

# Redline

Edition 2010

Modular DIN-rail devices  
and residential enclosures

Just feel protected



GE imagination at work



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**Modular DIN-rail devices and residential enclosures**

Circuit Protection	A
People Protection	B
Add-on Devices	C
Comfort Functions	D
Busbars	E
Enclosures	F
MCCB's Record Plus	G
Numerical Index	X



Just feel p

- A.2 Selection table of Miniature Circuit Breakers (MCB's)
- A.4 Technical data
- A.6 Short-circuit capacity
- A.10 Back-up protection (association) with MCB's and MCCB's
- A.12 Selectivity with MCCB's
- A.14 3kA MCB's - **Series G30**
- A.16 4.5kA MCB's - **Series G45**
- A.18 6kA MCB's - **Series G60**
- A.20 6kA MCB's with K characteristic - **Series EP60**
- A.22 10kA MCB's - **Series G100**
- A.24 10kA MCB's with K characteristic - **Series EP100**
- A.26 10kA MCB's - **Series GT10**
- A.28 25kA MCB's - **Series GT25**
- A.30 MCB's for DC applications - **Series EP100 UC**
- A.32 10kA MCB's - **Series Hti**
- A.36 6kA MCB's with UL approval - **Series EP60 UL**
- A.38 10kA MCB's with UL approval - **Series EP100 UL**
- A.40 10kA MCB's UL listed - **Series EP100 ULH**

- A.42 MCB's for rail applications - **Series EP100R**
- A.44 **Series EP100UCR**



**MCB's with ring terminals**

- A.46 MCB's for rail applications - **Series EP100T**
- A.48 **Series EP100UCT**

- A.50 Accessories
- A.80 Dimensional drawings



**Unibis™ - Compact MCB's**

- A.52 Advantages
- A.56 Technical data
- A.60 4.5kA Compact 1P+N MCB's - **Series EPC 451N**
- A.61 6kA Compact 1P+N MCB's - **Series EPC 61N**
- A.63 6kA Compact 1P+1P MCB's - **Series EPC 611**
- A.64 4.5kA Compact MCB's - **Series EPC 45**
- A.66 6kA Compact MCB's - **Series EPC 60**
- A.82 Dimensional drawings



**Fixwell™ - Screwless MCB's**

- A.68 Advantages
- A.72 Technical data
- A.76 6kA Screwless MCB's - **Series EPP60**
- A.78 10kA Screwless MCB's - **Series EPP100**
- A.82 Dimensional drawings

Circuit Protection

A

People Protection

B

Add-on Devices

C

Comfort Functions

D

Busbars

E

Enclosures

F

MCCB's Record Plus

G

Numerical Index

X

protected



## Selection table of MCB's

Circuit protection

A

B

C

D

E

F

G

X

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 <sup>(1)</sup>	20
				yes	C	0.5 - 63	6	10 <sup>(1)</sup>	20
				yes	D	0.5 - 63	6	10 <sup>(1)</sup>	20
A.20	EP60		1, 2, 3, 4	yes	K	0.5 - 63	6	10 <sup>(1)</sup>	20
A.22	G100		1, 1+N, 2, 3, 4	yes	B	6 - 63	10 <sup>(1)</sup>	15 <sup>(2)</sup>	30
				yes	C	0.5 - 63	10 <sup>(1)</sup>	15 <sup>(2)</sup>	30
				yes	D	0.5 - 63	10 <sup>(1)</sup>	15 <sup>(2)</sup>	30
A.24	EP100		1, 2, 3, 4	yes	K	0.5 - 63	10	15 <sup>(2)</sup>	30 <sup>(2)</sup>
A.26	GT10		1, 2, 3, 4	yes	B	6 - 63	10 <sup>(1)</sup>	30	
				yes	C	0.5 - 63	10 <sup>(1)</sup>	30	
				yes	D	0.5 - 63	10 <sup>(1)</sup>	30	
A.28	GT25		1, 2, 3, 4	yes	B	6 - 63	15 <sup>(2)</sup>	20 <sup>(2)</sup>	25 <sup>(2)</sup>
				yes	C	0.5 - 63	15 <sup>(2)</sup>	20 <sup>(2)</sup>	25 <sup>(2)</sup>
				yes	D	0.5 - 63	15 <sup>(2)</sup>	20 <sup>(2)</sup>	25 <sup>(2)</sup>
A.30	EP100 UC		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	EP60 UL		1, 2, 3, 4	yes	B	6 - 63	6	6	10 <sup>(1)</sup>
				yes	C	0.5 - 63	6	6	10 <sup>(1)</sup>
				yes	D	0.5 - 63	6	6	10 <sup>(1)</sup>
A.38	EP100 UL		1, 2, 3, 4	yes	B	6 - 63	10	10	15 <sup>(1)</sup>
				yes	C	0.5 - 63	10	10	15 <sup>(1)</sup>
				yes	D	0.5 - 63	10	10	15 <sup>(1)</sup>
A.40	EP100 ULH		1, 2, 3	yes	B	5 - 32	10	15 <sup>(2)</sup>	
				yes	C	0.5 - 32	10	15 <sup>(2)</sup>	
				yes	D	0.5 - 32	10	15 <sup>(2)</sup>	

- domestic
- commercial
- industrial
- motors

- 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	EP100 UCR		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	EP100 UCT		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 → 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	6 → 10

3

**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 <sup>(1)</sup> → 10
A.78	EPP100		1, 2, 3, 3+N, 4	yes	B-C	2 - 40	10 <sup>(1)</sup> → 15 <sup>(2)</sup>

- domestic
- commercial
- industrial
- railways

- 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

MCB's

A

B

C

D

E

F

G

X



Technical data of MCB's

Circuit protection

A

B

C

D

E

F

G

X

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

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





GT10 / GT25	EP100 UC	Hti	EP100R / EP100T	EP100UCR / EP100UCT
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 <sup>(5)</sup>	EN/IEC 60947-2 <sup>(3)</sup> Z, B, C, K <sup>(4)</sup>
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 <sup>(6)</sup>	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	-40/+70	-40/+70
-55/+55	-55/+55	-55/+55	-40/+70	-40/+70
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

MCB'S

A

B

C

D

E

F

G

X

(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

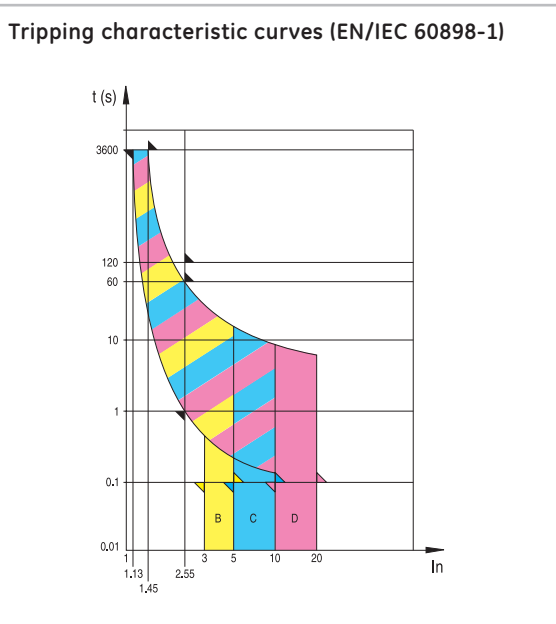


Short-circuit capacity of MCB's

Series			G30	G45	G60 / EP60 char. K		
<b>Short-circuit capacity AC (kA)</b>							
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	
		1P+N/2P	415V	3	3	3	
			127V	-	15	30	
		2P	240V	10	10	20	
			415V	5	6	10	
		3P, 4P	240V	10	10	20	
			415V	5	6	10	
				440V	-	-	6
					-	-	6
Ics (service)			75% Icu	75% Icu	75% Icu		
NEMA AB1 (120/240V)			10	14	20		
<b>Short-circuit capacity DC (kA)</b>							
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.



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) 0.1 < t < 90s (In > 32A)	Only for resistive loads such as: - electrical heating - water heater - stoves
	5 x In	t < 0.1s	
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	
D	10 x In	0.1 < t < 4s <sup>(1)</sup> (In ≤ 32A) 0.1 < t < 8s (In > 32A)	Control and protection of circuits having important transient inrush currents
	20 x In	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 char. K EP100T / EP100R	GT10	GT25	EP100 UC / EP100 UCR	Hti
10	-	-	6 (220VDC) <sup>(2)</sup>	-
10	-	-	-	-
10	-	-	6 (440VDC) <sup>(3)</sup>	-
10	-	-	-	-
75% Icn	-	-	100% Icn	-
30	25	50	-	-
15	10	50/25/20/15 <sup>(1)</sup>	6 <sup>(5)</sup>	B/C 10; D 7.5
4	-	-	-	4.5
40	30	-	-	-
30	20	50/50/40/30 <sup>(1)</sup>	-	B/C 15
15	10	50/25/20/15 <sup>(1)</sup>	6 <sup>(5)</sup>	B/C 10; D 7.5
30	20	50/50/40/30 <sup>(1)</sup>	-	B/C 15
15	10	50/25/20/15 <sup>(1)</sup>	-	B/C 10; D 7.5
10	-	50/20/15/10 <sup>(1)</sup>	-	-
50% Icu	75% Icu	50% Icu	-	100% Icu
30	30	-	-	-
25	20	25	-	10
-	-	-	10 <sup>(4)</sup>	-
30	25	30	20 <sup>(4)</sup>	15
-	-	-	10 <sup>(4)</sup>	-
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 ≥ 2 s.)

### Thermal release

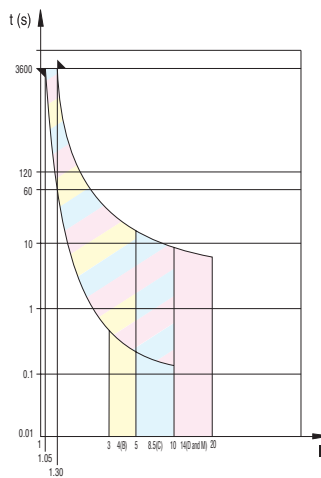
The release is initiated by a bimetal strip in case of overload. The standard defines the range of releases for two special overload values.

Reference ambient temperature is:

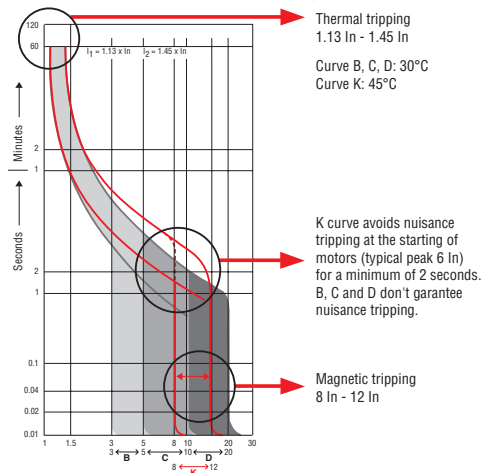
- 40°C for GT10 and GT25
- 50°C for G60 and G100, except for K: 45°C

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



MCB'S  
A

B  
C  
D  
E  
F  
G  
X

Technical data of MCB's

Circuit protection

A

B

C

D

E

F

G

X

Series		EP60 UL	EP100 UL	EP100 ULH
<b>Standards UL 1077 (recognized) &amp; CSA C22.2</b>		yes	yes	-
<b>Standards UL 489 (listed)</b>		-	-	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
<b>Standards EN/IEC 60947-2</b>		yes	yes	yes
Tripping characteristics		B,C,D	B,C,D	B,C,D
Nominal current	A	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 <sup>(1)</sup>	VDC 48	48	48
	2P (in series) <sup>(1)</sup>	VDC 110	110	110
Frequency	Hz	50/60	50/60	50/60
Maximum service voltage U <sub>bmax</sub> between two wires	V	250/440; 53/120 ==	250/440; 53/120 ==	250/440; 53/120 ==
Minimum service voltage U <sub>bmin</sub>	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 U <sub>n</sub> , I <sub>n</sub>	10000	10000	10000
	mechanical	20000	20000	20000
Utilisation category (EN/IEC 60947-2)		A	A	A
Protection distance (EN/IEC 60947-2)	mm	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)	°C/RH	+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 <sup>2</sup> 1/35	1/35	1/35
	Flexible cable min*/max (top)	mm <sup>2</sup> 0.75/25	0.75/25	0.75/25
	Rigid cable min/max (bottom)	mm <sup>2</sup> 1/35	1/35	1/35
	Flexible cable min*/max (bottom)	mm <sup>2</sup> 0.75/25	0.75/25	0.75/25
	(* Flexible cable 0.75/1/1.5 mm <sup>2</sup> with cable lug)			
	Torque	Nm max 4.5	max 4.5	max 4.5
Add-on devices	Auxiliary contacts	yes	yes	yes
(side add-on)	Tele L	yes	yes	yes
	Tele MP	yes	yes	yes
Dimensions (HxDxW) 86x68xW <sup>(2)</sup>	mm/mod.	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
<b>Interrupting capacity acc. to</b>		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
<b>Short-circuit capacity AC</b>				
EN/IEC 60947-2	<b>Icu (ultimate) kA</b>			
	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
	<b>Ics (service)</b>	75% Icu	50% Icu	50% Icu
	<b>Short-circuit capacity DC</b>			
EN/IEC 60947-2	<b>Icu (ultimate) kA</b>			
	1 P ≤ 60 V $\overline{=}$	20	25	25
	≤ 220 V $\overline{=}$	-	-	-
	2 P ≤ 125 V $\overline{=}$	25	30	30
	≤ 440 V $\overline{=}$	-	-	-
<b>Ics (service)</b>	100%Icu	100%Icu	10%Icu	
Page	A.36	A.38	A.40	

MCB'S

A

B

C

D

E

F

G

X

## 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:

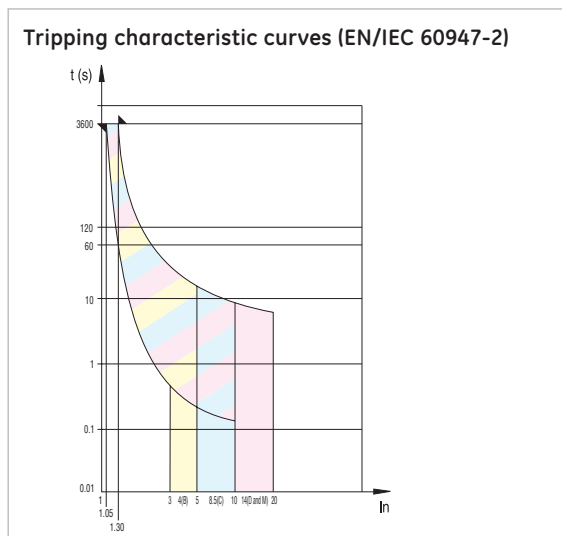
- B: 4 I<sub>n</sub>
- C: 8.5 I<sub>n</sub> (7.5 I<sub>n</sub> for 63A)
- D: 14 I<sub>n</sub>

#### 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 x I <sub>n</sub>	t ≥ 1h (I <sub>n</sub> ≤ 63A) t ≥ 2h (I <sub>n</sub> > 63A)
1.30 x I <sub>n</sub>	t < 1h (I <sub>n</sub> ≤ 63A) t < 2h (I <sub>n</sub> > 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 (kA)	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
		Icu of the combination (kA)																											
Redline																													
EPC 451N / EPC 45	6	15	18	18	18	18	18	18	15	15	15	12	12	12	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DP45	6	15	18	22	22	22	22	18	18	18	15	15	15	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EPC 61N / EPC 60	10	16	20	23	23	23	23	20	20	20	16	16	16	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DPI(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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DPI(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	-	200	-	200	80	100	150	80	100	150	80	100
FE160N	85	-	-	-	-	-	-	-	100	200	-	-	100	200	-	100	200	-	100	200	80	100	150	80	100	150	80	100	100
FE160H	100	-	-	-	-	-	-	-	200	-	-	-	200	-	200	-	200	-	200	-	200	80	100	150	80	100	150	80	100
FE250N	85	-	-	-	-	-	-	-	-	-	-	-	100	200	-	100	200	-	100	200	80	100	150	80	100	150	80	100	100
FE250H	100	-	-	-	-	-	-	-	-	-	-	-	-	200	-	200	-	200	-	200	80	100	150	80	100	150	80	100	100
FG400N	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	200	-	100	200	80	100	150	80	100	150	80	100	100
FG400H	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	200	-	200	80	100	150	80	100	150	80	100	100
FG630N	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	200	80	100	150	80	100	150	80	100	100
FG630H	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	80	100	150	80	100	150	80	100	100
FK800N	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	100	150	80	100	150	80	100	100
FK800H	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	170	80	100	170	80	100	100
FK1250N	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	100	170	80	100	170	80	100	100
FK1250H	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	170	80	100	170	80	100	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)																														
<b>Redline</b>																														
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	10	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<b>Surion</b>																														
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Record Plus™</b>																														
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	100	-
FD63/160H	80	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	150	-	-	150	-	-	100	-	-	100	-	-	100	-
FE160N	50	-	-	-	-	-	-	-	80	150	-	-	80	150	-	80	150	-	80	150	-	80	100	-	80	100	-	80	100	-
FE160H	80	-	-	-	-	-	-	-	-	150	-	-	-	150	-	-	150	-	-	150	-	-	100	-	-	100	-	-	100	-
FE250N	50	-	-	-	-	-	-	-	-	-	-	-	80	150	-	80	150	-	80	150	-	80	100	-	80	100	-	80	100	-
FE250H	80	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-	150	-	-	150	-	-	100	-	-	100	-	-	100	-
FG400N	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	150	-	80	150	-	80	100	-	80	100	-	80	100	-
FG400H	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-	150	-	-	100	-	-	100	-	-	100	-
FG630N	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	150	-	80	100	-	80	100	-	80	100	-
FG630H	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-	100	-	-	100	-	-	100	-
FK800N	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	100	-	80	100	-	80	100	-
FK800H	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	100	-	-	100	-
FK1250N	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	100	-	80	100	-	80	100	-
FK1250H	80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	100	-	-	100	-

MCCB'S  
A  
B  
C  
D  
E  
F  
G  
X



# Selectivity

## Record Plus™ MCCB's

Circuit protection

A

B

C

D

E

F

G

X

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





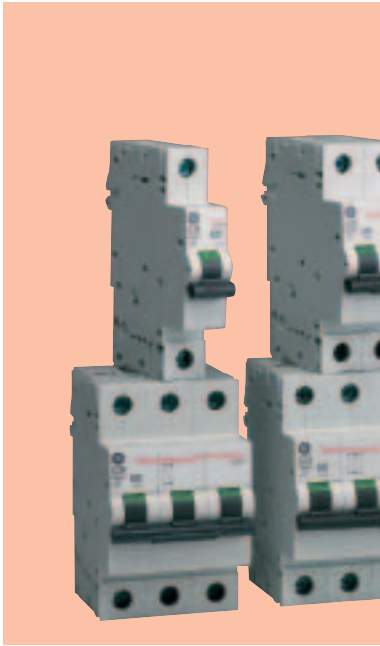
Notes

Grid area for notes, consisting of a large grid of small red dots.



A
B
C
D
E
F
G
X





## Miniature Circuit Breakers

### G30

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

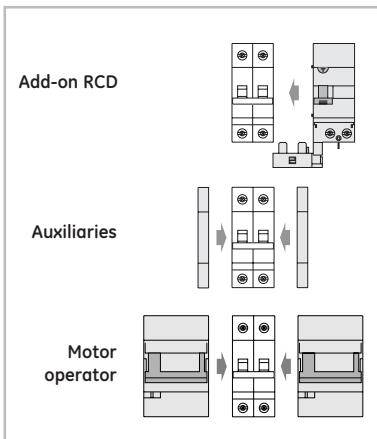
### Applications



### 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 $I_n$	(A)	2-40
Rated voltage AC $U_n$	(V)	240/415
Minimum operating voltage $U_{B\ min}$	(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 <sup>2</sup> )	25-35
Poles		1, 2, 3, 4
Weight	(g/pole)	120

### Short-circuit capacity

#### Acc. to EN/IEC 60898-1




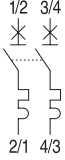

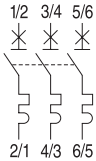

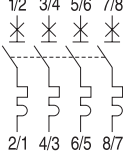
Poles	V	$I_{cn}/I_{cs}$ (kA)
1-4	230/400	3

#### 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

	In (A)	B		C		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	
 <p>1P 1 mod.</p> <p>1/2</p>  <p>2/1</p>	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
	 <p>2P 2 mod.</p> <p>1/2 3/4</p>  <p>2/1 4/3</p>	2	-	-	G32C02	674397
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
 <p>3P 3 mod.</p> <p>1/2 3/4 5/6</p>  <p>2/1 4/3 6/5</p>		2	-	-	G33C02	674413
	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
	 <p>4P 4 mod.</p> <p>1/2 3/4 5/6 7/8</p>  <p>2/1 4/3 6/5 8/7</p>	2	-	-	G34C02	674429
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

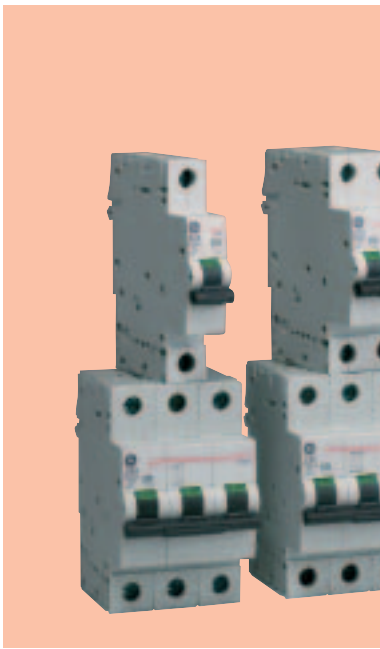
E

F

G

X





## Miniature Circuit Breakers

### G45

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

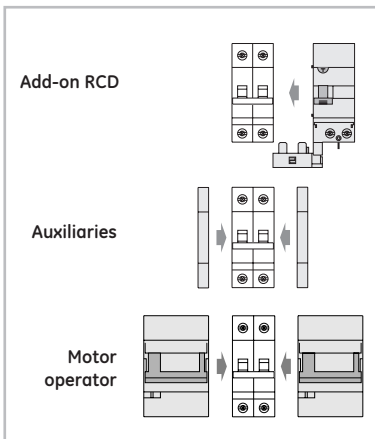
### Applications



### 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)	2-40
Rated voltage AC $U_n$	(V)	240/415
Minimum operating voltage $U_{B\ min}$	(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 <sup>2</sup> )	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




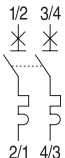

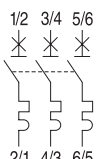

#### Acc. to EN/IEC 60947-2

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

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



Series G45 - 4.5kA - characteristics B-C

	In (A)	B		C		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	
 <p>1P 1 mod.</p> 	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
	 <p>2P 2 mod.</p> 	2	-	-	G42C02	674506
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
 <p>3P 3 mod.</p> 		2	-	-	G43C02	674522
	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
	 <p>4P 4 mod.</p> 	2	-	-	G44C02	674538
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





## Miniature Circuit Breakers

### G60

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

Special executions G60S for Shipping application in separate document.

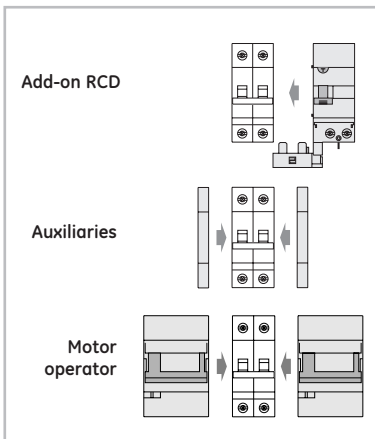
### Applications



### 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

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

### Short-circuit capacity

#### AC acc. to EN/IEC 60898-1

Poles	V	I <sub>cn</sub> /I <sub>cs</sub> (kA)
1-4	230/400	6

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

Poles	V	I <sub>cu</sub> (kA) <sup>(1)</sup>
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








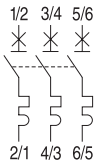
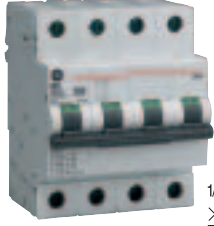
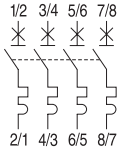
Poles	V <sub>DC</sub> <sup>(2)</sup>	I <sub>cu</sub> /I <sub>cs</sub> (kA)
1	60	20
2	125	25

(1) I<sub>cs</sub> = 75% I<sub>cu</sub>

(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.		
 <p><b>1P</b> 1 mod.</p> 	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	
	 <p><b>1P+N</b> 2 mod.</p> 	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	
 <p><b>2P</b> 2 mod.</p> 		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	
	 <p><b>3P</b> 3 mod.</p> 	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	
 <p><b>4P</b> 4 mod.</p> 		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	





## Miniature Circuit Breakers

### EP60

EN/IEC 60898-1 6000

EN/IEC 60947-2 10kA

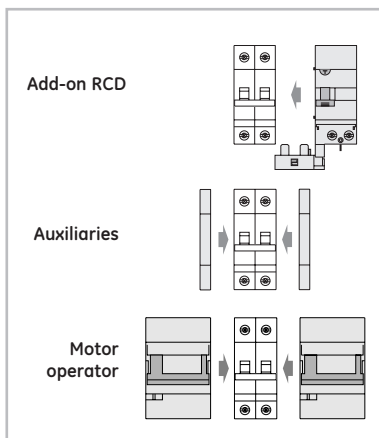
### Applications



### 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)	2-63
Rated voltage AC $U_n$	(V)	240/415
Minimum operating voltage $U_{B\ min}$	(V)	12
Tripping characteristics		8-12 $I_n$ (K) and 6 $I_n$ non tripping $\leq$ 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 <sup>2</sup> )	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) <sup>(1)</sup>
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




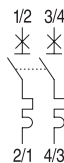

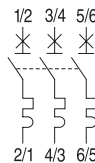

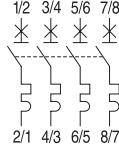
Poles	V $\overline{\text{---}}$ <sup>(2)</sup>	$I_{cu}/I_{cs}$ (kA)
1	60	20
2	125	25

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

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



Series EP60 - 6kA - characteristic K

	In (A)	K		Pack.
		Cat. No.	Ref. No.	
 <p><b>1P</b> 1 mod.</p> 	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
 <p><b>2P</b> 2 mod.</p> 	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
 <p><b>3P</b> 3 mod.</p> 	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
 <p><b>4P</b> 4 mod.</p> 	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

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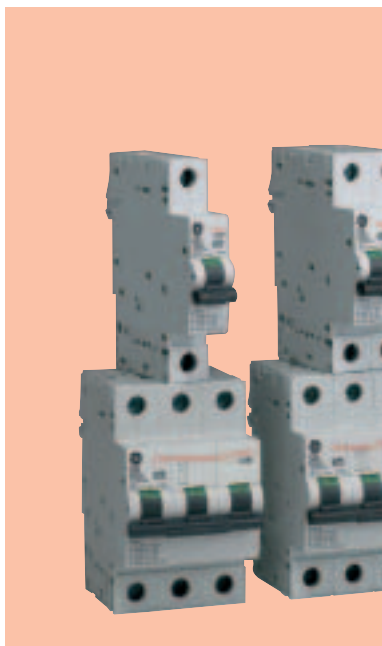
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## Miniature Circuit Breakers

### 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.

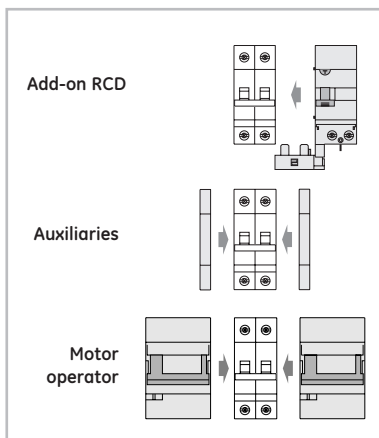
### Applications



### 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 $U_{B\ min}$	(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 <sup>2</sup> )	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) <sup>(1)</sup>
1-4	230/400	10

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

Poles	V	$I_{cu}$ (kA) <sup>(2)</sup>
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	$V_{DC}$ <sup>(3)</sup>	$I_{cu}/I_{cs}$ (kA)
1	60	25
2	125	30






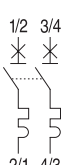

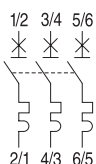

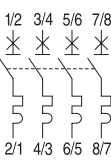
(1)  $I_{cs}$  = 75%  $I_{cu}$

(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

	In (A)	B		C		D		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
 <p><b>1P</b> 1 mod.</p> <p>1/2</p>  <p>2/1</p>	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	
 <p><b>1P+N</b> 2 mod.</p> <p>1/2 N</p>  <p>2/1 N</p>	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	
 <p><b>2P</b> 2 mod.</p> <p>1/2 3/4</p>  <p>2/1 4/3</p>	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	
 <p><b>3P</b> 3 mod.</p> <p>1/2 3/4 5/6</p>  <p>2/1 4/3 6/5</p>	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	
 <p><b>4P</b> 4 mod.</p> <p>1/2 3/4 5/6 7/8</p>  <p>2/1 4/3 6/5 8/7</p>	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

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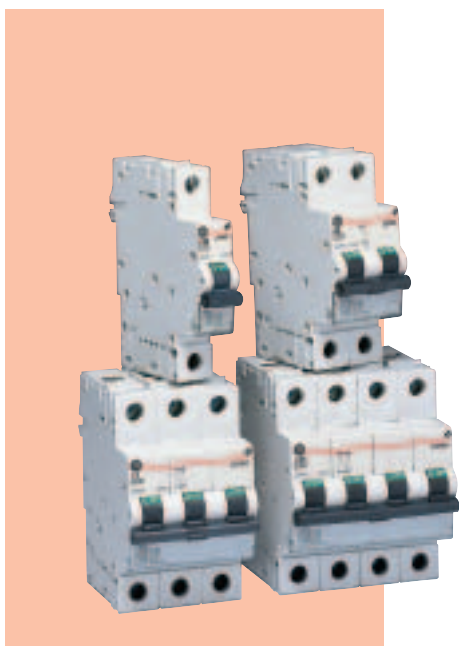
E

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X





## Miniature Circuit Breakers

### EP100

EN/IEC 60898-1 10000

EN/IEC 60947-2 **15kA**

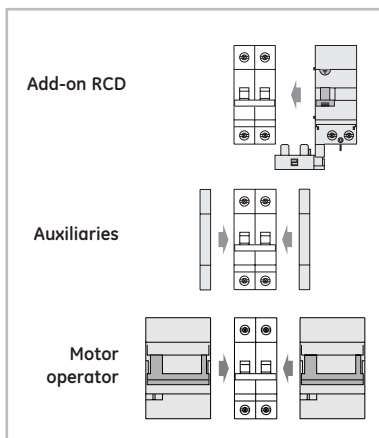
### Applications



### 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 $U_{B\ min}$	(V)	12
Tripping characteristics		8-12 $I_n$ (K) and 6 $I_n$ non tripping $\leq 2$ sec.
Mechanical/electrical endurance		20000/10000
Tropicalisation acc.to EN/IEC 60068-2		95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm <sup>2</sup> )	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) <sup>(1)</sup>
1	240	15
1+N, 2	127	40
	240	30
2	415	15
3, 4	240	30
	415	15




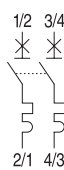

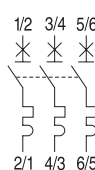

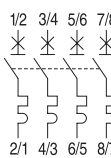
#### DC acc. to EN/IEC 60947-2

Poles	V $\overline{\text{---}}$ <sup>(2)</sup>	$I_{cu}/I_{cs}$ (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 - characteristic K

		K					
	In (A)	Cat. No.	Ref. No.				Pack.
 <p>1P 1 mod.</p> 	0.5	EP101K0.5	672402				12
	1	EP101K01	672403				12
	1.6	EP101K1.6	681588				12
	2	EP101K02	672404				12
	3	EP101K03	672405				12
	4	EP101K04	672406				12
	6	EP101K06	672407				12
	8	EP101K08	672408				12
	10	EP101K10	672409				12
	16	EP101K16	672411				12
	20	EP101K20	672412				12
	25	EP101K25	672413				12
	32	EP101K32	672414				12
	40	EP101K40	672415				12
	50	EP101K50	672416				12
	63	EP101K63	672417				12
	 <p>2P 2 mod.</p> 	0.5	EP102K0.5	672434			
1		EP102K01	672435				6
1.6		EP102K1.6	681591				6
2		EP102K02	672436				6
3		EP102K03	672437				6
4		EP102K04	672438				6
6		EP102K06	672439				6
8		EP102K08	672440				6
10		EP102K10	672441				6
16		EP102K16	672443				6
20		EP102K20	672444				6
25		EP102K25	672445				6
32		EP102K32	672446				6
40		EP102K40	672447				6
50		EP102K50	672448				6
63		EP102K63	672449				6
 <p>3P 3 mod.</p> 		0.5	EP103K0.5	672450			
	1	EP103K01	672451				4
	1.6	EP103K1.6	681594				4
	2	EP103K02	672452				4
	3	EP103K03	672453				4
	4	EP103K04	672454				4
	6	EP103K06	672455				4
	8	EP103K08	672456				4
	10	EP103K10	672457				4
	16	EP103K16	672459				4
	20	EP103K20	672460				4
	25	EP103K25	672461				4
	32	EP103K32	672462				4
	40	EP103K40	672463				4
	50	EP103K50	672464				4
	63	EP103K63	672465				4
	 <p>4P 4 mod.</p> 	0.5	EP104K0.5	672466			
1		EP104K01	672467				3
1.6		EP104K1.6	681597				3
2		EP104K02	672468				3
3		EP104K03	672469				3
4		EP104K04	672470				3
6		EP104K06	672471				3
8		EP104K08	672472				3
10		EP104K10	672473				3
16		EP104K16	672475				3
20		EP104K20	672476				3
25		EP104K25	672477				3
32		EP104K32	672478				3
40		EP104K40	672479				3
50		EP104K50	672480				3
63		EP104K63	672481				3

Series EP100

A

B

C

D

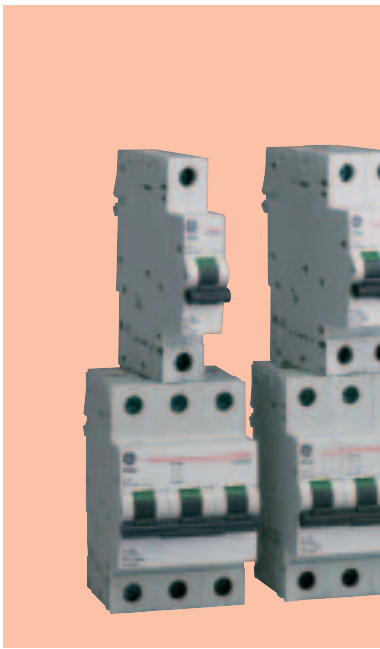
E

F

G

X





## Miniature Circuit Breakers

### GT10

EN/IEC 60947-2

10kA

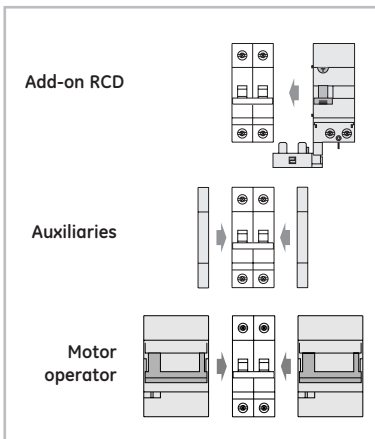
### Applications



### 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 $U_{B\ min}$	(V)	12
Tripping characteristics		3-5 $I_n$ (B)
		5-10 $I_n$ (C)
		10-20 $I_n$ (D)
		20000/10000
Mechanical/electrical endurance		20000/10000
Tropicalisation acc.to EN/IEC 60068-2		95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm <sup>2</sup> )	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) <sup>(1)</sup>
1	240	10
2	127	30
	240	20
	415	10
3, 4	240	20
	415	10

#### DC according to EN/IEC 60947-2

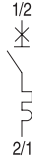

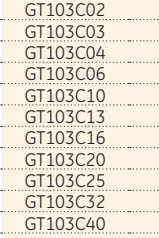
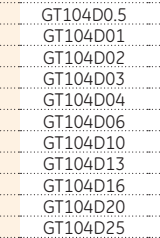
Poles	$V_{DC}$ <sup>(2)</sup>	$I_{cu}$ (kA)/ $I_{cs}$ (kA)
1	60	20
2	125	25

(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.		
<b>1P</b> 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	
<b>2P</b> 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	
<b>3P</b> 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	
<b>4P</b> 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

D

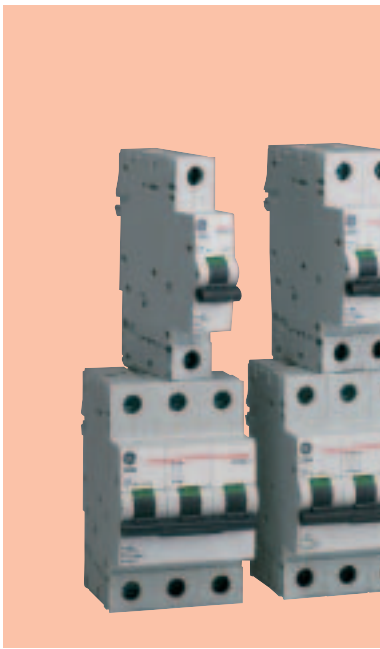
E

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## Miniature Circuit Breakers

### GT25

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

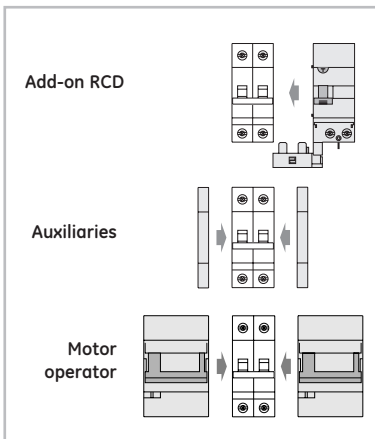
### Applications



### 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 $U_{B \min}$	(V)	12
Tripping characteristics		3-5 $I_n$ (B)
		5-10 $I_n$ (C)
		10-20 $I_n$ (D)
		20000/10000
Mechanical/electrical endurance		20000/10000
Tropicalisation acc.to EN/IEC 60068-2		95%RH at 55°C
Terminal capacity flexible/rigid cable	(mm <sup>2</sup> )	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) <sup>(1)</sup>
0.5-4	1	240	100
	2-4	415	100
6-25	1	240	25
		415	25
	2-4	240	50
		415	25
32-40	1	240	20
		415	20
	2-4	240	40
		415	20
50-63	1	240	15
		415	15
	2-4	240	30
		415	15

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

Poles	V $\overline{\overline{=}}$ (2)	$I_{cu}/I_{cs}$ (kA)
1	60	25
2	125	30


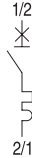

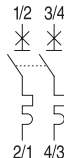

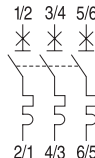

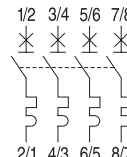
(1)  $I_{cs} = 50\% I_{cu}$

(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.	
 <p>1P 1 mod.</p> <p>1/2</p>  <p>2/1</p>	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
	 <p>2P 2 mod.</p> <p>1/2 3/4</p>  <p>2/1 4/3</p>	0.5	-	-	GT252C0.5	675300	GT252D0.5	675408
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
 <p>3P 3 mod.</p> <p>1/2 3/4 5/6</p>  <p>2/1 4/3 6/5</p>		0.5	-	-	GT253C0.5	675316	GT253D0.5	675424
	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
	 <p>4P 4 mod.</p> <p>1/2 3/4 5/6 7/8</p>  <p>2/1 4/3 6/5 8/7</p>	0.5	-	-	GT254C0.5	675332	GT254D0.5	675440
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

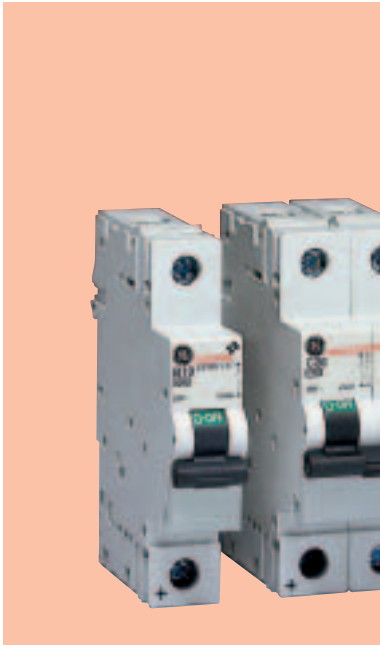
E

F

G

X





## Miniature Circuit Breakers

### EP100 UC

EN/IEC 60898-2 **6000** **T15**

DIN VDE 0641

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

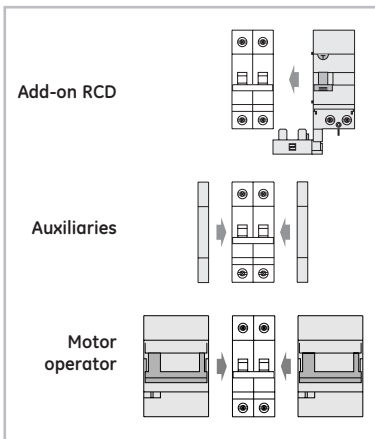
### Applications



### Standards / Marking

EN/IEC 60898-2, DIN VDE 0641 **CE**

### 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

### Performance

Thermal setting $I_n$	(A)	0.5 - 63
Rated voltage AC $U_n$	(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 <sup>2</sup> )	25-35
Poles <sup>(1)</sup>		1, 2, 4 <sup>(2)</sup>
Weight	(g/pole)	120

### Short-circuit capacity

#### AC/DC acc. to EN/IEC 60898-2<sup>(5)</sup>

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 <sup>(3)</sup>
2	440 DC	10 <sup>(3)</sup>
1	230 AC	6 <sup>(4)</sup>
2	400 AC	6 <sup>(4)</sup>

(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



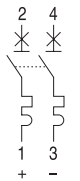
1P  
1 mod.



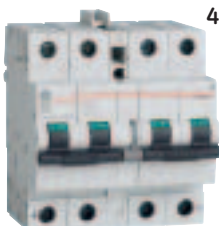
In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0.5	-	-	EP101UCC0.5	673301	12
1	-	-	EP101UCC01	673302	12
2	-	-	EP101UCC02	673303	12
4	-	-	EP101UCC04	673305	12
6	EP101UCB06	673333	EP101UCC06	673306	12
10	EP101UCB10	673334	EP101UCC10	673308	12
16	EP101UCB16	673335	EP101UCC16	673310	12
20	EP101UCB20	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



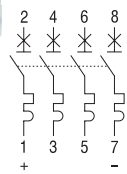
2P  
2 mod.



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.<sup>(1)</sup>

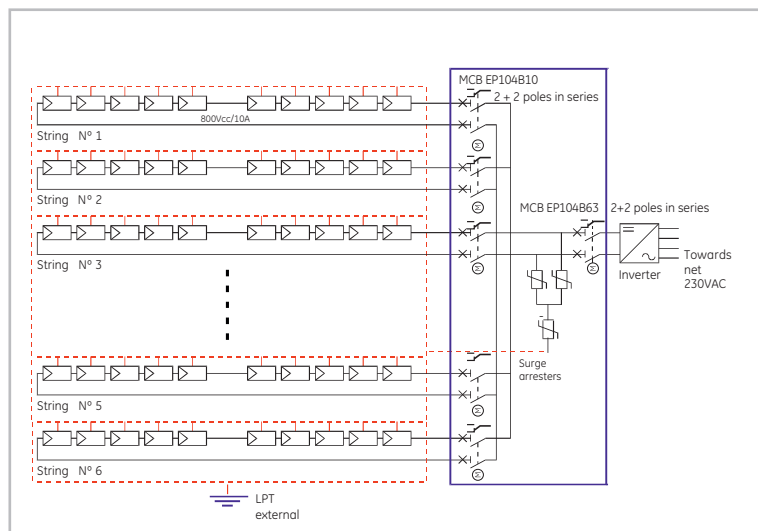
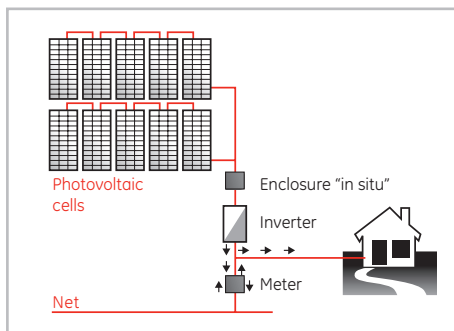


10	EP104 UC B10	690200			3
16	EP104 UC B16	688029			3
20	EP104 UC B20	688026			3
25	EP104 UC B25	691580			3
32	EP104 UC B32	691581			3
40	EP104 UC B40	688027			3
63	EP104 UC B63	688028			3



(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"





## Miniature Circuit Breakers

### Series Hti

EN/IEC 60947-2 10kA

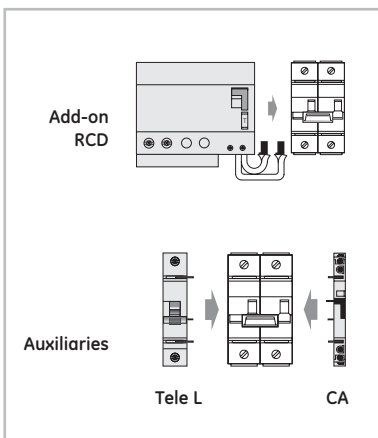
### Applications



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

### Short-circuit capacity

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

Poles	V	$I_{cu}$ (kA) <sup>(1)</sup>
1	230/400	10 <sup>(2)</sup>
2	230	15 <sup>(3)</sup>
3, 4	230	15 <sup>(3)</sup>
3, 4	400	10 <sup>(2)</sup>






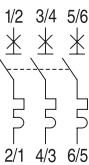
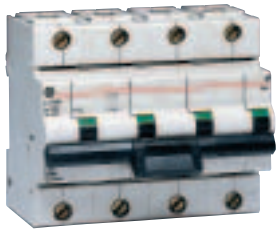
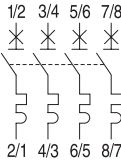
### Add-on RCD - technical performances

Standard	EN/IEC 60947-2
Nominal current $I_n$	(A) 80-125
Residual current $I_{\Delta n}$	(mA) 30, 300
Rated voltage AC $U_n$	(V) 2P: 230/400
	3P-4P: 400
Resistance against unwanted tripping	Type A, AC: 250A 8/20 $\mu$ s
	Type S: 3000A 8/20 $\mu$ s
Terminal capacity flexible/rigid cable	(mm <sup>2</sup> ) 70
Poles	2, 3, 4

(1) Only for 3-5  $I_n$  (B) and 5-10  $I_n$  (C)  
 (2) 7.5kA for 10-20  $I_n$  (D)  
 (3) 10kA for 10-20  $I_n$  (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.	
 <p><b>1P</b> 1.5 mod.</p> 	80	Hti 101 B080	<b>671504</b>	Hti 101 C080	<b>671528</b>	Hti 101 D080	<b>671552</b>	8
	100	Hti 101 B100	<b>671505</b>	Hti 101 C100	<b>671529</b>	Hti 101 D100	<b>671553</b>	1
	125	Hti 101 B125	<b>671506</b>	Hti 101 C125	<b>671530</b>	Hti 101 D125	<b>671554</b>	1
 <p><b>2P</b> 3 mod.</p> 	80	Hti 102 B080	<b>671510</b>	Hti 102 C080	<b>671534</b>	Hti 102 D080	<b>671558</b>	4
	100	Hti 102 B100	<b>671511</b>	Hti 102 C100	<b>671535</b>	Hti 102 D100	<b>671559</b>	1
	125	Hti 102 B125	<b>671512</b>	Hti 102 C125	<b>671536</b>	Hti 102 D125	<b>671560</b>	1
 <p><b>3P</b> 4.5 mod.</p> 	80	Hti 103 B080	<b>671516</b>	Hti 103 C080	<b>671540</b>	Hti 103 D080	<b>671564</b>	1
	100	Hti 103 B100	<b>671517</b>	Hti 103 C100	<b>671541</b>	Hti 103 D100	<b>671565</b>	1
	125	Hti 103 B125	<b>671518</b>	Hti 103 C125	<b>671542</b>	Hti 103 D125	<b>671566</b>	1
 <p><b>4P</b> 6 mod.</p> 	80	Hti 104 B80	<b>671522</b>	Hti 104 C080	<b>671546</b>	Hti 104 D080	<b>671570</b>	1
	100	Hti 104 B100	<b>671523</b>	Hti 104 C100	<b>671547</b>	Hti 104 D100	<b>671571</b>	1
	125	Hti 104 B125	<b>671524</b>	Hti 104 C125	<b>671548</b>	Hti 104 D125	<b>671572</b>	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



A

B

C

D

E

F

G

X

**Series Hti - Add-on RCD - Type AC** 

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

**Series Hti - Add-on RCD - Type A** 

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

**Series Hti - Add-on RCD - Type S**  

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

On demand: 2P type A and S



**Series Hti - Auxiliary contacts (right side)**

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

**Series Hti - Auxiliary contacts (left or right side)**

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

Series Hti

A

B

C

D

E

F

G

X





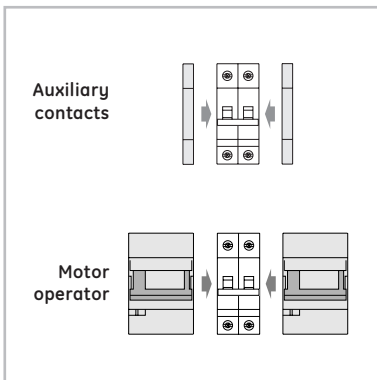
Applications



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 $I_n$	(A) 0.5-63
Rated voltage AC $U_n$	(V) 277/480; 110V $\equiv$
Minimum operating voltage $U_{Bmin}$	(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 <sup>2</sup> )	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) <sup>(1)</sup>
1	127	20
	240	10
	415	3
2, 3, 4	127	30
	240	20
	415	10
	440	6

DC according to EN/IEC 60947-2

Poles	$U_n$ (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



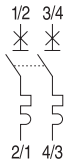
1P  
1 mod.



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



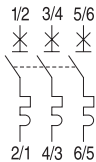
2P  
2 mod.



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



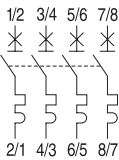
3P  
3 mod.



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

B

C

D

E

F

G

X





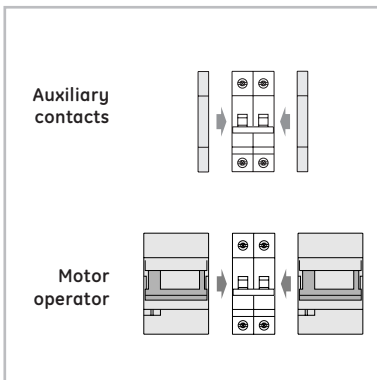
Applications



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

EP100 UL (Supplementary protection)

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

Performances

Thermal setting $I_n$	(A) 0.5-63
Rated voltage AC $U_n$	(V) 277/480; 110V $\equiv$
Minimum operating voltage $U_{Bmin}$	(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 <sup>2</sup> )	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) <sup>(1)</sup>
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	$U_n$ (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



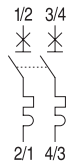
1P  
1 mod.



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



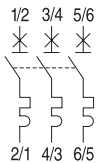
2P  
2 mod.



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



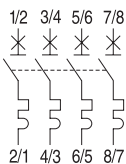
3P  
3 mod.



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.



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

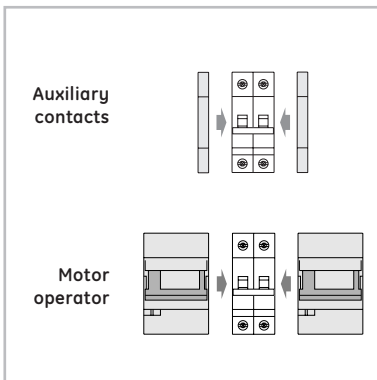
Applications



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  $I_n$  (A) 0.5-32  
Rated voltage AC  $U_n$  (V) 120/240; 110V  $\equiv$   
Minimum operating voltage  $U_{Bmin}$  (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<sup>2</sup>) 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) <sup>(1)</sup>
1	127	30
	240	15
	415	4
2	127	40
	240	30
	415	15
2, 3	240	30
	440	10

DC according to EN/IEC 60947-2

Poles	$U_n$ (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



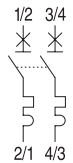
1P  
1 mod.  
(1)



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



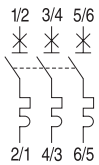
2P  
2 mod.



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.



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



Allows padlocking in ON and OFF position	KS	624929	2
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EP100 ULH

A

B

C

D

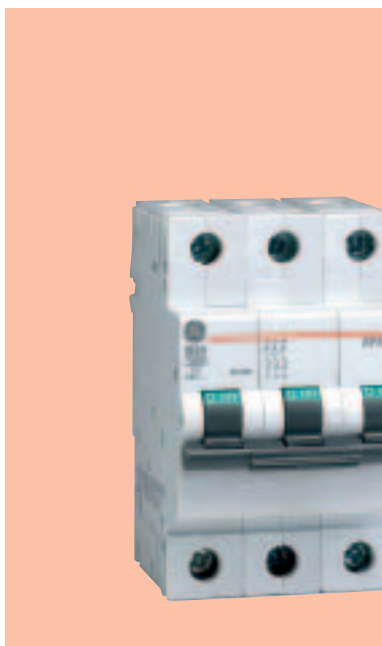
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G

X





## Miniature circuit breakers for railway applications

### EP100 R


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



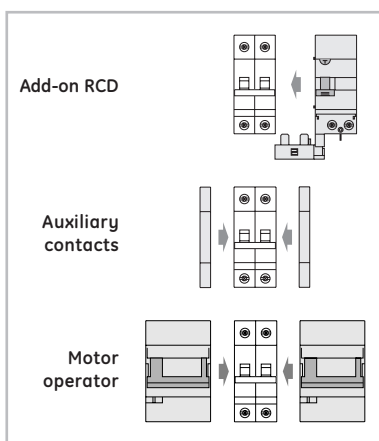
### Applications



### 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

### Performance

Thermal setting $I_n$	(A)	0.5 -63
Rated voltage AC $U_n$	(V)	230/400
Minimum operating voltage $U_{Bmin}$	(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 <sup>2</sup> )	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 <sup>(1)</sup>

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

Poles	V	$I_{cu}$ (kA) <sup>(2)</sup>
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%  $I_{cu}$



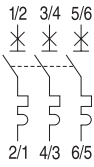
Railway Applications



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

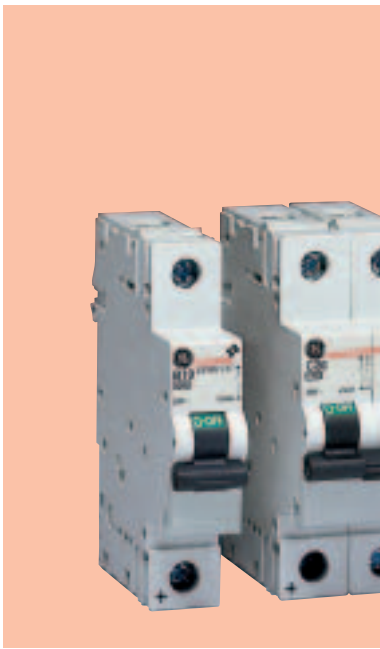
E

F

G

X





## Miniature circuit breakers for railway applications

### EP100 UCR

EN/IEC 60898-2 6000 T15

DIN VDE 0641

EN/IEC 60947-2 10kA



### Applications

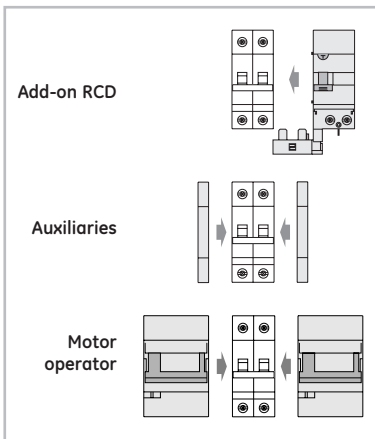


### Standards / Marking

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

### Performance

Thermal setting $I_n$	(A) 0.5 -63
Rated voltage AC $U_n$	(V) 230/400 250/500 $\equiv$
Minimum operating voltage $U_{Bmin}$	(V) 12 12 $\equiv$
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 <sup>2</sup> )	25-35
Poles <sup>(1)</sup>	1, 2
Weight	(g/pole) 125

### Short-circuit capacity

#### AC/DC acc. to EN/IEC 60898-2<sup>(4)</sup>

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 <sup>(2)</sup>
2	440 DC	10 <sup>(2)</sup>
1	230 AC	6 <sup>(3)</sup>
2	400 AC	6 <sup>(3)</sup>

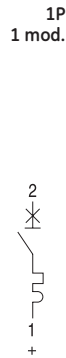
(1) Polarity labeling to be respected due to the permanent magnet in the MCB  
 (2) T = 4ms  
 (3) 4.5kA for 50A & 63A  
 (4) After a switching of the net with more than 6kA in AC it should not be used in DC







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



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



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

D

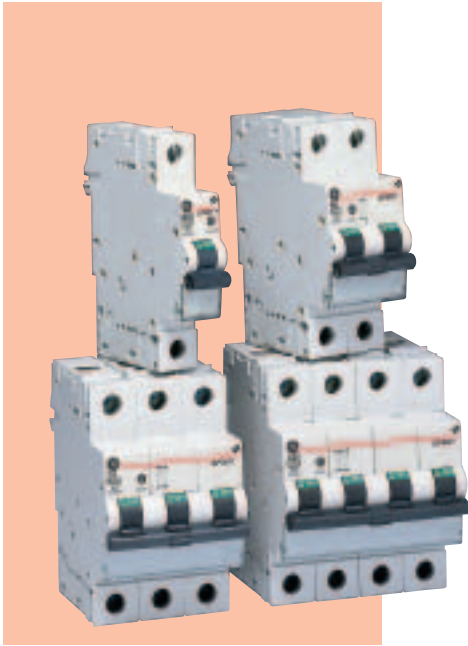
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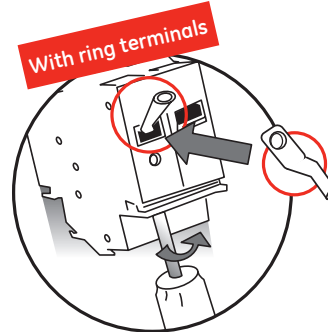
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## Miniature circuit breakers with ring terminals

### Series EP100T



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

### Applications



### Standards

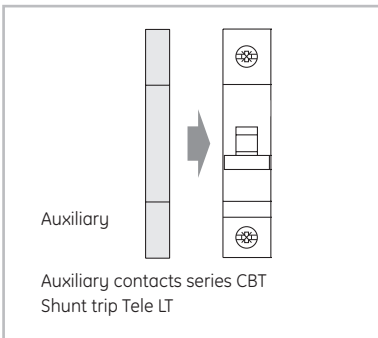
Certified acc. new CEI UNI 11170 (higher protection against fires)  
 Certified acc. to NF 16-101, smoke index F  
 Shock and vibrations tests acc. to IEC 61373

### 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 In	(A) 0.5 to 63 at 45°C
Rated voltage AC Un	(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 <sup>2</sup> ) 16 (x2 connections)
Torque	(Nm) 2
Poles	1, 2, 3, 4
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

Acc. to EN/IEC 60898

Poles	V <sub>~</sub>	I <sub>cn</sub> (kA)
1-4	230/400	10

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

Poles	V <sub>~</sub>	I <sub>cu</sub> (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 <sub>---</sub>	I <sub>cu</sub> (kA)/I <sub>cs</sub> (kA)
1	60	25/15 ms
2	110	30/15 ms

New



Railway applications with ring terminals

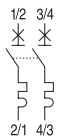
Series EP100T - 10kA - characteristics Z-B-C-K

1P  
1 mod.



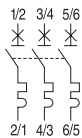
In (A)	2-3 In (Z)		3-5 In (B)		8-12 In (C)		8-12 In (K)		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
0,5	EP101TZ0.5	691277	-	-	EP101TC0.5	691245	EP101TK0.5	691261	12
1	EP101TZ01	691278	-	-	EP101TC01	691246	EP101TK1	691267	12
1,6	EP101TZ1.6	691284	-	-	EP101TC1.6	691252	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.



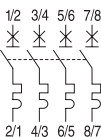
0,5	EP102TZ0.5	691337	-	-	EP102TC0.5	691304	EP102TK0.5	691321	6
1	EP102TZ01	691338	-	-	EP102TC01	691305	EP102TK01	691322	6
1,6	EP102TZ1.6	691344	-	-	EP102TC1.6	691311	EP102TK1.6	691328	6
2	EP102TZ02	691339	-	-	EP102TC02	691306	EP102TK02	691323	6
3	EP102TZ03	691340	-	-	EP102TC03	691307	EP102TK03	691324	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.



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.



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

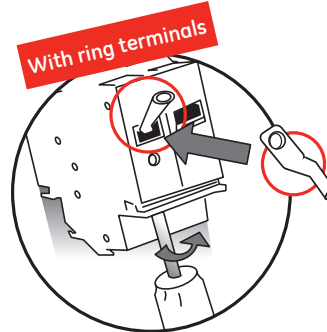
New





## Miniature circuit breakers with ring terminals

### Series EP100 UCT



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

### Applications



### Standards

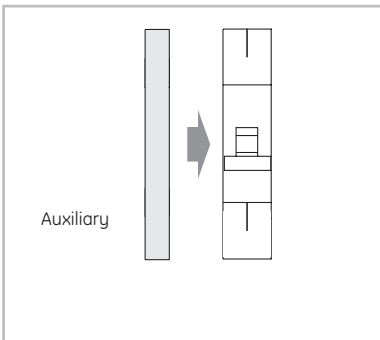
Certified acc. new CEI UNI 11170 (higher protection against fires)  
 Certified acc. to NF 16-101, smoke index F  
 Shock and vibrations tests acc. to IEC 61373

### 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 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 <sup>2</sup> ) 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 <sub>DC</sub>	I <sub>cu</sub> (kA)/I <sub>cs</sub> (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

New



Railway applications with ring terminals

Series EP100 UCT - 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.



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 EP100 UCT

A

B

C

D

E

F

G

X



New

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

Circuit protection

A

B

C



D

E

F

G

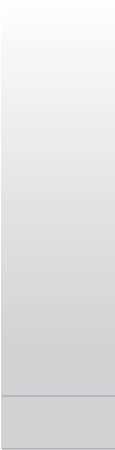
X

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



Notes

Grid of red dotted lines for notes.



A
B
C
D
E
F
G
X



# 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

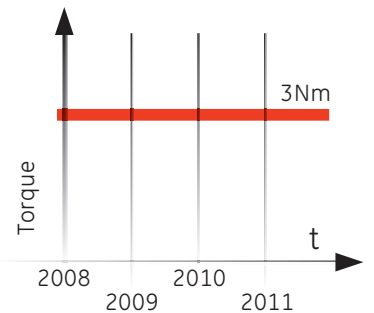
G

X



Safety terminals

Up to 6mm<sup>2</sup> + 4mm<sup>2</sup> wires combined.



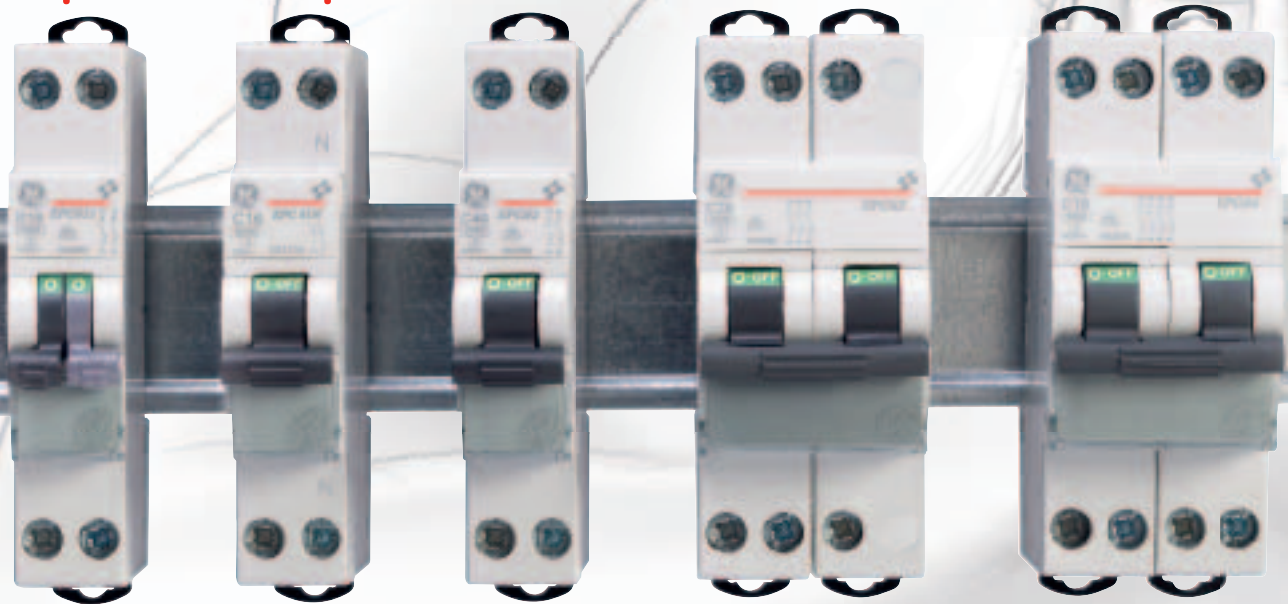
New





# Module

## for space problems



1P+1P  
in  
1 mod

1P+N  
in  
1 mod

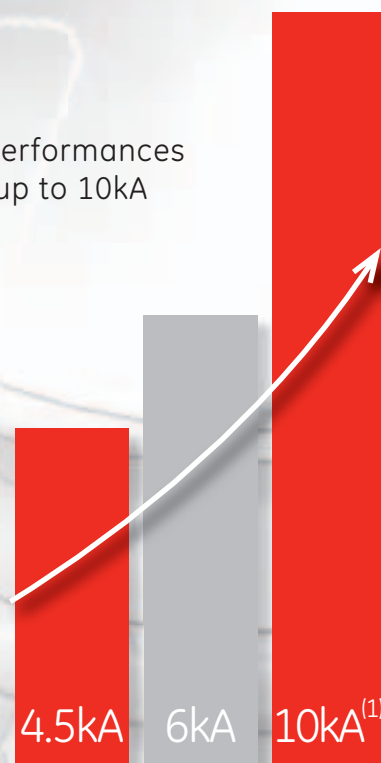
2P  
in  
1 mod

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**<sup>(1)</sup>,  
2–40 Amps, B and C curves
- ✔ 100% compatible with all ElfaPlus  
auxiliaries and accessories
- ✔ 100% quality and reliability  
acc. to EN 60898
- ✔ CEPEC, NF, VDE, KEMA, IMQ certified

3 performances  
up to 10kA



**New**

(1) 10kA, 1 P+N versions, acc. IEC 60947-2

# The solution for

## Unibis™ compact MCB's quality and reliability guaranteed

Circuit protection

A

B

C

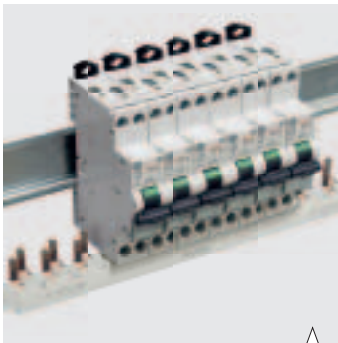
D

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.



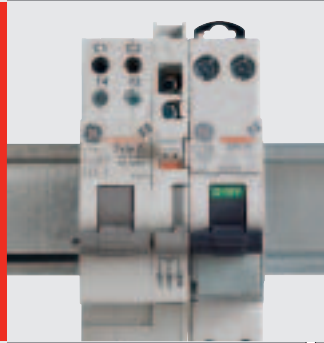
### Userfriendly

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.



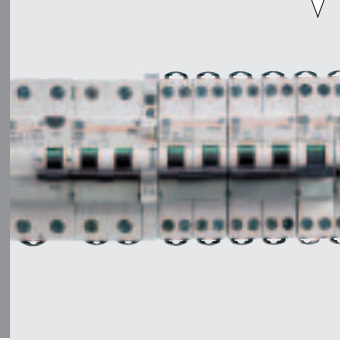
### Safety terminals IP20

The capacity of Unibis™ terminals has been doubled. Connection possibilities: (2 x 4mm<sup>2</sup>) or (1 x 4mm<sup>2</sup>) + (1 x 6mm<sup>2</sup>).



### Full functionality

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



New

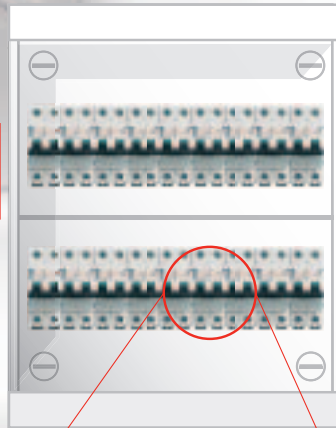


# renovations

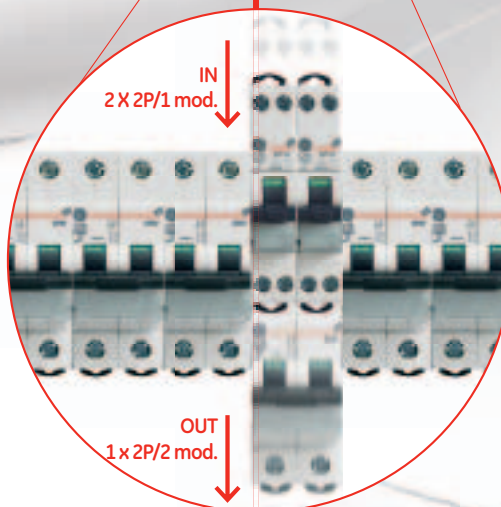
Saving up to 50% space  
in distribution boards!

**Before**

18 x 2P MCB's  
**36** MODULES

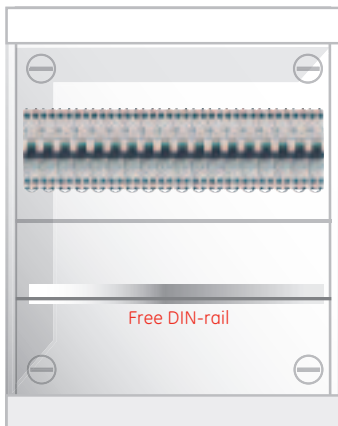


Replacing standard  
MCB's by compact  
Unibis™ MCB's

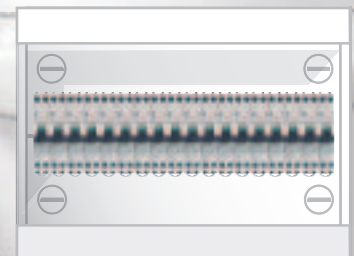


OR

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

**Short-circuit capacity of compact MCB's**

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

(1) 8000 for 32 and 40 A  
 (2) Also accepting (2x4mm<sup>2</sup>) or (1x4mm<sup>2</sup>)+(1x6mm<sup>2</sup>)  
 (3) Requires CA auxiliary contact as interface  
 (4) Icn1= 6kA



EPC 61N	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	1000	10000	10000
2.5	2.5	2.5	2.5
3	3	3	3
10000 <sup>(1)</sup>	10000 <sup>(1)</sup>	10000 <sup>(1)</sup>	10000 <sup>(1)</sup>
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 <sup>(2)</sup>	1/16 <sup>(2)</sup>	1/16 <sup>(2)</sup>	1/16 <sup>(2)</sup>
1/10 <sup>(2)</sup>	1/10 <sup>(2)</sup>	1/10 <sup>(2)</sup>	1/10 <sup>(2)</sup>
1/16 <sup>(2)</sup>	1/16 <sup>(2)</sup>	1/16 <sup>(2)</sup>	1/16 <sup>(2)</sup>
1/10 <sup>(2)</sup>	1/10 <sup>(2)</sup>	1/10 <sup>(2)</sup>	1/10 <sup>(2)</sup>
3	3	3	3
yes	yes	yes	yes
yes <sup>(3)</sup>	yes <sup>(3)</sup>	yes <sup>(3)</sup>	yes <sup>(3)</sup>
yes <sup>(3)</sup>	yes <sup>(3)</sup>	yes <sup>(3)</sup>	yes <sup>(3)</sup>
yes <sup>(3)</sup>	yes <sup>(3)</sup>	yes <sup>(3)</sup>	yes <sup>(3)</sup>
yes <sup>(3)</sup>	yes <sup>(3)</sup>	yes <sup>(3)</sup>	yes <sup>(3)</sup>
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
VDE, KEMA, IMQ	VDE, IMQ	IMQ, NF	VDE, IMQ, NF, CEBEC
yes	yes	yes	yes
A.61	A.63	A.64	A.66

EPC 61N	EPC 611	EPC 45	EPC 60
(kA)	(kA)	(kA)	(kA)
6	-	-	-
-	6	-	-
-	-	4.5	6
-	-	4.5	6
-	-	4.5	6
10	-	-	-
-	6	-	-
-	-	6	10
-	-	6	10
-	-	6	10
-	-	4.5	6

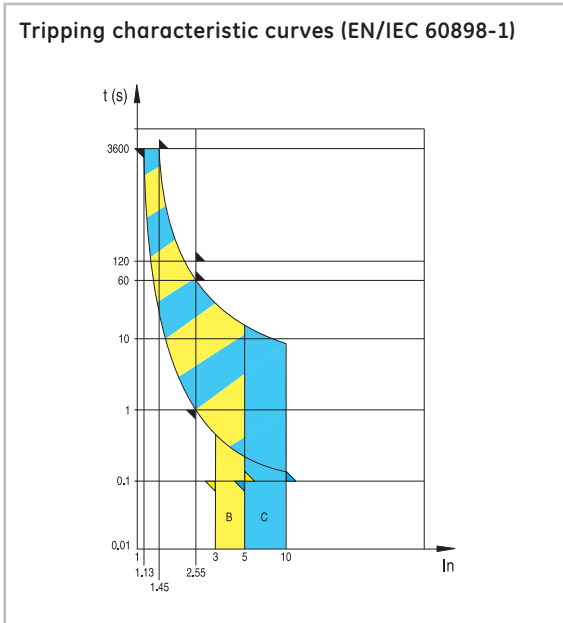
(1) 8000 for 32 and 40 A  
 (2) Also accepting (2x4mm<sup>2</sup>) or (1x4mm<sup>2</sup>)+(1x6mm<sup>2</sup>)  
 (3) Requires CA auxiliary contact as interface  
 (4) Icn1= 6kA



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 un instructed people.



### 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.

In	Test current (A)	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
	5 x In	t < 0.1s	
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

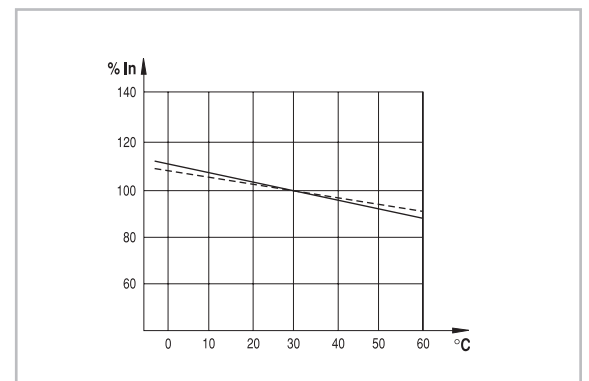
### Calculation example

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.

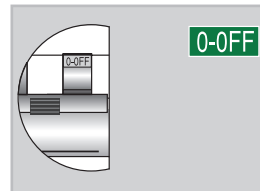
### Power losses per pole

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

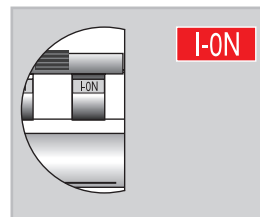
## Toggle

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

### Series EPC 451N

EN/IEC 60898-1

4500

3

EN/IEC 60947-2

6kA

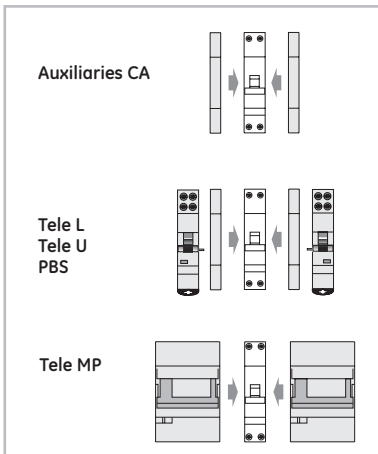
### Applications



### Approvals / Marking



### Add-on devices



When coupling an add-on device (Tele L, Tele U, PBS) 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 $I_n$	(A) 2-40
Rated voltage AC $U_n$	(V) 240
Minimum operating voltage $U_{Bmin}$	(V) 12
Tripping characteristics	B-C
Selectivity class	3
Mechanical/electrical endurance	20000/10000 <sup>(1)</sup>
Tropicalisation acc. to EN/IEC 60068-2	55°C at 95% RH
Terminal capacity flexible/rigid cable	(mm <sup>2</sup> ) 10-16 <sup>(2)</sup>
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 <sup>(3)</sup>	EPC 451N B02	692810	EPC 451N C02	692781	12
	4 <sup>(3)</sup>	EPC 451N B04	692811	EPC 451N C04	692782	12
1/2 N X X	6	EPC 451N B06	692812	EPC 451N C06	692783	12
	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 <sup>(3)</sup>	EPC 451N B40	692818	EPC 451N C40	692790	12
	2/1 N					

(1) 8000 for 32 and 40A

(2) Also accepting (2x4mm<sup>2</sup>) or (1x4mm<sup>2</sup>)+(1x6mm<sup>2</sup>)

(3) On demand

New





## Compact MCB's

### Series EPC 61N



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

Series EPC 451N

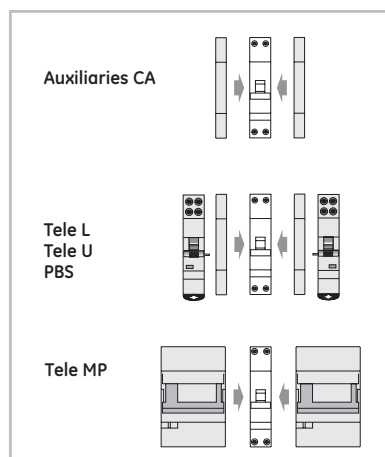
### Applications



### Approvals / Marking



### Add-on devices



When coupling an add-on device (Tele L, Tele U, PBS) 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 $I_n$	(A) 2-40
Rated voltage AC $U_n$	(V) 240
Minimum operating voltage $U_{Bmin}$	(V) 12
Tripping characteristics	B-C
Selectivity class	3
Mechanical/electrical endurance	20000/10000 <sup>(1)</sup>
Tropicalisation acc. to EN/IEC 60068-2	55°C at 95% RH
Terminal capacity flexible/rigid cable	(mm <sup>2</sup> ) 10-16 <sup>(2)</sup>
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	10

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
1/2 N 2/1 N	10	EPC 61N B10	692822	EPC 61N C10	692794	12
	13	EPC 61N B13	692604	EPC 61N C13	692795	12
	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 (2x4mm<sup>2</sup>) or (1x4mm<sup>2</sup>)+(1x6mm<sup>2</sup>)



New

Notes

Circuit protection

A

B

C

D

E

F

G

X

Grid of dotted lines for notes.



## 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 <sub>Bmin</sub>	(V) 12
Tripping characteristics	B-C
Selectivity class	3
Mechanical/electrical endurance	20000/10000 <sup>(1)</sup>
Tropicalisation acc. to EN/IEC 60068-2	55°C at 95% RH
Terminal capacity flexible/rigid cable	(mm <sup>2</sup> ) 10-16 <sup>(2)</sup>
Poles	1P+1P (1 mod)
Weight	(g) 125

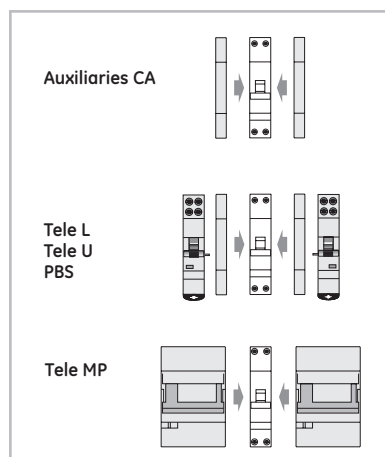
### Applications



### Approval / Marking



### Add-on devices



When coupling an add-on device (Tele L, Tele U, PBS) 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 <sub>cn</sub> /I <sub>cs</sub> (kA)
1 + 1	230	6

Acc. to EN/IEC 60947-2

Poles	V	I <sub>cu</sub> (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 <sup>(3)</sup>	EPC 611 C25	692706 <sup>(3)</sup>	12
32	EPC 611 B32	692697 <sup>(3)</sup>	EPC 611 C32	692707 <sup>(3)</sup>	12
40	EPC 611 B40	692698 <sup>(3)</sup>	EPC 611 C40	692708 <sup>(3)</sup>	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 (2x4mm<sup>2</sup>) or (1x4mm<sup>2</sup>)+(1x6mm<sup>2</sup>)  
(3) On request



New



## Compact MCB's

### Series EPC 45

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

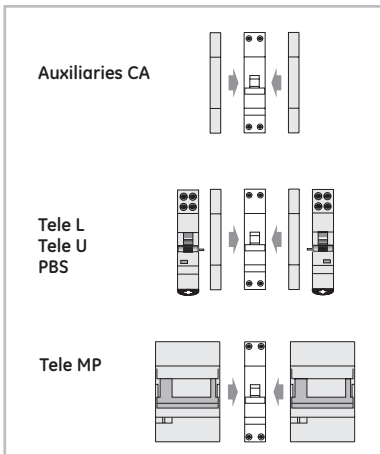
### Applications



### Approvals / Marking



### Add-on devices



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

### Performances

Thermal setting $I_n$	(A) 2-40
Rated voltage AC $U_n$	(V) 240/415
Minimum operating voltage $U_{Bmin}$	(V) 12
Tripping characteristics	B-C
Selectivity class	3
Mechanical/electrical endurance	20000/10000 <sup>(1)</sup>
Tropicalisation acc. to EN/IEC 60068-2	55°C at 95% RH
Terminal capacity flexible/rigid cable	(mm <sup>2</sup> ) 10-16 <sup>(2)</sup>
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	$U_n$ (V=)	$I_{cu}$ (kA)
2P	96	4,5

(1) 8000 for 32 and 40A

(2) Also accepting (2x4mm<sup>2</sup>) or (1x4mm<sup>2</sup>)+(1x6mm<sup>2</sup>)


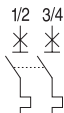

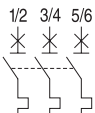

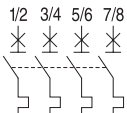
Auxiliary contacts ● pg C.6

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.		
 <p>2P 1 mod.</p> <p>1/2 3/4</p>  <p>2/1 4/3</p>	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	
	 <p>3P<sup>(1)</sup> 2 mod.</p> <p>1/2 3/4 5/6</p>  <p>2/1 4/3 6/5</p>	2	EPC 453 B02	692617	EPC 453 C02	692536 <sup>(1)</sup>	6
		4	EPC 453 B04	692618	EPC 453 C04	692537 <sup>(1)</sup>	6
6		EPC 453 B06	692619	EPC 453 C06	692538 <sup>(1)</sup>	6	
10		EPC 453 B10	692620	EPC 453 C10	692539 <sup>(1)</sup>	6	
16		EPC 453 B16	692621	EPC 453 C16	692540 <sup>(1)</sup>	6	
20		EPC 453 B20	692622	EPC 453 C20	692541 <sup>(1)</sup>	6	
25		EPC 453 B25	692623	EPC 453 C25	692542 <sup>(1)</sup>	6	
32		EPC 453 B32	692624	EPC 453 C32	692543 <sup>(1)</sup>	6	
40		EPC 453 B40	692625	EPC 453 C40	692544 <sup>(1)</sup>	6	
 <p>4P 2 mod.</p> <p>1/2 3/4 5/6 7/8</p>  <p>2/1 4/3 6/5 8/7</p>		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



New



## Compact MCB's

### Series EPC 60

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

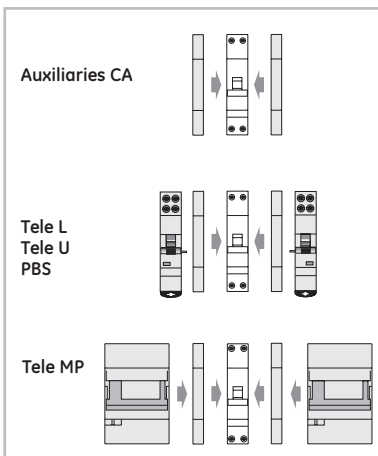
### Applications



### 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 <sub>Bmin</sub>	(V) 12
Tripping characteristics	B-C
Selectivity class	3
Mechanical/electrical endurance	20000/10000 <sup>(1)</sup>
Tropicalisation acc. to EN/IEC 60068-2	55°C at 95% RH
Terminal capacity flexible/rigid cable	(mm <sup>2</sup> ) 10-16 <sup>(2)</sup>
Poles	2,3,4
Weight/mod	(g) 160

### Short-circuit capacity

#### Acc. to EN/IEC 60898-1

Poles	V	I <sub>cn</sub> /I <sub>cs</sub> (kA)
2P	240/415	6
3P	240/415	6
4P	240/415	6

#### Acc. to EN/IEC 60947-2

Poles	V	I <sub>cu</sub> (kA)
2P	240/415	10
3P	240/415	10
4P	240/415	10

(1) 8000 for 32 and 40A

(2) Also accepting (2x4mm<sup>2</sup>) or (1x4mm<sup>2</sup>)+(1x6mm<sup>2</sup>)




Auxiliary contacts ● pg C.6

Busbars ● pg E.2  
Dimensions ● pg A.82

New



Series EPC 60 - 6kA - characteristics B-C

	In (A)	B		C		Pack.	
		Cat. No.	Ref. No.	Cat. No.	Ref. No.		
 <p>2P 1 mod.</p> <p>1/2 3/4</p> <p>2/1 4/3</p>	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	
	 <p>3P<sup>(1)</sup> 2 mod.</p> <p>1/2 3/4 5/6</p> <p>2/1 4/3 6/5</p>	2	EPC 63 B02	692644	EPC 63 C02	692563 <sup>(1)</sup>	6
		4	EPC 63 B04	692645	EPC 63 C04	692564 <sup>(1)</sup>	6
6		EPC 63 B06	692646	EPC 63 C06	692565 <sup>(1)</sup>	6	
10		EPC 63 B10	692647	EPC 63 C10	692566 <sup>(1)</sup>	6	
16		EPC 63 B16	692648	EPC 63 C16	692567 <sup>(1)</sup>	6	
20		EPC 63 B20	692649	EPC 63 C20	692568 <sup>(1)</sup>	6	
25		EPC 63 B25	692650	EPC 63 C25	692569 <sup>(1)</sup>	6	
32		EPC 63 B32	692651	EPC 63 C32	692570 <sup>(1)</sup>	6	
40		EPC 63 B40	692652	EPC 63 C40	692571 <sup>(1)</sup>	6	
 <p>4P 2 mod.</p> <p>1/2 3/4 5/6 7/8</p> <p>2/1 4/3 6/5 8/7</p>		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

# 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 4mm<sup>2</sup>.

## 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

Standard pin busbars  
as used for all Redline  
products

## Terminal contact stability guaranteed

No tightening needed later on.

## 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

Circuit protection

A

B

C

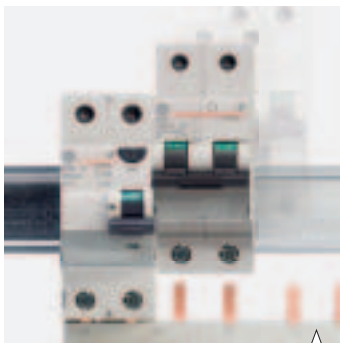
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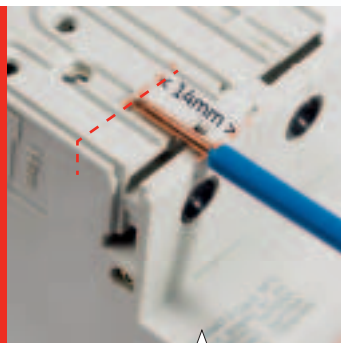
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X



**Easy DIN-rail extraction**

**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 unclick with a simple operation. Time consuming tightening is no longer needed.



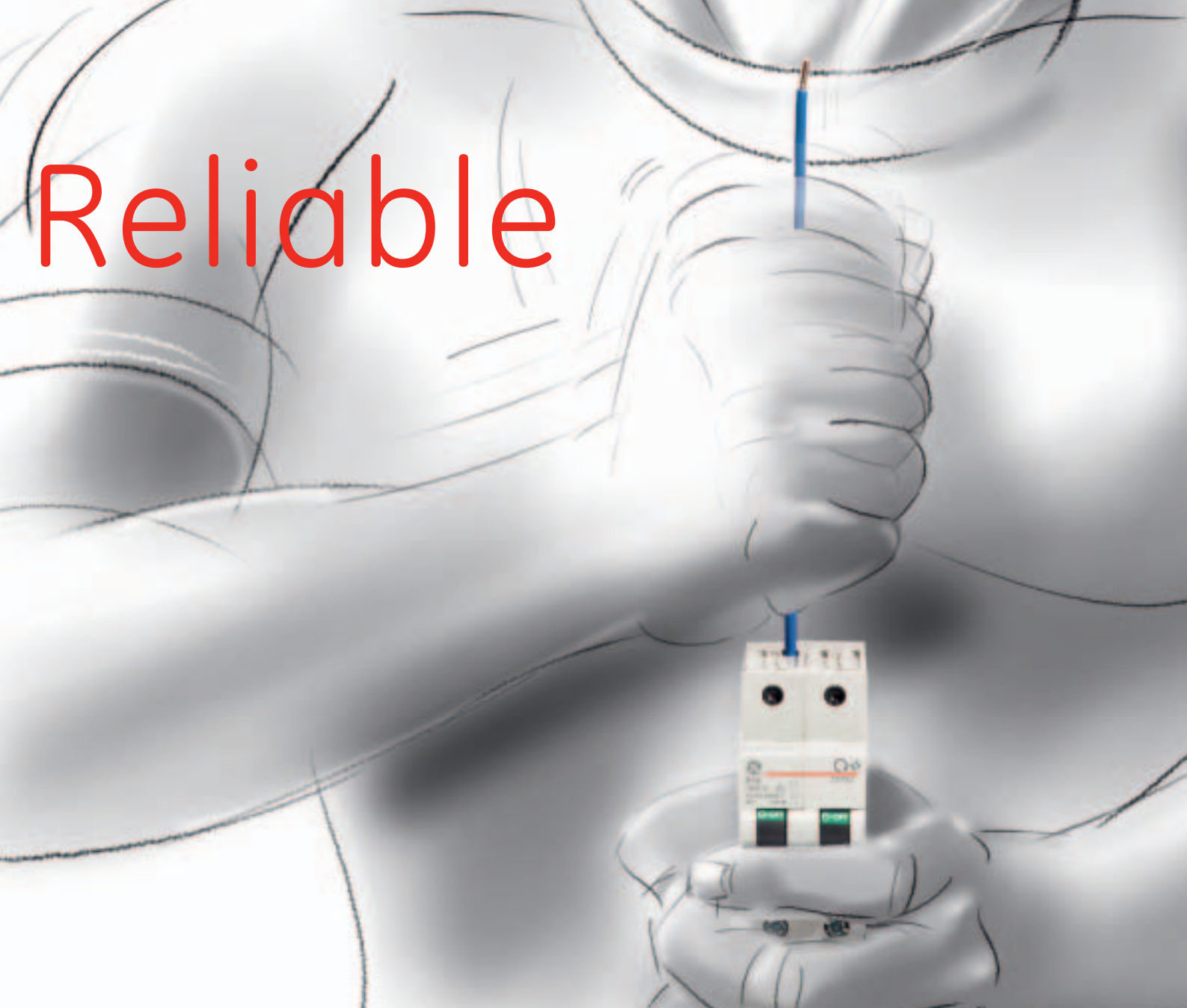
**User-friendly**  
 Determine the perfect length (14mm) of the bare cable using the integrated measurement tool.

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



Up to 63A

# 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.



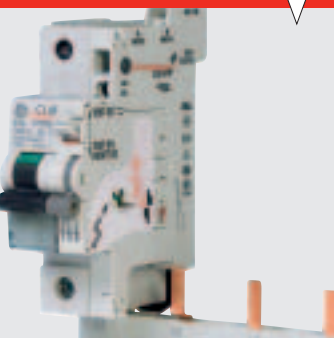
**Part of the family**  
Fixwell™ MCB's and RCCB's fit perfectly in the ElfaPlus range and are compatible with all ElfaPlus auxiliaries and accessories.

**Rigid and flexible cable**  
You have the choice : rigid cable or multiwire from 1 up to 4mm<sup>2</sup>. 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 <sup>(1)</sup>	(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 <sup>(2)</sup>	(VDC)	48	48	
	2P (in series) <sup>(2)</sup>	(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 <sub>bmax</sub> ) between two wires	(V)		250/440; 53/120 DC	250/440; 53/120 DC	
Minimum service voltage (U <sub>bmin</sub> )	(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 <sup>(3)</sup>	(°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 <sup>(4)</sup>		yes	yes	
	Tele L <sup>(4)</sup>		yes	yes	
	Tele MP <sup>(4)</sup>		yes	yes	
	PBS <sup>(4)</sup>		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 <sup>(5)</sup>			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.

Circuit protection

A

B

C

D

E

F

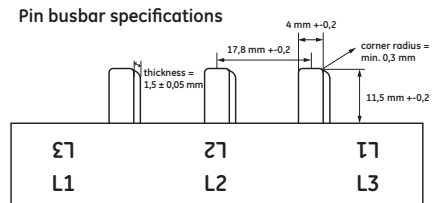
G

X

## Terminal capacity

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

Bottom terminals		Ratings 6A to 63A:	Ratings 6A to 63A:
		Bottom cage terminals <sup>(2)</sup>	Bottom flat plug-in terminals <sup>(3)</sup>
Rigid cable (min/max)	mm <sup>2</sup>	1/25	To insert GE pin busbars, or other brands under following dimensions:
Flexible cable (min/max)	mm <sup>2</sup>	0.75/16	Length = 11.5 ± 0.2mm
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 of the MCB and at the same time gently pull the cable (Fig 6). To release the cable press the push-button of the MCB.
- (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.

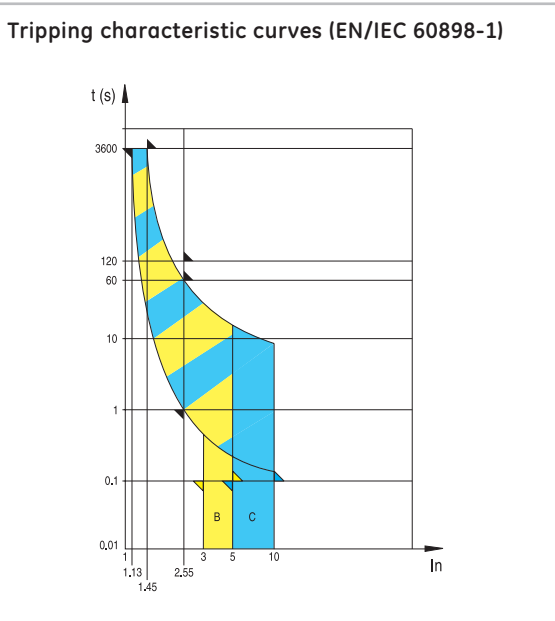
Easy to dismount from DIN rail

**Short-circuit capacity of screwless MCB's**

Series			EPP60	EPP100	
<b>Short-circuit capacity AC (kA)</b>					
IEC/EN 60898-1	<b>I<sub>cn</sub></b>	1P	230/400V	6	10
		1P+N	230V	6	10
		2P	230/400V	6	10
		3P/3P+N/4P	230/400V	6	10
	<b>I<sub>cs</sub> (service)</b>		100% I <sub>cu</sub>	75% I <sub>cu</sub>	
IEC/EN 60947-2	<b>I<sub>cu</sub> (max.)</b>	1P	127V	20	30
			240V	10	15
			415V	3	4
		1P+N/2P	127V	30	40
			240V	20	30
			415V	10	15
		2P	240V	20	30
		3P/3P+N/4P	240V	20	30
		415V	10	15	
		440V	6	10	
	<b>I<sub>cs</sub> (service)</b>		75% I <sub>cu</sub>	50% I <sub>cu</sub>	
<b>Short-circuit capacity DC (kA)</b>					
IEC/EN 60947-2	<b>I<sub>cu</sub> (max.)</b>	1P	≤60V	20	25
			≤125V	-	-
			≤220V	-	-
		2P	≤125V	25	30
			≤440V	-	-
	<b>I<sub>cs</sub> (service)</b>		100% I <sub>cu</sub>	100% I <sub>cu</sub>	

**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.



**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.

I <sub>cn</sub> (A)	Test current	Tripping time	Applications
B	3 x I <sub>n</sub>	0.1 < t < 45s (I <sub>n</sub> ≤ 32A) 0.1 < t < 90s (I <sub>n</sub> > 32A)	Only for resistive loads such as: - electrical heating - water heater - stoves
	5 x I <sub>n</sub>	t < 0.1s	
C	5 x I <sub>n</sub>	0.1 < t < 15s (I <sub>n</sub> ≤ 32A) 0.1 < t < 30s (I <sub>n</sub> > 32A)	Usual loads such as: - lighting - socket-outlets - small motors
	10 x I <sub>n</sub>	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 <sub>n</sub>	t ≥ 1h (I <sub>n</sub> ≤ 63A) t ≥ 2h (I <sub>n</sub> > 63A)
1.45 x I <sub>n</sub>	t < 1h (I <sub>n</sub> ≤ 63A) t < 2h (I <sub>n</sub> > 63A)
2.55 x I <sub>n</sub>	1s < t < 60s (I <sub>n</sub> ≤ 32A) 1s < t < 120s (I <sub>n</sub> > 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.

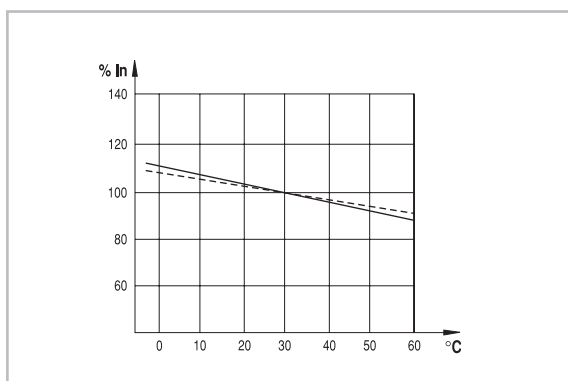
### Calculation

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



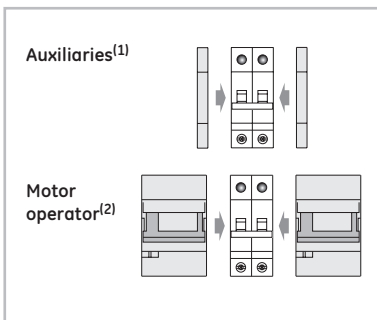
### Approvals / Marking



### 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 U <sub>Bmin</sub>	(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 <sup>2</sup> ) 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	I <sub>cn</sub> /I <sub>cs</sub> (kA) <sup>(1)</sup>
1	230/400	6

#### AC acc. IEC/EN 60947-2

Poles	V	I <sub>cu</sub> (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 $\overline{\text{---}}$ )	I <sub>cu</sub> /I <sub>cs</sub> (kA)
1	≤ 60	20
2	≤ 125	25

(1) I<sub>cs</sub> = 75% I<sub>cn</sub>

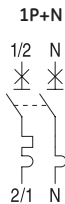


Screwless & Plug-in

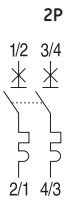
Series EPP60 - characteristic B and C



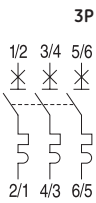
In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	EPP61B06	678172	EPP61C06	678212	12
10	EPP61B10	678173	EPP61C10	678213	12
13	EPP61B13	678174	EPP61C13	678214	12
16	EPP61B16	678175	EPP61C16	678215	12
20	EPP61B20	678176	EPP61C20	678216	12
25	EPP61B25	678177	EPP61C25	678217	12
32	EPP61B32	678178	EPP61C32	678218	12
40	EPP61B40	678179	EPP61C40	678219	12
50	EPP61B50	678180	EPP61C50	678220	12
63	EPP61B63	678181	EPP61C63	678221	12



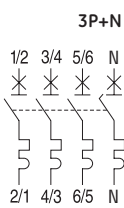
6	-	-	EPP61NC06	678222	6
10	-	-	EPP61NC10	678223	6
13	-	-	EPP61NC13	678224	6
16	-	-	EPP61NC16	678225	6
20	-	-	EPP61NC20	678226	6
25	-	-	EPP61NC25	678227	6
32	-	-	EPP61NC32	678228	6
40	-	-	EPP61NC40	678229	6
50	-	-	EPP61NC50	678230	6
63	-	-	EPP61NC63	678231	6



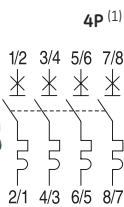
6	EPP62B06	678182	EPP62C06	678232	6
10	EPP62B10	678183	EPP62C10	678233	6
13	EPP62B13	678184	EPP62C13	678234	6
16	EPP62B16	678185	EPP62C16	678235	6
20	EPP62B20	678186	EPP62C20	678236	6
25	EPP62B25	678187	EPP62C25	678237	6
32	EPP62B32	678188	EPP62C32	678238	6
40	EPP62B40	678189	EPP62C40	678239	6
50	EPP62B50	678190	EPP62C50	678240	6
63	EPP62B63	678191	EPP62C63	678241	6



6	EPP63B06	678192	EPP63C06	678242	4
10	EPP63B10	678193	EPP63C10	678243	4
13	EPP63B13	678194	EPP63C13	678244	4
16	EPP63B16	678195	EPP63C16	678245	4
20	EPP63B20	678196	EPP63C20	678246	4
25	EPP63B25	678197	EPP63C25	678247	4
32	EPP63B32	678198	EPP63C32	678248	4
40	EPP63B40	678199	EPP63C40	678249	4
50	EPP63B50	678200	EPP63C50	678250	4
63	EPP63B63	678201	EPP63C63	678251	4

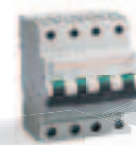


6	EPP63NB06	678202	EPP63NC06	678252	3
10	EPP63NB10	678203	EPP63NC10	678253	3
13	EPP63NB13	678204	EPP63NC13	678254	3
16	EPP63NB16	678205	EPP63NC16	678255	3
20	EPP63NB20	678206	EPP63NC20	678256	3
25	EPP63NB25	678207	EPP63NC25	678257	3
32	EPP63NB32	678208	EPP63NC32	678258	3
40	EPP63NB40	678209	EPP63NC40	678259	3
50	EPP63NB50	678210	EPP63NC50	678260	3
63	EPP63NB63	678211	EPP63NC63	678261	3



6	EPP64B06	678705	EPP64C06	678715	3
10	EPP64B10	678706	EPP64C10	678716	3
13	EPP64B13	678707	EPP64C13	678717	3
16	EPP64B16	678708	EPP64C16	678718	3
20	EPP64B20	678709	EPP64C20	678719	3
25	EPP64B25	678710	EPP64C25	678720	3
32	EPP64B32	678711	EPP64C32	678721	3
40	EPP64B40	678712	EPP64C40	678722	3
50	EPP64B50	678713	EPP64C50	678723	3
63	EPP64B63	678714	EPP64C63	678724	3

(1) Approval pending



SCREWLESS  
top terminals  
In=6 to 20A

New



Series EPP60

A

B

C

D

E

F

G

X



## Screwless MCB's

### Series EPP100

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

### Applications



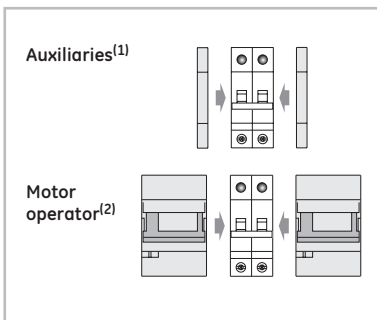
### Approvals / Marking



### 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 $I_n$	(A) 6-63
Rated voltage AC $U_n$	(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 <sup>2</sup> ) 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) <sup>(1)</sup>
1-4	230/400	10

#### AC acc. IEC/EN 60947-2

Poles	V	$I_{cu}$ (kA) <sup>(2)</sup>
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	$U_n$ (V $\overline{\text{---}}$ )	$I_{cu}/I_{cs}$ (kA)
1	≤ 60	25
2	≤ 125	30

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

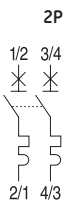
(2)  $I_{cs} = 50\% I_{cu}$

Screwless & Plug-in

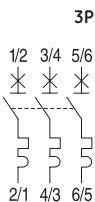
Series EPP100 - characteristic B and C



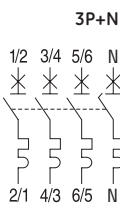
In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	EPP101B06	678262	EPP101C06	678302	12
10	EPP101B10	678263	EPP101C10	678303	12
13	EPP101B13	678264	EPP101C13	678304	12
16	EPP101B16	678265	EPP101C16	678305	12
20	EPP101B20	678266	EPP101C20	678306	12
25	EPP101B25	678267	EPP101C25	678307	12
32	EPP101B32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



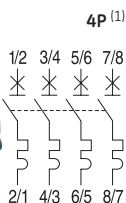
6	EPP102B06	678272	EPP102C06	678312	6
10	EPP102B10	678273	EPP102C10	678313	6
13	EPP102B13	678274	EPP102C13	678314	6
16	EPP102B16	678275	EPP102C16	678315	6
20	EPP102B20	678276	EPP102C20	678316	6
25	EPP102B25	678277	EPP102C25	678317	6
32	EPP102B32	678278	EPP102C32	678318	6
40	EPP102B40	678279	EPP102C40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



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



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



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

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D

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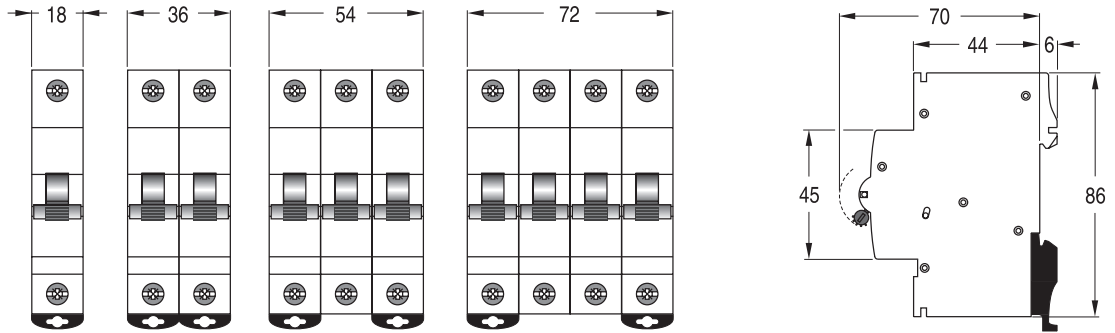


New

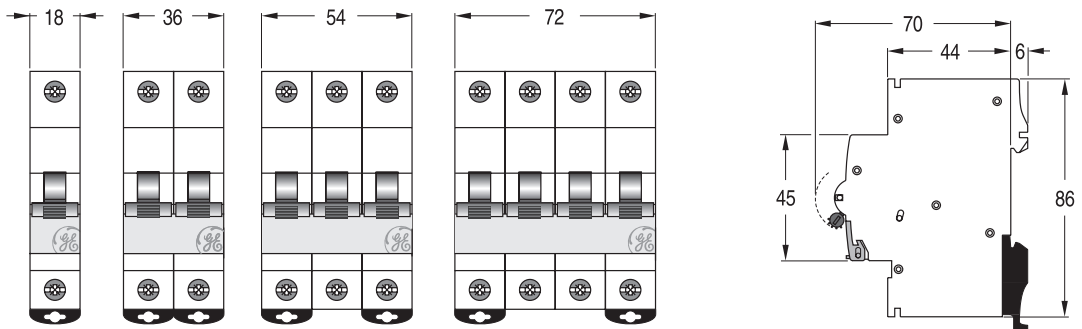


## Dimensional drawings

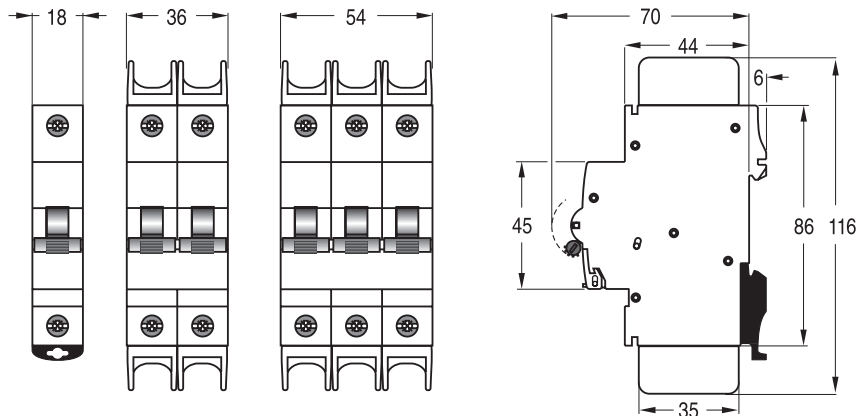
Miniature Circuit Breakers - Series G & GT and Series EP100 UC, EP60 UL and EP100 UL



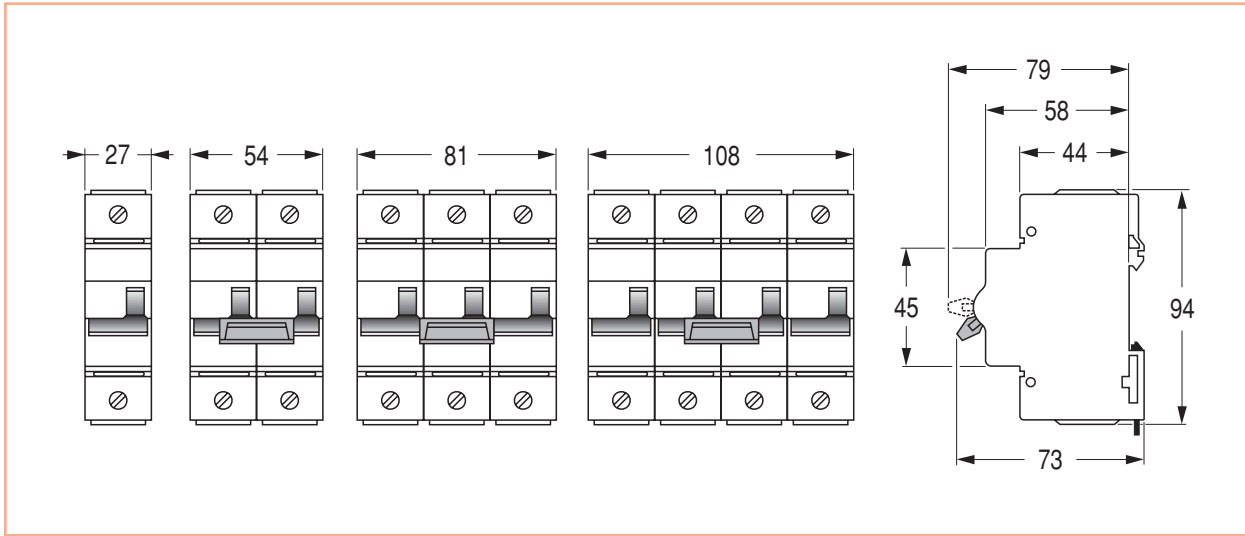
Miniature Circuit Breakers - Series EP60, EP100, EP100T, EP100 UCT, EP100R and EP100 UCR



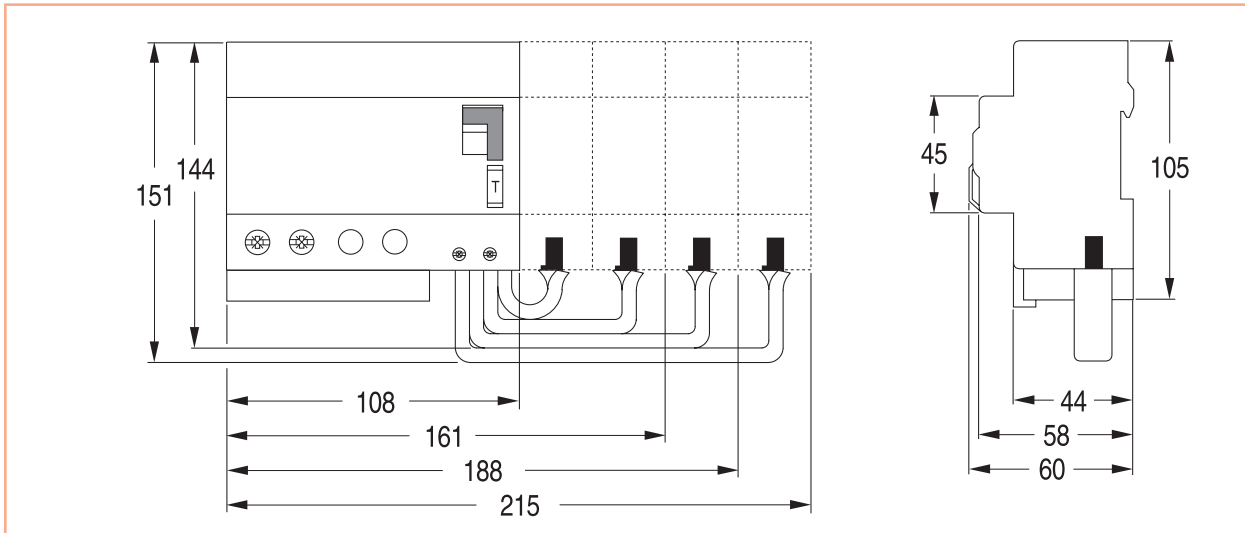
MCB with UL 489 approval - Series EP100 ULH



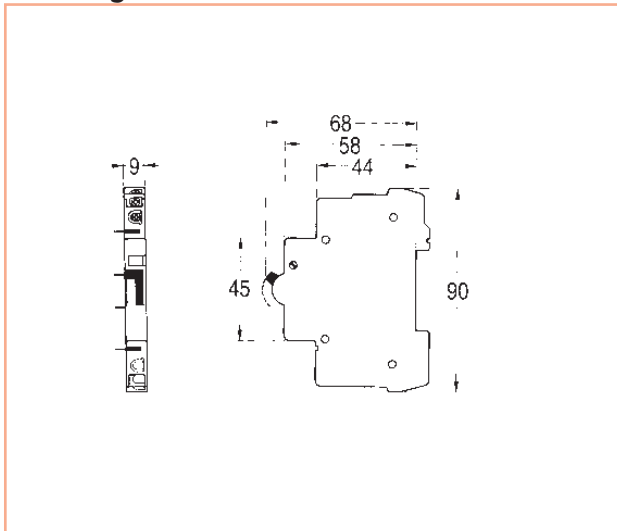
Miniature Circuit Breakers - Series Hti



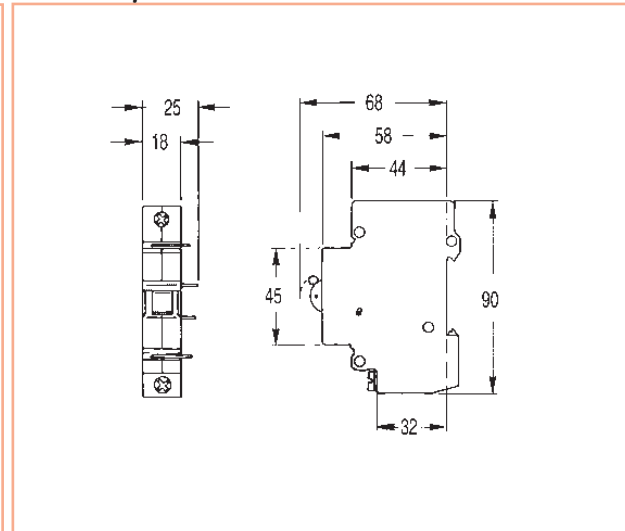
Add-on RCD's for Series Hti



Auxiliary contact - Series Hti

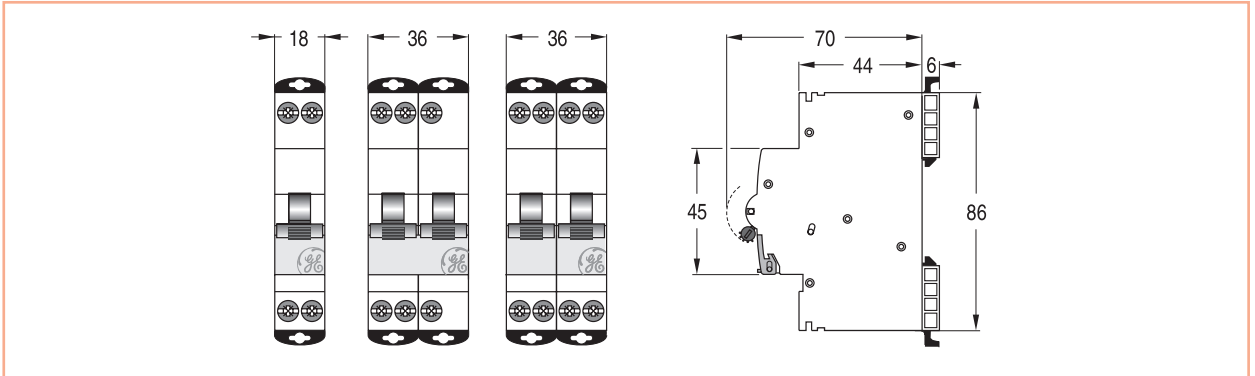


Shunt trip - Series Hti

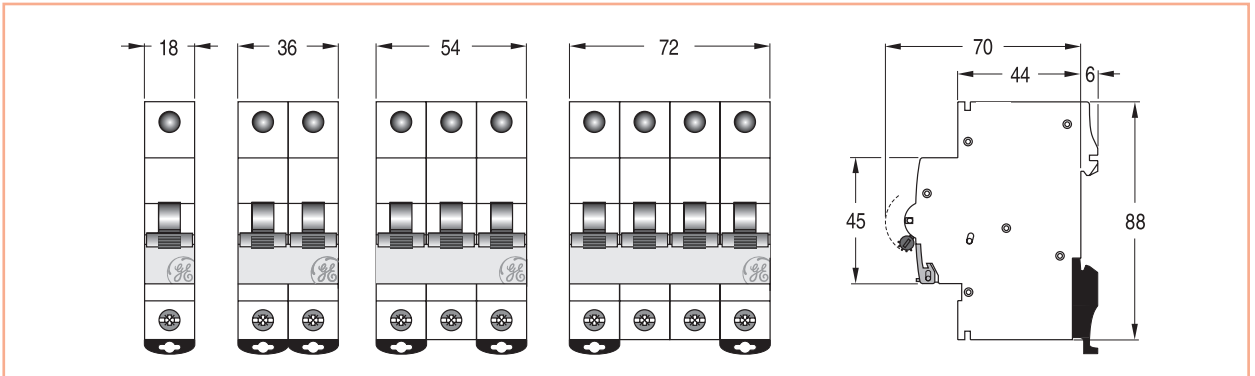


Dimensional drawings

Compact MCB's - Series EPC - Unibis™



Screwless MCB's - Series EPP - Fixwell™



A

B

C

D

E

F

G

X

- B.3 Selection table RCCB's and RCBO's
- B.4 Technical data
- 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**



**Compact RCBO's**

- B.12 RCBO's - **Series DMCE60 & DICE60**
- B.14 RCBO's with overcurrent protection - **Series DME**
- B.16 Add-on RCCB's - **Diff-o-Click**
- B.18 RCCB's with UL approval - **Series FPAUL**
- B.19 RCBO's with UL approval - **Series DPA100**
- B.31 Dimensional drawings

Circuit Protection

A

People Protection

B



**Fixwell™ - Screwless RCCB's**

- B.20 RCCB's - **Series FPP**
- B.21 Terminal capacity - Mounting instruction
- B.31 Dimensional drawings

Add-on Devices

C

Comfort Functions

D

Busbars

E

Enclosures

F

MCCB's Record Plus

G

Numerical Index

X



**TeleREC - Reconnection relays**

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



Notes

People protection

A

B

C

D

E

F

G

X

Grid of red dots for notes.





**Selection table of RCCB's**

Page no.	Series	Sensitivity (mA)	Poles	Type	Nominal current (A)						Isolator appl.	Add-on devices	Rated voltage			
					16	25	40	63	80	100						
B.6	<b>BP/BD</b>															
		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	<b>FPP</b>	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.	Nominal current (A)								Isolator appl.	Add-on devices	Rated voltage
						4	6	10	13	16	20	25	32			
B.8	<b>DM60</b>															
		10	1+N	AC/A	B											
					C											
		30	1+N	AC/A	B											
					C											
		100	1+N	AC/A	B											
					C											
		300	1+N	AC/A	B											
					C											
B.9	<b>DMT60</b>															
		30	1+N	AC	C											
B.10	<b>DM100</b>															
		10	1+N	AC/A	B											
					C											
		30	1+N	AC/A	B											
					C											
		100	1+N	AC/A	B											
					C											
		300	1+N	AC/A	B											
					C											
B.11	<b>DMT100</b>															
		30	1+N	AC	C											
B.12	<b>DMC/DICE</b>															
		30	1+N	AC/A	B/C											
B.15	<b>DME60</b>															
		30	1+N	AC	C											
B.15	<b>DME100</b>															
		30	1+N	AC	C											

**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
						32	63			
B.16	<b>Diff-o-Click</b>									
		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

RCD's

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 $\Delta$ n	Instantaneous	ms	<40	<40	<40
	Selective	ms	>150	-	-
Rated current		A	16,25,40,63, 80, 100	4,6,10,13,16,20,25,32,40	6 ...40
Rated residual current I $\Delta$ n		mA	10,30,100,300,500,1000	10,30,300	30
Calibration temperature		°C	30	30	30
Number of poles versus modules			1	1	1
Rated voltage Un	2P AC	V	240	230 (1P+N)	240 (1P+N)
	3P AC	V	-	-	-
	4P AC	V	415	-	-
Frequency		Hz	50/60	50/60	50
Maximum service voltage U $_{bmax}$		V	2P=265 / 4P=455	255	265
Minimum service voltage U $_{bmin}$		V	2P=117 / 4P=205	117	195
Minimum voltage for leakage protection		V	Voltage independent	Voltage independent	Voltage independent
Power supply			Top/Bottom	Top/Bottom	Bottom
Selectivity class			-	3	3
Rated making and breaking capacity (Im)		A	500 (or 10xIn)	-	10xIn
Residual making and breaking capacity (I $\Delta$ m)		A	500 (or 10xIn)	6000	6000
Conditional short-circuit capacity (Inc)		A	10000 fuse 100A gLgG	-	-
Conditional residual short-circuit capacity (I $\Delta$ c)		A	10000 fuse 100A gLgG	-	-
Rated Short-circuit capacity (Icn)		A	-	6000	10000
Grid distance (safety distance between two devices)		mm	35	35	35
Isolator application			yes	yes	yes
Insulation degree	Insulation voltage	V (DC)	440	440	440
	Shock voltage (1.2/50 $\mu$ s)	kV	6	6	6
	Insulation resistance	M $\Omega$	1000	1000	1000
	Dielectric strength	V	2500	2500	2500
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
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
Endurance	electrical at Un, In		10000	10000	10000
	mechanical at Un, In		20000	20000	20000
Protection degree (outside/inside electrical 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	+55/95%	+55/95%	+55/95%
Pollution degree (acc. EN/IEC 60947-1)			3	3	3
Operating temperature			AC (-5...+60); A -25...+60	-5...+60	-25...+60
Storage temperature		°C	-25...+70	-25...+70	-25...+70
Terminals capacity	Rigid cable min/max (top)	mm <sup>2</sup>	1,5/50 [1,5/35]	1/25	1/25
	Flexible cable min*/max (top)	mm <sup>2</sup>	1,5/35 [1,5/25]	1/16	1/16
	Rigid cable min/max (bottom)	mm <sup>2</sup>	1,5/50 [1,5/35]	1/35	1/35
	Flexible cable min*/max (bottom)	mm <sup>2</sup>	1,5/35 [1,5/25]	1/25	1/25
Torque		Nm	5/5	3/4	3/4
Add-on devices (side add-on)	Auxiliary contacts		yes	yes	yes
	Tele U		yes	yes	yes
	Tele L		yes	yes	yes
	Tele M		yes	yes	yes
	PBS		no	yes	yes
Busbars systems	Pin		yes	Bottom	Bottom
	Fork		yes	Bottom	Bottom
	# Poles		2-4	1+N	1+N
Dimensions	(HxDxW) 86x68xW		36/72	36	36
	Weight	mm	2P=250 / 4P=368	250	250
	Package	g	2P=1/6 / 4P=1/3	1/6	1/6
Approvals			KEMA	KEMA	KEMA
CE-marking			yes	yes	yes
Page			B.6	B.8	B.10
					B.12

\*Flexible cable 0.75/1/1.5 mm<sup>2</sup> 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 <sup>(3)</sup>
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 <sup>(1)</sup>	6 <sup>(1)</sup>	6	8	6	8
1000 <sup>(1)</sup>	1000 <sup>(1)</sup>	1000	1000	1000	1000
2500 <sup>(1)</sup>	2500 <sup>(1)</sup>	2500	2500	2500	2500
40g, 18 shocks 5 ms 2g, 30 min, 0...80Hz	40g, 18 shocks 5 ms 2g, 30 min, 0...80Hz	40g, 18 shocks 5 ms 5g, 30 min, 0...80Hz	40g, 18 shocks 5 ms 1.5g, 30 min, 0...80Hz	40g, 18 shocks 5 ms 1.5g, 30 min, 0...80Hz	40g, 18 shocks 5 ms 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%	+55/95%
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 <sup>(4)</sup>
-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 <sup>(2)</sup>	yes <sup>(2)</sup>	yes <sup>(5)</sup>
-	-	yes (coupled to MCB)	yes	yes	yes <sup>(5)</sup>
-	-	yes (coupled to MCB)	yes <sup>(2)</sup>	yes <sup>(2)</sup>	yes <sup>(5)</sup>
-	-	yes (coupled to MCB)	yes <sup>(2)</sup>	yes <sup>(2)</sup>	yes <sup>(5)</sup>
Bottom	Bottom	-	yes <sup>(2)</sup>	yes <sup>(2)</sup>	yes
Bottom	Bottom	-	yes <sup>(2)</sup>	yes <sup>(2)</sup>	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 & CEBC	VDE-KEMA-CEBEC-IMO
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. (4) With plug-in busbar: -25/+50°C  
 (2) Not UL registered (5) With plug-in busbar only at right extreme side of each row. No pin busbars  
 (3) Rating current derating as usual in function of installation conditions. 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  

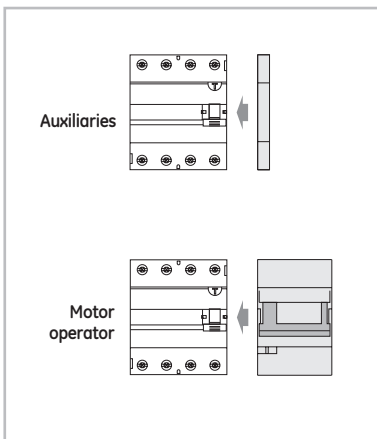
#### Applications



#### 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

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

#### Short-circuit capacity

Acc. to EN/IEC 61008-1	
<b>Making and breaking capacity</b>	$I_m \geq 500A$ from 16 upto 40A $I_n = 10I_n$ from 63 upto 100A
<b>Residual making and breaking capacity</b>	$I_{\Delta m} \geq 500A$ from 16 upto 40A $I_{\Delta m} = 10I_n$ from 63 upto 100A
<b>Short-circuit capacity</b>	
<b>Series BD</b>	$I_{nc} = 6000A$ at 240/415V fuse 63A gG
<b>Series BP</b>	$I_{nc} = 10000A$ at 240/415V fuse 80A gG

(1) Series BD: 25-35 mm<sup>2</sup>







## RCBO's - Residual Current Circuit Breakers With Overcurrent Protection

### Series DM60

<b>EN/IEC 61009-1</b>	<b>6000</b>
	<b>3</b>
<b>Type AC</b>	
<b>Type A</b>	

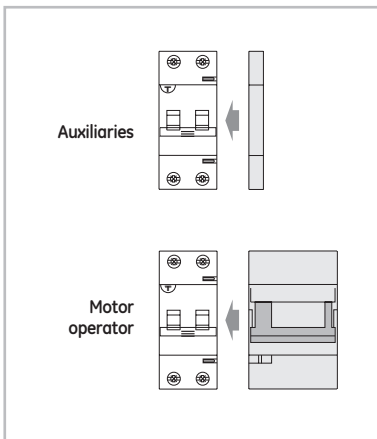
### Applications



### 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

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

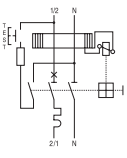
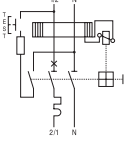
### Short-circuit capacity

Acc. to EN/IEC 61009-1 and EN/IEC 60898-1	
<b>Residual making and breaking capacity</b>	$I_{\Delta m} = 6000A$
<b>Short-circuit capacity</b>	$I_{cn} = 6000A$ at 240V
<b>Selectivity class</b>	3

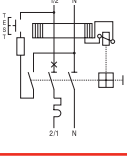
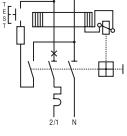
Acc. to EN/IEC 60947-2	
<b>Short-circuit capacity</b>	$I_{cu} = 10000A$ at 240V



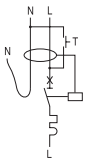
**Series DM60 - Type AC**

	10 mA		30 mA		100 mA		300 mA		Pack.	
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.		Ref. No.
<b>Characteristic B</b> <b>1P+N</b> 	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
	<b>Characteristic C</b> <b>1P+N</b> 	4	DM60C04/010	609831	DM60C04/030	609837	DM60C04/100	609846	DM60C04/300	609855
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**

	10 mA		30 mA		100 mA		300 mA		Pack.	
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.		Ref. No.
<b>Characteristic B</b> <b>1P+N</b> 	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
	<b>Characteristic C</b> <b>1P+N</b> 	4	DMA60C04/010	609769	DMA60C04/030	609775	DMA60C04/100	609784	DMA60C04/300	609793
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.
<b>Characteristic C</b> <b>Unswitched neutral</b> <b>1P+N</b> 	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





## RCBO's - Residual Current Circuit Breakers With Overcurrent Protection

### Series DM100

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

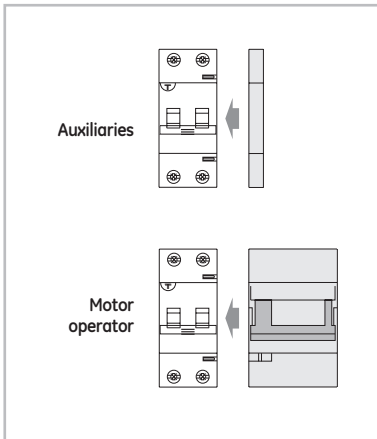
### Applications



### 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 $U_{Bmin}$	(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 <sup>2</sup> )	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

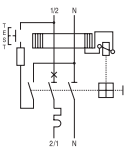

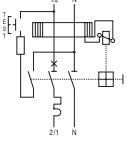

Acc. to EN/IEC 61009-1 and EN/IEC 60898-1	
Residual making and breaking capacity	$I_{\Delta m} = 6000A$
Short-circuit capacity	$I_{cn} = 10000A$ at 240V
Selectivity class	3

Acc. to EN/IEC 60947-2	
Short-circuit capacity	$I_{cu} = 15000A$ at 240V

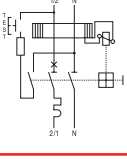

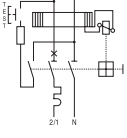





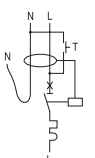

Series DM100 - Type AC 

	10 mA		30 mA		100 mA		300 mA		Pack.	
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.		Ref. No.
<b>Characteristic B 1P+N</b>  	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
<b>Characteristic C 1P+N</b>  	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 

	10 mA		30 mA		100 mA		300 mA		Pack.	
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.		Ref. No.
<b>Characteristic B 1P+N</b>  	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	-	-	DMA100B32/030	609875	DMA100B32/100	609883	DMA100B32/300	609891	6
	40	-	-	DMA100B40/030	609876	DMA100B40/100	609884	DMA100B40/300	609892	6
<b>Characteristic C 1P+N</b>  	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	-	-	DMA100C32/030	609906	DMA100C32/100	609915	DMA100C32/300	609924	6
40	-	-	DMA100C40/030	609907	DMA100C40/100	609916	DMA100C40/300	609925	6	

Series DMT100 - Type AC 

(1)	In (A)	30 mA		Pack.
		Cat. No.	Ref. No.	
<b>Characteristic C Unswitched neutral 1P+N</b>  	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



## 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

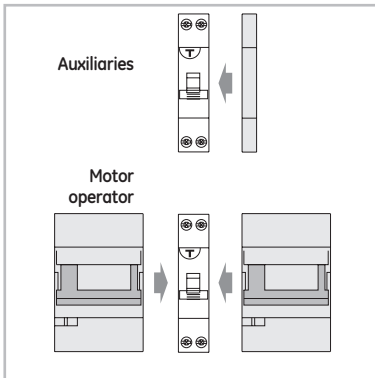
### Applications



### 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 mounded 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 $I_n$	(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 $U_{Bmin}$	(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)	<table border="0"> <tr> <td><b>Top</b></td> <td>Phase out<sup>(1)</sup>, Neutral out<sup>(1)</sup>, Neutral in<sup>(2)</sup></td> </tr> <tr> <td><b>Bottom</b></td> <td>Phase in<sup>(3)</sup></td> </tr> </table>	<b>Top</b>	Phase out <sup>(1)</sup> , Neutral out <sup>(1)</sup> , Neutral in <sup>(2)</sup>	<b>Bottom</b>	Phase in <sup>(3)</sup>
<b>Top</b>	Phase out <sup>(1)</sup> , Neutral out <sup>(1)</sup> , Neutral in <sup>(2)</sup>				
<b>Bottom</b>	Phase in <sup>(3)</sup>				
DMCE (Domestic)	<table border="0"> <tr> <td><b>Top</b></td> <td>Phase out<sup>(1)</sup>, Neutral out<sup>(1)</sup></td> </tr> <tr> <td><b>Bottom</b></td> <td>Phase in<sup>(1)</sup>, Neutral in<sup>(1)</sup>, 1P+N (1 module)<sup>(4)</sup></td> </tr> </table>	<b>Top</b>	Phase out <sup>(1)</sup> , Neutral out <sup>(1)</sup>	<b>Bottom</b>	Phase in <sup>(1)</sup> , Neutral in <sup>(1)</sup> , 1P+N (1 module) <sup>(4)</sup>
<b>Top</b>	Phase out <sup>(1)</sup> , Neutral out <sup>(1)</sup>				
<b>Bottom</b>	Phase in <sup>(1)</sup> , Neutral in <sup>(1)</sup> , 1P+N (1 module) <sup>(4)</sup>				
Poles					
Nuisance tripping resistance	250A 8/20 $\mu$ s				
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 1-25mm<sup>2</sup>, flexible copper wires 1.5 - 16mm<sup>2</sup>
- (2) Flying lead entering the device from top side. Cross section of 4mm<sup>2</sup> up to 25A, 6mm<sup>2</sup> up to 40A, 1200mm length.
- (3) Rigid copper wires 1-35mm<sup>2</sup>, Flexible copper wires 1.5 - 25mm<sup>2</sup>
- (4) Neutral on the left.
- (5)  $I_n \geq 25A$  on testing

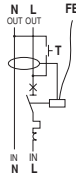
New



**Series DMCE60 - Type AC  - Domestic Applications**



Switched neutral  
1P+N

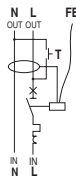


In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	DMCE60B06/030	694014	DMCE60C06/030	694000	1
10	DMCE60B10/030	694015	DMCE60C10/030	694001	1
16	DMCE60B16/030	694016	DMCE60C16/030	694002	1
20	DMCE60B20/030	694017	DMCE60C20/030	694003	1
25	DMCE60B25/030	694018	DMCE60C25/030	694004	1
32	DMCE60B32/030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

**Series DMCEA60 - Type A  - Domestic Applications**



Switched neutral  
1P+N



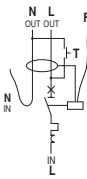
In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	DMCEA60B06/030	694021	DMCEA60C06/030	694007	1
10	DMCEA60B10/030	694022	DMCEA60C10/030	694008	1
16	DMCEA60B16/030	694023	DMCEA60C16/030	694009	1
20	DMCEA60B20/030	694024	DMCEA60C20/030	694010	1
25	DMCEA60B25/030	694025	DMCEA60C25/030	694011	1
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



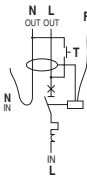
In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	DICE60B06/030	694042	DICE60C06/030	694028	1
10	DICE60B10/030	694043	DICE60C10/030	694029	1
16	DICE60B16/030	694044	DICE60C16/030	694030	1
20	DICE60B20/030	694045	DICE60C20/030	694031	1
25	DICE60B25/030	694046	DICE60C25/030	694032	1
32	DICE60B32/030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

**Series DICEA60 - Type A  - Industrial Applications**



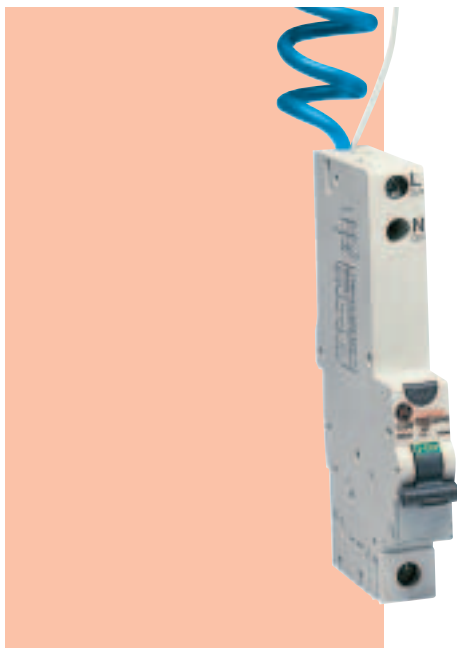
(1)

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



## RCBO's - Residual Current Circuit Breakers with Overcurrent Protection

### Series DME

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

### Applications



For use in consumer units and distribution boards.

### Marking



### Performance

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


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

DME100 acc. to EN/IEC 61009-1

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

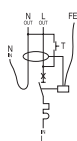
- Busbars ● pg E.2
- More technical data ● pg B.4
- Dimensions ● pg B.32




Series DME60 - Type AC 



Characteristic C  
Unswitched neutral  
1P+N

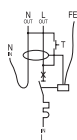


In (A)	30mA				
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
6	DME60C06/030	605060			1
10	DME60C10/030	605061			1
16	DME60C16/030	605062			1
20	DME60C20/030	605063			1
25	DME60C25/030	605064			1
32	DME60C32/030	605065			1
40	DME60C40/030	605066			1

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

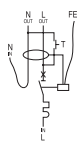
Characteristic C  
Unswitched neutral  
1P+N

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



## 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

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

### Short-circuit capacity

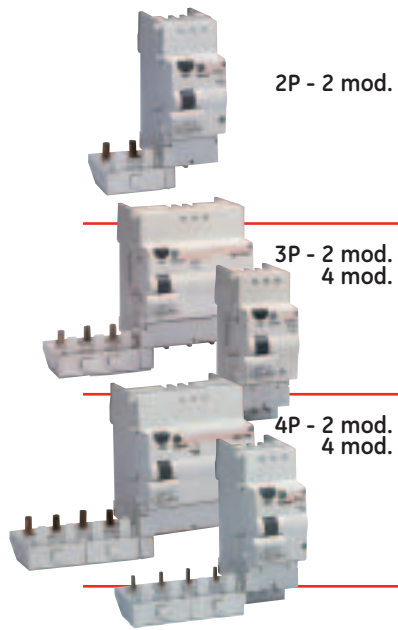
Depends on the associated MCB

		MCB			
		G30	G45	G60	G100
<b>Residual making and breaking capacity</b>	$I_{\Delta m}$	3000	4500	6000	7500
<b>Short-circuit capacity</b>	$I_{cn}$	3000	4500	6000	10000

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



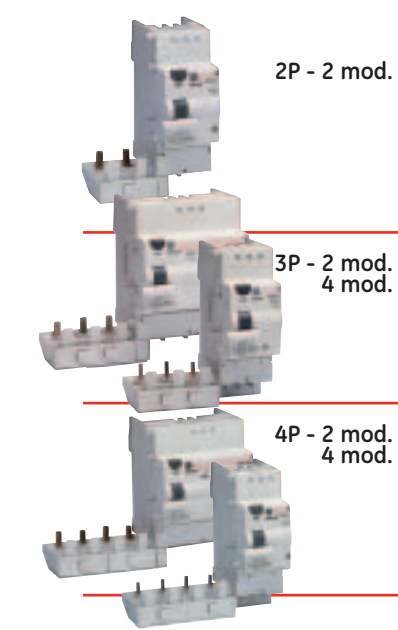
### Add-on RCD - Series Diff-o-Click - Type AC



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	<b>607536</b>	DOC 232/100	<b>607537</b>	DOC 232/300	<b>607538</b>	DOC 232/500	<b>607539</b>	DOC 232/1000	<b>607540</b>	1
	63	DOC 263/030	<b>607542</b>	DOC 263/100	<b>607543</b>	DOC 263/300	<b>607544</b>	DOC 263/500	<b>607545</b>	DOC 263/1000	<b>607546</b>	1
3P - 2 mod. 4 mod.	32	DOC 332/030	<b>607620</b>	DOC 332/100	<b>607621</b>	DOC 332/300	<b>607622</b>	DOC 332/500	<b>607623</b>	DOC 332/1000	<b>607624</b>	1
	63	DOC 363/030	<b>607626</b>	DOC 363/100	<b>607627</b>	DOC 363/300	<b>607628</b>	DOC 363/500	<b>607629</b>	DOC 363/1000	<b>607630</b>	1
4P - 2 mod. 4 mod.	32	DOC 532/030	<b>607722</b>	DOC 532/100	<b>607723</b>	DOC 532/300	<b>607724</b>	DOC 532/500	<b>607725</b>	DOC 532/1000	<b>607726</b>	1
	63	DOC 463/030	<b>607734</b>	DOC 463/100	<b>607735</b>	DOC 463/300	<b>607736</b>	DOC 463/500	<b>607737</b>	DOC 463/1000	<b>607738</b>	1

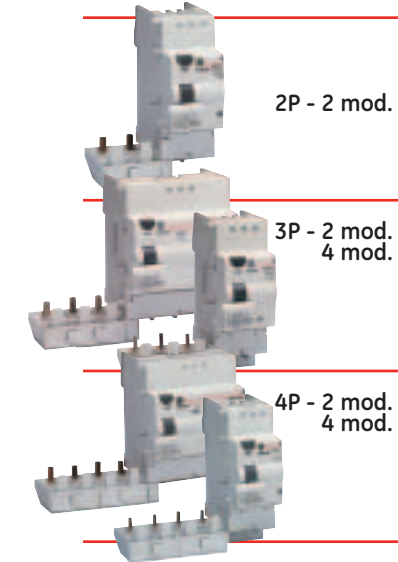
Note: 3P+N (unswitched) flying lead on request.

### 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	<b>607500</b>	DOCA 232/100	<b>607501</b>	DOCA 232/300	<b>607502</b>	DOCA 232/500	<b>607503</b>	DOCA 232/1000	<b>607504</b>	1
	63	DOCA 263/030	<b>607506</b>	DOCA 263/100	<b>607507</b>	DOCA 263/300	<b>607508</b>	DOCA 263/500	<b>607509</b>	DOCA 263/1000	<b>607510</b>	1
3P - 2 mod. 4 mod.	32	DOCA 332/030	<b>607584</b>	DOCA 332/100	<b>607585</b>	DOCA 332/300	<b>607586</b>	DOCA 332/500	<b>607587</b>	DOCA 332/1000	<b>607588</b>	1
	63	DOCA 363/030	<b>607590</b>	DOCA 363/100	<b>607591</b>	DOCA 363/300	<b>607592</b>	DOCA 363/500	<b>607593</b>	DOCA 363/1000	<b>607594</b>	1
4P - 2 mod. 4 mod.	32	DOCA 532/030	<b>607668</b>	DOCA 532/100	<b>607670</b>	DOCA 532/300	<b>607669</b>	DOCA 532/500	<b>607671</b>	DOCA 532/1000	<b>607672</b>	1
	63	DOCA 463/030	<b>607674</b>	DOCA 463/100	<b>607675</b>	DOCA 463/300	<b>607676</b>	DOCA 463/500	<b>607677</b>	DOCA 463/1000	<b>607678</b>	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	<b>607513</b>	DOCS 232/300	<b>607514</b>	DOCS 232/500	<b>607515</b>	DOCS 232/1000	<b>607516</b>	1
	63	DOCS 263/100	<b>607519</b>	DOCS 263/300	<b>607520</b>	DOCS 263/500	<b>607521</b>	DOCS 263/1000	<b>607522</b>	1
3P - 2 mod. 4 mod.	32	DOCS 332/100	<b>607597</b>	DOCS 332/300	<b>607598</b>	DOCS 332/500	<b>607599</b>	DOCS 332/1000	<b>607600</b>	1
	63	DOCS 363/100	<b>607603</b>	DOCS 363/300	<b>607604</b>	DOCS 363/500	<b>607605</b>	DOCS 363/1000	<b>607606</b>	1
4P - 2 mod. 4 mod.	32	DOCS 532/100	<b>607687</b>	DOCS 532/300	<b>607688</b>	DOCS 532/500	<b>607689</b>	DOCS 532/1000	<b>607690</b>	1
	32	DOCS 432/100	<b>607693</b>	DOCS 432/300	<b>607694</b>	DOCS 432/500	<b>607695</b>	DOCS 432/1000	<b>607696</b>	1
	63	DOCS 463/100	<b>607699</b>	DOCS 463/300	<b>607700</b>	DOCS 463/500	<b>607701</b>	DOCS 463/1000	<b>607702</b>	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
Terminal capacity flexible/rigid cable	(mm <sup>2</sup> )	35-50
Poles		2, 4
Nuisance tripping resistance	Type A:	250A 8/20 $\mu$ s; 3000A 8/20 $\mu$ s
Ambient temperature	(°C)	-25 upto 40
Weight	(g)	2P: 220
		4P: 385

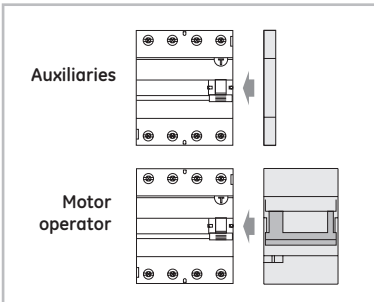
### Applications



### 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	10*/30mA			100mA		300mA		500mA		Pack.
	In (A)	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	30mA			100mA		300mA		500mA		Pack.
	In (A)	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

<b>EN 61009-1</b>	<b>10000</b>
	<b>3</b>
<b>Type A</b>	

### 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 <sup>2</sup> )	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

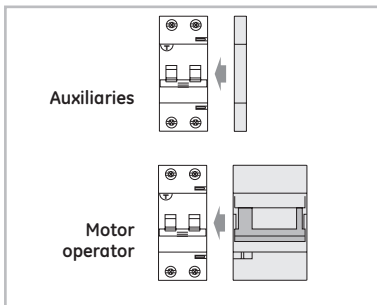
### Applications



### Approval



### Add-on devices

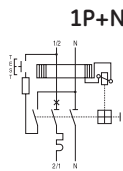


Dimensions ● pg B.32

### Short-circuit capacity

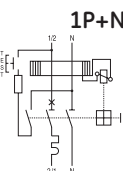
Acc. to EN/IEC 61009-1	
<b>Residual making and breaking capacity</b>	$I_{\Delta m} = 6000A$
<b>Short-circuit capacity</b>	$I_{cn} = 5000/10000A$ at 230V
<b>Selectivity class</b>	3
Acc. to EN/IEC 60947-2	
<b>Short-circuit capacity</b>	$I_{cu} = 15000A$ at 230V

### DPA100 - <sup>10000</sup>/<sub>3</sub> 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 - <sup>10000</sup>/<sub>3</sub> 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



DPA100

A

B

C

D

E

F

G

X



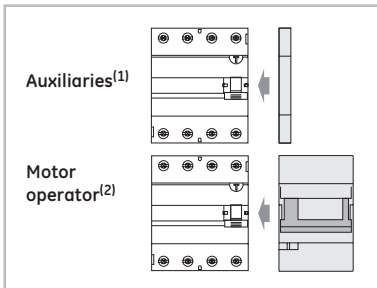
Applications



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 $\Delta I_n$	(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 <sup>2</sup> )	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	
<b>Making and breaking capacity</b>	$I_m = 500A$
<b>Residual making and breaking capacity</b>	$\Delta I_m \geq 500A$ from 16 upto 40A $\Delta I_m = 10I_n$ from 63 upto 100A
<b>Short-circuit capacity</b>	$I_{nc} = 10000A$ 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

New



## Terminal capacity

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

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

- (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

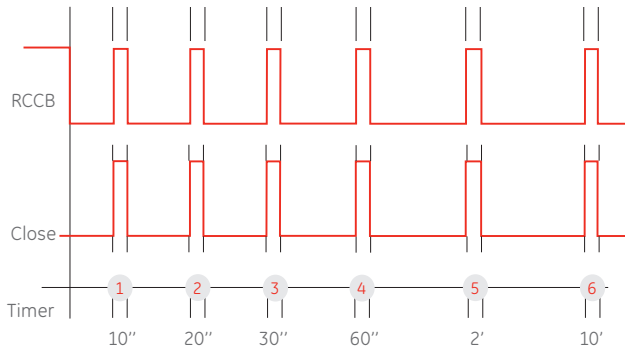
- Mount first 2, 3 or 4 poles devices on the DIN-rail at the extreme left side of the row.
- Mount one device at the extreme right side on the DIN-rail.
- Fit the pin busbar on both devices.
- Then, mount one by one the rest of poles pulling down the grey clip previously, inserting the pin bars inside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

Easy to dismount from DIN rail

# TeleREC reconnector

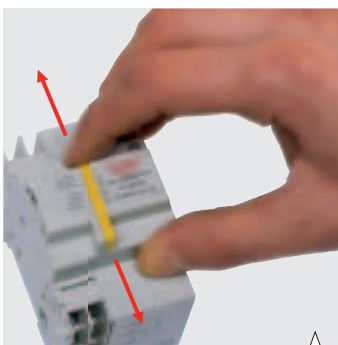
## Ensures power continuity in critical

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.



**TeleREC BASIC**

Commercial, Banks, Office buildings, Hospitals	Farms, Public lighting, Traffic lighting
--	---



### 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.



### Part of the family

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

## Redline

### Auxiliary contact

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



People protection

A

B

C

D

E

F

G

X

New



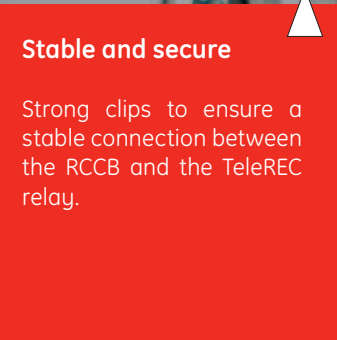
# ing system for RCCB's

## 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**

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		
		Cat. No.	Ref. No.	Pack.
 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
300 mA				
 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

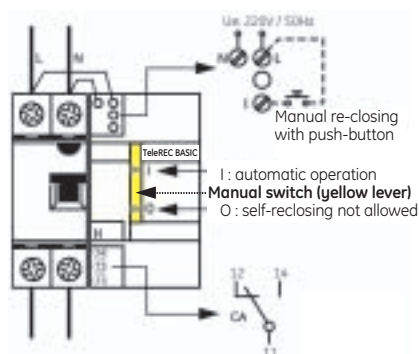
	In (A)	30 mA		
		Cat. No.	Ref. No.	Pack.
 2P Type A	40	Tele REC BASIC A 240/030	677122	1
	63	Tele REC BASIC A 263/030	677123	1
 4P Type A	40	Tele REC BASIC A 440/030	677124	1
	63	Tele REC BASIC A 463/030	677125	1
300 mA				
 2P Type A	40	Tele REC BASIC A 240/300	677126	1
	63	Tele REC BASIC A 263/300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

TeleREC BASIC

A

B

C

D

E

F

G

X



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



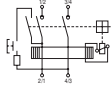
The reconnection relay TeleREC PLUS can be easily coupled to any RCCB:

## Series BP/BD - Type AC $\square$

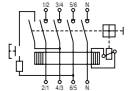
People protection

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

2P  
Type AC



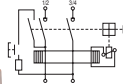
4P  
Type AC



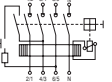
## Series BP - Type A $\square$

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

2P  
Type A



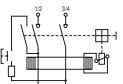
4P  
Type A



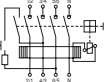
## Series BP - Type S $\square$ S

In (A)	100mA		300mA		500mA		1000mA		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
25	BPS225/100	<b>606096</b>	BPS225/300	<b>606106</b>	BPS225/500	<b>606116</b>	BPS225/1000	<b>606126</b>	6
40	BPS240/100	<b>606097</b>	BPS240/300	<b>606107</b>	BPS240/500	<b>606117</b>	BPS240/1000	<b>606127</b>	6
63	BPS263/100	<b>606098</b>	BPS263/300	<b>606108</b>	BPS263/500	<b>606118</b>	BPS263/1000	<b>606128</b>	6
80	BPS280/100	<b>606099</b>	BPS280/300	<b>606109</b>	BPS280/500	<b>606119</b>	BPS280/1000	<b>606129</b>	6
100	BPS2100/100	<b>606100</b>	BPS2100/300	<b>606110</b>	BPS2100/500	<b>606120</b>	BPS2100/1000	<b>606130</b>	6
25	BPS425/100	<b>606173</b>	BPS425/300	<b>606183</b>	BPS425/500	<b>606193</b>	BPS425/1000	<b>606203</b>	3
40	BPS440/100	<b>606174</b>	BPS440/300	<b>606184</b>	BPS440/500	<b>606194</b>	BPS440/1000	<b>606204</b>	3
63	BPS463/100	<b>606175</b>	BPS463/300	<b>606185</b>	BPS463/500	<b>606195</b>	BPS463/1000	<b>606205</b>	3
80	BPS480/100	<b>606176</b>	BPS480/300	<b>606186</b>	BPS480/500	<b>606196</b>	BPS480/1000	<b>606206</b>	3
100	BPS4100/100	<b>606177</b>	BPS4100/300	<b>606187</b>	BPS4100/500	<b>606197</b>	BPS4100/1000	<b>606207</b>	3

2P  
Type S



4P  
Type S



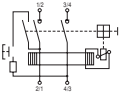
New





Series BP - Type Ai 

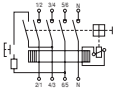
Series BP - Type Si  



2P  
Type S

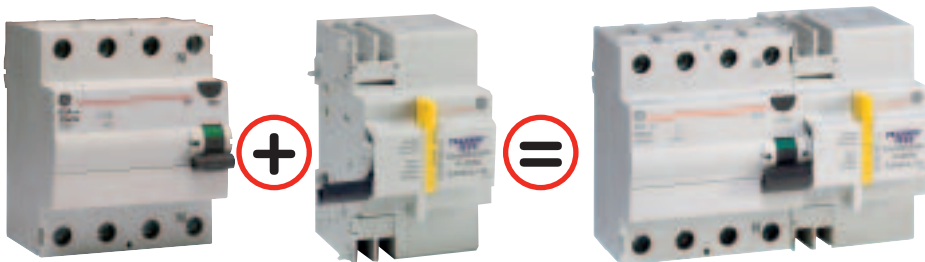
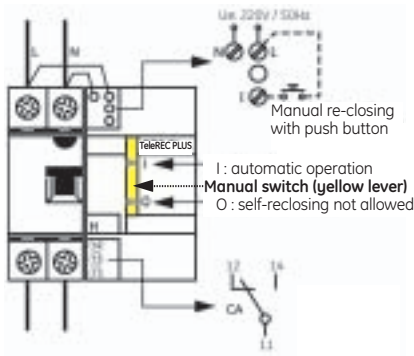
In (A)	30mA		300mA		300mA		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
25	BPAi225/030	606331	BPAi225/300	606347	BPSi225/300	606337	6
40	BPAi240/030	606332	BPAi240/300	606348	BPSi240/300	606338	6
63	BPAi263/030	606333	BPAi263/300	606349	BPSi263/300	606339	6
80	-	-	-	-	BPSi280/300	606340	6
100	-	-	-	-	BPSi2100/300	606341	6

4P  
Type S



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



A

B

C

D

E

F

G

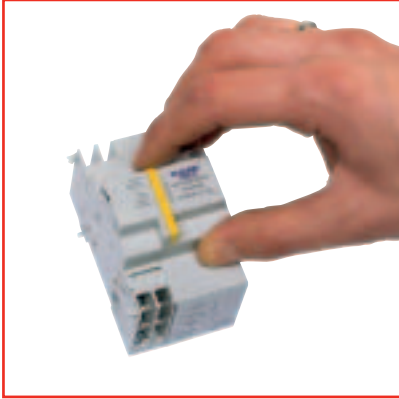
X



New

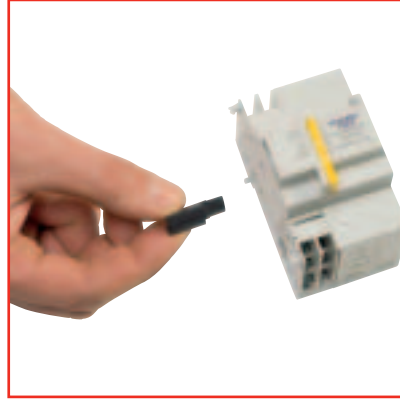
## Mounting instructions TeleREC PLUS

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.



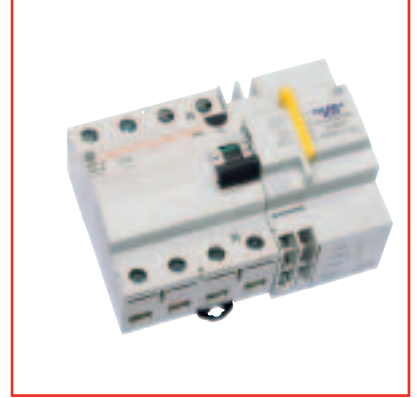
Ensure RCCB is OFF. Align relay and RCCB. Check the make and model of RCCB.  
**NOTE:** The motorized reconnecting system is only adequate for use with RCCB's of the following series : Series BP, BD.  
 Do not use for reconnecting circuit breakers with overload and/or short-circuit protection. It may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

*Epecially designed for photovoltaic applications*

**Series TeleREC SOLAR**

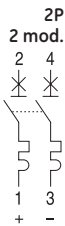


Reconnection relay

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

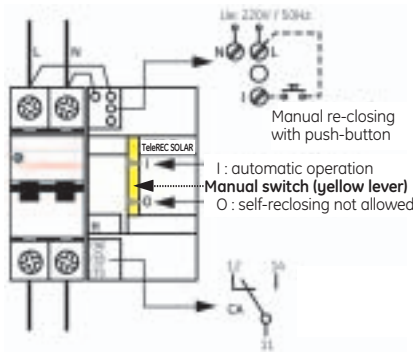
**+** *The reconnection relay TeleREC SOLAR can be easily coupled to MCB's series EP100 UC:*

**Series EP100 UC - 10kA - characteristic B-C**

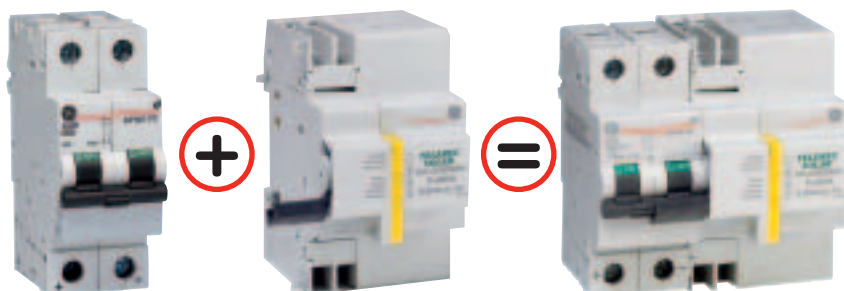


In (A)	B		C		Pack.
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
6	EP102UCB06	673342	EP102UCC06	673322	6
10	EP102UCB10	673343	EP102UCC10	673324	6
16	EP102UCB16	673344	EP102UCC16	673326	6
20	EP102UCB20	673345	EP121UCC20	673327	6
25	EP102UCB25	673346	EP102UCC25	673328	6
32	EP102UCB32	673347	EP102UCC32	673329	6
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 (Icc<2In).  
The TeleREC SOLAR voltage is 230Vac.*



TeleREC SOLAR

A

B

C

D

E

F

G

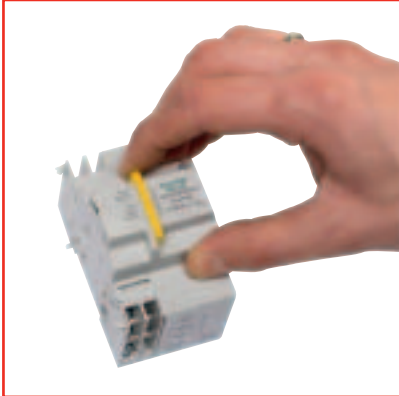
X



**New**

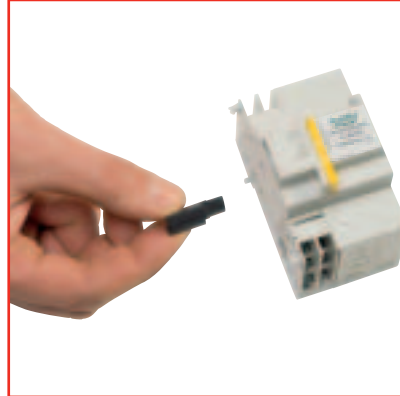
## Mounting instructions TeleREC SOLAR

1.

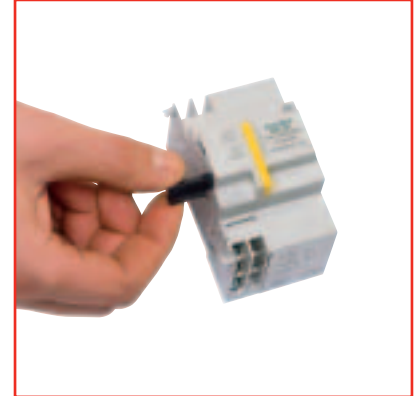


Place the reconnection relay on a flat surface and lock relay in OFF position using the yellow sliding lever.

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.



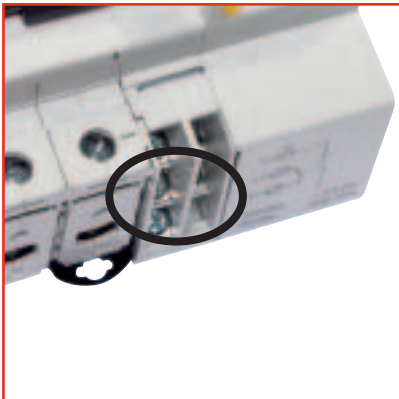
Approach devices ensuring the MCB toggle slides into the toggle actuator.

5.



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

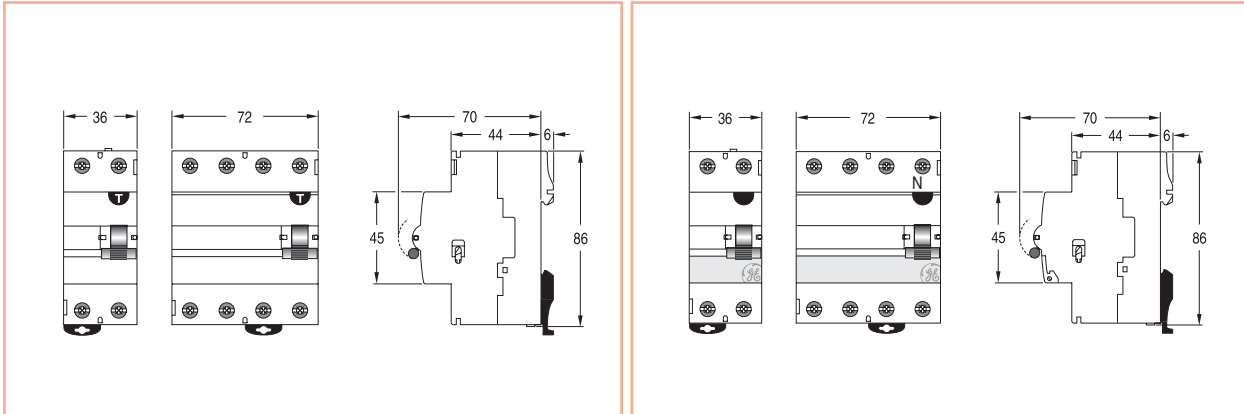
6.



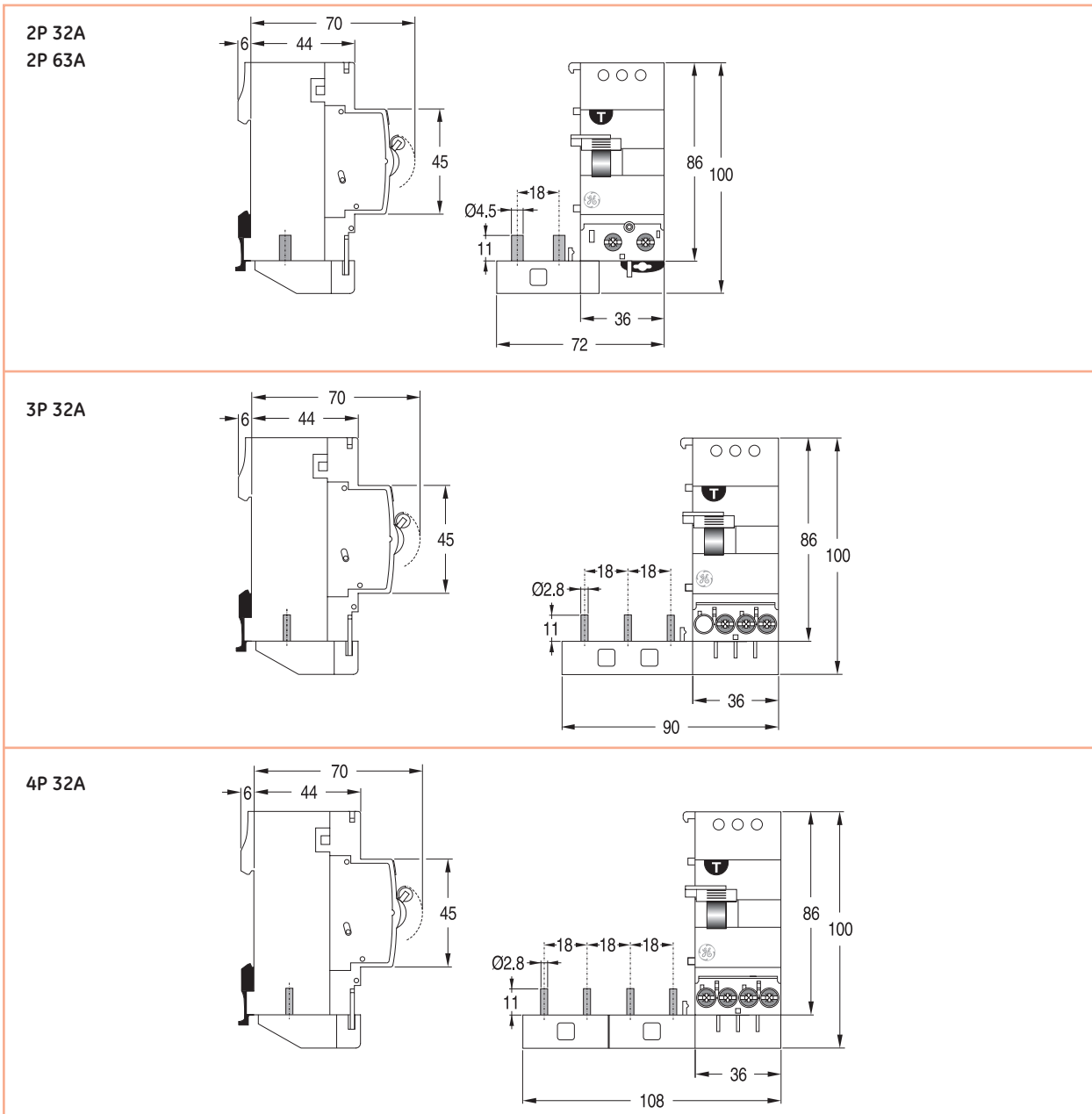
Dimensional drawings

RCCB's - Series BP/BD and FPAUL

RCCB's - Series FPP - Fixwell™



Add-on RCCB - Series Diff-o-Click



Dimensional drawings

A

B

C

D

E

F

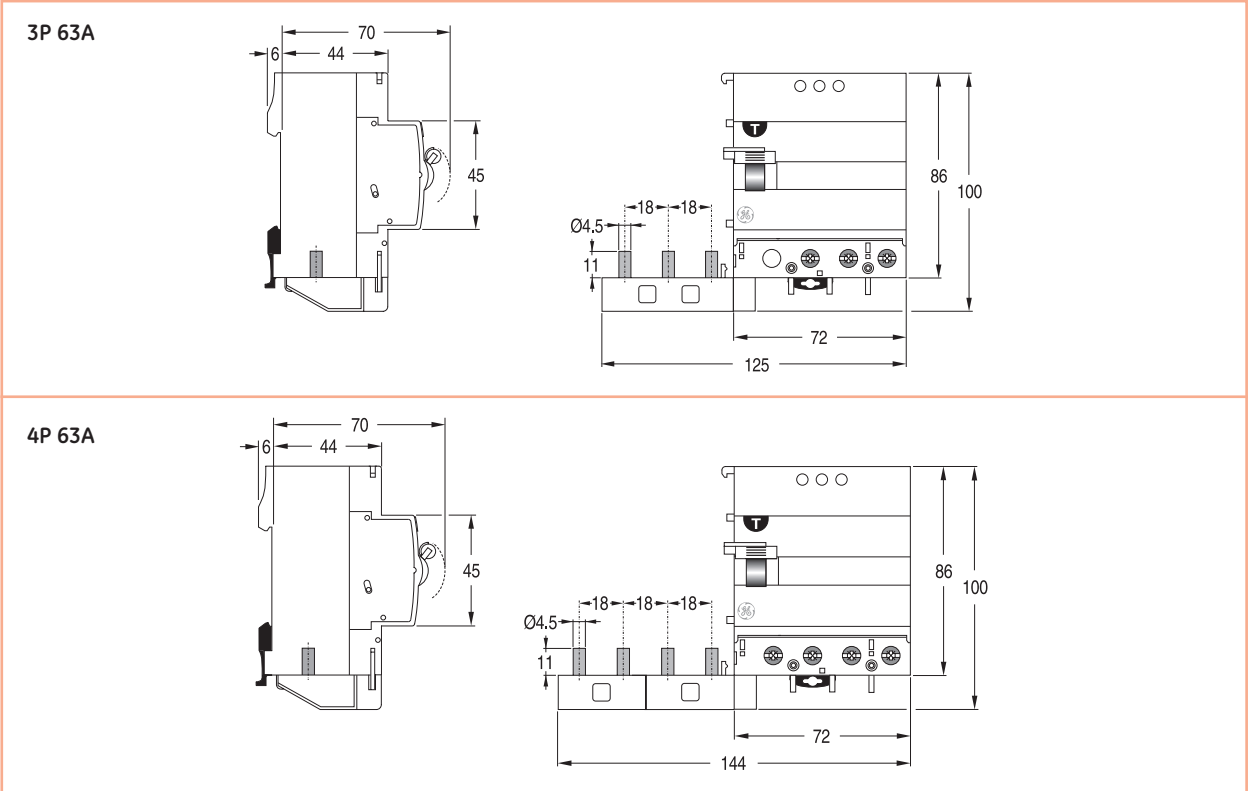
G

X

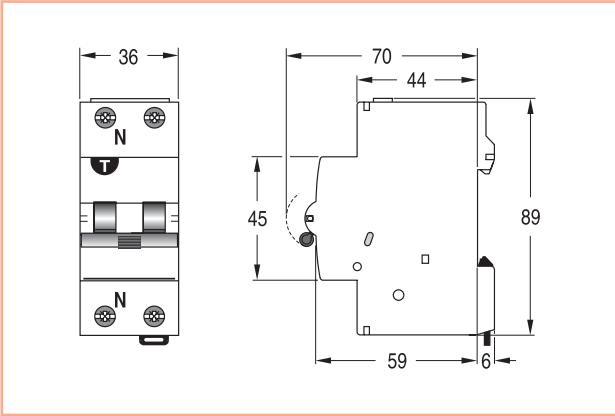


Dimensional drawings

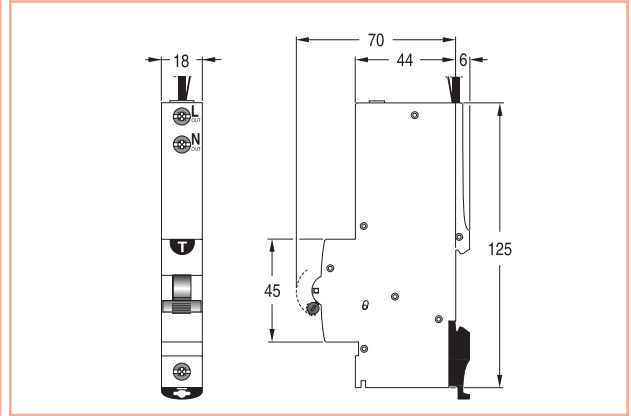
Add-on RCCB - Series Diff-o-Click (continued)



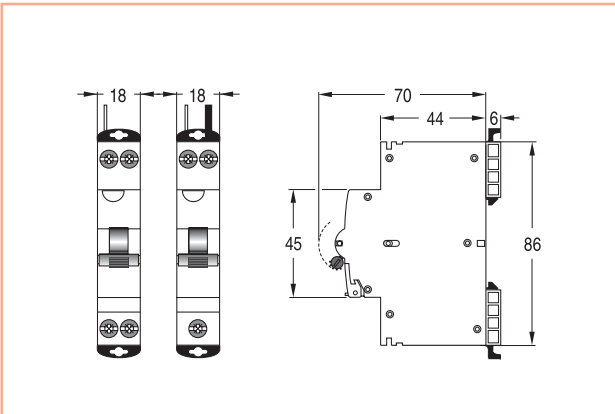
RCBO's - Series DM and DPA100



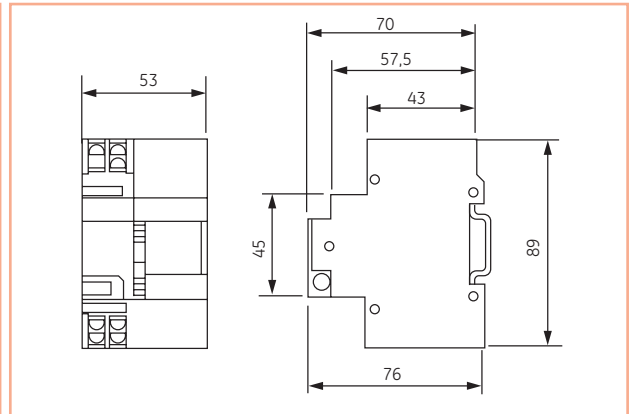
RCBO's - Series DME



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

MCCB's Record Plus

Numerical Index

A
B
<b>C</b>
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		<b>Auxiliary Contact H</b> For monitoring the status of the protection device ( Open/Closed) independently, if it has been actuated manually or automatically.	CA
S		<b>Signal or Auxiliary Contact S/H</b> 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		<b>Signal or Auxiliary Contact S/H + Auxiliary Contact H</b> Two change-over contacts that include both functions as described above (S/H+H)	CB
PBS		<b>Panel Board Switch</b> For opening the main device when the panel frame is removed	PBS
TL		<b>Shunt Trip (Distance tripping by emission)</b> For opening the device when it is fed locally or remotely	Tele L
TU		<b>Undervoltage Release</b> For opening the device when the voltage goes lower than a certain value	Tele U
TM		<b>Motor Operator</b> 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	EP100 UC EP100T EPP100	BP	DM	Series G + Diff-o-Click	ASTER
CA H	Auxiliary contact	H	L-R <sup>(2)</sup>	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 <sup>(2)</sup>	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 <sup>(2)</sup>	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 <sup>(1)</sup>	-	-	-	-	-	-	-	-	-	-	-
CA UN S/H	Signal or auxiliary contact	S/H	L-R <sup>(1)</sup>	-	-	-	-	-	-	-	-	-	-	-
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 <sup>(2)</sup>	L-R	L-R	L-R	L-R	L-R	L-R	L-R	-	-	L-R	-
Tele L	Shunt trip	TL	L-R <sup>(2)</sup>	L-R	L-R	L-R	L-R	L-R	L-R	L-R	R	R	L	-
Tele U	Undervoltage release	TU	L-R <sup>(2)</sup>	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

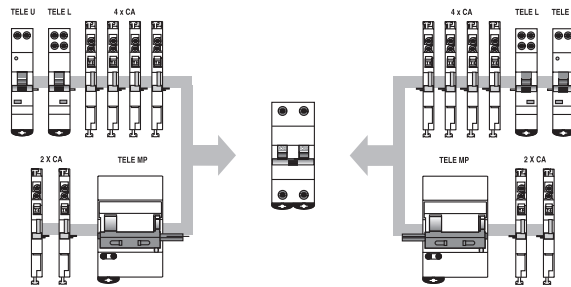
L = Coupling on the left

R = Coupling on the right

(2) Except Tele MP, all add-on devices on EPC need one CA UN as interface

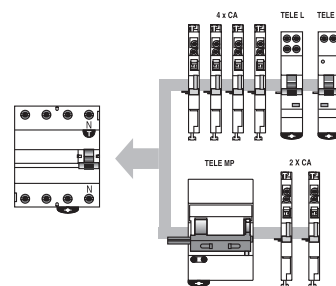
For detailed information, see website

#### Miniature Circuit Breakers Series G/EP Series EPC<sup>(3)</sup>

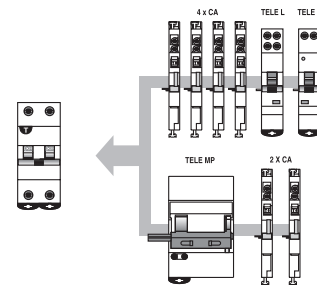


(3) Except for Tele MP the first auxiliary contact on MCB should always be CA UN

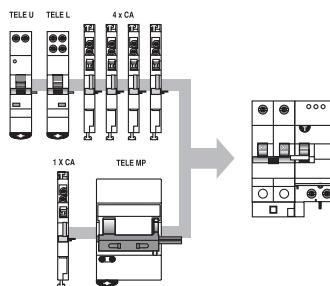
#### Residual Current Circuit Breakers (RCCB) Series BP



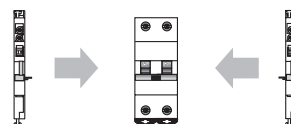
#### Residual Current Circuit Breakers (RCBO) with Overcurrent Protection Series DM



#### Miniature Circuit Breakers Series G + Diff-o-Click



#### Modular switches Aster





## 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.

### Applications



### Approvals



### 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 <sup>2</sup> ) 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.

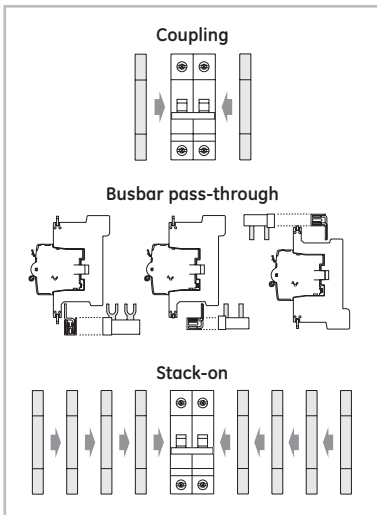
#### Signal or auxiliary contact CA S/H, CA S/H G (function S/H)

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.

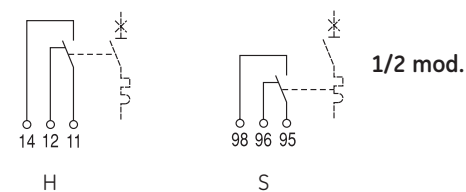
Used as signal contact (function S) it provides the information about the automatic tripping of the protection devices: overload or short-circuit for MCB's, earth leakage tripping for RCD's.

- 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



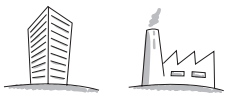
## Auxiliary

### Series CB

### EN/IEC 62019



### Applications



### Approvals



### Performance

Change-over contacts	2
Rated current I <sub>n</sub>	(A) 5
Rated voltage AC U <sub>n</sub>	(V) 240
Electrical endurance	10000
Terminal capacity flexible/rigid cable	(mm <sup>2</sup> ) 2.5
Weight	(g) 80

### Utilisation

#### Bottom auxiliary contact (function H)

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

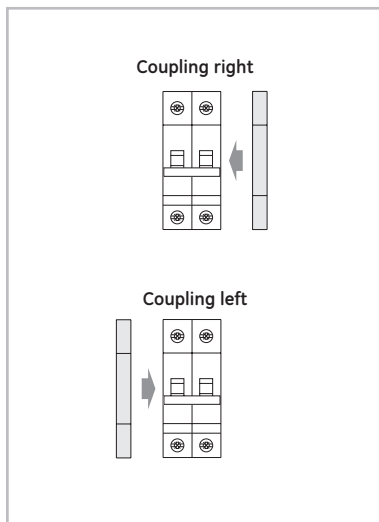
#### Top signal or auxiliary contact (function S/H).

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

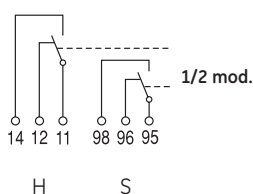
The user can make the change of the function at the moment of installation.

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 <sup>(1)</sup>	672570	40
SH/HH	CB SH/HH-L <sup>(2)</sup>	672571	40

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



Series CB  
A  
B  
C  
D  
E  
F  
G  
X



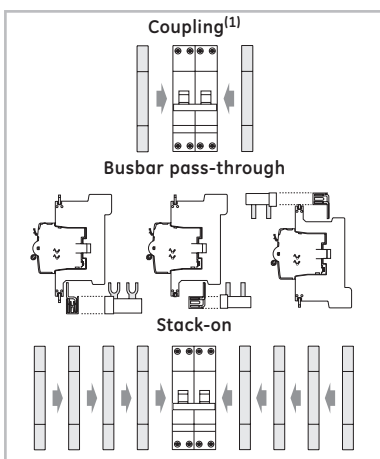
### Applications



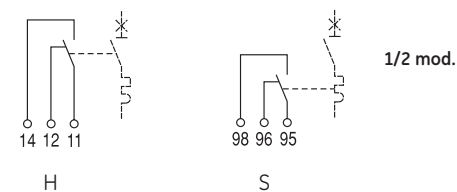
### Approvals / Marking



### 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, than 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<sup>(1)</sup> 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 I <sub>n</sub>	(A) 5
Rated voltage AC U <sub>n</sub>	(V) 240
Electrical endurance	10000
Terminal capacity flexible/rigid cable	(mm <sup>2</sup> ) 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

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

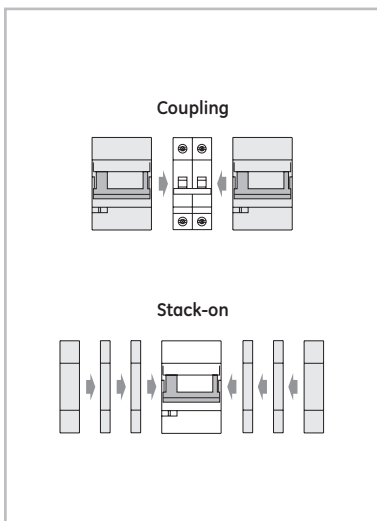
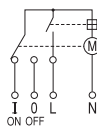
EN/IEC 60947-2

### Performance

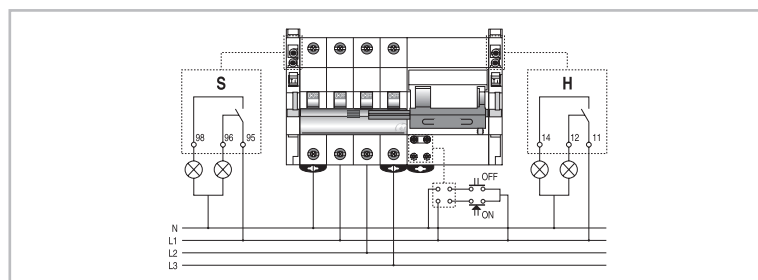
Rated voltage AC Un	(V)	240
Minimum voltage	(V)	200
Impulse to switch on	(ms)	50
Impulse to switch off	(ms)	50
Closing time	(s)	0.5
Opening time	(s)	0.2
Electrical endurance		10000
Terminal capacity flexible/rigid cable	(mm <sup>2</sup> )	2.5
Weight	(g)	380

### 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.

### Performance

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

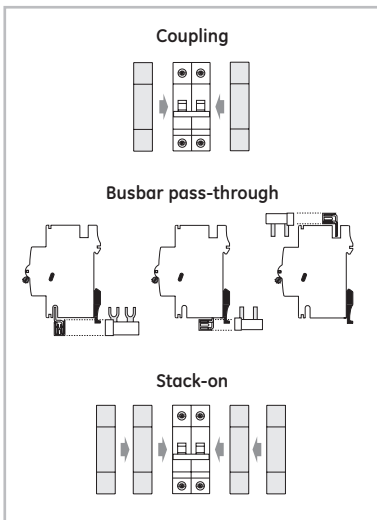
### Applications



### Approvals

EN/IEC 60947-2  (1)

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



### 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

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

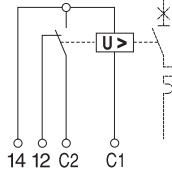
More technical data  website  
Dimensions  pg C.12



**Tele L - Shunt trip** 



1P  
1 mod.

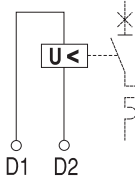


Voltage	Cat. No.	Ref. No.	Pack.
AC 24-60V DC 24-48V	TELE L-1	672573	1
AC 110-415V DC 110-125V	TELE L-2	672574	1

**Tele U - Undervoltage release**



1P  
1 mod.

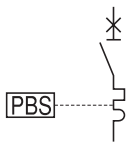


Voltage	Cat. No.	Ref. No.	Pack.
AC 240V	TELE U-230	672575	1
AC/DC 12V	TELE U-12	672576	1
AC/DC 24V	TELE U-24	672577	1
AC/DC 48V	TELE U-48	672578	1

**PBS - Panel board switch**



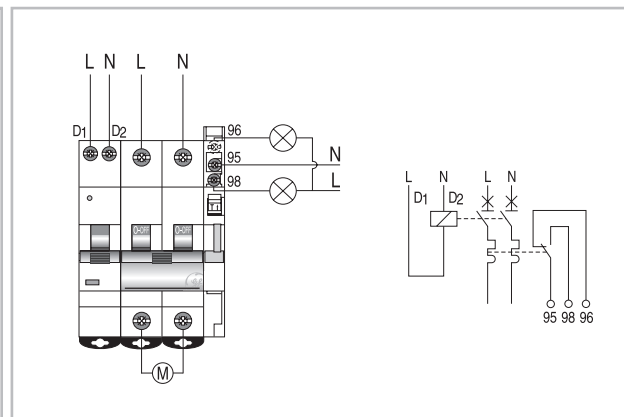
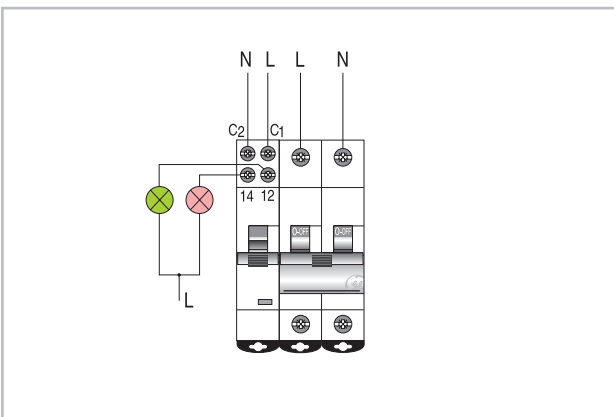
1P  
1/2 mod.



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

**Tele L**

**Tele U**



Tele L - Tele U - PBS

A

B

C

D

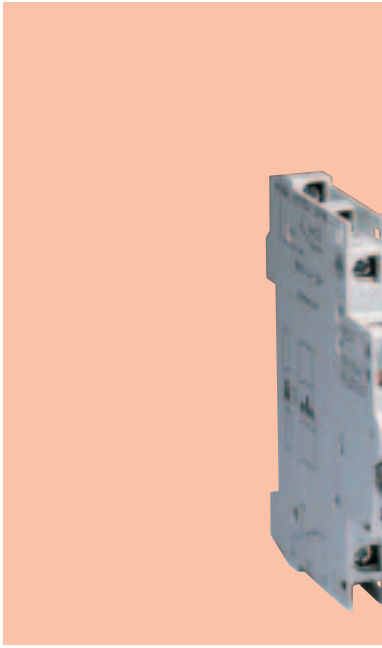
E

F

G

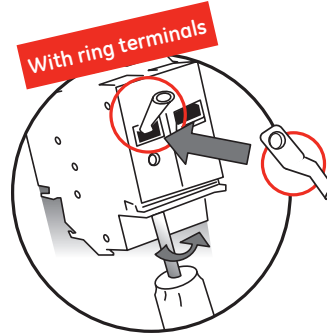
X





## Auxiliary contacts

### Series CBT



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

### Features

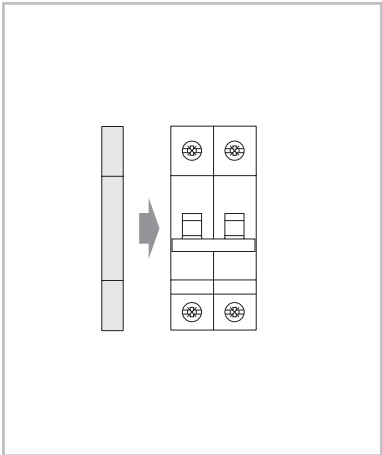
- Three versions: 1NO+1NF, 2NF, 2 NO
- CBT accepts ring terminals on wires
- Certified acc. new CEI UNI 11170 (higher protection against fires)
- Certified acc. to NF 16-101, smoke index F1
- Shock and vibrations tests acc. to IEC 61373

### Standards / Marking

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

### Approval

Trenitalia n° 371441.01



### 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 <sup>2</sup> ) 2.5
Unloosable screws	Pozidrive 2

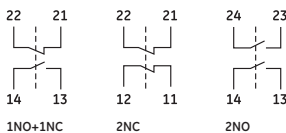
#### Bottom auxiliary contact (function H)

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

More technical data ● website  
Dimensions ● pg C.12

### Series CBT

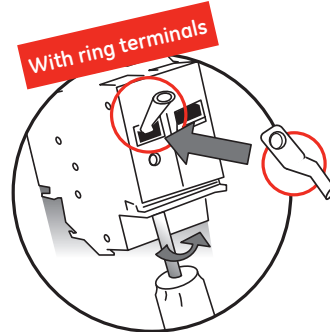
Contact combination	Cat. No.	Ref. No.	Pack.
1NO+1NC	CBT H NO-NC	667249	1
2NC	CBT H 2NC	667250	1
2NO	CBT H 2NO	667251	1





## 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

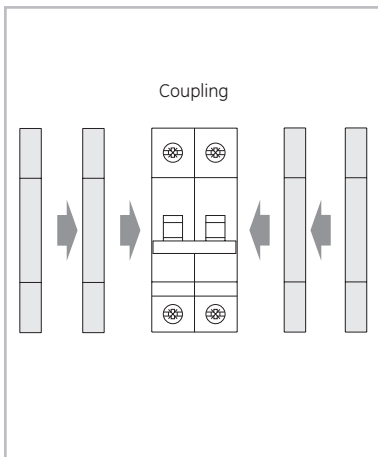
<b>Rated voltage</b>	(V) 110/415 ~ 110/128/150 ---
	(V) 24/60 ~ 24/48 ---
<b>Tripping time</b>	(ms) <10
<b>Electrical endurance</b>	10.000
<b>Terminal capacity flexible/rigid cable</b>	(mm <sup>2</sup> ) 2.5
<b>Unloosable screws</b>	Pozidrive 2
<b>U<sub>min</sub></b>	(V) 0,70 x Un
<b>U<sub>max</sub>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

### Standards / Marking

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

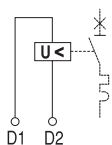
### Approval

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

Series CBT

A

B

C

D

E

F

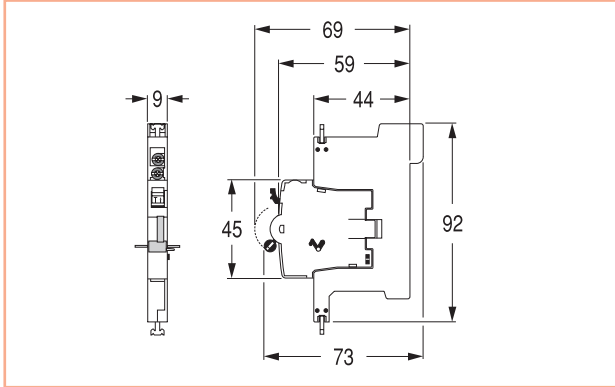
G

X

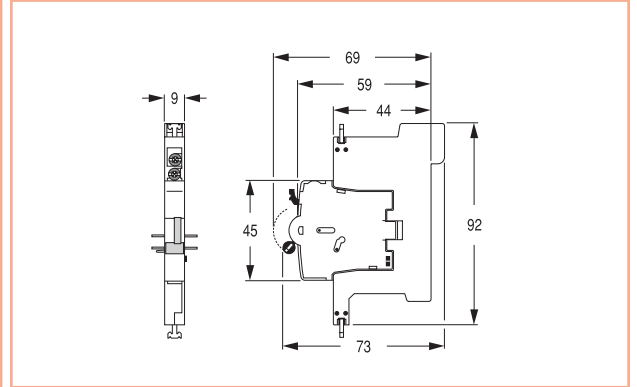


**Dimensional drawings**

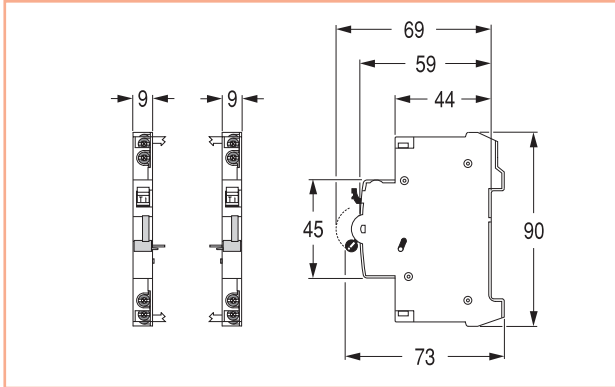
**Auxiliary - Series CA**



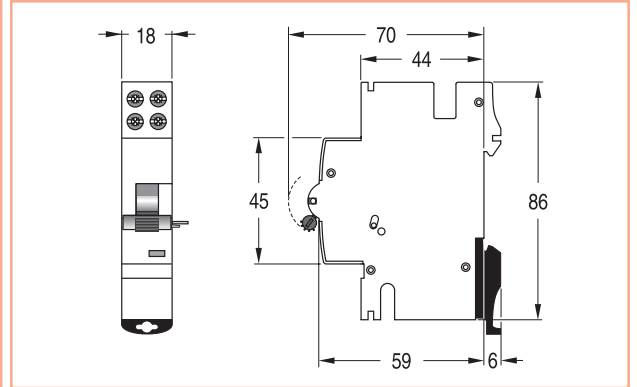
**Auxiliary interface - Series CA - Unibis™**



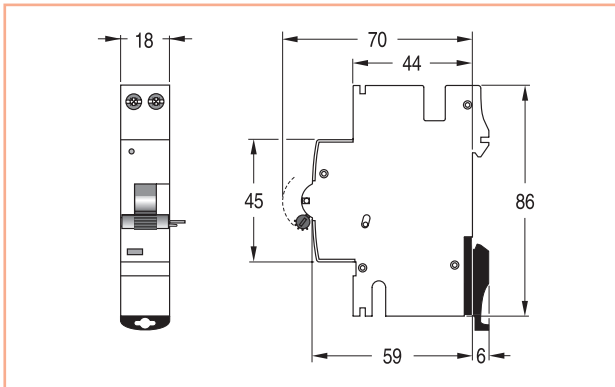
**Auxiliary - Series CB / CBT**



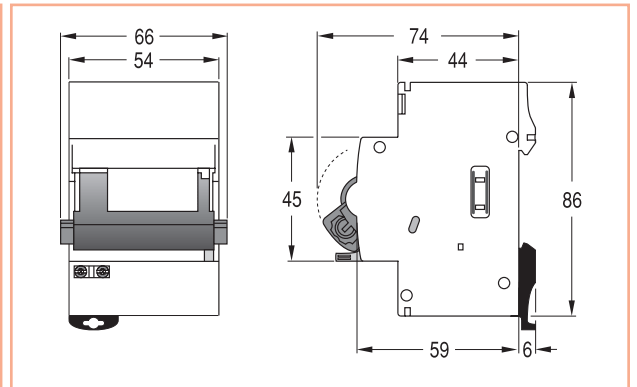
**Shunt Trip - Tele L / Tele LT**



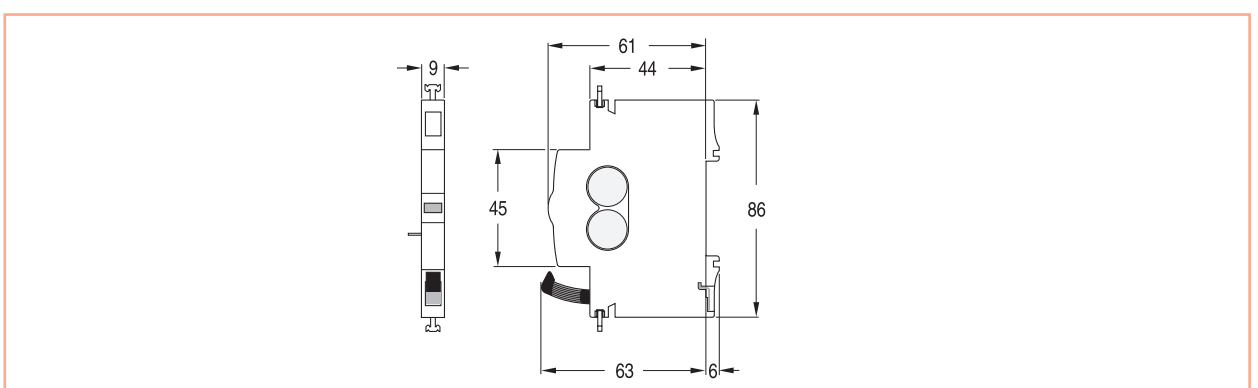
**Undervoltage Release - Tele U**



**Motor operator - Tele MP**



**Panel board switch - PBS**



Add-on-devices

A

B

C

D

E

F

G

X



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

D.4 Indication Lamp - **Aster**

D.6 Contactors - **Contax**



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

A

People Protection

B

Add-on Devices

C

**Comfort Functions**

**D**

Busbars

E

Enclosures

F

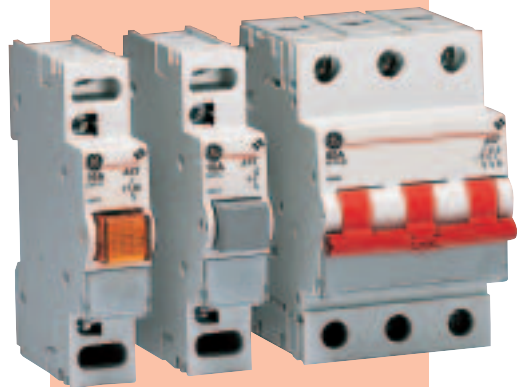
MCCB's Record Plus

G

Numerical Index

X





## 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

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

### Function

Manual control of all kinds of electrical devices.

### Approvals<sup>(1)</sup>



(1) Depending on type.

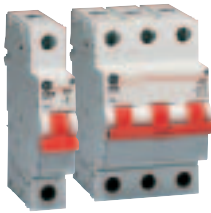
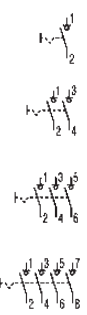

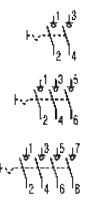





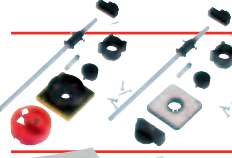

### Performance

	Push-buttons	Switches	Rotary switches	Mains disconnect switches
<b>Nominal rated current</b>	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 $\Phi$ =0.95	-	1.25xIn	8xIn	3xIn
Nominal breaking capacity at 415V, cos $\Phi$ =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 $\Phi$ = 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 <sup>2</sup>	1x1.5mm <sup>2</sup>	1x2.5mm <sup>2</sup>	1x6mm <sup>2</sup>
max	1x10mm <sup>2</sup>	1x10mm <sup>2</sup>	1x25mm <sup>2</sup>	1x50mm <sup>2</sup>

- Auxiliary contacts ● pg. C.4
- More technical data ● website
- Dimensions ● pg D.42



### Aster - Switches & push-buttons

	Nominal current	Contact combination	Number of modules	Cat. No.	Ref. No.	Pack.
<b>Mains disconnect switch</b>  	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	
<b>Rotary switch</b>  	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	
<b>Changeover switches</b> 	16A/240V	1NO	1	AST S 16 10	666587	12
	16A/415V	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/415V	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
	<b>Switch with signal lamp</b> 	16A/240V	1NO	1	AST SL 16 10	666602
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
<b>Changeover switches with zero position</b> 	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
<b>Push-button</b> 	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
<b>Push-button with signal lamp</b> 	16A/240V	1NO	1	AST PL 16 10	666573	12
<b>Accessories for rotary switches</b>						
 <b>Extension shaft</b>	238 mm with emergency handle			AST R ES E	666555	1
	238 mm with standard handle			AST R ES S	666556	1
 <b>Sealing piece</b>			4	AST R TS	666557	1

Aster

A

B

C

D

E

F

G

X





## Indication lamps

### 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 <sup>2</sup>	1x1.5mm <sup>2</sup>	1x1.5mm <sup>2</sup>
max	1x10mm <sup>2</sup> / 2x4mm <sup>2</sup>	1x10mm <sup>2</sup> / 2x4mm <sup>2</sup>	1x10mm <sup>2</sup> / 2x4mm <sup>2</sup>



## Socket-outlets

### MSC

#### Standards

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

#### Approvals<sup>(1)</sup>




(1) Depending on type.

#### Performance



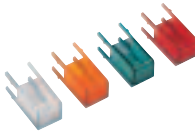
Nominal current	16A
Nominal voltage	250V
Operating temperature	-20 ... +55°C
Protection degree	IP20
Screws	Pozidriv 2
Terminal capacity: min	1x1 mm <sup>2</sup>
max	1x6 mm <sup>2</sup> or 2x2.5 mm <sup>2</sup>

More technical data ● website  
Dimensions ● pg D.43



### Aster - Indication lamp

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

### Accessories

	Nominal operating voltage	Colour	Number of modules	Cat. No.	Ref. No.	Pack.
 Lamp	12V	-	-	AST B 12	666340	12
	24V	-	-	AST B 24	666342	12
	230V	-	-	AST B 230	666341	12
 Lamp LED E10	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

	Nominal current	Nominal voltage	Number of modules	Cat. No.	Ref. No.	Pack.
 Edged with child protection	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



## Contactors

### 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.

### 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.43

### Performance













Rated switching capacity	20A	24A	40A	63A
<i>Contacts</i>				
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 <sup>6</sup>	10 <sup>6</sup>	10 <sup>6</sup>	10 <sup>6</sup>
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 <sup>2</sup>	1x1 mm <sup>2</sup>	1x1.5 mm <sup>2</sup>	1x1.5 mm <sup>2</sup>
max	1x10mm <sup>2</sup> or 2x4 mm <sup>2</sup>	1x10mm <sup>2</sup> or 2x4 mm <sup>2</sup>	1x25mm <sup>2</sup> or 2x10 mm <sup>2</sup>	1x25mm <sup>2</sup> or 2x10 mm <sup>2</sup>
<i>Magnetic control system</i>				
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 <sup>(1)</sup>	-25 ... +55°C <sup>(1)</sup>	-25 ... +55°C <sup>(1)</sup>	-25 ... +55°C <sup>(1)</sup>
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 <sup>2</sup>	1x1 mm <sup>2</sup>	1x1 mm <sup>2</sup>	1x1 mm <sup>2</sup>
max	1x4mm <sup>2</sup> or 2x2.5 mm <sup>2</sup>	1x4mm <sup>2</sup> or 2x2.5 mm <sup>2</sup>	1x4mm <sup>2</sup> or 2x2.5 mm <sup>2</sup>	1x4mm <sup>2</sup> or 2x2.5 mm <sup>2</sup>

(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.	
 <p><b>Contactor</b></p> <p>1 NO 1 NC</p> 	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	
	 <p>2 NO</p> 	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	
 <p>2 NO 2 NC</p> 	24A	4NO	240V	AC/DC	2	CTX 24 40 240 U	666143	5	
	 <p>3 NO</p> 	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
40A		4NO	240V	AC/DC	3	CTX 40 40 240 U	666152	3	
 <p>4 NO</p> 	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	
 <p><b>Contactor Day and Night</b></p> 	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

	Nominal current	Contact combination	Coil voltage	AC/DC	Number of modules	Cat. No.	Ref. No.	Pack.
 <p>Left mounting</p> 	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.
 <p>Sealing piece</p>	2	CTX TS 2	666160	3
	3	CTX TS 3	666159	3
 <p>Spacer</p>	0.5	PLS + / CTX + SP	686069	50





## Standards / Marking

EN 60947-4-1 

## Relays

### Contax R

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## Function

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

## Applications

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- 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

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- 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.44

**New**



## Performance

			Contax R
			CTX + R16
<b>Rated current (according to EN 60947-4-1)</b>			
250VAC (1 & 2 pole) / 400VAC (3 & 4 pole)		A	16
Nominal thermal current (I <sub>th</sub> )		A	16
Number of pole			1 → 4
<b>Contacts</b>	NO		1 → 4
	Changeover ("m" contacts)		1 → 4
	NO + NC		1+1 / 2+2
<b>Width (in 17.8mm DIN modules)</b>	1P & 2P	Mod.	1
	3P & 4P	Mod.	2
<b>Coil specifications</b>			
Supply voltage : DC/AC ratio <sup>(1)</sup>			0.5 / 1
Supply voltage range (in % of U <sub>n</sub> )		%	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
<b>Contact bounce time at closing</b>		sec.	<0.010
<b>Operate and release time (bounce time incl.)</b>			
Pick-up time	NO contact	sec.	< 0.040
(from 0 to U <sub>n</sub> )	NC contact	sec.	< 0.020
Drop-out time	NO contact	sec.	< 0.050
(from U <sub>n</sub> to 0)	NC contact	sec.	< 0.050
<b>Maximum peak current at closing</b>			
Single phase 250VAC cos φ = 0.95		A	45
3-phase 400V~ cos φ = 0.65		A	60
<b>Maximum peak current at opening</b>			
Single phase 250VAC cos φ = 0.95		A	75
3-phase 400V~ cos φ = 0.65		A	60
<b>Lifetime (in number of operations)<sup>(2)</sup></b>			
Electrical (in AC-1 - At full load)			3 × 10 <sup>5</sup>
Mechanical			2 × 10 <sup>6</sup>
<b>Load specifications per phase</b>			
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
<b>Maximum lamp load (10<sup>3</sup> operations/h)</b>			
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
<b>General specifications</b>			
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 <sup>2</sup>	1.5 / 10
	Load	mm <sup>2</sup>	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

C

D

E

F

G

X



New

**Impulse switches and relays: maximum lamp loads**

Comfort functions

A

B

C

D

E

F

G










X

Lamps type	Lamp Watts	Pulsar S	Pulsar S	Contax R
	Power consumption	PLS + 16	PLS + 32	CTX + R16
<b>Incandescent lamps</b>				
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
<b>Fluo lamp PF uncorrected</b>				
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
<b>Fluo twin lamps</b>				
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
<b>Fluo lamp parallel compensation</b>				
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
<b>Halogen 230V</b>				
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
<b>HP sodium vapour</b>				
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	-
<b>LP sodium vapour</b>				
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
<b>HP mercury vapour</b>				
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	-
<b>VLV halogen</b>				
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
<b>Electronic reactor</b>				
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

New



Contax R - Relays

	Nominal current	Contact combination	Coil voltage AC	Coil voltage DC	Number of Modules	Cat. No.	Ref. No.	Pack.
	2 1	16A 1 NO	8	-	1	CTX + R 16 10 008 A	<b>686007</b>	12
		16A 1 NO	12	6	1	CTX + R 16 10 012 A	<b>686008</b>	12
		16A 1 NO	24	12	1	CTX + R 16 10 024 A	<b>686009</b>	12
		16A 1 NO	48	24	1	CTX + R 16 10 048 A	<b>686010</b>	12
		16A 1 NO	115	48	1	CTX + R 16 10 115 A	<b>686011</b>	12
		16A 1 NO	230	115	1	CTX + R 16 10 230 A	<b>686013</b>	12
		16A 1 NO	230/60Hz	-	1	CTX + R 16 10 23060	<b>686012</b>	12
		16A 1 NO	240	120	1	CTX + R 16 10 240 A	<b>686014</b>	12
	14 12 11	16A 1 CO	8	-	1	CTX + R 16 1 008 A	<b>686000</b>	12
		16A 1 CO	12	6	1	CTX + R 16 1 012 A	<b>686001</b>	12
		16A 1 CO	24	12	1	CTX + R 16 1 024 A	<b>686002</b>	12
		16A 1 CO	48	24	1	CTX + R 16 1 048 A	<b>686003</b>	12
		16A 1 CO	115	48	1	CTX + R 16 1 115 A	<b>686004</b>	12
		16A 1 CO	230	115	1	CTX + R 16 1 230 A	<b>686005</b>	12
		16A 1 CO	240	120	1	CTX + R 16 1 240 A	<b>686006</b>	12
	4 2 3 1	16A 2 NO	8	-	1	CTX + R 16 20 008 A	<b>686036</b>	12
		16A 2 NO	12	6	1	CTX + R 16 20 012 A	<b>686037</b>	12
		16A 2 NO	24	12	1	CTX + R 16 20 024 A	<b>686038</b>	12
		16A 2 NO	48	24	1	CTX + R 16 20 048 A	<b>686039</b>	12
		16A 2 NO	115	48	1	CTX + R 16 20 115 A	<b>686040</b>	12
		16A 2 NO	230	115	1	CTX + R 16 20 230 A	<b>686042</b>	12
		16A 2 NO	230/60Hz	-	1	CTX + R 16 20 23060	<b>686041</b>	12
		16A 2 NO	240	120	1	CTX + R 16 20 240 A	<b>686043</b>	12
			4 2 3 1	16A 1 NO 1 NC	8	-	1	CTX + R 16 11 008 A
16A 1 NO 1 NC	12			6	1	CTX + R 16 11 012 A	<b>686016</b>	12
16A 1 NO 1 NC	24			12	1	CTX + R 16 11 024 A	<b>686017</b>	12
16A 1 NO 1 NC	48			24	1	CTX + R 16 11 048 A	<b>686018</b>	12
16A 1 NO 1 NC	115			48	1	CTX + R 16 11 115 A	<b>686019</b>	12
16A 1 NO 1 NC	230			115	1	CTX + R 16 11 230 A	<b>686021</b>	12
16A 1 NO 1 NC	230/60Hz			-	1	CTX + R 16 11 23060	<b>686020</b>	12
16A 1 NO 1 NC	240			120	1	CTX + R 16 11 240 A	<b>686022</b>	12
	24 22 14 12 21 11			16A 2 CO	8	-	1	CTX + R 16 2 008 A
		16A 2 CO	12	6	1	CTX + R 16 2 012 A	<b>686024</b>	12
		16A 2 CO	24	12	1	CTX + R 16 2 024 A	<b>686026</b>	12
		16A 2 CO	48	24	1	CTX + R 16 2 048 A	<b>686028</b>	12
		16A 2 CO	115	48	1	CTX + R 16 2 115 A	<b>686030</b>	12
		16A 2 CO	230	115	1	CTX + R 16 2 230 A	<b>686032</b>	12
		16A 2 CO	240	120	1	CTX + R 16 2 240 A	<b>686034</b>	12
			6 4 2 5 3 1	16A 3 NO	12	6	2	CTX + R 16 30 012 A
16A 3 NO	24			12	2	CTX + R 16 30 024 A	<b>686051</b>	6
16A 3 NO	48			24	2	CTX + R 16 30 048 A	<b>686052</b>	6
16A 3 NO	230			115	2	CTX + R 16 30 230 A	<b>686053</b>	6
16A 3 NO	230/60Hz			-	2	CTX + R 16 30 23060	<b>686054</b>	6
	8 6 4 2 7 5 3 1	16A 4 NO	8	-	2	CTX + R 16 40 008 A	<b>686025</b>	6
		16A 4 NO	12	6	2	CTX + R 16 40 012 A	<b>686060</b>	6
		16A 4 NO	24	12	2	CTX + R 16 40 024 A	<b>686061</b>	6
		16A 4 NO	48	24	2	CTX + R 16 40 048 A	<b>686062</b>	6
		16A 4 NO	230	115	2	CTX + R 16 40 230 A	<b>686064</b>	6
		16A 4 NO	230/60Hz	-	2	CTX + R 16 40 23060	<b>686063</b>	6
		16A 4 NO	240	120	2	CTX + R 16 40 240 A	<b>686065</b>	6
			44 42 34 32 24 22 14 12 41 31 21 11	16A 4 CO	12	6	2	CTX + R 16 4 012 A
16A 4 CO	24			12	2	CTX + R 16 4 024 A	<b>686055</b>	6
16A 4 CO	48			24	2	CTX + R 16 4 048 A	<b>686056</b>	6
16A 4 CO	115			48	2	CTX + R 16 4 115 A	<b>686057</b>	6
16A 4 CO	230			115	2	CTX + R 16 4 230 A	<b>686058</b>	6
16A 4 CO	240			120	2	CTX + R 16 4 240 A	<b>686059</b>	6
	8 6 4 2 7 5 3 1			16A 2 NO 2 NC	8	-	2	CTX + R 16 22 008 A
		16A 2 NO 2 NC	12	6	2	CTX + R 16 22 012 A	<b>686044</b>	6
		16A 2 NO 2 NC	24	12	2	CTX + R 16 22 024 A	<b>686045</b>	6
		16A 2 NO 2 NC	48	24	2	CTX + R 16 22 048 A	<b>686046</b>	6
		16A 2 NO 2 NC	230	115	2	CTX + R 16 22 230 A	<b>686048</b>	6
		16A 2 NO 2 NC	230/60Hz	-	2	CTX + R 16 22 23060	<b>686047</b>	6
		16A 2 NO 2 NC	240	120	2	CTX + R 16 22 240 A	<b>686049</b>	6

Terminal identification, see page D.41

Contax R

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B

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D

E

F

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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.44

New



## Performance

			PLS +				PLS + C <sup>(4)</sup>		
			PLS + 16	PLS + 32	PLS + SA & SB	PLS + PU 16	PLS + C 16	PLS + C 32	
<b>Rated current (acc. to IEC 669-2-3)</b>									
250VAC (1 & 2 pole) / 400VAC (3 & 4 pole)			A	16	32	16	16	32	
Direct Current (at 30 VDC)			A	16	16	16	16	16	
Number of poles				1 → 4	1 → 4	2	1 → 4	1 → 3	
<b>Contacts</b>	NO			1 → 4	1 → 4	2	1 → 4	1 → 3	
	Changeover ("m")			1 → 4	-	-	1 → 4	1 → 3	
	NO + NC			1+1 / 2+2	-	-	1+1 / 2+2	-	
<b>Width (in 17.8mm DIN modules)</b>									
	1 P	Mod.	1	1	-	1	1	1	
	2 P	Mod.	1	1	1	1	1½	1½	
	3 P	Mod.	2	2	-	2	2	2	
	4 P	Mod.	2	2	-	2	-	-	
<b>Coil specifications</b>									
Supply voltage : DC/AC ratio <sup>(1)</sup>				0.5 / 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	90-110	
Coil pick-up power (AC)			1P & 2P	VA	14.5	16.0	14.5	4.8	14.5
			3P & 4P	VA	14.5	16.0	-	8.0	16.0
Coil power loss - AC			1P & 2P	VA	11.0	11.5	11.0	3.2	11.0
			3P & 4P	VA	11.0	11.5	-	6.0	11.0
Coil power loss - DC			1P & 2P	W	7.5	8.0	7.5	2.9	12.5
			3P & 4P	W	7.5	8.0	-	5.4	14.5
Maximum coil holding voltage time				<sup>(2)</sup>	<sup>(2)</sup>	<sup>(2)</sup>	unlimited	<sup>(2)</sup>	<sup>(2)</sup>
<b>Impulse times</b>									
Minimum impulse time (under Un)			sec.	0.050	0.050	0.050	0.050	0.100	0.100
Minimum impulse time (90% Un)			sec.	0.100	0.100	0.100	0.100	0.100	0.100
Minimum time between impulses			sec.	0.150	0.150	0.150	0.150	0.150	0.150
Maximum number of impulses per mn				250	250	250	250	250	250
<b>Lifetime (in number of operations)<sup>(3)</sup></b>									
Electrical (in AC-1 - At full load) <sup>(4)</sup>				4 × 10 <sup>5</sup>	3 × 10 <sup>5</sup>	3 × 10 <sup>5</sup>	2 × 10 <sup>5</sup>	4 × 10 <sup>5</sup>	3 × 10 <sup>5</sup>
Mechanical				2 × 10 <sup>6</sup>	2 × 10 <sup>6</sup>	2 × 10 <sup>6</sup>	1 × 10 <sup>6</sup>	2 × 10 <sup>6</sup>	2 × 10 <sup>6</sup>
<b>Load specifications</b>									
Maximum load AC-1 per phase			A	20	32	20	20	20	32
Maximum load DC (30VDC)			A	16	16	16	16	16	16
Minimum load per phase (under 5V)			W	2	2	2	2	2	2
Short-circuit fuse protection			A	20	32	20	20	20	32
<b>Maximum lamp load (10<sup>3</sup> operations/h)</b>									
Incandescence & halogen (40 to 200 W lamps)			W	3,000	4,000	3,000	3,000	3,000	4,000
Fluorescence, compensated (cos φ = 0.9)			Serial compensation	VA	3,000	4,000	3,000	3,000	4,000
			Parallel compensation	VA	2,500	3,200	2,500	2,500	3,200
Fluorescence, non compensated (cos φ = 0.5)			VA	1,800	2,200	1,800	1,800	1,800	2,200
<b>Maximum number of push-buttons</b>									
Non illuminated push-buttons				unlimited	unlimited	unlimited	unlimited	unlimited	unlimited
Luminous push-buttons (0.6mA)				unlimited	unlimited	unlimited	unlimited	unlimited	unlimited
4 terminals				unlimited	unlimited	unlimited	unlimited	unlimited	unlimited
3 terminals			Without compensator	8	8	8	6	8	8
			1 compensator	18	18	18	15	27	27
			2 compensators	45	45	45	38	43	43
<b>General specifications</b>									
Power contact add-on				yes	yes	no	no	no	no
Auxiliary contact add-on (PLS / CTX R)				yes	yes	no	yes	yes	yes
Need for spacer <sup>(2)</sup>				yes	yes	yes	no	yes	yes
DIN rail mounting				yes	yes	yes	yes	yes	yes
2-position DIN rail lock				yes	yes	yes	yes	yes	yes
2-position handle				yes	yes	no	yes	yes	yes
Indicator of contact position				yes	yes	yes	yes	yes	yes
Clamping terminals				yes	yes	yes	yes	yes	yes
Unlosable screws				yes	yes	yes	yes	yes	yes
Sealable terminals (coil and load)				yes	yes	yes	yes	yes	yes
Cable cross section (Ø min/max)			Coil	mm <sup>2</sup>	1.5 / 10	1.5 / 10	1.5 / 10	1.5 / 10	1.5 / 10
			Load 1P-3P & 4P	mm <sup>2</sup>	1.5 / 10	1.5 / 10	1.5 / 10	1.5 / 10	1.5 / 10
			Load 2P	mm <sup>2</sup>	1.5 / 10	1.5 / 10	1.5 / 10	1.5 / 6	1.5 / 10
Maximum torque on terminals			Nm	1	1	1	1	1	1
Ambient temperature at installation point (min./max.)			°C	-20 / +45	-20 / +45	-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 - Impulse switches

Comfort functions

A

B

C

D

E

F

G

X

		Nominal current	Contact combination	Coil voltage AC	Coil voltage DC	No. of Modules	Cat. No.	Ref. No.	Pack.		
	<b>Impulse switches</b>	16A	1NO	8	-	1	PLS + 16 10 008 A	686078	12		
		16A	1NO	12	6	1	PLS + 16 10 012 A	686079	12		
		16A	1NO	24	12	1	PLS + 16 10 024 A	686080	12		
		16A	1NO	48	24	1	PLS + 16 10 048 A	686081	12		
		16A	1NO	115	48	1	PLS + 16 10 115 A	686082	12		
		16A	1NO	230	115	1	PLS + 16 10 230 A	686083	12		
		16A	1NO	230/60Hz	-	1	PLS + 16 10 23060	686284	12		
		16A	1NO	240	120	1	PLS + 16 10 240 A	686084	12		
				16A	1CO	8	-	1	PLS + 16 1 008 A	686071	12
				16A	1CO	12	6	1	PLS + 16 1 012 A	686072	12
16A	1CO			24	12	1	PLS + 16 1 024 A	686073	12		
16A	1CO			48	24	1	PLS + 16 1 048 A	686074	12		
16A	1CO			115	48	1	PLS + 16 1 115 A	686075	12		
16A	1CO			230	115	1	PLS + 16 1 230 A	686076	12		
16A	1CO			240	120	1	PLS + 16 1 240 A	686077	12		
				16A	2NO	8	-	1	PLS + 16 20 008 A	686102	12
		16A	2NO	12	6	1	PLS + 16 20 012 A	686103	12		
		16A	2NO	24	12	1	PLS + 16 20 024 A	686104	12		
		16A	2NO	48	24	1	PLS + 16 20 048 A	686105	12		
		16A	2NO	115	48	1	PLS + 16 20 115 A	686106	12		
		16A	2NO	230	115	1	PLS + 16 20 230 A	686108	12		
		16A	2NO	230/60Hz	-	1	PLS + 16 20 23060	686107	12		
		16A	2NO	240	120	1	PLS + 16 20 240 A	686109	12		
				16A	1NO 1NC	8	-	1	PLS + 16 11 008 A	686086	12
				16A	1NO 1NC	12	6	1	PLS + 16 11 012 A	686087	12
16A	1NO 1NC			24	12	1	PLS + 16 11 024 A	686088	12		
16A	1NO 1NC			48	24	1	PLS + 16 11 048 A	686089	12		
16A	1NO 1NC			115	48	1	PLS + 16 11 115 A	686090	12		
16A	1NO 1NC			230	115	1	PLS + 16 11 230 A	686091	12		
16A	1NO 1NC			230/60Hz	-	1	PLS + 16 11 23060	686285	12		
16A	1NO 1NC			240	120	1	PLS + 16 11 240 A	686092	12		
		16A	2 CO	8	-	1	PLS + 16 2 008 A	686093	12		
		16A	2 CO	12	6	1	PLS + 16 2 012 A	686094	12		
		16A	2 CO	24	12	1	PLS + 16 2 024 A	686095	12		
		16A	2 CO	48	24	1	PLS + 16 2 048 A	686096	12		
		16A	2 CO	115	48	1	PLS + 16 2 115 A	686097	12		
		16A	2 CO	230	115	1	PLS + 16 2 230 A	686098	12		
		16A	2 CO	240	120	1	PLS + 16 2 240 A	686099	12		
				32A	1NO	8	-	1	PLS + 32 10 008 A	686110	12
32A	1NO			12	6	1	PLS + 32 10 012 A	686111	12		
32A	1NO			24	12	1	PLS + 32 10 024 A	686112	12		
32A	1NO			48	24	1	PLS + 32 10 048 A	686113	12		
32A	1NO			115	48	1	PLS + 32 10 115 A	686114	12		
32A	1NO			230	115	1	PLS + 32 10 230 A	686115	12		
32A	1NO			240	120	1	PLS + 32 10 240 A	686116	12		
				32A	2NO	8	-	1	PLS + 32 20 008 A	686118	12
		32A	2NO	12	6	1	PLS + 32 20 012 A	686119	12		
		32A	2NO	24	12	1	PLS + 32 20 024 A	686120	12		
		32A	2NO	48	24	1	PLS + 32 20 048 A	686121	12		
		32A	2NO	115	48	1	PLS + 32 20 115 A	686122	12		
		32A	2NO	230	115	1	PLS + 32 20 230 A	686123	12		
		32A	2NO	240	120	1	PLS + 32 20 240 A	686124	12		
			<b>Add-on power contact</b>	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		
	<b>Step by step multi circuit</b>			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		
			<b>All-in central command</b>	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.40



New



**Pulsar S - Impulse switches**

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

Terminal identification, see page D.40



## 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


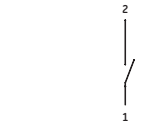



- Designed for a real 3.500W switching capacity.
- User adjustable time.
- Electromechanical contact and electronic timer with manual override off or on possible at all time for PLTS + M.
- 3 or 4 wire wiring possible.
- Device for pre-extinction warning adjustable from 20 to 40 sec only for incandescence 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.
 <p>Staircase switch</p> 	16	1NO	230	-	1	PLTS + M	686216	12
 <p>Dimmer for staircase switch</p>	16	3500W	230	-	1	PLTS + D	686214	12
To be used only in combination with the staircase switch. Wiring diagram on page D.17								
 <p>Time-delay impulse relay</p> 	16	1NO	230	-	1	PLTS + TD	666311	12

Terminal identification, see page D.41

More technical data ● website

Dimensions ● pg D.45

New

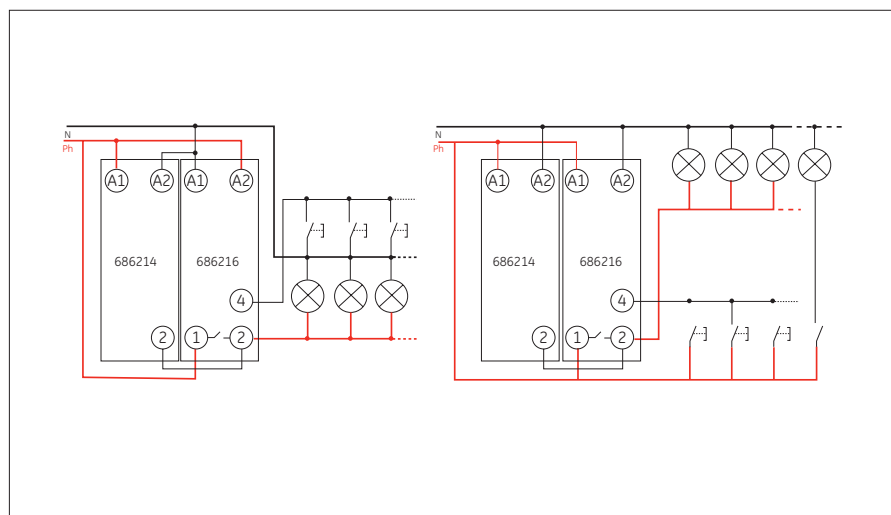


## Performance

		PLTS + TD	PLTS + M	PLTS + D
<b>Rated current (acc. IEC 609-2-3)</b>	A	16	16	16
<b>Width</b> (in number of DIN-modules)		1	1	1
<b>Contacts</b>	NO	1	1	1
<b>Time range</b>	1 function	1mn / 20mn	30s / 15mn	20s / 40s
<b>Supply voltage</b>	230V - 50/60 Hz	yes	yes	yes
	24VAC/24VDC	on request	on request	on request
Supply voltage range (in % of Un)	%	90-110	90-110	90-110
<b>Rated power consumption</b>				
Closed circuit current	230V VA	4.0	4.0	4.0
Working current (ignition & running)	230V VA	4.0	4.0	4.0
<b>Light types</b>				
Incandescent lamps		yes	yes	yes
Fluorescent lamps		yes	yes	no
<b>Switching capacity</b>				
AC-5b Incandescent lamps (40 to 200 W lamps)	W	3,500	3,500	3,500
Fluorescence compensated (cos $\Phi = 0.9$ )				
	Serial compensation W	3,500	3,500	n/a
	Parallel compensation VA	2,500	2,500	n/a
<b>Lifetime</b> (in number of operations) <sup>(1)</sup>				
Electrical (AC-1)	at 1,200 W	$2 \times 10^6$	$2 \times 10^6$	$2 \times 10^6$
	at full load	$1 \times 10^6$	$3 \times 10^5$	$3 \times 10^5$
Mechanical		$1 \times 10^7$	$1 \times 10^7$	$1 \times 10^7$
<b>Max. number of push-buttons</b>				
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 $\mu$ F) <sup>(2)</sup>	45	300	300
	2 compensators (2 x 2 $\mu$ F)	59	600	600
<b>General specifications</b>				
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
Resistant 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, unloosable screws		yes	yes	yes
Cable cross section ( $\emptyset$ min./max)	Coil mm <sup>2</sup>	1.5 / 10	1.5 / 10	1.5 / 10
	Load mm <sup>2</sup>	1.5 / 10	1.5 / 10	1.5 / 10
Maximum torque on terminals	N x m	1	1	1
Ambient temperature at installation point (min./max.)	°C	-20 / +45	-20 / +45	-20 / +45

(1) cycle = 2 operations per pole (closing + opening)  
 (2) See page D.15: code 686174

## Wiring diagram



Pulsar TS

A

B

C

D

E

F

G

X



New



## 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 +
<b>Rated current (acc. IEC 669-2-3)</b>	A	1 (static)	16
<b>Width</b> (number of DIN-modules)		1	1
<b>Contacts</b>	Changeover	-	1
	Static input	1	-
<b>Time range</b>	1 function	0.1s./ 60s.	1s / 60mn
	Multifunction	no	0.1s. / 20h.
<b>Supply voltage</b>	230/240V - 50/60 Hz	yes	yes
	24VAC/24VDC	yes	yes
Supply voltage range (in % of Un)	%	90-110	90-110
<b>Rated power consumption</b>			
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
<b>Light types</b>			
Incandescent lamps		yes	yes
Fluorescent lamps		yes	yes
<b>Switching capacity</b>			
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
<b>Lifetime</b> (in number of operations) <sup>(1)</sup>			
Electrical (AC-1)	at 1,200 W	2 x 10 <sup>6</sup>	2 x 10 <sup>6</sup>
	at full load	1 x 10 <sup>6</sup>	3 x 10 <sup>5</sup>
Mechanical		1 x 10 <sup>7</sup>	1 x 10 <sup>7</sup>
<b>General specifications</b>			
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 <sup>2</sup>	1.5 / 10	1.5 / 10
	Load mm <sup>2</sup>	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.45



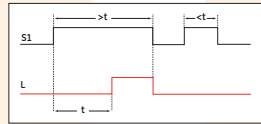
**Pulsar T - Time Relays**



Delay on



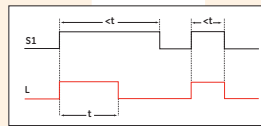
Nominal current	Contact combination	Coil voltage AC	Coil voltage DC	No. of Modules	Cat. No.	Ref. No.	Pack.
<b>Operating scale from 1 sec. up to 60 seconds</b>							
16 A	1 CO	24	24	1	PLT + ON 024U 1-60S	686207	12
16 A	1 CO	230	-	1	PLT + ON 230A 1-60S	686209	12
<b>Operating scale from 1 min. up to 60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



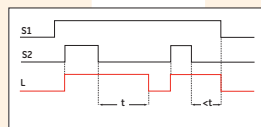
<b>Operating scale from 1 sec. up to 60 seconds</b>							
16 A	1 CO	24	24	1	PLT + PS 024U 1-60S	686211	12
16 A	1 CO	230	-	1	PLT + PS 230A 1-60S	686213	12
<b>Operating scale from 1 min. up to 60 minutes</b>							
16 A	1 CO	24	24	1	PLT + PS 024U 1-60M	686210	12
16 A	1 CO	230	-	1	PLT + PS 230A 1-60M	686212	12



Delay off



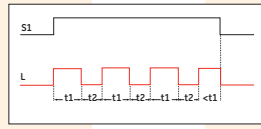
<b>Operating scale from 1 sec. up to 60 seconds</b>							
16 A	1 CO	24	24	1	PLT + OF 024U 1-60S	686203	12
16 A	1 CO	230	-	1	PLT + OF 230A 1-60S	686205	12
<b>Operating scale from 1 min. up to 60 minutes</b>							
16 A	1 CO	24	24	1	PLT + OF 024U 1-60M	686202	12
16 A	1 CO	230	-	1	PLT + OF 230A 1-60M	686204	12



Asymmetrical flasher



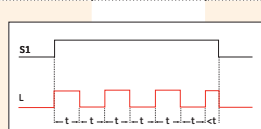
1 A	1 NO	230	-	1	PLT + AS 230A	686195	12
-----	------	-----	---	---	---------------	--------	----



Symmetrical flasher



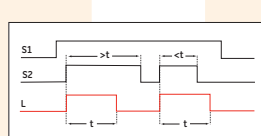
16 A	1 CO	24	24	1	PLT + SS 024U	686218	6
16 A	1 CO	230	-	1	PLT + SS 230A	686219	6



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



<b>Operating scale from 0.1 sec. up to 60 minutes</b>							
16 A	1 CO	24	24	1	PLT + MF 024U 0.1S-60M <sup>(1)</sup>	686198*	1/6
16 A	1 CO	230	-	1	PLT + MF 230A 0.1S-60M <sup>(1)</sup>	686200*	1/6

<b>Operating scale from 30 sec. up to 20 hours</b>							
16 A	1 CO	24	24	1	PLT + MF 024U 30S-20H <sup>(1)</sup>	686199*	1/6
16 A	1 CO	230	-	1	PLT + MF 230A 30S-20H <sup>(1)</sup>	686201*	1/6

(1) PLT + MF = Multifunction, including functions PLT + ON, PLT + OF and PLT + PS. Terminal identification, see page D.41

Pulsar T

A

B

C

D

E

F

G

X

**New**





## 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.

### Function

Pre-programmed switching of all kinds of electrical devices.

### Standards

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





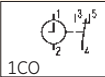


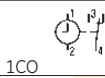



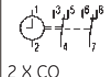

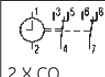
### Performance

	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
<b>Contacts</b>						
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
<b>Screws</b>	Pozidriv 1	Pozidriv 1	Pozidriv 1	Pozidriv 1	Pozidriv 1	Pozidriv 1
Terminal capacity: min	1x0.5mm <sup>2</sup>	1x0.5mm <sup>2</sup>	1x0.5mm <sup>2</sup>	1x0.5mm <sup>2</sup>	1x0.5mm <sup>2</sup>	1x0.5mm <sup>2</sup>
max	1x6 or 2x2.5mm <sup>2</sup>	1x6 or 2x2.5mm <sup>2</sup>	1x6 or 2x2.5mm <sup>2</sup>	1x6 or 2x2.5mm <sup>2</sup>	1x6 or 2x2.5mm <sup>2</sup>	1x6 or 2x2.5mm <sup>2</sup>
<b>Clockwork</b>						
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 <sup>2</sup>	1x0.5mm <sup>2</sup>	1x0.5mm <sup>2</sup>	1x0.5mm <sup>2</sup>	1x0.5mm <sup>2</sup>	1x0.5mm <sup>2</sup>
max	1x6 or 2x2.5mm <sup>2</sup>	1x6 or 2x2.5mm <sup>2</sup>	1x6 or 2x2.5mm <sup>2</sup>	1x6 or 2x2.5mm <sup>2</sup>	1x6 or 2x2.5mm <sup>2</sup>	1x6 or 2x2.5mm <sup>2</sup>


More technical data ● website  
Dimensions ● pg D.46



### 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 precice automatic determination of the times for sunrise and sunset.

### Performance

	Galax 1, 2, 4 CO
<b>Contacts</b>	
Contact	Voltage-free changeover
Rated switching capacity	
- Resistive load	16A/250V
- Inductive load (cos φ = 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 <sup>2</sup>
max.	1mod-2.5mm <sup>2</sup> ; 2mod-4mm <sup>2</sup> ; 6mod-6mm <sup>2</sup>
<b>Clockwork</b>	
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 <sup>2</sup>
max.	1mod-2.5mm <sup>2</sup> ; 2mod-4mm <sup>2</sup> ; 6mod-6mm <sup>2</sup>

More technical data ● website








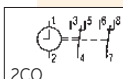

Dimensions ● pg D.46

**New**

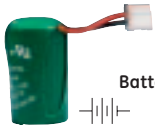







## Galax - Digital time switches

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
	Day/Week programmable	7x24h	1CO	16A/250V	220...240V	3yr	1min.	50	1	GLX Q 11 W 50 LS1	686530	1
		7x24h	1CO	16A/250V	220...240V	3yr	1min.	50	2	GLX Q 21 W 50 LS1 <sup>(2)</sup>	686532	1
		7x24h	2CO	16A/250V	220...240V	3yr	1min.	50	2	GLX Q 22 W 50 LS1 <sup>(2)</sup>	686533	1
		7x24h	1CO	16A/250V	220...240V	3yr	1min.	50	2	GLX Q 21 W 50C LS1 <sup>(2)</sup>	686534	1
		7x24h	1CO+1NO	16A/250V	220...240V	3yr	1min.	50	2	GLX Q 22 W 50C LS1 <sup>(2)</sup>	686535	1
										<ul style="list-style-type: none"> <li>Automatic summer time / winter time changeover</li> <li>Manual switch: FIX ON / FIX OFF</li> <li>Free weekday block formation</li> </ul>		
										<ul style="list-style-type: none"> <li>Non-volatile memory (EEPROM)</li> <li>Pulse and cycle function (only for 686534 and 686535)</li> <li>Random switching (only for 686534 and 686535)</li> </ul>		
	ASTRO/Week programmable (1)	-	1CO	16A/250V	220...240V	3yr	-	-	2	GLX Q 21 ASTRO LS1 <sup>(2)</sup>	680070	1
		7x24h	2CO	16A/250V	220...240V	3yr	1min.	50 <sup>(1)</sup>	2	GLX Q 22 ASTRO LS1 <sup>(2)</sup>	680073	1
										<ul style="list-style-type: none"> <li>ASTRO function (GLX Q 22 ASTRO also with weekly program)</li> <li>Automatic summer time / winter time changeover</li> <li>Manual switch: FIX ON / FIX OFF</li> </ul>		
										<ul style="list-style-type: none"> <li>Free weekday block formation</li> <li>Non-volatile memory (EEPROM)</li> </ul>		
	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
										<ul style="list-style-type: none"> <li>Daily, weekly programmes</li> <li>400 memory spaces</li> <li>Automatic summer time / winter time changeover</li> <li>Manual switch: FIX ON / FIX OFF</li> </ul>		
										<ul style="list-style-type: none"> <li>Free weekday block formation</li> <li>Non-volatile memory (EEPROM)</li> <li>Pulse and cycle function</li> <li>PC-supported program creation</li> </ul>		
	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
										<ul style="list-style-type: none"> <li>Daily, weekly and annual programmes</li> <li>400 memory spaces</li> <li>Automatic summer time / winter time changeover</li> <li>Manual switch: FIX ON / FIX OFF</li> <li>Free weekday block formation</li> </ul>		
										<ul style="list-style-type: none"> <li>Non-volatile memory (EEPROM)</li> <li>Pulse and cycle function</li> <li>PC-supported program creation</li> <li>Date-dependent switching programs</li> <li>DCF-77 antenna (to be ordered separately)</li> </ul>		

## 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

## 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.46

**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



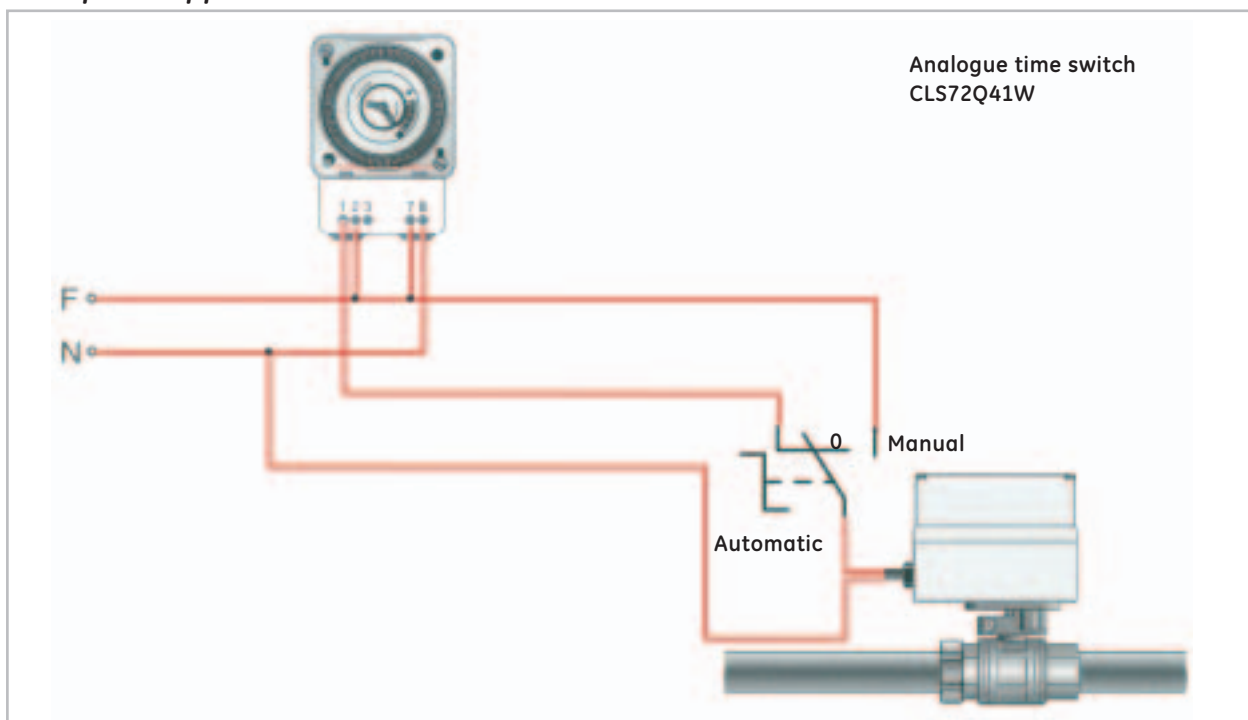
**72 X 72 Galax - Digital time switches**

	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.

### Standards

VDE 0632, VDE 0633,  
BS EN 60669-1




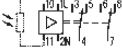
### Performance

	1 channel	2 channel	1 channel wall mounting
<b>Contacts</b>			
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 <sup>2</sup>	1x0.5 mm <sup>2</sup>	1x0.5 mm <sup>2</sup>
max	1x6 mm <sup>2</sup> or 2x2.5 mm <sup>2</sup>	1x6 mm <sup>2</sup> or 2x2.5 mm <sup>2</sup>	1x6 mm <sup>2</sup> or 2x2.5 mm <sup>2</sup>
<b>Light sensitive operating part</b>			
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 <sup>2</sup>	1x0.5 mm <sup>2</sup>	1x0.5 mm <sup>2</sup>
max	1x6 mm <sup>2</sup> or 2x2.5 mm <sup>2</sup>	1x6 mm <sup>2</sup> or 2x2.5 mm <sup>2</sup>	1x6 mm <sup>2</sup> or 2x2.5 mm <sup>2</sup>



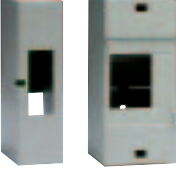
More technical data ● website  
Dimensions ● pg D.46



**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
	Surface mounting set					1	SMS 1	666100	1
						3	SMS 3	666101	1

Galax LSS

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## 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<sup>(1)</sup>



(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


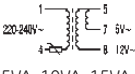
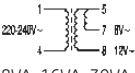










	Bell transformer	Safety transformer
Nominal primary voltage and frequency	230V 50Hz / 240V 60Hz	230V 50Hz / 240V 60Hz
Secondary voltage at nominal primary voltage	8 or 12V	12 or 24V
Maximum secondary voltage at zero load	1.5xUn sec.	1.05xUn sec.
Minimum secondary voltage at nominal load	0.85xUn sec.	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 <sup>2</sup>	1x1mm <sup>2</sup>
max	1x16mm <sup>2</sup> or 2x6mm <sup>2</sup>	1x16mm <sup>2</sup> or 2x6mm <sup>2</sup>

More technical data ● website

Dimensions ● pg D.47



Series T - Transformers

		Output power	Secondary voltages	Primary voltage	Number of modules	Cat. No.	Ref. No.	Pack.
 <p><b>Bell transformer</b></p> <p>220-240V~ 1 3 5V~ 7 8 12V~</p> <p>5VA, 10VA, 15VA</p>		5VA	8/12V	220..240V	2	TR B 5	<b>666638</b>	1
		10VA	8/12V	220..240V	2	TR B 10	<b>666636</b>	1
		15VA	8/12V	220..240V	2	TR B 15	<b>666637</b>	1
		8VA	12/24V	220..240V	2	TR B 8	<b>666650</b>	1
		16VA	12/24V	220..240V	2	TR B 16	<b>666651</b>	1
		30VA	12/24V	220..240V	2	TR B 30	<b>666652</b>	1
 <p><b>Bell transformer integrated on-off switch</b></p> <p>220-240V~ 1 5 8V~ 8</p>		8VA	8/12V	220..240V	2	TR B 8S	<b>666640</b>	1
 <p><b>Safety transformer</b></p> <p>220-240V~ 1 11 13 15V~ 14 16V~</p> 	15VA	12/24V	220..240V	3	TR S 15	<b>666641</b>	1	
		25VA	12/24V	220..240V	4	TR S 25	<b>666642</b>	1
		40VA	12/24V	220..240V	4	TR S 40	<b>666643</b>	1
 <p>220-240V~ 5 17 19 12V~ 20 24V~</p> 	63VA	12/24V	220..240V	6	TR S 63	<b>666644</b>	20	
 <p><b>Buzzers</b></p> <p>220-240V~ 1 4 12V~</p> 			220..240V	1	BU 230	<b>666629</b>	12	
			12V	1	BU 12	<b>666630</b>	12	
 <p><b>Bells</b></p> <p>220-240V~ 1 4 12V~</p> 			220..240V	1	BE 230	<b>666632</b>	12	
			12V	1	BE 12	<b>666633</b>	12	

Series T

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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.

### 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

### 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.

### Performance









	Analogue instruments	Digital instruments	Net analyser
<b>Readout</b>	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, duration of 6 hours	0.35 mm at 10/55Hz on 3 axes, duration of 6 hours	0.35 mm at 10/55Hz on 3 axes, 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 <sup>2</sup>	1x1 mm <sup>2</sup>	1x1 mm <sup>2</sup>
max	1x16 mm <sup>2</sup> or 2x6 mm <sup>2</sup>	1x16 mm <sup>2</sup> or 2x6 mm <sup>2</sup>	1x16 mm <sup>2</sup> or 2x6 mm <sup>2</sup>

More technical data ● website  
Dimensions ● pg D.48





Series MT - Analogue measurement instruments

	Scale	Accuracy	Number of phases	Number of modules	Cat. No.	Ref. No.	Pack.
 	300V	1.5	1	3	MT AV 300	666417	1
	500V	1.5	1	3	MT AV 500	666418	1
 	-	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
 	45 ... 65Hz	0.5	1	3	MT AF	666415	1
 	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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Series MT - Digital measurement instruments

Comfort functions

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

















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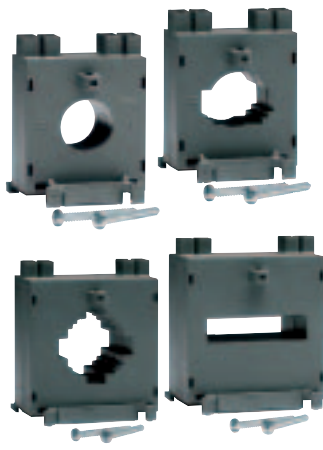
		Scale	Accuracy	Number of phases	Number of modules	Cat. No.	Ref. No.	Pack.	
	Volt meter 	500V	0.5% ± 2 dig	1	2	MT DV 500 2M	666670	1	
	Ammeter 	5A	0.5% ± 2 dig	1	2	MT DA 5 2M	666671	1	
	Ammeter and Voltmeter 	5A	0.5% ± 2 dig	1	2	MT DA DV 52M	666674	1	
	Frequency meter 	40 ... 80Hz	0.3% ± 1 dig	1	2	MT DF 2M	666673	1	
	Watt meter 	9,99 W 999 W	1% ± 2 dig 1% ± 2 dig	1 3	2 2	MT DW 110 MT DW 11000	667214 667215	1 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	MTDNPRI1	666448	1
	Multifunction relays	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	MTDNPRI3	666449	1
	Energy meter 	5(30)A 5(32)A	2 2	1 1	1 2	MT DE 1 1M MT DE 1I 32A	666675 666434	1 1	
	Energy meter	5A	2	3+N	4	MT DE 3N15A	666452	1	
	Energy meter	5A	2	3	4	MT DE 3I O	666676 <sup>(1)</sup>	1	
	Energy meter	63A 63A	2 2	1 3+N	2 4	MT DE 1I 63A MT DE 3N I 63A	666450 666631	1 1	
	Net analyser	5A	1	3(+N)	6	MT DN 3L	666451	1 <sup>(2)</sup>	
	Net analyser								
	Digital-multimeter	5A (x/5A)	1.5	3+N	4	MT DN 3R 4M	666453	1	
	Digital-multimeter								

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

New



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

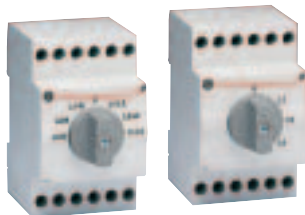


RS485 to RS232 signal converter

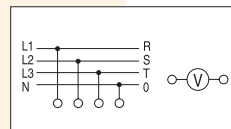
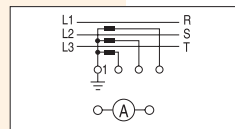


	Number of phases	Number of modules	Cat. No.	Ref. No.	Pack.
	-	2	MT RSC	666404	1

Selector switch



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



Series MT

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### 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 exemple, 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.

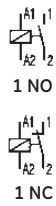
### Standard/Marking

IEC 61095

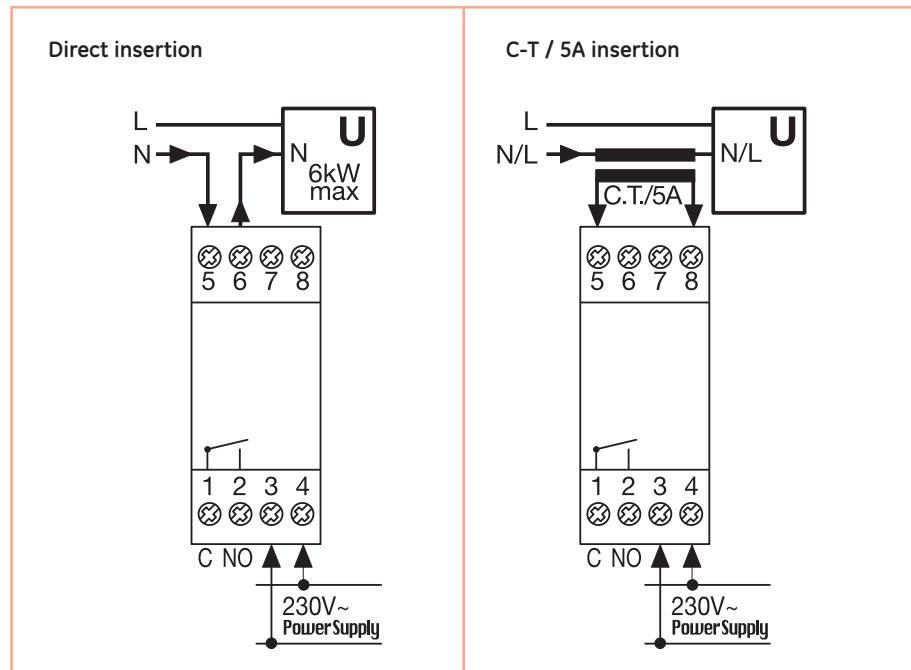
### Performance

	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 <sup>2</sup> or 1x6mm <sup>2</sup>
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



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

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## 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  $\mu$ 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  $\mu$ 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.

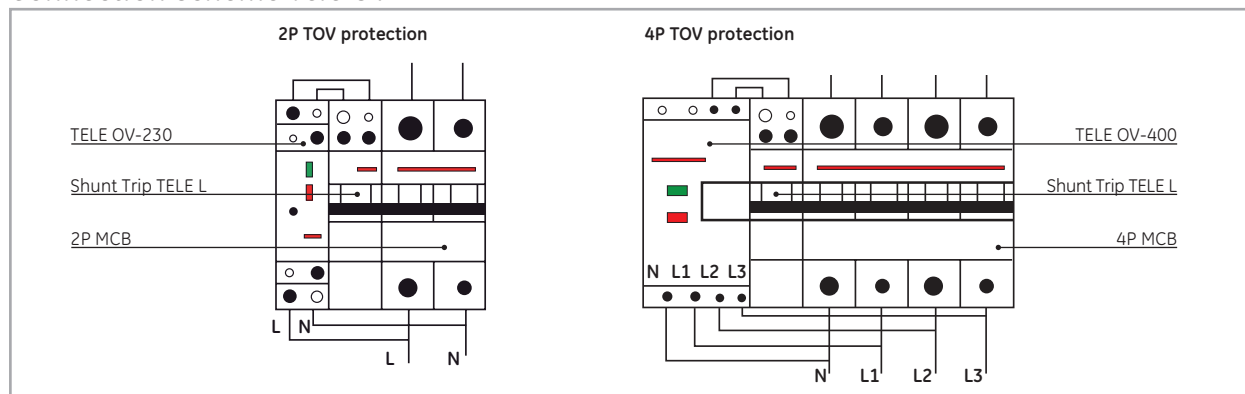
### Maximum continuous operating voltage Umax (Uc)

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 $\mu$ s	10/350 $\mu$ s and 8/20 $\mu$ s	8/20 $\mu$ s	8/20 $\mu$ s	8/20 $\mu$ s	8/20 $\mu$ 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 <sup>2</sup>	6mm <sup>2</sup>	6mm <sup>2</sup>	6mm <sup>2</sup>	6mm <sup>2</sup>	6mm <sup>2</sup>
max (flexible/rigid)	35/50mm <sup>2</sup>	25/35mm <sup>2</sup>	25/50mm <sup>2</sup>	25/50mm <sup>2</sup>	25/35mm <sup>2</sup>	25/35mm <sup>2</sup>

## Connection scheme Tele OV




**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		Iimp	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		Iimp Class I/Class II	In Class II	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 / 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
		7,5kA / 65kA	20kA	1300V	-	-	275V	1P	-	1	SA BLOCK I&II 65	667517	1
		12kA / 65kA	20kA	1500V	-	-	275V	1P	-	1	SA BLOCK I&II 65N	667518	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)		Iimp	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 PLUGIN 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	
	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	
	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	
	TT, TN-S	<b>Common and differential mode protection</b>												
		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	
		<b>Common mode protection</b>												
		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			

Comfort functions

A

B

C

D

E

F

G


X

New






### 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	15kA	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 <sub>max</sub>	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
	20kA	10kA	600V	-	-	230V	3GHz	BNC	-	SA TV	667510	1

### Accessories

Class II - Replacement mod. for plug-in versions	I <sub>max</sub>	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 <sub>max</sub>	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)<sup>(1)</sup>

Temporally overvoltage protection	In	Ua L-N	Tripping time (Ua) (400V)	Un	No. of poles	No. modules	Cat. No.	Ref. No.	Pack
	MCB's	254V	<4s <0,5s	230V	2	1	TELE OV 230	667485	1
	MCB's	254V	<4s <0,5s	400V	4	2	TELE OV 400	667493	1

### Busbars

No. of poles	I(A)	Cat. No.	Ref. No.	Pack
2P	80	EV-G.1.2.80-90°	624993	20
3P	80	EV-G.1.3.80-90°	644893	20
4P	80	EV-G.1.4.80-90°	568106	20
8P	80	EV-G.1.8.80-90°	644897	20

(1) Connection scheme Tele OV, see page D.37



New

Terminal capacity

Impulse switches - Pulsar S

Comfort functions

A

B

C

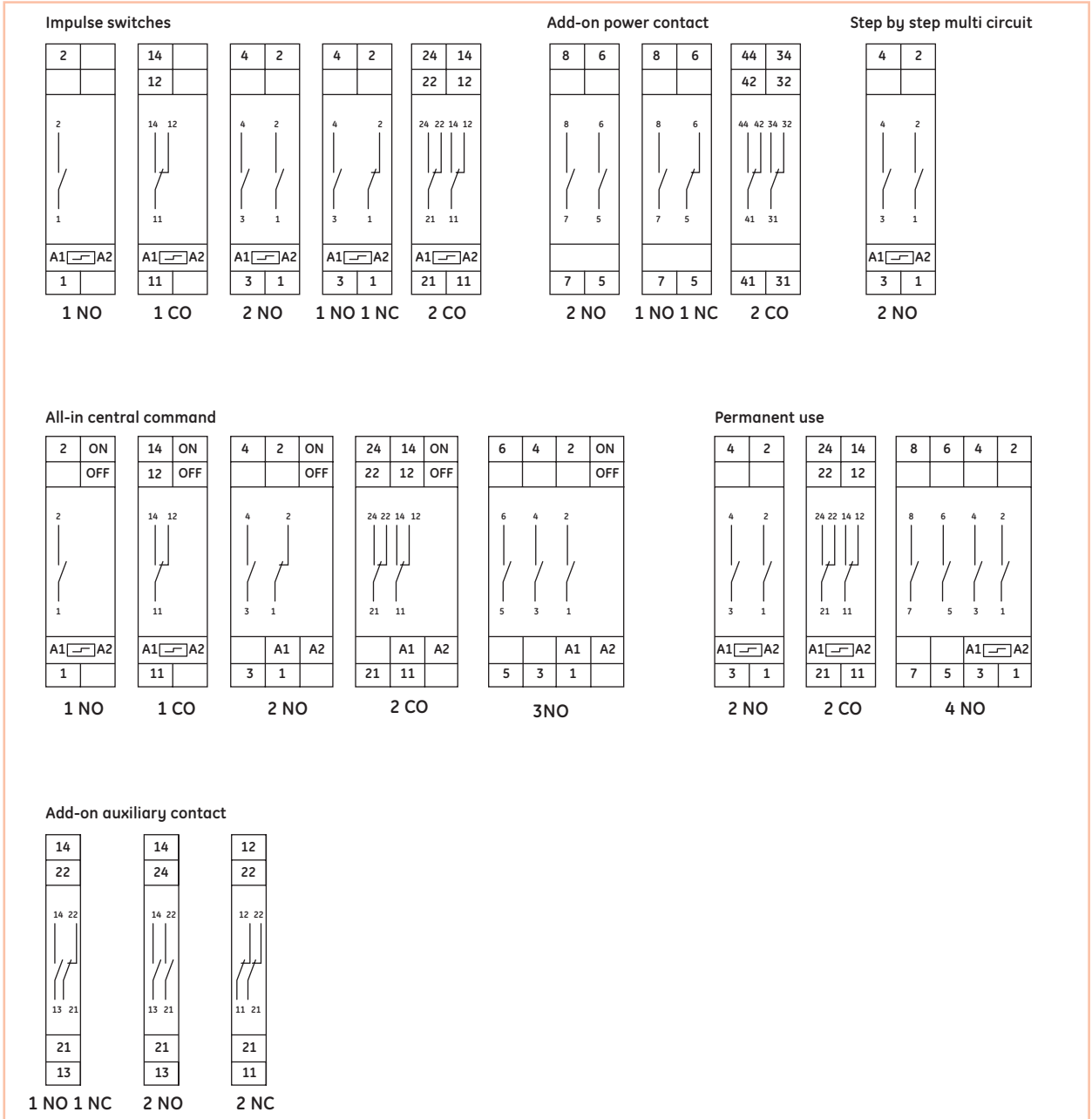
D

E

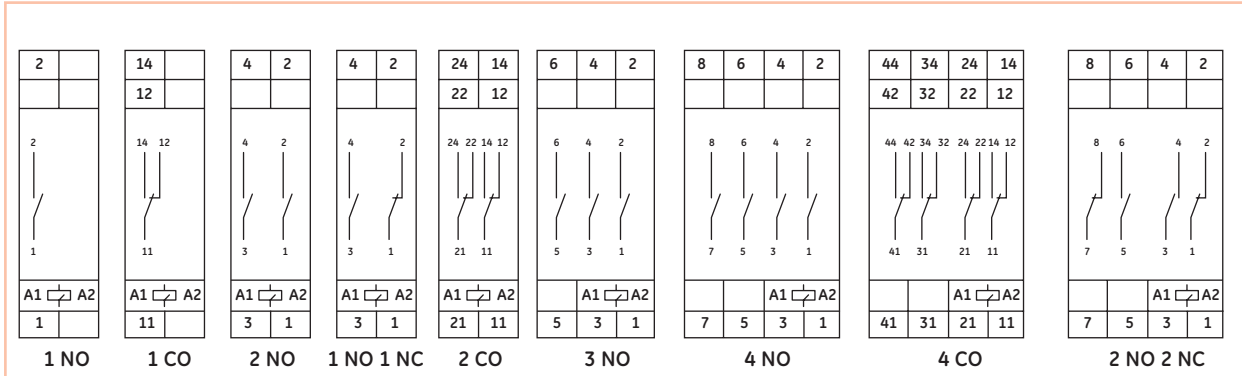
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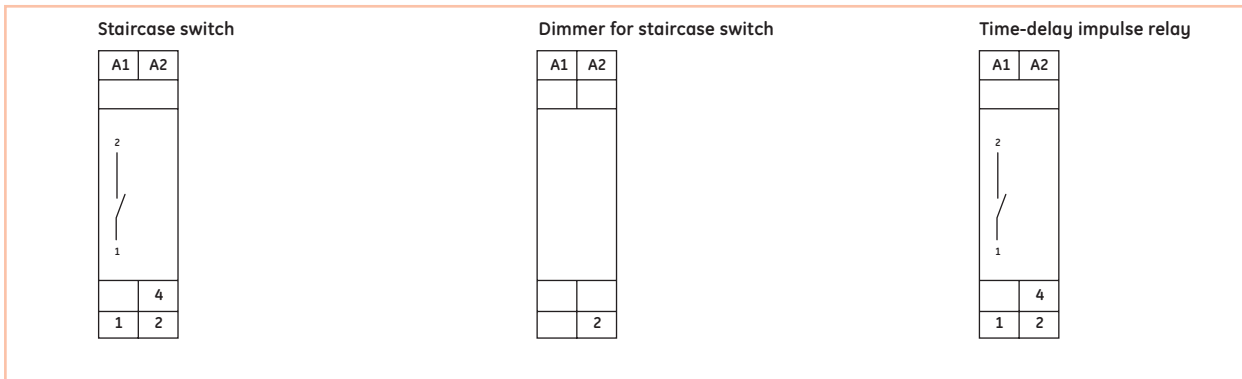
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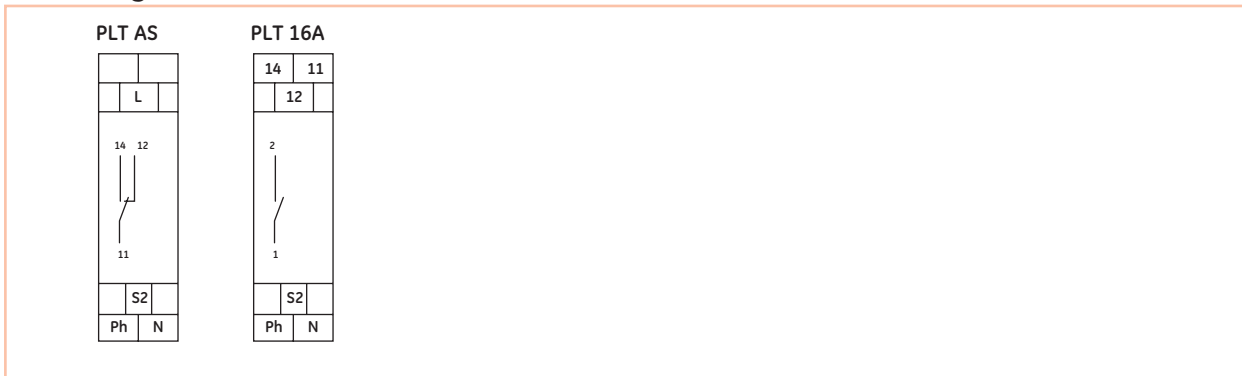
Relays - Contax R



Staircase switches - Pulsar TS



Time relays - Pulsar T



Pulsar

A

B

C

D

E

F

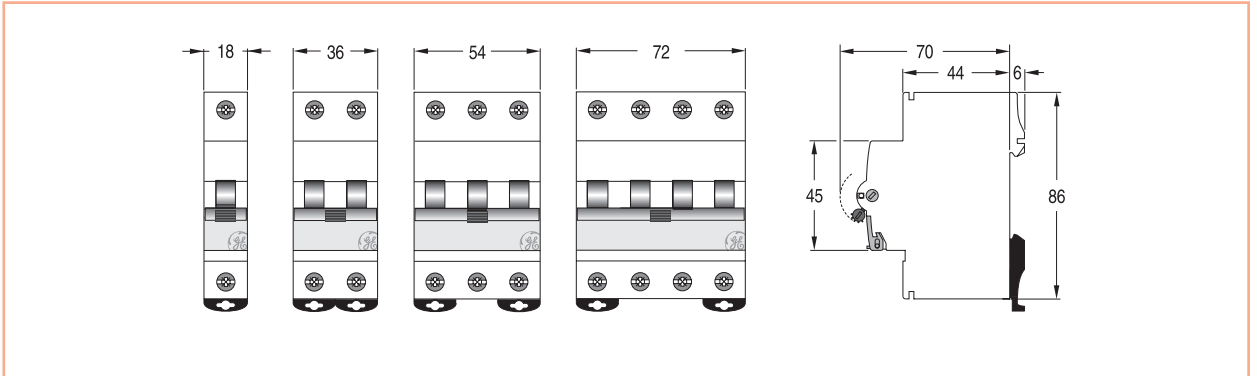
G

X

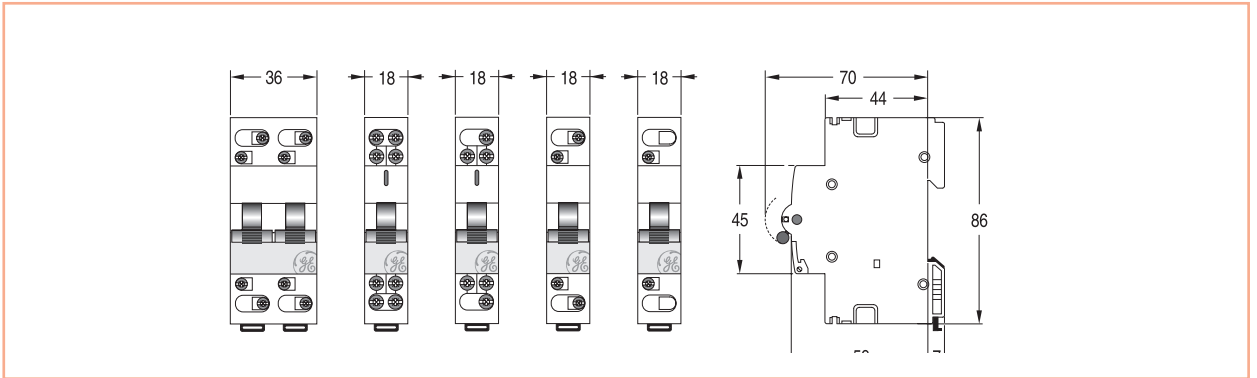


Dimensional drawings

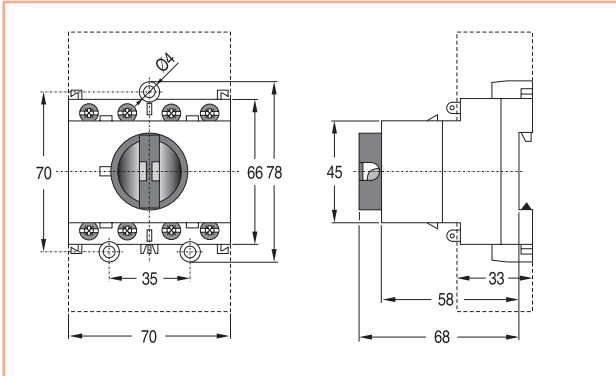
Mains disconnect switches - Aster



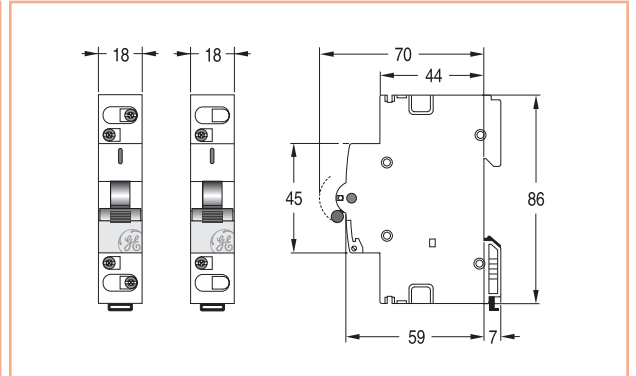
Switches - Aster



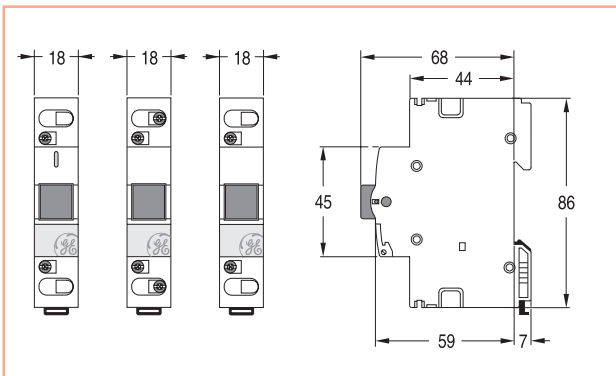
Rotary switches - Aster



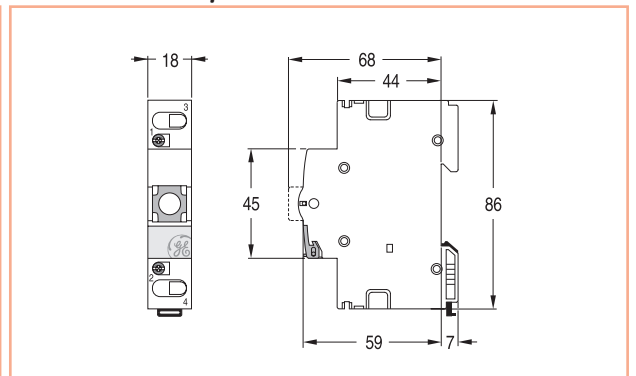
Switches with signal lamp - Aster



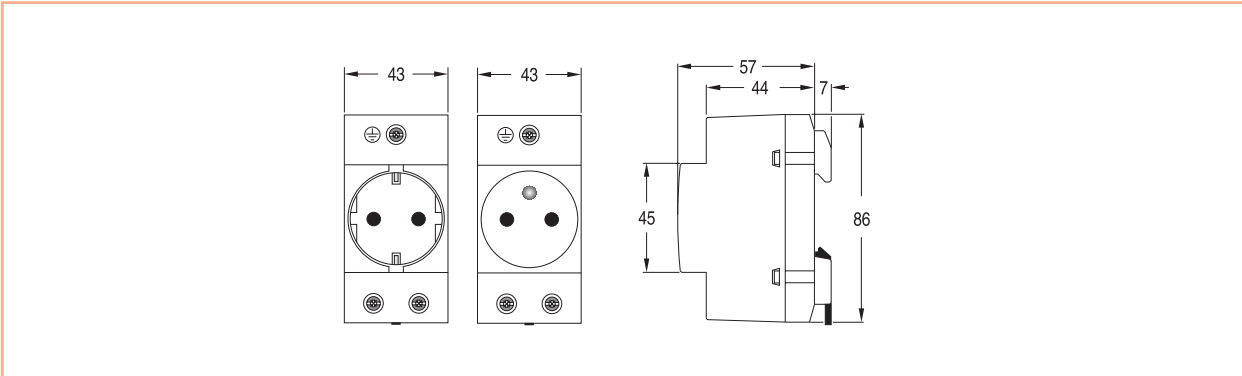
Push-buttons - Aster



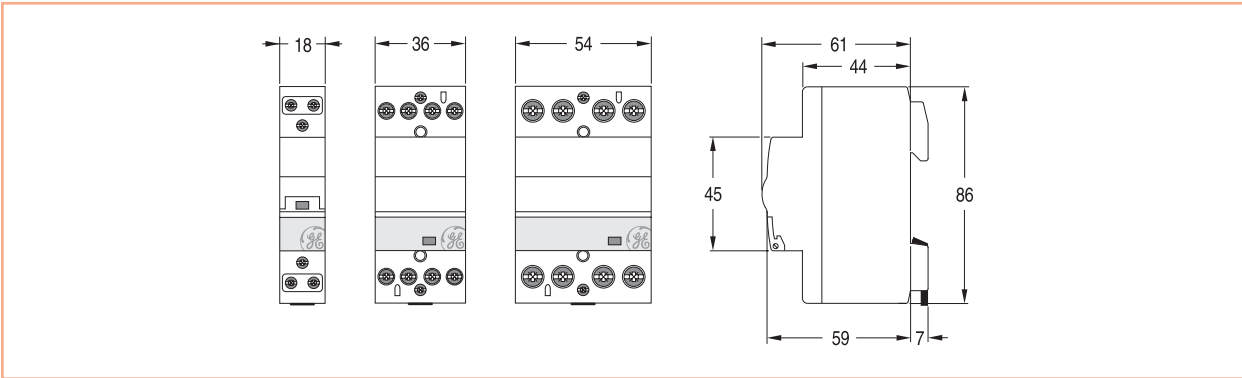
Indication lamp - Aster



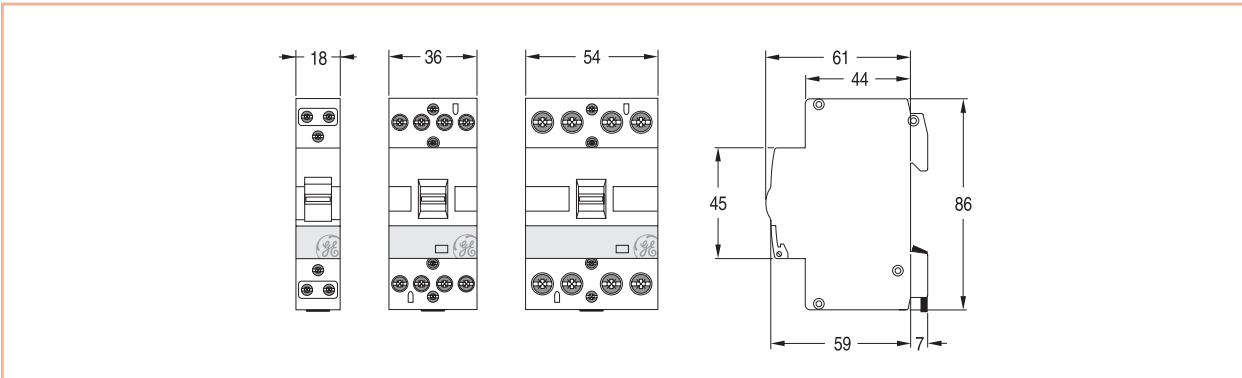
**Socket-outlet - Series MSC**



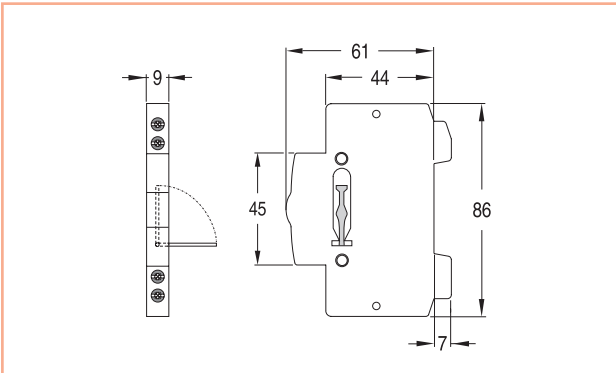
**Contactors - Contax**



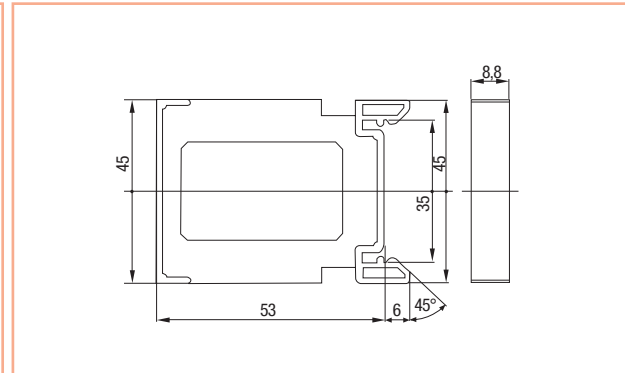
**Contactors Day and Night - Contax**



**Contactors - Auxiliary contact**



**Contactors - Spacer**



A

B

C

**D**

E

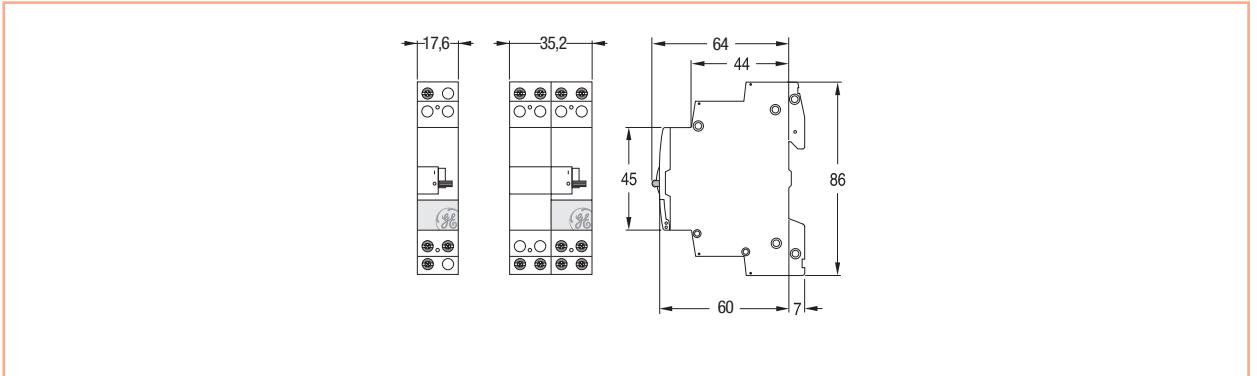
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G

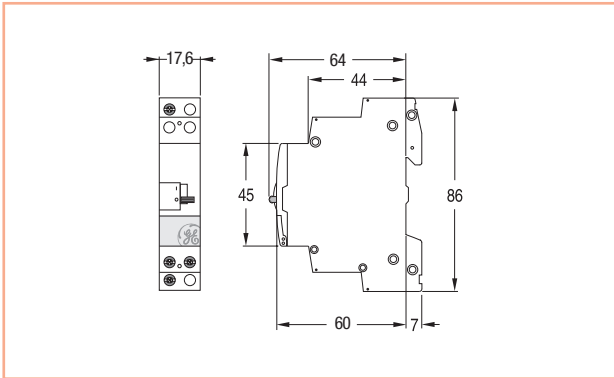
X

Dimensional drawings

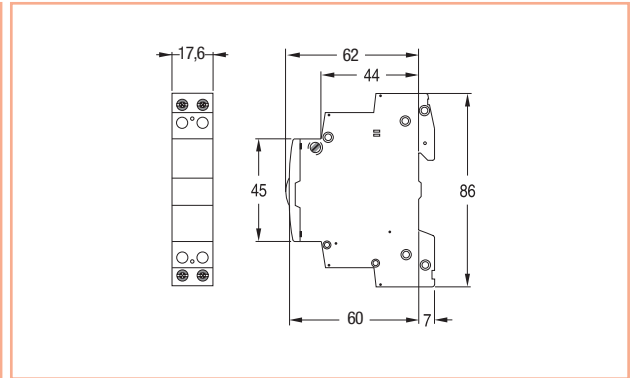
Relays - Contax R



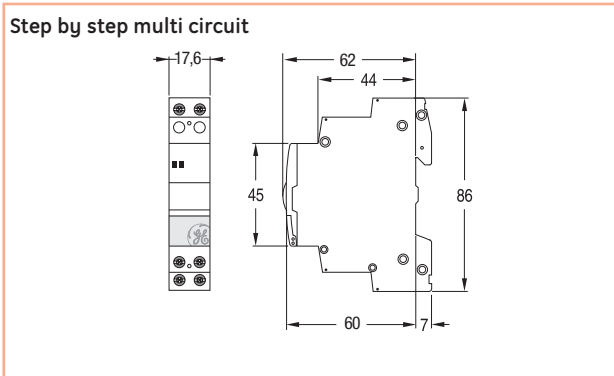
Impulse switches - Pulsar S



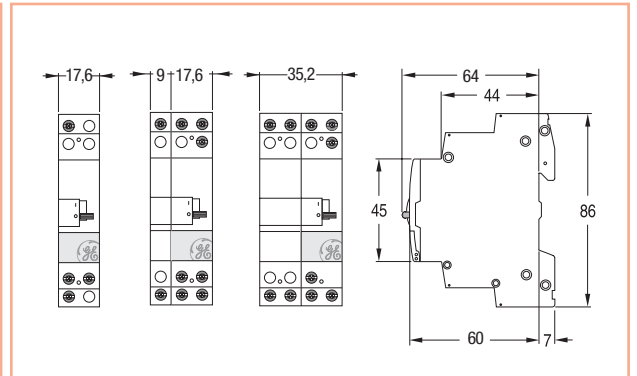
Impulse switches - Pulsar S



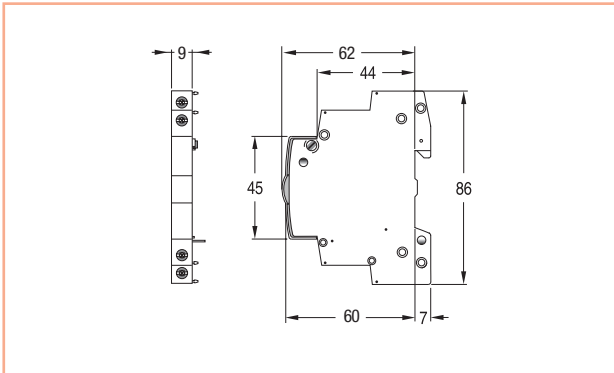
Impulse switches - Pulsar S



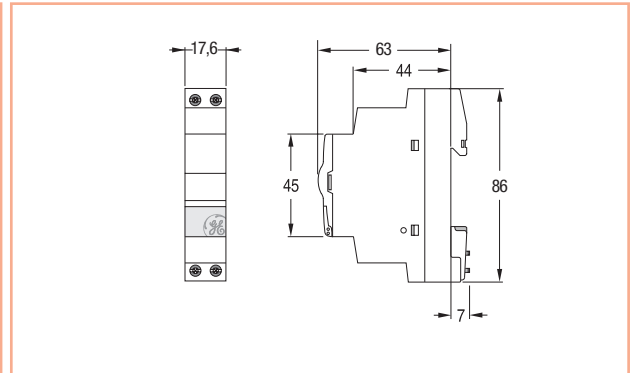
All-in central command - Pulsar S



Add-on auxiliary contact - Pulsar S

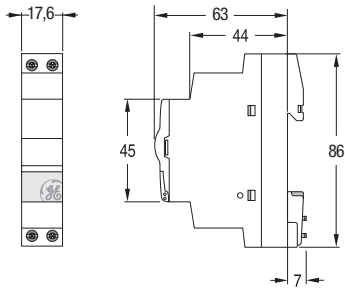


Capacity module - Pulsar S

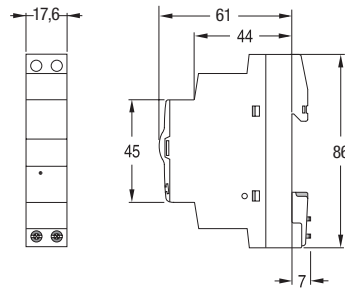


**Central command - Pulsar S**

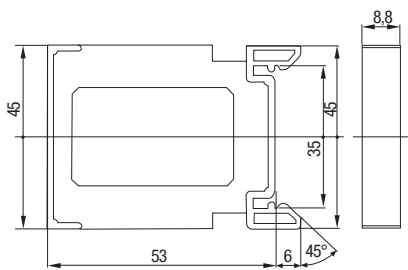
Multilevel central control module



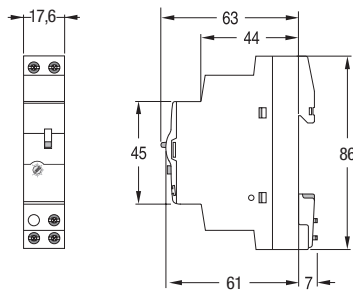
SurgeGuard safety module



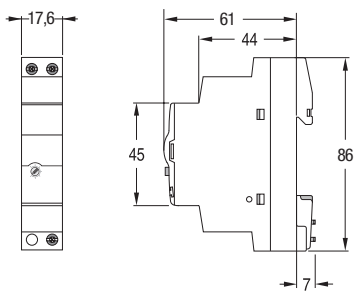
**Spacer - Pulsar S**



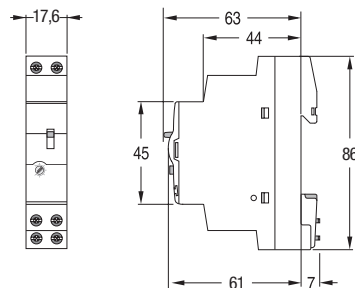
**Staircase switches - Pulsar TS**



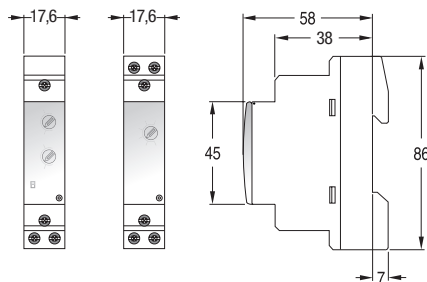
**Dimmer - Pulsar TS**



**Time-delay impulse relay - Pulsar TS**



**Time relays - Pulsar T**



A

B

C

**D**

E

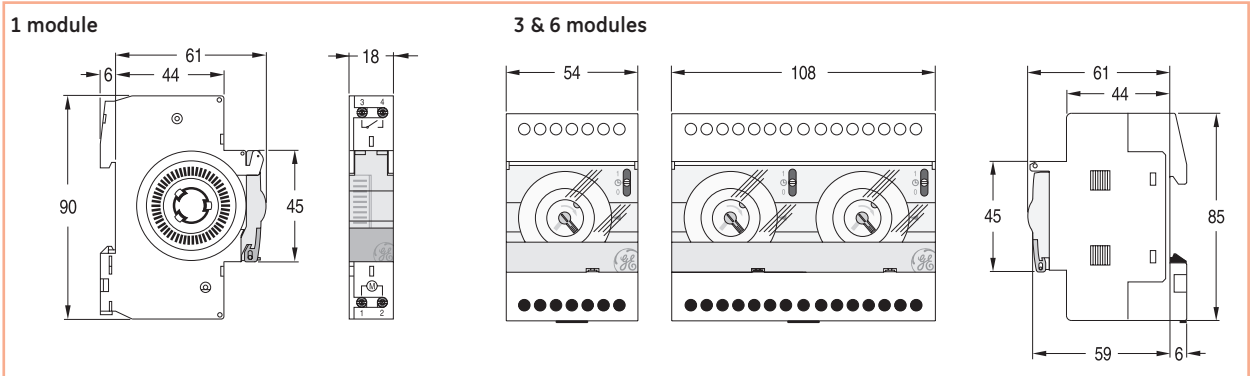
F

G

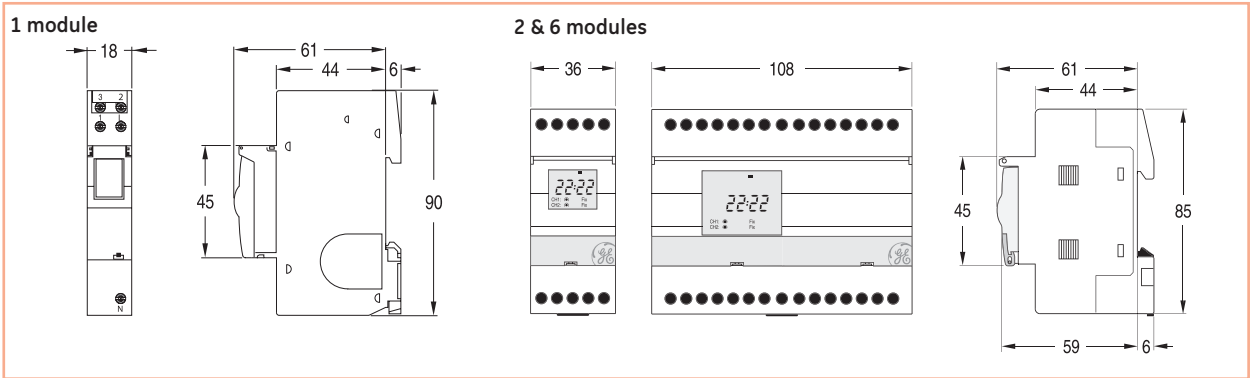
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**Dimensional drawings**

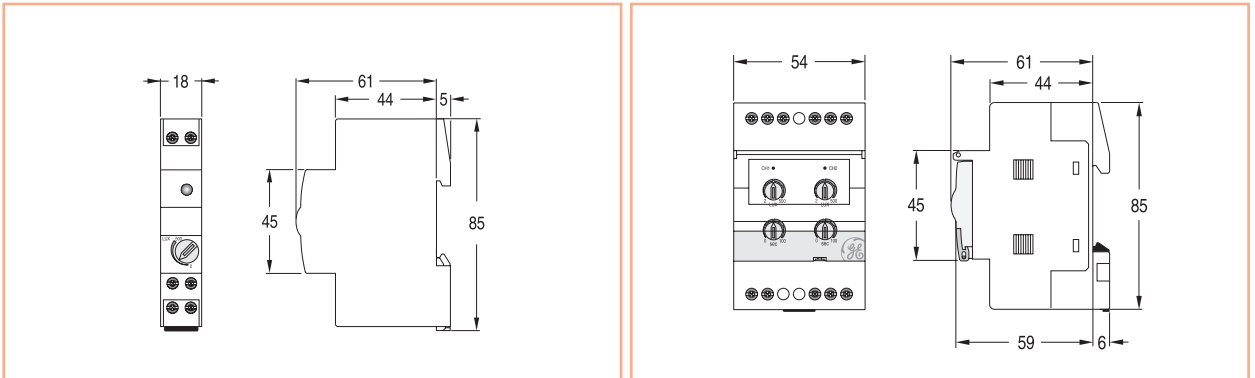
**Analogue time switches - Classic**



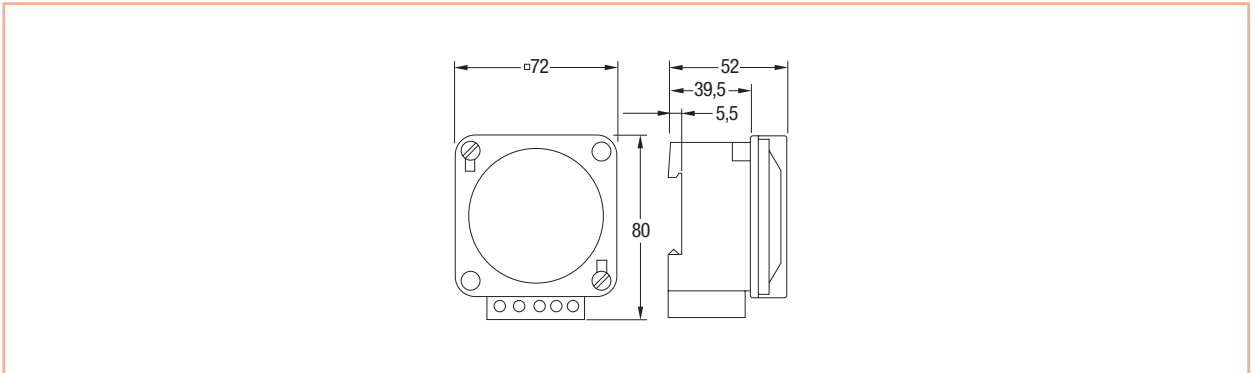
**Digital time switches - Galax**



**Light sensitive switch 1 module - Galax LSS    Light sensitive switches 3 mod. - Galax LSS**

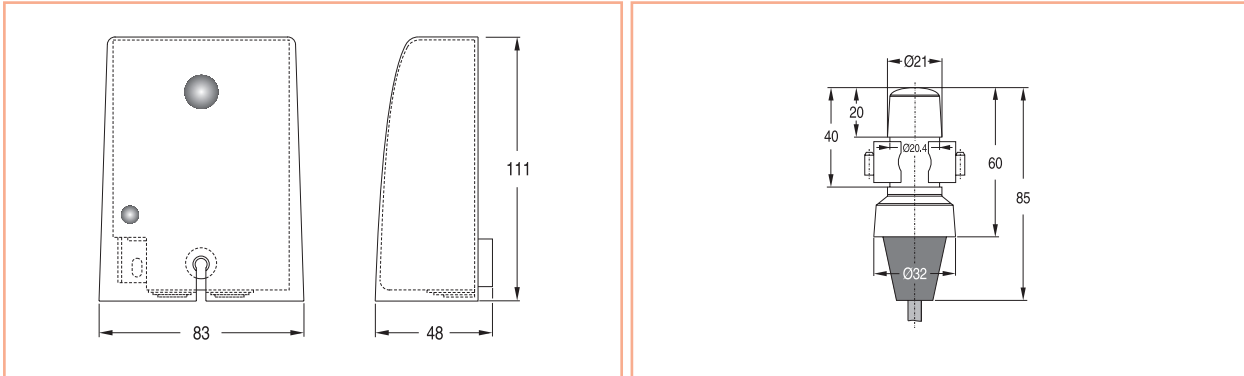


**Time Switches - 72x72 Classic and Galax**

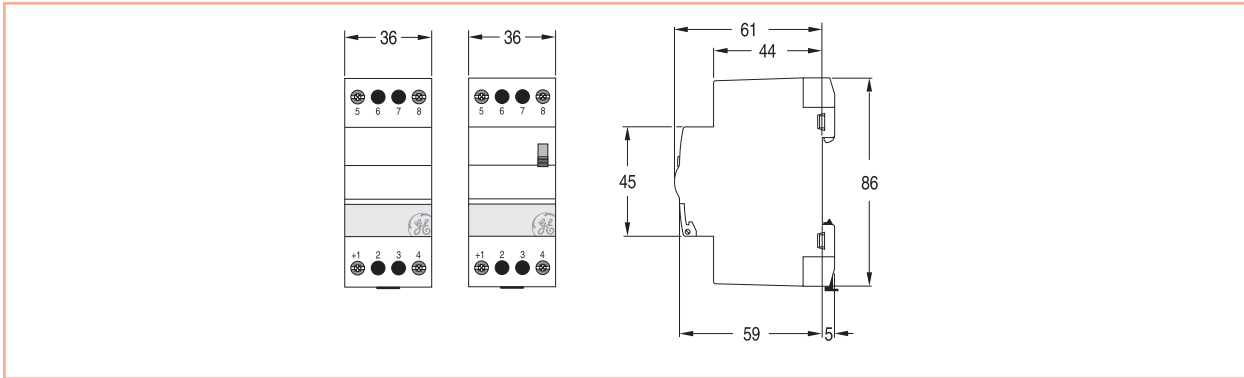




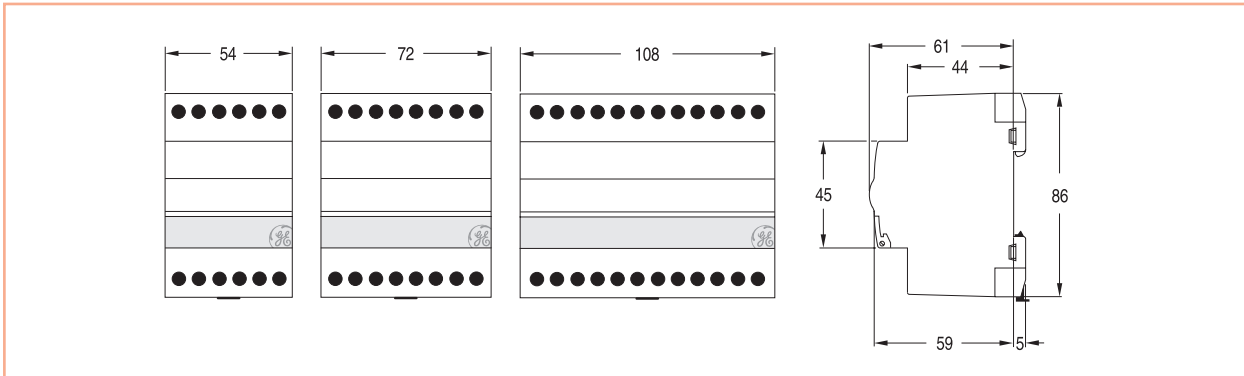
**Light sensitive switch photocell incorporated Light sensitive switches - Photocell**



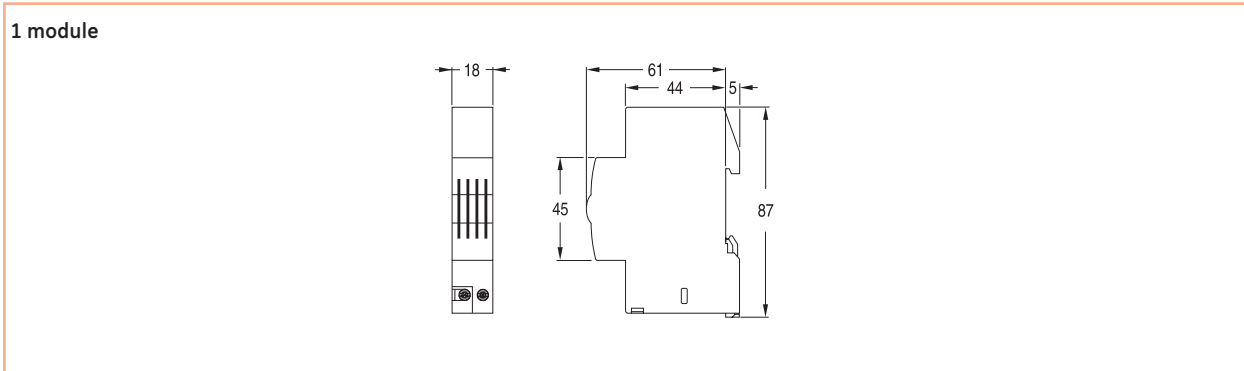
**Bell transformers - Series T**



**Safety transformers - Series T**



**Buzzers and bells - Series T**



A

B

C

D

E

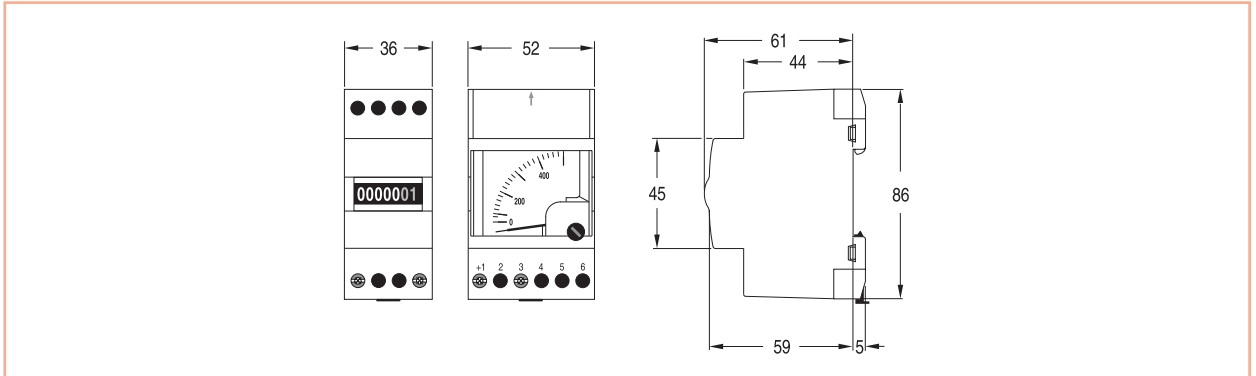
F

G

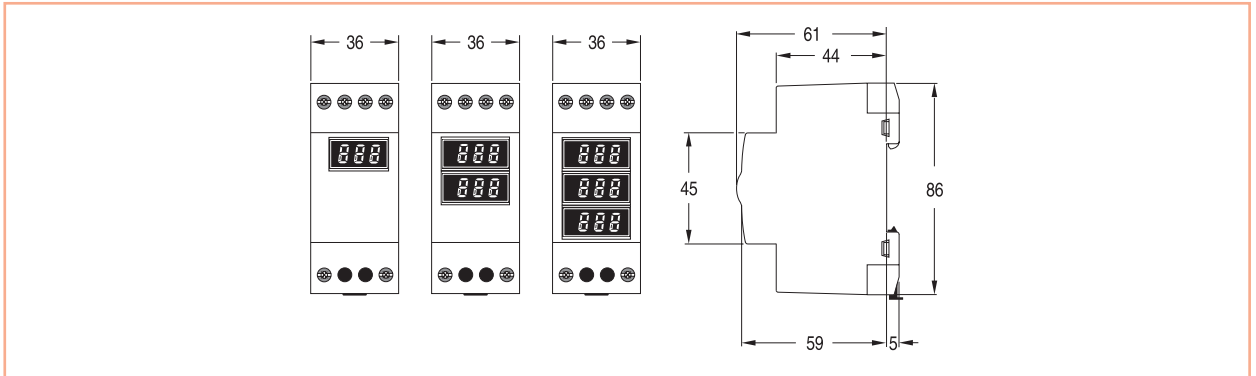
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## Dimensional drawings

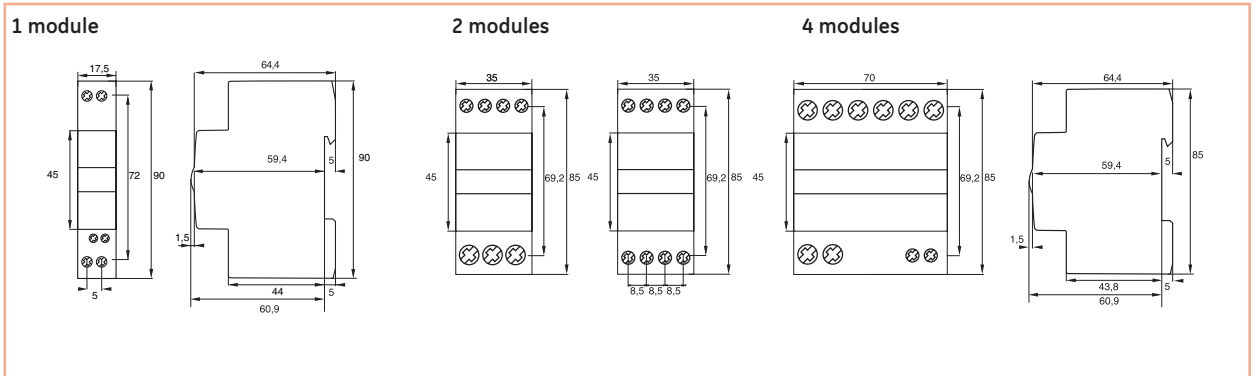
### Analogue measurement instruments - Series MT



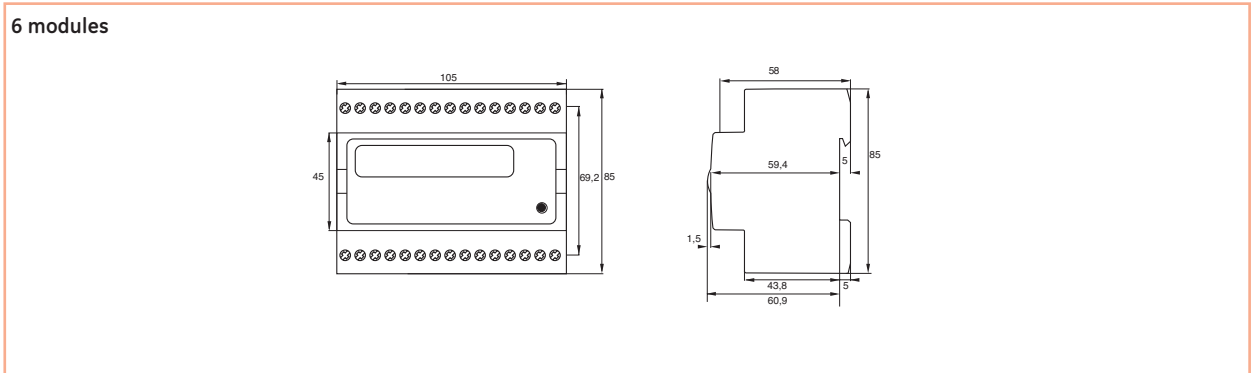
### Digital measurement instruments - Series MT



### Energy meter - Series MT

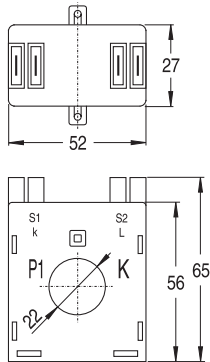


### Network analyser - Series MT

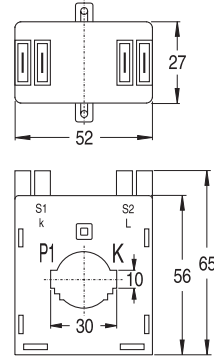


**Current transformer - Series MT**

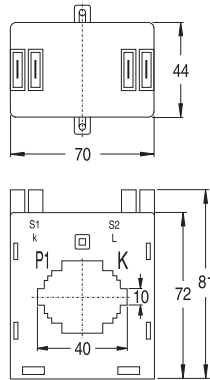
40 up to 80A



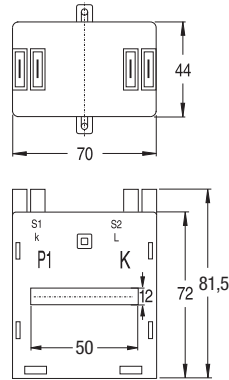
100 up to 400A



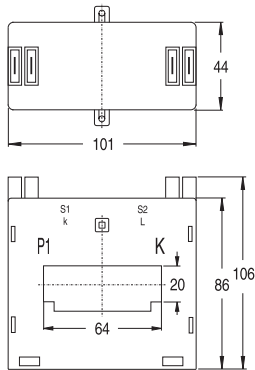
500 and 600A



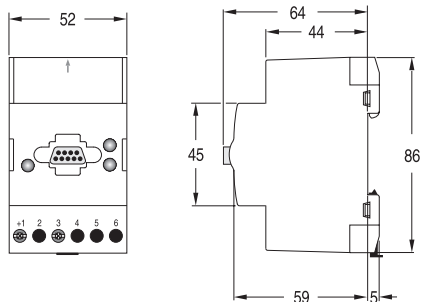
800A



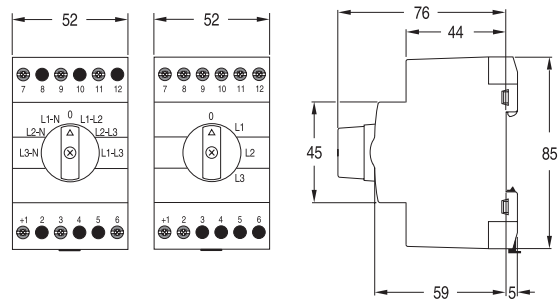
1000 and 2000A



**Signal converter - Series MT**



**Selector switch - Series MT**



Dimensional drawings

Surge arresters - SurgeGuard

Comfort functions

A

B

C

D

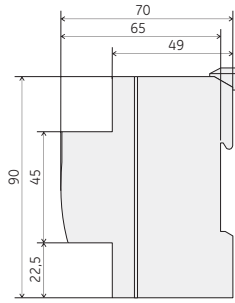
E

F

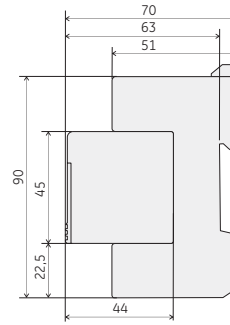
G

X

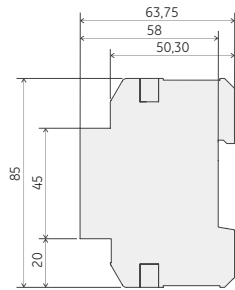
SA BLOCK, SA PHOT x 2 MODULES, SA BLOCK ADSL, SA C



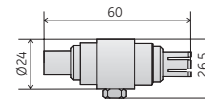
Plug-in types



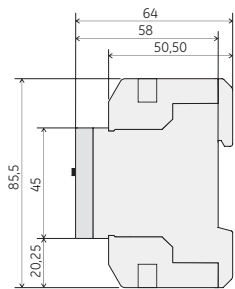
SA BLOCK II 15 LN



For coax cables



TELE OV - Overvoltage protection





- E.2 **VBS-Busbar system**
- E.3 Insulated pin type busbars
- E.4 Insulated fork type busbars
- E.5 Accessories

Circuit Protection

A

People Protection

B



- E.6 Rails for compact MCB's - Unibis™
- E.7 Busbar system - Unibis™

Add-on Devices

C

E.8 Insulated busbars

Comfort Functions

D

E.10 Dimensional drawings

**Busbars**

**E**

Enclosures

F

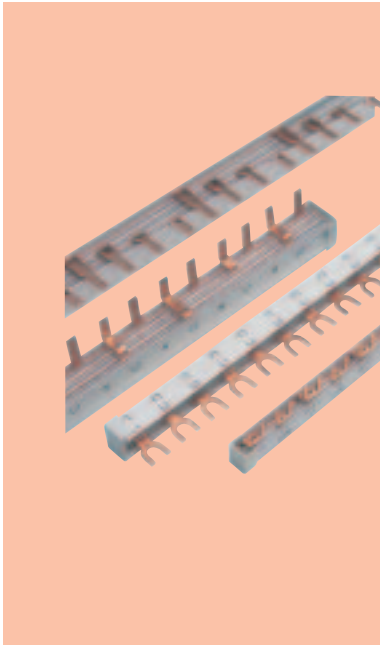
MCCB's Record Plus

G

Numerical Index

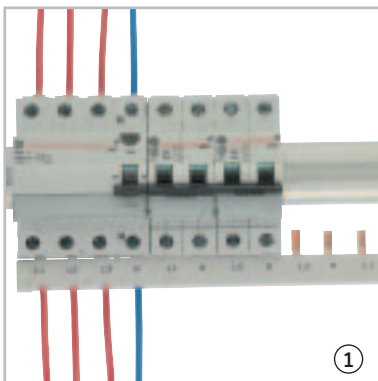
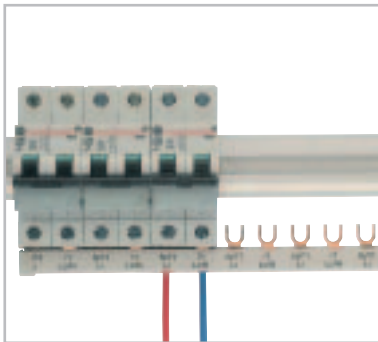
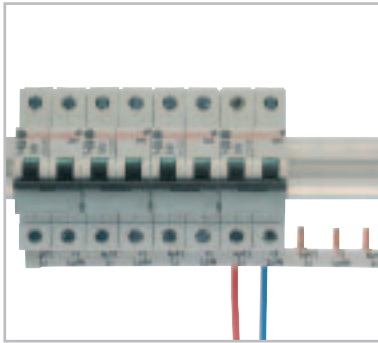
X





## VBS-Busbar system

### Rails



### Technical data

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

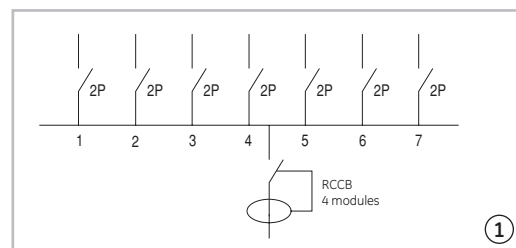
### Load values in A (Ith)

Connection	Polarity			
	side		middle	
Section (mm <sup>2</sup> )	Ith (A)	K (mm <sup>2</sup> )	Ith (A)	K (mm <sup>2</sup> )
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

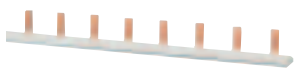
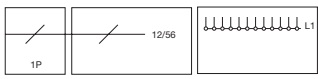

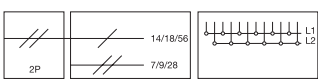
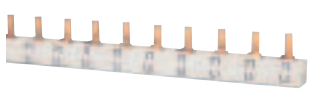
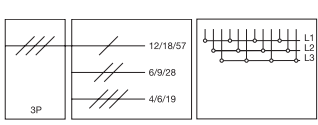
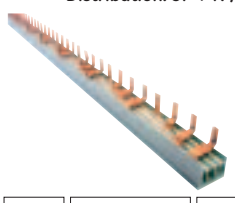
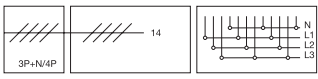
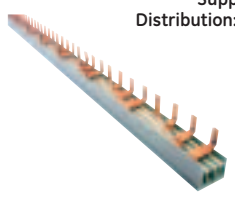
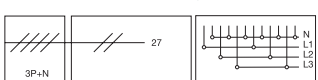
Connection	Polarity			
	side		middle	
Section (mm <sup>2</sup> )	Ith (A)	K (mm <sup>2</sup> )	Ith (A)	K (mm <sup>2</sup> )
10 isolated	80	16	100	25
16 isolated	120	25	130	35

K = section of the connection wire

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



**Insulated pin type busbar, with circuit indicator**

			Ref. No.	Pack.
<p><b>Supply: 1P</b> <b>Distribution: 1P MCB's</b></p>  	10 mm <sup>2</sup>	12 x 1P	546255	25
	10 mm <sup>2</sup>	56 x 1P	624991	10
	16 mm <sup>2</sup>	56 x 1P	544193	10
<p><b>Supply: 2P or 1P + N</b> <b>Distribution: 1P or 2P MCB's</b> <b>RCCB's 2P</b></p>  	10 mm <sup>2</sup>	14 x 1P or 7 x 2P	544186	25
	10 mm <sup>2</sup>	18 x 1P or 9 x 2P	624805	25
	10 mm <sup>2</sup>	56 x 1P or 28 x 2P	624806	20
	16 mm <sup>2</sup>	56 x 1P or 28 x 2P	546139	20
<p><b>Supply: 3P</b> <b>Distribution: 1P - 2P - 3P MCB's</b></p>  	10 mm <sup>2</sup>	12 x 1P or 6 x 2P or 4 x 3P	546278	25
	10 mm <sup>2</sup>	18 x 1P or 9 x 2P or 6 x 3P	544181	25
	10 mm <sup>2</sup>	57 x 1P or 28 x 2P or 19 x 3P	546142	20
	16 mm <sup>2</sup>	57 x 1P or 28 x 2P or 19 x 3P	546143	20
<p><b>Supply: 3P + N</b> <b>Distribution: 3P + N / 4P MCB's</b> <b>RCCB's 4P</b></p>  	10 mm <sup>2</sup>	14 x 3P + N or 4P	624807	15
	16 mm <sup>2</sup>	14 x 3P + N or 4P	546130	15
<p><b>Supply: 3P + N</b> <b>Distribution: 2P MCB's</b> <b>RCCB's 2P</b></p>  	10 mm <sup>2</sup>	27 x 2P	624995	15
	16 mm <sup>2</sup>	27 x 2P	624996	15
	10 mm <sup>2</sup>	Connection between MCB or RCCB 4 modules and 7 x 2P MCB's (see drawing ① and photo ① on page E.2)	624992	25

More technical data ● website  
Dimensions ● pg E.10



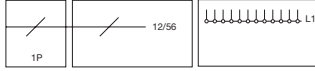
VBS-Busbar system

- A
- B
- C
- D

- E
- F
- G
- X

## Insulated fork type busbar, with circuit indicator

Supply: 1P  
Distribution: 1P MCB's

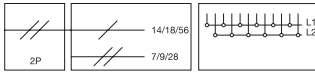
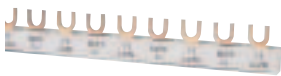


10 mm <sup>2</sup>	12 x 1P
10 mm <sup>2</sup>	56 x 1P
16 mm <sup>2</sup>	56 x 1P

Ref. No. Pack.

546249	25
546187	10
544188	10

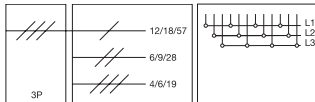
Supply: 2P or 1P + N  
Distribution: 1P or 2P MCB's  
RCCB's 2P



10 mm <sup>2</sup>	14 x 1P or 7 x 2P
10 mm <sup>2</sup>	18 x 1P or 9 x 2P
10 mm <sup>2</sup>	56 x 1P or 28 x 2P
16 mm <sup>2</sup>	56 x 1P or 28 x 2P

644834	25
644835	25
544191	20
546227	20

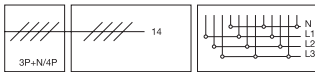
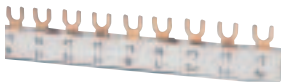
Supply: 3P  
Distribution: 1P - 2P - 3P MCB's



10 mm <sup>2</sup>	12 x 1P or 6 x 2P or 4 x 3P
10 mm <sup>2</sup>	18 x 1P or 9 x 2P or 6 x 3P
10 mm <sup>2</sup>	57 x 1P or 28 x 2P or 19 x 3P
16 mm <sup>2</sup>	57 x 1P or 28 x 2P or 19 x 3P

546272	25
544173	25
546229	20
546230	20

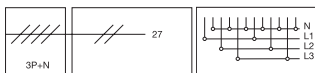
Supply: 3P + N  
Distribution: 3P + N / 4P MCB's  
RCCB's 4P



10 mm <sup>2</sup>	14 x 3P + N or 4P
16 mm <sup>2</sup>	14 x 3P + N or 4P

644852	15
546234	15

Supply: 3P + N  
Distribution: 2P MCB's  
RCCB's 2P



10 mm <sup>2</sup>	27 x 2P
16 mm <sup>2</sup>	27 x 2P

624791	15
544192	15

Busbars

A

B

C

D

E

F



G

X



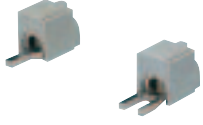





**Insulated busbars**

			Ref. No.	Pack.
	Pin	10 mm <sup>2</sup> 36 x 1,5P	546152	50
		16 mm <sup>2</sup> S3.1+HI39.130	546128	20
		16 mm <sup>2</sup> S2+HI.22.130	546126	20
	Fork	16 mm <sup>2</sup> G.1+HI.37.130/90°	544189	50
		16 mm <sup>2</sup> GM.3.36.130-Do	546127	20
		16 mm <sup>2</sup> GM.2.46.130+HI9	546125	20
		16 mm <sup>2</sup> GM.3.48.130+HI9	546129	20
		16 mm <sup>2</sup> GM.4.48.130/Hi	646083	15

**Accessories**

			Ref. No.	Pack.
	End cap	10mm <sup>2</sup> /16mm <sup>2</sup> for 1P busbars	644891	10
		10 mm <sup>2</sup> for 2P busbars	546181	10
		10 mm <sup>2</sup> for 3P busbars	546200	10
		16 mm <sup>2</sup> for 2P and 3P busbars	546184	10
		10 and 16 mm <sup>2</sup> for 4P busbars	629867	10
	Insulating strip	Insulating strip for forks or pins, length 1 m	624992	10
	Connector clamps	25 mm <sup>2</sup> Axial, 25 mm <sup>2</sup> pin type, insulated	546288	
		25 mm <sup>2</sup> Axial, 25 mm <sup>2</sup> fork type, insulated	546287	
	Pin/fork insulation clamps	Yellow (RAL 1004) EV-BS	546291	10x5

VBS-Busbar system

A

B

C

D

E

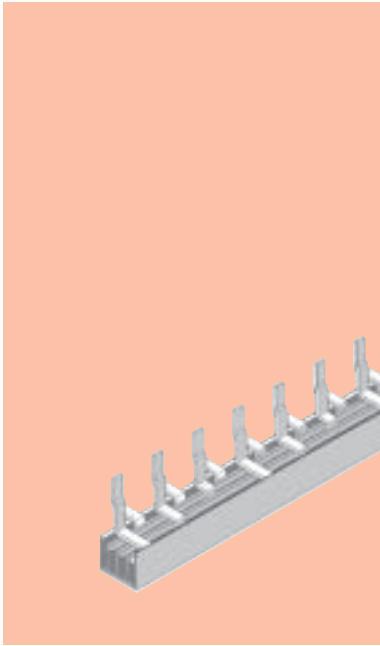
F

G

X

More technical data ● website  
Dimensions ● pg E.10





## VBS Busbar system

### Rails for compact MCB's

#### Particularity

The particular angled shaped pin busbar allows connection of a wire up to 10mm<sup>2</sup> (Ith max: 63A), without any additional adapter.

#### Technical data

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

#### Insulated pin type busbar - angled shape

				Ref. No.	Pack.
	<b>Supply: 2P or 1P+N</b> <b>Distribution: 2P MCB's</b>	10 mm <sup>2</sup>	18 x 2P	624796	1
		16 mm <sup>2</sup>	55 x 2P - Length 1m	624893	1
	<b>Supply: 3P</b> <b>Distribution: 2P MCB's</b>	10 mm <sup>2</sup>	12 x 2P	624797	1
		16 mm <sup>2</sup>	55 x 2P - Length 1m	624798	1
	<b>Supply: 3P+N</b> <b>Distribution: 2P MCB's</b>	16 mm <sup>2</sup>	55 x 2P - Length 1m	624892	1
	<b>Supply: 3P or 3P+N</b> <b>Distribution: 3P or 4P MCB's</b>	10 mm <sup>2</sup>	55 x 3P/4P - Length 1m Included: 4 connector clamps and 4 end caps	624800	1
	Connector clamp	25 mm <sup>2</sup>	Lateral connection, with pin,	624795	1
	End caps	16 mm <sup>2</sup>	2P	546181	1
		16 mm <sup>2</sup>	3P	546184	1
		10 - 16 mm <sup>2</sup>	4P	629867	1

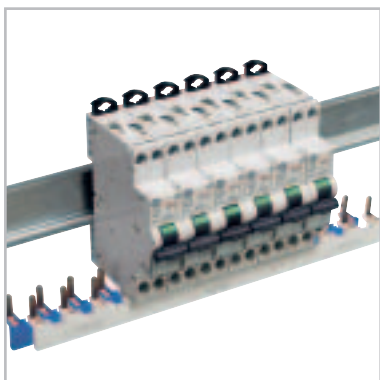
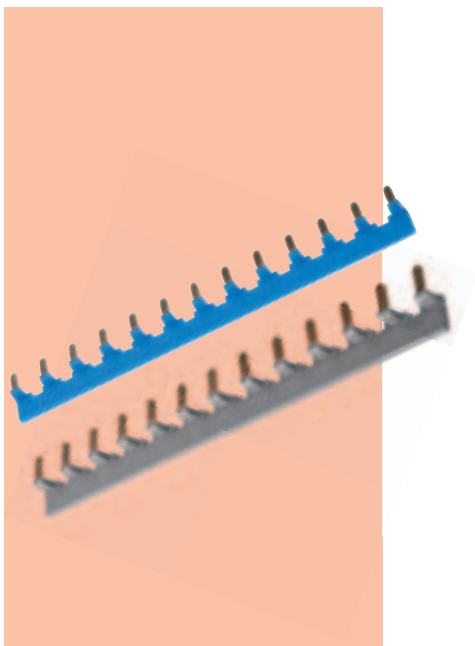
More technical data ● website  
Dimensions ● pg E.11

## Busbar system

### Rails for compact MCB's

#### Particularity

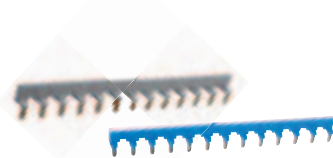
The double angled shape of the busbar is designed to avoid an additional terminal to realise a derivation with wiring till 10mm<sup>2</sup> and Ith = max. 63A.



#### 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

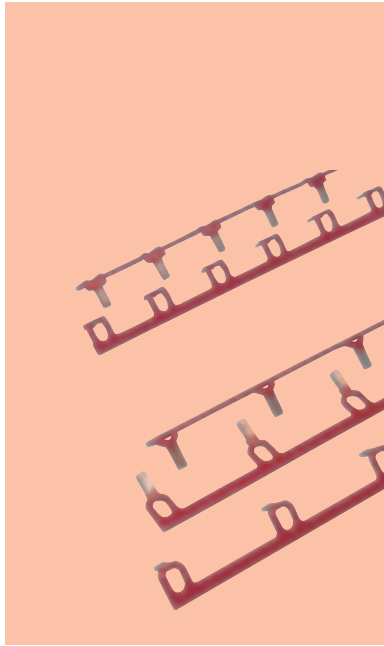
#### Insulated pin type busbar - double angled shape



Supply: 1P  
Distribution: 1P

	Ref. No.	Pack.
10 mm <sup>2</sup> 13x1 pole phase - grey - double angled	646091	1/20
10 mm <sup>2</sup> 13x1 pole neutral - blue - double angled	646092	1/20

More technical data ● website  
Dimensions ● pg E.11



**Busbar system**

**Insulated busbars**

The busbars are made of copper and have a section of 10 mm<sup>2</sup>

**Advantages**

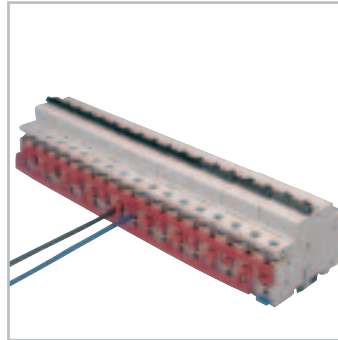
- Easy to install
- Flat design = gain of space in the enclosure
- Easy to use: cutting instead of sawing
- Clear visibility when connecting the power supply cables
- Universal for all power supplies:
  - 2 x 230V
  - 3 x 230V
  - 3 x 400V + N

**Marking**

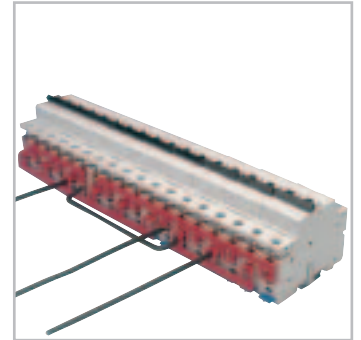


**Technical data**

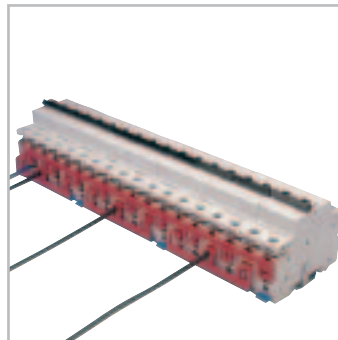
<b>Load I<sub>th</sub></b>	63 A
<b>Short-circuit resistance acc. NBN C63-439</b>	10kA
<b>Insulation</b>	PVC
<b>Dielectric strength</b>	2.5kV
<b>Creepage resistance</b>	175V
<b>according to NBN C20-002</b>	
<b>Self extinguishing acc. IEC 695-2-1</b>	960°C



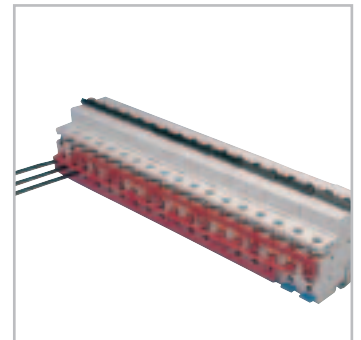
Power supply 2 x 230V



Power supply 3 x 230V




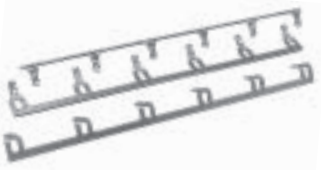

Power supply 3 x 400V + N



- 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**

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

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

A

B

C

D

**E**

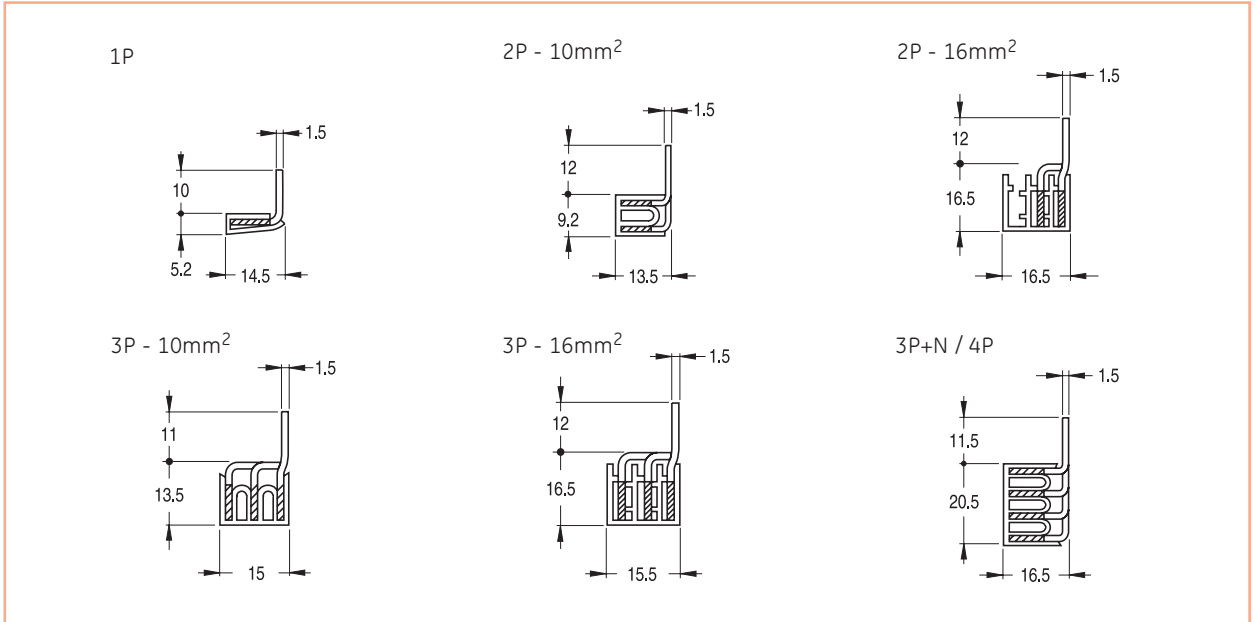
F

G

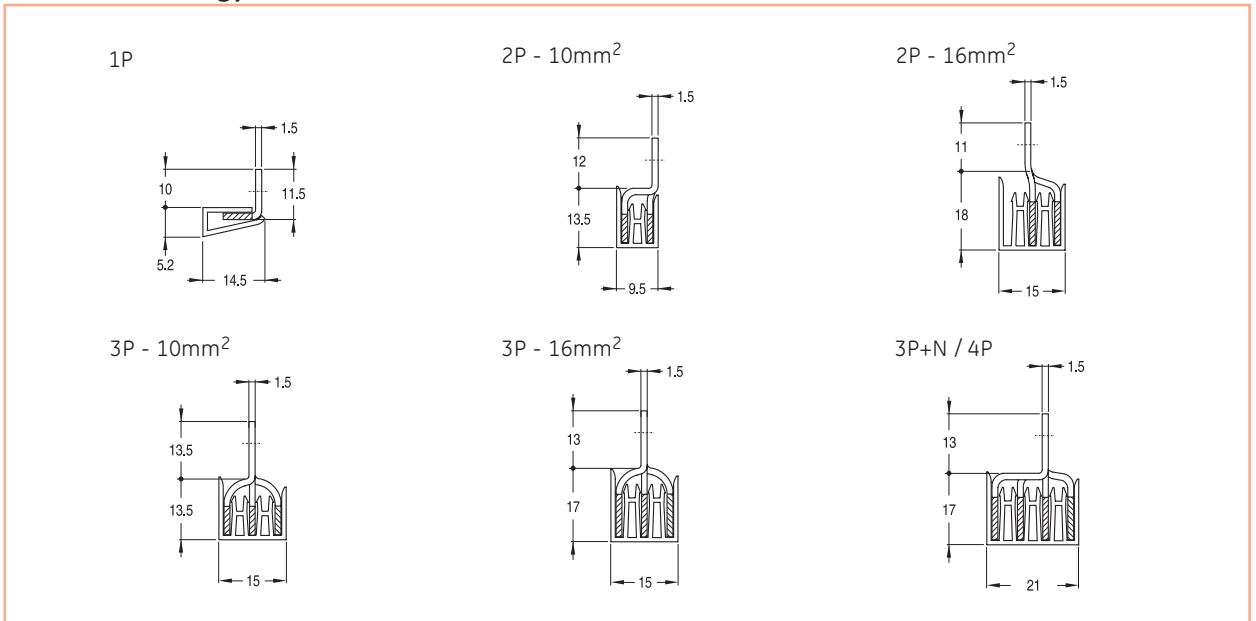
X

Dimensional drawings

Insulated pin type busbars-VBS



Insulated fork type busbars-VBS



Busbars

A

B

C

D

E

F

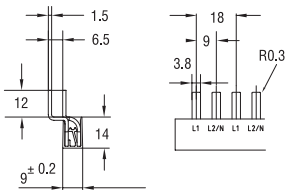
G

X

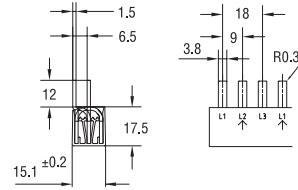


**Insulated pin busbars VBS - Unibis™**

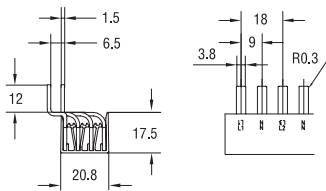
624796 - 624893



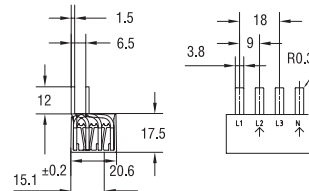
624797 - 624798



624892

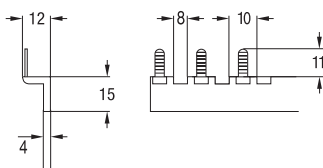


624800



**Insulated pin busbars - Unibis™**

646091 - 646092  
Double angled



A

B

C

D

E

F

G

X

Just feel p



**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 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**

**F**

MCCB's Record Plus

G

Numerical Index

X

protected





## Surface mounting

### Fix-o-Rail Metal Design



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

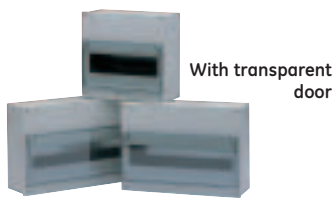
#### Common features

- 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 mm<sup>2</sup> 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



## Fix-o-Rail Metal Design

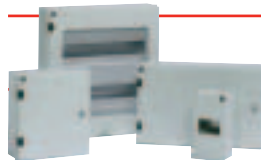


With transparent door

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 <sup>2</sup> Neutral bar: connection 8 x 16 mm <sup>2</sup>	10	618442	1
208 x 292 x 108	Earth bar: connection 12 x 16 mm <sup>2</sup> Neutral bar: connection 12 x 16 mm <sup>2</sup>	14	618443	1
208 x 370 x 108	Earth bar: connection 16 x 16 mm <sup>2</sup> Neutral bar: connection 16 x 16 mm <sup>2</sup>	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



4 modules without door with plain grey door

## Fix-o-Rail Metal Standard

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 <sup>2</sup>	4	618910	1
208 x 112 x 110	Earth bar: connection 3 x 16 mm <sup>2</sup>	4	618911	1

8 modules with plain grey door

208 x 112 x 110	Earth bar: connection 8 x 16 mm <sup>2</sup> Neutral bar: connection 8 x 16 mm <sup>2</sup>	8	618923	1
-----------------	--	---	--------	---

12 modules with plain grey door with transparent door

270 x 322 x 110	Earth bar: connection 12 x 16 mm <sup>2</sup> Neutral bar: connection 12 x 16 mm <sup>2</sup>	12	618929	1
270 x 322 x 110	Earth bar: connection 12 x 16 mm <sup>2</sup> Neutral bar: connection 12 x 16 mm <sup>2</sup>	12	618930	1

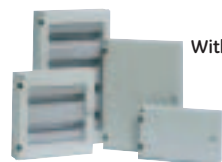
24 modules with plain grey door with transparent door

450 x 322 x 110	Earth bar: connection 16 x 16 mm <sup>2</sup> Neutral bar: connection 2(12 x 16 mm <sup>2</sup> )	24	618969	1
450 x 322 x 110	Earth bar: connection 16 x 16 mm <sup>2</sup> Neutral bar: connection 2(12 x 16 mm <sup>2</sup> )	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 <sup>2</sup> Neutral bar: connection 16 x 16 mm <sup>2</sup>	18	618938	1
450 x 430 x 110	Earth bar: connection 2(16 x 16 mm <sup>2</sup> ) Neutral bar: connection 2(16 x 16 mm <sup>2</sup> )	36	618941	1
600 x 430 x 110	Earth bar: connection 3(16 x 16 mm <sup>2</sup> ) Neutral bar: connection 3(16 x 16 mm <sup>2</sup> )	54	618944	1
750 x 430 x 110	Earth bar: connection 4(16 x 16 mm <sup>2</sup> ) Neutral bar: connection 4(16 x 16 mm <sup>2</sup> )	72	618947	1

With transparent door

270 x 430 x 110	Earth bar: connection 16 x 16 mm <sup>2</sup> Neutral bar: connection 16 x 16 mm <sup>2</sup>	18	618939	1
450 x 430 x 110	Earth bar: connection 2(16 x 16 mm <sup>2</sup> ) Neutral bar: connection 2(16 x 16 mm <sup>2</sup> )	36	618942	1
600 x 430 x 110	Earth bar: connection 3(16 x 16 mm <sup>2</sup> ) Neutral bar: connection 3(16 x 16 mm <sup>2</sup> )	54	618945	1
750 x 430 x 110	Earth bar: connection 4(16 x 16 mm <sup>2</sup> ) Neutral bar: connection 4(16 x 16 mm <sup>2</sup> )	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

A

B

C

D

E

F

G

X





## Metal enclosures surface mounting MCB distribution board

### Modular 200 - Type A



Total safety



Complete



Time saving features



High quality



Great design

### Applications



### Marking



### Performance

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

### Features

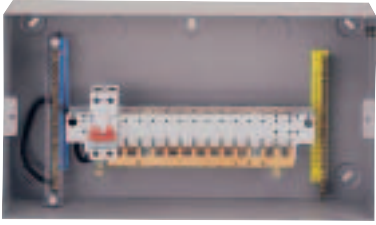
- In accordance with BS5486 and BS EN 60439-3
- Sturdy folded sheet steel construction
- Durable structured powder coated finish
- Matching light grey used throughout range
- Phase busbar rating 120A
- Incoming device cable terminal capacity 50mm<sup>2</sup>
- Terminal bar cable capacity 25mm<sup>2</sup>
- 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"

Dimensions ● pg. F.57

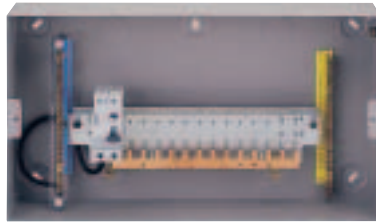


**Modular 200 - Type A - MCB Distribution Board**

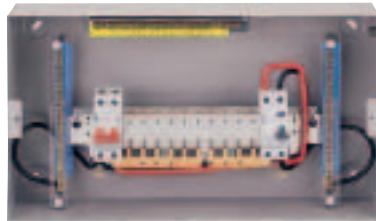
	No of outgoing ways	H x W x D (mm) (code)	Terminal Capacity	Ref. No.	Pack.
<b>Main Switch – 2P 100A</b>	6	270x368x127 (A)	50mm <sup>2</sup>	<b>617971</b>	1
	9	270x412x127 (B)	50mm <sup>2</sup>	<b>617972</b>	1
	13	270x484x127 (C)	50mm <sup>2</sup>	<b>617973</b>	1
<b>RCD – 2P 80A 30mA</b>	6	270x368x127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



e.g. 617973



e.g. 619976



e.g. 619979



**Accessories**

	Clean earth kit	
	617960	1

Modular 200 - Type A

A

B

C

D

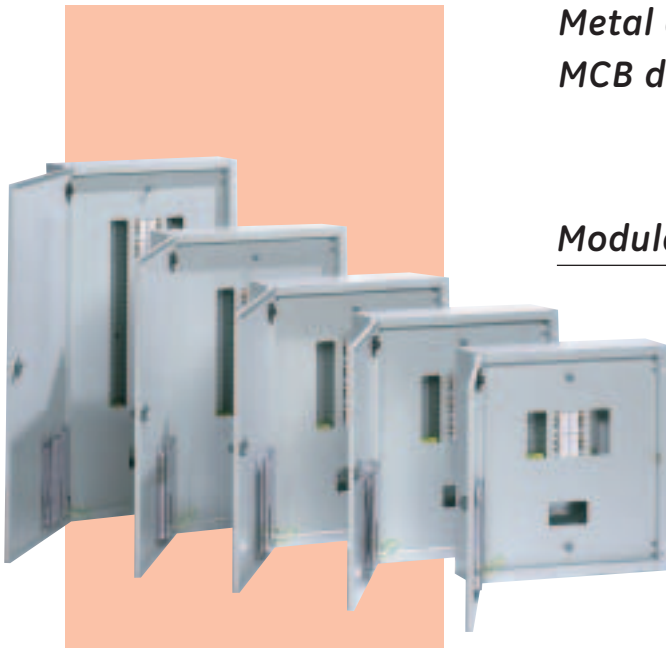
E

F

G

X





## Metal enclosures surface mounting MCB distribution board

### Modular 200 - 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 <sup>2</sup> )	25
Earth+Neutral incoming cable capacity	(mm <sup>2</sup> )	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

Dimensions ● pg. F.57



## 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.

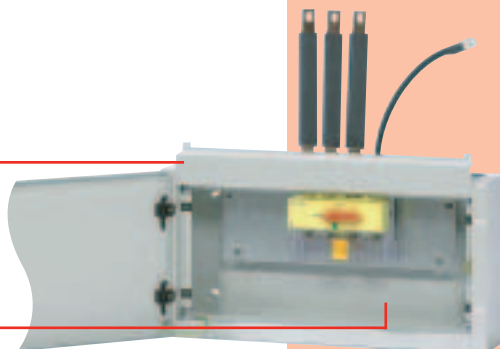
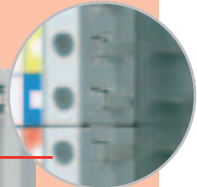
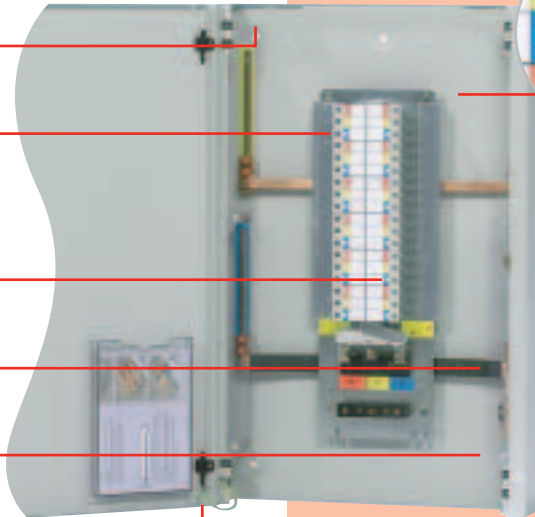
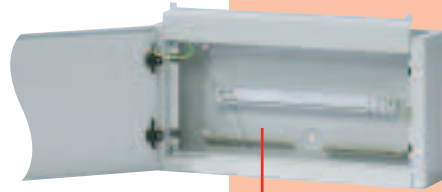
Shrouded neutral bar(s) for increased safety.

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.



A

B

C

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X

A

B

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X

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



No of 3P ways	Busbar rating	Terminals included 25mm <sup>2</sup>		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 <sup>2</sup>		
125A - 3P	619114	1
Terminal capacity: 50mm <sup>2</sup>		
125A - 4P	619124	1
Terminal capacity: 50mm <sup>2</sup>		



**RCD Main switch**

100A - 4P - 30mA RCD	619119	1
Terminal capacity: 50mm <sup>2</sup>		
100A - 4P - 100mA RCD	619112	1
Terminal capacity: 50mm <sup>2</sup>		
100A - 4P - 300mA RCD	619113	1
Terminal capacity: 50mm <sup>2</sup>		
100A - 4P - 100mA time delayed RCD	619120	1
Terminal capacity: 50mm <sup>2</sup>		



**MCB Main switch**

63A - 3P	619605	1
Terminal capacity: 35mm <sup>2</sup>		
100A - 3P	619606	1
Terminal capacity: 70mm <sup>2</sup>		



**Direct connection kit**

200A - 3P	619115	1
Terminal capacity: 95mm <sup>2</sup>		



**Single phase conversion kit**

100A - 1P+N	618300	1
Terminal capacity: 50mm <sup>2</sup>		



**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<sup>2</sup>  
 - narrow palm: 150 mm<sup>2</sup>

**Switch disconnector Dilos**

200A - 4P - 250x135x500 mm (G)	619110	1
--------------------------------	--------	---

**MCCB non auto Record Plus**

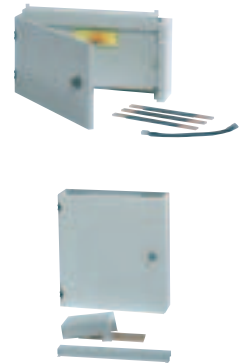
200A - 3P - 500x135x500 mm (H)	619107	1
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**TP automatic MCCB Record Plus**

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
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**Modular spreader box**

Dimension code G	619106	1
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**Heavy duty gland plate 2mm thick**

	619116	1
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Accessories Modular 200 (continued)

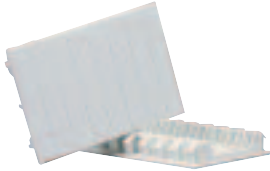


<b>Busbar shroud</b>		
	<b>619018</b>	<b>10</b>

3 module busbar shroud for unused ways preformed in 1 module widths.

<b>Security</b>		
	<b>610063</b>	<b>1</b>

Ronis security door lock supplied with two keys



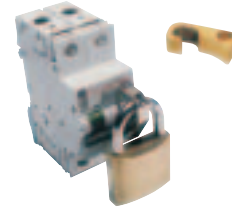
<b>Blank plate</b>		
	<b>610142</b>	<b>4</b>

	<b>610484</b>	<b>500</b>
--	---------------	------------

length: 72 mm  
cut out width : 45 mm  
can be cut into 9 mm lenght  
RAL 7035

<b>Safety</b>		
	<b>624929</b>	<b>2</b>

MCB padlocking bracket  
(padlocks not supplied)



<b>Clean earth facility</b>		
	<b>619118</b>	<b>1</b>

can be fitted for  
increased flexibility

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-IPK08
- 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

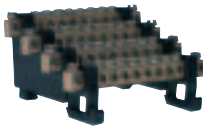


#### Fix-o-Rail Senior

	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
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



<b>4 pole terminals</b>		
610022	18	
63A		
Connection range 4 x (10 x 16 mm <sup>2</sup> )		
Cu section 6,5 x 9 mm		



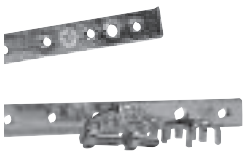
617992	5	
160 A		
with cover		
4x (1 x 10 to 50 mm <sup>2</sup> incoming		
+ 3 x 6 to 35 mm <sup>2</sup> + 8 x 2.5 to 16 mm <sup>2</sup>		
outgoing)		
Cu section 12 x 10 mm		



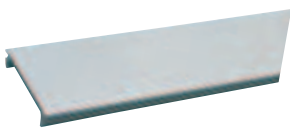
610020	1	
160A		
connection range 4 x (10 x 10mm <sup>2</sup> )		
Cu section 12 x 5 mm		



<b>Protective shroud</b>		
610021	1	
For 160A terminal (ref. 610020)		

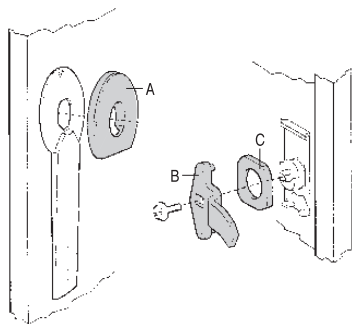


<b>Earth bar</b>		
828152	1	
For enclosure width 300 mm - length 190mm		
828153	1	
For enclosure width 550 mm - length 437mm		
828149	1	
For enclosure width 800 mm - length 684mm		



<b>Cover strip</b>		
828056	1	
For cut out of 45 mm		

Adaptor kit = A + B + C



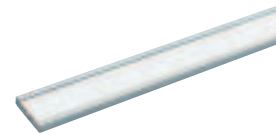
<b>Standard plates</b>		
815094	1	



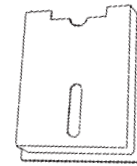
<b>Pre-drilled plates</b>		
815093	5	
17 x PG13.5		
815092	5	
1 x PG21 - PG48 / 2 x PG13.5		
2 x PG29 / 4 x PG13.5		



<b>Label for circuit indication</b>		
610232	10	
For enclosure width 300 mm		
610233	10	
For enclosure width 550 mm		
610238	10	
For enclosure width 800 mm		



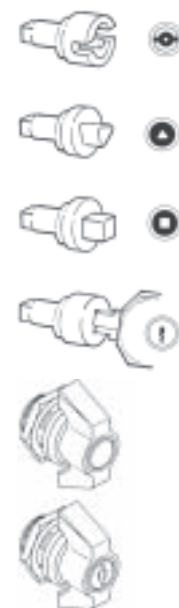
<b>Pocket for drawings</b>		
832000	1	
Self adhesive		
To be fitted on the innerside of the door		
W x H = 155 x 225		



<b>Non standard lock</b>		
487/089000-016	815105	1
Adaptor kit		
+		
451/070152-061	811327	1

The standard handle can be replaced by adaptor kit + insert or handle

Insert 3 mm double bit key		
451/070152-051	811326	1
Insert 8 mm triangle key		
451/070152-041	811325	1
Insert 8 mm square key		
451/070158-011	811331	1
Cylinder with 2 keys V2432-E		
485/087000-014	813146	1
Neutral handle		
485/087000-023	813156	1
Handle with key V2432-E		



Fix-o-Rail Senior

A

B

C

D

E

F

G

X



## 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 <sup>(1)</sup>**

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 <sup>(1)</sup> 560 x 610 x 105 <sup>(2)</sup>	72	3	140	83	617934	1



800 x 740 x 140 <sup>(1)</sup> 710 x 610 x 105 <sup>(2)</sup>	96	4	152	95	617935	1
--	----	---	-----	----	--------	---



950 x 740 x 140 <sup>(1)</sup> 860 x 610 x 105 <sup>(2)</sup>	120	5	164	110	617936	1
--	-----	---	-----	-----	--------	---



1100 x 740 x 140 <sup>(1)</sup> 1010 x 610 x 105 <sup>(2)</sup>	144	6	176	116	617937	1
--	-----	---	-----	-----	--------	---



Equipped with function for Record Plus 160A D-frame

1100 x 740 x 140 <sup>(1)</sup> 1010 x 610 x 105 <sup>(2)</sup>	120	5	176	116	617938	1
--	-----	---	-----	-----	--------	---

**Transparent and plain doors**

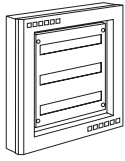


For enclosure	Number of modules	Number of rows	Transparent door	Plain door	Pack.
			Ref. No.	Ref. No.	
617934	72	3	617939	617943	1
617935	96	4	617940	617944	1
617936	120	5	617941	617945	1
617937	144	6	617942	617946	1
617938	120	5	617942	617946	1

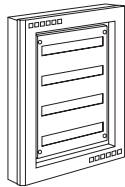
(1) External dimensions  
(2) Internal dimensions

### Fix-o-Rail 144-S - Surface mounting enclosures without door

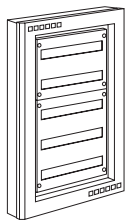
Included ref. 617965 = an earth terminal: copper bar 12 x 5 mm, 18 threaded holes M 5, connectors and screws



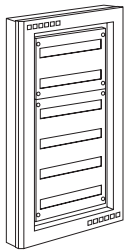
Dimensions H x W x D (mm)	Number of modules	Number of rows	Power dissipation (W)		Ref. No.	Pack.
			Without door	With door		
650 x 740 x 140	72	3	160	88	617966	1



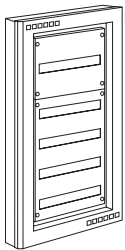
800 x 740 x 140	96	4	175	100	617967	1
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950 x 740 x 140	120	5	187	115	617968	1
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1100 x 740 x 140	144	6	195	125	617969	1
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Equipped with function for 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



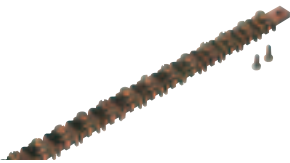
<b>4 pole terminals</b>		
	<b>617992</b>	<b>5</b>
160 A with cover 4x (1 x 10 to 50 mm <sup>2</sup> incoming + 3 x 6 to 35 mm <sup>2</sup> + 8 x 2.5 to 16 mm <sup>2</sup> outgoing) Cu section 12 x 10 mm		



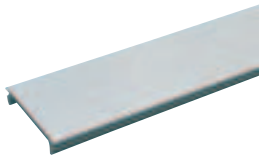
	<b>610020</b>	<b>1</b>
160A connection range 4 x (10 x 10mm <sup>2</sup> ) Cu section 12 x 5 mm		



<b>Protective shroud</b>		
	<b>610021</b>	<b>1</b>
For 160A terminal (ref. 610020)		



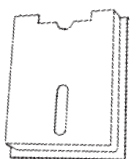
<b>Earth terminal kit</b>		
	<b>617965</b>	<b>1</b>
Cu bar 12x5, 18 threaded holes M5, L=380 mm, with connectors and screws Can be installed in the upper and lower side of the base		



<b>Cover strip</b>		
	<b>828056</b>	<b>1</b>
For cut out of 45 mm		



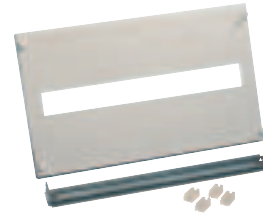
<b>Blank plate</b>		
	<b>610142</b>	<b>4</b>
	<b>610484</b>	<b>500</b>
Length: 72 mm Cut-out width: 45 mm Can be cut into 9 mm lengths RAL 7035		



<b>Pocket for drawings</b>		
	<b>832000</b>	<b>1</b>
Self adhesive - format A4 To be fitted on the innerside of the door W x H = 155 x 225		

### Function for Record Plus 125A

<b>D-frame</b>		
Fix-o-Rail 144 F/S	<b>617018</b>	<b>1</b>
VP-System	<b>617964</b>	<b>1</b>
height = 300 mm		



### Depth adapter & support

	<b>617947</b>	<b>1</b>
PVC profile : lenght 355 mm used with the function 617964		



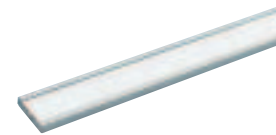
### Security lock

	<b>617948</b>	<b>1</b>
With two keys		



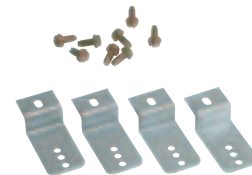
### Label for circuit indication

	<b>610233</b>	<b>10</b>
For enclosure width 550 mm		



### Support for wiring-trunking

	<b>617949</b>	<b>1</b>
--	---------------	----------



### Wiring supports

	<b>828145</b>	<b>1</b>
Cable-tray support (20 pieces)		
	<b>828146</b>	<b>1</b>
Cable-tray (10 pieces)		





*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



Dimensions ● pg F.55





**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

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  $\square$  (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

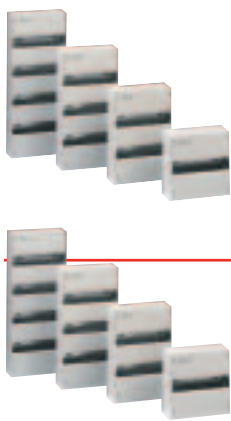
#### The Fix-o-Rail Classic B packaging includes:

- A mounting frame
- A protective cover
- Labels for circuit identification
- Installation guidelines

### Advantages

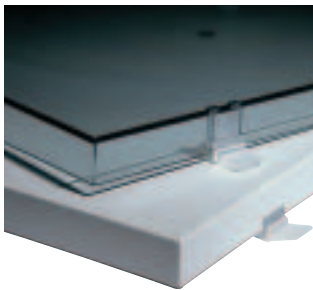
- Two DIN-rail positions: 47 and 55 mm
- Generous wiring room 30 mm behind the mounting frame
- 13 modules on each row
- 125 mm distance between two DIN-rails
- Self positioning protective cover, fixation with four captive quarter-turn screws
- Door can be opened to the left or the right and hinges over 180°
- The Classic range can be coupled

## Fix-o-Rail Classic



Classic A	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 <sup>2</sup> Neutral bar: connection 10 x 16 mm <sup>2</sup>	1	13	619200	1
	375 x 250 x 94	Earth bar: connection 18 x 16 mm <sup>2</sup> Neutral bar: connection 2(8 x 16 mm <sup>2</sup> )	2	26	619201	1
	500 x 250 x 94	Earth bar: connection 27 x 16 mm <sup>2</sup> Neutral bar: connection 2(8 x 16 mm <sup>2</sup> )	3	39	619202	1
	625 x 250 x 94	Earth bar: connection 27 x 16 mm <sup>2</sup> Neutral bar: connection 2(8 x 16 mm <sup>2</sup> )	4	52	618116	1
Classic B	H x W x D (mm)	Equipment	Number of rows	Number of modules	Ref. No.	Pack.
	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 <sup>2</sup>	8 x 16 mm <sup>2</sup>	8 x 16 mm <sup>2</sup>	1 (8 x 16 mm <sup>2</sup> ) + 1 (10 x 16 mm <sup>2</sup> )
10 x 16 mm <sup>2</sup>	10 x 16 mm <sup>2</sup>		1 (8 x 16 mm <sup>2</sup> ) + 1 (14 x 16 mm <sup>2</sup> )
14 x 16 mm <sup>2</sup>			1 (8 x 16 mm <sup>2</sup> ) + 1 (18 x 16 mm <sup>2</sup> )
18 x 16 mm <sup>2</sup>			1 (10 x 16 mm <sup>2</sup> ) + 1 (14 x 16 mm <sup>2</sup> )
27 x 16 mm <sup>2</sup>			

### Equipped insulated support 3P+N + earth assembly

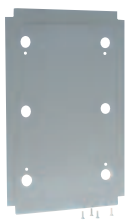
618529 1

5 (8 x 16 mm<sup>2</sup>)



### Insulated backplate + screws

Protects the cables and devices when the cover is mounted on a moist or aggressive surface



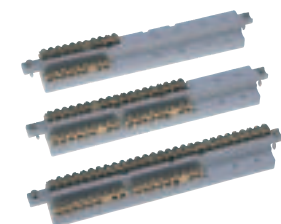
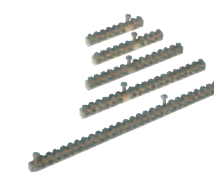
	618505	1
For Classic B - 1 row		
	618511	1
For Classic B - 2 rows		
	618517	1
For Classic B - 3 rows		
	619411	1
For Classic B - 4 rows		

### Equipped insulated support

	618506	1
For Classic B - 1 row		
E: 8 x 16 mm <sup>2</sup> & N: 10 x 16 mm <sup>2</sup>		
	618512	1
For Classic B - 2 rows		
E: 18 x 16 mm <sup>2</sup> & N: 2 (8 x 16 mm <sup>2</sup> )		
	618518	1
For Classic B - 3 rows		
E: 27 x 16 mm <sup>2</sup> & N: 2 (8 x 16 mm <sup>2</sup> )		

### Earth or neutral terminals

	618519	4
8 x 16 mm <sup>2</sup>		
	618520	4
10 x 16 mm <sup>2</sup>		
	618521	4
14 x 16 mm <sup>2</sup>		
	618522	4
18 x 16 mm <sup>2</sup>		
	618523	4
27 x 16 mm <sup>2</sup>		



E = earth connection  
N = neutral connection

\* in metal

A

B

C

D

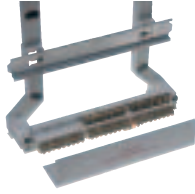
E

**F**

G

X

## Accessories Fix-o-Rail Classic (continued)



### 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

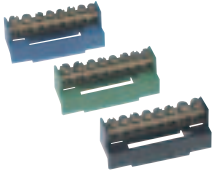
610382	4
--------	---

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 mm<sup>2</sup> + 2 x 16 mm<sup>2</sup>

610186	4
--------	---

Earth terminal 6 x 10 mm<sup>2</sup> + 2 x 16 mm<sup>2</sup>

610187	4
--------	---

Neutral terminal 6 x 10 mm<sup>2</sup> + 2 x 16 mm<sup>2</sup>

### Coupling

618528	2
--------	---



### Sealing bracket

618527	2
--------	---



Notes

Grid of red dots for notes.

Fix-o-Rail Classic

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 <sup>2</sup> Neutral terminal: connection 5 x 16 mm <sup>2</sup>	4	610344	1/15
170 x 175 x 120 Max. depth of the devices: 92.5 mm Entries: 2 x PG21, 4 x PG16	Earth terminal: connection 6 x 10 + 2 x 16 mm <sup>2</sup> Neutral terminal: connection 6 x 10 + 2 x 16 mm <sup>2</sup>	8	610345	1/8

## Accessories

	<b>Earth/neutral terminals</b> <b>For Junior 4 modules</b> <table border="1"> <tr> <td>610141</td> <td>2</td> </tr> </table> Connection range 5 x 16 mm <sup>2</sup>	610141	2	<b>Sealing bracket</b> <table border="1"> <tr> <td>610140</td> <td>2</td> </tr> </table>	610140	2				
	610141	2								
610140	2									
<b>Earth/neutral terminals</b> <b>For Junior 8 modules</b> <table border="1"> <tr> <td>610186</td> <td>4</td> </tr> </table> <b>Earth</b> connection range 6 x 10 mm <sup>2</sup> + 2 x 16 mm <sup>2</sup> <table border="1"> <tr> <td>610187</td> <td>4</td> </tr> </table> <b>Neutral</b> connection range 6 x 10 mm <sup>2</sup> + 2 x 16 mm <sup>2</sup>	610186	4	610187	4	<b>Blank plate 4 modules</b> <table border="1"> <tr> <td>610142</td> <td>4</td> </tr> </table> <table border="1"> <tr> <td>610484</td> <td>500</td> </tr> </table> length: 72 mm cut out width : 45 mm can be cut into 9 mm length RAL 7035	610142	4	610484	500	
610186	4									
610187	4									
610142	4									
610484	500									
<b>Grommets</b> <table border="1"> <tr> <td>610130</td> <td>25</td> </tr> </table> PG16 <table border="1"> <tr> <td>610132</td> <td>25</td> </tr> </table> PG21 <table border="1"> <tr> <td>610133</td> <td>25</td> </tr> </table> PG29	610130	25	610132	25	610133	25				
610130	25									
610132	25									
610133	25									

## Consumer Unit

**BS EN60439-3**

**IP40**



### Applications



### Standard

BS EN 60439-3

### Marking



### Performance

<b>Voltage</b>	240V 50Hz
<b>Rating main switch</b>	100A/63A
<b>Rating RCCB</b>	63A, 80A & 100A
<b>IP rating</b>	IP40
<b>Poles</b>	1P+N
<b>Terminal capacity</b>	25mm <sup>2</sup> + 16mm <sup>2</sup>

### 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 <sup>(1)</sup>	63A	A	MS1	662100	1
2 <sup>(1)</sup>	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



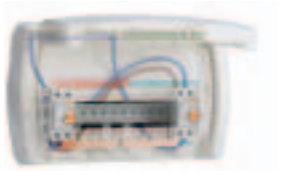
MCB ways	Rating (A)	Sensitivity (mA)	HxWxD code	Cat. No.	Ref. No.	Pack.
1 <sup>(2)</sup>	63A	30mA	A	RM1	662108	1
2 <sup>(2)</sup>	63A	30mA	A	RM2	662109	1
4	80A	30mA	B	RM4	662110	1
6	80A	30mA	B	RM6	662111	1
8	80A	30mA	B	RM8	662112	1
11	80A	30mA	C	RM11	662113	1
13	80A	30mA	D	RM14SPD	662115	1
16	80A	30mA	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				
<i>Pre-configured</i>						
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
<i>Flexible busbar</i>						
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

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				
<b>Pre-configured</b>							
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
<b>Flexible busbar</b>							
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				
<b>Pre-configured</b>						
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
<b>Flexible busbar</b>						
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 <sup>(1)</sup>	63A	A	VCM2	<b>618401</b>	1
4	100A	B	VCM4	<b>618402</b>	1
6	100A	B	VCM6	<b>618403</b>	1
9	100A	C	VCM9	<b>618404</b>	1
13	100A	D	VCM13	<b>618405</b>	1

## Metal RCCB main switch up to 80A



MCB ways	Rating (A)	Sensitivity (mA)	HxWxD code	Cat. No.	Ref. No.	Pack.
2 <sup>(2)</sup>	63A	30mA	A	VCMA2	<b>618406</b>	1
4	80A	30mA	B	VCMA4	<b>618407</b>	1
6	80A	30mA	B	VCMA6	<b>618409</b>	1
9	80A	30mA	C	VCMA9	<b>618411</b>	1
13	80A	30mA	D	VCMA13	<b>618413</b>	1

## Metal split load 100A main switch & 80A 30mA RCCB



MCB ways	Split		HxWxD code	Cat. No.	Ref. No.	Pack.
	Iso	RCCB				
<i>Pre-configured</i>						
6	3	3	C	VCM3A3	<b>618416</b>	1
8	4	4	D	VCM4A4	<b>618419</b>	1
10	5	5	D	VCM5A5	<b>618423</b>	1
14	7	7	D	VCM7A7	<b>618489</b>	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.

A

B

C

D

E

F

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X

### 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



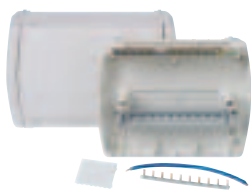
Modules	Cat. No.	Ref. No.	Pack.
4	EC4E+N	610151	1
8	EC8E+N	610345	1

### 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

## 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

A

B

C

D

E

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X



## Insulated enclosures Surface mounting

**Abaco S**

**IP40**

### Marking

**CE**

### 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**

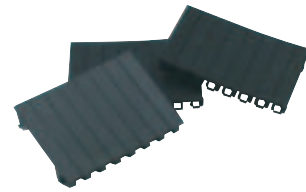


Colour	H x W x D (mm)	Modules 17.5 mm	Number of rows	Ref. No.	Pack.
Grey: RAL 7030	230 x 200 x 110	8/10	1	<b>619375</b>	14
White: RAL 9010	230 x 200 x 110	8/10	1	<b>619376</b>	14
Grey: RAL 7030	300 x 200 x 110	12/14	1	<b>619369</b>	10
White: RAL 9010	300 x 200 x 110	12/14	1	<b>619372</b>	10
Grey: RAL 7030	315 x 400 x 110	24/26	2	<b>619370</b>	1
White: RAL 9010	315 x 400 x 110	24/26	2	<b>619373</b>	1
Grey: RAL 7030	315 x 525 x 110	36/39	3	<b>619371</b>	1
White: RAL 9010	315 x 525 x 110	36/39	3	<b>619374</b>	1

**Accessories**

Insulated support for earth and neutral	
<b>619319</b>	120
for enclosure 6/10 modules connection range 2 x 16 mm <sup>2</sup> + 8 x 10 mm <sup>2</sup>	
<b>619320</b>	120
for enclosure 10/14 modules connection range 2 x 16 mm <sup>2</sup> + 12 x 10 mm <sup>2</sup>	
<b>619321</b>	60
for enclosure 24/36 modules connection range 2 x 16 mm <sup>2</sup> + 12 x 10 mm <sup>2</sup>	

Blank plate	
<b>619323</b>	150
Grey, 5 modules	
<b>619338</b>	150
White, 5 modules	
<b>619339</b>	1
Metallised black, 5 modules	
Security lock	
<b>619350</b>	1
24 and 36 modules	



Abaco S

A

B

C

D

E

F

G

X





## Insulated enclosures Surface mounting

### Fix-o-Rail 150

IP40



Total safety



Complete



Important time saving features



High quality



Great design

### 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.

### 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

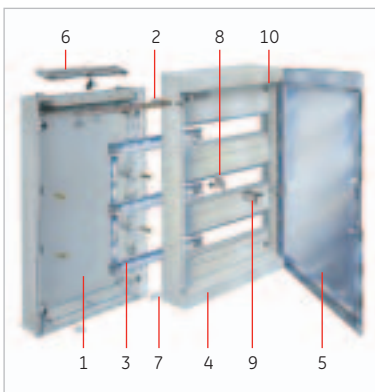


- Fixation with four captive quarter-turn screws
- Removable mounting frame
- All knockouts are easy to remove
- High impact resistance material, colour RAL 7035
- Enclosure and mounting frame are extremely sturdy
- ABS for the base
- Flame resistance: self extinguishing material, resist the 650°C
- 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

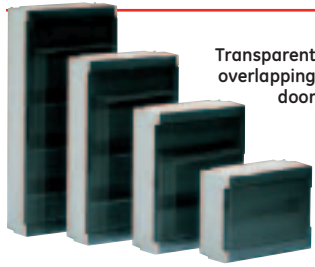


Dimensions ● pg F.52

- |                             |                     |                        |
|-----------------------------|---------------------|------------------------|
| 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 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> In 80A	18	1	610275	1
450 x 355 x 150	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> In 80A	36	2	610285	1
600 x 355 x 150	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> In 100A	54	3	610295	1
750 x 355 x 150	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> In 100A	72	4	610303	1
270 x 355 x 150	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> In 80A	18	1	610276	1
450 x 355 x 150	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> In 80A	36	2	610286	1
600 x 355 x 150	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> In 100A	54	3	610296	1
750 x 355 x 150	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> 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



<b>4 pole terminals</b>		
	<b>610022</b>	18

63A  
Connection range  
4 x (10 x 16 mm<sup>2</sup>)  
Cu section 6,5 x 9 mm



	<b>617992</b>	5
--	---------------	---

160A  
with cover 4x (1 x 10 to 50 mm<sup>2</sup> incoming + 3 x 6 to 35 mm<sup>2</sup> + 8 x 2.5 to 16 mm<sup>2</sup> outgoing)  
Cu section 12 x 10 mm



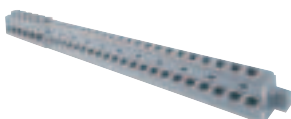
	<b>610020</b>	1
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160A  
Connection range 4 x (10 x 10mm<sup>2</sup>)  
Cu section 12 x 5 mm



<b>Protective shroud</b>		
	<b>610021</b>	1

For 160A terminal (ref. 610020)



<b>Support with screwless earthbar</b>		
	<b>610396</b>	1

Included with all enclosures  
Connection: 6x16 mm<sup>2</sup> and 21x4 mm<sup>2</sup>

### Support with earth or neutral terminals

	<b>610386</b>	4
--	---------------	---

Cable section: 14 x 16 mm<sup>2</sup>  
Delivered with 1 and 2 rows enclosure

	<b>610385</b>	4
--	---------------	---

Cable section: 18 x 16 mm<sup>2</sup>  
Delivered with 3 and 4 rows enclosure



### Support with terminal bars

	<b>610532</b>	4
--	---------------	---

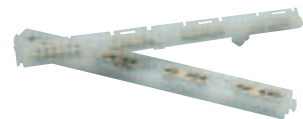
Cable section: 2 (17 x 16 mm<sup>2</sup>)



### Support with terminal bars L1-L2-L3-N

	<b>610387</b>	4
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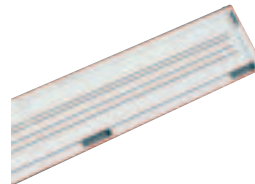
Cable section: 4 (5 x 16 mm<sup>2</sup>)



### Universal entry plate

	<b>610264</b>	2
--	---------------	---

For a sound and safe quality of finish.  
Increases the dust protection. With moulded-in marks for conduits.



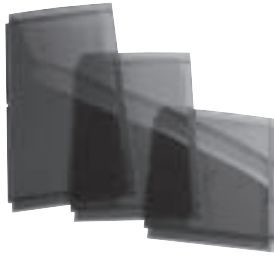
### Universal entry cap

	<b>610272</b>	1
--	---------------	---

Width: 355 mm  
Can be mounted at the bottom or at the top of the enclosure. Easy to fix.  
Useful for the installation of cable glands or universal cable entries



## Accessories Fix-o-Rail 150 (continued)



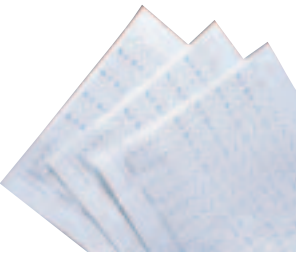
### Transparent replacement door

610277	1
For enclosure 610275	
610287	1
For enclosure 610285	
610297	1
For enclosure 610295	
610305	1
For enclosure 610303	



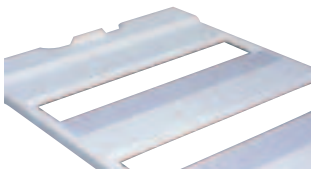
### Plain replacement door

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



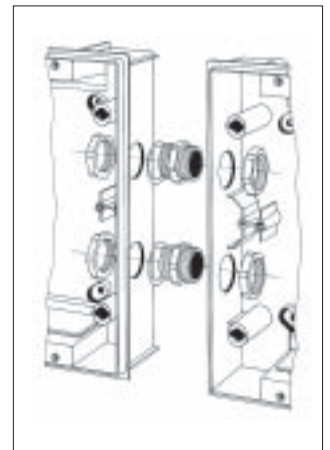
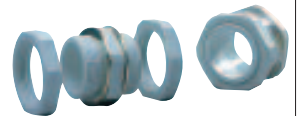
### Drawing pocket

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



Notes

Grid area for notes, consisting of a large grid of small red dots.

Fix-o-Rail 150

A

B

C

D

E

F

G

X





## Insulated enclosures Surface mounting

### Fix-o-Rail 55

IP55

### Approvals / Marking



### Standards

EN 60439-3

### Applications



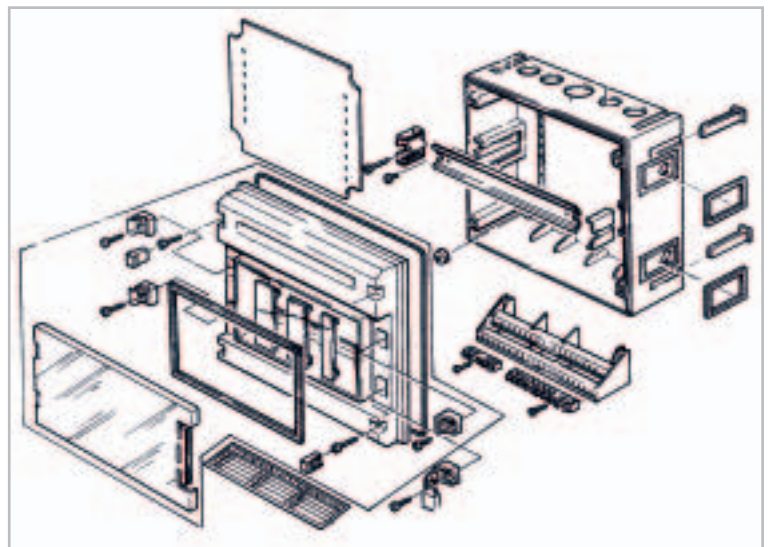
The Fix-o-Rail 55 enclosures are designed for power distribution in environments requiring a high protection degree.

### 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  $\square$
- 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



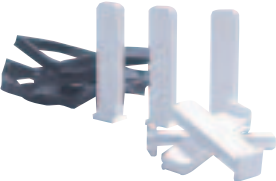



Dimensions ● pg F.56

## 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 <sup>2</sup> and 6x10 mm <sup>2</sup>	12	1	610316	1
	375 x 285 x 136	Earth bar, connection range: 2x16 mm <sup>2</sup> and 8x16 mm <sup>2</sup>	24	2	610317	1
	500 x 285 x 136	Earth bar, connection range: 2x16 mm <sup>2</sup> and 12x16 mm <sup>2</sup>	36	3	610318	1

## Accessories

	<b>Terminal</b> Additional busbar for earth and neutral connections	
	Cable section: 2 x 16 mm <sup>2</sup> and 6 x 6 mm <sup>2</sup>	
	<b>Coupling set</b> To couple two enclosures in a simple way	



## Insulated enclosures Surface mounting

**Europe Line**

**IP30**

A

### Standards

DIN 43871 and DIN VDE 0603 Part 1

B

C

D

E

F

### 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)


G

X





### Europe Line - dimensions

	Type	Dimensions H x W (mm)	Surface depth (mm)
Distribution boards surface mounting without door	KV AP12	245 x 300	103.5
	KV AP24	370 x 300	103.5
	KV AP36	495 x 300	103.5
	KV AP48	620 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




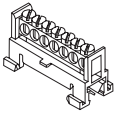
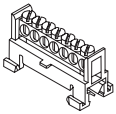
Europe Line - distribution boards

	No. of rows	No. of modules	Cat. No.	Ref. No.	Pack	
 <p>Surface mounting distribution board without door</p>	1	12	KV AP12	564538	1	
	2	24	KV AP24	564539	1	
	3	36	KV AP36	564540	1	
	4	48	KV AP48	564541	1	
	<b>Versions with screwless earth (PE/N) bar</b>					
	1	12	-	619413	1	
	2	24	-	619414	1	
	3	36	-	619415	1	
4	48	-	619416	1		

Europe Line - Accessories

	No. of rows		Cat. No.	Ref. No.	Pack
 <p>Plain metal door</p>	1		AAZTS12A	564061	1
	2		AAZTS24A	564062	1
	3		AAZTS36A	564063	1
	4		AAZTS48A	564064	1
 <p>Metal door with clear window for surface mounting distribution boards</p>	1		TAP12	564533	1
	2		TAP24	564546	1
	3		TAP36	564547	1
	4		TAP48	564548	1
<p>Mounting plate</p>	2		AAZM2	564066	1
	3		AAZM3	564067	1
	4		AAZM4	564068	1
<p>Door security lock</p>	In (A)		Cat. No.	Ref. No.	Pack.
	Surface mounting, different keys		AAZTA2	564350	1
	Surface mounting, same keys		AAZTA1	564056	1
 <p>PE / N bar without support</p>	12-pole		AAZK12	564050	1
	16-pole		AAZK16	564051	1
	33-pole		AAZK33	564052	1
<p>Busbars</p>	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
 <p>Support</p>	PE terminal		AAZPN16	564047	1
	PE / N terminal		AAZP33	564048	1
	PE / N terminal		AAZN33	564049	1
	N terminal		AAZPN12	564046	1

### Europe Line - Accessories (continued)

	<b>Partition vertical</b>				
	2 rows		AAZA2	564043	1
	4 rows		AAZA4	564045	1
	<b>Partition horizontal</b>		AAZA10	564041	1
	<b>RCCB-Clamps</b>		AAZN3	564053	1
	<b>Mounting rail with reduced height</b>	Increase mounting depth by 20 mm	AAZG1	564054	1
	<b>Label for circuit indication</b>	1, 2 rows	AAZP11	564352	1
		3, 4 rows	AAZP12	564353	1
	<b>Clamps for neutral conductor</b>		LK/N7	546297	1
			LK/N12	546298	1
			LK/N15	546299	1
	<b>Clamps for protective conductor</b>		SKU 16/5	546300	1
			SKU 35/5	546301	1
	<b>Rail</b>	1000 mm long	PS	564092	20
	<b>Filling piece</b>	8,75 mm to disperse the heat for DIN-rail EN 50022/05.78	FST	546331	25

A

B

C

D

E

F

G

X



Notes

Grid area for notes, consisting of a large grid of small red dots.

Europe Line

A

B

C

D

E

F

G

X





## 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.





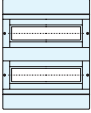
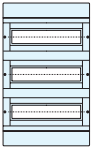
### Features

- 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



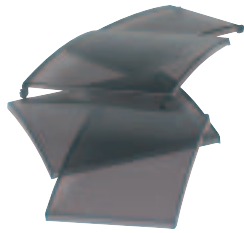
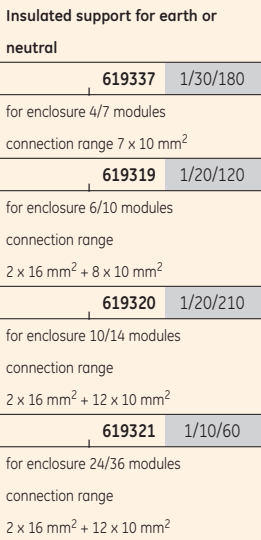
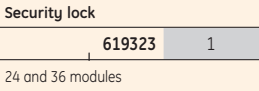
Dimensions ● pg F.58



**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**

	<b>Coupling</b>					
		619322	10/100/600			
			2/4 and 10/14 modules			
	<b>Blank plate</b>					
		619323	150/450			
			Grey, 5 modules			
		619338	150/450			
			White, 5 modules			
		619339	1/450			
			Metallised black, 5 modules			
	<b>Transparent lid</b>					
		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				
	<b>Insulated support for earth or neutral</b>					
		619337	1/30/180			
			for enclosure 4/7 modules			
			connection range 7 x 10 mm <sup>2</sup>			
		619319	1/20/120			
			for enclosure 6/10 modules			
			connection range			
			2 x 16 mm <sup>2</sup> + 8 x 10 mm <sup>2</sup>			
		619320	1/20/210			
			for enclosure 10/14 modules			
		connection range				
		2 x 16 mm <sup>2</sup> + 12 x 10 mm <sup>2</sup>				
	619321	1/10/60				
		for enclosure 24/36 modules				
		connection range				
		2 x 16 mm <sup>2</sup> + 12 x 10 mm <sup>2</sup>				
	<b>Security lock</b>					
		619323	1			
			24 and 36 modules			

Abaco F

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-IP07
- **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:

- screwless earth bar
- neutral 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

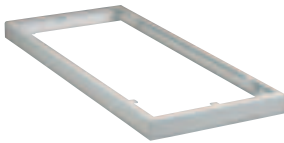
H x W x D (mm)	Equipment	No. of modules	No. of rows	Ref. No.	Pack.	
350 x 375 x 108	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> Neutral bar: connection 14x16 mm <sup>2</sup>	In 50A	14	1	610368	1
525 x 375 x 108	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> Neutral bar: connection 14x16 mm <sup>2</sup>	In 63A	28	2	610369	1
675 x 375 x 108	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> Neutral bar: connection 14x16 mm <sup>2</sup>	In 80A	42	3	610370	1
825 x 375 x 108	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> Neutral bar: connection 18x16 mm <sup>2</sup>	In 100A	56	4	610371	1

Plain door

350 x 375 x 108	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> Neutral bar: connection 14x16 mm <sup>2</sup>	In 50A	14	1	610372	1
525 x 375 x 108	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> Neutral bar: connection 14x16 mm <sup>2</sup>	In 63A	28	2	610373	1
675 x 375 x 108	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> Neutral bar: connection 18x16 mm <sup>2</sup>	In 80A	42	3	610374	1
825 x 375 x 108	Earth bar: connection 6x16 mm <sup>2</sup> and 21x4 mm <sup>2</sup> Neutral bar: connection 18x16 mm <sup>2</sup>	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
--------	---

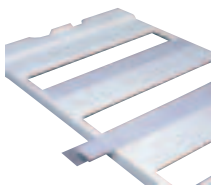
Cable section: 18 x 16 mm<sup>2</sup>  
Delivered with 3 and 4 rows enclosures

610386	4
--------	---

Cable section: 14 x 16 mm<sup>2</sup>  
Delivered with 1 and 2 rows enclosures



### Labels and label holders

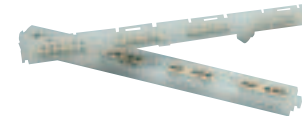


610383	1
Set of 50 pieces	

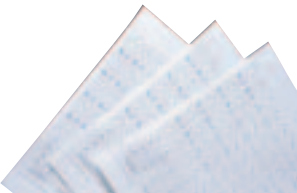
### Support with terminals L1, L2, L3, N

610387	4
--------	---

Cable section: 4 (5 x 16 mm<sup>2</sup>)



### Adhesive pictograms

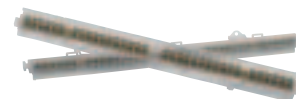


610380	1
For clear and permanent identification of circuits	
Set of 50 pieces	

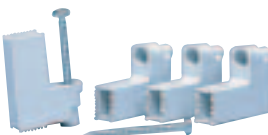
### Support with terminals

610532	4
--------	---

Cable section: 2 (17 x 16 mm<sup>2</sup>)



### Grips



610381	1
For building into studded walls	



## Approvals / Marking



## Junction boxes

### Flex-o-Box

IP65



## Features

### Flex-o-Box Junior

#### Technical data

- Suitable for surface mounting
- 2.5 mm<sup>2</sup> - 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 650°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"

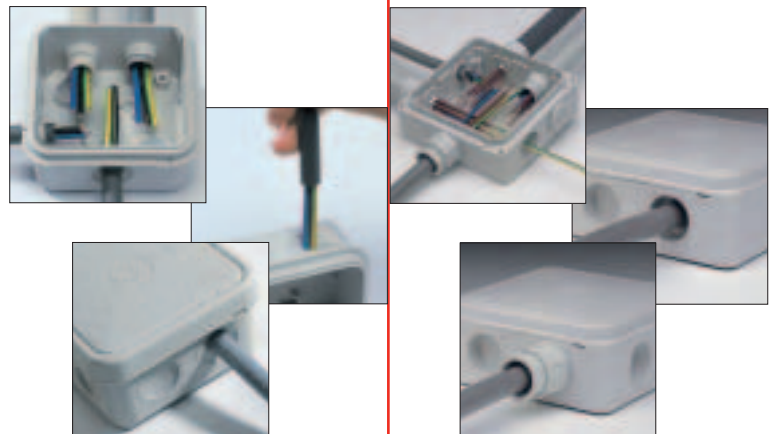
### Flex-o-Box JB<sup>6</sup>

#### Technical data

- Suitable for surface mounting
- 6 mm<sup>2</sup> - 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 650°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)

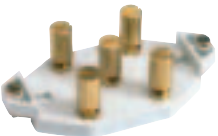





Dimensions ● pg F.59

## Flex-o-Box

		Ref. No.	Pack.
	<b>Junior</b> Junction box 2.5 mm <sup>2</sup> Junction box 2.5 mm <sup>2</sup> (34 pieces in a red polybox basket)	600656	10/100
		600314	1
	<b>JB<sup>6</sup></b> Junction box 6 mm <sup>2</sup> Junction box 6 mm <sup>2</sup> (24 pieces in a grey polybox basket)	600651	10/100
		600310	1

## Accessories

	for Junior and JB <sup>6</sup>		only for JB <sup>6</sup>					
	<b>Terminal block</b> <table border="1"> <tr> <td>600950</td> <td>30</td> </tr> </table> 6 mm <sup>2</sup> - 500V - pin-type 5-terminal blocks Possible connections per terminal: 6 x 1.5 mm <sup>2</sup> 2 x 6 mm <sup>2</sup> 4 x 2.5 mm <sup>2</sup> 2 x 10 mm <sup>2</sup> 3 x 4 mm <sup>2</sup>	600950	30		<b>Cable seal</b> <table border="1"> <tr> <td>851046</td> <td>50</td> </tr> </table> PG16 grey	851046	50	
	600950	30						
851046	50							
	<b>Terminal strip</b> <table border="1"> <tr> <td>600650</td> <td>20/200</td> </tr> </table> 6 mm <sup>2</sup> - 500V - hole-type 5-terminal strips Possible connections per terminal: 6 x 1.5 mm <sup>2</sup> 3 x 4 mm <sup>2</sup> 4 x 2.5 mm <sup>2</sup> 2 x 6 mm <sup>2</sup>	600650	20/200	<b>Entry socket for tube</b> <table border="1"> <tr> <td>600933</td> <td>25/300</td> </tr> </table> PG16 for tube 5/8" grey <table border="1"> <tr> <td>600934</td> <td>25/300</td> </tr> </table> PG16 for tube 3/4" grey for tube ø 16 mm for tube ø 20 mm	600933	25/300	600934	25/300
	600650	20/200						
600933	25/300							
600934	25/300							
	<b>Insulated cap</b> <table border="1"> <tr> <td>600945</td> <td>25</td> </tr> </table> PG16 grey	600945	25					
600945	25							
	<b>Screws</b> For cover fastening <table border="1"> <tr> <td>600652</td> <td>40</td> </tr> </table> Stainless steel	600652	40					
600652	40							

## Junction boxes

### Series 55

IP66



### Approval



### Applications

- As an empty box
- As a junction box (10/16/25 mm<sup>2</sup>)
- Coupled

### Features

- Standard: EN/IEC 529
- Material: thermoplastic high impact polyphenylene oxide
- Total insulation: ☑

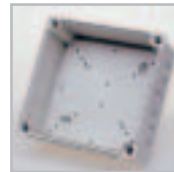
### Dimensions

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



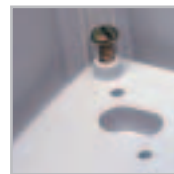
The cable entries are selective knockouts placed as close as possible to the wall.



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 mm<sup>2</sup>

☐ IP66 - IK07

	Cover	Entries	Characteristics	Ref. No.	Pack.
	grey	5 x PG 16/21	Empty. Can be equipped with terminal blocks 600516	<b>600514</b>	16
	grey	5 x PG 16/21	Equipped with terminal blocks 600516: 5 clamps with maximum capacity: 5 x 4 mm <sup>2</sup> / 4 x 6 mm <sup>2</sup> / 3 x 10 mm <sup>2</sup>	<b>600515</b>	16




## Series 55200 - 16 mm<sup>2</sup>

☐ 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	<b>600517</b>	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 <sup>2</sup> / 4 x 10 mm <sup>2</sup> / 3 x 16 mm <sup>2</sup>	<b>600524</b>	9
	transparent	6 x PG 16/21 5 x PG 21/29	Empty	<b>600523</b>	9

## Series 55300 - 25 mm<sup>2</sup>

☐ IP66 - IK07

	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)	<b>600532</b>	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 <sup>2</sup> / 3 x 25 mm <sup>2</sup> / 2 x 35 mm <sup>2</sup>	<b>600543</b>	9
	transparent	8 x PG 21 6 x PG 21/29	Empty	<b>600539</b>	9

## Accessories Series 55

	<p><b>Terminal blocks 500V 10 mm<sup>2</sup></b></p> <table border="1"> <tr> <td>600516</td> <td>6</td> </tr> </table> <p>Set terminal blocks with two fixation screws. With five clamps suitable for Al or Cu connection.</p> <p>Maximum cable section per clamp: 5 x 4 mm<sup>2</sup> / 5 x 4 mm<sup>2</sup> / 5 x 4 mm<sup>2</sup>.</p> <p>Can be fitted in types 55100 and 55200.</p>	600516	6	<p><b>Couplings</b></p> <table border="1"> <tr> <td>600509</td> <td>1</td> </tr> </table> <p>Set of two pieces PG21</p> <p>It is possible to combine types 55200 and 55300</p>	600509	1					
600516	6										
600509	1										
	<p><b>Terminal blocks 500V 16 mm<sup>2</sup></b></p> <table border="1"> <tr> <td>600525</td> <td>6</td> </tr> </table> <p>With five clamps, suitable for Al or Cu connection.</p> <p>Maximum cable section per clamp: 5 x 6 mm<sup>2</sup> / 4 x 10 mm<sup>2</sup> / 3 x 16 mm<sup>2</sup>.</p> <p>Can be fitted in types 55200 and 55300.</p>	600525	6	<p><b>Compression glands</b></p> <table border="1"> <tr> <td>600504</td> <td>25</td> </tr> <tr> <td>600505</td> <td>25</td> </tr> </table> <p>PG21 with nut in glass fibre reinforced polyamide. Grey.</p> <p>PG29 with nut in glass fibre reinforced polyamide. Grey.</p>	600504	25	600505	25			
600525	6										
600504	25										
600505	25										
	<p><b>Terminal blocks 500V 16 mm<sup>2</sup></b></p> <table border="1"> <tr> <td>600526</td> <td>24</td> </tr> </table> <p>With one clamp/nut (with nut), suitable for Al or Cu connection.</p> <p>Maximum cable section per clamp: 5 x 6 mm<sup>2</sup> / 4 x 10 mm<sup>2</sup> / 3 x 16 mm<sup>2</sup>.</p> <p>Can be fitted in types 55200 and 55300.</p>	600526	24	<p><b>Compression glands</b></p> <table border="1"> <tr> <td>600501</td> <td>25</td> </tr> <tr> <td>600502</td> <td>25</td> </tr> </table> <p>PG21 polyamide with nut in glass fibre reinforced polyamide. Brown.</p> <p>PG29 polyamide with nut in glass fibre reinforced polyamide. Brown.</p>	600501	25	600502	25			
600526	24										
600501	25										
600502	25										
	<p><b>Terminal blocks 500V 25 mm<sup>2</sup></b></p> <table border="1"> <tr> <td>600544</td> <td>24</td> </tr> </table> <p>With one clamp/nut (with nut), suitable for Al or Cu connection.</p> <p>Maximum cable section per clamp: 4 x 16 mm<sup>2</sup> / 3 x 25 mm<sup>2</sup> / 2 x 35 mm<sup>2</sup>.</p> <p>Can be fitted in types 55200 and 55300.</p>	600544	24	<p><b>Locknuts</b></p> <table border="1"> <tr> <td>600506</td> <td>100</td> </tr> <tr> <td>600507</td> <td>50</td> </tr> </table> <p>Nut in glass fibre reinforced polyamide to connect compression glands PG21. Grey.</p> <p>Nut in glass fibre reinforced polyamide to connect compression glands PG29. Grey.</p>	600506	100	600507	50			
600544	24										
600506	100										
600507	50										
	<p><b>Terminal blocks 500V 25 mm<sup>2</sup></b></p> <table border="1"> <tr> <td>600545</td> <td>24</td> </tr> </table> <p>With one clamp/nut (double nut), suitable for Al or Cu connection.</p> <p>Maximum cable section per clamp: 4 x 16 mm<sup>2</sup> / 3 x 25 mm<sup>2</sup> / 2 x 35 mm<sup>2</sup>.</p> <p>Can be fitted in types 55200 and 55300.</p>	600545	24	<p><b>Universal entries (grey)</b></p> <table border="1"> <tr> <td>610130</td> <td>25</td> </tr> <tr> <td>610132</td> <td>25</td> </tr> <tr> <td>610133</td> <td>25</td> </tr> </table> <p>Cable max. 18 mm, drill 23 mm, PG16</p> <p>Cable max. 24 mm, drill 29 mm, PG21</p> <p>Cable max. 32 mm, drill 38 mm, PG29.</p>	610130	25	610132	25	610133	25	
600545	24										
610130	25										
610132	25										
610133	25										
	<p><b>Insulated cap</b></p> <table border="1"> <tr> <td>890838</td> <td>48</td> </tr> </table> <p>Suitable for terminal blocks 600526 600544 600545</p>	890838	48								
890838	48										

Notes

Grid area for notes, consisting of a large grid of small red dots.

Series 55

A

B

C

D

E

F

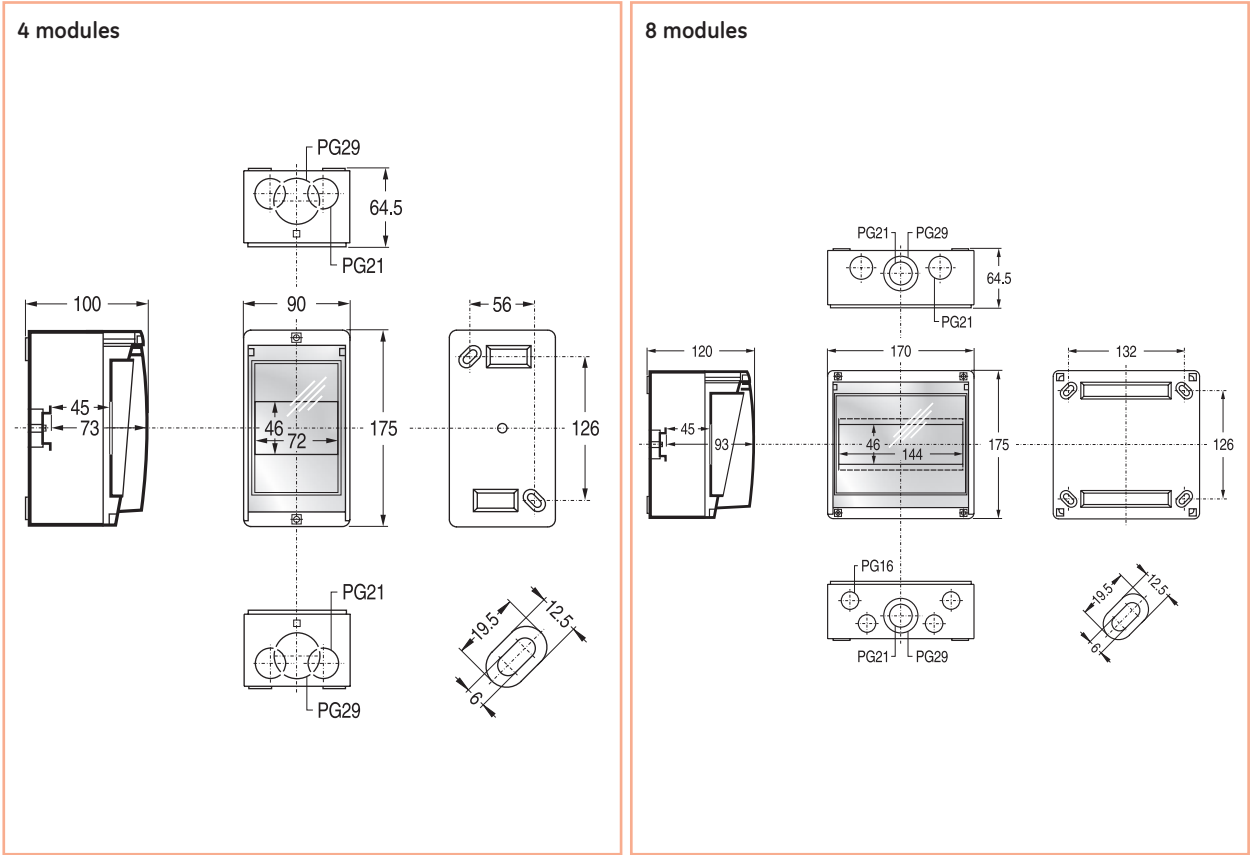
G

X

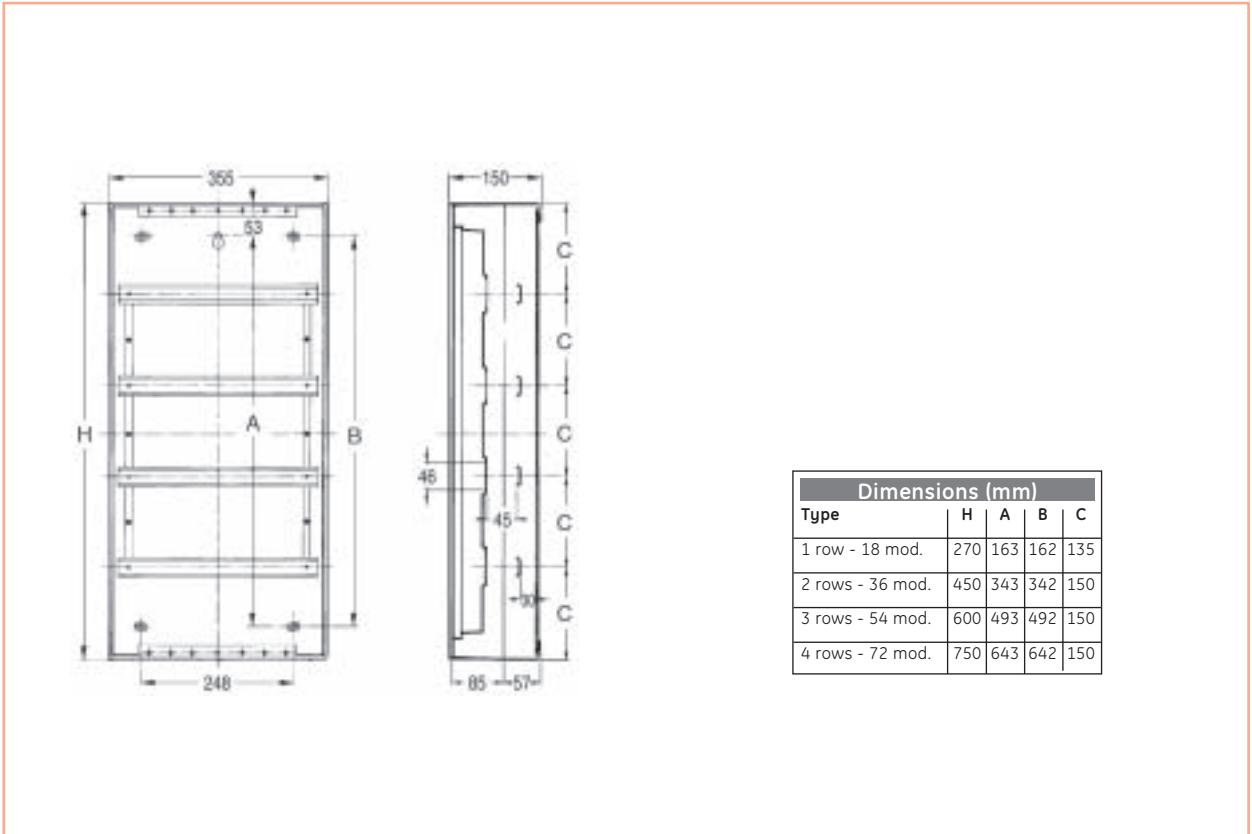


## Dimensional drawings

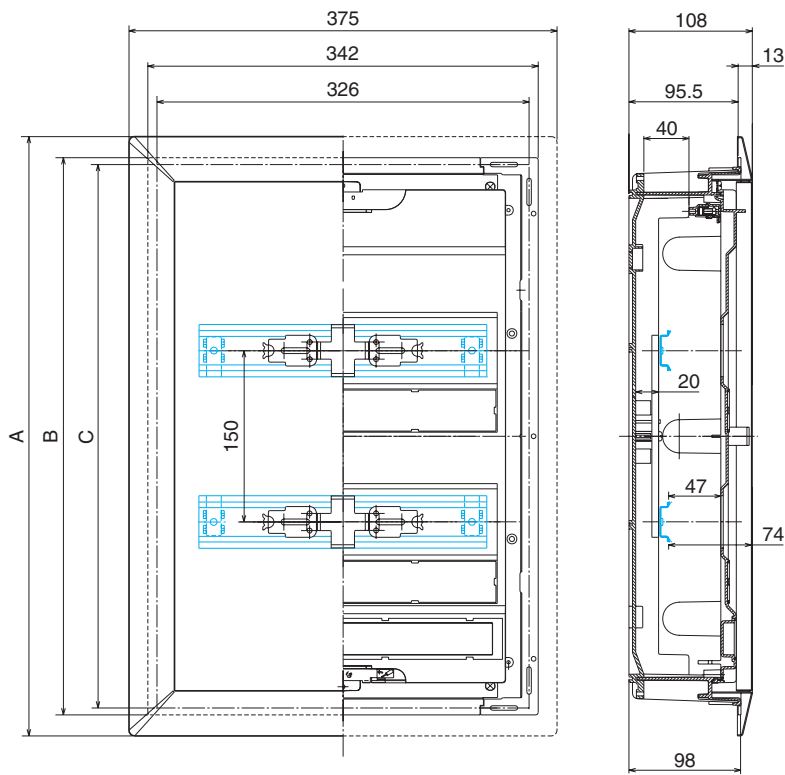
### Fix-o-Rail Junior - Surface mounting



### Fix-o-Rail 150 - Surface mounting



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

Dimensions

A

B

C

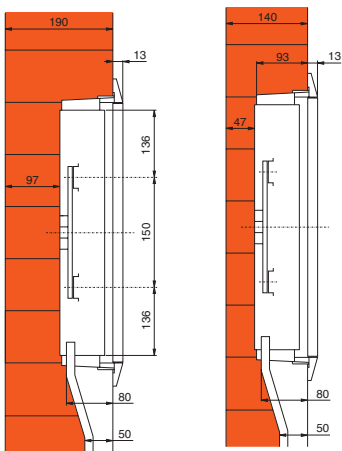
D

E

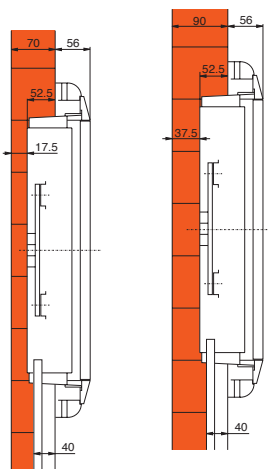
F

G

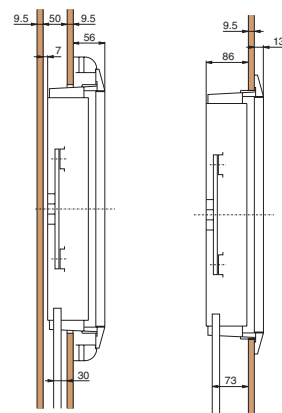
X



Flush mounting into brickwork



Flush mounting and semi flush mounting into brickwork

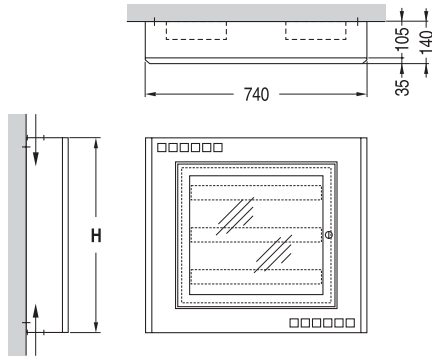


Semi flush mounting into studed walls

## Dimensional drawings

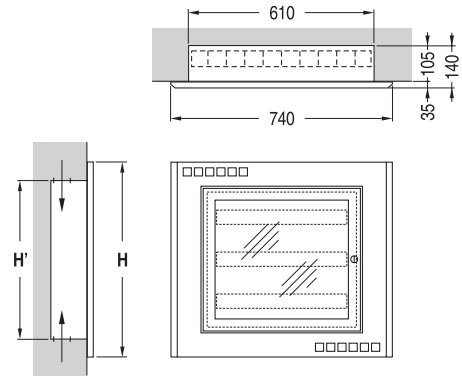
### Fix-o-Rail 144

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

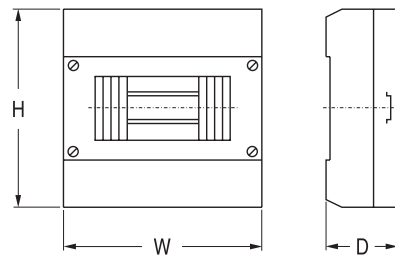
Fix-o-Rail 144 F  
Flush mounting



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

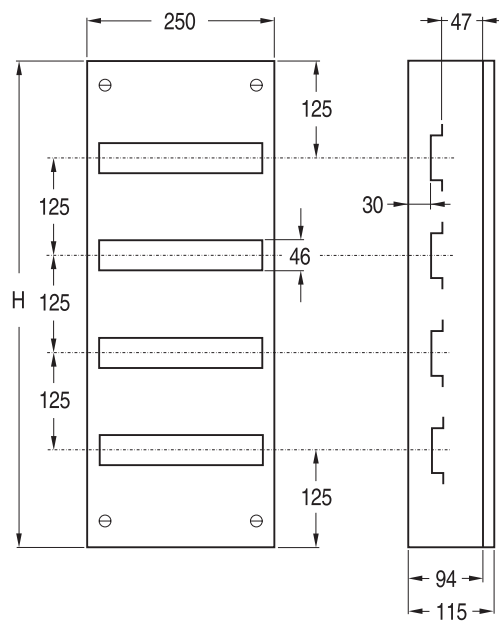


**Fix-o-Rail Covers - Surface mounting**



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 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

Dimensions

A

B

C

D

E

F

G

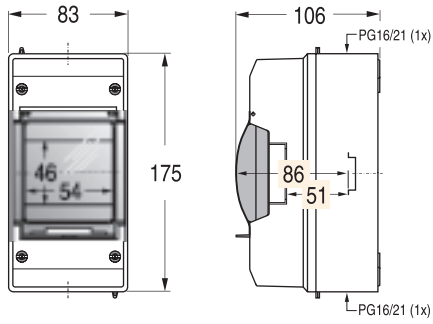
X



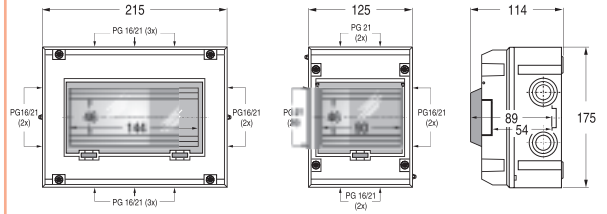
## Dimensional drawings

### Fix-o-Rail 55 - Surface mounting

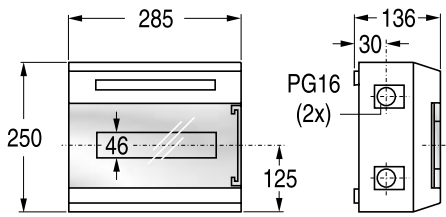
3 modules



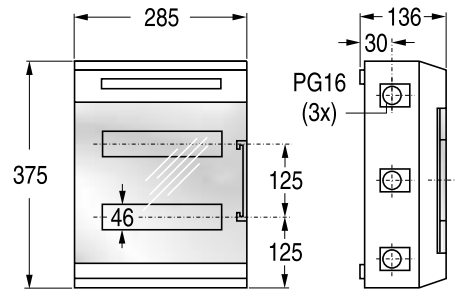
5-8 modules



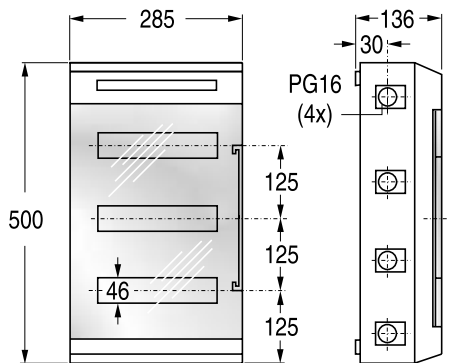
12 modules



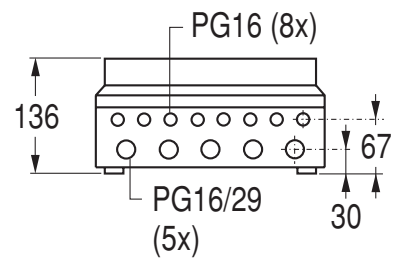
24 modules



36 modules

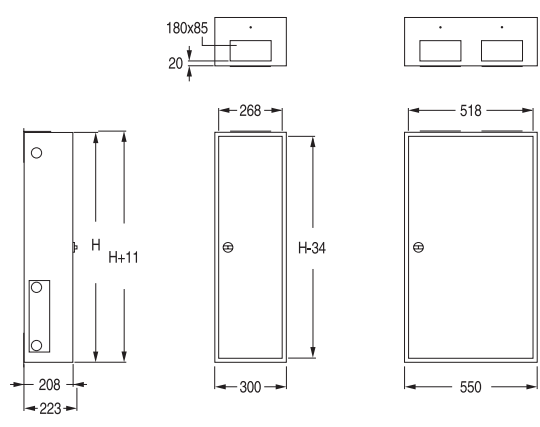
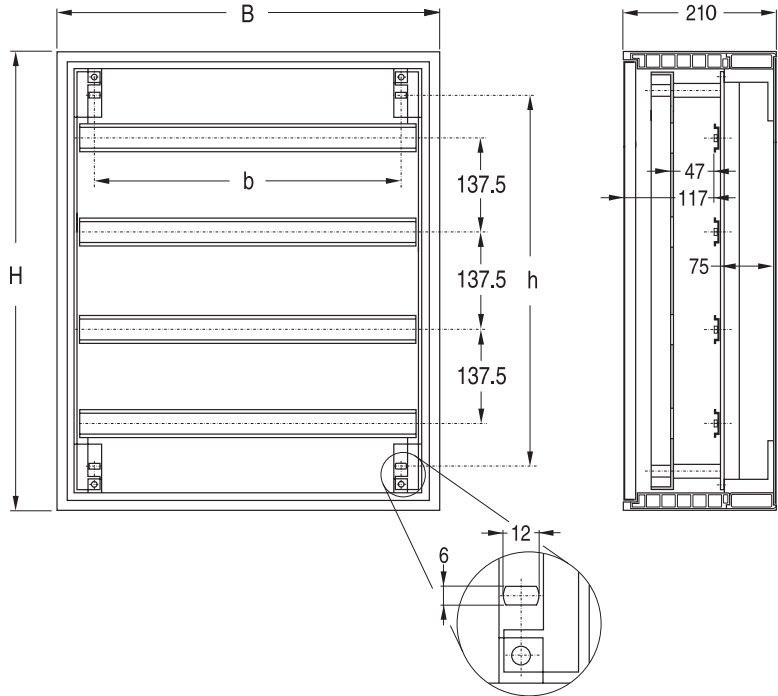


Top/bottom view





Fix-o-Rail Senior - Surface mounting



Dimensions (mm)				
Type	B	b	H	H <sub>a</sub>
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
7 rows - 168 mod.	550	441	1100	851
7 rows - 252 mod.	550	441	1250	1001
8 rows - 192 mod.	800	691	1100	851
8 rows - 288 mod.	800	691	1250	1001

Dimenions

A

B

C

D

E

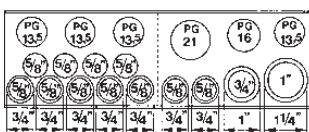
F

G

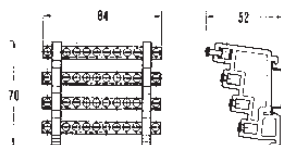
X

Accessories distribution boards

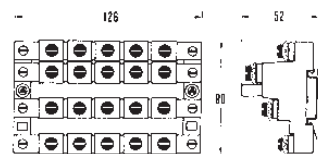
Gland plate



4P terminal 63A



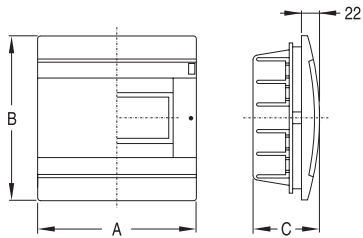
4P terminal 160A



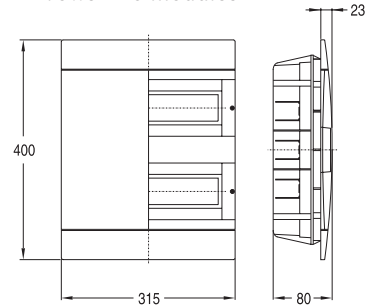
## Dimensional drawings

### Abaco F - Flush mounting

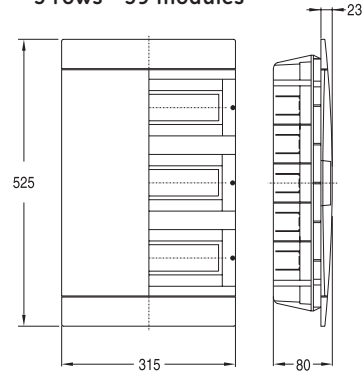
1 row - 14 modules



2 rows - 26 modules

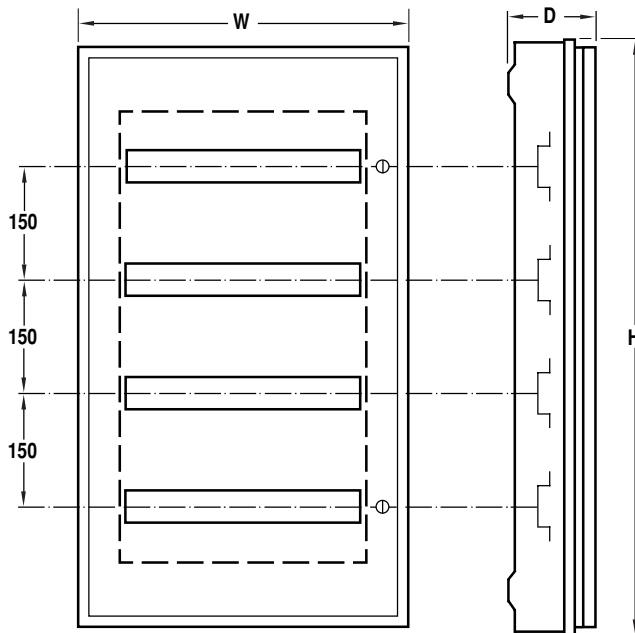


3 rows - 39 modules



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 JB<sup>6</sup>**

Series 55 - Junction box

**Series 55100**

**Series 55300**

**Series 55200**

Dimensions

A

B

C

D

E

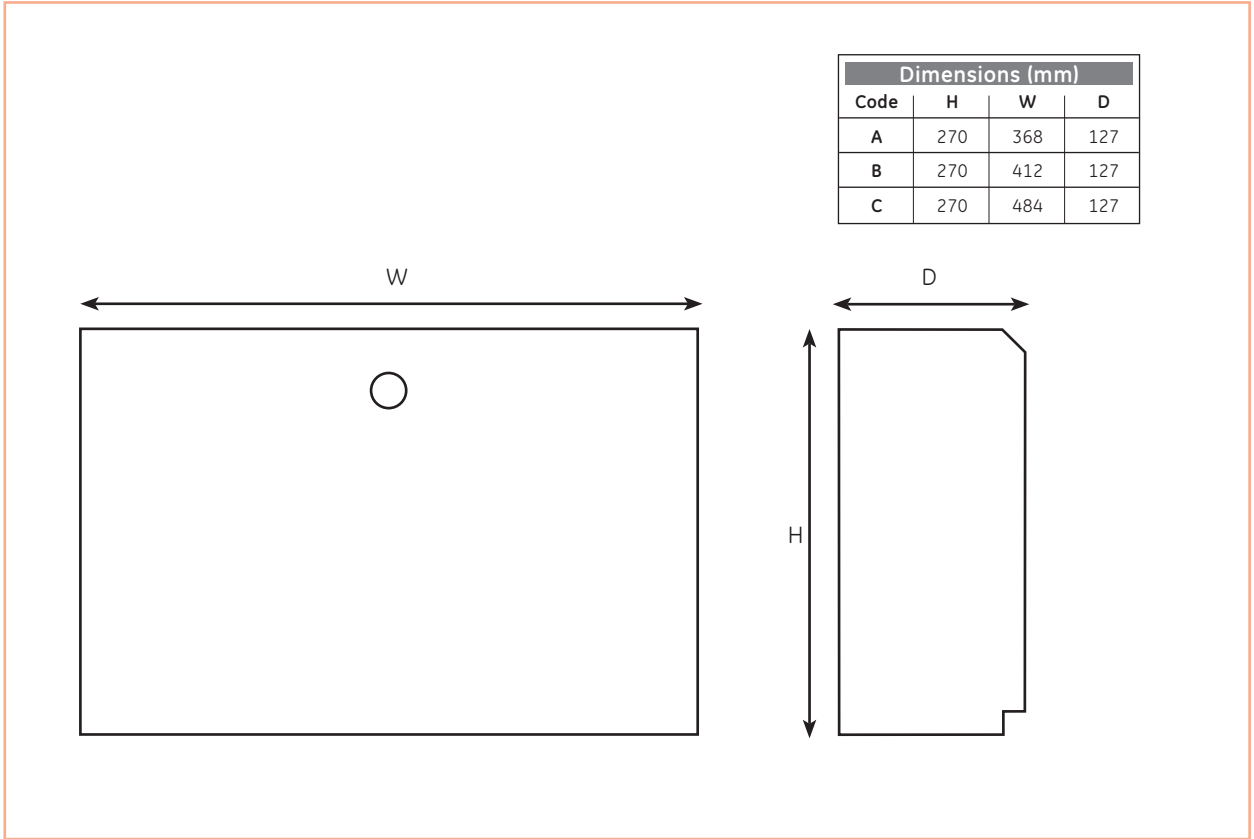
F

G

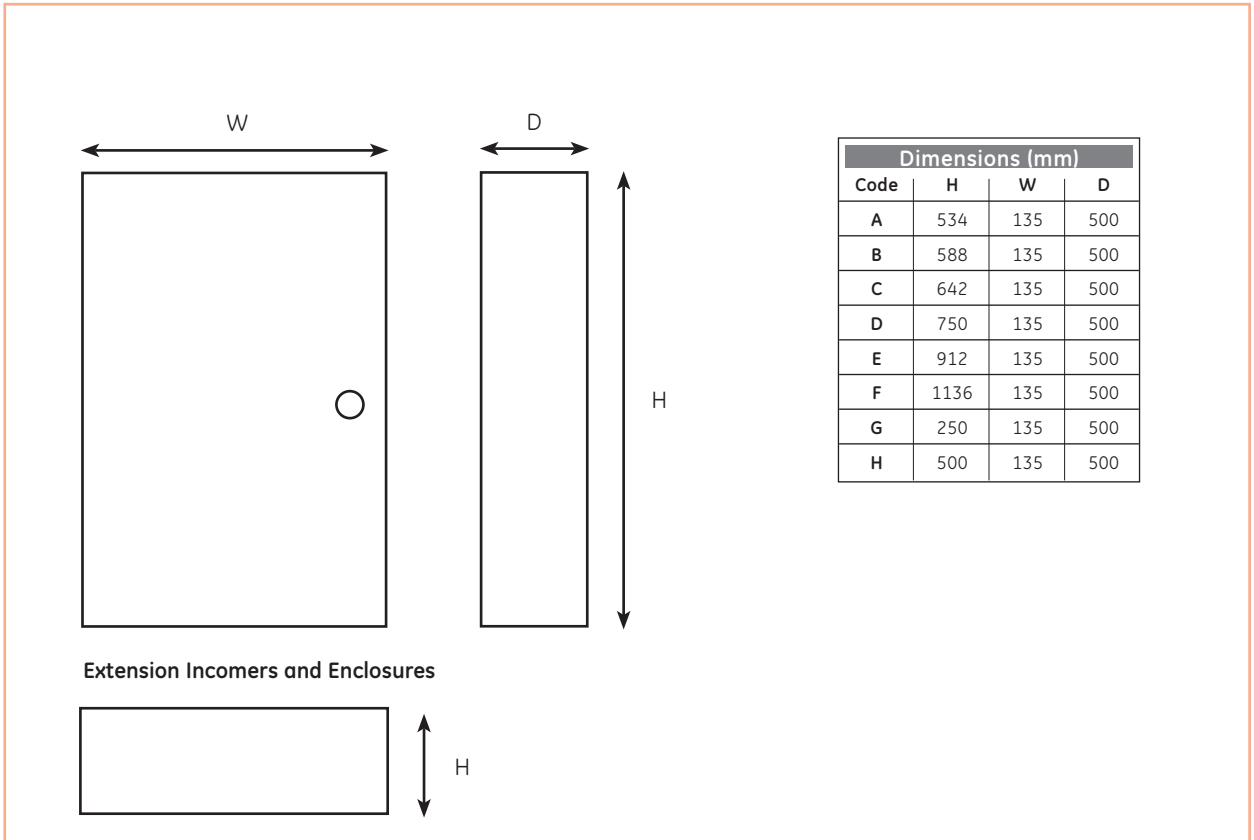
X

## Dimensional drawings

### Modular 200 - distribution board - Type A



### Modular 200 - distribution board - Type B



- Record Plus**
- G.2 FD frame 160A
  - G.3 FD - Complete Circuit Breaker - Residual Current Devices
  - G.4 FD - Internal Accessories - Operators
  - G.5 FD - Installation Accessories - Connections: Optional
  - G.6 Dimensional Drawings

Circuit Protection	A
People Protection	B
Add-on Devices	C
Comfort Functions	D
Busbars	E
Enclosures	F
<b>MCCB's Record Plus</b>	<b>G</b>
Numerical Index	X



A

B

C

D

E

F

G

X



## Moulded Case Circuit Breakers

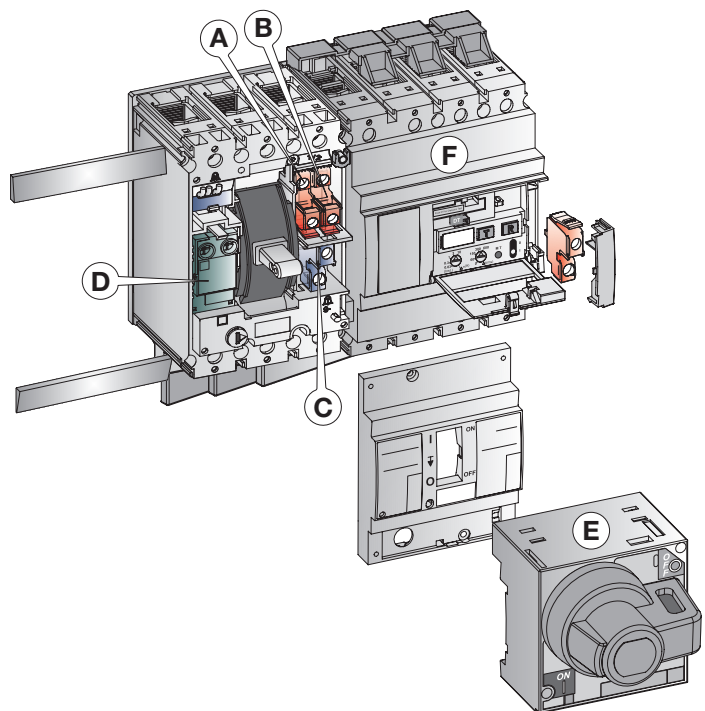
### FD frame 160A

Circuit breaker type		FD63/160E
<b>EN/IEC 60947-2</b>		
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
<b>Line Protection Device</b>		
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 Ir [kA]	230V AC	25
	400/415V AC	4,5
	Endurance (CO operations)	Mechanical
Endurance (ON-tripped operations)	Electrical at In	5000
	Electrical at In/2	10000
	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

- (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 <sup>(1)</sup>



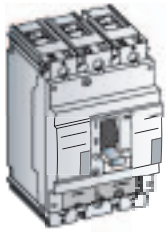
(1) Bottom mounted version is also available (below trip unit)

Dimensions ● pg G.6



## FD 63/160 - Complete Circuit Breaker

### Line Thermal Magnetic LTM (adjustable thermals)



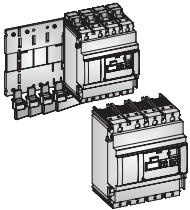
In (A)	3 pole 3 trips		4 pole 4 trips <sup>(1)</sup>	
	Cat. No.	Ref. No.	Cat. No.	Ref. No.
16	FDE36TE016ED	433649	FDE46TE016ED	433697
20	FDE36TE020ED	433651	FDE46TE020ED	433699
25	FDE36TE025ED	433653	FDE46TE025ED	433701
32	FDE36TE032ED	433655	FDE46TE032ED	433703
40	FDE36TE040ED	433657	FDE46TE040ED	433705
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

25 kA FDE

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<sup>(2)</sup>



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

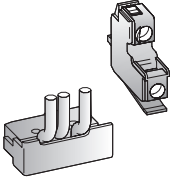
G

X

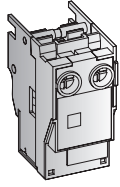
For complete range of  
Record Plus MCCB's  
up to 1250A  
ask for special catalogue



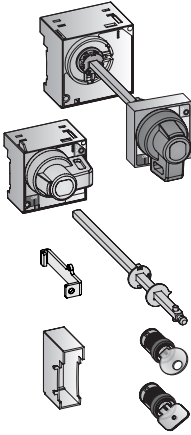
## FD - Internal Accessories

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	FAUVRU	436472		
	440/480V AC			FAUVRU	430873		

## FD - Operators

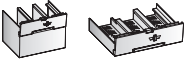
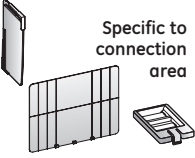
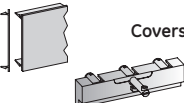
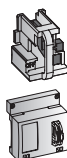

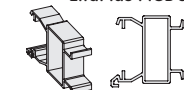

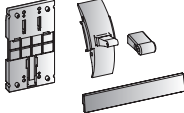
Rotary Handles	Direct on unit device		Rotary handle for use through door or cover plate <sup>(2)</sup>		Panel or door mounted		
	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
	Grey (max. 350 mm)	FDNRF/5	436478	FDNRC/5	436474	FDNRD/5	436476
	Red (max. 350 mm)	FDNRFV/5	436479	FDNRCV/5	436475	FDNRDV/5	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 <sup>(1)</sup>	FA1BR1	430088				
	Ronis Key lock 2 <sup>(1)</sup>	FA1BR2	430089				
	Ronis Key lock 3 <sup>(1)</sup>	FA1BR3	430504				
	Ronis Key lock 4 <sup>(1)</sup>	FA1BR4	430505				
	Ronis Key lock 5 <sup>(1)</sup>	FA1BR5	430506				
Ronis Key lock 6 <sup>(1)</sup>	FA1BR6	430507					
Ronis Key lock <sup>(1)</sup>	FA1BRH	430068					
Profalux Key lock <sup>(1)</sup>	FA1BPH	430813					

(1) Key included

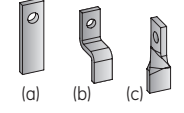
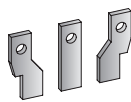
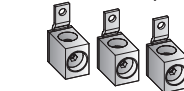
(2) Add door flange FDFH to allow use of the door interlock options



## FD - Installation Accessories

		Cat. No.	Ref. No.
<b>Terminal shields (with finishing covers)</b> 	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
<b>Specific to connection area</b> 	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
<b>Covers</b> 	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
<b>Padlocking devices for toggle operator<sup>(1)</sup></b> 	Padlocking removable	FD1PR	430879
	Padlocking fixed	FD1PF	430878
<b>Circuit indication/ coding</b> 	Set of 20 blank labels	FAC	430821
<b>Heightening set for ElfaPlus MCB's</b> 	Length 354 mm	FDKE	617947
<b>Door Flanges</b> 	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
<b>Spare Parts</b> 	DIN-rail adaptor kit 3pole <sup>(2)</sup>	FDKD3	430966
	DIN-rail adaptor kit 4pole <sup>(2)</sup>	FDKD4	430967
	Spare toggle (set of 5 pieces)	FDUT	433539
	Finishing covers 3pole, set of 2 pcs. <sup>(2)</sup>	FUA3	431025
	Finishing covers 4pole, set of 2 pcs. <sup>(2)</sup>	FUA4	431026

## FD - Connections: Optional

<b>Extenders<sup>(3)</sup></b> 	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
	Twisted 90° 4pole	FDBEA4	430884
<b>Spreader Flat<sup>(3)</sup></b> 	Pole spacing 35 mm, 3pole	FDBSS3	430891
	Pole spacing 35 mm, 4pole	FDBSS4	430892
<b>External Box Clamps<sup>(3)</sup></b> 	Box clamp Cu/Al 95 mm <sup>2</sup> , set 3pole <sup>(4)</sup>	FDTCA1316	433400
	Box clamp Cu/Al 95 mm <sup>2</sup> , set 4pole <sup>(4)</sup>	FDTCA1416	433401

(1) Padlocks not included

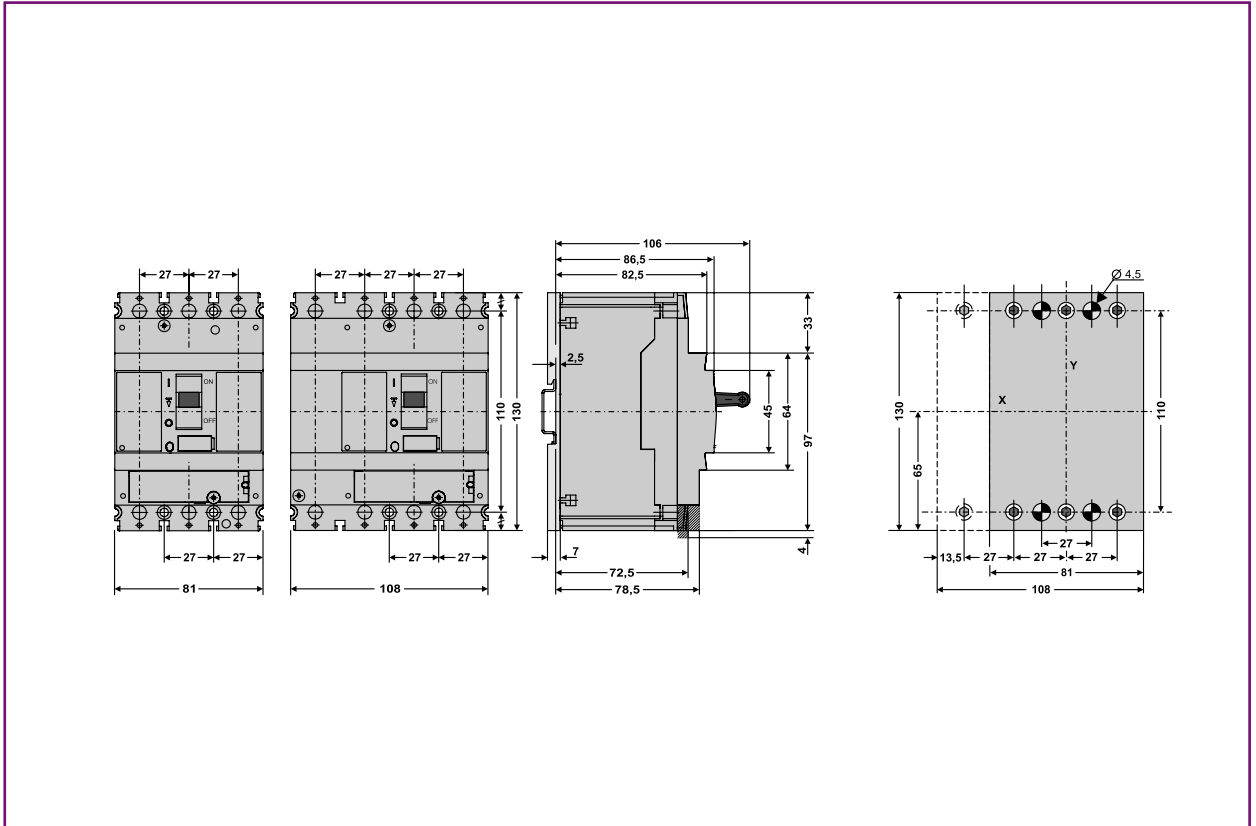
(2) Supplied with breakers, not with FDE type

(3) Set for equipping the line OR load side of breaker

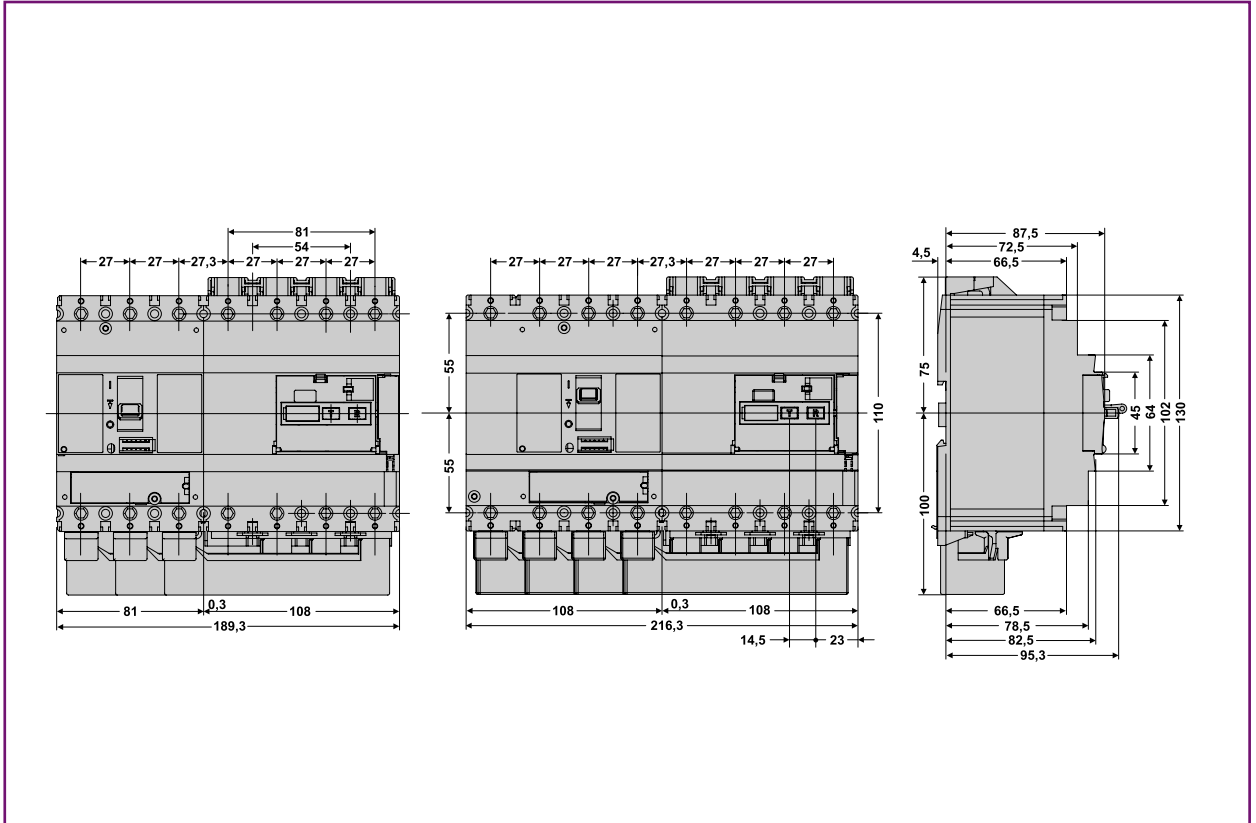
(4) External lugs are always delivered with standard extender

## Dimensional Drawings

### Breakers FD63/160 Fixed, Front connected



### RCD Side mounted - FD63/160



Circuit protection

A

B

C

D

E

F

G

X



- X.2 Numerical index by reference number
- X.14 Numerical index by catalogue number
- X.24 e-catalogue

Circuit Protection	A
People Protection	B
Add-on Devices	C
Comfort Functions	D
Busbars	E
Enclosures	F
MCCB's Record Plus	G
Numerical Index	X



Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
290000			433711	FDE46TE080GD	G.3	564540	-	F.39	605164	DMEA100C06/010	B.15
290234	EP103ULHB05	A.41	433713	FDE46TE100GD	G.3	564541	-	F.39	605165	DMEA100C10/010	B.15
290237	EP103ULHB13	A.41	433715	FDE46TE125GD	G.3	564546	-	F.39	605166	DMEA100C16/010	B.15
290238	EP103ULHB15	A.41	433717	FDE46TE160GD	G.3	564547	-	F.39	605167	DMEA100C20/010	B.15
290242	EP103ULHB30	A.41	435118	FASHTH	G.4	564548	-	F.39	605168	DMEA100C25/010	B.15
400000			435120	FAUVRH	G.4	568106	EV-G.14.80-90°	D.39	605169	DMEA100C32/010	B.15
409000	LLINK1	F.29	436472	FAUVR8	G.4	590009			605170	DMEA100C40/010	B.15
430000			436474	FDNRC/5	G.4	594009	NLINK1	F.29	605171	DMEA100C06/030	B.15
430068	FA1BRH	G.4	436475	FDNRCV/5	G.4	600000			605172	DMEA100C10/030	B.15
430069	FDJK	G.5	436476	FDNRD/5	G.4	600232	EDRE	A.50	605173	DMEA100C16/030	B.15
430088	FA1BR1	G.4	436477	FDNRD/5	G.4	600310	-	F.47	605174	DMEA100C20/030	B.15
430089	FA1BR2	G.4	436478	FDNRF/	G.4	600314	-	F.47	605175	DMEA100C25/030	B.15
430504	FA1BR3	G.4	436479	FDNRFV/	G.4	600501	-	F.50	605176	DMEA100C32/030	B.15
430505	FA1BR4	G.4	436487	FDNRY/5	G.4	600502	-	F.50	605177	DMEA100C40/030	B.15
430506	FA1BR5	G.4	436488	FDNRYV/5	G.4	600504	-	F.50	606085	BPA216/010	B.7
430507	FA1BR6	G.4	436489	FDNRZ/5	G.4	600505	-	F.50	606086	BPA225/030	B.7
430813	FA1BPH	G.4	436490	FDNRZV/5	G.4	600506	-	F.50	606087	BPA240/030	B.7
430815	FABAT01	G.4	540000			600507	-	F.50	606088	BPA263/030	B.7
430818	FABAT10	G.4	544173	-	E.4	600509	-	F.50	606089	BPA280/030	B.7
430821	FAC	G.5	544181	-	E.3	600514	-	F.49	606090	BPA2100/030	B.7
430828	FAS01L	G.4	544186	-	E.3	600515	-	F.49	606091	BPA225/100	B.7
430829	PDFH	G.5	544188	-	E.4	600516	-	F.50	606092	BPA240/100	B.7
430830	FDUF3	G.5	544189	-	E.5	600517	-	F.49	606093	BPA263/100	B.7
430831	FAS01R	G.4	544191	-	E.4	600523	-	F.49	606094	BPA280/100	B.7
430832	FDUF4	G.5	544192	-	E.4	600524	-	F.49	606095	BPA2100/100	B.7
430834	FAS10L	G.4	544193	-	E.3	600525	-	F.50	606096	BPS225/100	B.7
430837	FAS10R	G.4	544331	VBANPE	D.37	600526	-	F.50	606097	BPS240/100	B.7
430840	FASHTB	G.4	545857	VED63	D.37	600532	-	F.49	606098	BPS263/100	B.7
430843	FASHTD	G.4	545879	VED35	D.37	600539	-	F.49	606099	BPS280/100	B.7
430846	FASHTF	G.4	546125	-	E.5	600543	-	F.49	606100	BPS2100/100	B.7
430849	FASHTJ	G.4	546126	-	E.5	600544	-	F.50	606101	BPA225/300	B.7
430852	FASHTN	G.4	546127	-	E.5	600545	-	F.50	606102	BPA240/300	B.7
430855	FASHTU	G.4	546128	-	E.5	600573	-	F.37	606103	BPA263/300	B.7
430858	FAUVDN	G.4	546129	-	E.5	600574	-	F.37	606104	BPA280/300	B.7
430861	FAUVRD	G.4	546130	-	E.3	600575	-	F.37	606105	BPA2100/300	B.7
430864	FAUVRF	G.4	546139	-	E.3	600650	-	F.47	606106	BPS225/300	B.7
430867	FAUVRJ	G.4	546142	-	E.3	600651	-	F.47	606107	BPS240/300	B.7
430870	FAUVRN	G.4	546143	-	E.7	600652	-	F.47	606108	BPS263/300	B.7
430873	FAUVRU	G.4	546152	-	E.5	600656	-	F.47	606109	BPS280/300	B.7
430878	FD1PF	G.5	546181	-	E.5	600933	-	F.47	606110	BPS2100/300	B.7
430879	FD1PR	G.5	546181	-	E.6	600934	-	F.47	606111	BPA225/500	B.7
430883	FDBEA3	G.5	546184	-	E.5	600945	-	F.47	606112	BPA240/500	B.7
430884	FDBEA4	G.5	546184	-	E.6	600950	-	F.47	606113	BPA263/500	B.7
430885	FDBEH3	G.5	546187	-	E.4	605030	DME100B06/010	B.15	606114	BPA280/500	B.7
430886	FDBEH4	G.5	546200	-	E.5	605031	DME100B10/010	B.15	606115	BPA2100/500	B.7
430887	FDBES3	G.5	546227	-	E.4	605032	DME100B16/010	B.15	606116	BPS2100/500	B.7
430888	FDBES4	G.5	546229	-	E.4	605033	DME100B20/010	B.15	606117	BPS240/500	B.7
430891	FDBSS3	G.5	546230	-	E.4	605034	DME100B25/010	B.15	606118	BPS263/500	B.7
430892	FDBSS4	G.5	546234	-	E.4	605035	DME100B32/010	B.15	606119	BPS280/500	B.7
430941	FDFF3	G.5	546249	-	E.4	605036	DME100B40/010	B.15	606120	BPS2100/500	B.7
430942	FDFF4	G.5	546255	-	E.3	605037	DME100B06/030	B.15	606121	BPA225/1000	B.7
430945	FDJB	G.5	546272	-	E.4	605038	DME100B10/030	B.15	606122	BPA240/1000	B.7
430951	FDJL3	G.5	546278	-	E.3	605039	DME100B16/030	B.15	606123	BPA263/1000	B.7
430954	FDJL4	G.5	546287	-	E.5	605040	DME100B20/030	B.15	606124	BPA280/1000	B.7
430957	FDJP	G.5	546288	-	E.5	605041	DME100B25/030	B.15	606125	BPA2100/1000	B.7
430960	FDJS3	G.5	546291	-	E.5	605042	DME100B32/030	B.15	606126	BPS225/1000	B.7
430963	FDJS4	G.5	546291	-	E.9	605043	DME100B40/030	B.15	606127	BPS240/1000	B.7
430966	FDKD3	G.5	546297	LK/N7	F.40	605044	DME100C06/010	B.15	606128	BPS263/1000	B.7
430967	FDKD4	G.5	546298	LK/N12	F.40	605045	DME100C10/010	B.15	606129	BPS280/1000	B.7
430968	FDNFT	G.4	546299	LK/N15	F.40	605046	DME100C16/010	B.15	606130	BPS2100/1000	B.7
430971	FDNR4	G.4	546300	SKU 16/	F.40	605047	DME100C20/010	B.15	606131	BPC216/010*	B.7
430986	FDNRE	G.4	546301	SKU 35/	F.40	605048	DME100C25/010	B.15	606134	BPC263/030	B.7
431025	FDUA3	G.5	546331	FST	F.40	605049	DME100C32/010	B.15	606135	BPC280/030	B.7
431026	FDUA4	G.5	560000			605050	DME100C40/010	B.15	606136	BPC2100/030	B.7
431086	FDQDI3M/6	G.3	560174	VBAB1	D.37	605051	DME100C06/030	B.15	606140	BPC225/100	B.7
431088	FDQDI4M/6	G.3	560186	VBAB3	D.37	605052	DME100C10/030	B.15	606141	BPC240/100	B.7
431090	FDQDS3H/6	G.3	564041	AAZA10	F.40	605053	DME100C16/030	B.15	606142	BPC263/100	B.7
431095	FDQDS3M/6	G.3	564045	AAZA4	F.40	605054	DME100C20/030	B.15	606143	BPC280/100	B.7
431101	FDQDS4H/6	G.3	564046	AAZPN12	F.39	605055	DME100C25/030	B.15	606144	BPC2100/100	B.7
431103	FDQDS4M/6	G.3	564047	AAZPN16	F.39	605056	DME100C32/030	B.15	606150	BPC263/300	B.7
432010	FDFE	G.5	564048	AAZP33	F.39	605057	DME100C40/030	B.15	606151	BPC280/300	B.7
433400	FDTCA1316	G.5	564049	AAZN33	F.39	605060	DME60C06/030	B.15	606152	BPC2100/300	B.7
433401	FDTCA1416	G.5	564050	AAZK12	F.39	605061	DME60C10/030	B.15	606153	BPC225/500	B.7
433539	FDUT	G.5	564051	AAZK16	F.39	605062	DME60C16/030	B.15	606154	BPC240/500	B.7
433649	FDE36TE016ED	G.3	564052	AAZK33	F.39	605063	DME60C20/030	B.15	606155	BPC263/500	B.7
433651	FDE36TE020ED	G.3	564053	AAZN3	F.40	605064	DME60C25/030	B.15	606156	BPC280/500	B.7
433653	FDE36TE025ED	G.3	564054	AAZG1	F.40	605065	DME60C32/030	B.15	606157	BPC2100/500	B.7
433655	FDE36TE032ED	G.3	564056	AAZTA1	F.39	605066	DME60C40/030	B.15	606158	BPC225/1000	B.7
433657	FDE36TE040ED	G.3	564061	-	F.39	605150	DMEA100B06/010	B.15	606159	BPC240/1000	B.7
433659	FDE36TE050ED	G.3	564062	-	F.39	605151	DMEA100B10/010	B.15	606160	BPC263/1000	B.7
433661	FDE36TE063ED	G.3	564063	-	F.39	605152	DMEA100B16/010	B.15	606161	BPC280/1000	B.7
433663	FDE36TE080GD	G.3	564064	-	F.39	605153	DMEA100B20/010	B.15	606162	BPC2100/1000	B.7
433665	FDE36TE100GD	G.3	564066	-	F.39	605154	DMEA100B25/010	B.15	606163	BPA425/030	B.7
433667	FDE36TE125GD	G.3	564067	-	F.39	605155	DMEA100B32/010	B.15	606164	BPA440/030	B.7
433669	FDE36TE160GD	G.3	564068	-	F.39	605156	DMEA100B40/010	B.15	606165	BPA463/030	B.7
433697	FDE46TE016ED	G.3	564092	PS	F.40	605157	DMEA100B06/030	B.15	606166	BPA480/030	B.7
433699	FDE46TE020ED	G.3	564350	AAZTA2	F.39	605158	DMEA100B10/030	B.15	606167	BPA4100/030	B.7
433701	FDE46TE025ED	G.3	564352	AAZP11	F.40	605159	DMEA100B16/030	B.15	606168	BPA425/100	B.7
433703	FDE46TE032ED	G.3	564353	AAZP12	F.40	605160	DMEA100B20/030	B.15	606169	BPA440/100	B.7
433705	FDE46TE040ED	G.3	564533	-	F.39	605161	DMEA100B25/030	B.15	606170	BPA463/100	B.7
433707	FDE46TE050ED	G.3	564538	-	F.39	605162	DMEA100B32/030	B.15	606171	BPA480/100	B.7
433709	FDE46TE063ED	G.3	564539	-	F.39	605163	DMEA100B40/030	B.15	606172	BPA4100/100	B.7



Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
606173	BPS425/100	B.7	607507	DOCA 263/100	B.17	608377	FPAUL 216/010	B.18	609769	DMA60C04/010	B.9
606174	BPS440/100	B.7	607508	DOCA 263/300	B.17	608378	FPAUL 225/030	B.18	609770	DMA60C06/010	B.9
606175	BPS463/100	B.7	607509	DOCA 263/500	B.17	608379	FPAUL 225/100	B.18	609771	DMA60C10/010	B.9
606176	BPS480/100	B.7	607510	DOCA 263/1000	B.17	608380	FPAUL 225/300	B.18	609772	DMA60C13/010	B.9
606177	BPS4100/100	B.7	607513	DOCS 232/100	B.17	608381	FPAUL 225/500	B.18	609773	DMA60C16/010	B.9
606178	BPA425/300	B.7	607514	DOCS 232/300	B.17	608382	FPAUL 240/030	B.18	609774	DMA60C20/010	B.9
606179	BPA440/300	B.7	607515	DOCS 232/500	B.17	608383	FPAUL 240/100	B.18	609775	DMA60C04/030	B.9
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	607548	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					

Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
609861	DM60C25/300	B.9	609953	DM100B32/300	B.11	610295	-	F.33	617966	-	F.14
609862	DM60C32/300	B.9	609954	DM100B40/300	B.11	610296	-	F.33	617967	-	F.14
609863	DM60C40/300	B.9	609955	DM100C04/010	B.11	610297	-	F.34	617968	-	F.14
609864	DMA100B06/010	B.11	609956	DM100C06/010	B.11	610301	-	F.34	617969	-	F.14
609865	DMA100B10/010	B.11	609957	DM100C10/010	B.11	610303	-	F.33	617970	-	F.14
609866	DMA100B13/010	B.11	609958	DM100C13/010	B.11	610304	-	F.33	617971	-	F.5
609867	DMA100B16/010	B.11	609959	DM100C16/010	B.11	610305	-	F.34	617972	-	F.5
609868	DMA100B20/010	B.11	609960	DM100C20/010	B.11	610306	-	F.34	617973	-	F.5
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	618116	-	F.19
609873	DMA100B20/030	B.11	609965	DM100C16/030	B.11	610317	-	F.37	618117	-	F.19
609874	DMA100B25/030	B.11	609966	DM100C20/030	B.11	610318	-	F.37	618300	-	F.8
609875	DMA100B32/030	B.11	609967	DM100C25/030	B.11	610327	-	F.34	618401	VCM2	F.27
609876	DMA100B40/030	B.11	609968	DM100C32/030	B.11	610328	-	F.10	618402	VCM4	F.27
609877	DMA100B06/100	B.11	609969	DM100C40/030	B.11	610329	-	F.10	618403	VCM6	F.27
609878	DMA100B10/100	B.11	609970	DM100C04/100	B.11	610330	-	F.10	618404	VCM9	F.27
609879	DMA100B13/100	B.11	609971	DM100C06/100	B.11	610331	-	F.10	618405	VCM13	F.27
609880	DMA100B16/100	B.11	609972	DM100C10/100	B.11	610332	-	F.10	618406	VCM2A	F.27
609881	DMA100B20/100	B.11	609973	DM100C13/100	B.11	610344	-	F.23	618407	VCM4A	F.27
609882	DMA100B25/100	B.11	609974	DM100C16/100	B.11	610345	-	F.23	618409	VCM6A	F.27
609883	DMA100B32/100	B.11	609975	DM100C20/100	B.11	610345	-	F.28	618411	VCM9A	F.27
609884	DMA100B40/100	B.11	609976	DM100C25/100	B.11	610354	-	F.17	618413	VCM13	F.27
609885	DMA100B06/300	B.11	609977	DM100C32/100	B.11	610355	-	F.17	618416	VCM3A3	F.27
609886	DMA100B10/300	B.11	609978	DM100C40/100	B.11	610368	-	F.45	618419	VCM4A4	F.27
609887	DMA100B13/300	B.11	609979	DM100C04/300	B.11	610369	-	F.45	618423	VCM5A5	F.27
609888	DMA100B16/300	B.11	609980	DM100C06/300	B.11	610370	-	F.45	618442	-	F.3
609889	DMA100B20/300	B.11	609981	DM100C10/300	B.11	610371	-	F.45	618443	-	F.3
609890	DMA100B25/300	B.11	609982	DM100C13/300	B.11	610372	-	F.45	618444	-	F.3
609891	DMA100B32/300	B.11	609983	DM100C16/300	B.11	610373	-	F.45	618489	VCM7A7	F.27
609892	DMA100B40/300	B.11	609984	DM100C20/300	B.11	610374	-	F.45	618503	-	F.19
609893	DMA100C04/010	B.11	609985	DM100C25/300	B.11	610375	-	F.45	618505	-	F.19
609894	DMA100C06/010	B.11	609986	DM100C32/300	B.11	610376	-	F.45	618506	-	F.19
609895	DMA100C10/010	B.11	609987	DM100C40/300	B.11	610377	-	F.45	618509	-	F.19
609896	DMA100C13/010	B.11	610000	-		610378	-	F.45	618511	-	F.19
609897	DMA100C16/010	B.11	610020	-	F.11	610379	-	F.45	618512	-	F.19
609898	DMA100C20/010	B.11	610020	-	F.15	610380	-	F.34	618515	-	F.19
609899	DMA100C04/030	B.11	610020	-	F.33	610380	-	F.45	618517	-	F.19
609900	DMA100C06/030	B.11	610021	-	F.11	610381	-	F.45	618518	-	F.19
609901	DMA100C10/030	B.11	610021	-	F.15	610382	-	F.20	618519	-	F.19
609902	DMA100C13/030	B.11	610021	-	F.33	610382	BLANK4	F.29	618520	-	F.19
609903	DMA100C16/030	B.11	610022	-	F.11	610382	-	F.45	618521	-	F.19
609904	DMA100C20/030	B.11	610022	-	F.33	610383	-	F.34	618522	-	F.19
609905	DMA100C25/030	B.11	610063	-	F.9	610383	-	F.45	618523	-	F.19
609906	DMA100C32/030	B.11	610090	-	F.17	610384	-	F.45	618524	-	F.20
609907	DMA100C40/030	B.11	610090	-	F.28	610385	-	F.33	618527	-	F.20
609908	DMA100C04/100	B.11	610091	-	F.17	610385	-	F.45	618528	-	F.20
609909	DMA100C06/100	B.11	610091	-	F.28	610386	-	F.33	618529	-	F.19
609910	DMA100C10/100	B.11	610130	-	F.23	610386	-	F.45	618530	-	F.19
609911	DMA100C13/100	B.11	610130	-	F.50	610387	-	F.33	618531	-	F.20
609912	DMA100C16/100	B.11	610132	-	F.23	610387	-	F.45	618791	EDU10E+N	F.28
609913	DMA100C20/100	B.11	610132	-	F.50	610484	-	F.15	618792	EDU14E+N	F.28
609914	DMA100C25/100	B.11	610133	-	F.23	610484	-	F.23	618793	EDU18E+N	F.28
609915	DMA100C32/100	B.11	610133	-	F.50	610484	-	F.34	618794	HDIN2	F.29
609916	DMA100C40/100	B.11	610140	-	F.23	610484	-	F.9	618910	-	F.28
609917	DMA100C04/300	B.11	610141	-	F.23	610532	-	F.33	618910	-	F.3
609918	DMA100C06/300	B.11	610142	-	F.15	610532	-	F.45	618911	-	F.3
609919	DMA100C10/300	B.11	610142	-	F.23	617018	-	F.15	618923	-	F.3
609920	DMA100C13/300	B.11	610142	-	F.34	617934	-	F.13	618929	-	F.3
609921	DMA100C16/300	B.11	610142	-	F.9	617935	-	F.13	618930	-	F.3
609922	DMA100C20/300	B.11	610151	-	F.28	617936	-	F.13	618938	-	F.3
609923	DMA100C25/300	B.11	610170	-	F.34	617937	-	F.13	618939	-	F.3
609924	DMA100C32/300	B.11	610185	-	F.20	617938	-	F.13	618941	-	F.3
609925	DMA100C40/300	B.11	610186	-	F.20	617939	-	F.13	618942	-	F.3
609926	DM100B06/010	B.11	610186	-	F.23	617939	-	F.14	618944	-	F.3
609927	DM100B10/010	B.11	610187	-	F.20	617940	-	F.13	618945	-	F.3
609928	DM100B13/010	B.11	610187	-	F.23	617940	-	F.14	618947	-	F.3
609929	DM100B16/010	B.11	610232	-	F.11	617941	-	F.13	618948	-	F.3
609930	DM100B20/010	B.11	610233	-	F.11	617941	-	F.14	618969	-	F.3
609931	DM100B06/030	B.11	610233	-	F.15	617942	-	F.13	618970	-	F.3
609932	DM100B10/030	B.11	610238	-	F.11	617942	-	F.14	619018	SHR3	F.29
609933	DM100B13/030	B.11	610239	-	F.10	617943	-	F.13	619018	-	F.9
609934	DM100B16/030	B.11	610240	-	F.10	617943	-	F.14	619084	-	F.20
609935	DM100B20/030	B.11	610241	-	F.10	617944	-	F.13	619100	-	F.8
609936	DM100B25/030	B.11	610242	-	F.10	617944	-	F.14	619101	-	F.8
609937	DM100B32/030	B.11	610243	-	F.10	617945	-	F.13	619102	-	F.8
609938	DM100B40/030	B.11	610244	-	F.10	617945	-	F.14	619103	-	F.8
609939	DM100B06/100	B.11	610248	-	F.10	617946	-	F.13	619104	-	F.8
609940	DM100B10/100	B.11	610249	-	F.10	617946	-	F.14	619105	-	F.8
609941	DM100B13/100	B.11	610257	-	F.10	617947	-	F.15	619106	-	F.8
609942	DM100B16/100	B.11	610264	-	F.33	617947	FDKE	G.5	619107	-	F.8
609943	DM100B20/100	B.11	610265	-	F.34	617948	-	F.15	619108	-	F.8
609944	DM100B25/100	B.11	610272	-	F.33	617949	-	F.15	619109	-	F.8
609945	DM100B32/100	B.11	610275	-	F.33	617957	-	F.5	619110	-	F.8
609946	DM100B40/100	B.11	610276	-	F.33	617958	-	F.5	619111	-	F.8
609947	DM100B06/300	B.11	610277	-	F.34	617959	-	F.5	619112	-	F.8
609948	DM100B10/300	B.11	610281	-	F.34	617960	-	F.5	619113	-	F.8
609949	DM100B13/300	B.11	610285	-	F.33	617961	-	F.19	619114	-	F.8
609950	DM100B16/300	B.11	610286	-	F.33	617962	-	F.19	619115	-	F.8
609951	DM100B20/300	B.11	610287	-	F.34	617964	-	F.15	619116	-	F.8
609952	DM100B25/300	B.11	610291	-	F.34	617965	-	F.15	619118	-	F.9



Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
619119	-	F.8	624991	-	E.3	666131	CTX 20 20 230 A	D.7	666404	MT RSC	D.33
619120	-	F.8	624992	-	E.3	666132	CTX 20 20 240 A	D.7	666405	MT S 4	D.33
619122	-	F.8	624992	-	E.5	666133	CTX 20 20 024 A	D.7	666406	MT S 7	D.33
619124	-	F.8	624993	EV-G.1.2.80-90°	D.39	666134	CTX 20 20 048 A	D.7	666408	MT AA 10	D.31
619200	-	F.19	624995	-	E.3	666135	CTX 24 22 230 U	D.7	666409	MT AA 15	D.31
619201	-	F.19	624996	-	E.3	666136	CTX 24 22 024 U	D.7	666410	MT AA 20	D.31
619202	-	F.19	629867	-	E.5	666137	CTX 24 30 230 U	D.7	666411	MT AA 25	D.31
619203	-	F.19	629867	-	E.6	666138	CTX 24 30 024 U	D.7	666412	MT AA 30	D.31
619204	-	F.19	640000	-	-	666139	CTX 24 04 230 U	D.7	666413	MT AA 5	D.31
619205	-	F.19	644834	-	E.4	666140	CTX 24 04 024 U	D.7	666414	MT AA	D.31
619206	-	F.19	644835	-	E.4	666141	CTX 24 40 012 U	D.7	666415	MT AF	D.31
619207	-	F.19	644852	-	E.4	666142	CTX 24 40 230 U	D.7	666416	MT AH	D.31
619208	-	F.19	644891	-	E.5	666143	CTX 24 40 240 U	D.7	666417	MT AV 300	D.31
619300	-	F.43	644893	EV-G.1.3.80-90°	D.39	666144	CTX 24 40 024 U	D.7	666418	MT AV 500	D.31
619301	-	F.43	644897	EV-G.1.8.80-90°	D.39	666145	CTX 24 40 048 U	D.7	666431	MT AH 110	D.31
619302	-	F.43	646083	-	E.5	666146	CTX 40 20 230 U	D.7	666432	MT AH 24	D.31
619303	-	F.43	646091	-	E.7	666147	CTX 40 20 024 U	D.7	666433	MTAP 3N	D.35
619304	-	F.43	646092	-	E.7	666148	CTX 40 30 230 U	D.7	666434	MT DE 11 32A	D.32
619305	-	F.43	660000	-	-	666149	CTX 40 30 024 U	D.7	666445	PRI 10	D.35
619319	-	F.31	662100	-	F.25	666150	CTX 40 40 012 U	D.7	666446	PRI 01	D.35
619319	-	F.43	662101	-	F.25	666151	CTX 40 40 230 U	D.7	666448	MTDNPRI1	D.32
619320	-	F.31	662102	-	F.25	666152	CTX 40 40 240 U	D.7	666449	MTDNPRI3	D.32
619320	-	F.43	662103	-	F.25	666153	CTX 40 40 024 U	D.7	666450	MT DE 11 63A	D.32
619321	-	F.31	662104	-	F.25	666154	CTX 40 40 048 U	D.7	666451	MT DN 3L	D.32
619321	-	F.43	662105	-	F.25	666155	CTX 63 20 230 U	D.7	666452	MT DE 3NI5A	D.32
619322	-	F.43	662106	-	F.25	666156	CTX 63 40 230 U	D.7	666453	MT DN 3R 4M	D.32
619323	-	F.31	662108	-	F.25	666157	CTX 63 40 240 U	D.7	666499	MSC SE	D.5
619323	-	F.43	662109	-	F.25	666158	CTX 63 40 024 U	D.7	666501	MSC SEP	D.5
619325	-	F.43	662110	-	F.25	666159	CTX TS 3	D.7	666502	MSC SPP	D.5
619326	-	F.43	662111	-	F.25	666160	CTX TS 2	D.7	666524	SG SWT	D.37
619327	-	F.43	662112	-	F.25	666162	CTX 06 11	D.7	666525	SG MM 2 20 2	D.37
619328	-	F.43	662113	-	F.25	666163	CTX 06 20	D.7	666526	SG MM 2 20 4	D.37
619329	-	F.43	662114	-	F.25	666164	CTX DN 20 20 230	D.7	666527	SG MM 2 45 2	D.37
619331	-	F.43	662115	-	F.25	666165	CTX DN 24 30 230	D.7	666529	SG MM 2 45 4	D.37
619332	-	F.43	662116	GA40	F.26	666166	CTX DN 24 40 230	D.7	666530	SG MM 2 45 4 C	D.37
619333	-	F.43	662117	SH40	F.26	666167	CTX DN 40 20 230	D.7	666532	SG C 40	D.37
619334	-	F.43	662118	SH50	F.26	666168	CTX DN 40 30 230	D.7	666533	SG MM 2 80 4 C	D.37
619335	-	F.43	662119	-	F.25	666169	CTX DN 40 40 230	D.7	666534	SG SP 2 20 2 P	D.37
619337	-	F.43	662120	-	F.25	666170	CTX 40 02 230 U	D.7	666535	SG SP 2 20 4 P	D.37
619338	-	F.31	662121	-	F.25	666175	CLS72S41W	D.25	666536	SG SP 2 45 2 P	D.37
619338	-	F.43	662122	-	F.25	666176	CLS72Q41W	D.25	666537	SG SP 2 45 2 C	D.37
619339	-	F.31	662123	-	F.25	666177	CLS72S41D	D.25	666538	SG SP 2 45 4 P	D.37
619339	-	F.43	662125	-	F.25	666178	CLS72Q41D	D.25	666539	SG SP 2 45 4 C	D.37
619340	-	F.43	662126	-	F.25	666179	GLX72Q41DW	D.25	666541	SG SP 2 65 2 P	D.37
619341	-	F.43	662129	-	F.25	666180	GLX BAT	D.23	666542	SG SP 2 65 2 C	D.37
619342	-	F.43	662131	CU4BN	F.28	666181	GLX DCF	D.23	666543	SG SP 2 65 4 P	D.37
619343	-	F.43	662132	CU10BN	F.28	666182	GLX PRG	D.23	666544	SG SP 2 65 4 C	D.37
619344	-	F.43	662133	CU14BN	F.28	666192	GLX Q 62 W 400	D.23	666545	SG SP 2 20 2	D.37
619345	-	F.43	662134	CU18BN	F.28	666193	GLX Q 64 W 400	D.23	666546	SG SP 2 20 4	D.37
619350	-	F.31	662136	CSLKIT14	F.29	666194	GLX Q 62 Y 400	D.23	666547	SG SP 2 45 2	D.37
619362	-	F.43	662137	CKEY	F.29	666195	GLX Q 64 Y 400	D.23	666548	SG SP 2 45 4	D.37
619369	-	F.31	662138	CSLKIT18	F.29	666311	PLTS + TD	D.16	666549	SG SP 2 65 2	D.37
619370	-	F.31	662139	CD4	F.29	666340	AST B 12	D.5	666551	SG SP 2 65 4	D.37
619371	-	F.31	662140	CD10	F.29	666341	AST B 230	D.5	666552	SG SP NGND PI	D.37
619372	-	F.31	662141	CD14	F.29	666342	AST B 24	D.5	666553	SG SP 2 40 2 NPE P	D.37
619373	-	F.31	662142	CD18	F.29	666343	AST L CL	D.5	666555	AST R ES E	D.3
619374	-	F.31	662152	TSL222	F.26	666344	AST L GN	D.5	666556	AST R ES S	D.3
619375	-	F.31	662153	TSL345	F.26	666345	AST L OR	D.5	666557	AST R TS	D.3
619376	-	F.31	662154	TSL442	F.26	666346	AST L RD	D.5	666558	AST M 100 10	D.3
619393	AAZFPN16	F.39	662155	TSL255	F.26	666347	AST B	D.5	666559	AST M 100 20	D.3
619394	AAZFN1-26	F.39	662156	TSL444	F.26	666358	LSS LDR	D.27	666560	AST M 100 30	D.3
619395	AAZFPF1-26	F.39	662157	DSL44	F.26	666361	LSS 11	D.27	666561	AST M 100 40	D.3
619411	-	F.19	662158	DSL64	F.26	666362	LSS 32	D.27	666562	AST M 63 10	D.3
619605	-	F.8	662159	DSL55	F.26	666364	LSS W	D.27	666563	AST M 63 20	D.3
619606	-	F.8	662160	DSL66	F.26	666375	MT CT 100	D.33	666564	AST M 63 30	D.3
619974	-	F.5	662161	FTSL12	F.26	666376	MT CT 1000	D.33	666565	AST M 63 40	D.3
619975	-	F.5	662163	DFSL12	F.26	666377	MT CT 150	D.33	666566	AST M 80 10	D.3
619976	-	F.5	666100	SMS 1	D.21	666378	MT CT 200	D.33	666567	AST M 80 20	D.3
619977	-	F.5	666100	SMS 1	D.23	666379	MT CT 250	D.33	666568	AST M 80 30	D.3
619979	-	F.5	666100	SMS 1	D.27	666380	MT CT 300	D.33	666569	AST M 80 40	D.3
620000	-	-	666101	SMS 3	D.21	666381	MT CT 40	D.33	666570	AST P 16 01	D.3
624791	-	E.4	666101	SMS 3	D.23	666382	MT CT 400	D.33	666571	AST P 16 10	D.3
624795	-	E.6	666101	SMS 3	D.27	666383	MT CT 50	D.33	666572	AST P 16 11	D.3
624796	-	E.6	666102	SMS 6	D.21	666384	MT CT 500	D.33	666573	AST PL 16 10	D.3
624797	-	E.6	666102	SMS 6	D.23	666385	MT CT 60	D.33	666574	AST R 32 20	D.3
624798	-	E.6	666103	CLS Q 62 DD	D.21	666386	MT CT 600	D.33	666575	AST R 32 30	D.3
624800	-	E.6	666104	CLS Q 31 D	D.21	666387	MT CT 80	D.33	666576	AST R 32 3N	D.3
624805	-	E.3	666105	CLS Q 11 D	D.21	666388	MT CT 800	D.33	666577	AST R 32 40	D.3
624806	-	E.3	666106	CLS Q 31 D M	D.21	666389	MT SP 100	D.33	666578	AST R 40 20	D.3
624807	-	E.3	666108	CLS Q 62 DW	D.21	666390	MT SP 1000	D.33	666579	AST R 40 30	D.3
624868	-	E.9	666109	CLS Q 31 W	D.21	666391	MT SP 150	D.33	666580	AST R 40 3N	D.3
624869	-	E.9	666110	CLS Q 31 W M	D.21	666392	MT SP 200	D.33	666581	AST R 40 40	D.3
624870	-	E.9	666111	CLS S 11 D	D.21	666393	MT SP 250	D.33	666582	AST R 63 20	D.3
624871	-	E.9	666112	CLS S 31 D	D.21	666394	MT SP 300	D.33	666583	AST R 63 30	D.3
624892	-	E.6	666113	CLS S 31 D M	D.21	666395	MT SP 40	D.33	666584	AST R 63 3N	D.3
624893	-	E.6	666114	CLS S 31 W	D.21	666396	MT SP 400	D.33	666585	AST R 63 40	D.3
624929	KS	A.41	666115	CLS S 31 W M	D.21	666397	MT SP 50	D.33	666586	AST S 16 1	D.3
624929	KS	A.50	666126	CTX 20 11 230 A	D.7	666398	MT SP 500	D.33	666587	AST S 16 10	D.3
624929	KS	F.29	666127	CTX 20 11 024 A	D.7	666399	MT SP 60	D.33	666588	AST S 16 2	D.3
624929	-	F.9	666128	CTX 20 02 230 A	D.7	666400	MT SP 600	D.33	666589	AST S 16 20	D.3
624945	TELE L 110	A.35	666129	CTX 20 02 024 A	D.7	666401	MT SP 80	D.33	666590	AST S 16 30	D.3
624946	TELE L 24	A.35	666130	CTX 20 20 012 A	D.7	666402	MT SP 800	D.33	666591	AST S 16 30 2	D.3

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B

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D

E

F

G

X



Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
666592	AST S 16 40 2	D.3	667500	SA PLUGIN II 15/230	D.38	672437	EP102K03	A.25	673301	EP101UCC0.5	A.31
666593	AST S 16 40	D.3	667501	SA PLUGIN II 15/400	D.38	672438	EP102K04	A.25	673302	EP101UCC01	A.31
666594	AST S 32 1	D.3	667502	SA PLUGIN II 40/230	D.38	672439	EP102K06	A.25	673303	EP101UCC02	A.31
666595	AST S 32 10	D.3	667503	SA PLUGIN II 40/400	D.38	672440	EP102K08	A.25	673305	EP101UCC04	A.31
666596	AST S 32 2	D.3	667504	SA PLUGIN II 40/230 C	D.38	672441	EP102K10	A.25	673306	EP101UCC06	A.31
666597	AST S 32 20	D.3	667505	SA PLUGIN II 40/400 C	D.38	672443	EP102K16	A.25	673308	EP101UCC10	A.31
666598	AST S 32 30 2	D.3	667506	SA PLUGIN II 40/230 LNE	D.38	672444	EP102K20	A.25	673310	EP101UCC16	A.31
666599	AST S 32 30	D.3	667507	SA PLUGIN II 40/230 3L+NE	D.38	672445	EP102K25	A.25	673311	EP101UCC20	A.31
666600	AST S 32 40	D.3	667508	SA PHOT 600V	D.39	672446	EP102K32	A.25	673312	EP101UCC25	A.31
666601	AST S 32 40 2	D.3	667509	SA PHOT 1000V	D.39	672447	EP102K40	A.25	673313	EP101UCC32	A.31
666602	AST SL 16 10	D.3	667510	SA TV	D.39	672448	EP102K50	A.25	673314	EP101UCC40	A.31
666603	AST SL 16 20	D.3	667511	SA PLUGIN II 60 NGND	D.38	672449	EP102K63	A.25	673315	EP101UCC50	A.31
666604	AST SL 32 10	D.3	667512	SA MODULE 15/230	D.39	672450	EP103K0.5	A.25	673316	EP101UCC63	A.31
666605	AST SL 32 20	D.3	667513	SA MODULE 15/400	D.39	672451	EP103K01	A.25	673317	EP102UCC0.5	A.31
666606	AST SZ 16 1	D.3	667514	SA MODULE 40/230	D.39	672452	EP103K02	A.25	673318	EP102UCC01	A.31
666607	AST SZ 16 2	D.3	667515	SA MODULE 40/400	D.39	672453	EP103K03	A.25	673319	EP102UCC02	A.31
666608	AST SZ 32 1	D.3	667516	SA MODULE 60 NGND	D.39	672454	EP103K04	A.25	673321	EP102UCC04	A.31
666609	AST SZ 32 2	D.3	667517	SA BLOCK I&II 65	D.38	672455	EP103K06	A.25	673322	EP102UCC06	A.31
666614	AST M 40 10	D.3	667518	SA BLOCK I&II 65N	D.38	672456	EP103K08	A.25	673324	EP102UCC10	A.31
666615	AST M 40 20	D.3	669486	EPP	A.50	672457	EP103K10	A.25	673326	EP102UCC16	A.31
666616	AST M 40 30	D.3	670000			672459	EP103K16	A.25	673327	EP121UCC20	A.31
666617	AST M 40 40	D.3	671504	Hti 101 B080	A.33	672460	EP103K20	A.25	673328	EP102UCC25	A.31
666629	BU 230	D.29	671505	Hti 101 B100	A.33	672461	EP103K25	A.25	673329	EP102UCC32	A.31
666630	BU 12	D.29	671506	Hti 101 B125	A.33	672462	EP103K32	A.25	673330	EP102UCC40	A.31
666631	MT DE 3N I 63A	D.32	671510	Hti 102 B080	A.33	672463	EP103K40	A.25	673331	EP102UCC50	A.31
666632	BE 230	D.29	671511	Hti 102 B100	A.33	672464	EP103K50	A.25	673332	EP102UCC63	A.31
666633	BE 12	D.29	671512	Hti 102 B125	A.33	672465	EP103K63	A.25	673333	EP101UCC06	A.31
666636	TR B 10	D.29	671516	Hti 103 B080	A.33	672466	EP104K0.5	A.25	673334	EP101UCB10	A.31
666637	TR B 15	D.29	671517	Hti 103 B100	A.33	672467	EP104K01	A.25	673335	EP101UCB16	A.31
666638	TR B 5	D.29	671518	Hti 103 B125	A.33	672468	EP104K02	A.25	673336	EP101UCB20	A.31
666640	TR B 8S	D.29	671522	Hti 104 B080	A.33	672469	EP104K03	A.25	673337	EP101UCB25	A.31
666641	TR S 15	D.29	671523	Hti 104 B100	A.33	672470	EP104K04	A.25	673338	EP101UCB32	A.31
666642	TR S 25	D.29	671524	Hti 104 B125	A.33	672471	EP104K06	A.25	673339	EP101UCB40	A.31
666643	TR S 40	D.29	671528	Hti 101 C080	A.33	672472	EP104K08	A.25	673340	EP101UCB50	A.31
666644	TR S 63	D.29	671529	Hti 101 C100	A.33	672473	EP104K10	A.25	673341	EP101UCB63	A.31
666650	TR B 8	D.29	671530	Hti 101 C125	A.33	672475	EP104K16	A.25	673342	EP102UCB06	A.31
666651	TR B 16	D.29	671534	Hti 102 C080	A.33	672476	EP104K20	A.25	673343	EP102UCB10	A.31
666652	TR B 30	D.29	671535	Hti 102 C100	A.33	672477	EP104K25	A.25	673344	EP102UCB16	A.31
666670	MT DV 500 2M	D.32	671536	Hti 102 C125	A.33	672478	EP104K32	A.25	673345	EP102UCB20	A.31
666671	MT DA 5 2M	D.32	671540	Hti 103 C080	A.33	672479	EP104K40	A.25	673346	EP102UCB25	A.31
666673	MT DF 2M	D.32	671541	Hti 103 C100	A.33	672480	EP104K50	A.25	673347	EP102UCB32	A.31
666674	MT DA DV 52M	D.32	671542	Hti 103 C125	A.33	672481	EP104K63	A.25	673348	EP102UCB40	A.31
666675	MT DE 1 1M	D.32	671546	Hti 104 C080	A.33	672567	CA H	C.4	673349	EP102UCB50	A.31
666676	MT DE 3I 0	D.32	671547	Hti 104 C100	A.33	672568	CA S/H	C.4	673350	EP102UCB63	A.31
666677	MT CT 1200	D.33	671548	Hti 104 C125	A.33	672569	CA S/H G	C.4	674381	G31C02	A.15
666678	MT CT 1500	D.33	671552	Hti 101 D080	A.33	672570	CB SH/HH-R	C.5	674383	G31C04	A.15
666679	MT CT 2000	D.33	671553	Hti 101 D100	A.33	672571	CB SH/HH-L	C.5	674384	G31C06	A.15
666690	MTAP 3N2F	D.35	671554	Hti 101 D125	A.33	672572	PBS	C.9	674386	G31C10	A.15
666874	AST LA 230V	D.5	671558	Hti 102 D080	A.33	672573	TELE L-1	C.9	674388	G31C16	A.15
666875	AST LB 230V	D.5	671559	Hti 102 D100	A.33	672574	TELE L-2	C.9	674389	G31C20	A.15
666876	AST LG 230V	D.5	671560	Hti 102 D125	A.33	672575	TELE U-230	C.9	674390	G31C25	A.15
666877	AST LR 230V	D.5	671564	Hti 103 D080	A.33	672576	TELE U-12	C.9	674391	G31C32	A.15
666878	AST LW 230V	D.5	671565	Hti 103 D100	A.33	672577	TELE U-24	C.9	674392	G31C40	A.15
667214	MT DW 110	D.32	671566	Hti 103 D125	A.33	672578	TELE U-48	C.9	674397	G32C02	A.15
667215	MT DW 11000	D.32	671570	Hti 104 D080	A.33	672580	TELE MP	C.7	674399	G32C04	A.15
667247	EP104TB16	A.47	671571	Hti 104 D100	A.33	672972	CA UN H	C.6	674400	G32C06	A.15
667248	EP101TC25	A.47	671572	Hti 104 D125	A.33	672973	CA UN S/H	C.6	674402	G32C10	A.15
667249	CBT H NO-NC	C.10	671574	DOC 2125/030	A.34	672974	CA UN S/H G	C.6	674404	G32C16	A.15
667250	CBT H 2NC	C.10	671576	DOC 2125/300	A.34	673267	EP101UCRK0.5	A.45	674405	G32C20	A.15
667251	CBT H 2NO	C.10	671581	DOCA 3125/030	A.34	673268	EP101UCRK01	A.45	674406	G32C25	A.15
667252	TELE LT-1	C.11	671582	DOC 3125/030	A.34	673269	EP101UCRK1.6	A.45	674407	G32C32	A.15
667253	TELE LT-2	C.11	671583	DOCA 3125/300	A.34	673270	EP101UCRK02	A.45	674408	G32C40	A.15
667470	SA BLOCK I 35	D.38	671584	DOC 3125/300	A.34	673271	EP101UCRK03	A.45	674413	G33C02	A.15
667471	SA BLOCK I 100 N	D.38	671585	DOCS 3125/300	A.34	673272	EP101UCRK04	A.45	674415	G33C04	A.15
667472	SA BLOCK I PC	D.38	671589	DOCA 4125/030	A.34	673273	EP101UCRK06	A.45	674416	G33C06	A.15
667473	SA BLOCK II 15/230	D.38	671590	DOC 4125/030	A.34	673274	EP101UCRK08	A.45	674418	G33C10	A.15
667474	SA BLOCK II 15/400	D.38	671591	DOCA 4125/300	A.34	673275	EP101UCRK10	A.45	674420	G33C16	A.15
667475	SA BLOCK II 15/230 C	D.38	671592	DOC 4125/300	A.34	673276	EP101UCRK13	A.45	674421	G33C20	A.15
667476	SA BLOCK II 15/400 C	D.38	671593	DOCS 4125/300	A.34	673277	EP101UCRK16	A.45	674422	G33C25	A.15
667477	SA BLOCK II 40/230	D.38	671597	Hti H	A.35	673278	EP101UCRK20	A.45	674423	G33C32	A.15
667478	SA BLOCK II 40/400	D.38	671598	Hti S	A.35	673279	EP101UCRK25	A.45	674424	G33C40	A.15
667479	SA BLOCK II 40/230 C	D.38	671599	Hti H/S	A.35	673280	EP101UCRK32	A.45	674429	G34C02	A.15
667480	SA BLOCK II 40/400 C	D.38	671600	Hti HH/HS	A.35	673281	EP101UCRK40	A.45	674431	G34C04	A.15
667481	SA BLOCK II 15N	D.38	671602	Hti HSR	A.35	673282	EP101UCRK50	A.45	674432	G34C06	A.15
667482	SA BLOCK II 40N	D.38	672402	EP101K0.5	A.25	673283	EP101UCRK63	A.45	674434	G34C10	A.15
667483	SA BLOCK II 15LN	D.38	672403	EP101K01	A.25	673284	EP102UCRK0.5	A.45	674436	G34C16	A.15
667484	SA BLOCK ADSL	D.39	672404	EP101K02	A.25	673285	EP102UCRK01	A.45	674437	G34C20	A.15
667485	TELE OV 230	D.39	672405	EP101K03	A.25	673286	EP102UCRK1.6	A.45	674438	G34C25	A.15
667486	SA BLOCK I&II 100	D.38	672406	EP101K04	A.25	673287	EP102UCRK02	A.45	674439	G34C32	A.15
667487	SA BLOCK I&II 100N	D.38	672407	EP101K06	A.25	673288	EP102UCRK03	A.45	674440	G34C40	A.15
667488	SA BLOCK II 15/230 LNE	D.38	672408	EP101K08	A.25	673289	EP102UCRK04	A.45	674443	G31B06	A.15
667489	SA BLOCK II 15/230 LLE	D.38	672409	EP101K10	A.25	673290	EP102UCRK06	A.45	674445	G31B10	A.15
667490	SA BLOCK II 40/230 LNE	D.38	672411	EP101K16	A.25	673291	EP102UCRK08	A.45	674447	G31B16	A.15
667491	SA BLOCK II 40/230 LLE	D.38	672412	EP101K20	A.25	673292	EP102UCRK10	A.45	674448	G31B20	A.15
667492	SA C35	D.39	672413	EP101K25	A.25	673293	EP102UCRK13	A.45	674449	G31B25	A.15
667493	TELE OV 400	D.39	672414	EP101K32	A.25	673294	EP102UCRK16	A.45	674450	G31B32	A.15
667494	SA BLOCK II 15/400 3L+NE	D.38	672415	EP101K40	A.25	673295	EP102UCRK20	A.45	674451	G31B40	A.15
667495	SA BLOCK II 15/400 4L/NE	D.38	672416	EP101K50	A.25	673296	EP102UCRK25	A.45	674454	G32B06	A.15
667496	SA BLOCK II 40/400 3L+NE	D.38	672417	EP101K63	A.25	673297	EP102UCRK32	A.45	674456	G32B10	A.15
667497	SA BLOCK II 40/400 4L/NE	D.38	672434	EP102K0.5	A.25	673298	EP102UCRK40	A.45	674458	G32B16	A.15
667498	SA BLOCK II 40/400 4L/NE C	D.38	672435	EP102K01	A.25	673299	EP102UCRK50	A.45	674459	G32	



Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
674461	G32B32	A.15	674616	G61NC04	A.19	674765	G61D10	A.19	674899	G102C40	A.23
674462	G32B40	A.15	674617	G61NC06	A.19	674767	G61D16	A.19	674900	G102C50	A.23
674466	G33B06	A.15	674619	G61NC10	A.19	674768	G61D20	A.19	674901	G102C63	A.23
674468	G33B10	A.15	674621	G61NC16	A.19	674769	G61D25	A.19	674902	G103C0.5	A.23
674470	G33B16	A.15	674622	G61NC20	A.19	674770	G61D32	A.19	674903	G103C01	A.23
674471	G33B20	A.15	674623	G61NC25	A.19	674771	G61D40	A.19	674904	G103C02	A.23
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By reference number

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G

X



Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
675026	G101D20	A.23	675140	GT102C32	A.27	675239	GT102D03	A.27	675346	GT254C50	A.29
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675115	GT101C03	A.27	675215	GT104B25	A.27	675317	GT253C01	A.29	675431	GT253D10	A.29
675116	GT101C04	A.27	675216	GT104B32	A.27	675318	GT253C02	A.29	675433	GT253D16	A.29
675117	GT101C06	A.27	675217	GT104B40	A.27	675320	GT253C04	A.29	675434	GT253D20	A.29
675119	GT101C10	A.27	675218	GT104B50	A.27	675321	GT253C06	A.29	675435	GT253D25	A.29
675120	GT101C13	A.27	675219	GT104B63	A.27	675323	GT253C10	A.29	675436	GT253D32	A.29
675121	GT101C16	A.27	675220	GT101D0.5	A.27	675325	GT253C16	A.29	675437	GT253D40	A.29
675122	GT101C20	A.27	675221	GT101D01	A.27	675326	GT253C20	A.29	675438	GT253D50	A.29
675123	GT101C25	A.27	675222	GT101D02	A.27	675327	GT253C25	A.29	675439	GT253D63	A.29
675124	GT101C32	A.27	675223	GT101D03	A.27	675328	GT253C32	A.29	675440	GT254D0.5	A.29
675125	GT101C40	A.27	675224	GT101D04	A.27	675329	GT253C40	A.29	675441	GT254D01	A.29
675126	GT101C50	A.27	675225	GT101D06	A.27	675330	GT253C50	A.29	675442	GT254D02	A.29
675127	GT101C63	A.27	675227	GT101D10	A.27	675331	GT253C63	A.29	675444	GT254D04	A.29
675128	GT102C0.5	A.27	675228	GT101D13	A.27	675332	GT254C0.5	A.29	675445	GT254D06	A.29
675129	GT102C01	A.27	675229	GT101D16	A.27	675333	GT254C01	A.29	675447	GT254D10	A.29
675130	GT102C02	A.27	675230	GT101D20	A.27	675334	GT254C02	A.29	675449	GT254D16	A.29
675131	GT102C03	A.27	675231	GT101D25	A.27	675336	GT254C04	A.29	675450	GT254D20	A.29
675132	GT102C04	A.27	675232	GT101D32	A.27	675337	GT254C06	A.29	675451	GT254D25	A.29
675133	GT102C06	A.27	675233	GT101D40	A.27	675339	GT254C10	A.29	675452	GT254D32	A.29
675135	GT102C10	A.27	675234	GT101D50	A.27	675341	GT254C16	A.29	675453	GT254D40	A.29
675136	GT102C13	A.27	675235	GT101D63	A.27	675342	GT254C20	A.29	675454	GT254D50	A.29
675137	GT102C16	A.27	675236	GT102D0.5	A.27	675343	GT254C25	A.29	675455	GT254D63	A.29
675138	GT102C20	A.27	675237	GT102D01	A.27	675344	GT254C32	A.29	676949	Tele REC BASIC 240/030	B.25
675139	GT102C25	A.27	675238	GT102D02	A.27	675345	GT254C40	A.29	676950	Tele REC BASIC 240/300	B.25



Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
676951	Tele REC BASIC 440/030	B.25	678246	EPP63C20	A.77	678338	EPP103NC32	A.79	681475	EP101UCRB06	A.45
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
677123	Tele REC BASIC A 263/030	B.25	678253	EPP63NC10	A.77	678362	FPPA425/030	B.20	681482	EP101UCRB50	A.45
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
677126	Tele REC BASIC A 240/300	B.25	678256	EPP63NC20	A.77	678365	FPPA225/100	B.20	681485	EP102UCRB10	A.45
677127	Tele REC BASIC A 263/300	B.25	678257	EPP63NC25	A.77	678366	FPPA240/100	B.20	681486	EP102UCRB16	A.45
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 Ai 240/030	B.25	678260	EPP63NC50	A.77	678369	FPPA440/100	B.20	681489	EP102UCRB32	A.45
677131	Tele REC BASIC Ai 263/030	B.25	678261	EPP63NC63	A.77	678370	FPPA463/100	B.20	681490	EP102UCRB40	A.45
677132	Tele REC SOLAR 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	EP101UCRC05	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	EPP104B06	A.79	681594	EP103K1.6	A.25
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678204	EPP63NB13	A.77	678296	EPP103NB20	A.79	678729	EPP104B20	A.79	681602	EP61K1.6	A.21
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678206	EPP63NB20	A.77	678298	EPP103NB32	A.79	678731	EPP104B32	A.79	681604	EP61K03	A.21
678207	EPP63NB25	A.77	678299	EPP103NB40	A.79	678732	EPP104B40	A.79	681605	EP61K04	A.21
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678209	EPP63NB40	A.77	678301	EPP103NB63	A.79	678734	EPP104B63	A.79	681607	EP61K08	A.21
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678212	EPP61C06	A.77	678304	EPP101C13	A.79	678737	EPP104C13	A.79	681610	EP61K20	A.21
678213	EPP61C10	A.77	678305	EPP101C16	A.79	678738	EPP104C16	A.79	681611	EP61K25	A.21
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678217	EPP61C25	A.77	678309	EPP101C40	A.79	678742	EPP104C40	A.79	681615	EP61K63	A.21
678218	EPP61C32	A.77	678310	EPP101C50	A.79	678743	EPP104C50	A.79	681616	EP62K0.5	A.21
678219	EPP61C40	A.77	678311	EPP101C63	A.79	678744	EPP104C63	A.79	681617	EP62K01	A.21
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678223	EPP61NC10	A.77	678315	EPP102C16	A.79	681452	EP103B06RAIL	A.43	681621	EP62K04	A.21
678224	EPP61NC13	A.77	678316	EPP102C20	A.79	681453	EP103B10RAIL	A.43	681622	EP62K06	A.21
678225	EPP61NC16	A.77	678317	EPP102C25	A.79	681454	EP103B16RAIL	A.43	681623	EP62K08	A.21
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678227	EPP61NC25	A.77	678319	EPP102C40	A.79	681456	EP103B25RAIL	A.43	681625	EP62K16	A.21
678228	EPP61NC32	A.77	678320	EPP102C50	A.79	681457	EP103B32RAIL	A.43	681626	EP62K20	A.21
678229	EPP61NC40	A.77	678321	EPP102C63	A.79	681458	EP103B40RAIL	A.43	681627	EP62K25	A.21
678230	EPP61NC50	A.77	678322	EPP103C06	A.79	681459	EP103B50RAIL	A.43	681628	EP62K32	A.21
678231	EPP61NC63	A.77	678323	EPP103C10	A.79	681460	EP103B63RAIL	A.43	681629	EP62K40	A.21
678232	EPP62C06	A.77	678324	EPP103C13	A.79	681461	EP103C05RAIL	A.43	681630	EP62K50	A.21
678233	EPP62C10	A.77	678325	EPP103C16	A.79	681462	EP103C01RAIL	A.43	681631	EP62K63	A.21
678234	EPP62C13	A.77	678326	EPP103C20	A.79	681463	EP103C02RAIL	A.43	681632	EP63K0.5	A.21
678235	EPP62C16	A.77	678327	EPP103C25	A.79	681464	EP103C03RAIL	A.43	681633	EP63K01	A.21
678236	EPP62C20	A.77	678328	EPP103C32	A.79	681465	EP103C04RAIL	A.43	681634	EP63K1.6	A.21
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678238	EPP62C32	A.77	678330	EPP103C50	A.79	681467	EP103C10RAIL	A.43	681636	EP63K03	A.21
678239	EPP62C40	A.77	678331	EPP103C63	A.79	681468	EP103C16RAIL	A.43	681637	EP63K04	A.21
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678241	EPP62C63	A.77	678333	EPP103NC10	A.79	681470	EP103C25RAIL	A.43	681639	EP63K08	A.21
678242	EPP63C06	A.77	678334	EPP103NC13	A.79	681471	EP103C32RAIL	A.43	681640	EP63K10	A.21
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678245	EPP63C16	A.77	678337	EPP103NC25	A.79	681474	EP103C63RAIL	A.43	681643	EP63K25	A.21

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B

C

D

E

F

Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
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
681649	EP64K01	A.21	686076	PLS + 16 1 230 A	D.14	686168	PLS + C 32 30 008 A	D.15	686656	EP61ULC0.5	A.37
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
681653	EP64K04	A.21	686080	PLS + 16 10 024 A	D.14	686172	PLS + C 32 30 230 A	D.15	686662	EP61ULC06	A.37
681654	EP64K06	A.21	686081	PLS + 16 10 048 A	D.14	686173	PLS + C 32 30 240 A	D.15	686663	EP61ULC10	A.37
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
681658	EP64K20	A.21	686085	PLS + 16 11	D.14	686177	PLS + PU 16 2 230 A	D.15	686670	EP61ULC32	A.37
681659	EP64K25	A.21	686086	PLS + 16 11 008 A	D.14	686178	PLS + PU 16 20 024 A	D.15	686671	EP61ULC40	A.37
681660	EP64K32	A.21	686087	PLS + 16 11 012 A	D.14	686179	PLS + PU 16 20 230 A	D.15	686672	EP61ULC50	A.37
681661	EP64K40	A.21	686088	PLS + 16 11 024 A	D.14	686180	PLS + PU 16 40 024 A	D.15	686674	EP61ULC63	A.37
681662	EP64K50	A.21	686089	PLS + 16 11 048 A	D.14	686181	PLS + PU 16 40 230 A	D.15	686675	EP62ULC0.5	A.37
681663	EP64K63	A.21	686090	PLS + 16 11 115 A	D.14	686182	PLS + SA 16 20 012 A	D.14	686676	EP62ULC01	A.37
681771	EP101UCRB02	A.45	686091	PLS + 16 11 230 A	D.14	686183	PLS + SA 16 20 024 A	D.14	686677	EP62ULC02	A.37
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
681773	EP102UCRB02	A.45	686093	PLS + 16 2 008 A	D.14	686185	PLS + SA 16 20 230 A	D.14	686681	EP62ULC06	A.37
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
686000	CTX + R 16 1 008 A	D.11	686095	PLS + 16 2 024 A	D.14	686187	PLS + SB 16 20 012 A	D.14	686685	EP62ULC16	A.37
686001	CTX + R 16 1 012 A	D.11	686096	PLS + 16 2 048 A	D.14	686188	PLS + SB 16 20 024 A	D.14	686686	EP62ULC20	A.37
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
686004	CTX + R 16 1 115 A	D.11	686099	PLS + 16 2 240 A	D.14	686191	PLS + SB 16 20 240 A	D.14	686690	EP62ULC40	A.37
686005	CTX + R 16 1 230 A	D.11	686100	PLS + 16 20	D.14	686192	PLS + SG	D.15	686691	EP62ULC50	A.37
686006	CTX + R 16 1 240 A	D.11	686101	PLS + 16 2	D.14	686195	PLT + AS 230A	D.19	686693	EP62ULC63	A.37
686007	CTX + R 16 10 008 A	D.11	686102	PLS + 16 20 008 A	D.14	686196	PLT + IG 024U	D.19	686694	EP63ULC0.5	A.37
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
686009	CTX + R 16 10 024 A	D.11	686104	PLS + 16 20 024 A	D.14	686198	PLT + MF 024U 0.15-60M	D.19	686696	EP63ULC02	A.37
686010	CTX + R 16 10 048 A	D.11	686105	PLS + 16 20 048 A	D.14	686199	PLT + MF 024U 30S-20H	D.19	686698	EP63ULC04	A.37
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
686012	CTX + R 16 10 23060	D.11	686107	PLS + 16 20 23060	D.14	686201	PLT + MF 230A 30S-20H	D.19	686701	EP63ULC10	A.37
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	686204	PLT + OF 230A 1-60M	D.19	686706	EP63ULC25	A.37
686016	CTX + R 16 11 012 A	D.11	686111	PLS + 32 10 012 A	D.14	686205	PLT + OF 230A 1-60S	D.19	686708	EP63ULC32	A.37
686017	CTX + R 16 11 024 A	D.11	686112	PLS + 32 10 024 A	D.14	686206	PLT + ON 024U 1-60M	D.19	686709	EP63ULC40	A.37
686018	CTX + R 16 11 048 A	D.11	686113	PLS + 32 10 048 A	D.14	686207	PLT + ON 024U 1-60S	D.19	686710	EP63ULC50	A.37
686019	CTX + R 16 11 115 A	D.11	686114	PLS + 32 10 115 A	D.14	686208	PLT + ON 230A 1-60M	D.19	686712	EP63ULC63	A.37
686020	CTX + R 16 11 23060	D.11	686115	PLS + 32 10 230 A	D.14	686209	PLT + ON 230A 1-60S	D.19	686713	EP64ULC0.5	A.37
686021	CTX + R 16 11 230 A	D.11	686116	PLS + 32 10 240 A	D.14	686210	PLT + PS 024U 1-60M	D.19	686714	EP64ULC01	A.37
686022	CTX + R 16 11 240 A	D.11	686117	PLS + 32 20	D.14	686211	PLT + PS 024U 1-60S	D.19	686715	EP64ULC02	A.37
686023	CTX + R 16 2 008 A	D.11	686118	PLS + 32 20 008 A	D.14	686212	PLT + PS 230A 1-60M	D.19	686717	EP64ULC04	A.37
686024	CTX + R 16 2 012 A	D.11	686119	PLS + 32 20 012 A	D.14	686213	PLT + PS 230A 1-60S	D.19	686719	EP64ULC06	A.37
686025	CTX + R 16 40 008 A	D.11	686120	PLS + 32 20 024 A	D.14	686214	PLTS + D	D.16	686720	EP64ULC10	A.37
686026	CTX + R 16 2 024 A	D.11	686121	PLS + 32 20 048 A	D.14	686216	PLTS + M	D.16	686723	EP64ULC16	A.37
686027	CTX + R 16 22 008 A	D.11	686122	PLS + 32 20 115 A	D.14	686218	PLT + SS 024U	D.19	686724	EP64ULC20	A.37
686028	CTX + R 16 2 048 A	D.11	686123	PLS + 32 20 230 A	D.14	686219	PLT + SS 230A	D.19	686725	EP64ULC25	A.37
686030	CTX + R 16 2 115 A	D.11	686124	PLS + 32 20 240 A	D.14	686284	PLS + 16 10 23060	D.14	686727	EP64ULC32	A.37
686032	CTX + R 16 2 230 A	D.11	686125	PLS + C	D.15	686285	PLS + 16 11 23060	D.14	686728	EP64ULC40	A.37
686034	CTX + R 16 2 240 A	D.11	686126	PLS + C 16 1 008 A	D.15	686530	GLX Q 11 W 50 LS1	D.23	686729	EP64ULC50	A.37
686036	CTX + R 16 20 008 A	D.11	686127	PLS + C 16 1 012 A	D.15	686531	GLX Q 21 D 50 LS1	D.23	686731	EP64ULC63	A.37
686037	CTX + R 16 20 012 A	D.11	686128	PLS + C 16 1 024 A	D.15	686532	GLX Q 21 W 50 LS1	D.23	686732	EP61ULD0.5	A.37
686038	CTX + R 16 20 024 A	D.11	686129	PLS + C 16 1 048 A	D.15	686533	GLX Q 22 W 50 LS1	D.23	686733	EP61ULD01	A.37
686039	CTX + R 16 20 048 A	D.11	686130	PLS + C 16 1 230 A	D.15	686534	GLX Q 21 W 50C LS1	D.23	686734	EP61ULD02	A.37
686040	CTX + R 16 20 115 A	D.11	686131	PLS + C 16 1 240 A	D.15	686535	GLX Q 22 W 50C LS1	D.23	686736	EP61ULD04	A.37
686041	CTX + R 16 20 23060	D.11	686132	PLS + C 16 10 008 A	D.14	686601	EP61ULB06	A.37	686738	EP61ULD06	A.37
686042	CTX + R 16 20 230 A	D.11	686133	PLS + C 16 10 012 A	D.14	686602	EP61ULB10	A.37	686739	EP61ULD10	A.37
686043	CTX + R 16 20 240 A	D.11	686134	PLS + C 16 10 024 A	D.14	686605	EP61ULB16	A.37	686742	EP61ULD16	A.37
686044	CTX + R 16 22 012 A	D.11	686135	PLS + C 16 10 048 A	D.14	686606	EP61ULB20	A.37	686743	EP61ULD20	A.37
686045	CTX + R 16 22 024 A	D.11	686136	PLS + C 16 10 230 A	D.14	686607	EP61ULB25	A.37	686744	EP61ULD25	A.37
686046	CTX + R 16 22 048 A	D.11	686137	PLS + C 16 10 240 A	D.14	686609	EP61ULB32	A.37	686746	EP61ULD32	A.37
686047	CTX + R 16 22 23060	D.11	686138	PLS + C 16 2 008 A	D.15	686610	EP61ULB40	A.37	686747	EP61ULD40	A.37
686048	CTX + R 16 22 230 A	D.11	686139	PLS + C 16 2 012 A	D.15	686611	EP61ULB50	A.37	686748	EP61ULD50	A.37
686049	CTX + R 16 22 240 A	D.11	686140	PLS + C 16 2 024 A	D.15	686613	EP61ULB63	A.37	686750	EP61ULD63	A.37
686050	CTX + R 16 30 012 A	D.11	686141	PLS + C 16 2 048 A	D.15	686615	EP62ULB06	A.37	686751	EP62ULD0.5	A.37
686051	CTX + R 16 30 024 A	D.11	686142	PLS + C 16 2 230 A	D.15	686616	EP62ULB10	A.37	686752	EP62ULD01	A.37
686052	CTX + R 16 30 048 A	D.11	686143	PLS + C 16 2 240 A	D.15	686619	EP62ULB16	A.37	686753	EP62ULD02	A.37
686053	CTX + R 16 30 230 A	D.11	686144	PLS + C 16 20 008 A	D.15	686620	EP62ULB20	A.37	686755	EP62ULD04	A.37
686054	CTX + R 16 4 012 A	D.11	686145	PLS + C 16 20 012 A	D.15	686621	EP62ULB25	A.37	686757	EP62ULD06	A.37
686055	CTX + R 16 4 024 A	D.11	686146	PLS + C 16 20 024 A	D.15	686623	EP62ULB32	A.37	686758	EP62ULD10	A.37
686056	CTX + R 16 4 048 A	D.11	686147	PLS + C 16 20 048 A	D.15	686624	EP62ULB40	A.37	686761	EP62ULD16	A.37
686057	CTX + R 16 4 115 A	D.11	686148	PLS + C 16 20 230 A	D.15	686625	EP62ULB50	A.37	686762	EP62ULD20	A.37
686058	CTX + R 16 4 230 A	D.11	686149	PLS + C 16 20 240 A	D.15	686627	EP62ULB63	A.37	686763	EP62ULD25	A.37
686059	CTX + R 16 4 240 A	D.11	686150	PLS + C 16 3 008 A	D.15	686629	EP63ULB06	A.37	686765	EP62ULD32	A.37
686060	CTX + R 16 40 012 A	D.11	686151	PLS + C 16 3 012 A	D.15	686630	EP63ULB10	A.37	686766	EP62ULD40	A.37
686061	CTX + R 16 40 024 A	D.11	686152	PLS + C 16 3 024 A	D.15	686633	EP63ULB16	A.37	686767	EP62ULD5	

Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
686784	EP63ULD32	A.37	686921	EP104ULC0.5	A.39	690236	EP103ULHB10	A.41	691236	EP101TB10	A.47
686785	EP63ULD40	A.37	686922	EP104ULC01	A.39	690239	EP103ULHB16	A.41	691237	EP101TB13	A.47
686786	EP63ULD50	A.37	686923	EP104ULC02	A.39	690240	EP103ULHB20	A.41	691238	EP101TB16	A.47
686788	EP63ULD63	A.37	686925	EP104ULC04	A.39	690241	EP103ULHB25	A.41	691239	EP101TB20	A.47
686789	EP64ULD0.5	A.37	686927	EP104ULC06	A.39	690243	EP103ULHB32	A.41	691240	EP101TB25	A.47
686790	EP64ULD01	A.37	686928	EP104ULC10	A.39	690244	WUL	A.41	691241	EP101TB32	A.47
686791	EP64ULD02	A.37	686931	EP104ULC16	A.39	690265	EP101ULHC0.5	A.41	691242	EP101TB40	A.47
686793	EP64ULD04	A.37	686932	EP104ULC20	A.39	690266	EP101ULHC01	A.41	691243	EP101TB50	A.47
686795	EP64ULD06	A.37	686933	EP104ULC25	A.39	690267	EP101ULHC02	A.41	691244	EP101TB63	A.47
686796	EP64ULD10	A.37	686935	EP104ULC32	A.39	690269	EP101ULHC04	A.41	691245	EP101TC0.5	A.47
686799	EP64ULD16	A.37	686936	EP104ULC40	A.39	690270	EP101ULHC05	A.41	691246	EP101TC01	A.47
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686801	EP64ULD25	A.37	686939	EP104ULC63	A.39	690273	EP101ULHC10	A.41	691248	EP101TC03	A.47
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686804	EP64ULD40	A.37	686941	EP101ULD01	A.39	690275	EP101ULHC15	A.41	691250	EP101TC06	A.47
686805	EP64ULD50	A.37	686942	EP101ULD02	A.39	690276	EP101ULHC16	A.41	691251	EP101TC08	A.47
686807	EP64ULD63	A.37	686944	EP101ULD04	A.39	690277	EP101ULHC20	A.41	691252	EP101TC1.6	A.47
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686810	EP101ULB10	A.39	686947	EP101ULD10	A.39	690279	EP101ULHC30	A.41	691254	EP101TC13	A.47
686813	EP101ULB16	A.39	686950	EP101ULD16	A.39	690280	EP101ULHC32	A.41	691255	EP101TC16	A.47
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686831	EP102ULB32	A.39	686966	EP102ULD10	A.39	690294	EP102ULHC25	A.41	691267	EP101TK1	A.47
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686833	EP102ULB50	A.39	686970	EP102ULD20	A.39	690296	EP102ULHC32	A.41	691269	EP101TK10	A.47
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686842	EP103ULB20	A.39	686977	EP102ULD63	A.39	690302	EP103ULHC05	A.41	691274	EP101TK40	A.47
686843	EP103ULB25	A.39	686978	EP103ULD0.5	A.39	690303	EP103ULHC06	A.41	691275	EP101TK50	A.47
686845	EP103ULB32	A.39	686979	EP103ULD01	A.39	690305	EP103ULHC10	A.41	691276	EP101TK63	A.47
686846	EP103ULB40	A.39	686980	EP103ULD02	A.39	690306	EP103ULHC13	A.41	691277	EP101TK20.5	A.47
686847	EP103ULB50	A.39	686982	EP103ULD04	A.39	690307	EP103ULHC15	A.41	691278	EP101TK201	A.47
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686851	EP104ULB06	A.39	686985	EP103ULD10	A.39	690309	EP103ULHC20	A.41	691280	EP101TK203	A.47
686852	EP104ULB10	A.39	686988	EP103ULD16	A.39	690310	EP103ULHC25	A.41	691281	EP101TK204	A.47
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686856	EP104ULB20	A.39	686990	EP103ULD25	A.39	690312	EP103ULHC32	A.41	691283	EP101TK208	A.47
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686864	EP101ULC0.5	A.39	686998	EP104ULD01	A.39	690320	EP101ULHD06	A.41	691289	EP101TK232	A.47
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686866	EP101ULC02	A.39	687001	EP104ULD04	A.39	690322	EP101ULHD13	A.41	691291	EP101TK250	A.47
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686882	EP101ULC63	A.39	688026	EP104 UC B20	A.31	690333	EP102ULHD04	A.41	691301	EP102TB40	A.47
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686885	EP102ULC02	A.39	688029	EP104 UC B16	A.31	690337	EP102ULHD10	A.41	691304	EP102TC0.5	A.47
686887	EP102ULC04	A.39	690000			690338	EP102ULHD13	A.41	691305	EP102TC01	A.47
686889	EP102ULC06	A.39	690200	EP104 UC B10	A.31	690339	EP102ULHD15	A.41	691306	EP102TC02	A.47
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686893	EP102ULC16	A.39	690215	EP101ULHB06	A.41	690341	EP102ULHD20	A.41	691308	EP102TC04	A.47
686894	EP102ULC20	A.39	690216	EP101ULHB10	A.41	690342	EP102ULHD25	A.41	691309	EP102TC06	A.47
686895	EP102ULC25	A.39	690217	EP101ULHB13	A.41	690343	EP102ULHD30	A.41	691310	EP102TC08	A.47
686897	EP102ULC32	A.39	690218	EP101ULHB15	A.41	690344	EP102ULHD32	A.41	691311	EP102TC1.6	A.47
686898	EP102ULC40	A.39	690219	EP101ULHB16	A.41	690345	EP103ULHD0.5	A.41	691312	EP102TC10	A.47
686899	EP102ULC50	A.39	690220	EP101ULHB20	A.41	690346	EP103ULHD01	A.41	691313	EP102TC13	A.47
686901	EP102ULC63	A.39	690221	EP101ULHB25	A.41	690347	EP103ULHD02	A.41	691314	EP102TC16	A.47
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686904	EP103ULC02	A.39	690224	EP102ULHB05	A.41	690351	EP103ULHD06	A.41	691317	EP102TC32	A.47
686906	EP103ULC04	A.39	690225	EP102ULHB06	A.41	690353	EP103ULHD10	A.41	691318	EP102TC40	A.47
686908	EP103ULC06	A.39	690226	EP102ULHB10	A.41	690354	EP103ULHD13	A.41	691319	EP102TC50	A.47
686909	EP103ULC10	A.39	690227	EP102ULHB13	A.41	690355	EP103ULHD15	A.41	691320	EP102TC63	A.47
686912	EP103ULC16	A.39	690228	EP102ULHB15	A.41	690356	EP103ULHD16	A.41	691321	EP102TK0.5	A.47
686913	EP103ULC20	A.39	690229	EP102ULHB16	A.41	690357	EP103ULHD20	A.41	691322	EP102TK01	A.47
686914	EP103ULC25	A.39	690230	EP102ULHB20	A.41	690358	EP103ULHD25	A.41	691323	EP102TK02	A.47
686916	EP103ULC32	A.39	690231	EP102ULHB25	A.41	690359	EP103ULHD30	A.41	691324	EP102TK03	A.47
686917	EP103ULC40	A.39	690232	EP102ULHB30	A.41	690360	EP103ULHD32	A.41	691325	EP102TK04	A.47
686918	EP103ULC50	A.39	690233	EP102ULHB32	A.41	691234	EP101TB6	A.47	691326	EP102TK06	A.47
686920	EP103ULC63	A.39	690235	EP103ULHB06	A.41	691235	EP101TB8	A.47	691327	EP102TK08	A.47

By reference number

A

B

Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
691328	EP102TK16	A.47	691419	EP104TC25	A.47	691510	EP102UCTB63	A.49	692566	EPC 63 C10	A.67
691329	EP102TK10	A.47	691420	EP104TC32	A.47	691511	EP102UCTC0.5	A.49	692567	EPC 63 C16	A.67
691330	EP102TK16	A.47	691421	EP104TC40	A.47	691512	EP102UCTC01	A.49	692568	EPC 63 C20	A.67
691331	EP102TK20	A.47	691422	EP104TC50	A.47	691513	EP102UCTC02	A.49	692569	EPC 63 C25	A.67
691332	EP102TK25	A.47	691423	EP104TC63	A.47	691514	EP102UCTC03	A.49	692570	EPC 63 C32	A.67
691333	EP102TK32	A.47	691424	EP104TK0.5	A.47	691515	EP102UCTC04	A.49	692571	EPC 63 C40	A.67
691334	EP102TK40	A.47	691425	EP104TK01	A.47	691516	EP102UCTC06	A.49	692572	EPC 64 C02	A.67
691335	EP102TK50	A.47	691426	EP104TK02	A.47	691517	EP102UCTC08	A.49	692573	EPC 64 C04	A.67
691336	EP102TK63	A.47	691427	EP104TK03	A.47	691518	EP102UCTC1.6	A.49	692574	EPC 64 C06	A.67
691337	EP102TZ0.5	A.47	691428	EP104TK04	A.47	691519	EP102UCTC10	A.49	692575	EPC 64 C10	A.67
691338	EP102TZ01	A.47	691429	EP104TK06	A.47	691520	EP102UCTC13	A.49	692576	EPC 64 C16	A.67
691339	EP102TZ02	A.47	691430	EP104TK08	A.47	691521	EP102UCTC16	A.49	692577	EPC 64 C20	A.67
691340	EP102TZ03	A.47	691431	EP104TK1.6	A.47	691522	EP102UCTC20	A.49	692578	EPC 64 C25	A.67
691341	EP102TZ04	A.47	691432	EP104TK10	A.47	691523	EP102UCTC25	A.49	692579	EPC 64 C32	A.67
691342	EP102TZ06	A.47	691433	EP104TK16	A.47	691524	EP102UCTC32	A.49	692580	EPC 64 C40	A.67
691343	EP102TZ08	A.47	691434	EP104TK20	A.47	691525	EP102UCTC40	A.49	692604	EPC 61N B13	A.61
691344	EP102TZ1.6	A.47	691435	EP104TK25	A.47	691526	EP102UCTC50	A.49	692605	EPC 101N B13	A.62
691345	EP102TZ10	A.47	691436	EP104TK32	A.47	691527	EP102UCTC63	A.49	692606	EPC 101N C13	A.62
691346	EP102TZ16	A.47	691437	EP104TK40	A.47	691528	EP102UCTK0.5	A.49	692608	EPC 452 B02	A.65
691347	EP102TZ20	A.47	691438	EP104TK50	A.47	691529	EP102UCTK01	A.49	692609	EPC 452 B04	A.65
691348	EP102TZ25	A.47	691439	EP104TK63	A.47	691530	EP102UCTK02	A.49	692610	EPC 452 B06	A.65
691349	EP102TZ32	A.47	691440	EP101UCTB06	A.49	691531	EP102UCTK03	A.49	692611	EPC 452 B10	A.65
691350	EP102TZ40	A.47	691441	EP101UCTB08	A.49	691532	EP102UCTK04	A.49	692612	EPC 452 B16	A.65
691351	EP102TZ50	A.47	691442	EP101UCTB10	A.49	691533	EP102UCTK06	A.49	692613	EPC 452 B20	A.65
691352	EP102TZ63	A.47	691443	EP101UCTB13	A.49	691534	EP102UCTK08	A.49	692614	EPC 452 B25	A.65
691353	EP103TB06	A.47	691444	EP101UCTB16	A.49	691535	EP102UCTK1.6	A.49	692615	EPC 452 B32	A.65
691354	EP103TB08	A.47	691445	EP101UCTB20	A.49	691536	EP102UCTK10	A.49	692616	EPC 452 B40	A.65
691355	EP103TB10	A.47	691446	EP101UCTB25	A.49	691537	EP102UCTK16	A.49	692617	EPC 453 B02	A.65
691356	EP103TB13	A.47	691447	EP101UCTB32	A.49	691538	EP102UCTK20	A.49	692618	EPC 453 B04	A.65
691357	EP103TB16	A.47	691448	EP101UCTB40	A.49	691539	EP102UCTK25	A.49	692619	EPC 453 B06	A.65
691358	EP103TB20	A.47	691449	EP101UCTB50	A.49	691540	EP102UCTK32	A.49	692620	EPC 453 B10	A.65
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691360	EP103TB32	A.47	691451	EP101UCTC0.5	A.49	691542	EP102UCTK50	A.49	692622	EPC 453 B20	A.65
691361	EP103TB40	A.47	691452	EP101UCTC01	A.49	691543	EP102UCTK63	A.49	692623	EPC 453 B25	A.65
691362	EP103TB50	A.47	691453	EP101UCTC02	A.49	691544	EP102UCTZ0.5	A.49	692624	EPC 453 B32	A.65
691363	EP103TB63	A.47	691454	EP101UCTC03	A.49	691545	EP102UCTZ01	A.49	692625	EPC 453 B40	A.65
691364	EP103TC0.5	A.47	691455	EP101UCTC04	A.49	691546	EP102UCTZ02	A.49	692626	EPC 454 B02	A.65
691365	EP103TC01	A.47	691456	EP101UCTC06	A.49	691547	EP102UCTZ03	A.49	692627	EPC 454 B04	A.65
691366	EP103TC02	A.47	691457	EP101UCTC08	A.49	691548	EP102UCTZ04	A.49	692628	EPC 454 B06	A.65
691367	EP103TC03	A.47	691458	EP101UCTC1.6	A.49	691549	EP102UCTZ06	A.49	692629	EPC 454 B10	A.65
691368	EP103TC04	A.47	691459	EP101UCTC10	A.49	691550	EP102UCTZ08	A.49	692630	EPC 454 B16	A.65
691369	EP103TC06	A.47	691460	EP101UCTC13	A.49	691551	EP102UCTZ1.6	A.49	692631	EPC 454 B20	A.65
691370	EP103TC08	A.47	691461	EP101UCTC16	A.49	691552	EP102UCTZ10	A.49	692632	EPC 454 B25	A.65
691371	EP103TC1.6	A.47	691462	EP101UCTC20	A.49	691553	EP102UCTZ16	A.49	692633	EPC 454 B32	A.65
691372	EP103TC10	A.47	691463	EP101UCTC25	A.49	691554	EP102UCTZ20	A.49	692634	EPC 454 B40	A.65
691373	EP103TC13	A.47	691464	EP101UCTC32	A.49	691555	EP102UCTZ25	A.49	692635	EPC 62 B02	A.67
691374	EP103TC16	A.47	691465	EP101UCTC40	A.49	691556	EP102UCTZ32	A.49	692636	EPC 62 B04	A.67
691375	EP103TC20	A.47	691466	EP101UCTC50	A.49	691557	EP102UCTZ40	A.49	692637	EPC 62 B06	A.67
691376	EP103TC25	A.47	691467	EP101UCTC63	A.49	691558	EP102UCTZ50	A.49	692638	EPC 62 B10	A.67
691377	EP103TC32	A.47	691468	EP101UCTK0.5	A.49	691559	EP102UCTZ63	A.49	692639	EPC 62 B16	A.67
691378	EP103TC40	A.47	691469	EP101UCTK01	A.49	691580	EP104 UC B25	A.31	692640	EPC 62 B20	A.67
691379	EP103TC50	A.47	691470	EP101UCTK02	A.49	691581	EP104 UC B32	A.31	692641	EPC 62 B25	A.67
691380	EP103TC63	A.47	691471	EP101UCTK03	A.49	692527	EPC 452 C02	A.65	692642	EPC 62 B32	A.67
691381	EP103TK0.5	A.47	691472	EP101UCTK04	A.49	692528	EPC 452 C04	A.65	692643	EPC 62 B40	A.67
691382	EP103TK01	A.47	691473	EP101UCTK06	A.49	692529	EPC 452 C06	A.65	692644	EPC 63 B02	A.67
691383	EP103TK02	A.47	691474	EP101UCTK08	A.49	692530	EPC 452 C10	A.65	692645	EPC 63 B04	A.67
691384	EP103TK03	A.47	691475	EP101UCTK1.6	A.49	692531	EPC 452 C16	A.65	692646	EPC 63 B06	A.67
691385	EP103TK04	A.47	691476	EP101UCTK10	A.49	692532	EPC 452 C20	A.65	692647	EPC 63 B10	A.67
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691387	EP103TK08	A.47	691478	EP101UCTK20	A.49	692534	EPC 452 C32	A.65	692649	EPC 63 B20	A.67
691388	EP103TK1.6	A.47	691479	EP101UCTK25	A.49	692535	EPC 452 C40	A.65	692650	EPC 63 B25	A.67
691389	EP103TK10	A.47	691480	EP101UCTK32	A.49	692536	EPC 453 C02	A.65	692651	EPC 63 B32	A.67
691390	EP103TK16	A.47	691481	EP101UCTK40	A.49	692537	EPC 453 C04	A.65	692652	EPC 63 B40	A.67
691391	EP103TK20	A.47	691482	EP101UCTK50	A.49	692538	EPC 453 C06	A.65	692653	EPC 64 B02	A.67
691392	EP103TK25	A.47	691483	EP101UCTK63	A.49	692539	EPC 453 C10	A.65	692654	EPC 64 B04	A.67
691393	EP103TK32	A.47	691484	EP101UCTZ0.5	A.49	692540	EPC 453 C16	A.65	692655	EPC 64 B06	A.67
691394	EP103TK40	A.47	691485	EP101UCTZ01	A.49	692541	EPC 453 C20	A.65	692656	EPC 64 B10	A.67
691395	EP103TK50	A.47	691486	EP101UCTZ02	A.49	692542	EPC 453 C25	A.65	692657	EPC 64 B16	A.67
691396	EP103TK63	A.47	691487	EP101UCTZ03	A.49	692543	EPC 453 C32	A.65	692658	EPC 64 B20	A.67
691397	EP104TB06	A.47	691488	EP101UCTZ04	A.49	692544	EPC 453 C40	A.65	692659	EPC 64 B25	A.67
691398	EP104TB08	A.47	691489	EP101UCTZ06	A.49	692545	EPC 454 C02	A.65	692660	EPC 64 B32	A.67
691399	EP104TB10	A.47	691490	EP101UCTZ08	A.49	692546	EPC 454 C04	A.65	692661	EPC 64 B40	A.67
691400	EP104TB13	A.47	691491	EP101UCTZ1.6	A.49	692547	EPC 454 C06	A.65	692689	EPC 611 B02	A.63
691401	EP104TB20	A.47	691492	EP101UCTZ10	A.49	692548	EPC 454 C10	A.65	692690	EPC 611 B04	A.63
691402	EP104TB25	A.47	691493	EP101UCTZ16	A.49	692549	EPC 454 C16	A.65	692691	EPC 611 B06	A.63
691403	EP104TB32	A.47	691494	EP101UCTZ20	A.49	692550	EPC 454 C20	A.65	692692	EPC 611 B10	A.63
691404	EP104TB40	A.47	691495	EP101UCTZ25	A.49	692551	EPC 454 C25	A.65	692693	EPC 611 B13	A.63
691405	EP104TB50	A.47	691496	EP101UCTZ32	A.49	692552	EPC 454 C32	A.65	692694	EPC 611 B16	A.63
691406	EP104TB63	A.47	691497	EP101UCTZ40	A.49	692553	EPC 454 C40	A.65	692695	EPC 611 B20	A.63
691407	EP104TC0.5	A.47	691498	EP101UCTZ50	A.49	692554	EPC 62 C02	A.67	692696	EPC 611 B25	A.63
691408	EP104TC01	A.47	691499	EP101UCTZ63	A.49	692555	EPC 62 C04	A.67	692697	EPC 611 B32	A.63
691409	EP104TC02	A.47	691500	EP102UCTB06	A.49	692556	EPC 62 C06	A.67	692698	EPC 611 B40	A.63
691410	EP104TC03	A.47	691501	EP102UCTB08	A.49	692557	EPC 62 C10	A.67	692699	EPC 611 C02	A.63
691411	EP104TC04	A.47	691502	EP102UCTB10	A.49	692558	EPC 62 C16	A.67	692700	EPC 611 C04	A.63
691412	EP104TC06	A.47	691503	EP102UCTB13	A.49	692559	EPC 62 C20	A.67	692701	EPC 611 C06	A.63
691413	EP104TC08	A.47	691504	EP102UCTB16	A.49	692560	EPC 62 C25	A.67	692702	EPC 611 C10	A.63
691414	EP104TC1.6	A.47	691505	EP102UCTB20	A.49	692561	EPC 62 C32	A.67	692703	EPC 611 C13	A.63
691415	EP104TC10	A.47	691506	EP102UCTB25	A.49	692562	EPC 62 C40	A.67	692704	EPC 611 C16	A.63
691416	EP104TC13	A.47	691507	EP102UCTB32	A.49	692563	EPC 63 C02	A.67	692705	EPC 611 C20	A.63
691417	EP104TC16	A.47	691508	EP102UCTB40	A.49	692564	EPC 63 C04	A.67	692706	EPC 611 C25	A.63
691418	EP104TC20	A									

Ref. No.	Cat. No.	Page	Ref. No.	Cat. No.	Page
692708	EPC 611 C40	A.63	694017	DMCE60B20/030	B.13
692781	EPC 451N C02	A.60	694018	DMCE60B25/030	B.13
692782	EPC 451N C04	A.60	694019	DMCE60B32/030	B.13
692783	EPC 451N C06	A.60	694020	DMCE60B40/030	B.13
692784	EPC 451N C10	A.60	694021	DMCEA60B06/030	B.13
692786	EPC 451N C16	A.60	694022	DMCEA60B10/030	B.13
692787	EPC 451N C20	A.60	694023	DMCEA60B16/030	B.13
692788	EPC 451N C25	A.60	694024	DMCEA60B20/030	B.13
692789	EPC 451N C32	A.60	694025	DMCEA60B25/030	B.13
692790	EPC 451N C40	A.60	694026	DMCEA60B32/030	B.13
692791	EPC 61N C02	A.61	694027	DMCEA60B40/030	B.13
692792	EPC 61N C04	A.61	694028	DICE60C06/030	B.13
692793	EPC 61N C06	A.61	694029	DICE60C10/030	B.13
692794	EPC 61N C10	A.61	694030	DICE60C16/030	B.13
692795	EPC 61N C13	A.61	694031	DICE60C20/030	B.13
692796	EPC 61N C16	A.61	694032	DICE60C25/030	B.13
692797	EPC 61N C20	A.61	694033	DICE60C32/030	B.13
692798	EPC 61N C25	A.61	694034	DICE60C40/030	B.13
692799	EPC 61N C32	A.61	694035	DICEA60C06/030	B.13
692800	EPC 61N C40	A.61	694036	DICEA60C10/030	B.13
692801	EPC 101N C02	A.62	694037	DICEA60C16/030	B.13
692802	EPC 101N C04	A.62	694038	DICEA60C20/030	B.13
692803	EPC 101N C06	A.62	694039	DICEA60C25/030	B.13
692804	EPC 101N C10	A.62	694040	DICEA60C32/030	B.13
692805	EPC 101N C16	A.62	694041	DICEA60C40/030	B.13
692806	EPC 101N C20	A.62	694042	DICE60B06/030	B.13
692807	EPC 101N C25	A.62	694043	DICE60B10/030	B.13
692808	EPC 101N C32	A.62	694044	DICE60B16/030	B.13
692809	EPC 101N C40	A.62	694045	DICE60B20/030	B.13
692810	EPC 451N B02	A.60	694046	DICE60B25/030	B.13
692811	EPC 451N B04	A.60	694047	DICE60B32/030	B.13
692812	EPC 451N B06	A.60	694048	DICE60B40/030	B.13
692813	EPC 451N B10	A.60	694049	DICEA60B06/030	B.13
692814	EPC 451N B16	A.60	694050	DICEA60B10/030	B.13
692815	EPC 451N B20	A.60	694051	DICEA60B16/030	B.13
692816	EPC 451N B25	A.60	694052	DICEA60B20/030	B.13
692817	EPC 451N B32	A.60	694053	DICEA60B25/030	B.13
692818	EPC 451N B40	A.60	694054	DICEA60B32/030	B.13
692819	EPC 61N B02	A.61	694055	DICEA60B40/030	B.13
692820	EPC 61N B04	A.61	810000		
692821	EPC 61N B06	A.61	811325	-	F.11
692822	EPC 61N B10	A.61	811326	-	F.11
692823	EPC 61N B16	A.61	811327	-	F.11
692824	EPC 61N B20	A.61	811331	-	F.11
692825	EPC 61N B25	A.61	813146	-	F.11
692826	EPC 61N B32	A.61	813156	-	F.11
692827	EPC 61N B40	A.61	815092	-	F.11
692828	EPC 101N B02	A.62	815093	-	F.11
692829	EPC 101N B04	A.62	815094	-	F.11
692830	EPC 101N B06	A.62	815105	-	F.11
692831	EPC 101N B10	A.62	820000		
692832	EPC 101N B16	A.62	828056	-	F.11
692833	EPC 101N B20	A.62	828145	-	F.15
692834	EPC 101N B25	A.62	828146	-	F.15
692835	EPC 101N B32	A.62	828149	-	F.11
692836	EPC 101N B40	A.62	828152	-	F.11
693382	EPC 611 B25B10	A.63	828153	-	F.11
693383	EPC 611 B25B13	A.63	830000		
693384	EPC 611 B25B16	A.63	832000	-	F.11
693385	EPC 611 B32B10	A.63	850000		
693386	EPC 611 B32B13	A.63	851046	-	F.47
693387	EPC 611 B32B16	A.63	880000		
693388	EPC 611 B40B10	A.63	883970	FBF6	G.5
693389	EPC 611 B40B13	A.63	890000		
693390	EPC 611 B40B16	A.63	890838	-	F.50
693391	EPC 611 C25C10	A.63			
693392	EPC 611 C25C13	A.63			
693393	EPC 611 C25C16	A.63			
693394	EPC 611 C32C10	A.63			
693395	EPC 611 C32C13	A.63			
693396	EPC 611 C32C16	A.63			
693397	EPC 611 C40C10	A.63			
693398	EPC 611 C40C13	A.63			
693399	EPC 611 C40C16	A.63			
694000	DMCE60C06/030	B.13			
694001	DMCE60C10/030	B.13			
694002	DMCE60C16/030	B.13			
694003	DMCE60C20/030	B.13			
694004	DMCE60C25/030	B.13			
694005	DMCE60C32/030	B.13			
694006	DMCE60C40/030	B.13			
694007	DMCEA60C06/030	B.13			
694008	DMCEA60C10/030	B.13			
694009	DMCEA60C16/030	B.13			
694010	DMCEA60C20/030	B.13			
694011	DMCEA60C25/030	B.13			
694012	DMCEA60C32/030	B.13			
694013	DMCEA60C40/030	B.13			
694014	DMCE60B06/030	B.13			
694015	DMCE60B10/030	B.13			
694016	DMCE60B16/030	B.13			

By reference number

A

B

C

D

E

F

G

X



Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page
<b>A...</b>											
AAZA10	564041	F.40	BDC240/030	607126	B.7	BPC4100/100	606220	B.7	CLS Q 31 D	666104	D.21
AAZA4	564045	F.40	BDC240/300	607128	B.7	BPC4100/1000	606238	B.7	CLS Q 31 D M	666106	D.21
AAZFN1-26	619394	F.39	BE 12	666633	D.29	BPC4100/300	606228	B.7	CLS Q 31 W	666109	D.21
AAZFPE1-26	619395	F.39	BE 230	666632	D.29	BPC4100/500	606233	B.7	CLS Q 31 W M	666110	D.21
AAZFPN16	619393	F.39	BLANK4	610382	F.29	BPC425/030	606208	B.7	CLS Q 62 DD	666103	D.21
AAZG1	564054	F.40	BPA2100/030	606090	B.7	BPC425/100	606216	B.7	CLS Q 62 DW	666108	D.21
AAZK12	564050	F.39	BPA2100/100	606095	B.7	BPC425/1000	606234	B.7	CLS S 11 D	666111	D.21
AAZK16	564051	F.39	BPA2100/1000	606125	B.7	BPC425/300	606224	B.7	CLS S 31 D	666112	D.21
AAZK33	564052	F.39	BPA2100/300	606105	B.7	BPC425/500	606229	B.7	CLS S 31 D M	666113	D.21
AAZN3	564053	F.40	BPA2100/500	606115	B.7	BPC440/030	606209	B.7	CLS S 31 W	666114	D.21
AAZN33	564049	F.39	BPA216/010	606085	B.26	BPC440/100	606217	B.7	CLS S 31 W M	666115	D.21
AAZP11	564352	F.40	BPA216/010*	606085	B.7	BPC440/1000	606235	B.7	CLS72Q41D	666178	D.25
AAZP12	564353	F.40	BPA225/030	606086	B.7	BPC440/300	606225	B.7	CLS72Q41W	666176	D.25
AAZP33	564048	F.39	BPA225/100	606091	B.7	BPC440/500	606230	B.7	CLS72S41D	666177	D.25
AAZPN12	564046	F.39	BPA225/1000	606121	B.7	BPC463/030	606210	B.7	CLS72S41W	666175	D.25
AAZPN16	564047	F.39	BPA225/300	606101	B.7	BPC463/100	606218	B.7	CSLKIT14	662136	F.29
AAZTA1	564056	F.39	BPA225/500	606111	B.7	BPC463/1000	606236	B.7	CSLKIT18	662138	F.29
AAZTA2	564350	F.39	BPA240/030	606087	B.7	BPC463/300	606226	B.7	CTX + R 16 1 008 A	686000	D.11
AST B	666347	D.5	BPA240/100	606092	B.7	BPC463/500	606231	B.7	CTX + R 16 1 012 A	686001	D.11
AST B 12	666340	D.5	BPA240/1000	606122	B.7	BPC480/030	606211	B.7	CTX + R 16 1 024 A	686002	D.11
AST B 230	666341	D.5	BPA240/300	606102	B.7	BPC480/100	606219	B.7	CTX + R 16 1 048 A	686003	D.11
AST B 24	666342	D.5	BPA240/500	606112	B.7	BPC480/1000	606237	B.7	CTX + R 16 1 115 A	686004	D.11
AST L CL	666343	D.5	BPA263/030	606088	B.7	BPC480/300	606227	B.7	CTX + R 16 1 230 A	686005	D.11
AST L GN	666344	D.5	BPA263/100	606093	B.7	BPC480/500	606232	B.7	CTX + R 16 1 240 A	686006	D.11
AST L OR	666345	D.5	BPA263/1000	606123	B.7	BPS2100/100	606100	B.7	CTX + R 16 10 008 A	686007	D.11
AST L RD	666346	D.5	BPA263/300	606103	B.7	BPS2100/1000	606130	B.7	CTX + R 16 10 012 A	686008	D.11
AST LA 230V	666874	D.5	BPA263/500	606113	B.7	BPS2100/300	606110	B.7	CTX + R 16 10 024 A	686009	D.11
AST LB 230V	666875	D.5	BPA280/030	606089	B.7	BPS2100/500	606120	B.7	CTX + R 16 10 048 A	686010	D.11
AST LG 230V	666876	D.5	BPA280/100	606094	B.7	BPS225/100	606096	B.7	CTX + R 16 10 115 A	686011	D.11
AST LR 230V	666877	D.5	BPA280/1000	606124	B.7	BPS225/1000	606126	B.7	CTX + R 16 10 230 A	686013	D.11
AST LW 230V	666878	D.5	BPA280/300	606104	B.7	BPS225/300	606106	B.7	CTX + R 16 10 23060	686012	D.11
AST M 100 10	666558	D.3	BPA280/500	606114	B.7	BPS225/500	606116	B.7	CTX + R 16 10 240 A	686014	D.11
AST M 100 20	666559	D.3	BPA4100/030	606167	B.7	BPS240/100	606097	B.7	CTX + R 16 10 008 A	686015	D.11
AST M 100 30	666560	D.3	BPA4100/100	606172	B.7	BPS240/1000	606127	B.7	CTX + R 16 11 012 A	686016	D.11
AST M 100 40	666561	D.3	BPA4100/1000	606202	B.7	BPS240/300	606107	B.7	CTX + R 16 11 024 A	686017	D.11
AST M 40 10	666614	D.3	BPA4100/300	606182	B.7	BPS240/500	606117	B.7	CTX + R 16 11 048 A	686018	D.11
AST M 40 20	666615	D.3	BPA4100/500	606192	B.7	BPS263/100	606098	B.7	CTX + R 16 11 115 A	686019	D.11
AST M 40 30	666616	D.3	BPA425/030	606163	B.7	BPS263/1000	606128	B.7	CTX + R 16 11 230 A	686021	D.11
AST M 40 40	666617	D.3	BPA425/100	606168	B.7	BPS263/300	606108	B.7	CTX + R 16 11 23060	686020	D.11
AST M 63 10	666562	D.3	BPA425/1000	606198	B.7	BPS263/500	606118	B.7	CTX + R 16 11 240 A	686022	D.11
AST M 63 20	666563	D.3	BPA4425/100	606198	B.26	BPS280/100	606099	B.7	CTX + R 16 2 008 A	686023	D.11
AST M 63 30	666564	D.3	BPA425/300	606178	B.7	BPS280/1000	606129	B.7	CTX + R 16 2 012 A	686024	D.11
AST M 63 40	666565	D.3	BPA425/500	606188	B.7	BPS280/300	606109	B.7	CTX + R 16 2 024 A	686026	D.11
AST M 80 10	666566	D.3	BPA440/030	606164	B.7	BPS280/500	606119	B.7	CTX + R 16 2 048 A	686028	D.11
AST M 80 20	666567	D.3	BPA440/100	606169	B.7	BPS4100/100	606177	B.7	CTX + R 16 2 115 A	686030	D.11
AST M 80 30	666568	D.3	BPA440/1000	606199	B.7	BPS4100/1000	606207	B.7	CTX + R 16 2 230 A	686032	D.11
AST M 80 40	666569	D.3	BPA440/300	606179	B.7	BPS4100/300	606187	B.7	CTX + R 16 2 240 A	686034	D.11
AST P 16 01	666570	D.3	BPA440/500	606189	B.7	BPS4100/500	606197	B.7	CTX + R 16 2 008 A	686036	D.11
AST P 16 10	666571	D.3	BPA463/030	606165	B.7	BPS425/100	606173	B.7	CTX + R 16 20 012 A	686037	D.11
AST P 16 11	666572	D.3	BPA463/100	606170	B.7	BPS425/1000	606203	B.7	CTX + R 16 20 024 A	686038	D.11
AST PL 16 10	666573	D.3	BPA463/1000	606200	B.7	BPS425/300	606183	B.7	CTX + R 16 20 048 A	686039	D.11
AST R 32 20	666574	D.3	BPA463/300	606180	B.7	BPS425/500	606193	B.7	CTX + R 16 20 115 A	686040	D.11
AST R 32 30	666575	D.3	BPA463/500	606190	B.7	BPS440/100	606174	B.7	CTX + R 16 20 230 A	686042	D.11
AST R 32 3N	666576	D.3	BPA480/030	606166	B.7	BPS440/1000	606204	B.7	CTX + R 16 20 23060	686041	D.11
AST R 32 40	666577	D.3	BPA480/100	606171	B.7	BPS440/300	606184	B.7	CTX + R 16 20 240 A	686043	D.11
AST R 40 20	666578	D.3	BPA480/1000	606201	B.7	BPS440/500	606194	B.7	CTX + R 16 22 008 A	686027	D.11
AST R 40 30	666579	D.3	BPA480/300	606181	B.7	BPS463/100	606175	B.7	CTX + R 16 22 012 A	686044	D.11
AST R 40 3N	666580	D.3	BPA480/500	606191	B.7	BPS463/1000	606205	B.7	CTX + R 16 22 024 A	686045	D.11
AST R 40 40	666581	D.3	BPAi225/030	606331	B.7	BPS463/300	606185	B.7	CTX + R 16 22 048 A	686046	D.11
AST R 63 20	666582	D.3	BPAi225/300	606347	B.7	BPS463/500	606195	B.7	CTX + R 16 22 230 A	686048	D.11
AST R 63 30	666583	D.3	BPAi240/030	606332	B.7	BPS480/100	606176	B.7	CTX + R 16 22 23060	686047	D.11
AST R 63 3N	666584	D.3	BPAi240/300	606348	B.7	BPS480/1000	606206	B.7	CTX + R 16 22 240 A	686049	D.11
AST R 63 40	666585	D.3	BPAi263/030	606333	B.7	BPS480/300	606186	B.7	CTX + R 16 30 012 A	686050	D.11
AST R ES E	666555	D.3	BPAi263/300	606349	B.7	BPS480/500	606196	B.7	CTX + R 16 30 024 A	686051	D.11
AST R ES S	666556	D.3	BPAi425/030	606334	B.7	BPSi2100/300	606341	B.7	CTX + R 16 30 048 A	686052	D.11
AST R TS	666557	D.3	BPAi425/300	606350	B.7	BPSi225/300	606337	B.7	CTX + R 16 30 230 A	686053	D.11
AST S 16 1	666586	D.3	BPAi440/030	606335	B.7	BPSi240/300	606338	B.7	CTX + R 16 4 012 A	686054	D.11
AST S 16 10	666587	D.3	BPAi440/300	606351	B.7	BPSi263/300	606339	B.7	CTX + R 16 4 024 A	686055	D.11
AST S 16 2	666588	D.3	BPAi463/030	606336	B.7	BPSi280/300	606340	B.7	CTX + R 16 4 048 A	686056	D.11
AST S 16 20	666589	D.3	BPAi463/300	606352	B.7	BPSi4100/300	606346	B.7	CTX + R 16 4 115 A	686057	D.11
AST S 16 30	666590	D.3	BPC2100/030	606136	B.7	BPSi425/300	606342	B.7	CTX + R 16 4 230 A	686058	D.11
AST S 16 30 2	666591	D.3	BPC2100/100	606144	B.7	BPSi440/300	606343	B.7	CTX + R 16 4 240 A	686059	D.11
AST S 16 40	666593	D.3	BPC2100/1000	606162	B.7	BPSi463/300	606344	B.7	CTX + R 16 40 008 A	686025	D.11
AST S 16 40 2	666592	D.3	BPC2100/300	606152	B.7	BPSi480/300	606345	B.7	CTX + R 16 40 012 A	686060	D.11
AST S 32 1	666594	D.3	BPC2100/500	606157	B.7	BU 12	666630	D.29	CTX + R 16 40 024 A	686061	D.11
AST S 32 10	666595	D.3	BPC216/010	606131	B.26	BU 230	666629	D.29	CTX + R 16 40 048 A	686062	D.11
AST S 32 2	666596	D.3	BPC216/010*	606131	B.7	<b>C...</b>			CTX + R 16 40 230 A	686064	D.11
AST S 32 20	666597	D.3	BPC225/100	606140	B.7	CA H	672567	C.4	CTX + R 16 40 23060	686063	D.11
AST S 32 30	666599	D.3	BPC225/1000	606158	B.7	CA S/H	672568	C.4	CTX + R 16 40 240 A	686065	D.11
AST S 32 40	666600	D.3	BPC225/500	606153	B.7	CA S/H G	672569	C.4	CTX + R 5 02	686066	D.15
AST S 32 40 2	666601	D.3	BPC240/100	606141	B.7	CA UN H	672972	C.6	CTX + R 5 11	686067	D.15
AST SL 16 10	666602	D.3	BPC240/1000	606159	B.7	CA UN S/H	672973	C.6	CTX + R 5 20	686068	D.15
AST SL 16 20	666603	D.3	BPC240/500	606154	B.7	CA UN S/H G	672974	C.6	CTX 06 11	666162	D.7
AST SL 32 10	666604	D.3	BPC263/030	606134	B.7	CB SH/HH-L	672571	C.5	CTX 06 20	666163	D.7
AST SL 32 20	666605	D.3	BPC263/100	606142	B.7	CB SH/HH-R	672570	C.5	CTX 20 02 024 A	666129	D.7
AST SZ 16 1	666606	D.3	BPC263/1000	606160	B.7	CBT H 2NC	667250	C.10	CTX 20 02 230 A	666128	D.7
AST SZ 16 2	666607	D.3	BPC263/300	606150	B.7	CBT H 2NO	667251	C.10	CTX 20 11 024 A	666127	D.7
AST SZ 32 1	666608	D.3	BPC263/500	606155	B.7	CBT H NO-NC	667249	C.10	CTX 20 11 230 A	666126	D.7
AST SZ 32 2	666609	D.3	BPC280/030	606135	B.7	CD10					



Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page
CTX 24 04 230 U	666139	D.7	DM100B40/300	609954	B.11	DM60C40/100	609854	B.9	DMA60C04/030	609775	B.9
CTX 24 22 024 U	666136	D.7	DM100C04/010	609955	B.11	DM60C40/300	609863	B.9	DMA60C04/100	609784	B.9
CTX 24 22 230 U	666135	D.7	DM100C04/030	609961	B.11	DMA100B06/010	609864	B.11	DMA60C04/300	609793	B.9
CTX 24 30 024 U	666138	D.7	DM100C04/100	609970	B.11	DMA100B06/030	609869	B.11	DMA60C06/010	609770	B.9
CTX 24 30 230 U	666137	D.7	DM100C04/300	609979	B.11	DMA100B06/100	609877	B.11	DMA60C06/030	609776	B.9
CTX 24 40 012 U	666141	D.7	DM100C06/010	609956	B.11	DMA100B06/300	609885	B.11	DMA60C06/100	609785	B.9
CTX 24 40 024 U	666144	D.7	DM100C06/030	609962	B.11	DMA100B10/010	609865	B.11	DMA60C06/300	609794	B.9
CTX 24 40 048 U	666145	D.7	DM100C06/100	609971	B.11	DMA100B10/030	609870	B.11	DMA60C10/010	609771	B.9
CTX 24 40 230 U	666142	D.7	DM100C06/300	609980	B.11	DMA100B10/100	609878	B.11	DMA60C10/030	609777	B.9
CTX 24 40 240 U	666143	D.7	DM100C10/010	609957	B.11	DMA100B10/300	609886	B.11	DMA60C10/100	609786	B.9
CTX 40 02 230 U	666170	D.7	DM100C10/030	609963	B.11	DMA100B13/010	609866	B.11	DMA60C10/300	609795	B.9
CTX 40 20 024 U	666147	D.7	DM100C10/100	609972	B.11	DMA100B13/030	609871	B.11	DMA60C13/010	609772	B.9
CTX 40 20 230 U	666146	D.7	DM100C10/300	609981	B.11	DMA100B13/100	609879	B.11	DMA60C13/030	609778	B.9
CTX 40 30 024 U	666149	D.7	DM100C13/010	609958	B.11	DMA100B13/300	609887	B.11	DMA60C13/100	609787	B.9
CTX 40 30 230 U	666148	D.7	DM100C13/030	609964	B.11	DMA100B16/010	609867	B.11	DMA60C13/300	609796	B.9
CTX 40 40 012 U	666150	D.7	DM100C13/100	609973	B.11	DMA100B16/030	609872	B.11	DMA60C16/010	609773	B.9
CTX 40 40 024 U	666153	D.7	DM100C13/300	609982	B.11	DMA100B16/100	609880	B.11	DMA60C16/030	609779	B.9
CTX 40 40 048 U	666154	D.7	DM100C16/010	609959	B.11	DMA100B16/300	609888	B.11	DMA60C16/100	609788	B.9
CTX 40 40 230 U	666151	D.7	DM100C16/030	609965	B.11	DMA100B20/010	609868	B.11	DMA60C16/300	609797	B.9
CTX 40 40 240 U	666152	D.7	DM100C16/100	609974	B.11	DMA100B20/030	609873	B.11	DMA60C20/010	609774	B.9
CTX 63 20 230 U	666155	D.7	DM100C16/300	609983	B.11	DMA100B20/100	609881	B.11	DMA60C20/030	609780	B.9
CTX 63 40 024 U	666158	D.7	DM100C20/010	609960	B.11	DMA100B20/300	609889	B.11	DMA60C20/100	609789	B.9
CTX 63 40 230 U	666156	D.7	DM100C20/030	609966	B.11	DMA100B25/030	609874	B.11	DMA60C20/300	609798	B.9
CTX 63 40 240 U	666157	D.7	DM100C20/100	609975	B.11	DMA100B25/100	609882	B.11	DMA60C25/030	609781	B.9
CTX DN 20 230 U	666164	D.7	DM100C20/300	609984	B.11	DMA100B25/300	609890	B.11	DMA60C25/100	609790	B.9
CTX DN 24 30 230 U	666165	D.7	DM100C25/030	609967	B.11	DMA100B32/030	609875	B.11	DMA60C25/300	609799	B.9
CTX DN 24 40 230 U	666166	D.7	DM100C25/100	609976	B.11	DMA100B32/100	609883	B.11	DMA60C32/030	609782	B.9
CTX DN 40 20 230 U	666167	D.7	DM100C25/300	609985	B.11	DMA100B32/300	609891	B.11	DMA60C32/100	609791	B.9
CTX DN 40 30 230 U	666168	D.7	DM100C32/030	609968	B.11	DMA100B40/030	609876	B.11	DMA60C32/300	609800	B.9
CTX DN 40 40 230 U	666169	D.7	DM100C32/100	609977	B.11	DMA100B40/100	609884	B.11	DMA60C40/030	609783	B.9
CTX TS 2	666160	D.7	DM100C32/300	609986	B.11	DMA100B40/300	609892	B.11	DMA60C40/100	609792	B.9
CTX TS 3	666159	D.7	DM100C40/030	609969	B.11	DMA100C04/010	609893	B.11	DMA60C40/300	609801	B.9
CU10BN	662133	F.28	DM100C40/100	609978	B.11	DMA100C04/030	609899	B.11	DMCE60B06/030	694014	B.13
CU14BN	662133	F.28	DM100C40/300	609987	B.11	DMA100C04/100	609908	B.11	DMCE60B10/030	694015	B.13
CU18BN	662134	F.28	DM60B06/010	609802	B.9	DMA100C04/300	609917	B.11	DMCE60B16/030	694016	B.13
CU48BN	662131	F.28	DM60B06/030	609807	B.9	DMA100C06/010	609894	B.11	DMCE60B20/030	694017	B.13
<b>D</b>			DM60B06/100	609815	B.9	DMA100C06/030	609900	B.11	DMCE60B25/030	694018	B.13
D.FSL12	662163	F.26	DM60B06/300	609823	B.9	DMA100C06/100	609909	B.11	DMCE60B32/030	694019	B.13
DICE60B06/030	694042	B.13	DM60B10/010	609803	B.9	DMA100C06/300	609918	B.11	DMCE60B40/030	694020	B.13
DICE60B10/030	694043	B.13	DM60B10/030	609808	B.9	DMA100C10/010	609895	B.11	DMCE60C06/030	694000	B.13
DICE60B16/030	694044	B.13	DM60B10/100	609816	B.9	DMA100C10/030	609901	B.11	DMCE60C10/030	694001	B.13
DICE60B20/030	694045	B.13	DM60B10/300	609824	B.9	DMA100C10/100	609910	B.11	DMCE60C16/030	694002	B.13
DICE60B25/030	694046	B.13	DM60B13/010	609804	B.9	DMA100C10/300	609919	B.11	DMCE60C20/030	694003	B.13
DICE60B32/030	694047	B.13	DM60B13/030	609809	B.9	DMA100C13/010	609896	B.11	DMCE60C25/030	694004	B.13
DICE60B40/030	694048	B.13	DM60B13/100	609817	B.9	DMA100C13/030	609902	B.11	DMCE60C32/030	694005	B.13
DICE60C06/030	694028	B.13	DM60B13/300	609825	B.9	DMA100C13/100	609911	B.11	DMCE60C40/030	694006	B.13
DICE60C10/030	694029	B.13	DM60B16/010	609805	B.9	DMA100C13/300	609920	B.11	DMCEA60B06/030	694021	B.13
DICE60C16/030	694030	B.13	DM60B16/030	609810	B.9	DMA100C16/010	609897	B.11	DMCEA60B10/030	694022	B.13
DICE60C20/030	694031	B.13	DM60B16/100	609818	B.9	DMA100C16/030	609903	B.11	DMCEA60B16/030	694023	B.13
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DICE60C32/030	694033	B.13	DM60B20/010	609806	B.9	DMA100C16/300	609921	B.11	DMCEA60B25/030	694025	B.13
DICE60C40/030	694034	B.13	DM60B20/030	609811	B.9	DMA100C20/010	609898	B.11	DMCEA60B32/030	694026	B.13
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DM100B20/030	609935	B.11	DM60C20/010	609836	B.9	DMA6					

Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page
DME60C40/030	605066	B.15	DOCA 263/1000	607510	B.17	EP101K04	672406	A.25	EP101UCRK01	673268	A.45
DMEA100B06/010	605150	B.15	DOCA 263/300	607508	B.17	EP101K06	672407	A.25	EP101UCRK02	673270	A.45
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DOC 232/100	607537	B.17	DOCS 432/100	607693	B.17	EP101TK20	691271	A.47	EP101UCTB63	691450	A.49
DOC 232/1000	607540	B.17	DOCS 432/1000	607696	B.17	EP101TK25	691272	A.47	EP101UCTC0.5	691451	A.49
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DOC 232/500	607539	B.17	DOCS 432/500	607695	B.17	EP101TK40	691274	A.47	EP101UCTC02	691453	A.49
DOC 263/030	607542	B.17	DOCS 463/100	607699	B.17	EP101TK50	691275	A.47	EP101UCTC03	691454	A.49
DOC 263/100	607543	B.17	DOCS 463/1000	607702	B.17	EP101TK63	691276	A.47	EP101UCTC04	691455	A.49
DOC 263/1000	607546	B.17	DOCS 463/300	607700	B.17	EP101TZ0.5	691277	A.47	EP101UCTC06	691456	A.49
DOC 263/300	607544	B.17	DOCS 463/500	607701	B.17	EP101TZ01	691278	A.47	EP101UCTC08	691457	A.49
DOC 263/500	607545	B.17	DOCS 532/100	607687	B.17	EP101TZ02	691279	A.47	EP101UCTC10	691458	A.49
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DOC 3125/300	671584	A.34	DOCS 532/300	607688	B.17	EP101TZ04	691281	A.47	EP101UCTC13	691460	A.49
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DOC 332/100	607621	B.17	DPA100B10/010	608706	B.19	EP101TZ08	691283	A.47	EP101UCTC20	691462	A.49
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DOC 332/300	607622	B.17	DPA100B13/010	608707	B.19	EP101TZ10	691285	A.47	EP101UCTC32	691464	A.49
DOC 332/500	607623	B.17	DPA100B13/030	608713	B.19	EP101TZ16	691286	A.47	EP101UCTC40	691465	A.49
DOC 363/030	607626	B.17	DPA100B16/010	608708	B.19	EP101TZ20	691287	A.47	EP101UCTC50	691466	A.49
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DOC 363/1000	607630	B.17	DPA100B20/010	608709	B.19	EP101TZ32	691289	A.47	EP101UCTK0.5	691468	A.49
DOC 363/300	607628	B.17	DPA100B20/030	608715	B.19	EP101TZ40	691290	A.47	EP101UCTK01	691469	A.49
DOC 363/500	607629	B.17	DPA100B25/030	608716	B.19	EP101TZ50	691291	A.47	EP101UCTK02	691470	A.49
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DOC 432/030	607728	B.17	DPA100C10/030	608763	B.19	EP101UCB10	673334	A.31	EP101UCTK06	691473	A.49
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DOC 432/500	607731	B.17	DPA100C16/030	608765	B.19	EP101UCB32	673338	A.31	EP101UCTK16	691477	A.49
DOC 463/030	607734	B.17	DPA100C20/010	608760	B.19	EP101UCB40	673339	A.31	EP101UCTK20	691478	A.49
DOC 463/100	607735	B.17	DPA100C20/030	608766	B.19	EP101UCB50	673340	A.31	EP101UCTK25	691479	A.49
DOC 463/1000	607738	B.17	DPA100C25/030	608767	B.19	EP101UCB63	673341	A.31	EP101UCTK32	691480	A.49
DOC 463/300	607736	B.17	DPA100C32/030	608768	B.19	EP101UCC0.5	673301	A.31	EP101UCTK40	691481	A.49
DOC 463/500	607737	B.17	DSL44	662157	F.26	EP101UCC01	673302	A.31	EP101UCTK50	691482	A.49
DOC 532/030	607722	B.17	DSL55	662159	F.26	EP101UCC02	673303	A.31	EP101UCTK63	691483	A.49
DOC 532/100	607723	B.17	DSL64	662158	F.26	EP101UCC04	673305	A.31	EP101UCTZ0.5	691484	A.49
DOC 532/1000	607726	B.17	DSL66	662160	F.26	EP101UCC06	673306	A.31	EP101UCTZ01	691485	A.49
DOC 532/300	607724	B.17	EDRE	600232	A.50	EP101UCC10	673308	A.31	EP101UCTZ02</		

Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page
EP101UCT225	691495	A.49	EP102TB08	691294	A.47	EP102UCRK50	673299	A.45	EP102ULC01	686883	A.39
EP101UCT232	691496	A.49	EP102TB10	691295	A.47	EP102UCRK63	673300	A.45	EP102ULC05	686884	A.39
EP101UCT240	691497	A.49	EP102TB13	691296	A.47	EP102UCRB02	681773	A.45	EP102ULC02	686885	A.39
EP101UCT250	691498	A.49	EP102TB16	691297	A.47	EP102UCRB04	681774	A.45	EP102ULC04	686887	A.39
EP101UCT263	691499	A.49	EP102TB20	691298	A.47	EP102UCRB06	681484	A.45	EP102ULC06	686889	A.39
EP101ULB06	686809	A.39	EP102TB25	691299	A.47	EP102UCRB10	681485	A.45	EP102ULC10	686890	A.39
EP101ULB10	686810	A.39	EP102TB32	691300	A.47	EP102UCRB16	681486	A.45	EP102ULC16	686893	A.39
EP101ULB16	686813	A.39	EP102TB40	691301	A.47	EP102UCRB20	681487	A.45	EP102ULC20	686894	A.39
EP101ULB20	686814	A.39	EP102TB50	691302	A.47	EP102UCRB25	681488	A.45	EP102ULC25	686895	A.39
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EP101ULB32	686817	A.39	EP102TC0.5	691304	A.47	EP102UCRB40	681490	A.45	EP102ULC40	686898	A.39
EP101ULB40	686818	A.39	EP102TC01	691305	A.47	EP102UCRB50	681491	A.45	EP102ULC50	686899	A.39
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EP102K40	672447	A.25	EP102UCRK20	673295	A.45	EP102ULB32	686831	A.39	EP		

Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page
EP103K10	672457	A.25	EP103ULHB25	690241	A.41	EP104TK32	691436	A.47	EP62K03	681620	A.21
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EP103ULHB15	290238	A.41	EP104TK16	691433	A.						

Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page
EP63ULD25	686782	A.37	EPC 452 B02	692608	A.65	EPC 61N B06	692821	A.61	EPP102B10	678273	A.79
EP63ULD32	686784	A.37	EPC 452 B04	692609	A.65	EPC 61N B10	692822	A.61	EPP102B13	678274	A.79
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EPC 4											

Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page
EPP61C25	678217	A.77	EPP64C63	678724	A.77	FDNRZ/5	436489	G.4	G101D04	675020	A.23
EPP61C32	678218	A.77	EV-G.1.2.80-90°	624993	D.39	FDNRZV/5	436490	G.4	G101D06	675021	A.23
EPP61C40	678219	A.77	EV-G.1.3.80-90°	644893	D.39	FDQDI3M/6	431086	G.3	G101D10	675023	A.23
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Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page
G103B25	674989	A.23	G32B20	674459	A.15	G44B10	674587	A.17	G62C40	674641	A.19
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G31B10	674445	A.15	G42C40	674517	A.17	G61ND63	674789	A.19	G64D63	674837	A.19
G31B16	674447	A.15	G43B06	674574	A.17	G62B06	674714	A.19	GA40	662116	F.26
G31B20	674448	A.15	G43B10	674576	A.17	G62B10	674716	A.19	GLX BAT	666180	D.23
G31B25	674449	A.15	G43B16	674578	A.17	G62B16	674718	A.19	GLX DCF	666181	D.23
G31B32	674450	A.15	G43B20	674579	A.17	G62B20	674719	A.19	GLX PRG	666182	D.23
G31B40	674451	A.15	G43B25	674580	A.17	G62B25	674720	A.19	GLX Q 11 W 50 LS1	686530	D.23
G31C02	674381	A.15	G43B32	674581	A.17	G62B32	674721	A.19	GLX Q 21 W 50 LS1	680070	D.23
G31C04	674383	A.15	G43B40	674582	A.17	G62B40	674722	A.19	GLX Q 21 D 50 LS1	686531	D.23
G31C06	674384	A.15	G43C02	674522	A.17	G62B50	674723	A.19	GLX Q 21 W 50 LS1	686532	D.23
G31C10	674386	A.15	G43C04	674524	A.17	G62B63	674724	A.19	GLX Q 21 W 50C LS1	686534	D.23
G31C16	674388	A.15	G43C06	674525	A.17	G62C02	674630	A.19	GLX Q 22 ASTRO LS1	680073	D.23
G31C20	674389	A.15	G43C10	674527	A.17	G62C04	674632	A.19	GLX Q 22 W 50 LS1	686533	D.23
G31C25	674390	A.15	G43C16	674529	A.17	G62C06	674633	A.19	GLX Q 22 W 50C LS1	686535	D.23
G31C32	674391	A.15	G43C20	674530	A.17	G62C10	674635	A.19	GLX Q 62 Y 400	666192	D.23
G31C40	674392	A.15	G43C25	674531	A.17	G62C16	674637	A.19	GLX Q 62 Y 400	666194	D.23
G32B06	674454	A.15	G43C32	674532	A.17	G62C20	674638	A.19	GLX Q 64 W 400	666193	D.23
G32B10	674456	A.15	G43C40	674533	A.17	G62C25	674639	A.19	GLX Q 64 Y 400	666195	D.23
G32B16	674458	A.15	G44B06	674585	A.17	G62C32	674640	A.19	GLX72Q41DW	666179	D.25

A

B

C

D

E

F

G

X

Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page
GT101B06	675176	A.27	GT103C06	675149	A.27	GT251D25	675403	A.29	GT254C50	675346	A.29
GT101B10	675178	A.27	GT103C10	675151	A.27	GT251D32	675404	A.29	GT254C63	675347	A.29
GT101B13	675179	A.27	GT103C13	675152	A.27	GT251D40	675405	A.29	GT254D0.5	675440	A.29
GT101B16	675180	A.27	GT103C16	675153	A.27	GT251D50	675406	A.29	GT254D01	675441	A.29
GT101B20	675181	A.27	GT103C20	675154	A.27	GT251D63	675407	A.29	GT254D02	675442	A.29
GT101B25	675182	A.27	GT103C25	675155	A.27	GT252B06	675359	A.29	GT254D04	675444	A.29
GT101B32	675183	A.27	GT103C32	675156	A.27	GT252B10	675361	A.29	GT254D06	675445	A.29
GT101B40	675184	A.27	GT103C40	675157	A.27	GT252B16	675363	A.29	GT254D10	675447	A.29
GT101B50	675185	A.27	GT103C50	675158	A.27	GT252B20	675364	A.29	GT254D16	675449	A.29
GT101B63	675186	A.27	GT103C63	675159	A.27	GT252B25	675365	A.29	GT254D20	675450	A.29
GT101C0.5	675112	A.27	GT103D0.5	675252	A.27	GT252B32	675366	A.29	GT254D25	675451	A.29
GT101C01	675113	A.27	GT103D01	675253	A.27	GT252B40	675367	A.29	GT254D32	675452	A.29
GT101C02	675114	A.27	GT103D02	675254	A.27	GT252B50	675368	A.29	GT254D40	675453	A.29
GT101C03	675115	A.27	GT103D03	675255	A.27	GT252B63	675369	A.29	GT254D50	675454	A.29
GT101C04	675116	A.27	GT103D04	675256	A.27	GT252C0.5	675300	A.29	GT254D63	675455	A.29
GT101C06	675117	A.27	GT103D06	675257	A.27	GT252C01	675301	A.29			
GT101C10	675119	A.27	GT103D10	675259	A.27	GT252C02	675302	A.29	H...		
GT101C13	675120	A.27	GT103D13	675260	A.27	GT252C04	675304	A.29	HDIN2	618794	F.29
GT101C16	675121	A.27	GT103D16	675261	A.27	GT252C06	675305	A.29	Hti 101 B080	671504	A.33
GT101C20	675122	A.27	GT103D20	675262	A.27	GT252C10	675307	A.29	Hti 101 B100	671505	A.33
GT101C25	675123	A.27	GT103D25	675263	A.27	GT252C16	675309	A.29	Hti 101 B125	671506	A.33
GT101C32	675124	A.27	GT103D32	675264	A.27	GT252C20	675310	A.29	Hti 101 C080	671528	A.33
GT101C40	675125	A.27	GT103D40	675265	A.27	GT252C25	675311	A.29	Hti 101 C100	671529	A.33
GT101C50	675126	A.27	GT103D50	675266	A.27	GT252C32	675312	A.29	Hti 101 C125	671530	A.33
GT101C63	675127	A.27	GT103D63	675267	A.27	GT252C37	675313	A.29	Hti 101 D080	671552	A.33
GT101D0.5	675220	A.27	GT104B06	675209	A.27	GT252C40	675314	A.29	Hti 101 D100	671553	A.33
GT101D01	675221	A.27	GT104B10	675211	A.27	GT252C50	675314	A.29	Hti 101 D125	671554	A.33
GT101D02	675222	A.27	GT104B13	675212	A.27	GT252C63	675315	A.29	Hti 102 B080	671510	A.33
GT101D03	675223	A.27	GT104B16	675213	A.27	GT252D0.5	675408	A.29	Hti 102 B100	671511	A.33
GT101D04	675224	A.27	GT104B20	675214	A.27	GT252D01	675409	A.29	Hti 102 B125	671512	A.33
GT101D06	675225	A.27	GT104B25	675215	A.27	GT252D04	675410	A.29	Hti 102 C080	671534	A.33
GT101D10	675227	A.27	GT104B32	675216	A.27	GT252D06	675413	A.29	Hti 102 C100	671535	A.33
GT101D13	675228	A.27	GT104B40	675217	A.27	GT252D10	675415	A.29	Hti 102 C125	671536	A.33
GT101D16	675229	A.27	GT104B50	675218	A.27	GT252D16	675417	A.29	Hti 102 D080	671558	A.33
GT101D20	675230	A.27	GT104B63	675219	A.27	GT252D20	675418	A.29	Hti 102 D100	671559	A.33
GT101D25	675231	A.27	GT104C0.5	675160	A.27	GT252D25	675419	A.29	Hti 102 D125	671560	A.33
GT101D32	675232	A.27	GT104C01	675161	A.27	GT252D32	675420	A.29	Hti 103 B080	671516	A.33
GT101D40	675233	A.27	GT104C02	675162	A.27	GT252D37	675421	A.29	Hti 103 B100	671517	A.33
GT101D50	675234	A.27	GT104C03	675163	A.27	GT252D40	675422	A.29	Hti 103 B125	671518	A.33
GT101D63	675235	A.27	GT104C04	675164	A.27	GT252D50	675422	A.29	Hti 103 C080	671540	A.33
GT102B06	675187	A.27	GT104C06	675165	A.27	GT252D63	675423	A.29	Hti 103 C100	671541	A.33
GT102B10	675189	A.27	GT104C10	675167	A.27	GT253B06	675370	A.29	Hti 103 C125	671542	A.33
GT102B13	675190	A.27	GT104C13	675168	A.27	GT253B10	675372	A.29	Hti 103 D080	671564	A.33
GT102B16	675191	A.27	GT104C16	675169	A.27	GT253B16	675374	A.29	Hti 103 D100	671565	A.33
GT102B20	675192	A.27	GT104C20	675170	A.27	GT253B20	675375	A.29	Hti 103 D125	671566	A.33
GT102B25	675193	A.27	GT104C25	675171	A.27	GT253B25	675376	A.29	Hti 104 B100	671523	A.33
GT102B32	675194	A.27	GT104C32	675172	A.27	GT253B32	675377	A.29	Hti 104 B125	671524	A.33
GT102B40	675195	A.27	GT104C40	675173	A.27	GT253B40	675378	A.29	Hti 104 B80	671522	A.33
GT102B50	675196	A.27	GT104C50	675174	A.27	GT253B50	675379	A.29	Hti 104 C080	671546	A.33
GT102B63	675197	A.27	GT104C63	675175	A.27	GT253B63	675380	A.29	Hti 104 C100	671547	A.33
GT102C0.5	675128	A.27	GT104D0.5	675268	A.27	GT253C0.5	675316	A.29	Hti 104 C125	671548	A.33
GT102C01	675129	A.27	GT104D01	675269	A.27	GT253C01	675317	A.29	Hti 104 D080	671570	A.33
GT102C02	675130	A.27	GT104D02	675270	A.27	GT253C02	675318	A.29	Hti 104 D100	671571	A.33
GT102C03	675131	A.27	GT104D03	675271	A.27	GT253C04	675320	A.29	Hti 104 D125	671572	A.33
GT102C04	675132	A.27	GT104D04	675272	A.27	GT253C06	675321	A.29	Hti H	671597	A.35
GT102C06	675133	A.27	GT104D06	675273	A.27	GT253C10	675323	A.29	Hti H/S	671599	A.35
GT102C10	675135	A.27	GT104D10	675275	A.27	GT253C16	675325	A.29	Hti HH/HS	671600	A.35
GT102C13	675136	A.27	GT104D13	675276	A.27	GT253C20	675326	A.29	Hti HSR	671602	A.35
GT102C16	675137	A.27	GT104D16	675277	A.27	GT253C25	675327	A.29	Hti S	671598	A.35
GT102C20	675138	A.27	GT104D20	675278	A.27	GT253C32	675328	A.29	K...		
GT102C25	675139	A.27	GT104D25	675279	A.27	GT253C40	675329	A.29	KS	624929	A.41
GT102C32	675140	A.27	GT104D32	675280	A.27	GT253C50	675330	A.29	KS	624929	A.50
GT102C40	675141	A.27	GT104D40	675281	A.27	GT253C63	675331	A.29	KS	624929	F.29
GT102C50	675142	A.27	GT104D50	675282	A.27	GT253D0.5	675424	A.29	L...		
GT102C63	675143	A.27	GT104D63	675283	A.27	GT253D01	675425	A.29	LK/N12	546298	F.40
GT102D0.5	675236	A.27	GT251B06	675348	A.29	GT253D02	675426	A.29	LK/N15	546299	F.40
GT102D01	675237	A.27	GT251B10	675350	A.29	GT253D04	675428	A.29	LK/N7	546297	F.40
GT102D02	675238	A.27	GT251B16	675352	A.29	GT253D06	675429	A.29	LLINK1	409000	F.29
GT102D03	675239	A.27	GT251B20	675353	A.29	GT253D10	675431	A.29	LSS 11	666361	D.27
GT102D04	675240	A.27	GT251B25	675354	A.29	GT253D16	675433	A.29	LSS 32	666362	D.27
GT102D06	675241	A.27	GT251B32	675355	A.29	GT253D20	675434	A.29	LSS LDR	666358	D.27
GT102D10	675243	A.27	GT251B40	675356	A.29	GT253D25	675435	A.29	LSS W	666364	D.27
GT102D13	675244	A.27	GT251B50	675357	A.29	GT253D32	675436	A.29	M...		
GT102D16	675245	A.27	GT251B63	675358	A.29	GT253D40	675437	A.29	MSC SE	666499	D.5
GT102D20	675246	A.27	GT251C0.5	675284	A.29	GT253D50	675438	A.29	MSC SEP	666501	D.5
GT102D25	675247	A.27	GT251C01	675285	A.29	GT253D63	675439	A.29	MSC SPP	666502	D.5
GT102D32	675248	A.27	GT251C02	675286	A.29	GT254B06	675381	A.29	MT AA	666414	D.31
GT102D40	675249	A.27	GT251C04	675288	A.29	GT254B10	675383	A.29	MT AA 10	666408	D.31
GT102D50	675250	A.27	GT251C06	675289	A.29	GT254B16	675385	A.29	MT AA 15	666409	D.31
GT102D63	675251	A.27	GT251C10	675291	A.29	GT254B20	675386	A.29	MT AA 20	666410	D.31
GT103B06	675198	A.27	GT251C16	675293	A.29	GT254B25	675387	A.29	MT AA 25	666411	D.31
GT103B10	675200	A.27	GT251C20	675294	A.29	GT254B32	675388	A.29	MT AA 30	666412	D.31
GT103B13	675201	A.27	GT251C25	675295	A.29	GT254B40	675389	A.29	MT AA 5	666413	D.31
GT103B16	675202	A.27	GT251C32	675296	A.29	GT254B50	675390	A.29	MT AF	666415	D.31
GT103B20	675203	A.27	GT251C40	675297	A.29	GT254B63	675391	A.29	MT AH	666416	D.31
GT103B25	675204	A.27	GT251C50	675298	A.29	GT254C0.5	675332	A.29	MT AH 110	666431	D.31
GT103B32	675205	A.27	GT251C63	675299	A.29	GT254C01	675333	A.29	MT AH 24	666432	D.31
GT103B40	675206	A.27	GT251D0.5	675392	A.29	GT254C02	675334	A.29	MT AV 300	666417	D.31
GT103B50	675207	A.27	GT251D01	675393	A.29	GT254C04	675336	A.29	MT AV 500	666418	D.31
GT103B63	675208	A.27	GT251D02	675394	A.29	GT254C06	675337	A.29	MT CT 100	666375	D.33
GT103C0.5	675144	A.27	GT251D04	675396	A.29	GT254C10	675339	A.29	MT CT 1000	666376	D.33
GT103C01	675145	A.27	GT251D06	675397	A.29	GT254C16	675341	A.29	MT CT 1200	666677	D.33
GT103C02	675146	A.27	GT251D10	675399	A.29	GT254C20	675342	A.29	MT CT 150	666377	D.33



Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page	Cat. No.	Ref. No.	Page
MT CT 250	666379	D.33	PLS + 32 10 024 A	686112	D.14	PLT + ON 230A 1-60S	686209	D.19	SMS 3	666101	D.21
MT CT 300	666380	D.33	PLS + 32 10 048 A	686113	D.14	PLT + PS 024U 1-60M	686210	D.19	SMS 3	666101	D.23
MT CT 40	666381	D.33	PLS + 32 10 115 A	686114	D.14	PLT + PS 024U 1-60S	686211	D.19	SMS 3	666101	D.27
MT CT 400	666382	D.33	PLS + 32 10 230 A	686115	D.14	PLT + PS 230A 1-60M	686212	D.19	SMS 6	666102	D.21
MT CT 50	666383	D.33	PLS + 32 10 240 A	686116	D.14	PLT + PS 230A 1-60S	686213	D.19	SMS 6	666102	D.23
MT CT 500	666384	D.33	PLS + 32 20	686117	D.14	PLT + SS 024U	686218	D.19	T...		
MT CT 60	666385	D.33	PLS + 32 20 008 A	686118	D.14	PLT + SS 230A	686219	D.19	TELE L 110	624945	A.35
MT CT 600	666386	D.33	PLS + 32 20 012 A	686119	D.14	PLTS + D	686214	D.16	TELE L 24	624946	A.35
MT CT 80	666387	D.33	PLS + 32 20 024 A	686120	D.14	PLTS + M	686216	D.16	TELE L-1	672573	C.9
MT CT 800	666388	D.33	PLS + 32 20 048 A	686121	D.14	PLTS + TD	666311	D.16	TELE L-2	672574	C.9
MT DA 5 2M	666671	D.32	PLS + 32 20 115 A	686122	D.14	PRI 01	666446	D.35	TELE LT-1	667252	C.11
MT DA DV 52M	666674	D.32	PLS + 32 20 230 A	686123	D.14	PRI 10	666445	D.35	TELE LT-2	667253	C.11
MT DE 1 1M	666675	D.32	PLS + 32 20 240 A	686124	D.14	PS	564092	F.40	TELE MP	672580	C.7
MT DE 1I 32A	666434	D.32	PLS + C	686125	D.15	S...			TELE OV 230	667485	D.39
MT DE 1I 63A	666450	D.32	PLS + C 16 1 008 A	686126	D.15	SA BLOCK ADSL	667484	D.39	TELE OV 400	667493	D.39
MT DE 31 O	666676	D.32	PLS + C 16 1 012 A	686127	D.15	SA BLOCK I 100 N	667471	D.38	Tele REC BASIC 240/030	676949	B.25
MT DE 3N I 63A	666631	D.32	PLS + C 16 1 024 A	686128	D.15	SA BLOCK I 35	667470	D.38	Tele REC BASIC 240/300	676950	B.25
MT DE 3NISA	666452	D.32	PLS + C 16 1 048 A	686129	D.15	SA BLOCK I PC	667472	D.38	Tele REC BASIC 263/030	677118	B.25
MT DF 2M	666673	D.32	PLS + C 16 1 230 A	686130	D.15	SA BLOCK I&II 65	667517	D.38	Tele REC BASIC 263/300	677120	B.25
MT DN 3L	666451	D.32	PLS + C 16 1 240 A	686131	D.15	SA BLOCK I&II 65N	667518	D.38	Tele REC BASIC 440/030	676951	B.25
MT DN 3R 4M	666453	D.32	PLS + C 16 10 008 A	686132	D.14	SA BLOCK I&II 100	667486	D.38	Tele REC BASIC 440/300	676952	B.25
MT DV 500 2M	666670	D.32	PLS + C 16 10 012 A	686133	D.14	SA BLOCK I&II 100N	667487	D.38	Tele REC BASIC 463/030	677119	B.25
MT DW 110	667214	D.32	PLS + C 16 10 024 A	686134	D.14	SA BLOCK II 15/230	667473	D.38	Tele REC BASIC 463/300	677121	B.25
MT DW 11000	667215	D.32	PLS + C 16 10 048 A	686135	D.14	SA BLOCK II 15/230 C	667475	D.38	Tele REC BASIC A 240/030	677122	B.25
MT RSC	666404	D.33	PLS + C 16 10 230 A	686136	D.14	SA BLOCK II 15/230 LLE	667489	D.38	Tele REC BASIC A 240/300	677126	B.25
MT S 4	666405	D.33	PLS + C 16 10 240 A	686137	D.14	SA BLOCK II 15/230 LNE	667488	D.38	Tele REC BASIC A 263/030	677123	B.25
MT S 7	666406	D.33	PLS + C 16 2 008 A	686138	D.15	SA BLOCK II 15/400	667474	D.38	Tele REC BASIC A 263/300	677127	B.25
MT SP 100	666389	D.33	PLS + C 16 2 012 A	686139	D.15	SA BLOCK II 15/400 3L+NE	667494	D.38	Tele REC BASIC A 440/030	677124	B.25
MT SP 1000	666390	D.33	PLS + C 16 2 024 A	686140	D.15	SA BLOCK II 15/400 4L/NE	667495	D.38	Tele REC BASIC A 440/300	677128	B.25
MT SP 150	666391	D.33	PLS + C 16 2 048 A	686141	D.15	SA BLOCK II 15/400 C	667476	D.38	Tele REC BASIC A 463/030	677125	B.25
MT SP 200	666392	D.33	PLS + C 16 2 230 A	686142	D.15	SA BLOCK II 15LN	667483	D.38	Tele REC BASIC A 463/300	677129	B.25
MT SP 250	666393	D.33	PLS + C 16 2 240 A	686143	D.15	SA BLOCK II 15N	667481	D.38	Tele REC BASIC Ai 240/030	677130	B.25
MT SP 300	666394	D.33	PLS + C 16 20 008 A	686144	D.15	SA BLOCK II 40/230	667477	D.38	Tele REC BASIC Ai 263/030	677131	B.25
MT SP 40	666395	D.33	PLS + C 16 20 012 A	686145	D.15	SA BLOCK II 40/230 C	667479	D.38	Tele REC PLUS Motor	677132	B.26
MT SP 400	666396	D.33	PLS + C 16 20 024 A	686146	D.15	SA BLOCK II 40/230 LLE	667491	D.38	Tele REC SOLAR Motor	677133	B.29
MT SP 50	666397	D.33	PLS + C 16 20 048 A	686147	D.15	SA BLOCK II 40/230 LNE	667490	D.38	TELE U-12	672576	C.9
MT SP 500	666398	D.33	PLS + C 16 20 230 A	686148	D.15	SA BLOCK II 40/400	667478	D.38	TELE U-230	672575	C.9
MT SP 60	666399	D.33	PLS + C 16 20 240 A	686149	D.15	SA BLOCK II 40/400 3L+NE	667496	D.38	TELE U-24	672577	C.9
MT SP 600	666400	D.33	PLS + C 16 3 008 A	686150	D.15	SA BLOCK II 40/400 4L/NE	667497	D.38	TELE U-48	672578	C.9
MT SP 80	666401	D.33	PLS + C 16 3 012 A	686151	D.15	SA BLOCK II 40/400 4L/NEC	667498	D.38	TR B 10	666636	D.29
MT SP 800	666402	D.33	PLS + C 16 3 024 A	686152	D.15	SA BLOCK II 40/400 C	667480	D.38	TR B 15	666637	D.29
MTAP 3N	666433	D.35	PLS + C 16 3 048 A	686153	D.15	SA BLOCK II 40N	667482	D.38	TR B 16	666651	D.29
MTAP 3N2F	666690	D.35	PLS + C 16 3 230 A	686154	D.15	SA C35	667492	D.39	TR B 30	666652	D.29
MTDNPRI1	666448	D.32	PLS + C 16 3 240 A	686155	D.15	SA C63	667499	D.39	TR B 5	666638	D.29
MTDNPRI3	666449	D.32	PLS + C 32 10 008 A	686156	D.15	SA MODULE 15/230	667512	D.39	TR B 8	666650	D.29
N...			PLS + C 32 10 012 A	686157	D.15	SA MODULE 15/400	667513	D.39	TR B 8S	666640	D.29
NLINK1	594009	F.29	PLS + C 32 10 024 A	686158	D.15	SA MODULE 40/230	667514	D.39	TR S 15	666641	D.29
P...			PLS + C 32 10 048 A	686159	D.15	SA MODULE 40/400	667515	D.39	TR S 25	666642	D.29
PBS	672572	C.9	PLS + C 32 10 230 A	686160	D.15	SA MODULE 60 NGND	667516	D.39	TR S 40	666643	D.29
PLS / CTX SP	686069	A.50	PLS + C 32 10 240 A	686161	D.15	SA PHOT 1000V	667509	D.39	TR S 63	666644	D.29
PLS + / CTX + SP	686069	D.15	PLS + C 32 20 008 A	686162	D.15	SA PHOT 600V	667508	D.39	TSL222	662152	F.26
PLS + / CTX + TS 1	686070	D.15	PLS + C 32 20 012 A	686163	D.15	SA PLUGIN II 15/230	667500	D.38	TSL255	662155	F.26
PLS + 16 1 008 A	686071	D.14	PLS + C 32 20 024 A	686164	D.15	SA PLUGIN II 15/400	667501	D.38	TSL345	662153	F.26
PLS + 16 1 012 A	686072	D.14	PLS + C 32 20 048 A	686165	D.15	SA PLUGIN II 40/230	667502	D.38	TSL442	662154	F.26
PLS + 16 1 024 A	686073	D.14	PLS + C 32 20 230 A	686166	D.15	SA PLUGIN II 40/230 3L+NE	667507	D.38	TSL444	662156	F.26
PLS + 16 1 048 A	686074	D.14	PLS + C 32 20 240 A	686167	D.15	SA PLUGIN II 40/230 C	667504	D.38	V...		
PLS + 16 1 115 A	686075	D.14	PLS + C 32 30 008 A	686168	D.15	SA PLUGIN II 40/230 LNE	667506	D.38	VBAB1	560174	D.37
PLS + 16 1 230 A	686076	D.14	PLS + C 32 30 012 A	686169	D.15	SA PLUGIN II 40/400	667503	D.38	VBAB3	560186	D.37
PLS + 16 1 240 A	686077	D.14	PLS + C 32 30 024 A	686170	D.15	SA PLUGIN II 40/400 C	667505	D.38	VBANPE	544331	D.37
PLS + 16 10 008 A	686078	D.14	PLS + C 32 30 048 A	686171	D.15	SA PLUGIN II 60 NGND	667511	D.38	VCM13	618405	F.27
PLS + 16 10 012 A	686079	D.14	PLS + C 32 30 230 A	686172	D.15	SA TV	667510	D.39	VCM2	618401	F.27
PLS + 16 10 024 A	686080	D.14	PLS + C 32 30 240 A	686173	D.15	SG C 40	666532	D.37	VCM3A3	618416	F.27
PLS + 16 10 048 A	686081	D.14	PLS + CAP	686174	D.15	SG MM 2 20 2	666525	D.37	VCM4	618402	F.27
PLS + 16 10 115 A	686082	D.14	PLS + M	686175	D.15	SG MM 2 20 4	666526	D.37	VCM4A4	618419	F.27
PLS + 16 10 230 A	686083	D.14	PLS + PU 16 2 024 A	686176	D.15	SG MM 2 45 2	666527	D.37	VCM5A5	618423	F.27
PLS + 16 10 23060	686284	D.14	PLS + PU 16 2 230 A	686177	D.15	SG MM 2 45 4 C	666529	D.37	VCM6	618403	F.27
PLS + 16 10 240 A	686084	D.14	PLS + PU 16 20 024 A	686178	D.15	SG MM 2 45 4 C	666530	D.37	VCM7A7	618489	F.27
PLS + 16 11	686085	D.14	PLS + PU 16 20 230 A	686179	D.15	SG MM 2 80 4 C	666533	D.37	VCM9	618404	F.27
PLS + 16 11 008 A	686086	D.14	PLS + PU 16 40 024 A	686180	D.15	SG SP 2 20 2	666545	D.37	VCMA13	618413	F.27
PLS + 16 11 012 A	686087	D.14	PLS + PU 16 40 230 A	686181	D.15	SG SP 2 20 2 P	666534	D.37	VCMA2	618406	F.27
PLS + 16 11 024 A	686088	D.14	PLS + SA 16 20 012 A	686182	D.14	SG SP 2 20 4	666546	D.37	VCMA4	618407	F.27
PLS + 16 11 048 A	686089	D.14	PLS + SA 16 20 024 A	686183	D.14	SG SP 2 20 4 P	666535	D.37	VCMA6	618409	F.27
PLS + 16 11 115 A	686090	D.14	PLS + SA 16 20 048 A	686184	D.14	SG SP 2 40 2 NPE P	666553	D.37	VCMA9	618411	F.27
PLS + 16 11 230 A	686091	D.14	PLS + SA 16 20 230 A	686185	D.14	SG SP 2 45 2	666547	D.37	VED35	545879	D.37
PLS + 16 11 23060	686285	D.14	PLS + SA 16 20 240 A	686186	D.14	SG SP 2 45 2 C	666537	D.37	VED63	545857	D.37
PLS + 16 11 240 A	686092	D.14	PLS + SB 16 20 012 A	686187	D.14	SG SP 2 45 2 P	666536	D.37	W...		
PLS + 16 2	686101	D.14	PLS + SB 16 20 024 A	686188	D.14	SG SP 2 45 4	666548	D.37	WUL	690244	A.41
PLS + 16 2 008 A	686093	D.14	PLS + SB 16 20 048 A	686189	D.14	SG SP 2 45 4 C	666539	D.37			
PLS + 16 2 012 A	686094	D.14	PLS + SB 16 20 230 A	686190	D.14	SG SP 2 45 4 P	666538	D.37			
PLS + 16 2 024 A	686095	D.14	PLS + SB 16 20 240 A	686191	D.14	SG SP 2 65 2	666549	D.37			
PLS + 16 2 048 A	686096	D.14	PLS + SG	686192	D.15	SG SP 2 65 2 C	666542	D.37			
PLS + 16 2 115 A	686097	D.14	PLT + AS 230A	686195	D.19	SG SP 2 65 2 P	666541	D.37			
PLS + 16 2 230 A	686098	D.14	PLT + IG 024U	686196	D.19	SG SP 2 65 4	666551	D.37			
PLS + 16 2 240 A	686099	D.14	PLT + IG 230A	686197	D.19	SG SP 2 65 4 C	666544	D.37			
PLS + 16 20	686100	D.14	PLT + MF 024U 0.1S-60M	686198	D.19	SG SP 2 65 4 P	666543	D.37			
PLS + 16 20 008 A	686102	D.14	PLT + MF 024U 30S-20H	686199	D.19	SG SP NGND PI	666552	D.37			
PLS + 16 20 012 A	686103	D.14	PLT + MF 230A 0.1S-60M	686200	D.19	SG SWT	666524	D.37			
PLS + 16 20 024 A	686104	D.14	PLT + MF 230A 30S-20H	686201	D.19	SH40	662117	F.26			
PLS + 16 20 048 A	686105	D.14	PLT + OF 024U 1-60M	686202	D.19	SH50	662118	F.26			
PLS + 16 20 115 A	686106	D.14	PLT + OF 024U 1-60S	686203	D.19	SHR3	619018	F.29			



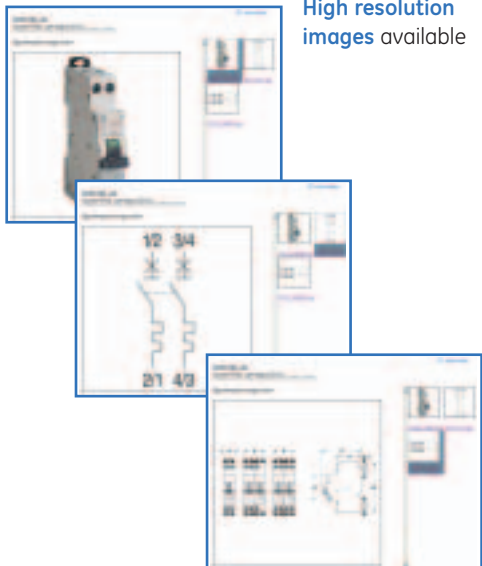
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