

WORKSHOP SPECIFICATIONS

AIR CIRCUIT BREAKERS DMX³ 1600



A key component of the main distribution board, DMX³ air circuit breakers, available from 630 to 6300 A, provide protection and control at the supply end of low voltage installations.

Their efficiency not only ensures the safety of people and property, as well as continuity of service, it also promotes energy management through their advanced protection units.

These devices offer numerous accessory options, protection units, high performance levels and a rugged construction, all of which make them ideally suited to meet the needs of safety and energy management in installations.

LEGAL INFORMATION

Presentation pictures do not always include Personal Protective Equipment (PPE), but this is a legal and regulatory obligation that must be scrupulously respected.

In accordance with its continuous improvement policy, Legrand reserves the right to change the specifications and illustrations without notice. All illustrations, descriptions and technical information included in this document are provided as indications and cannot be held against Legrand.

* The DMX³ range is available up to 6300 A in 4 sizes.

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SAFETY

INSTRUCTIONS

General information

- Use only the products and accessories recommended by the Legrand Group in the catalogue, instructions, technical data sheets and all other documents provided by Legrand (hereinafter referred to as «the Documentation») in compliance with the installation rules.
- Improper installation and/or use may result in the risk of arcing in the enclosure, overheating or fire. The enclosures must be used under normal conditions, they must not be subjected to Voltage / Current / Temperature values other than those specified in the Documentation.
- Legrand declines all responsibility for any modification or repair of the equipment making up the enclosure that is not authorized by the Legrand Group, as well as any failure to comply with the rules and recommendations specified by Legrand in the Documentation. In addition, in the cases mentioned above, the warranty granted by Legrand will not be applicable.
- It is necessary to check that the characteristics of the products are appropriate for their environment and use during maintenance operations, and to refer to the Documentation. If you have any questions or require clarification, please contact Legrand Group.
- The installation, use and maintenance of the enclosures and their components must be carried out by qualified, trained and authorized personnel, in accordance with the regulations in force in each country.



RISK OF ELECTRIC SHOCK, BURNS AND EXPLOSION.

- People working on the installation must have the appropriate electrical authorizations for the work to be carried out.
- Wear the PPE (Personal Protective Equipment) necessary to work on live products.
- Respect the safety rules related to electrical work.
- Improper electrical and mechanical use of equipment can be dangerous and may result in personal injury or damage to property.
- Depending on the maintenance operations to be carried out, partial or total power cuts of the enclosure concerned should be planned before any work.
- When performing operations that involve access to the inside of the enclosure, be aware of the risk of burns before touching any products or metal parts.
- Before turning the power back on, make sure that there are no foreign bodies and that all physical protections have been put back in place (e.g.: screens, covers, shields).

Any failure to strictly apply the procedures and to respect these recommendations, could lead to serious risk of accident, endangering people and property (in particular, without limitation, risk of burns, electric shocks, etc.).



! The rules and recommendations in this document are based on our knowledge of the typical conditions of use of our products in the fields of application usually encountered. However, it is always the customer's responsibility to verify and validate that Legrand products are suitable for its installation and use.

The customer must ensure proper installation, maintenance and operation of the equipment to avoid any risk of injury to personnel or damage to property in the event of product failure, especially for applications that require a very high level of safety (e.g., those in which the failure of a component may endanger human life or health).

The rules for storage, handling, installation and maintenance and the appropriate precautions and warnings must be strictly observed and applied.

THE

DMX³ 1600 RANGE

Presentation of the offer

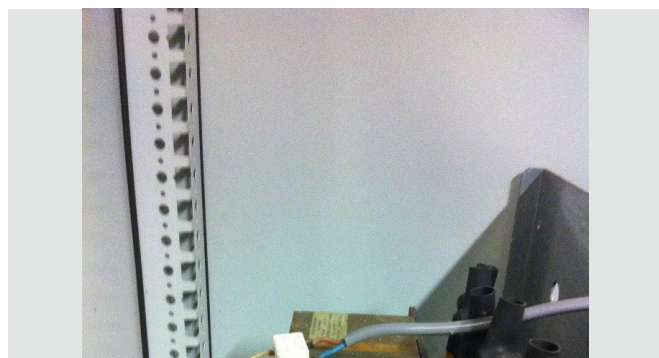
Icu (415~)		42 kA				50 kA			
In (A)		FIXED		DRAW-OUT		FIXED		DRAW-OUT	
		3P	4P	3P	4P	3P	4P	3P	4P
DMX ³ 1600	630	0 280 00	0 280 06	0 280 71	0 280 76	0 280 24	0 280 30	0 280 81	0 280 86
	800	0 280 01	0 280 07	0 280 72	0 280 77	0 280 25	0 280 31	0 280 82	0 280 87
	1000	0 280 02	0 280 08	0 280 73	0 280 78	0 280 26	0 280 32	0 280 83	0 280 88
	1250	0 280 03	0 280 09	0 280 74	0 280 79	0 280 27	0 280 33	0 280 84	0 280 89
	1600	0 280 04	0 280 10	0 280 75	0 280 80	0 280 28	0 280 34	0 280 85	0 280 90
	BASE			0 281 53	0 281 54			0 281 53	0 281 54

			FIXED		DRAW-OUT	
		In (A)	3P	4P	3P	4P
DMX³-I 1600		1000	0 280 50	0 280 56	0 280 47	0 280 65
		1250	0 280 51	0 280 57	0 280 53	0 280 91
		1600	0 280 52	0 280 58	0 280 59	0 280 92
		BASE			0 281 53	0 281 54

DMX³ circuit breakers are available in two breaking capacities (42 kA and 50 kA), in 5 rated currents (from 630 A to 1600 A), in fixed and draw-out versions.

- DMX³ 42 kA
- DMX³ 50 kA

■ Example of a label with a breaking capacity of 42 kA



In=1250A	Rated current
Icw(1s)=42kA	Short time withstand current
Ics=100%Icu	Rated short-circuit service breaking capacity
Uimp=12kV	Rated impulse withstand voltage
Ui=1kV	Rated insulation voltage
IEC/EN 60947-2	Normative compliance
Cat.B	Category of use

BREAKING CAPACITIES & RATED CURRENTS					
	630 A	800 A	1000 A	1250 A	1600 A
DMX ³	42 kA fixed and draw-out				
DMX ³	50 kA fixed and draw-out				
DMX ³ -I	-		Fixed and draw-out		

i In order to meet market needs and gain responsiveness, specific catalogue numbers have been created. They include the DMX³ + the protection unit.

HIGH PERFORMANCES

New Cat.no - Rear terminals not mounted - If draw-out version : only mobile part	Description	MP4 unit protection (LSI display included)
0 28101	DMX ³ 1600 50 kA Fixed 3P 1000 A + LSI protection unit with display	0 281 65
0 28102	DMX ³ 1600 50 kA Fixed 3P 1600 A + LSI protection unit with display	0 281 65
0 28103	DMX ³ 1600 50 kA Fixed 4P 1000 A + LSI protection unit with display	0 281 65
0 28104	DMX ³ 1600 50 kA Fixed 4P 1600 A + LSI protection unit with display	0 281 65
0 28105	DMX ³ 1600 50 kA draw-out 3P 1000 A + LSI protection unit with display	0 281 65
0 28106	DMX ³ 1600 50 kA draw-out 3P 1600 A + LSI protection unit with display	0 281 65
0 28107	DMX ³ 1600 50 kA draw-out 4P 1000 A + LSI protection unit with display	0 281 65
0 28108	DMX ³ 1600 50 kA débrochable 4P 1600 A + LSI protection unit with display	0 281 65

STANDARD PERFORMANCES

New Cat.no - Rear terminals - If draw-out version : only mobile part	Description	MP2 unit protection (no display) LSI included
0 28093	DMX ³ 1600 42 kA draw-out 3P 630 A + protection unit without display	0 281 67
0 28094	DMX ³ 1600 42 kA draw-out 3P 800 A + protection unit without display	0 281 67
0 28095	DMX ³ 1600 42 kA draw-out 3P 1000 A + protection unit without display	0 281 67
0 28096	DMX ³ 1600 42 kA draw-out 3P 1250 A + protection unit without display	0 281 67
0 28097	DMX ³ 1600 42 kA draw-out 3P 1600 A + protection unit without display	0 281 67
0 28098	DMX ³ 1600 42 kA draw-out 4P 630 A + protection unit without display	0 281 67
0 28099	DMX ³ 1600 42 kA draw-out 4P 800 A + protection unit without display	0 281 67
0 28100	DMX ³ 1600 42 kA draw-out 4P 1000 A + protection unit without display	0 281 67
0 28118	DMX ³ 1600 42 kA draw-out 4P 1250 A + protection unit without display	0 281 67
0 28119	DMX ³ 1600 42 kA draw-out 4P 1600 A + protection unit without display	0 281 67

THE DMX³ 1600 RANGE

PRECISE AND USER-FRIENDLY PROTECTION UNITS

DMX³ 1600 electronic units allow precise adjustment of different limits for current values and time delay.

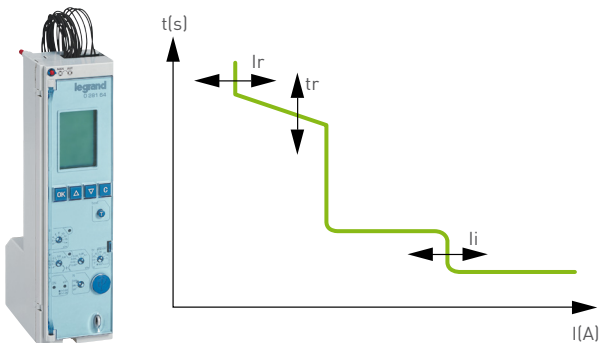
The result is an efficient protection against electrical faults while maintaining total discrimination with downstream breakers.

The LCD display (on protection units where available) 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.no 0 281 64

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: I_N

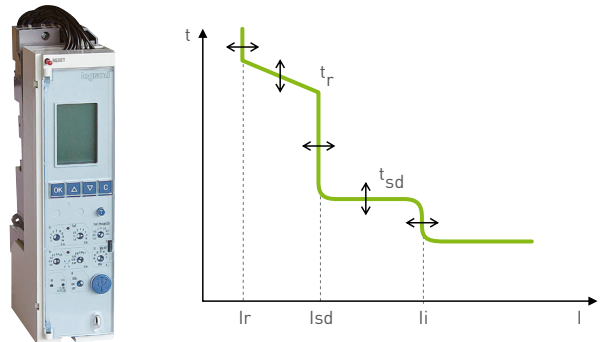


■ MP4 LSI electronic protection unit Cat.no 0 281 65

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_{sd}

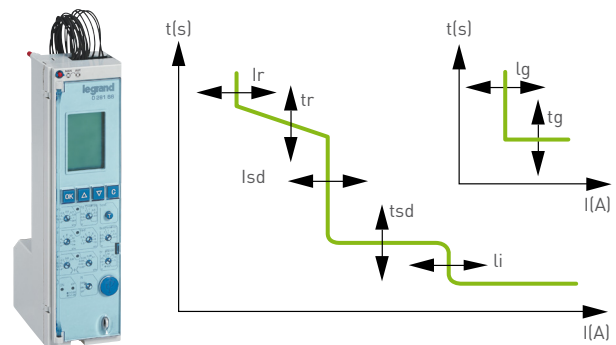
- Short time delay protection operation time: t_{sd}
- Instantaneous protection against very high short circuits: I_i
- Neutral protection: I_N



■ MP4 LSIG electronic protection unit Cat.no 0 281 66

The following settings are adjusted using rotary selector switches:

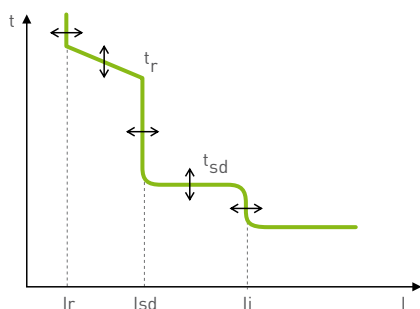
- Long time delay protection against overloads: I_r
- Long delay protection operation time: t_r
- Short time delay protection against short circuits: I_{sd}
- Short time delay protection operation time: t_{sd}
- Instantaneous protection against very high short circuits: I_i
- Earth fault current: I_g
- Time delay on earth fault tripping: t_g
- Neutral protection: I_N



■ MP2 LSIg electronic protection Cat.no 0 281 67

The following settings are adjusted using rotary selector switches:

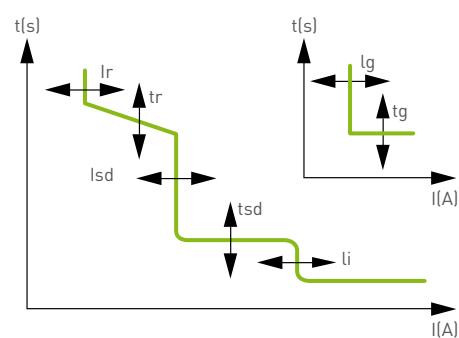
- Long time delay protection against overloads: I_r
- Long delay protection operation time: t_r
- Short time delay protection against short circuits: I_{sd}
- Short time delay protection operation time: t_{sd}
- Instantaneous protection against very high short circuits: I_i
- Neutral protection: I_N



■ MP2 LSIg electronic protection unit Cat.no 0 281 68

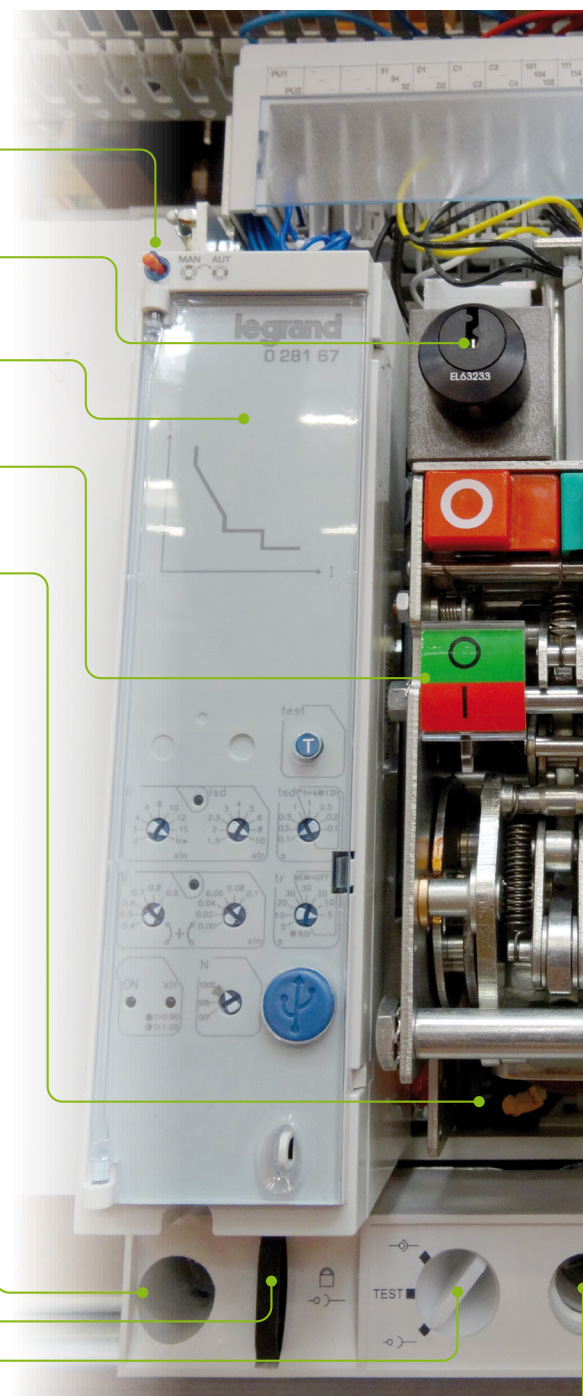
The following settings are adjusted using rotary selector switches:

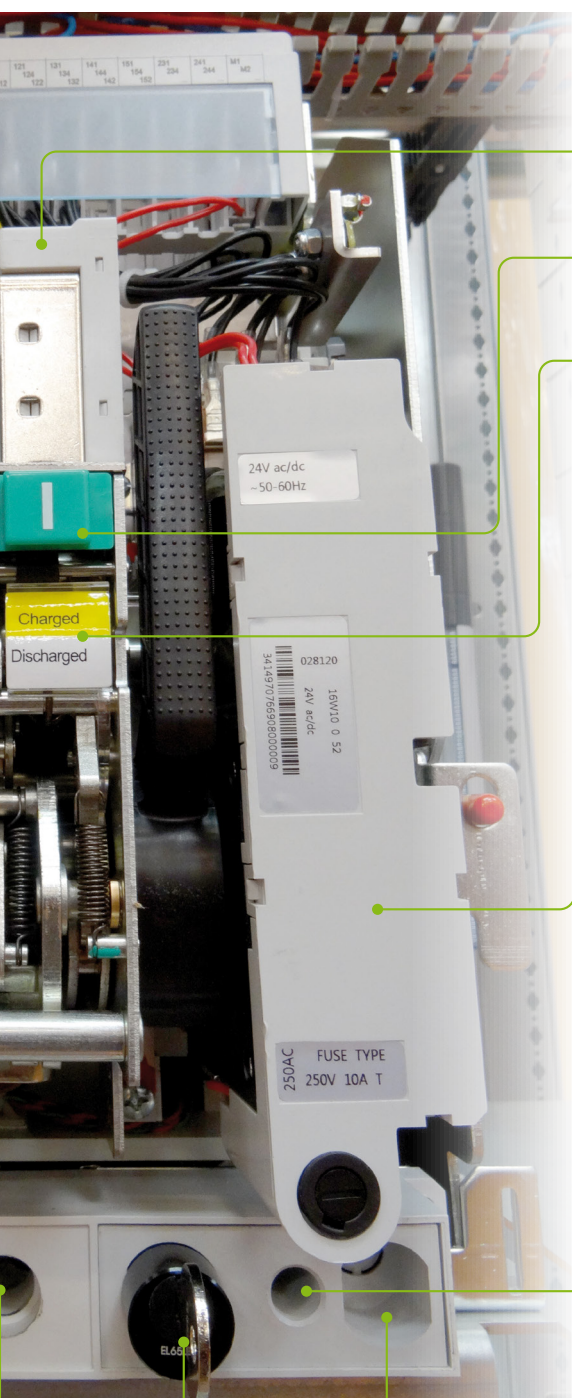
- Long time delay protection against overloads: I_r
- Long delay protection operation time: t_r
- Short time delay protection against short circuits: I_{sd}
- Short time delay protection operation time: t_{sd}
- Instantaneous protection against very high short circuits: I_i
- Earth fault current: I_g
- Time delay on earth fault tripping: t_g
- Neutral protection: I_N



FRONT FACE OF THE DMX³ 1600

- Reset button for tripping
- Key locking in «open» position
- Protection unit
- State indicator for main contacts
- Mechanical counter
- Extractor handle
- Padlocking in the draw-out position
- Position indicator: inserted/test/draw-out
- Insertion of the extractor handle





Releases and coil

Closing padlock

State indicator for the charging spring

Motor driven handle

Lock button: inserted/test-draw-out

Key locking in the draw-out position

ELECTRICAL ACCESSORIES

1- Shunt trip



ST : Shunt Trip
UVR : Undervoltage Release
CC : Closing Coil

- 1- Shunt trip
- 2- Undervoltage release
- 3- Closing coil
- 4- Time-lag module for undervoltage release
- 5- Motor driven handle
- 6- Signalling contact for inserted/test/draw-out version (Cat.no 281 73)
- 7- Contact «ready to close» with charged spring (Cat.no 0 281 74)
- 8- Modules with 6 auxiliary contacts (Cat.no 0 281 75)
- 9- External auxiliary power supply (Cat.no 0 281 72)
- 10- Modbus communication option for electronic protection units (Cat.no 0 281 70)
- 11- External neutral (Cat.no 0 281 71)
- 12- Programmable output option (Cat.no 0 281 99)
- 13- Terminal block layout and accessory location
- 14- Electrical drawings



The current shunt trip allows instantaneous opening of the DMX³ by energising the coil (negative safety).

The rising edge of this electrical command is given by a NO external contact (for example an emergency stop) and not by the protection unit.

The shunt trip comes with a connector (male + female) to be inserted into slots C1 and C2 on the DMX³ terminal block.

The shunt trip can support being energised permanently.



It is possible to equip the DMX³ with two shunt trips: the first is placed in the slot marked «ST» and the second is placed in the slot for the undervoltage release marked «UVR». In this case, the second shunt trip will be connected to terminals D1 and D2.



After a closing command, it is necessary to allow a period of 50 ms before issuing an opening command.

Cat.nos	Operating voltage
0 281 31	24 V AC/DC
0 281 32	48 V AC/DC
0 281 33	110-130 V AC/DC
0 281 34	220-250 V AC/DC
0 281 35	415-440 V AC

TECHNICAL CHARACTERISTICS

Rated voltage (Uc)	AC: 24V; 48V; 110V-130V; 220V-250V; 415V-440V DC: 24V; 48V; 110V-130V; 220V-250V
Operating voltage range (%Uc)	70-110
Power dissipated at launch (W/VA)	400/400
Response time (ms)	300
Power dissipated during operation (W/VA)	50 / 50
Opening time (ms)	50
Insulation voltage (kV)	2.5

MOUNTING



Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), drawn-out (if necessary) and the discharged spring.

Remove the 4 screw caps from the front face and then the 4 screws (Philips impression tip n°1) and remove the front face.

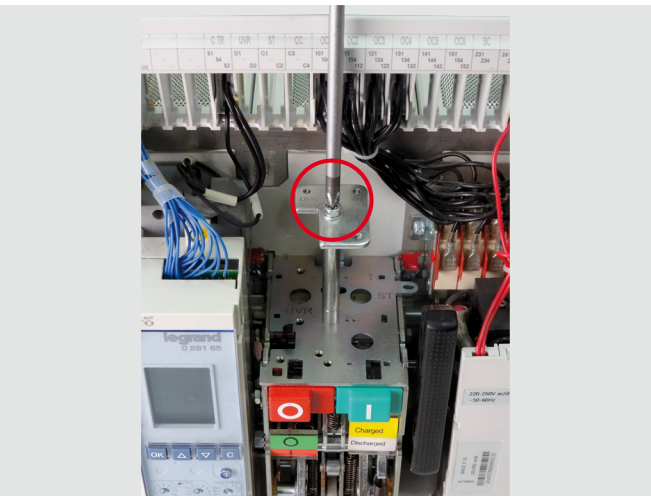


ELECTRICAL ACCESSORIES

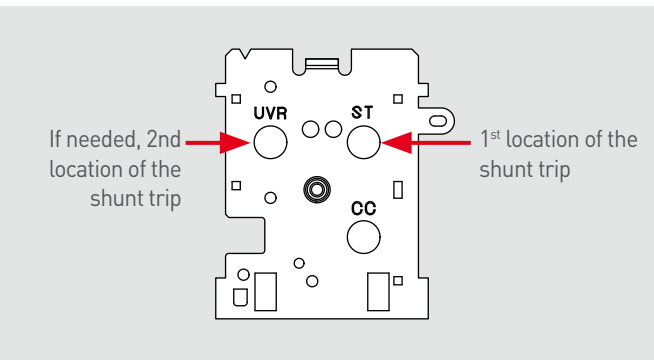
Remove the plastic cover from the terminal block.



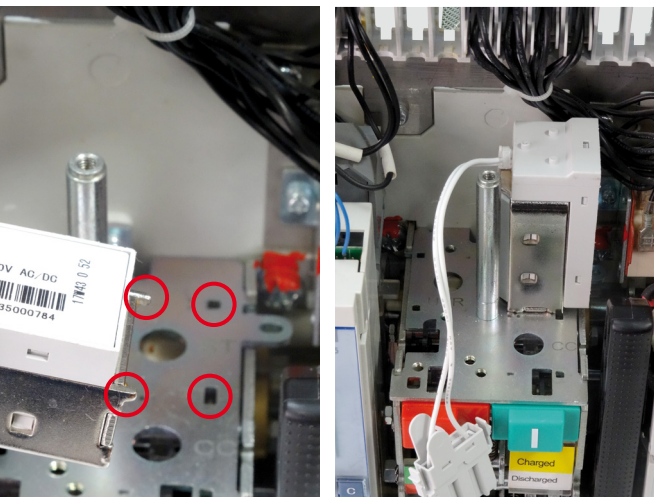
Remove the screw (Philips impression tip no.2) from the release holding plate and remove the plate.



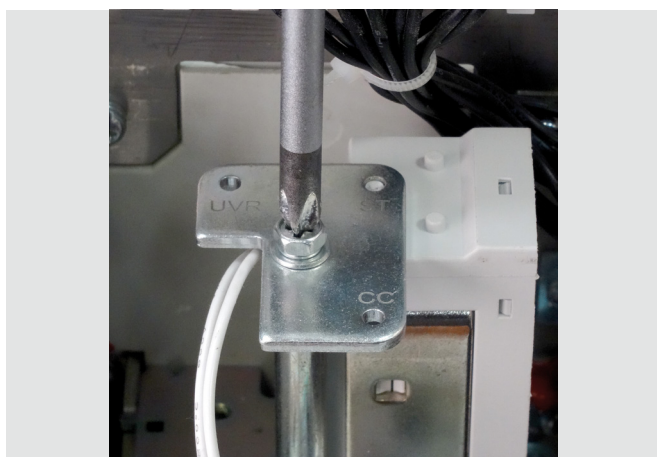
Top view of the DMX³



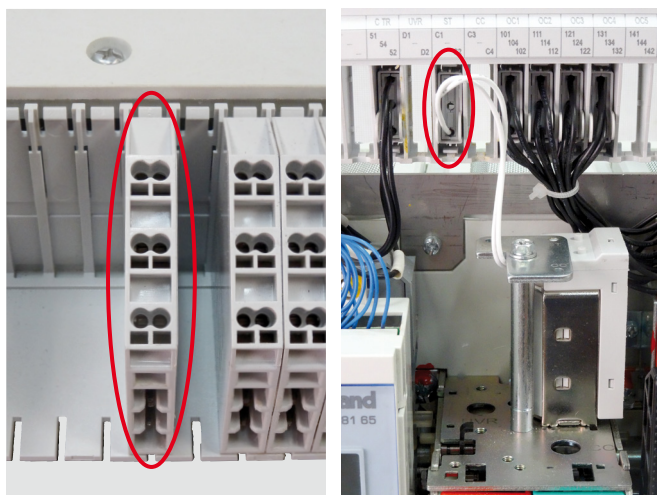
Insert the metal pins of the trigger correctly into the DMX³ holes.



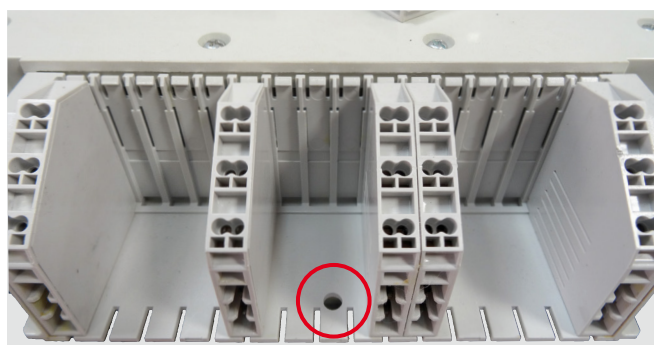
Replace the retaining plate and then replace it with the screw (Philips impression cap no. 2, tightening torque 3 Nm).



Clip the connector and terminal block into the dedicated slots: here ST (Shunt Trip).



For a fixed version, it is necessary to remove the OC1 and OC2 terminals in order to access the hole provided for the screwdriver passage (fixing the holding plate).



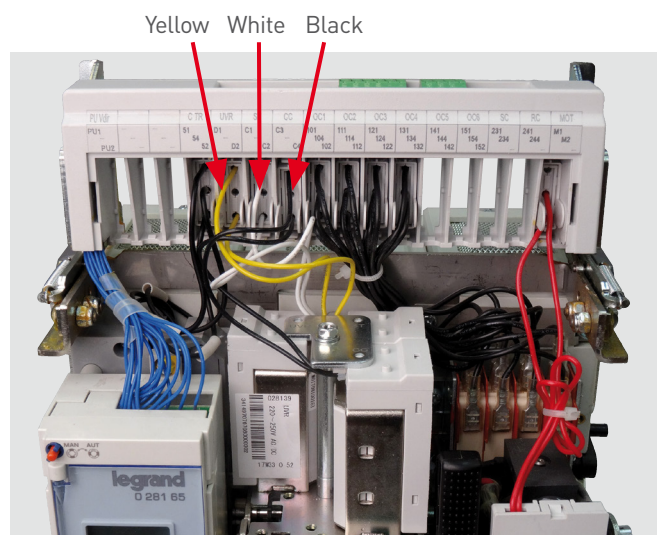
Replace the plastic cover of the terminal block, then the front panel using the 4 screws (Philips impression cap n°1, tightening torque of 1 Nm), then the screw covers.

Re-insert the DMX³ if necessary.



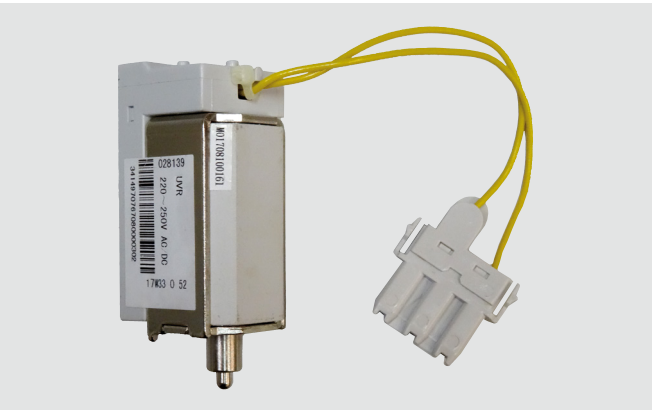
The cables are visually marked according to the type of trip unit:

- Yellow: Undervoltage Release (UVR)
- White: Shunt Trip (ST)
- Black: Closing Coil (CC)



2- Undervoltage release

i ST : Shunt Trip
UVR : Undervoltage Release
CC : Closing Coil



The undervoltage release allows instantaneous opening of the DMX³ by powering off the coil (positive safety).
The descending edge of this electrical command is given by a NC external contact (for example an emergency stop) and not by the protection unit.
The undervoltage release comes with a connector (male + female) to be inserted into slots D1 and D2 on the DMX³ terminal block. The DMX³ can only take one undervoltage release.
Only one undervoltage release can be installed per device. The latter must be in the slot marked «UVR».

Cat.nos	Operating voltage
0 281 36	24 V AC/DC
0 281 37	48 V AC/DC
0 281 38	110-130 V AC/DC
0 281 39	220-250 V AC/DC
0 281 40	415-440 V AC

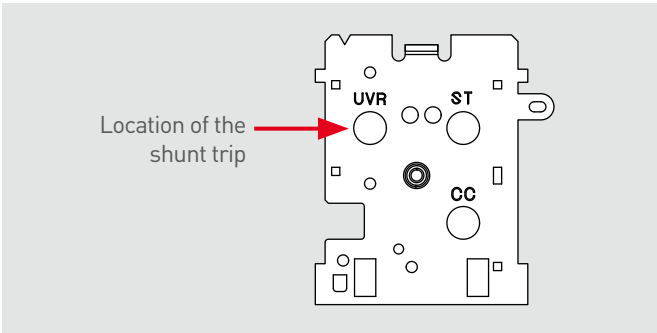
TECHNICAL CHARACTERISTICS

Rated voltage (Uc)	AC: 24V; 48V; 110V-130V; 220V-250V; 415V-440V DC: 24V; 48V; 110V-130V; 220V-250V
Operating voltage range (%Uc)	85-110
Power dissipated at launch (W/VA)	400/400
Response time (ms)	300
Power dissipated during operation (W /VA)	50 / 50
Opening time (ms)	60
Insulation voltage (kV)	2.5

MOUNTING

! Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), drawn-out (if necessary) and the spring discharged.

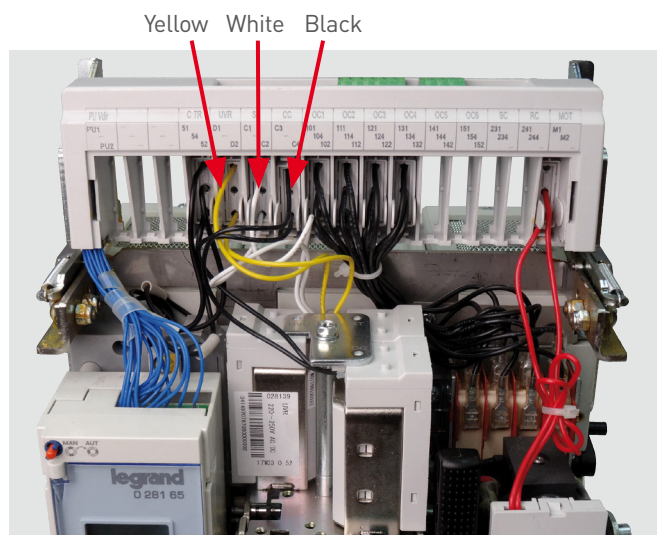
Top view of the DMX³



i The assembly operations are identical for both shunt trip (shunt trip and undervoltage release) as well as for the closing coil. However, be sure to respect the dedicated spaces and the specific installation requirements depending on the version (draw-out or fixed).

+ The cables are visually marked according to the type of trip unit:

- Yellow: Undervoltage Release (UVR)
- White: Shunt Trip (ST)
- Black: Closing Coil (CC)



3- Closing coil

i ST : Shunt Trip → déclencheur à émission de courant
 UVR : Undervoltage Release → déclencheur à minimum de tension
 CC : Closing Coil → bobine de fermeture



If the spring is charged and the protection unit is not indicating a fault, this accessory allows to close the contacts of the DMX³ by powering on the coil.

The rising edge of this electrical command is given by a NO external contact (for example a PLC output) and not by the protection unit.

The closing coil comes with a connector (male + female) to be inserted into slots C3 and C4 on the DMX³ terminal block.

Only one closing coil can be installed per device. The latter must be placed in the 3rd slot marked «CC».

The closing coil can be under permanent voltage.

Cat.nos	Operating voltage
0 281 26	24 V AC/DC
0 281 27	48 V AC/DC
0 281 28	110-130 V AC/DC
0 281 29	220-250 V AC/DC
0 281 30	415-440 V AC

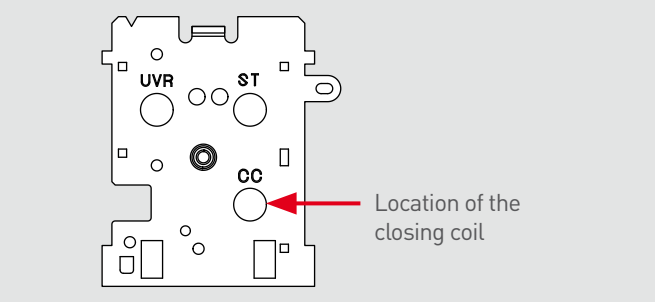
TECHNICAL CHARACTERISTICS

Rated voltage (Uc)	AC: 24V; 48V; 110V-130V; 220V-250V; 415V-440V DC: 24V; 48V; 110V-130V; 220V-250V
Operating voltage range (%Uc)	85-110
Power dissipated at launch (W/VA)	400/400
Response time (ms)	300
Power dissipated during operation (W/VA)	50 / 50
Opening time (ms)	50
Insulation voltage (kV)	2.5

MOUNTING

! Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), drawn-out (if necessary) and the spring discharged.

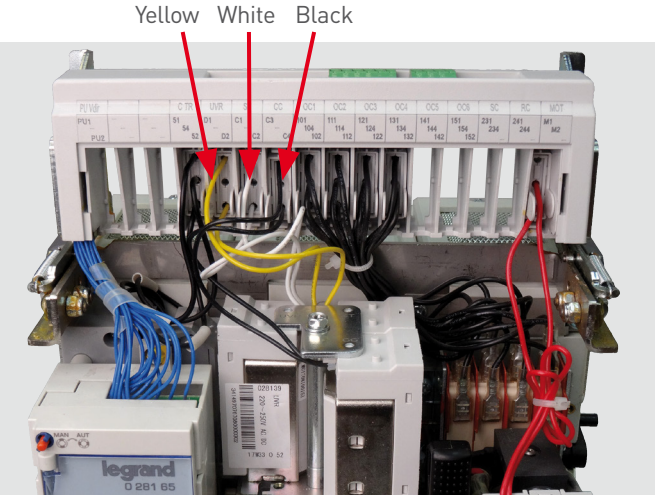
Top view of the DMX³



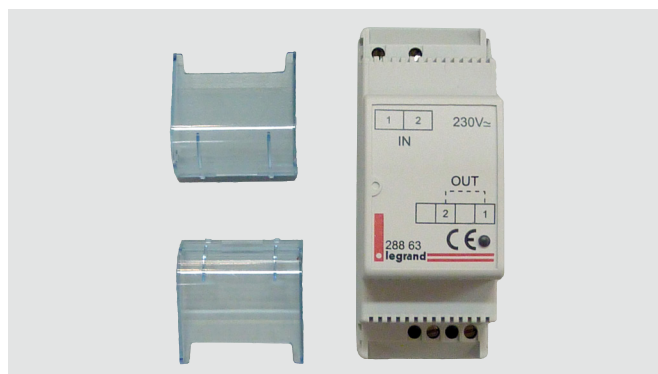
i The assembly operations are identical for both shunt trip (shunt trip and undervoltage release) as well as for the closing coil. However, be sure to respect the dedicated spaces and the specific installation requirements depending on the version (draw-out or fixed).

+ The cables are visually marked according to the type of trip unit:

- Yellow: Undervoltage Release (UVR)
- White: Shunt Trip (ST)
- Black: Closing Coil (CC)



4- Time-lag module for undervoltage release



These modules are used to delay the intervention of an undervoltage release installed in a DMX³ by up to three seconds during a micro-break. These delay modules combine with standard undervoltage releases Cat.no 0 281 38 (110 V) and Cat.no 0 281 39 (230 V).

A single module is used to obtain a delay of one second. Connecting three modules in series obtains a maximum delay of three seconds.

When using an emergency stop, it must be of type NC, and should be placed between the output of the last delay module and the undervoltage release.

Before turning on the delay module, you must ensure that the undervoltage release is connected. Power the module for at least one second to obtain its full operating capacity. Multiply this time by the number of modules installed. Before working on the wiring downstream of the delay module, wait a minute after switching off the power supply to avoid any electric shocks.

Protection for this delay module must be placed upstream of the DMX³ where the undervoltage release is to be installed.

Cat.nos	Operating voltage
0 288 62	110 V AC/DC
0 288 63	230 V AC/DC

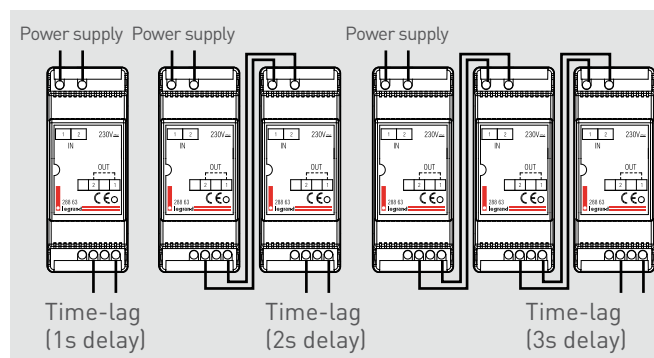
CARACTÉRISTIQUES TECHNIQUES

Rated voltage (Uc)	AC: 110V / 230V DC: 110V / 230V
Operating voltage range (%Uc)	85-110
Power dissipated at launch (W / VA)	16.5 (110V) / 34.5 (230V)
Delay (s) Uc	1 ⁽¹⁾
Holding power (W / VA)	5 (110V) / 10 (230V)
Opening operating threshold	0.35-0.7 Un
Closing operating threshold	0.85 Un
Operating temperature (°C)	-10 to +55

(1) Possibility - up to 3 modules - 1s delay for each module installed

MOUNTING

Example with item Cat.no 0 288 63 (same mounting for item Cat.no 0 288 62):



5- Motor operator



The motor operator is used to reset the closing spring automatically. Its starting and stopping are automatic if voltage is present at its terminals.

It is preferable to have a constant voltage at the terminals so that the DMX³ can operate quickly.

The motor operator comes with a connector (male + female) to be inserted into slots M1 and M2 slots on the DMX³ terminal block.

In parallel with its installation, it is possible to add a trip unit (undervoltage release or shunt trip) and a closing coil.

If there is no longer any voltage at the terminals of the motor driven handle, it is always possible to recharge the spring manually.

Cat.nos	Operating voltage
0 281 20	24 V AC/DC
0 281 21	48 V AC/DC
0 281 22	110-130 V AC/DC
0 281 23	220-250 V AC/DC
0 281 24	415-440 V AC


TECHNICAL CHARACTERISTICS

Rated voltage (Uc)	AC: 24V; 48V; 110V-130V; 220V-250V; 415V-440V DC: 24V; 48V; 110V-130V; 220V-250V
Operating voltage range (%Uc)	85-110
Max. Power dissipated (W / VA)	240 / 240
Max. Current for 80ms	(2-3) x In
Charging time (s)	5
Operating frequency (cycles / min)	2

■ Fuse type integrated in the motor driven handle:

Motor operator	Fuse type
0 281 20	250V - 10A T- 5 x 20mm
0 281 21	250V - 5A T- 5 x 20mm
0 281 22	250V - 2,5A T- 5 x 20mm
0 281 23	250V - 1,25A T- 5 x 20mm
0 281 24	250V - 0,8A T- 6,3 x 20 mm

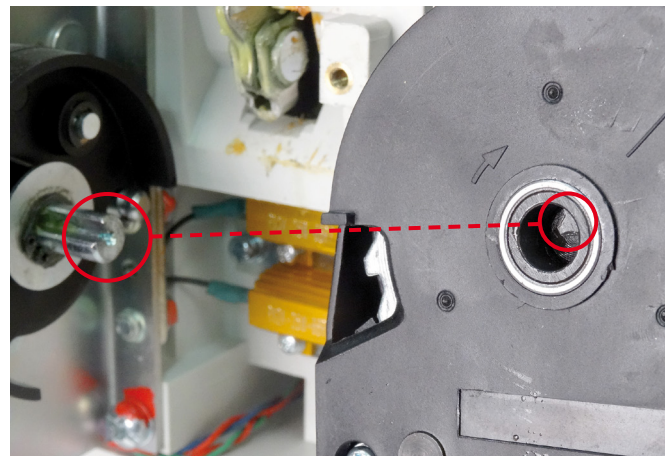
MOUNTING

 Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), draw-out (if necessary) and the spring discharged.

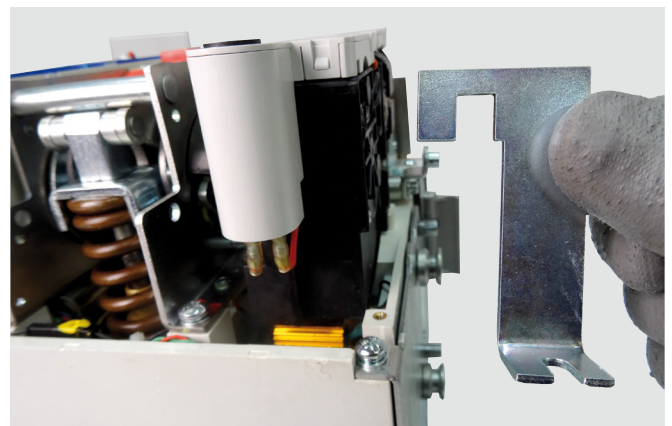
Remove the 4 screw caps from the front face and then the 4 screws (Philips impression tip n°1) and remove the front face.



Insert the control by aligning the shaft groove with the coding of the motor driven handle.

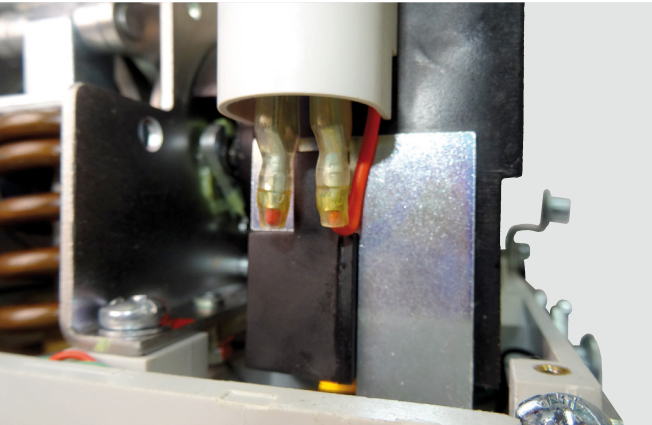


Insert the metal plate correctly and secure it with the screw and washer provided (Philips impression tip no. 2, tightening torque 3 Nm).

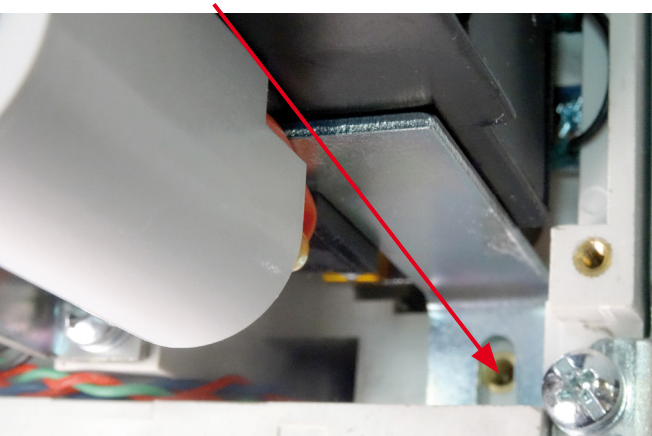


ELECTRICAL ACCESSORIES

Bottom view



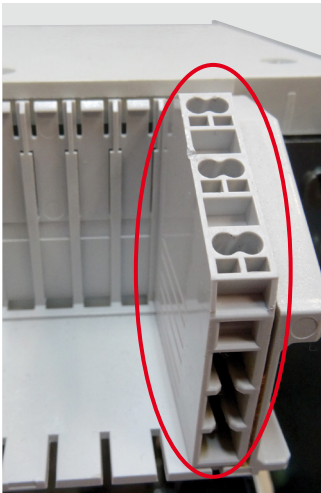
Screw location



Attach the 2nd control holding screw (Philips impression tip no. 2, tightening torque 3 Nm).



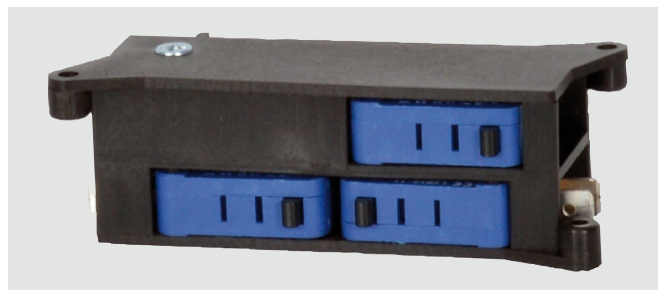
Clip the connector and terminal block into the dedicated slots: here MOT (M1/M2).



Replace the plastic cover of the terminal block, then the front panel using the 4 screws (Philips impression cap n°1, tightening torque of 1 Nm), then the screw covers.

Re-insert the DMX³ if necessary and carry out 2 operation tests.

5- Signalling contact for inserted/test/draw-out version (Cat.no 0 281 73)



These contacts allow you to remotely report the position of a DMX³ pluggable in its base: «inserted», «test» or «draw out».

Each contact has a specific function that cannot be modified.

The block has 3 contacts: 1 for the presence of DMX³ in the base («draw-out»), 1 for the «test» position and 1 for the «draw-out» position.

These contacts are of the changeover type (NO-NF) with dry contact (potential-free). It is possible to install a maximum of 2 contact blocks per DMX³ (draw-out version) (i.e. 2 contacts per maximum position).

The wiring at the contacts is already done, the cable ends can be connected to an external terminal block.



The length of the cables coming out of the base is 1400 mm. Their cross-section is 0.5 mm².

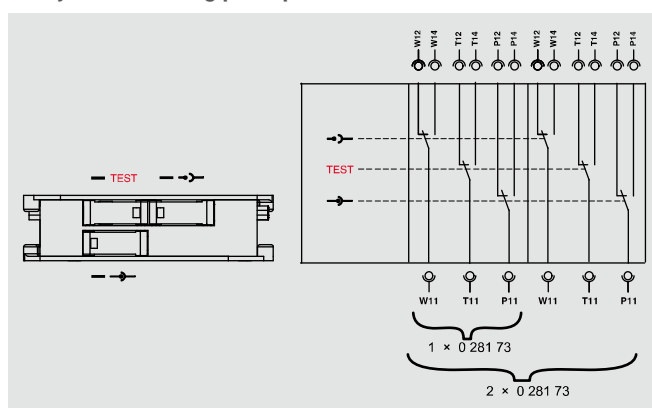


If the base is equipped with a locking button Cat.no 0 281 87, we can only install a contact Cat.no 0 281 73 (located to the left of the base seen from the front).

TECHNICAL CHARACTERISTICS

Rated voltage (Uc)	DC	250V 0.3A
	AC	250V 16A

■ Layout and wiring principle



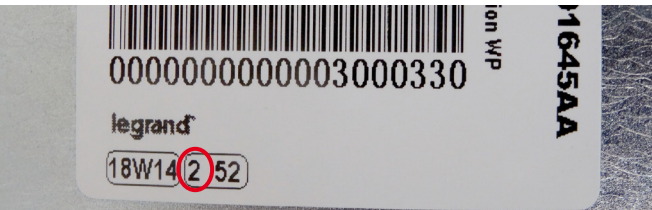
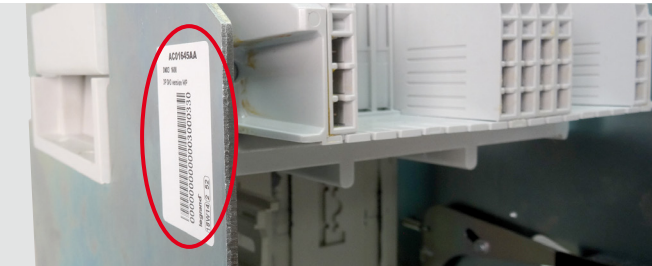
MOUNTING



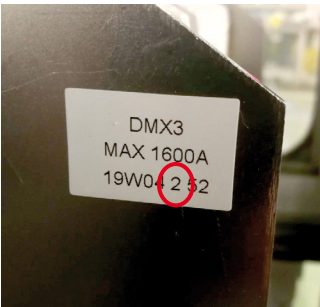
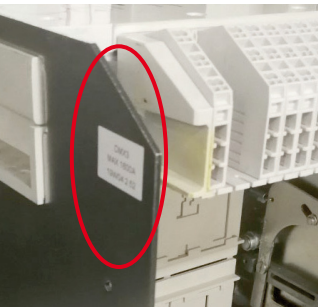
Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), drawn-out (if necessary) and the spring discharged.

First check the version identified on the label attached to the base (2 versions exist):

1st version :



2nd version :



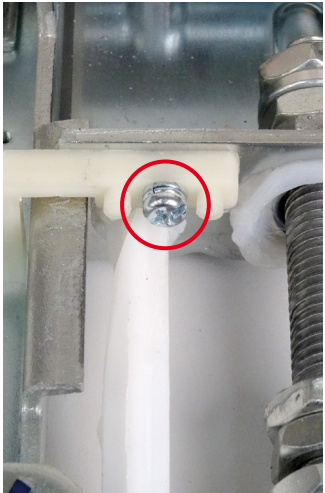
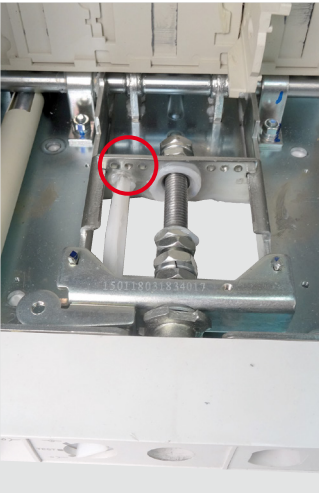
Version ≥ 2 → **OK**

Version < 2 → **contact Legrand**

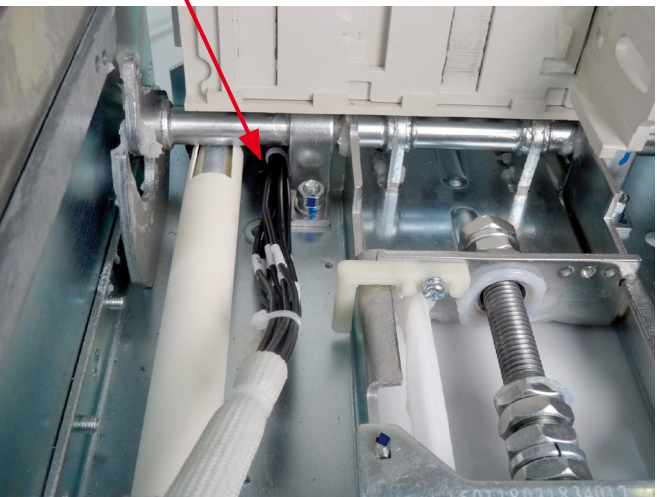
Mounting is identical on the right or on the left, observing the mounting direction described in the instructions.

Mounting example on the left

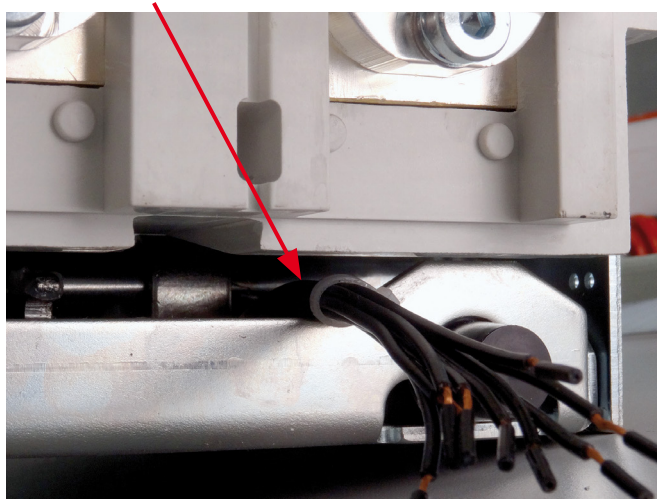
Install the plastic bracket in the position shown below and secure it with the screw provided (Philips impression cap no. 2, tightening torque 3 Nm).



Run the contact wires through the back of the base:



Back of the base



Secure the contact block with the 2 screws provided (Philips impression cap no. 1, tightening torque 1 Nm).



Re-insert the DMX³ and perform a mechanical and electrical function test by trying all positions (inserted-test-draw-out).

7- Contact « ready to close » with charged springs (Cat.no 0 281 74)



This contact block provides remote feedback of two distinct types of information:

- Device ready to close (RC): the contact is closed when the spring is charged, as long as there is no fault detected on the circuit breaker and all safety systems allowing closure are inactive.
- Spring charged (SC): the contact is closed when the spring is fully charged (electrically or manually).

These contacts are volt-free changeover (NO) contacts.

On the DMX³ terminal block, the «ready to close» contact is connected to slot «RC» at terminals 241/244 and the «spring charged» contact to slot «SC» at terminals 231/234.

TECHNICAL CHARACTERISTICS

Rated operating voltage (Vn)	AC	3A / 125-250V
	DC	0.5A / 250V 3A / 30V

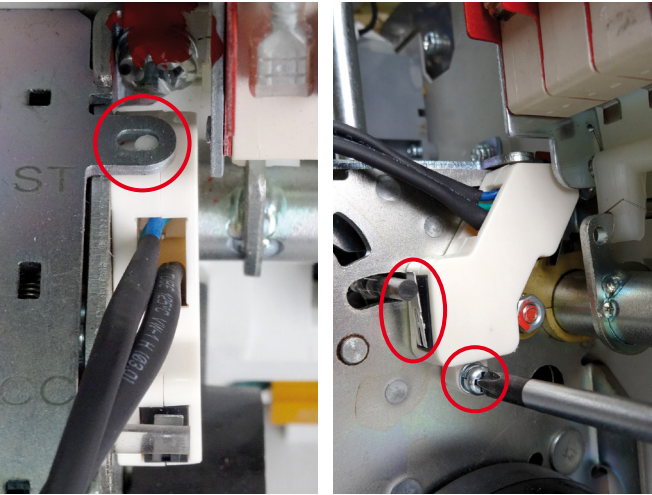
MOUNTING

! Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), drawn-out, and the spring discharged.

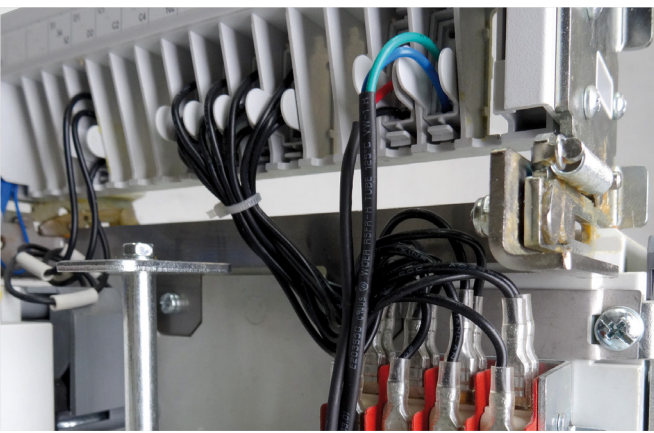
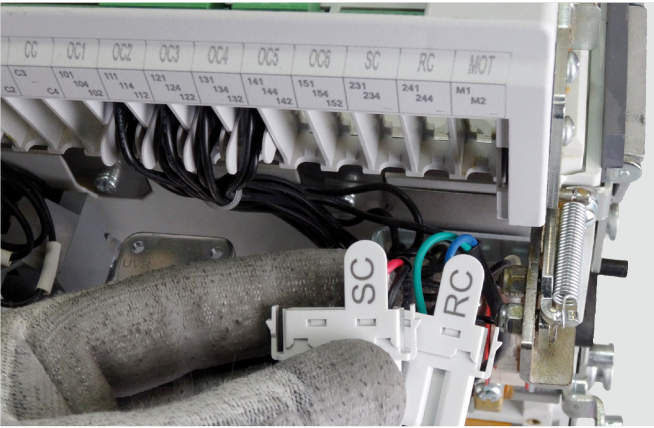
Remove the 4 screw covers from the front face and then the 4 screws (Philips impression tip n°1) and remove the front face.

If a motor operator is present, dismantle it beforehand.

Position the contact, insert and tighten the fixing screw (Philips nipple no. 1, tightening torque 1 Nm).



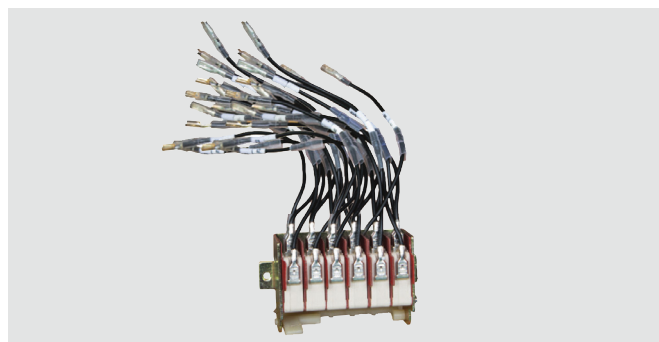
Clip the 2 connectors at the specific points according to the identified marking.



Replace the plastic cover of the terminal block, then the front panel using the 4 screws (Philips impression cap n°1, tightening torque of 1 Nm), then the screw covers.

Re-insert the DMX³ if necessary and carry out 2 function tests.

8- Module with 6 auxiliary contacts (Cat.no 0 281 75)



Auxiliary contacts are used to indicate the position of the main contacts of the DMX³ remotely.

These contacts are volt-free changeover (NO/NC) contacts.

When the DMX³ poles are open, the contact is closed between terminals 1x1 and 1x2.

All DMX³ and DMX³-I come with four preinstalled auxiliary contacts. This must be removed if the new 6-pin contact block is installed (2 additional to the original).

These contacts are delivered with their male connector (6) as well as 2 female connectors (the 4 original female connectors are kept).

See wiring layout paragraph 13 (page 26).

TECHNICAL CHARACTERISTICS

Rated operating voltage (Vn)	DC	250V 0.3A
	AC	250V 16A

9- External auxiliary power supply (Cat. 0 281 72)



The external power supply provides continuous power to the DMX³ protection unit. Any other source that could be used instead of the external power supply may interfere with the operation of the protection unit, or even switch it off, thus voiding the DMX³ warranty.

This external power supply This power supply module must be supplied in 230 Vac.

The connection of this external auxiliary power supply to the DMX³ 1600 terminal block must be strictly observed. Reverse wiring may damage the protection unit.

- DMX³ terminal H1 connected to the - terminal of the power supply Cat.no 0 281 72 (output 1, 2, 3 or 4).

- DMX³ terminal H2 connected to the + terminal of the power supply Cat.no 0 281 72 (output 1, 2, 3 or 4).

See also the installation of the terminals of the protection unit paragraph 13 (page 27).

It is possible to have a stable and undisturbed direct power supply (terminals PU1-PU2) provided by an auxiliary line 110-230V AC 50-60Hz (L+L or L+N), protected by a 50mA gR fuse: corrugated power supply for example.



It is possible to have a stable and undisturbed direct power supply (terminals PU1-PU2) provided by an auxiliary line 110-230V AC 50-60Hz (L+L or L+N), protected by a 50mA gR fuse: corrugated power supply for example.

TECHNICAL CHARACTERISTICS

Power supply	230 V AC 50-60Hz
Dissipated power (W / VA)	≥ 9.6
Operating temperature (°C)	-10 to +55

The power supply has four independent outputs, designed to provide 400mA each, and to supply 4 circuit breakers opened simultaneously.

The maximum power consumption of this power supply is 25VA.
It can be fixed:

- On a standard 35mm rail
- Directly on a support using the holes (2) of the product

10- Modbus communication option for electronic protection units (Cat.no 0 281 70)

Factory assembled, this option allows the circuit-breaker to be connected to a Modbus RS485 supervision system.
See also the installation of the terminals of the protection unit paragraph 13 (page 27).

11- External neutral (Cat.no 0 281 71)

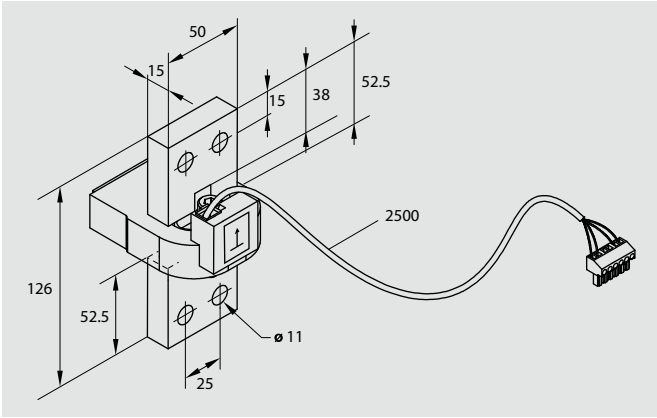


The Rogowski coil is factory-mounted only on the 126 mm bar. It is possible to use the external neutral only with 3-pole circuit breakers (fixed or draw-out) and it is installed in the following cases:

- Neutral protection (with all versions of the protection unit).
- Earth fault protection (only with version 0 281 66 and 0 281 68).

It must be installed at the same level as the DMX³ and its cable must be as far away as possible from disturbing electromagnetic sources (transformers, etc.) and power conductors.

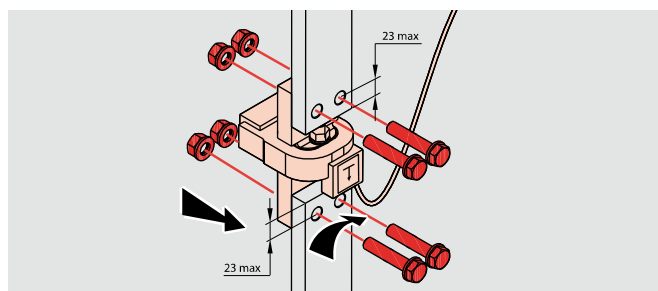
DIMENSIONS



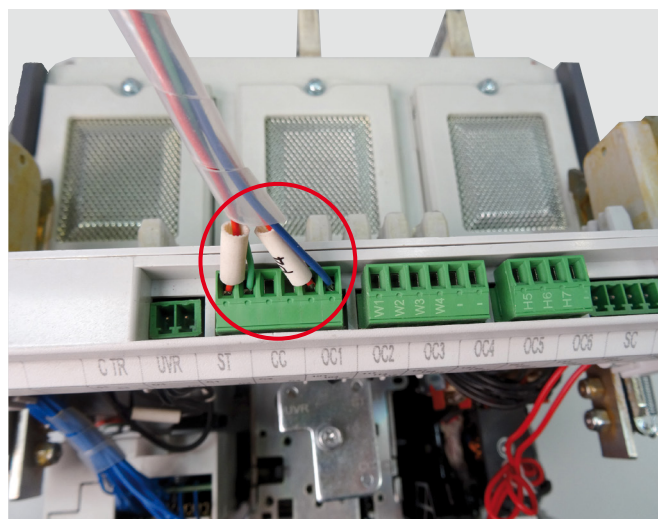
MOUNTING



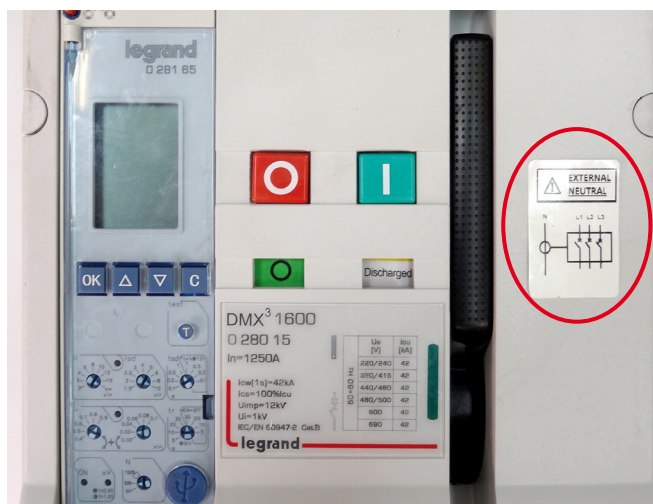
Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), drawn-out (if necessary) and the spring discharged.



- Fix the bars on the external neutral (respecting the maximum distance between the axis of the holes and the end of the bars, see illustration above) using 4 screw/nut assemblies: the type of screws, nuts and tightening torque are to be defined by the installer.
- Then insert the connector into the dedicated slot on the provided terminal block. See the installation of the terminals of the protection unit paragraph 13 (page 27).



- Attach the information label to the front face.



Do not close the DMX³ without first inserting the connector into the terminal block.
Do not remove the connector without first opening the DMX³.

12- Program-mable output option (0 281 99)

Factory assembled, this module is an accessory used to manage other external signal/control devices. It must be connected to the protection unit that allows it to be adjusted and must be connected to the terminals on the upper part of the circuit-breaker.

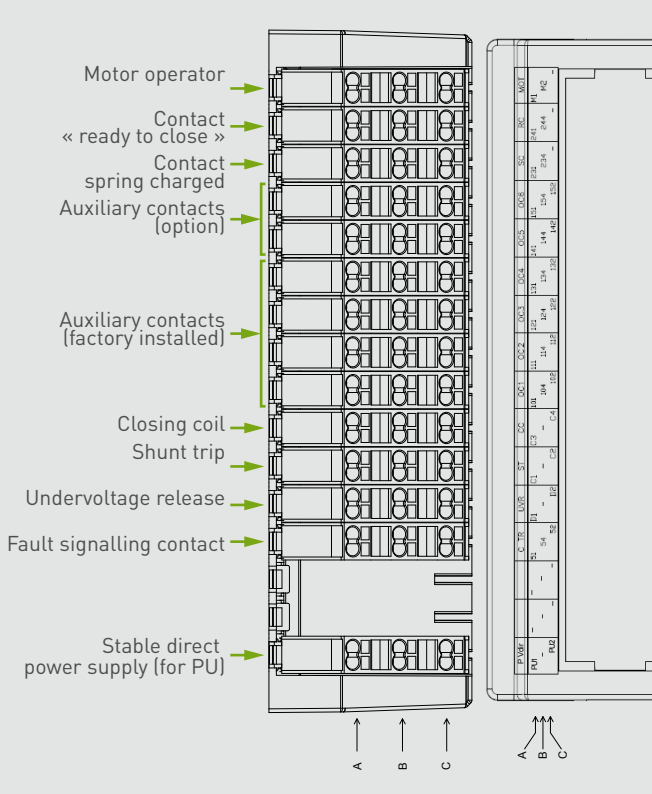
See also the installation of the terminals of the protection unit paragraph 13 (page 27).

TECHNICAL CHARACTERISTICS

Rated operating voltage (Vn)	AC	230V 5A MAX
	DC	110V 0.5A MAX



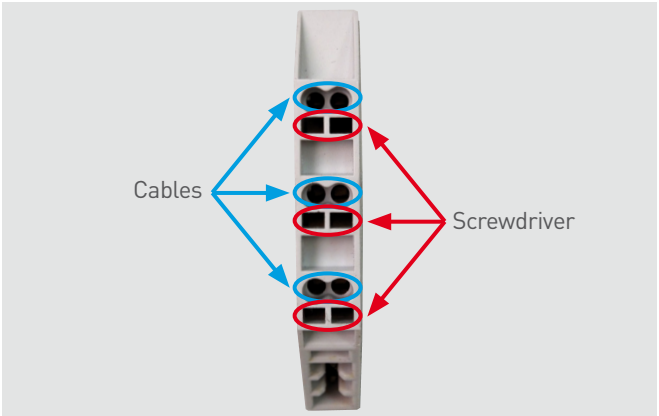
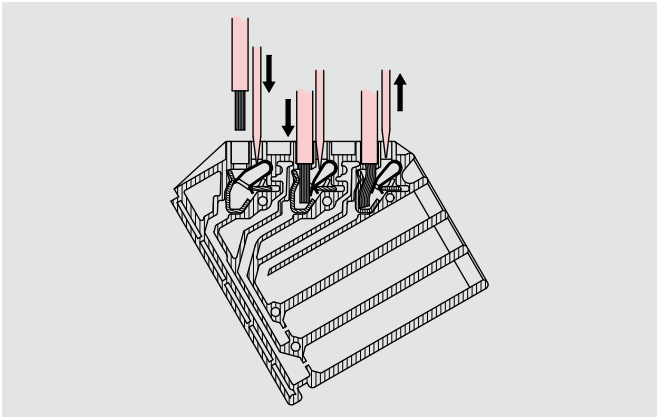
13- Terminal block layout and accessory location



WIRING

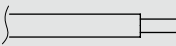



■ Automatic spring-cage terminals

- Insert a flat screwdriver (3 mm): the spring opens.
- Insert the cable.
- Remove the screwdriver: the spring automatically blocks the cable.

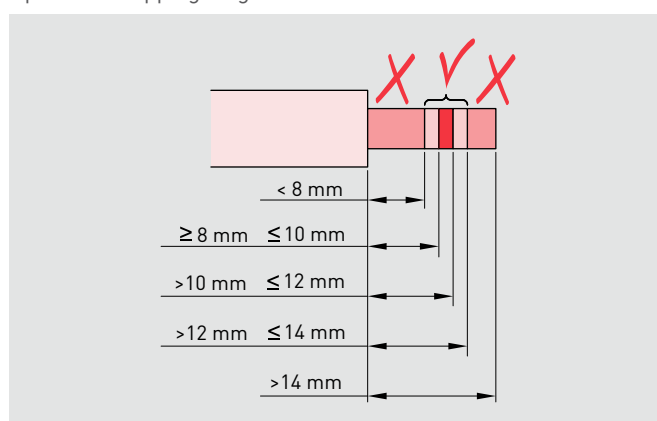


A spring-cage terminal accepts a maximum cross-section of 2.5 mm²/cable and a maximum number of 2 cables. It is also possible to insert 2 cables of different cross-sections while respecting the limits detailed below.


■ Recommended cross-sections and length

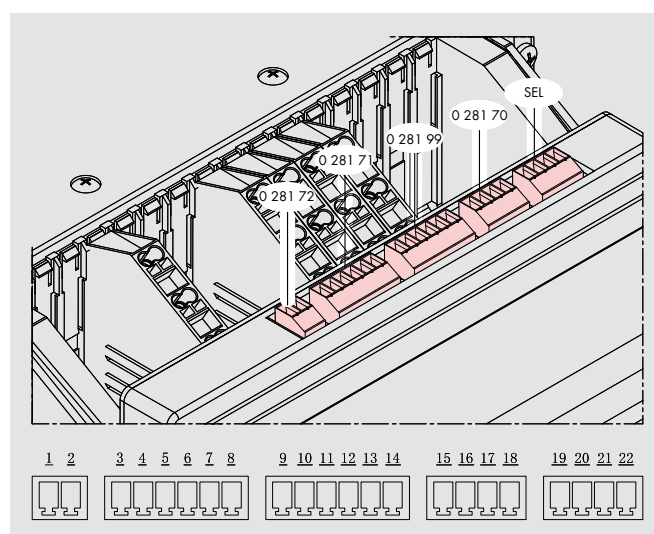
Rigid cable	 1 to 2,5 mm ²
Flexible cable without ferrule	 1 to 2,5 mm ²
Flexible cable with flanged end cap	 1 to 1,5 mm ²
Flexible cable with collarless end cap	 2,5 mm ²

Optimum stripping length: 11 mm



■ Terminals concerning the protection unit

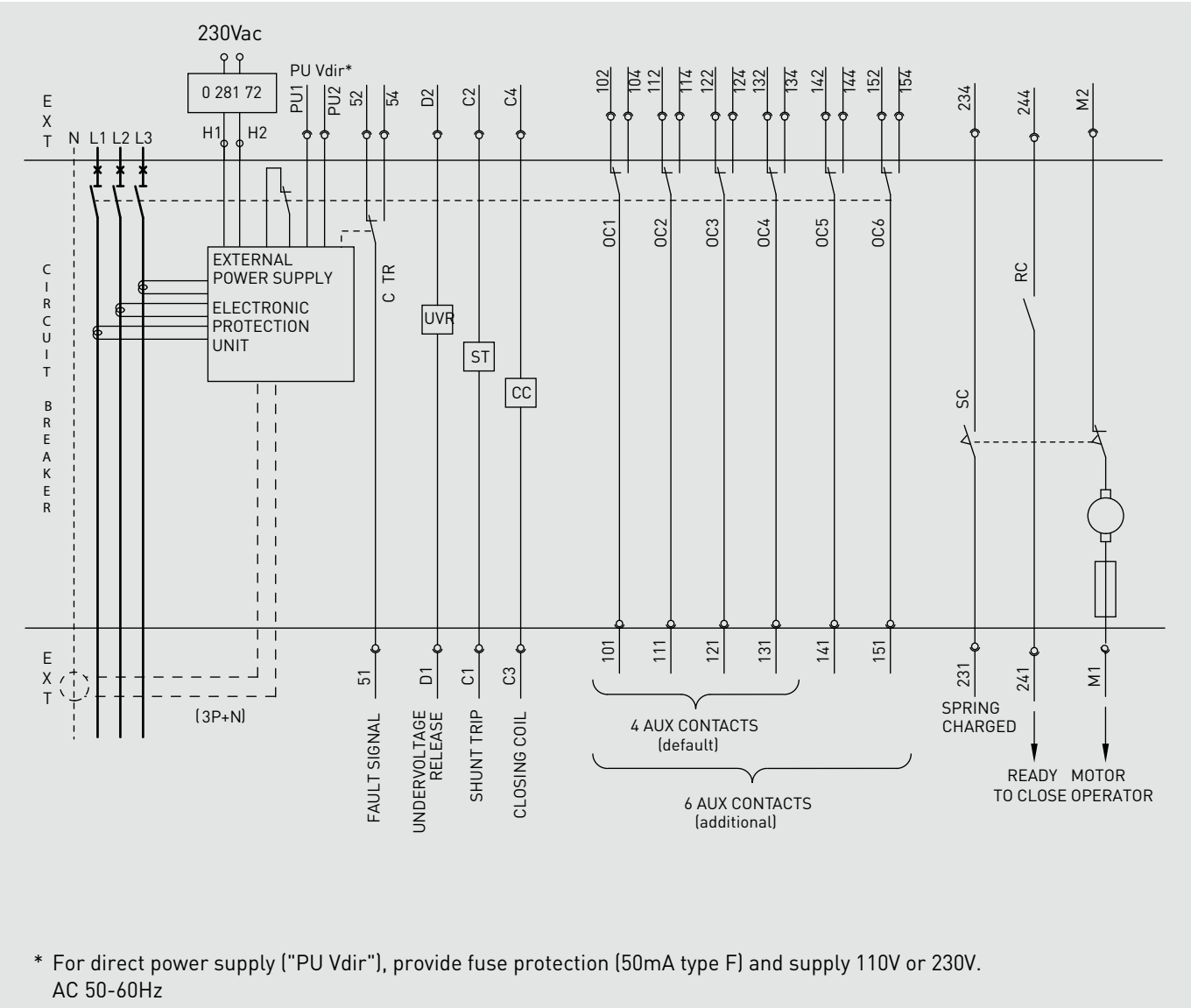
 Draw-out version: wire the circuit-breaker in the fully withdrawn position.



- 1/2 : External auxiliary power supply (H1-H2)
- 3/4/5/6/7/8 : External neutral (6-way terminals)
- 9/10 : Relay 1 programmable contact (W1-W2) - Max. 230V AC/5A; 110V DC/0.5A
- 11/12 : Relay 2 programmable contact (W3-W4) - Max. 230V AC/5A; 110V DC/0.5A
- 13/14 : Not available
- 15/16/17 : Serial port for RS485 supervision (H5-H6-H7)
- 18 : Not available
- 19/20 : SEL-IN (H11-H12)
- 21/22 : SEL-OUT (H15-H16)

14- Electrical drawings

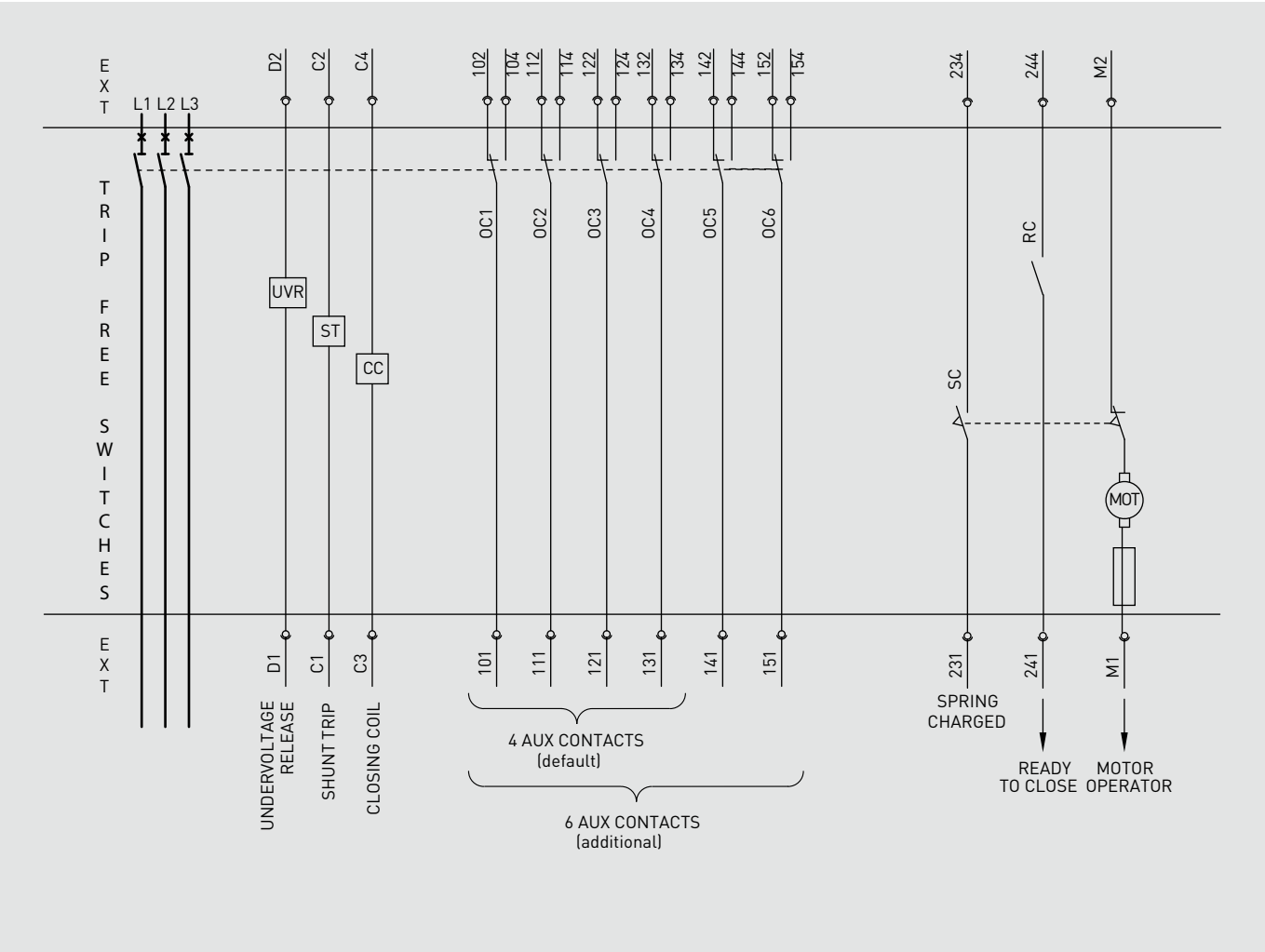
3 P CIRCUIT BREAKERS



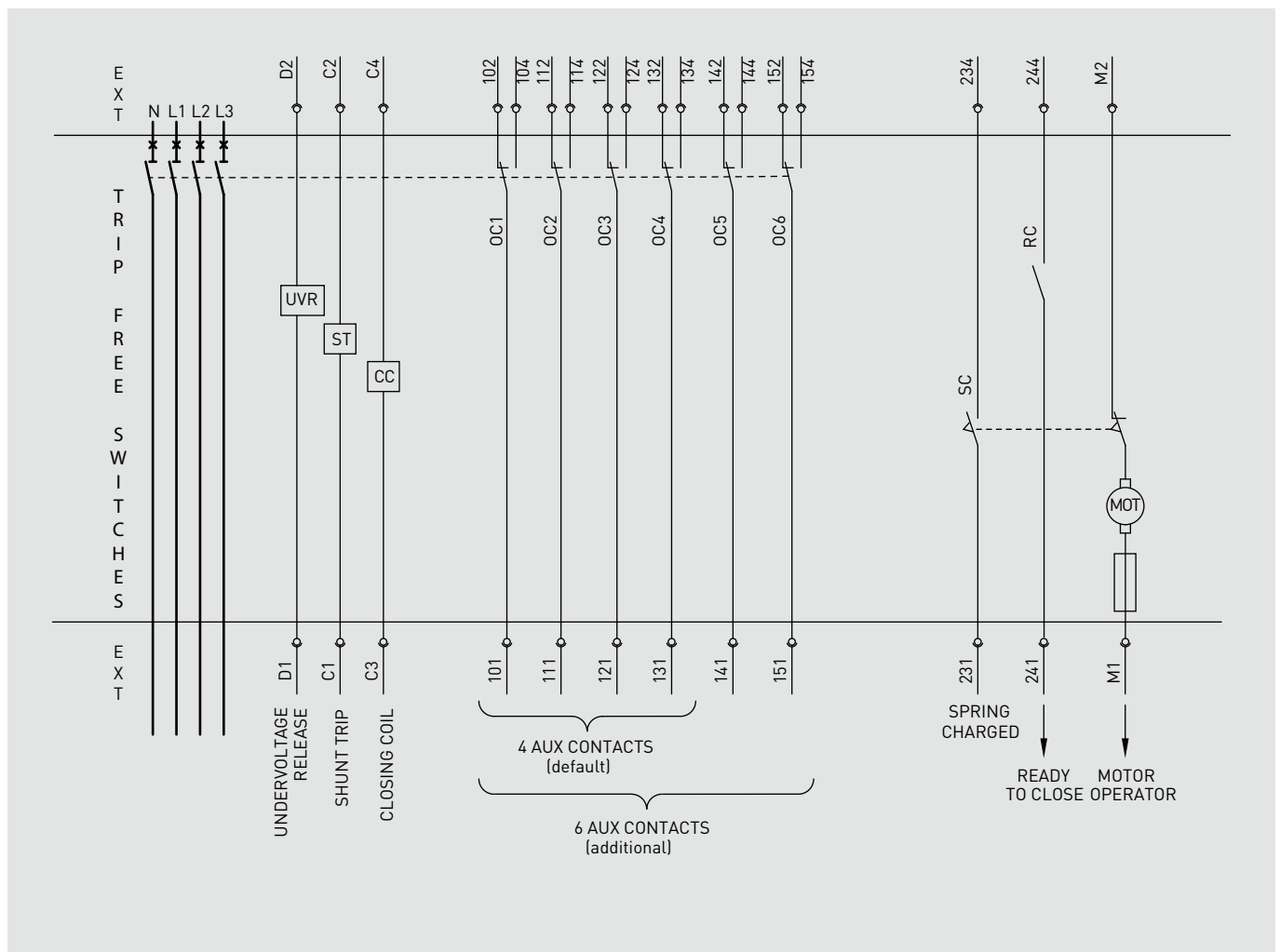
* For direct power supply ("PU Vdir"), provide fuse protection (50mA type F) and supply 110V or 230V. AC 50-60Hz



3 P TRIP FREE SWITCHES



4 P TRIP FREE SWITCHES



MECHANICAL ACCESSORIES

- 1- Lock in «open» position
- 2- Lock in «draw-out» position
- 3- Door locking Cat.no 0 281 84
- 4- Padlock for buttons Cat.no 0 281 77
- 5- Mechanical counter Cat.no 0 281 88
- 6- Inserted / test / draw-out lock button Cat.no 0 281 87
- 7- Rating mis-insertion device Cat.no 0 281 89
- 8- 8. Base for draw-out version
(3P → 0 281 53, 4P → 0 281 54)
- 9- Interlock Cat.no 0 281 90
- 10- Interlock cables
- 11- Insulation shields

1- Lock in «open» position

Example Cat.no 0 281 78



A lock in the «open» position prevents the DMX³ from closing. It can be installed on fixed or draw-out devices, circuit breaker or switch.

There are two types of locking: with a flat key (type RONIS) or with a star key (type PROFALUX).

To lock the DMX³, simply press the OFF button and turn the key 1/4 turn clockwise.

To unlock the DMX³, simply turn 1/4 turn counterclockwise, the OFF button will return to its position.

In the locked position, the key is free. It is then possible to lock the unit in by removing the key.

In the unlocked position, the key cannot be removed.

It is possible to order specific barrels or additional keys from the company STI Montreuil. (www.servtrayyou.com/web/contact) specifying the barrel number:

– Flat key : ABA90GEL6149

– Star key : HBA90GPS6149.

It is, however, necessary to order a locking kit in order to have the different fixing accessories.

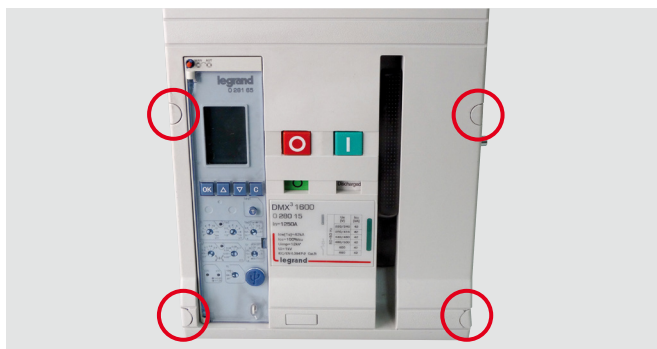
Ronis type flat key (n° ABA90GEL6149) random	Cat.no 0 281 78
Ronis type flat key (n° ABA90GEL6149) fixed (cod. EL43525)	Cat.no 0 281 79
Ronis type flat key (n° ABA90GEL6149) fixed (cod. EL43363)	Cat.no 0 281 80
Profalux type star key (n° HBA90GPS6149) random	Cat.no 0 281 81

MOUNTING



Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), drawn-out (if necessary) and the spring discharged.

Remove the 4 screw covers from the front face, then the 4 screws (Phillips n°1) and remove the front face.



Remove the lock location at the rear of the front face using a 23 mm drill (or other tool).



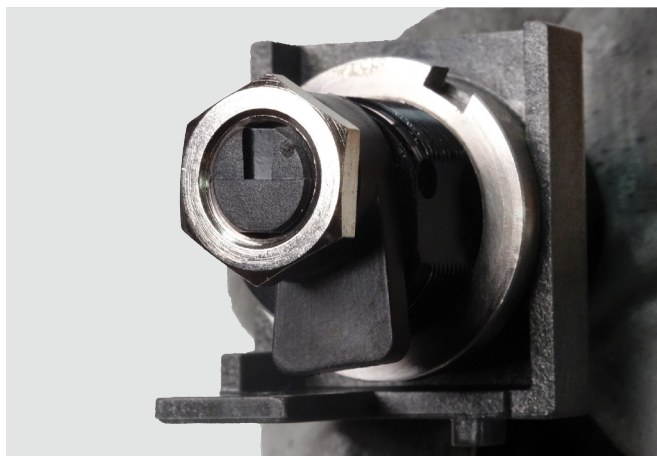
Insert the cylinder into the plastic frame and lock the assembly with the 2-notch nut using the wrench provided.



Position the key vertically during this assembly.



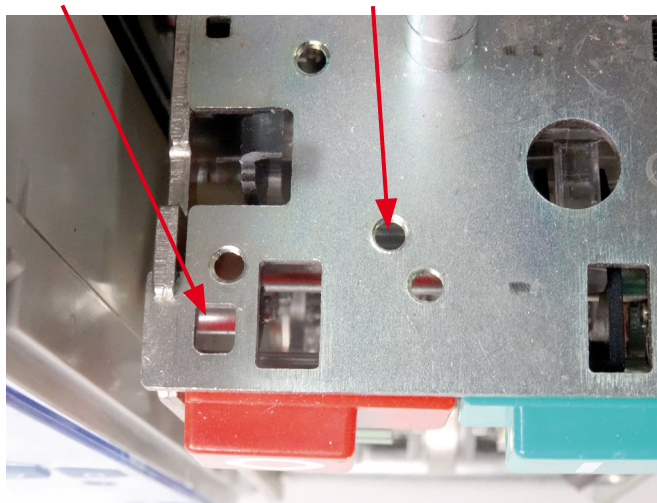
Insert the plastic cam supplied and lock it with the metal nut using a 16 mm open-end wrench (tightening torque 4 Nm).



Position the assembly above the «OFF» button of the DMX³ in the notch provided.

Notch

Fixing hole



Tighten the assembly with the screw supplied using a tool with Phillips no. 1 (tightening torque - 3 Nm).



Carry out two functional tests:

- Press the «OFF» button.
- Hold this button while turning the key 1/4 turn clockwise.
- Check that the key can be removed and that the «OFF» button remains in the depressed position.



Normal operation (unlocked): I cannot remove the key, it is in horizontal position.

Locked operation: I can remove the key, it is in the vertical position.

Replace the plastic cover of the terminal block, then the front face using the 4 screws (Phillips n°1, tightening torque of 1 Nm), then the screw covers.

Re-insert the DMX³ if necessary.



Position the key horizontally when mounting.

2- Lock in «draw-out» position

Example Cat.no 0 281 83



This accessory allows locking in the «draw-out» position. The design of this accessory prohibits locking in the «inserted» position.

To lock the DMX³ plug-in DMX³ in the «draw-out» position, turn the key 1/4 turn to the right after making sure that the handle is removed from the insertion system and that its housing is closed.

In the locked position, the key is free. It is then possible to lock the unit in by removing the key.

To unlock the DMX³, so that it can be inserted, simply turn the key 1/4 turn to the left, thus freeing the shutter system for the handle.

There are two types of locks:

- With flat key (type RONIS)
- Star key (type PROFALUX)

It is possible to order specific barrels or additional keys from the company STI Montreuil. (www.servtrayvou.com/web/contact) specifying the barrel number

- Flat key: ABA90GEL6149
- Star key: HBA90GPS6149

However, it is necessary to order a locking kit in order to have the different fixing accessories.

Lock with star type key
(n° HBA90GPS6149) random

Cat.no 0 281 82

Lock with flat type key
(n° ABA90GEL6149) random

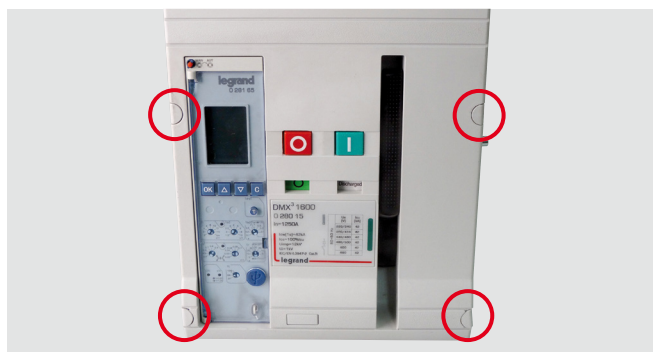
Cat.no 0 281 83

IMPLEMENTATION



Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), drawn-out (if necessary) and the spring discharged.

Remove the 4 screw covers from the front face, then the 4 screws (Phillips n°1) and remove the front face.

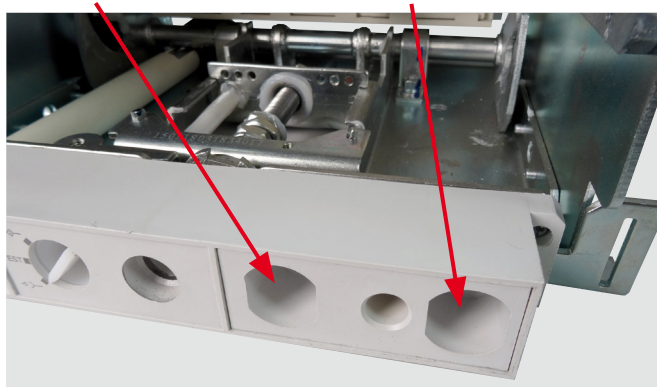




Two locations are possible: on the left of the frame and on the right of the frame. Two interlocks can be installed simultaneously in case of multiple lockouts.

1st location

2nd location

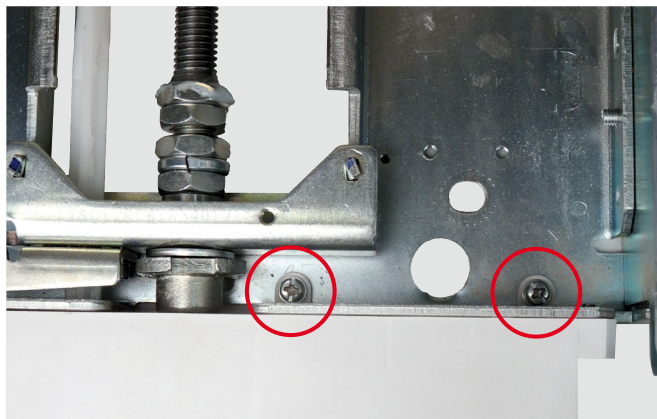


■ Example of installation on the left side of the frame

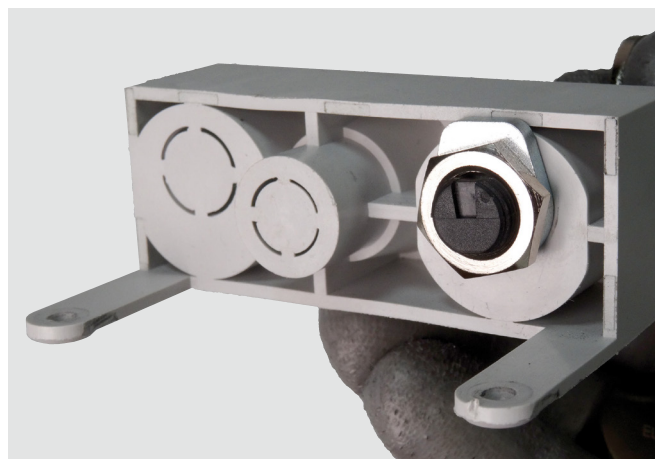
Remove the 2 retaining screws from the plastic frame using a Phillips no. 2 tool.

Remove the frame from the front.

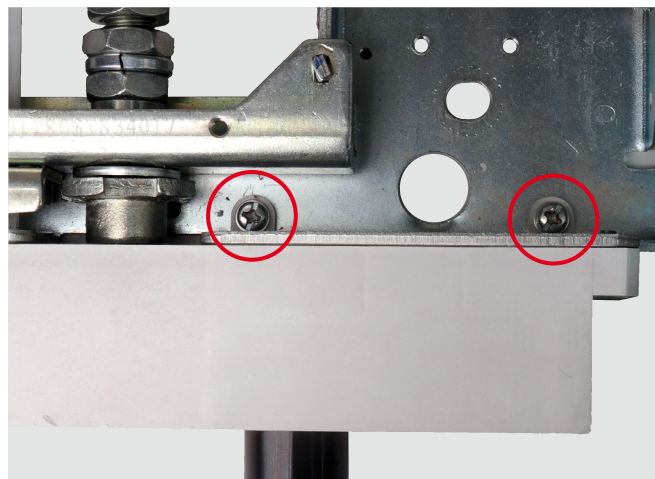
■ Top view



Remove the pre-cut cover using a suitable tool, insert the cylinder into the plastic frame, then position the cam correctly at the rear and secure the assembly with the nut supplied using a 16 mm open-end wrench (tightening torque of 4 Nm). Then position the wrench horizontally.



Re-insert the assembly into the base then fix it with the 2 fixing screws using a Phillips screwdriver n°2 (tightening torque of 3 Nm).



3- Door locking (Cat.no 0 281 84)

Put the DMX³ back in its base and carry out a functional test:

« Inserted » position:

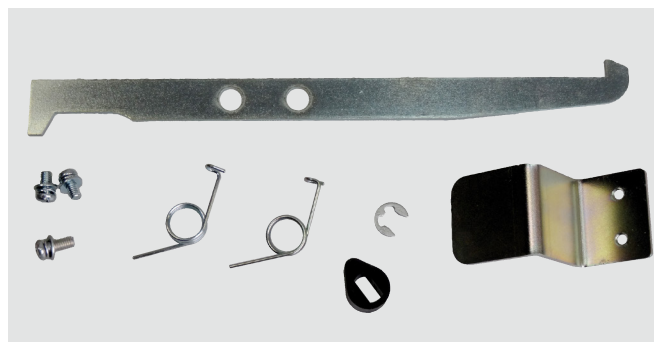
- 1 I can't remove the key (horizontal position).
- 2 I can insert the draw-out handle.

« Test » position:

- 1 I can't remove the key (horizontal position).
- 2 I can insert the draw-out handle.

« Draw-out » position:

- 1 I can remove the key (vertical position).
- 2 I cannot insert the draw-out handle if the key is removed or in the vertical position.



Two parts (marked I and L in the instructions sheet) are not shown in the picture because they are only used for DMX-SP mounting.

This lock prevents the faceplate from being opened/closed when the DMX³ «draw-out» version is in the «inserted» position. The faceplate can be opened/closed in the «test» or «draw-out» position.

The lock can be installed on the left or right side of the base, respectively for a faceplate with right or left hinges. The catalogue number includes all accessories required for mounting on the DMX³ and faceplate.

The faceplates for DMX³ used in the XL³ 4000/6300 enclosures are already equipped with a fixing system (bracket).



The mounting bracket on the dedicated XL³ faceplate is welded on. It thus imposes the opening direction (to the left) as well as the positioning of the door lock on the DMX³: to the right imperatively.

IMPLEMENTATION



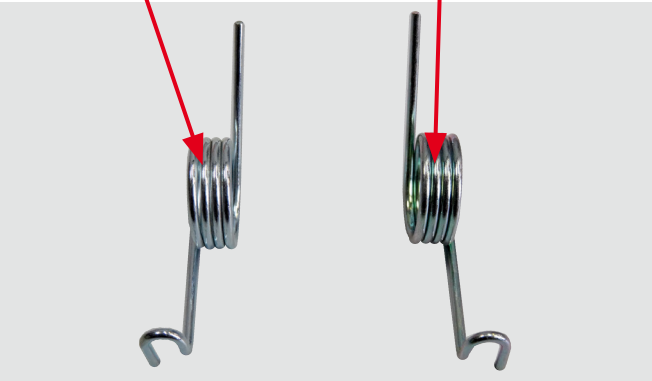
Before any intervention, check that the DMX³ is in the «OFF» position (contacts open) and the spring is discharged.

■ Example of locking positioned on the left side of the base

Use the spring suitable for mounting:

Left mounting

Right mounting



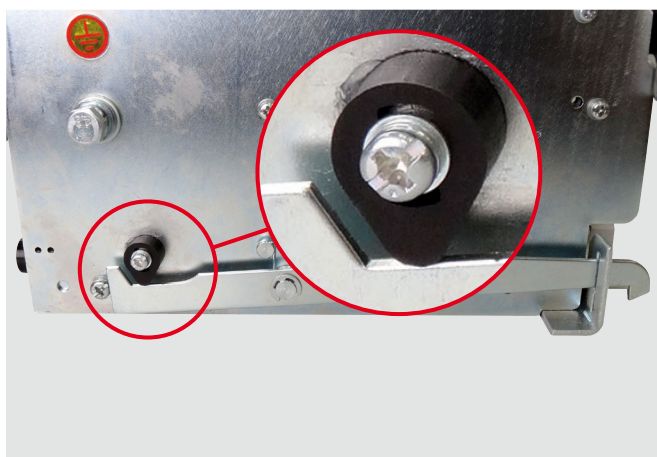
Position the spring on the metal lever



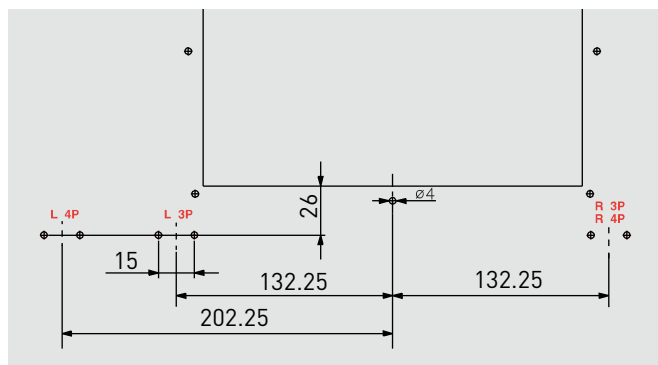
Insert the end of the lever into the slot provided in the DMX³ and then position the assembly correctly on the axis.



Insert the retaining clip and then the cam with its screw (Phillips No. 2, tightening torque 3 Nm).

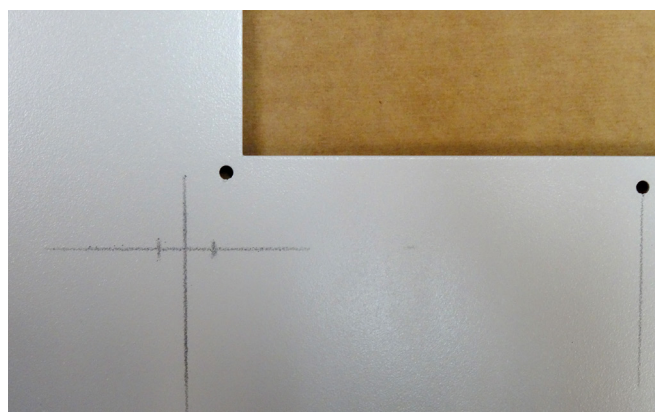


For the installation of the bracket on the faceplate side, refer to the dimensional drawing in the instructions sheet **(not applicable for XL³ faceplate)**:



Example of a photo for the installation of a bracket (left) on the faceplate of a DMX³:

Front view



Rear view



Ø of the 2 fixing holes of the bracket: 4,5 mm

Impression and tightening torque of the 2 fixing screws:

Phillips screws n°2 and 3 Nm

■ Position configurations

Inserted → inability to open or close faceplate

Test and draw-out → possible opening and closing of the faceplate



4- Padlock for buttons (Cat.no 0 281 77)



This device is used to block physical access to the ON/OFF buttons.

IMPLEMENTATION

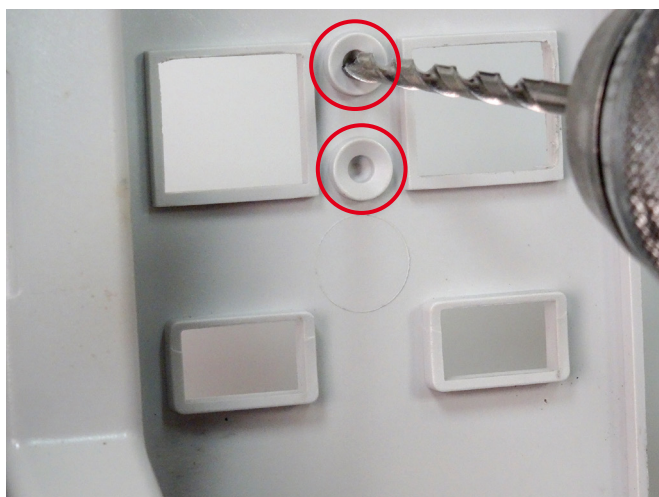


Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), drawn-out (if necessary) and the spring discharged.

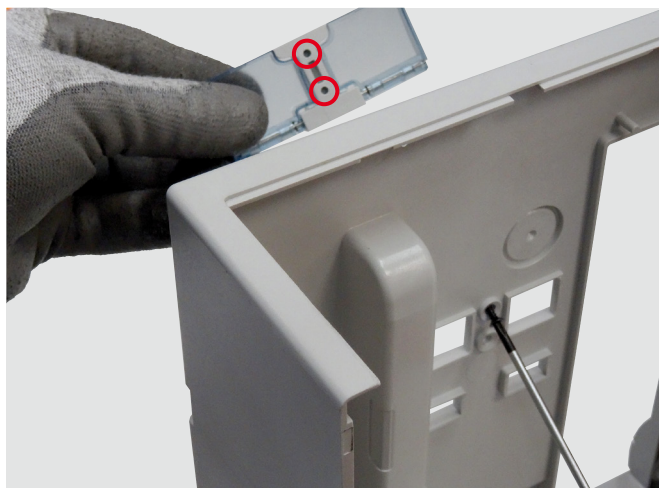
Remove the 4 screw covers from the front face, then the 4 screws (Phillips n°1) and remove the front face.



Use a 3.5 mm drill bit to drill the 2 holes where the screws are to pass through (at the rear of the front face).



Insert the 2 screws supplied and tighten them in the holes of the padlock (Phillips no. 0, tightening torque 1 Nm).



Then it is possible to insert a lockout padlock (\varnothing max. 3.5 mm) and thus lock out either the «OFF» button, the «ON» button or both buttons at the same time.



Replace the front face using the 4 screws (Phillips no. 1, tightening torque 1 Nm), then the screw covers.

Re-insert the DMX³ if necessary.



5- Mechanical counter (Cat.no 0 281 88)



The mechanical counter is used to display on the front face of the DMX³ the number of «closing/opening/recharging of the coil» cycles performed by the product.

This counter can be installed on all the circuit breakers and switches of the DMX³ 1600 range.

It is delivered with the display «99990».

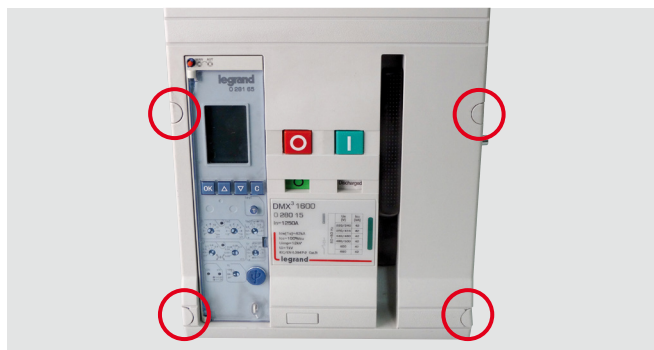
It cannot be manually reset.

IMPLEMENTATION

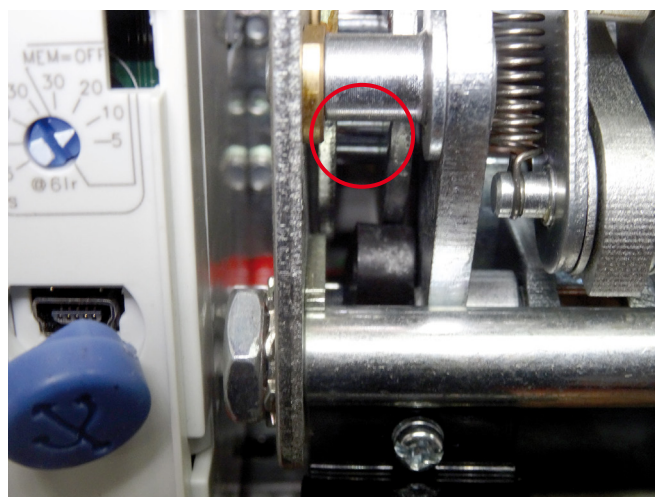
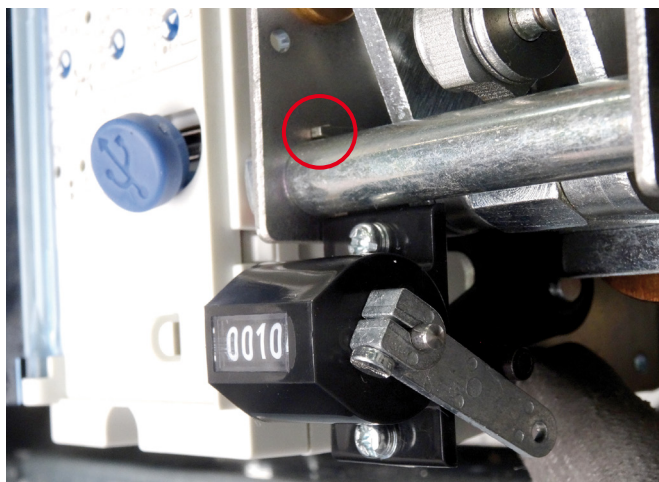
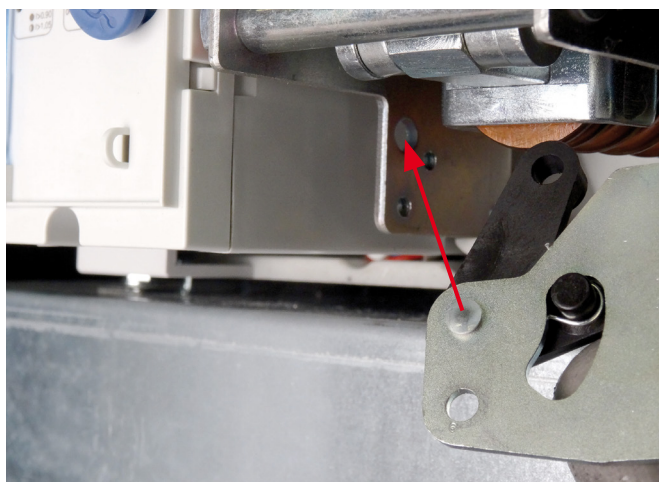


Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), drawn-out (if necessary) and the spring discharged.

Remove the 4 screw covers from the front face, then the 4 screws (Phillips No. 1) and remove the front face.

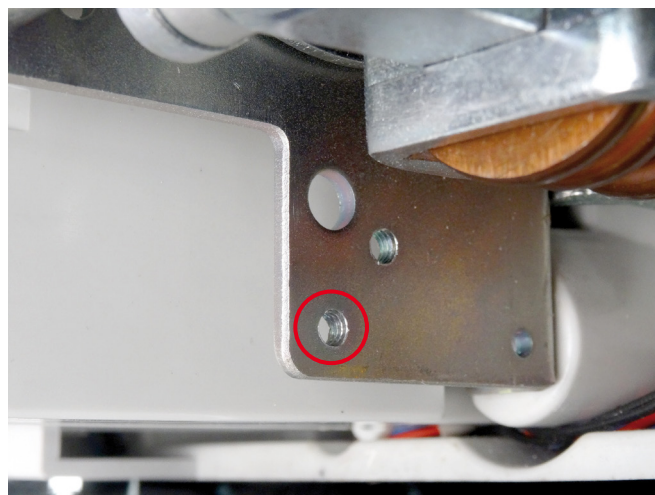


Position the meter correctly by inserting the pin in the hole, the metal lug on the axis and the plastic cam on the mechanism.
Pin in the hole:



Then fix the meter with the screw supplied (end cap with Phillips No. 2, tightening torque 3 Nm).

Fixing hole on DMX³



MECHANICAL ACCESSORIES

Fixing screw



Remove the plastic cover at the back of the front face with a flat screwdriver.



Replace the front face using the 4 screws (Phillips cap no. 1, tightening torque 1 Nm), then the screw covers.

Re-insert the DMX³ if necessary.

Carry out 10 complete opening/closing cycles to check that the meter is working properly.



The number of units changes as soon as the spring is fully recharged.

The counter is delivered with the number «99990» displayed. On the 10th complete cycle, it will change to «00000».

6- Inserted/test/ draw-out lockout button (Cat.no 0 281 87)



This accessory ensures the correct position of a DMX³ 1600 draw-out mechanism. It also avoids potential damage to the components at the end of the inserting or drawing-out process.

IMPLEMENTATION



Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), drawn-out (if necessary) and the spring discharged.

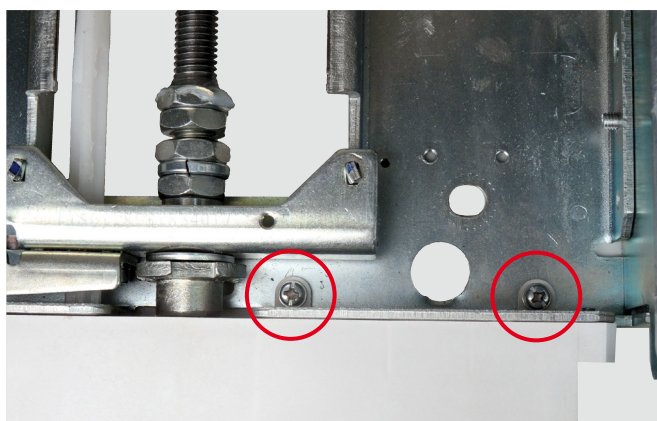
Remove the 4 screw covers from the front face, then the 4 screws (Phillips No. 1) and remove the front face.



Remove the 2 retaining screws from the plastic frame using a Phillips screwdriver No. 2.

Remove the frame from the front.

■ Top view



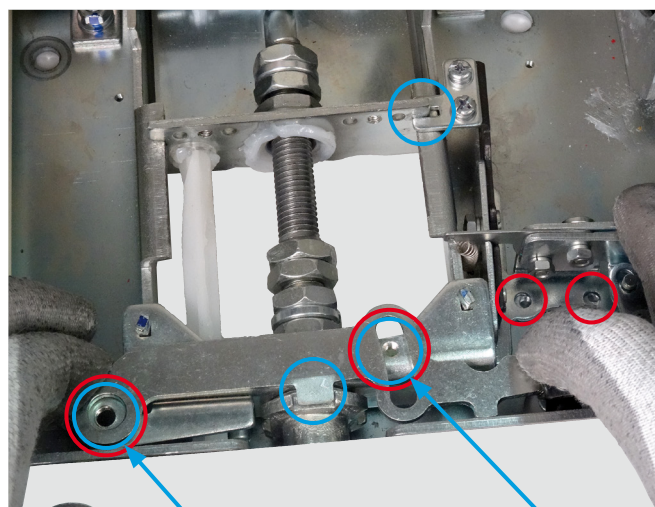
Remove the pre-cut cover with a suitable tool and deburr the contours of the hole with an electrician's knife.



Set up the mechanism by checking its correct positioning and then insert the 2 fixing screws provided. Tighten these 2 screws in the base (Phillips No. 2, tightening torque 3 Nm).

Check points for correct positioning in **blue**.

Location of the fixing screws of the mechanism in **red**.



Large screw location with shoulder

Small screw location with shoulder

Insert the screw with shoulder (the largest) on the left side of the mechanism and tighten it (8 mm flat recess, tightening torque 10 Nm).

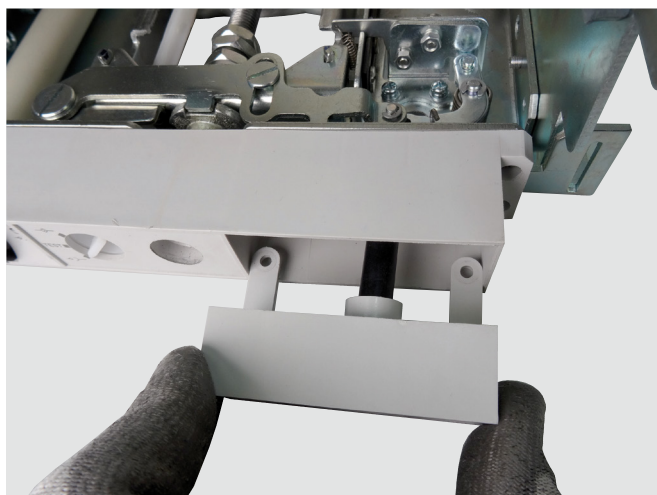
Insert the screw with shoulder (the smallest one) on the central part of the mechanism and then tighten it (6.5 mm flat recess, tightening torque 3 Nm).



Make sure that the 2 shoulder screws are correctly fitted on the mechanism (see photo below).

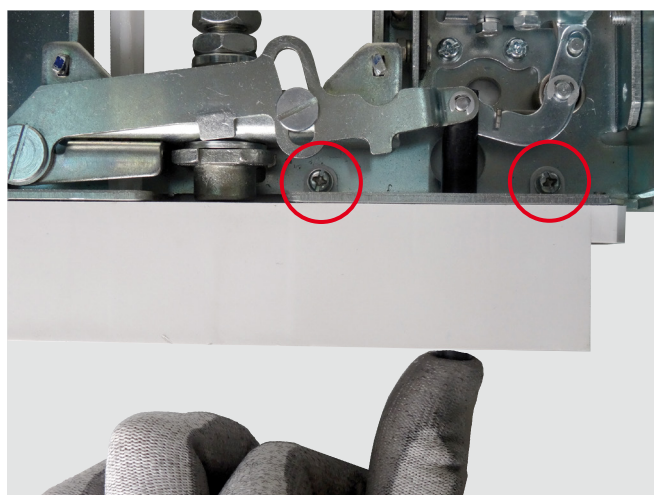


Re-insert the plastic frame from the front by correctly engaging the button in the pre-drilled hole.



Replace the 2 fixing screws and tighten them (Phillips No. 2, tightening torque 3 Nm).

For a better ease of screwing, press back the knob before tightening the 2 screws so as to clear the access.



Replace the front panel using the 4 screws (Phillips cap no. 1, tightening torque 1 Nm), then the screw covers.

Re-insert the DMX³ and carry out 2 complete functional tests (inserted/test/draw-out).

OPERATION:

When the DMX³ is in one of the three positions (inserted/test/draw-out), the locking button is pulled out, we can insert the inserted/draw-out handle but not turn it.

To do this, push the locking button. The handle can then be turned to the next position.

This operating principle is identical for inserted and draw-out DMX³.

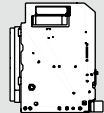
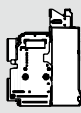






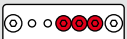

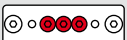

7- Rating mis-insertion device (Cat.no 0 281 89)



When several DMX³ draw-out DMX³s are present in the same enclosure, the rating mis-insertion device makes it possible not to put the wrong DMX³ in a base. While the size and number of poles may be the same, the settings, wear, marking and accessorization may be different.

There is one combination per rated current, i.e. 5 combinations. In case several DMX³ with the same nominal intensity are present, several other combinations are possible. Be careful however not to use one with the same amperage as the other.

Here is an illustration of the combinations according to the rated current:

In		
630 A		
800 A		
1000 A		
1250 A		
1600 A		

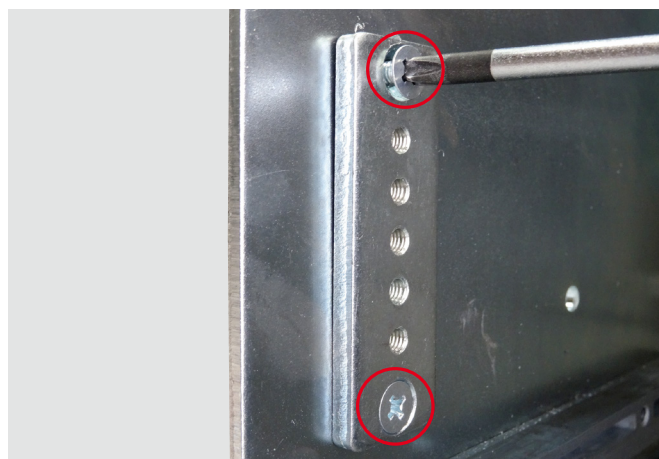
IMPLEMENTATION



Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), drawn-out (if necessary) and the spring discharged.

■ Example of a mounting on a DMX³ 1600 In=1250A

Attach one of the 2 inserts to the left side of the base using 2 countersunk screws (Phillips No. 1, tightening torque 3 Nm). The chamfered holes of the insert must be positioned on the inside of the base:



Place the screw/washer assemblies in the insert (3 on the bottom in our example) and tighten → 3 mm Allen type, tightening torque 3 Nm.



In the same way, fix the remaining insert on the left side of the DMX³ using the 2 remaining countersunk screws (Phillips No. 1, tightening torque 3 Nm). The chamfered holes of the insert must be positioned on the outside of the DMX³. Insert the screw/washer assemblies into the insert (2 on top in our example) and tighten → 3 mm Allen type, tightening torque 3 Nm.



Check the correct operation by checking that the DMX³ can be inserted back in without any constraint.

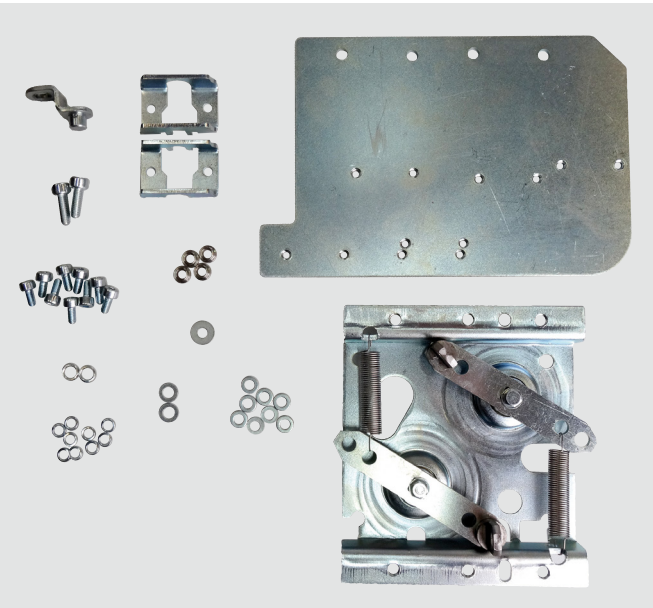
8- Base for draw-out version



Empty bases are delivered without accessories and without the terminal block support of the auxiliaries.

Cat.nos	Type
0 281 53	3P
0 281 54	4P

9- Interlock (Cat.no 0 281 90)



The mechanical interlocking of the devices is carried out by means of the cables and allows the construction of 2-device transfer switches in vertical or horizontal configuration. It is mounted on the right side of the units or bases.

Only Legrand interlock cables, referenced for DMX³ 1600 (see below) must be mounted on the interlocking mechanisms.

IMPLEMENTATION FOR DRAW-OUT VERSION

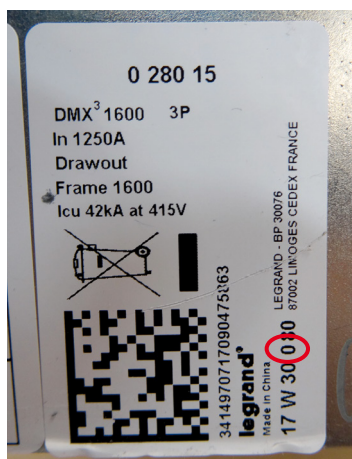


Before any intervention, check that the DMX³ is in the «OFF» position (contacts open), drawn-out (if necessary) and the spring discharged.

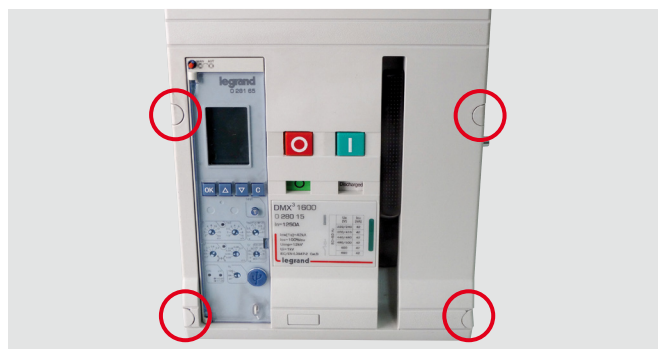
Identify the base (if applicable) and DMX³ labels and identify the version number:

< 1 → contact the customer relationship center

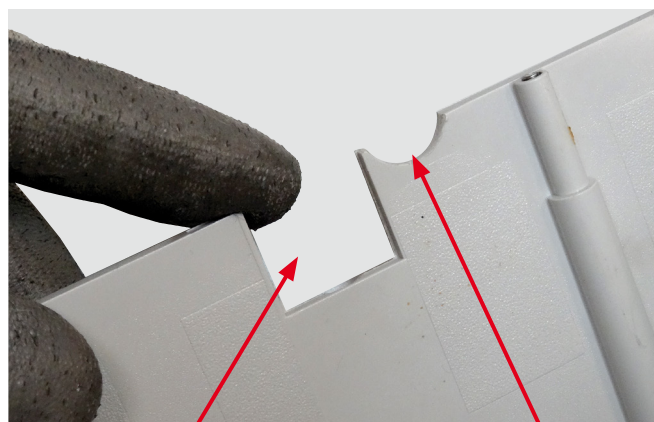
≥ 1 → ok to do the assembly



Remove the 4 screw covers from the front face, then the 4 screws (Phillips No. 1) and remove the front face.



Use pliers to remove one part (draw-out version) or two parts (fixed version) from the right side of the front face.



Part to be removed in both versions

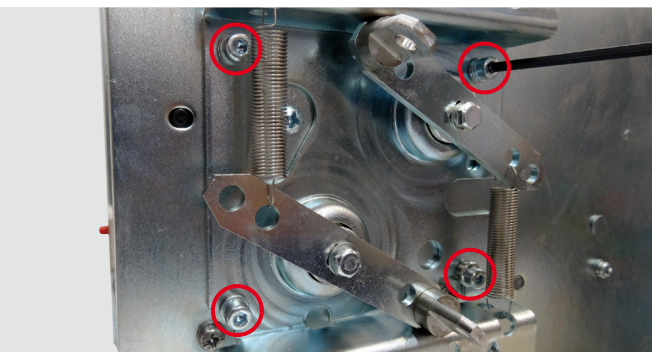
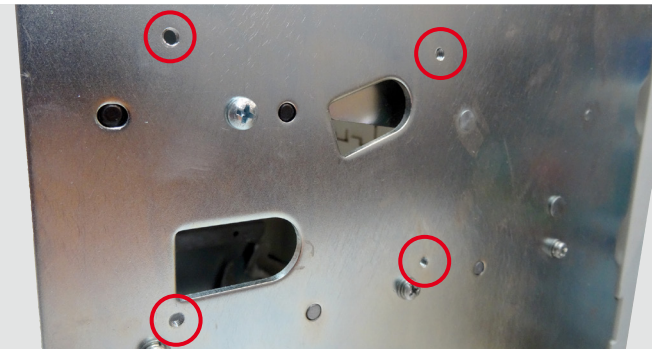
Removable part for the fixed version

MECHANICAL ACCESSORIES

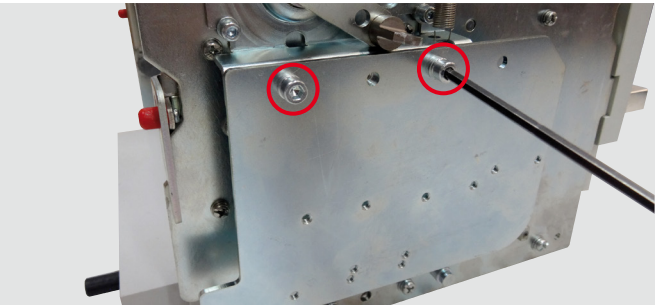
Install the metal bracket using the screw and washers supplied: 3 mm Allen type, tightening torque 2 Nm.



Fix the plate with the 2 levers on the right side of the base using the 4 screws and washers supplied: 3 mm Allen type, tightening torque of 2 Nm.



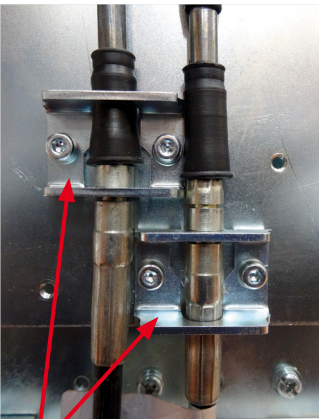
Fix the metal support on the plate with the 2 levers using the 2 screws and washers supplied: 4 mm Allen type, tightening torque of 3 Nm.



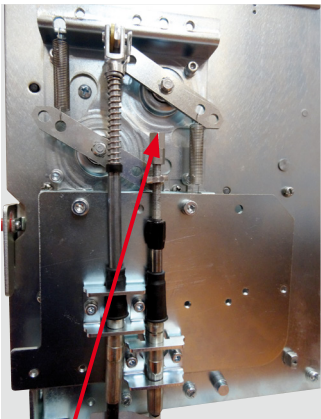
Fix the interlocking cables in the mounting direction described in the instructions sheet, then fix the locking clamps using the 4 screws and washers supplied: 3 mm Allen type, tightening torque 2 Nm.

i For the choice of cables, refer to paragraph 10 on the next page.

! Observe the mounting direction of the cable clamps. Make sure that the thread length of the nuts is between 0 mm and 1 mm.



Cable clamps



Gap between 0 mm and 1 mm

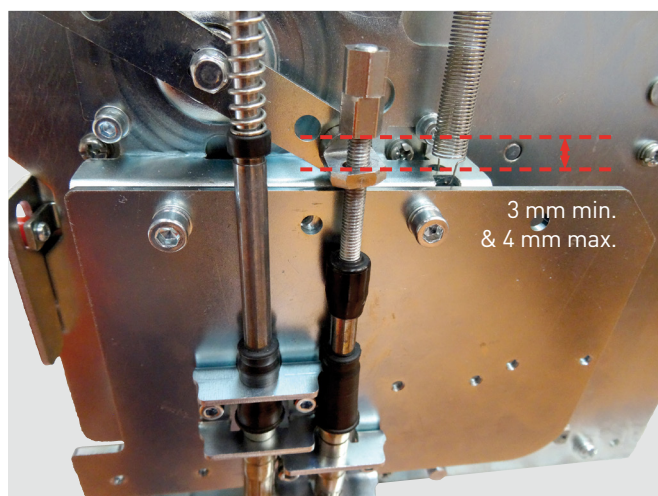
10- Interlock cables

Carry out the same operations described above on the 2nd product.

Re-insert the 2 DMX³ in their base and charge the 2 springs.

Close 1 of the 2 products.

Set on DMX³ closed the distance between the lever and the 1st nut. It must be between 3 mm and 4 mm. Also check that the 2nd cable is not clamped.



Then tighten the lock nut with a 10 mm bush (tightening torque 3 Nm).

Open this DMX³ and charge its spring.

Close the 2nd product (not adjusted) and carry out the same distance adjustment of the nut (between 3 mm and 4 mm). Check that the other cable is not clamped.

Then tighten the lock nut with a 10 mm bush (tightening torque 3 Nm).

Check the individual DMX³ and truth table for correct operation.



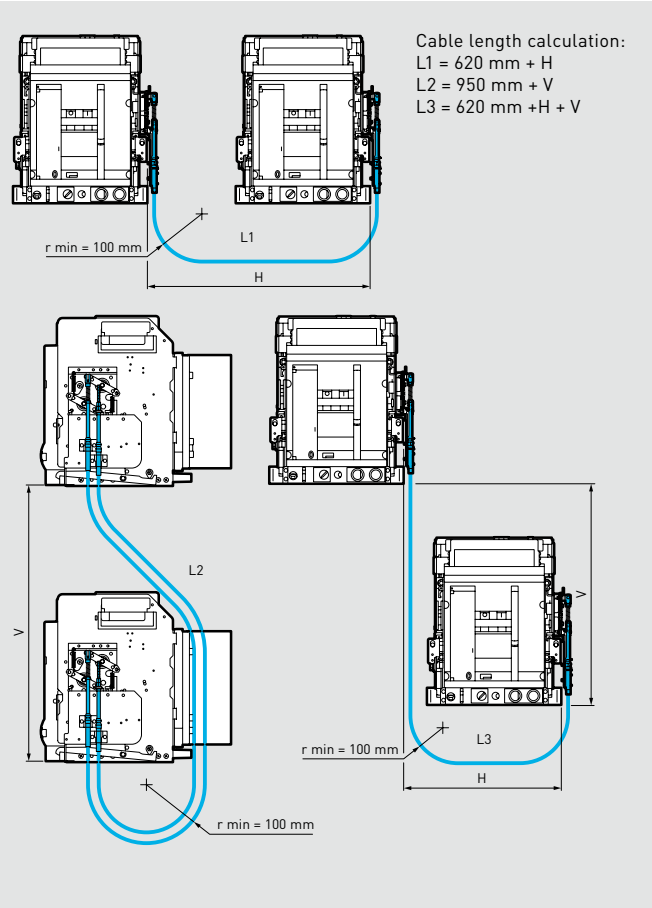
In the event of a malfunction, repeat the adjustment steps after checking that the cables are undamaged, that their length is suitable for the configuration and that their bending radius of min. 100 mm is observed.



Interlock cables allow 2 DMX³ to be mechanically connected via the interlocking mechanisms (see above).

The length must be chosen according to the layout of the DMX³ in the enclosure. It is important to respect the minimum bending radius which is 100 mm, and to ensure that it is fixed to the enclosure structure after the mechanical adjustment of the system.

For installation, see previous page and opposite.



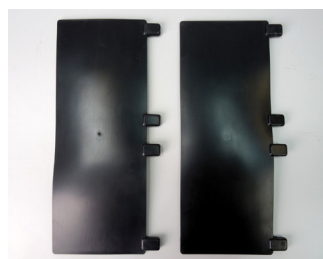
CABLES

Cat.nos	Length
0 289 17	1000 mm
0 289 18	1500 mm
0 289 20	2600 mm
0 289 21	3000 mm
0 289 22	3600 mm
0 289 23	4000 mm
0 289 24	4600 mm
0 289 25	5600 mm

11- Insulation shields

Cat.no 0 281 50 (4P - Fixed)

Cat.no 0 281 51
(3P - Draw-out)

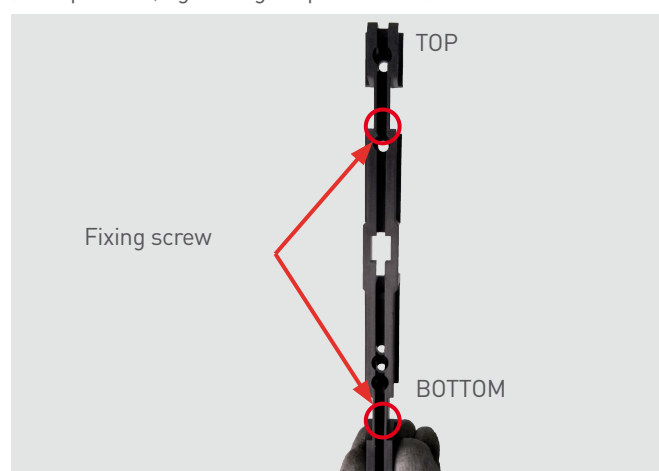


Cat.nos	Type
0 281 49	Version fixe 3P
0 281 50	Version fixe 4P
0 281 51	Version débrochable 3P
0 281 52	Version débrochable 4P

IMPLEMENTATION

■ Fixed version

Fix the brackets (at the rear of the DMX³) using the supplied screws (2/brackets), respecting the mounting direction (Phillips No. 2, tightening torque of 2 Nm).



Then insert the shields as far as possible into the brackets so that they can be slid downwards to complete the installation.

■ Draw-out version

Insert the shields as far as possible into the openings provided in the base.



CONNECTING ACCESSORIES FOR POWER AND EARTHING CONNECTION

The various connection accessories offer the entire DMX³ range a wide range of possibilities, which can easily be adapted to the desired configurations.

The screws required for mounting the various connection accessories are supplied with each set. The tightening torques to be applied are indicated in the instructions enclosed with the products.

The screws used for fixing the busbars to the connection accessories are not supplied and therefore remain the responsibility of the panel builder.

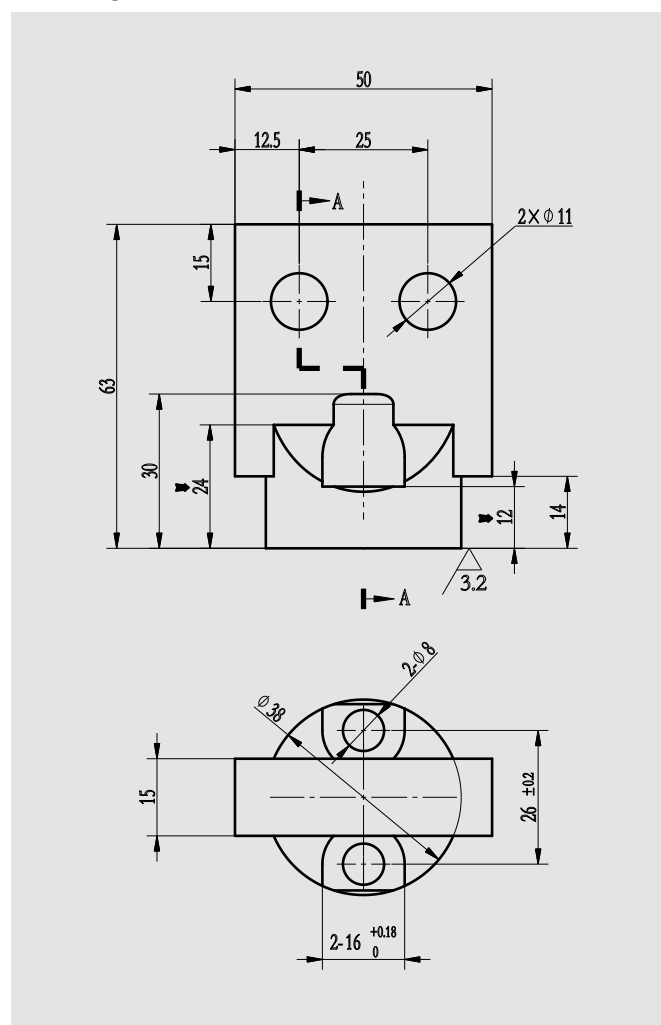
The tightening torques of the busbar fixing screws depend on the diameter and quality of the bars. It is therefore necessary to contact the manufacturer of the screws used.

Due to the wide variety of shapes and construction conditions that can affect the behaviour of the device, the solution chosen should always be checked. If the distance between the poles is less than 20 mm, the use of phase insulators or insulated busbars is recommended.

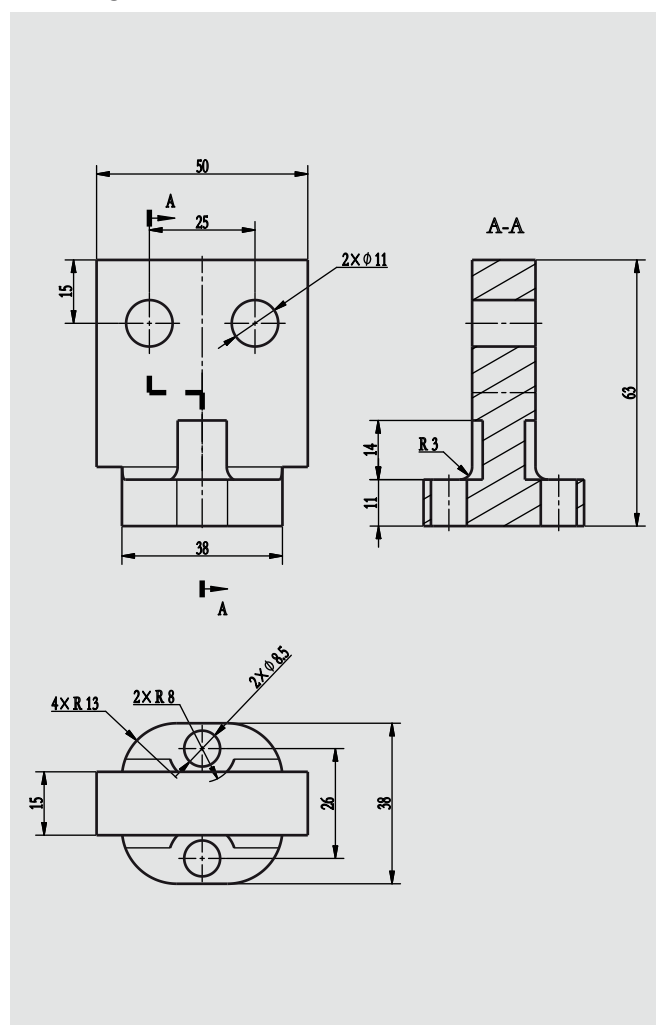
	TYPE	VERSION	TIGHTENING TORQUE ON DMX ³
0 280 35	Rear terminals 3P	Fixed	16 Nm
0 280 41	Rear terminals 4P	Fixed	16 Nm
0 281 47	Rear terminals 3P	Draw-out	16 Nm
0 281 48	Rear terminals 4P	Draw-out	16 Nm
0 281 55	Front connectors 3P	Fixed	16 Nm
0 281 56	Front connectors 4P	Fixed	16 Nm
0 281 57	Front connectors 3P	Draw-out	16 Nm
0 281 58	Front connectors 4P	Draw-out	16 Nm
0 281 59	Spreaders 3P	Fixed et Draw-out	47 Nm*
0 281 60	Spreaders 4P	Fixed et Draw-out	47 Nm*

*The spreaders are fixed to the rear terminals using the screws, washers and nuts supplied.

■ Drawings Cat.no 0 280 35/41

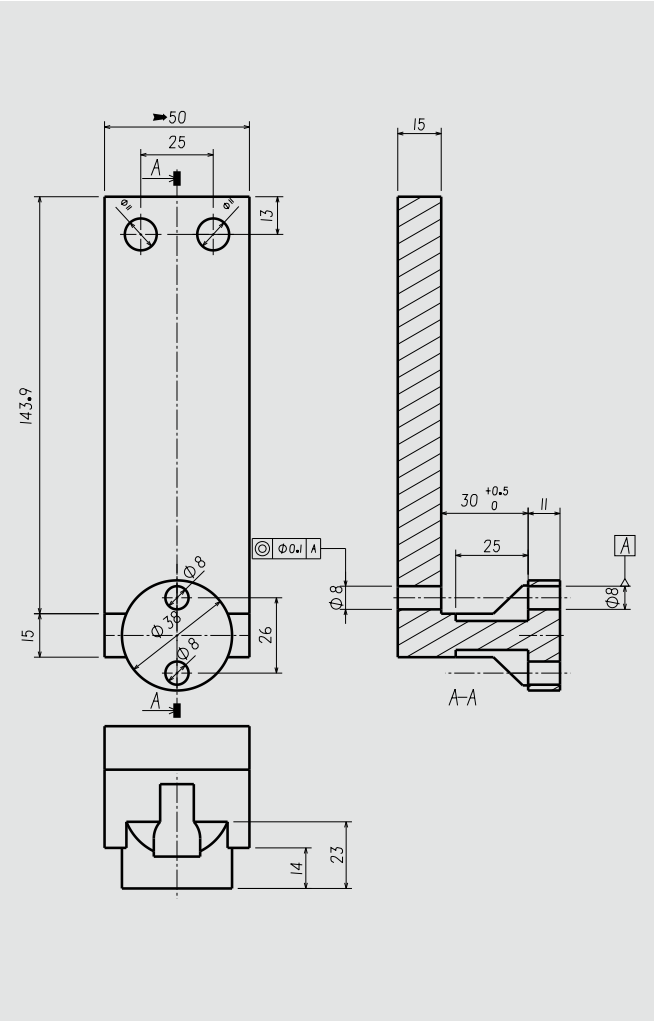


■ Drawings Cat.no 028147/48

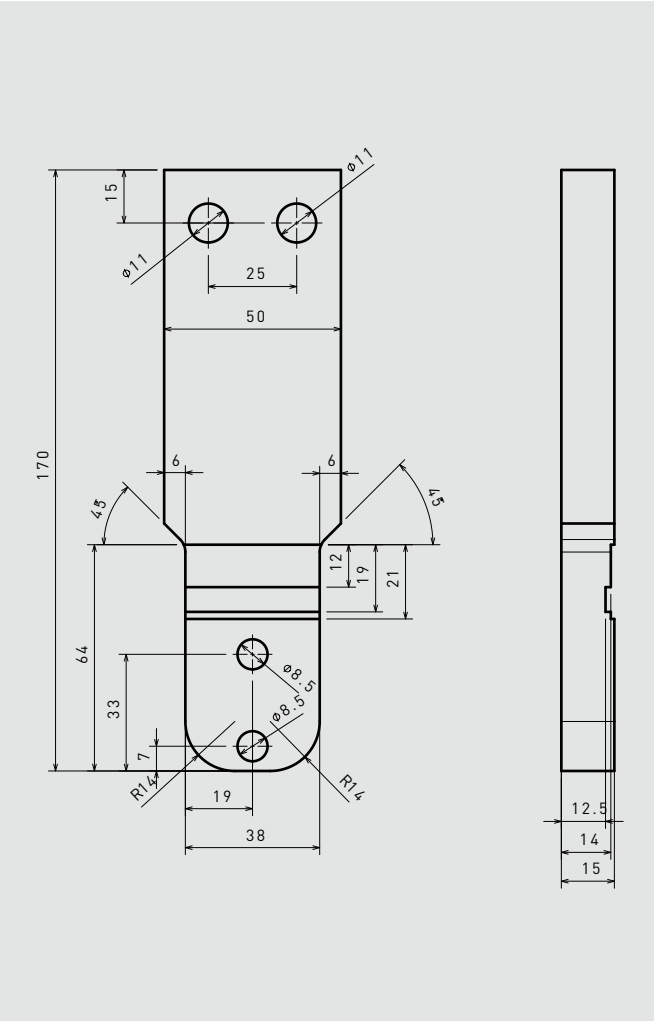


CONNECTION ACCESSORIES FOR POWER AND EARTHING CONNECTION

■ Plans Cat.no 0 281 55/56

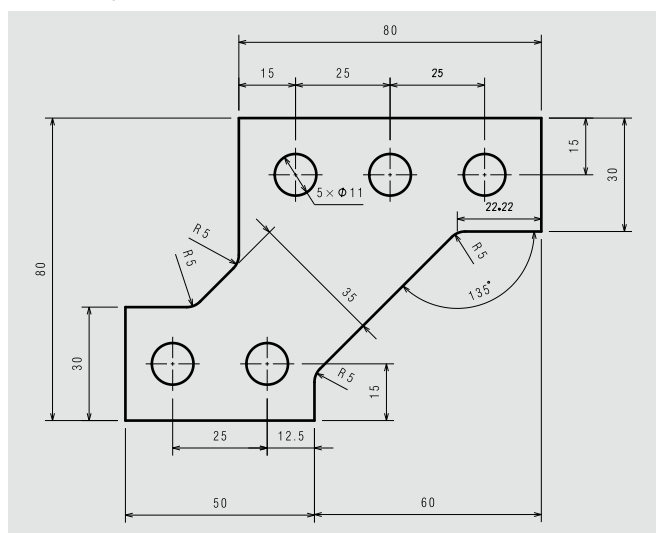


■ Plans Cat.no 0 281 57/58



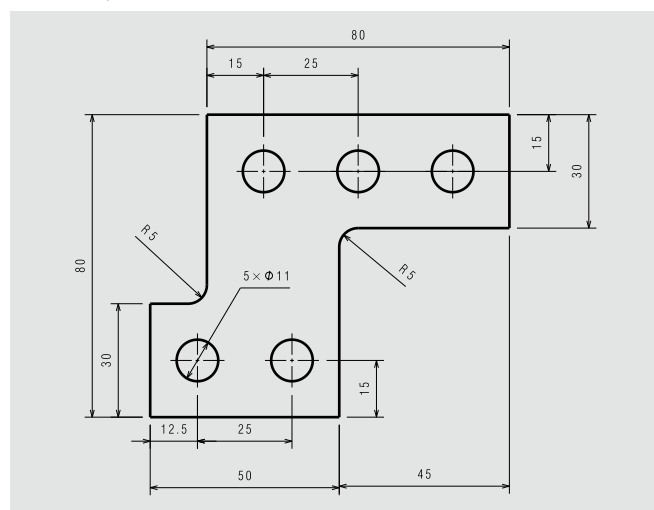
■ Drawings Cat.no 0 281 59

L1 & L3 (spreader → 15 mm)

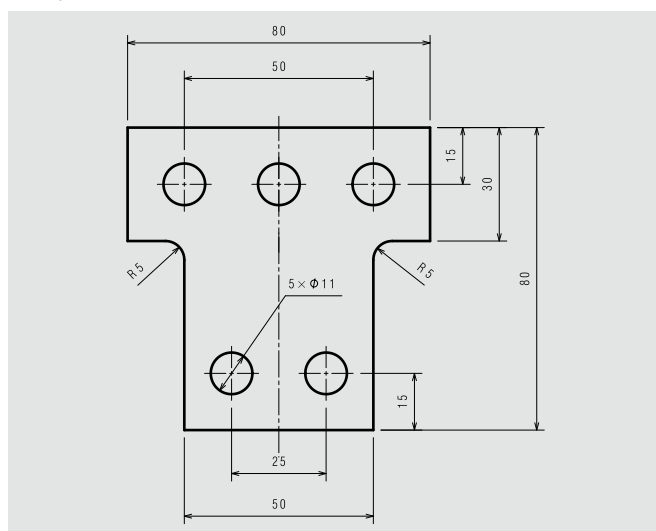


■ Drawings Cat.no 0 281 60

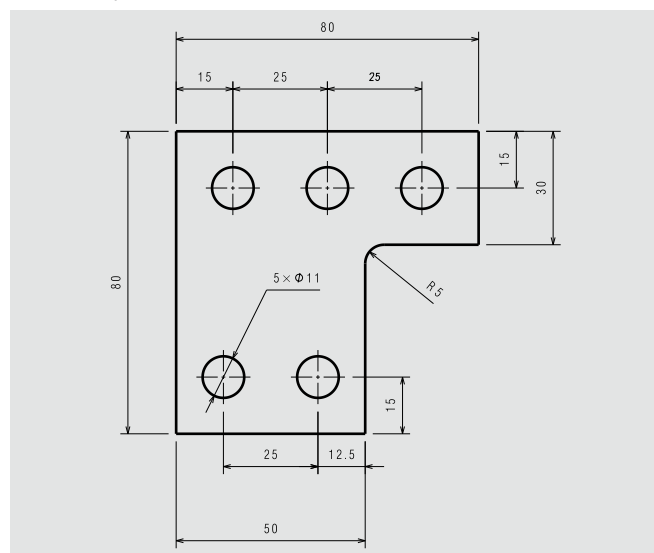
N & L3 (spreader → 15 mm)



L2 (spreader → 15 mm)



L1 & L2 (spreader → 15 mm)



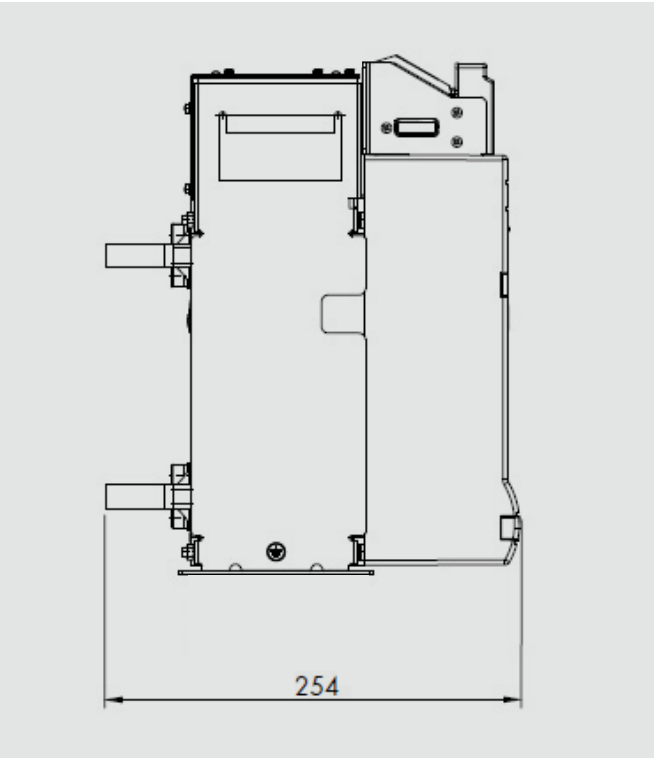
CONNECTION ACCESSORIES FOR POWER AND EARTHING CONNECTION



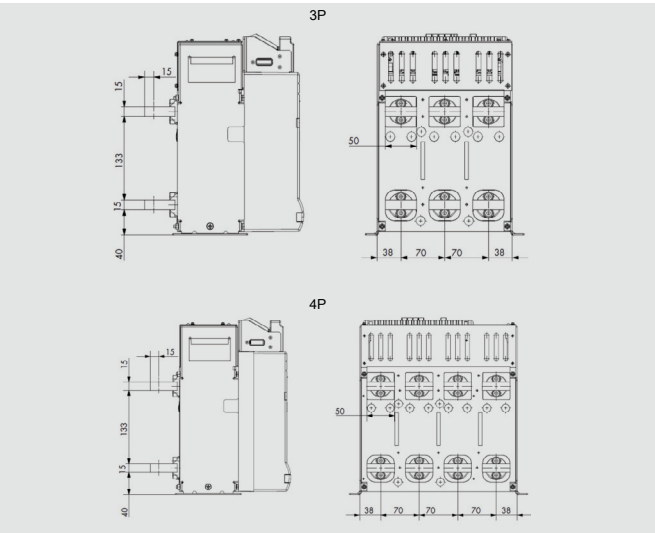
There are 2 types of connection for a DMX³ 1600 (fixed and draw-out): front connection (only vertical) and rear connection (horizontal and vertical).

DMX³ FIXED VERSION

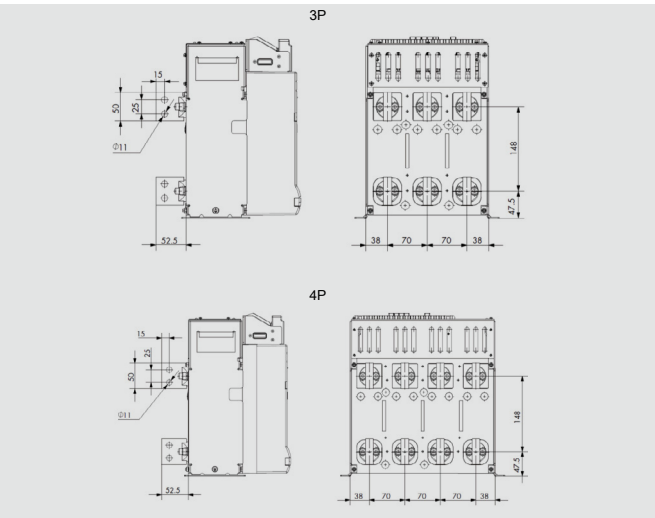
Dimensional depth of a fixed DMX³ 3P-4P DMX³ with rear terminals:



■ Connection with rear connectors, horizontal connections

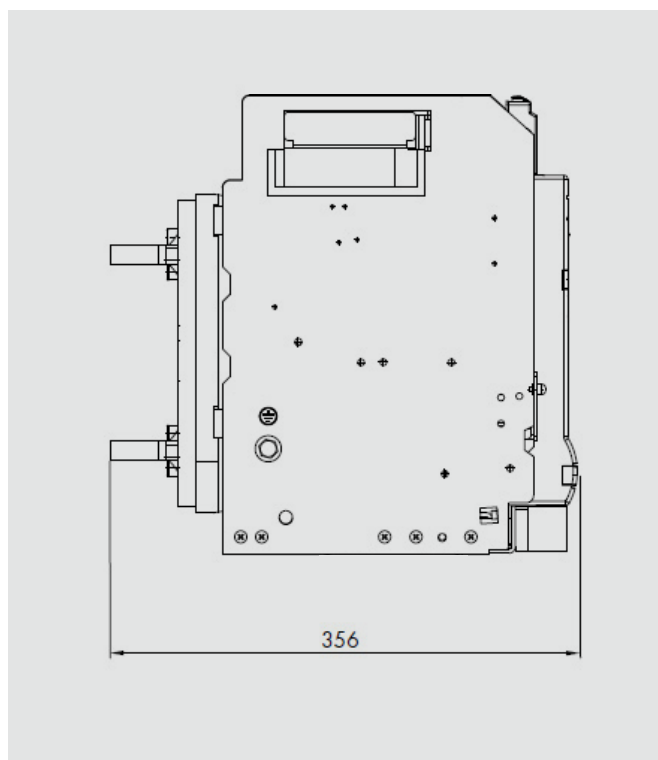


■ Connection with rear connectors, vertical connections

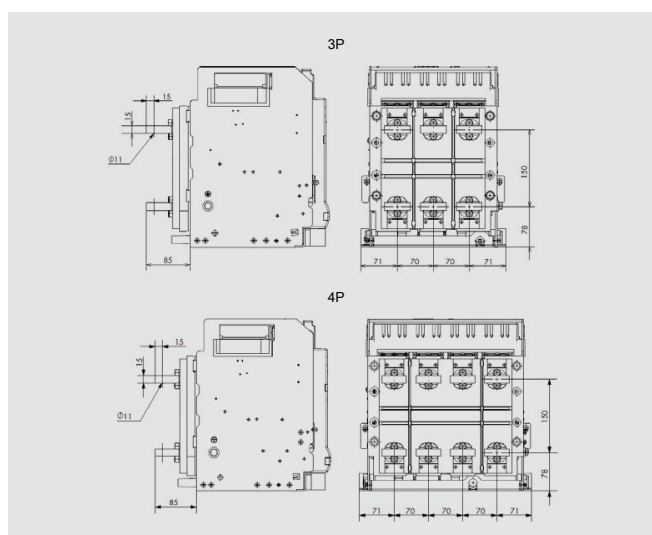


DMX³ DRAW-OUT VERSION

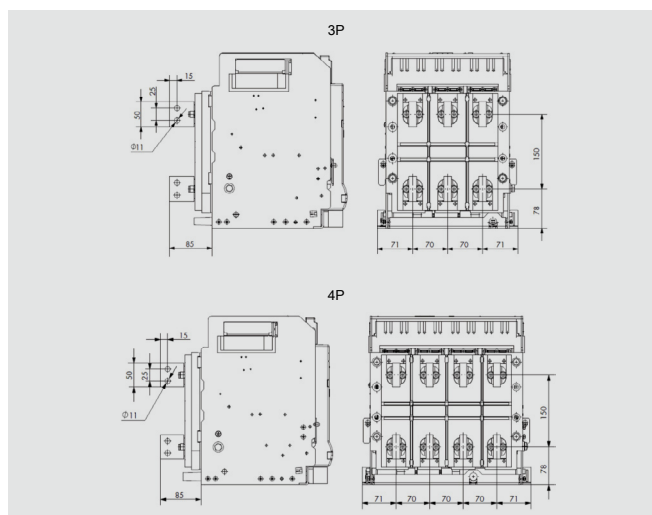
Overall depth of a 3P-4P DMX³ draw-out DMX³ with rear terminals:



■ Connection with rear connectors, horizontal connections



■ Connection with rear connectors, horizontal connections



CONNECTION ACCESSORIES FOR POWER AND EARTHING CONNECTION

■ Minimum cross-section of COPPER bars per pole

Fixed version

In (A)	Vertical bars (mm)	Horizontal bars (mm)
630	2 bars 40 x 5	2 bars 40 x 5
800	2 bars 50 x 5	2 bars 30 x 10
1000	1 bar 60 x 10 / 2 bars 60 x 5	2 bars 30 x 10
1250	1 bar 80 x 10 / 2 bars 40 x 10	2 bars 40 x 10
1600	2 bars 50 x 10	2 bars 50 x 10

Draw-out version

In (A)	Vertical bars (mm)	Horizontal bars (mm)
630	2 bars 40 x 5	2 bars 40 x 5
800	2 bars 50 x 5	2 bars 30 x 10
1000	2 bars 60 x 5	2 bars 30 x 10
1250	2 bars 80 x 5	2 bars 40 x 10
1600	2 bars 50 x 10	2 bars 50 x 10

■ Minimum cross-section of ALUMINIUM bars per pole

Fixed version

In (A)	Vertical bars (mm)	Horizontal bars (mm)
630	2 bars 50 x 8	2 bars 50 x 10
800	2 bars 50 x 10	2 bars 50 x 10
1000	2 bars 60 x 10	4 bars 30 x 10
1250	2 bars 60 x 10	4 bars 50 x 10
1600	4 bars 50 x 10	5 bars 50 x 10

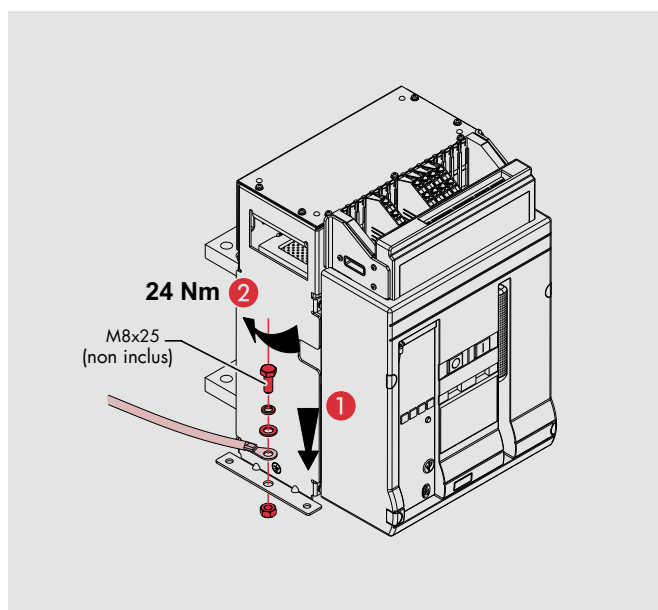
Draw-out version

In (A)	Vertical bars (mm)	Horizontal bars (mm)
630	2 bars 50 x 8	2 bars 50 x 10
800	2 bars 50 x 10	2 bars 50 x 10
1000	2 bars 60 x 10	4 bars 30 x 10
1250	2 bars 60 x 10	4 bars 50 x 10
1600	4 bars 50 x 10	5 bars 50 x 10

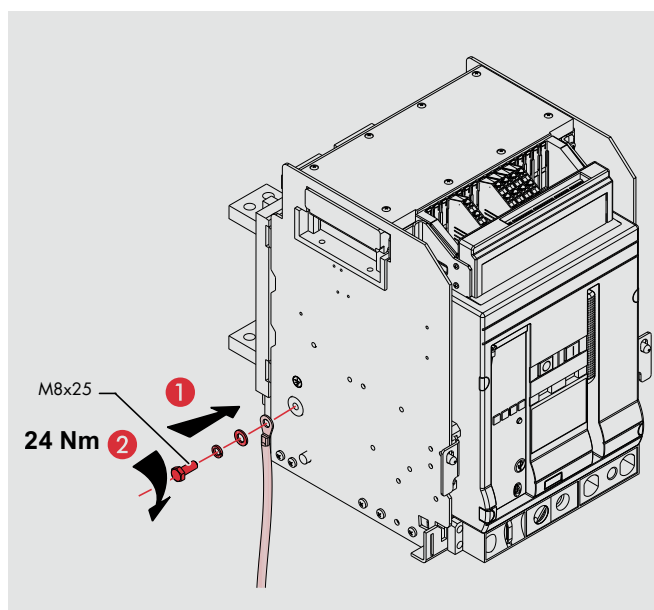
EARTHING CONNECTION:

To make the earth connection, use the hole provided and fix the cable connector (fixing kit included on the draw-out version, not included on the fixed version).

■ Fixed version



■ Draw-out version



Do not use the DMX³ fixing points as connection points.

DMX³ 1600

INSTALLATION IN ENCLOSURES

XL³ enclosure

The XL³ 4000 enclosures have special equipment for mounting DMX³ (see table below). Installation is easier thanks to XL Pro³ software.

The faceplates for XL³ 4000 enclosures are pre-drilled to fix the IP40 frames.

DMX ³ OR DMX ³ -I 1600 FIXING		
24 mod.	36 mod.	For fixed version
0 207 80		For 1 DMX ³ or DMX ³ -I 1600
	0 207 81	For 1 or 2 DMX ³ or DMX ³ -I 1600
For cable sleeves		
0 207 79		For 1 DMX ³ or DMX ³ -I 1600
METAL FACEPLATES FOR DMX ³ OR DMX ³ -I 1600		
24 mod.	36 mod.	Faceplates for fixed version
0 210 84	0 210 86	For 1 DMX ³ or DMX ³ -I 1600
Faceplates for draw-out version		
0 210 85	0 210 87	For 1 DMX ³ or DMX ³ -I 1600
Faceplates for side by side version		
	0 210 88	Fixed version For 2 DMX ³ or DMX ³ -I 1600
	0 210 89	Draw-out version For 2 DMX ³ or DMX ³ -I 1600
Faceplates for cable sleeves		
0 210 80		Fixed version For 1 DMX ³ or DMX ³ -I 1600
0 210 81		Draw-out version For 1 DMX ³ or DMX ³ -I 1600

With a 36-module plate (Cat.no 0 207 81), it is possible to install 2 DMX³ 1600 modules side by side:

- On the left on the plate → 3P or 4P, fixed or draw-out
- To the right of the plate → 3P only, fixed or draw-out



It is not possible to install 2 DMX³ 1600 4P DMXs side by side on the 36-module plate Cat.no 0 207 81.



It is possible to install a DMX³ 1600 only in 3P (fixed or draw-out) in a 475 mm wide cable sleeves thanks to the plate Cat.no 0 207 79.

Enclosure other than XL³

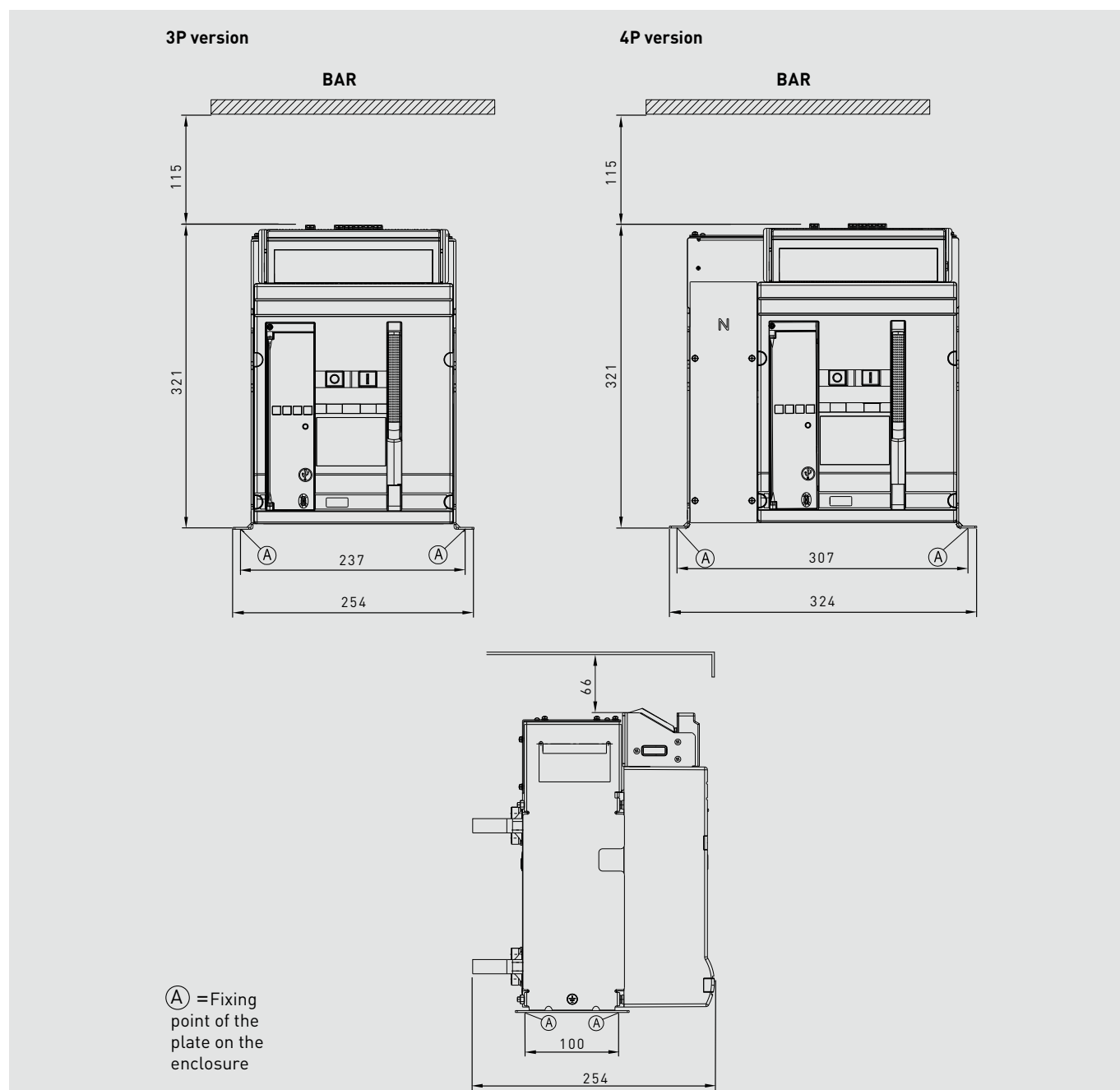
It is also possible to install the DMX³ 1600 in «builder» or locally manufactured enclosures. In this case, it is the panel builder's responsibility to adapt accessories for the correct implementation of the DMX³, taking into account the important weight of these products.

For enclosures other than XL³, it is necessary to respect the DMX³ installation position in depth in relation to its faceplate. Make sure that there is enough space between the DMX³ and the faceplate, and that the front of the DMX³ exceeds slightly so that the IP40 frame can be installed (see the drilling plans for the faceplate below depending on the type of device).



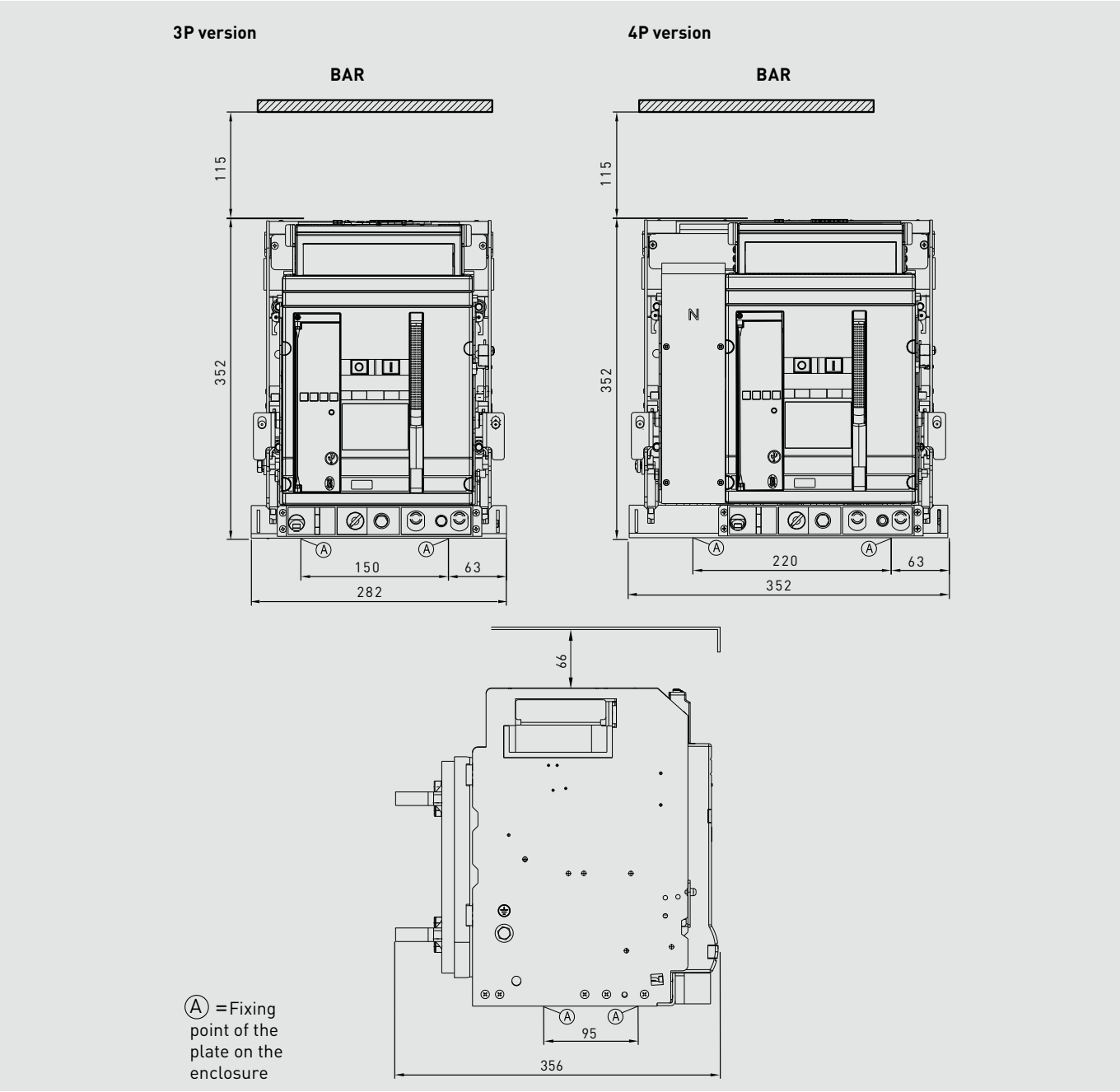
The metal structure of the DMX³ 1600 must be connected to the ground of the enclosure. Fixing points should not be considered as connection points.

■ Overall and mounting dimensions of a DMX³ 3P and 4P fixed version

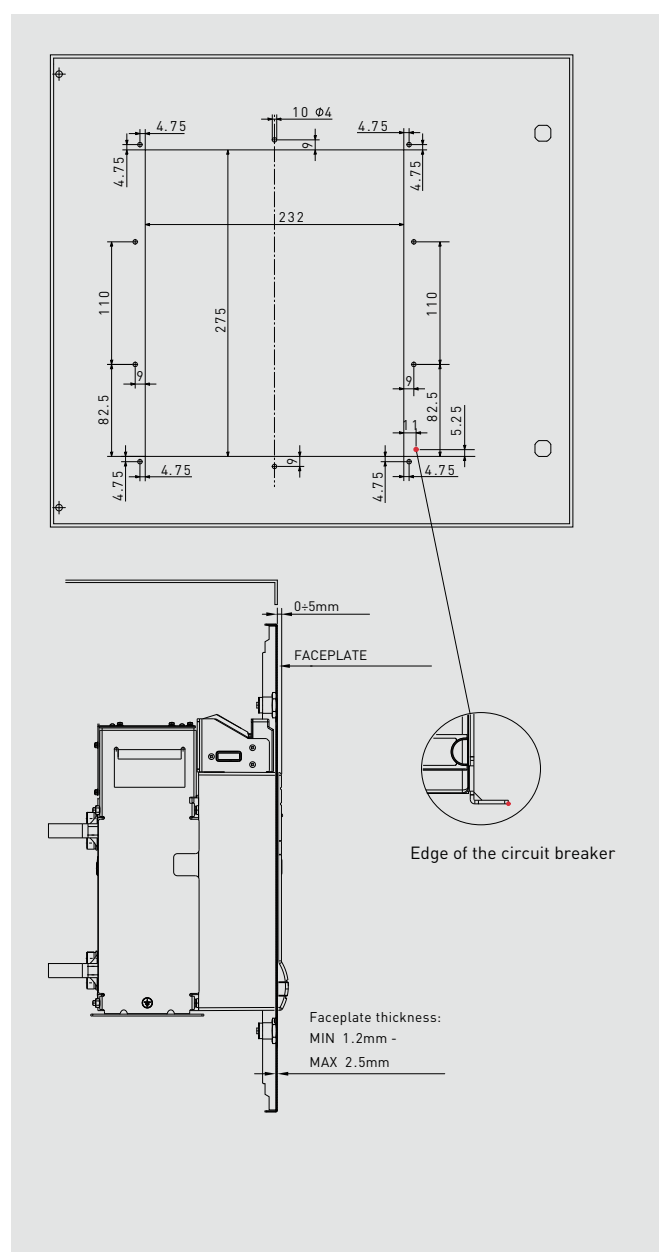


DMX³ 1600 INSTALLATION IN ENCLOSURES

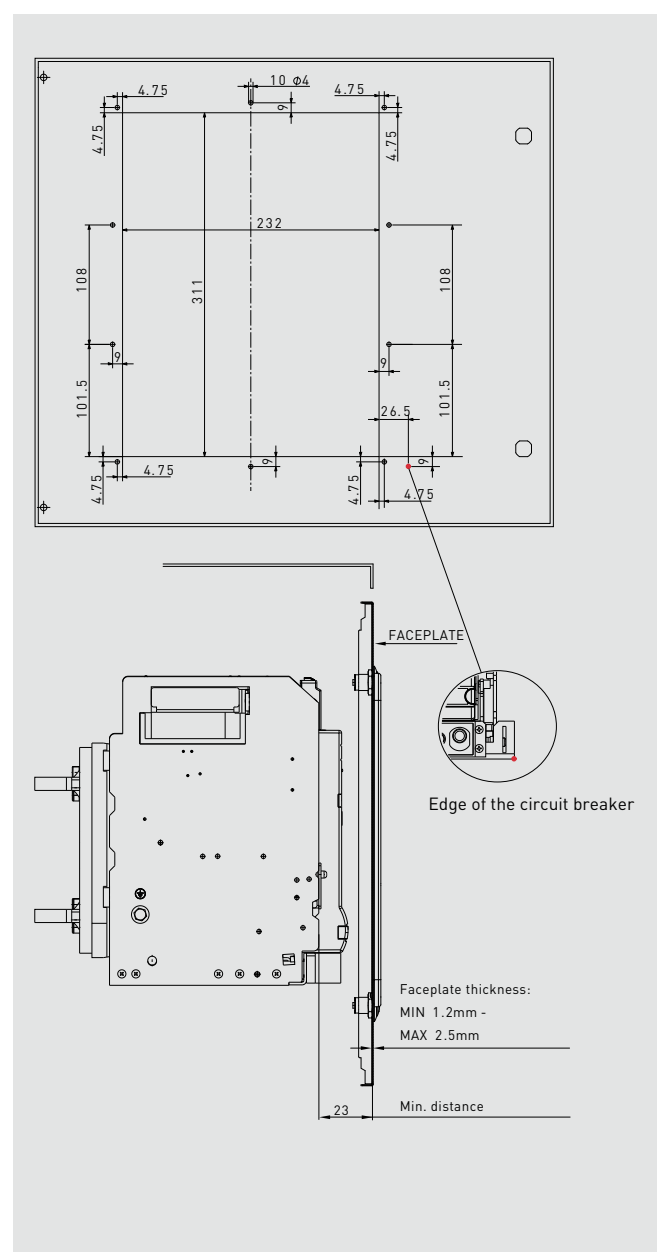
■ Overall and mounting dimensions of a DMX³ 3P and 4P DMX³ draw-out version



■ Cutting, drilling and positioning of the faceplate for fixed version



■ Cutting, drilling and positioning of the faceplate for draw-out version



ORDERING AND DELIVERY STATUS OF THE DMX³ 1600

Un disjoncteur DMX³ ne peut pas être commandé sans une unité de protection. Car celle-ci doit être programmée en fonction du disjoncteur et des options souhaitées.

Avec l'aide du logiciel XL Pro³, il est possible de générer un bon de commande au format Word®. Pour de plus amples détails concernant une commande de DMX³, contacter votre agence Legrand. L'ensemble des accessoires électriques et mécaniques peuvent être commandés et montés après la livraison du produit. Pour les accessoires et options obligatoirement montés en usine, se reporter au tableau de la page suivante.

Order ACB DMX ³		Rate for : 2019-01																													
Order n° :		Customer code :																													
Please send this form to your usual commercial/sales contact																															
Construction site informations :																															
Price offer n° :		Date :																													
Site: Sans titre		Building name :																													
Panel : Nouveau tableau 1		Building type :																													
Sales representative:		Building address :																													
Manager :																															
Name :		Address :																													
Phone number/Email :																															
Wholesaler		Delivery (if different address)																													
Name :		Company name :																													
		Name :																													
Address :		Address :																													
		Tel. n° / Email :																													
900185 : ACB DMX ³ factory assembled																															
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Select 1 language package for the protection unit:																															
English / Italian / Français	<input checked="" type="checkbox"/>	English / French	<input type="checkbox"/>																												
English / Russian	<input type="checkbox"/>	English / Spanish / Portuguese	<input type="checkbox"/>																												
English / Chinese	<input type="checkbox"/>																														
Quantity of ACB DMX ³ identical : 1																															
Total value :																															

Depending on the accessories ordered, the table below will indicate whether they will be delivered assembled or not. Depending on the assembly centre and/or markets, the factory configuration of DMX³ may vary.

ACCESSORIES		STATE OF ASSEMBLY	
Cat.nos	DESCRIPTION	FACTORY ASSEMBLED	DETAILS
0 280 35/41 & 0 281 47/48	Rear terminals	NO	They are delivered with the DMX ³ 1600.
0 281 20 /21/22/23/24	Motor operator	YES	This accessory is fixed inside the DMX ³ 1600 and is connected to the MOT terminal block.
0 281 26 to 0 281 40	Undervoltage release and closing coil	YES	This accessory is fixed inside the DMX ³ 1600 and is connected to the UVR/ST/CC terminal block.
0 281 49 /50/51/52	Insulation shields	NO	They are delivered with the DMX ³ 1600.
0 281 64 /65/66/67/68	Protection unit	YES	It is factory-assembled and configured with the factory settings (see protection unit guide).
0 281 70	MODBUS communication option (RS485)	YES	The circuit breaker must be factory configured to implement the communication option.
0 281 71	External neutral	Not entirely	The circuit breaker must be factory configured to protect an external neutral. A Rogowski coil is delivered with the circuit breaker and must be connected to the terminal block of the protection unit.
0 281 72	External power supply	NO	This accessory is not integrated in the circuit breaker. It is mounted on a modular rail.
0 281 73	Signal contact for inserted/ test/draw-out position	NO	«It comes with the DMX ³ 1600. It is not delivered assembled because its connection requires the dismantling of the circuit breaker.»
0 281 74	Signal contact spring charged and ready to close	YES	It is fixed inside the DMX ³ 1600 and is connected to the SC and RC terminals.
0 281 75	Additional auxiliary contact	YES	It is fixed inside the DMX ³ 1600 and is connected to the terminals OC1/2/3/4/5/6.
0 281 77	Padlock for buttons	NO	It attaches to the outside of the DMX ³ 1600.
0 281 78 /79/80/81	Lock in «open» position	YES	It mounts inside the DMX ³ 1600.
0 281 84	Door locking	NO	It comes with the DMX ³ 1600.
0 281 87	Inserted / test / draw-out lock button	NO	It comes with the DMX ³ 1600. Its installation requires the removal of the circuit breaker (or switch).
0 281 88	Mechanical counter	YES	It is fixed inside the DMX ³ 1600.
0 281 89	Rating mis-insertion device	YES	It is fixed outside the DMX ³ 1600 but inside the base.
0 281 90	Interlock	NO	It is fixed inside the DMX ³ 1600 and outside the base.
0 281 99	Programmable output option	YES	Option integrated in the protection unit when ordering.
0 288 63	Time-lag module	NO	It is not integrated in the circuit breaker (or switch). It is fixed on a modular rail.
0 289 17/18 & 0 289 20 to 0 289 25	Interlock cables	NO	They are delivered with the DMX ³ 1600.

COMMISSIONING

Before carrying out the first mechanical tests, and before switching on the DMX³ for the first time, for the safety of people and equipment, it is necessary to ensure that the rules of the trade and the recommended installation conditions are respected, and that only trained and authorised persons intervene. These persons must also ensure that there are no errors due to negligence and that there are no foreign objects inside the enclosure in accordance with the applicable standards.

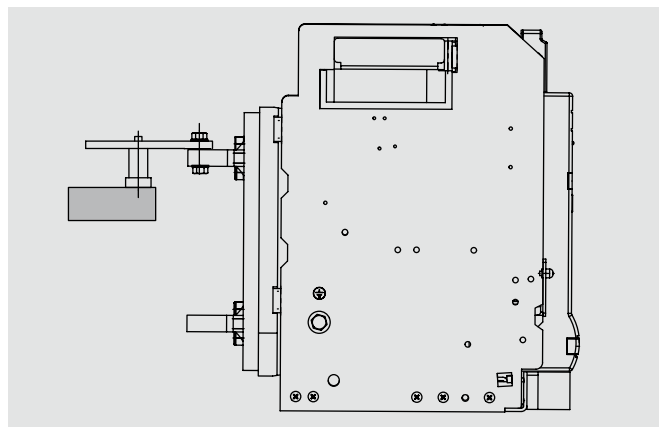
There are two types of commissioning checks:

- Offline controls
- Live controls

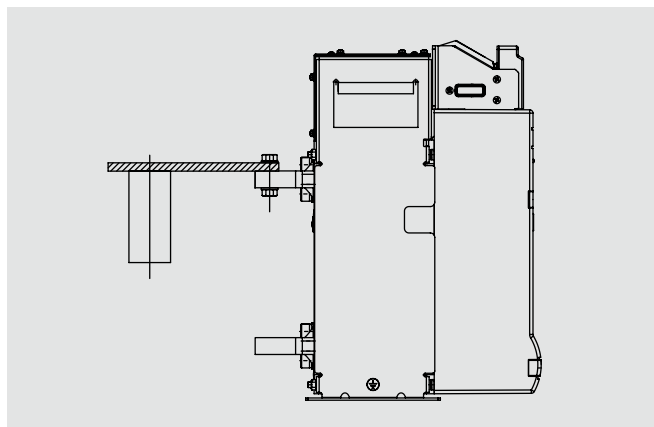
OFFLINE CONTROLS

- Check the physical integrity of the device. If any part is missing or damaged, it must be replaced. For a draw-out unit, check that it is possible to draw-out and re-insert the product without difficulty, with particular care being taken with the draw-out terminals of the electrical auxiliaries.
- Make sure that there are no metal parts, tools or machining waste near the device.
- Check the correspondence of the electrical accessories (coils, motors and protection unit) installed in relation to the electrical diagram of the assembly and to the instructions sheets of the products installed.
- Check that the tightening torque of the terminals is respected:

■ DMX³ draw-out



■ DMX³ fixed



Ø nominal (mm): 10 (M10 screw)

Ø hole (mm): 11

Tightening torque (Nm) with flat washer or split washer: 37,5

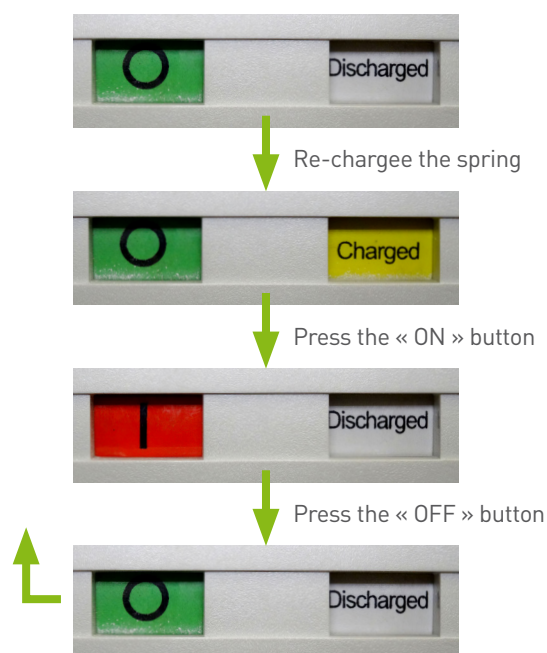
Tightening torque (Nm) with contact washers: 50



- For circuit-breakers, check the correct operation of the protection unit:
- Switch on the protection unit via an external auxiliary power supply (Cat.no 0 281 72) or a protected direct power supply (see section 9 of the electrical accessories on page 23).
- Set the Reset switch to the «MAN» position (vertical position, powered off).
- Close the circuit breaker and press the «T» test button on the protection unit for at least two seconds.
- Check that all lights are lit for about 1 second («ON» light in orange and the other lights in red), and that the Reset switch comes out of its housing.
- The circuit breaker should trip and the lights go out.
- ON» light changes from orange to green.
- Remember to acknowledge the fault by pressing the Reset selector switch.



- Carry out two opening/closing cycles of the DMX³, always with the power off, specifically checking the indications on the front face of the DMX³.



- When using DMX³ as a transfer switch, it is necessary to check that the operating logic (truth table) conforms to the requirements of the interlocking scheme.
- If locking accessories are installed on the DMX³ (open position, extracted position, etc ...), make sure that the function of each one is ensured.

LIVE CHECKS

■ Dielectric test

Prior to testing under rated voltage, it is necessary to perform the dielectric test. This normative test must be carried out under certain conditions in order not to damage the DMX³ protection unit. First isolate all the electronic components from the line to be tested and then disconnect the stable direct power supply connected to terminals PU1-PU2 or the external auxiliary power supply Cat.no 0 281 72 connected to terminals H1-H2.

It is recommended to take all the necessary safety measures (sealing, recording, locking, marking, etc.) during the test operations in order to avoid possible material and/or physical accidents.

RESET BUTTON

Circuit breaker closing can be done locally or remotely after ensuring that the system and device conditions comply with safety procedures.

■ « MAN » position (manual)

The DMX³ is delivered with the button in this position. When the product is triggered by the protection unit, it is required to press the red RESET button before being able to perform the closing manoeuvre.

MAN» position (blue selector switch in vertical position) and red RESET button out:



MAN» position (blue selector switch in vertical position) and red RESET button pushed in:



To change from the «MAN» position to the «AUT» position, the following operations must be performed:

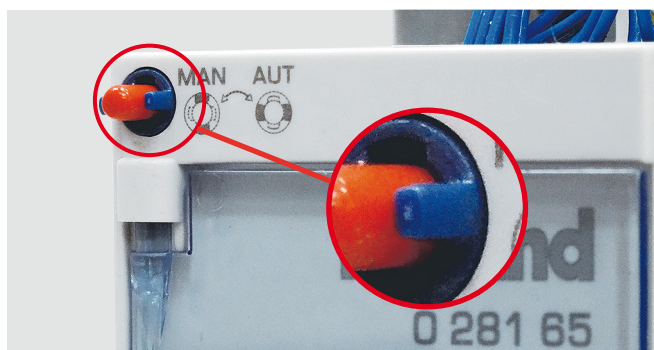
1-Press the red RESET button until the end of the stroke.

2-Hold it down and turn the blue selector 90° to the right to place it in the « AUT » position.

AUT» position (automatic)

This position is generally used in supervisory systems. Unlike the «MAN» position, it is possible to close the circuit breaker after a trip caused by the protection unit (the RESET button remains retracted). Before carrying out this operation, it is necessary to have analysed (and corrected) the fault that caused the product to open.

AUT» position (blue selector switch in horizontal position) and red RESET button pressed in:



PREVENTIVE MAINTENANCE



Maintenance and periodic inspections must be carried out by qualified and trained personnel. Before any maintenance work, make sure that the DMX³ is switched off in the «OFF» position and the spring is discharged.

The persons in charge of maintenance operations must ensure the safety of persons and equipment by using all the necessary tools and procedures in force.

THIS PURPOSE OF THIS PREVENTIVE MAINTENANCE IS TO

- Check the correct operation of the product.
- Identify damaged parts and/or accessories.
- Organize preventive actions in order to avoid accidents.

THERE ARE TWO LEVELS OF MAINTENANCE

- Level 1: checks and frequency detailed in the LE10707AA maintenance guide.
- Level 2: not detailed in the LE10707AA maintenance guide, contact the Professional Relations Department (0 810 48 48 48)
→ Checks at this level must be carried out by Legrand departments or Legrand certified/qualified personnel.

PARTS & OPERATIONS CONCERNED BY LEVEL 1

- Mechanism:
 - Correct operation and greasing
 - Checking the seals
- Arc stopping cells
- Main contacts:
 - Visual
- Draw-out system:
 - Checking of correct operation
 - Insulation shutters
 - Connecting clamps
 - Sliding auxiliary contacts
 - Greasing of the draw-out base
 - Draw-out mechanism

- Power terminals
- Auxiliaries:
 - Visual checking
 - Functional test
- Motor operator, undervoltage/overvoltage/closing coil:
 - Functional test
 - Greasing of the motor drive mechanism
- Mechanical accessories
 - Locking in open position
 - Locking in draw-out position
- Mechanical interlock
- Protection Unit

PARTS AND OPERATIONS CONCERNED BY LEVEL 2

- Mechanism (thorough checks and verifications)
- Protection Unit (thorough checks and controls)



The use of the mechanical counter (Cat.no 0 281 88) is suggested to facilitate the planning of the periodic maintenance of the product.



It is recommended to save and store all maintenance actions performed on each device.



In any event, Legrand can never be held liable for damage caused to the equipment if periodic maintenance is not carried out in accordance with the indications contained in the maintenance guide.

SPARE PARTS & ACCESSORIES

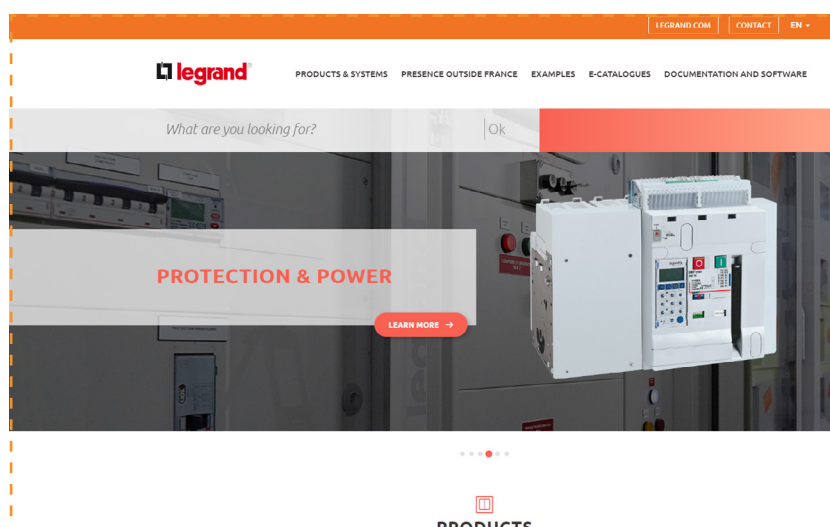
CAT.NO	DESIGNATION	CONTENT	
Contact Legrand	Mechanical grease		0.5 kg jar: allows greasing of 10 DMX ³ 1600
0 290 50	Aux terminal cap		x 10
0 290 52	Fixed terminal for connection		x 10
4 210 95	Seal kit		x 4

To know more,
check **export.legrand.com**

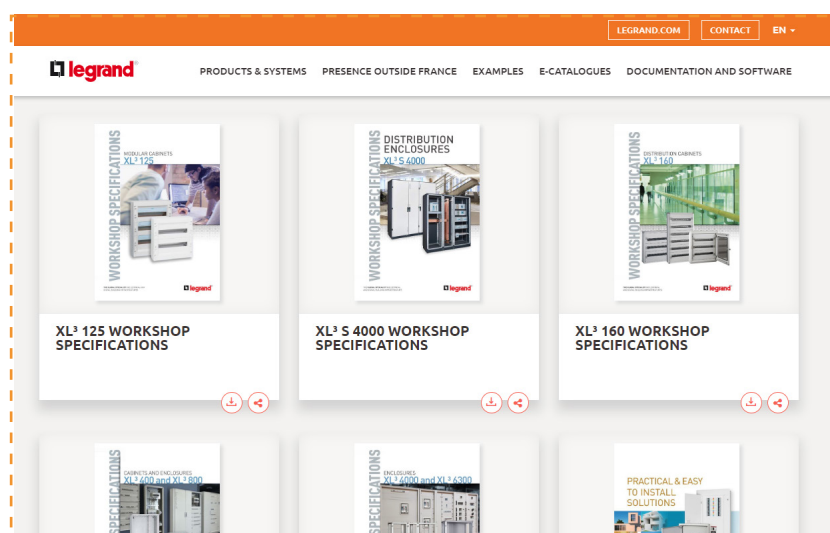


All technical data of the products inside this workshop specifications book are available on : <https://www.export.legrand.com/en>

>Click on >DOCUMENTATION & SOFTWARE








>Documentation





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