771	4
2	-	-	EP63ULC02	686696	EP63ULD02	686772	4
4	-	-	EP63ULC04	686698	EP63ULD04	686774	4
6	EP63ULB06	686629	EP63ULC06	686700	EP63ULD06	686776	4
10	EP63ULB10	686630	EP63ULC10	686701	EP63ULD10	686777	4
16	EP63ULB16	686633	EP63ULC16	686704	EP63ULD16	686780	4
20	EP63ULB20	686634	EP63ULC20	686705	EP63ULD20	686781	4
25	EP63ULB25	686635	EP63ULC25	686706	EP63ULD25	686782	4
32	EP63ULB32	686637	EP63ULC32	686708	EP63ULD32	686784	4
40	EP63ULB40	686638	EP63ULC40	686709	EP63ULD40	686785	4
50	EP63ULB50	686639	EP63ULC50	686710	EP63ULD50	686786	4
63	EP63ULB63	686641	EP63ULC63	686712	EP63ULD63	686788	4



4P
4 mod.



0.5	-	-	EP64ULC0.5	686713	EP64ULD0.5	686789	3
1	-	-	EP64ULC01	686714	EP64ULD01	686790	3
2	-	-	EP64ULC02	686715	EP64ULD02	686791	3
4	-	-	EP64ULC04	686717	EP64ULD04	686793	3
6	EP64ULB06	686643	EP64ULC06	686719	EP64ULD06	686795	3
10	EP64ULB10	686644	EP64ULC10	686720	EP64ULD10	686796	3
16	EP64ULB16	686647	EP64ULC16	686723	EP64ULD16	686799	3
20	EP64ULB20	686648	EP64ULC20	686724	EP64ULD20	686800	3
25	EP64ULB25	686649	EP64ULC25	686725	EP64ULD25	686801	3
32	EP64ULB32	686651	EP64ULC32	686727	EP64ULD32	686803	3
40	EP64ULB40	686652	EP64ULC40	686728	EP64ULD40	686804	3
50	EP64ULB50	686653	EP64ULC50	686729	EP64ULD50	686805	3
63	EP64ULB63	686655	EP64ULC63	686731	EP64ULD63	686807	3

with UL 1077 approval

On request: 3 - 5 - 13 - 15 - 30 - 60A

EP60 UL

A

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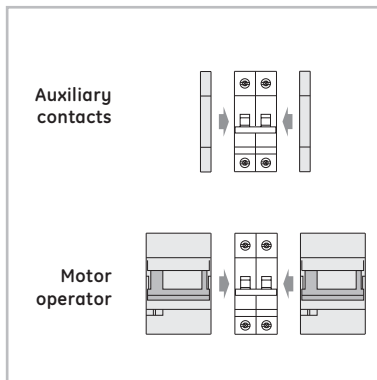
Applications



Approval / Marking



Add-on devices



Auxiliary contacts ● pg C.4
Motor operator ● pg C.7
Shunt trip ● pg C.8

Dimensions ● pg A.80

Miniature circuit breakers with UL approval

EP100 UL (Supplementary protection)

Recognized	UL 1077	10 kA
EN/IEC 60898-1		10000
		3
EN/IEC 60947-2		15 kA

Performances

Thermal setting In	(A) 0.5-63
Rated voltage AC Un	(V) 277/480; 110V $\equiv$
Minimum operating voltage U _{8min}	(V) 12
Tripping characteristics	B-C-D
Selectivity class	3
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. EN/IEC 60068-2-28/2-30	95%RH at 55°C
Terminal capacity flexible/rigid cable (mm ²)	25-35
Poles	1, 2, 3, 4
Weight/pole	(g) 125

Short-circuit capacity

According to UL 1077

Poles	V	I _{cc} (kA)
1	277	10
2, 3, 4	277/480	10

According to EN/IEC 60898-1

Poles	V	I _{cn} /I _{cs} (kA)
1	230/400	10
2, 3, 4	400	10

According to EN/IEC 60947-2

Poles	V	I _{cu} (kA) ⁽¹⁾
1	127	30
	240	15
	415	4
2	127	40
	240	30
	415	15
2, 3, 4	440	10

DC according to EN/IEC 60947-2

Poles	Un (V $\equiv$)	I _{cu} (kA)/I _{cs} (kA)
1	60	25
2	125	30

(1) I_{cs} = 50% I_{cu}

with UL 1077 approval

Series EP100 UL - 10kA - characteristics B-C-D



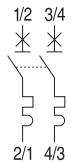
1P
1 mod.



In (A)	B		C		D		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	EP101ULC0.5	686864	EP101ULD0.5	686940	12
1	-	-	EP101ULC01	686865	EP101ULD01	686941	12
2	-	-	EP101ULC02	686866	EP101ULD02	686942	12
4	-	-	EP101ULC04	686868	EP101ULD04	686944	12
6	EP101ULB06	686809	EP101ULC06	686870	EP101ULD06	686946	12
10	EP101ULB10	686810	EP101ULC10	686871	EP101ULD10	686947	12
16	EP101ULB16	686813	EP101ULC16	686874	EP101ULD16	686950	12
20	EP101ULB20	686814	EP101ULC20	686875	EP101ULD20	686951	12
25	EP101ULB25	686815	EP101ULC25	686876	EP101ULD25	686952	12
32	EP101ULB32	686817	EP101ULC32	686878	EP101ULD32	686954	12
40	EP101ULB40	686818	EP101ULC40	686879	EP101ULD40	686955	12
50	EP101ULB50	686819	EP101ULC50	686880	EP101ULD50	686956	12
63	EP101ULB63	686821	EP101ULC63	686882	EP101ULD63	686958	12



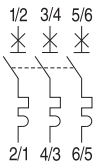
2P
2 mod.



In (A)	B		C		D		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	EP102ULC0.5	686883	EP102ULD0.5	686959	6
1	-	-	EP102ULC01	686884	EP102ULD01	686960	6
2	-	-	EP102ULC02	686885	EP102ULD02	686961	6
4	-	-	EP102ULC04	686887	EP102ULD04	686963	6
6	EP102ULB06	686823	EP102ULC06	686889	EP102ULD06	686965	6
10	EP102ULB10	686824	EP102ULC10	686890	EP102ULD10	686966	6
16	EP102ULB16	686827	EP102ULC16	686893	EP102ULD16	686969	6
20	EP102ULB20	686828	EP102ULC20	686894	EP102ULD20	686970	6
25	EP102ULB25	686829	EP102ULC25	686895	EP102ULD25	686971	6
32	EP102ULB32	686831	EP102ULC32	686897	EP102ULD32	686973	6
40	EP102ULB40	686832	EP102ULC40	686898	EP102ULD40	686974	6
50	EP102ULB50	686833	EP102ULC50	686899	EP102ULD50	686975	6
63	EP102ULB63	686835	EP102ULC63	686901	EP102ULD63	686977	6



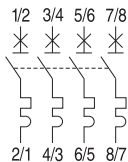
3P
3 mod.



In (A)	B		C		D		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	EP103ULC0.5	686902	EP103ULD0.5	686978	4
1	-	-	EP103ULC01	686903	EP103ULD01	686979	4
2	-	-	EP103ULC02	686904	EP103ULD02	686980	4
4	-	-	EP103ULC04	686906	EP103ULD04	686982	4
6	EP103ULB06	686837	EP103ULC06	686908	EP103ULD06	686984	4
10	EP103ULB10	686838	EP103ULC10	686909	EP103ULD10	686985	4
16	EP103ULB16	686841	EP103ULC16	686912	EP103ULD16	686988	4
20	EP103ULB20	686842	EP103ULC20	686913	EP103ULD20	686989	4
25	EP103ULB25	686843	EP103ULC25	686914	EP103ULD25	686990	4
32	EP103ULB32	686845	EP103ULC32	686916	EP103ULD32	686992	4
40	EP103ULB40	686846	EP103ULC40	686917	EP103ULD40	686993	4
50	EP103ULB50	686847	EP103ULC50	686918	EP103ULD50	686994	4
63	EP103ULB63	686849	EP103ULC63	686920	EP103ULD63	686996	4



4P
4 mod.



In (A)	B		C		D		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	EP104ULC0.5	686921	EP104ULD0.5	686997	3
1	-	-	EP104ULC01	686922	EP104ULD01	686998	3
2	-	-	EP104ULC02	686923	EP104ULD02	686999	3
4	-	-	EP104ULC04	686925	EP104ULD04	687001	3
6	EP104ULB06	686851	EP104ULC06	686927	EP104ULD06	687003	3
10	EP104ULB10	686852	EP104ULC10	686928	EP104ULD10	687004	3
16	EP104ULB16	686855	EP104ULC16	686931	EP104ULD16	687007	3
20	EP104ULB20	686856	EP104ULC20	686932	EP104ULD20	687008	3
25	EP104ULB25	686857	EP104ULC25	686933	EP104ULD25	687009	3
32	EP104ULB32	686859	EP104ULC32	686935	EP104ULD32	687011	3
40	EP104ULB40	686860	EP104ULC40	686936	EP104ULD40	687012	3
50	EP104ULB50	686861	EP104ULC50	686937	EP104ULD50	687013	3
63	EP104ULB63	686863	EP104ULC63	686939	EP104ULD63	687015	3

with UL 1077 approval

On request: 3 - 5 - 13 - 15 - 30 - 60A

EP100 UL

A

B

C

D

E

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X



Miniature circuit breakers with UL approval

EP100 ULH (Branch circuit protection)

Listed UL 489 **10 kA**
EN 60947-2 **15 kA**

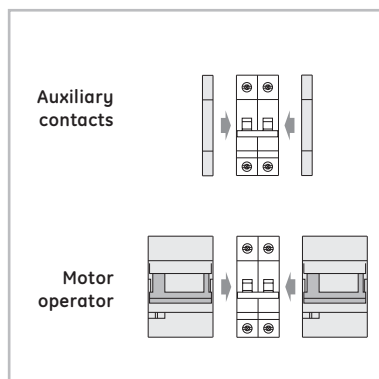
Applications



Approval / Marking



Add-on devices



Auxiliary contacts ● pg C.4
 Motor operator ● pg C.7
 Shunt trip ● pg C.8

Dimensions ● pg A.80

Performances

Thermal setting In	(A) 0.5-32
Rated voltage AC Un	(V) 120/240; 110V $\equiv$
Minimum operating voltage U _{8min}	(V) 12
Tripping characteristics	B-C-D
Selectivity class	3
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. EN/IEC 60068-2-28/2-30	95%RH at 55°C
Terminal capacity flexible/rigid cable (mm ²)	25-35
Poles	1, 2, 3
Weight/pole	(g) 130

Short-circuit capacity

According to UL 489

Poles	V	I _{cc} (kA)
1	120	10
2, 3	240	10

According to EN/IEC 60947-2

Poles	V	I _{cu} (kA) ⁽¹⁾
1	127	30
	240	15
	415	4
2	127	40
	240	30
	415	15
2, 3	440	10

DC according to EN/IEC 60947-2

Poles	Un (V $\equiv$)	I _{cu} (kA)/I _{cs} (kA)
1	60	25
2	125	30

(1) I_{cs} = 50% I_{cu}

with UL 489 approval

Series EP100 ULH - 10kA - characteristics B-C-D



1P
1 mod.
(1)

1/2
2/1

In (A)	B		C		D		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	EP101ULHC0.5	690265	EP101ULHD0.5	690313	12
1	-	-	EP101ULHC01	690266	EP101ULHD01	690314	12
2	-	-	EP101ULHC02	690267	EP101ULHD02	690315	12
4	-	-	EP101ULHC04	690269	EP101ULHD04	690317	12
5	EP101ULHB05	690214	EP101ULHC05	690270	EP101ULHD05	690318	12
6	EP101ULHB06	690215	EP101ULHC06	690271	EP101ULHD06	690320	12
10	EP101ULHB10	690216	EP101ULHC10	690273	EP101ULHD10	690321	12
13	EP101ULHB13	690217	EP101ULHC13	690274	EP101ULHD13	690322	12
15	EP101ULHB15	690218	EP101ULHC15	690275	EP101ULHD15	690323	12
16	EP101ULHB16	690219	EP101ULHC16	690276	EP101ULHD16	690324	12
20	EP101ULHB20	690220	EP101ULHC20	690277	EP101ULHD20	690325	12
25	EP101ULHB25	690221	EP101ULHC25	690278	EP101ULHD25	690326	12
30	EP101ULHB30	690222	EP101ULHC30	690279	EP101ULHD30	690327	12
32	EP101ULHB32	690223	EP101ULHC32	690280	EP101ULHD32	690328	12



2P
2 mod.

1/2 3/4
2/1 4/3

In (A)	B		C		D		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	EP102ULHC0.5	690281	EP102ULHD0.5	690329	6
1	-	-	EP102ULHC01	690282	EP102ULHD01	690330	6
2	-	-	EP102ULHC02	690283	EP102ULHD02	690331	6
4	-	-	EP102ULHC04	690285	EP102ULHD04	690333	6
5	EP102ULHB05	690224	EP102ULHC05	690286	EP102ULHD05	690334	6
6	EP102ULHB06	690225	EP102ULHC06	690287	EP102ULHD06	690335	6
10	EP102ULHB10	690226	EP102ULHC10	690289	EP102ULHD10	690337	6
13	EP102ULHB13	690227	EP102ULHC13	690290	EP102ULHD13	690338	6
15	EP102ULHB15	690228	EP102ULHC15	690291	EP102ULHD15	690339	6
16	EP102ULHB16	690229	EP102ULHC16	690292	EP102ULHD16	690340	6
20	EP102ULHB20	690230	EP102ULHC20	690293	EP102ULHD20	690341	6
25	EP102ULHB25	690231	EP102ULHC25	690294	EP102ULHD25	690342	6
30	EP102ULHB30	690232	EP102ULHC30	690295	EP102ULHD30	690343	6
32	EP102ULHB32	690233	EP102ULHC32	690296	EP102ULHD32	690344	6



3P
3 mod.

1/2 3/4 5/6
2/1 4/3 6/5

In (A)	B		C		D		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	EP103ULHC0.5	690297	EP103ULHD0.5	690345	4
1	-	-	EP103ULHC01	690298	EP103ULHD01	690346	4
2	-	-	EP103ULHC02	690299	EP103ULHD02	690347	4
4	-	-	EP103ULHC04	690301	EP103ULHD04	690349	4
5	EP103ULHB05	290234	EP103ULHC05	690302	EP103ULHD05	690350	4
6	EP103ULHB06	690235	EP103ULHC06	690303	EP103ULHD06	690351	4
10	EP103ULHB10	690236	EP103ULHC10	690305	EP103ULHD10	690353	4
13	EP103ULHB13	290237	EP103ULHC13	690306	EP103ULHD13	690354	4
15	EP103ULHB15	290238	EP103ULHC15	690307	EP103ULHD15	690355	4
16	EP103ULHB16	690239	EP103ULHC16	690308	EP103ULHD16	690356	4
20	EP103ULHB20	690240	EP103ULHC20	690309	EP103ULHD20	690357	4
25	EP103ULHB25	690241	EP103ULHC25	690310	EP103ULHD25	690358	4
30	EP103ULHB30	290242	EP103ULHC30	690311	EP103ULHD30	690359	4
32	EP103ULHB32	690243	EP103ULHC32	690312	EP103ULHD32	690360	4

with UL 489 approval

Accessories for MCB's

Walls



	Cat. No.	Ref. No.	Pack.
Walls for terminals IP	WUL	690244	10

Several 1 pole MCB's side to side mounted and opposite polarity must be provided by walls on poles.
Also when 1 pole MCB's mounting add-on extensions.

Padlocking bracket



	Cat. No.	Ref. No.	Pack.
Allows padlocking in ON and OFF position	KS	624929	2

EP100 ULH

A

B

C

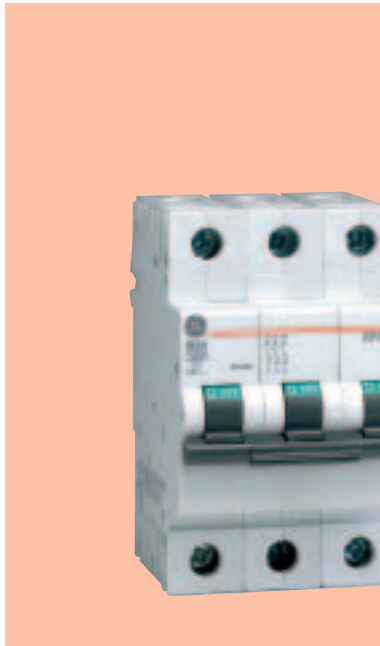
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Applications

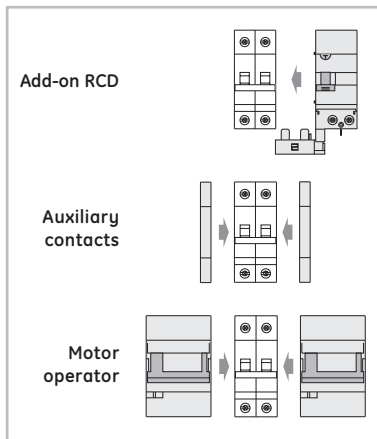


Approval / Marking

BTA-EN50155



Add-on devices



- Add-on RCD ● pg B.16
- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel Board Switch ● pg C.8

- Accessories ● pg A.50
- Busbars ● pg E.2
- More technical data ● website
- Dimensions ● pg A.80

Miniature circuit breakers for railway applications

EP100 R

EN 60898-1	10000
	3
EN 60947-2	15 kA



Performance

Thermal setting In	(A) 0.5 -63
Rated voltage AC Un	(V) 230/400
Minimum operating voltage U _{8min}	(V) 12
Tripping characteristics	B-C
Selectivity class	3
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. to EN/IEC 60068-2	95%RH at 55°C
Terminal capacity flexible/rigid cable (mm ²)	25-35
Poles	3
Weight/pole	(g) 125

Short-circuit capacity

AC/DC acc. to EN/IEC 60898-2

Poles	V	I _{cn} =I _{cs} (kA)
3	400 DC	10 ⁽¹⁾

AC/DC acc. to EN/IEC 60947-2

Poles	V	I _{cu} (kA) ⁽²⁾
3	240 DC	30
	415 DC	15
	440 AC	10

⁽¹⁾ Avec distance de grille de 60 mm pour B-C et D; I_{cs} = 75% I_{cu}
⁽²⁾ I_{cs} = 50% I_{cu}

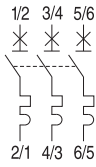
Railway Applications



Series EP100 R - 10kA - characteristics B-C



3P
3 mod.



In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0,5	-	-	EP103C0,5RAIL	681461	4
1	-	-	EP103C01RAIL	681462	4
2	-	-	EP103C02RAIL	681463	4
3	-	-	EP103C03RAIL	681464	4
4	-	-	EP103C04RAIL	681465	4
6	EP103B06RAIL	681452	EP103C06RAIL	681466	4
10	EP103B10RAIL	681453	EP103C10RAIL	681467	4
16	EP103B16RAIL	681454	EP103C16RAIL	681468	4
20	EP103B20RAIL	681455	EP103C20RAIL	681469	4
25	EP103B25RAIL	681456	EP103C25RAIL	681470	4
32	EP103B32RAIL	681457	EP103C32RAIL	681471	4
40	EP103B40RAIL	681458	EP103C40RAIL	681472	4
50	EP103B50RAIL	681459	EP103C50RAIL	681473	4
63	EP103B63RAIL	681460	EP103C63RAIL	681474	4

Series EP100 R

A

B

C

D

E

F

G

X



Applications

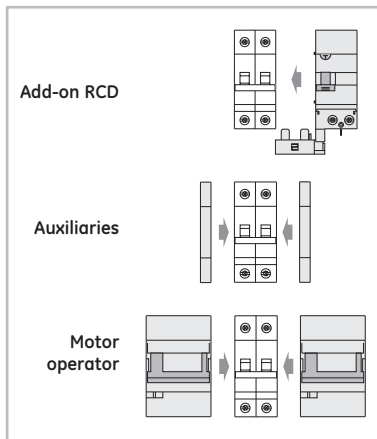


Standards / Marking

BTA-EN50155



Add-on devices



- Add-on RCD ● pg B.16
- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel Board Switch ● pg C.8

- Accessories ● pg A.50
- Busbars ● pg E.2
- More technical data ● website
- Dimensions ● pg A.80

Miniature circuit breakers for railway applications

EP100 UCR

EN/IEC 60898-2 6000 T15

DIN VDE 0641

EN/IEC 60947-2 10kA



Performance

Thermal setting In	(A) 0.5 -63
Rated voltage AC Un	(V) 230/400 250/500 ==
Minimum operating voltage U _{8min}	(V) 12 12 ==
Tripping characteristics	B-C-K
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. to EN/IEC 60068-2	95%RH at 55°C
Terminal capacity flexible/rigid cable (mm ²)	25-35
Poles ⁽¹⁾	1, 2
Weight	(g/pole) 125

Short-circuit capacity

AC/DC acc. to EN/IEC 60898-2⁽⁴⁾

Poles	V	I _{cn} =I _{cs} (kA)
1	125 DC	10
	220 DC	6
	230/400 AC	6
2	250 DC	10
	440 DC	6
	400 AC	6

AC/DC acc. to EN/IEC 60947-2

Poles	V	I _{cu} (kA)
1	220 DC	10 ⁽²⁾
2	440 DC	10 ⁽²⁾
1	230 AC	6 ⁽³⁾
2	400 AC	6 ⁽³⁾

(1) Polarity labeling to be respected due to the permanent magnet in the MCB

(2) T = 4ms

(3) 4.5kA for 50A & 63A

(4) After a switching of the net with more than 6kA in AC it should not be used in DC

Railway
Applications



Series EP100 UCR - 10kA - characteristics B-C-K



1P
1 mod.



In (A)	B		C		K		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0,5	-	-	EP101UCRC0,5	681493	EP101UCRK0,5	673267	12
1	-	-	EP101UCRC01	681494	EP101UCRK01	673268	12
1,6	-	-	-	-	EP101UCRK1,6	673269	12
2	EP101UCRB02	681771	EP101UCRC02	681495	EP101UCRK02	673270	12
3	-	-	-	-	EP101UCRK03	673271	12
4	EP101UCRB04	681772	EP101UCRC04	681496	EP101UCRK04	673272	12
6	EP101UCRB06	681475	EP101UCRC06	681497	EP101UCRK06	673273	12
8	-	-	-	-	EP101UCRK08	673274	12
10	EP101UCRB10	681476	EP101UCRC10	681498	EP101UCRK10	673275	12
13	-	-	-	-	EP101UCRK13	673276	12
16	EP101UCRB16	681477	EP101UCRC16	681499	EP101UCRK16	673277	12
20	EP101UCRB20	681478	EP101UCRC20	681500	EP101UCRK20	673278	12
25	EP101UCRB25	681479	EP101UCRC25	681501	EP101UCRK25	673279	12
32	EP101UCRB32	681480	EP101UCRC32	681502	EP101UCRK32	673280	12
40	EP101UCRB40	681481	EP101UCRC40	681503	EP101UCRK40	673281	12
50	EP101UCRB50	681482	EP101UCRC50	681504	EP101UCRK50	673282	12
63	EP101UCRB63	681483	EP101UCRC63	681505	EP101UCRK63	673283	12



2P
1 mod.



In (A)	B		C		K		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0,5	-	-	EP102UCRC0,5	681506	EP102UCRK0,5	673284	6
1	-	-	EP102UCRC01	681507	EP102UCRK01	673285	6
1,6	-	-	-	-	EP102UCRK1,6	673286	6
2	EP102UCRB02	681773	EP102UCRC02	681508	EP102UCRK02	673287	6
3	-	-	-	-	EP102UCRK03	673288	6
4	EP102UCRB04	681774	EP102UCRC04	681509	EP102UCRK04	673289	6
6	EP102UCRB06	681484	EP102UCRC06	681510	EP102UCRK06	673290	6
8	-	-	-	-	EP102UCRK08	673291	6
10	EP102UCRB10	681485	EP102UCRC10	681511	EP102UCRK10	673292	6
13	-	-	-	-	EP102UCRK13	673293	6
16	EP102UCRB16	681486	EP102UCRC16	681512	EP102UCRK16	673294	6
20	EP102UCRB20	681487	EP102UCRC20	681513	EP102UCRK20	673295	6
25	EP102UCRB25	681488	EP102UCRC25	681514	EP102UCRK25	673296	6
32	EP102UCRB32	681489	EP102UCRC32	681515	EP102UCRK32	673297	6
40	EP102UCRB40	681490	EP102UCRC40	681516	EP102UCRK40	673298	6
50	EP102UCRB50	681491	EP102UCRC50	681517	EP102UCRK50	673299	6
63	EP102UCRB63	681492	EP102UCRC63	681518	EP102UCRK63	673300	6

- Notes:
- 1: Always respect the polarities
 - 2: Characteristics are in DC
 - > B (DC) 3 up to 7.5 In
 - > C (DC) 5 up to 15 In
 - > K (DC) 8 up to 12 In
 - 3: Bombardier Certification for K curve on process

Series EP100 UCR

A

B

C

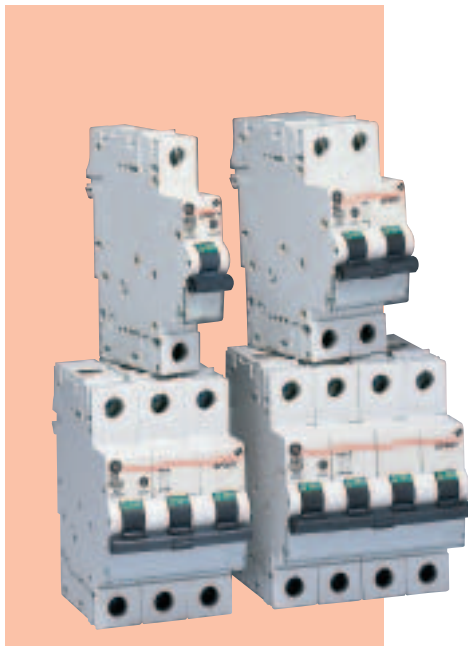
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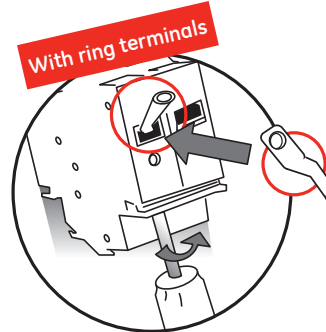
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Miniature circuit breakers with ring terminals

Series EP100T



The miniature circuit breakers in RAIL-design have been developed with regard to shakes, shocks and vibrations

Applications



Standards

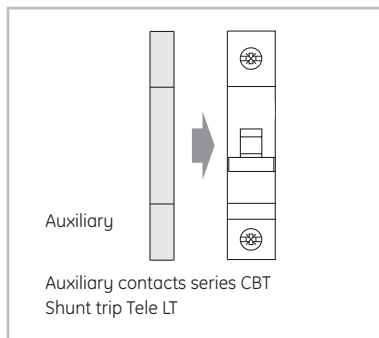
Certified acc. new CEI UNI 11170 (higher protection against fires)
Certified acc. to NF 16-101, smoke index F
Shock and vibrations tests acc. to IEC 61373

Approval / Marking

Trenitalia n° 371441.01



Add-on devices



Auxiliary contacts ● pg C.10
Shunt trip ● pg C.11
Dimensions ● pg A.80

Performances

Thermal setting I_n	(A) 0.5 to 63 at 45°C
Rated voltage AC U_n	(V) 240/440
Operating temperature	(°C) -40/+70
Tripping characteristics	Z-B-C-K
Selectivity class	3
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. IEC 60068-2-28/2-30	95% RH under 55°C
Capacity of ring terminal	(mm ²) 16 (x2 connections)
Torque	(Nm) 2
Poles	1, 2, 3, 4
Self-extinguish degree	according to UNI CEI 11170
Smoke index acc. UNI CEI 11170, NF 16-102	F1
Maximum working altitude	(m) 2000

Short-circuit capacity

Acc. to EN/IEC 60898

Poles	V~	I_{cn} (kA)
1-4	230/400	10

AC acc. to EN 60947-2 (minimum value)

Poles	V~	I_{cu} (kA)
1	230	15
	133	20
2	440/380	15
	230/133	20
3, 4	440	10
	380	15
	230	20

DC acc. to EN 60947-2

Poles	V---	I_{cu} (kA)/ I_{cs} (kA)
1	60	25/15 ms
2	110	30/15 ms

Railway applications
with ring terminals

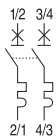
Series EP100T - 10kA - characteristics Z-B-C-K

1P
1 mod.



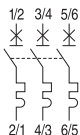
In (A)	2-3 In (Z)		3-5 In (B)		8-12 In (C)		8-12 In (K)		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0,5	EP101TZ0.5	691277	-	-	EP101TC0.5	691245	EP101TK0.5	691261	12
1	EP101TZ01	691278	-	-	EP101TC01	691246	EP101TK1	691267	12
1,6	EP101TZ1.6	691284	-	-	EP101TC1.6	691252	EP101TK1.6	691268	12
2	EP101TZ02	691279	-	-	EP101TC02	691247	EP101TK02	691262	12
3	EP101TZ03	691280	-	-	EP101TC03	691248	EP101TK03	691263	12
4	EP101TZ04	691281	-	-	EP101TC04	691249	EP101TK04	691264	12
6	EP101TZ06	691282	EP101TB6	691234	EP101TC06	691250	EP101TK06	691265	12
8	EP101TZ08	691283	EP101TB8	691235	EP101TC08	691251	EP101TK08	691266	12
10	EP101TZ10	691285	EP101TB10	691236	EP101TC10	691253	EP101TK10	691269	12
13	-	-	EP101TB13	691237	EP101TC13	691254	-	-	12
16	EP101TZ16	691286	EP101TB16	691238	EP101TC16	691255	EP101TK16	691270	12
20	EP101TZ20	691287	EP101TB20	691239	EP101TC20	691256	EP101TK20	691271	12
25	EP101TZ25	691288	EP101TB25	691240	EP101TC25	667248	EP101TK25	691272	12
32	EP101TZ32	691289	EP101TB32	691241	EP101TC32	691257	EP101TK32	691273	12
40	EP101TZ40	691290	EP101TB40	691242	EP101TC40	691258	EP101TK40	691274	12
50	EP101TZ50	691291	EP101TB50	691243	EP101TC50	691259	EP101TK50	691275	12
63	EP101TZ63	691292	EP101TB63	691244	EP101TC63	691260	EP101TK63	691276	12

2P
2 mod.



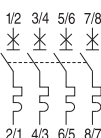
In (A)	2-3 In (Z)		3-5 In (B)		8-12 In (C)		8-12 In (K)		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0,5	EP102TZ0.5	691337	-	-	EP102TC0.5	691304	EP102TK0.5	691321	6
1	EP102TZ01	691338	-	-	EP102TC01	691305	EP102TK01	691322	6
1,6	EP102TZ1.6	691344	-	-	EP102TC1.6	691311	EP102TK1.6	691328	6
2	EP102TZ02	691339	-	-	EP102TC02	691306	EP102TK02	691323	6
3	EP102TZ03	691340	-	-	EP102TC03	691307	EP102TK03	691324	6
4	EP102TZ04	691341	-	-	EP102TC04	691308	EP102TK04	691325	6
6	EP102TZ06	691342	EP102TB06	691293	EP102TC06	691309	EP102TK06	691326	6
8	EP102TZ08	691343	EP102TB08	691294	EP102TC08	691310	EP102TK08	691327	6
10	EP102TZ10	691345	EP102TB10	691295	EP102TC10	691312	EP102TK10	691329	6
13	-	-	EP102TB13	691296	EP102TC13	691313	-	-	6
16	EP102TZ16	691346	EP102TB16	691297	EP102TC16	691314	EP102TK16	691330	6
20	EP102TZ20	691347	EP102TB20	691298	EP102TC20	691315	EP102TK20	691331	6
25	EP102TZ25	691348	EP102TB25	691299	EP102TC25	691316	EP102TK25	691332	6
32	EP102TZ32	691349	EP102TB32	691300	EP102TC32	691317	EP102TK32	691333	6
40	EP102TZ40	691350	EP102TB40	691301	EP102TC40	691318	EP102TK40	691334	6
50	EP102TZ50	691351	EP102TB50	691302	EP102TC50	691319	EP102TK50	691335	6
63	EP102TZ63	691352	EP102TB63	691303	EP102TC63	691320	EP102TK63	691336	6

3P
3 mod.



In (A)	2-3 In (Z)		3-5 In (B)		8-12 In (C)		8-12 In (K)		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0,5	-	-	-	-	EP103TC0.5	691364	EP103TK0.5	691381	4
1	-	-	-	-	EP103TC01	691365	EP103TK01	691382	4
1,6	-	-	-	-	EP103TC1.6	691371	EP103TK1.6	691388	4
2	-	-	-	-	EP103TC02	691366	EP103TK02	691383	4
3	-	-	-	-	EP103TC03	691367	EP103TK03	691384	4
4	-	-	-	-	EP103TC04	691368	EP103TK04	691385	4
6	-	-	EP103TB06	691353	EP103TC06	691369	EP103TK06	691386	4
8	-	-	EP103TB08	691354	EP103TC08	691370	EP103TK08	691387	4
10	-	-	EP103TB10	691355	EP103TC10	691372	EP103TK10	691389	4
13	-	-	EP103TB13	691356	EP103TC13	691373	-	-	4
16	-	-	EP103TB16	691357	EP103TC16	691374	EP103TK16	691390	4
20	-	-	EP103TB20	691358	EP103TC20	691375	EP103TK20	691391	4
25	-	-	EP103TB25	691359	EP103TC25	691376	EP103TK25	691392	4
32	-	-	EP103TB32	691360	EP103TC32	691377	EP103TK32	691393	4
40	-	-	EP103TB40	691361	EP103TC40	691378	EP103TK40	691394	4
50	-	-	EP103TB50	691362	EP103TC50	691379	EP103TK50	691395	4
63	-	-	EP103TB63	691363	EP103TC63	691380	EP103TK63	691396	4

4P
4 mod.



In (A)	2-3 In (Z)		3-5 In (B)		8-12 In (C)		8-12 In (K)		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0,5	-	-	-	-	EP104TC0.5	691407	EP104TK0.5	691424	3
1	-	-	-	-	EP104TC01	691408	EP104TK01	691425	3
1,6	-	-	-	-	EP104TC1.6	691414	EP104TK1.6	691431	3
2	-	-	-	-	EP104TC02	691409	EP104TK02	691426	3
3	-	-	-	-	EP104TC03	691410	EP104TK03	691427	3
4	-	-	-	-	EP104TC04	691411	EP104TK04	691428	3
6	-	-	EP104TB06	691397	EP104TC06	691412	EP104TK06	691429	3
8	-	-	EP104TB08	691398	EP104TC08	691413	EP104TK08	691430	3
10	-	-	EP104TB10	691399	EP104TC10	691415	EP104TK10	691432	3
13	-	-	EP104TB13	691400	EP104TC13	691416	-	-	3
16	-	-	EP104TB16	667247	EP104TC16	691417	EP104TK16	691433	3
20	-	-	EP104TB20	691401	EP104TC20	691418	EP104TK20	691434	3
25	-	-	EP104TB25	691402	EP104TC25	691419	EP104TK25	691435	3
32	-	-	EP104TB32	691403	EP104TC32	691420	EP104TK32	691436	3
40	-	-	EP104TB40	691404	EP104TC40	691421	EP104TK40	691437	3
50	-	-	EP104TB50	691405	EP104TC50	691422	EP104TK50	691438	3
63	-	-	EP104TB63	691406	EP104TC63	691423	EP104TK63	691439	3

Railway applications
with ring terminals

Series EP100T

A

B

C

D

E

F

G

X



Applications



Standards

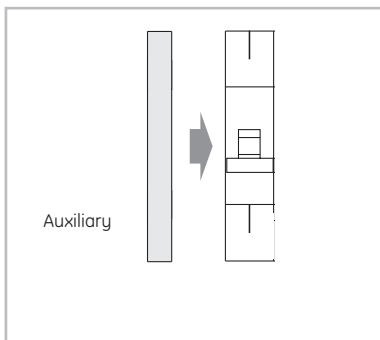
Certified acc. new CEI UNI 11170
(higher protection against fires)
Certified acc. to NF 16-101, smoke
index F
Shock and vibrations tests acc. to
IEC 61373

Approval / Marking

Trenitalia n° 371441.01



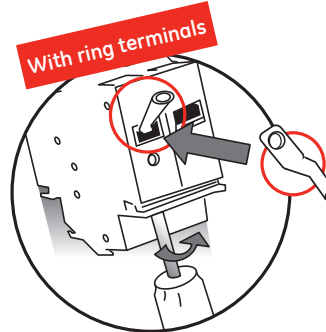
Add-on devices



Auxiliary contacts ● pg C.10
Shunt trip ● pg C.11
Dimensions ● pg A.80

Miniature circuit breakers with ring terminals

Series EP100UCT



The miniature circuit
breakers in RAIL-design
have been developed
with regard to shakes,
shocks and vibrations

Performances

Thermal setting In	(A) 0.5 to 63 at 45°C
Rated voltage AC Un	(V) 250/440
Operating temperature	(°C) -40/+70
Tripping characteristics	Z-B-C-K
Selectivity class	3
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. IEC 60068-2-28/2-30	95% RH under 55°C
Capacity of ring terminal	(mm ²) 16 (x2 connections)
Torque	(Nm) 2
Poles	1, 2
Self-extinguish degree	according UNI CEI 11170
Smoke index acc. UNI CEI 11170, NF 16-102	F1
Maximum working altitude	(m) 2000

Short-circuit capacity

DC acc. to EN/IEC 60947-2

Poles	V ---	Icu (kA)/Ics(kA)
1	24	25/15 ms
	60	25/15 ms
	110	20/10 ms
	250	10/5 ms
2	24	30/15 ms
	60	30/15 ms
	110	25/15 ms
	250	10/5 ms

Railway applications
with ring terminals

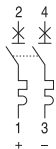
Series EP100UCT - 10kA - characteristics Z-B-C-K

1P
1 mod.



In (A)	2-3 In (Z)		3-5 In (B)		8-12 In (C)		8-12 In (K)		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0,5	EP101UCTZ0.5	691484	-	-	EP101UCTC0.5	691451	EP101UCTK0.5	691468	12
1	EP101UCTZ01	691485	-	-	EP101UCTC01	691452	EP101UCTK01	691469	12
1,6	EP101UCTZ1.6	691491	-	-	EP101UCTC1.6	691458	EP101UCTK1.6	691475	12
2	EP101UCTZ02	691486	-	-	EP101UCTC02	691453	EP101UCTK02	691470	12
3	EP101UCTZ03	691487	-	-	EP101UCTC03	691454	EP101UCTK03	691471	12
4	EP101UCTZ04	691488	-	-	EP101UCTC04	691455	EP101UCTK04	691472	12
6	EP101UCTZ06	691489	EP101UCTB06	691440	EP101UCTC06	691456	EP101UCTK06	691473	12
8	EP101UCTZ08	691490	EP101UCTB08	691441	EP101UCTC08	691457	EP101UCTK08	691474	12
10	EP101UCTZ10	691492	EP101UCTB10	691442	EP101UCTC10	691459	EP101UCTK10	691476	12
13	-	-	EP101UCTB13	691443	EP101UCTC13	691460	-	-	12
16	EP101UCTZ16	691493	EP101UCTB16	691444	EP101UCTC16	691461	EP101UCTK16	691477	12
20	EP101UCTZ20	691494	EP101UCTB20	691445	EP101UCTC20	691462	EP101UCTK20	691478	12
25	EP101UCTZ25	691495	EP101UCTB25	691446	EP101UCTC25	691463	EP101UCTK25	691479	12
32	EP101UCTZ32	691496	EP101UCTB32	691447	EP101UCTC32	691464	EP101UCTK32	691480	12
40	EP101UCTZ40	691497	EP101UCTB40	691448	EP101UCTC40	691465	EP101UCTK40	691481	12
50	EP101UCTZ50	691498	EP101UCTB50	691449	EP101UCTC50	691466	EP101UCTK50	691482	12
63	EP101UCTZ63	691499	EP101UCTB63	691450	EP101UCTC63	691467	EP101UCTK63	691483	12

2P
2 mod.



In (A)	2-3 In (Z)		3-5 In (B)		8-12 In (C)		8-12 In (K)		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0,5	EP102UCTZ0.5	691544	-	-	EP102UCTC0.5	691511	EP102UCTK0.5	691528	6
1	EP102UCTZ01	691545	-	-	EP102UCTC01	691512	EP102UCTK01	691529	6
1,6	EP102UCTZ02	691546	-	-	EP102UCTC1.6	691518	EP102UCTK1.6	691535	6
2	EP102UCTZ1.6	691551	-	-	EP102UCTC02	691513	EP102UCTK02	691530	6
3	EP102UCTZ03	691547	-	-	EP102UCTC03	691514	EP102UCTK03	691531	6
4	EP102UCTZ04	691548	-	-	EP102UCTC04	691515	EP102UCTK04	691532	6
6	EP102UCTZ06	691549	EP102UCTB06	691500	EP102UCTC06	691516	EP102UCTK06	691533	6
8	EP102UCTZ08	691550	EP102UCTB08	691501	EP102UCTC08	691517	EP102UCTK08	691534	6
10	EP102UCTZ10	691552	EP102UCTB10	691502	EP102UCTC10	691519	EP102UCTK10	691536	6
13	-	-	EP102UCTB13	691503	EP102UCTC13	691520	-	-	6
16	EP102UCTZ16	691553	EP102UCTB16	691504	EP102UCTC16	691521	EP102UCTK16	691537	6
20	EP102UCTZ20	691554	EP102UCTB20	691505	EP102UCTC20	691522	EP102UCTK20	691538	6
25	EP102UCTZ25	691555	EP102UCTB25	691506	EP102UCTC25	691523	EP102UCTK25	691539	6
32	EP102UCTZ32	691556	EP102UCTB32	691507	EP102UCTC32	691524	EP102UCTK32	691540	6
40	EP102UCTZ40	691557	EP102UCTB40	691508	EP102UCTC40	691525	EP102UCTK40	691541	6
50	EP102UCTZ50	691558	EP102UCTB50	691509	EP102UCTC50	691526	EP102UCTK50	691542	6
63	EP102UCTZ63	691559	EP102UCTB63	691510	EP102UCTC63	691527	EP102UCTK63	691543	6

Railway applications
with ring terminals

Series EP100UCT

A

B

C

D

E

F

G

X

Accessories for MCB's - Series C, G, GT and EP

		Cat. No.	Ref. No.	Pack.
 Sealing plate for 4P	Cut off the number of poles needed for Series G, GT	EPP	669486	100
 Padlocking bracket	Allows padlocking in ON and OFF position Ø padlock 5 mm	KS	624929	2
 Spacer	1/2 module	PLS / CTX SP	686069	50
 DIN rail extraction piece	Easy DIN-rail extraction of a MCB Series G, GT and EP using busbars on the top	EDRE	600232	10

A

D

E

F

G

X

Unibis™

2 circuits in 1 mo

ElfaPlus Unibis™: the solution

Unibis™ compact MCB's are one of the latest introductions in the ElfaPlus range and are developed to **reduce the size of the distribution board to the minimum**.
The performances are upgraded to **10kA**.

Circuit protection

A

B

C

D

E

F

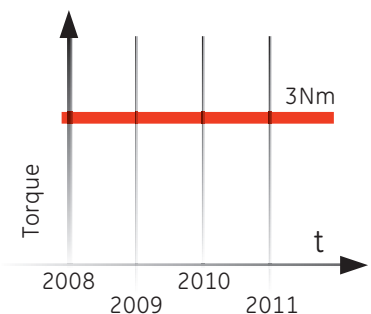
G

X



Safety terminals

Up to 6mm² + 4mm² wires combined.



New



Module

for space problems



1P+1P
in
1 mod

1P+N
in
1 mod

2P
in
1 mod

3P
in
2 mod

4P
in
2 mod

- ✓ Brandnew design:
2P in 1 module,
- ✓ 3 and 4P in 2 modules
- ✓ Complete range: from 4.5–6–**10kA**⁽¹⁾,
2–40 Amps, B and C curves
- ✓ 100% compatible with all ElfaPlus
auxiliaries and accessories
- ✓ 100% quality and reliability
acc. to EN 60898
- ✓ CEBEC, NF, VDE, KEMA, IMQ certified

3 performances
up to 10kA



New

(1) 10 kA for 1P+N versions

The solution for

Unibis™ compact MCB's
quality and reliability guaranteed

Circuit protection

A

B

C

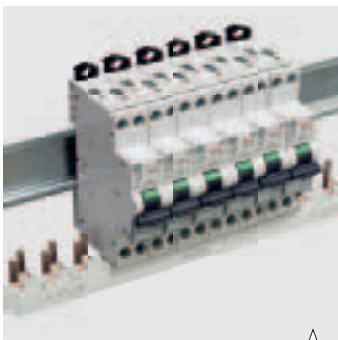
D

E

F

G

X



High performance clips

To fix the MCB to the DIN rail.



High performance torque

Up to 3Nm.

Easy to replace

Double clips make it easy to replace the MCB's, especially when a busbar is installed.



Userfriendly

All screws are on the same level to work fast and easy.



Green or red flag on toggle with isolation applications

Correct information about the real position. Minimum 5mm distance between open contacts is ensured.



Part of the family

Unibis™ MCB's fit perfectly in the Redline range.

Safety terminals IP20

The capacity of Unibis™ terminals has been doubled. Connection possibilities:
(2 x 4mm²)
or
(1 x 4mm²) + (1 x 6mm²).



Full functionality

A small auxiliary contact is the interface to the complete functionality of the Redline auxiliaries and accessories.



New

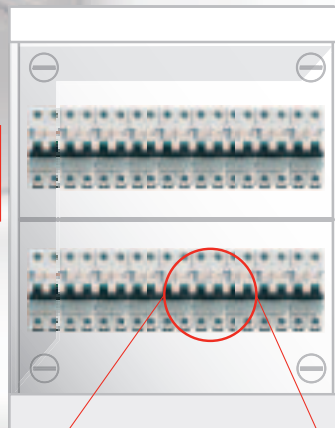


renovations

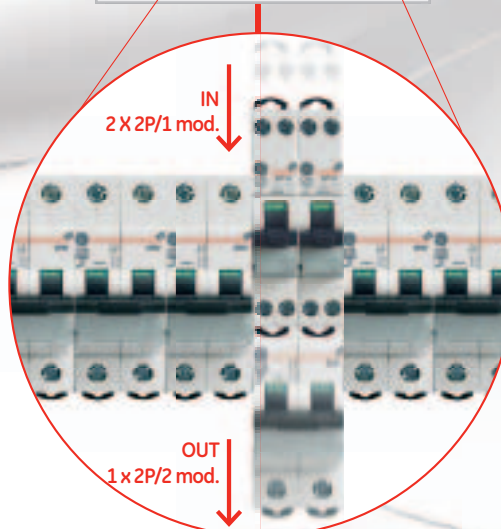
Saving up to 50% space
in distribution boards!

Before

18 x 2P MCB's
36 MODULES

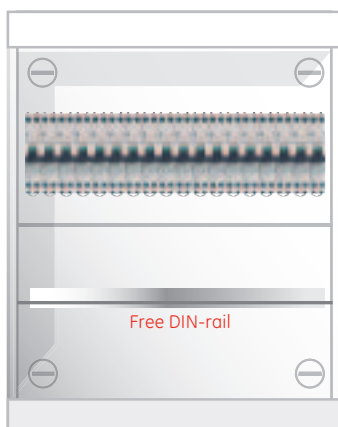


Replacing standard
MCB's by compact
Unibis™ MCB's

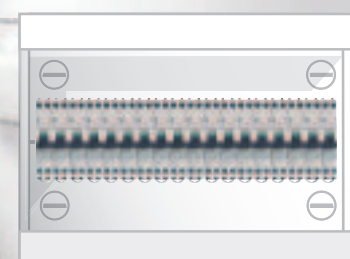


OR

FREE DIN-RAIL FOR
EXTENSIONS



DISTRIBUTION BOARD
REDUCED BY 50%



After

18 x 2P MCB's
18 MODULES

New

Technical data of compact MCB's

Series			EPC 451N	EPC 61N
Standards			EN 60898-1	EN 60898-1
Tripping characteristics			B,C	B,C
Nominal current			(In) 2-40	2-40
Calibration temperature			(°C) 30	30
Number of poles (# mod)			1+N (1 mod)	1+N (1 mod)
Neutral pole protected			-	-
Nominal voltage Un AC	1P+N	(V)	240	240
	1P+1P	(V)	-	-
	2P	(V)	-	-
	3P	(V)	-	-
	4P	(V)	-	-
Nominal voltage Un DC	2P	(V=)	-	-
Frequency			(Hz) 50/60	50/60
			in DC	Thresh. magn. + 40%
			for 400 Hz	Thresh. magn. + 50%
Maximum service voltage Ub max			(V) 250	250
Minimum service voltage Ub min			(V) 12	12
Selectivity class (EN 60898-1)			3	3
Rated insulation voltage	Pollution degree 2	(V)	500	500
	Pollution degree 3	(V)	400	400
Impulse withstand test voltage			(kV) 6	6
Insulation resistance			(MΩ) 1000	1000
Dielectric rigidity			(kV) 2.5	2.5
Vibration resistance (in x,y,z direction) (IEC 77/16.3)			(g) 3	3
Endurance	Electrical at Un,In		10000 ⁽¹⁾	10000 ⁽¹⁾
	Mechanical		20000	20000
Utilisation category (EN 60947-2)			A	A
Mounting position: vertical/horizontal			any	any
Incoming top or bottom			yes	yes
Protection degree (outside/inside enclosure with door)			IP20/IP40	IP20/IP40
Selfextinguish degree (acc. UL 94)			V2	V2
Tropicalisation (acc. EN 60068-2/DIN 40046)			+55°C/95%RH	+55°C/95%RH
Operating temperature			(°C) -25/+55	-25/+55
Storage temperature			(°C) -55/+55	-55/+55
Terminal capacity	Rigid cable min/max (top)	(mm ²)	1/16 ⁽²⁾	1/16 ⁽²⁾
	Flexible cable min/max (top)	(mm ²)	1/10 ⁽²⁾	1/10 ⁽²⁾
	Rigid cable min/max (bottom)	(mm ²)	1/16 ⁽²⁾	1/16 ⁽²⁾
	Flexible cable min/max (bottom)	(mm ²)	1/10 ⁽²⁾	1/10 ⁽²⁾
	Torque	(Nm)	3	3
Add-on devices	Auxiliary contacts		yes	yes
	Tele U		yes ⁽³⁾	yes ⁽³⁾
	Tele L		yes ⁽³⁾	yes ⁽³⁾
	Tele MP		yes ⁽³⁾	yes ⁽³⁾
	PBS		yes ⁽³⁾	yes ⁽³⁾
Busbar systems	Pin (top/bottom)		yes/yes	yes/yes
	Fork (top/bottom)		no/no	no/no
Accessories			yes	yes
Width per mod.			(mm) 18	18
Weight per mod.			(g) 125	125
Package			12	12
Approvals			KEMA, IMQ	VDE, KEMA, IMQ
CE- marking			yes	yes
Page			A.60	A.61

Short-circuit capacity of compact MCB's

Series			EPC 451N	EPC 61N
Short-circuit capacity AC			(kA)	(kA)
EN/IEC 60898-1	1P+N	240 V	4.5	6
	1P+1P	240 V	-	-
	2P	415 V	-	-
	3P	415 V	-	-
	4P	415 V	-	-
EN 60947-2 Ics (service)	1P+N	230 V	6	7.5
	1P+1P	230 V	-	-
	2P	415 V	-	-
	3P	415 V	-	-
	4P	415 V	-	-
Short-circuit capacity DC				
EN 60947-2 Icu	2P	96 V=		

(1) 8000 for 32 and 40 A

(2) Also accepting (2x4mm²) or (1x4mm²)+(1x6mm²)

(3) Requires CA auxiliary contact as interface

(4) Icn1= 6kA

EPC 101N	EPC 611	EPC 45	EPC 60
EN 60898-1	EN 60898-1	EN 60898-1	EN 60898-1
B,C	B,C	B,C	B,C
2-40	2-40	2-40	2-40
30	30	30	30
1+N (1 mod)	1P+1P (1 mod)	2 (1 mod), 3&4 (2 mod)	2 (1 mod), 3&4 (2 mod)
-	-	-	-
240	-	-	-
-	240	-	-
-	-	415	415
-	-	415	415
-	-	415	415
-	-	96	96
50/60	50/60	50/60	50/60
Thresh. magn. + 40%	Thresh. magn. + 40%	Thresh. magn. + 40%	Thresh. magn. + 40%
Thresh. magn. + 50%	Thresh. magn. + 50%	Thresh. magn. + 50%	Thresh. magn. + 50%
250	250/440	250/440	250/440
12	12	12	12
3	3	3	3
500	500	500	500
400	400	400	400
6	6	6	6
1000 ⁽¹⁾	1000	10000	10000
2.5	2.5	2.5	2.5
3	3	3	3
10000 ⁽¹⁾	10000 ⁽¹⁾	10000 ⁽¹⁾	10000 ⁽¹⁾
20000	20000	20000	20000
A	A	A	A
any	any	any	any
yes	yes	yes	yes
IP20/IP40	IP20/IP40	IP20/IP40	IP20/IP40
V2	V2	V2	V2
+55°C/95%RH	+55°C/95%RH	+55°C/95%RH	+55°C/95%RH
-25/+55	-25/+55	-25/+55	-25/+55
-55/+55	-55/+55	-55/+55	-55/+55
1/16 ⁽²⁾	1/16 ⁽²⁾	1/16 ⁽²⁾	1/16 ⁽²⁾
1/10 ⁽²⁾	1/10 ⁽²⁾	1/10 ⁽²⁾	1/10 ⁽²⁾
1/16 ⁽²⁾	1/16 ⁽²⁾	1/16 ⁽²⁾	1/16 ⁽²⁾
1/10 ⁽²⁾	1/10 ⁽²⁾	1/10 ⁽²⁾	1/10 ⁽²⁾
3	3	3	3
yes	yes	yes	yes
yes ⁽³⁾	yes ⁽³⁾	yes ⁽³⁾	yes ⁽³⁾
yes ⁽³⁾	yes ⁽³⁾	yes ⁽³⁾	yes ⁽³⁾
yes ⁽³⁾	yes ⁽³⁾	yes ⁽³⁾	yes ⁽³⁾
yes ⁽³⁾	yes ⁽³⁾	yes ⁽³⁾	yes ⁽³⁾
yes/yes	yes/yes	yes/yes	yes/yes
no/no	no/no	no/no	no/no
yes	yes	yes	yes
18	18	18/36	18/36
125	160	160/320	160/320
12	12/6	12/6	12/6
KEMA	VDE, IMQ	IMQ, NF	VDE, IMQ, NF, CEBEC
yes	yes	yes	yes
A.62	A.63	A.64	A.66

EPC 101N	EPC 611	EPC 45	EPC 60
(kA)	(kA)	(kA)	(kA)
10 ⁽⁴⁾	-	-	-
-	6	-	-
-	-	4.5	6
-	-	4.5	6
-	-	4.5	6
10	-	-	-
-	6	-	-
-	-	6	7.5
-	-	6	7.5
-	-	6	7.5
-	-	4.5	6

- (1) 8000 for 32 and 40 A
 (2) Also accepting (2x4mm²) or (1x4mm²)+(1x6mm²)
 (3) Requires CA auxiliary contact as interface
 (4) Icn1= 6kA

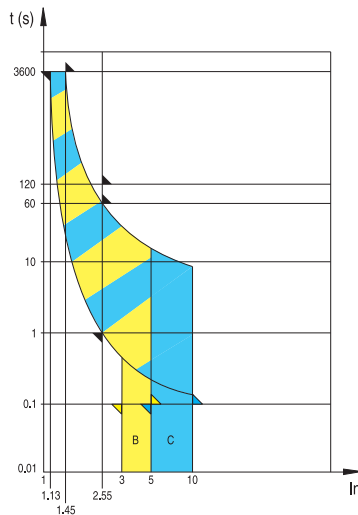


New

Characteristics according to IEC/EN 60898-1

Miniature Circuit Breakers (MCB) are intended for the protection of wiring installations against both overloads and short-circuits in domestic or commercial wiring installations where operation is possible by uninstructed people.

Tripping characteristic curves (EN/IEC 60898-1)



Magnetic release

An electromagnet with plunger ensures instantaneous tripping in the event of short-circuit. The standard distinguishes two different types, following the current for instantaneous release: type B and C.

Icn	Test current	Tripping time	Applications
B	3 x In	0.1 < t < 45s (In ≤ 32A) 0.1 < t < 90s (In > 32A)	Only for resistive loads such as: - electrical heating - water heater - stoves
C	5 x In	0.1 < t < 15s (In ≤ 32A) 0.1 < t < 30s (In > 32A)	Usual loads such as: - lighting - socket-outlets - small motors
	10 x In	t < 0.1s	

Thermal release

The release is initiated by a bimetal strip in case of overload. The standard defines the range of releases for specific overload values. Reference ambient temperature is 30°C.

Test current	Tripping time
1.13 x In	t ≥ 1h (In ≤ 63A) t ≥ 2h (In > 63A)
1.45 x In	t < 1h (In ≤ 63A) t < 2h (In > 63A)
2.55 x In	1s < t < 60s (In ≤ 32A) 1s < t < 120s (In > 32A)

Influence of ambient air temperature on the rated current

The maximum value of the current which can flow through an MCB depends of the nominal current of the MCB, the conductor cross-section as well as of the ambient air temperature.

The values shown in the table below are for devices in free air. For devices installed with other modular devices in the same switchboard a correction factor (K) shall be applied relative to the mounting situation of the MCB, the ambient temperature and the number of main circuits in the installation (EN 60439-1):

No. of devices	K
2 or 3	0.9
4 or 5	0.8
6 to 9	0.7
> 10	0.6

Calculation example

Within a distribution panel consisting of eight MCB's 2PC16 with an operating ambient temperature of 45°C, which is the highest temperature at which the MCB can operate without unwanted tripping.

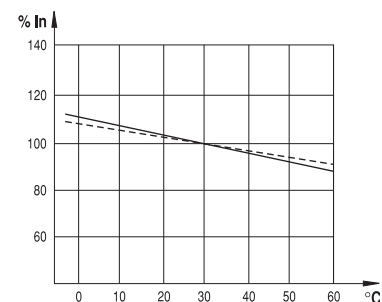
Calculation

The correction factor K=0.7, for use in an eight circuit installation: 16A x 0.7 = 11.2A

As the MCB is working at 45°C, another factor shall be applied (90% = 0.9):

In at 45°C = In at 30°C x 0.9 = 11.2A x 0.9 = 10.1A

The thermal calibration of the MCB's was carried out at an ambient temperature of 30°C. Ambient temperatures different from 30°C influence the bimetal and this results in earlier or later thermal tripping.



Tripping current as a function of the frequency

All MCB's are designed to work at frequencies of 50-60 Hz, therefore to work at different values, consideration must be given to the variation of the tripping characteristics. The thermal tripping does not change with variation of the frequency but the magnetic tripping values can be up to 50% higher than the ones at 50-60 Hz. For DC current magnetic tripping is 50% higher.

Tripping current variations

60Hz	100Hz	200Hz	300Hz	400Hz
1	1.1	1.2	1.4	1.5

Power losses

The power losses are calculated by measuring the voltage drop between the incoming and the outgoing terminals of the device at rated current.

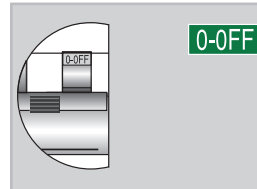
Power losses per pole

In (A)	Voltage drop (V)	Energy loss Pw (W)	Resistance Z (mOhm)
2	0.55	1.1	275.00
4	0.34	1.35	84.38
6	0.25	1.52	42.22
10	0.16	1.64	16.40
16	0.13	2.1	8.20
20	0.13	2.52	6.30
25	0.12	3.1	4.96
32	0.12	3.8	3.71
40	0.11	4.46	2.79

Toggle

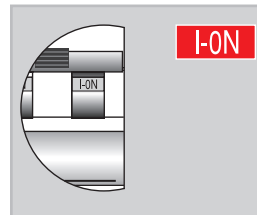
The toggle permits to switch the MCB ON or OFF

Printing on the toggle provides information of the real contact position.



0-OFF

Contacts in open position. Ensures a distance between contacts > 5mm in the Unibis™ range.



I-ON

Contacts in closed position. Ensures continuity in the main circuit.

Compact MCB's

A

B

C

D

E

F

G

X



Compact MCB's

Series EPC 451N

EN/IEC 60898-1

4500

3

EN/IEC 60947-2

6kA

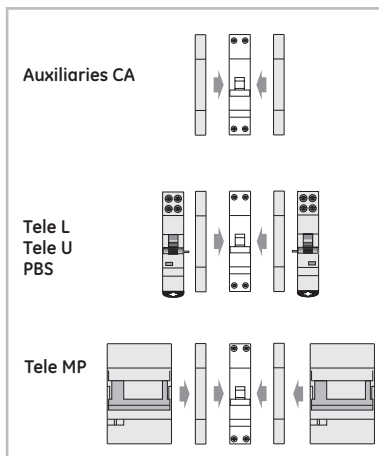
Applications



Approvals / Marking



Add-on devices



When coupling an add-on device (Tele L, Tele U, PBS, Tele MP) to the MCB, an universal CA auxiliary has to be coupled first as interface.

Auxiliary contacts ● pg C.6

Busbars ● pg E.2
Dimensions ● pg A.82

Performances

Thermal setting In	(A)	2-40
Rated voltage AC Un	(V)	240
Minimum operating voltage U _{Bmin}	(V)	12
Tripping characteristics		B-C
Selectivity class		3
Mechanical/electrical endurance		20000/10000 ⁽¹⁾
Tropicalisation acc. to EN/IEC 60068-2		55°C at 95% RH
Terminal capacity flexible/rigid cable	(mm ²)	10-16 ⁽²⁾
Poles		1P+N (1 mod)
Weight	(g)	125

Short-circuit capacity

Acc. to EN/IEC 60898-1

Poles	V	I _{cn} /I _{cs} (kA)
1P+N	240	4.5

Acc. to EN/IEC 60947-2

Poles	V	I _{cu} (kA)
1P+N	240	6

Attention: do not use on IT net configuration

Series EPC 451N - 4.5kA - characteristics B-C

	In (A)	B		C		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	
1P + N 1 mod.	2 ⁽³⁾	EPC 451N B02	692810	EPC 451N C02	692781	12
	4 ⁽³⁾	EPC 451N B04	692811	EPC 451N C04	692782	12
	6	EPC 451N B06	692812	EPC 451N C06	692783	12
1/2 N 2/1 N	10	EPC 451N B10	692813	EPC 451N C10	692784	12
	16	EPC 451N B16	692814	EPC 451N C16	692786	12
	20	EPC 451N B20	692815	EPC 451N C20	692787	12
	25	EPC 451N B25	692816	EPC 451N C25	692788	12
	32	EPC 451N B32	692817	EPC 451N C32	692789	12
	40 ⁽³⁾	EPC 451N B40	692818	EPC 451N C40	692790	12

(1) 8000 for 32 and 40A

(2) Also accepting (2x4mm²) or (1x4mm²)+(1x6mm²)

(3) On demand

New



Compact MCB's

Series EPC 61N



EN/IEC 60898-1

6000

3

EN/IEC 60947-2

7.5kA

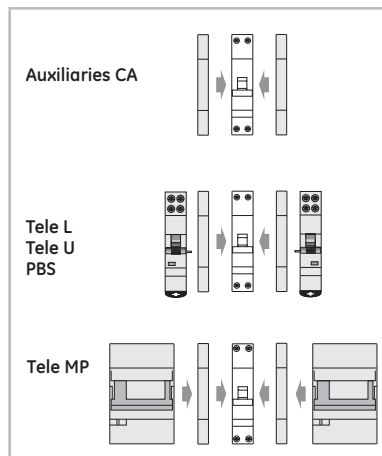
Applications



Approvals / Marking



Add-on devices



When coupling an add-on device (Tele L, Tele U, PBS, Tele MP) to the MCB, an universal CA auxiliary has to be coupled first as interface.

Auxiliary contacts ● pg C.6

Busbars ● pg E.2
Dimensions ● pg A.82

Performances

Thermal setting In	(A) 2-40
Rated voltage AC Un	(V) 240
Minimum operating voltage U _{Bmin}	(V) 12
Tripping characteristics	B-C
Selectivity class	3
Mechanical/electrical endurance	20000/10000 ⁽¹⁾
Tropicalisation acc. to EN/IEC 60068-2	55°C at 95% RH
Terminal capacity flexible/rigid cable	(mm ²) 10-16 ⁽²⁾
Poles	1P+N (1 mod)
Weight	(g) 125

Short-circuit capacity

Acc. to EN/IEC 60898-1

Poles	V	I _{cn} /I _{cs} (kA)
1P+N	240	6

Acc. to EN/IEC 60947-2

Poles	V	I _{cu} (kA)
1P+N	240	7.5

Attention: do not use on IT net configuration

Series EPC 61N - 6kA - characteristics B-C

	In (A)	B		C		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	
1P + N 1 mod.	2	EPC 61N B02	692819	EPC 61N C02	692791	12
	4	EPC 61N B04	692820	EPC 61N C04	692792	12
	6	EPC 61N B06	692821	EPC 61N C06	692793	12
	10	EPC 61N B10	692822	EPC 61N C10	692794	12
	13	EPC 61N B13	692604	EPC 61N C13	692795	12
1/2 N 2/1 N	16	EPC 61N B16	692823	EPC 61N C16	692796	12
	20	EPC 61N B20	692824	EPC 61N C20	692797	12
	25	EPC 61N B25	692825	EPC 61N C25	692798	12
	32	EPC 61N B32	692826	EPC 61N C32	692799	12
	40	EPC 61N B40	692827	EPC 61N C40	692800	12

(1) 8000 for 32 and 40A

(2) Also accepting (2x4mm²) or (1x4mm²)+(1x6mm²)



New



Compact MCB's

Series EPC 101N

EN/IEC 60898-1

10000

3

EN/IEC 60947-2

10kA

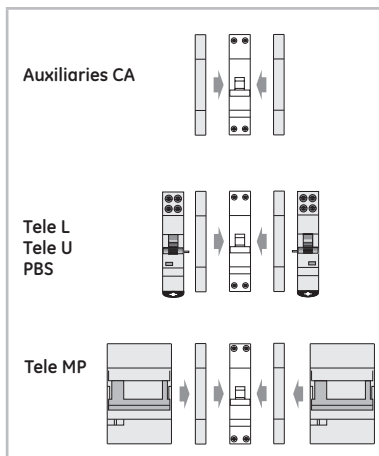
Applications



Approval / Marking



Add-on devices



When coupling an add-on device (Tele L, Tele U, PBS, Tele MP) to the MCB, an universal CA auxiliary has to be coupled first as interface.

Auxiliary contacts ● pg C.6

Busbars ● pg E.2
Dimensions ● pg A.82

Performances

Thermal setting In	(A)	2-40
Rated voltage AC Un	(V)	240
Minimum operating voltage U _{Bmin}	(V)	12
Tripping characteristics		B-C
Selectivity class		3
Mechanical/electrical endurance		20000/10000 ⁽¹⁾
Tropicalisation acc. to EN/IEC 60068-2		55°C at 95% RH
Terminal capacity flexible/rigid cable	(mm ²)	10-16 ⁽²⁾
Poles		1+N (1 mod)
Weight	(g)	125

Short-circuit capacity

Acc. to EN/IEC 60898-1

Poles	V	I _{cn} /I _{cs} (kA)
1P+N	240	10

Acc. to EN/IEC 60947-2

Poles	V	I _{cu} (kA) ⁽³⁾
1P+N	240	10

Attention: do not use on IT net configuration

Series EPC 101N - 10kA - characteristics B-C

	In (A)	B		C		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	
1P + N 1 mod.	2	EPC 101N B02	692828	EPC 101N C02	692801	12
	4	EPC 101N B04	692829	EPC 101N C04	692802	12
	6	EPC 101N B06	692830	EPC 101N C06	692803	12
	10	EPC 101N B10	692831	EPC 101N C10	692804	12
	13	EPC 101N B13	692605	EPC 101N C13	692606	12
1/2 N 2/1 N	16	EPC 101N B16	692832	EPC 101N C16	692805	12
	20	EPC 101N B20	692833	EPC 101N C20	692806	12
	25	EPC 101N B25	692834	EPC 101N C25	692807	12
	32	EPC 101N B32	692835	EPC 101N C32	692808	12
	40	EPC 101N B40	692836	EPC 101N C40	692809	12

(1) 8000 for 32 and 40A

(2) Also accepting (2x4mm²) or (1x4mm²)+(1x6mm²)

(3) I_{cn}1 = 6kA

New



Compact MCB's

Series EPC 611

EN/IEC 60898-1

6000

3

EN/IEC 60947-2

6kA

Performances

Thermal setting In	(A) 2-40
Rated voltage AC Un	(V) 230
Minimum operating voltage U _{Bmin}	(V) 12
Tripping characteristics	B-C
Selectivity class	3
Mechanical/electrical endurance	20000/10000 ⁽¹⁾
Tropicalisation acc. to EN/IEC 60068-2	55°C at 95% RH
Terminal capacity flexible/rigid cable	(mm ²) 10-16 ⁽²⁾
Poles	1P+1P (1 mod)
Weight	(g) 125

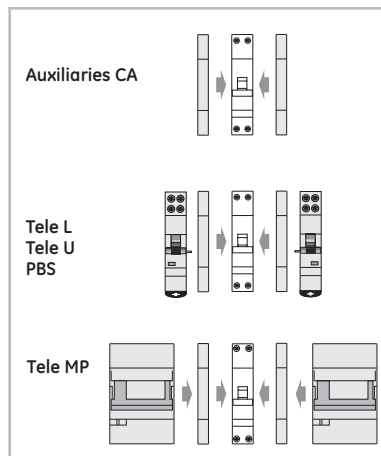
Applications



Approval / Marking



Add-on devices



When coupling an add-on device (Tele L, Tele U, PBS, Tele MP) to the MCB, an universal CA auxiliary has to be coupled first as interface.

Auxiliary contacts ● pg C.6

Busbars ● pg E.2
Dimensions ● pg A.82

Short-circuit capacity

Acc. to EN/IEC 60898-1

Poles	V	I _{cn} /I _{cs} (kA)
1 + 1	230	6

Acc. to EN/IEC 60947-2

Poles	V	I _{cu} (kA)
1 + 1	230	6

Attention: do not use on IT net configuration

Series EPC 611 - 6kA - characteristics B-C

In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
2	EPC 611 B02	692689	EPC 611 C02	692699	12
4	EPC 611 B04	692690	EPC 611 C04	692700	12
6	EPC 611 B06	692691	EPC 611 C06	692701	12
10	EPC 611 B10	692692	EPC 611 C10	692702	12
13	EPC 611 B13	692693	EPC 611 C13	692703	12
16	EPC 611 B16	692694	EPC 611 C16	692704	12
20	EPC 611 B20	692695	EPC 611 C20	692705	12
25	EPC 611 B25	692696 ⁽³⁾	EPC 611 C25	692706 ⁽³⁾	12
32	EPC 611 B32	692697 ⁽³⁾	EPC 611 C32	692707 ⁽³⁾	12
40	EPC 611 B40	692698 ⁽³⁾	EPC 611 C40	692708 ⁽³⁾	12
25+10	EPC 611 B25B10	693382	EPC 611 C25C10	693391	12
25+13	EPC 611 B25B13	693383	EPC 611 C25C13	693392	12
25+16	EPC 611 B25B16	693384	EPC 611 C25C16	693393	12
32+10	EPC 611 B32B10	693385	EPC 611 C32C10	693394	12
32+13	EPC 611 B32B13	693386	EPC 611 C32C13	693395	12
32+16	EPC 611 B32B16	693387	EPC 611 C32C16	693396	12
40+10	EPC 611 B40B10	693388	EPC 611 C40C10	693397	12
40+13	EPC 611 B40B13	693389	EPC 611 C40C13	693398	12
40+16	EPC 611 B40B16	693390	EPC 611 C40C16	693399	12

⁽¹⁾ 8000 for 32 and 40A
⁽²⁾ Also accepting (2x4mm²) or (1x4mm²)+(1x6mm²)
⁽³⁾ On request



New



Compact MCB's

Series EPC 45

EN/IEC 60898-1

4500

3

EN/IEC 60947-2

6kA

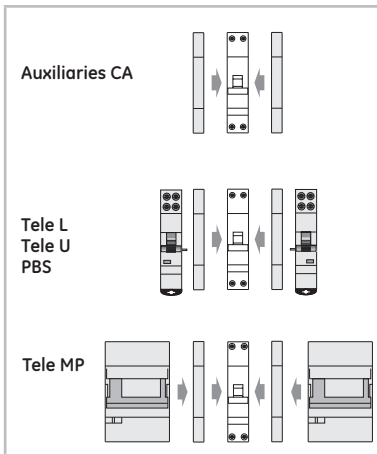
Applications



Approvals / Marking



Add-on devices



When coupling an add-on device (Tele L, Tele U, PBS, Tele MP) to the MCB, an universal CA auxiliary has to be coupled first as interface.

Performances

Thermal setting In	(A)	2-40
Rated voltage AC Un	(V)	240/415
Minimum operating voltage U _{Bmin}	(V)	12
Tripping characteristics		B-C
Selectivity class		3
Mechanical/electrical endurance		20000/10000 ⁽¹⁾
Tropicalisation acc. to EN/IEC 60068-2		55°C at 95% RH
Terminal capacity flexible/rigid cable	(mm ²)	10-16 ⁽²⁾
Poles		2, 3, 4
Weight	(g/mod)	160

Short-circuit capacity

Acc. to EN/IEC 60898-1

Poles	V	I _{cn} /I _{cs} (kA)
2P	415	4.5
3P	415	4.5
4P	415	4.5

Acc. to EN/IEC 60947-2

Poles	V	I _{cu} (kA)
2P	415	6
3P	415	6
4P	415	6

DC acc. EN/IEC 60947-2

Poles	Un (V $\overline{\text{=}}$)	I _{cu} (kA)
2P	96	4,5

(1) 8000 for 32 and 40A

(2) Also accepting (2x4mm²) or (1x4mm²)+(1x6mm²)

Auxiliary contacts ● pg C.6

Busbars ● pg E.2
Dimensions ● pg A.82

New



Series EPC 45 - 4.5kA - characteristics B-C

	In (A)	B		C		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	
 2P 1 mod. 1/2 3/4 2/1 4/3	2	EPC 452 B02	692608	EPC 452 C02	692527	12
	4	EPC 452 B04	692609	EPC 452 C04	692528	12
	6	EPC 452 B06	692610	EPC 452 C06	692529	12
	10	EPC 452 B10	692611	EPC 452 C10	692530	12
	16	EPC 452 B16	692612	EPC 452 C16	692531	12
	20	EPC 452 B20	692613	EPC 452 C20	692532	12
	25	EPC 452 B25	692614	EPC 452 C25	692533	12
	32	EPC 452 B32	692615	EPC 452 C32	692534	12
	40	EPC 452 B40	692616	EPC 452 C40	692535	12
 3P⁽¹⁾ 2 mod. 1/2 3/4 5/6 2/1 4/3 6/5	2	EPC 453 B02	692617	EPC 453 C02	692536⁽¹⁾	6
	4	EPC 453 B04	692618	EPC 453 C04	692537⁽¹⁾	6
	6	EPC 453 B06	692619	EPC 453 C06	692538⁽¹⁾	6
	10	EPC 453 B10	692620	EPC 453 C10	692539⁽¹⁾	6
	16	EPC 453 B16	692621	EPC 453 C16	692540⁽¹⁾	6
	20	EPC 453 B20	692622	EPC 453 C20	692541⁽¹⁾	6
	25	EPC 453 B25	692623	EPC 453 C25	692542⁽¹⁾	6
	32	EPC 453 B32	692624	EPC 453 C32	692543⁽¹⁾	6
	40	EPC 453 B40	692625	EPC 453 C40	692544⁽¹⁾	6
 4P 2 mod. 1/2 3/4 5/6 7/8 2/1 4/3 6/5 8/7	2	EPC 454 B02	692626	EPC 454 C02	692545	6
	4	EPC 454 B04	692627	EPC 454 C04	692546	6
	6	EPC 454 B06	692628	EPC 454 C06	692547	6
	10	EPC 454 B10	692629	EPC 454 C10	692548	6
	16	EPC 454 B16	692630	EPC 454 C16	692549	6
	20	EPC 454 B20	692631	EPC 454 C20	692550	6
	25	EPC 454 B25	692632	EPC 454 C25	692551	6
	32	EPC 454 B32	692633	EPC 454 C32	692552	6
	40	EPC 454 B40	692634	EPC 454 C40	692553	6

(1) The auxiliary contact CA must be placed only on the **left side** of the 3P MCB's

Series EPC 45

A

B

C

D

E

F

G

X



Compact MCB's

Series EPC 60

EN/IEC 60898-1	6000
	3
EN/IEC 60947-2	7.5kA

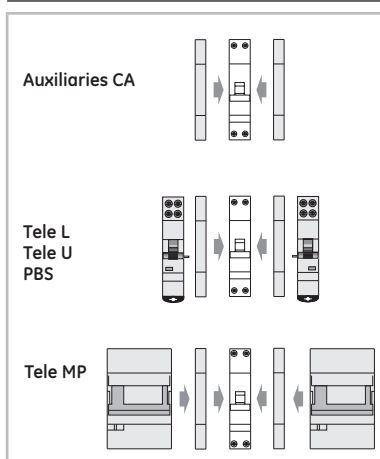
Applications



Approvals / Marking



Add-on devices



When coupling an add-on device (Tele L, Tele U, PBS, Tele MP) to the MCB, an universal CA auxiliary has to be coupled first as interface.

Performances

Thermal setting In	(A) 2-40
Rated voltage AC Un	(V) 240/415
Minimum operating voltage U _{Bmin}	(V) 12
Tripping characteristics	B-C
Selectivity class	3
Mechanical/electrical endurance	20000/10000 ⁽¹⁾
Tropicalisation acc. to EN/IEC 60068-2	55°C at 95% RH
Terminal capacity flexible/rigid cable	(mm ²) 10-16 ⁽²⁾
Poles	2,3,4
Weight/mod	(g) 160

Short-circuit capacity

Acc. to EN/IEC 60898-1

Poles	V	I _{cn} /I _{cs} (kA)
2P	240/415	6
3P	240/415	6
4P	240/415	6

Acc. to EN/IEC 60947-2

Poles	V	I _{cu} (kA)
2P	240/415	7.5
3P	240/415	7.5
4P	240/415	7.5

(1) 8000 for 32 and 40A

(2) Also accepting (2x4mm²) or (1x4mm²)+(1x6mm²)

Auxiliary contacts ● pg C.6

Busbars ● pg E.2
Dimensions ● pg A.82

Series EPC 60 - 6kA - characteristics B-C



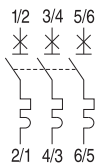
2P
1 mod.



In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
2	EPC 62 B02	692635	EPC 62 C02	692554	12
4	EPC 62 B04	692636	EPC 62 C04	692555	12
6	EPC 62 B06	692637	EPC 62 C06	692556	12
10	EPC 62 B10	692638	EPC 62 C10	692557	12
16	EPC 62 B16	692639	EPC 62 C16	692558	12
20	EPC 62 B20	692640	EPC 62 C20	692559	12
25	EPC 62 B25	692641	EPC 62 C25	692560	12
32	EPC 62 B32	692642	EPC 62 C32	692561	12
40	EPC 62 B40	692643	EPC 62 C40	692562	12



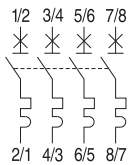
3P(1)
2 mod.



2	EPC 63 B02	692644	EPC 63 C02	692563 ⁽¹⁾	6
4	EPC 63 B04	692645	EPC 63 C04	692564 ⁽¹⁾	6
6	EPC 63 B06	692646	EPC 63 C06	692565 ⁽¹⁾	6
10	EPC 63 B10	692647	EPC 63 C10	692566 ⁽¹⁾	6
16	EPC 63 B16	692648	EPC 63 C16	692567 ⁽¹⁾	6
20	EPC 63 B20	692649	EPC 63 C20	692568 ⁽¹⁾	6
25	EPC 63 B25	692650	EPC 63 C25	692569 ⁽¹⁾	6
32	EPC 63 B32	692651	EPC 63 C32	692570 ⁽¹⁾	6
40	EPC 63 B40	692652	EPC 63 C40	692571 ⁽¹⁾	6



4P
2 mod.



2	EPC 64 B02	692653	EPC 64 C02	692572	6
4	EPC 64 B04	692654	EPC 64 C04	692573	6
6	EPC 64 B06	692655	EPC 64 C06	692574	6
10	EPC 64 B10	692656	EPC 64 C10	692575	6
16	EPC 64 B16	692657	EPC 64 C16	692576	6
20	EPC 64 B20	692658	EPC 64 C20	692577	6
25	EPC 64 B25	692659	EPC 64 C25	692578	6
32	EPC 64 B32	692660	EPC 64 C32	692579	6
40	EPC 64 B40	692661	EPC 64 C40	692580	6

(1) The auxiliary contact CA must be placed only on the **left side** of the 3P MCB's

Series EPC 60

A

B

C

D

E

F

G

X



New

Fixwell™

Screwless & Plug-in

The new range of *Fixwell™* MCB

Circuit protection

A

B

C

D

E

F

G

X



Screwless contact

At the top all *Fixwell™* MCB's are equipped with 2 screwless contacts per pole, up to 2 x 4mm².

Terminal contact stability guaranteed

No tightening needed later on.



Easy to disconnect

Plug-in the cable to connect, release by pressing the push-button. Tightening and releasing by screws is history !

- ✓ 100% screwless top cable connection up to 20A
- ✓ 100% screwless bottom plug-in connection for standard GE pin busbars up to 63A
- ✓ 100% toolfree installation
- ✓ 100% reliable & safe

New



g-in 's and RCCB's

Plug-in connection with standard pin busbars

Click and unclick a standard busbar
with a simple operation

Terminal contact stability guaranteed

No tightening needed later on.

Standard pin busbars
as used for all Redline
products

Plug-in connection

All Fixwell™ MCB's and RCCB's are
equipped with plug-in busbar contacts.

New



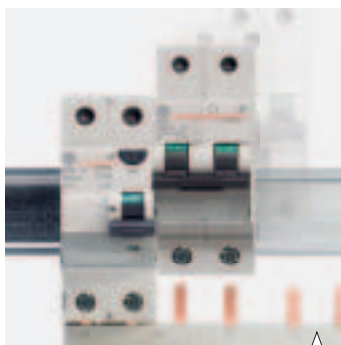
Easy, Fast and

How to install MCB's and RCCB's without tools within seconds

Fixwell™ **MCB's** and **RCCB's** are the most recent extension of the ElfaPlus range and are developed **to reduce time of installation to the absolute minimum.** A toolfree installation with guaranteed reliability from the very first moment by **plug & play.** A 100% compatibility with all ElfaPlus accessories and auxiliaries are the keys of success of this innovative range of MCB's and RCCB's.

1 hour becomes 30 min.

>50% time reduction using manual screwdriver
>30% time reduction using electrical screwdriver



Plug-in connection with standard busbars

All Fixwell™ MCB's and RCCB's are equipped at the bottom with screwless plug-in contacts for GE standard pin busbars. Click and unclic with a simple operation. Time consuming tightening is no longer needed.

Easy DIN-rail extraction



Up to 63A



Integrated guide

Moulded channels smoothly guide the cables to the terminals in all conditions.

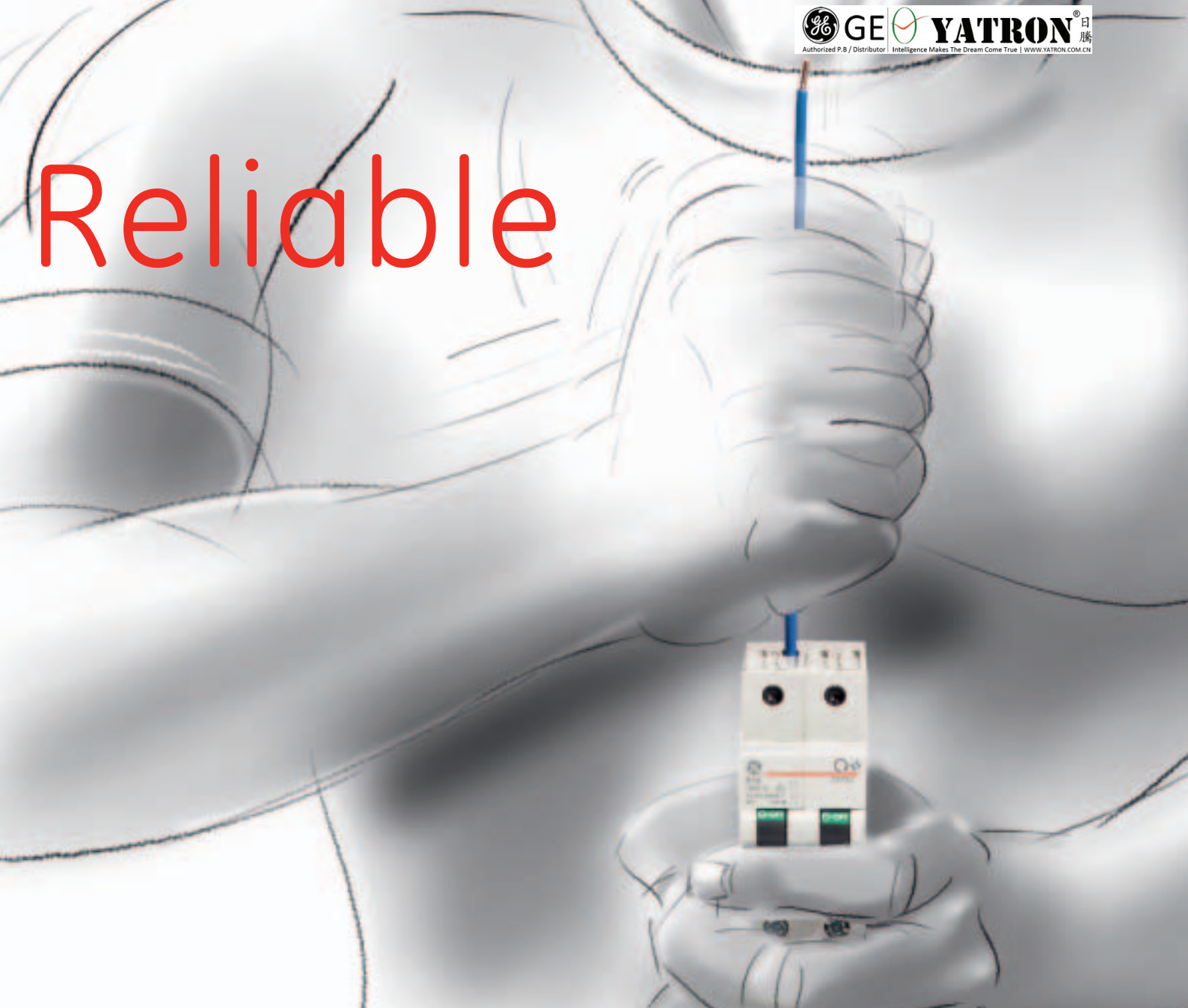
User-friendly

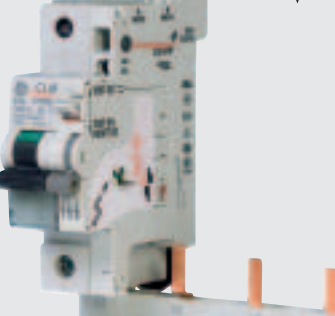
Determine the perfect length (14mm) of the bare cable using the integrated measurement tool.



New

Reliable



 Up to 20A	Sure and secure from the first moment Push down vertically the cable into the contact until the withstand. From that very moment is the cable in perfect position. No additional tightening is required.		Part of the family Fixwell™ MCB's and RCCB's fit perfectly in the ElfaPlus range and are compatible with all ElfaPlus auxiliaries and accessories.
Rigid and flexible cable You have the choice : rigid cable or multiwire from 1 up to 4mm². It doesn't matter, our Fixwell™ MCB's are accepting both! No cable crimps needed.	 'plug&play'	Reliable connection The unique concept of Fixwell™ screwless contacts guarantees a permanent pull-out force much higher than standards request. The terminal contacts stability along the time is guaranteed. You can rely on Fixwell™.	

New

Technical data of screwless MCB's

Series				EPP60	EPP100
Standards				IEC/EN 60898-1	IEC/EN 60898-1
Tripping characteristics				B,C	B,C
Nominal current ⁽¹⁾		(A)		6 - 63	6 - 63
Calibration temperature		(°C)		30	30
Number of poles (# mod)				1/1P+N/2/3/3P+N/4P	1/2/3/3P+N/4P
Neutral pole protected				yes	yes
Clip-on (rapid closing)				yes	yes
Nominal voltage (Un)	AC	1P	(V)	240/415	240/415
		1P+N	(V)	240	240
		2P	(V)	415	415
		3P/3P+N/4P	(V)	415	415
	DC	1P ⁽²⁾	(VDC)	48	48
		2P (in series) ⁽²⁾	(VDC)	110	110
Frequency			(Hz)	50 to 60	50 to 60
Use in D.C.			(Hz)	DC:	DC:
				magn. trip. +40%	magn. trip. +40%
			(Hz)	400Hz:	400Hz:
				magn. trip. +50%	magn. trip.+ 50%
Maximum service voltage (U _{bmax}) between two wires			(V)	250/440; 53/120 DC	250/440; 53/120 DC
Minimum service voltage (U _{bmin})			(V)	12; 12 DC	12; 12 DC
Selectivity class (IEC/EN 60898-1)				3	3
Isolator application		EN 60947-2		yes	yes
Rated insulation voltage	Pollution degree 2		(V)	500	500
	Pollution degree 3		(V)	440	440
Impulse withstand test voltage			(kV)	6	6
Insulation resistance			(MΩ)	10000	10000
Dielectric rigidity			(kV)	2.5	2.5
Vibration resistance (in x, y, z direction) (IEC 77/16.3)				3g	3g
Endurance	Electrical at Un, In			10000	10000
	Mechanical			20000	20000
Utilisation category (EN 60947-2)				A	A
Protection degree (outside / inside enclosure)				IP20/IP40	IP20/IP40
Self-extinguish degree (acc. to UL94)				V2	V2
Tropicalisation (EN 60068-2 / DIN 40046)			(°C/RH)	+55°C / 95%RH	+55°C / 95%RH
Operating temperature ⁽³⁾			(°C)	-25/+55	-25/+55
Storage temperature			(°C)	-55/+55	-55/+55
Terminal capacity				see page A.72	see page A.74
Add-on devices (side add-on)	Auxiliary contacts CA			yes	yes
	Tele U ⁽⁴⁾			yes	yes
	Tele L ⁽⁴⁾			yes	yes
	Tele MP ⁽⁴⁾			yes	yes
	PBS ⁽⁴⁾			yes	yes
Busbar system bottom	Pin			yes	yes
	Fork			no	no
Accessories				yes	yes
Dimensions, weights, packaging					
		(HxDxW) per module	(mm)	88.4x68x18	88.4x68x18
		Weight/module	(g)	125	125
		Package unit		12	12
Approvals ⁽⁵⁾				VDE-KEMA-CEBEC-IMQ	VDE-KEMA-CEBEC-IMQ
CE-marking				yes	yes

(1) Rating current derating as usual in function of installation conditions.

(2) Preferred values of rated control supply voltage (EN/IEC 60947-2): 24VDC, 48VDC, 110VDC, 125VDC, 220VDC, 250VDC.

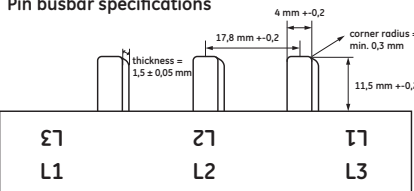
(3) With plug-in pin busbar: -25/+50°C

(4) Only at **any extreme side** of the row. No pin busbars let through allowed.

(5) 4P execution approval pending.

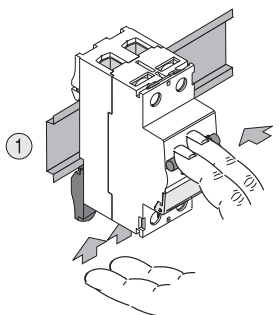
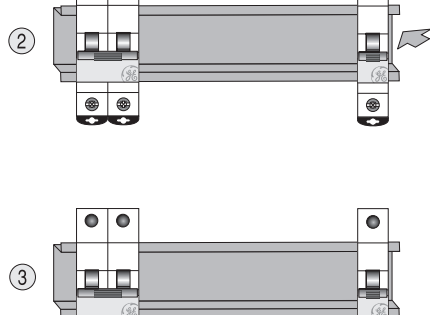
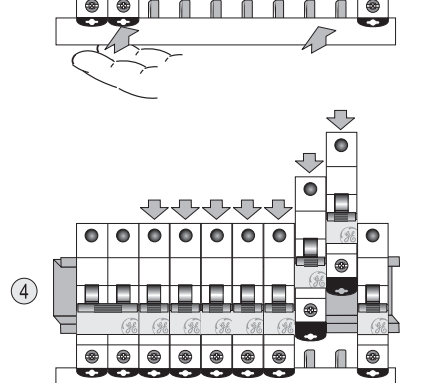
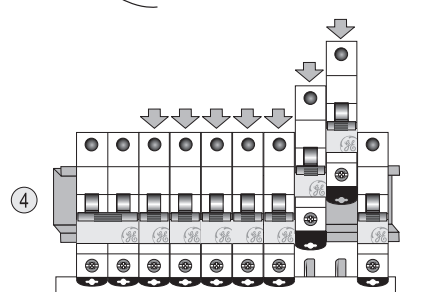
Terminal capacity

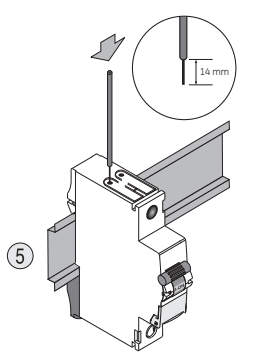
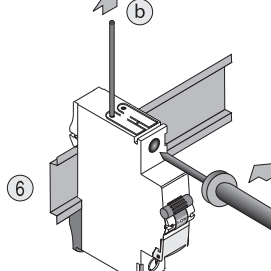
Top terminals		Ratings 6A to 20A:	Ratings 25A to 63A:
		Screwless (Max. 2 wires)	Cage terminals
Rigid cable (min/max)	mm ²	2 x (1/4) ⁽¹⁾	1/35
Flexible cable (min/max)	mm ²	2 x (1.5/4) ⁽¹⁾	0.75/ 25
Recommended torque	Nm	-	2.5
Maximum torque	Nm	-	4.5

Bottom terminals		Ratings 6A to 63A:	Ratings 6A to 63A:	Pin busbar specifications
		Bottom cage terminals ⁽²⁾	Bottom flat plug-in terminals ⁽³⁾	
Rigid cable (min/max)	mm ²	1/25	To insert GE pin busbars, or other brands under following dimensions:	
Flexible cable (min/max)	mm ²	0.75/16	Length = 11.5 ± 0.2 mm	
Recommended torque	Nm	2.5	Width = 4 ± 0.2 mm	
Maximum torque	Nm	4.5	Thickness = 1.5 ± 0.05 mm Corners min. radius = 0.3 mm	

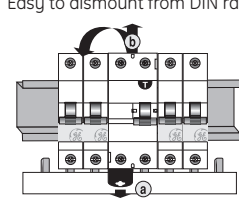
- (1) The top screwless terminal is composed of two separate and parallel terminals. You can connect one rigid or flexible cable into each terminal. The bare cable (insulation removed to the appropriate length) should be pushed into the screwless terminal (Fig 5), the terminals will not accept cables with cable lugs or ferrules. For flexible cables it is recommended to twist wires and insert it into the terminal by pressing the push button. To release the cable press the push-button of the MCB and at the same time gently pull the cable (Fig 6).
- (2) Bottom terminals provide a cage terminal to connect also cables to feed other rows /devices limited to rated current of the device.
- (3) Plug-in window terminals are only foreseen for pin busbars providing the incoming supply to several devices from the bottom side.
Not intended for any other conductor with or without cable lugs or cable connectors.

How to mount the busbar into devices

1. Mount first 2, 3 or 4 poles devices on the DIN-rail at the extreme **left** side of the row.
2. Mount one device at the extreme **right** side on the DIN-rail.
3. Fit the pin busbar on both devices.
4. Then, mount one by one the rest of poles pulling down the grey clip previously, inserting the pin bars inside the devices and then closing the clip of every device.
5. Finally, remove 14mm of plastic from every wire and insert them vertically one by one inside the top screwless terminals.
6. For disconnecting the outgoing wires.



Easy to dismantled from DIN rail

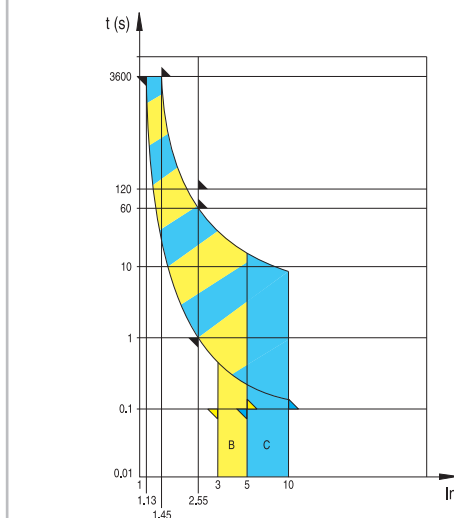
Short-circuit capacity of screwless MCB's

Series			EPP60	EPP100	
Short-circuit capacity AC		(kA)			
IEC/EN 60898-1	Icn	1P	230/400V	6	10
		1P+N	230V	6	10
		2P	230/400V	6	10
		3P/3P+N/4P	230/400V	6	10
Ics (service)			100% Icu	75% Icu	
IEC/EN 60947-2	Icu (max.)	1P	127V	20	30
			240V	10	15
			415V	3	4
		1P+N/2P	127V	30	40
			240V	20	30
			415V	10	15
		3P/3P+N/4P	240V	20	30
			415V	10	15
			440V	6	10
		Ics (service)			75% Icu
Short-circuit capacity DC		(kA)			
IEC/EN 60947-2	Icu (max.)	1P	≤60V	20	25
			≤125V	-	-
			≤220V	-	-
		2P	≤125V	25	30
			≤440V	-	-
Ics (service)			100% Icu	100% Icu	

Characteristics according to IEC/EN 60898-1

Miniature Circuit Breakers (MCB) are intended for the protection of wiring installations against both overloads and short-circuits in domestic or commercial wiring installations where operation is possible by uninstructed people.

Tripping characteristic curves (EN/IEC 60898-1)



Magnetic release

An electromagnet with plunger ensures instantaneous tripping in the event of short-circuit. The standard distinguishes two different types, following the current for instantaneous release: type B and C.

Icn (A)	Test current	Tripping time	Applications
B	3 x I _n	0.1 < t < 45s (I _n ≤ 32A) 0.1 < t < 90s (I _n > 32A)	Only for resistive loads such as: - electrical heating - water heater - stoves
	5 x I _n	t < 0.1s	
C	5 x I _n	0.1 < t < 15s (I _n ≤ 32A) 0.1 < t < 30s (I _n > 32A)	Usual loads such as: - lighting - socket-outlets - small motors
	10 x I _n	t < 0.1s	

Thermal release

The release is initiated by a bimetal strip in case of overload. The standard defines the range of releases for specific overload values.

Reference ambient temperature is 30°C.

Test current	Tripping time
1.13 x I _n	t ≥ 1h (I _n ≤ 63A) t ≥ 2h (I _n > 63A)
1.45 x I _n	t < 1h (I _n ≤ 63A) t < 2h (I _n > 63A)
2.55 x I _n	1s < t < 60s (I _n ≤ 32A) 1s < t < 120s (I _n > 32A)

Influence of ambient air temperature on the rated current

The maximum value of the current which can flow through a MCB depends of the nominal current of the MCB, the conductor cross-section as well as of the ambient air temperature.

The values shown in the table below are for devices in the free air. For devices installed with other modular devices in the same switchboard a correction factor (K) shall be applied relative to the mounting situation of the MCB, the ambient temperature and the number of main circuits in the installation (EN 60439-1):

No. of devices	K
2 or 3	0.9
4 or 5	0.8
6 to 9	0.7
> 10	0.6

Calculation example

Within a distribution panel consisting of eight MCB 2PC16 with an operating ambient temperature of 45°C, which is the highest temperature the MCB can operate without unwanted tripping.

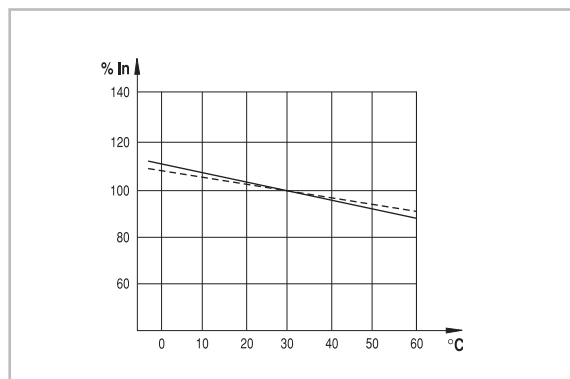
Calculation

The correction factor $K=0.7$, for use in an eight circuit installation: $16A \times 0.7 = 11.2A$

As the MCB is working at 45°C it shall be applied another factor (90% = 0.9):

$I_n \text{ at } 45^\circ\text{C} = I_n \text{ at } 30^\circ\text{C} \times 0.9 = 11.2A \times 0.9 = 10.1A$

The thermal calibration of the MCB's was carried out at ambient temperature of 30°C. Ambient temperatures different from 30°C influence the bimetal and this results in earlier or later thermal tripping.



Tripping current as a function of the frequency

All MCB's are designed to work at frequencies of 50-60 Hz, therefore to work at different values, consideration must be given to the variation of the tripping characteristics.

The thermal tripping does not change with variation of the frequency but the magnetic tripping values can be up to 50% higher than the ones at 50-60 Hz.

For DC current magnetic tripping is 50% higher.

Tripping current variations

60Hz	100Hz	200Hz	300Hz	400Hz
1	1.1	1.2	1.4	1.5

Power losses

The power losses are calculated by measuring the voltage drop between the incoming and the outgoing terminals of the device at rated current.

Power losses per pole

In (A)	Voltage drop (V)	Energy loss Pw (W)	Resistance Z (mOhm)
0.5	2.23	1.12	4458.00
1	1.27	1.27	1272.00
2	0.62	1.24	310.00
3	0.52	1.56	173.00
4	0.37	1.49	93.00
6	0.26	1.57	43.60
8	0.16	1.24	19.40
10	0.16	1.56	15.60
13	0.16	2.01	11.90
16	0.16	2.57	10.10
20	0.14	2.76	6.90
25	0.13	3.19	5.10
32	0.10	3.07	3.00
40	0.10	4.00	2.50
50	0.09	4.50	1.80
63	0.08	5.16	1.30



Screwless MCB's

Series EPP60

IEC/EN 60898-1	6000
	3
IEC/EN 60947-2	10 kA

Applications



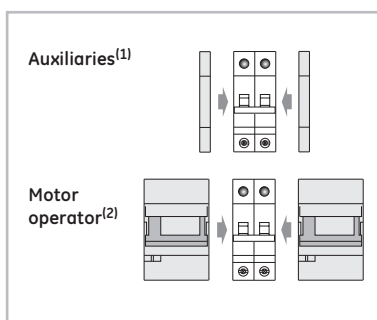
Approvals / Marking



Screwless connection



Add-on devices



(1) Series CA - Tele L - Tele U - PBS

(2) Only one extension at the extreme end of the pin busbar

Performances

Thermal setting In	(A)	6-63
Rated voltage AC Un	(V)	240/415
Minimum operating voltage UBmin	(V)	12, 12 DC
Tripping characteristics		B,C
Mechanical/electrical endurance		20000/10000
Tropicalisation acc.to IEC 60068-2		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²)	25-35
Poles		1/1P+N/2/3/3P+N/4P
Weight	(g/mod)	125

Short-circuit capacity

AC acc. IEC/EN 60898-1

Poles	V	Icn/Ics (kA) ⁽¹⁾
1	230/400	6

AC acc. IEC/EN 60947-2

Poles	V	Icu (kA)
1	240	10
1+N, 2	127	30
	240	20
2	415	10
3, 3+N, 4	240	20
	415	10

DC acc. IEC/EN 60947-2

Poles	Un (V )	Icu/Ics (kA)
1	≤ 60	20
2	≤ 125	25

(1) Ics = 75% Icn

Screwless & Plug-in

Series EPP60 - characteristic B and C



1P

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

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63

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N

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50

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13

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20

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32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2

13

16

20

25

32

40

50

63

2/1

N

1/2



Screwless MCB's

Series EPP100

IEC/EN 60898-1	10000
	3
IEC/EN 60947-2	15 kA

Applications



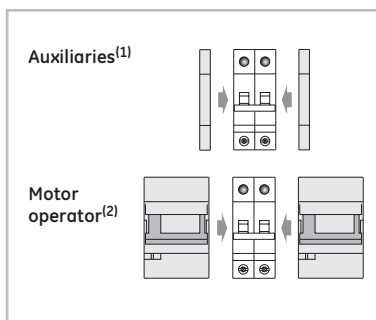
Approvals / Marking



Screwless connection



Add-on devices



(1) Series CA - Tele L - Tele U - PBS

(2) Only one extension at the extreme end of the pin busbar

Performances

Thermal setting In	(A)	6-63
Rated voltage AC Un	(V)	240/415
Minimum operating voltage U _{Bmin}	(V)	12, 12 DC
Tripping characteristics		B,C
Mechanical/electrical endurance		20000/10000
Tropicalisation acc.to IEC 60068-2		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²)	25-35
Poles		1/2/3/3P+N/4P
Weight	(g/mod)	125

Short-circuit capacity

AC acc. IEC/EN 60898-1

Poles	V	I _{cn} (kA) ⁽¹⁾
1-4	230/400	10

AC acc. IEC/EN 60947-2

Poles	V	I _{cu} (kA) ⁽²⁾
1	240	15
1+N, 2	127	40
	240	30
2	415	15
3, 3+N, 4	240	30
	415	15

DC acc. IEC/EN 60947-2

Poles	Un (V )	I _{cu} /I _{cs} (kA)
1	≤ 60	25
2	≤ 125	30

(1) I_{cs} = 75% I_{cn}

(2) I_{cs} = 50% I_{cu}

Screwless & Plug-in

Series EPP100 - characteristic B and C



1P

1/2

16

20

25

32

40

50

63

In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	EPP101B06	678262	EPP101C06	678302	12
10	EPP101B10	678263	EPP101C10	678303	12
13	EPP101B13	678264	EPP101C13	678304	12
16	EPP101B16	678265	EPP101C16	678305	12
20	EPP101B20	678266	EPP101C20	678306	12
25	EPP101B25	678267	EPP101C25	678307	12
32	EPP101B32	678268	EPP101C32	678308	12
40	EPP101B40	678269	EPP101C40	678309	12
50	EPP101B50	678270	EPP101C50	678310	12
63	EPP101B63	678271	EPP101C63	678311	12



2P

1/2

3/4

16

20

25

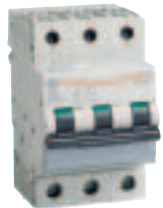
32

40

50

63

6	EPP102B06	678272	EPP102C06	678312	6
10	EPP102B10	678273	EPP102C10	678313	6
13	EPP102B13	678274	EPP102C13	678314	6
16	EPP102B16	678275	EPP102C16	678315	6
20	EPP102B20	678276	EPP102C20	678316	6
25	EPP102B25	678277	EPP102C25	678317	6
32	EPP102B32	678278	EPP102C32	678318	6
40	EPP102B40	678279	EPP102C40	678319	6
50	EPP102B50	678280	EPP102C50	678320	6
63	EPP102B63	678281	EPP102C63	678321	6



3P

1/2

3/4

5/6

16

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25

32

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63

6	EPP103B06	678282	EPP103C06	678322	4
10	EPP103B10	678283	EPP103C10	678323	4
13	EPP103B13	678284	EPP103C13	678324	4
16	EPP103B16	678285	EPP103C16	678325	4
20	EPP103B20	678286	EPP103C20	678326	4
25	EPP103B25	678287	EPP103C25	678327	4
32	EPP103B32	678288	EPP103C32	678328	4
40	EPP103B40	678289	EPP103C40	678329	4
50	EPP103B50	678290	EPP103C50	678330	4
63	EPP103B63	678291	EPP103C63	678331	4



3P+N

1/2

3/4

5/6

N

16

20

25

32

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63

6	EPP103NB06	678292	EPP103NC06	678332	3
10	EPP103NB10	678293	EPP103NC10	678333	3
13	EPP103NB13	678294	EPP103NC13	678334	3
16	EPP103NB16	678295	EPP103NC16	678335	3
20	EPP103NB20	678296	EPP103NC20	678336	3
25	EPP103NB25	678297	EPP103NC25	678337	3
32	EPP103NB32	678298	EPP103NC32	678338	3
40	EPP103NB40	678299	EPP103NC40	678339	3
50	EPP103NB50	678300	EPP103NC50	678340	3
63	EPP103NB63	678301	EPP103NC63	678341	3



4P⁽¹⁾

1/2

3/4

5/6

7/8

16

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25

32

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63

6	EPP104B06	678725	EPP104C06	678735	3
10	EPP104B10	678726	EPP104C10	678736	3
13	EPP104B13	678727	EPP104C13	678737	3
16	EPP104B16	678728	EPP104C16	678738	3
20	EPP104B20	678729	EPP104C20	678739	3
25	EPP104B25	678730	EPP104C25	678740	3
32	EPP104B32	678731	EPP104C32	678741	3
40	EPP104B40	678732	EPP104C40	678742	3
50	EPP104B50	678733	EPP104C50	678743	3
63	EPP104B63	678734	EPP104C63	678744	3

(1) Approval pending

Series EPP100

A

B

C

D

E

F

G

X

SCREWLESS
top terminals
In=6 to 20A

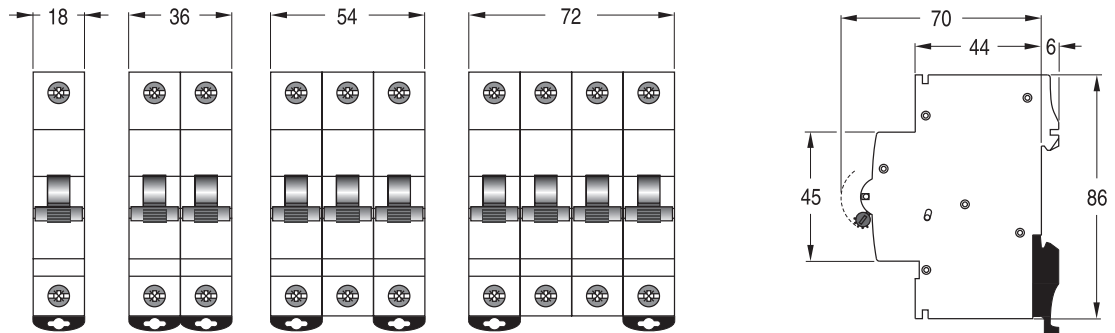


New

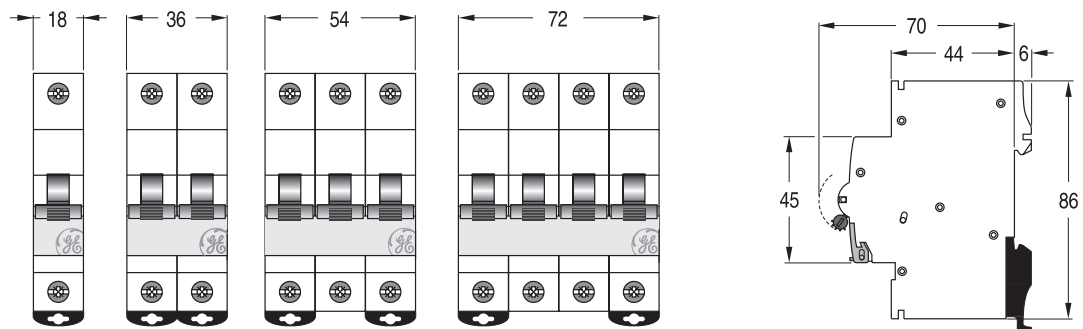


Dimensional drawings

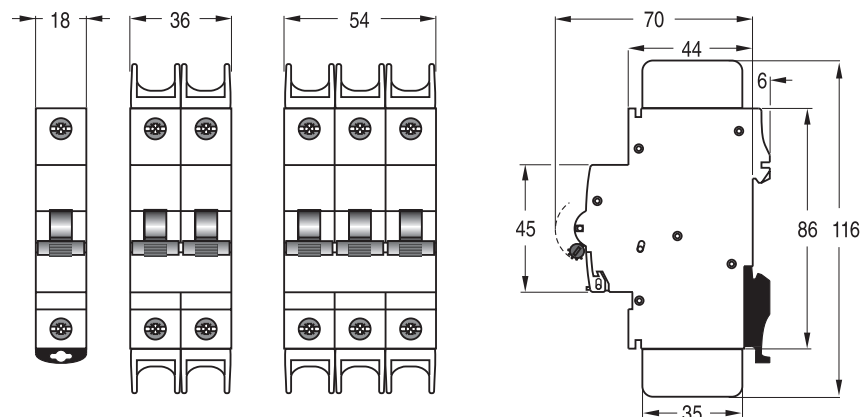
Miniature Circuit Breakers - Series G & GT and Series EP100 UC, EP60 UL and EP100 UL



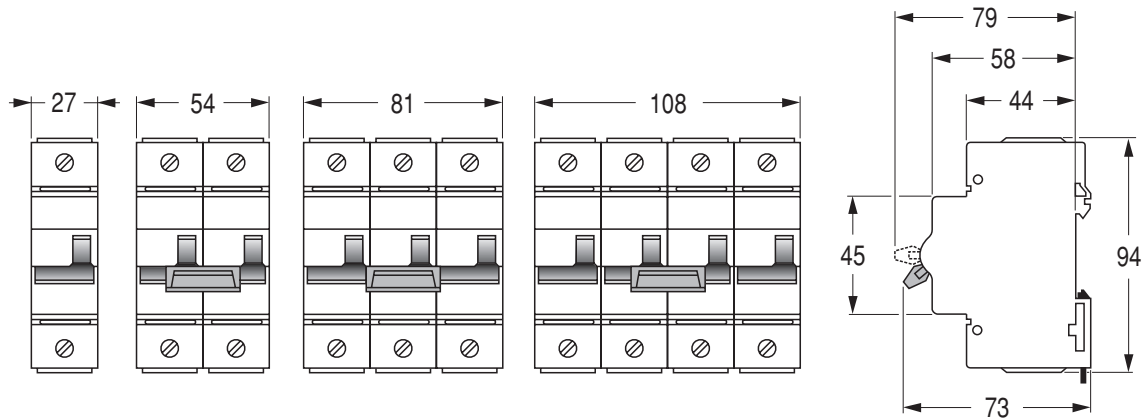
Miniature Circuit Breakers - Series EP60, EP100, EP100T, EP100UCT, EP100R and EP100UCR



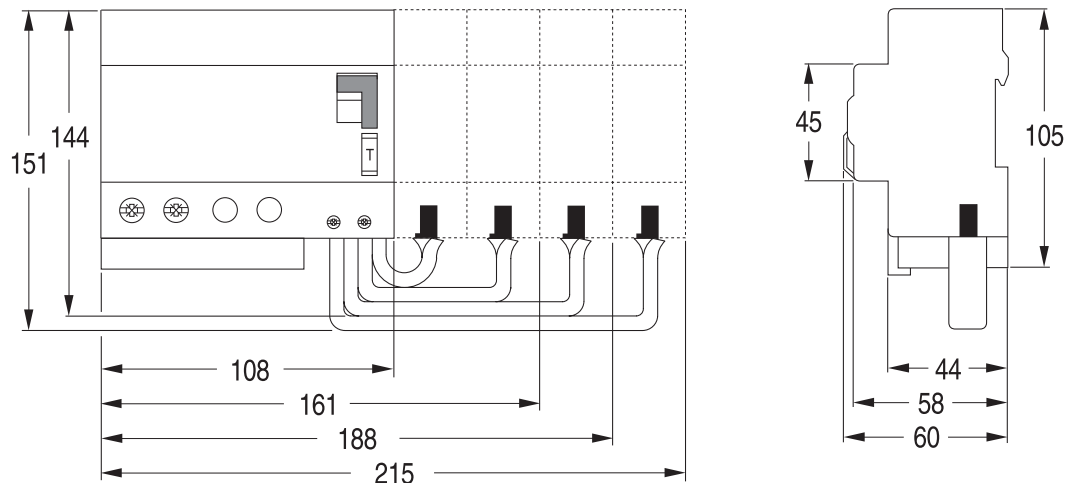
MCB with UL 489 approval - Series EP100 ULH



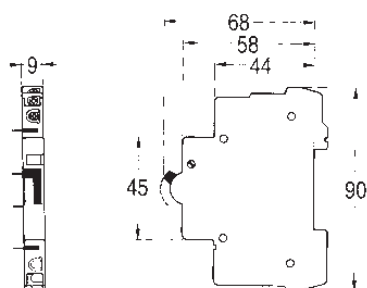
Miniature Circuit Breakers - Series Hti



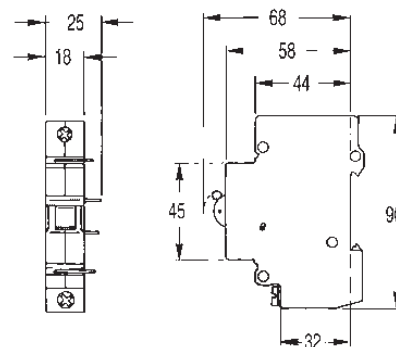
Add-on RCD's for Series Hti



Auxiliary contact - Series Hti



Shunt trip - Series Hti



Dimensional drawings

A

B

C

D

E

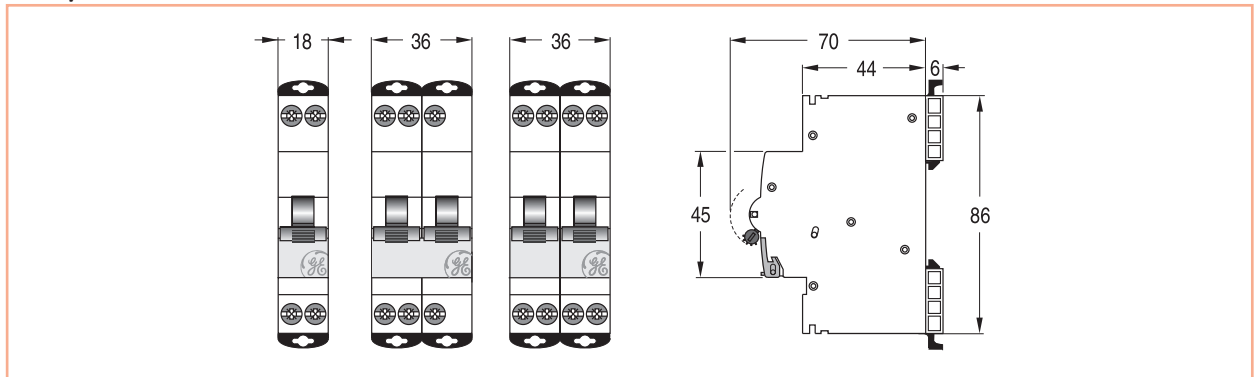
F

G

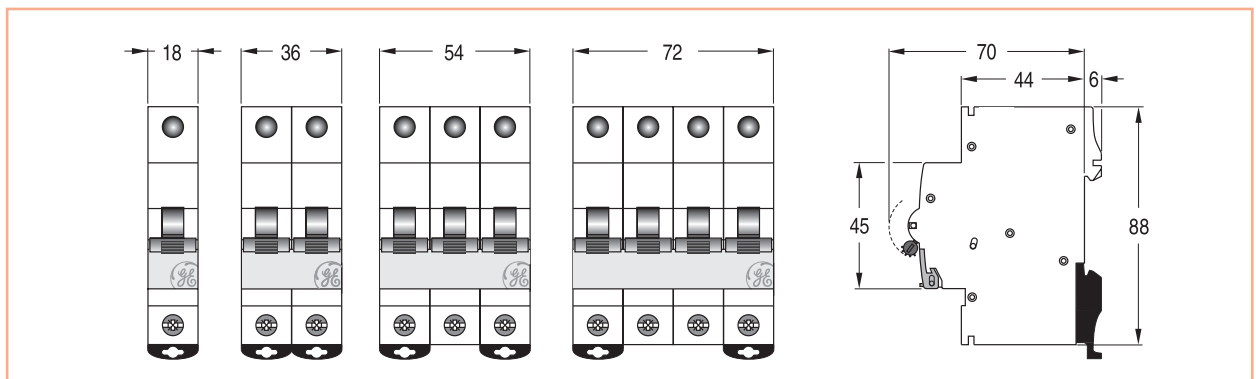
X

Dimensional drawings

Compact MCB's - Series EPC - Unibis™



Screwless MCB's - Series EPP - Fixwell™



- B.3 Selection table RCCB's and RCBO's
- B.4 Technical data RCCB's and RCBO's
- B.6 RCCB's - **Series BP/BD**
- B.8 RCBO's with overcurrent protection - **Series DM60**
- B.10 RCBO's with overcurrent protection - **Series DM100**
- B.14 RCBO's with overcurrent protection - **Series DME**
- B.16 Add-on RCCB's - **Diff-o-Click**
- B.18 RCBB's with UL approval - **Series FPAUL**
- B.19 RCBO's with UL approval - **Series DPA100**
- B.31 Dimensional drawings

Circuit Protection

People Protection

A

B

New

Series DMCE & DICE - Compact RCBO's

- B.12 RCBO's with overcurrent protection - **Series DMCE60 & DICE60**

Add-on Devices

C

New

Fixwell™ - Screwless RCCB's

- B.20 Technical data and order codes - **Series FPP**
- B.21 Terminal capacity - Mounting instruction
- B.31 Dimensional drawings

Comfort Functions

D

Busbars

E

Enclosures

F

New

TeleREC - Reconnection relays

- B.22 Advantages
- B.25 **TeleREC BASIC**
- B.26 **TeleREC PLUS**
- B.29 **TeleREC SOLAR**
- B.32 Dimensional drawings

Record Plus

G

Numerical Index

X

Notes

People protection

B

E

F

G

X



Selection table of RCCB's

Page no.	Series	Sensitivity (mA)	Poles	Type	16	25	Nominal current (A)				80	100	Isolator appl.	Add-on devices	Rated voltage
B.6	BP/BD														
		10	2P	AC/A									x	x	240
		30	2P	AC/A									x	x	240
				G									x	x	240
			4P	AC/A									x	x	240/415
				G									x	x	240/415
		100	2P	AC/A/S									x	x	240
				G									x	x	240
			4P	AC/A/S									x	x	240/415
				G									x	x	240/415
		300	2P	AC/A/S									x	x	240
			4P	AC/A/S									x	x	240/415
		500	2P	AC/A/S									x	x	240
			4P	AC/A/S									x	x	240/415
		1000	2P	AC/A/S									x	x	240
			4P	AC/A/S									x	x	240/415
B.20	FPP	30,100, 300	2P	A/S									x	x	240/415
			4P	A/S									x	x	240/415

Selection table of RCBO's

Page no.	Series	Sensitivity (mA)	Pole	Type	Tripping charact.	4	6	Nominal current (A)								Isolator appl.	Add-on devices	Rated voltage
B.8	DM60																	
		10	1+N	AC/A	B											x	x	240
					C											x	x	240
		30	1+N	AC/A	B											x	x	240
					C											x	x	240
		100	1+N	AC/A	B											x	x	240
					C											x	x	240
		300	1+N	AC/A	B											x	x	240
					C											x	x	240
B.9	DMT60																	
		30	1+N	AC	C											x	x	240
B.10	DM100																	
		10	1+N	AC/A	B											x	x	240
					C											x	x	240
		30	1+N	AC/A	B											x	x	240
					C											x	x	240
		100	1+N	AC/A	B											x	x	240
					C											x	x	240
		300	1+N	AC/A	B											x	x	240
					C											x	x	240
B.11	DMT100																	
		30	1+N	AC	C											x	x	240
B.12	DMC/DICE																	
		30	1+N	AC/A	B/C											x	x	240
B.15	DME60																	
		30	1+N	AC	C											x	x	240
B.15	DME100																	
		30	1+N	AC	C											x	x	240

Selection table for add-on RCCB's

Page no.	Series	Sensitivity (mA)	Poles	Type	Tripping charact.	Nominal current (A)				Isolator appl.	Add-on devices	Rated voltage
B.16	Diff-o-Click											
		10	2-3-4	AC/A	-					-	-	240/415
		100	2-3-4	AC/A/S	-					-	-	240/415
		300	2-3-4	AC/A/S	-					-	-	240/415
		500	2-3-4	AC/A/S	-					-	-	240/415
		1000	2-3-4	AC/A/S	-					-	-	240/415

Selection table

A

B

C

D

E

F

G

X



Technical data of RCD's

Series			BP/BD	DM60	DM100	DMCE/DICE
Standards			EN/IEC 61008-1	EN/IEC 61009-1	EN/IEC 61009-1	EN/IEC 61009-1
Magnetic tripping characteristics			-	B-C	B-C	B-C
Residual tripping characteristic			AC, A, S	AC	AC	AC, A
Tripping time at I _{Δn}	Instantaneous	ms	<40	<40	<40	<40
	Selective	ms	>150	-	-	-
Rated current			16,25,40,63, 80, 100	4,6,10,13,16,20,25,32,40	4,6,10,13,16,20,25,32,40	6 ...40
Rated residual current I _{Δn}			10,30,100,300,500,1000	10,30,300	10,30,300	30
Calibration temperature			30	30	30	30
Number of poles versus modules			1	1	1	1
Rated voltage Un	2P AC	V	240	230 (1P+N)	230 (1P+N)	240 (1P+N)
	3P AC	V	-	-	-	-
	4P AC	V	415	-	-	-
Frequency			50/60	50/60	50/60	50
Maximum service voltage U _{bmax}			2P=265 / 4P=455	255	255	265
Minimum service voltage U _{bmin}			2P=117 / 4P=205	117	117	195
Minimum voltage for leakage protection			Voltage independent	Voltage independent	Voltage independent	85
Power supply			Top/Bottom	Top/Bottom	Top/Bottom	Bottom
Selectivity class			-	3	3	3
Rated making and breaking capacity (I _m)			500 (or 10xI _n)	-	-	10xI _n
Residual making and breaking capacity (I _{Δm})			500 (or 10xI _n)	6000	6000	6000
Conditional short-circuit capacity (I _{nc})			10000 fuse 100A gLgG	-	-	-
Conditional residual short-circuit capacity (I _{Δc})			10000 fuse 100A gLgG	-	-	-
Rated Short-circuit capacity (I _{cn})			-	6000	10000	6000
Grid distance (safety distance between two devices)			35	35	35	-
Isolator application			yes	yes	yes	yes
Insulation degree	Insulation voltage	V (DC)	440	440	440	440
	Shock voltage (1.2/50μs)	kV	6	6	6	6 ⁽¹⁾
	Insulation resistance	MΩ	1000	1000	1000	1000 ⁽¹⁾
	Dielectric strength	V	2500	2500	2500	2500 ⁽¹⁾
Shock resistance (in x, y, z direction) (EN/IEC 60077/16.3)			40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms
Vibration resistance (in x, y, z direction) (EN/IEC 60068-2-6)			1.5g, 30 min, 0...80Hz	1.5g, 30 min, 0...80Hz	1.5g, 30 min, 0...80Hz	2g, 30 min, 0...80Hz
Endurance	electrical at Un, In		10000	10000	10000	10000
	mechanical at Un, In		20000	20000	20000	20000
Protection degree (outside/inside electrical enclosure with door)			IP20 / IP40	IP20 / IP40	IP20 / IP40	IP20 / IP40
Self extinguish degree (according to UL94)			V2	V2	V2	V2
Tropicalisation (according to EN/IEC 60068-2, DIN 40046)			+55/95%	+55/95%	+55/95%	+55/95%
Pollution degree (acc. EN/IEC 60947-1)			3	3	3	3
Operating temperature			AC (-5...+60); A -25...+60)	-5...+60	-25...+60	-5...+60
Storage temperature			-25...+70	-25...+70	-5...+70	-25...+70
Terminals capacity	Rigid cable min/max (top)	mm ²	1.5/50 [1.5/35]	1/25	1/25	1/25
	Flexible cable min*/max (top)	mm ²	1.5/35 [1.5/25]	1/16	1/16	1.5/16
	Rigid cable min/max (bottom)	mm ²	1.5/50 [1.5/35]	1/35	1/35	1/35
	Flexible cable min*/max (bottom)	mm ²	1.5/35 [1.5/25]	1/25	1/25	1.5/25
Torque			5/5	3/4	3/4	3/3(DMCE) 3/4.5(DICE)
Add-on devices (side add-on)	Auxiliary contacts		yes	yes	yes	yes (coupled to CAUN)
	Tele U		yes	yes	yes	yes
	Tele L		yes	yes	yes	yes
	Tele M		yes	yes	yes	yes
	PBS		no	yes	yes	yes
Busbars systems	Pin		yes	Bottom	Bottom	yes
	Fork		yes	Bottom	Bottom	-
	# Poles		2-4	1+N	1+N	1+N
Dimensions	(HxDxW) 86x68xW		36/72	36	36	18
	Weight	mm	2P=250 / 4P=368	250	250	125/215
	Package	g	2P=1/6 / 4P=1/3	1/6	1/6	1/12
Approvals			KEMA	KEMA	KEMA	RCM
CE-marking			yes	yes	yes	yes
Page			B.6	B.8	B.10	B.12

*Flexible cable 0.75/1/1.5 mm² with cable lug

DME60	DME100	Diff-o-Click	FPAUL	DPA100	FPP
EN/IEC 61009-1	EN/IEC 61009-1	EN/IEC 61009-1	UL1053 & EN/IEC 61008-1	UL1053 & EN/IEC 61009-1	EN 61008-1
C	C	B-C-D	-	B-C	-
AC	AC	AC-A-S	A	A	A, S
<40	<40	<40	< 40	< 40	<40
-	-	>150	-	-	>150
6...40	6,10,16,20,25,32,40	0.5,1,2,4,6,10,16,20,25,32,40,50,63	16,25,40,63	10,13,16,32,40	25, 40, 63 ⁽³⁾
30, 100	10, 30, 300	30,100,300,500,1000	10, 30, 100, 300, 500	10, 30	30, 100, 300
30	30	30	30	30	30
1	1	1	1	1	1
240 (1P+N)	240 (1P+N)	240/415	240	277 & 240 (1P+N)	240
-	-	400	-	-	-
-	-	400	UL: 240; EN/IEC: 415	-	415
50/60	50/60	50/60	50/60	50/60	50/60
265	265	2P=265 / 4P=455	2P=265 / 4P=455	255	2P=265 / 4P=455
195	195	2P=205 / 4P=205	2P=117 / 4P=205	195	2P=110 / 4P=190
100	100	Voltage independent	Voltage independent	Voltage independent	Voltage independent
Bottom	Bottom	Top	Top/Bottom	Top/Bottom	Top/Bottom
3	3	3	-	3	-
10xIn	10xIn	-	500 (or 10xIn)	-	500 (or 10xIn)
6000	10000	see MCB	500 (or 10xIn)	6000	500 (or 10xIn)
-	-	-	10000 fuse 100A glgG	-	10000 fuse 100A
-	-	-	10000	-	10000
6000	10000	see MCB	-	5000/10000	-
-	-	35	35	35	-
yes	yes	no	yes	yes	yes
440	440	440	500	500	500
6 ⁽¹⁾	6 ⁽¹⁾	6	8	6	8
1000 ⁽¹⁾	1000 ⁽¹⁾	1000	1000	1000	1000
2500 ⁽¹⁾	2500 ⁽¹⁾	2500	2500	2500	2500
40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms
2g, 30 min, 0...80Hz	2g, 30 min, 0...80Hz	5g, 30 min, 0...80Hz	1.5g, 30 min, 0...80Hz	1.5g, 30 min, 0...80Hz	1.5g, 30 min, 0...80Hz
10000	10000	10000	10000	10000	10000
20000	20000	20000	20000	20000	20000
IP20 / IP40	IP20 / IP40	IP20 / IP40	IP20 / IP40	IP20 / IP40	IP20 / IP40
V2	V2	V2	V2	V2	V2
+55/95%	+55/95%	+55/95%	+55/95%	+55/95%	57,89473684
3	3	3	3	3	3
-5...+60	-5...+60	AC (-5...+60); A (-25...+60)	AC (-5...+60); A (-25...+60)	-5...+60	-25...+60 ⁽⁴⁾
-25...+70	-25...+70	-25...+70	-25...+70	-25...+70	-25...+70
1/25	1/25	1/25	1.5/50 [1.5/35]	1/25	see page B.20
1/16	1/16	1/16	1.5/35 [1.5/25]	1/16	-
1/35	1/35	1/35	1.5/50 [1.5/35]	1/35	-
1/25	1/25	1/25	1.5/35 [1.5/25]	1/25	-
3/4.5	3/4.5	-/4.5	5/5	3/4	-
-	-	yes (coupled to MCB)	yes	yes	yes
-	-	yes (coupled to MCB)	yes ⁽²⁾	yes ⁽²⁾	yes ⁽⁵⁾
-	-	yes (coupled to MCB)	yes	yes	yes ⁽⁵⁾
-	-	yes (coupled to MCB)	yes ⁽²⁾	yes ⁽²⁾	yes ⁽⁵⁾
-	-	yes (coupled to MCB)	yes ⁽²⁾	yes ⁽²⁾	yes ⁽⁵⁾
Bottom	Bottom	-	yes ⁽²⁾	yes ⁽²⁾	yes
Bottom	Bottom	-	yes ⁽²⁾	yes ⁽²⁾	yes
1+N	1+N	2-3-4	2-4	1+N	2/4
18	18	72/90/108/125/144	36/72	36	88x68x36/73.2
235	235	2P=250 / 3P=320 / 4P=340	2P=250 / 4P=368	250	2P=248 / 4P=364
1	1	1	2P=1/6 / 4P=1/3	1/6	2P=1/6 / 4P=1/3
KEMA	KEMA	KEMA	UL	UL & CEBEC	VDE-KEMA-CEBEC-IMQ
yes	yes	yes	yes	yes	yes
B.15	B.15	B.16	B.18	B.19	B.20

(1) Making sure that N-L and both flying leads are disconnected.

(2) Not UL registered

(3) Rating current derating as usual in function of installation conditions.

(4) With plug-in busbar: -25/+50°C

(5) With plug-in busbar only at right extreme side of each row. No pin busbars let through allowed

RCD's

A

B

C

D

E

F

G

X



RCCB's - Residual Current Circuit Breakers

Series BP/BD



EN/IEC 61008-1

Type AC



Type A - Ai



Type S - Si



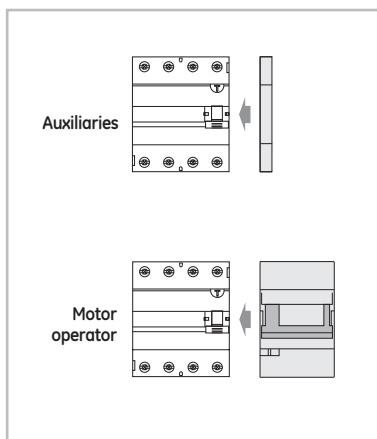
Applications



Approval / Marking



Add-on devices



- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel board switch ● pg C.8

- Busbars ● pg E.2
- More technical data ● pg B.4
- Dimensions ● pg B.31

Performance

Thermal setting I_n	(A) 16, 25, 40, 63, 80, 100
Residual current $I_{\Delta n}$	(mA) 10, 30, 100, 300, 500, 1000
Rated voltage AC U_n	(V) 2P: 240 4P: 240/415
Minimum operating voltage U_{8min}	(V) 2P: 117 4P: 205
Mechanical/electrical endurance	20000/10000
Tropicalisation acc.to	
EN/IEC 60068-2-28/2-30 and DIN 40046	95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²) 35-50 ⁽¹⁾
Poles	2, 4
Nuisance tripping resistance	Type A, AC: 250A 8/20μs; 200A 0.5μs - 100kHz Type S: 3000A 8/20μs Type Ai: 3000A 8/20μs Type Si: 5000A 8/20μs
Ambient temperature	(°C) Type AC: -5 upto 40 Type A: -25 upto 40
Weight	(g) 2P: 220 4P: 385

Short-circuit capacity

Acc. to EN/IEC 61008-1

Making and breaking capacity	$I_m \geq 500A$ from 16 upto 40A $I_n = 10I_n$ from 63 upto 100A
Residual making and breaking capacity	$I_{\Delta m} \geq 500A$ from 16 upto 40A $I_{\Delta m} = 10I_n$ from 63 upto 100A
Short-circuit capacity	
Series BD	$I_{nc} = 6000A$ at 240/415V fuse 63A gG
Series BP	$I_{nc} = 10000A$ at 240/415V fuse 80A gG

(1) Series BD: 25-35 mm²



RCBO's - Residual Current Circuit Breakers With Overcurrent Protection

Series DM60

EN/IEC 61009-1	6000
	3
Type AC	
Type A	

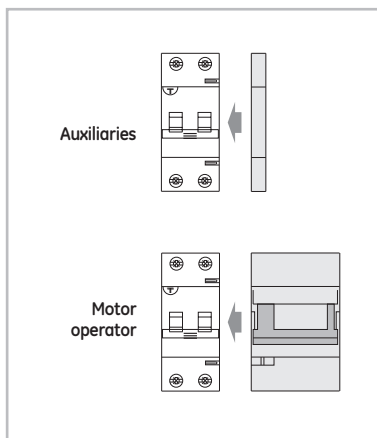
Applications



Approval



Add-on devices



- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel board switch ● pg C.8

- Busbars ● pg E.2
- More technical data ● pg B.4
- Dimensions ● pg B.32

Performance

Thermal setting I_n	(A) 4 to 40
Residual current $I_{\Delta n}$	(mA) 10, 30, 100, 300
Tripping characteristic	B-C
Rated voltage AC U_n	(V) 230
Minimum operating voltage U_{8min}	(V) 117
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. to EN/IEC 60068-2-28/2-30 and DIN 40046	95%RH at 55°C
Terminal capacity flexible/rigid cable (mm ²)	Top terminal: 16-25 Bottom terminal: 25-35
Poles	1+N
Nuisance tripping resistance	250A 8/20μs; 200A 0.5μs - 100kHz
Ambient temperature	(°C) Type AC: -5 upto 40 Type A: -25 upto 40
Weight	(g) 250

Short-circuit capacity

Acc. to EN/IEC 61009-1 and EN/IEC 60898-1

Residual making and breaking capacity	$I_{\Delta m} = 6000A$
Short-circuit capacity	$I_{cn} = 6000A$ at 240V
Selectivity class	3

Acc. to EN/IEC 60947-2

Short-circuit capacity	$I_{cu} = 10000A$ at 240V
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Series DM60 - Type AC

Characteristic B 1P+N

Characteristic C 1P+N

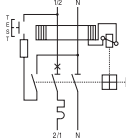
	10 mA		30 mA		100 mA		300 mA		
In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
6	DM60B06/010	609802	DM60B06/030	609807	DM60B06/100	609815	DM60B06/300	609823	6
10	DM60B10/010	609803	DM60B10/030	609808	DM60B10/100	609816	DM60B10/300	609824	6
13	DM60B13/010	609804	DM60B13/030	609809	DM60B13/100	609817	DM60B13/300	609825	6
16	DM60B16/010	609805	DM60B16/030	609810	DM60B16/100	609818	DM60B16/300	609826	6
20	DM60B20/010	609806	DM60B20/030	609811	DM60B20/100	609819	DM60B20/300	609827	6
25	-	-	DM60B25/030	609812	DM60B25/100	609820	DM60B25/300	609828	6
32	-	-	DM60B32/030	609813	DM60B32/100	609821	DM60B32/300	609829	6
40	-	-	DM60B40/030	609814	DM60B40/100	609822	DM60B40/300	609830	6
4	DM60C04/010	609831	DM60C04/030	609837	DM60C04/100	609846	DM60C04/300	609855	6
6	DM60C06/010	609832	DM60C06/030	609838	DM60C06/100	609847	DM60C06/300	609856	6
10	DM60C10/010	609833	DM60C10/030	609839	DM60C10/100	609848	DM60C10/300	609857	6
13	DM60C13/010	609834	DM60C13/030	609840	DM60C13/100	609849	DM60C13/300	609858	6
16	DM60C16/010	609835	DM60C16/030	609841	DM60C16/100	609850	DM60C16/300	609859	6
20	DM60C20/010	609836	DM60C20/030	609842	DM60C20/100	609851	DM60C20/300	609860	6
25	-	-	DM60C25/030	609843	DM60C25/100	609852	DM60C25/300	609861	6
32	-	-	DM60C32/030	609844	DM60C32/100	609853	DM60C32/300	609862	6
40	-	-	DM60C40/030	609845	DM60C40/100	609854	DM60C40/300	609863	6

Series DM60 - Type A



Characteristic B

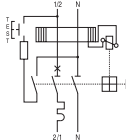
1P+N



		10 mA		30 mA		100 mA		300 mA		
In (A)		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
6		DMA60B06/010	609740	DMA60B06/030	609745	DMA60B06/100	609753	DMA60B06/300	609761	6
10		DMA60B10/010	609741	DMA60B10/030	609746	DMA60B10/100	609754	DMA60B10/300	609762	6
13		DMA60B13/010	609742	DMA60B13/030	609747	DMA60B13/100	609755	DMA60B13/300	609763	6
16		DMA60B16/010	609743	DMA60B16/030	609748	DMA60B16/100	609756	DMA60B16/300	609764	6
20		DMA60B20/010	609744	DMA60B20/030	609749	DMA60B20/100	609757	DMA60B20/300	609765	6
25		-	-	DMA60B25/030	609750	DMA60B25/100	609758	DMA60B25/300	609766	6
32		-	-	DMA60B32/030	609751	DMA60B32/100	609759	DMA60B32/300	609767	6
40		-	-	DMA60B40/030	609752	DMA60B40/100	609760	DMA60B40/300	609768	6

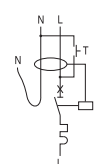
Characteristic C

1P+N



		10 mA		30 mA		100 mA		300 mA		
In (A)		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
4		DMA60C04/010	609769	DMA60C04/030	609775	DMA60C04/100	609784	DMA60C04/300	609793	6
6		DMA60C06/010	609770	DMA60C06/030	609776	DMA60C06/100	609785	DMA60C06/300	609794	6
10		DMA60C10/010	609771	DMA60C10/030	609777	DMA60C10/100	609786	DMA60C10/300	609795	6
13		DMA60C13/010	609772	DMA60C13/030	609778	DMA60C13/100	609787	DMA60C13/300	609796	6
16		DMA60C16/010	609773	DMA60C16/030	609779	DMA60C16/100	609788	DMA60C16/300	609797	6
20		DMA60C20/010	609774	DMA60C20/030	609780	DMA60C20/100	609789	DMA60C20/300	609798	6
25		-	-	DMA60C25/030	609781	DMA60C25/100	609790	DMA60C25/300	609799	6
32		-	-	DMA60C32/030	609782	DMA60C32/100	609791	DMA60C32/300	609800	6
40		-	-	DMA60C40/030	609783	DMA60C40/100	609792	DMA60C40/300	609801	6

Series DMT60 - Type AC

		30 mA		Pack.																																
		In (A)	Cat. No.																																	
			Ref. No.																																	
(1)  Characteristic C Unswitched neutral 1P+N   <tr> <td>4</td><td>DMT60C04/030</td><td>609280</td><td>6</td></tr> <tr> <td>6</td><td>DMT60C06/030</td><td>609281</td><td>6</td></tr> <tr> <td>10</td><td>DMT60C10/030</td><td>609282</td><td>6</td></tr> <tr> <td>13</td><td>DMT60C13/030</td><td>609283</td><td>6</td></tr> <tr> <td>16</td><td>DMT60C16/030</td><td>609284</td><td>6</td></tr> <tr> <td>20</td><td>DMT60C20/030</td><td>609285</td><td>6</td></tr> <tr> <td>25</td><td>DMT60C25/030</td><td>609286</td><td>6</td></tr> <tr> <td>32</td><td>DMT60C32/030</td><td>609287</td><td>6</td></tr> <tr> <td>40</td><td>DMT60C40/030</td><td>609288</td><td>6</td></tr>	4	DMT60C04/030	609280	6	6	DMT60C06/030	609281	6	10	DMT60C10/030	609282	6	13	DMT60C13/030	609283	6	16	DMT60C16/030	609284	6	20	DMT60C20/030	609285	6	25	DMT60C25/030	609286	6	32	DMT60C32/030	609287	6	40	DMT60C40/030	609288	6
	4	DMT60C04/030	609280	6																																
	6	DMT60C06/030	609281	6																																
	10	DMT60C10/030	609282	6																																
	13	DMT60C13/030	609283	6																																
	16	DMT60C16/030	609284	6																																
	20	DMT60C20/030	609285	6																																
	25	DMT60C25/030	609286	6																																
	32	DMT60C32/030	609287	6																																
	40	DMT60C40/030	609288	6																																

(1) Please consult us for blue neutral flying lead

Series DM60

A

B

C

D

E

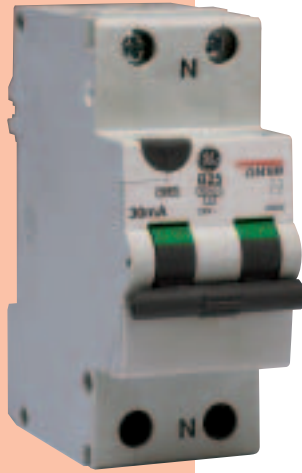
F

G

X

RCBO's - Residual Current Circuit Breakers With Overcurrent Protection

Series DM100



EN/IEC 61009-1

10000

3

Type AC



Type A



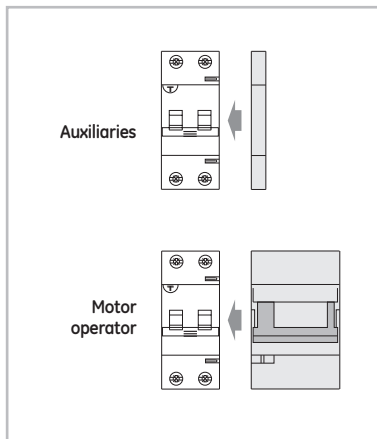
Applications



Approval / Marking



Add-on devices



- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel board switch ● pg C.8

- Busbars ● pg E.2
- More technical data ● pg B.4
- Dimensions ● pg B.32

Performance

Thermal setting I_n	(A) 4 to 40
Residual current $I_{\Delta n}$	(mA) 10, 30, 100, 300
Tripping characteristic	B-C
Rated voltage AC U_n	(V) 230
Minimum operating voltage U_{8min}	(V) 117
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. to	
EN/IEC 60068-2-28/2-30 and DIN 40046	95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²) Top terminal: 16-25
	Bottom terminal: 25-35
Poles	1+N
Nuisance tripping resistance	250A 8/20μs; 200A 0.5μs
	- 100kHz
Ambient temperature	(°C) Type AC: -5 upto 40
	Type A: -25 upto 40
Weight	(g) 250

Short-circuit capacity

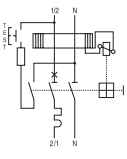
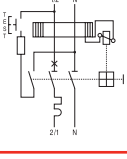
Acc. to EN/IEC 61009-1 and EN/IEC 60898-1

Residual making and breaking capacity	$I_{\Delta m} = 6000A$
Short-circuit capacity	$I_{cn} = 10000A$ at 240V
Selectivity class	3

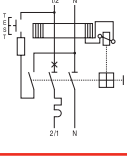
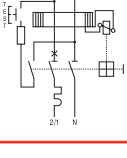
Acc. to EN/IEC 60947-2

Short-circuit capacity	$I_{cu} = 15000A$ at 240V
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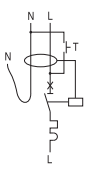
Series DM100 - Type AC

	In (A)	10 mA		30 mA		100 mA		300 mA		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
Characteristic B 1P+N 	6	DM100B06/010	609926	DM100B06/030	609931	DM100B06/100	609939	DM100B06/300	609947	6
	10	DM100B10/010	609927	DM100B10/030	609932	DM100B10/100	609940	DM100B10/300	609948	6
	13	DM100B13/010	609928	DM100B13/030	609933	DM100B13/100	609941	DM100B13/300	609949	6
	16	DM100B16/010	609929	DM100B16/030	609934	DM100B16/100	609942	DM100B16/300	609950	6
	20	DM100B20/010	609930	DM100B20/030	609935	DM100B20/100	609943	DM100B20/300	609951	6
	25	-	-	DM100B25/030	609936	DM100B25/100	609944	DM100B25/300	609952	6
	32	-	-	DM100B32/030	609937	DM100B32/100	609945	DM100B32/300	609953	6
	40	-	-	DM100B40/030	609938	DM100B40/100	609946	DM100B40/300	609954	6
Characteristic C 1P+N 	4	DM100C04/010	609955	DM100C04/030	609961	DM100C04/100	609970	DM100C04/300	609979	6
	6	DM100C06/010	609956	DM100C06/030	609962	DM100C06/100	609971	DM100C06/300	609980	6
	10	DM100C10/010	609957	DM100C10/030	609963	DM100C10/100	609972	DM100C10/300	609981	6
	13	DM100C13/010	609958	DM100C13/030	609964	DM100C13/100	609973	DM100C13/300	609982	6
	16	DM100C16/010	609959	DM100C16/030	609965	DM100C16/100	609974	DM100C16/300	609983	6
	20	DM100C20/010	609960	DM100C20/030	609966	DM100C20/100	609975	DM100C20/300	609984	6
	25	-	-	DM100C25/030	609967	DM100C25/100	609976	DM100C25/300	609985	6
	32	-	-	DM100C32/030	609968	DM100C32/100	609977	DM100C32/300	609986	6
	40	-	-	DM100C40/030	609969	DM100C40/100	609978	DM100C40/300	609987	6

Series DM100 - Type A

	In (A)	10 mA		30 mA		100 mA		300 mA		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
Characteristic B 1P+N 	6	DMA100B06/010	609864	DMA100B06/030	609869	DMA100B06/100	609877	DMA100B06/300	609885	6
	10	DMA100B10/010	609865	DMA100B10/030	609870	DMA100B10/100	609878	DMA100B10/300	609886	6
	13	DMA100B13/010	609866	DMA100B13/030	609871	DMA100B13/100	609879	DMA100B13/300	609887	6
	16	DMA100B16/010	609867	DMA100B16/030	609872	DMA100B16/100	609880	DMA100B16/300	609888	6
	20	DMA100B20/010	609868	DMA100B20/030	609873	DMA100B20/100	609881	DMA100B20/300	609889	6
	25	-	-	DMA100B25/030	609874	DMA100B25/100	609882	DMA100B25/300	609890	6
	32	-	-	DMA100B32/100	609875	DMA100B32/100	609883	DMA100B32/300	609891	6
	40	-	-	DMA100B40/030	609876	DMA100B40/100	609884	DMA100B40/300	609892	6
Characteristic C 1P+N 	4	DMA100C04/010	609893	DMA100C04/030	609899	DMA100C04/100	609908	DMA100C04/300	609917	6
	6	DMA100C06/010	609894	DMA100C06/030	609900	DMA100C06/100	609909	DMA100C06/300	609918	6
	10	DMA100C10/010	609895	DMA100C10/030	609901	DMA100C10/100	609910	DMA100C10/300	609919	6
	13	DMA100C13/010	609896	DMA100C13/030	609902	DMA100C13/100	609911	DMA100C13/300	609920	6
	16	DMA100C16/010	609897	DMA100C16/030	609903	DMA100C16/100	609912	DMA100C16/300	609921	6
	20	DMA100C20/010	609898	DMA100C20/030	609904	DMA100C20/100	609913	DMA100C20/300	609922	6
	25	-	-	DMA100C25/030	609905	DMA100C25/100	609914	DMA100C25/300	609923	6
	32	-	-	DMA100C32/100	609906	DMA100C32/100	609915	DMA100C32/300	609924	6
	40	-	-	DMA100C40/030	609907	DMA100C40/100	609916	DMA100C40/300	609925	6

Series DMT100 - Type AC

	In (A)	30 mA		Pack.
		Cat. No.	Ref. No.	
Characteristic C Unswitched neutral 1P+N 	4	DMT100C04/030	609289	6
	6	DMT100C06/030	609290	6
	10	DMT100C10/030	609291	6
	13	DMT100C13/030	609292	6
	16	DMT100C16/030	609293	6
	20	DMT100C20/030	609294	6
	25	DMT100C25/030	609295	6
	32	DMT100C32/030	609296	6
	40	DMT100C40/030	609297	6

(1) Please consult us for blue neutral flying lead

Series DM100

A

B

C

D

E

F

G

X



Compact Electronic Residual Current Circuit Breaker

Series DMCE60, DICE60

EN/IEC 61009-1	6000
	3
Type AC	
Type A	

With Overcurrent Protection functionality dependent on Line Voltage

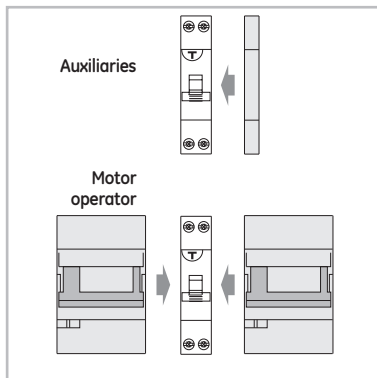
Applications



Approval / Marking



Add-on devices



(1) CAU auxiliary contact right side mounted is interface to make compatible all extensions CA,CB, Tele L, Tele U, PSB
(2) Tele M can be mounted on both sides.

- Auxiliary contacts ● pg C.4
- Motor operator ● pg C.7
- Shunt trip ● pg C.8
- Undervoltage release ● pg C.8
- Panel board switch ● pg C.8

- Busbars ● pg E.2
- More technical data ● pg B.4
- Dimensions ● pg B.32

Performance

Thermal setting In	(A) 6, 10, 16, 20, 25, 32, 40
Residual current $I_{\Delta n}$	(mA) 30
Tripping characteristic	B, C
Rated voltage AC U_n	(V) 240
Minimum operating voltage U_{8min}	(V) 85
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. to EN/IEC 60068-2-28/2-30	95%RH at 55°C
Terminals	
DICE (Industry)	Top Phase out ⁽¹⁾ , Neutral out ⁽¹⁾ , Neutral in ⁽²⁾
	Bottom Phase in ⁽³⁾
DMCE (Domestic)	Top Phase out ⁽¹⁾ , Neutral out ⁽¹⁾
	Bottom Phase in ⁽¹⁾ , Neutral in ⁽¹⁾ , 1P+N (1 module) ⁽⁴⁾
Poles	
Nuisance tripping resistance	250A 8/20μs
Ambient temperature	(°C) -5 upto 55
Weight DMCE-DICE	(g) 125-215g

Short-circuit capacity

DME60 according to EN/IEC 61009-1

Residual making and breaking capacity	$I_{\Delta m} = 6000A^{(5)}$
Short-circuit capacity	$I_{cn} = 6000A$ at 240V
Selectivity class	3

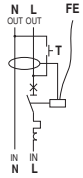
Terminal capacity:

- (1) Rigid copper wires 1-25mm², flexible copper wires 1.5 - 16mm²
- (2) Flying lead entering the device from top side. Cross section of 4mm² up to 25A, 6mm² up to 40A, 1200mm length.
- (3) Rigid copper wires 1-35mm², Flexible copper wires 1.5 - 25mm²
- (4) Neutral on the left.
- (5) $I_n \geq 25A$ on testing

Series DMCE60 - Type AC - Domestic Applications



Switched neutral
1P+N

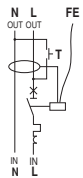


In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	DMCE60B06/030	694014	DMCE60C06/030	694000	1
10	DMCE60B10/030	694015	DMCE60C10/030	694001	1
16	DMCE60B16/030	694016	DMCE60C16/030	694002	1
20	DMCE60B20/030	694017	DMCE60C20/030	694003	1
25	DMCE60B25/030	694018	DMCE60C25/030	694004	1
32	DMCE60B32/030	694019	DMCE60C32/030	694005	1
40	DMCE60B40/030	694020	DMCE60C40/030	694006	1

Series DMCEA60 - Type A - Domestic Applications



Switched neutral
1P+N



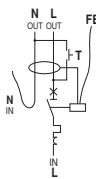
In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	DMCEA60B06/030	694021	DMCEA60C06/030	694007	1
10	DMCEA60B10/030	694022	DMCEA60C10/030	694008	1
16	DMCEA60B16/030	694023	DMCEA60C16/030	694009	1
20	DMCEA60B20/030	694024	DMCEA60C20/030	694010	1
25	DMCEA60B25/030	694025	DMCEA60C25/030	694011	1
32	DMCEA60B32/030	694026	DMCEA60C32/030	694012	1
40	DMCEA60B40/030	694027	DMCEA60C40/030	694013	1

Series DICE60 - Type AC - Industrial Applications



(1)

Unswitched neutral
1P+N



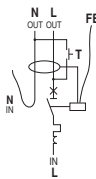
In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	DICE60B06/030	694042	DICE60C06/030	694028	1
10	DICE60B10/030	694043	DICE60C10/030	694029	1
16	DICE60B16/030	694044	DICE60C16/030	694030	1
20	DICE60B20/030	694045	DICE60C20/030	694031	1
25	DICE60B25/030	694046	DICE60C25/030	694032	1
32	DICE60B32/030	694047	DICE60C32/030	694033	1
40	DICE60B40/030	694048	DICE60C40/030	694034	1

Series DICEA60 - Type A - Industrial Applications



(1)

Unswitched neutral
1P+N



In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	DICEA60B06/030	694049	DICEA60C06/030	694035	1
10	DICEA60B10/030	694050	DICEA60C10/030	694036	1
16	DICEA60B16/030	694051	DICEA60C16/030	694037	1
20	DICEA60B20/030	694052	DICEA60C20/030	694038	1
25	DICEA60B25/030	694053	DICEA60C25/030	694039	1
32	DICEA60B32/030	694054	DICEA60C32/030	694040	1
40	DICEA60B40/030	694055	DICEA60C40/030	694041	1

(1) Please consult us for blue neutral flying lead

Compact eRCBO's

A

B

C

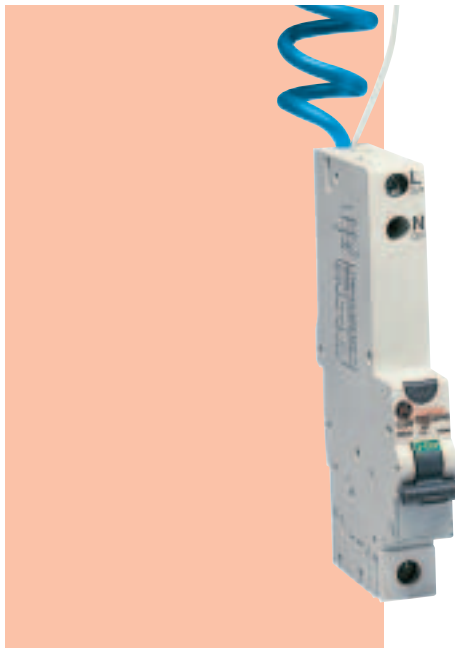
D

E

F

G

X



RCBO's - Residual Current Circuit Breakers with Overcurrent Protection

Series DME

EN/IEC 61009-1	6000
	3
	10000
	3
Type AC	
Type A	

Applications



For use in consumer units and distribution boards.

Marking



Performance

Thermal setting In	(A) 6, 10, 16, 20, 25, 32, 40
Residual current $I_{\Delta n}$	(mA) 10, 30, 100
Tripping characteristic	B, C
Rated voltage AC U_n	(V) 265
Minimum operating voltage U_{8min}	(V) 195
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. to EN/IEC 60068-2-28/2-30	95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²) Bottom terminal: 16-25
Poles	1+N (1 module)
Nuisance tripping resistance	250A 8/20μs
Ambient temperature	(°C) -5 upto 55
Weight	(g) 235

The earth reference cable (FE white) ensures protection against earth leakage in case of loss of supply neutral.

Short-circuit capacity

DME60 acc. to EN/IEC 61009-1

Residual making en breaking capacity	$I_{\Delta m} = 6000A$
Short-circuit capacity	$I_{cn} = 6000A$ at 240V
Selectivity class	3

DME100 acc. to EN/IEC 61009-1

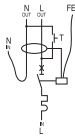
Residual making en breaking capacity	$I_{\Delta m} = 10000A$
Short-circuit capacity	$I_{cn} = 10000A$ at 240V
Selectivity class	3

Busbars ● pg E.2
 More technical data ● pg B.4
 Dimensions ● pg B.32

Series DME60 - Type AC



Characteristic C
Unswitched neutral
1P+N

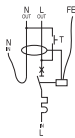


In (A)	10mA		30mA		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6			DME60C06/030	605060	1
10			DME60C10/030	605061	1
16			DME60C16/030	605062	1
20			DME60C20/030	605063	1
25			DME60C25/030	605064	1
32			DME60C32/030	605065	1
40			DME60C40/030	605066	1

Series DME100 - Type AC



Characteristic B
Unswitched neutral
1P+N



In (A)	10mA		30mA		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	DME100B06/010	605030	DME100B06/030	605037	1
10	DME100B10/010	605031	DME100B10/030	605038	1
16	DME100B16/010	605032	DME100B16/030	605039	1
20	DME100B20/010	605033	DME100B20/030	605040	1
25	DME100B25/010	605034	DME100B25/030	605041	1
32	DME100B32/010	605035	DME100B32/030	605042	1
40	DME100B40/010	605036	DME100B40/030	605043	1

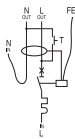
Characteristic C
Unswitched neutral
1P+N

6	DME100C06/010	605044	DME100C06/030	605051	1
10	DME100C10/010	605045	DME100C10/030	605052	1
16	DME100C16/010	605046	DME100C16/030	605053	1
20	DME100C20/010	605047	DME100C20/030	605054	1
25	DME100C25/010	605048	DME100C25/030	605055	1
32	DME100C32/010	605049	DME100C32/030	605056	1
40	DME100C40/010	605050	DME100C40/030	605057	1

Series DMEA100 - Type A



Characteristic B
Unswitched neutral
1P+N



In (A)	10mA		30mA		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	DMEA100B06/010	605150	DMEA100B06/030	605157	1
10	DMEA100B10/010	605151	DMEA100B10/030	605158	1
16	DMEA100B16/010	605152	DMEA100B16/030	605159	1
20	DMEA100B20/010	605153	DMEA100B20/030	605160	1
25	DMEA100B25/010	605154	DMEA100B25/030	605161	1
32	DMEA100B32/010	605155	DMEA100B32/030	605162	1
40	DMEA100B40/010	605156	DMEA100B40/030	605163	1

Characteristic C
Unswitched neutral
1P+N

6	DMEA100C06/010	605164	DMEA100C06/030	605171	1
10	DMEA100C10/010	605165	DMEA100C10/030	605172	1
16	DMEA100C16/010	605166	DMEA100C16/030	605173	1
20	DMEA100C20/010	605167	DMEA100C20/030	605174	1
25	DMEA100C25/010	605168	DMEA100C25/030	605175	1
32	DMEA100C32/010	605169	DMEA100C32/030	605176	1
40	DMEA100C40/010	605170	DMEA100C40/030	605177	1

(1) Please consult us for black neutral flying lead

Series DME

A

B

C

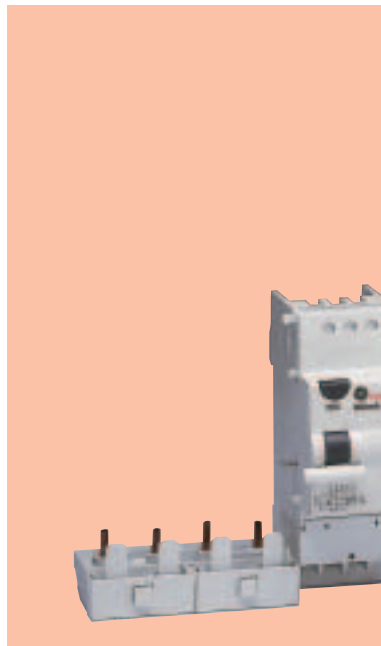
D

E

F

G

X



Add-on Residual Current Devices

Diff-o-Click

EN/IEC 61009-1

Type AC



Type A



Type S



Type Ai on demand

Type ASi on demand

Applications



Approval / Marking



Add-on devices

Integrated auxiliary contact on demand.

Performance

Thermal setting I_n	(A) 32, 63
Residual current $I_{\Delta n}$	(mA) 30, 100, 300, 500, 1000
Rated voltage AC U_n	(V) 2P: 240/415 3P: 415 4P: 415
Minimum operating voltage U_{Bmin}	(V) 2P: 205 3P: 205 4P: 205
Mechanical/electrical endurance	20000/10000
Tropicalisation acc.to EN/IEC 60068-2/3 and DIN 40046	95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²) 2P 32 & 63A: 25-35 3P 32 & 63A: 25-35 4P 2 mod. 32A: 16 4P 32 & 63A 4 mod.: 25-35
Poles	2, 3, 4
Nuisance tripping resistance	Type A, AC: 250A 8/20μs; 200A 0.5μs - 100kHz Type S: 3000A 8/20μs
Ambient temperature	(°C) Type AC: -5 upto 55 Type A, S: -25 upto 55
Weight	(g) 2P: 250 3P: 320 4P: 340

Short-circuit capacity

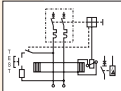
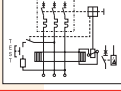
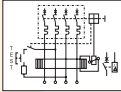
Depends on the associated MCB

Residual making and breaking capacity $I_{\Delta m}$
Short-circuit capacity I_{cn}

MCB			
G30	G45	G60	G100
3000	4500	6000	7500
3000	4500	6000	10000

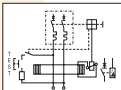
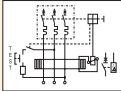
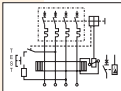
More technical data ● pg B.4
 Dimensions ● pg B.31

Add-on RCD - Series Diff-o-Click - Type AC

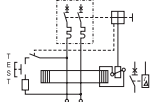
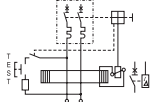
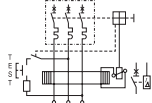
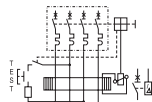
	In (A)	30 mA		100 mA		300 mA		500 mA		1000 mA		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
2P - 2 mod.	32	DOC 232/030	607536	DOC 232/100	607537	DOC 232/300	607538	DOC 232/500	607539	DOC 232/1000	607540	1
	63	DOC 263/030	607542	DOC 263/100	607543	DOC 263/300	607544	DOC 263/500	607545	DOC 263/1000	607546	1
												
3P - 2 mod. 4 mod.	32	DOC 332/030	607620	DOC 332/100	607621	DOC 332/300	607622	DOC 332/500	607623	DOC 332/1000	607624	1
	63	DOC 363/030	607626	DOC 363/100	607627	DOC 363/300	607628	DOC 363/500	607629	DOC 363/1000	607630	1
												
4P - 2 mod. 4 mod.	32	DOC 532/030	607722	DOC 532/100	607723	DOC 532/300	607724	DOC 532/500	607725	DOC 532/1000	607726	1
	32	DOC 432/030	607728	DOC 432/100	607729	DOC 432/300	607730	DOC 432/500	607731	DOC 432/1000	607732	1
	63	DOC 463/030	607734	DOC 463/100	607735	DOC 463/300	607736	DOC 463/500	607737	DOC 463/1000	607738	1
												

Note: 3P+N (unswitched) flying lead on request.

Add-on RCD - Series Diff-o-Click - Type A

	In (A)	30 mA		100 mA		300 mA		500 mA		1000 mA		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
2P - 2 mod.	32	DOCA 232/030	607500	DOCA 232/100	607501	DOCA 232/300	607502	DOCA 232/500	607503	DOCA 232/1000	607504	1
	63	DOCA 263/030	607506	DOCA 263/100	607507	DOCA 263/300	607508	DOCA 263/500	607509	DOCA 263/1000	607510	1
												
3P - 2 mod. 4 mod.	32	DOCA 332/030	607584	DOCA 332/100	607585	DOCA 332/300	607586	DOCA 332/500	607587	DOCA 332/1000	607588	1
	63	DOCA 363/030	607590	DOCA 363/100	607591	DOCA 363/300	607592	DOCA 363/500	607593	DOCA 363/1000	607594	1
												
4P - 2 mod. 4 mod.	32	DOCA 532/030	607668	DOCA 532/100	607670	DOCA 532/300	607669	DOCA 532/500	607671	DOCA 532/1000	607672	1
	32	DOCA 432/030	607674	DOCA 432/100	607675	DOCA 432/300	607676	DOCA 432/500	607677	DOCA 432/1000	607678	1
	63	DOCA 463/030	607680	DOCA 463/100	607681	DOCA 463/300	607682	DOCA 463/500	607683	DOCA 463/1000	607684	1
												

Add-on RCD - Series Diff-o-Click - Type S

	In (A)		100 mA		300 mA		500 mA		1000 mA		Pack.
			Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
2P - 2 mod.	32		DOCS 232/100	607513	DOCS 232/300	607514	DOCS 232/500	607515	DOCS 232/1000	607516	1
	63		DOCS 263/100	607519	DOCS 263/300	607520	DOCS 263/500	607521	DOCS 263/1000	607522	1
3P - 2 mod. 4 mod.	32		DOCS 332/100	607597	DOCS 332/300	607598	DOCS 332/500	607599	DOCS 332/1000	607600	1
	63		DOCS 363/100	607603	DOCS 363/300	607604	DOCS 363/500	607605	DOCS 363/1000	607606	1
4P - 2 mod. 4 mod.	32		DOCS 532/100	607687	DOCS 532/300	607688	DOCS 532/500	607689	DOCS 532/1000	607690	1
	32		DOCS 432/100	607693	DOCS 432/300	607694	DOCS 432/500	607695	DOCS 432/1000	607696	1
	63		DOCS 463/100	607699	DOCS 463/300	607700	DOCS 463/500	607701	DOCS 463/1000	607702	1

Diff-o-Click

A

B

C

D

E

F

G

X



Residual Current Circuit Breakers

Series FPAUL

Recognized UL1053

EN/IEC 61008-1

Type A



Performances UL

Maximum voltage AC	(V) 240
Fault current withstand	(kA) 10
UL file	E248309

Performances EN/IEC

Thermal setting In	(A) 16, 25, 40, 63
Residual current $I_{\Delta n}$	(mA) 10, 30, 100, 300, 500
Rated maximum voltage AC Un	(V) 2P: 240 4P: 240/415
Minimum operating voltage U_{Bmin}	(V) 2P: 117 4P: 205
Mechanical/electrical endurance	20000/10000
Tropicalisation acc.to	
EN/IEC 60068-2-28/2-30 and DIN 40046	95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²) 35-50
Poles	2, 4
Nuisance tripping resistance	Type A: 250A 8/20μs; 3000A 8/20μs
Ambient temperature	(°C) -25 upto 40
Weight	(g) 2P: 220 4P: 385

Applications

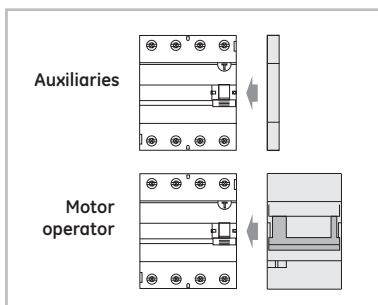


Approval



with UL approval

Add-on devices

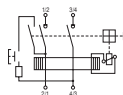


Dimensions ● pg B.31

Short-circuit capacity

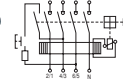
Acc. to EN/IEC 61008-1	
Making and breaking capacity	$I_m = 500A$
Residual making and breaking capacity	$I_{\Delta m} \geq 500A$ from 16 upto 40A $I_{\Delta m} = 10I_n$ from 63 upto 100A
Short-circuit capacity	$I_{nc} = 10000A$ at 230/400V fuse 80A gG

Series FPAUL - Type A - 2P



In (A)	10*/30mA		100mA		300mA		500mA		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
16	FPAUL 216/010*	608377	-	-	-	-	-	-	-
25	FPAUL 225/030	608378	FPAUL 225/100	608379	FPAUL 225/300	608380	FPAUL 225/500	608381	6
40	FPAUL 240/030	608382	FPAUL 240/100	608383	FPAUL 240/300	608384	FPAUL 240/500	608385	6
63	FPAUL 263/030	608386	FPAUL 263/100	608387	FPAUL 263/300	608388	FPAUL 263/500	608401	6

Series FPAUL - Type A - 4P



In (A)	30mA		100mA		300mA		500mA		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
25	FPAUL 425/030	608389	FPAUL 425/100	608390	FPAUL 425/300	608391	FPAUL 425/500	608392	3
40	FPAUL 440/030	608393	FPAUL 440/100	608394	FPAUL 440/300	608395	FPAUL 440/500	608396	3
63	FPAUL 463/030	608397	FPAUL 463/100	608398	FPAUL 463/300	608399	FPAUL 463/500	608400	3

Residual Current Circuit Breakers with Overcurrent Protection

DPA100

Recognized UL1053

EN 61009-1

10000

3

Type A



Performances UL

Rated/Maximum voltage AC	(V) 240 or 277
Fault current withstand	5kA (277V), 10kA (240V)
UL file	E248309

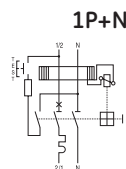
Performances EN/IEC

Thermal setting I_n	(A) 10 to 32
Residual current $I_{\Delta n}$	(mA) 10, 30, 100, 300
Tripping characteristic	B-C
Rated voltage AC U_n	(V) 240
Minimum operating voltage U_{8min}	(V) 195
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. to	
EN/IEC 60068-2-28/2-30 and DIN 40046	95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²) Top terminal: 16-25 Bottom terminal: 25-35
Poles	1+N
Nuisance tripping resistance	250A 8/20μs; 200A 0.5μs - 100kHz
Ambient temperature	(°C) -25 upto 40
Weight	(g) 250

Short-circuit capacity

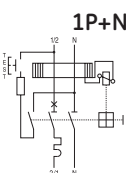
Acc. to EN/IEC 61009-1	
Residual making and breaking capacity	$I_{\Delta m} = 6000A$
Short-circuit capacity	$I_{cn} = 5000/10000A$ at 230V
Selectivity class	3
Acc. to EN/IEC 60947-2	
Short-circuit capacity	$I_{cu} = 15000A$ at 230V

DPA100 - ¹⁰⁰⁰⁰/₃ Type A - characteristic B



In (A)	10 mA		30 mA		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
10	DPA100B10/010	608706	DPA100B10/030	608712	6
13	DPA100B13/010	608707	DPA100B13/030	608713	6
16	DPA100B16/010	608708	DPA100B16/030	608714	6
20	DPA100B20/010	608709	DPA100B20/030	608715	6
25	-	-	DPA100B25/030	608716	6
32	-	-	DPA100B32/030	608717	6

DPA100 - ¹⁰⁰⁰⁰/₃ Type A - characteristic C



In (A)	10 mA		30 mA		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
10	DPA100C10/010	608757	DPA100C10/030	608763	6
13	DPA100C13/010	608758	DPA100C13/030	608764	6
16	DPA100C16/010	608759	DPA100C16/030	608765	6
20	DPA100C20/010	608760	DPA100C20/030	608766	6
25	-	-	DPA100C25/030	608767	6
32	-	-	DPA100C32/030	608768	6

Applications

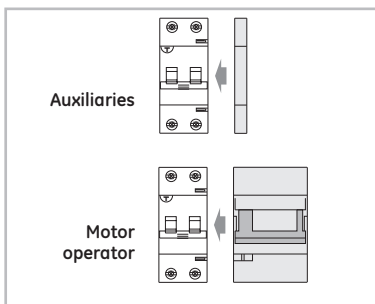


Approval



with UL approval

Add-on devices



Dimensions ● pg B.32

DPA100

A

B

C

D

E

F

G

X



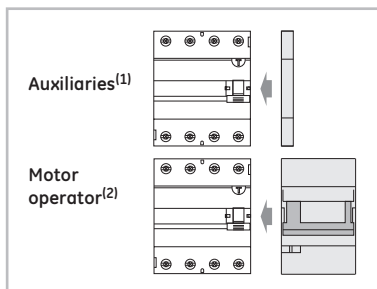
Applications



Approvals / Marking



Add-on devices



Residual Current Circuit Breakers

Series FPP

Screwless connection

EN/IEC 61008-1

Type A

Type S

Performances

Thermal setting I_n	(A) 25, 40, 63
Residual current Δn	(mA) 30, 100, 300
Rated voltage AC U_n	(V) 2P: 240 4P: 415
Minimum operating voltage U_{Bmin}	(V) 2P: 117 4P: 205
Mechanical/electrical endurance	20000/10000
Tropicalisation acc.to	
EN/IEC 60068-2-28/2-30 and DIN 40046	95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm ²) 35-50
Poles	2 4
Nuisance tripping resistance	Type A Type S
Ambient temperature	(°C) -25 ... +50
Weight	(g) 2P: 248 4P: 364

Short-circuit capacity

Acc. EN/IEC 61008-1	
Making and breaking capacity	$I_m = 500A$
Residual making and breaking capacity	$\Delta m \geq 500A$ from 16 upto 40A $\Delta m = 10I_n$ from 63 upto 100A
Short-circuit capacity	$I_{nc} = 10000A$ at 240/415V fuse 80A gG

- (1) Series CA - Tele L - Tele U - PBS
(2) Only at right side end of the extreme pin busbar

Series FPP - Type A



Plug-in

	In (A)	30 mA		100 mA		300 mA		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
2P	25	FPPA225/030	678359	FPPA225/100	678365	FPPA225/300	678371	6
	40	FPPA240/030	678360	FPPA240/100	678366	FPPA240/300	678372	6
	63	FPPA263/030	678361	FPPA263/100	678367	FPPA263/300	678373	6
4P	25	FPPA425/030	678362	FPPA425/100	678368	FPPA425/300	678374	3
	40	FPPA440/030	678363	FPPA440/100	678369	FPPA440/300	678375	3
	63	FPPA463/030	678364	FPPA463/100	678370	FPPA463/300	678376	3

Series FPP - Type S



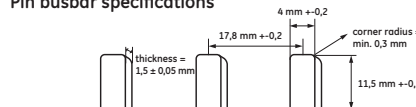
2P	40					FPPS240/300	678377	6
	63					FPPS263/300	678378	6
4P	40					FPPS440/300	678379	3
	63					FPPS463/300	678380	3

Terminal capacity

Top terminals			
		Ratings 25A, 40A and 63A:	
		Cage terminals	
Rigid cable (min/max)	mm ²	1.5/50	
Flexible cable (min/max)	mm ²	1.5/35	
Recommended torque	Nm	2.5	
Maximum torque	Nm	5	

Bottom terminals			
		Ratings 25A, 40A and 63A:	
		Cage terminals ⁽¹⁾	Flat plug-in terminals ⁽²⁾
Rigid cable (min/max)	mm ²	1/25	To insert GE pin busbars, or other brands under following dimensions: Length = 11.5 ± 0.2mm Width = 4 ± 0.2 mm Thickness = 1.5 ± 0.05 mm Corners min. radius = 0.3 mm
Flexible cable (min/max)	mm ²	0.75/16	
Recommended torque	Nm	2.5	
Maximum torque	Nm	4.5	

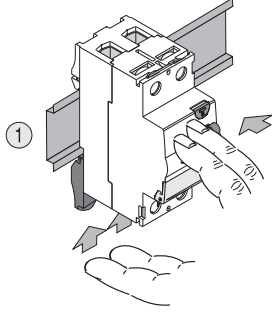
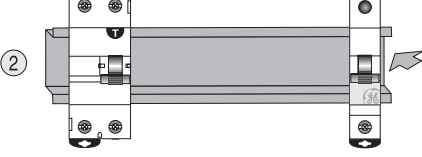
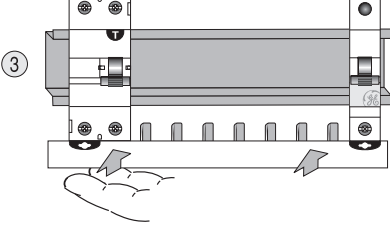
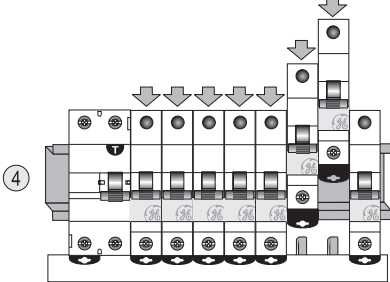
Pin busbar specifications



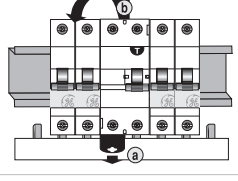
Σ7	27	17
L1	L2	L3

- (1) Bottom terminals provide a cage terminal to connect also cables to feed other rows /devices limited to rated current of the device.
- (2) Plug-in window terminals are only foreseen for pin busbars providing the incoming to several devices from the bottom side.
Not intended for any other conductor with or without cable lugs or cable connectors.

How to mount the busbar into devices

1. Mount first 2, 3 or 4 poles devices on the DIN-rail at the extreme left side of the row.
2. Mount one device at the extreme right side on the DIN-rail.
3. Fit the pin busbar on both devices.
4. Then, mount one by one the rest of poles pulling down the grey clip previously, inserting the pin bars inside the devices and then closing the clip of every device.

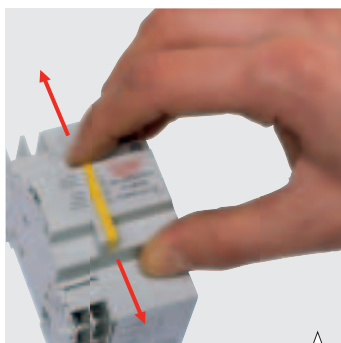
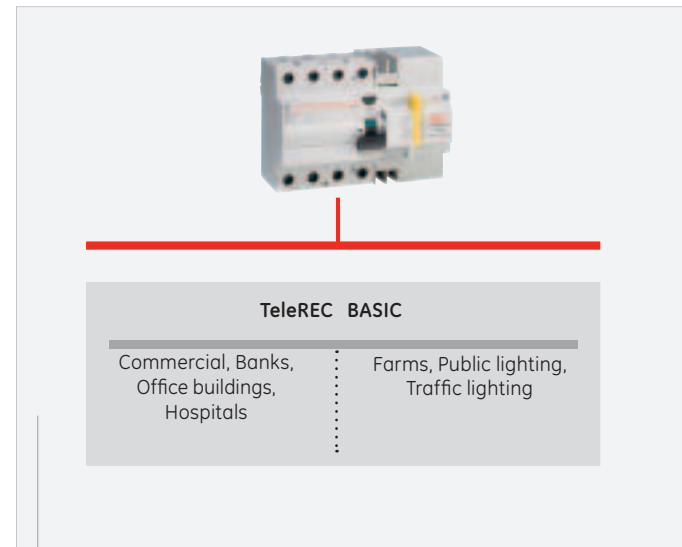
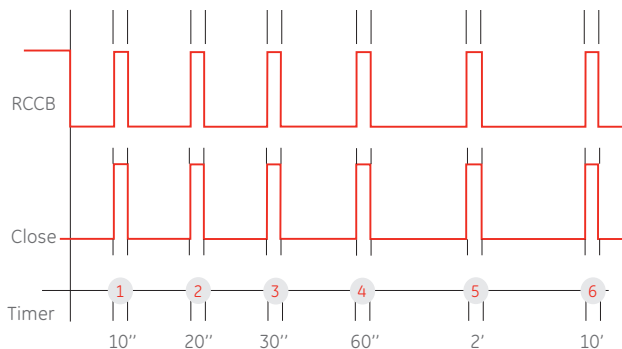


Easy to dismant from DIN rail

TeleREC reconnector

Ensures power continuity in critical

The TeleREC relay automatically recloses the RCCB after an earth leakage or a manual disconnect. The relay will attempt to re-close 6 times with different time intervals between re-close attempts. After 6 unsuccessful attempts the TeleREC is locked.

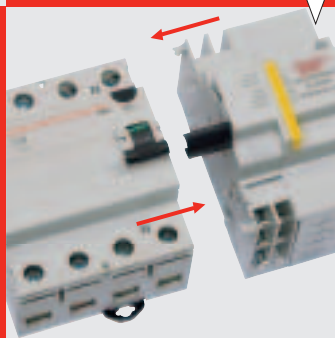


Easy connection

The RCCB toggle slides easily into the toggle actuator of the relay.

Status indicator

The yellow lever clearly indicates the status of the TeleREC. In position 1 the relay is ready to work, in position 0 the relay is blocked both electrically and mechanically.



Redline

Part of the family

For each series of RCCB's and Redline a specific TeleREC reconnector is available.

Auxiliary contact

TeleREC is equipped with an auxiliary contact (LI) to operate the re-closing system from a push-button.



New

ing system for RCCB's

applications



Full awareness

The relay is also equipped with a volt free output to indicate the status of the protection (connected/ disconnected).



Stable and secure

Strong clips to ensure a stable connection between the RCCB and the TeleREC relay.



One fits all

Both 2 modules and 4 modules RCCB's can be connected to the reconnection relay TeleREC.

New

TeleREC

Complete range of reconnection relays

People protection

A

B

C

D

E

F

G

X

TeleREC BASIC
For the residential/
commercial markets



TeleREC BASIC Ai
Power maintenance
and reliability
in one device



TeleREC PLUS
For the commercial/
industrial markets



TeleREC SOLAR
Specially designed
for photovoltaic
applications

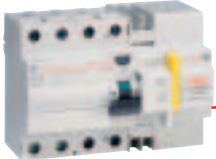
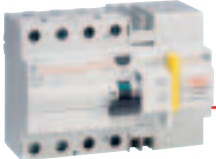
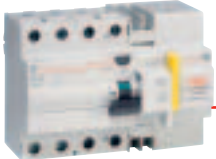


New



For the residential/commercial market

Series TeleREC BASIC - Type AC

		In (A)	30 mA		Pack.
			Cat. No.	Ref. No.	
	2P Type AC	40	Tele REC BASIC 240/030	676949	1
		63	Tele REC BASIC 263/030	677118	1
	4P Type AC	40	Tele REC BASIC 440/030	676951	1
		63	Tele REC BASIC 463/030	677119	1
		In (A)	300 mA		Pack.
			Cat. No.	Ref. No.	
	2P Type AC	40	Tele REC BASIC 240/300	676950	1
		63	Tele REC BASIC 263/300	677120	1
	4P Type AC	40	Tele REC BASIC 440/300	676952	1
		63	Tele REC BASIC 463/300	677121	1

Series TeleREC BASIC - Type A

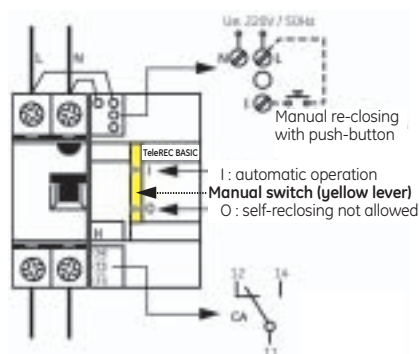
		In (A)	30 mA		Pack.
			Cat. No.	Ref. No.	
	2P Type A	40	Tele REC BASIC A 240/030	677122	1
		63	Tele REC BASIC A 263/030	677123	1
	4P Type A	40	Tele REC BASIC A 440/030	677124	1
		63	Tele REC BASIC A 463/030	677125	1
		In (A)	300 mA		Pack.
			Cat. No.	Ref. No.	
	2P Type A	40	Tele REC BASIC A 240/300	677126	1
		63	Tele REC BASIC A 263/300	677127	1
	4P Type A	40	Tele REC BASIC A 440/300	677128	1
		63	Tele REC BASIC A 463/300	677129	1

Power maintenance and reliability in one device

Series TeleREC BASIC - Type Ai

		In (A)	30 mA		Pack.
			Cat. No.	Ref. No.	
	2P Type Ai	40	Tele REC BASIC Ai 240/030	677130	1
		63	Tele REC BASIC Ai 263/030	677131	1

Electrical diagram



The complete solution in **only one device**:

- Total protection against person's indirect contacts.
- Safe reconnection of RCCB after trip by transitory earth leakage.
- Maintenance of power against trips provoked by high frequency earth leakages.
- Maintenance of power against shock waves up to 3000 A.



New

For the commercial/industrial market

Series TeleREC PLUS



Reconnection relay

In (A)

Reconnection relay

Cat. No.

Ref. No.

Pack.

Tele REC PLUS Motor

677132

1

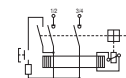


The reconnection relay TeleREC PLUS can be easily coupled to any RCCB:

Series BP/BD - Type AC

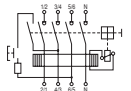


2P
Type AC



In (A)	10*/30mA		100mA		300mA		500mA		1000mA	
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No. Pack.
16	BPC216/010*	606131	-	-	-	-	-	-	-	6
25	BDC225/030	607125	BPC225/100	606140	BDC225/300	607127	BPC225/500	606153	BPC225/1000	606158 6
40	BDC240/030	607126	BPC240/100	606141	BDC240/300	607128	BPC240/500	606154	BPC240/1000	606159 6
63	BPC263/030	606134	BPC263/100	606142	BPC263/300	606150	BPC263/500	606155	BPC263/1000	606160 6
80	BPC280/030	606135	BPC280/100	606143	BPC280/300	606151	BPC280/500	606156	BPC280/1000	606161 6
100	BPC2100/030	606136	BPC2100/100	606144	BPC2100/300	606152	BPC2100/500	606157	BPC2100/1000	606162 6

4P
Type AC

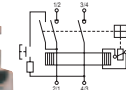


In (A)	10*/30mA		100mA		300mA		500mA		1000mA	
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No. Pack.
25	BPC425/030	606208	BPC425/100	606216	BPC425/300	606224	BPC425/500	606229	BPC425/1000	606234 3
40	BPC440/030	606209	BPC440/100	606217	BPC440/300	606225	BPC440/500	606230	BPC440/1000	606235 3
63	BPC463/030	606210	BPC463/100	606218	BPC463/300	606226	BPC463/500	606231	BPC463/1000	606236 3
80	BPC480/030	606211	BPC480/100	606219	BPC480/300	606227	BPC480/500	606232	BPC480/1000	606237 3
100	BPC4100/030	606212	BPC4100/100	606220	BPC4100/300	606228	BPC4100/500	606233	BPC4100/1000	606238 3

Series BP - Type A

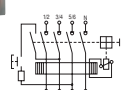


2P
Type A



In (A)	10*/30mA		100mA		300mA		500mA		1000mA	
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No. Pack.
16	BPA216/010*	606085	-	-	-	-	-	-	-	6
25	BPA225/030	606086	BPA225/100	606091	BPA225/300	606101	BPA225/500	606111	BPA225/1000	606121 6
40	BPA240/030	606087	BPA240/100	606092	BPA240/300	606102	BPA240/500	606112	BPA240/1000	606122 6
63	BPA263/030	606088	BPA263/100	606093	BPA263/300	606103	BPA263/500	606113	BPA263/1000	606123 6
80	BPA280/030	606089	BPA280/100	606094	BPA280/300	606104	BPA280/500	606114	BPA280/1000	606124 6
100	BPA2100/030	606090	BPA2100/100	606095	BPA2100/300	606105	BPA2100/500	606115	BPA2100/1000	606125 6

4P
Type A

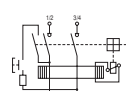


In (A)	10*/30mA		100mA		300mA		500mA		1000mA	
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No. Pack.
25	BPA425/030	606163	BPA425/100	606168	BPA425/300	606178	BPA425/500	606188	BPA425/1000	606198 3
40	BPA440/030	606164	BPA440/100	606169	BPA440/300	606179	BPA440/500	606189	BPA440/1000	606199 3
63	BPA463/030	606165	BPA463/100	606170	BPA463/300	606180	BPA463/500	606190	BPA463/1000	606200 3
80	BPA480/030	606166	BPA480/100	606171	BPA480/300	606181	BPA480/500	606191	BPA480/1000	606201 3
100	BPA4100/030	606167	BPA4100/100	606172	BPA4100/300	606182	BPA4100/500	606192	BPA4100/1000	606202 3

Series BP - Type S

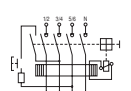


2P
Type S



In (A)	100mA		300mA		500mA		1000mA	
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No. Pack.
25	BPS225/100	606096	BPS225/300	606106	BPS225/500	606116	BPS225/1000	606126 6
40	BPS240/100	606097	BPS240/300	606107	BPS240/500	606117	BPS240/1000	606127 6
63	BPS263/100	606098	BPS263/300	606108	BPS263/500	606118	BPS263/1000	606128 6
80	BPS280/100	606099	BPS280/300	606109	BPS280/500	606119	BPS280/1000	606129 6
100	BPS2100/100	606100	BPS2100/300	606110	BPS2100/500	606120	BPS2100/1000	606130 6

4P
Type S



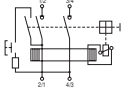
In (A)	100mA		300mA		500mA		1000mA	
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No. Pack.
25	BPS425/100	606173	BPS425/300	606183	BPS425/500	606193	BPS425/1000	606203 3
40	BPS440/100	606174	BPS440/300	606184	BPS440/500	606194	BPS440/1000	606204 3
63	BPS463/100	606175	BPS463/300	606185	BPS463/500	606195	BPS463/1000	606205 3
80	BPS480/100	606176	BPS480/300	606186	BPS480/500	606196	BPS480/1000	606206 3
100	BPS4100/100	606177	BPS4100/300	606187	BPS4100/500	606197	BPS4100/1000	606207 3

New



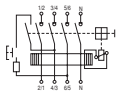
Series BP - Type Ai

Series BP - Type Si



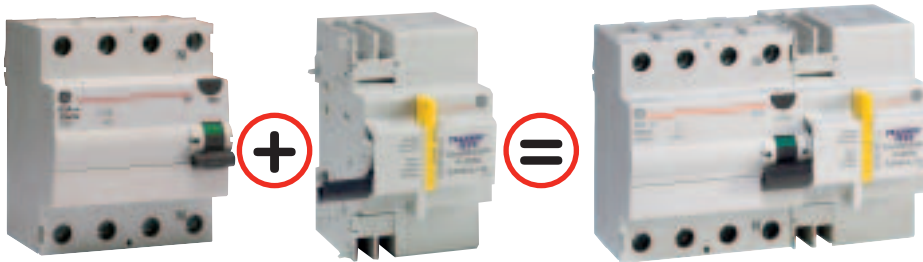
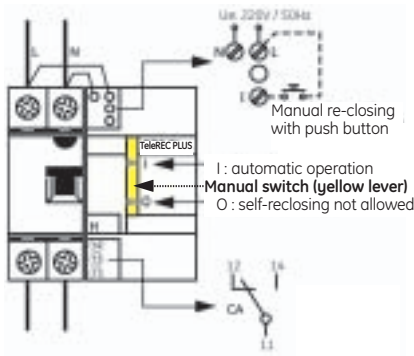
**2P
Type S**

**4P
Type S**



In (A)	30mA		300mA		300mA		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
25	BPAi225/030	606331	BPAi225/300	606347	BPSi225/300	606337	6
40	BPAi240/030	606332	BPAi240/300	606348	BPSi240/300	606338	6
63	BPAi263/030	606333	BPAi263/300	606349	BPSi263/300	606339	6
80	-	-	-	-	BPSi280/300	606340	6
100	-	-	-	-	BPSi2100/300	606341	6
25	BPAi425/030	606334	BPAi425/300	606350	BPSi425/300	606342	3
40	BPAi440/030	606335	BPAi440/300	606351	BPSi440/300	606343	3
63	BPAi463/030	606336	BPAi463/300	606352	BPSi463/300	606344	3
80	-	-	-	-	BPSi480/300	606345	3
100	-	-	-	-	BPSi4100/300	606346	3

Electrical diagram



TeleREC PLUS

A

B

C

D

E

F

G

X

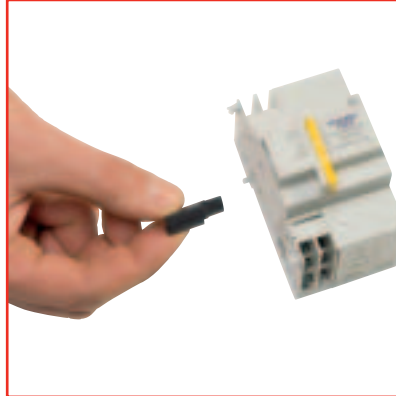
Mounting instructions TeleREC PLUS

1.

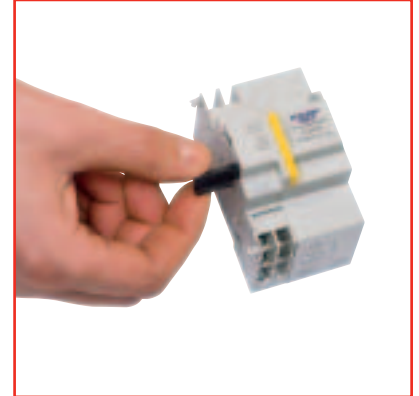


Place the reconnection relay on a flat surface and lock relay in OFF position using the yellow sliding lever.

2.



Install the toggle actuator in the relay.

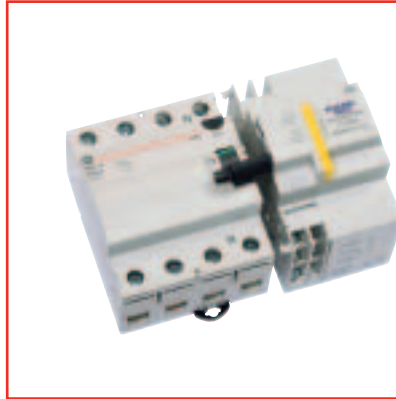


3.



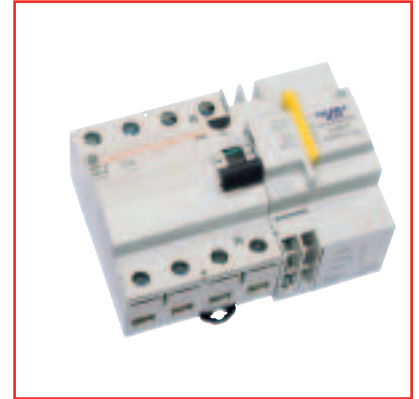
Ensure RCCB is OFF. Align relay and RCCB. Check the make and model of RCCB.
NOTE: The motorized reconnecting system is only adequate for use with RCCB's of the following series : Series BP, BD.
Do not use for reconnecting circuit breakers with overload and/or short-circuit protection. It may result in damage to the breaker or the installation!

4.



Approach devices ensuring the RCCB toggle slides into the toggle actuator.

5.



Press devices together until fixing clips "click" in place.

6.



Inspect both clips to ensure correct fixation.

Especially designed for photovoltaic applications

Series TeleREC SOLAR



Reconnection relay

In (A)	Reconnection relay		
	Cat. No.	Ref. No.	Pack.
-	Tele REC SOLAR Motor	677133	1



The reconnection relay TeleREC SOLAR can be easily coupled to MCB's series EP100 UC:

Series EP100 UC - 10kA - characteristic B-C

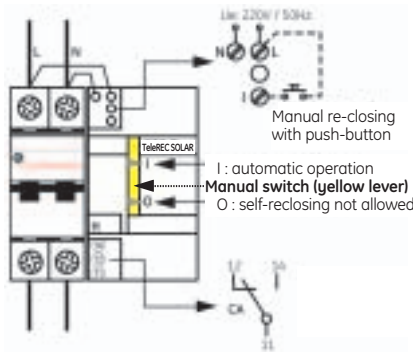


2P
 2 mod.
 2 4

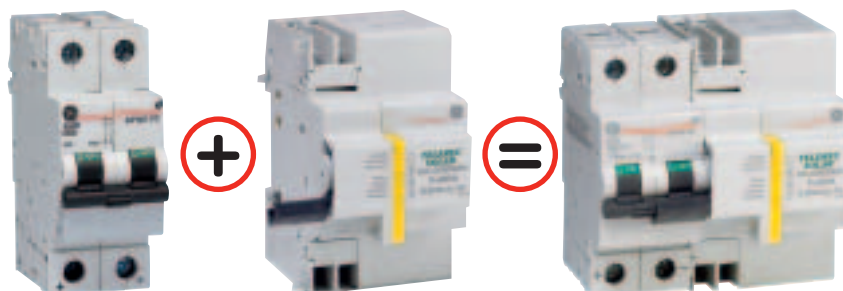
 1 3
 + -

In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	EP102UCB06	673342	EP102UCC06	673322	6
10	EP102UCB10	673343	EP102UCC10	673324	6
16	EP102UCB16	673344	EP102UCC16	673326	6
20	EP102UCB20	673345	EP121UCC20	673327	6
25	EP102UCB25	673346	EP102UCC25	673328	6
32	EP102UCB32	673347	EP102UCC32	673329	6
40	EP102UCB40	673348	EP102UCC40	673330	6
50	EP102UCB50	673349	EP102UCC50	673331	6
63	EP102UCB63	673350	EP102UCC63	673332	6

Electrical diagram

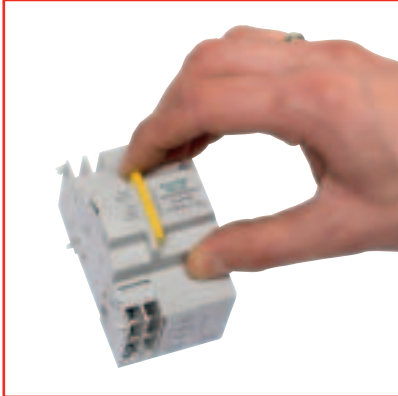


*Only valid for photovoltaic application with MCB's Series EP102UC until 440Vdc ($I_{cc} < 2I_n$).
 The TeleREC SOLAR voltage is 230Vac.*



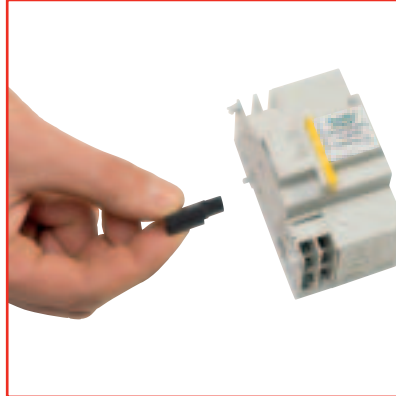
Mounting instructions TeleREC SOLAR

1.

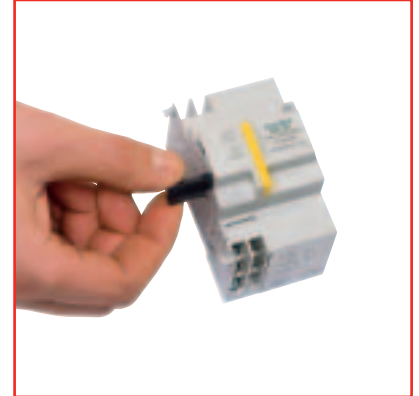


Place the reconnection relay on a flat surface and lock relay in OFF position using the yellow sliding lever.

2.



Install the toggle actuator in the relay.



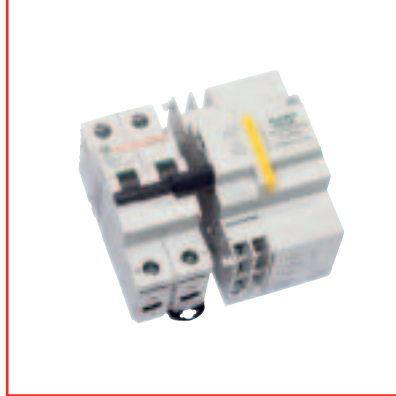
3.



Ensure that the MCB EP 102UC is OFF. Align relay and MCB. Check the make and model of MCB.

NOTE: The motorized reconnecting system is only adequate for use with MCB'S EP 102UC. Do not use for reconnecting circuit breakers with overload and/or short-circuit protection. It may result in damage to the breaker or the installation!

4.



Approach devices ensuring the MCB toggle slides into the toggle actuator.

5.



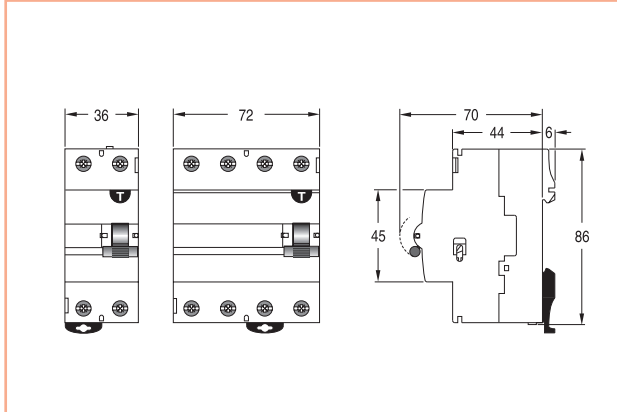
Press devices together until fixing clips "click" in place.

6.

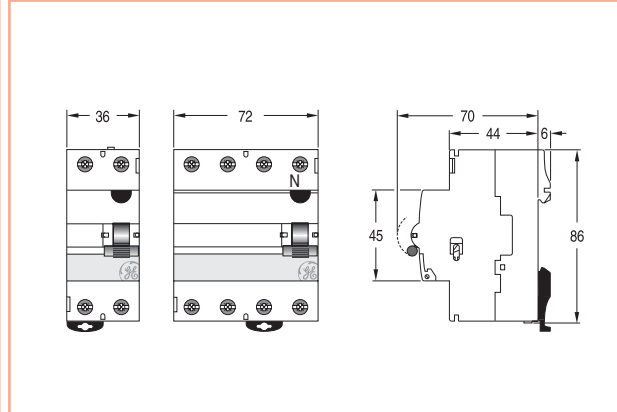


Dimensional drawings

RCCB's - Series BP/BD and FPAUL

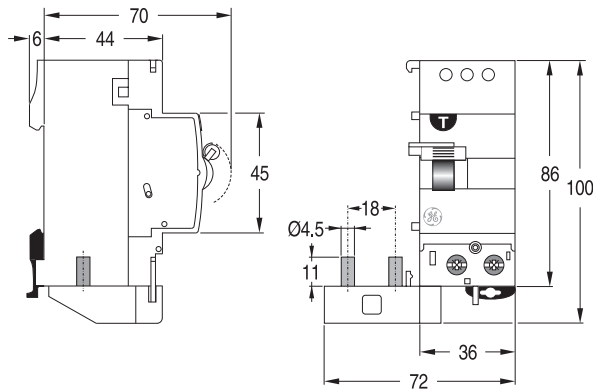


RCCB's - Series FPP - Fixwell™

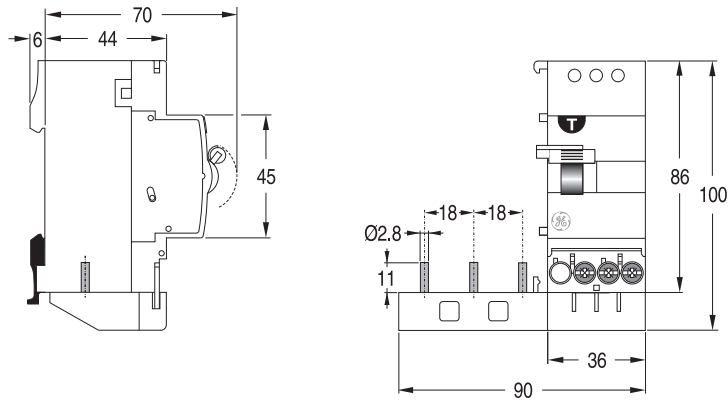


Add-on RCCB - Series Diff-o-Click

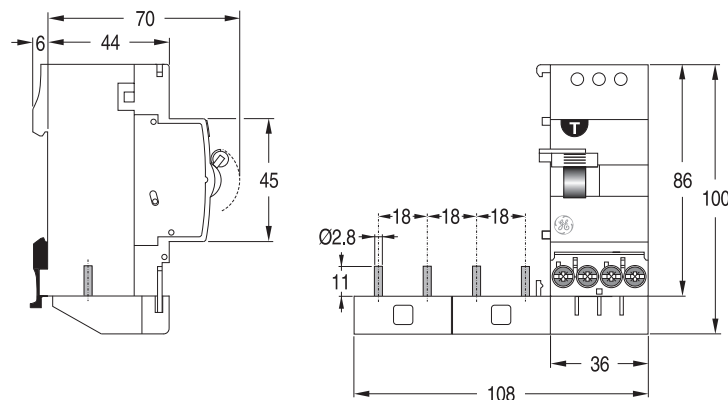
2P 32A
2P 63A



3P 32A



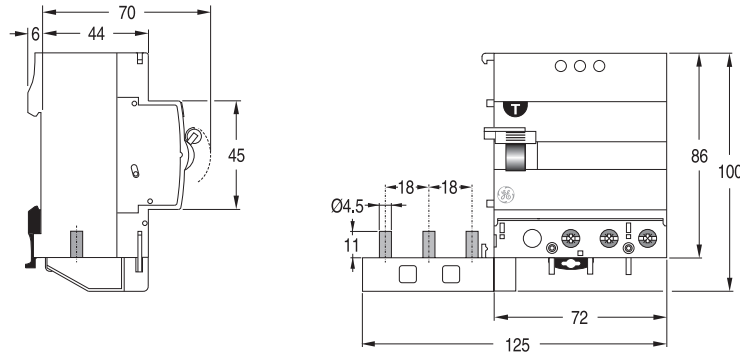
4P 32A



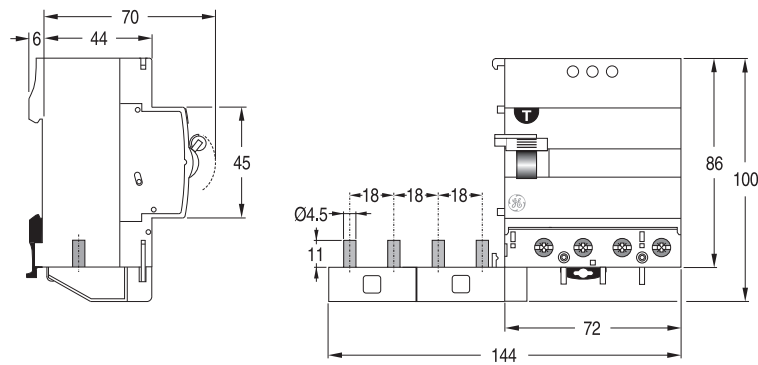
Dimensional drawings

Add-on RCCB - Series Diff-o-Click (continued)

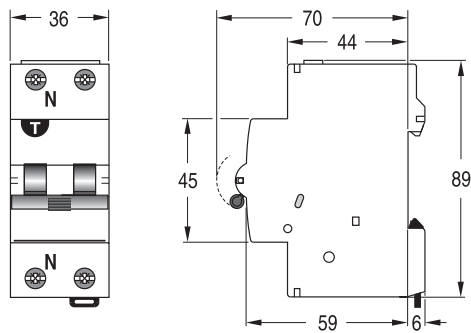
3P 63A



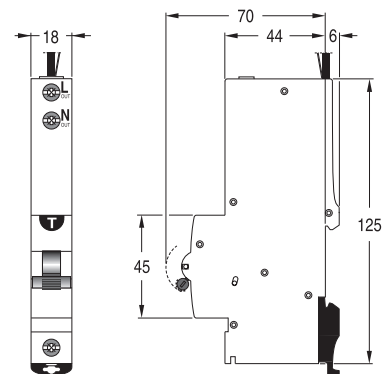
4P 63A



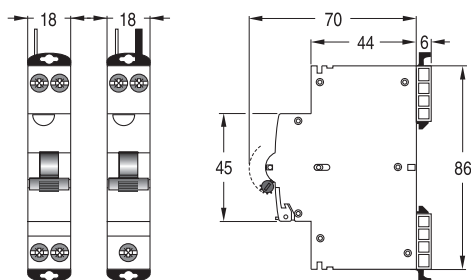
RCBO's - Series DM and DPA100



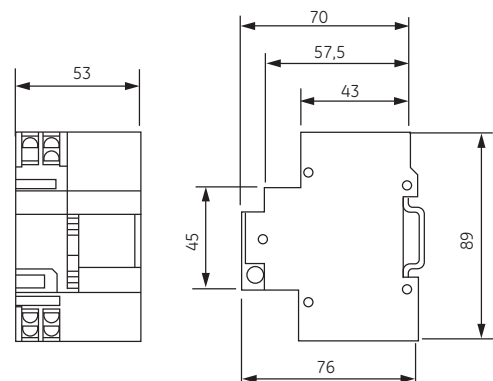
RCBO's - Series DME



Compact e-RCBO - Series DMCE & DICE



TeleREC - Reconnection relay



- C.2 Selection table
- C.3 Coupling combinations
- C.4 Auxiliary - **Series CA**
- C.5 Auxiliary - **Series CB**



- C.6 Interface - **Series CA**
- C.7 Motor operator - **Tele MP**
- C.8 Shunt trip - **Tele L**
- C.8 Undervoltage release - **Tele U**
- C.8 Panel board switch - **PBS**
- C.10 Auxiliary contacts - **Series CBT**
- C.11 Shunt trip - **Series Tele LT**
- C.12 Dimensional drawings

Circuit Protection

People Protection

Add-on Devices

Comfort Functions

Busbars

Enclosures

Record Plus

Numerical Index

A

B

C

D

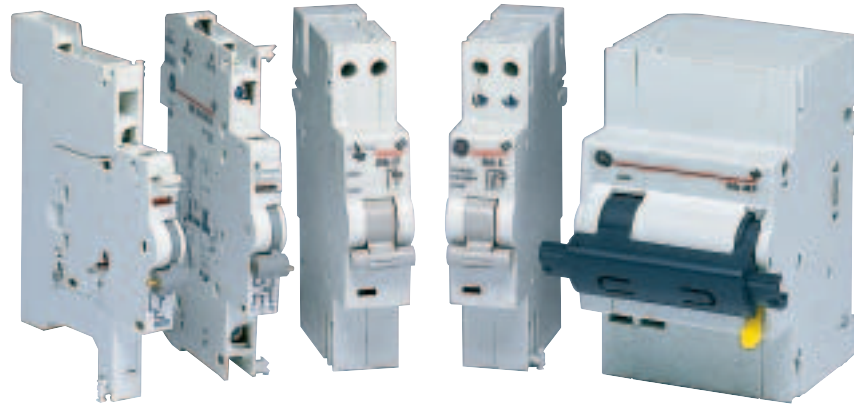
E

F

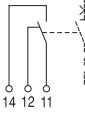
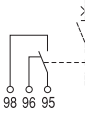
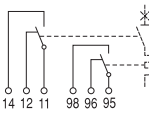
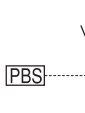
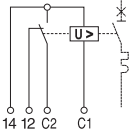
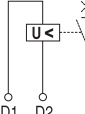
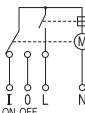
G

X

Add-on devices for MCB's and RCD's



Common add-on devices suitable for all MCB's and RCD's

Function			Type
H		Auxiliary Contact H For monitoring the status of the protection device (Open/Closed) independently, if it has been actuated manually or automatically.	CA
S		Signal or Auxiliary Contact S/H For signalling the automatic tripping of the protection devices: Overload or short-circuit for MCB's Earth leakage tripping for RCD's	CA
S/H+H		Signal or Auxiliary Contact S/H + Auxiliary Contact H Two change-over contacts that include both functions as described above (S/H+H)	CB
PBS		Panel Board Switch For opening the main device when the panel frame is removed	PBS
TL		Shunt Trip (Distance tripping by emission) For opening the device when it is fed locally or remotely	Tele L
TU		Undervoltage Release For opening the device when the voltage goes lower than a certain value	Tele U
TM		Motor Operator Allows to switch on/off the devices from a distance	Tele MP

Coupling of add-on devices on MCB's, RCCB's and modular switches

Cat. No.	Description	Function	EPC	G30	G45	G60	G100	GT10	GT25	EP100UC EP100T EPP100	BP	DM	Series G + Diff-o-Click	ASTER
CA H	Auxiliary contact	H	-	L-R	L-R	L-R	L-R	L-R	L-R	L-R	R	R	L	L-R
CA S/H	Signal or auxiliary contact	S/H	-	L-R	L-R	L-R	L-R	L-R	L-R	L-R	R	R	L	L-R
CA S/H-G	Signal or auxiliary contact, gold contact	S/H	-	L-R	L-R	L-R	L-R	L-R	L-R	L-R	R	R	L	L-R
CA UN H	Auxiliary contact	H	L-R ⁽¹⁾	-	-	-	-	-	-	-	-	-	-	-
CA UN S/H	Signal or auxiliary contact	S/H	L-R ⁽¹⁾	-	-	-	-	-	-	-	-	-	-	-
CB SH/HH-R	Signal or auxiliary + auxiliary contact	S/H+H	-	R	R	R	R	R	R	R	R	R	-	-
CB SH/HH-L	Signal or auxiliary + auxiliary contact	S/H+H	-	L	L	L	L	L	L	L	-	-	L	-
PBS	Panel board switch	PBS	L-R	L-R	L-R	L-R	L-R	L-R	L-R	L-R	-	-	L-R	-
Tele L	Shunt trip	TL	L-R	L-R	L-R	L-R	L-R	L-R	L-R	L-R	R	R	L	-
Tele U	Undervoltage release	TU	L-R	L-R	L-R	L-R	L-R	L-R	L-R	L-R	R	R	L	-
Tele MP	Motor operator	TM	L-R	L-R	L-R	L-R	L-R	L-R	L-R	L-R	R	R	L	-

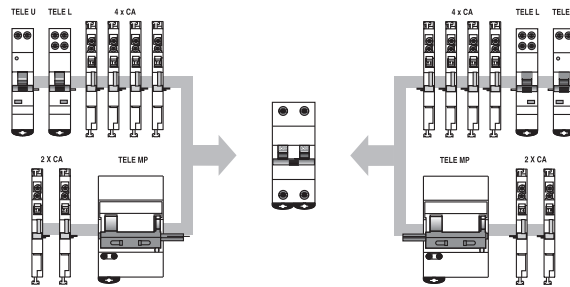
(1) Except 3P Unibis™ that only accept
CA UN on the **left** side

L = Coupling on the left

R = Coupling on the right

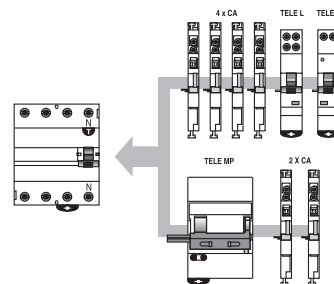
For detailed information, see website

Miniature Circuit Breakers Series G/EP Series EPC⁽²⁾

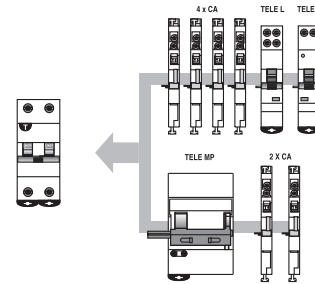


(2) The first auxiliary contact on MCB should always be CA UN

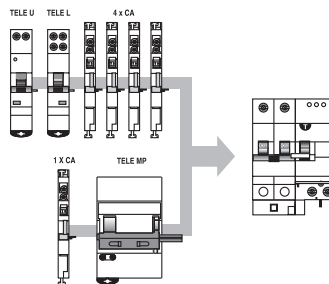
Residual Current Circuit Breakers (RCCB) Series BP



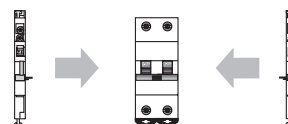
Residual Current Circuit Breakers (RCBO) with Overcurrent Protection Series DM



Miniature Circuit Breakers Series G + Diff-o-Click



Modular switches Aster

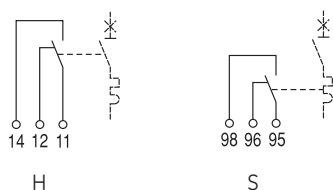
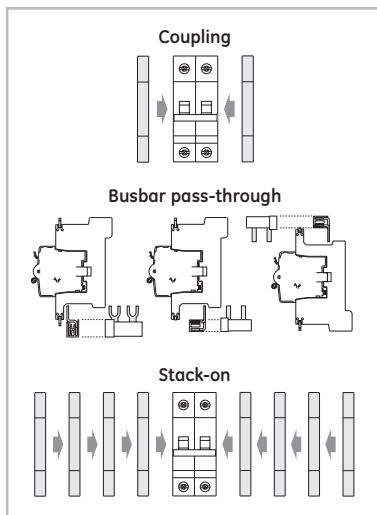




Applications



Approvals



1/2 mod.

Auxiliary

Series CA

EN/IEC 62019

- Common for all modular protection devices: MCB's and RCBO's up to 63 A, RCCB's up to 100A and mains disconnect switches type ASTER (ASTM).
- Can be coupled on both sides of MCB's and modular switches type ASTM.
- Version with golden contacts, available for low current as well as low voltage applications.
- Stack-on left and right up to 4 CA units.
- Permits the pass-through of busbars, pin & fork, top and bottom, just changing the position of the base of the auxiliaries.

Performance

Change-over contacts	1
Rated current In	(A) 5
Rated voltage AC Un	(V) 240
Electrical endurance	10000
Terminal capacity flexible/rigid cable	(mm ²) 2.5
Weight	(g) 70

Utilisation

The auxiliary contacts are units to be added on to protection devices. They allow information to be monitored from a distance about the protection devices.

Auxiliary contact CA H (function H)

Provides the status of the protection device, OPEN/CLOSED.

Signal or auxiliary contact CA S/H, CA S/H G (function S/H)

This auxiliary can act as an auxiliary contact (function H) or as a signal contact (function S).

The user can change the function at the moment of installation.

Used as signal contact (function S) it provides the information about the automatic tripping of the protection devices: overload or short-circuit for MCB's, earth leakage tripping for RCD's.

- The device has a test button on the front to simulate the function (acting as a function H or S)
- Reset button for the contacts (function S)
- Tripping signal on the front (function S)

Series CA

Function	Cat. No.	Ref. No.	Pack.	
H	CA H	672567	40	
S/H	CA S/H	672568	40	
S/H	CA S/H G	672569	40	golden contacts

Auxiliary

Series CB

EN/IEC 62019

- Common for all modular protection devices: MCB's and RCBO's up to 63 A, RCCB's up to 100A and mains disconnect switches type ASTER (ASTM).
- Can be coupled on both sides of MCB's and modular switches type ASTM.
- Common for all modular protection devices: MCB's and RCBO's up to 63 A, RCCB's up to 100A.
- Can be coupled on both sides of MCB's and modular switches type ASTM.
- This device has 2 change-over contacts, the upper one with changeable function (S/H).
- Two versions: CB SH/HH-R to be coupled on the right side of the protection devices, CBSH/HH-L when assembled on the left side
- No stack-on possibilities (only 1 auxiliary)
- No busbar pass-through facilities

Performance

Change-over contacts	2
Rated current In	(A) 5
Rated voltage AC Un	(V) 240
Electrical endurance	10000
Terminal capacity flexible/rigid cable	(mm ²) 2.5
Weight	(g) 80

Utilisation

Bottom auxiliary contact (function H)

Provides the status of the protection device, OPEN/CLOSED.

Top signal or auxiliary contact (function S/H).

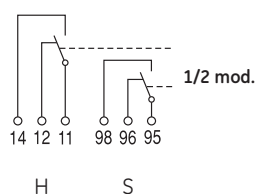
This auxiliary can act as an auxiliary contact (function H) or as a signal contact (function S)

The user can make the change of the function at the moment of installation.

Used as signal contact (function S) it provides information about automatic tripping of the protection devices: overload or short-circuit for MCB's, earth leakage tripping for RCD's.

- The device has a test button on the front to simulate the function (acting as a function H or S)
- Reset button for the contacts (function S)
- Tripping signal on the front (function S)

Series CB



Function	Cat. No	Ref. No.	Pack.
SH/HH	CB SH/HH-R ⁽¹⁾	672570	40
SH/HH	CB SH/HH-L ⁽²⁾	672571	40

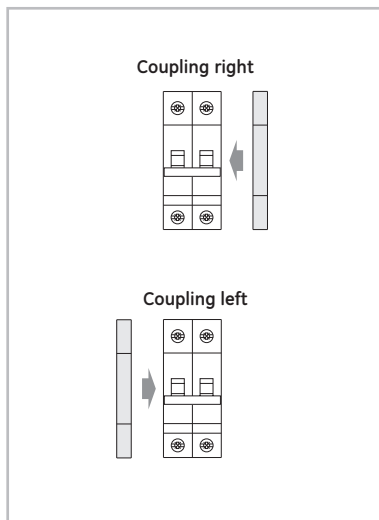
(1) R= coupling on the right (2) L= coupling on the left



Applications



Approvals



Series CB

A

B

C

D

E

F

G

X



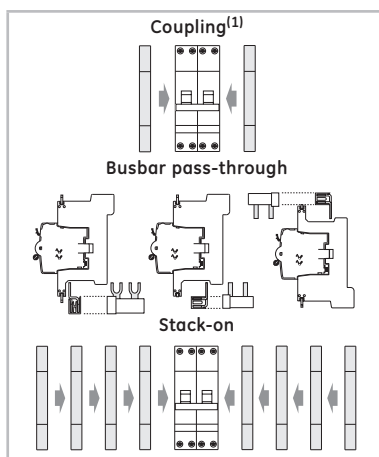
Applications



Approvals / Marking



Add-on devices



- (1) 3P Unibis™ MCB's accept CA only on the **left** side
(2) Only first auxiliary contact on MCB must be CA UN type as interface, then every extension can be stack-on mounted

Auxiliary

Series CA - Unibis™ Interface EN/IEC 62019

- Common for all modular protection devices: MCB's and RCBO's up to 63 A, RCCB's up to 100A and mains disconnect switches type ASTER (ASTM).
- Can be coupled on both sides of MCB's⁽¹⁾ and modular switches type ASTM.
- Version with golden contacts, available for low current as well as low voltage applications.
- Stack-on left or right up to 4 CA units.
- Permits the pass-through of busbars, pin & fork, top and bottom, just changing the position of the base of the auxiliaries.

Performances

Change-over contacts	1
Rated current In	(A) 5
Rated voltage AC Un	(V) 240
Electrical endurance	10000
Terminal capacity flexible/rigid cable	(mm ²) 2.5
Weight	(g) 70

Application

The auxiliary contact Unibis™ has a double function:

1. The standard function as auxiliary monitoring contact for which it has been developed.
2. The interface function, which allows the use of all auxiliaries in combination with the Unibis™ MCB range.

Example: to couple the undervoltage release Tele U to a Unibis™ MCB, the CA 672972 has to be added in between the MCB and the Tele U as interface.

The auxiliary contacts are units to be added on to protection devices. They allow information to be monitored from a distance about the protection devices.

Auxiliary contact CA H (function H)

Provides the status of the protection device, OPEN/CLOSED.

Signal or auxiliary contact CA S/H, CA S/H G (function S/H)

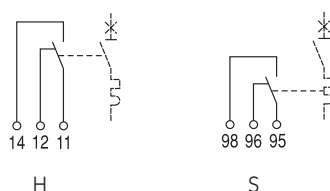
This auxiliary can act as an auxiliary contact (function H) or as a signal contact (function S).

The user can change the function at the moment of installation.

Used as signal contact (function S) it provides the information about the automatic tripping of the protection devices: overload or short-circuit for MCB's, earth leakage tripping for RCD's.

- The device has a test button on the front to simulate the function (acting as a function H or S)
- Reset button for the contacts (function S)
- Tripping signal on the front (function S)

Series CA - Unibis™ Interface



1/2 mod.

Function	Cat. No	Ref. No.	Pack.	
H	CA UN H	672972	1/40	
S/H	CA UN S/H	672973	1/40	
S/H	CA UN S/H G	672974	1/40	golden contacts

Motor Operator

Tele MP

- Common device for all modular protection devices.
- Can be coupled on both sides of MCB's and modular switches, on the right hand side of RCCB's and RCBO's.
- Stack-on left and right sides up to 4 modules. One of them can be coupled between the main device and the motor operator.
- Can be locked in off position with a lock.
- Manual operating is possible.

The Tele MP allows to remotely open or close any MCB, RCCB, RCBO or modular switch by means of a push-button or any other automatic management processor (PLC..).

In case of mounting a Tele MP and a Undervoltage Tele U together: when the Tele U trips, a manual reset of the Tele U is locally needed due to safety reasons.

Applications



Standard

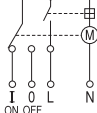
EN/IEC 60947-2

Performance

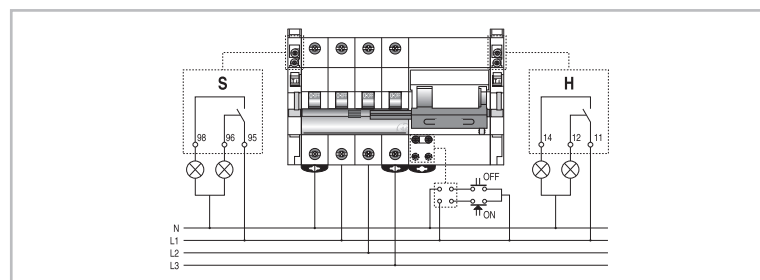
Rated voltage AC Un	(V)	240
Minimum voltage	(V)	200
Impulse to switch on	(ms)	50
Impulse to switch off	(ms)	50
Closing time	(s)	0.5
Opening time	(s)	0.2
Electrical endurance		10000
Terminal capacity flexible/rigid cable	(mm ²)	2.5
Weight	(g)	380

Tele MP - Motor operator

	Voltage	Cat. No.	Ref. No.	Pack.
3 mod.	AC 230V	TELE MP	672580	1



Application example



More technical data ● website
 Dimensions ● pg C.12



Shunt trip, Undervoltage release, Panel board switch

- Common device for all modular protection devices.
- Can be coupled on both sides of MCB's, on the right side of RCCB's and RCBO's.
- Permit the pass-through of busbars, pin & fork, at top or bottom terminals.
- Stack-on left and right side up to 4 modules.

Shunt Trip Tele L

The Tele L allows to remotely switch off any MCB, RCCB or RCBO by means of push-buttons or any other automatic management processor. A built-in contact in series with the coil prevents burn-out damage if the voltage remains.

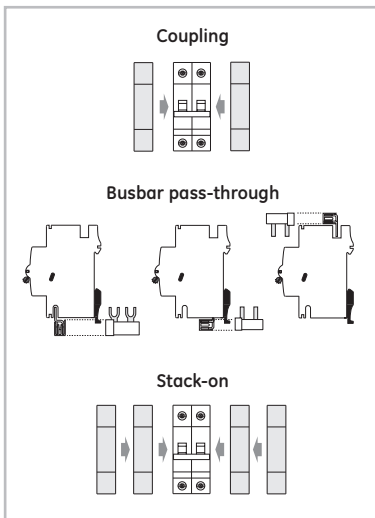
Applications



Approvals

EN/IEC 60947-2  (1)

(1) For TELE L-1 and TELE L-2



Performance

Rated voltage	(V)	110/415, 110/125 DC
	(V)	24/60, 24/48 DC
Tripping time	(ms)	<10
Electrical endurance		10000
Terminal capacity flexible/rigid cable	(mm ²)	2.5
Weight	(g)	125
Inrush current (Tele 2)	at 110V AC	0.4A
	at 230V AC	0.9A
	at 415V AC	1.5A

Undervoltage Release Tele U

The Tele U releases the main MCB, RCCB, RCBO and modular switch in case the power supply drops below 0.5xUn. Time delay adjusting up to 300 ms.

Performance

Rated voltage AC Un	(V)	240
Rated voltage DC/AC Un	(V)	12, 24, 48 DC/AC
Tripping voltage	(V)	≤0.5xUn±10%
Resetting voltage	(V)	>0.5xUn±10%
Tripping time	(ms)	Adjustable 0...300
Electrical endurance		2000
Terminal capacity flexible/rigid cable	(mm ²)	2.5
Weight	(g)	125

Panel Board Switch PBS

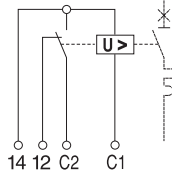
The panel board switch PBS is a mechanical switch. When the panel frame releases the PBS switch, it will trip the protection devices (MCB's or RCD's). Consequently the distribution board will become isolated.

More technical data  website
 Dimensions  pg C.12

Tele L - Shunt trip



1P
1 mod.

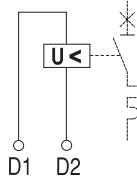


Voltage	Cat. No.	Ref. No.	Pack.
AC 24-60V DC 24-48V	TELE L-1	672573	1
AC 110-415V DC 110-125V	TELE L-2	672574	1

Tele U - Undervoltage release



1P
1 mod.

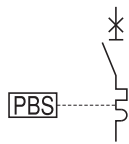


Voltage	Cat. No.	Ref. No.	Pack.
AC 240V	TELE U-230	672575	1
AC/DC 12V	TELE U-12	672576	1
AC/DC 24V	TELE U-24	672577	1
AC/DC 48V	TELE U-48	672578	1

PBS - Panel board switch



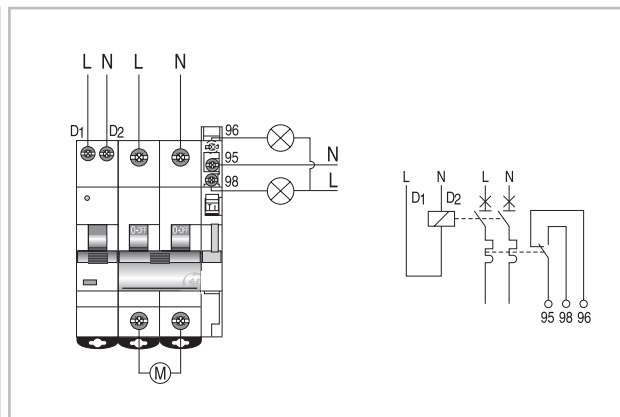
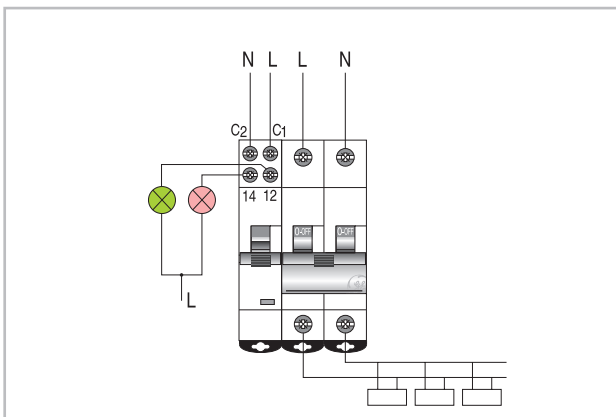
1P
1/2 mod.

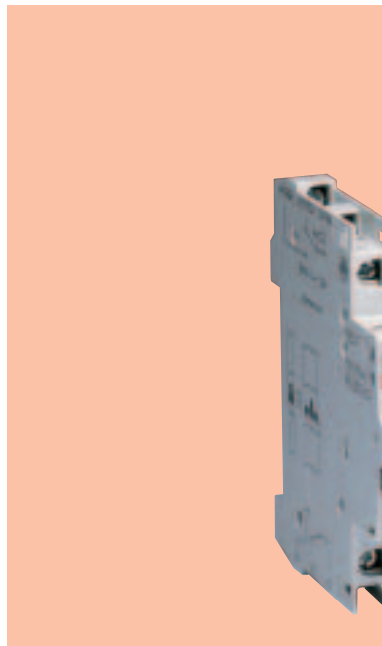


Cat. No.	Ref. No.	Pack.
PBS	672572	1

Tele L

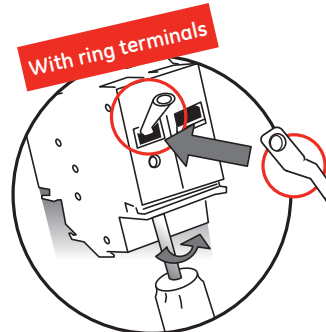
Tele U





Auxiliary contacts

Series CBT



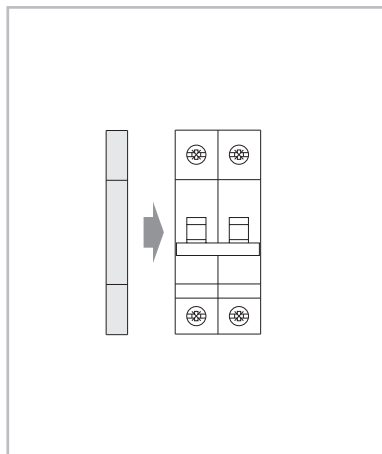
The miniature circuit breakers in RAIL-design have been developed with regard to shakes, shocks and vibrations

Standards / Marking

EN 60898, EN 60947-2, UNI CEI 11170, EN 61373

Approval

Trenitalia n° 371441.01



Features

- Three versions: 1NO+1NF, 2NF, 2 NO
- CBT accepts ring terminals on wires
- Certified acc. new CEI UNI 11170 (higher protection against fires)
- Certified acc. to NF 16-101, smoke index F1
- Shock and vibrations tests acc. to IEC 61373

Technical data

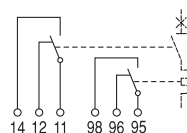
Number of Change-over contacts	2
Thermal setting In	(A) 5 (230V~), 4 (24V ---), 1 (160V ---)
Rated voltage Un	(V) 230~160---
Endurance electrical	10.000
Terminal capacity flexible/rigid cable	(mm ²) 2.5
Unloosable screws	Pozidrive 2

Bottom auxiliary contact (function H)

Provides the status of the protection device, OPEN/CLOSED.

More technical data ● website
Dimensions ● pg C.12

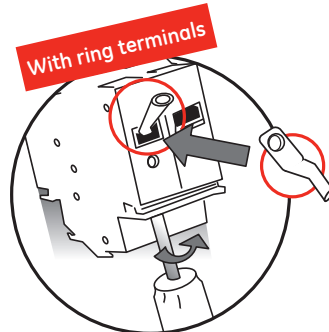
Series CBT



Contact combination	Cat. No.	Ref. No.	Pack.
1NO+1NC	CBT H NO-NC	667249	1
2NC	CBT H 2NC	667250	1
2NO	CBT H 2NO	667251	1

Shunt trip (Distance tripping by emission)

Series Tele LT



The miniature circuit breakers in RAIL-design have been developed with regard to shakes, shocks and vibrations

Features

- Tele LT accepts ring terminals on wires
- Certified acc. new CEI UNI 11170 (higher protection against fires)
- Certified acc. to NF 16-101, smoke index F1
- Shock and vibrations tests acc. to IEC 61373

Technical data

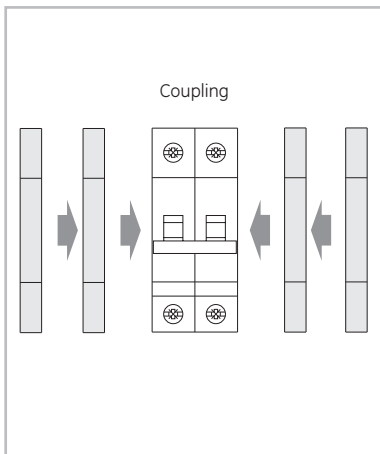
Rated voltage	(V) 110/415~110/128/150 ---
	(V) 24/60~24/48 ---
Tripping time	(ms) <10
Electrical endurance	10.000
Terminal capacity flexible/rigid cable	(mm ²) 2.5
Unloosable screws	Pozidrive 2
U _{min}	(V) 0,70 x Un
U _{max}	(V) 1.25 x Un

Standards / Marking

EN 60898, EN 60947-2, UNI CEI 11170, EN 61373

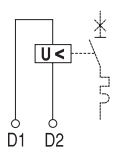
Approval

Trenitalia n° 371441.01



More technical data ● website
Dimensions ● pg C.12

Tele LT

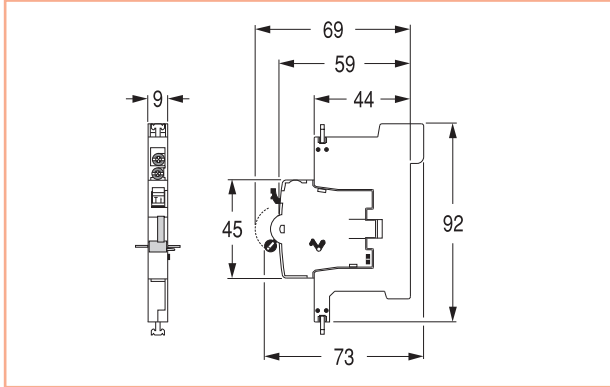


1/2 mod.

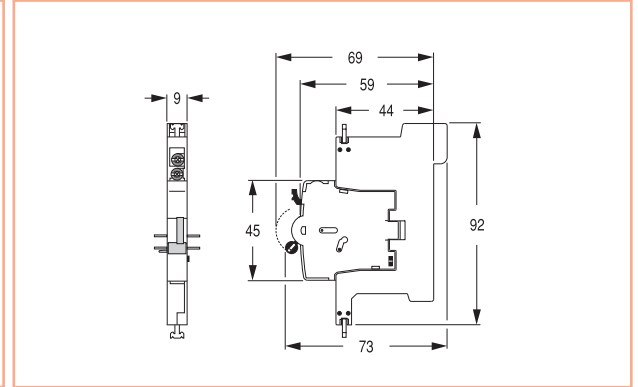
Voltage	Cat. No.	Ref. .No.	Pack.
CA 110/415 V ~ CC 110/128/150 V =	TELE LT-1	667252	1
CA 24/60 V ~ CC 24/48 V =	TELE LT-2	667253	1

Dimensional drawings

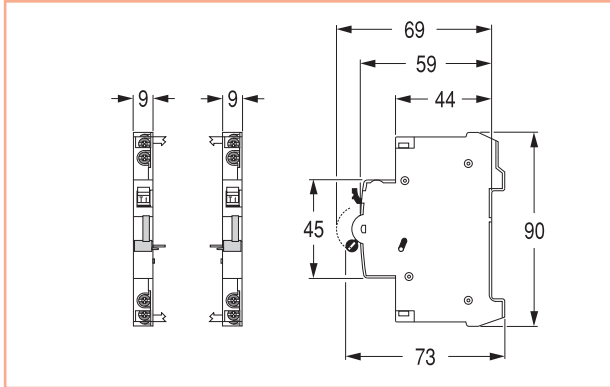
Auxiliary - Series CA



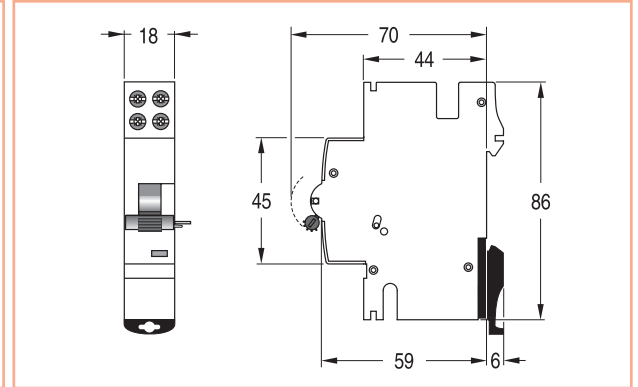
Auxiliary interface - Series CA - Unibis™



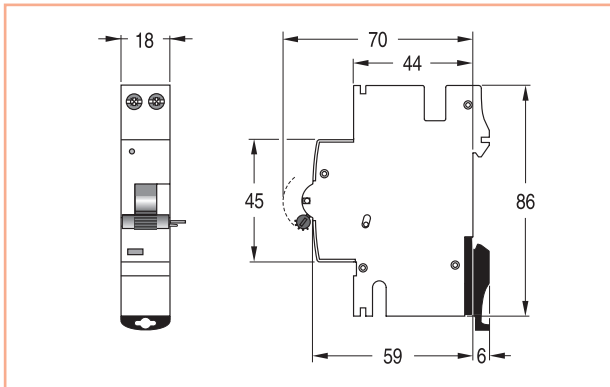
Auxiliary - Series CB / CBT



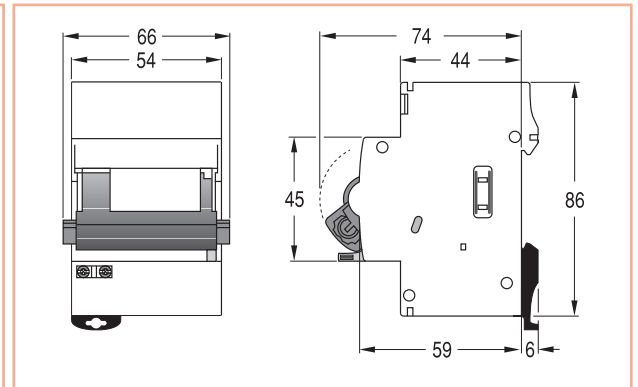
Shunt Trip - Tele L / Tele LT



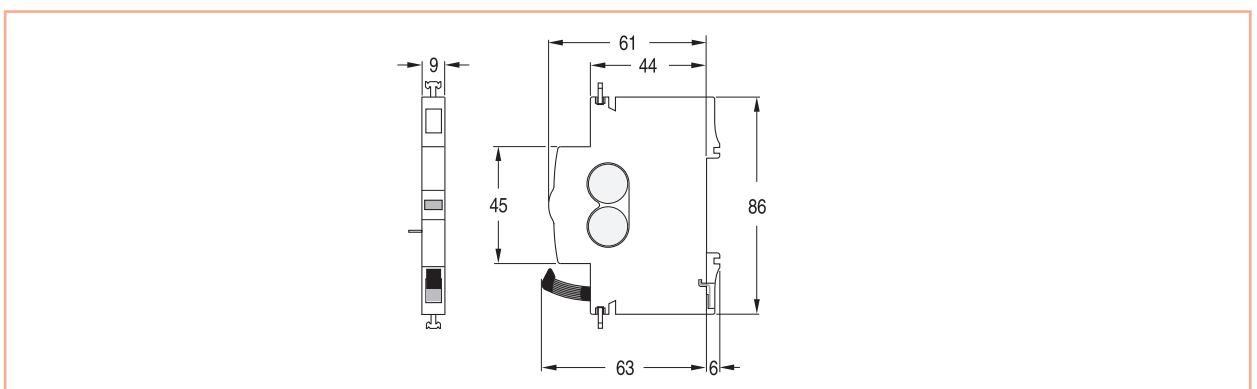
Undervoltage Release - Tele U



Motor operator - Tele MP



Panel board switch - PBS



D.2 Switches & Push-buttons - **Aster**

D.4 Indication Lamp - **Aster**

D.6 Contactors - **Contax**

New

D.8 Relays - **Contax R**

D.12 Impulse Switches - **Pulsar S**

D.16 Staircase Switches - **Pulsar TS**

D.18 Time Relays - **Pulsar T**

D.20 Analogue Time Switches - **Classic**

D.22 Digital Time Switches - **Galax**

D.24 Time Switches - **72x72 Classic and Galax**

D.26 Light Sensitive Switches - **Galax LSS**

D.28 Transformers - **Series T**

D.30 Measurement Instruments - **Series MT**

D.34 Priority and sequence phase relays - **Series PR**

D.36 Surge Arresters - **SurgeGuard**

D.40 Terminal capacity

D.42 Dimensional drawings

Circuit Protection

People Protection

Add-on Devices

Comfort Functions

Busbars

Enclosures

Record Plus

Numerical Index

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Switches & Push-buttons

Aster

Applications



Switching of lighting and heating in homes, shops, offices, warehouses, factories, hospitals, etc.

Features

Wide range with respect to available contact combinations and switching capacity. Mains disconnect switches and switches with change-over contact and off position available.

Compact (4-pole in 1 module) with high switching capacity due to double interruption per path.

All switches are sealable through padlock or by means of a lock.

The terminals are equipped with captive Pozidriv screws and have IP20 protection degree.

Mains disconnect switches accepts auxiliary contacts CA.

Standards

Switches	BS EN 60669-1
16/32A	VDE 0632 Part 1
Mains disconnect switches 40-100	BS EN 60947-3
	VDE 0632 Part 101
Rotary switches	BS EN 60947-3

Function

Manual control of all kinds of electrical devices.

Approvals⁽¹⁾



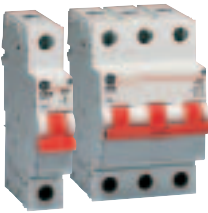
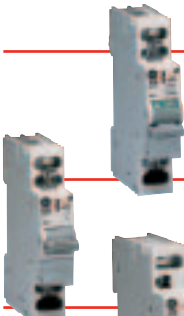
(1) Depending on type.

Performance

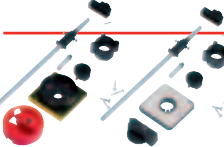
	Push-buttons	Switches	Rotary switches	Mains disconnect switches
	16A	16A 32A	32-40-63A	40-63-80-100A
Nominal rated current	16A	16A 32A	32-40-63A	40-63-80-100A
Usable as mains disconnect switch	no	no	yes	yes
Nominal breaking capacity at 415V, cos Φ =0.95	-	1.25xIn	8xIn	3xIn
Nominal breaking capacity at 415V, cos Φ =0.65	-	-	8xIn	3xIn
Nominal voltage single pole devices	240V	240V	-	240/415V
Nominal voltage multipole devices	-	415V	240/415V	240/415V
Maximum allowed current during less than 1 s.	-	-	-	2kA
Mechanical service life (complete on-off-cycle)	>20000	>20000	>10000	>20000
Electrical service life, cos Φ = 0.95, Un and In	>20000	>20000 >5000	>1500	>1500
Short-circuit resistance with upfront fuses Gg/gL 100A (nominal)	4.5kA (nominal)	4.5kA (nominal)	15kA (nominal)	16kA (nominal)
(peak)	3kA (peak)	3kA (peak)	10kA (peak)	7kA (peak)
Protection degree	IP20	IP20	IP20	IP20
Screws	Pozidriv 1	Pozidriv 1	Pozidriv 2	Pozidriv 2
Terminal capacity: min	1x1.5mm ²	1x1.5mm ²	1x2.5mm ²	1x6mm ²
max	1x10mm ²	1x10mm ²	1x25mm ²	1x50mm ²

Auxiliary contacts ● pg. C.4
More technical data ● website
Dimensions ● pg D.40

Aster - Switches & push-buttons

	Nominal current	Contact combination	Number of modules	Cat. No.	Ref. No.	Pack.
Mains disconnect switch     	40A/240V	1NO	1	AST M 40 10	666614	12
	40A/415V	2NO	2	AST M 40 20	666615	6
	40A/415V	3NO	3	AST M 40 30	666616	4
	40A/415V	4NO	4	AST M 40 40	666617	3
	63A/240V	1NO	1	AST M 63 10	666562	12
	63A/415V	2NO	2	AST M 63 20	666563	6
	63A/415V	3NO	3	AST M 63 30	666564	4
	63A/415V	4NO	4	AST M 63 40	666565	3
	80A/240V	1NO	1	AST M 80 10	666566	12
	80A/415V	2NO	2	AST M 80 20	666567	6
	80A/415V	3NO	3	AST M 80 30	666568	4
	80A/415V	4NO	4	AST M 80 40	666569	3
	100A/240V	1NO	1	AST M 100 10	666558	12
	100A/415V	2NO	2	AST M 100 20	666559	6
	100A/415V	3NO	3	AST M 100 30	666560	4
	100A/415V	4NO	4	AST M 100 40	666561	3
Rotary switch    	32A/415V	2NO	4	AST R 32 20	666574	1
	32A/415V	3NO	4	AST R 32 30	666575	1
	32A/415V	3NO+NC	4	AST R 32 3N	666576	1
	32A/415V	4NO	4	AST R 32 40	666577	1
	40A/415V	2NO	4	AST R 40 20	666578	1
	40A/415V	3NO	4	AST R 40 30	666579	1
	40A/415V	3NO+NC	4	AST R 40 3N	666580	1
	40A/415V	4NO	4	AST R 40 40	666581	1
	63A/415V	2NO	4	AST R 63 20	666582	1
	63A/415V	3NO	4	AST R 63 30	666583	1
	63A/415V	3NO+NC	4	AST R 63 3N	666584	1
	63A/415V	4NO	4	AST R 63 40	666585	1
Changeover switches  	16A/240V	1NO	1	AST S 16 10	666587	12
	16A/240V	2NO	1	AST S 16 20	666589	12
	16A/415V	3NO	1	AST S 16 30	666590	12
	16A/415V	4NO	1	AST S 16 40	666593	12
	16A/415V	3NO	2	AST S 16 30 2	666591	6
	16A/415V	4NO	2	AST S 16 40 2	666592	6
	16A/240V	1CO	1	AST S 16 1	666586	12
	16A/240V	2CO	1	AST S 16 2	666588	12
	32A/240V	1NO	1	AST S 32 10	666595	12
	32A/240V	2NO	1	AST S 32 20	666597	12
	32A/415V	3NO	1	AST S 32 30	666599	12
	32A/415V	4NO	1	AST S 32 40	666600	12
	32A/415V	3NO	2	AST S 32 30 2	666598	6
	32A/415V	4NO	2	AST S 32 40 2	666601	6
	32A/240V	1CO	1	AST S 32 1	666594	12
	32A/240V	2CO	1	AST S 32 2	666596	12
Switch with signal lamp 	16A/240V	1NO	1	AST SL 16 10	666602	12
	16A/240V	2NO	1	AST SL 16 20	666603	12
	32A/240V	1NO	1	AST SL 32 10	666604	12
	32A/240V	2NO	1	AST SL 32 20	666605	12
Changeover switches with zero position 	16A/240V	1CO	1	AST SZ 16 1	666606	12
	16A/240V	2CO	1	AST SZ 16 2	666607	12
	32A/240V	1CO	1	AST SZ 32 1	666608	12
	32A/240V	2CO	1	AST SZ 32 2	666609	12
Push-button 	16A/240V	1NC	1	AST P 16 01	666570	12
	16A/240V	1NO	1	AST P 16 10	666571	12
	16A/240V	1NO 1NC	1	AST P 16 11	666572	12
Push-button with signal lamp 	16A/240V	1NO	1	AST PL 16 10	666573	12

Accessories for rotary switches

 Extension shaft	238 mm with emergency handle			AST R ES E	666555	1
	238 mm with standard handle			AST R ES S	666556	1
 Sealing piece			4	AST R TS	666557	1

Aster

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Indication Lamp

Aster

Function

Status visualisation.

Applications



Mainly used to visualise the status of a (sub)part of the installation, heater, motor, fan, pump etc.

Features

Available in different voltages and with different coloured lenses.

Performance

Nominal voltage	12V	24V	230V
Own consumption	120mA	85mA	2.2mA
Lamp	Incandescent lamp	Incandescent lamp	Neon lamp
Lens colours	Red, green, orange and transparent	Red, green, orange and transparent	Red, green, orange and transparent
Protection degree	IP20	IP20	IP20
Screws	Pozidriv 1	Pozidriv 1	Pozidriv 1
Terminal capacity: min	1x1.5mm ²	1x1.5mm ²	1x1.5mm ²
max	1x10mm ² / 2x4mm ²	1x10mm ² / 2x4mm ²	1x10mm ² / 2x4mm ²



Socket-outlets

MSC

Standards

BS EN C61112-1, NF C61-303 (86), IEC 60884-1

Approvals⁽¹⁾



(1) Depending on type.

Performance

Nominal current	16A
Nominal voltage	250V
Operating temperature	-20 ... +55°C
Protection degree	IP20
Screws	Pozidriv 2
Terminal capacity: min	1x1 mm ²
max	1x6 mm ² or 2x2.5 mm ²

More technical data ● website
 Dimensions ● pg D.40

Aster - Indication lamp



Lampholder

Nominal operating voltage	Colour	Number of modules	Cat. No.	Ref. No.	Pack.
-	-	1	AST B	666347	12

Accessories

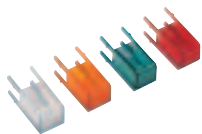


Lamp LED E10

Lamp

Nominal operating voltage	Colour	Number of modules	Cat. No.	Ref. No.	Pack.
12V	-	-	AST B 12	666340	12
24V	-	-	AST B 24	666342	12
230V	-	-	AST B 230	666341	12
235V ~ / =	Green	-	AST LG 230V	666876	10
235V ~ / =	Amber	-	AST LA 230V	666874	10
235V ~ / =	Red	-	AST LR 230V	666877	10
235V ~ / =	Blue	-	AST LB 230V	666875	10
235V ~ / =	White	-	AST LW 230V	666878	10

Lens



-	Transparent	-	AST L CL	666343	12
-	Green	-	AST L GN	666344	12
-	Orange	-	AST L OR	666345	12
-	Red	-	AST L RD	666346	12

MSC - Socket-outlets



Edged with child protection

Edged without child protection



Nominal current	Nominal voltage	Number of modules	Cat. No.	Ref. No.	Pack.
16A	250V	2.5	MSC SEP	666501	4
16A	250V	2.5	MSC SE	666499	4



Pin with child protection



16A	250V	2.5	MSC SPP	666502	4
-----	------	-----	---------	--------	---

Aster and MSC

A

B

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Function

Contactors are electromechanically controlled switches used to control single or multi-phase (high) power loads while the control itself can be (very) low power.

Dimensions ● pg D.41

Contractors

Contax

Applications



Switching of lighting, heating-equipment, motors for pumps and fans, ...
Day and night contactors are used mainly in combination with dual-tariff applications to allow high-energy-loads (i.e. electrical water heaters, accumulation heaters) only to consume energy during the low-tariff period. A forced-on, forced-off, auto-switch allows to overrule the normal operation of the DN-contactor at all times.

Features

Except for the 20A version, all contactors have DC coils, resulting in an absolutely noise-free, real silent operation: 50 or 60Hz noise generation by the contactor is impossible. As all DC coil contactors have an internal diode rectifier bridge, they all can be operated by both DC and AC power supplies. The built-in varistor protects the coil against an overvoltage of up to 5kV.

The switch position of the contactor is visualised through an indicator flag. The loss-proof safety terminals are equipped with Pozidriv screws and have IP20 protection degree. Add-on auxiliary contacts as well as spacers and sealing pieces are available.

Standards

IEC 60947-4-1, BS EN 60947-4-1, IEC 61095, BS EN 61095. Approval VDE.

Performance

Rated switching capacity	20A	24A	40A	63A
Contacts				
Switching capacity for different loads				
Rated insulation voltage	400V	500V	500V	500V
Rated operational voltage	250V	440V	440V	440V
Switching-on capacity				
cos φ = 0.65 at 380-400V 3phase	-	90A	220A	300A
cos φ = 0.95 at 220-230V 1phase	100A	-	-	-
Switching-off capacity				
cos φ = 0.65 at 380-400V 3phase	-	72A	176A	240A
cos φ = 0.95 at 220-230V 1phase	80A	-	-	-
Fuse type GL for short-circuit protection	20A	35A	63A	80A
Ohmic loss per contact at In	1.0W	1.5W	3.0W	6.0W
Maximum switching frequency AC1 / AC7a	300/h	300/h	300/h	300/h
Maximum switching frequency AC3 / AC7b	600/h	600/h	600/h	600/h
Mechanical service life	10 ⁶	10 ⁶	10 ⁶	10 ⁶
Electrical service life AC1 / AC7a	150000	150000	150000	150000
Electrical service life AC3 / AC7b	150000	500000	170000	240000
Screws	Pozidriv 1	Pozidriv 1	Pozidriv 2	Pozidriv 2
Terminal capacity: min	1x1 mm ²	1x1 mm ²	1x1.5 mm ²	1x1.5 mm ²
max	1x10mm ² or 2x4 mm ²	1x10mm ² or 2x4 mm ²	1x25mm ² or 2x10 mm ²	1x25mm ² or 2x10 mm ²
Magnetic control system				
Control voltage range	85 ... 110%xUn	85 ... 110%xUn	85 ... 110%xUn	85 ... 110%xUn
Rated operating frequency	50 or 60Hz	DC, 40 ... 450Hz	DC, 40 ... 450Hz	DC, 40 ... 450Hz
Operating temperature range	-25 ... +55°C ⁽¹⁾	-25 ... +55°C ⁽¹⁾	-25 ... +55°C ⁽¹⁾	-25 ... +55°C ⁽¹⁾
Maximum pull-in coil power loss	8.0VA / 5.0W	4VA / 4W	5VA / 5W	6.5VA / 6.5W
Maximum holding coil power loss	3.2VA / 1.2W	4VA / 4W	5VA / 5W	4.2VA / 4.2W
Switching-on delay	9 ... 12 ms	< 40 ms	< 40 ms	< 40 ms
Switching-off delay	10 ... 12 ms	< 40 ms	< 40 ms	< 40 ms
Screws	Pozidriv 1	Pozidriv 1	Pozidriv 1	Pozidriv 1
Terminal capacity: min	1x1 mm ²	1x1 mm ²	1x1 mm ²	1x1 mm ²
max	1x4mm ² or 2x2.5 mm ²	1x4mm ² or 2x2.5 mm ²	1x4mm ² or 2x2.5 mm ²	1x4mm ² or 2x2.5 mm ²

(1) Remark: If several contactors are mounted next to each other and the time of operation exceeds 1 hour and the ambient temperature rises above 40°C, a 1/2-module spacer must be added every second contactor (i.e. contactor contactor spacer contactor contactor spacer contactor contactor etc.)

Contax - Contactors

		Nominal current	Contact combination	Coil voltage	AC/DC	Number of modules	Cat. No.	Ref. No.	Pack.
	Contactor 	20A	1NO 1NC	24V	AC	1	CTX 20 11 024 A	666127	12
		20A	1NO 1NC	230V	AC	1	CTX 20 11 230 A	666126	12
		20A	2NC	24V	AC	1	CTX 20 02 024 A	666129	12
		20A	2NC	230V	AC	1	CTX 20 02 230 A	666128	12
		20A	2NO	12V	AC	1	CTX 20 20 012 A	666130	12
		20A	2NO	24V	AC	1	CTX 20 20 024 A	666133	12
		20A	2NO	48V	AC	1	CTX 20 20 048 A	666134	12
		20A	2NO	230V	AC	1	CTX 20 20 230 A	666131	12
		20A	2NO	240V	AC	1	CTX 20 20 240 A	666132	12
		2 NO							
	2 NO 	24A	2NO 2NC	24V	AC/DC	2	CTX 24 22 024 U	666136	5
		24A	2NO 2NC	230V	AC/DC	2	CTX 24 22 230 U	666135	5
		24A	3NO	24V	AC/DC	2	CTX 24 30 024 U	666138	5
		24A	3NO	230V	AC/DC	2	CTX 24 30 230 U	666137	5
		24A	4NC	24V	AC/DC	2	CTX 24 04 024 U	666140	5
		24A	4NC	230V	AC/DC	2	CTX 24 04 230 U	666139	5
		24A	4NO	12V	AC/DC	2	CTX 24 40 012 U	666141	5
		24A	4NO	24V	AC/DC	2	CTX 24 40 024 U	666144	5
		24A	4NO	48V	AC/DC	2	CTX 24 40 048 U	666145	5
		24A	4NO	230V	AC/DC	2	CTX 24 40 230 U	666142	5
	2 NO 2 NC 	24A	4NO	240V	AC/DC	2	CTX 24 40 240 U	666143	5
		40A	2NC	230V	AC/DC	3	CTX 40 02 230 U	666170	3
		40A	2NO	230V	AC/DC	3	CTX 40 20 230 U	666146	3
		40A	3NO	24V	AC/DC	3	CTX 40 30 024 U	666149	3
		40A	3NO	230V	AC/DC	3	CTX 40 30 230 U	666148	3
		40A	4NO	12V	AC/DC	3	CTX 40 40 012 U	666150	3
		40A	4NO	24V	AC/DC	3	CTX 40 40 024 U	666153	3
		40A	4NO	48V	AC/DC	3	CTX 40 40 048 U	666154	3
		40A	4NO	230V	AC/DC	3	CTX 40 40 230 U	666151	3
		40A	2NO	24V	AC/DC	3	CTX 40 20 024 U	666147	3
	4 NO 	40A	4NO	240V	AC/DC	3	CTX 40 40 240 U	666152	3
		63A	4NO	24V	AC/DC	3	CTX 63 40 024 U	666158	3
		63A	4NO	230V	AC/DC	3	CTX 63 40 230 U	666156	3
		63A	2NO	230V	AC/DC	3	CTX 63 20 230 U	666155	3
		63A	4NO	240V	AC/DC	3	CTX 63 40 240 U	666157	3
	Contactor Day and Night 	20A	2NO	230V	AC	1	CTX DN 20 20 230 A	666164	12
		24A	3NO	230V	AC/DC	2	CTX DN 24 30 230 U	666165	5
		24A	4NO	230V	AC/DC	2	CTX DN 24 40 230 U	666166	5
		40A	2NO	230V	AC/DC	3	CTX DN 40 20 230 U	666167	3
		40A	3NO	230V	AC/DC	3	CTX DN 40 30 230 U	666168	3
		40A	4NO	230V	AC/DC	3	CTX DN 40 40 230 U	666169	3

Add-on auxiliary contact for 24-40-63A contactors

Left mounting	Nominal current	Contact combination			Number of modules	Cat. No.	Ref. No.	Pack.
	1 NO 1 NC 	6A	1NO 1NC	-	0.5	CTX 06 11	666162	5
		6A	2NO	-	0.5	CTX 06 20	666163	5
	2 NO 							

Accessories

					Number of modules	Cat. No.	Ref. No.	Pack.
	Sealing piece				2	CTX TS 2	666160	3
					3	CTX TS 3	666159	3
	Spacer				0.5	CTX SP	666161	12



Standards / Marking

EN 60947-4-1 

Relays

Contax R

Function

Relays are electromechanically controlled switches used to control low power loads.

Applications



- Switching of lighting, heating, etc.
- Galvanic insulation of i.e. status signalisation lamps from a (high) power (high voltage) circuit.
- Galvanic insulation of PLC-inputs or outputs to avoid destruction through excessive voltage.

Features

- Besides the normal operation through electrically energising the coil, manual operation is possible at all times.
- The switch position is visualised by the position of the front handle.
- The safety terminals are equipped with captive Pozidriv screws and have IP20 protection degree.
- Add-on auxiliary contacts available.
- Because of the advanced product design, no spacers are needed.
- Increased safety: sealing caps for both coil and terminal are available.

More technical data  website
 Dimensions  pg D.42

Performance

			Contax R
			CTX + R16
Rated current (according to EN 60947-4-1)			
250VAC (1 & 2 pole) / 400VAC (3 & 4 pole)	A		16
Nominal thermal current (Ith)	A		16
Number of pole			1 → 4
Contacts	NO		1 → 4
	Changeover ("m" contacts)		1 → 4
	NO + NC		1+1 / 2+2
Width (in 17.8mm DIN modules)	1P & 2P	Mod.	1
	3P & 4P	Mod.	2
Coil specifications			
Supply voltage : DC/AC ratio ⁽¹⁾			0.5 / 1
Supply voltage range (in % of Un)		%	85-110
Coil pick-up power	1P & 2P	VA	3.4
	3P & 4P	VA	6.7
Coil power loss - AC	1P & 2P	VA	1.8
	3P & 4P	VA	3.4
Coil power loss - DC	1P & 2P	W	2.1
	3P & 4P	W	3.9
Maximum coil holding voltage time			unlimited
Contact bounce time at closing	sec.		<0.010
Operate and release time (bounce time incl.)			
Pick-up time	NO contact	sec.	< 0.040
(from 0 to Un)	NC contact	sec.	< 0.020
Drop-out time	NO contact	sec.	< 0.050
(from Un to 0)	NC contact	sec.	< 0.050
Maximum peak current at closing			
Single phase 250VAC cos φ = 0.95	A		45
3-phase 400V~ cos φ = 0.65	A		60
Maximum peak current at opening			
Single phase 250VAC cos φ = 0.95	A		75
3-phase 400V~ cos φ = 0.65	A		60
Lifetime (in number of operations) ⁽²⁾			
Electrical (in AC-1 - At full load)			3 × 10 ⁵
Mechanical			2 × 10 ⁶
Load specifications per phase			
Maximum load AC-1	1P & 2P	kW	3.0
	3P & 4P	kW	8.5
Maximum load AC-5b		kW	1.8
Maximum load AC-7b		kW	0.9
Maximum load AC-3	250VAC	kW	1.5
	400VAC	kW	2.2
Minimum load (under 5V)		W	2
Short-circuit fuse protection		A	20
Maximum lamp load (10 ³ operations/h)			
Incandesc. & halogen (40 to 200 W lamps)		W	1,800
Fluorescence, compensated (cos φ = 0.9)	Serial compensation	VA	1,800
	Parallel compensation	VA	500
Fluorescence, non compensated (cos φ = 0.5)		VA	900
General specifications			
Auxiliary contact add-on (PLS / CTX R)			yes
Need for spacer			no
DIN rail mounting			yes
2-position DIN rail lock			yes
Front handle for manual operation			yes
Permanent ON/OFF			no
Indicator of contact position			yes
Clamping terminals			yes
Unlosable screws			yes
Sealable terminals (coil and load)			yes
Cable cross section (Ø min/max)	Coil	mm ²	1.5 / 10
	Load	mm ²	1.5 / 10
Maximum torque on terminals		Nm	1
Ambient temperature at installation point (min./max.)		°C	-20 / +45

(1) DC supply voltage = AC supply voltage × DC/AC ratio, except for 8VAC and 115VAC (48VDC)

(2) 1 cycle = 2 operations per pole (closing + opening)

Contax R

A

B

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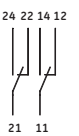
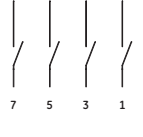
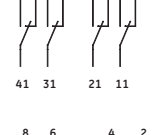


New

Impulse switches and relays: maximum lamp loads

Lamps type	Lamp Watts Power consumption	Pulsar S PLS + 16	Pulsar S PLS + 32	Contax R CTX + R16
Incandescent lamps				
Max. load 230VAC		3000 W	4000 W	1800 W
Max. number of lamps	15 W	200	266	120
	25 W	120	160	72
	40 W	75	102	45
	60 W	50	65	30
	75 W	40	52	24
	100 W	30	40	18
	150 W	20	26	12
	200 W	15	20	9
	300 W	9	12	6
	500 W	5	8	3
Fluo lamp PF uncorrected				
Max. load 230VAC		1800 W	2200 W	900 W
Max. number of lamps	18 W	81	110	50
	36 W	44	58	25
	40 W	38	53	23
	58 W	29	35	16
	65 W	26	34	13
Fluo twin lamps				
Max. load 230VAC		3000 W	4000 W	1800 W
Max. number of lamps	2 x 18 W	78	110	50
	2 x 36 W	38	55	25
	2 x 40 W	35	50	23
	2 x 58 W	23	34	16
	2 x 65 W	22	30	13
Fluo lamp parallel compensation				
Max. load 230VAC		2500 W	3200 W	500 W
Max. number of lamps	18 W	103	132	17
	36 W	55	72	13
	40 W	50	65	12
	58 W	34	45	8
	65 W	30	40	7
Halogen 230V				
Max. load 230VAC		3000 W	4000 W	1800 W
Max. number of lamps	150 W	20	26	12
	250 W	12	16	7
	300 W	10	13	6
	400 W	7	10	4
	500 W	6	8	3
	1000 W	3	4	2
HP sodium vapour				
Max. load 230VAC		1200 W	1600 W	800 W
Max. number of lamps	70 W	15	18	10
	150 W	8	10	5
	250 W	4	6	3
	400 W	3	4	2
	1000 W	1	1	-
LP sodium vapour				
Max. load 230VAC		1400 W	2000 W	400 W
Max. number of lamps	55 W	27	36	6
	90 W	16	22	4
	135 W	11	14	3
	180 W	8	11	2
	185 W	8	10	2
HP mercury vapour				
Max. load 230VAC		1200 W	1600 W	800 W
Max. number of lamps	50 W	19	25	16
	80 W	15	20	10
	125 W	9	12	7
	250 W	4	6	3
	400 W	3	4	2
	1000 W	1	2	-
VLV halogen				
Max. load 230VAC		2300 W	3200 W	1500 W
Max. number of lamps	20 W	116	160	72
	50 W	46	64	29
	75 W	31	42	20
	100 W	24	32	15
	150 W	15	21	10
	200 W	12	16	7
	300 W	7	10	5
Electronic reactor				
Max. load 230VAC		1600 W	2200 W	1000 W
Max. number of lamps	1 x 18 W	83	112	38
	1 x 36 W	46	61	30
	1 x 58 W	31	38	17
	2 x 18 W	40	56	19
	2 x 36 W	23	30	15
	2 x 58 W	14	19	8

Contax R - Relays

	Nominal current	Contact combination	Coil voltage AC	Coil voltage DC	Number of Modules	Cat. No.	Ref. No.	Pack.
 	16A	1 NO	8	-	1	CTX + R 16 10 008 A	686007	12
	16A	1 NO	12	6	1	CTX + R 16 10 012 A	686008	12
	16A	1 NO	24	12	1	CTX + R 16 10 024 A	686009	12
	16A	1 NO	48	24	1	CTX + R 16 10 048 A	686010	12
	16A	1 NO	115	48	1	CTX + R 16 10 115 A	686011	12
	16A	1 NO	230	115	1	CTX + R 16 10 230 A	686013	12
	16A	1 NO	230/60Hz	-	1	CTX + R 16 10 23060	686012	12
	16A	1 NO	240	120	1	CTX + R 16 10 240 A	686014	12
 	16A	1 CO	8	-	1	CTX + R 16 1 008 A	686000	12
	16A	1 CO	12	6	1	CTX + R 16 1 012 A	686001	12
	16A	1 CO	24	12	1	CTX + R 16 1 024 A	686002	12
	16A	1 CO	48	24	1	CTX + R 16 1 048 A	686003	12
	16A	1 CO	115	48	1	CTX + R 16 1 115 A	686004	12
	16A	1 CO	230	115	1	CTX + R 16 1 230 A	686005	12
	16A	1 CO	240	120	1	CTX + R 16 1 240 A	686006	12
 	16A	2 NO	8	-	1	CTX + R 16 20 008 A	686036	12
	16A	2 NO	12	6	1	CTX + R 16 20 012 A	686037	12
	16A	2 NO	24	12	1	CTX + R 16 20 024 A	686038	12
	16A	2 NO	48	24	1	CTX + R 16 20 048 A	686039	12
	16A	2 NO	115	48	1	CTX + R 16 20 115 A	686040	12
	16A	2 NO	230	115	1	CTX + R 16 20 230 A	686042	12
	16A	2 NO	230/60Hz	-	1	CTX + R 16 20 23060	686041	12
	16A	2 NO	240	120	1	CTX + R 16 20 240 A	686043	12
 	16A	1 NO 1 NC	8	-	1	CTX + R 16 11 008 A	686015	12
	16A	1 NO 1 NC	12	6	1	CTX + R 16 11 012 A	686016	12
	16A	1 NO 1 NC	24	12	1	CTX + R 16 11 024 A	686017	12
	16A	1 NO 1 NC	48	24	1	CTX + R 16 11 048 A	686018	12
	16A	1 NO 1 NC	115	48	1	CTX + R 16 11 115 A	686019	12
	16A	1 NO 1 NC	230	115	1	CTX + R 16 11 230 A	686021	12
	16A	1 NO 1 NC	230/60Hz	-	1	CTX + R 16 11 23060	686020	12
	16A	1 NO 1 NC	240	120	1	CTX + R 16 11 240 A	686022	12
 	16A	2 CO	8	-	1	CTX + R 16 2 008 A	686023	12
	16A	2 CO	12	6	1	CTX + R 16 2 012 A	686024	12
	16A	2 CO	24	12	1	CTX + R 16 2 024 A	686026	12
	16A	2 CO	48	24	1	CTX + R 16 2 048 A	686028	12
	16A	2 CO	115	48	1	CTX + R 16 2 115 A	686030	12
	16A	2 CO	230	115	1	CTX + R 16 2 230 A	686032	12
	16A	2 CO	240	120	1	CTX + R 16 2 240 A	686034	12
 	16A	3 NO	12	6	2	CTX + R 16 30 012 A	686050	6
	16A	3 NO	24	12	2	CTX + R 16 30 024 A	686051	6
	16A	3 NO	48	24	2	CTX + R 16 30 048 A	686052	6
	16A	3 NO	230	115	2	CTX + R 16 30 230 A	686053	6
 	16A	4 NO	8	-	2	CTX + R 16 40 008 A	686025	6
	16A	4 NO	12	6	2	CTX + R 16 40 012 A	686060	6
	16A	4 NO	24	12	2	CTX + R 16 40 024 A	686061	6
	16A	4 NO	48	24	2	CTX + R 16 40 048 A	686062	6
	16A	4 NO	230	115	2	CTX + R 16 40 230 A	686064	6
	16A	4 NO	230/60Hz	-	2	CTX + R 16 40 23060	686063	6
	16A	4 NO	240	120	2	CTX + R 16 40 240 A	686065	6
 	16A	4 CO	12	6	2	CTX + R 16 4 012 A	686054	6
	16A	4 CO	24	12	2	CTX + R 16 4 024 A	686055	6
	16A	4 CO	48	24	2	CTX + R 16 4 048 A	686056	6
	16A	4 CO	115	48	2	CTX + R 16 4 115 A	686057	6
	16A	4 CO	230	115	2	CTX + R 16 4 230 A	686058	6
	16A	4 CO	240	120	2	CTX + R 16 4 240 A	686059	6
 	16A	2 NO 2 NC	8	-	2	CTX + R 16 22 008 A	686027	6
	16A	2 NO 2 NC	12	6	2	CTX + R 16 22 012 A	686044	6
	16A	2 NO 2 NC	24	12	2	CTX + R 16 22 024 A	686045	6
	16A	2 NO 2 NC	48	24	2	CTX + R 16 22 048 A	686046	6
	16A	2 NO 2 NC	230	115	2	CTX + R 16 22 230 A	686048	6
	16A	2 NO 2 NC	230/60Hz	-	2	CTX + R 16 22 23060	686047	6
	16A	2 NO 2 NC	240	120	2	CTX + R 16 22 240 A	686049	6

Terminal identification, see page D.39

Contax R

A

B

C

D

E

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G

X

New





Impulse switches

Pulsar S

Standards / Marking

IEC 60669-1, IEC 60669-2-2



Function

Impulse switches are electromechanically controlled switches used to control single- or multi-phase medium-power loads while the control itself can be (very) low power. The device switches between 2 stable positions, each time a (brief) impulse energises its control circuit.

Applications



Mainly used for the switching of lighting and heating equipment and/or to obtain a simplified wiring in case the load needs to be controlled at reduced voltage and/or from more than 2 different places.

Features

- Besides the normal operation through electrically energising the coil, manual operation is possible at all times, except PLS series SA & SB.
- The switch position is visualised by the position of the front handle for all devices, except PLS series SA & SB.
- The central command version was developed to force several devices at the same time to the on or off position, independently of the current status of each individual device. Also in this case, the possibility of operating the device locally remains.
- The safety terminals are equipped with captive Pozidriv screws and have IP20 protection degree.
- An add-on auxiliary contact, add-on central-command module and a spacer are available.
- 3 & 4 poles devices are multi voltage (except all-in central command).
- The use of a large number of luminous push-buttons is possible.
- Availability of sealing cap for coil and load terminals.

For the table Impulse switches maximum lamp loads, see page D.10

More technical data ● website
 Dimensions ● pg D.42

New



Performance

				PLS +			PLS + C ⁽⁴⁾
				PLS + 16	PLS + 32	PLS + SA & SB PLS + PU 16	PLS + C 16 PLS + C 32
Rated current (acc. to IEC 669-2-3)							
250VAC (1 & 2 pole) / 400VAC (3 & 4 pole)	A			16	32	16	16
Direct Current (at 30 VDC)	A			16	16	16	16
Number of poles				1 → 4	1 → 4	2	1 → 4
Contacts	NO			1 → 4	1 → 4	2	1 → 4
	Changeover ("m")			1 → 4	-	-	1 → 3
	NO + NC			1+1 / 2+2	-	-	1+1 / 2+2
Width (in 17.8mm DIN modules)							
1 P	Mod.			1	1	-	1
2 P	Mod.			1	1	1	1½
3 P	Mod.			2	2	-	2
4 P	Mod.			2	2	-	-
Coil specifications							
Supply voltage : DC/AC ratio ⁽¹⁾				0.5 / 1	0.5 / 1	0.5 / 1	0.5 / 1
Supply voltage range (in % of Un)	%			90-110	90-110	90-110	90-110
Coil pick-up power (AC)	1P & 2P	VA		14.5	16.0	14.5	14.5
	3P & 4P	VA		14.5	16.0	-	16.0
Coil power loss - AC	1P & 2P	VA		11.0	11.5	11.0	11.0
	3P & 4P	VA		11.0	11.5	-	16.0
Coil power loss - DC	1P & 2P	W		7.5	8.0	7.5	12.5
	3P & 4P	W		7.5	8.0	-	14.5
Maximum coil holding voltage time				(2)	(2)	(2)	unlimited
Impulse times							
Minimum impulse time (under Un)	sec.			0.050	0.050	0.050	0.100
Minimum impulse time (90% Un)	sec.			0.100	0.100	0.100	0.100
Minimum time between impulses	sec.			0.150	0.150	0.150	0.150
Maximum number of impulses per mn				250	250	250	250
Lifetime (in number of operations)⁽³⁾							
Electrical (in AC-1 - At full load) ⁽⁴⁾				4 × 10 ⁵	3 × 10 ⁵	3 × 10 ⁵	4 × 10 ⁵
Mechanical				2 × 10 ⁶	2 × 10 ⁶	2 × 10 ⁶	2 × 10 ⁶
Load specifications							
Maximum load AC-1 per phase	A			20	32	20	20
Maximum load DC (30VDC)	A			16	16	16	16
Minimum load per phase (under 5V)	W			2	2	2	2
Short-circuit fuse protection	A			20	32	20	20
Maximum lamp load (10³ operations/h)							
Incandescence & halogen (40 to 200 W lamps)	W			3,000	4,000	3,000	3,000
Fluorescence, compensated (cos φ = 0.9)							4,000
	Serial compensation	VA		3,000	4,000	3,000	3,000
	Parallel compensation	VA		2,500	3,200	2,500	2,500
Fluorescence, non compensated (cos φ = 0.5)	VA			1,800	2,200	1,800	1,800
Maximum number of push-buttons							
Non illuminated push-buttons				unlimited	unlimited	unlimited	unlimited
Luminous push-buttons (0.6mA)							
4 terminals				unlimited	unlimited	unlimited	unlimited
3 terminals	Without compensator			8	8	8	8
	1 compensator			18	18	15	27
	2 compensators			45	45	38	43
General specifications							
Power contact add-on				yes	yes	no	no
Auxiliary contact add-on (PLS / CTX R)				yes	yes	no	yes
Need for spacer ⁽²⁾				yes	yes	yes	yes
DIN rail mounting				yes	yes	yes	yes
2-position DIN rail lock				yes	yes	yes	yes
2-position handle				yes	yes	no	yes
Indicator of contact position				yes	yes	yes	yes
Clamping terminals				yes	yes	yes	yes
Unlosable screws				yes	yes	yes	yes
Sealable terminals (coil and load)				yes	yes	yes	yes
Cable cross section (Ø min/max)	Coil	mm ²		1.5 / 10	1.5 / 10	1.5 / 10	1.5 / 10
	Load 1P-3P & 4P	mm ²		1.5 / 10	1.5 / 10	1.5 / 10	1.5 / 10
	Load 2P	mm ²		1.5 / 10	1.5 / 10	1.5 / 10	1.5 / 6
Maximum torque on terminals	Nm			1	1	1	1
Ambient temperature at installation point (min./max.)	°C			-20 / +45	-20 / +45	-20 / +45	-20 / +45

(1) For all impulse relays, DC supply voltage = AC supply voltage × DC/AC ratio, except for 8 VAC and 115VAC (48 VDC)

(2) Whenever the normal use of the impulse relay integrates a permanent coil working, use of a spacer is required on both sides. Make sure that the duty factor allows the device to come back to the ambient temperature (not required for PLS PU)

(3) 1 cycle = 2 operations per pole (closing + opening)

(4) For any central command installation, a PLS SG module per phase must be installed in order to protect the coils against overvoltages

Pulsar S

A

B

C

D

E

F

G

X



New

Pulsar S - Impulse switches

Comfort functions

A

B

C

D

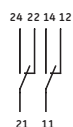
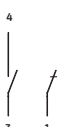
E

F

G

X

Impulse switches



Add-on power contact

16A	2NO	-	-	1	PLS + 16 20	686100	10
16A	1NO 1NC	-	-	1	PLS + 16 11	686085	10
16A	2CO	-	-	1	PLS + 16 2	686101	10
32A	2NO	-	-	1	PLS + 32 20	686117	10

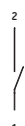
Step by step multi circuit



SA= 0-A-0-B-0
SB=0-A-AB-B-0

16A	2NO	12	6	1	PLS + SA 16 20 012 A	686182	12
16A	2NO	24	12	1	PLS + SA 16 20 024 A	686183	12
16A	2NO	48	24	1	PLS + SA 16 20 048 A	686184	12
16A	2NO	230	115	1	PLS + SA 16 20 230 A	686185	12
16A	2NO	240	120	1	PLS + SA 16 20 240 A	686186	12
16A	2NO	12	6	1	PLS + SB 16 20 012 A	686187	12
16A	2NO	24	12	1	PLS + SB 16 20 024 A	686188	12
16A	2NO	48	24	1	PLS + SB 16 20 048 A	686189	12
16A	2NO	230	115	1	PLS + SB 16 20 230 A	686190	12
16A	2NO	240	120	1	PLS + SB 16 20 240 A	686191	12

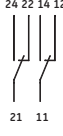
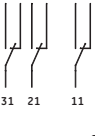
All-in central command



16A	1NO	8	-	1	PLS + C 16 10 008 A	686132	12
16A	1NO	12	6	1	PLS + C 16 10 012 A	686133	12
16A	1NO	24	12	1	PLS + C 16 10 024 A	686134	12
16A	1NO	48	24	1	PLS + C 16 10 048 A	686135	12
16A	1NO	230	115	1	PLS + C 16 10 230 A	686136	12
16A	1NO	240	120	1	PLS + C 16 10 240 A	686137	12

32A other version available on request.
Terminal identification, see page D.38.

Pulsar S - Impulse switches

	Nominal current	Contact combination	Coil voltage AC	Coil voltage DC	No. of Modules	Cat. No.	Ref. No.	Pack.
All-in central command (continued)       	16A	1CO	8	-	1	PLS + C 16 1 008 A	686126	12
	16A	1CO	12	6	1	PLS + C 16 1 012 A	686127	12
	16A	1CO	24	12	1	PLS + C 16 1 024 A	686128	12
	16A	1CO	48	24	1	PLS + C 16 1 048 A	686129	12
	16A	1CO	230	115	1	PLS + C 16 1 230 A	686130	12
	16A	1CO	240	120	1	PLS + C 16 1 240 A	686131	12
	16A	2NO	8	-	1.5	PLS + C 16 20 008 A	686144	8
	16A	2NO	12	6	1.5	PLS + C 16 20 012 A	686145	8
	16A	2NO	24	12	1.5	PLS + C 16 20 024 A	686146	8
	16A	2NO	48	24	1.5	PLS + C 16 20 048 A	686147	8
	16A	2NO	230	115	1.5	PLS + C 16 20 230 A	686148	8
	16A	2NO	240	120	1.5	PLS + C 16 20 240 A	686149	8
	16A	2CO	8	-	1.5	PLS + C 16 2 008 A	686138	8
	16A	2CO	12	6	1.5	PLS + C 16 2 012 A	686139	8
	16A	2CO	24	12	1.5	PLS + C 16 2 024 A	686140	8
	16A	2CO	48	24	1.5	PLS + C 16 2 048 A	686141	8
	16A	2CO	230	115	1.5	PLS + C 16 2 230 A	686142	8
	16A	2CO	240	120	1.5	PLS + C 16 2 240 A	686143	8
	16A	3CO	8	-	2	PLS + C 16 3 008 A	686150	6
	16A	3CO	12	6	2	PLS + C 16 3 012 A	686151	6
	16A	3CO	24	12	2	PLS + C 16 3 024 A	686152	6
	16A	3CO	48	24	2	PLS + C 16 3 048 A	686153	6
	16A	3CO	230	115	2	PLS + C 16 3 230 A	686154	6
	16A	3CO	240	120	2	PLS + C 16 3 240 A	686155	6
	32A	1NO	8	-	1	PLS + C 32 10 008 A	686156	12
	32A	1NO	12	6	1	PLS + C 32 10 012 A	686157	12
	32A	1NO	24	12	1	PLS + C 32 10 024 A	686158	12
	32A	1NO	48	24	1	PLS + C 32 10 048 A	686159	12
	32A	1NO	230	115	1	PLS + C 32 10 230 A	686160	12
	32A	1NO	240	120	1	PLS + C 32 10 240 A	686161	12
	32A	2NO	8	-	1.5	PLS + C 32 20 008 A	686162	8
	32A	2NO	12	6	1.5	PLS + C 32 20 012 A	686163	8
	32A	2NO	24	12	1.5	PLS + C 32 20 024 A	686164	8
	32A	2NO	48	24	1.5	PLS + C 32 20 048 A	686165	8
	32A	2NO	230	115	1.5	PLS + C 32 20 230 A	686166	8
	32A	2NO	240	120	1.5	PLS + C 32 20 240 A	686167	8
	32A	3NO	8	-	2	PLS + C 32 30 008 A	686168	6
	32A	3NO	12	6	2	PLS + C 32 30 012 A	686169	6
	32A	3NO	24	12	2	PLS + C 32 30 024 A	686170	6
	32A	3NO	48	24	2	PLS + C 32 30 048 A	686171	6
	32A	3NO	230	115	2	PLS + C 32 30 230 A	686172	6
	32A	3NO	240	120	2	PLS + C 32 30 240 A	686173	6
Permanent use	16A	2NO	24	12	1	PLS + PU 16 20 024 A	686178	12
	16A	2NO	230	115	1	PLS + PU 16 20 230 A	686179	12
	16A	2CO	24	12	1	PLS + PU 16 2 024 A	686176	12
	16A	2CO	230	115	1	PLS + PU 16 2 230 A	686177	12
	16A	4NO	24	12	2	PLS + PU 16 40 024 A	686180	6
	16A	4NO	230	115	2	PLS + PU 16 40 230 A	686181	6
Add-on auxiliary contact	5A	1NO 1NC	-	-	0.5	CTX + R 5 11	686067	16
	5A	2NO	-	-	0.5	CTX + R 5 20	686068	16
	5A	2NC	-	-	0.5	CTX + R 5 02	686066	16
Add-on central control	-	-	-	-	0.5	PLS + C	686125	16
Multilevel central command module	-	-	-	-	1	PLS + M	686175	12
SurgeGuard safety module	-	-	230/240	-	1	PLS + SG	686192	12
Capacity module	-	-	230/240	-	1	PLS + CAP	686174	12
Spacer	-	-	-	-	0.5	PLS + / CTX + SP	686069	50
Sealing cap	-	-	-	-	1	PLS + / CTX + TS 1	686070	50

Terminal identification, see page D.38.

Pulsar S

A

B

C

D

E

F

G

X

New





Staircase switches

Pulsar TS

Function

Push-button operated single-shot timer, switching the power to the load after the push-button has been pushed briefly, and switching off again after the preset time has elapsed.

Energy saving: the PLTS + TD is especially developed to switch off during the preset time when the staircase switch receives a new impulse.

Applications



Lighting or ventilation of staircases, basements, halls, etc.

Features

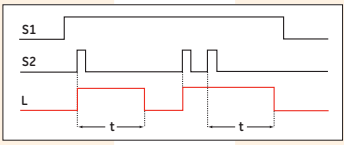
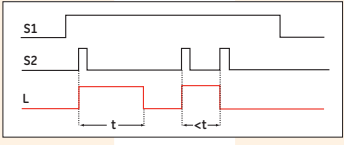
- Designed for a real 3.500W switching capacity.
- User adjustable time.
- Electromechanical contact and electronic timer with manual override off or on possible at all time for PLTS + M.
- 3 or 4 wire wiring possible.
- Device for pre-extinction warning adjustable from 20 to 40 sec only for incandescence sources.
- Safety terminals equipped with captive Pozidriv screws and IP20 protection degree.
- Anti vandalisme: resistant to blocked push-buttons.

Standards

EN 60669-2-3



Pulsar TS - Staircase switches

	Nominal current	Contact combination	Coil voltage AC	Coil voltage DC	Number of Modules	Cat. No.	Ref. No.	Pack.
 Staircase switch 	16	1NO	230	-	1	PLTS + M	686216	12
 Dimmer for staircase switch	16	3500W	230	-	1	PLTS + D	686214	12
To be used only in combination with the staircase switch. Wiring diagram on page D.17								
 Time-delay impulse relay 	16	1NO	230	-	1	PLTS + TD	666311	12

Terminal identification, see page D.39.

More technical data ● website

Dimensions ● pg D.43

New



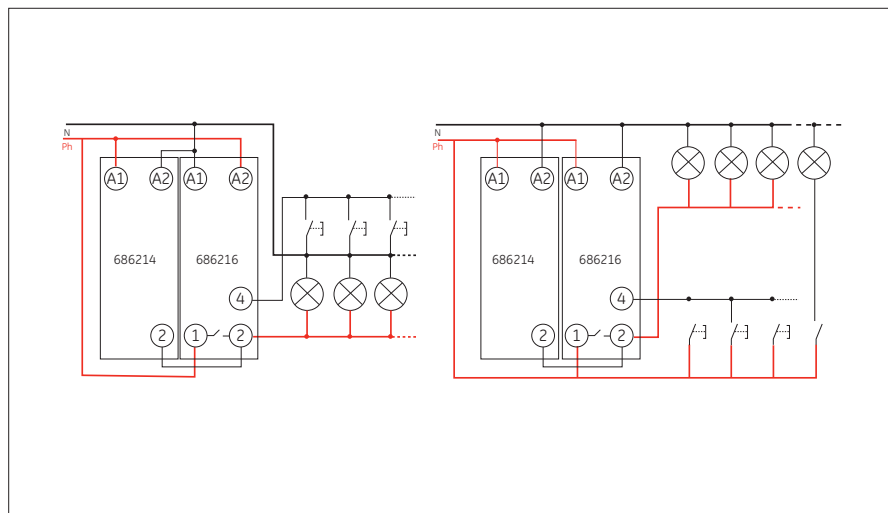
Performance

				PLTS + TD	PLTS + M	PLTS + D
Rated current (acc. IEC 669-2-3)				16	16	16
Width (in number of DIN-modules)				1	1	1
Contacts				1	1	1
Time range				1mn / 20mn	30s / 15mn	20s / 40s
Supply voltage				yes	yes	yes
230V - 50/60 Hz				on request	on request	on request
24VAC/24VDC				on request	on request	on request
Supply voltage range (in % of Un)				90-110	90-110	90-110
Rated power consumption						
Closed circuit current				4.0	4.0	4.0
Working current (ignition & running)				4.0	4.0	4.0
Light types						
Incandescent lamps				yes	yes	yes
Fluorescent lamps				yes	yes	no
Switching capacity						
AC-5b Incandescent lamps (40 to 200 W lamps)				3,500	3,500	3,500
Fluorescence compensated (cos $\Phi = 0.9$)						
Serial compensation				3,500	3,500	n/a
Parallel compensation				2,500	2,500	n/a
Lifetime (in number of operations) ⁽¹⁾						
Electrical (AC-1)						
at 1,200 W				2×10^6	2×10^6	2×10^6
at full load				1×10^6	3×10^5	3×10^5
Mechanical				1×10^7	1×10^7	1×10^7
Max. number of push-buttons						
Non illuminated push-buttons				unlimited	unlimited	unlimited
Luminous push-buttons (0.6mA):						
4 terminals				unlimited	unlimited	unlimited
3 terminals						
Without compensator				39	83	83
1 compensator (2 μ F) ⁽²⁾				45	300	300
2 compensators (2 x 2 μ F)				59	600	600
General specifications						
DIN rail mounting				yes	yes	yes
Silent operations				yes	yes	yes
Setting accuracy - Full range				% +/- 15	% +/- 15	% +/- 15
3-wire and 4-wire installation				yes	yes	yes
Resistent to blocked push-buttons				yes	yes	yes
Continuously adjustable time-lag				yes	yes	yes
Manual switching (number of positions)				2	3	-
Front switch-off lever				yes	yes	-
Clamping screw terminals, unlosable screws				yes	yes	yes
Cable cross section (Ø min/max)						
Coil				mm ² 1.5 / 10	mm ² 1.5 / 10	mm ² 1.5 / 10
Load				mm ² 1.5 / 10	mm ² 1.5 / 10	mm ² 1.5 / 10
Maximum torque on terminals				N x m 1	N x m 1	N x m 1
Ambient temperature at installation point (min./max.)				°C -20 / +45	°C -20 / +45	°C -20 / +45

(1) cycle = 2 operations per pole (closing + opening)

(2) See page D.15: code 686174

Wiring diagram





Time Relays

Pulsar T

Function

Conditioning of incoming source to exact predictable output.

Applications



From the delayed lighting of driveways (to avoid unnecessary on/off switching), to after-circulation of a pump (to build in some hysteresis, again to avoid continuous on/off switching) to the post-present ventilation of a meeting room.

Features

- Devices with delay on (ON), delay off (OFF), combined on-off-delay (ON/OFF), astable (AS), positive edge single shot (PS) negative edge single shot (NS) and even with all the above combined in one multi-function (MF) device are available.
- User presettable prescaler and time.
- In the case of the multi-function relay, the function itself is also user selectable.
- The loss-proof safety terminals are equipped with Pozidriv screws and have IP20 protection degree.

Standards

IEC 60669-2-3



Performance

			PLT + AS	Other PLT +
Rated current (acc. IEC 669-2-3)	A		1 (static)	16
Width (number of DIN-modules)			1	1
Contacts				
Changeover			-	1
Static input			1	-
Time range				
1 function			0.1s / 60s.	1s / 60mn
Multifunction			no	0.1s. / 20h.
Supply voltage				
230/240V - 50/60 Hz			yes	yes
24VAC/24VDC			yes	yes
Supply voltage range (in % of Un)	%		90-110	90-110
Rated power consumption				
Closed circuit current	230V	VA	4.0	1.5
	24V	VA	-	0.2
Working current(ignition & running)	230V	VA	4.0	4.0
	24V	VA	-	2.0
Light types				
Incandescent lamps			yes	yes
Fluorescent lamps			yes	yes
Switching capacity				
AC-5b Incandescent lamps (40 to 200 W lamps)	W		2,300	2,300
Fluorescence compensated (cos φ =0.9)				
Serial compensation	W		-	2,300
Parallel compensation	VA		-	1,000
Inductive load cos φ =0.5			230W	10A
Load AC-7b	W		-	900
Lifetime (in number of operations)⁽¹⁾				
Electrical (AC-1)	at 1,200 W		2 x 10 ⁶	2 x 10 ⁶
	at full load		1 x 10 ⁶	3 x 10 ⁵
Mechanical			1 x 10 ⁷	1 x 10 ⁷
General specifications				
DIN rail mounting			yes	yes
Silent operations			yes	yes
Setting accuracy - Full range	%		+/- 15	+/- 15
Continuously adjustable time-lag			yes	yes
Front switch-off lever			yes	no
Clamping screw terminals, unlosable screws			yes	yes
Cable cross section (Ø min/max)	Coil	mm ²	1.5 / 10	1.5 / 10
	Load	mm ²	1.5 / 10	1.5 / 10
Maximum torque on terminals		N x m	1	1
Ambient temperature at installation point (min./max.)		°C	-20 / +45	-20 / +45

(1) cycle = 2 operations per pole (closing + opening)

More technical data ● website

Dimensions ● pg D.43

New



Pulsar T - Time Relays



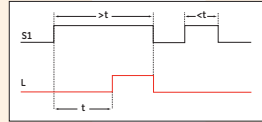
Delay on



Nominal current	Contact combination	Coil voltage AC	Coil voltage DC	No. of Modules	Cat. No.	Ref. No.	Pack.
Operating scale from 1 sec. up to 60 seconds							
16 A	1 CO	24	24	1	PLT + ON 024U 1-60S	686207	12
16 A	1 CO	230	-	1	PLT + ON 230A 1-60S	686209	12

Operating scale from 1 min. up to 60 minutes

16 A	1 CO	24	24	1	PLT + ON 024U 1-60M	686206	12
16 A	1 CO	230	-	1	PLT + ON 230A 1-60M	686208	12



Positive edge single shot

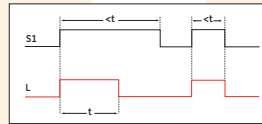


Operating scale from 1 sec. up to 60 seconds

16 A	1 CO	24	24	1	PLT + PS 024U 1-60S	686211	12
16 A	1 CO	230	-	1	PLT + PS 230A 1-60S	686213	12

Operating scale from 1 min. up to 60 minutes

16 A	1 CO	24	24	1	PLT + PS 024U 1-60M	686210	12
16 A	1 CO	230	-	1	PLT + PS 230A 1-60M	686212	12



Delay off

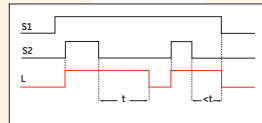


Operating scale from 1 sec. up to 60 seconds

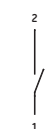
16 A	1 CO	24	24	1	PLT + OF 024U 1-60S	686203	12
16 A	1 CO	230	-	1	PLT + OF 230A 1-60S	686205	12

Operating scale from 1 min. up to 60 minutes

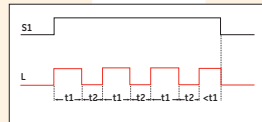
16 A	1 CO	24	24	1	PLT + OF 024U 1-60M	686202	12
16 A	1 CO	230	-	1	PLT + OF 230A 1-60M	686204	12



Asymmetrical flasher



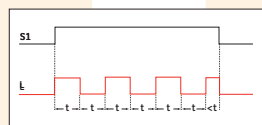
1 A	1 NO	230	-	1	PLT + AS 230A	686195	12
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Symmetrical flasher



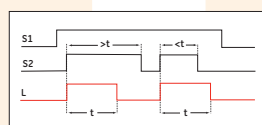
16 A	1 CO	24	24	1	PLT + SS 024U	686218	6
16 A	1 CO	230	-	1	PLT + SS 230A	686219	6



Impulse generator



16 A	1 CO	24	24	1	PLT + IG 024U	686196	6
16 A	1 CO	230	-	1	PLT + IG 230A	686197	6



Multifunction



Operating scale from 0.1 sec. up to 60 minutes

16 A	1 CO	24	24	1	PLT + MF 024U 0.1S-60M ⁽¹⁾	686198*	1/6
16 A	1 CO	230	-	1	PLT + MF 230A 0.1S-60M ⁽¹⁾	686200*	1/6

Operating scale from 30 sec. up to 20 hours

16 A	1 CO	24	24	1	PLT + MF 024U 30S-20H ⁽¹⁾	686199*	1/6
16 A	1 CO	230	-	1	PLT + MF 230A 30S-20H ⁽¹⁾	686201*	1/6

(1) PLT + MF = Multifunction, including functions PLT + ON, PLT + OF and PLT + PS.
Terminal identification, see page D.39.



Analogue Time Switches

Classic

Features

Very easy programming by means of mechanical switches on a dial, but with restricted possibilities compared to the digital time switches. Both devices with 1 dial for programming of daily or weekly events, as well as devices with 2 dials for 2 channel daily events and combined daily and weekly events are available in 2 versions: quartz and net synchronised, with and without running reserve respectively. Manual override Off or On is possible at all times. All devices are sealable.

Applications



Going from the pre-programmed switching of lighting (car park, advertising signs, public roads, etc.) over pre-programmed switching of heating equipment (home and work-environment, waterheating, etc.), to the pre-programmed switching of motors for pumps and fans and even to presence simulation.

Standards

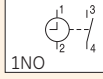
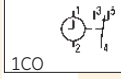
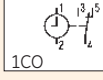
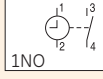
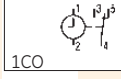
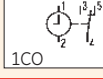
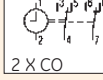
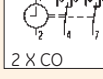
VDE 0633, BS EN 60730-1, BS EN 60730-2-7

Performance

	Plastic switches				Metallic switches	
	Net synchronised 1 module	Net synchronised 3&6 modules	Quartz synchronised 1 module	Quartz synchronised 3&6 modules	Net synchronised 3 modules	Quartz synchronised
Contacts						
Contact	Voltage free NO	Voltage free CO	Voltage free NO	Voltage free CO	Voltage free CO	Voltage free CO
Fix on, Fix off, Auto switch	Not fix off	yes	Not fix off	yes	yes	yes
Rated switching capacity						
- Resistive load	16A/250V	16A/250V	16A/250V	16A/250V	16A/250V	16A/250V
- Inductive load (cos φ = 0.6)	4A/250V	4A/250V	4A/250V	4A/250V	4A/250V	2A/250V
- Incandescent lamps	1000W	1350W	1000W	1350W	1350W	1350W
Shortest switching time day-program	30min.	30min.	30min.	30min.	15min.	15min.
Shortest switching time week-program	-	3h	-	3h	2h	2h
Screws	Pozidriv 1	Pozidriv 1	Pozidriv 1	Pozidriv 1	Pozidriv 1	Pozidriv 1
Terminal capacity: min	1x0.5mm ²	1x0.5mm ²	1x0.5mm ²	1x0.5mm ²	1x0.5mm ²	1x0.5mm ²
max	1x6 or 2x2.5mm ²	1x6 or 2x2.5mm ²	1x6 or 2x2.5mm ²	1x6 or 2x2.5mm ²	1x6 or 2x2.5mm ²	1x6 or 2x2.5mm ²
Clockwork						
Operating voltage	220 - 240V 50Hz	220 - 240V 50Hz	230V - 130VDC	230V - 130VDC	230V 50Hz	230V 50/60Hz
Own consumption at 230V	1VA	1VA	1VA	1VA	1VA	1VA
Running reserve	-	-	150h	150h	-	300h
Battery charging time	-	-	70h	70h	-	72h
Operating temperature range	-20...+55°C	-20...+55°C	-20...+55°C	-20...+55°C	-20...+55°C	-20...+55°C
Accuracy	net synchronised	net synchronised	±2.5s./day at 20°C	±2.5s./day at 20°C	±2.5s./day at 20°C	±2.5s./day at 20°C
Sealable	yes	yes	yes	yes	yes	yes
Screws	Pozidriv 1	Pozidriv 1	Pozidriv 1	Pozidriv 1	Pozidriv 1	Pozidriv 1
Terminal capacity: min	1x0.5mm ²	1x0.5mm ²	1x0.5mm ²	1x0.5mm ²	1x0.5mm ²	1x0.5mm ²
max	1x6 or 2x2.5mm ²	1x6 or 2x2.5mm ²	1x6 or 2x2.5mm ²	1x6 or 2x2.5mm ²	1x6 or 2x2.5mm ²	1x6 or 2x2.5mm ²

More technical data ● website
Dimensions ● pg D.44

Classic - Analogue time switches

NET SYNCHRONISED		Program	No. of channels	Nominal current	Operating voltage	Running reserve	Shortest switch time	Fix on/off auto	No. of mod.	Cat. No.	Ref. No.	Pack.
Day programmable												
		1x24x2	1NO	16A/250V	220 ... 240V 50Hz	-	30min.	Not "OFF"	1	CLS S 11 D	666111	1
		1x24x2	1CO	16A/250V	220 ... 240V 50Hz	-	30min.	yes	3	CLS S 31 D	666112	1
		1x24x4	1CO	16A/250V	230V 50Hz	-	15min.	yes	3	CLS S 31 D M	666113	1
		 1NO	 1CO									
Week programmable												
		7x24/3	1CO	16A/250V	220 ... 240V 50Hz	-	3h	yes	3	CLS S 31 W	666114	1
		7x24/2	1CO	16A/250V	230V 50Hz	-	2h	yes	3	CLS S 31 W M	666115	1
		 1CO										
QUARTZ SYNCHRONISED												
Day programmable												
		1x24x2	1NO	16A/250V	130VDC/ 230V	50h	30min.	Not "OFF"	1	CLS Q 11 D	666105	1
		1x24x2	1CO	16A/250V	130VDC/ 230V	150h	30min.	yes	3	CLS Q 31 D	666104	1
		1x24x4	1CO	16A/250V	230V	300h	15min.	yes	3	CLS Q 31 D M	666106	1
		 1NO	 1CO									
Week programmable												
		7x24/3	1CO	16A/250V	130VDC/ 230V	150h	3h	yes	3	CLS Q 31 W	666109	1
		7x24/3	1CO	16A/250V	230V	300h	2h	yes	3	CLS Q 31 W M	666110	1
		 1CO										
Day-Day programmable												
		1x24x2 + 1x24x2	2CO	16A/250V	130VDC/ 230V	150h	30/30min.	yes	6	CLS Q 62 DD	666103	1
		 2 X CO										
Day-Week programmable												
		1x24x2 + 7x24/3	2CO	16A/250V	130VDC/ 230V	150h	30min./3h	yes	6	CLS Q 62 DW	666108	1
		 2 X CO										

Accessories

							No. of mod.	Cat. No.	Ref. No.	Pack.
Surface mounting set										
							1	SMS 1	666100	1
							3	SMS 3	666101	1
							6	SMS 6	666102	1

Classic

A

B

C

D

E

F

G

X



Digital Time Switches

Galax

Applications



Going from the pre-programmed switching of lighting (car park, advertising signs, public roads, etc.) over pre-programmed switching of heating equipment (home and work environment, water heating, etc.), to the pre-programmed switching of motors for pumps and fans and even to random presence simulation.

Function

Pre-programmed switching of all kinds of electrical devices.

Standards

BS EN-60730-1, BS EN-60730-2-7, VDE 0633

Features

Very easy programming, with quasi unlimited possibilities compared to the analogue time switches. Devices with daily, weekly and yearly event programming possibilities are available in 1, 2 and 4 channel execution. All devices have a shortest switching time of one minute, some of them even one second, and are all internally quartz-synchronized, some of them with the possibility of being DCF77-synchronized. On some devices, the summer/winter time change is fully automatic. Devices with block-programming, holiday, random and impulse-function are available. Manual On or Off override is possible at all times and all devices are sealable.

ASTRO timers are specially designe for lighting applications. Only the longitude and latitude need to be entered for preceice automatic determination of the times for sunrise and sunset.

Performance

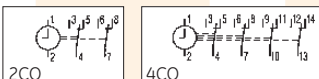
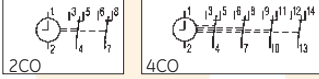
	Galax 1, 2, 4 CO
Contacts	
Contact	Voltage-free changeover
Rated switching capacity	
- Resistive load	16A/250V
- Inductive load ($\cos \phi = 0.6$)	8A/250V
- Incandescent lamps	1000W
DC switching capacity	on request
Shortest switching time	depending on type: 1min. or 1s.
Screws	Pozidriv 1
Terminal capacity: min	1x0.5mm ²
max.	1mod-2.5mm ² ; 2mod-4mm ² ; 6mod-6mm ²
Clockwork	
Operating voltage	230V 50-60Hz
Own consumption at 230V	5VA
Running reserve (at 20° C)	3 years / 6 mod: 6 years
Battery	all Lithium
Operating temperature range	-25...+55°C
Accuracy	±2.5s./day at 20°C / 6 modules device: ±1s./day at 20°C
Sealable and unloosable cover	yes
Screws	Pozidriv 1
Terminal capacity: min	1x0.5mm ²
max.	1mod-2.5mm ² ; 2mod-4mm ² ; 6mod-6mm ²

More technical data ● website
 Dimensions ● pg D.44

New



Galax - Digital time switches

QUARTZ SYNCHRONISED										
Program	No. of channels	Switching capacity	Operating voltage	Running reserve	Shortest switch time	No. of prog. steps	No. of mod.	Cat. No	Ref. No.	Pack.
 Day programmable	1x24h	1CO	16A/250V	220...240V	3yr	1min.	50	2	GLX Q 21 D 50 LS1	686531 1
	7x24h	1CO	16A/250V	220...240V	3yr	1min.	50	1	GLX Q 11 W 50 LS1	686530 1
 Day/Week programmable	7x24h	1CO	16A/250V	220...240V	3yr	1min.	50	2	GLX Q 21 W 50 LS1 ⁽²⁾	686532 1
	7x24h	2CO	16A/250V	220...240V	3yr	1min.	50	2	GLX Q 22 W 50 LS1 ⁽²⁾	686533 1
	7x24h	1CO	16A/250V	220...240V	3yr	1min.	50	2	GLX Q 21 W 50C LS1 ⁽²⁾	686534 1
	7x24h	1CO+1NO	16A/250V	220...240V	3yr	1min.	50	2	GLX Q 22 W 50C LS1 ⁽²⁾	686535 1
	- Automatic summer time / winter time changeover - Manual switch: FIX ON / FIX OFF - Free weekday block formation					- Non-volatile memory (EEPROM) - Pulse and cycle function (only for 686534 and 686535) - Random switching (only for 686534 and 686535)				
 ASTRO/Week programmable (1)	-	1CO	16A/250V	220...240V	3yr	-	-	2	GLX Q 21 ASTRO LS1 ⁽²⁾	680070 1
	7x24h	2CO	16A/250V	220...240V	3yr	1min.	50 ⁽¹⁾	2	GLX Q 22 ASTRO LS1 ⁽²⁾	680073 1
	- ASTRO function (GLX Q 22 ASTRO also with weekly program) - Automatic summer time / winter time changeover - Manual switch: FIX ON / FIX OFF					- Free weekday block formation - Non-volatile memory (EEPROM)				
 Day/Week programmable	7x24x3600	2CO	16A/250V	220...240V	6yr	1s.	400	6	GLX Q 62 W 400	666192 1
	7x24x3600	4CO	16A/250V	220...240V	6yr	1s.	400	6	GLX Q 64 W 400	666193 1
	- Daily, weekly programmes 400 memory spaces - Automatic summer time / winter time changeover - Manual switch: FIX ON / FIX OFF					- Free weekday block formation - Non-volatile memory (EEPROM) - Pulse and cycle function - PC-supported program creation				
 Day/Week/Year programmable	365x24x3600	2CO	16A/250V	220...240V	6yr	1s.	400	6	GLX Q 62 Y 400	666194 1
	365x24x3600	4CO	16A/250V	220...240V	6yr	1s.	400	6	GLX Q 64 Y 400	666195 1
	- Daily, weekly and annual programmes 400 memory spaces - Automatic summer time / winter time changeover - Manual switch: FIX ON / FIX OFF - Free weekday block formation					- Non-volatile memory (EEPROM) - Pulse and cycle function - PC-supported program creation - Date-dependent switching programs - DCF-77 antenna (to be ordered separately)				

Accessories

	No. of mod.	Cat. No.	Ref. No.	Pack.
 Battery				
For 6 module devices	-	GLX BAT	666180	1
 DCF-77 antenna				
For year programmable time switches (6 module)	-	GLX DCF	666181	1
 Programming tools				
For 6 module devices	-	GLX PRG	666182	1
 Surface mounting set				
	1	SMS 1	666100	1
	3	SMS 3	666101	1
	6	SMS 6	666102	1

(1) For second channel

(2) Language set (codes LS1) valable for: German, English, French, Spanish, Italian, Portuguese, Czech, Dutch

Language set (codes LS2) valable for: English, Swedish, Norwegian, Danish, Polish, Hungarian

On request



New

Galax

A

B

C

D

E

F

G

X

Time Switches

72 X 72 Classic and Galax



Applications



Going from the pre-programmed switching of lighting (car park, advertising signs, public roads, etc.) over pre-programmed switching of heating equipment (home and work environment, water heating, etc.), to the pre-programmed switching of motors for pumps and fans and even to random presence simulation.

Features

Very easy programming by means of mechanical switches or digital buttons. Devices with daily and weekly event programming possibilities. Analogue devices have a shortest switching time of 15 minutes and digital device has 1 minute.

Function

Pre-programmed switching of all kind of electrical devices.

Performance

	Weekly timers		Daily timers		Daily/weekly timer
Code	666176	666175	666178	666177	666179
Type	CLS 72Q41W	CLS72S41W	CLS72Q41D	CLS72S41D	GLX72Q41DW
Running reserve	150 h	-	150 h	-	3 yr.
Shortest switch time	2 h	2 h	15 min	15 min	1 min
Modules	4	4	4	4	4
Nominal current	16A/250V	16A/250V	16A/250V	16A/250V	16A/250V
Accuracy	<2.5 s/day	<2.5 s/day	<2.5 s/day	<2.5 s/day	<2.5 s/day
Number of channels	1CO	1CO	1CO	1CO	1CO
Operating voltage	220-240VAC/50-60Hz	220-240VAC/50-60Hz	220-240VAC/50-60Hz	220-240VAC/50-60Hz	220-240VAC/50-60Hz
Fix on/off auto	yes	yes	yes	yes	yes
Flush mounting	yes	yes	yes	yes	yes
Surface mounting	yes	yes	yes	yes	yes
DIN-rail mounting	yes	yes	yes	yes	yes
Number of memory position	-	-	-	-	50

More technical data ● website

Dimensions ● pg D.44

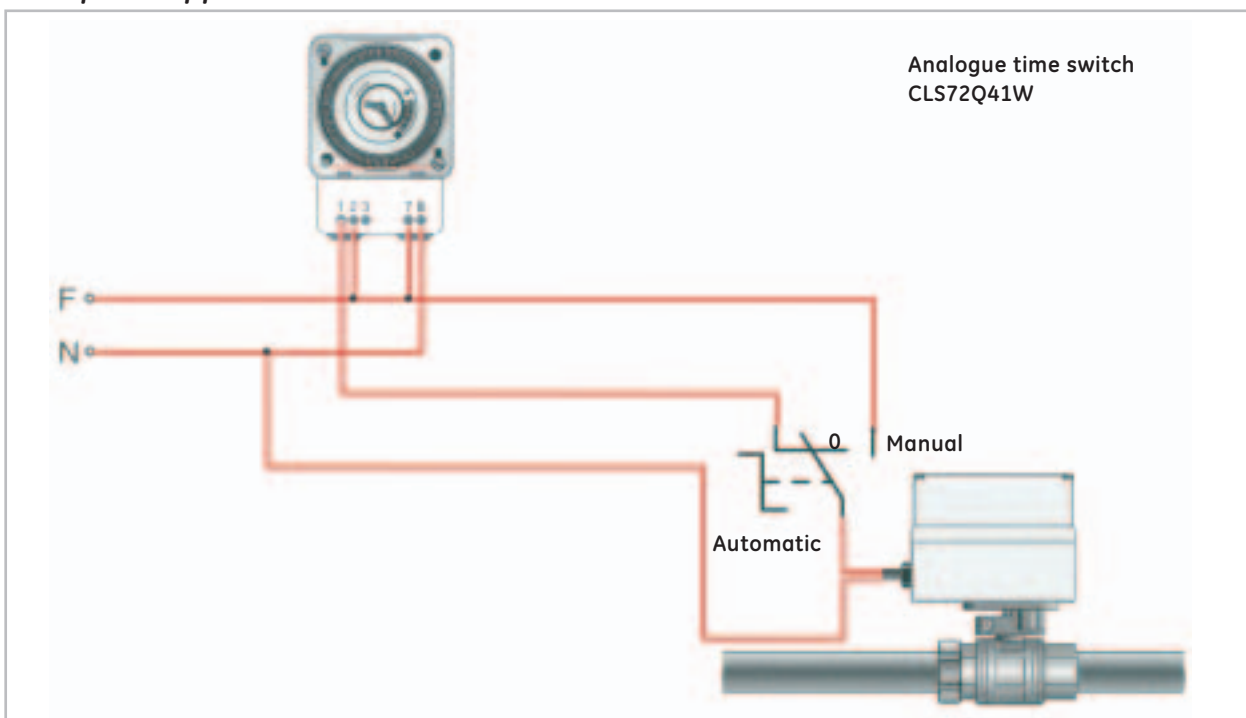
72 X 72 Classic - Analogue time switches

	Program	No. of channels	Nominal current	Operating voltage	Running reserve	Shortest switch time	Fix on/off auto	No. of mod.	Cat. No.	Ref. No.	Pack.
Day program 	1x24	1CO	16A/250V	220...240 VAC	-	15 min	yes	4	CLS72S41D	666177	1
	1x24	1CO	16A/250V	220...240 VAC	150 h	15 min	yes	4	CLS72Q41D	666178	1
Week program 	7x24	1CO	16A/250V	220...240 VAC	-	2 h	yes	4	CLS72S41W	666175	1
	7x24	1CO	16A/250V	220...240 VAC	150 h	2 h	yes	4	CLS72Q41W	666176	1

72 X 72 Galax - Digital time switches

	Program	No. of channels	Nominal current	Operating voltage	Running reserve	Shortest switch time	Fix on/off auto	No. of mod.	Cat. No.	Ref. No.	Pack.
Day-Week program 	1x24/7x24	1CO	16A/250 V	220 240VAC	3 yr.	1 min	yes	4	GLX72Q41DW	666179	1
	- Easy to use - Text programming in different languages (D, GB, F, E, I, P, Cz, NL) - Summer/winter time change is fully automatic - Switching capacity for inductive load 8A/250V										

Example of application





Light Sensitive Switches

Galax LSS

Applications



Control of lighting in shop windows, offices, car parking areas, controlling street lights, advertising signs, sun blinds, shutters, or even lighting in a home to simulate the presence of people.

Features

User presettable switch light intensity, intensity range and hysteresis (to avoid on/off a stable behavior). Reaction time is also user presettable. 1 channel and 2 channel with week-cycle, all with separate photocell are available besides a 1 channel all-in-one device.

Function

Electronic switch controlled by the intensity of the ambient light, detected by a separate or integrated photocell (depending on the model). When the light intensity drops below the threshold setting, the switch changes its state to the on position. An increasing ambient light intensity eventually will switch off the device again.

Performance

	1 channel	2 channel	1 channel wall mounting
Contacts			
Contact	1 Voltage-free contact NO	Voltage-free change over	1 Voltage-free contact NO
Switching capacity			
- Resistive load	16A/250V	10A/250V	10A/250V
- Inductive load (cos φ = 0.6)	8A/250V	8A/250V	2A/250V
- Incandescent lamps	2000W	2000W	1200W
Switching capacity	800mA at 24V, 300mA at 60V; 150mA at 220V		Not allowed
Shortest switching time	-	-	-
Screws	Pozidriv 1	Pozidriv 1	Slot head
Terminal capacity: min	1x0.5 mm ²	1x0.5 mm ²	1x0.5 mm ²
max	1x6 mm ² or 2x2.5 mm ²	1x6 mm ² or 2x2.5 mm ²	1x6 mm ² or 2x2.5 mm ²
Light sensitive operating part			
Light intensity switching range	2 ... 500 lux	2 ... 500 lux	2 ... 2000 lux
Switching hysteresis		30% above On-switching point	
On/Off switching delay	100 s. On 100 s. Off	Use presettable from 0 to 100 s.	50 s. On 50 s. Off
Light sensitive sensor wire-length	max 100m	max 100 m	-
Light sensitive sensor protection degree	IP65	IP65	IP54 (complete device)
Operating voltage	220/240V 50/60Hz	230V 50/60Hz	220/240V 50/60Hz
Own consumption at 230V	5VA	2.5VA	6VA
Running reserve	-	-	-
Battery	-	-	-
Operating temperature range	-20 ... +55°C	-20 ... +55°C	-35 ... +60°C
Accuracy	-	-	-
Sealable	yes	yes	-
Screws	Pozidriv 1	Pozidriv 1	Slot head
Terminal capacity: min	1x0.5 mm ²	1x0.5 mm ²	1x0.5 mm ²
max	1x6 mm ² or 2x2.5 mm ²	1x6 mm ² or 2x2.5 mm ²	1x6 mm ² or 2x2.5 mm ²

More technical data ● website

Dimensions ● pg D.44

Galax LSS - Light sensitive switches

		Program	No. of channels	Nominal current	Operating voltage	No. of modules	Cat. No.	Ref. No.	Pack.
 DIN rail mounting, separate photocell included 		2 ... 500 lux	1NO	16A/250V	230V	1	LSS 11	666361	1
		2 ... 500 lux	2CO	16A/250V	230V	3	LSS 32	666362	1
 Wall mounting, photocell incorporated 		2 ... 2000 lux	1NO	16A/250V	230V	-	LSS W	666364	1

Accessories

					No. of modules	Cat. No.	Ref. No.	Pack.
 Photocell (spare part)					-	LSS LDR	666358	1
		Tinted cover			-	-	601795	1
 Surface mounting set					1	SMS 1	666100	1
					3	SMS 3	666101	1

Galax LSS

A

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X

Transformers

Series T



Function

Reducing the voltage to a very low (safety) voltage used mainly as control-voltage in order to reduce the risk of electrocution due to environmental circumstances (i.e. high degree of humidity like outdoors, in a swimming pool complex, etc.).

Approvals⁽¹⁾



(1) Depending on the type

Performance

Applications



Going from supplying power to a bell circuit, to supplying power to the control circuit of impulse switches, relays or contactors for the control of lighting, heating, etc.

Features

Safety transformers have short-circuit protection and continuous nominal power. Bell transformers are recommended for intermittent use at the nominal power declared (50% for continuous use). Devices with integrated on/off switch or with integrated buzzer are available. Complete noiseless operation. Full power available at all secondary voltages. The safety terminals are equipped with captive Pozidriv screws and have IP20 protection degree.

Standards

IEC 61558-1-2-6: Safety transformer

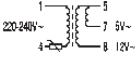
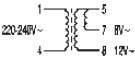
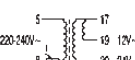
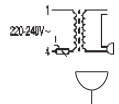
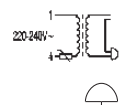
IEC 61558-1-2-8: Bell transformer

	Bell transformer	Safety transformer
Nominal primary voltage and frequency	230V 50Hz / 240V 60Hz	230V 50Hz / 240V 60Hz
Secondary voltage at nominal primary voltage	8 or 12V	12 or 24V
Maximum secondary voltage at zero load	1.5xUn sec.	1.05xUn sec.
Minimum secondary voltage at nominal load	0.85xUn sec.	1xUn sec.
Maximum load	Nominal power	Nominal power
Short-circuit protection	PTC	PTC
Operating temperature	-20...+40°C	-20...+40°C
Isolation voltage	4kV	4kV
Protection degree	IP 20	IP 20
Screw	Pozidriv 1	Pozidriv 1
Terminal capacity: min	1x1mm ²	1x1mm ²
max	1x16mm ² or 2x6mm ²	1x16mm ² or 2x6mm ²

More technical data ● website

Dimensions ● pg D.45

Series T - Transformers

		Output power	Secondary voltages	Primary voltage	Number of modules	Cat. No.	Ref. No.	Pack.
	Bell transformer 	5VA	8/12V	220..240V	2	TR B 5	666638	1
		10VA	8/12V	220..240V	2	TR B 10	666636	1
		15VA	8/12V	220..240V	2	TR B 15	666637	1
		8VA	12/24V	220..240V	2	TR B 8	666650	1
		16VA	12/24V	220..240V	2	TR B 16	666651	1
		30VA	12/24V	220..240V	2	TR B 30	666652	1
	Bell transformer Integrated on-off switch 	8VA	8/12V	220..240V	2	TR B 8S	666640	1
	Safety transformer 	15VA	12/24V	220..240V	3	TR S 15	666641	1
		25VA	12/24V	220..240V	4	TR S 25	666642	1
		40VA	12/24V	220..240V	4	TR S 40	666643	1
		63VA	12/24V	220..240V	6	TR S 63	666644	20
	Buzzers 			220..240V	1	BU 230	666629	12
				12V	1	BU 12	666630	12
	Bells 			220..240V	1	BE 230	666632	12
				12V	1	BE 12	666633	12

Series T

A

B

C

D

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Measurement Instruments

Series MT

Applications



Measurement of all possible electrical values from simple measurement as voltage, current, frequency over more complex such as power and energy, to all-in-one measurement with the netanalysing devices. To avoid down-time due to abnormal situations, i.e. power-supply voltage too high, absorbed power too high, etc., leading to malfunctioning and even breakdown of the machinery, the measurement and monitoring of the electrical values like voltage, current, power, energy etc. is an absolute must and even an indispensable asset when it comes to preventive maintenance.

Features

AC measurement devices with analogue as well as with digital technology and readout are available. The simple devices (one measurement only i.e. voltage, current, frequency) are only available in single phase, while the complex devices (more than one measurement i.e. power, energy, netanalyser) are also available in 3-phase execution. High currents can be measured through the intermediate use of a current transformer (for the analogue amp-meter combined with an interchangeable scale-plate). All devices have very good precision and have also a very low self-consumption to limit as much as possible the measurement error. Using one monophase-volt or amp-meter in a 3-phase system is possible by using the appropriate selector switch. The energy meters as well as the netanalysers are true RMS measuring devices. Monitoring and logging all electrical values on to a PC is possible by using the MT PRG software.

Function

Measurement, visualisation and logging of voltage, current, frequency, hours of operation, power, energy, $\cos \varphi$, etc.

Standards

EN 61010-1, BS EN 60051-1-2

Performance

	Analogue instruments	Digital instruments	Net analyser
Readout	Polycarbonate+carbon needle	3digit 7segment LED	LCD display
Scale selection	Interchangeable scaleplate	Dip-switches	Dip-switches
Own consumption current meters	0.3VA	1.5VA	-
Own consumption other meters	1.5VA	1.5VA	-
Operating temperature range	-10 ... +55°C	-5 ... +55°C	-10 ... +55°C
Test voltage	2000V at 50Hz during 1 minute	2000V at 50Hz during 1 minute	2000V at 50Hz during 1 minute
Class of precision (accuracy)	1.5 (0.5 for frequency meter)	0.5% ±1 digit referred to full scale	0.5% ±1 digit referred to full scale
Overload current coils			
- 1 second	10xIn	10xIn	10xIn
- Continuous	2xIn	2xIn	2xIn
Overload voltage coils			
- 0.5 second	2xUn	2xUn	2xUn
- Continuous	1.2xUn	1.2xUn	1.2xUn
Vibration resistance	0.35 mm at 10/55Hz on 3 axes, 0.35 mm at 10/55Hz on 3 axes, 0.35 mm at 10/55Hz on 3 axes, duration of 6 hours duration of 6 hours duration of 6 hours		
Shock resistance	50g	50g	50g
Protection degree	IP40	IP40	IP40
Screws	Pozidriv 1	Pozidriv 1	Pozidriv 1
Terminal capacity: min	1x1 mm ²	1x1 mm ²	1x1 mm ²
max	1x16 mm ² or 2x6 mm ²	1x16 mm ² or 2x6 mm ²	1x16 mm ² or 2x6 mm ²

More technical data ● website
Dimensions ● pg D.46

Series MT - Analogue measurement instruments

		Scale	Accuracy	Number of phases	Number of modules	Cat. No.	Ref. No.	Pack.
	Volt meter 	300V	1.5	1	3	MT AV 300	666417	1
		500V	1.5	1	3	MT AV 500	666418	1
	Ammeter 	-	1.5	1	3	MT AA	666414	1
		5A	1.5	1	3	MT AA 5	666413	1
		10A	1.5	1	3	MT AA 10	666408	1
		15A	1.5	1	3	MT AA 15	666409	1
		20A	1.5	1	3	MT AA 20	666410	1
		25A	1.5	1	3	MT AA 25	666411	1
		30A	1.5	1	3	MT AA 30	666412	1
	Frequency meter 	45 ... 65Hz	0.5	1	3	MT AF	666415	1
	Hour counter 	230V/50Hz	-	1	2	MT AH	666416	1
		110V/50Hz	-	1	2	MT AH 110	666431	1
		24V/50Hz	-	1	2	MT AH 24	666432	1

Series MT

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B

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D

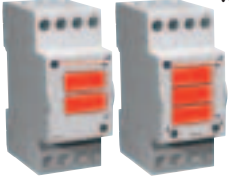
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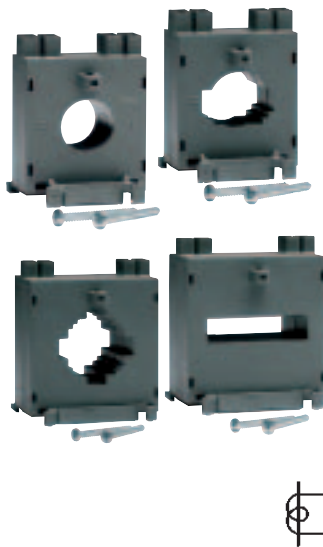
X

Series MT - Digital measurement instruments

		Scale	Accuracy	Number of phases	Number of modules	Cat. No.	Ref. No.	Pack.
	Volt meter 	500V	0.5% ± 2 dig	1	2	MT DV 500 2M	666670	1
	Ammeter 	5A	0.5% ± 2 dig	1	2	MT DA 5 2M	666671	1
		5A	0.5% ± 2 dig	1	2	MT DA DV 52M	666674	1
	Ammeter and Voltmeter 							
	Frequency meter 	40 ... 80Hz	0.3% ± 1 dig	1	2	MT DF 2M	666673	1
	Watt meter 	9,99 W	1% ± 2 dig	1	2	MT DW 110	667214	1
		999 W	1% ± 2 dig	3	2	MT DW 11000	667215	1
	Multifunction relays	1-phase: V, A, W, cosφ, energy meter kWh, hour counter with buzzer alarm, priority relay. AC/DC supply	0.5%	1	2	MTDNPR1	666448	1
		3-phase: V, A, W, cosφ, Hz (F-F; F-N; A in neutral); kWh (imp-exp); hour counter; phase sequence; phase-neutral asymmetric phase-neutral voltage, AC/CC supply.	0.5%	3+N	2	MTDNPR3	666449	1
	Energy meter 	5(30)A	2	1	1	MT DE 1 1M	666675	1
		5(32)A	2	1	2	MT DE 1I 32A	666434	1
		5A	2	3+N	4	MT DE 3NI5A	666452	1
		5A	2	3	4	MT DE 3I O	666676 ⁽¹⁾	1
		63A	2	1	2	MT DE 1I 63A	666450	1
	Net analyser	63A	2	3+N	4	MT DE 3N I 63A	666631	1
		5A	1	3(+N)	6	MT DN 3L	666451	1 ⁽²⁾
	Digital-multimeter							

(1) Only for net 3P+N
(2) Oscilloscope function

Series MT - Current transformer



Scale	Accuracy	Power (VA)	Type	Cat. No.	Ref. No.	Pack.
40/5A	3	2	TAM 1D	MT CT 40	666381	1
50/5A	3	2	TAM 1D	MT CT 50	666383	1
60/5A	3	2	TAM 1D	MT CT 60	666385	1
80/5A	3	3	TAM 1D	MT CT 80	666387	1
100/5A	1	2	TAM 3D	MT CT 100	666375	1
150/5A	1	3	TAM 3D	MT CT 150	666377	1
200/5A	1	3	TAM 3D	MT CT 200	666378	1
250/5A	0.5	2	TAM 3D	MT CT 250	666379	1
300/5A	0.5	2	TAM 3D	MT CT 300	666380	1
400/5A	0.5	3	TAM 3D	MT CT 400	666382	1
500/5A	0.5	10	TAM 4D	MT CT 500	666384	1
600/5A	0.5	10	TAM 4D	MT CT 600	666386	1
800/5A	0.5	10	TAM 6	MT CT 800	666388	1
1000/5A	0.5	10	TAM 6	MT CT 1000	666376	1
1200/5A	0.5	-	-	MT CT 1200	666677	1
1500/5A	0.5	-	-	MT CT 1500	666678	1
2000/5A	0.5	-	-	MT CT 2000	666679	1

Interchangeable Ammeter scaleplates



40/5A	-			MT SP 40	666395	10
50/5A	-			MT SP 50	666397	10
60/5A	-			MT SP 60	666399	10
80/5A	-			MT SP 80	666401	10
100/5A	-			MT SP 100	666389	10
150/5A	-			MT SP 150	666391	10
200/5A	-			MT SP 200	666392	10
250/5A	-			MT SP 250	666393	10
300/5A	-			MT SP 300	666394	10
400/5A	-			MT SP 400	666396	10
500/5A	-			MT SP 500	666398	10
600/5A	-			MT SP 600	666400	10
800/5A	-			MT SP 800	666402	10
1000/5A	-			MT SP 1000	666390	10

Accessories

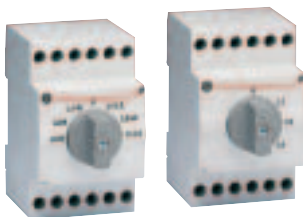


RS485 to RS232 signal converter

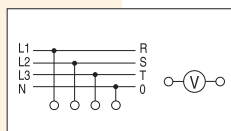
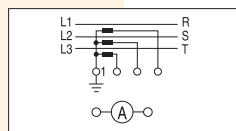


	Number of phases	Number of modules	Cat. No.	Ref. No.	Pack.
	-	2	MT RSC	666404	1

Selector switch



Amperage	3	3	MT S 4	666405	1
Voltage	3	3	MT S 7	666406	1



Series MT

A

B

C

D

E

F

G

X



Function

Priority relays offer the possibility to limit the energy consumption in installations with a defined maximum power. This limitation is getting measuring the installation total current continuously and in the case consumption would be higher then fixed value, priority relay would disconnect the non-priority load.

Priority and sequence phase relays

Series PR

Applications



In some installations the maximum power is limited by the contracted power with the electricity company. If this contracted power is surpassed, the main MCB of the installation opens. Priority relays are used in order to avoid the opening of the main MCB.

A similar case, for example, would be an installation where new loads would be added without changing the installation (cable sizes, MCB's...). In this case a priority relay will be installed before the non priority load that would be disconnected when the contracted or limited power is surpassed. Priority... disconnected. The priority relay will realise that the installation total load will come back to be lower than its..., the non priority load will come back to be connected.

Characteristics

Priority relay can work in nets with nominal power of 6 kW if we make a direct connection or higher if we use a current transformer to connect the priority relay to the net. In each case priority relay could be able to disconnect loads with a nominal power from 0 to 6kW or from 0% to 100% when current transformer is used.

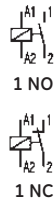
Standard/Marking

IEC 61095 

Performance

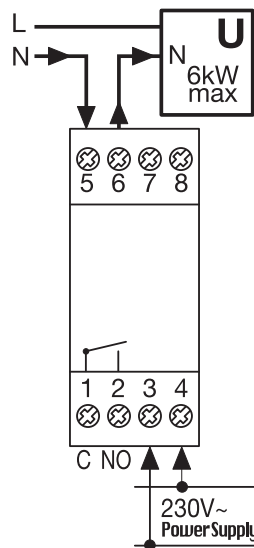
Priority Relay Series PR	
Nominal Voltage Un	230V
Maximum nominal current	32A direct, 5A with current transformer
Nominal current	2...32A
Compact capacity	Pozidriv 1/2x2.5mm ² or 1x6mm ²
Contact type	NC or NO
Work temperature	-20...+55°C
Work area	0 to 7 kW
Fixed delay time	0.5sc
Isolation tension (contact-coil)	2.5 kV
Isolation class	II
IP	IP20
Electrical endurance	100,000 ops.
Mechanical endurance	1,000,000 ops.
Maximum changeover frequency	750 ops./h

Series PR - Priority relay

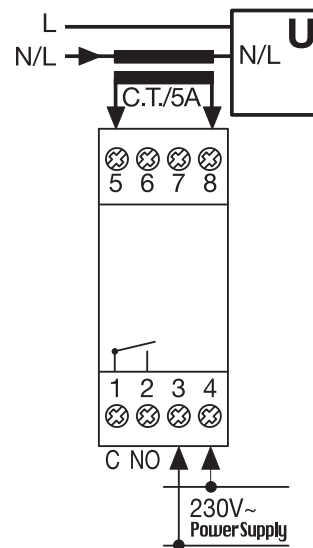


Output number	Module number	Contact	Cat. No.	Ref. No.	Pack.
1	2	1NO	PRI 10	666445	1
1	2	1NC	PRI 01	666446	1

Direct insertion



C-T / 5A insertion



Controls and sequence phase relays



Functions number	Module number	Contact	Cat. No.	Ref. No.	Pack.
2	2	1CO	MTAP 3N2F	666690	1
4	3	1CO	MTAP 3N	666433	1

Functions	Min. voltage value range	Ref. No.
Phases sequence Phases presence	-	666690
Phases sequence Phases presence Neutral presence Min. voltage control	70-100%	666433

Series PR

A

B

C

D

E

F

G

X



Surge Arresters

SurgeGuard

Functions

Protection of an electrical installation and all electrical and electronic devices connected to this installation against destructive surges. Such voltage surges can be generated by lightning induced currents, by network polluting devices (such a motors, frequency converters, dimmers, etc..) and by power supply networks switching operations.

Standards

IEC 61643-I
IEC 61643-II
DIN VDE 0675-6
NF C61-740
BS 6651

Marking



Applications



Surge arresters cover the protection of home appliances (TV, Hifi, VCR, laundry machine, dishwasher...), commercial building equipment (computer, data networks, intrusion and alarm systems, access control and building automation systems), but also industrial equipment (PLC, instrumentation, medical apparatus, monitoring devices) and even the protection of entire off-shore drilling platforms.

Features

- The line of surge arresters includes a full range of compact protectors for installation on DIN rail. The SPD's are especially designed to provide complete and effective protection against surges, protecting equipment and property connected to the low voltage network.
- The range includes Class I/B 15 kA to 100 kA surge arresters in 10/350 ms wave form, and Class II/C surge arresters with different discharge capacities: 15 kA, 40 kA and 100 kA in wave form 8/20 ms. Class II SPD's for DC photo-voltaic applications, communication and TV lines are also available. The most suitable value will be selected according to the type of installation, premises and equipments to be protected.
- Several different formats one pole, single phase, two phase and three phases are available for all types of electrical net systems: TT, TN-S, TN-C, IT.
- Additionally, dedicated versions for temporary overvoltage (TOV) are included in the offer.

TOV is a voltage peak of hundreds of volts for an indeterminate period due to the unbalance of the network (normally caused by neutral fault).

Parameters

Impulse current (Iimp)

This is the peak current that the SPD can withstand without failing. The waveform of the applied current is normalised as 10/350 μ s, used in Class I SPD.

Maximum discharge current (Imax)

This is the peak current it can withstand in a single pulse without failing. The waveform of the applied current is normalised as 8/20 μ s. Used in Class II SPD.

Nominal discharge current (In)

This is the current that the device is capable of shunting to ground at least 20 times without failing.

Level of protection (Up)

This is the parameter that characterises the action of the protection device against surges by limiting the voltage between its terminals. It must be less than the surge withstand capacity given by the category of the equipment to be protected. However, if the protector is far from the equipment to be protected it may be necessary to use additional protectors.

Maximum continuous operating voltage Umax (Uc)

This is the maximum AC or DC voltage which may be continuously applied to the terminals of the SPD.

Performance

	SA BLOCK I	SA BLOCK I&II	SA PLUGIN II single phase	SA PLUGIN II multi-phase	SA BLOCK II single phase	SA BLOCK II multi-phase
Energy impulse wave	10/350 μ s	10/350 μ s and 8/20 μ s	8/20 μ s	8/20 μ s	8/20 μ s	8/20 μ s
Response time	<100ns	<100ns	<25ns	<25ns	<25ns	<25ns
Thermal fuse	no	yes	yes	yes	yes	yes
Thermal fuse healthy indication	no	yes	yes	yes	yes	yes
Nominal voltage	230V or 400V	230V or 400V	230V or 400V	230V or 400V	230V or 400V	230V or 400V
Frequency	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz	50/60Hz
Useable in networks	TT, TN-S, TT, IT	TT, TN-S, TT, IT	TT, TN-S, TT, IT	TT, TN-S	TT, TN-S, TT, IT	TT, TN-S
Operating temperature	-40°C...+80°C	-40°C...+80°C	-40°C...+75°C	-40°C...+75°C	-40°C...+80°C	-40°C...+80°C
Screws	Pozidriv 3	Pozidriv 3	Pozidriv 3	Pozidriv 3	Pozidriv 3	Pozidriv 3
Terminal capacity: min	6mm ²	6mm ²	6mm ²	6mm ²	6mm ²	6mm ²
max (flexible/rigid)	35/50mm ²	25/35mm ²	25/50mm ²	25/50mm ²	25/35mm ²	25/35mm ²

SurgeGuard - Surge Arresters - Class I/B

The surge arresters have the capacity to divert excess energy for low voltage line protection.
Class I surge arresters should be installed in areas at high risk from direct lightning strike discharge.

Single phase		limp	In	Up	Up (L-N)	Up (N-PE)	Umax	No. of poles	Auxiliary contact	No. modules	Cat. No.	Ref. No.	Pack
	TT, TN-S TN-C, IT	35kA	-	4000V	-	-	255V	1P	-	1	SA BLOCK I 35	667470	1
		100kA	-	4000V	-	-	255V	1P	-	1	SA BLOCK I 100 N	667471	1
		100kA	100kA	-	-	-	500V	1P	-	1	SA BLOCK I PC	667472	1

SurgeGuard - Surge Arresters - Class I and II

The surge arrester can operate as a Class I and Class II protection in accordance with the IEC 61643-11 Class I/B and Class II/C integrated in only one device. Used in main panelboards (incomer of installations) with high risk from direct lightning strike discharge. Decoupling coils not needed

Single phase		limp	In	Up	Up (L-N)	Up (N-PE)	Umax	No. of poles	Auxiliary contact	No. modules	Cat. No.	Ref. No.	Pack
	TT, TN-S TN-C, IT	Class I/Class II	Class II										
		15kA / 100kA	30kA	1300V	-	-	275V	1P	-	2	SA BLOCK I&II 100	667486	1
		30kA / 100kA	60kA	1500V	-	-	275V	1P	-	2	SA BLOCK I&II 100N	667487	1

SurgeGuard - Surge Arresters - Class II

The Class II protection is the most frequently used because it offers high protection and is compatible with most equipments.

Single phase plug-in (base+module)		limp	In	Up	Up (L-N)	Up (N-PE)	Umax	No. of poles	Auxiliary contact	No. modules	Cat. No.	Ref. No.	Pack	
	TT, TN-S TN-C, IT	15kA	5kA	1200V	-	-	280V	1P	-	1	SA PLUGIN II 15/230	667500	1	
		15kA	5kA	1300V	-	-	440V	1P	-	1	SA PLUGIN II 15/400	667501	1	
		40kA	20kA	1300V	-	-	280V	1P	-	1	SA PLUGIN II 40/230	667502	1	
		40kA	20kA	1300V	-	-	280V	1P	1CO	1	SA PLOGIC II 40/230 C	667504	1	
		40kA	20kA	1900V	-	-	440V	1P	-	1	SA PLUGIN II 40/400	667503	1	
		40kA	20kA	1900V	-	-	440V	1P	1CO	1	SA PLUGIN II 40/400 C	667505	1	
		60kA	30kA	1500V	-	-	255V	1P	-	1	SA PLUGIN II 60 NGND	667511	1	
Multi-phase plug-in (base+module)														
	TT TN-S	40kA	20kA	-	1300V	1500V	280V	2P	-	2	SA PLUGIN II 40/230 LNE	667506	1	
		40kA	20kA	-	1300V	1500V	440V	4P	-	4	SA PLUGIN II 40/230 3L+NE	667507	1	
Single phase monobloc														
	TT, TN-S TN-C, IT	15kA	5kA	1200V	-	-	275V	1P	-	1	SA BLOCK II 15/230	667473	1	
		15kA	5kA	1200V	-	-	275V	1P	1CO	1	SA BLOCK II 15/230 C	667475	1	
		15kA	5kA	1800V	-	-	420V	1P	-	1	SA BLOCK II 15/400	667474	1	
		15kA	5kA	1800V	-	-	420V	1P	1CO	1	SA BLOCK II 15/400 C	667476	1	
		15kA	5kA	850V	-	-	255V	1P	-	1	SA BLOCK II 15N	667481	1	
		40kA	15kA	1300V	-	-	275V	1P	-	1	SA BLOCK II 40/230	667477	1	
		40kA	15kA	1300V	-	-	275V	1P	1CO	1	SA BLOCK II 40/230 C	667479	1	
		40kA	15kA	1800V	-	-	420V	1P	-	1	SA BLOCK II 40/400	667478	1	
		40kA	15kA	1800V	-	-	420V	1P	1CO	1	SA BLOCK II 40/400 C	667480	1	
		40kA	20kA	1200V	-	-	275V	1P	-	1	SA BLOCK II 40N	667482	1	
Multi-phase monobloc														
	TT TN-S	Common and differential mode protection												
		15kA	5kA		1200V	1500V	275V	2P	-	1	SA BLOCK II 15LN	667483	1	
		15kA	5kA		1200V	1500V	275V	2P	-	2	SA BLOCK II 15/230 LNE	667488	1	
		40kA	15kA		1300V	1500V	275V	2P	-	2	SA BLOCK II 40/230 LNE	667490	1	
		15kA	5kA		1200V	1500V	440V	4P	-	4	SA BLOCK II 15/400 3L+NE	667494	1	
		40kA	15kA		1300V	1500V	440V	4P	-	4	SA BLOCK II 40/400 3L+NE	667496	1	
		Common mode protection												
		15kA	5kA	1200V	-	-	275V	2P	-	2	SA BLOCK II 15/230 LLE	667489	1	
		40kA	15kA	1300V	-	-	275V	2P	-	2	SA BLOCK II 40/230 LLE	667491	1	
		15kA	5kA	1200V	-	-	440V	4P	-	4	SA BLOCK II 15/400 4L/NE	667495	1	
		40kA	15kA	1300V	-	-	440V	4P	-	4	SA BLOCK II 40/400 4L/NE	667497	1	
		40kA	15kA	1300V	-	-	440V	4P	1CO	4	SA BLOCK II 40/400 4L/NE C	667498	1	

SurgeGuard - Surge Arresters - Class II

Protection for (DC) photovoltaic applications	Iimp	In	Up	Up (L-N)	Up (N-PE)	Umax	No. of poles	Auxiliary contact	No. modules	Cat. No.	Ref. No.	Pack
	40kA	15 kA	2600V	-	-	600Vdc	2P	-	2	SA PHOT 600V	667508	1
	40kA	15kA	3800V	-	-	1000Vdc	2P	-	2	SA PHOT 1000V	667509	1

The Protective devices should be installed for sensitive equipment both in home and industries.

For communication lines (telephone, modem, router, alarm installations, home automation)	I _{max}	In	Up	Up (L-N)	Up (N-PE)	Umax	fg Bandwidth	protection type	No. modules	Cat. No.	Ref. No.	Pack
	10kA	5kA	200V	-	-	180V	3MHz	1 par	1	SA BLOCK ADSL	667484	1
For coax cables (radio frequency signals, TV, cameras, receivers, satellite, ...)	20kA	10kA	600V	-	-	230V	3GHz	BNC	-	SA TV	667510	1
												

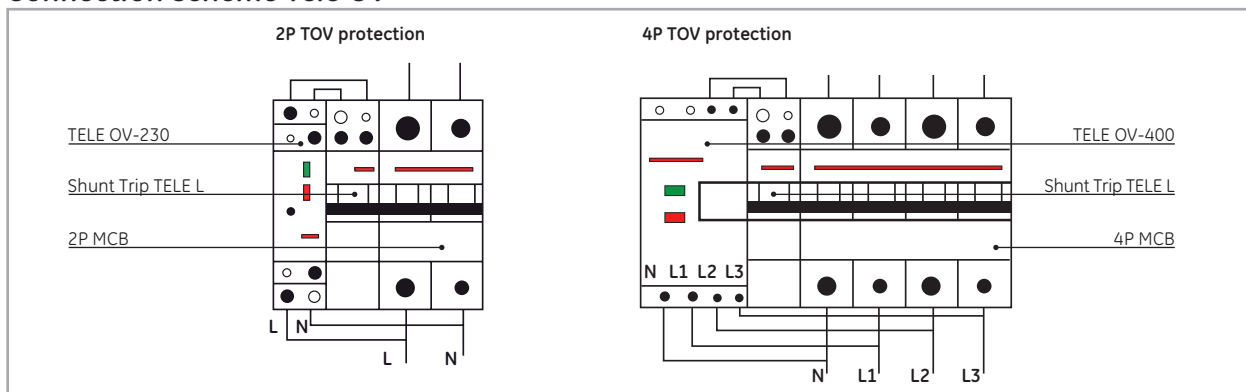
Accessories

Class II - Replacement mod. for plug-in versions	I _{max}	In	Up (L-PE)	Umax	No. of poles	Auxiliary contact	No. modules	Cat. No.	Ref. No.	Pack
	15kA	5kA	1200V	280V	1P	-	1	SA MODULE 15/230	667512	1
	15kA	5kA	1300V	440V	1P	-	1	SA MODULE 15/400	667513	1
	40kA	20kA	1200V	280V	1P	-	1	SA MODULE 40/230	667514	1
	40kA	20kA	1300V	440V	1P	-	1	SA MODULE 40/400	667515	1
	60kA	20kA	1500V	255V	1P	-	1	SA MODULE 60 NGND	667516	1
Decoupling coil	I _{max}	In	Up (L-PE)	Umax	No. of poles	Auxiliary contact	No. modules	Cat. No.	Ref. No.	Pack
	-	35A	-	-	1P	-	2	SA C35	667492	1
	-	63A	-	-	1P	-	4	SA C63	667499	1

TELE OV - Temporary overvoltage protection (TOV)

Temporally overvoltage protection	In	Ua L-N	Tripping time (Ua)	Un	No. of poles	No. modules	Cat. No.	Ref. No.	Pack
	MCB's	254V	<4s	230V	2	1	TELE OV 230	667485	1
	MCB's	254V	<4s	400V	4	2	TELE OV 400	667493	1

Connection scheme Tele OV

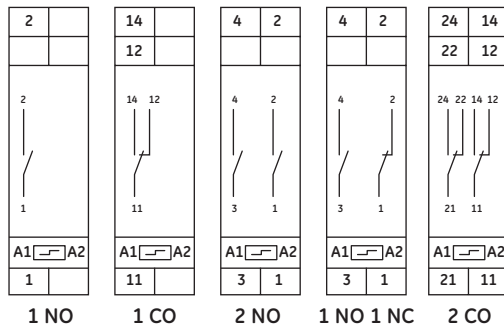


New

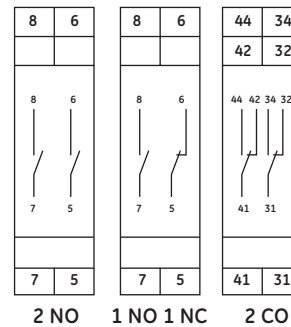
Terminal capacity

Impulse switches - Pulsar S

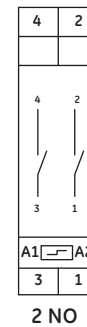
Impulse switches



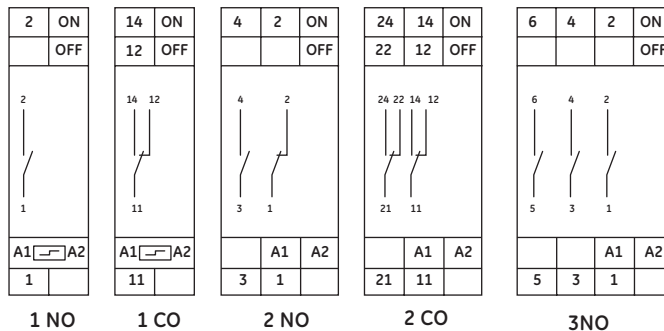
Add-on power contact



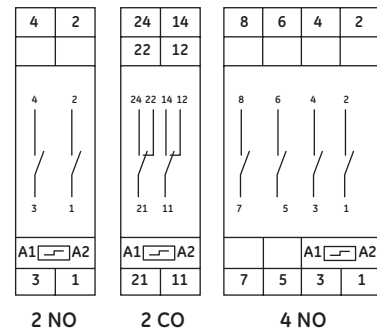
Step by step multi circuit



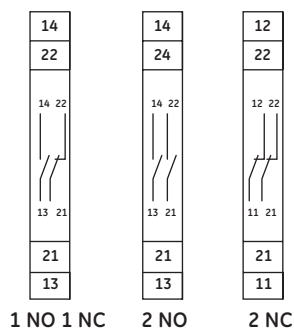
All-in central command



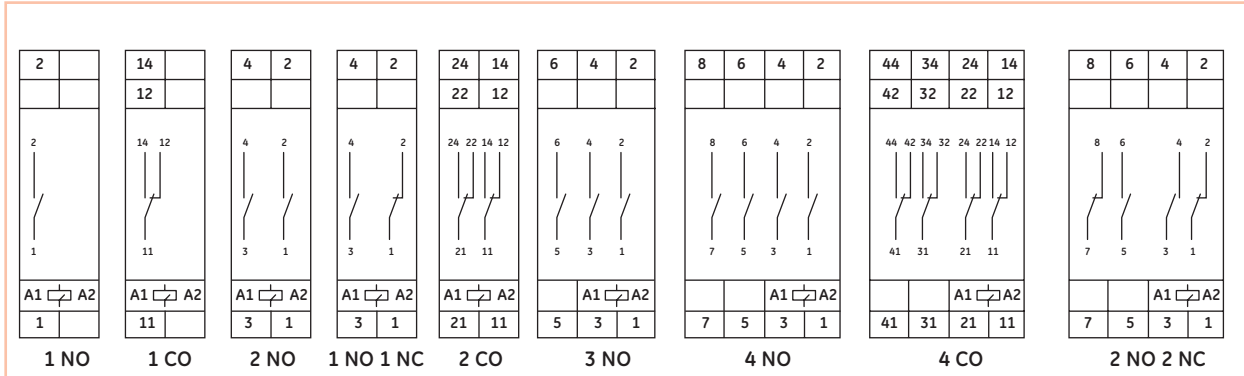
Permanent use



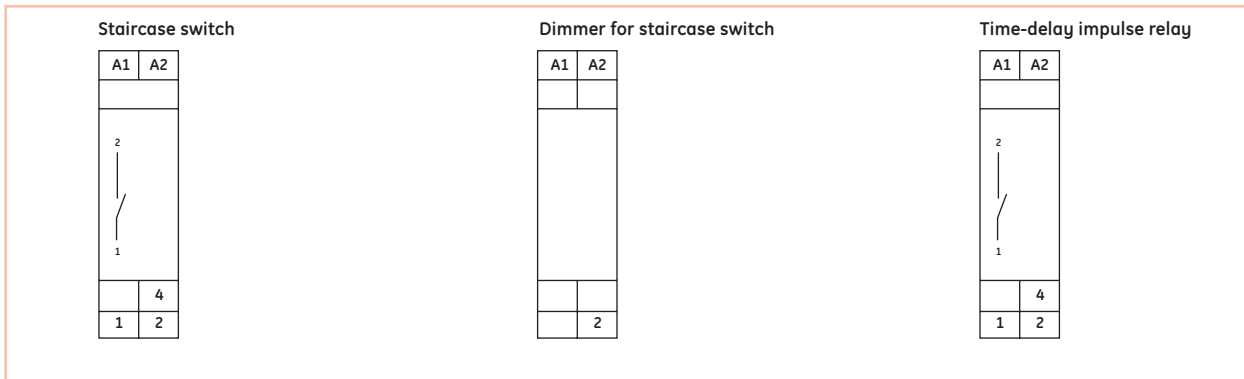
Add-on auxiliary contact



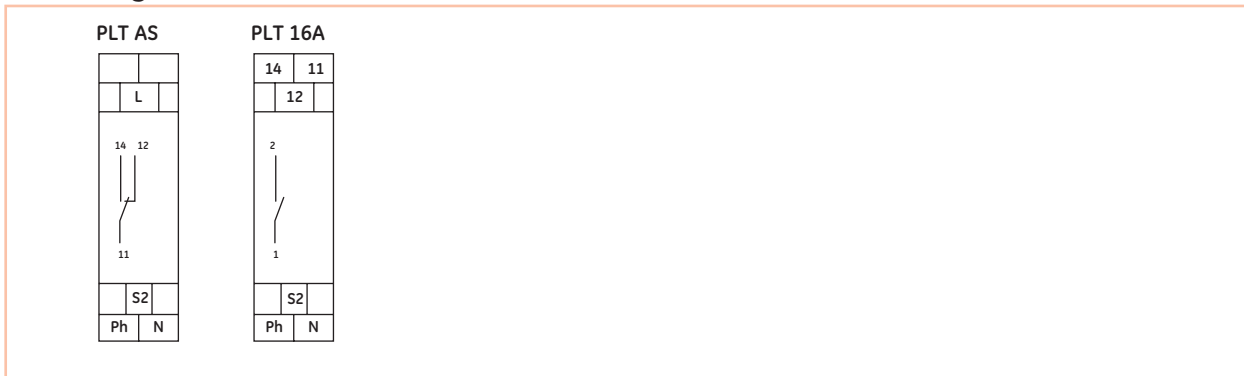
Relays - Contax R



Staircase switches - Pulsar TS



Time relays - Pulsar T



Pulsar

A

B

C

D

E

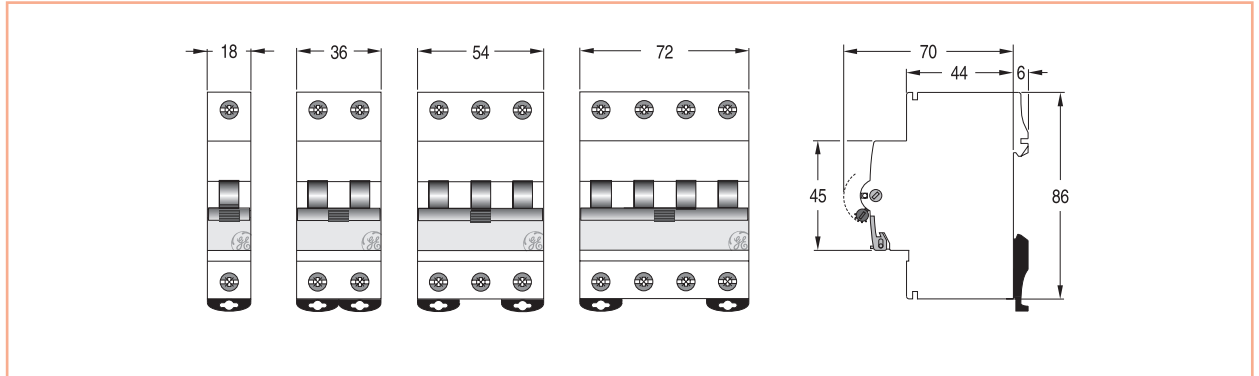
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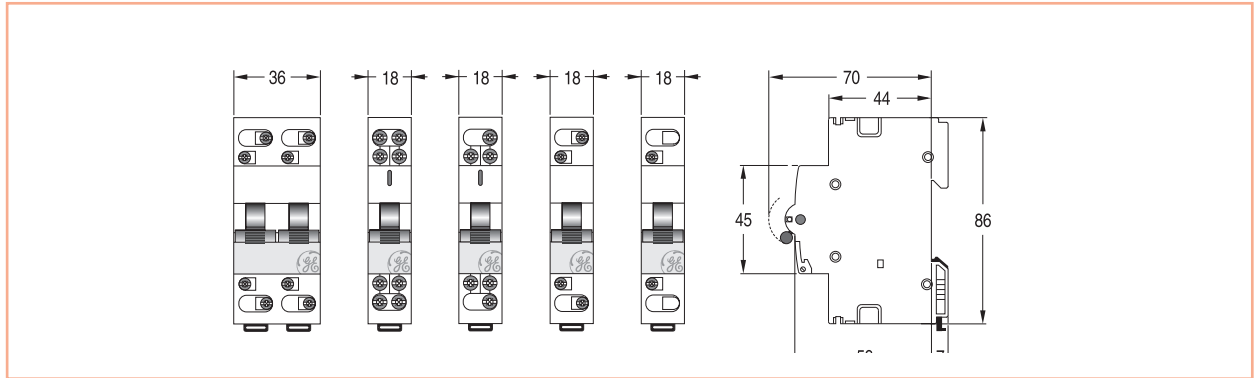
X

Dimensional drawings

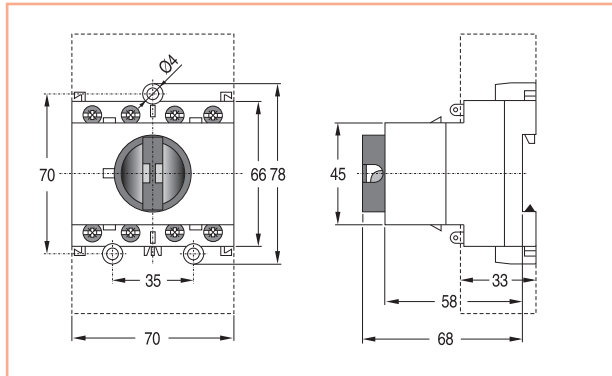
Mains disconnect switches - Aster



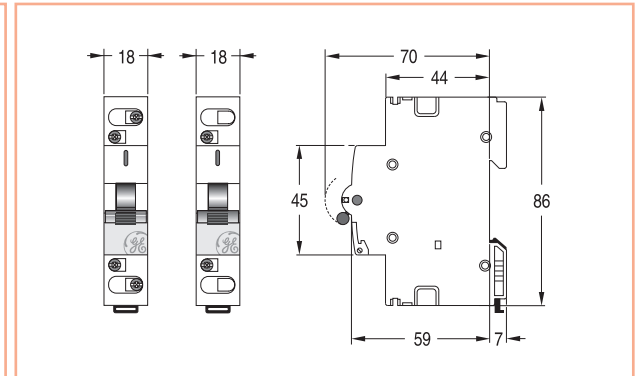
Switches - Aster



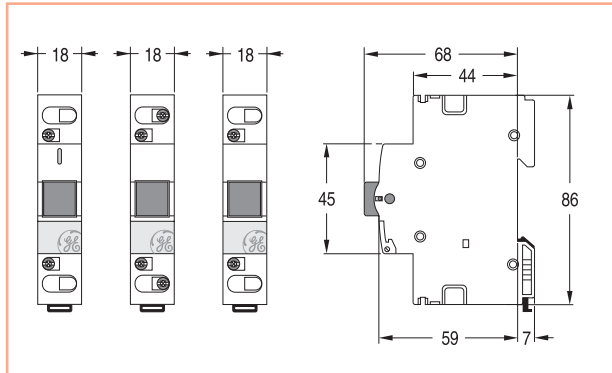
Rotary switches - Aster



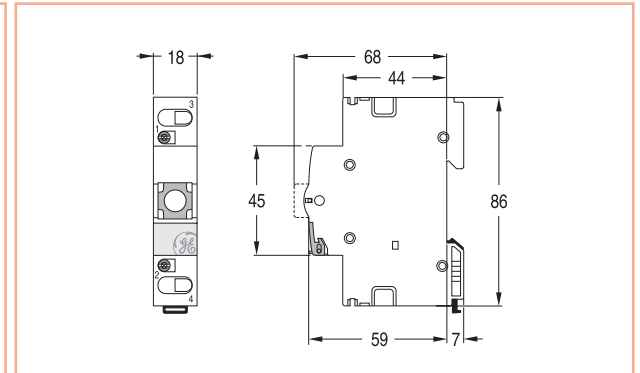
Switches with signal lamp - Aster



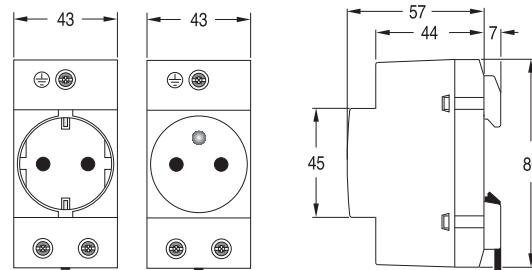
Push-buttons - Aster



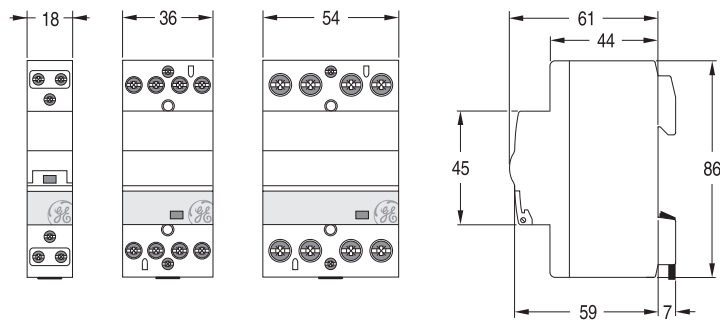
Indication lamp - Aster



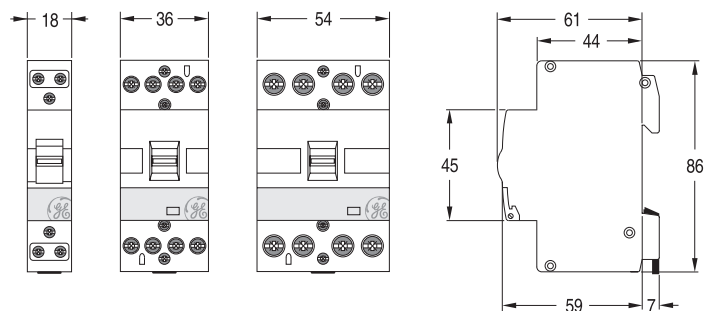
Socket-outlet - Series MSC



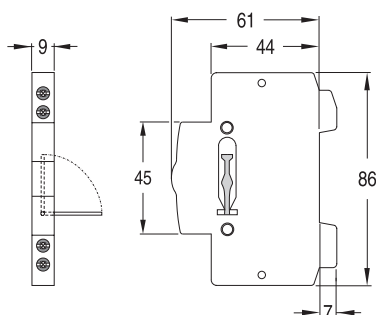
Contactors - Contax



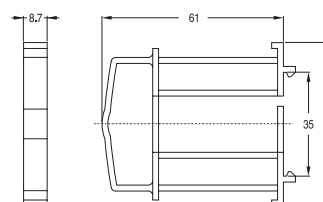
Contactors Day and Night - Contax



Contactors - Auxiliary contact

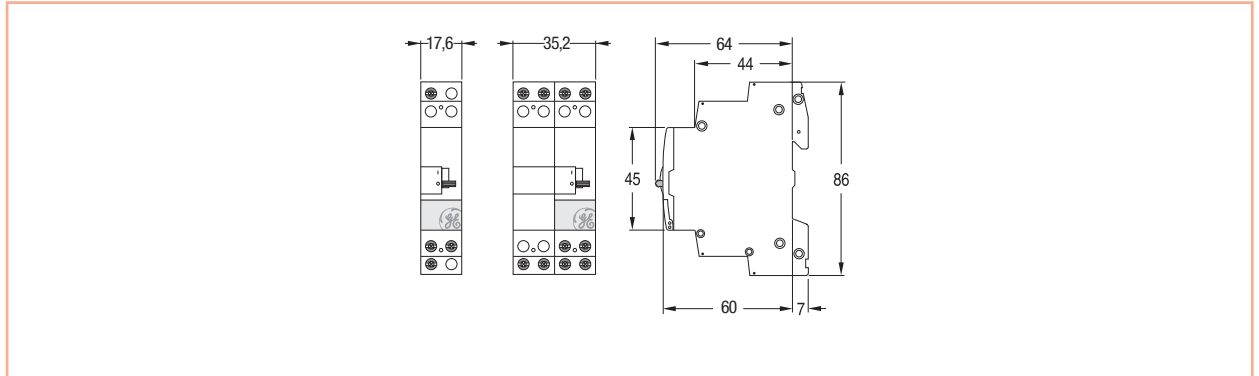


Contactors - Spacer

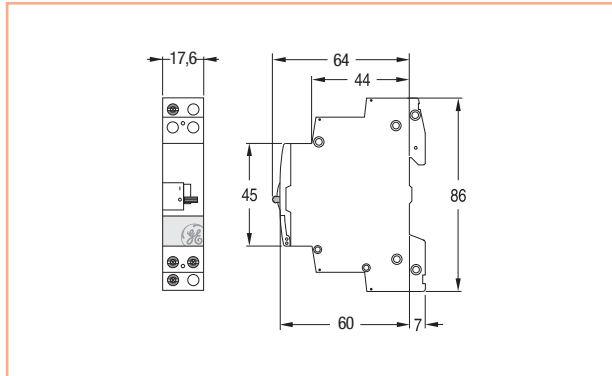


Dimensional drawings

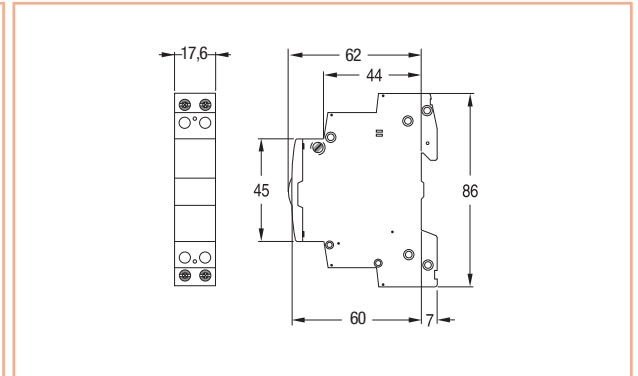
Relays - Contax R



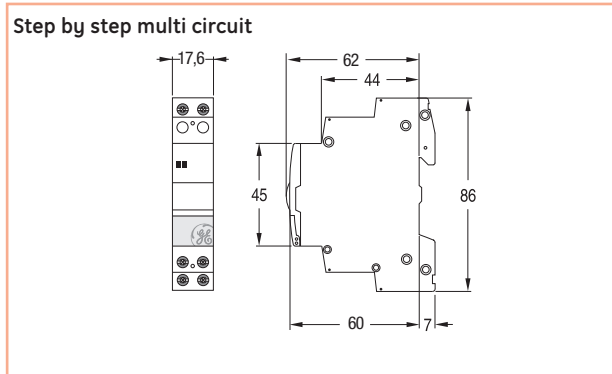
Impulse switches - Pulsar S



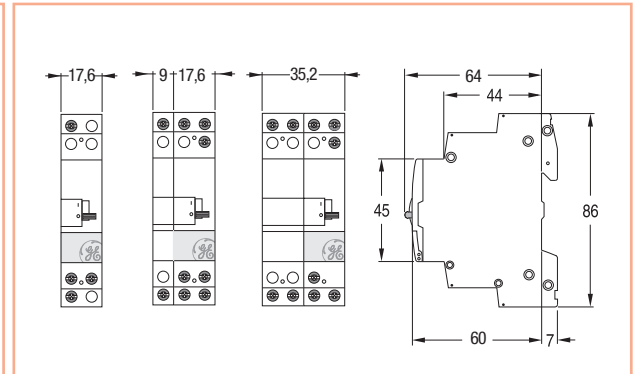
Impulse switches - Pulsar S



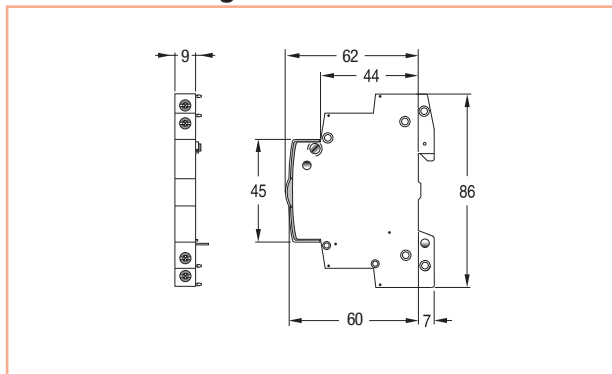
Impulse switches - Pulsar S



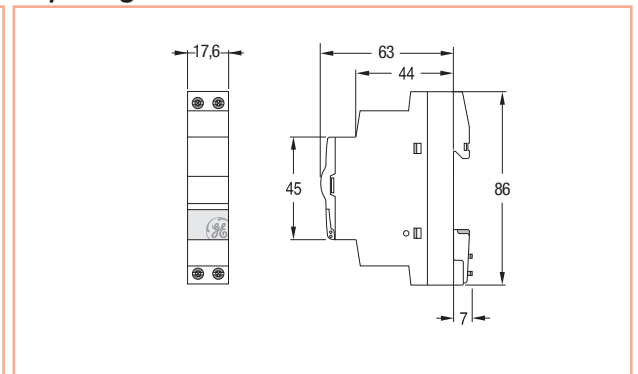
All-in central command - Pulsar S



Add-on auxiliary contact - Pulsar S

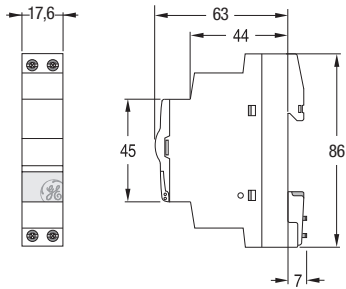


Capacity module - Pulsar S

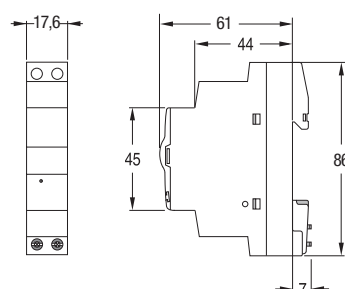


Central command - Pulsar S

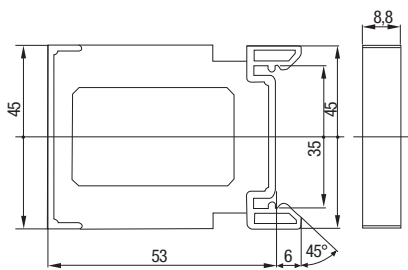
Multilevel central control module



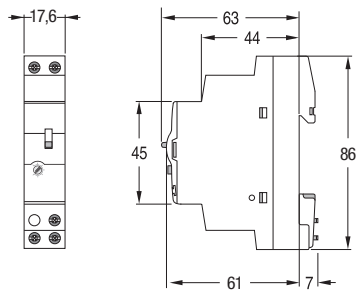
SurgeGuard safety module



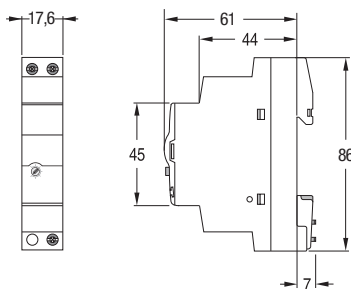
Spacer - Pulsar S



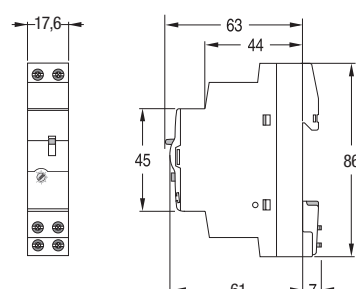
Staircase switches - Pulsar TS



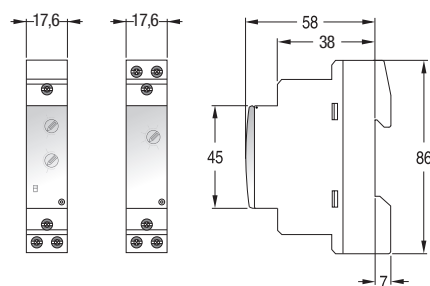
Dimmer - Pulsar TS



Time-delay impulse relay - Pulsar TS

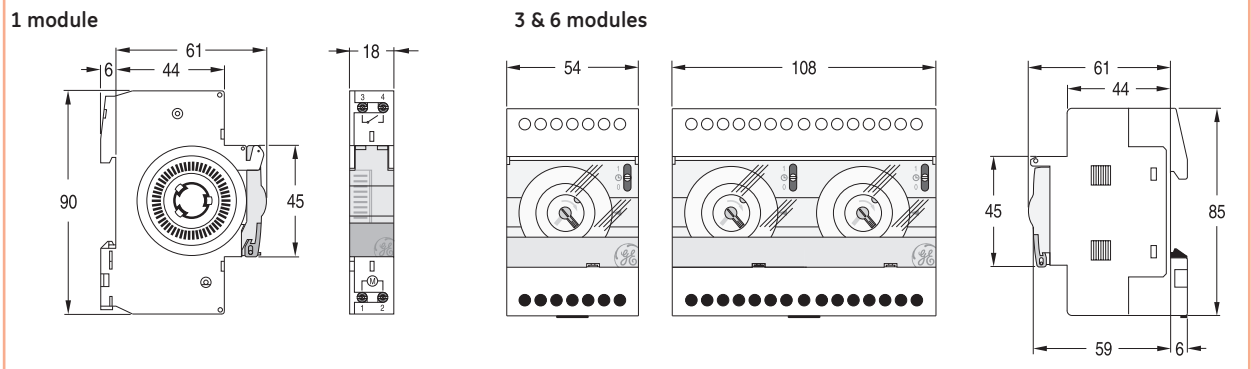


Time relays - Pulsar T

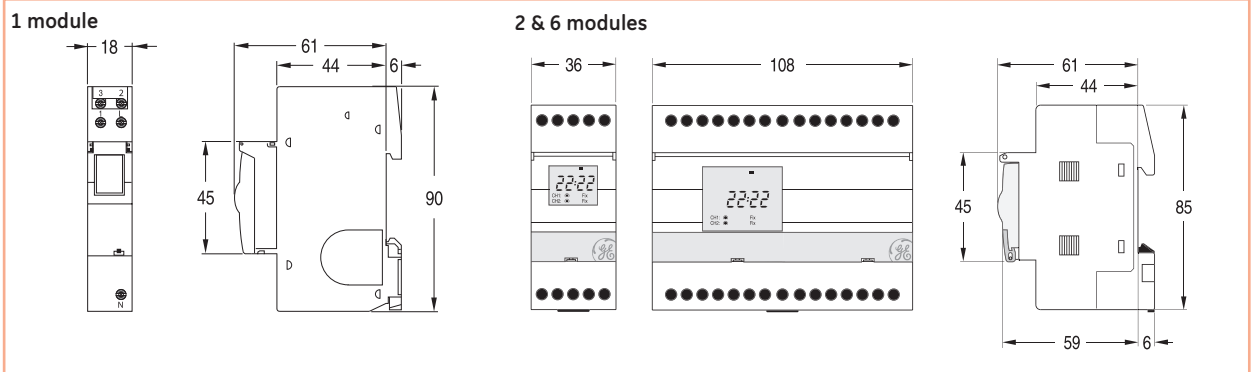


Dimensional drawings

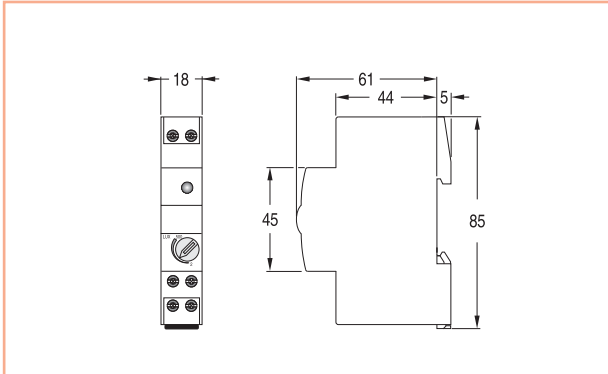
Analogue time switches - Classic



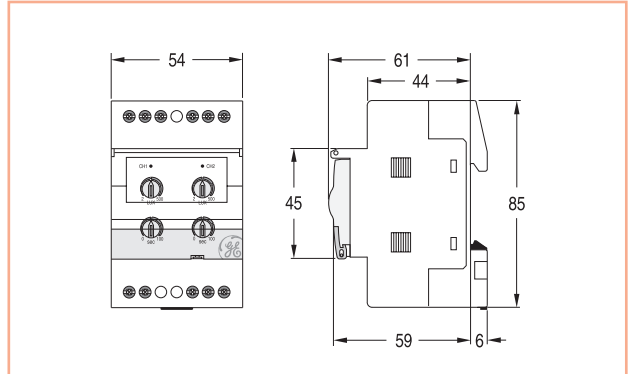
Digital time switches - Galax



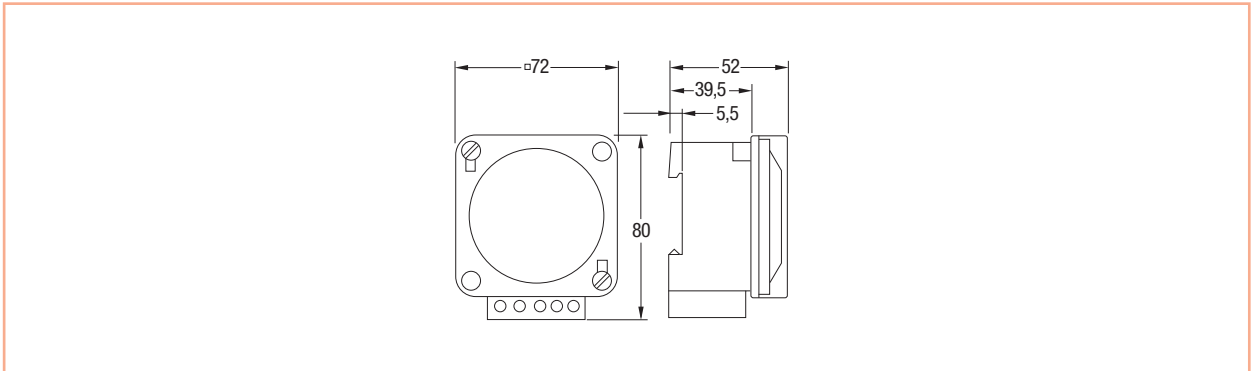
Light sensitive switch 1 module - Galax LSS



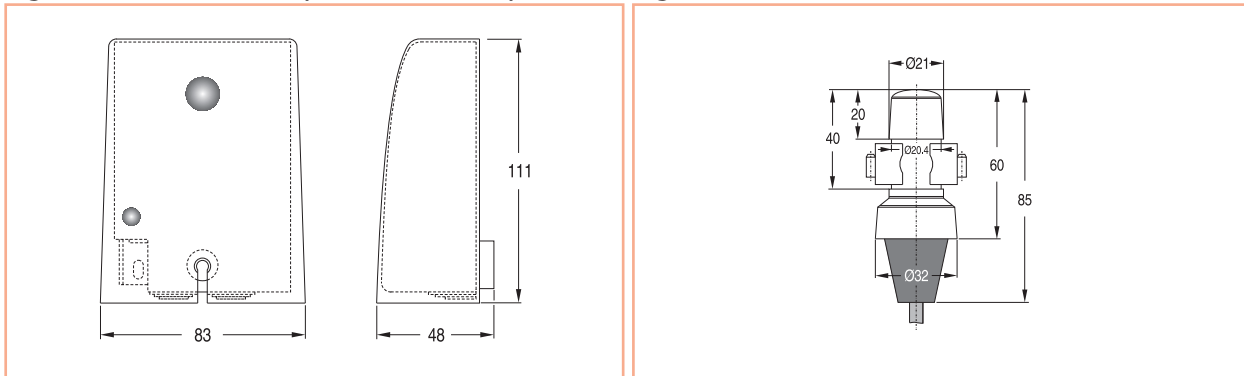
Light sensitive switches 3 mod. - Galax LSS



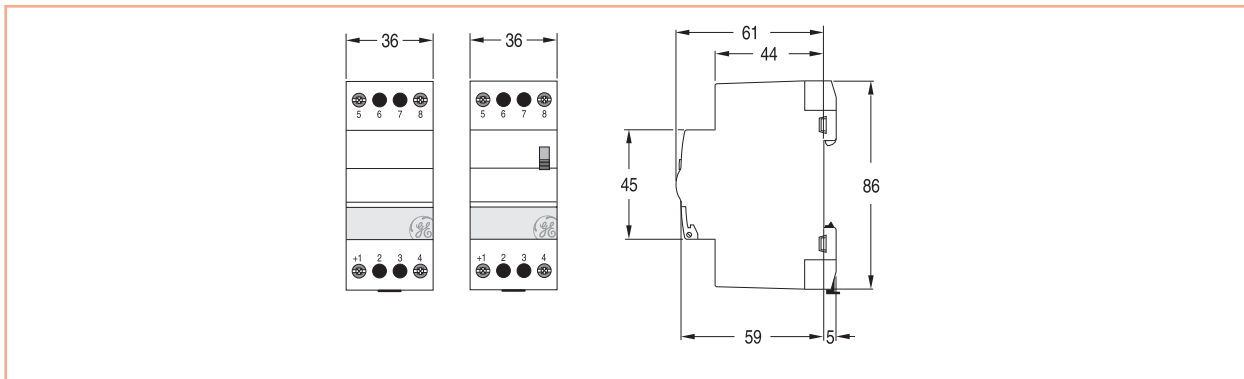
Time Switches - 72x72 Classic and Galax



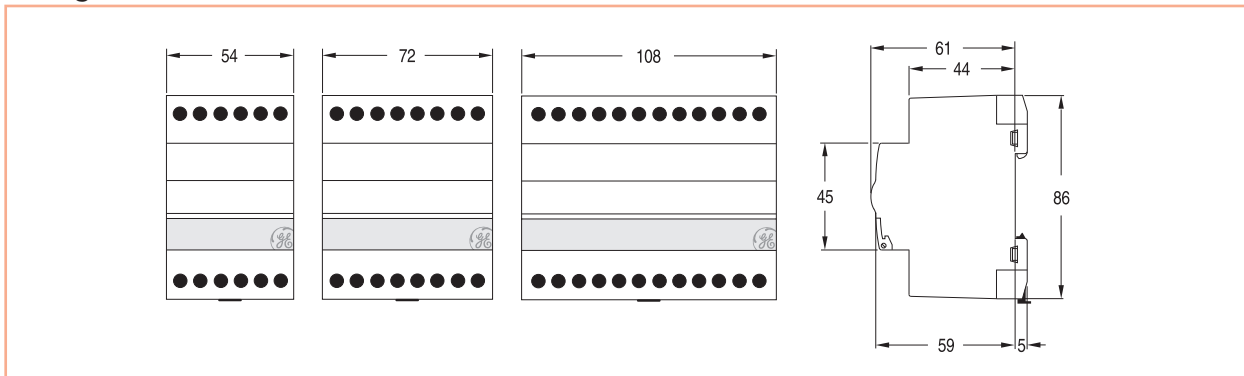
Light sensitive switch photocell incorporated Light sensitive switches - Photocell



Bell transformers - Series T

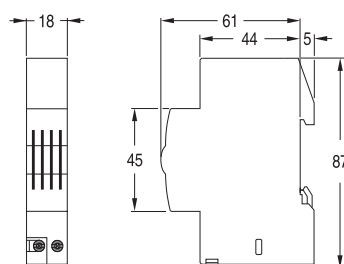


Safety transformers - Series T



Buzzers and bells - Series T

1 module



Dimensional drawings

A

B

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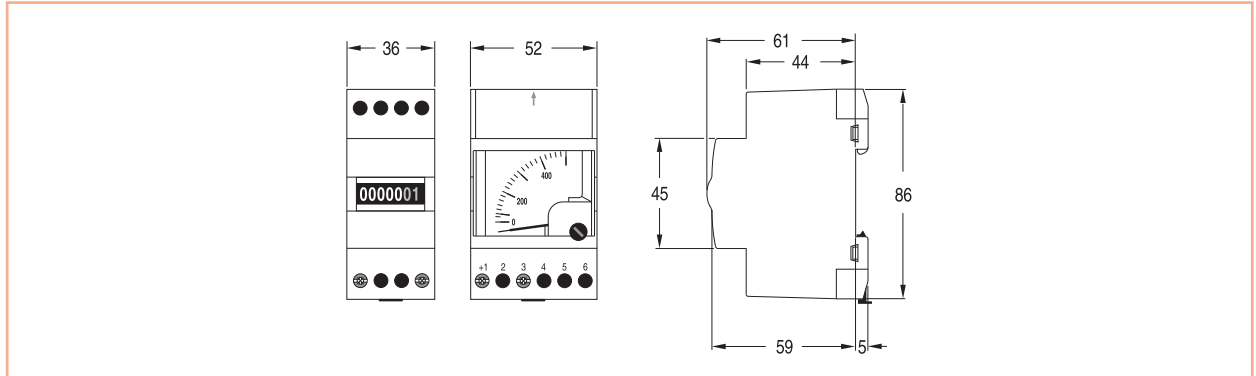
F

G

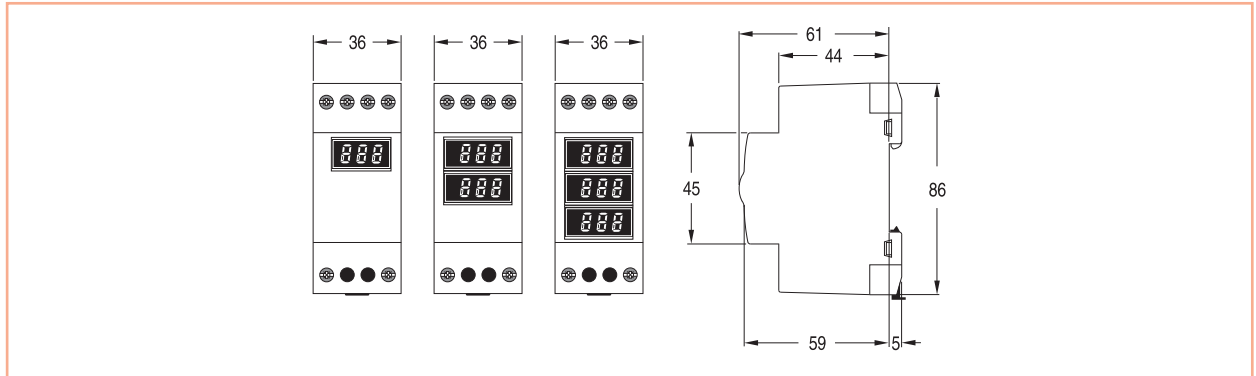
X

Dimensional drawings

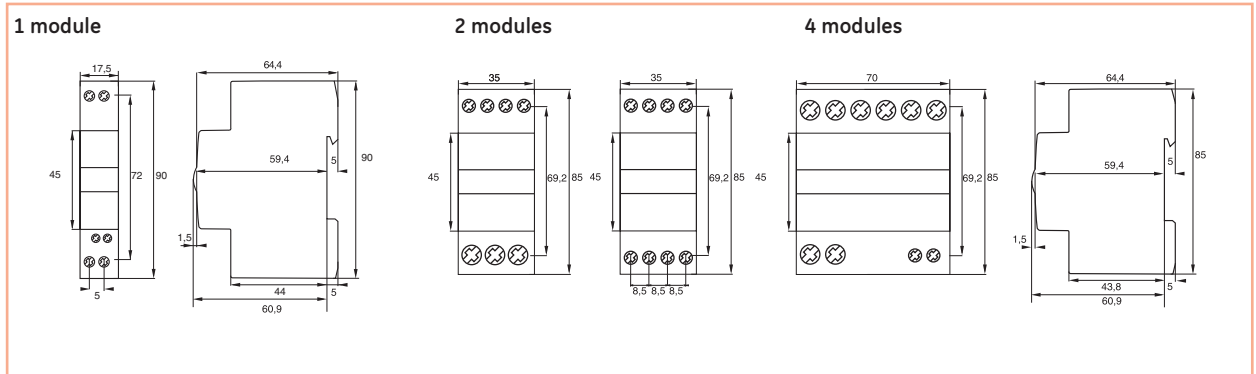
Analogue measurement instruments - Series MT



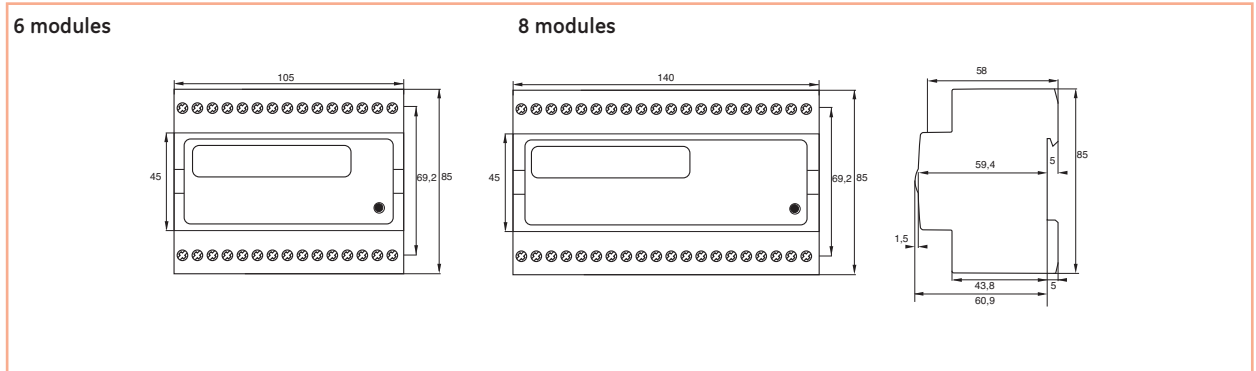
Digital measurement instruments - Series MT



Energy meter - Series MT

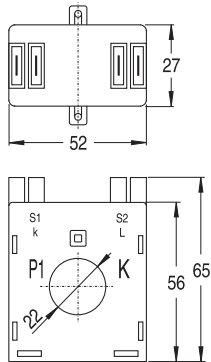


Network analyser - Series MT

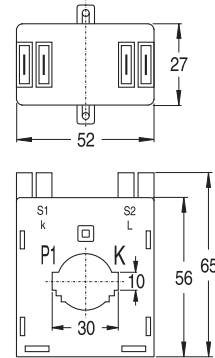


Current transformer - Series MT

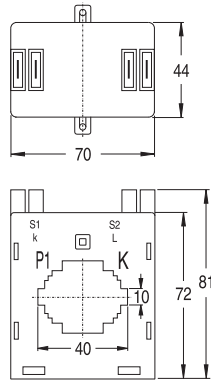
40 up to 80A



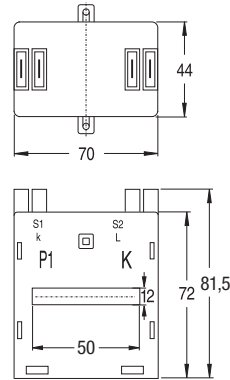
100 up to 400A



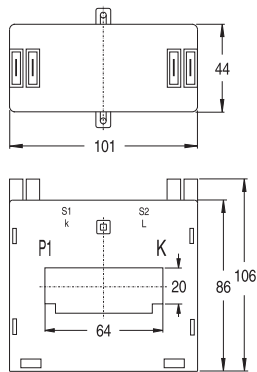
500 and 600A



800A



1000 and 2000A



Dimensional drawings

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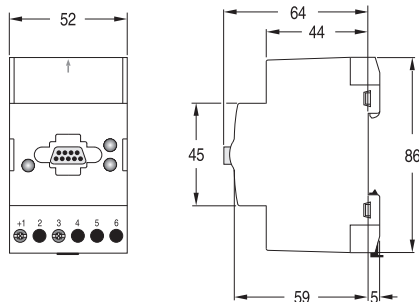
E

F

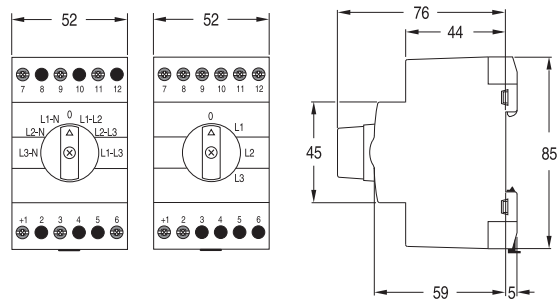
G

X

Signal converter - Series MT



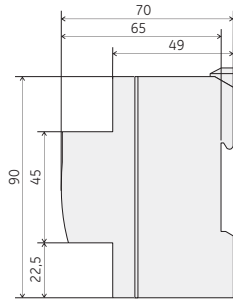
Selector switch - Series MT



Dimensional drawings

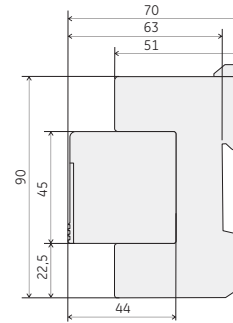
Surge arresters - SurgeGuard

SA BLOCK, SA PHOT x 2 MODULES, SA BLOCK ADSL, SA C



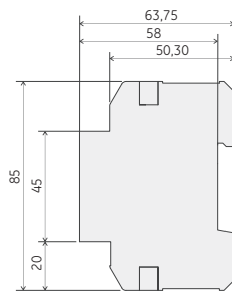
Surge arresters - SurgeGuard

Plug-in types



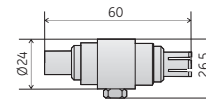
Surge arresters - SurgeGuard

SA BLOCK II 15 LN



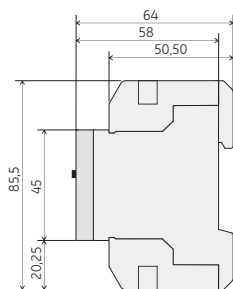
Surge arresters - SurgeGuard

For coax cables



Surge arresters - SurgeGuard

TELE OV - Overvoltage protection



- E.2 VBS-Busbar system
- E.3 Insulated pin type busbars
- E.4 Insulated fork type busbars
- E.5 Accessories
-  **Unibis™** - Busbar system
- E.6 Rails for compact MCB's - Unibis™
- E.7 Busbar system - Unibis™
- E.8 Insulated busbars
- E.10 Dimensional drawings

Circuit Protection

People Protection

Add-on Devices

Comfort Functions

Busbars

Enclosures

Record Plus

Numerical Index

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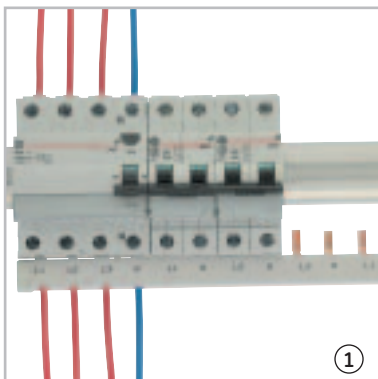
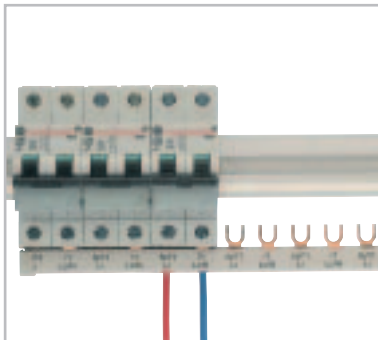
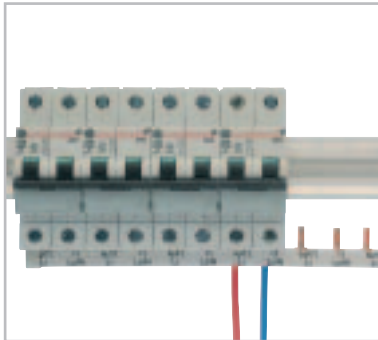
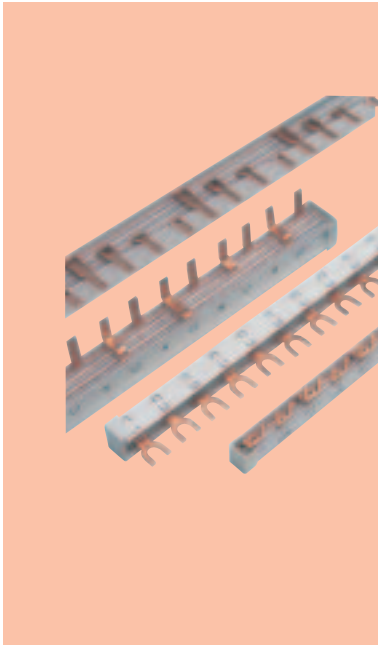
F

G

X

VBS-Busbar system

Rails



Technical data

Rail	copper (oxygen free)
Insulation strip	plastic (°C) heat resistant (> 96) self extinguishing V - O
Dielectric strength	(kV/mm) to DIN 53481/1.2 (36)
Short-circuit resistance	(kA) 25 (100A fuse)
Climate proofing	to IEC 68-2
Creepage resistance/tracking index	to IEC 112
Insulation group to BS EN 60439-1	(V) group C, 400

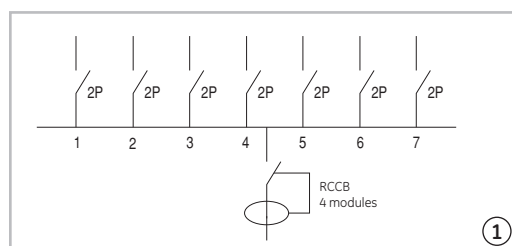
Load values in A (Ith)

Polarity		1 pole			
Connection		side		middle	
Section (mm ²)		Ith (A)	K (mm ²)	Ith (A)	K (mm ²)
10 isolated		80	10	100	25
12 non isolated		90	16	110	35
16 non isolated		110	25	130	35
24 non isolated		160	25	180	2x25
36 non isolated		200	35	220	2x35

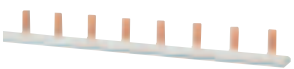
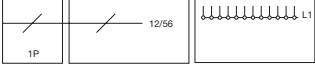
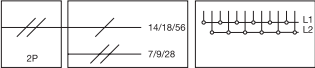
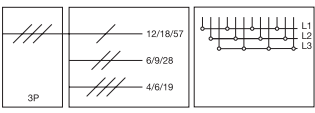
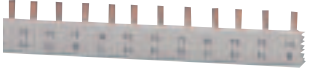
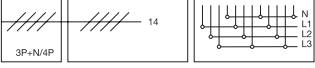
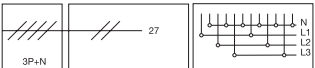
Polarity		n poles			
Connection		side		middle	
Section (mm ²)		Ith (A)	K (mm ²)	Ith (A)	K (mm ²)
10 isolated		80	16	100	25
16 isolated		120	25	130	35

K = section of the connection wire

n = 2P, 1P + N, 3P, 3P + N, 4P



Insulated pin type busbar, with circuit indicator

			Ref. No.	Pack.
Supply: 1P Distribution: 1P MCB's				
 	10 mm ²	12 x 1P	644819	25
	10 mm ²	56 x 1P	644820	10
	16 mm ²	56 x 1P	544193	10
Supply: 2P or 1P + N Distribution: 1P or 2P MCB's RCCB's 2P				
 	10 mm ²	14 x 1P or 7 x 2P	644831	25
	10 mm ²	18 x 1P or 9 x 2P	644832	25
	10 mm ²	56 x 1P or 28 x 2P	644833	20
	16 mm ²	56 x 1P or 28 x 2P	546139	20
Supply: 3P Distribution: 1P - 2P - 3P MCB's				
 	10 mm ²	12 x 1P or 6 x 2P or 4 x 3P	644842	25
	10 mm ²	18 x 1P or 9 x 2P or 6 x 3P	644843	25
	10 mm ²	57 x 1P or 28 x 2P or 19 x 3P	546142	20
	16 mm ²	57 x 1P or 28 x 2P or 19 x 3P	546143	20
Supply: 3P + N Distribution: 3P + N / 4P MCB's RCCB's 4P				
 	10 mm ²	14 x 3P + N or 4P	644851	15
	16 mm ²	14 x 3P + N or 4P	546130	15
Supply: 3P + N Distribution: 2P MCB's RCCB's 2P				
 	10 mm ²	27 x 2P	644855	15
	16 mm ²	27 x 2P	644857	15
	10 mm ²	Connection between MCB or RCCB 4 modules and 7 x 2P MCB's (see drawing ① and photo ① on page E.2)	644859	25

More technical data ● website
 Dimensions ● pg E.10



VBS-Busbar system

A

B

C

D

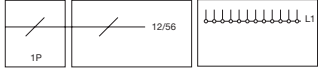
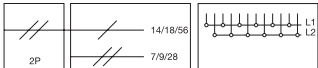
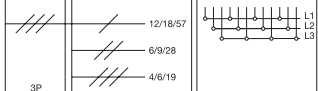
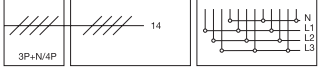
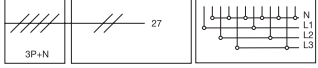
E

F

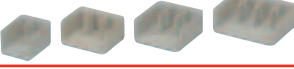
G

X

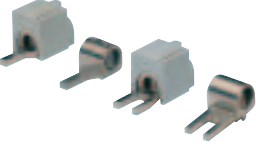
Insulated fork type busbar, with circuit indicator

			Ref. No.	Pack.
Supply: 1P Distribution: 1P MCB's  	10 mm ²	12 x 1P	644821	25
	10 mm ²	56 x 1P	546187	10
	16 mm ²	56 x 1P	544188	10
Supply: 2P or 1P + N Distribution: 1P or 2P MCB's RCCB's 2P  	10 mm ²	14 x 1P or 7 x 2P	644834	25
	10 mm ²	18 x 1P or 9 x 2P	644835	25
	10 mm ²	56 x 1P or 28 x 2P	544191	20
	16 mm ²	56 x 1P or 28 x 2P	546227	20
Supply: 3P Distribution: 1P - 2P - 3P MCB's  	10 mm ²	12 x 1P or 6 x 2P or 4 x 3P	644845	25
	10 mm ²	18 x 1P or 9 x 2P or 6 x 3P	644846	25
	10 mm ²	57 x 1P or 28 x 2P or 19 x 3P	546229	20
	16 mm ²	57 x 1P or 28 x 2P or 19 x 3P	546230	20
Supply: 3P + N Distribution: 3P + N / 4P MCB's RCCB's 4P  	10 mm ²	14 x 3P + N or 4P	644852	15
	16 mm ²	14 x 3P + N or 4P	546234	15
Supply: 3P + N Distribution: 2P MCB's RCCB's 2P  	10 mm ²	27 x 2P	644856	15
	16 mm ²	27 x 2P	544192	15

Busbars

			Ref. No.	Pack.
	End cap	10mm ² /16mm ² for 1P busbars	644891	10
		10 mm ² for 2P busbars	644812	10
		10 mm ² for 3P busbars	644813	10
		16 mm ² for 2P and 3P busbars	644814	10
		10 and 16 mm ² for 4P busbars	629867	10
	Insulating strip	Insulating strip for forks or pins, length 1 m	644815	10

Non insulated busbars

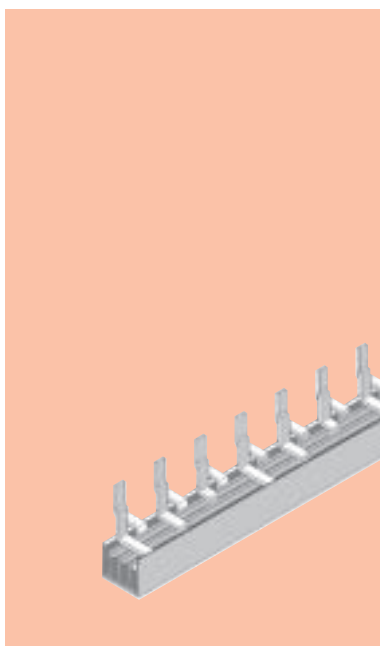
	Pin type	10 mm ² For 56 x 1P MCB's	644823	
	Fork type	10 mm ² For 56 x 1P MCB's, folded 90°	644824	
	Connector clamps	25 mm ² Axial, 25 mm ² pin type, insulated	644864	
		25 mm ² Axial, 25 mm ² fork type, insulated	644863	

Insulated busbars

	Pin	10 mm ² 36 x 1,5P	546152	50
		- S3.1+HI.39.130	546128	20
		- S2+HI.22.130	546126	20
	Fork	- G.1+HI.37.130/90°	544189	50
		- GM.3.36.130-Do	546127	20
		- GM.2.46.130+HI9	546125	20
		- GM.3.48.130+HI9	546129	20
		- GM.4.48.130/HI	646083	15

Accessories

	Pin/fork insulation clamps Yellow (RAL 1004) EV-BS		546291	10x5
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VBS Busbar system

Rails for compact MCB's

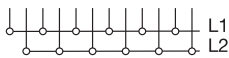
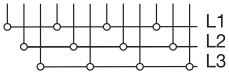
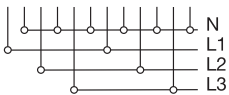
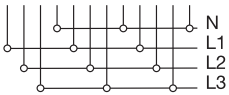
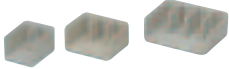
Particularity

The particular angled shaped pin busbar allows connection of a wire up to 10mm² (Ith max: 63A), without any additional adapter.

Technical data

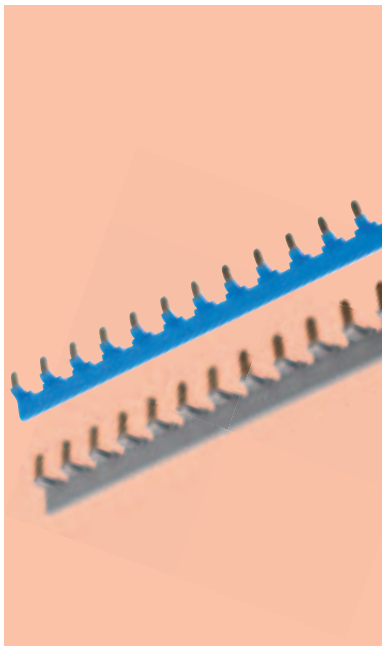
Rail	Copper (oxygen free)
Insulation strip	Plastic
	Self extinguishing V-0
	Heat resistant >96 °C
Dielectric strength	36kV/mm acc. to DIN 53481/1,2
Creepage resistance / tracking index	Acc. to IEC 60439
Insulation group	400V, Group C, acc. to BS/EN 60439-1

Insulated pin type busbar - angled shape

				Ref. No.	Pack.
	Supply: 2P or 1P+N Distribution: 2P MCB's	10 mm ²	18 x 2P	624796	1
		10 mm ²	55 x 2P - Length 1m	624893	1
	Supply: 3P Distribution: 2P MCB's	10 mm ²	12 x 2P	624797	1
		10 mm ²	55 x 2P - Length 1m	624798	1
	Supply: 3P+N Distribution: 2P MCB's	10 mm ²	55 x 2P - Length 1m	624892	1
	Supply: 3P or 3P+N Distribution: 3P or 4P MCB's	10 mm ²	55 x 3P/4P - Length 1m Included: 4 connector clamps and 4 end caps	624800	1
	Connector clamp	24 mm ²	Lateral connection, with pin, non insulated	624795	1
	End caps	10 mm ²	2P	546181	1
		10 mm ²	3P	546184	1
		10 mm ²	4P	629867	1

More technical data ● website

Dimensions ● pg E.11

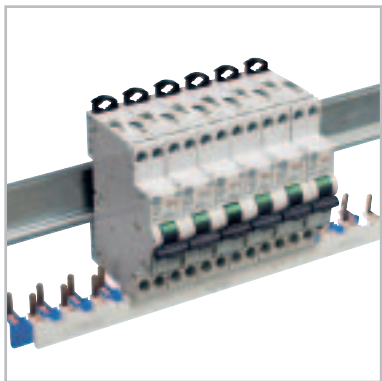


Busbar system

Rails for compact MCB's

Particularity

The double angled shape of the busbar is designed to avoid an additional terminal to realise a derivation with wiring till 10mm² and lth = max. 63A.



Technical data

Rail	Copper (oxygen free)
Insulation strip	Plastic
	Self extinguishing V-0
	Heat resistant >96 °C
Dielectric strength	36kV/mm
	to DIN 53481/1,2
Creepage resistance / tracking index	to IEC 60439
Insulation group	415V, Group C
	to BS/EN 60439-1

Insulated pin type busbar - double angled shape

		Ref. No.	Pack.
Supply: 1P Distribution: 1P	10 mm ² 13x1 pole phase - grey - double angled	646091	1/20
	10 mm ² 13x1 pole neutral - blue - double angled	646092	1/20

More technical data ● website
 Dimensions ● pg E.11

Busbar system

A

B

C

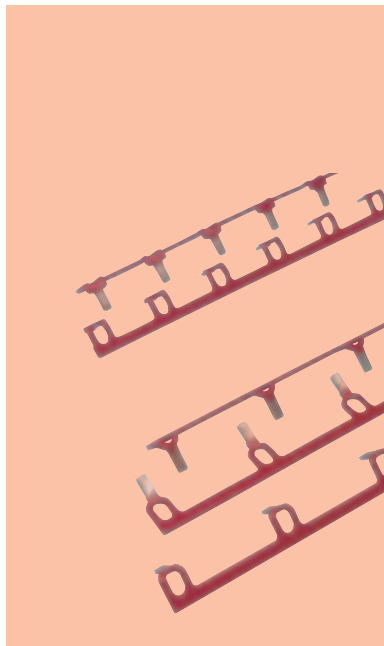
D

E

F

G

X



Busbar system

Insulated busbars

The busbars are made of copper and have a section of 10 mm²

Advantages

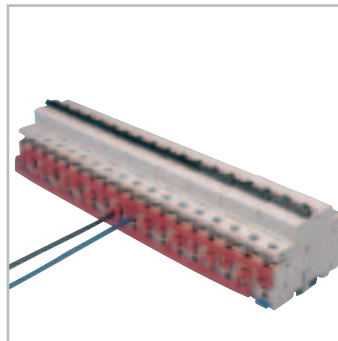
- Easy to install
- Flat design = gain of space in the enclosure
- Easy to use: cutting instead of sawing
- Clear visibility when connecting the power supply cables
- Universal for all power supplies:
 - 2 x 230V
 - 3 x 230V
 - 3 x 400V + N

Marking

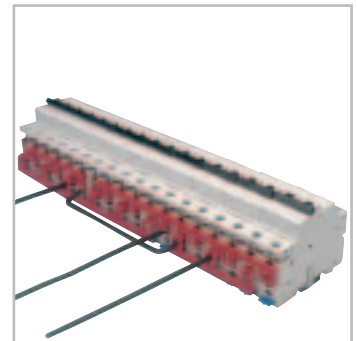
CE

Technical data

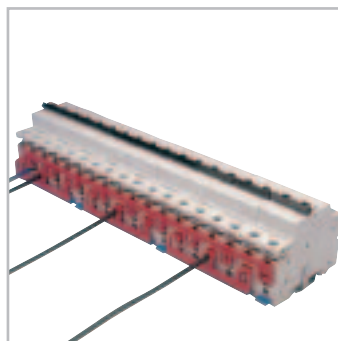
Load I _{th}	63 A
Short-circuit resistance acc. NBN C63-439	10 kA
Insulation	PVC
Dielectric strength	2,5 kV
Creepage resistance	175 V
according to NBN C20-002	
Self extinguishing acc. IEC 695-2-1	960 °C



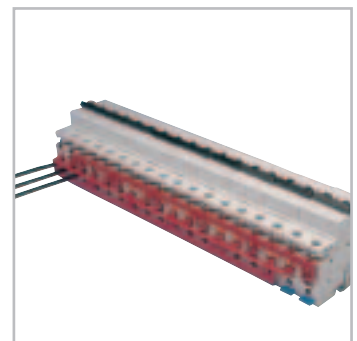
Power supply 2 x 230V



Power supply 3 x 230V

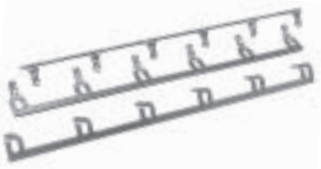


Power supply 3 x 400V + N



- For 2P circuits with a power supply of 3 x 230V, equally spread over the phases L1, L2 and L3
- For 3P circuits

Insulated pin type busbars

 Supply: 1P+N, 2P Distribution: 1P, 1P+N, 2P		Ref. No.	Pack. (set)
		Set of 4 busbars for 2 x 7 2P circuits Set of 4 busbars for 2 x 9 2P circuits	624868 624869 1 1
 Supply: 3P Distribution: 1P, 1P+N, 2P, 3P Diff-o-Jump 2P		Set of 3 busbars for - 4 threepole circuits or - 6 twopole circuits power supply: 3 x 230V	624870 1
		Set of 3 busbars for - 6 threepole circuits or - 9 twopole circuits power supply: 3 x 230V	624871 1
 Pin/fork insulation		yellow (RAL 1004) EV-BS	546291 10x5

(1) On demand: busbars for 12 or 18 pins and suitable for MCB's + auxiliary contacts

Busbar system

A

B

C

D

E

F

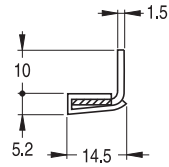
G

X

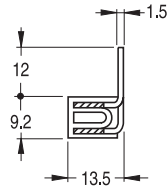
Dimensional drawings

Insulated pin type busbars-VBS

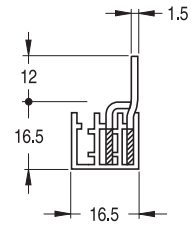
1P



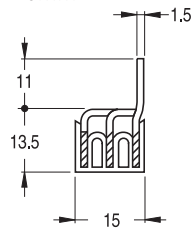
2P - 10mm²



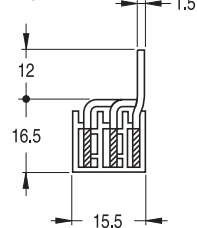
2P - 16mm²



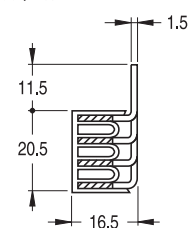
3P - 10mm²



3P - 16mm²

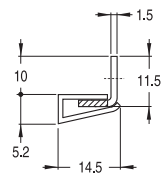


3P+N / 4P

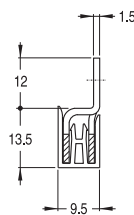


Insulated fork type busbars-VBS

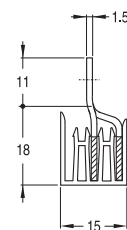
1P



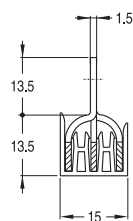
2P - 10mm²



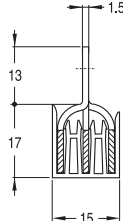
2P - 16mm²



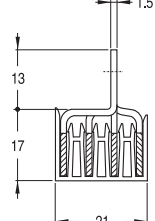
3P - 10mm²



3P - 16mm²

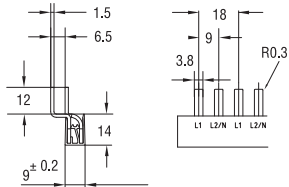


3P+N / 4P

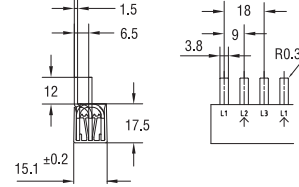


Insulated pin busbars VBS - Unibis™

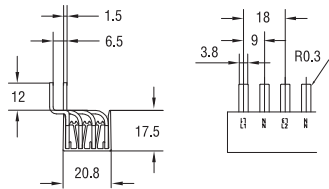
624796 - 624893



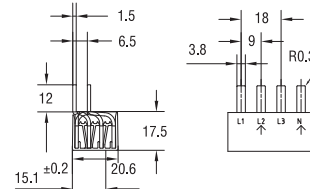
624797 - 624798



624892

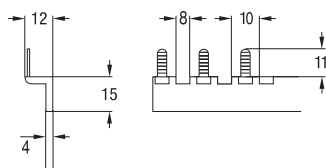


624800



Insulated pin busbars - Unibis™

646091 - 646092
Double angled



Dimensional drawings

A

B

C

D

E

F

G

X

Just feel

Metal enclosures

- F.2 Surface mounting - **Fix-o-Rail Metal Design**
- F.3 Surface mounting - **Fix-o-Rail Metal Standard**
- F.3 Surface mounting - **Fix-o-Rail 150 M**
- F.4 Surface mounting - **Modular 200 - Type A**
- F.6 Surface mounting - **Modular 200 - Type B**
- F.10 Surface mounting - **Fix-o-Rail Senior**
- F.12 Surface & flush mounting - **Fix-o-Rail 144**

Insulated plastic enclosures

- F.16 Surface mounting - **Fix-o-Rail Covers**
- F.18 Surface mounting - **Fix-o-Rail Classic**
- F.22 Surface mounting - **Fix-o-Rail Junior**
- F.24 Surface mounting - **Consumer unit**
- F.30 Surface mounting - **Abaco S**
- F.32 Surface mounting - **Fix-o-Rail 150**
- F.36 Surface mounting - **Fix-o-Rail 55**
- F.38 Surface & flush mounting - **Europe Line**
- F.42 Flush mounting - **Abaco F**
- F.44 Flush mounting - **Fix-o-Rail 150-F4**
- F.46 Junction boxes - **Flex-o-Box**
- F.48 Junction boxes - **Series 55**
- F.52 Dimensional drawings

Circuit Protection

A

People Protection

B

Add-on Devices

C

Comfort Functions

D

Busbars

E

Enclosures

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Record Plus

G

Numerical Index

X

protected

Fix-o-Rail

Distribution boards

A

B

C

D

E

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Surface mounting

Fix-o-Rail Metal Design



Fix-o-Rail Metal Standard - Fix-o-Rail 150 M



Common features

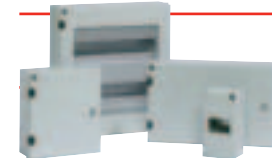
- For surface mounting
- Suitable for DIN-rail mounting devices up to 70 mm as MCB's, RCCB's, relays, switches, timers, contactors, etc.
- Manufactured from panel flat quality mild steel, cold reduced CR4 from 1.0 mm
- Pre-treated prior to powder coating, fully immersed in iron phosphate solution
- Electrostatic powder coating on a continuous line base colour RAL 7035
- Slotted fixing holes on the base permit all adjustment
- Earth and neutral fitted to the base, each terminal being able to accept a 16 mm² stranded round conductor
- With DIN-rails
- Earth and neutral terminals standard
- Distance between two DIN-rails: 150 mm
- Generous wiring room
- With plain grey or transparent door
- Door opens 180°

Marking

CE

Dimensions ● pg. F.52 and F.54

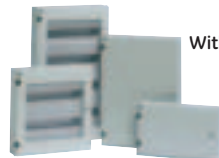
Fix-o-Rail Metal Design

 With transparent door	H x W x D (mm)	Equipment		Number of modules	Ref. No.	Pack.
	208 x 220 x 108	Earth bar: connection 8 x 16 mm ² Neutral bar: connection 8 x 16 mm ²		10	618442	1
	208 x 292 x 108	Earth bar: connection 12 x 16 mm ² Neutral bar: connection 12 x 16 mm ²		14	618443	1
	208 x 370 x 108	Earth bar: connection 16 x 16 mm ² Neutral bar: connection 16 x 16 mm ²		18	618444	1
 Knockouts	Side (mm)	Top and bottom (mm)	Rear (mm)	Number of modules		
	1x32	4x20 and 2x25	2x42	10		
	1x32	6x20 and 2x25	2x42	14		
	1x32	9x20 and 2x25	2x42	18		

Fix-o-Rail Metal Standard

 4 modules without door with plain grey door	H x W x D (mm)	Equipment		Number of modules	Ref. No.	Pack.
	208 x 112 x 85	Earth bar: connection 3 x 16 mm ²		4	618910	1
	208 x 112 x 110	Earth bar: connection 3 x 16 mm ²		4	618911	1
8 modules with plain grey door	208 x 112 x 110	Earth bar: connection 8 x 16 mm ² Neutral bar: connection 8 x 16 mm ²		8	618923	1
12 modules with plain grey door with transparent door	270 x 322 x 110	Earth bar: connection 12 x 16 mm ² Neutral bar: connection 12 x 16 mm ²		12	618929	1
	270 x 322 x 110	Earth bar: connection 12 x 16 mm ² Neutral bar: connection 12 x 16 mm ²		12	618930	1
24 modules with plain grey door with transparent door	450 x 322 x 110	Earth bar: connection 16 x 16 mm ² Neutral bar: connection 2(12 x 16 mm ²)		24	618969	1
	450 x 322 x 110	Earth bar: connection 16 x 16 mm ² Neutral bar: connection 2(12 x 16 mm ²)		24	618970	1
Knockouts		Top and bottom (mm)	Rear (mm)	Number of modules		
		1x25	2x25	4		
		2x25 and 4x20	2x42	8		
		2x25 and 6x20	4x42	12		
		2x20 and 2x25	6x42	24		

Fix-o-Rail 150 M

 With plain grey door	H x W x D (mm)	Equipment		Number of modules	Ref. No.	Pack.
	270 x 430 x 110	Earth bar: connection 16 x 16 mm ² Neutral bar: connection 16 x 16 mm ²		18	618938	1
	450 x 430 x 110	Earth bar: connection 2(16 x 16 mm ²) Neutral bar: connection 2(16 x 16 mm ²)		36	618941	1
	600 x 430 x 110	Earth bar: connection 3(16 x 16 mm ²) Neutral bar: connection 3(16 x 16 mm ²)		54	618944	1
	750 x 430 x 110	Earth bar: connection 4(16 x 16 mm ²) Neutral bar: connection 4(16 x 16 mm ²)		72	618947	1
With transparent door	270 x 430 x 110	Earth bar: connection 16 x 16 mm ² Neutral bar: connection 16 x 16 mm ²		18	618939	1
	450 x 430 x 110	Earth bar: connection 2(16 x 16 mm ²) Neutral bar: connection 2(16 x 16 mm ²)		36	618942	1
	600 x 430 x 110	Earth bar: connection 3(16 x 16 mm ²) Neutral bar: connection 3(16 x 16 mm ²)		54	618945	1
	750 x 430 x 110	Earth bar: connection 4(16 x 16 mm ²) Neutral bar: connection 4(16 x 16 mm ²)		72	618948	1
Knockouts		Top and bottom (mm)	Rear (mm)	Number of modules		
		2x25 and 9x20	4x42	18		
		2x25 and 9x20	6x42	36		
		2x25 and 9x20	8x42	54		
		2x25 and 9x20	10x42	72		



Metal enclosures surface mounting MCB Distribution Board - Type A



Total safety



Complete



Time-saving features



High quality



Great design

Applications



Marking



Performance

Incomer ratings	(A) 100 (main switch) 80 (RCD)
RCD sensitivity	(mA) 30
Rated voltage	(V) 240
Busbar rating	(A) 100
Busbar short-circuit capacity	(kA) 16
Terminal capacity	(mm ²) 50 (main switch/RCD) (mm ²) 25 (E+N terminal bars)
Enclosure colour	Light grey (RAL7035)
Ingress protection	IP40

Features

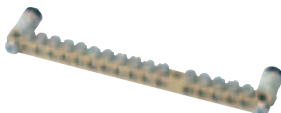
- In accordance with BS5486 and BS EN 60439-3
- Sturdy folded sheet steel construction
- Durable structured powder coated finish
- Matching light grey used throughout range
- Phase busbar rating 120A
- Incoming device cable terminal capacity 50mm²
- Terminal bar cable capacity 25mm²
- Shrouded neutral terminal bar
- Generous wiring room even using 1 module RCBO
- Comprehensive range of incomers
- Pre assembled ready to accept MCBs and RCBOs
- DIN enclosure option so you can "design it yourself"



Modular 200 - Type A - MCB Distribution Board

	No of outgoing ways	H x W x D (mm) (code)	Terminal Capacity	Ref. No.	Pack.
Main Switch – 2P 100A	6	270x368x127 (A)	50mm ²	617971	1
	9	270x412x127 (B)	50mm ²	617972	1
	13	270x484x127 (C)	50mm ²	617973	1
RCD – 2P 80A 30mA	6	270x368x127 (A)	50mm ²	619974	1
	9	270x412x127 (B)	50mm ²	619975	1
	13	270x484x127 (C)	50mm ²	619976	1
Split Load – 2P 100A Main Switch, 2P 80A 30mA RCD	10	270x412x127 (B)	50mm ²	619977	1
	10	270x412x127 (B)	50mm ²	619978	1
	14	270x484x127 (C)	50mm ²	619979	1
DIN Enclosure	10	270x368x127 (A)	-	617957	1
	14	270x412x127 (B)	-	617958	1
	18	270x484x127 (C)	-	617959	1

Accessories

	Clean earth kit	
	617960	1

Modular 200 Type A

A

B

C

D

E

F

G

X



Metal enclosures surface mounting MCB Distribution Board - Type B



Total safety



Complete



Time-saving features



High quality



Great design

Applications



Marking



Performance

Busbar rating	(A)	200
Busbar short circuit capacity	(kA)	16
Rated voltage	(V)	415
Earth+Neutral out terminal capacity	(mm ²)	25
Earth+Neutral incoming cable capacity	(mm ²)	70
No of 3 Pole ways		4, 6, 8, 12, 18, 24
Ingress protection		IP40
Enclosure colour		RAL 7035

Features

- In accordance with BS5486 and BS EN 60439-3
- Durable powder coated finish
- Matching light grey throughout the range
- All incomers benefit from positive contact indication
- Modular extension boxes to install modular control devices
- Pan assembly can be easily removed to ease installation
- One piece (no welds or rivets) phase busbar - NO hot spots!
- Ample space behind pan assembly aids wiring installation
- Split terminal bars to reduce wiring installation time
- Neutral disconnect as standard to aid speedy testing
- Doors can be removed to ease installation
- Sturdy folded sheet steel construction
- Accepts 6kA, 10kA and 15kA MCB's
- Generous wiring room even when using 1 module RCBO
- Clean earth facility available on request
- Reversible doors (left or right mounting)
- Door can be equipped with a security lock
- Documentholder included
- Door on all units with bounding conductors



Components

Type B distribution boards

Extension box can be added to install control devices and is applied with cross-bar support.

Clean earth facility can be site installed using the knockouts provided for computer installations.

Pan assembly is raised with ample space behind to facilitate wiring.

Compatibility with standard 6 kA, 10 kA and 15 kA MCB's. Pan assembly can be easily removed to reduce installation time.

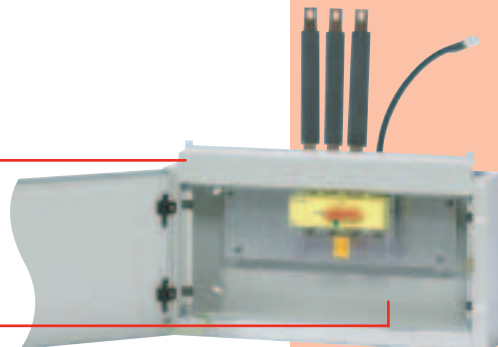
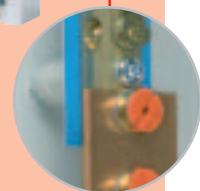
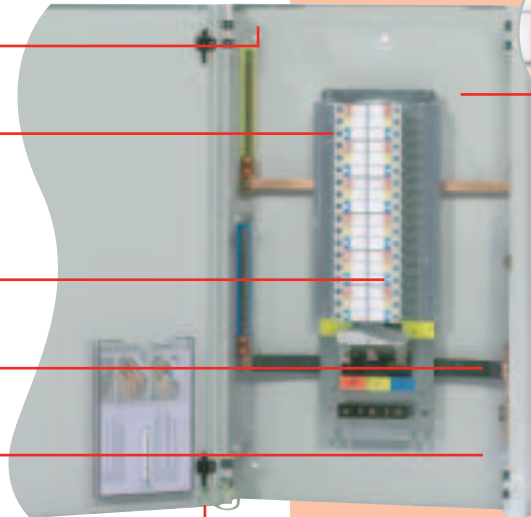
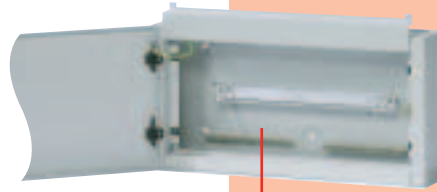
Shrouded neutral bar(s) for increased safety.

Quick neutral disconnect facility as standard aids speedy testing.

Unique hinges allow door(s) to be opened to 180° within board width, permitting boards to be fitted directly adjacent.

Cross bar supports are supplied with add-on incomers. Full fitting instructions and top plate are supplied with the main board.

Comprehensive range of incomers up to 200A - all with positive contact indication.



Modular 200 Type B

A

B

C

D

E

F

G

X

Fix-o-Rail

Modular 200 - Type B - Distribution boards (pan assembly included)



No of 3P ways	Busbar rating	Terminals included 25mm ²		Ref. No.	Pack.	H x W x D (mm) (code)
		Neutral	Earth			
4	200A	18	18	619100	1	534x135x500 (A)
6	200A	18	18	619101	1	588x135x500 (B)
8	200A	27	27	619102	1	642x135x500 (C)
12	200A	36	36	619103	1	750x135x500 (D)
18	200A	54	54	619104	1	912x135x500 (E)
24	200A	72	72	619122	1	1136x135x500 (F)

Accessories



Integral incomer kits	
Suitable for internal fitting in all type B MCB distribution boards	
- Switch disconnectors acc. BS EN 60947-3	
- RCCB acc. BS 4293 and BS EN 61008	
- All incomer kits complete with copper links and shroud as appropriate.	

Switch disconnectors	
100A - 3P	619111 1
Terminal capacity: 50mm ²	
125A - 3P	619114 1
Terminal capacity: 50mm ²	
125A - 4P	619124 1
Terminal capacity: 50mm ²	



RCD Main switch	
100A - 4P - 30mA RCD	619119 1
Terminal capacity: 50mm ²	
100A - 4P - 100mA RCD	619112 1
Terminal capacity: 50mm ²	
100A - 4P - 300mA RCD	619113 1
Terminal capacity: 50mm ²	
100A - 4P - 100mA time delayed RCD	619120 1
Terminal capacity: 50mm ²	



MCB Main switch	
63A - 3P	619605 1
Terminal capacity: 35mm ²	
100A - 3P	619606 1
Terminal capacity: 70mm ²	



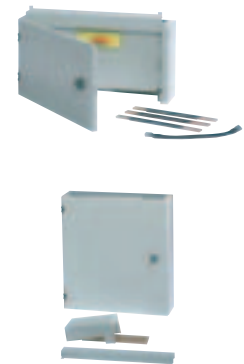
Direct connection kit	
200A - 3P	619115 1
Terminal capacity: 95mm ²	

Single phase conversion kit	
100A - 1P+N	618300 1
Terminal capacity: 50mm ²	



Add-on incomer extension kits	
Suitable for add-on extension of all type B MCB distribution boards	
- Add-on extension module housing incoming device to permit full current carrying capacity (200A) of all type B MCB distribution boards.	
- All incomer modules are supplied complete as enclosure, incoming device, solid copper links and shroud.	
- Terminal capacity:- standard palm: 70 mm ²	
- narrow palm: 150 mm ²	

Switch disconnector Dilos	
200A - 4P - 250x135x500 mm (G)	619110 1
MCCB non auto Record Plus	
200A - 3P - 500x135x500 mm (H)	619107 1
TP automatic MCCB Record Plus	
200A - 3P - 500x135x500 mm (H)	619109 1
TP MCCB with RCD Record Plus	
200A - 3P - 500x135x500 mm (H)	619108 1



Add-on extension modules	
- All equipment extension modules supplied with coupling cross-bar support.	
- Modular devices extension modules suitable for all modular DIN-rail.	
- Modular devices extension module complete with earth and neutral bars (enables module to be used as single phase board).	
- Spreader box extension module designed for extra space where larger incoming cables are used.	

18 module modular devices	
Dimension code G	619105 1
Modular spreader box	
Dimension code G	619106 1
Heavy duty gland plate 2mm thick	
	619116 1



Accessories (continued)



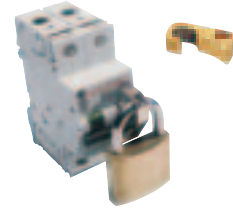
Busbar shroud		
	619018	10

3 module busbar shroud for unused ways preformed in 1 module widths.



Blank plate		
	610142	4

length: 72 mm
cut out width : 45 mm
can be cut into 9 mm lenght
RAL 7035



Safety		
	624929	2

MCB padlocking bracket
(padlocks not supplied)



Clean earth facility	619118	1
----------------------	--------	---

can be fitted for
increased flexibility

Fix-o-Rail

Distribution boards

A

B

C

D

E

F

G

X



Metal enclosures Surface mounting

Fix-o-Rail Senior

□ IP41

Features

- **Secure: total insulation** □
Double wall: a steel outer wall plus an inner insulated extruded wall
- Protection degree: IP41-IP08
- Universal: for DIN-rail equipment up to 92.5 mm
- Installation friendly: ample wiring room and a removable mounting frame
- Flexible cable entries, integrated in the base

Components

The Fix-o-Rail Senior enclosure includes:

- base in RAL 9002
- mounting frame
- labels for circuit indication
- coverplates
- a transparent or grey door in RAL 9002
- closed by handle without lock
- padlocking option



Approvals / Marking



Applications



As an elegant insulated enclosure in:

- restaurants and hotels
- workshops
- hospitals
- shopping centers
- offices
- commercial buildings
- leisure and sport locations

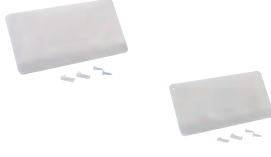
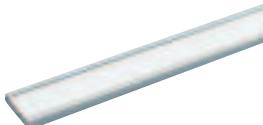
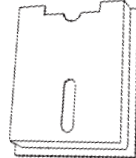
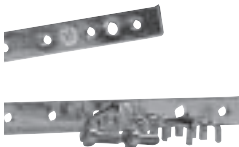
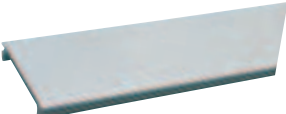
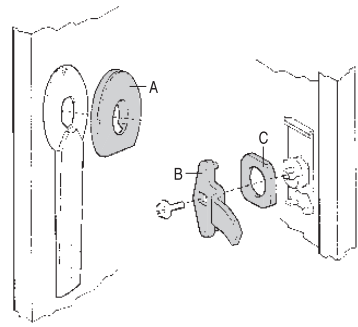


Fix-o-Rail Senior

	H x W x D (mm)	Number of modules	Number of rows	Ref. No.	Pack.
Plain door	650 x 300 x 210	48	4	610239	1
	800 x 300 x 210	60	5	610248	1
	650 x 550 x 210	96	4	610240	1
	800 x 550 x 210	120	5	610249	1
	950 x 550 x 210	144	6	610257	1
New	1100 x 550 x 210	168	7	610241	1
	1250 x 550 x 210	192	8	610242	1
	1100 x 800 x 210	252	7	610243	1
	1250 x 800 x 210	288	8	610244	1
Transparent door	650 x 300 x 210	48	4	610328	1
	800 x 300 x 210	60	5	610330	1
	650 x 550 x 210	96	4	610329	1
	800 x 550 x 210	120	5	610331	1
	950 x 550 x 210	144	6	610332	1

Dimensions ● pg F.57

Accessories

	4 pole terminals <table><tr><td>610022</td><td>18</td></tr></table> 63A Connection range 4 x (10 x 16 mm²) Cu section 6,5 x 9 mm	610022	18	Standard plates <table><tr><td>815094</td><td>1</td></tr></table>	815094	1									
610022	18														
815094	1														
	<table><tr><td>617992</td><td>5</td></tr></table> 160 A with cover 4x (1 x 10 to 50 mm² incoming + 3 x 6 to 35 mm² + 8 x 2.5 to 16 mm² outgoing) Cu section 12 x 10 mm	617992	5	Pre-drilled plates <table><tr><td>815093</td><td>5</td></tr></table> 17 x PG13.5 <table><tr><td>815092</td><td>5</td></tr></table> 1 x PG21 - PG48 / 2 x PG13.5 2 x PG29 / 4 x PG13.5	815093	5	815092	5							
617992	5														
815093	5														
815092	5														
	<table><tr><td>610020</td><td>1</td></tr></table> 160A connection range 4 x (10 x 10mm²) Cu section 12 x 5 mm	610020	1	Label for circuit indication <table><tr><td>610232</td><td>10</td></tr></table> For enclosure width 300 mm <table><tr><td>610233</td><td>10</td></tr></table> For enclosure width 550 mm <table><tr><td>610238</td><td>10</td></tr></table> For enclosure width 800 mm	610232	10	610233	10	610238	10					
610020	1														
610232	10														
610233	10														
610238	10														
	Protective shroud <table><tr><td>610021</td><td>1</td></tr></table> For 160A terminal (ref. 610020)	610021	1	Pocket for drawings <table><tr><td>832000</td><td>1</td></tr></table> Self adhesive To be fitted on the inside of the door W x H = 155 x 225	832000	1									
610021	1														
832000	1														
	Earth bar <table><tr><td>828152</td><td>1</td></tr></table> For enclosure width 300 mm - length 190mm <table><tr><td>828153</td><td>1</td></tr></table> For enclosure width 550 mm - length 437mm <table><tr><td>828149</td><td>1</td></tr></table> For enclosure width 800 mm - length 684mm	828152	1	828153	1	828149	1	Non standard lock <table><tr><td>487/089000-016</td><td>815105</td><td>1</td></tr></table> Adaptor kit + <table><tr><td>451/070152-061</td><td>811327</td><td>1</td></tr></table> Insert 3 mm double bit key	487/089000-016	815105	1	451/070152-061	811327	1	The standard handle can be replaced by adaptor kit + insert or handle
828152	1														
828153	1														
828149	1														
487/089000-016	815105	1													
451/070152-061	811327	1													
	Cover strip <table><tr><td>828056</td><td>1</td></tr></table> For cut out of 45 mm	828056	1	<table><tr><td>451/070152-051</td><td>811326</td><td>1</td></tr></table> Insert 8 mm triangle key <table><tr><td>451/070152-041</td><td>811325</td><td>1</td></tr></table> Insert 8 mm square key	451/070152-051	811326	1	451/070152-041	811325	1	 				
828056	1														
451/070152-051	811326	1													
451/070152-041	811325	1													
Adaptor kit = A + B + C 		<table><tr><td>451/070158-011</td><td>811331</td><td>1</td></tr></table> Cylinder with 2 keys V2432-E <table><tr><td>485/087000-014</td><td>813146</td><td>1</td></tr></table> Neutral handle <table><tr><td>485/087000-023</td><td>813156</td><td>1</td></tr></table> Handle with key V2432-E	451/070158-011	811331	1	485/087000-014	813146	1	485/087000-023	813156	1	  			
451/070158-011	811331	1													
485/087000-014	813146	1													
485/087000-023	813156	1													



Metal enclosures

Fix-o-Rail 144 F (flush mounting)

Fix-o-Rail 144 S (surface mounting)

IP40

Features

- In accordance with EN60439-1 and EN/IEC 439-1
- Protection degree:
 - IP40 – IK07 without door
 - IP40 – IK08 with plain door
 - IP40 – IK07 with transparent door

- Each DIN-rail can be equipped with 24 modules
- Centre distance between two DIN-rails: 150 mm
- Flush mounting depth: 105 mm
- Can be equipped with the Record Plus 160A D-frame
- Colour: RAL 7035

Electrical properties

- Designated voltage: 415Vac
- Designated current: 160A

Masking frame and door

- Ridged masking frame
- Manufactured in quality mild steel of 1 mm thick, cold reduced
- Pre-treated prior to electrostatic powder coating in RAL 7035 (light grey)
- Transparent or plain door

Protection plate

- Made from PVC
- Easy fixations with 1/4 screws

Base

- Ridged base (mono-block)
- Manufactured in sendzimir zinc plated steel of 1 mm thick (F.O.R 144F)
- Sidewalls foreseen with position lugs (F.O.R 144F)
- Pre-treated prior to electrostatic powder coating in RAL 7035, light grey (F.O.R 144S)
- Knock-outs in the upper, lower and the bottom side of the base
- Fixing points for the fixation of cables with cable ties

Mounting frame

- Ridged and removable mounting frame
- Adjustable in depth (+/-20mm) (F.O.R 144F)
- Adjustable left or right (+/-10mm) (F.O.R 144F)
- Distance between two DIN-rails: 150 mm

Door

- Transparent or plain door, security lock included

Earth bar (L = 380 mm)

- Copper bar, 12x5 mm, 18 x M5 threaded holes + connectors and screws

Advantages

- Suitable for DIN-rail mounting devices up to 70 mm as MCB's, RCD's, relays, ...
- Door, transparent or plain easy to install (optional)
- Generous wiring room
- Easy to install
- Earth terminal can be installed on the upper and the lower side of the base
- Removable mounting frame
- Easy removable protection plates
- Electrostatic powder coating RAL 7035
- Flush mounting depth base 105 mm
- Can be equipped with wiring trunks (W x H): 15x40 mm, 25x40 mm, 40x40 mm, 60x40 mm

Components

The enclosure packaging includes:

- Base
- Mounting frame
- Earth terminal
- Protection plate
- Masking frame
- User instructions

The door packaging includes:

- Plain or transparent door
- Security lock
- Hinges
- Earth continuity set
- User instructions



Fix-o-Rail 144-F - Flush mounting enclosures without door ⁽¹⁾

Included ref. 617965 = an earth terminal: copper bar 12 x 5 mm, 18 threaded holes M 5, connectors and screws



H x W x D (mm)	Number of modules	Number of rows	Power dissipation (W)		Ref. No.	Pack.
			Without door	With door		
650 x 740 x 140 ⁽¹⁾ 560 x 610 x 105 ⁽²⁾	72	3	140	83	617934	1



800 x 740 x 140 ⁽¹⁾ 710 x 610 x 105 ⁽²⁾	96	4	152	95	617935	1
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950 x 740 x 140 ⁽¹⁾ 860 x 610 x 105 ⁽²⁾	120	5	164	110	617936	1
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1100 x 740 x 140 ⁽¹⁾ 1010 x 610 x 105 ⁽²⁾	144	6	176	116	617937	1
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Equipped with function for Record Plus 160A D-frame

1100 x 740 x 140 ⁽¹⁾ 1010 x 610 x 105 ⁽²⁾	120	5	176	116	617938	1
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Transparent and plain doors



For enclosure	Number of modules	Number of rows	Transparent door	Plain door	Pack.
			Ref. No.	Ref. No.	
617934	72	3	617939	617943	1
617935	96	4	617940	617944	1
617936	120	5	617941	617945	1
617937	144	6	617942	617946	1
617938	120	5	617942	617946	1

(1) External dimensions

(2) Internal dimensions

Fix-o-Rail 144

A

B

C

D

E

F

G

X

Fix-o-Rail

Distribution boards

A

B

C

D

E

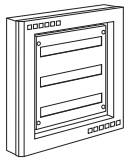
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G

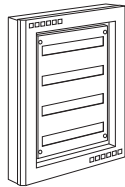
X

Fix-o-Rail 144-S - Surface mounting enclosures without door

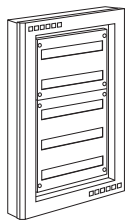
Included ref. 617965 = an earth terminal: copper bar 12 x 5 mm, 18 threaded holes M 5, connectors and screws



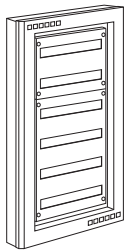
Dimensions H x W x D (mm)	Number of modules	Number of rows	Power dissipation (W)		Ref. No.	Pack.
			Without door	With door		
650 x 740 x 140	72	3	160	88	617966	1



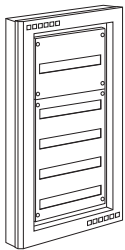
800 x 740 x 140	96	4	175	100	617967	1
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950 x 740 x 140	120	5	187	115	617968	1
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1100 x 740 x 140	144	6	195	125	617969	1
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Equipped with function
for Record Plus
160A D-frame

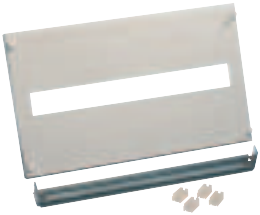
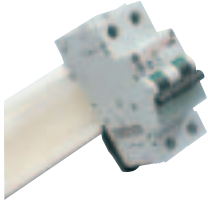
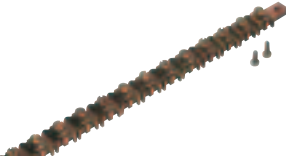
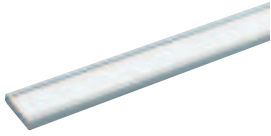
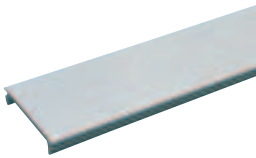
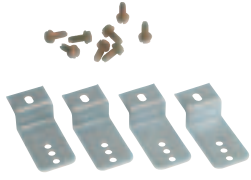
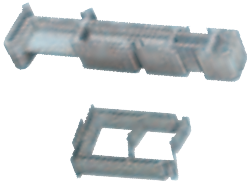
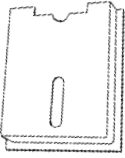
1100 x 740 x 140	120	5	195	125	617970	1
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Transparent and plain doors



For enclosure	Number of modules	Number of rows	Transparent door	Plain door	Pack.
			Ref. No.	Ref. No.	
617966	72	3	617939	617943	1
617967	96	4	617940	617944	1
617968	120	5	617941	617945	1
617969	144	6	617942	617946	1
617970	120	5	617942	617946	1

Accessories for Fix-o-Rail 144

	4 pole terminals 617992 5 160 A with cover 4x (1 x 10 to 50 mm ² incoming + 3 x 6 to 35 mm ² + 8 x 2.5 to 16 mm ² outgoing) Cu section 12 x 10 mm	Function for Record Plus 125A D-frame Fix-o-Rail 144 F/S 617018 1 VP-System 617964 1 height = 300 mm	
	610020 1 160A connection range 4 x (10 x 10mm ²) Cu section 12 x 5 mm	Depth adapter & support 617947 1 PVC profile : lenght 355 mm used with the function 617964	
	Protective shroud 610021 1 For 160A terminal (ref. 610020)	Security lock 617948 1 With two keys	
	Earth terminal kit 617965 1 Cu bar 12x5, 18 threaded holes M5, L=380 mm, with connectors and screws Can be installed in the upper and lower side of the base	Label for circuit indication 610233 10 For enclosure width 550 mm	
	Cover strip 828056 1 For cut out of 45 mm	Support for wiring-trunking 617949 1	
	Blank plate 610142 4 610484 500 Length: 72 mm Cut-out width: 45 mm Can be cut into 9 mm lengths RAL 7035	Wiring supports 828145 1 Cable-tray support (20 pieces) 828146 1 Cable-tray (10 pieces)	
	Painting gun 880669 1 RAL 7035 - For minor touch-ups		
	Pocket for drawings 832000 1 Self adhesive - format A4 To be fitted on the innerside of the door W x H = 155 x 225		

Fix-o-Rail 144

A

B

C

D

E

F

G

X

Fix-o-Rail

Distribution boards

A

B

C

D

E

F

G

X



*Insulated enclosures
Surface mounting*

Fix-o-Rail Covers

IP30

Applications



Marking



Features

- Protection degree: IP30
- Made from high resistance ABS
- Flame resistance: self extinguishing material, resist the 960°C
- Colour: Grey RAL 7035
- Installation temperature: -15°C up to +60°C



Fix-o-Rail Covers - Without door



H x W x D (mm)	No. of modules	No. of rows	Ref. No.	Pack.
139 x 51 x 61	2	1	610090	50
139 x 88 x 61	4	1	610091	60
140 x 165 x 72	6	1	610354	28
198 x 200 x 72	8	1	610355	18

Fix-o-Rail Covers

A

B

C

D

E

F

G

X

Fix-o-Rail

Distribution boards

A

B

C

D

E

F

G

X



Insulated enclosures Surface mounting

Fix-o-Rail Classic

IP30 / IP40

Approvals / Marking



Standards

BS EN 60439-3

Applications



Fix-o-Rail Classic and the accessories are a homogeneous system for power distribution in new homes, adding add-on devices and replacing old units.

Features

- Protection degree: IP30
- IP40 with door (optional)
- Colour: RAL 9010
- 13, 26, 39 and 52 modules
- Total insulation  (with backplate and door)
- Transparent or plain door
- Surface mounting
- Adjustable DIN-rail
- ABS for the covers
- Polycarbonate for the transparent doors
- Flame resistance: self extinguishing material, resist the glowwire 650°C

Components

The Fix-o-Rail Classic A packaging includes:

- A mounting frame
- A protective cover
- A backplate
- A support with earth and neutral terminals
- A modular blank plate
- Four insulating caps
- Labels for circuit identification
- Installation guidelines

The Fix-o-Rail Classic B packaging includes:

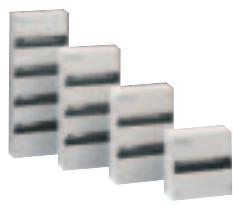
- A mounting frame
- A protective cover
- Labels for circuit identification
- Installation guidelines

Advantages

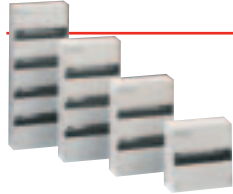
- Two DIN-rail positions: 47 and 55 mm
- Generous wiring room 30 mm behind the mounting frame
- 13 modules on each row
- 125 mm distance between two DIN-rails
- Self positioning protective cover, fixation with four captive quarter-turn screws
- Door can be opened to the left or the right and hinges over 180°
- The Classic range can be coupled

Dimensions ● pg F.55

Fix-o-Rail Classic



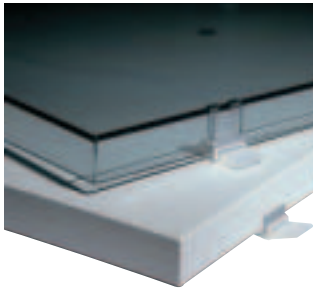
Classic A



Classic B

H x W x D (mm)	Equipment	Number of rows	Number of modules	Ref. No.	Pack.
250 x 250 x 94	Earth bar: connection 8 x 16 mm ² Neutral bar: connection 10 x 16 mm ²	1	13	619200	1
375 x 250 x 94	Earth bar: connection 18 x 16 mm ² Neutral bar: connection 2(8 x 16 mm ²)	2	26	619201	1
500 x 250 x 94	Earth bar: connection 27 x 16 mm ² Neutral bar: connection 2(8 x 16 mm ²)	3	39	619202	1
625 x 250 x 94	Earth bar: connection 27 x 16 mm ² Neutral bar: connection 2(8 x 16 mm ²)	4	52	618116	1
250 x 250 x 94		1	13	619203	1
375 x 250 x 94		2	26	619204	1
500 x 250 x 94		3	39	619205	1
625 x 250 x 94		4	52	618117	1

Accessories



Transparent door + hinges

	618503	1
1 row		
	618509	1
2 rows		
	618515	1
3 rows		
	617961	1
4 rows*		

Plain white door + hinges

	619206	1
1 row		
	619207	1
2 rows		
	619208	1
3 rows		
	617962	1
4 rows*		

Insulated support for earth and neutral terminals

	618530	1
Can be fixed on a mounting frame easily		
Can be equipped with below mentioned earth or neutral terminals		



1x	2x	3x	Combination
8 x 16 mm ²	8 x 16 mm ²	8 x 16 mm ²	1 (8 x 16 mm ²) + 1 (10 x 16 mm ²)
10 x 16 mm ²	10 x 16 mm ²		1 (8 x 16 mm ²) + 1 (14 x 16 mm ²)
14 x 16 mm ²			1 (8 x 16 mm ²) + 1 (18 x 16 mm ²)
18 x 16 mm ²			1 (10 x 16 mm ²) + 1 (14 x 16 mm ²)
27 x 16 mm ²			

Equipped insulated support 3P+N + earth assembly

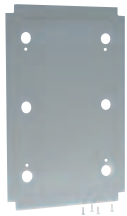
	618529	1
5 (8 x 16 mm ²)		



Insulated backplate + screws

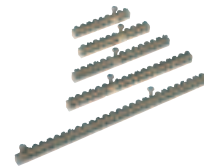
Protects the cables and devices when the cover is mounted on a moist or aggressive surface

	618505	1
For Classic B - 1 row		
	618511	1
For Classic B - 2 rows		
	618517	1
For Classic B - 3 rows		
	619411	1
For Classic B - 4 rows		



Earth or neutral terminals

	618519	4
8 x 16 mm ²		
	618520	4
10 x 16 mm ²		
	618521	4
14 x 16 mm ²		
	618522	4
18 x 16 mm ²		
	618523	4
27 x 16 mm ²		



Equipped insulated support

	618506	1
For Classic B - 1 row		
E: 8 x 16 mm ² & N: 10 x 16 mm ²		
	618512	1
For Classic B - 2 rows		
E: 18 x 16 mm ² & N: 2 (8 x 16 mm ²)		
	618518	1
For Classic B - 3 rows		
E: 27 x 16 mm ² & N: 2 (8 x 16 mm ²)		



Link for neutral or earth terminals

	618525	1
--	--------	---



E = earth connection
N = neutral connection

* in metal

A

B

C

D

E

F

G

X

Fix-o-Rail

Accessories Fix-o-Rail Classic (continued)

Distribution boards

A

B

C

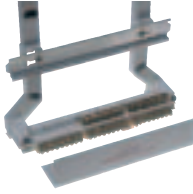
D

E

F

G

X



Shrouding for earth and neutral support

Protects against direct contact with live parts

618531 1

Cable entry

For a perfect finish

Can be fixed on the top as well as on the bottom of the mounting frame

619084 1

Knockouts: 11 x PG 13.5 + 1 x PG 21/29



Metal support for connection terminals

618524 1

Blank plate 4 modules

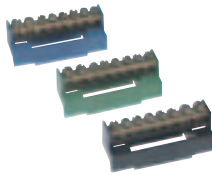
610382 4

Length: 72 mm

Cut out width : 45 mm

Can be cut into 9 mm length

RAL 9010



Connection terminals

610185 4

Phase terminal 6 x 10 mm² + 2 x 16 mm²

610186 4

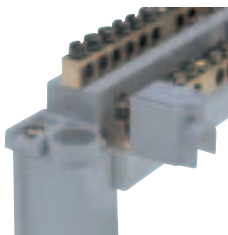
Earth terminal 6 x 10 mm² + 2 x 16 mm²

610187 4

Neutral terminal 6 x 10 mm² + 2 x 16 mm²

Coupling

618528 2



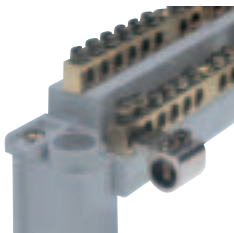
Cable connector clamp

624864 30

Axial 25 mm² insulated pin type

Sealing bracket

618527 2



Cable connector clamp

624862 50

Lateral 35 mm² non-insulated pin type



Fix-o-Rail

Distribution boards

A

B

C

D

E

F

G

X



Approvals / Marking



Standards

BS EN 60439-3

Applications



For new buildings, replacing old units and adding add-on devices.

Insulated enclosures Surface mounting

Fix-o-Rail Junior

IP40



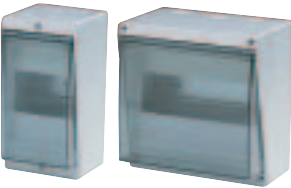
Features

- High resistance material
- Modern design
- Compact construction
- High protection degree IP40
- Total insulation □
- Total security
- Transparent cover allowing visibility of devices
- For all modular equipment
- Available in 4 and 8 modules
- Colour: RAL 7035
- ABS for the base
Flame resistance: self extinguishing material, resist the 650 °C
- Polycarbonate for the lid
Flame resistance: self extinguishing material, resist the 960 °C



Dimensions ● pg F.52

Fix-o-Rail Junior

	H x W x D (mm)	Equipment	No. of modules	Ref. No.	Pack.
	170 x 90 x 100 Max. depth of the devices: 70 mm Entries: 2 x PG29, 4 x PG21	Earth terminal: connection 5 x 16 mm ² Neutral terminal: connection 5 x 16 mm ²	4	610344	1/15
	170 x 175 x 120 Max. depth of the devices: 92.5 mm Entries: 2 x PG21, 4 x PG21, 4 x PG16	Earth terminal: connection 6 x 10 + 2 x 16 mm ² Neutral terminal: connection 6 x 10 + 2 x 16 mm ²	8	610345	1/8

Accessories

Earth/neutral terminals

For Junior 4 modules

610141	2
--------	---

Connection range 5 x 16 mm²

Sealing bracket

610140	2
--------	---

Earth/neutral terminals

For Junior 8 modules

610186	4
--------	---

Earth

connection range

6 x 10 mm² + 2 x 16 mm²

610187	4
--------	---

Neutral

connection range

6 x 10 mm² + 2 x 16 mm²

Blank plate 4 modules

610142	4
--------	---

610484	500
--------	-----

length: 72 mm

cut out width : 45 mm

can be cut into 9 mm length

RAL 7035

Grommets

610130	25
--------	----

PG16

610132	25
--------	----

PG21

610133	25
--------	----

PG29

Fix-o-Rail Junior

A

B

C

D

E

F

G

X

Consumer unit

Distribution boards

A

B

C

D

E

F

G

X

Consumer Unit

BS EN60439-3

IP40



Applications



Standard

BS EN 60439-3

Marking



Performance

Voltage	240V 50Hz
Rating main switch	100A/63A
Rating RCCB	63A, 80A & 100A
IP rating	IP40
Poles	1P+N
Terminal capacity	25mm ² + 16mm ²

Dimensions Insulated

Dimension code	Height	Width	Depth
A (4 module)	245	198	120
B (10 module)	245	306	120
C (14 module)	245	378	120
D (18 module)	245	468	120

Dimensions Metal

Dimension code	Height	Width	Depth
A (4 module)	175	112	90
B (10 module)	208	218	108
C (14 module)	208	292	108
D (18 module)	208	370	108

Insulated main switch up to 100A



MCB ways	Rating (A)	HxWxD code	Cat. No.	Ref. No.	Pack.
1 ⁽¹⁾	63A	A	MS1	662100	1
2 ⁽¹⁾	63A	A	MS2	662101	1
4	100A	B	MS4	662102	1
6	100A	B	MS6	662103	1
8	100A	B	MS8	662104	1
11	100A	C	MS11	662105	1
16	100A	D	MS16	662106	1

Insulated RCCB main switch up to 80A



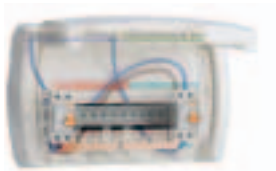
MCB ways	Rating (A)	Sensitivity (mA)	HxWxD code	Cat. No.	Ref. No.	Pack.
1 ⁽²⁾	63A	30mA	A	RM1	662108	1
2 ⁽²⁾	63A	30mA	A	RM2	662109	1
4	80A	30mA	B	RM4	662110	1
6	80A	30mA	B	RM6	662111	1
8	80A	30mA	B	RM8	662112	1
11	80A	30mA	C	RM11	662113	1
13	80A	30mA	D	RM14SPD	662115	1
16	80A	30mA	D	RM16	662114	1

Insulated split load 100A main switch & 80A 30mA RCCB



MCB ways	Split		HxWxD code	Cat. No.	Ref. No.	Pack.
	Iso	RCCB				
Pre-configured						
6	3	3	B	SL33	662119	1
10	5	5	C	SL55	662120	1
10	6	4	C	SL64	662121	1
12	6	6	D	SL66	662122	1
14	7	7	D	SL77	662123	1
Flexible busbar						
10	3/7	7/3	D	FSL10	662125	1
14	5/9	9/5	D	FSL14	662126	1

Insulated time delayed RCCB split load - 100A 100mA TD RCCB & 80A 30mA RCCB



MCB ways	Split		HxWxD code	Cat. No.	Ref. No.	Pack.
	Iso	RCCB				
10	5	5	C	SLTD55	662129	1

(1) Main switch rated at 63A

(2) RCD main switch rated at 63A

Consumer unit UK

A

B

C

D

E

F

G

X

Consumer unit

Distribution boards

A

B

C

D

E

F

G

X

Insulated split load 100A main switch & Dual 80A 30mA RCCB



No. of ways	Split			HxWxD code*	Cat. No.	Ref. No.	Pack.
	Iso	RCCB	RCCB				
Pre-configured							
6	2	2	2	C	TSL222	662152	1
10	3	4	5	D	TSL345	662153	1
10	4	4	2	D	TSL442	662154	1
12	2	5	5	D	TSL255	662155	1
12	4	5	5	D	TSL444	662156	1
Flexible busbar							
12	3/4/5	5/4/3		D	FTSL12	662161	1

Insulated split load 100A main switch & 80A 30mA RCCB



No. of ways	Split		HxWxD code*	Cat. No.	Ref. No.	Pack.
	RCCB	RCCB				
Pre-configured						
10	4	4	C	DSL44	662157	1
10	6	4	D	DSL64	662158	1
10	5	5	D	DSL55	662159	1
12	6	6	D	DSL66	662160	1
Flexible busbar						
12	5/7	7/5	D	DFSL12	662163	1

Garage & Shower



Description	RCCB Rating (A)	HxWxD code	Cat. No.	Ref. No.	Pack.
Garage unit 16A+6A	40A	A	GA40	662116	1
Shower unit 40A MCB	63A	A	SH40	662117	1
Shower unit 50A MCB	63A	A	SH50	662118	1

Metal main switch up to 100A



MCB ways	Rating (A)	HxWxD code	Cat. No.	Ref. No.	Pack.
2 ⁽¹⁾	63A	A	VCM2	618401	1
4	100A	B	VCM4	618402	1
6	100A	B	VCM6	618403	1
9	100A	C	VCM9	618404	1
13	100A	D	VCM13	618405	1

Metal RCCB main switch up to 80A



MCB ways	Rating (A)	Sensitivity (mA)	HxWxD code	Cat. No.	Ref. No.	Pack.
2 ⁽²⁾	63A	30mA	A	VCMA2	618406	1
4	80A	30mA	B	VCMA4	618407	1
6	80A	30mA	B	VCMA6	618409	1
9	80A	30mA	C	VCMA9	618411	1
13	80A	30mA	D	VCMA13	618413	1

Metal split load 100A main switch & 80A 30mA RCCB



MCB ways	Split		HxWxD code	Cat. No.	Ref. No.	Pack.
	Iso	RCCB				
Pre-configured						
6	3	3	C	VCM3A3	618416	1
8	4	4	D	VCM4A4	618419	1
10	5	5	D	VCM5A5	618423	1
14	7	7	D	VCM7A7	618489	1

Metal time delayed RCCB split load 100A 100mA TD RCCB & 80A 30mA RCCB

MCB ways	Split		HxWxD code	Cat. No.	Ref. No.	Pack.
	Iso	RCCB				
10	5	5	D	VCMBD5A5	618101	1

Flush mounting kit for metal consumer units



MCB ways	HxWxD code	Cat. No.	Ref. No.	Pack.
10	A	FMP10	618485	1
14	B	FMP14	618486	1
18	B	FMP18	618487	1

(1) Main switch rated at 63A
 (2) RCD main switch rated at 63A

NOTES:
 a) Metal consumer unit also required.
 b) Flush frame supplied separately for fitting by the installer.
 c) Image shows frame and consumer unit assembled
 d) To select the correct frame, match the frame and consumer unit dimension code.

Consumer unit

Distribution boards

A

B

C

D

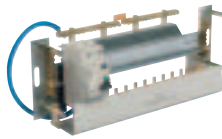
E

F

G

X

Skeleton consumer units



MCB ways	Type	Cat. No.	Ref. No.	Pack.
12	100A main switch	MVISO12	618607	1
12	80A 30mA RCCB	MVRCD12	618617	1
10	Split Load 100A MS & 80A 30mA	MVSL10	618649	1

Fix-o-Rail Cover – IP30 insulated enclosure



Modules	Cat. No.	Ref. No.	Pack.
2	E2	610090	1
4	E4	610091	1

Fix-o-Rail Junior – IP40 insulated enclosure



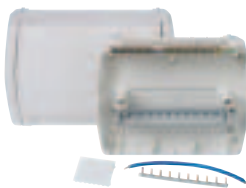
Modules	Cat. No.	Ref. No.	Pack.
4	EC4E+N	610151	1
8	EC8E+N	610345	1

Fix-o-Rail Metal – IP30 metal enclosure



Modules	Cat. No.	Ref. No.	Pack.
4	FOR4	618910	1

Insulated design enclosures



Modules	Busbar ways	HxWxD code	Cat. No.	Ref. No.	Pack.
4	3	A	CU4BN	662131	1
10	9	B	CU10BN	662132	1
14	13	C	CU14BN	662133	1
18	17	D	CU18BN	662134	1

Insulated enclosures supplied with busbar and neutral link cable

Metal design enclosures



Modules	HxWxD code	Cat. No.	Ref. No.	Pack.
10	B	EDU10E+N	618791	1
14	C	EDU14E+N	618792	1
18	D	EDU18E+N	618793	1

Half DIN rail adaptor (metal consumer units only)

Description	Modules	Cat. No.	Ref. No.	Pack
Half DIN rail adaptor	2	HDIN2	618794	1
Half DIN rail adaptor	3	HDIN3	618795	1
Half DIN rail adaptor	4	HDIN4	618796	1
Half DIN rail adaptor	6	HDIN6	618797	1

Blanks, shrouds & locks

Description	Modules	Cat. No.	Ref. No.	Pack
Cover blanking plate	4	BLANK4	610382	4
Busbar shroud	3	SHR3	619018	10
Consumer unit door lock	-	CKEY	662137	1
Device padlock bracket	-	KS	624929	2

Transparent consumer unit doors

Description	Modules	Cat. No.	Ref. No.	Pack.
Transparent door	4	CD4	662139	1
Transparent door	10	CD10	662140	1
Transparent door	14	CD14	662141	1
Transparent door	18	CD18	662142	1

Connection cables & linking pins

Description	Cat. No.	Ref. No.	Pack.
Split load cable kit 10/14 modules	CSLKIT14	662136	1
Split load cable kit 18 modules	CSLKIT18	662138	1
Live link cable	LLINK1	409000	1
Neutral link cable	NLINK1	594009	1
Consumer unit linking pins	CULINKPIN	662144	10



Insulated enclosures Surface mounting

Abaco S

IP40

Marking



Standards

EN/IEC 695-2-1, CEI 670, CEI 23-48

Applications

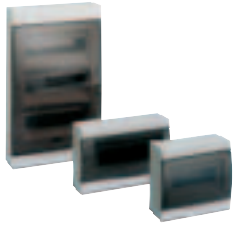


The Abaco surface enclosures are used for power distribution in house building and commercial buildings as offices, banks, etc.

Features

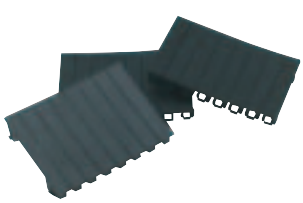
- Protection degree IP40.
- Total insulation: class II.
- Four dimensions in two colours.
- Colours: grey RAL 7030 and white RAL 9010.
- Range from 8 modules up to 39 modules.
- Flame resistance: self extinguishing material, resists the 650°C.
- Operating temperature: -15°C to +60°C.
- Chemical resistance against water, salt solution, acid rain.
- Surface mounting with flat panels; easy mounting of cable entries.
- The DIN rails can be taken off to make the equipment externally.
- The position of the mounting frame can be adjusted.

Abaco S - Transparent door



Colour	H x W x D (mm)	Modules 17.5 mm	Number of rows	Ref. No.	Pack.
Grey: RAL 7030	230 x 200 x 110	8/10	1	619375	14
White: RAL 9010	230 x 200 x 110	8/10	1	619376	14
Grey: RAL 7030	300 x 200 x 110	12/14	1	619369	10
White: RAL 9010	300 x 200 x 110	12/14	1	619372	10
Grey: RAL 7030	315 x 400 x 110	24/26	2	619370	1
White: RAL 9010	315 x 400 x 110	24/26	2	619373	1
Grey: RAL 7030	315 x 525 x 110	36/39	3	619371	1
White: RAL 9010	315 x 525 x 110	36/39	3	619374	1

Accessories

Insulated support for earth and neutral 619319 120 for enclosure 6/10 modules connection range $2 \times 16 \text{ mm}^2 + 8 \times 10 \text{ mm}^2$ 619320 120 for enclosure 10/14 modules connection range $2 \times 16 \text{ mm}^2 + 12 \times 10 \text{ mm}^2$ 619321 60 for enclosure 24/36 modules connection range $2 \times 16 \text{ mm}^2 + 12 \times 10 \text{ mm}^2$	Blank plate 619323 150 Grey, 5 modules 619338 150 White, 5 modules 619339 1 Metallised black, 5 modules Security lock 619350 1 24 and 36 modules	
---	---	---

Abaco S

A

B

C

D

E

F

G

X

Fix-o-Rail

Distribution boards

A

B

C

D

E

F

G

X



Approvals / Marking



Standards

EN 60439-3

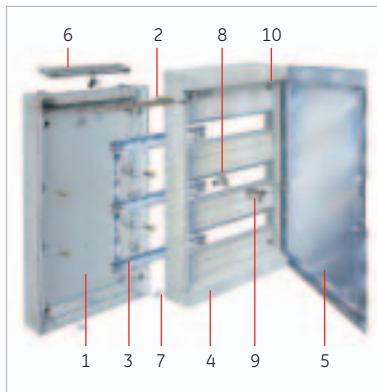
Applications



Fix-o-Rail 150 is the best choice for power distribution purposes in:

- hotels, restaurants, offices, ...
- the house building industry.

For applications in new homes, for replacing old units or adding add-on devices.



Dimensions ● pg F.52

Insulated enclosures Surface mounting

Fix-o-Rail 150

IP40



Total safety



Complete



Important time saving features



High quality



Great design

Features

- High protection degree: IP40 with closed door
- Total insulation □
- High impact strength: IK08
- 1-2-3-4 rows / 18 modules per row
- For surface mounting
- With transparent or grey door
 - can be opened to 180°
- For DIN-rail equipment up to 92.5 mm
- Optional security lock
- Generous wiring room:
 - 30 mm behind the mounting frame
 - 150 mm centre distance between DIN rails
 - above and below the base
 - shallow base



- Fixation with four captive quarter-turn screws
- Removable mounting frame
- All knockouts are easy to remove
- High impact resistance material, colour RAL 7035
- Enclosure and mounting frame are extremely sturdy
- ABS for the base
- Flame resistance: self extinguishing material, resist the 650°C
- Polycarbonate for the lid

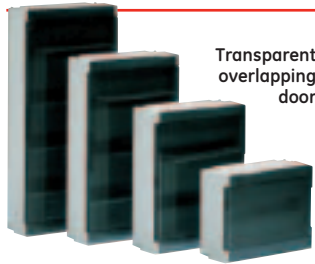
Components

A Fix-o-Rail 150 enclosure also includes:

- screwless earth bar
- entry plate
- blank plate
- four insulating caps = □
- labels
- adhesive pictograms
- installation guidelines

- | | | |
|-----------------------------|---------------------|------------------------|
| 1. Shallow base | 4. Protection cover | 8. Fastener |
| 2. Screwless earth bar | 5. Transparent door | 9. Hinge |
| 3. Removable mounting frame | 6. Entry plate | 10. Quarter-turn screw |
| | 7. Insulation caps | |

Fix-o-Rail 150



Transparent overlapping door



Plain overlapping door

H x W x D (mm)	Equipment	No. of modules	No of rows	Ref. No.	Pack.
270 x 355 x 150	Earth bar: connection 14x16 mm ² In 80A	18	1	610275	1
450 x 355 x 150	Earth bar: connection 14x16 mm ² In 80A	36	2	610285	1
600 x 355 x 150	Earth bar: connection 18x16 mm ² In 100A	54	3	610295	1
750 x 355 x 150	Earth bar: connection 18x16 mm ² In 100A	72	4	610303	1

270 x 355 x 150	Earth bar: connection 14x16 mm ² In 80A	18	1	610276	1
450 x 355 x 150	Earth bar: connection 14x16 mm ² In 80A	36	2	610286	1
600 x 355 x 150	Earth bar: connection 18x16 mm ² In 100A	54	3	610296	1
750 x 355 x 150	Earth bar: connection 18x16 mm ² In 100A	72	4	610304	1

Neutral terminal is optional; order the ref nrs 610386 for the 1 and 2 rows
Neutral terminal is optional; order the ref nrs 610385 for the 3 and 4 rows

Accessories



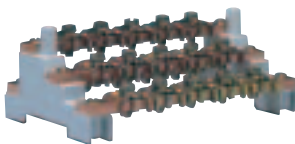
4 pole terminals	
610022	18

63A
Connection range
4 x (10 x 16 mm²)
Cu section 6,5 x 9 mm



617992	5
--------	---

160A
with cover 4x (1 x 10 to 50 mm² incoming + 3 x 6 to 35 mm² + 8 x 2.5 to 16 mm² outgoing)
Cu section 12 x 10 mm



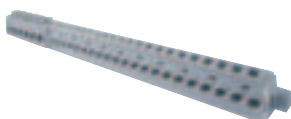
610020	1
--------	---

160A
Connection range 4 x (10 x 10mm²)
Cu section 12 x 5 mm



Protective shroud	
610021	1

For 160A terminal (ref. 610020)



Support with screwless earthbar	
610396	1

Included with all enclosures

Support with earth or neutral terminals

610386	4
--------	---

Cable section: 14 x 16 mm²
Delivered with 1 and 2 rows enclosure

610385	4
--------	---

Cable section: 18 x 16 mm²
Delivered with 3 and 4 rows enclosure

Support with terminal bars

610532	4
--------	---

Cable section: 2 (17 x 16 mm²)

Support with terminal bars

L1-L2-L3-N

610387	4
--------	---

Cable section: 4 (5 x 16 mm²)

Universal entry plate

610264	2
--------	---

For a sound and safe quality of finish.
Increases the dust protection. With moulded-in marks for conduits.

Universal entry cap

610272	1
--------	---

Width: 355 mm
Can be mounted at the bottom or at the top of the enclosure. Easy to fix.
Usefull for the installation of cable glands or universal cable entries

A

B

C

D

E

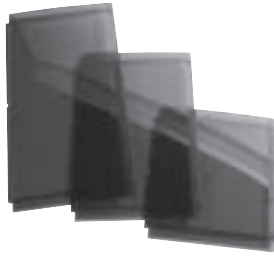
F

G

X

Fix-o-Rail

Accessories Fix-o-Rail 150 (continued)



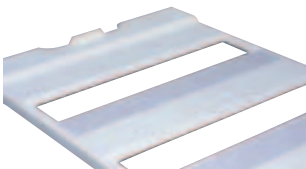
Transparent replacement door		
610277	1	
For enclosure 610275		
610287	1	
For enclosure 610285		
610297	1	
For enclosure 610295		
610305	1	
For enclosure 610303		



Plain replacement door		
610281	1	
For enclosure 610276		
610291	1	
For enclosure 610286		
610301	1	
For enclosure 610296		
610306	1	
For enclosure 610304		



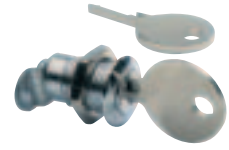
Adhesive pictograms		
610380	1	
For clear and permanent identification of circuits		
Set of 50 pieces		



Labels and labelholders		
610383	1	
Set of 50 pieces		

Security lock		
610170	1	

With 2 keys



Blank plate		
610142	4	

610484	500	
Length: 72 mm		
Cut-out width: 45 mm		
Can be cut into 9 mm lengths		
RAL 7035		

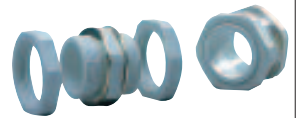


Drawing pocket		
610265	1	

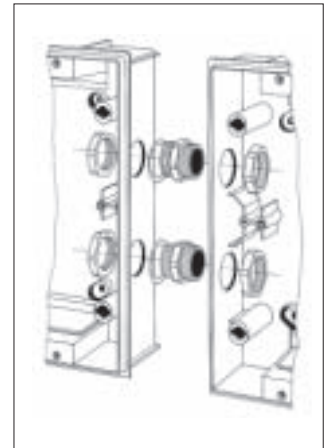
To be fixed at the bottom or at the top of the protective cover



Coupling - 2 x PG21		
Allows the facility to couple several Fix-o-Rail enclosures laterally, top and bottom		



610327	1	
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Fix-o-Rail

Distribution boards

A

B

C

D

E

F

G

X



Insulated enclosures Surface mounting

Fix-o-Rail 55

IP55

Approvals / Marking



Standards

EN 60439-3

Applications



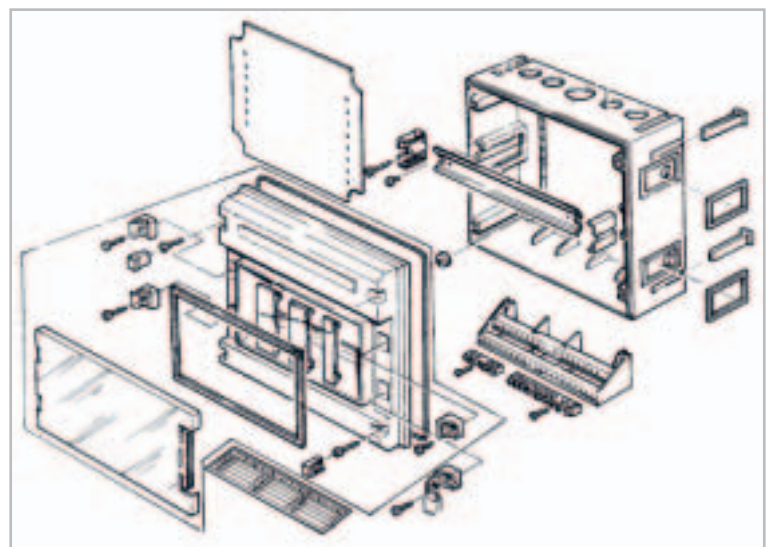
The Fix-o-Rail 55 enclosures are designed for power distribution in environments requiring a high protection degree.

Components

- Rigid base and protection cover, colour RAL 7035
- Transparent door
- DIN-rails, the centre distance between two DIN-rail is 125 mm
- Labeling facilities
- With earth bar for the 12, 24 & 36 modules

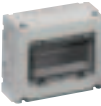
Features

- Total insulation 
- Protection degree IP55-IK07
- Can be coupled
- Transparent door
- Adjustable DIN-rails, according the height of the DIN equipment
- For equipment up to 92.5 mm
- Padlocking option
- The transparent door can be opened to the left and the right
- Base:
 - ABS for the 3 up to 8 modules
 - Polystyreen for the 12 up to 36 modules
- Flame resistance: self extinguishing material, resist the 650°C
- Polycarbonate for the transparent door
- Halogene free



Dimensions ● pg F.56

Fix-o-Rail 55

	H x W x D (mm)	Equipment	Number of modules	Number of rows	Ref. No.	Pack.
	175 x 83 x 106	Without earth bar	3	1	600573	12
	175 x 125 x 114	Without earth bar	5	1	600574	20
	175 x 215 x 114	Without earth bar	8	1	600575	12
	250 x 285 x 136	Earth bar, connection range: 2x16 mm ² and 6x10 mm ²	12	1	610316	1
	375 x 285 x 136	Earth bar, connection range: 2x16 mm ² and 8x16 mm ²	24	2	610317	1
	500 x 285 x 136	Earth bar, connection range: 2x16 mm ² and 12x16 mm ²	36	3	610318	1

Accessories

	Terminal Additional busbar for earth and neutral connections	Locking device Allows the enclosure to be fitted with a padlocking device	
	610314 1 Cable section: 2 x 16 mm ² and 6 x 6 mm ²		
	Coupling set To couple two enclosures in a simple way		
	610315 1		

Fix-o-Rail 55

A

B

C

D

E

F

G

X



Insulated enclosures Surface and flush mounting

Europe Line

IP30

Standards

DIN 43871 and DIN VDE 0603 Part 1

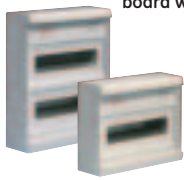
Features

- Masking frame, base and protective cover made from high resistance material
- Metal door, powder coated, opens through 180°
- Cable entry from top, below, from side and from rear side
- Cable entry plate (top, bottom) removable for easy cable mounting from front side
- Clamp relief possibility
- Sealing possible
- Label for circuit indication
- Rated voltage up to 400V/50Hz
- Rated current up to 63A
- Protection class II (total isolation)

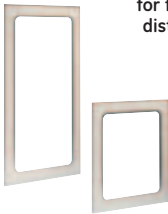
Europe Line - dimensions

	Type	Dimensions H x W (mm)	Flush mounting depth (mm)	Dimensions for shell H x W (mm)
Distribution board flush mounting with door	KV UP12	321 x 351	90	340 x 360
	KV UP24	446 x 351	90	465 x 360
	KV UP36	571 x 351	90	590 x 360
	KV UP48	696 x 351	90	715 x 360
Distribution board hollow walls with door	KV HW12	321 x 351	90	300 x 320
	KV HW24	446 x 351	90	425 x 320
	KV HW36	571 x 351	90	550 x 320
	KV HW48	696 x 351	90	675 x 320
Distribution boards surface mounting without door	Type	Dimensions H x W (mm)	Surface depth (mm)	
	KV AP12	245 x 300	103.5	
	KV AP24	370 x 300	103.5	
	KV AP36	495 x 300	103.5	
Metal door for surface mounting enclosures	T AP12	189 x 300	8.5	
	T AP24	314 x 300	8.5	
	T AP36	439 x 300	8.5	
	T AP48	564 x 300	8.5	

Europe Line - distribution boards

 Flush mounting distribution board with door	No. of rows	No. of modules	Cat. No.	Ref. No.	Pack.
	1	12	KV UP12	564534	1
	2	24	KV UP24	564535	1
	3	36	KV UP36	564536	1
	4	48	KV UP48	564537	1
 Hollow wall mounting distribution board with door	1	12	KV HW12	564542	1
	2	24	KV HW24	564543	1
	3	36	KV HW36	564544	1
	4	48	KV HW48	564545	1
 Surface mounting distribution board without door	1	12	KV AP12	564538	1
	2	24	KV AP24	564539	1
	3	36	KV AP36	564540	1
	4	48	KV AP48	564541	1
	Versions with screwless earth (PE/N) bar				
	1	12	-	619413	1
	2	24	-	619414	1
	3	36	-	619415	1
	4	48	-	619416	1

Accessories

 Metal door with clear window for surface mounting distribution boards	No. of rows	Cat. No.	Ref. No.	Pack.
	1	AAZTS12A	564061	1
	2	AAZTS24A	564062	1
	3	AAZTS36A	564063	1
	4	AAZTS48A	564064	1
 Plain metal door	1	AT AP12	564533	1
	2	AT AP24	564546	1
	3	AT AP36	564547	1
	4	AT AP48	564548	1
 Metal door with clear window for flush mounting distribution boards	1	AAZTS12U	564057	1
	2	AAZTS24U	564058	1
	3	AAZTS36U	564059	1
	4	AAZTS48U	564060	1
Mounting plate	1	AAZM1	564065	1
	2	AAZM2	564066	1
	3	AAZM3	564067	1
	4	AAZM4	564068	1

Europe Line

A

B

C

D

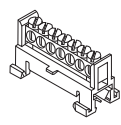
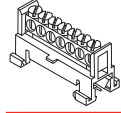
E

F

G

X

Europe Line - Accessories

	In (A)	Cat. No.	Ref. No.	Pack.
 Door security lock	Flush mounting, different keys	AAZTU2	564349	1
	Surface mounting, different keys	AAZTA2	564350	1
	Flush mounting, same keys	AAZTU1	564055	1
	Surface mounting, same keys	AAZTA1	564056	1
 PE / N bar without support	12-pole	AAZK12	564050	1
	16-pole	AAZK16	564051	1
	33-pole	AAZK33	564052	1
Busbars	Screwless terminal PE 1-16 / N 1-16	AAZFPN16	619393	20
	Screwless terminal N 1-26	AAZFN1-26	619394	20
	Screwless terminal PE 1-26	AAZFPE1-26	619395	20
 Support	PE terminal	AAZPN16	564047	1
	PE / N terminal	AAZP33	564048	1
	PE / N terminal	AAZN33	564049	1
	N terminal	AAZPN12	564046	1
	Partition vertical			
	1 row	AAZA1	564042	1
	2 rows	AAZA2	564043	1
	3 rows	AAZA3	564044	1
	4 rows	AAZA4	564045	1
	Partition horizontal	AAZA10	564041	1
				1
 FI-Clamps		AAZN3	564053	
Control connector clamp		AXSK71	562445	1
 Mounting rail with reduced height	Increase mounting depth by 20 mm	AAZG1	564054	1
Blind cover	For mounting slots lockable	AGBS24	562056	1
		AGBS25	562273	1
Label for circuit indication	1, 2 rows	AAZP11	564352	1
	3, 4 rows	AAZP12	564353	1
 Clamps for neutral conductor		LK/N7	546297	1
		LK/N12	546298	1
		LK/N15	546299	1
 Clamps for protective conductor		SKU 16/5	546300	1
		SKU 35/5	546301	1
		SKU 70/5	546302	1
Connection clamp	With fork	AKG 25	546306	20
	With pin	AKS 25	546307	20
Rail	1000 mm long	PS	564092	20
Filling piece	8,75 mm to disperse the heat for DIN-rail EN 50022/05.78	FST	546331	25
Spring	Support for device cover	FDT	546332	25
End clamp	For DIN-rail EN 50022/05.78	EKL	546336	100



Insulated enclosures Flush mounting

Abaco F

IP40

Marking



Standards

EN/IEC 695-2-1, CEI 670, CEI 23-48

Applications

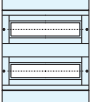
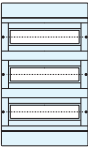


Abaco F enclosures find their place in the power distribution into the house building industry: new homes, apartments, offices, hotels. Due to the design of the masking frame and the door, the Abaco flush mounting enclosure offers significant aesthetic appeal, particularly in applications where appearance is important.

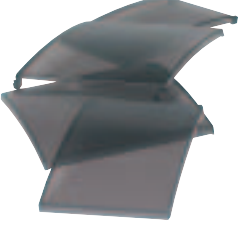
Features

- Flush mounting
- Total insulation
- Protection degree IP40
- Six dimensions in three colours
- Colours: grey RAL 7030, white RAL 9010 and metallised black
- Range from 2 modules up to 39 modules
- Transparent door made from polycarbonate
- High impact resistance material
- Removable mounting frame
- 20 mm clearance behind the mounting frame
- Colours:
 - Grey: RAL 7035
 - White: RAL 9010
 - Metallised black

Abaco F - Enclosure base with transparent door

	Colour	H x W x D (mm)	Modules 17.5 mm	Number of rows	Ref. No.	Pack.
	Grey	120 x 200 x 73	2/4	1	619300	12
	Metallised black	120 x 200 x 73	2/4	1	619362	12
	Grey	180 x 200 x 73	4/7	1	619301	24
	White	180 x 200 x 73	4/7	1	619325	24
	Metallised black	180 x 200 x 73	4/7	1	619331	24
	Grey	230 x 200 x 73	6/10	1	619302	14
	White	230 x 200 x 73	6/10	1	619326	14
	Metallised black	230 x 200 x 73	6/10	1	619332	14
	Grey	300 x 200 x 73	10/14	1	619303	12
	White	300 x 200 x 73	10/14	1	619327	12
	Metallised black	300 x 200 x 73	10/14	1	619333	12
	Grey	315 x 400 x 80	24/26	2	619304	1
	White	315 x 400 x 80	24/26	2	619328	1
	Metallised black	315 x 400 x 80	24/26	2	619334	1
	Grey	315 x 525 x 80	36/39	3	619305	1
	White	315 x 525 x 80	36/39	3	619329	1
	Metallised black	315 x 525 x 80	36/39	3	619335	1

Accessories

	Coupling					
	619322	10/100/600				
	2/4 and 10/14 modules					
	Blank plate					
	619323	150/450				
	Grey, 5 modules					
	619338	150/450				
	White, 5 modules					
	619339	1/450				
	Metallised black, 5 modules					
	Transparent lid					
	619340	1				
	2/4 modules					
	619341	1				
	4/7 modules					
	619342	1				
	6/10 modules					
	619343	1				
	10/14 modules					
	619344	1				
	24/26 modules					
	619345	1				
	36/39 modules					
	Insulated support for earth or neutral					
	619337	1/30/180				
	for enclosure 4/7 modules					
	connection range 7 x 10 mm ²					
	619319	1/20/120				
	for enclosure 6/10 modules					
	connection range					
	2 x 16 mm ² + 8 x 10 mm ²					
	619320	1/20/210				
	for enclosure 10/14 modules					
	connection range					
	2 x 16 mm ² + 12 x 10 mm ²					
	619321	1/10/60				
	for enclosure 24/36 modules					
	connection range					
	2 x 16 mm ² + 12 x 10 mm ²					

Abaco F

A

B

C

D

E

F

G

X

Fix-o-Rail

Distribution boards

A

B

C

D

E

F

G

X



Insulated enclosures Flush mounting

Fix-o-Rail 150-F4

IP40



Total safety



Complete



Important time saving features



High quality



Great design

Approvals / Marking



Standards

BS EN 60439-3

Applications



The Fix-o-Rail 150-F4 is an electrical distribution board for the following applications:

- homes: new buildings, renovations and add-on devices
- commercial buildings: offices, shops, etc.

Due to the discreet design and colour of the masking frame and door, the Fix-o-Rail 150-F4 flush mounting enclosure offers significant aesthetic appeal, particularly in applications where appearance is important.

Features

- High protection degree: IP40-IK07
- **Total insulation** 
- CEBEC-approval
- 1-2-3-4 rows / 14 modules per row
- For all flush mounting installations
- One enclosure for installation in brickwork and studded walls
- Transparent or plain door
- Universal for all modular equipment with a shoulder height of 47 mm and a max. depth of 70 mm
- Wiring space:
 - 20 mm behind the mounting frame
 - 150 mm between the DIN-rails
 - above and below the base
- Removable mounting frame / Removable entries 
- Easy to install
- Base, cable entries and protective cover are made in high resistant material
- ABS for the base and cover
- Flame resistance: self extinguishing material, resist the 850°C
- The **door and the masking frame** are in **sheet steel**, coated with a white epoxy powder (colour RAL 9010)
- In accordance with EN 60439-3
- Sturdy enclosure and mounting frame
- Due to the discreet design of the masking frame and door, the Fix-o-Rail 150-F4 offers significant aesthetic appeal 
- Colour RAL 9010
- Optional security lock 

Components

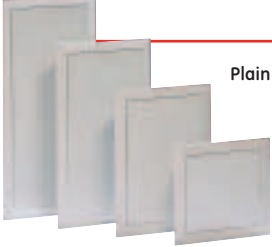
Fix-o-Rail 150-F4 enclosure includes:

- an earth bar
- adhesive pictograms
- labels for circuit identification
- protective plate on the base (against dust and plaster)
- label holders
- installation guidelines
- a blank plate

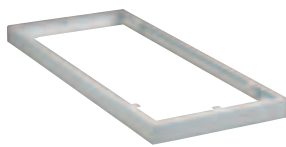
Dimensions  pg F.53



Fix-o-Rail 150-F4 - Base and door included

 Transparent door	H x W x D (mm)	Equipment	No. of modules	No. of rows	Ref. No.	Pack.
	350 x 375 x 108	Earth bar: connection 14 x 16 mm ² Neutral bar: connection 14 x 16 mm ² In 50A	14	1	610368	1
	525 x 375 x 108	Earth bar: connection 14 x 16 mm ² Neutral bar: connection 14 x 16 mm ² In 63A	28	2	610369	1
	675 x 375 x 108	Earth bar: connection 18 x 16 mm ² Neutral bar: connection 18 x 16 mm ² In 80A	42	3	610370	1
	825 x 375 x 108	Earth bar: connection 18 x 16 mm ² Neutral bar: connection 18 x 16 mm ² In 100A	56	4	610371	1
 Plain door	350 x 375 x 108	Earth bar: connection 14 x 16 mm ² Neutral bar: connection 14 x 16 mm ² In 50A	14	1	610372	1
	525 x 375 x 108	Earth bar: connection 14 x 16 mm ² Neutral bar: connection 14 x 16 mm ² In 63A	28	2	610373	1
	675 x 375 x 108	Earth bar: connection 18 x 16 mm ² Neutral bar: connection 18 x 16 mm ² In 80A	42	3	610374	1
	825 x 375 x 108	Earth bar: connection 18 x 16 mm ² Neutral bar: connection 18 x 16 mm ² In 100A	56	4	610375	1

Accessories

	Half-inset frame (RAL 9010) 610376 1 For 1 row enclosure 610377 1 For 2 rows enclosure 610378 1 For 3 rows enclosure 610379 1 For 4 rows enclosure	Security lock 610384 1 With two keys	
	Blank plate 610382 500 Length = 72 mm Cut-out width = 45 mm Section of 9 mm Colour RAL 9010	Support with earth or neutral terminals 610385 4 Cable section: 18 x 16 mm ² Delivered with 3 and 4 rows enclosures 610386 4 Cable section: 14 x 16 mm ² Delivered with 1 and 2 rows enclosures	
	Labels and label holders 610383 1 Set of 50 pieces	Support with terminals L1, L2, L3, N 610387 4 Cable section: 4 (5 x 16 mm ²)	
	Adhesive pictograms 610380 1 For clear and permanent identification of circuits Set of 50 pieces	Support with terminals 610532 4 Cable section: 2 (17 x 16 mm ²)	
	Grips For building into studded walls 610381 1		



Approvals / Marking



Junction boxes

Flex-o-Box

IP65



Features

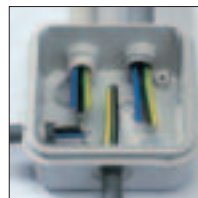
Flex-o-Box Junior

Technical data

- Suitable for surface mounting
- 2.5 mm² - 500V
- IP65 protection degree
- Standards and approvals
CEBEC: NBN C 68-685-2-0
NBN C68-685-1
KEMA: EN/IEC 670
- Colour: RAL 7035
- Material: resists the 750°C incandescent wire test
- Halogen-free
- Operating temperature: -5°C to +60°C
- Total insulation: □

Eight flexible entries

- 7 x Ø 20 in the side wall
- 1 x Ø 20 in the back
- Suitable for cable max. Ø 20
- Suitable for tubes 5/8" and 3/4"



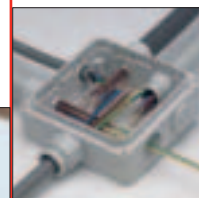
Flex-o-Box JB⁶

Technical data

- Suitable for surface mounting
- 6 mm² - 500V
- IP65 protection degree
- Standards and approvals:
CEBEC: NBN C68-685-2-0
NBN C68-685-1
KEMA: EN/IEC 670
- Colour: RAL 7035
- Material: resists the 750°C incandescent wire test
- Halogen-free
- Operating temperature: -5°C to +60°C
- Total insulation: □

Nine flexible entries

- 7 x PG16 in the side wall
- 2 x Ø 20 mm max. entries in the back of the base
- Suitable for cable max. Ø 20
- Suitable for tubes 5/8" and 3/4"
- Suitable for cable seals (8 mm min. thread length)



Dimensions ● pg F.59

Flex-o-Box

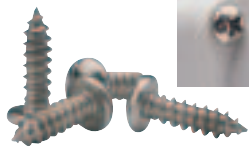
		Ref. No.	Pack.
	Junior	Junction box 2.5 mm ²	600656 10/100
		Junction box 2.5 mm ² (40 pieces in a red polybox basket)	600311 1
			
	JB ⁶	Junction box 6 mm ²	600651 100/200
		Junction box 6 mm ² (24 pieces in a grey polybox basket)	600310 1/24
			

Accessories

	for Junior and JB ⁶	
	Terminal block	
	600950	30
	6 mm ² - 500V - pin-type	
	5-terminal blocks	
	Possible connections per terminal:	
	6 x 1.5 mm ²	2 x 6 mm ²
	4 x 2.5 mm ²	2 x 10 mm ²
	3 x 4 mm ²	
	Terminal strip	
	600650	20/200
	6 mm ² - 500V - hole-type	
	5-terminal strips	
	Possible connections per terminal:	
	6 x 1.5 mm ²	3 x 4 mm ²
	4 x 2.5 mm ²	2 x 6 mm ²

only for JB ⁶		
Cable seal		
	851046	50
PG16 grey		
Entry socket for tube		
	600933	25/300
PG16 for tube 5/8" grey		
	600934	25/300
PG16 for tube 3/4" grey		
for tube ø 16 mm		
for tube ø 20 mm		
Insulated cap		
	600945	25
PG16 grey		
Screws		
For cover fastening		
	600652	40
Stainless steel		



Flex-o-Box

A

B

C

D

E

F

G

X



Junction boxes

Series 55

IP66

Approval



Applications

- As an empty box
- As a junction box (10/16/25 mm²)
- Coupled

Features

- Standard: EN/IEC 529
- Material: thermoplastic high impact polyphenylene oxide
- Total insulation: □

Dimensions

Three sizes - three types

55100 - 125 x 125 x 75 mm

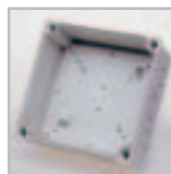
55200 - 175 x 175 x 95 mm

55300 - 225 x 175 x 95 mm

Benefits



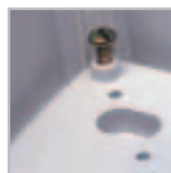
The cable entries are selective knockouts placed as close as possible to the wall.



Oval openings in the base allow levelling. Four fixing holes outside the gasket and two fixing holes inside the box.



The raised bottom avoids obstruction while cabling and bending of the cables.



Raised supports for the placement of the mounting plate.



The screws are thermoplastic, captive, full turn, with a big pitch and placed outside the gasket.



All the boxes are sealable.

Dimensions ● pg F.59

Series 55100 - 10 mm²

☐ IP66 - IK07

	Cover	Entries	Characteristics	Ref. No.	Pack.
	grey	5 x PG 16/21	Empty. Can be equipped with terminal blocks 600516	600514	16
	grey	5 x PG 16/21	Equipped with terminal blocks 600516: 5 clamps with maximum capacity: 5 x 4 mm ² / 4 x 6 mm ² / 3 x 10 mm ²	600515	16

Series 55200 - 16 mm²

☐ IP66 - IK07

	Cover	Entries	Characteristics	Ref. No.	Pack.
	grey	6 x PG 16/21 5 x PG 21/29	Empty. Can be equipped with terminal blocks 600525 600526 (x5) 600544 (x5) 600545 (x5) 600516	600517	9
	grey	6 x PG 16/21 5 x PG 21/29	Equipped with terminal blocks 600525: 5 clamps with maximum capacity: 5 x 6 mm ² / 4 x 10 mm ² / 3 x 16 mm ²	600524	9
	transparent	6 x PG 16/21 5 x PG 21/29	Empty	600523	9

Series 55300 - 25 mm²

☐ IP66 - IK09

	Cover	Entries	Characteristics	Ref. No.	Pack.
	grey	8 x PG 21 6 x PG 21/29	Empty. Can be equipped with terminal blocks 600544 (x5) 600545 (x5) 600525 600526 (x5)	600532	1
	grey	8 x PG 21 6 x PG 21/29	Equipped with terminal blocks 600544 (x5): 5 clamps/nuts with maximum capacity: 4 x 16 mm ² / 3 x 25 mm ² / 2 x 35 mm ²	600543	9
	transparent	8 x PG 21 6 x PG 21/29	Empty	600539	9

Series 55

A

B

C

D

E

F

G

X

Fix-o-Rail

Accessories Series 55



Terminal blocks 500V 10 mm²

600516	6
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Set terminal blocks with two fixation screws. With five clamps suitable for Al or Cu connection.

Maximum cable section per clamp:
 $5 \times 4 \text{ mm}^2 / 5 \times 4 \text{ mm}^2 / 5 \times 4 \text{ mm}^2$.
 Can be fitted in types 55100 and 55200.

Couplings

600509	1
---------------	----------

Set of two pieces
 PG21
 It is possible to combine types
 55200 and 55300



Terminal blocks 500V 16 mm²

600525	6
---------------	----------

With five clamps, suitable for Al or Cu connection.

Maximum cable section per clamp:
 $5 \times 6 \text{ mm}^2 / 4 \times 10 \text{ mm}^2 / 3 \times 16 \text{ mm}^2$.
 Can be fitted in types 55200 and 55300.

Compression glands

600504	25
---------------	-----------

PG21 with nut in glass fibre reinforced polyamide. Grey.

600505	25
---------------	-----------

PG29 with nut in glass fibre reinforced polyamide. Grey.



Terminal blocks 500V 16 mm²

600526	24
---------------	-----------

With one clamp/nut (with nut), suitable for Al or Cu connection.

Maximum cable section per clamp:
 $5 \times 6 \text{ mm}^2 / 4 \times 10 \text{ mm}^2 / 3 \times 16 \text{ mm}^2$.
 Can be fitted in types 55200 and 55300.

Compression glands

600501	25
---------------	-----------

PG21 polyamide with nut in glass fibre reinforced polyamide. Brown.

600502	25
---------------	-----------

PG29 polyamide with nut in glass fibre reinforced polyamide. Brown.



Terminal blocks 500V 25 mm²

600544	24
---------------	-----------

With one clamp/nut (with nut), suitable for Al or Cu connection.

Maximum cable section per clamp:
 $4 \times 16 \text{ mm}^2 / 3 \times 25 \text{ mm}^2 / 2 \times 35 \text{ mm}^2$.
 Can be fitted in types 55200 and 55300.

Locknuts

600506	100
---------------	------------

Nut in glass fibre reinforced polyamide to connect compression glands PG21. Grey.

600507	50
---------------	-----------

Nut in glass fibre reinforced polyamide to connect compression glands PG29. Grey.



Terminal blocks 500V 25 mm²

600545	24
---------------	-----------

With one clamp/nut (double nut), suitable for Al or Cu connection.

Maximum cable section per clamp:
 $4 \times 16 \text{ mm}^2 / 3 \times 25 \text{ mm}^2 / 2 \times 35 \text{ mm}^2$.
 Can be fitted in types 55200 and 55300.

Universal entries (grey)

610130	25
---------------	-----------

Cable max. 18 mm, drill 23 mm, PG16

610132	25
---------------	-----------

Cable max. 24 mm, drill 29 mm, PG21

610133	25
---------------	-----------

Cable max. 32 mm, drill 38 mm, PG29.



Insulated cap

890838	48
---------------	-----------

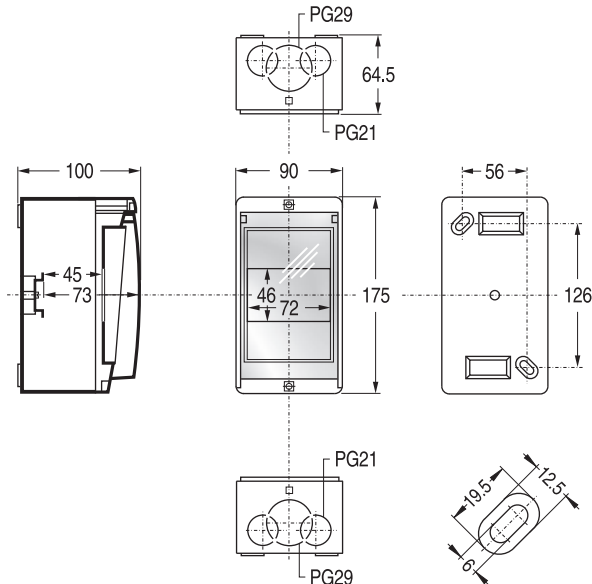
Suitable for terminal blocks
 600526
 600544
 600545

Fix-o-Rail

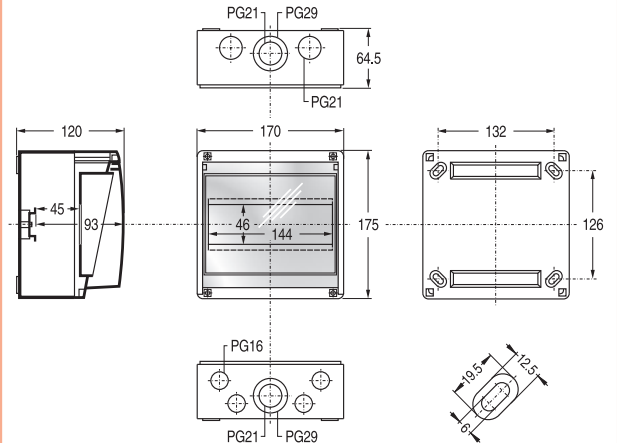
Dimensional drawings

Fix-o-Rail Junior - Surface mounting

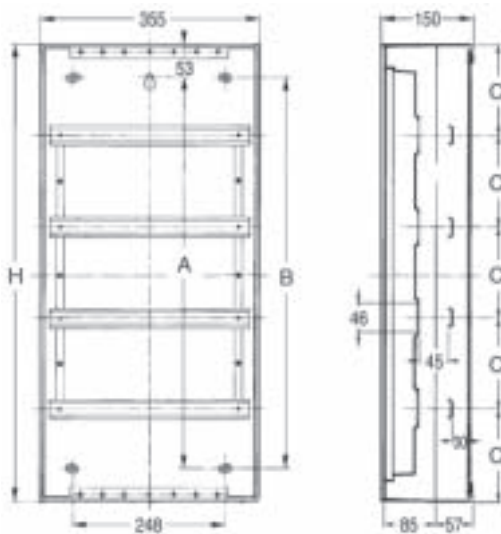
4 modules



8 modules

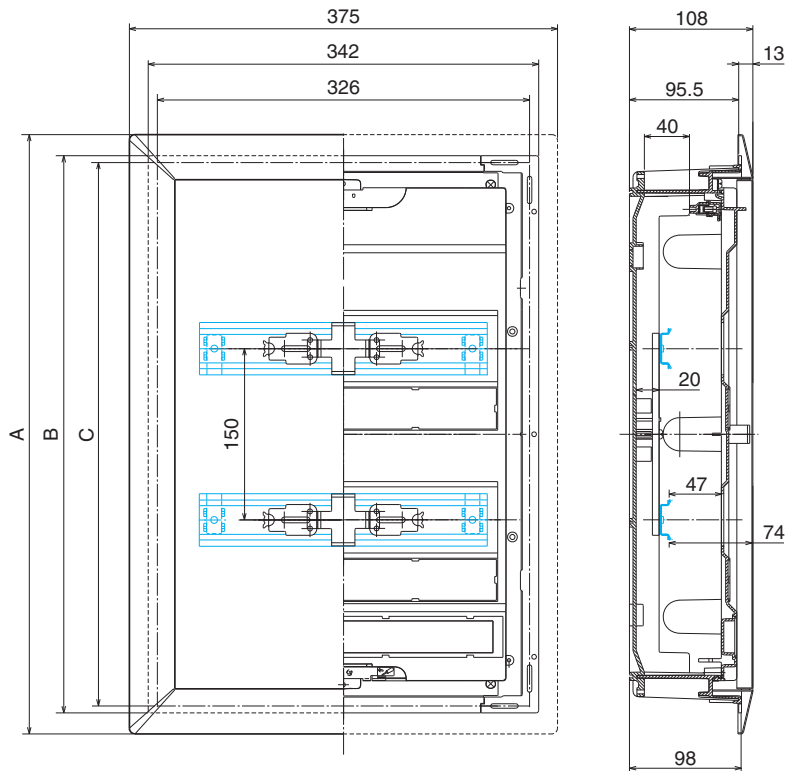


Fix-o-Rail 150 - Surface mounting



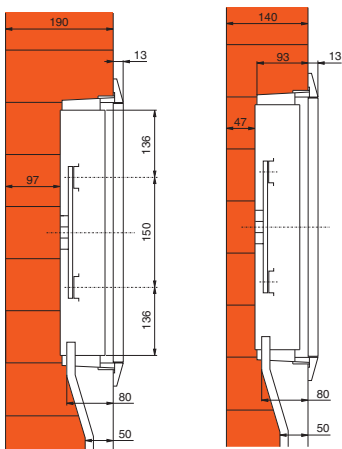
Dimensions (mm)				
Type	H	A	B	C
1 row - 18 mod.	270	163	162	135
2 rows - 36 mod.	450	343	342	150
3 rows - 54 mod.	600	493	492	150
4 rows - 72 mod.	750	643	642	150

Fix-o-Rail 150-F4 - Flush mounting

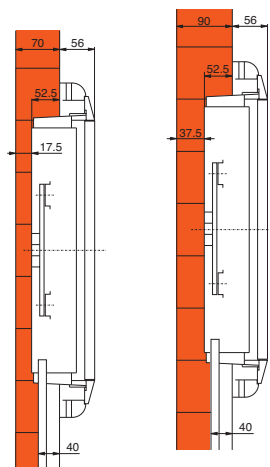


Dimensions (mm)			
Type	A	B	C
1 row - 14 mod.	350	313	301
2 rows - 28 mod.	525	488	476
3 rows - 42 mod.	675	638	626
4 rows - 56 mod.	825	788	776

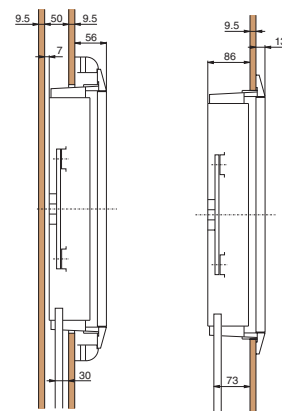
Fix-o-Rail 150-F4 - Flush mounting



Flush mounting
into brickwork



Flush mounting and semi flush
mounting into brickwork



Semi flush mounting
into studed walls

Dimenions

A

B

C

D

E

F

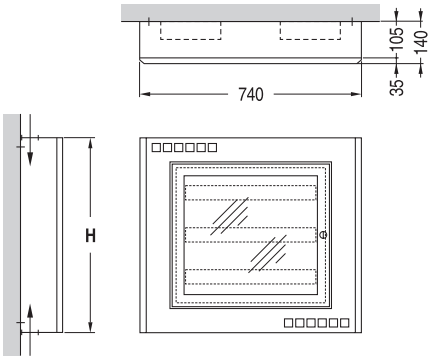
G

X

Dimensional drawings

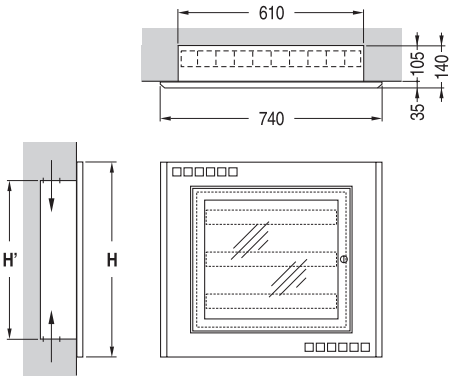
Fix-o-Rail 144

Fix-o-Rail 144 S
Surface mounting

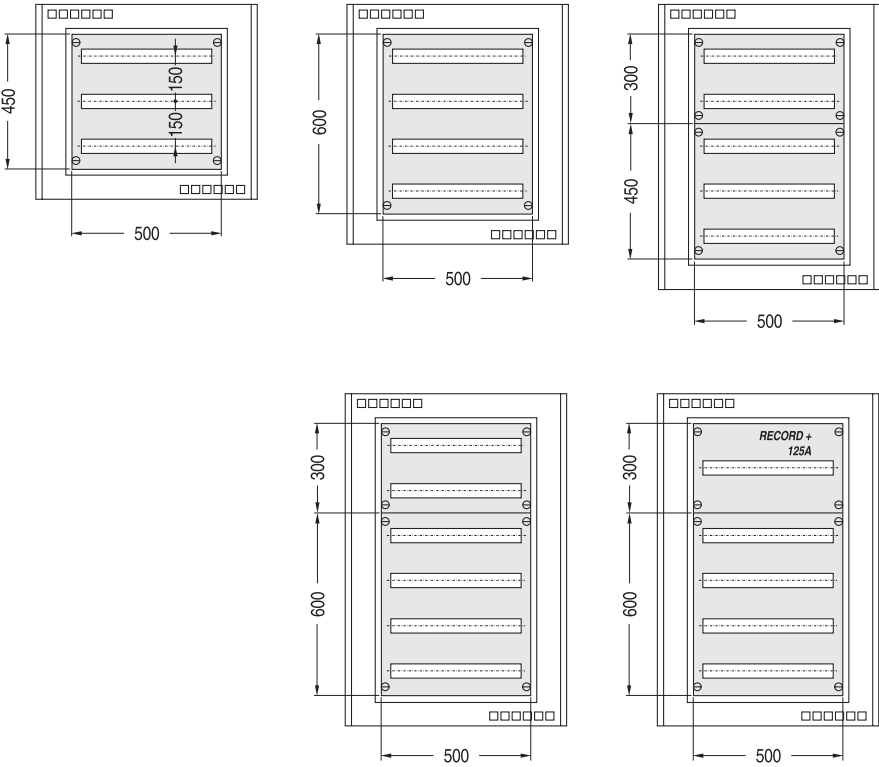


Dimensions (mm)	
	H
3 rows - 72 mod.	650
4 rows - 96 mod.	800
5 rows - 120 mod.	950
6 rows - 144 mod.	1100
4 rows+Record - 120 mod.	1100

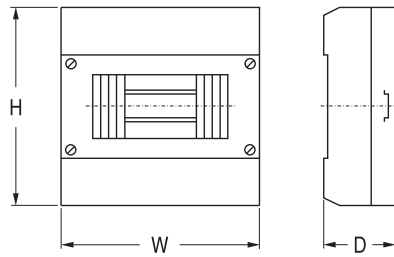
Fix-o-Rail 144 F
Flush mounting



Dimensions (mm)		
	H	H'
3 rows - 72 mod.	650	560
4 rows - 96 mod.	800	710
5 rows - 120 mod.	950	860
6 rows - 144 mod.	1100	1010
4 rows+Record - 120 mod.	1100	1010

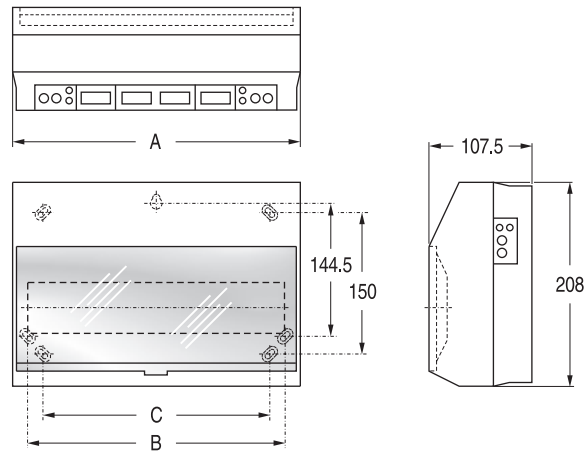


Fix-o-Rail Covers - Surface mounting



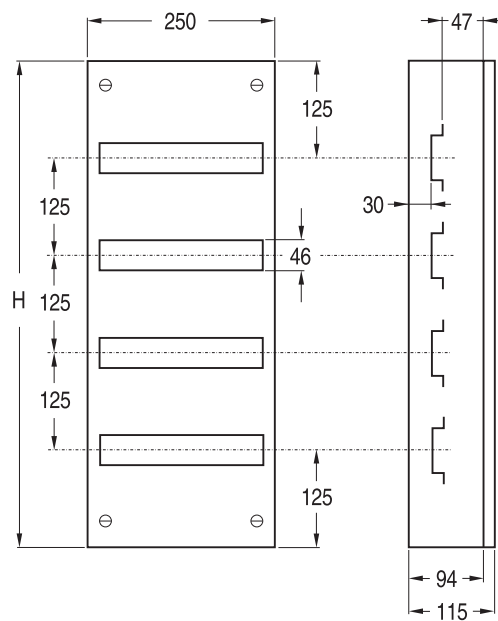
Dimensions (mm)			
Type	H	W	D
2 mod.	139	51	61
4 mod.	139	88	61
6 mod.	140	165	72
8 mod.	198	200	72

Fix-o-Rail Design - Surface mounting



Dimensions (mm)			
Type	A	B	C
10 mod.	220	188	168
14 mod.	292	260	240
18 mod.	370	340	310

Fix-o-Rail Classic - Surface mounting



Dimensions (mm)	
Type	H
1 row - 13 mod.	250
2 rows - 26 mod.	375
3 rows - 39 mod.	500
4 rows - 52 mod.	625

Dimenions

A

B

C

D

E

F

G

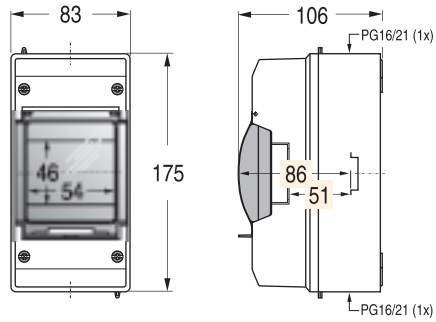
X

Fix-o-Rail

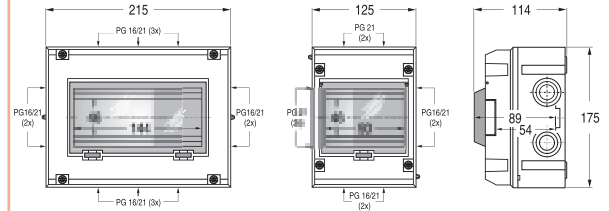
Dimensional drawings

Fix-o-Rail 55 - Surface mounting

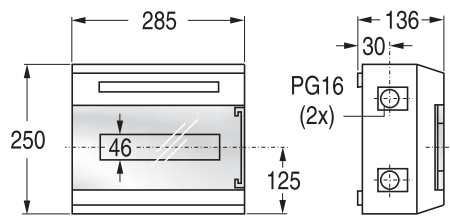
3 modules



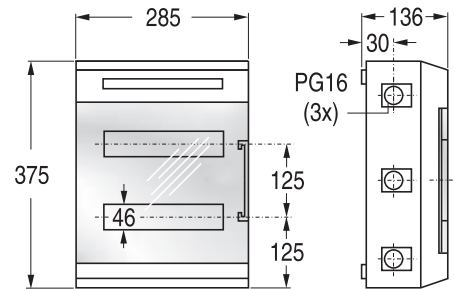
5-8 modules



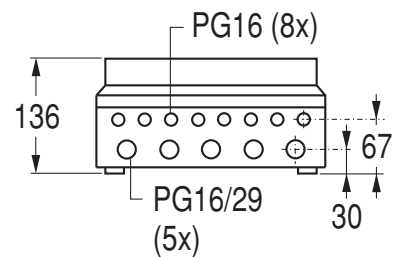
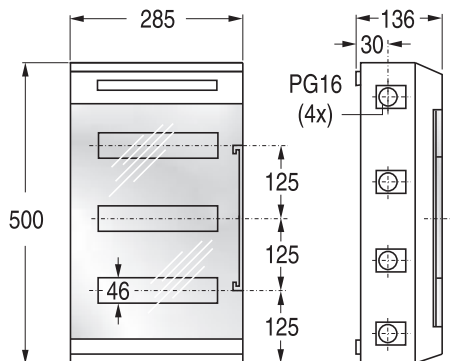
12 modules



24 modules



36 modules



Distribution boards

A

B

C

D

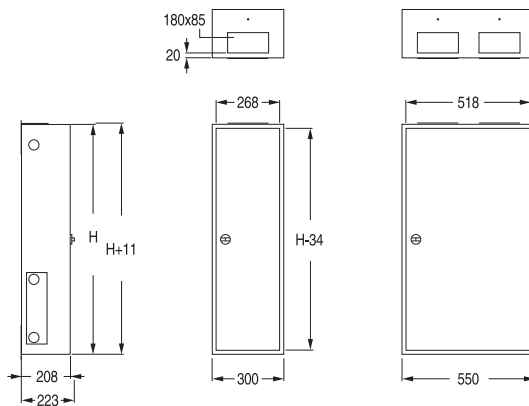
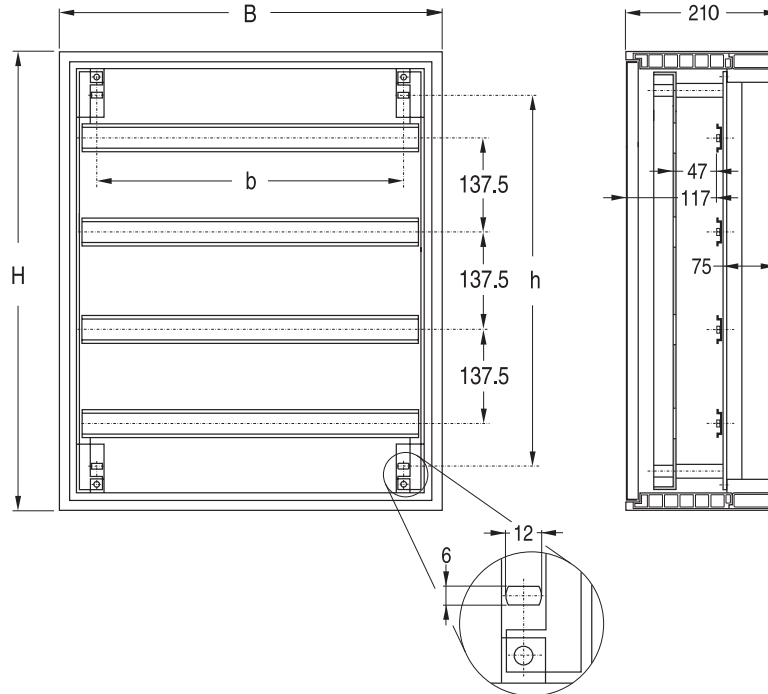
E

F

G

X

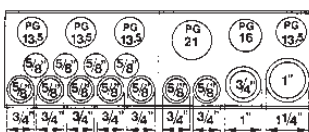
Fix-o-Rail Senior - Surface mounting



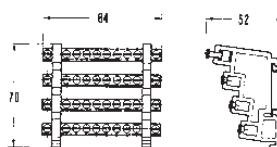
Dimensions (mm)				
Type	B	b	H	ha
4 rows - 48 mod.	300	191	650	401
5 rows - 60 mod.	300	191	800	551
4 rows - 96 mod.	550	441	650	401
5 rows - 120 mod.	550	441	800	551
6 rows - 144 mod.	550	441	950	701

Accessories distribution boards

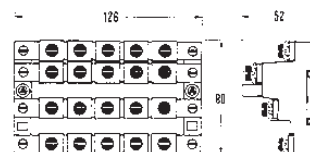
Gland plate



4P terminal 63A



4P terminal 160A

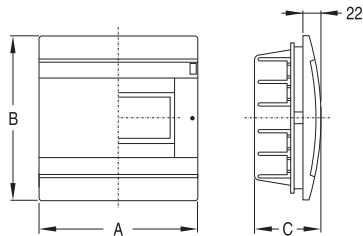


Fix-o-Rail

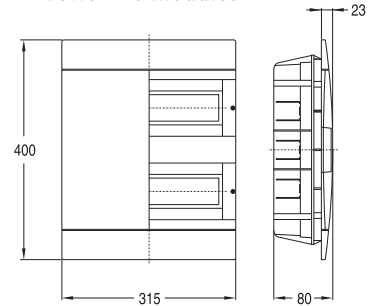
Dimensional drawings

Abaco F - Flush mounting

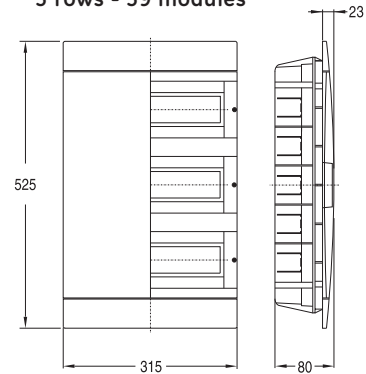
1 row - 14 modules



2 rows - 26 modules

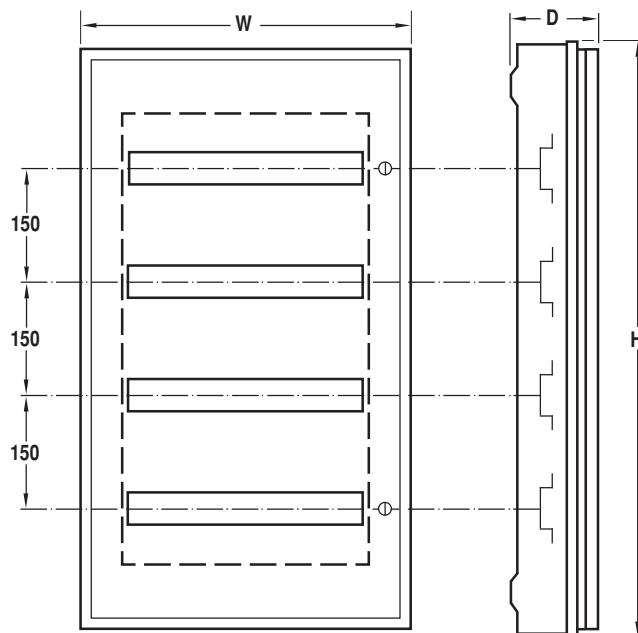


3 rows - 39 modules



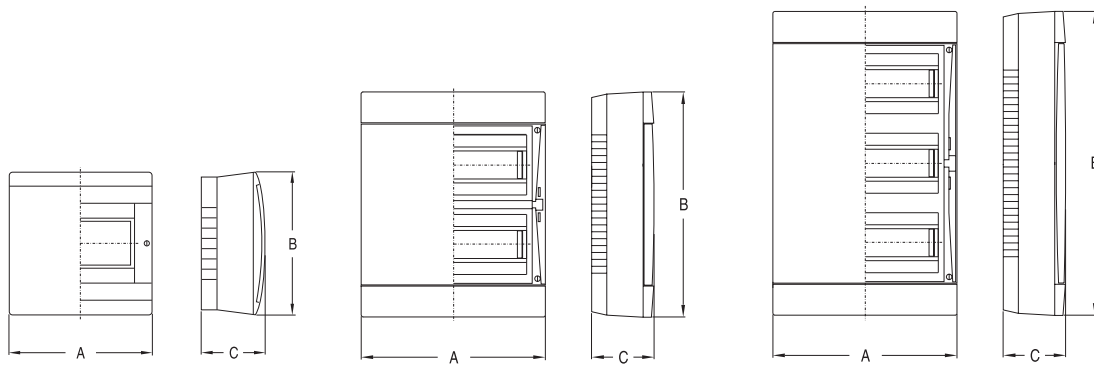
Dimensions (mm)			
Type	A	B	C
4 mod.	120	200	73
7 mod.	180	200	73
10 mod.	230	200	73
14 mod.	300	200	73

Fix-o-Rail 150 M - Surface mounting



Dimensions (mm)			
Type	H	W	D
1 row - 18 mod.	216	415	110
2 rows - 36 mod.	376	437	110
3 rows - 54 mod.	610	437	110
4 rows - 72 mod.	768	437	110

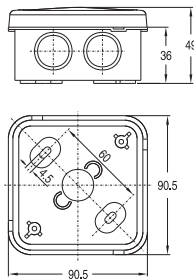
Abaco S - Surface mounting



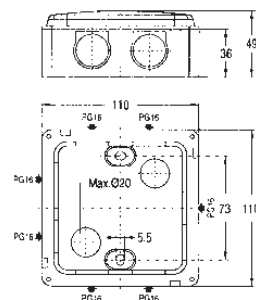
Dimensions (mm)			
Type	A	B	C
1 row - 8/10 mod.	230	200	110
1 row - 12/14 mod.	300	200	110
2 rows - 24/26 mod.	315	400	110
3 rows - 36/39 mod.	315	525	110

Flex-o-Box - Junction box

Flex-o-Box Junior

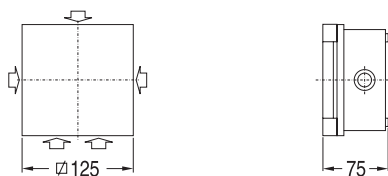


Flex-o-Box JB⁶

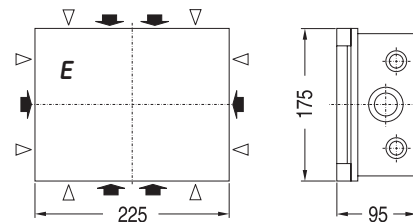


Series 55 - Junction box

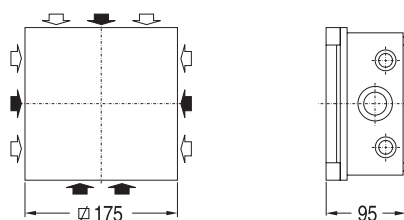
Series 55100



Series 55300



Series 55200



Dimensions

A

B

C

D

E

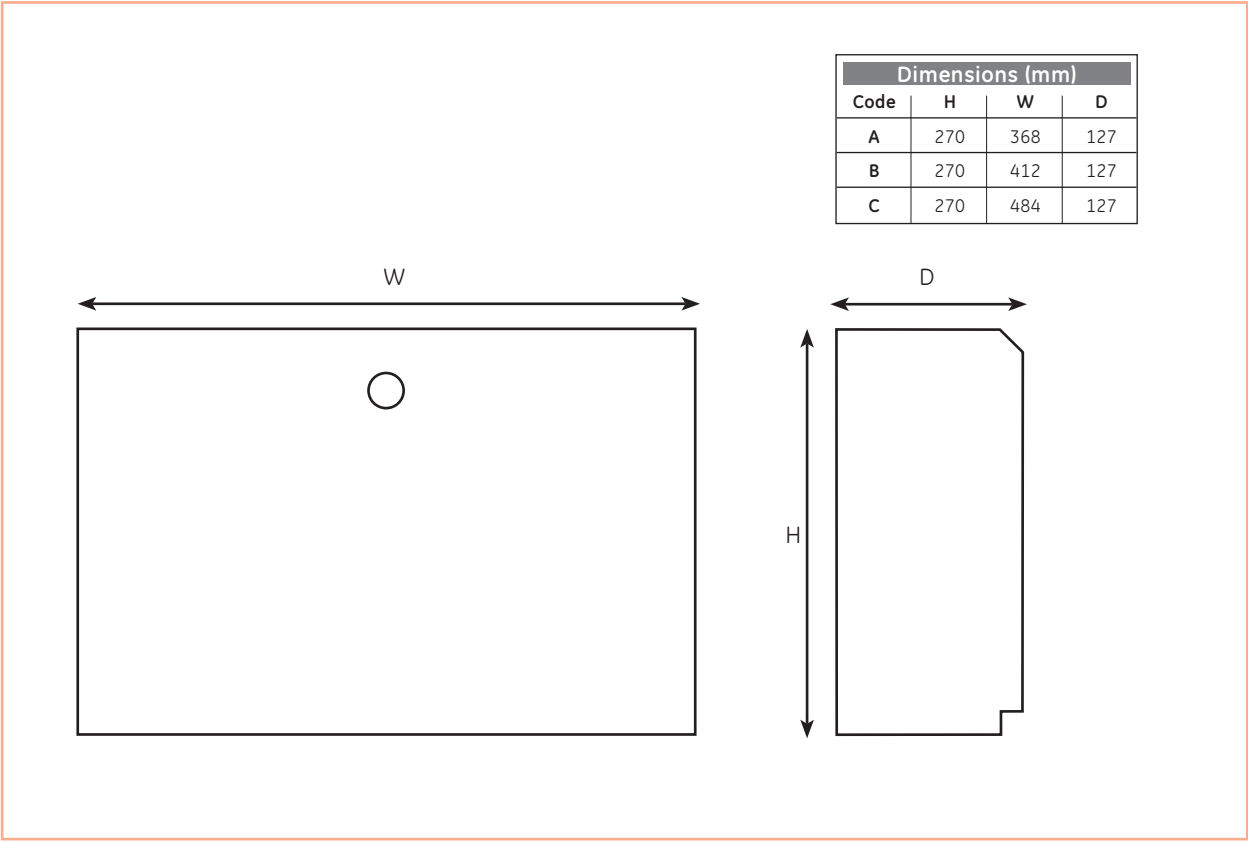
F

G

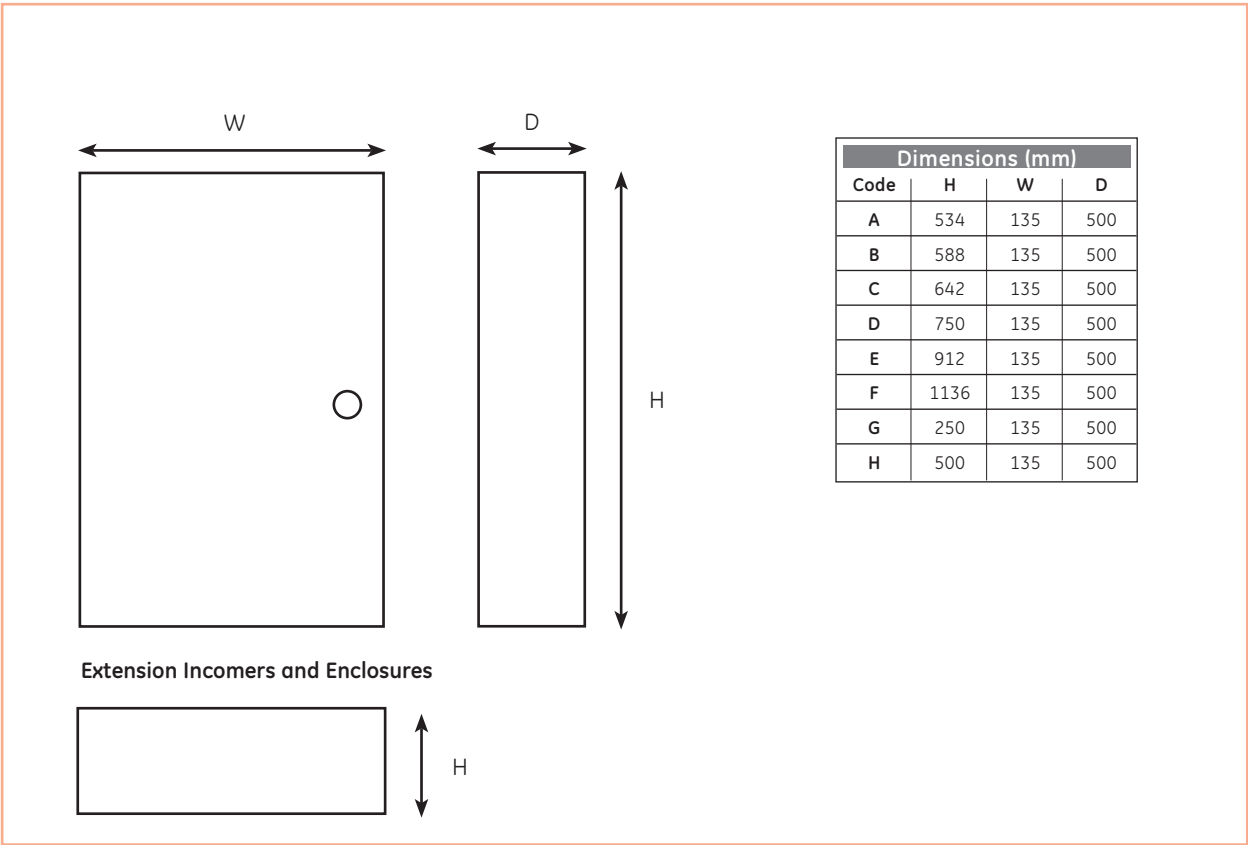
X

Dimensional drawings

Distribution board - Type A



Distribution board - Type B



Record Plus

Circuit protection

A

B

C

D

E

F

G

X



- (A) Auxiliary contact left mounted (NO or NC)
- (B) Auxiliary contact right mounted (NO or NC)
- (C) Bell alarm trip unit (NO or NC)
- (D) Shunt or undervoltage release
- (E) Operator Rotary handle
- (F) Side mounted RCD ⁽¹⁾

(1) Bottom mounted version is also available (below trip unit)

Dimensions ● pg G.6

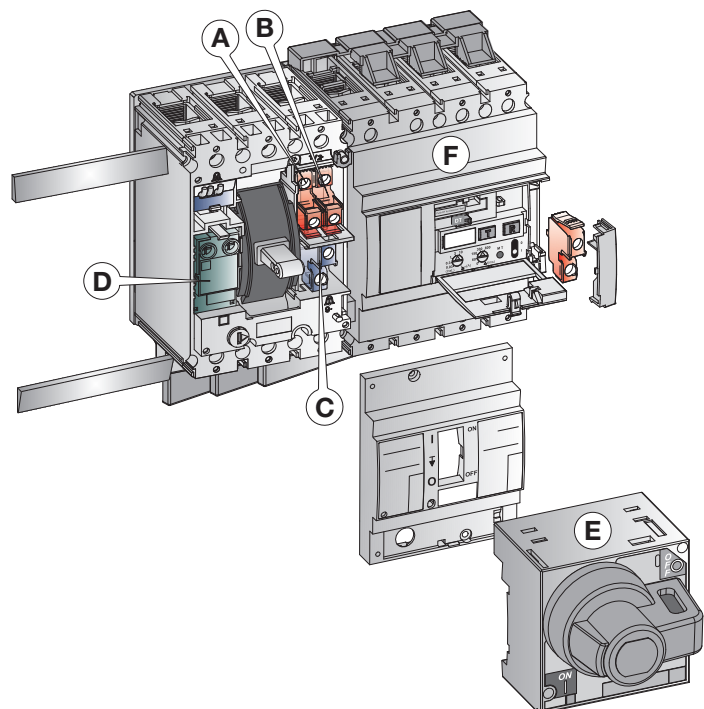
Moulded Case Circuit Breakers

FD frame 160A

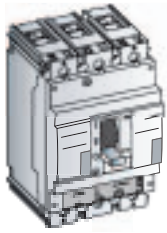
Circuit breaker type		FD63/160E
EN/IEC 60947-2		
Poles	Number of	3,4
Rated insulation voltage	Ui (V)	750
Rated impulse withstand voltage	Uimp (kV)	8
Rated operational voltage Ue	Volts AC	690
Line Protection Device		
Category of use		A
Suitable for use as a isolator	Positive ON & OFF	yes
Rated current Ith=Ie	A at 40°C	160
Ultimate breaking capacity Icu [kA]	230V AC	40
	400/415V AC	25
	440V AC	14
	500V AC	12
	690V AC	4.5
Service breaking capacity Ics (%Icu)	≤ 500V	75%
Single phase breaking capacity Itr [kA]	230V AC	25
	400/415V AC	4.5
Endurance (CO operations)	Mechanical	10000
	Electrical at In	5000
	Electrical at In/2	10000
Endurance (ON-tripped operations)	Mechanical	4000

Installation

Mounting	On symmetrical DIN-rail	yes
	Fixed	yes
Connection	Front	yes
	Rear	yes
Dimensions [W x H x D] mm	3pole, fixed front connection	81x130x85
	4pole, fixed front connection	108x130x85
Weights [kg]	3pole, fixed front connection	0.9
	4pole, fixed front connection	1.3



FD 63/160 - Complete Circuit Breaker



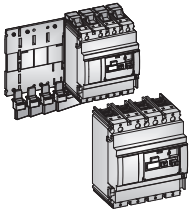
Line Thermal Magnetic LTM (adjustable thermals)

In (A)	3 pole 3 trips		4 pole 4 trips ⁽¹⁾	
	Cat. No.	Ref. No.	Cat. No.	Ref. No.
16	FDE36TE016ED	433649	FDE46TE016ED	433697
20	FDE36TE020ED	433651	FDE46TE020ED	433699
25	FDE36TE025ED	433653	FDE46TE025ED	433701
32	FDE36TE032ED	433655	FDE46TE032ED	433703
40	FDE36TE040ED	433657	FDE46TE040ED	433705
50	FDE36TE050ED	433659	FDE46TE050ED	433707
63	FDE36TE063ED	433661	FDE46TE063ED	433709
80	FDE36TE080GD	433663	FDE46TE080GD	433711
100	FDE36TE100GD	433665	FDE46TE100GD	433713
125	FDE36TE125GD	433667	FDE46TE125GD	433715
160	FDE36TE160GD	433669	FDE46TE160GD	433717

One code covers a standard, fixed front connection breaker with fixation hardware and DIN rail mounting kit. Bell alarm mechanism and motor drive accessories can not be used with the FDE type.

FD - Residual Current Devices

RCD Side Mounted⁽²⁾



3pole	220/440V	FDQDS3M/6	431095
4pole	220/440V	FDQDS4M/6	431103
3pole	400/690V	FDQDS3H/6	431090
4pole	400/690V	FDQDS4H/6	431101
One code covers an RCD with: DIN-rail mounting kit and multidirectional supply kit			
3pole	220/440V	FDQDI3M/6	431086
4pole	220/440V	FDQDI4M/6	431088
One code covers an RCD: Screw mounted device and interconnection kit (one side)			

(1) Neutral on the left.

(2) Bottom mounted version is also available (below trip unit).

FD 63/160

A

B

C

D

E

F

G

X

Record Plus

Circuit protection

A

B

C

D

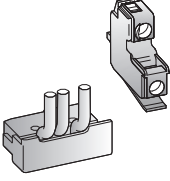
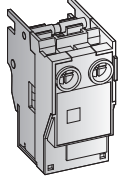
E

F

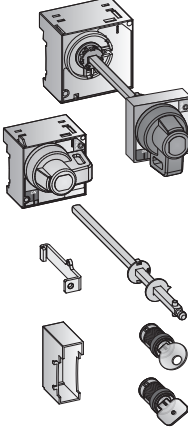
G

X

FD - Internal Accessories

Contacts		Normally open		Normally closed		Cat. No.	Ref. No.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.		
	Aux. switch right mounted	FAS10R	430837	FAS01R	430831		
	Aux. switch left mounted	FAS10L	430834	FAS01L	430828		
	Bell alarm trip unit	FABAT10	430818	FABAT01	430815		
	Bell alarm RCD device	FABAT10	430818	FABAT01	430815		
Releases		Shunt		Undervoltage		Delayed undervoltage	
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.
	12V AC/DC	FASHTB	430840				
	24V AC/DC	FASHTD	430843	FAUVRD	430861		
	48V AC/DC	FASHTF	430846	FAUVRF	430864		
	60V AC/DC	FASHTH	435118	FAUVRH	435120		
	110V AC/DC	FASHTJ	430849	FAUVRJ	430867		
	220/240V AC/DC	FASHTN	430852	FAUVRN	430870	FAUVDN	430858
	400/415V AC	FASHTU	430855	FAUVR8	436472		
	440/480V AC			FAUVRU	430873		

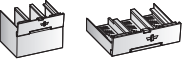
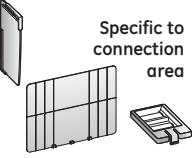
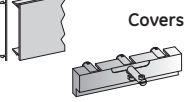
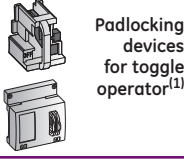
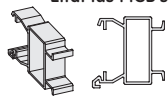
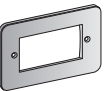
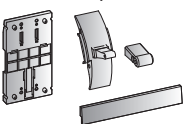
FD - Operators

Rotary Handles		Direct on unit device		Rotary handle for use through door or cover plate ⁽²⁾		Panel or door mounted	
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.
	Grey (max. 350 mm)	FDNRF/5	436478	FDNRC/5	436474	FDNRD/5	436476
	Red (max. 350 mm)	FDNRFV/5	436479	FDNRCV/5	436475	FDNRDV/5	436477
	Grey + auxiliary contacts 2xNO			FDNRV/5	436487	FDNRZ/5	436489
	Red + auxiliary contacts 2xNO			FDNRV/5	436488	FDNRZV/5	436490
	Flex operator adaptor push to trip	FDNFT	430968				
	Extension shaft kit (max. 600 mm)	FDNRE	430986				
	Side-by-side installation adapter kit	FDNR4	430971				
	Ronis Key lock 1 ⁽¹⁾	FA1BR1	430088				
	Ronis Key lock 2 ⁽¹⁾	FA1BR2	430089				
	Ronis Key lock 3 ⁽¹⁾	FA1BR3	430504				
	Ronis Key lock 4 ⁽¹⁾	FA1BR4	430505				
	Ronis Key lock 5 ⁽¹⁾	FA1BR5	430506				
	Ronis Key lock 6 ⁽¹⁾	FA1BR6	430507				
	Ronis Key lock ⁽¹⁾	FA1BRH	430068				
	Profalux Key lock ⁽¹⁾	FA1BPH	430813				

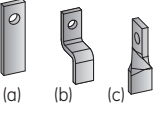
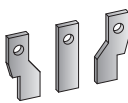
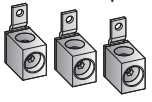
(1) Key included

(2) Add door flange FDFH to allow use of the door interlock options

FD - Installation Accessories

Terminal shields (with finishing covers)		Cat. No.	Ref. No.
	Long 3pole, set of 2 pcs.	FDJL3	430951
	Long 4pole, set of 2 pcs.	FDJL4	430954
	Short 3pole, set of 2 pcs.	FDJS3	430960
	Short 4pole, set of 2 pcs.	FDJS4	430963
	Phase separators, set of 12 pcs.	FDJP	430957
	Back plate set of 2 pcs. (3 or 4 pole)	FDJB	430945
	Finger protection IPXXB (set of 12 pcs.)	FDJK	430069
	Cutout adaptor, breaker + T.U. 3 pole	FDUF3	430830
	Cutout adaptor, breaker + T.U. 4 pole	FDUF4	430832
	Cutout filler length 1,2 meter 64 mm	FBF6	883970
	Padlocking removable	FD1PR	430879
	Padlocking fixed	FD1PF	430878
	Circuit indication/ coding	FAC	430821
	Heightening set for ElfaPlus MCB's	FDKE	617947
	Breaker front face 3 pole and RCD bottom mounted	FDF3	430941
	Breaker front face 4 pole	FDF4	430942
	Rotary handle (through cover plate model)	FDFH	430829
	Electrical operator	FDFE	432010
	DIN-rail adaptor kit 3pole ⁽²⁾	FDKD3	430966
	DIN-rail adaptor kit 4pole ⁽²⁾	FDKD4	430967
	Spare toggle (set of 5 pieces)	FDUT	433539
	Finishing covers 3pole, set of 2 pcs ⁽²⁾	FDUA3	431025
	Finishing covers 4pole, set of 2 pcs ⁽²⁾	FDUA4	431026

FD - Connections: Optional

	Extenders⁽³⁾			
	Standard 3pole	(a)	FDBES3	430887
	Standard 4pole		FDBES4	430888
	Heightened 3pole	(b)	FDBEH3	430885
	Heightened 4 pole		FDBEH4	430886
	Twisted 90° 3pole	(c)	FDBEA3	430883
	Spreader Flat⁽³⁾			
	Pole spacing 35 mm, 3pole		FDBSS3	430891
	External Box Clamps⁽³⁾			
	Box clamp Cu/Al 95 mm ² , set 3pole ⁽⁴⁾		FDTC1316	433400
	Box clamp Cu/Al 95 mm ² , set 4pole ⁽⁴⁾		FDTC1416	433401

(1) Padlocks not included

(2) Supplied with breakers, not with FDE type

(3) Set for equipping the line OR load side of breaker

(4) External lugs are always delivered with standard extender



FD 63/160

A

B

C

D

E

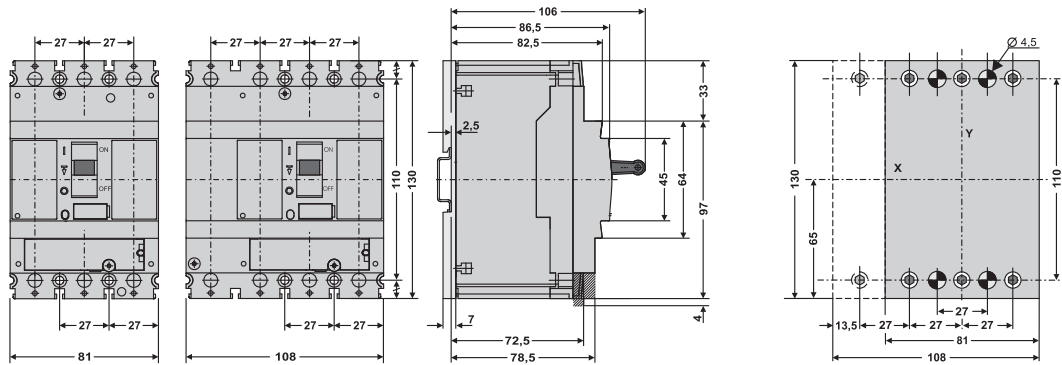
F

G

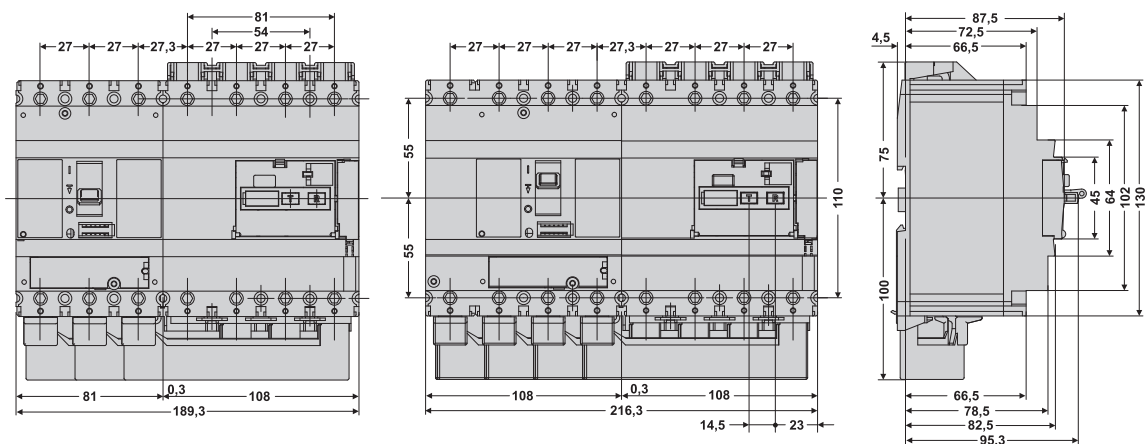
X

Dimensional Drawings

Breakers FD63/160 Fixed, Front connected



RCD Side mounted - FD63/160



		By reference number
		A
		B
		C
		D
		E
		F
		G
X.2	Numerical index by reference number	
X.14	Numerical index by catalogue number	
Numerical Index		X

Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
29...			433711	FDE46TE080GD	G.3	60...			605171	DMEA100C06/030	B.15
290234	EP103ULHB05	A.41	433713	FDE46TE100GD	G.3	600232	EDRE	A.50	605172	DMEA100C10/030	B.15
290237	EP103ULHB13	A.41	433715	FDE46TE125GD	G.3	600310	-	F.47	605173	DMEA100C16/030	B.15
290238	EP103ULHB15	A.41	433717	FDE46TE160GD	G.3	600311	-	F.47	605174	DMEA100C20/030	B.15
290242	EP103ULHB30	A.41	435118	FASHTH	G.4	600501	-	F.50	605175	DMEA100C25/030	B.15
40...			435120	FAUVRH	G.4	600502	-	F.50	605176	DMEA100C32/030	B.15
409000	LLINK1	F.29	436472	FAUVR8	G.4	600504	-	F.50	605177	DMEA100C40/030	B.15
43...			436474	FDNRC/5	G.4	600505	-	F.50	606085	BPA216/010	B.7
430068	FA1BRH	G.4	436475	FDNRCV/5	G.4	600506	-	F.50	606086	BPA225/030	B.7
430069	FDJK	G.5	436476	FDNRD/5	G.4	600507	-	F.50	606087	BPA240/030	B.7
430088	FA1BR1	G.4	436477	FDNRDV/5	G.4	600509	-	F.50	606088	BPA263/030	B.7
430089	FA1BR2	G.4	436478	FDNRF/	G.4	600514	-	F.49	606089	BPA280/030	B.7
430504	FA1BR3	G.4	436479	FDNRFV/	G.4	600515	-	F.49	606090	BPA2100/030	B.7
430505	FA1BR4	G.4	436487	FDNRY/5	G.4	600516	-	F.50	606091	BPA225/100	B.7
430506	FA1BR5	G.4	436488	FDNRYV/5	G.4	600517	-	F.49	606092	BPA240/100	B.7
430507	FA1BR6	G.4	436489	FDNRZ/5	G.4	600523	-	F.49	606093	BPA263/100	B.7
430813	FA1BPH	G.4	436490	FDNRZV/5	G.4	600524	-	F.49	606094	BPA280/100	B.7
430815	FABAT01	G.4	54...			600525	-	F.50	606095	BPA2100/100	B.7
430818	FABAT10	G.4	544331	VBANPE	D.37	600526	-	F.50	606096	BPS225/100	B.7
430821	FAC	G.5	545857	VED63	D.37	600532	-	F.49	606097	BPS240/100	B.7
430828	FAS01L	G.4	545879	VED35	D.37	600539	-	F.49	606098	BPS263/100	B.7
430829	FDHF	G.5	546181	-	E.6	600543	-	F.49	606099	BPS280/100	B.7
430830	FDUF3	G.5	546184	-	E.6	600544	-	F.50	606100	BPS2100/100	B.7
430831	FAS01R	G.4	546291	-	E.9	600545	-	F.50	606101	BPA225/300	B.7
430832	FDUF4	G.5	546297	LK/N7	F.40	600573	-	F.37	606102	BPA240/300	B.7
430834	FAS10L	G.4	546298	LK/N12	F.40	600574	-	F.37	606103	BPA263/300	B.7
430837	FAS10R	G.4	546299	LK/N15	F.40	600575	-	F.37	606104	BPA280/300	B.7
430840	FASHTB	G.4	546300	SKU 16/	F.40	600650	-	F.47	606105	BPA2100/300	B.7
430843	FASHTD	G.4	546301	SKU 35/	F.40	600651	-	F.47	606106	BPS225/300	B.7
430846	FASHTF	G.4	546302	SKU 70/	F.40	600652	-	F.47	606107	BPS240/300	B.7
430849	FASHTJ	G.4	546306	AKG 25	F.40	600656	-	F.47	606108	BPS263/300	B.7
430852	FASHTN	G.4	546307	AKS 25	F.40	600933	-	F.47	606109	BPS280/300	B.7
430855	FASHTU	G.4	546331	FST	F.40	600934	-	F.47	606110	BPS2100/300	B.7
430858	FAUVDN	G.4	546332	FDT	F.40	600945	-	F.47	606111	BPA225/500	B.7
430861	FAUVRD	G.4	546336	EKL	F.40	600950	-	F.47	606112	BPA240/500	B.7
430864	FAUVRF	G.4	56...			601795	-	D.27	606113	BPA263/500	B.7
430867	FAUVRJ	G.4	560174	VBAB1	D.37	605030	DME100B06/010	B.15	606114	BPA280/500	B.7
430870	FAUVRN	G.4	560186	VBAB3	D.37	605031	DME100B10/010	B.15	606115	BPA2100/500	B.7
430873	FAUVRU	G.4	562056	AGBS24	F.40	605032	DME100B16/010	B.15	606116	BPS225/500	B.7
430878	FD1PF	G.5	562273	AGBS25	F.40	605033	DME100B20/010	B.15	606117	BPS240/500	B.7
430879	FD1PR	G.5	562445	AXSK71	F.40	605034	DME100B25/010	B.15	606118	BPS263/500	B.7
430883	FDBEA3	G.5	564041	AAZA10	F.40	605035	DME100B32/010	B.15	606119	BPS280/500	B.7
430884	FDBEA4	G.5	564042	AAZA1	F.40	605036	DME100B40/010	B.15	606120	BPS2100/500	B.7
430885	FDBEH3	G.5	564043	AAZA2	F.40	605037	DME100B06/030	B.15	606121	BPA225/1000	B.7
430886	FDBEH4	G.5	564044	AAZA3	F.40	605038	DME100B10/030	B.15	606122	BPA240/1000	B.7
430887	FD BES3	G.5	564045	AAZA4	F.40	605039	DME100B16/030	B.15	606123	BPA263/1000	B.7
430888	FD BES4	G.5	564046	AAZPN12	F.40	605040	DME100B20/030	B.15	606124	BPA280/1000	B.7
430891	FDBSS3	G.5	564047	AAZPN16	F.40	605041	DME100B25/030	B.15	606125	BPA2100/1000	B.7
430892	FDBSS4	G.5	564048	AAZP33	F.40	605042	DME100B32/030	B.15	606126	BPS225/1000	B.7
430941	FDFF3	G.5	564049	AAZN33	F.40	605043	DME100B40/030	B.15	606127	BPS240/1000	B.7
430942	FDFF4	G.5	564050	AAZK12	F.40	605044	DME100C06/010	B.15	606128	BPS263/1000	B.7
430945	FDJB	G.5	564051	AAZK16	F.40	605045	DME100C10/010	B.15	606129	BPS280/1000	B.7
430951	FDJL3	G.5	564052	AAZK33	F.40	605046	DME100C16/010	B.15	606130	BPS2100/1000	B.7
430954	FDJL4	G.5	564053	AAZN3	F.40	605047	DME100C20/010	B.15	606131	BPC216/010*	B.7
430957	FDJP	G.5	564054	AAZG1	F.40	605048	DME100C25/010	B.15	606134	BPC263/030	B.7
430960	FDJS3	G.5	564055	AAZTU1	F.40	605049	DME100C32/010	B.15	606135	BPC280/030	B.7
430963	FDJS4	G.5	564056	AAZTA1	F.40	605050	DME100C40/010	B.15	606136	BPC2100/030	B.7
430966	FDKD3	G.5	564057	-	F.39	605051	DME100C06/030	B.15	606140	BPC225/100	B.7
430967	FDKD4	G.5	564058	-	F.39	605052	DME100C10/030	B.15	606141	BPC240/100	B.7
430968	FDNFT	G.4	564059	-	F.39	605053	DME100C16/030	B.15	606142	BPC263/100	B.7
430971	FDNR4	G.4	564060	-	F.39	605054	DME100C20/030	B.15	606143	BPC280/100	B.7
430986	FDNRE	G.4	564061	-	F.39	605055	DME100C25/030	B.15	606144	BPC2100/100	B.7
431025	FDUA3	G.5	564062	-	F.39	605056	DME100C32/030	B.15	606150	BPC263/300	B.7
431026	FDUA4	G.5	564063	-	F.39	605057	DME100C40/030	B.15	606151	BPC280/300	B.7
431086	FDQDI3M/6	G.3	564064	-	F.39	605060	DME60C06/030	B.15	606152	BPC2100/300	B.7
431088	FDQDI4M/6	G.3	564065	-	F.39	605061	DME60C10/030	B.15	606153	BPC225/500	B.7
431090	FDQDS3H/6	G.3	564066	-	F.39	605062	DME60C16/030	B.15	606154	BPC240/500	B.7
431095	FDQDS3M/6	G.3	564067	-	F.39	605063	DME60C20/030	B.15	606155	BPC263/500	B.7
431101	FDQDS4H/6	G.3	564068	-	F.39	605064	DME60C25/030	B.15	606156	BPC280/500	B.7
431103	FDQDS4M/6	G.3	564092	PS	F.40	605065	DME60C32/030	B.15	606157	BPC2100/500	B.7
432010	FD FE	G.5	564349	AAZTU2	F.40	605066	DME60C40/030	B.15	606158	BPC225/1000	B.7
433400	FDTCA1316	G.5	564350	AAZTA2	F.40	605150	DMEA100B06/010	B.15	606159	BPC240/1000	B.7
433401	FDTCA1416	G.5	564352	AAZP11	F.40	605151	DMEA100B10/010	B.15	606160	BPC263/1000	B.7
433539	FDUT	G.5	564353	AAZP12	F.40	605152	DMEA100B16/010	B.15	606161	BPC280/1000	B.7
433649	FDE36TE016ED	G.3	564533	-	F.39	605153	DMEA100B20/010	B.15	606162	BPC2100/1000	B.7
433651	FDE36TE020ED	G.3	564534	-	F.39	605154	DMEA100B25/010	B.15	606163	BPA425/030	B.7
433653	FDE36TE025ED	G.3	564535	-	F.39	605155	DMEA100B32/010	B.15	606164	BPA440/030	B.7
433655	FDE36TE032ED	G.3	564536	-	F.39	605156	DMEA100B40/010	B.15	606165	BPA463/030	B.7
433657	FDE36TE040ED	G.3	564537	-	F.39	605157	DMEA100B06/030	B.15	606166	BPA480/030	B.7
433659	FDE36TE050ED	G.3	564538	-	F.39	605158	DMEA100B10/030	B.15	606167	BPA4100/030	B.7
433661	FDE36TE063ED	G.3	564539	-	F.39	605159	DMEA100B16/030	B.15	606168	BPA425/100	B.7
433663	FDE36TE080GD	G.3	564540	-	F.39	605160	DMEA100B20/030	B.15	606169	BPA440/100	B.7
433665	FDE36TE100GD	G.3	564541	-	F.39	605161	DMEA100B25/030	B.15	606170	BPA463/100	B.7
433667	FDE36TE125GD	G.3	564542	-	F.39	605162	DMEA100B32/030	B.15	606171	BPA480/100	B.7
433669	FDE36TE160GD	G.3	564543	-	F.39	605163	DMEA100B40/030	B.15	606172	BPA4100/100	B.7
433697	FDE46TE016ED	G.3	564544	-	F.39	605164	DMEA100C06/010	B.15	606173	BPS425/100	B.7
433699	FDE46TE020ED	G.3	564545	-	F.39	605165	DMEA100C10/010	B.15	606174	BPS440/100	B.7
433701	FDE46TE025ED	G.3	564546	-	F.39	605166	DMEA100C16/010	B.15	606175	BPS463/100	B.7
433703	FDE46TE032ED	G.3	564547	-	F.39	605167	DMEA100C20/010	B.15	606176	BPS480/100	B.7
433705	FDE46TE040ED	G.3	564548	-	F.39	605168	DMEA100C25/010	B.15	606177	BPS4100/100	B.7
433707	FDE46TE050ED	G.3	59...			605169	DMEA100C32/010	B.15	606178	BPA425/300	B.7
433709	FDE46TE063ED	G.3	594009	NLINK1	F.29	605170	DMEA100C40/010	B.15	606179	BPA440/300	B.7



Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
606180	BPA463/300	B.7	607516	DOCS 232/1000	B.17	608384	FPAUL 240/300	B.18	609776	DMA60C06/030	B.9
606181	BPA480/300	B.7	607519	DOCS 263/100	B.17	608385	FPAUL 240/500	B.18	609777	DMA60C10/030	B.9
606182	BPA4100/300	B.7	607520	DOCS 263/300	B.17	608386	FPAUL 263/030	B.18	609778	DMA60C13/030	B.9
606183	BPS425/300	B.7	607521	DOCS 263/500	B.17	608387	FPAUL 263/100	B.18	609779	DMA60C16/030	B.9
606184	BPS440/300	B.7	607522	DOCS 263/1000	B.17	608388	FPAUL 263/300	B.18	609780	DMA60C20/030	B.9
606185	BPS463/300	B.7	607536	DOC 232/030	B.17	608389	FPAUL 425/030	B.18	609781	DMA60C25/030	B.9
606186	BPS480/300	B.7	607537	DOC 232/100	B.17	608390	FPAUL 425/100	B.18	609782	DMA60C32/030	B.9
606187	BPS4100/300	B.7	607538	DOC 232/300	B.17	608391	FPAUL 425/300	B.18	609783	DMA60C40/030	B.9
606188	BPA425/500	B.7	607539	DOC 232/500	B.17	608392	FPAUL 425/500	B.18	609784	DMA60C04/100	B.9
606189	BPA440/500	B.7	607540	DOC 232/1000	B.17	608393	FPAUL 440/030	B.18	609785	DMA60C06/100	B.9
606190	BPA463/500	B.7	607542	DOC 263/030	B.17	608394	FPAUL 440/100	B.18	609786	DMA60C10/100	B.9
606191	BPA480/500	B.7	607543	DOC 263/100	B.17	608395	FPAUL 440/300	B.18	609787	DMA60C13/100	B.9
606192	BPA4100/500	B.7	607544	DOC 263/300	B.17	608396	FPAUL 440/500	B.18	609788	DMA60C16/100	B.9
606193	BPS425/500	B.7	607545	DOC 263/500	B.17	608397	FPAUL 463/030	B.18	609789	DMA60C20/100	B.9
606194	BPS440/500	B.7	607546	DOC 263/1000	B.17	608398	FPAUL 463/100	B.18	609790	DMA60C25/100	B.9
606195	BPS463/500	B.7	607584	DOCA 332/030	B.17	608399	FPAUL 463/300	B.18	609791	DMA60C32/100	B.9
606196	BPS480/500	B.7	607585	DOCA 332/100	B.17	608400	FPAUL 463/500	B.18	609792	DMA60C40/100	B.9
606197	BPS4100/500	B.7	607586	DOCA 332/300	B.17	608401	FPAUL 263/500	B.18	609793	DMA60C04/300	B.9
606198	BPA425/1000	B.7	607587	DOCA 332/500	B.17	608706	DPA100B10/010	B.19	609794	DMA60C06/300	B.9
606199	BPA440/1000	B.7	607588	DOCA 332/1000	B.17	608707	DPA100B13/010	B.19	609795	DMA60C10/300	B.9
606200	BPA463/1000	B.7	607590	DOCA 363/030	B.17	608708	DPA100B16/010	B.19	609796	DMA60C13/300	B.9
606201	BPA480/1000	B.7	607591	DOCA 363/100	B.17	608709	DPA100B20/010	B.19	609797	DMA60C16/300	B.9
606202	BPA4100/1000	B.7	607592	DOCA 363/300	B.17	608712	DPA100B10/030	B.19	609798	DMA60C20/300	B.9
606203	BPS425/1000	B.7	607593	DOCA 363/500	B.17	608713	DPA100B13/030	B.19	609799	DMA60C25/300	B.9
606204	BPS440/1000	B.7	607594	DOCA 363/1000	B.17	608714	DPA100B16/030	B.19	609800	DMA60C32/300	B.9
606205	BPS463/1000	B.7	607597	DOCS 332/100	B.17	608715	DPA100B20/030	B.19	609801	DMA60C40/300	B.9
606206	BPS480/1000	B.7	607598	DOCS 332/300	B.17	608716	DPA100B25/030	B.19	609802	DM60B06/010	B.9
606207	BPS4100/1000	B.7	607599	DOCS 332/500	B.17	608717	DPA100B32/030	B.19	609803	DM60B10/010	B.9
606208	BPC425/030	B.7	607600	DOCS 332/1000	B.17	608757	DPA100C10/010	B.19	609804	DM60B13/010	B.9
606209	BPC440/030	B.7	607603	DOCS 363/100	B.17	608758	DPA100C13/010	B.19	609805	DM60B16/010	B.9
606210	BPC463/030	B.7	607604	DOCS 363/300	B.17	608759	DPA100C16/010	B.19	609806	DM60B20/010	B.9
606211	BPC480/030	B.7	607605	DOCS 363/500	B.17	608760	DPA100C20/010	B.19	609807	DM60B06/030	B.9
606212	BPC4100/030	B.7	607606	DOCS 363/1000	B.17	608763	DPA100C10/030	B.19	609808	DM60B10/030	B.9
606216	BPC425/100	B.7	607620	DOC 332/030	B.17	608764	DPA100C13/030	B.19	609809	DM60B13/030	B.9
606217	BPC440/100	B.7	607621	DOC 332/100	B.17	608765	DPA100C16/030	B.19	609810	DM60B16/030	B.9
606218	BPC463/100	B.7	607622	DOC 332/300	B.17	608766	DPA100C20/030	B.19	609811	DM60B20/030	B.9
606219	BPC480/100	B.7	607623	DOC 332/500	B.17	608767	DPA100C25/030	B.19	609812	DM60B25/030	B.9
606220	BPC4100/100	B.7	607624	DOC 332/1000	B.17	608768	DPA100C32/030	B.19	609813	DM60B32/030	B.9
606224	BPC425/300	B.7	607626	DOC 363/030	B.17	609280	DMT60C04/030	B.9	609814	DM60B40/030	B.9
606225	BPC440/300	B.7	607627	DOC 363/100	B.17	609281	DMT60C06/030	B.9	609815	DM60B06/100	B.9
606226	BPC463/300	B.7	607628	DOC 363/300	B.17	609282	DMT60C10/030	B.9	609816	DM60B10/100	B.9
606227	BPC480/300	B.7	607629	DOC 363/500	B.17	609283	DMT60C13/030	B.9	609817	DM60B13/100	B.9
606228	BPC4100/300	B.7	607630	DOC 363/1000	B.17	609284	DMT60C16/030	B.9	609818	DM60B16/100	B.9
606229	BPC425/500	B.7	607668	DOCA 532/030	B.17	609285	DMT60C20/030	B.9	609819	DM60B20/100	B.9
606230	BPC440/500	B.7	607669	DOCA 532/300	B.17	609286	DMT60C25/030	B.9	609820	DM60B25/100	B.9
606231	BPC463/500	B.7	607670	DOCA 532/100	B.17	609287	DMT60C32/030	B.9	609821	DM60B32/100	B.9
606232	BPC480/500	B.7	607671	DOCA 532/500	B.17	609288	DMT60C40/030	B.9	609822	DM60B40/100	B.9
606233	BPC4100/500	B.7	607672	DOCA 532/1000	B.17	609289	DMT100C04/030	B.11	609823	DM60B06/300	B.9
606234	BPC425/1000	B.7	607674	DOCA 432/030	B.17	609290	DMT100C06/030	B.11	609824	DM60B10/300	B.9
606235	BPC440/1000	B.7	607675	DOCA 432/100	B.17	609291	DMT100C10/030	B.11	609825	DM60B13/300	B.9
606236	BPC463/1000	B.7	607676	DOCA 432/300	B.17	609292	DMT100C13/030	B.11	609826	DM60B16/300	B.9
606237	BPC480/1000	B.7	607677	DOCA 432/500	B.17	609293	DMT100C16/030	B.11	609827	DM60B20/300	B.9
606238	BPC4100/1000	B.7	607678	DOCA 432/1000	B.17	609294	DMT100C20/030	B.11	609828	DM60B25/300	B.9
606331	BPAi225/030	B.7	607680	DOCA 463/030	B.17	609295	DMT100C25/030	B.11	609829	DM60B32/300	B.9
606332	BPAi240/030	B.7	607681	DOCA 463/100	B.17	609296	DMT100C32/030	B.11	609830	DM60B40/300	B.9
606333	BPAi263/030	B.7	607682	DOCA 463/300	B.17	609297	DMT100C40/030	B.11	609831	DM60C04/010	B.9
606334	BPAi425/030	B.7	607683	DOCA 463/500	B.17	609740	DMA60B06/010	B.9	609832	DM60C06/010	B.9
606335	BPAi440/030	B.7	607684	DOCA 463/1000	B.17	609741	DMA60B10/010	B.9	609833	DM60C10/010	B.9
606336	BPAi463/030	B.7	607687	DOCS 532/100	B.17	609742	DMA60B13/010	B.9	609834	DM60C13/010	B.9
606337	BPSi225/300	B.7	607688	DOCS 532/300	B.17	609743	DMA60B16/010	B.9	609835	DM60C16/010	B.9
606338	BPSi240/300	B.7	607689	DOCS 532/500	B.17	609744	DMA60B20/010	B.9	609836	DM60C20/010	B.9
606339	BPSi263/300	B.7	607690	DOCS 532/1000	B.17	609745	DMA60B06/030	B.9	609837	DM60C04/030	B.9
606340	BPSi280/300	B.7	607693	DOCS 432/100	B.17	609746	DMA60B10/030	B.9	609838	DM60C06/030	B.9
606341	BPSi2100/300	B.7	607694	DOCS 432/300	B.17	609747	DMA60B13/030	B.9	609839	DM60C10/030	B.9
606342	BPSi425/300	B.7	607695	DOCS 432/500	B.17	609748	DMA60B16/030	B.9	609840	DM60C13/030	B.9
606343	BPSi440/300	B.7	607696	DOCS 432/1000	B.17	609749	DMA60B20/030	B.9	609841	DM60C16/030	B.9
606344	BPSi463/300	B.7	607699	DOCS 463/100	B.17	609750	DMA60B25/030	B.9	609842	DM60C20/030	B.9
606345	BPSi480/300	B.7	607700	DOCS 463/300	B.17	609751	DMA60B32/030	B.9	609843	DM60C25/030	B.9
606346	BPSi4100/300	B.7	607701	DOCS 463/500	B.17	609752	DMA60B40/030	B.9	609844	DM60C32/030	B.9
606347	BPAi225/300	B.7	607702	DOCS 463/1000	B.17	609753	DMA60B06/100	B.9	609845	DM60C40/030	B.9
606348	BPAi240/300	B.7	607722	DOC 532/030	B.17	609754	DMA60B10/100	B.9	609846	DM60C04/100	B.9
606349	BPAi263/300	B.7	607723	DOC 532/100	B.17	609755	DMA60B13/100	B.9	609847	DM60C06/100	B.9
606350	BPAi425/300	B.7	607724	DOC 532/300	B.17	609756	DMA60B16/100	B.9	609848	DM60C10/100	B.9
606351	BPAi440/300	B.7	607725	DOC 532/500	B.17	609757	DMA60B20/100	B.9	609849	DM60C13/100	B.9
606352	BPAi463/300	B.7	607726	DOC 532/1000	B.17	609758	DMA60B25/100	B.9	609850	DM60C16/100	B.9
607125	BDC225/030	B.7	607728	DOC 432/030	B.17	609759	DMA60B32/100	B.9	609851	DM60C20/100	B.9
607126	BDC240/030	B.7	607729	DOC 432/100	B.17	609760	DMA60B40/100	B.9	609852	DM60C25/100	B.9
607127	BDC225/300	B.7	607730	DOC 432/300	B.17	609761	DMA60B06/300	B.9	609853	DM60C32/100	B.9
607128	BDC240/300	B.7	607731	DOC 432/500	B.17	609762	DMA60B10/300	B.9	609854	DM60C40/100	B.9
607500	DOCA 232/030	B.17	607732	DOC 432/1000	B.17	609763	DMA60B13/300	B.9	609855	DM60C04/300	B.9
607501	DOCA 232/100	B.17	607734	DOC 463/030	B.17	609764	DMA60B16/300	B.9	609856	DM60C06/300	B.9
607502	DOCA 232/300	B.17	607735	DOC 463/100	B.17	609765	DMA60B20/300	B.9	609857	DM60C10/300	B.9
607503	DOCA 232/500	B.17	607736	DOC 463/300	B.17	609766	DMA60B25/300	B.9	609858	DM60C13/300	B.9
607504	DOCA 232/1000	B.17	607737	DOC 463/500	B.17	609767	DMA60B32/300	B.9	609859	DM60C16/300	B.9
607506	DOCA 263/030	B.17	607738	DOC 463/1000	B.17	609768	DMA60B40/300	B.9	609860	DM60C20/300	B.9
607507	DOCA 263/100	B.17	608377	FPAUL 216/010	B.18	609769	DMA60C04/010	B.9	609861	DM60C25/300	B.9
607508	DOCA 263/300	B.17	608378	FPAUL 225/030	B.18	609770	DMA60C06/010	B.9	609862	DM60C32/300	B.9
607509	DOCA 263/500	B.17	608379	FPAUL 225/100	B.18	609771	DMA60C10/010	B.9	609863	DM60C40/300	

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609869	DMA100B06/030	B.11	609961	DM100C04/030	B.11	610313	-	F.37	617992	-	F.11
609870	DMA100B10/030	B.11	609962	DM100C06/030	B.11	610314	-	F.37	617992	-	F.15
609871	DMA100B13/030	B.11	609963	DM100C10/030	B.11	610315	-	F.37	617992	-	F.33
609872	DMA100B16/030	B.11	609964	DM100C13/030	B.11	610316	-	F.37	618101	VCMBD5A5	F.27
609873	DMA100B20/030	B.11	609965	DM100C16/030	B.11	610317	-	F.37	618116	-	F.19
609874	DMA100B25/030	B.11	609966	DM100C20/030	B.11	610318	-	F.37	618117	-	F.19
609875	DMA100B32/030	B.11	609967	DM100C25/030	B.11	610327	-	F.34	618300	-	F.8
609876	DMA100B40/030	B.11	609968	DM100C32/030	B.11	610328	-	F.10	618401	VCM2	F.27
609877	DMA100B06/100	B.11	609969	DM100C40/030	B.11	610329	-	F.10	618402	VCM4	F.27
609878	DMA100B10/100	B.11	609970	DM100C04/100	B.11	610330	-	F.10	618403	VCM6	F.27
609879	DMA100B13/100	B.11	609971	DM100C06/100	B.11	610331	-	F.10	618404	VCM9	F.27
609880	DMA100B16/100	B.11	609972	DM100C10/100	B.11	610332	-	F.10	618405	VCM13	F.27
609881	DMA100B20/100	B.11	609973	DM100C13/100	B.11	610344	-	F.23	618406	VCM42	F.27
609882	DMA100B25/100	B.11	609974	DM100C16/100	B.11	610345	-	F.23	618407	VCM44	F.27
609883	DMA100B32/100	B.11	609975	DM100C20/100	B.11	610345	-	F.28	618409	VCM46	F.27
609884	DMA100B40/100	B.11	609976	DM100C25/100	B.11	610354	-	F.17	618411	VCM49	F.27
609885	DMA100B06/300	B.11	609977	DM100C32/100	B.11	610355	-	F.17	618413	VCM413	F.27
609886	DMA100B10/300	B.11	609978	DM100C40/100	B.11	610368	-	F.45	618416	VCM3A3	F.27
609887	DMA100B13/300	B.11	609979	DM100C04/300	B.11	610369	-	F.45	618419	VCM4A4	F.27
609888	DMA100B16/300	B.11	609980	DM100C06/300	B.11	610370	-	F.45	618423	VCM5A5	F.27
609889	DMA100B20/300	B.11	609981	DM100C10/300	B.11	610371	-	F.45	618442	-	F.3
609890	DMA100B25/300	B.11	609982	DM100C13/300	B.11	610372	-	F.45	618443	-	F.3
609891	DMA100B32/300	B.11	609983	DM100C16/300	B.11	610373	-	F.45	618444	-	F.3
609892	DMA100B40/300	B.11	609984	DM100C20/300	B.11	610374	-	F.45	618485	FMP10	F.27
609893	DMA100C04/010	B.11	609985	DM100C25/300	B.11	610375	-	F.45	618486	FMP14	F.27
609894	DMA100C06/010	B.11	609986	DM100C32/300	B.11	610376	-	F.45	618487	FMP18	F.27
609895	DMA100C10/010	B.11	609987	DM100C40/300	B.11	610377	-	F.45	618489	VCM7A7	F.27
609896	DMA100C13/010	B.11	610000	-	F.11	610378	-	F.45	618503	-	F.19
609897	DMA100C16/010	B.11	610020	-	F.15	610379	-	F.45	618505	-	F.19
609898	DMA100C20/010	B.11	610020	-	F.33	610380	-	F.34	618506	-	F.19
609899	DMA100C04/030	B.11	610021	-	F.11	610380	-	F.45	618509	-	F.19
609900	DMA100C06/030	B.11	610021	-	F.15	610381	-	F.45	618511	-	F.19
609901	DMA100C10/030	B.11	610021	-	F.33	610382	BLANK4	F.20	618512	-	F.19
609902	DMA100C13/030	B.11	610021	-	F.11	610382	-	F.29	618515	-	F.19
609903	DMA100C16/030	B.11	610022	-	F.33	610382	-	F.45	618517	-	F.19
609904	DMA100C20/030	B.11	610022	-	F.9	610383	-	F.34	618518	-	F.19
609905	DMA100C25/030	B.11	610063	-	F.17	610383	-	F.45	618519	-	F.19
609906	DMA100C32/030	B.11	610090	-	F.28	610384	-	F.45	618520	-	F.19
609907	DMA100C40/030	B.11	610090	-	F.17	610385	-	F.33	618521	-	F.19
609908	DMA100C04/100	B.11	610091	-	F.28	610385	-	F.45	618522	-	F.19
609909	DMA100C06/100	B.11	610091	-	F.23	610386	-	F.33	618523	-	F.19
609910	DMA100C10/100	B.11	610130	-	F.50	610386	-	F.45	618524	-	F.20
609911	DMA100C13/100	B.11	610130	-	F.23	610387	-	F.45	618525	-	F.19
609912	DMA100C16/100	B.11	610132	-	F.50	610387	-	F.15	618527	-	F.20
609913	DMA100C20/100	B.11	610132	-	F.23	610484	-	F.34	618528	-	F.20
609914	DMA100C25/100	B.11	610133	-	F.50	610484	-	F.9	618529	-	F.19
609915	DMA100C32/100	B.11	610140	-	F.23	610484	-	F.33	618530	-	F.19
609916	DMA100C40/100	B.11	610141	-	F.15	610532	-	F.45	618531	-	F.20
609917	DMA100C04/300	B.11	610142	-	F.23	610532	-	F.45	618607	MVISO12	F.28
609918	DMA100C06/300	B.11	610142	-	F.23	617018	-	F.15	618617	MVRCD12	F.28
609919	DMA100C10/300	B.11	610142	-	F.9	617934	-	F.13	618649	MVSL10	F.28
609920	DMA100C13/300	B.11	610142	-	F.28	617935	-	F.13	618791	EDU10E+N	F.28
609921	DMA100C16/300	B.11	610151	-	F.34	617936	-	F.13	618792	EDU14E+N	F.28
609922	DMA100C20/300	B.11	610170	-	F.20	617937	-	F.13	618793	EDU18E+N	F.28
609923	DMA100C25/300	B.11	610185	-	F.20	617938	-	F.13	618794	HDIN2	F.29
609924	DMA100C32/300	B.11	610186	-	F.23	617939	-	F.13	618795	HDIN3	F.29
609925	DMA100C40/300	B.11	610186	-	F.20	617940	-	F.14	618796	HDIN4	F.29
609926	DM100B06/010	B.11	610187	-	F.20	617941	-	F.13	618797	HDIN6	F.29
609927	DM100B10/010	B.11	610187	-	F.11	617942	-	F.14	618910	-	F.28
609928	DM100B13/010	B.11	610232	-	F.11	617943	-	F.13	618910	-	F.3
609929	DM100B16/010	B.11	610233	-	F.15	617943	-	F.13	618911	-	F.3
609930	DM100B20/010	B.11	610233	-	F.11	617944	-	F.14	618923	-	F.3
609931	DM100B06/030	B.11	610238	-	F.10	617945	-	F.13	618929	-	F.3
609932	DM100B10/030	B.11	610239	-	F.10	617946	-	F.14	618930	-	F.3
609933	DM100B13/030	B.11	610240	-	F.10	617947	FDKE	G.5	618938	-	F.3
609934	DM100B16/030	B.11	610241	-	F.10	617948	-	F.15	618939	-	F.3
609935	DM100B20/030	B.11	610242	-	F.10	617949	-	F.15	618941	-	F.3
609936	DM100B25/030	B.11	610243	-	F.10	617957	-	F.5	618942	-	F.3
609937	DM100B32/030	B.11	610244	-	F.10	617958	-	F.5	618944	-	F.3
609938	DM100B40/030	B.11	610248	-	F.10	617959	-	F.5	618945	-	F.3
609939	DM100B06/100	B.11	610249	-	F.10	617960	-	F.5	618947	-	F.3
609940	DM100B10/100	B.11	610257	-	F.10	617961	-	F.19	618948	-	F.3
609941	DM100B13/100	B.11	610264	-	F.33	617962	-	F.15	618969	-	F.3
609942	DM100B16/100	B.11	610265	-	F.33	617964	-	F.14	618970	-	F.3
609943	DM100B20/100	B.11	610272	-	F.33	617966	-	F.14	619018	SHR3	F.29
609944	DM100B25/100	B.11	610275	-	F.33	617967	-	F.14	619018	-	F.9
609945	DM100B32/100	B.11	610276	-	F.34	617968	-	F.14	619084	-	F.20
609946	DM100B40/100	B.11	610281	-	F.34	617969	-	F.14	619100	-	F.8
609947	DM100B06/300	B.11	610285	-	F.33	617970	-	F.14	619101	-	F.8
609948	DM100B10/300	B.11	610286	-	F.33	617971	-	F.5	619102	-	F.8
609949	DM100B13/300	B.11	610287	-	F.34	617972	-	F.5	619103	-	F.8
609950	DM100B16/300	B.11	610291	-	F.34	617973	-	F.5	619104	-	F.8
609951	DM100B20/300	B.11	610295	-	F.33	617974	-	F.5	619105	-	F.8
609952	DM100B25/300	B.11	610296	-	F.33	617975	-	F.5	619106	-	F.8
609953	DM100B32/300	B.11	610297	-	F.34	617976	-	F.5	619107	-	F.8
609954	DM100B40/300	B.11	610301	-	F.34	617977	-	F.5	619108	-	F.8
609955	DM100C04/010	B.11	610303	-	F.33	617978	-	F.5	619109	-	F.8
609956	DM100C06/010	B.11	610304	-	F.33	617979	-	F.5	619110	-	F.8
609957	DM100C10/010	B.11	610305	-	F.34	617980	-	F.5	619111	-	F.8
609958	DM100C13/010	B.11				617981	-	F.5	619112	-	F.8
609959	DM100C16/010	B.11				617982	-	F.5	619113	-	F.8

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619116	-	F.8	624946	TELE L 24	A.35	662157	DSL44	F.26	666358	LSS LDR	D.27
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619120	-	F.8	644802	-	E.5	662160	DSL66	F.26	666364	LSS W	D.27
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619200	-	F.19	644814	-	E.5	666100	SMS 1	D.21	666377	MT CT 150	D.33
619201	-	F.19	644815	-	E.5	666100	SMS 1	D.23	666378	MT CT 200	D.33
619202	-	F.19	644817	-	E.5	666100	SMS 1	D.27	666379	MT CT 250	D.33
619203	-	F.19	644819	-	E.3	666101	SMS 3	D.21	666380	MT CT 300	D.33
619204	-	F.19	644820	-	E.3	666101	SMS 3	D.23	666381	MT CT 400	D.33
619205	-	F.19	644821	-	E.4	666101	SMS 3	D.27	666382	MT CT 400	D.33
619206	-	F.19	644822	-	E.4	666102	SMS 6	D.21	666383	MT CT 50	D.33
619207	-	F.19	644823	-	E.5	666102	SMS 6	D.23	666384	MT CT 500	D.33
619208	-	F.19	644824	-	E.5	666103	CLS Q 62 DD	D.21	666385	MT CT 60	D.33
619300	-	F.43	644829	-	E.3	666104	CLS Q 31 D	D.21	666386	MT CT 600	D.33
619301	-	F.43	644830	-	E.4	666105	CLS Q 11 D	D.21	666387	MT CT 80	D.33
619302	-	F.43	644831	-	E.3	666106	CLS Q 31 D M	D.21	666388	MT CT 800	D.33
619303	-	F.43	644832	-	E.3	666108	CLS Q 62 DW	D.21	666389	MT SP 100	D.33
619304	-	F.43	644833	-	E.3	666109	CLS Q 31 W	D.21	666390	MT SP 1000	D.33
619305	-	F.43	644834	-	E.4	666110	CLS Q 31 W M	D.21	666391	MT SP 150	D.33
619319	-	F.31	644835	-	E.4	666111	CLS S 11 D	D.21	666392	MT SP 200	D.33
619319	-	F.43	644837	-	E.4	666112	CLS S 31 D	D.21	666393	MT SP 250	D.33
619320	-	F.31	644840	-	E.3	666113	CLS S 31 D M	D.21	666394	MT SP 300	D.33
619320	-	F.43	644841	-	E.4	666114	CLS S 31 W	D.21	666395	MT SP 400	D.33
619321	-	F.31	644842	-	E.3	666115	CLS S 31 W M	D.21	666396	MT SP 400	D.33
619321	-	F.43	644843	-	E.3	666126	CTX 20 11 230 A	D.7	666397	MT SP 50	D.33
619322	-	F.43	644844	-	E.3	666127	CTX 20 11 024 A	D.7	666398	MT SP 500	D.33
619323	-	F.31	644845	-	E.4	666128	CTX 20 02 230 A	D.7	666399	MT SP 60	D.33
619323	-	F.43	644846	-	E.4	666129	CTX 20 02 024 A	D.7	666400	MT SP 600	D.33
619325	-	F.43	644847	-	E.4	666130	CTX 20 20 012 A	D.7	666401	MT SP 80	D.33
619326	-	F.43	644848	-	E.3	666131	CTX 20 20 230 A	D.7	666402	MT SP 800	D.33
619327	-	F.43	644849	-	E.4	666132	CTX 20 20 240 A	D.7	666404	MT RSC	D.33
619328	-	F.43	644851	-	E.3	666133	CTX 20 20 024 A	D.7	666405	MT S 4	D.33
619329	-	F.43	644852	-	E.4	666134	CTX 20 20 048 A	D.7	666406	MT S 7	D.33
619331	-	F.43	644853	-	E.3	666135	CTX 24 22 230 U	D.7	666408	MT AA 10	D.31
619332	-	F.43	644854	-	E.4	666136	CTX 24 22 024 U	D.7	666409	MT AA 15	D.31
619333	-	F.43	644855	-	E.3	666137	CTX 24 30 230 U	D.7	666410	MT AA 20	D.31
619334	-	F.43	644856	-	E.4	666138	CTX 24 30 024 U	D.7	666411	MT AA 25	D.31
619335	-	F.43	644857	-	E.3	666139	CTX 24 04 230 U	D.7	666412	MT AA 30	D.31
619337	-	F.43	644858	-	E.4	666140	CTX 24 04 024 U	D.7	666413	MT AA 5	D.31
619338	-	F.31	644859	-	E.3	666141	CTX 24 40 012 U	D.7	666414	MT AA	D.31
619338	-	F.43	644862	-	E.5	666142	CTX 24 40 230 U	D.7	666415	MT AF	D.31
619339	-	F.31	644863	-	E.5	666143	CTX 24 40 240 U	D.7	666416	MT AH	D.31
619339	-	F.43	644864	-	E.5	666144	CTX 24 40 024 U	D.7	666417	MT AV 300	D.31
619340	-	F.43	644865	-	E.5	666145	CTX 24 40 048 U	D.7	666418	MT AV 500	D.31
619341	-	F.43	646091	-	E.7	666146	CTX 40 20 230 U	D.7	666431	MT AH 110	D.31
619342	-	F.43	646092	-	E.7	666147	CTX 40 20 024 U	D.7	666432	MT AH 24	D.31
619343	-	F.43	66...	-	-	666148	CTX 40 30 230 U	D.7	666433	MTAP 3N	D.35
619344	-	F.43	662100	-	F.25	666149	CTX 40 30 024 U	D.7	666434	MT DE 11 32A	D.32
619345	-	F.43	662101	-	F.25	666150	CTX 40 40 012 U	D.7	666445	PRI 10	D.35
619350	-	F.31	662102	-	F.25	666151	CTX 40 40 230 U	D.7	666446	PRI 01	D.35
619362	-	F.43	662103	-	F.25	666152	CTX 40 40 240 U	D.7	666448	MTDNPR1	D.32
619369	-	F.31	662104	-	F.25	666153	CTX 40 40 024 U	D.7	666449	MTDNPR3	D.32
619370	-	F.31	662105	-	F.25	666154	CTX 40 40 048 U	D.7	666450	MT DE 11 63A	D.32
619371	-	F.31	662106	-	F.25	666155	CTX 63 20 230 U	D.7	666451	MT DN 3L	D.32
619372	-	F.31	662108	-	F.25	666156	CTX 63 40 230 U	D.7	666452	MT DE 3N15A	D.32
619373	-	F.31	662109	-	F.25	666157	CTX 63 40 240 U	D.7	666453	MT DN 3R 4M	D.32
619374	-	F.31	662110	-	F.25	666158	CTX 63 40 024 U	D.7	666499	MSC SE	D.5
619375	-	F.31	662111	-	F.25	666159	CTX TS 3	D.7	666501	MSC SEP	D.5
619376	-	F.31	662112	-	F.25	666160	CTX TS 2	D.7	666502	MSC SPP	D.5
619393	AAZFPN16	F.40	662113	-	F.25	666161	CTX SP	D.7	666524	SG SWT	D.37
619394	AAZFN1-26	F.40	662114	-	F.25	666162	CTX 06 11	D.7	666525	SG MM 2 20 2	D.37
619395	AAZFPE1-26	F.40	662115	-	F.25	666163	CTX 06 20	D.7	666526	SG MM 2 20 4	D.37
619411	-	F.19	662116	GA40	F.26	666164	CTX DN 20 20 230	D.7	666527	SG MM 2 45 2	D.37
619605	-	F.8	662117	SH40	F.26	666165	CTX DN 24 30 230	D.7	666529	SG MM 2 45 4	D.37
619606	-	F.8	662118	SH50	F.26	666166	CTX DN 24 40 230	D.7	666530	SG MM 2 45 4 C	D.37
619974	-	F.5	662119	-	F.25	666167	CTX DN 40 20 230	D.7	666532	SG C 40	D.37
619975	-	F.5	662120	-	F.25	666168	CTX DN 40 30 230	D.7	666533	SG MM 2 80 4 C	D.37
619976	-	F.5	662121	-	F.25	666169	CTX DN 40 40 230	D.7	666534	SG SP 2 20 2 P	D.37
619977	-	F.5	662122	-	F.25	666170	CTX 40 02 230 U	D.7	666535	SG SP 2 20 4 P	D.37
619978	-	F.5	662123	-	F.25	666175	CLS72S41W	D.25	666536	SG SP 2 45 2 P	D.37
619979	-	F.5	662125	-	F.25	666176	CLS72Q41W	D.25	666537	SG SP 2 45 2 C	D.37
62...	-	-	662126	-	F.25	666177	CLS72S41D	D.25	666538	SG SP 2 45 4 P	D.37
624795	-	E.6	662129	-	F.25	666178	CLS72Q41D	D.25	666539	SG SP 2 45 4 C	D.37
624796	-	E.6	662131	CU4BN	F.28	666179	GLX72Q41DW	D.25	666541	SG SP 2 65 2 P	D.37
624797	-	E.6	662132	CU10BN	F.28	666180	GLX BAT	D.23	666542	SG SP 2 65 2 C	D.37
624798	-	E.6	662133	CU14BN	F.28	666181	GLX DCF	D.23	666543	SG SP 2 65 4 P	D.37
624800	-	E.6	662134	CU18BN	F.28	666182	GLX PRG	D.23	666544	SG SP 2 65 4 C	D.37
624862	-	F.20	662136	CSLKIT14	F.29	666192	GLX Q 62 W 400	D.23	666545	SG SP 2 20 2	D.37
624864	-	F.20	662137	CKEY	F.29	666193	GLX Q 64 W 400	D.23	666546	SG SP 2 20 4	D.37
624868	-	E.9	662138	CSLKIT18	F.29	666194	GLX Q 62 Y 400	D.23	666547	SG SP 2 45 2	D.37
624869	-	E.9	662139	CD4	F.29	666195	GLX Q 64 Y 400	D.23	666548	SG SP 2 45 4	D.37
624870	-	E.9	662140	CD10	F.29	666311	PLTS + TD	D.16	666549	SG SP 2 65 2	D.37
624871	-	E.9	662141	CD14	F.29	666340	AST B 12	D.5	666551	SG SP 2 65 4	D.37
624892	-	E.6	662142	CD18	F.29	666341	AST B 230	D.5	666552	SG SP NGND PI	D.37
624893	-	E.6	662144	CULINKPIN	F.29	666342	AST B 24	D.5	666553	SG SP 2 40 2 NPE P	D.37
624929	KS	A.41	662152	TSLS222	F.26	666343	AST L CL	D.5	666555	AST R ES E	D.3
624929	KS	A.50	662153	TSLS345	F.26	666344	AST L GN	D.5	666556	AST R ES S	D.3
624929	KS	F.29	662154	TSLS442	F.26	666345	AST L OR	D.5	666557	AST R TS	D.3

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666558	AST M 100 10	D.3	667250	CBT H 2NC	C.10	671582	DOC 3125/030	A.34	673269	EP101UCRK1.6	A.45
666559	AST M 100 20	D.3	667251	CBT H 2NO	C.10	671583	DOCA 3125/300	A.34	673270	EP101UCRK02	A.45
666560	AST M 100 30	D.3	667252	TELE LT-1	C.11	671584	DOC 3125/300	A.34	673271	EP101UCRK03	A.45
666561	AST M 100 40	D.3	667253	TELE LT-2	C.11	671585	DOCS 3125/300	A.34	673272	EP101UCRK04	A.45
666562	AST M 63 10	D.3	667470	SA BLOCK I 35	D.38	671589	DOCA 4125/030	A.34	673273	EP101UCRK06	A.45
666563	AST M 63 20	D.3	667471	SA BLOCK I 100 N	D.38	671590	DOC 4125/030	A.34	673274	EP101UCRK08	A.45
666564	AST M 63 30	D.3	667472	SA BLOCK I PC	D.38	671591	DOCA 4125/300	A.34	673275	EP101UCRK10	A.45
666565	AST M 63 40	D.3	667473	SA BLOCK II 15/230	D.38	671592	DOC 4125/300	A.34	673276	EP101UCRK13	A.45
666566	AST M 80 10	D.3	667474	SA BLOCK II 15/400	D.38	671593	DOCS 4125/300	A.34	673277	EP101UCRK16	A.45
666567	AST M 80 20	D.3	667475	SA BLOCK II 15/230 C	D.38	671597	Hti H	A.35	673278	EP101UCRK20	A.45
666568	AST M 80 30	D.3	667476	SA BLOCK II 15/400 C	D.38	671598	Hti S	A.35	673279	EP101UCRK25	A.45
666569	AST M 80 40	D.3	667477	SA BLOCK II 40/230	D.38	671599	Hti H/S	A.35	673280	EP101UCRK32	A.45
666570	AST P 16 01	D.3	667478	SA BLOCK II 40/400	D.38	671600	Hti HH/HS	A.35	673281	EP101UCRK40	A.45
666571	AST P 16 10	D.3	667479	SA BLOCK II 40/230 C	D.38	671602	Hti HSR	A.35	673282	EP101UCRK50	A.45
666572	AST P 16 11	D.3	667480	SA BLOCK II 40/400 C	D.38	672402	EP101K0.5	A.25	673283	EP101UCRK63	A.45
666573	AST PL 16 10	D.3	667481	SA BLOCK II 15N	D.38	672403	EP101K01	A.25	673284	EP102UCRK0.5	A.45
666574	AST R 32 20	D.3	667482	SA BLOCK II 40N	D.38	672404	EP101K02	A.25	673285	EP102UCRK01	A.45
666575	AST R 32 30	D.3	667483	SA BLOCK II 15LN	D.38	672405	EP101K03	A.25	673286	EP102UCRK1.6	A.45
666576	AST R 32 3N	D.3	667484	SA BLOCK ADSL	D.39	672406	EP101K04	A.25	673287	EP102UCRK02	A.45
666577	AST R 32 40	D.3	667485	TELE OV 230	D.39	672407	EP101K06	A.25	673288	EP102UCRK03	A.45
666578	AST R 40 20	D.3	667486	SA BLOCK ISII 100	D.38	672408	EP101K08	A.25	673289	EP102UCRK04	A.45
666579	AST R 40 30	D.3	667487	SA BLOCK ISII 100N	D.38	672409	EP101K10	A.25	673290	EP102UCRK06	A.45
666580	AST R 40 3N	D.3	667488	SA BLOCK II 15/230 LNE	D.38	672411	EP101K16	A.25	673291	EP102UCRK08	A.45
666581	AST R 40 40	D.3	667489	SA BLOCK II 15/230 LLE	D.38	672412	EP101K20	A.25	673292	EP102UCRK10	A.45
666582	AST R 63 20	D.3	667490	SA BLOCK II 40/230 LNE	D.38	672413	EP101K25	A.25	673293	EP102UCRK13	A.45
666583	AST R 63 30	D.3	667491	SA BLOCK II 40/230 LLE	D.38	672414	EP101K32	A.25	673294	EP102UCRK16	A.45
666584	AST R 63 3N	D.3	667492	SA C35	D.39	672415	EP101K40	A.25	673295	EP102UCRK20	A.45
666585	AST R 63 40	D.3	667493	TELE OV 400	D.39	672416	EP101K50	A.25	673296	EP102UCRK25	A.45
666586	AST S 16 1	D.3	667494	SA BLOCK II 15/400 3L+NE	D.38	672417	EP101K63	A.25	673297	EP102UCRK32	A.45
666587	AST S 16 10	D.3	667495	SA BLOCK II 15/400 4L/NE	D.38	672434	EP102K0.5	A.25	673298	EP102UCRK40	A.45
666588	AST S 16 2	D.3	667496	SA BLOCK II 40/400 3L+NE	D.38	672435	EP102K01	A.25	673299	EP102UCRK50	A.45
666589	AST S 16 20	D.3	667497	SA BLOCK II 40/400 4L/NE	D.38	672436	EP102K02	A.25	673300	EP102UCRK63	A.45
666590	AST S 16 30	D.3	667498	SA BLOCK II 40/400 4L/NEC	D.38	672437	EP102K03	A.25	673301	EP101UCC0.5	A.31
666591	AST S 16 30 2	D.3	667499	SA C63	D.39	672438	EP102K04	A.25	673302	EP101UCC01	A.31
666592	AST S 16 40 2	D.3	667500	SA PLUGIN II 15/230	D.38	672439	EP102K06	A.25	673303	EP101UCC02	A.31
666593	AST S 16 40	D.3	667501	SA PLUGIN II 15/400	D.38	672440	EP102K08	A.25	673305	EP101UCC04	A.31
666594	AST S 32 1	D.3	667502	SA PLUGIN II 40/230	D.38	672441	EP102K10	A.25	673306	EP101UCC06	A.31
666595	AST S 32 10	D.3	667503	SA PLUGIN II 40/400	D.38	672443	EP102K16	A.25	673308	EP101UCC10	A.31
666596	AST S 32 2	D.3	667504	SA PLUGIN II 40/230 C	D.38	672444	EP102K20	A.25	673310	EP101UCC16	A.31
666597	AST S 32 20	D.3	667505	SA PLUGIN II 40/400 C	D.38	672445	EP102K25	A.25	673311	EP101UCC20	A.31
666598	AST S 32 30 2	D.3	667506	SA PLUGIN II 40/230 LNE	D.38	672446	EP102K32	A.25	673312	EP101UCC25	A.31
666599	AST S 32 30	D.3	667507	SA PLUGIN II 40/230 3L+NE	D.38	672447	EP102K40	A.25	673313	EP101UCC32	A.31
666600	AST S 32 40	D.3	667508	SA PHOT 600V	D.39	672448	EP102K50	A.25	673314	EP101UCC40	A.31
666601	AST S 32 40 2	D.3	667509	SA PHOT 1000V	D.39	672449	EP102K63	A.25	673315	EP101UCC50	A.31
666602	AST SL 16 10	D.3	667510	SA TV	D.39	672450	EP103K0.5	A.25	673316	EP101UCC63	A.31
666603	AST SL 16 20	D.3	667511	SA PLUGIN II 60 NGND	D.38	672451	EP103K01	A.25	673317	EP102UCC0.5	A.31
666604	AST SL 32 10	D.3	667512	SA MODULE 15/230	D.39	672452	EP103K02	A.25	673318	EP102UCC01	A.31
666605	AST SL 32 20	D.3	667513	SA MODULE 15/400	D.39	672453	EP103K03	A.25	673319	EP102UCC02	A.31
666606	AST SZ 16 1	D.3	667514	SA MODULE 40/230	D.39	672454	EP103K04	A.25	673321	EP102UCC04	A.31
666607	AST SZ 16 2	D.3	667515	SA MODULE 40/400	D.39	672455	EP103K06	A.25	673322	EP102UCC06	A.31
666608	AST SZ 32 1	D.3	667516	SA MODULE 60 NGND	D.39	672456	EP103K08	A.25	673324	EP102UCC10	A.31
666609	AST SZ 32 2	D.3	669486	EPP	A.50	672457	EP103K10	A.25	673326	EP102UCC16	A.31
666614	AST M 40 10	D.3	67...			672459	EP103K16	A.25	673327	EP121UCC20	A.31
666615	AST M 40 20	D.3	671504	Hti 101 B080	A.33	672460	EP103K20	A.25	673328	EP102UCC25	A.31
666616	AST M 40 30	D.3	671505	Hti 101 B100	A.33	672461	EP103K25	A.25	673329	EP102UCC32	A.31
666617	AST M 40 40	D.3	671506	Hti 101 B125	A.33	672462	EP103K32	A.25	673330	EP102UCC40	A.31
666629	BU 230	D.29	671510	Hti 102 B080	A.33	672463	EP103K40	A.25	673331	EP102UCC50	A.31
666630	BU 12	D.29	671511	Hti 102 B100	A.33	672464	EP103K50	A.25	673332	EP102UCC63	A.31
666631	MT DE 3N I 63A	D.32	671512	Hti 102 B125	A.33	672465	EP103K63	A.25	673333	EP101UCB06	A.31
666632	BE 230	D.29	671516	Hti 103 B080	A.33	672466	EP104K0.5	A.25	673334	EP101UCB10	A.31
666633	BE 12	D.29	671517	Hti 103 B100	A.33	672467	EP104K01	A.25	673335	EP101UCB16	A.31
666636	TR B 10	D.29	671518	Hti 103 B125	A.33	672468	EP104K02	A.25	673336	EP101UCB20	A.31
666637	TR B 15	D.29	671522	Hti 104 B80	A.33	672469	EP104K03	A.25	673337	EP101UCB25	A.31
666638	TR B 5	D.29	671523	Hti 104 B100	A.33	672470	EP104K04	A.25	673338	EP101UCB32	A.31
666640	TR B 8S	D.29	671524	Hti 104 B125	A.33	672471	EP104K06	A.25	673339	EP101UCB40	A.31
666641	TR S 15	D.29	671528	Hti 101 C080	A.33	672472	EP104K08	A.25	673340	EP101UCB50	A.31
666642	TR S 25	D.29	671529	Hti 101 C100	A.33	672473	EP104K10	A.25	673341	EP101UCB63	A.31
666643	TR S 40	D.29	671530	Hti 101 C125	A.33	672475	EP104K16	A.25	673342	EP102UCB06	A.31
666644	TR S 63	D.29	671534	Hti 102 C080	A.33	672476	EP104K20	A.25	673343	EP102UCB10	A.31
666650	TR B 8	D.29	671535	Hti 102 C100	A.33	672477	EP104K25	A.25	673344	EP102UCB16	A.31
666651	TR B 16	D.29	671536	Hti 102 C125	A.33	672478	EP104K32	A.25	673345	EP102UCB20	A.31
666652	TR B 30	D.29	671540	Hti 103 C080	A.33	672479	EP104K40	A.25	673346	EP102UCB25	A.31
666670	MT DV 500 2M	D.32	671541	Hti 103 C100	A.33	672480	EP104K50	A.25	673347	EP102UCB32	A.31
666671	MT DA 5 2M	D.32	671542	Hti 103 C125	A.33	672481	EP104K63	A.25	673348	EP102UCB40	A.31
666673	MT DF 2M	D.32	671546	Hti 104 C080	A.33	672567	CA H	C.4	673349	EP102UCB50	A.31
666674	MT DA DV 52M	D.32	671547	Hti 104 C100	A.33	672568	CA S/H	C.4	673350	EP102UCB63	A.31
666675	MT DE 1 1M	D.32	671548	Hti 104 C125	A.33	672569	CA S/H G	C.4	674381	G31C02	A.15
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675057	G102D16	A.23	675171	GT104C25	A.27	675270	GT104D02	A.27	675381	GT254B06	A.29
675058	G102D20	A.23	675172	GT104C32	A.27	675271	GT104D03	A.27	675383	GT254B10	A.29
675059	G102D25	A.23	675173	GT104C40	A.27	675272	GT104D04	A.27	675385	GT254B16	A.29
675060	G102D32	A.23	675174	GT104C50	A.27	675273	GT104D06	A.27	675386	GT254B20	A.29
675061	G102D40	A.23	675175	GT104C63	A.27	675275	GT104D10	A.27	675387	GT254B25	A.29
675062	G102D50	A.23	675176	GT101B06	A.27	675276	GT104D13	A.27	675388	GT254B32	A.29
675063	G102D63	A.23	675178	GT101B10	A.27	675277	GT104D16	A.27	675389	GT254B40	A.29
675064	G103D0.5	A.23	675179	GT101B13	A.27	675278	GT104D20	A.27	675390	GT254B50	A.29
675065	G103D01	A.23	675180	GT101B16	A.27	675279	GT104D25	A.27	675391	GT254B63	A.29
675066	G103D02	A.23	675181	GT101B20	A.27	675280	GT104D32	A.27	675392	GT251D0.5	A.29
675067	G103D03	A.23	675182	GT101B25	A.27	675281	GT104D40	A.27	675393	GT251D01	A.29
675068	G103D04	A.23	675183	GT101B32	A.27	675282	GT104D50	A.27	675394	GT251D02	A.29
675069	G103D06	A.23	675184	GT101B40	A.27	675283	GT104D63	A.27	675396	GT251D04	A.29
675071	G103D10	A.23	675185	GT101B50	A.27	675284	GT251C0.5	A.29	675397	GT251D06	A.29
675072	G103D13	A.23	675186	GT101B63	A.27	675285	GT251C01	A.29	675399	GT251D10	A.29
675073	G103D16	A.23	675187	GT102B06	A.27	675286	GT251C02	A.29	675401	GT251D16	A.29
675074	G103D20	A.23	675189	GT102B10	A.27	675288	GT251C04	A.29	675402	GT251D20	A.29
675075	G103D25	A.23	675190	GT102B13	A.27	675289	GT251C06	A.29	675403	GT251D25	A.29
675076	G103D32	A.23	675191	GT102B16	A.27	675291	GT251C10	A.29	675404	GT251D32	A.29
675077	G103D40	A.23	675192	GT102B20	A.27	675293	GT251C16	A.29	675405	GT251D40	A.29
675078	G103D50	A.23	675193	GT102B25	A.27	675294	GT251C20	A.29	675406	GT251D50	A.29
675079	G103D63	A.23	675194	GT102B32	A.27	675295	GT251C25	A.29	675407	GT251D63	A.29
675080	G104D0.5	A.23	675195	GT102B40	A.27	675296	GT251C32	A.29	675408	GT252D0.5	A.29
675081	G104D01	A.23	675196	GT102B50	A.27	675297	GT251C40	A.29	675409	GT252D01	A.29
675082	G104D02	A.23	675197	GT102B63	A.27	675298	GT251C50	A.29	675410	GT252D02	A.29
675083	G104D03	A.23	675198	GT103B06	A.27	675299	GT251C63	A.29	675412	GT252D04	A.29
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675085	G104D06	A.23	675201	GT103B13	A.27	675301	GT252C01	A.29	675415	GT252D10	A.29
675087	G104D10	A.23	675202	GT103B16	A.27	675302	GT252C02	A.29	675417	GT252D16	A.29
675088	G104D13	A.23	675203	GT103B20	A.27	675304	GT252C04	A.29	675418	GT252D20	A.29
675089	G104D16	A.23	675204	GT103B25	A.27	675305	GT252C06	A.29	675419	GT252D25	A.29

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675421	GT252D40	A.29	678215	EPP61C16	A.77	678307	EPP101C25	A.79	678740	EPP104C25	A.79
675422	GT252D50	A.29	678216	EPP61C20	A.77	678308	EPP101C32	A.79	678741	EPP104C32	A.79
675423	GT252D63	A.29	678217	EPP61C25	A.77	678309	EPP101C40	A.79	678742	EPP104C40	A.79
675424	GT253D0.5	A.29	678218	EPP61C32	A.77	678310	EPP101C50	A.79	678743	EPP104C50	A.79
675425	GT253D01	A.29	678219	EPP61C40	A.77	678311	EPP101C63	A.79	678744	EPP104C63	A.79
675426	GT253D02	A.29	678220	EPP61C50	A.77	678312	EPP102C06	A.79	68.....		
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675429	GT253D06	A.29	678222	EPP61NC06	A.77	678314	EPP102C13	A.79	680073	GLX Q 22 ASTRO LS1	D.23
675431	GT253D10	A.29	678223	EPP61NC10	A.77	678315	EPP102C16	A.79	681452	EP103B06RAIL	A.43
675433	GT253D16	A.29	678224	EPP61NC13	A.77	678316	EPP102C20	A.79	681453	EP103B10RAIL	A.43
675434	GT253D20	A.29	678225	EPP61NC16	A.77	678317	EPP102C25	A.79	681454	EP103B16RAIL	A.43
675435	GT253D25	A.29	678226	EPP61NC20	A.77	678318	EPP102C32	A.79	681455	EP103B20RAIL	A.43
675436	GT253D32	A.29	678227	EPP61NC25	A.77	678319	EPP102C40	A.79	681456	EP103B25RAIL	A.43
675437	GT253D40	A.29	678228	EPP61NC32	A.77	678320	EPP102C50	A.79	681457	EP103B32RAIL	A.43
675438	GT253D50	A.29	678229	EPP61NC40	A.77	678321	EPP102C63	A.79	681458	EP103B40RAIL	A.43
675439	GT253D63	A.29	678230	EPP61NC50	A.77	678322	EPP103C06	A.79	681459	EP103B50RAIL	A.43
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676950	Tele REC BASIC 240/300	B.25	678245	EPP63C16	A.77	678337	EPP103NC25	A.79	681474	EP103C63RAIL	A.43
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676952	Tele REC BASIC 440/300	B.25	678247	EPP63C25	A.77	678339	EPP103NC40	A.79	681476	EP101UCRB10	A.45
677118	Tele REC BASIC 263/030	B.25	678248	EPP63C32	A.77	678340	EPP103NC50	A.79	681477	EP101UCRB16	A.45
677119	Tele REC BASIC 463/030	B.25	678249	EPP63C40	A.77	678341	EPP103NC63	A.79	681478	EP101UCRB20	A.45
677120	Tele REC BASIC 263/300	B.25	678250	EPP63C50	A.77	678359	FPPA225/030	B.20	681479	EP101UCRB25	A.45
677121	Tele REC BASIC 463/300	B.25	678251	EPP63C63	A.77	678360	FPPA240/030	B.20	681480	EP101UCRB32	A.45
677122	Tele REC BASIC A 240/030	B.25	678252	EPP63NC06	A.77	678361	FPPA263/030	B.20	681481	EP101UCRB40	A.45
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677124	Tele REC BASIC A 440/030	B.25	678254	EPP63NC13	A.77	678363	FPPA440/030	B.20	681483	EP101UCRB63	A.45
677125	Tele REC BASIC A 463/030	B.25	678255	EPP63NC16	A.77	678364	FPPA463/030	B.20	681484	EP102UCRB06	A.45
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677128	Tele REC BASIC A 440/300	B.25	678258	EPP63NC32	A.77	678367	FPPA263/100	B.20	681487	EP102UCRB20	A.45
677129	Tele REC BASIC A 463/300	B.25	678259	EPP63NC40	A.77	678368	FPPA425/100	B.20	681488	EP102UCRB25	A.45
677130	Tele REC BASIC A 240/030	B.25	678260	EPP63NC50	A.77	678369	FPPA440/100	B.20	681489	EP102UCRB32	A.45
677131	Tele REC BASIC A 263/030	B.25	678261	EPP63NC63	A.77	678370	FPPA463/100	B.20	681490	EP102UCRB40	A.45
677132	Tele REC PLUS Motor	B.26	678262	EPP101B06	A.79	678371	FPPA225/300	B.20	681491	EP102UCRB50	A.45
677133	Tele REC SOLAR Motor	B.29	678263	EPP101B10	A.79	678372	FPPA240/300	B.20	681492	EP102UCRB63	A.45
678172	EPP61B06	A.77	678264	EPP101B13	A.79	678373	FPPA263/300	B.20	681493	EP101UCRC0.5	A.45
678173	EPP61B10	A.77	678265	EPP101B16	A.79	678374	FPPA425/300	B.20	681494	EP101UCRC01	A.45
678174	EPP61B13	A.77	678266	EPP101B20	A.79	678375	FPPA440/300	B.20	681495	EP101UCRC02	A.45
678175	EPP61B16	A.77	678267	EPP101B25	A.79	678376	FPPA463/300	B.20	681496	EP101UCRC04	A.45
678176	EPP61B20	A.77	678268	EPP101B32	A.79	678377	FPPS240/300	B.20	681497	EP101UCRC06	A.45
678177	EPP61B25	A.77	678269	EPP101B40	A.79	678378	FPPS263/300	B.20	681498	EP101UCRC10	A.45
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678179	EPP61B40	A.77	678271	EPP101B63	A.79	678380	FPPS463/300	B.20	681500	EP101UCRC20	A.45
678180	EPP61B50	A.77	678272	EPP102B06	A.79	678705	EPP64B06	A.77	681501	EP101UCRC25	A.45
678181	EPP61B63	A.77	678273	EPP102B10	A.79	678706	EPP64B10	A.77	681502	EP101UCRC32	A.45
678182	EPP62B06	A.77	678274	EPP102B13	A.79	678707	EPP64B13	A.77	681503	EP101UCRC40	A.45
678183	EPP62B10	A.77	678275	EPP102B16	A.79	678708	EPP64B16	A.77	681504	EP101UCRC50	A.45
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678188	EPP62B32	A.77	678280	EPP102B50	A.79	678713	EPP64B50	A.77	681509	EP102UCRC04	A.45
678189	EPP62B40	A.77	678281	EPP102B63	A.79	678714	EPP64B63	A.77	681510	EP102UCRC06	A.45
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678194	EPP63B13	A.77	678286	EPP103B20	A.79	678719	EPP64C20	A.77	681515	EP102UCRC32	A.45
678195	EPP63B16	A.77	678287	EPP103B25	A.79	678720	EPP64C25	A.77	681516	EP102UCRC40	A.45
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678199	EPP63B40	A.77	678291	EPP103B63	A.79	678724	EPP64C63	A.77	681591	EP102K1.6	A.25
678200	EPP63B50	A.77	678292	EPP103NB06	A.79	678725					

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681613	EP61K40	A.21	686041	CTX + R 16 20 23060	D.11	686132	PLS + C 16 10 008 A	D.14	686601	EP61ULB06	A.37
681614	EP61K50	A.21	686042	CTX + R 16 20 230 A	D.11	686133	PLS + C 16 10 012 A	D.14	686602	EP61ULB10	A.37
681615	EP61K63	A.21	686043	CTX + R 16 20 240 A	D.11	686134	PLS + C 16 10 024 A	D.14	686605	EP61ULB16	A.37
681616	EP62K0.5	A.21	686044	CTX + R 16 22 012 A	D.11	686135	PLS + C 16 10 048 A	D.14	686606	EP61ULB20	A.37
681617	EP62K01	A.21	686045	CTX + R 16 22 024 A	D.11	686136	PLS + C 16 10 230 A	D.14	686607	EP61ULB25	A.37
681618	EP62K1.6	A.21	686046	CTX + R 16 22 048 A	D.11	686137	PLS + C 16 10 240 A	D.14	686609	EP61ULB32	A.37
681619	EP62K02	A.21	686047	CTX + R 16 22 23060	D.11	686138	PLS + C 16 2 008 A	D.15	686610	EP61ULB40	A.37
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681621	EP62K04	A.21	686049	CTX + R 16 22 240 A	D.11	686140	PLS + C 16 2 024 A	D.15	686613	EP61ULB63	A.37
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681623	EP62K08	A.21	686051	CTX + R 16 30 024 A	D.11	686142	PLS + C 16 2 230 A	D.15	686616	EP62ULB10	A.37
681624	EP62K10	A.21	686052	CTX + R 16 30 048 A	D.11	686143	PLS + C 16 2 240 A	D.15	686619	EP62ULB16	A.37
681625	EP62K16	A.21	686053	CTX + R 16 30 230 A	D.11	686144	PLS + C 16 20 008 A	D.15	686620	EP62ULB20	A.37
681626	EP62K20	A.21	686054	CTX + R 16 4 012 A	D.11	686145	PLS + C 16 20 012 A	D.15	686621	EP62ULB25	A.37
681627	EP62K25	A.21	686055	CTX + R 16 4 024 A	D.11	686146	PLS + C 16 20 024 A	D.15	686623	EP62ULB32	A.37
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681630	EP62K50	A.21	686058	CTX + R 16 4 230 A	D.11	686149	PLS + C 16 20 240 A	D.15	686627	EP62ULB63	A.37
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681633	EP63K01	A.21	686061	CTX + R 16 40 024 A	D.11	686152	PLS + C 16 3 024 A	D.15	686633	EP63ULB16	A.37
681634	EP63K1.6	A.21	686062	CTX + R 16 40 048 A	D.11	686153	PLS + C 16 3 048 A	D.15	686634	EP63ULB20	A.37
681635	EP63K02	A.21	686063	CTX + R 16 40 23060	D.11	686154	PLS + C 16 3 230 A	D.15	686635	EP63ULB25	A.37
681636	EP63K03	A.21	686064	CTX + R 16 40 230 A	D.11	686155	PLS + C 16 3 240 A	D.15	686637	EP63ULB32	A.37
681637	EP63K04	A.21	686065	CTX + R 16 40 240 A	D.11	686156	PLS + C 32 10 008 A	D.15	686638	EP63ULB40	A.37
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681642	EP63K20	A.21	686069	PLS + / CTX + SP	D.15	686161	PLS + C 32 10 240 A	D.15	686647	EP64ULB16	A.37
681643	EP63K25	A.21	686070	PLS + / CTX + TS 1	D.15	686162	PLS + C 32 20 008 A	D.15	686648	EP64ULB20	A.37
681644	EP63K32	A.21	686071	PLS + 16 1 008 A	D.14	686163	PLS + C 32 20 012 A	D.15	686649	EP64ULB25	A.37
681645	EP63K40	A.21	686072	PLS + 16 1 012 A	D.14	686164	PLS + C 32 20 024 A	D.15	686651	EP64ULB32	A.37
681646	EP63K50	A.21	686073	PLS + 16 1 024 A	D.14	686165	PLS + C 32 20 048 A	D.15	686652	EP64ULB40	A.37
681647	EP63K63	A.21	686074	PLS + 16 1 048 A	D.14	686166	PLS + C 32 20 230 A	D.15	686653	EP64ULB50	A.37
681648	EP64K0.5	A.21	686075	PLS + 16 1 115 A	D.14	686167	PLS + C 32 20 240 A	D.15	686655	EP64ULB63	A.37
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681650	EP64K1.6	A.21	686077	PLS + 16 1 240 A	D.14	686169	PLS + C 32 30 012 A	D.15	686657	EP61ULC01	A.37
681651	EP64K02	A.21	686078	PLS + 16 10 008 A	D.14	686170	PLS + C 32 30 024 A	D.15	686658	EP61ULC02	A.37
681652	EP64K03	A.21	686079	PLS + 16 10 012 A	D.14	686171	PLS + C 32 30 048 A	D.15	686660	EP61ULC04	A.37
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681655	EP64K08	A.21	686082	PLS + 16 10 115 A	D.14	686174	PLS + CAP	D.15	686666	EP61ULC16	A.37
681656	EP64K10	A.21	686083	PLS + 16 10 230 A	D.14	686175	PLS + M	D.15	686667	EP61ULC20	A.37
681657	EP64K16	A.21	686084	PLS + 16 10 240 A	D.14	686176	PLS + PU 16 2 024 A	D.15	686668	EP61ULC25	A.37
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681772	EP101UCRB04	A.45	686092	PLS + 16 11 240 A	D.14	686184	PLS + SA 16 20 048 A	D.14	686679	EP62ULC04	A.37
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681774	EP102UCRB04	A.45	686094	PLS + 16 2 012 A	D.14	686186	PLS + SA 16 20 240 A	D.14	686682	EP62ULC10	A.37
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686002	CTX + R 16 1 024 A	D.11	686097	PLS + 16 2 115 A	D.14	686189	PLS + SB 16 20 048 A	D.14	686687	EP62ULC25	A.37
686003	CTX + R 16 1 048 A	D.11	686098	PLS + 16 2 230 A	D.14	686190	PLS + SB 16 20 230 A	D.14	686689	EP62ULC32	A.37
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686008	CTX + R 16 10 012 A	D.11	686103	PLS + 16 20 012 A	D.14	686197	PLT + IG 230A	D.19	686695	EP63ULC01	A.37
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686011	CTX + R 16 10 115 A	D.11	686106	PLS + 16 20 115 A	D.14	686200	PLT + MF 230A 0.15-60M	D.19	686700	EP63ULC06	A.37
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686013	CTX + R 16 10 230 A	D.11	686108	PLS + 16 20 230 A	D.14	686202	PLT + OF 024U 1-60M	D.19	686704	EP63ULC16	A.37
686014	CTX + R 16 10 240 A	D.11	686109	PLS + 16 20 240 A	D.14	686203	PLT + OF 024U 1-60S	D.19	686705	EP63ULC20	A.37
686015	CTX + R 16 11 008 A	D.11	686110	PLS + 32 10 008 A	D.14	68628					

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AAZPN12	564046	F.40	BPA2100/100	606095	B.7	BPC425/030	606208	B.7	CLS Q 31 W	666109	D.21
AAZPN16	564047	F.40	BPA2100/1000	606125	B.7	BPC425/100	606216	B.7	CLS Q 31 W M	666110	D.21
AAZTA1	564056	F.40	BPA2100/300	606105	B.7	BPC425/1000	606234	B.7	CLS Q 62 DD	666103	D.21
AAZTA2	564350	F.40	BPA2100/500	606115	B.7	BPC425/300	606224	B.7	CLS Q 62 DW	666108	D.21
AAZTU1	564055	F.40	BPA216/010	606085	B.26	BPC425/500	606229	B.7	CLS S 11 D	666111	D.21
AAZTU2	564349	F.40	BPA216/010*	606085	B.7	BPC440/030	606209	B.7	CLS S 31 D	666112	D.21
AGBS24	562056	F.40	BPA225/030	606086	B.7	BPC440/100	606217	B.7	CLS S 31 D M	666113	D.21
AGBS25	562273	F.40	BPA225/100	606091	B.7	BPC440/1000	606235	B.7	CLS S 31 W	666114	D.21
AKG 25	546306	F.40	BPA225/1000	606121	B.7	BPC440/300	606225	B.7	CLS S 31 W M	666115	D.21
AKS 25	546307	F.40	BPA225/300	606101	B.7	BPC440/500	606230	B.7	CLS72Q41D	666178	D.25
AST B	666347	D.5	BPA225/500	606111	B.7	BPC463/030	606210	B.7	CLS72Q41W	666176	D.25
AST B 12	666340	D.5	BPA240/030	606087	B.7	BPC463/100	606218	B.7	CLS72S41D	666177	D.25
AST B 230	666341	D.5	BPA240/100	606092	B.7	BPC463/1000	606236	B.7	CLS72S41W	666175	D.25
AST B 24	666342	D.5	BPA240/1000	606122	B.7	BPC463/300	606226	B.7	CSLKIT14	662136	F.29
AST L CL	666343	D.5	BPA240/300	606102	B.7	BPC463/500	606231	B.7	CSLKIT18	662138	F.29
AST L GN	666344	D.5	BPA240/500	606112	B.7	BPC480/030	606211	B.7	CTX + R 16 1 008 A	686000	D.11
AST L OR	666345	D.5	BPA263/030	606088	B.7	BPC480/100	606219	B.7	CTX + R 16 1 012 A	686001	D.11
AST L RD	666346	D.5	BPA263/100	606093	B.7	BPC480/1000	606237	B.7	CTX + R 16 1 024 A	686002	D.11
AST LA 230V	666874	D.5	BPA263/1000	606123	B.7	BPC480/300	606227	B.7	CTX + R 16 1 048 A	686003	D.11
AST LB 230V	666875	D.5	BPA263/300	606103	B.7	BPC480/500	606232	B.7	CTX + R 16 1 115 A	686004	D.11
AST LG 230V	666876	D.5	BPA263/500	606113	B.7	BPS2100/100	606100	B.7	CTX + R 16 1 230 A	686005	D.11
AST LR 230V	666877	D.5	BPA280/030	606089	B.7	BPS2100/1000	606130	B.7	CTX + R 16 1 240 A	686006	D.11
AST LW 230V	666878	D.5	BPA280/100	606094	B.7	BPS2100/300	606110	B.7	CTX + R 16 10 008 A	686007	D.11
AST M 100 10	666558	D.3	BPA280/1000	606124	B.7	BPS2100/500	606120	B.7	CTX + R 16 10 012 A	686008	D.11
AST M 100 20	666559	D.3	BPA280/300	606104	B.7	BPS225/100	606096	B.7	CTX + R 16 10 024 A	686009	D.11
AST M 100 30	666560	D.3	BPA280/500	606114	B.7	BPS225/1000	606126	B.7	CTX + R 16 10 048 A	686010	D.11
AST M 100 40	666561	D.3	BPA4100/030	606167	B.7	BPS225/300	606106	B.7	CTX + R 16 10 115 A	686011	D.11
AST M 40 10	666614	D.3	BPA4100/100	606172	B.7	BPS225/500	606116	B.7	CTX + R 16 10 230 A	686013	D.11
AST M 40 20	666615	D.3	BPA4100/1000	606202	B.7	BPS240/100	606097	B.7	CTX + R 16 10 23060	686012	D.11
AST M 40 30	666616	D.3	BPA4100/300	606182	B.7	BPS240/1000	606127	B.7	CTX + R 16 10 240 A	686014	D.11
AST M 40 40	666617	D.3	BPA4100/500	606192	B.7	BPS240/300	606107	B.7	CTX + R 16 11 008 A	686015	D.11
AST M 63 10	666562	D.3	BPA425/030	606163	B.7	BPS240/500	606117	B.7	CTX + R 16 11 012 A	686016	D.11
AST M 63 20	666563	D.3	BPA425/100	606168	B.7	BPS263/100	606098	B.7	CTX + R 16 11 024 A	686017	D.11
AST M 63 30	666564	D.3	BPA425/1000	606198	B.7	BPS263/1000	606128	B.7	CTX + R 16 11 048 A	686018	D.11
AST M 63 40	666565	D.3	BPA425/100	606198	B.26	BPS263/300	606108	B.7	CTX + R 16 11 115 A	686019	D.11
AST M 80 10	666566	D.3	BPA425/300	606178	B.7	BPS263/500	606118	B.7	CTX + R 16 11 230 A	686021	D.11
AST M 80 20	666567	D.3	BPA425/500	606188	B.7	BPS280/100	606099	B.7	CTX + R 16 11 23060	686020	D.11
AST M 80 30	666568	D.3	BPA440/030	606164	B.7	BPS280/1000	606129	B.7	CTX + R 16 11 240 A	686022	D.11
AST M 80 40	666569	D.3	BPA440/100	606169	B.7	BPS280/300	606109	B.7	CTX + R 16 2 008 A	686023	D.11
AST P 16 01	666570	D.3	BPA440/1000	606199	B.7	BPS280/500	606119	B.7	CTX + R 16 2 012 A	686024	D.11
AST P 16 10	666571	D.3	BPA440/300	606179	B.7	BPS4100/100	606177	B.7	CTX + R 16 2 024 A	686026	D.11
AST P 16 11	666572	D.3	BPA440/500	606189	B.7	BPS4100/1000	606207	B.7	CTX + R 16 2 048 A	686028	D.11
AST PL 16 10	666573	D.3	BPA463/030	606165	B.7	BPS4100/300	606187	B.7	CTX + R 16 2 115 A	686030	D.11
AST R 32 20	666574	D.3	BPA463/100	606170	B.7	BPS4100/500	606197	B.7	CTX + R 16 2 230 A	686032	D.11
AST R 32 30	666575	D.3	BPA463/1000	606200	B.7	BPS425/100	606173	B.7	CTX + R 16 2 240 A	686034	D.11
AST R 32 3N	666576	D.3	BPA463/300	606180	B.7	BPS425/1000	606203	B.7	CTX + R 16 20 008 A	686036	D.11
AST R 32 40	666577	D.3	BPA463/500	606190	B.7	BPS425/300	606183	B.7	CTX + R 16 20 012 A	686037	D.11
AST R 40 20	666578	D.3	BPA480/030	606166	B.7	BPS425/500	606193	B.7	CTX + R 16 20 024 A	686038	D.11
AST R 40 30	666579	D.3	BPA480/100	606171	B.7	BPS440/100	606174	B.7	CTX + R 16 20 048 A	686039	D.11
AST R 40 3N	666580	D.3	BPA480/1000	606201	B.7	BPS440/1000	606204	B.7	CTX + R 16 20 115 A	686040	D.11
AST R 40 40	666581	D.3	BPA480/300	606181	B.7	BPS440/300	606184	B.7	CTX + R 16 20 230 A	686042	D.11
AST R 63 20	666582	D.3	BPA480/500	606191	B.7	BPS440/500	606194	B.7	CTX + R 16 20 23060	686041	D.11
AST R 63 30	666583	D.3	BPAi225/030	606331	B.7	BPS463/100	606175	B.7	CTX + R 16 20 240 A	686043	D.11
AST R 63 3N	666584	D.3	BPAi225/300	606347	B.7	BPS463/1000	606205	B.7	CTX + R 16 22 008 A	686027	D.11
AST R 63 40	666585	D.3	BPAi240/030	606332	B.7	BPS463/300	606185	B.7	CTX + R 16 22 012 A	686044	D.11
AST R ES E	666555	D.3	BPAi240/300	606348	B.7	BPS463/500	606195	B.7	CTX + R 16 22 024 A	686045	D.11
AST R ES S	666556	D.3	BPAi263/030	606333	B.7	BPS480/100	606176	B.7	CTX + R 16 22 048 A	686046	D.11
AST R TS	666557	D.3	BPAi263/300	606349	B.7	BPS480/1000	606206	B.7	CTX + R 16 22 230 A	686048	D.11
AST S 16 1	666586	D.3	BPAi425/030	606334	B.7	BPS480/300	606186	B.7	CTX + R 16 22 23060	686047	D.11
AST S 16 10	666587	D.3	BPAi425/300	606350	B.7	BPS480/500	606196	B.7	CTX + R 16 22 240 A	686049	D.11

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CTX + R 16 40 230 A	686064	D.11	DM100B10/100	609940	B.11	DM60C06/300	609856	B.9	DMA60B10/010	609741	B.9
CTX + R 16 40 23060	686063	D.11	DM100B10/300	609948	B.11	DM60C10/010	609833	B.9	DMA60B10/030	609746	B.9
CTX + R 16 40 240 A	686065	D.11	DM100B13/010	609928	B.11	DM60C10/030	609839	B.9	DMA60B10/100	609754	B.9
CTX + R 5 02	686066	D.15	DM100B13/030	609933	B.11	DM60C10/100	609848	B.9	DMA60B10/300	609762	B.9
CTX + R 5 11	686067	D.15	DM100B13/100	609941	B.11	DM60C10/300	609857	B.9	DMA60B13/010	609742	B.9
CTX + R 5 20	686068	D.15	DM100B13/300	609949	B.11	DM60C13/010	609834	B.9	DMA60B13/030	609747	B.9
CTX 06 11	666162	D.7	DM100B16/010	609929	B.11	DM60C13/030	609840	B.9	DMA60B13/100	609755	B.9
CTX 06 20	666163	D.7	DM100B16/030	609934	B.11	DM60C13/100	609849	B.9	DMA60B13/300	609763	B.9
CTX 20 02 024 A	666129	D.7	DM100B16/100	609942	B.11	DM60C13/300	609858	B.9	DMA60B16/010	609743	B.9
CTX 20 02 230 A	666128	D.7	DM100B16/300	609950	B.11	DM60C16/010	609835	B.9	DMA60B16/030	609748	B.9
CTX 20 11 024 A	666127	D.7	DM100B20/010	609930	B.11	DM60C16/030	609841	B.9	DMA60B16/100	609756	B.9
CTX 20 11 230 A	666126	D.7	DM100B20/030	609935	B.11	DM60C16/100	609850	B.9	DMA60B16/300	609764	B.9
CTX 20 20 012 A	666130	D.7	DM100B20/100	609943	B.11	DM60C16/300	609859	B.9	DMA60B20/010	609744	B.9
CTX 20 20 024 A	666133	D.7	DM100B20/300	609951	B.11	DM60C20/010	609836	B.9	DMA60B20/030	609749	B.9
CTX 20 20 048 A	666134	D.7	DM100B25/030	609936	B.11	DM60C20/030	609842	B.9	DMA60B20/100	609757	B.9
CTX 20 20 230 A	666131	D.7	DM100B25/100	609944	B.11	DM60C20/100	609851	B.9	DMA60B20/300	609765	B.9
CTX 20 20 240 A	666132	D.7	DM100B25/300	609952	B.11	DM60C20/300	609860	B.9	DMA60B25/030	609750	B.9
CTX 24 04 024 U	666140	D.7	DM100B32/030	609937	B.11	DM60C25/030	609843	B.9	DMA60B25/100	609758	B.9
CTX 24 04 230 U	666139	D.7	DM100B32/100	609945	B.11	DM60C25/100	609852	B.9	DMA60B25/300	609766	B.9
CTX 24 22 024 U	666136	D.7	DM100B32/300	609953	B.11	DM60C25/300	609861	B.9	DMA60B32/030	609751	B.9
CTX 24 22 230 U	666135	D.7	DM100B40/030	609938	B.11	DM60C32/030	609844	B.9	DMA60B32/100	609759	B.9
CTX 24 30 024 U	666138	D.7	DM100B40/100	609946	B.11	DM60C32/100	609853	B.9	DMA60B32/300	609767	B.9
CTX 24 30 230 U	666137	D.7	DM100B40/300	609954	B.11	DM60C32/300	609862	B.9	DMA60B40/030	609752	B.9
CTX 24 40 012 U	666141	D.7	DM100C04/010	609955	B.11	DM60C40/030	609845	B.9	DMA60B40/100	609760	B.9
CTX 24 40 024 U	666144	D.7	DM100C04/030	609961	B.11	DM60C40/100	609854	B.9	DMA60B40/300	609768	B.9
CTX 24 40 048 U	666145	D.7	DM100C04/100	609970	B.11	DM60C40/300	609863	B.9	DMA60C04/010	609769	B.9
CTX 24 40 230 U	666142	D.7	DM100C04/300	609979	B.11	DMA100B06/010	609864	B.11	DMA60C04/030	609775	B.9
CTX 24 40 240 U	666143	D.7	DM100C06/010	609956	B.11	DMA100B06/030	609869	B.11	DMA60C04/100	609784	B.9
CTX 40 02 230 U	666170	D.7	DM100C06/030	609962	B.11	DMA100B06/100	609877	B.11	DMA60C04/300	609793	B.9
CTX 40 20 024 U	666147	D.7	DM100C06/100	609971	B.11	DMA100B06/300	609885	B.11	DMA60C06/010	609770	B.9
CTX 40 20 230 U	666146	D.7	DM100C06/300	609980	B.11	DMA100B10/010	609865	B.11	DMA60C06/030	609776	B.9
CTX 40 30 024 U	666149	D.7	DM100C10/010	609957	B.11	DMA100B10/030	609870	B.11	DMA60C06/100	609785	B.9
CTX 40 30 230 U	666148	D.7	DM100C10/030	609963	B.11	DMA100B10/100	609878	B.11	DMA60C06/300	609794	B.9
CTX 40 40 012 U	666150	D.7	DM100C10/100	609972	B.11	DMA100B10/300	609886	B.11	DMA60C10/010	609771	B.9
CTX 40 40 024 U	666153	D.7	DM100C10/300	609981	B.11	DMA100B13/010	609866	B.11	DMA60C10/030	609777	B.9
CTX 40 40 048 U	666154	D.7	DM100C13/010	609958	B.11	DMA100B13/030	609871	B.11	DMA60C10/100	609786	B.9
CTX 40 40 230 U	666151	D.7	DM100C13/030	609964	B.11	DMA100B13/100	609879	B.11	DMA60C10/300	609795	B.9
CTX 40 40 240 U	666152	D.7	DM100C13/100	609973	B.11	DMA100B13/300	609887	B.11	DMA60C13/010	609772	B.9
CTX 63 20 230 U	666155	D.7	DM100C13/300	609982	B.11	DMA100B16/010	609867	B.11	DMA60C13/030	609778	B.9
CTX 63 40 024 U	666158	D.7	DM100C16/010	609959	B.11	DMA100B16/030	609872	B.11	DMA60C13/100	609787	B.9
CTX 63 40 230 U	666156	D.7	DM100C16/030	609965	B.11	DMA100B16/100	609880	B.11	DMA60C13/300	609796	B.9
CTX 63 40 240 U	666157	D.7	DM100C16/100	609974	B.11	DMA100B16/300	609888	B.11	DMA60C16/010	609773	B.9
CTX DN 20 20 230	666164	D.7	DM100C16/300	609983	B.11	DMA100B20/010	609868	B.11	DMA60C16/030	609779	B.9
CTX DN 24 30 230	666165	D.7	DM100C20/010	609960	B.11	DMA100B20/030	609873	B.11	DMA60C16/100	609788	B.9
CTX DN 24 40 230	666166	D.7	DM100C20/030	609966	B.11	DMA100B20/100	609881	B.11	DMA60C16/300	609797	B.9
CTX DN 40 20 230	666167	D.7	DM100C20/100	609975	B.11	DMA100B20/300	609889	B.11	DMA60C20/010	609774	B.9
CTX DN 40 30 230	666168	D.7	DM100C20/300	609984	B.11	DMA100B25/030	609874	B.11	DMA60C20/030	609780	B.9
CTX DN 40 40 230	666169	D.7	DM100C25/030	609967	B.11	DMA100B25/100	609882	B.11	DMA60C20/100	609789	B.9
CTX SP	666161	D.7	DM100C25/100	609976	B.11	DMA100B25/300	609890	B.11	DMA60C20/300	609798	B.9
CTX TS 2	666160	D.7	DM100C25/300	609985	B.11	DMA100B32/030	609875	B.11	DMA60C25/030	609781	B.9
CTX TS 3	666159	D.7	DM100C32/030	609968	B.11	DMA100B32/100	609883	B.11	DMA60C25/100	609790	B.9
CU10BN	662132	F.28	DM100C32/100	609977	B.11	DMA100B32/300	609891	B.11	DMA60C25/300	609799	B.9
CU14BN	662133	F.28	DM100C32/300	609986	B.11	DMA100B40/030	609876	B.11	DMA60C32/030	609782	B.9
CU18BN	662134	F.28	DM100C40/030	609969	B.11	DMA100B40/100	609884	B.11	DMA60C32/100	609791	B.9
CU4BN	662131	F.28	DM100C40/100	609978	B.11	DMA100B40/300	609892	B.11	DMA60C32/300	609800	B.9
CULINKPIN	662144	F.29	DM100C40/300	609987	B.11	DMA100C04/010	609893	B.11	DMA60C40/030	609783	B.9
D...			DM60B06/010	609802	B.9	DMA100C04/030	609899	B.11	DMA60C40/100	609792	B.9
DFSL12	662163	F.26	DM60B06/030	609807	B.9	DMA100C04/100	609908	B.11	DMA60C40/300	609801	B.9
DICE60B06/030	694042	B.13	DM60B06/100	609815	B.9	DMA100C04/300	609917	B.11	DMCE60B06/030	694014	B.13
DICE60B10/030	694043	B.13	DM60B06/300	609823	B.9	DMA100C06/010	609894	B.11	DMCE60B10/030	694015	B.13
DICE60B16/030	694044	B.13	DM60B10/010	609803	B.9	DMA100C06/030	609900	B.11	DMCE60B16/030	694016	B.13
DICE60B20/030	694045	B.13	DM60B10/030	609808	B.9	DMA100C06/100	609909	B.11	DMCE60B20/030	694017	B.13
DICE60B25/030	694046	B.13	DM60B10/100	609816	B.9	DMA100C06/300	609918	B.11	DMCE60B25/030	694018	B.13
DICE60B32/030	694047	B.13	DM60B10/300	609824	B.9	DMA100C10/010	609895	B.11	DMCE60B32/030	694019	B.13
DICE60B40/030	694048	B.13	DM60B13/010	609804	B.9	DMA100C10/030	609901	B.11	DMCE60B40/030	694020	B.13
DICE60C06/030	694028	B.13	DM60B13/030	609809	B.9	DMA100C10/100	609910	B.11	DMCE60C06/030	694000	B.13
DICE60C10/030	694029	B.13	DM60B13/100	609817	B.9	DMA100C10/300	609919	B.11	DMCE60C10/030	694001	B.13
DICE60C16/030	694030	B.13	DM60B13/300	609825	B.9	DMA100C13/010	609896	B.11	DMCE60C16/030	694002	B.13
DICE60C20/030	694031	B.13	DM60B16/010	609805	B.9	DMA100C13/030	609902	B.11	DMCE60C20/030	694003	B.13
DICE60C25/030	694032	B.13	DM60B16/030	609810	B.9	DMA100C13/100	609911	B.11	DMCE60C25/030	694004	B.13
DICE60C32/030	694033	B.13	DM60B16/100	609818	B.9	DMA100C13/300	609920	B.11	DMCE60C32/030	694005	B.13
DICE60C40/030	694034	B.13	DM60B16/300	609826	B.9	DMA100C16/010	609897	B.11	DMCE60C40/030	694006	B.13
DICEA60B06/030	694049	B.13	DM60B20/010	609806	B.9	DMA100C16/030	609903	B.			

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DME100B20/030	605040	B.15	DOC 332/500	607623	B.17	DPA100B10/010	608706	B.19	EP101T202	691279	A.47
DME100B25/010	605034	B.15	DOC 363/030	607626	B.17	DPA100B10/030	608712	B.19	EP101T203	691280	A.47
DME100B25/030	605041	B.15	DOC 363/100	607627	B.17	DPA100B13/010	608707	B.19	EP101T204	691281	A.47
DME100B32/010	605035	B.15	DOC 363/1000	607630	B.17	DPA100B13/030	608713	B.19	EP101T206	691282	A.47
DME100B32/030	605042	B.15	DOC 363/300	607628	B.17	DPA100B16/010	608708	B.19	EP101T208	691283	A.47
DME100B40/010	605036	B.15	DOC 363/500	607629	B.17	DPA100B16/030	608714	B.19	EP101T21.6	691284	A.47
DME100B40/030	605043	B.15	DOC 4125/030	671590	A.34	DPA100B20/010	608709	B.19	EP101T210	691285	A.47
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DME60C16/030	605062	B.15	DOCA 232/030	607500	B.17	DSL66	662160	F.26	EP101UCC0.5	673301	A.31
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DME60C40/030	605066	B.15	DOCA 232/500	607503	B.17	EDU14E+N	618792	F.28	EP101UCC06	673306	A.31
DMEA100B06/010	605150	B.15	DOCA 263/030	607506	B.17	EDU18E+N	618793	F.28	EP101UCC10	673308	A.31
DMEA100B06/030	605157	B.15	DOCA 263/100	607507	B.17	EKL	546336	F.40	EP101UCC16	673310	A.31
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DMEA100B10/030	605158	B.15	DOCA 263/300	607508	B.17	EP101K01	672403	A.25	EP101UCC25	673312	A.31
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DMEA100B40/010	605156	B.15	DOCA 363/030	607590	B.17	EP101K20	672412	A.25	EP101UCRK04	673272	A.45
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DMEA100C06/030	605171	B.15	DOCA 363/300	607592	B.17	EP101K40	672415	A.25	EP101UCRK1.6	673269	A.45
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GLX Q 21 ASTRO LS1	680070	D.23	GT103B06	675198	A.27	GT251C04	675288	A.29	GT253D63	675439	A.29
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GLX Q 62 Y 400	666194	D.23	GT103B50	675207	A.27	GT251C50	675298	A.29	GT254B50	675390	A.29
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