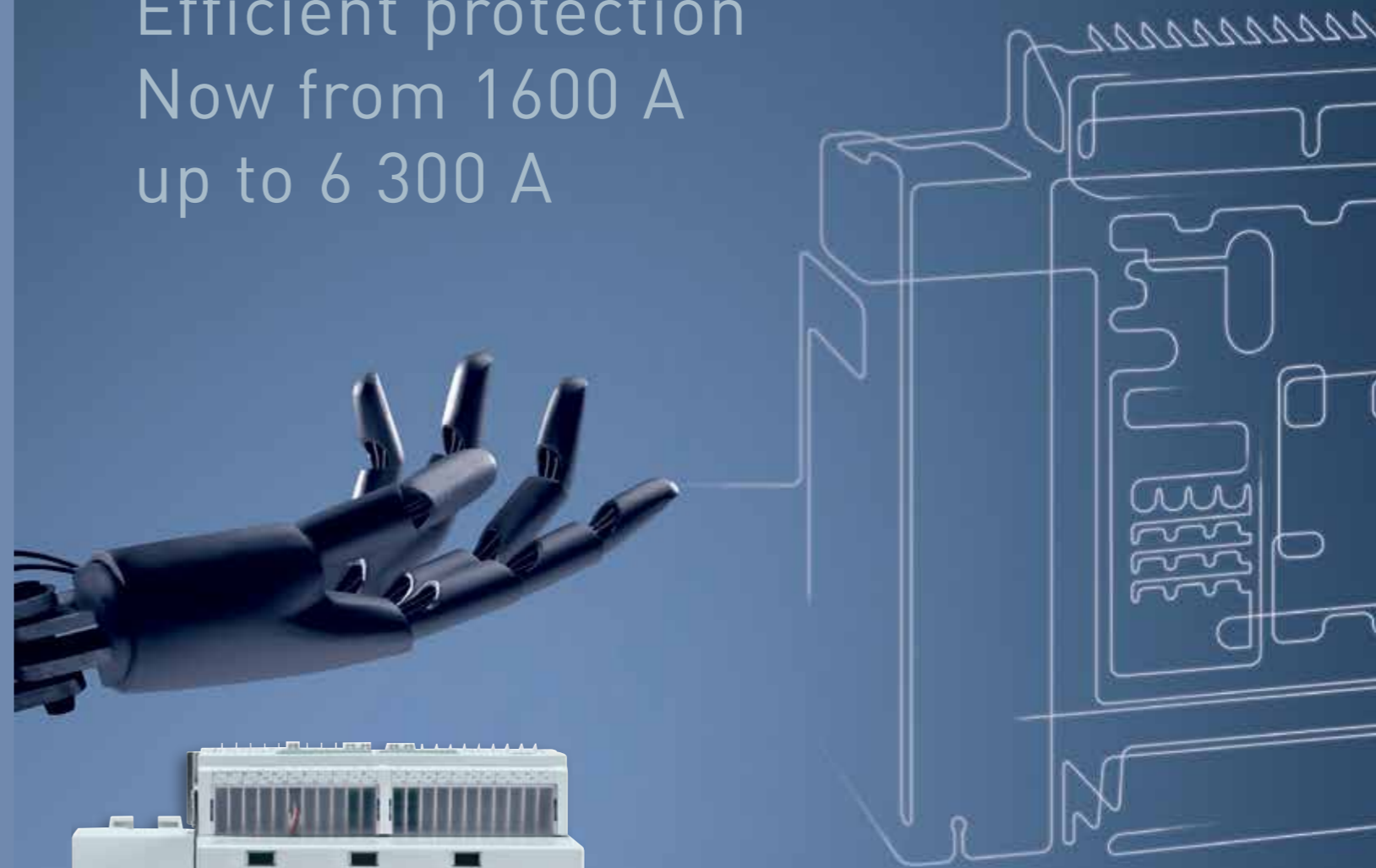


New DMX³

Efficient protection
Now from 1600 A
up to 6300 A



FOLLOW US
ALSO ON

@ www.legrand.com.mm
f Legrand Myanmar
customerhub.mm@legrandelectric.com

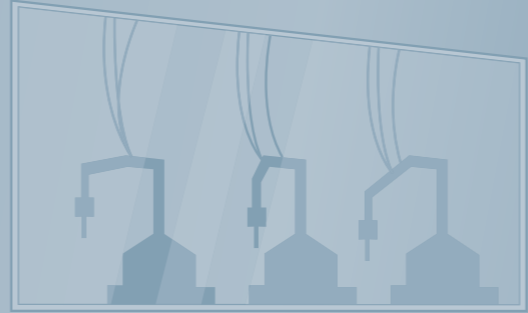
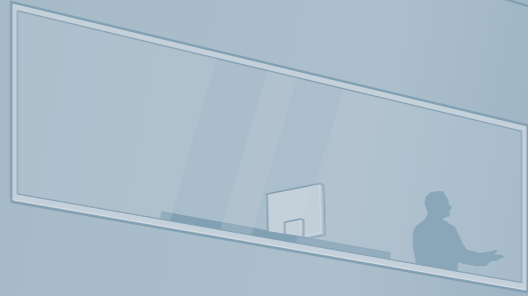


Legrand (S) Pte Ltd Myanmar Branch
Room No (304), Level-2, Building (15),
Myanmar ICT Park, Hlaing Universities'
Campus, Hlaing Township, Yangon, Myanmar.
Ph: 01-230 5240

AIR CIRCUIT BREAKERS | PRODUCT GUIDE

NEW DMX³ ACBs UP TO 6 300 A

EFFICIENT PROTECTION
AND CONTROL FOR ALL
TYPE OF BUILDINGS

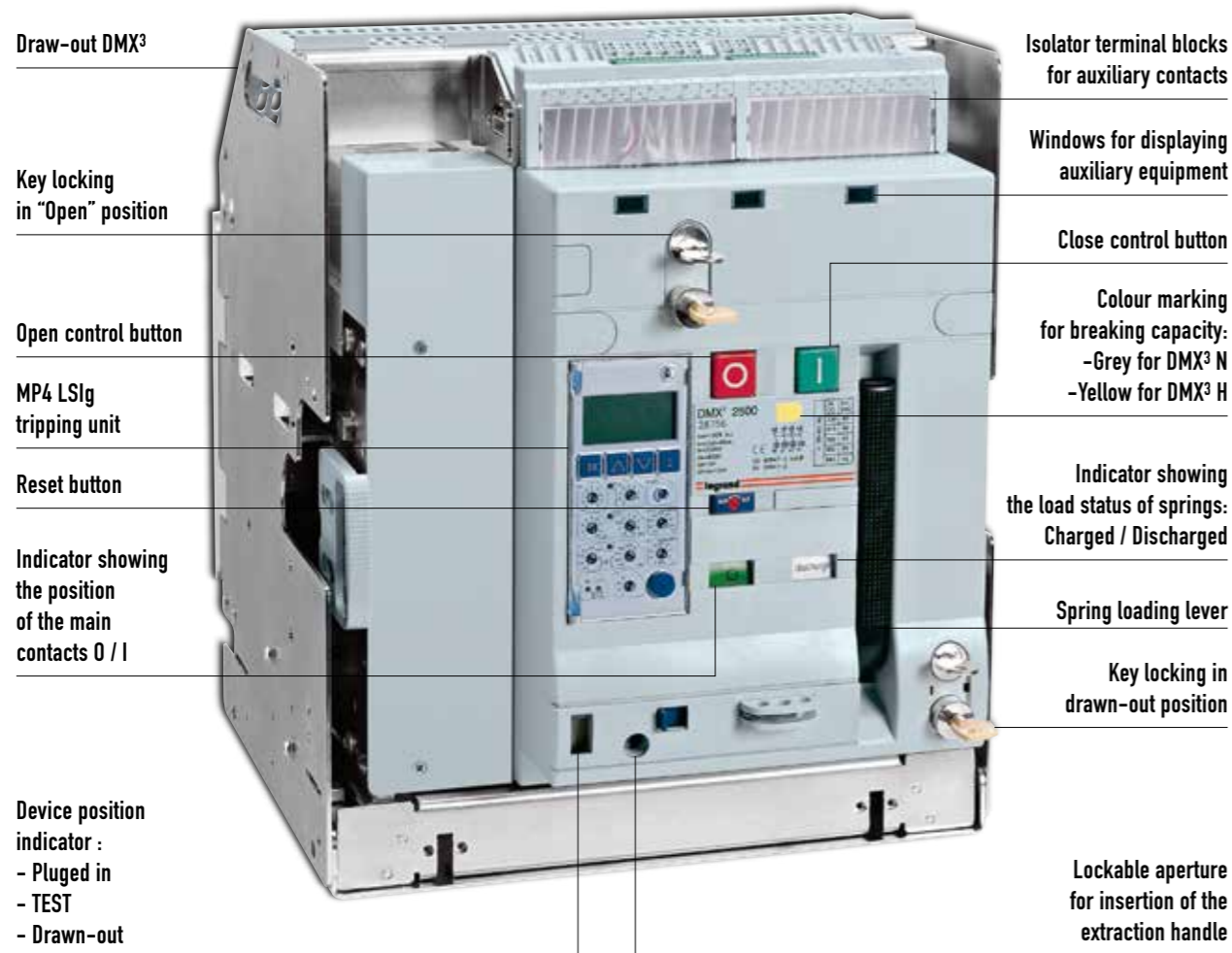


Electrical panel
equipped with
DPX MCCBs and
modular MCBs
up to 1 600 A

Electrical panel
equipped with
DPX MCCBs and
modular MCBs
up to 1 600 A

Main electrical
panel equipped
with DMX³ ACBs
and DPX MCCBs
up to 4 000 A

Thanks to DPX range
of MCCBs and to DX MCBs you
can benefit of the advantages
of a complete protection system
at any level of the installation



Optimized performance up to 6 300 A

DMX³ air circuit breakers and DMX³-I isolating switches are available in four frame sizes. Three breaking capacities for circuit breakers: 50 kA for the DMX³-N designation 65 kA for DMX³-H and 100 kA for DMX³-L.

The range covers 11 rated currents, between 630 A and 6 300 A.

All range of DMX³ air circuit breakers and DMX³-I isolating switches is available in fixed and draw-out version.

BREAKING CAPACITIES AND RATED CURRENTS											
	630	800 A	1000 A	1250 A	1600 A	2000 A	2500 A	3200 A	4000 A	5000 A	6 300 A
DMX ³ -1600	42 - 50 kA FIXED/DRAW-OUT										
DMX ³ -N	50 kA FIXED/DRAW-OUT										
DMX ³ -H	65 kA FIXED/DRAW-OUT										
DMX ³ -L	100 kA FIXED/DRAW-OUT					100 kA F/D-O					

OVERALL DIMENSIONS AND WEIGHT					
Fixed version					
		Height	Depth	Width	Weight ⁽¹⁾
FRAME 1600: DMX ³ -1600	3P	321 mm	256 mm	254 mm	20 kg
	4P	321 mm	256 mm	324 mm	24.7 kg
FRAME 1: DMX ³ -N 2500 DMX ³ -H 2500	3P	419 mm	354 mm	273 mm	41 kg
	4P	419 mm	354 mm	358 mm	48 kg
FRAME 2: DMX ³ -L 2500 DMX ³ -N/H/L 4000	3P	419 mm	354 mm	408 mm	59 kg
	4P	419 mm	354 mm	538 mm	76 kg
FRAME 3: DMX ³ -L 6300	3P	419 mm	354 mm	797 mm	118 kg
	4P	419 mm	354 mm	1064 mm	152 kg

Draw-out version					
		Height	Depth	Width	Weight ⁽¹⁾
FRAME 1600: DMX ³ -1600	3P	352 mm	356 mm	282 mm	42 kg
	4P	352 mm	356 mm	352 mm	52 kg
FRAME 1: DMX ³ -N 2500 DMX ³ -H 2500	3P	465 mm	433 mm	327 mm	77 kg
	4P	465 mm	433 mm	412 mm	94 kg
FRAME 2: DMX ³ -L 2500 DMX ³ -N/H/L 4000	3P	465 mm	433 mm	425 mm	108 kg
	4P	465 mm	433 mm	555 mm	137 kg
FRAME 3: DMX ³ -L 6300	3P	465 mm	433 mm	804 mm	216kg
	4P	465 mm	433 mm	1064 mm	274 kg

(1) For trip-free switches, please consult us

+ LEGRAND ADVANTAGE

The overall dimensions of the breaker contribute considerably to an efficient use of the space inside the electrical panel. The constant depth for all the rated currents facilitates connection of the busbars.

OTHER ELECTRICAL FEATURES

Rated operational voltage U_e: 690 Vac 50/60 Hz
 Rated insulation voltage U_i: 1 000 Vac 50/60 Hz
 Rated impulse withstand voltage U_{imp}: 12 kV
 Category of use: B

Ambient temperature: - 5 °C to 70 °C
 Humidity: + 55 °C with relative humidity of 95%, conforms to IEC 68-2-30

MP4 LSIg electronic protection unit

Ig settings

Ii settings

Im settings

Ir settings

LEDs indicating correct operation



tg settings

tm settings

tr settings

Mini USB connector to PC for testing

Neutral protection

Precise & user friendly LCD tripping units

Besides their easy mounting and connection, strength and good continuity of operation, 3 types of electronic units allow precise adjustment of different limits for current values and time delay. The result is an efficient protection against electrical faults while maintaining total discrimination with downstream breakers.

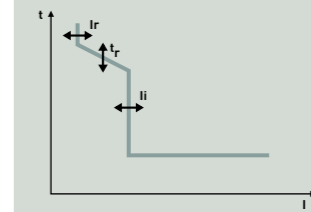
The LCD display lets you monitor the measured current values and informs you on fault adjustment and log (the cause of last trip and maintenance operations).

MP4 LI ELECTRONIC PROTECTION UNIT CAT. N° 028164/028800



The following settings are adjusted using rotary selector switches:

- Long time delay protection against overloads: **I_r**
- Long delay protection operation time: **t_r**
- Instantaneous protection against very high short circuits: **I_i**
- Neutral protection: **IN**

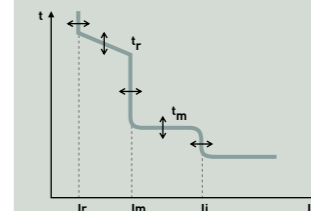


MP4 LSI ELECTRONIC PROTECTION UNIT CAT. N° 028165/028001



The following settings are adjusted using rotary selector switches:

- Long time delay protection against overloads: **I_r**
- Long delay protection operation time: **t_r**
- Short time delay protection against short circuits: **I_m**
- Short time delay protection operation time: **t_m**
- Instantaneous protection against very high short circuits: **I_i**
- Neutral protection: **IN**

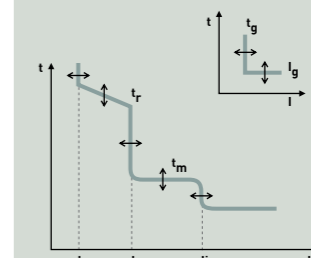


MP4 LSIg ELECTRONIC PROTECTION UNIT CAT. N° 028166/028002



The following settings are adjusted using rotary selector switches:

- Long time delay protection against overloads: **I_r**
- Long delay protection operation time: **t_r**
- Short time delay protection against short circuits: **I_m**
- Short time delay protection operation time: **t_m**
- Instantaneous protection against very high short circuits: **I_i**
- Earth fault current: **I_g**
- Time delay on earth fault tripping: **t_g**
- Neutral protection: **IN**

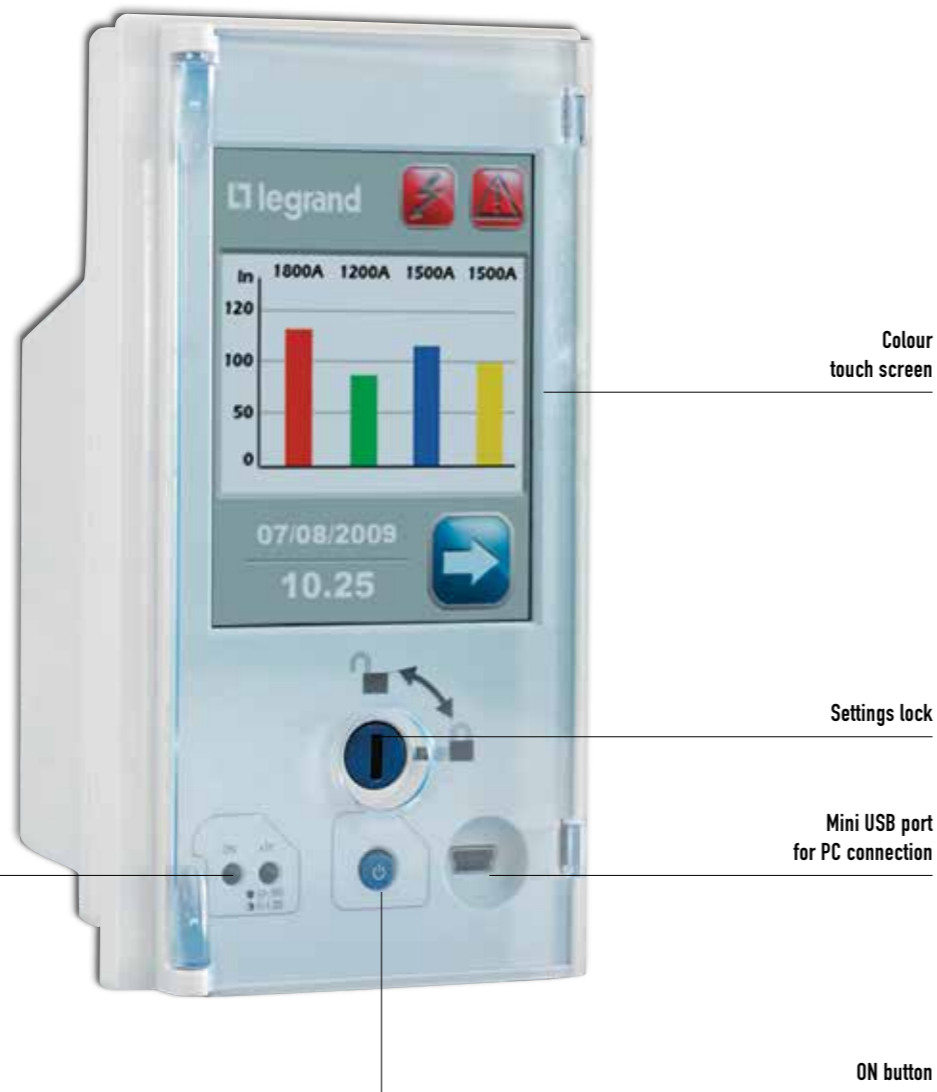


+ LEGRAND ADVANTAGE

All protection units are equipped with batteries so you can monitor the parameters even when the breaker is not connected.

INFORMATION

All DMX³ breakers are factory equipped with any MP4 protection unit LI, LSI or LSIg according to your requirements. You just need to select and indicate the 2 catalogue numbers when placing the order (1 for the breaker and 1 for the tripping unit).



LEDs indicating correct operation, pre-alarm and alarm for overload and temperature

Colour touch screen

Settings lock

Mini USB port for PC connection

ON button

Innovative & user friendly touch screen tripping units

MP6 electronic protection units are equipped with a colour touch screen, particularly user friendly, thanks to intuitive icon-based navigation system. The colour display provides a clear presentation of the parameters of the installation.

Touch screen protection units integrate all the functions of LCD tripping units and have an advanced measurement function which, in addition to monitoring currents, can also be used to display voltages, active and reactive powers, frequency, power factor, and also energy.

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

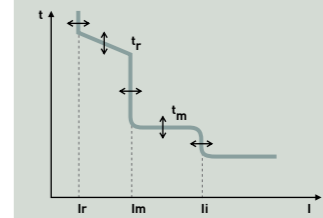
MP6 LSI TOUCH SCREEN PROTECTION UNIT CAT.NO 288 03



Tripping curve preview

The following settings are adjusted using the touch screen:

- Long time delay protection against overloads: **I_r**
- Long delay protection operation time: **t_r**
- Short time delay protection against short circuits: **I_m**
- Short time delay protection operation time: **t_m**
- Instantaneous protection against very high short circuits: **I_i**
- Neutral protection: **N**



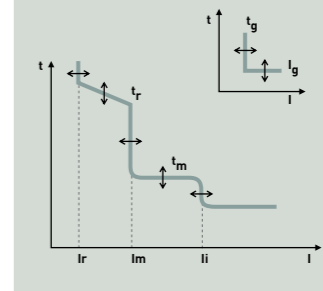
MP6 LSIg TOUCH SCREEN PROTECTION UNIT CAT.NO 288 04



Earth fault tripping curve preview

The following settings are adjusted using the touch screen:

- Long time delay protection against overloads: **I_r**
- Long delay protection operation time: **t_r**
- Short time delay protection against short circuits: **I_m**
- Short time delay protection operation time: **t_m**
- Instantaneous protection against very high short circuits: **I_i**
- Earth fault current: **I_g**
- Time delay on earth fault tripping: **t_g**
- Neutral protection: **N**



LEGRAND ADVANTAGE

The icon-based interface of the management software and the innovative touch screen technology used for MP6 tripping units simplify setting and preparing operations of the DMX³ circuit breaker.

INFORMATION

The MP4 and MP6 electronic protection units can communicate via an RS-485 port. This port is used for remote monitoring and management of the devices in the installation, using the MODBUS protocol. It is therefore possible to control circuit breaker opening and closing, display the electrical parameters and detect all the alarms generated by each device, from a PC.

STARTING MENU



This menu displays the values of I_1 , I_2 , I_3 and I_N as a diagram, the date and the hour, and the alarm icon. If the breaker opens following an electrical fault a specific icon will appear on the upper part of the screen. Pressing this icon will open a new window showing the cause of the last event. Other possible actions:

- Right arrow icon: access the main menu
- Alarm icon: preview the cause of the alarm in course

MAIN MENU



The main menu allows accessing different windows for setting different parameters of the breaker or previewing measured values, battery status, tripping history, etc. The following accesses are possible:

- 1 Setting according to the tripping curves (current and time)
- 2 Access tripping unit settings (luminosity, contrast and sound volume)
- 3 Access to general information of the breaker
- 4 Back to the previous page
- 5 Access measured values menu
- 6 Access archives
- 7 Preview battery charging status

PROTECTIONS SETTING MENU



Vertical arrows allow scrolling between different electrical parameters: I_i , I_m , t_m , I_r , t_r , I_g , t_g , etc. Pressing horizontal icons gives access to corresponding windows allowing value settings. Each value can be increased/decreased, validated or suppressed. The values need to be saved into memory at the end of the process, for each setting.

MEASURED VALUES MENU



This window allows previewing of measured values for:

- Currents
- Voltages (Ph/N and Ph/Ph)
- Active and reactive powers
- Power factor (total and per phase)
- Active and reactive energy
- Harmonics (for currents and voltages)

Pressing **I**, **m**, **M** and **avg** icons at the bottom of the window will display respectively: instantaneous, minimum, maximum and average value of electrical parameters.

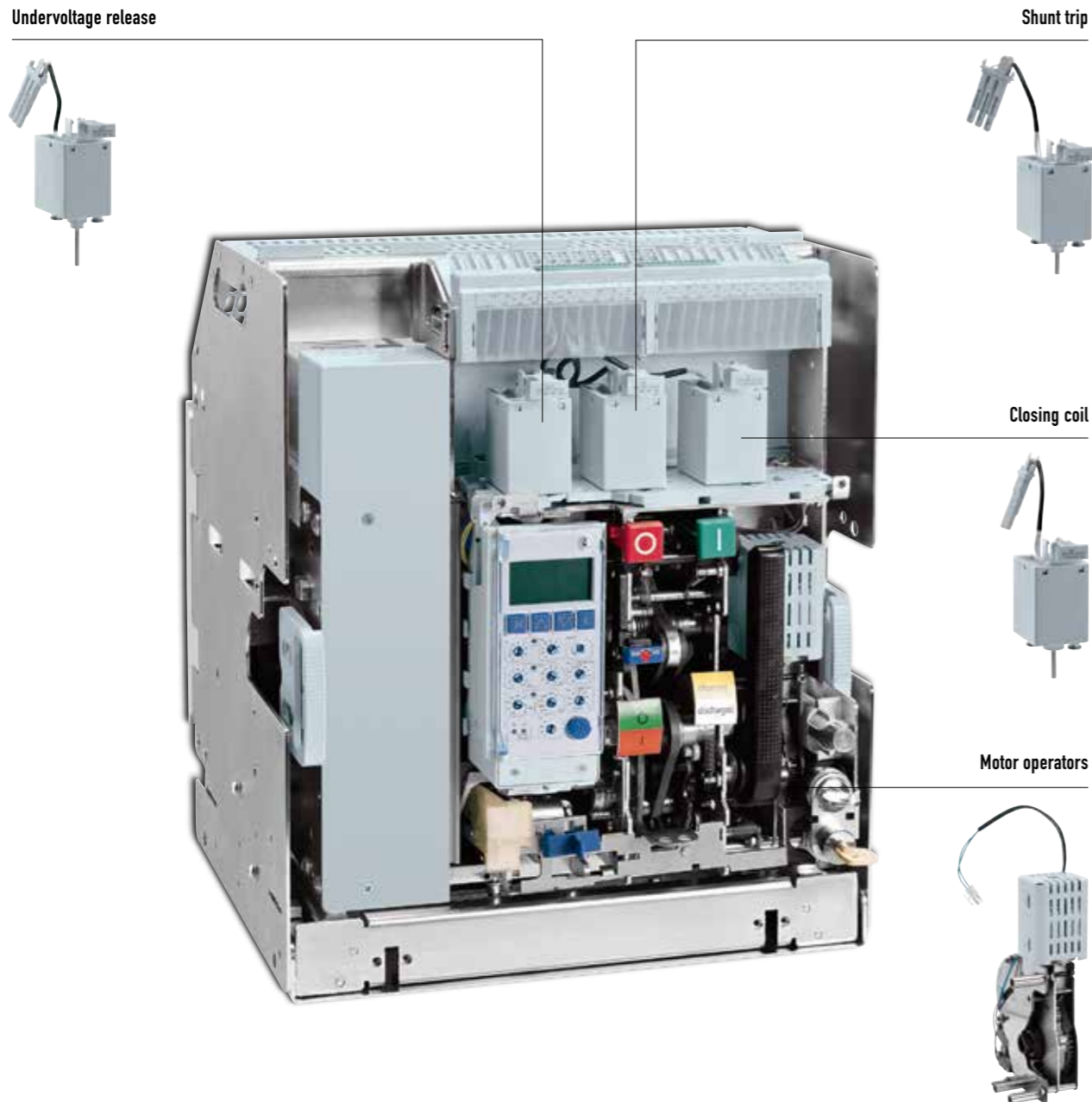
Innovative & user friendly touch screen tripping units (continued)

MP6 electronic protection units collect all the useful information in 5 sections, each one easily reachable via the main menu in order to allow an efficient control. Navigation through these sections is very simple thanks to the arrows at the bottom of each page.

MP6 electronic protection units have an intuitive graphical interface. All useful information and selected settings are easy to understand and visible at a glance. For example current values can be visualized on the starting page thanks to a histogram. Different other settings can be simultaneously displayed on the "settings" screen in order to have a global view.

INFORMATION

- The following events and values are registered into memory and can be accessed via specific menu: cause of the last event, event counter, events history with date and hour, alarms history with date and hour
- MP6 tripping units allow following application: logical selectivity, management of non priority loads, contact management (with Cat.No 288 12)
- MP6 tripping units allow following alarms: power reverse, current imbalance, maximum and minimum voltage values U_{1N} , U_{2N} , U_{3N} , maximum currents I_1 , I_2 , I_3 , voltage imbalance (phase-neutral), inversed phase rotation, maximum and minimum frequency values.



All control accessories can be easily installed without any special tool and in a very short time. The installation is to be done on the front panel of the air circuit breaker. In that way, the separation between power and control circuits is guaranteed.

SHUNT TRIP



Shunt trips are devices used for the remote instantaneous opening of the air circuit breaker. They are generally controlled through an N/O type contact. The actual offer of shunt trips proposes different supply voltages (from 24 V to 415 V), compatibles with AC and DC currents. The shunt trips are already equipped with a special fast connector, to be directly inserted into auxiliary contacts block. An auxiliary contact is connected in series with the coil, cutting off its power supply when the main poles are open.

- Technical characteristics:**
- Nominal voltage U_n : 24 V \sim to 480 V \sim and from 24 V \equiv to 250 V \equiv
 - Tolerance on nominal voltage: 70 to 110% V_n
 - Maximum power consumption (max.power for 180 ms): 500 VA \sim /500 W =
 - Continuous power: 5 VA \sim /5 W =
 - Maximum opening time: 30 ms
 - Insulation voltage: 2500 V 50 Hz for 1min
 - Endurance on pulse: surge proof 4 kV 1.2/50 μ s

UNDERVOLTAGE RELEASE



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

- Technical characteristics:**
- Nominal voltage U_n : 24 V \sim to 480 V \sim and from 24 V \equiv to 250 V \equiv
 - Tolerance on nominal voltage: 85 to 110% V_n
 - Maximum power consumption (max.power for 180 ms): 500 VA \sim /500 W =
 - Continuous power: 5 VA \sim /5 W =
 - Opening time: 60 ms
 - Insulation voltage: 2500 V 50 Hz for 1min
 - Endurance on pulse: surge proof 4 kV 1.2/50 μ s

CLOSING COILS



These coils are used for remotely controlling the closing of the power contacts of the circuit breaker. The springs of the circuit breaker are to be loaded prior to the action of the closing coils. They are controlled by an N/O type contact.

- Technical characteristics:**
- Nominal voltage U_n : 24 V \sim to 480 V \sim and from 24 V \equiv to 250 V \equiv
 - Tolerance on nominal voltage: 70 to 110% V_n
 - Maximum power consumption (max.power for 180 ms): 500 VA \sim /500 W =
 - Continuous power: 5 VA \sim /5 W =
 - Maximum closing time: 50 ms
 - Insulation voltage: 2500 V 50 Hz for 1min
 - Endurance on pulse: surge proof 4 kV 1.2/50 μ s

Fast clipping control accessories

- | You can remotely control the DMX³ thanks to its range of accessories: shunt trips, undervoltage releases, motor operators and closing coils.
- | All the control accessories are simply clipped on to the front panel of the circuit breaker, which is especially configured in order to facilitate the clipping.
- | Every type of accessory is compatible with its own location, in order to avoid any possible mistake.

+ **LEGRAND ADVANTAGE**
Electrical connection is made in no time thanks to the fast connector supplied on all above accessories.

NUMBER OF CONTROL AUXILIARIES FOR DMX³ = 3

- Shunt trip: 1
- Undervoltage release: 1
- Closing coils: 1

MOTOR OPERATORS



Motor operators, are used for remotely reloading the springs of the circuit breaker mechanism immediately after the device closes. The device can thus be re-closed almost immediately after an opening operation. To motorise a DMX³ it is necessary to add a release coil (undervoltage release or shunt trip) and a closing coil. If the supply voltage of the controls fails, it is still possible to reload the springs manually. Motor-driven controls have "limit switch" contacts which cut off the power supply of their motor after the springs have been reloaded. Motor operators are easy to mount, with only three screws.

Technical characteristics:

- Nominal voltage U_n : from 24 V \sim to 480 V \sim and from 24 V \equiv to 250 V \equiv
- Tolerance on nominal voltage: 85 to 110% V_n
- Spring reloading time: 7s
- Maximum power consumption: 240 VA \sim /240 W =
- Starting current: 2 up to 3 x I_n for about 80 ms
- Maximum cycle: 1/min

SAFETY AND PADLOCKING ACCESSORIES FOR AN INCREASED SECURITY

The DMX³ circuit breakers draw-out types are delivered as standard with safety padlocking shutters preventing access to live terminals. They have a number of other safety devices, such as:

- Key-operated locks:
 - Main contacts open
 - Circuit breaker in draw-out position
- Padlocks for:
 - Main contacts open
 - Contact shutters closed (for draw-out position)
- Door locking in order to prevent the opening of the electrical switchboard door when the contacts of the ACB are closed.



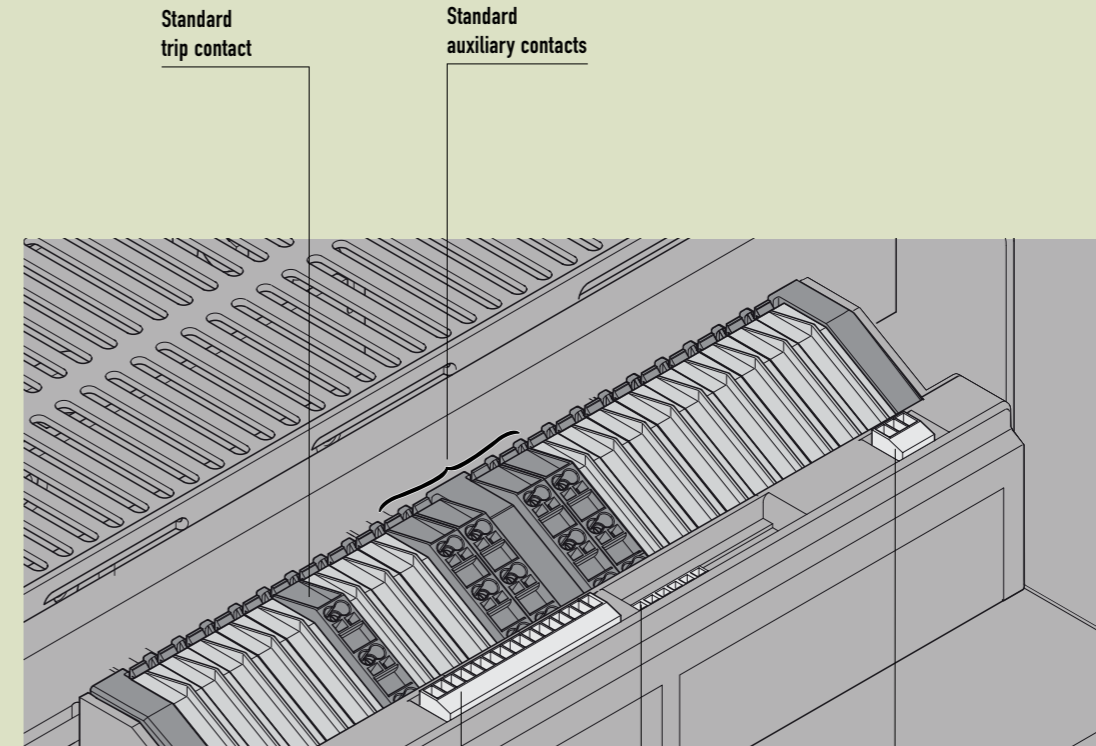
Fixed version equipped with padlocking system



Draw-out version equipped with key-operated locks

FRONT PANEL CONNECTION TERMINAL BLOCK

The terminal block of DMX³ ACBs offers the possibility to connect a trip contact, up to 10 auxiliary contacts and different other control and signalling functions



Dedicated connector for :
 - 24 V DC external auxiliary power supply Cat.No 288 06
 - Programmable contact module Cat.No 288 12
 - Supervision serial port (if the ACB is equipped with communication option Cat.No 288 05)

Dedicated connector for :
 - External neutral Cat.No 288 11

Dedicated connector for :
 - Local programmable relay (4 A V_{max} 230 V a.c.)

Easy identification of control accessories

- | Electrical auxiliaries are connected on the front panel on terminal blocks provided for this purpose. Accessories are identified on the front panel.
- | As the cover has window, it is easy to ascertain, which devices are fitted on the circuit breaker.

NUMBER OF AUXILIARY CONTACTS FOR DMX³ = 10

- 4 auxiliary contacts as standard (NO/NC)
- 6 additional auxiliary contacts (NO/NC)

FIXED VERSION-CHOOSE YOUR CONNECTION ACCESSORIES: 3 POSSIBILITIES

The type of rear terminals can be easily changed according to your needs.



The breaker is supplied with rear terminals for horizontal connection

REAR TERMINALS FOR FLAT CONNECTION



Frame 1: 3P: Cat. N° 288 84 4P: Cat. N° 288 85	Frame 2: 3P: Cat. N° 288 92 4P: Cat. N° 288 93	Frame 3: 3P: Cat. N° 288 92 x 2 4P: Cat. N° 288 93 x 2
---	---	---

REAR TERMINALS FOR VERTICAL CONNECTION

This type of connection uses 2 accessories: the previous rear terminals for flat connection, which must be equipped with the vertical ones.



Frame 1: 3P: Cat. N° 288 84 + 288 82 4P: Cat. N° 288 85 + 288 83	Frame 2 and 3⁽¹⁾: 3P: Cat. N° 288 92 + 288 94 4P: Cat. N° 288 93 + 288 95
---	---

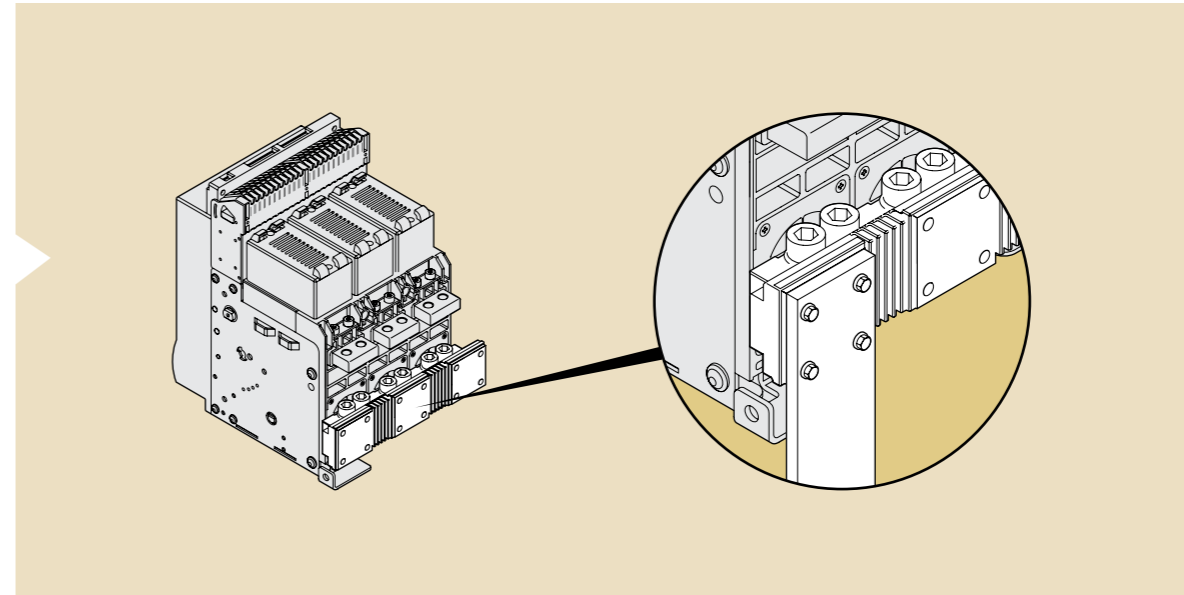
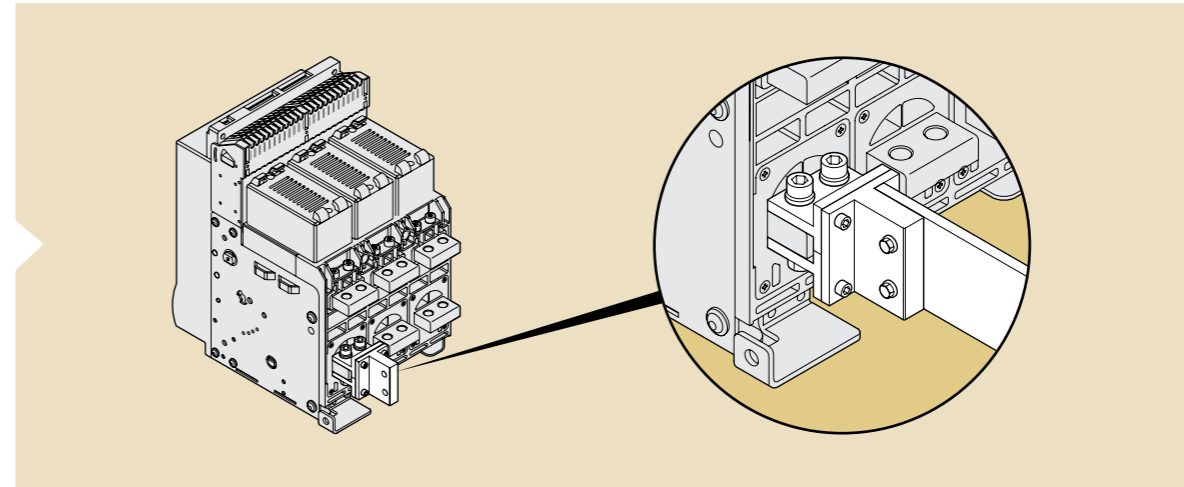
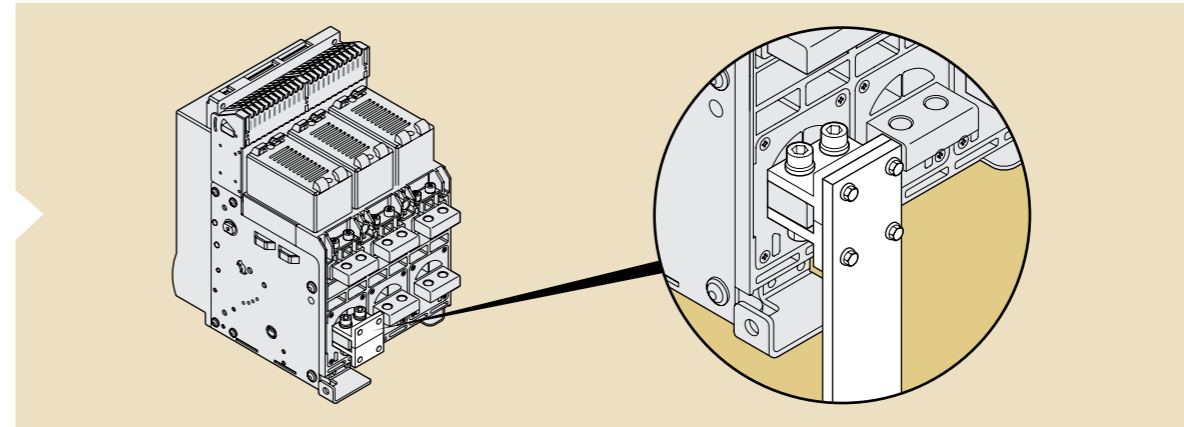
(1) For frame 3 the quantity is multiplied by 2

SPREADERS

For any situation requiring a bigger width for a safe connection (i.e. aluminium bus bars).

Frame 1600:
3P: Cat. N° 0281 59
4P: Cat. N° 0281 60

Frame 1:
3 types of accessories
- For flat connection
3P: Cat. N° 0288 86
4P: Cat. N° 0288 87
- For vertical connection
3P: Cat. N° 0288 88
4P: Cat. N° 0288 89
- For horizontal connection
3P: Cat. N° 0288 90
4P: Cat. N° 0288 91



Connection: maximum adaptability

- The fixed version of DMX³ is equipped with rear terminals for horizontal connection with bars.
- You can change connection type according to your needs.

DRAW-OUT VERSION-CHOOSE YOUR CONNECTION ACCESSORIES

Draw-out version of the DMX³ breakers is supplied with rear terminals for flat connection with bars. You can easily transform those terminals into vertical or horizontal type by using the unique reversible connector.

2 TYPES OF FIXING

Reversible connector for vertical or ...



... horizontal connection.



Frame 1:	Frame 2:	Frame 3:
3P: Cat. N° 288 96	3P: Cat. N° 288 94	3P: Cat. N° 288 94 x 2
4P: Cat. N° 288 97	4P: Cat. N° 288 95	4P: Cat. N° 288 95 x 2

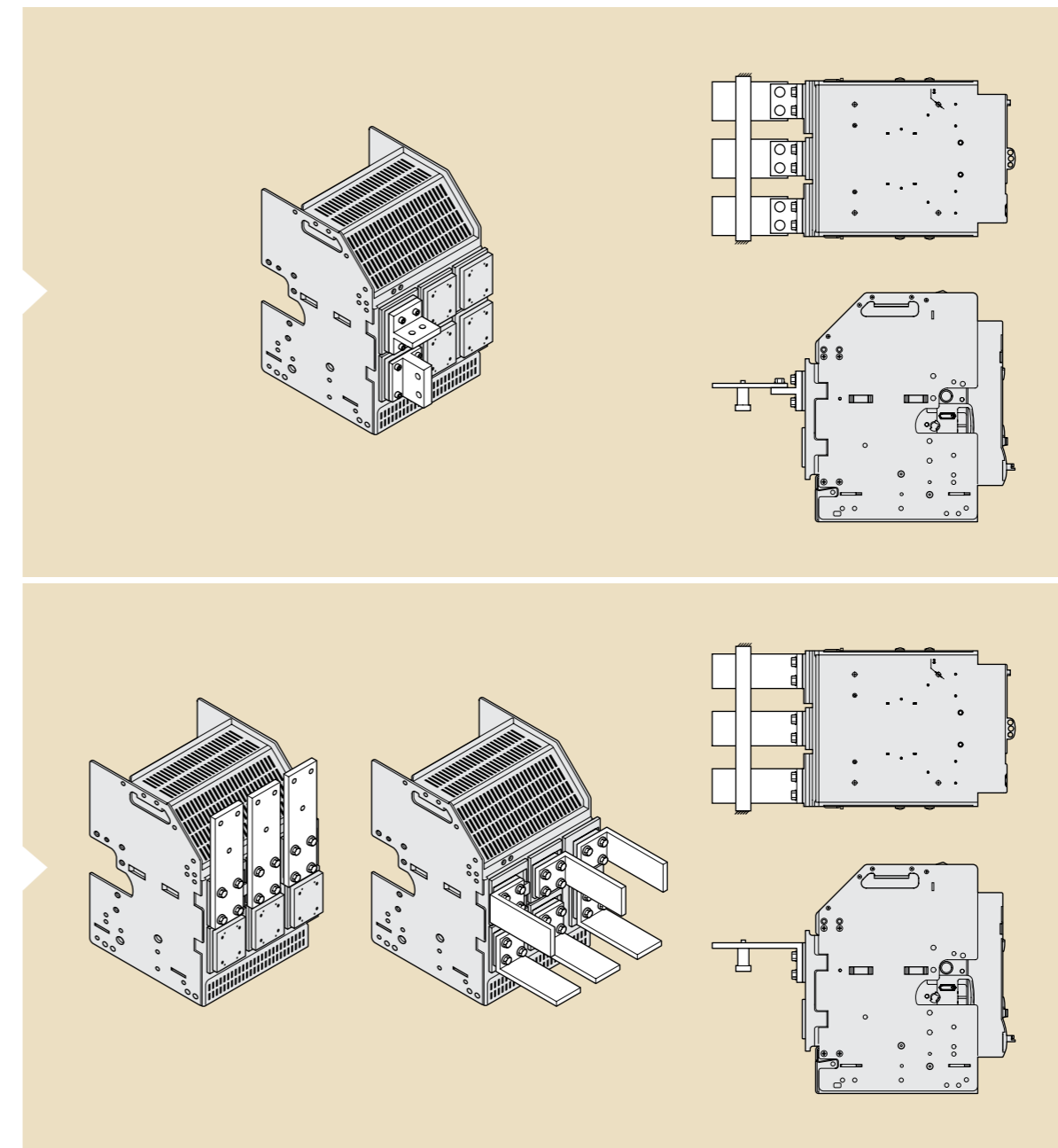


The breaker is supplied with rear terminals for flat connection

FLAT CONNECTION USING THE REAR TERMINALS OF THE BREAKER

DRAW-OUT VERSION: EXAMPLES OF CONNECTIONS

Draw-out version of the DMX³ breakers is supplied with rear terminals for flat connection with bars. You can easily transform those terminals into vertical or horizontal type by using the unique reversible connector.



Connection: maximum adaptability (continued)

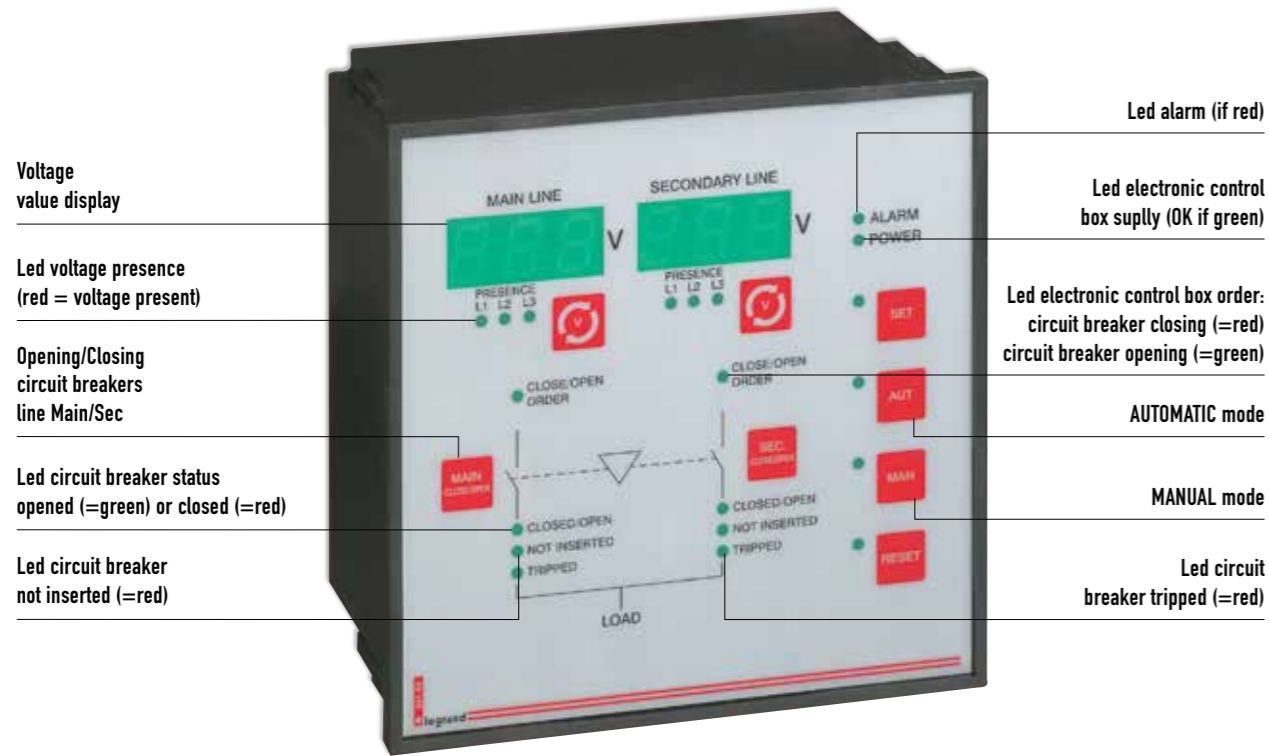
The draw-out version is equipped with rear terminals for flat connection with bars.

CONNECTIONS: A FEW RECOMMENDATIONS !

Connections provide the electrical connection of equipment and are also responsible for a considerable proportion of their heat dissipation. Connections must never be under-sized. Plates or terminals must be used over a maximum area. Heat dissipation is encouraged by arranging the bars vertically. If an uneven number of bars is connected, place the higher number of bars on the upper part of the terminal. Avoid bars running side by side: this causes poor heat dissipation and vibrations. Place spacers between the bars to maintain a distance between them which is at least equivalent to their thickness.

Continuity of service and increased safety

Supply invertors answer the double need of continuity of service and greater safety (security). Traditionally used in hospitals, public buildings, industries with continuous manufacturing processes, airports and military applications, supply invertors become increasingly required for new applications such as telecommunications and computing treatment or in the management of energy sources, notably those say "renewable energies".



AUTOMATIC SUPPLY INVERTORS

All DMX³ air circuit breakers (fixed and draw-out version) can be fitted with an interlocking system which guarantees "mechanical safety" in the event of supply inversion. Interlocking is achieved using a cable system and interlocking units mounted on each circuit breaker. Every circuit breaker composing the supply inverter must be equipped with one interlocking unit.

This system allows devices of different sizes and types (3P, 4P, fixed, draw-out) to be interlocked. DMX³ devices can be installed in different configurations inside the enclosure.

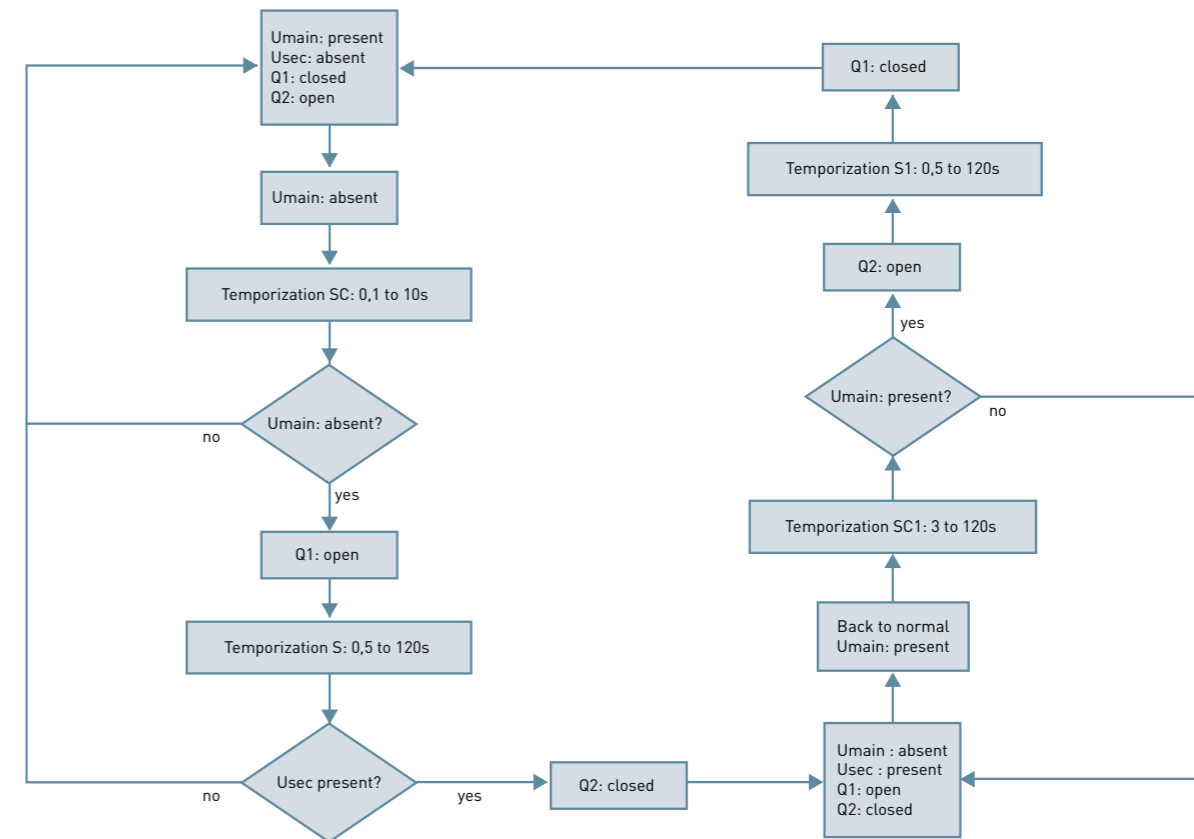
This mechanical interlocking system can be supplemented by motorised operators and an automation control unit making the inverter fully automatic.

The Legrand automatic control unit Cat. N° 261 93 allows to easily manage the automatic switching of two sources. Controlled by a microprocessor, the unit is fully programmable.

All the parameters are adjustable: values of the thresholds of tension, temporization between switching, starting up of a generator ...



Control panel of a supply inverter with automation control unit Cat. N° 261 93



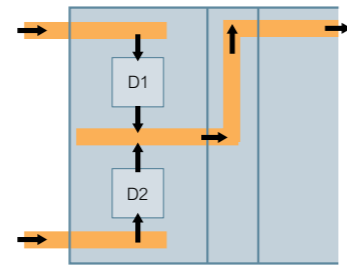
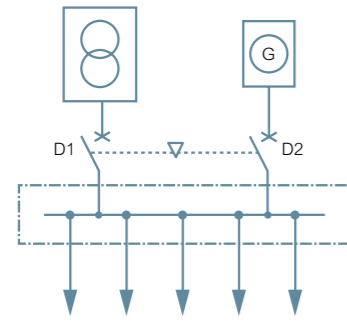
Example of algorithm for the functioning of an automatic supply inverter



LEGRAND ADVANTAGE

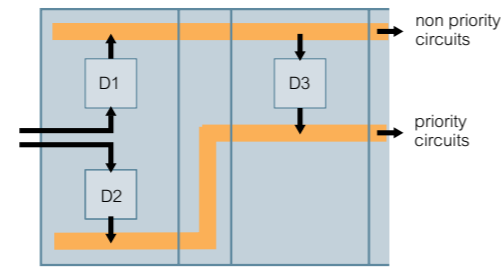
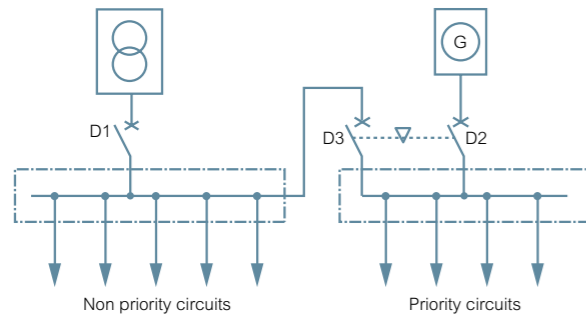
Thanks to its digital displays and different LEDs it is possible to watch permanently the state of the inverter, as well as the presence and the value of the voltage on each power supply.

STAND-BY POWER SUPPLY (WITHOUT LOAD SHEDDING)



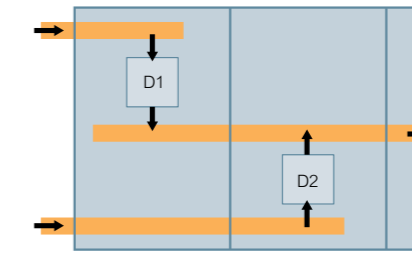
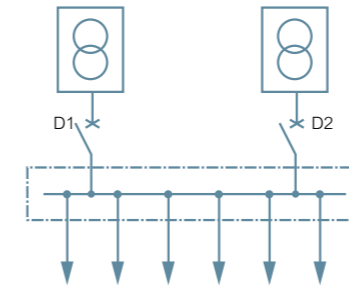
The two DMX³ devices [D1 and D2] are connected to a central common busbar. Since they are not simultaneously on-load, they can be in the same enclosure.

STAND-BY POWER SUPPLY (WITH LOAD SHEDDING)



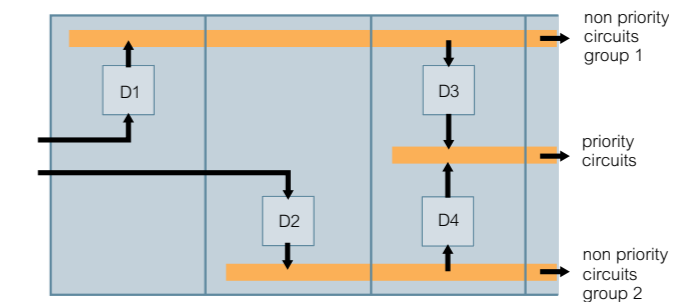
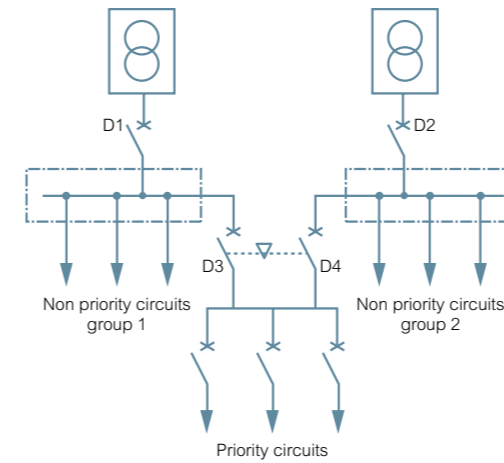
The two DMX³ devices [D1 and D2] are not on-load simultaneously and can therefore be installed in the same enclosure. D3 can be on-load at the same time as D1, and must be installed in another enclosure.

DUAL POWER SUPPLY (TOTAL POWER)



The two DMX³ devices [D1 and D2] draw current on a common busbar. They can only be installed in the same enclosure if the sum of their currents does not exceed the permissible value for the recommended size.

DUAL POWER SUPPLY (REDUCED POWER WITH PRIORITY LOADS)



Flexible configurations (Examples of supply invertors)

A supply inverter assures the following functions:

- Switching between a main source and a secondary source in order to supply the circuits requiring continuous service (for safety reasons) or for energy saving purpose (when the secondary source is different from the network).
- Management of the functioning of the secondary source (power generator) supplying the safety circuits.

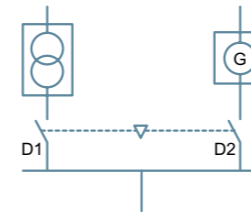




Flexible configurations (Examples of supply invertors) (continued)

- DMX³ and DMX³-I devices can be fitted with an interlocking mechanism which guarantees “mechanical safety” in the event of supply inversion.
- Interlocking is achieved using interlocking units mounted on the side of the devices and a cable system.

MECHANICAL INTERLOCK FOR 2 CIRCUIT BREAKERS

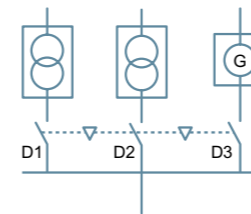


D1 is used for the main power supply of the installation (normal functioning), D2 for emergency power supply via power generator (in case of mains fault). For this configuration the two breakers can be simultaneously open, but can not be closed in the same time.

0	0
1	0
0	1

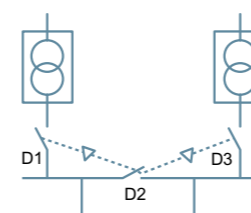
0 = circuit breaker is open
1 = circuit breaker is closed

MECHANICAL INTERLOCK FOR 3 CIRCUIT BREAKERS



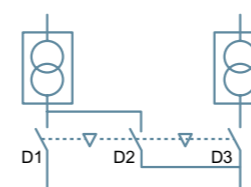
The three DMX³ circuit breakers are connected to one common busbar. D1 and D2 breakers are supplying the energy from two different power transformers and D3 from a power generator (in case of emergency). For this configuration all the three breakers can be simultaneously open. At any time, only one single circuit breaker can be on-load. The following table presents all possible combinations of mechanical interlock of the 3 breakers.

0	0	0
1	0	0
0	1	0
0	0	1



The following example presents three circuit breakers with double mechanical interlock for D2 circuit breaker. D1 and D3 breakers are supplying the electricity from 2 power transformers. There are 6 interlocking combinations possible.

0	0	0
1	0	0
0	0	1
0	1	0
1	1	0
0	1	1
1	0	1



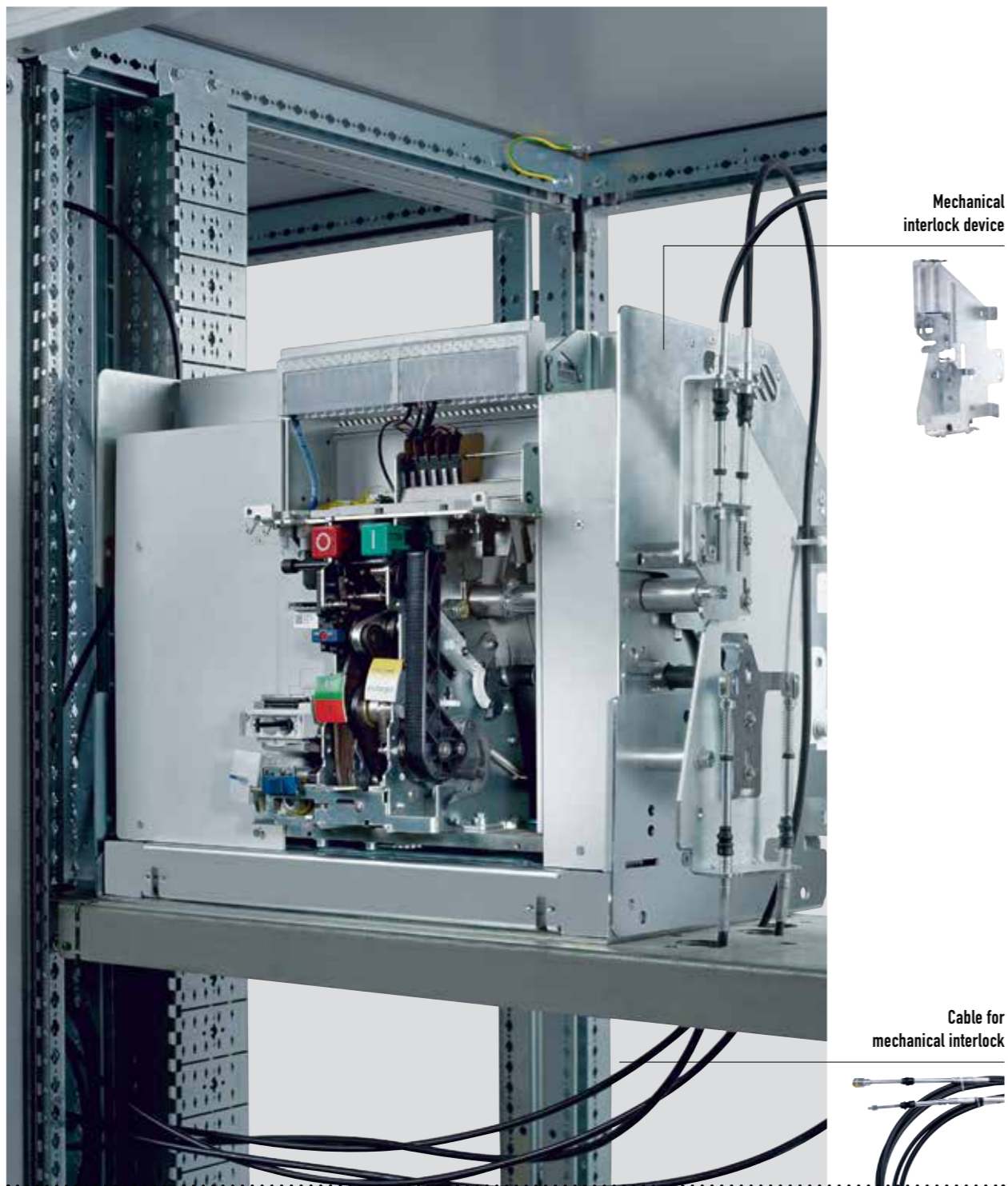
The following example presents three circuit breakers with double mechanical interlock for D2 circuit breaker. It is a possible version of the previous scheme, presenting four combinations. D1 and D3 breakers supply energy for independent circuits. D2 breaker is used in case of emergency for priority circuits.

0	0	0
1	0	0
0	0	1
1	0	1
0	1	0

0 = circuit breaker is open
1 = circuit breaker is closed

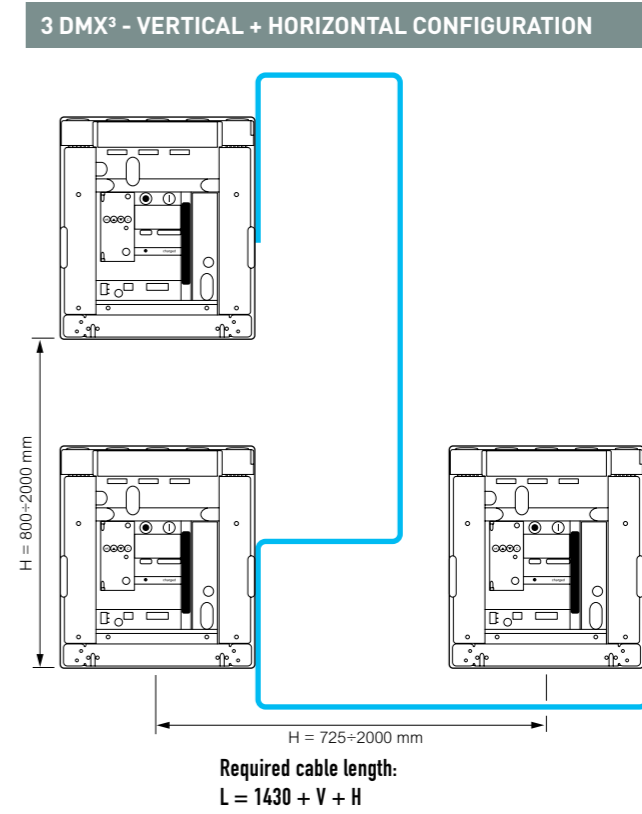
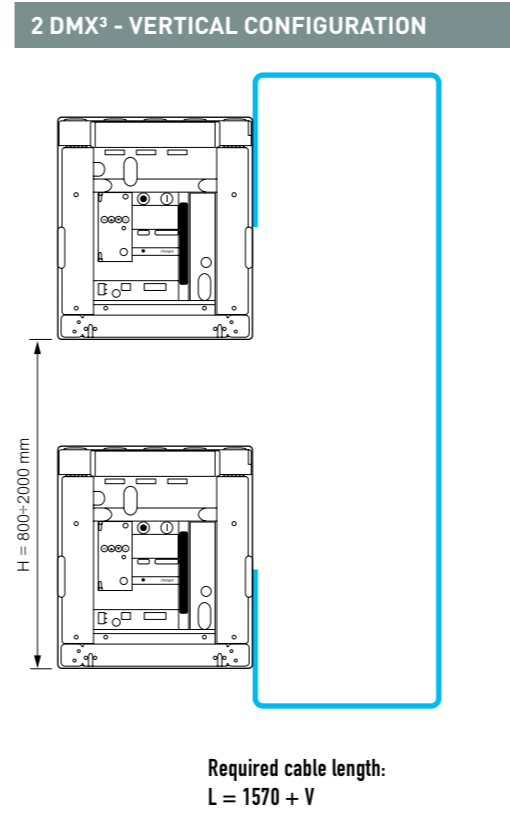
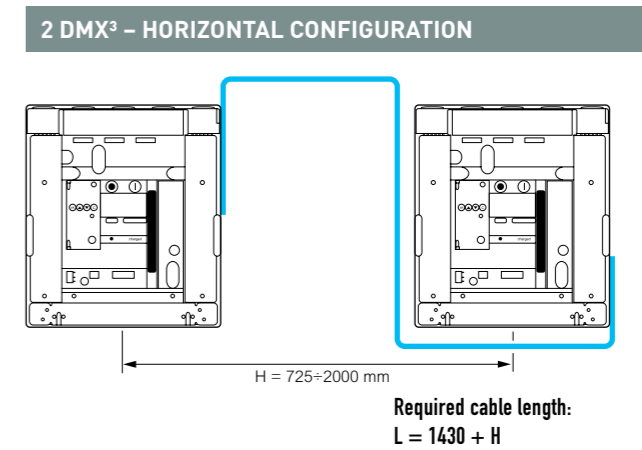
INFORMATION

This system allows devices of different sizes and types to be interlocked. The cable system provides the flexibility to install DMX³ devices in a vertical configuration in the same enclosure or in a horizontal configuration in different columns.



CABLE LENGTH SELECTION TABLE

Length (mm)	Type	Cat. N°
2 600	1	289 20
3 000	2	289 21
3 600	3	289 22
4 000	4	289 23
4 600	5	289 24
5 600	6	289 25

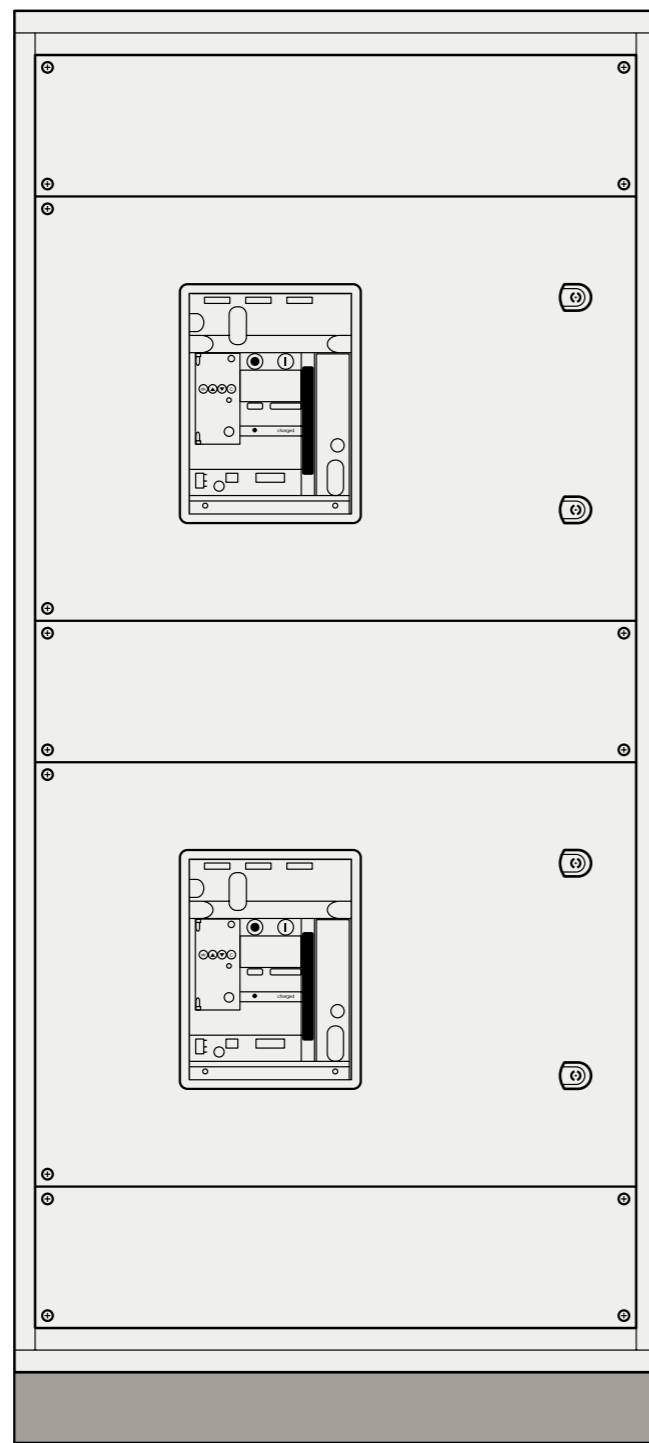


Easy to install mechanical interlock system (The choice of cable for mechanical interlock)

- | Mechanical interlock is set up using cables and a mechanical interlock device and can interlock 2 or 3 devices, which may be different type in a vertical or horizontal configuration.
- | The interlock device is mounted on the right-hand side of the air circuit breaker.

EXAMPLES FOR 3 AIR CIRCUIT BREAKERS

Distance between air circuit breakers (mm)	Horizontal				
	725 mm	1 000 mm	1 450 mm	2 000 mm	
Vertical	800 mm	Type 2	Type 3	Type 4	Type 5
	1 000 mm	Type 3	Type 3	Type 4	Type 5
	1 600 mm	Type 4	Type 5	Type 5	Type 6
	2 000 mm	Type 5	Type 5	Type 6	Type 6



XL³ 4000:
width 600 or 850 mm

INTEGRATION INTO XL³ 4000 ENCLOSURES				
	FRAME 1 DMX³ 2500		FRAME 2 DMX³ 2500 AND DMX³ 4000	
	3P	4P	3P	4P ⁽¹⁾
XL³ 4000 24 MODULES USABLE WIDTH 600 MM	FIXED OR DRAW-OUT		FIXED OR DRAW-OUT	
	Depth of enclosures: 725 or 975 mm		Depth of enclosures: 725 or 975 mm up to 2 500 A 975 mm up to 4 000 A	

⁽¹⁾ Except supply invertors

	FRAME 1 DMX³ 2500		FRAME 2 DMX³ 2500 AND DMX³ 4000	
	3P	4P	3P	4P
XL³ 4000 36 MODULES USABLE WIDTH 850 MM	FIXED OR DRAW-OUT		FIXED OR DRAW-OUT	
	Depth of enclosures: 725 or 975 mm		Depth of enclosures: 725 or 975 mm up to 2 500 A 975 mm up to 4 000 A	

Be free to choose XL³ fully adaptable enclosure

It is very easy to create the configuration you want thanks to the different available sizes of XL³ 4000 enclosures: 2 widths, 3 depths, and 2 heights.

A full range of accessories, such as dedicated fixing plates and faceplates, facilitates the integration of DMX³ devices inside XL³ enclosures.



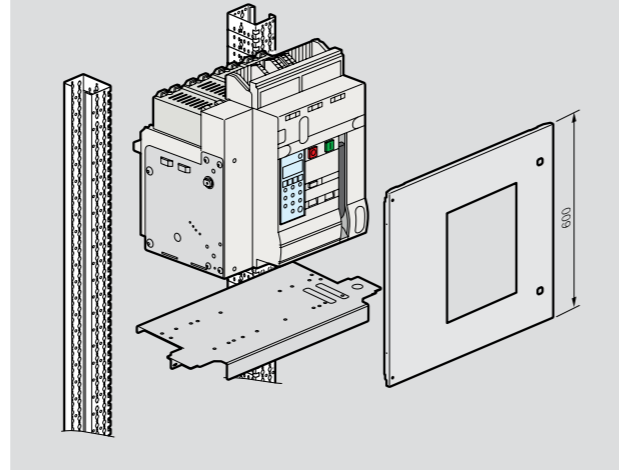
LEGRAND ADVANTAGE

Optimized space and reduced width of main distribution board:
XL³ 4000 – 600 mm width enclosures can be equipped with frame 2 air circuit breakers thanks to their compact size.

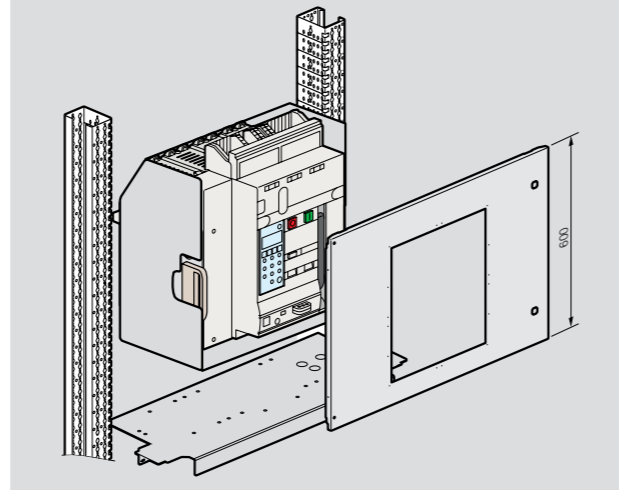
The correct size for the enclosure, and thus the power to be dissipated, is obtained by adapting the depth of the assembly:

- 725 mm min. up to 2 500 A
- 975 mm min. up to 4 000 A

DMX³ FIXED VERSION



DMX³ DRAW-OUT VERSION



FIXING PLATES SELECTION CHART

DMX³ devices are placed on the plate and fixed using screws and nuts. The use of lifting equipment is strongly recommended for placing DMX³ devices on the plate.

Version		DMX ³ fixed version		DMX ³ draw-out version	
XL ³ 4000 enclosure type		24 modules (600 mm width)	36 modules (850 mm width)	24 modules (600 mm width)	36 modules (850 mm width)
DMX ³ - 1600 DMX ³ - I 1600	3P	0207 80	0207 81	0207 80	0207 81
	4P				
DMX ³ - N 2500 DMX ³ - H 2500 DMX ³ - L 2500 DMX ³ - I 2500	3P	0207 51	0207 52	0207 53	0207 54
	4P				
DMX ³ - N 4000 DMX ³ - H 4000 DMX ³ - L 4000 DMX ³ - I 4000	3P	0207 51	0207 52	0207 53	0207 54
	4P				

FACEPLATES SELECTION CHART

All XL³ 4000 metallic faceplates are equipped with hinges and locks in order to facilitate installation and maintenance operations.

Version		DMX ³ fixed version		DMX ³ draw-out version	
XL ³ 4000 enclosure type		24 modules (600 mm width)	36 modules (850 mm width)	24 modules (600 mm width)	36 modules (850 mm width)
DMX ³ - 1600 DMX ³ - I 1600	3P	0210 84	0210 86	0210 85	0210 87
	4P		0210 88 (for 2 DMX ³ side by side)		0210 89 (for 2 DMX ³ side by side)
DMX ³ - N 2500 DMX ³ - H 2500 DMX ³ - I 2500	3P	0209 38	0209 48	0209 38	0209 48
	4P				
DMX ³ - L 2500	3P	0209 38	0209 48	0209 38	0209 48
	4P			0209 39	
DMX ³ - N 4000 DMX ³ - H 4000 DMX ³ - L 4000 DMX ³ - I 4000	3P	0209 38	0209 48	0209 38	0209 48
	4P			0209 39	

Be free to choose XL³ fully adaptable enclosure (continued)

- DMX³ circuit breakers and switches are mounted on horizontal plates.
- Four different plates are available for fixed version or draw-out version of the breaker and for 24 modules (width 600 mm) and 36 modules (width 850 mm) XL³ 4000 enclosures. They consist of a horizontal plate and a strengthening crosspiece.

MOUNTING PRINCIPLE

In XL³, the DMX³ devices and the associated busbars are arranged according to an identical principle for all power ratings, that is, the possibility of mounting three busbars and two devices per enclosure. The installation height of DMX³ units is always 600 mm whatever the type and size of the device. When 2 DMX³ devices are installed in the same cell, this leaves at least a useful 600 mm for running the busbars.

Air circuit breakers DMX³ 1600 **NEW**
from 630 to 1600 A



0 280 28 + 0 281 66

Automatic air circuit breakers must be equipped with DMX³ 1600 electronic protection units Cat.No 0 281 64/65/66, imperatively ordered together for factory assembly
Please ask for DMX³ order form

Pack	Cat.Nos		Fixed version
	Frame 1600		Supplied with: - 4 auxiliary contacts: NO/NC - rear orientable terminals for horizontal and vertical connection with bars - door sealing
	3P	4P	Breaking capacity Icu 42 kA (415 V~)
1	0 280 00	0 280 06	In (A)
1	0 280 01	0 280 07	630
1	0 280 02	0 280 08	800
1	0 280 03	0 280 09	1000
1	0 280 04	0 280 10	1250
1			1600
	Frame 1600		Breaking capacity Icu 50 kA (415 V~)
1	0 280 24	0 280 30	630
1	0 280 25	0 280 31	800
1	0 280 26	0 280 32	1000
1	0 280 27	0 280 33	1250
1	0 280 28	0 280 34	1600
	Frame 1600		Draw-out version
	Frame 1600		Supplied with: - 4 auxiliary contacts: NO/NC - draw-out base and kit - rear orientable terminals for horizontal and vertical connection with barS - door sealing
	3P	4P	Breaking capacity Icu 42 kA (415 V~)
1	0 280 12	0 280 18	In (A)
1	0 280 13	0 280 19	630
1	0 280 14	0 280 20	800
1	0 280 15	0 280 21	1000
1	0 280 16	0 280 22	1250
1			1600
	Frame 1600		Breaking capacity Icu 50 kA (415 V~)
1	0 280 36	0 280 42	630
1	0 280 37	0 280 43	800
1	0 280 38	0 280 44	1000
1	0 280 39	0 280 45	1250
1	0 280 40	0 280 46	1600

DMX³ 1600 electronic protection units **NEW**



0 281 65



0 281 72

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

Pack	Cat.Nos	MP4 protection units with LCD screen
1	0 281 64	LI protection unit Adjustment of: li, lr, tr
1	0 281 65	LSI protection unit Adjustment of: I _{sd} , I _{tsd} , lr, tr and li
1	0 281 66	LSIg protection unit Adjustment of: I _{sd} , I _{tsd} , lr, tr, li, I _g and I _{tg}
		Accessories for electronic protection units
1	0 281 70 ¹	Communication option for DMX ³ electronic protection units
1	0 281 72	External auxiliary power supply (input 230 V AC)
1	0 281 71 ¹	External neutral for DMX ³ 1600
1	0 281 99 ¹	Programmable output option

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

Trip free switches DMX³-I 1600 **NEW**
from 1000 to 1600 A



0 280 52

Pack	Cat.Nos		Fixed version
	Frame 1600		Supplied with: - 4 auxiliary contacts: NO/NC - rear orientable terminals for horizontal and vertical connection with barS - door sealing
	3P	4P	In (A)
1	0 280 50	0 280 56	1000
1	0 280 51	0 280 57	1250
1	0 280 52	0 280 58	1600
	Frame 1600		Draw-out version
	Frame 1600		Supplied with: - 4 auxiliary contacts: NO/NC - draw-out base and kit - rear orientable terminals for horizontal and vertical connection with barS - door sealing
	3P	4P	In (A)
1	0 280 62	0 280 68	1000
1	0 280 63	0 280 69	1250
1	0 280 64	0 280 70	1600

Trip free switches DMX³-I 1600 **NEW**
from 1000 to 1600 A

Technical characteristics		
Trip free switch DMX ³ -I		1600
Frame		1600
Rating In at 40°/ 50° C (A)		1000 1250 1600
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
Isolation behaviour		Yes
Short-circuit making capacity I _{cm} (kA)	220 / 240 V~	105
	380 / 415 V~	105
	440 / 460 V~	105
	480 / 500 V~	105
	600 V~	88
	690 V~	88
Short time withstand current I _{cw} (kA) pour t = 1 s	220 / 240 V~	50
	380 / 415 V~	50
	440 / 460 V~	50
	480 / 500 V~	50
	600 V~	42
	690 V~	42
Endurance (cycles)	mechanical without maintenance	5000
	mechanical with maintenance	10000
	electrical	1500 at 690 V / 3000 at 415 V
Temperature	operation	-5°C to +70°C
	storage	-25°C to +85°C

Temperature derating
Fixed / draw-out version

DMX ³ -I 1600	Temperature									
	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
1000	1	1000	1	1000	1	1000	1	1000	0.95	
1250	1	1250	1	1250	1	1187	0.95	1125	0.9	
1600	1	1600	1	1328	0.83	1280	0.8	1216	0.76	



0 281 39



0 281 23



0 281 78



0 281 81



0 281 75



0 289 20

Pack	Cat.Nos	Control and signalling auxiliaries
		Shunt trip When energised the circuit breaker will be tripped
1	0 281 31	24 V~/=
1	0 281 32	48 V~/=
1	0 281 33	110 - 130 V~/=
1	0 281 34	220 - 250 V~/=
1	0 281 35	415 - 440 V~
		Undervoltage releases When the coil is de-energised, the circuit breaker will be tripped
1	0 281 36	24 V~/=
1	0 281 37	48 V~/=
1	0 281 38	110 - 130 V~/=
1	0 281 39	220 - 250 V~/=
1	0 281 40	415 - 440 V~
		Module for delayed tripping To be used with above undervoltage releases
1	0 281 41	110 V~/= (time delay 1s)
1	0 281 42	230 V~/= (time delay 1s)
1	0 281 43	110 V~/= (time delay 3s)
1	0 281 44	230 V~/= (time delay 3s)
1	0 281 45	110 V~/= (time delay 5s)
1	0 281 46	230 V~/= (time delay 5s)
		Motor operators To motorize a DMX ³ , it is possible to attach, to the motor operators, a release coil (undervoltage or trip on energising) and a closing coil
1	0 281 20	24 V~/=
1	0 281 21	48 V~/=
1	0 281 22	110 - 130 V~/=
1	0 281 23	220 - 250 V~/=
1	0 281 24	415 - 440 V~
		Closing coils Enables remote closing of the circuit breaker if the closing spring is charged
1	0 281 26	24 V~/=
1	0 281 27	48 V~/=
1	0 281 28	110 - 130 V~/=
1	0 281 29	220 - 250 V~/=
1	0 281 30	415 - 440 V~
		Signalling contact for draw-out version Inserted / test / draw-out signalling contact
1	0 281 73	1 changeover contact per position (up to 2 contacts with double accessory if the safety button for test position cat no. 0 281 87 is not mounted)
		Locking
		Key locking in «open» position
1	0 281 78	1 lock + 1 Ronis type flat key (n° ABA90GEL6149) random
1	0 281 79	1 lock + 1 Ronis type flat key (n° ABA90GEL6149) fixed (cod. EL43525)
1	0 281 80	1 lock + 1 Ronis type flat key (n° ABA90GEL6149) fixed (cod. EL43363)
1	0 281 81	1 lock + 1 Profalux type star key (n° HBA90GPS6149) random
		Key locking in the draw-out position Mounting of the lock on the base
1	0 281 82	1 lock + 1 Profalux type flat key (n° ABA90GEL6149) random
1	0 281 83	1 lock + 1 Ronis type star key (n° HBA90GPS6149) random

Pack	Cat.Nos	Locking (continued)
		Door locking Prevents opening of the door with the circuit breaker closed Left-hand and right-hand side mounting
1	0 281 84	
		Padlock Padlock for buttons
1	0 281 77	
		Accessories
		Mechanical counter Counts total number of operation cycles of the device
1	0 281 88	
		Contact «ready to close» with charged springs
1	0 281 74	
		Module with 6 auxiliary contacts
1	0 281 75	
		Inserted/test/drawout lock button
1	0 281 87	
		Rating mis-insertion device Prevents the insertion of a draw-out circuit breaker in an incompatible base
1	0 281 89	
		Front terminals
		For DMX³ Frame 1600 fixed and draw-out versions
1	3P 0 281 55 4P 0 281 56	For frontal connection, fixed version
1	0 281 57 0 281 58	For frontal connection, draw-out version
		Spreaders for DMX³ Frame 1600 fixed and draw-out versions
		To be fixed onto orientable rear terminals of the circuit breaker
	3P 0 281 59 4P 0 281 60	For connection with bars (horizontal use)
		Insulation shields
		For fixed version For DMX ³ /DMX ³ -I Frame 1600
1	3P 0 281 49 4P 0 281 50	

Pack	Cat.Nos	Equipment for supply invertors
		The mechanical interlock is set up using cables and can interlock 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. Cable interlock to be ordered separately (cable length to be specified according to every configuration - see below).
1	0 281 90	Interlock for DMX ³ frame 1600
		Cable interlock
		Length
1	0 289 17	1000 mm
1	0 289 18	1500 mm
1	0 289 20	2600 mm
1	0 289 21	3000 mm
1	0 289 22	3600 mm
1	0 289 23	4000 mm
1	0 289 24	4600 mm
1	0 289 25	5600 mm

Air circuit breakers DMX³ 2500 and 4000 from 800 to 4000 A



0 286 56 + 0 288 02

0 286 74 + 0 288 02

0 287 56 + 0 288 02

Automatic air circuit breakers must be equipped with electronic protection unit (p. 97), imperatively ordered together for factory assembly
Please ask for DMX³ order form

Pack	Cat.Nos	Fixed version	Pack	Cat.Nos	Draw-out version
		Supplied with - 4 auxiliary contacts: NO/NC - rear terminals for horizontal connection with bars - door sealing DMX³ - N 2500 Breaking capacity Icu 50 kA (415 V \sim)			Supplied with: - 4 auxiliary contacts: NO/NC - draw-out base and kit - flat rear terminals for connection with bars - door sealing DMX³ - N 2500 Breaking capacity Icu 50 kA (415 V \sim)
	Frame 2500			Frame 2500	
	3P 4P	In(A)		3P 4P	In(A)
1	0 286 21 0 286 31	800	1	0 287 21 0 287 31	800
1	0 286 22 0 286 32	1000	1	0 287 22 0 287 32	1000
1	0 286 23 0 286 33	1250	1	0 287 23 0 287 33	1250
1	0 286 24 0 286 34	1600	1	0 287 24 0 287 34	1600
1	0 286 25 0 286 35	2000	1	0 287 25 0 287 35	2000
1	0 286 26 0 286 36	2500	1	0 287 26 0 287 36	2500
		DMX³ - H 2500 Breaking capacity Icu 65 kA (415 V \sim)			DMX³ - H 2500 Breaking capacity Icu 65 kA (415 V \sim)
	Frame 2500			Frame 2500	
	3P 4P	In(A)		3P 4P	In(A)
1	0 286 41 0 286 51	800	1	0 287 41 0 287 51	800
1	0 286 42 0 286 52	1000	1	0 287 42 0 287 52	1000
1	0 286 43 0 286 53	1250	1	0 287 43 0 287 53	1250
1	0 286 44 0 286 54	1600	1	0 287 44 0 287 54	1600
1	0 286 45 0 286 55	2000	1	0 287 45 0 287 55	2000
1	0 286 46 0 286 56	2500	1	0 287 46 0 287 56	2500
		DMX³ - L 2500 Breaking capacity Icu 100 kA (415 V \sim)			DMX³ - L 2500 Breaking capacity Icu 100 kA (415 V \sim)
	Frame 4000			Frame 4000	
	3P 4P	In(A)		3P 4P	In(A)
1	0 286 61 0 286 71	800	1	0 287 61 0 287 71	800
1	0 286 62 0 286 72	1000	1	0 287 62 0 287 72	1000
1	0 286 63 0 286 73	1250	1	0 287 63 0 287 73	1250
1	0 286 64 0 286 74	1600	1	0 287 64 0 287 74	1600
1	0 286 65 0 286 75	2000	1	0 287 65 0 287 75	2000
1	0 286 66 0 286 76	2500	1	0 287 66 0 287 76	2500
		DMX³ - N 4000 Breaking capacity Icu 50 kA (415 V \sim)			DMX³ - N 4000 Breaking capacity Icu 50 kA (415 V \sim)
	Frame 4000			Frame 4000	
	3P 4P	In(A)		3P 4P	In(A)
1	0 286 27 0 286 37	3200	1	0 287 27 0 287 37	3200
1	0 286 28 0 286 38	4000	1	0 287 28 0 287 38	4000
		DMX³ - H 4000 Breaking capacity Icu 65 kA (415 V \sim)			DMX³ - H 4000 Breaking capacity Icu 65 kA (415 V \sim)
	Frame 4000			Frame 4000	
	3P 4P	In(A)		3P 4P	In(A)
1	0 286 47 0 286 57	3200	1	0 287 47 0 287 57	3200
1	0 286 48 0 286 58	4000	1	0 287 48 0 287 58	4000
		DMX³ - L 4000 Breaking capacity Icu 100 kA (415 V \sim)			DMX³ - L 4000 Breaking capacity Icu 100 kA (415 V \sim)
	Frame 4000			Frame 4000	
	3P 4P	In(A)		3P 4P	In(A)
1	0 286 67 0 286 77	3200	1	0 287 67 0 287 77	3200
1	0 286 68 0 286 78	4000	1	0 287 68 0 287 78	4000

Air circuit breakers DMX³ 6300 5000 and 6300 A



0 289 51 + 0 288 02

Automatic air circuit breakers must be equipped with electronic protection unit, imperatively ordered together for factory assembly
Please ask for DMX³ order form

Pack	Cat.Nos	Fixed version	Pack	Cat.Nos	Draw-out version
		Supplied with - 4 auxiliary contacts: NO/NC - rear terminals for horizontal connection with bars - door sealing DMX³ - L 6300 Breaking capacity Icu 100 kA (415 V \sim)			Supplied with: - 4 auxiliary contacts: NO/NC - draw-out base and kit - flat rear terminals for connection with bars - door sealing DMX³ - L 6300 Breaking capacity Icu 100 kA (415 V \sim)
	Frame 6300			Frame 6300	
	3P 4P	In(A)		3P 4P	In(A)
1	0 289 50 0 289 60	5000	1	0 289 52 0 289 62	5000
1	0 289 51 0 289 61	6300	1	0 289 53 0 289 63	6300

Electronic protection units for DMX³ 2500, 4000 and 6300



0 288 02

0 288 03

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

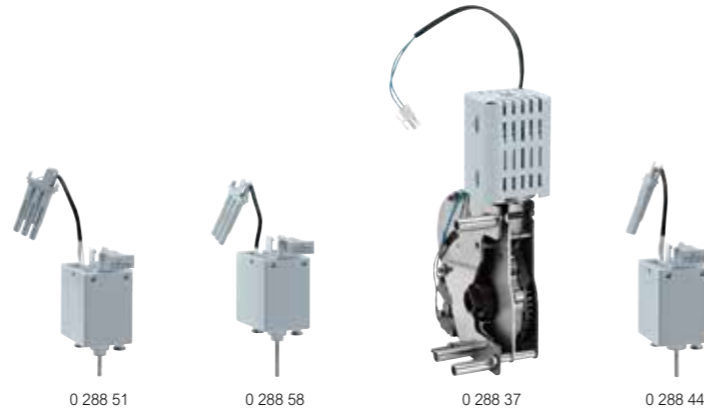
Pack	Cat.Nos	MP4 protection units with LCD screen	Diagram
1	0 288 00	Integrated LCD screen for displaying electrical values, settings and log Adjustment via selector switches LI protection unit Adjustment of: Ii, Ir, tr	
1	0 288 01	LSI protection unit Adjustment of: I _{sd} , t _{sd} , Ir, tr and Ii	
1	0 288 02	LSIg protection unit Adjustment of: I _{sd} , t _{sd} , Ir, tr, Ii, I _g and t _g	
1	0 288 03	MP6 touch screen protection units Measure and display instantaneous, maximum and average values of different electrical values and protection conditions Fault signalling and log LSI protection unit Adjustment of: I _{sd} , Ir, tr and Ii	
1	0 288 04	LSIg protection unit Adjustment of: I _{sd} , t _{sd} , Ir, tr, Ii, I _g and t _g	
1	0 288 05 ¹	Accessories for electronic protection units Communication option for DMX ³ electronic protection units	
1	0 288 06	24 V DC external auxiliary power supply	
1	0 288 10 ¹	External neutral for DMX ³ 6300	
1	0 288 11 ¹	External neutral for DMX ³ 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

Trip free switches DMX³-I from 1250 to 6300 A



Accessories for DMX³ 2500, 4000 and 6300



Pack	Cat.Nos		Fixed version
			Supplied with: - 4 auxiliary contacts: NO/NC - flat rear terminals for connection with bars - door sealing
	Frame 2500		DMX³-I 2500
	3P	4P	In(A)
1	0 286 83	0 286 93	1250
1	0 286 84	0 286 94	1600
1	0 286 85	0 286 95	2000
1	0 286 86	0 286 96	2500
	Frame 4000		DMX³-I 4000
	3P	4P	In(A)
1	0 286 87	0 286 97	3200
1	0 286 88	0 286 98	4000
	Frame 6300		DMX³-I 6300
	3P	4P	In(A)
1	0 289 70	0 289 71	6300
			Draw-out version
			Supplied with: - 4 auxiliary contacts: NO/NC - draw-out base and kit - flat rear terminals for connection with bars - door sealing
	Frame 2500		DMX³-I 2500
	3P	4P	In(A)
1	0 287 83	0 287 93	1250
1	0 287 84	0 287 94	1600
1	0 287 85	0 287 95	2000
1	0 287 86	0 287 96	2500
	Frame 4000		DMX³-I 4000
	3P	4P	In(A)
1	0 287 87	0 287 97	3200
1	0 287 88	0 287 98	4000
	Frame 6300		DMX³-I 6300
	3P	4P	In(A)
1	0 289 77	0 289 78	6300

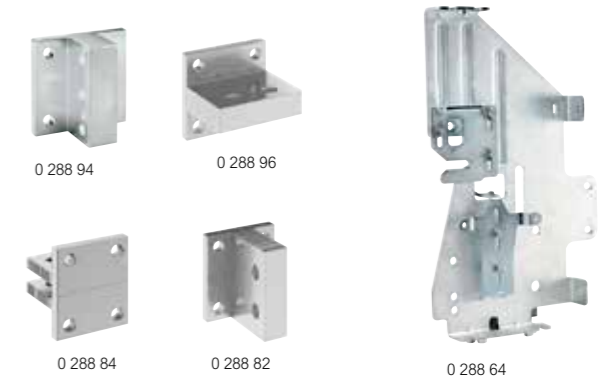
Pack	Cat.Nos	Control and signalling auxiliaries
		Shunt trip When energised the circuit breaker will be tripped
1	0 288 48	24 V~/=
1	0 288 49	48 V~/=
1	0 288 50	110 - 130 V~/=
1	0 288 51	220 - 250 V~/=
1	0 288 52	415 - 480 V~/=
		Undervoltage releases When the coil is de-energised, the circuit breaker 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 DMX, 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 Signalling contact for shunt trips, undervoltage releases and closing coils
1	0 288 16	
		Signalling contact for draw-out version Inserted / test / draw-out signalling contact
1	0 288 13	3 changeover contacts per position

Accessories for DMX³ 2500, 4000 and 6300 (continued)



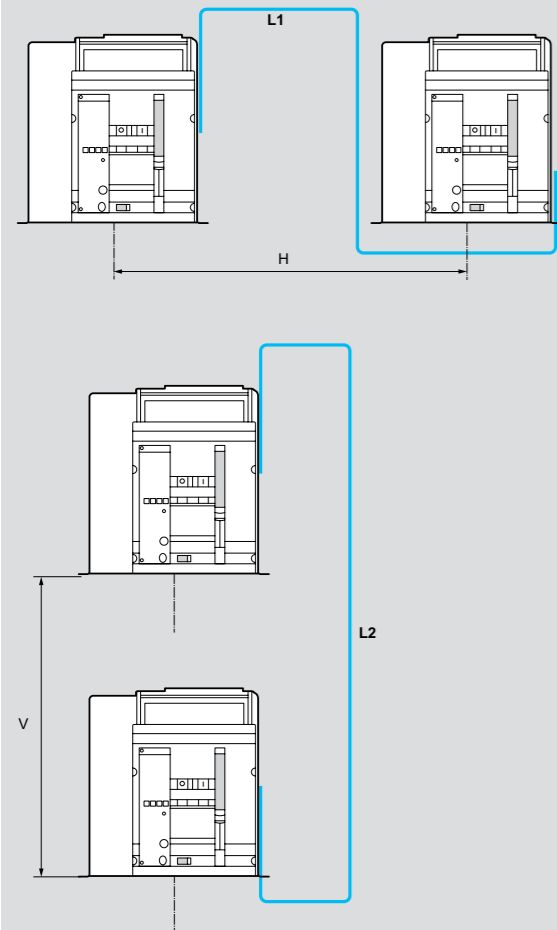
Pack	Cat.Nos	Locking
1	0 288 30	Key locking in "open" position Lock and star key N° HBA90GPS6149 - to be fitted on the frame Cat.No 0 288 28
1	0 288 31	Lock and flat key N° ABA90GEL6149 - to be fitted on the frame Cat.No 0 288 28
1	0 288 28	2 hole support frame for locks Cat.Nos 0 288 30/31
1	0 288 29	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 Padlocking system for ACB (padlock not supplied)
1	0 288 21	Padlock for buttons
1	0 288 24	Padlock for buttons
1	0 288 26	Padlocking system for shutters (padlock not supplied)
		Equipment for conversion of a fixed device into draw-out device
		Bases for draw-out device For DMX ³ /DMX ³ -I frame 2500
1	3P 0 289 02	4P 0 289 03
1	0 289 04	0 289 05
1	0 289 13	0 289 14
		For DMX ³ /DMX ³ -I frame 4000
		For DMX ³ /DMX ³ -I frame 6300
		Transformation kit for draw-out version For DMX ³ /DMX ³ -I frame 2500
1	0 289 09	0 289 10
1	0 289 11	0 289 12
1	0 289 15	0 289 16
		For DMX ³ /DMX ³ -I frame 4000
		For DMX ³ /DMX ³ -I frame 6300
		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
		Insulation shields
		For fixed version Insulation shields for DMX ³ /DMX ³ -I frames 2500/4000/6300
1	3P 0 288 98	4P 0 288 99
		For draw-out version Insulation shields for DMX ³ /DMX ³ -I frames 2500/4000/6300

Rear terminals and supply invertors for DMX³ 2500, 4000 and 6300



Pack	Cat.Nos	Rear terminals
		For DMX³ frame 2500 fixed version For flat connection with bars To be fixed onto horizontal rear terminals of the circuit breaker
1	3P 0 288 84	4P 0 288 85
1	0 288 82	0 288 83
		For vertical connection with bars Those terminals are used in order 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 DMX³ frame 2500 draw-out version For vertical or horizontal connection with bars To be fixed onto plate rear terminals of the circuit breaker
1	0 288 96	0 288 97
		For DMX³ frame 4000 and 6300 fixed version For flat connection with bars To be fixed onto horizontal rear terminals of the circuit breaker
1	0 288 92	0 288 93
		2 sets are required for frame 6300
		For DMX³ frame 4000 and 6300 fixed or draw-out version On DMX ³ fixed version: - For vertical connection with bars - To be fixed onto Cat.Nos 0 288 92/93 according to the number of poles
1	0 288 94	0 288 95
		On DMX ³ 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
		Spreaders for DMX³ frame 2500 fixed version To be fixed onto horizontal rear terminals of the circuit breaker
1	3P 0 288 86	4P 0 288 87
1	0 288 88	0 288 89
1	0 288 90	0 288 91
		For flat connection with bars
		For vertical connection with bars
		For horizontal connection with bars
		Equipment for supply invertors
1	0 288 64	Interlock for DMX ³ frame 2500
1	0 288 65	Interlock for DMX ³ frame 4000
1	0 288 66	Interlock for DMX ³ frame 6300
		Cable interlock
		Length
1	0 289 17	1000 mm
1	0 289 18	1500 mm
1	0 289 20	2600 mm
1	0 289 21	3000 mm
1	0 289 22	3600 mm
1	0 289 23	4000 mm
1	0 289 24	4600 mm
1	0 289 25	5600 mm

Choice of cable interlock

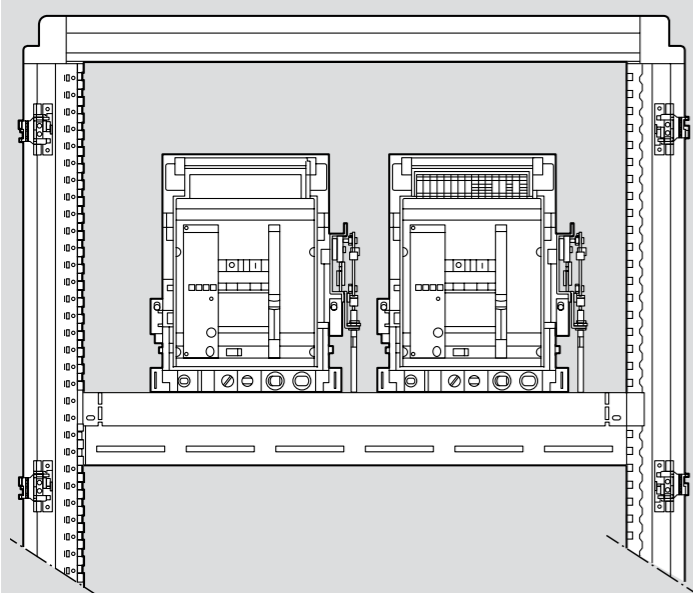


Calculation of cable length:
L1 = 2500
L2 = 2500

Installation principle

For XL³ 4000 - 36 modules

2 DMX³ / DMX³-I can be installed side by side on the same fixing plate.



Functions

Standard unit Cat.No 0 261 93

Used to adjust and manage the source inversion operating conditions (DMX³):

- Remote control (opening/closing) of MCBs
- Microprocessor output from unit (positive safety)
- Programmable I/O
- Voltage reading: 3-phase phase-neutral phase-phase
- Control (on/off) of generator set
- Indication of the state of the MCBs (open/closed/tripped)
- Source inversion blocked in the event of:
 - Tripping of 1 or 2 devices
 - If a draw-out ACB is not inserted in its base, as the open/close command of the unit is inoperative

Communicating unit Cat.No 0 261 94

All the standard functions, plus:

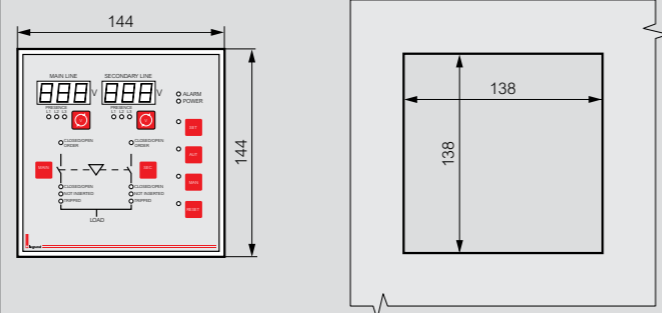
- Maximum voltage reading
- Reading of phase rotation direction
- Frequency reading
- Communication: data transmission via the RS 485 port (Modbus protocol)

Technical characteristics

Power supply: 187 to 264 V_~
9 to 65 V₌₌
Frequency: 45 to 65 Hz
Un: 80 to 690 V_~
Control relay (1 and 4): 1 NO - 12 A - 250 V_~
1 NO - 5 A - 250 V_~
1 NO/NC - 5 A - 250 V_~
Cable cross-section: 0.2 to 2.5 mm²
Dimensions (width x height x depth): 144 x 144 x 90 mm
Protection: IP 20 at the rear
IP 41 at the front
IP 54 at the front with protective screen
Operating temperature: - 20 °C to + 60 °C

	Operating ranges
Main/secondary minimum voltage range	70-98 % Un
Main/secondary voltage absence range	60-85 % Un
Main/secondary minimum voltage delay	0.1-900 s
Main/secondary voltage absence delay	0.1-30 s
Generator operating delay	0-900 s
Main to secondary switching delay	0.1-90 s
Main line presence delay	1-3600 s
Secondary to main switching delay	0.1-90 s
Generator set stopping delay	1-3600 s

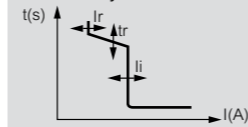
Dimensions and panel board faceplate cut-out



Settings of the electronic protection units

MP4 LI

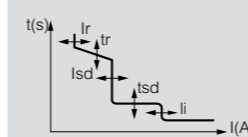
I_r, I_l, t_r adjustment on front panel



- Long time delay protection against overloads
I_r from 0.4 to 1 x I_n (6 + 6 steps) on two selectors (0.4 ÷ 0.9, by steps of 0.1 and 0.0 ÷ 0.1, by steps of 0.02)
- Long delay protection operation time
t_r - at 6 x I_r (4 + 4 steps)
t_r = 5-10-20-30 s (MEM ON) 30-20-10-5 s (MEM OFF)
- Instantaneous protection against very high short circuits
I_l from 2 to 15 x I_n or I_{cw} (9 steps) I_l = 2-3-4-6-8-10-12-15 x I_n or I_{cw}
- Neutral protection: OFF-50%-100%

MP4 LSI

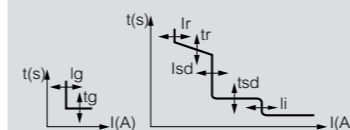
I_r, t_r, I_{sd}, I_l adjustment on front panel



- Long time delay protection against overloads
I_r from 0.4 to 1 x I_n (6 + 6 steps) on two selectors (0.4 ÷ 0.9, by steps of 0.1 and 0.0 ÷ 0.1, by steps of 0.02)
- Long delay protection operation time
t_r - at 6 x I_r (4 + 4 steps) t_r = 5-10-20-30 s (MEM ON) 30-20-10-5 s (MEM OFF)
- Short time delay protection against short circuits
I_{sd} from 1.5 to 10 x I_r (9 steps) I_{sd} = 1.5-2-2.5-3-4-5-6-8-10 x I_r
- Short time delay protection operation time
t_{sd} = 0.1-0.2-0.5-1 s (t=const),
0.3-0.2-0.1-0.01 s (I²t=const)
- Instantaneous protection against very high short circuits
I_l from 2 to 15 x I_n or I_{cw} (9 steps) I_l = off-2-3-4-6-8-10-12-15 x I_n or I_{cw}
- Neutral protection: OFF-50%-100%

MP4 LSIg

I_r, t_r, I_l, I_g, t_g, I_{sd}, t_{sd}, adjustment on front panel



- Long time delay protection against overloads
I_r from 0.4 to 1 x I_n (6 + 6 steps) on two selectors (0.4 ÷ 0.9, by steps of 0.1 and 0.0 ÷ 0.1, by steps of 0.02)
- Long delay protection operation time
t_r - at 6 x I_r (4 + 4 steps) t_r = 5-10-20-30 s (MEM ON)
30-20-10-5 s (MEM OFF)
- Short time delay protection against short circuits
I_{sd} from 1.5 to 10 x I_r (9 steps) I_{sd} = 1.5-2-2.5-3-4-5-6-8-10 x I_r
- Short time delay protection operation time
t_{sd} = 0.1-0.2-0.5-1 s (t=constant),
0.3-0.2-0.1-0.01 s (I²t=constant)
- Instantaneous protection against very high short circuits
I_l from 2 to 15 x I_n or I_{cw} (9 steps) I_l = OFF-2-3-4-6-8-10-12-15 x I_n or I_{cw}
- Earth fault current
I_g from 0.2 to 1 x I_n (9 steps) I_g = 0.2-0.3-0.4-0.5-0.6-0.7-0.8-1 x I_n : OFF
t_g from 0.1 + 1 s (4 steps) t_g = 0.1-0.2-0.5-1 s (both t = k and I²t = k)
- Neutral protection: OFF-50%-100%

Selectivity in three-phase network 400 V_~

DMX³/DPX³

Downstream	Upstream	DMX ³ 1600				
		630 A	800 A	1000 A	1250 A	1600 A
DPX ³ 160 ⁽¹⁾		T	T	T	T	T
DPX ³ 250 ⁽¹⁾ TM and elec.		T	T	T	T	T
DPX ³ 630 ⁽¹⁾ TM and elec.			T	T	T	T
DPX ³ 1600 ⁽¹⁾ thermal magnetic	630 A					
	800 A			T	T	T
	1000 A				T	T
	1250 A					T
DPX ³ 1600 ⁽¹⁾ electronic	630 A				T	T
	800 A				T	T
	1000 A					T
	1250 A					T
1600 A						

1: All breaking capacity
T: total selectivity, up to downstream circuit breaking capacity according to IEC 60947-2

DMX³/DMX³

Downstream	Upstream	DMX ³ 1600				
		630 A	800 A	1000 A	1250 A	1600 A
DMX ³	630 A		T	T	T	T
	800 A			T	T	T
	1000 A				T	T
	1250 A					T
1600 A						

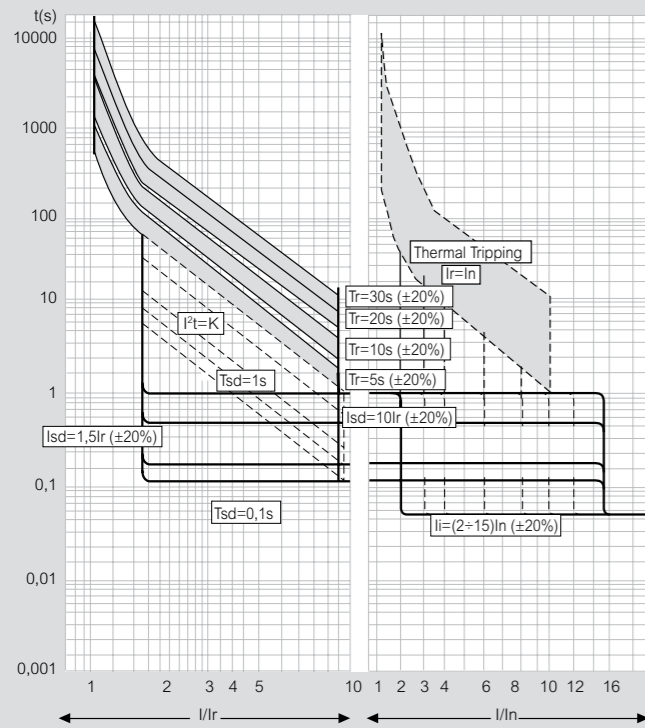
T: total selectivity, up to downstream circuit breaking capacity according to IEC 60947-2
I_{cu} of downstream circuit breaker ≤ I_{cu} of upstream circuit breaker
Selectivity values are intended with protection unit properly adjusted

DMX³/DX³

	DMX ³ 1600				
	630 A	800 A	1000 A	1250 A	1600 A
DX ³ 6000 - 10 kA	T	T	T	T	T
DX ³ 10000 - 16 kA	T	T	T	T	T
DX ³ 25 kA	T	T	T	T	T
DX ³ 36 kA	T	T	T	T	T
DX ³ 50 kA	T	T	T	T	T

T: total selectivity, up to downstream circuit breaking capacity according to IEC 60947-2
I_{cu} of downstream circuit breaker ≤ I_{cu} of upstream circuit breaker
Selectivity values are intended with protection unit properly adjusted

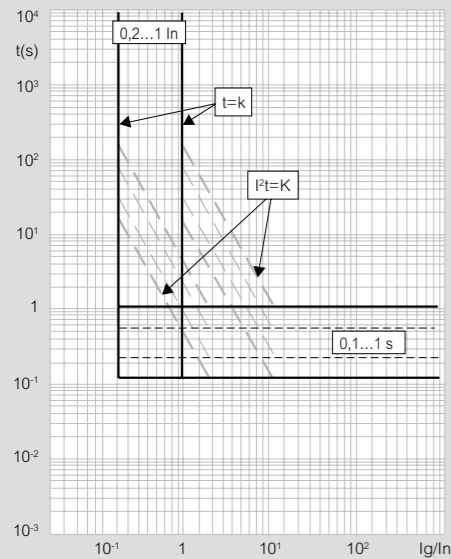
■ Selective time-current tripping characteristic for MP4 protection units



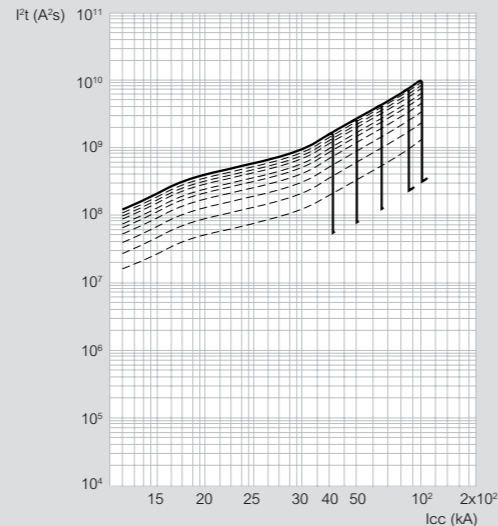
If short-circuit current is higher than I_{cw} value or I_i is set at I_{cw} position, tripping time is equal to 30ms

- Ir = long time setting current
- Tr = long time delay
- Im = short time setting current
- Tm = short time delay
- If = instantaneous intervention current

■ Ground fault tripping curve for LSig protection unit



■ Pass-through specific energy characteristic



I_{cc} (kA) = estimated short circuit symmetrical current (RMS value)
 I²t (A²s) = pass-through specific energy

■ Technical characteristics

DMX ³ 1600		DMX ³ 1600	
DMX ³ according to IEC 60947-2		42 kA	50 kA
Frame current (A)		1600	
Number of poles		3P-4P	
Rating I _n (A)		630/800/1000/1250/1600	
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	
Ultimate breaking capacity I _{cu} (kA)	220 / 240 V _~	42	50
	380 / 415 V _~	42	50
	440 / 460 V _~	42	50
	480 / 500 V _~	42	50
	600 V _~	42	42
Service breaking capacity I _{cs} (% I _{cu})	220 / 240 V _~	100 %	100 %
	380 / 415 V _~	88	105
Short-circuit making capacity I _{cm} (kA)	220 / 240 V _~	88	105
	380 / 415 V _~	88	105
	440 / 460 V _~	88	105
	480 / 500 V _~	88	105
	600 V _~	88	88
Short time withstand current I _{cw} (kA) for t = 1s	220 / 240 V _~	42	50
	380 / 415 V _~	42	50
	440 / 460 V _~	42	50
	480 / 500 V _~	42	50
	600 V _~	42	42
Magnetic threshold I _{stantaneous releases} I _i (x I _n)		(2+15) & I _{cw}	
Isolation behavior		Yes	
Endurance (cycle)	mechanical without maintenance	5000	
	mechanical with maintenance	10000	
	electrical without maintenance	3000	

■ Temperature derating

Fixed and draw-out version

Temperature	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 ³ 1600	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	950	0.95
	1250	1	1250	1	1250	1	1187	0.95	1125	0.9
	1600	1	1470	0.92	1330	0.83	1280	0.8	1216	0.76

■ Derating at different altitudes

Air circuit breaker	DMX ³ 1600			
Altitude H (m)	< 2000	3000	4000	5000
Rated current (at 40°C) I _n (A)	I _n	0.93 x I _n	0.88 x I _n	0.82 x I _n
Rated voltage U _e (V)	690	600	500	440
Rated insulation voltage U _i (V)	1000	900	750	600

■ Minimum recommended dimension of busbars per pole

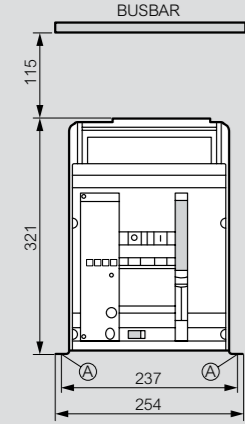
I _n (A)	Vertical bars (mm)	Horizontal bars (mm)
630	2 x 40 x 5	2 x 40 x 5
800	2 x 50 x 5	2 x 50 x 5
1000	2 x 60 x 5	2 x 60 x 5
1250	4 x 40 x 5	4 x 40 x 5
1600	4 x 50 x 5 / 3 x 63 x 5	4 x 50 x 5 / 3 x 63 x 5

Note: The tables presenting the minimum recommended dimensions of connection plates and bars per pole should be used solely as a general guideline for selecting products. Due to extensive variety of switchgear constructions shapes and conditions that can affect the behavior of the apparatus, the solution used must always be verified

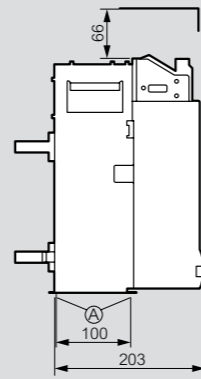
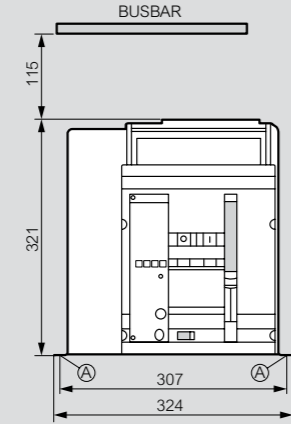
Fixed version

Overall dimensions

3P version



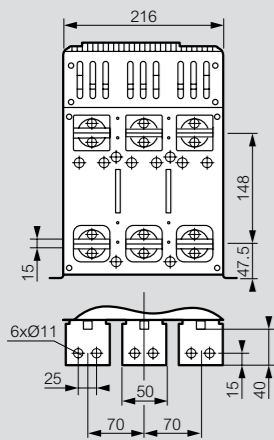
4P version



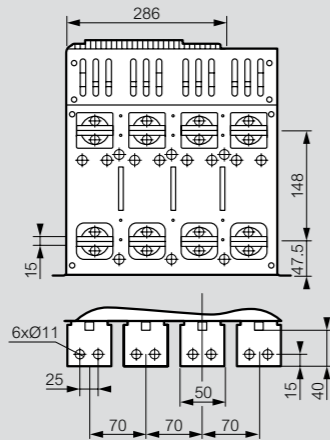
A = fixing point on plate of enclosure

Rear terminals for horizontal connection with bars

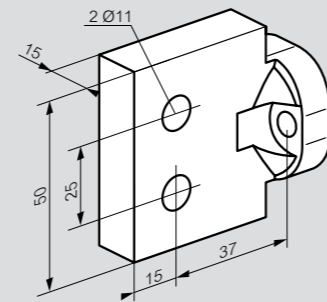
3P version



4P version

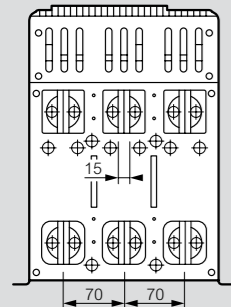


Reversible rear terminals

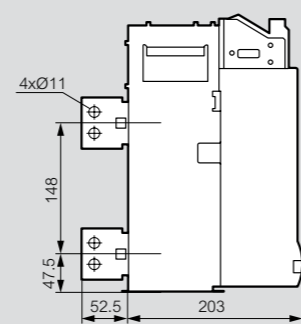
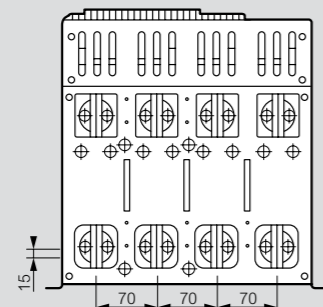


Rear terminals for vertical connection with bars

3P version



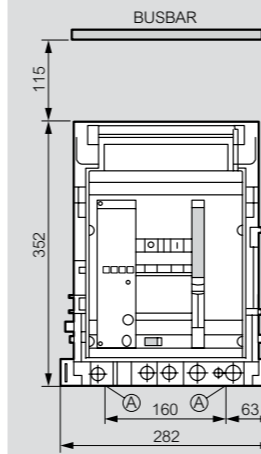
4P version



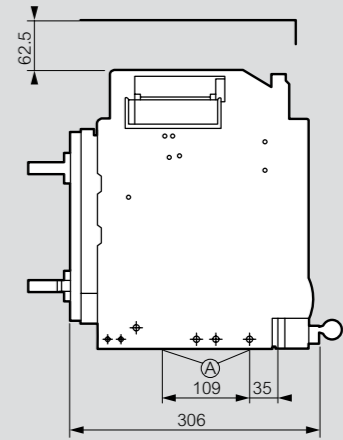
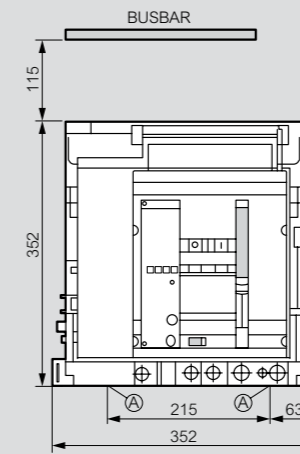
Draw-out version

Overall dimensions

3P version



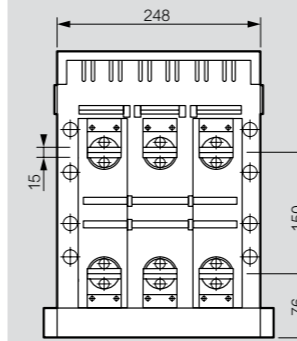
4P version



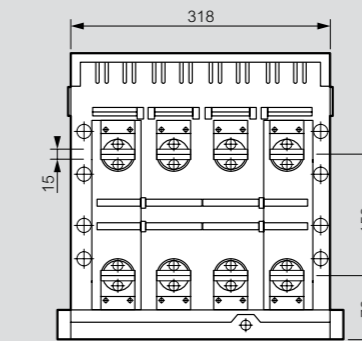
A = fixing point on plate of enclosure

Rear terminals for horizontal connection with bars

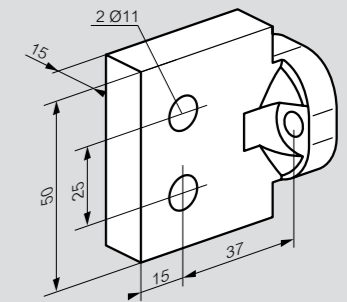
3P version



4P version

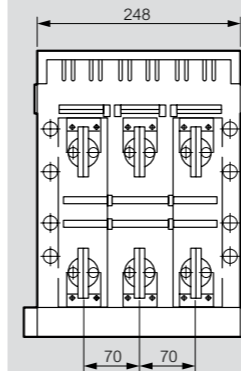


Reversible rear terminals

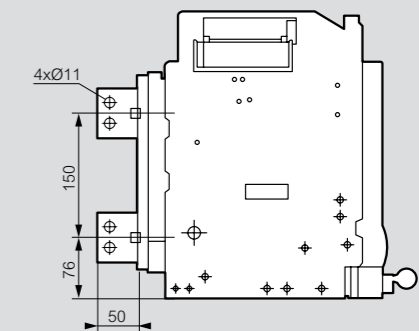
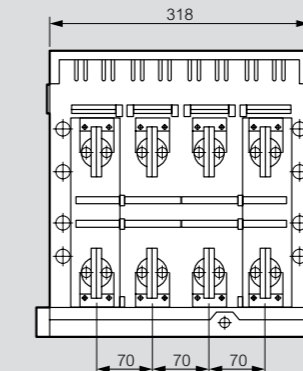


Rear terminals for vertical connection with bars

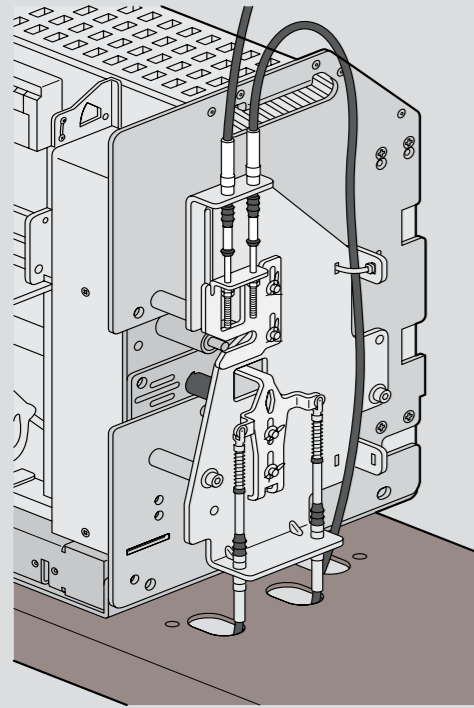
3P version



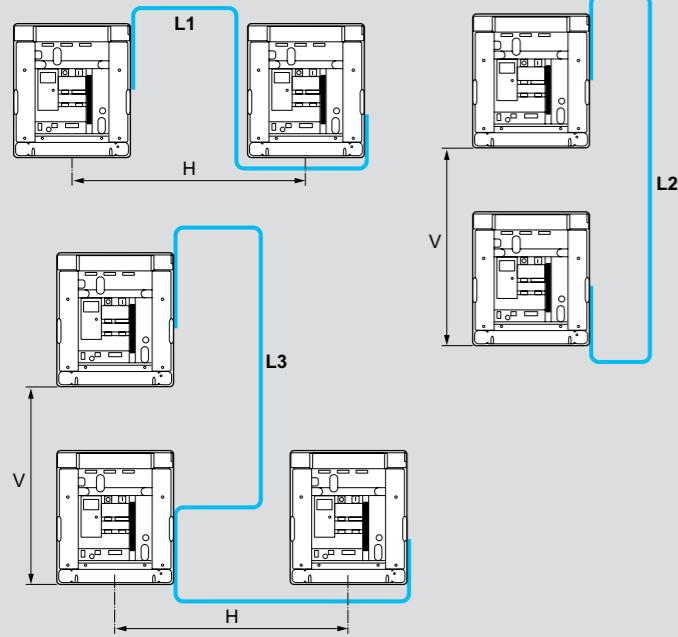
4P version



■ Mounting of interlock unit



■ Choice of cable interlock



Calculation of cable length:
L1 = 1430 + H
L2 = 1570 + V
L3 = 1430 + V + H

■ Functions

Standard unit Cat.No 0 261 93

Used to adjust and manage the source inversion operating conditions (DMX³):

- Remote control (opening/closing) of MCBs
- Microprocessor output from unit (positive safety)
- Programmable I/O
- Voltage reading: 3-phase phase-neutral phase-phase
- Control (on/off) of generator set
- Indication of the state of the MCBs (open/closed/tripped)
- Source inversion blocked in the event of:
 - Tripping of 1 or 2 devices
 - If a draw-out ACB is not inserted in its base, as the open/close command of the unit is inoperative

Communicating unit Cat.No 0 261 94

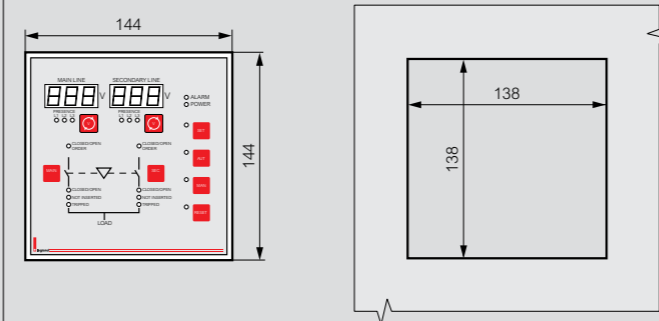
- All the standard functions, plus:
- Maximum voltage reading
 - Reading of phase rotation direction
 - Frequency reading
 - Communication: data transmission via the RS 485 port (Modbus protocol)

■ Technical characteristics

Power supply: 187 to 264 V_~
9 to 65 V₌
Frequency: 45 to 65 Hz
Un: 80 to 690 V_~
Control relay (1 and 4): 1 NO - 12 A - 250 V_~
1 NO - 5 A - 250 V_~
1 NO/NC - 5 A - 250 V_~
Cable cross-section: 0.2 to 2.5 mm²
Dimensions (width x height x depth): 144 x 144 x 90 mm
Protection: IP 20 at the rear
IP 41 at the front
IP 54 at the front with protective screen
Operating temperature: - 20 °C to + 60 °C

	Operating ranges
Main/secondary minimum voltage range	70-98 % Un
Main/secondary voltage absence range	60-85 % Un
Main/secondary minimum voltage delay	0.1-900 s
Main/secondary voltage absence delay	0.1-30 s
Generator operating delay	0-900 s
Main to secondary switching delay	0.1-90 s
Main line presence delay	1-3600 s
Secondary to main switching delay	0.1-90 s
Generator set stopping delay	1-3600 s

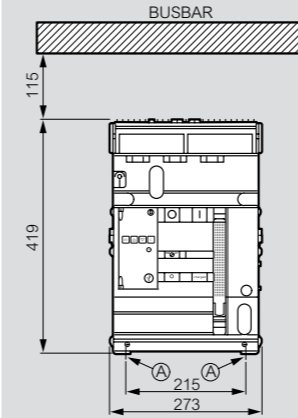
Dimensions and panel board faceplate cut-out



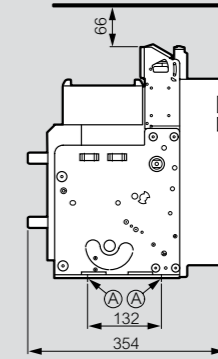
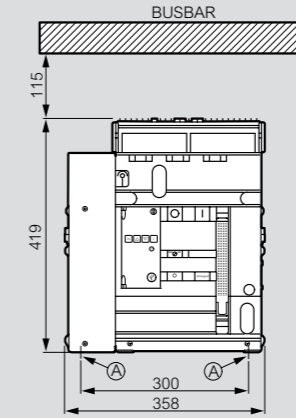
■ Fixed version - frame 1

Overall dimensions

3P version



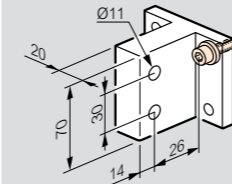
4P version



A = fixing point on plate of enclosure

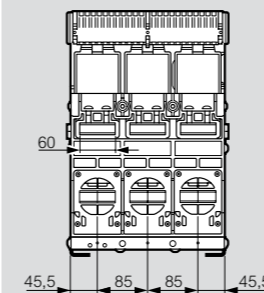
Rear terminals for vertical connection with bars

Cat.Nos 0 288 82/83

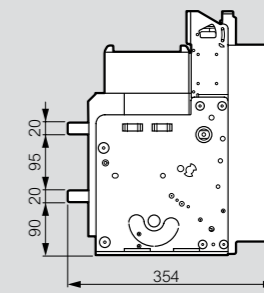
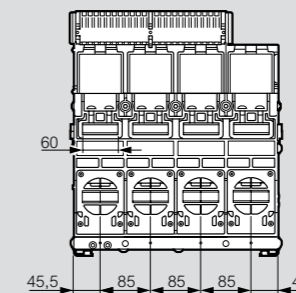


Rear terminals for horizontal connection with bars

3P version

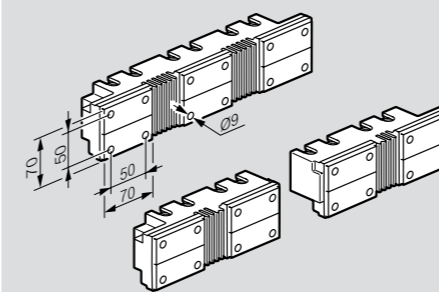


4P version



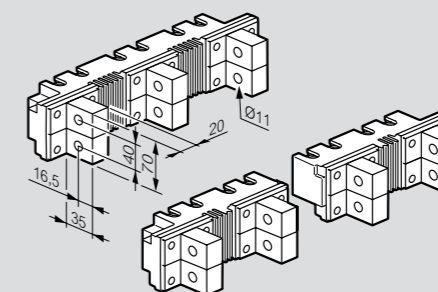
Spreaders for flat connection with bars

Cat.Nos 0 288 86/87



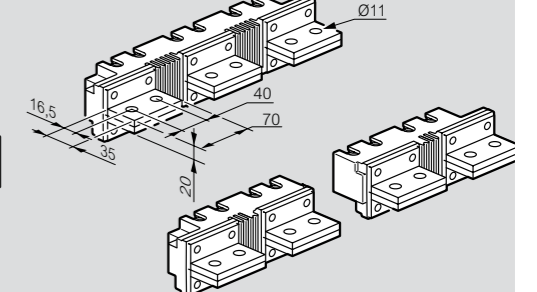
Spreaders for vertical connection with bars

Cat.Nos 0 288 88/89



Spreaders for horizontal connection with bars

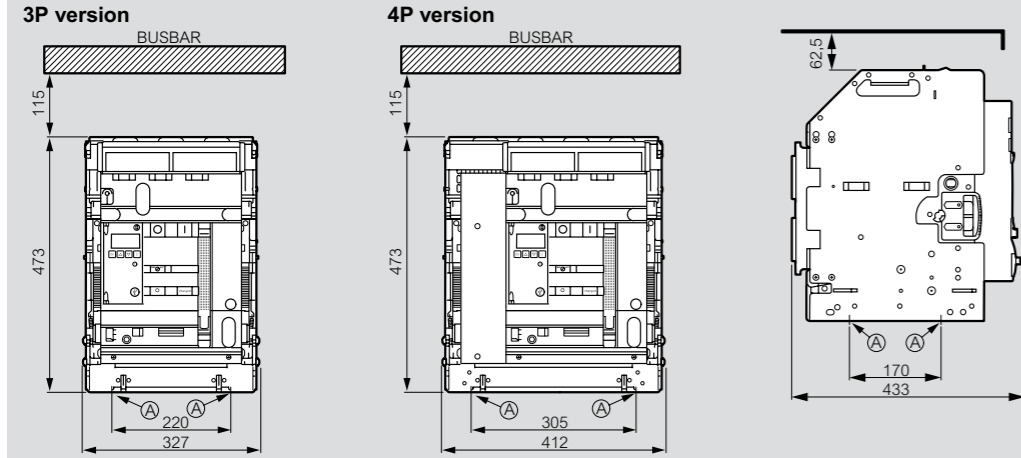
Cat.Nos 0 288 90/91



DMX³ 2500 and DMX³-I 2500 - frame 1 dimensions (continued)

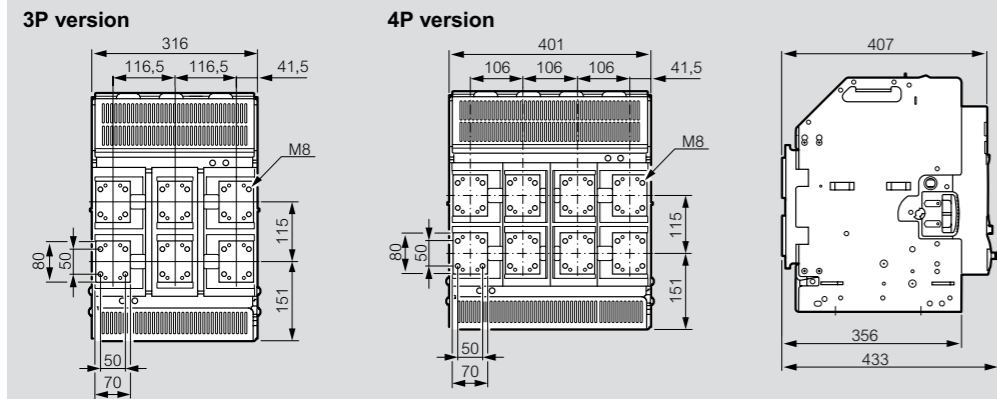
■ Draw-out version - frame 1

Overall dimensions

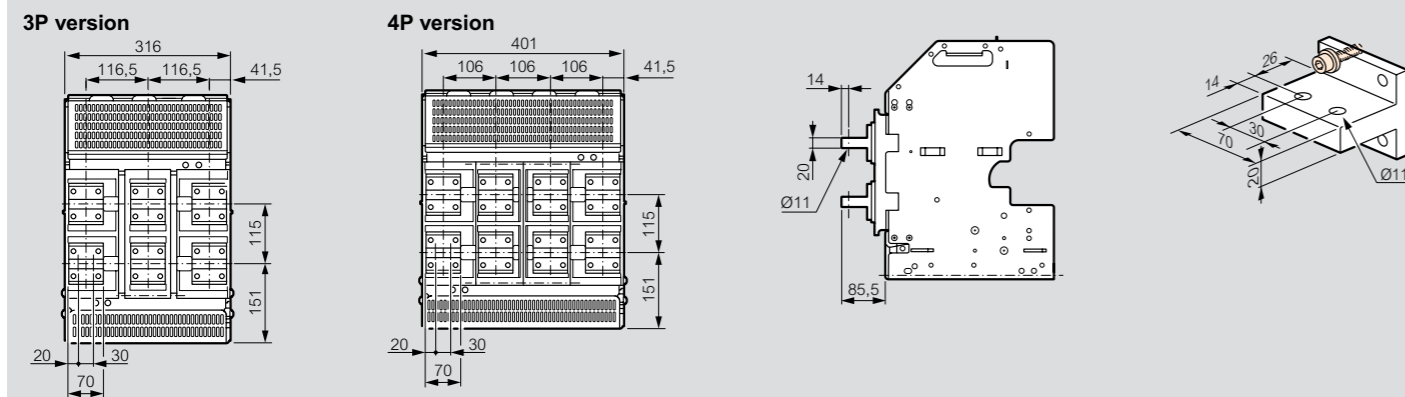


A = fixing point on plate of enclosure

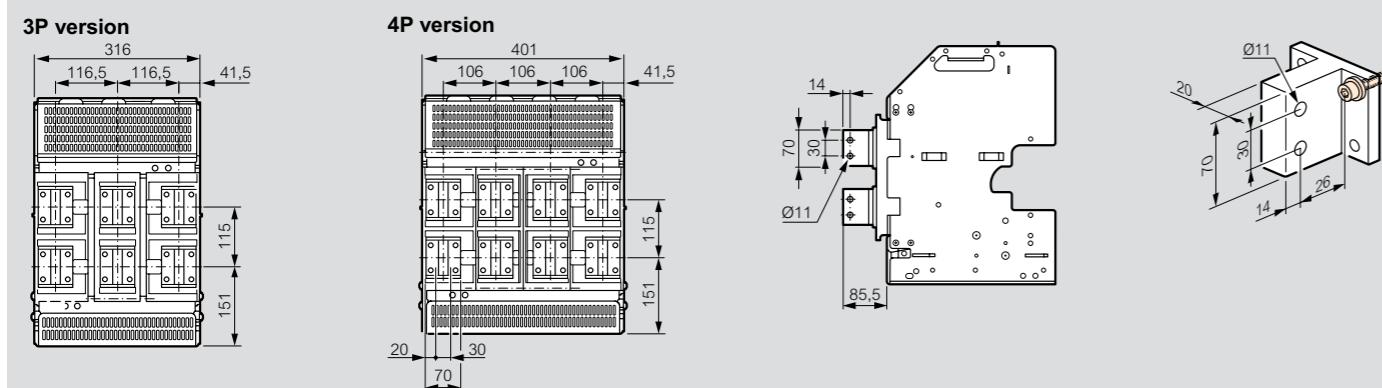
Rear terminals for flat connection with bars



Rear terminals for horizontal connection with bars - Cat.Nos 0 288 96/97



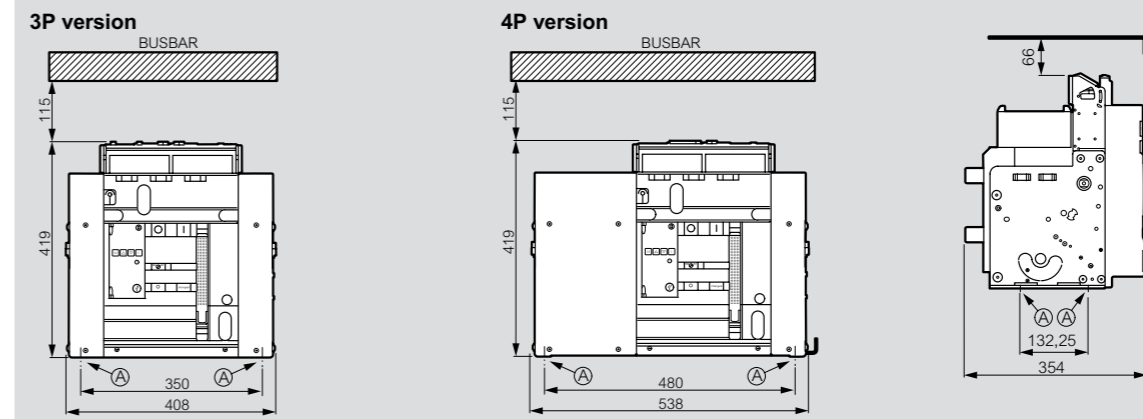
Rear terminals for vertical connection with bars - Cat.Nos 0 288 96/97



DMX³ 2500, DMX³-I 2500, DMX³ 4000 and DMX³-I 4000 - frame 2 dimensions

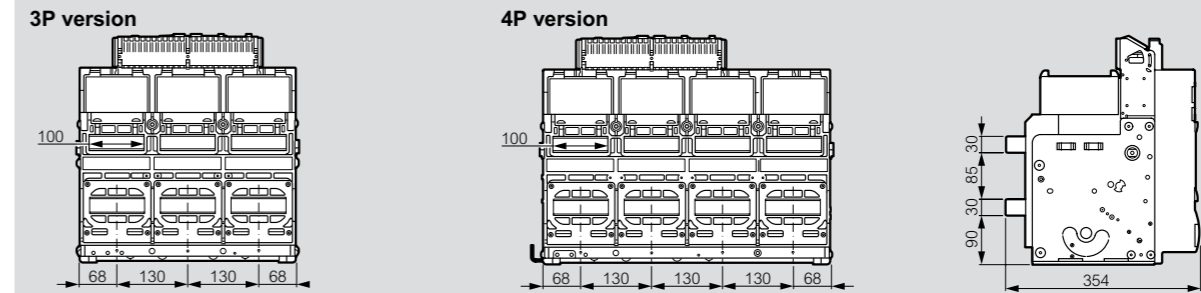
■ Fixed version - frame 2

Overall dimensions



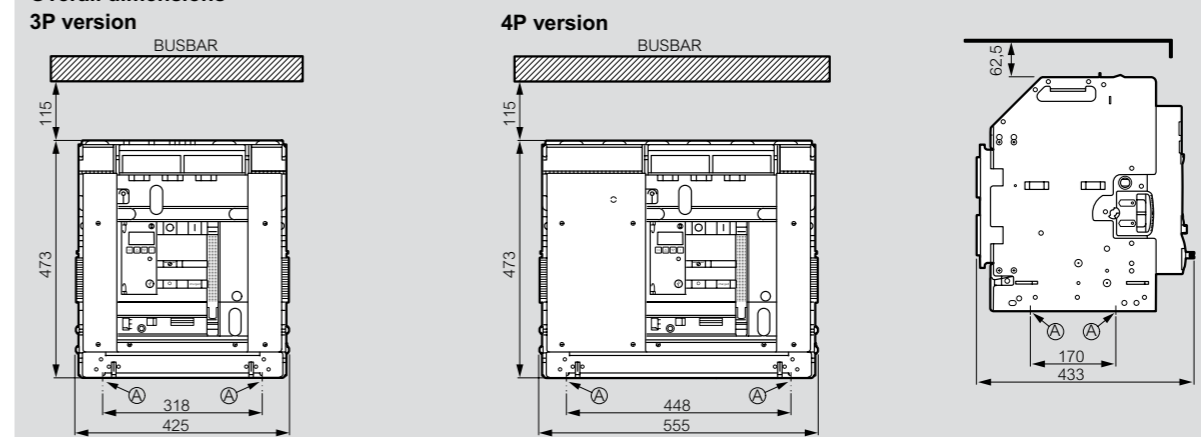
A = fixing point on plate of enclosure

Rear terminals



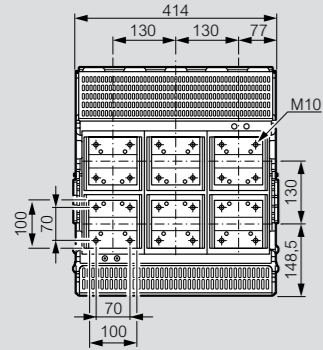
■ Draw-out version - frame 2

Overall dimensions

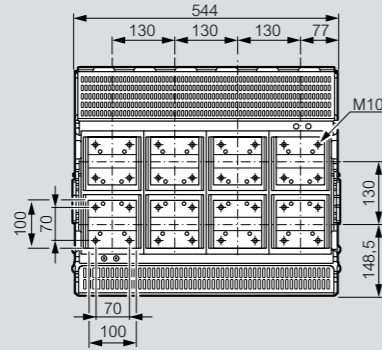


■ Draw-out version - frame 2 (continued)

Rear terminals for flat connection with bars
3P version

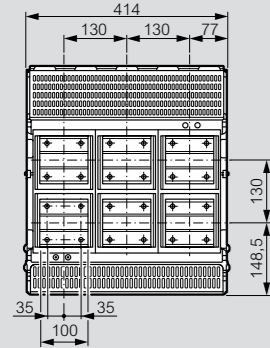


4P version

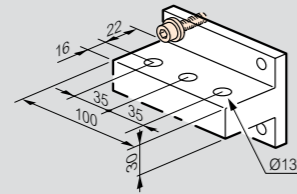
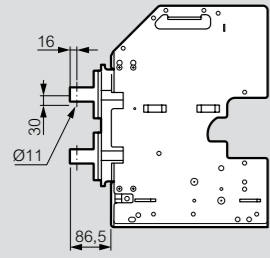
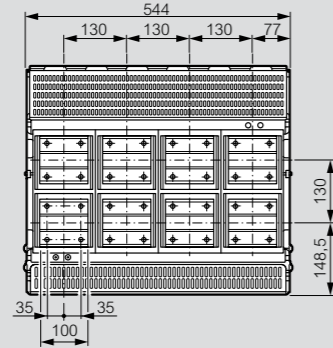


Rear terminals for horizontal connection with bars
Cat.Nos 0 288 92/93

3P version

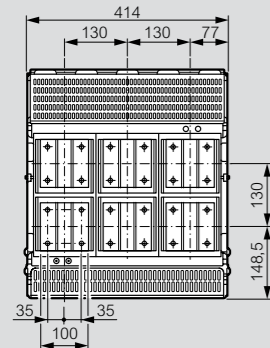


4P version

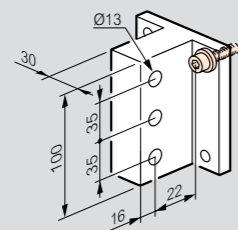
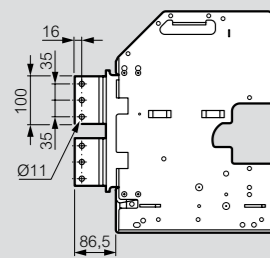
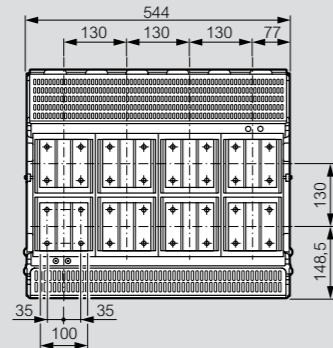


Rear terminals for vertical connection with bars
Cat.Nos 0 288 92/93

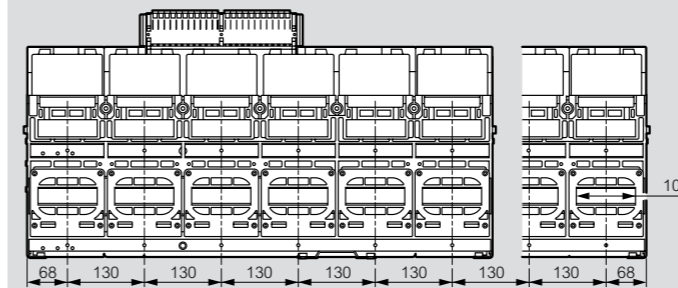
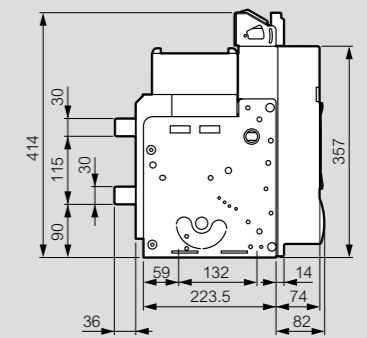
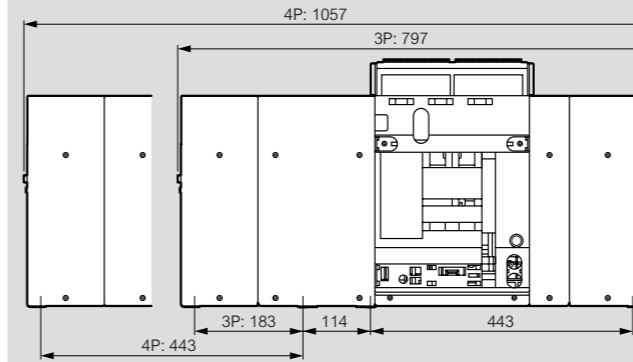
3P version



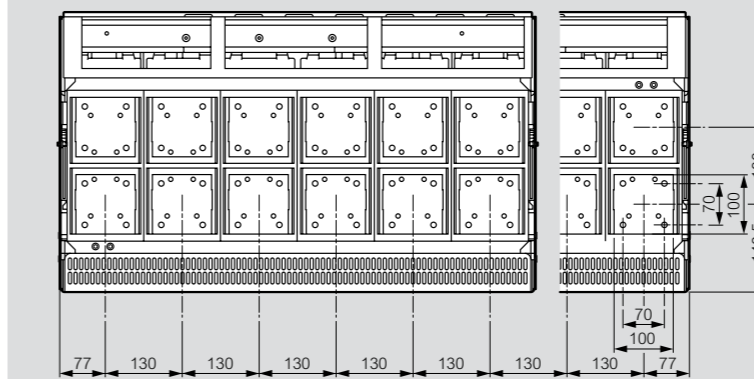
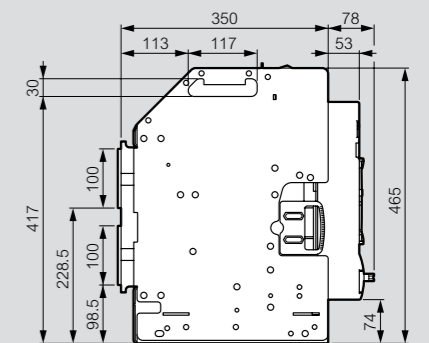
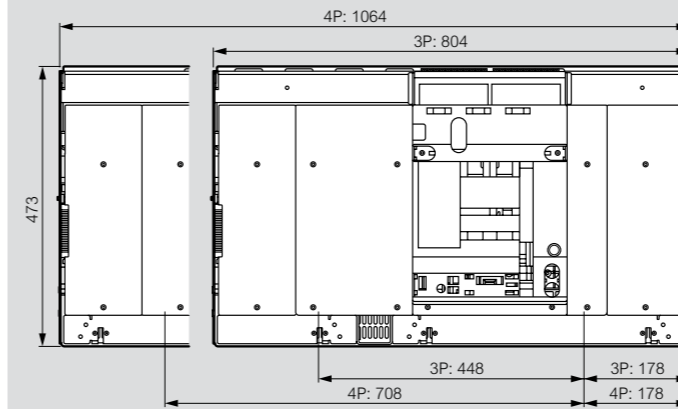
4P version



■ Fixed version - frame 3



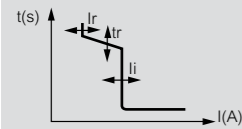
■ Draw-out version - frame 3



Settings of the electronic protection units

MP4 LI

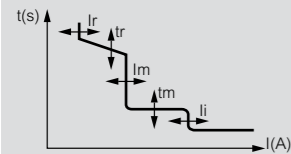
I_r, I_i, t_r adjustment on front panel



- Long time delay protection against overloads
I_r from 0.4 to 1 x I_n (6 + 6 steps) on two selectors (0.4 ÷ 0.9, by steps of 0.1 and 0.0 ÷ 0.1, by steps of 0.02)
- Long delay protection operation time
t_r - at 6 x I_r (4 + 4 steps)
t_r = 5-10-20-30 s (MEM ON) 30-20-10-5 s (MEM OFF)
- Instantaneous protection against very high short circuits
I_i from 2 to 15 x I_n or I_{cw} (9 steps) I_i = 2-3-4-5-6-8-10-12-15 x I_n or I_{cw}
- Neutral protection: IN = I-II-III-IV x I_r (0-50-100-100 %)

MP4 LSI

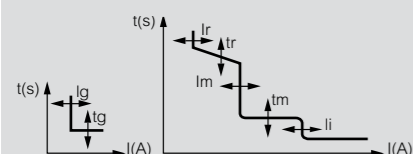
I_r, t_r, I_m, t_m, I_i adjustment on front panel



- Long time delay protection against overloads
I_r from 0.4 to 1 x I_n (6 + 6 steps) on two selectors (0.4 ÷ 0.9, by steps of 0.1 and 0.0 ÷ 0.1, by steps of 0.02)
- Long delay protection operation time
t_r - at 6 x I_r (4 + 4 steps) t_r = 5-10-20-30 s (MEM ON) 30-20-10-5 s (MEM OFF)
- Short time delay protection against short circuits
I_m from 1.5 to 10 x I_r (9 steps) I_m = 1.5-2-2.5-3-4-5-6-8-10 x I_r
- Short time delay protection operation time
t_m from 0 to 0.3 s (4 + 4 steps) t_m = 0-0.1-0.2-0.3 s (t=cost), 0.3-0.2-0.1-0.01 s (I₂t=cost)
- Instantaneous protection against very high short circuits
I_i from 2 to 15 x I_n or I_{cw} (9 steps) I_i=off-2-3-4-6-8-10-12-15 x I_n or I_{cw}
- Neutral protection: IN = I-II-III-IV x I_r (0-50-100-100 %)

MP4 LSIg

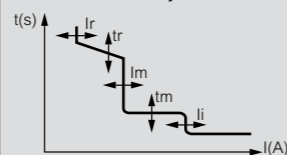
I_r, t_r, I_i, I_g, t_g, I_m, t_m, adjustment on front panel



- Long time delay protection against overloads
I_r from 0.4 to 1 x I_n (6 + 6 steps) on two selectors (0.4 ÷ 0.9, by steps of 0.1 and 0.0 ÷ 0.1, by steps of 0.02)
- Long delay protection operation time
t_r - at 6 x I_r (4 + 4 steps) t_r = 5-10-20-30 s (MEM ON) 30-20-10-5 s (MEM OFF)
- Short time delay protection against short circuits
I_m from 1.5 to 10 x I_r (9 steps) I_m = 1.5-2-2.5-3-4-5-6-8-10 x I_r
- Short time delay protection operation time
t_m from 0 to 0.3 s (4 + 4 steps) t_m = 0-0.1-0.2-0.3 s (t=constant), 0.3-0.2-0.1-0.01 s (I₂t=constant)
- Instantaneous protection against very high short circuits
I_i from 2 to 15 x I_n or I_{cw} (9 steps) I_i = OFF-2-3-4-6-8-10-12-15 x I_n or I_{cw}
- Earth fault current
I_g from 0.2 to 1 x I_n (9 steps) I_g = 0.2-0.3-0.4-0.5-0.6-0.7-0.8-1 x I_n, OFF
- Time delay on earth fault tripping
t_g from 0.1 to 1 x I_n (4 steps) T_g = 0,1-0,2-0,5-1 s (both t=constant and I₂t=constant)
- Neutral protection: IN = I-II-III-IV x I_r (0-50-100-100 %)

MP6 LSI

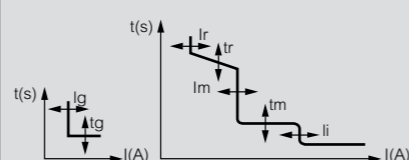
I_r, t_r, I_m, t_m, I_i adjustment on front panel



- Long time delay protection against overloads
I_r from 0.4 to 1 x I_n (7 steps) I_r = 0.4-0.5-0.6-0.7-0.8-0.9-1 x I_n
- Long delay protection operation time
t_r - at 6 x I_r (4 steps) t_r = 5-10-20-30 s (both MEM ON and MEM OFF)
- Short time delay protection against short circuits
I_m from 1.5 to 10 x I_r (9 steps) I_m = 1.5-2-2.5-3-4-5-6-8-10 x I_r
- Short time delay protection operation time
t_m from 0.03 to 1 s (11 steps) t_m = 0.03-0.1-0.2-0.3-0.4-0.5-0.6-0.7-0.8-0.9-1 s (both t=constant and I₂t=constant)
- Instantaneous protection against very high short circuits
I_i from 2 to 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 protection: IN = I-II-III-IV x I_r (0-50-100-100 %)

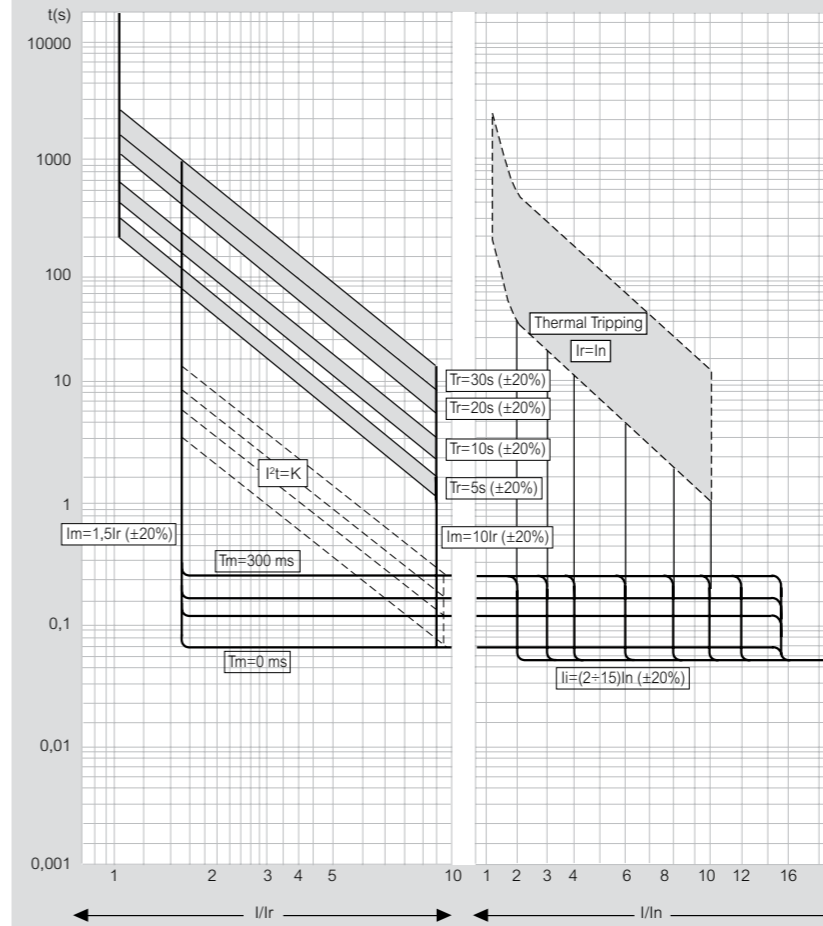
MP6 LSIg

I_r, t_r, I_i, I_g, t_g, I_m, t_m, adjustment on front panel



- Long time delay protection against overloads
I_r from 0.4 to 1 x I_n (7 steps) I_r = 0.4-0.5-0.6-0.7-0.8-0.9-1 x I_n
- Long delay protection operation time
t_r - at 6 x I_r (4 steps) t_r = 5-10-20-30 s (both MEM ON and MEM OFF)
- Short time delay protection against short circuits
I_m from 1.5 to 10 x I_r (9 steps) I_m = 1.5-2-2.5-3-4-5-6-8-10 x I_r
- Short time delay protection operation time
t_m from 0.03 to 1 s (11 steps) t_m = 0.03-0.1-0.2-0.3-0.4-0.5-0.6-0.7-0.8-0.9-1 s (both t=constant and I₂t=constant)
- Instantaneous protection against very high short circuits
I_i from 2 to 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}
- Earth fault current
I_g from 0.2 to 1 x I_n (9 steps) I_g = 0.2-0.3-0.4-0.5-0.6-0.7-0.8-1 x I_n, OFF
- Time delay on earth fault tripping
t_g from 0.1 to 1 x I_n (4 steps) T_g = 0,1-0,2-0,5-1 s (both t=constant and I₂t=constant)
- Neutral protection: IN = I-II-III-IV x I_r (0-50-100-100 %)

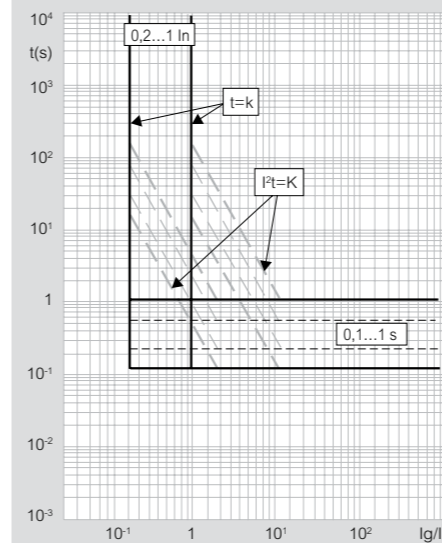
Selective time-current tripping characteristic for MP4 and MP6 protection units



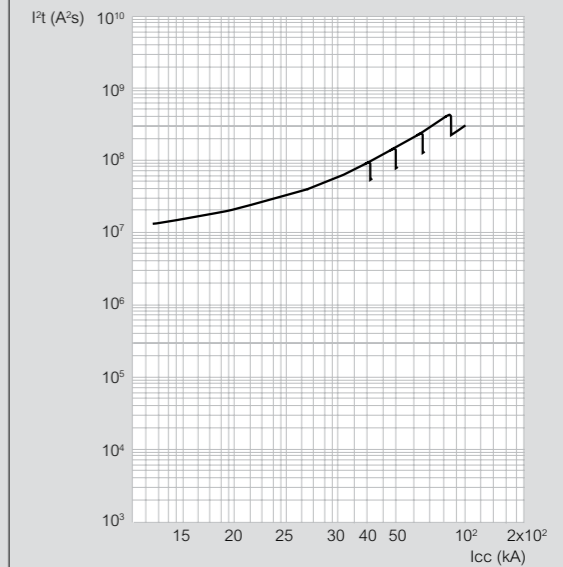
If short-circuit current is higher than I_{cw} value or I_i is set at I_{cw} position, tripping time is equal to 30ms

I_r = long time setting current
t_r = long time delay
I_m = short time setting current
t_m = short time delay
I_i = instantaneous intervention current

Ground fault tripping curve for LSIg protection unit



Pass-through specific energy characteristic



I_{cc} (kA) = estimated short circuit symmetrical current (RMS value)
I²t (A²s) = pass-through specific energy

■ Selectivity in three-phase network 400 V~

DMX3/DPX

Downstream	Upstream	DMX ³ 2500					DMX ³ 4000		DMX ³ 6300	
		800 A	1000 A	1250 A	1600 A	2000 A	2500 A	3200 A	4000 A	5000 A
DPX 125 ⁽¹⁾		T	T	T	T	T	T	T	T	T
DPX 160 ⁽¹⁾		T	T	T	T	T	T	T	T	T
DPX 250 ER ⁽¹⁾		T	T	T	T	T	T	T	T	T
DPX 250 ⁽¹⁾ TM and electronic		T	T	T	T	T	T	T	T	T
DPX 630 ⁽¹⁾ TM and electronic		T	T	T	T	T	T	T	T	T
	630 A	T	T	T	T	T	T	T	T	T
	800 A		T	T	T	T	T	T	T	T
	1000 A			T	T	T	T	T	T	T
	1250 A				T	T	T	T	T	T
	1600 A					T	T	T	T	T
	2000 A						T	T	T	T
	2500 A							T	T	T
	3200 A								T	T
	4000 A									T
	5000 A									
	6300 A									

(1) All breaking capacity
T: total selectivity, up to downstream circuit breaker breaking capacity according to IEC 60947-2

DMX³/DMX³

Downstream	Upstream	DMX ³									
		800 A	1000 A	1250 A	1600 A	2000 A	2500 A	3200 A	4000 A	5000 A	6300 A
	800 A	T	T	T	T	T	T	T	T	T	T
	1000 A		T	T	T	T	T	T	T	T	T
	1250 A			T	T	T	T	T	T	T	T
	1600 A				T	T	T	T	T	T	T
	2000 A					T	T	T	T	T	T
	2500 A						T	T	T	T	T
	3200 A							T	T	T	T
	4000 A								T	T	T
	5000 A									T	T
	6300 A										T

T: total selectivity, up to downstream circuit breaker breaking capacity according to IEC 60947-2
Icu of downstream circuit breaker ≤ Icu of upstream circuit breaker
Selectivity values are intended with protection unit properly adjusted

DMX³/DX

	Upstream	DMX ³									
		800 A	1000 A	1250 A	1600 A	2000 A	2500 A	3200 A	4000 A	5000 A	6300 A
DX ³ 6000 - 10 kA		T	T	T	T	T	T	T	T	T	T
DX ³ 10000 - 16 kA		T	T	T	T	T	T	T	T	T	T
DX ³ 25 kA		T	T	T	T	T	T	T	T	T	T
DX ³ 36 kA		T	T	T	T	T	T	T	T	T	T
DX ³ 50 kA		T	T	T	T	T	T	T	T	T	T

T: total selectivity, up to downstream circuit breaker breaking capacity according to IEC 60947-2
Icu of downstream circuit breaker ≤ Icu of upstream circuit breaker
Selectivity values are intended with protection unit properly adjusted

■ Technical characteristics

DMX³ 2500

DMX ³ according to IEC 60947-2	DMX ³ 2500																		
	800			1000			1250			1600			2000			2500			
	N	H	L	N	H	L	N	H	L	N	H	L	N	H	L	N	H	L	
Number of poles	3P - 4P			3P - 4P			3P - 4P			3P - 4P			3P - 4P			3P - 4P			
Rating In (A)	800			1000			1250			1600			2000			2500			
Rated insulation voltage Ui (V)	1000			1000			1000			1000			1000			1000			
Rated impulse withstand voltage Uimp (kV)	12			12			12			12			12			12			
Rated operational voltage (50/60Hz) Ue (V)	690			690			690			690			690			690			
Frame	1	2		1	2		1	2		1	2		1	2		1	2		
Ultimate breaking capacity Icu (kA)	230 V~	50	65	100	50	65	100	50	65	100	50	65	100	50	65	100	50	65	100
	415 V~	50	65	100	50	65	100	50	65	100	50	65	100	50	65	100	50	65	100
	500 V~	50	65	100	50	65	100	50	65	100	50	65	100	50	65	100	50	65	100
	600 V~	50	60	75	50	60	75	50	60	75	50	60	75	50	60	75	50	60	75
	690 V~	50	55	65	50	55	65	50	55	65	50	55	65	50	55	65	50	55	65
Service breaking capacity Ics (% Icu)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
Short-circuit making capacity Icm (kA)	230 V~	105	143	220	105	143	220	105	143	220	105	143	220	105	143	220	105	143	220
	415 V~	105	143	220	105	143	220	105	143	220	105	143	220	105	143	220	105	143	220
	500 V~	105	143	220	105	143	220	105	143	220	105	143	220	105	143	220	105	143	220
	600 V~	105	132	165	105	132	165	105	132	165	105	132	165	105	132	165	105	132	165
	690 V~	105	121	143	105	121	143	105	121	143	105	121	143	105	121	143	105	121	143
Short time withstand current Icw (kA) for t = 1s	230 V~	50	65	85	50	65	85	50	65	85	50	65	85	50	65	85	50	65	85
	415 V~	50	65	85	50	65	85	50	65	85	50	65	85	50	65	85	50	65	85
	500 V~	50	65	85	50	65	85	50	65	85	50	65	85	50	65	85	50	65	85
	600 V~	50	60	75	50	60	75	50	60	75	50	60	75	50	60	75	50	60	75
	690 V~	50	55	65	50	55	65	50	55	65	50	55	65	50	55	65	50	55	65
Category of use	B			B			B			B			B			B			
Isolation behavior	Yes			Yes			Yes			Yes			Yes			Yes			
Endurance (cycles)	mechanical	10000			10000			10000			10000			10000			10000		
	electrical	5000			5000			5000			5000			5000			5000		

DMX³ 4000

DMX ³ according to IEC 60947-2	DMX ³ 4000						
	3200			4000			
	N	H	L	N	H	L	
Number of poles	3P - 4P			3P - 4P			
Rating In (A)	3200			4000			
Rated insulation voltage Ui (V)	1000			1000			
Rated impulse withstand voltage Uimp (kV)	12			12			
Rated operational voltage (50/60Hz) Ue (V)	690			690			
Frame	2			2			
Ultimate breaking capacity Icu (kA)	230 V~	50	65	100	50	65	100
	415 V~	50	65	100	50	65	100
	500 V~	50	65	100	50	65	100
	600 V~	50	60	75	50	60	75
	690 V~	50	55	65	50	55	65
Service breaking capacity Ics (% Icu)	100	100	100	100	100	100	
Short-circuit making capacity Icm (kA)	230 V~	105	143	220	105	143	220
	415 V~	105	143	220	105	143	220
	500 V~	105	143	220	105	143	220
	600 V~	105	132	165	105	132	165
	690 V~	105	121	143	105	121	143
Short time withstand current Icw (kA) for t = 1s	230 V~	50	65	85	50	65	85
	415 V~	50	65	85	50	65	85
	500 V~	50	65	85	50	65	85
	600 V~	50	60	75	50	60	75
	690 V~	50	55	65	50	55	65
Category of use	B			B			
Isolation behavior	Yes			Yes			
Endurance (cycles)	mechanical	10000			10000		
	electrical	5000			5000		

DMX³ 6300

DMX ³ according to IEC 60947-2	DMX ³ 6300		
	5000	6300	
	L	L	
Number of poles	3P - 4P	3P - 4P	
Rating In (A)	5000	5000	
Rated insulation voltage Ui (V)	1000	1000	
Rated impulse withstand voltage Uimp (kV)	12	12	
Rated operational voltage (50/60Hz) Ue (V)	690	690	
Frame	3	3	
Ultimate breaking capacity Icu (kA)	230 V~	100	100
	415 V~	100	100
	500 V~	100	100
	600 V~	75	75
	690 V~	65	65
Service breaking capacity Ics (% Icu)	100	100	
Short-circuit making capacity Icm (kA)	230 V~	220	220
	415 V~	220	220
	500 V~	220	220
	600 V~	165	165
	690 V~	143	143
Short time withstand current Icw (kA) for t = 1s	230 V~	100	100
	415 V~	100	100
	500 V~	100	100
	600 V~	75	75
	690 V~	65	65
Category of use	B	B	
Isolation behavior	Yes	Yes	
Endurance (cycles)	mechanical	5000	5000
	electrical	2500	2500

■ Temperature derating

Fixed version

Temperature	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 ³ 2500	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	1960	0.98	1920	0.96	1880	0.94
DMX ³ 4000	2500	1	2450	0.98	2350	0.94	2250	0.9	2150	0.86
	3200	1	3200	1	3200	1	3136	0.98	3008	0.94
DMX ³ 6300	4000	1	3920	0.98	3680	0.92	3440	0.86	3120	0.78
	5000	1	5000	1	5000	1	5000	1	5000	1
	6300	1	6300	1	6048	0.96	5796	0.92	5544	0.88

Draw-out version

Temperature	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 ³ 2500	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	1960	0.98	1920	0.96	1875	0.94
DMX ³ 4000	2500	1	2400	0.96	2250	0.9	2100	0.84	1950	0.78
	3200	1	3200	1	3200	1	3072	0.96	2880	0.9
DMX ³ 6300	4000	1	3760	0.94	3440	0.86	3200	0.8	2960	0.74
	5000	1	5000	1	5000	1	5000	1	5000	1
	6300	1	6174	0.98	5985	0.95	5796	0.92	5292	0.84

■ Derating at different altitudes

Air circuit breaker	DMX ³ 2500, DMX ³ 4000 and DMX ³ 6300			
Altitude H (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	0.90 x I _n
Rated voltage U _e (V)	690	600	500	440
Rated insulation voltage U _i (V)	1000	900	750	600

■ Minimum recommended dimension of busbars per pole

Frame 1 - fixed and draw-out versions

I _n (A)	Vertical bars (mm)	Horizontal bars (mm)
630	50 x 10	60 x 10
800	60 x 10	60 x 10
1000	80 x 10	80 x 10
1250	80 x 10	2 x 60 x 10
1600	2 x 60 x 10	2 x 80 x 10
2000	2 x 80 x 10	3 x 80 x 10
2500	3 x 80 x 10	3 x 80 x 10

Frame 3 - fixed and draw-out versions

I _n (A)	Vertical bars (mm)	Horizontal bars (mm)
5000	6 x 100 x 10	6 x 100 x 10
6300	7 x 100 x 10	7 x 100 x 10

Note: The tables presenting the minimum recommended dimensions of connection plates and bars per pole should be used solely as a general guideline for selecting products. Due to extensive variety of switchgear constructions shapes and conditions that can affect the behavior of the apparatus, the solution used must always be verified

Frame 2 - fixed and draw-out versions

I _n (A)	Vertical bars (mm)	Horizontal bars (mm)
630	1 x 40 x 10 or 2 x 40 x 5	2 x 40 x 5
800	1 x 50 x 10 or 2 x 50 x 5	2 x 50 x 5
1000	1 x 50 x 10 or 2 x 50 x 5	2 x 50 x 5
1250	2 x 50 x 5	1 x 50 x 10 + 1 x 50 x 5
1600	1 x 50 x 10 + 1 x 50 x 5	2 x 50 x 10
2000	2 x 50 x 10	2 x 60 x 10
2500	3 x 50 x 10	3 x 60 x 10
3200	3 x 100 x 10	3 x 100 x 10
4000	4 x 100 x 10	5 x 100 x 10