

# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

**References:**

0 285 40 / 41 / 42 / 43 / 44 / 45 / 46 / 47 / 48

0 285 50 / 51 / 52 / 53 / 54 / 55 / 56 / 57 / 58

0 285 60 / 61 / 62 / 63 / 64 / 65 / 66 / 67 / 68

0 285 80 / 81 / 82 / 83 / 84 / 85 / 86 / 87 / 88



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Full technical sheet LE12614AA

## 1. USE

DMX<sup>3</sup> – 1000Vac air circuit breakers offer optimal solutions to answer to protection requirements on the origin of the low voltage electrical installation (IEC/EN 60364-1) up to 4000A. Their electric and mechanical robustness, in addition to breaking capacity and chances of accessorizing, are perfectly suited for these requirements.

Suitable for protection of wind facility plants, photovoltaic or railways application, up to 4000A and breaking capacities of 50kA at 1000V. High performances, reliability and robustness are the main advantages of these range, developed for increase continuity service looking at the plant energy efficiency and in respect of “green aspects” (see item 7- Conformity).

## 2. RANGE

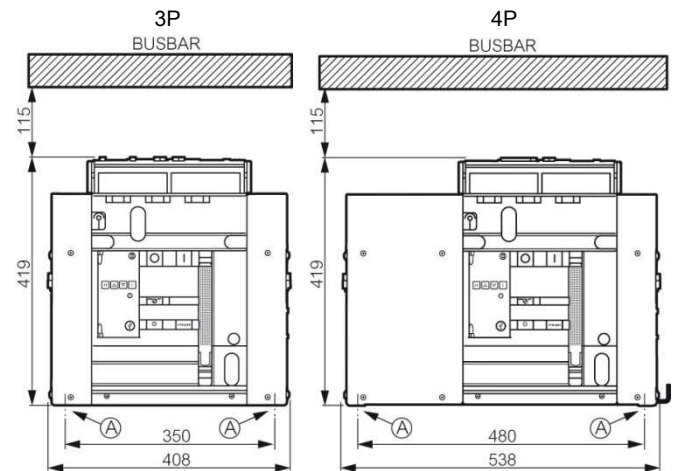
I <sub>n</sub> (A)	DMX <sup>3</sup> 4000 - 1000Vac circuit breakers (new PU MP2.10 and MP4.10)			
	50kA (@ 1000V ac) *			
	Fixed version		Draw-out version	
630	0 285 40	0 285 10	0 285 60	0 285 80
800	0 285 41	0 285 11	0 285 61	0 285 81
1000	0 285 42	0 285 12	0 285 62	0 285 82
1250	0 285 43	0 285 13	0 285 63	0 285 83
1600	0 285 44	0 285 14	0 285 64	0 285 84
2000	0 285 45	0 285 15	0 285 65	0 285 85
2500	0 285 46	0 285 16	0 285 66	0 285 86
3200	0 285 47	0 285 17	0 285 67	0 285 87
4000	0 285 48	0 285 18	0 285 68	0 285 88

\* At 800V, breaking capacity is equal to 65kA

## 3. DIMENSIONS

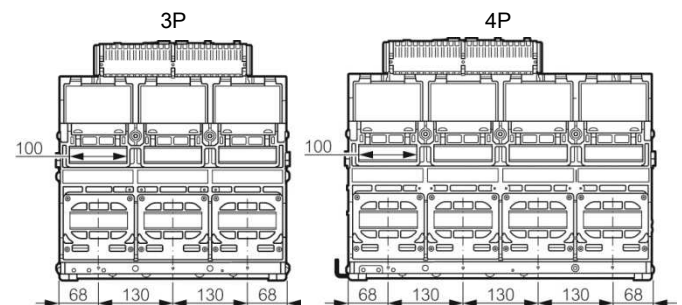
### 3.1 Fixed version

Frontal view



A = fixing point on plate of enclosure

Rear view



# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

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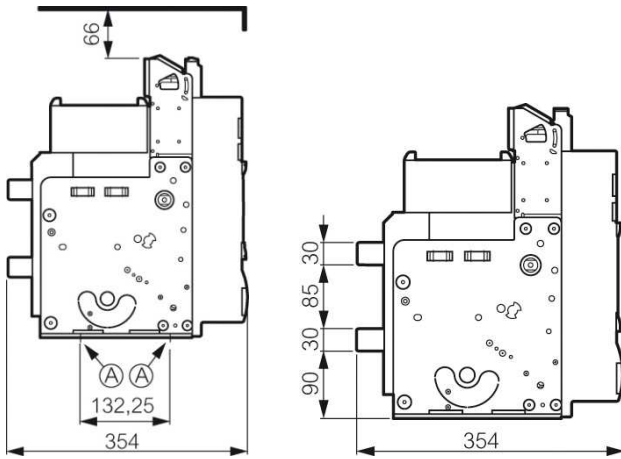
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0 285 60 / 61 / 62 / 63 / 64 / 65 / 66 / 67 / 68

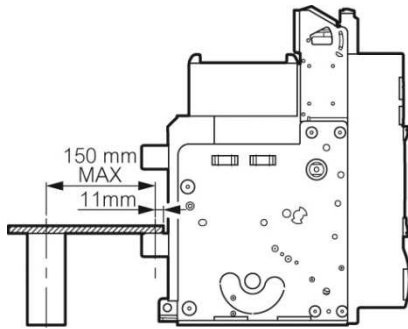
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### Lateral view

3P - 4P

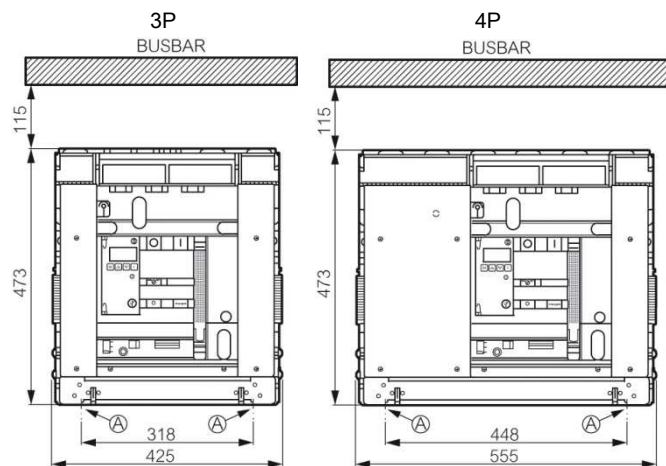


A = fixing point on plate of enclosure



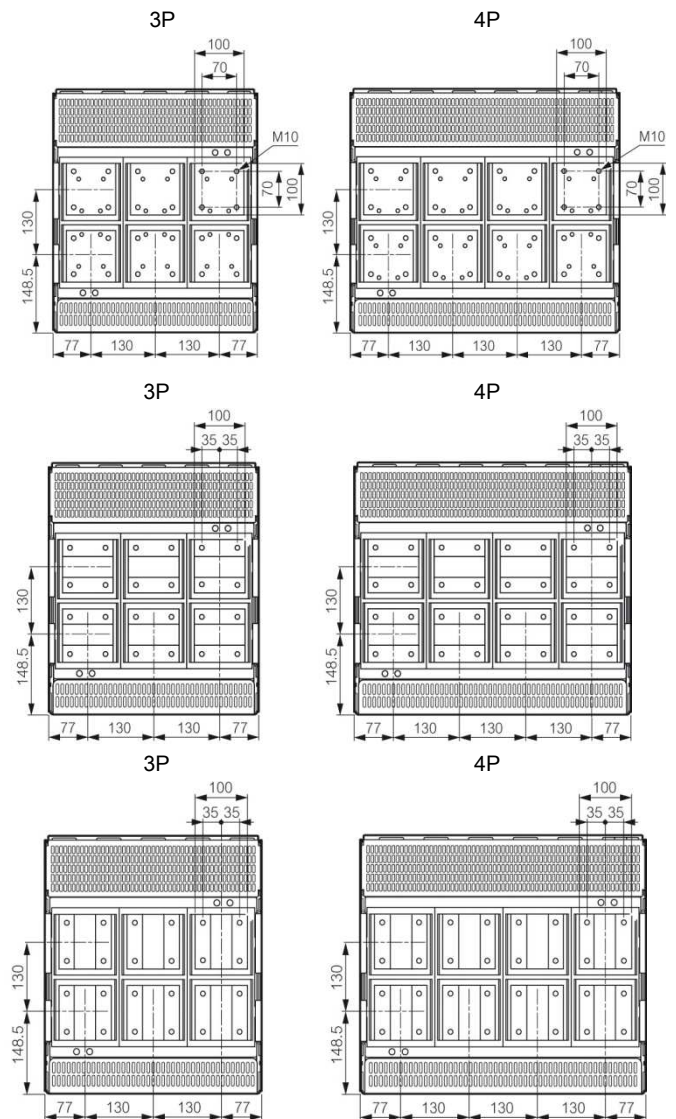
### 3.2 Draw-out version

### Frontal view



A = fixing point on plate of enclosure

### Rear view



# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

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0 285 40 / 41 / 42 / 43 / 44 / 45 / 46 / 47 / 48

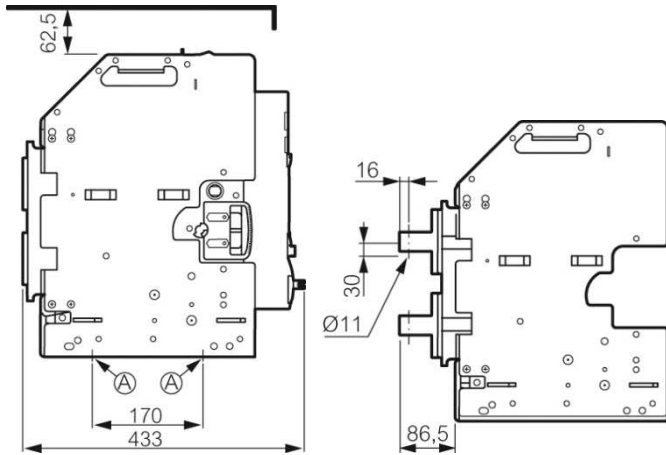
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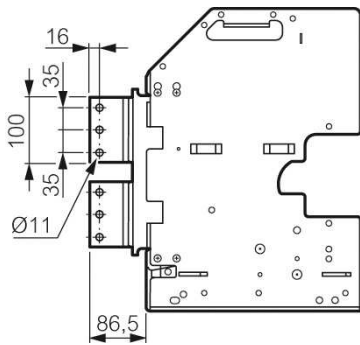
0 285 80 / 81 / 82 / 83 / 84 / 85 / 86 / 87 / 88

Lateral view

3P - 4P

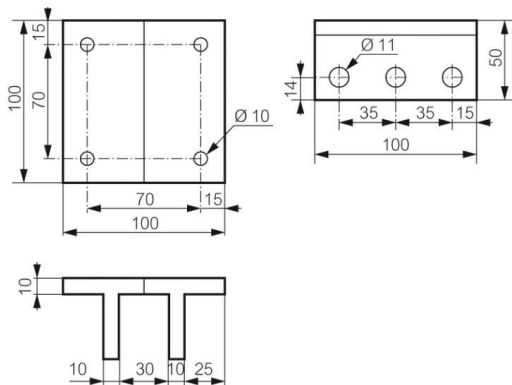
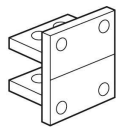


A = fixing point on plate of enclosure

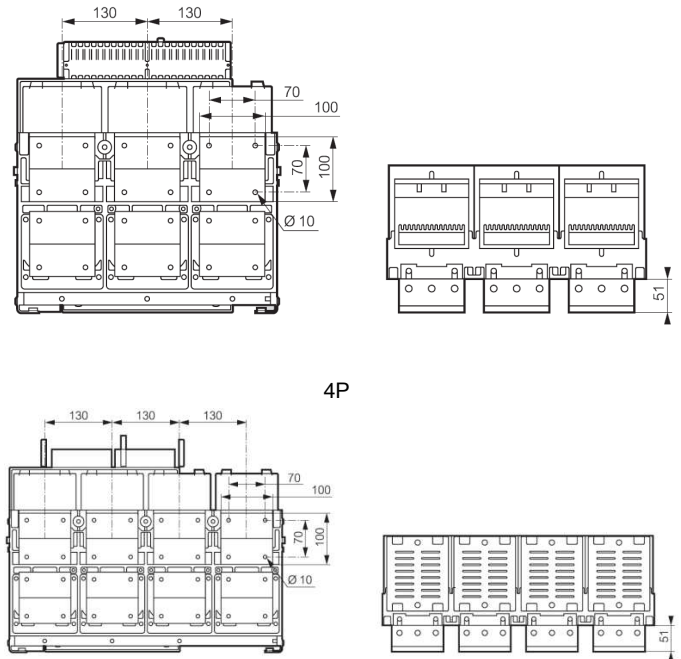


### 3.3 Rear terminals for fixed version – Flat connection

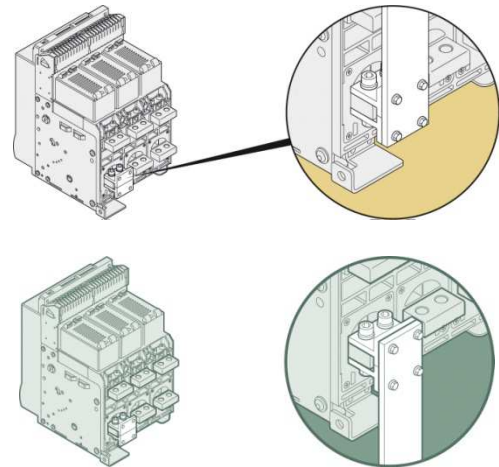
References	
3P	4P
0 288 92	0 288 93



3P



Mounting examples:



# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

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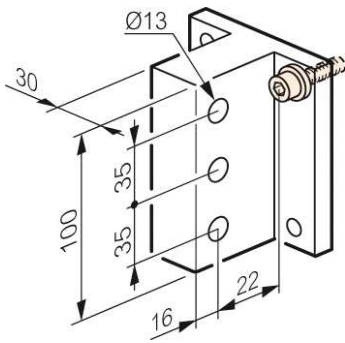
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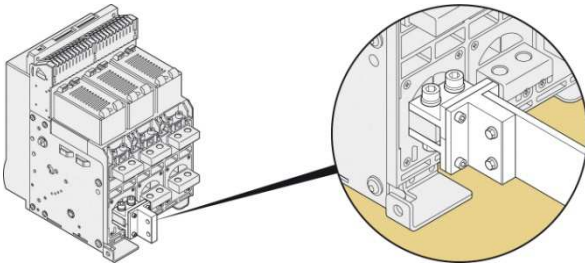
0 285 80 / 81 / 82 / 83 / 84 / 85 / 86 / 87 / 88

### 3.4 Rear terminals for fixed version – Vertical connection

References	
3P	4P
0 288 94	0 288 95

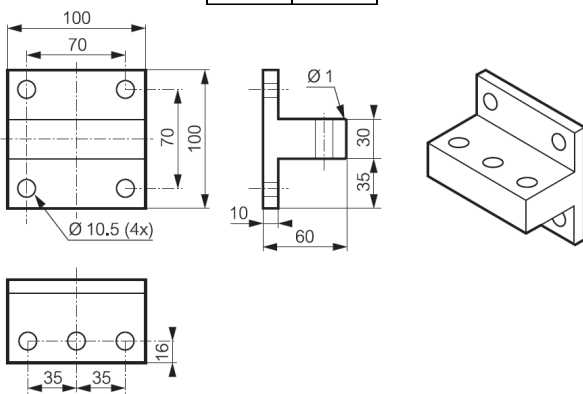


Mounting example:

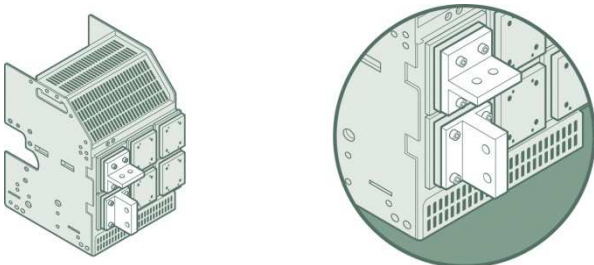


### 3.5 Rear terminals for Draw-out version – Flat/vertical connection

References	
3P	4P
0 288 94	0 288 95

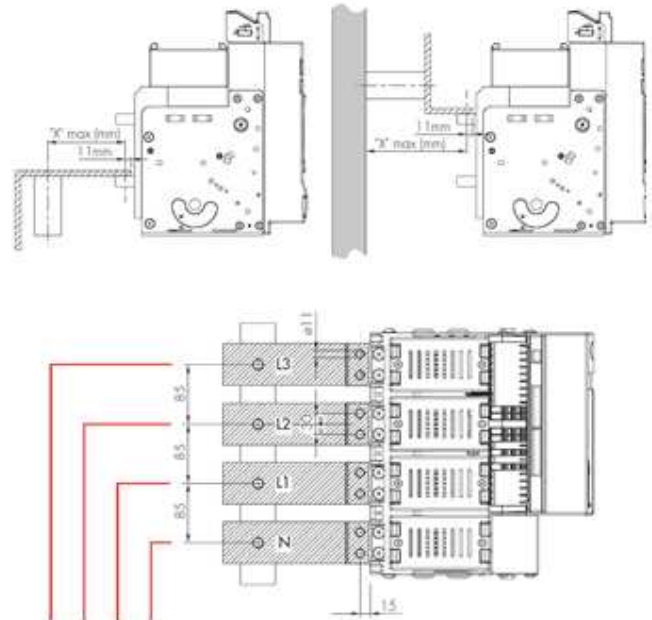


Mounting example:



### 3.6 Terminations support distances – Fixed version

I <sub>cc</sub> (kA)	≤ 50	≥ 65
"X" max (mm)	300	250



# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

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0 285 80 / 81 / 82 / 83 / 84 / 85 / 86 / 87 / 88

## 4. OVERVIEW

### 4.1 Supplied with

ACBs are equipped with auxiliary contacts (4 NO/NC, expandable up to 10) and doorframe; besides:

- Fixed version: equipped with rear terminals for horizontal connections with bars.
- Draw-out version: equipped with flat rear terminals for connections with bars and delivered with base equipped with extraction crank and isolating components.
- Door sealing.

## 5. ELECTRICAL CONNECTIONS

Use only as a general guideline to select products. Due to extensive variety of switchgear installation shapes and conditions of use, the solution used must always be verified. If inter-poles air distance is less than 20mm, it's recommended use of phase insulators or insulated bars.

### Minimum cross section of COPPER busbars per pole

. DMX<sup>3</sup> and fixed and draw-out versions

Rated current (A)	Vertical bars (mm)	Horizontal bars (mm)
630	1 bar 40x10 or 2 bars 40x5	2 bars 40 x 5
800	1 bar 50x10 or 2 bars 50x5	2 bars 50 x 5
1000	1 bar 50x10 or 2 bars 50x5	2 bars 60 x 5
1250	2 bars 60 x 5	2 bars 80 x 5
1600	2 bars 80 x 5	2 bars 50 x 10
2000	2 bars 50 x 10	2 bars 60 x 10
2500	3 bars x 50 x 10	3 bars x 60 x 10
3200	3 bars 100 x 10	4 bars 80 x 10
4000	4 bars 100 x 10	5 bars 100 x 10

### Minimum cross section of ALUMINIUM busbars per pole

. DMX<sup>3</sup> and fixed and draw-out versions

Rated current (A)	Vertical bars (mm)	Horizontal bars (mm)
630	2 bars 40 x 8	2 bars 40 x 8
800	2 bars 50 x 8	2 bars 50 x 8
1000	2 bars 50 x 8	2 bars 50 x 10
1250	2 bars 50 x 10	2 bars 60 x 10
1600	2 bars 60 x 10	4 bars 50 x 8
2000	4 bars 50 x 8	4 bars 50 x 10
2500	4 bars 60 x 10	4 bars 80 x 10
3200	4 bars 150 x 10	5 bars 150 x 10
4000	5 bars 150 x 10	6 bars 150 x 10

## 6. ELECTRICAL AND MECHANICAL CHARACTERISTICS

### Circuit breaker

Electrical data refers to IEC/EN 60947-2 standard

		DMX <sup>3</sup> 4000 - 1000Vac
Number of poles		3P - 4P
Pole pitch (mm)		130
Rated current I <sub>n</sub> (A)		630 / 800 / 1000 / 1250 / 1600 / 2000 / 2500 / 3200 / 4000
Release type		electronic
Rated insulation voltage U <sub>i</sub> (V)		1250
Rated impulse withstand voltage U <sub>imp</sub> (kV)		12
Rated operational voltage (50/60Hz) U <sub>e</sub> (V)		1150
Category of use		B
Rated ultimate short-circuit breaking capacity I <sub>cu</sub> (kA)	800 V AC	65
	1000 V AC	50
Rated service short-circuit breaking capacity I <sub>cs</sub> (% I <sub>cu</sub> )		100%
Rated short-circuit making capacity I <sub>cm</sub> (kA)	800 V AC	143
	1000 V AC	105
Rated short time withstand current I <sub>sw</sub> (kA) for t = 1s	800 V AC	65
	1000 V AC	50
Rated short time withstand current I <sub>sw</sub> (kA) for t = 3s	800 V AC	65
	1000 V AC	50
Suitable for insulation		Yes
Neutral protection (% I <sub>n</sub> )		0 - 50 - 100
Endurance (cycles)	mechanical	10000 (w/o maintenance); 20000 (with maintenance)
	electrical	5000 (w/o maintenance)
Weight (Kg)	3P - Fixed	59
	3P - Drawout <sup>(2)</sup>	108
	4P - Fixed	76
	4P - Drawout <sup>(2)</sup>	137
Height (mm)	3P - Fixed	419
	3P - Drawout	465
	4P - Fixed	419
	4P - Drawout	465
Depth (mm)	3P - Fixed	354
	3P - Drawout	433
	4P - Fixed	354
	4P - Drawout	433
Width (mm)	3P - Fixed	408
	3P - Drawout	425
	4P - Fixed	538
	4P - Drawout	555
Temperature	operation	-25°C to +70°C
	storage	-25°C to +85°C
Maintenance		Yes (see specific guide)

<sup>(1)</sup> For more details, please consult Legrand

<sup>(2)</sup> Weights for draw-out releases are to be intended with base

# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

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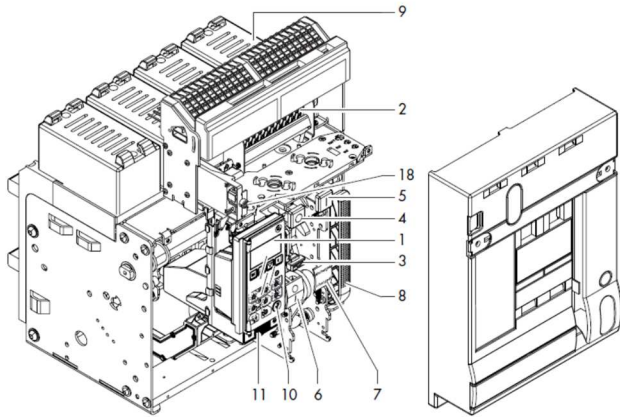
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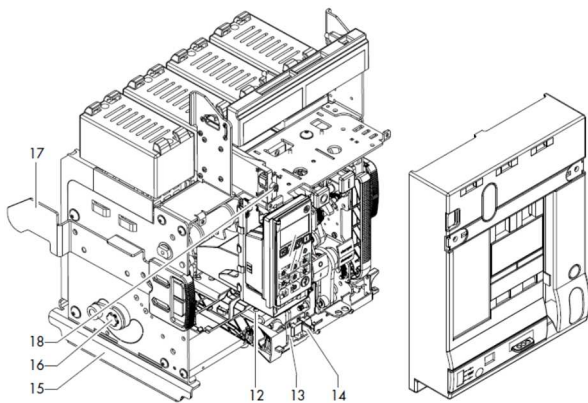
0 285 80 / 81 / 82 / 83 / 84 / 85 / 86 / 87 / 88

## 6.1 Main parts constituting the circuit breaker

### Fixed version

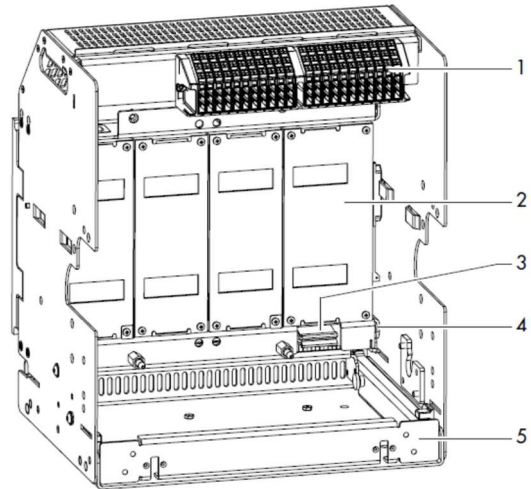


### Draw-out version



1. Protection Unit
2. Auxiliary Contacts
3. Reset button
4. OFF button
5. ON button
6. ON-OFF Indication
7. Spring Status Indication
8. Charging handle
9. Dejon cell
10. Mini USB cover
11. Battery cover
12. Draw-out mechanism
13. Draw-out bar insertion
14. Racking shutter
15. Support to place the breaker in draw-out cassette
16. Draw-out main shaft
17. Insertion guide
18. Dielectric test selector (if present)

### Draw-out base



1. Aux terminal block
2. Safety shutter
3. Earth connection
4. Earth terminal
5. Removable cassette

## 6.2 Adjustment ranges

I <sub>n</sub> (A)	Phases			
	I <sub>r</sub>		I <sub>sd</sub>	
	0.2 x I <sub>n</sub>	1 x I <sub>n</sub>	1.5 x I <sub>r min</sub>	10 x I <sub>r max</sub>
630	126	630	378	6300
800	160	800	480	8000
1000	200	1000	600	10000
1250	250	1250	750	12500
1600	320	1600	960	16000
2000	400	2000	1200	20000
2500	500	2500	1500	25000
3200	640	3200	1920	32000
4000	800	4000	2400	40000

\* For neutral adjustment, as explained in technical sheet, please consider the values ratios 0%, 50% and 100% on set currents.

## 6.3 Power losses per pole at I<sub>n</sub> / I<sub>o</sub>

Version	Power Losses (W) DMX <sup>3</sup> 4000		
	Fixed	Fixed	Draw-out
Rated current (A)	630	3.2	6.4
	800	5.2	10.2
	1000	8.1	16.0
	1250	12.7	25.0
	1600	20.8	41.0
	2000	32.5	64.0
	2500	50.8	100.0
	3200	83.3	163.8
4000	130.1	256.0	

# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

## References:

0 285 40 / 41 / 42 / 43 / 44 / 45 / 46 / 47 / 48  
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0 285 60 / 61 / 62 / 63 / 64 / 65 / 66 / 67 / 68  
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Note: power loss in the table above are referred and measured as described in the standard IEC 60947-2 (Annex G) for circuit-breakers and IEC 60947-1 for switches. Values in the table are referred to a single phase.

## 6.4 Deratings

### 6.4.1 Temperature

Rated current and his adjustment has to be considered relating to a rise or fall of ambient temperature and to a different version or installation conditions. The table below indicates the maximum long-time (LT) protection setting depending on the ambient temperature.

Temperature deratings for DMX<sup>3</sup> fixed version - horizontal terminals

Temperature	Fixed version							
	up to 40°C		50°C		60°C		70°C	
	I <sub>max</sub> (A)	I <sub>r</sub> / I <sub>n</sub>	I <sub>max</sub> (A)	I <sub>r</sub> / I <sub>n</sub>	I <sub>max</sub> (A)	I <sub>r</sub> / I <sub>n</sub>	I <sub>max</sub> (A)	I <sub>r</sub> / I <sub>n</sub>
DMX <sup>3</sup> 4000 1000V	630	1	630	1	630	1	630	1
	800	1	800	1	800	1	800	1
	1000	1	1000	1	1000	1	1000	1
	1250	1	1250	1	1250	1	1250	1
	1600	1	1600	1	1600	1	1600	1
	2000	1	2000	1	2000	1	2000	1
	2500	1	2500	1	2500	1	2500	1
	3200	1	3200	1	3200	1	3040	0.95
	4000	1	3920	0.98	3680	0.92	3120	0.78

Temperature deratings for DMX<sup>3</sup> draw-out versions – horizontal terminals

Temperature	Draw-out version							
	up to 40°C		50°C		60°C		70°C	
	I <sub>max</sub> (A)	I <sub>r</sub> / I <sub>n</sub>	I <sub>max</sub> (A)	I <sub>r</sub> / I <sub>n</sub>	I <sub>max</sub> (A)	I <sub>r</sub> / I <sub>n</sub>	I <sub>max</sub> (A)	I <sub>r</sub> / I <sub>n</sub>
DMX <sup>3</sup> 4000 1000V	630	1	630	1	630	1	630	1
	800	1	800	1	800	1	800	1
	1000	1	1000	1	1000	1	1000	1
	1250	1	1250	1	1250	1	1250	1
	1600	1	1600	1	1600	1	1600	1
	2000	1	2000	1	2000	1	2000	1
	2500	1	2500	1	2500	1	2500	1
	3200	1	3200	1	3200	1	2880	0.9
	4000	1	3760	0.94	3440	0.86	2960	0.74

### 6.4.2 Specific conditions use

#### Climatic conditions

according to IEC/EN 60947-1 Annex Q, Cat. F subject to temperature, humidity, vibration, shock and salt mist.

#### Electromagnetic disturbances (EMC)

for DMX<sup>3</sup> 4000 according to IEC/EN 60947-2 Annex F.

### 6.4.3 Altitude

Altitude derating for DMX<sup>3</sup>

Altitude (m)	< 2000	3000	4000	5000
Rated current (A)	I <sub>n</sub>	0.98 x I <sub>n</sub>	0.94 x I <sub>n</sub>	0.9 x I <sub>n</sub>
Rated voltage U <sub>e</sub> (V)	1000	880	750	690
Rated insulation voltage U <sub>i</sub> (V)	1250	1100	950	850
Dielectric withstand (V)	3500	3200	2500	2000

## 6.5 Electronic protection unit

All DMX<sup>3</sup> 1600 can be equipped by an MP2.10 or MP4.10 electronic protection unit which main characteristics are:

- Integrated LED matrix screen to show electrical values and settings (MP2.10) or Integrated LCD screen for displaying electrical values, settings and log (MP4.10)
- Adjustment via rotating encoder
- Adjustment of I<sub>r</sub>, t<sub>r</sub>, I<sub>sd</sub>, t<sub>sd</sub>, I<sub>i</sub>, I<sub>g</sub> and t<sub>g</sub>
- Possibility to enable/disable protections
- Measure and display instantaneous, maximum and average values of different electrical values and protection conditions, fault signaling and log (for versions with measure)
- Equipped with batteries for powering in case of mains fault or when the breaker is open or not connected (MP4.10)

All protection units have onboard a mini USB type "B" socket for maintenance purposes or PCS software connection to PC

### 6.5.1 Protection unit types

Protection unit are available in in MP2.10 and MP4.10 type as following

Type	Features		Reference
	display	with measure	
MP2.10	LED matrix	NO	0 283 04
		YES	0 283 06 (*)
MP4.10	LCD screen	NO	0 283 06
		YES	0 283 07 (*)

(\*) For the correct working of metering function, it's necessary to connect a CX<sup>3</sup> EMS power supply module ref. 4 149 45

#### Protective functions

**I<sub>r</sub>** : *Long time delay protection against overloads*

From 0.2 to 1 x I<sub>n</sub> with steps of 1A

Protection: ON/OFF

**t<sub>r</sub>** : *Long delay protection operation time*

From 40ms to 30 s (@6Ir) with steps of 40ms

Thermal memory: ON/OFF

**I<sub>sd</sub>** : *Short time delay protection against short-circuits*

From 1.5 to 10 x I<sub>r</sub> with steps of 1A

Protection: ON/OFF

**t<sub>sd</sub>** : *Short time delay protection operation time*

From 40ms to 1 s with steps of 40ms

(both t=k, independent time delay, and I<sup>2</sup>t=k, inverse short time delay)

**I<sub>i</sub>** : *Instantaneous protection against very high short-circuits*

From 2 to 15 x I<sub>n</sub> or I<sub>cw</sub> with steps of 1A

Protection: ON/OFF

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### $I_g$ : Earth fault current

From 0.2 to 1 x  $I_n$  with steps of 1A  
Protection: ON/OFF

### $t_g$ : Time delay on earth fault tripping

From 80ms to 1s with steps of 40ms  
(both  $t=k$ , independent time delay, and  $I^2t=k$ , inverse short time delay)

### $I_N$ : Neutral protection

OFF - 50% - 100% - 200%

## 6.5.2 Configuration

Protection units MP2.10 and MP4.10 are fully configurable and can be configured in complete freedom.

They can be used to adapt settings as closely as possible to the requirements of the specific installation, either by enabling/disabling the different protection devices (currents and tripping times), or by altering the different trip thresholds.

The tripping curve is thus fully customised to suit the real-life conditions of each project.

Protection units with integrated measurement function can also be used to display voltages, active and reactive powers, frequency, power factor, and also energy, in addition to monitoring currents.

Alarms can be programmed on a number of these parameters: max. voltage, min. voltage, voltage unbalance, max. and min. frequency, etc

## 6.6 Common accessories for protection units

- Bluetooth communication key ref. 0 283 10  
USB key for Bluetooth communication with DMX<sup>3</sup> protection unit, needed to monitor and manage (test and report) the DMX<sup>3</sup> protection units through EnerUp + Project App USB connection port on front of protection unit.

- Power supply module ref. 4 149 45  
500 mA 12V DC stabilized power supply module for CX<sup>3</sup> energy management system – 1 DIN module.  
To use for correct use of protection units with measure function (ref. 0 283 01 and 0 283 03)

- Communication interface ref. 4 149 40  
RS485 / CX3 energy management system conversion  
Consumption: 0.344 W - 28.7 mA (12 V DC) – 1 DIN module

- External neutral for DMX<sup>3</sup> 1600 ref. 0 281 98  
Optional accessories, to be ordered when ordering electronic protection unit and DMX<sup>3</sup> air circuit breakers for factory assembly

## 7. CONFORMITY

DMX<sup>3</sup> range of product concerning circuit-breakers exceed compliance with the IEC/EN standard 60947-2. Certification available by IECEE CB-scheme or LOVAG Compliance scheme.

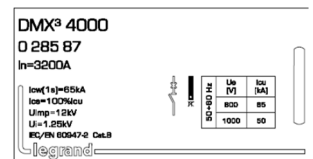
DMX<sup>3</sup> respect the European Directives REACH, RoHS, RAEE and Product Environment Product (PEP Ecopassport) are available.

### 7.1 MARKING

Product is provided with labelling in full conformity to the referred standard and directives requirements by laser or sticker labels as:

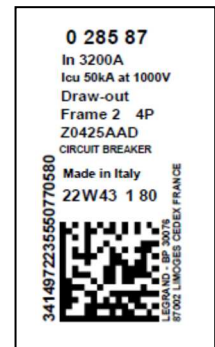
#### Product laser label on front

- Manufacturer responsible
- Denomination, type product, code
- Standard conformity
- Standard characteristics declared
- coloured identification of  $I_{cu}$  at 415V.



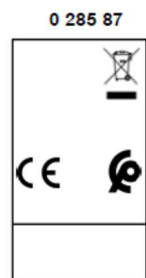
#### Product sticker label on side

- Manufacturer responsible
- Denomination and type product
- Standard conformity
- Mark/Licence (if any)
- Directive requirements
- bar code identification product
- Manufacturing Country



#### Mark sticker label on side

- Product code
- Mark/Licence (if any)
- Country deviation, if any



#### Packaging sticker label

- Manufacturer responsible
- Denomination and type product
- Standard conformity
- Mark/Licence (if any)
- Directive requirements
- bar code identification product





# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

## References:

0 285 40 / 41 / 42 / 43 / 44 / 45 / 46 / 47 / 48  
0 285 50 / 51 / 52 / 53 / 54 / 55 / 56 / 57 / 58  
0 285 60 / 61 / 62 / 63 / 64 / 65 / 66 / 67 / 68  
0 285 80 / 81 / 82 / 83 / 84 / 85 / 86 / 87 / 88

## 8. EQUIPMENTS AND ACCESSORIES

### 8.1 Control auxiliaries

- shunt trip: when energised the circuit breaker will be tripped
  - 24 V AC and DC ref. 0 288 48
  - 48 V AC and DC ref. 0 288 49
  - 110 ÷ 130 V AC and DC ref. 0 288 50
  - 220 ÷ 250 V AC and DC ref. 0 288 51
  - 415 ÷ 480 V AC ref. 0 288 52

Rated operating voltage (U <sub>c</sub> )	AC: 24V;48V;110V ÷ 130V;220V ÷ 250V;415V/440V/480V DC: 24V; 48V; 110V ÷ 130V; 220V ÷ 250V
Voltage range (%U <sub>c</sub> )	70 ÷ 110
Pick-up consumption (W / VA)	500 / 500
Pick-up time (ms)	180
Hold consumption (W /VA)	5 / 5
Minimum opening time (ms)	30
Insulation voltage (kV)	2.5

- undervoltage releases: when the coil is de-energised, the circuit breaker will be tripped

- 24 V AC and DC ref. 0 288 55
- 48 V AC and DC ref. 0 288 56
- 110 ÷ 130 V AC and DC ref. 0 288 57
- 220 ÷ 250 V AC and DC ref. 0 288 58
- 415 ÷ 440 V AC ref. 0 288 59

Rated operating voltage (U <sub>c</sub> )	AC: 24V;48V;110V ÷ 130V;220V ÷ 250V;415V/440V/480V DC: 24V; 48V; 110V ÷ 130V; 220V ÷ 250V
Voltage range (%U <sub>c</sub> )	85 ÷ 110
Pick-up consumption (W / VA)	500 / 500
Pick-up time (ms)	180
Hold consumption (W /VA)	5 / 5
Minimum opening time (ms)	60
Insulation voltage (kV)	2.5

- Modules for delayed tripping, to be used with undervoltage releases
  - 110 V AC and DC ref. 0 288 62
  - 230 V AC and DC ref. 0 288 63

Rated operating voltage (U <sub>c</sub> )	AC: 110V / 230V DC: 110V / 230V
Voltage range (%U <sub>c</sub> )	85 ÷ 110
Pick-up consumption (W / VA)	16.5 (@110V) / 34.5 (@230V)
Time delay (s)	1 <sup>(1)</sup>
Hold consumption (W /VA)	5 (@110V) / 10 (@230V)
Opening threshold	0.35 ÷ 0.7 U <sub>n</sub>
Closing threshold	0.85 U <sub>n</sub>
Operating temperature (°C)	-10 ÷ +55

<sup>(1)</sup> It is possible to connect up to 3 modules - 1s of delay for each module installed

- Motor operators connect to a release coil (UVR or trip on energising) and a closing coil
  - 24 V AC and DC ref. 0 288 34
  - 48 V AC and DC ref. 0 288 35
  - 110 ÷ 130 V AC and DC ref. 0 288 36
  - 220 ÷ 250 V AC and DC ref. 0 288 37
  - 415 ÷ 440 V AC ref. 0 288 38
  - 480 V AC and DC ref. 0 288 40

Rated operating voltage (U <sub>c</sub> )	AC: 24V;48V;110V ÷ 130V;220V÷250V;415V ÷ 440V;480V DC: 24V; 48V; 110V ÷ 130V; 220V ÷ 250V
Voltage range (%U <sub>c</sub> )	85 ÷ 110
Maximum Power consumption (W / VA)	240/240
Maximum peak current for 80ms	(2 ÷ 3) x I <sub>n</sub>
Charging time (s)	7
Operating frequency (n° / min)	1

- Closing coils

To enable remote closing of the circuit breaker if the closing spring is charged

- 24 V AC and DC ref. 0 288 41
- 48 V AC and DC ref. 0 288 42
- 110 ÷ 130 V AC and DC ref. 0 288 43
- 220 ÷ 250 V AC and DC ref. 0 288 44
- 415 ÷ 480 V AC ref. 0 288 45

Rated operating voltage (U <sub>c</sub> )	AC: 24V;48V;110V ÷ 130V;220V ÷ 250V;415V/440V/480V DC: 24V; 48V; 110V ÷ 130V; 220V ÷ 250V
Voltage range (%V <sub>n</sub> )	85 ÷ 110
Pick-up consumption (W / VA)	500 / 500
Pick-up time (ms)	180
Hold consumption (W /VA)	5 / 5
Maximum closing time (ms)	50
Insulation voltage (kV)	2.5

### 8.2 Signalling auxiliaries

- Signalling contact for draw-out version  
Inserted / test / draw-out signalling contact  
3 changeover contacts per position ref. 0 288 13

Rated operating voltage (U <sub>c</sub> )	DC	250V 0.3A 125V 0.6A
	AC	250V 16A 125V 16A

- Contact "ready to close" with charged springs ref. 0 288 14

Rated operating voltage (U <sub>c</sub> )	AC	250V 16A 125V 16A
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- Additional signalling contact ref. 0 288 15

Rated operating voltage (U <sub>c</sub> )	DC	250V 0.3A 125V 0.6A
	AC	250V 16A 125V 16A

- Signalling contact for auxiliaries (ST, CC and UVR) ref. 0 288 16

Rated operating voltage (U <sub>c</sub> )	DC	250V 0.3A 125V 0.6A
	AC	250V 16A 125V 16A

### 8.3 Locking

Universal key locks

To be used in combination with key locking support ref. 0 281 91

- Key barrel and flat key with random mapping ref. 4 238 80
- Key barrel and flat key with fixed mapping EL43525 ref. 4 238 81
- Key barrel and flat key with fixed mapping EL 43363 ref. 4 238 82
- Key barrel and star key with random mapping ref. 4 238 83
- Key locking support in "open" position ref. 0 288 28  
To be equipped with universal keylocks ref. 4 238 80/81/82/83
- Key locking support in "draw-out" position ref. 0 281 94  
To be equipped with universal keylocks ref. 4 238 80/81/82/83

# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

## References:

0 285 40 / 41 / 42 / 43 / 44 / 45 / 46 / 47 / 48

0 285 50 / 51 / 52 / 53 / 54 / 55 / 56 / 57 / 58

0 285 60 / 61 / 62 / 63 / 64 / 65 / 66 / 67 / 68

0 285 80 / 81 / 82 / 83 / 84 / 85 / 86 / 87 / 88

- Door locking  
Prevents opening of the door with the circuit breaker closed  
Left-hand and right-hand side mounting ref. 0 288 20

- Padlocks in "open" position  
Padlocking system for ACB (padlock not supplied) ref. 0 288 21  
Padlock for buttons ref. 0 288 24  
Padlocking system for shutters (padlock not supplied) ref. 0 288 26

### 8.4 Accessories

- Mechanical operations counter: to count total number of operation cycles of device ref. 0 288 23
- Rating mis-insertion device: to prevent the insertion of a draw-out circuit breaker into an incompatible base ref. 0 288 25
- Lifting plate ref. 0 288 79

### 8.5 Fixing devices for DMX<sup>3</sup> 4000

Specific instruction sheets are provide to integrate DMX<sup>3</sup> 4000 into XL<sup>3</sup> enclosures ranges (fixing plates, metal faceplates for circuit breakers and cable sleeves, etc...).

### 8.6 Equipment for conversion of a fixed device into draw-out device

- Bases for draw-out device  
For DMX<sup>3</sup> 4000 frame 3P ref. 0 289 04  
For DMX<sup>3</sup> 4000 frame 4P ref. 0 289 05
- Transformation kit for draw-out version  
For DMX<sup>3</sup> 4000 frame 3P ref. 0 289 11  
For DMX<sup>3</sup> 4000 frame 4P ref. 0 289 12

### 8.6 Equipment for interlocking

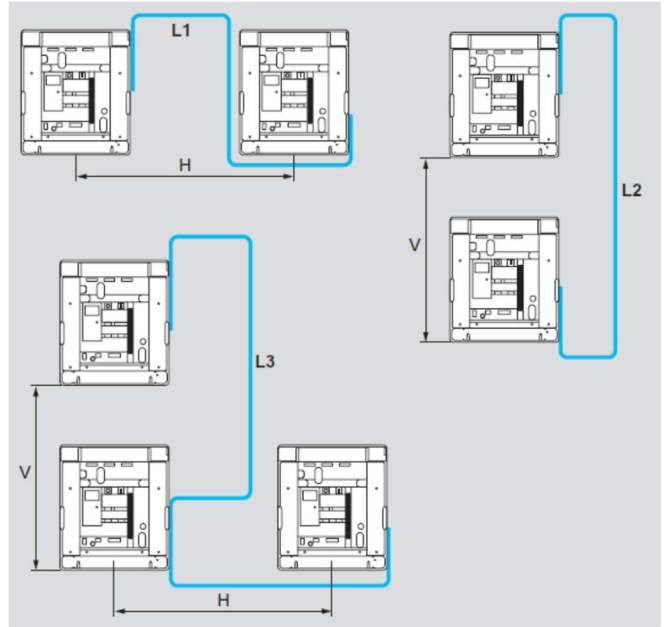
The mechanical interlock is set up using cables and can interlock 2 or 3 devices, which may be different type in a vertical or horizontal configuration. The interlock unit is mounted on the right-hand side of the device. Interlock cables to be ordered separately.

- Interlock for DMX<sup>3</sup> 4000 ref. 0 288 65

### 8.8 Interlock cables

- 1000 mm ref. 0 289 17
- 1500 mm ref. 0 289 18
- 2600 mm ref. 0 289 20
- 3000 mm ref. 0 289 21
- 3600 mm ref. 0 289 22
- 4000 mm ref. 0 289 23
- 4600 mm ref. 0 289 24
- 5600 mm ref. 0 289 25

### Choice of interlock cable



Calculation of cable length:

$$L1 = 1430 + H$$

$$L2 = 1570 + V$$

$$L3 = 1430 + V + H$$

### 8.9 Rear terminals

- For fixed version
  - For flat connections with bars, 3P ref. 0 288 92
  - For flat connections with bars, 4P ref. 0 288 93
  - For vertical connections with bars, 3P ref. 0 288 94
  - For vertical connections with bars, 4P ref. 0 288 95

Note 1: refs. 0 288 92/93 to be fixed onto horizontal rear terminals of the circuit breaker

Note 2: refs. 0 288 94/95 to be used to transform a flat connection into a vertical one. To be fixed onto refs. 0 288 92/93 according to the number of poles.

- For draw-out version
  - For vertical or horizontal connections with bars, 3P ref. 0 288 94
  - For vertical or horizontal connections with bars, 4P ref. 0 288 95

Note: to be fixed directly onto plate rear terminals of the circuit breaker

### 8.10 Insulating shields

- Fixed version 3P ref. 0 288 98
- Fixed version 4P ref. 0 288 99
- Draw-out version 3P ref. 0 288 18
- Draw-out version 4P ref. 0 288 19

# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

## References:

0 285 40 / 41 / 42 / 43 / 44 / 45 / 46 / 47 / 48

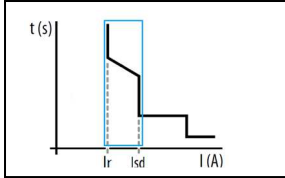
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0 285 60 / 61 / 62 / 63 / 64 / 65 / 66 / 67 / 68

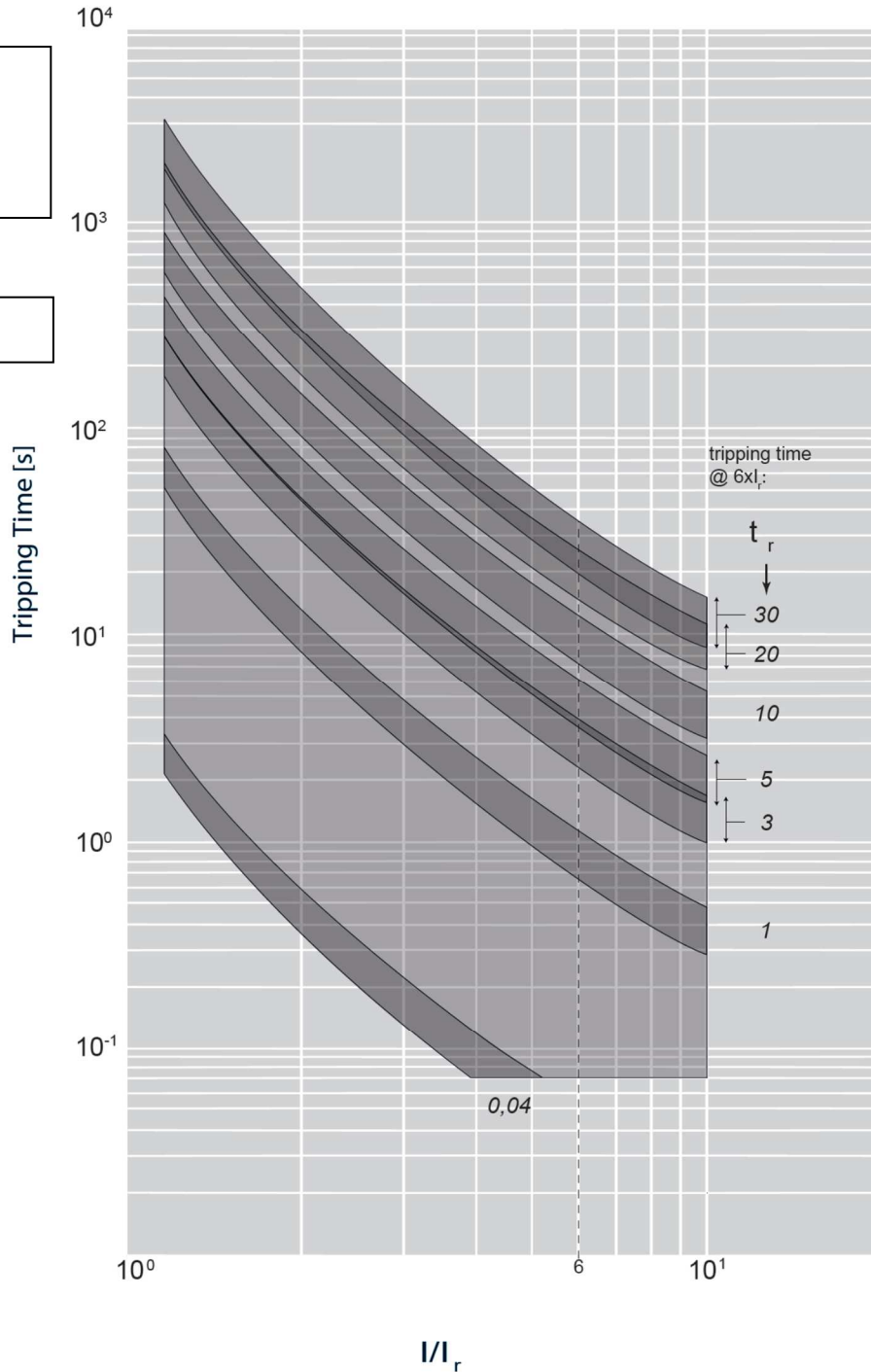
0 285 80 / 81 / 82 / 83 / 84 / 85 / 86 / 87 / 88

## 9. CURVES

### 9.1 TRIPPING CURVE FOR DMX<sup>3</sup> 4000 1000Vac MPx.10 protection units: L – T protection detail



Update: 14/10/2022



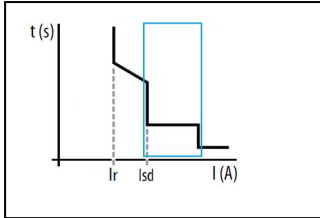
Value	Description
I	current
$I_r$	long time setting current
$t_r$	long time delay

# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

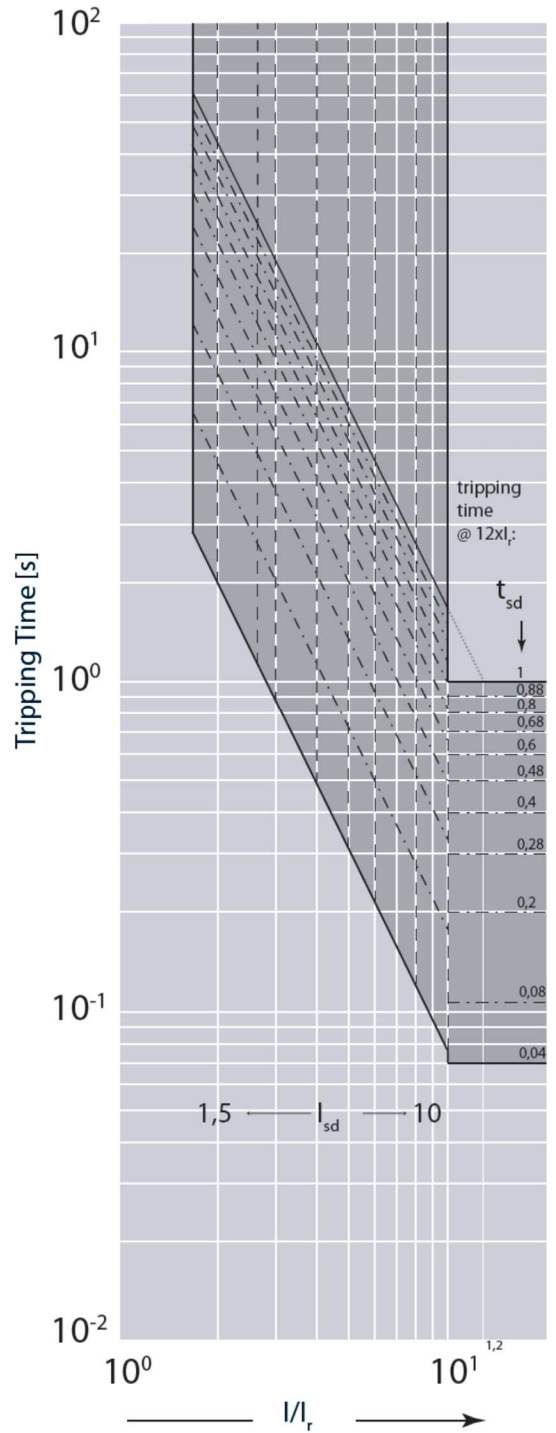
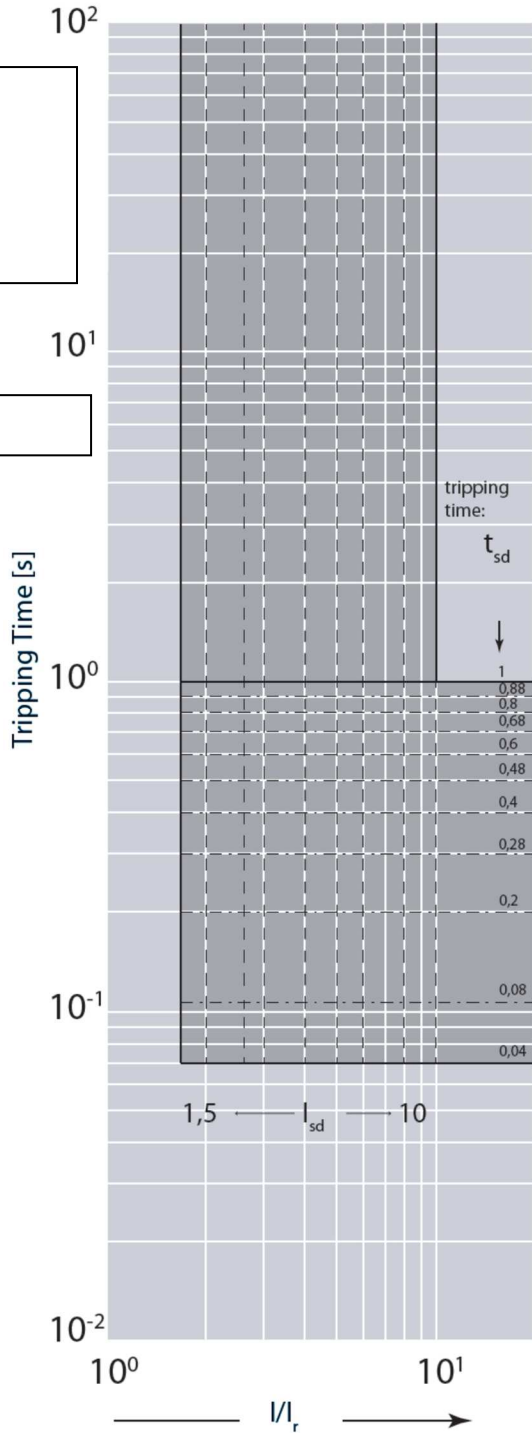
## References:

- 0 285 40 / 41 / 42 / 43 / 44 / 45 / 46 / 47 / 48
- 0 285 50 / 51 / 52 / 53 / 54 / 55 / 56 / 57 / 58
- 0 285 60 / 61 / 62 / 63 / 64 / 65 / 66 / 67 / 68
- 0 285 80 / 81 / 82 / 83 / 84 / 85 / 86 / 87 / 88

### 9.2 TRIPPING CURVE FOR DMX<sup>3</sup> 4000 1000Vac MPx.10 protection units: short time trip protection detail



Update: 17/11/2022



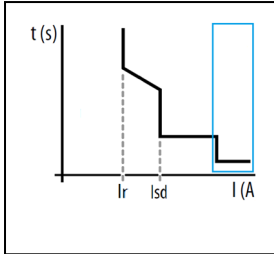
Value	Description
I	current
I <sub>sd</sub>	short time setting current
t <sub>sd</sub>	short time delay

# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

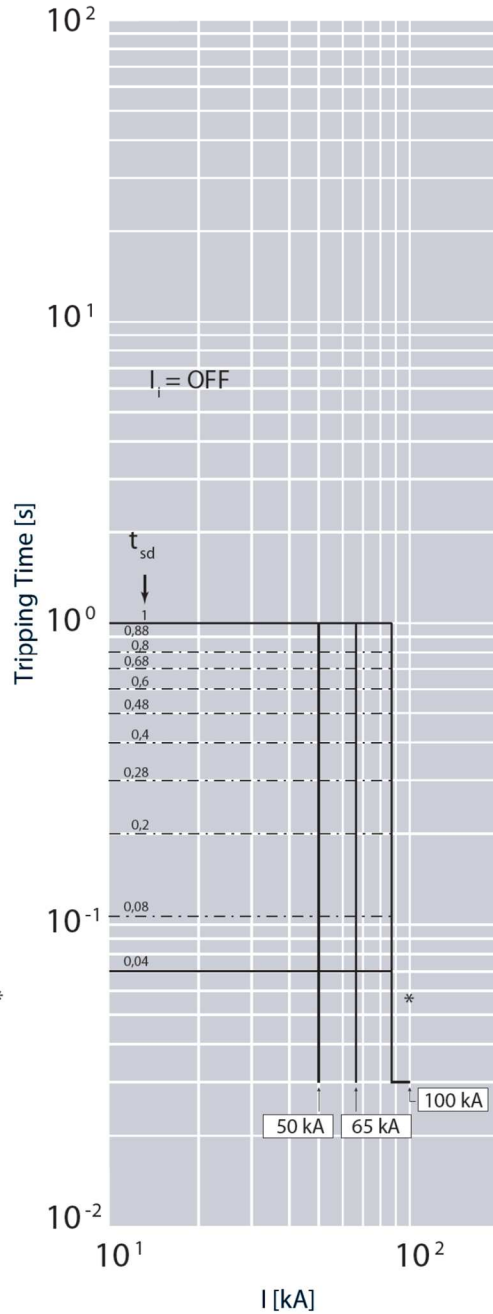
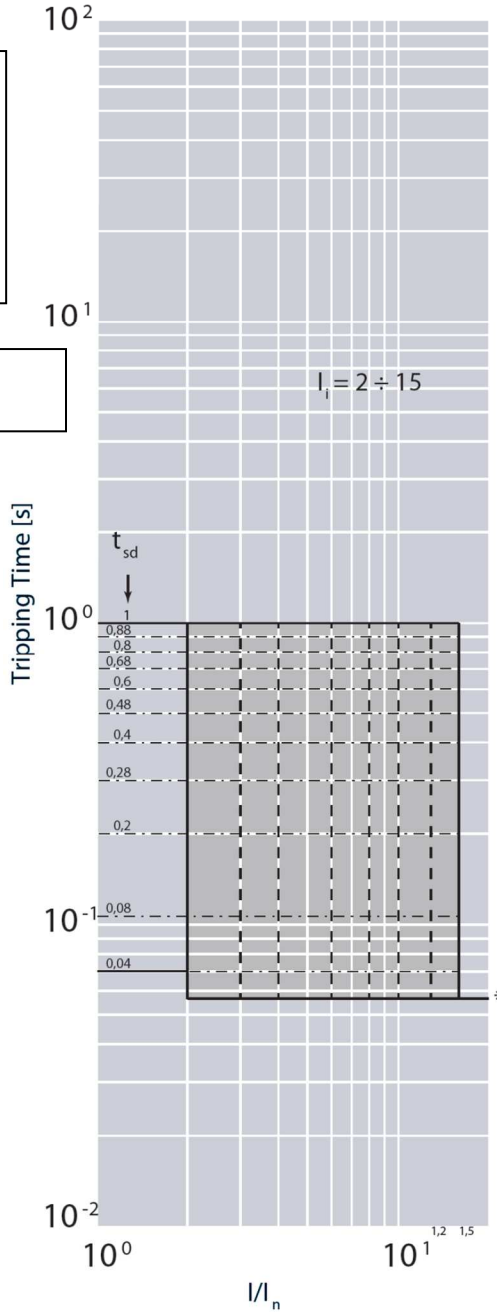
## References:

- 0 285 40 / 41 / 42 / 43 / 44 / 45 / 46 / 47 / 48
- 0 285 50 / 51 / 52 / 53 / 54 / 55 / 56 / 57 / 58
- 0 285 60 / 61 / 62 / 63 / 64 / 65 / 66 / 67 / 68
- 0 285 80 / 81 / 82 / 83 / 84 / 85 / 86 / 87 / 88

### 9.3 TRIPPING CURVE FOR DMX<sup>3</sup> 4000 1000Vac MPx.10 protection units: instantaneous trip protection detail



Update: 17/11/2022



\* Fixed Instantaneous override –  $I_{sf}$

Value	Description
$I$	current
$I_n$	rated current
$t_{sd}$	short time delay
$I_i$	Instantaneous release
$I_{cw}$	Rated short time withstand current

$I_{cu}$	Values for $I_{sf}$
50kA	50kA
65kA	65kA
100kA	85kA

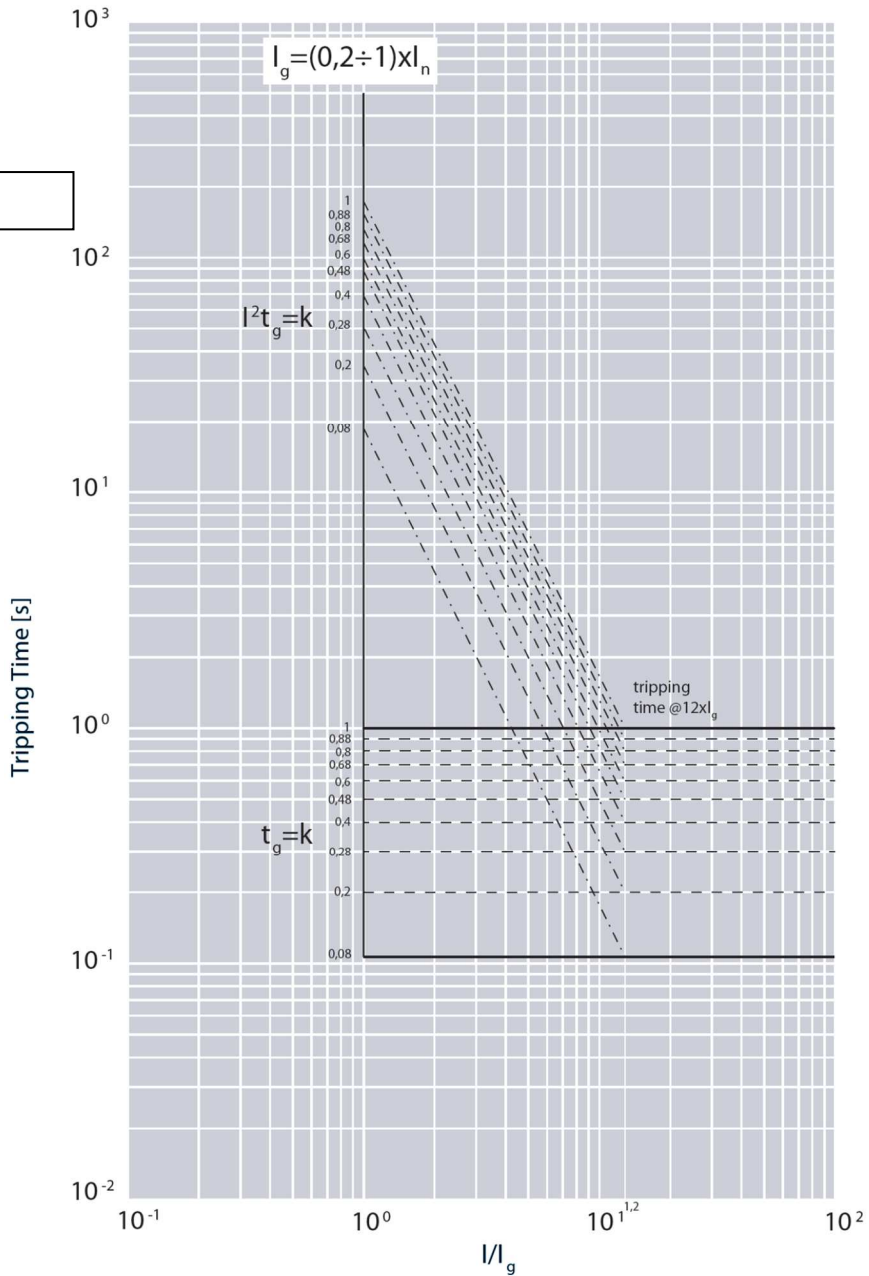
# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

## References:

- 0 285 40 / 41 / 42 / 43 / 44 / 45 / 46 / 47 / 48
- 0 285 50 / 51 / 52 / 53 / 54 / 55 / 56 / 57 / 58
- 0 285 60 / 61 / 62 / 63 / 64 / 65 / 66 / 67 / 68
- 0 285 80 / 81 / 82 / 83 / 84 / 85 / 86 / 87 / 88

### 9.4 Ground fault curve for DMX<sup>3</sup> 4000 1000Vac MPx.10 protection units

Update: 17/11/2022



Value	Description
I	current
I <sub>n</sub>	rated current
I <sub>g</sub>	Ground fault current
t <sub>sd</sub>	short time delay
t <sub>sd</sub> = k	Constant tripping time setting
I <sup>2</sup> t <sub>sd</sub> = k	Constant pass-through energy setting

# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers (PU MP2.10 and MP4.10)

## References:

0 285 40 / 41 / 42 / 43 / 44 / 45 / 46 / 47 / 48

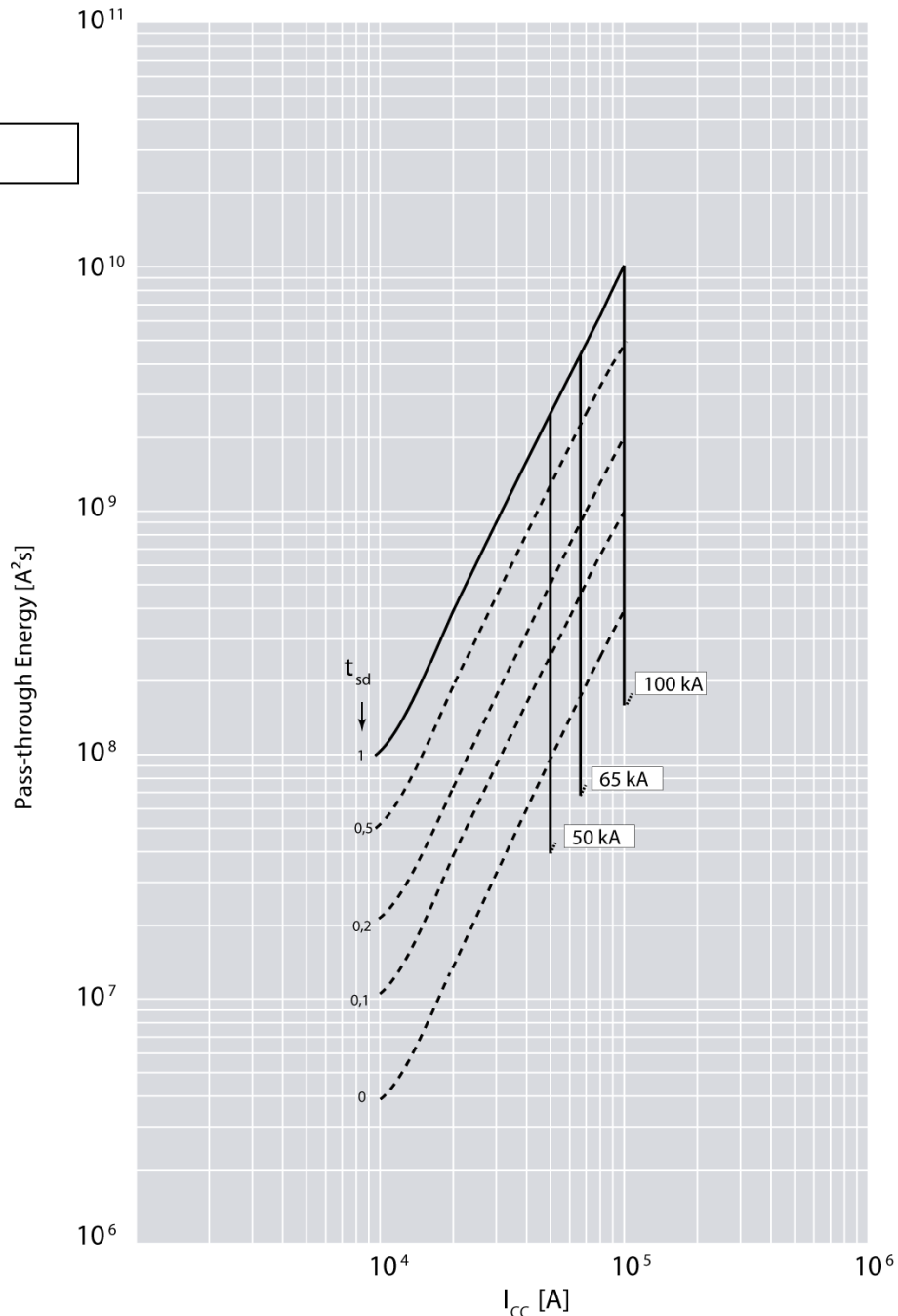
0 285 50 / 51 / 52 / 53 / 54 / 55 / 56 / 57 / 58

0 285 60 / 61 / 62 / 63 / 64 / 65 / 66 / 67 / 68

0 285 80 / 81 / 82 / 83 / 84 / 85 / 86 / 87 / 88

## 9.5 PASS-THROUGH SPECIFIC ENERGY CURVE (at 415V)

Update: 14/07/2021



Value	Description
I	current
I <sub>n</sub>	rated current
I <sub>g</sub>	Ground fault current
t <sub>sd</sub>	short time delay
t <sub>sd</sub> = k	Constant tripping time setting
I <sup>2</sup> t <sub>sd</sub> = k	Constant pass-through energy setting