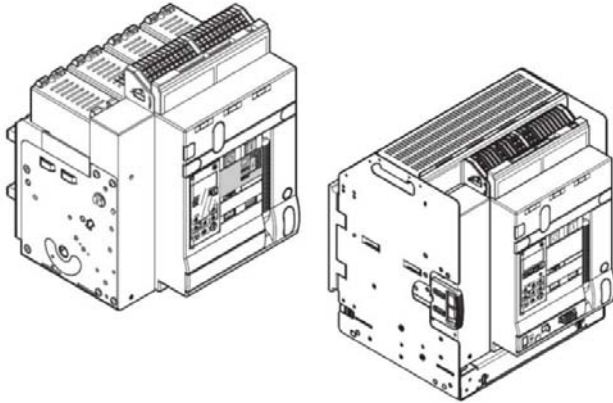


## DMX<sup>3</sup> 4000 circuit breakers

## DMX<sup>3</sup>-I 4000 switch disconnectors

References: 0 286 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98 /

0 287 27 / 28 // 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98



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## 1. USE

DMX<sup>3</sup> 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, maintenance and chances of accessorizing, are perfectly suited for these requirements.

## 2. RANGE

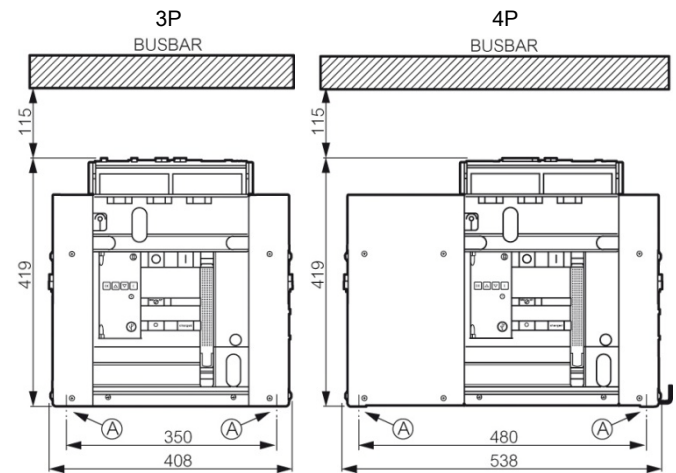
DMX <sup>3</sup> 4000 circuit breakers						
Fixed version						
	50kA		65kA		100kA	
I <sub>n</sub> (A)	3P	4P	3P	4P	3P	4P
3200	0 286 27	0 286 37	0 286 47	0 286 57	0 286 67	0 286 77
4000	0 286 28	0 286 38	0 286 48	0 286 58	0 286 68	0 286 78
Draw-out version						
	50kA		65kA		100kA	
I <sub>n</sub> (A)	3P	4P	3P	4P	3P	4P
3200	0 287 27	0 287 37	0 287 47	0 287 57	0 287 67	0 287 77
4000	0 287 28	0 287 38	0 287 48	0 287 58	0 287 68	0 287 78

DMX <sup>3</sup> -I 4000 switch disconnectors				
	Fixed version		Draw-out version	
I <sub>n</sub> (A)	3P	4P	3P	4P
3200	0 286 87	0 286 97	0 287 87	0 287 97
4000	0 286 88	0 286 98	0 287 88	0 287 98

## 3. DIMENSIONS

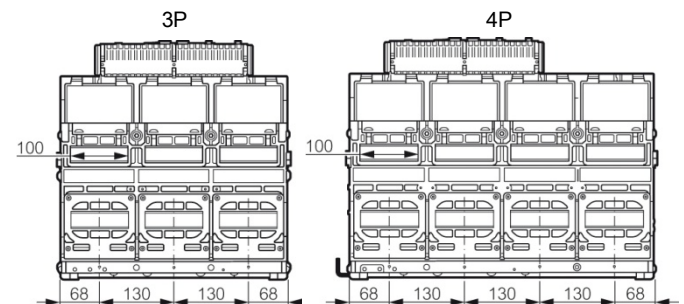
### 3.1 Fixed version

Frontal view



A = fixing point on plate of enclosure

Rear view



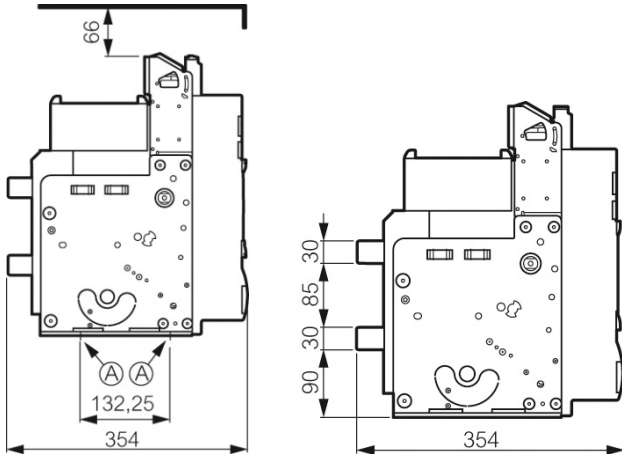
# DMX<sup>3</sup> 4000 circuit breakers

## DMX<sup>3</sup>-I 4000 switch disconnectors

References: 0 286 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 /  
68 / 77 / 78 / 87 / 88 / 97 / 98 /  
0 287 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 /  
87 / 88 / 97 / 98

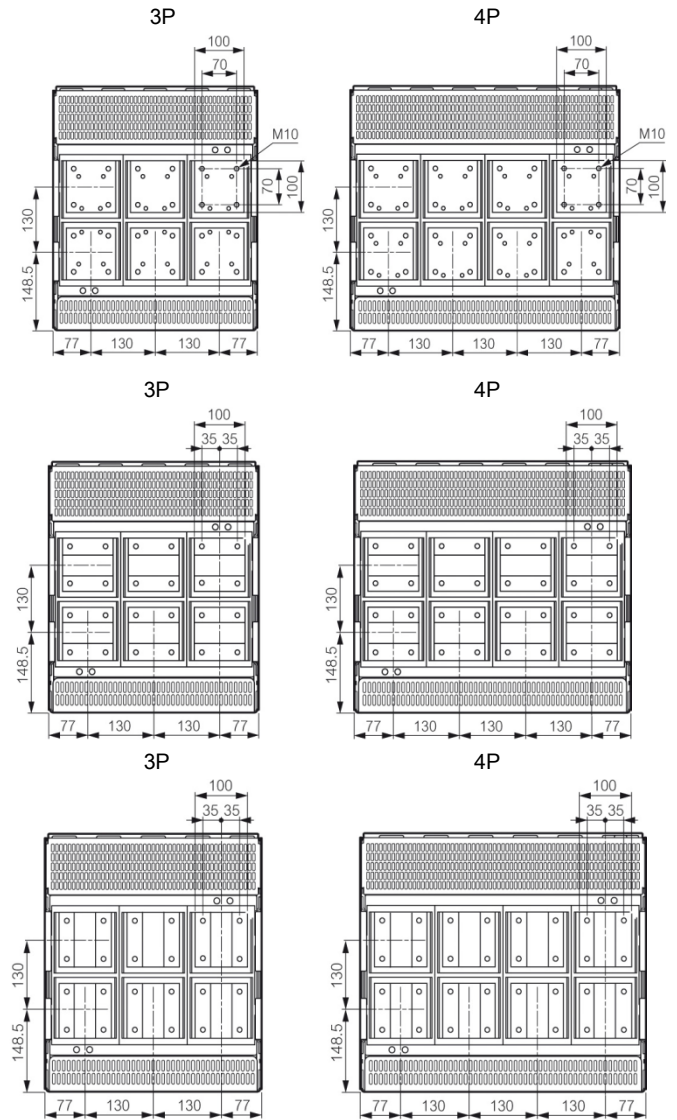
### Lateral view

3P - 4P



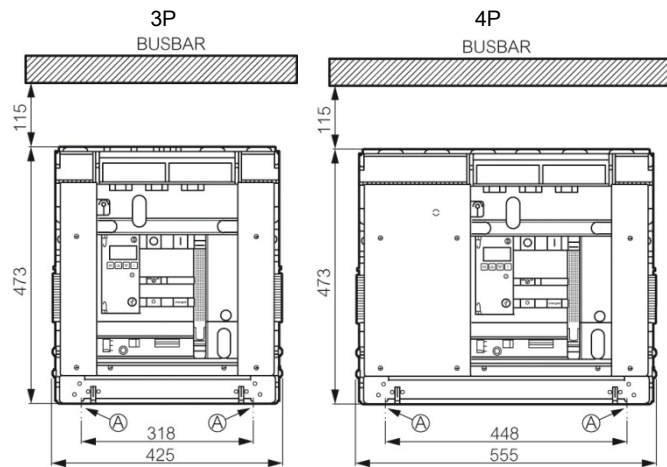
A = fixing point on plate of enclosure

### Rear view



### 3.2 Draw-out version

### Frontal view



A = fixing point on plate of enclosure

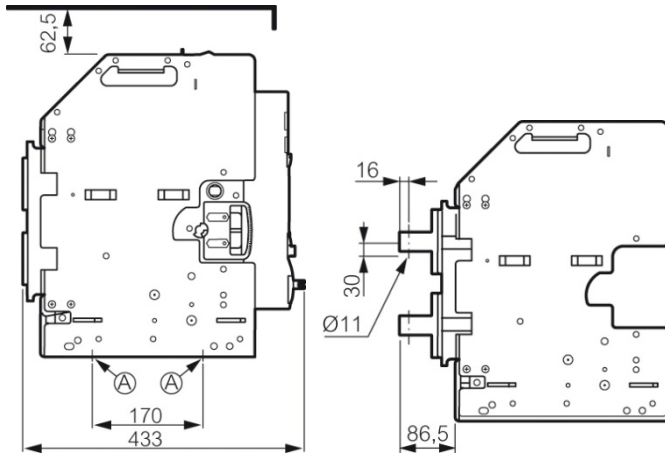
# DMX<sup>3</sup> 4000 circuit breakers

## DMX<sup>3</sup>-I 4000 switch disconnectors

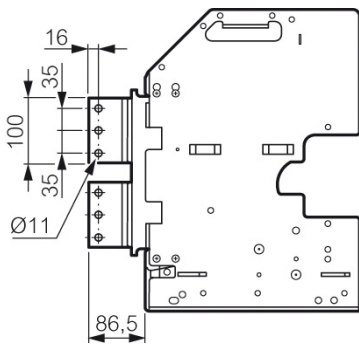
References: 0 286 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 /  
68 / 77 / 78 / 87 / 88 / 97 / 98 /  
0 287 27 / 28 / / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 /  
87 / 88 / 97 / 98

Lateral view

3P - 4P

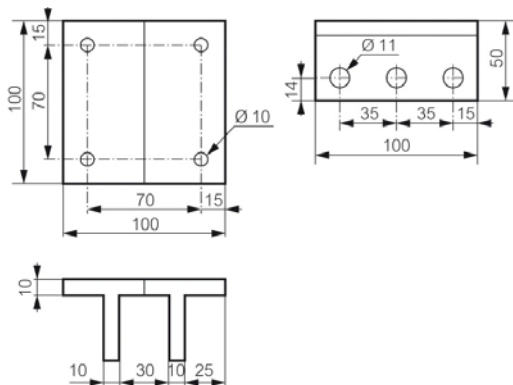
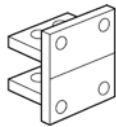


A = fixing point on plate of enclosure

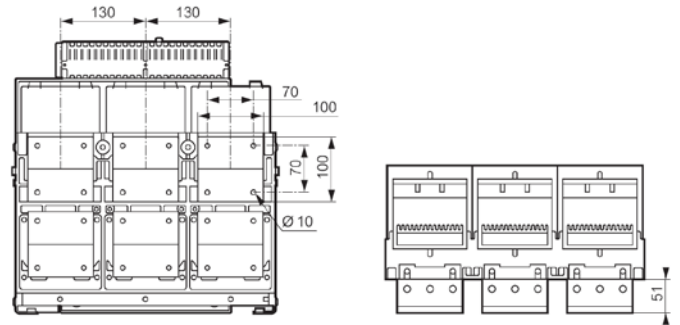


### 3.3 Rear terminals for fixed version – Flat connection

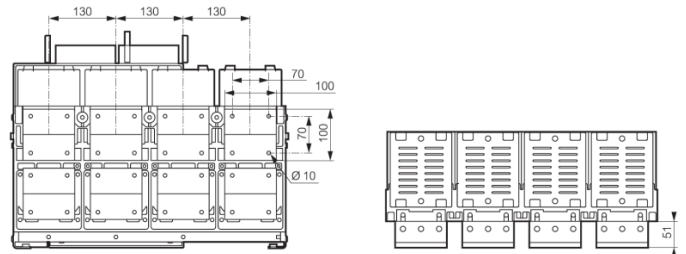
References	
3P	4P
0 288 92	0 288 93



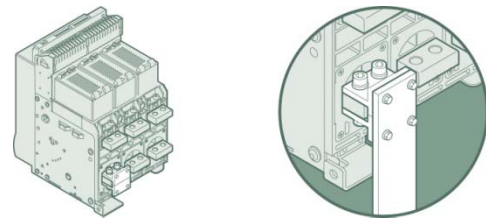
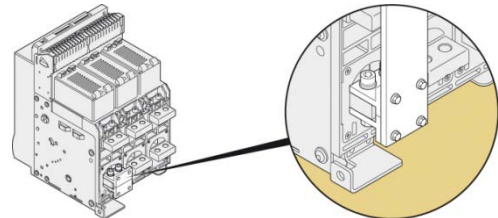
3P



4P



Mounting examples:



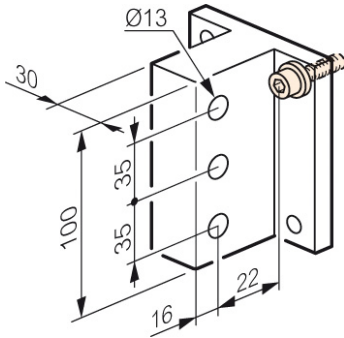
# DMX<sup>3</sup> 4000 circuit breakers

## DMX<sup>3</sup>-I 4000 switch disconnectors

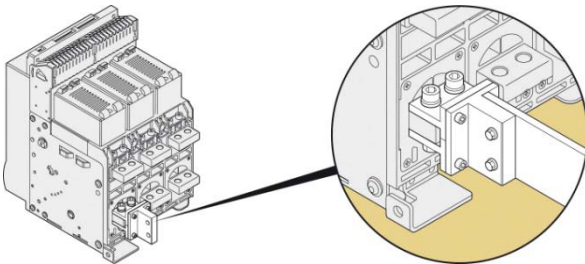
References: 0 286 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98 /  
0 287 27 / 28 / / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98

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

References	
3P	4P
0 288 94	0 288 95

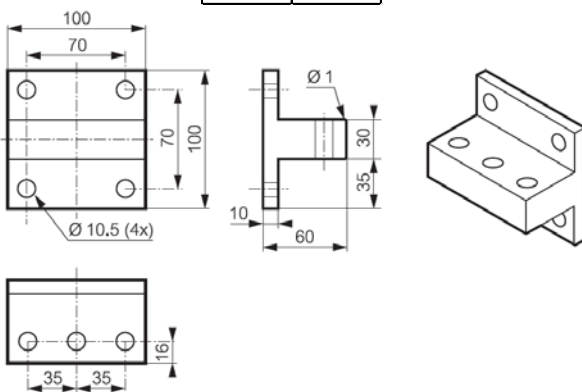


Mounting example:

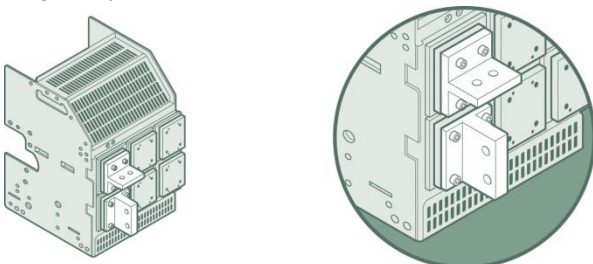


### 3.5 Rear terminals for Draw-out version – Flat/vertical connection

References	
3P	4P
0 288 94	0 288 95



Mounting example:



## 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. CONNECTIONS

*Note: use only as a general guideline to select products. Due to extensive variety of switchgear constructions shapes and conditions that can affect the behaviour of the apparatus, the solution used must always be verified.*

Minimum recommended dimensions of COPPER busbars per pole:

. Fixed and draw-out versions

I <sub>n</sub> (A)	Vertical bars (mm)	Horizontal bars (mm)
3200	3 bars 100 x 10	4 bars 80 x 10
4000	4 bars 100 x 10	5 bars 100 x 10

Minimum recommended dimensions of ALUMINIUM busbars per pole:

. Fixed and draw-out versions

I <sub>n</sub> (A)	Vertical bars (mm)	Horizontal bars (mm)
3200	4 bars 150 x 10	5 bars 150 x 10
4000	5 bars 150 x 10	6 bars 150 x 10

# DMX<sup>3</sup> 4000 circuit breakers

## DMX<sup>3</sup>-I 4000 switch disconnectors

References: 0 286 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98 /  
0 287 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98

### 6. ELECTRICAL AND MECHANICAL CHARACTERISTICS

#### Circuit breaker

	DMX <sup>3</sup> 4000			
	DMX <sup>3</sup> - N 50 kA	DMX <sup>3</sup> - H 65 kA	DMX <sup>3</sup> - L 100 kA	
Frame current (A)	4000			
Number of poles	3P - 4P			
Rated current I <sub>n</sub> (A)	3200 / 4000			
Release type	electronic			
Pole pitch (mm)	130			
Rated insulation voltage U <sub>i</sub> (V)	1000			
Rated impulse withstand voltage U <sub>imp</sub> (kV)	12			
Rated operational voltage (50/60Hz) U <sub>e</sub> (V)	690			
Category of use	B			
Rated ultimate short-circuit breaking capacity I <sub>cu</sub> (kA)	220 / 240 V AC	50	65	100
	380 / 415 V AC	50	65	100
	440 / 460 V AC	50	65	100
	480 / 500 V AC	50	65	100
	480 / 550 V AC	50	65	75
	600 V AC	50	65	75
Rated service short-circuit breaking capacity I <sub>cs</sub> (% I <sub>cu</sub> )	220 / 240 V AC	105	143	220
	380 / 415 V AC	105	143	220
	440 / 460 V AC	105	143	220
	480 / 500 V AC	105	143	220
	480 / 550 V AC	105	132	165
	600 V AC	105	132	165
Rated short-circuit making capacity I <sub>cm</sub> (kA)	220 / 240 V AC	50	65	85
	380 / 415 V AC	50	65	85
	440 / 460 V AC	50	65	85
	480 / 500 V AC	50	65	85
	480 / 550 V AC	50	60	75
	600 V AC	50	60	75
Rated short time withstand current I <sub>cw</sub> (kA) for t = 1s	220 / 240 V AC	50	65	65
	380 / 415 V AC	50	65	65
	440 / 460 V AC	50	65	65
	480 / 500 V AC	50	65	65
	480 / 550 V AC	50	65	65
	600 V AC	50	65	65
Rated short time withstand current I <sub>cw</sub> (kA) for t = 3s	220 / 240 V AC	50	65	65
	380 / 415 V AC	50	65	65
	440 / 460 V AC	50	65	65
	480 / 500 V AC	50	65	65
	480 / 550 V AC	50	65	65
	600 V AC	50	65	65
Suitable for isolation	Yes			
Neutral protection for 4P version (% I <sub>n</sub> )	0 - 50 - 100			
Endurance (cycles)	mechanical	10000 (w/o maintenance); 20000 (with maintenance)		
	electrical	10000 (w/o maintenance)		
Weight (Kg)	3P - Fixed	59		
	3P - Drawout	108		
	4P - Fixed	76		
	4P - Drawout	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)			

#### Switch disconnector

		DMX <sup>3</sup> -I 4000
Frame current (A)		4000
Number of poles		3P - 4P
Rated current I <sub>n</sub> (A) at 40°C/50°C		3200 / 4000
Pole pitch (mm)		130
Rated insulation voltage U <sub>i</sub> (V)		1000
Rated impulse withstand voltage U <sub>imp</sub> (kV)		12
Rated operational voltage (50/60Hz) U <sub>e</sub> (V)		690
Category of use		AC23A
Rated short circuit making capacity I <sub>cm</sub> (kA)	220 / 240 V AC	187
	380 / 415 V AC	187
	440 / 460 V AC	187
	480 / 500 V AC	187
	480 / 550 V AC	165
	600 V AC	165
Rated short time withstand current I <sub>cw</sub> (kA) for t = 1s	220 / 240 V AC	85
	380 / 415 V AC	85
	480 / 500 V AC	85
	480 / 550 V AC	75
	600 V AC	75
	690 V AC	65
Rated short time withstand current I <sub>cw</sub> (kA) for t = 3s	220 / 240 V AC	65
	380 / 415 V AC	65
	480 / 500 V AC	65
	480 / 550 V AC	65
	600 V AC	65
	690 V AC	65
Suitable for isolation		Yes
Minimum opening time (ms)		15
Maximum closing time (ms)		30
Endurance (cycles)	mechanical	10000 (w/o maint.); 20000 (with maint.)
	electrical	10000 (w/o maint.)
Weight (Kg)	3P - Fixed	59
	3P - Drawout	108
	4P - Fixed	76
	4P - Drawout	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)

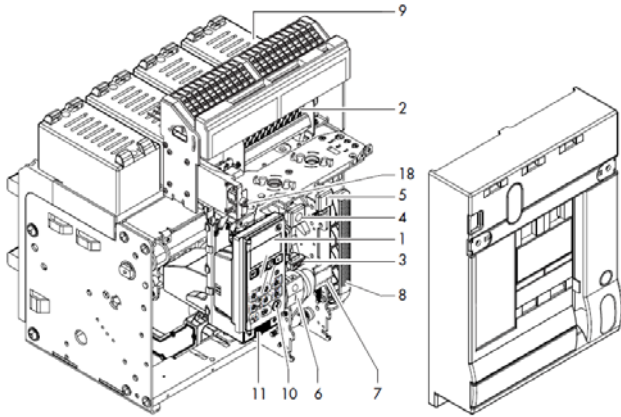
# DMX<sup>3</sup> 4000 circuit breakers

## DMX<sup>3</sup>-I 4000 switch disconnectors

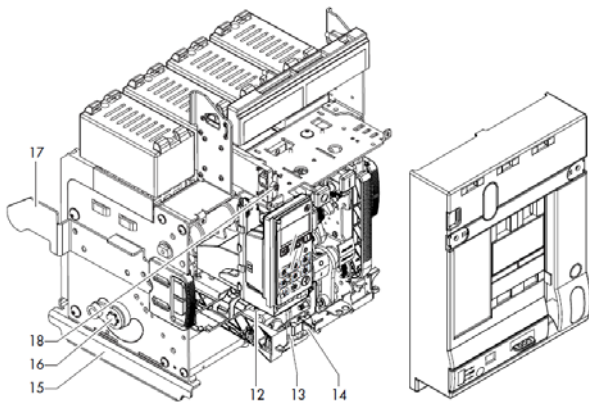
References: 0 286 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98 /  
0 287 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98

### 6.1 Main parts constituting the circuit breaker

Fixed version

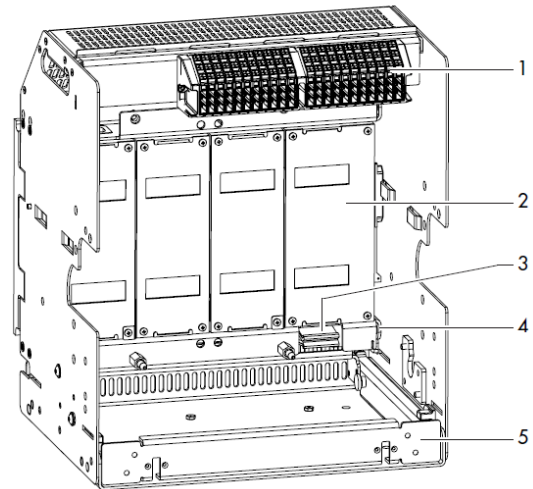


Draw-out version



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 currents ( $I_n$ )

	Phases			
	$I_r$		$I_{sd}$	
$I_n$ (A)	$0.4 \times I_n$	$1 \times I_n$	$1.5 \times I_{r, min}$	$10 \times I_{r, max}$
3200	1280	3200	1920	32000
4000	1600	4000	2400	40000

\* For neutral adjustment, as explained in technical sheet, please consider the values  $(0 - 0.5 - 1) \times I_r$ .

### 6.3 Power losses per pole under $I_n$

Power Losses (W) DMX <sup>3</sup> 4000 and DMX <sup>3</sup> -I 4000			
Version	Fixed	Draw-out	
Number of poles			3 - 4
Pole pitch (mm)			130
Rated current $I_n$ (A)	3200	83.3	163.8
	4000	130.1	256.0

# DMX<sup>3</sup> 4000 circuit breakers

## DMX<sup>3</sup>-I 4000 switch disconnectors

References: 0 286 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98 /  
0 287 27 / 28 / / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98

### 6.4 Deratings

#### 6.4.1 Temperature

Temperature deratings for fixed versions – horizontal terminals

Temperature	Fixed version									
	up to 40°C		50°C		60°C		65°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)	$I_r / I_n$	$I_{max}$ (A)	$I_r / I_n$
DMX <sup>3</sup> 4000	3200	1	3200	1	3200	1	3200	1	3040	0.95
	4000	1	3800	0.95	3400	0.85	3200	0.8	3000	0.75

Temperature deratings for draw-out versions – horizontal terminals

Temperature	Draw-out version									
	up to 40°C		50°C		60°C		65°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)	$I_r / I_n$	$I_{max}$ (A)	$I_r / I_n$
DMX <sup>3</sup> 4000	3200	1	2880	0.9	2400	0.75	2400	0.75	2240	0.7
	4000	1	2880	0.7	2600	0.65	2600	0.65	2400	0.6

#### 6.4.2 Altitude

Altitude (m)	< 2000	3000	4000	5000
Rated current (at 40°C/50°C) $I_n$ (A)	$I_n$	$0.98 \times I_n$	$0.94 \times I_n$	$0.9 \times I_n$
Rated voltage $U_e$ (V)	690	600	500	440
Rated insulation voltage $U_i$ (V)	1000	900	750	600
Dielectric withstand (V)	3500	3200	2500	2000

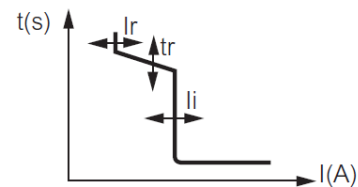
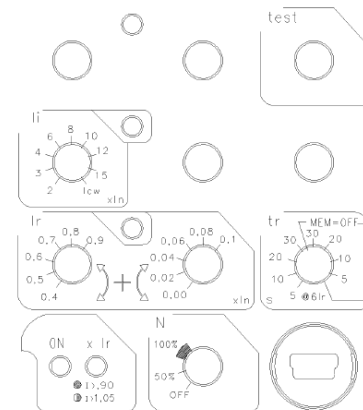
### 6.5 MP4 electronic protection unit

All MP4 protection units range has an integrated LCD screen to display electrical values, settings and logs. Adjustments are accomplished by selector switches.

All protection units have onboard a USB type “B” socket.

All protection units are equipped with batteries for powering in case of mains fault or when the breaker is open or not connected.

#### 6.5.1 MP4 LI release (ref. 0 288 00) – Adjustment of $I_r$ , $t_r$ , $I_i$



Long delay protection against overloads with an adjustable threshold bases on the RMS value of the current:

- $I_r = (0.4 \div 1) \times I_n$  on two selectors (6 + 6 steps): (0.4 ÷ 0.9) by steps of 0.1 and (0.0 ÷ 0.1), by steps of 0.02
- $t_r$  at  $6 \times I_r$  (4 + 4 steps): 5-10-20-30 s (MEM ON) or 30-20-10-5 s (MEM OFF)

Short delay protection against short-circuits with fixed threshold:

- $I_{sd} = 10 \times I_r$
- $t_{sd} = 1$  s

Instantaneous protection  $I_i$  with fixed threshold:

$I_i$  ( $2 \div 15$ )  $\times I_n$  or  $I_{cw}$  (9 steps) [ $I_i = 2-3-4-6-8-10-12-15 \times I_n$  or  $I_{cw}$ ]

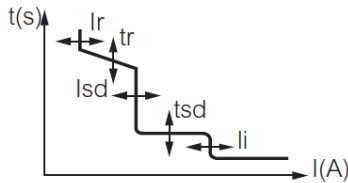
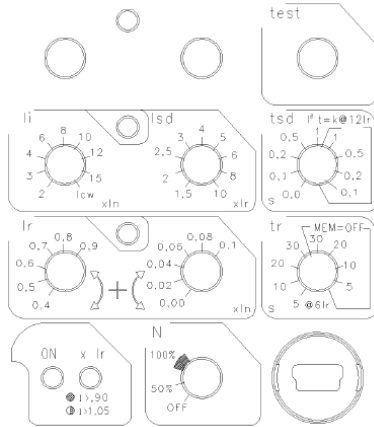
Neutral adjustment = OFF –  $0.5 \times I_n$  –  $1 \times I_n$

# DMX<sup>3</sup> 4000 circuit breakers

## DMX<sup>3</sup>-I 4000 switch disconnectors

References: 0 286 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98 /  
0 287 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98

### 6.5.2 MP4 LSI release (ref. 0 288 01) – Adjustment of $I_r$ , $t_r$ , $I_{sd}$ , $t_{sd}$ , $I_i$



Long delay protection against overloads with an adjustable threshold bases on the RMS value of the current:

- $I_r = (0.4 \div 1) \times I_n$  on two selectors (6 + 6 steps): (0.4 ÷ 0.9) by steps of 0.1 and (0.0 ÷ 0.1), by steps of 0.02
- $t_r$  at  $6 \times I_r$  (4 + 4 steps): 5-10-20-30 s (MEM ON) or 30-20-10-5 s (MEM OFF)

Short delay protection against short-circuits with an adjustable  $I_{sd}$  threshold:

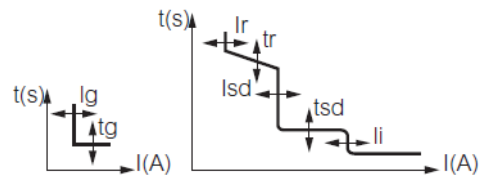
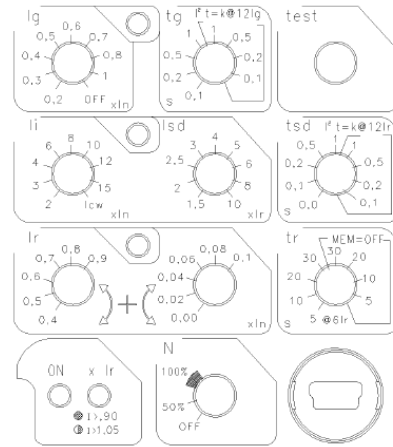
- $I_{sd} (1.5 \div 10) \times I_r$  (9 steps) [ $I_{sd} = 1.5-2-2.5-3-4-5-6-8-10 \times I_r$ ]
- $t_{sd} = 0-0.1-0.2-0.3$  s ( $t = k$ ) or  $0.3-0.2-0.1-0.01$  s ( $I^2t = k$ )

Instantaneous protection  $I_i$  with fixed threshold:

$I_i (2 \div 15) \times I_n$  or  $I_{cw}$  (9 steps) [ $I_i = 2-3-4-6-8-10-12-15 \times I_n$  or  $I_{cw}$ ]

Neutral adjustment = OFF –  $0.5 \times I_n$  –  $1 \times I_n$

### 6.5.3 MP4 LSIg release (ref. 0 288 02) – Adjustment of $I_r$ , $t_r$ , $I_{sd}$ , $t_{sd}$ , $I_i$ , $I_g$ , $t_g$



Long delay protection against overloads with an adjustable threshold bases on the RMS value of the current:

- $I_r = (0.4 \div 1) \times I_n$  on two selectors (6 + 6 steps): (0.4 ÷ 0.9) by steps of 0.1 and (0.0 ÷ 0.1), by steps of 0.02
- $t_r$  at  $6 \times I_r$  (4 + 4 steps): 5-10-20-30 s (MEM ON) or 30-20-10-5 s (MEM OFF)

Short delay protection against short-circuits with an adjustable  $I_{sd}$  threshold:

- $I_{sd} (1.5 \div 10) \times I_r$  (9 steps) [ $I_{sd} = 1.5-2-2.5-3-4-5-6-8-10 \times I_r$ ]
- $t_{sd} = 0-0.1-0.2-0.3$  s ( $t = k$ ) or  $0.3-0.2-0.1-0.01$  s ( $I^2t = k$ )

Instantaneous protection  $I_i$  with fixed threshold:

$I_i (2 \div 15) \times I_n$  or  $I_{cw}$  (9 steps) [ $I_i = 2-3-4-6-8-10-12-15 \times I_n$  or  $I_{cw}$ ]

Neutral adjustment = OFF –  $0.5 \times I_n$  –  $1 \times I_n$

Adjustment for ground fault:

- $I_g (0.2 \div 1) \times I_n$  (9 steps) and OFF [ $I_g = 0.2-0.3-0.4-0.5-0.6-0.7-0.8-1 \times I_n$ ; OFF]
- $t_g (0.1 \div 1)$  s (4 steps) (both  $t = k$  and  $I^2t = k$ ) [ $t_g = 0.1-0.2-0.5-1$  s]



# DMX<sup>3</sup> 4000 circuit breakers

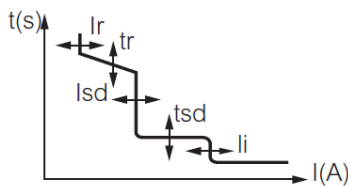
# DMX<sup>3</sup>-I 4000 switch disconnectors

References: 0 286 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98 /  
0 287 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98

## 6.6 MP6 electronic protection unit

All MP6 protection units range has an integrated LCD colour touch screen to display electrical values, settings and logs and measurements. Adjustments are accomplished by icon menus. All protection units have onboard a USB type "B" socket. All protection units are equipped with batteries for powering in case of mains fault or when the breaker is open or not connected.

### 6.6.1 MP6 LSI release (ref. 0 288 03) – Adjustment of $I_r$ , $t_r$ , $I_{sd}$ , $t_{sd}$ , $I_i$



Long delay protection against overloads with an adjustable threshold bases on the RMS value of the current:

- $I_r = (0.4 \div 1) \times I_n$  (with steps of 0.1)
- $t_r = 5-10-20-30$  s (MEM ON) or  
5-10-20-30 s (MEM OFF)

Short delay protection against short-circuits with an adjustable  $I_{sd}$  threshold:

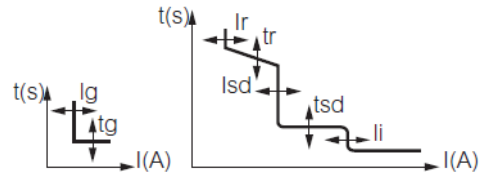
- $I_{sd} (1.5 \div 10) \times I_r$  (9 steps) [ $I_{sd} = 1.5-2-2.5-3-4-5-6-8-10 \times I_r$ ]
- $t_{sd} = (0 \div 1)$  s (both for  $t = k$  and  $I^2t = k$ , with steps of 0.1)

Instantaneous protection  $I_i$  with fixed threshold:

$I_i (2 \div 15) \times I_n$  or  $I_{cw}$  (9 steps) [ $I_i = 2-3-4-6-8-10-12-15 \times I_n$  or  $I_{cw}$ ]

Neutral adjustment = OFF –  $0.5 \times I_n - 1 \times I_n$

### 6.6.2 MP6 LSIg release (ref. 0 288 04) – Adjustment of $I_r$ , $t_r$ , $I_{sd}$ , $t_{sd}$ , $I_i$ , $I_g$ , $t_g$



Long delay protection against overloads with an adjustable threshold bases on the RMS value of the current:

- $I_r = (0.4 \div 1) \times I_n$  (with steps of 0.1)
- $t_r = 5-10-20-30$  s (MEM ON) or  
5-10-20-30 s (MEM OFF)

Short delay protection against short-circuits with an adjustable  $I_{sd}$  threshold:

- $I_{sd} (1.5 \div 10) \times I_r$  (9 steps) [ $I_{sd} = 1.5-2-2.5-3-4-5-6-8-10 \times I_r$ ]
- $t_{sd} = (0 \div 1)$  s (both for  $t = k$  and  $I^2t = k$ , with steps of 0.1)

Instantaneous protection  $I_i$  with fixed threshold:

$I_i (2 \div 15) \times I_n$  or  $I_{cw}$  (9 steps) [ $I_i = 2-3-4-6-8-10-12-15 \times I_n$  or  $I_{cw}$ ]

Neutral adjustment = OFF –  $0.5 \times I_n - 1 \times I_n$

Adjustment for ground fault:

- $I_g (0.2 \div 1) \times I_n$  and OFF  
[ $I_g = 0.2-0.3-0.4-0.5-0.6-0.7-0.8-1 \times I_n$ ; OFF]
- $t_g (0.1 \div 1)$  s (both  $t = k$  and  $I^2t = k$ )  
[ $t_g = 0.1-0.2-0.5-1$  s]

## 6.7 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

# DMX<sup>3</sup> 4000 circuit breakers

## DMX<sup>3</sup>-I 4000 switch disconnectors

References: 0 286 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98 /  
0 287 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98

### 6.8 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).

### 7. CONFORMITY

DMX<sup>3</sup> range of product concerning circuit-breakers and switch-disconnectors are in full compliance with the EN/IEC standard 60947-2 and 60947-3 respectively.

The certificate are issued by LOVAG and/or by IECEE CB-scheme certification scheme.

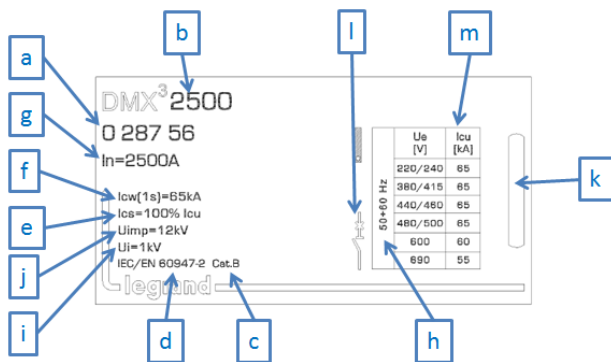
All the product range are CE, CCC, EAC marked. Other local markings are available.

DMX<sup>3</sup> are full in compliance with the Shipping Register of Lloyds, RINA, Bureau Veritas.

Particular conditions:

- execution II (all climates) according to IEC 60947-1 Annex Q, Cat. F.

### 7.1 MARKING



Reference	Meaning
a	Product reference
b	Product type
c	Utilization Category
d	Standards compliance
e	Rated service short-circuit breaking capacity
f	Rated short-time withstand current
g	Rated current
h	Operating frequencies
i	Rated insulation voltage
j	Rated impulse withstand voltage
k	Coloured label for breaking capacity
l	Identification symbol of the device
m	Rated ultimate short-circuit breaking capacity, according to the operational voltage U <sub>e</sub>

### 8. EQUIPMENTS AND ACCESSORIES

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

#### 8.1 Control and signalling 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

## DMX<sup>3</sup> 4000 circuit breakers

## DMX<sup>3</sup>-I 4000 switch disconnectors

References: 0 286 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98 /  
0 287 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 / 87 / 88 / 97 / 98

### • Motor operators

To motorize a DMX<sup>3</sup>, it is possible to attach, to the motor operators, a release coil (undervoltage 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

### • Signalling contact for draw-out version

Inserted / test / draw-out signalling contact

3 changeover contacts per position

ref. 0 288 13

<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

ref. 0 288 14

<b>Rated operating voltage (U<sub>c</sub>)</b>	<b>AC</b>	250V 16A 125V 16A
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### • Additional signalling contact

ref. 0 288 15

<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)

ref. 0 288 16

<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

## 8.2 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

## 8.3 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

## 8.4 Fixing devices for DMX<sup>3</sup> and DMX<sup>3</sup>-I 4000

To integrate DMX<sup>3</sup> and DMX<sup>3</sup>-I 4000 into XL<sup>3</sup> enclosures ranges (fixing plates, metal faceplates for circuit breakers and cable sleeves, etc...) see specific instruction sheets.

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

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

## DMX<sup>3</sup> 4000 circuit breakers

## DMX<sup>3</sup>-I 4000 switch disconnectors

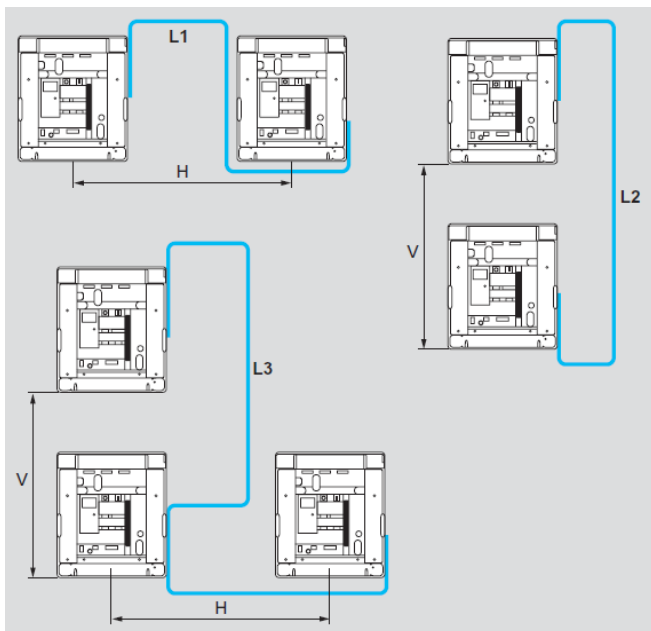
References: 0 286 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 /  
68 / 77 / 78 / 87 / 88 / 97 / 98 /

0 287 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 /  
87 / 88 / 97 / 98

### 8.7 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: ref.s 0 288 92/93 to be fixed onto horizontal rear terminals of the circuit breaker*

*Note 2: ref.s 0 288 94/95 to be used to transform a flat connection into a vertical one. To be fixed onto Cat.Nos 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

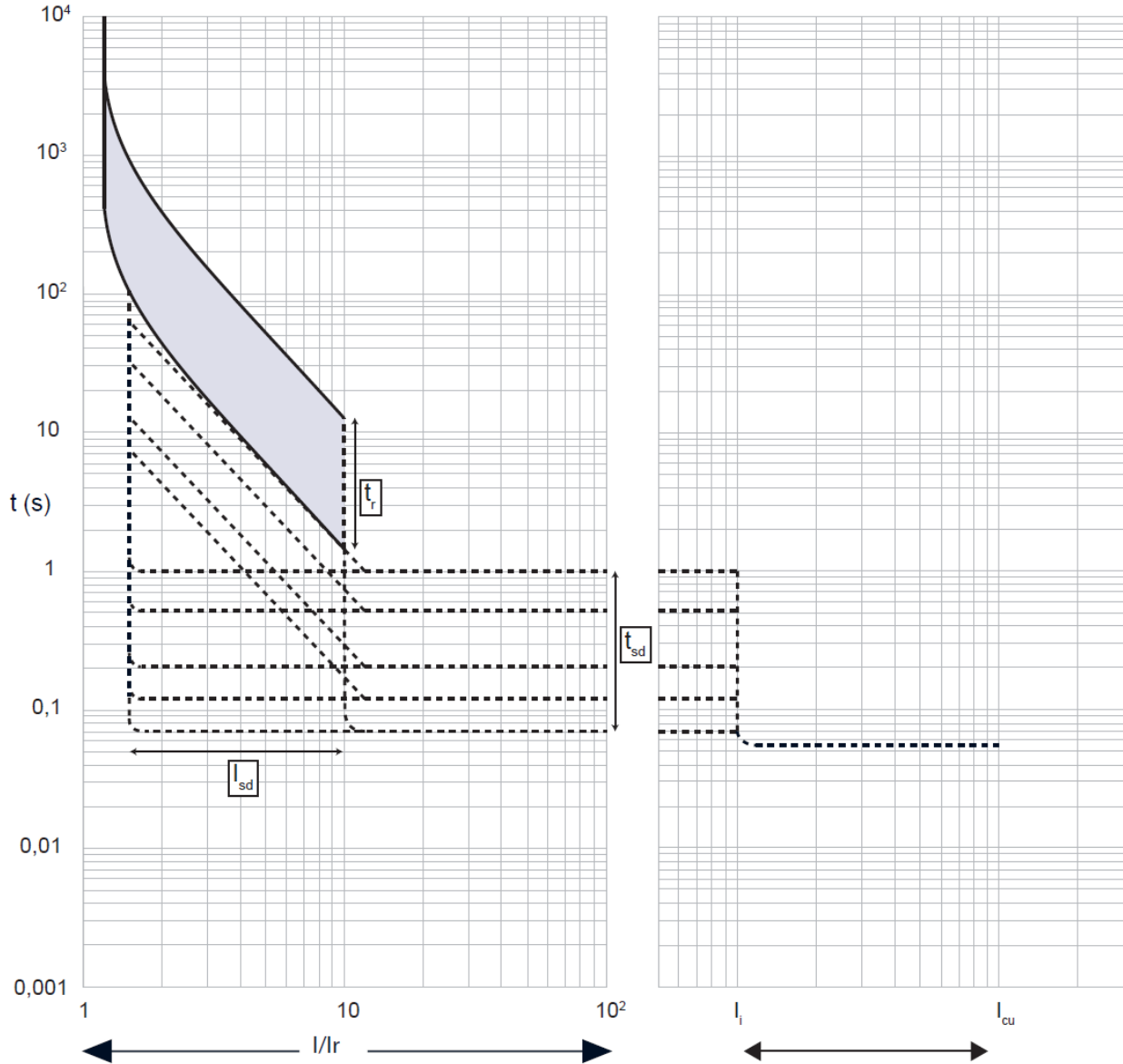
- Fixed version 3P ref. 0 288 98
- Fixed version 4P ref. 0 288 99
- Draw-out version 3P ref. 0 288 18
- Draw-out version 4P ref. 0 288 19

**DMX<sup>3</sup> 4000 circuit breakers**  
**DMX<sup>3</sup>-I 4000 switch disconnectors**

References: 0 286 27 / 28 / 37 / 38 / 47 / 48 / 57 / 58 / 67 /  
 68 / 77 / 78 / 87 / 88 / 97 / 98 /  
 0 287 27 / 28 / / 37 / 38 / 47 / 48 / 57 / 58 / 67 / 68 / 77 / 78 /  
 87 / 88 / 97 / 98

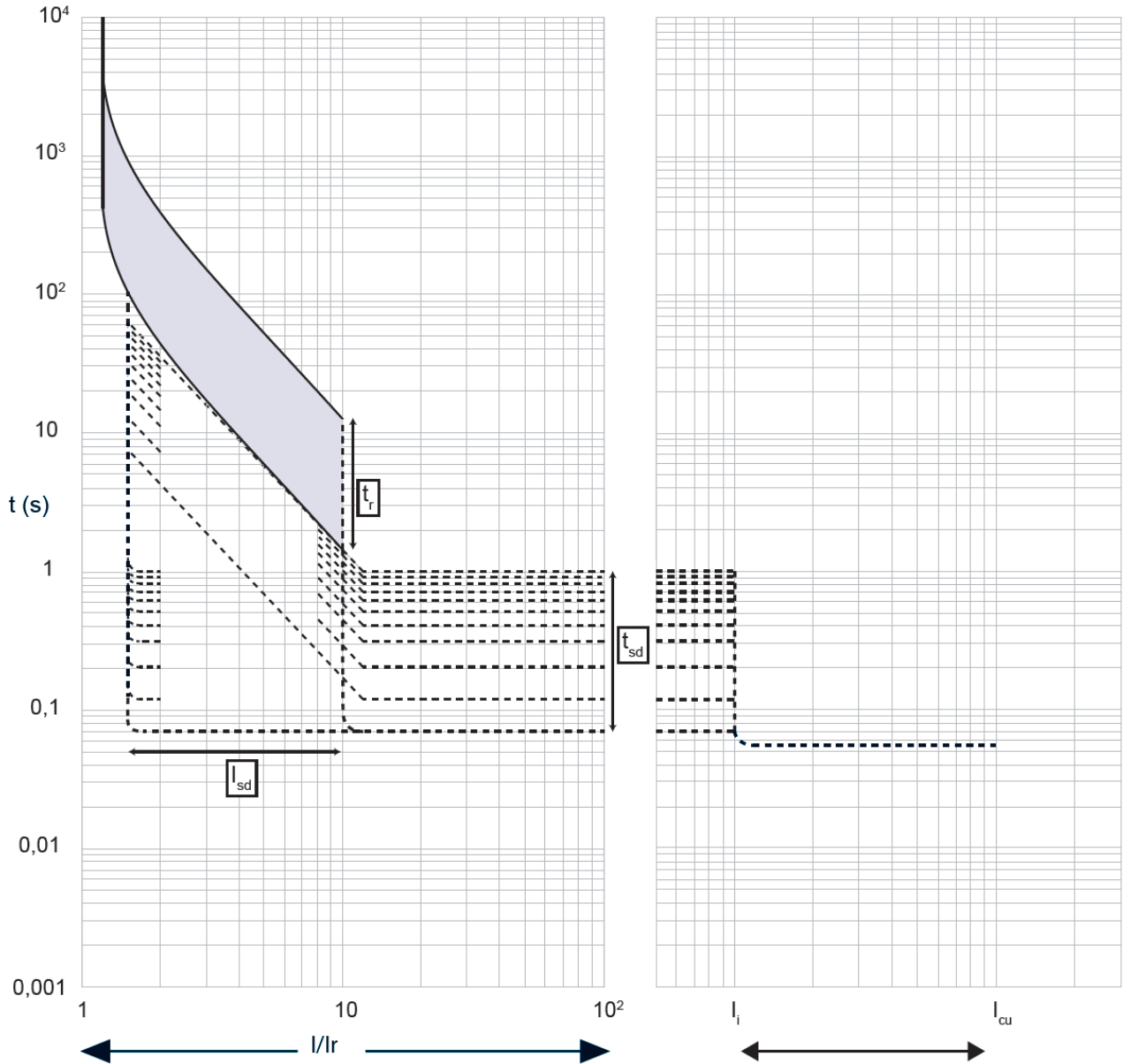
**9. CURVES**

**9.1 TRIPPING CURVE FOR MP4 protection units**



Value	Description
t	time
I	current
I <sub>r</sub>	long time setting current
t <sub>r</sub>	long time delay
I <sub>sd</sub>	short time setting current
t <sub>sd</sub>	short time delay
I <sub>i</sub>	Instantaneous release
I <sub>cu</sub>	Rated ultimate short-circuit breaking capacity

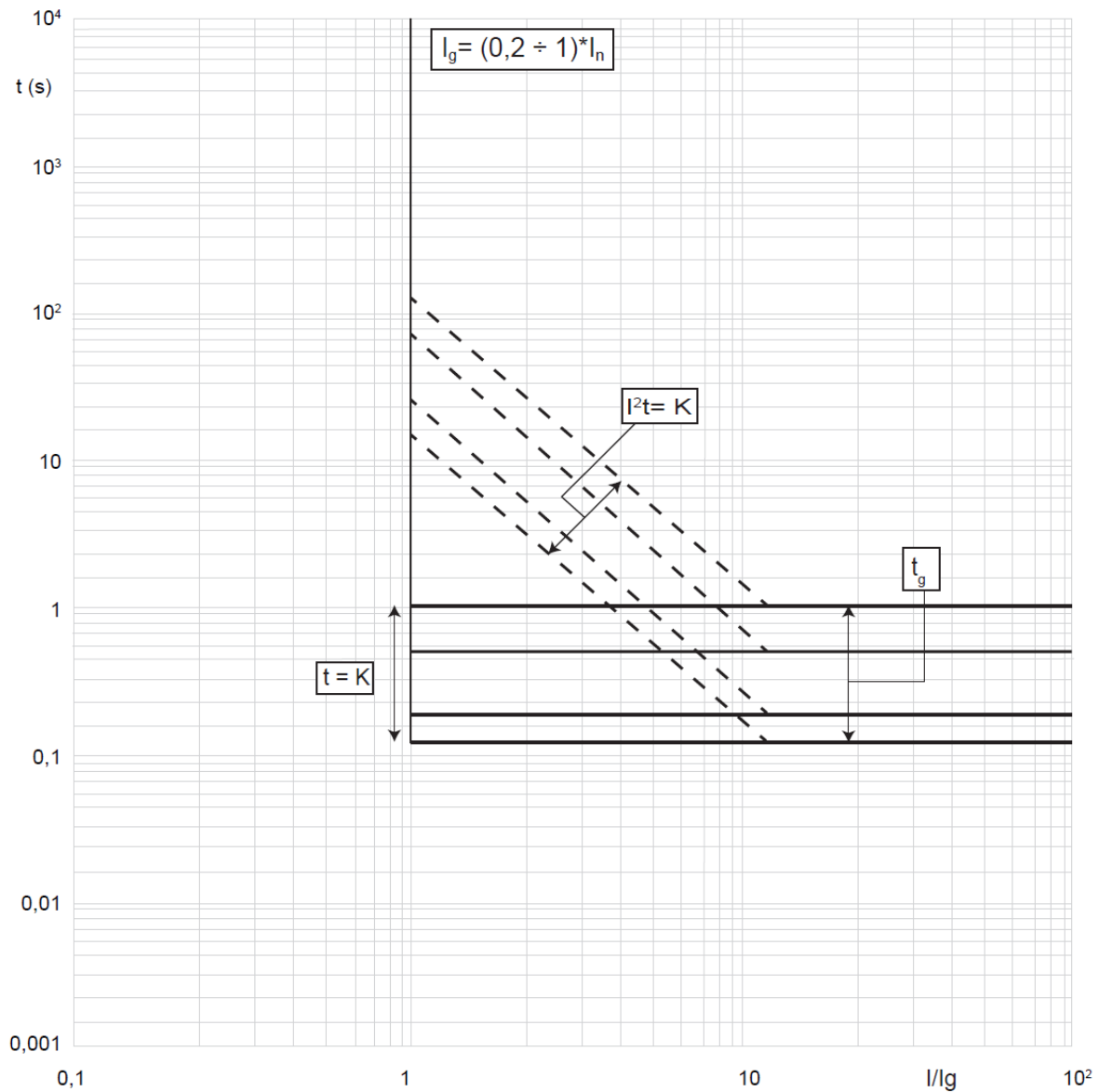
9.2 TRIPPING CURVE FOR MP6 protection units



Value	Description
t	time
I	current
$I_r$	long time setting current
$t_r$	long time delay
$I_{sd}$	short time setting current
$t_{sd}$	short time delay
$I_i$	Instantaneous release
$I_{cu}$	Rated ultimate short-circuit breaking capacity

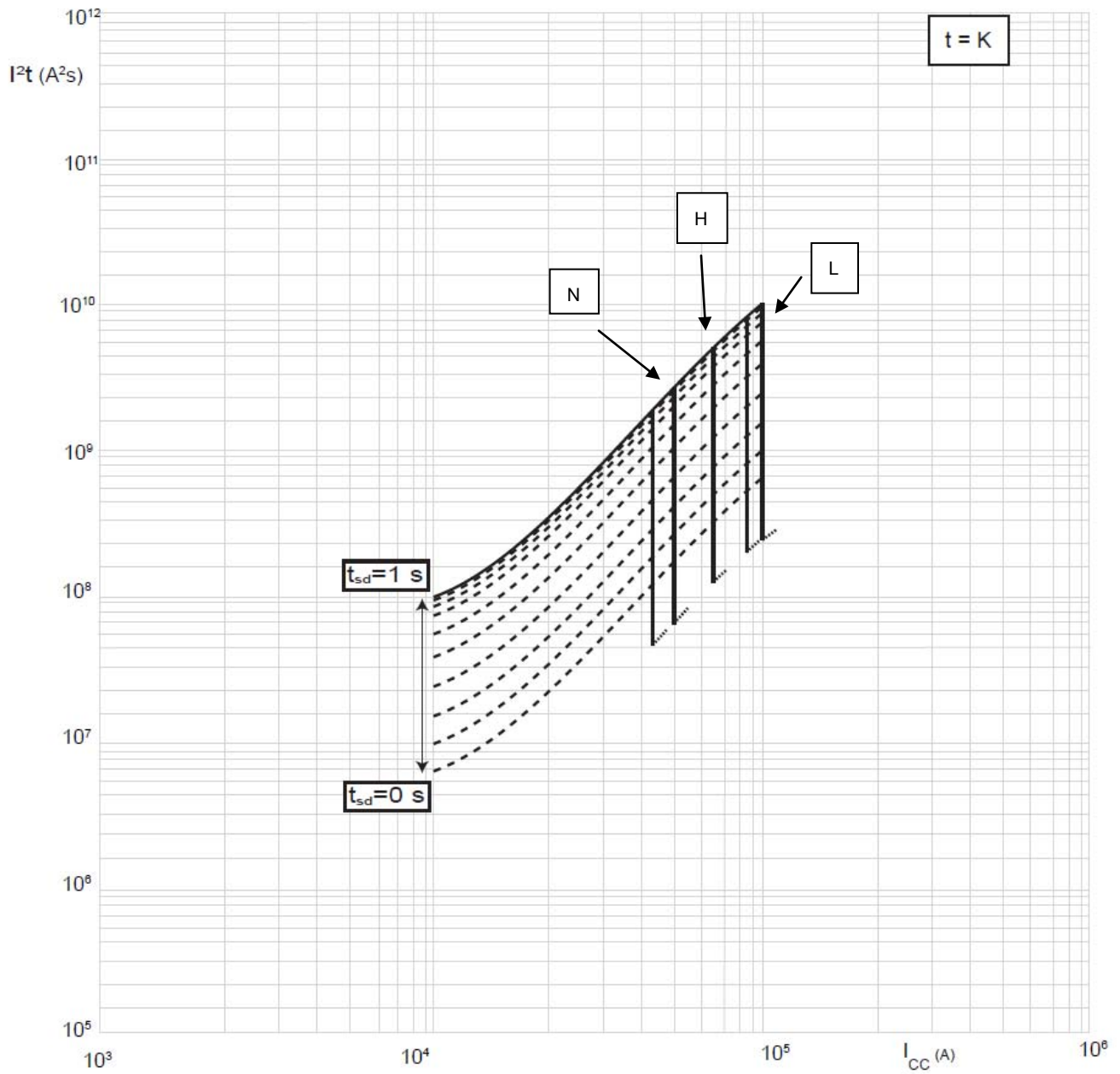
9.3 GROUND FAULT TRIPPING CURVE

Only LSIG releases (MP4 and MP6)



Value	Description
t	time
I	current
$I_n$	rated current
$I_g$	Ground fault current
t = k	Constant tripping time setting
$I^2t = k$	Constant pass-through energy setting

9.4 PASS-THROUGH SPECIFIC ENERGY CURVE



Value	Description
$I_{cc}$	short circuit current
$I^2t$	pass-through specific energy