

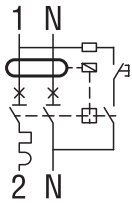
14 Miniature and residual circuit breakers

Residual current operated circuit breakers with overcurrent protection

1P+N - 10kA 2 modules



P1RE1N...



new

Order code	Curve	IEC In	IEC Icn	IEC IΔn	Mod. DIN	Qty per pkg	Wt
		[A]	[kA]	[mA]	n°	n°	[kg]

Single pole + neutral RCBO type AC.

P1RE1NC06AC030	C	6	10	30	2	1	0.205
P1RE1NC06AC300	C	6	10	300	2	1	0.205
P1RE1NC10AC030	C	10	10	30	2	1	0.205
P1RE1NC10AC300	C	10	10	300	2	1	0.205
P1RE1NC16AC030	C	16	10	30	2	1	0.205
P1RE1NC16AC300	C	16	10	300	2	1	0.205
P1RE1NC20AC030	C	20	10	30	2	1	0.205
P1RE1NC20AC300	C	20	10	300	2	1	0.205
P1RE1NC25AC030	C	25	10	30	2	1	0.205
P1RE1NC25AC300	C	25	10	300	2	1	0.205
P1RE1NC32AC030	C	32	10	30	2	1	0.205
P1RE1NC32AC300	C	32	10	300	2	1	0.205
P1RE1NC40AC030	C	40	10	30	2	1	0.205
P1RE1NC40AC300	C	40	10	300	2	1	0.205

Single pole + neutral RCBO type A.

P1RE1NC06A030	C	6	10	30	2	1	0.205
P1RE1NC06A300	C	6	10	300	2	1	0.205
P1RE1NC10A030	C	10	10	30	2	1	0.205
P1RE1NC10A300	C	10	10	300	2	1	0.205
P1RE1NC13A030	C	13	10	30	2	1	0.205
P1RE1NC16A030	C	16	10	30	2	1	0.205
P1RE1NC16A300	C	16	10	300	2	1	0.205
P1RE1NC20A030	C	20	10	30	2	1	0.205
P1RE1NC20A300	C	20	10	300	2	1	0.205
P1RE1NC25A030	C	25	10	30	2	1	0.205
P1RE1NC25A300	C	25	10	300	2	1	0.205
P1RE1NC32A030	C	32	10	30	2	1	0.205
P1RE1NC32A300	C	32	10	300	2	1	0.205
P1RE1NC40A030	C	40	10	30	2	1	0.205
P1RE1NC40A300	C	40	10	300	2	1	0.205

General characteristics

These devices both detect and trip in the event of residual current and protect circuits in the case of short circuits and overcurrent. From a practical point of view, they integrate both functions of MCB and RCCB.

They have a C-type trip characteristic (instantaneous trip 5-10 times I_n) and are used for inductive loads (mixed loads, resistive and inductive with low inrush current).

In addition, they have a rated residual current (I_{Δn}) of either 30mA or 300mA and are available with two different versions of residual current tripping type AC or A as described on page 14-14.

Its main features are:

- IEC rated current I_n: 6...40A
- Version: 1P+N
- Contact status with flag indicator
- Double control lever to distinguish the residual current tripping from short circuit or overcurrent tripping
- Trip characteristic: curve type C
- Fixing on 35mm DIN rail (IEC/EN/BS 60715).

Operational characteristics

- Dissipation per pole: 3...13W
- Rated insulation voltage U_i: 400V
- Rated impulse voltage U_{imp}: 4kV
- Operating frequency: 50/60Hz
- Rated operational voltage U_e: 230VAC
- Rated residual operating voltage I_{Δn}: 30mA; 300mA
- IEC short-circuit breaking capacity I_{cn}: 10kA

Certifications and compliance

Certifications obtained: TÜV Rheinland, EAC. Compliant with standards: IEC/EN/BS 61009-1, IEC/EN/BS 61009-2-1.

Add-on blocks for P1RE...



P1X1011



P1X16...

Order code	Description	Qty per MCB	Qty per pkg	Wt
		n°	n°	[kg]

Auxiliary contact.

P1X1011	1 changeover contact	1	12	0.040
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Indicator contact for trip.

P1X1311	1 changeover contact	1	12	0.040
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Undervoltage trip release.

P1X14230	230V 50/60Hz	1	8	0.070
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Shunt trip release.

P1X16230	110...415V 50/60Hz	1	8	0.070
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P1X16024	12...24VDC 50/60Hz	1	8	0.070
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Padlockable attachment

P1X1810	Padlockable attachment for breaker control lever	1	10	0.001
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General characteristics

- Auxiliary and indicator contact width: 9mm/0.35" (0.5 module)
- Undervoltage and shunt trip release width: 18mm/0.71" (1 module)
- Maximum combination: 3 add-on blocks on MCB left side only of which 1 undervoltage or shunt release directly on MCB side and then 2 contacts of which 1 auxiliary and 1 indicator.

Operational characteristics

- IEC rated impulse voltage U_{imp}: 4kV
- IEC rated operational current in AC: 6A 230V; 3A 400V (auxiliary contacts).

Certifications and compliance

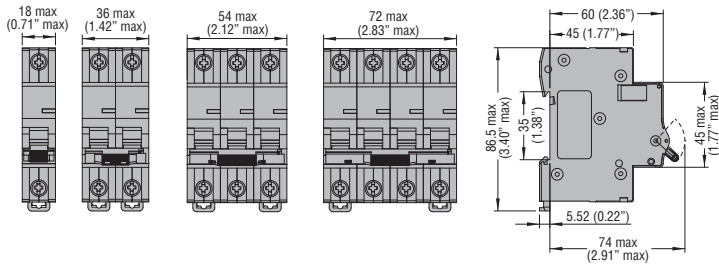
Certifications obtained: EAC, cULus (excluding P1X14230 and P1X16024). Compliant with standards: IEC/EN/BS 60947-5-1, CSA C22.2 n° 5.

14 Miniature and residual circuit breakers

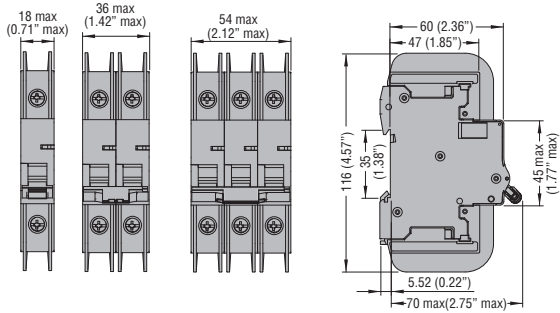
Dimensions [mm (in)]

MINIATURE CIRCUIT BREAKERS

P1MB...



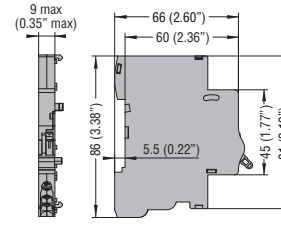
P1MBUH... - P1MBUL...



ACCESSORIES

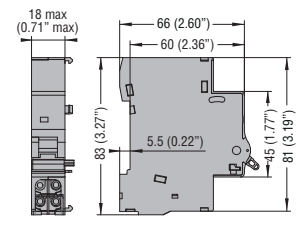
Add-on contacts

P1X1011 - P1X0111S - P1X1011UH - P1X1311



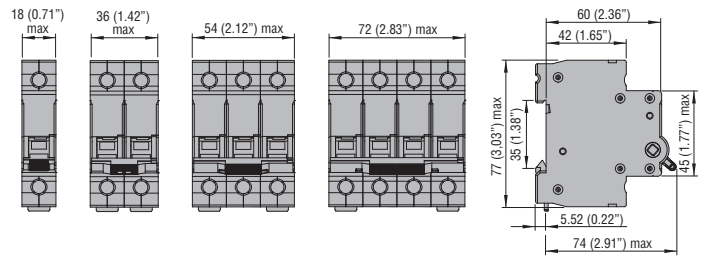
Undervoltage and shunt releases

P1X14230 - P1X16...



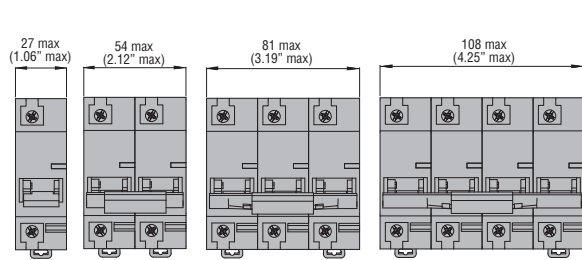
SWITCH DISCONNECTORS

P1MS...



MINIATURE CIRCUIT BREAKERS

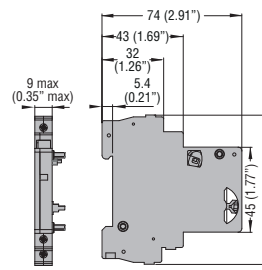
P2MB...



ACCESSORIES

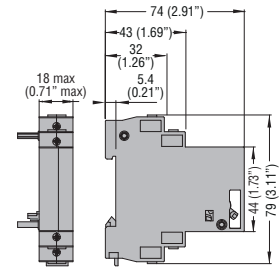
Add-on contacts

P2X1011 - P2X1311



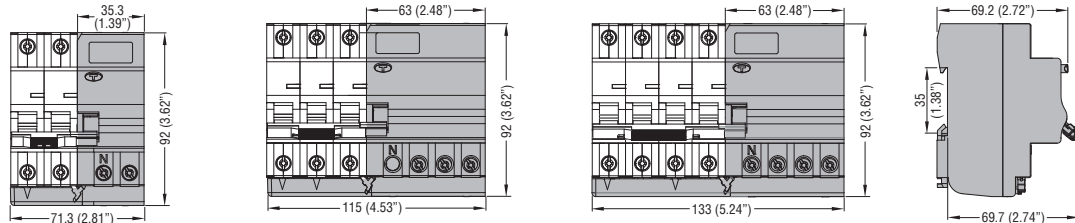
Shunt release

P2X16230



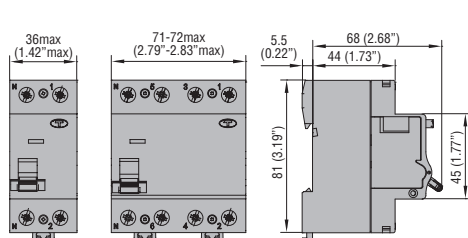
RESIDUAL BLOCKS

P1RA



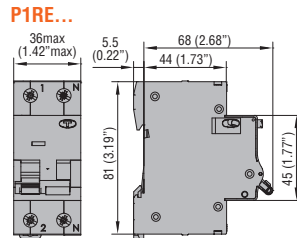
RESIDUAL CURRENT OPERATED CIRCUIT BREAKERS

P1RD...



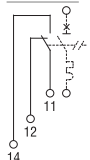
RESIDUAL CURRENT OPERATED CIRCUIT BREAKERS WITH OVERCURRENT PROTECTION

P1RE...

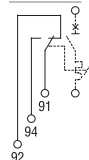


Wiring diagrams

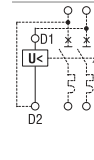
P1X1011 - P1X1011S - P1X1011UH - P2X1011



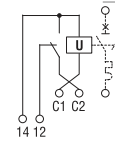
P1X1311 - P2X1311



P1X14230



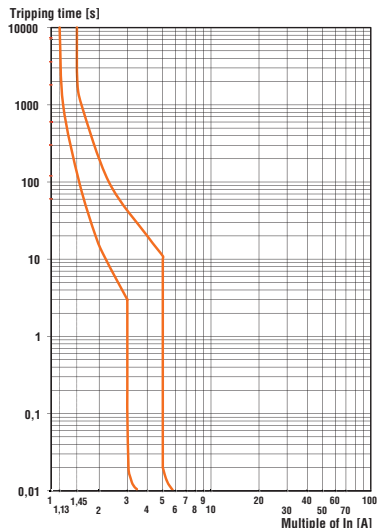
P1X16... - P2X16230



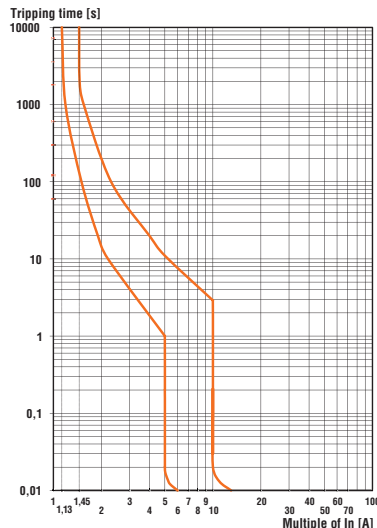
TYPE		P1MB1M...	P1MB1N...	P1MB...P...	P2MB	P1MS...	P1RA	P1RD...	P1RE...
Description		Miniature circuit breakers	Miniature circuit breakers	Miniature circuit breakers	Miniature circuit breakers	Switch disconnectors	Residual blocks	Residual current operated circuit breakers	Residual current operated circuit breakers w/ overcurrent prot.
Standards		IEC/EN/BS 60898, IEC/EN/BS 60947-2	IEC/EN/BS 60898, IEC/EN/BS 60947-2	IEC/EN/BS 60898, IEC/EN/BS 60947-2 UL 1077 - UL 489 ^①	IEC/EN/BS 60947-2 UL 1077	IEC/EN/BS 60947-3	IEC/EN/BS 61008-1 IEC/EN/BS 61008-2-1	IEC/EN/BS 61008-1 IEC/EN/BS 61008-2-1	IEC/EN/BS 61009-2-1
IEC rated insulation voltage U_i	V	500	230	1000	400	1000	400	400	400
IEC rated impulse withstand voltage U_{imp}	kV	4	4	4	6	4	4	4	4
IEC rated operational voltage U_e	in AC	V	230	230	230 (1P, 1P+N) 230/400 (2P, 3P, 4P) ^②	230 (1P) 230/400 (2P, 3P, 4P)	230 (2P) 230/400 (3P, 4P)	230 (2P) 230/400(4P)	230
	in DC	V	—	—	80 (1P, 2P) ^④	80(1P)/125(2P) ^⑤	—	—	—
Rated frequency	Hz	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Maximum rated current	A	40	63	63	125	125	63	63	40
Available rated current for types	A	2, 4, 6, 10, 13, 16, 20, 25, 32, 40	1, 2, 4, 6, 10, 16, 20, 25, 32, 40, 50, 63	1, 1.6, 3, 4, 6, 8, 10, 13, 16, 20, 25, 32, 40, 50, 63 ^②	80, 100, 125	30, 40, 63, 100, 125	40, 63	25, 40, 63 (80A B type only)	6, 10, 16, 20, 25, 32, 40
Versions		1P+N	1P+N	1P, 2P, 3P, 4P	1P, 2P, 3P, 4P	1P, 2P, 3P, 4P	2P, 3P, 4P	2P, 4P	1P+N
Tripping characteristic	curve	B-C	C	B-C-D	C-D	—	—	—	C
Instantaneous tripping		Curve B: 3...5In Curve C: 5...10In	Curve B: 3...5In Curve C: 5...10In	Curve B: 3...5In Curve C: 5...10In Curve D: 10...14In	Curve C: 5...10In Curve D: 10...14In	—	—	—	Curve C: 5...10In
Residual operation characteristic	type	—	—	—	—	—	A	AC, A, B	AC, A
Rated residual current $I_{\Delta n}$	mA	—	—	—	—	—	30, 300	30, 300	30, 300
Short circuit capacity (IEC/EN/BS)	kA	6 (Icn/Icu)	6 (Icn/Icu)	10 (Icn/Icu)	10 (Icu)	—	—	10 (Inc)	10 (Icn)
Short circuit capacity (UL 1077) ^③	kA	—	—	7.5 (1P 240V) 5 (1P 277V) 7.5 (2,3,4P 480V)	5	—	—	—	—
Mechanical life	cycle	20,000	20,000	20,000	10,000	7,000	20,000	20,000	20,000
Electrical life	cycle	10,000	10,000	10,000	10,000	1,000	10,000	10,000	10,000
Tightening torque of terminals	Nm	1.1...1.2	1.8...2	1.8...2	3.2...3.5	3.2...3.5	1.8...2	1.8...2	1.8...2
	lb.in	9.7...10.6	16...17.7	16...17.7	28.8...31	28.8...31	16...17.7	16...17.7	16...17.7
	Tool	PZ2	Pz2	PZ2	PZ2	PZ2	PZ2	PZ2	PZ2
Conductor section min...max.	mm ²	1...16	1...35	1...35	2.5...50	1...50	1...25	2.5...35	1...16
	AWG	14...6	14...2	14...2	14...1/0	16...1	14...6	14...2	16...3
AMBIENT CONDITIONS									
Temperature	Operating	°C	-40...+70	-40...+70	-40...+70	-40...+70	-25...+70	-25...+60	-25...+60
	Storage	°C	-40...+80	-40...+80	-40...+80	-40...+80	-25...+70	-40...+80	-40...+80
Max. altitude	m	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Pollution degree		2	2	2	3	3	2	2	2
Mounting		35mm DIN rail (IEC/EN/BS 60715)							

TRIP CHARACTERISTICS

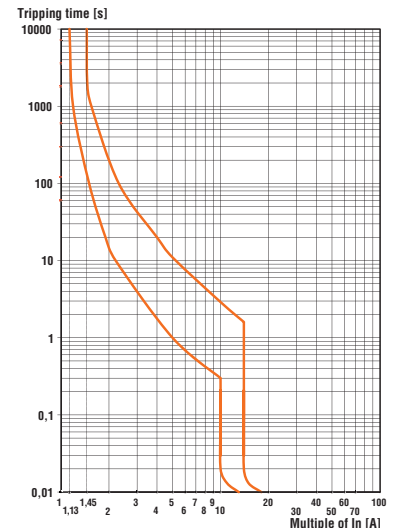
Curve B



Curve C



Curve D



^① UL489 only P1MBU... version; for the operational voltages for these devices refer to the pages for the chosen product.
^② For the UL 489, P1MBU... versions, the following rated current currents are also available: 5, 7, 12, 15, 30, 35, 60A.

^③ For the UL 489, P1MBU... versions to 32A: 1P 277V; 2P and 3P 480V/277V. From 35 to 63A: 1P 120V; 2P and 3P 240V.
^④ UL 1077 standard: 60VDC (1P) / 125VDC (2P), short circuit capacity 7.5kA.
 For the UL 489, P1MBU... versions: 60VDC (1P, 2P) / 125VDC (2P), short circuit capacity 10kA
^⑤ UL 1077 standard: 60VDC (1P, 2P), short circuit capacity 10kA.
^⑥ For the UL 489, P1MBU..., short circuit capacity 10kA.