

## performance of 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> [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> 36 kA	2P/3P/4P	9 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

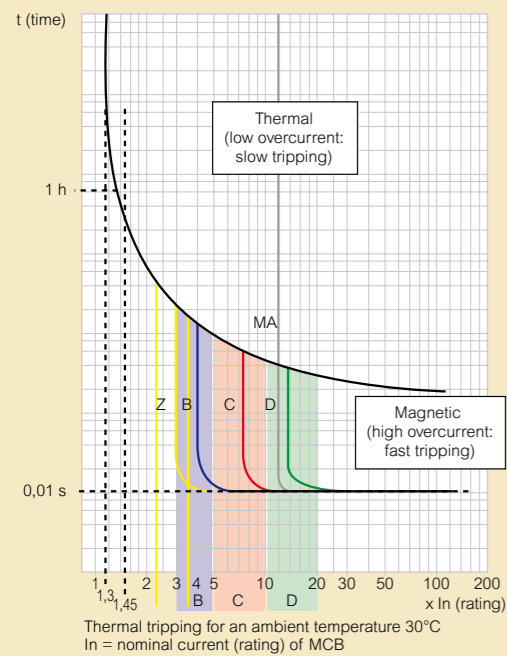
	1P/2P/3P/4P 230/400 V~ MCBs			
	DX <sup>3</sup> [10000] 16 kA	DX <sup>3</sup> 25 kA	DX <sup>3</sup> 36 kA	DX <sup>3</sup> 50 kA
I <sub>cn1</sub>	16000 A	25000 A	36000 A	50000 A
U <sub>i</sub>	500 V	500 V	500 V	500 V

I<sub>cn1</sub>: Breaking capacity on 1 pole for multipole MCBs in the event of short-circuit to earth  
U<sub>i</sub>: Rated insulation voltage

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

Copper cable	Rigid		Flexible	
	DX <sup>3</sup> [6000] 10 kA	DX <sup>3</sup> [10000] 16 kA	DX <sup>3</sup> 80 to 125 A	DX <sup>3</sup> 25 kA
≥ 32 A (C curve)				
DX <sup>3</sup> 25 kA ≥ 16 A (D curve)		50		35
≤ 63 A				
DX <sup>3</sup> 36 kA, DX <sup>3</sup> 50 kA and add-on modules				
Auxiliaries	2.5		2.5	

### MCB tripping curves



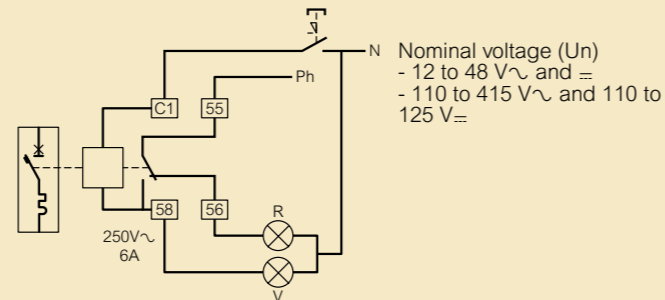
Curves	Magnetic threshold settings
Z <sup>(1)</sup>	2.4 to 3.6 I <sub>n</sub>
B	3 to 5 I <sub>n</sub>
C	5 to 10 I <sub>n</sub>
D	10 to 14 I <sub>n</sub> (10 to 20 acc. to the stds)
MA <sup>(1)</sup>	12 to 14 I <sub>n</sub>

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

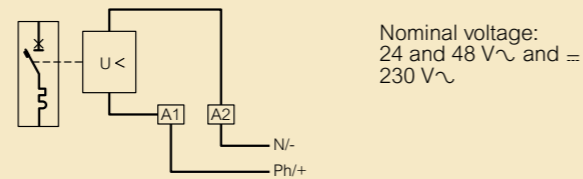


Equipped with a signalling contact which indicates tripping of the shunt trip and automatically breaks the coil.  
Min. and max. voltage: 0.7 to 1.1 U<sub>n</sub>  
Tripping time: less than 20 ms  
Power consumption: at 1.1 x 48 V = 121 VA  
at 1.1 x 415 V = 127 VA  
Impedance: 12 to 48 V = 23 Ω  
110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

Consumption	U <sub>min.</sub>	U <sub>max.</sub>
12 to 48 V	522 mA	2610 mA
110 to 415 V	69 mA	259 mA

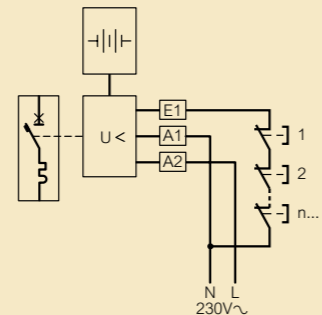
#### Undervoltage releases

Pull-in voltage ≥ 0.55 U<sub>n</sub>  
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



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

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



#### Signalling auxiliaries

U<sub>min.</sub>: 24 V~/= and I<sub>min.</sub>: 5 mA

### 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.

#### Hpi type [~] [HPI] - Special applications

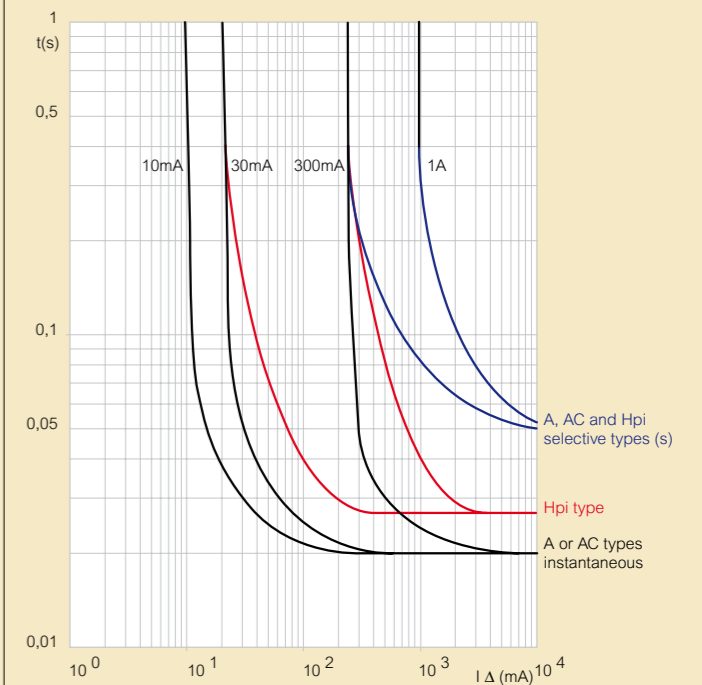
Hpi add-on modules, with additional immunity to false tripping, which is much higher than the level required by the standard, detect residual currents with AC and DC components (A type), operate between - 25°C and + 40°C, and are used in the following special cases:

- When loss of data would be detrimental, such as computer equipment power supply lines (banks, military instrumentation, airline reservation centres, etc.)
- When loss of operation would be detrimental (automated machines, medical instrumentation, freezer lines, etc.)
- In places where there is a high risk of lightning strikes
- On sites with lines subject to considerable interference (use of fluorescent lights, etc)
- On sites with very long lines

#### 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 Hpi RCBO with a motorised control and a STOP & GO recloser provides optimum continuity of service

### Average residual current performance curves



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

I<sub>Δm</sub> according to EN 61009-1  
AC, A and Hpi add-on modules

DX <sup>3</sup> add-on modules used with an MCB	I <sub>Δm</sub>
DX <sup>3</sup> (1 mod./pole) 25 kA ≤ 25 A (B, C, Z curves) 25 kA ≤ 10 A (D, MA curves)	6000 A
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	30000 A