DMX^3
4000 -1000 V~

Reliable protection for your wind turbine, photovoltaic and railway installations

AIR CIRCUIT BREAKERS FROM 630 A to 4000 A

CATALOGUE PAGES INSIDE

GLOBAL SPECIALIST
IN ELECTRICAL AND DIGITAL BUILDING INFRASTRUCTURES

legrand®

DMX³
4000 -1000 V~

THESE AIR CIRCUIT BREAKERS, SPECIALLY DESIGNED TO SUIT YOUR PERFORMANCE REQUIREMENTS, EFFECTIVELY PROTECT YOUR WIND TURBINE, PHOTOVOLTAIC OR RAILWAY INSTALLATIONS UP TO 4000 A AND BREAKING CAPACITIES UP TO 65 kA. HIGH PERFORMANCE, RELIABILITY AND STRENGTH ARE THE MAIN ADVANTAGES OF THIS NEW RANGE.

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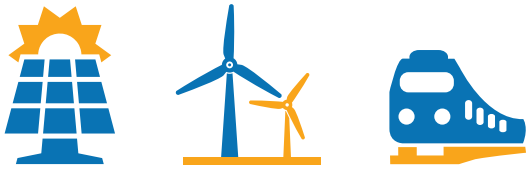
DMX³ 4000 - 1000 V~
3 AND 4-POLE FIXED VERSION

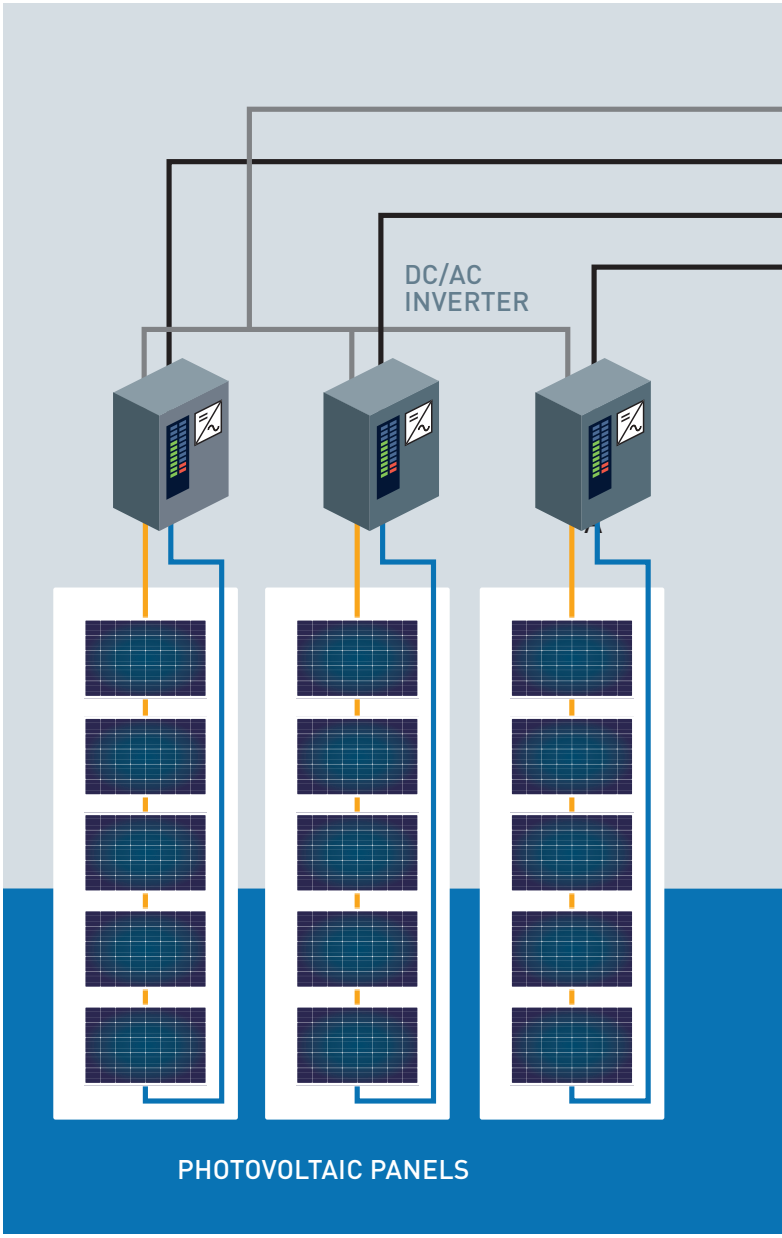
DMX³ 4000 - 1000 V~
3 AND 4-POLE DRAW-OUT VERSION



Perfectly adapted protection

AIR CIRCUIT BREAKERS ARE USED FOR INCOMING PROTECTION AND CONTROL IN SPECIFIC WIND, PHOTOVOLTAIC AND RAILWAY SECTORS THAT NEED TO OPERATE AT VOLTAGES OF UP TO 1000 V~.

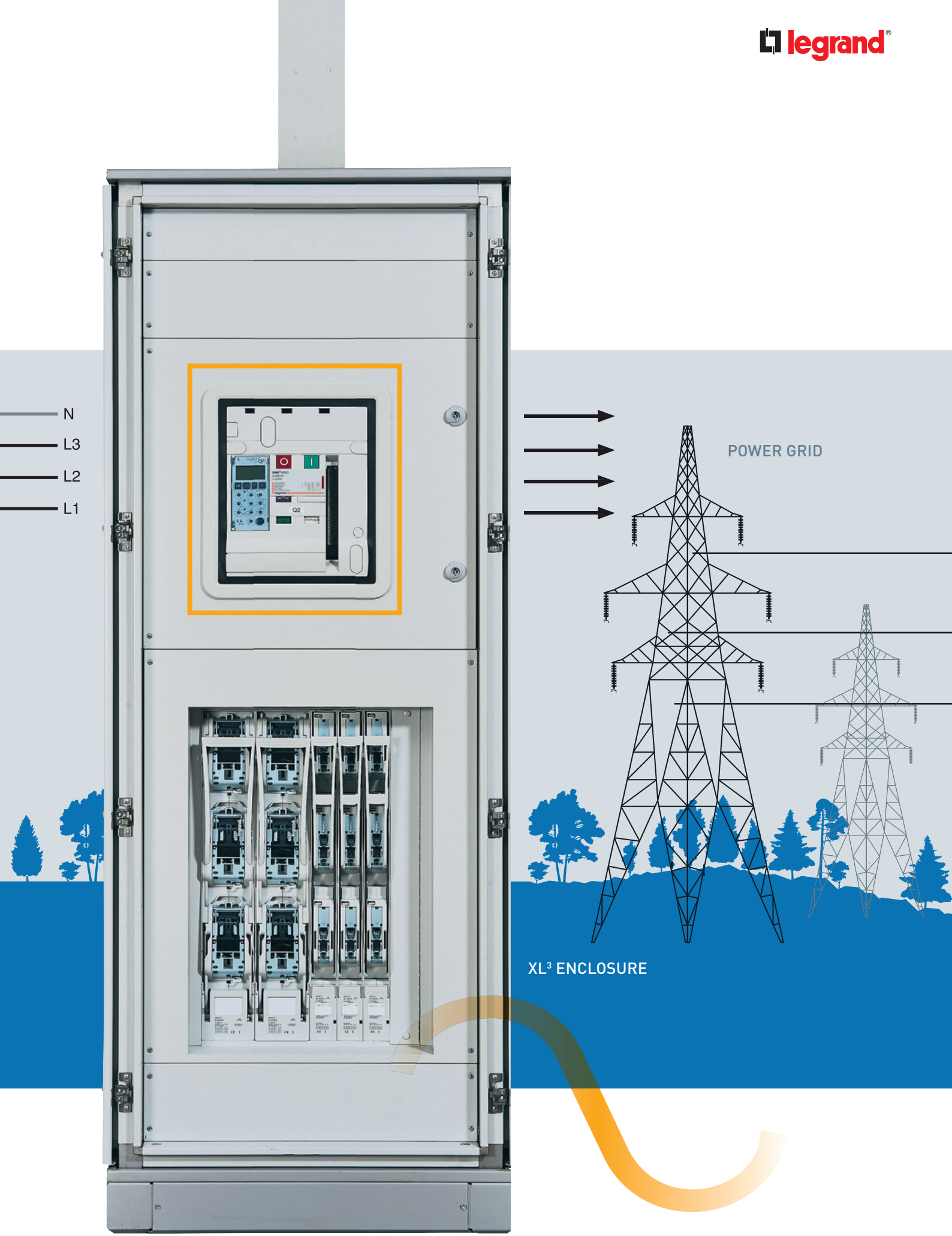
DMX³ 4000 – 1000 V~ AIR CIRCUIT BREAKERS INTEGRATE SEAMLESSLY INTO XL³ 4000 ENCLOSURES TO CREATE DIFFERENT CONFIGURATIONS ACCORDING TO THE NEEDS OF THE INSTALLATION.



COMPACT, OPTIMISED DIMENSIONS

The compact dimensions of DMX³ 4000 – 1000 V~ air circuit breakers optimise the use of space inside the enclosure so the most appropriate size of enclosure can be chosen.

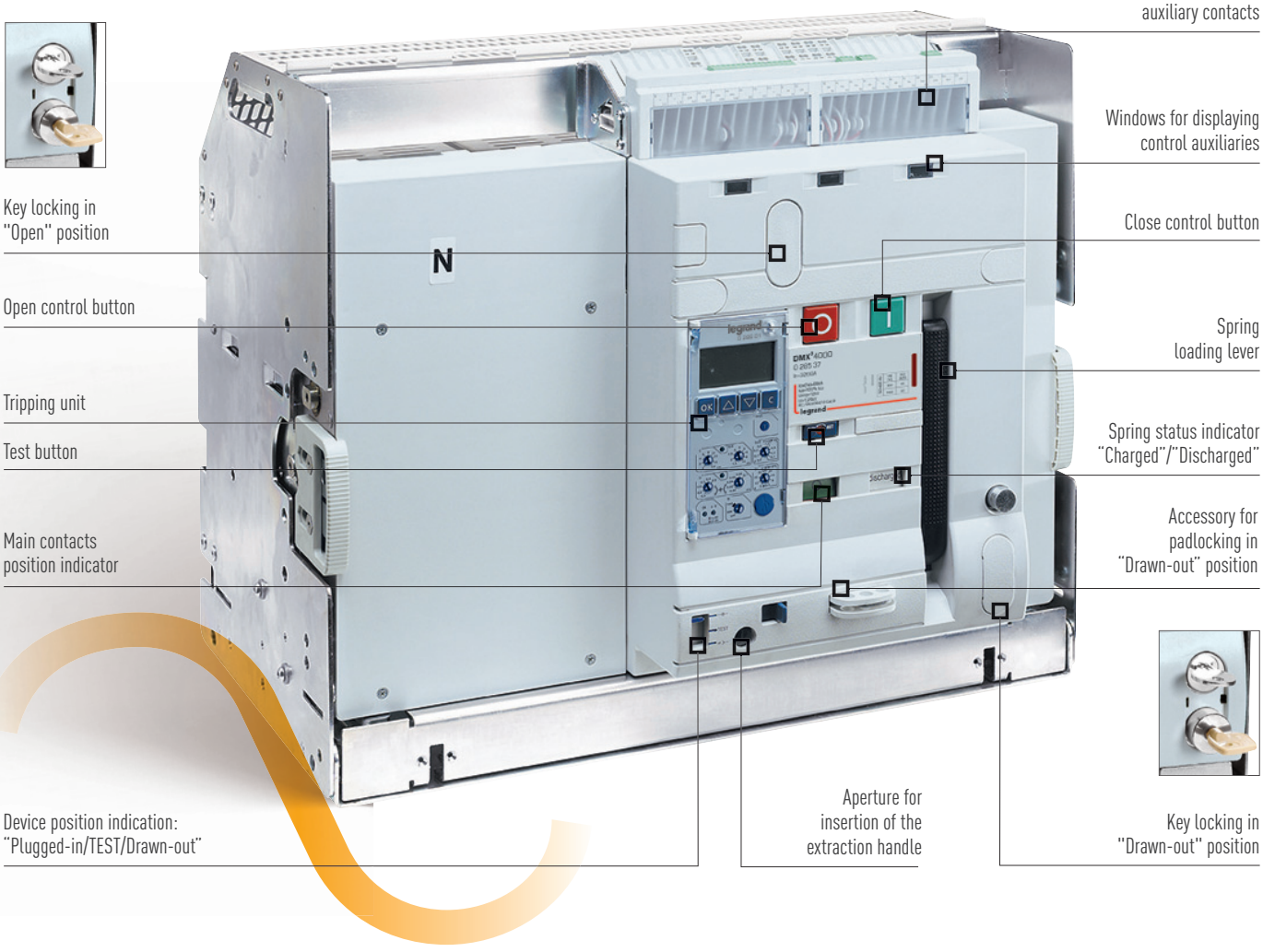
Dimensions (mm)	DMX³ 4000 - 1000 V~			
	Fixed version		Draw-out version	
	3P	4P	3P	4P
Height	419	419	465	465
Width	408	538	425	555
Depth	354	354	433	433


N
L3
L2
L1
POWER GRID
XL³ ENCLOSURE

High performance,
reliability and strength

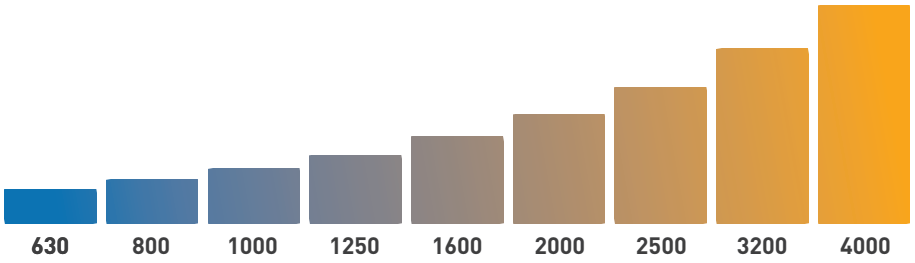
AVAILABLE IN 3 OR 4-POLE FIXED OR DRAW-OUT VERSIONS

These products are easy to use and to install, and provide effective protection for your installation. They are available with 3 and 4 poles, in fixed or draw-out versions, and come equipped with appropriate protection units depending on the desired performance level. This offer also includes a range of control and signalling auxiliaries and connection accessories for easy integration in any electrical installation, regardless of configuration.



DMX³ 4000 -1000 V~
CONFORMING TO
STANDARD IEC 60947-2

RATED OPERATING VOLTAGE Ue	BREAKING CAPACITY Icu (kA)
800 V~	65 kA
1000 V~	50 kA

DMX³ 4000 -1000 V~	Nominal current - In [A]
Fixed version  Draw-out version 	

DMX³ 4000 – 1000 V~ air circuit breakers have been specially designed to ensure excellent performance, including when used at high altitude and in extreme temperature conditions.
When installed at above 2000 m altitude, the air pressure decreases, making it harder for heat to be exchanged between the circuit breaker and its environment. Derating must therefore be applied.

Altitude (m)	2000	3000	4000	5000
Nominal current at 40°C In (A)	In	0.98 x In	0.94 x In	0.90 x In
Rated voltage Ue (V)	1000	880	750	690
Insulation voltage Ui (V)	1250	1100	950	850
Impulse withstand voltage (Uimp)	3500	3200	2500	2000

DMX³ 4000 – 1000 V~ air circuit breakers can be used in ambient temperature conditions between -25°C and +70°C, which is ideal for existing wind and solar power installations. They can also be installed in industrial environments. For temperatures above 40°C, derating must be applied.

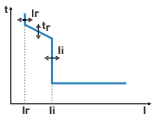
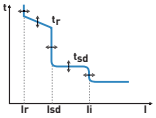
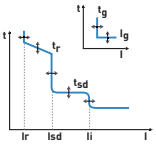
TEMPERATURE															
DMX³ 4000 -1000 V~ Fixed version								DMX³ 4000 -1000 V~ Draw-out version							
≤ 40°C		50°C		60°C		70°C		≤ 40°C		50°C		60°C		70°C	
Imax	Ir/In	Imax	Ir/In	Imax	Ir/In	Imax	Ir/In	Imax	Ir/In	Imax	Ir/In	Imax	Ir/In	Imax	Ir/In
630	1	630	1	630	1	630	1	630	1	630	1	630	1	630	1
800	1	800	1	800	1	800	1	800	1	800	1	800	1	800	1
1000	1	1000	1	1000	1	1000	1	1000	1	1000	1	1000	1	1000	1
1250	1	1250	1	1250	1	1250	1	1250	1	1250	1	1250	1	1250	1
1600	1	1600	1	1600	1	1600	1	1600	1	1600	1	1600	1	1600	1
2000	1	2000	1	2000	1	2000	1	2000	1	2000	1	2000	1	2000	1
2500	1	2500	1	2500	1	2500	1	2500	1	2500	1	2500	1	2500	1
3200	1	3200	1	3200	1	3040	0.95	3200	1	3200	1	3200	1	2880	0.9
4000	1	3920	0.98	3680	0.92	3120	0.78	4000	1	3760	0.974	3440	0.86	2960	0.74

Accuracy
and adaptability

EFFECTIVE PROTECTION AGAINST ELECTRICAL FAILURES

DMX³ 4000 – 1000 V~ air circuit breakers are factory-fitted with MP4 protection units which guarantee an excellent level of protection, not to mention maximum accuracy and flexibility due to their multiple setting options. The 3 types of electronic unit allow accurate adjustment of the various trip thresholds for the current and time delay values. The result is effective protection against electrical failures, while ensuring total selectivity with the downstream circuit breakers. Advanced functions such as measurement, communication or logical selectivity, available on MP4 protection units, meet every need at any level.

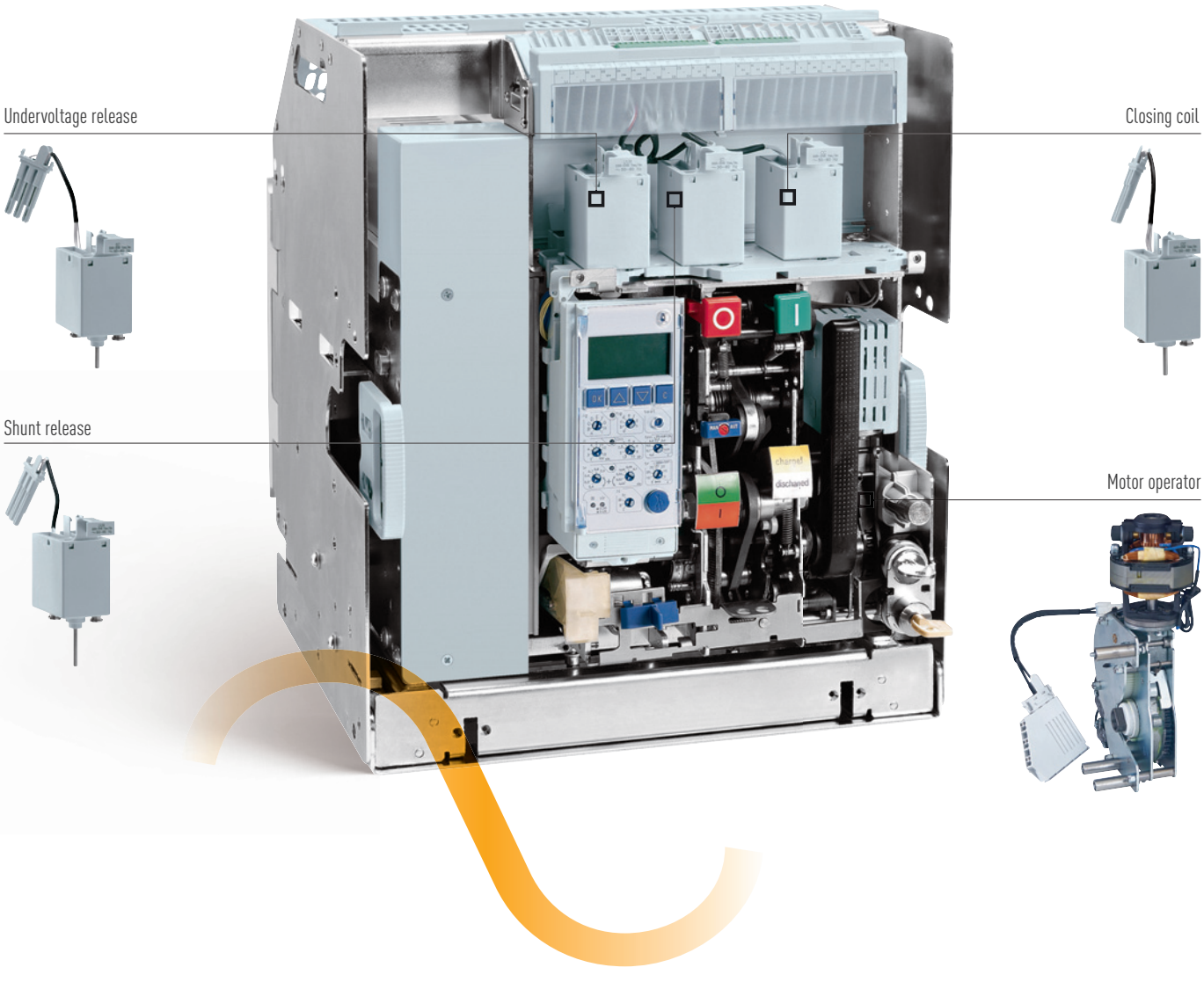
ALL THE PROTECTION UNITS HAVE BATTERIES SO THEY CAN ACCESS THE SETTINGS EVEN IF THE CIRCUIT BREAKER IS NOT SUPPLIED WITH POWER, AND TO ENSURE THAT SAVED DATA IS STORED IN THE MEMORY.

		DMX³ 4000 -1000 V ∿		
		MP4		
		LI	LSI	LSIg
				
PROTECTION DEVICES				
Long delay protection against overloads	Ir, tr	●	●	●
Long delay protection against short-circuits	Isd, tsd	–	●	●
Instantaneous protection against high-intensity short-circuits	Ii	●	●	●
Fault current to earth	Ig, tg	–	–	●
Neutral protection	I_N	●	●	●
FUNCTIONS				
Test function		●	●	●
Programming interface		●	●	●
External neutral option		●	●	●
LCD screen		●	●	●
Adjustment via potentiometer		●	●	●
Measurement (current)		●	●	●
Communication		●	●	●
Logical selectivity		●	●	●
Programmable contacts		●	●	●
Log		●	●	●
Internal battery		●	●	●

Simplicity and time-saving installation

THEY SIMPLY CLIP INSIDE THE CIRCUIT BREAKER

The complete range of control and signalling auxiliaries (shunt releases or undervoltage releases, motor operators, auxiliary contacts, etc) can be used to control DMX³ 4000 – 1000 V~ air circuit breakers remotely and relay information concerning the status of the device contacts. All the control auxiliaries simply clip inside the circuit breaker after removing the front panel. They are fitted with quick-connect connectors for maximum time saving when wiring the terminal block provided for this purpose.



ALL THE CONTROL ACCESSORIES CAN EASILY BE INSTALLED WITHOUT A SPECIAL TOOL IN A MATTER OF MINUTES. THEY SHOULD BE INSTALLED ON THE FRONT PANEL OF THE AIR CIRCUIT BREAKER. THIS ENSURES SEPARATION BETWEEN THE POWER AND CONTROL CIRCUITS.

SHUNT RELEASES

Shunt releases are devices used for remote instantaneous opening of the air circuit breaker. They are usually controlled by an NO type contact.
The shunt releases are fitted with a special quick-release connector, to be directly inserted into the auxiliary contact block.

Rated voltage Un (V)	24 V~/⎓ 48 V~/⎓ 110 - 130 V~/⎓ 220 - 250 V~/⎓ 415 - 440 V~
Operating threshold %Un	70 to 100
Maximum consumption (W/VA)	500/500
Pulse duration (ms)	180
Hold-in consumption (W/VA)	5/5
Response time (ms)	30
Insulation voltage (kV)	2.5

UNDERVOLTAGE RELEASES

Undervoltage releases are devices which are generally controlled by an NC type contact. They trigger instantaneous opening of the circuit breaker if their supply voltage drops below a certain threshold and especially if the control contact opens. These releases are equipped with a device for limiting their consumption after the circuit has been closed.

Rated voltage Un (V)	24 V~/⎓ 48 V~/⎓ 110 - 130 V~/⎓ 220 - 250 V~/⎓ 415 - 440 V~
Operating threshold %Un	85 to 110
Maximum consumption (W/VA)	500/500
Pulse duration (ms)	180
Hold-in consumption (W/VA)	5/5
Response time (ms)	60
Insulation voltage (kV)	2.5

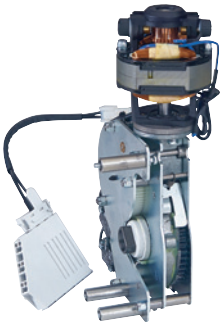
CLOSING COILS

These coils are used for remotely controlling closing of the circuit breaker power contacts. The circuit breaker springs should be loaded prior to action of the closing coils. The coils are controlled by an NO type contact.

Rated voltage Un (V)	24 V~/⎓ 48 V~/⎓ 110 - 130 V~/⎓ 220 - 250 V~/⎓ 415 - 440 V~
Operating threshold %Un	85 to 110
Maximum consumption (W/VA)	500/500
Pulse duration (ms)	180
Hold-in consumption (W/VA)	5/5
Response time (ms)	50
Insulation voltage (kV)	2.5

MOTOR OPERATORS

Motor operators are used for remotely reloading the springs in the circuit breaker mechanism immediately after the device trips. The device can thus be re-closed almost immediately after an opening operation.
To motorise a DMX³ 4000 – 1000 V~, a release (undervoltage release or current shunt trip) and a closing coil need to be added. If the supply voltage to the controls fails, it is still possible to reload the springs manually. Motor operators have "limit switch" contacts which cut off the power supply to their motor after the springs have been reloaded.



Rated voltage Un (V)	24 V~/⎓ 48 V~/⎓ 110 - 130 V~/⎓ 220 - 250 V~/⎓ 415 - 440 V~ 480 V~
Operating threshold %Un	85 to 110
Maximum consumption (W/VA)	240/240
Max. peak current	2 to 3 x In for around 80 ms
Spring reloading time (s)	5
Number of operations/minute	2

Maximum adaptability
in the distribution board

DIFFERENT CONFIGURATIONS POSSIBLE

The connection accessories are quick to install and are totally adaptable to different busbar configurations in the distribution board: flat, vertical or horizontal connection. In addition the catalogue numbers are the same to those for the DMX³ range, which helps to optimise management.

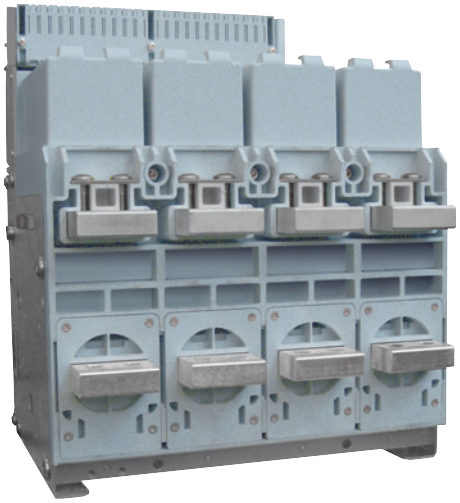
FIXED VERSION

DMX³ air circuit breakers are factory-fitted with rear terminals for horizontal connection. For flat connection, simply add rear terminals Cat.Nos 0 288 92/93 which fit directly on to the built-in horizontal terminals. With vertical connection, 2 accessories are used: reversible rear terminals Cat.Nos 0 288 94/95 are fitted onto the rear terminals for flat connection Cat.Nos 0 288 84/85.

DRAW-OUT VERSION

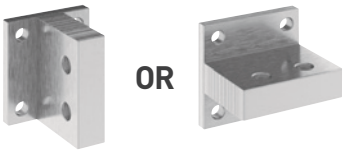
DMX³ air circuit breakers are factory-fitted with rear terminals for flat connection. You can easily reconfigure the circuit breaker for vertical or horizontal connection using reversible rear terminals Cat.Nos 0 288 94/95.

DMX³ 4000 -1000 V~ FIXED VERSION



Flat connection Cat.Nos 0 288 92/93	
Horizontal connection	**Directly on the device**
Vertical connection Cat.Nos 0 288 92/93 + 0 288 94/95	

DMX³ 4000 -1000 V~ DRAW-OUT VERSION

Flat connection	**Directly on the device**
Horizontal connection Cat.Nos 0 288 94/95	
Vertical connection Cat.Nos 0 288 94/95	

Air circuit breakers DMX³ 4000 - 1000 V~

from 630 to 4000 A

0 285 17

0 285 37

Dimensions **p. 15-16**
Electrical characteristics **p. 14**

Automatic air circuit breakers must be equipped with electronic protection unit (p. 12), imperatively ordered together for factory assembly
Please ask for DMX³ order form
Conform to IEC 60947-2

Fixed version

Supplied with
- 4 auxiliary contacts: NO/NC
- rear terminals for horizontal connection with bars
- door sealing

Breaking capacity Icu 50 kA (1000 V~)

Pack	Cat.Nos		
	Frame 4000		
	3P	4P	In (A)
1	0 285 00	0 285 10	630
1	0 285 01	0 285 11	800
1	0 285 02	0 285 12	1000
1	0 285 03	0 285 13	1250
1	0 285 04	0 285 14	1600
1	0 285 05	0 285 15	2000
1	0 285 06	0 285 16	2500
1	0 285 07	0 285 17	3200
1	0 285 08	0 285 18	4000

Draw-out version

Supplied with
- 4 auxiliary contacts: NO/NC
- draw-out base and kit
- flat rear terminals for connection with bars
- door sealing

Breaking capacity Icu 50 kA (1000 V~)

Pack	Cat.Nos		
	Frame 4000		
	3P	4P	In (A)
1	0 285 20	0 285 30	630
1	0 285 21	0 285 31	800
1	0 285 22	0 285 32	1000
1	0 285 23	0 285 33	1250
1	0 285 24	0 285 34	1600
1	0 285 25	0 285 35	2000
1	0 285 26	0 285 36	2500
1	0 285 27	0 285 37	3200
1	0 285 28	0 285 38	4000

Electronic protection units for DMX³ 4000 - 1000 V~

0 288 00

0 288 01

0 288 02

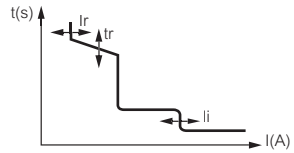
Settings and curves **see e-catalogue**

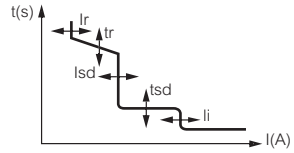
DMX³ circuit breakers must be equipped with electronic protection units (to be ordered together for factory assembly) enabling very precise adjustments of the protection conditions, while maintaining total discrimination with downstream devices
All protection units are equipped with batteries for powering in case of mains fault or when the breaker is open or not connected

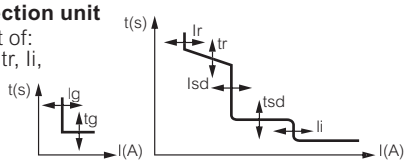
MP4 protection units with LCD screen

Integrated LCD screen for displaying electrical values, settings and log
Adjustment via selector switches
For DMX³ 2500, 4000, 6300 and DMX³ 4000 - 1000 V~

Pack	Cat.Nos	
1	0 288 00	**LI protection unit** Adjustment of: Ii, Ir, tr
1	0 288 01	**LSI protection unit** Adjustment of: Isd, tsd, Ir, tr and Ii
1	0 288 02	**LSIg protection unit** Adjustment of: Isd, tsd, Ir, tr, Ii, Ig and tg







Accessories for electronic protection units

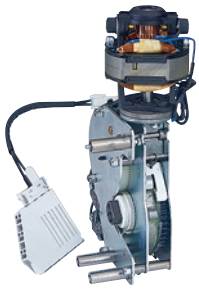
1	0 288 05[1]	Communication option for DMX³ electronic protection units
1	0 288 06	24 V DC external auxiliary power supply
1	0 288 11[1]	External neutral for DMX³ 2500 and 4000
1	0 288 12[1]	Module programmable output

1: Optional accessories, to be ordered when ordering electronic protection unit and DMX³ air circuit breakers for factory assembly

Auxiliaries and accessories for DMX³ 4000 - 1000 V~


0 288 51


0 288 58


0 288 37


0 288 44


0 288 15

Pack	Cat.Nos	Control and signalling auxiliaries
		Shunt trip
		When energised the circuit breaker will be tripped
1	0 288 48	24 V~/ ⎓
1	0 288 49	48 V~/ ⎓
1	0 288 50	110 - 130 V~/ ⎓
1	0 288 51	220 - 250 V~/ ⎓
1	0 288 52	415 - 480 V~
		Undervoltage releases
		When the coil is de-energised, the circuit breaker will be tripped
1	0 288 55	24 V~/ ⎓
1	0 288 56	48 V~/ ⎓
1	0 288 57	110 - 130 V~/ ⎓
1	0 288 58	220 - 250 V~/ ⎓
1	0 288 59	415 - 480 V~
		Module for delayed tripping
		To be used with above undervoltage releases
1	0 288 62	110 V~/ ⎓
1	0 288 63	230 V~/ ⎓
		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
1	0 288 34	24 V~/ ⎓
1	0 288 35	48 V~/ ⎓
1	0 288 36	110 - 130 V~/ ⎓
1	0 288 37	220 - 250 V~/ ⎓
1	0 288 38	415 - 440 V~
1	0 288 40	480 V~/ ⎓
		Closing coils
		Enables remote closing of the circuit breaker if the closing spring is charged
1	0 288 41	24 V~/ ⎓
1	0 288 42	48 V~/ ⎓
1	0 288 43	110 - 130 V~/ ⎓
1	0 288 44	220 - 250 V~/ ⎓
1	0 288 45	415 - 480 V~
		Signalling contact for auxiliaries
1	0 288 16	Signalling contact for shunt trips, undervoltage releases and closing coils
		Signalling contact for draw-out version
		Inserted / test / draw-out signalling contact
1	0 288 13	3 changeover contacts per position

Pack	Cat.Nos	Locking
		Key locking in "open" position
1	0 288 30	Lock and star key N° HBA90GPS6149 - to be fitted on the frame Cat.No 0 288 28
1	0 288 31	Lock and flat key N° ABA90GEL6149 - to be fitted on the frame Cat.No 0 288 28
1	0 288 28	2 hole support frame for locks Cat.Nos 0 288 30/31
1	0 288 29	Set of 5 key barrels with flat key
		Key locking in the draw-out position
		Mounting of the lock on the base
1	0 288 32	Lock and star key N° HBA90GPS6149
1	0 288 33	Lock and flat key N° ABA90GEL6149
		Door locking
		Prevents opening of the door with the circuit breaker closed
1	0 288 20	Left-hand and right-hand side mounting
		Padlocks in "open" position
1	0 288 21	Padlocking system for ACB (padlock not supplied)
1	0 288 24	Padlock for buttons
1	0 288 26	Padlocking system for shutters (padlock not supplied)

Pack	Cat.Nos	Equipment for conversion of a fixed device into draw-out device
	3P | 4P	**Bases for draw-out device**
1	0 289 04 | 0 289 05	For DMX³/DMX³-I frame 4000
		Transformation kit for draw-out version
1	0 289 11 | 0 289 12	For DMX³/DMX³-I frame 4000

Pack	Cat.Nos	Accessories
1	0 288 25	Rating mis-insertion device Prevents the insertion of a draw-out circuit breaker in an incompatible base
1	0 288 23	Operations counter Counts total number of operation cycles of the device
1	0 288 14	Contact "ready to close" with charged springs
1	0 288 15	Additional signalling contact
1	0 288 79	Lifting plate

Rear terminals for DMX³ 4000 - 1000 V~

0 288 92

0 288 94

Dimensions **p. 15-16**

Pack	Cat.Nos 3P	Cat.Nos 4P	
			Rear terminals
1	0 288 92	0 288 93	**For DMX³ frame 4000, 6300 and DMX³ 4000 - 1000 V~ fixed version** For flat connection with bars To be fixed onto horizontal rear terminals of the circuit breaker 2 sets are required for frame 6300
1	0 288 94	0 288 95	**For DMX³ frame 4000, 6300 and DMX³ 4000 - 1000 V~ fixed or draw-out version** On DMX³ fixed version: - For vertical connection with bars - To be fixed onto Cat.Nos 0 288 92/93 according to the number of poles On DMX³ draw-out version: - For vertical or horizontal connection with bars - To be fixed directly onto plate rear terminals of the circuit breaker 2 sets are required for frame 6300
			Insulation shields
1	0 288 98	0 288 99	**For fixed version** Insulation shields for DMX³/DMX³-I frames 2500 / 4000 / 6300 and DMX³ 4000 - 1000 V~
1	0 288 18	0 288 19	**For draw-out version** Insulation shields for DMX³/DMX³-I frames 2500 / 4000 / 6300 and DMX³ 4000 - 1000 V~

DMX³ 4000 - 1000 V~

technical characteristics

Technical characteristics

DMX³ according to IEC 60947-3		DMX³ 4000 - 1000 V~
Release type		electronic
Number of poles		3P - 4P
Pole pitch (mm)		130
Rated current I_n (A)		630/800/1000/1250/1600/2000/2500/3200/4000
Rated insulation voltage U_i (V)		1250
Rated impulse withstand voltage U_{imp} (kV)		12
Rated operational voltage (50/60Hz) U_e (V)		1150
Frame		4000
Rated ultimate short-circuit breaking capacity I_{cu} (kA)	800 V AC	65
	1000 V AC	50
Rated service short-circuit breaking capacity I_{cs} (% I_{cu})		100%
Rated short-circuit making capacity I_{cm} (kA)	800 V AC	143
	1000 V AC	105
Rated short time withstand current I_{cw} (kA) for t = 1s	800 V AC	65
	1000 V AC	50
Rated short time withstand current I_{cw} (kA) for t = 3s	800 V AC	65
	1000 V AC	50
Category of use		B
Suitable for insulation		Yes

Derating at different altitudes

Air circuit breaker	DMX³ 4000 - 1000 V~			
Altitude (m)	2000	3000	4000	5000
Rated current (at 40°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)	1000	880	750	690
Rated insulation voltage U_i (V)	1250	1100	950	850
Dielectric withstand (V)	3500	3200	2500	2000

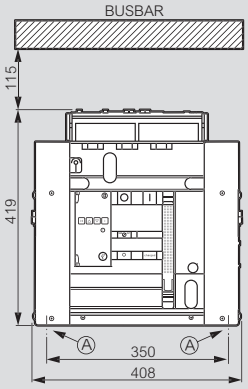
DMX³ 4000 - 1000 V~ - frame 4000

dimensions

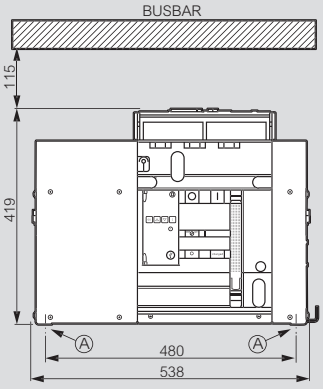
Fixed version - frame 4000

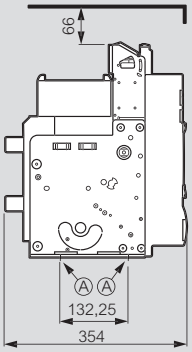
Overall dimensions

3P version



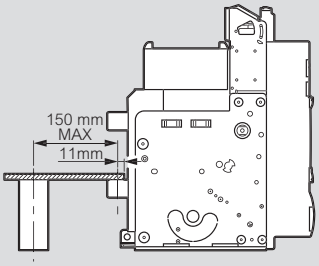
4P version

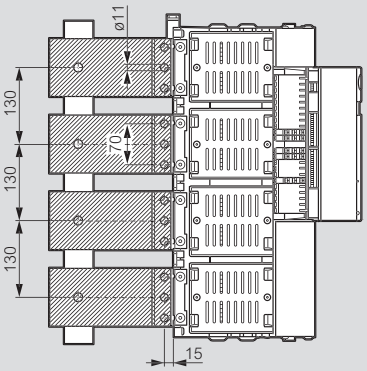




A = fixing point on plate of enclosure

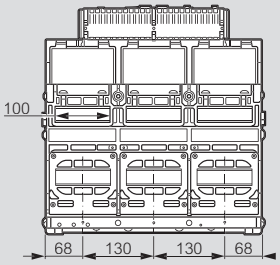
Connection principle



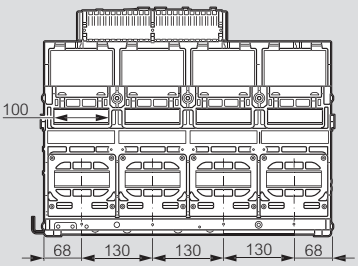


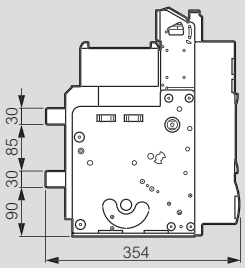
Rear terminals

3P version



4P version

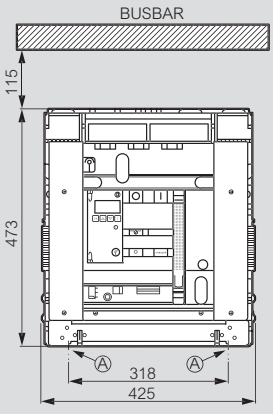




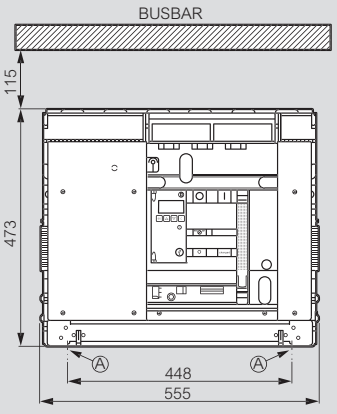
Draw-out version - frame 4000

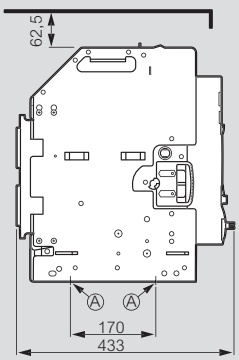
Overall dimensions

3P version



4P version





A = fixing point on plate of enclosure

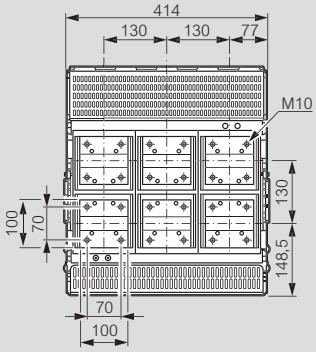
DMX³ 4000 - 1000 V~ - frame 4000

dimensions (continued)

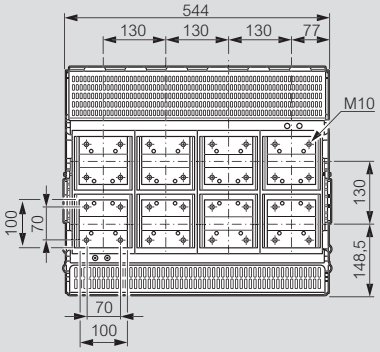
Draw-out version - frame 4000 (continued)

Rear terminals for flat connection with bars

3P version



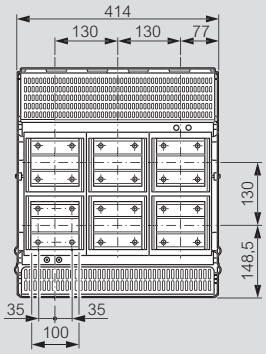
4P version

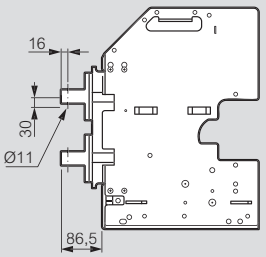


Rear terminals for horizontal connection with bars

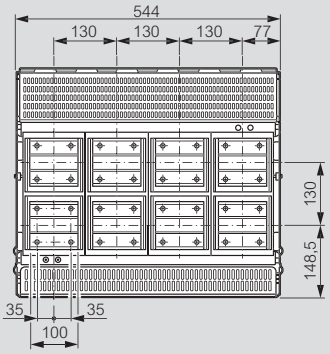
Cat.Nos 0 288 92/93

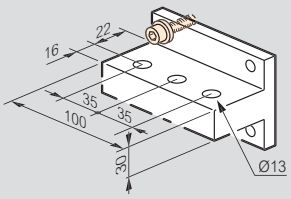
3P version





4P version

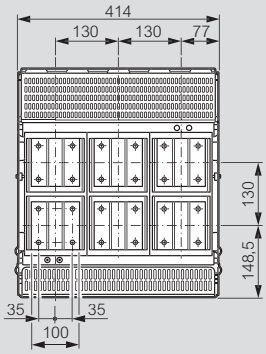


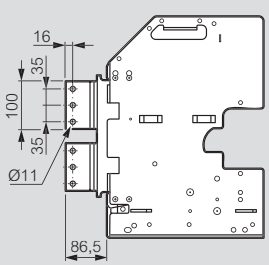


Rear terminals for vertical connection with bars

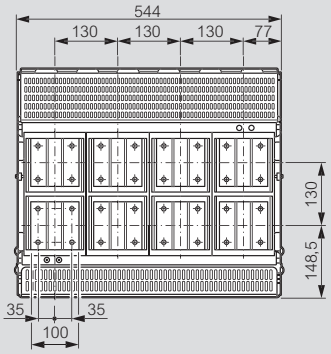
Cat.Nos 0 288 92/93

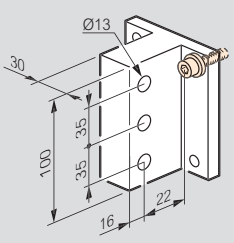
3P version





4P version





Notes

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Head Office
and International Department
87045 Limoges Cedex - France
Tel: +33(0)5 55 06 87 87
Fax: +33(0)5 55 06 74 55