

DMX3

Efficient protection
up to 6300 A



AIR CIRCUIT BREAKERS | PRODUCT GUIDE

THE GLOBAL SPECIALIST
IN ELECTRICAL AND DIGITAL BUILDING INFRASTRUCTURES



DMX³ ACB's UP TO 6300 A

EFFICIENT PROTECTION
AND CONTROL FOR ALL
TYPE OF BUILDINGS



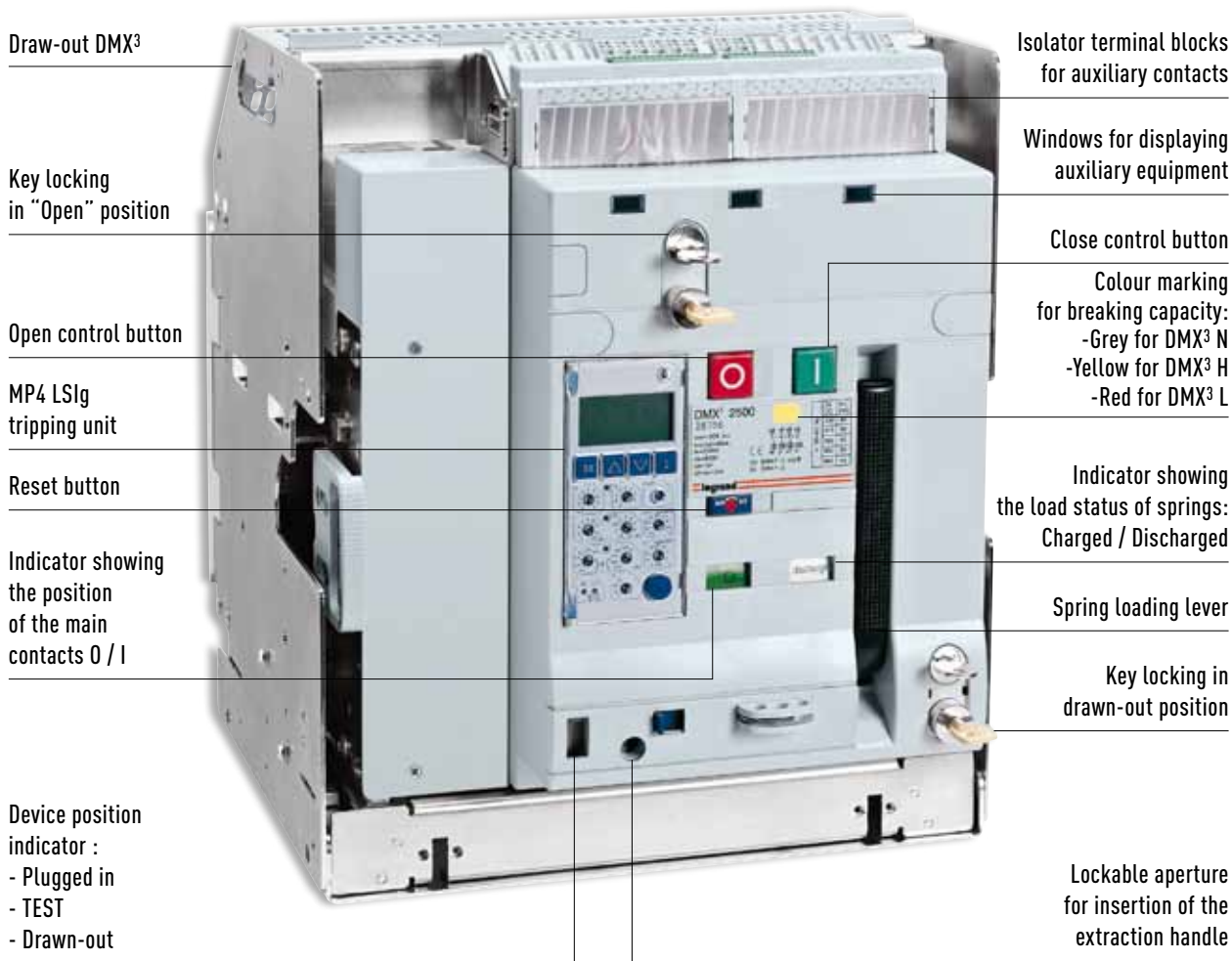


Electrical panel
equipped with
DPX³ MCCB's and
modular MCB's
up to 1600 A

Main electrical
panel equipped
with DMX³ ACB's
and DPX³ MCCB's
up to 6300 A

Thanks to DPX³ range
of MCCB's and to Lexic MCB's you
can benefit of the advantages
of a complete protection system
at any level of the installation





Draw-out DMX³

Key locking in "Open" position

Open control button

MP4 LSig tripping unit

Reset button

Indicator showing the position of the main contacts 0 / I

Device position indicator :
 - Plugged in
 - TEST
 - Drawn-out

Isolator terminal blocks for auxiliary contacts

Windows for displaying auxiliary equipment

Close control button

Colour marking for breaking capacity:
 -Grey for DMX³ N
 -Yellow for DMX³ H
 -Red for DMX³ L

Indicator showing the load status of springs:
 Charged / Discharged

Spring loading lever

Key locking in drawn-out position

Lockable aperture for insertion of the extraction handle


Optimized performance up to 6300 A

- | DMX³ air circuit breakers are available in three frame sizes for three breaking capacities: 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 6300 A.
- | All range of DMX³ air circuit breakers is available in fixed and draw-out version.

BREAKING CAPACITIES AND RATED CURRENTS

	630 A	800 A	1000 A	1250 A	1600 A	2000 A	2500 A	3200 A	4000 A	5000 A	6300 A
DMX³-N	50 kA FIXED/DRAW-OUT										-
DMX³-H	65 kA FIXED/DRAW-OUT										-
DMX³-L	100 kA FIXED/DRAW-OUT										

OVERALL DIMENSIONS AND WEIGHT

Fixed version							
		Height	Depth	Width	Weight ⁽¹⁾		
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	1067 mm	152 kg		
Draw-out version							
		Height	Depth	Width	Weight ⁽¹⁾		
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
Note - Accuracy of dimensions = ± 2mm



OTHER ELECTRICAL FEATURES

Rated operational voltage U_e: 690 VAC 50/60 Hz
Rated insulation voltage U_i: 1000 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

LEGRAND ADVANTAGE

The over all 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.

MP4 LSIg
microprocessor based
protection unit



lg settings

tg settings

li settings

tm settings

lm settings

tr settings

lr settings

Mini USB connector
to PC for testing

LEDs indicating
correct operation

Neutral
protection

Precise & user friendly LCD protection units

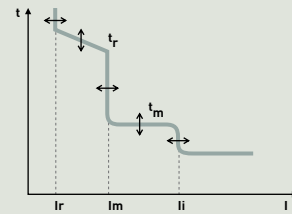
Besides their easy mounting and connection, strength and good continuity of operation, 2 types of electronic units allow precise adjustment of different limits for current values and time delay. The result is an efficient protection against electrical faults while maintaining total discrimination with 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).



The following settings are adjusted using rotary selector switches:

- Long time delay protection against overloads: I_r from 0.4 to $1 \times I_n$ (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 $6 \times I_r$ (4 + 4 steps) $t_r = 5-10-20-30s$ (MEM ON) $30-20-10-5s$ (MEM OFF)
- Short time delay protection against short circuits: I_m from 1.5 to $10 \times I_r$ (9 steps) $I_m = 1.5-2-2.5-3-4-5-6-8-10 \times I_r$
- Short time delay protection operation time: t_m from 0 to 0.3s (4 + 4 steps) $t_m = 0-0.1-0.2-0.3s$ ($t = cost$), $0.3-0.2-0.1-0.01s$



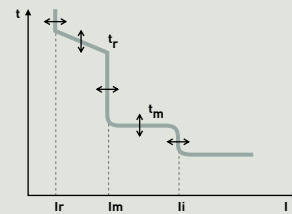
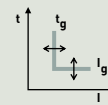
($I^2t = cost$)

- Instantaneous protection against very high short circuits I_i from 2 to $15 \times I_n$ or I_{cw} (9 steps) $I_i = 2-3-4-6-8-10-12-15 \times I_n$ or I_{cw}
- Neutral protection $I_N = I-II-III-IV \times I_r$ (0-50-100-100 %)



The following settings are adjusted using rotary selector switches:

- Long time delay protection against overloads: I_r from 0.4 to $1 \times I_n$ (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)
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- Short time delay protection operation time: t_m from 0 to 0.3s (4 + 4 steps) $t_m = 0-0.1-0.2-0.3s$ ($t = constant$),



0.3-0.2-0.1-0.01s ($I^2t = constant$)

- Instantaneous protection against very high short circuits I_i from 2 to $15 \times I_n$ or I_{cw} (9 steps) $I_i = 2-3-4-6-8-10-12-15 \times I_n$ or I_{cw}
- Earth fault current: I_g from 0,2 to $1 \times I_n$ (9 steps)
- Time delay on earth fault tripping: t_g from 0,1 to $1 \times I_n$ (4 steps) both for "t" and " I^2t " constant
- Neutral protection $I_N = I-II-III-IV \times I_r$ (0-50-100-100 %)

INFORMATION

All DMX³ breakers are factory equipped with any MP4/MP6 protection unit LSI or LSIg according to your requirements. You just need to select and indicate the 2 catalogue numbers (1 for the breaker and 1 for the tripping unit).

LEGRAND ADVANTAGE

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





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 protection units

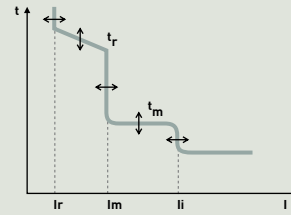
- | MP6 electronic protection units are equipped with a colour touch screen, particularly user friendly, thanks to intuitive icon-based navigation system. The colour display provides a clear presentation of the parameters of the installation.
- | Touch screen protection units integrate all the functions 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, harmonics 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 0288 03



The following settings are adjusted using the touch screen:

- Long time delay protection against overloads: **Ir**
- Long delay protection operation time: **tr**
- Short time delay protection against short circuits: **Im**
- Short time delay protection operation time: **tm**
- Instantaneous protection against very high short circuits: **Ii**
- Neutral protection: **N**



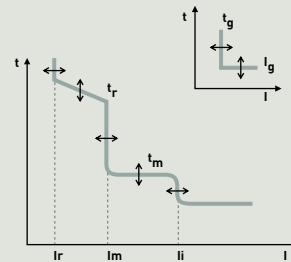
Tripping curve preview

MP6 LSI TOUCH SCREEN PROTECTION UNIT CAT.NO 0288 04



The following settings are adjusted using the touch screen:

- Long time delay protection against overloads: **Ir**
- Long delay protection operation time: **tr**
- Short time delay protection against short circuits: **Im**
- Short time delay protection operation time: **tm**
- Instantaneous protection against very high short circuits: **Ii**
- Earth fault current: **Ig**
- Time delay on earth fault tripping: **tg**
- Neutral protection: **N**



Earth fault tripping curve preview



+ 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

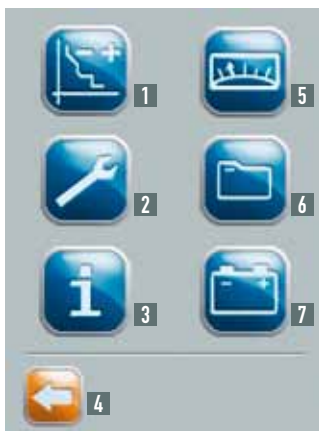


This menu displays the values of I_1 , I_2 , I_3 and I_N as a diagram, the date and the hour, and the alarm icon. If the breaker opens following an electrical fault a specific icon will appear on the upper part of the screen. Pressing this icon will open a new window showing the cause of the last event.

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

Innovative & user friendly touch screen protection 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.

PROTECTIONS SETTING MENU



Vertical arrows allow scrolling between different electrical parameters:

li, lm, tm, lr, tr, lg, tg, 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.

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 0288 12)

• MP6 tripping units allow following alarms: power reverse, current

imbalance, maximum and minimum voltage values U1N, U2N, U3N, maximum currents I1, I2, I3, voltage imbalance (phase-neutral), inversed phase rotation, maximum and minimum frequency values.

Undervoltage release



Shunt trip



Closing coil



Motor operators



Fast clipping control accessories

- | You can remotely control the DMX³ with the help of its 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.

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 NO 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 ; 48 V \sim ; 110 V \sim ; 220 V \sim ; 415 V \sim
- Tolerance on nominal voltage: 70 to 110% V_n
- Maximum power consumption (max.power for 180 ms): 500 VA \sim /500 W \sim
- Continuous power: 5 VA \sim /5 W \sim
- Maximum opening time: 30 ms
- Insulation voltage: 2 500 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 NC 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 ; 48 V \sim ; 110 V \sim ; 220 V \sim ; 415 V \sim
- Tolerance on nominal voltage: 85 to 110% V_n
- Maximum power consumption (max.power for 180 ms): 500 VA \sim /500 W \sim
- Continuous power: 5 VA \sim /5 W \sim
- 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 NO type contact.

Technical characteristics:

- Nominal voltage U_n : 24 V \sim ; 48 V \sim ; 110 V \sim ; 220 V \sim ; 415 V \sim
- Tolerance on nominal voltage: 70 to 110% V_n
- Maximum power consumption (max.power for 180 ms): 500 VA \sim /500 W \sim
- Continuous power: 5 VA \sim /5 W \sim
- 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



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 :
24 V \sim/\equiv , 48 V \sim/\equiv , 110 V \sim/\equiv ,
230 V \sim/\equiv , 415 V \sim
- Tolerance on nominal voltage:
85 to 110% V_n
- Spring reloading time: 5s
- Maximum power consumption:
140 VA $\sim/140$ W \equiv
- Starting current: 2 up to 3 I_n 0.1 s
- Maximum cycle: 2/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



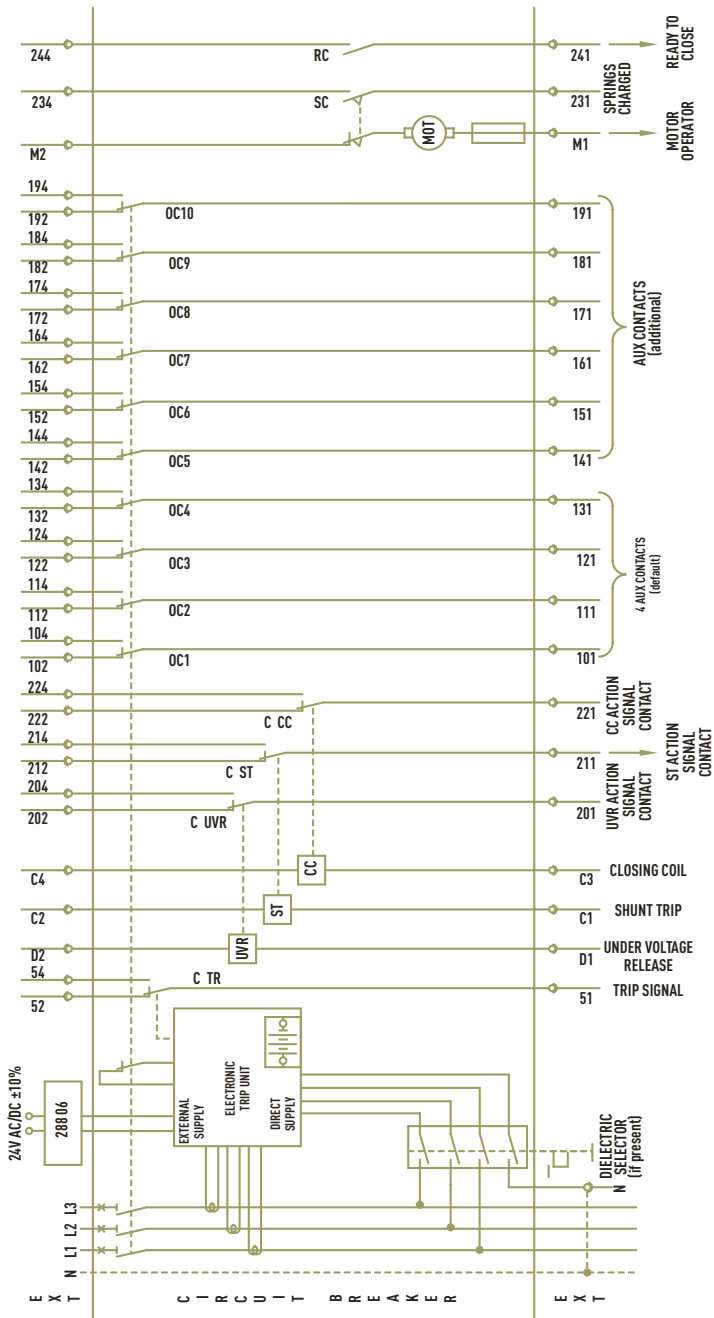
Draw-out version equipped with key-operated locks

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 know which devices are fitted on the device breaker.

SIGNALLING CONTACTS

All DMX³ air circuit breakers are equipped as standard with 4 auxiliary contacts (2 NO and 2 NC type) and one signalling contact for the shunt trip (NO type).



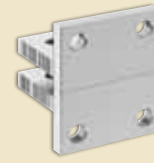
FIXED VERSION-CHOOSE YOUR CONNECTION ACCESSORIES: 3 POSSIBILITIES

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



The breaker is supplied with rear terminals for horizontal connection

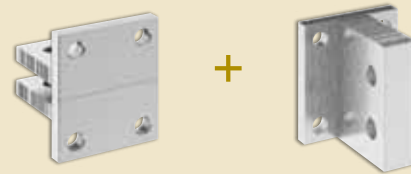
REAR TERMINALS FOR FLAT CONNECTION



Frame 1:	Frame 2:	Frame 3:
3P: Cat. N° 0288 84	3P: Cat. N° 0288 92	3P: Cat. N° 0288 92 x 2
4P: Cat. N° 0288 85	4P: Cat. N° 0288 93	4P: Cat. N° 0288 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:	Frame 2 and 3 ⁽¹⁾ :
3P: Cat. N° 0288 84 + 0288 82	3P: Cat. N° 0288 92 + 0288 94
4P: Cat. N° 0288 85 + 0288 83	4P: Cat. N° 0288 93 + 0288 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).

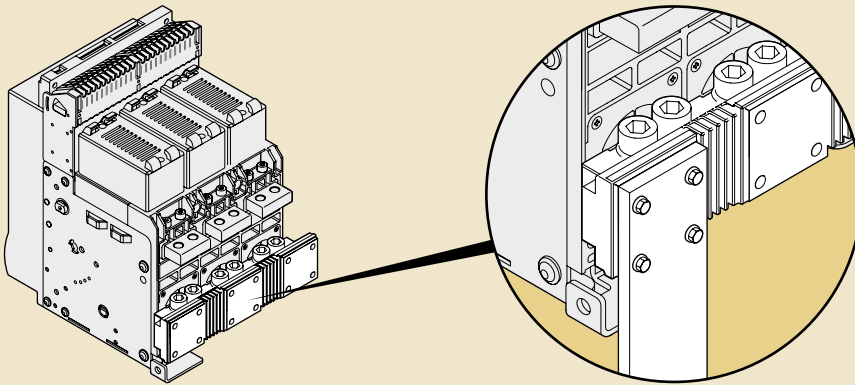
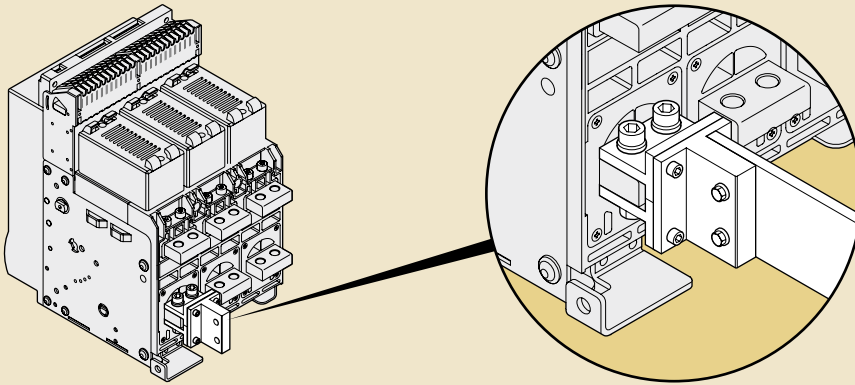
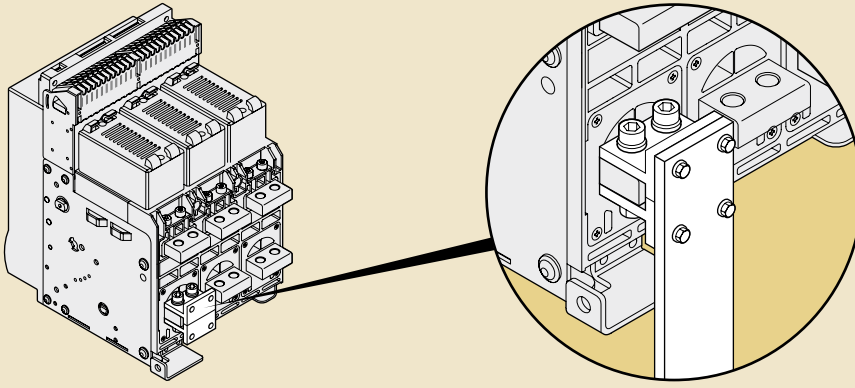
Frame 1:
3 types of accessories
- For flat connection
3P: Cat. N° 0288 86
4P: Cat. N° 0288 87
- For vertical connection
3P: Cat. N° 0288 88
4P: Cat. N° 0288 89
- For horizontal connection
3P: Cat. N° 0288 90
4P: Cat. N° 0288 91



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.

FIXED VERSION: EXAMPLES OF CONNECTIONS



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.



The breaker is supplied with rear terminals for flat connection

2 TYPES OF FIXING

Reversible connector for vertical or ...



... horizontal connection.



Frame 1:

3P: Cat. N° 0288 96

4P: Cat. N° 0288 97

Frame 2:

3P: Cat. N° 0288 94

4P: Cat. N° 0288 95

Frame 3:

3P: Cat. N° 0288 94 x 2

4P: Cat. N° 0288 95 x 2

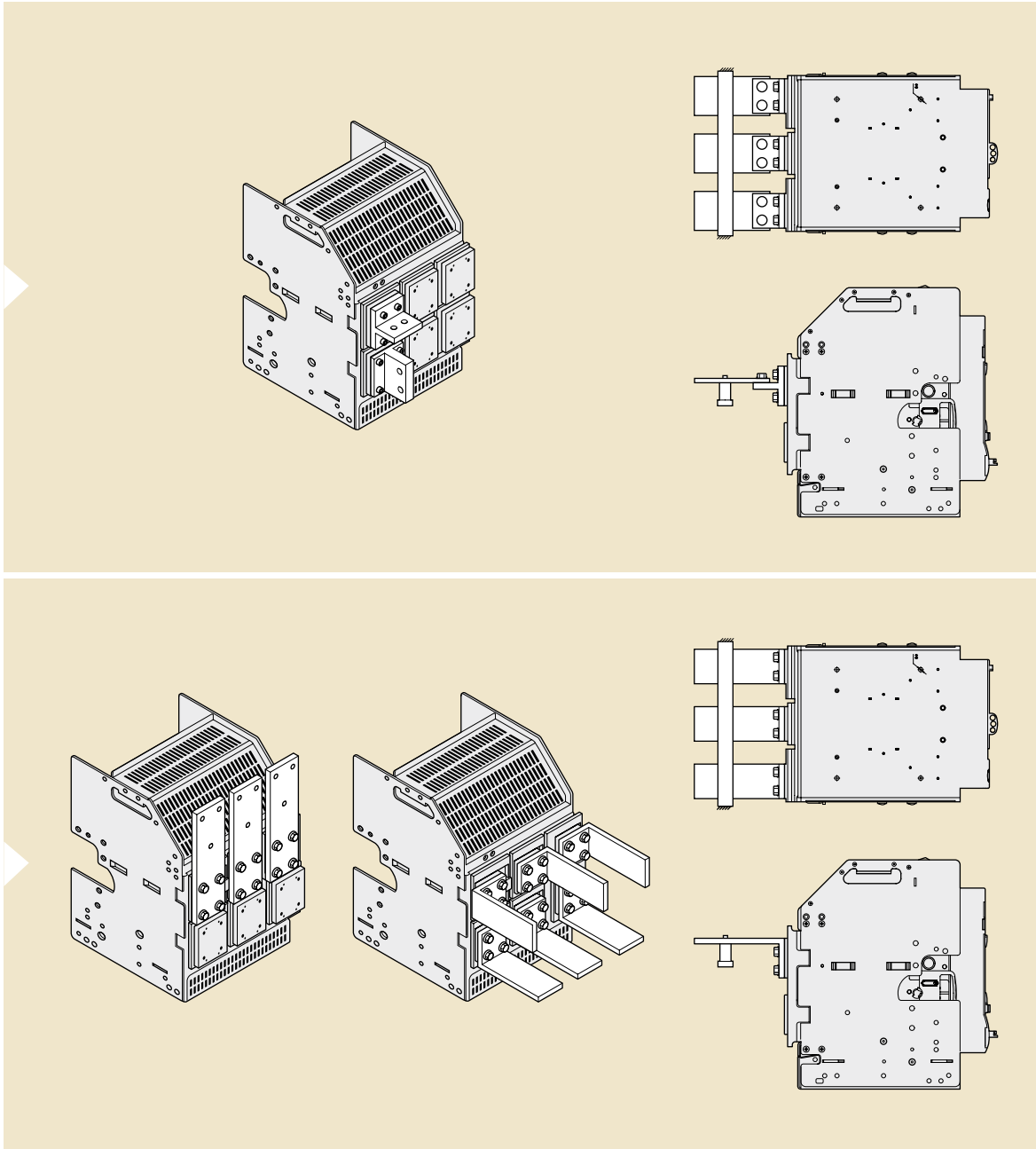
FLAT CONNECTION USING THE REAR TERMINALS OF THE BREAKER

Connection: maximum adaptability (continued)

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

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.



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.

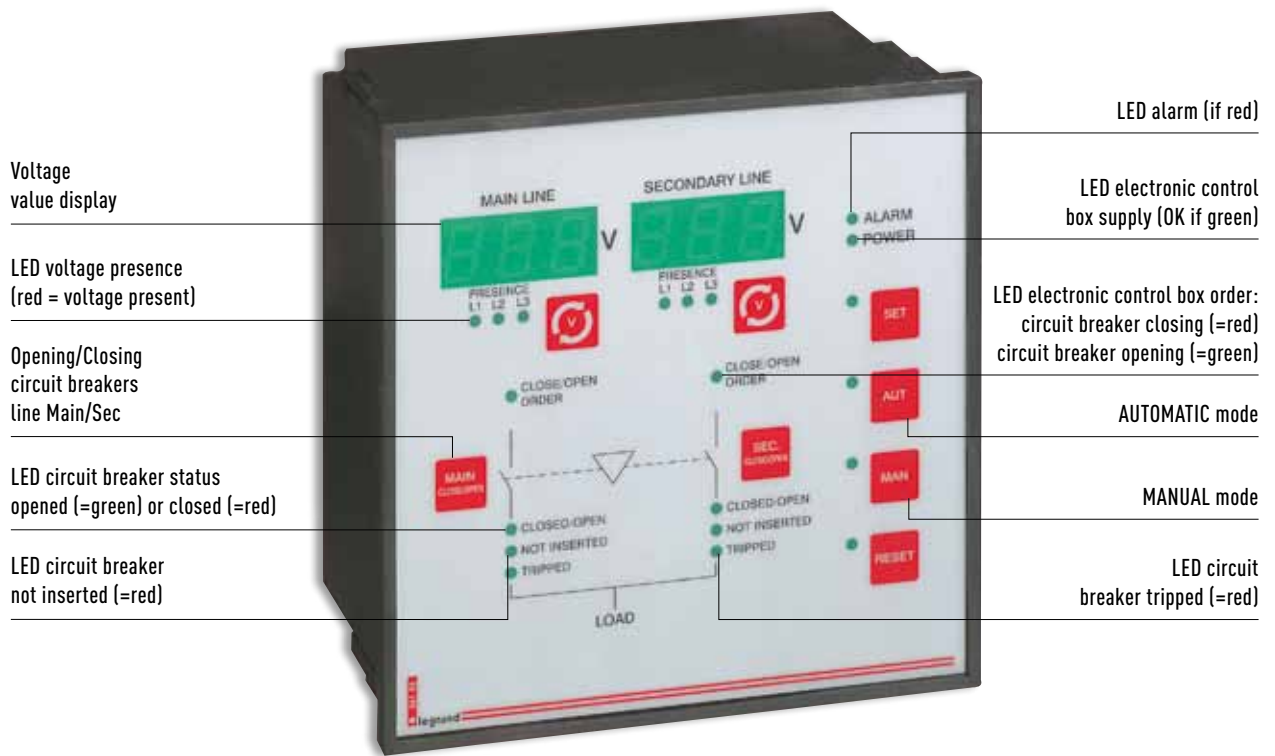
Plates or terminals must be used over a maximum area.

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.





Voltage value display

LED voltage presence (red = voltage present)

Opening/Closing circuit breakers line Main/Sec

LED circuit breaker status opened (=green) or closed (=red)

LED circuit breaker not inserted (=red)

LED alarm (if red)

LED electronic control box supply (OK if green)

LED electronic control box order: circuit breaker closing (=red) circuit breaker opening (=green)

AUTOMATIC mode

MANUAL mode

LED circuit breaker tripped (=red)

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 Cat. N°. 0288 64.

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.

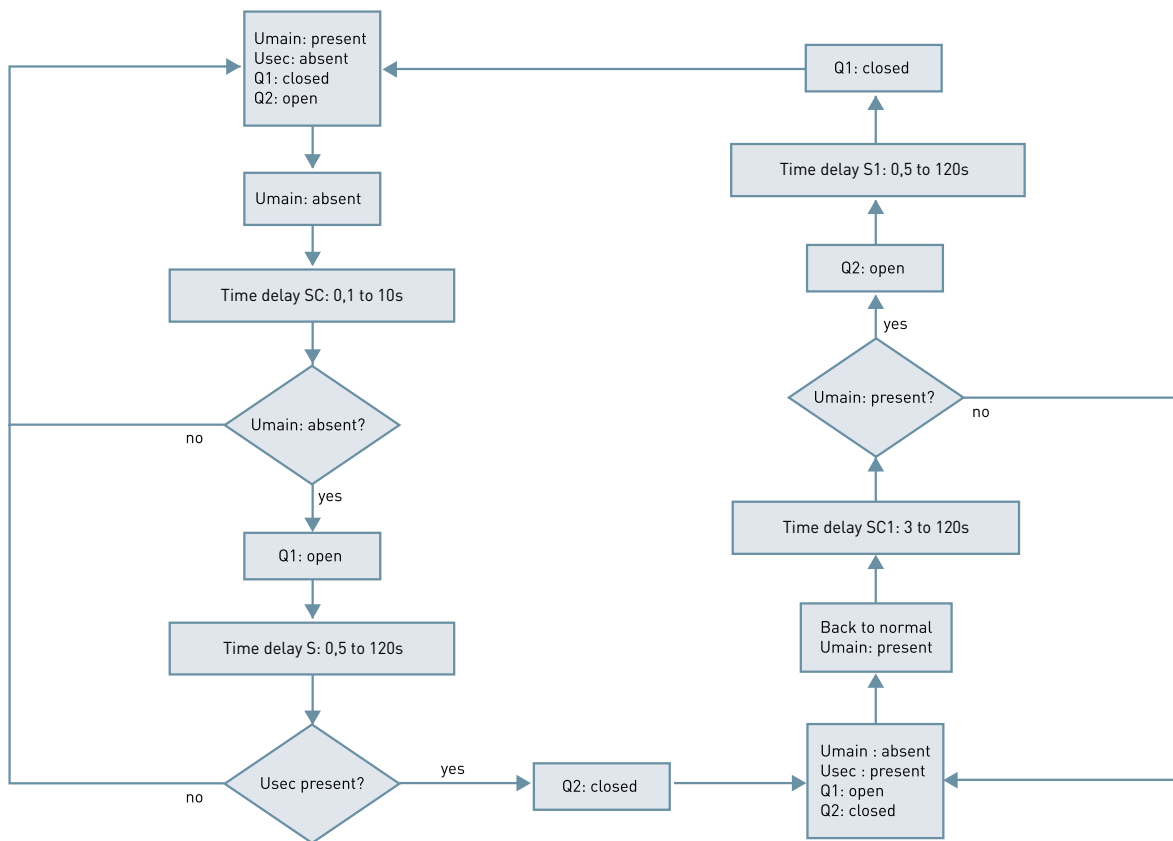
The Legrand automatic control unit Cat.N°. 0261 93 allows to easily manage the automatic switching of two sources.

Controlled by a microprocessor, the unit is fully programmable.

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



Control panel of a supply inverter with automation control unit Cat. N°. 0261 93



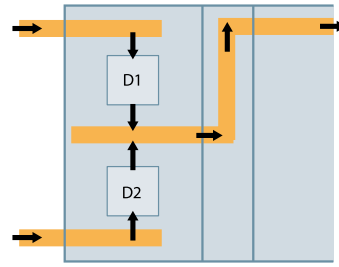
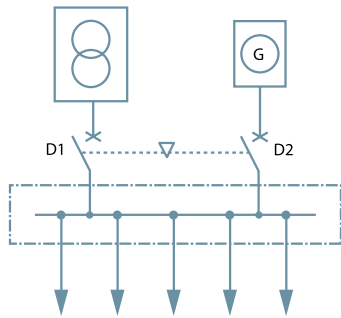
Example of algorithm for the functioning of an automatic supply inverter



LEGRAND ADVANTAGE

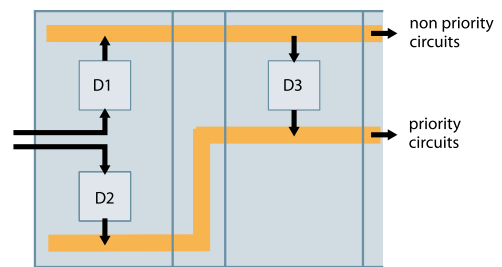
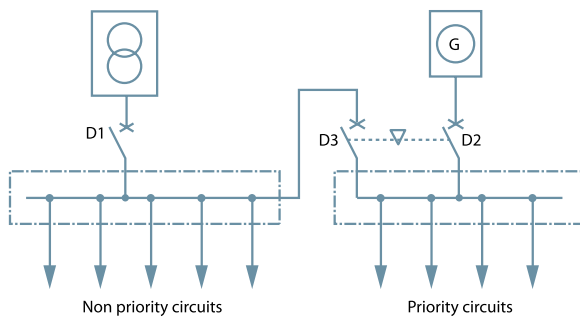
Thanks to its digital displays and different LEDs it is possible to watch permanently the state of the inverter, as well as the presence and the value of the voltages on each source.

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.

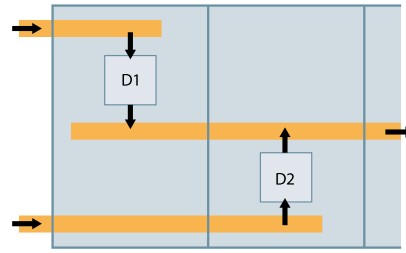
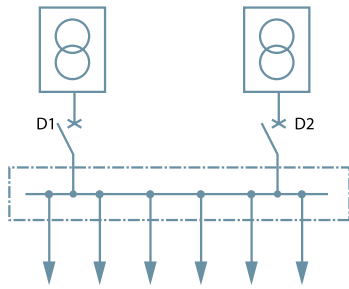
Flexible configurations

(Examples of supply invertors)

A supply inverter assures the following functions:

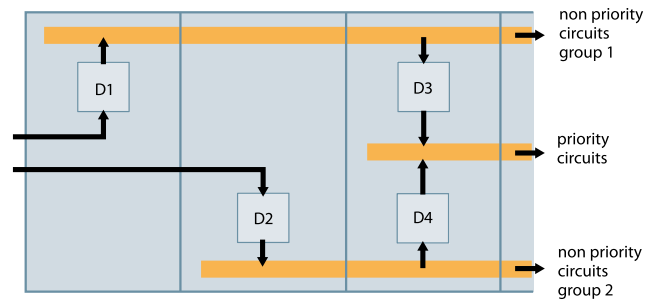
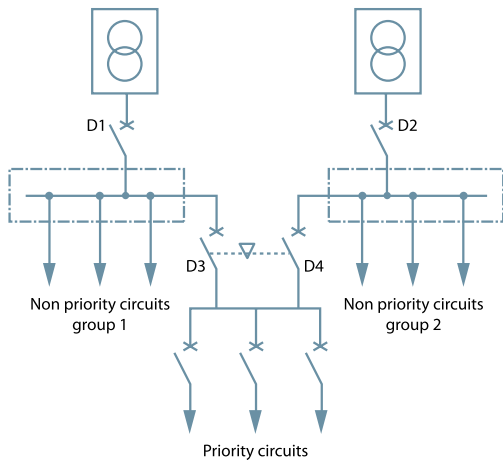
- Switching between a main source and a secondary source in order to supply the circuits requiring continuous service (for safety reasons) or for energy saving purpose (when the secondary source is different from the network).
- Management of the functioning of the secondary source (power generator)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

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)



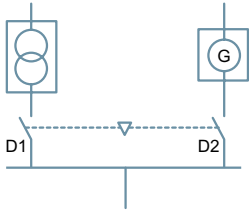


Flexible configurations (Examples of supply invertors) (continued)

| 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

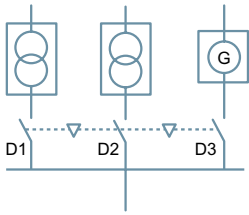


D1 is used for the main power supply of the installation (normal functioning), D2 for emergency power supply via power generator (in case of mains fault). For this configuration the two breakers can be simultaneously open, but can not be closed in the same time.

D1	D2
0	0
1	0
0	1

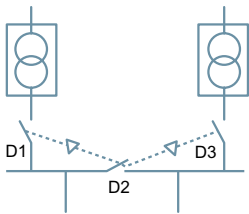
0 = circuit breaker is open
1 = circuit breaker is closed

MECHANICAL INTERLOCK FOR 3 CIRCUIT BREAKERS



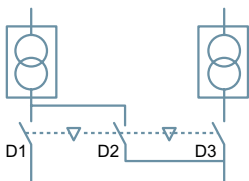
The three DMX³ circuit breakers are connected to one common busbar. D1 and D2 breakers are supplying the energy from two different power transformers and D3 from a power generator (in case of emergency). For this configuration all the three breakers can be simultaneously open. At any time, only one single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

D1	D2	D3
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.

D1	D2	D3
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.

D1	D2	D3
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.







DMX³

Technical Characteristics

		AIR CIRCUIT BREAKERS						TRIP FREE SWITCHES			
DMX ³ according to IEC 60947-2											
		0286 56 + 0288 02		0286 74 + 0288 02		0289 51 + 0288 02		0286 96			
Devices		DMX ³ 2500 (p. 26)			DMX ³ 4000 (p. 26)			DMX ³ 6300 (p. 27)	DMX ³ -I (p. 28)		
		50 kA	65 kA	100 kA	50 kA	65 kA	100 kA	100 kA	2500	4000	6300
	Frames	1	1	2	2	2	2	3	1	2	3
	No. of poles	3P - 4P			3P - 4P			3P - 4P	3P - 4P	3P - 4P	3P - 4P
	Version	Fixed Drawout			Fixed Drawout			Fixed Drawout	Fixed Drawout		
Operating Characteristics											
	In rated current at 40° C (A)	630-800-1000-1250-1600-2500			3200-4000			5000-6300	1250-1600-2000-2500	3200-4000	6300
	Rated insulation voltage	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
	Neutral protection (% Ir)	OFF-50-100			OFF-50-100			OFF-50-100	-	-	-
	Utilization category	B			B			B	-	-	-
	Isolation behavior	Yes			Yes			Yes	Yes	Yes	Yes
Ultimate breaking capacity Icu (kA)											
	230 V~	50	65	100	50	65	100	100	-	-	-
	415 V~	50	65	100	50	65	100	100	-	-	-
	500 V~	50	65	100	50	65	100	100	-	-	-
	600 V~	50	60	75	50	65	75	75	-	-	-
	690 V~	50	55	65	50	65	65	65	-	-	-
	Service Breaking capacity Ics (% Icu)	100			100			100	-	-	-
Short circuit making capacity Icm (kA)											
	230 V~	105	143	220	105	143	220	220	143	220	220
	415 V~	105	143	220	105	143	220	220	143	220	220
	500 V~	105	143	220	105	143	220	220	143	220	220
	600 V~	105	132	165	105	143	165	165	132	165	165
	690 V~	105	121	143	105	143	143	143	121	143	143
Short time withstand current Icw(kA) for t=1 s											
	230 V~	50	65	85	50	65	85	100	65	85	100
	415 V~	50	65	85	50	65	85	100	65	85	100
	500 V~	50	65	85	50	65	85	100	65	85	100
	600 V~	50	60	75	50	65	75	75	60	75	75
	690 V~	50	55	65	50	65	65	65	55	65	65
Response Time											
	Opening Time	15ms			15ms			15ms	-	-	-
	Closing Time	30ms			30ms			30ms	-	-	-
Endurance (cycles)											
	Mechanical	10000			10000			5000	10000	10000	5000
	Electrical	5000			5000			2500	5000	5000	2500
Temperature											
	Operating	-5°C to +70°C			-5°C to +70°C			-5°C to +70°C	-5°C to +70°C	-5°C to +70°C	-5°C to +70°C
	Storage	-25°C to +85°C			-25°C to +85°C			-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C

DMX³

Technical Characteristics

	PROTECTION UNITS			
				
Microprocessor based protection unit (p. 27)	Touch screen LCD		Monochrome LCD	
	LSI	LSIg	LSI	LSIg
Long time delayed overload protection				
I_r adjustable from 0.4 to 1.0 x I_n in steps of 0.02 ⁽³⁾	•	•	•	•
t_r adjustable 5-10-20-30 s	•	•	•	•
Short time delayed short circuit protection				
I_m adjustable from 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10 x I_r	•	•	•	•
t_m adjustable : 0-0,1-0,2-0,3-1 ⁽¹⁾ s	•	•	•	•
Instantaneous protection				
I_i adjustable : OFF- 2, 3, 4, 6, 8, 10, 12, 15 x I_n	•	•	•	•
Earthfault protection				
I_g adjustable : OFF- 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 1 x I_n		•		•
t_g adjustable : 0.1, 0.2, 0.5, 1 s		•		•
Display				
Touchscreen LCD	•	•		
monochrome LCD			•	•
Measures and displays (Instantaneous, maximum and average, adjustable delay)				
Current	•	•	•	•
Voltage Ph/N and Ph/Ph	•	•		
Power (P,Q, A) total and per phase	•	•		
Frequency	•	•		
Total power factor and per phase	•	•		
Energy (active and reactive)	•	•		
Total harmonic distortion	•	•		
Position ON/OFF/ Default	•	•	•	•
Date, time and cause of last trip	•	•	•	•
Protection required	•	•	•	•
Memory				
Trip counter	•	•	•	•
Last trip	•	•	•	•
Date, time and cause of last trip	•	•	•	•
Date of last 20 alarms	•	•		
External link				
USB port for diagnostic software	•	•	•	•
Terminal block for auxilliary	•	•	•	•
Supervision (port RS485 / Modbus) ⁽³⁾	option	option	option	option
Signalling and Alarms				
Overheating >75°C	•	•	•	•
Logical Selectivity	•	•	•	•
Non priority load management ⁽³⁾	•	•		
Reverse power 0.1 to 20s - 5 to 100% I_r ⁽³⁾	•	•		
Unbalance current 1 to 3600s - 100 to 600V ⁽³⁾	•	•		
Voltage Ph/N max : 0.1 to 20s - 60 to 400V ⁽³⁾	•	•		
Voltage Ph/N min : 0.1 to 20s - 10 to 400V ⁽³⁾	•	•		
Unbalance voltage Ph/N : 0.1 to 20s - Instant ⁽³⁾	•	•		
Reversing phase rotations	•	•		
Max & Min frequency: 45 to 500Hz - 0.1s to 20s ⁽³⁾	•	•		

(1) Only for touchscreen protection unit

(2) For DMX³ 3P, 4 wire system add ref. 0288 11

(3) For touchscreens : I_r adjustable from 0.1 to 10 x I_n in steps of 0.01

DMX³ 2500/4000/6300

air circuit breakers from 630 to 6300A



0286 56 + 0288 03 (p. 33) + 0289 03 + 0289 10 (p. 35)



0286 74 + 0288 02 (p. 33)



0287 56 + 0288 02 (p. 33)

Dimensions (p. 30-34)
Technical characteristics (p. 37-40)

Air circuit breakers equipped with microprocessor based protection unit (to be ordered together for factory assembly)
Door sealing frame and 4 NO/NC auxiliary contact + 1 trip contact
Flat terminal for draw - out version and horizontal terminals for fixed version

Pack	Cat No.		Fixed version
			Supplied with rear terminals for horizontal connections
			DMX³ 2500 - 50 kA
			Breaking capacity Icu 50 kA(415 V _~)
			Frame 1
	3P	4P	In(A)
1	0286 20	0286 30	630
1	0286 21	0286 31	800
1	0286 22	0286 32	1000
1	0286 23	0286 33	1250
1	0286 24	0286 34	1600
1	0286 25	0286 35	2000
1	0286 26	0286 36	2500
			DMX³ 2500 - 65 kA
			Breaking capacity Icu 65 kA(415 V _~)
			Frame 1
1	0286 40	0286 50	630
1	0286 41	0286 51	800
1	0286 42	0286 52	1000
1	0286 43	0286 53	1250
1	0286 44	0286 54	1600
1	0286 45	0286 55	2000
1	0286 46	0286 56	2500
			DMX³ 2500 - 100 kA
			Breaking capacity Icu 100 kA(415 V _~)
			Frame 2
1	0286 60	0286 70	630
1	0286 61	0286 71	800
1	0286 62	0286 72	1000
1	0286 63	0286 73	1250
1	0286 64	0286 74	1600
1	0286 65	0286 75	2000
1	0286 66	0286 76	2500
			DMX³ 4000 - 50 kA
			Breaking capacity Icu 50 kA(415 V _~)
			Frame 2
1	0286 27	0286 37	3200
1	0286 28	0286 38	4000
			DMX³ 4000 - 65 kA
			Breaking capacity Icu 65 kA(415 V _~)
			Frame 2
1	0286 47	0286 57	3200
1	0286 48	0286 58	4000
			DMX³ 4000 - 100 kA
			Breaking capacity Icu 100 kA(415 V _~)
			Frame 2
1	0286 67	0286 77	3200
1	0286 68	0286 78	4000

Pack	Cat No.		Drawout version
			Supplied with a base equipped with flat rear terminals and lockable safety shutters
			DMX³ 2500 - 50 kA
			Breaking capacity Icu 50 kA (415 V _~)
			Frame 1
	3P	4P	In(A)
1	0287 20	0287 30	630
1	0287 21	0287 31	800
1	0287 22	0287 32	1000
1	0287 23	0287 33	1250
1	0287 24	0287 34	1600
1	0287 25	0287 35	2000
1	0287 26	0287 36	2500
			DMX³ 2500 - 65 kA
			Breaking capacity Icu 65 kA (415 V _~)
			Frame 1
1	0287 40	0287 50	630
1	0287 41	0287 51	800
1	0287 42	0287 52	1000
1	0287 43	0287 53	1250
1	0287 44	0287 54	1600
1	0287 45	0287 55	2000
1	0287 46	0287 56	2500
			DMX³ 2500 - 100 kA
			Breaking capacity Icu 100 kA(415 V _~)
			Frame 2
1	0287 60	0287 70	630
1	0287 61	0287 71	800
1	0287 62	0287 72	1000
1	0287 63	0287 73	1250
1	0287 64	0287 74	1600
1	0287 65	0287 75	2000
1	0287 66	0287 76	2500
			DMX³ 4000 - 50 kA
			Breaking capacity Icu 50 kA (415 V _~)
			Frame 2
1	0287 27	0287 37	3200
1	0287 28	0287 38	4000
			DMX³ 4000 - 65 kA
			Breaking capacity Icu 65 kA (415 V _~)
			Frame 2
1	0287 47	0287 57	3200
1	0287 48	0287 58	4000
			DMX³ 4000 - 100 kA
			Breaking capacity Icu 100 kA (415 V _~)
			Frame 2
1	0287 67	0287 77	3200
1	0287 68	0287 78	4000

Delivery within 4 - 8 weeks from the date of order.

Bold packing quantity is our mandatory packing. Orders to be placed by Legrand (India) stockists in multiples of the same.

DMX³ 2500/4000/6300 air circuit breakers from 630 to 6300A

DMX³ 2500/4000/6300 microprocessor based protection units



0289 51 + 0288 02



0288 01



0288 02



0288 04

+ *Dimensions (p. 35)*
Technical characteristics (p. 37-40)

Air circuit breakers equipped with microprocessor based protection unit (to be ordered together for factory assembly)
Door sealing frame and 4 NO/NC auxiliary contact + 1 trip contact
Flat terminal for draw - out version and horizontal terminals for fixed version

Pack	Cat.Nos.		Fixed version
	Frame 3		Supplied with rear terminals for horizontal connections
	3P	4P	DMX³ - L 6300 Breaking capacity Icu 100 kA (415 V~)
1	0289 50	0289 60	In(A) 5000
1	0289 51	0289 61	6300

Pack	Cat.Nos.		Draw-out version
	Frame 3		Supplied with a base equipped with flat rear terminals and lockable safety shutters
	3P	4P	DMX³ - L 6300 Breaking capacity Icu 100 kA (415 V~)
1	0289 52	0289 62	In(A) 5000
1	0289 53	0289 63	6300

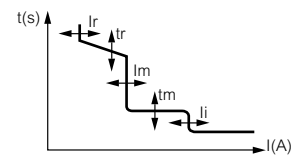
+ *Technical Characteristics (p. 38)*

DMX³ circuit breakers can be equipped with MP4 or MP6 microprocessor based protection units enabling very precise adjustments of the protection conditions, while maintaining total discrimination with downstream devices.
MP4 or MP6 protection units can be equipped with batteries for powering in case of mains fault or when the breaker is open or not connected.

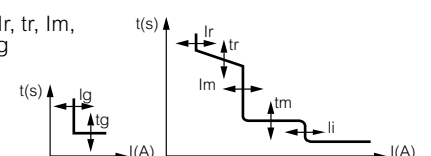
Pack **Cat.No.** **LCD Display (MP4)**

Microprocessor based LCD screen

Unit LSI
Settings : Ir, tr, Im, tm, li



Unit LSIg
Settings : Ir, tr, Im, tm, li, Ig, tg



Touch screen display (MP6)

Measure and display current, voltage, power, Energy, Harmonics
Signalling and fault history
Graphical visualisation of parameters

Unit LSI
Settings : Ir, tr, Im, tm and li

Unit LSIg
Settings : Ir, tr, Im, tm, li, Ig, tg

Accessories for microprocessor based protection unit

1	0288 06	12V DC external power supply for DMX ³ microprocessor based protection unit
1	0288 05 ⁽¹⁾	Communication module (optional) for DMX ³ microprocessor based protection unit
1	0288 10 ⁽¹⁾	External neutral for DMX ³ 6300
1	0288 11 ⁽¹⁾	External neutral for DMX ³ 2500 and 4000
1	0288 12 ⁽¹⁾	Module programmable output

(1) Optional accessories, to be ordered while ordering microprocessor protection unit and DMX³ air circuit breakers for factory assembly

DMX³-I 2500/4000/6300

trip free switches from 1250 to 6300A



0286 96



0287 96

DMX³ 2500/4000/6300

auxiliaries and accessories



0288 37



0288 33



0288 51



0288 44



0288 58

Dimensions (p. 30-35)

Trip free switches equipped with:
Rear terminals
Auxiliary contacts 4NO/4NC

Pack	Cat No.		Fixed version
			Equipped with rear terminals for connection to the horizontal
			DMX³-I 2500
			Frame 1
			In(A)
1	3P	4P	
1	0286 83	0286 93	1250
1	0286 84	0286 94	1600
1	0286 85	0286 95	2000
1	0286 86	0286 96	2500
			DMX³-I 4000
			Frame 2
1	0286 87	0286 97	3200
1	0286 88	0286 98	4000
			DMX³-I 6300
			Frame 3
1	0289 70	0289 71	6300

Pack	Cat No.		Drawout version
			Supplied with a base equipped with flat rear terminals and lockable safety shutters
			DMX³-I 2500
			Frame 1
			In(A)
1	3P	4P	
1	0287 83	0287 93	1250
1	0287 84	0287 94	1600
1	0287 85	0287 95	2000
1	0287 86	0287 96	2500
			DMX³-I 4000
			Frame 2
1	0287 87	0287 97	3200
1	0287 88	0287 98	4000
			DMX³-I 6300
			Frame 3
1	0289 77	0289 78	6300

Pack	Cat No.	Motor operators
1	0288 34	24 V~/=
1	0288 35	48 V~/=
1	0288 36	110 V~/=
1	0288 37	230 V~/=
1	0288 38	415 V~/=

Control and signalling auxiliaries

		Shunt trip
1	0288 48	24 V~/=
1	0288 49	48 V~/=
1	0288 50	110 V~/=
1	0288 51	230 V~/=
1	0288 52	415 V~/=
		Closing coils
1	0288 41	24 V~/=
1	0288 42	48 V~/=
1	0288 43	110 V~/=
1	0288 44	230 V~/=
1	0288 45	415 V~/=
		Undervoltage releases
1	0288 55	24 V~/=
1	0288 56	48 V~/=
1	0288 57	110 - 130 V~/=
1	0288 58	230 V~/=
1	0288 59	415 - 480 V~
		Contact for motorised control
1	0288 14	Contact "ready to close" with charges spring
		Contact for signalling - Drawout
1	0288 13	Inserted/Test/Drawout contact, 3 changeover contacts per position
		Programmable module
1	0288 12	Module with 6 programmable output

		Locking
		Key lock in "open" position
1	0288 28	2 hole support frame for Ronis locks Cat no. 0288 30
1	0288 29	Set of 5 Ronies key barrel
1	0288 31	Ronis lock (Key included) - to be fitted on the frame Cat no. 0288 28
1	0288 30	Profalux lock (Key included) - to be fitted on the frame Cat no. 0288 28
		Key locking in the Drawout position
		Mounting of the lock on the base
		3 Position: inserted /test/drawout
1	0288 33	Ronis Lock (key included)
1	0288 32	Profalux lock (key included)
		Padlocking in "open" position
1	0288 21	Padlocking system for ACB (padlock not supplied)
1	0288 24	Padlock for button
1	0288 26	Padlocking system for shutters (padlock not supplied)

Delivery within 4 - 8 weeks from the date of order.

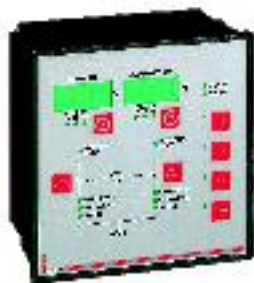
Bold packing quantity is our mandatory packing. Orders to be placed by Legrand (India) stockists in multiples of the same.

DMX³ 2500/4000/6300

auxillaries and accessories (continued)



0288 64



0261 93



0289 20



0288 84



0288 82



0288 91



0289 02

Pack Cat No. Locking (Continued)

Pack	Cat No.	Locking (Continued)
1	0288 20	Door locking Prevent opening of the door with circuit breaker closed Left-hand and Right hand side mounting

Equipment for supply investors

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

1	0288 64	Interlock for DMX ³ 2500
1	0288 65	Interlock for DMX ³ 4000
1	0288 66	Interlock for DMX ³ 6300

Cable Interlock

1	0289 20	Type 1 (2600 mm)
1	0289 21	Type 1 (3000 mm)
1	0289 22	Type 1 (3600 mm)
1	0289 23	Type 1 (4000 mm)
1	0289 24	Type 1 (4600 mm)
1	0289 25	Type 1 (5600 mm)

Automation Control Unit

For Setting the conditions for supply inversion, generator on/off, status acquisition for DMX³ and DPX circuit-breakers, open / closed
Power Supply: 230 V \sim and 12-24-48 V=
connection by plug-in terminals

1	0261 93	Standard Unit
1	0261 94	Communication Unit, enabling data transmission (RS 485)

Accessories

1	0288 15	Sets of additional signalling contact
1	0288 25	Rating mis-insertion device Prevents the insertion of a draw-out circuit breaker in an incompatible base
1	0288 23	Operations counter Counts total number of operation cycles of the device
1	0288 79	Lifting plate
1	0288 24	Locking device for I / O button
1	0288 22	Door sealing frame

Communication supervision

1	0288 05	Option to the supervision of DMX ³
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Dimensions (p. 36-37)

Pack Cat No. Real Terminals

Pack	3P	4P	Real Terminals
1	0288 84	0288 85	For DMX³ 2500 fixed version - frame 1 For flat connection with bars To be fixed on to horizontal rear terminals of the circuit breaker
1	0288 82	0288 83	For vertical connection with bars those terminal are used in order to transform a flat connection in to a vertical one to be fixed onto cat. No. 0288 84/85 according to the number of poles
1	0288 92	0288 93	For DMX³ fixed version - frame 2 & 3 For flat connection with bars To be fixed on to horizontal rear terminals of the circuit breaker
1	0288 96	0288 97	For DMX³ draw-out version-frame 1 For vertical or Horizontal connection with bars to be fixed onto plate rear terminal of the circuit breaker
1	0288 96A	0288 97A	For vertical or Horizontal aluminium connection with bars to be fixed onto plate rear terminal of the circuit breaker
1	0288 94	0288 95	For DMX³ draw-out version-frame 2 & 3 For vertical or Horizontal connection with bars
1	0288 94A	0288 95A	For vertical or Horizontal aluminium connection with bars

Spreaders for DMX³ 2500 fixed version - frame 1

Pack	3P	4P	Spreaders for DMX ³ 2500 fixed version - frame 1
1	0288 86	0288 87	To be fixed on to horizontal rear terminals of the circuit breaker
1	0288 88	0288 89	For flat connection with bars
1	0288 90	0288 91	For Vertical Connection With bars For Horizontal Connection With bars

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

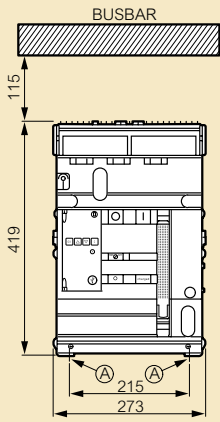
Pack	3P	4P	Equipment for conversion of a fixed device into draw-out device
1	0289 02	0289 03	Bases for draw-out device For DMX ³ /DMX ³ -I 2500- frame 1
1	0289 04	0289 05	For DMX ³ /DMX ³ -I 4000- frame 2
1	0289 13	0289 14	For DMX ³ /DMX ³ -I 6300- frame 3
1	0289 09	0289 10	Transformation kit for draw-out version For DMX ³ /DMX ³ -I 2500- frame 1
1	0289 11	0289 12	For DMX ³ /DMX ³ -I 4000- frame 2
1	0289 15	0289 16	For DMX ³ /DMX ³ -I 6300- frame 3

DMX³ 2500 and DMX³-I 2500 - frame 1 dimensions

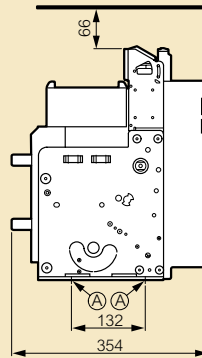
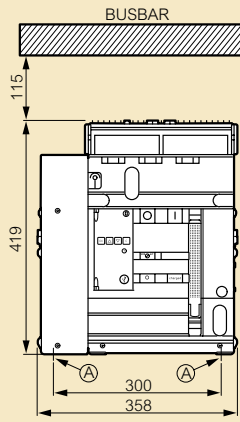
■ Fixed version - frame 1

Overall dimensions

3P version

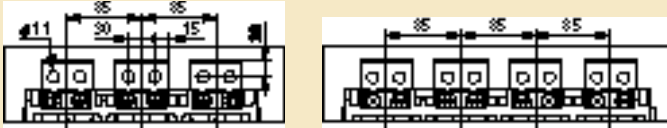


4P version



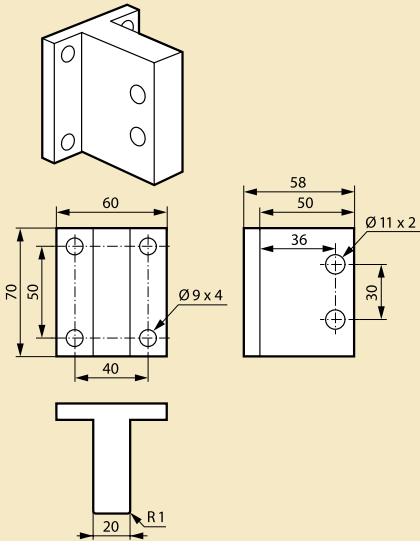
A = fixing point on plate of enclosure

Rear terminals fixed version 630 - 2500 A



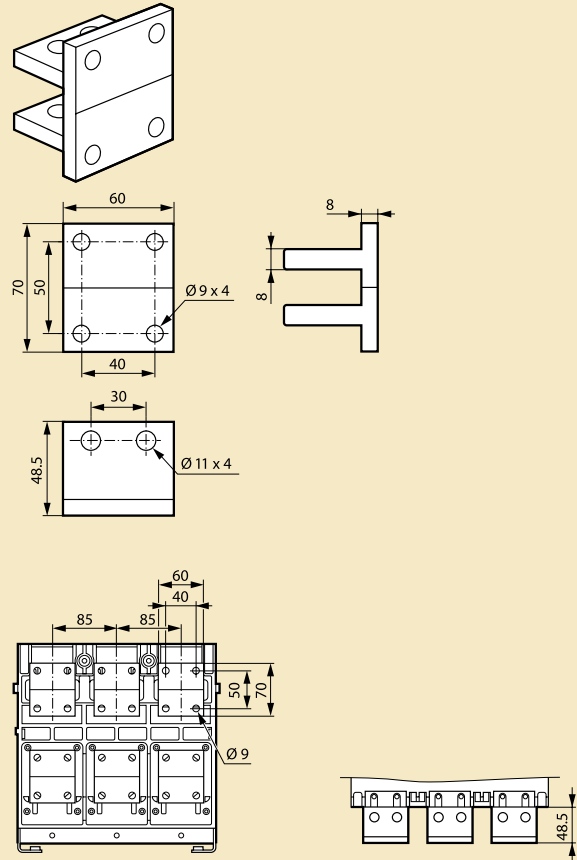
Rear terminals for vertical connection with bars

Cat. Nos 0288 82/83



Rear terminals for flat connection with bars

Cat. Nos 0288 84/85



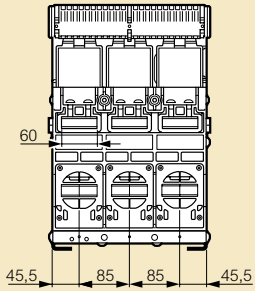
DMX³ 2500 and DMX³-I 2500 - frame 1

dimensions (continued)

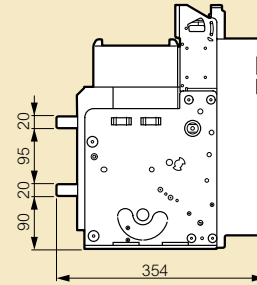
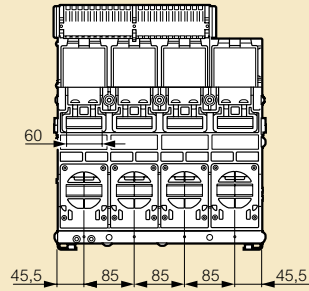
■ Fixed version - frame 1 (continued)

Rear terminals for horizontal connection with bars

3P version

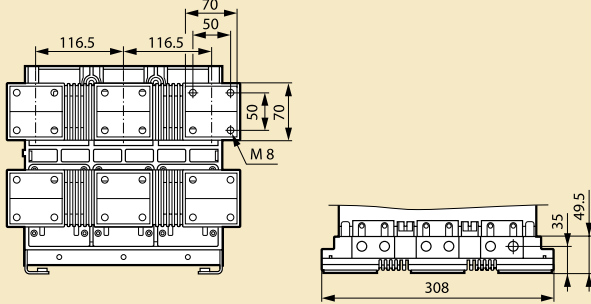


4P version

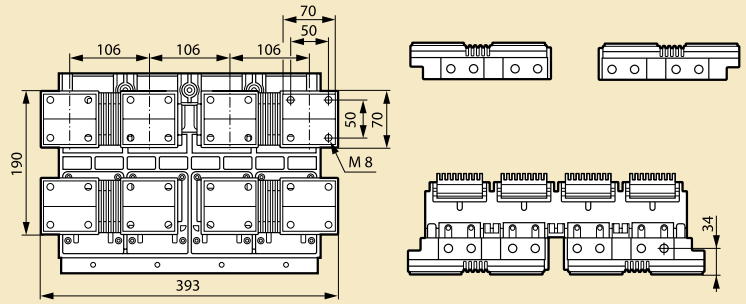


Spreaders for flat connection with bars

Cat.No 0288 86

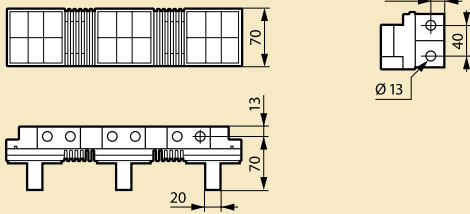


Cat.No 0288 87

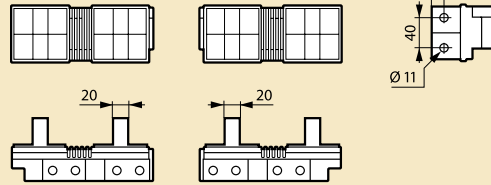


Spreaders for vertical connection with bars

Cat.No 0288 88

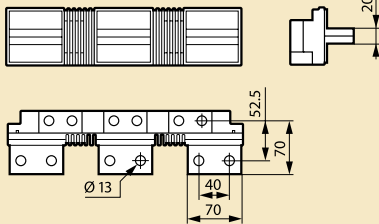


Cat.No 0288 89

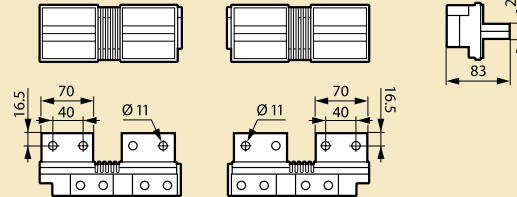


Spreaders for horizontal connection with bars

Cat.No 0288 90



Cat.No 0288 91

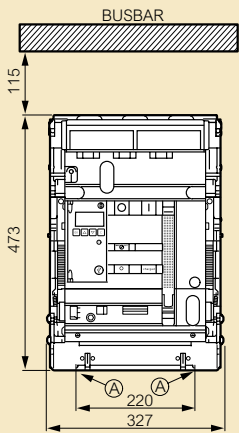


DMX³ 2500 and DMX³-I 2500 - frame 1

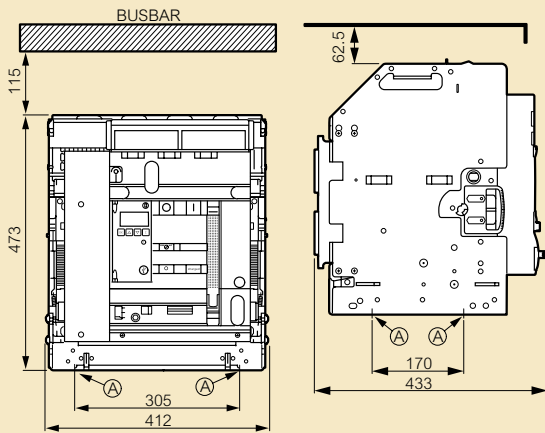
dimensions (continued)

Draw-out version - frame 1

Overall dimensions 3P version

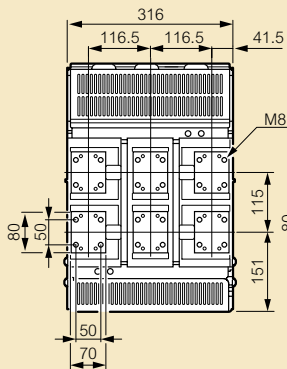


4P version

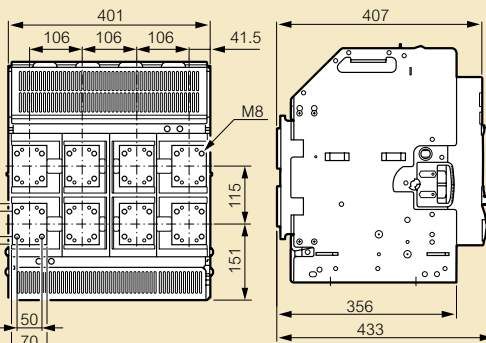


A = fixing point on plate of enclosure

Rear terminals for flat connection with bars 3P version

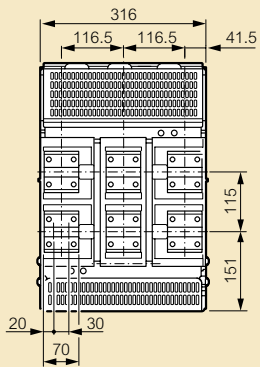


4P version

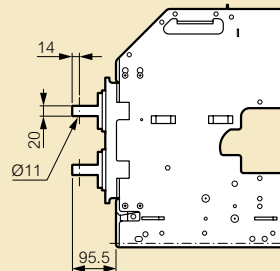
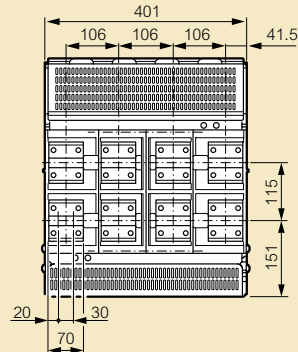


Rear terminals for horizontal connection with bars - Cat.Nos 0288 96/97

3P version

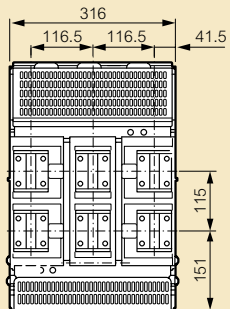


4P version

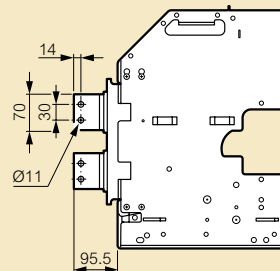
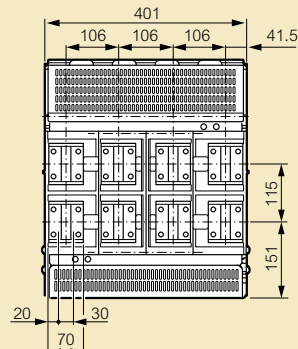


Rear terminals for vertical connection with bars - Cat.Nos 0288 96/97

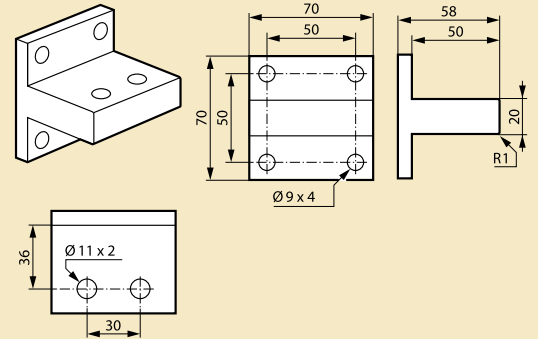
3P version



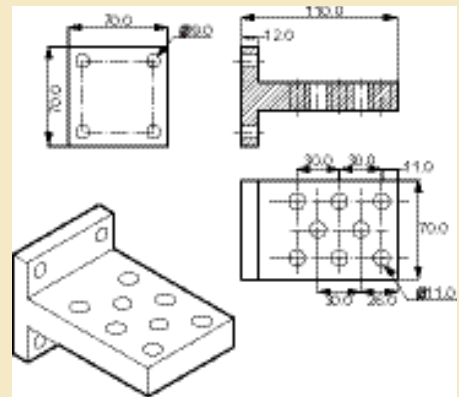
4P version



Rear terminals for vertical or horizontal connection with bars Cat.Nos 0288 96/97



Cat.Nos 0288 96A/97A

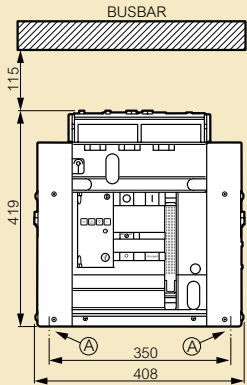


DMX³ 4000 and DMX³-I 4000 - frame 2 dimensions

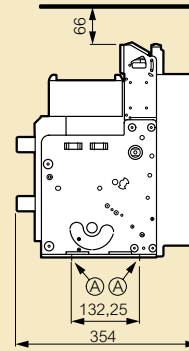
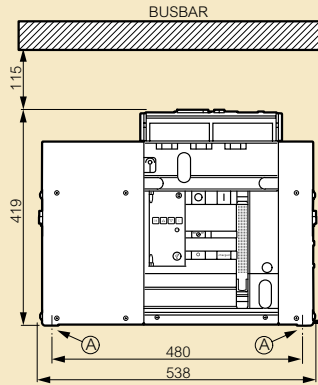
Fixed version - frame 2

Overall dimensions

3P version



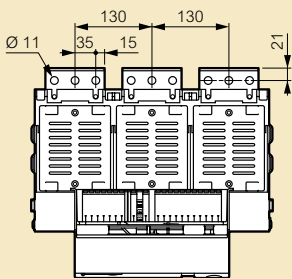
4P version



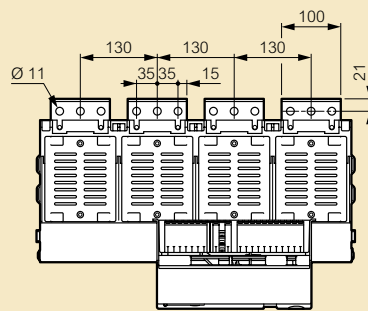
A = fixing point on plate of enclosure

Rear terminals fixed version 3200 - 4000 A

3P version

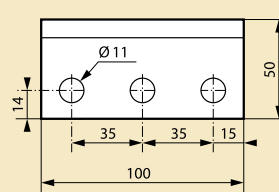
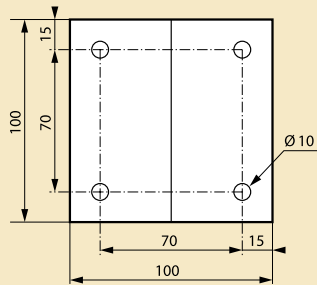
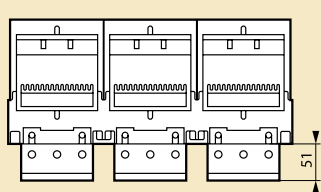


4P version

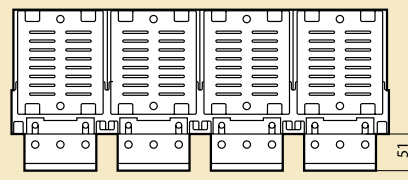
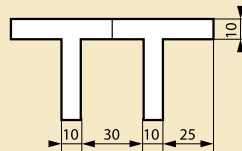


Rear terminals for flat connection with bars

Cat. Nos 0288 92/93

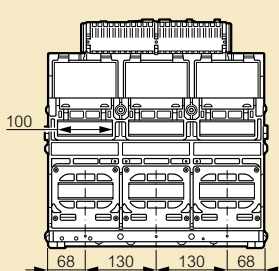


Cat. No 0288 93

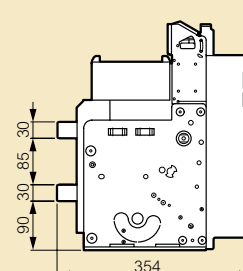
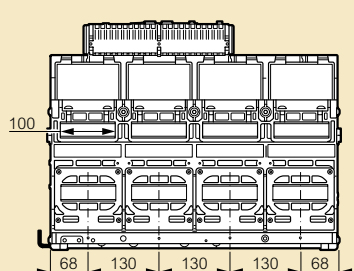


Rear terminals

3P version



4P version



All dimensions are in mm
1 inch = 25,4mm
Accuracy of dimensions = ± 2 mm

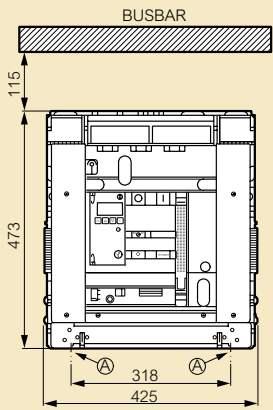
DMX³ 4000 and DMX³-I 4000 - frame 2

dimensions (continued)

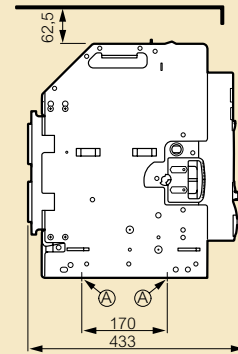
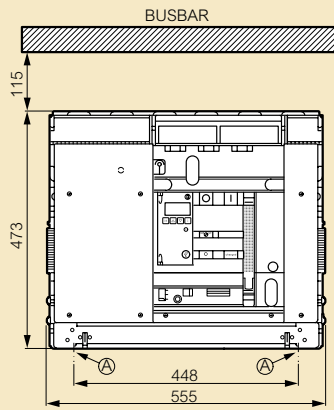
Draw-out version - frame 2

Overall dimensions

3P version



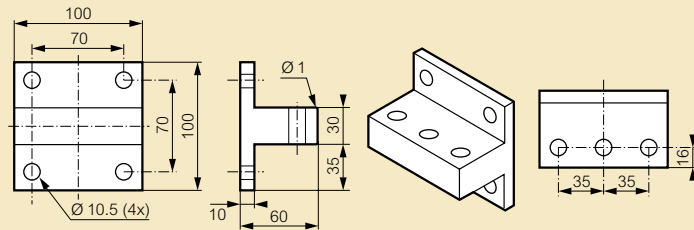
4P version



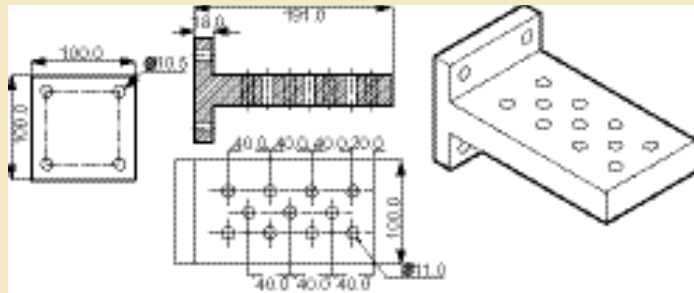
A = fixing point on plate of enclosure

Rear terminals for vertical or horizontal connection with bars

Cat.Nos 0288 94/95



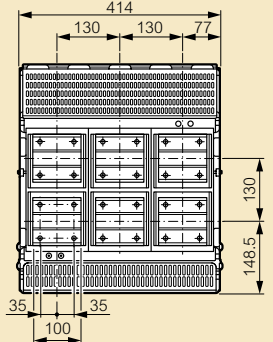
Cat.Nos 0288 94A/95A



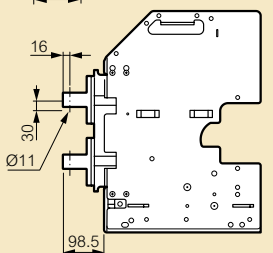
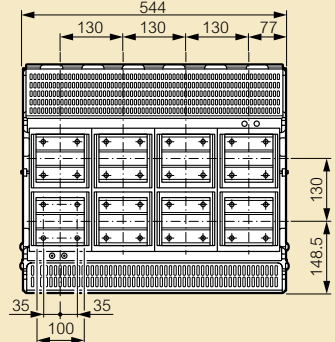
Rear terminals for horizontal connection with bars

Cat.Nos 0288 94/95

3P version

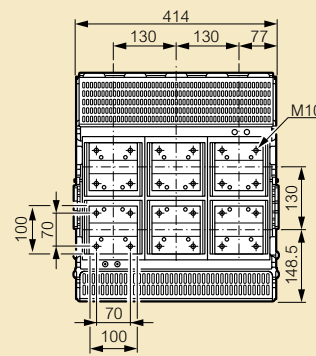


4P version

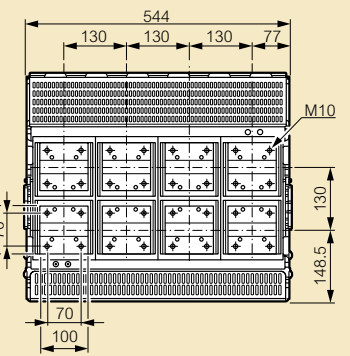


Rear terminals for flat connection with bars

3P version



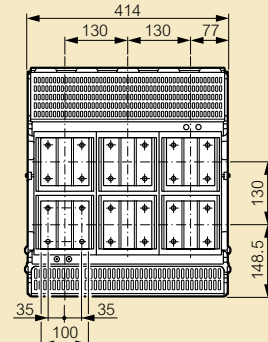
4P version



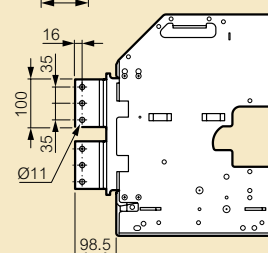
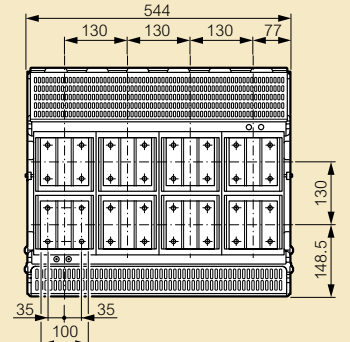
Rear terminals for vertical connection with bars

Cat.Nos 0288 94/95

3P version



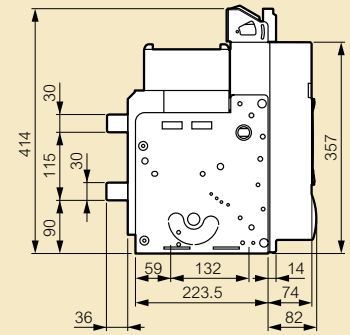
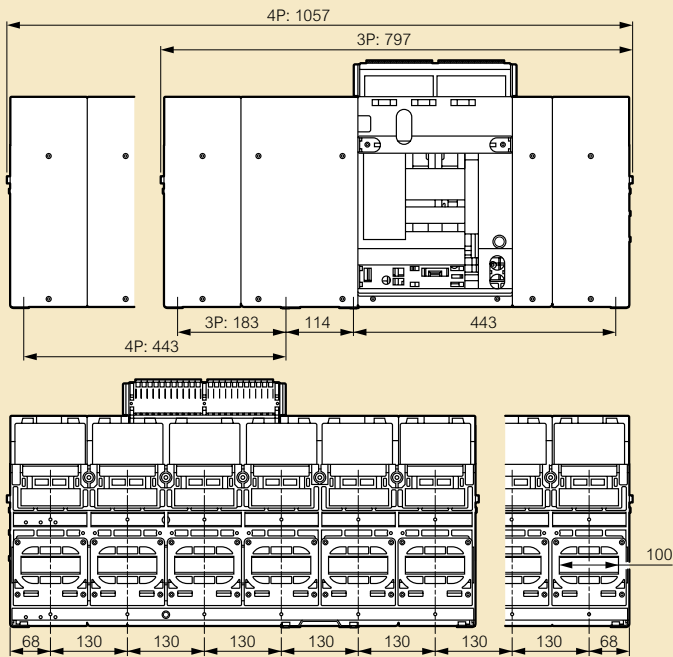
4P version



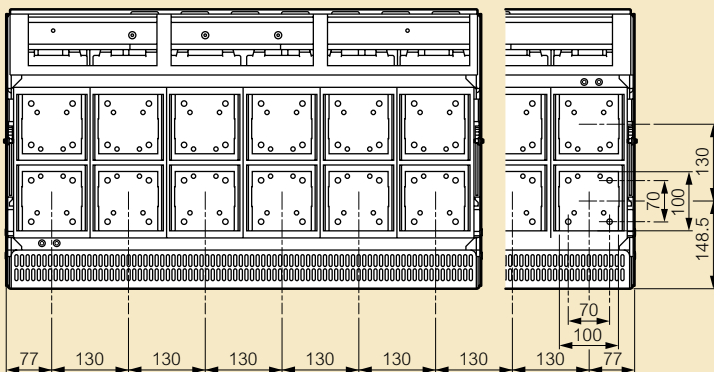
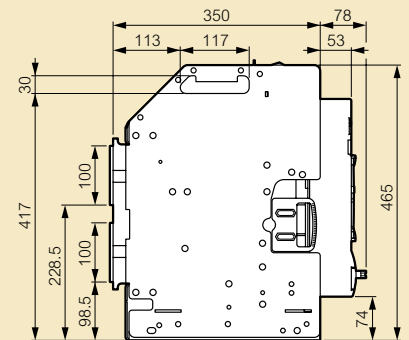
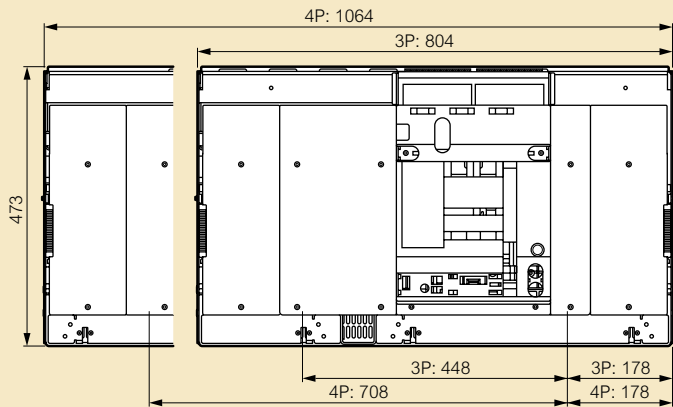
All dimensions are in mm
1 inch = 25.4mm
Accuracy of dimensions = ± 2mm

DMX³ 6300 and DMX³-I 6300 - frame 3 dimensions

■ Fixed version - frame 3



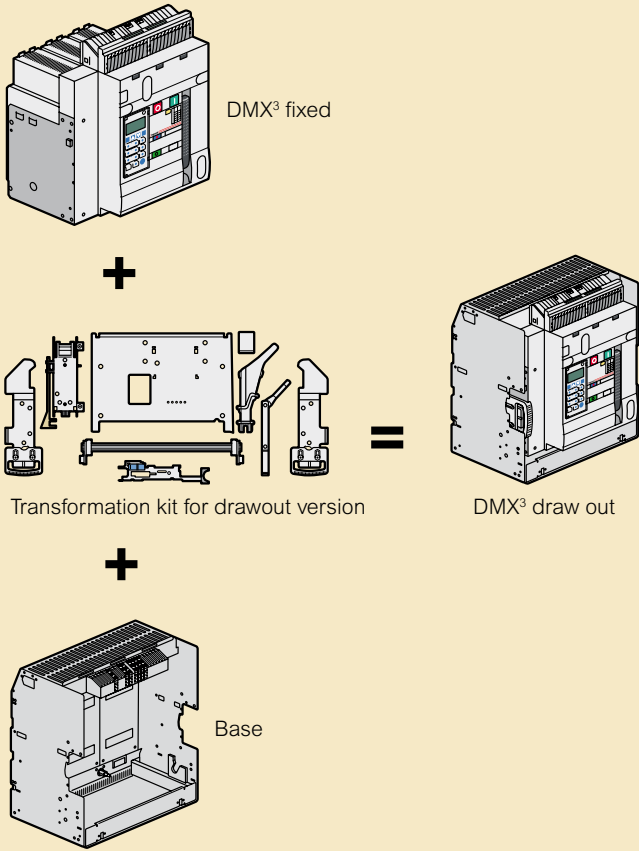
■ Draw-out version - frame 3



All dimensions are in mm
1 inch = 25.4mm
Accuracy of dimensions = ± 2mm

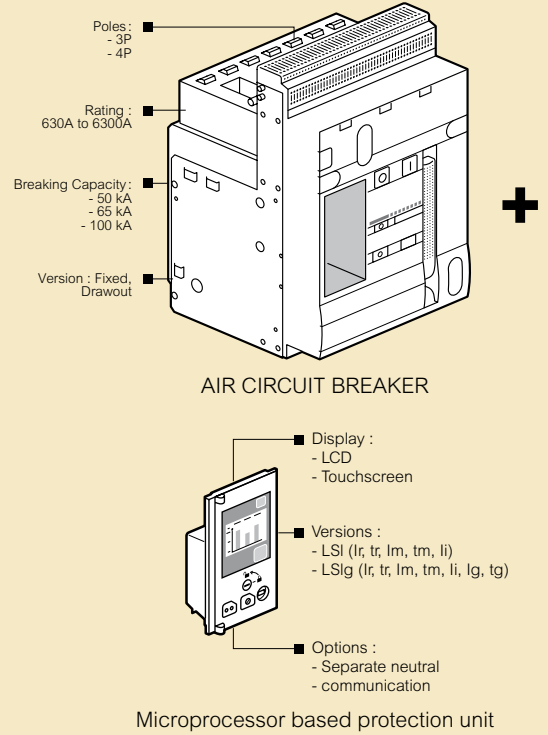
DMX³ transformation fixed/drawout

■ Transformation DMX³ Fixed to Drawout

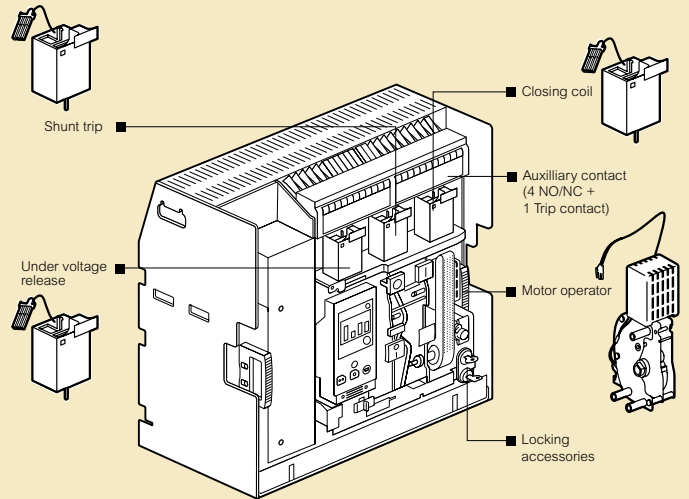


DMX³ & DMX³-I customisation

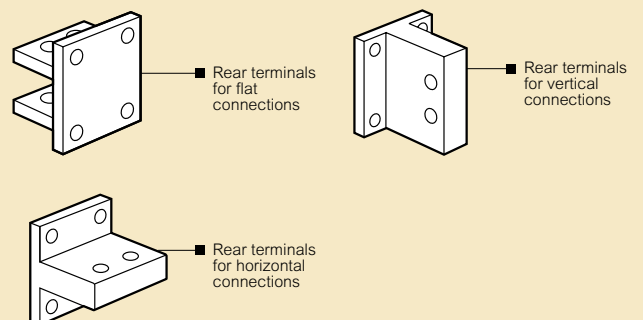
■ Assembly



■ Auxiliaries and Accessories



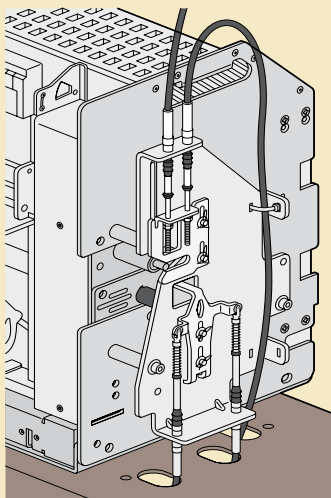
■ Connection



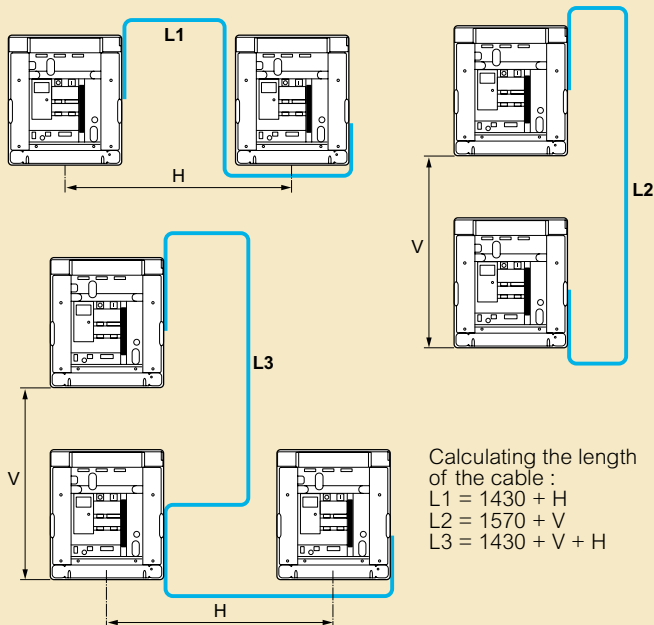
DMX³

automation control units for supply invertors

■ Mounting the interlocking mechanism



■ Choice of cable interlock



■ Cable length selection table

Length (mm)	Type	Cat. No.
2600	1	0289 20
3000	2	0289 21
3600	3	0289 22
4000	3	0289 23
4600	5	0289 24
5600	6	0289 25

■ Examples for 3 air circuit breakers

Distance between air circuit breakers (mm)		Horizontal			
		725 mm	1000 mm	1450 mm	2000 mm
Vertical	800 mm	Type 2	Type 3	Type 4	Type 5
	1000 mm	Type 3	Type 3	Type 4	Type 5
	1600 mm	Type 4	Type 5	Type 5	Type 6
	2000 mm	Type 5	Type 5	Type 6	Type 6

■ Technical characteristics

Power Supply : 187 to 264 V \sim
9 to 65 V \equiv

Frequency : 45 to 65 Hz

Un : 80 to 690 V \sim

Control Relay (1 and 4) : 1 NO - 12 A - 250 V \sim

1 NO - 5 A - 250 V \sim

1 NO/NC - 5 A - 250 V \sim

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/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

Functions

Standard unit cat. No. 0261 93

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

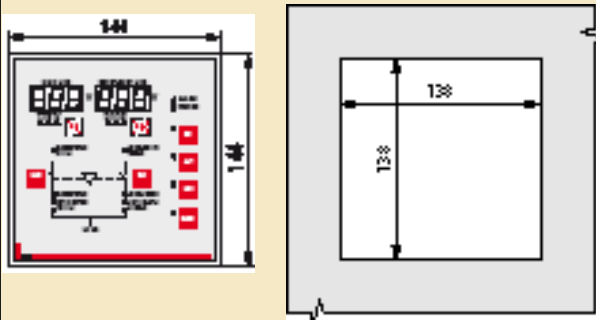
- Remote Control (Opening/Closing) of MCBs
- Microprocessor output from unit (Positive Safety)
- Programmable I/O
- Voltage reading : 3 Phase
 - phase-neutral
 - phase-phase
- Control (on/off) of generator set
- Indication of the state of the MCBs (open/closed/tripped)
- Source inversion blocked in the 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. 0261 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)

Dimension and panel board faceplate cut-out



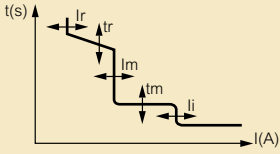
DMX³

microprocessor protection units

■ Settings of the microprocessor protection units

MP4 LSI

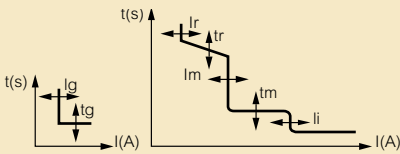
I_r , t_r , I_m , t_m , I_i adjustment on front panel



- **Long time delay protection against overloads**
 I_r from 0.4 to $1 \times I_n$ (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 $6 \times I_r$ (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 $10 \times I_r$ (9 steps) $I_m = 1.5-2-2.5-3-4-5-6-8-10 \times I_r$
- **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 ($t=\text{cost}$), 0.3-0.2-0.1-0.01 s ($I^2t=\text{constant}$)
- **Instantaneous protection against very high short circuits**
 I_i from 2 to $15 \times I_n$ or I_{cw} (9 steps) $I_i = \text{off}-2-3-4-6-8-10-12-15 \times I_n$ or I_{cw}
- **Neutral protection:** $I_N = I-II-III-IV \times I_r$ (0-50-100-100 %)

MP4 LSIg

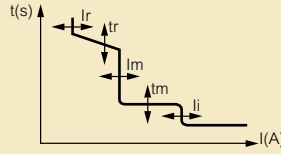
I_r , t_r , I_i , I_g , t_g , I_m , t_m , adjustment on front panel



- **Long time delay protection against overloads**
 I_r from 0.4 to $1 \times I_n$ (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 $6 \times I_r$ (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 $10 \times I_r$ (9 steps) $I_m = 1.5-2-2.5-3-4-5-6-8-10 \times I_r$
- **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 ($t=\text{constant}$), 0.3-0.2-0.1-0.01 s ($I^2t=\text{constant}$)
- **Instantaneous protection against very high short circuits**
 I_i from 2 to $15 \times I_n$ or I_{cw} (9 steps) $I_i = \text{OFF}-2-3-4-6-8-10-12-15 \times I_n$ or I_{cw}
- **Earth fault current**
 I_g from 0.2 to $1 \times I_n$ (9 steps) $I_g = 0.2-0.3-0.4-0.5-0.6-0.7-0.8-1 \times I_n$, OFF
- **Time delay on earth fault tripping**
 t_g from 0.1 to $1 \times I_n$ (4 steps) $T_g = 0,1-0,2-0,5-1$ s (both $t=\text{constant}$ and $I^2t=\text{constant}$)
- **Neutral protection:** $I_N = I-II-III-IV \times I_r$ (0-50-100-100 %)

MP6 LSI

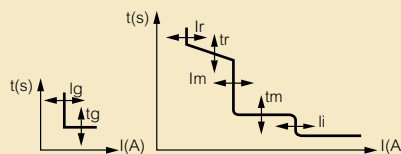
I_r , t_r , I_m , t_m , I_i adjustment on front panel



- **Long time delay protection against overloads**
 I_r from 0.4 to $1 \times I_n$ (7 steps) $I_r = 0.4-0.5-0.6-0.7-0.8-0.9-1 \times I_n$
- **Long delay protection operation time**
 t_r - at $6 \times I_r$ (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 $10 \times I_r$ (9 steps) $I_m = 1.5-2-2.5-3-4-5-6-8-10 \times I_r$
- **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 $t=\text{constant}$ and $I^2t=\text{constant}$)
- **Instantaneous protection against very high short circuits**
 I_i from 2 to $15 \times I_n$ or I_{cw} (9 steps) $I_i = 2-3-4-6-8-10-12-15 \times I_n$ or I_{cw}
- **Neutral protection:** $I_N = I-II-III-IV \times I_r$ (0-50-100-100 %)

MP6 LSIg

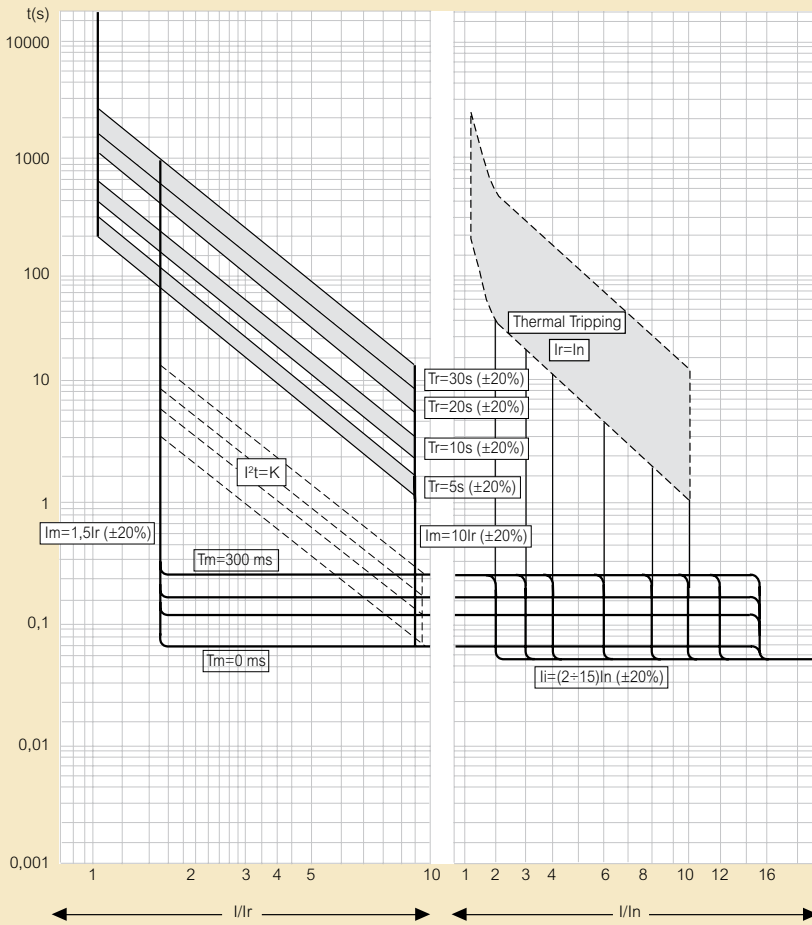
I_r , t_r , I_i , I_g , t_g , I_m , t_m , adjustment on front panel



- **Long time delay protection against overloads**
 I_r from 0.4 to $1 \times I_n$ (7 steps) $I_r = 0.4-0.5-0.6-0.7-0.8-0.9-1 \times I_n$
- **Long delay protection operation time**
 t_r - at $6 \times I_r$ (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 $10 \times I_r$ (9 steps) $I_m = 1.5-2-2.5-3-4-5-6-8-10 \times I_r$
- **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 $t=\text{constant}$ and $I^2t=\text{constant}$)
- **Instantaneous protection against very high short circuits**
 I_i from 2 to $15 \times I_n$ or I_{cw} (9 steps) $I_i = 2-3-4-6-8-10-12-15 \times I_n$ or I_{cw}
- **Earth fault current**
 I_g from 0.2 to $1 \times I_n$ (9 steps) $I_g = 0.2-0.3-0.4-0.5-0.6-0.7-0.8-1 \times I_n$, OFF
- **Time delay on earth fault tripping**
 t_g from 0.1 to $1 \times I_n$ (4 steps) $T_g = 0,1-0,2-0,5-1$ s (both $t=\text{constant}$ and $I^2t=\text{constant}$)
- **Neutral protection:** $I_N = I-II-III-IV \times I_r$ (0-50-100-100 %)

DMX³ 2500/4000/6300

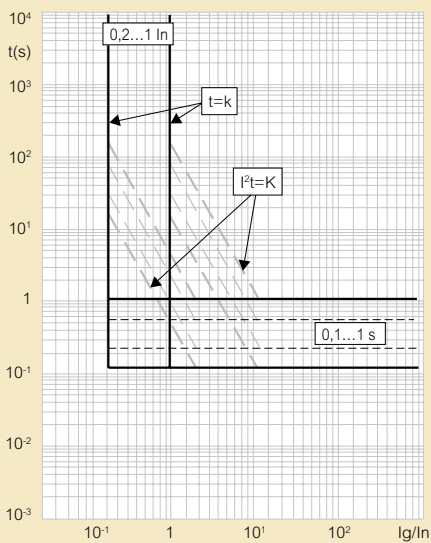
■ Selective time-current tripping characteristic for MP4 protection units



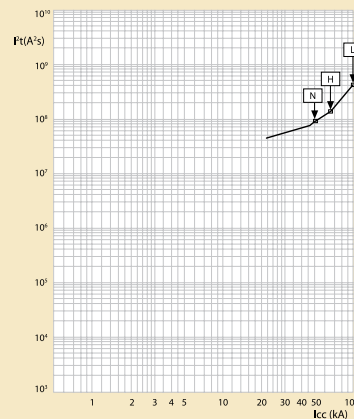
If short-circuit current is higher than I_{cw} value or I_i is set at I_{cw} position, tripping time is equal to 30ms

- I_r = long time setting current
- T_r = long time delay
- I_m = short time setting current
- T_m = short time delay
- I_f = instantaneous intervention current

■ Ground fault tripping curve for MP4 LSIG protection unit



■ Let through energy characteristics



I_{cc} (kA) = estimated short-circuit symmetrical current (RMS value)
 I^2t (A²s) = pass-through specific energy

DMX³ 2500/4000/6300

selectivity & discrimination

■ Limits of selectivity DMX³ / DPX™ (three phase circuit at 400 V_~)

Downstream MCCB	Upstream ACB											
	In	DMX ³ 2500 (50 kA / 65 kA / 100 kA)						DMX ³ 4000 (50 kA / 65 kA / 100 kA)		DMX ³ 6300 (100 kA)		
		800	1000	1250	1600	2000	2500	3200	4000	5000	6300	
DPX 125 (16 kA / 25 kA / 36 kA)	16	T	T	T	T	T	T	T	T	T	T	
	25	T	T	T	T	T	T	T	T	T	T	
	40	T	T	T	T	T	T	T	T	T	T	
	63	T	T	T	T	T	T	T	T	T	T	
	100	T	T	T	T	T	T	T	T	T	T	
	125	T	T	T	T	T	T	T	T	T	T	
DPX 160 / 250 ER (25 kA / 36 kA / 50 kA)	63	T	T	T	T	T	T	T	T	T	T	
	100	T	T	T	T	T	T	T	T	T	T	
	160	T	T	T	T	T	T	T	T	T	T	
DPX 250 thermal magnetic (36 kA / 70 kA / 100 kA)	40	T	T	T	T	T	T	T	T	T	T	
	63	T	T	T	T	T	T	T	T	T	T	
	100	T	T	T	T	T	T	T	T	T	T	
DPX 250 S1 / S2 (36 kA / 70 kA / 100 kA)	160	T	T	T	T	T	T	T	T	T	T	
	250	T	T	T	T	T	T	T	T	T	T	
	400	T	T	T	T	T	T	T	T	T	T	
DPX 630 thermal magnetic (36 kA / 70 kA / 100 kA)	250	T	T	T	T	T	T	T	T	T	T	
	320	T	T	T	T	T	T	T	T	T	T	
	400	T	T	T	T	T	T	T	T	T	T	
DPX 630 S1 / S2 (36 kA / 70 kA / 100 kA)	500	T	T	T	T	T	T	T	T	T	T	
	630	T	T	T	T	T	T	T	T	T	T	
	250	T	T	T	T	T	T	T	T	T	T	
DPX 1250 thermal magnetic (50 kA / 70 kA)	400	T	T	T	T	T	T	T	T	T	T	
	630	T	T	T	T	T	T	T	T	T	T	
	800	-	T	T	T	T	T	T	T	T	T	
DPX 1600 S1 / S2 (50 kA / 70 kA)	1000	-	-	T	T	T	T	T	T	T	T	
	1250	-	-	-	T	T	T	T	T	T	T	
	800	-	T	T	T	T	T	T	T	T	T	
DPX 2500 thermal magnetic (50 kA / 70 kA)	1250	-	-	-	T	T	T	T	T	T	T	
	1600	-	-	-	-	T	T	T	T	T	T	
	1250	-	-	-	-	-	T	T	T	T	T	

■ Limits of selectivity DMX³ / DMX³ (three phase circuit at 400 V_~)

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

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

■ 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
	2500	1	2450	0.98	2350	0.94	2250	0.9	2150	0.86
DMX ³ 4000	3200	1	3200	1	3200	1	3136	0.98	3008	0.94
	4000	1	3920	0.98	3680	0.92	3440	0.86	3120	0.78
DMX ³ 6300	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
	2500	1	2400	0.96	2250	0.9	2100	0.84	1950	0.78
DMX ³ 4000	3200	1	3200	1	3200	1	3072	0.96	2880	0.9
	4000	1	3760	0.94	3440	0.86	3200	0.8	2960	0.74
DMX ³ 6300	5000	1	5000	1	5000	1	5000	1	5000	1
	6300	1	6174	0.98	5985	0.95	5796	0.92	5292	0.84

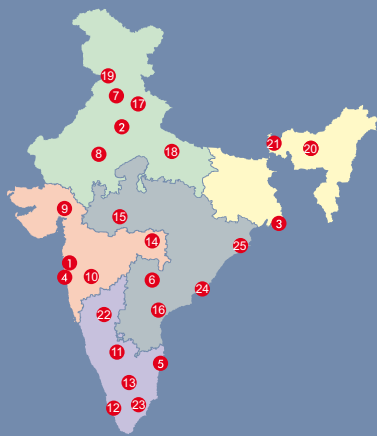
■ Derating at different altitudes

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

■ Connection bars minimum recommended dimension per pole (fix) for copper conductors

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
3200	3 x 100 x 10	3 x 100 x 10
4000	4 x 100 x 10	5 x 100 x 10
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



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