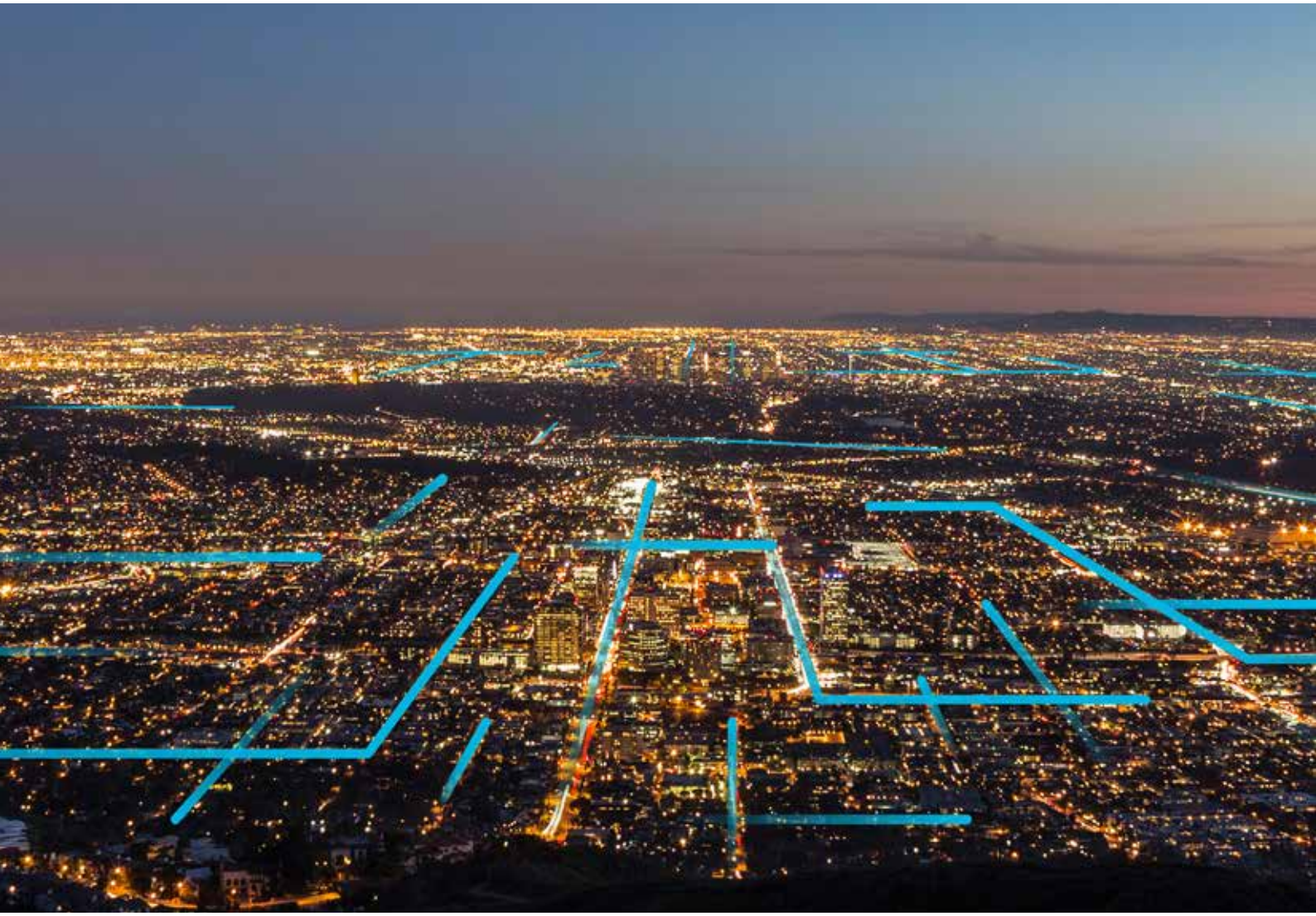
GE Energy Connections

Redline
Modular DIN-rail devices and residential enclosures

Just feel protected



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Redline

Modular DIN-rail devices and residential enclosures

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Selection table of MCBs

Page	Series	Applications	Poles	Add-on devices	Tripping charac-teristic	Rating current (A)	Short-circuit capacity (kA)
A.20	**G30**		1, 2, 3, 4	yes	B	**6 - 40**	3 5 10
				yes	C	**2 - 40**	3 5 10
A.22	**G45**		1, 2, 3, 4	yes	B	**6 - 40**	4.5 6 14
				yes	C	**2 - 40**	4.5 6 14
A.24	**G60**		1, 1+N, 2, 3, 4	yes	B	**6 - 63**	6 10(1) 20
				yes	C	**0.5 - 63**	6 10(1) 20
				yes	D	**0.5 - 63**	6 10(1) 20
A.26	**EP60**		1, 2, 3, 4	yes	K	**0.5 - 63**	6 10(1) 20
A.28	**G100**		1, 1+N, 2, 3, 4	yes	B	**6 - 63**	10(1) 15(2) 30
				yes	C	**0.5 - 63**	10(1) 15(2) 30
				yes	D	**0.5 - 63**	10(1) 15(2) 30
A.30	**EP100**		1, 2, 3, 4	yes	K, Z	**0.5 - 63**	10(1) 15(2) 30
A.32	**GT10**		1, 2, 3, 4	yes	B	**6 - 63**	10(1) 30
				yes	C	**0.5 - 63**	10(1) 30
				yes	D	**0.5 - 63**	10(1) 30
A.34	**GT25**		1, 2, 3, 4	yes	B	**6 - 63**	15(2) 20(2) 25(2)
				yes	C	**0.5 - 63**	15(2) 20(2) 25(2)
				yes	D	**0.5 - 63**	15(2) 20(2) 25(2)
A.36	**EP100 UC**		1, 2	yes	B	**6 - 63**	6 10
				yes	C	**0.5 - 63**	6 10
				yes	Z	**0.5 - 63**	6 10

domestic
commercial
industrial
motors
railways

B: 3-5 In
C: 5-10 In
D: 10-20 In
K: 8-12 In
Z: 2-3 In

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

(1) Ics = 75% Icu
(2) Ics = 50% Icu
(3) Icn1 = 6kA

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Selection table of MCBs

Page	Series	Applications	Poles	Add-on devices	Tripping charac-teristic	Rating current (A)	Short-circuit capacity (kA)
A.38	**Hti**		1, 2, 3, 4	yes	B	**80 -125**	10
				yes	C	**80 -125**	10
				yes	D	**80 -125**	7.5 10
A.44	**Hti+16**		1, 2, 3, 4	yes	B	**80 -125**	10 16
				yes	C	**80 -125**	10 16
				yes	D	**80 -125**	10 16
A.46	**Hti+25**		1, 2, 3, 4	yes	B	**80 -125**	15 25
				yes	C	**80 -125**	15 25
				yes	D	**80 -125**	15 25
A.48	**Hti+36**		1, 2, 3, 4	yes	B	**80 -125**(4)	20 36
				yes	C	**80 -125**(4)	20 36
				yes	D	**80 -125**(4)	20 36
A.50	**Hti+50**		1, 2, 3, 4	yes	B	**80 -125**(4)	25 50
				yes	C	**80 -125**(4)	25 50
				yes	D	**80 -125**(4)	25 50

domestic
commercial
industrial
motors
railways

B: 3-5 In
C: 5-10 In
D: 10-20 In
K: 8-12 In
Z: 2-3 In

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

(1) Ics = 75% Icu
(2) Ics = 50% Icu
(3) Icn1 = 6kA
(4) 60898-1 only for 80A

Selection table of MCBs - Global range

Page	Series	Applications	Poles	Add-on devices	Tripping charac-teristic	Rating current (A)	Short-circuit capacity (kA)
A.62	**EP100 ULH 277Y/480V**		1, 2, 3	yes	B	**5 - 40**	10 15(2)
				yes	C	**0.5 - 40**	10 15(2)
				yes	D	**0.5 - 40**	10 15(2)
A.64	**EP100 ULH 120/240V**		1, 2, 3	yes	B	**5 - 63**	10 15(2)
				yes	C	**0.5 - 63**	10 15(2)
				yes	D	**0.5 - 63**	10 15(2)
A.66	**EP100 UL 277Y/480V**		1, 2, 3, 4	yes	B	**6 - 63**	10 10 15(1)
				yes	C	**0.5 - 63**	10 10 15(1)
				yes	D	**0.5 - 63**	10 10 15(1)
A.68	**EP60 UL 277Y/480V**		1, 2, 3, 4	yes	B	**6 - 63**	6 6 10(1)
				yes	C	**0.5 - 63**	6 6 10(1)
				yes	D	**0.5 - 63**	6 6 10(1)

domestic
commercial
industrial
motors
railways

B: 3-5 In
C: 5-10 In
D: 10-20 In
K: 8-12 In
Z: 2-3 In

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

(1) Ics = 75% Icu
(2) Ics = 50% Icu
(3) Icn1 = 6kA

Selection table of MCBs - Transportation

Page	Series	Applications	Poles	Add-on devices	Tripping charac-teristic	Rating current (A)	Short-circuit capacity (kA)
A.70	**EP100R**		3	yes	B	**0.5 - 63**	10 15
				yes	C	**0.5 - 63**	10 15
A.72	**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.74	**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.76	**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 MCBs - Unibis*

Page	Series	Applications	Poles	Add-on devices	Tripping charac-teristic	Rating current (A)	Short-circuit capacity (kA)
A.88	**EPC 451N**		1+N (1 mod)	yes	B-C	**2 - 40**	4.5 6
A.89	**EPC 61N**		1+N (1 mod)	yes	B-C	**2 - 40**	6 10(3)
A.91	**EPC 611**		1P+1P (1 mod)	yes	B-C	**2 -20**	6 6
A.92	**EPC 30**		2	yes	C	**2 - 40**	3 6
			3, 4	yes	C	**2 - 32**	3 6
A.94	**EPC 45**		2	yes	B-C	**2 - 40**	4.5 6
			3, 4	yes	B-C	**2 - 32**	4.5 6
A.96	**EPC 60/62R**		2	yes	B-C	**2 - 40**	6 10
A.98			3, 4	yes	B-C	**2 - 32**	6 6

Selection table of screwless MCBs - Fixwell*

Page	Series	Applications	Poles	Add-on devices	Tripping charac-teristic	Rating current (A)	Short-circuit capacity (kA)
A.108	**EPP60**		1, 1+N, 2, 3, 3+N, 4	yes	C	**2 - 40**	6(1) 10
A.110	**EPP100**		1, 2, 3, 3+N, 4	yes	B-C	**2 - 40**	10(1) 15(2)

domestic
commercial
industrial
motors
railways

B: 3-5 In
C: 5-10 In
D: 10-20 In
K: 8-12 In
Z: 2-3 In

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

(1) Ics = 75% Icu
(2) Ics = 50% Icu
(3) Icn1 = 6kA

Technical data of compact MCBs

Series				G30 / G45	G60 / EP60 char. K
Standards				EN/IEC 60898-1	EN/IEC 60898-1
Tripping characteristics				B, C	B, C, D, K(2)
Nominal current			(In)	2-40	B(6-63), C/D/K(0.5-63)
Calibration temperature			(°C)	30	30
Number of poles (# mod.)				1/2/3/4	1/1+N/2/3/4(2)
Neutral pole protected				-	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
Nominal voltage Un DC	1P (1)		(V)	-	48
	2P (in series)(1)		(V ⎓)	-	110
Frequency			(Hz)	50/60	50/60
			in DC	DC: magn.trip +40%	DC: magn.trip +40%
			for 400Hz	400: magn.trip +50%	400: magn.trip +50%
Maximum service voltage U_{Bmax} between two wires			(V)	250/440; 53/120 ⎓	250/440; 53/120 ⎓
Minimum service voltage U_{Bmin}			(V)	12; 12 ⎓	12; 12 ⎓
Energy limiting class (EN 60898-1)				3	3
Isolator application				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)			(g)	3g	3g
Endurance	Electrical at Un,In			10000	10000
	Mechanical			20000	20000
Utilisation category (EN 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
Selfextinguish degree (according to UL94)				V2	V2
Tropicalisation (acc. EN 60068-2/DIN 40046)			(°C/RH)	+55°C/95% RH	+55°C/95% RH
Operating temperature			(°C)	-25/+70	-25/+70
Storage temperature			(°C)	-55/+70	-55/+70
Terminal capacity	Rigid cable min/max (top)		(mm²)	1/35	1/35
	Flexible cable min(*)/max (top)		(mm²)	0.75/25	0.75/25
	Rigid cable min/max (bottom)		(mm²)	1/35	1/35
	Flexible cable min(*)/max (bottom)		(mm²)	0.75/25	0.75/25
	(* Flexible cable 0.75/1/1.5mm² with cable lug)				
	Torque		(Nm)	4.5	4.5
Add-on devices	Contacts CA/CB			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) 86 x 68 x W	(mm)	/mod	18	18
Weight per mod.			(g)	120	120
Package				12	12
Approvals				KEMA	KEMA
CE-marking				yes	yes
Page				A.20/A.22	A.24/A.26(2)

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

G100 / EP100 char. K, Z	GT10 / GT25	EP100 UC	EP100R / EP100T	EP100UCR / EP100UCT
EN/IEC 60947-2	EN/IEC 60947-2	[3]	EN/IEC 60898-1	EN/IEC 60947-2[3]
Z, B, C, K, D	3-5In/5-10In/10-20In	B, C, Z	Z, B, C, D, K[5]	Z, B, C, K[4]
0.5-63	0.5-63	B(6-63), C(0.5-63)	B(6-63), C/D/K(0.5-63)	0.5 - 63
40	40	30	30	30
1/2/3/4	1/2/3/4	1/2/4	1/2/3/4(6)	1/2
-	-	-	yes	-
240/415	240/415	240/415	240/415	240/415
-	-	-	-	-
415	415	415	415	415
415	415	415	415	415
48	48	250	48	250
110	110	500	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; 53/120 ⎓	250/440; 250/500 ⎓	250/440; 53/120 ⎓	250/440; 250/500 ⎓
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	3g	5g	5g	5g
4000	4000	1000	10000	1000
20000	20000	20000	20000	20000
A	A	A	A	A
any	any	any	any	any
yes	yes	follow polarity	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/+70	-25/+70	-25/+70	-40/+70	-40/+70
-55/+70	-55/+70	-55/+70	-40/+70	-40/+70
1/35	1/35	1/35	1/35	1/35
0.75/25	0.75/25	0.75/25	0.75/25	0.75/25
1/35	1/35	1/35	1/35	1/35
0.75/25	0.75/25	0.75/25	0.75/25	0.75/25
4.5	4.5	4.5	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/yes
yes	yes	yes	yes	yes
18	18	18	18	18
120	120	125	120	125
12	12	12	12	12
-	-	-	KEMA	-
yes	yes	yes	yes	yes
A.28/A.30	A.32/A.34	A.36	A.70/A.74	A.72/A.76

(2) Motor lines application no 1+N execution in K curve
EP60K in page A.26
EP100K in page A.30

(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

Technical data of compact MCBs

Series			Hti
Standards			EN/IEC 60947-2
Tripping characteristics			3-5In/5-10In/10-20In
Nominal current		(In)	80 up to 125
Calibration temperature		(°C)	40
Number of poles (# mod.)			1/2/3/4
Neutral pole protected			-
Nominal voltage Un AC	1P	(V)	230/400
	2P	(V)	415
	3P/3P+N/4P	(V)	415
Nominal voltage Un DC	1P (1)	(V)	48
	2P (in series)(1)	(V ⎓)	110
Frequency		(Hz)	50/60
		in DC	DC: magn.trip +40%
		for 400Hz	400: magn.trip +50%
Maximum service voltage U_{Bmax} between two wires		(V)	250/440; 53/120 ⎓
Minimum service voltage U_{Bmin}		(V)	12; 12 ⎓
Energy limiting class (EN 60898-1)			-
Isolator application			yes
Rated insulation voltage	Pollution degree 2	(V)	500
	Pollution degree 3	(V)	440
Impulse withstand test voltage		(kV)	6
Insulation resistance		(MΩ)	10000
Dielectric rigidity		(kV)	2.5
Vibration resistance (in x, y, z direction) (IEC 77/16.3)		(g)	3g
Endurance	Electrical at Un,In		4000
	Mechanical		10000
Utilisation category (EN 60947-2)			A
Mounting position (for all devices): any except upside down			any
Incoming top or bottom			yes
Protection degree (outside/inside enclosure with door)			IP20/IP40
Selfextinguish degree (according to UL94)			V2
Tropicalisation (acc. EN 60068-2/DIN 40046)		(°C/RH)	+55°C/95% RH
Operating temperature		(°C)	-25/+55
Storage temperature		(°C)	-55/+55
Terminal capacity	Rigid cable min/max (top)	(mm²)	70
	Flexible cable min*/max (top)	(mm²)	-
	Rigid cable min/max (bottom)	(mm²)	70
	Flexible cable min*/max (bottom)	(mm²)	-
	Torque	(Nm)	5
Add-on devices	Contacts CA/CB		HTI+ H H/S
	Tele U		-
	Tele L		TELE L 110/24
	Tele MP		-
	PBS		no
Busbar systems	Pin (top/bottom)		-
	Fork (top/bottom)		-
Accessories			-
Dimensions	(HxDxW) 86 x 68 x W	(mm) /mod	27
Weight per mod.		(g)	210
Package			1/4/8
Approvals			-
CE-marking			yes
Page			A.38

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

Hti+16	Hti+25	Hti+36	Hti+50
EN/IEC 60898-1 EN/IEC 60898-1	EN/IEC 60898-1 EN/IEC 60898-2	EN/IEC 60898-1 EN/IEC 60898-2	EN/IEC 60898-1 EN/IEC 60898-3
B,C,D	B,C,D	B,C,D	B,C,D
80-125A	80-125A	80-125A	80-125A
30	30	30	30
1/2/3/4	1/2/3/4	1/2/3/4	1/2/3/4
-	-	-	-
230/400	240/415	240/415	240/415
400	415	415	415
400	415	415	415
-	125	125	125
-	250	250	250
50/60	50/60	50/60	50/60
-	-	-	-
-	-	-	-
244/424	254/440Vac	400/690Vac	400/690Vac
12Vac	12Vdc	12Vdc	12Vdc
-	-	-	-
yes	yes	yes	yes
500	500	690	690
440	440	440	440
6	8	8	8
10000	10000	10000	10000
2.5	2.5	2.5	2.5
3g	3g	3g	3g
1500/1000	6000/4000	6000/4000	6000/4000
10000/8000	10000	10000	10000
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 ... +60	–25 ... +60	–25 ... +60	–25 ... +60
-40....+70	-40....+70	-40....+70	-40....+70
1...50	1...50	1...50	1...50
1....70	1....70	1....70	1....70
1....50	1....50	1....50	1....50
1....70	1....70	1....70	1....70
3.5	3.5	3.5	3.5
HTI+ H H/S	HTI+ H H/S	HTI+ H H/S	HTI+ H H/S
HTI+TELE U	HTI+TELE U	HTI+TELE U	HTI+TELE U
HTI+TELE L	HTI+TELE L	HTI+TELE L	HTI+TELE L
no	no	no	no
no	no	no	no
-	-	-	-
-	-	-	-
yes	yes	yes	yes
82.5 x 95 x 26.5	82.5 x 95 x 26.5	82.5 x 95 x 26.5	82.5 x 95 x 26.5
240	240	240	240
-	-	-	-
-	-	-	-
yes	yes	yes	yes
A.44	A.46	A.48	A.50

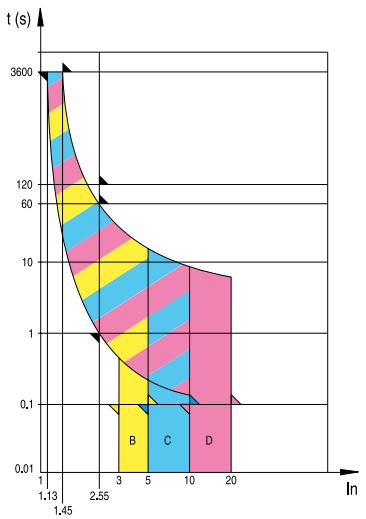
Short-circuit capacity of MCBs

Series				G30	G45	G60 / EP60 char. K
Short-circuit capacity AC			**kA**			
EN/IEC 60898-1	**Icn**	1P	230/400V	3	4.5	6
		1P+N	230V	3	4.5	6
		2P	230/400V	3	4.5	6
		3P/3P+N/4P	230/400V	3	4.5	6
	Ics (service)		100% Icn	100%Icn	100%Icn	100%Icn
			kA			
EN/IEC 60947-2	**Icu** (ultimate)	1 P	127V	-	-	20
			240V	5	6	10
			415V	3	3	3
		1+N /2P	127V	-	15	30
			240V	10	10	20
		2 P	415V	5	6	10
		3/3+N/4P	240V	10	10	20
			415V	5	6	10
			440V	-	-	6
	Ics (service)			75% Icu	75% Icu	75% Icu
Short-circuit capacity DC			**kA**			
EN/IEC 60947-2	**Icu** (ultimate)			20	-	20
		1P	≤ 60V ⎓	-	-	-
			≤ 220V ⎓	25	-	25
		2P	≤ 125V ⎓	-	-	-
	Ics (service)		≤ 440V ⎓	100% Icu	-	100% Icu
				A.20	A.22	A.24/A.26

Characteristics according to EN/IEC 60898-1

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

Tripping characteristic curves (EN/IEC 60898-1)



Magnetic release

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

Icn (A)	Test current	Tripping time	Applications
B	3 x In	0.1 < t < 45s (In ≤ 32A) 0.1 < t < 90s (In > 32A)	Only for resistive loads such as: - electrical heating
	5 x In	t < 0.1s	- water heater - stoves
C	5 x In	0.1 < t < 15s (In ≤ 32A) 0.1 < t < 30s (In > 32A)	Usual loads such as: - lighting
	10 x In	t < 0.1s	- socket-outlets - small motors
D	10 x In	0.1 < t < 4s(1) (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) 1 s < t < 120s (In > 32A)

G100 / EP100 char. K, Z EP100R / EP100T	GT10	GT25	EP100 UC / EP100 UCR	Hti
10	-	-	6 (220V DC)(2)	-
10	-	-	-	-
10	-	-	6 (440V DC)(3)	-
10	-	-	-	-
75% Icn	-	-	100% Icn	-
30	25	50	-	-
15	10	50/25/20/15(1)	6(5)	B/C 10; D 7.5
4	-	-	-	4.5
40	30	-	-	-
30	20	50/50/40/30(1)	-	B/C 15
15	10	50/25/20/15(1)	6(5)	B/C 10; D 7.5
30	20	50/50/40/30(1)	-	B/C 15
15	10	50/25/20/15(1)	-	B/C 10; D 7.5
10	-	50/20/15/10(1)	-	-
50% Icu	75% Icu	50% Icu	-	100% Icu
25	20	25	-	10
-	-	-	10(4)	-
30	25	30	20(4)	15
-	-	-	10(4)	-
100% Icu	100% Icu	100% Icu	-	100% Icu
A.28/A.30/A.70/A.74	A.32	A.34	A.36/A.72	A.38

(1) 0.5-4A/6-25A/32-40A/50-63A, (2) 10 (125V DC), (3) 10 (250V DC),
(4) T = 4ms, (5) 4.5kA for 50A and 63A

Characteristics according to EN/IEC 60947-2

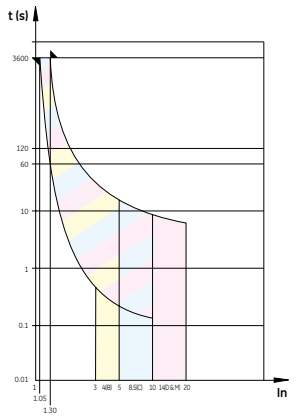
Magnetic release
An electromagnet with plunger ensures instantaneous tripping in the event of short-circuit. The standard leaves the calibration of magnetic release to the manufacturer's discretion.

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 ≥ 2s.)

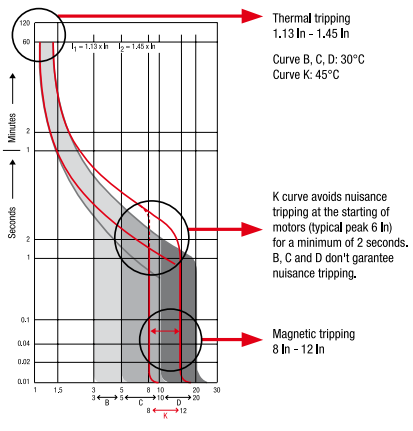
Thermal release
The release is initiated by a bimetal strip in case of overload. The standard defines the range of releases for two special overload values.
Reference ambient temperature is:
- 40°C for GT10 and GT25
- 50°C for G60 and G100, except for K: 45°C

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)



Short-circuit capacity of MCBs

Series		Hti+16	Hti+25	Hti+36	Hti+50
EN/IEC 60898-1	**Short-circuit capacity AC**				
	Icn	230/400 V= 10 kA	230/400 V= 15 kA	230/400 V= 20 kA(1)	230/400 V = 25 kA(1)
	Ics (service)	230/400 V= 7.5 kA	230/400 V= 7.5 kA	230/400 V = 10 kA	230/400 V = 12.5 kA
EN/IEC 60947-2	**Short-circuit capacity AC**				
	Icu (ultimate)	230/400 V=16kA	240/415 V = 25 kA	240/415 V = 36 kA	240/415 V = 50 kA
			254/440 V = 15kA	254/440 V = 20 kA	254/440 V = 30 kA
				400/690 V = 4.5 kA	400/690 V (80 A) = 6 kA
					400/690 V (100 ... 125 A) = 4.5 kA
	Short-circuit capacity DC				
			125 V (1-pole) = 10 kA	125 V (1-pole) = 20 kA	125 V (1-pole) = 30 kA
			250 V (2-pole) = 10 kA	250 V (2-pole) = 20 kA	250 V (2-pole) = 30 kA
			375 V (3-pole) = 10 kA	375 V (3-pole) = 20 kA	375 V (3-pole) = 30 kA
			500 V (4-pole) = 10 kA	500 V (4-pole) = 20 kA	500 V (4-pole) = 30 kA
EN/IEC 60947-2	**Short-circuit capacity AC**				
	Icu (ultimate)	230/400 V=10kA	240/415 V = 18 kA	240/415 V = 30 kA	240/415 V = 40 kA
			254/440 V = 10 kA	289/500 V = 5 kA	254/440 V (80 A) = 22.5 kA
					254/440 V (100 ... 125 A) = 15 kA
				400/690 V = 3 kA	400/690 V (up to 80 A) = 4 kA
					400/690 V (100 ... 125 A) = 3 kA
	Short-circuit capacity DC				
			125 V (1-pole) = 10 kA	125 V (1-pole) = 20 kA	125 V (1-pole) = 30 kA
			250 V (2-pole) = 10 kA	250 V (2-pole) = 20 kA	250 V (2-pole) = 30 kA
			375 V (3-pole) = 10 kA	375 V (3-pole) = 20 kA	375 V (3-pole) = 30 kA
			500 V (4-pole) = 10 kA	500 V (4-pole) = 20 kA	500 V (4-pole) = 30 kA
		A.44	A.46	A.48	A.50

(1) Only for 80A

Line protection devices: technical data

Series			EP100ULH34	EP100ULH12	EP100UL	EP60UL
Standards UL489 (listed) & CSA c22.2 No.5-02			yes	yes	-	-
Standards UL1077 (recognized) & CSA C22.2 No.235			-	-	yes	yes
Certifications UL489 (listed) & CSA c22.2 No.5-02			E256870	E256870	-	-
Certifications UL1077 (recognized) & CSA c22.2 No.235			-	-	E151139/235-04	E151139/235-04
Nominal voltage acc. UL & CSA	AC/DC	1P	277AC/60DC	120AC/60DC	277AC/50DC	277AC/50DC
		2P	480AC/125DC	240AC/125DC	480AC/110DC	480AC/110DC
		3P	480AC	240AC	480AC	480AC
		4P	-	-	480AC	480AC
Rated current at 77°F (25°C)			B: 5-40, C,D: 0.5-40	B: 5-40, C,D: 0.5-63	B: 5-40, C,D: 0.5-63	B: 5-40, C,D: 0.5-63
Number of poles			1,2,3	1,2,3	1,2,3,4	1,2,3,4
Reference temperature °F/°C			77/25	77/25	77/25	77/25
UL486 Standard compliance-connection terminals			UL486A and B	UL486A and B	UL486E	UL486E
Terminal capacity	60/75°C		14-2 AWG	14-2 AWG	14-2 AWG	14-2 AWG
Torque N.m/lbs.in			4/30	4/30	4.5/39.9	4.5/39.9
Handle end position seleable			yes	yes	yes	yes
Mounting			35 mm DIN-rail	35 mm DIN-rail	35 mm DIN-rail	35 mm DIN-rail
Nomenclature			Circuit breaker	Circuit breaker	Supplementary protectors	Supplementary protectors
Frequency Hz			50/60	50/60	50/60	50/60
Standards EN/IEC 60947-2			yes	yes	yes	yes
Calibration temperature °C 60947-2			50	50	50	50
Number of modules			1, 2, 3	1, 2, 3	1, 2, 3, 4	1, 2, 3, 4
Nominal voltage Un 60947-2						
	AC	1P V	240/415	240/415	240/415	240/415
		2P V	415	415	415	415
		3P V	415	415	415	415
		4P V	-	-	415	415
	DC 1P(1) VDC		60	60	50	50
	2P (in series)(1) VDC		125	125	110	110
Minimum service voltage Ubmin		V	12	12	12	12
Selectivity class (IEC 60898-1)			-	-	3	3
Isolator application IEC 60947-2			yes	yes	yes	yes
Rated insulation voltage	Pollution degree 2	V	500	500	500	500
	Pollution degree 3	V	440	440	440	440
Impulse withstand test voltage		kV	6	6	6	6
Insulation resistance		MOhm	10000	10000	10000	10000
Dielectric rigidity		kV	2.5	2.5	2.5	2.5
Mounting position			Any	Any	Any	Any
Incoming top or bottom			Any	Any	Any	Any
Vibrations resistance (in x, y, z direction) (IEC 77/16.3)			3g	3g	3g	3g
Endurance	electrical at Un, In		10000	10000	10000	10000
	mechanical		20000	20000	20000	20000
Utilisation category (IEC 60947-2)			A	A	A	A
Protection distance (IEC 60947-2)		mm	12	12	12	12
Protection degree (outside / inside enclosure with door)			IP20/IP40	IP20/IP40	IP20/IP40	IP20/IP40
Self-extinguish degree (according to UL94)			V0	V0	V0	V0
Tropicalisation (according to IEC 60068-2 / DIN 40046)		°C/RH	+55°C(131°F)/95%RH	+55°C(131°F)/95%RH	+55°C(131°F)/95%RH	+55°C(131°F)/95%RH
Operating temperature		°C(°F)	-40(-40)/+55(131)	-40(-40)/+55(131)	-25(-13)/+55(131)	-25(-13)/+55(131)
Storage temperature		°C(°F)	-55(-67)/+55(131)	-55(-67)/+55(131)	-55(-67)/+55(131)	-55(-67)/+55(131)
Terminal capacity (combined at both ends)						
Rigid cable min/max (top)		mm^2	1/35	1/35	1/35	1/35
Flexible cable min*/max (top)		mm^2	0.75/25	0.75/25	0.75/25	0.75/25
Rigid cable min/max (bottom)		mm^2	1/35	1/35	1/35	1/35
Flexible cable min*/max (bottom)		mm^2	0.75/25	0.75/25	0.75/25	0.75/25
(* Flexible cable 0.75/1/1.5 mm^2 with cable lug)						
Torque		Nm//lbs.in	max 4.5/39.9	max 4.5/39.9	max 4.5/39.9	max 4.5/39.9
Add-on devices auxiliary contacts			yes	yes	yes	yes
(side add-on) Tele L			yes	yes	yes	yes
Tele MP			yes	yes	yes	yes
Dimensions, weights, packaging (HxDxW) 86(3,4)x68(2,7)xW(2)	in/mm/mod.		0.71/18	0.71/18	0.71/18	0.71/18
Weight/mod.		oz./ g.	4.2/130	4.2/130	4.2/130	4.2/130
Approvals			UL Listed, CEBEC, CSA, EAC	UL Listed, CEBEC, CSA, EAC	UL , VDE, CSA, EAC	UL , VDE, CSA, EAC
CE-marking			yes	yes	yes	yes
ROHS			yes	yes	yes	yes
Page			A.62	A.64	A.66	A.68

(1) Preferred values of rated control supply voltage (IEC 60947-2): 24V DC, 48V DC, 110V DC, 125V DC, 220V DC, 250V DC
(2) EP100ULH executions 1P, 2P & 3P: H = 116mm (4,6 in.)

MCBs Short-circuit capacity

Series		EP100ULH34	EP100ULH12	EP100UL	EP60UL
Interrupting capacity acc. to kA		UL489	UL489	UL1077	UL1077
UL	1P/2P 277V AC	10	-	10	6
	3P 480V AC	10	-	10	6
	1P 120V AC	10	10	10	6
	2P/3P 240V AC	10	10	10	6
	1P 60V DC (50V DC: EP..UL34)	10	10	10	6
	2P 125V DC (110V DC: EP..UL34)	10	10	10	6
Interrupting capacity acc. to kA					
EN/IEC 60947-2	Icu (ultimate) kA				
	1 P 127V	30	30	30	20
	240V	15	15	15	10
	415V	4	4	4	3
	2P 127V	40	40	40	30
	240V	30	30	30	20
	2 P 415V	15	15	15	10
	3/4P 240V	30	30	30	20
	415V	15	15	15	10
	440V	10	10	10	6
	Ics (service)	50% Icu	50% Icu	50% Icu	75% Icu
Short-circuit capacity DC					
EN/IEC 60947-2	Icu (ultimate) kA				
	1 P ≤ 60V	25	25	25	20
	≤ 220V	-	-	-	-
	2 P ≤ 125V	30	30	30	25
	≤ 440V	-	-	-	-
	Ics (service)	10% Icu	10% Icu	100% Icu	100% Icu

Characteristics according to EN/IEC 60947-2

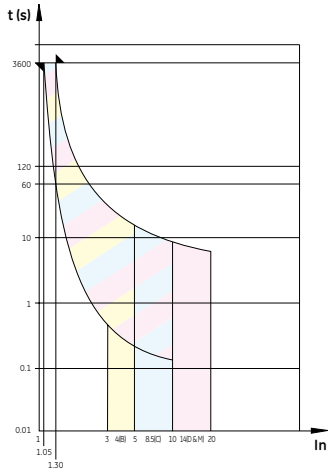
Magnetic release
An electromagnet with plunger ensures instantaneous tripping in the event of short-circuit. The standard leaves the calibration of magnetic release to the manufacturer's discretion.

GE offers instantaneous tripping ranges:
- B: 4 In
- C: 8.5 In (7.5 In for 63A)
- D: 14 In

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

Tripping characteristic curves (EN/IEC 60947-2)



Back-up protection (association)

Downstream: MCBs - Upstream: MCBs

Redline / Redline Downstream MCB Types		U 230V Upstream MCB (kA)					
		G60 and EPP60	G100 and EPP100	GT25	GT25	GT25	Hti
	In (A)	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	-
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* MCCBs at 220/240V AC

Upstream / Downstream	Icu	MCCBs Record Plus*																										
		FD160/160C	FD160/160E	FD160/160S	FD160/160N	FD160/160H	FD160/160L	FE160N	FE160H	FE160L	FE150V	FE250N	FE250H	FE250L	FG400N	FG400H	FG400L	FG630N	FG630H	FG630L	FK800N	FK800H	FK800L	FK1250N	FK1250H	FK1250L	FK1600N	FK1600H
	In (kA)	25	40	50	85	100	200	85	100	200	65	85	100	200	85	100	200	85	100	200	80	100	170	80	100	170	80	100
		Icu of the combination (kA)																										
Redline																												
EPC 451N / EPC 45	**6**	15	18	18	18	18	18	15	15	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														
DP(A) 60	**10**	22	25	30	36	85	85	36	85	85	30	36	65	65	16	16	16	14	14	14	-	-	-	-	-	-	-	-
DPE100 / EPC 101N	**10**	18	22	25	25	25	25	22	22	22	18	18	18	18														
DP(A)100 & DPT 100	**15**	25	36	42	50	100	100	42	100	100	30	36	65	65	18	18	18	16	16	16								
G60 and EPP60	**20**	25	36	42	50	100	100	50	100	100	36	42	85	85	22	22	22	18	18	18	-	-	-	-	-	-	-	-
G100 and 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 and 40A	**40**	-	-	50	65	100	100	65	100	100	42	50	85	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GT25, 50 and 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*																												
FD160/160C	**18**	-	30	36	42	50	65	42	50	65	36	42	50	65	42	50	65	42	50	65	-	-	-	-	-	-	-	-
FD160/160E	**36**	-	-	50	65	85	100	65	85	100	50	65	85	100	65	85	100	65	85	100	-	-	-	-	-	-	-	-
FD160/160S	**50**	-	-	-	-	85	100	-	85	100	-	-	85	100	-	85	100	-	85	100	-	-	-	-	-	-	-	-
FD160/160N	**85**	-	-	-	-	100	200	-	100	200	-	-	100	200	-	100	200	-	100	200	80	100	150	80	100	150	80	100
FD160/160H	**100**	-	-	-	-	-	200	-	-	200	-	-	-	200	-	-	200	-	-	200	-	100	150	-	100	150	-	100
FE160N	**85**	-	-	-	-	-	-	-	100	200	-	-	100	200	-	100	200	-	100	200	80	100	150	80	100	150	80	100
FE160H	**100**	-	-	-	-	-	-	-	-	200	-	-	-	200	-	-	200	-	-	200	-	100	150	-	100	150	-	100
FE250N	**85**	-	-	-	-	-	-	-	-	-	-	-	100	200	-	100	200	-	100	200	80	100	150	80	100	150	80	100
FE250H	**100**	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	200	-	-	200	-	100	150	-	100	150	-	100
FG400N	**85**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	200	-	100	200	80	100	150	80	100	150	80	100
FG400H	**100**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	-	200	-	100	150	-	100	150	-	100
FG630N	**85**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	200	80	100	150	80	100	150	80	100
FG630H	**100**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200	-	100	150	-	100	150	-	100
FK800N	**80**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	100	150	80	100	150	80	100
FK800H	**100**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	170	-	100	170	-	100
FK1250N	**80**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	100	170	80	100	170	80	100
FK1250H	**100**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	170	-	100	170	-	100

Record Plus MCCBs at 400/415V AC*

Upstream / Downstream	Icu	MCCBs Record Plus*																												
		FD160/160C	FD160/160E	FD160/160S	FD160/160N	FD160/160H	FD160/160L	FE160N	FE160H	FE160L	FE250V	FE250N	FE250H	FE250L	FG400N	FG400H	FG400L	FG630N	FG630H	FG630L	FK800N	FK800H	FK800L	FK1250N	FK1250H	FK1250L	FK1600N	FK1600H
	In (kA)	18	25	36	50	80	150	50	80	150	36	50	80	150	50	80	150	50	80	150	50	80	100	50	80	100	50	80
		Icu of the combination (kA)																										
Redline																												
EPC 452, 453 and 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 and 40A	**20**	-	-	30	36	42	50	36	42	50	-	36	42	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GT25, 50 and 63A	**15**	18	25	30	36	42	50	36	42	50	25	30	36	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Series Hti	**10**	15	18	25	30	36	42	30	36	42	18	30	36	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Series S90	**15**	18	25	30	36	42	50	36	42	50	25	36	42	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Surion																												
GPS1B/MS ≤10A	**100**	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS1B/MS 12.5A	**50**	-	-	-	-	80	150	-	80	150	-	-	80	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS1B/MS ≥16A	**25**	-	-	-	42	50	65	42	50	65	-	42	50	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS1B/MH ≤12.5A	**100**	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS1B/MH >12.5A	**50**	-	-	-	-	80	150	-	80	150	-	-	80	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS2B/MS 10A	**100**	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS2B/MS >10A	**25**	-	-	-	42	50	65	42	50	65	-	42	50	65	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS2B/MH 10A	**100**	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
GPS2B/MH >10A	**50**	-	-	-	-	80	150	-	80	150	-	-	80	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Record Plus*																												
FD160/160C	**18**	-	22	25	30	36	42	30	36	42	22	30	36	42	30	36	42	30	36	42	-	-	-	-	-	-	-	-
FD160/160E	**25**	-	-	30	36	42	50	36	42	50	-	36	42	50	36	42	50	36	42	50	-	-	-	-	-	-	-	-
FD160/160S	**36**	-	-	-	42	50	65	42	50	65	-	42	50	65	42	50	65	42	50	65	-	-	-	-	-	-	-	-
FD160/160N	**50**	-	-	-	-	80	150	-	80	150	-	-	80	150	-	80	150	-	80	150	-	80	100	-	80	100	-	80
FD160/160H	**80**	-	-	-	-	-	150	-	-	150	-	-	-	150	-	-	150	-	-	150	-	-	100	-	-	100	-	-
FE160N	**50**	-	-	-	-	-	-	-	80	150	-	-	80	150	-	80	150	-	80	150	-	80	100	-	80	100	-	80
FE160H	**80**	-	-	-	-	-	-	-	-	150	-	-	-	150	-	-	150	-	-	150	-	-	100	-	-	100	-	-
FE250N	**50**	-	-	-	-	-	-	-	-	-	-	-	80	150	-	80	150	-	80	150	-	80	100	-	80	100	-	80
FE250H	**80**	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-	150	-	-	150	-	-	100	-	-	100	-	-
FG400N	**50**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	150	-	80	150	-	80	100	-	80	100	-	80
FG400H	**80**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-	150	-	-	100	-	-	100	-	-
FG630N	**50**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	150	-	80	100	-	80	100	-	80
FG630H	**80**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	150	-	-	100	-	-	100	-	-
FK800N	**50**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	100	-	80	100	-	80
FK800H	**80**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	100	-	-
FK1250N	**50**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	80	100	-	80	100	-	80
FK1250H	**80**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	-	100	-	-

Selectivity

Record Plus* MCCBs

Upstream		MCCBs Record Plus*																	
		FDC and FDE 160 LTM						FDS 160 LTMD						FDN, H and L 160 LTMD					
Downstream	In (A)	40	50	63	80	100	125 160	40	50	63	80	100	125 160	40	50	63	80	100	125 160
		Selectivity limit (kA)(1)																	
Redline	**≤16**	0.6	2.5	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
EPC45	**20**	0.6	2.5	3	T	T	T	3.5	T	T	T	T	T	3.5	T	T	T	T	T
B/C curve	**25**	-	0.8	1.2	T	T	T	1.6	3.5	T	T	T	T	1.6	3.5	T	T	T	T
	32	-	-	1.2	3	T	T	-	-	T	T	T	T	-	-	T	T	T	T
	40	-	-	-	3	4	T	-	-	-	T	T	T	-	-	-	T	T	T
Redline	**≥16**	0.6	2.5	6	6	T	T	T	T	T	T	T	T	T	T	T	T	T	T
EPC60 and DME60	**20**	0.6	2.5	3	6	T	T	3.5	T	T	T	T	T	3.5	T	T	T	T	T
B/C curve	**25**	-	0.8	1.2	6	6	T	1.6	3.5	T	T	T	T	1.6	3.5	T	T	T	T
	32	-	-	1.2	3	6	T	-	-	T	T	T	T	-	-	T	T	T	T
	40	-	-	-	3	4	6	-	-	-	T	T	T	-	-	-	T	T	T
Redline	**≤16**	0.6	2.5	6	6	T	T	T	T	T	T	T	T	T	T	T	T	T	T
DM60	**20**	0.6	2.5	3	6	8	T	3.5	T	T	T	T	T	3.5	T	T	T	T	T
DME100	**25**	-	0.8	1.2	6	6	T	1.6	3.5	T	T	T	T	1.6	3.5	T	T	T	T
B/C curve	**32**	-	-	1.2	3	6	8	-	-	10	T	T	T	-	-	10	T	T	T
	40	-	-	-	3	4	6	-	-	-	T	T	T	-	-	-	T	T	T
	50	-	-	-	1.2	1.5	6	-	-	-	3.5	T	T	-	-	-	3.5	T	T
	63	-	-	-	-	1.5	2	-	-	-	-	8	T	-	-	-	-	8	T
Redline	**≤16**	0.6	2.5	6	6	10	T	10	10	T	T	T	T	10	10	T	T	T	T
G60	**20**	0.6	2.5	3	6	8	T	3.5	10	T	T	T	T	3.5	10	T	T	T	T
EPC 101N	**25**	-	0.8	1.2	6	6	T	1.6	3.5	T	T	T	T	1.6	3.5	T	T	T	T
DM100	**32**	-	-	1.2	3	6	8	-	-	10	10	T	T	-	-	10	10	T	T
B/C curve	**40**	-	-	-	3	4	6	-	-	-	10	T	T	-	-	-	10	T	T
	50	-	-	-	1.2	1.5	6	-	-	-	3.5	10	T	-	-	-	3.5	10	T
	63	-	-	-	-	1.5	2	-	-	-	-	8	T	-	-	-	-	8	T
Redline	**≤16**	0.6	2.5	6	6	10	T	10	10	T	T	T	T	10	10	T	T	T	T
G100	**20**	0.6	2.5	3	6	8	T	3.5	10	T	T	T	T	3.5	10	T	T	T	T
GT25	**25**	-	0.8	1.2	6	6	T	1.6	3.5	15	T	T	T	1.6	3.5	15	T	T	T
B/C curve	**32**	-	-	1.2	3	6	8	-	-	6	10	T	T	-	-	6	10	T	T
	40	-	-	-	3	4	6	-	-	-	10	15	T	-	-	-	10	15	T
	50	-	-	-	1.2	1.5	6	-	-	-	3.5	10	T	-	-	-	3.5	10	T
	63	-	-	-	-	1.5	2	-	-	-	-	8	T	-	-	-	-	8	T
Hti	**80**	-	-	-	-	-	1.9	-	-	-	-	-	2.5	-	-	-	-	-	2.5
C curve	**100**	-	-	-	-	-	1.9	-	-	-	-	-	2.5	-	-	-	-	-	2.5
S90	**≤25**	-	0.8	0.9	1.2	1.5	1.9	-	1	1.2	15	15	15	-	1	1.2	15	15	15
C curve	**32**	-	-	0.9	1.2	1.5	1.9	-	-	1.2	15	15	15	-	-	1.2	15	15	15
	40	-	-	-	1.2	1.5	1.9	-	-	-	15	15	15	-	-	-	15	15	15
	50	-	-	-	1.2	1.5	1.9	-	-	-	15	15	15	-	-	-	15	15	15
	63	-	-	-	-	1.5	1.9	-	-	-	-	15	15	-	-	-	-	15	15
	80	-	-	-	-	-	1.9	-	-	-	-	-	15	-	-	-	-	-	15
	100	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	15
Surion	**≤20**	0.6	2.5	6	6	10	T	10	10	T	T	T	T	10	10	T	T	T	T
GPS1BS and	**25**	-	1	1.2	6	6	T	-	3.5	15	15	T	T	-	3.5	15	15	T	T
GPS1MS	**32**	-	-	1.2	3	6	10	-	-	6	6	T	T	-	-	6	6	T	T
GPS2BS and	**40**	-	-	-	3	4	6	-	-	-	6	T	T	-	-	-	6	T	T
GPS2MS	**50**	-	-	-	1.2	1.6	6	-	-	-	3.5	T	T	-	-	-	3.5	T	T
	63	-	-	-	-	1.6	2	-	-	-	-	8	T	-	-	-	-	8	T
Surion	**≤20**	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T	T
GPS1BH and	**25**	-	2.5	15	15	T	T	-	3.5	T	T	T	T	-	3.5	T	T	T	T
GPS1MH	**32**	-	-	6	6	8	T	-	-	T	T	T	T	-	-	T	T	T	T
GPS2BH and	**40**	-	-	-	6	8	T	-	-	T	T	T	T	-	-	T	T	T	T
GPS2MH	**50**	-	-	-	-	6	T	-	-	-	3.5	T	T	-	-	-	3.5	T	T
	63	-	-	-	-	-	T	-	-	-	-	8	T	-	-	-	-	8	T
Record Plus*	**≤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
FD160/160E	**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
LTM	**40**	-	-	-	0.8	1	1.3	-	-	-	1.2	1.5	3.5	-	-	-	1.2	1.5	3.5
	50	-	-	-	0.8	1	1.3	-	-	-	1.2	1.5	3.5	-	-	-	1.2	1.5	3.5
	63	-	-	-	-	1	1.3	-	-	-	-	1.5	3.5	-	-	-	-	1.5	3.5
	80	-	-	-	-	-	1.3	-	-	-	-	-	3.5	-	-	-	-	-	3.5

(1) T = Full selectivity until the Icu of the downstream device.
Remark: for MCBs with D curve assume a C curve type with a one step higher rating.
Example: selectivity FD160 80Amp LTM with downstream C curve 40A MCB = 3kA, for D curve 40A, take the value mentioned for 50A C curve, here 1.2kA.

Miniature Circuit Breakers

Series G30

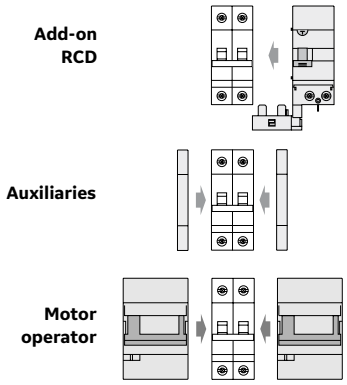
EN/IEC 60898-1 **3000 / 3**

EN/IEC 60947-2 **5kA**

Application

Approval / Marking

Add-on devices



Performance

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

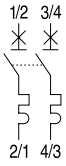
Short-circuit capacity

AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icn/Ics (kA)**
1-4	230/400	3
AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icu (kA)**
1	240	5
2	127	-
	240	10
	415	5
3, 4	240	10
	415	5

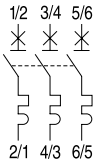
Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.122***

Series G30 - 3kA - characteristics B-C

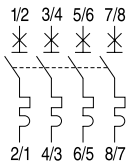
	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
1P 1 mod.	2	-	-	G31C02	**674381**	12
	4	-	-	G31C04	**674383**	12
	6	G31B06	**674443**	G31C06	**674384**	12
	10	G31B10	**674445**	G31C10	**674386**	12
	16	G31B16	**674447**	G31C16	**674388**	12
	20	G31B20	**674448**	G31C20	**674389**	12
	25	G31B25	**674449**	G31C25	**674390**	12
	32	G31B32	**674450**	G31C32	**674391**	12
	40	G31B40	**674451**	G31C40	**674392**	12



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

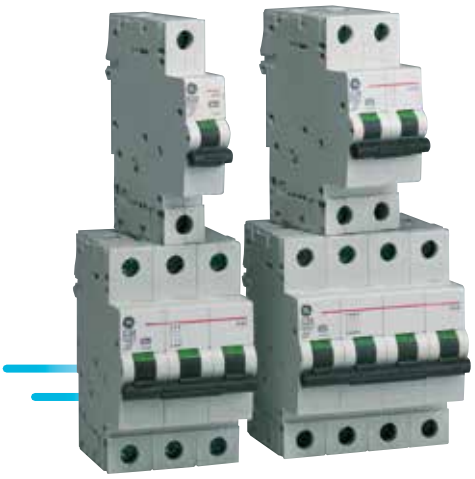


3P 3 mod.	2	-	-	G33C02	**674413**	4
	4	-	-	G33C04	**674415**	4
	6	G33B06	**674466**	G33C06	**674416**	4
	10	G33B10	**674468**	G33C10	**674418**	4
	16	G33B16	**674470**	G33C16	**674420**	4
	20	G33B20	**674471**	G33C20	**674421**	4
	25	G33B25	**674472**	G33C25	**674422**	4
	32	G33B32	**674473**	G33C32	**674423**	4
	40	G33B40	**674474**	G33C40	**674424**	4



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

Miniature Circuit Breakers



Series G45

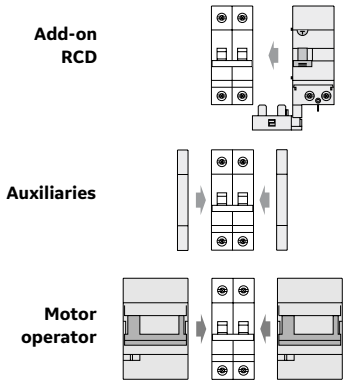
EN/IEC 60898-1 **4500 / 3**

EN/IEC 60947-2 **6kA**

Application

Approval / Marking

Add-on devices



Performance

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

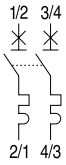
Short-circuit capacity

AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icn/Ics (kA)**
1-4	230/400	4.5
AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icu (kA)**
1	240	6
2	127	15
	240	10
	415	6
3, 4	240	10
	415	6

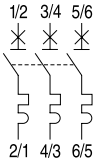
Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.122***

Series G45 - 4.5kA - characteristics B-C

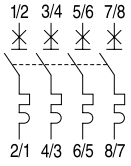
	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
1P 1 mod.	2	-	-	G41C02	**674490**	12
	4	-	-	G41C04	**674492**	12
	6	G41B06	**674552**	G41C06	**674493**	12
	10	G41B10	**674554**	G41C10	**674495**	12
	16	G41B16	**674556**	G41C16	**674497**	12
	20	G41B20	**674557**	G41C20	**674498**	12
	25	G41B25	**674558**	G41C25	**674499**	12
	32	G41B32	**674559**	G41C32	**674500**	12
	40	G41B40	**674560**	G41C40	**674501**	12



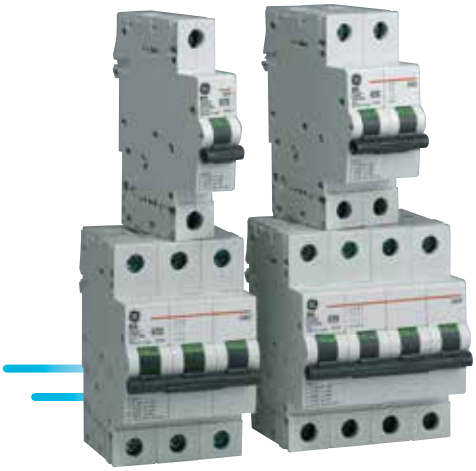
1P+N 2 mod.	2	-	-	G42C02	**674506**	6
	4	-	-	G42C04	**674508**	6
	6	G42B06	**674563**	G42C06	**674509**	6
	10	G42B10	**674565**	G42C10	**674511**	6
	16	G42B16	**674567**	G42C16	**674513**	6
	20	G42B20	**674568**	G42C20	**674514**	6
	25	G42B25	**674569**	G42C25	**674515**	6
	32	G42B32	**674570**	G42C32	**674516**	6
	40	G42B40	**674571**	G42C40	**674517**	6



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



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



Series G60

EN/IEC 60898-1 6000 / 3

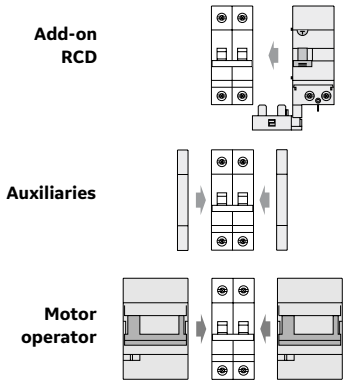
EN/IEC 60947-2 10kA

Special executions G60S for Shipping application in separate document with BV, RINA, LR and GL approval.

Applications

Approvals / Marking

Add-on devices



Performance

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

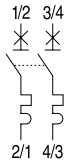
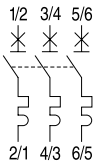
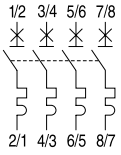
Short-circuit capacity

AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icn/Ics (kA)**
1-4	230/400	6
AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)(1)**
1	240	20
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 ⎓ (2)**	**Icu (kA)**
1	60	20
2 (in series)	125	25

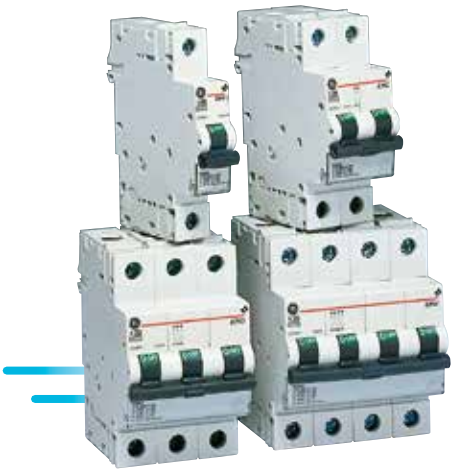
(1) Ics = 75% Icu
(2) Nominal and Maximum V DC on page A.4-A.5

Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.122***

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

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

Miniature Circuit Breakers



Series EP60

EN/IEC 60898-1 **6000**

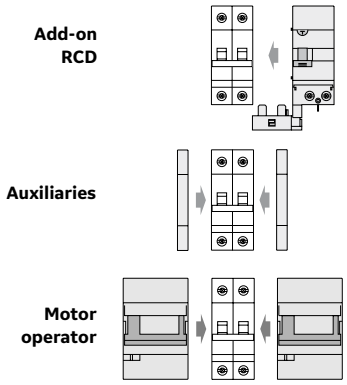
EN/IEC 60947-2 **10kA**

Applications

Marking

CE

Add-on devices



Performance

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

Short-circuit capacity

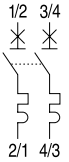
AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)(1)**
1	240	10
1+N, 2	127	30
	240	20
2	415	10
3, 4	240	20
	415	10
DC acc. to EN/IEC 60947-2		
Poles	**V ⎓ (2)**	**Icu/Ics (kA)**
1	60	20
2 (in series)	125	25

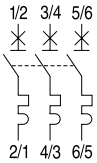
(1) Ics = 75% Icu
(2) Nominal and Maximum V DC on page A.4-A.5

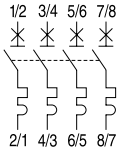
Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.122***

Series EP60 - 6kA - characteristic K

	In (A)	Cat. No.	Ref. No.	Pack.
1P 1 mod.	0.5	EP61K0.5	**681600**	12
	1	EP61K01	**681601**	12
	1.6	EP61K1.6	**681602**	12
	2	EP61K02	**681603**	12
	3	EP61K03	**681604**	12
	4	EP61K04	**681605**	12
	6	EP61K06	**681606**	12
	8	EP61K08	**681607**	12
	10	EP61K10	**681608**	12
	16	EP61K16	**681609**	12
	20	EP61K20	**681610**	12
	25	EP61K25	**681611**	12
	32	EP61K32	**681612**	12
	40	EP61K40	**681613**	12
	50	EP61K50	**681614**	12
	63	EP61K63	**681615**	12
2P 2 mod.	0.5	EP62K0.5	**681616**	6
	1	EP62K01	**681617**	6
	1.6	EP62K1.6	**681618**	6
	2	EP62K02	**681619**	6
	3	EP62K03	**681620**	6
	4	EP62K04	**681621**	6
	6	EP62K06	**681622**	6
	8	EP62K08	**681623**	6
	10	EP62K10	**681624**	6
	16	EP62K16	**681625**	6
	20	EP62K20	**681626**	6
	25	EP62K25	**681627**	6
	32	EP62K32	**681628**	6
	40	EP62K40	**681629**	6
	50	EP62K50	**681630**	6
	63	EP62K63	**681631**	6
3P 3 mod.	0.5	EP63K0.5	**681632**	6
	1	EP63K01	**681633**	6
	1.6	EP63K1.6	**681634**	6
	2	EP63K02	**681635**	6
	3	EP63K03	**681636**	6
	4	EP63K04	**681637**	6
	6	EP63K06	**681638**	6
	8	EP63K08	**681639**	6
	10	EP63K10	**681640**	6
	16	EP63K16	**681641**	6
	20	EP63K20	**681642**	6
	25	EP63K25	**681643**	6
	32	EP63K32	**681644**	6
	40	EP63K40	**681645**	6
	50	EP63K50	**681646**	6
	63	EP63K63	**681647**	6
3P 3 mod.	0.5	EP64K0.5	**681648**	3
	1	EP64K01	**681649**	3
	1.6	EP64K1.6	**681650**	3
	2	EP64K02	**681651**	3
	3	EP64K03	**681652**	3
	4	EP64K04	**681653**	3
	6	EP64K06	**681654**	3
	8	EP64K08	**681655**	3
	10	EP64K10	**681656**	3
	16	EP64K16	**681657**	3
	20	EP64K20	**681658**	3
	25	EP64K25	**681659**	3
	32	EP64K32	**681660**	3
	40	EP64K40	**681661**	3
	50	EP64K50	**681662**	3
	63	EP64K63	**681663**	3







Miniature Circuit Breakers

Series G100

EN/IEC 60898-1 **10000 / 3**

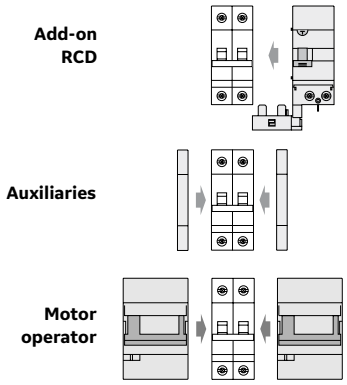
EN/IEC 60947-2 **15kA**

Special executions G100S for Shipping application with BV, LR GL approval.

Applications

Approvals / Marking

Add-on devices



Performance

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

Short-circuit capacity

AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icn (kA)(1)**
1-4	230/400	10
AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)(2)**
1	240	15
1+N, 2	127	40
	240	30
2	415	15
3, 4	240	30
	415	10
DC acc. to EN/IEC 60947-2		
Poles	**V ⎓ (3)**	**Icu (kA)**
1	60	25
2 (in series)	125	30

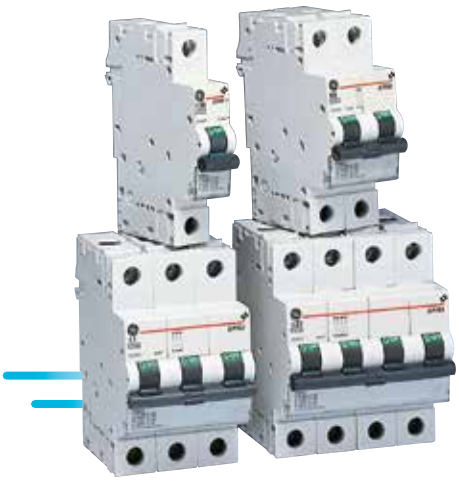
(1) Ics = 75% Icu
(2) Ics = 50% Icu
(3) Nominal and Maximum V DC on page A.4-A.5

Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.122***

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

	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	D		Pack.
1P 1 mod.	0.5	-	-	G101C0.5	**674854**	G101D0.5	**675016**	12
	1	-	-	G101C01	**674855**	G101D01	**675017**	12
	2	-	-	G101C02	**674856**	G101D02	**675018**	12
	3	-	-	G101C03	**674857**	G101D03	**675019**	12
	4	-	-	G101C04	**674858**	G101D04	**675020**	12
	6	G101B06	**674950**	G101C06	**674859**	G101D06	**675021**	12
	10	G101B10	**674952**	G101C10	**674861**	G101D10	**675023**	12
	13	G101B13	**674953**	G101C13	**674862**	G101D13	**675024**	12
	16	G101B16	**674954**	G101C16	**674863**	G101D16	**675025**	12
	20	G101B20	**674955**	G101C20	**674864**	G101D20	**675026**	12
	25	G101B25	**674956**	G101C25	**674865**	G101D25	**675027**	12
	32	G101B32	**674957**	G101C32	**674866**	G101D32	**675028**	12
	40	G101B40	**674958**	G101C40	**674867**	G101D40	**675029**	12
	50	G101B50	**674959**	G101C50	**674868**	G101D50	**675030**	12
	63	G101B63	**674960**	G101C63	**674869**	G101D63	**675031**	12
1P+N 2 mod.	0.5	-	-	-	-	G101ND0.5	**675032**	6
	1	-	-	-	-	G101ND01	**675033**	6
	2	-	-	G101NC02	**674872**	G101ND02	**675034**	6
	3	-	-	G101NC03	**674873**	G101ND03	**675035**	6
	4	-	-	G101NC04	**674874**	G101ND04	**675036**	6
	6	G101NB06	**674961**	G101NC06	**674875**	G101ND06	**675037**	6
	10	G101NB10	**674963**	G101NC10	**674877**	G101ND10	**675039**	6
	13	G101NB13	**674964**	G101NC13	**674878**	G101ND13	**675040**	6
	16	G101NB16	**674965**	G101NC16	**674879**	G101ND16	**675041**	6
	20	G101NB20	**674966**	G101NC20	**674880**	G101ND20	**675042**	6
	25	G101NB25	**674967**	G101NC25	**674881**	G101ND25	**675043**	6
	32	G101NB32	**674968**	G101NC32	**674882**	G101ND32	**675044**	6
	40	G101NB40	**674969**	G101NC40	**674883**	G101ND40	**675045**	6
	50	G101NB50	**674970**	G101NC50	**674884**	G101ND50	**675046**	6
	63	G101NB63	**674971**	G101NC63	**674885**	G101ND63	**675047**	6
2P 2 mod.	0.5	-	-	G102C0.5	**674886**	G102D0.5	**675048**	6
	1	-	-	G102C01	**674887**	G102D01	**675049**	6
	2	-	-	G102C02	**674888**	G102D02	**675050**	6
	3	-	-	G102C03	**674889**	G102D03	**675051**	6
	4	-	-	G102C04	**674890**	G102D04	**675052**	6
	6	G102B06	**674972**	G102C06	**674891**	G102D06	**675053**	6
	10	G102B10	**674974**	G102C10	**674893**	G102D10	**675055**	6
	13	G102B13	**674975**	G102C13	**674894**	G102D13	**675056**	6
	16	G102B16	**674976**	G102C16	**674895**	G102D16	**675057**	6
	20	G102B20	**674977**	G102C20	**674896**	G102D20	**675058**	6
	25	G102B25	**674978**	G102C25	**674897**	G102D25	**675059**	6
	32	G102B32	**674979**	G102C32	**674898**	G102D32	**675060**	6
	40	G102B40	**674980**	G102C40	**674899**	G102D40	**675061**	6
	50	G102B50	**674981**	G102C50	**674900**	G102D50	**675062**	6
	63	G102B63	**674982**	G102C63	**674901**	G102D63	**675063**	6
3P 3 mod.	0.5	-	-	G103C0.5	**674902**	G103D0.5	**675064**	4
	1	-	-	G103C01	**674903**	G103D01	**675065**	4
	2	-	-	G103C02	**674904**	G103D02	**675066**	4
	3	-	-	G103C03	**674905**	G103D03	**675067**	4
	4	-	-	G103C04	**674906**	G103D04	**675068**	4
	6	G103B06	**674983**	G103C06	**674907**	G103D06	**675069**	4
	10	G103B10	**674985**	G103C10	**674909**	G103D10	**675071**	4
	13	G103B13	**674986**	G103C13	**674910**	G103D13	**675072**	4
	16	G103B16	**674987**	G103C16	**674911**	G103D16	**675073**	4
	20	G103B20	**674988**	G103C20	**674912**	G103D20	**675074**	4
	25	G103B25	**674989**	G103C25	**674913**	G103D25	**675075**	4
	32	G103B32	**674990**	G103C32	**674914**	G103D32	**675076**	4
	40	G103B40	**674991**	G103C40	**674915**	G103D40	**675077**	4
	50	G103B50	**674992**	G103C50	**674916**	G103D50	**675078**	4
	63	G103B63	**674993**	G103C63	**674917**	G103D63	**675079**	4
4P 4 mod.	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

Miniature Circuit Breakers



Series EP100

EN/IEC 60898-1 **10000**

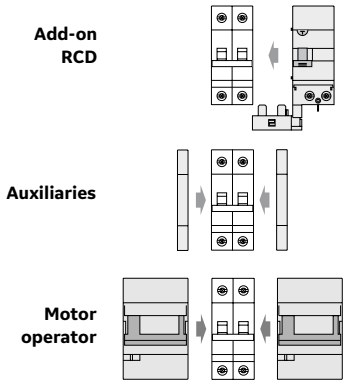
EN/IEC 60947-2 **15kA**

Applications

Marking

CE

Add-on devices



Performance

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

Short-circuit capacity

AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)(1)**
1	240	15
1+N, 2	127	40
	240	30
2	415	15
3, 4	240	30
	415	15
DC acc. to EN/IEC 60947-2		
Poles	**V ⎓ (2)**	**Icu/Ics (kA)**
1	60	25
2 (in series)	125	30

(1) Ics = 75% Icu
(2) Nominal and Maximum V DC on page A.4-A.5

New

Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.122***

Series EP100 - 10kA - characteristics K-Z

	In (A)	K Cat. No.	K Ref. No.	Z Cat. No.	Z Ref. No.	Pack.
1P 1 mod.	0.5	EP101K0.5	**672402**	EP101Z0.5	**682775**	12
	1	EP101K01	**672403**	EP101Z01	**682776**	12
	1.6	EP101K1.6	**681588**	EP101Z1.6	**682777**	12
	2	EP101K02	**672404**	EP101Z02	**682778**	12
	3	EP101K03	**672405**	EP101Z03	**682779**	12
	4	EP101K04	**672406**	EP101Z04	**682780**	12
	6	EP101K06	**672407**	EP101Z06	**682781**	12
	8	EP101K08	**672408**	EP101Z08	**682782**	12
	10	EP101K10	**672409**	EP101Z10	**682783**	12
	16	EP101K16	**672411**	EP101Z16	**682784**	12
	20	EP101K20	**672412**	EP101Z20	**682785**	12
	25	EP101K25	**672413**	EP101Z25	**682786**	12
	32	EP101K32	**672414**	EP101Z32	**682787**	12
	40	EP101K40	**672415**	EP101Z40	**682788**	12
	50	EP101K50	**672416**	EP101Z50	**682789**	12
	63	EP101K63	**672417**	EP101Z63	**682790**	12
2P 2 mod.	0.5	EP102K0.5	**672434**	EP102Z0.5	**682791**	6
	1	EP102K01	**672435**	EP102Z01	**682792**	6
	1.6	EP102K1.6	**681591**	EP102Z1.6	**682793**	6
	2	EP102K02	**672436**	EP102Z02	**682794**	6
	3	EP102K03	**672437**	EP102Z03	**682795**	6
	4	EP102K04	**672438**	EP102Z04	**682796**	6
	6	EP102K06	**672439**	EP102Z06	**682797**	6
	8	EP102K08	**672440**	EP102Z08	**682798**	6
	10	EP102K10	**672441**	EP102Z10	**682799**	6
	16	EP102K16	**672443**	EP102Z16	**682800**	6
	20	EP102K20	**672444**	EP102Z20	**682801**	6
	25	EP102K25	**672445**	EP102Z25	**682802**	6
	32	EP102K32	**672446**	EP102Z32	**682803**	6
	40	EP102K40	**672447**	EP102Z40	**682804**	6
	50	EP102K50	**672448**	EP102Z50	**682805**	6
	63	EP102K63	**672449**	EP102Z63	**682806**	6
3P 3 mod.	0.5	EP103K0.5	**672450**	EP103Z0.5	**682807**	4
	1	EP103K01	**672451**	EP103Z01	**682808**	4
	1.6	EP103K1.6	**681594**	EP103Z1.6	**682809**	4
	2	EP103K02	**672452**	EP103Z02	**682810**	4
	3	EP103K03	**672453**	EP103Z03	**682811**	4
	4	EP103K04	**672454**	EP103Z04	**682812**	4
	6	EP103K06	**672455**	EP103Z06	**682813**	4
	8	EP103K08	**672456**	EP103Z08	**682814**	4
	10	EP103K10	**672457**	EP103Z10	**682815**	4
	16	EP103K16	**672459**	EP103Z16	**682816**	4
	20	EP103K20	**672460**	EP103Z20	**682817**	4
	25	EP103K25	**672461**	EP103Z25	**682818**	4
	32	EP103K32	**672462**	EP103Z32	**682819**	4
	40	EP103K40	**672463**	EP103Z40	**682820**	4
	50	EP103K50	**672464**	EP103Z50	**682821**	4
	63	EP103K63	**672465**	EP103Z63	**682822**	4
3P+N 4 mod.	0.5	-	-	EP103Z0.5N	**682823**	4
	1	-	-	EP103Z01N	**682824**	4
	1.6	-	-	EP103Z1.6N	**682825**	4
	2	-	-	EP103Z02N	**682826**	4
	3	-	-	EP103Z03N	**682827**	4
	4	-	-	EP103Z04N	**682828**	4
	6	-	-	EP103Z06N	**682829**	4
	8	-	-	EP103Z08N	**682830**	4
	10	-	-	EP103Z10N	**682831**	4
	16	-	-	EP103Z16N	**682832**	4
	20	-	-	EP103Z20N	**682833**	4
	25	-	-	EP103Z25N	**682834**	4
	32	-	-	EP103Z32N	**682835**	4
	40	-	-	EP103Z40N	**682836**	4
	50	-	-	EP103Z50N	**682837**	4
	63	-	-	EP103Z63N	**682838**	4
4P 4 mod.	0.5	EP104K0.5	**672466**	EP104Z0.5	**682839**	3
	1	EP104K01	**672467**	EP104Z01	**682840**	3
	1.6	EP104K1.6	**681597**	EP104Z1.6	**682841**	3
	2	EP104K02	**672468**	EP104Z02	**682842**	3
	3	EP104K03	**672469**	EP104Z03	**682843**	3
	4	EP104K04	**672470**	EP104Z04	**682844**	3
	6	EP104K06	**672471**	EP104Z06	**682845**	3
	8	EP104K08	**672472**	EP104Z08	**682846**	3
	10	EP104K10	**672473**	EP104Z10	**682847**	3
	16	EP104K16	**672475**	EP104Z16	**682848**	3
	20	EP104K20	**672476**	EP104Z20	**682849**	3
	25	EP104K25	**672477**	EP104Z25	**682850**	3
	32	EP104K32	**672478**	EP104Z32	**682851**	3
	40	EP104K40	**672479**	EP104Z40	**682852**	3
	50	EP104K50	**672480**	EP104Z50	**682853**	3
	63	EP104K63	**672481**	EP104Z63	**682854**	3

New

Series GT10

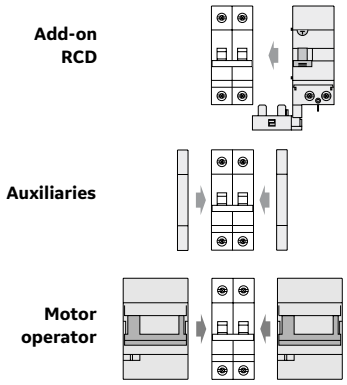
EN/IEC 60947-2 **10kA**

Applications

Marking

CE

Add-on devices



Performance

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

Short-circuit capacity

AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)(1)**
1	240	10
2	127	30
	240	20
	415	10
3, 4	240	20
	415	10
DC acc. to EN/IEC 60947-2		
Poles	**V ⎓ (2)**	**Icu (kA)**
1	60	20
2 (in series)	125	25

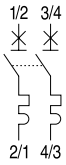
(1) Ics = 75% Icu
(2) Nominal and Maximum V DC on page A.4-A.5

Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.122***

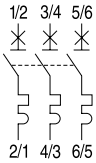
Series GT10 - 10kA - 3-5In (B), 5-10In (C), 10-20In (D)

1P
1 mod.

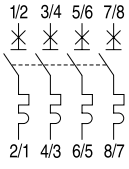
2P
2 mod.



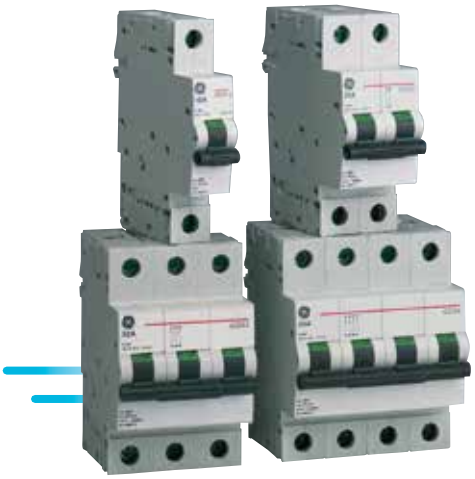
3P
3 mod.



4P
4 mod.



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



Series GT25

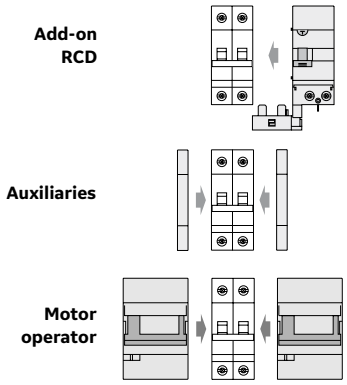
EN/IEC 60947-2 **100kA**
25kA
20kA
15kA

Application

Marking

CE

Add-on devices



Performance

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

Short-circuit capacity

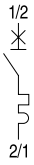
AC acc. to EN/IEC 60947-2			
In (A)	**Poles**	**V**	**Icu (kA)(1)**
0.5-4	0.5-4	240	100
	2-4	415	100
6-25	1	240	25
	2-4	240	50
		415	25
32-40	1	240	20
	2-4	240	40
		415	20
50-63	1	240	15
	2-4	240	30
		415	15

DC acc. to EN/IEC 60947-2		
Poles	**V ⎓ (2)**	**Icu (kA)**
1	60	25
2 (in series)	125	30

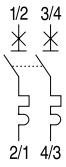
(1) Ics = 75% Icu
(2) Nominal and Maximum V DC on page A.4-A.5

Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.122***

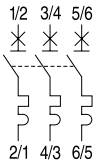
Series GT25 - 25kA - 3-5In (B), 5-10In (C), 10-20In (D)



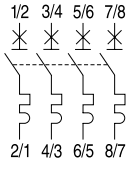
		3-5In (B)		5-10In (C)		10-20In (D)		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.			Pack.
1P 1 mod.	0.5	-	-	GT251C0.5	**675284**	GT251D0.5	**675392**	12
	1	-	-	GT251C01	**675285**	GT251D01	**675393**	12
	2	-	-	GT251C02	**675286**	GT251D02	**675394**	12
	4	-	-	GT251C04	**675288**	GT251D04	**675396**	12
	6	GT251B06	**675348**	GT251C06	**675289**	GT251D06	**675397**	12
	10	GT251B10	**675350**	GT251C10	**675291**	GT251D10	**675399**	12
	16	GT251B16	**675352**	GT251C16	**675293**	GT251D16	**675401**	12
	20	GT251B20	**675353**	GT251C20	**675294**	GT251D20	**675402**	12
	25	GT251B25	**675354**	GT251C25	**675295**	GT251D25	**675403**	12
	32	GT251B32	**675355**	GT251C32	**675296**	GT251D32	**675404**	12
	40	GT251B40	**675356**	GT251C40	**675297**	GT251D40	**675405**	12
	50	GT251B50	**675357**	GT251C50	**675298**	GT251D50	**675406**	12
	63	GT251B63	**675358**	GT251C63	**675299**	GT251D63	**675407**	12



2P 2 mod.	0.5	-	-	GT252C0.5	**675300**	GT252D0.5	**675408**	6
	1	-	-	GT252C01	**675301**	GT252D01	**675409**	6
	2	-	-	GT252C02	**675302**	GT252D02	**675410**	6
	4	-	-	GT252C04	**675304**	GT252D04	**675412**	6
	6	GT252B06	**675359**	GT252C06	**675305**	GT252D06	**675413**	6
	10	GT252B10	**675361**	GT252C10	**675307**	GT252D10	**675415**	6
	16	GT252B16	**675363**	GT252C16	**675309**	GT252D16	**675417**	6
	20	GT252B20	**675364**	GT252C20	**675310**	GT252D20	**675418**	6
	25	GT252B25	**675365**	GT252C25	**675311**	GT252D25	**675419**	6
	32	GT252B32	**675366**	GT252C32	**675312**	GT252D32	**675420**	6
	40	GT252B40	**675367**	GT252C40	**675313**	GT252D40	**675421**	6
	50	GT252B50	**675368**	GT252C50	**675314**	GT252D50	**675422**	6
	63	GT252B63	**675369**	GT252C63	**675315**	GT252D63	**675423**	6



3P 3 mod.	0.5	-	-	GT253C0.5	**675316**	GT253D0.5	**675424**	4
	1	-	-	GT253C01	**675317**	GT253D01	**675425**	4
	2	-	-	GT253C02	**675318**	GT253D02	**675426**	4
	4	-	-	GT253C04	**675320**	GT253D04	**675428**	4
	6	GT253B06	**675370**	GT253C06	**675321**	GT253D06	**675429**	4
	10	GT253B10	**675372**	GT253C10	**675323**	GT253D10	**675431**	4
	16	GT253B16	**675374**	GT253C16	**675325**	GT253D16	**675433**	4
	20	GT253B20	**675375**	GT253C20	**675326**	GT253D20	**675434**	4
	25	GT253B25	**675376**	GT253C25	**675327**	GT253D25	**675435**	4
	32	GT253B32	**675377**	GT253C32	**675328**	GT253D32	**675436**	4
	40	GT253B40	**675378**	GT253C40	**675329**	GT253D40	**675437**	4
	50	GT253B50	**675379**	GT253C50	**675330**	GT253D50	**675438**	4
	63	GT253B63	**675380**	GT253C63	**675331**	GT253D63	**675439**	4



4P 4 mod.	0.5	-	-	GT254C0.5	**675332**	GT254D0.5	**675440**	3
	1	-	-	GT254C01	**675333**	GT254D01	**675441**	3
	2	-	-	GT254C02	**675334**	GT254D02	**675442**	3
	4	-	-	GT254C04	**675336**	GT254D04	**675444**	3
	6	GT254B06	**675381**	GT254C06	**675337**	GT254D06	**675445**	3
	10	GT254B10	**675383**	GT254C10	**675339**	GT254D10	**675447**	3
	16	GT254B16	**675385**	GT254C16	**675341**	GT254D16	**675449**	3
	20	GT254B20	**675386**	GT254C20	**675342**	GT254D20	**675450**	3
	25	GT254B25	**675387**	GT254C25	**675343**	GT254D25	**675451**	3
	32	GT254B32	**675388**	GT254C32	**675344**	GT254D32	**675452**	3
	40	GT254B40	**675389**	GT254C40	**675345**	GT254D40	**675453**	3
	50	GT254B50	**675390**	GT254C50	**675346**	GT254D50	**675454**	3
	63	GT254B63	**675391**	GT254C63	**675347**	GT254D63	**675455**	3

Miniature Circuit Breakers for universal currents

Series EP100 UC

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

DIN VDE 0641

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

Applications

Standards / Marking

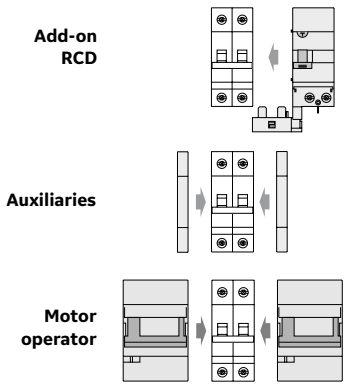
EN/IEC 60898-2, DIN VDE 0641

Add-on devices

Add-on RCD

Auxiliaries

Motor operator



Performance

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

Short-circuit capacity

AC/DC acc. to EN/IEC 60898-2(5)		
Poles	**V**	**Icn=Ics (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**	**Icu (kA)**
1	220 DC	10(3)
2	440 DC	10(3)
2	125 DC	25(3)
1	230 AC	6(4)
2	400 AC	6(4)

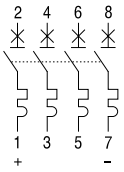
(1) Polarity labeling to be respected due to the permanent magnet in the MCB
(2) For 4P execution open circuit voltage Uco = 1000 ⎓
(3) T = 4ms
(4) 4.5kA for 50A and 63A
(5) After a switching of the net with more than 6kA in AC it should not be used in DC

New

Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.122***

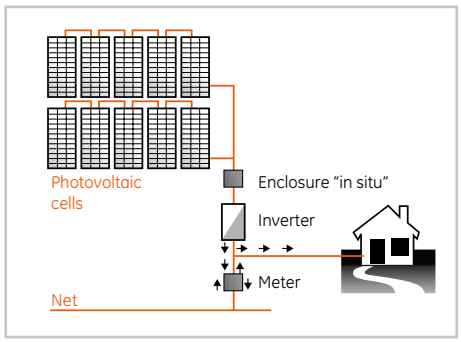
Series EP100 UC - 10kA - characteristics B-C-Z

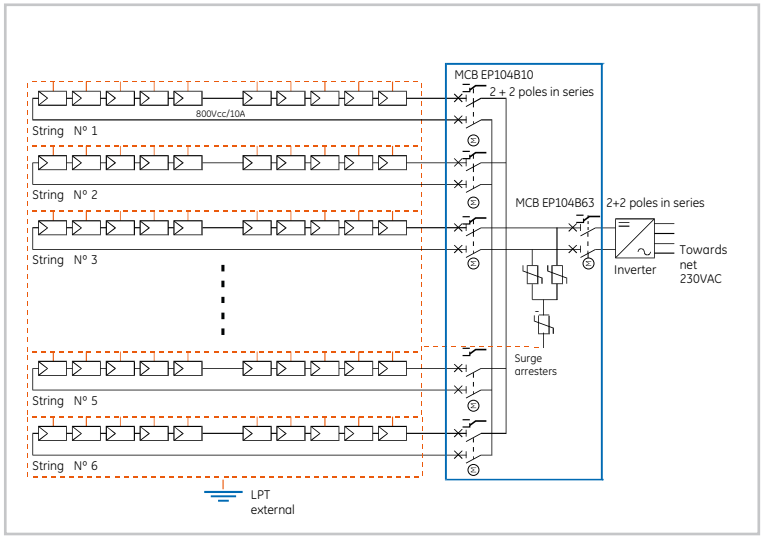
	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Z Cat. No.	Z Ref. No.	Pack.
1P 1 mod.	0.5	-	-	EP101UCC0.5	**673301**	EP101UCZ0.5	**682935**	12
	1	-	-	EP101UCC01	**673302**	EP101UCZ01	**682936**	12
	1.6	-	-	-	-	EP101UCZ1.6	**682937**	12
	2	-	-	EP101UCC02	**673303**	EP101UCZ02	**682938**	12
	3	-	-	-	-	EP101UCZ03	**682939**	12
	4	-	-	EP101UCC04	**673305**	EP101UCZ04	**682940**	12
	6	EP101UCB06	**673333**	EP101UCC06	**673306**	EP101UCZ06	**682941**	12
	8	-	-	-	-	EP101UCZ08	**682942**	12
	10	EP101UCB10	**673334**	EP101UCC10	**673308**	EP101UCZ10	**682943**	12
	16	EP101UCB16	**673335**	EP101UCC16	**673310**	EP101UCZ16	**682944**	12
	20	EP101UCB20	**673336**	EP101UCC20	**673311**	EP101UCZ20	**682945**	12
	25	EP101UCB25	**673337**	EP101UCC25	**673312**	EP101UCZ25	**682946**	12
	32	EP101UCB32	**673338**	EP101UCC32	**673313**	EP101UCZ32	**682947**	12
	40	EP101UCB40	**673339**	EP101UCC40	**673314**	EP101UCZ40	**682948**	12
	50	EP101UCB50	**673340**	EP101UCC50	**673315**	EP101UCZ50	**682949**	12
	63	EP101UCB63	**673341**	EP101UCC63	**673316**	EP101UCZ63	**682950**	12
2P 2 mod.	0.5	-	-	EP102UCC0.5	**673317**	EP102UCZ0.5	**682951**	6
	1	-	-	EP102UCC01	**673318**	EP102UCZ01	**682952**	6
	1.6	-	-	-	-	EP102UCZ1.6	**682953**	6
	2	-	-	EP102UCC02	**673319**	EP102UCZ02	**682954**	6
	3	-	-	-	-	EP102UCZ03	**682955**	6
	4	-	-	EP102UCC04	**673321**	EP102UCZ04	**682956**	6
	6	EP102UCB06	**673342**	EP102UCC06	**673322**	EP102UCZ06	**682957**	6
	8	-	-	-	-	EP102UCZ08	**682958**	6
	10	EP102UCB10	**673343**	EP102UCC10	**673324**	EP102UCZ10	**682959**	6
	16	EP102UCB16	**673344**	EP102UCC16	**673326**	EP102UCZ16	**682960**	6
	20	EP102UCB20	**673345**	EP121UCC20	**673327**	EP102UCZ20	**682961**	6
	25	EP102UCB25	**673346**	EP102UCC25	**673328**	EP102UCZ25	**682962**	6
	32	EP102UCB32	**673347**	EP102UCC32	**673329**	EP102UCZ32	**682963**	6
	40	EP102UCB40	**673348**	EP102UCC40	**673330**	EP102UCZ40	**682964**	6
	50	EP102UCB50	**673349**	EP102UCC50	**673331**	EP102UCZ50	**682965**	6
	63	EP102UCB63	**673350**	EP102UCC63	**673332**	EP102UCZ63	**682966**	6
4P 4.5 mod.(1)	10	EP104UCB10	**690200**					3
	16	EP104UCB16	**688029**					3
	20	EP104UCB20	**688026**					3
	25	EP104UCB25	**691580**					3
	32	EP104UCB32	**691581**					3
	40	EP104UCB40	**688027**					3
	63	EP104UCB63	**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 the wiring in a Photovoltaic application





Example of installation in enclosure "in situ"

New

Series Hti

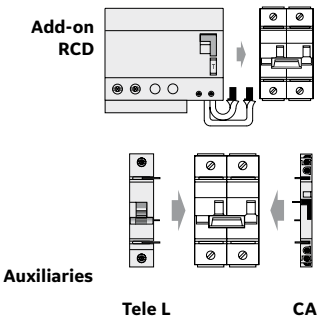
EN/IEC 60947-2 **10kA**

Applications

Standards / Marking

EN/IEC 60947-2

Add-on devices



Performance

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

Short-circuit capacity

AC acc. to EN/IEC 60947-2 (B, C)		
Poles	**V**	**Icu (kA)(1)**
1	230/400	10(2)
2	230	15(3)
3, 4	230	15(3)
3, 4	400	10(2)

Add-on RCD - technical performances

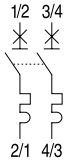
Standard		EN/IEC 60947-2
Nominal current In	(A)	80-125
Residual current IΔn	(mA)	30, 300
Rated voltage AC Un	(V)	2P: 230/400 3P-4P: 400
Resistance against unwanted tripping		Type A, AC: 250A 8/20 µs Type S: 3000A 8/20 µs
Terminal capacity flexible/rigid cable	(mm^2)	70
Poles		2, 3, 4

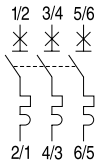
(1) Only for 3-5 In (B) and 5-10 In (C)
(2) 7.5kA for 10-20 In (D)
(3) 10kA for 10-20 In (D)

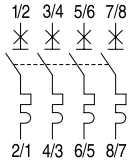
Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.123***

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

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

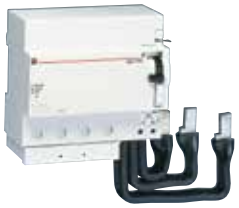
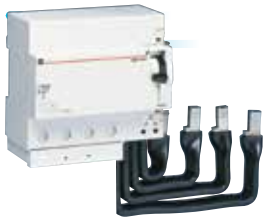




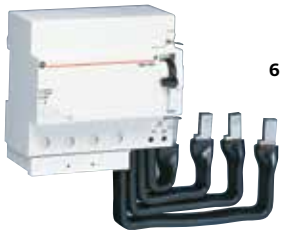


Only for 3-5 In (B) and 5-10 In (C)
For D see page A.38

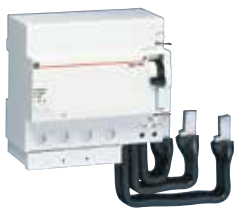
Series Hti - Add-on RCD - Type AC

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

Series Hti - Add-on RCD - Type A

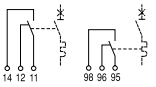
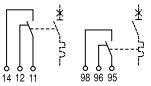
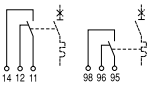
		In (A)	30 mA Cat. No.	30 mA Ref. No.	300 mA		Pack.
	3P 6 mod.	80-125	DOCA 3125/030	**671581**	DOCA 3125/300	**671583**	1
	4P 6 mod.	80-125	DOCA 4125/030	**671589**	DOCA 4125/300	**671591**	1

Series Hti - Add-on RCD - Type S

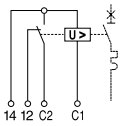
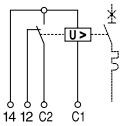
		In (A)	30 mA Cat. No.	30 mA Ref. No.	300 mA		Pack.
	3P 6 mod.	80-125	-	-	DOCS 3125/300	**671585**	1
	4P 6 mod.	80-125	-	-	DOCS 4125/300	**671585**	1

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 - Shunt trip (left or right side)

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

Hti+
For space saving. For more power.

New

The Hti+ range offers the right High Performance MCB with high-rated breaking capacities and various tripping characteristics. The Hti+ 36 is the ideal solution for applications of up to 36kA; of course, also for current ratings of between 80 and 125A. The high-rated breaking capacities of Hti+50 up to 50kA allow electrical distribution systems to be configured and operated safely in an uncomplicated manner.
Compact dimensions ensure that energy distribution systems can be set up in a space-saving way.

The Hti+

- Space saving. Reduce the side of the distribution board to the minimum.
- More power. The highest breaking capacity in modular MCB format: 50kA.
- High nominal current range of up to 125A.
- More safety. Convincing selectivity and back-up properties up to 50kA.
- More comfort. Compact and modular with plastic tongue in IP20 terminals.
- More flexibility. Thanks to the large product portfolio for a multitude of applications.
- More accessories. Add on RCDs, RCBOs, Auxiliaries, Shunt trip, under voltage and rotary handle.

Applications

Public buildings
Schools, hospitals, office buildings: Wherever there are large numbers of people coming and going, reliable power supplies are of importance. High Performance MCBs, such as the Hti+ ensure that personal injury and damage to property are avoided in the event of short-circuits.

Airports
Millions of people take off here. Day in, day out. High Performance MCBs, such as the Hti+ ensure that personal injury and damage to property are avoided in the event of short-circuits.

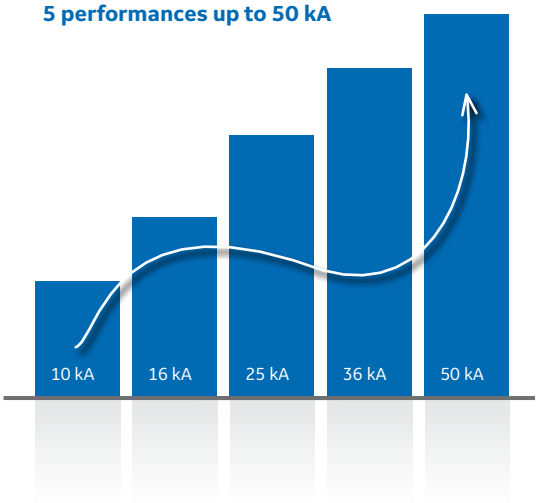
Alternative energies
Simply inexhaustible: more and more power stations operating on the based on renewable energy, such as solar power, are being built around the world. High Performance MCBs, such as the Hti+ ensure safer operations.

Power stations
Virtually nothing runs without electricity. With a total of more than 3 400 000 megawatts of power, power stations around the globe ensure that the world keeps moving. High Performance MCBs, such as the Hti+, will protect your infrastructure and therefore all your staff and machines involved in the production of electricity.

The petrochemical industry
The chemical and petrochemical industry contributes significantly to everyday modern life. Whether you are talking about health, nutrition, clothing or mobility – their products ensure quality of life and jobs. Over 2 million in the European Union alone. High Performance MCBs, such as the Hti+, safeguard production on oil platforms in the sea as well as in production sites on land.

The steel industry
From kilometre-long bridges, through power station turbines subject to extreme loads to elegant high-rise buildings and stainless steel salad bowls: steel plays a major role in modern industry; its possible uses are boundless. High Performance MCBs, such as the Hti+ , play an important role here.

Full functionality
Add on RCDs, auxiliary contact, Shunt trip and under voltage add on devices to the complete functionality of the Hti+.



New

Miniature Circuit Breakers

Ask for availability of complete Series Hti+

Series Hti+ 16

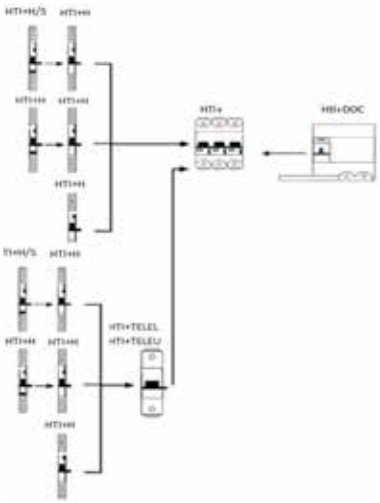
EN/IEC 60898-1	**10.000**
EN/IEC 60947-2	**16kA**

Application

Marking

CE

Add-on devices



Performance

Thermal setting In	(A)	80-125A
Rated voltage AC Un	(V)	AC 230/400
Tripping characteristics		B-C-D
Mechanical/electrical endurance		80-100A: 10.000/1.500 125A: 8.000/1.000
Operating temperature	(°C)	-25°C up to 60°C
Terminal capacity flexible/stranded cable	(mm²)	70-50
Minimum operating voltage Ubmin		12 AC
Rated Frequency	(Hz)	50/60
Poles		1, 2 ,3, 4
Weight/pole	(g)	240

Short-circuit capacity

According to EN/IEC 60898	
Poles	**Icn/Ics (kA)**
1P	10
2P	10
3P	10
4P	10

Ics = 7.5kA

According to EN/IEC 60947-2 - AC 230/400	
Poles	**Icu (kA)**
1P	16
2P	16
3P	16
4P	16

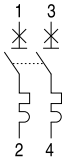
New

Add-on RCD pag. ***A.52*** *| Auxiliary contacts pag.* ***A.56-A.57*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.124***

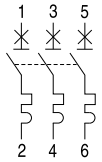
Series Hti+ 16 - 16kA - characteristics B-C-D

		B		C		D		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
1P 1.5 mod.	80	HTI+161B80	**671143**	HTI+161C80	**671107**	HTI+161D80	**671179**	1
	100	HTI+161B100	**671142**	HTI+161C100	**671106**	HTI+161D100	**671178**	1
	125	HTI+161B125	**671141**	HTI+161C125	**671105**	HTI+161D125	**671177**	1

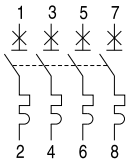
2P 3 mod.	80	HTI+162B80	**671140**	HTI+162C80	**671104**	HTI+162D80	**671176**	1
	100	HTI+162B100	**671139**	HTI+162C100	**671103**	HTI+162D100	**671175**	1
	125	HTI+162B125	**671138**	HTI+162C125	**671102**	HTI+162D125	**671174**	1



3P 4.5 mod.	80	HTI+163B80	**671137**	HTI+163C80	**671101**	HTI+163D80	**671173**	1
	100	HTI+163B100	**671136**	HTI+163C100	**671100**	HTI+163D100	**671172**	1
	125	HTI+163B125	**671135**	HTI+163C125	**671099**	HTI+163D125	**671171**	1



4P 6 mod.	80	HTI+164B80	**671134**	HTI+164C80	**671098**	HTI+164D80	**671170**	1
	100	HTI+164B100	**671133**	HTI+164C100	**671097**	HTI+164D100	**671169**	1
	125	HTI+164B125	**671132**	HTI+164C125	**671096**	HTI+164D125	**671168**	1



New

Series Hti+ 25

EN/IEC 60898-1 **15.000**

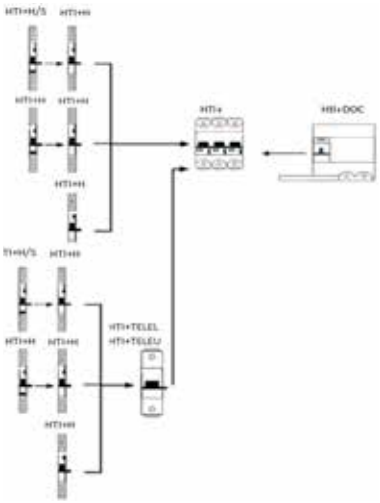
EN/IEC 60947-2 **25kA**

Application

Marking

CE

Add-on devices



Performance

Thermal setting In	(A)	80-125A
Rated voltage AC Un	(V)	AC 240/415
Tripping characteristics		B-C-D
Mechanical/electrical endurance		80-100A: 10.000/6.000 125A: 10.000/4.000
Operating temperature	(°C)	-25°C up to 60°C
Terminal capacity flexible/stranded cable	(mm²)	70-50
Minimum operating voltage Ubmin		12 AC/DC
Rated Frequency	(Hz)	50/60
Poles		1, 2, 3, 4
Weight/pole	(g)	240

Short-circuit capacity

According to EN/IEC 60898 - AC 230/400

Poles	Icn/Ics (kA)
1P, 2P, 3P, 4P	15

Ics = 7.5kA

According to EN/IEC 60947-2 - AC 240/415

Poles	Icu (kA)
1P, 2P, 3P, 4P	25

Ics = 18kA

According to EN/IEC 60947-2 - AC 254/440

Poles	Icu (kA)
1P, 2P, 3P, 4P	15

Ics = 10kA

According to EN/IEC 60947-2 - DC

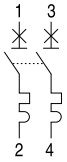
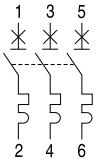
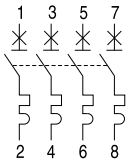
Poles	Vdc	Icu (kA)
1P	125	10
2P	250	10
3P	375	10
4P	500	10

Ics = 10kA

New

Add-on RCD pag. ***A.52*** *| Auxiliary contacts pag.* ***A.56-A.57*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.124***

Series Hti+ 25 - 25kA - characteristics B-C-D

		In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	D Cat. No.	D Ref. No.	Pack.
	1P 1.5 mod.	80	HTI+251B80	**671131**	HTI+251C80	**671095**	HTI+251D80	**671167**	1
		100	HTI+251B100	**671130**	HTI+251C100	**671094**	HTI+251D100	**671166**	1
		125	HTI+251B125	**671129**	HTI+251C125	**671093**	HTI+251D125	**671165**	1
	2P 3 mod.	80	HTI+252B80	**671128**	HTI+252C80	**671092**	HTI+252D80	**671164**	1
		100	HTI+252B100	**671127**	HTI+252C100	**671091**	HTI+252D100	**671163**	1
		125	HTI+252B125	**671126**	HTI+252C125	**671090**	HTI+252D125	**671162**	1
									
	3P 4.5 mod.	80	HTI+253B80	**671125**	HTI+253C80	**671089**	HTI+253D80	**671161**	1
		100	HTI+253B100	**671124**	HTI+253C100	**671088**	HTI+253D100	**671160**	1
		125	HTI+253B125	**671123**	HTI+253C125	**671087**	HTI+253D125	**671159**	1
									
	4P 6 mod.	80	HTI+254B80	**671122**	HTI+254C80	**671086**	HTI+254D80	**671158**	1
		100	HTI+254B100	**671121**	HTI+254C100	**671085**	HTI+254D100	**671157**	1
		125	HTI+254B125	**671120**	HTI+254C125	**671084**	HTI+254D125	**671156**	1
									

New

Series Hti+ 36

EN/IEC 60898-1(1) **20.000**

EN/IEC 60947-2 **36kA**

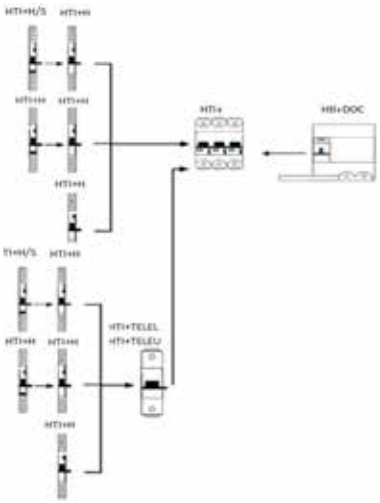
(1) Only for 80A

Application

Marking

CE

Add-on devices



Performance

Thermal setting In	(A)	80-125A
Rated voltage AC Un	(V)	AC 240/415
Tripping characteristics		B-C-D
Mechanical/electrical endurance		80-100A: 10.000/6.000 125A: 10.000/4.000
Operating temperature	(°C)	-25°C up to 60°C
Terminal capacity flexible/stranded cable	(mm²)	70-50
Minimum operating voltage Ubmin		12 AC/DC
Rated Frequency	(Hz)	50/60
Poles		1, 2, 3, 4
Weight/pole	(g)	240

Short-circuit capacity

According to EN/IEC 60898 - AC 230/400	
Poles	**Icn/Ics (kA)**
1P, 2P, 3P, 4P - 80A	20

Ics =10kA

According to EN/IEC 60947-2 - AC 240/415	
Poles	**Icu (kA)**
1P, 2P, 3P, 4P	36

Ics = 30kA

According to EN/IEC 60947-2 - AC 254/440	
Poles	**Icu (kA)**
1P, 2P, 3P, 4P	20

Ics = 10kA

According to EN/IEC 60947-2 - DC		
Poles	**Vdc**	**Icu (kA)**
1P	125	20
2P	250	20
3P	375	20
4P	500	20

Ics = 20kA

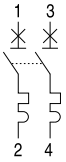
New

Add-on RCD pag. ***A.52*** *| Auxiliary contacts pag.* ***A.56-A.57*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.124***

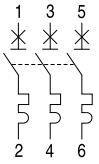
Series Hti+ 36 - 36kA - characteristics B-C-D

	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	D Cat. No.	D Ref. No.	Pack.
1P 1.5 mod.	80	HTI+361B80	**671047**	HTI+361C80	**671035**	HTI+361D80	**671059**	1
	100	HTI+361B100	**671046**	HTI+361C100	**671034**	HTI+361D100	**671058**	1
	125	HTI+361B125	**671045**	HTI+361C125	**671033**	HTI+361D125	**671057**	1

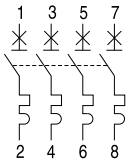
2P 3 mod.	80	HTI+362B80	**671044**	HTI+362C80	**671032**	HTI+362D80	**671056**	1
	100	HTI+362B100	**671043**	HTI+362C100	**671031**	HTI+362D100	**671055**	1
	125	HTI+362B125	**671042**	HTI+362C125	**671030**	HTI+362D125	**671054**	1



3P 4.5 mod.	80	HTI+363B80	**671041**	HTI+363C80	**671029**	HTI+363D80	**671053**	1
	100	HTI+363B100	**671040**	HTI+363C100	**671028**	HTI+363D100	**671052**	1
	125	HTI+363B125	**671039**	HTI+363C125	**671027**	HTI+363D125	**671051**	1



4P 6 mod.	80	HTI+364B80	**671038**	HTI+364C80	**671026**	HTI+364D80	**671050**	1
	100	HTI+364B100	**671037**	HTI+364C100	**671025**	HTI+364D100	**671049**	1
	125	HTI+364B125	**671036**	HTI+364C125	**671024**	HTI+364D125	**671048**	1



New

Miniature Circuit Breakers

Series Hti+ 50

EN/IEC 60898-1(1) 25.000

EN/IEC 60947-2 50kA

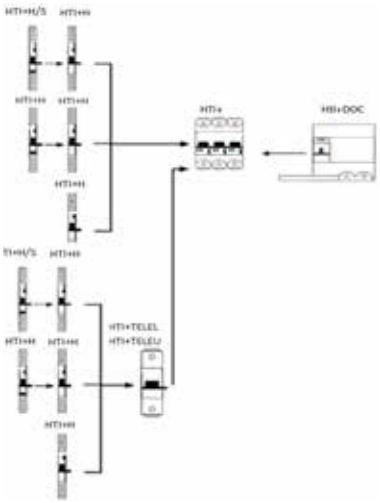
(1) Only for 80A

Application

Marking

CE

Add-on devices



Performance

Thermal setting In	(A)	80-125A
Rated voltage AC Un	(V)	AC 240/415
Tripping characteristics		B-C-D
Mechanical/electrical endurance		80-100A: 10.000/6.000 125A: 10.000/4.000
Operating temperature	(°C)	-25°C up to 60°C
Terminal capacity flexible/stranded cable	(mm²)	70-50
Minimum operating voltage Ubmin		12 AC/DC
Rated Frequency	(Hz)	50/60
Poles		1, 2, 3, 4
Weight/pole	(g)	240

Short-circuit capacity

According to EN/IEC 60898 - AC 230/400

Poles		Icn/Ics (kA)
1P, 2P, 3P, 4P	80A	25

Ics = 12.5kA

According to EN/IEC 60947-2 - AC 240/415

Poles	Icu (kA)
1P, 2P, 3P, 4P	50

Ics = 40kA

According to EN/IEC 60947-2 - AC 254/440

Poles	Icu (kA)
1P, 2P, 3P, 4P	30

Ics = 22.5kA (80A); Ics = 15kA (100A, 125A)

According to EN/IEC 60947-2 - AC 400/690

Poles	In	Icu (kA)
1P, 2P, 3P, 4P	80A	6
1P, 2P, 3P, 4P	100A, 125A	4.5

Ics = 4kA (80A); Ics = 3kA (100A, 125A)

According to EN/IEC 60947-2 - DC

Poles	Vdc	Icu (kA)
1P	125	30
3P	250	30
3P	375	30
4P	500	30

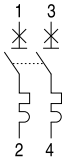
Ics = 30kA

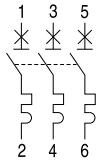
New

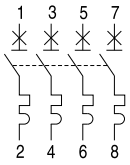
Dimensions pag. ***A.124***

Series Hti+ 50 - 50kA - characteristics B-C-D

		In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	D Cat. No.	D Ref. No.	Pack.
	1P 1.5 mod.	80	HTI+501B80	**671119**	HTI+501C80	**671083**	HTI+501D80	**671155**	1
		100	HTI+501B100	**671118**	HTI+501C100	**671082**	HTI+501D100	**671154**	1
		125	HTI+501B125	**671117**	HTI+501C125	**671081**	HTI+501D125	**671153**	1
	2P 3 mod.	80	HTI+502B80	**671116**	HTI+502C80	**671080**	HTI+502D125	**671150**	1
		100	HTI+502B100	**671115**	HTI+502C100	**671079**	HTI+502D100	**671151**	1
		125	HTI+502B125	**671114**	HTI+502C125	**671078**	HTI+502D80	**671152**	1
	3P 4.5 mod.	80	HTI+503B80	**671113**	HTI+503C80	**671077**	HTI+503D80	**671149**	1
		100	HTI+503B100	**671112**	HTI+503C100	**671076**	HTI+503D100	**671148**	1
		125	HTI+503B125	**671111**	HTI+503C125	**671075**	HTI+503D125	**671147**	1
	4P 6 mod.	80	HTI+504B80	**671110**	HTI+504C80	**671074**	HTI+504D80	**671146**	1
		100	HTI+504B100	**671109**	HTI+504C100	**671073**	HTI+504D100	**671145**	1
		125	HTI+504B125	**671108**	HTI+504C125	**671072**	HTI+504D125	**671144**	1







New

Add-on RCD pag. ***A.52*** *| Auxiliary contacts pag.* ***A.56-A.57*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.124***

Series DOCHti+ - Add-on RCD

EN/IEC 60947-2

Type A, Ai

Type S S

Applications

Marking

CE

Performance

Thermal setting In	(A)	80A, 100A
Residual current IΔ n	(mA)	30, 300, 500, 1000
Rated maximum voltage AC Un	(V)	230/400; 240/415; 400/690
Maximum operating voltage UBmax	(V)	690
Minimum operating voltage UBmin	(V)	195
Mechanical/electrical endurance		Depends on associat. MCBs
Rated impulse withstand voltage Uimp Impulse (1.2/50)	(kV)	6
Max Torque	(Nm)	3.5
Terminal capacity flexible/stranded cable	(mm^2)	70-50
Poles		2, 3, 4
Nuisance tripping resistance		A: 250A 8/20µs S: 5000 8/20µs
Ambient temperature	(°C)	-25°C up to 60°C
Weight	(g)	2P: 420, 3P: 640, 4P: 770

Short-circuit capacity

Depends on the associated MCB				
	Hti+ 16	**Hti+ 25**	**Hti+ 36**	**Hti+ 50**
Rated ultimate short-circuit breaking capacity Icu compliant to IEC 60947-2	16	25	36	50
Short-circuit capacity according to IEC 60898	10	15	20	25

New

Dimensions pag. **A.125**

Series DOCHti+ - Add-on RCD - Type A

		30mA		300mA		500mA		1000mA		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
2P, 2 mod.	≤100	DOCAHTI+2100/030	**671543**	DOCAHTI+2100/300	**671544**	DOCAHTI+2100/500	**671545**	-	-	1
3P, 3 mod.	≤100	DOCAHTI+3100/030	**671551**	DOCAHTI+3100/300	**671555**	DOCAHTI+3100/500	**671556**	-	-	1
4P, 4 mod.	≤100	DOCAHTI+4100/030	**671563**	DOCAHTI+4100/300	**671567**	DOCAHTI+4100/500	**671568**	-	-	1

Series DOCHti+ - Add-on RCD - Type S

		30mA		300mA		500mA		1000mA		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
2P, 2 mod.	≤100	-	-	DOCSHTI+2100/300	**671549**	-	-	DOCSHTI+2100/1000	**671550**	1
3P, 3 mod.	≤100	-	-	DOCSHTI+3100/300	**671557**	DOCSHTI+3100/500	**671561**	DOCSHTI+3100/1000	**671562**	1
4P, 4 mod.	≤100	-	-	DOCSHTI+4100/300	**671569**	DOCSHTI+4100/500	**671579**	DOCSHTI+4100/1000	**671580**	1

New

Residual Current Circuit Breakers
Overcurrent Protection RCBOs

Series Hti+ 50DOC

EN/IEC 60947-2
Type A, Ai

Application

Marking

CE

Performance

Thermal setting In	(A)	125A
Residual current IΔ n	(mA)	30, 300
Rated maximum voltage AC Un	(V)	230/400; 240/415; 400/690
Maximum operating voltage UBmax	(V)	690
Minimum operating voltage UBmin	(V)	195
Mechanical/electrical endurance		6000/4000
Rated impulse withstand voltage		
Uimp Impulse (1.2/50)	(kV)	6
Max Torque	(Nm)	3.5
Terminal capacity flexible/stranded cable	(mm^2)	70-50
Poles		2, 3, 4
Nuisance tripping resistance		A: 250A 8/20µs Ai: 3000 8/20µs
Ambient temperature	(°C)	-25°C up to 60°C
Weight	(g)	2P: 790, 3P: 1140, 4P: 1440

Short-circuit capacity

Rated ultimate short-circuit breaking capacity Icu compliant to IEC 60947-2	**Icu(kA)**
(AC) 50/60 Hz 240/450V	50
(AC) 50/60 Hz 254/440V	30
(AC) 50/60 Hz 400/690V	4.5

Rated ultimate short-circuit breaking capacity Icu compliant to IEC 60947-2	**Ics(kA)**
(AC) 50/60 Hz 240/450V	40
(AC) 50/60 Hz 254/440V	15
(AC) 50/60 Hz 400/690V	3

New

Dimensions pag. ***A.125***

Series Hti+ 50DOC- Type Ai

		30mA						
		B		C		D		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
2P, 8 mod.	125	HTI+502B125Ai/030	**671507**	HTI+502C125Ai/030	**671508**	HTI+502D125Ai/030	**671509**	1
3P, 11 mod.	125	HTI+503B125Ai/030	**671519**	HTI+503C125Ai/030	**671520**	HTI+503D125Ai/030	**671521**	1
4P, 12.5 mod.	125	HTI+504B125Ai/030	**671531**	HTI+504C125Ai/030	**671532**	HTI+504D125Ai/030	**671533**	1

Series Hti+ 50DOC- Type A

		300mA						
		B		C		D		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
2P, 8 mod.	125	HTI+502B125A/300	**671513**	HTI+502C125A/300	**671514**	HTI+502D125A/300	**671515**	1
3P, 11 mod.	125	HTI+503B125A/300	**671525**	HTI+503C125A/300	**671526**	HTI+503D125A/300	**671527**	1
4P, 12.5 mod.	125	HTI+504B125A/300	**671537**	HTI+504C125A/300	**671538**	HTI+504D125A/300	**671539**	1

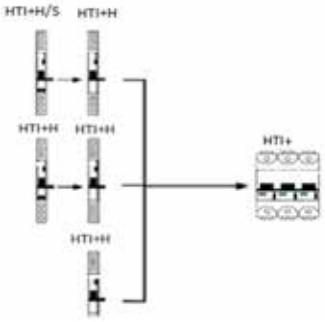
New

Application

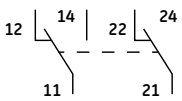
Marking

CE

Add-on devices



Wiring scheme



Auxiliary switches

Series Hti+ H

IEC 60947-5-1

Features

Auxiliary contact for external display.
The HTI+H auxiliary contact is for electrical display of the operating state of the high performance Hti+. Both changeover contacts always switch simultaneously with the live conductor contact and detect the following operating states:
– Manual tripping
– Tripping due to thermal overload
– Tripping due to magnetic overload (short-circuit)
Mode of function of the test button
Mode of function of the two changeover contacts
– Off position of the high performance MCB contacts 11–12 and 21–22 closed
– On position of the high performance MCB contacts 11–14 and 21–24 closed
Mounting ability of the auxiliary contact
– Two Hti+H aux. contacts can be mounted by the user at the left on the Hti+ MCB.

Performance

Utilisation categories		AC15 400/2A - AC15 240/6A
compliant to IEC 60947-5-1		DC13 250/0.55A - DC13 125 V/1.1A
		DC13 60 V/2A - DC13 24 V/4A
Conventional free air therm. current Ith	A	6
Minimum operational current Imin	mA	3
Minimum operational voltage Umin	V	24
Rated insulation voltage Ui	A	690
Number of contacts		2
Rated impulse withstand voltage Uimp	kV	6
Pollution degree		3
Standard		IEC 60947-5-1
Contact function		Changeover contact
Connection Cu	mm^2	1 x 2.5
		2 x 1.5
Tightening torque	Nm	1
AC/DC feed		any
Mounting on DIN top hat rail		EN 60715
Protection category		IP20
Permissible operating ambient temp.	°C	–25 ... +60
Storage temperature	°C	–40 ... +70
Mech. lifetime of device		6000 switching cycles
Icu	A	1000
Vibration resistance		IEC 60068-2-6; EN 61373 Cat.1/Class B
		5 g, 20 frequency cycle 5 ... 150 ...
		5 Hz at 24 V AC/DC,
		5 mA short-term interruption <10 ms

Series Hti+ H

	Function	Contacts	Cat. No.	Ref. No.	Pack.
1/2 mod.	H	2 COM	HTI+H	**678082**	1

New

Dimensions pag. ***A.124***

Auxiliary switches

Series Hti+ H/S

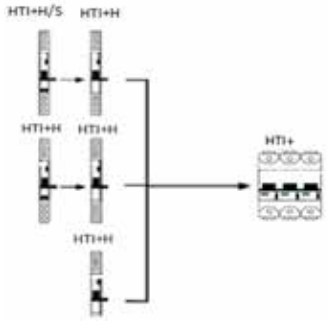
IEC 60947-5-1

Application

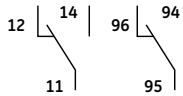
Marking

CE

Add-on devices



Wiring scheme



Features

Combined auxiliary and signal contact for the external display

The HTI+H/S combined auxiliary and signal contact is used for electrical signaling of the operating state of the high performance Hti+.

The H auxiliary contact always switches simultaneously with the live conductor contact and detect the following forms of tripping:

– Manual switch on/off
– Tripping due to thermal overload
– Tripping due to magnetic overload (short-circuit)
– Tripping by Shunt trip or Undervoltage

The S signal contact detects the following forms of tripping of the high performance MCB:

– Tripping due to thermal overload
– Tripping due to magnetic overload (short-circuit)
– Tripping by Shunt trip or Undervoltage

Mode of function of the S reset button

The reset button, which can be used at will, resets the S signal contact after a tripping. The high performance MCB is switched on independent of the state of the S signal contact.

Mode of function of the H changeover contact

– Off position of the high performance MCB Contact 11–12 closed
– On position of the high performance MCB Contact 11–14 closed

Mode of function of the S changeover contact

– No S tripping Contact 95–96 closed
– S tripping Contact 95–98 closed

Performance

Utilisation categories compliant to IEC 60947-5-1		AC15 400/2A - AC15 240/6A DC13 250/0.55A - DC13 125 V/1.1A DC13 60 V/2A - DC13 24 V/4A
Conventional free air therm. current Ith	A	6
Minimum operational current Imin	mA	3
Minimum operational voltage Umin	V	24
Rated insulation voltage Ui	A	690
Number of contacts		2 (1x AUX, 1x AUX/ALT)
Rated impulse withstand voltage Uimp	kV	6
Pollution degree		3
Standard		IEC 60947-5-1
Contact function		Changeover contact
Connection Cu	mm^2	1 x 2.5 2 x 1.5
Tightening torque	Nm	1
AC/DC feed		any
Mounting on DIN top hat rail		EN 60715
Protection category		IP20
Permissible operating ambient temp.	°C	–25 ... +60
Storage temperature	°C	–40 ... +70
Mech. lifetime of device		6000 switching cycles
Icu	A	1000
Vibration resistance		IEC 60068-2-6; EN 61373 Cat.1/Class B 5 g, 20 frequency cycle 5 ... 150 ... 5 Hz at 24 V AC/DC, 5 mA short-term interruption <10 ms

Series Hti+ H/S

	Function	Contacts	Cat. No.	Ref. No.	Pack.
1/2 mod.	S/H	2 COM	HTI+H/S	**678083**	1

New

Dimensions pag. ***A.124***

Shunt Trip Release

Series Hti+ Tele L

IEC 60947-2

Features

Shunt opening release

The Hti+ Tele L shunt opening release is for remote release of the Hti+- high performance MCB using an electrical impulse. Operation of the trigger is guaranteed at a voltage between 70 % and 110 % of the rated mains voltage Un both for AC and DC.

Mounting ability of the Hti+ Tele L operating current release

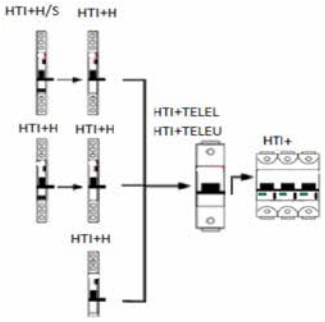
– The Hti+ Tele L can be mounted by the user at the left side of the high performance MCB Hti+.

Application

Marking

CE

Coupling



Wiring scheme

Performances

		HTI+ Tele L 48	HTI+ Tele L 110	HTI+ Tele L 220
Rated operational voltage Ue	V AC/DC	48 ... 130	110...250	220 ... 400
Operating range	% Ue	70 ... 110	70 ... 110	70 ... 110
Rated insulation voltage Ui	V	690	690	690
Coil pull in consumption	W/VA	41.9 ... 307.3	23 ... 119	45 ... 148.1
		42 ... 310*	20 ... 105*	
Rated frequency	Hz	DC; 50/60		
Pollution degree		3		
Standard		IEC 60947-2		
Connection Cu	mm^2	1 ... 25 strand		
	mm^2	1 ... 35 cable		
Max. torque	Nm	3.5		
AC/DC supply		any		
Mounting on DIN top hat rail		EN 60715		
Protection category		IP20		
		IP40 (actuating end only)		
Ambient Temperature	°C	–25 ... +60		
Storage temperature	°C	–40 ... +70		
Vibration resistance		IEC 60068-2-6; EN 61373 Cat.1/Class B		
Weight	g	150		

Series Hti+ Tele L

	Function	Cat. No.	Ref. No.	Pack.
1 mod.	**Shunt operat. release**			
	220...400 VAC/DC	HTI+TELEL220	**678085**	1
	110...250 VAC/DC	HTI+TELEL110	**678089**	1
	48...130 VAC/DC	HTI+TELEL48	**678090**	1

New

Dimensions pag. ***A.124***

Under Voltage Release

Series Hti+ Tele U

IEC 60947-2

Features

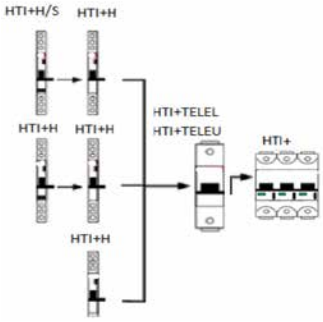
The Hti+ Tele U undervoltage release can be used as an emergency-stop cut-as by use of suitable emergency stop buttons. The undervoltage release switches the power supply to the high performance MCB off in case of a failure or if the value falls below 0.7 x Un. After tripping, the high performance MCB can be switched back on as soon as the voltage is over 0.85 x Un.
Mounting ability of the Hti+Tele U undervoltage release
– The Hti+ Tele U can be mounted by the user at the left side of the high performance MCB Hti+.

Application

Marking

CE

Coupling



Wiring scheme

Performances

		HTI+ Tele U 24	HTI+ Tele U 48	HTI+ Tele U 220
Rated operational voltage Ue	V AC/DC	24 ... 36	48 ... 60	220 ... 250
open	% Ue	35 ... 70	35 ... 70	35 ... 70
closed	% Ue	85	85	85
Rated insulation voltage Ui	V	690	690	690
Power loss of coil when attracted	W/VA	1.11 ... 1.14/1.2	1.3 ... 1.41/1.4	1.71 ... 1.91/1.9
Rated frequency	Hz	DC; 50/60		
Pollution degree		3		
Standard		IEC 60947-2		
Connection Cu	mm^2	1 ... 25 strand 1 ... 35 cable		
Maximum Torque	Nm	3.5		
AC/DC supply		any		
Mounting on DIN top hat rail		EN 60715		
Protection category		IP20 IP40 (actuating end only)		
Ambient Temperature	°C	–25 ... +60		
Storage temperature	°C	–40 ... +70		
Vibration resistance		IEC 60068-2-6; EN 61373 Cat.1/Class B		

Serie Hti+ Tele U

	Function	Cat. No.	Ref. No.	Pack.
1 mod.	**Undervoltage release**			
	220...250 VAC/DC	HTI+TELEU220	**678086**	1
	48...60 VAC/DC	HTI+TELEU48	**678091**	1
	24...36 VAC/DC	HTI+TELEU24	**678092**	1

New

Dimensions pag. ***A.124***

Rotary Handle

Series Hti+ RH

Application

Marking

CE

Features

The Hti+ can be installed in different ways:
– Together with other breakers in the same DIN rail horizontally or vertically
– As an individual breaker in a single fixed compartment where the breaker is switched on/off with a **rotary handle from the door**, and the breaker is mounted on the wall of the panel

The rotary drive for 2–4 pole devices HTI+RH-DRIVE can be delivered for assembly on the switching field door. Switching is effortless due to the ergonomic design of the swivel lever. It is equipped with a lock for the OFF position that prevents switching on of the Hti+ high performance MCB.

The slot hole of the lock can accept up to 3 padlocks with lug diameters of 7 mm (not included in delivery). Operation of the trigger and a view of the characteristics are not prevented Additionally, a rotary drive can also be supplied to switch machines; it has a red grip on a yellow background. The rotary drive on the switching field door is comprised of the following three components:
– Rotary handle Hti+ RH-RED, Hti+ RH-BLACK
– Axle (500 mm) Hti+ RH-A500

Padlocking

Serie Hti+ KS

Application

Marking

CE

Features

The Hti+ KS padlock device safely prevents unintentional switching on and off. Simply insert the lug of the padlock device through the borehole on the high performance MCB Hti+ and lock with a padlock with lug diameter Ø 4 mm (not included in delivery). Even when the high performance Hti+ MCB is secured with an padlock device against unintentional switching off, tripping remains possible in case of overload or short-circuit by the Hti+ Tele L, Hti+Tele U and Hti+ DOC.

New

Dimensions pag. ***A.125***

Series Hti+ Accessories

	Function	Cat. No.	Ref. No.	Pack
	Axial extension 500 mm for rotary handle	HTI+RH-A500	**678093**	1
	Drive from 2P to 4P for rotary handle	HTI+RH-DRIVE	**678094**	1
	IP54 Kit for rotary handle for door mounting	HTI+RH-IP54	**678095**	1
	Rotary handle Hti+RH-RED	HTI+RH-RED	**678087**	1
	Rotary handle Hti+RH-BLACK	HTI+RH-BLACK	**678088**	1
	Padlock device	HTI+KS	**678084**	10

New

EP100 ULH

UL Listed 489 **10kA**

CSA c22.2 No.5-02

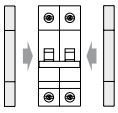
EN/IEC 60947-2 **10kA**

Application

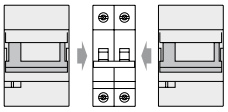
Approvals / Marking

Add-on devices

Auxiliaries contacts



Motor operator



(1) Ask for availability. Under homologation.

UL Listed 489 performances

UL FILE		E256870
Ampere rating In (A) 0.5-63		0.5-40A
Reference temperature	°C/F	25/77
Terminal capacity flexible/rigid cable		14-2 AWG
Max. Torque N.m/lbs.in		4.5/39.9

Rated voltage Un (V)

Poles	*V AC*	*V DC*
1	277	60
2, 3	480	125

Short-circuit capacity

Poles	*V*	*Icc (kA)*
1	277	10
2, 3	480	10

DC short-circuit capacity

Poles	*V DC*	*Icc*
1	60	10
2	125	10

IEC performances

Thermal setting In		0.5-40A
Rated voltage AC Un	(V)	240/415V
Weight/pole	(g)	130
Terminal capacity flexible/rigid cable	(mm^2)	0.75/1- 25/35

Short-circuit capacity according to IEC 60947-2

Poles	*V AC*	*Icu (kA)*
1	127	30
	240	15
	415	4
2	127	40
	240	30
	415	15
3	240	30
	415	15
	440	10

DC short-circuit capacity according to IEC 60497-2

Poles	*V*	*Icc(kA)*
1	60	25
2	125	30

General performance

Minimum operating voltage U_{Bmin}		12
Tripping characteristics		B-C-D
Rated frequency	(Hz)	50/60
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to IEC 60068-2-28/2-30		95% RH at 55°C
Poles		1, 2, 3

Instantaneous tripping ranges acc. to IEC 60898-1

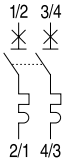
B characteristic 3 to 5 times Ampere rating
C characteristic 5 to 10 times Ampere rating
D characteristic 10 to 20 times Ampere rating

New

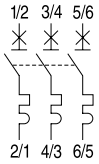
Dimensions pag. ***A.122***

UL489 - Series EP100 ULH - 10kA - characteristics B-C-D

	In (A)	B curve Cat. No.	B curve Ref. No.	C curve Cat. No.	C curve Ref. No.	D curve Cat. No.	D curve Ref. No.	Pack.
1P	0.5	-	-	EP101ULH3C0.5	682298	EP101ULH3D0.5	682352	6
	1	-	-	EP101ULH3C01	682299	EP101ULH3D01	682353	6
	2	-	-	EP101ULH3C02	682300	EP101ULH3D02	682354	6
	3	-	-	EP101ULH3C03	682301	EP101ULH3D03	682355	6
	4	-	-	EP101ULH3C04	682302	EP101ULH3D04	682356	6
	5	EP101ULH3B05	682259	EP101ULH3C05	682303	EP101ULH3D05	682357	6
	6	EP101ULH3B06	682260	EP101ULH3C06	682304	EP101ULH3D06	682358	6
	8	EP101ULH3B08	682261	EP101ULH3C08	682305	EP101ULH3D08	682359	6
	10	EP101ULH3B10	682262	EP101ULH3C10	682306	EP101ULH3D10	682360	6
	13	EP101ULH3B13	682263	EP101ULH3C13	682307	EP101ULH3D13	682361	6
	15	EP101ULH3B15	682264	EP101ULH3C15	682308	EP101ULH3D15	682362	6
	16	EP101ULH3B16	682265	EP101ULH3C16	682309	EP101ULH3D16	682363	6
	20	EP101ULH3B20	682266	EP101ULH3C20	682310	EP101ULH3D20	682364	6
	25	EP101ULH3B25	682267	EP101ULH3C25	682311	EP101ULH3D25	682365	6
	30	EP101ULH3B30	682268	EP101ULH3C30	682312	EP101ULH3D30	682366	6
	32	EP101ULH3B32	682269	EP101ULH3C32	682313	EP101ULH3D32	682367	6
	35	EP101ULH3B35	682270	EP101ULH3C35	682314	EP101ULH3D35	682368	6
	40	EP101ULH3B40	682271	EP101ULH3C40	682315	EP101ULH3D40	682369	6



	In (A)	B curve Cat. No.	B curve Ref. No.	C curve Cat. No.	C curve Ref. No.	D curve Cat. No.	D curve Ref. No.	Pack.
2P	0.5	-	-	EP102ULH4C0.5	682316	EP102ULH4D0.5	682370	3
	1	-	-	EP102ULH4C01	682317	EP102ULH4D01	682371	3
	2	-	-	EP102ULH4C02	682318	EP102ULH4D02	682372	3
	3	-	-	EP102ULH4C03	682319	EP102ULH4D03	682373	3
	4	-	-	EP102ULH4C04	682320	EP102ULH4D04	682374	3
	5	EP102ULH4B05	682272	EP102ULH4C05	682321	EP102ULH4D05	682375	3
	6	EP102ULH4B06	682273	EP102ULH4C06	682322	EP102ULH4D06	682376	3
	8	EP102ULH4B08	682274	EP102ULH4C08	682323	EP102ULH4D08	682377	3
	10	EP102ULH4B10	682275	EP102ULH4C10	682324	EP102ULH4D10	682378	3
	13	EP102ULH4B13	682276	EP102ULH4C13	682325	EP102ULH4D13	682379	3
	15	EP102ULH4B15	682277	EP102ULH4C15	682326	EP102ULH4D15	682380	3
	16	EP102ULH4B16	682278	EP102ULH4C16	682327	EP102ULH4D16	682381	3
	20	EP102ULH4B20	682279	EP102ULH4C20	682328	EP102ULH4D20	682382	3
	25	EP102ULH4B25	682280	EP102ULH4C25	682329	EP102ULH4D25	682383	3
	30	EP102ULH4B30	682281	EP102ULH4C30	682330	EP102ULH4D30	682384	3
	32	EP102ULH4B32	682282	EP102ULH4C32	682331	EP102ULH4D32	682385	3
	35	EP102ULH4B35	682283	EP102ULH4C35	682332	EP102ULH4D35	682386	3
	40	EP102ULH4B40	682284	EP102ULH4C40	682333	EP102ULH4D40	682387	3



	In (A)	B curve Cat. No.	B curve Ref. No.	C curve Cat. No.	C curve Ref. No.	D curve Cat. No.	D curve Ref. No.	Pack.
3P	0.5	-	-	EP103ULH4C0.5	682334	EP103ULH4D0.5	682388	2
	1	-	-	EP103ULH4C01	682335	EP103ULH4D01	682389	2
	2	-	-	EP103ULH4C02	682336	EP103ULH4D02	682390	2
	3	-	-	EP103ULH4C03	682337	EP103ULH4D03	682391	2
	4	-	-	EP103ULH4C04	682338	EP103ULH4D04	682392	2
	5	EP103ULH4B05	682285	EP103ULH4C05	682339	EP103ULH4D05	682393	2
	6	EP103ULH4B06	682286	EP103ULH4C06	682340	EP103ULH4D06	682394	2
	8	EP103ULH4B08	682287	EP103ULH4C08	682341	EP103ULH4D08	682395	2
	10	EP103ULH4B10	682288	EP103ULH4C10	682342	EP103ULH4D10	682396	2
	13	EP103ULH4B13	682289	EP103ULH4C13	682343	EP103ULH4D13	682397	2
	15	EP103ULH4B15	682290	EP103ULH4C15	682344	EP103ULH4D15	682398	2
	16	EP103ULH4B16	682291	EP103ULH4C16	682345	EP103ULH4D16	682399	2
	20	EP103ULH4B20	682292	EP103ULH4C20	682346	EP103ULH4D20	682400	2
	25	EP103ULH4B25	682293	EP103ULH4C25	682347	EP103ULH4D25	682401	2
	30	EP103ULH4B30	682294	EP103ULH4C30	682348	EP103ULH4D30	682402	2
	32	EP103ULH4B32	682295	EP103ULH4C32	682349	EP103ULH4D32	682403	2
	35	EP103ULH4B35	682296	EP103ULH4C35	682350	EP103ULH4D35	682404	2
	40	EP103ULH4B40	682297	EP103ULH4C40	682351	EP103ULH4D40	682405	2

New

EP100 ULH

UL Listed 489 **10kA**
CSA c22.2 No.5-02
EN/IEC 60947-2 **15kA**

Application

Standards

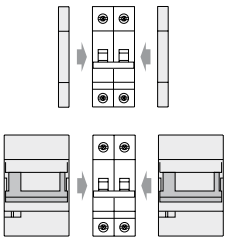
UL489, CSA c22.2 No.5-02
IEC 60947-2, IEC 60898-1

Approvals / Marking

Add-on devices

Auxiliaries contacts

Motor operator



(1) Ask for availability. Under homologation.

UL Listed 489 performances

UL FILE		E256870
Ampere rating In (A) 0.5-63		0.5-63A
Reference temperature	°C/F	25/77
Terminal capacity flexible/rigid cable		14-2 AWG
Max. Torque N.m/lbs.in		4.5/39.9

Rated voltage Un (V)

Poles	*V AC*	*V DC*
1	120	60
2, 3	240	125

Short-circuit capacity

Poles	*V*	*Icc (kA)*
1	120	10
2, 3	240	10

DC short-circuit capacity

Poles	*V DC*	*Icc*
1	60	10
2	125	10

IEC performances

Thermal setting In		0.5-63A
Rated voltage AC Un	(V)	240/415V
Weight/pole	(g)	130
Terminal capacity flexible/rigid cable	(mm^2)	0.75/1 - 25/35

Short-circuit capacity according to IEC 60947-2

Poles	*V AC*	*Icu (kA)*
1	127	30
	240	15
	415	4
2	127	40
	240	30
	415	15
3	240	30
	415	15
	440	10

DC short-circuit capacity according to IEC 60497-2

Poles	*V*	*Icu (kA)*
1	60	25
2	125	30

General performance

Minimum operating voltage U_{Bmin}		12
Tripping characteristics		B-C-D
Rated frequency	(Hz)	50/60
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to IEC 60068-2-28/2-30		95% RH at 55°C
Poles		1, 2, 3

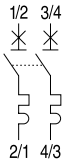
Instantaneous tripping ranges acc. to IEC 60898-1
B characteristic 3 to 5 times Ampere rating
C characteristic 5 to 10 times Ampere rating
D characteristic 10 to 20 times Ampere rating

New

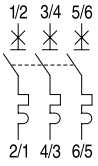
Dimensions pag. ***A.122***

UL489 - Series EP100 ULH - 10kA - characteristics B-C-D

		B curve		C curve		D curve		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
1P	0.5	-	-	EP101ULH1C0.5	690265	EP101ULH1D0.5	690313	6
	1	-	-	EP101ULH1C01	690266	EP101ULH1D01	690314	6
	2	-	-	EP101ULH1C02	690267	EP101ULH1D02	690315	6
	3	-	-	EP101ULH1C03	690268	EP101ULH1D03	690316	6
	4	-	-	EP101ULH1C04	690269	EP101ULH1D04	690317	6
	5	EP101ULH1B05	690214	EP101ULH1C05	690270	EP101ULH1D05	690318	6
	6	EP101ULH1B06	690215	EP101ULH1C06	690271	EP101ULH1D06	690319	6
	8	EP101ULH1B08	682211	EP101ULH1C08	690272	EP101ULH1D08	690320	6
	10	EP101ULH1B10	690216	EP101ULH1C10	690273	EP101ULH1D10	690321	6
	13	EP101ULH1B13	690217	EP101ULH1C13	690274	EP101ULH1D13	690322	6
	15	EP101ULH1B15	690218	EP101ULH1C15	690275	EP101ULH1D15	690323	6
	16	EP101ULH1B16	690219	EP101ULH1C16	690276	EP101ULH1D16	690324	6
	20	EP101ULH1B20	690220	EP101ULH1C20	690277	EP101ULH1D20	690325	6
	25	EP101ULH1B25	690221	EP101ULH1C25	690278	EP101ULH1D25	690326	6
	30	EP101ULH1B30	690222	EP101ULH1C30	690279	EP101ULH1D30	690327	6
	32	EP101ULH1B32	690223	EP101ULH1C32	690280	EP101ULH1D32	690328	6
	35	EP101ULH1B35	682214	EP101ULH1C35	682229	EP101ULH1D35	682244	6
	40	EP101ULH1B40	682215	EP101ULH1C40	682230	EP101ULH1D40	682245	6
	50	EP101ULH1B50	682216	EP101ULH1C50	682231	EP101ULH1D50	682246	6
	60	EP101ULH1B60	682217	EP101ULH1C60	682232	EP101ULH1D60	682247	6
	63	EP101ULH1B63	682218	EP101ULH1C63	682233	EP101ULH1D63	682248	6



2P	0.5	-	-	EP102ULH2C0.5	690281	EP102ULH2D0.5	690329	3
	1	-	-	EP102ULH2C01	690282	EP102ULH2D01	690330	3
	2	-	-	EP102ULH2C02	690283	EP102ULH2D02	690331	3
	3	-	-	EP102ULH2C03	690284	EP102ULH2D03	690332	3
	4	-	-	EP102ULH2C04	690285	EP102ULH2D04	690333	3
	5	EP102ULH2B05	690224	EP102ULH2C05	690286	EP102ULH2D05	690334	3
	6	EP102ULH2B06	690225	EP102ULH2C06	690287	EP102ULH2D06	690335	3
	8	EP102ULH2B08	682212	EP102ULH2C08	690288	EP102ULH2D08	690336	3
	10	EP102ULH2B10	690226	EP102ULH2C10	690289	EP102ULH2D10	690337	3
	13	EP102ULH2B13	690227	EP102ULH2C13	690290	EP102ULH2D13	690338	3
	15	EP102ULH2B15	690228	EP102ULH2C15	690291	EP102ULH2D15	690339	3
	16	EP102ULH2B16	690229	EP102ULH2C16	690292	EP102ULH2D16	690340	3
	20	EP102ULH2B20	690230	EP102ULH2C20	690293	EP102ULH2D20	690341	3
	25	EP102ULH2B25	690231	EP102ULH2C25	690294	EP102ULH2D25	690342	3
	30	EP102ULH2B30	690232	EP102ULH2C30	690295	EP102ULH2D30	690343	3
	32	EP102ULH2B32	690233	EP102ULH2C32	690296	EP102ULH2D32	690344	3
	35	EP102ULH2B35	682219	EP102ULH2C35	682234	EP102ULH2D35	682249	3
	40	EP102ULH2B40	682220	EP102ULH2C40	682235	EP102ULH2D40	682250	3
	50	EP102ULH2B50	682221	EP102ULH2C50	682236	EP102ULH2D50	682251	3
	60	EP102ULH2B60	682222	EP102ULH2C60	682237	EP102ULH2D60	682252	3
	63	EP102ULH2B63	682223	EP102ULH2C63	682238	EP102ULH2D63	682253	3



3P	0.5	-	-	EP103ULH2C0.5	690297	EP103ULH2D0.5	690345	2
	1	-	-	EP103ULH2C01	690298	EP103ULH2D01	690346	2
	2	-	-	EP103ULH2C02	690299	EP103ULH2D02	690347	2
	3	-	-	EP103ULH2C03	690300	EP103ULH2D03	690348	2
	4	-	-	EP103ULH2C04	690301	EP103ULH2D04	690349	2
	5	EP103ULH2B05	690234	EP103ULH2C05	690302	EP103ULH2D05	690350	2
	6	EP103ULH2B06	690235	EP103ULH2C06	690303	EP103ULH2D06	690351	2
	8	EP103ULH2B08	682213	EP103ULH2C08	690304	EP103ULH2D08	690352	2
	10	EP103ULH2B10	690236	EP103ULH2C10	690305	EP103ULH2D10	690353	2
	13	EP103ULH2B13	290237	EP103ULH2C13	690306	EP103ULH2D13	690354	2
	15	EP103ULH2B15	290238	EP103ULH2C15	690307	EP103ULH2D15	690355	2
	16	EP103ULH2B16	690239	EP103ULH2C16	690308	EP103ULH2D16	690356	2
	20	EP103ULH2B20	690240	EP103ULH2C20	690309	EP103ULH2D20	690357	2
	25	EP103ULH2B25	690241	EP103ULH2C25	690310	EP103ULH2D25	690358	2
	30	EP103ULH2B30	690242	EP103ULH2C30	690311	EP103ULH2D30	690359	2
	32	EP103ULH2B32	690243	EP103ULH2C32	690312	EP103ULH2D32	690360	2
	35	EP103ULH2B35	682224	EP103ULH2C35	682239	EP103ULH2D35	682254	2
	40	EP103ULH2B40	682225	EP103ULH2C40	682240	EP103ULH2D40	682255	2
	50	EP103ULH2B50	682226	EP103ULH2C50	682241	EP103ULH2D50	682256	2
	60	EP103ULH2B60	682227	EP103ULH2C60	682242	EP103ULH2D60	682257	2
	63	EP103ULH2B63	682228	EP103ULH2C63	682243	EP103ULH2D63	682258	2

New

Supplementary protection

EP100 UL

Recognized UL1077 **10kA**

CSA c22.2 No. 23

EN/IEC 60898-1 10000 / 3

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

Application

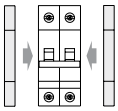
Standards

UL1077
IEC 898-1
IEC 947-2

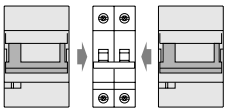
Approvals / Marking

Add-on devices

Auxiliary contacts



Motor operator



UL1077 performances

UL FILE		E151139
Ampere rating In (A) 0.5-63		0.5-63A
Reference temperature	°C/F	25/77
Terminal capacity flexible/rigid cable		14-2 AWG
Max. Torque N.m/lbs.in		4.5/39.9

Rated voltage Un (V)

Poles	*V AC*	*V DC*
1	277	50
2, 3, 4	480	110

Short-circuit capacity

Poles	*V*	*Icc (kA)*
1, 2	277	10
3, 4	277/480	10
1	120	10
2, 3	240	10

DC short-circuit capacity

Poles	*V DC*	*Icc*
1	50	10
2	110	10

IEC performances

Thermal setting In		0.5-63A
Rated voltage AC Un	(V)	240/415V
Weight/pole	(g)	125
Terminal capacity flexible/rigid cable	(mm^2)	0.75/1 - 25/35

Short-circuit capacity according to IEC 60898-1

Poles	*V AC*	*Icn (kA)*
1	230/400	10
2, 3, 4	400	10

Short-circuit capacity according to IEC 60497-2

Poles	*V AC*	*Icu (kA)*
1	127	30
	240	15
	415	4
2	127	40
2, 3, 4	240	30
	415	15
	440	10

DC short-circuit capacity according to IEC 60497-2

Poles	*V*	*Icu (kA)*
1	60	25
2	125	30

General performance

Minimum operating voltage U_{Bmin}		12
Tripping characteristics		B-C-D(1)
Rated frequency	(Hz)	50/60
Energy limiting class		3
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to IEC 60068-2-28/2-30		95% RH at 55°C
Poles		1, 2, 3, 4

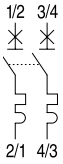
Instantaneous tripping ranges acc. to IEC 60898-1

(1) B characteristic 3 to 5 times Ampere rating
C characteristic 5 to 10 times Ampere rating
D characteristic 10 to 20 times Ampere rating

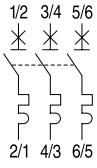
Dimensions pag. ***A.122***

UL1077 - Series EP100 UL - 10kA - characteristics B-C-D

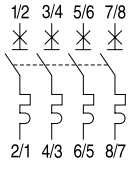
		B curve		C curve		D curve		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
1P	0.5	-	-	EP101ULC0.5	686864	EP101ULD0.5	686940	12
	1	-	-	EP101ULC01	686865	EP101ULD01	686941	12
	2	-	-	EP101ULC02	686866	EP101ULD02	686942	12
	3	-	-	EP101ULC03	686867	EP101ULD03	686943	12
	4	-	-	EP101ULC04	686868	EP101ULD04	686944	12
	5	EP101ULB05	686808	EP101ULC05	686869	EP101ULD05	686945	12
	6	EP101ULB06	686809	EP101ULC06	686870	EP101ULD06	686946	12
	8	-	-	-	-	-	-	-
	10	EP101ULB10	686810	EP101ULC10	686871	EP101ULD10	686947	12
	13	EP101ULB13	686811	EP101ULC13	686872	EP101ULD13	686948	12
	15	EP101ULB15	686812	EP101ULC15	686873	EP101ULD15	686949	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
	30	EP101ULB30	686816	EP101ULC30	686877	EP101ULD30	686953	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
	60	EP101ULB60	686820	EP101ULC60	686881	EP101ULD60	686957	12
	63	EP101ULB63	686821	EP101ULC63	686882	EP101ULD63	686958	12



2P	0.5	-	-	EP102ULC0.5	686883	EP102ULD0.5	686959	6
	1	-	-	EP102ULC01	686884	EP102ULD01	686960	6
	2	-	-	EP102ULC02	686885	EP102ULD02	686961	6
	3	-	-	EP102ULC03	686886	EP102ULD03	686962	6
	4	-	-	EP102ULC04	686887	EP102ULD04	686963	6
	5	EP102ULB05	686822	EP102ULC05	686888	EP102ULD05	686964	6
	6	EP102ULB06	686823	EP102ULC06	686889	EP102ULD06	686965	6
	8	-	-	-	-	-	-	-
	10	EP102ULB10	686824	EP102ULC10	686890	EP102ULD10	686966	6
	13	EP102ULB13	686825	EP102ULC13	686891	EP102ULD13	686967	6
	15	EP102ULB15	686826	EP102ULC15	686892	EP102ULD15	686968	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
	30	EP102ULB30	686830	EP102ULC30	686896	EP102ULD30	686972	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
	60	EP102ULB60	686834	EP102ULC60	686900	EP102ULD60	686976	6
	63	EP102ULB63	686835	EP102ULC63	686901	EP102ULD63	686977	6



3P	0.5	-	-	EP103ULC0.5	686902	EP103ULD0.5	686978	4
	1	-	-	EP103ULC01	686903	EP103ULD01	686979	4
	2	-	-	EP103ULC02	686904	EP103ULD02	686980	4
	3	-	-	EP103ULC03	686905	EP103ULD03	686981	4
	4	-	-	EP103ULC04	686906	EP103ULD04	686982	4
	5	EP103ULB05	686836	EP103ULC05	686907	EP103ULD05	686983	4
	6	EP103ULB06	686837	EP103ULC06	686908	EP103ULD06	686984	4
	8	-	-	-	-	-	-	-
	10	EP103ULB10	686838	EP103ULC10	686909	EP103ULD10	686985	4
	13	EP103ULB13	686839	EP103ULC13	686910	EP103ULD13	686986	4
	15	EP103ULB15	686840	EP103ULC15	686911	EP103ULD15	686987	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
	30	EP103ULB30	686844	EP103ULC30	686915	EP103ULD30	686991	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
	60	EP103ULB60	686848	EP103ULC60	686919	EP103ULD60	686995	4
	63	EP103ULB63	686849	EP103ULC63	686920	EP103ULD63	686996	4



4P	0.5	-	-	EP104ULC0.5	686921	EP104ULD0.5	686997	3
	1	-	-	EP104ULC01	686922	EP104ULD01	686998	3
	2	-	-	EP104ULC02	686923	EP104ULD02	686999	3
	3	-	-	EP104ULC03	686924	EP104ULD03	687000	3
	4	-	-	EP104ULC04	686925	EP104ULD04	687001	3
	5	EP104ULB05	686850	EP104ULC05	686926	EP104ULD05	687002	3
	6	EP104ULB06	686851	EP104ULC06	686927	EP104ULD06	687003	3
	8	-	-	-	-	-	-	-
	10	EP104ULB10	686852	EP104ULC10	686928	EP104ULD10	687004	3
	13	EP104ULB13	686853	EP104ULC13	686929	EP104ULD13	687005	3
	15	EP104ULB15	686854	EP104ULC15	686930	EP104ULD15	687006	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
	30	EP104ULB30	686858	EP104ULC30	686934	EP104ULD30	687010	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
	60	EP104ULB60	686862	EP104ULC60	686938	EP104ULD60	687014	3
	63	EP104ULB63	686863	EP104ULC63	686939	EP104ULD63	687015	3

Supplementary protection

EP60 UL

Recognized UL1077 **6kA**
CSA c22.2 No.235 **6000 / 3**
EN/IEC 60898
EN/IEC 60947-2 **10kA**

Applications

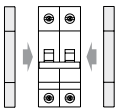
Standards

UL1077
IEC 898-1
IEC 947-2

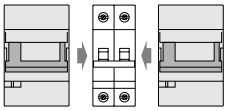
Approvals / Marking

Add-on devices

Auxiliary contacts



Motor operator



UL1077 performances

UL FILE		E151139
Ampere rating In (A) 0.5-63		0.5-63A
Reference temperature	°C/F	25/77
Terminal capacity flexible/rigid cable		14-2 AWG
Max. Torque N.m/lbs.in		4.5/39.9

Rated voltage Un (V)

Poles	*V AC*	*V DC*
1	277	50
2, 3, 4	480	110

Short-circuit capacity

Poles	*V*	*Icc (kA)*
1, 2	277	6
3, 4	277/480	6
1	120	6
2, 3	240	6

DC short-circuit capacity

Poles	*V DC*	*Icc*
1	50	6
2	110	6

IEC performances

Thermal setting In		0.5-63A
Rated voltage AC Un	(V)	240/415V
Weight/pole	(g)	125
Terminal capacity flexible/rigid cable	(mm^2)	0.75/1 - 25/35

Short-circuit capacity according to IEC 60898-1

Poles	*V AC*	*Icn (kA)*
1	230/400	6
2, 3, 4	400	6

Short-circuit capacity according to IEC 60497-2

Poles	*V AC*	*Icn (kA)*
1	127	20
	240	10
	415	3
2	127	30
2, 3, 4	240	20
	415	10
	440	6

DC short-circuit capacity according to IEC 60497-2

Poles	*V*	*Icn (kA)*
1	60	20
2	125	25

General performance

Minimum operating voltage U_{Bmin}	12
Tripping characteristics	B-C-D(1)
Rated frequency (Hz)	50/60
Energy limiting class	3
Mechanical/electrical endurance	20000/10000
Tropicalisation acc. to IEC 60068-2-28/2-30	95% RH at 55°C
Poles	1, 2, 3, 4

Instantaneous tripping ranges acc. to IEC 60898-1

(1) B characteristic 3 to 5 times Ampere rating
C characteristic 5 to 10 times Ampere rating
D characteristic 10 to 20 times Ampere rating

Dimensions pag. ***A.122***

UL1077-Series EP60 UL - 6kA - characteristics B-C-D

		B curve		C curve		D curve		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
1P	0.5	-	-	EP61ULC0.5	686656	EP61ULD0.5	686732	12
	1	-	-	EP61ULC01	686657	EP61ULD01	686733	12
	2	-	-	EP61ULC02	686658	EP61ULD02	686734	12
	3	-	-	EP61ULC03	686659	EP61ULD03	686735	12
	4	-	-	EP61ULC04	686660	EP61ULD04	686736	12
	5	EP61ULB05	686600	EP61ULC05	686661	EP61ULD05	686737	12
	6	EP61ULB06	686601	EP61ULC06	686662	EP61ULD06	686738	12
	8	-	-	-	-	-	-	-
	10	EP61ULB10	686602	EP61ULC10	686663	EP61ULD10	686739	12
	13	EP61ULB13	686603	EP61ULC13	686664	EP61ULD13	686740	12
	15	EP61ULB15	686604	EP61ULC15	686665	EP61ULD15	686741	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
	30	EP61ULB30	686608	EP61ULC30	686669	EP61ULD30	686745	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
	60	EP61ULB60	686612	EP61ULC60	686673	EP61ULD60	686749	12
	63	EP61ULB63	686613	EP61ULC63	686674	EP61ULD63	686750	12
2P	0.5	-	-	EP62ULC0.5	686675	EP62ULD0.5	686751	6
	1	-	-	EP62ULC01	686676	EP62ULD01	686752	6
	2	-	-	EP62ULC02	686677	EP62ULD02	686753	6
	3	-	-	EP62ULC03	686678	EP62ULD03	686754	6
	4	-	-	EP62ULC04	686679	EP62ULD04	686755	6
	5	EP62ULB05	686614	EP62ULC05	686680	EP62ULD05	686756	6
	6	EP62ULB06	686615	EP62ULC06	686681	EP62ULD06	686757	6
	8	-	-	-	-	-	-	-
	10	EP62ULB10	686616	EP62ULC10	686682	EP62ULD10	686758	6
	13	EP62ULB13	686617	EP62ULC13	686683	EP62ULD13	686759	6
	15	EP62ULB15	686618	EP62ULC15	686684	EP62ULD15	686760	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
	30	EP62ULB30	686622	EP62ULC30	686688	EP62ULD30	686764	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
	60	EP62ULB60	686626	EP62ULC60	686692	EP62ULD60	686768	6
	63	EP62ULB63	686627	EP62ULC63	686693	EP62ULD63	686769	6
3P	0.5	-	-	EP63ULC0.5	686694	EP63ULD0.5	686770	4
	1	-	-	EP63ULC01	686695	EP63ULD01	686771	4
	2	-	-	EP63ULC02	686696	EP63ULD02	686772	4
	3	-	-	EP63ULC03	686697	EP63ULD03	686773	4
	4	-	-	EP63ULC04	686698	EP63ULD04	686774	4
	5	EP63ULB05	686628	EP63ULC05	686699	EP63ULD05	686775	4
	6	EP63ULB06	686629	EP63ULC06	686700	EP63ULD06	686776	4
	8	-	-	-	-	-	-	-
	10	EP63ULB10	686630	EP63ULC10	686701	EP63ULD10	686777	4
	13	EP63ULB13	686631	EP63ULC13	686702	EP63ULD13	686778	4
	15	EP63ULB15	686632	EP63ULC15	686703	EP63ULD15	686779	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
	30	EP63ULB30	686636	EP63ULC30	686707	EP63ULD30	686783	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
	60	EP63ULB60	686640	EP63ULC60	686711	EP63ULD60	686787	4
	63	EP63ULB63	686641	EP63ULC63	686712	EP63ULD63	686788	4
4P	0.5	-	-	EP64ULC0.5	686713	EP64ULD0.5	686789	3
	1	-	-	EP64ULC01	686714	EP64ULD01	686790	3
	2	-	-	EP64ULC02	686715	EP64ULD02	686791	3
	3	-	-	EP64ULC03	686716	EP64ULD03	686792	3
	4	-	-	EP64ULC04	686717	EP64ULD04	686793	3
	5	EP64ULB05	686642	EP64ULC05	686718	EP64ULD05	686794	3
	6	EP64ULB06	686643	EP64ULC06	686719	EP64ULD06	686795	3
	8	-	-	-	-	-	-	-
	10	EP64ULB10	686644	EP64ULC10	686720	EP64ULD10	686796	3
	13	EP64ULB13	686645	EP64ULC13	686721	EP64ULD13	686797	3
	15	EP64ULB15	686646	EP64ULC15	686722	EP64ULD15	686798	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
	30	EP64ULB30	686650	EP64ULC30	686726	EP64ULD30	686802	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
	60	EP64ULB60	686654	EP64ULC60	686730	EP64ULD60	686806	3
	63	EP64ULB63	686655	EP64ULC63	686731	EP64ULD63	686807	3

Miniature Circuit Breakers for railway applications

Series EP100 R

EN/IEC 60898-1 **10000 / 3**

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

Bombardier Certified

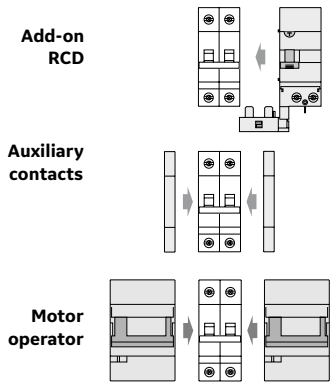
Applications

Approval / Marking

Bombardier Transportation Approval acc. to EN50155

CE

Add-on devices



Performance

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

Short-circuit capacity

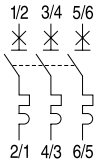
AC/DC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)(1)**
3	240 DC	30
2	415 DC	15
1	440 AC	10

AC/DC acc. to EN/IEC 60898-2		
Poles	**V**	**Icn=Ics (kA)**
3	400 DC	10(2)

(1) Ics = 50% Icu
(2) Grid distance of 60mm for B-C and D; Ics = 75% Icu

Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.122***

Series EP100 R - 10kA - characteristics B-C



		B		C		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
3P	0.5	-	-	EP103C0.5RAIL	**681461**	4
3 mod.	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

Miniature Circuit Breakers for railway applications

Universal currents

Series EP100 UCR

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

DIN VDE 0641

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

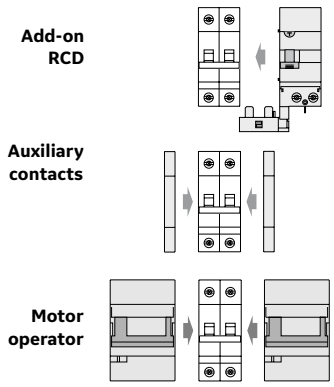
Bombardier Certified

Applications

Approval / Marking

Bombardier Transportation Approval acc. to EN50155

Add-on devices



Performance

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

Short-circuit capacity

AC/DC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)**
1	230 DC	10(2)
2	440 DC	10(2)
1	230 AC	6(3)
2	400 AC	6(3)

AC/DC acc. to EN/IEC 60898-2(4)		
Poles	**V**	**Icn=Ics (kA)**
1	125 DC	10
	220 DC	6
	230/400 AC	6
2	250 DC	10
	440 DC	6
	400 AC	6

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

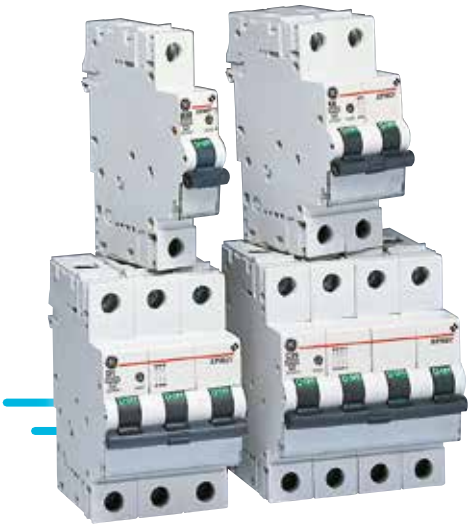
Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.122***

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

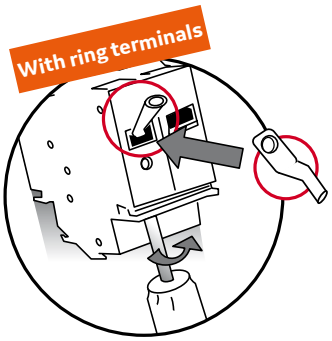
	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	K Cat. No.	K Ref. No.	Pack.
2P	0.5	-	-	EP101RucC0.5	**681493**	EP101UCRK0.5	**673267**	12
1 mod.	1	-	-	EP101RucC01	**681494**	EP101UCRK01	**673268**	12
	1.6	-	-	-	-	EP101UCRK1.6	**673269**	12
(1) (2)	2	-	-	EP101RucC02	**681495**	EP101UCRK02	**673270**	12
	3	-	-	-	-	EP101UCRK03	**673271**	12
	4	-	-	EP101RucC04	**681496**	EP101UCRK04	**673272**	12
	6	EP101RucB06	**681475**	EP101RucC06	**681497**	EP101UCRK06	**673273**	12
	8	-	-	-	-	EP101UCRK08	**673274**	12
	10	EP101RucB10	**681476**	EP101RucC10	**681498**	EP101UCRK10	**673275**	12
	13	-	-	-	-	EP101UCRK13	**673276**	12
	16	EP101RucB16	**681477**	EP101RucC16	**681499**	EP101UCRK16	**673277**	12
	20	EP101RucB20	**681478**	EP101RucC20	**681500**	EP101UCRK20	**673278**	12
	25	EP101RucB25	**681479**	EP101RucC25	**681501**	EP101UCRK25	**673279**	12
	32	EP101RucB32	**681480**	EP101RucC32	**681502**	EP101UCRK32	**673280**	12
(3)	40	EP101RucB40	**681481**	EP101RucC40	**681503**	EP101UCRK40	**673281**	12
	50	EP101RucB50	**681482**	EP101RucC50	**681504**	EP101UCRK50	**673282**	12
	63	EP101RucB63	**681483**	EP101RucC63	**681505**	EP101UCRK63	**673283**	12
2P	0.5	-	-	EP102RucC0.5	**681506**	-	-	6
2 mod.	1	-	-	EP102RucC01	**681507**	-	-	6
	1.6	-	-	-	-	-	-	-
(1) (2)	2	-	-	EP102RucC02	**681508**	-	-	6
	3	-	-	-	-	-	-	-
	4	-	-	EP102RucC04	**681509**	-	-	6
	6	EP102RucB06	**681484**	EP102RucC06	**681510**	-	-	6
	8	-	-	-	-	-	-	-
	10	EP102RucB10	**681485**	EP102RucC10	**681511**	-	-	6
	13	-	-	-	-	-	-	-
	16	EP102RucB16	**681486**	EP102RucC16	**681512**	-	-	6
	20	EP102RucB20	**681487**	EP102RucC20	**681513**	-	-	6
	25	EP102RucB25	**681488**	EP102RucC25	**681514**	-	-	6
	32	EP102RucB32	**681489**	EP102RucC32	**681515**	-	-	6
	40	EP102RucB40	**681490**	EP102RucC40	**681516**	-	-	6
	50	EP102RucB50	**681491**	EP102RucC50	**681517**	-	-	6
	63	EP102RucB63	**681492**	EP102RucC63	**681518**	-	-	6
2P	0.5	-	-	EP102UCRC0.5	**680565**	EP102UCRK0.5	**673284**	6
2 mod.	1	-	-	EP102UCRC01	**680566**	EP102UCRK01	**673285**	6
	1.6	-	-	-	-	EP102UCRK1.6	**673286**	6
(1) (2)	2	-	-	EP102UCRC02	**680567**	EP102UCRK02	**673287**	6
	3	-	-	-	-	EP102UCRK03	**673288**	6
	4	-	-	EP102UCRC04	**680568**	EP102UCRK04	**673289**	6
	6	-	-	EP102UCRC06	**680569**	EP102UCRK06	**673290**	6
	8	-	-	-	-	EP102UCRK08	**673291**	6
	10	-	-	EP102UCRC10	**680570**	EP102UCRK10	**673292**	6
	13	-	-	-	-	EP102UCRK13	**673293**	6
	16	-	-	EP102UCRC16	**680571**	EP102UCRK16	**673294**	6
	20	-	-	EP102UCRC20	**680572**	EP102UCRK20	**673295**	6
	25	-	-	EP102UCRC25	**680573**	EP102UCRK25	**673296**	6
	32	-	-	EP102UCRC32	**680574**	EP102UCRK32	**673297**	6
	40	-	-	EP102UCRC40	**680575**	EP102UCRK40	**673298**	6
	50	-	-	EP102UCRC50	**680576**	EP102UCRK50	**673299**	6
	63	-	-	EP102UCRC63	**680577**	EP102UCRK63	**673300**	6

(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) Marking EP101UCRK:

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

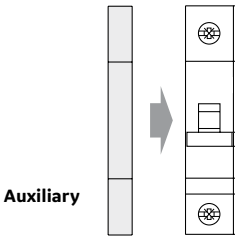
Standards

- 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 series CBT
Shunt trip Tele LT

Performance

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
Energy limiting class		3
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. IEC 60068-2-28/2-30		95% RH at 55°C
Capacity of ring terminal	(mm^2)	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

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

Poles	V ~	Icu (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 ⎓	Icu (kA)/Ics(kA)
1	60	25/15 ms
2	110	30/15 ms

AC acc. to EN/IEC 60898

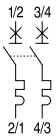
Poles	V ~	*Icn (kA)*
1-4	230/400	10

New

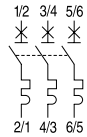
Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.122***

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

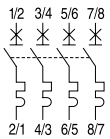
		2-3 In (Z)		3-5 In (B)		8-12 In (C)		8-12 In (K)		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
1P	0.5	EP101TZ0.5	**691277**	-	-	EP101TC0.5	**691245**	EP101TK0.5	**691261**	12
1 mod.	1	EP101TZ01	**691278**	-	-	EP101TC01	**691246**	EP101TK1	**691267**	12
	1.6	EP101TZ1.6	**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	0.5	EP102TZ0.5	**691337**	-	-	EP102TC0.5	**691304**	EP102TK0.5	**691321**	6
2 mod.	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	0.5	-	-	-	-	EP103TC0.5	**691364**	EP103TK0.5	**691381**	4
3 mod.	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



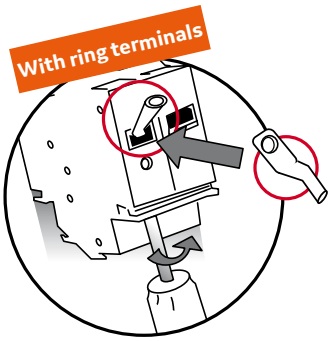
4P	0.5	-	-	-	-	EP104TC0.5	**691407**	EP104TK0.5	**691424**	3
4 mod.	1	-	-	-	-	EP104TC01	**691408**	EP104TK01	**691425**	3
	1.6	-	-	-	-	EP104TC1.6	**691414**	EP104TK1.6	**691431**	3
	2	-	-	-	-	EP104TC02	**691409**	EP104TK02	**691426**	3
	3	-	-	-	-	EP104TC03	**691410**	EP104TK03	**691427**	3
	4	-	-	-	-	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

New

Miniature Circuit Breakers for railway applications

Universal currents

Series EP100 UCT



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

Applications

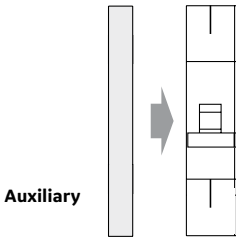
Standards

- 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



Performance

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
Energy limiting class		3
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. IEC 60068-2-28/2-30		95% RH at 55°C
Capacity of ring terminal	(mm^2)	16 (x2 connections)
Torque	(Nm)	2
Poles		1, 2
Self-extinguish degree		according UNI CEI 11170
Smoke index acc. UNI CEI 11170, NF 16-102		F1
Maximum working altitude	(m)	2000

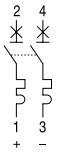
Short-circuit capacity

DC acc. to EN/IEC 60947-2		
Poles	**V ⎓**	**Icu (kA)/Ics (kA)**
1	24	25/15 ms
	60	25/15 ms
	110	20/10 ms
	250	10/5 ms
2	24	30/15 ms
	60	30/15 ms
	110	25/15 ms
	250	10/5 ms

Add-on RCD pag. ***B.40*** *| Auxiliary contacts pag.* ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Accessories pag. ***A.78*** *| Busbars pag.* ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.122***

Series EP100 UCT - 10kA - characteristics Z-B-C-K

		2-3 In (Z)		3-5 In (B)		8-12 In (C)		8-12 In (K)		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
1P	0.5	EP101UCTZ0.5	**691484**	-	-	EP101UCTC0.5	**691451**	EP101UCTK0.5	**691468**	12
1 mod.	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	0.5	EP102UCTZ0.5	**691544**	-	-	EP102UCTC0.5	**691511**	EP102UCTK0.5	**691528**	6
2 mod.	1	EP102UCTZ01	**691545**	-	-	EP102UCTC01	**691512**	EP102UCTK01	**691529**	6
	1.6	EP102UCTZ1.6	**691546**	-	-	EP102UCTC1.6	**691518**	EP102UCTK1.6	**691535**	6
	2	EP102UCTZ02	**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



Accessories for MCBs Series G, GT and EP

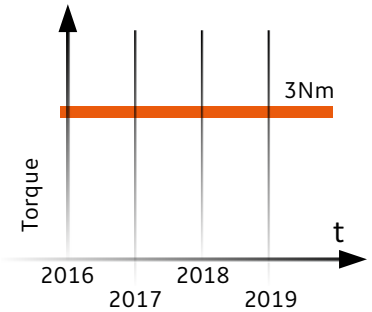
		Function	Cat. No	Ref. No.	Pack.
	Sealing plate for 4P	Cut off the number of poles needed for Series G, GT	EPP	**669486**	100
	Padlocking bracket	Allows padlocking in ON and OFF position Ø padlock 5mm	KS	**624929**	2
	Spacer	1/2 module	PLS / CTX SP	**686069**	50

PROTECT

2 circuits in 1 m

Redline Unibis*: the solution for

Unibis* compact MCBs are one of the latest introductions in the Redline range and are developed to **reduce the size of the distribution board to the minimum**.
The performances are upgraded to **10kA**.



odule

space problems

1P+1P in 1 module

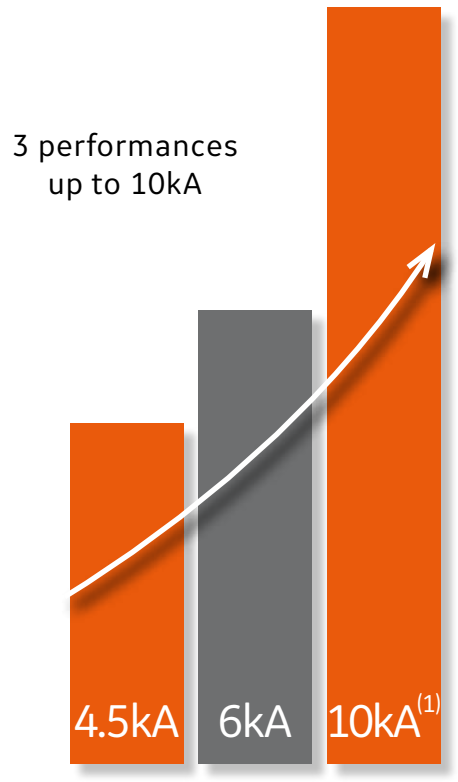
1P+N in 1 module

2P in 1 module

3P in 2 modules

4P in 2 modules

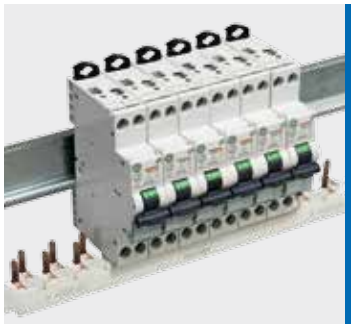
- ☑ Brandnew design:
  2P in 1 module,
  3 and 4P in 2 modules
- ☑ Complete range: from 4.5–6–**10kA**(1),
  2–**40** Amps, B and C curves
- ☑ 100% compatible with all Redline
  auxiliaries and accessories
- ☑ 100% quality and reliability
  acc. to EN 60898
- ☑ CEBEC, NF, VDE, KEMA, IMQ certified



(1) 10kA acc. to IEC 60947-2

The solution for

Unibis* compact MCBs
quality and reliability guaranteed



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 MCBs, 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* MCBs fit perfectly in the Redline range.

Safety terminals IP20

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

Full functionality

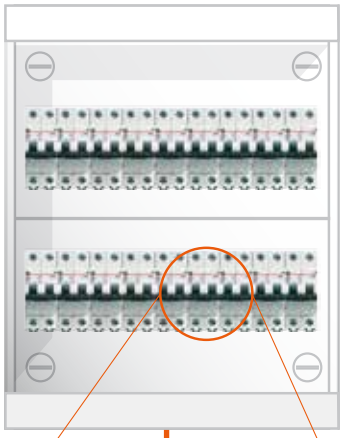
A small auxiliary contact is the interface to the complete functionality of the Redline auxiliaries and accessories.

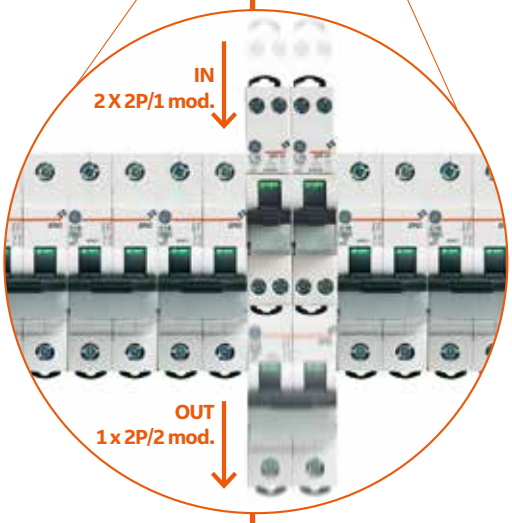
renovations

Saving up to 50% space in distribution boards!

Before

18 x 2P MCBs
36 MODULES





Replacing standard MCBs by compact Unibis* MCBs

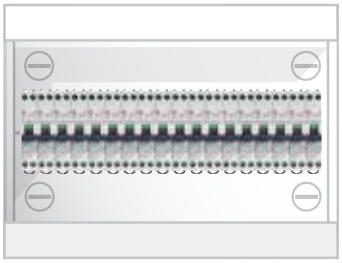
OR

FREE DIN-RAIL FOR EXTENSIONS

After

18 x 2P MCBs
18 MODULES

DISTRIBUTION BOARD REDUCED BY 50%



Technical data of compact MCBs

Series			EPC 451N	EPC 61N
Standards			EN 60898-1	EN 60898-1
Tripping characteristics			B,C	B,C
Nominal current		(In)	2-40	2-40
Calibration temperature		(°C)	30	30
Number of poles (# mod.)			1+N (1 mod.)	1+N (1 mod.)
Neutral pole protected			-	-
Nominal voltage Un AC	1P+N	(V)	240	240
	1P+1P	(V)	-	-
	2P	(V)	-	-
	3P	(V)	-	
	4P	(V)	-	
Nominal voltage Un DC	2P	(V ⎓)	-	-
Frequency		(Hz)	50/60	50/60
		in DC	Thresh. magn. + 40%	Thresh. magn. + 40%
		for 400Hz	Thresh. magn. + 50%	Thresh. magn. + 50%
Maximum service voltage U_{Bmax}		(V)	250	250
Minimum service voltage U_{Bmin}		(V)	12	12
Energy limiting class (EN 60898-1)			3	3
Rated insulation voltage	Pollution degree 2	(V)	500	500
	Pollution degree 3	(V)	400	400
Impulse withstand test voltage		(kV)	6	6
Insulation resistance		(MΩ)	1000	1000
Dielectric rigidity		(kV)	2.5	2.5
Vibration resistance (in x, y, z direction) (IEC 77/16.3)		(g)	3	3
Endurance	Electrical at Un,In		10000(1)	10000(1)
	Mechanical		20000	20000
Utilisation category (EN 60947-2)			A	A
Mounting position: vertical/horizontal			any	any
Incoming top or bottom			yes	yes
Protection degree (outside/inside enclosure with door)			IP20/IP40	IP20/IP40
Selfextinguish degree (acc. UL 94)			V2	V2
Tropicalisation (acc. EN 60068-2/DIN 40046)			+55°C/95%RH	+55°C/95%RH
Operating temperature		(°C)	-25/+55	-25/+55
Storage temperature		(°C)	-55/+55	-55/+55
Terminal capacity	Rigid cable min/max (top)	(mm^2)	1/16(2)	1/16(2)
	Flexible cable min/max (top)	(mm^2)	1/10(2)	1/10(2)
	Rigid cable min/max (bottom)	(mm^2)	1/16(2)	1/16(2)
	Flexible cable min/max (bottom)	(mm^2)	1/10(2)	1/10(2)
	Torque	(Nm)	3	3
Add-on devices	Auxiliary contacts CA UN		yes	yes
	Tele U		yes(3)	yes(3)
	Tele L		yes(3)	yes(3)
	Tele MP		yes(3)	yes(3)
	PBS		yes(3)	yes(3)
Busbar systems	Pin (top/bottom)		yes/yes	yes/yes
	Fork (top/bottom)		no/no	no/no
Accessories			yes	yes
Width per mod.		(mm)	18	18
Weight per mod.		(g)	125	125
Package			12	12
Approvals			KEMA, IMQ, NF	VDE, KEMA, IMQ, NF
CE-marking			yes	yes
Page			A.88	A.89

Short-circuit capacity of compact MCBs

Series			EPC 451N	EPC 61N
Short-circuit capacity AC			(kA)	(kA)
EN/IEC 60898-1 **Icn**	1P+N	240 V	4.5	6
	1P+1P	240 V	-	-
	2P	400 V	-	-
	2P	415 V	-	-
	3P	415 V	-	-
	4P	415 V	-	-
EN 60947-2 **Icu**	1P+N	230 V	6	10
	1P+1P	230 V	-	-
	2P	230 V	-	-
	2P	415 V	-	-
	3P	415 V	-	-
	4P	415 V	-	-
Short-circuit capacity DC				
EN 60947-2 **Icu**	2P	96 V ⎓	-	-
	2P	125 V ⎓	-	-

EPC 611	EPC 30	EPC 45	EPC 60	EPC 62R
EN 60898-1	EN 60898-1	EN 60898-1	EN 60898-1	EN 60898-1, EN 50155, EN 45545-2
B,C	C	B,C	B,C	B,C
2-20	2-40	2-40	2-40	2-40
30	30	30	30	30
1P+1P (1 mod.)	2 (1 mod.), 3&4 (2mod.)	2 (1 mod.), 3 and 4 (2 mod.)	2 (1 mod.), 3 and 4 (2 mod.)	2 (1 mod.)
-	-	-	-	-
-	-	-	-	-
230(4)	-	-	-	-
-	230/400	415	415	415
-	230/400	415	415	-
-	230/400	415	415	-
-	-	96	96	125
50/60	50/60	50/60	50/60	50/60
Thresh. magn. + 40%	Thresh. magn. + 40%	Thresh. magn. + 40%	Thresh. magn. + 40%	Thresh. magn. + 40%
Thresh. magn. + 50%	Thresh. magn. + 50%	Thresh. magn. + 50%	Thresh. magn. + 50%	Thresh. magn. + 50%
250/440	250/440	250/440	250/440	250/440
12	12	12	12	12
3	3	3	3	3
500	500	500	500	500
400	400	400	400	400
6	6	6	6	6
1000	10000	10000	10000	10000
2.5	2.5	2.5	2.5	2.5
3	3	3	3	3
10000(1)	10000(1)	10000(1)	10000(1)	10000(1)
20000	20000	20000	20000	20000
A	A	A	A	A
any	any	any	any	any
yes	yes	yes	yes	yes
IP20/IP40	IP20/IP40	IP20/IP40	IP20/IP40	IP20/IP40
V2	V2	V2	V2	V2
+55°C/95%RH	+55°C/95%RH	+55°C/95%RH	+55°C/95%RH	+55°C/95%RH
-25/+55	-25/+55	-25/+55	-25/+55	-25/+55
-55/+55	-55/+55	-55/+55	-55/+55	-55/+55
1/16(2)	1/16(2)	1/16(2)	1/16(2)	1/16
1/10(2)	1/10(2)	1/10(2)	1/10(2)	1/10
1/16(2)	1/16(2)	1/16(2)	1/16(2)	1/16
1/10(2)	1/10(2)	1/10(2)	1/10(2)	1/10
3	3	3	3	3
yes	yes	yes	yes	yes
yes(3)	yes(3)	yes(3)	yes(3)	yes(3)
yes(3)	yes(3)	yes(3)	yes(3)	yes(3)
yes(3)	yes	yes(3)	yes(3)	yes(3)
yes(3)	yes(3)	yes(3)	yes(3)	yes(3)
yes/yes	yes/yes	yes/yes	yes/yes	yes/yes
no/no	no/no	no/no	no/no	no/no
yes	yes	yes	yes	yes
18	18/36	18/36	18/36	18
160	160/320	160/320	160/320	160
12/6	12/6	12/6	12/6	-
VDE, KEMA	NF, CEBEC	CEBEC, NF	VDE, IMQ, NF, CEBEC	-
yes	yes	yes	yes	yes
A.91	A.92	A.94	A.96	A.98

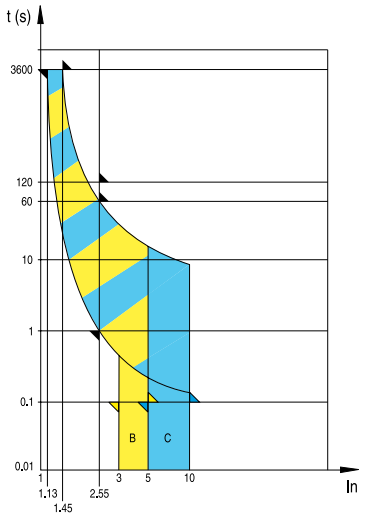
EPC 611	EPC 30	EPC 45	EPC 60	EPC 62R
(kA)	(kA)	(kA)	(kA)	(kA)
-	-	-	-	-
6	-	-	-	-
-	-	-	-	6
-	3	4.5	6	6
-	3	4.5	6	6
-	3	4.5	6	6
-	-	-	-	-
6	-	-	-	-
-	-	-	-	10
-	3	6	10	6
-	3	6	6	6
-	3	6	6	6
-	3	4.5	6	6
-	-	-	-	6

(1) 8000 for 32 and 40A
(2) Also accepting (2 x 4mm²) or (1 x 4mm²)+(1 x 6mm²)
(3) Requires CA UN auxiliary contact as interface
(4) Single phase supply or same phase in 3Ph supply

Characteristics according to IEC/EN 60898-1

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

Tripping characteristic curves (EN/IEC 60898-1)



Magnetic release

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

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

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) 1 s < 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.

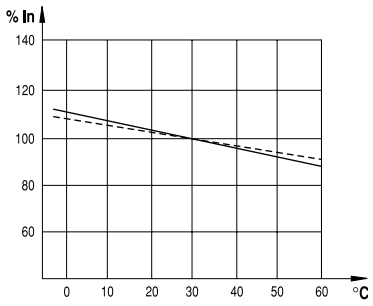
The values shown in the table below are for devices in free air. For devices installed with other modular devices in the same switchboard a correction factor (K) shall be applied relative to the mounting situation of the MCB, the ambient temperature and the number of main circuits in the installation (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 MCBs 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 MCBs 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 MCBs are designed to work at frequencies of 50-60Hz, 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 50-60Hz.
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.

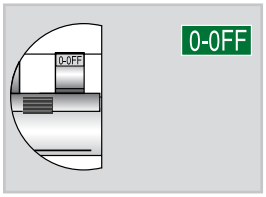
Power losses per pole

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

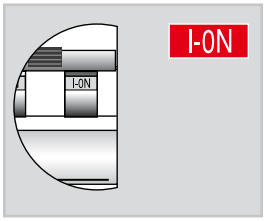
Toggle

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 MCBs

Series EPC 451N

EN/IEC 60898-1 4500 / 3

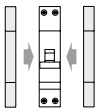
EN/IEC 60947-2 6kA

Applications

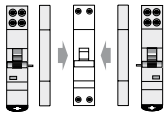
Approvals / Marking

Add-on devices

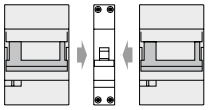
Auxiliaries CA UN



Tele L
Tele U
PBS



Tele MP



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

Performance

Thermal setting In	(A)	2-40
Rated voltage AC Un	(V)	240
Minimum operating voltage UBmin	(V)	12
Tripping caracteristics		B-C
Energy limiting class		3
Mechanical/electrical endurance		20000/10000(1)
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm²)	10-16(2)
Poles		1P+N (1 mod)
Weight	(g)	125

Short-circuit capacity

AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icn/Ics (kA)**
1P+N	240	4.5
AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)**
1P+N	240	6

Attention: do not use on IT net configuration
(1) 8000 for 32 and 40A
(2) Also accepting (2 x 4mm²) or (1 x 4mm²)+(1 x 6mm²)

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

		B		C		
	In (A)	**Cat. No.**	**Ref. No.**	**Cat. No.**	**Ref. No.**	**Pack.**
1P+N 1 mod.	2	EPC 451N B02	**692810**	EPC 451N C02	**692781**	12
	4	EPC 451N B04	**692811**	EPC 451N C04	**692782**	12
	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	EPC 451N B40	**692818**	EPC 451N C40	**692790**	12

Auxiliary contacts pag. ***C.6*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.5*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.126***

Compact MCBs

Series EPC 61N

EN/IEC 60898-1 6000 / 3

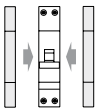
EN/IEC 60947-2 10kA

Applications

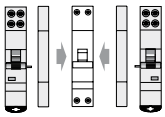
Approvals / Marking

Add-on devices

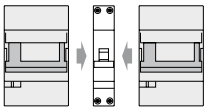
Auxiliaries CA UN



Tele L
Tele U
PBS



Tele MP



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

Performance

Thermal setting In	(A)	2-40
Rated voltage AC Un	(V)	240
Minimum operating voltage UBmin	(V)	12
Tripping caracteristics		B-C
Energy limiting class		3
Mechanical/electrical endurance		20000/10000(1)
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm²)	10-16(2)
Poles		1P+N (1 mod)
Weight	(g)	125

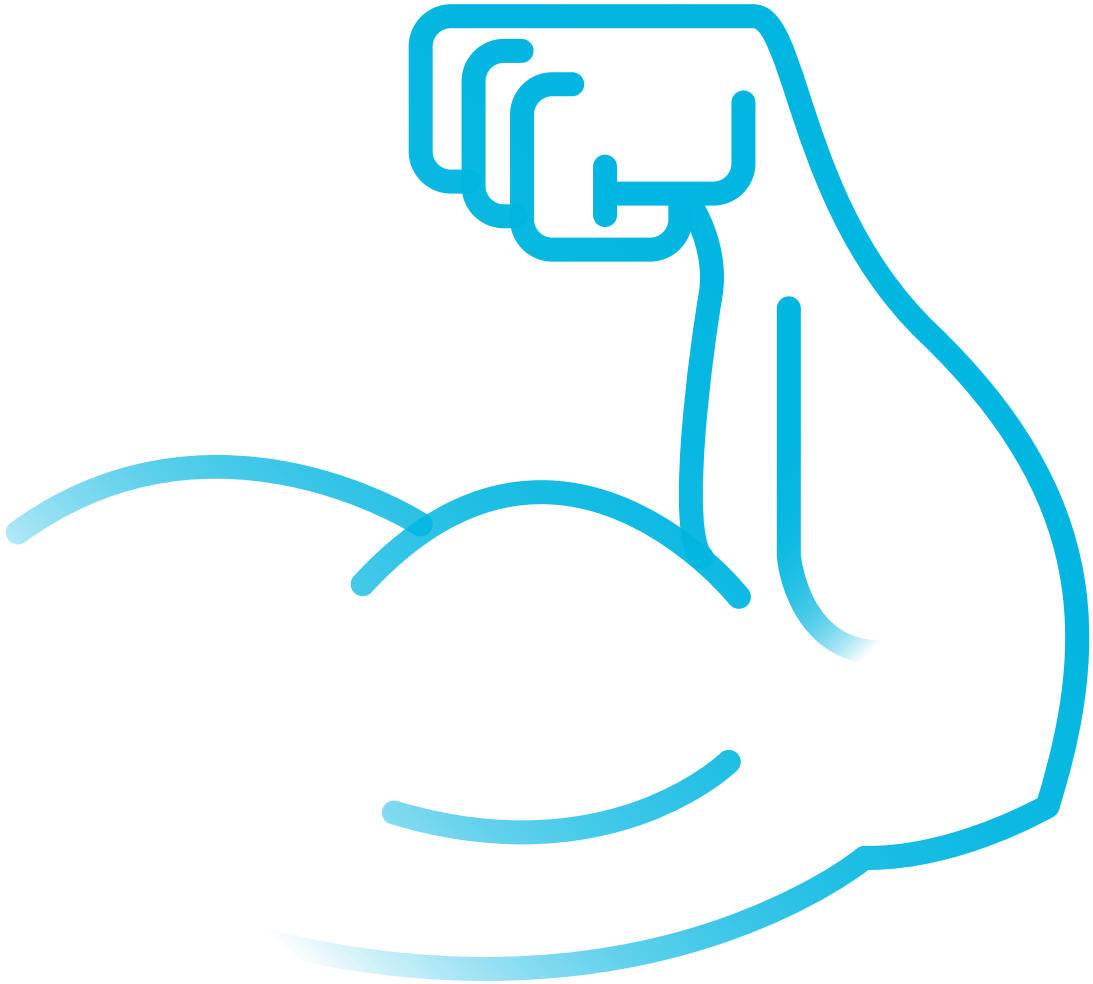
Short-circuit capacity

AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icn/Ics (kA)**
1P+N	240	6
AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)**
1P+N	240	10

Attention: do not use on IT net configuration
(1) 8000 for 32 and 40A
(2) Also accepting (2 x 4mm²) or (1 x 4mm²)+(1 x 6mm²)

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

		B		C		
	In (A)	**Cat. No.**	**Ref. No.**	**Cat. No.**	**Ref. No.**	**Pack.**
1P+N 1 mod.	2	EPC 61N B02	**692819**	EPC 61N C02	**692791**	12
	4	EPC 61N B04	**692820**	EPC 61N C04	**692792**	12
	6	EPC 61N B06	**692821**	EPC 61N C06	**692793**	12
	10	EPC 61N B10	**692822**	EPC 61N C10	**692794**	12
	13	EPC 61N B13	**692604**	EPC 61N C13	**692795**	12
	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



Compact MCBs

Series EPC 611

EN/IEC 60898-1 6000 / 3

EN/IEC 60947-2 **6kA**

Applications

Approvals / Marking

Add-on devices

Auxiliaries CA UN

Tele L
Tele U
PBS

Tele MP

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

Performance

Thermal setting In	(A)	2-20
Rated voltage AC Un	(V)	230(1)
Minimum operating voltage UBmin	(V)	12
Tripping characteristics		B-C
Energy limiting class		3
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm²)	10-16(2)
Poles		1P+1P (1 mod)
Weight	(g)	125

Short-circuit capacity

AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icn/Ics (kA)**
1+1	230	6
AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)**
1+1	230	10

Attention: do not use on IT net configuration
(1) Single phase supply or same phase in 3Ph supply
(2) Also accepting (2 x 4mm²) or (1 x 4mm²)+(1 x 6mm²)

Series EPC 611 - 6kA - characteristics B-C

		B		C		
	In (A)	**Cat. No.**	**Ref. No.**	**Cat. No.**	**Ref. No.**	**Pack.**
1P+1P 1 mod.	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

Auxiliary contacts pag. ***C.6*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.5*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.126***

Compact MCBs

Series EPC 30

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

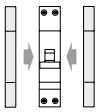
EN/IEC 60947-2 **3kA**

Applications

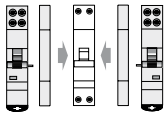
Approvals / Marking

Add-on devices

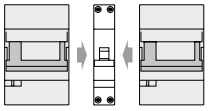
Auxiliaries CA UN



Tele L
Tele U
PBS



Tele MP



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

Performance

Thermal setting In	(A)	2-40
Rated voltage AC Un	(V)	230/400
Minimum operating voltage UBmin	(V)	12
Tripping characteristics		C
Energy limiting class		3
Mechanical/electrical endurance		20000/10000(1)
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible/rigid cable	mm²	10-16(2)
Poles		2, 3, 4
Weight	g	160

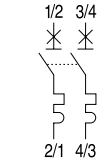
Short-circuit capacity

AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icn/Ics (kA)**
2	400	3
3	400	3
4	400	3
AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)**
2	415	3
3	415	3
4	415	3
AC acc. to EN/IEC 60947-2		
Poles	**Un (V⎓)**	**Icu (kA)**
2	96	3

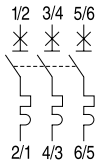
(1) 8000 for 32A and 40A
(2) Also accepting (2 x 4mm²) or (1 x 4mm²)+(1 x 6mm²)

Auxiliary contacts pag. ***C.6*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.5*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.126***

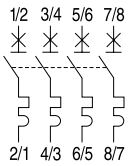
Series EPC 30 - 3 kA - characteristic C



	In (A)	C Cat. No.	C Ref. No.	Pack.
2P 1 mod.	2	EPC 32 C02	**692500**	12
	4	EPC 32 C04	**692501**	12
	6	EPC 32 C06	**692502**	12
	10	EPC 32 C10	**692503**	12
	16	EPC 32 C16	**692504**	12
	20	EPC 32 C20	**692505**	12
	25	EPC 32 C25	**692506**	12
	32	EPC 32 C32	**692507**	12
	40	EPC 32 C40	**692508**	12



3P(1) 2 mod.	2	EPC 33 C02	**692509(1)**	6
	4	EPC 33 C04	**692510(1)**	6
	6	EPC 33 C06	**692511(1)**	6
	10	EPC 33 C10	**692512(1)**	6
	16	EPC 33 C16	**692513(1)**	6
	20	EPC 33 C20	**692514(1)**	6
	25	EPC 33 C25	**692515(1)**	6
	32	EPC 33 C32	**692516(1)**	6



4P 2 mod.	2	EPC 34 C02	**692518**	6
	4	EPC 34 C04	**692519**	6
	6	EPC 34 C06	**692520**	6
	10	EPC 34 C10	**692521**	6
	16	EPC 34 C16	**692522**	6
	20	EPC 34 C20	**692523**	6
	25	EPC 34 C25	**692524**	6
	32	EPC 34 C32	**692525**	6

(1) The auxiliary contact CA UN must be placed only on the **left side** of the 3P MCBs

Compact MCBs

Series EPC 45

EN/IEC 60898-1 **4500 / 3**

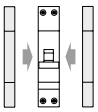
EN/IEC 60947-2 **6kA**

Applications

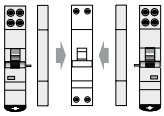
Approvals / Marking

Add-on devices

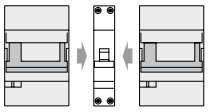
Auxiliaries CA UN



Tele L
Tele U
PBS



Tele MP



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

Performance

Thermal setting In	(A)	2-40(1)
Rated voltage AC Un	(V)	240/415
Minimum operating voltage UBmin	(V)	12
Tripping characteristics		B-C
Energy limiting class		3
Mechanical/electrical endurance		20000/10000(2)
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm²)	10-16(3)
Poles		2, 3, 4
Weight	(g/mod)	160

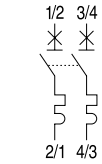
Short-circuit capacity

AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icn/Ics (kA)**
2	415	4.5
3	415	4.5
4	415	4.5
AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)**
2	415	6
3	415	6
4	415	6
AC acc. to EN/IEC 60947-2		
Poles	**Un (V⎓)**	**Icu (kA)**
2	96	4.5

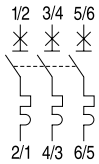
(1) 32A, 3P and 4P
(2) 8000 for 32A
(3) Also accepting (2 x 4mm²) or (1 x 4mm²)+(1 x 6mm²)

Auxiliary contacts pag. ***C.6*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.5*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.126***

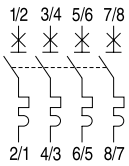
Series EPC 45 - 4.5kA - characteristics B-C



		B		C		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
2P 1 mod.	2	EPC 452 B02	**692608**	EPC 452 C02	**692527**	12
	4	EPC 452 B04	**692609**	EPC 452 C04	**692528**	12
	6	EPC 452 B06	**692610**	EPC 452 C06	**692529**	12
	10	EPC 452 B10	**692611**	EPC 452 C10	**692530**	12
	16	EPC 452 B16	**692612**	EPC 452 C16	**692531**	12
	20	EPC 452 B20	**692613**	EPC 452 C20	**692532**	12
	25	EPC 452 B25	**692614**	EPC 452 C25	**692533**	12
	32	EPC 452 B32	**692615**	EPC 452 C32	**692534**	12
	40	EPC 452 B40	**692616**	EPC 452 C40	**692535**	12



3P 2 mod.	2	EPC 453 B02	**692617**(1)	EPC 453 C02	**692536**(1)	6
	4	EPC 453 B04	**692618**(1)	EPC 453 C04	**692537**(1)	6
	6	EPC 453 B06	**692619**(1)	EPC 453 C06	**692538**(1)	6
	10	EPC 453 B10	**692620**(1)	EPC 453 C10	**692539**(1)	6
	16	EPC 453 B16	**692621**(1)	EPC 453 C16	**692540**(1)	6
	20	EPC 453 B20	**692622**(1)	EPC 453 C20	**692541**(1)	6
	25	EPC 453 B25	**692623**(1)	EPC 453 C25	**692542**(1)	6
	32	EPC 453 B32	**692624**(1)	EPC 453 C32	**692543**(1)	6



4P 2 mod.	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

(1) The auxiliary contact CA UN must be placed only on the **left side** of the 3P MCBs

Compact MCBs

Series EPC 60

EN/IEC 60898-1 6000 / 3

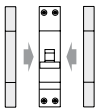
EN/IEC 60947-2 **10kA(1)**

Applications

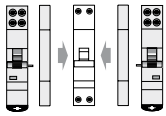
Approvals / Marking

Add-on devices

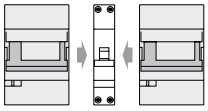
Auxiliaries CA UN



Tele L
Tele U
PBS



Tele MP



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

Performance

Thermal setting In	(A)	2-40(2)
Rated voltage AC Un	(V)	240/415
Minimum operating voltage UBmin	(V)	12
Tripping caracteristics		B-C
Energy limiting class		3
Mechanical/electrical endurance		20000/10000(3)
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm²)	10-16(4)
Poles		2, 3, 4
Weight/mod	(g)	160

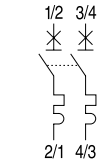
Short-circuit capacity

AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icn/Ics (kA)**
2	240/415	4.5
3	240/415	4.5
4	240/415	4.5
AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)**
2	240/415	10
3	240/415	6
4	240/415	6

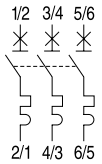
(1) 6kA at 415V
(2) 32A, 3P and 4P
(3) 8000 for 32A
(4) Also accepting (2 x 4mm²) or (1 x 4mm²)+(1 x 6mm²)

Auxiliary contacts pag. ***C.6*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.5*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.126***

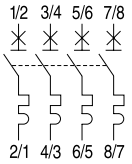
Series EPC 60 - 6kA - characteristics B-C



	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
2P 1 mod.	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



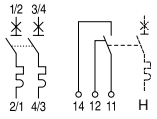
	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
3P 2 mod.	2	EPC 63 B02	**692644**(1)	EPC 63 C02	**692563**(1)	6
	4	EPC 63 B04	**692645**(1)	EPC 63 C04	**692564**(1)	6
	6	EPC 63 B06	**692646**(1)	EPC 63 C06	**692565**(1)	6
	10	EPC 63 B10	**692647**(1)	EPC 63 C10	**692566**(1)	6
	16	EPC 63 B16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



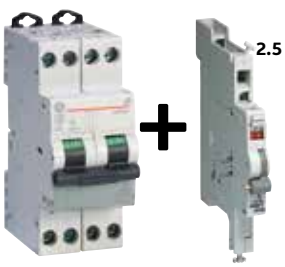
	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
4P 2 mod.	2	EPC 64 B02	**692653**	EPC 64 C02	**692572**	6
	4	EPC 64 B04	**692654**	EPC 64 C04	**692573**	6
	6	EPC 64 B06	**692655**	EPC 64 C06	**692574**	6
	10	EPC 64 B10	**692656**	EPC 64 C10	**692575**	6
	16	EPC 64 B16	**692657**	EPC 64 C16	**692576**	6
	20	EPC 64 B20	**692658**	EPC 64 C20	**692577**	6
	25	EPC 64 B25	**692659**	EPC 64 C25	**692578**	6
	32	EPC 64 B32	**692660**	EPC 64 C32	**692579**	6

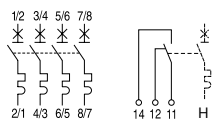
(1) The auxiliary contact CA UN must be placed only on the **left side** of the 3P MCBs

Series EPC 60 - 6kA - characteristics B-C(2)



	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
2P 1.5 mod.	2	-	-	EPC 62 C02 + CA UN S/H G	**693636**	1
	4	-	-	EPC 62 C04 + CA UN S/H G	**693635**	1
	6	EPC 62 B06 + CA UN S/H G	**693643**	EPC 62 C06 + CA UN S/H G	**693634**	1
	10	EPC 62 B10 + CA UN S/H G	**693642**	EPC 62 C10 + CA UN S/H G	**693637**	1
	16	-	-	EPC 62 C16 + CA UN S/H G	**693638**	1
	25	-	-	EPC 62 C25 + CA UN S/H G	**693641**	1
	32	-	-	EPC 62 C32 + CA UN S/H G	**693644**	1





	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
4P 2.5 mod.	10	-	-	EPC 64 C10 + CA UN S/H G	**693639**	6
	16	-	-	EPC 64 C16 + CA UN S/H G	**693640**	6

(2) MCB + auxiliary contact provided already mounted like a set
CA UN is set on H function (auxiliary contact indication).
S function (fault indication) is possible.

Compact circuit breakers for railway application

Series EPC 62R — Series CA UN

EN/IEC 60898-1 6000 / 3

EN/IEC 60947-2 **10kA(1)**

EN 45545-2

EN 50155

EN/IEC 62019

EN 50155 (Railway applications - electronic equipment for rolling stock)

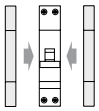
Application

Marking

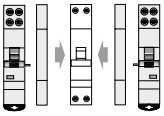
CE

Add-on devices

Auxiliaries CA UN



Tele L
Tele U
PBS



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

Performance

Thermal setting In	(A)	2-40
Rated voltage AC Un	(V)	240/415
Minimum operating voltage UBmin	(V)	12
Tripping caracteristics		B-C
Energy limiting class		3
Mechanical/electrical endurance		20000/10000(2)
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm^2)	10-16(2)
Poles		2
Weight	(g)	160

Short-circuit capacity

AC acc. to EN/IEC 60898-1		
Poles	**V ⎓**	**Icu (kA)/Ics (kA)**
2	240/415	6
AC acc. to EN/IEC 60947-2		
Poles	**V ⎓**	**Icu (kA)/Ics (kA)**
2	240/415	10
DC acc. to EN/IEC 60947-2		
Poles	**V ⎓**	**Icu (kA)/Ics (kA)**
2	125	6

Performance CA UN

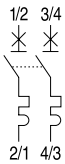
Change-over contact		1
Rated current In	(A)	5
Rated voltage AC Un	(V)	240
Electrical endurance		10000
Terminal capacity flexible/rigid cable	(mm^2)	2.5
Weight	(g)	70
Torque	(Nm)	0.8

(1) 6kA at 415V
(3) 8000 for 32/40A
(2) Also accepting (2 x 4 mm^2) or (1 x 4 mm^2) + (1 x 6 mm^2)

New

Auxiliary contacts pag. ***C.6*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.5*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.126***

Series EPC 62 – 6kA - characteristics B-C



	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
2P 1 mod.	2	EPC 62R B02	**693645**	EPC 62R C02	**693653**	12
	4	EPC 62R B04	**693646**	EPC 62R C04	**693654**	12
	6	EPC 62R B06	**693647**	EPC 62R C06	**693655**	12
	10	EPC 62R B10	**693648**	EPC 62R C10	**693656**	12
	16	EPC 62R B16	**693649**	EPC 62R C16	**693657**	12
	20	EPC 62R B20	**693650**	EPC 62R C20	**693658**	12
	25	EPC 62R B25	**693651**	EPC 62R C25	**693659**	12
	32	EPC 62R B32	**693652**	EPC 62R C32	**693660**	12
	40	EPC 62 B40	**692643**	EPC 62 C40	**692562**	12

40A for the standard version

New

Screwless & Plu

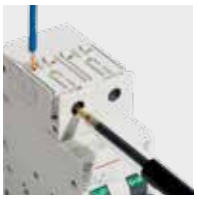
The new range of Fixwell* MCBs

Screwless contact

At the top all *Fixwell** MCBs are equipped with 2 screwless contacts per pole, up to 2 x 4mm^2.

Terminal contact stability guaranteed

No tightening needed later on.

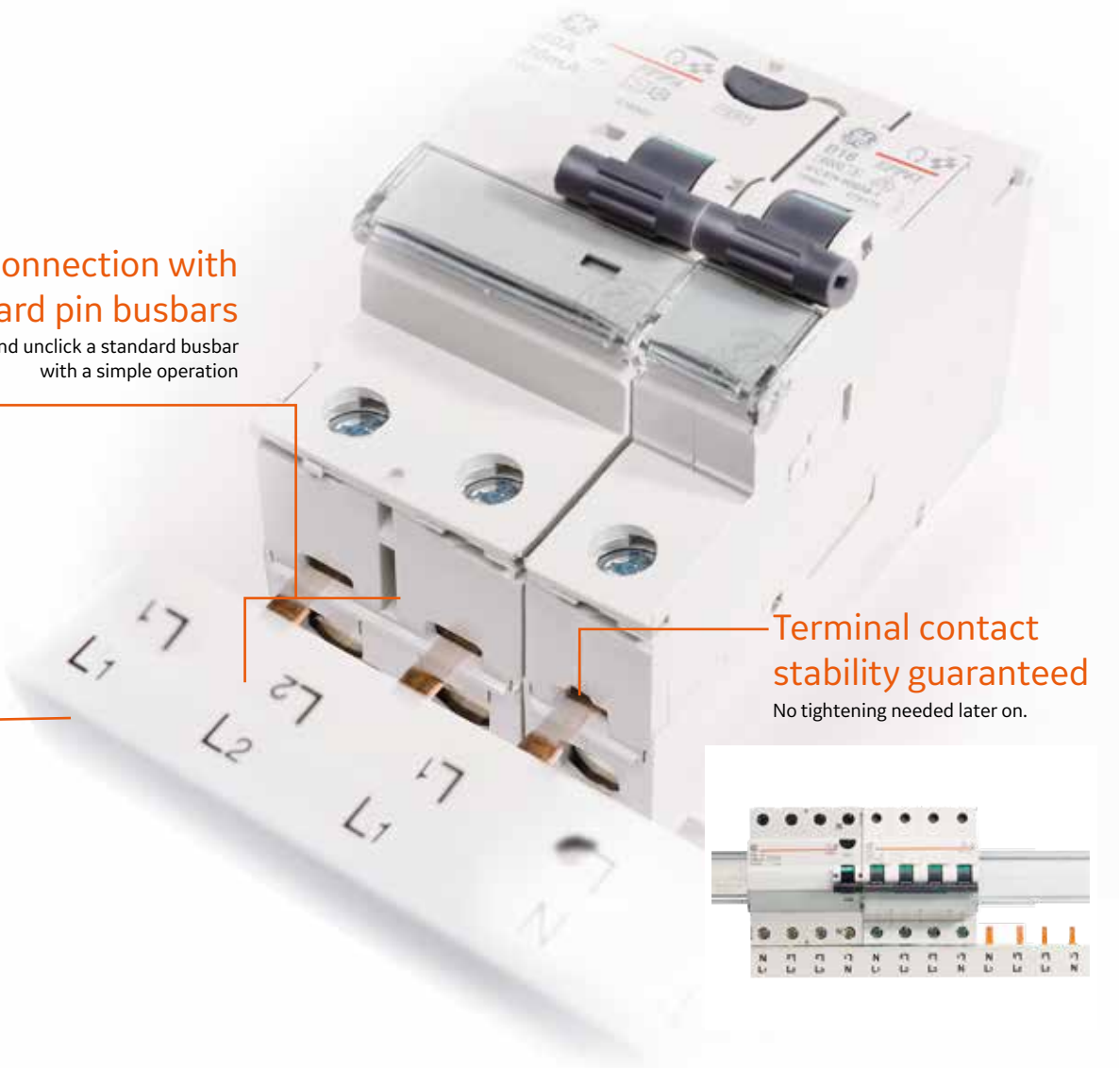


Easy to disconnect

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 and safe

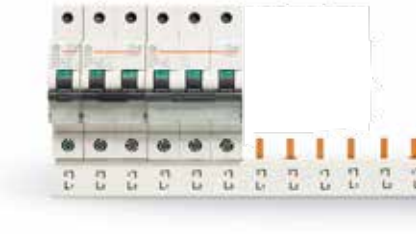
g-in
and RCCBs



Plug-in connection with standard pin busbars
Click and unclick a standard busbar with a simple operation

Terminal contact stability guaranteed
No tightening needed later on.

Standard pin busbars as used for all Redline products



Plug-in connection
All *Fixwell** MCBs and RCCBs are equipped with plug-in busbar contacts.

Easy, Fast and

How to install MCBs and RCCBs without tools within seconds

Fixwell* **MCBs** and **RCCBs** are the most recent extension of the Redline 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 Redline accessories and auxiliaries are the keys of success of this innovative range of MCBs and RCCBs.

1 hour becomes **30 min.**

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

Easy DIN-rail extraction

Plug-in connection with standard busbars

All Fixwell* MCBs and RCCBs 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.

Reliable

plug&play

Rigid and flexible cable

You have the choice : rigid cable or multiwire from 1 up to 4mm^2. It doesn't matter, our Fixwell* MCBs are accepting both!
No cable crimps needed.

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.

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*.

Part of the family

Fixwell* MCBs and RCCBs fit perfectly in the Redline range and are compatible with all Redline auxiliaries and accessories.

Technical data of screwless MCBs

Series				EPP60	EPP100
Standards				IEC/EN 60898-1	IEC/EN 60898-1
Tripping characteristics				B,C	B,C
Nominal current (1)			(A)	6 - 63	6 - 63
Calibration temperature			(°C)	30	30
Number of poles (# mod)				1/1P+N/2/3/3P+N/4P	1/2/3/3P+N/4P
Neutral pole protected				yes	yes
Clip-on (rapid closing)				yes	yes
Nominal voltage (Un)	AC	1P	(V)	240/415	240/415
		1P+N	(V)	240	240
		2P	(V)	415	415
		3P/3P+N/4P	(V)	415	415
	DC	1P (2)	(V DC)	48	48
		2P (in series) (2)	(V DC)	110	110
Frequency			(Hz)	50 to 60	50 to 60
Use in D.C.			(Hz)	DC: magn. trip. +40%	DC: magn. trip. +40%
			(Hz)	400Hz: magn. trip. +50%	400Hz: magn. trip.+ 50%
Maximum service voltage (U_{Bmax}) between two wires			(V)	250/440; 53/120 DC	250/440; 53/120 DC
Minimum service voltage (U_{Bmin})			(V)	12; 12 DC	12; 12 DC
Energy limiting 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 In, 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)				+55°C / 95%RH	+55°C / 95%RH
Operating temperature (3)			(°C)	-25/+55	-25/+55
Storage temperature			(°C)	-55/+55	-55/+55
Terminal capacity				see page A.72	see page A.74
Add-on devices (side add-on)	Auxiliary contacts CA			yes	yes
	Tele U (4)			yes	yes
	Tele L (4)			yes	yes
	Tele MP (4)			yes	yes
	PBS (4)			yes	yes
Busbar system bottom	Pin			yes	yes
	Fork			no	no
Accessories				yes	yes
Dimensions, weights, packaging					
	(H x D x W) per module		(mm)	88.4 x 68 x 18	88.4 x 68 x 18
	Weight/module		(g)	125	125
	Package unit			12	12
Approvals (5)				VDE-KEMA-CEBEC-IMQ	VDE-KEMA-CEBEC-IMQ
CE-marking				yes	yes

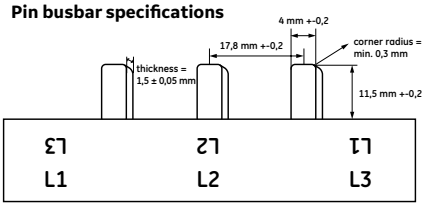
(1) Rating current derating as usual in function of installation conditions.
(2) Preferred values of rated control supply voltage (EN/IEC 60947-2): 24V DC, 48V DC, 110V DC, 125V DC, 220V DC, 250V DC.
(3) With plug-in pin busbar: -25/+50°C
(4) Only at **any extreme side** of the row. No pin busbars let through allowed.
(5) 4P execution approval pending.

Terminal capacity

Top terminals		Ratings 6A to 20A: Screwless (Max. 2 wires)	Ratings 25A to 63A: Cage terminals
Rigid cable (min/max)	mm²	2 x (1/4) (1)	1/35
Flexible cable (min/max)	mm²	2 x (1.5/4) (1)	0.75/25
Recommended torque	Nm	-	2.5
Maximum torque	Nm	-	4.5

Bottom terminals		Ratings 6A to 63A: Bottom cage terminals (2)	Ratings 6A to 63A: Bottom flat plug-in terminals (3)
Rigid cable (min/max)	mm²	1/25	To insert GE pin busbars, or other brands under following dimensions: Length = 11.5 ± 0.2mm Width = 4 ± 0.2mm Thickness = 1.5 ± 0.05mm Corners min. radius = 0.3mm
Flexible cable (min/max)	mm²	0.75/16	
Recommended torque	Nm	2.5	
Maximum torque	Nm	4.5	

Pin busbar specifications

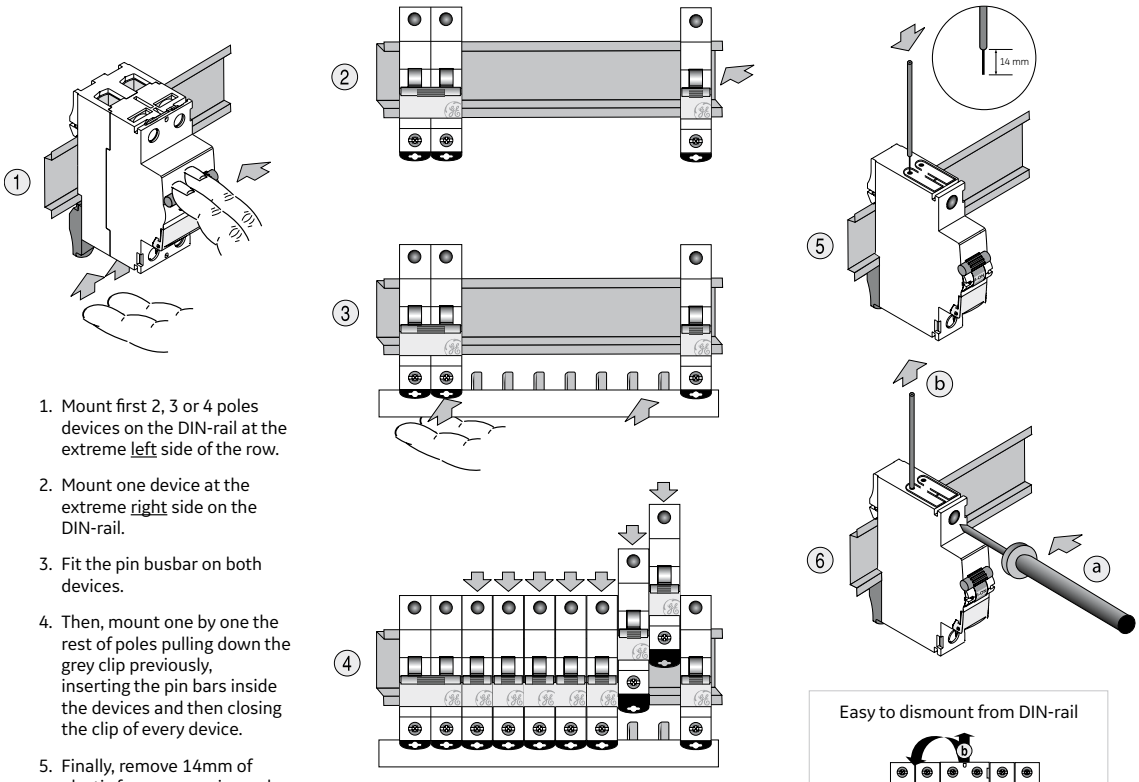


(1) The top screwless terminal is composed of two separate and parallel terminals. You can connect one rigid or flexible cable into each terminal. The bare cable (insulation removed to the appropriate length) should be pushed into the screwless terminal (Fig 5), the terminals will not accept cables with cable lugs or ferrules. For flexible cables it is recommended to twist wires and insert it into the terminal by pressing the push button. To release the cable press the push-button of the MCB and at the same time gently pull the cable (Fig 6).

(2) Bottom terminals provide a cage terminal to connect also cables to feed other rows /devices limited to rated current of the device.

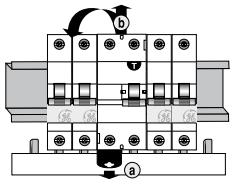
(3) Plug-in window terminals are only foreseen for pin busbars providing the incoming supply to several devices from the bottom side. Not intended for any other conductor with or without cable lugs or cable connectors.

How to mount the busbar into devices



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

Easy to dismount from DIN-rail



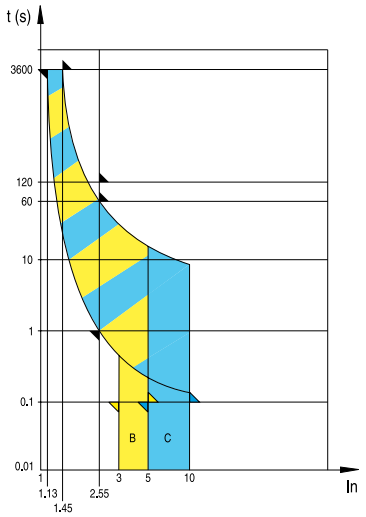
Short-circuit capacity of screwless MCBs

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

Characteristics according to IEC/EN 60898-1

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

Tripping characteristic curves (EN/IEC 60898-1)



Magnetic release

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

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

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) 1 s < t < 120s (In > 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.

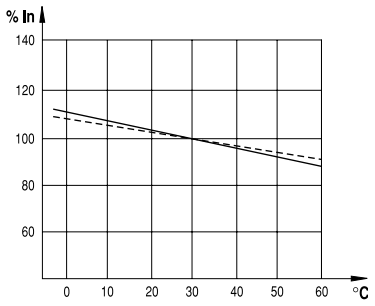
The values shown in the table below are for devices in the free air. For devices installed with other modular devices in the same switchboard a correction factor (K) shall be applied relative to the mounting situation of the MCB, the ambient temperature and the number of main circuits in the installation (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 x 0.7= 11.2A
As the MCB is working at 45°C it shall be applied another factor (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 MCBs 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 MCBs are designed to work at frequencies of 50-60Hz, 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 50-60Hz.
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 MCBs

Series EPP60

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

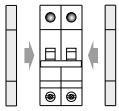
IEC/EN 60947-2 **10kA**

Applications

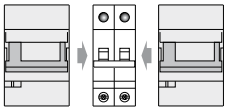
Approvals / Marking

Add-on devices

Auxiliaries[1]



Motor operator[2]



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

Performance

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

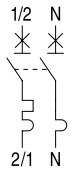
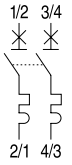
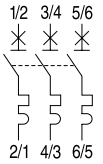
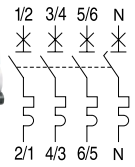
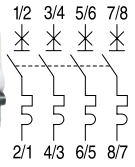
Short-circuit capacity

AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icn/Ics (kA)**[1]
1-4	230/400	6
AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)**
1	240	10
1+N, 2	127	30
	240	20
2	415	10
3, 3+N, 4	240	20
	415	10
DC acc. to EN/IEC 60947-2		
Poles	**V ⎓**	**Icu (kA)**
1	≤ 60	20
2	≤ 125	25

(1) Ics= 75% Icn

Auxiliary contacts pag. ***C.6*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.126***

Series EPP60 - characteristics B and C

		In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
	1P	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
	1P+N 	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
	2P 	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
	3P 	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
	3P+N 	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
	4P 	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

SCREWLESS
top terminals
In=6 to 20A

Screwless MCBs

Series EPP100

EN/IEC 60898-1 **10000 / 3**

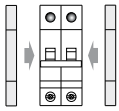
IEC/EN 60947-2 **15kA**

Applications

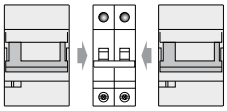
Approvals / Marking

Add-on devices

Auxiliaries(1)



Motor operator(2)



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

Performance

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

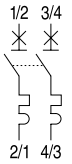
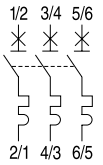
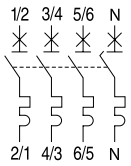
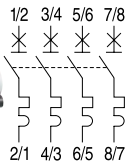
Short-circuit capacity

AC acc. to EN/IEC 60898-1		
Poles	**V**	**Icn/Ics (kA)**(1)
1-4	230/400	10
AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu (kA)**(2)
1	240	15
1+N, 2	127	40
	240	30
2	415	15
3, 3+N, 4	240	30
	415	15
DC acc. to EN/IEC 60947-2		
Poles	**V ⎓**	**Icu (kA)**
1	≤ 60	25
2	≤ 125	30

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

Auxiliary contacts pag. ***C.6*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***A.126***

Series EPP100 - characteristics B and C

		In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
	1P	6	EPP101B06	**678262**	EPP101C06	**678302**	12
		10	EPP101B10	**678263**	EPP101C10	**678303**	12
		13	EPP101B13	**678264**	EPP101C13	**678304**	12
		16	EPP101B16	**678265**	EPP101C16	**678305**	12
		20	EPP101B20	**678266**	EPP101C20	**678306**	12
		25	EPP101B25	**678267**	EPP101C25	**678307**	12
		32	EPP101B32	**678268**	EPP101C32	**678308**	12
		40	EPP101B40	**678269**	EPP101C40	**678309**	12
		50	EPP101B50	**678270**	EPP101C50	**678310**	12
		63	EPP101B63	**678271**	EPP101C63	**678311**	12
	2P 	6	EPP102B06	**678272**	EPP102C06	**678312**	6
		10	EPP102B10	**678273**	EPP102C10	**678313**	6
		13	EPP102B13	**678274**	EPP102C13	**678314**	6
		16	EPP102B16	**678275**	EPP102C16	**678315**	6
		20	EPP102B20	**678276**	EPP102C20	**678316**	6
		25	EPP102B25	**678277**	EPP102C25	**678317**	6
		32	EPP102B32	**678278**	EPP102C32	**678318**	6
		40	EPP102B40	**678279**	EPP102C40	**678319**	6
		50	EPP102B50	**678280**	EPP102C50	**678320**	6
		63	EPP102B63	**678281**	EPP102C63	**678321**	6
	3P 	6	EPP103B06	**678282**	EPP103C06	**678322**	4
		10	EPP103B10	**678283**	EPP103C10	**678323**	4
		13	EPP103B13	**678284**	EPP103C13	**678324**	4
		16	EPP103B16	**678285**	EPP103C16	**678325**	4
		20	EPP103B20	**678286**	EPP103C20	**678326**	4
		25	EPP103B25	**678287**	EPP103C25	**678327**	4
		32	EPP103B32	**678288**	EPP103C32	**678328**	4
		40	EPP103B40	**678289**	EPP103C40	**678329**	4
		50	EPP103B50	**678290**	EPP103C50	**678330**	4
		63	EPP103B63	**678291**	EPP103C63	**678331**	4
	3P+N 	6	EPP103NB06	**678292**	EPP103NC06	**678332**	3
		10	EPP103NB10	**678293**	EPP103NC10	**678333**	3
		13	EPP103NB13	**678294**	EPP103NC13	**678334**	3
		16	EPP103NB16	**678295**	EPP103NC16	**678335**	3
		20	EPP103NB20	**678296**	EPP103NC20	**678336**	3
		25	EPP103NB25	**678297**	EPP103NC25	**678337**	3
		32	EPP103NB32	**678298**	EPP103NC32	**678338**	3
		40	EPP103NB40	**678299**	EPP103NC40	**678339**	3
		50	EPP103NB50	**678300**	EPP103NC50	**678340**	3
		63	EPP103NB63	**678301**	EPP103NC63	**678341**	3
	4P 	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

Fuse Holders

Ask for availability of complete Series SF

Series SF

Applications

Approval / Marking

Standards

IEC 60269-2, IEC 60947-3

Features

Fuse Holders are used in the industrial and tertiary sector for the protection against overloading and short-circuit. On the other side, the circuit cut-off allows the maintenance tasks fulfillment with total security for the operator.

- All circuits for motors, transformers, low voltage distribution, circuits control and drive protection.
- Non-load operation

Function

The fuse holders disconnectors are suitable devices for the protection of low voltage lines in circuits with high short-circuit current.

- Modular fuse-holders are finger-safe under IEC standards to an IP20 grade of protection, including fuse changing (with the flick of a finger).
- Modular fuse-holders are available in 1, 2 and 3 poles, with or without visual blown fuse indicator, in IEC version or IEC + UL version.
- SF Series are made of tough and durable thermoplastic or thermoset material.

Advantages

- Finger safe
- Degree of protection: IP20
- Optional visual blown fuse indicator(1)
- DIN rail mounting
- Modular design
- Lockable(1)
- Sealable in closed and open position
- Plastic material UL94V2 mini
- Flame retardant materials with glow wire flammability index to 960°C

Performance

	Series SF Fuseholders			
Type	**8x31**	**10x38**	**14x51**	**22x58**
Voltage AC	500VAC	690VAC	690VAC	690VAC
Voltage DC	500 VDC	690VDC	690VDC	690VDC
Amper (A)	25A	32A	50A	125A
SCCR	-	200kA	100kA	100kA
Power dissipation	2.5W	3W	5W	9.5W
Impulse withstand voltage	6kV	6kV	8kV	8kV
Storage temperature	-25°C to 80°C			
Operating temperature	-25°C to 60°C			

(1) For sizes 14x51 and 22x58

New

Dimensions pag. ***A.116-A.127***

Series SF - Fuse Holders

	Poles	In (A)	Modules	Approval	Cat. No	Ref. No	Pack
8x31	N	32A	1	CE	SFN/8x31	**676551**(2)	12
	1P	25A	1	CE	SF1/8x31	**676552**	12
	1P+N(2)	25A	2	CE	SF1N/8x31	**676553**	6
	2P	25A	2	CE	SF2/8x31	**676554**	6
	3P	25A	3	CE	SF3/8x31	**676555**	4
	3P+N	25A	4	CE	SF3N/8x31	**676556**	3
10x38	1P	32A	1		SF1/10x38	**676558**	12
	1P+N(2)	32A	2		SF1N/10x38	**676559**	6
	2P	32A	2		SF2/10x38	**676560**	6
	3P	32A	3		SF3/10x38	**676561**	4
	3P+N(2)	32A	4		SF3N/10x38	**676562**	3

14x51	N	50A	1.5		SFN/14x51	**676563**	6
	1P	50A	1.5		SF1/14x51	**676564**	6
	1P+N(2)	50A	3		SF1N/14x51	**676565**	3
	2P	50A	3		SF2/14x51	**676566**	3
	3P	50A	4.5		SF3/14x51	**676567**	2
	3P+N(2)	50A	6		SF3N/14x51	**676568**	1

22x58	N	125A	2		SFN/22x58	**676569**	6
	1P	125A	2		SF1/22x58	**676570**	6
	1P+N	125A	4		SF1N/22x58	**676571**	3
	2P	125A	4		SF2/22x58	**676572**	3
	3P	125A	6		SF3/22x58	**676573**	2
	3P+N	125A	8		SF3N/22x58	**676574**	1

(1) Left Neutral
(2) Common Neutral for 8x31 and 10x38 sizes

Series SF - Unbis Fuse Holders

	Poles	In (A)	Modules	Approval	Cat. No	Ref. No	Pack
10x38	1P+N(1)	32A	1	CE	SFU1N/10x38	**679590**(2)	12

(1) Left Neutral
(2) Fuse Holder has the CE Marking

Series SF - Fuse Holders with visual indicator and microswitch

	Poles	In (A)	Modules	Approval	Cat. No	Ref. No	Pack
14x51	1P	50A	1.5		SF1/14X51IM	**679556**	6
	2P	50A	3		SF2/14X51IM	**679557**	3
	3P	50A	4.5		SF3/14X51IM	**679558**	2
22x58	1P	120A	2		SF1/22X58IM	**679559**	6
	2P	120A	4		SF2/22X58IM	**679560**	3
	3P	120A	6		SF3/22X58IM	**679561**	2

New

Fuse Holders

Series SF UL for class CC Fuses

Applications

Approval / Marking

Features

- All circuits up to 600V for protection of motors, transformers, low voltage distribution, control circuits, drive protection
- Non-load operation

Function

Modular fuse-holders are finger-safe under IEC standards to an IP20 grade of protection, including fuse changing (with the flick of a finger). Modular fuse-holders SFUL-CC are available in 1, 2 or 3 poles, with or without visual blown fuse indicator. SFUL-CC range is made of tough and durable thermoplastic material.

Performance

Size	Class CC fuse-links
Number of poles	1P, 2P, 3P
Mounting	Installation on to DIN-rails EN 60715
Protection Degree	IP20
SCCR	200kA AC and 100kA DC
Amper (A)	30A
Plastic material	UL94V2
Weight 1P / P / 3P	70 / 125 / 200

Technical data

Type	**SF UL 30 CC**	**SF UL 30CC I**
Thermal Current	30A	30A
Insulation Voltage	600VAC/DC	600VAC/DC
Indication System	without indicator	with indicator
Operating Temperature	-25°C to 60°C	-25°C to 60°C
Storage Temperature	-25°C to 80°C	-25°C to 80°C

New

Dimensions pag. ***A.127***

Series SF UL for CC Fuses

	Poles	In (A)	Modules	Cat. No	Ref. No	Pack
Without indicator	1P	30A	1	SFUL1/30CC	**679562**	12
	2P	30A	2	SFUL2/30CC	**679563**	6
	3P	30A	3	SFUL3/30CC	**679564**	4
With indicator	1P	30A	1	SFUL1/30ICC	**679565**	12
	2P	30A	2	SFUL2/30ICC	**679566**	6
	3P	30A	3	SFUL3/30ICC	**679567**	4

New

Fuse Holders

Series SF UL for class J Fuses

Applications

Approval / Marking

Features

- All circuits up to 600V for protection of motors, transformers, low voltage distribution, control circuits, drive protection
- Non-load operation

Function

- Modular 600 Volt Fuse Holders for Class J fuses introduce a new level of safety and ease for installing or replacing Class J fuses.
- SF UL J Series are qualify as "finger-safe" to an IP20 grade of protection under IEC standards.
- The SF UL J Series accommodates 30A Class J or 22 x 58 mm French Ferrule(1) fuses.
- It is for 60A Class J fuses. J holders are available in compact 1, 2, or 3 pole units, with or without blown-fuse indicators in each pole.

- All units have provisions for locking in the open position for safety during fuse changeouts or equipment servicing.
- SFUL/30J and SFUL/60J holders can be snap-mounted to 35 mm DIN-rail and they have a unique latch which will stay open to allow re-positioning of the holder in the future.
- SF Series body material is tough and durable polyamide.

(1) Holder not UL listed when installed with French Female Fuses

Performance

Volts		600VAC/DC
Amps	***SFUL/30J***	30A Maximum
	SFUL/60J	60A Maximum
SCCR		200kA

Highlights:

- Compact footprint
- Quick, easy fuse change
- Optional indicator lights
- DIN-rail
- Finger-safe IP20 protection

New

Dimensions pag. ***A.128***

Series SF UL for J Fuses

Poles	In (A)	Modules	Cat. No	Ref. No	Pack
1P	30A	2	SFUL1/30J	**679583**	12
2P	30A	4	SFUL2/30J	**679584**	6
3P	30A	6	SFUL3/30J	**679585**	4

1P	60A	3	SFUL1/60J	**679586**	6
2P	60A	5	SFUL2/60J	**679587**	3
3P	60A	7	SFUL3/60J	**679588**	2

New

Fuse Holders

Series SF UL for Photovoltaic

Applications

Approval / Marking

Function

- GE's new Photovoltaic fuseholders series deliver the ultimate ease-of-use, time (labor) saving and reliable solution available in the marketplace.
- Offering screw-less, spring pressure, wire termination technology into a power fuseholder, delivering the best of both technologies to its customers.
- Now you can experience the combined benefits of safety, ease-of-use, labor savings and reliability of SF fuseholders and spring pressure technology

Advantages

- Equipped with industry proven, patented WAGO CAGE CLAMP® technology (over 25 years of field experience and acceptance)
- Reduce wire installation time by up to 75%
- Highly reliable, maintenance free wire contact
- Secure, vibration proof, corrosion resistant, temperature cycling resistant, cost saving wire connection
- Quick, tool-free, easy fuse change-outs
- IP20 finger-safe protection
- Option visual blown fuse indicator
- DIN-rail mounting
- Compact footprint
- Environmentally conscious, RoHS compliant and lead free

Performance

Nominal Current	32A
Rated Voltage	1000VDC
Operation temperature	-40°C to +85°C
Watts Loss	3W or less
Flammability rating	UL 94-VO
Wire range	2.5 to 16mm^2 single conductor 2.5 to 5mm^2 dual conductor
Wire type	60/75/90°C solid/stranded copper

New

Series SF UL for Photovoltaic

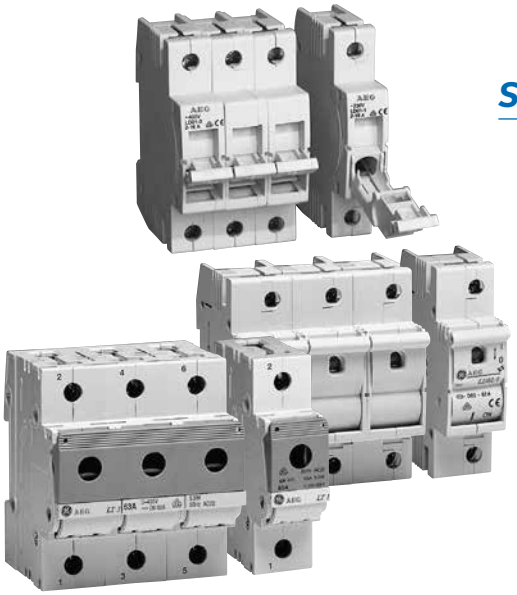
	Poles	In (A)	Modules	Cat. No	Ref. No	Pack
With screws	1P	32A	1	SFUL1/10X38	**679568**	12
Without Indicator	1P	32A	1	SFUL1/10X38I	**679569**	12
With Indicator						

Screwless	1P	32A	1	SFUL1/10X38S	**679570**	12
Without Indicator	1P	32A	1	SFUL1/10X38IS	**679571**	12
With Indicator						

For photovoltaic fuses ask for availability

New

Fuse Holders



Series LT - LD

Applications

Marking

CE

Technical data LT and LD02

Nominal Current	A	2 - 63
Nominal Voltage	V	240/400 AC
		65 DC
Utilization category		AC - 22 (63A)
		AC - 23 (35A)
Breaking capacity	kA	50
Switching life time		10.000
Ambient temperature	°C	-5 to +40
Linking capacity	mm²	to 35
Number of Poles		1, 4
Pole Width	mm	27

Technical data LD01

Nominal Current	A	2 - 16
Nominal Voltage	V	230/400 AC
		250 DC
Utilization category		AC - 22 (63A)
Breaking capacity	kA	50
Switching life time		2.000
Ambient temperature	°C	-5 to +40
Connection clamps	mm²	to 25
Number of Poles		1, 3
Pole Width	mm	18

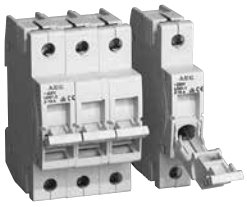
New

Disconnector for D02-Fuses (without fuse link)

Description	Modules	Cat. No	Ref. No	Pack
2 - 63A, fuses D02				
1P	1.5	LT1 N	**676910**	3
3P	4.5	LT3 N	**676911**	1

2 - 63A, fuses with push-bottom insert system				
1P	1.5	LD021	**544332**	1
3P	4.5	LD023	**544333**	4

Disconnector for D01-Fuses (without fuse link)



Description	Modules	Cat. No	Ref. No	Pack
16A				
2P	1	LD011	**544339**	10
3P	3	LD013	**544340**	3

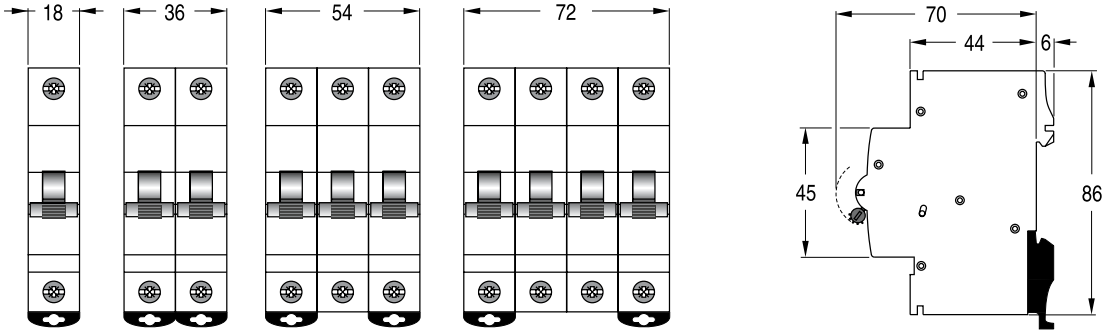
Accessories

	Description	Modules	Cat. No	Ref. No	Pack
For LD02	**Adapter for D01**				
	3P	3	LD02AD01	**544338**	20
	Operation				
	20A	-	LD02P20	**544334**	1
	25A	-	LD02P25	**544335**	1
	35A	-	LD02P35	**544336**	50
	50A	-	LD02P50	**544337**	1

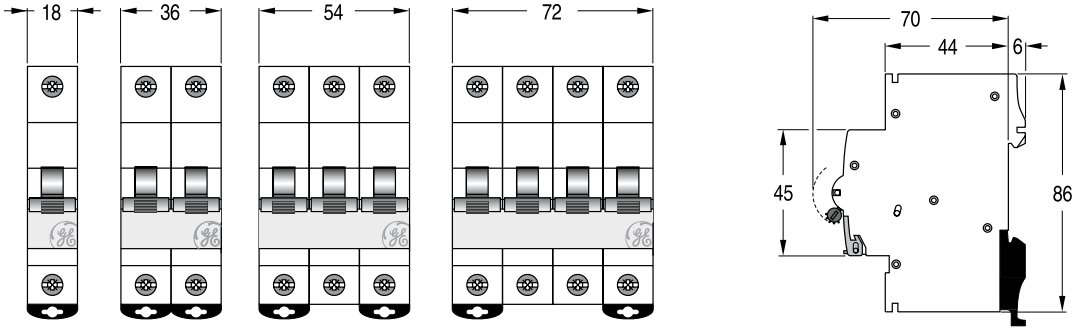
New

Dimensional drawings

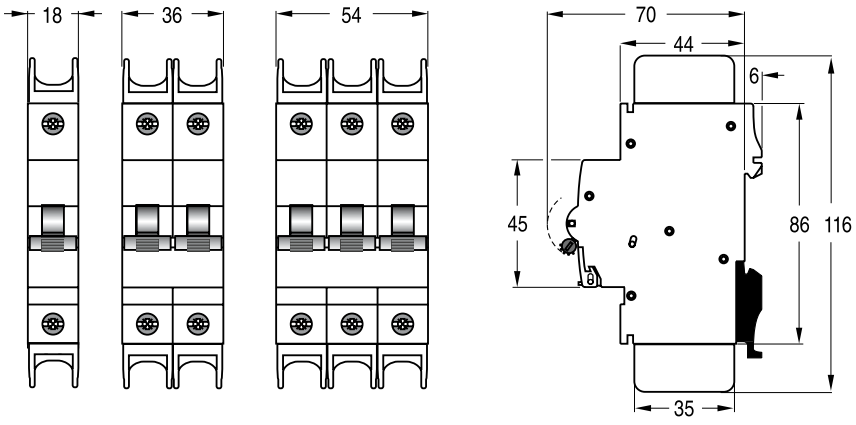
Miniature Circuit Breakers - Series G, GT, Series EP100 UC, EP60 UL and EP100 UL



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

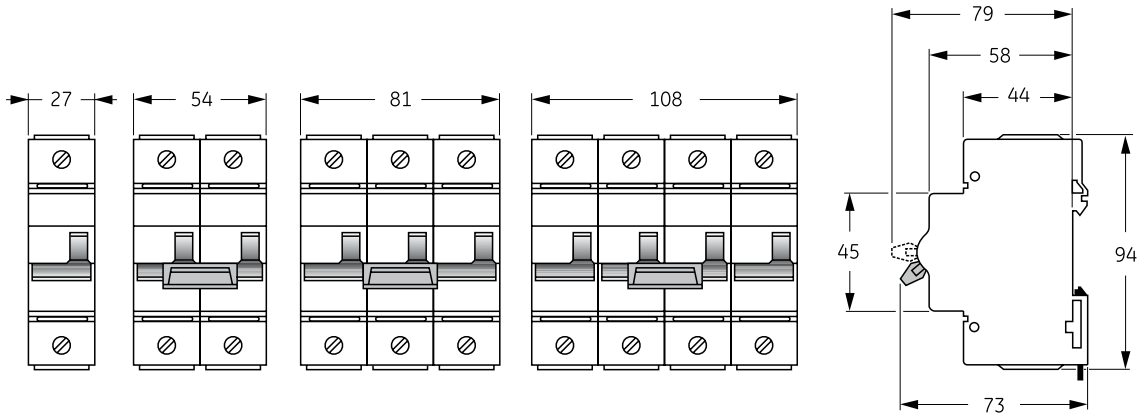


MCB with UL 489 approval - Series EP100 ULH

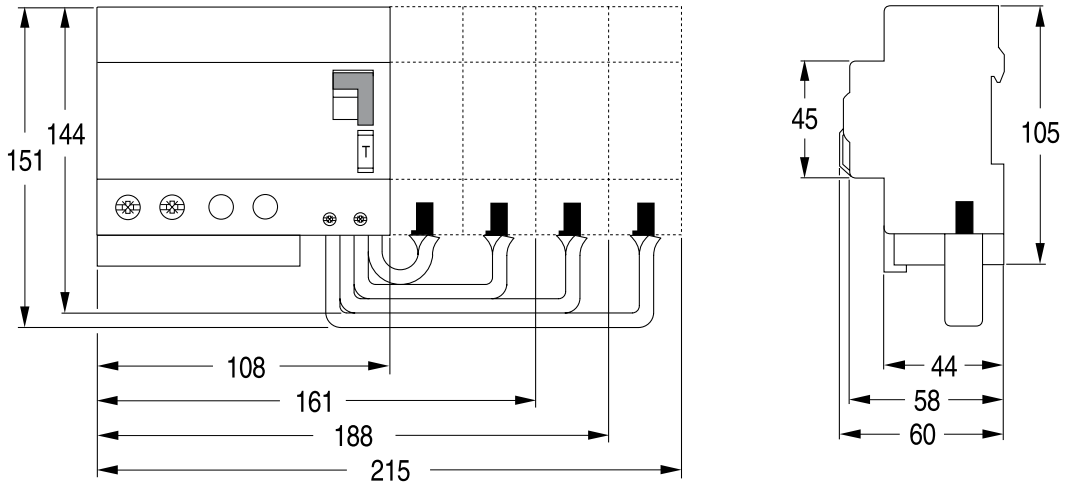


Dimensional drawings

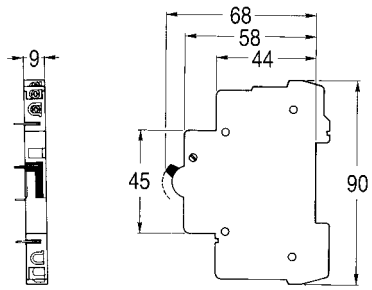
Miniature Circuit Breakers - Series Hti



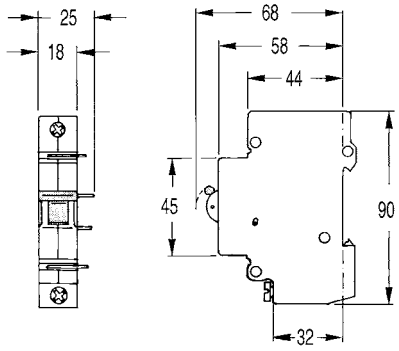
Add-on RCDs for Series Hti



Auxiliary contact - Series Hti

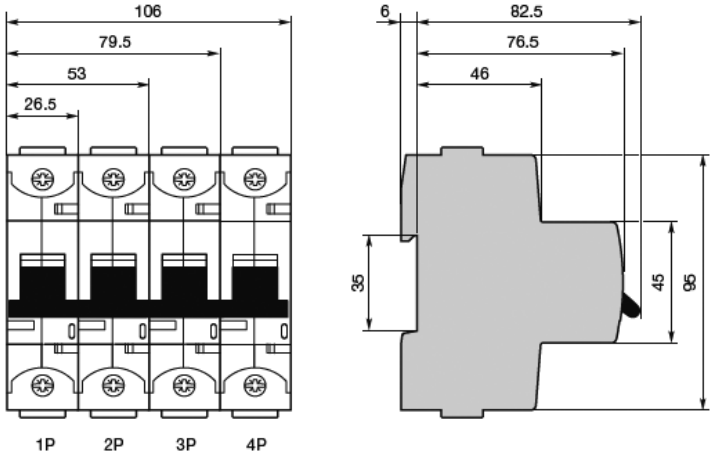


Shunt trip - Series Hti

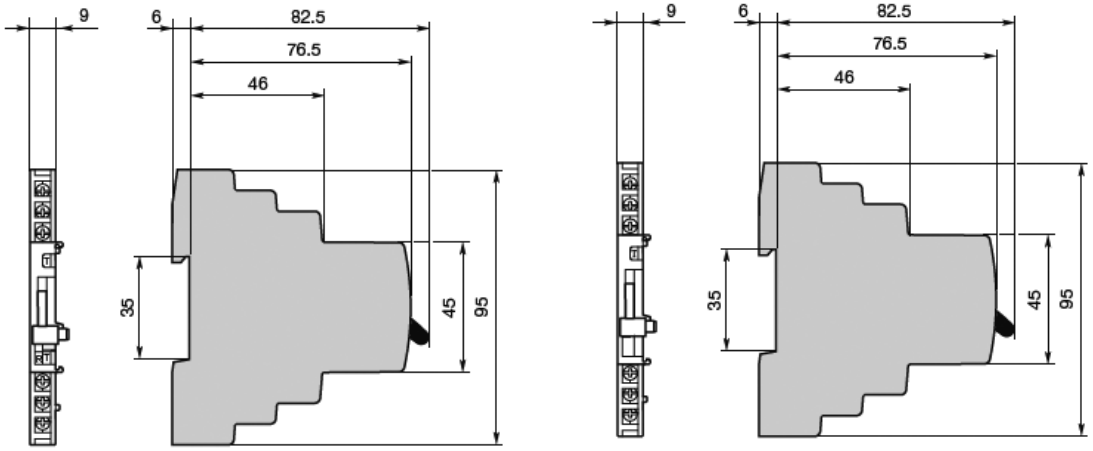


Dimensional drawings

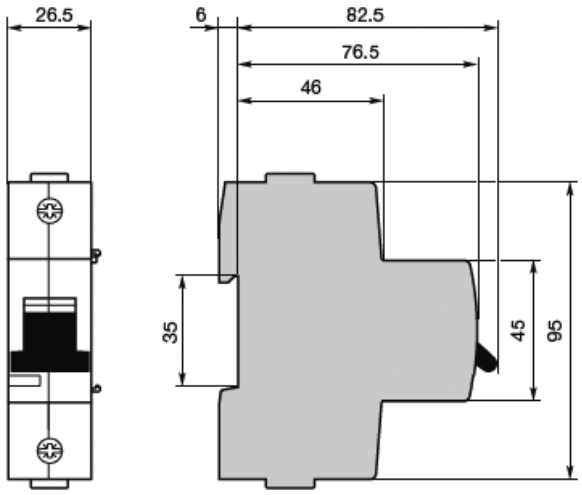
Miniature Circuit Breakers – Series Hti+16, Hti+25, Hti+36, Hti+50



Auxiliary contacts - Series Hti+

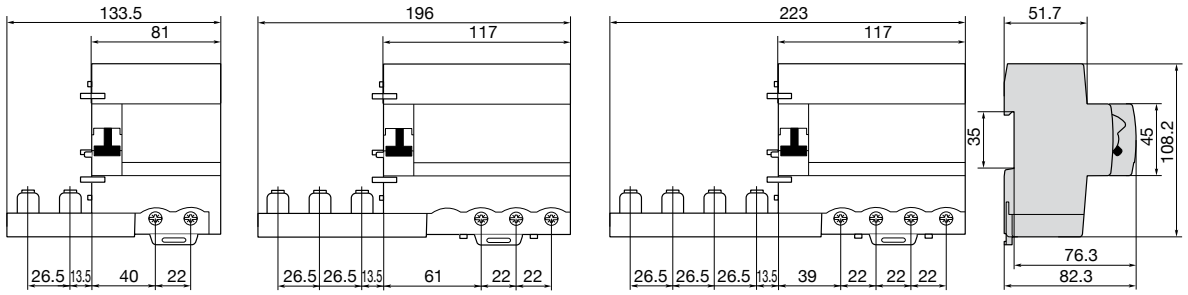


Shunt trip and Undervoltage - Series Hti+

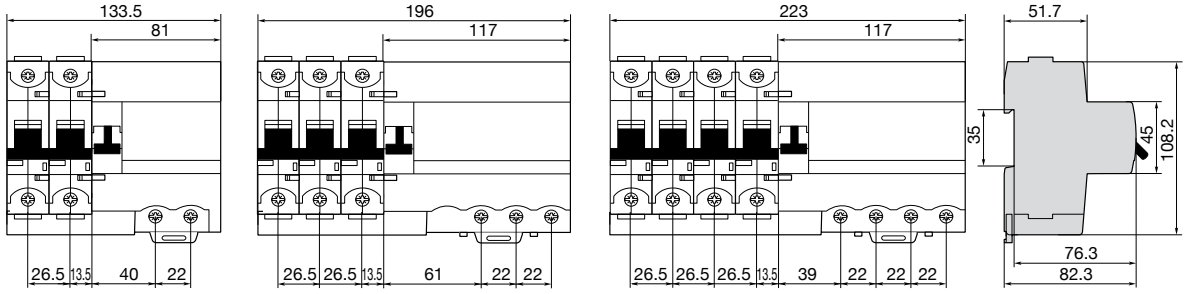


Dimensional drawings

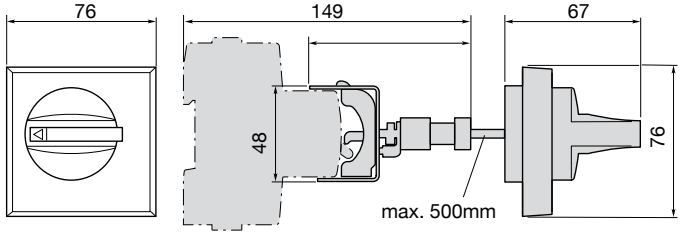
Add-on RCDs for Series Hti+



Residual Current Circuit Breakers for Series Hti+ 50DOC

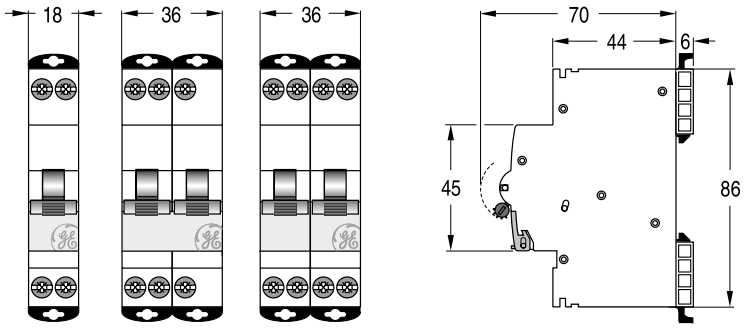


Rotary Handle for Series Hti+

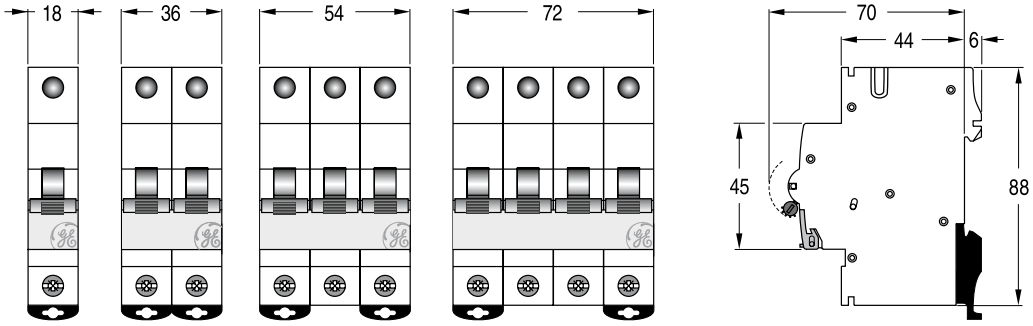


Dimensional drawings

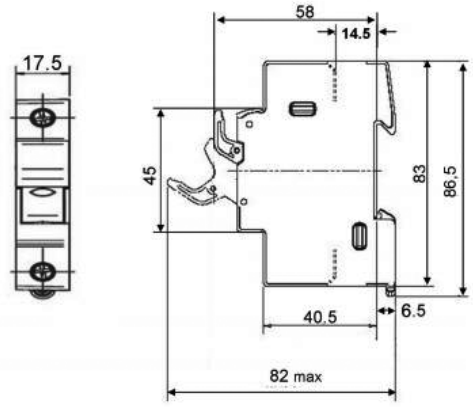
*Compact MCBs - Series EPC - Unibis**



*Screwless MCBs - Series EPP - Fixwell**

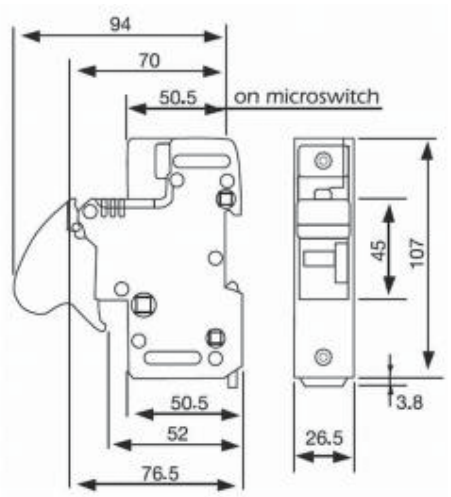


Fuse Holders Series SF– 8x31 & 10x38

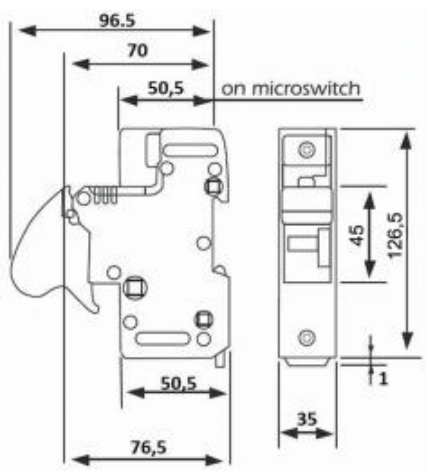


Dimensional drawings

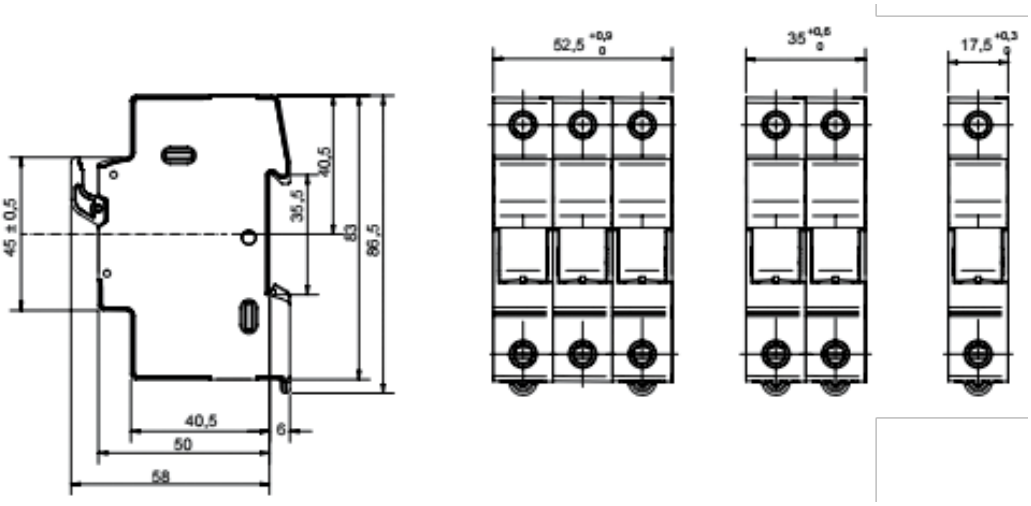
Fuse Holders Series SF– 14x51



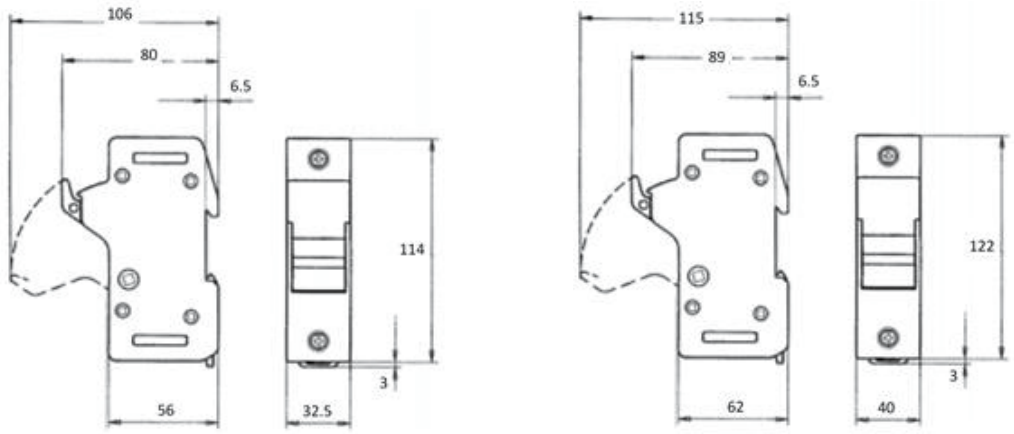
Fuse Holders Series SF– 22x58



Fuse Holders Series SF for Class CC Fuses

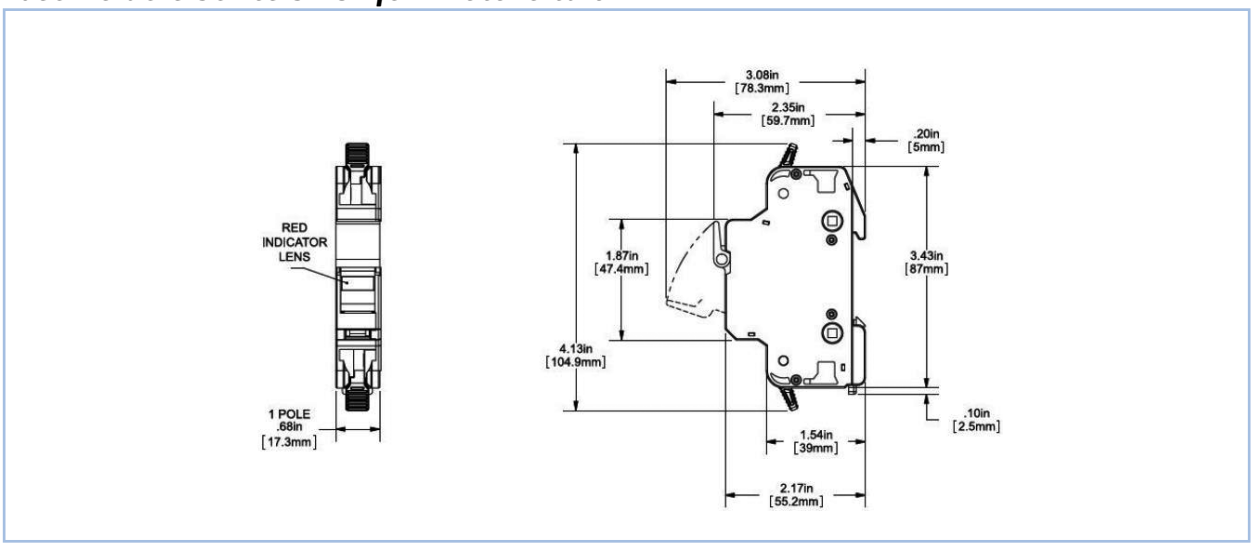


Fuse Holders Series SF for Class 30J and 60J Fuses



Dimensional drawings

Fuse Holders Series SF UL for Photovoltaic



B.3 Types of Wave form detected by RCCBs and classification

Unibis* 2P & 3P+N -Compact RCBOs

B.4 Advantages

B.8 Technical data

B.9 Selection table

B.10 2P RCBOs - **Series DPC45**

B.12 2P RCBOs - **Series DPC60**

B.14 2P RCBOs - **Series DPC100**

New B.16 2P RCBOs - **Series DPCA100**

New B.18 3P+N RCBOs - **Series DMA63N**

1P+N RCBOs, Add-on RCCBs, compact electronic RCBOs, RCCBs with UL, Fixwell

B.20 Selection table

B.22 Technical data

New B.26 RCCBs - **Series BP/BD**

New B.32 RCCBs - Residual Current Circuit Breakers - **Series FP type B**

New B.34 RCCBs - Residual Current Circuit Breakers - **Series FP type F**

B.36 RCBOs with overcurrent protection - **Series DM60** electromechanical

B.38 RCBOs with overcurrent protection - **Series DM100** electromechanical

B.40 Add-on RCCBs - **Diff-o-Click**

Unibis* – Compact electronic RCBOs

New B.44 RCBOs - **Series DMCE60NS and DICE60NS**

B.48 RCBOs - **Series DMCE60 and DICE60**

B.50 RCBOs with overcurrent protection - **Series DME**

B.52 RCBOs with overcurrent protection - **Series DMET**

RCCBs with UL Approval

B.54 RCCBs with UL approval - **Series FPAUL**

B.56 RCBOs with UL approval - **Series DPA100UL**

Fixwell* - Screwless RCCBs

B.58 RCCBs - **Series FPP**

B.60 Terminal capacity - Mounting instruction

Earth leakage relay with external toroid

B.62 Residential earth leakage relay - **Series GRDT+TOP**

Earth leakage Current Breaker - Utility Devices

New B.64 ELCB - **Series Disb**

New B.64 ELCB - **Series NDP/NDF**

B.70 Dimensional drawings

Residual Current Circuit Breakers

Residual Current Protection Devices

Types of Wave form detected by RCCBs and classification

Waveform definition	Current waveform	Type AC	Type A-Ai	Type F	Type B	Tripping current
Sine wave	~	✓	✓	✓	✓	0.5 to 1 IΔn
Pulsating half wave	⌐⌐	✗	✓	✓	✓	0.35 to 1.4 IΔn
Pulsating 90°/135° wave	⌐⌐	✗	✓	✓	✓	Current delay angle 90°: 0.25 to 1.4 Iδn
		✗	✓	✓	✓	Current delay angle 135°: 0.11 to 1,4 IΔn
Pulsating Half wave + diret current (6mA)	⌐⌐ ═	✗	✓	✓	✓	max. 1.4 IΔn+6mA
Pulsating Half wave + diret current (10mA)	⌐⌐ ═	✗	✗	✓	✓	max. 1.4 IΔn+10mA
Composite wave	⌇⌇	✗	✗	✓	✓	0.5 to 1.4 IΔn
High frequency (up to 1KHz)	▮▮	✗	✗	✓	✓	Current Frequency 150Hz 0.5 to 2.4 IΔn
		✗	✗	✓	✓	Current Frequency 400Hz 0.5 to 6 IΔn
		✗	✗	✓	✓	Current Frequency 1000Hz 1 to 14 IΔn
Two phase rectified full wave	⌐⌐	✗	✗	✗	✓	0.5 to 2 IΔn
Three phase rectified full wave	⌇⌇					
Direct current	═					

Discover advantages: Type F
Offer the same range of protection and functionality as a Type A RCD; this means that release with sinusoidal AC currents as well as pulsating DC currents.

In addition to this, they are capable of detecting residual currents from mixed frequencies of up to 1000 Hz, which can often occur on the outgoing feeder side of single-phase frequency converters.

This prevents undesirable interruptions to the electrical supply if, for example, pulsed leakage currents of up to ten milliseconds occur at activation of filter capacitors.

Type B
In adition to release residual current waveforms of type A, B type RCCBs are used to detect smooth DC residual currents. B Type RCCBs are recommended for use with EV Charge and drives and inverters for supplying motors for pumps, lifts, textile machines, machine tools... since they recognise a continuous fault current with low level ripple.

Type AC: Release with sinusoidal currents which occur suddenly or slowly rise in magnitude.

Type A-Ai: Release with sinusoidal currents and also with pulsating direct current which occur suddenly or slowly rise in magnitude.

Type S-Si (type A-Ai): Time delay release with sinusoidal currents and also with pulsating direct current which occur suddenly or slowly rise in magnitude.

2P in two modules compact RCBOs
The complete protection and ...

Unibis* RCBOs are the latest innovation in the ElfaPlus modular devices range. They have been developed to reduce the size of distribution boards to the minimum. Performances have been upgraded up to 10kA and extended with high immunity residual tripping characteristics. For each line where integrated overload protection and residual current protection are required, a RCBO is now available in only **two modules**!

Saving up to 50% space in distribution boards!

Protected cables
up to 35mm^2 rigid cable
up to 25mm^2 flexible cable

... the solution for space issues

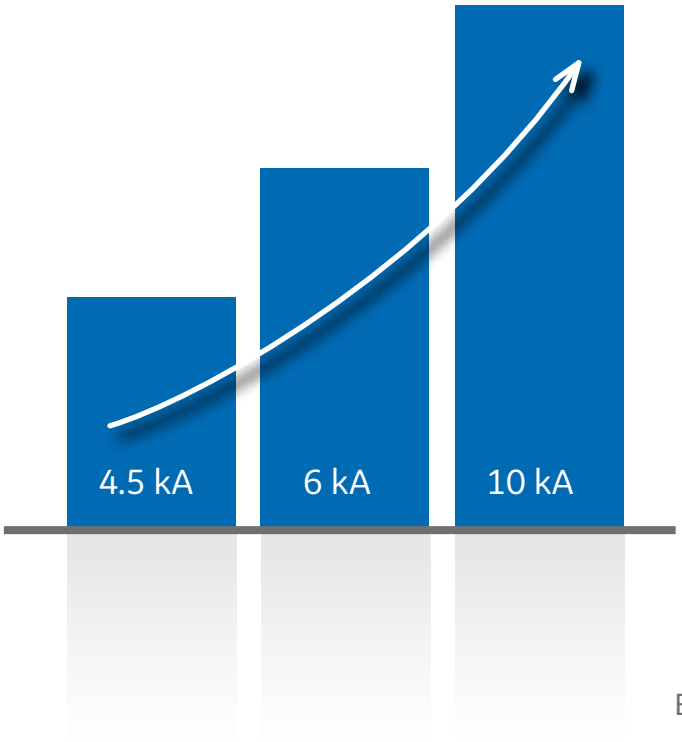
4500A
6-40A
AC, A
30-300mA

6000A
6-40A
AC, A, Ai
10-30-300mA

10000A
6-40A
AC, A, Ai
10-30-300mA

Shipping approvals

- ☑ Brand-new design: 2P RCBO in 2 modules
- ☑ Complete range: 4.5 kA - 6 kA - 10 kA
- ☑ 6-40 Amps, B and C curves
- ☑ Classes: AC - A - Ai
- ☑ 100% compatible with all ElfaPlus auxiliaries, accessories and busbar systems
- ☑ Approvals: CEBEC, KEMA, VDE, IMQ, NF
- ☑ RINA and Lloyd's Register certified



The most complete **RCBO** offer on the market for double phase circuits

Saving up to 50% space in distribution boards!

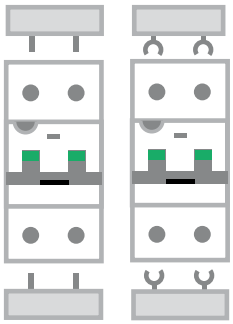
Protected terminals

Plastic tongue in IP20 terminals

Easy to replace

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

PIN and FORK busbars



Pin and fork busbars can be placed at the **bottom** and at the **top**.

For residential, commercial and industrial applications

High immunitity type Ai RCBO 2 poles protected in 2 modules!

Green and red flag on toggle

with isolation applications

Quality and **reliability** guaranteed in distribution boards

Userfriendly

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

Perfectly in line with ElfaPlus, Unibis and Redline devices.

High performance torque

Up to 4Nm

Part of the family

The compact RCBO fits perfectly with the Unibis MCB ranges.

2P RCBO | 2P MCB | 3P MCB | 4P MCB

Shipping applications

New shipping devices are completing the current Redline and ElfaPlus shipping ranges.

Full functionality

A small auxiliary contact is the interface to the full functionality of the add-on devices and auxiliaries. The interface can be mounted at the **left** and at the **right** side.

Technical data - Compact 2P and 3P+N RCBOs

Series			DPC45	DPC60	DPC100(1)	DMA63N
Standards			EN 61009-1	EN 61009-1	EN 61009-1	EN 61009-1
Magnetic tripping characteristics			C	B,C	B,C	B, C
Residual tripping characteristics			AC, A	AC, A, Ai	AC, A, Ai	A
Tripping time at IΔn Instantaneous		ms	<60	<60	<60	-
Rated current		A	6-40	6-40	6-40	10-32
Rated residual current (IΔn)		mA	30, 300	10, 30, 300	10, 30, 300	30, 300
Earth leakage tripping indicator: blue flag			yes	yes	yes	yes
Calibration temperature		°C	30	30	30	30
Number of poles (# mod.)			2P (2 mod.)	2P (2 mod.)	2P (2 mod.)	3P (4 mod.) 3P+N (4 mod.)
Rated voltage Un AC 2P		V	230	230(1)	230	400
Frequency		Hz	50	50(2)	50(2)	50/60
Maximum service voltage U_{Bmax}		V	265	265	265	-
Minimum service voltage U_{Bmin}		V	117(3)	117(3)	117(3)	-
Minimum voltage for leakage protection		V	Voltage independent	Voltage independent	Voltage independent	Voltage independent
Power supply			top/bottom	top/bottom	top/bottom	top/bottom
Energy limiting class			3	3	3	3
Residual making and breaking capacity (IΔm)		A	4500	6000	6000	3000
Rated short-circuit capacity (Icn)		A	4500	6000	10000	6000
Grid distance (safety distance between two devices)		mm	35	35	60	-
Isolator application			yes	yes	yes	-
Insulation degree	Insulation voltage	V(DC)	440	440	440	500
	Test shock voltage 1.2/50µs	kV	6	6	6	6
	Insulation resistance	Mohm	1000	1000	1000	1000
Dielectric strength		V	2500	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	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	5g, 30 min, 0...80Hz
Endurance	Electrical at Un, In		10000	10000	10000	10000
	Mechanical		20000	20000	20000	20000
Protection degree (EN 60529) (outside/inside electrical enclosure with door)			IP20/IP40	IP20/IP40	IP20/IP40	IP20/IP40
Self extinguish degree (UL94)			V2	V2	V2	V2
Tropicalisation (EN/IEC 60068-2, DIN 40046)		°C/RH	55°C/95%	55°C/95%	55°C/95%	55°C/95%
Pollution degree (EN/IEC 60947-1)			3	3	3	3
Operating temperature		°C	-5 up to +60 (-25°C type A)	-5 up to +60 (-25°C type A, Ai)	-5 up to +60 (-25°C type A, Ai)	-5 up to +60
Storage temperature		°C	-25 up to +70	-25 up to +70	-25 up to +70	-25 up to +40
Terminal capacity						
	Rigid cable Min./Max. (top)	mm²	1/35	1/35	1/35	1/25
	Flexible cable Min./Max. (top)	mm²	1/25	1/25	1/25	1/25
	Rigid cable Min./Max. (bottom)	mm²	1/35	1/35	1/35	1/35
	Flexible cable Min./Max. (bottom)	mm²	1/25	1/25	1/25	1/35
Torque top/bottom (max.)		Nm	4	4	4	3
Add-on devices (side add-on)						
	Auxiliary contacts		yes	yes	yes	yes
	Tele U		yes(4)	yes(4)	yes(4)	no
	Tele L		yes(4)	yes(4)	yes(4)	no
	Tele MP		yes(4)	yes(4)	yes(4)	no
	PBS		yes(4)	yes(4)	yes(4)	no
Maximum add-on combinations (per side)			4x CA + 1x TeleL + 1x Tele U	4x CA + 1x TeleL + 1x Tele U	4x CA + 1x TeleL + 1x Tele U	no
TeleREC Plus			no	yes	yes	no
Busbar systems	Pin (top/bottom)		yes/yes	yes/yes	yes/yes	yes/yes
	Fork (top/bottom)		yes/yes	yes/yes	yes/yes	yes/yes
Accessories			yes	yes	yes	no
Width per mod.		mm	18	18	18	18
Weight per mod.		gr	110	110	110	110
Package		pcs	1/6	1/6	1/6	1/3
Approvals			IMQ	NF, CEBEC, KEMA, IMQ, VDE	NF, CEBEC, KEMA, IMQ, VDE, LR, RINA	IMQ
CE-marking			yes	yes	yes	yes
Page			B.10	B.12	B.14	B.18

(1) Special application for 120V: DPCA100
(2) 50/60Hz for Ai residual tripping characteristic
(3) U_{Bmin} = 150V for 30mA
(4) Requires CA auxiliary contact as interface

Short-circuit capacity - Compact 2P and 3P+N RCBOs

Series		DPC45	DPC60	DPC100	DMA63N
Short-circuit capacity (Icn) at 230Vac (EN/IEC 61009-1)	A	4500	6000	10000	6000
Service short-circuit capacity (Ics)	kA	4.5	6	7.5	6
Rated short-circuit capacity (Icu) acc. EN/IEC 60947-2	kA	6	10	10	6

Selection table - Compact 2P RCBOs

Page	Series	Sensitivity (mA)	Pole	Type	Tripping char.	Short-circuit cap.	6	10	13	16	20	25	32	40	Isolator appl.	Add-on devices	Rated voltage
B.10	DPC45	30	2P	AC	C	4500									x	x	230
		300	2P	AC	C	4500									x	x	230
		30	2P	A	C	4500									x	x	230
		300	2P	A	C	4500									x	x	230
B.12	DPC60	10	2P	AC	C	6000									x	x	230
		30	2P	AC	C	6000									x	x	230
		300	2P	AC	C	6000									x	x	230
		10	2P	A	B	6000									x	x	230
					C	6000									x	x	230
		30	2P	A	B	6000									x	x	230
					C	6000									x	x	230
		300	2P	A	B	6000									x	x	230
					C	6000									x	x	230
		30	2P	Ai	B	6000									x	x	230
					C	6000									x	x	230
		300	2P	Ai	B	6000									x	x	230
					C	6000									x	x	230
B.14	DPC100	10	2P	AC	C	10000									x	x	230
		30	2P	AC	C	10000									x	x	230
		300	2P	AC	C	10000									x	x	230
		10	2P	A	B	10000									x	x	230
					C	10000									x	x	230
		30	2P	A	B	10000		•	•	•	•				x	x	230
					C	10000		•	•	•	•				x	x	230
		300	2P	A	B	10000									x	x	230
					C	10000									x	x	230
		30	2P	Ai	B	10000									x	x	230
					C	10000									x	x	230
		300	2P	Ai	B	10000									x	x	230
					C	10000									x	x	230
B.16	DPCA100	30	2P	A	C	10000									x	no	120
B.18	DMA63N	30	3P+N	A	C	6000									x	no	400
B.18	DPCA100	30	3P+N	A	B	6000									x	x	400
		300	3P+N	A	C	6000									x	x	400
		300	3P+N	A	B	6000									x	x	400
		30	3P	A	C	6000									x	x	400

• Special thermal tripping curves for Norway and Paneuropean types

2P RCBOs - Residual Current Circuit Breaker with Overcurrent Protection

Series DPC45

EN /IEC 61009-1 **4.5kA**

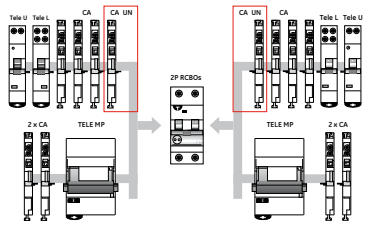
Type AC

Type A

Applications

Approvals / Marking

Add-on devices



The auxiliary contact CA UN is needed as interface if Tele MP needs to trip the 2P RCBO. If the RCBO is used only to reconnect, the interface is not needed.

Performance

Thermal setting In	(A)	6-40
Residual current	(mA)	30, 300
Tripping characteristics		C
Rated voltage AC Un	(V)	230
Minimum operating voltage UBmin	(V)	117(1)
Mechanical / electrical endurance		10000/20000
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible / rigid cable	(mm²)	25/35
Poles		2P
Nuisance tripping resistance	(A)	250
Ambient temperature	(°C)	Type AC: -5 up to 60 Type A: -25 up to 60
Weight / mod.	(g)	110

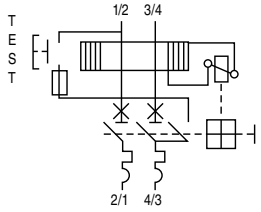
Short-circuit capacity

AC acc. to EN/IEC 61009-1	
Residual making and breaking capacity	IΔm = 4500A
Energy limiting class	3
Short-circuit capacity	Icn = 4500A at 230V

(1) UBmin = 150V for 30mA

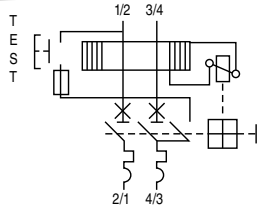
Auxiliary contacts pag. ***C.6***
Technical data pag. ***website*** | *Dimensions pag.* ***B.11***

Series DPC45 - Type AC - characteristic C



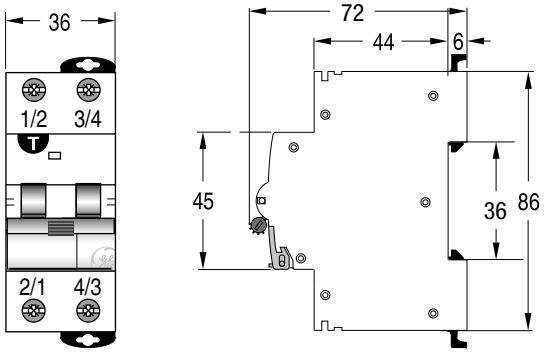
	In (A)	10mA Cat. no.	10mA Ref. no.	30mA Cat. no.	30mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
2P	6	-	-	DPC45C06/030	**606786**	DPC45C06/300	**606794**	1/6
	10	-	-	DPC45C10/030	**606787**	DPC45C10/300	**606795**	1/6
	13	-	-	DPC45C13/030	**606788**	DPC45C13/300	**606796**	1/6
	16	-	-	DPC45C16/030	**606789**	DPC45C16/300	**606797**	1/6
	20	-	-	DPC45C20/030	**606790**	DPC45C20/300	**606798**	1/6
	25	-	-	DPC45C25/030	**606791**	DPC45C25/300	**606799**	1/6
	32	-	-	DPC45C32/030	**606792**	DPC45C32/300	**606800**	1/6
	40	-	-	DPC45C40/030	**606793**	DPC45C40/300	**606801**	1/6

Series DPC45 - Type A - characteristic C



	In (A)	10mA Cat. no.	10mA Ref. no.	30mA Cat. no.	30mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
2P	6	-	-	DPCA45C06/030	**606802**	DPCA45C06/300	**606810**	1/6
	10	-	-	DPCA45C10/030	**606803**	DPCA45C10/300	**606811**	1/6
	13	-	-	DPCA45C13/030	**606804**	DPCA45C13/300	**606812**	1/6
	16	-	-	DPCA45C16/030	**606805**	DPCA45C16/300	**606813**	1/6
	20	-	-	DPCA45C20/030	**606806**	DPCA45C20/300	**606814**	1/6
	25	-	-	DPCA45C25/030	**606807**	DPCA45C25/300	**606815**	1/6
	32	-	-	DPCA45C32/030	**606808**	DPCA45C32/300	**606816**	1/6
	40	-	-	DPCA46C40/030	**606809**	DPCA45C40/300	**606817**	1/6

Dimensions



2P RCBOs - Residual Current Circuit Breaker with Overcurrent Protection

Series DPC60

EN /IEC 61009-1 **6kA**

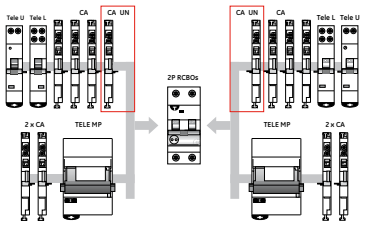
Type AC

Type A - Ai

Applications

Approvals / Marking

Add-on devices



The auxiliary contact CA UN is needed as interface if Tele MP needs to trip the 2P RCBO. If the RCBO is used only to reconnect, the interface is not needed.

Performance

Thermal setting In	(A)	6-40
Residual current	(mA)	10, 30, 300
Tripping characteristics		B, C
Rated voltage AC Un	(V)	230
Minimum operating voltage UBmin	(V)	117(1)
Mechanical / electrical endurance		10000/20000
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible / rigid cable	(mm²)	25/35
Poles		2P
Nuisance tripping resistance	(A)	250 (A, AC), 3000 (Ai)
Ambient temperature	(°C)	Type AC: -5 up to 60 Type A: -25 up to 60
Weight / mod.	(g)	110

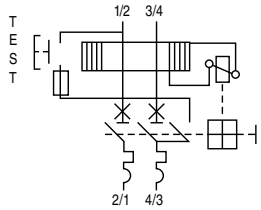
Short-circuit capacity

AC acc. to EN/IEC 61009-1	
Residual making and breaking capacity	IΔm = 6000A
Energy limiting class	3
Short-circuit capacity	Icn = 6000A at 230V

(1) UBmin = 150V for 30mA

Auxiliary contacts pag. ***C.6***
Technical data pag. ***website*** | *Dimensions pag.* ***B.11***

Series DPC60 - Type AC - characteristic C

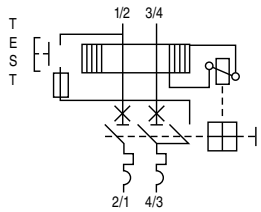


	In (A)	10mA Cat. no.	10mA Ref. no.	30mA Cat. no.	30mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
2P	6	-	-	DPC60C06/030	**606820**	DPC60C06/300	**606828**	1/6
	10	DPC60C10/010	**606818**	DPC60C10/030	**606821**	DPC60C10/300	**606829**	1/6
	13	-	-	DPC60C13/030	**606822**	DPC60C13/300	**606830**	1/6
	16	DPC60C16/010	**606819**	DPC60C16/030	**606823**	DPC60C16/300	**606831**	1/6
	20	-	-	DPC60C20/030	**606824**	DPC60C20/300	**606832**	1/6
	25	-	-	DPC60C25/030	**606825**	DPC60C25/300	**606833**	1/6
	32	-	-	DPC60C32/030	**606826**	DPC60C32/300	**606834**	1/6
	40	-	-	DPC60C40/030	**606827**	DPC60C40/300	**606835**	1/6

Series DPC60 - Type A - characteristic B

2P	6	-	-	DPCA60B06/030	**606872**	DPCA60B06/300	**606880**	1/6
	10	DPCA60B10/010	**606870**	DPCA60B10/030	**606873**	DPCA60B10/300	**606881**	1/6
	13	-	-	DPCA60B13/030	**606874**	DPCA60B13/300	**606882**	1/6
	16	DPCA60B16/010	**606871**	DPCA60B16/030	**606875**	DPCA60B16/300	**606883**	1/6
	20	-	-	DPCA60B20/030	**606876**	DPCA60B20/300	**606884**	1/6
	25	-	-	DPCA60B25/030	**606877**	DPCA60B25/300	**606885**	1/6
	32	-	-	DPCA60B32/030	**606878**	DPCA60B32/300	**606886**	1/6
	40	-	-	DPCA60B40/030	**606879**	DPCA60B40/300	**606887**	1/6

Series DPC60 - Type A - characteristic C

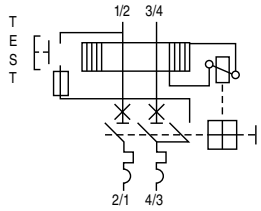


2P	6	-	-	DPCA60C06/030	**606838**	DPCA60C06/300	**606846**	1/6
	10	DPCA60C10/010	**606836**	DPCA60C10/030	**606839**	DPCA60C10/300	**606847**	1/6
	13	-	-	DPCA60C13/030	**606840**	DPCA60C13/300	**606848**	1/6
	16	DPCA60C16/010	**606837**	DPCA60C16/030	**606841**	DPCA60C16/300	**606849**	1/6
	20	-	-	DPCA60C20/030	**606842**	DPCA60C20/300	**606850**	1/6
	25	-	-	DPCA60C25/030	**606843**	DPCA60C25/300	**606851**	1/6
	32	-	-	DPCA60C32/030	**606844**	DPCA60C32/300	**606852**	1/6
	40	-	-	DPCA60C40/030	**606845**	DPCA60C40/300	**606853**	1/6

Series DPC60 - Type Ai - characteristic B

2P	6	-	-	DPCAi60B06/030	**606888**	DPCAi60B06/300	**606896**	1/6
	10	-	-	DPCAi60B10/030	**606889**	DPCAi60B10/300	**606897**	1/6
	13	-	-	DPCAi60B13/030	**606890**	DPCAi60B13/300	**606898**	1/6
	16	-	-	DPCAi60B16/030	**606891**	DPCAi60B16/300	**606899**	1/6
	20	-	-	DPCAi60B20/030	**606892**	DPCAi60B20/300	**606900**	1/6
	25	-	-	DPCAi60B25/030	**606893**	DPCAi60B25/300	**606901**	1/6
	32	-	-	DPCAi60B32/030	**606894**	DPCAi60B32/300	**606902**	1/6
	40	-	-	DPCAi60B40/030	**606895**	DPCAi60B40/300	**606903**	1/6

Series DPC60 - Type Ai - characteristic C



2P	6	-	-	DPCAi60C06/030	**606854**	DPCAi60C06/300	**606862**	1/6
	10	-	-	DPCAi60C10/030	**606855**	DPCAi60C10/300	**606863**	1/6
	13	-	-	DPCAi60C13/030	**606856**	DPCAi60C13/300	**606864**	1/6
	16	-	-	DPCAi60C16/030	**606857**	DPCAi60C16/300	**606865**	1/6
	20	-	-	DPCAi60C20/030	**606858**	DPCAi60C20/300	**606866**	1/6
	25	-	-	DPCAi60C25/030	**606859**	DPCAi60C25/300	**606867**	1/6
	32	-	-	DPCAi60C32/030	**606860**	DPCAi60C32/300	**606868**	1/6
	40	-	-	DPCAi60C40/030	**606861**	DPCAi60C40/300	**606869**	1/6

2P RCBOs - Residual Current Circuit Breaker with Overcurrent Protection

Series DPC100

EN /IEC 61009-1 **10kA**

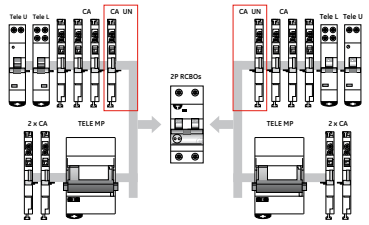
Type AC

Type A - Ai

Applications

Approvals / Marking

Add-on devices



The auxiliary contact CA UN is needed as interface if Tele MP needs to trip the 2P RCBO. If the RCBO is used only to reconnect, the interface is not needed.

Performance

Thermal setting In	(A)	6-40
Residual current	(mA)	10, 30, 300
Tripping characteristics		B(1)-C(1)
Rated voltage AC Un	(V)	230
Minimum operating voltage UBmin	(V)	117(2)
Mechanical / electrical endurance		10000/20000
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible / rigid cable	(mm²)	25/35
Poles		2P
Nuisance tripping resistance	(A)	250 (A, AC), 3000 (Ai)
Ambient temperature	(°C)	Type AC: -5 up to 60 Type A: -25 up to 60
Weight / mod.	(g)	110

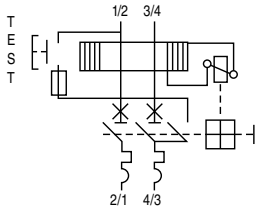
Short-circuit capacity

AC acc. to EN/IEC 61009-1	
Residual making and breaking capacity	IΔm = 6000A
Energy limiting class	3
Short-circuit capacity	Icn = 10000A at 230V

(1) Additional to traditional B and C curves, specials ones focused in Norwegian standards for 10A, 13A, 16A, 20A
(2) UBmin = 150V for 30mA

Auxiliary contacts pag. ***C.6***
Technical data pag. ***website*** | *Dimensions pag.* ***B.11***

Series DPC100 - Type AC - characteristic C

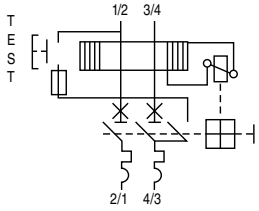


	In (A)	10mA Cat. no.	10mA Ref. no.	30mA Cat. no.	30mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
2P	6	-	-	DPC100C06/030	**606906**	DPC100C06/300	**606914**	1/6
	10	DPC100C10/010	**606904**	DPC100C10/030	**606907**	DPC100C10/300	**606915**	1/6
	13	-	-	DPC100C13/030	**606908**	DPC100C13/300	**606916**	1/6
	16	DPC100C16/010	**606905**	DPC100C16/030	**606909**	DPC100C16/300	**606917**	1/6
	20	-	-	DPC100C20/030	**606910**	DPC100C20/300	**606918**	1/6
	25	-	-	DPC100C25/030	**606911**	DPC100C25/300	**606919**	1/6
	32	-	-	DPC100C32/030	**606912**	DPC100C32/300	**606920**	1/6
	40	-	-	DPC100C40/030	**606913**	DPC100C40/300	**606921**	1/6

Series DPC100 - Type A - characteristic B

2P	6	-	-	DPCA100B06/030	**606964**	DPCA100B06/300	**606976**	1/6
	10	DPCA100B10/010	**606961**	DPCA100B10/030	**606965**	DPCA100B10/300	**606977**	1/6
	13	DPCA100B13/010	**606962**	DPCA100B13/030	**606966**	DPCA100B13/300	**606978**	1/6
	16	DPCA100B16/010	**606963**	DPCA100B16/030	**606967**	DPCA100B16/300	**606979**	1/6
	20	-	-	DPCA100B20/030	**606968**	DPCA100B20/300	**606980**	1/6
	10	-	-	DPCA100B10/030	**606969**(1)	-	-	1/6
	13	-	-	DPCA100B13/030	**606970**(1)	-	-	1/6
	16	-	-	DPCA100B16/030	**606971**(1)	-	-	1/6
	20	-	-	DPCA100B20/030	**606972**(1)	-	-	1/6
	25	-	-	DPCA100B25/030	**606973**	DPCA100B25/300	**606981**	1/6
	32	-	-	DPCA100B32/030	**606974**	DPCA100B32/300	**606982**	1/6
	40	-	-	DPCA100B40/030	**606975**	DPCA100B40/300	**606983**	1/6

Series DPC100 - Type A - characteristic C

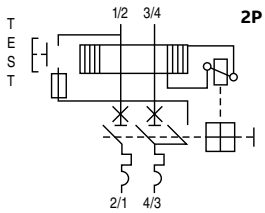


2P	6	-	-	DPCA100C06/030	**606925**	DPCA100C06/300	**606937**	1/6
	10	DPCA100C10/010	**606922**	DPCA100C10/030	**606926**	DPCA100C10/300	**606938**	1/6
	13	DPCA100C13/010	**606923**	DPCA100C13/030	**606927**	DPCA100C13/300	**606939**	1/6
	16	DPCA100C16/010	**606924**	DPCA100C16/030	**606928**	DPCA100C16/300	**606940**	1/6
	20	-	-	DPCA100C20/030	**606929**	DPCA100C20/300	**606941**	1/6
	10	-	-	DPCA100C10/030	**606930**(1)	-	-	1/6
	13	-	-	DPCA100C13/030	**606931**(1)	-	-	1/6
	16	-	-	DPCA100C16/030	**606932**(1)	-	-	1/6
	20	-	-	DPCA100C20/030	**606933**(1)	-	-	1/6
	25	-	-	DPCA100C25/030	**606934**	DPCA100C25/300	**606942**	1/6
	32	-	-	DPCA100C32/030	**606935**	DPCA100C32/300	**606943**	1/6
	40	-	-	DPCA100C40/030	**606936**	DPCA100C40/300	**606944**	1/6

Series DPC100 - Type Ai - characteristic B

2P	6	-	-	DPCAi100B06/030	**606984**	DPCAi100B06/300	**606992**	1/6
	10	-	-	DPCAi100B10/030	**606985**	DPCAi100B10/300	**606993**	1/6
	13	-	-	DPCAi100B13/030	**606986**	DPCAi100B13/300	**606994**	1/6
	16	-	-	DPCAi100B16/030	**606987**	DPCAi100B16/300	**606995**	1/6
	20	-	-	DPCAi100B20/030	**606988**	DPCAi100B20/300	**606996**	1/6
	25	-	-	DPCAi100B25/030	**606989**	DPCAi100B25/300	**606997**	1/6
	32	-	-	DPCAi100B32/030	**606990**	DPCAi100B32/300	**606998**	1/6
	40	-	-	DPCAi100B40/030	**606991**	DPCAi100B40/300	**606999**	1/6

Series DPC100 - Type Ai - characteristic C



2P	6	-	-	DPCAi100C06/030	**606945**	DPCAi100C06/300	**606953**	1/6
	10	-	-	DPCAi100C10/030	**606946**	DPCAi100C10/300	**606954**	1/6
	13	-	-	DPCAi100C13/030	**606947**	DPCAi100C13/300	**606955**	1/6
	16	-	-	DPCAi100C16/030	**606948**	DPCAi100C16/300	**606956**	1/6
	20	-	-	DPCAi100C20/030	**606949**	DPCAi100C20/300	**606957**	1/6
	25	-	-	DPCAi100C25/030	**606950**	DPCAi100C25/300	**606958**	1/6
	32	-	-	DPCAi100C32/030	**606951**	DPCAi100C32/300	**606959**	1/6
	40	-	-	DPCAi100C40/030	**606952**	DPCAi100C40/300	**606960**	1/6

(1) Special thermal tripping curves for Norway

2P RCBOs - Residual Current Circuit Breaker with Overcurrent Protection

Series DPCA100 - 120V

EN /IEC 61009-1 **10kA**

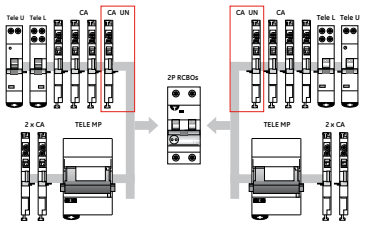
Type A

Applications

Marking

CE

Add-on devices



The auxiliary contact CA UN is needed as interface if Tele MP needs to trip the 2P RCBO. If the RCBO is used only to reconnect, the interface is not needed.

Performance

Thermal setting In	(A)	6-40
Residual current	(mA)	30
Tripping characteristics		C
Rated voltage AC Un	(V)	120
Frequency	(Hz)	50..60
Minimum operating voltage UBmin	(V)	85
Mechanical / electrical endurance		10000/20000
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible / rigid cable	(mm²)	25/35
Poles		2P
Nuisance tripping resistance	(A)	250
Ambient temperature	(°C)	Type A: -25 up to 60
Weight / mod.	(g)	110

Short-circuit capacity

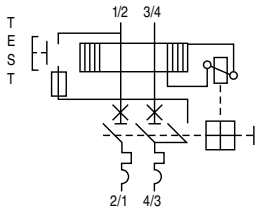
AC acc. to EN/IEC 61009-1	
Residual making and breaking capacity	IΔm = 6000A
Energy limiting class	3
Short-circuit capacity	Icn = 10000A at 230V

AC acc. to EN/IEC 61009-1	
Short-circuit capacity	Icu = 10kA

New

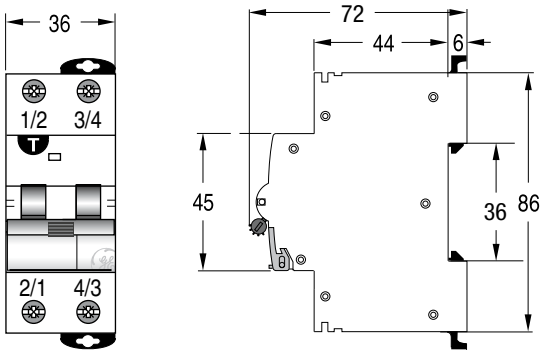
Auxiliary contacts pag. ***C.6***
Technical data pag. ***website*** | *Dimensions pag.* ***B.17***

Series DPCA100 - Type A - characteristic C



	In (A)	30mA Cat. no.	30mA Ref. no.	Pack.
3P	6	DPCA100C06/030-120V	**606375**	1/6
	10	DPCA100C10/030-120V	**606376**	1/6
	16	DPCA100C16/030-120V	**606377**	1/6
	20	DPCA100C20/030-120V	**606378**	1/6
	25	DPCA100C25/030-120V	**606379**	1/6
	32	DPCA100C32/030-120V	**606380**	1/6
	40	DPCA100C40/030-120V	**606381**	1/6

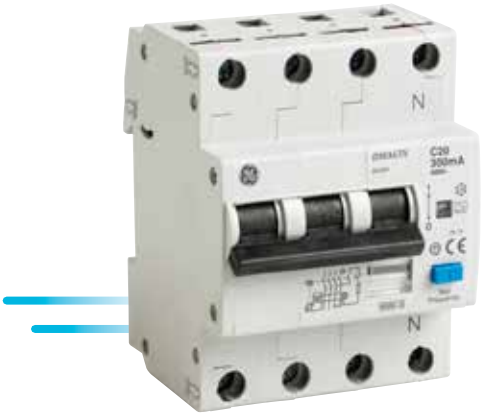
Dimensions



New

3P+N, 3P RCBOs - Residual Current Circuit Breaker with Overcurrent Protection

Series DMA63N



EN 61009-1

6000
3

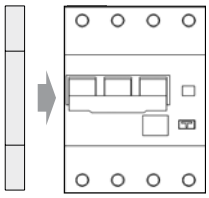
Type A

Applications

Approval / Marking

Add-on devices

Auxiliaries



Max. 1 aux. contact 1NO 1NC on the left

Performance

Thermal setting In	(A)	10 - 32
Residual current	(mA)	30, 300
Tripping characteristics		C, B
Rated voltage AC Un	(V)	400
Minimum operating voltage UBmin	(V)	195
Mechanical / electrical endurance		10000/20000
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible / rigid cable	(mm²)	25/35
Poles		3P+N (right), 3P
Nuisance tripping resistance	(A)	250A 8/20µs
Ambient temperature	(°C)	-25 up to +40
Weight / mod.	(g)	120

Short-circuit capacity

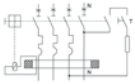
AC acc. to EN/IEC 61009-1	
Residual making and breaking capacity	IΔm = 3000A
Energy limiting class	3
Short-circuit capacity	Icn = 6000A at 230V

(1) UBmin = 150V for 30mA

New

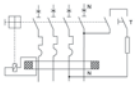
Auxiliary contacts pag. ***C.4***
Technical data pag. ***website*** | *Dimensions pag.* ***B.19***

Type A - characteristic C - 3P+N



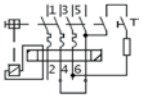
In (A)	30mA Cat. No.	30mA Ref. No.	300mA Cat. No.	300mA Ref. No.	Pack.
10	DMA63NC10/030	**783517**	DMA63NC10/300	**565381**	1
13	DMA63NC13/030	**783518**	DMA63NC13/300	**565382**	
16	DMA63NC16/030	**783519**	DMA63NC16/300	**565383**	
20	DMA63NC20/030	**783520**	DMA63NC20/300	**565384**	
25	DMA63NC25/030	**568323**	DMA63NC25/300	**565385**	
32	DMA63NC32/030	**568322**	DMA63NC32/300	**565386**	

Type A - characteristic B - 3P+N



In (A)	30mA Cat. No.	30mA Ref. No.	300mA Cat. No.	300mA Ref. No.	Pack.
10	DMA63NB10/030	**565387**	DMA63NB10/300	**565393**	1
13	DMA63NB13/030	**565388**	DMA63NB13/300	**565394**	
16	DMA63NB16/030	**565389**	DMA63NB16/300	**565395**	
20	DMA63NB20/030	**565390**	DMA63NB20/300	**565396**	
25	DMA63NB25/030	**565391**	DMA63NB25/300	**565397**	
32	DMA63NB32/030	**565392**	DMA63NB32/300	**565398**	

Type A - characteristic C - 3P (IT nets applications)



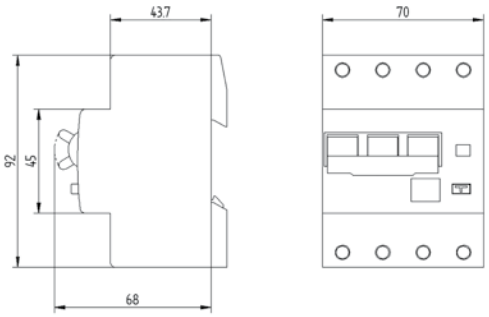
In (A)	30mA Cat. No.	30mA Ref. No.	300mA Cat. No.	300mA Ref. No.	Pack.
10	DMA63C10/030IT	**568326**	-	-	1
16	DMA63C16/030IT	**568327**	-	-	
20	DMA63C20/030IT	**568328**	-	-	
25	DMA63C25/030IT	**568329**	-	-	
32	DMA63C32/030IT	**568330**	-	-	

Series CAH DMA63N - Auxiliary contact

Function	Type of contacts	Cat. No.	Ref. No.	Pack.
H	1NO + 1NC	CAH DMA63N	**568324**	1

3P+N RCBO and 3P RCBO left side

Dimensions



New

Selection table of RCCBs

Page no.	Series	Sensitivity (mA)	Poles	Type	Nominal current (A) 16	25	40	63	80	100	Isolator appl.	Add-on devices	Rated voltage
B.26	BP/BD												
		10	2P	AC/A							x	x	240
		30	2P	AC/A							x	x	240
				G							x	x	240
				AC							x	x	110
			4P	AC/A							x	x	240/415
				G							x	x	240/415
				AC							x	x	220
		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
				AC							x	x	220/127
		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

Selection table of 1P+N - RCBOs

Page no.	Series	Sensitivity (mA)	Pole	Type	Tripping charact.	Nominal current (A) 4	6	10	13	16	20	25	32	40	Isolator appl.	Add-on devices	Rated voltage
B.36	DM60																
		10	1P+N	AC/A	B										x	x	240
					C										x	x	240
		30	1P+N	AC/A	B										x	x	240
					C										x	x	240
		100	1P+N	AC/A	B										x	x	240
					C										x	x	240
		300	1P+N	AC/A	B										x	x	240
					C										x	x	240
B.37	DMT60																
		30	1P+N	AC	C										x	x	240
B.38	DM100	**10**	1P+N	AC/A	B										x	x	240
					C										x	x	240
		30	1P+N	AC/A	B										x	x	240
					C										x	x	240
		100	1P+N	AC/A	B										x	x	240
					C										x	x	240
		300	1P+N	AC/A	B										x	x	240
					C										x	x	240
B.39	DMT100																
		30	1P+N	AC	C										x	x	240

Selection table for add-on RCCBs

Page no.	Series	Sensitivity (mA)	Poles	Type	Tripping charact.	Nominal current (A) 32	63	Isolator appl.	Add-on devices	Rated voltage
B.40	Diff-o-Click									
		10	2-3-4P	AC/A	-			-	-	240/415
		100, 300, 500, 1000	2-3-4P	AC/A/S	-			-	-	240/415

Selection table for Unibis Compact electronic RCBOs

Page no.	Series	Sensitivity (mA)	Pole	Type	Tripping charact.	Nominal current (A) 4	6	10	13	16	20	25	32	40	Isolator appl.	Add-on devices	Rated voltage
B.36	DM60																
		30, 100	1P+N	AC	C		■	■		■	■	■	■	■	x	x	240
B.44	DMC60NS																
		10, 30	1P+NS	AC, A	C, B		■	■		■	■	■	■		x	x	240
B.47	DICE60NS																
		10, 30	1P+NS	AC/A	C, B		■	■		■	■	■	■		x	x	240
B.48	DMCE60																
		30	1P+N	AC/A	C, B		■	■		■	■	■	■		x	x	240
B.48	DICE60																
		30	1P+N	AC/A	C, B		■	■		■	■	■	■		x	x	240
B.50	DME100																
		10, 30, 100	1P+N	AC/A	C		■	■		■	■	■	■	■	x	x	240
		10, 30, 100	1P+N	AC	B		■	■		■	■	■	■	■	x	x	240
		100	1P+N	AC	D		■	■		■	■	■	■	■	x	x	240
		10, 30	1P+N	A	B		■	■		■	■	■	■	■	x	x	240
		10, 30, 100	1P+N	A	C, D		■	■		■	■	■	■	■	x	x	240
B.52	DMET60																
		30	1P+N	AC/A	C			■		■	■	■	■		x	x	240
B.52	DMET100																
		10, 30, 100, 300	1P+N	AC	C		■	■		■	■	■	■	■	x	x	240
		30	1P+N	A	C			■		■	■	■	■	■	x	x	240

Selection table for RCCBs with UL approval

Page no.	Series	Sensitivity (mA)	Poles	Type	Nominal current (A) 16	25	40	63	80	100	Isolator appl.	Add-on devices	Rated voltage
B.54	FPAUL												
		10, 30, 100			■	■	■	■					
		300, 500	2P	A	■	■	■	■			x	x	240
		10, 30, 100				■	■	■					
		300, 500	4P	A		■	■	■			x	x	415

Page no.	Series	Sensitivity (mA)	Pole	Type	Tripping charact.	Nominal current (A) 4	6	10	13	16	20	25	32	40	Isolator appl.	Add-on devices	Rated voltage
B.56	DPA100UL																
		10, 30	1P+N	A	-			■	■	■	■	■	■		x	x	277

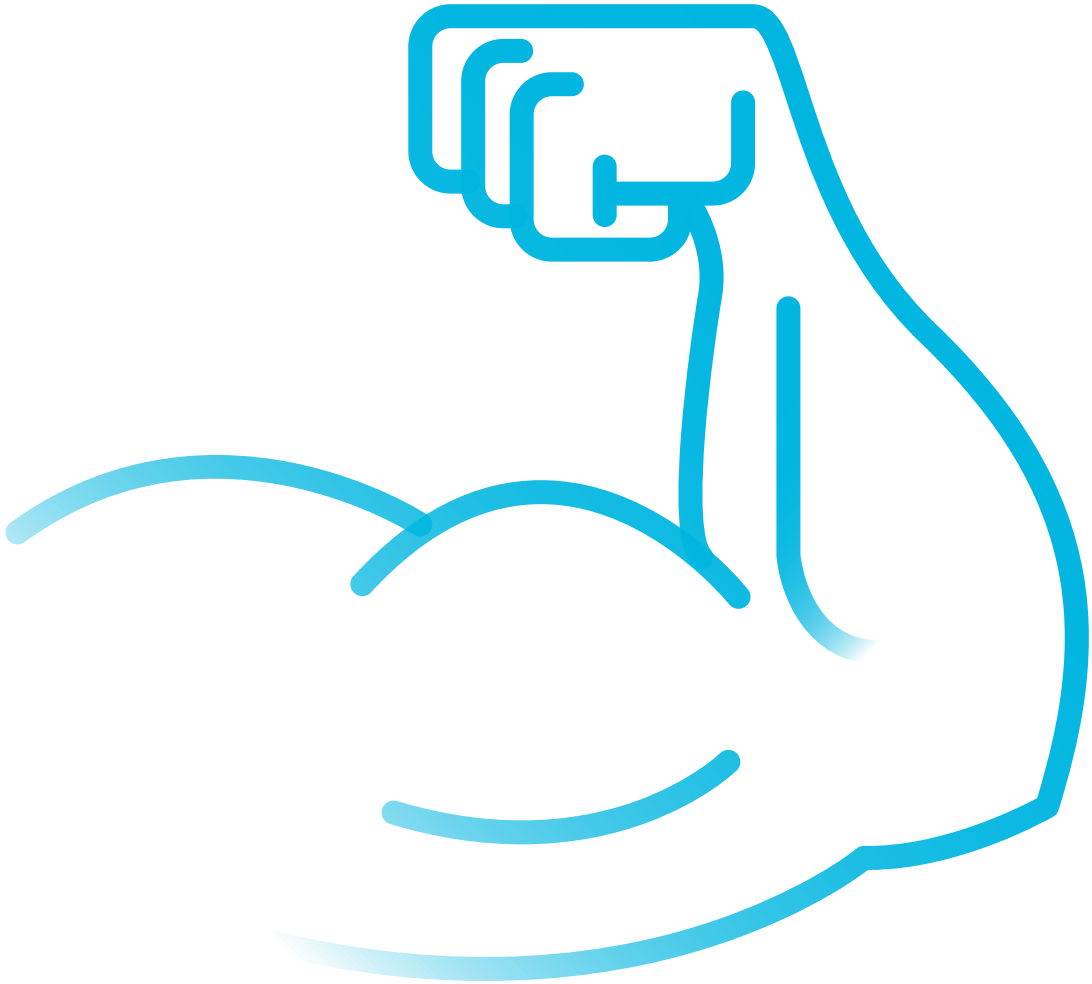
Selection table for screwless RCCBs Fixwell

Page no.	Series	Sensitivity (mA)	Poles	Type	Nominal current (A) 16	25	40	63	80	100	Isolator appl.	Add-on devices	Rated voltage
B.58	FPP												
		10, 30, 100	2P	A/S		■	■	■			x	x	240/415
		10, 30, 100	4P	A/S		■	■	■			x	x	240/415

Technical data of RCDs

Series			Series BP/BD	Series BPCV	FP Type B	FP Type F
Standards			EN/IEC 61008-1	EN/IEC 61008-1	EN 62423/ VDE 0664-40	EN 62423/ VDE 0664-40
Magnetic tripping characteristics			-	-	-	-
Residual tripping characteristic			AC, A, S, Ai, Si	AC	B	F
Tripping time at I Δn	Instantaneous	ms	< 40	< 40	<300	<300
	Selective	ms	> 150	-	-	-
Rated current		A	16, 25, 40, 63, 80, 100	<25, <40, <63 < 80, <100	16, 25, 40, 63, 80	25, 40, 63, 80
Rated residual current I Δn		mA	10,30,100,300,500,1000	30, 300	30, 100, 300, 500	30
Calibration temperature		°C	30	30	30	30
Number of poles versus modules			1P	1P	2P = 4 mod.; 4P = 4 mod.	2P = 2 mod.; 4P = 4 mod.
Rated voltage Un	2P AC	V	240	110	230	240
	3P AC	V	-	-	-	-
	4P AC	V	415	220/127	230/400	415
Frequency		Hz	50/60	50/60	50/60	50/60
Maximum service voltage U_{Bmax}		V	2P = 255/4P = 455	2P = 140; 4P = 245/140	2P = 265/4P = 460	2P = 265/4P = 455
Minimum service voltage U_{Bmin}		V	2P = 117/4P = 205(2)	2P = 95; 4P = 178/100	2P = 117/4P = 205(2)	2P = 176/4P = 306
Minimum voltage for leakage protection			Voltage independent	Voltage independent	Voltage independent	Voltage independent
Power supply			Top/Bottom	Top/Bottom	Top/Bottom	Top/Bottom
Energy limiting class			-	-	-	-
Rated making and breaking capacity (Im)		A	500 (or 10 x In)	500 (or 10 x In)	500 (or 10 x In)	500 (or 10 x In)
Residual making and breaking capacity (IΔm)		A	500 (or 10 x In)	500 (or 10 x In)	500 (or 10 x In)	500 (or 10 x In)
Conditional short-circuit capacity (Inc)		A	10000 fuse 100A gLgG	10000 fuse 100A gLgG	10000 fuse 80A gLgG	10000 fuse 80A gLgG
Conditional residual short-circuit capacity (IΔc)		A	10000 fuse 100A gLgG	10000 fuse 100A gLgG	10000 fuse 80A gLgG	10000 fuse 80A gLgG
Rated Short-circuit capacity (Icn)		A	-	-	-	-
Grid distance (safety distance between two devices)			35	35	35	35
Isolator application			yes	yes	yes	yes
Insulation degree	Insulation voltage	VDC	440	440	440	440
	Shock voltage (1.2/50µs)	kV	6	6	6	6
	Insulation resistance	Mohm	1000	1000	1000	1000
	Dielectric strength	V	2500	2500	2500	2500
Shock resist. (in x, y, z direction) (EN/IEC 60077/16.3)			40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms
Vibration resist. (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	1.5g, 30 min, 0...80Hz
Endurance	electrical at Un, In		10000	10000	10000	10000
	mechanical at Un, In		20000	20000	20000	20000
Protection degree (outside/inside electrical enclosure with door)			IP20 / IP40	IP20 / IP40	IP20 / IP40	IP20 / IP40
Self extinguish degree (according to UL94)			V2	V2	V2	V2
Tropicalisation (acc. to EN/IEC 60068-2, DIN 40046)			+55/95% H.R.	+55/95% H.R.	+55/95% H.R.	+55/95% H.R.
Pollution degree (acc. EN/IEC 60947-1)			3	3	3	3
Operating temperature			AC (-5.. +40); A -25.. +40)	-25°C...+40°C	-25°C...+40°C	-25°C...+40°C
Storage temperature			-25°C...+70°C	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
Terminals capacity	Rigid cable min/max (top)		1.5/50 (1.5/35)	1,5/50	1,5/50 (1,5/35)	1,5/50 (1,5/35)
	Flexible cable min(1)/max (top)		1.5/35 (1.5/25)	1,5/35	1,5/35 (1,5/25)	1,5/35 (1,5/25)
	Rigid cable min/max (bottom)		1.5/50 (1.5/35)	1,5/50	1,5/50 (1,5/35)	1,5/50 (1,5/35)
	Flexible cable min(1)/max (bottom)		1.5/35 (1.5/25)	1,5/35	1,5/35 (1,5/25)	1,5/35 (1,5/25)
Torque	Top/Bottom	Nm	5/5	5/5	5/5	5/5
Add-on devices (side add-on)	Auxiliary contacts		yes	yes	yes	yes
	Tele U		yes	yes	yes	yes
	Tele L		yes	yes	yes	yes
	Tele M		yes	yes	yes	yes
	PBS		no	yes	yes	yes
Busbars systems	Pin		Button	yes...yes	yes	yes
	Fork		yes	yes...yes	yes	yes
	# Poles		2-4P	2-4P	2-4P	2-4P
Dimensions	(H x D x W) 86 x 70 x W		36/72	36/72	72	36/72
	Weight		2P = 250 / 4P = 368	2P = 250 / 4P = 368	2P = 340 / 4P = 420	2P = 220 / 4P = 385
	Package	pcs	2P = 1/6 / 4P = 1/3	2P = 6 / 4P = 3	1/3	2P = 1/6 / 4P = 1/3
Approvals			KEMA, CCC	-	VDE	-
CE-marking			yes	yes	yes	yes
Page			B.26	B.27	B.32	B.34

(1) Flexible cable 0.75/1/1.5mm^2 with cable lug
(2) Minimum service voltage for 30mA: 2P = 176V / 4P = 287V



Technical data of 1P+N RCBOs and compact electronic RCBOs

Series			DM60	DM100	Diff-o-Click	DMCE60NS / DICE60NS
Standards			EN/IEC 61009-1	EN/IEC 61009-1	EN/IEC 61009-1	EN/ IEC 61009-1 ed3.2 (2013-09), BS EN 61009-1:2012 and AS/NZS 61009-1:20011
Magnetic tripping characteristics			B-C	B-C	B-C-D	C, B
Residual tripping characteristic			AC	AC	AC, A, S	AC, A
Tripping time at I Δn	Instantaneous	ms	< 40	< 40	< 40	< 40
	Selective	ms	-	-	> 150	-
Rated current		A	4, 6, 10, 13, 16, 20, 25, 32, 40	4, 6, 10, 13, 16, 20, 25, 32, 40	0.5,1,2,4,6,10,16 20,25,32,40,50,63	6-32
Rated residual current I Δn		mA	10, 30, 300	10, 30, 300	30, 100, 300, 500, 1000	10, 30 / 30
Calibration temperature		°C	30	30	30	30
Number of poles versus modules			1P	1P	1P	1P+N switch (1 module)
Rated voltage Un	2P AC	V	230 (1P+N)	230 (1P+N)	240/415	240
	3P AC	V	-	-	400	-
	4P AC	V	-	-	400	-
Frequency		Hz	50/60	50/60	50/60	50
Maximum service voltage U_{Bmax}		V	255	255	2P = 255 / 4P = 455	265
Minimum service voltage U_{Bmin}		V	117(2)	117(2)	2P = 205 / 4P = 205(2)	85
Minimum voltage for leakage protection		V	Voltage independent	Voltage independent	Voltage independent	85
Power supply			Top/Bottom	Top/Bottom	Top	Bottom
Energy limiting class			3	3	3	3
Rated making and breaking capacity (Im)		A	-	-	-	-
Residual making and breaking capacity (IΔm)		A	6000	6000	see MCB	4500
Conditional short-circuit capacity (Inc)		A	-	-	-	-
Conditional residual short-circuit capacity (IΔc)		A	-	-	-	-
Rated Short-circuit capacity (Icn)		A	6000	10000	see MCB	6000
Grid distance (safety distance between two devices)			35	35	35	-
Isolator application			yes	yes	no	yes
Insulation degree	Insulation voltage	V(DC)	440	440	440	440
	Shock voltage (1.2/50µs)	V	6	6	6	6
	Insulation resistance	Mohm	1000	1000	1000	1000
	Dielectric strength	V	2500	2500	2500	2500
Shock resist. (in x, y, z direction) (EN/IEC 60077/16.3)			40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms
Vibration resist. (in x, y, z direction) (EN/IEC 60068-2-6)			1.5g, 30 min, 0...80Hz	1.5g, 30 min, 0...80Hz	5g, 30 min, 0...80Hz	1.5g, 30 min, 0...80Hz
Endurance	electrical at Un, In		10000	10000	10000	10000
	mechanical at Un, In		20000	20000	20000	20000
Protection degree (outs./inside electrical enclosure with door)			IP20 / IP40	IP20 / IP40	IP20 / IP40	IP20 / IP40
Self extinguish degree (according to UL94)			V2	V2	V2	V2
Tropicalisation (acc. to EN/IEC 60068-2, DIN 40046)			+55/95%	+55/95%	+55/95%	+55/95%
Pollution degree (acc. EN/IEC 60947-1)			3	3	3	3
Operating temperature			-5..+60	-25..+60	AC (-5..+60); A(-25..+60)	-5..+60
Storage temperature		°C	-25..+70	-5..+70	-25..+70	-25..+70
Terminals capacity	Rigid cable min/max (top)	mm^2	1/25	1/25	1/25	1/25
	Flexible cable min(1)/max (top)		1/16	1/16	1/16	1.5/16
	Rigid cable min/max (bottom)		1/35	1/35	1/35	1/25
	Flexible cable min(1)/max (bottom)		1/25	1/25	1/25	1.5/16
Torque	Top/Bottom	Nm	3/4	3/4	-/4.5	3
Add-on devices (side add-on)	Auxiliary contacts		yes	yes	yes (coupled to MCB)	yes CA UN
	Tele U		yes	yes	yes (coupled to MCB)	yes(4)
	Tele L		yes	yes	yes (coupled to MCB)	yes(4)
	Tele M		yes	yes	yes (coupled to MCB)	yes(4)
	PBS		yes	yes	yes (coupled to MCB)	yes(4)
Busbars systems	Pin		Bottom	Bottom	-	Bottom
	Fork		Bottom	Bottom	-	no/no / no/yes
	# Poles		1P+N	1P+N	2-3-4P	1P+N
Dimensions	(H x D x W) 86 x 70 x W	mm	36	36	72/90/108/125/144	18
	Weight	g	250	250	2P=250 / 3P=320 / 4P=340	125
	Package	pcs	1/6	1/6	1	1/12
Approvals			KEMA	KEMA	KEMA	CEBEC and RCM
CE-marking			yes	yes	yes	yes
Page			B.36	B.38	B.40	B.44

(1) Flexible cable 0.75/1/1.5mm^2 with cable lug
(2) Minimum service voltage for 30mA: 2P = 176V / 4P = 287V
(3) Making sure that N-L and both flying leads are disconnected
(4) Requires CA UN auxiliary contact as interface

DMCE/DICE	DME60/DMET60	DME100/DMET100	FPAUL	DPA100 UL	FPP
EN/IEC 61009-1	EN/IEC 61009-1	EN/IEC 61009-1	UL1053 and EN/IEC 61008-1	UL1053 and EN/IEC 61009-1	EN 61008-1
B-C	C	B-C-D	-	B-C	-
AC, A	AC, A	AC, A	A	A	A, S
< 40	< 40	< 40	< 40	< 40	< 40
-	-	-	-	-	> 150
6 ...40	6 ...40	6, 10, 16, 20, 25, 32, 40	16, 25, 40, 63	10, 13, 16, 32, 40	25, 40, 63(5)
30	30, 100	10, 30, 100, 300	10, 30, 100, 300, 500	10, 30	30, 100, 300
30	30	30	30	30	30
1P	1P	1P	1P	1P	1P
240 (1P+N)	240 (1P+N)	240 (1P+N)	240	277 & 240 (1P+N)	240
-	-	-		-	-
	-	-	UL: 240; EN/IEC: 415		415
50	50/60	50/60	50/60	50/60	50/60
255	255	255	2P = 2255 / 4P = 455	255	2P = 255 / 4P = 455
195	195	195	2P = 117 / 4P = 205(2)	195	2P = 110 / 4P = 190(2)
85	100	100	Voltage independent	Voltage independent	Voltage independent
Top/Bottom	Bottom	Bottom	Top/Bottom	Top/Bottom	Top/Bottom
3	3	3	-	3	-
10x In	10x In	10x In	500 (or 10x In)	-	500 (or 10x In)
6000	6000	10000	500 (or 10x In)	6000	500 (or 10x In)
-	-	-	10000 fuse 100A gIgG	-	10000 fuse 100A
-	-	-	10000	-	10000
6000	6000	10000	-	5000/10000	-
-	-	-	35	35	-
yes	yes	yes	yes	yes	yes
440	440	440	500	500	500
6(3)	6(3)	6(3)	8	6	8
1000(3)	1000(3)	1000(3)	1000	1000	1000
2500(3)	2500(3)	2500(3)	2500	2500	2500
40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms	40g, 18 shocks 5 ms
1.5g, 30 min, 0...80Hz	2g, 30 min, 0...80Hz	2g, 30 min, 0...80Hz	1.5g, 30 min, 0...80Hz	1.5g, 30 min, 0...80Hz	1.5g, 30 min, 0...80Hz
10000	10000	10000	10000	10000	10000
20000	20000	20000	20000	20000	20000
IP20 / IP40	IP20 / IP40	IP20 / IP40	IP20 / IP40	IP20 / IP40	IP20 / IP40
V2	V2	V2	V2	V2	V2
+55/95%	+55/95%	+55/95%	+55/95%	+55/95%	+55/95%
3	3	3	3	3	3
-5..+60	-5..+60	-5..+60	AC (-5.. +60); A (-25.. +60)	-5..+60	-25.. +60(6)
-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.58
1.5/16	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	-
1.5/25	1/25	1/25	1.5/35 (1.5/25)	1/25	-
3/3(DMCE) 3/4.5(DICE)	3/4.5	3/4.5	5/5	3/4	-
yes (coupled to CAUN)	-	-	yes	yes	yes
yes	-	-	yes(7)	yes(7)	yes(8)
yes	-	-	yes	yes	yes(8)
yes	-	-	yes(7)	yes(7)	yes(8)
yes	-	-	yes(7)	yes(7)	yes(8)
yes	Bottom	Bottom	yes(7)	yes(7)	yes
-	Bottom	Bottom	yes(7)	yes(7)	yes
1P+N	1P+N	1P+N	2-4P	1P+N	2-4P
18	18	18	36/72	36	88x68x36/73.2
125/215	235	235	2P = 250 / 4P = 368	250	2P = 248 / 4P = 364
1/12	1	1	2P = 1/6 / 4P = 1/3	1/6	2P = 1/6 / 4P = 1/3
RCM	KEMA	CEBEC	UL	UL and CEBEC	VDE-KEMA-CEBEC-IMQ
yes	yes	yes	yes	yes	yes
B.48	B.50 - B.52	B.50 - B.52	B.54	B.56	B.58

(5) Rating current derating as usual in function of installation conditions
(6) With plug-in busbar: -25/+50°C
(7) Not UL registered
(8) With plug-in busbar only at right extreme side of each row. No pin busbars let through allowed

RCCBs - Residual Current Circuit Breakers

Series BP/BD

EN /IEC 61008-1

Type AC

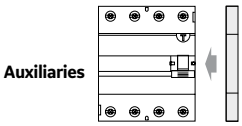
Type A - Ai

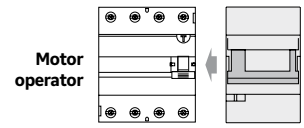
Type S - Si

Applications

Approvals / Marking

Add-on devices





Performance

Thermal setting In	(A)	16, 25, 40, 63, 80, 100
Residual current IΔn	(mA)	10, 30, 100, 300, 500, 1000
Rated voltage AC Un	(V)	2P: 240 ; 110(3) 4P: 240/415 ; 220/127(3)
Minimum operating voltage UBmin(1)	(V)	2P: 117, 95(3) 4P: 205, 178/100(3)
Mechanical/electrical endurance		20000/10000
Tropicalisation acc.to EN/IEC 60068-2-28/2-30 and DIN 40046		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm^2)	35-50(2)
Poles		2P, 4P
Nuisance tripping resistance		Type A, AC: 250A 8/20μs; 200A 0.5μs - 100kHz Type S: 3000A 8/20μs Type Ai: 3000A 8/20μs Type Si: 5000A 8/20μs
Ambient temperature	(°C)	Type AC: -5 up to 40 Type A: -25 up to 40
Weight	(g)	2P: 220 4P: 385

Short-circuit capacity

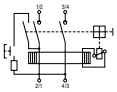
AC acc. to EN/IEC 61008-1	
Making and breaking capacity	Im = 500A from 16 up to 40A In = 10In from 63 up to 100A
Residual making and breaking capacity	IΔm = 500A from 16 up to 40A IΔm = 10In from 63 up to 100A
Short-circuit capacity	
Series BD	Inc = 6000A at 240/415V fuse 63A gG
Series BP	Inc = 10000A at 240/415V fuse 80A gG

(1) Minimum service voltage for 30mA: 2P=176V / 4P=287V
(2) Series BD: 25-35mm^2
(3) Serie BPCV

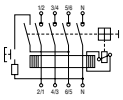
New

Auxiliary contacts pag. ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***B.70***

Series BP/BD - Type AC

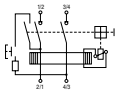


	In (A)	10°/30mA Cat. no.	10°/30mA Ref. no.	100mA Cat. no.	100mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
2P	16	BPC216/010*	**606131**	-	-	-	-	6
	25	BDC225/030	**607125**	BPC225/100	**606140**	BDC225/300	**607127**	6
	40	BDC240/030	**607126**	BPC240/100	**606141**	BDC240/300	**607128**	6
	63	BPC263/030	**606134**	BPC263/100	**606142**	BPC263/300	**606150**	6
	80	BPC280/030	**606135**	BPC280/100	**606143**	BPC280/300	**606151**	6
	100	BPC2100/030	**606136**	BPC2100/100	**606144**	BPC2100/300	**606152**	6
		500mA		1000mA				
	25	BPC225/500	**606153**	BPC225/1000	**606158**			3
	40	BPC240/500	**606154**	BPC240/1000	**606159**			3
	63	BPC263/500	**606155**	BPC263/1000	**606160**			3
	80	BPC280/500	**606156**	BPC280/1000	**606161**			3
	100	BPC2100/500	**606157**	BPC2100/1000	**606162**			3

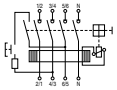


	In (A)	30mA Cat. no.	30mA Ref. no.	100mA Cat. no.	100mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
4P	25	BPC425/030	**606208**	BPC425/100	**606216**	BPC425/300	**606224**	6
	40	BPC440/030	**606209**	BPC440/100	**606217**	BPC440/300	**606225**	6
	63	BPC463/030	**606210**	BPC463/100	**606218**	BPC463/300	**606226**	6
	80	BPC480/030	**606211**	BPC480/100	**606219**	BPC480/300	**606227**	6
	100	BPC4100/030	**606212**	BPC4100/100	**606220**	BPC4100/300	**606228**	6
		500mA		1000mA				
	25	BPC425/500	**606229**	BPC425/1000	**606234**			3
	40	BPC440/500	**606230**	BPC440/1000	**606235**			3
	63	BPC463/500	**606231**	BPC463/1000	**606236**			3
	80	BPC480/500	**606232**	BPC480/1000	**606237**			3
	100	BPC4100/500	**606233**	BPC4100/1000	**606238**			3

Series BPCV - Type AC 110V and 220/127VAC



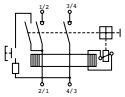
	In (A)	10/30mA Cat. no.	10/30mA Ref. no.	100mA Cat. no.	100mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
2P	25	BPCV225/30	**606296**	-	-	BPCV225/300	**606301**	1/6
	40	BPCV240/30	**606297**	-	-	BPCV240/300	**606302**	1/6
	63	BPCV263/30	**606298**	-	-	BPCV263/300	**606303**	1/6
	80	BPCV280/30	**606299**	-	-	BPCV280/300	**606304**	1/6
	100	BPCV2100/30	**606300**	-	-	BPCV2100/300	**606305**	1/6



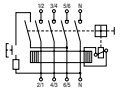
	In (A)	Cat. no.	Ref. no.	Cat. no.	Ref. no.	Cat. no.	Ref. no.	Pack.
4P	25	BPCV225/30	**604285**	-	-	-	-	1/3
	40	BPCV240/30	**604286**	-	-	-	-	1/3
	63	BPCV263/30	**604287**	-	-	-	-	1/3
	80	BPCV280/30	**604288**	-	-	-	-	1/3
	100	BPCV2100/30	**604289**	-	-	-	-	1/3

New

Series BP - Type A

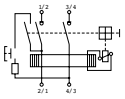


	In (A)	10°/30mA Cat. no.	10°/30mA Ref. no.	100mA Cat. no.	100mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
2P	16	BPA216/010*	**606085**	-	-	-	-	6
	25	BPA225/030	**606086**	BPA225/100	**606091**	BPA225/300	**606101**	6
	40	BPA240/030	**606087**	BPA240/100	**606092**	BPA240/300	**606102**	6
	63	BPA263/030	**606088**	BPA263/100	**606093**	BPA263/300	**606103**	6
	80	BPA280/030	**606089**	BPA280/100	**606094**	BPA280/300	**606104**	6
	100	BPA2100/030	**606090**	BPA2100/100	**606095**	BPA2100/300	**606105**	6
		500mA		1000mA				
	25	BPA225/500	**606111**	BPA225/1000	**606121**			3
	40	BPA240/500	**606112**	BPA240/1000	**606122**			3
	63	BPA263/500	**606113**	BPA263/1000	**606123**			3
	80	BPA280/500	**606114**	BPA280/1000	**606124**			3
	100	BPA2100/500	**606115**	BPA2100/1000	**606125**			3

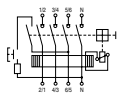


	In (A)	30mA Cat. no.	30mA Ref. no.	100mA Cat. no.	100mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
4P	25	BPA425/030	**606163**	BPA425/100	**606168**	BPA425/300	**606178**	6
	40	BPA440/030	**606164**	BPA440/100	**606169**	BPA440/300	**606179**	6
	63	BPA463/030	**606165**	BPA463/100	**606170**	BPA463/300	**606180**	6
	80	BPA480/030	**606166**	BPA480/100	**606171**	BPA480/300	**606181**	6
	100	BPA4100/030	**606167**	BPA4100/100	**606172**	BPA4100/300	**606182**	6
		500mA		1000mA				
	25	BPA425/500	**606188**	BPA425/1000	**606198**			3
	40	BPA440/500	**606189**	BPA440/1000	**606199**			3
	63	BPA463/500	**606190**	BPA463/1000	**606200**			3
	80	BPA480/500	**606191**	BPA480/1000	**606201**			3
	100	BPA4100/500	**606192**	BPA4100/1000	**606202**			3

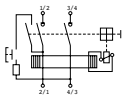
Series BP - Type S

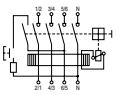


	In (A)	100mA Cat. no.	100mA Ref. no.	300mA Cat. no.	300mA Ref. no.	500mA Cat. no.	500mA Ref. no.	1000mA Pack.	1000mA Ref. no.	Pack.
2P	25	BPS225/100	**606096**	BPS225/300	**606106**	BPS225/500	**606116**	BPS225/1000	**606126**	6
	40	BPS240/100	**606097**	BPS240/300	**606107**	BPS240/500	**606117**	BPS240/1000	**606127**	6
	63	BPS263/100	**606098**	BPS263/300	**606108**	BPS263/500	**606118**	BPS263/1000	**606128**	6
	80	BPS280/100	**606099**	BPS280/300	**606109**	BPS280/500	**606119**	BPS280/1000	**606129**	6
	100	BPS2100/100	**606100**	BPS2100/300	**606110**	BPS2100/500	**606120**	BPS2100/1000	**606130**	6
4P	25	BPS425/100	**606173**	BPS425/300	**606183**	BPS425/500	**606193**	BPS425/1000	**606203**	3
	40	BPS440/100	**606174**	BPS440/300	**606184**	BPS440/500	**606194**	BPS440/1000	**606204**	3
	63	BPS463/100	**606175**	BPS463/300	**606185**	BPS463/500	**606195**	BPS463/1000	**606205**	3
	80	BPS480/100	**606176**	BPS480/300	**606186**	BPS480/500	**606196**	BPS480/1000	**606206**	3
	100	BPS4100/100	**606177**	BPS4100/300	**606187**	BPS4100/500	**606197**	BPS4100/1000	**606207**	3



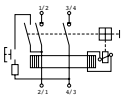
Series BP - Type Ai

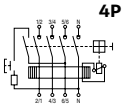




	In (A)	30mA Cat. no.	30mA Ref. no.	100mA Cat. no.	100mA Ref. no.	Pack.
2P	25	BPAi225/030	**606331**	BPAi225/300	**606347**	6
	40	BPAi240/030	**606332**	BPAi240/300	**606348**	6
	63	BPAi263/030	**606333**	BPAi263/300	**606349**	6
4P	25	BPAi425/030	**606334**	BPAi425/300	**606350**	3
	40	BPAi440/030	**606335**	BPAi440/300	**606351**	3
	63	BPAi463/030	**606336**	BPAi463/300	**606352**	3

Series BP - Type Si





	In (A)	300mA Cat. no.	300mA Ref. no.	Pack.
2P	25	BPSi225/300	**606337**	6
	40	BPSi240/300	**606338**	6
	63	BPSi263/300	**606339**	6
	80	BPSi280/300	**606340**	6
	100	BPSi2100/300	**606341**	6
4P	25	BPSi425/300	**606342**	3
	40	BPSi440/300	**606343**	3
	63	BPSi463/300	**606344**	3
	80	BPSi480/300	**606345**	3
	100	BPSi4100/300	**606346**	3

PROTECT

Type B applications

Industrial

Controllers and variable speed drives | Battery chargers and inverters | Frequency converters | Photovoltaic systems, a.c side | Charging stations for electric vehicles | Installation in general where we can expect d.c. smooth direct residual currents | Variable speed machine tools | UPS, Computer Data Centers | Elevator controls | Cranes of all kinds | Test set-ups in laboratories | Backed-up power supplies | Electronic equipment on construction sites |

RCCBs - Residual Current Circuit Breakers

Series FP

EN 62423/ VDE 0664-40

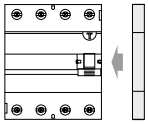
Type B

Applications

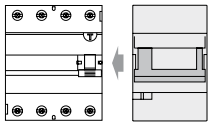
Approval / Marking

Add-on devices

FP Auxiliaries(1)



Motor operator(2)



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

Performance

Rated current In	(A)	16, 25, 40, 63, 80
Residual current IΔ	(mA)	30, 100, 300, 500
Rated voltage AC Un	(V)	2P: 230
		4P: 230/400
Minimum operating voltage UBmin	30mA (V)	2P: 176
		4P: 287
	100,300,500mA (V)	2P: 117
		4P: 205
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to EN/IEC 60068-2-28/2-30 and DIN 40046		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm^2)	1.5-50
Poles		2P, 4P
Nuisance tripping resistance		3000A 8/20 µs
Ambient temperature	(°C)	-25 up to 40
Weight	(g)	2P: 340
	(g)	4P: 420

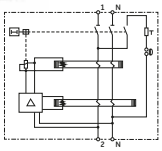
Short-circuit capacity

AC acc. to EN/IEC 61009-1	
Making and breaking capacity	Im = 500A from 16A up to 40A
	Im = 10In from 63 up to 80A
Residual making and breaking capacity	IΔm = 50In from 16A up to 40A
	IΔm = 10In from 63A up to 80A
Short-circuit capacity	Inc = 10000A at 230/400V
	fuse 80A gG

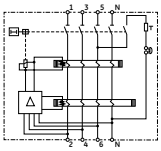
New

Auxiliary contacts pag. ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***B.35***

Series FP - Type B



		30mA		100mA		300mA		500mA		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
2P	16	FPB 2 16/030	**565353**	FPB 2 16/100	**565354**	FPB 2 16/300	**565355**	FPB 2 16/500	**565356**	3
	25	FPB 2 25/030	**565357**	FPB 2 25/100	**565358**	FPB 2 25/300	**565359**	FPB 2 25/500	**565360**	3
	40	FPB 2 40/030	**565361**	FPB 2 40/100	**565362**	FPB 2 40/300	**565363**	FPB 2 40/500	**565364**	3
	63	FPB 2 63/030	**565365**	FPB 2 63/100	**565366**	FPB 2 63/300	**565367**	FPB 2 63/500	**565368**	3
	80	FPB 2 80/030	**565369**	FPB 2 80/100	**565370**	FPB 2 80/300	**565371**	FPB 2 80/500	**565372**	3



4P	16	FPB 4 16/030	**565333**	FPB 4 16/100	**565334**	FPB 4 16/300	**565335**	FPB 4 16/500	**565336**	3
	25	FPB 4 25/030	**565337**	FPB 4 25/100	**565338**	FPB 4 25/300	**565339**	FPB 4 25/500	**565340**	3
	40	FPB 4 40/030	**565341**	FPB 4 40/100	**565342**	FPB 4 40/300	**565343**	FPB 4 40/500	**565344**	3
	63	FPB 4 63/030	**565345**	FPB 4 63/100	**565346**	FPB 4 63/300	**565347**	FPB 4 63/500	**565348**	3
	80	FPB 4 80/030	**565349**	FPB 4 80/100	**565350**	FPB 4 80/300	**565351**	FPB 4 80/500	**565352**	3

New

RCCBs - Residual Current Circuit Breakers

Series FP

EN/IEC EN 62423/ VDE 0664-40

Type F

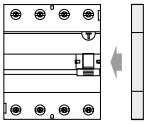
Applications

Marking

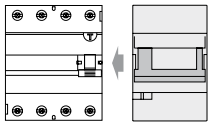
CE

Add-on devices

Auxiliaries(1)



Motor operator(2)



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

Performance

Rated current In	(A)	25, 40, 63, 80
Residual current IΔ	(mA)	30
Rated voltage AC Un	(V)	2P: 240 4P: 240/415
Minimum operating voltage UBmin	30mA (V)	2P: 176 4P: 306
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to EN/IEC 60068-2-28/2-30 and DIN 40046		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm^2)	1,5-50 (1,5-50)
Poles		2P, 4P (4)
Nuisance tripping resistance		3000A 8/20 µs
Ambient temperature	(°C)	-25 up to 40
Weight	(g)	2P: 220
	(g)	4P: 385

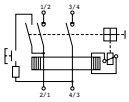
Short-circuit capacity

AC acc. to EN/IEC 61009-1	
Making and breaking capacity	Im = 500A from 16A up to 40A Im = 10In from 63 up to 80A
Residual making and breaking capacity	IΔm = 500In from 16A up to 80A IΔm = 10In from 63A up to 80A
Short-circuit capacity	Inc = 10000A at 240/415V (230V/400V) fuse 80A gG

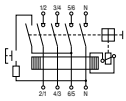
New

Auxiliary contacts pag. ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***B.35***

Series FP - Type F

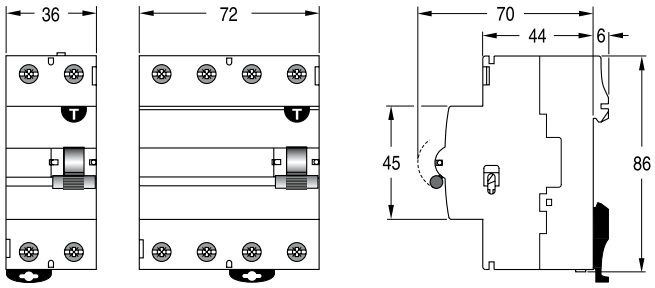


	In (A)	30mA Cat. No.	Ref. No.	Pack.
2P	25	FPF 2 25/030	**565373**	6
	40	FPF 2 40/030	**565374**	6
	63	FPF 2 63/030	**565375**	6
	80	FPF 2 80/030	**565376**	6



4P	25	FPF 4 25/030	**565377**	3
	40	FPF 4 40/030	**565378**	3
	63	FPF 4 63/030	**565379**	3
	80	FPF 4 80/030	**565380**	3

Dimensions



New

RCBOs - Residual Current Circuit Breakers with Overcurrent Protection

Series DM60

EN /IEC 61009-1 6000 3

Type AC

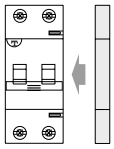
Type A

Applications

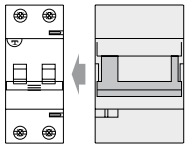
Approvals / Marking

Add-on devices

Auxiliaries



Motor operator



Performance

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

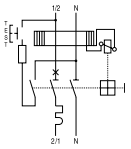
Short-circuit capacity

Acc. to EN/IEC 61009-1 and EN/IEC 60898-1	
Residual making and breaking capacity	IΔm = 6000A
Energy limiting class	3
Short-circuit capacity	Icn = 6000A at 240V
Acc. to EN/IEC 60947-2	
Residual making and breaking capacity	Icu = 10000A at 240V

(1) Minimum service voltage for 30mA: 2P=176V / 4P=287V

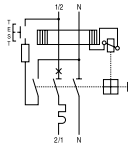
Auxiliary contacts pag. ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***B.71***

Series DM60 - Type AC



	In (A)	10mA Cat. no.	10mA Ref. no.	30mA Cat. no.	30mA Ref. no.	100mA Cat. no.	100mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
Characteristic B 1P+N	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
Characteristic C 1P+N	4	DM60C04/010	**609831**	DM60C04/030	**609837**	DM60C04/100	**609846**	DM60C04/300	**609855**	6
	6	DM60C06/010	**609832**	DM60C06/030	**609838**	DM60C06/100	**609847**	DM60C06/300	**609856**	6
	10	DM60C10/010	**609833**	DM60C10/030	**609839**	DM60C10/100	**609848**	DM60C10/300	**609857**	6
	13	DM60C13/010	**609834**	DM60C13/030	**609840**	DM60C13/100	**609849**	DM60C13/300	**609858**	6
	16	DM60C16/010	**609835**	DM60C16/030	**609841**	DM60C16/100	**609850**	DM60C16/300	**609859**	6
	20	DM60C20/010	**609836**	DM60C20/030	**609842**	DM60C20/100	**609851**	DM60C20/300	**609860**	6
	25	-	-	DM60C25/030	**609843**	DM60C25/100	**609852**	DM60C25/300	**609861**	6
	32	-	-	DM60C32/030	**609844**	DM60C32/100	**609853**	DM60C32/300	**609862**	6
	40	-	-	DM60C40/030	**609845**	DM60C40/100	**609854**	DM60C40/300	**609863**	6

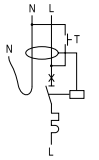
Series DM60 - Type A



	In (A)	10mA Cat. no.	10mA Ref. no.	30mA Cat. no.	30mA Ref. no.	100mA Cat. no.	100mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
Characteristic B 1P+N	6	DMA60B06/010	**609740**	DMA60B06/030	**609745**	DMA60B06/100	**609753**	DMA60B06/300	**609761**	6
	10	DMA60B10/010	**609741**	DMA60B10/030	**609746**	DMA60B10/100	**609754**	DMA60B10/300	**609762**	6
	13	DMA60B13/010	**609742**	DMA60B13/030	**609747**	DMA60B13/100	**609755**	DMA60B13/300	**609763**	6
	16	DMA60B16/010	**609743**	DMA60B16/030	**609748**	DMA60B16/100	**609756**	DMA60B16/300	**609764**	6
	20	DMA60B20/010	**609744**	DMA60B20/030	**609749**	DMA60B20/100	**609757**	DMA60B20/300	**609765**	6
	25	-	-	DMA60B25/030	**609750**	DMA60B25/100	**609758**	DMA60B25/300	**609766**	6
	32	-	-	DMA60B32/030	**609751**	DMA60B32/100	**609759**	DMA60B32/300	**609767**	6
	40	-	-	DMA60B40/030	**609752**	DMA60B40/100	**609760**	DMA60B40/300	**609768**	6
Characteristic C 1P+N	4	DMA60C04/010	**609769**	DMA60C04/030	**609775**	DMA60C04/100	**609784**	DMA60C04/300	**609793**	6
	6	DMA60C06/010	**609770**	DMA60C06/030	**609776**	DMA60C06/100	**609785**	DMA60C06/300	**609794**	6
	10	DMA60C10/010	**609771**	DMA60C10/030	**609777**	DMA60C10/100	**609786**	DMA60C10/300	**609795**	6
	13	DMA60C13/010	**609772**	DMA60C13/030	**609778**	DMA60C13/100	**609787**	DMA60C13/300	**609796**	6
	16	DMA60C16/010	**609773**	DMA60C16/030	**609779**	DMA60C16/100	**609788**	DMA60C16/300	**609797**	6
	20	DMA60C20/010	**609774**	DMA60C20/030	**609780**	DMA60C20/100	**609789**	DMA60C20/300	**609798**	6
	25	-	-	DMA60C25/030	**609781**	DMA60C25/100	**609790**	DMA60C25/300	**609799**	6
	32	-	-	DMA60C32/030	**609782**	DMA60C32/100	**609791**	DMA60C32/300	**609800**	6
	40	-	-	DMA60C40/030	**609783**	DMA60C40/100	**609792**	DMA60C40/300	**609801**	6

Series DMT60 - Type AC

(1)



	In (A)	30mA Cat. no.	30mA Ref. no.	Pack.
Characteristic C Unswitched neutral 1P+N	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

RCBOs - Residual Current Circuit Breakers with Overcurrent Protection

Series DM100

EN /IEC 61009-1 10000 / 3

Type AC

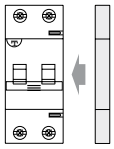
Type A

Applications

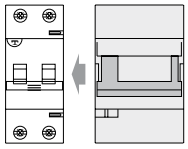
Approvals / Marking

Add-on devices

Auxiliaries



Motor operator



Performance

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

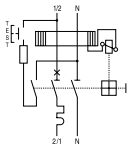
Short-circuit capacity

Acc. to EN/IEC 61009-1 and EN/IEC 60898-1	
Residual making and breaking capacity	IΔm = 6000A
Energy limiting class	3
Short-circuit capacity	Icn = 10000A at 240V
Acc. to EN/IEC 60947-2	
Residual making and breaking capacity	Icu = 15000A at 240V

(1) Minimum service voltage for 30mA: 2P=176V / 4P=287V

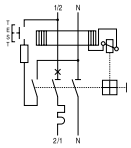
Auxiliary contacts pag. ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***B.71***

Series DM100 - Type AC



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

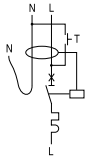
Series DM100 - Type A



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

Series DM100 - Type AC

(1)



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

(1) Please consult us for blue neutral flying lead

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

Approvals / Marking

Add-on devices

Integrated auxiliary contact on demand.

Performance

Thermal setting In	(A)	32, 63
Residual current IΔn	(mA)	30, 100, 300, 500, 1000
Rated voltage AC Un	(V)	2P: 240/415 3P: 415 4P: 415
Minimum operating voltage UBmin(1)	(V)	2P: 205 3P: 205 4P: 205
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to EN/IEC 60068-2/3 and DIN 40046		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm^2)	2P 32 & 63A: 25-35 3P 32 & 63A: 25-35 4P 2 mod. 32A: 16 4P 32 & 63A 4 mod.: 25-35
Poles		2P, 3P, 4P
Nuisance tripping resistance		Type A, AC: 250A 8/20μs; 200A 0.5μs - 100kHz Type S: 3000A 8/20μs
Ambient temperature	(°C)	Type AC: -5 up to 55 Type A, S: -25 up to 55
Weight	(g)	2P: 250 3P: 320 4P: 340

Short-circuit capacity

Depends on the associated MCB		MCB			
		G30	**G45**	**G60**	**G100**
Residual making and breaking capacity	**IΔm**	3000	4500	6000	7500
Short-circuit capacity	**Icn**	3000	4500	6000	10000

(1) Minimum service voltage for 30mA: 2P = 176V / 4P = 287V

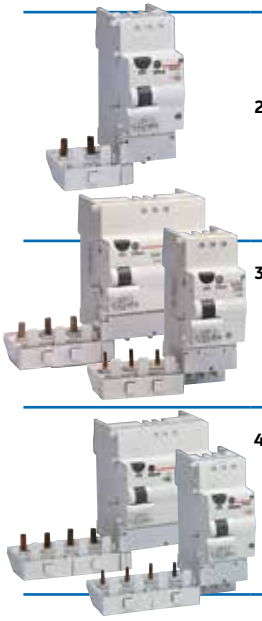
More technical data pag. ***website*** | *Dimensions pag.* ***B.70***

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

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

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

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



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

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

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

compact electronic RCBO
Switched neutral line

Combining the features of
Miniature Circuit Breaker & Residual Current Circuit Breaker

- ✓ Functionally dependent on line voltage, minimum supply voltage 85V
- ✓ Energy limiting class 3:
  highest energy limiting performance for optimal protection of cable insulation and maximally reducing risk of fire and other damage
- ✓ The terminals accept not only wires but also time saving PIN busbars

New

Compact electronic Residual Current Circuit Breaker with Overcurrent Protection - Neutral Switch

Serie DMCE60NS / DICE60NS

EN/ IEC 61009-1 ed3.2 (2013-09), BS EN 61009-1:2012 and AS/NZS 61009-1:20011

6000
3

Type AC

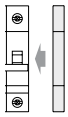
Type A

Applications

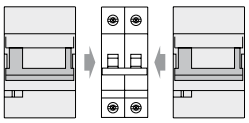
Approvals / Marking

Add-on devices

Auxiliaries(1)



Motor operator(2)



(1) Series CA UN auxiliary contact right side mounted is interface to make compatible all extentions CA, CB, Tele L, Tele U, PSB
(2) Tele MP can be mounted on both sides

Performance

Thermal setting In	(A)	6, 10, 13, 16, 20, 25, 32
Residual current	(mA)	10, 30
Tripping characteristics		B, C
Rated voltage AC Un	(V)	240
Minimum operating voltage UBmin	(V)	85
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to EN/IEC 60068-2-30		95% RH at 55°C
Terminal capacity flexible /rigid cable	(mm^2)	16(1)/25(2)
Poles		1P+N(3) (1 module)
Nuisance tripping resistance	(A)	250A
Ambient temperature	(°C)	-5°C...60°C
Weight / mod.	(g)	125g

Short-circuit capacity

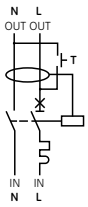
AC acc. to EN/IEC 61009-1	
Residual making and breaking capacity	IΔm = 3000A
Energy limiting class	3
Short-circuit capacity	Icn = 6000A at 240V

Terminal capacity:
(1) Flexible copper wires from 1.5mm^2 up to 16mm^2
(2) Rigid copper wires from 1mm^2 up to 25mm^2
25mm^2 wires need be reshaped before the terminal can accept them.
(3) Switched neutral on the left

New

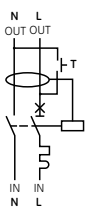
Auxiliary contacts pag. ***C.4*** *| Motor operator pag.* ***C.7***
Dimensions pag. ***B.47***

DMCE60NS - Type AC - characteristic C - Domestic application



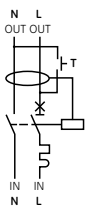
		10mA		30mA		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
1P+N	6	DMCE60C06/010NS	**694769**	DMCE60C06/030NS	**694783**	1
	10	DMCE60C10/010NS	**694770**	DMCE60C10/030NS	**694784**	1
	13	DMCE60C13/010NS	**694771**	DMCE60C13/030NS	**694785**	1
	16	DMCE60C16/010NS	**694772**	DMCE60C16/030NS	**694786**	1
	20	DMCE60C20/010NS	**694773**	DMCE60C20/030NS	**694787**	1
	25	DMCE60C25/010NS	**694774**	DMCE60C25/030NS	**694788**	1
	32	DMCE60C32/010NS	**694775**	DMCE60C32/030NS	**694789**	1

DMCE60NS - Type AC - characteristic B - Domestic application



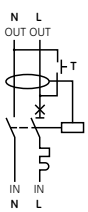
		10mA		30mA		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
1P+N	6	DMCE60B06/010NS	**694791**	DMCE60B06/030NS	**694776**	1
	10	DMCE60B10/010NS	**694763**	DMCE60B10/030NS	**694777**	1
	13	DMCE60B13/010NS	**694764**	DMCE60B13/030NS	**694778**	1
	16	DMCE60B16/010NS	**694765**	DMCE60B16/030NS	**694779**	1
	20	DMCE60B20/010NS	**694766**	DMCE60B20/030NS	**694780**	1
	25	DMCE60B25/010NS	**694767**	DMCE60B25/030NS	**694781**	1
	32	DMCE60B32/010NS	**694768**	DMCE60B32/030NS	**694782**	1

DMCE60NS - Type A - characteristic C - Domestic application



		10mA		30mA		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
1P+N	6	DMCEA60C06/010NS	**694685**	DMCEA60C06/030NS	**694699**	1
	10	DMCEA60C10/010NS	**694686**	DMCEA60C10/030NS	**694700**	1
	13	DMCEA60C13/010NS	**694687**	DMCEA60C13/030NS	**694701**	1
	16	DMCEA60C16/010NS	**694688**	DMCEA60C16/030NS	**694702**	1
	20	DMCEA60C20/010NS	**694689**	DMCEA60C20/030NS	**694703**	1
	25	DMCEA60C25/010NS	**694690**	DMCEA60C25/030NS	**694704**	1
	32	DMCEA60C32/010NS	**694691**	DMCEA60C32/030NS	**694705**	1

DMCE60NS - Type A - characteristic B - Domestic application

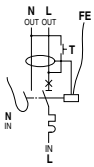


		10mA		30mA		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
1P+N	6	DMCEA60B06/010NS	**694678**	DMCEA60B06/030NS	**694692**	1
	10	DMCEA60B10/010NS	**694679**	DMCEA60B10/030NS	**694693**	1
	13	DMCEA60B13/010NS	**694680**	DMCEA60B13/030NS	**694694**	1
	16	DMCEA60B16/010NS	**694681**	DMCEA60B16/030NS	**694695**	1
	20	DMCEA60B20/010NS	**694682**	DMCEA60B20/030NS	**694696**	1
	25	DMCEA60B25/010NS	**694683**	DMCEA60B25/030NS	**694697**	1
	32	DMCEA60B32/010NS	**694684**	DMCEA60B32/030NS	**694698**	1

New

DICE60NS - Type AC - characteristic B - Industrial application

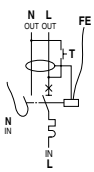
Switched neutral 1P+N



In (A)	10mA Cat. No.	10mA Ref. No.	30mA Cat. No.	30mA Ref. No.	Pack.
6	-	-	DICE60B06/030NS	**694792**	1
10	-	-	DICE60B10/030NS	**694793**	1
16	-	-	DICE60B16/030NS	**694794**	1
20	-	-	DICE60B20/030NS	**694795**	1
25	-	-	DICE60B25/030NS	**694796**	1
32	-	-	DICE60B32/030NS	**694797**	1

DICE60NS - Type A - characteristic B - Industrial application

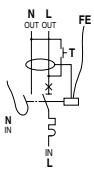
Switched neutral 1P+N



In (A)	10mA Cat. No.	10mA Ref. No.	30mA Cat. No.	30mA Ref. No.	Pack.
6	-	-	DICEA60B06/030NS	**694804**	1
10	-	-	DICEA60B10/030NS	**694805**	1
16	-	-	DICEA60B16/030NS	**694806**	1
20	-	-	DICEA60B20/030NS	**694807**	1
25	-	-	DICEA60B25/030NS	**694808**	1
32	-	-	DICEA60B32/030NS	**694809**	1

DICE60NS - Type AC - characteristic C - Industrial application

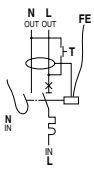
Switched neutral 1P+N



In (A)	10mA Cat. No.	10mA Ref. No.	30mA Cat. No.	30mA Ref. No.	Pack.
6	-	-	DICE60B06/030NS	**694798**	1
10	-	-	DICE60B10/030NS	**694798**	1
16	-	-	DICE60B16/030NS	**694800**	1
20	-	-	DICE60B20/030NS	**694801**	1
25	-	-	DICE60B25/030NS	**694802**	1
32	-	-	DICE60B32/030NS	**694803**	1

DICE60NS - Type A - characteristic C - Industrial application

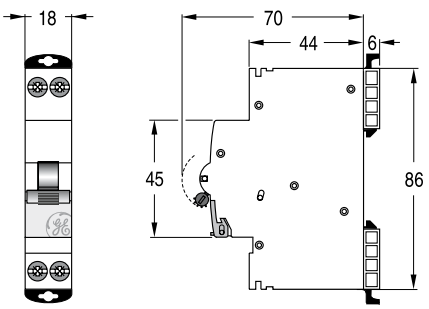
Switched neutral 1P+N



In (A)	10mA Cat. No.	10mA Ref. No.	30mA Cat. No.	30mA Ref. No.	Pack.
6	-	-	DICEA60B06/030NS	**694810**	1
10	-	-	DICEA60B10/030NS	**694811**	1
16	-	-	DICEA60B16/030NS	**694812**	1
20	-	-	DICEA60B20/030NS	**694813**	1
25	-	-	DICEA60B25/030NS	**694814**	1
32	-	-	DICEA60B32/030NS	**694815**	1

Dimensions

ceRCBO - Serie DMCE60NS / DICE60NS



New

Compact electronic Residual Current Circuit Breaker

Series DMCE60, DICE60

EN /IEC 61009-1 6000 3

Type AC

Type A

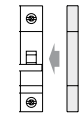
With Overcurrent Protection functionality dependent on Line Voltage

Applications

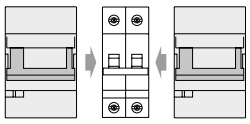
Approval / Marking

Add-on devices

Auxiliaries(1)



Motor operator(2)



(1) Series CA UN auxiliary contact right side mounted is interface to make compatible all extentions CA, CB, Tele L, Tele U, PSB
(2) Tele MP can be mounted on both sides

Performance

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

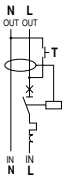
Short-circuit capacity

AC acc. to EN/IEC 61009-1	
DMCE60 according to EN/IEC 61009-1	
Residual making and breaking capacity	IΔm = 3000A
Energy limiting class	3
Short-circuit capacity	Icn = 6000A at 240V

Terminal capacity:
(1) Rigid copper wires 1-25mm², flexible copper wires 1.5 - 16mm²
(2) Flying lead entering the device from top side. Cross section of 4mm² up to 25A, 6mm² up to 40A, 1200mm length.
(3) Rigid copper wires 1-35mm², Flexible copper wires 1.5 - 25mm²
(4) Unswitched neutral on the left.

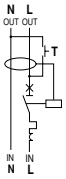
Auxiliary contacts pag. ***C.4*** *| Motor operator pag.* ***C.7*** *| Shunt trip pag.* ***C.8*** *| Undervoltage release pag.* ***C.8*** *| Panel board switch pag.* ***C.8***
Busbars pag. ***E.2*** *| More technical data pag.* ***website*** *| Dimensions pag.* ***B.71***

Series DMCE60 - Type AC ∿ - Domestic Applications



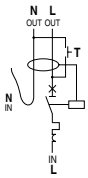
	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
Unswitched neutral 1P+N	6	DMCE60B06/030	**694014**	DMCE60C06/030	**694000**	1
	10	DMCE60B10/030	**694015**	DMCE60C10/030	**694001**	1
	16	DMCE60B16/030	**694016**	DMCE60C16/030	**694002**	1
	20	DMCE60B20/030	**694017**	DMCE60C20/030	**694003**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

Series DMCEA60 - Type A ∿ - Domestic Applications



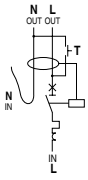
	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
Unswitched neutral 1P+N	6	DMCEA60B06/030	**694021**	DMCEA60C06/030	**694007**	1
	10	DMCEA60B10/030	**694022**	DMCEA60C10/030	**694008**	1
	16	DMCEA60B16/030	**694023**	DMCEA60C16/030	**694009**	1
	20	DMCEA60B20/030	**694024**	DMCEA60C20/030	**694010**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

Series DICE60 - Type AC ∿ - Industrial Applications



	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
Unswitched neutral 1P+N	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

Series DICEA60 - Type A ∿ - Industrial Applications



	In (A)	B Cat. No.	B Ref. No.	C Cat. No.	C Ref. No.	Pack.
Unswitched neutral 1P+N	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

eRCBOs - Residual Current Circuit Breakers with Overcurrent Protection NEUTRAL BLUE

Series DME

EN /IEC 61009-1 6000 3 / 10000 3

Type AC

Type A

Applications

For use in consumer units and distribution boards.

Marking

CE

Performance

Thermal setting In	(A)	6, 10, 16, 20, 25, 32, 40
Residual current IΔn	(mA)	10, 30, 100
Tripping characteristic		B, C, D
Rated voltage AC Un	(V)	240
Minimum operating voltage UBmin	(V)	195
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to EN/IEC 60068-2-28/2-30		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm^2)	Bottom terminal: 16-25
Poles		1P+N (1 module)
Nuisance tripping resistance		250A 8/20μs
Ambient temperature		-5 up to 55
Weight		235

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

Short-circuit capacity

AC acc. to EN/IEC 61009-1	
DME60	
Residual making and breaking capacity	IΔm = 6000A
Energy limiting class	3
Short-circuit capacity	Icn = 6000A at 240V
DME100	
Residual making and breaking capacity	IΔm = 10000A
Energy limiting class	3
Short-circuit capacity	Icn = 10000A at 240V

Busbars pag. ***E.2*** | *More technical data pag.* ***website*** | *Dimensions pag.* ***B.71***

Series DME60 - Type AC - Characteristic C

	In (A)			30mA		100mA		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
Unswitched neutral 1P+N	6	-	-	DME60C06/030	**605060**	DME60C06/100	**605067**	1
	10	-	-	DME60C10/030	**605061**	DME60C10/100	**605068**	1
	16	-	-	DME60C16/030	**605062**	DME60C16/100	**605069**	1
	20	-	-	DME60C20/030	**605063**	DME60C20/100	**605070**	1
	25	-	-	DME60C25/030	**605064**	DME60C25/100	**605071**	1
	32	-	-	DME60C32/030	**605065**	DME60C32/100	**605072**	1
	40	-	-	DME60C40/030	**605066**	DME60C40/100	**605073**	1

Series DME100 - Type AC - Characteristic B

	In (A)	10mA		30mA		100mA		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
Unswitched neutral 1P+N	6	DME100B06/010	**605030**	DME100B06/030	**605037**	DME100B06/100	**605260**	1
	10	DME100B10/010	**605031**	DME100B10/030	**605038**	DME100B10/100	**605261**	1
	16	DME100B16/010	**605032**	DME100B16/030	**605039**	DME100B16/100	**605262**	1
	20	DME100B20/010	**605033**	DME100B20/030	**605040**	DME100B20/100	**605263**	1
	25	DME100B25/010	**605034**	DME100B25/030	**605041**	DME100B25/100	**605264**	1
	32	DME100B32/010	**605035**	DME100B32/030	**605042**	DME100B32/100	**605265**	1
	40	DME100B40/010	**605036**	DME100B40/030	**605043**	DME100B40/100	**605266**	1

Series DME100 - Type AC - Characteristic C

Unswitched neutral 1P+N	6	DME100C06/010	**605044**	DME100C06/030	**605051**	DME100C06/100	**605240**	1
	10	DME100C10/010	**605045**	DME100C10/030	**605052**	DME100C10/100	**605241**	1
	16	DME100C16/010	**605046**	DME100C16/030	**605053**	DME100C16/100	**605242**	1
	20	DME100C20/010	**605047**	DME100C20/030	**605054**	DME100C20/100	**605243**	1
	25	DME100C25/010	**605048**	DME100C25/030	**605055**	DME100C25/100	**605244**	1
	32	DME100C32/010	**605049**	DME100C32/030	**605056**	DME100C32/100	**605245**	1
	40	DME100C40/010	**605050**	DME100C40/030	**605057**	DME100C40/100	**605246**	1

Series DME100 - Type AC - Characteristic D

Unswitched neutral 1P+N	6	-	-	-	-	DME100D06/100	**606519**	1
	10	-	-	-	-	DME100D10/100	**606520**	1
	16	-	-	-	-	DME100D16/100	**606521**	1
	20	-	-	-	-	DME100D20/100	**606522**	1
	25	-	-	-	-	DME100D25/100	**606523**	1
	32	-	-	-	-	DME100D32/100	**606524**	1
	40	-	-	-	-	DME100D40/100	**606525**	1

Series DMEA100 - Type A - Characteristic B

	In (A)	10mA		30mA		100mA		Pack.
		Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	
Unswitched neutral 1P+N	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

Series DMEA100 - Type A - Characteristic C

Unswitched neutral 1P+N	6	DMEA100C06/010	**605164**	DMEA100C06/030	**605171**	DMEA100C06/100	**606526**	1
	10	DMEA100C10/010	**605165**	DMEA100C10/030	**605172**	DMEA100C10/100	**606527**	1
	16	DMEA100C16/010	**605166**	DMEA100C16/030	**605173**	DMEA100C16/100	**606528**	1
	20	DMEA100C20/010	**605167**	DMEA100C20/030	**605174**	DMEA100C20/100	**606529**	1
	25	DMEA100C25/010	**605168**	DMEA100C25/030	**605175**	DMEA100C25/100	**606530**	1
	32	DMEA100C32/010	**605169**	DMEA100C32/030	**605176**	DMEA100C32/100	**606531**	1
	40	DMEA100C40/010	**605170**	DMEA100C40/030	**605177**	DMEA100C40/100	**606532**	1

Series DMEA100 - Type A - Characteristic D

Unswitched neutral 1P+N	6	DMEA100D06/010	**606505**	DMEA100D06/030	**606512**	DME100D06/100	**606519**	1
	10	DMEA100D10/010	**606506**	DMEA100D10/030	**606513**	DME100D10/100	**606520**	1
	16	DMEA100D16/010	**606507**	DMEA100D16/030	**606514**	DME100D16/100	**606521**	1
	20	DMEA100D20/010	**606508**	DMEA100D20/030	**606515**	DME100D20/100	**606522**	1
	25	DMEA100D25/010	**606509**	DMEA100D25/030	**606516**	DME100D25/100	**606523**	1
	32	DMEA100D32/010	**606510**	DMEA100D32/030	**606517**	DME100D32/100	**606524**	1
	40	DMEA100D40/010	**606511**	DMEA100D40/030	**606518**	DME100D40/100	**606525**	1

eRCBOs - Residual Current Circuit Breakers with Overcurrent Protection NEUTRAL BLACK

Series DMET

EN /IEC 61009-1 6000 3 / 10000 3

Type AC

Type A

Applications

For use in consumer units and distribution boards.

Marking

CE

Performance

Thermal setting In	(A)	6, 10, 16, 20, 25, 32, 40
Residual current IΔn	(mA)	10, 30, 100
Tripping characteristic		B, C, D
Rated voltage AC Un	(V)	240
Minimum operating voltage UBmin	(V)	195
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to EN/IEC 60068-2-28/2-30		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm^2)	Bottom terminal: 16-25
Poles		1P+N (1 module)
Nuisance tripping resistance		250A 8/20μs
Ambient temperature		-5 up to 55
Weight		235

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

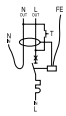
Short-circuit capacity

AC acc. to EN/IEC 61009-1	
DMET60	
Residual making and breaking capacity	IΔm = 6000A
Energy limiting class	3
Short-circuit capacity	Icn = 6000A at 240V
DMET100	
Residual making and breaking capacity	IΔm = 10000A
Energy limiting class	3
Short-circuit capacity	Icn = 10000A at 240V

Busbars pag. ***E.2*** | *More technical data pag.* ***website*** | *Dimensions pag.* ***B.71***

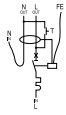
Series DMET60 - Type AC ∿ - Characteristic C

		10mA		30mA		100mA		300mA		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
Unswitched neutral 1P+N	10	-	-	DMET60C10/030	**607427**	-	-	-	-	1
	16	-	-	DMET60C16/030	**607428**	-	-	-	-	1
	20	-	-	DMET60C20/030	**607429**	-	-	-	-	1
	25	-	-	DMET60C25/030	**607430**	-	-	-	-	1
	32	-	-	DMET60C32/030	**607431**	-	-	-	-	1



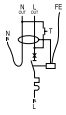
Series DMET60 - Type A ⩙ - Characteristic C

Unswitched neutral 1P+N	10	-	-	DMEAT60C10/030	**608135**	-	-	-	-	1
	16	-	-	DMEAT60C16/030	**608136**	-	-	-	-	1
	20	-	-	DMEAT60C20/030	**608137**	-	-	-	-	1
	25	-	-	DMEAT60C25/030	**608138**	-	-	-	-	1
	32	-	-	DMEAT60C32/030	**608139**	-	-	-	-	1



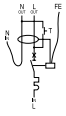
Series DMET100 - Type AC ∿ - Characteristic C

		10mA		30mA		100mA		300mA		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
Unswitched neutral 1P+N	6	DMET100C06/010	**606567**	DMET100C06/030	**606574**	DMET100C06/100	**606560**	DMEA100C06/300	**606588**	1
	10	DMET100C10/010	**606568**	DMET100C10/030	**606575**	DMET100C10/100	**606561**	DMEA100C10/300	**606589**	1
	16	DMET100C16/010	**606569**	DMET100C16/030	**606576**	DMET100C16/100	**606562**	DMEA100C16/300	**606590**	1
	20	DMET100C20/010	**606570**	DMET100C20/030	**606577**	DMET100C20/100	**606563**	DMEA100C20/300	**606591**	1
	25	DMET100C25/010	**606571**	DMET100C25/030	**606578**	DMET100C25/100	**606564**	DMEA100C25/300	**606592**	1
	32	DMET100C32/010	**606572**	DMET100C32/030	**606579**	DMET100C32/100	**606565**	DMEA100C32/300	**606593**	1
	40	DMET100C40/010	**606573**	DMET100C40/030	**606580**	DMET100C40/100	**606566**	DMEA100C40/300	**606581**	1



Series DMET100 - Type A ⩙ - Characteristic C

Unswitched neutral 1P+N	10	-	-	DMEAT100C10/030	**607285**	-	-	-	-	1
	16	-	-	DMEAT100C16/030	**607286**	-	-	-	-	1
	20	-	-	DMEAT100C20/030	**607287**	-	-	-	-	1
	25	-	-	DMEAT100C25/030	**607288**	-	-	-	-	1
	32	-	-	DMEAT100C32/030	**607289**	-	-	-	-	1



Residual Current Circuit Breakers
Recognized UL1053

Series FPAUL

with UL approval

EN /IEC 61009-1

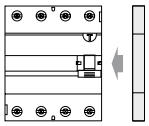
Type A

Applications

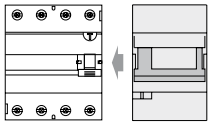
Approvals / Marking

Add-on devices

Auxiliaries



Motor operator



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 IΔn	(mA)	10, 30, 100, 300, 500
Rated maximum voltage AC Un	(V)	2P: 240 4P: 240/415
Minimum operating voltage UBmin(1)	(V)	2P: 117 4P: 205
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to EN/IEC 60068-2-28/2-30		95% RH at 55°C
and DIN 40046		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm^2)	35-50
Poles		2P, 4P
Nuisance tripping resistance	Type A:	250A 8/20μs; 3000A 8/20μs
Ambient temperature	(°C)	-25 up to 40
Weight	(g)	2P: 220 4P: 385

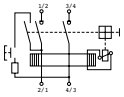
Short-circuit capacity

Acc. to EN/IEC 61008-1	
Making and breaking capacity	Im = 500A
Residual making and breaking capacity	IΔm≥ 500A from 16 up to 40A IΔm = 10In from 63 up to 100A
Short-circuit capacity	Inc = 10000A at 230/400V fuse 80A gG

(1) Minimum service voltage for 30mA: 2P=176V / 4P=287V

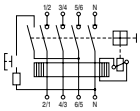
Auxiliary contacts pag. ***C.4*** *| Motor operator pag.* ***C.7***
More technical data pag. ***website*** *| Dimensions pag.* ***B.70***

Series FPAUL - Type A



2P		10°/30mA		100mA		300mA		500mA		
In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
16	FPAUL 216/010*	**608377**	-	-	-	-	-	-	6
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		
In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
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 - Recognized UL1053

Series DPA100UL

EN /IEC 61009-1 10000 / 3

Type A

with UL approval

Applications

Approval / Marking

Add-on devices

Auxiliaries

Motor operator

Performances UL

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

Performances EN/IEC

hermal setting In	(A)	10 to 32
Residual current IΔn	(mA)	10, 30, 100, 300
Tripping characteristic		B-C
Rated voltage AC Un	(V)	240
Minimum operating voltage UBmin(1)	(V)	195
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to EN/IEC 60068-2-28/2-30		20000/10000
and DIN 40046		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm^2)	Top terminal: 16-25
		Bottom term.: 25-35
Poles		1P+N
Nuisance tripping resistance		250A 8/20μs;
		200A 0.5μs - 100kHz
Ambient temperature	(°C)	-25 up to 40
Weight	(g)	250
		4P: 385

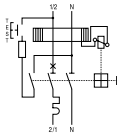
Short-circuit capacity

Acc. to EN/IEC 61009-1	
Residual making and breaking capacity	IΔm = 6000A
Short-circuit capacity	Icn = 5000/10000A at 230V
Energy limiting class	3
Acc. to EN/IEC 60947-2	
Short-circuit capacity	cu = 15000A at 230V

(1) Minimum service voltage for 30mA: 2P=176V / 4P=287V

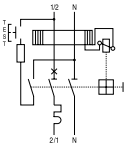
Auxiliary contacts pag. ***C.4*** *| Motor operator pag.* ***C.7***
More technical data pag. ***website*** *| Dimensions pag.* ***B.71***

Series DPA100 - Type A ⩙ - characteristic B



1P+N		10mA		30mA		
In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
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

Series DPA100 - Type A ⩙ - characteristic C



1P+N		10mA		30mA		
In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
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

Residual Current Circuit Breakers
Screwless connection

Series FPP

EN/IEC 61008-1

Type A

Type S

Applications

Approvals / Marking

Add-on devices

Auxiliaries(1)

Motor operator(2)

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

Performance

Thermal setting In	(A)	25, 40, 63
Residual current IΔn	(mA)	30, 100, 300
Rated voltage AC Un	(V)	2P: 240 4P: 415
Minimum operating voltage UBmin(1)	(V)	2P: 117 4P: 205
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to EN/IEC 60068-2-28/2-30 and DIN 40046		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm^2)	35-50
Poles		2P, 4P
Nuisance tripping resistance		Type A: 250A 8/20μs Type S: 3000A 8/20μs
Ambient temperature	(°C)	-25 ... +50
Weight	(g)	2P: 248 4P: 364

Short-circuit capacity

Acc. to EN/IEC 61008-1	
Making and breaking capacity	Im = 500A
Residual making and breaking capacity	IΔm ≥ 500A from 16 up to 40A IΔm = 10In from 63 up to 100A
Short-circuit capacity	Inc = 10000A at 240/415V fuse 80A gG

Auxiliary contacts pag. ***C.4*** *| Motor operator pag.* ***C.7***
More technical data pag. ***website*** *| Dimensions pag.* ***B.70***

Series FPP - Type A

		30mA		100mA		300mA		
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
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**	6
	40	FPPA440/030	**678363**	FPPA440/100	**678369**	FPPA440/300	**678375**	6
	63	FPPA463/030	**678364**	FPPA463/100	**678370**	FPPA463/300	**678376**	6

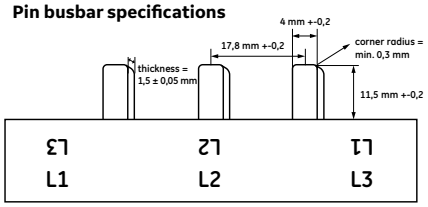
Series FPP - Type S

		300mA		
	In (A)	Cat. No.	Ref. No.	Pack.
2P	40	FPPS240/300	**678377**	6
	63	FPPS263/300	**678378**	6
4P	40	FPPS440/300	**678379**	3
	63	FPPS463/300	**678380**	3

Fixwell - Screwless connection

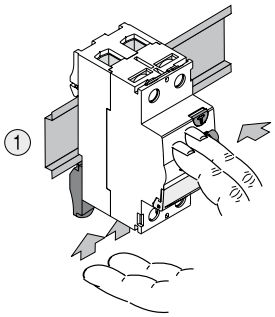
Terminal capacity

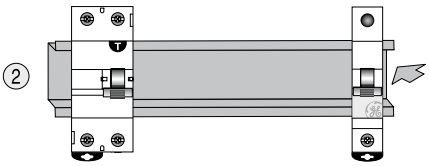
Top terminals		
		Ratings 25A, 40A and 63A: Cage terminals
Rigid cable (min/max)	mm²	1.5/50
Flexible cable (min/max)	mm²	1.5/35
Recommended torque	Nm	2.5
Maximum torque	Nm	5

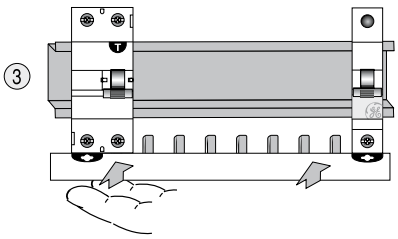
Bottom terminals				
		Ratings 25A, 40A and 63A: Cage terminals (1)	**Ratings 25A, 40A and 63A: Flat plug-in terminals (2)**	**Pin busbar specifications**
Rigid cable (min/max)	mm²	1/25	To insert GE pin busbars. or other brands under following dimensions: Lenght = 11.5 ± 0.2mm Width = 4 ± 0.2mm Thickness = 1.5 ± 0.05mm Corners min. radius = 0.3mm	
Flexible cable (min/max)	mm²	0.75/16		
Recommended torque	Nm	2.5		
Maximum torque	Nm	4.5		

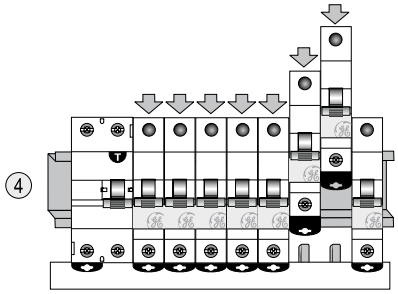
(1) Bottom terminals provide a cage terminal to connect also cables to feed other rows / devices limited to rated current of the device.
(2) Plug-in window terminals are only foreseen for pin busbars providing the incoming to several devices from the bottom side.
Not intended for any other conductor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

How to mount the busbar into devices



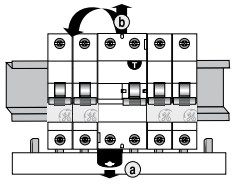






1. Mount first 2, 3 or 4 poles devices on the DIN-rail at the extreme left side of the row.
2. Mount one device at the extreme right side on the DIN-rail.
3. Fit the pin busbar on both devices.
4. Then, mount one by one the rest of poles pulling down the grey clip previously, inserting the pin bars inside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

Easy to dismount from DIN-rail



Residential earth leakage relay

Series GRDT+TOP / TOR

EN/IEC 61008-1

Type A

Type S

Features

This residential residual current device in only 2 modules works at Idn = 30mA instantaneous.
Till 19 ranges selectable set point 30mA...30A sensibility with 7 selectable intervention time being the residual tripping characteristic A type It's available with alarm (1 relay output) and local and remote test button.
GRDT+ TOP works in connection with TOR series which allow to detect earth leakage currents towards ground caused by insulation faults on machines or plants.

Functions

Detect earth leakage current through external toroid and open the line protecting people.

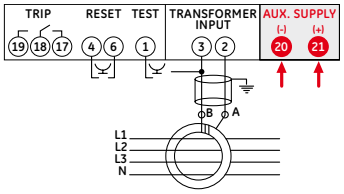
Applications

Standard

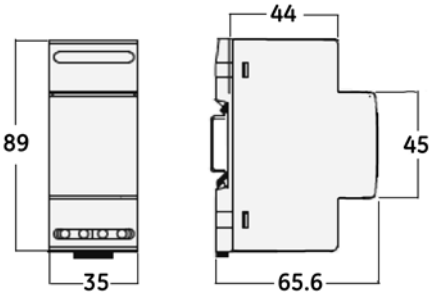
EN 60947-2

Marking

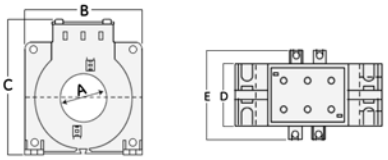
Electric diagram



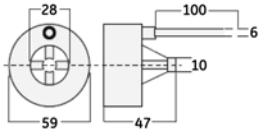
Dimensions



TOR+35, TOR+60, TOR+110



TOR+28



A	B	C	D	E
35	92	113	36	56
60	105	138	36	56
110	165	198	36	56

Series GRDT+TOP

Idelta n	Intervention time	Modules	Cat. No.	Ref. No.	Pack.
30mA..30A	0-5 seconds	2	GRDT+TOP	**665394**	1

Series TOR

	Diameter	Cat. No.	Ref. No.	Pack.
Toroids	28mm	TOR+28	**665297**	1
	35mm	TOR+35	**665298**	1
	60mm	TOR+60	**665299**	1
	110mm	TOR+110	**665917**	1

Performance GRDT+TOP

	GRDT+TOP	TOR
Input		
Connection	Low voltage lines, with TOR toroids	-
Waveform earth leakage current	A type	-
Rated frequency	50Hz	-
Working frequency	47..63Hz	-
Setup		
Sensibility set point	Selectable by 7-position potentiometer, 3 ranges x1, x10, x100	-
Non-operating residual current	0.5 I delta n	-
Intervention time	Selectable by 7-position potentiometer	-
Adjudstable range t:	0; 0.15; 0.25; 0.5; 1; 2.5; 5 seconds	-
Signaling		
Power On	Green LED ON	-
Alarm intervention	Red LED "TRIP" + relay switching	-
Ring toroid-realy connection failure	Red LED "TRIP" blinking + relay switching	-
Control		
Manual test	It verifies the residual current relay perfect working	-
Local	Front key	-
Remote	By external contact closing	-
Automatic continuous test	It verifies the integrity of the connection between realy and ring core	-
Terminal capacity		
TRIP state memorisation	Red LED "TRIP" + relay self-retaining	-
Reset	Manual or automatic, selectable by DIP switch	-
Local manual	Front key	-
Remote manual	External contact closing	-
Automatic	3 restart attempts (1 each 60 seconds)	-
Inhibit reset with persistent residual current	>50% I delta n	-
Output		
Relay	1 SPDT relay	-
Contact range	5A 250V AC	-
Auxiliary supply		
Rated value Uaux:	230V AC	-
Rated frequency:	50Hz	-
Tolerance	47-63Hz	-
Rated burden	<2.5W	-
Environmental conditions		
Operating temperature	-5...50°C	-
Number of modules	2	-

For complete technical performances, please ask for technical datasheet of each device

Upgrading our Sol Utility Companies

New DisB ELCB

Main Features

✓ User friendly
✓ Installation time savings
✓ Easier to install even in small space
✓ 100% safety and reliable compatible terminals
✓ Integrated locker area

utions for

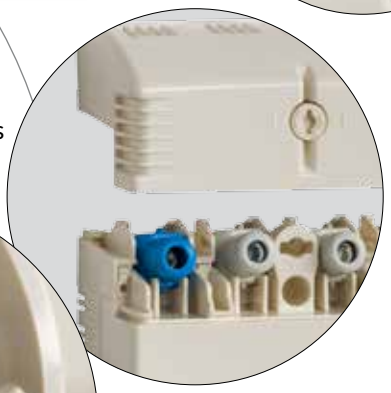
BTR Screws

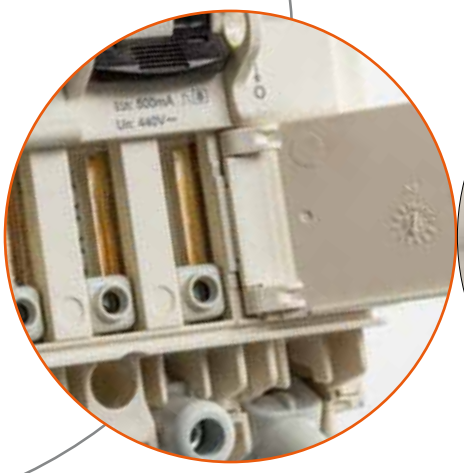
Two fixation points in the midlle

Rotative terminals
for ease of wiring

Locking possibilities

Botton and top terminals covers





Thermal setting locking possibility

Handle locking possibility

Installation time savings

✓ Comply with eRDF Specs CPT M&S Spe 11015B
✓ Locking terminal covers possibility
✓ Increase reliability (BTR screws)
✓ Harmonized tool for installation
✓ Simplified wiring through rotative terminals

Earth Leakage Current Breaker

Series DisB

NF C 62-411

Instantaneous	G
Selective	S

According to ERDF CPT M&S Spe 11015B

Applications

Approval / Marking

Features

Performance

Nominal voltage Un	(V AC)	1P+N: 250 3P+N: 440
Minimum voltage UBmin	(V AC)	1P+N: 200 3P+N: 200 (Ph+N)
Poles		2P/1 Protected 4P/3 Protected
Operating temperature	(°C)	-5 to +40
Terminal capacity flexible/rigid cable	(mm^2)	35/50
Screws head type		BTR
Thermal constraint	kA^2s	40 < I^2t < 57
Max screw torque	(N.m)	8
Voltage loss per pole	(V)	< 0.3
Dielectric rigidity	kV	2.5-4
Terminals		Rotating terminals
Isolation resistance		8
Locking possibilities		YES
External mechanism		Rotating handle

According to EDF prescription from 2015

Short-circuit capacity

Ics (A)	1P+N	15/30/45	(A)	2000
		30/45/60	(A)	2400
		60/75/90	(A)	2400
	3P+N	10/15/20/25/30	(A)	2000
		30/40/50/60	(A)	2400
I peak (A)	1P+N	15/30/45	(A)	3000
		30/45/60	(A)	3600
		60/75/90	(A)	3600
	3P+N	10/15/20/25/30	(A)	3000
		30/40/50/60	(A)	3600

New

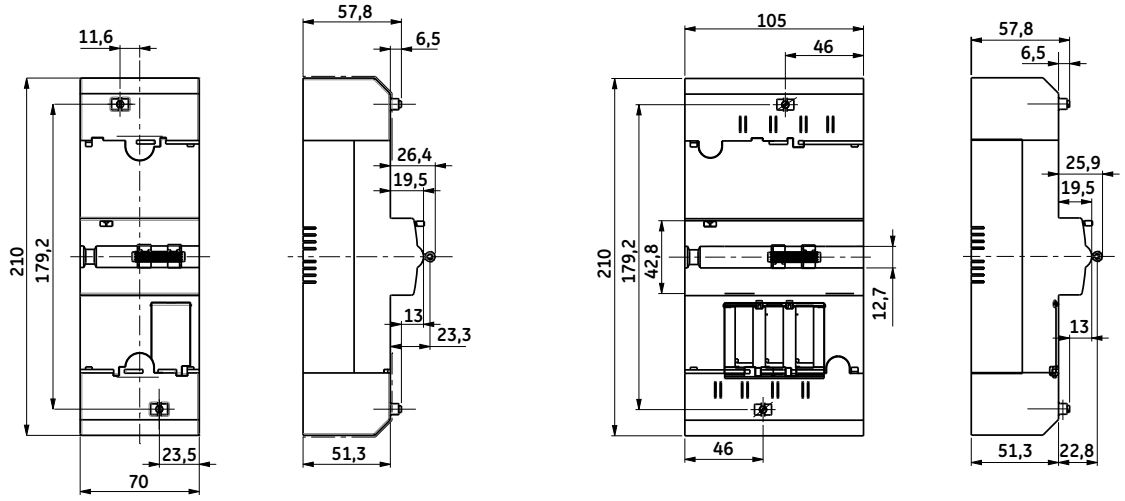
Earth Leakage Current Breaker - Instantaneous G

	In (A)	500mA Cat. No.	Ref. No.	Pack.
1P+N	15-45	DisB2 15/45	**585436**	1
	30-60	DisB2 30/60	**585435**	1
3P+N	10-30	DisB4 10/30	**585440**	1
	30-60	DisB4 30/60	**585439**	1

Earth Leakage Current Breaker - Selective S

	In (A)	500mA Cat. No.	Ref. No.	Pack.
1P+N	15-45	DisBS2 15/45	**585438**	1
	30-60	DisBS2 30/60	**585437**	1
3P+N	10-30	DisBS4 10/30	**585442**	1
	30-60	DisBS4 30/60	**585441**	1

Dimensions



New

Earth Leakage Current Breaker

Series NDP/NDF

NF C 62-411

Instantaneous G

Selective S

According to ERDF CPT M&S Spe 11015B

Applications

Marking

CE

Features

Performance

Nominal voltage Un	(V AC)	1P+N: 250 3P+N: 440
Minimum voltage UBmin	(V AC)	1P+N: 200 3P+N: 200 (Ph+N)
Poles		2P/1 Protected 4P/3 Protected
Operating temperature	(°C)	-5 to +40
Terminal capacity flexible/rigid cable	(mm^2)	35/50
Screws head type		BTR
Thermal constraint	kA^2s	40 < I2t < 57
Max screw torque	(N.m)	5
Voltage loss per pole	(V)	< 0.3
Dielectric rigidity	kV	2.5-4
Terminals	(MOhm)	Fix terminals
Isolation resistance		5
Locking possibilities		NO
External mechanism		Rotating handle

According to EDF prescription from 2015

According to EDF prescription before 2015

Short-circuit capacity

Ics (A)	1P+N	15/30/45	(A)	2000
		30/45/60	(A)	2400
		60/75/90	(A)	2400
	3P+N	10/15/20/25/30	(A)	2000
		30/40/50/60	(A)	2400
I peak (A)	1P+N	15/30/45	(A)	3000
		30/45/60	(A)	3600
		60/75/90	(A)	3600
	3P+N	10/15/20/25/30	(A)	3000
		30/40/50/60	(A)	3600

New

Series NDP/NDF - Earth Leakage Current Breaker - Non differential

	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
1P+N	10-30	NDPS2 10/30	**585013**	-	-	1
	15-45	-	-	-	-	1
	30-60	NDPS2 30/60	**585018**	-	-	1
	60-90	-	-	-	-	1
3P+N	10-30	NDPS4 10/30	**585029**	-	-	1
	30-60	NDPS4 30/60	**585035**	-	-	1

Series NDP/DB - Earth Leakage Current Breaker - Instantaneous G

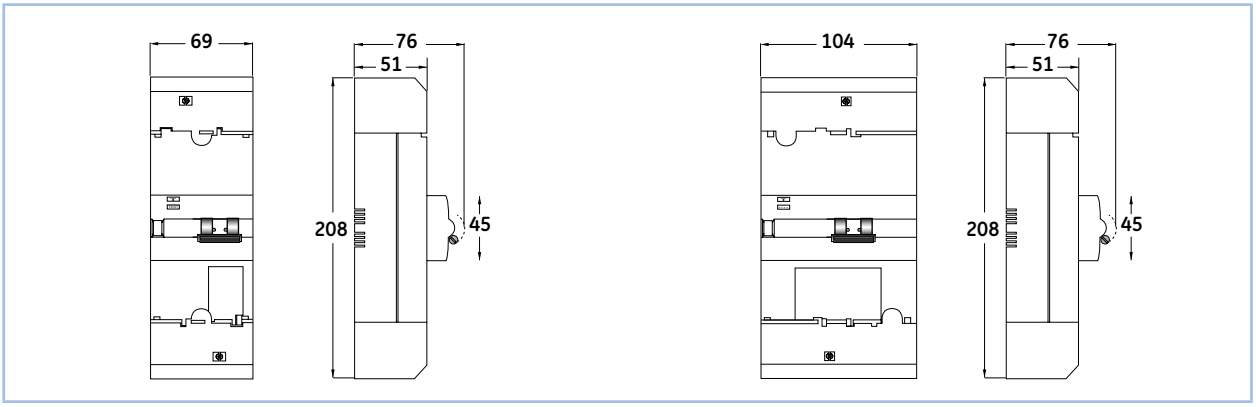
		500mA				
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
1P+N	5	NDP2 5/5	**585008**	-	-	1
	10-30	NDP2 10/30	**585014**	-	-	1
	15-45	-	-	NDF2 15/45	**585016**	1
	30-60	NDP2 30/60	**585019**	NDF2 30/60	**585020**	1
	60-90	-	-	NDF2 60/90	**585025**	1
3P+N	10-30	NDP4 10/30	**585030**	NDF4 10/30	**585031**	1
	30-60	-	-	NDF4 30/60	**585036**	1

Series NDP/DB - Earth Leakage Current Breaker - Selective S

		500mA				
	In (A)	Cat. No.	Ref. No.	Cat. No.	Ref. No.	Pack.
1P+N	15-45	-	-	NDFS2 15/45	**585017**	1
	30-60	-	-	NDFS2 30/60	**585021**	1
	60-90	-	-	NDFS2 60/90	**585026**	1
3P+N	10-30	-	-	NDFS4 10/30	**584032**	1
	30-60	-	-	NDFS4 30/60	**584037**	1

Cat. No. and **Ref. No.** = French languague technical information in the front of the device
Cat. No. and **Ref. No.** = Portuguese language technical information in the front of the device

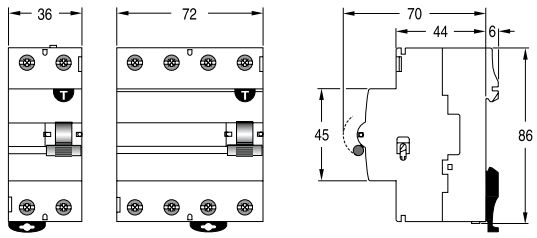
Dimensions



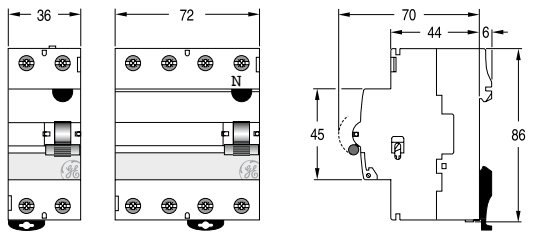
New

Dimensional drawings

RCCBs - Series BP/BD and FPAUL

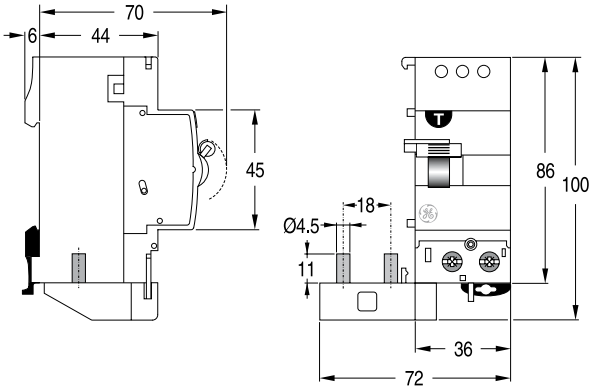


RCCBs - Series FPP - Fixwell

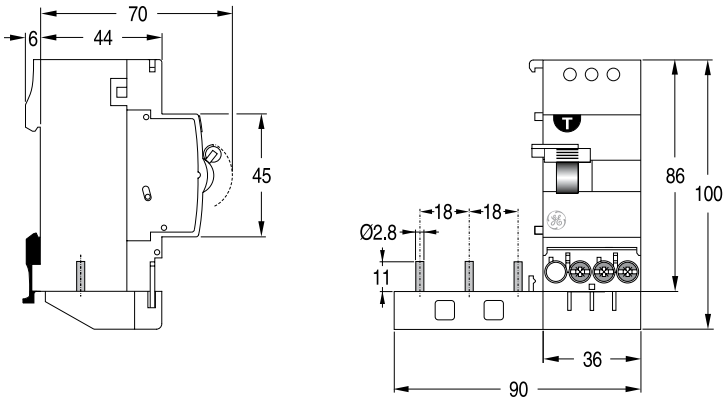


Add-on RCCB - Series Diff-o-Click

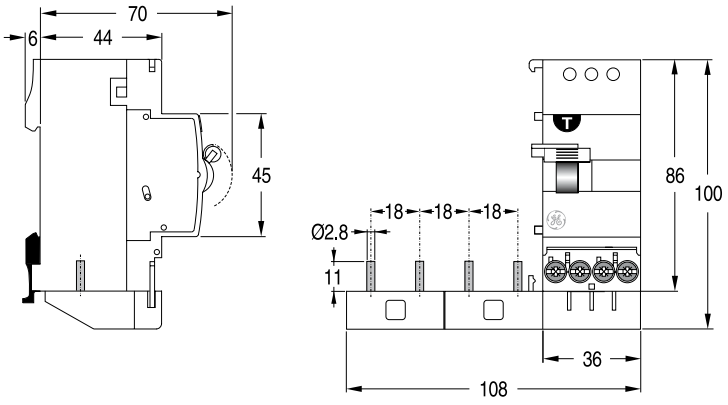
2P 32A
2P 63A



3P 32A

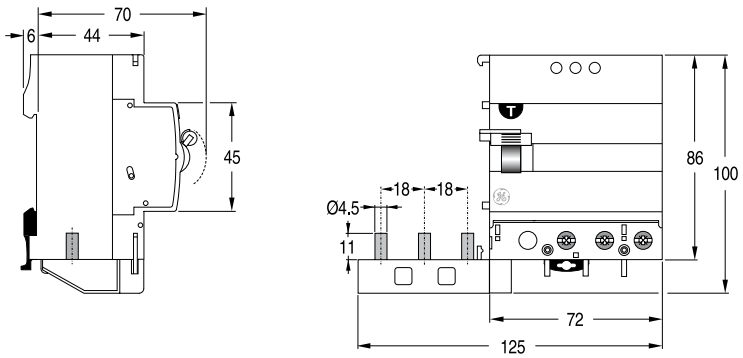


4P 32A

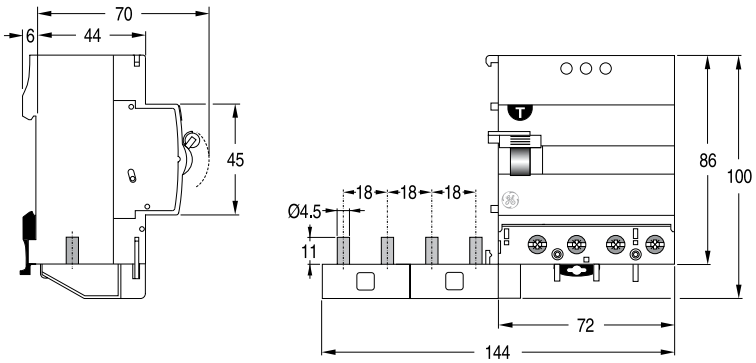


Add-on RCCB - Series Diff-o-Click (continued)

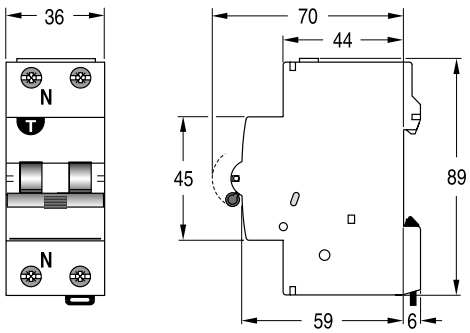
3P 63A



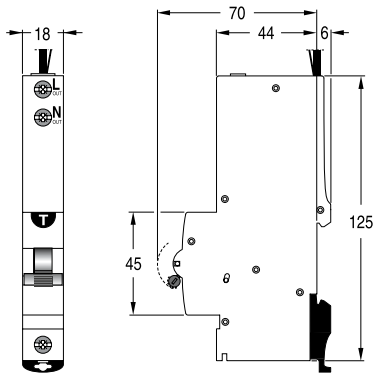
4P 63A



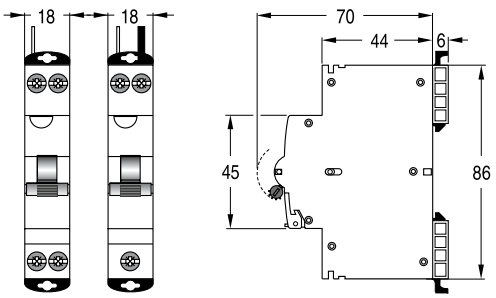
RCBOs - Series DM and DPA100



RCBOs - Series DME



ceRCBO - Series DMCE and DICE



PROTECT

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

Unibis*
C.6 Interface - **Series CA UN**
C.7 Motor operator - **Tele MP**
C.8 Shunt trip - **Tele L**
C.8 Undervoltage release - **Tele U**
C.8 Panel board switch - **PBS**

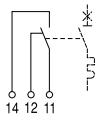
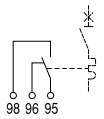
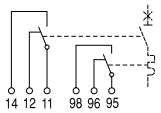
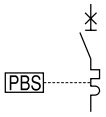
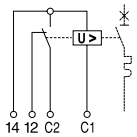
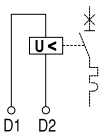
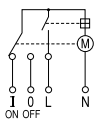
Add-on devices with ring terminals
C.10 Auxiliary contacts - **Series CBT**
C.11 Shunt trip - **Series Tele LT**

C.12 **Reclosing system**
C.14 Series TeleREC 2
C.18 Series TeleREC Top - MCBs
C.20 Series TeleREC Plus - For industrial applications

C.21 Dimensional drawings

Add-on devices for MCBs and RCDs

Common add-on devices suitable for all MCBs and RCDs

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

Coupling of add-on devices on MCBs, RCCBs and modular switches

Cat. No.	Description	Function	EPC / DPC DMCE DICE	G30	G45	G60	G100	GT10	GT25	EP100 UC EP100T EPP100	BP	DM(4)	Series G + Diff-o-Click	ASTER
CA H	Auxiliary contact	H	L-R(2)	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(2)	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(2)	L-R	L-R	L-R	L-R	L-R	L-R	L-R	R	R	L	L-R
CA UN H	Auxiliary contact	H	L-R(1)	-	-	-	-	-	-	-	-	-	-	-
CA UN S/H	Signal or auxiliary contact	S/H	L-R(1)	-	-	-	-	-	-	-	-	-	-	-
CB SH/HH-R	Signal or auxiliary + auxiliary contact	S/H+H	-	R	R	R	R	R	R	R	R	R	-	-
CB SH/HH-L	Signal or auxiliary + auxiliary contact	S/H+H	-	L	L	L	L	L	L	L	-	-	L	-
PBS	Panel board switch	PBS	L-R(2)	L-R	L-R	L-R	L-R	L-R	L-R	L-R	-	-	L-R	-
Tele L	Shunt trip	TL	L-R(2)	L-R	L-R	L-R	L-R	L-R	L-R	L-R	R	R	L	-
Tele U	Undervoltage release	TU	L-R(2)	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	-

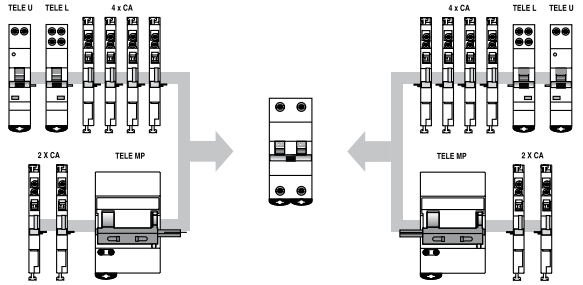
(1) Except 3P Unibis that only accept CA UN on the **left** side
(2) Except Tele MP, all add-on devices on EPC need one CA UN as interface
(3) Except DMA63N wich has its own auxiliary contact

L = Coupling on the left R = Coupling on the right

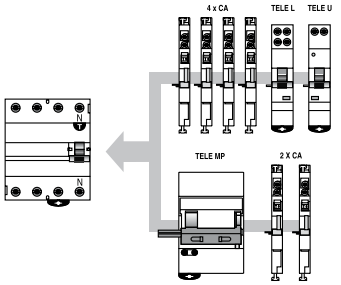
For detailed information, see website

Miniature Circuit Breakers
Series G/EP
Series EPC(4)

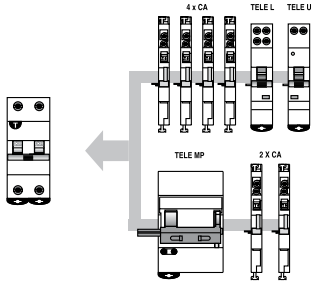
(4) Except for Tele MP the first auxiliary contact on MCB should always be CA UN



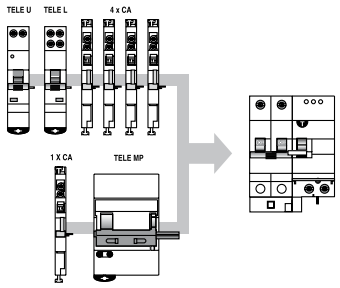
Residual Current Circuit Breakers (RCCB)
Series BP / FP



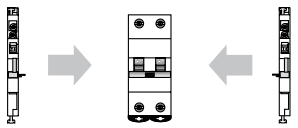
Residual Current Circuit Breakers (RCBO) with Overcurrent Protection
Series DM



Miniature Circuit Breakers
Series G
+ Diff-o-Click



Modular switches
Aster



Auxiliary

Series CA

EN/IEC 62019

UL file: E151139

Performance

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

Function

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 MCBs, earth leakage tripping for RCDs.

- 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)

Advantages

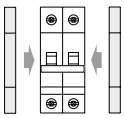
- Common for all modular protection devices: MCBs and RCBOs up to 63A, RCCBs up to 100A and mains disconnect switches type ASTER (ASTM).
- Can be coupled on both sides of MCBs and modular switches type ASTM.
- Version with golden contacts, available for low current as well as low voltage applications.
- 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

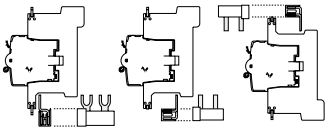
Approvals

Add-on devices

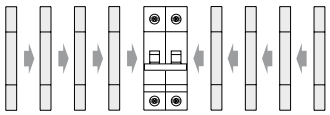
Coupling



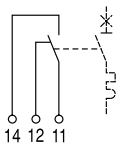
Busbar pass-through



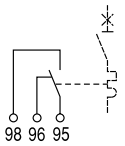
Stack-on



Series CA



H

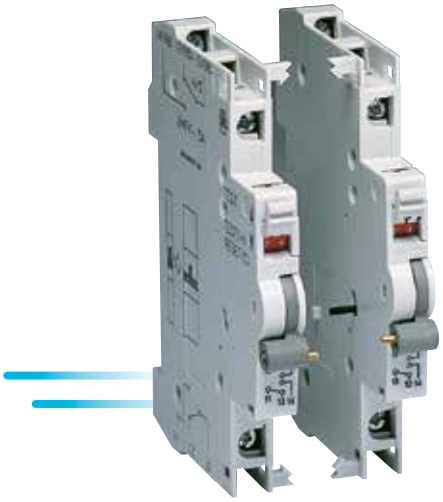


S

	Function	Cat. No	Ref. No.	Pack.	
1/2 mod.	H	CA H	**672567**	40	
	S/H	CA S/H	**672568**	40	
	S/H	CA S/H G	**672569**	40	golden contacts

More technical data pag. ***website*** | *Dimensions pag.* ***C.22***

Auxiliary



Series CB

EN/IEC 62019

UL file: E151139

Performance

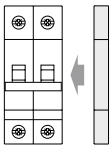
Change-over contacts		2
Rated current In	(A)	5
Rated voltage AC Un	(V)	240
Electrical endurance		10000
Terminal capacity flexible/rigid cable	(mm^2)	2.5
Weight	(g)	80

Applications

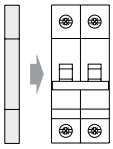
Approvals

Add-on devices

Coupling right



Coupling left



Function

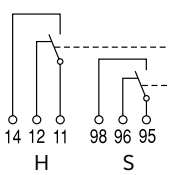
Bottom auxiliary contact (function H)
Provides the status of the protection device, OPEN/CLOSED.
Top signal or auxiliary contact (function S/H).
This auxiliary can act as an auxiliary contact (function H) or as a signal contact (function S)
The user can make the change of the function at the moment of installation.
Used as signal contact (function S) it provides information about automatic tripping of the protection devices: overload or short-circuit for MCBs, earth leakage tripping for RCDs.

- 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)

Advantages

- Common for all modular protection devices: MCBs and RCBOs up to 63A, RCCBs up to 100A
- Common for all modular protection devices: MCBs and RCBOs up to 63A, RCCBs up to 100A.
- This device has 2 change-over contacts, the upper one with changeable function (S/H).
- Two versions: CB SH/HH-R to be coupled on the right side of the protection devices, CBSH/HH-L when assembled on the left side
- No stack-on possibilities (only 1 auxiliary)
- No busbar pass-through facilities

Series CB



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

(1) R = coupling on the right

(2) L = coupling on the left

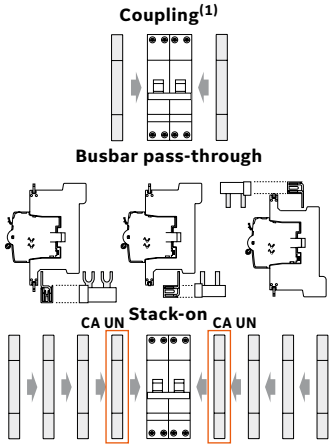
More technical data pag. ***website*** | *Dimensions pag.* ***C.22***

Auxiliary

Applications

Approvals / Marking

Add-on devices



(1) 3P Unibis MCBs accept CA UN 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

Series CA UN - Unibis Interface

EN/IEC 62019

Performance

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

Function

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.

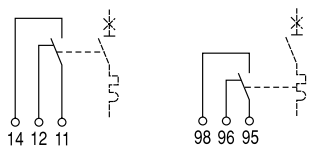
Auxiliary contact CA UN H (function H)
Provides the status of the protection device, OPEN/CLOSED.

Signal or auxiliary contact CA UN S/H, CA UN 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 MCBs, earth leakage tripping for RCDs.
- 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)

Advantages

- Common for all Unibis modular protection devices: MCBs and RCBOs.
- Can be coupled on both sides of Unibis MCBs, 2P RCBOs and ceRCBOs.
- 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.

Series CA UN - Unibis Interface



H S

	Function	Cat. No	Ref. No.	Pack.	
1/2 mod.	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

Performance

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

Function

- Common device for all modular protection devices.
- Can be coupled on both sides of MCBs and on the right hand side of RCCBs and RCBOs.
- 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 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 togheter:
when the Tele U trips, a manual reset of the Tele U is locally needed due to safety reasons.

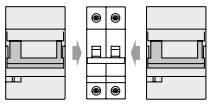
Applications

Standard

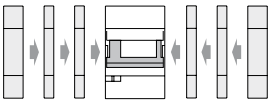
EN/IEC 60947-2

Add-on devices

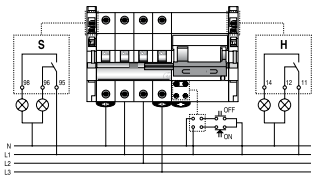
Coupling



Stack-on

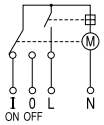


Application example



Tele MP - Motor operator

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



More technical data pag. ***website*** | *Dimensions pag.* ***C.22***

Shunt trip, Undervoltage release, Panel board switch

UL file: E151139

Applications

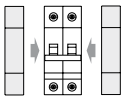
Approval

Standard

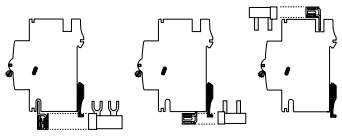
EN/IEC 60947-2

Add-on devices

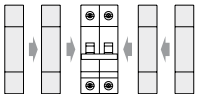
Coupling



Busbar pass-through



Stack-on



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

Function

- Common device for all modular protection devices.
- Can be coupled on both sides of MCBs, on the right side of RCCBs and RCBOs.
- 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

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

Undervoltage release Tele U

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

Performance

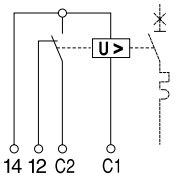
Rated voltage AC Un	(V)	240
Rated voltage DC/AC Un	(V)	12, 24, 48 DC/AC
Tripping voltage	(V)	≤ 0.5 x Un ±10%
Resetting voltage	(V)	> 0.5 x Un ±10%
Tripping time	(ms)	Adjustable 0...300
Electrical endurance		2000
Terminal capacity flexible/rigid cable	(mm^2)	2.5
Weight	(g)	125

Panel board switch PBS

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

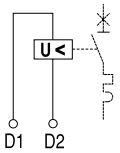
More technical data pag. ***website*** | *Dimensions pag.* ***C.22***

Tele L - Shunt trip



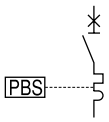
	Voltage	Cat. No	Ref. No.	Pack.
1P 1 mod.	AC 24-60V / DC 24-48V	TELE L-1	**672573**	1
	AC 110-415V / DC 110-125V	TELE L-2	**672574**	1

Tele U - Undervoltage release



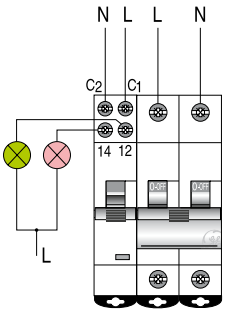
	Voltage	Cat. No	Ref. No.	Pack.
1P 1 mod.	AC 240V	TELE U-230	**672575**	1
	AC/DC 12V	TELE U-12	**672576**	1
	AC/DC 24V	TELE U-24	**672577**	1
	AC/DC 48V	TELE U-48	**672578**	1

PBS - Panel board switch

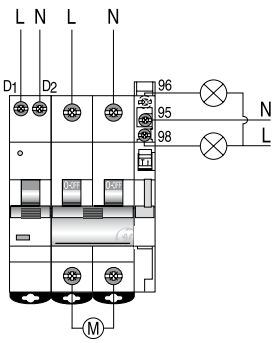


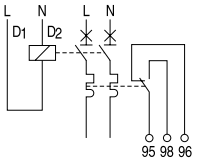
	Cat. No	Ref. No.	Pack.
1P 1/2 mod.	PBS	**672572**	1

Tele L



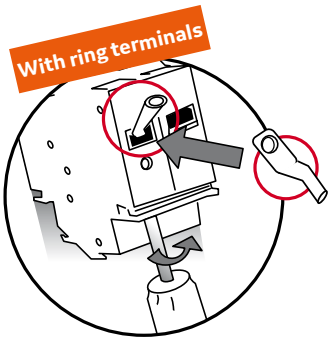
Tele U





Auxiliary contacts

Series CBT



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

Standards

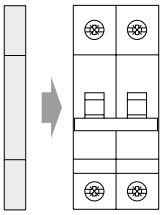
EN 60898, EN 60947-2, UNI CEI 11170, EN 61373

Approvals

Trenitalia n° 371441.01

Add-on devices

Coupling



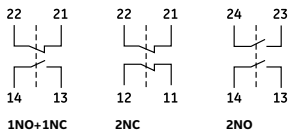
Features

- Three versions: 1NO+1NC, 2NC, 2NO
- 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 vibration tests acc. to IEC 61373

Technical data

Number of change-over contacts		2
Thermal setting In		5A (230V AC) 4A (24V DC) 1A (60V DC)
Rated voltage Un		230V AC, 60V DC
Endurance electrical		10000
Terminal capacity for flexible/rigid cable	mm^2	2.5
Unlosable screws		Pozidrive 2

Series CBT

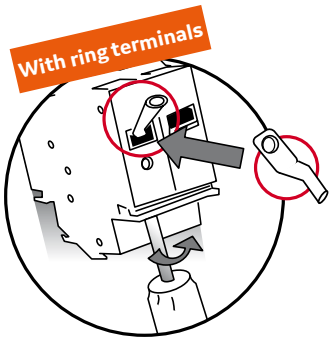


Contact combination	Cat. No.	Ref. No.	Pack.
1NO+1NC	CBT H NO-NC	**667249**	1
2NC	CBT H 2NC	**667250**	1
2NO	CBT H 2NO	**667251**	1

More technical data pag. ***website*** | *Dimensions pag.* ***C.22***

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

Standards

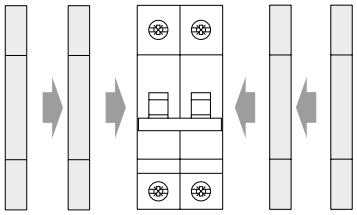
EN 60898, EN 60947-2, UNI CEI 11170, EN 61373

Approval

Trenitalia n° 371441.01

Add-on devices

Coupling



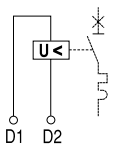
Features

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

Technical data

Rated voltage	(V)	110/415 ~ 110/128/150 ⎓
	(V)	24/60 ~ 24/48 ⎓
Tripping time	(ms)	< 10
Electrical endurance		10000
Terminal capacity flexible/rigid cable	(mm^2)	2.5
Unlosable screws		Pozidrive 2
Umin	(V)	0.70 x Un
Umax	(V)	1.25 x Un

Tele LT



1/2 mod.

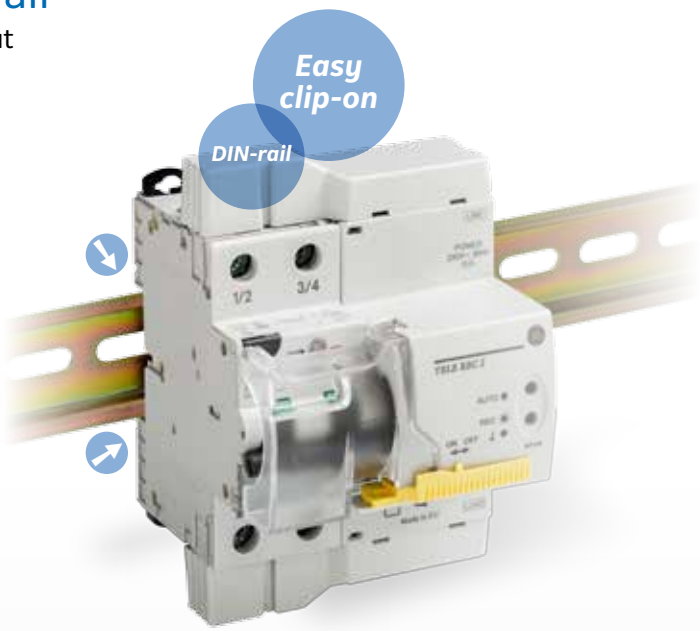
Voltage	Cat. No.	Ref. No.	Pack.
CA 110/415 V ~ CC 110/128/150 V ⎓	TELE LT-1	**667252**	1
CA 24/60 V ~ CC 24/48 V ⎓	TELE LT-2	**667253**	1

More technical data pag. ***website*** | *Dimensions pag.* ***C.22***

TeleREC 2

Double clips to the DIN-rail

Strong fixation to the DIN-rail throughout
Two clips for 2P and 4P version.



Interlock

M2 hole to attach a seal or packlock to block access to the RCCB or RCBO in case of works downstream.

4 Poles version

Changeover contact in 4P RCCB version to indicate the TeleREC 2 status remotely.

Transparent windows

Transparent windows covering the RCCB following EN 50557 and with a visor to identify the RCCB or RCBO properly.

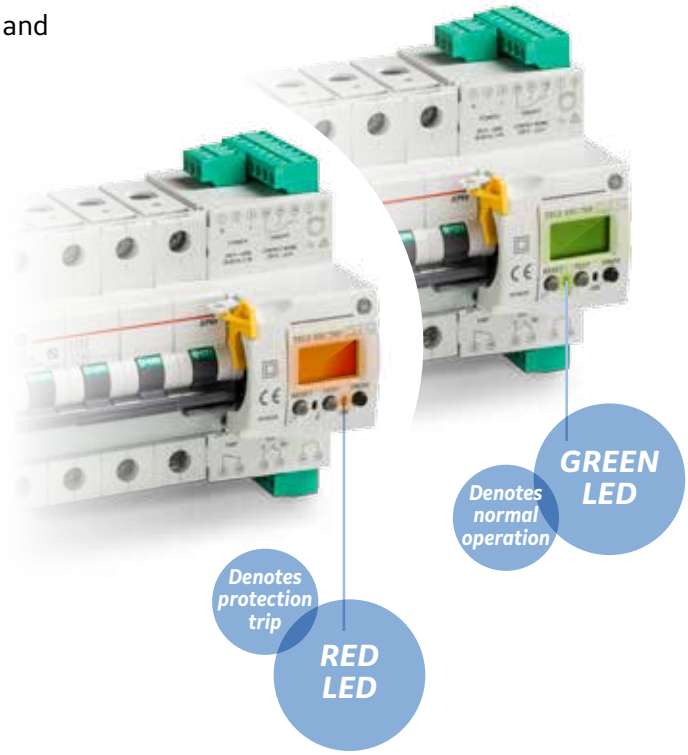
TeleREC **Top**

Monitorised control

Complete screen, buttons and LEDs to program and visualize the state of the reclosing system.

Remote indicators

AUX and TRIP status outputs (voltage-free contacts).
The AUX output is a NO contact, which closes when the auxiliary power supply is connected.
The TRIP output is an alarm output.
The EXT input (not insulated) enables the switch to be controlled remotely.



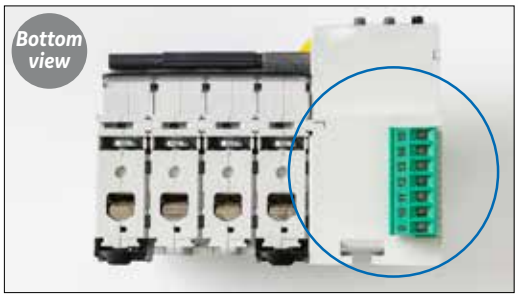
Remote indicators

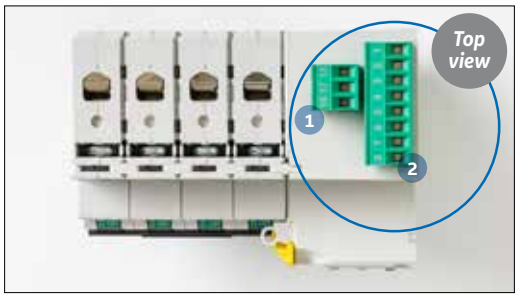
1

Status outputs for the main switch.
When the switch is closed, contact 16-17 is closed.
When switch is open, contact 16-18 is closed.

2

The auxiliary power supply is connected between terminals 1-3.
The earth leakage transformer is connected between terminals 7-8.





The TeleREC Top is used to protect single and three-phase electrical installations (up to 63A), in which a high level of continuity in the electrical service must be guaranteed. The unit has an automatic rearming system which is activated following a trip, so that it reconnects itself after a certain amount of time, restoring the installations powersupply without the need for any human intervention.

In short, the protection functions performed by the TeleREC Top are:
• Earth leakage protection (protects people against electric shock).
• Protection against overloads and short-circuits via a circuit breaker switch.

Reclosing system for
Residual Current Circuit Breakers

Series TeleREC 2

EN 50557:2012

Applications

Approvals / Marking

Performance

Thermal setting In	(A)	25-100
Residual current	(mA)	30, 300
Rated voltage AC Un	(V)	2P: 230 4P: 230/400
Minimum operating voltage UBmin	(V)	2P: 127 4P: 190
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm²)	25/35
Poles		2P, 4P
Nuisance tripping resistance	(A)	Type A: 250 Type Ai, S: 3000
Ambient temperature	(°C)	-25 up to +55
Weight	(g)	2P: 416 4P: 598

Short-circuit capacity

Acc. to EN/IEC 61008-1	
Making and breaking capacity	Im = 500A
Residual making and breaking capacity	IΔm ≥500A from 16 up to 40A IΔm = 630A for 63A IΔm = 800A from 80A to 100A
Short-circuit capacity	Inc = 10000A at 230/400V fuse 80A gG

Reclosing system by insulation, M mode

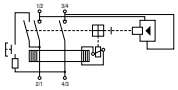
RECLOSURES

1		2		3	
Delay	**Restart**	**Delay**	**Restart**	**Delay**	**Restart**
< 3 sec.	10 sec.	30 sec.	30 sec.	120 sec.	60 sec.

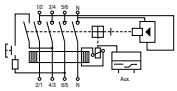
The leakage current will be supervised by measuring the resistance downstream of the tripped RCCB.

Dimensions pag. ***C.21***

Series TeleREC 2 - RCCBs - Type A

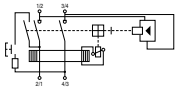


	In (A)	30mA Cat. no.	30mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
2P 4.5M	25	REC2 A 225/30	**676986**	REC2 A 225/300	**676994**	1
	40	REC2 A 240/30	**676987**	REC2 A 240/300	**676995**	1
	63	REC2 A 263/30	**676988**	REC2 A 263/300	**676996**	1
	80	REC2 A 280/30	**676989**	REC2 A 280/300	**676997**	1
	100	REC2 A 2100/30	**676990**	REC2 A 2100/300	**676998**	1

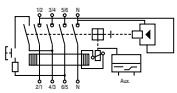


4P 6.5M	25	REC2 A 425/30	**677042**	REC2 A 425/300	**677050**	1
	40	REC2 A 440/30	**677043**	REC2 A 440/300	**677071**	1
	63	REC2 A 463/30	**677044**	REC2 A 463/300	**677072**	1
	80	REC2 A 480/30	**677045**	REC2 A 480/300	**677073**	1
	100	REC2 A 4100/30	**677046**	REC2 A 4100/300	**677074**	1

Series TeleREC 2 - RCCBs - Type Ai

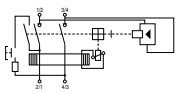


	In (A)	30mA Cat. no.	30mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
2P 4.5M	25	REC2 Ai 225/30	**676991**	-	-	1
	40	REC2 Ai 240/30	**676992**	-	-	1
	63	REC2 Ai 263/30	**676993**	-	-	1
	80	-	-	-	-	-
	100	-	-	-	-	-

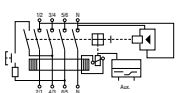


4P 6.5M	25	REC2 Ai 425/30	**677047**	-	-	1
	40	REC2 Ai 440/30	**677048**	-	-	1
	63	REC2 Ai 463/30	**677049**	-	-	1
	80	-	-	-	-	-
	100	-	-	-	-	-

Series TeleREC 2 - RCCBs - Type S



	In (A)	30mA Cat. no.	30mA Ref. no.	300mA Cat. no.	300mA Ref. no.	Pack.
2P 4.5M	25	-	-	-	-	-
	40	-	-	REC2 S 240/300	**676999**	1
	63	-	-	REC2 S 263/300	**677039**	1
	80	-	-	REC2 S 280/300	**677040**	1
	100	-	-	REC2 S 2100/300	**677041**	1



4P 6.5M	25	-	-	-	-	-
	40	-	-	REC2 S 440/300	**677075**	1
	63	-	-	REC2 S 463/300	**677076**	1
	80	-	-	REC2 S 480/300	**677077**	1
	100	-	-	REC2 S 4100/300	**677098**	1

Reclosing system for 2P RCBOs - Residual Current Circuit Breakers with Overcurrent Protection

Series TeleREC 2

EN 50557:2012

Applications

Marking

CE

Performance

Thermal setting In	(A)	10-40
Residual current	(mA)	30, 300
Tripping characteristics		B-C
Rated voltage AC Un	(V)	230
Minimum operating voltage UBmin	(V)	150
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm²)	25/35
Poles		2P
Nuisance tripping resistance	(A)	Type A: 250
		Type Ai: 3000
Ambient temperature	(°C)	-25 up to +55
Weight	(g)	346

Short-circuit capacity

Acc. to EN/IEC 61008-1	
Residual making and breaking capacity	IΔm=6000A
Energy limiting class	3
Short-circuit capacity	Icn=10000A at 230V

Reclosing system by insulation, M mode

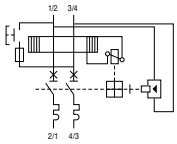
RECLOSURES

1		2		3	
Rec time	**Restart**	**Rec time**	**Restart**	**Rec time**	**Restart**
3	60	240	240	960	960

The leakage current will be supervised by measuring the resistance downstream of the tripped RCBO.
The short-circuit current will be supervised by measuring the resistance downstream of the tripped RCBO.

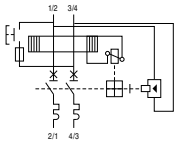
Dimensions pag. ***C.21***

Series TeleREC 2 - RCBOs - Type A - Characteristic C



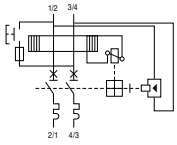
		30mA		300mA		
	In (A)	Cat. no.	Ref. no.	Cat. no.	Ref. no.	Pack.
2P 4.5M	10	REC2 DPCA100C10/030	**677150**	REC2 DPCA100C10/300	**677156**	1
	16	REC2 DPCA100C16/030	**677151**	REC2 DPCA100C16/300	**677157**	1
	20	REC2 DPCA100C20/030	**677152**	REC2 DPCA100C20/300	**677158**	1
	25	REC2 DPCA100C25/030	**677153**	REC2 DPCA100C25/300	**677159**	1
	32	REC2 DPCA100C32/030	**677154**	REC2 DPCA100C32/300	**677160**	1
	40	REC2 DPCA100C40/030	**677155**	REC2 DPCA100C40/300	**677161**	1

Series TeleREC 2 - RCBOs - Type A - Characteristic B



		30mA		300mA		
	In (A)	Cat. no.	Ref. no.	Cat. no.	Ref. no.	Pack.
2P 4.5M	10	REC2 DPCA100B10/030	**677174**	REC2 DPCA100B10/300	**677180**	1
	16	REC2 DPCA100B16/030	**677175**	REC2 DPCA100B16/300	**677181**	1
	20	REC2 DPCA100B20/030	**677176**	REC2 DPCA100B20/300	**677182**	1
	25	REC2 DPCA100B25/030	**677177**	REC2 DPCA100B25/300	**677183**	1
	32	REC2 DPCA100B32/030	**677178**	REC2 DPCA100B32/300	**677184**	1
	40	REC2 DPCA100B40/030	**677179**	REC2 DPCA100B40/300	**677185**	1

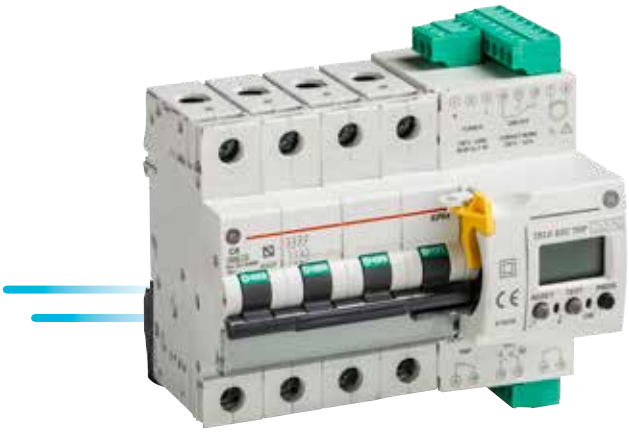
Series TeleREC 2 - RCBOs - Type Ai - Characteristic C



		30mA		300mA		
	In (A)	Cat. no.	Ref. no.	Cat. no.	Ref. no.	Pack.
2P 4.5M	10	REC2 DPCAi100C10/030	**677162**	REC2 DPCAi100C10/300	**677168**	1
	16	REC2 DPCAi100C16/030	**677163**	REC2 DPCAi100C16/300	**677169**	1
	20	REC2 DPCAi100C20/030	**677164**	REC2 DPCAi100C20/300	**677170**	1
	25	REC2 DPCAi100C25/030	**677165**	REC2 DPCAi100C25/300	**677171**	1
	32	REC2 DPCAi100C32/030	**677166**	REC2 DPCAi100C32/300	**677172**	1
	40	REC2 DPCAi100C40/030	**677167**	REC2 DPCAi100C40/300	**677173**	1

Reclosing system with earth leakage protection for Miniature Circuit Breakers

Series TeleREC Top - MCBs



Application

Marking

CE

Performance

Thermal setting In	(A)	6-63
Residual current		adjustable 30mA ... 1A
Tripping characteristics		B-C
Rated voltage AC Un	(V)	230/400
Minimum operating voltage UBmin	(V)	12
Energy limiting class		3
Mechanical/electrical endurance		20000/10000
Tropicalisation acc. to EN/IEC 60068-2		95% RH at 55°C
Terminal capacity flexible/rigid cable	(mm^2)	25/35
Poles		2P, 4P
Nuisance tripping resistance	(A)	Type A: 378
Ambient temperature	(°C)	-10 up to +50
Weight	(g)	2P: 516
		4P: 769

Short-circuit capacity

AC acc. to EN/IEC 60947-2		
Poles	**V**	**Icn/Ics (kA)**
2-4	230/400	10

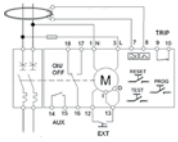
DC acc. to EN/IEC 60947-2		
Poles	**V**	**Icu/Ics (kA)(1)**
2	127	40
	230	30
2	415	15
4	240	30
	415	15

Reclosing system

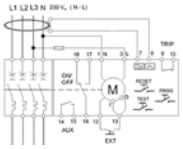
Configuration of the reclosing system after a trip caused by overcurrent or short-circuit fault: maximum number of reclose attempts (NR), the timer (ST) and the resetting time of the partial meter (TR) can be configured. See manual configuration of the reclosing system following a trip caused by an earth leakage: maximum number of reclose attempts (NR), the timer (ST) and the resetting time of the partial meter (TR) can be configured. See manual.

Dimensions pag. ***C.21***

Series TeleREC Top - MCBs - Characteristic C

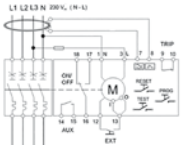


	In (A)	Cat. no.	Ref. no.	Pack.
2P 4.5M	6	-	-	-
	10	REC TOP EP102 C10	**677186**	1
	16	REC TOP EP102 C16	**677187**	1
	20	REC TOP EP102 C20	**677188**	1
	25	REC TOP EP102 C25	**677189**	1
	32	REC TOP EP102 C32	**677190**	1
	40	REC TOP EP102 C40	**677191**	1
	50	REC TOP EP102 C50	**677192**	1
	63	REC TOP EP102 C63	**677193**	1



4P 6.5M	6	-	-	-
	10	REC TOP EP104 C10	**678028**	1
	16	REC TOP EP104 C16	**678029**	1
	20	REC TOP EP104 C20	**678030**	1
	25	REC TOP EP104 C25	**678031**	1
	32	REC TOP EP104 C32	**678032**	1
	40	REC TOP EP104 C40	**678033**	1
	50	REC TOP EP104 C50	**678034**	1
	63	REC TOP EP104 C63	**678035**	1

Series TeleREC Top - MCBs - Characteristic B



	In (A)	Cat. no.	Ref. no.	Pack.
4P 6.5M	6	-	-	-
	10	REC TOP EP104 B10	**677194**	1
	16	REC TOP EP104 B16	**677195**	1
	20	REC TOP EP104 B20	**677196**	1
	25	REC TOP EP104 B25	**677197**	1
	32	REC TOP EP104 B32	**677198**	1
	40	REC TOP EP104 B40	**677199**	1
	50	REC TOP EP104 B50	**678026**	1
	63	REC TOP EP104 B63	**678027**	1

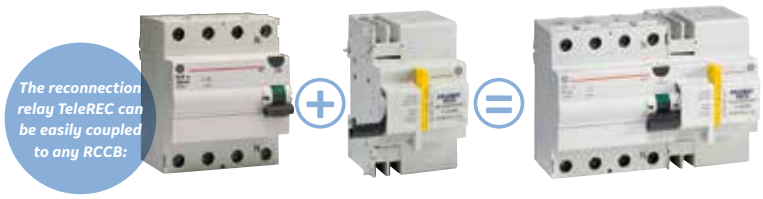
Accessories

Ø	Cat. no.	Ref. no.	Pack.
Toroidal transformer for earth leakage detection			
25mm^2	REC TOP TT 25	**678036**	1
35mm^2	REC TOP TT 35	**678037**	1

Reclosing system for
Residual Current Circuit Breakers

Series TeleREC Plus

For industrial applications



Application

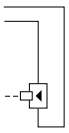
Marking

CE

Performance

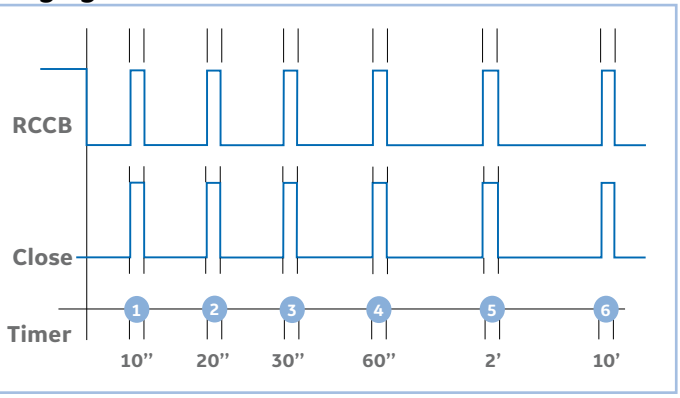
Rated voltage AC Un	(V)	220/400
Frequency	(Hz)	50/60
Reclosing numbers		6
Reclosing cycles	(sec)	10, 20, 30, 60, 120, 600
Auxiliary contact	Imax	2A (250V AC or 24V DC)
Imin (auxiliary contact)	(mA)	20
Remote control		Manual reclosing with push-button
Weight	(g)	358

Series TeleREC Plus



	Cat. no.	Ref. no.	Pack.
3 mod.	Tele REC PLUS Motor	**677132**	1

Reclosing cycles

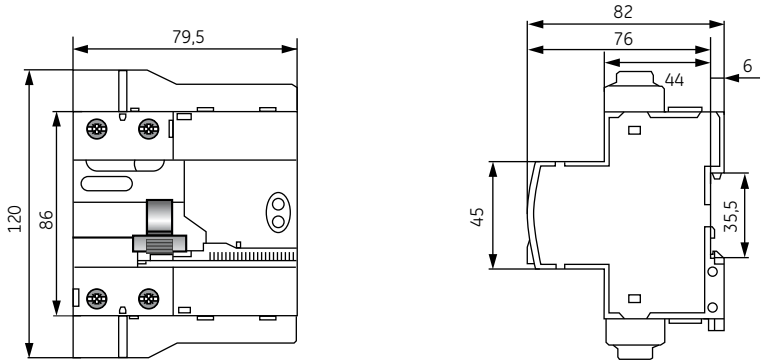


Dimensions pag. ***C.21***

Dimensional drawings

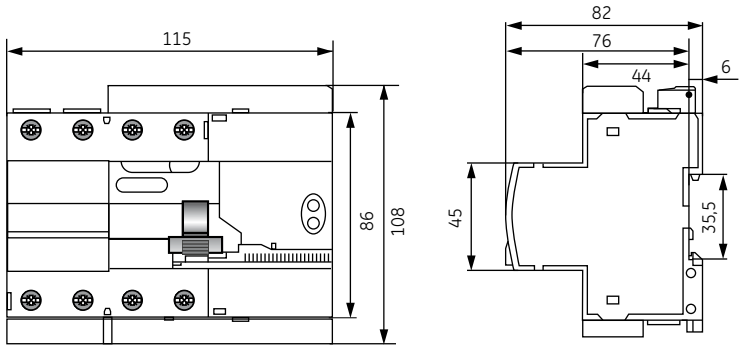
TeleREC 2 RCCB / RCBO

2P
4.5 mod.



TeleREC 2 RCBO

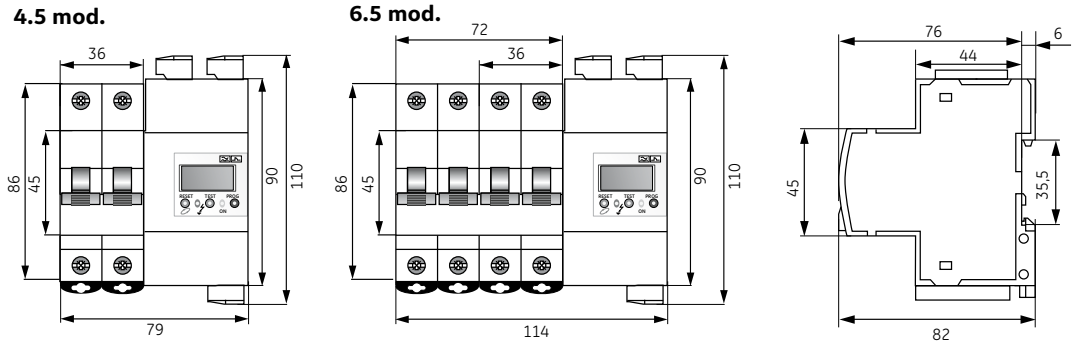
4P
6.5 mod.



TeleREC Top MCB

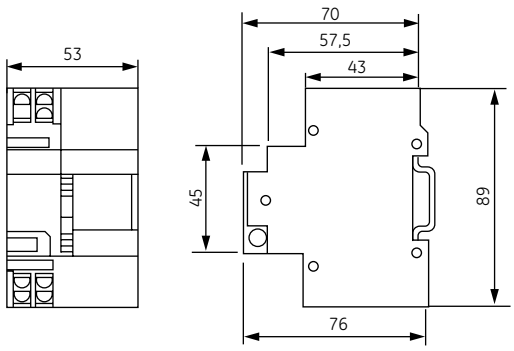
2P
4.5 mod.

4P
6.5 mod.



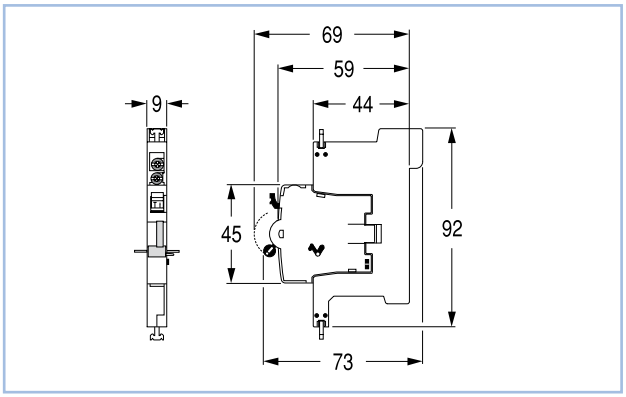
TeleREC Plus

3 mod.

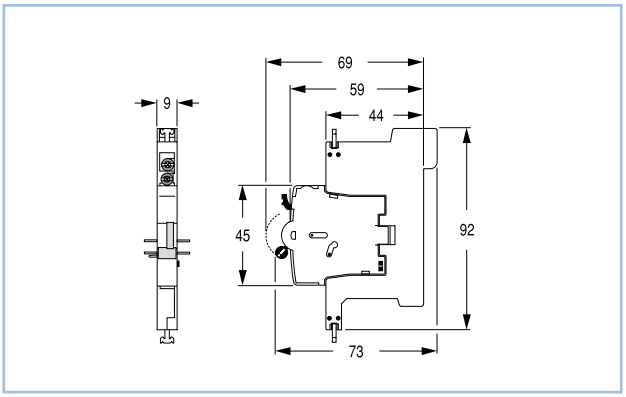


Dimensional drawings

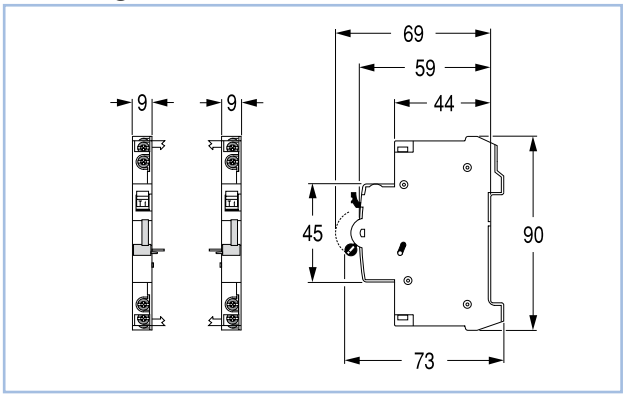
Auxiliary - Series CA



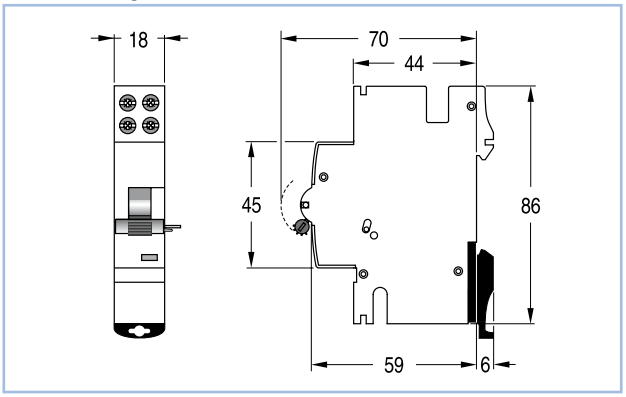
Auxiliary interface - Series CA UN (Unibis)



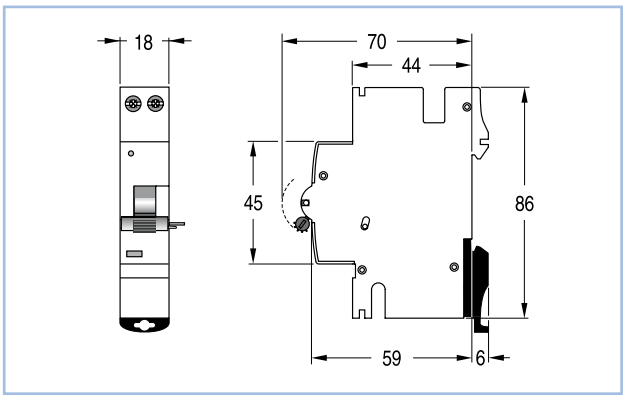
Auxiliary - Series CB / CBT



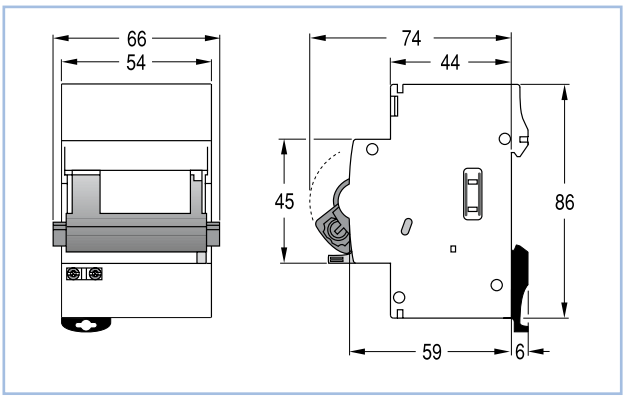
Shunt Trip - Tele L / Tele LT



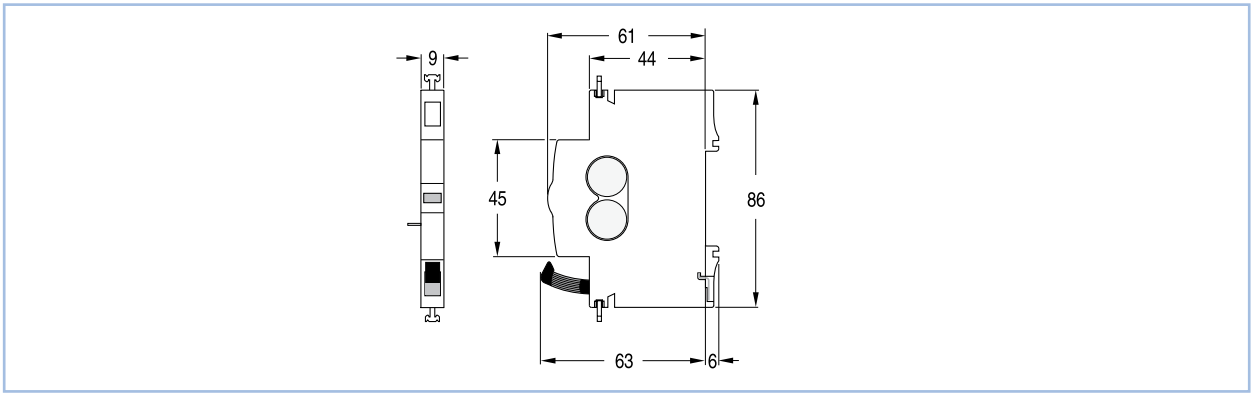
Undervoltage Release - Tele U



Motor operator - Tele MP



Panel board switch - PBS



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

New D.4 LED Indication Lamp - **Aster BL**

D.6 Indication Lamps and Socket outlets - **Aster**

D.8 Contactors - **Contax**

New D.12 Contactors - **Contax L**

New D.14 Relays - **Contax R**

New D.18 Impulse Switches - **Pulsar S**

New D.24 Staircase Switches - **Pulsar SC**

New D.26 Universal reliable multifunction - Time Relays

New D.30 Time Relays - **Pulsar T+**

New D.34 DIN-rail dimmers - **DIM**

New D.40 Analogue Time Switches - **Classic**

New D.42 Digital Time Switches - **Galax**

New D.46 Time Switches - **72 x 72 Classic and Galax**

New D.48 Light Sensitive Switches - **Galax LSS**

D.50 Safety and bell transformers Buzzers and bells - **Series T+ BU+ BE+**

D.52 Digital kWh - **Series MT+D kWh**

D.54 Digital measurement instruments - **Series MT+D**

D.56 Analogue measurement instruments - **Series MT+A**

D.58 Current transformers - **Series MT+CT**

D.60 Compact three-phase analyser - **Series MTDIN**

D.62 Basic three-phase analyser - **Series MT96**

D.64 Advanced three-phase analyser - **Series MT144**

D.66 Power Analysers - Parameter table

New D.68 Surge Arresters - **SurgeGuard**

D.80 Dimensional drawings

Aster

Applications

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

Approvals(1) / Marking

(1) Depending on type.

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

Functions

Manual control of all kinds of electrical devices.

Standards

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

Performance

	Push-buttons	Switches	Rotary switches	Mains disconnect switches
Clockwork	*16A*	*16A / 32A*	*32-40-63A*	*40-63-80-100A*
Usable as mains disconnect switch	no	no	yes	yes
Nominal breaking capacity at 415V, cos φ = 0.95	-	1.25xIn	8xIn	3xIn
Nominal breaking capacity at 415V, cos φ = 0.65	-	-	8xIn	3xIn
Nominal voltage single pole devices	240V	240V	-	240/415V
Nominal voltage multipole devices	-	415V	240/415V	240/415V
Maximum allowed current during less than 1 s.	-	-	-	2kA
Mechanical service life (complete on-off-cycle)	>20000	>20000	>10000	>20000
Electrical service life, cos φ = 0.95, Un and In	>20000	>20000 | >5000	>1500	>1500
Short-circuit resistance with upfront fuses Gg/gL 100A (nominal)	4.5kA (nominal)	4.5kA (nominal)	15kA (nominal)	16kA (nominal)
(peak)	3kA (peak)	3kA (peak)	10kA (peak)	7kA (peak)
Protection degree	IP20	IP20	IP20	IP20
Screws	Pozidriv 1	Pozidriv 1	Pozidriv 2	Pozidriv 2
Terminal capacity: min	1x1.5mm²	1x1.5mm²	1x2.5mm²	1x6mm²
max	1x10mm²	1x10mm²	1x25mm²	1x50mm²

Auxiliary contacts pag. ***C.4***
More technical data pag. ***website*** | *Dimensions pag.* ***D.80***

Aster - Switches and push-buttons

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

Accessories for rotary switches

			Cat. no.	Ref. No.	Pack.
Extension shaft	238 mm with	emergency handle	AST R ES E	**666555**	1
	238 mm with	standard handle	AST R ES S	**666556**	1
Sealing piece		4	AST R TS	**666557**	1

Assembled indication lamps

Aster BL

Applications

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

Standards / Marking

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

CE

Features

Available in different colored leds. UNIVERSAL Current application DC/AC.

Functions

Status visualisation.

Performance

Standards		EN 60 947-5-1
Number of poles		1
Rated voltage U n	V AC	230
	V DC	230
Light source		high capacity LED diode
Light source capacity W		0,8
Colours		green - G, red - R, blue - B,Yellow-Y
Terminal capacity mm²		0,75 - 6 for Cu conductors
Mounting		on rail DIN 35x7,5 EN 60 715
Degree of protection		IP 20 IP 40 from the front panel
Ambient air temperature °C		from -25 to +55
Working positions		optional

New

Auxiliary contacts pag. ***C.4***
More technical data pag. ***website*** | *Dimensions pag.* ***D.80***

Aster BL - Assembled indication lamps

	Nominal voltage	Color	Number of modules	Cat. No.	Ref. No.	Pack.
	230 V AC/DC	Red	1	ASTBLR230	**661692**	12
	230 V AC/DC	Green	1	ASTBLG230	**661693**	12
	230 V AC/DC	Blue	1	ASTBLB230	**661694**	12
	230 V AC/DC	Yellow /Amber	1	ASTBLY230	**661695**	12

New

Indication lamps

Aster

Features

Available in different voltages and with different coloured lenses.

Functions

Status visualisation.

Applications

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

Standards / Marking

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

CE

Performance

Nominal voltage		*12V*	*24V*
Own consumption		120mA	85mA
Lamp		Incandescent lamp	
Lens colours		Red, green, orange and transparent	
Protection degree		IP20	
Screws		Pozidriv 1	
Terminal capacity:	min	1x1.5mm²	
	max	1x10mm² / 2x4mm²	

Socket-outlets

MSC

Applications

Approvals(1) / Marking

CEBEC VDE NF CE

Standards

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

(1) Depending on type.

Performance

Nominal current		*16A*
Nominal voltage		250V
Operating temperature		-20 ... +55°C
Protection degree		IP20
Screws		Pozidriv 2
Terminal capacity:	min	1x1mm²
	max	1x6mm² or 2x2.5mm²

More technical data pag. ***website*** | *Dimensions pag.* ***D.80***

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

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

Edged without child protection	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.

Functions

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

Standards

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

Performance

Rated switching capacity		*20A*	*24A*	*40A*	*63A*
Contacts					
Switching capacity for different loads					
Rated insulation voltage		400V	500V	500V	500V
Rated operational voltage		250V	440V	440V	440V
Switching-on capacity cos φ = 0.65 at 380-400V 3phase		-	90A	176A	300A
Switching-on capacity cos φ = 0.95 at 220-230V 1phase		100A	-	-	-
Switching-off capacity cos φ = 0.65 at 380-400V 3phase		-	72A	176A	240A
Switching-off capacity cos φ = 0.95 at 220-230V 1phase		80A	-	-	-
Fuse type GL for short-circuit protection		20A	35A	63A	80A
Ohmic loss per contact at In		1.0W	1.5W	3.0W	6.0W
Maximum switching frequency AC1 / AC7a		300/h	300/h	300/h	300/h
Maximum switching frequency AC3 / AC7b		600/h	600/h	600/h	600/h
Mechanical service life		10^6	10^6	10^6	10^6
Electrical service life AC1 / AC7a		150000	150000	150000	150000
Electrical service life AC3 / AC7b		150000	500000	170000	240000
Screws		Pozidriv 1	Pozidriv 1	Pozidriv 2	Pozidriv 2
Terminal capacity:	min	1x1mm²	1x1mm²	1x1.5mm²	1x1.5mm²
	max	1x10mm² or 2x4mm²	1x10mm² or 2x4mm²	1x25mm² or 2x10mm²	1x25mm² or 2x10mm²
Magnetic control system					
Control voltage range		85 ... 110%xUn	85 ... 110%xUn	85 ... 110%xUn	85 ... 110%xUn
Rated operating frequency		50 or 60Hz	DC, 40 ...450Hz	DC, 40 ...450Hz	DC, 40 ...450Hz
Operating temperature range		-25 ... +55°C(1)	-25 ... +55°C(1)	-25 ... +55°C(1)	-25 ... +55°C(1)
Maximum pull-in coil power loss		8.0VA / 5.0W	4VA / 4W	5VA / 5W	6.5VA / 6.5W
Maximum holding coil power loss		3.2VA / 1.2W	4VA / 4W	5VA / 5W	4.2VA / 4.2W
Switching-on delay		9 ... 12 ms	< 40 ms	< 40 ms	< 40 ms
Switching-off delay		10 ... 12 ms	< 40 ms	< 40 ms	< 40 ms
Screws		Pozidriv 1	Pozidriv 1	Pozidriv 1	Pozidriv 1
Terminal capacity:	min	1x1mm²	1x1mm²	1x1mm²	1x1mm²
	max	1x4mm² or 2x2.5mm²	1x4mm² or 2x2.5mm²	1x4mm² or 2x2.5mm²	1x4mm² or 2x2.5mm²

(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.)

Auxiliary contacts pag. ***D.17***
More technical data pag. ***website*** | *Dimensions pag.* ***D.81***

Contax - Contactors

	Nominal current	Contact combination	Coil voltage	AC/DC	Number of modules	Cat. No.	Ref. No.	Pack.
Contactor	20A	1NO 1NC	24V	AC	1	CTX 20 11 024 A	**666127**	12
	20A	1NO 1NC	230V	AC	1	CTX 20 11 230 A	**666126**	12
	20A	2NC	24V	AC	1	CTX 20 02 024 A	**666129**	12
	20A	2NC	230V	AC	1	CTX 20 02 230 A	**666128**	12
	20A	2NO	12V	AC	1	CTX 20 20 012 A	**666130**	12
1 NO 1 NC	20A	2NO	24V	AC	1	CTX 20 20 024 A	**666133**	12
	20A	2NO	48V	AC	1	CTX 20 20 048 A	**666134**	12
	20A	2NO	230V	AC	1	CTX 20 20 230 A	**666131**	12
	20A	2NO	240V	AC	1	CTX 20 20 240 A	**666132**	12
2 NC	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
2 NO	24A	4NC	230V	AC/DC	2	CTX 24 04 230 U	**666139**	5
	24A	4NO	12V	AC/DC	2	CTX 24 40 012 U	**666141**	5
	24A	4NO	24V	AC/DC	2	CTX 24 40 024 U	**666144**	5
	24A	4NO	48V	AC/DC	2	CTX 24 40 048 U	**666145**	5
	24A	4NO	230V	AC/DC	2	CTX 24 40 230 U	**666142**	5
2 NO 2 NC	24A	4NO	240V	AC/DC	2	CTX 24 40 240 U	**666143**	5
	40A	2NC	230V	AC/DC	3	CTX 40 02 230 U	**666170**	3
	40A	2NO	230V	AC/DC	3	CTX 40 20 230 U	**666146**	3
	40A	3NO	24V	AC/DC	3	CTX 40 30 024 U	**666149**	3
3 NO	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
4 NC	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
	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
4 NO	63A	4NO	240V	AC/DC	3	CTX 63 40 240 U	**666157**	3

Contactor Day and Night	20A	2NO	230V	AC	1	CTX DN 20 20 230 A	**666164**	12
	24A	3NO	230V	AC/DC	2	CTX DN 24 30 230 U	**666165**	5
2 NO	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
3 NO	40A	4NO	230V	AC/DC	3	CTX DN 40 40 230 U	**666169**	3
4 NO								

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

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

Accessories

	Number of modules	Cat. No.	Ref. No.	Pack.
Sealing piece	2	CTX TS 2	**666160**	3
	3	CTX TS 3	**666159**	3

Spacer	0.5	PLS + / CTX + SP	**686069**	50

CTX Modular installation contactors - Lighting application

Lamp type	Lamp data	Permitted number of lamps per phase (230V. 50Hz) for contactor type					Capacitor
	Watt	In (A)	CTX20	CTX24	CTX40	CTX63	(µF)
Incandescent lamp							
	60	0.26	21	25	54	83	-
	100	0.43	13	15	32	50	-
	200	0.87	7	7	16	25	-
	300	1.3	4	5	11	16	-
	500	2.17	3	3	6	10	-
	1000	4.35	1	1	3	5	-
Fluorescent lamp	**uncompensated and series compensation**						
	15	0.35	25	30	100	155	-
	20	0.37	22	26	85	140	-
	40	0.43	17	20	65	105	-
	42	0.54	13	16	52	85	-
	65	0.67	10	12	40	60	-
	115	1.5	4	5	18	28	-
	140	1.5	4	5	18	28	-
	two lamp circuit						
	2x20	2x0.13	2x22	2x26	2x85	2x140	-
	2x40	2x0.22	2x17	2x20	2x65	2x105	
	2x42	2x0.24	2x13	2x16	2x52	2x85	-
	2x65	2x0.34	2x10	2x12	2x40	2x60	-
	2x115	2x0.65	2x4	2x5	2x18	2x28	-
	2x140	2x0.75	2x4	2x5	2x18	2x28	-
	parallel compensation						
	15	0.11	6	8	15	67	4.5
	20	0.13	5	7	14	60	5
	40	0.22	6	8	15	67	4.5
	42	0.24	4	6	12	50	6
	65	0.65	4	5	10	43	7
	115	0.65	1	2	4	17	18
	140	0.75	1	2	4	17	18
High pressure mercury vapor lamps	**uncompensated**						
(eg. HQL. HPL)	50	0.61	12	14	36	50	-
	80	0.8	7	10	27	36	-
	125	1.15	5	7	19	26	-
	250	2.15	3	4	10	14	-
	400	3.25	1	2	7	10	-
	700	5.4	-	1	4	6	-
	1000	7.5	-	1	3	4	-
	200/400	8	-	1	3	4	-
	parallel compensation						
	50	0.28	4	5	10	43	7
	60	0.41	3	4	8	37	8
	125	0.65	2	3	6	26	10
	250	1.22	1	2	3	15	18
	400	1.95	-	1	3	10	25
	700	3.45	-	-	1	5	45
	1000	4.8	-	-	1	4	60
	200/400	5.45	-	1	2	2	35
Lamps with electronic power supply units	**permitted number of electropower supply units per phase**						
	1x18	15	24	55	76	-	-
	2x18	8	18	34	46	-	-
	1x36	12	16	34	47	-	-
	2x36	7	11	20	29	-	-
	1x58	11	14	32	46	-	-
	2x58	6	8	17	24	-	-
Metal-halogen lamps	**uncompensated**						
(eg. HQI. HPI)	35	0.53	-	10	28	38	-
	70	1	-	5	14	20	-
	150	1.8	-	3	8	11	-
	250	3	-	2	5	7	-
	400	3.5	-	1	4	6	-
	1000	9.5	-	-	1	2	-
	2000	16.5	-	-	1	1	-
	2000/400V	10.5	-	-	2	2	-
	3500/400V	18	-	-	1	1	-
	parallel compensation						
	35	0.25	-	5	11	30	6
	70	0.45	-	3	5	18	14
	150	0.75	-	1	3	9	20
	250	1.5	-	1	2	7	33
	400	2.5	-	1	2	6	35
	1000	5.8	-	-	-	2	95
	2000	11.5	-	-	-	1	148
	2000/400V	6.6	-	-	1	2	58
	3500/400V	11.6	-	-	-	1	100

CTX Modular installation contactors - Lighting application

Lamp type	*Lamp data*	*Permitted number of lamps per phase (230V. 50Hz) for contactor type*					*Capacitor*
	Watt	**In (A)**	**CTX20**	**CTX24**	**CTX40**	**CTX63**	**(µF)**
Low pressure sodium vapor lamps	**uncompensated**						
	35	1.5	5	8	22	30	-
	55	1.5	5	8	22	30	-
	90	2.4	3	5	13	19	-
	135	3.5	2	3	10	13	-
	150	3.3	2	3	10	14	-
	180	3.3	2	3	10	14	-
	200	2.3	3	5	14	20	-
	parallel compensation						
	35	0.31	-	1	4	15	20
	55	0.42	-	1	4	15	20
	90	0.63	-	1	3	10	30
	135	0.94	-	-	2	7	45
	150	1	-	-	2	8	40
	180	1.16	-	-	2	8	40
	200	1.32	-	1	3	12	25
High pressure sodium vapor lamps	**uncompensated**						
	150	1.8	-	4	15	20	-
	250	3	-	3	9	15	-
	330	3.7	-	2	8	10	-
	400	4.7	-	1	6	8	-
	1000	10.3	-	-	3	4	-
	parallel compensation						
	150	0.83	-	1	3	15	20
	250	1.5	-	1	2	9	33
	330	2	-	-	2	7	40
	400	2.4	-	-	1	6	48
	1000	6.3	-	-	-	2	106
	Transformer data		**Permitted number of transformers per phase (230V. 50Hz)**				
	WATT						
Transformers for halogen for low voltage lamps	20	-	40	52	110	174	-
	50	-	20	24	50	80	-
	75	-	13	16	35	54	-
	100	-	10	12	27	43	-
	150	-	7	9	19	29	-
	200	-	5	6	14	23	-
	300	-	3	4	9	14	-

CTX Modular installation contactors
DC1-/DC-3 switching DC with NO contacts

		DC-1 (L/R ≤ 1ms)			**DC-3 (L/R ≤ 2ms)**		
Type	**Rated operational Voltage Ue (A)**	**1 current path (A)**	**2 current path series (A)**	**3 current path series (A)**	**1 current path (A)**	**2 current path series (A)**	**3 current path series (A)**
CTX24							
	24VDC	24	24	24	16	24	24
	48VDC	21	24	24	8	18	24
	60VDC	17	24	24	4	14	24
	110VDC	7	16	24	16	6.5	16
	220VDC	0.9	4.5	13	0.2	1	4
CTX24							
	24VDC	40	40	40	19	40	40
	48VDC	23	40	40	10	20	40
	60VDC	18	32	40	5	16	34
	110VDC	8	17	30	1.8	7	18
	220VDC	1	5	15	0.3	1.1	4.5
CTX24							
	24VDC	50	63	63	21	44	63
	48VDC	25	43	63	11	22	47
	60VDC	20	35	60	5.5	18	38
	110VDC	9	19	33	2	8	21
	220VDC	1.1	5.5	17	0.3	1.2	5

Contactors

Contax L

Features

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 builtin varistor protects the coil against an overvoltage of up to 2kV. 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.
These contactor allows:
- Add-on auxiliary contacts:
  Contax AUXII, Contax AUX20 (except 1-module AC/DC contactors).
- Sealing caps:
  Contax R1CAP, Contax R2CAP (for 3 module avalilable upon request).

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.

Functions

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

Standards / Marking

IEC/EN 61095, IEC/EN 60947-4-1, IEC/EN 60947-5-1, CE

Performance

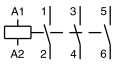
Rated switching capacity		20A	25A	40A	63A
Contacts					
Switching capacity for different loads					
Rated insulation voltage		440V	440V	440V	440V
Rated operational voltage		400V	400V	400V	400V
Switching-on capacity cos φ = 0.65 at 380-400V 3phase		-	85A	220A	300A
Switching-on capacity cos φ = 0.95 at 220-230V 1phase		90A	-	-	-
Switching-off capacity cos φ = 0.65 at 380-400V 3phase		-	68A	176A	240A
Switching-off capacity cos φ = 0.95 at 220-230V 1phase		72A	-	-	-
Fuse type GL for short-circuit protection		20A	25A	63A	80A
Ohmic loss per contact at In		1.7W	2.2W	4.0W	8.0W
Maximum switching frequency AC1 / AC7a		600/h	600/h	600/h	600/h
Maximum switching frequency AC3 / AC7b		600/h	600/h	600/h	600/h
Mechanical service life		$10x10^6$	$10x10^6$	$10x10^6$	$10x10^6$
Electrical service life AC1 / AC7a		200000	200000	100000	100000
Electrical service life AC3 / AC7b		300000	500000	150000	150000
Screws		Pozidriv 1	Pozidriv 1	Pozidriv 2	Pozidriv 2
Terminal capacity:	rigid	$1x6mm^2$	$1x6mm^2$	$1.5x16mm^2$	$1.5x16mm^2$
	flexible	$1x10mm^2$	$1x10mm^2$	$1.5x25mm^2$	$1.5x25mm^2$
Magnetic control system					
Control voltage range		85 ... 110%xUn	85 ... 110%xUn	85 ... 110%xUn	85 ... 110%xUn
Rated operating frequency		40 ... 500Hz	40 ... 500Hz	50/60Hz	50/60Hz
Operating temperature range		-25 ... +55°C(1)	-25 ... +55°C(1)	-25 ... +55°C(1)	-25 ... +55°C(1)
Maximum switch-on coil power loss		2.1VA / 2.1W	2.6VA / 2.6W	5VA / 5W	5VA / 5W
Maximum operation coil power loss		2.1VA / 2.1W	2.6VA / 2.6W	5VA / 5W	5VA / 5W
Make delay		15 ... 45 ms	15 ... 45 ms	15 ... 20 ms	15 ... 20 ms
Brake delay		20 ... 50 ms	20 ... 70 ms	35 ... 45 ms	35 ... 45 ms
Screws		Pozidriv 1	Pozidriv 1	Pozidriv 1	Pozidriv 1
Terminal capacity:	rigid	$1x2.5mm^2$	$1x2.5mm^2$	$1x2.5mm^2$	$1x2.5mm^2$
	flexible	$2x2.5mm^2$	$2x2.5mm^2$	$2x2.5mm^2$	$2x2.5mm^2$

(1) Valid for 2NO and 4NO versions of contacts. For other version of contacts is temperature range -15 ... +55°C

Auxiliary contacts pag. ***D.17***
More technical data pag. ***website*** | *Dimensions pag.* ***D.82***

New

Contax L - Contactors

	Nominal current	Contact combination	Coil voltage	AC/DC	Number of modules	Cat. No.	Ref. No.	Pack.
2NO	20A	2NO	230V	AC/DC	1	CONTAX2020230U	**685935**	1
4NO	25A	4NO	230V	AC/DC	2	CONTAX2540230U	**685936**	1
3NO 	25A	3NO	230V	AC/DC	2	CONTAX2530230U	**685937**	1
2NO 2NC	25A	2NO 2NC	230V	AC/DC	2	CONTAX2522230U	**685938**	1
4NO	40A	4NO	230V	AC/DC	3	CONTAX4040230U	**685939**	1
	63A	4NO	230V	AC/DC	3	CONTAX6340230U	**685940**	1

Contax L - Contactor Day and Night

	Nominal current	Contact combination	Coil voltage	AC/DC	Number of modules	Cat. No.	Ref. No.	Pack.
2NO	20A	2NO	230V	AC/DC	1	CONTAXDN2020230U	**685941**	1
4NO	25A	4NO	230V	AC/DC	2	CONTAXDN2540230U	**685942**	1
3NO	25A	3NO	230V	AC/DC	2	CONTAXDN2530230U	**685943**	1
	32A	3NO	230V	AC/DC	3	CONTAXDN3230230U	**685944**	1

New

Relays

Contax R

Applications

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

Standards / Marking

IEC/EN 61095, IEC/EN 60947-4-1, IEC/EN 60947-5-1

CE

Features

- 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.

Functions

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

New

Auxiliary contacts pag. ***D.17***
More technical data pag. ***website*** | *Dimensions pag.* ***D.82***

Performance

			Contax R
Rated current (according to EN 60947-4-1)			
230VAC (1 and 2 pole) / 400VAC (3 and 4 pole)		A	16
Nominal thermal current (Ith)		A	16
Number of pole			1 → 4
Contacts	NO		1 → 4
	Changeover		1 → 2
	NO + NC		1+1 / 2+2
Width (in 17.8mm DIN modules)	1P and 2P	Mod.	1
	3P and 4P	Mod.	2
Coil specifications			
Supply voltage range (in % of Un)		%	85-110
Coil voltage frequency		Hz	50/60
Coil pick-up power	1P and 2P	VA	10
	3P and 4P	VA	25
Coil power loss - AC	1P and 2P	VA	1.2
	3P and 4P	VA	1.6
Maximum coil holding voltage time			unlimited
Contact bounce time at closing		sec.	< 0.010
Operate and release time			
Pick-up time	NO contact	sec.	< 0.025
(from 0 to Un)	NC contact	sec.	< 0.025
Drop-out time	NO contact	sec.	< 0.030
(from Un to 0)	NC contact	sec.	< 0.030
Maximum peak current at closing			
Single phase 230V AC cos φ = 0.95			70
3-phase 400V~ cos φ = 0.65			70
Maximum peak current at opening			
Single phase 230V AC cos φ = 0.95			56
3-phase 400V~ cos φ = 0.65			56
Lifetime (in number of operations)			
Electrical (in AC-1 - At full load)			2×10^5
Mechanical			3×10^6
Load specifications per phase			
Maximum load AC-1	1P and 2P	kW	2.9
	3P and 4P	kW	8.8
Maximum load AC-5b		kW	2.0
Maximum load AC-7b		kW	1.1
Maximum load AC-3	230V AC	kW	1.1
	400V AC	kW	3.0
Minimum load (under 5V)		W	2
Short-circuit fuse protection		A	16
General specifications			
Auxiliary contact add-on (CTX R)			yes
Need for spacer			no
DIN rail mounting			yes
Front handle for manual operation			yes
Permanent ON/OFF			no
Indicator of contact position			yes
Clamping terminals			yes
Unlosable screws			yes
Sealable terminals (coil and load)			yes
Cable cross section (Ø min/max)	Coil	mm^2	1.0 / 2.5
	Load	mm^2	1.0 / 10
Maximum torque on terminals	Coil / load	Nm	0.6 / 1.2
Ambient temperature at installation point (min./max.)		°C	- 15 / 55

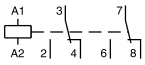
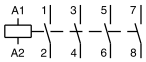
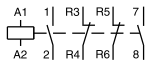
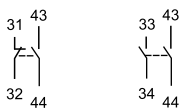
New

Impulse switches, Contax L and relays: maximum lamp loads

Lamps type	Lamp Watts Power consumption	Pulsar S PULSAR16	Pulsar S PULSAR 32	Contax R	Contax L Contactors 20A	Contax L Contactors 25A	Contax L Contactors 40A	Contax L Contactors 63A
Incandescent lamps								
Max. load 230VAC		2100W	3600W	2100W	2100W	2220W	4050W	5100W
Max. number of lamps	15W	133	233	133	133	147	267	333
	25W	80	140	80	80	88	160	200
	40W	50	88	50	50	55	100	125
	60W	33	58	33	33	37	67	83
	75W	27	47	27	27	29	53	67
	100W	20	35	20	20	22	40	50
	150W	13	23	13	13	15	27	33
	200W	10	18	10	10	11	20	25
	300W	7	12	7	7	7	13	17
	500W	4	7	3	4	4	8	10
Fluo lamp PF uncorrected								
Max. load 230VAC		1560W	1560W	845W	845W	1105W	1950W	3120W
Max. number of lamps	18W	43	43	24	24	30	54	86
	36W	37	37	20	20	26	47	74
	40W	37	37	20	20	26	47	74
	58W	24	24	13	13	17	30	48
	65W	24	24	13	13	17	30	48
Fluo twin lamps								
Max. load 230VAC		2730W	2730W	1360W	1360W	1760W	4320W	6500W
Max. number of lamps	2x18W	62	62	31	31	40	100	150
	2x36W	33	33	17	17	22	54	81
	2x40W	33	33	17	17	22	54	81
	2x58W	21	21	10	10	13	33	50
	2x65W	21	21	10	10	13	33	50
Fluo lamp parallel compensation								
Max. load 230VAC		720W	1365W	390W	390W	325W	2015W	3055W
Max. number of lamps	18W	18	33	7	7	8	49	73
	36W	18	33	7	7	8	49	73
	40W	18	33	7	7	8	49	73
	58W	11	21	4	4	5	31	47
	65W	11	21	4	4	5	31	47
Halogen 230V								
Max. load 230VAC		2100W	3600W	2100W	2100W	2250W	4050W	5100W
Max. number of lamps	150W	13	23	13	13	15	27	33
	250W	8	14	8	8	9	16	20
	300W	7	12	7	7	7	13	17
	400W	5	9	5	5	6	10	13
	500W	4	7	4	4	4	8	10
	1000W	2	4	2	2	2	4	5
HP sodium vapour								
Max. load 230VAC		1200W	1600W	800W	800W	1000W	2500W	3300W
Max. number of lamps	70W	13	16	9	9	10	30	35
	150W	7	9	5	5	6	17	22
	250W	4	5	3	3	4	10	13
	400W	3	4	2	2	2	6	8
	1000W	1	1	-	-	1	3	3
LP sodium vapour								
Max. load 230VAC		1800W	2880W	540W	540W	720W	1800W	2340W
Max. number of lamps	55W	15	27	7	7	9	23	30
	90W	10	18	4	4	5	14	19
	135W	10	18	3	3	4	10	13
	180W	10	16	3	3	4	10	13
	185W	9	15	2	2	3	9	12
HP mercury vapour								
Max. load 230VAC		1250W	2000W	1000W	1000W	1250W	3000W	4000W
Max. number of lamps	50W	17	27	14	14	18	38	55
	80W	13	20	10	10	13	29	42
	125W	8	13	7	7	9	20	29
	250W	5	7	4	4	5	10	15
	400W	3	5	2	2	3	7	10
	1000W	1	2	1	1	1	3	4
VLV halogen								
Max. load 230VAC		1050W	3000W	1050W	1050W	1200W	2700W	4350W
Max. number of lamps	20W	50	150	50	50	60	135	215
	50W	20	60	20	20	24	54	86
	75W	14	40	14	14	16	36	57
	100W	10	30	10	10	12	27	43
	150W	7	20	7	7	8	18	29
	200W	5	15	5	5	6	14	22
	300W	3	10	3	3	4	9	14
Electronic reactor								
Max. load 230VAC		720W	2800W	470W	470W	720W	2090W	2880W
Max. number of lamps	1x18W	33	133	22	22	35	100	139
	1x36W	19	75	13	13	20	56	78
	1x58W	11	43	7	7	11	32	45
	2x18W	18	71	12	12	19	53	74
	2x36W	10	39	6	6	10	29	40
	2x58W	5	21	4	4	6	16	22
LEDs								
Max. load 230VAC								
Non dimmable		2A	12A	1.5A	2.4A	3.8A	11A	18A
Dimmable		2A	12A	1.5A	2.4A	3.8A	11A	18A

New

Contax R - Relays

	Nominal current	Contact combination	Coil voltage AC	Number of Modules	Cat. No.	Ref. No.	Pack.
1 NO	16A	1 NO	8V	1	CONTAXR1610008A	**685693**	1
	16A	1 NO	12V	1	CONTAXR1610012A	**685694**	1
	16A	1 NO	24V	1	CONTAXR1610024A	**685695**	1
	16A	1 NO	48V	1	CONTAXR1610048A	**685696**	1
	16A	1 NO	115V	1	CONTAXR1610115A	**685697**	1
	16A	1 NO	230V	1	CONTAXR1610230A	**685699**	1
	16A	1 NO	240V	1	CONTAXR1610240A	**685700**	1
1 CO	16A	1 CO	8V	1	CONTAXR161008A	**685701**	1
	16A	1 CO	12V	1	CONTAXR161012A	**685702**	1
	16A	1 CO	24V	1	CONTAXR161024A	**685703**	1
	16A	1 CO	48V	1	CONTAXR161048A	**685704**	1
	16A	1 CO	115V	1	CONTAXR161115A	**685705**	1
	16A	1 CO	230V	1	CONTAXR161230A	**685706**	1
	16A	1 CO	240V	1	CONTAXR161240A	**685707**	1
2 NO	16A	2 NO	8V	1	CONTAXR1620008A	**685708**	1
	16A	2 NO	12V	1	CONTAXR1620012A	**685709**	1
	16A	2 NO	24V	1	CONTAXR1620024A	**685710**	1
	16A	2 NO	48V	1	CONTAXR1620048A	**685711**	1
	16A	2 NO	115V	1	CONTAXR1620115A	**685712**	1
	16A	2 NO	230V	1	CONTAXR1620230A	**685714**	1
	16A	2 NO	240V	1	CONTAXR1620240A	**685715**	1
1 NO 1 NC	16A	1 NO 1 NC	8V	1	CONTAXR1611008A	**685716**	1
	16A	1 NO 1 NC	12V	1	CONTAXR1611012A	**685717**	1
	16A	1 NO 1 NC	24V	1	CONTAXR1611024A	**685718**	1
	16A	1 NO 1 NC	48V	1	CONTAXR1611048A	**685719**	1
	16A	1 NO 1 NC	115V	1	CONTAXR1611115A	**685720**	1
	16A	1 NO 1 NC	230V	1	CONTAXR1611230A	**685722**	1
	16A	1 NO 1 NC	240V	1	CONTAXR1611240A	**685723**	1
2 CO 	16A	2 CO	8V	2	CONTAXR162008A	**685724**	1
	16A	2 CO	12V	2	CONTAXR162012A	**685725**	1
	16A	2 CO	24V	2	CONTAXR162024A	**685726**	1
	16A	2 CO	48V	2	CONTAXR162048A	**685727**	1
	16A	2 CO	115V	2	CONTAXR162115A	**685728**	1
	16A	2 CO	230V	2	CONTAXR162230A	**685729**	1
	16A	2 CO	240V	2	CONTAXR162240A	**685730**	1
3 NO	16A	3 NO	12V	2	CONTAXR1630012A	**685731**	1
	16A	3 NO	24V	2	CONTAXR1630024A	**685732**	1
	16A	3 NO	48V	2	CONTAXR1630048A	**685733**	1
	16A	3 NO	230V	2	CONTAXR1630230A	**685734**	1
4 NO 	16A	4 NO	8V	2	CONTAXR1640008A	**685735**	1
	16A	4 NO	12V	2	CONTAXR1640012A	**685736**	1
	16A	4 NO	24V	2	CONTAXR1640024A	**685737**	1
	16A	4 NO	48V	2	CONTAXR1640048A	**685738**	1
	16A	4 NO	230V	2	CONTAXR1640230A	**685740**	1
	16A	4 NO	240V	2	CONTAXR1640240A	**685741**	1
2 NO 2 NC 	16A	2 NO 2 NC	8V	2	CONTAXR1622008A	**685742**	1
	16A	2 NO 2 NC	12V	2	CONTAXR1622012A	**685743**	1
	16A	2 NO 2 NC	24V	2	CONTAXR1622024A	**685744**	1
	16A	2 NO 2 NC	48V	2	CONTAXR1622048A	**685745**	1
	16A	2 NO 2 NC	230V	2	CONTAXR1622230A	**685747**	1
	16A	2 NO 2 NC	240V	2	CONTAXR1622240A	**685748**	1
			-	1	CONTAXR1CAP	**685945**	2
Sealing covers			-	2	CONTAXR2CAP	**685934**	2
Add-on auxiliary contact **1 NO 1 NC** **2 NO** 	6A	1NO 1NC	-	0.5	CONTAXRAUX11	**685883**	1
	6A	2NO	-	0.5	CONTAXRAUX20	**685930**	1

New

Pulsar
Impulse switches range

New

Impulse switches are switching devices without power consumption in operating switch-on position and very small power consumption per pole. On a very effective way helps to reduce greenhouse gas emissions of CO_2.

Main Benefits

Small switch on coil consumption
No hold coil consumption
Wide application
Mounting on 35mm rail
Sealing terminal covers
All control voltages from 8V till 240V are possible

For remote switching

Advanced operation
Lights and lighting
Electric heating
Electric drives

Intelligent installations

Impulse control
Manual control

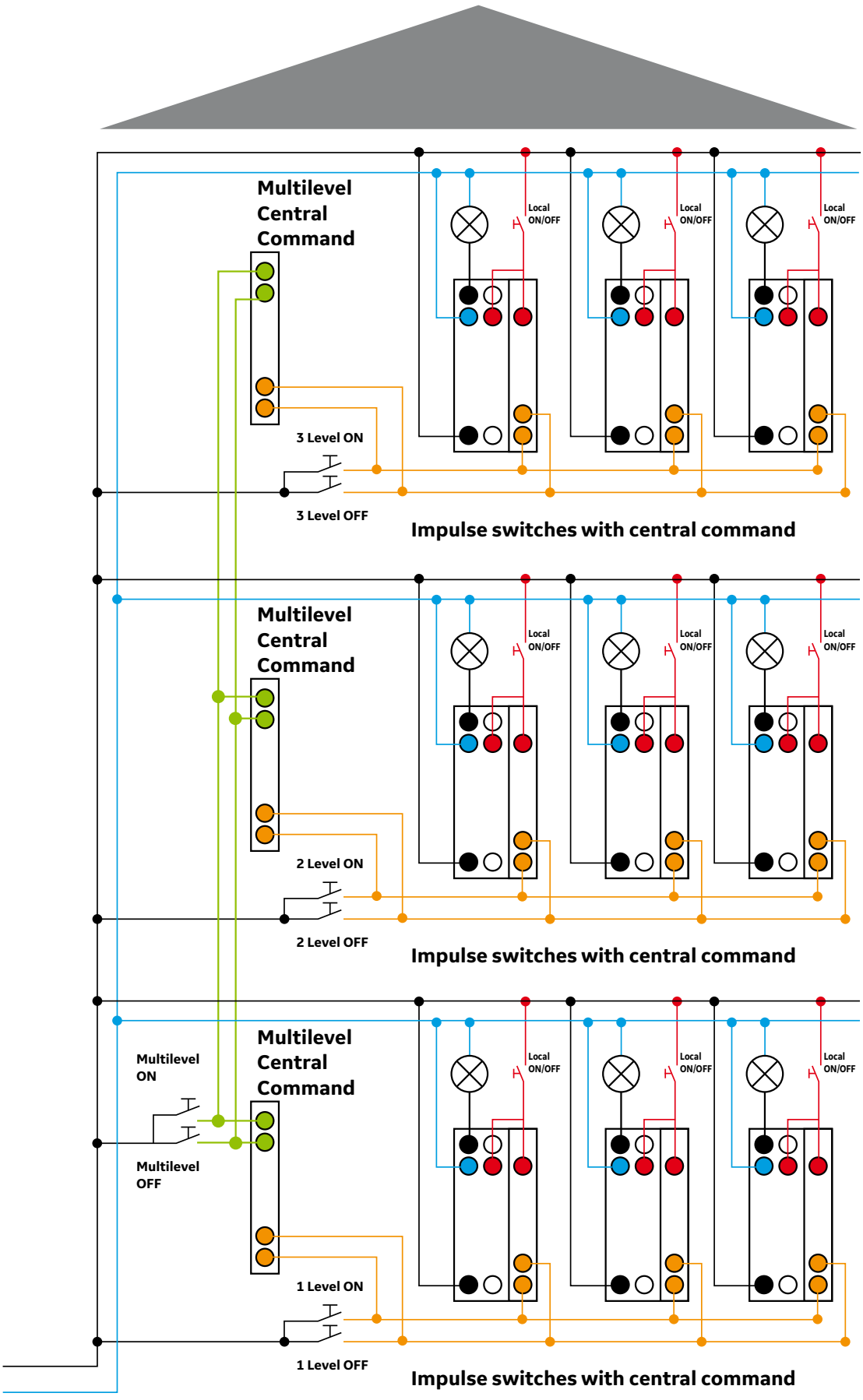
Main features

- Redline shape
- Pozidriv screws
- Market terminals
- Electric diagram in front of the device

Plenty of accessories

- Sealing cover
- Capacitor
- Auxiliaries
- General command
- Multilevel

Full functionality



Impulse switches

Pulsar S

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.

Standards / Marking

IEC/EN 60669-1, IEC/EN 60669-2-2

CE

Features

- Besides the normal operation through electrically energising the coil, manual operation is possible at all times.
- The switch position is visualised by the position of the front handle for all devices.
- 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.
- The use of a large number of luminous push-buttons is possible.
- Availability of sealing cap for coil and load terminals.

DIN-rail positioning: used in vertical/horizontal position

Functions

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.

New

Auxiliary contacts pag. ***D.23***
More technical data pag. ***website*** | *Dimensions pag.* ***D.82-D.83***

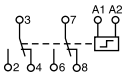
Performance

			PLS +			PLS + C	
			PLS + 16	**PLS + 32**	**PLS + PU 16**	**PLS + C 16**	**PLS + C 32**
Rated current (according to IEC/EN 60669-2-2)							
250VAC (1 pole) / 440V AC (2, 3 and 4 pole)		A	16	32	16	16	32
Direct current (at 30V DC)		A	16	20	16	16	20
Number of pole			1 → 4	1 → 4	1 → 4	1 → 4	1 → 3
Contacts							
	NO		1 → 4	1 → 4	1 → 4	1 → 3	-
	Changeover		1 → 2	-	1 → 2	1 → 2	-
	NO + NC		1+1 / 2+2	-	1+1 / 2+2	-	-
Width (in 17.8mm DIN modules)							
	1 P	Mod.	1	1	1	1	1
	2 P	Mod.	1	1	1	1 ½	1 ½
	3 P	Mod.	2	2	2	-	2 ½
	4 P	Mod.	2	2	2	2 ½	-
Coil specifications							
Supply voltage range (in % of Un)		%	90-110	90-110	90-110	90-110	90-110
Coil pick-up power	1P and 2P	VA	18	18	18	18	18
	3P and 4P	VA	18	18	18	18	18
Coil power loss - AC	1P and 2P	VA	9	9	9	9	9
	3P and 4P	VA	9	9	9	9	9
Maximum coil holding voltage time			1h	1h	permanent	1h	1h
Impulse times							
Minimum impulse time (under Un)		sec.	0.050	0.050	0.050	0.050	0.050
Minimum impulse time (90% Un)		sec.	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
Maximum number of impulses per hour			900	450	900	900	600
Lifetime (in number of operations)							
Electrical (AC - At full load)			2×10^5	2×10^5	2×10^5	2×10^5	2×10^5
Mechanical			2×10^6	2×10^6	2×10^6	2×10^6	2×10^6
Load specifications							
Maximum load AC-1		A	16	32	16	16	32
Maximum load DC (30V DC)		A	16	20	16	16	20
Minimum load per phase (under 5V)		W	2	2	2	2	2
Short-circuit fuse protection		A	16	32	16	16	32
Maximum number of push-buttons							
Non illuminated push-buttons			unlimited	unlimited	unlimited	unlimited	unlimited
Luminous push-buttons (0.6mA)							
	Without compensator		4	4	4	4	4
	1 compensator		30	30	30	30	30
	2 compensators		50	50	50	50	50
General specifications							
Auxiliary contact add-on (PLS)			yes	yes	yes	no	no
Need for spacer (up to 40°C)(1)			no	no	yes	no	no
DIN rail mounting			yes	yes	yes	yes	yes
2-POSITION HANDLE			yes	yes	yes	yes	yes
Indicator of contact position			yes	yes	yes	yes	yes
Clamping terminals			yes	yes	yes	yes	yes
Unlosable screws			yes	yes	yes	yes	yes
Sealable terminals (coil and load)			yes	yes	yes	yes	yes
Cable cross section (Ø min/max)	Coil	mm²	1 / 4	1 / 4	1 / 4	1 / 4	1 / 4
	Load 1P-3P and 4P	mm²	1 / 10	1 / 10	1 / 10	1 / 10	1 / 10
	Load 2P		1 / 10	1 / 10	1 / 10	1 / 10	1 / 10
	Coil / Load	mm²	1.2 / 0.6	1.2 / 0.6	1.2 / 0.6	1.2 / 0.6	1.2 / 0.6
Ambient temperature at installation point (min./max.)		°C	-25 / 55	-25 / 55	-25 / 55	-25 / 55	-25 / 55

(1) For temperatures 40 ... 55°C the spacer is required on the side of 3 switches side-by-side and for temperatures 55 ... 70 °C the spacer is required on the side of each switch.

New

Pulsar S - Impulse switches

		Nominal current	Contact combination	Coil voltage AC	Number of modules	Cat. No.	Ref. No.	Pack.
	Impulse switches 1NO	16A	1NO	8V	1	PULSAR1610008A	**685779**	1
		16A	1NO	12V	1	PULSAR1610012A	**685780**	1
		16A	1NO	24V	1	PULSAR1610024A	**685781**	1
		16A	1NO	48V	1	PULSAR1610048A	**685782**	1
		16A	1NO	115V	1	PULSAR1610115A	**685783**	1
		16A	1NO	230V	1	PULSAR1610230A	**685784**	1
		16A	1NO	230V/60Hz	1	PULSAR16123060	**685785**	1
		16A	1NO	240V	1	PULSAR1610240A	**685786**	1
	1CO	16A	1CO	8V	1	PULSAR161008A	**685787**	1
		16A	1CO	12V	1	PULSAR161012A	**685788**	1
		16A	1CO	24V	1	PULSAR161024A	**685789**	1
		16A	1CO	48V	1	PULSAR161048A	**685790**	1
		16A	1CO	115V	1	PULSAR161115A	**685791**	1
		16A	1CO	230V	1	PULSAR161230A	**685792**	1
		16A	1CO	240V	1	PULSAR161240A	**685793**	1
	2NO	16A	2NO	8V	1	PULSAR1620008A	**685794**	1
		16A	2NO	12V	1	PULSAR1620012A	**685795**	1
		16A	2NO	24V	1	PULSAR1620024A	**685796**	1
		16A	2NO	48V	1	PULSAR1620048A	**685797**	1
		16A	2NO	115V	1	PULSAR1620115A	**685798**	1
		16A	2NO	230V/60Hz	1	PULSAR162023060	**685799**	1
		16A	2NO	230V	1	PULSAR1620230A	**685800**	1
		16A	2NO	240V	1	PULSAR1620240A	**685801**	1
	1NO 1NC	16A	1NO 1NC	8V	1	PULSAR1611008A	**685802**	1
		16A	1NO 1NC	12V	1	PULSAR1611012A	**685803**	1
		16A	1NO 1NC	24V	1	PULSAR1611024A	**685804**	1
		16A	1NO 1NC	48V	1	PULSAR1611048A	**685805**	1
		16A	1NO 1NC	115V	1	PULSAR1611115A	**685806**	1
		16A	1NO 1NC	230V	1	PULSAR1611230A	**685807**	1
		16A	1NO 1NC	230V/60Hz	1	PULSAR161123060	**685808**	1
		16A	1NO 1NC	240V	1	PULSAR1611240A	**685809**	1
	2CO 	16A	2CO	8V	2	PULSAR162008A	**685810**	1
		16A	2CO	12V	2	PULSAR162012A	**685811**	1
		16A	2CO	24V	2	PULSAR162024A	**685812**	1
		16A	2CO	48V	2	PULSAR162048A	**685813**	1
		16A	2CO	115V	2	PULSAR162115A	**685814**	1
		16A	2CO	230V	2	PULSAR162230A	**685815**	1
		16A	2CO	240V	2	PULSAR162240A	**685816**	1
	1NO	32A	1NO	8V	1	PULSAR3210008A	**685817**	1
		32A	1NO	12V	1	PULSAR3210012A	**685818**	1
		32A	1NO	24V	1	PULSAR3210024A	**685819**	1
		32A	1NO	48V	1	PULSAR3210048A	**685820**	1
		32A	1NO	115V	1	PULSAR3210115A	**685821**	1
		32A	1NO	230V	1	PULSAR3210230A	**685822**	1
		32A	1NO	240V	1	PULSAR3210240A	**685823**	1
	2NO	32A	2NO	8V	1	PULSAR3220008A	**685824**	1
		32A	2NO	12V	1	PULSAR3220012A	**685825**	1
		32A	2NO	24V	1	PULSAR3220024A	**685826**	1
		32A	2NO	48V	1	PULSAR3220048A	**685827**	1
		32A	2NO	115V	1	PULSAR3220115A	**685828**	1
		32A	2NO	230V	1	PULSAR3220230A	**685829**	1
		32A	2NO	240V	1	PULSAR3220240A	**685830**	1

New

Auxiliary contacts pag. ***D.23***
More technical data pag. ***website*** | *Dimensions pag.* ***D.82-D.83***

Pulsar S - Impulse switches

	Nominal current	Contact combination	Coil voltage AC	Number of modules	Cat. No.	Ref. No.	Pack.
All-in central command 1NO	16A	1NO	8V	1.5	PULSARC1610008A	**685831**	1
	16A	1NO	12V	1.5	PULSARC1610012A	**685832**	1
	16A	1NO	24V	1.5	PULSARC1610024A	**685833**	1
	16A	1NO	48V	1.5	PULSARC1610048A	**685834**	1
	16A	1NO	230V	1.5	PULSARC1610230A	**685835**	1
	16A	1NO	240V	1.5	PULSARC1610240A	**685836**	1
1CO	16A	1CO	8V	1.5	PULSARC161008A	**685837**	1
	16A	1CO	12V	1.5	PULSARC161012A	**685838**	1
	16A	1CO	24V	1.5	PULSARC161 024A	**685839**	1
	16A	1CO	48V	1.5	PULSARC161048A	**685840**	1
	16A	1CO	230V	1.5	PULSARC161230A	**685841**	1
	16A	1CO	240V	1.5	PULSARC161240A	**685842**	1
2NO	16A	2NO	8V	1.5	PULSARC1620008A	**685843**	1
	16A	2NO	12V	1.5	PULSARC1620012A	**685844**	1
	16A	2NO	24V	1.5	PULSARC1620024A	**685845**	1
	16A	2NO	48V	1.5	PULSARC1620048A	**685846**	1
	16A	2NO	230V	1.5	PULSARC1620230A	**685847**	1
	16A	2NO	240V	1.5	PULSARC1620240A	**685848**	1
2CO	16A	2CO	8V	2.5	PULSARC162008A	**685849**	1
	16A	2CO	12V	2.5	PULSARC162012A	**685850**	1
	16A	2CO	24V	2.5	PULSARC162024A	**685851**	1
	16A	2CO	48V	2.5	PULSARC162048A	**685852**	1
	16A	2CO	230V	2.5	PULSARC162230A	**685853**	1
	16A	2CO	240V	2.5	PULSARC162240A	**685854**	1
1NO	32A	1NO	8V	1.5	PULSARC3210008A	**685855**	1
	32A	1NO	12V	1.5	PULSARC3210012A	**685856**	1
	32A	1NO	24V	1.5	PULSARC3210024A	**685857**	1
	32A	1NO	48V	1.5	PULSARC3210048A	**685858**	1
	32A	1NO	230V	1.5	PULSARC3210230A	**685859**	1
	32A	1NO	240V	1.5	PULSARC3210240A	**685860**	1
2NO	32A	2NO	8V	1.5	PULSARC3220008A	**685861**	1
	32A	2NO	12V	1.5	PULSARC3220012A	**685862**	1
	32A	2NO	24V	1.5	PULSARC3220024A	**685863**	1
	32A	2NO	48V	1.5	PULSARC3220048A	**685864**	1
	32A	2NO	230V	1.5	PULSARC3220230A	**685865**	1
	32A	2NO	240V	1.5	PULSARC3220240A	**685866**	1
3NO	32A	3NO	8V	2.5	PULSARC3230008A	**685867**	1
	32A	3NO	12V	2.5	PULSARC3230012A	**685868**	1
	32A	3NO	24V	2.5	PULSARC3230024A	**685869**	1
	32A	3NO	48V	2.5	PULSARC3230048A	**685870**	1
	32A	3NO	230V	2.5	PULSARC3230230A	**685871**	1
	32A	3NO	240V	2.5	PULSARC3230240A	**685872**	1
Permanent use 2NO	16A	2NO	24V	1	PULSARPU162024A	**685873**	1
	16A	2NO	230V	1	PULSARPU162230A	**685874**	1
2CO	16A	2CO	24V	2	PULSARPU1620024A	**685875**	1
	16A	2CO	230V	2	PULSARPU1620230A	**685876**	1
4NO	16A	4NO	24V	2	PULSARPU1640024A	**685877**	1
	16A	4NO	230V	2	PULSARPU1640230A	**685878**	1
Add-on auxiliary contact 1NO 1NC	6A	1NO 1NC	-	0.5	PULSARAUX11	**685879**	1
2NO	6A	2NO	-	0.5	PULSARAUX20	**685880**	1
Add-on central control	-	A2 OFF ON	-	0.5	PULSARC	**685881**	1
Multilevel central command module	-	OFF ON OFF ON	-	0.5	PULSARM	**685882**	1
Capacity module	-	-	230/240V	-	PULSARCAPM	**685884**	1
Sealing cap	-	-	-	1	PULSARCAP	**685885**	2
Spacer	-	-	-	0.5	PLC/CTX SP	**686069**	50

New

Pulsar SC

Applications

Lighting or ventilation of staircases. basements, halls, etc

Standard

EN 60669-2-1

Features

- Designed for a real 4.000W switching capacity.
- User adjustable time.
- 3 or 4 wire wiring possible.
- Safety terminals equipped with captive PH screws and IP20 protection degree.
- Anti vandalisme: resistant to blocked push-buttons.

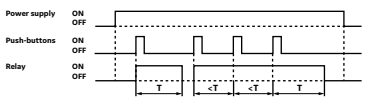
Functions

The staircase switch Pulsar SC is an electronic switching device with micro-distance (μ) of opening between contacts.
It manages over time the lights permanence in rooms such as hallways, stairs, cellars to avoid wiasting energy.

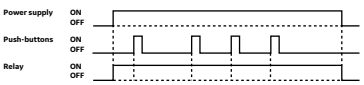
Pulsar SC - Staircase switches

	Nominal Current	Contact Combination	Coil Voltage AC	Coil Voltage DC	Number of modules	Cat. No.	Ref. No.	Pack.
Electronic staircase switch 1 NO	16A	1 NO	230 V AC(-15%...+10%)	-	1	PULSAR SC 1-15 16A 1M	**687474**	1

Automatic



Staircase light fixed on



New

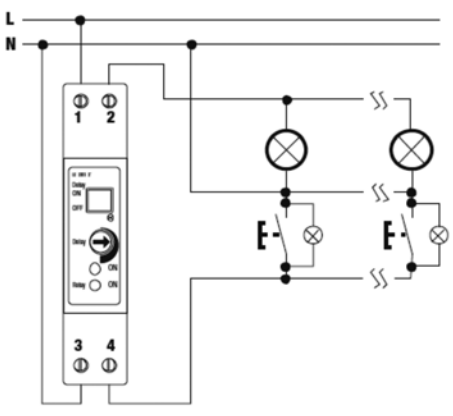
More technical data pag. ***website*** | *Dimensions pag.* ***D.84***

Performance

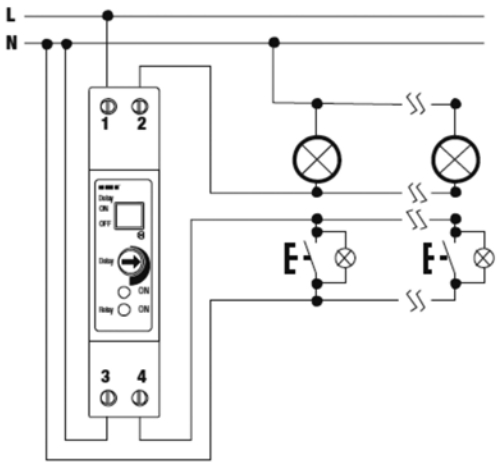
				PULSAR SC
Rated current (acc. IEC 669-2-3)			A	16
Width	(in number of DIN-modules)			1
Contacts		NO		1
Time range		2 function		30 sec. - 20 min.
Supply voltage		230V - 50/60 Hz		yes
	Supply voltage range (in % of Un)		%	85 - 110
Rated power consumption				
	Closed circuit current	230V	VA	6 (1W)
	Working current (ignition and running)	230V	VA	6 (1W)
Light types				
	Incandescent lamps			yes
	Fluorescent lamps			yes
	LED			yes
Load type P max				
	Incandescent lamps (230V)		W	4000
	Fluorescence lamps (230V)		W	1000
	LED (<2W)		W	55
	LED (2-8W)		W	150
	LED (>8W)		W	180
Lifetime (in number of operations)				
	Electrical	at 1200W		5.10^4
		at full load		1.10^5
	Mechanical			1.10^7
Max. number of push-buttons				
	Non illuminated push-buttons			unlimited
	Luminous push-buttons:			50 (1mA)
General specifications				
	DIN-rail mounting			yes
	Silent operations			yes
	3-wire and 4-wire installation			yes
	Resistent to blocked push-buttons			yes
	Continuously adjustable time-lag			yes
	Manual switching (number of positions)			2
	Front switch-off lever			yes
	Clamping screw terminals, unloosable screws	Coil	mm^2	4
	Cable cross section (Ø min/max)	Load	mm^2	1.0 / 2.5
	Maximum torque on terminals		N x m	0.6
	Ambient temperature at installation point (min./max.)		°C	0 / +50
	Storage temperature		°C	-10 / +60

Wiring diagram

3 wire connecting diagram



4 wire connecting diagram



New

Universal reliable multifunction

Multifunction Time Relays

Ten functions:
- Five time functions controlled via supply voltage
- Four time functions controlled via control input
- One latching relay function

Used for regular room ventilation, cyclic dehumidification, light control, circulating pumps, neon signs, etc.

Asymmetrical cycle Time Relay

Used for warning illumination on the road, flashers, cyclers, frequently-switched systems

Time Relay

Time Relay is defined as the controlled period between two operations. A Time relay is a combination of an electromechanical output relay and a control circuit. The control circuit comprises solid-state components and timing circuits that control the operation of the relay and the timing range.

Over time, advances in electronic technology have greatly increased the number and variety of applications available for industrial modular relays. Selecting a relay can often be difficult and confusing task. Hopefully, this brief explanation will help you to understand which factors to consider when selecting a time relay.

Relays perform the crucial function of using one level of voltage to control what is often a different level of voltage. They also provide a high degree of isolation between power wiring and control wiring. Time relays add an extra dimension in terms of application, as they allow the introduction of a time element into the control circuit. It is virtually impossible to design a control circuit in a system without using time relays.

The PLT+ Time relays range is highly versatile, it provides the basic switching or controlling function as mentioned, and the timing functions in the circuit. The PLT+ range is compact in size, with a modular 18 mm-width shape, and offers unrivalled performance in its function. Time relay contacts are rated from 8 Amp. (3 COM contacts in only 1 mod.) to 16 Amp. AC1.

Timing functions for the PLT+ time relays range include: Delay ON after energization, Delay OFF after energization, Cycler beginning with pause after energization, Cycler beginning with impulse after energization, Delay OFF after de-energization, Instant make of output, Delay OFF responding to make of control contact regardless its length, Delay OFF after break of control contact with instant output, Delay OFF after make and break of control contact, Impulse relay, Pulse generator, Asymmetrical Cycler beginning with pulse, Asymmetrical Cycler beginning with pause.

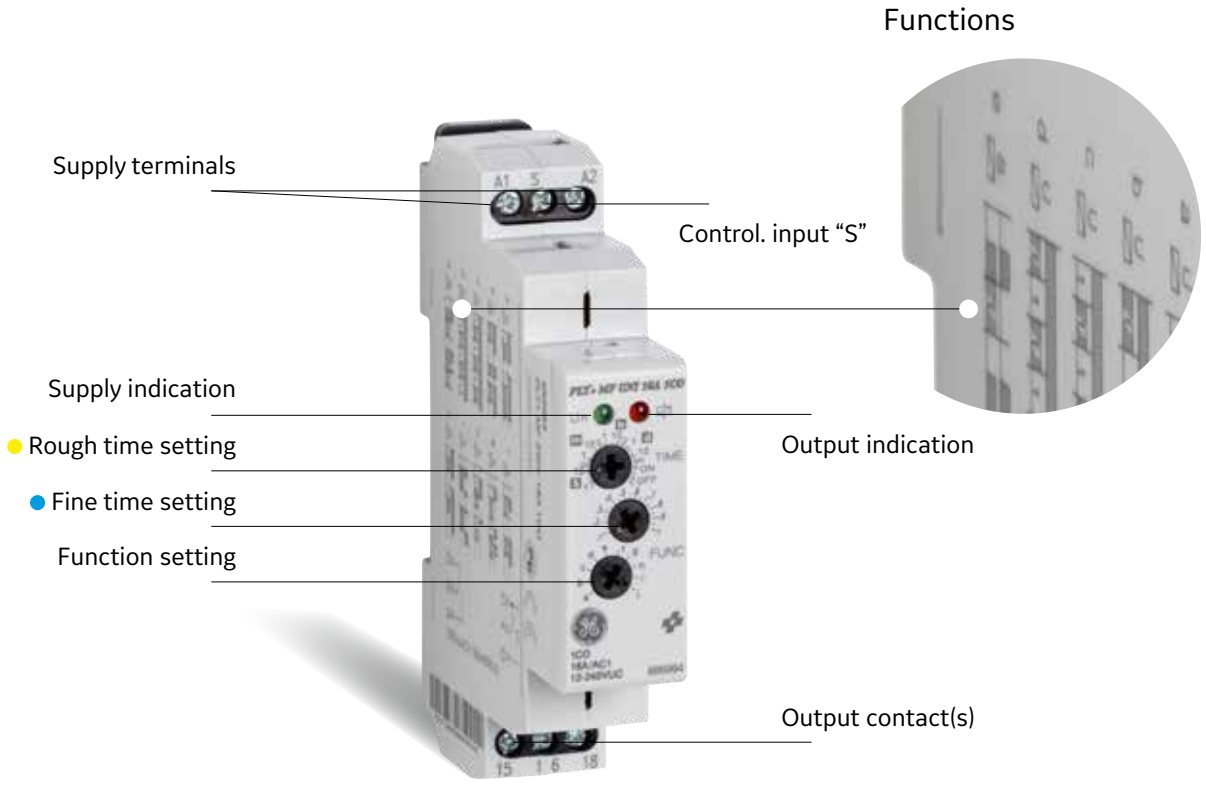
Timing values may be set using a rotary switch and potentiometer in the front of the device, from 0.1 seconds to 10 days.

Save energy

Examples of Use
- Stagger start of motors to limit inrush current.
- Security systems, delay system lockdown for a set period. This allows the person setting the alarm to clear the area.
- Stairwell light operated via momentary “ON” switch.
- Switch OFF delay of toilet exhaust fan. If used in conjunction with a light circuit, the timer will allow the fan to continue to operate (for a set delay time) after the light has been turned OFF.
- When connected to the main light switch, a True OFF delay timer allows the last person sufficient time to clear the building before all the lights are turned off.
- Running a discharge pump for 1 hour per every 10-hour cycle.
- Turning a beacon “ON” for 2 seconds per every 6-second cycle.

Performances and features

Multifunction Time Relays



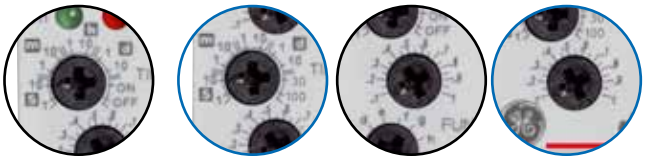
Multifunctional cycle Time Relay (MF)

0.1 - 1 s | **1 - 10 s** | **0.1 - 1 min** | **1 - 10 min** | **0.1 - 1 h** | **1 - 10 h** | **0.1 - 1 day** | **1 - 10 days** | **fixed ON** | **fixed OFF**

Rough time setting - IMPULS
time setting in range 0.1 .. 10 days

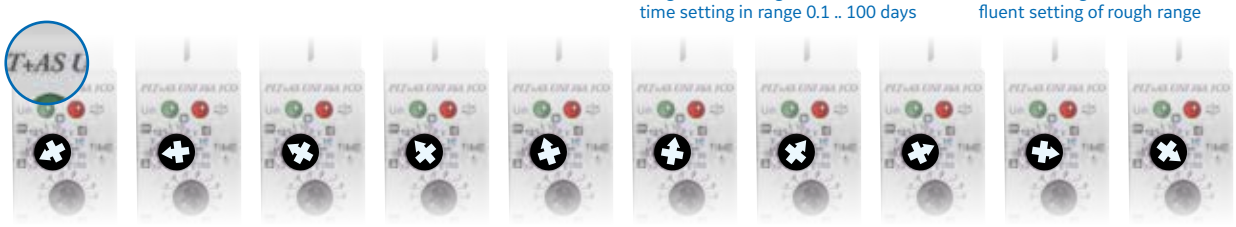
Fine time setting - IMPULS
fluent setting of rough range

Asymmetrical cycle Time Relay (AS)



Rough time setting - IMPULS /PAUSE
time setting in range 0.1 .. 100 days

Fine time setting - IMPULS /PAUSE
fluent setting of rough range



0.1 - 1 s | **1 - 10 s** | **0.1 - 1 min** | **1 - 10 min** | **0.1 - 1 h** | **1 - 10 h** | **0.1 - 1 day** | **1 - 10 days** | **3 - 30 days** | **10 - 100 days**

New

Temporize/Dim whatever you want

Our new DIM range dimmers have been specifically created to control R, L, C, LED light sources (dimmable) and energy-saving lamps.
The DIM RANGE is designed to be mounted on a DIN-rail onto panelboard. These dimmers have a number of characteristics that make them rank amongst the best on the market:

- The option to set the minimum brightness of the lamp - which eliminates flashing.
- Built-in protection, meaning that the light source will neither flash nor change brightness when the input voltage fluctuates. This dimmer is designed for use in a house, apartment or office.

Dim it. And enjoy yourself

Conjure up rainbows of intense colour when watching fairy tales. Or do you like horror films? Bathe your living room in atmospheric light by programming your LED to shine in dark colours.
The positive impact of dimmers is not limited to private spaces; they can also add value to business premises, where the right lighting can help to create a commercial advantage.

Dimmers in hotels

From the moment hotel guests enter the lobby, they expect immaculate service and perfect comfort. This includes pleasant lighting in their hotel room. Dimmed lights contribute to wellbeing in a hotel room, and it is simple for each guest to adjust the lighting to meet his or her individual needs and preferences.

Dimmers in restaurants

In restaurants and bars, dimmers create the right lighting mood for guests. At the same time, bright lighting is required for laying tables and making preparations at the bar and buffet.

Dimmers in shops

In sales environments, optimal illumination of presentation areas and products is essential. Whenever changes are made to the shop concept, dimmers make it easy to adapt the lighting concept to a new product presentation.

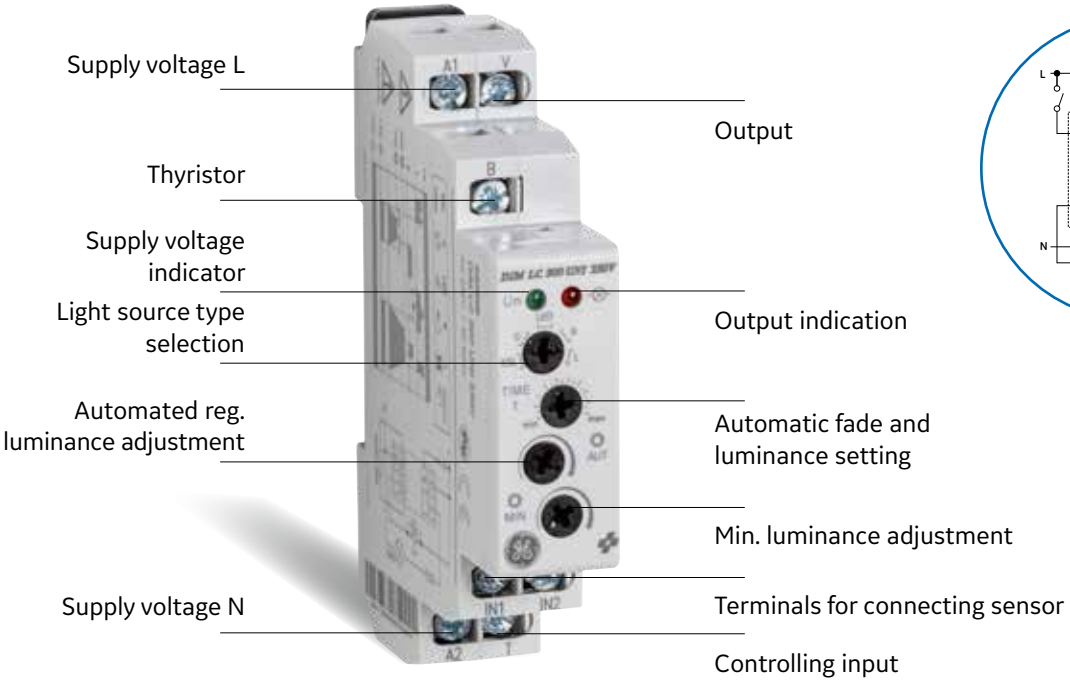
Save up to 30% energy on lighting

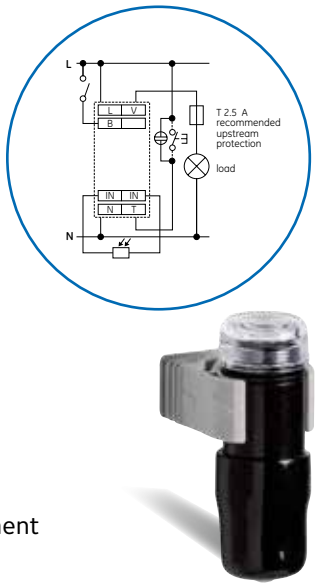
Requirement
I want to maintain the same light intensity on my site.
Solution
Get the automatic DIM LC 300 UNI 230V lighting intensity controller, and you will no longer need to keep checking if your employees are switching off the lights.
How to do it?
Connect the product to your existing Push-button (you don't need to cut anything). It will enable you to control brightness or to switch to an automatic mode.
How much will you save?
A 40W lamp switched on for 8 hours for 200 days per year will equal 64KWh; and therefore ten of these lamps in a single office will equal 640kWh.
If you use an automatic lighting intensity controller, the intensity of the light will remain exactly where you set it. So if the sunshine is illuminating a room with high intensity, the lamp will automatically lower its brightness. This will enable you to save up to 50% of costs.

New

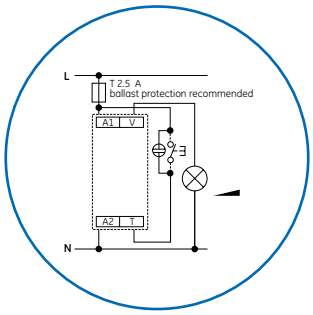
Performances and Features

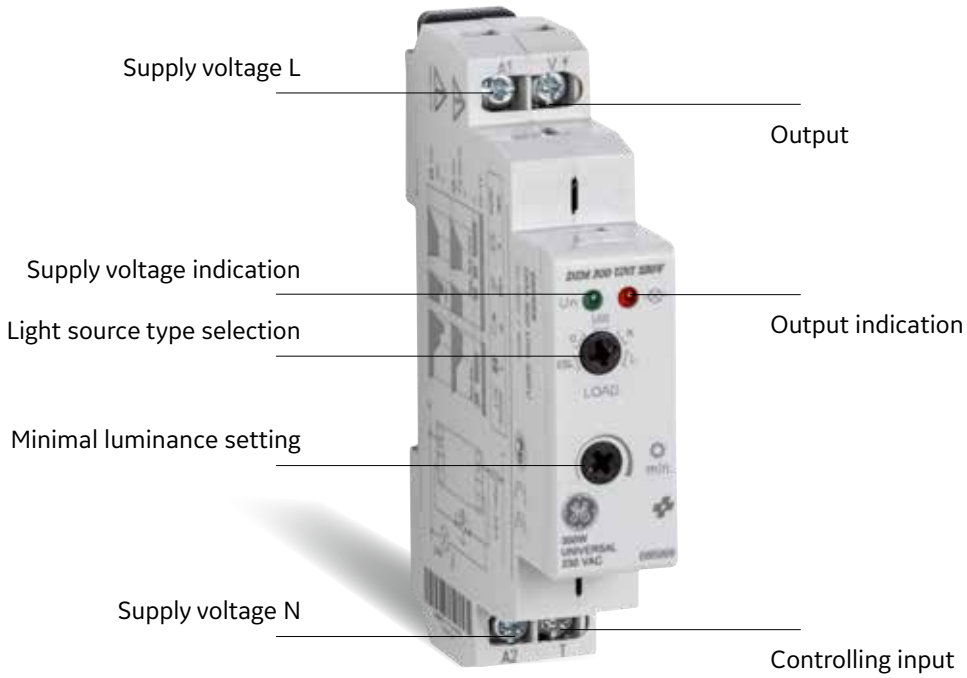
DIM LC 300 UNI 230V





DIM 300 UNI 230V





New

Time Relays

Pulsar T+

Features

- Multi-function time relay with 10 functions, 1 CO contact 16A or 3 CO contacts 8A
- Multi-voltage time relay two versions: AC/DC 12-240V (AC50-60Hz) and AC 230V (AC50-60Hz)
- Assymetrical time relay with 2 functions and multivoltage AC/DC 12-240V (AC50-60Hz)
- Only 4 references cover the complete range
- In the case of the multi-function relay, the function itself is also user selectable, bringing impulse switch function as default (factory setting)
- Compact version of 3 CO contacts 10 functions time relay in only 1 module!
- The loss-proof safety terminals are equipped with Pozidriv screws and have IP20 protection degree.

Applications

Asymetrical cycle time relay
Using for warning illumination on the road, flashers, cyclers, often switched systems
Multifunction relays
10 functions:
- Five time functions controlled via supply voltage
- Four time functions controlled via control input
- One function of latching relay

It is used for regular room ventilation, cyclic dehumidification, light control, circulating pumps, noon signs, etc.

Functions

Conditioning of incoming source to exact predictable output.

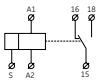
Standards / Marking

EN 61812-1, EN 61010-1

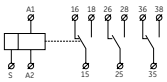
CE

Wiring

1 COM



3 COM



Loads type

Product: PLT+MF230V16A1CO(1) PLT+MFUNI16A1CO PLT+ASUNI16A1CO

Type of load	cos φ ≥0.95 AC1	AC2	AC3	AC5a uncompensated	AC5a compensated	HAL230V AC5b	AC6a	AC7b	AC12
mat. contacts AgNi, contact 16A	250V / 16A	250V / 5A	250V / 3A	230V / 3A (690VA)	x	800W	x	250V / 3A	250V / 10A
Type of load	AC13	AC14	AC15	DC1	DC3	DC5	DC12	DC13	DC14
mat. contacts AgNi, contact 16A	250V / 6A	250V / 6A	250V / 6A	24V / 16A	24V / 6A	24V / 4A	24V / 16A	24V / 2A	24V / 2A

Product: PLT+MFUNI8A3CO

Type of load	cos φ ≥0.95 AC1	AC2	AC3	AC5a uncompensated	AC5a compensated	HAL230V AC5b	AC6a	AC7b	AC12
mat. contacts AgNi, contact 8A	250V / 8A	250V / 3A	250V / 32A	230V / 1.5A (345VA)	x	300W	x	250V / 1A	250V / 1A
Type of load	AC13	AC14	AC15	DC1	DC3	DC5	DC12	DC13	DC14
mat. contacts AgNi, contact 8A	x	250V / 3A	250V / 3A	24V / 8A	24V / 3A	24V / 2A	24V / 8A	24V / 2A	x

(1) Only at 230V AC

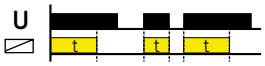
New

Pulsar T+ Time Relays

Nom. current	Cont. nr	Contact combin.	Funct. nr	Coil voltage AC	Coil voltage DC	Voltage tolerance	Timing scale	No. of mod.	Cat. No.	Ref. No.	Pack.
16A	1	1 COM	a ... j(1)	230V 50-60Hz	-	-15% ... +10%	0.1s ... 10 days	1	PLT+MF230V16A1CO	**685993**	1
16A	1	1 COM	a ... j(1)	12-240V 50-60Hz	12-240V	-15% ... +10%	0.1s ... 10 days	1	PLT+MFUNI16A1CO	**685994**	1
16A	1	1 COM	k, l	12-240V 50-60Hz	12-240V	-15% ... +10%	0.1s ... 100 days	1	PLT+ASUNI16A1CO	**685996**	1
8A	3	3 COM	a ... j(1)	12-240V 50-60Hz	12-240V	-15% ... +10%	0.1s ... 10 days	1	PLT+MFUNI8A3CO	**685995**	1

(1) Factory setting: i

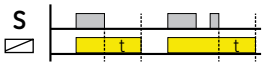
a-On delay (Power On) When the input voltage U is applied, timing delay t begins. Relay contacts R change state after time delay is complete. Contacts R return to their shelf state when input voltage U is removed. Trigger switch is not used in this function.



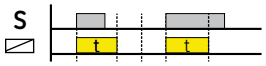
b-Off delay When input voltage U is applied, relay contacts R change state immediately and timing cycle begins. When time delay is complete, contacts return to shelf state. When input voltage U is removed, contacts will also return to their shelfstate. Trigger switch is not used in this function.

c-Repeat Cycle (Starting Off) When input voltage U is applied, time delay t begins. When time delay t is complete, relay contacts R change state for time delay t. This cycle will repeat until input voltage U is removed. Trigger switch is not used in this function.

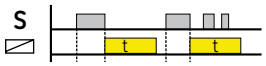
d-Repeat Cycle (Starting On) When input voltage U is applied, relay contacts R change state immediately and time delay t begins. When time delay t is complete, contacts return to their shelf state for time delay t. This cycle will repeat until input voltage U is removed. Trigger switch is not used in this function.



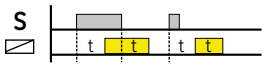
e -Off delay (S Break) Input voltage U must be applied continuously. When trigger switch S is closed, relay contacts R change state. When trigger switch S is opened, delay t begins. When delay t is complete, contacts R return to their shelf state. If trigger switch S is closed before time delay t is complete, then time is reset. When trigger switch S is opened, the delay begins again, and relay contacts R remain in their energized state. If input voltage U is removed, relay contacts R return to their shelf state.



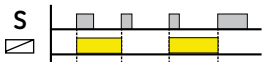
f-Single Shot Upon application of input voltage U, the relay is ready to accept trigger signal S. Upon application of the trigger signal S, the relay contacts R transfer and the preset time t begins. During time-out, the trigger signal S is ignored. The relay resets by applying the trigger switch S when the relay is not energized.



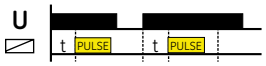
g-Single Shot Trailing Edge (Non-Retriggerable) Upon application of input voltage U, the relay is ready to accept trigger signal S. Upon application of the trigger signal S, the relay contacts R transfer and the preset time t begins. At the end of the preset time t, the relay contacts R return to their normal condition unless the trigger switch S is opened and closed prior to time out t (before preset time elapses). Continuous cycling of the trigger switch S at a rate faster than the preset time will cause the relay contacts R to remain closed. If input voltage U is removed, relay contacts R return to their shelf state.



h-On/Off delay Input voltage U must be applied continuously. When trigger switch S is closed, time delay t begins. When time delay is complete, relay contacts R change state and remain transferred until trigger switch S is opened. If input voltage U is removed, relay contacts R return to their shelf state.



i-Latching relay Input voltage U must be applied continuously. Output changes state with every trigger switch S closure. If input voltage U is removed, relay contacts R return to their shelf state.

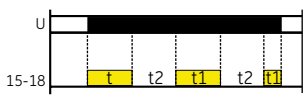


PULS = 0.5 s

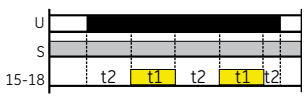
j-Pulse generator Upon application of input voltage U, a single output pulse of 0.5 seconds is delivered to relay after time delay t. Power must be removed and reapplied to repeat pulse. Trigger switch is not used in this function.

ASSYMETRICAL CYCLER RELAY

k-Cycler beginning with pulse



l-Cycler beginning with pause

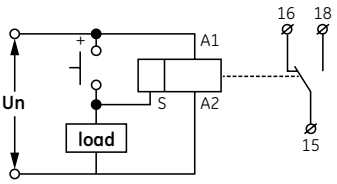


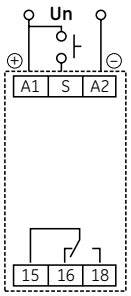
New

Technical data Time Relays

	PLT+MFUNI16A1CO	PLT+MF230V16A1CO	PLT+MFUNI8A3C	PLT+ASUNI16A1CO
Technical data				
Number of functions	10 (a....j)			2: k, l. (second func. is chosen by connecting S-A1)
Supply	A1-A2			
Supply voltage	AC/DC12-240V (AC50-60Hz)	AC 230V / 50 - 60Hz	AC/DC12-240V (AC50-60Hz)	AC/DC12-240V (AC50-60Hz)
Consumption	AC0.7-3VA/DC 0.5-1.7W	AC max. 12VA / 1.3W	AC max. 12VA/1.9W	AC0.7-3VA/DC 0.5-1.7W
Supply voltage tolerance	-15%; +10%			
Supply indication	green LED			
Time ranges	0.1 s - 10 days			
Time setting	rotary switch and potentiometer			
Time deviation	5% mechanical setting			
Repeat accuracy	0.2% set value stability			
Temperature coefficient	0.01% °C, at =20°C			
Output				
Changeover contacts	1 x changeover		3 x changeover	1 x changeover
Rated current	16A / AC1		8A/ AC1	16A / AC1
Breaking capacity	4000VA/AC1;384W/DC		2000VA/AC1;192W/DC	4000VA/AC1;384W/DC
Inrush current	30 A/<3s		10 A/<3s	30 A/<3s
Switching voltage	250V AC1/ 24V DC			
Min. breaking capacity DC	500 mW			
Output indication	multifunction red LED			
Mechanical life	3 x 10000000			
Electrical life (AC1)	0.7 x 100000			
Controlling				
Consumption of input	AC 0.025-0.2 VA/ DC 0.1 - 0.7W (UNI), AC 0.53 VA (AC 230V)			-
Load between S-A2	YES(1)		-	NO
Glow tubes connections	230V - Yes / UNI - No			-
Max. amount of glow lamps	UNI - glow lamps cannot connected/NO			-
connected to controlling input	230V - max. 20 pcs (measured with glow lamp 0.68mA/230V AC)			-
Control. terminals	A1-S			-
Impulse length	min. 25ms / max. unlimited			-
Other information				
Reset time	max. 150ms			
Operating temperature	-20.. +55°C			
Storage temperature	-30.. +70°C			
Electrical strength	4kV (supply-output)			
Operating position	any			
Mounting	DIN-rail EN 60715			
Protection degree	IP40 from front panel; IP20 terminals			
Overvoltage cathegory	III.			
Pollution degree	2			
Max. cable size	max.1x2.5; max. 2x1.5/with cavern max. 1x2.5			
Dimensions	90 x 17.6 x 64 mm			
Weight (g)	64	62	89	65
Standards	EN 61812-1, EN 61010-1			

(1) Through clamps S-A2 can be connect the loading parallel (for example contactor or other units) - without damage of right operation.





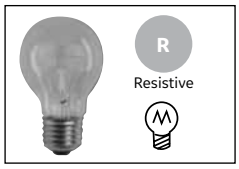
New

Dimmers

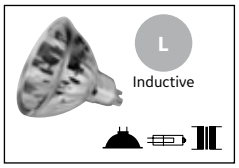
Today we encounter all kinds of different light sources, which makes it relatively hard for the average person to keep track of all of them.
So in the following section, we will try to explain exactly what light sources you will find on the market, and how to control and/or dim them.

By dimming, you can save up to 20% of the electricity cost of lighting. Dimming also enables you to create a magical atmosphere - perfect for a party, for reading or for watching a movie. Individual light sources vary, depending on how they work - and we assign a 'load' to each of them. Load information is important when selecting the right dimmer for your light.

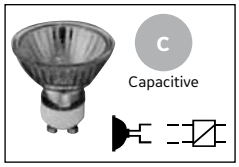
TYPES OF LAMPS



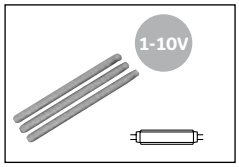
R – You mainly encounter resistance load with the ordinary lamp. The entire process works on the principle of heating a thin, usually tungsten filament, with an electric current running through it.



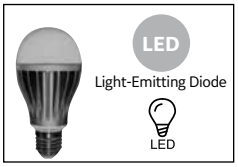
L – This is an inductive load mainly characteristic for low-voltage (12-24V) halogen lamps, which are controlled by a wound transformer, whose principle is the passage of voltage through the coil.
By decreasing the voltage at the input, we in turn also change the value of the voltage at the output, which enables dimming.



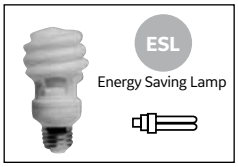
C – This is a capacity load mainly characteristic for energy-saving lamps, fluorescent or halogen lamps controlled by an electronic transformer. The principle is based on electrical ballast, which brightens or darkens the lamp. A dimmable transformer is used to dim.



1-10V - This type of regulation is conditional to so-called dimmable electrical ballast with input for 1-10V. Consequently, at this input, the product is connected with the output 1-10V (RFDA-71B, LBC3-22M), which enables brightness control within this range. This mostly concerns dimming tube fluorescent lamps.



LED – A Light-Emitting Diode (LED) is an electronic semiconductor component, which radiates a visible light. In the last few years, they have replaced the lamps in automobiles, streetlights and home appliances, and their popularity as active household illumination is constantly growing.
The basis of the LED is the P-N junction. The actual LED chip is often connected with a cooler for efficient removal of waste heat away from the chip, and is covered by an epoxy capsule. This design makes LEDs highly mechanically resistant.
It is even more effective than a compact fluorescent lamp - and is up to 15x more efficient than a classic incandescent lamp.



ESL – Energy saving lamp, often called a compact fluorescent lamp. In its design it is a capacity load, but for better separability of this type of light source, a special designation was created for it.
The principle is a glass tube with heating electrodes filled with mercury vapors, in which the discharge occurs. This falls upon the walls of the tube covered with a luminophore - and the lamp illuminates.
Disadvantages of this lamp are its sensitivity to frequent switching and the luminous flux that decreases over time.

Dimmers and type of lamps

Order codes	EAN code	R	L	C	ESL	LED		
		Standard light bulbs, halogen lamps	Low voltage lamps 12-24V wound transformers	Low voltage lamps 12-24V electronic transformers	Efficient dimmable fluorescent lamps	**Category 1** Mostly "multiple LED" illumination sources power provided by LINEAR source limiting current (sharper dimming), lower price	**Category 2** Sources that have 1-3 power LEDs, power provided by SWITCHING the source regulating brightness based on the input voltage (smoother dimming), higher price GU10 have higher body	**Category 3** LED with DC and current regulation. Designed for dimming LED chips, LED strips, RGB LED
685997 DIM500RL230V Short press ON/OFF, pressing and holding dims, 500VA	5413656859970	X	X					
685998 DIM300UNI230V Dimmer for LED lamps and dimmable efficient fluorescent lamps, potentiometer brightness setting	5413656859987	X	X	X	X	X	X	
685999 DIMLC300UNI230V Dimmer maintaining and light intensity in Lx, including SKS photo-sensor	5413656859994	X	X	X	X	X	X	

New

DIN-rail dimmers

DIM

Applications

DIM dimmers are designed to adjust light intensity to your needs. They are particularly intended for the residential and tertiary sectors, for example to light conference rooms, cinemas, restaurants and shops.
Nowadays, there are a lot of lighting sources and of course, for a layman, it is really hard to understand which one is the best. Dimming can save up to 20% of your energy bills. Moreover, dimming can create the right atmosphere for party, reading a book or watching a movie...

Marking

CE

Features

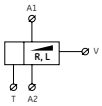
- Low version dimmer only valid for resistive and halogen lamps
- Universal dimmer optimised for LED and CFL lighting, a new universal dimmers perfectly align to any DIN-rail installation.
- Thanks to the low width of 18mm only, the DIN dimmers are particularly suitable for retrofitting.
- The universal DIN-dimmers are the perfect choice for all buildings which demand individual and efficient lighting such as shops, restaurants or public areas.
- Universal dimmer with automatic lighting level control. Ideal to mantain the same light intensity in any site.

Functions

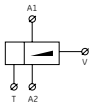
In the past, many different lamps required many different specific dimmers. So changing lamps often led to the situation that the installed dimmer could not control the new lamp without disturbances. Your customers thus faced humming and flickering lighting - and you were forced to choose the right dimmer from a more and more complicated offer.

Industrial Solutions has developed a universal dimmer module you can easily upgrade an installed push-button to future-proof dimmer.
The dimmer is optimised to control LED and reliable dims other loads as well. Installed in a switchboard, on a DIN-rail, they can be controlled by several push-buttons.

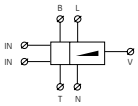
Wiring



RL dimmer



Universal dimmer



Universal dimmer with automatic lighting level control

Performance

Load	lamp, halogen light	low-voltage el. bulbs 12-24V wound trans.	low-voltage el. bulbs 12-24V el. transformers	LED bulbs	saving fluorescent lamps	switching management	
	R	L	C	230V AC dimmable	dimmable	incline edge	descending edge
DIM 500 RL 230V	•	•	**X**	**X**	**X**	•	**X**
DIM 300 UNI 230V	•	•	•	•	•	•	•
DIM LC 300 UNI 230V	•	•	•	•	•	•	•

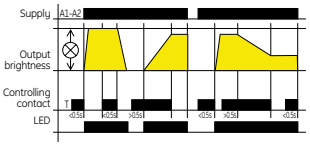
New

More technical data pag. ***website*** | *Dimensions pag.* ***D.84***

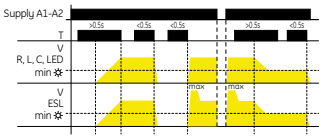
DIM DIN-rail dimmers

Dimmed load	Type of lamps	Output	Control by	Nominal voltage AC	Voltage tolerance	No. of mod.	Cat. No.	Ref. No.	Pack
RL dimmer									
R: 10...500VA L: 10...250VA	R, L	2A	Push-button	230V/ 50Hz	-15%..+10%	1	DIM500RL230V	**685997**	1
Universal dimmer									
300W (cos φ=1)(1)	R, L, C, LED, ESL	2xMOSFET	Push-Button	230V /50Hz	-15%..+10%	1	DIM300UNI230V	**685998**	1
Universal dimmer with automatic lighting level control									
300W (cos φ=1)(1)	R, L, C, LED, ESL	2xMOSFET	Push-button & Light sensitive photocell	230V/ 50Hz-60Hz	-15%+15%	1	DIMLC300UNI230V	**685999**	1

(1) Due to a large number of light source types, the maximum load depends on the internal construction of dimmable LEDs and ESL bulbs and their power factor cos φ. The power factor of dimmable LEDs and ESL bulbs ranges from cos φ = 0.95 to 0.4. An approximate value of maximum load may be obtained by multiplying the load capacity of the dimmer by the power factor of the connected light source.



RL dimmer
- short press for switch on/off the lamp, longer press (> 0.5 s) for fluent illumination regulation
- when a device is de-energized, the brightness level is stored in its memory. When the device is energized again, a light is off. You can switch this light on by pressing a button. The light then switches on in the brightness level which is stored in its memory.



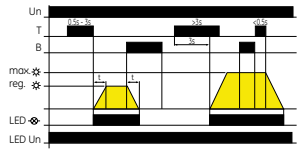
Universal dimmer

Controlling
- short button press (<0.5s) turns the light off or on
- long press (>0.5s) enables slight regulation of light intensity
- setting of minimal luminance is possible only during decreasing of luminance by long button press
- setting of minimal luminance by saving fluorescent lamps serves for harmonizing of lowest light intensity prior its unprompted switching off

Luminance setting

R, L, C, LED - if the light is turned off, short press (<0.5s) switches the light onto last set luminance level
ESL - if the light is turned off, short press increases the luminance onto maximal level
(saving fluorescent lamps fires up) and then luminance decreases onto set level.

Notice
- it is not possible to dim saving fluorescent lamps without marking: dimmable
- an incorrect setting of light source has effect only on dimming range, it means neither dimmer or load get damaged
- The maximum number of dimmable light sources depends on their internal construction



Universal dimmer with automatic lighting level control

T-button control
- pressing button shortly (<0.5s) always turns of lamp
- pressing button longer (0.5... 3s) turns on lamp in automatic regulation mode
- pressing button long (>3s) turns on lamp to full illumination - „cleaner" mode
- after turning on the power supply, the dimmer is always turned off

Thyristor B

serves to block automatic regulation (lamp turns off)
WARNING! The lamp may be turned on in "cleaner" mode even while blocked.
After ending block mode, the lamp remains off.

Control elements on the instrument panel
- load switch – has 2 positions for each type of load that differ in their regulation curves (sets the best position for the connected load)
- the lamp turns off (if previously on) whenever the switch settings are changed
- potentiometer setting of minimal luminance
- potentiometer setting of desired lighting level during automatic regulation
- the potentiometer status is stored in short-term memory whenever a change occurs - a green LED flashes (approx. 3s) while storing
- both lighting levels are storing in EEPROM memory during a power supply failure - LED meanwhile briefly turns off

WARNING!
- both lighting levels must be reset when switching Load type
- both lighting levels may only be set in automatic mode while the lamp is on
- potentiometer setting of lighting level fade speed - only available in automatic regulation mode
- determines the reaction time to changes in surrounding lighting level

New

Technical data dimmers

	DIM500RL230V	DIM300UNI230V	DIMLC300UNI230V
Supply			
Supply terminals	A1-A2		L-N
Supply voltage	AC 230V / 50Hz		AC 230V / 50-60Hz
Supply voltage tolerance	-15%; +10%		-15%; +10%
Consumption	max. 5 VA	max. 1.5 VA/0.7W	max. 1.6 VA/0.8W
Supply indication	Green LED		
Controlling			
Button - control. terminals	T-A1		L-T
Control voltage	AC 230V		
Control input power	max. 1.5VA	AC 0.3-0.6VA	max. 0.6VA
Control impulse length	min. 80ms / max. unlimited		
Glow tubes connection	YES		
Maximum number of connected glow lamps the control input	max. 15 pcs (measured with glow lamp 0.68mA/230V AC)		230V - max.count 50ks (measured with glow 0.68mA/230V AC)
Blocking input - terminals	-		L - B
Control voltage	-		AC 230V
Consumption	-		max. 0.1VA
Connect glow-lamps (terminals L - B)	-		NO
Impulse length	-		min. 80ms / max. unlimited
Output			
Output type	2A	2 x MOSFET	
Output status indication	red LED		
Load capability	R: 10 - 500VA; L: 10 - 250VA	300W (at cos φ = 1)(1)	
Other data			
Operating temperature	-20... +55°C	-20.. +35°C	
Storing temperature	-30... +70°C	-20.. +60°C	
Operating position	any		vertical
Mounting	DIN-rail EN 60715		
Protection degree	IP40 from front panel, IP10 terminals		
Overvoltage category	III.		
Pollution level	2		
Max. cable size	max. 2 x 2.5; max. 1 x 4 s/with carven max. 1 x 2.5; max. 2 x 1.5		
Dimensions	90 x 17.6 x 64mm		
Weight (g)	58	57	
Applying standards	EN 60669-2-1; EN 61010-1		

(1) Due to a large number of light source types, the maximum load depends on the internal construction of dimmable LEDs and ESL bulbs and their power factor cos φ. The power factor of dimmable LEDs and ESL bulbs ranges from cos φ = 0.95 to 0.4. An approximate value of maximum load may be obtained by multiplying the load capacity of the dimmer by the power factor of the connected light source.

New

New electromechanical time switches
Complete range of possibilities

- 1, 2, 2.5 modules
- With and without battery
- Daily (Grey trippers), weekly (Yellow trippers) timers
- Shortest switch time: 15 minutes or 30 minutes models
- Normally Open and Changeover contacts

New

New SIMPLE digital time and astronomical switches

GLX+Q 30
Time switch

The perfect combination of the precision of digital time switch and the simplicity of the electromechanical one.
- Display clarity, simplicity in the 3 keys
- Replaceable backup battery through the rear cover on the back

Use
- Gardens lighting, courtyards, alleys, ...
- Opening gates, doors, ...

Electric utilities management throughout the day

- Desired program setting with simple ON/OFF of the virtual trippers lasting 30 minutes each
- All performed programming is immediately viewable on the display
- 1 program for everyday or 7 programs, one for each day of the week (weekly version of the instrument)
- Automatic summer/winter time change
- The instrument is supplied with already set time and date

Astronomical switch

- Automatic programming of switching on (at sunset) and switching off (at sunrise)
- Possibility of night switching off with OFF virtual trippers
- Automatic summer/winter time change
- The instrument is supplied with already set time and date

Use
- Shops, shop windows, ...
- Roads, parks, fountains, ...
- Illuminated signs, monuments, ...

New

New digital time and astronomical switches

GLX+Q 1

Digital time switches 2 DIN-modules to manage electrical utilities in time with the maximum precision. The available models permit to make daily, weekly, monthly and yearly programs with 1 of 2 channels.

Electronic time switch that combines the functionality of astronomical (channel 2) and digital switch (channel 1)

Digital time switch 3 DIN-modules with add on power contacts module and software to program remotely or through IR interface

New light sensitive switches

CHARATERISTICS

- Compact form of the cover
- Adjusting method of the intervention threshold (which occurs via trimmer without the need to open the device)

New

Analogue time switches

Classic Plus

Applications

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

Features

Going from the pre-programmed switching of lighting (car park, advertis-ing 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.

Functions

Pre-programmed switching of all kinds of electrical devices

Standards / Marking

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

CE

Performance

	Plastic switches					
	NET SYNCHRONISED			QUARTZ SYNCHRONISED		
	1 module	**2 modules**	**2.5 modules**	**1 module**	**2 modules**	**2.5 modules**
Contact	Voltage free NO	Voltage free CO	Voltage free CO	Voltage free NO	Voltage free CO	Voltage free CO
Fix on, Fix off, Auto switch	yes	yes	yes	yes	yes	yes
Rated switching capacity - Resistive load	16A/250V	16A/250V	16A/250V	16A/250V	16A/250V	16A/250V
Connectable Loads						
- Incandescent	2500W	3000W	3000W	2500W	3000W	3000W
- Fluorescent (neon)	1200VA	1200VA	1200VA	1200VA	1200VA	1200VA
- Low voltage halogen	2000VA	2000VA	2000VA	2000VA	2000VA	2000VA
- Halogen (230V)	2500W	3000W	3000W	2500W	3000W	3000W
- Low consumption (CFL)	900VA - 1000VA	900VA - 1000VA	900VA - 1000VA	900VA - 1000VA	900VA - 1000VA	900VA - 1000VA
- Led	100VA	1000VA	1000VA	100VA	1000VA	1000VA
Shortest switching time day-program	15 min.	30 min.	15 min.	15 min.	30 min.	15 min.
Shortest switching time week-program	-	-	-	-	210 min.	120 min.
Screws	Pozidriv1	Pozidriv1	Pozidriv1	Pozidriv1	Pozidriv1	Pozidriv1
Terminal capacity: min	1mm²	1mm²	1mm²	1mm²	1mm²	1mm²
max	4mm²	4mm²	4mm²	4mm²	4mm²	4mm²
Clockwork						
Operating voltage	230 V AC(-15%...+10%)	230 V AC(-15%...+10%)	230 V AC(-15%...+10%)	230 V AC(-15%...+10%)	230 V AC(-15%...+10%)	230 V AC(-15%...+10%)
Own consumption at 230V	0.5W	0.5W	0.5W	0.5W	0.5W	0.5W
Running reserve	-	-	-	150h	150h	150h
Battery charging time	-	-	-	120h	96h	96h
Operating temperature range	-10 °C ... +50°C	-10 °C ... +50°C	-10 °C ... +50°C	-10 °C ... +50°C	-10 °C ... +50°C	-10 °C ... +50°C
Accuracy	±1s/24h at 25°C	±1s/24h at 25°C	±1s/24h at 25°C	±1s/24h at 25°C	±1s/24h at 25°C	±1s/24h at 25°C
Sealable	yes	yes	yes	yes	yes	yes

New

More technical data pag. ***website*** | *Dimensions pag.* ***D.84***

Classic Plus - Analogue time switches

	Program	No. of channels	Nominal Current	Running reserve	Shortest switch time	Fix on/off auto	No. of mod.	Cat. No.	Ref. No.	Pack.
NET SYNCHRONISED Day programmable	**Operating Voltage:** 230 V AC(-15%...+10%)									
	1x24x4	1NO	16A/250Vac	-	15min.	yes	1	CLS+S 15 1NA 16A 1M D	**687436**	1
	1x24x2	1CO	16A/250Vac	-	30min.	yes	2	CLS+S 30 1COM 16A 2M D	**687438**	1
	1x24x4	1CO	16A/250Vac	-	15min.	yes	2.5	CLS+S 15 1COM 16A 2.5M D	**687441**	1
	1NO 1CO									
QUARTZ SYNCHRONISED Day programmable	**Operating Voltage:** 230 V AC(-15%...+10%)									
	1x24x4	1NO	16A/250Vac	150h	15min.	yes	1	CLS+Q 15 1NA 16A 1M D	**687437**	1
	1x24x2	1CO	16A/250Vac	150h	30min.	yes	2	CLS+Q 30 1COM 16A 2M D	**687439**	1
	1x24x4	1CO	16A/250Vac	150h	15min.	yes	2.5	CLS+Q 15 1COM 16A 2.5M D	**687442**	1
	1CO									
QUARTZ SYNCHRONISED Week programmable	**Operating Voltage:** 230 V AC(-15%...+10%)									
	7x24/3.5	1CO	16A/250Vac	150h	210min.	yes	2	CLS+Q 210 1COM 16A 2M W	**687440**	1
	7x24/2	1CO	16A/250Vac	150h	120min.	yes	2.5	CLS+Q 120 1COM 16A 2.5M W	**687443**	1
	1CO									

New

Digital Time Switches

Galax Plus

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.

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 up to 8 channel execution. All devices have a shortest switching time of one minute. On all devices, the summer/winter time change is fully automatic. Devices with block-programming,

Functions

Pre-programmed switching of all kinds of electrical devices

Performance

	DAY/WEEK PROGRAMMABLE		DAY/WEEK/MONTH/YEAR	
	1 module	**2 modules**	**DW**	**BUS**
Contact	Voltage free NO	Voltage free CO	Voltage free CO	Voltage free NO
Rated switching capacity - Resistive load	16A/250 VAC	16A/250 VAC	16A/250 VAC	16A/250 VAC
Connectable Loads				
- Incandescent 240V	1500W	1500W	1500W	1500W
- Fluorescent (neon)	600W	600W	600W	600W
- Halogen (230V)	1500W	1500W	1500W	1500W
Minimum switching load	100mA/5 VDC	100mA/5 VDC	100mA/5 VDC	100mA/5 VDC
DC switching capacity	16A/24 VDC	16A/24 VDC	16A/24 VDC	16A/24 VDC
Shortest switching time	30 min	30 min	1 min	1 min
Screws	PH	PH	PH	PH
Terminal capacity:	1-4mm²	1-6mm²	1-6mm²	1-6mm²
Clockwork				
Operating voltage	230V AC(-15%...+10%)	230V AC(-15%...+10%)	230V AC(-10%...+10%)	230V AC(-15%...+10%)
Own consumption at 230V	6VA (1W)	5.5VA (1W)	8VA (2W)	7VA (2.6W)
Operating temperature range	-20°C...+50°C	-20°C...+50°C	-20°C...+50°C	-20°C...+50°C
Accuracy	± 1 second/day at 25°C	± 1 second/day at 25°C	± 1 second/day at 25°C	± 0.5 second/day at 25°C
Sealable	no	no	yes	yes

New

More technical data pag. ***website*** | *Dimensions pag.* ***D.84***

Galax Plus - Digital time switches

	Program	No. of channels	Switching capacity	Running reserve	Shortest switch time	No. of modules	Cat. No.	Ref. No.	Pack.
QUARTZ SYNCHRONISED	**Operating Voltage:** 230V AC(-15%...+10%)								
Day programmable	1x24x2	1CO	16A (10) at 250V AC	5 years	30 min	2	GLX+Q 30 1COM 16A 2M D ANA	**687447**	1
Astro programmable	1x24x2	1CO	16A (10) at 250V AC	5 years	30 min	2	GLX+Q AST30 1NA 16A 2M D ANA	**687449**	1
Week programmable	7x24h/0.5	1CO	16A (10) at 250V AC	5 years	30 min	2	GLX+Q 30 1COM 16A 2M W ANA	**687448**	1

1CO

For day/week timers
- Power supply: 230V 50/60Hz
- Daily or weekly versions
- Switching of the relay only in presence of power suppply
- Manual override of the relay (temporary or permanent)
- Summer time automatic update
- Date and time already default set
- Backup battery for maintaining the date and time without power from the mains
- Low battery signal
- Password protected lock keypad
- Backlighting always on when instrument is mains powered (auto power off for energy saving in the case of blackout)
- 48 virtual trippers for a resolution of 30 minutes

For Astro Timers
- Available programming:
  - P1 fixed with possibility of night-switch ON/OFF of minimum 30 minutes
- Sunrise and sunset hours are calculated according to phone prefix or geographical coordinates
- Display of the sunset/sunrise times calculated by the device
- Update of sunrise/sunset hours: ±120 minutes
- Summertime automatic update

- Manual override of the relay (temporary or permanent)
- Relay switching only with power supply
- Depleted battery signaling

Galax Plus - Digital time switches

	Program	No. of channels	Switching capacity	Running reserve	Shortest switch time	No. of modules	Cat. No.	Ref. No.	Pack.
QUARTZ SYNCHRONISED	**Operating Voltage:** 230V AC(-15%...+10%)								
Day programmable	1x24x4	1NO	16A (10) at 250V AC	4 years	30 min	1	GLX+Q 30 1NA 16A 1M D	**687444**	1
Astro programmable	1x24x4	1NO	16A (10) at 250V AC	4 years	30 min	1	GLX+Q 30 1NA 16A 1M AST D	**687446**	1
Week programmable	1x24x2	1NO	16A (10) at 250V AC	4 years	30 min	1	GLX+Q 30 1NA 16A 1M W	**687445**	1

1NO

For day/week timers
- Power supply: 230V 50/60Hz
- Daily or weekly versions
- Switching of the relay only in presence of power suppply
- Manual override of the relay (temporary or permanent)
- Summer time automatic update
- Backup battery for maintaining the date and time without power from the mains
- Low battery signal
- Backlighting always on when instrument is mains powered (auto power off for energy saving in the case of blackout)
- 48 virtual trippers for a resolution of 30 minutes

For Astro Timers
- Available programming:
  - P1 fixed with possibility of night-switch ON/OFF of minimum 30 minutes
- Sunrise and sunset hours are calculated according to phone prefix or geographical coordinates
- Display of the sunset/sunrise times calculated by the device
- Update of sunrise/sunset hours: ±120 minutes
- Summertime automatic update
- Manual override of the relay (temporary or permanent)
- Relay switching only with power supply
- Depleted battery signaling

New

Galax Plus - Digital time switches

		Program	No. of channels	Switching capacity	Running reserve	Shortest switch time	No. of modules	Cat. No.	Ref. No.	Pack.
QUARTZ SYNCHRONISED	**Operating Voltage:** 230V AC(-10%...+10%)									
With no IR interface		7x24x60	1CO	16A (10) at 250V AC	3 years	1 min	2	GLX+Q.1 1COM 16A 2M DW	**687450**	1
		7x24x60	2CO	16A (10) at 250V AC	3 years	1 min	2	GLX+Q.1 2COM 16A 2M DW	**687451**	1
With IR interface		7x24x60	1CO	16A (10) at 250V AC	3 years	1 min	2	GLX+Q.1 1COM 16A 2M DW IR	**687452**	1
		7x24x60	2CO	16A (10) at 250V AC	3 years	1 min	2	GLX+Q.1 2COM 16A 2M DW IR	**687453**	1
ASTRO		7x24x60	1CO	16A (10) at 250V AC	3 years	1 min	2	GLX+Q.1 1COM 16A 2M AST IR	**687454**	1
		7x24x60	2CO	16A (10) at 250V AC	3 years	1 min	2	GLX+Q.1 2COM 16A 2M AST IR	**687455**	1
remote Infrared control		-	-	2x1.5V (AAA type batteries)		-	-	GLX+ IR	**687456**	1

1CO

2CO

For day/week timers
- Power supply: 230V 50/60Hz
- Version: 1 or 2 channels
- Switching of the relay only in presence of power suppply

- Manual override of the relay (temporary or permanent)
- Program:
ON, OFF, CYCLE, PULSE (1...9 seconds) HOLIDAY, RANDOM
- Maximum storable programs for each channel:
  - 30 events (on, off, cycle, pulse)
  - 4 holiday periods (period = more consecutive days)
  - 20 holiday days (single days)
- Integrated infrared interface (only available in GLX+Q DW IR)
- Password protected lock keypad
- Display automaticaly shuts-off after 3 minutes of inactivity of the keyboard

For Astro Timers
- Available programming:
  - P1 fixed and not modifiable
  - Only for GLX Q 2COM: 6 programs on output 1
- Maximum holiday events for each channel: 4 periods + 20 days
- Display of the sunset/sunrise times calculated by the device
- Update of sunrise/sunset hours: ±120 minutes
- Summertime automatic update
- Manual override of the relay (temporary or permanent)
- Relay switching only with power supply
- Depleted battery signaling
- Integrated infrared interface

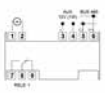
For GLX+IR
- Charge reserve for battery replacement: 2 minutes
- Viewing with display LCD (non-backlit)
- Text guide

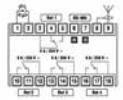
- Available languages:
English/Italian/Spanish/French/German

- Maximum number of programs that can be stored: 126

Galax Plus - Digital time switches

		Program	No. of channels	Switching capacity	Running reserve	Shortest switch time	No. of modules	Cat. No.	Ref. No.	Pack.
QUARTZ SYNCHRONISED	**Operating Voltage:** 230V AC(-10%...+10%)									
		365x24x60	1CO	16A (10) at 250V AC	5 years	1 min	3	GLX+Q.1 1COM 16A 3M Y BUS	**687464**	1
	Operating Voltage: 230V AC (-15%...+10%)									
		-	4CO	8A (5) at 250V AC	-	-	4	GLX+Q 4COM 8A 4M BUS	**687466**	1
GEOBUS	**Operating Voltage:** 12V DC(-20%...+20%)									
		-	-	-	-	-	-	GLX+ GEO BUS	**687465**	1





For day/week/month/year timers
- Time programming (D/W/M/Y) or astronomical programming
- Available programs: on/off, on pulse, on holiday, off holiday, random, night (astronomical)
- Independent channels to control 9 loads (relays):
  - 1 relay on board of the device
  - 8 relays to be realized by connecting two actuators
- Maximum number of storable programs: 450 (900 events) allocable on 9 channels
- Possibility to automatically capture date, time and geographical position connecting GEO BUS
- Manual override of the relay (temporary or permanent)
- Possibility to copy:
  - The programs of a channel on other channels
  - All programs saber from another GLX+Q BUS connected
- Password protected lock keypad
- Automatic time update (DST)
- Menu in five languages: English/Italian/Spanish/French/German

For Receiver:
- Power supply: 230V AC (-15%...+10%), 50/60Hz
- Output: 4 bistable relays with change-over contact from 8A (250V AC)

GLX+ GEO BUS
Is a GPS module that allows you to capture the information of date, time and position from satellites. This information will be shared with GLX+Q BUS

New

Time Switches

72 x 72 Classic Plus and Galax Plus

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.

Standards

EN 60780-1, EN 60780-2-7

Features

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

Functions

Pre-programmed switching of all kind of electrical devices.

Performance

	DAY PROGRAMMABLE	WEEK PROGRAMMABLE	DAY/WEEK PROGRAMMABLE
Contact	switched	switched	changeover
Maximum recommended load			
- Incandescent lamps	3000W	3000W	3000W
- Fluorescent with compensation	1200VA	1200VA	-
- Low voltage halogen lamps	2000VA	2000VA	2000VA
- Halogen (230V AC)	3000W	3000W	3000W
- Low consumption lamps	1000VA	1000VA	1000VA
- Downlight lamps	900VA	900VA	-
- LEDs	1000VA	1000VA	1000VA
- Non-compensated	-	-	1200VA
Running reserve	>100h	>100h	5 years
Shortest switching time	15 min	2 h	1 min
Modules	4	4	4
Nominal current	16A/250 VAC	16A/250 VAC	16A/250 VAC
Accuracy	± 1 second/day at 25°C	± 1 second/day at 25°C	± 1 second/day at 25°C
Number of channels	1	1	1
Operating voltage	230V AC	230V AC	230V AC
Fix on/off auto	yes	yes	yes
Own consumption at 230V	1.8W	1.8W	6VA
Operating temperature range	0°C...55°C	-10°C...+45°C	-10°C...+45°C
Flush mounting	yes	yes	yes
Surface mounting	yes	yes	yes
Number of memory position	-	-	50

New

More technical data pag. ***website*** | *Dimensions pag.* ***D.85***

72 x 72 Classic Plus - Analogue time switches

	Program	No. of channels	Nominal Current	Running reserve	Shortest switch time	Fix on/off auto	No. of modules	Cat. No.	Ref. No.	Pack.
	Operating Voltage: 120 or 230V AC									
Day program	1x24	1CO	16A/250 VAC	>100h	15 min	yes	4	CLS+Q 15 1COM 16A 72x72 D	**687467**	1
	1CO									
	Operating Voltage: 120 or 230V AC - 24 or 48V AC/DC									
Week program	7x24	1CO	16A/250 VAC	>100h	2 h	yes	4	CLS+Q 15 1COM 16A 72x72 W	**687468**	1
	1CO									
	Operating Voltage: 120 or 230V AC - 24 or 48V AC/DC									
Day/Week program	1x24/7x24	1CO	16A/250 VAC	5 years	1min	yes	4	GLX+Q 15 1COM 16A 72x72 W	**687469**	1
	1CO									

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.

Standards

VDE 0632, VDE 0633, EN 60669-2-1

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.

Functions

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

Performance

	GLX+Q LUX 1NA	GLX+Q LUX/T1COM	GLX+ LUX WALL
	1 module	2 module	
Contact	1 NO	1 relay in monostable change over	Relay with NO contact
Switching capacity - Resistive load	16A/250 VAC	16A/250 VAC	10A/230 VAC
Connectable Loads			
- Incandescent Lamps	4000W	4000W	4000W
- Fluorescent Lamps	1000W	1000W	1000W
- LED <2W/2-8W/ >8W	55/150/180W	55/150/180W	55/150/180W
DC switching capacity	16A/24VDC	16A/24VDC	16A/24VDC
Shortest switching time	20 sec	1 min	10 sec
Screws	PH	PH	PH
Terminal capacity: max	4mm²	6mm²	4mm²
min	1mm²	1mm²	1mm²
Operating voltage	230V AC (-20%...+10%)	230V AC (-10%...+10%)	230V AC (-10%...+10%)
Own consumption at 230V	6VA (1W)	8VA (2W)	8VA (1W)
Running reserve	-	3 years	
Battery	-	Lithium	-
Operating temperature range	-0°C...+50°C	-20°C...+50°C	-0°C...+50°C
Accuracy	-	± 1 second/day at 25°C	± 1 second/day at 25°C
Sealable	-	yes	-
Light sensitive operating part			
Light intensity switching range	10 to 100 lux	5 to 500 lux	3 to 70 lux
Switching hysteresis	0	1 to 50% threshold	4
On/Off switching delay	15s ON	1-50min (programmable)	15s
	15s OFF	1-50min (programmable)	15s
Light sensitive sensor wire-length	max. 100m	max. 50m	-
Light sensitive sensor protection degree	IP65	IP65	IP54
Operationg temperature range	-20°C...+50°C	-20°C...+50°C	-0°C...+50°C

New

More technical data pag. ***website*** | *Dimensions pag.* ***D.85***

Galax LSS

	Program	No. of channels	Nominal Current	No. of modules	Cat. No.	Ref. No.	Pack.
	Operating Voltage: 230V AC (-20%...+10%)						
	10 to 100 lux	1NO	16A/250 VAC	1	GLX+Q LUX 1NA 16A 1M	**687470**	1
	1NO						
	Operating Voltage: 230V AC (-10%...+10%)						
	5 to 500 lux	1CO	16A/250 VAC	2	GLX+Q LUX/T1COM16A2M	**687472**	1
	1CO						
	Sensor for GLX+ QLUX						
	-	-	-	-	GLX+LSS EXT	**687471**	1
	Operating Voltage: 230V AC (-10%...+10%)						
	3 to 70 lux	1NO	10A	-	GLX+ LUX WALL	**687473**	1
	1NO						

New

Safety and bell transformers

Buzzers and bells

Series T+ BU+ BE+

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.

Standards / Marking

IEC 61558-1-2-6: Safety transformer
IEC 61558-1-2-8: Bell transformer
EN 62080: Bells and buzzers

CE

Features

Safety transformers have short-circuit protection throught PTC or fail-safe transformers and continuous nominal power.
Bell transformers are recommended for intermittent use at the nominal power declared. Complete noiseless operation.
4, 8, 12, 24, 48V secondary voltages available at power indicated. Terminals are equipped with captive Pozidriv screws and have IP20 protection degree.
Possibility to connect till 2 loads at lower secondary voltages taking into account the power. For bells and safety transformers over 25VA terminals CAPS available as accesorie with sealing performances.

Functions

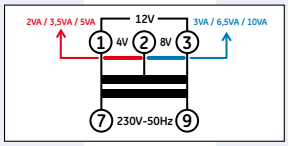
Reducing the voltage to a very low (safety) voltage used mainly as control-voltage in order to reduce the risk of electrocution due to environmental circumstances (I.e. high degree of humidity like outdoors, in a swimming pool complex, etc.).

Performance

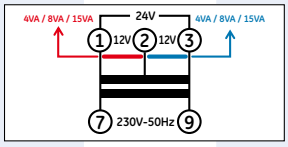
		Bell transformer	Safety transformer	Buzzers and bells
Nominal primary voltage and frequency//Command voltage		230V 50Hz / 240V 60Hz	230V 50Hz / 240V 60Hz	230V AC-12V AC
Power VA / Comsumption VA		5-10-15-8-16-30	15-25-40-63	4.5
Secondary voltage at nominal primary voltage		4-8- 12V; 12-12-24V	12-12-24V	-
Maximum secondary voltage at zero load		1.5 x Un sec.	1.3 x Un sec.	-
Minimum secondary voltage at nominal load		0.85 x Un sec.	0.95 x Un sec.	-
Maximum load		Nominal power	Nominal power	-
Short-circuit protection		PTC and Fail Safe	PTC and Fail Safe	-
Operating temperature		-20...+40°C	-20...+40°C	-20...+45°C
Isolation voltage		4kV	4kV	
Protection degree		IP20	IP20	IP20
Use		Inttermitent	Permanent	Permanent
Maximum permanent working time		-	-	10^6
Sound level		-	-	77-75 dB
Screw		Slotted and PH1	Slotted and PH1	Pozidriv 1
Terminal capacity:	min	1x0.5mm²	1x0.5mm²	1x1.5mm²
	max	1x4mm² or 2x2.5mm²	1x4mm² or 2x2.5mm²	1x10mm²
Maximum torque		0.5Nm	0.5Nm	0.5Nm

Series TR+ Bells transformers

	Output power VA	Secundary voltages	Primary voltage	Number of modules	Primary circuit protection	Cat. No.	Ref. No.	Pack.
Bell transformer	5	4-8-12V AC	230V AC	2	PTC	TR+ B 5	**665900**	1
	10	4-8-12V AC	230V AC	2	fail safe	TR+B10	**665902**	1
	15	4-8-12V AC	230V AC	2	fail safe	TR+B15	**665903**	1

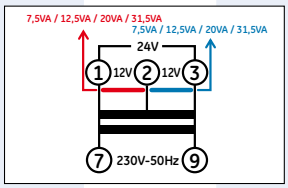


Bell transformer	8	12-12-24V AC	230V AC	2	fail safe	TR+B 8	**665901**	1
	16	12-12-24V AC	230V AC	2	fail safe	TR+B16	**665904**	1
	30	12-12-24V AC	230V AC	3	fail safe	TR+B30	**665905**	1

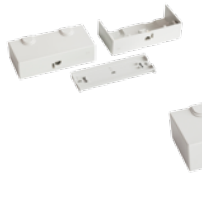


Series TS+ Safety transformers

	Output power VA	Secundary voltages	Primary voltage	Number of modules	Primary circuit protection	Cat. No.	Ref. No.	Pack.
Safety transformer	15	12-12-24V AC	230V AC	2	fail safe	TR+S15	**665909**	1
	25	12-12-24V AC	230V AC	3	fail safe	TR+S25	**665910**	1
	40	12-12-24V AC	230V AC	3	PTC	TR+S40	**665911**	1
	63	12-12-24V AC	230V AC	6	PTC	TR+S63	**665912**	1



Serie TR+/TS+ sealing CAPS for Bells and safety transformers



	To be used In			Number of modules		Cat. No.	Ref. No.	Pack.
Sealing CAPs	TR+S25	TR+S40	TR+B30	3	-	TR&KT+C3MOD	**665918**	1
	TR+S63	-	-	6	-	TR&KT+C6MOD	**665919**	1

Bells and Buzzers

	Power Consumption VA	Voltages	dB	Number of modules	Permanent use	Cat. No.	Ref. No.	Pack.
Bells	4.5	230Vac	77	1	12 h	BE230	**687498**	1
	4.5	12Vac	77	1	12 h	BE12	**687499**	1
Buzzers	4.5	230Vac	75	1	12 h	BU230	**687496**	1
	4.5	12Vac	75	1	12 h	BU12	**687497**	1

Digital kWh

Series MT+D kWh

Applications

Measurement of energy consumption. Possibility to integrate in only one system electricity, water, gas... consumptions.

Standards

EN/IEC 62053-21, EN/IEC 62053-23, EN/IEC 62052-11

Approval / Marking

Features

An electricity meter or energy meter is a device that measures the amount of electric energy consumed by a residence, business, or an electrically powered device.
Electricity meters are typically calibrated in billing units, the most common one being the kilowatt hour (kWh). Periodic readings of electricity meters establishes billing cycles and energy used during a cycle.
GE offers a new electronic meter, which display the energy used on an LCD display, and they can also transmit readings to remote places via pulse output, ModBus RS485 or through Ethernet building a powerfull system of measure.
In order to build this system, some accesories devices are offered like RS232/485 converter, RS485/ethernet converter or Pulse output concentrator.
The concentrator can also receive pulses from other type of meters like gas meter or water meter in order to integrate in only one system all type of consuptions in a house, village or commercial and industrial building.

Functions

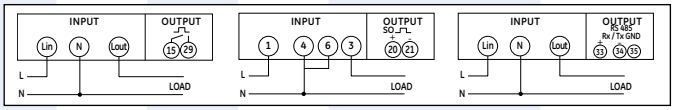
Measurement, visualisation and logging of Energy kWh to be used in BMS systems.

Performance MT+D KWh Performance MT+D KWh

	D1I32	D1I63	D3NI63	D3NI X/5
Display				
Display type	LCD 7 digits	LCD 6 digits	LCD 8 digits	LCD 8 digits
Maximum display	99999.99kWh	99999.9kWh	999999.99kWh	See Tech. Datasheet
Energy				
Resolution	10Wh	100Wh	10Wh	See Tech. Datasheet
Metering LED	1imp/Wh	1imp/Wh	1imp/Wh	1Imp/0.1Wh
Total energy count	not resettable	not resettable	not resettable	not resettable
Partial energy count	N/A	ressetable	ressetable	ressetable
Accuracy (EN/IEC 62053-21):	Class 1	Class 1	Class 1	Class 1
Input				
Network	Single-phase	Single-phase	Three phase, 3-4wires	Single Phase, 3-phase, 3-4 wires
Reference voltage	230V AC	230-240V AC	400-415V AC	230-240V single & 400-415 Three phase
Specified operating range	196..264V AC	196..264V AC	197...480V AC	210..264V single & 210..440V Three phase
Reference frequency	50-60Hz	50-60Hz	50-60Hz	50-60Hz
Tolerance (Hz)	47...63Hz	47...63Hz	47...63Hz	47...63Hz
Basic current Ib	5A	5A	10A	x/5A
Max. Current, Imax	32A	63A	63A	6A
Starting current	20mA	20mA	40mA	20mA
Pulse output				
Pulse weight	1 imp/Wh	1, 10, 100, 1000Wh	1, 10, 100, 1000Wh	10, 100Wh; 1, 10, 100, 1000kWh
Type	Class A	Optoelectronic relay	Optoelectronic relay	Optoelectronic relay
Voltage Uimp	12...27V DC	110V DC/AC	110V DC/AC	110V DC/AC
Current	10...27mA	50mA	50mA	50mA
Pulse duration	70ms	50,100,150,200,300,400,500ms	50,100,150,200,300,400,500ms	50,100,150,200,300,400,500ms
RS485 ouput	NO	MT+D1485 63 2M	MT+D3N485 63 4M	MT+D3N485 x/5 4M
Thermal capacity				
Rigid cable	1/10mm²	1/16mm²	1/16mm²	1/4mm²
Flexible cable	1/7mm²	1/10mm²	1/10mm²	0.05/2.5mm²
Tightening torque advised	1.1mm²	1.4mm²	1.4mm²	0.8mm²
Number of modules	1	2	4	4
Environmental conditions				
Operating temperature	-5°C..55°C	-5°C..55°C	-5°C..55°C	-5°C..55°C
Additional Approvals				
MID directive compliance	MT+D1i45 1M MID	MT+D1485 63 2M MID MT+D1i 63 2M MID	MT+D3N485 63 4M MID MT+D3Ni 63 4M MID	MT+D3Ni x/5 4M MID MT+D3N485 x/54M MID

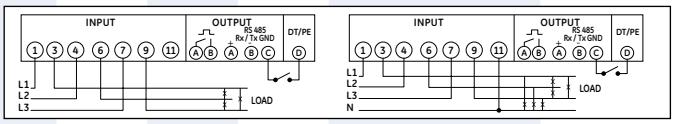
Series MT+D kWh

	Scale	Accuracy	Number of modules	Outputs	Additional measures	Cat. No.	Ref. No.	Pack.
Monophase kWh	<32A	Class 1	1	Pulse	-	MT+D1i 32 1M	**665248**	1
	<63A	Class 1	2	Pulse	In, Vn, Wt, Hz, PF, HM	MT+D1i 63 2M	**665250**	1
	<63A	Class 1	2	RS485	In, Vn, Wt, Hz, PF, HM	MT+D1485 63 2M	**665252**	1



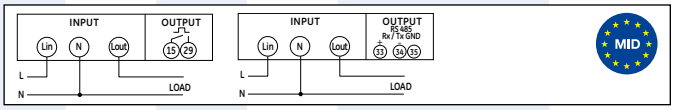
For x/5 version see tech. datasheet

Triphase 3-4 wires kWh	<63A	Class 1	4	PULSE	partial kwh, double tariff, Var, Un, In, Wt, Hz, PF, HM	MT+D3Ni 63 4M	**665254**	1
	<63A	Class 1	4	RS485	partial kwh, double tariff, Var, Un, In, Wt, Hz, PF, HM	MT+D3N485 63 4M	**665256**	1
	x/5A	Class 1	4	PULSE	partial kwh, Var, Un, In, Wt, Hz, PF	MT+D3Ni x/5 4M	**665258**	1
	x/5A	Class 1	4	RS485	partial kwh, Var, Un, In, Wt, Hz, PF	MT+D3N485 x/5 4M	**665260**	1



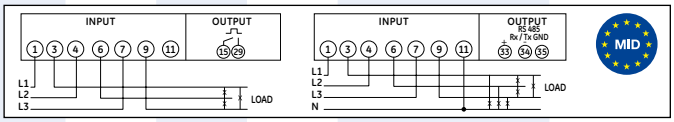
Series MT+D kWh. MID Directive approval

	Scale	Accuracy	Number of modules	Outputs	Additional measures (non MID)	Cat. No.	Ref. No.	Pack.
Monophase kWh	<45A	Class B	1	PULSE	-	MT+D1i 45 1M MID	**665249**	1
	<63A	Class B	2	PULSE	In, Vn, Wt, Hz, PF, HM	MT+D1i 63 2M MID	**665251**	1
	<63A	Class B	2	RS485	In, Vn, Wt, Hz, PF, HM	MT+D1485 63 2M MID	**665253**	1



For x/5 version see tech. datasheet

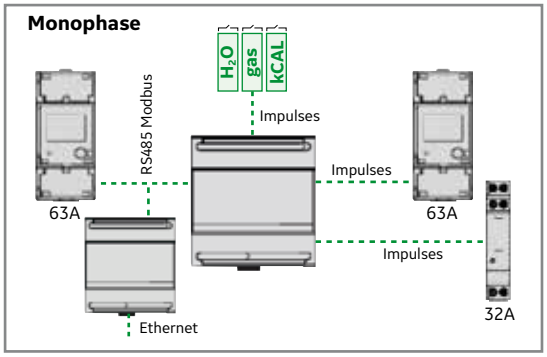
Triphase 3-4 wires kWh	<63A	Class B	4	PULSE	partial kwh, Var, Un, In, Wt, Hz, PF, HM	MT+D3Ni 63 4M MID	**665255**	1
	<63A	Class B	4	RS485	partial kwh, Var, Un, In, Wt, Hz, PF, HM	MT+D3N485 63 4MMID	**665257**	1
	x/5A	Class B	4	PULSE	partial kwh, Var, Un, In, Wt, Hz, PF	MT+D3Ni x/5 4M MID	**665259**	1
	x/5A	Class B	4	RS485	partial kwh, Var, Un, In, Wt, Hz, PF	MT+D3N485 x/54MMID	**665261**	1

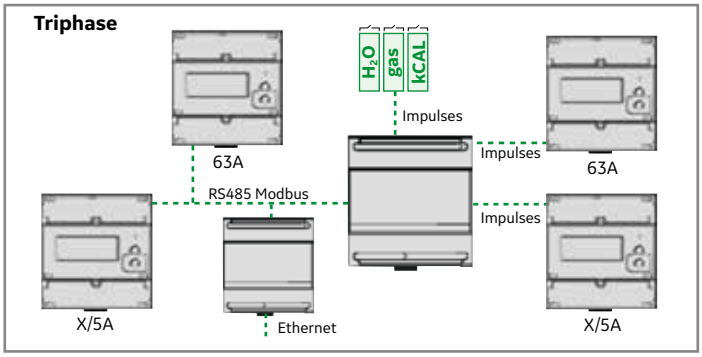


Series MT+D kWh

Number of modules	Description	Cat. No.	Ref. No.	Pack.
4	Pulse adquisition 3 program input configuration - 12 contact inputs PASSIVE - 6 contact inputs+6 active inputs ACTIVE - S0 (GME ENEL)	MT+ImpCon	**665262**	1
4	RS485-Ethernet conversion	MT+RS485/Ethernet	**665389**	1
2	RS485 RS232 conversion	MT+RSC TOP	**665390**	1

Series MT+kWh. Building a system





Digital measurement instruments

Series MT+D

Applications

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

Standards

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

Marking

CE

Features

AC measurement devices with digital technology and readout are available. The simple devices (one measurement only voltage, current, frequency) are only available in single phase, while the complex devices (more than one measurement i.e. power, energy, net analyser) are also available in 3-phase execution. High current can be measured through the intermediate use of a current transformer . All devices have very good precision and have also a very low self-consumption to limit as much as possible the measurement error. The net analysers are true RMS measuring devices. Monitoring and logging all electrical values on to a PC is possible by using communication modules to RS484, RS232 and Ethernet.

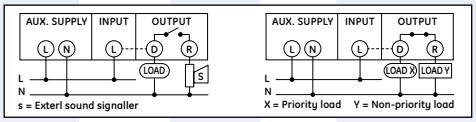
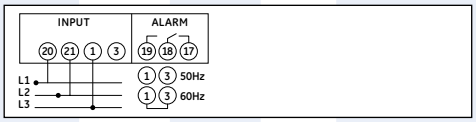
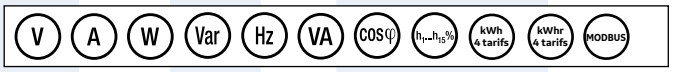
Functions

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 net analyser devices. To avoid down-time due to abnormal situations, i.e. power-supply voltage too high, absorbed power too high, etc., leading to malfunctionning 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 indespensable asset when it comes to preventive maintenance.

Performance MT+D KWh Performance MT+D KWh

	D1I32	D1I63	D3NI63	D3NI X/5
Display type	LCD 7 digits	LCD 6 digits	LCD 8 digits	LCD 8 digits
Maximum display	99999.99kWh	99999.9kWh	999999.99kWh	See Tech. Datasheet
Energy				
Resolution	10Wh	100Wh	10Wh	See Tech. Datasheet
Metering LED	1imp/Wh	1imp/Wh	1imp/Wh	1Imp/0.1Wh
Total energy count	not resettable	not resettable	not resettable	not resettable
Partial energy count	N/A	ressetable	ressetable	ressetable
Accuracy (EN/IEC 62053-21):	Class 1	Class 1	Class 1	Class 1
Input				
Network	Single-phase	Single-phase	Three phase, 3-4wires	Single Phase, 3-phase, 3-4 wires
Reference voltage	230V AC	230-240V AC	400-415V AC	230-240V single & 400-415 3- phase
Specified operating range	196..264V AC	196..264V AC	197...480V AC	210..264V single & 210..440V 3-phase
Reference frequency	50-60Hz	50-60Hz	50-60Hz	50-60Hz
Tolerance (Hz)	47...63Hz	47...63Hz	47...63Hz	47...63Hz
Basic current Ib	5A	5A	10A	x/5A
Max. Current, Imax	32A	63A	63A	6A
Starting current	20mA	20mA	40mA	20mA
Pulse output				
Pulse weight	1 imp/Wh	1, 10, 100, 1000Wh	1, 10, 100, 1000Wh	10, 100Wh; 1, 10, 100, 1000kWh
Type	Class A	Optoelectronic relay	Optoelectronic relay	Optoelectronic relay
Voltage Uimp	12...27V DC	110V DC/AC	110V DC/AC	110V DC/AC
Current	10...27mA	50mA	50mA	50mA
Pulse duration	70ms	50,100,150,200,300,400,500ms	50,100,150,200,300,400,500ms	50,100,150,200,300,400,500ms
RS485 ouput	NO	MT+D1485 63 2M	MT+D3N485 63 4M	MT+D3N485 x/5 4M
Thermal capacity				
Rigid cable	1/10mm²	1/16mm²	1/16mm²	1/4mm²
Flexible cable	1/7mm²	1/10mm²	1/10mm²	0.05/2.5mm²
Tightening torque advised	1.1mm²	1.4mm²	1.4mm²	0.8mm²
Number of modules	1	2	4	4
Environmental conditions				
Operating temperature	-5°C..55°C	-5°C..55°C	-5°C..55°C	-5°C..55°C
Additional Approvals				
MID directive compliance	MT+D1i32 1M MID	MT+D1485 63 2M MID	MT+D3N485 63 4M MID	MT+D3Ni x/5 4M MID
		MT+D1i 63 2M MID	MT+D3Ni 63 4M MID	MT+D3N485 x/54M MID

Series MT+D

	Scale	Accuracy	Number of modules	Outputs	Additional measures	Cat. No.	Ref. No.	Pack.
V, A, Hz	x/5A	±1%+1 digit	4	-	voltage, current, frequency	MT+D DV500 DA5 F 4M	**665387**	1
Priority Relay+Buzzer	direct 28A	-	2	Buzzer	V, A, kW	MT+D PRI BASIC 2M	**665395**	1
								
Phase sequence relay	380..415V (phase-phase) 50-60Hz (selectable)	-	2	Alarm	-	MT+ AP 3F 2M	**665396**	1
								
Multimeter	x/5A 230/400V	±0.5 (I,V), -1.5%(W), -0.2%(Hz)	4	-	Ph V, Ph A, Linked Voltage Ph act./reactive Power, Act.,React., appar. Power Neutral current, Hz, PF, Working H&min., Power demand, Max. Power demand	MT+D BASIC 4M	**665393**	1
	Single Phase, three phase, 3-4 wires, for electric diagram							
Net Analyser	x/5A	Class 0.5 (kWh)	4	Pulse	see tech. datasheet	MT+D TOPi 4M	**665391**	1
	230/400V	Class 1 (VAr)		Pulse +RS485	see tech. datasheet	MT+D TOPiRS485 4M	**665392**	1
								
	Single Phase, three phase, 3-4 wires, for electric diagram. See tech. datasheet							

Analogue measurement instruments

Series MT+A

Applications

Measurement, visualisation and logging of voltage, current, frequency and hours of operation

Standards

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

Marking

CE

Features

AC measurement devices with analogue technology and readout are available. The simple devices (one measurement only i.e. voltage, current, frequency) are only available in single phase. 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 also available in our range.

Functions

Measurement of voltage, current, frequency and hours of operation with analogue visualisation of the measure.

Performance MT+A

	Ammeter MT+AA	**Voltmeter MT+AV**	**Frequency meter MT+F**	**Hour Counter MT+AH**	**Selector MT+S**
Scale selection	Interchangeable scaleplate	-	-	Counter 7 digit	I1-I2-I3 V12-V23-V31-V1n-V2n-V3n
Rated burden	< 1.1VA	< 3.5VA(500V) < 3VA (300V)	≤ 4VA	< 8mA	-
Operating temperature range	-25...50°C	-25...50°C	-25...50°C	-20...70°C	-
Class of precision (accuracy)	1.5	1.5	1	0.02%	-
Type	Single phase, AC	Single phase, AC	Single phase, AC	230V-110V-24V	-
Connection	direct or CT /5	300V-500V	-	-	-
Measure	true RMS value	true RMS value	-	-	-
Continuous overload	1.2In	1.2Un	-	-	-
Instantaneous overload	10In / 5 seconds	10Un / 5 seconds	-	-	-
Rating frequency	50Hz	50Hz	50-60Hz	50Hz	-
Working frequency	45..65Hz	45..65Hz	45..65Hz	-	-

Series MT+A analogue measurement instruments

Ammeters

Scale	Accuracy	Nr. of phases	Nr. of modules	Cat. No.	Ref. No.	Pack.
-	1.5	1	4	MT+AA 4M	**665264**	**1**
5A	1.5	1	4	MT+AA5 4M	**665265**	**1**
10A	1.5	1	4	MT+AA10 4M	**665266**	**1**
15A	1.5	1	4	MT+AA15 4M	**665267**	**1**
20A	1.5	1	4	MT+AA20 4M	**665268**	**1**
25A	1.5	1	4	MT+AA25 4M	**665269**	**1**
30A	1.5	1	4	MT+AA30 4M	**665270**	**1**

Interchangeable Ammeter scaleplates

Scale	To use in	Cat. No.	Ref. No.	Pack.
40/5	665264	MT+SP40	**665283**	10
50/5	665264	MT+SP50	**665284**	10
60/5	665264	MT+SP60	**665285**	10
80/5	665264	MT+SP80	**665286**	10
100/5	665264	MT+SP100	**665287**	10
150/5	665264	MT+SP150	**665288**	10
200/5	665264	MT+SP200	**665289**	10
250/5	665264	MT+SP250	**665290**	10
300/5	665264	MT+SP300	**665291**	10
400/5	665264	MT+SP400	**665292**	10
500/5	665264	MT+SP500	**665293**	10
600/5	665264	MT+SP600	**665294**	10
800/5	665264	MT+SP800	**665295**	10
1000/5	665264	MT+SP1000	**665296**	10

Voltmeters

Scale	Accuracy	Nr. of phases	Nr. of modules	Cat. No.	Ref. No.	Pack.
300V	1.5	1	4	MT+AV300 4M	**665271**	1
500V	1.5	1	4	MT+AV500 4M	**665272**	1

Frequency meter

Scale	Accuracy	Nr. of phases	Nr. of modules	Cat. No.	Ref. No.	Pack.
45...65Hz	1.5	1	4	MT+AF 4M	**665273**	1

Hour counter

Scale	Accuracy	Nr. of phases	Nr. of modules	Cat. No.	Ref. No.	Pack.
110V/50Hz	0.02%	1	2	MT+AH110 2M	**665274**	1
230V/50Hz	0.02%	1	2	MT+AH230 2M	**665275**	1
24V/50Hz	0.02%	1	2	MT+AH24 2M	**665276**	1

Selector switch

Nr. of modules	Cat. No.	Ref. No.	Pack.
3	MT+S4 3M	**665385**	1
3	MT+S7 3M	**665386**	1

Series MT+CT

Applications

Current transformers are commonly used in metering.

Standard

EN60044-1

Marking

CE

Features

Current transformers are used extensively for measuring current. This new CTs range covers every facility with three-phase service and single-phase services greater from 40A to 4000A.
The CT is typically described by its current ratio from primary to secondary. Often, multiple CTs are installed for various uses. For example, protection devices and revenue metering may use separate CTs to provide isolation between metering and protection circuits, and allows current transformers with different characteristics (accuracy, overload performance) to be used for the devices. The primary circuit is largely unaffected by the insertion of the CT. The rated secondary current is commonly standardized at 5A.
For example, a 4000:5 CT secondary winding will supply an output current of 5 Amperes when the primary winding current is 4000 A.
The load, or burden, of the CT should be a low resistance.
The accuracy of a CT is directly related to a number of factors including: burden, burden class/saturation class, rating factor, load and physical configuration For the IEC standard, accuracy classes for various types of measurement are set out in IEC 60044-1, Classes 0.5, 1 and 3.
The class designation is an approximate measure of the CTs accuracy.
The ratio (primary to secondary current) error of a Class 1 CT is 1% at rated current; the ratio error of a Class 0.5 CT is 0.5% or less.

Functions

When current in a circuit is too high to apply directly to measuring instruments, a current transformer produces a reduced current accurately proportional to the current in the circuit, which can be conveniently connected to measuring and recording instruments.
A current transformer isolates the measuring instruments from what may be very high Current in the monitored circuit.

Performance MT+V

	CT40-CT80	CT100-CT400	CT500-CT600	CT800-CT1000	CT1200-CT2000	CT2500-CT4000
Rated primary current Ipn	40-50-60-80	100-150-200-250-300-400	500-600	800-1000	1200-1500-2000	2500-3200-4000
Rated frequency	50Hz	50Hz	50Hz	50Hz	50Hz	50Hz
Working frequency	47...63Hz	47...63Hz	47...63Hz	47...63Hz	47...63Hz	47...63Hz
Rated continuous thermal current according to EN60044-1						
Rated short-time thermal current Ith	< 60In	< 60In	< 60In	< 60In	< 60In	< 60In
Rated dynamic current Idyn	2.5Ith	2.5Ith	2.5Ith	2.5Ith	2.5Ith	2.5Ith
Instrument security factor (FS)	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Rated secondary current Isn	5	5	5	5	5	5
Rated burden	1...2.5VA (see table)	1.5...12VA (see table)	10...15VA (see table)	8...12VA (see table)	15...25VA (see table)	20...50VA (see table)
Accuracy class	1 – 3 (see table)	0.5-1 (see table)	0.5-1 (see table)	0.5-1 (see table)	0.5-1 (see table)	0.5-1 (see table)
Max. power dissipation	≤ 3W	≤ 7W	≤ 9W	≤ 10.5W	≤ 20W	≤ 23W
Allowed max cable or busbar temp.	125°C	125°C	125°C	125°C	125°C	125°C
Rated insulation level	3kV r.m.s. 50Hz/1min	3kV r.m.s. 50Hz/1min	3kV r.m.s. 50Hz/1min	3kV r.m.s. 50Hz/1min	3kV r.m.s. 50Hz/1min	3kV r.m.s. 50Hz/1min
Class of insulation (EN60044-1)	B	B	B	B	B	B
Nominal temperature range	-25.....50°C	-25.....50°C	-25.....50°C	-25.....50°C	-25.....50°C	-25.....40°C
Limit temperature range for storage	-40...85°C	-40...85°C	-40...85°C	-40...85°C	-40...85°C	-40...85°C
Connections						
Primary winding	passing cable	passing cable/ busbar primary	passing cable/ busbar primary	passing cable/ busbar primary	busbar primary	busbar primary
Max. tightening torque for passing primary bar fixing screws:	0.2Nm	0.2Nm	0.2Nm	0.2Nm	0.2Nm	0.2Nm
Secondary winding	screw terminals, max 2x2.5mm²	screw terminals, max 6mm²	4 screw terminals, max 6mm²+2 faston (4.8 x 0.8mm)	4 screw terminals, max 6mm²+2 faston (4.8 x 0.8mm)	tightening by nut	tightening by nut

Series MT+CT Current Transformers

	VA CL. 0.5	VA CL. 1	Secondary current	Primary current	Size (mm)	Cat. No.	Ref. No.	Pack.
	-	1	5	40	65x44x30	MT+CT40	**665368**	1
	1	1.5	5	50	65x44x30	MT+CT50	**665369**	1
	1	2	5	60	65x44x30	MT+CT60	**665370**	1
	1.5	2.5	5	80	65x44x30	MT+CT80	**665371**	1
	1.5	3	5	100	80x56x43	MT+CT100	**665372**	1
	3	4	5	150	80x56x43	MT+CT150	**665373**	1
	4	7	5	200	80x56x43	MT+CT200	**665374**	1
	6	8	5	250	80x56x43	MT+CT250	**665375**	1
	8	10	5	300	80x56x43	MT+CT300	**665376**	1
	10	12	5	400	80x56x43	MT+CT400	**665377**	1
	10	12	5	500	95x70x45	MT+CT500	**665378**	1
	12	13	5	600	95x70x45	MT+CT600	**665379**	1
	10	12	5	800	95x70x45	MT+CT800	**665380**	1
	12	15	5	1000	95x70x45	MT+CT1000	**665381**	1
	15	20	5	1200	94x90x40	MT+CT1200	**665382**	1
	20	25	5	1500	94x90x40	MT+CT1500	**665383**	1
	20	25	5	2000	94x90x40	MT+CT2000	**665384**	1
	30	50	5	2500	160x99x58	MT+CT2500	**665924**	1
	30	50	5	3200	160x125x40	MT+CT3200	**665925**	1
	30	50	5	4000	160x125x40	MT+CT4000	**665926**	1

Current transformers

Series MTDIN

Applications

- Control switchboards for low and medium voltage applications where DIN-rail mounting is preferred due to size restraints.
- Allows the measurement of electrical variables utilized for the effective control of systems.

Approval / Marking

Features

- Current measuring .../5 or .../1A
- DIN-rail format with only 3 modules (52mm).
- Assembly on the 72 x 72 mm panel with frontal adaptor (Ref. No. 665244).
- RS485 communications (Modbus-RTU).
- Two transistor outputs.
- Optional ITF technology: galvanic insulation for inputs.
- THD available per phase for power factor, voltage and current.
- Instantaneous display of important electrical parameters.

Functions

Three-phase power analyser for mounting on DIN-rail. Also adaptable for panel mounting with 72 x 72mm dimension.

Standards

IEC 664, VDE 0110, UL 94, IEC 801, IEC 348, IEC 571-1, EN 61000-6-3, EN 61000-6-1, EN 61010-1

Performance

Power supply circuit	230V AC (-15% to +10%) or 85 to 265V AC / 95 to 300V DC
Consumption	3VA
Frequency	50 or 60Hz
Nominal current (In)	5A
Metering circuit	
Maximum voltage	300V AC (Ph-N) 520V AC (Ph-Ph)
Frequency	45 to 65Hz
Voltage consumption of the circuit	0.7VA
Current consumption of the circuit	0.9VA (ITF) /0.75VA (shunt)
Nominal current	In / 5A
Permanent overload	1.2 In
Class/Accuracy	
Voltage	0.5% ± 1 digit
Current	0.5% ± 1 digit
Power rating	1% ± 1 digit
Ambient conditions	
Operating temperature	-10°C up to +50°C
Relative humidity (non-condensing)	5% up to 95%

Output transistor	Opto-isolated (open collector) NPN
Max. operating voltage	24V DC
Max. operating current	50mA
Max. impulse frequency	5 impulse / s
Duration of the impulse	100ms
Housing	
Type of box	VO self-extinguishing plastic
Degree of protection	Embedded equipment: IP41 Terminals: IP20
Dimensions (H x W x D)	85 x 52.5 x 67.9mm (3 modules)
Weight	210 g
Safety	
	Designed for CAT III 300/520V AC installations, in accordance with EN 61010. Class II double insulated for protection against electric shock

Compact three-phase power analyser - Series MTDIN

Modules	Class (V, A)	Communi-cation	Protocol	Digital output	Voltage	Harmonics	Cat. No.	Ref. No.
3	0.5	-	-	-	85 to 265VAC 95 to 300VAC	-	MTDIN1	**665010**
3	0.5	-	-	-	230VAC	-	MTDIN2	**665011**
3	0.5	RS485	ModBus/RTU	2	230VAC	-	MTDIN2COM	**665155**
3	0.5	RS485	ModBus/RTU	2	85 to 265VAC 95 to 300VDC	U and I (15°)	MTDIN1HARCOM	**665012**

For other versions, contact GE or your local distributor.

Accessories

Front panel adaptor

MTAdapt	**665244**	1

Adaptor installing MTDIN on 72x72 mm panels.

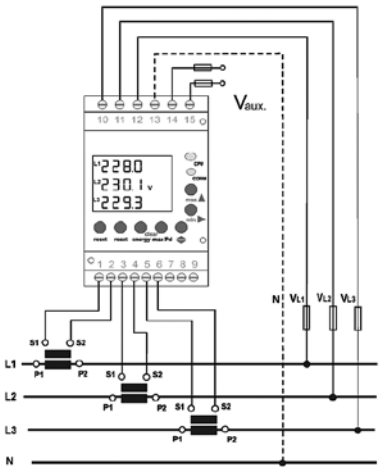
Central fixing.

Adjustable on the rear with two straps.

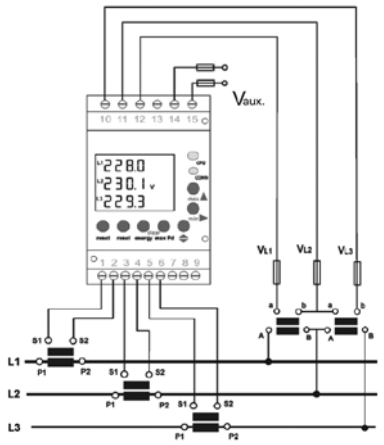
For converters, see page D.43

Connections

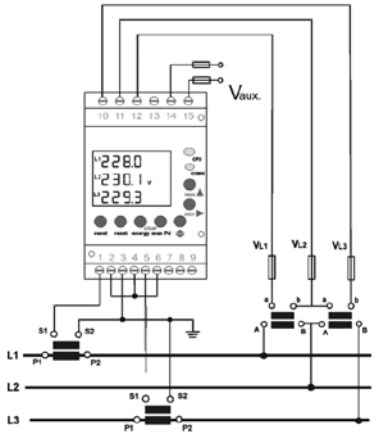
3 or 4 wires (low voltage)



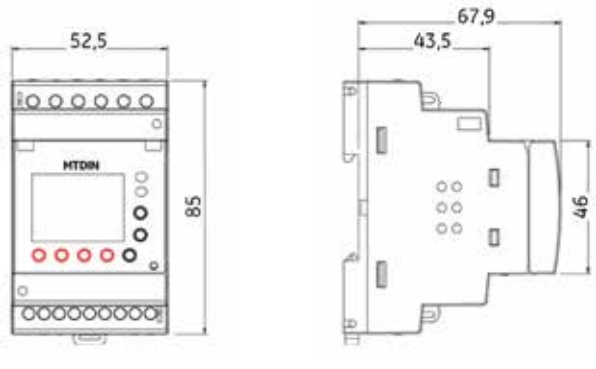
3 wires (2 voltage transformers and 3 current transformers)



3 wires (2 voltage transformers and 2 current transformers)



Dimensions (mm)



Basic three-phase analyser

Series MT96

Applications

- Control switchboards for low and medium voltage applications.
- Allows the measurement of electrical variables utilized for the effective control of systems.
- Consumed energy can be set to trigger pulses.
- Alarm controls: full programming capability for each output, i.e., the maximum value, minimum value, and delay.

Marking

CE

Features

- Class 0.5 energy precision.
- Current measure .../5
- Optional RS485 Modbus /RTU communications.
- Instantaneous display of important electrical parameters.
- Digital outputs with opto-isolated transistor.
- Optional ITF technology: galvanic insulation for inputs.
- THD available per phase for power factor, voltage and current.

Functions

Three-phase power analyser for panel mounting with a 96 x 96mm front fascia with compact depth.

Standards

IEC 664, VDE 0110, UL 94, IEC 801, IEC 348, IEC 571-1, EN 61000-6-3, EN 61000-6-1, EN 61010-1

Performance

Power supply circuit	230V AC (-15% tot +10%) or 85 to 265V AC / 95 to 300V DC
Consumption	5VA
Frequency	50 or 60Hz
Nominal current (In)	5A
Metering circuit	
Maximum voltage	300V AC (Ph-N) 520V AC (Ph-Ph)
Frequency	45 to 65Hz
Voltage consumption of the circuit	0.75VA
Current consumption of the circuit	0.9VA (ITF) /1.2VA (shunt)
Nominal current	In / 5A or In /1A
Permanent overload	1.1 In
Class/Accuracy	
Voltage	0.5% ± 2 digits
Current	0.5% ± 2 digits
Power rating	1% ± 2 digits
Ambient conditions	
Operating temperature	-10°C up to +50°C
Relative humidity (non-condensing)	5% up to 95%

Output transistor	Opto-isolated (open collector) NPN
Max. operating voltage	24V DC
Max. operating current	50mA
Max. impulse frequency	5 impulse / s
Duration of the impulse	100 ms
Housing	
Type of box	VO self-extinguishing plastic
Degree of protection	Fitted unit (frontal): IP51 Non-fitted unit (sides and rear cover) IP31
Dimensions (H x W x D)	96 x 96 x 63mm
Safety	
	Designed for CAT III 300/520V AC installations, in accordance with EN 61010. Class II double insulated for protection against electric shock

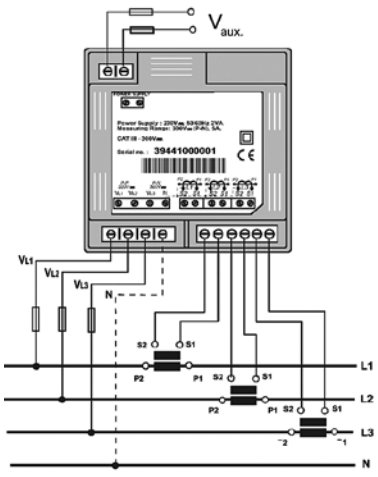
Basic three-phase power analyser - Series MT96

Modules	Class (V, A)	Communi-cation	Protocol	Digital output	Voltage	Harmonics	Cat. No.	Ref. No.
4	0.5	-	-	-	85 to 265VAC 95 to 300VAC	-	MT961	**665190**
4	0.5	-	-	-	230VAC	-	MT962	**665191**
4	0.5	RS485	ModBus/RTU	1	230VAC	-	MT962COM	**665192**
4	0.5	RS485	ModBus/RTU	1	85 to 265VAC 95 to 300VDC	U and I (15°)	MT961HARCOM	**665193**

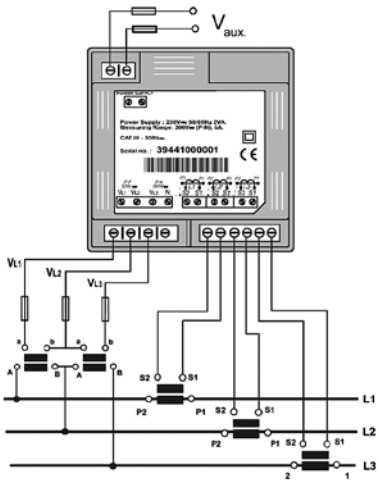
For converters, see page D.43.
For other versions, contact GE or your local distributor.

Connections

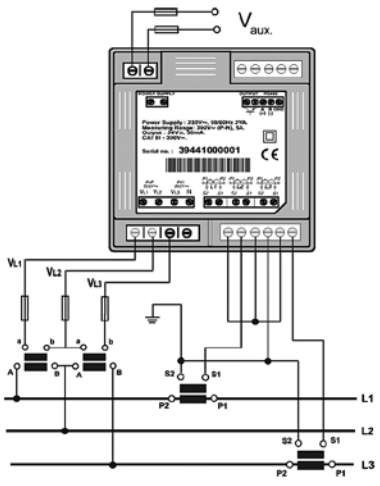
3 or 4 wires (low voltage)



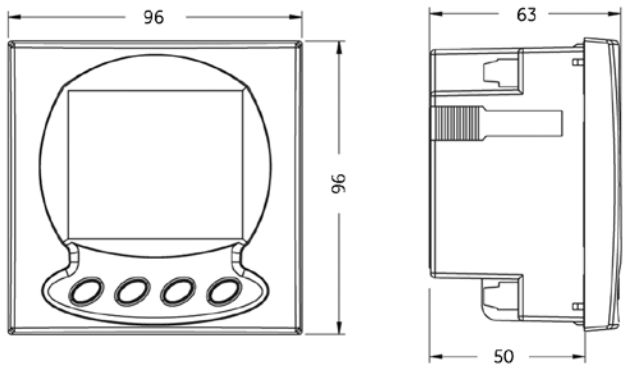
3 wires (2 voltage transformers and 3 current transformers)



3 wires (2 voltage transformers and 2 current transformers)



Dimensions (mm)



Advanced three-phase analyser

Series MT144

Applications

- Control switchboards for low and medium voltage applications.
- Alarm center by means of voltage-free digital inputs.
- Submetering: can measure through impulses other types of consumption, such as gas, water, steam, etc. via their digital inputs.
- Measurement converters: possible to associate instantaneous parameter to one of the analogue outputs (0 to 20mA / 4 to 20mA).
- Recording of instantaneous, maximum, and minimum parameters with a date and hour by means of an expandable memory card.
- Power quality analyser: harmonic decomposition up to order 50°, asymmetries, flicker, unbalances, overvoltages, gaps, interruptions, etc.

Features

- Class 0.2 energy and power precision.
- Class B power quality analyser.
- One display can monitor up to 32 measurement modules.
- Current measuring .../5 or .../1A
- Measure of neutral current with transformer.
- Optional energy consumption and generation billing (up to 9 rates).
- Expansion possibilities (up to 3 modules).
- RS485 Modbus/RTU communications.
- Profibus GSD module available.
- SD memory module with max capacity of 20 GB available.
- Backlit VGA graphical display.
- Instantaneous display of maximum and minimum electrical parameters with date and hour.
- Measure of energy consumed and generated, up to 100 GWh.
- Up to 8 digital inputs and outputs available.
- ITF technology: galvanic insulation for inputs.

Functions

Three-phase advanced power analyser for panel mounting with a 144 x 144mm front fascia.

Standards

IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-11, IEC 61000-4-4, IEC 61000-4-5

Approval / Marking

c UL us LISTED

CE

Performance

Power supply circuit	85 to 265V AC and 95 to 300V DC
AC power supply frequency	50/60Hz
AC pow. supp. consumption	3VA
DC pow. supp. consumption	< 25W
Metering circuit	
Voltage	15 to 360V AC (L-N) 26 to 600V AC (L-L)
Frequency	45 to 65Hz
Metering margin	5 to 120% Un
Admissible overvoltage	750V AC
Voltage consumption of the circuit	< 0.5VA
Current measuring circuit	
Nominal current (In)	5A or 1A
Metering range	1 to 120% of In
Primary current metered	Programmable < 30,000A
Admissible overload	6A permanent, 100A t < 1s

Maximum meter value	100GWh
Operating temperature	0.2 or 0.5 power and energy
Ambient conditions	
Max. operating voltage	-10°C up to +50°C
Relative humidity	5% up to 95%
Housing	
Metering module	Assembly on DIN-rail 46277 (EN 50022)
Screen or screen + metering module	Assembly on panel (96 x 96mm, 144 x 144mm) or opening with a 103 mm diameter
Dimensions (H x W x D)	144 x 144 x 116mm
Safety	
	Designed for CAT III 300/520V AC installations, in accordance with EN 61010. Class II double insulated for protection against electric shock

Compact units (metering + display module) - Series MT144

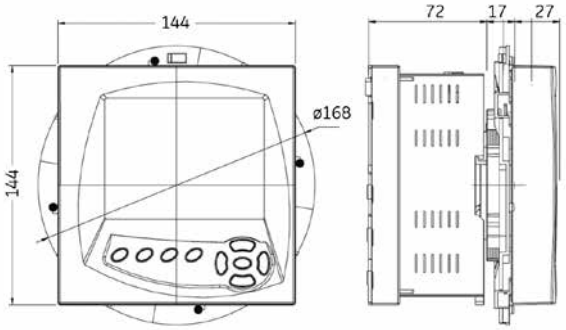
Quadrants	Class (V, A)	Communication	Protocol	Neutral current	Universal power supply	Harmonics	Cat. No.	Ref. No.
4	0.2	RS485	ModBus/RTU	Yes	85 to 265VAC 95 to 300VAC	U and I (15º)	MT144UMD	**665194**

Measuring units (measuring module and display sold separately) - Series MT144

	Quadrants	Class (V, A)	Communication	Protocol	Neutral current	Universal power supply	Harmonics	Cat. No.	Ref. No.
Measuring module	4	0.2	RS485	ModBus/RTU	Yes	85 to 265VAC 95 to 300VAC	U and I (15º)	MT144UM	**665195**
VGA display	4	-	-	-	Yes	-	-	MT144UD	**665196**

For converters, see page D.43.
For other versions, contact GE or your local distributor.

Dimensions



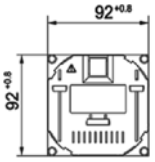


Fig. 1

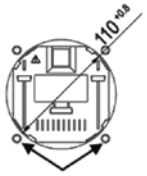


Fig. 2
Holes guide

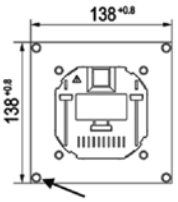
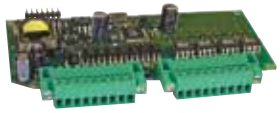


Fig. 3
Lock points

Figures above illustrate how the front display mounts on the panel either with a 92 x 92mm square cutout or a circular cutout with a diameter of 110mm. View is the rear of the display module.

Exchangeable cards



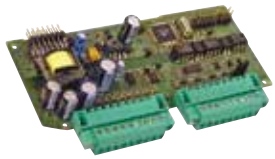
8I/8O digital expansion card

MT8I80 | **665197** | 1

8 digital inputs and
8 digitale outputs.
Outputs with opto-coupled transistor.

ProfiBus expansion card - GSD modules

MTPBUS | **665243** | 1



8I/4O analogue expansion card

MT8I40 | **665198** | 1

8 analog inputs and
4 analog outputs

Ethernet and SD memory card

MTMBUS | **665239** | 1

Ethernet communications card and
SD memory.

8I/4O digital expansion card

MT8I40R | **665199** | 1

8 digital inputs and
4 digital outputs.
Outputs with relay.

SD memory expansion card

MTSDMEM | **665240** | 1

Common accessories for MTDIN, MT96 en MT44 - Converters

Converter for RS232/485 to Ethernet (and vice-versa)

MT485Enet | **665245** | 1

Power supply 85...265VAC / 115...374VDC.
Ethernet speed: 10/100 BaseTX
RS Bus transmission speed: 1200 bps to 115200 bps.

USB converter to RS232 or RS485

MTUSB485 | **665246** | 1

Converter from USB network protocol to RS232 or RS485.
Power supply through the PC's USB port.
Transmission speed: 4800 to 128000 bps.

Power Analysers - Parameter table

	MTDIN				MT96				MT144				
MEASUREMENT	L1	L2	L3	III	L1	L2	L3	III	L1	L2	L3	N	III
Single phase voltage	•	•	•		•	•	•		•	•	•		•
Phase phase voltage	•	•	•		•	•	•		•	•	•		
Reference voltage (GND)-neutral												•	
Current	•	•	•	•	•	•	•	♦	•	•	•	•	
Frequency	•				•		•		•				
Active power	•	•	•	•	•	•	•	•	•	•	•		•
Reactive power L (inductance)	•	•	•	•	•	•	•	•	•	•	•		•
Reactive power C (capacitance)	•	•	•	•	•	•	•	•	•	•	•		•
Apparent power	•	•	•	•				•	•	•	•		•
Power factor	•	•	•	•	•	•	•		•	•	•		•
Cosine				•				•	•	•	•		•
Maximum active power demand				•				•					•
Maximum apparent power demand				•				•					•
Maximum current demand	•	•	•	•	•	•	•	•	•	•	•		•
Neutral current			•				•				•		
THD voltage	•	•	•		•	•	•		•	•	•		•
THD current	•	•	•		•	•	•		•	•	•		•
Voltage harmonics	•	•	•	15	•	•	•	15	•	•	•	•	50
Current harmonics	•	•		15	•	•		15	•	•	•	•	50
Active energy				•				•					•
Reactive energy L				•				•					•
Reactive energy C				•				•					•
Apparent energy				•				•					•
Flicker (WA and PST)									•	•	•		
Factor K (current)									•	•	•		
Peak factor (voltage)									•	•	•		
Unbalance (voltage and current)									•	•	•		
Asymmetry (voltage and current)									•	•	•		
Rates (optional)		3				1					9		
Analogue inputs (0/4 20mA)											•		
Analogue outputs (0/4 20mA)											•		
Digital inputs											•		
Digital outputs		•				•					•		
COMMUNICATIONS													
RS232													
RS485		•				•					•		
Ethernet											•		
PROTOCOLS													
Modbus RTU		•				•					•		
Modbus TCP											•		
Profibus DP (optional)											•		

• Available for display and communications
♦ Available only for communications

Surge Arresters

SurgeGuard for distribution networks

Applications

Standards

IEC 61643-I
IEC 61643-11/EN 61643-11
DIN VDE 0675-6
NF C61-740
BS 6651
UL1449 4th Edition

Approval / Marking

Features

- The line of surge arresters includes a full range of compact protectors for installation on DIN-rail. The devices are especially designed to provide complete and effective protection against surges, protecting equipment and property connected to the low voltage network.
- The range of surge arresters includes:
  - Class I limp = 100kA (monoblock)
  - Class I+II limp = 12.5kA and limp = 25kA (plug-in)
  - Class I+II limp = 7.5kA and limp = 15kA (monoblock) in 10/350ms waveform
  - Class II with different discharge capacities: 15kA, 40kA in 8/20ms waveform
  - Class II+III: 20kA in 8/20ms

  The most suitable value will be selected according to the type of installation, premises and equipments to be protected.
- NEW plug-in ranges
  in Class I+II, Class II and for photovoltaic application in uni- and multipole format.
- New Class II SPDs with UL approval for NEMA distribution nets line single Phase System,
  split phase, Delta, HLD, Wye Systems.
- New Class II plug-in SPDs for DC Photovoltaic application up to 1500Vdc
- 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.

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.
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 equiment (PLC, instrumentation, medical apparatus, monitoring devices) and even the protection of entire offshore drilling platforms.

More technical data pag. ***website*** | *Dimensions pag.* ***D.86***

Parameters

Impulse current (Iimp)
This is the peak current that the surge arrester can withstand without failing. The waveform of the applied current is normalised as 10/350µs, used in Class I devices.

Maximum discharge current (Imax)
This is the peak current that the surge arrester can withstand in a single pulse without failing. The waveform of the applied current is normalised as 8/20µs, used in Class II devices.

Nominal discharge current (In)
This is the current that the surge protection 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 surge arrester.

Performance

	SA BLOCK I	SA BLOCK I and II	SAP I+II	SAP II	SAP II+III	SA BLOCK II multi-phase
Energy impulse wave	10/350µs	10/350µs and 8/20µs	10/350µs and 8/20µs	8/20µs	8/20µs	8/20µs
Response time	<100ns	<25ns	<25ns	<25ns	<25ns	<25ns
Thermal fuse	no	yes	yes	yes	yes	yes
Thermal fuse healty 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
Usable in networks	TT, TN-S, TN-C, IT	TT, TN-S, TN-C, IT	TT, TN-S, TN-C, IT	TT, TN-S, TN-C, IT	TT, TN-S, TN-C, IT	TT, TN-S, TN-C, IT
Operating temperature	-40°C+80°C	-40°C...+80°C	-40°C...+80°C	-40°C...+80°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	16mm²	6mm²	10mm²	6mm²	6mm²	6mm²
max (flexible/grid)	35/50mm²	25/35mm²	25/35mm²	25/35mm²	25/35mm²	25/35mm²

SurgeGuard - Surge arresters - SA BLOCK I - Class I/B

New

2 mod.

System type	Electrical diagram	Un (V AC)	Uc (V)	Iimp	In (kA)	Up (kV)	Cat. No.	Ref. No.	Pack.
L-N (1ph)	A	230	275	50	50	<2	SA BLOCK I 50 2M	**660494**	1
N-PE (N)	B	Neutral	255	100	100	<2	SA BLOCK I 100 2M	**660495**	1

SurgeGuard - Surge arresters - Class I+II/B+C

Single phase PLUG-IN

TT, TN-S, TN-C, IT system

Iimp	Imax	In	Up	Up (L-N)	Up (N-PE)	Umax (Uc) per pole	No. of poles	Auxiliary contact	No. of modules	Cat. No.	Ref. No.	Pack.
25kA	100kA	25kA	1500V	-	-	275V	1P	-	2	SAP1 I+II 25/230	**660125**	1
25kA	100kA	25kA	1500V	-	-	275V	1P	1CO	2	SAP1 I+II 25/230 C	**660127**	1
Neutral-earth SPD's for TT systems												
100kA	100kA	50kA	1500V	-	-	255V	1P	-	2	SAP1 I+II 100N	**660391**	1

Multi-phase PLUG-IN

TT system

12.5kA	65kA	20kA	-	1300V	1500V	275V	2P	-	2	SAP2 I+II 12.5 TT	**660139**	1
12.5kA	65kA	20kA	-	1300V	1500V	275V	2P	1CO	2	SAP2 I+II 12.5 TT C	**660140**	1
12.5kA	65kA	20kA	-	1300V	1500V	275V	4P	-	4	SAP4 I+II 12.5 TT	**660150**	1
12.5kA	65kA	20kA	-	1300V	1500V	275V	4P	1CO	4	SAP4 I+II 12.5 TT C	**660151**	1

TN-S system

12.5kA	65kA	20kA	-	1300V	-	275V	2P	-	2	SAP2 I+II 12.5 TNS	**660143**	1
12.5kA	65kA	20kA	-	1300V	-	275V	2P	1CO	2	SAP2 I+II 12.5 TNS C	**660144**	1
12.5kA	65kA	20kA	-	1300V	-	275V	4P	-	4	SAP4 I+II 12.5 TNS	**660152**	1
12.5kA	65kA	20kA	-	1300V	-	275V	4P	1CO	4	SAP4 I+II 12.5 TNS C	**660156**	1

TN-C system

12.5kA	65kA	20kA	-	1300V	-	275V	3P	-	3	SAP3 I+II 12.5 TNC	**660147**	1
12.5kA	65kA	20kA	-	1300V	-	275V	3P	1CO	3	SAP3 I+II 12.5 TNC C	**660148**	1

Replacement modules for Class I+II/B+C

Iimp	Imax	In	Up	Up (L-N)	Up (N-PE)	Umax (Uc)	No. of poles	Auxiliary contact	No. of modules	Cat. No.	Ref. No.	Pack.
25kA	100kA	25kA	1500V	-	-	275V	1P	-	2	SAM I+II 25/230	**660199**	1
12.5kA	65kA	20kA	1300V	-	-	275V	1P	-	1	SAM I+II 12.5/230	**660294**	1
Neutral-earth replacement modules for SAPx I+II...N												
100kA	100kA	50kA	1500V	-	-	255V	1P	-	2	SAM I+II 100N	**660393**	1
50kA	65kA	50kA	1500V	-	-	255V	1P	-	1	SAM I+II 50N	**660274**	1
25kA	65kA	25kA	1500V	-	-	255V	1P	-	1	SAM I+II 25N	**660296**	1

New

SurgeGuard - Surge arresters - Class II/C

Class II protectors are the most frequently used because they offer high protection and are compatible with most equipments.

Single phase PLUG-IN

	Imax	In	Up	Up (L-N)	Up (N-PE)	Umax (Uc) per pole	No. of poles	Auxiliary contact	No. of modules	Cat. No.	Ref. No.	Pack.
TT, TN-S, TN-C, IT system	40kA	20kA	-	1300V	-	275V	1P	-	1	SAP1 II 40/230	**660158**	1
	40kA	20kA	-	1300V	-	275V	1P	1CO	1	SAP1 II 40/230 C	**660160**	1
	40kA	20kA	-	2000V	-	440V	1P	-	1	SAP1 II 40/400	**660159**	1
	40kA	20kA	-	2000V	-	440V	1P	1CO	1	SAP1 II 40/400 C	**660162**	1
Neutral-earth SPD's for TT systems												
	40kA	20kA	-	-	1500V	265V	1P	-	1	SAP1 II 40N	**660163**	1
	20kA	10kA	-	-	1500V	255V	1P	-	1	SAP1 II 20N	**660169**	1

Multi-phase PLUG-IN

	Imax	In	Up	Up (L-N)	Up (N-PE)	Umax (Uc) per pole	No. of poles	Auxiliary contact	No. of modules	Cat. No.	Ref. No.	Pack.
TT system	40kA	20kA	-	1300V	1500V	275V	2P	-	2	SAP2 II 40/230 TT	**660171**	1
	40kA	20kA	-	1300V	1500V	275V	2P	1CO	2	SAP2 II 40/230 TTC	**660172**	1
	40kA	20kA	-	1300V	1500V	275V	4P	-	4	SAP4 II 40/400 TT	**660183**	1
	40kA	20kA	-	1300V	1500V	275V	4P	1CO	4	SAP4 II 40/400 TTC	**660184**	1

	Imax	In	Up	Up (L-N)	Up (N-PE)	Umax (Uc) per pole	No. of poles	Auxiliary contact	No. of modules	Cat. No.	Ref. No.	Pack.
TN-S system	40kA	20kA	-	1300V	-	275V	2P	-	2	SAP2 II 40/230 TNS	**660175**	1
	40kA	20kA	-	1300V	-	275V	2P	1CO	2	SAP2 II 40/230 TNSC	**660176**	1
	40kA	20kA	-	1300V	-	275V	4P	-	4	SAP4 II 40/400 TNS	**660187**	1
	40kA	20kA	-	1300V	-	275V	4P	1CO	4	SAP4 II 40/400 TNSC	**660188**	1

	Imax	In	Up	Up (L-N)	Up (N-PE)	Umax (Uc) per pole	No. of poles	Auxiliary contact	No. of modules	Cat. No.	Ref. No.	Pack.
TN-C system	40kA	20kA	-	1300V	-	275V	3P	-	3	SAP3 II 40/400 TNC	**660179**	1
	40kA	20kA	-	1300V	-	275V	3P	1CO	3	SAP3 II 40/400 TNCC	**660180**	1

SurgeGuard - Surge arresters - Class II+III/C+D

New

	Imax	In	Up	Up (L-N)	Up (N-PE)	Umax (Uc) per pole	No. of poles	Auxiliary contact	No. of modules	Cat. No.	Ref. No.	Pack.
TT system	20kA	10kA	-	1400V	1500V	320V	2P	-	2	SAP2 II 20/230 TT	**660173**	1
	20kA	10kA	-	1400V	1500V	320V	2P	1CO	2	SAP2 II 20/230 TTC	**660174**	1
	20kA	10kA	-	1400V	1500V	320V	4P	-	4	SAP4 II 20/400 TT	**660185**	1
	20kA	10kA	-	1400V	1500V	320V	4P	1CO	4	SAP4 II 20/400 TTC	**660186**	1

	Imax	In	Up	Up (L-N)	Up (N-PE)	Umax (Uc) per pole	No. of poles	Auxiliary contact	No. of modules	Cat. No.	Ref. No.	Pack.
TN-S system	20kA	10kA	-	1400V	-	320V	2P	-	2	SAP2 II 20/230 TNS	**660177**	1
	20kA	10kA	-	1400V	-	320V	2P	1CO	2	SAP2 II 20/230 TNSC	**660178**	1
	20kA	10kA	-	1400V	-	320V	4P	-	4	SAP4 II 20/400 TNS	**660189**	1
	20kA	10kA	-	1400V	-	320V	4P	1CO	4	SAP4 II 20/400 TNSC	**660190**	1

	Imax	In	Up	Up (L-N)	Up (N-PE)	Umax (Uc) per pole	No. of poles	Auxiliary contact	No. of modules	Cat. No.	Ref. No.	Pack.
TN-C system	20kA	10kA	-	1400V	-	320V	3P	-	3	SAP3 II 20/400 TNC	**660181**	1
	20kA	10kA	-	1400V	-	320V	3P	1CO	3	SAP3 II 20/400 TNCC	**660182**	1

Replacement modules for Class II/B and Class II+III/C+D

	Imax	In	Up	Up (L-N)	Up (N-PE)	Umax (Uc)	No. of poles	Auxiliary contact	No. of modules	Cat. No.	Ref. No.	Pack.
For TT, TN-S, TN-C, IT system	40kA	20kA	1300V	-	-	275V	1P	-	1	SAM II 40/230	**660373**	1
	40kA	20kA	2000V	-	-	440V	1P	-	1	SAM II 40/400	**660374**	1
	20kA	10kA	1400V	-	-	320V	1P	-	1	SAM II 20/230	**660297**	1
Neutral-earth replacement modules for SAPx II...N												
	40kA	20kA	1500V	-	-	265V	1P	-	1	SAM II 40N	**660375**	1
	20kA	10kA	1500V	-	-	255V	1P	-	1	SAM II 20N	**660299**	1

New

MonoBlock - SurgeGuard - Surge arresters - Class I+II/B+C

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 MONOBLOCK

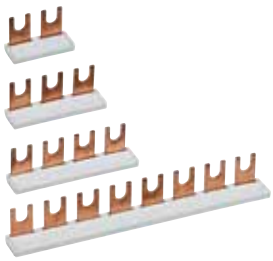
	Iimp Class I/Class II	In Class II	Up	Up (L-N)	Up (N-PE)	Umax (Uc) per pole	No. of poles	Auxiliary contact	No. of modules	Cat. No.	Ref. No.	Pack.
TT, TN-S	15kA/100KA	30kA	-	1300V	-	275V	1P	-	2	SA BLOCK I and II 100	**667486**	1
TN-C, IT	30kA/100KA	60kA	-	-	1500V	275V	1P	-	2	SA BLOCK I and II 100N	**667487**	1
	7.5kA/65KA	20kA	-	1300V	-	275V	1P	-	1	SA BLOCK I and II 65	**667517**	1
	12kA/65KA	20kA	-	-	1500V	275V	1P	-	1	SA BLOCK I and II 65N	**667518**	1

MonoBlock - SurgeGuard - Surge arresters - Class II/C

Multi-phase MONOBLOCK

	Iimp	In	Up	Up (L-N)	Up (N-PE)	Umax (Uc) per pole	No. of poles	Auxiliary contact	No. modules	Cat. No.	Ref. No.	Pack.
Common and differential mode protection - TT system												
	15kA	5kA	-	1200V	1500V	275V	2P	-	1	SA BLOCK II 15LN	**667483**	1
	15kA	5kA	-	1200V	1500V	275V	2P	-	2	SA BLOCK II 15/230 LNE	**667488**	1
	40kA	15kA	-	1300V	1500V	275V	2P	-	2	SA BLOCK II 40/230 LNE	**667490**	1
	15kA	5kA	-	1200V	1500V	440V	4P	-	4	SA BLOCK II 15/400 3L+NE	**667494**	1
	40kA	15kA	-	1300V	1500V	440V	4P	-	4	SA BLOCK II 40/400 3L+NE	**667496**	1
Common mode protection - TNS system												
	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

Insulated FORK type busbars



Section	Description	Cat. No.	Ref. No.	Pack.
10mm²	2x1P - 90°	EV-G.1.2.80-90°	**624993**	20
10mm²	3x1P - 90°	EV-G.1.3.80-90°	**644893**	20
10mm²	4x1P - 90°	EV-G.1.4.80-90°	**568106**	20
10mm²	8x1P - 90°	EV-G.1.8.80-90°	**644897**	20

PROTECT

Surge protection devices DIN-rail with UL approval

UL1449 4th edition

The objective of UL1449 has always been to increase safety in terms of surge protection. Thus, major changes have recently been made to the surge protection standard. The latest edition, known as UL1449 3rd edition, was published on September 29, 2006 and took effect September 2009, and is now also an ANSI standard.
A revision was made on February 8, 2011.

To avoid confusion, the objective of this paper is to explain and summarize the major changes made to the standard.

The key updates are:

- Change in the standard's name
- The nominal discharge current

Approval / Marking

Change in the standard's name: from TVSS to SPDs

Prior to UL1449 3rd edition taking effect, the devices this standard covers were known as transient voltage surge suppressors standard covers were known as transient voltage surge suppressors (TVSS), operating on power circuits not exceeding 600V. With the inception of the 3rd edition, these devices are now known as surge protective devices (SPDs), and may operate on power circuits not exceeding 1000V. This new designation moves the UL standard closer to the International designation and to IEC standards. The new edition is now renamed UL standard for safety for surge protective devices, UL1449.

The nominal discharge current, known as In test is new to UL1449, coming from the IEC standard.

During the test, the SPD is subjected to 15 impulses at the selected nominal discharge current. In order to pass, the SPD cannot create a shock or fire hazard during the test, and nothing in the surge path can open during or after the test.
The nominal discharge current values, with a 8/20 µs wave shape, are selected by the manufacturer as follows:
Type 1: 10 or 20kA
Type 2: 3, 5, 10 or 20kA
Type 1, Type 2 and Type 4 SPDs (intended for type 1 or Type 2 applications) are subjected to this test.
Sources: Underwriters Laboratories Inc., standard for safety, surge protective devices (UL1449 4th Edition, 2014)

New

More technical data pag. ***website*** | *Dimensions pag.* ***D.76***

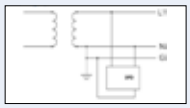
Surge arresters - Class II- SAP Line UL1449 3rd Edition

1P devices

In (A)	Imax	Service voltage	MCOV Uc	Auxiliary contact	No. of modules(1)	Cat. No.	Ref. No.	Pack.
20	40	120V	175	no	1	SAP1II40175	**660608**	1
20	40	240V	275	no	1	SAP1II40275	**660609**	1
20	40	277V	320	no	1	SAP1II40320	**660611**	1
20	40	120V	175	yes	1	SAP1II40175C	**660612**	1
20	40	240V	275	yes	1	SAP1II40275C	**660613**	1
20	40	277V	320	yes	1	SAP1II40320C	**660614**	1

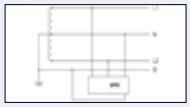
Single phase system

In (A)	Imax	Service voltage	MCOV Uc	Auxiliary contact	No. of modules(1)	Cat. No.	Ref. No.	Pack.
20	40	120V single phase	175	no	2	SAP2II40175	**660615**	1
20	40	240V single phase	320	no	2	SAP2II40320	**660616**	1
20	40	277V single phase	320	no	2	SAP2II40320	**660616**	1
20	40	120V single phase	175	yes	2	SAP2II40175C	**660617**	1
20	40	240V single phase	320	yes	2	SAP2II40320C	**660618**	1
20	40	277V single phase	320	yes	2	SAP2II40320C	**660618**	1



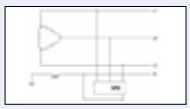
Split phase system

In (A)	Imax	Service voltage	MCOV Uc	Auxiliary contact	No. of modules(1)	Cat. No.	Ref. No.	Pack.
20	40	240V/120V split phase	175	no	3	SAP3II40175	**660619**	1
20	40	480V/240V split phase	320	no	3	SAP3II40320	**660620**	1
20	40	240V/120V split phase	175	yes	3	SAP3II40175C	**660621**	1
20	40	480V/240V split phase	320	yes	3	SAP3II40320C	**660622**	1



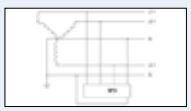
Delta system

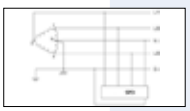
In (A)	Imax	Service voltage	MCOV Uc	Auxiliary contact	No. of modules(1)	Cat. No.	Ref. No.	Pack.
20	40	240V Delta	320	no	3	SAP3II40320	**660620**	1
10	30	600V Delta	750V	yes	3	SAP3II30750	**660624**	1
20	40	240V Delta	320	yes	3	SAP3II40320C	**660622**	1
10	30	600V Delta	750	yes	3	SAP3II30750C	**660626**	1



HLD System
Wye System

In (A)	Imax	Service voltage	MCOV Uc	Auxiliary contact	No. of modules(1)	Cat. No.	Ref. No.	Pack.
20	40	240V/120V High Leg Delta	320	no	4	SAP4II40320	**660627**	1
20	40	240V/120V High Leg Delta	320	yes	4	SAP4II40320C	**660628**	1
20	40	480Y/277V Wye system	320	no	4	SAP4II40320	**660627**	1
20	40	480Y/277V Wye system	320	yes	4	SAP4II40320C	**660628**	1
20	40	208Y/120V Wye System	175	no	4	SAP4II40175	**660629**	1
20	40	208Y/120V Wye System	175	yes	4	SAP4II40175C	**660630**	1





Pluggable cartridges

In (A)	Imax	MCOV Uc	Cartridges replacement In	Cat. No.	Ref. No.	Pack.
20	40	175	SAP1II40175; SAP1II40175C; SAP2II40175; SAP2II40175C; SAP3II40175; SAP3II40175C; SAP4II40175; SAP4II40175C	SAMII40175	**660631**	1
20	40	275	SAP1II40275; SAP1II40275C	SAMII40275	**660632**	1
20	40	320	SAP1II40320; SAP1II40320C; SAP2II40320; SAP2II40320C; SAP3II40320; SAP3II40320C; SAP4II40320	SAMII40320	**660633**	1
10	30	750	SAP3II30750; SAP3II30750C	SAMII30750	**660634**	1

(1) 1 mod. = 18mm

New

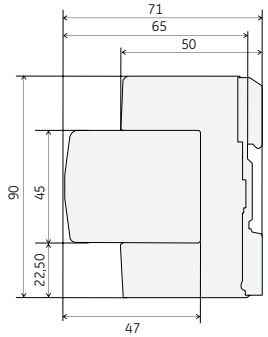
Technical features - SPDs with UL approval

Models		SAP1 II 40/175	SAP1 II 40/275	SAP1 II 40/320
Codes		660608	660609	660611
Communication models		**SAP1 II 40/175C**	**SAP1 II 40/275C**	**SAP1 II 40/320C**
Communication codes		**660612**	**660613**	**660614**
UL File		E468805	E468805	E468805
Designation according UL 1449 4th edition		SPD Type 2CA	SPD Type 2CA	SPD Type 2CA
Maximum continuous operating voltage	MCOV (V)	175	275	320
Nominal discharge current (8/20 µ)	I_n (kA)	20	20	20
Voltage protection rating	VPR (V)	700	900	1200
Short circuit current rating	SCCR (kA)	100	85	100
Designation according to EN 61643-11/IEC 61643-1		Type 2/Class II	Type 2/Class II	Type 2/Class II
Nominal voltage AC 50-60Hz	U_n (V)	120	230	277
Max. continuous operating voltage	U_C (V)	175	275	320
Max. discharge current (8/20 µs)	I_{max} (kA)	40	40	40
Voltage protection level	U_P (kV)	≤1	≤1.3	≤1.4
Response time	t_A (ns)	≤25	≤25	≤25
Max. mains-side overcurrent protection	(A gL/gG)	125	125	125
Short-circuit withstand capability for max. mains-side overcurrent protection	Icc (kA)	25	25	25
Temporary overvoltage (TOV)	U_T (V)	337/5sec.	337/5sec.	337/5sec.
TOV characteristics		withstand	withstand	withstand
Operating temperature range (parallel)/(series)	T_U (°C)	-40 ... +85	-40 ... +85	-40 ... +85
Operating state/fault indication		green/red	green/red	green/red
Number of ports		1	1	1
Cross-sectional area (min.)		6mm² solid/flexible	6mm² solid/flexible	6mm² solid/flexible
Cross-sectional area (max.)		35mm² stranded/25mm² flexible	35mm² stranded/25mm² flexible	35mm² stranded/25mm² flexible
For mounting on		36mm DIN-rail acc. to EN 60715	36mm DIN-rail acc. to EN 60715	36mm DIN-rail acc. to EN 60715
Enclosure material		PA+FG UL94 V-0	PA+FG UL94 V-0	PA+FG UL94 V-0
Location category		indoor	indoor	indoor
Degree of protection		IP 20	IP 20	IP 20
Capacity		1 mod/phase DIN 43880	1 mod/phase DIN 43880	1 mod/phase DIN 43880
Approvals, certifications		UL, CE	UL, CE	UL, CE
Type of remote signalling contact		changeover contact (C models)	changeover contact (C models)	changeover contact (C models)
Switching capacity a.c. (pollution degree = 2)		250V/1A (C models)	250V/1A (C models)	250V/1A (C models)
Switching capacity a.c. (pollution degree = 3)		125V/3A (C models)	125V/3A (C models)	125V/3A (C models)
Cross-sectional area for remote signalling terminals		max 1.5mm² solid/flexible	max 1.5mm² solid/flexible	max 1.5mm² solid/flexible

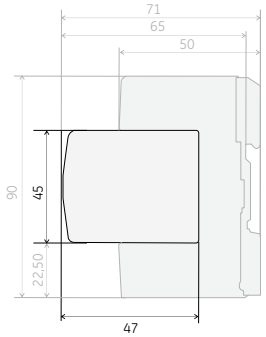
Dimensional drawings

Surge protection devices (SPDs) - SAP, SAPV, SAM

PLUG-IN types

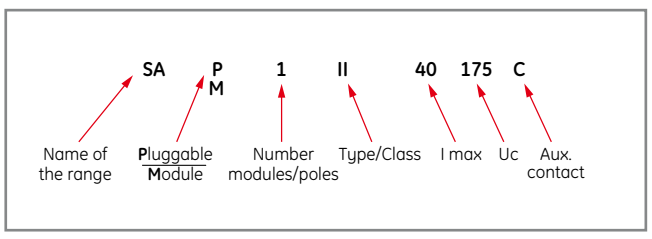


Replacement modules



SAP2 II 40/175 660615	SAP2 II 40/320 660616	SAP3 II 40/175 660619	SAP3 II 40/320 660620	SAP3 II 30/750 660624	SAP4 II 40/175 660629	SAP4 II 40/320 660627
SAP2 II 40/175C 660617	**SAP2 II 40/320C 660618**	**SAP3 II 40/175C 660621**	**SAP3 II 40/320 660620**	**SAP3 II 30/750C 660626**	**SAP4 II 40/175C 660630**	**SAP4 II 40/320C 660628**
E468805	E468805	E468805	E468805	E468805	E468805	E468805
SPD Type 2CA	SPD Type 2CA	SPD Type 2CA	SPD Type 2CA	SPD Type 2CA	SPD Type 2CA	SPD Type 2CA
175	320	175	320	750	175	320
20	20	20	20	10	20	20
700	1200	700	1200	2500	700	1200
100	100	100	100	50	100	100
Type 2/Class II	Type 2/Class II	Type 2/Class II	Type 2/Class II	Type 2/Class II	Type 2/Class II	Type 2/Class II
120	277	120	277	600	120	277
175	320	175	320	750	175	320
40	40	40	40	30	40	40
≤1	≤1,4	≤1	≤1,4	≤3	≤1	≤1,4
≤25	≤25	≤25	≤25	≤25	≤25	≤25
125	125	125	125	63	125	125
25	25	25	25	25	25	25
337/5sec.	337/5sec.	337/5sec.	337/5sec.	337/5sec.	337/5sec.	337/5sec.
withstand	withstand	withstand	withstand	withstand	withstand	withstand
-40 ... +85	-40 ... +85	-40 ... +85	-40 ... +85	-40 ... +85	-40 ... +85	-40 ... +85
green/red	green/red	green/red	green/red	green/red	green/red	green/red
1	1	1	1	1	1	1
6mm² solid/flexible	6mm² solid/flexible	6mm² solid/flexible	6mm² solid/flexible	6mm² solid/flexible	6mm² solid/flexible	6mm² solid/flexible
35mm² stranded/25mm² flexible	35mm² stranded/25mm² flexible	35mm² stranded/25mm² flexible	35mm² stranded/25mm² flexible	35mm² stranded/25mm² flexible	35mm² stranded/25mm² flexible	35mm² stranded/25mm² flexible
36mm DIN-rail acc. to EN 60715	36mm DIN-rail acc. to EN 60715	36mm DIN-rail acc. to EN 60715	36mm DIN-rail acc. to EN 60715	36mm DIN-rail acc. to EN 60715	36mm DIN-rail acc. to EN 60715	36mm DIN-rail acc. to EN 60715
PA+FG UL94 V-0	PA+FG UL94 V-0	PA+FG UL94 V-0	PA+FG UL94 V-0	PA+FG UL94 V-0	PA+FG UL94 V-0	PA+FG UL94 V-0
indoor	indoor	indoor	indoor	indoor	indoor	indoor
IP 20	IP 20	IP 20	IP 20	IP 20	IP 20	IP 20
1 mod/phase DIN 43880	1 mod/phase DIN 43880	1 mod/phase DIN 43880	1 mod/phase DIN 43880	1 mod/phase DIN 43880	1 mod/phase DIN 43880	1 mod/phase DIN 43880
UL, CE	UL, CE	UL, CE	UL, CE	UL, CE	UL, CE	UL, CE
changeover contact (C models)	changeover contact (C models)	changeover contact (C models)	changeover contact (C models)	changeover contact (C models)	changeover contact (C models)	changeover contact (C models)
250V/1A (C models)	250V/1A (C models)	250V/1A (C models)	250V/1A (C models)	250V/1A (C models)	250V/1A (C models)	250V/1A (C models)
125V/3A (C models)	125V/3A (C models)	125V/3A (C models)	125V/3A (C models)	125V/3A (C models)	125V/3A (C models)	125V/3A (C models)
max 1.5mm² solid/flexible	max 1.5mm² solid/flexible	max 1.5mm² solid/flexible	max 1.5mm² solid/flexible	max 1.5mm² solid/flexible	max 1.5mm² solid/flexible	max 1.5mm² solid/flexible

Catalogue number guide for ElfaPlus line surge protective devices



Examples

SA	P	1	II	40	175	-
SA	P	2	II	40	320	-
SA	P	3	II	40	320	-
SA	P	3	II	30	750	-
SA	P	1	II	40	175	C
SA	P	2	II	40	320	C
SA	P	3	II	40	320	C
SA	P	3	II	30	750	C

New

UL1449 3rd edition, DIN-rail

SPDs for photovoltaic application

Application

Approval / Marking

Features

SAPV is the series of devices that provide advanced overvoltage protection to photovoltaic systems by utilizing GEIS's optimized dynamic thermal disconnection system, which does not require additional overcurrent protection (back-up fuse) due to its high short-circuit withstand rating. These surge protective devices are suitable for all PV applications: large-scale, rooftop and self-consumption (off-grid) DC installations.

Ratings and features

- Maximum discharge current (8/20µs): 40kA
- Nominal discharge current (8/20µs): 20kA (10kA for 1500V DC)
- Ucpv: 660, 1060 Vdc and 1500V DC
- Iscpv: 10kA (EN-50539-11), no back-up fuse required
- SCCR: 50kA, 65kA, 100kA (UL1449 3rd edition)
- DIN-rail mountable, plug-in format
- Visual and remote end of life indicators

Surge arresters - Class II- SAPV Line UL1449 3rd Edition

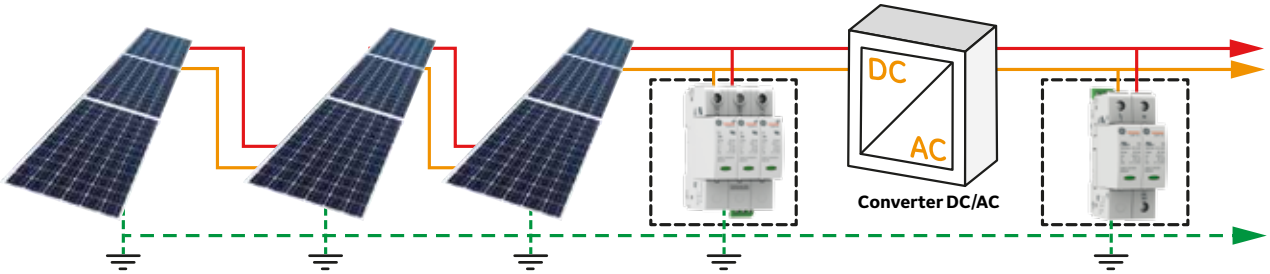
	In (kA)	Imax	Service voltage AC/DC/DC PV	MCOV Uc	Up (Ures)	Auxiliary contact	No. of modules(1)	Cat. No.	Ref. No.	Pack.
Photovoltaic application	20	40	600 DC PV	600	2600	no	3	SAPVII40/600	**660195**	1
	20	40	600 DC PV	600	2600	yes	3	SAPVII40/600C	**660196**	1
	20	40	1000 DC PV	1000	4000	no	3	SAPVII40/1000	**660197**	1
	20	40	1000 DC PV	1000	4000	yes	3	SAPVII40/1000C	**660198**	1
	10	40	1500 DC PV	1500	5000	no	3	SAPVII40/1500	**660496**	1
	10	40	1500 DC PV	1500	5000	yes	3	SAPVII40/1500C	**660497**	1

(1) 1 mod. = 18mm

Pluggable cartridges

	In (kA)	Imax	Service voltage AC/DC/DC PV	To be replaced in		Cat. No.	Ref. No.	Pack.
	20	40	600 DC PV	SAPVII40/600	SAPVII40/600C	SAM II 40/600PV	**660378**	1
	20	40	1000 DC PV	SAPVII40/1000	SAPVII40/1000C	SAM II 40/1000PV	**660379**	1
	10	40	1500 DC PV	SAPVII40/1500	SAPVII40/1500C	SAM II 40/1500PV	**660498**	1

Installation of SAP SPDs on photovlotaic networks



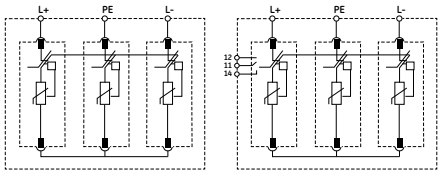
New

SAPV II 40

UL1449 3rd edition, DIN-rail

Three pole transient surge protector

Internal configuration



Technical features

Models Codes		SAP3 II 40/600 660195	SAP3 II 40/1000 660197	SAP3 II 40/1500 660496
Communication models **Communication codes**		**SAP3 II 40/600** **660196**	**SAP3 II 40/1000C** **660198**	**SAP3 II 40/1500C** **660497**
UL File		E468805	E468805	E468805
Designation according UL 1449 3rd Edition		PV SPD Type 2CA	PV SPD Type 2CA	PV SPD Type 2CA
Maximum continuous operating voltage	MCOV (V)	600	1000	1500
Nominal discharge current (8/20 µs)	I_n (kA)	20	20	10
Voltage protection rating	VPR (V)	1800	3000	4000
Short circuit current rating	SCCR (kA)	100	50	65
Designation according to EN 50539-11		Type 2	Type 2	Type 2
Maximum continuous operating voltage DC	U_{CVP} (V)	660	1060	1500
Max. Discharge current (8/20 µs)	I_{max} (kA)	40	40	20
Short-circuit withstand capability for max. mains-side overcurrent protection	I_{SCVP} (kA)	10	10	10
Voltage protection level	U_P (kV)	≤ 2.6	≤ 4	≤ 5
Response time	t_A (ns)	≤ 25	≤ 25	≤ 25
Operating temperature range (parallel)/(series)	T_U (C°)		-40 ... +85	
Operating state/fault indication			green/red	
Number of ports			1	
Cross-sectional area (min.)			6mm² solid / flexible	
Cross-sectional area (max.)			35mm² stranded / 25mm² flexible	
For mounting on			36mm DIN rail acc. To EN 60715	
Enclosure material			PA+FG UL94 V-0	
Location category			indoor	
Degree of protection			IP 20	
Capacity			1 mod/phase DIN 4388	
Approvals, Certifications			UL, CE	
Type of remote signalling contact			changeover contact (C models)	
Switching capacity AC			250V / 1A (C models)	
Switching capacity DC			125V / 0,2A (C models)	
Cross-sectional area for remote signalling terminals			max 1,5 mm² solid / flexible (C models)	

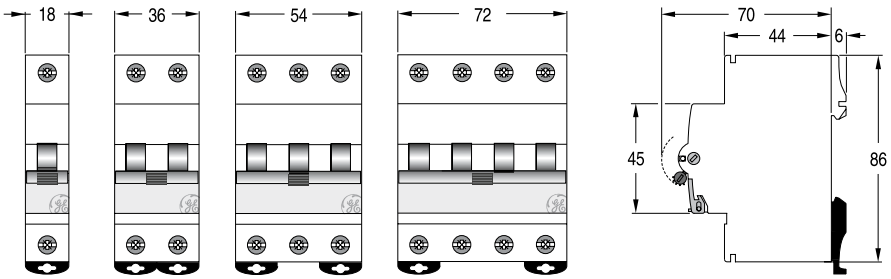
Accessories - Replacement modules

Models Codes	SAM II 40/600 PV 660378	SAM II 40/1000 PV 660379	SAM II 40/1500 PV 660498
	Protection module phase-neutral for		
	SAPV II 40/600	SAPV II 40/1000	SAPV II 40/1500
	SAPV II 40/600 C	SAPV II 40/1000 C	SAPV II 40/1500 C

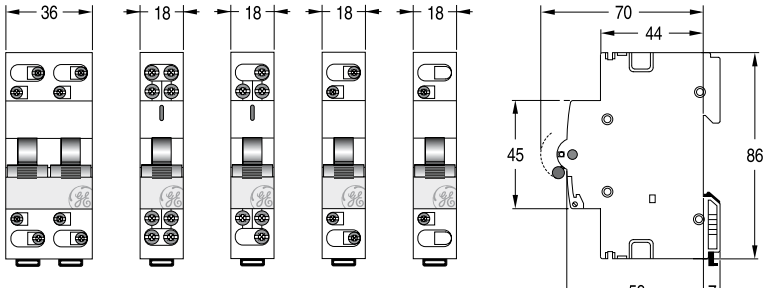
New

Dimensional drawings

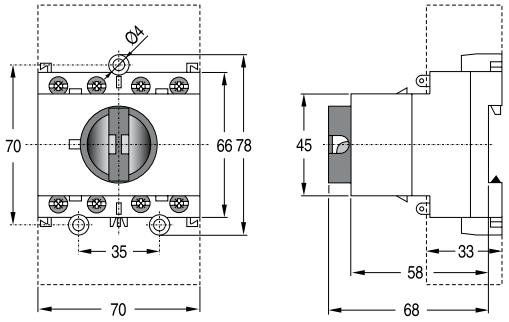
Mains disconnect switches - Aster



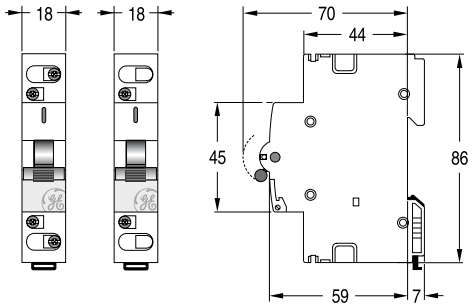
Switches - Aster



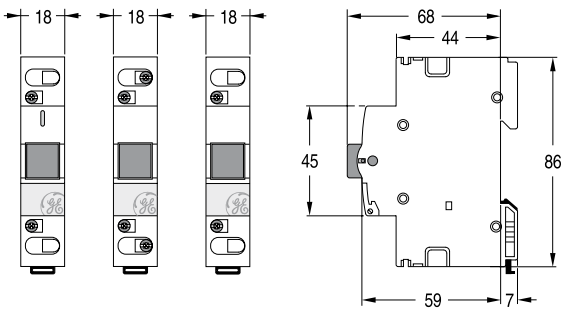
Rotary switches - Aster



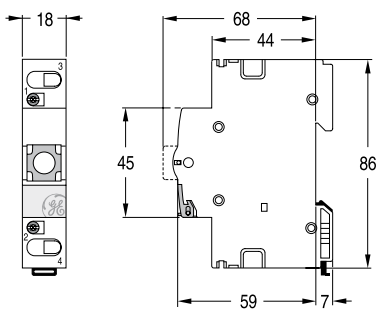
Switches with signal lamp - Aster



Push-buttons - Aster

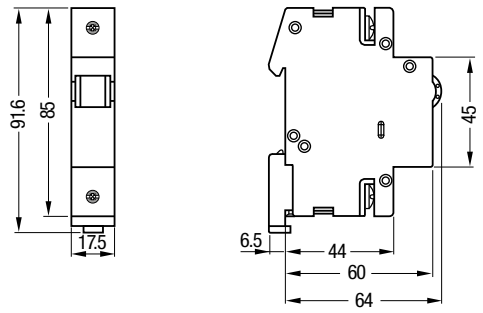


Indication lamp - Aster

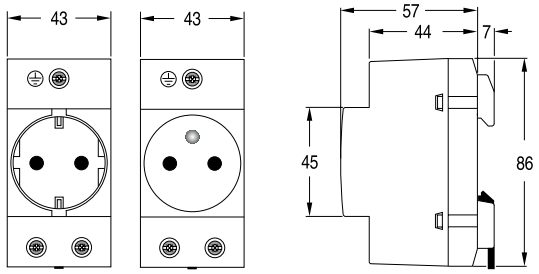


Dimensional drawings

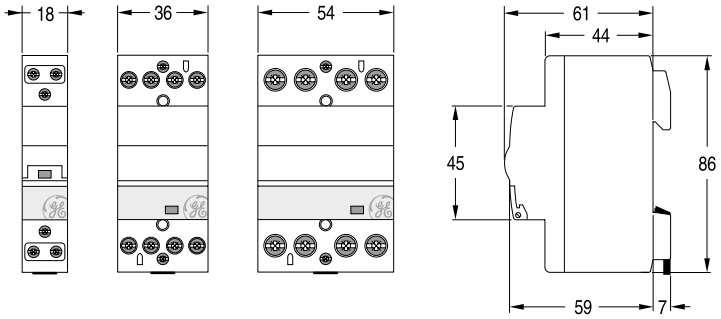
Aster BL - Assembled indication lamps



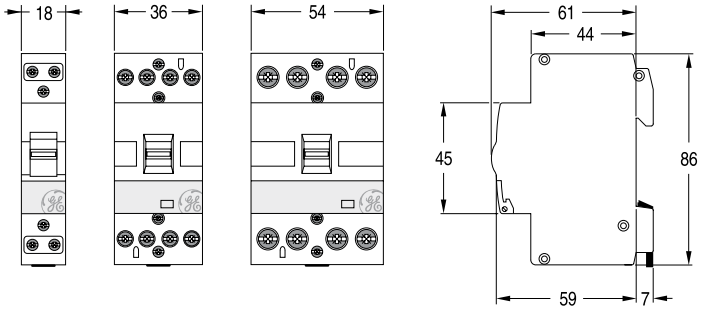
Socket-outlet - Series MSC



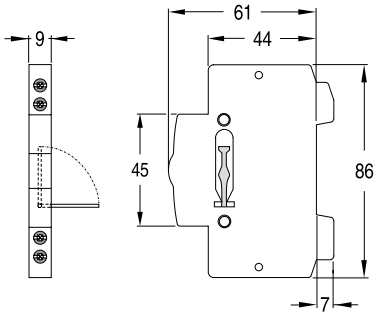
Contactors - Contax



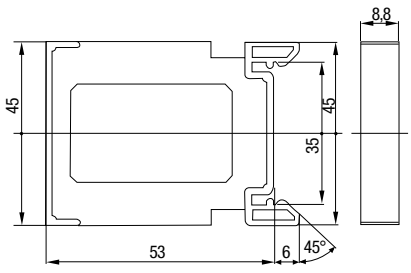
Contactors Day and Night - Contax (L) (R)



Contactors - Auxiliary contact - Contax

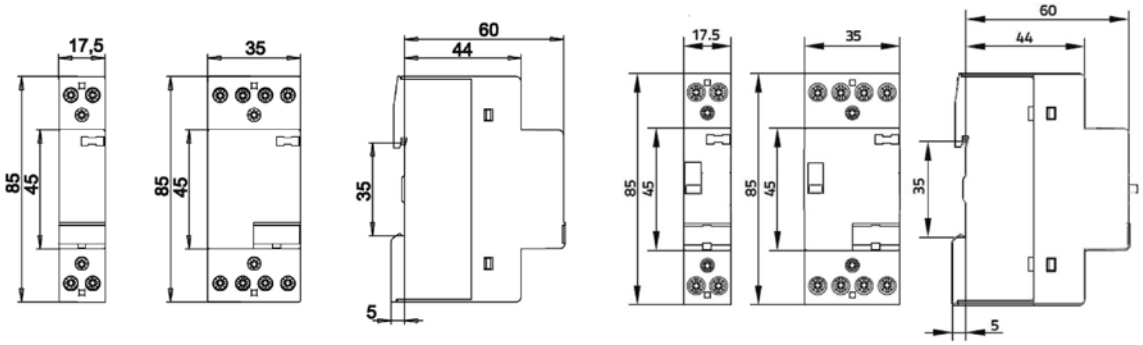


Contactors - Spacer - Contax

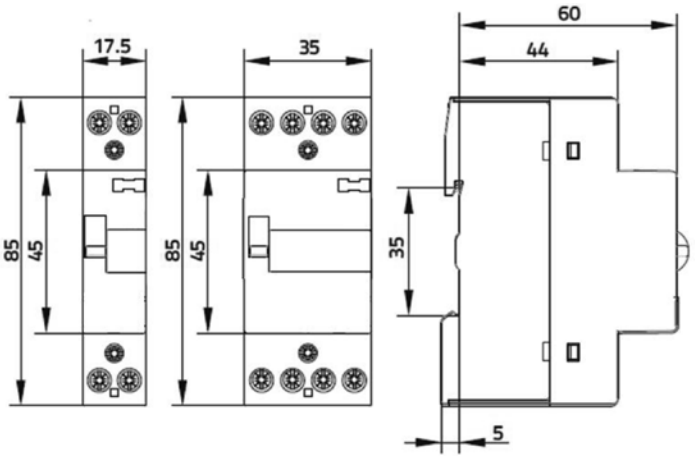


Dimensional drawings

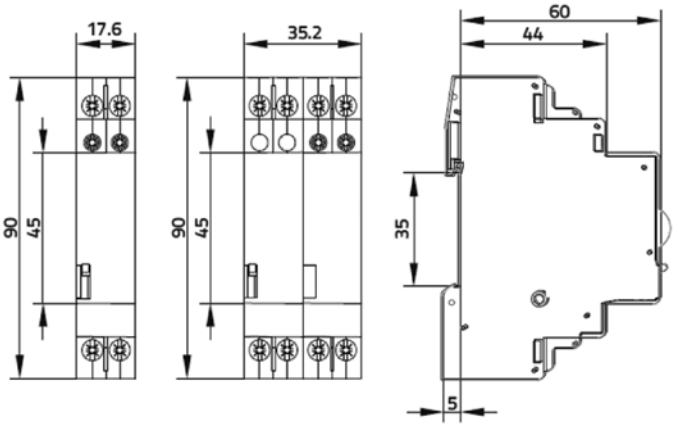
Contactors - Contax L



Relays - Contax R

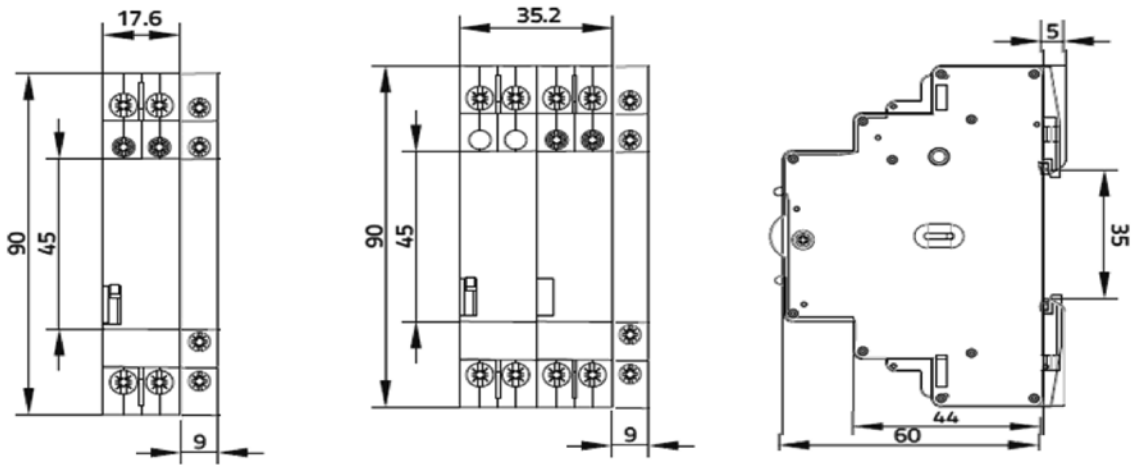


Impulse switches - Pulsar S

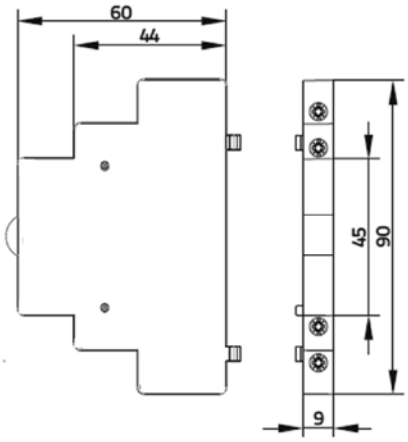


Dimensional drawings

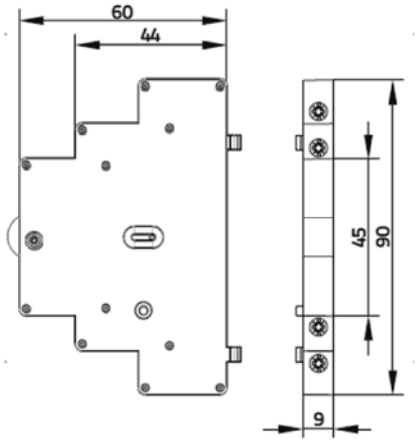
Impulse switches - Pulsar S - PLSC



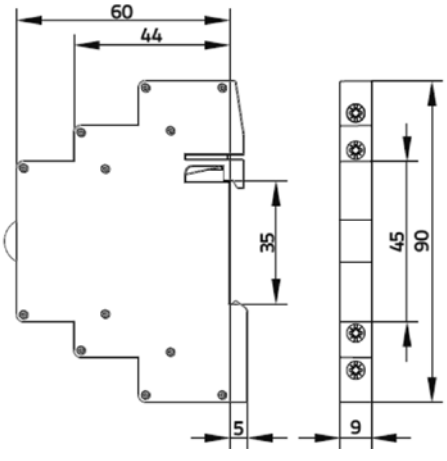
Auxiliary contact for Contax R



Auxiliary contact and central control - Pulsar

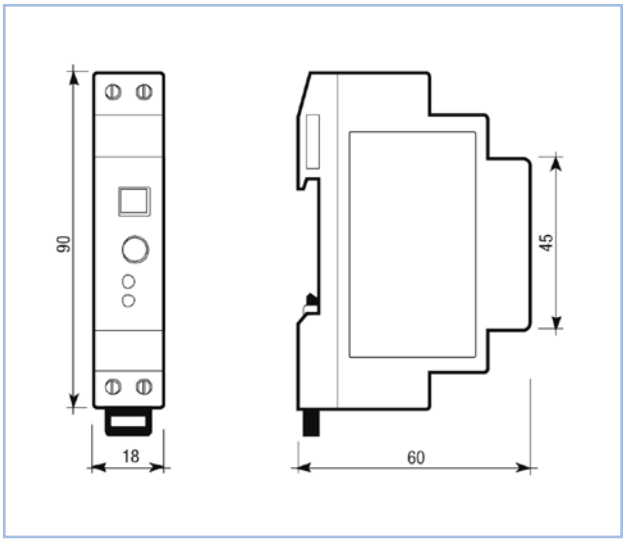


Multilevel central command - Pulsar S

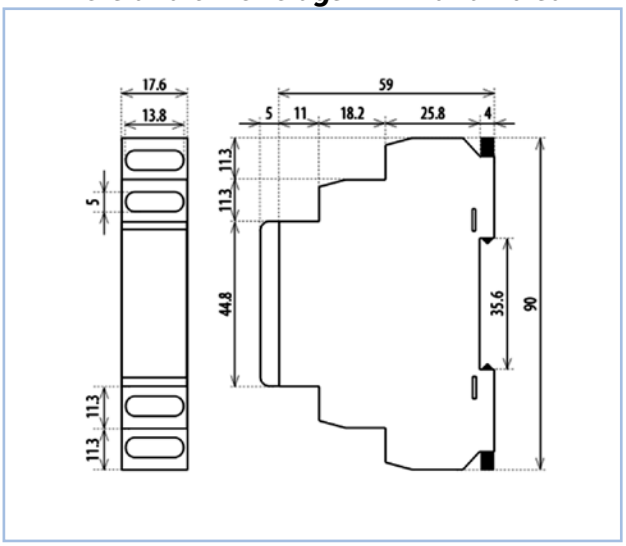


Dimensional drawings

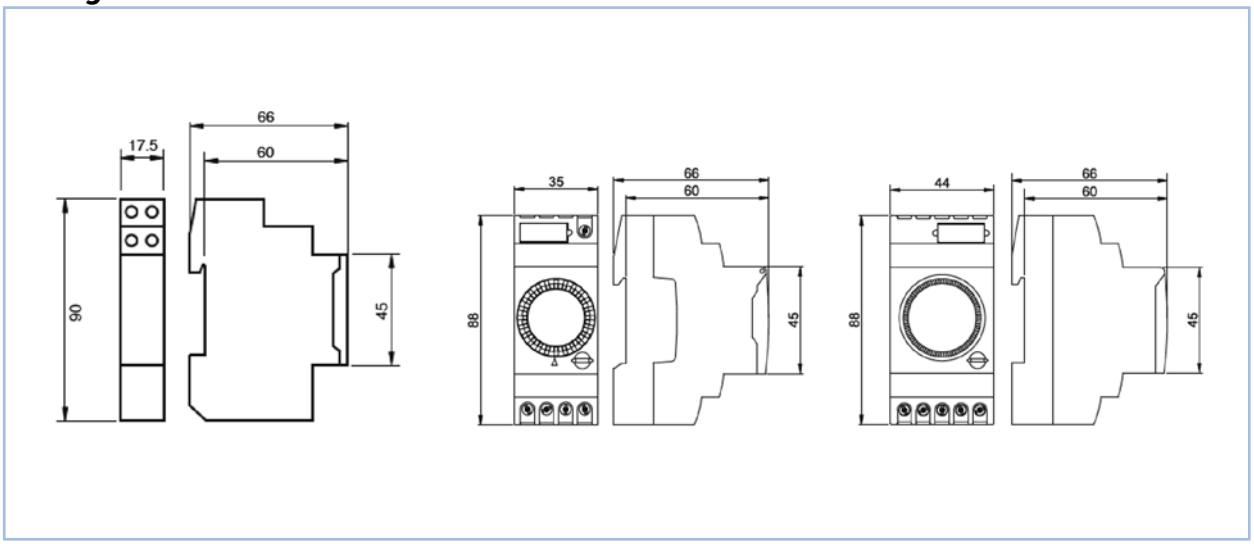
Staircase switches - Pulsar SC



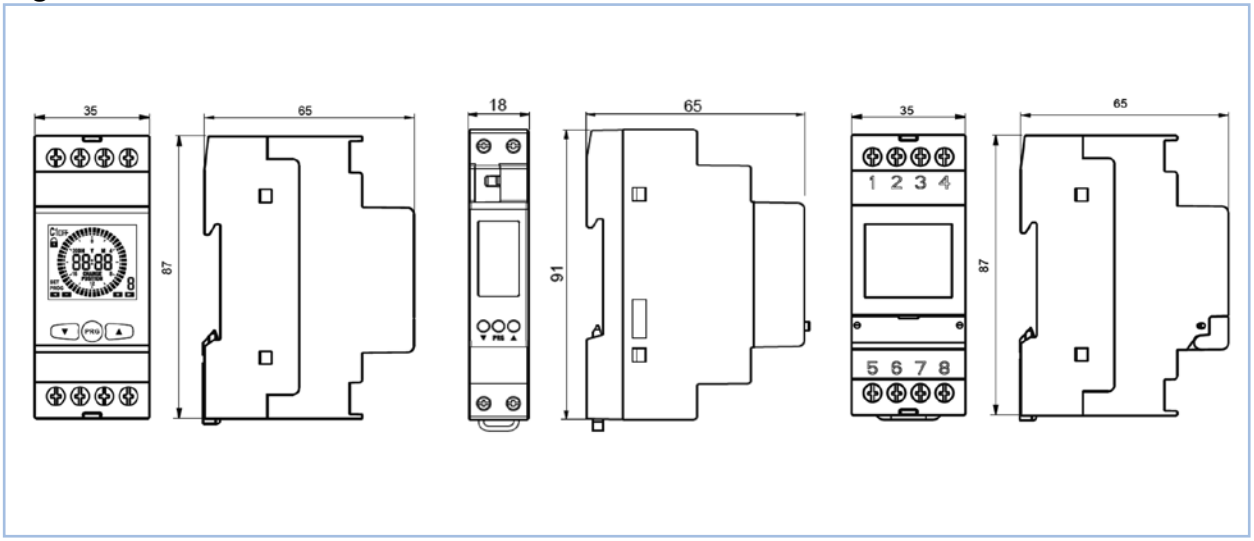
Dimmers and time relays - DIM and Pulsar T+



Analogue time switches - Classic Plus

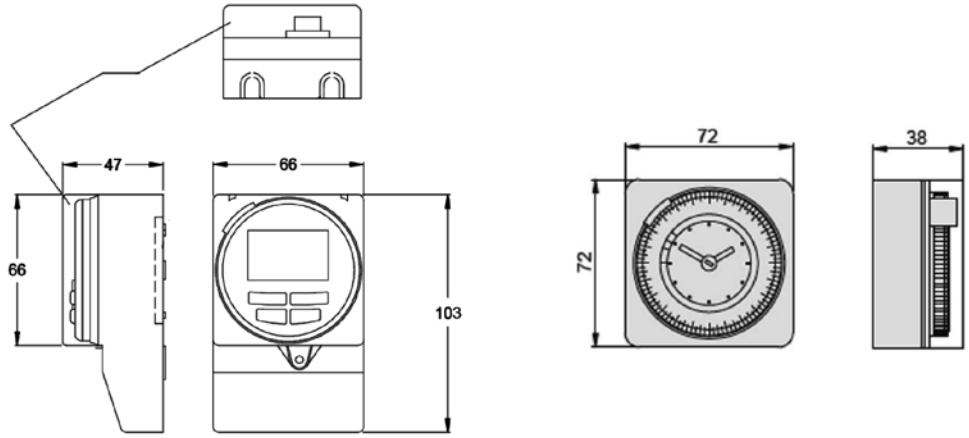


Digital time switches - Galax Plus

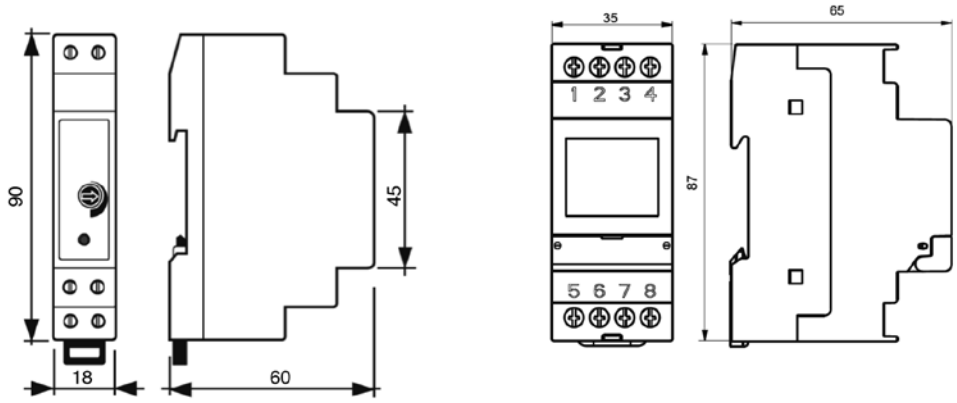


Dimensional drawings

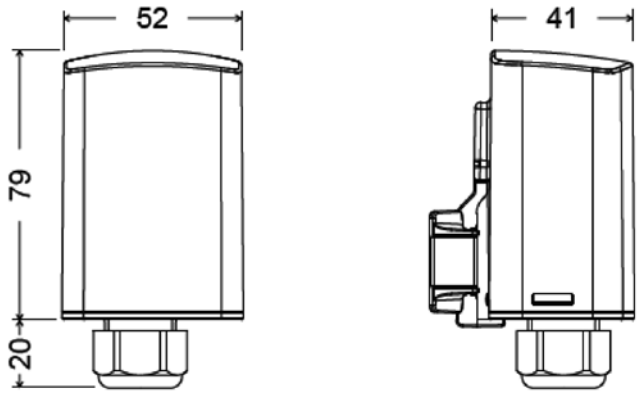
Time switches 72x72 - Classic Plus and Galax Plus



Light sensitive switches - Galax LSS



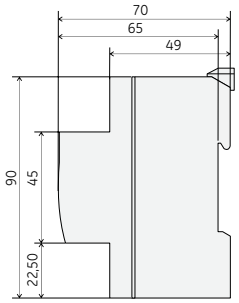
GLX+LUX WALL



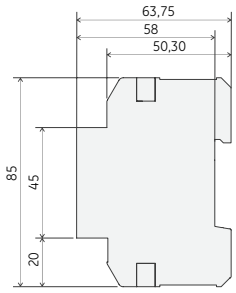
Dimensional drawings

Surge arresters - SurgeGuard

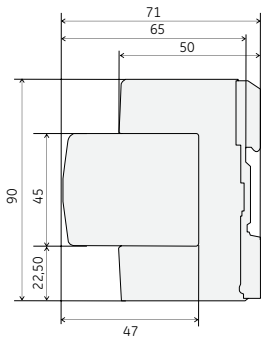
MONOBLOCK types
SA BLOCK, SA BLOCK ADSL



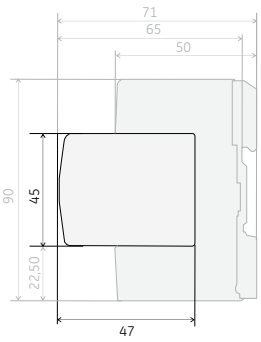
SA BLOCK II 15 LN



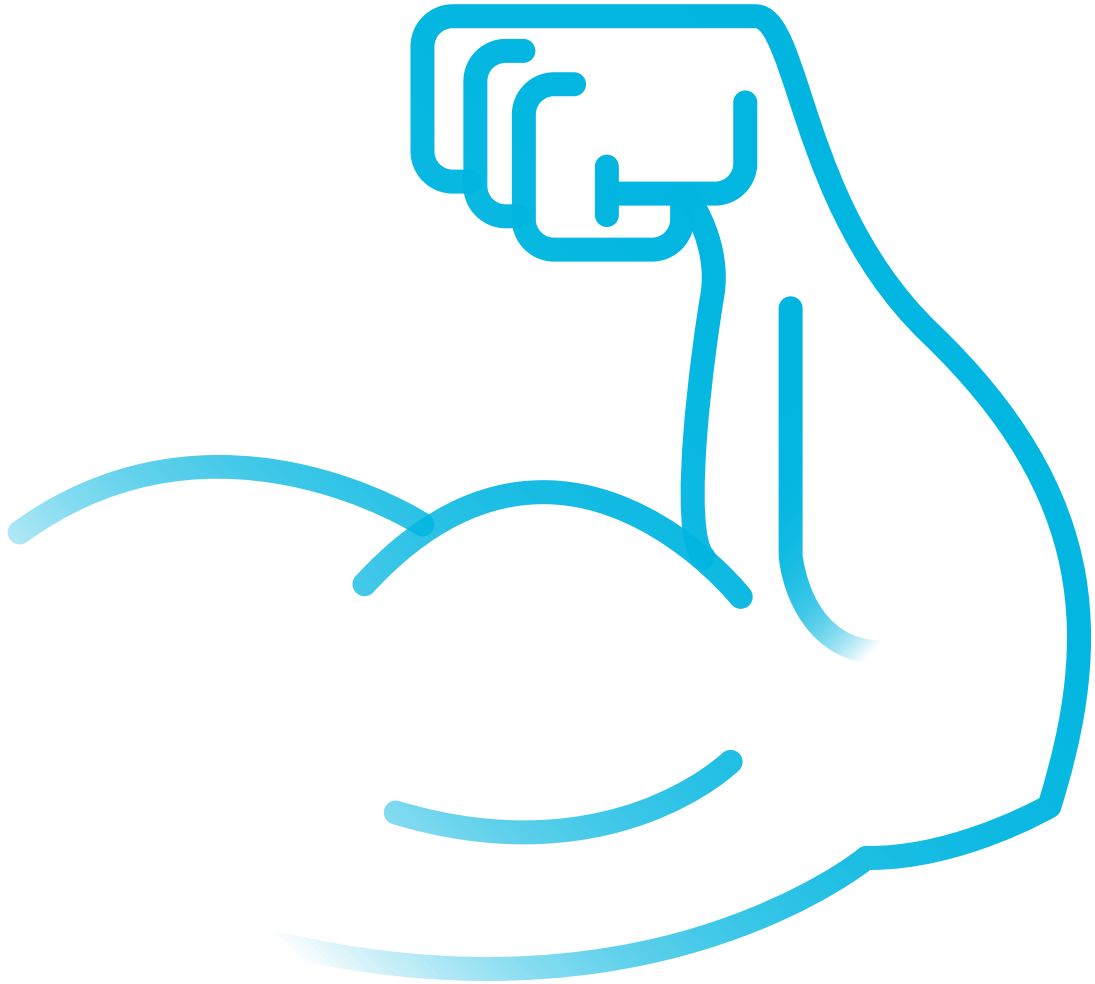
PLUG-IN types



Replacement modules

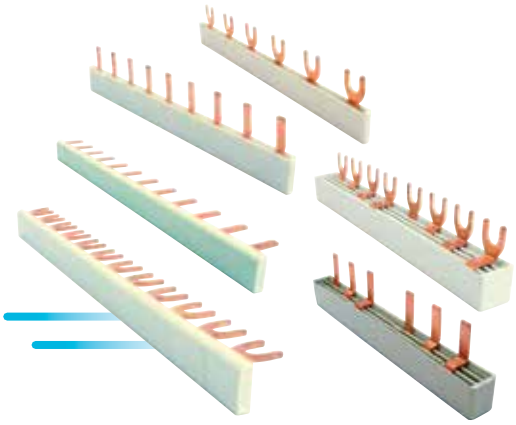


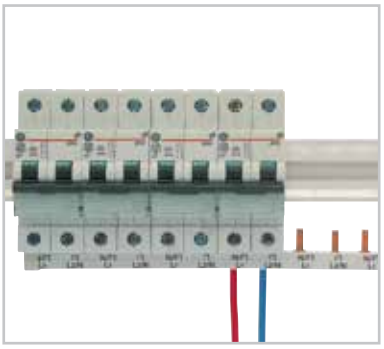
E.2 **Busbar system**
E.4 Insulated PIN type busbars
E.5 Insulated PIN type busbars for compact MCBs Unibis*
E.6 Insulated FORK type busbars
E.8 Busbars for connection of auxiliaries
E.8 Accessories
New E.9 UL Busbars

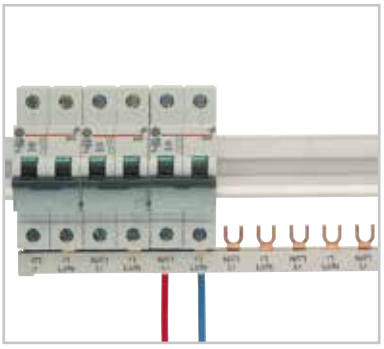


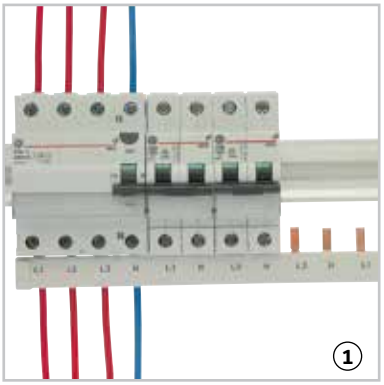
Busbar system

Rails









Technical data

Rail	Copper (oxygen free) Heat resistant >96°C Self extinguishing V0
Dielectric strength	36kV/mm (acc. to DIN 53481/1.2)
Short-circuit resistance	25kA (100A fuse)
Climate proofing	According to IEC 60068-2-30
Creepage resistance/tracking index	400V (acc. to IEC 60112)
Insulation group acc. to EN 60439-1	Material group II, 400V

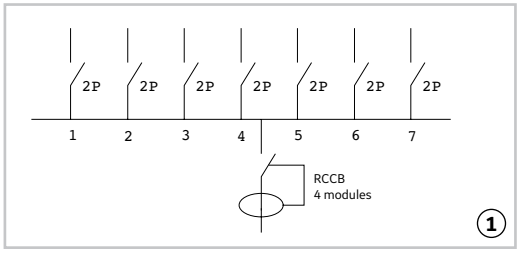
Load values in A (Ith)

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

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

K = section of the connection wire

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

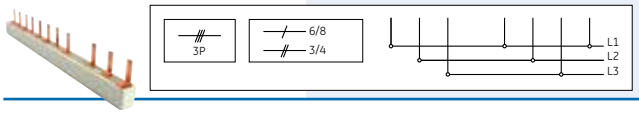
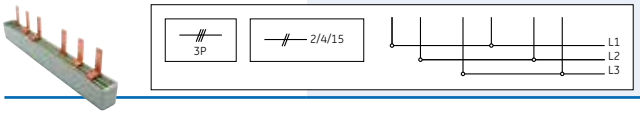
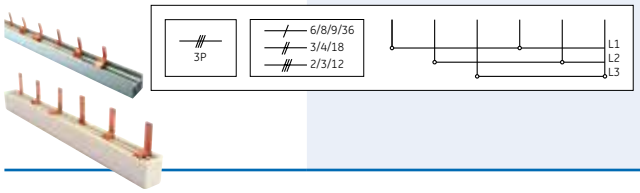
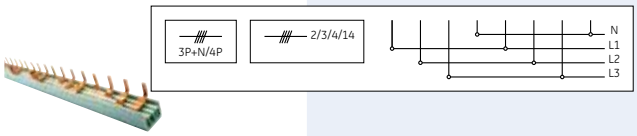
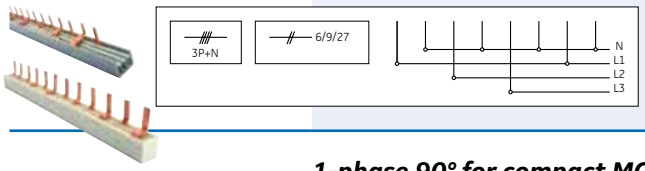
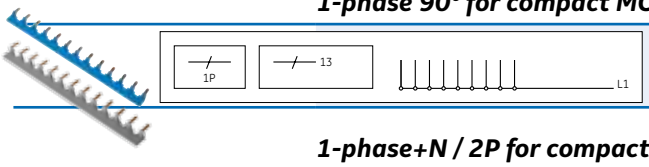
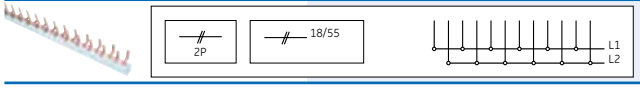
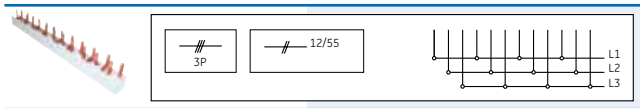
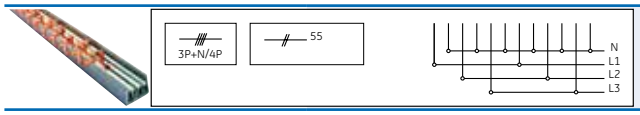
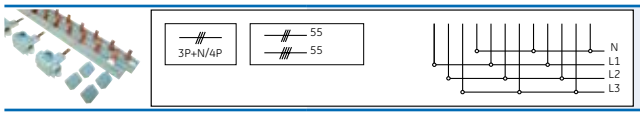


Insulated PIN type busbars

Section mm²	Description	Ref. No.	Pack.
1-phase			
10	2x1P	**546253**	10
10	6x1P	**546254**	10
10	12x1P	**546255**	10
10	13x1P	**650156**	10
10	57x1P - length 1m	**624991***	1/10
16	57x1P - length 1m	**544193***	1/10
1-phase 90°			
10	3x1P - 90°	**624959**	20
10	4x1P - 90°	**624960**	20
10	5x1P - 90°	**624961**	20
10	6x1P - 90°	**624962**	20
10	7x1P - 90°	**624963**	20
10	8x1P - 90°	**624964**	20
10	9x1P - 90°	**624965**	20
10	10x1P - 90°	**624966**	20
10	11x1P - 90°	**624967**	20
10	12x1P - 90°	**624968**	20
10	13x1P - 90°	**624969**	20
10	14x1P - 90°	**624970**	20
10	15x1P - 90°	**624971**	20
10	16x1P - 90°	**624972**	20
10	17x1P - 90°	**624973**	20
10	18x1P - 90°	**624974**	20
1-phase with 1P + auxiliary			
10	2x(1P + auxiliary)	**546256**	10
10	6x(1P + auxiliary)	**546257**	10
10	8x(1P + auxiliary)	**546237**	10
10	36x(1P + auxiliary) or MCBs Hti - length 1m	**546152***	1/50
16	36x(1P + auxiliary) or MCBs Hti - length 1m	**624994***	1/50
2-phase			
10	4x1P or 2x2P	**546265**	10
10	6x1P or 3x2P	**546266**	10
10	12x1P or 6x2P	**546267**	10
10	14x1P or 7x2P	**544186**	10
10	18x1P or 9x2P	**624805**	10
16	14x1P or 7x2P	**618294**	20
16	56x1P or 28x2P - length 1m	**546139***	1/20
2-phase with 2P + auxiliary			
10	3x(2P + auxiliary)	**546269**	10
10	5x(2P + auxiliary)	**546270**	10
16	22x(2P + auxiliary) - length 1m	**546126***	1/20
3-phase			
10	6x1P or 3x2P or 2x3P	**546277**	10
10	9x1P or 4x2P or 3x3P	**546308**	10
10	12x1P or 4x3P or 3x4P	**546278**	10
10	15x1P or 5x3P	**544180**	10
10	18x1P or 6x3P	**544181**	10
10	21x1P or 7x3P	**544182**	10
10	24x1P or 12x2P or 8x3P	**624839**	20
10	57x1P or 28x2P or 19x3P - length 1m	**546142***	1/20
16	57x1P or 28x2P or 19x3P - length 1m	**546143***	1/20

• **Rails with 1m length can be shortened**

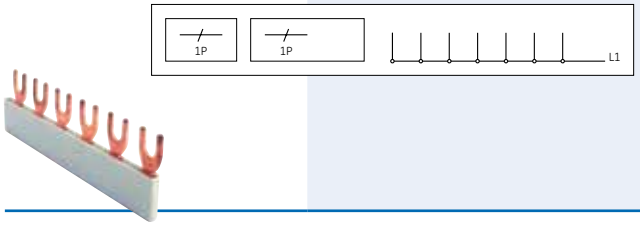
Insulated PIN type busbars (continued)

	Section mm²	Description	Ref. No.	Pack.
3-phase RCDs				
	10	1 x RCD + 6 x 1P or 3 x 2P	**544183**	10
	10	1 x RCD + 8 x 1P or 4 x 2P	**544184**	10
3-phase with 3P + auxiliary				
	10	2 x (3P + auxiliary)	**555434**	10
	10	4 x (3P + auxiliary)	**555435**	10
	10	15 x (3P + auxiliary) - length 1m	**544195•**	1/20
3-phase with 1P + auxiliary				
	10	6 x (1P + auxiliary) or 6 x 1P MCBs Hti or 3 x 2P MCBs Hti or 2 x 3P MCBs Hti	**546396**	10
	10	8 x (1P + auxiliary) or 8 x 1P Hti MCB or 4 x 2P Hti MCB	**544185**	10
	10	9 x (1P + auxiliary) or 3 x 3P MCBs Hti	**546397**	10
	10	36 x (1P + auxiliary) or 18 x 2P Hti MCB or 12 x 3P Hti MCB - length 1m	**546128•**	1/20
4-phase 4P or 3P+N				
	10	2 x 4P or 2 x 3P+N	**546282**	5
	10	3 x 4P or 3 x 3P+N	**546283**	5
	10	4 x 4P or 4 x 3P+N	**544187**	5
	10	14 x 4P or 14 x 3P+N - length 1m	**624807•**	1/15
	16	14 x 4P or 14 x 3P+N - length 1m	**546130•**	1/15
4-phase 1P+N or 2P				
	10	6 x 1P+N or 6 x 2P	**546284**	5
	10	9 x 1P+N or 9 x 2P	**546285**	5
	10	27 x 1P+N or 27 x 2P - length 1m	**624995•**	1/15
	16	27 x 1P+N or 27 x 2P - length 1m	**624996•**	1/15
1-phase 90° for compact MCBs Unibis				
	10	13 x 1P - 90° - grey	**646091**	15
	10	13 x 1P - 90° - blue	**646092**	15
1-phase+N / 2P for compact MCBs Unibis				
	10	18 x 1P+N / 2P	**624796**	20
	10	55 x 1P+N / 2P - length 1m	**624893•**	1/20
3-phase for compact MCBs Unibis				
	10	12 x 2P	**624797**	15
	10	55 x 2P - length 1m	**624798•**	1/15
4-phase 1P+N or 2P for compact MCBs Unibis				
	10	55 x 2P - length 1m	**624892•**	1/10
4-phase 4P or 3P+N for compact MCBs Unibis				
	10	55 x 3P or 4P - length 1m incl. 4 end caps and 4 connection clamps	**624800•**	1/5

• Rails with 1m length can be shortened

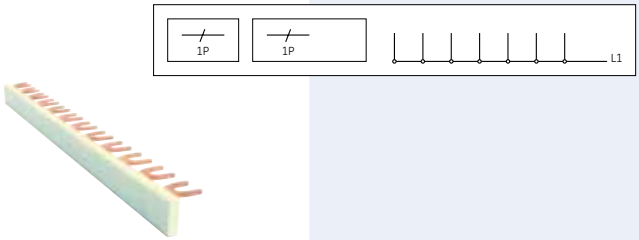
Insulated FORK type busbars

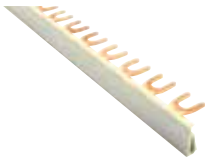
1-phase



Section mm²	Description	Ref. No.	Pack.
10	2x1P	**546247**	20
10	3x1P	**644873**	20
10	4x1P	**546341**	20
10	5x1P	**650164**	20
10	6x1P	**546248**	20
10	12x1P	**546249**	20
10	13x1P	**650152**	20
10	57x1P - length 1m	**546187***	1/10
16	57x1P - length 1m	**544188***	1/10

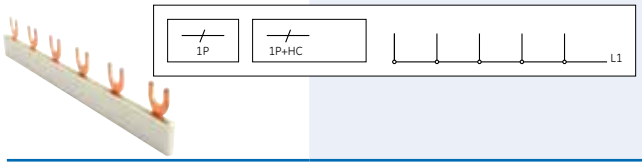
1-phase 90°





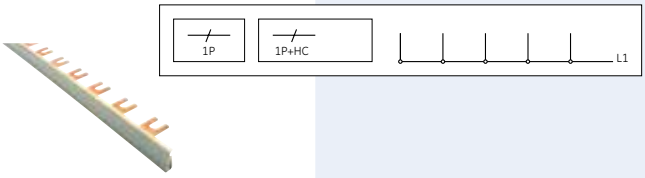
Section mm²	Description	Ref. No.	Pack.
10	2x1P - 90°	**624975**	20
10	4x1P - 90°	**624976**	20
10	5x1P - 90°	**624977**	20
10	6x1P - 90°	**624978**	20
10	7x1P - 90°	**624979**	20
10	8x1P - 90°	**624980**	20
10	9x1P - 90°	**624981**	20
10	10x1P - 90°	**624982**	20
10	11x1P - 90°	**624983**	20
10	12x1P - 90°	**624984**	20
10	13x1P - 90°	**624985**	20
10	14x1P - 90°	**624986**	20
10	15x1P - 90°	**624987**	20
10	16x1P - 90°	**624988**	20
10	17x1P - 90°	**624989**	20
10	18x1P - 90°	**624990**	20
16	57x1P - 90°- length 1m	**644890***	1/50
10	2x1P - 90° for surge arresters SurgeGuard	**624993**	20
10	3x1P - 90° for surge arresters SurgeGuard	**644893**	20
10	4x1P - 90° for surge arresters SurgeGuard	**568106**	20
10	8x1P - 90° for surge arresters SurgeGuard	**644897**	20

1-phase with 1P + auxiliary



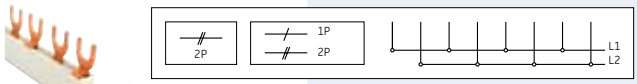
Section mm²	Description	Ref. No.	Pack.
10	2x(1P + auxiliary)	**546250**	20
10	3x(1P + auxiliary)	**644875**	20
10	4x(1P + auxiliary)	**644876**	20
10	5x(1P + auxiliary)	**644877**	20
10	6x(1P + auxiliary)	**546251**	20
10	8x(1P + auxiliary)	**546295**	20
10	9x(1P + auxiliary)	**546252**	20

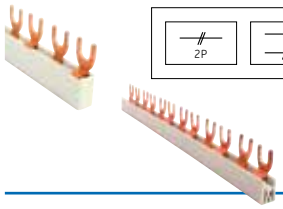
1-phase with 1P + auxiliary 90°



Section mm²	Description	Ref. No.	Pack.
10	2x(1P + auxiliary) - 90°	**544272**	20
10	7x1P + auxiliary) - 90°	**544277**	20
10	13x(1P + auxiliary) - 90°	**544296**	50
10	14x(1P + auxiliary) - 90°	**644879**	20
10	15x(1P + auxiliary) - 90°	**644880**	20
16	15x(1P + auxiliary) - 90°	**544327**	20
10	37x(1P + auxiliary) - 90° - length 1m	**546197***	1/50
16	37x(1P + auxiliary) - 90° - length 1m	**544189***	1/50

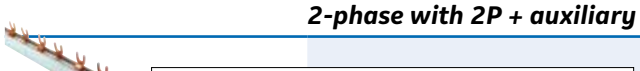
2-phase

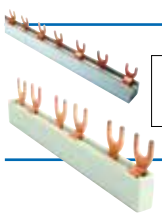




Section mm²	Description	Ref. No.	Pack.
10	4x1P or 2x2P	**546259**	10
10	6x1P or 3x2P	**546260**	10
10	10x1P or 5x2P	**644881**	10
10	12x1P or 6x2P	**546261**	10
10	14x1P or 7x2P	**544178**	10
10	18x1P or 9x2P	**644882**	10
10	56x1P or 28x2P - length 1m	**544191***	1/20
16	56x1P or 28x2P - length 1m	**546227***	1/20

2-phase with 2P + auxiliary

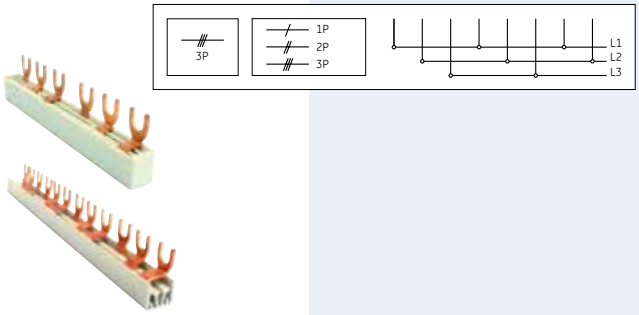
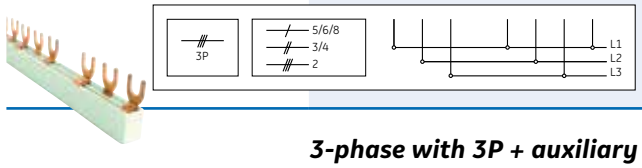
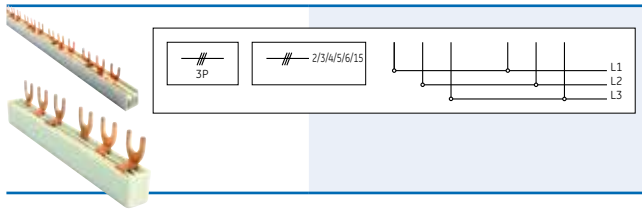
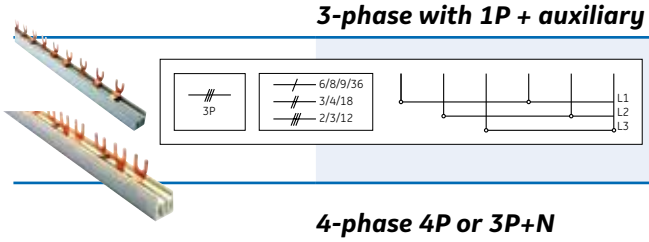
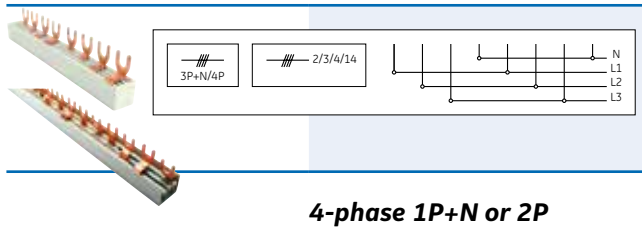
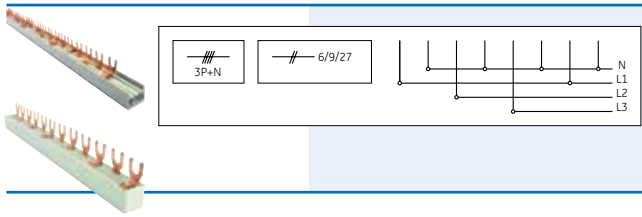
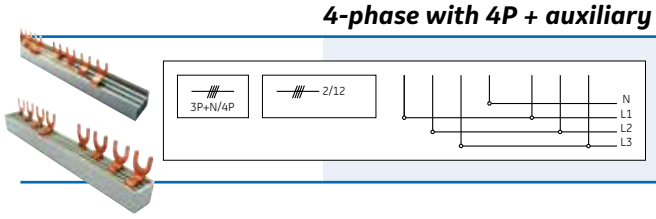




Section mm²	Description	Ref. No.	Pack.
10	2x(2P + auxiliary)	**546262**	10
10	3x(2P + auxiliary)	**546263**	10
10	4x(2P + auxiliary)	**544344**	10
10	5x(2P + auxiliary)	**546264**	10
16	22x(2P + auxiliary) - length 1m	**546125***	1/20

• **Rails with 1m length can be shortened**

Insulated FORK type busbars (continued)

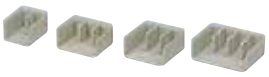
	Section mm²	Description	Ref. No.	Pack.
3-phase				
	10	6 x 1P or 3 x 2P or 2 x 3P	**546271**	10
	10	7 x 1P	**624957**	10
	10	9 x 1P or 3 x 3P	**546296**	10
	10	12 x 1P or 6 x 2P or 4 x 3P	**546272**	10
	10	13 x 1P	**650153**	10
	10	14 x 1P or 7 x 2P	**650154**	10
	10	15 x 1P or 5 x 3P	**544172**	10
	10	18 x 1P or 9 x 2P or 6 x 3P	**544173**	10
	10	21 x 1P or 7 x 3P	**544174**	10
	10	24 x 1P or 12 x 2P or 8 x 3P	**624958**	20
	10	57 x 1P or 28 x 2P or 19 x 3P - length 1m All forks on the lateral side of the busbar	**546229•**	1/20
	16	57 x 1P or 19 x 3P - length 1m All forks in the middle of the busbar	**546176•**	1/20
	16	57 x 1P or 28 x 2P or 19 x 3P - length 1m All forks in the middle of the busbar	**546230•**	1/20
3-phase RCDs				
	10	1 x RCD + 5 x 1P	**555609**	10
	10	1 x RCD + 6 x 1P or 3 x 2P or 2 x 3P	**544175**	10
	10	1 x RCD + 8 x 1P or 4 x 2P	**544176**	10
3-phase with 3P + auxiliary				
	10	2 x (3P + auxiliary)	**546273**	10
	10	3 x (3P + auxiliary)	**644884**	10
	10	4 x (3P + auxiliary)	**546274**	10
	10	5 x (3P + auxiliary)	**644885**	10
	10	6 x (3P + auxiliary)	**644886**	10
	16	15 x (3P + auxiliary) - length 1m	**546129•**	1/20
3-phase with 1P + auxiliary				
	10	6 x (1P + auxiliary) or 6 x MCBs Hti	**546275**	10
	10	8 x (1P + auxiliary) or 8 x MCBs Hti	**544177**	10
	10	9 x (1P + auxiliary) or 9 x MCBs Hti	**546276**	10
	16	36 x (1P + auxiliary) - length 1m	**546127•**	1/20
4-phase 4P or 3P+N				
	10	2 x 4P or 2 x 3P+N	**546279**	5
	10	3 x 4P or 3 x 3P+N	**546280**	5
	10	4 x 4P or 4 x 3P+N	**544179**	5
	10	14 x 4P or 14 x 3P+N - length 1m	**618293•**	1/15
	16	14 x 4P or 14 x 3P+N - length 1m	**546234•**	1/15
4-phase 1P+N or 2P				
	10	6 x 1P+N or 6 x 2P	**546398**	5
	10	9 x 1P+N or 9 x 2P	**546281**	5
	10	2 x Add on 32A +4P	**546228**	5
	10	27 x 1P+N or 27 x 2P - length 1m	**624799•**	1/15
	16	27 x 1P+N or 27 x 2P - length 1m	**544192•**	1/15
4-phase with 4P + auxiliary				
	10	2 x (4P + auxiliary) or 2 x (3P+N + auxiliary)	**646084**	5
	16	12 x (4P + auxiliary) or 12 x (3P+N + auxiliary) - length 1m	**646083•**	1/15

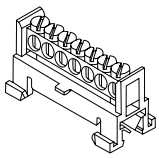
• **Rails with 1m length can be shortened**

Busbars for connection of auxiliaries

	Section mm²	Description	Ref. No.	Pack.
For auxiliary function added on 1P MCB				
		27mm / 8P	**546244**	10
		27mm / 4P	**544346**	10
For auxiliary function added on 2P MCB				
		45mm / 5P	**546245**	10
		45mm / 4P	**544347**	10
For auxiliary function added on 3P MCB				
		63mm / 4P	**546246**	10

Accessories





End caps				
	10/16	for 1P busbars	**644891**	50
	10	for 2P busbars	**546181**	10
	10	for 3P busbars	**546200**	10
	16	for 2P and 3P busbars	**546184**	10
	10/16	for 4P busbars	**629867**	10
Connection clamps				
	25	fork	**546287**	30
	25	pin	**546288**	30
	25	pin long	**546289**	50
	35	for fork and pin direct on busbar	**546290**	10
	25	4P compact MCBs Unibis	**624795**	30
Insulation cap				
		Pin/fork - Yellow (RAL 1004)	**546291**	10
Insulation strip				
		For fork and pin - length 1m	**624860**	10
Clamps for neutral conductor				
	16	7 poles	**546297**	10
	16	12 poles	**546298**	10
	16	12 poles, insulated	**568083**	10
	16	15 poles	**546299**	10
Clamps for phase conductors				
	16	7 poles	**546300**	10
	16	12 poles	**546301**	10
	16	12 poles, insulated	**568084**	10
	16	15 poles	**546302**	10
DIN-rail (EN 50022)				
		Length 1000mm - Height 7mm	**564092**	10

UL Busbars for Circuit Breakers, supplementary protection and ground fault protection devices

Series		BS..PULL	BS..PULR
Standards		UL489	UL1077
Certifications		UL489; UL File Nr E488748	UL1077; UL File Nr E151139
Standards		UL508	
Certifications		UL508, E356776	
Operational Voltage			
UL489	V AC	600V	480Y/277 and 240
Short-circuit resistance with 100A fuse		25kA	25kA
Dielelectric strengh acc. DIN 53481/1.2	KV/mm	36	36
Rated current at 40°C ambient temperarature		110	110
Maximum operating voltage	V AC	600	500
Insulation coordination			
Degree of polution		2	2
Overvoltage category		II	II
Busbar cross-section	mm^2 Cu	16	16
Infeed		Any	Any
Rail		Copper (oxygen free)	Copper (oxygen free)
Insulation strip		Plastic	Plastic
Heat resistance		>96°C self extinguishing V0	>96°C self extinguishing V0
Poles		1,2,3	1,2,3
Accessories			
Tooth cap		yes	yes
Pin connector		yes	yes

Performance

- Busbars for MCBs in conformance with UL489, UL1077 and UL508
- For application in that is a bigger air- and creep-distance neccessary.
- 30% Installation time savings!
- Panel space savings.
- Available in 1, 2, 3 – phase busbars.
- Combining 6 or 12 modules UL489 busbars is possible to link 12 up to 60 poles.
- Yellow tooth-cap available for live free pins.
- Pin connectors adapted for UL489 busbars to feed the mcbs row.

Approval

New

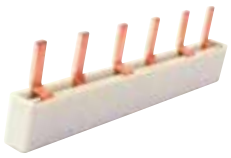
Busbars according to UL489 for use with EP100ULH(1)

	Poles	Max. Voltage	Modules	PIN spacing(2)	Cat. No.	Ref. No.	Pack.
For 6 MCBs	1	600V AC	6	1 module	BS1PULL600/06	**624785**	1/100
For 12 MCBs	1	600V AC	12	1 module	BS1PULL600/12	**624786**	1/50
For 3 MCBs	2	600V AC	6	1 module	BS2PULL600/06	**624818**	1/100
For 6 MCBs	2	600V AC	12	1 module	BS2PULL600/12	**624873**	1/50
For 2 MCBs	3	600V AC	6	1 module	BS3PULL600/06	**624874**	1/100
For 4 MCBs	3	600V AC	12	1 module	BS3PULL600/12	**624881**	1/50

Busbars accessories according to UL489 for use with EP100ULH

	Cat. No.	Ref. No.	Pack.
Tooth cap	IcapUL1	**624897**	10/20
Pin connector	ASUL	**624898**	1/30

Busbars to UL1077 for use with EP100UL, FP and DP RCCBs and RCBOs(1)



	Poles	Voltage	Modules	PIN spacing(2)	Cat. No.	Ref. No.	Pack.
For 12 MCBs	1	480Y/277	12	1 module	BS1PULR277/12	**624882**	1/50
For 6 MCBs	2	480Y/277	12	1 module	BS2PULR480/12	**624883**	1/50
For 4 MCBs	3	480Y/277	12	1 module	BS3PULR480/12	**624896**	1/50

Busbars accessories according to UL1077

	Cat. No.	Ref. No.	Pack.
Tooth cap	IcapUL2	**624808**	5/20
Pin connector	ASUL2	**624809**	1/30

Accessories for MCBs

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

Padlocking bracket

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

(1) Fixed lenghts, can't be cut
(2) 1 module width = 18mm

New

Metal enclosures

F.2 Surface mounting - **Fix-o-Rail Senior**
F.4 Surface and flush mounting - **Fix-o-Rail 144**
F.8 Surface mounting - **Modular 200**

Insulated plastic enclosures

F.12 Junction boxes - **Flex-o-Box**
F.14 Junction boxes - **Series 55**
F.18 Surface mounting - **Fix-o-Rail Covers**
F.20 Surface mounting - **Fix-o-Rail Junior**
F.22 Surface mounting - **Fix-o-Rail Classic**
F.26 Surface mounting - **Abaco S**
New F.28 Surface mounting - **Fix-o-Rail 150**
F.32 Surface mounting - **Fix-o-Rail 55**
F.34 Surface mounting - **Aquaria**
F.36 Flush mounting - **Abaco F**
F.38 Flush mounting - **Fix-o-Rail 150-F4**
F.40 Dimensional drawings

Circuit Protection A
People Protection B
Add-on Devices C
Comfort Functions D
Busbars E
Enclosures F
Product overview G
Numerical index X

Fix-o-Rail Senior ⧈ *IP43*

Features

- **Secure: total insulation** ⧈
  Double wall: a steel outer wall plus an inner insulated extruded wall
- Protection degree: IP43-IK08 (plain door), IK05-transparent door
- Universal: for DIN-rail equipment up to 92.5mm
- Installation friendly: ample wiring room and a removable mounting frame
- Two-component cable entries at top and bottom, integrated in the base

Components

The Fix-o-Rail Senior enclosure includes:
- base in RAL 9016
- mounting frame
- labels for circuit indication
- coverplates
- a transparent or grey door in RAL 9016
- closed by handle without lock
- sealing option

Applications

As an elegant insulated enclosure in:
- restaurants and hotels
- workshops
- hospitals
- shopping centers
- offices
- commercial buildings
- leisure and sport locations

Marking

CE

Standard

EN/IEC 62208
EN/IEC 61439-2 (in preparation)

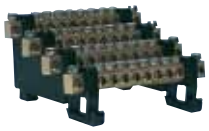
Fix-o-Rail Senior

	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
	1100 x 550 x 210	168	7	**610241**	1
	1250 x 550 x 210	192	8	**610242**	1
	1100 x 800 x 210	252	7	**610243**	1
	1250 x 800 x 210	288	8	**610244**	1

Transparent door	650 x 300 x 210	48	4	**610328**	1
	800 x 300 x 210	60	5	**610330**	1
	650 x 550 x 210	96	4	**610329**	1
	800 x 550 x 210	120	5	**610331**	1
	950 x 550 x 210	144	6	**610332**	1

Dimensions pag. ***F.43***

Accessories



4-pole terminal 63A

610022	18

63A

Connection range 4x(10x16mm²)

Cu section 6,,5x9mm

4-pole terminal 160A

617992	5

160 A

with cover

4x(1x10 to 50mm² incoming

+ 3x6 to 35mm² + 8x2.5 to 16mm² out-going)

Cu section 12x10mm

4-pole terminal 160A

610020	1

160A

connection range 4x(10x10mm²)

Cu section 12x5mm

Protective shroud

610021	1

For 160A terminal (ref. 610020)

Earth bar

828152	1

For enclosure width 300mm - length 190mm

828153	1

For enclosure width 550mm - length 437mm

828149	1

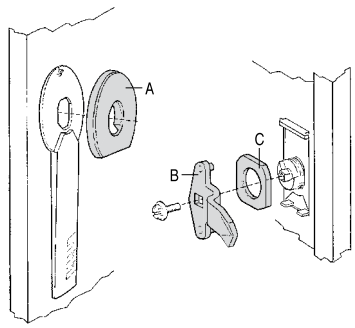
For enclosure width 800mm - length 684mm

Cover strip

828056	1

For cut-out of 45mm, length 1m

Adaptor kit = A + B + C



Cable-entry plate

815094	1

Smooth surface, in case the standard two-component cable-entry plate needs to be replaced.

Foam rubber (IP30)

815095	1

Pre-drilled plates

815093	5

21xM16

815092	5

2xM50; 5XM20

Label for circuit indication

610232	10

For enclosure width 300mm

610233	10

For enclosure width 550mm

610238	10

For enclosure width 800mm

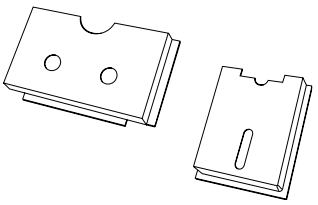
Document pocket

811516	1

DIN A4 - W x H = 325 x 180mm

832000	1

DIN A5 - W x H = 155 x 225mm



Non standard lock

815105	1

Adaptor kit

+

811327	1

Insert 3mm double bit key

811326	1

Insert 8mm triangle key

811325	1

Insert 8mm square key

811331	1

Cylinder with 2 keys V2432-E

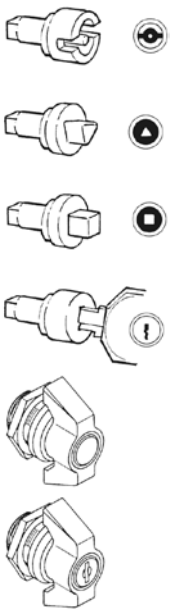
813146	1

Neutral handle

813156	1

Handle with key V2432-E

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



Metal enclosures *Surface mounting (S)*
Flush mounting (F)

Fix-o-Rail 144 F - 144 S *IP40*

Applications

As a surface or flush mounted distribution board in:
- restaurants and hotels
- workshops
- hospitals
- shopping centers
- offices

Marking

CE

Advantages

- Suitable for DIN-rail mounting devices up to 70mm as MCBs, RCDs, 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 105mm
- Can be equipped with wiring trunks (W x H): 15 x 40mm, 25 x 40mm, 40 x 40mm, 60 x 40mm

Features

- In accordance with EN/IEC 61439-3
- 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: 150mm
- Flush mounting depth: 105mm
- Can be equipped with the Record Plus D-frame
- Colour: RAL 7035

Electrical properties
- Designated voltage: 415V AC
- Designated current: 125A

Masking frame and door
- Rodged masking frame
- Manufactured in quality mild steel of 1mm thick, cold reduced
- Pre-treated prior to electrostatic powder coating in RAL 7035 (light grey)
- Transparent or plain door

Protection plate
- Made from sheet steel 1mm, double folded corner

Base
- Ridged base (mono-block)
- Manufactured in sendzimir zinc plated steel of 1mm thick (FOR 144F)
- Sidewalls foreseen with position lugs (FOR 144F)
- Pre-treated prior to electrostatic powder coating in RAL 7035, light grey (FOR 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) (FOR 144F)
- Adjustable left or right (±10mm) (FOR 144F)
- Distance between two DIN-rails: 150mm

Door
- Transparent or plain door, security lock included

Earth bar (L = 380mm)
- Copper bar, 12 x 5mm, 18 x M5 threaded holes + connectors and screws

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

Enclosures
A
B
C
D
E
F
G
X

*Dimensions pag. **F.41***

Fix-o-Rail 144-F - Flush mounting enclosures without door (1)

Included ref. 617965 = an earth terminal: copper bar 12x5mm, 18 threaded holes M 5, connectors and screws

	Dimensions HxWxD (mm)	Number of modules	Number of rows	Power dissipation (W) Without door	Power dissipation (W) With door	Ref. No.	Pack.
	650x740x140 (1) 560x610x105 (2)	72	3	140	83	**617934**	1
	800x740x140 (1) 710x610x105 (2)	96	4	152	95	**617935**	1
	950x740x140 (1) 860x610x105 (2)	120	5	164	110	**617936**	1
	1100x740x140 (1) 1010x610x105 (2)	144	6	176	116	**617937**	1
Equipped with function for Record Plus 160A D-frame	1100x740x140 (1) 1010x610x105 (2)	120	5	176	116	**617938**	1

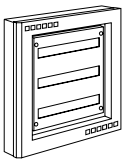
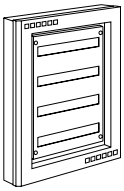
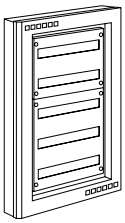
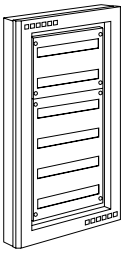
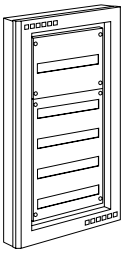
Transparent and plain doors

For enclosure	Number of modules	Number of rows	Transparent door Ref. No.	Plain door Ref. No.	Pack.
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 5mm, 18 threaded holes M 5, connectors and screws

	Dimensions H x W x D (mm)	Number of modules	Number of rows	Power dissipation (W) Without door	Power dissipation (W) With door	Ref. No.	Pack.
	650 x 740 x 140	72	3	160	88	**617966**	1
	800 x 740 x 140	96	4	175	100	**617967**	1
	950 x 740 x 140	120	5	187	115	**617968**	1
	1100 x 740 x 140	144	6	195	125	**617969**	1
 **Equipped with function for Record Plus 160A D-frame**	1100 x 740 x 140	120	5	195	125	**617970**	1

Transparent and plain doors

	For enclosure	Number of modules	Number of rows	Transparent door Ref. No.	Plain door Ref. No.	Pack.
	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

4-pole terminal 160A

617992	5

160 A
with cover
4x(1x10 to 50mm^2 incoming
+ 3x6 to 35mm^2
+ 8x2.5 to 16mm^2 outgoing)
Cu section 12x10mm

4-pole terminal 160A

610020	1

160A
connection range 4x(10x10mm^2)
Cu section 12x5mm

Protective shroud

610021	1

For 160A terminal (ref. 610020)

Earth terminal kit

617965	1

Cu bar 12x5, 18 threaded holes M5,
L = 380mm, with connectors and screws
Can be installed in the upper and
lower side of the base

Cover strip

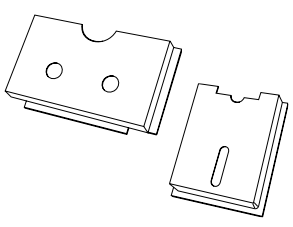
828056	1

For cut out of 45mm, length 1m

Blank plate

610142	4
610484	500

Length: 72mm
Cut-out width: 45mm
Can be cut into 9mm lengths
RAL 7035



Document pocket

811516	1
832000	1

DIN A4 - W x H = 325 x 180mm
DIN A5 - W x H = 155 x 225mm

Function for Record Plus 125A
D-frame

Fix-o-Rail 144 F/S **617018**	1

HxW: 326x552mm

Depth adapter & support

617947	1

PVC profile: lenght 355mm
used with the function 617964

Security lock

617948	1

With two keys

Label for circuit indication

610233	10

For enclosure width 550mm

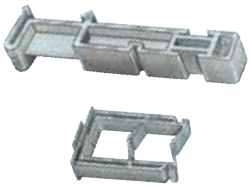
Support for wiring-trunking

617949	1

Wiring supports

828145	1
828146	1

Cable-tray support (20 pieces)
Cable-tray (10 pieces)



Type B MCB Distribution Board

Modular 200 IP30 / IP31

Applications

Distribution Board for:
- commercial buildings
- hotels
- hospitals
- small factories

Marking

CE

Standards

BSEN 61439-3
BS5486

Performance

Busbar rating	(A)	200
Rated short circuit strength (Icw)	(Icw)	16kA - 0,1s
Rated conditional short circuit current	(Icc)	16kA (415V)
Rated voltage	(V)	415
E+N out terminal capacity	(mm^2)	25
E+N incoming cable capacity	(mm^2)	70
No of TP ways		4, 6, 8, 12, 18, 24
Ingress protection		IP30 IP31 (with additional roof)
Enclosure colour		Light grey (RAL7035)

Features

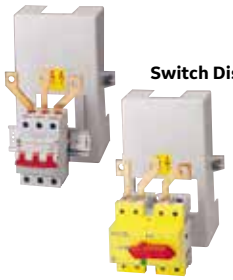
- Durable structured powder coated finish
- Matching light grey throughout the range
- All incomers benefit from positive contact indication
- Modular extension boxes to install modular control devices
- Pan assembly can be easily removed to ease installation
- One piece (no welds or rivets) phase busbar - 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 25kA MCB's
- Generous wiring room even when using 1 module RCBO

Dimensions pag. ***F.11***

Type B MCB Distribution Board

	No of TP Ways	Dimension code	Busbar Rating	Art. No.	Ref. No.
Boards	4	A	200A	MOD2DB40	**619100**
	6	B	200A	MOD2DB60	**619101**
	8	C	200A	MOD2DB80	**619102**
	12	D	200A	MOD2DB120	**619103**
	18	E	200A	MOD2DB180	**619104**
	24	F	200A	MOD2DB240	**619122**
Pan assembly	4	-	200A	MOD2PA40	**619177**
	6	-	200A	MOD2PA60	**619178**
	8	-	200A	MOD2PA80	**619179**
	12	-	200A	MOD2PA120	**619180**
	18	-	200A	MOD2PA180	**619181**
	24	-	200A	MOD2PA240	**619192**

Integral Incomer Kits



	Rating	Description	Poles	Terminal Capacity	Art. No.	Ref. No.
Switch Disconnectors	100A	Switch disconnector	3	50mm^2	MOD2ISO3	**619111**
	125A	Switch disconnector	3	50mm^2	MOD2DIL125	**619114**
	125A	Switch disconnector	4	50mm^2	MOD2DIL125/	**619124**

RCD Main Switch	100A	30mA RCD	4	50mm^2	MOD2RCDA	**619119**
	100A	100mA RCD	4	50mm^2	MOD2RCDB	**619112**
	100A	300mA RCD	4	50mm^2	MOD2RCDC	**619113**
	100A	100mA time delayed RCD	4	50mm^2	MOD2RCDBTD	**619120**

MCB Main Switch	63A	MCB main switch	3	35mm^2	MOD2MCB63	**619605**
	100A	MCB main switch	3	70mm^2	MOD2MCB100	**619606**

Direct Connection Kit	200A	Direct connection kit	3	95mm^2	MOD2DC	**619115**

Single Phase Kit	100A	Single phase conversion kit	1P+N	50mm^2	MOD2SPK1	**618300**

Add-on Incomer Extension Kits

Rating	Description	Poles	Terminal Capacity		Dimension code	Art. No.	Ref. No.
			Standard palm	Narrow palm			
200A	Switch disconnector	4	70mm^2	150mm^2	G	MOD2DIL200	**619110**
200A	MCCB non auto	3	70mm^2	150mm^2	H	MOD2MC200NA	**619107**
200A	TP automatic MCCB	3	70mm^2	150mm^2	H	MOD2MC200A	**619109**
200A	TP MCCB with RCD	4	70mm^2	150mm^2	H	MOD2MCRCD	**619108**

For increased terminal capacity narrow palm lugs must be used in conjunction with MOD2SB1.

Add-on Incomer Extension Kits

Dimension code	Description	Art. No.	Ref. No.
G	18 module modular devices	MOD218D	**619105**
G	Modular spreader box	MOD2SB1	**619106**
-	Heavy duty gland plate 2mm thick	MOD2HDGP	**619116**

Accessories Type B MCB Distribution Board

Busbar shroud

619018	10

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

Security

610063	1

Ronis security door lock supplied with two keys

Blank plate

610142	4
610484	500

length: 72 mm

cut out width : 45 mm

can be cut into 9 mm length

RAL 7035

Safety

624929	2

MCB padlocking bracket

(padlocks not supplied)

Clean earth facility

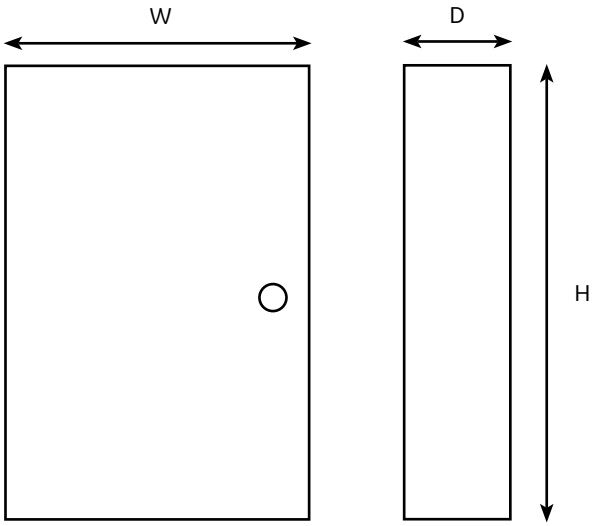
619118	1

can be fitted for increased flexibility

Dimensional drawing

Modular 200 Type B

Boards



Dimensions (mm)			
Code	**H**	**W**	**D**
A	534	135	500
B	588	135	500
C	642	135	500
D	750	135	500
E	912	135	500
F	1136	135	500
G	250	135	500
H	500	135	500
I	250	135	500

Extension Incomers and Enclosures

Junction boxes

Flex-o-Box *IP65*

Applications

Application as junction box in:
- residential application
- commercial buildings
- automation and control wiring

Approvals / Marking

Standards

EN/IEC 60670-22

Features

Flex-o-Box Junior

Technical data
- Suitable for surface mounting
- 2.5mm^2 - 500V
- IP65 protection degree
- IK07
- Colour: RAL 7035
- Material: resists the 650°C incandescent wire test
- Halogen-free(1)
- 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 13
- Suitable for tubes Ø 16 and Ø 20

Flex-o-Box JB6

Technical data
- Suitable for surface mounting
- 6mm^2 - 500V
- IP65 protection degree
- IK07
- Colour: RAL 7035
- Material: resists the 650°C incandescent wire test
- Halogen-free(1)
- Operating temperature: -5°C to +60°C
- Total insulation: ⧈

Nine flexible entries
- 7 x M20 in the side wall
- 2 x Ø 20mm max. entries in the back of the base
- Suitable for cable max. Ø 13
- Suitable for tubes Ø 16 and Ø 20
- Suitable for cable seals M20 (10mm min. thread length) , max. Torque 2.5 Nm. Cable diam. up-to 8mm.

(1) Halogens are not intentionally added and are not expected to be present.

Flex-o-Box

	Description	Ref. No.	Pack
Junior	Junction box 2.5mm²	**600656**	10/100
	Junction box 2.5mm² (40 pieces in a red polybox basket)	**600311**	1
JB⁶	Junction box 6mm²	**600651**	10/100
	Junction box 6mm² (24 pieces in a grey polybox basket)	**600310**	1

Accessories

for Junior and JB⁶

Terminal block

	600950	30

6mm² - 500V - pin-type

5-terminal blocks

Possible connections per terminal:

6x1.5mm² 2x6mm²

4x2.5mm² 2x10mm²

3x4mm²

grey

Terminal strip

	600650	20

6mm² - 500V - hole-type

5-terminal strips

Possible connections per terminal:

6x1.5mm² 3x4mm²

4x2.5mm² 2x6mm²

grey

Screws

For cover fastening

	600642	40

Stainless steel

only for JB⁶

Cable seal M20

	851652	50

IP68 - RAL 7035

Cable seal M20

	851660	50

IP54 - RAL 7035

Entry socket for tube M20

	600346	25

For tube Ø 16 and Ø 20 - RAL7035

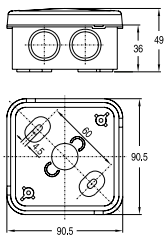
Insulated cap M20

	851674	100

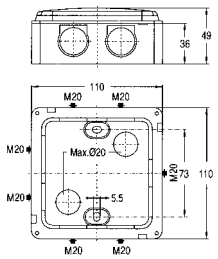
IP54 - RAL7035

Dimensional drawings

Flex-o-Box Junior



Flex-o-Box JB⁶



Junction boxes

Series 55 IP66

Applications

Application as junction and terminal box in:
- residential application
- commercial buildings
- automation and control wiring
- On-site control box
- As an empty box
- As a junction box (10/16/25mm^2)
- Coupled

Approval / Marking

CEBEC CE

Standard

EN/IEC 60670-22

Dimensions

Three sizes - three types
55100 - 125 x 125 x 75mm
55200 - 175 x 175 x 95mm
55300 - 225 x 175 x 95mm

Features

- Material: Cover in ABS, base in high impact polystyrene
- Total insulation: ⧈

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.

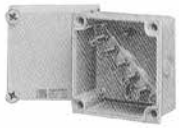
The raised bottom avoids obstruction while cabling and bending of the cables.

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 area.

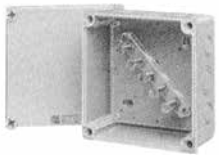
All the boxes are sealable.

Series 55100 - 10 mm² — IP66 - IK07



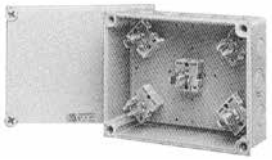
Cover	Entries	Characteristics	Ref. No.	Pack.
grey	5 x PG 16/21	Empty. Can be equipped with terminal blocks 600516	**600514**	16
grey	5 x PG 16/21	Equipped with terminal blocks 600516: 5 clamps with maximum capacity: 5 x 4 mm² / 4 x 6 mm² / 3 x 10 mm²	**600515**	16

Series 55200 - 16 mm² — IP66 - IK07



Cover	Entries	Characteristics	Ref. No.	Pack.
grey	6 x PG 16/21 5 x PG 21/29	Empty. Can be equipped with terminal blocks 600525 600526 (x5) 600544 (x5) 600545 (x5) 600516	**600517**	9
grey	6 x PG 16/21 5 x PG 21/29	Equipped with terminal blocks 600525: 5 clamps with maximum capacity: 5 x 6 mm² / 4 x 10 mm² / 3 x 16 mm²	**600524**	9

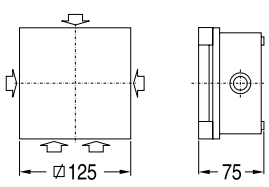
Series 55300 - 25 mm² — IP66 - IK07



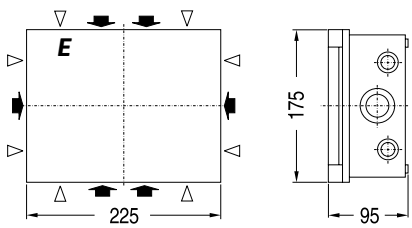
Cover	Entries	Characteristics	Ref. No.	Pack.
grey	8 x PG 21 6 x PG 21/29	Empty. Can be equipped with terminal blocks 600544 (x5) 600545 (x5) 600525 600526 (x5)	**600532**	1
grey	8 x PG 21 6 x PG 21/29	Equipped with terminal blocks 600544 (x5): 5 clamps/nuts with maximum capacity: 4 x 16 mm² / 3 x 25 mm² / 2 x 35 mm²	**600543**	9

Dimensional drawings

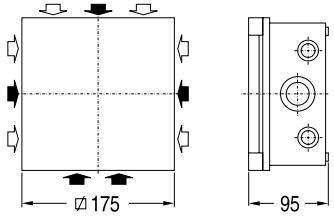
Series 55100



Series 55300



Series 55200



▷ PG 21 ⌓ PG 16/21 ▬ PG 21/29

Accessories Series 55

Terminal blocks 500V 10mm²

600516	6

Set terminal blocks with two fixation screws. With five clamps suitable for Al or Cu connection.
Maximum cable section per clamp:
5x4mm² / 5x4mm² / 5x4mm².
Can be fitted in types 55100 and 55200.

Terminal blocks 500V 16mm²

600525	6

With five clamps, suitable for Al or Cu connection.
Maximum cable section per clamp:
5x6mm² / 4x10mm² / 3x16mm².
Can be fitted in types 55200 and 55300.

Terminal blocks 500V 16mm²

600526	24

With one clamp/nut (with nut), suitable for Al or Cu connection.
Maximum cable section per clamp:
5x6mm² / 4x10mm² / 3x16mm².
Can be fitted in types 55200 and 55300.

Terminal blocks 500V 25mm²

600544	24

With one clamp/nut (with nut), suitable for Al or Cu connection.
Maximum cable section per clamp:
4x16mm² / 3x25mm² / 2x35mm².
Can be fitted in types 55200 and 55300.

Terminal blocks 500V 25mm²

600545	24

With one clamp/nut (double nut), suitable for Al or Cu connection.
Maximum cable section per clamp:
4x16mm² / 3x25mm² / 2x35mm².
Can be fitted in types 55200 and 55300.

Insulated cap

890838	48

Suitable for terminal blocks
600526
600544
600545

Couplings

600509	1

Set of two pieces
PG21
It is possible to combine types
55200 and 55300

Compression glands

600504	25

PG21 with nut in glass fibre reinforced polyamide. Grey.

600505	25

PG29 with nut in glass fibre reinforced polyamide. Grey.

Compression glands

600501	25

PG21 polyamide with nut in glass fibre reinforced polyamide. Brown.

600502	25

PG29 polyamide with nut in glass fibre reinforced polyamide. Brown.

Locknuts

600506	100

Nut in glass fibre reinforced polyamide to connect compression glands PG21. Grey.

600507	50

Nut in glass fibre reinforced polyamide to connect compression glands PG29. Grey.

Universal entries (grey)

610130	25

Cable max. 18mm, drill 23mm, PG16

610132	25

Cable max. 24mm, drill 29mm, PG21

610133	25

Cable max. 32mm, drill 38mm, PG29.

Accessories Series 55 (continued)

DIN-rails

Set DIN-rail with two fixation screws

600521	1

Length = 144mm, for type 55200 and short side of type 55300

600537	1

Length = 192mm, for type 55300

Coverplate

Set of 1 coverplate (no need for fixation screws)

600519	1

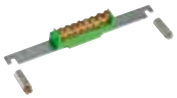
8 modules for type 55200

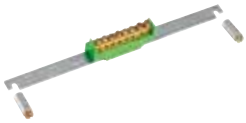
600535	1

8 modules for type 55300, short side

600534	1

10 modules for type 55300, long side





Support for earth-rail

Set earth-rail 610186 - 6 x 10mm2 and 2 x 16mm2 support, spaces and two fixation screws

600522	1

for type 55200 and short side of type 55300

600538	1

For type 55300

Mountingplate

Set of 1 mountingplate (with four fixation screws)

600520	1

Al-plate for type 55200

600536	1

Al-plate for type 55300

Type 55200 combinations

HxWxD (mm)	IP	Ref. No.	Pack
8 modules below hinged cover for installing modular devices (DIN-rail mounted)	IP55	**600531**	1

Insulated enclosures - Surface mounting

Fix-o-Rail covers *IP30*

Applications

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

Marking

CE

Standard

EN/IEC 60670-24

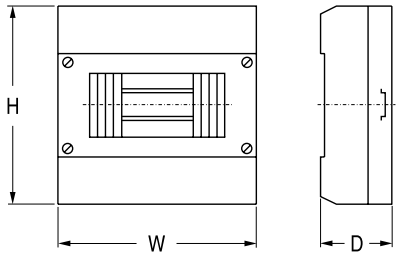
Features

- Protection degree: IP30, IK07
- Made from high resistance ABS
- Flame resistance: self extinguishing material, resist the 650°C
- Colour: grey RAL7035 and white RAL9003
- Installation temperature: -15°C up to +60°C

Fix-o-Rail covers - Without door

H x W x D (mm)	Color	No. of modules	No. of rows	Ref. No.	Pack
139 x 51 x 61	Grey RAL 7035	2	1	**610090**	50
139 x 88 x 61	Grey RAL 7035	4	1	**610091**	60
140 x 165 x 72	Grey RAL 7035	6	1	**610354**	28
198 x 200 x 72	Grey RAL 7035	8	1	**610355**	18
139 x 51 x 61	White RAL 9003	2	1	**600579**	50
139 x 88 x 61	White RAL 9003	4	1	**600580**	60
140 x 165 x 72	White RAL 9003	6	1	**600581**	28
198 x 200 x 72	White RAL 9003	8	1	**600582**	18

Dimensional drawing



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

Insulated enclosures - Surface mounting

Fix-o-Rail Junior *IP40*

Applications

For new buildings, replacing old units and adding add-on devices.

Approval / Marking

Standards

EN/IEC 61439-3
EN/IEC 60670-24

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
- HIPS for the base
  Flame resistance: self extinguishing material, resist the 650°C glow-wire test
- Polycarbonate for the lid

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: 70mm Entries: 2 x PG29, 4 x PG21	Earth terminal: connection 5 x 16mm^2 Neutral terminal: connection 5 x 16mm^2	4	**610344**	1/15
170 x 175 x 120 Max. depth of the devices: 92.5mm Entries: 2 x PG21 4 x PG21, 4 x PG16	Earth termin. connect. 6 x 10 + 2 x 16mm^2 Neutral termin.: connecti. 6 x 10 + 2 x 16mm^2	8	**610345**	1/8

Accessories

Earth/neutral terminals

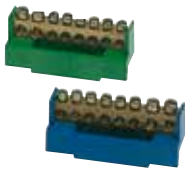
For Junior 4 modules

610141	2

Connection range 5 x 16mm^2

Sealing bracket

610140	2



Earth/neutral terminals

For Junior 8 modules

610186	4

Earth

connection range

6 x 10mm^2 + 2 x 16mm^2

610187	4

Neutral

connection range

6 x 10mm^2 + 2 x 16mm^2

Blank plate 4 modules

610142	4
610484	500

length: 72mm

cut out width: 45mm

can be cut into 9mm length

RAL 7035

Grommets

610130	25

PG16

610132	25

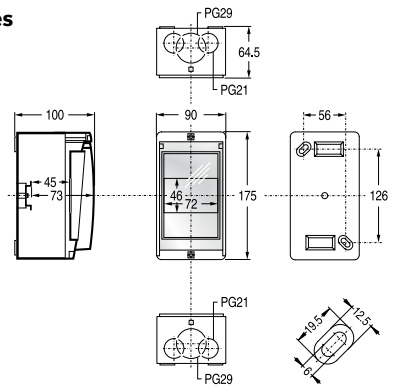
PG21

610133	25

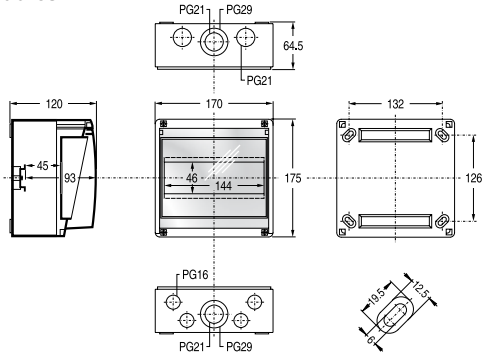
PG29

Dimensional drawings

4 modules



8 modules



Insulated enclosures - Surface mounting

Fix-o-Rail Classic *IP30 / IP40*

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.

Approval / Marking

Standards

EN/IEC 61439-3
NF C61-910

Features

- Protection degree: IP30 / IP40 with door (optional)
- Colour: RAL 9010
- 13, 26, 39 and 52 modules
- Total insulation ⧈ (with backplate and door)
- Transparent or plain door
- Surface mounting
- Adjustable DIN-rail
- HIPS 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

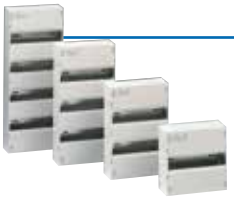
The Fix-o-Rail Classic B packaging includes:
- A mounting frame
- A protective cover
- Labels for circuit identification
- Installation guidelines

Advantages

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

Dimensions pag. ***F.25***

Fix-o-Rail Classic



	HxWxD (mm)	Equipment	No. of rows	No. of modules	Ref. No.	Pack
Classic A	250x250x94	Earth terminal: connection 8x16mm^2 Neutral terminal: connection 10x16mm^2	1	13	**619200**	1
	375x250x94	Earth terminal: connection 18x16mm^2 Neutral terminal: connection 2 (8x16mm)^2	2	26	**619201**	1
	500x250x94	Earth terminal: connection 27x16mm^2 Neutral terminal: connection 2 (8x16mm)^2	3	39	**619202**	1
	625x250x94	Earth terminal: connection 27x16mm^2 Neutral terminal: connection 2 (8x16mm)^2	4	52	**618116**	1
Classic B	250x250x94		1	13	**619203**	1
	375x250x94		2	26	**619204**	1
	500x250x94		3	39	**619205**	1
	625x250x94		4	52	**618117**	1

Accessories

Transparent door + hinges

	618503	1
1 row		
	618509	1
2 rows		
	618515	1
3 rows		
	617961	1
4 rows(1)		

Plain white door + hinges

	619206	1
1 row		
	619207	1
2 rows		
	619208	1
3 rows		
	617962	1
4 rows(1)		

Insulated backplate + screws

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

E = earth connection

N = neutral connection

Equipped insulated support

	618506	1
For Classic B - 1 row E: 8x16mm^2 and N: 10x16mm^2		
	618512	1
For Classic B - 2 rows E: 18x16mm^2 and N: 2 (8x16mm^2)		
	618518	1
For Classic B - 3 rows E: 27x16mm^2 and N: 2 (8x16mm^2)		

(1) In metal

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
8x16mm^2	8x16mm^2	8x16mm^2	1 (8x16mm^2) + 1 (10x16mm^2)
10x16mm^2	10x16mm^2		1 (8x16mm^2) + 1 (14x16mm^2)
14x16mm^2			1 (8x16mm^2) + 1 (18x16mm^2)
18x16mm^2			1 (10x16mm^2) + 1 (14x16mm^2)
27x16mm^2			

Equipped insulated support 3P+N + earth assembly

	618529	1
5 (8x16mm^2)		

Earth or neutral terminals

	618519	4
8x16mm^2		
	618520	4
10x16mm^2		
	618521	4
14x16mm^2		
	618522	4
18x16mm^2		
	618523	4
27x16mm^2		

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

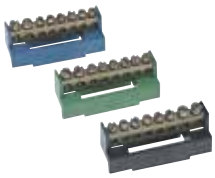
610382	4

Length: 72mm

Cut-out width: 45mm

Can be cut into 9mm length

RAL 9010



Connection terminals

610185	4

Phase terminal 6 x 10mm² + 2 x 16mm²

610186	4

Earth terminal 6 x 10mm² + 2 x 16mm²

610187	4

Neutral terminal 6 x 10mm² + 2 x 16mm²

Coupling

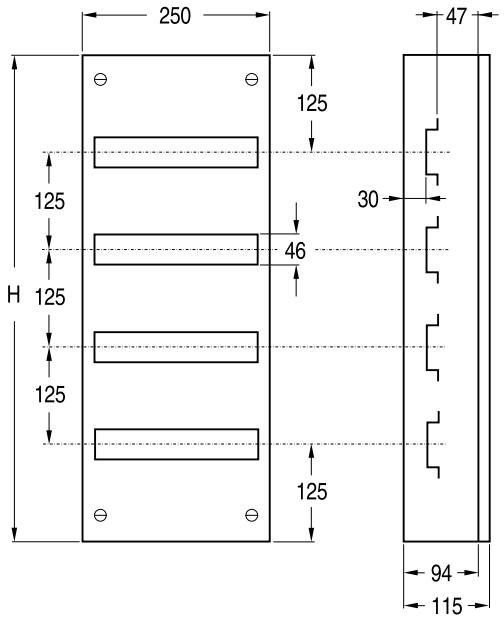
618528	2

Sealing bracket

618527	2

Dimensional drawings

Fix-o-Rail Classic - Surface mounting



Insulated enclosures - Surface mounting

Abaco S — IP40

Applications

The Abaco surface enclosures are used for power distribution in house building and commercial buildings as offices, banks, etc.

Marking

CE

Standards

EN/IEC 60670-24

Features

- Protection degree IP40.
- Total insulation: class II ⧈ .
- Four dimensions in two colours.
- Colours: grey RAL 7035 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.
- 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	HxWxD (mm)	Modules 17.5mm	Number of rows	Ref. No.	Pack.
Grey: RAL 7035	230x200x110	8/10	1	**619375**	14
White: RAL 9010	230x200x110	8/10	1	**619376**	14
Grey: RAL 7035	300x200x110	12/14	1	**619369**	10
White: RAL 9010	300x200x110	12/14	1	**619372**	10
Grey: RAL 7035	315x400x110	24/26	2	**619370**	1
White: RAL 9010	315x400x110	24/26	2	**619373**	1
Grey: RAL 7035	315x525x110	36/39	3	**619371**	1
White: RAL 9010	315x525x110	36/39	3	**619374**	1

Accessories

Insulated support for earth and neutral

619319	120

for enclosure 6/10 modules

connection range

2x16mm² + 8x10mm²

619320	120

for enclosure 10/14 modules

connection range

2x16mm² + 12x10mm²

619321	60

for enclosure 24/36 modules

connection range

2x16mm² + 12x10mm²

Blank plate

619323	150

RAL7035, 5 modules

619338	150

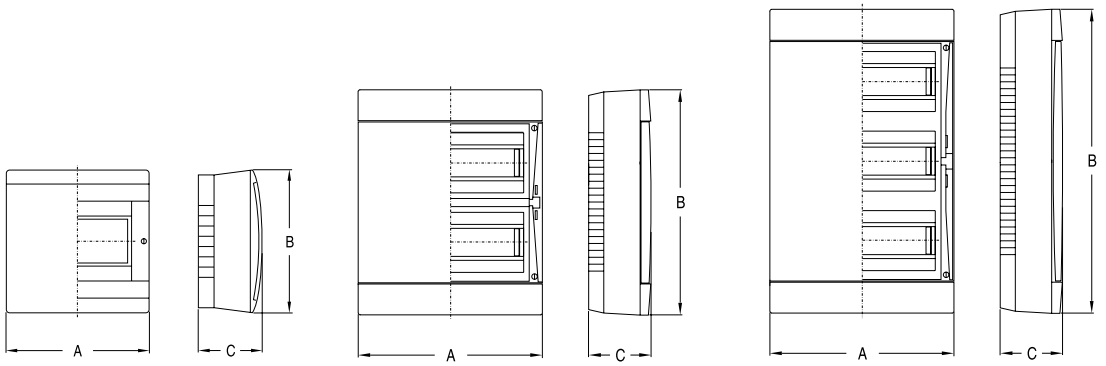
RAL9010, 5 modules

Security lock

619350	1

24 and 36 modules

Dimensional drawings



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

Surface mounting

NEW VERSION Fix-o-Rail 150

Fix-o-Rail 150 *IP40*

- Total safety
- Complete
- Time saving
- Quality
- Design

Applications

Standards / Marking

EN 61439-3

Halogens are not intentionally added and are not expected to be present.

Advantages

- Removable cable entry plate – to adjust to specific site requirements – with pre-defined break-out sections for easy on-site adjustments.
- Very rigid enclsoure base, re-inforced by ribs – adapts to surface conditions
- Plenty wiring space at top and bottom of 150mm each.
- Cable stress relieve bar (optional) – for cable management.
- Strong frame for DIN-rail devices – can be equipped outside the enclsoure – easy to position and fix by means of studs and 4 screws.
- Wiring space behind the DIN-rail makes installers life easy.
- Can be coupled to extend existing installations. Domotica or Media functionality can be added easily therefore.
- Aesthetic door design that allows left/right hinge adaptation to accommodate site conditions. Foreseen for optional key-lock.
- Wiring diagram holder on the backside of the cover can be integrated optionally.

Features

- Protection degree IP40-IK08 (IP30 without door).
- Total insulation: class II .
- Colour: white RAL 9010.
- 1 to 4 rows with 18 modules per row.
- Operating temperature: -15°C to +60°C.
- Flame resistance: complies with the 650°C glow-wire test
- Nominal current 80A (1 and 2 row), 100A (3 and 4 row)

Components

Packaging includes
• Earth-rail (screwless)(1)
• Cable entry-plate
• One blanking plate
• 7 insulating caps
• Circuit identification:
  - adhesive labels
  - adhesive pictograms
• Installation guide

(1) Fix-o-Rail 150, 4-row includes 2 screwless earth-rails

New

Dimensions pag. ***F.31***

Fix-o-Rail 150 — Distribution board RAL9010

Transparent door

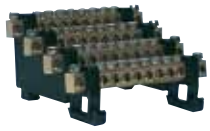
# of rows	# of modules	Dimensions H x W x D (mm)	In	Ref. No.	Pack.
1	18	270 x 355 x 150	80A	**610636**	1
2	36	450 x 355 x 150	80A	**610637**	1
3	54	600 x 355 x 150	100A	**610638**	1
4	72	750 x 355 x 150	100A	**610639**	1

Plain door

1	18	270 x 355 x 150	80A	**610646**	1
2	36	450 x 355 x 150	80A	**610647**	1
3	54	600 x 355 x 150	100A	**610648**	1
4	72	750 x 355 x 150	100A	**610649**	1

Clamping section screwless earth-rail 6 x 16mm^2 and 21 x 4mm^2

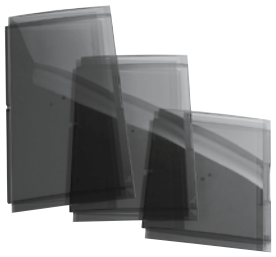
Fix-o-Rail 150 — Accessories



Description	Ref. No.	Pack.
Terminals		
63A - Connection range 4 x (10 x 16mm^2), Cu section 6.5 x 9mm	**610022**	18

160A - Connection range 4 x (1 x 10 to 50mm^2 incoming + 3 x 6 to 35mm^2 + 8 x 2.5 to 16mm^2 outgoing), Cu section 12 x 10mm		
20kA (10 ms) Icw: 6,2kA (1 s)	**617992**	1/5

160A - Connection range 4 x (10 x 10mm^2), Cu section 12 x 5mm	**610020**	16



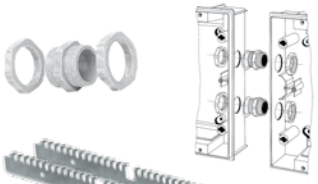
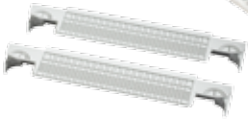
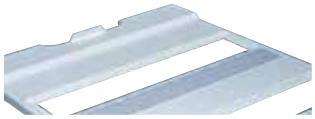
Replacement door transparent		
For 1-row distribution board	**610277**	1
For 2-row distribution board	**610287**	1
For 3-row distribution board	**610297**	1
For 4-row distribution board	**610305**	1

Replacement door plain (RAL9010)		
For 1-row distribution board	**610654**	1
For 2-row distribution board	**610655**	1
For 3-row distribution board	**610656**	1
For 4-row distribution board	**610657**	1

New

Fix-o-Rail 150

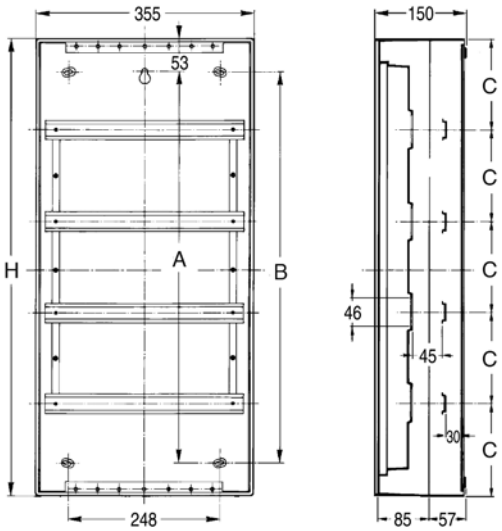
Accessories *(continued)*

	Description	Ref. No.	Pack.
	Protective shroud		
	For 160A terminal (ref. 610020)	**610021**	1
	Support with screwless earth-bar		
	Connection: 6x16mm^2 and 21x4mm^2 (Included with all distribution boards)	**610396**	1
	Support with earth or neutral terminals		
	Cable section: 14 x 16mm^2	**610386**	4
	Cable section: 18 x 16mm^2	**610385**	4
	Support with terminal bars		
	Cable section: 2 (17 x 16mm^2)	**610532**	4
	Support with terminal bars L1-L2-L3-N		
	Cable section: 4 (5 x 16mm^2)	**610387**	4
	**Coupling set (2 pcs)**		
	Allows to couple two Fix-o-Rail 150 enclosures horizontally		
	1 set is needed to couple two enclosures.	**600509**	1
	Cable relief (2 pcs) with 4 fixation screws	**610630**	1
	Set: 4 quarter-turn screws for cover-plate, 7 isolation caps, 4 screws for		
	cable entry-plate, 4 screws for screwless earth-rail	**610629**	1
	**Cable-entry plate (2 pcs) with 4 fixation screws**	**610645**	1
	Lock		
	Security lock with 2 keys	**610170**	1
	Blanking plate		
	Length: 72mm, cut-out height: 45mm, breaking sections per 9mm	**610382**	4
	**Labels and labelholders**		
	Set of 50 pieces	**610270**	1
	Adhesive pictograms		
	For clear and permanent identification of circuits. Set of 50 pieces	**610380**	1
	Drawing pocket		
	To be positioned at the bottom or top backside of the cover-plate	**610265**	1

New

Dimensional drawing

Fix-o-Rail 150



Dimensions (mm)				
Type	**H**	**A**	**B**	**C**
1 row - 18 mod.	270	163	162	135
2 rows - 36 mod.	450	343	342	150
3 rows - 54 mod.	600	493	492	150
4 rows - 72 mod.	750	643	642	150

New

Insulated enclosures - Surface mounting

Fix-o-Rail 55 *IP55*

Applications

The Abaco surface enclosures are used for power distribution in house building and commercial buildings as offices, banks, etc.

Marking

CE

Standards

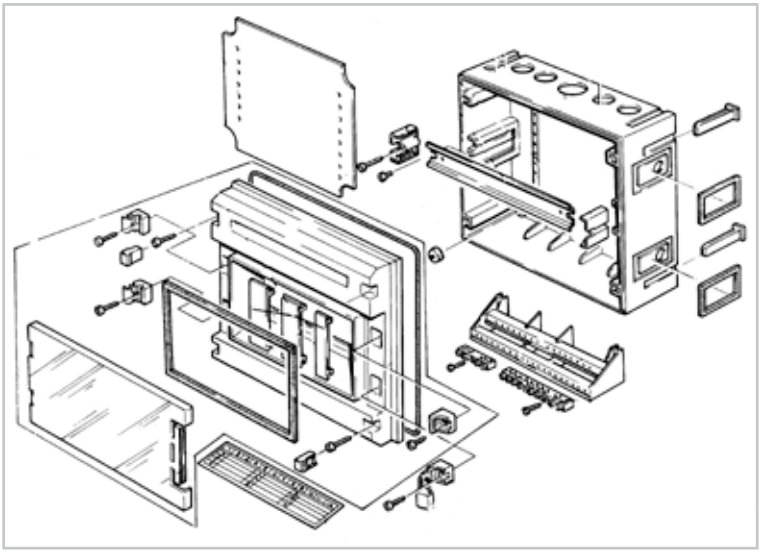
EN/IEC 60670-24

Features

- Total insulation ⧈
- Protection degree IP55-IK07
- Can be coupled
- Transparent door
- Adjustable DIN-rails, according the height of the DIN-equipment
- For equipment up to 92.5mm
- Padlocking option
- The transparent door can be opened to the left or the right (12, 24, 36 module versions)
- Base: • ABS for the 3 up to 8 modules
  • Polystyrene for the 12 up to 36 modules
- Flame resistance: self extinguishing material, resist the 650°C
- Polycarbonate for the transparent door
- Halogene free (Halogens are not intentionally added and are not expected to be present).

Components

- Rigid base and protection cover, colour RAL 7035
- Transparent door
- DIN-rails, the centre distance between two DIN-rail is 125mm
- Labeling facilities
- With earth bar for the 12, 24 and 36 modules



Enclosures
A
B
C
D
E
F
G
X

Dimensions pag. ***F.42***

Fix-o-Rail 55

	HxWxD (mm)	Equipment	Number of modules	Number of rows	Ref. No.	Pack.
	175x83x106	Without earth bar	3	1	**600573**	12
	175x125x114	Without earth bar	5	1	**600574**	20
	175x215x114	Without earth bar	8	1	**600575**	12
	250x285x136	Earth bar, connection range: 2x16mm^2 and 6x10mm^2	12	1	**610316**	1
	375x285x136	Earth bar, connection range: 2x16mm^2 and 8x16mm^2	24	2	**610317**	1
	500x285x136	Earth bar, connection range: 2x16mm^2 and 12x16mm^2	36	3	**610318**	1

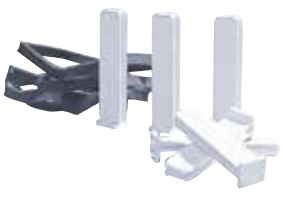
Accessories

Terminal

Additional busbar for earth and neutral connections

	610314	1

Cable section: 2x16mm^2 and 6x6mm^2



Coupling set

To couple two enclosures in a simple way

	610315	1

Locking device

Allows the enclosure to be fitted with a padlocking device

	610313	1

Waterproof enclosures - Surface mounting

Aquaria *IP65*

Applications

Aquaria is the best choice for power distribution purposes in premises with a need for high protection degree eg. power plants, technical areas small laboratories, etc..

Approval / Marking

Standards

EN/IEC 60670-1
EN/IEC 60670-24
CEI 23-48, CEI 23-49

Features

- Total insulation ⧈
- Protection degree IP65 - IK08
- Colour: RAL 7035
- Transparent lid or hinged door (3 rows)
- For DIN-rail equipment up to 92.5mm
- DIN-rails adjustable up to 3 different levels
- Operating temperature: -5°C to +60°C
- Flame resistance: resist the 650°C
- Non UV stable
- Enclosures can not be coupled

Power dissipation

Enclosure	# mod.	Ref. No.	Maximal power dissipation (W)
1 row	5	**597956**	8
1 row	8	**597957**	11
1 row	12	**597958**	17
1 row	12	**597959**	20
2 rows	24	**597960**	30
3 rows	48	**597961**	45

Aquaria - Waterproof enclosures surface mounting IP65

Colour	Dimensions mm (H x L x W)	Modules 17.5mm	# rows	Art. No.	ENCLOSURE		EARTH BAR	
					Ref. No.	Pack	Ref. No.	Pack
Grey RAL 7035	120 x 160 x 90	3/5	1	AQA005PG	**597956**	1/40/840	**597962**	1/20/120
Grey RAL 7035	200 x 160 x 90	4/8	1	AQA008PG	**597957**	1/26/546	**597963**	1/20/120
Grey RAL 7035	225 x 200 x 110	6/12	1	AQA012PG	**597958**	1/14/294	**619320**	1/20/120
Grey RAL 7035	250 x 250 x 145	6/12	1	AQA912PG	**597959**	1/1/152	**619320**	1/20/120
Grey RAL 7035	375 x 250 x 145	24	2	AQA024PG	**597960**	1/1/108	**619320**	1/20/120
Grey RAL 7035	550 x 350 x 145	48	3	AQA048PG	**597961**	1/1/44	**619321**	1/10/60

Accessories - Earth bars(1)

Connection	# earth bars	Ref. No.	Pack
2 x 16mm^2 + 5 x 10mm^2	1	**597962**	1/20/120
2 x 16mm^2 + 8 x 10mm^2	2	**597963**	1/20/120
2 x 16mm^2 + 12 x 10mm^2	2	**619320**	1/20/120
2 x 16mm^2 + 12 x 10mm^2	4	**619321**	1/10/60

(1) To be ordered separately

Insulated enclosures - Flush mounting

Abaco F *IP40*

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.

Marking

CE

Standards

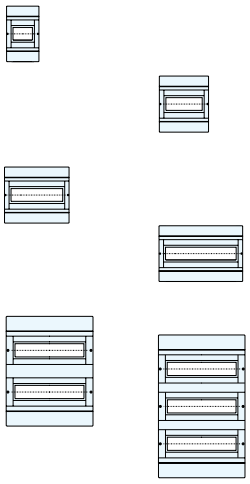
EN/IEC 60670-24

Features

- Flush mounting
- Total insulation
- Protection degree IP40
- Six dimensions in three colours
- Colours: grey RAL 7035, 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
- 20mm clearance behind the mounting frame

Dimensions pag. ***F.44***

Abaco F - Enclosure base with transparent door



Colour	H x W x D (mm)	Modules 17.5mm	Number of rows	Ref. No.	Pack.
Grey	120 x 200 x 73	2/4	1	**619300**	12
Metallised black	120 x 200 x 73	2/4	1	**619362**	12
Grey	180 x 200 x 73	4/7	1	**619301**	24
White	180 x 200 x 73	4/7	1	**619325**	24
Metallised black	180 x 200 x 73	4/7	1	**619331**	24
Grey	230 x 200 x 73	6/10	1	**619302**	14
White	230 x 200 x 73	6/10	1	**619326**	14
Metallised black	230 x 200 x 73	6/10	1	**619332**	14
Grey	300 x 200 x 73	10/14	1	**619303**	12
White	300 x 200 x 73	10/14	1	**619327**	12
Metallised black	300 x 200 x 73	10/14	1	**619333**	12
Grey	315 x 400 x 80	24/26	2	**619304**	1
White	315 x 400 x 80	24/26	2	**619328**	1
Metallised black	315 x 400 x 80	24/26	2	**619334**	1
Grey	315 x 525 x 80	36/39	3	**619305**	1
White	315 x 525 x 80	36/39	3	**619329**	1
Metallised black	315 x 525 x 80	36/39	3	**619335**	1

Accessories

Coupling

619322	10/100/600

2/4 and 10/14 modules

Blank plate

619323	150/450

Grey, RAL7035, 5 modules

619338	150/450

White, RAL9010, 5 modules

619339	1/450

Metallised black, 5 modules

Security lock

619350	1

24 and 36 modules

Transparent lid

619340	1

2/4 modules

619341	1

4/7 modules

619342	1

6/10 modules

619343	1

10/14 modules

619344	1

24/26 modules

619345	1

36/39 modules

Insulated support for earth or neutral

619337	1/30/180

for enclosure 4/7 modules

connection range 7 x 10mm^2

619319	1/20/120

for enclosure 6/10 modules

connection range

2 x 16mm^2 + 8 x 10mm^2

619320	1/20/210

for enclosure 10/14 modules

connection range

2 x 16mm^2 + 12 x 10mm^2

619321	1/10/60

for enclosure 24/36 modules

connection range

2 x 16mm^2 + 12 x 10mm^2

Insulated enclosures - Flush mounting

Fix-o-Rail 150-F4 — *IP40*

Total safety
Complete
Time saving
Quality
Design

Applications

The Fix-o-Rail 150-F4 is an electrical distribution board for the followin g 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 signifiant aesthetic appeal, particularly in applications where appearance is important.

Approval / Marking

CEBEC CE

Standards

EN/IEC 61439-3
EN/IEC 60670-24

Features

- Protection degree: IP40-IK07
- Total insulation ⧈
- CEBEC- approval
- 1-2-3-4 rows / 14 modules per row
- For all flush mounting installations
- One enclosure for installation in brickwork and studded walls
- Transparent or plain door
- Universal for all modular equipment with a shoulder height of 47mm and a max. depth of 70mm
- Wiring space: • 20mm behind the mounting frame
  • 150mm 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
- HIPS for the base and cover
- Flame resistance: self extinguishing material, resist the 850°C glow-wire test
- The door and the masking frame are in sheet steel, coated with a white epoxy powder (colour RAL 9010)
- In accordance with EN/IEC 61439-3 and EN/IEC 60670-24
- Sturdy enclosure and mounting frame
- Due to the discreet design of the masking frame and door, the Fix-o-Rail 150-F4 offers signifiant aesthetic appeal
- Colour RAL 9010
- Optional security lock

Components

Fix-o-Rail 150-F4 enclosure includes:
- earth bar
- label holders
- neutral bar
- installation guidelines
- adhesive pictograms
- a blank plate
- labels for circuit identification
- protective plate on the base (against dust and plaster)

Dimensions pag. ***F.40***

Fix-o-Rail 150-F4 - Base and door included

Transparent door

HxWxD (mm)	Equipment		No. of modules	No. of rows	Ref. No.	Pack.
350x375x108	Earth bar: connection 14x16mm² Neutral bar: connection 14x16mm²	In 50A	14	1	**610368**	1
525x375x108	Earth bar: connection 14x16mm² Neutral bar: connection 14x16mm²	In 63A	28	2	**610369**	1
675x375x108	Earth bar: connection 18x16mm² Neutral bar: connection 18x16mm²	In 80A	42	3	**610370**	1
825x375x108	Earth bar: connection 18x16mm² Neutral bar: connection 18x16mm²	In 100A	56	4	**610371**	1

Plain door

350x375x108	Earth bar: connection 14x16mm² Neutral bar: connection 14x16mm²	In 50A	14	1	**610372**	1
525x375x108	Earth bar: connection 14x16mm² Neutral bar: connection 14x16mm²	In 63A	28	2	**610373**	1
675x375x108	Earth bar: connection 18x16mm² Neutral bar: connection 18x16mm²	In 80A	42	3	**610374**	1
825x375x108	Earth bar: connection 18x16mm² Neutral bar: connection 18x16mm²	In 100A	56	4	**610375**	1

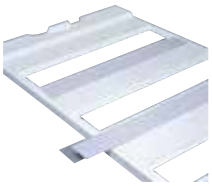
Accessories

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	

Blank plate

610382	500
Length = 72mm	
Cut-out width = 45mm	
Section of 9mm	
Colour RAL 9010	



Labels and label holders

610383	1
Set of 50 pieces	

Adhesive pictograms

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

Grips

For building into studded walls

610381	1

Security lock

610384	1
With two keys	

Support with earth or neutral terminals

610385	4
Cable section: 18x16mm²	
Delivered with 3 and 4 rows enclosures	
610386	4
Cable section: 14x16mm²	
Delivered with 1 and 2 rows enclosures	

Support with terminals L1, L2, L3, N

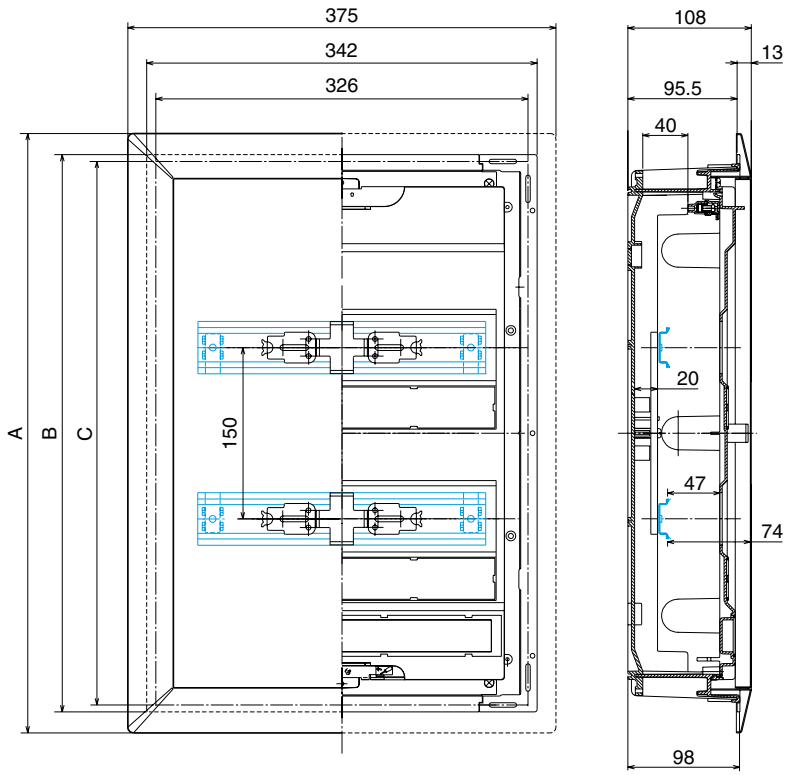
610387	4
Cable section: 4 (5x16mm²)	

Support with terminals

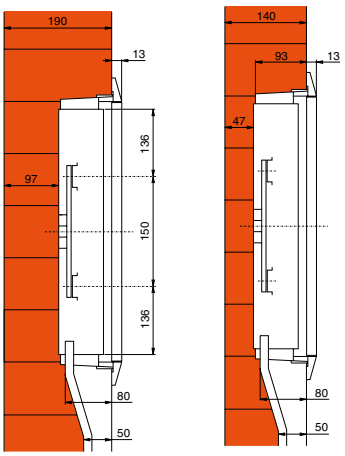
610532	4
Cable section: 2 (17x16mm²)	

Dimensional drawings

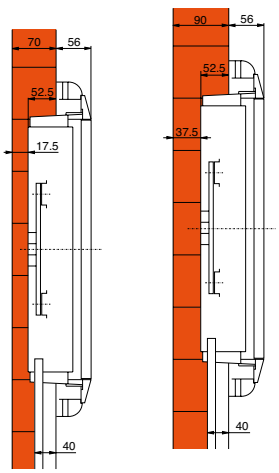
Fix-o-Rail 150-F4 - Flush mounting



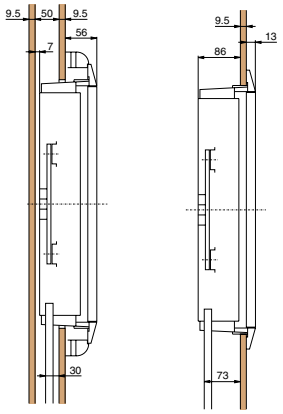
Dimensions (mm)			
Type	**A**	**B**	**C**
1 row - 14 mod.	350	313	301
2 rows - 28 mod.	525	488	476
3 rows - 42 mod.	675	638	626
4 rows - 56 mod.	825	788	776



Flush mounting
into brickwork



Flush mounting and
semi flush mounting into brickwork

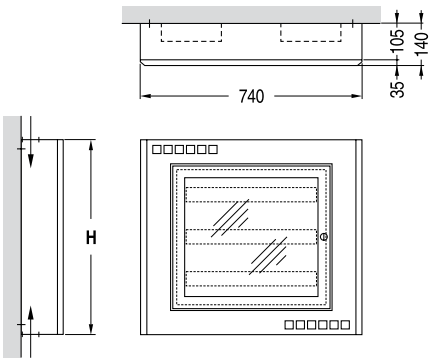


Semi flush mounting
into studded walls

Dimensional drawings

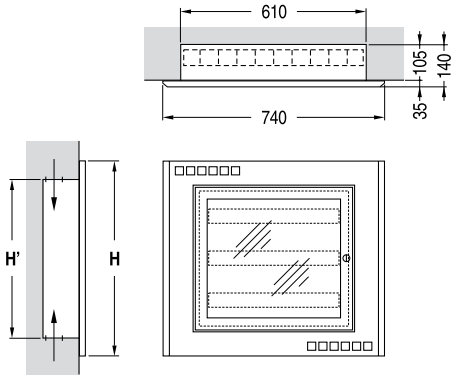
Fix-o-Rail 144

Fix-o-Rail 144 S
Surface mounting

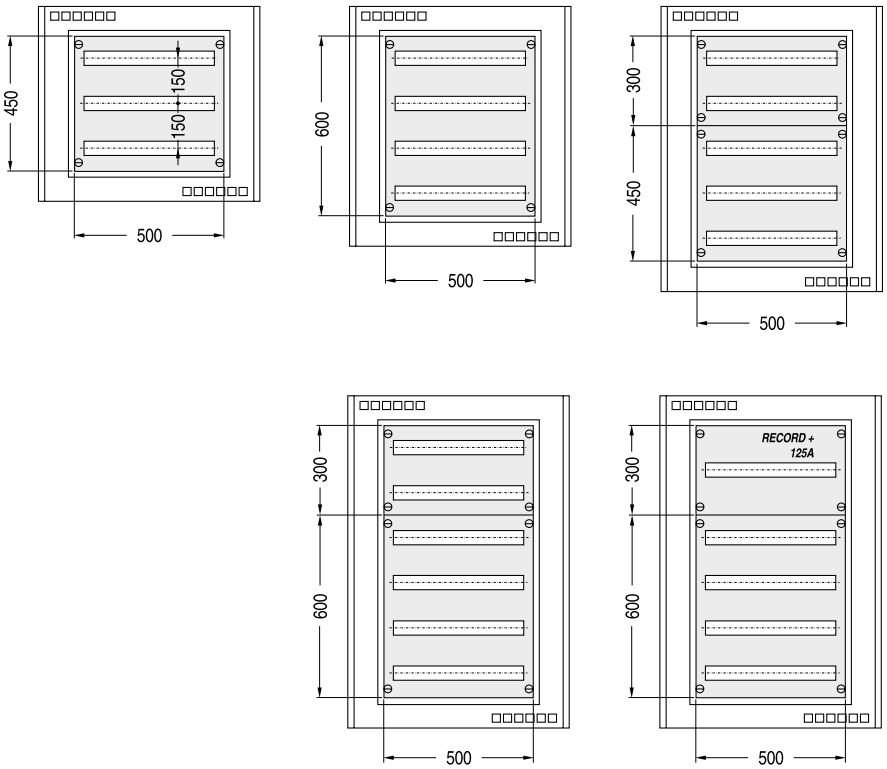


Dimensions (mm)	
	H
3 rows - 72 mod.	650
4 rows - 96 mod.	800
5 rows - 120 mod.	950
6 rows - 144 mod.	1100
4 rows+Record - 120 mod.	1100

Fix-o-Rail 144 F
Flush mounting



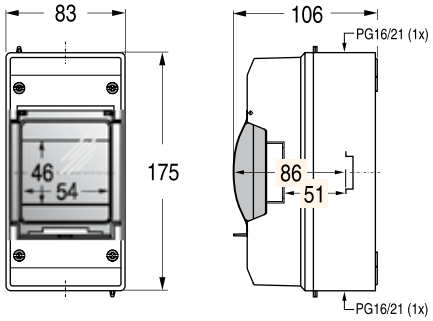
Dimensions (mm)		
	H	H'
3 rows - 72 mod.	650	560
4 rows - 96 mod.	800	710
5 rows - 120 mod.	950	860
6 rows - 144 mod.	1100	1010
4 rows+Record - 120 mod.	1100	1010



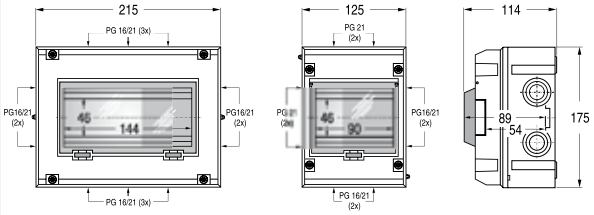
Dimensional drawings

Fix-o-Rail 55 - Surface mounting

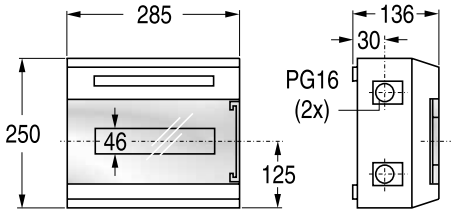
3 modules



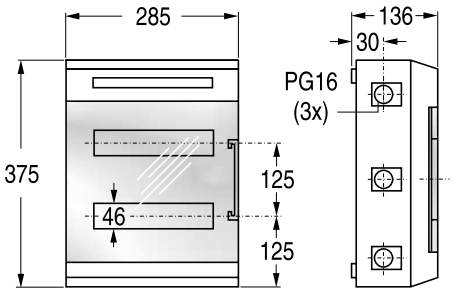
5-8 modules



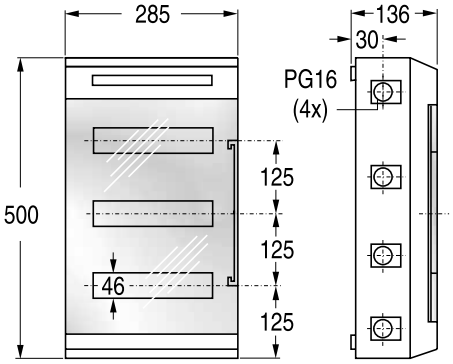
12 modules



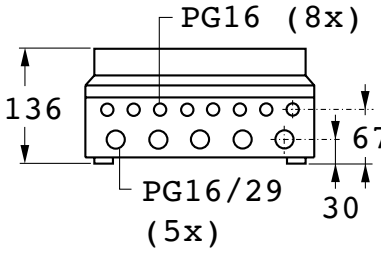
24 modules



36 modules

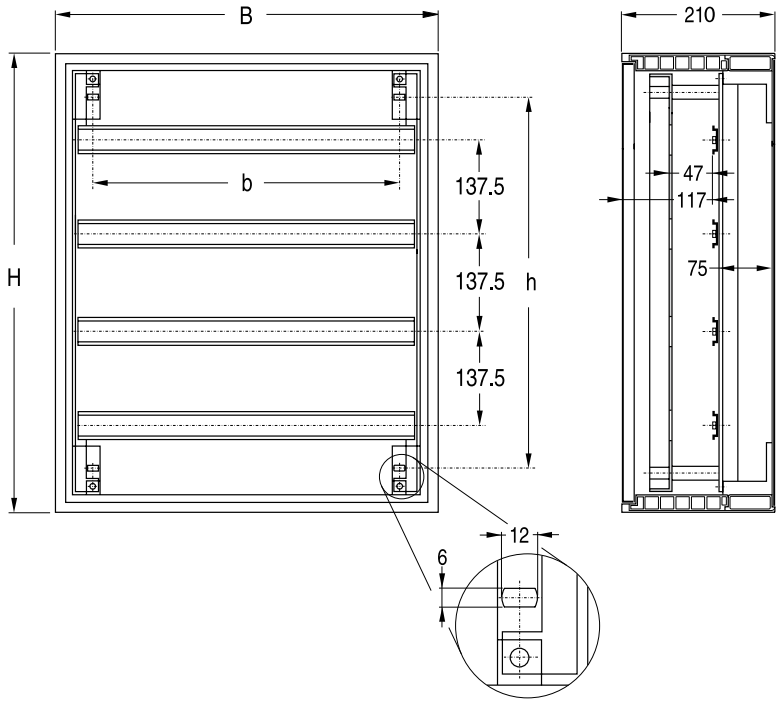


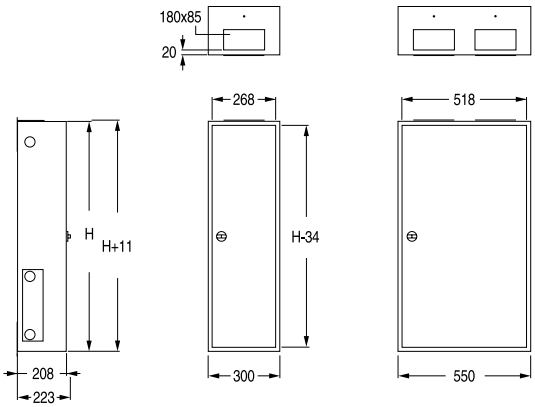
Top/bottom view



Dimensional drawings

Fix-o-Rail Senior - Surface mounting

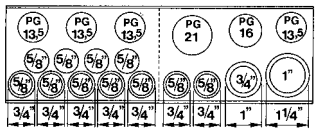




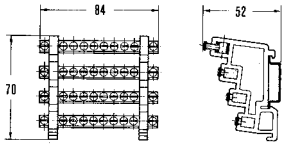
Dimensions (mm)				
Type	**B**	**b**	**H**	**Ha**
4 rows - 48 mod.	300	191	650	401
5 rows - 60 mod.	300	191	800	551
4 rows - 96 mod.	550	441	650	401
5 rows - 120 mod.	550	441	800	551
6 rows - 144 mod.	550	441	950	701
7 rows - 168 mod.	550	441	1100	851
7 rows - 252 mod.	550	441	1250	1001
8 rows - 192 mod.	800	691	1100	851
8 rows - 288 mod.	800	691	1250	1001

Accessories distribution boards

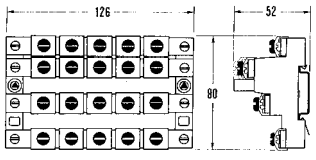
Gland plate



4P terminal 63A



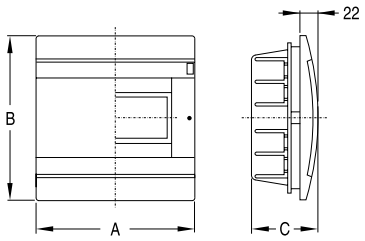
4P terminal 160A



Dimensional drawings

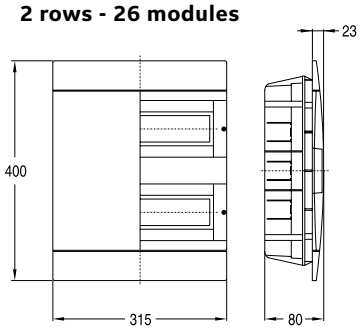
Abaco F - Flush mounting

1 row - 14 modules

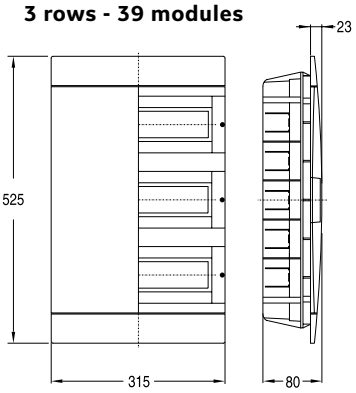


Dimensions (mm)			
Type	**A**	**B**	**C**
4 mod.	120	200	73
7 mod.	180	200	73
10 mod.	230	200	73
14 mod.	300	200	73

2 rows - 26 modules



3 rows - 39 modules



Circuit Protection A
People Protection B
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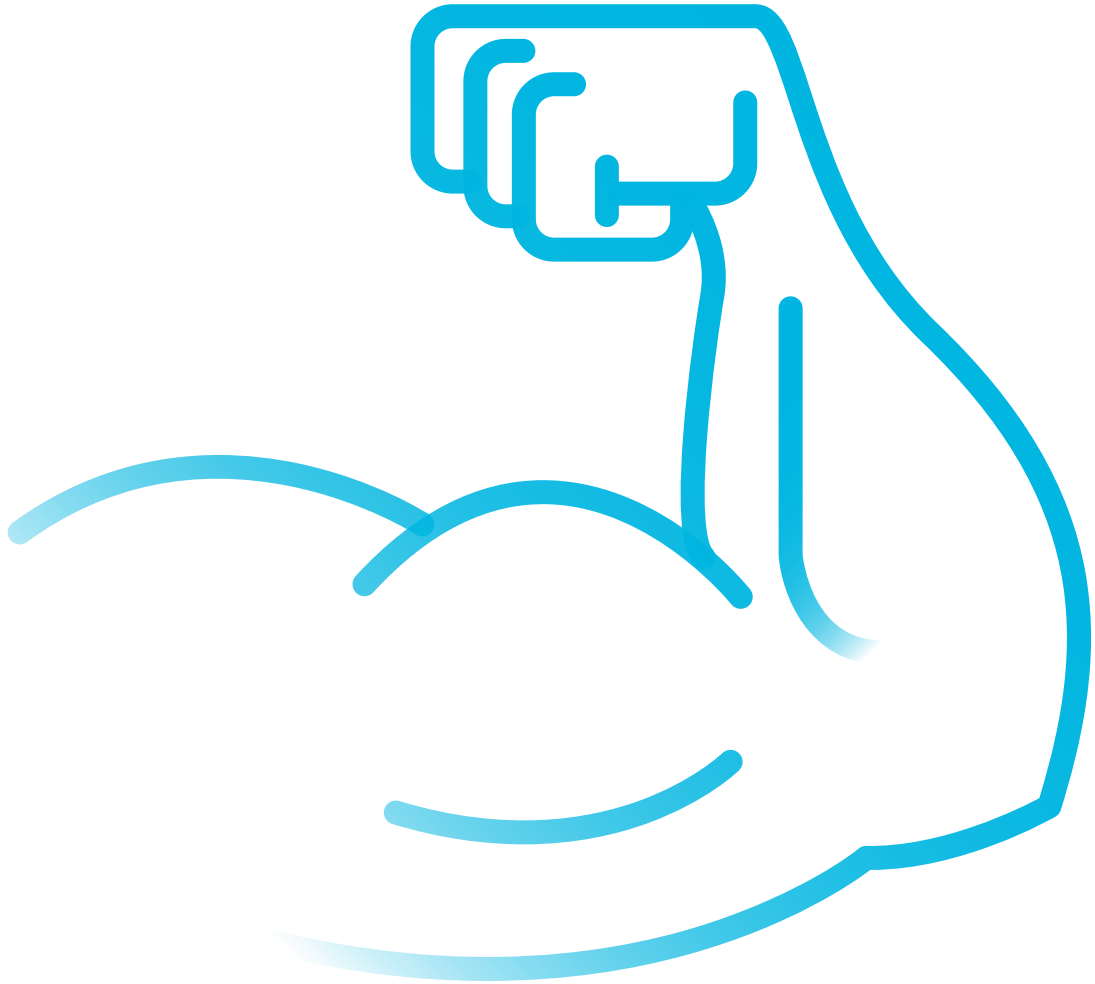
Overview
G.3 Controls and Power Electronics
G.4 Industrial Breakers
G.5 Low voltage applications

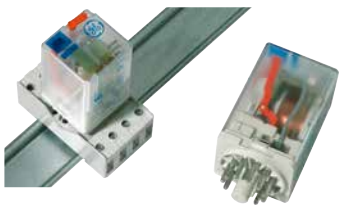


Push-buttons

Industrial push-buttons and switches
Series P9 - Ø 22.5 mm
Series 077 -Ø 30 mm

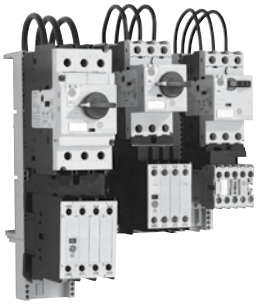
Contactors & Manual Motor Starters

Four ranges, 3 and 4 poles
Efficor* - from 9 to 105A in AC3
Series M - from 6 to 9A in AC3
Series CL - from 9 to 105A in AC3
Series CK - from 150 to 780A in AC3



Plug-in relays - Series PRC

Miniature, 8-11 pins and interface



Motor protection devices Surion

Thermal and magnetic protection.
Standard and high breaking capacity.
Rocker and rotary handle operator.

Electronic relays

Multivoltage timers
Detector relays (tension, intensity, liquid level, etc.) and control and protection relays

Overload relays

To fit on the four contactor ranges:
Series MT - from 0.11 to 14A setting
Series RT - from 0.16 to 110A setting
Series RT - from 55 to 850A setting
Series RE - (Electronic): 0.1 to 150A

Variable Speed Drives

AF-7 & AF-6 series
Variable speed drives for three phase induction motors from 0.18 up to 1400kW

Softstarters

ASTAT XB-XBm-XL
Compact softstarters
XB and **XBm** in the power range from 18 to 200A, 7.5 to 110kW at 400Vac, 10 to 180HP at 460Vac, with a wide voltage range of 200 to 575Vac
XL in the power range from 23 to 1600A, 11 to 850kW at 400Vac, 15 to 1340HP at 460Vac, with a wide voltage range of 200 to 690Vac

GuardEon*

Moulded case circuit breakers

Selective and current limiting
Available in two sizes, GuardEon was designed with customers to meet a variety of applications from basic to advanced.

Frame E up to 250A
Frame F up to 630A

GuardEon circuit breakers meet the requirements of IEC, CCC, and CE allowing for a standardized global design.

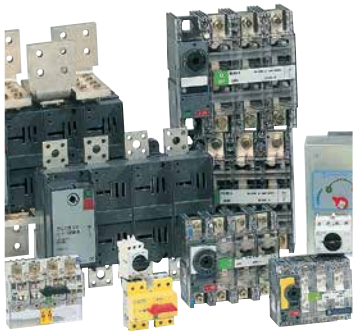
EntelliGuard*

Power circuit breakers

Uncompromising, fast and selective

Frame T (compact)
400A to 1600A - 50kA and 65kA
Frame 1
400A to 2000A - 50kA and 65kA
Frame 2
400A to 4000A - 50, 65, 80 and 100kA
Frame 3
3200A to 6400A - 100kA and 150kA

Fixed pattern and withdrawable type.
In accordance with EN/IEC 60947-2



Dilos

Loadbreak disconnectors

From 16A up to 4000A

Fulos

Fused loadbreak disconnectors

From 32A up to 1000/1250A

Trip Unit Toolkit

A broad and expanding set of tools designed to monitor, set, and customize the data present in the GE range of EntelliGuard, PremEon* and MET trip units.

Gerapid

High speed DC breaker

From 2600A up to 10 000A

A wide range of models with rated voltages up to 3900V

Distribution boards

SEN Plus

Rated voltage: up to 690Vac / 600Vdc
Rated current: up to 7600A

Power circuit breakers

EntelliGuard*

Rating: from 400A to 6400A

Moulded case circuit breakers

Record Plus*/GuardEon*

Selective and current limiting
Rating: from 8A to1600A

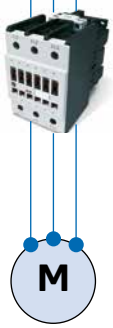
MCCBs

acc. EN/IEC 60947-2/UL489

Special contactors

for capacitor protection

A full range of **contactors** and auxiliaries, according to EN/IEC 60947-4



A full range of **starters**:
Direct-on-line, Star-Delta, Reversing
ASTAT Softstarters
AF-7/AF-6 Variable speed drives
for commercial and industrial applications

A wide range of **push-buttons**, round and square, in metal and in engineering thermoplastic, illuminated, with or without key,...

A full range of **modular DIN-rail devices**
MCBs acc. EN/IEC 60898-1 and EN/IEC 60947-2
Add-on RCDs acc. EN/IEC 61009-1
RCCBs acc. EN/IEC 61008-1
RCBOs acc. EN/IEC 61009-1
Switches, timers, contactors, surge arresters, measurement devices.

Disconnector loadbreak switches and changeover switches from 16A to 4000A.

Fused disconnector load-break switches from 32A to 1250A.
According to EN/IEC 60947-3 and UL 508 (listed).

A full range of **enclosures** to house your equipment: plastic or metallic, for indoor and outdoor use.
For industrial as well as residential and commercial applications.
According to EN/IEC 60529

PROTECT

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X.30 Product Selector

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544338	LD02AD01	A.121
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546152		E.4
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546187		E.6
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546299		E.8
546300		E.8
546301		E.8
546302		E.8
546308		E.4
546341		E.6
546396		E.5
546397		E.5
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565333	FPB 4 16/030	B.33
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565338	FPB 4 25/100	B.33
565339	FPB 4 25/300	B.33
565340	FPB 4 25/500	B.33
565341	FPB 4 40/030	B.33
565342	FPB 4 40/100	B.33
565343	FPB 4 40/300	B.33
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565345	FPB 4 63/030	B.33
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565350	FPB 4 80/100	B.33
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565360	FPB 2 25/500	B.33
565361	FPB 2 40/030	B.33
565362	FPB 2 40/100	B.33
565363	FPB 2 40/300	B.33
565364	FPB 2 40/500	B.33
565365	FPB 2 63/030	B.33
565366	FPB 2 63/100	B.33
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565369	FPB 2 80/030	B.33
565370	FPB 2 80/100	B.33
565371	FPB 2 80/300	B.33
565372	FPB 2 80/500	B.33
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565374	FPF 2 40/030	B.35
565375	FPF 2 63/030	B.35
565376	FPF 2 80/030	B.35
565377	FPF 4 25/030	B.35
565378	FPF 4 40/030	B.35
565379	FPF 4 63/030	B.35
565380	FPF 4 80/030	B.35
565381	DMA63NC10/300	B.19
565382	DMA63NC13/300	B.19
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565391	DMA63NB25/030	B.19
565392	DMA63NB32/030	B.19
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565394	DMA63NB13/300	B.19
565395	DMA63NB16/300	B.19
565396	DMA63NB20/300	B.19
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585014	NDP2 10/30	B.69
585016	NDF2 15/45	B.69
585017	NDFS2 15/45	B.69
585018	NDPS2 30/60	B.69
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585031	NDF4 10/30	B.69
585035	NDPS4 30/60	B.69
585036	NDF4 30/60	B.69
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585436	DisB2 15/45	B.67
585437	DisBS2 30/60	B.67
585438	DisBS2 15/45	B.67
585439	DisB4 30/60	B.67
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585442	DisBS4 10/30	B.67
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REC TOP EP102 C10	677186	C.19
REC TOP EP102 C16	677187	C.19
REC TOP EP102 C20	677188	C.19
REC TOP EP102 C25	677189	C.19
REC TOP EP102 C32	677190	C.19
REC TOP EP102 C40	677191	C.19
REC TOP EP102 C50	677192	C.19
REC TOP EP102 C63	677193	C.19
REC TOP EP104 B10	677194	C.19
REC TOP EP104 B16	677195	C.19
REC TOP EP104 B20	677196	C.19
REC TOP EP104 B25	677197	C.19
REC TOP EP104 B32	677198	C.19
REC TOP EP104 B40	677199	C.19
REC TOP EP104 B50	678026	C.19
REC TOP EP104 B63	678027	C.19
REC TOP EP104 C10	678028	C.19
REC TOP EP104 C16	678029	C.19
REC TOP EP104 C20	678030	C.19
REC TOP EP104 C25	678031	C.19
REC TOP EP104 C32	678032	C.19
REC TOP EP104 C40	678033	C.19
REC TOP EP104 C50	678034	C.19
REC TOP EP104 C63	678035	C.19
REC TOP TT 25	678036	C.19
REC TOP TT 35	678037	C.19
REC2 A 2100/30	676990	C.15
REC2 A 2100/300	676998	C.15
REC2 A 225/30	676986	C.15
REC2 A 225/300	676994	C.15
REC2 A 240/30	676987	C.15
REC2 A 240/300	676995	C.15
REC2 A 263/30	676988	C.15
REC2 A 263/300	676996	C.15
REC2 A 280/30	676989	C.15
REC2 A 280/300	676997	C.15
REC2 A 4100/30	677046	C.15
REC2 A 4100/300	677074	C.15
REC2 A 425/30	677042	C.15
REC2 A 425/300	677050	C.15
REC2 A 440/30	677043	C.15
REC2 A 440/300	677071	C.15
REC2 A 463/30	677044	C.15
REC2 A 463/300	677072	C.15
REC2 A 480/30	677045	C.15
REC2 A 480/300	677073	C.15
REC2 Ai 225/30	676991	C.15
REC2 Ai 240/30	676992	C.15
REC2 Ai 263/30	676993	C.15
REC2 Ai 425/30	677047	C.15
REC2 Ai 440/30	677048	C.15
REC2 Ai 463/30	677049	C.15
REC2 DPCA100B10/030	677174	C.17
REC2 DPCA100B10/300	677180	C.17
REC2 DPCA100B16/030	677175	C.17
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REC2 DPCA100B32/030	677178	C.17
REC2 DPCA100B32/300	677184	C.17
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REC2 DPCA100C10/300	677156	C.17
REC2 DPCA100C16/030	677151	C.17
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REC2 DPCAi100C10/300	677168	C.17
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REC2 DPCAi100C40/030	677167	C.17
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REC2 S 2100/300	677041	C.15
REC2 S 240/300	676999	C.15
REC2 S 263/300	677039	C.15
REC2 S 280/300	677040	C.15
REC2 S 4100/300	677098	C.15
REC2 S 440/300	677075	C.15
REC2 S 463/300	677076	C.15
REC2 S 480/300	677077	C.15
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SA BLOCK I 50 2M	660494	D.70
SA BLOCK I and II 100	667486	D.72
SA BLOCK I and II 100N	667487	D.72
SA BLOCK I and II 65	667517	D.72
SA BLOCK I and II 65N	667518	D.72
SA BLOCK II 15/230 LLE	667489	D.72
SA BLOCK II 15/230 LNE	667488	D.72
SA BLOCK II 15/400 3L+NE	667494	D.72
SA BLOCK II 15/400 4L/NE	667495	D.72
SA BLOCK II 15LN	667483	D.72
SA BLOCK II 40/230 LLE	667491	D.72
SA BLOCK II 40/230 LNE	667490	D.72
SA BLOCK II 40/400 3L+NE	667496	D.72
SA BLOCK II 40/400 4L/NE	667497	D.72
SAM I+II 100N	660393	D.70
SAM I+II 12.5/230	660294	D.70
SAM I+II 25/230	660199	D.70
SAM I+II 25N	660296	D.70
SAM I+II 50N	660274	D.70
SAM II 20/230	660297	D.71
SAM II 20N	660299	D.71
SAM II 40/1000PV	660379	D.78
SAM II 40/1500PV	660498	D.78
SAM II 40/230	660373	D.71
SAM II 40/400	660374	D.71
SAM II 40/600PV	660378	D.78
SAM II 40N	660375	D.71
SAMII30750	660634	D.75
SAMII40175	660631	D.75
SAMII40275	660632	D.75
SAMII40320	660633	D.75
SAP1 I+II 100N	660391	D.70
SAP1 I+II 25/230	660125	D.70
SAP1 I+II 25/230 C	660127	D.70
SAP1 II 20N	660169	D.71
SAP1 II 40/230	660158	D.71
SAP1 II 40/230 C	660160	D.71
SAP1 II 40/400	660159	D.71
SAP1 II 40/400 C	660162	D.71
SAP1 II 40N	660163	D.71
SAP1II40175	660608	D.75
SAP1II40175C	660612	D.75
SAP1II40275	660609	D.75
SAP1II40275C	660613	D.75
SAP1II40320	660611	D.75
SAP1II40320C	660614	D.75
SAP2 I+II 12.5 TNS	660143	D.70
SAP2 I+II 12.5 TNS C	660144	D.70
SAP2 I+II 12.5 TT	660139	D.70
SAP2 I+II 12.5 TT C	660140	D.70
SAP2 II 20/230 TNS	660177	D.71
SAP2 II 20/230 TNSC	660178	D.71
SAP2 II 20/230 TT	660173	D.71
SAP2 II 20/230 TTC	660174	D.71
SAP2 II 40/230 TNS	660175	D.71
SAP2 II 40/230 TNSC	660176	D.71
SAP2 II 40/230 TT	660171	D.71
SAP2 II 40/230 TTC	660172	D.71
SAP2II40175	660615	D.75
SAP2II40175C	660617	D.75
SAP2II40320	660616	D.75
SAP2II40320C	660618	D.75
SAP3 I+II 12.5 TNC	660147	D.70
SAP3 I+II 12.5 TNC C	660148	D.70
SAP3 II 20/400 TNC	660181	D.71
SAP3 II 20/400 TNCC	660182	D.71
SAP3 II 40/400 TNC	660179	D.71
SAP3 II 40/400 TNCC	660180	D.71
SAP3II30750	660624	D.75
SAP3II30750C	660626	D.75
SAP3II40175	660619	D.75
SAP3II40175C	660621	D.75
SAP3II40320	660620	D.75
SAP3II40320C	660622	D.75
SAP4 I+II 12.5 TNS	660152	D.70
SAP4 I+II 12.5 TNS C	660156	D.70
SAP4 I+II 12.5 TT	660150	D.70
SAP4 I+II 12.5 TT C	660151	D.70
SAP4 II 20/400 TNS	660189	D.71
SAP4 II 20/400 TNSC	660190	D.71
SAP4 II 20/400 TT	660185	D.71
SAP4 II 20/400 TTC	660186	D.71
SAP4 II 40/400 TNS	660187	D.71
SAP4 II 40/400 TNSC	660188	D.71
SAP4 II 40/400 TT	660183	D.71
SAP4 II 40/400 TTC	660184	D.71
SAP4II40175	660629	D.75
SAP4II40175C	660630	D.75
SAP4II40320	660627	D.75
SAP4II40320C	660628	D.75
SAPVII40/1000	660197	D.78
SAPVII40/1000C	660198	D.78
SAPVII40/1500	660496	D.78
SAPVII40/1500C	660497	D.78
SAPVII40/600	660195	D.78
SAPVII40/600C	660196	D.78
SF1/10x38	676558	A.113
SF1/14x51	676564	A.113
SF1/14X51IM	679556	A.113
SF1/22x58	676570	A.113
SF1/22X58IM	679559	A.113
SF1/8x31	676552	A.113
SF1N/10x38	676559	A.113
SF1N/14x51	676565	A.113
SF1N/22x58	676571	A.113
SF2/10x38	676560	A.113
SF2/14x51	676566	A.113
SF2/14X51IM	679557	A.113
SF2/22x58	676572	A.113
SF2/22X58IM	679560	A.113
SF2/8x31	676554	A.113
SF3/10x38	676561	A.113
SF3/14x51	676567	A.113
SF3/14X51IM	679558	A.113
SF3/22x58	676573	A.113
SF3/22X58IM	679561	A.113
SF3/8x31	676555	A.113
SF3N/10x38	676562	A.113
SF3N/14x51	676568	A.113
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SFN/22x58	676569	A.113
SFN/8x31	676551	A.113
SFU1N/10x38	679590	A.113
SFUL1/10X38	679568	A.119
SFUL1/10X38I	679569	A.119
SFUL1/10X38IS	679571	A.119
SFUL1/10X38S	679570	A.119
SFUL1/30CC	679562	A.115
SFUL1/30ICC	679565	A.115
SFUL1/30J	679583	A.117
SFUL1/60J	679586	A.117
SFUL2/30CC	679563	A.115
SFUL2/30ICC	679566	A.115
SFUL2/30J	679584	A.117
SFUL2/60J	679587	A.117
SFUL3/30CC	679564	A.115
SFUL3/30ICC	679567	A.115
SFUL3/30J	679585	A.117
SFUL3/60J	679588	A.117
TELE L 110	624945	A.41
TELE L 24	624946	A.41
TELE L-1	672573	C.9
TELE L-2	672574	C.9
TELE LT-1	667252	C.11
TELE LT-2	667253	C.11
TELE MP	672580	C.7
Tele REC PLUS Motor	677132	C.20
TELE U-12	672576	C.9
TELE U-230	672575	C.9
TELE U-24	672577	C.9
TELE U-48	672578	C.9
TOR+110	665917	B.63
TOR+28	665297	B.63
TOR+35	665298	B.63
TOR+60	665299	B.63
TR&KT+C3MOD	665918	D.51
TR&KT+C6MOD	665919	D.51
TR+ B 5	665900	D.51
TR+B 8	665901	D.51
TR+B10	665902	D.51
TR+B15	665903	D.51
TR+B16	665904	D.51
TR+B30	665905	D.51
TR+S15	665909	D.51
TR+S25	665910	D.51
TR+S40	665911	D.51
TR+S63	665912	D.51

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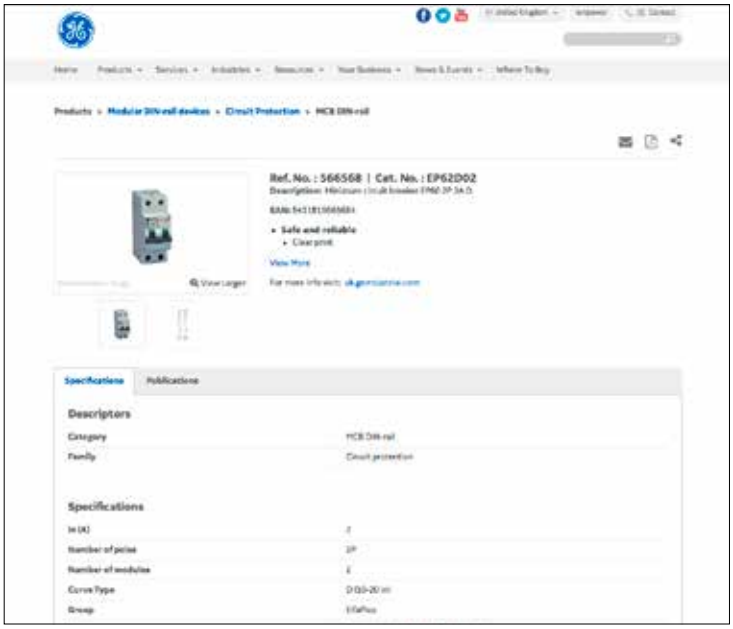

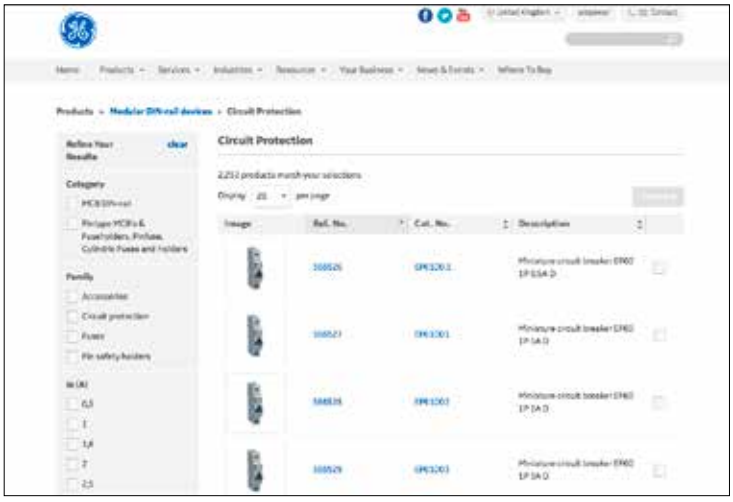

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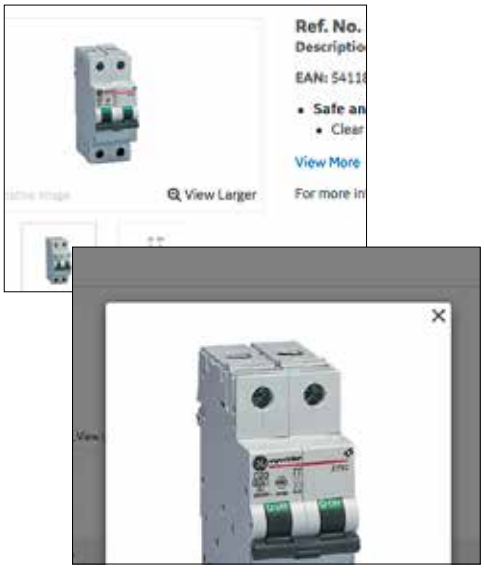

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