

## Performance of DX<sup>3</sup> MCBs and auxiliaries

### Breaking capacity in IT neutral earthing system

MCB single pole breaking capacity at 400 V according to IEC 60947-2

DX <sup>3</sup> 6000 10 kA	1P/2P/3P/4P	3 kA
DX <sup>3</sup> 10000 16 kA	1P/2P/3P/4P	4 kA
DX <sup>3</sup> 25 kA	1P/2P/3P/4P	6.25 kA
DX <sup>3</sup> 50 kA	1P/2P/3P/4P	12.5 kA

### Breaking capacity in the event of short-circuit to earth and insulation voltage

	1P/2P/3P/4P 230/400 V~ MCBs			
	DX <sup>3</sup> 6000 10 kA	DX <sup>3</sup> 10000 16 kA	DX <sup>3</sup> 25 kA	DX <sup>3</sup> 50 kA
Icn1	10000 A	16000 A	25000 A	50000 A
Ui	500 V	500 V	500 V	500 V

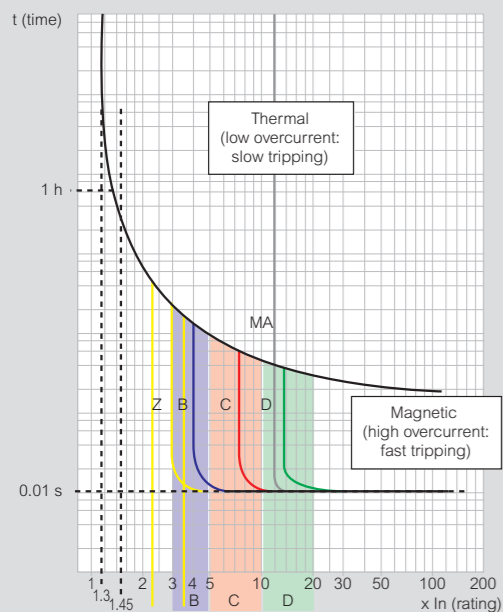
Icn1: Breaking capacity on 1 pole for multipole MCBs in the event of short-circuit to earth

Ui: Rated insulation voltage

### Terminal connection cross-sections (mm<sup>2</sup>)

	Copper cable	
	Rigid	Flexible
DX <sup>3</sup> 6000 10 kA	35	25
DX <sup>3</sup> 10000 16 kA	70	50
DX <sup>3</sup> 80 to 125 A	70	50
DX <sup>3</sup> 25 kA	50	35
DX <sup>3</sup> 36 kA, DX <sup>3</sup> 50 kA and add-on modules	2.5	2.5
Auxiliaries	2.5	2.5

### MCB tripping curves



Thermal tripping for an ambient temperature 30°C  
In = nominal current (rating) of MCB

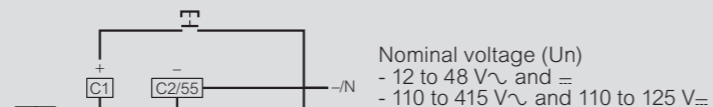
Curves	Magnetic threshold settings
Z <sup>(1)</sup>	2.4 to 3.6 I <sub>n</sub>
B	3 to 5 I <sub>n</sub>
C	5 to 10 I <sub>n</sub>
D	10 to 14 I <sub>n</sub> (10 to 20 acc. to the stds)
MA <sup>(1)</sup>	12 to 14 I <sub>n</sub>

1: On request

### Technical characteristics of auxiliaries

Max. connection cross-section: 2.5 mm<sup>2</sup>  
Operating temperature: -25°C to +70°C

#### Shunt trips



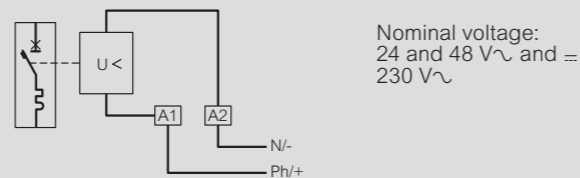
Nominal voltage (Un)  
- 12 to 48 V~ and =  
- 110 to 415 V~ and 110 to 125 V=

Equipped with a signalling contact which indicates tripping of the shunt trip and automatically breaks the coil.  
Min. and max. voltage: 0.7 to 1.1 Un  
Tripping time: less than 20 ms  
Power consumption: at 1.1 x 48 V = 121 VA  
at 1.1 x 415 V = 127 VA  
Impedance: 12 to 48 V = 23 Ω  
110 to 415 V = 1640 Ω

Consumption	Umin.	Umax.
12 to 48 V	522 mA	2610 mA
110 to 415 V	69 mA	259 mA

#### Undervoltage releases

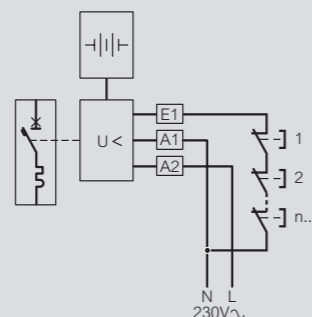
Pull-in voltage ≥ 0.55 Un  
Tripping time: 100 to 400 ms ± 10% (adjustable)  
Power consumption: 24 V~ and =: 0.1 VA  
48 V~ and =: 0.2 VA  
230 V~: 1 VA



Nominal voltage:  
24 and 48 V~ and =  
230 V~

#### Stand-alone releases for N/C push-buttons

Min. and max. operating voltage: 196 to 250 V~  
Power consumption: 1.4 VA



#### Signalling auxiliaries

Umin.: 24 V~ / = and Imin.: 5 mA

### Compatibility between auxiliaries on 1 module/pole devices

1 module / pole device (auxiliary on the left side)	1st auxiliary	2nd auxiliary	3rd auxiliary
1st auxiliary	4 062 .. 50/52/56/58/60/ 62/66/76/78/80/ 82/84/86/87	-	-
2nd auxiliary	4 062 .. 50/52/56/ 58/60/62	4 062 .. 50/52/56/58/60/62/76/ 78/80/82/84/86/87	-
3rd auxiliary	4 062 .. 50/52/56/ 58/60/62	4 062 .. 50/52/56/58/60/62	4 062 .. 76/78/80/82/ 84/86/87

### Compatibility between auxiliaries on 1.5 module/pole devices

1.5 module / pole device (auxiliary on the left side)	1st auxiliary	2nd auxiliary	3rd auxiliary
1st auxiliary	4 062 .. 50/52/56/58/60/ 62/66/76/78/80/ 82/84/86/87	-	-
2nd auxiliary	4 062 .. 50/52/56/ 58/60/62	4 062 .. 50/52/56/58/60/62/	-
3rd auxiliary	4 062 .. 64/66	4 062 .. 64/66	4 062 .. 76/78/80/82/ 84/86/87

### Performance of add-on modules

#### AC type - Standard applications

Detection of 50-60 Hz AC residual currents

#### A type - Specific applications: dedicated lines

In addition to the characteristics of AC type add-on modules, A type add-on modules also detect residual currents with DC components. They are used whenever the fault currents are not sinusoidal. They are particularly suitable for the following dedicated line applications:

- On circuits where class 1 equipment may produce fault currents with DC components, such as variable speed drives with frequency inverter, etc.

#### F type M - Special applications

Type F RCCBs are devices which offer additional immunity to unwanted tripping which significantly exceeds the level required by the standard

They are also able to detect AC and DC residual currents (A type)

Detection of high frequency fault currents

Operation between -25 °C and +40 °C

They are used in special applications where:

- Loss of information is potentially damaging, e.g. power supply lines for computer equipment (banks, equipment on military bases, flight reservation centres, etc.)
- Loss of operation is potentially damaging (automated machinery, medical equipment, freezer cable, etc.)
- They are also used:
  - On sites where there is an increased risk of lightning strikes
  - On sites where cables are subject to high levels of interference (use of fluorescents, etc.)
  - On sites where very long cables are used

#### Special case of continuity of service

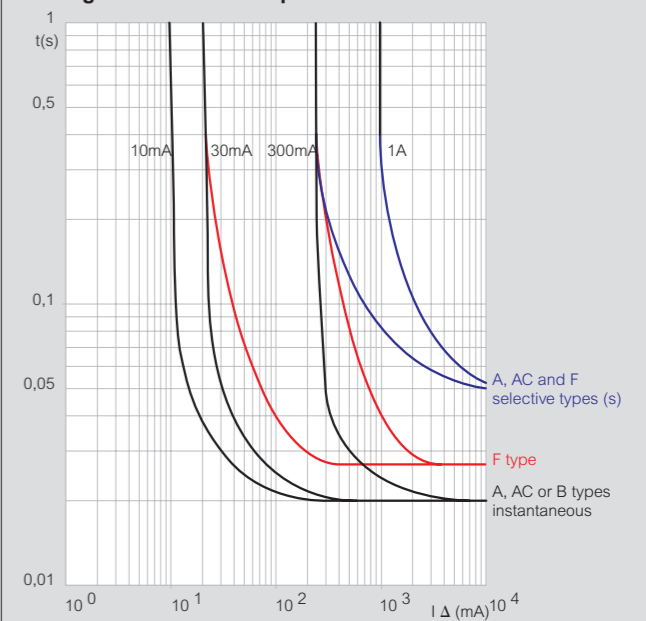
In certain locations where no staff are present and in which continuity of service is particularly important, false tripping of MCBs is not permitted (isolated telephone/TV or radio substations, pumping stations, etc.)

Combining an F type RCBO with a motorised control and a STOP & GO recloser provides optimum continuity of service

### B type

In addition to the characteristics of A type RCCBs, B type RCCBs also detect smooth DC residual currents. They are used whenever fault currents are not sinusoidal. They are particularly suitable for the following specific applications: speed drives and inverters for supplying motors for pumps, lifts, textile machines, machine tools, photovoltaic installations, call centres, medical equipment, etc.

#### Average residual current performance curves



### Residual current breaking capacity of DX<sup>3</sup> add-on modules

IΔm according to EN 61009-1  
AC, A and F type add-on modules

DX <sup>3</sup> add-on modules used with an MCB	IΔm
DX <sup>3</sup> (1 mod./pole)	25 kA ≤ 25 A (B, C, Z curves) 25 kA ≤ 10 A (D, MA curves)
DX <sup>3</sup> (1.5 mod./pole)	10000 16 kA (80 to 125 A) 25 kA ≥ 32 A (B, C, Z curves) 25 kA ≥ 12.5 A (D, MA curves) 36 kA 50 kA