

# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers

## References:

0 285 00 / 01 / 02 / 03 / 04 / 05 / 06 / 07 / 08

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Full technical sheet Y2958H

## 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

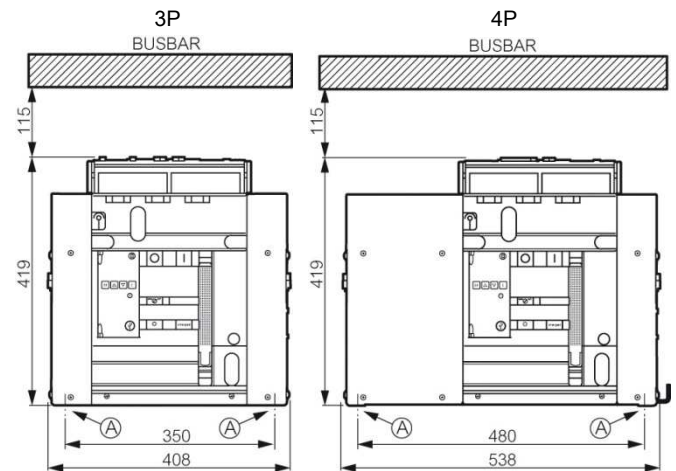
I <sub>n</sub> (A)	DMX <sup>3</sup> 4000 - 1000Vac circuit breakers			
	50kA (@ 1000V ac) *			
	Fixed version		Draw-out version	
	3P	4P	3P	4P
630	0 285 00	0 285 10	0 285 20	0 285 30
800	0 285 01	0 285 11	0 285 21	0 285 31
1000	0 285 02	0 285 12	0 285 22	0 285 32
1250	0 285 03	0 285 13	0 285 23	0 285 33
1600	0 285 04	0 285 14	0 285 24	0 285 34
2000	0 285 05	0 285 15	0 285 25	0 285 35
2500	0 285 06	0 285 16	0 285 26	0 285 36
3200	0 285 07	0 285 17	0 285 27	0 285 37
4000	0 285 08	0 285 18	0 285 28	0 285 38

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

## 3. DIMENSIONS

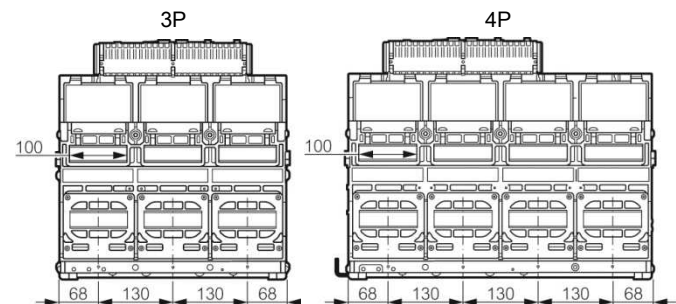
### 3.1 Fixed version

Frontal view



A = fixing point on plate of enclosure

Rear view



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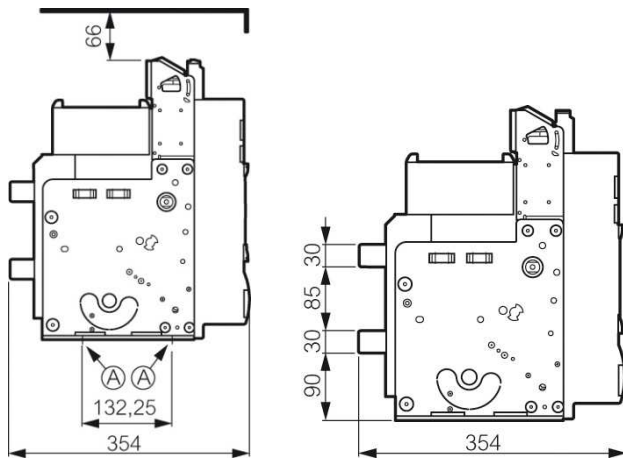
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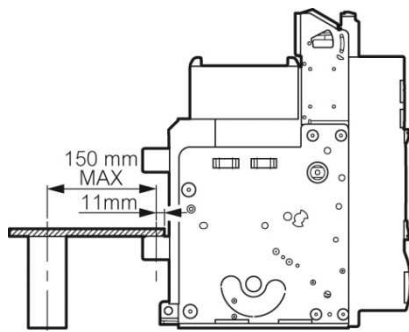
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### Lateral view

3P - 4P

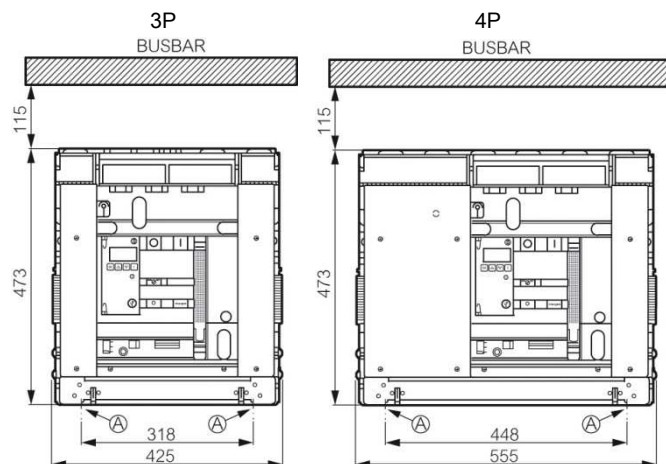


A = fixing point on plate of enclosure



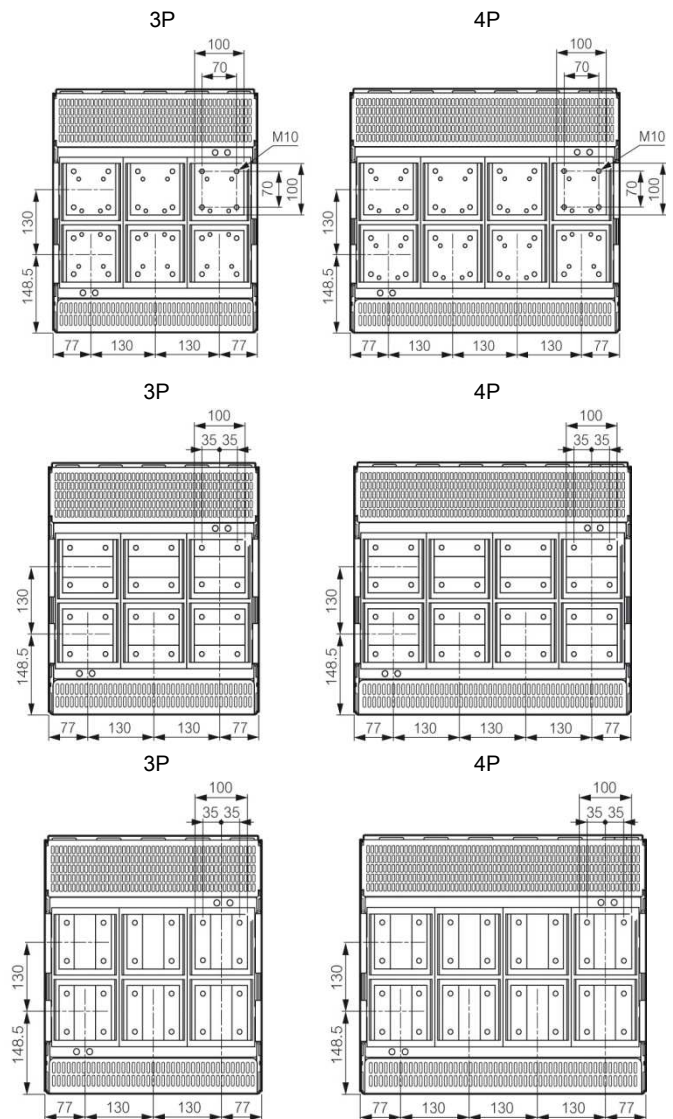
### 3.2 Draw-out version

#### Frontal view



A = fixing point on plate of enclosure

### Rear view



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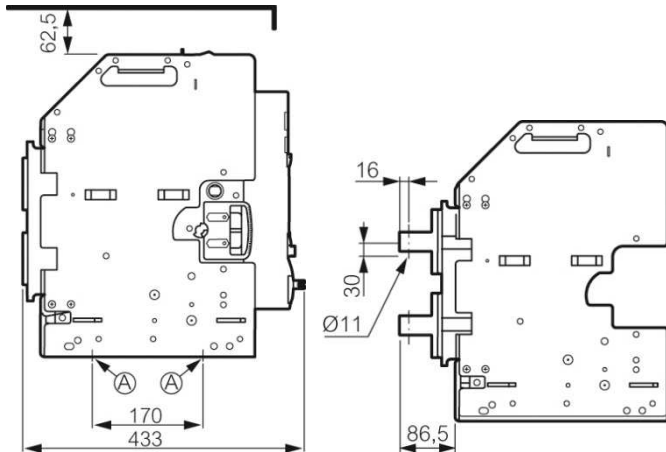
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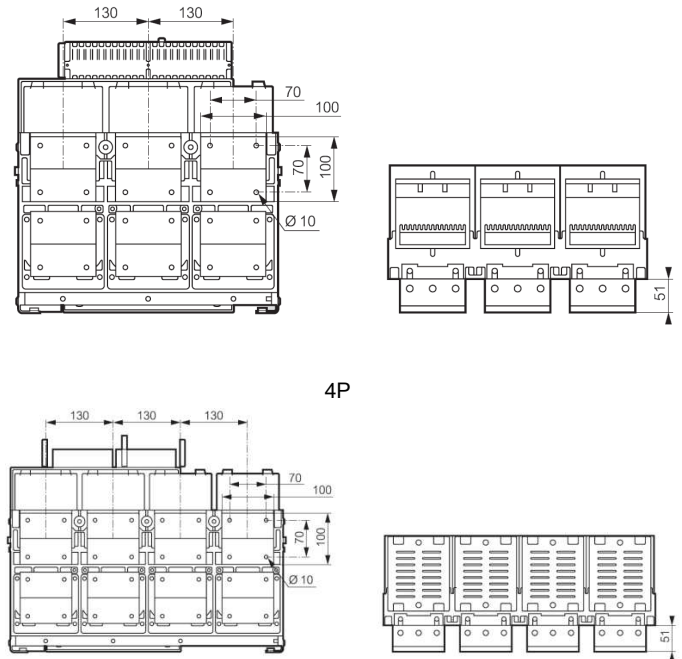
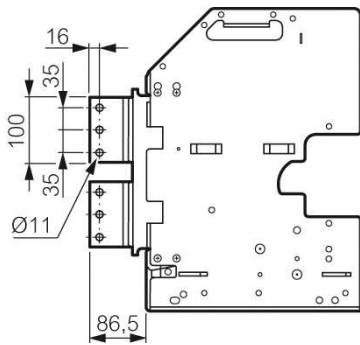
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## Lateral view

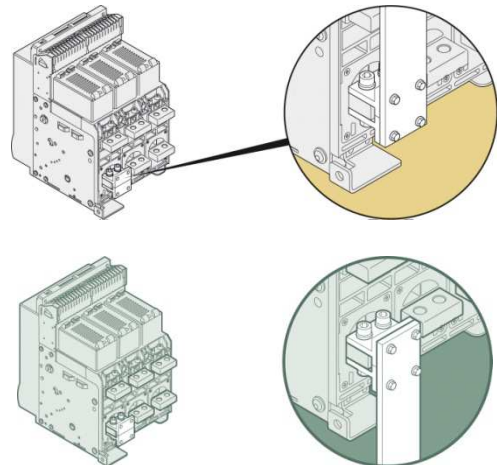
3P - 4P



A = fixing point on plate of enclosure

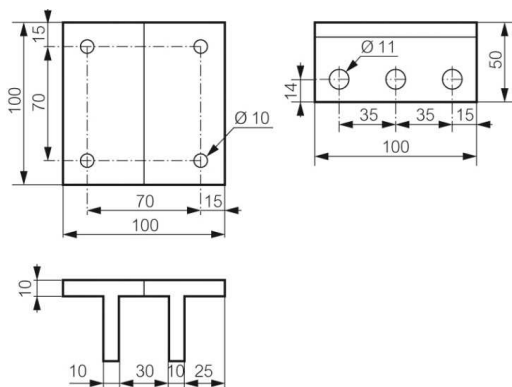
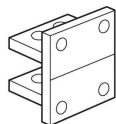


## Mounting examples:



## 3.3 Rear terminals for fixed version – Flat connection

References	
3P	4P
0 288 92	0 288 93



3P

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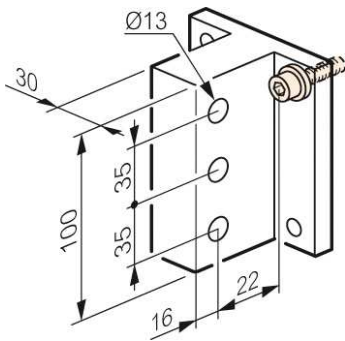
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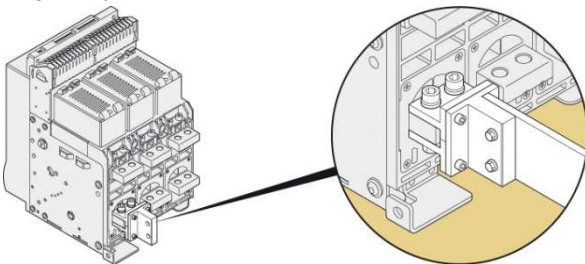
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### 3.4 Rear terminals for fixed version – Vertical connection

References	
3P	4P
0 288 94	0 288 95

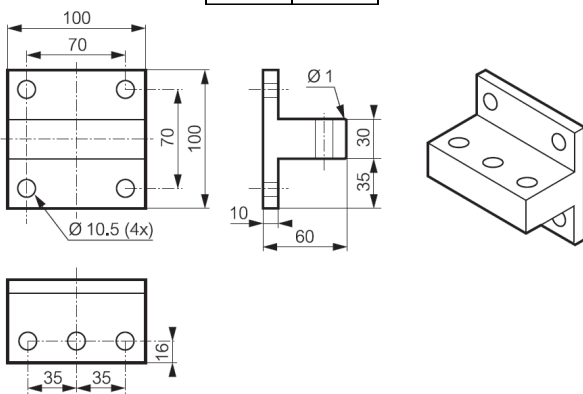


Mounting example:

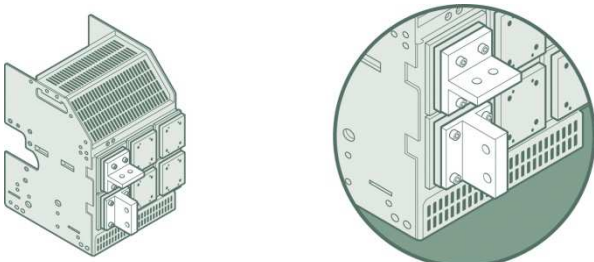


### 3.5 Rear terminals for Draw-out version – Flat/vertical connection

References	
3P	4P
0 288 94	0 288 95

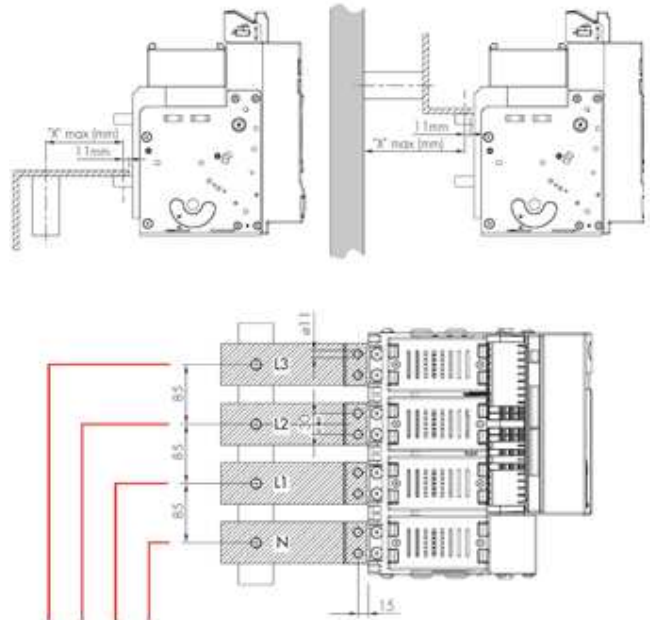


Mounting example:



### 3.6 Terminations support distances – Fixed version

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



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## 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>cs</sub> (kA)	800 V AC	65
	1000 V AC	50
Rated service short-circuit breaking capacity I <sub>cs</sub> (% I <sub>cs</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>nb</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

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## References:

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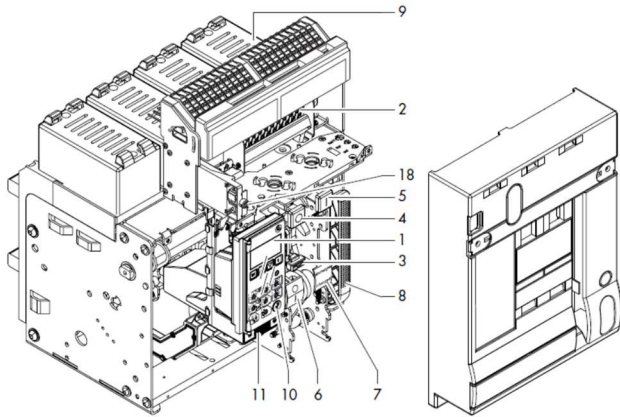
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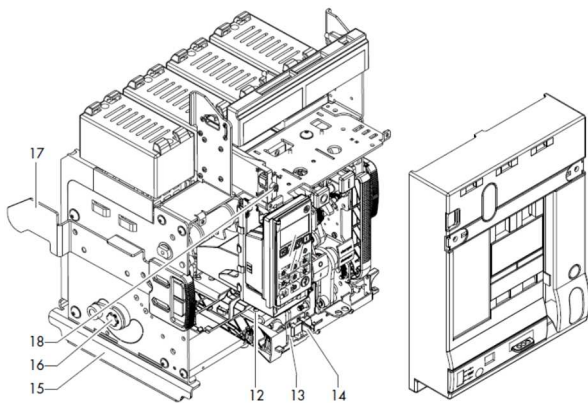
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## 6.1 Main parts constituting the circuit breaker

### Fixed version

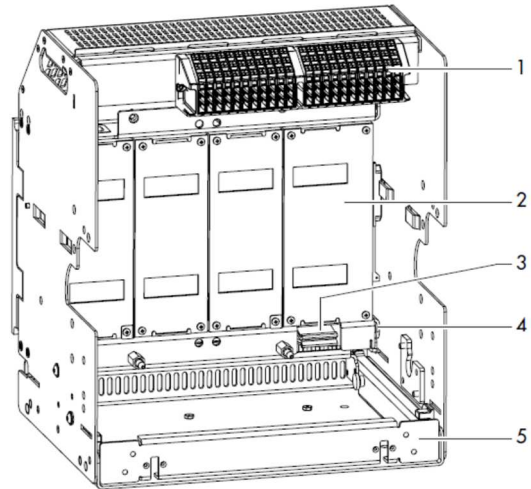


### Draw-out version



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 Regulated ranges

I <sub>n</sub> (A)	Phases			
	I <sub>r</sub>		I <sub>sd</sub>	
	0.4 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>
<b>630</b>	252	630	378	6300
<b>800</b>	320	800	480	8000
<b>1000</b>	400	1000	600	10000
<b>1250</b>	500	1250	750	12500
<b>1600</b>	640	1600	960	16000
<b>2000</b>	800	2000	1200	20000
<b>2500</b>	1000	2500	1500	25000
<b>3200</b>	1280	3200	1920	32000
<b>4000</b>	1600	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	Draw-out
Rated current (A)	<b>630</b>	3.2	6.4
	<b>800</b>	5.2	10.2
	<b>1000</b>	8.1	16.0
	<b>1250</b>	12.7	25.0
	<b>1600</b>	20.8	41.0
	<b>2000</b>	32.5	64.0
	<b>2500</b>	50.8	100.0
	<b>3200</b>	83.3	163.8
<b>4000</b>	130.1	256.0	

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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	
	$I_{max}$ (A)	$I_r / I_n$	$I_{max}$ (A)	$I_r / I_n$	$I_{max}$ (A)	$I_r / I_n$	$I_{max}$ (A)	$I_r / I_n$
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	
	$I_{max}$ (A)	$I_r / I_n$	$I_{max}$ (A)	$I_r / I_n$	$I_{max}$ (A)	$I_r / I_n$	$I_{max}$ (A)	$I_r / I_n$
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)	$I_n$	$0.98 \times I_n$	$0.94 \times I_n$	$0.9 \times I_n$
Rated voltage $U_e$ (V)	1000	880	750	690
Rated insulation voltage $U_i$ (V)	1250	1100	950	850
Dielectric withstand (V)	3500	3200	2500	2000

## 6.5 Electronic protection unit

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

- Adjustments accomplished by selector switches.
- Long delay ( $I_r$ ) threshold based on true RMS value of the current
- Integrated LCD screen display electrical values, settings and logs
- Integrated 3.5" colour touchscreen to display electrical values, settings, logs and measures.

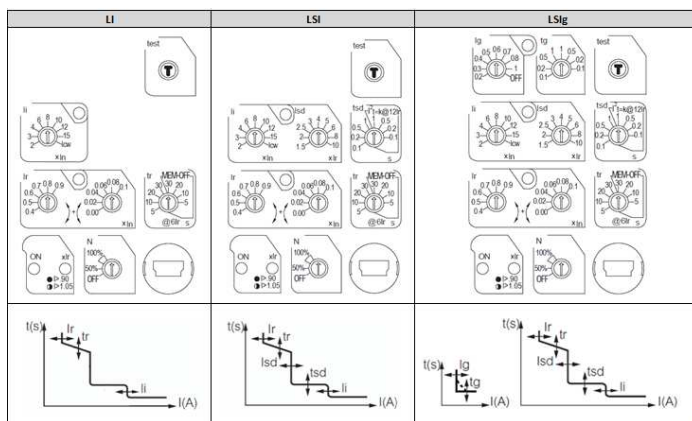
All protection units have onboard a mini USB type "B" socket for maintenance purposes.

### 6.5.1 Protection unit types

Protection unit are available in MP4 type as following

Type	Function	Data		Reference
		visualization	adjustment	
MP4	LI	on LCD screen	knob	0 288 00
	LSI	on LCD screen	knob	0 288 01
	LSIg	on LCD screen	knob	0 288 02

MP4 detail



### Protective functions

- $I_r$  : against overloads with long inverse time delay trip
- $t_r$  : long inverse time delay trip
- $I_{sd}$  : against short-circuits
- $t_{sd}$  : independent time delay ( $t=k$ )
- : inverse short time delay ( $I^2t=k$ )
- $I_i$  : against short-circuits with adjustable threshold
- $I_{ov}$  : against short-circuit with fixed threshold (factory imposed)
- $I_g$  : against earth fault
- $t_g$  : independent time delay ( $t=k$ ) or inverse short time delay ( $I^2t=k$ )

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## 6.5.2 Trip threshold (and maximum setting range)

### MP4 protection unit

	LI	LSI	LSIg	Maximum possible range of setting	Tolerance
$I_r$	$0.4 \pm 1 \times I_n$	$0.4 \pm 1 \times I_n$	$0.4 \pm 1 \times I_n$	1 <sup>st</sup> selector $0.4 \pm 0.9 \times I_n$ (step 0.1)	$\pm 20\%$
				2 <sup>nd</sup> selector $0.00 \pm 0.1 \times I_n$ (step 0.02)	
$t_r$	$5 \div 30s$	$5 \div 30s$	$5 \div 30s$	at $6 \times I_r$ , MEM ON (5-10-20-30s)	-
	$5 \div 30s$	$5 \div 30s$	$5 \div 30s$	at $6 \times I_r$ , MEM OFF (5-10-20-30s)	
$I_{sd}$	$10 \times I_r$	$1.5 \div 10 \times I_r$	$1.5 \div 10 \times I_r$	$1.5-2-2.5-3-4-5-6-8-10 \times I_r$	$\pm 20\%$
$t_{sd}$	1s	$0.1 \div 1s$	$0.1 \div 1s$	$t = k$ (0.1-0.2-0.5-1s)	-
				$I^2 t = k$ (0.3-0.2-0.1-0.01s)	
$I_i$	$2 \div 15 \times I_n$	$2 \div 15 \times I_n$	$2 \div 15 \times I_n$	$2-3-4-6-8-10-12-15 \times I_n$	$\pm 10\%$
$I_{ov}$	$I_{cw}/U_e$	$I_{cw}/U_e$	$I_{cw}/U_e$	override instantaneous fixed threshold	$\pm 10\%$
$I_g$	N/A	N/A	$0.2 \div 1 \times I_n$	$0.2-0.3-0.4-0.5-0.6-0.7-0.8-1$	$\pm 20\%$
$t_g$	N/A	N/A	$0.1 \div 1s$	$t = k$ (0.1-0.2-0.5-1s)	-
				$I^2 t = k$ (0.1-0.2-0.5-1s)	

## 6.5.3 Batteries for protection units

All protection units are equipped with batteries for powering in case of mains fault or when the breaker is open or not connected. All settings, stored parameters and logs are kept saved on protection unit's memory also if batteries are removed to be replaced.

The protection unit has to be equipped with four CR2 Lithium batteries (voltage 3V).

## 6.6 Common accessories for protection units

- External auxiliary power supply ref. 0 288 06

Input supply	24 V DC or AC @50-60Hz
Output current	250 mA
Operating temperature (°C)	-10 ÷ +55
Input power supply (W / VA)	≥ 5
Dimension	35mm Din rail: 2 modules

- Communication option ref. 0 288 05
- External neutral for DMX<sup>3</sup> 4000 ref. 0 288 11
- Programmable output module ref. 0 288 12

Input supply	24 V DC or AC @50-60Hz
Contact rated current (A)	AC: 250V 8A DC: 30V 8A; 110V 0.3A; 230V 0.12A
Operating temperature (°C)	-10 ÷ +55
Dimension	35mm Din rail: 6 modules

## 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.

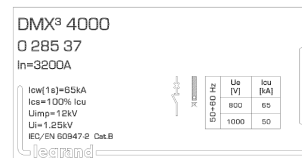
DMX<sup>3</sup> respect the European Directives REACH, RoHS, RAEE and Product Environment Product (PEP Ecopassport) are available.

## 7.1 MARKING

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

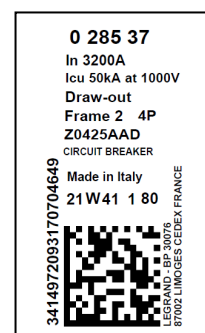
### Product laser label on front

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



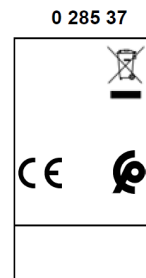
### Product sticker label on side

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



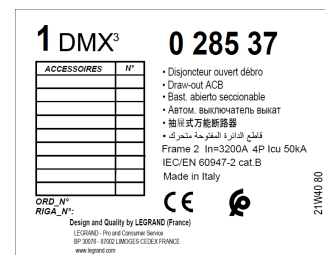
### Mark sticker label on side

- 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

## References:

0 285 00 / 01 / 02 / 03 / 04 / 05 / 06 / 07 / 08

0 285 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17 / 18

0 285 20 / 21 / 22 / 23 / 24 / 25 / 26 / 27 / 28

0 285 30 / 31 / 32 / 33 / 34 / 35 / 36 / 37 / 38

## 8. EQUIPMENTS AND ACCESSORIES

Note: where not specified, accessories are common for every DMX<sup>3</sup> (N, H, L and switch disconnecter).

### 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

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

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

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

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

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

### 8.2 Signalling auxiliaries

- Signalling contact for draw-out version  
Inserted / test / draw-out signalling contact  
3 changeover contacts per position

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

- Contact "ready to close" with charged springs

<b>Rated operating voltage (U<sub>c</sub>)</b>	<b>AC</b>	250V 16A 125V 16A
--	-----------	----------------------

- Additional signalling contact

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

- Signalling contact for auxiliaries (ST, CC and UVR)

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

# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers

## References:

0 285 00 / 01 / 02 / 03 / 04 / 05 / 06 / 07 / 08

0 285 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17 / 18

0 285 20 / 21 / 22 / 23 / 24 / 25 / 26 / 27 / 28

0 285 30 / 31 / 32 / 33 / 34 / 35 / 36 / 37 / 38

### 8.3 Locking

- Key locking in "open" position
  - 1 lock + 1 Profalux star type flat key ref. 0 288 30
  - 1 lock + 1 Ronis type flat key ref. 0 288 31
  - 2 holes support frame for locks ref. 0 288 28
  - Set of 5 key barrels with Ronis type flat key ref. 0 288 29
- Key locking in "draw-out" position
  - Mounting of the lock on the base
  - Lock and key Profalux type star key ref. 0 288 32
  - Lock and key Ronis type flat key ref. 0 281 33
- 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
- Inserted/test/drawout lock button ref. 0 288 17

### 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

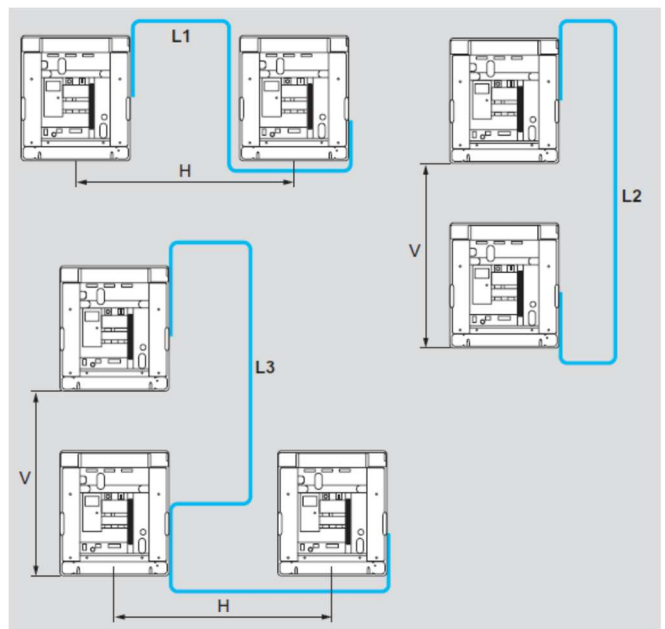
The mechanical interlock is set up using cables and can interlock 2 or 3 devices, which may be different type in a vertical or horizontal configuration. The interlock unit is mounted on the right-hand side of the device. Interlock cables to be ordered separately.

- 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

## DMX<sup>3</sup> 4000 – 1000Vac circuit breakers

### References:

0 285 00 / 01 / 02 / 03 / 04 / 05 / 06 / 07 / 08

0 285 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17 / 18

0 285 20 / 21 / 22 / 23 / 24 / 25 / 26 / 27 / 28

0 285 30 / 31 / 32 / 33 / 34 / 35 / 36 / 37 / 38

### 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

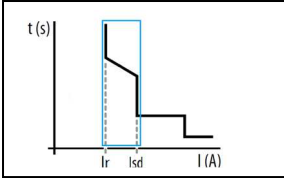
# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers

## References:

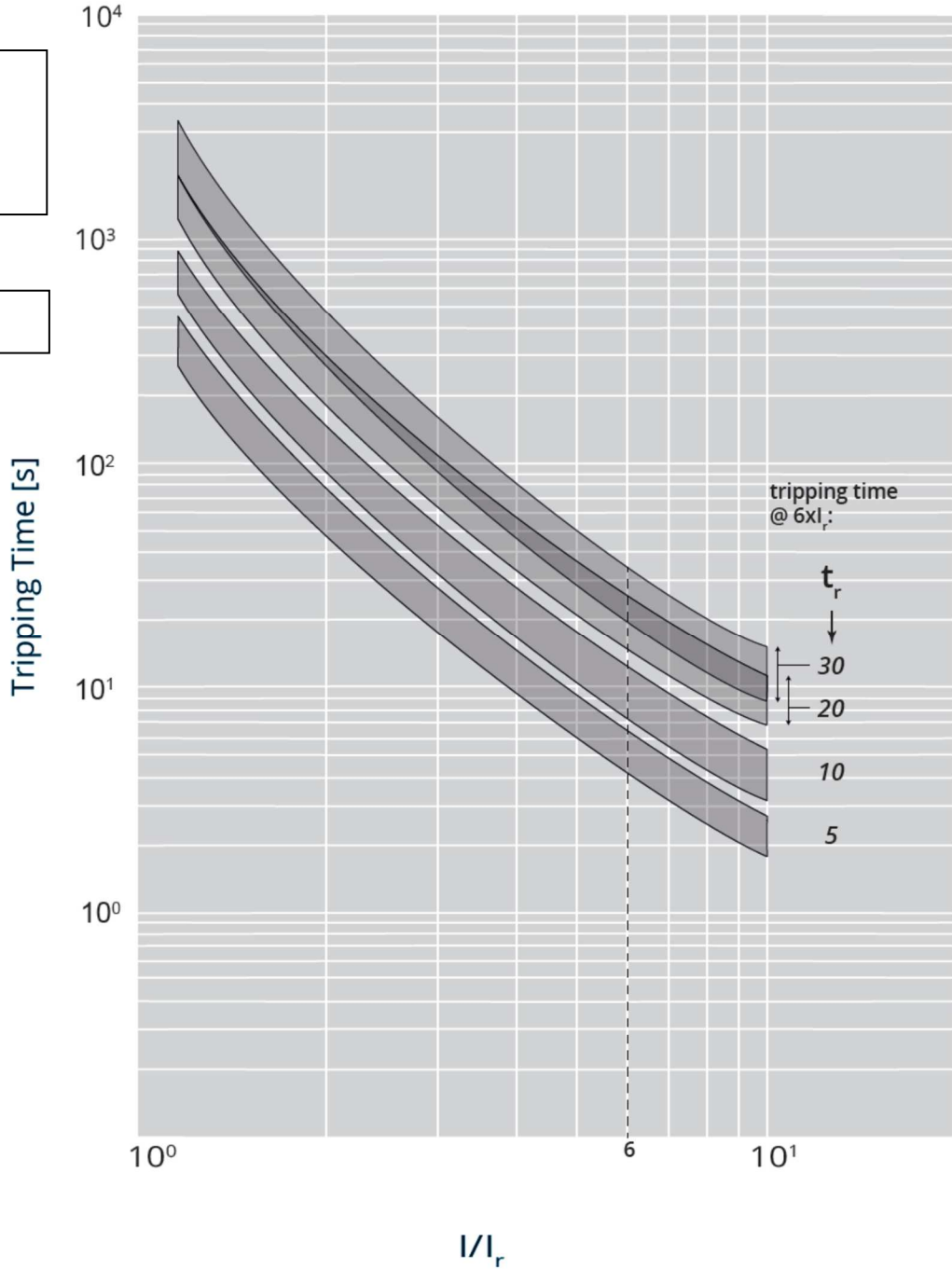
- 0 285 00 / 01 / 02 / 03 / 04 / 05 / 06 / 07 / 08
- 0 285 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17 / 18
- 0 285 20 / 21 / 22 / 23 / 24 / 25 / 26 / 27 / 28
- 0 285 30 / 31 / 32 / 33 / 34 / 35 / 36 / 37 / 38

## 9. CURVES

### 9.1.1 TRIPPING CURVE FOR DMX<sup>3</sup> 4000 1000Vac protection units: long time protection detail



Update: 27/03/2018



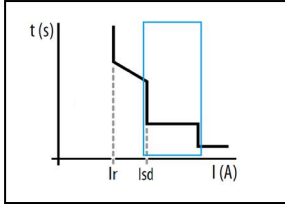
Value	Description
I	current
$I_r$	long time setting current
$t_r$	long time delay

# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers

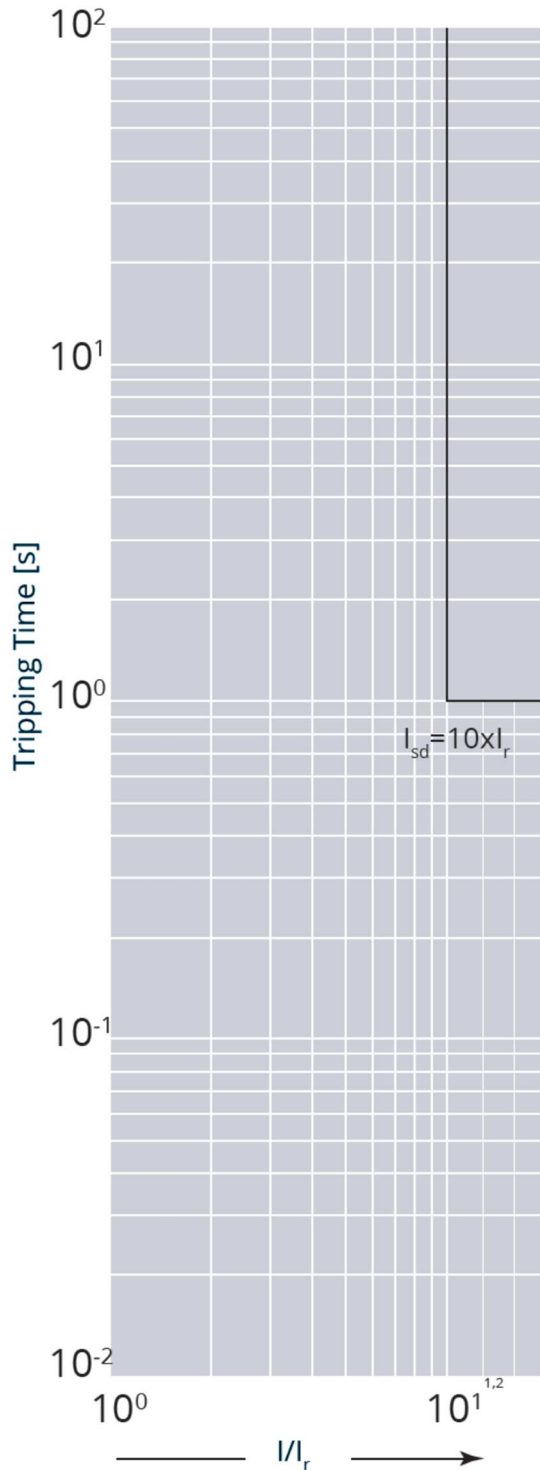
## References:

- 0 285 00 / 01 / 02 / 03 / 04 / 05 / 06 / 07 / 08
- 0 285 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17 / 18
- 0 285 20 / 21 / 22 / 23 / 24 / 25 / 26 / 27 / 28
- 0 285 30 / 31 / 32 / 33 / 34 / 35 / 36 / 37 / 38

### 9.1.2 TRIPPING CURVE FOR DMX<sup>3</sup> 4000 1000Vac (MP4 protection units): short time trip protection detail (only LI )



Update: 27/04/2018



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

## References:

0 285 00 / 01 / 02 / 03 / 04 / 05 / 06 / 07 / 08

0 285 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17 / 18

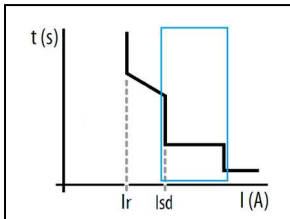
0 285 20 / 21 / 22 / 23 / 24 / 25 / 26 / 27 / 28

0 285 30 / 31 / 32 / 33 / 34 / 35 / 36 / 37 / 38

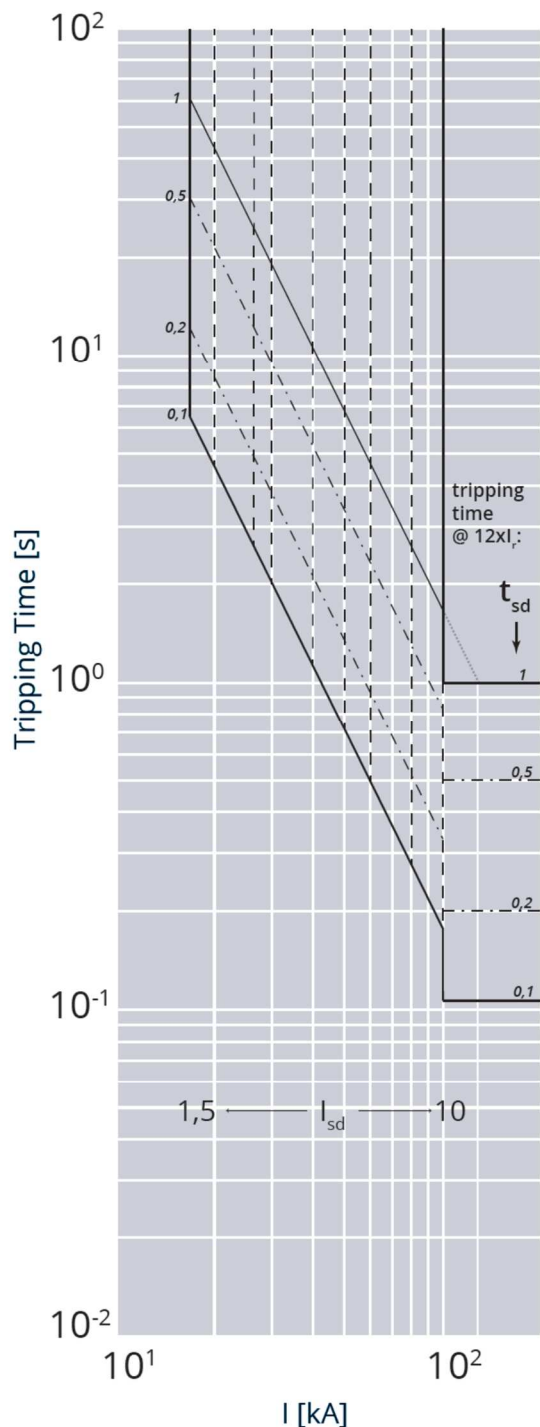
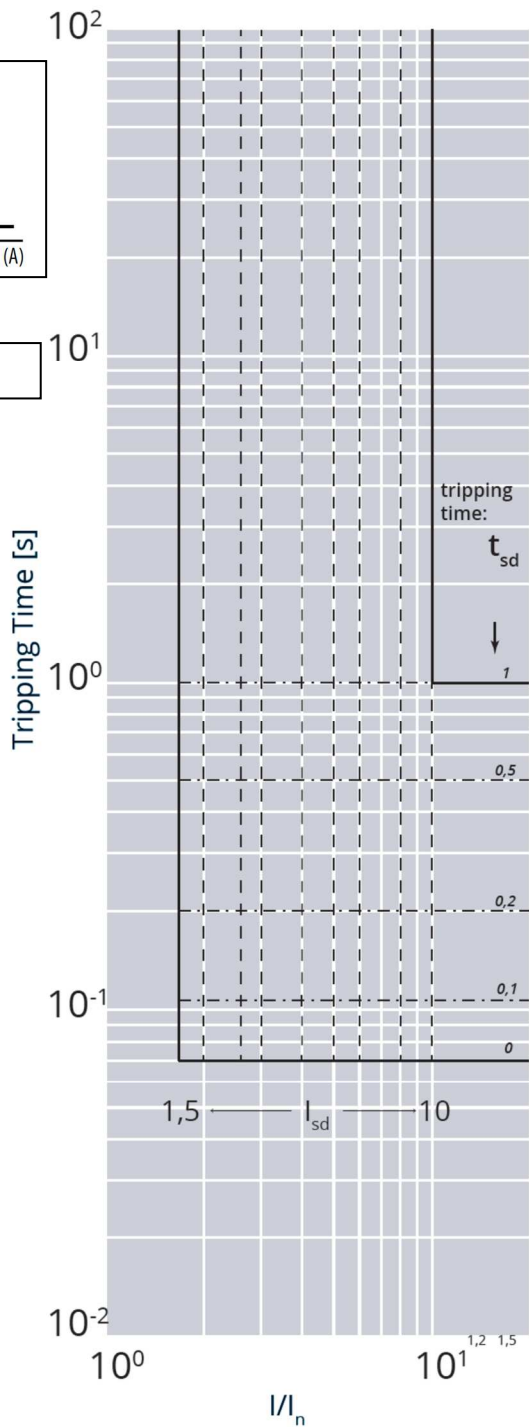
### 9.1.3 TRIPPING CURVE FOR DMX<sup>3</sup> 4000 1000Vac (MP4 protection units): short time trip protection detail (only LSI and LSIg)

$$t_{sd} = k$$

$$I^2 t_{sd} = k$$



Update: 27/04/2018



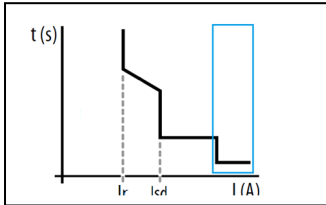
Value	Description
I	current
I <sub>sd</sub>	short time setting current
t <sub>sd</sub>	short time delay

# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers

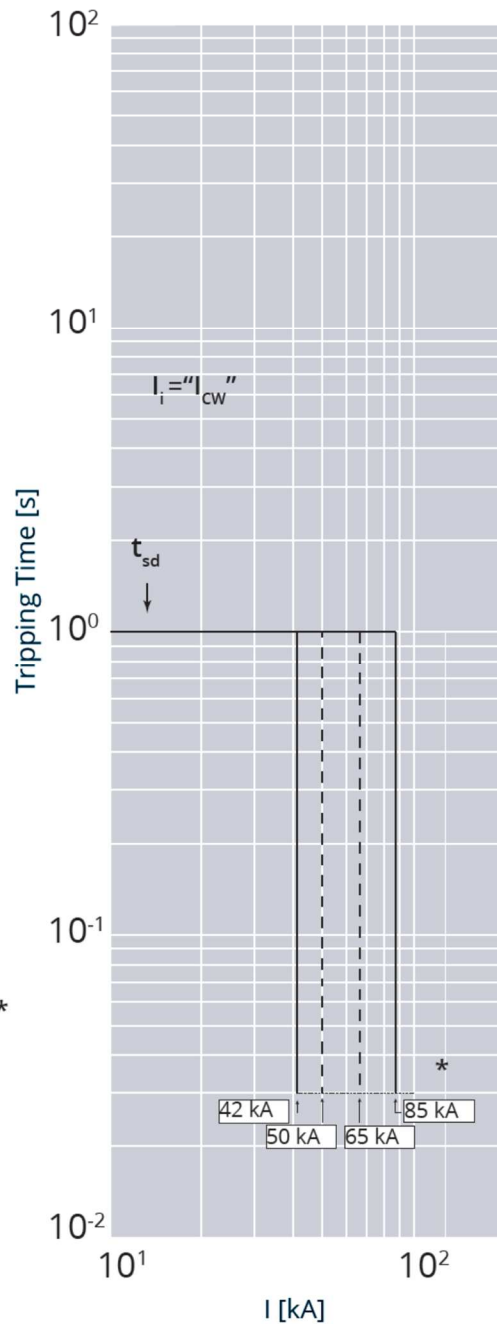
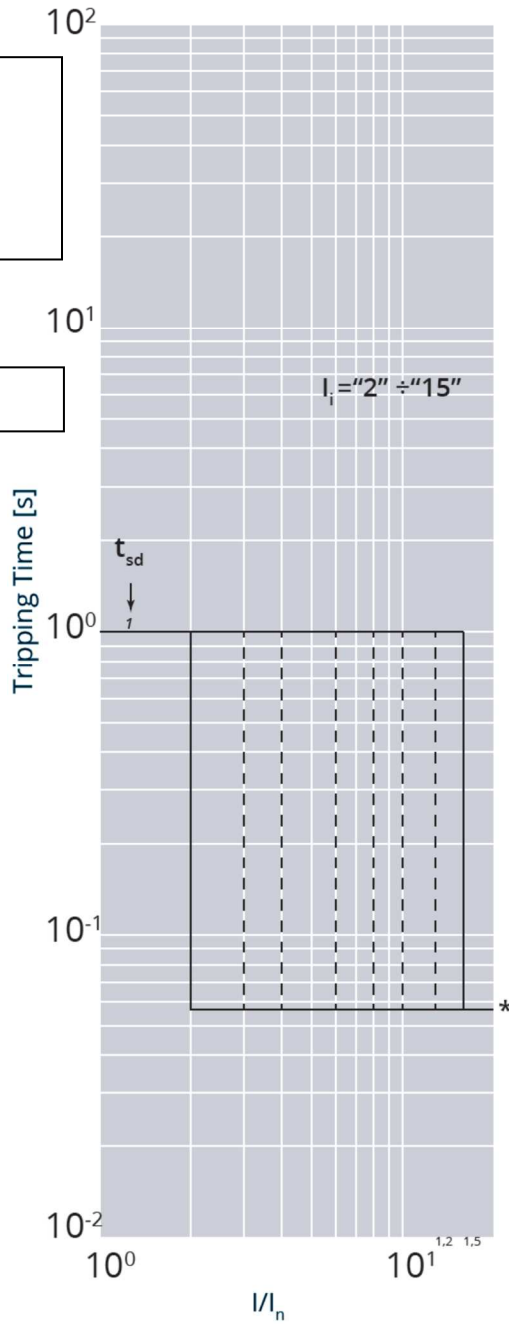
## References:

- 0 285 00 / 01 / 02 / 03 / 04 / 05 / 06 / 07 / 08
- 0 285 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17 / 18
- 0 285 20 / 21 / 22 / 23 / 24 / 25 / 26 / 27 / 28
- 0 285 30 / 31 / 32 / 33 / 34 / 35 / 36 / 37 / 38

### 9.1.4 TRIPPING CURVE FOR DMX<sup>3</sup> 4000 1000Vac (MP4 protection units): instantaneous trip protection detail (only LI)



Update: 25/06/2018



\* Fixed Instantaneous override – I<sub>sf</sub> →

Value	Description
I	current
I <sub>n</sub>	rated current
t <sub>sd</sub>	short time delay
I <sub>i</sub>	Instantaneous release
I <sub>cw</sub>	Rated short time withstand current

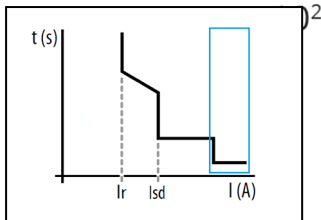
I <sub>cu</sub>	Values for I <sub>sf</sub>
50kA	50kA
65kA	65kA
100kA	85kA

# DMX<sup>3</sup> 4000 – 1000Vac circuit breakers

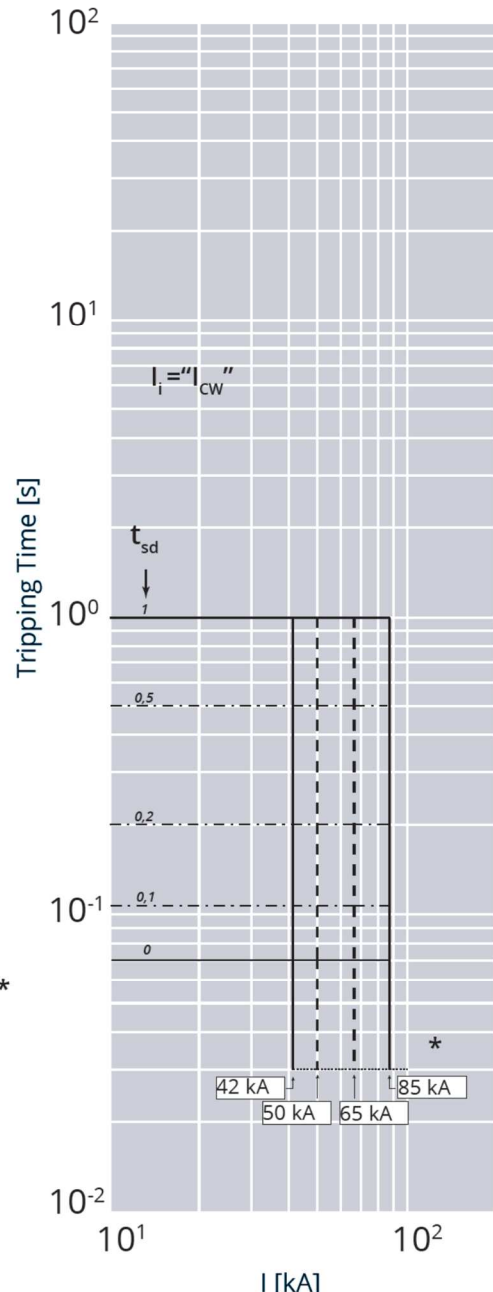
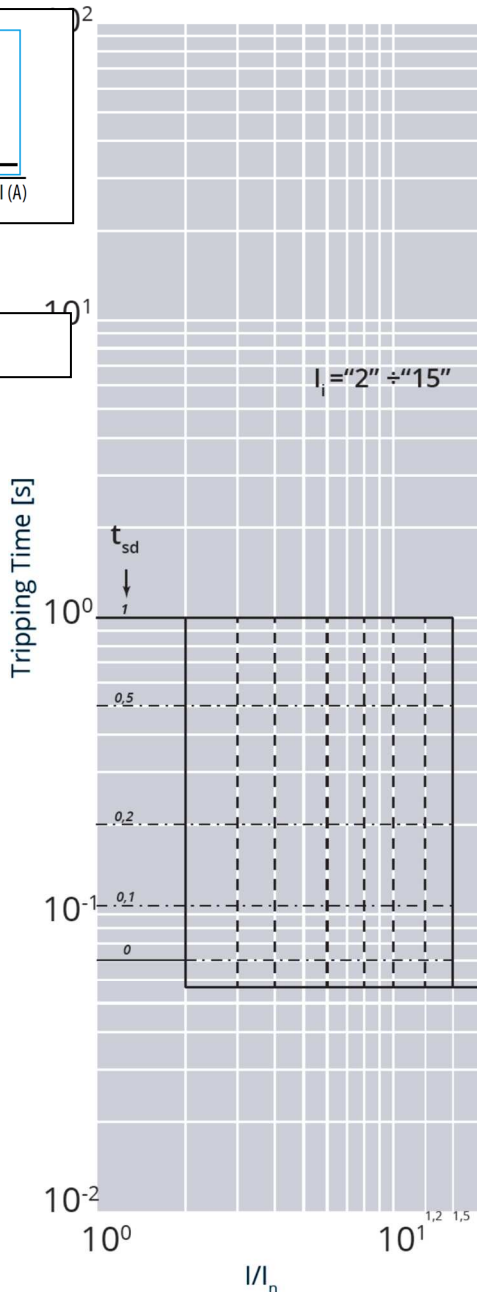
## References:

- 0 285 00 / 01 / 02 / 03 / 04 / 05 / 06 / 07 / 08
- 0 285 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17 / 18
- 0 285 20 / 21 / 22 / 23 / 24 / 25 / 26 / 27 / 28
- 0 285 30 / 31 / 32 / 33 / 34 / 35 / 36 / 37 / 38

### 9.1.5 TRIPPING CURVE FOR DMX<sup>3</sup> 4000 1000Vac (MP4 protection units): instantaneous trip protection detail (only LSI and LSIg)



Update: 27/04/2018



\* Fixed Instantaneous override – I<sub>sf</sub>

I <sub>cu</sub>	Values for I <sub>sf</sub>
50kA	50kA
65kA	65kA
100kA	85kA

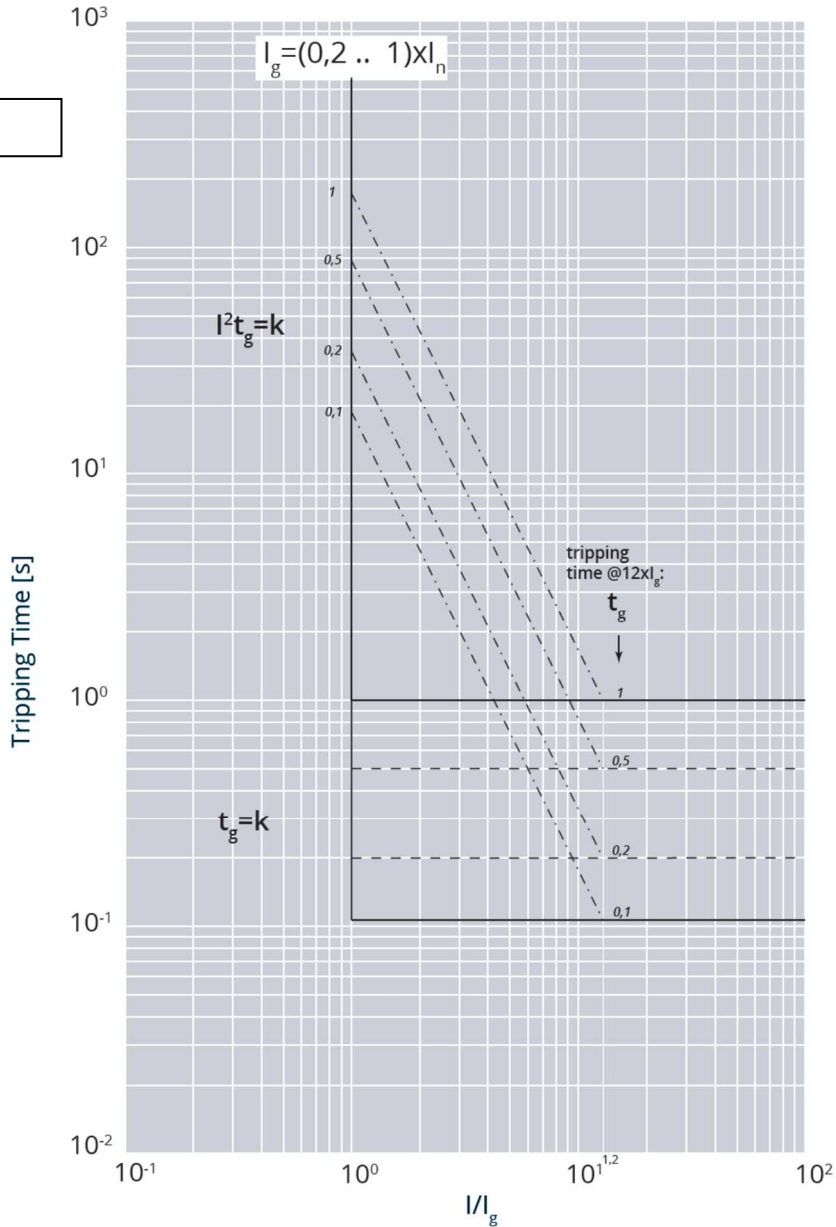
Value	Description
I	current
I <sub>n</sub>	rated current
t <sub>sd</sub>	short time delay
I <sub>i</sub>	Instantaneous release
I <sub>cw</sub>	Rated short time withstand current



- 0 285 00 / 01 / 02 / 03 / 04 / 05 / 06 / 07 / 08
- 0 285 10 / 11 / 12 / 13 / 14 / 15 / 16 / 17 / 18
- 0 285 20 / 21 / 22 / 23 / 24 / 25 / 26 / 27 / 28
- 0 285 30 / 31 / 32 / 33 / 34 / 35 / 36 / 37 / 38

## 9.1.6 Ground fault curve (MP4 protection units)

Only LSIg releases

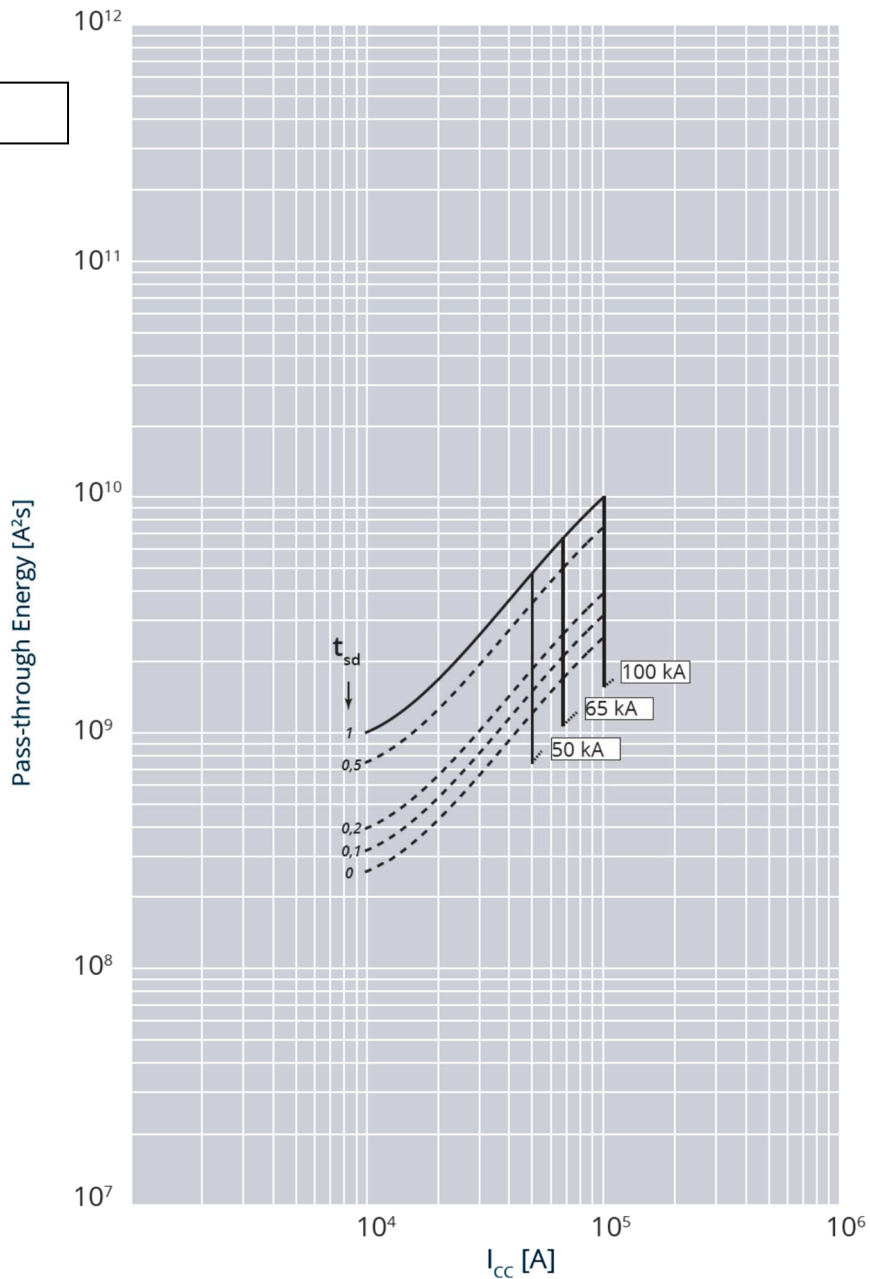


Value	Description
I	current
I <sub>n</sub>	rated current
I <sub>g</sub>	Ground fault current
t <sub>sd</sub>	short time delay
t <sub>sd</sub> = k	Constant tripping time setting
I <sup>2</sup> t <sub>sd</sub> = k	Constant pass-through energy setting

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

Only LSIg releases

Update: 19/02/2018



Value	Description
$I$	current
$I_n$	rated current
$I_g$	Ground fault current
$t_{sd}$	short time delay
$t_{sd} = k$	Constant tripping time setting
$I^2 t_{sd} = k$	Constant pass-through energy setting