

Add-on modules DX³ 40-63A for MCBs DX³ 1 module per pole

Cat N°(s): 4 104 01, 4 104 02, 4 104 13, 4 104 14, 4 104 24 to 4 104 35, 4 104 46 to 4 104 99, 4 105 00, 4 105 11, 4 105 12, 4 105 20 to 4 105 60

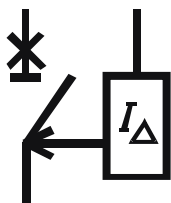


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1. DESCRIPTION - USE

Add-on module, for MCB DX³ ≤ 63 A, 1 module per pole width, breaking capacity 6000A/10kA, 10000A/16kA, or 25kA. For protection of people against direct and indirect electric shocks and protection of installations against insulation faults.

Symbol:



Technology:

. Electromagnetic residual current operating by sensitive relay

2. PRODUCT RANGE

Number of poles:

. 2 poles, 3 poles et 4 poles.

Width:

. Double pole – 2 modules (2 x 17,8 mm = 35,6 mm).
. Triple and Four pole – 3 modules (3 x 17,8 mm = 53,4 mm).

Rated currents:

. 40 / 63 A.

Sensitivity - Operating time:

. 30 mA instantaneous.
. 300 mA instantaneous or delayed tripping.
. 1A instantaneous or delayed tripping.

Types:

. AC: sinusoidal AC fault currents.
. A: sinusoidal AC fault currents with or without DC component.
. A-Hpi: sinusoidal AC fault currents with or without DC component and immunity against unwanted tripping (Hpi type are also A types).

2. PRODUCT RANGE (continued)

Types (continued):

. S (AC-S, A-S or Hpi-S): differential selective or delayed, operating with an intentional delay (40ms).

Rated Voltage / Frequency:

. 230 / 400 V ~, 50 Hz with standard tolerances.

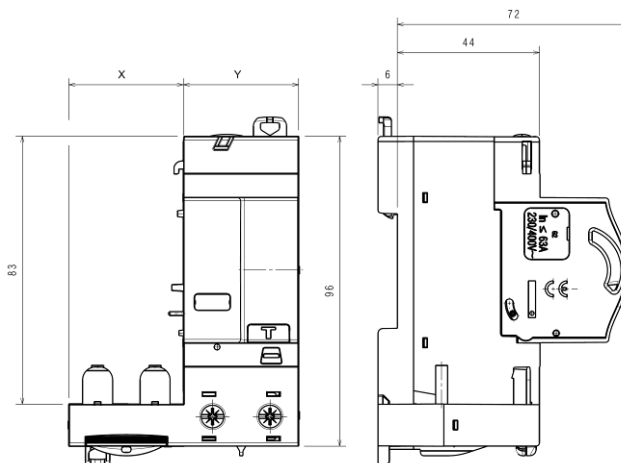
Maximum operating voltage:

. 440 V ~, 50 Hz with standard tolerances.

Minimum operating voltage:

. 170 V ~, 50 Hz.

3. OVERALL DIMENSIONS



N° of poles	"X"	"Y"
2P	35,6 mm	35,6 mm
3P	53,4 mm	53,4 mm
4P	71,2 mm	53,4 mm

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4. PREPARATION - CONNECTION

Assembling:

. On the right side of the MCBs DX³ up to 63 A. Joins to the circuit breaker by plastic clamps and tightening of connections in the downstream terminals of the MCB.

Fixing:

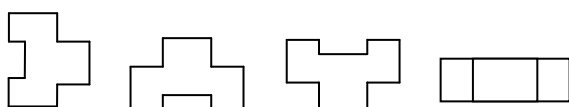
. On symmetrical EN/IEC 60715 rail or DIN 35 rail.

Power supply:

. From the top trough the associated MCB or from the bottom directly on the add-on module.

Operating position:

. Vertical Horizontal Upside down On the side



Screw terminals:

- . Terminals protected against accidental contact (IP20).
- . Cage terminals, with release and captive screw
- . Terminal depth: 14 mm.
- . Stripping length recommended: 11 mm
- . Screw head: Mixed, Slotted and Pozidriv n°2.
- . Recommended tightening torque: 3 Nm.
- . The screw terminals are separated by built-in shields.

Connectable section:

- . In the power terminals in the lower part of the product.
- . Copper cable.

	Without ferrule	With ferrule
Rigid cable	1 x 35 mm ²	-
Flexible cable	1 x 25 mm ²	1 x 25 mm ²

Recommended tools:

- . For the terminals: screwdriver Pozidriv n°2 or flat screwdriver 5,5 mm (6,5 mm maximum).
- . For fixing on the DIN rail: flat screwdriver 5,5 mm (from 4 to 6 mm).

Manual actuation of the add-on module:

- . By the 2-position ergonomic handle of the associated MCB:
 - 1 / ON: Closed circuit.
 - 0 / OFF: Opened circuit.

Contacts status display:

- . By marking of the associated MCB handle:
 - "O-Off" white on a green background = contacts opened.
 - "I-On" white on a red background = contacts closed.

Display of differential fault trip:

- . Yellow mechanical signaller into the window on front-side marking zone.

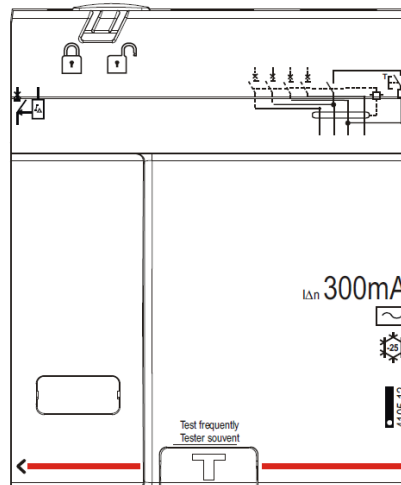
Labelling:

- . Circuit identification by insertion of a label in the label holder of the associated MCB.

5. GENERAL CHARACTERISTICS

Front side marking:

- . By permanent ink pad printing.



"Test" key operating voltages:

U min	170 V ~
U max	440 V ~

This voltage range gives the possibility to use double-pole differential blocks in 230 V or 400 V, and triple / four pole differential blocks in three phase network with or without neutral 230 V and 400 V. For the wiring of a four-pole differential block in a three phase network without neutral, make sure to properly wired three consecutive poles to supply the test key.

Neutral system:

- . IT – TT – TN.

Residual breaking capacity IΔm:

- . In accordance with standard EN 61009-1 § 9.12.11.4d (IΔm: short-circuit to ground)
- IΔm = 60% of Icu of the associated MCB.

Insulation rated voltage:

- . Ui = 500 V in accordance with standard IEC/EN 61009-1

Pollution degree:

- . 2.

Electric strength:

- . 2500 V

Pulse rated voltage:

- . Uimp = 4 kV (wave 1.5 / 50 μs).

Operation at 400Hz:

- . The value of the threshold varies with frequency.
- . See curve on page 5.

Protection against unwanted tripping:

- . Damped recurrent wave – 0.5 μs/10kHz : 200A for all types
- . Held to the wave 8/20 μs :

Type	AC	AC-S	A	A-S	Hpi	Hpi-S
intensity	250A	5000A	250A	5000A	3000A	5000A

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5. GENERAL CHARACTERISTICS *(continued)*

Protection class:

- Protection index of terminals against solid and liquid bodies:
IP 20 (in accordance with standards IEC 529, EN 60529 et NF C 20-010).
- Protection index of the box against solid and liquid bodies:
IP 40 (in accordance with standards IEC 529, EN 60529 et NF C 20-010).
- Protection index against mechanical shocks:
IK 02 (in accordance with standards EN 50102 et NF C 20-015).

Power dissipated and impedance per device at In:

In≤40A

In	Double-pole		Triple / Four-pole	
	Z (mΩ)	P (W)	Z (mΩ)	P (W)
6 A	2,22	0,08	3,88	0,14
10 A	2,00	0,20	3,8	0,38
16 A	2,04	0,52	3,9	1,00
20 A	2,06	0,82	3,9	1,56
25 A	2,04	1,28	3,84	2,40
32 A	2,08	2,13	3,9	3,99
40 A	0,86	1,38	1,1	1,76

In≤63A

In	Double-pole		Triple / Four-pole	
	Z (mΩ)	P (W)	Z (mΩ)	P (W)
6 A	1,11	0,04	1,94	0,07
10 A	1,00	0,1	1,90	0,19
16 A	1,02	0,26	1,95	0,5
20 A	1,03	0,41	1,95	0,78
25 A	1,02	0,64	1,92	1,2
32 A	1,04	1,06	1,95	2
40 A	0,43	0,68	0,55	0,88
50 A	0,43	1,07	0,55	1,37
63 A	0,43	1,7	0,55	2,17

Beware, to have the total power dissipated by the RCD these powers are to be added to those of the associated MCB.

Enclosure material:

- Polyester.
- Characteristics of this material: self extinguishing, heat and fire resistant in accordance with standard EN 60898-1, glow-wire test at 960°C for external parts made of insulating material necessary to retain in position current-carrying parts and parts of protective circuit (650°C for all other external parts made of insulating material).

5. GENERAL CHARACTERISTICS *(continued)*

Packed volume:

- Double pole: 1,57 dm³ per device.
- Triple / Four pole: 2,55 dm³ per device.

Average weight per device:

- In≤40A
- Double pole: 0,17 kg
- Triple pole: 0,21 kg
- Four pole: 0,25 kg

In≤63A

- Double pole: 0,21 kg
- Triple pole: 0,25kg
- Four pole: 0,29 kg

Ambient operating temperature:

- Min. = -25°C. Max. = +70°C

Ambient storage temperature:

- Min. = -40°C. Max. = +70°C

Derating according to ambient temperature :

- Reference temperature: 40 °C in accordance with standard IEC/EN 60947-2.

- No derating of the differential block depending on the ambient temperature between - 25 °C and +40 °C.

- Derating between + 40 °C to + 70 °C :

Temperature	40 °C	50 °C	60 °C	70 °C
% of In	100 %	95 %	90 %	85 %

Resistance to sinusoidal vibrations:

- in accordance with standard IEC 60068-2-6.
- Axis : x, y, z.
- Frequency range: 5÷100 Hz ; duration 90 min.
- Displacement (5÷13,2 Hz) : 1mm
- Acceleration (13,2÷100 Hz) : 0,7g (g=9,81 m/s²).

Influence of the altitude :

	2000 m	3000 m	4000 m	5000 m
Dielectric strength	3000 V	2500 V	2000 V	1500 V
Max operating voltage	400 V	400 V	400 V	400 V
Derating at 30°C	none	none	none	none

Mechanical endurance:

- 20000 operations without load.
- 10000 operations with load.
- 750 differential tripping operations by the Test key.
- 750 differential tripping operations for fault current.

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6. COMPLIANCE- APPROVALS

In accordance with standards:

. NF / EN / IEC 61009-1.

Environment respect – Compliance with CEE directives:

- . Compliance with Directive 2002/95/EC of 27.1.2003 called "RoHS" provides the banishment of hazardous substances such as lead, mercury, cadmium, hexavalent chromium, brominated flame retardants polybrominated biphenyls (PBB) and polybrominated diphenylethers (PBDE) from 1 July 2006
- . Compliance with Directives 91/338/CEE of 18/06/91 and decree 94-647 of 27/07/04.
- . Compliance with Directives 73/23/CEE and 93/68/CEE (DBT).
- . Compliance with Directives 83/336/CEE, 92/31/CEE and 93/68/CEE (CEM).

Plastic materials :

- . Halogen-free plastic materials.
- . Marking of parts according to ISO 11469 and ISO 1043.

Packaging:

- . Design and manufacture of packaging in accordance with decree 98-638 of 20.07.1998 and Directive 94/62/EC.

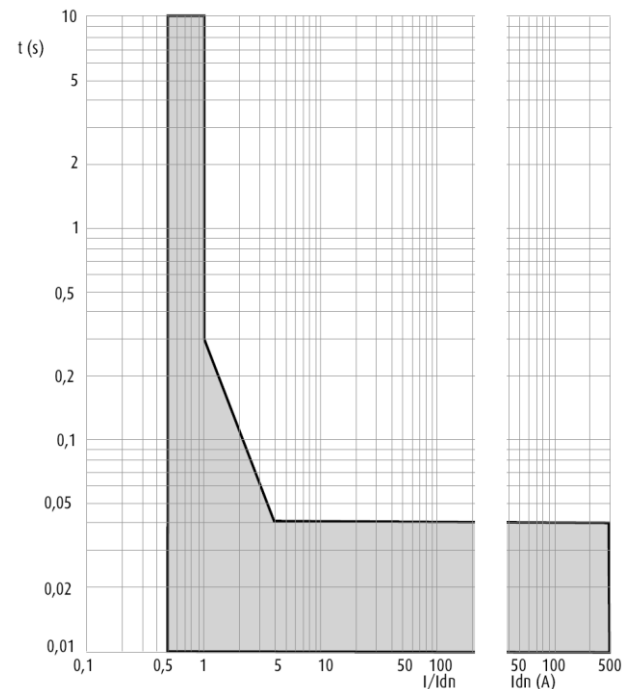
Approvals obtained:

- . NF (France)
- . LOVAG

7. CURVES

Residual current operating characteristic

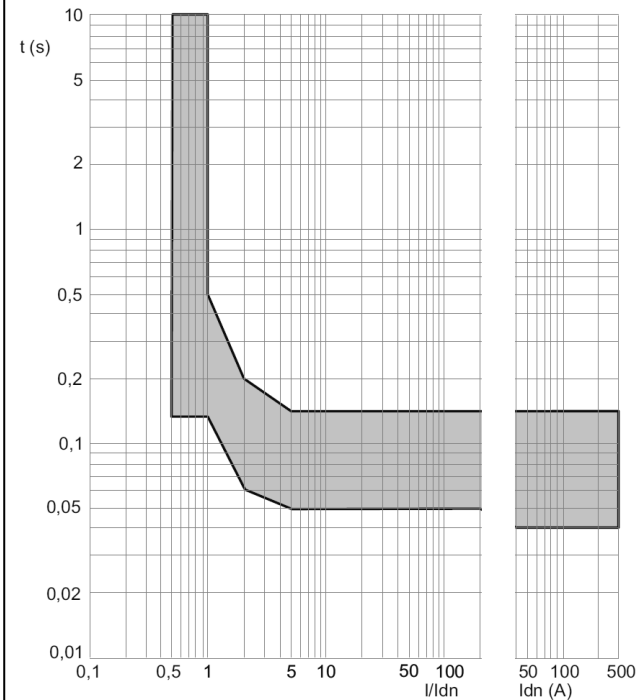
- . Average tripping time depending on the intensity of the fault current.
- . Sensitivities 30 mA. 300 mA et 1000 mA instantaneous for all types.



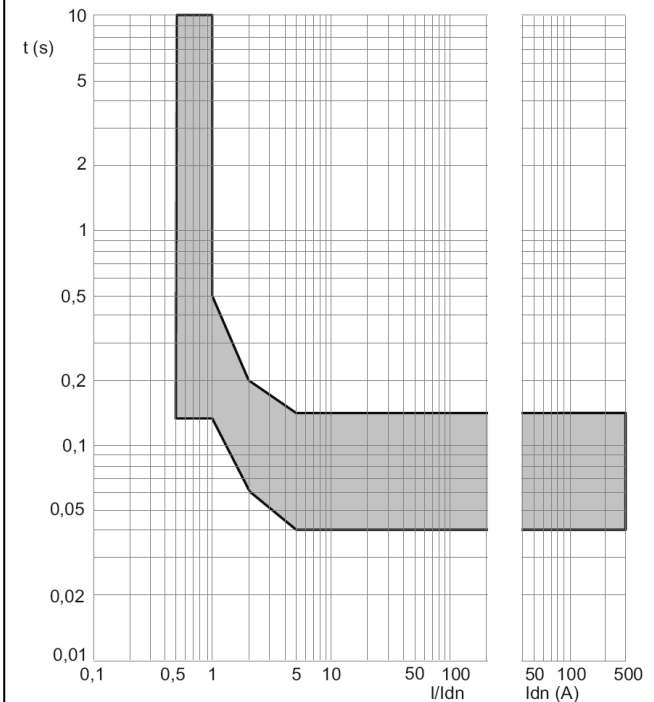
7. CURVES (continued)

Residual current operating characteristic

- . Average tripping time depending on the intensity of the fault current.
- . Sensitivities 300 mA selective \bar{S} for all types.



- . Sensitivities 1000 mA selective \bar{S} for all types.



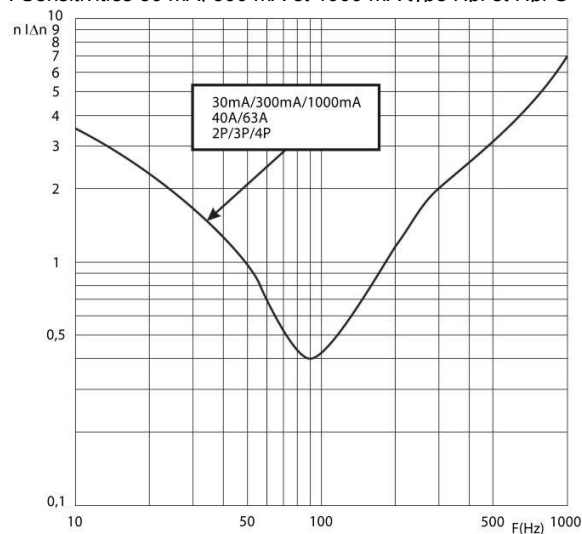
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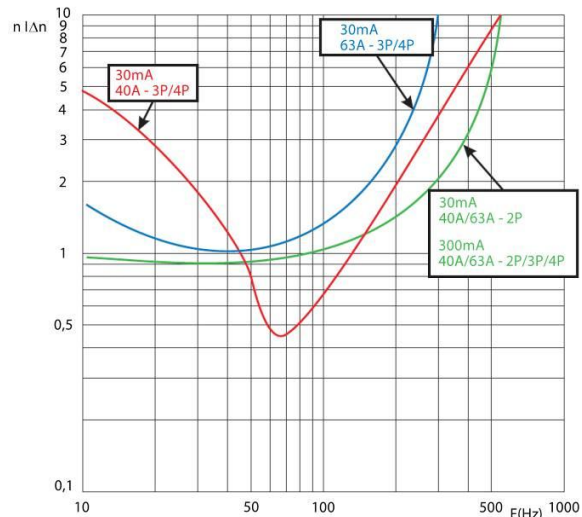
7. CURVES (continued)

Curves of variation of tripping threshold according to the frequency

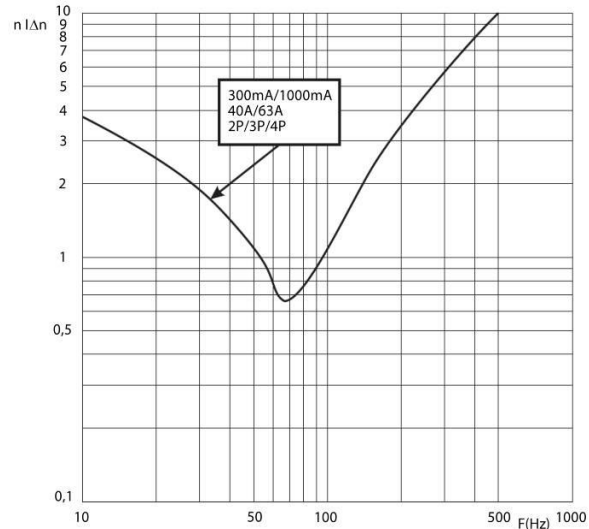
. Sensitivities 30 mA, 300 mA et 1000 mA type Hpi et Hpi-S



. Sensitivities 30 mA, 300 mA et 1000 mA type AC.



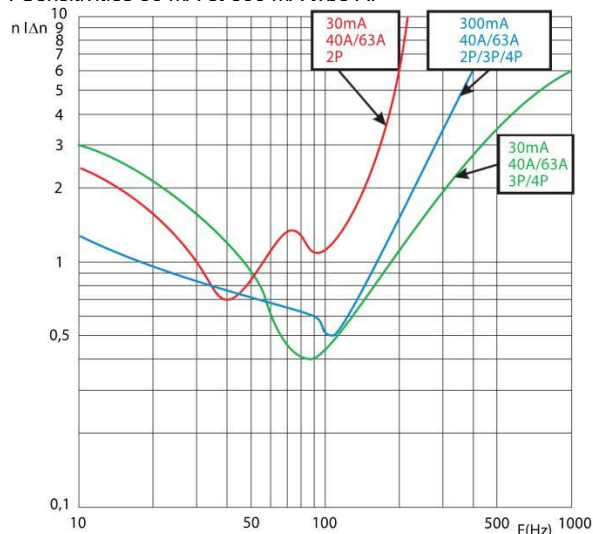
. Sensitivities 300 mA et 1000 mA type AC-S



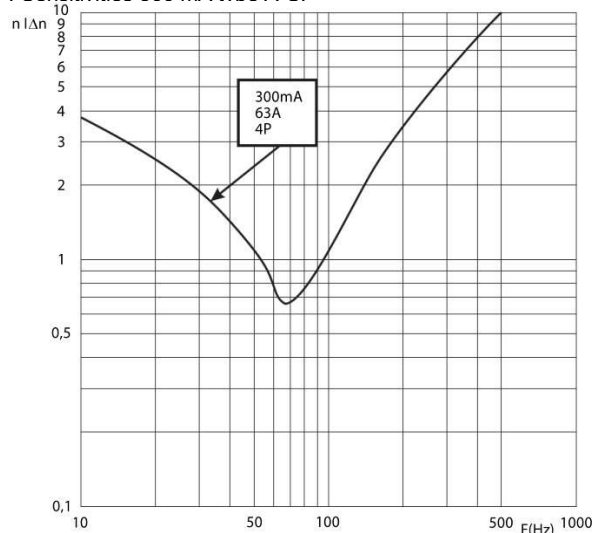
7. CURVES (continued)

Curves of variation of tripping threshold according to the frequency

. Sensitivities 30 mA et 300 mA type A.



. Sensitivities 300 mA type A-S.



8. AUXILIARIES - ACCESSORIES

Installation software:

. XL PRO³.