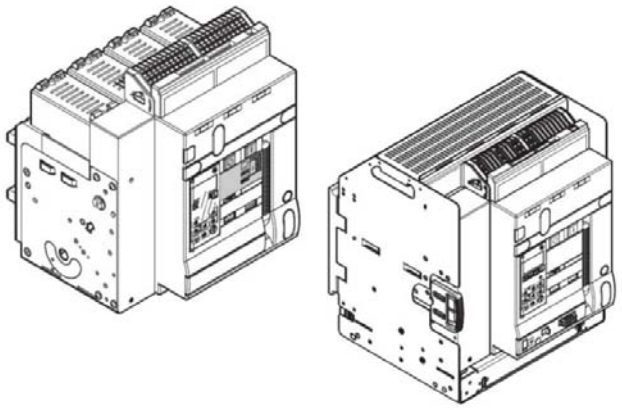
87045 LIMOGES Cedex
Telephone : 05 55 06 87 87 – Fax : 05 55 06 88 88

DMX³ 2500 circuit breakers

DMX³-I 2500 switch disconnectors

References: 0 286 20 / 21 / 22 / 23 / 24 / 25 / 26 / 30 / 31/ 32/ 33/ 34 / 35 / 36 / 40 / 41 / 42 / 43 / 44 / 45 / 46 / 50 / 51 / 52 / 53 / 54 / 55 / 56 / 60 / 61 / 62 / 63 / 64 / 65 / 66 / 70 / 71 / 72 / 73 / 74 / 75 / 76 / 83 / 84 / 85 / 86 / 0 287 20 / 21 / 22 / 23 / 24 / 25 / 26 / 30 / 31 / 32 / 33 / 34 / 35 / 36 / 40 / 41/ 42 / 43 / 44 / 45 / 46 / 50 / 51 / 52 / 53 / 54 / 55 / 56 / 60 / 61 / 62 / 63 / 64 / 65 / 66 / 70 / 71 / 72 / 73 / 74 / 75 / 76 / 93 / 94 / 95 / 96



CONTENTS PAGES

1. USE

DMX³ 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 2500A. Their electric and mechanical robustness, in addiction to breaking capacity, maintenance and chances of accessorizing, are perfectly suited for these requirements.

2. RANGE

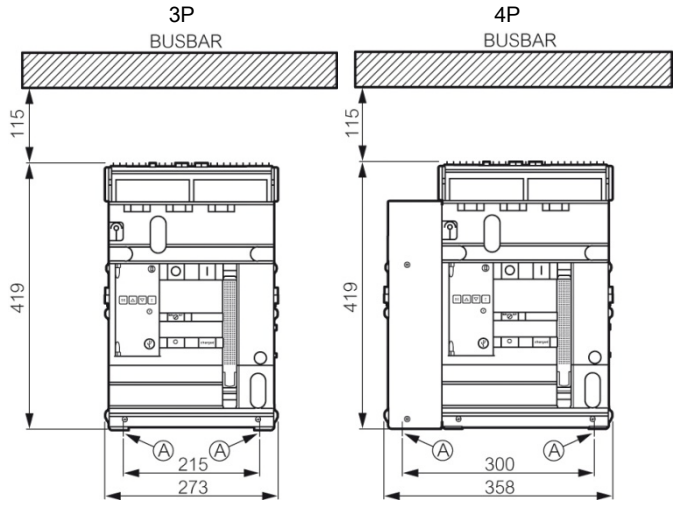
	DMX³ 2500 circuit breakers					
	Fixed version					
	DMX³ - N		DMX³ - H		DMX³ - L	
	50kA		65kA		100kA	
I_n (A)	3P	4P	3P	4P	3P	4P
630	0 286 20	0 286 30	0 286 40	0 286 50	0 286 60	0 286 70
800	0 286 21	0 286 31	0 286 41	0 286 51	0 286 61	0 286 71
1000	0286 22	0 286 32	0 286 42	0 286 52	0 286 62	0 286 72
1250	0 286 23	0 286 33	0 286 43	0 286 53	0 286 63	0 286 73
1600	0 286 24	0 286 34	0 286 44	0 286 54	0 286 64	0 286 74
2000	0 286 25	0 286 35	0 286 45	0 286 55	0 286 65	0 286 75
2500	0 286 26	0 286 36	0 286 46	0 286 56	0 286 66	0 286 76
	Draw-out version					
	DMX³ - N		DMX³ - H		DMX³ - L	
	50kA		65kA		100kA	
I_n (A)	3P	4P	3P	4P	3P	4P
630	0 287 20	0 287 30	0 287 40	0 287 50	0 287 60	0 287 70
800	0 287 21	0 287 31	0 287 41	0 287 51	0 287 61	0 287 71
1000	0 287 22	0 287 32	0 287 42	0 287 52	0 287 62	0 287 72
1250	0 287 23	0 287 33	0 287 43	0 287 53	0 287 63	0 287 73
1600	0 287 24	0 287 34	0 287 44	0 287 54	0 287 64	0 287 74
2000	0 287 25	0 287 35	0 287 45	0 287 55	0 287 65	0 287 75
2500	0 287 26	0 287 36	0 287 46	0 287 56	0 287 66	0 287 76

	DMX³-I 2500 switch disconnectors			
	Fixed version		Draw-out version	
I_n (A)	3P	4P	3P	4P
1250	0 286 83	0 286 93	0 287 83	0 287 93
1600	0 286 84	0 286 94	0 287 84	0 287 94
2000	0 286 85	0 286 95	0 287 85	0 287 95
2500	0 286 86	0 286 96	0 287 86	0 287 96

3. DIMENSIONS

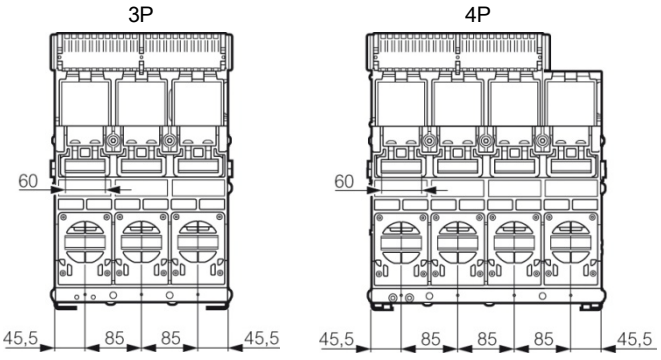
3.1 Fixed version (DMX³ - N, DMX³ - H and DMX³-I)

Frontal view



A = fixing point on plate of enclosure

Rear view



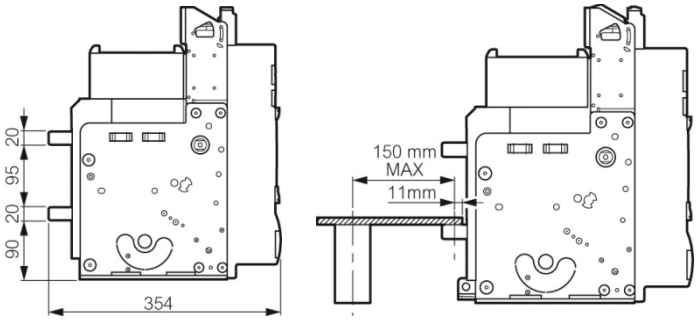
DMX³ 2500 circuit breakers

DMX³-I 2500 switch disconnectors

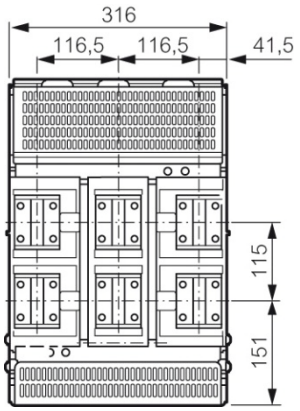
References: 0 286 20 / 21 / 22 / 23 / 24 / 25 / 26 / 30 / 31/ 32/ 33/ 34 / 35 / 36 / 40 / 41 / 42 / 43 / 44 / 45 / 46 / 50 / 51 / 52 / 53 / 54 / 55 / 56 / 60 / 61 / 62 / 63 / 64 / 65 / 66 / 70 / 71 / 72 / 73 / 74 / 75 / 76 / 83 / 84 / 85 / 86 / 0 287 20 / 21 / 22 / 23 / 24 / 25 / 26 / 30 / 31 / 32 / 33 / 34 / 35 / 36 / 40 / 41/ 42 / 43 / 44 / 45 / 46 / 50 / 51 / 52 / 53 / 54 / 55 / 56 / 60 / 61 / 62 / 63 / 64 / 65 / 66 / 70 / 71 / 72 / 73 / 74 / 75 / 76 / 93 / 94 / 95 / 96

Lateral view

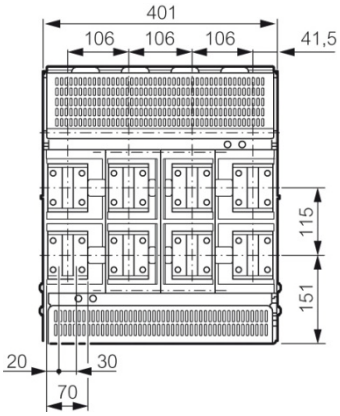
3P - 4P



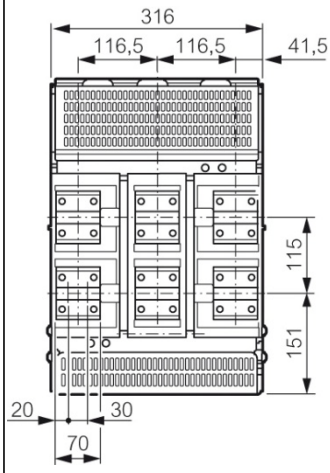
3P

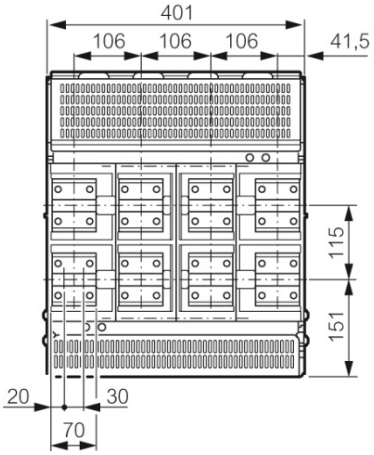


4P



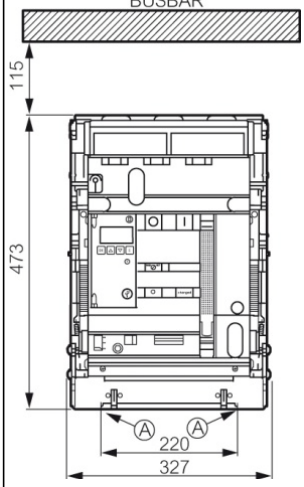
3.2 Draw-out version (DMX³ - N, DMX³ - H and DMX³-I)



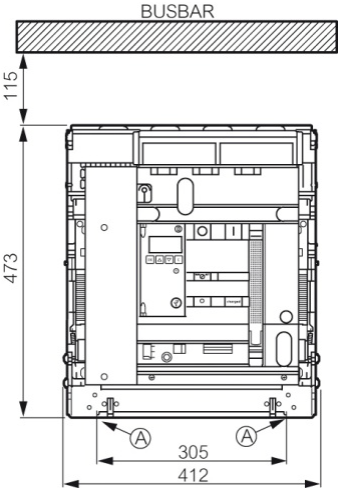


Frontal view

3P



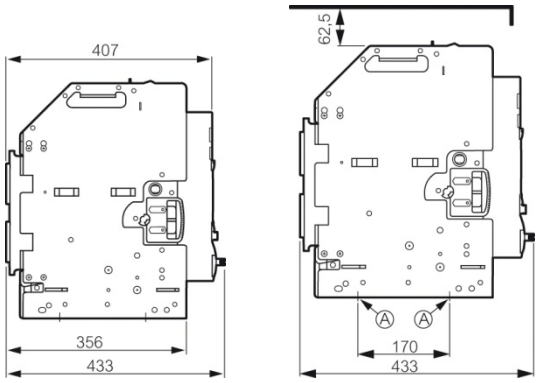
4P

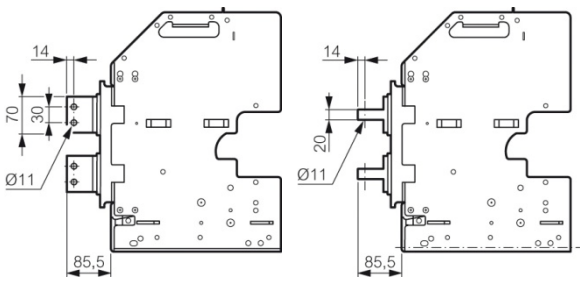


A = fixing point on plate of enclosure

Lateral view

3P - 4P

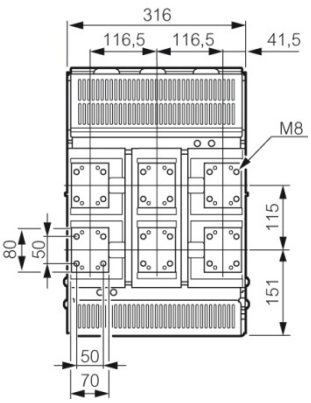




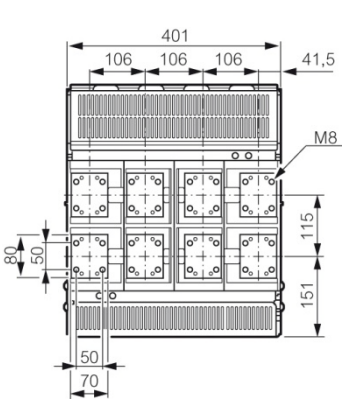
A = fixing point on plate of enclosure

Rear view

3P

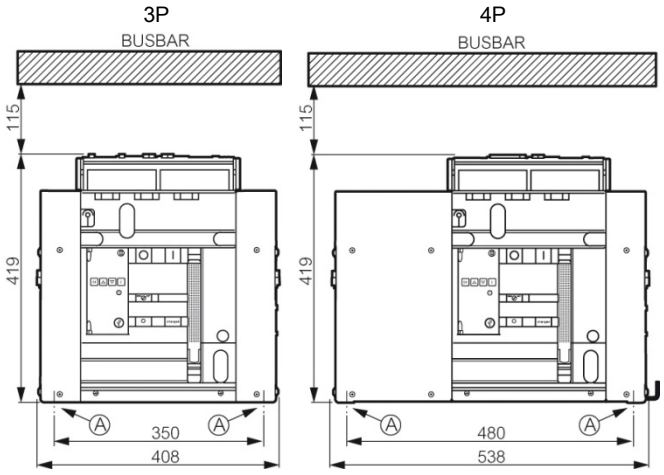


4P



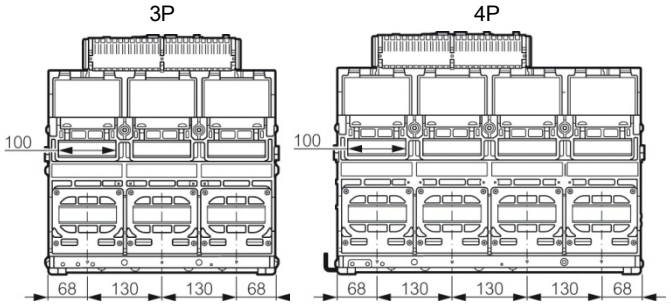
3.3 Fixed version (DMX³ - L)

Frontal view



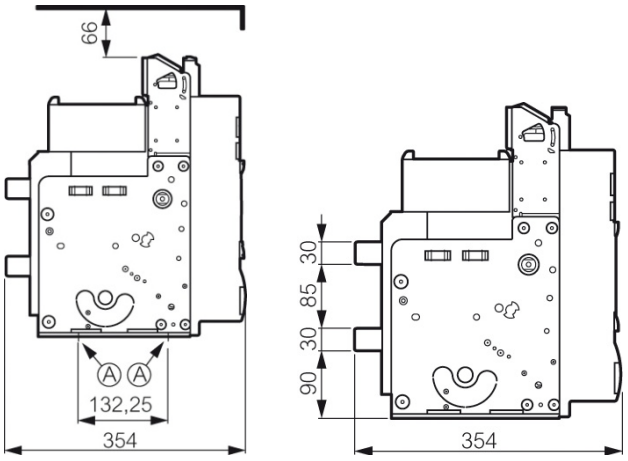
A = fixing point on plate of enclosure

Rear view

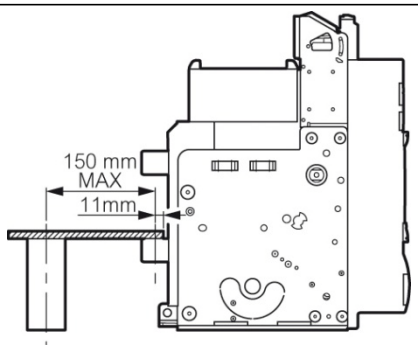


Lateral view

3P - 4P

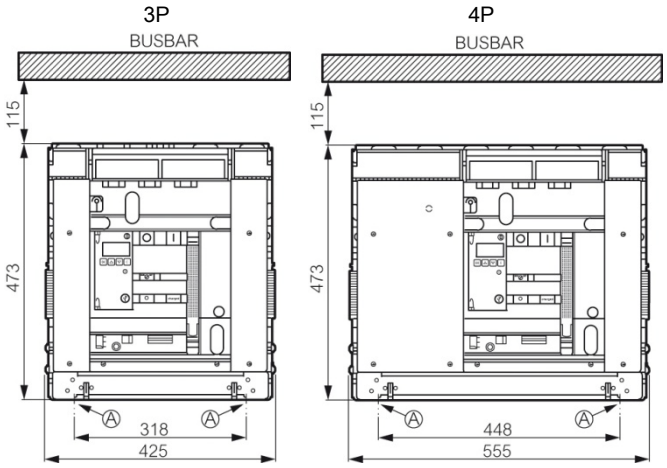


A = fixing point on plate of enclosure



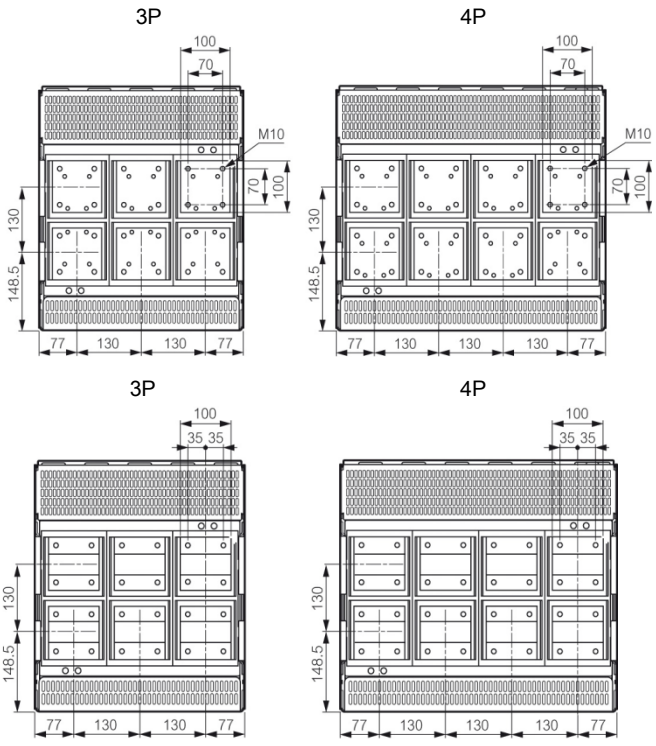
3.4 Draw-out version (DMX³ - L)

Frontal view

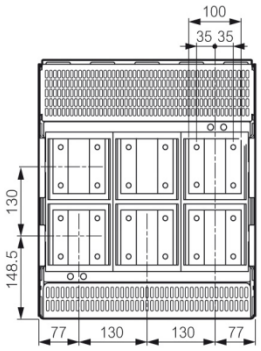


A = fixing point on plate of enclosure

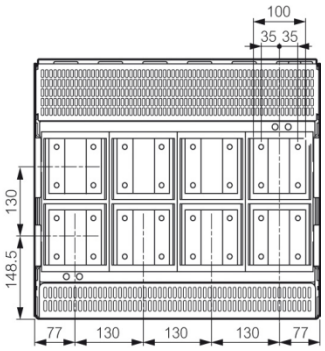
Rear view



3P

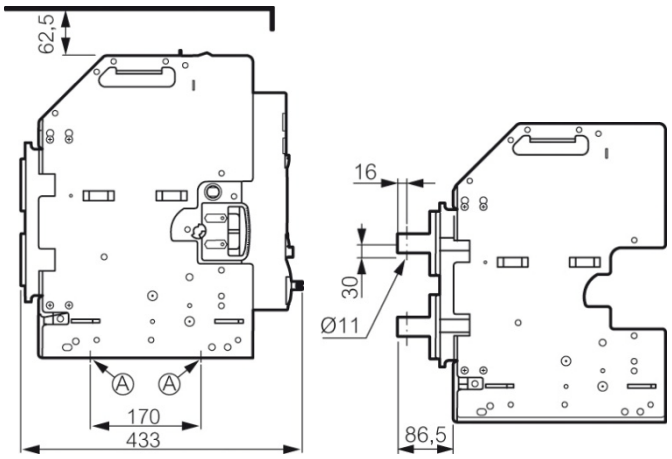


4P

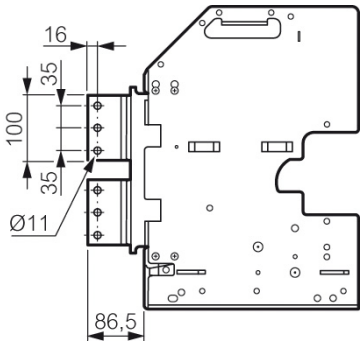


Lateral view

3P - 4P

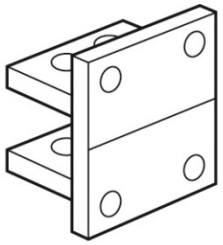


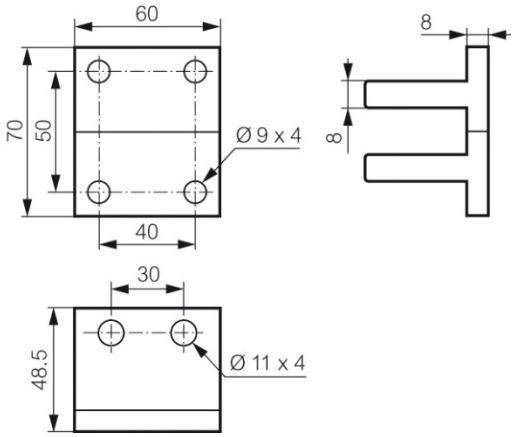
A = fixing point on plate of enclosure



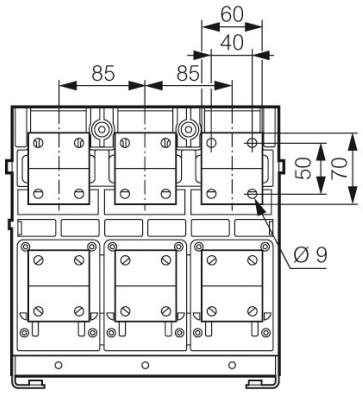
3.5 Rear terminals for fixed version – Flat connection (DMX³ - N, DMX³ - H and DMX³-I)

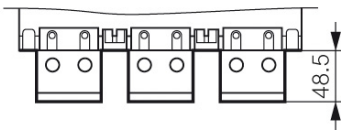
References	
3P	4P
0 288 84	0 288 85





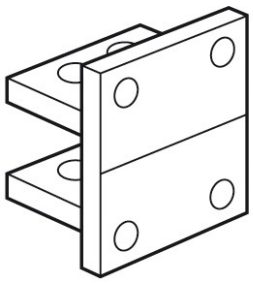
3P

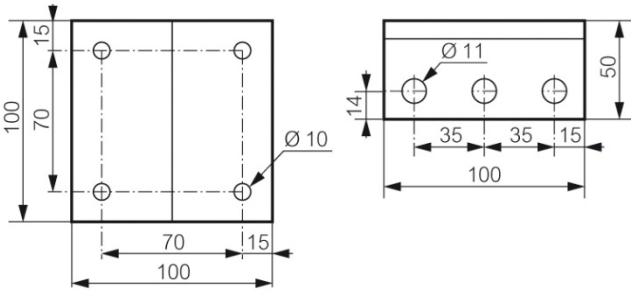


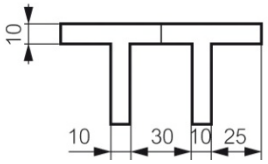


3.6 Rear terminals for fixed version – Flat connection (DMX³ - L)

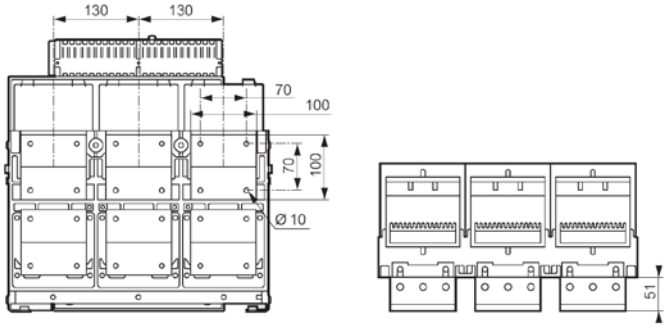
References	
3P	4P
0 288 92	0 288 93



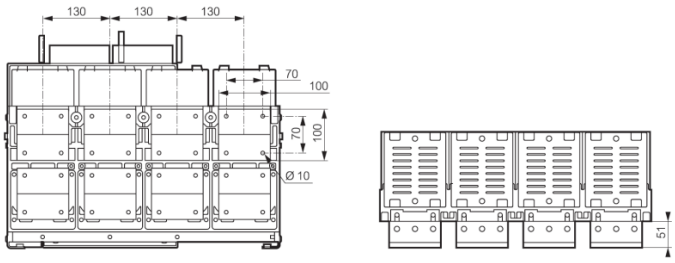




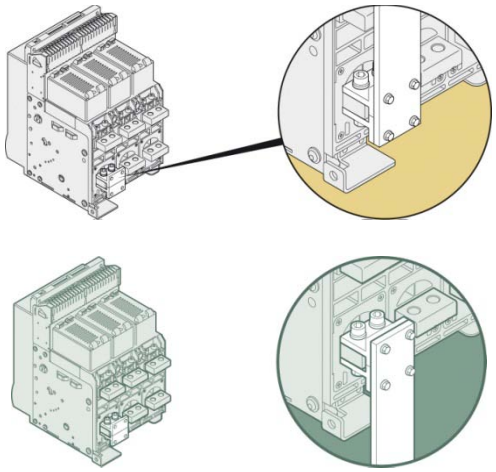
3P



4P

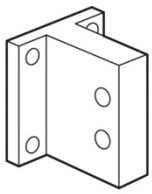


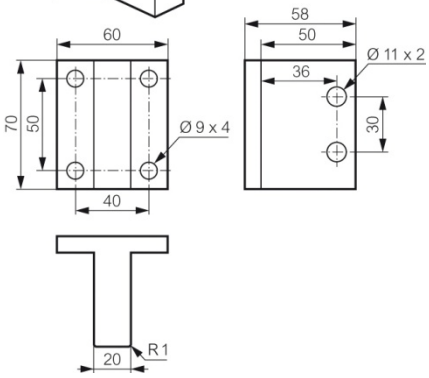
Mounting examples:

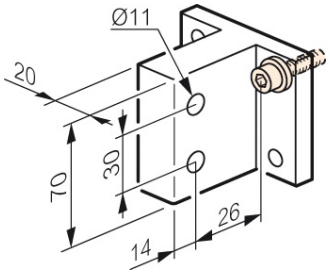


3.7 Rear terminals for fixed version – Vertical connection (DMX³ - N, DMX³ - H and DMX³-I)

References	
3P	4P
0 288 82	0 288 83

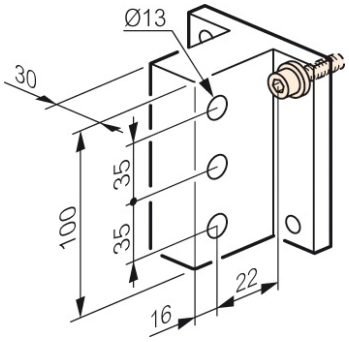




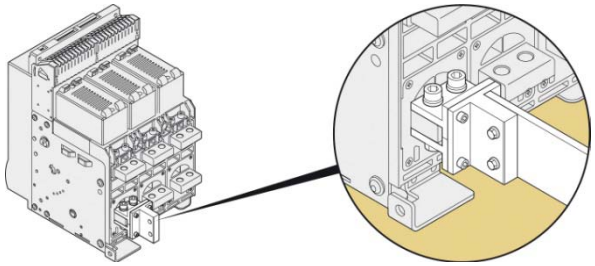


3.8 Rear terminals for fixed version – Vertical connection (DMX³ - L)

References	
3P	4P
0 288 94	0 288 95

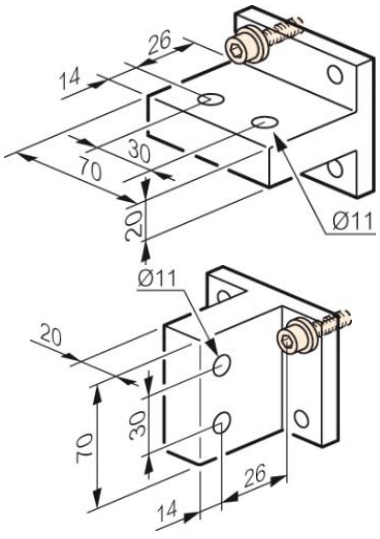


Mounting example:



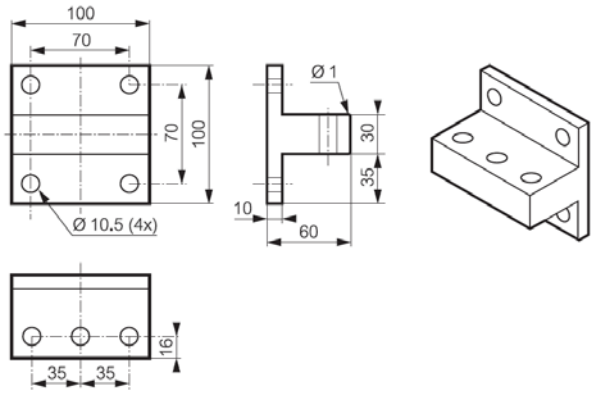
3.9 Rear terminals for Draw-out version – Flat/vertical connection pitch (DMX³ - N, DMX³ - H and DMX³-I)

References	
3P	4P
0 288 96	0 288 97

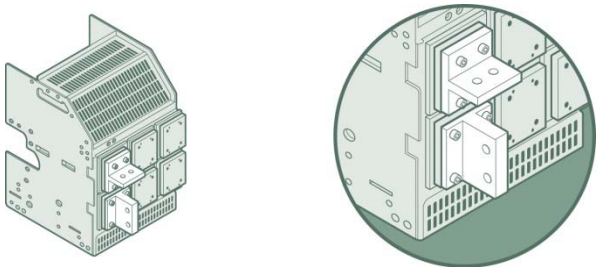


3.10 Rear terminals for Draw-out version – Flat/vertical connection (DMX³ - L)

References	
3P	4P
0 288 94	0 288 95

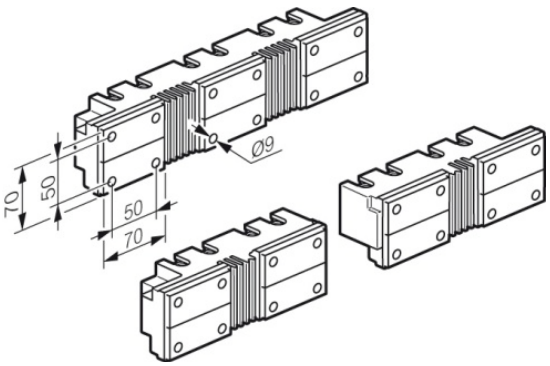


Mounting example:



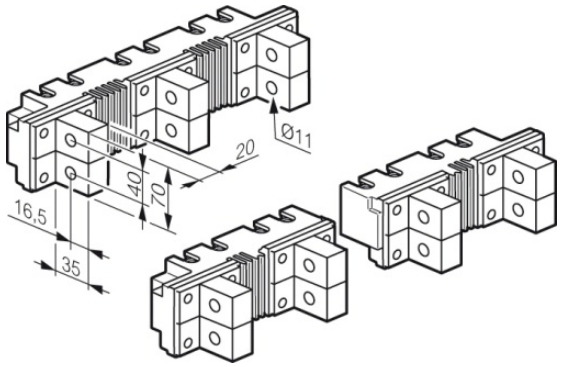
3.11 Spreaders for fixed version – Flat connection

References	
3P	4P
0 288 86	0 288 87



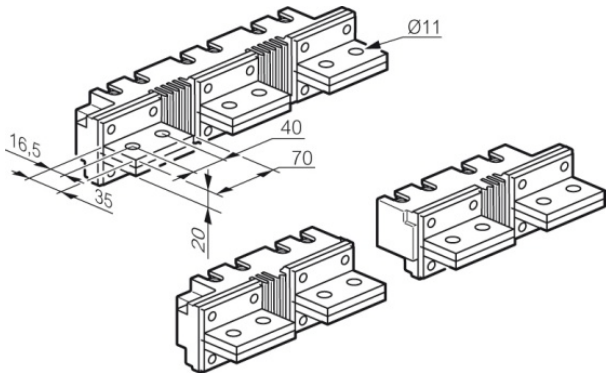
3.12 Spreaders for fixed version – Vertical connection

References	
3P	4P
0 288 88	0 288 89



3.13 Spreaders for fixed version – Horizontal connection

References	
3P	4P
0 288 90	0 288 91



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 version (DMX³ - N, DMX³ - H and DMX³-I)

I_n (A)	Vertical bars (mm)	Horizontal bars (mm)
630	1 bar 50x10	1 bar 60x10
800	1 bar 60x10	1 bar 60x10
1000	1 bar 80x10 / 2 bars 40 x 10	1 bar 80x10 / 2 bars 40 x 10
1250	1 bar 80x10 / 2 bars 40 x 10	2 bars 60x10
1600	2 bars 60x10	2 bars 80x10 / 3 bars 50x10
2000	3 bars 60x10	3 bars 80x10 / 4 bars 60x10
2500	3 bars 80x10	4 bars 80x10 / 5 bars 60x10

. Draw-out version (DMX³ - N, DMX³ - H and DMX³-I)

I_n (A)	Vertical bars (mm)	Horizontal bars (mm)
630	1 bar 50x10	1 bar 60x10
800	1 bar 60x10	1 bar 60x10
1000	1 bar 80x10	1 bar 80x10
1250	1 bar 80x10	2 bars 60x10
1600	2 bars 60x10	2 bars 80x10
2000	3 bars 60x10	3 bars 80x10
2500	3 bars 80x10	4 bars 80x10

DMX³ 2500 circuit breakers

DMX³-I 2500 switch disconnectors

References: 0 286 20 / 21 / 22 / 23 / 24 / 25 / 26 / 30 / 31/ 32/ 33/ 34 / 35 / 36 / 40 / 41 / 42 / 43 / 44 / 45 / 46 / 50 / 51 / 52 / 53 / 54 / 55 / 56 / 60 / 61 / 62 / 63 / 64 / 65 / 66 / 70 / 71 / 72 / 73 / 74 / 75 / 76 / 83 / 84 / 85 / 86 / 0 287 20 / 21 / 22 / 23 / 24 / 25 / 26 / 30 / 31 / 32 / 33 / 34 / 35 / 36 / 40 / 41/ 42 / 43 / 44 / 45 / 46 / 50 / 51 / 52 / 53 / 54 / 55 / 56 / 60 / 61 / 62 / 63 / 64 / 65 / 66 / 70 / 71 / 72 / 73 / 74 / 75 / 76 / 93 / 94 / 95 / 96

. Fixed version (DMX³ - L)

I_n (A)	Vertical bars (mm)	Horizontal bars (mm)
630	1 bar 40x10 / 2 bars 40x5	2 bars 40x5
800	1 bar 50x10 / 2 bars 50x5	2 bars 50x5
1000	1 bar 50x10 / 2 bars 50x5	2 bars 60x5
1250	2 bars 60x5	2 bars 80x5
1600	2 bars 80x5	2 bars 50x10
2000	2 bars 50x10	2 bars 60x10
2500	3 bars 50x10	3 bars 60x10

. Draw-out version (DMX³ - L)

I_n (A)	Vertical bars (mm)	Horizontal bars (mm)
630	1 bar 40x10 / 2 bars 40x5	2 bars 40x5
800	1 bar 50x10 / 2 bars 50x5	2 bars 50x5
1000	1 bar 50x10 / 2 bars 50x5	2 bars 60x5
1250	2 bars 60x5	2 bars 80x5
1600	2 bars 80x5	2 bars 50x10
2000	2 bars 50x10	2 bars 60x10
2500	3 bars 50x10	3 bars 60x10

Minimum recommended dimensions of ALUMINIUM busbars per pole:

. Fixed version (DMX³ - N, DMX³ - H and DMX³-I)

I_n (A)	Vertical bars (mm)	Horizontal bars (mm)
630	2 bars 50x8	2 bars 50x10
800	2 bars 50x10	2 bars 50x10
1000	2 bars 60x10	2 bars 60x10
1250	2 bars 60x10	4 bars 50x10
1600	4 bars 50x10	4 bars 60x10
2000	4 bars 60x10	4 bars 80x10
2500	4 bars 100x10	5 bars 100x10

. Draw-out version (DMX³ - N, DMX³ - H and DMX³-I)

I_n (A)	Vertical bars (mm)	Horizontal bars (mm)
630	2 bars 50x8	2 bars 50x10
800	2 bars 50x10	2 bars 50x10
1000	2 bars 60x10	2 bars 60x10
1250	2 bars 60x10	4 bars 50x10
1600	4 bars 50x10	4 bars 60x10
2000	4 bars 60x10	4 bars 80x10
2500	4 bars 100x10	5 bars 100x10

. Fixed version (DMX³ - L)

I_n (A)	Vertical bars (mm)	Horizontal bars (mm)
630	2 bars 40x8	2 bars 40x8
800	2 bars 50x8	2 bars 50x8
1000	2 bars 50x8	2 bars 50x10
1250	2 bars 50x10	2 bars 60x10
1600	2 bars 60x10	4 bars 60x10
2000	4 bars 50x8	4 bars 50x10
2500	4 bars 60x10	4 bars 80x10

. Draw-out version (DMX³ - L)

I_n (A)	Vertical bars (mm)	Horizontal bars (mm)
630	2 bars 40x8	2 bars 40x8
800	2 bars 50x8	2 bars 50x8
1000	2 bars 50x8	2 bars 50x10
1250	2 bars 50x10	2 bars 60x10
1600	2 bars 60x10	4 bars 50x8
2000	4 bars 50x8	4 bars 50x10
2500	4 bars 60x10	4 bars 80x10

DMX³ 2500 circuit breakers

DMX³-I 2500 switch disconnectors

References: 0 286 20 / 21 / 22 / 23 / 24 / 25 / 26 / 30 / 31/ 32/ 33/ 34 / 35 / 36 / 40 / 41 / 42 / 43 / 44 / 45 / 46 / 50 / 51 / 52 / 53 / 54 / 55 / 56 / 60 / 61 / 62 / 63 / 64 / 65 / 66 / 70 / 71 / 72 / 73 / 74 / 75 / 76 / 83 / 84 / 85 / 86 / 0 287 20 / 21 / 22 / 23 / 24 / 25 / 26 / 30 / 31 / 32 / 33 / 34 / 35 / 36 / 40 / 41/ 42 / 43 / 44 / 45 / 46 / 50 / 51 / 52 / 53 / 54 / 55 / 56 / 60 / 61 / 62 / 63 / 64 / 65 / 66 / 70 / 71 / 72 / 73 / 74 / 75 / 76 / 93 / 94 / 95 / 96

6. ELECTRICAL AND MECHANICAL CHARACTERISTICS

Circuit breaker

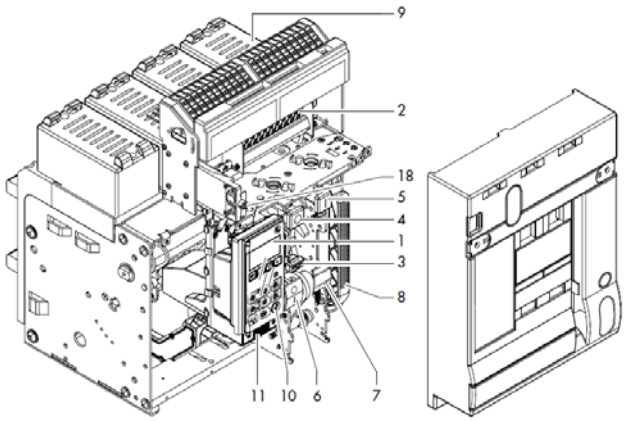
		DMX³ 2500		
		DMX³ - N	DMX³ - H	DMX³ - L
		50 kA	65 kA	100 kA
Frame current (A)		2500		
Number of poles		3P - 4P		
Rated current I_n (A)		630/800/1000/1250/1600/2000/2500		
Release type		electronic		
Rated insulation voltage U_i (V)		1000		
Rated impulse withstand voltage U_{imp} (kV)		12		
Rated operational voltage (50/60Hz) U_e (V)		690		
Category of use		B		
Rated ultimate short-circuit breaking capacity I_{cu} (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
	690 V AC	50	55	65
Rated service short-circuit breaking capacity I_{cs} (% I_{cu})		100%		
Rated short-circuit making capacity I_{cm} (kA)	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
	690 V AC	105	121	143
Rated short time withstand current I_{cw} (kA) for t = 1s	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
	690 V AC	50	55	65
Rated short time withstand current I_{cw} (kA) for t = 3s	220 / 240 V AC	45	45	65
	380 / 415 V AC	45	45	65
	440 / 460 V AC	45	45	65
	480 / 500 V AC	45	45	65
	480 / 550 V AC	45	45	65
	600 V AC	45	45	65
	690 V AC	45	45	65
Suitable for isolation		Yes		
Neutral protection (% I_r)		0 - 50 - 100		
Endurance (cycles)	mechanical	10000 (w/o maintenance); 20000 (with maintenance)		
	electrical	10000 (w/o maintenance)		
Weight (Kg)	3P - Fixed	41		59
	3P - Drawout	77		108
	4P - Fixed	48		76
	4P - Drawout	94		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	273		408
	3P - Drawout	327		425
	4P - Fixed	358		538
	4P - Drawout	412		555
Temperature	operation	-25°C to +70°C		
	storage	-25°C to +85°C		
Maintenance		Yes (see specific guide)		

Switch disconnector

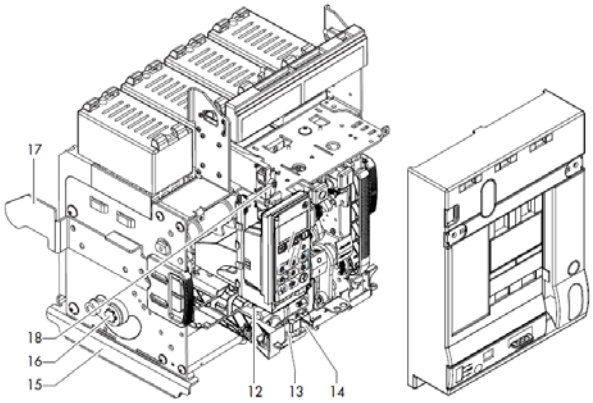
		DMX³-I 2500
Frame current (A)		2500
Number of poles		3P - 4P
Rated current I_e (A)		1250/1600/2000/2500
Rated insulation voltage U_i (V)		1000
Rated impulse withstand voltage U_{imp} (kV)		12
Rated operational voltage (50/60Hz) U_e (V)		690
Category of use		AC23A
Rated short circuit making capacity I_{cm} (kA)	220 / 240 V AC	143
	380 / 415 V AC	143
	440 / 460 V AC	143
	480 / 500 V AC	143
	480 / 550 V AC	132
	600 V AC	132
	690 V AC	121
Rated short time withstand current I_{cw} (kA) for t = 1s	220 / 240 V AC	65
	380 / 415 V AC	65
	440 / 460 V AC	65
	480 / 500 V AC	65
	480 / 550 V AC	60
	600 V AC	60
	690 V AC	55
Rated short time withstand current I_{cw} (kA) for t = 3s	220 / 240 V AC	45
	380 / 415 V AC	45
	440 / 460 V AC	45
	480 / 500 V AC	45
	480 / 550 V AC	45
	600 V AC	45
	690 V AC	45
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	39
	3P - Drawout	75
	4P - Fixed	45
	4P - Drawout	91
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	273
	3P - Drawout	327
	4P - Fixed	358
	4P - Drawout	412
Temperature	operation	-25°C to +70°C
	storage	-25°C to +85°C
Maintenance		Yes (see specific guide)

6.1 Main parts constituting the circuit breaker

Fixed version

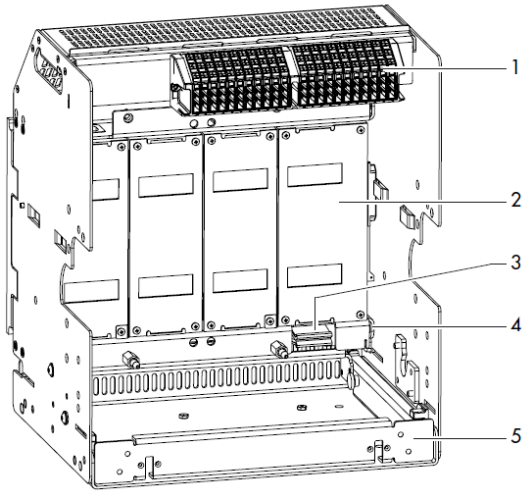


Draw-out version



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 x I_n	1 x I_n	1.5 x $I_{r\ min}$	10 x $I_{r\ max}$
630	252	630	378	6300
800	320	800	480	8000
1000	400	1000	600	10000
1250	500	1250	750	12500
1600	640	1600	960	16000
2000	800	2000	1200	20000
2500	1000	2500	1500	25000

** For neutral adjustment, as explained in technical sheet, please consider the values (0 – 0.5 – 1) x I_r*

6.3 Power losses per pole under I_n

Circuit breaker

Power Losses (W) DMX³ 2500					
Version		Fixed	Draw-out	Fixed	Draw-out
Number of poles		3 - 4		3 - 4	
Rated I_{cu} (kA)		up to 65kA		100kA	
Rated current I_n (A)	630	5.7	11.1	3.2	6.4
	800	9.2	17.9	5.2	10.2
	1000	14.4	28.0	8.1	16.0
	1250	22.4	43.8	12.7	25.0
	1600	36.7	71.7	20.8	41.0
	2000	57.4	112.0	32.5	64.0
	2500	89.7	175.0	50.8	100.0

Switch disconnector

Power Losses (W) DMX³-I 2500					
Version		Fixed	Draw-out	Fixed	Draw-out
Number of poles		3 - 4		3 - 4	
Rated I_{cu} (kA)		up to 65kA		100kA	
Rated current I_n (A)	1250	22.4	43.8	12.7	25.0
	1600	36.7	71.7	20.8	41.0
	2000	57.4	112.0	32.5	64.0
	2500	89.7	175.0	50.8	100.0

6.4 Deratings

6.4.1 Temperature

Temperature deratings for fixed versions – horizontal terminals

Fixed version										
Temperature	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
DMX³ - N DMX³ - H	630	1	630	1	630	1	630	1	630	1
	800	1	800	1	800	1	800	1	800	1
	1000	1	1000	1	1000	1	1000	1	1000	1
	1250	1	1250	1	1250	1	1250	1	1250	1
	1600	1	1600	1	1600	1	1600	1	1600	1
	2000	1	2000	1	2000	1	2000	1	1900	0.95
	2500	1	2500	1	2375	0.95	2125	0.85	1875	0.75
DMX³ - L	630	1	630	1	630	1	630	1	630	1
	800	1	800	1	800	1	800	1	800	1
	1000	1	1000	1	1000	1	1000	1	1000	1
	1250	1	1250	1	1250	1	1250	1	1250	1
	1600	1	1600	1	1600	1	1600	1	1600	1
	2000	1	2000	1	2000	1	2000	1	2000	1
	2500	1	2500	1	2500	1	2500	1	2500	1

Temperature deratings for draw-out versions – horizontal terminals

Draw-out version										
Temperature	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
DMX³ - N DMX³ - H	630	1	630	1	630	1	630	1	630	1
	800	1	800	1	800	1	800	1	800	1
	1000	1	1000	1	1000	1	1000	1	1000	1
	1250	1	1250	1	1250	1	1250	1	1250	1
	1600	1	1600	1	1600	1	1600	1	1600	1
	2000	1	2000	1	2000	1	2000	1	1800	0.9
	2500	1	2125	0.85	2000	0.8	1875	0.75	1750	0.7
DMX³ - L	630	1	630	1	630	1	630	1	630	1
	800	1	800	1	800	1	800	1	800	1
	1000	1	1000	1	1000	1	1000	1	1000	1
	1250	1	1250	1	1250	1	1250	1	1250	1
	1600	1	1600	1	1600	1	1600	1	1600	1
	2000	1	2000	1	2000	1	2000	1	2000	1
	2500	1	2500	1	2500	1	2500	1	2250	0.9

6.4.2 Altitude

Altitude (m)	< 2000	3000	4000	5000
Rated current (at 40°C/50°C) I_n (A)	I_n	0.98 x I_n	0.94 x I_n	0.9 x 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

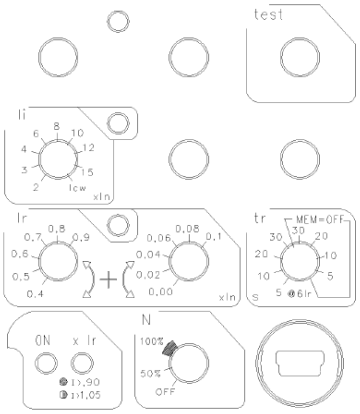
6.5 MP4 electronic protection unit

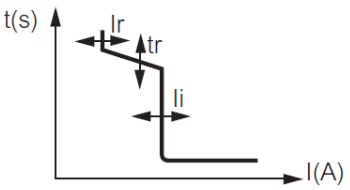
All MP4 protection units range has an integrated LCD screen to display electrical values, settings and logs. Adjustments are accomplished by selector switches.

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 ÷ 1) x 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 x 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:

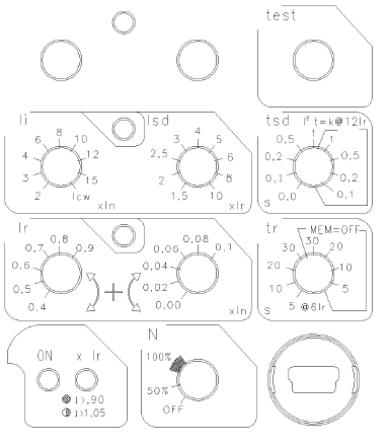
- I_{sd} = 10 x I_r
- t_{sd} = 1 s

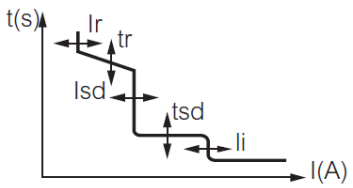
Instantaneous protection I_i with fixed threshold:

I_i (2 ÷ 15) x I_n or I_{cw} (9 steps) [I_i = 2-3-4-6-8-10-12-15 x I_n or I_{cw}]

Neutral adjustment = OFF – 0.5 x I_n – 1 x I_n

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 ÷ 1) x 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 x I_r (4 + 4 steps): 5-10-20-30 s (MEM ON) or
  30-20-10-5 s (MEM OFF)

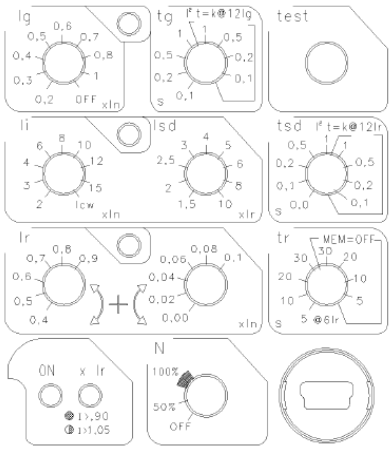
Short delay protection against short-circuits with an adjustable I_{sd} threshold:

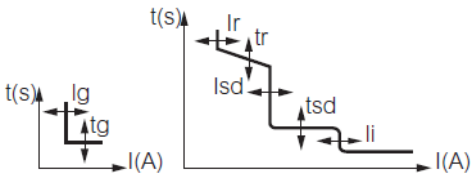
- I_{sd} (1.5 ÷ 10) x I_r (9 steps) [I_{sd} = 1.5-2-2.5-3-4-5-6-8-10 x I_r]
- t_{sd} = 0-0.1-0.2-0.5-1 s (t = k) or
  1-0.5-0.2-0.1-0.01 s (I^2t = k)

Instantaneous protection I_i with fixed threshold:
I_i (2 ÷ 15) x I_n or I_{cw} (9 steps) [I_i = 2-3-4-6-8-10-12-15 x I_n or I_{cw}]

Neutral adjustment = OFF – 0.5 x I_n – 1 x 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 ÷ 1) x 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 x 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 ÷ 10) x I_r (9 steps) [I_{sd} = 1.5-2-2.5-3-4-5-6-8-10 x I_r]
- t_{sd} = 0-0.1-0.2-0.5-1 s (t = k) or
  1-0.5-0.2-0.1-0.01 s (I^2t = k)

Instantaneous protection I_i with fixed threshold:
I_i (2 ÷ 15) x I_n or I_{cw} (9 steps) [I_i = 2-3-4-6-8-10-12-15 x I_n or I_{cw}]

Neutral adjustment = OFF – 0.5 x I_n – 1 x I_n

Adjustment for ground fault:

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

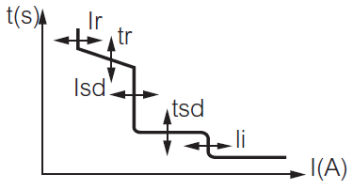
6.6 MP6 electronic protection unit

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 ÷ 1) x 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:

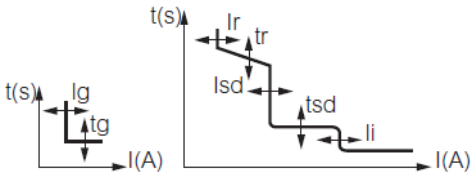
- I_{sd} (1.5 ÷ 10) x I_r (9 steps) [I_{sd} = 1.5-2-2.5-3-4-5-6-8-10 x I_r]
- t_{sd} = (0 ÷ 1) s (both for t = k and I^2t = k, with steps of 0.1)

Instantaneous protection I_i with fixed threshold:

I_i (2 ÷ 15) x I_n or I_{cw} (9 steps) [I_i = 2-3-4-6-8-10-12-15 x I_n or I_{cw}]

Neutral adjustment = OFF – 0.5 x I_n – 1 x 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 ÷ 1) x 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 ÷ 10) x I_r (9 steps) [I_{sd} = 1.5-2-2.5-3-4-5-6-8-10 x I_r]
- t_{sd} = (0 ÷ 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 ÷ 15) x I_n or I_{cw} (9 steps) [I_i = 2-3-4-6-8-10-12-15 x I_n or I_{cw}]

Neutral adjustment = OFF – 0.5 x I_n – 1 x I_n

Adjustment for ground fault:

- I_g (0.2 ÷ 1) x I_n and OFF
  [I_g = 0.2-0.3-0.4-0.5-0.6-0.7-0.8-1 x I_n; OFF]
- t_g (0.1 ÷ 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 DMX³ 2500 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

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

DMX³ range of product concerning circuit-breakers and switch-disconnectors are in full compliance with the IEC/EN standard 60947-2 and 60947-3 respectively.

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

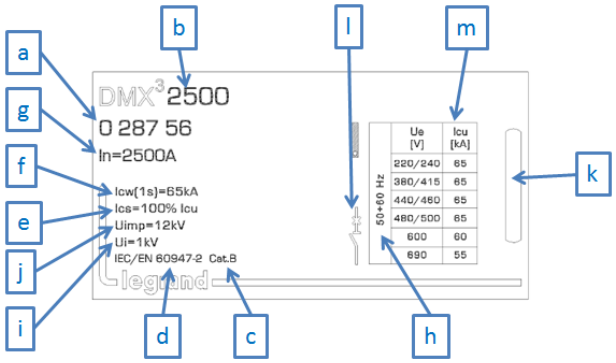
All the product range are CE, CCC, EAC marked. Other local markings are available.

DMX³ 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	Rated 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_e

8. EQUIPMENTS AND ACCESSORIES

Note: where not specified, accessories are common for every DMX³ (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_c)	AC: 24V;48V;110V ÷ 130V;220V ÷ 250V;415V/440V/480V DC: 24V; 48V; 110V ÷ 130V; 220V ÷ 250V
Voltage range (%U_c)	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_c)	AC: 24V;48V;110V ÷ 130V;220V ÷ 250V;415V/440V/480V DC: 24V; 48V; 110V ÷ 130V; 220V ÷ 250V
Voltage range (%U_c)	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_c)	AC: 110V / 230V DC: 110V / 230V
Voltage range (%U_c)	85 ÷ 110
Pick-up consumption (W / VA)	16.5 (@110V) / 34.5 (@230V)
Time delay (s)	1 (1)
Hold consumption (W /VA)	5 (@110V) / 10 (@230V)
Opening threshold	0.35 ÷ 0.7 U_n
Closing threshold	0.85 U_n
Operating temperature (°C)	-10 ÷ +55

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

• Motor operators

To motorize a DMX³, 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

Rated operating voltage (U_c)	AC: 24V;48V;110V ÷ 130V;220V÷250V;415V ÷ 440V;480V DC: 24V; 48V; 110V ÷ 130V; 220V ÷ 250V
Voltage range (%U_c)	85 ÷ 110
Maximum Power consumption (W / VA)	180 / 180(DMX³ - N, DMX³ - H and DMX³-I); 240/240 (DMX³ - L)
Maximum peak current for 80ms	(2 ÷ 3) x I_n
Charging time (s)	5 (DMX³ - N, DMX³ - H and DMX³-I); 7 (DMX³ - L)
Operating frequency (n° / min)	2 (DMX³ - N, DMX³ - H and DMX³-I); 1 (DMX³ - L)

• 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_c)	AC: 24V;48V;110V ÷ 130V;220V ÷ 250V;415V/440V/480V DC: 24V; 48V; 110V ÷ 130V; 220V ÷ 250V
Voltage range (%V_n)	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

• 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_c)	**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_c)	**AC**	250V 16A 125V 16A

• Additional signalling contact ref. 0 288 15

Rated operating voltage (U_c)	**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_c)	**DC**	250V 0.3A 125V 0.6A
	AC	250V 16A 125V 16A

DMX³ 2500 circuit breakers

DMX³-I 2500 switch disconnectors

References: 0 286 20 / 21 / 22 / 23 / 24 / 25 / 26 / 30 / 31/ 32/ 33/ 34 / 35 / 36 / 40 / 41 / 42 / 43 / 44 / 45 / 46 / 50 / 51 / 52 / 53 / 54 / 55 / 56 / 60 / 61 / 62 / 63 / 64 / 65 / 66 / 70 / 71 / 72 / 73 / 74 / 75 / 76 / 83 / 84 / 85 / 86 / 0 287 20 / 21 / 22 / 23 / 24 / 25 / 26 / 30 / 31 / 32 / 33 / 34 / 35 / 36 / 40 / 41/ 42 / 43 / 44 / 45 / 46 / 50 / 51 / 52 / 53 / 54 / 55 / 56 / 60 / 61 / 62 / 63 / 64 / 65 / 66 / 70 / 71 / 72 / 73 / 74 / 75 / 76 / 93 / 94 / 95 / 96

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 DMX³ and DMX³-I 2500

To integrate DMX³ and DMX³-I 2500 into XL³ 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 DMX³ / DMX³-I 2500 frame (DMX³ - N, DMX³ - H and DMX³-I)	
3P	ref. 0 289 02
4P	ref. 0 289 03
For DMX³ / DMX³-I 2500 frame (DMX³ - L)	
3P	ref. 0 289 04
4P	ref. 0 289 05

- Transformation kit for draw-out version

For DMX³ / DMX³-I 2500 frame (DMX³ - N, DMX³ - H and DMX³-I)	
3P	ref. 0 289 09
4P	ref. 0 289 10
For DMX³ / DMX³-I 2500 frame (DMX³ - L)	
3P	ref. 0 289 11
4P	ref. 0 289 12

8.6 Equipment for interlocking

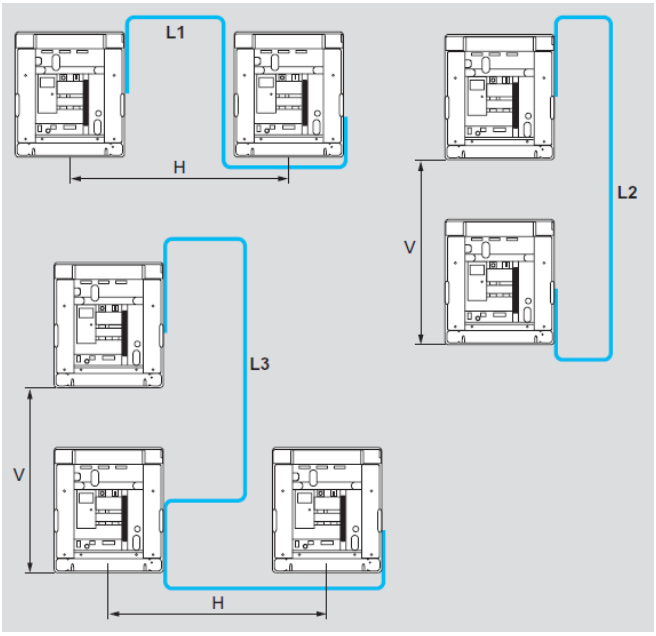
The mechanical interlock is set up using cables and can interlock 2 or 3 devices, which may be different type in a vertical or horizontal configuration. The interlock unit is mounted on the right-hand side of the device. Interlock cables to be ordered separately.

- Interlock for DMX³ 2500 (DMX³ - N, DMX³ - H and DMX³-I) ref. 0 288 64
- Interlock for DMX³ 2500 (DMX³ - L) ref. 0 288 65

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

8.8 Spreaders for DMX³ 2500 fixed version

To be fixed onto horizontal rear terminals of the circuit breaker

- For flat connections with bars, 3P ref. 0 288 86
- For flat connections with bars, 4P ref. 0 288 87
- For vertical connections with bars, 3P ref. 0 288 88
- For vertical connections with bars, 4P ref. 0 288 89
- For horizontal connections with bars, 3P ref. 0 288 90
- For horizontal connections with bars, 4P ref. 0 288 91

8.9 Rear terminals

- For fixed version (DMX³ - N, DMX³ - H and DMX³-I)

For flat connections with bars, 3P ref. 0 288 84
For flat connections with bars, 4P ref. 0 288 85
For vertical connections with bars, 3P ref. 0 288 82
For vertical connections with bars, 4P ref. 0 288 83

Note 1: ref.s 0 288 84/85 to be fixed onto horizontal rear terminals of the circuit breaker
Note 2: ref.s 0 288 82/83 to are used to transform a flat connection into a vertical one. To be fixed onto Cat.Nos 0 288 84/85 according to the number of poles.

- For draw-out version(DMX³ - N, DMX³ - H and DMX³-I)

For vertical or horizontal connections with bars, 3P ref. 0 288 96
For vertical or horizontal connections with bars, 4P ref. 0 288 97

- For fixed version (DMX³ - L)

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

Note1: refs. 0 288 92/93 to be fixed onto horizontal rear terminals of the circuit breaker
Note 2: refs. 0 288 94/95 to are 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 (DMX³ - L)

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

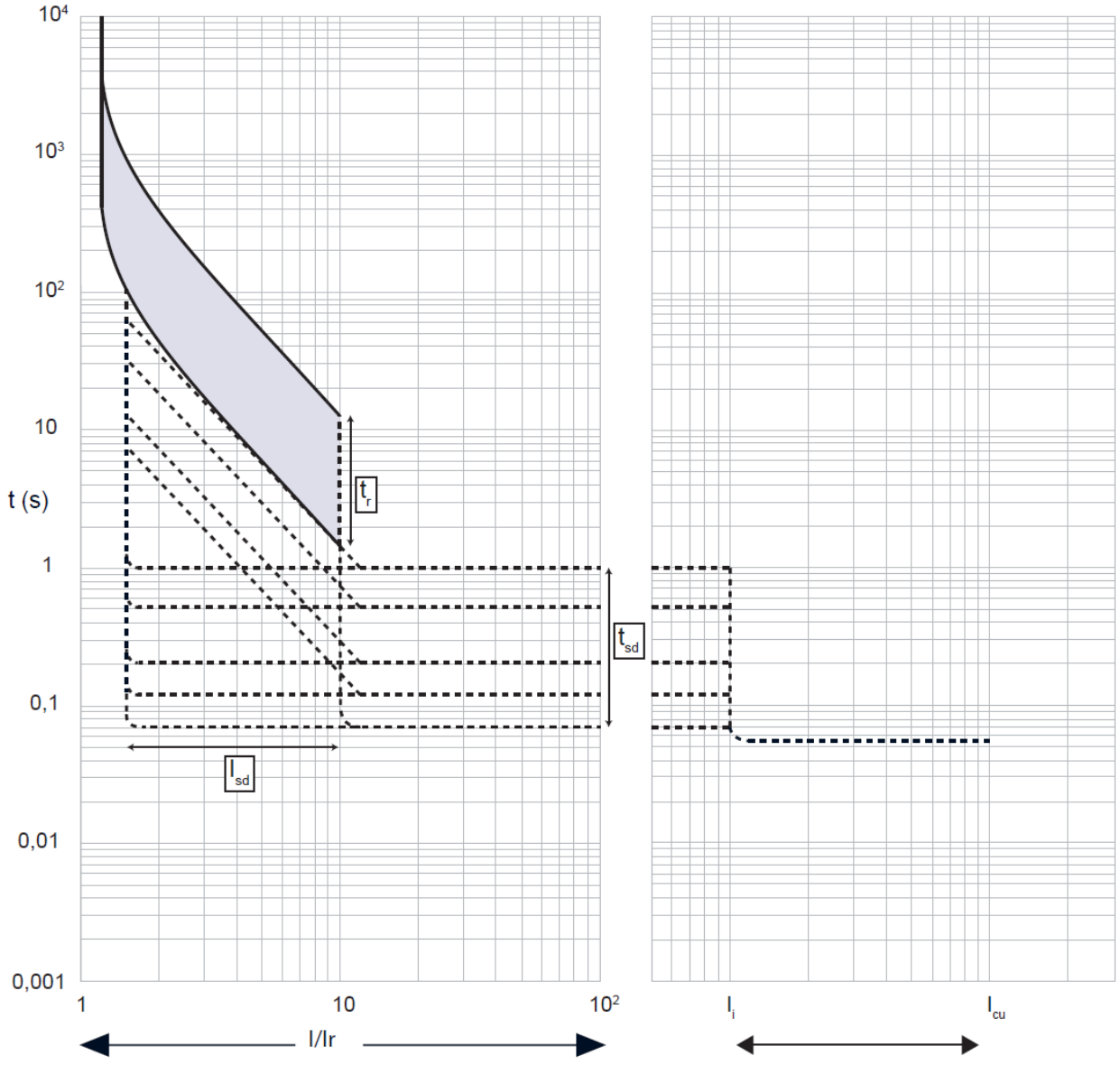
Note: to be fixed directly onto plate rear terminals of the circuit breaker

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

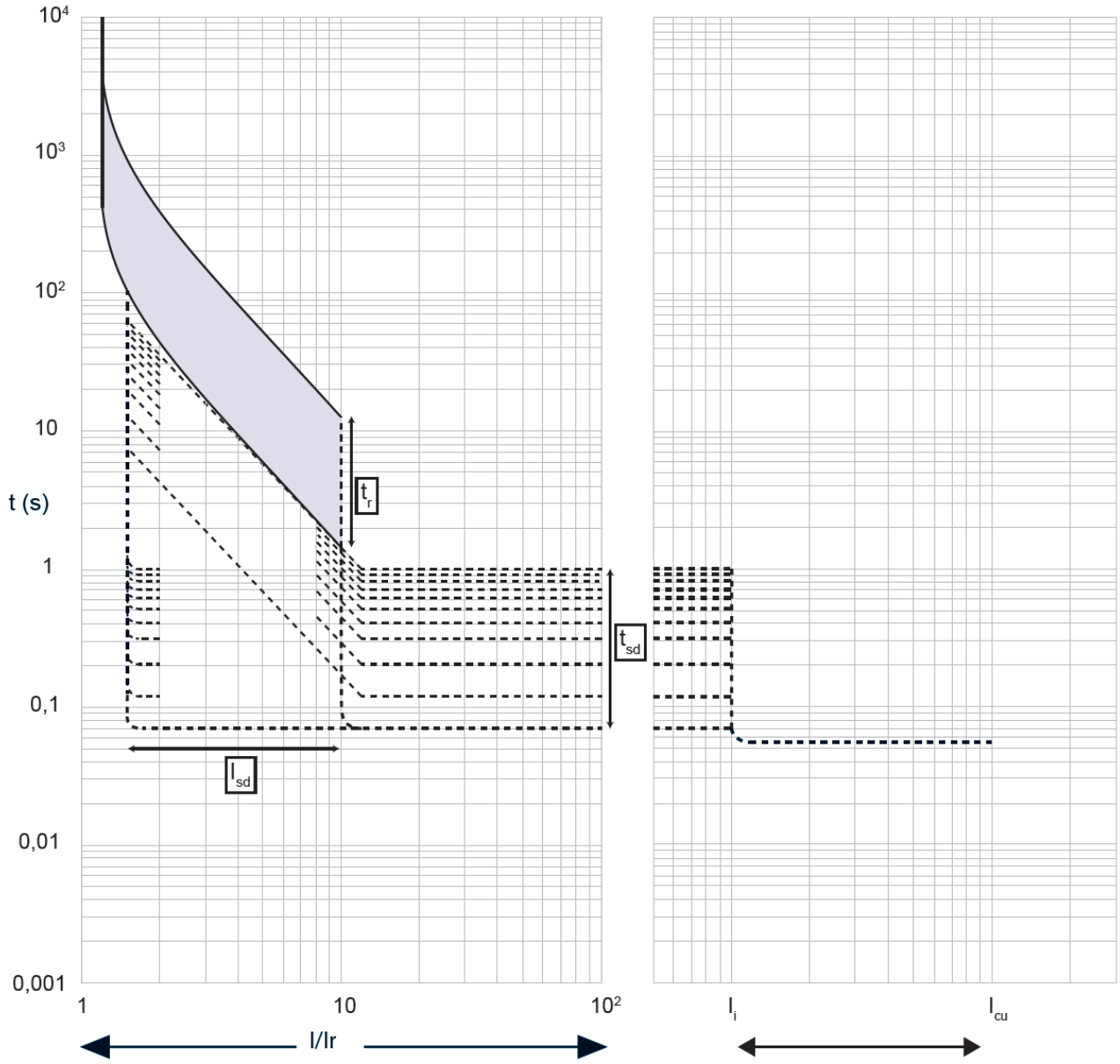
9. CURVES

9.1 TRIPPING CURVE FOR MP4 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

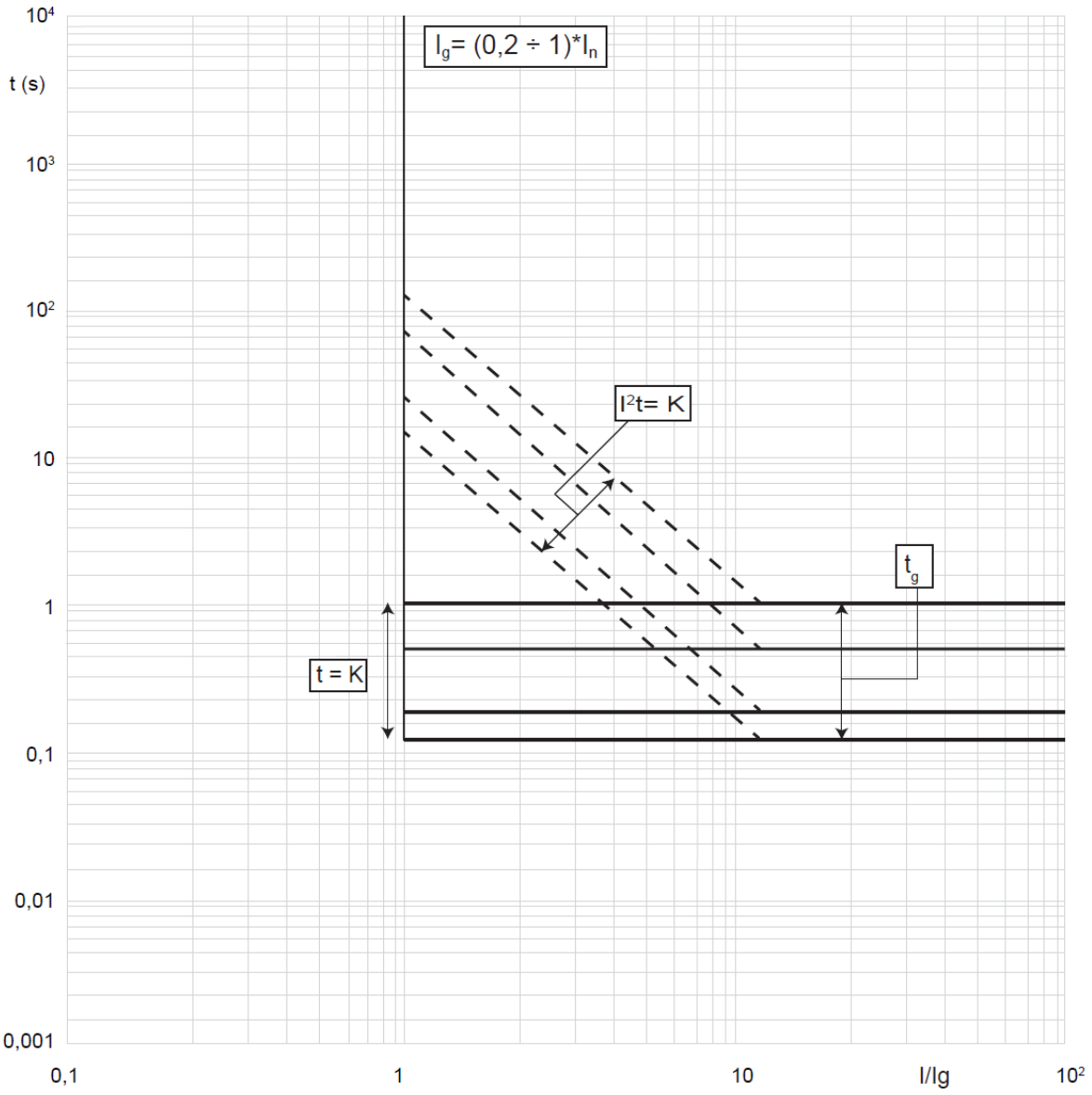
9.2 TRIPPING CURVE FOR MP6 protection units



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

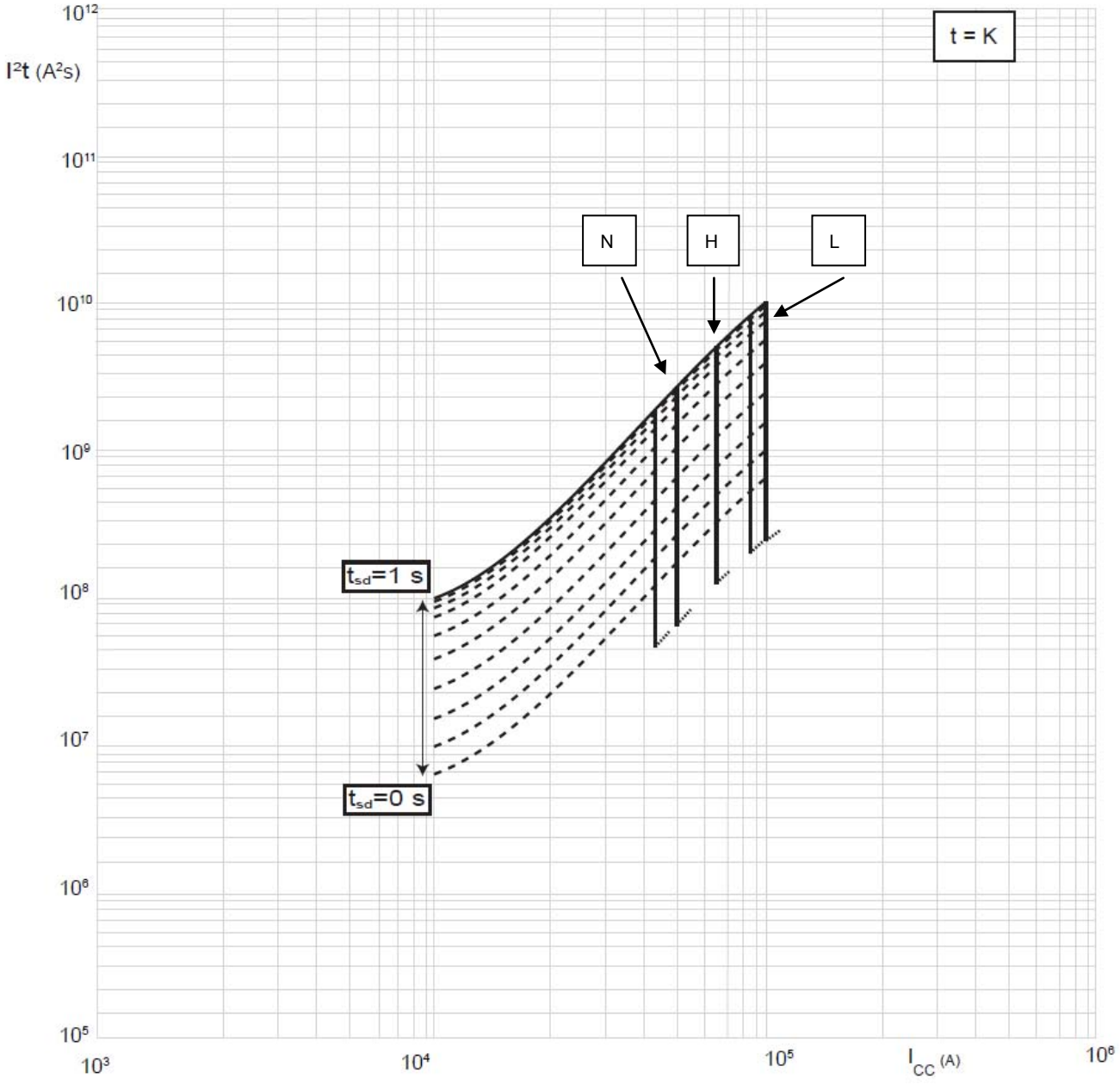
9.3 GROUND FAULT TRIPPING CURVE

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 (U_e = 415V)



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