WORKSHOP SPECIFICATIONS

AIR CIRCUIT BREAKERS

DMX-SP 2500 and DMX-SP 4000

THE GLOBAL SPECIALIST IN ELECTRICAL AND DIGITAL BUILDING INFRASTRUCTURES

legrand®

Air circuit breakers are a key component of the main distribution board.

Legrand DMX-SP circuit breaker range, available from 630 A to 4000 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.

DMX-SP range of circuit breakers and isolating switches 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.

TABLE OF CONTENTS

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.

DMX-SP
RANGE

Presentation of the offer

Icu (415~)		42 kA				50 kA				65 kA			
		FIXED		DRAWN-OUT		FIXED		DRAWN-OUT		FIXED		DRAWN-OUT	
	In (A)	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P	3P	4P
DMX-SP 2500	630	6 695 00	6 695 06	6 695 12	6 695 18	6 695 24	6 695 30	6 695 36	6 695 42	-	-	-	-
	800	6 695 01	6 695 07	6 695 13	6 695 19	6 695 25	6 695 31	6 695 37	6 695 43	-	-	-	-
	1000	6 695 02	6 695 08	6 695 14	6 695 20	6 695 26	6 695 32	6 695 38	6 695 44	-	-	-	-
	1250	6 695 03	6 695 09	6 695 15	6 695 21	6 695 27	6 695 33	6 695 39	6 695 45	-	-	-	-
	1600	6 695 04	6 695 10	6 695 16	6 695 22	6 695 28	6 695 34	6 695 40	6 695 46	-	-	-	-
	2000	6 695 05	6 695 11	6 695 17	6 695 23	6 695 29	6 695 35	6 695 41	6 695 47	-	-	-	-
	2500	6 695 72	6 695 73	6 695 74	6 695 75	6 695 76	6 695 77	6 695 78	6 695 79	-	-	-	-
	BASE	-	-	6 696 10	6 696 11	-	-	6 696 10	6 696 11	-	-	-	-
DMX-SP 4000	3200	-	-	-	-	6 696 30	6 696 32	6 696 40	6 696 42	6 696 34	6 696 36	6 696 44	6 696 46
	4000	-	-	-	-	6 696 31	6 696 33	6 696 41	6 696 43	6 696 35	6 696 37	6 696 45	6 696 47
	BASE	-	-	-	-	-	-	6 696 12	6 696 13	-	-	6 696 12	6 696 13

		FIXED		DRAWN-OUT	
	In (A)	3P	4P	3P	4P
DMX-SP-I 2500	630	6 695 48	6 695 54	6 695 60	6 695 66
	800	6 695 49	6 695 55	6 695 61	6 695 67
	1000	6 695 50	6 695 56	6 695 62	6 695 68
	1250	6 695 51	6 695 57	6 695 63	6 695 69
	1600	6 695 52	6 695 58	6 695 64	6 695 70
	2000	6 695 53	6 695 59	6 695 65	6 695 71
	2500	6 695 80	6 695 81	6 695 82	6 695 83
	BASE	-	-	6 696 10	6 696 11
DMX-SP-I 4000	3200	6 695 90	6 695 92	6 695 94	6 695 96
	4000	6 695 91	6 695 93	6 695 95	6 695 97
	BASE	-	-	6 696 12	6 696 13

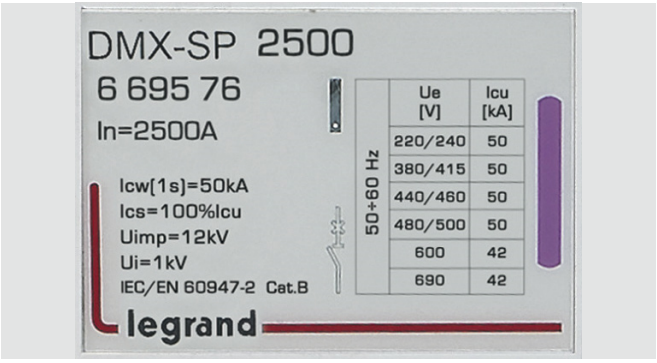
TABLE OF CONTENTS

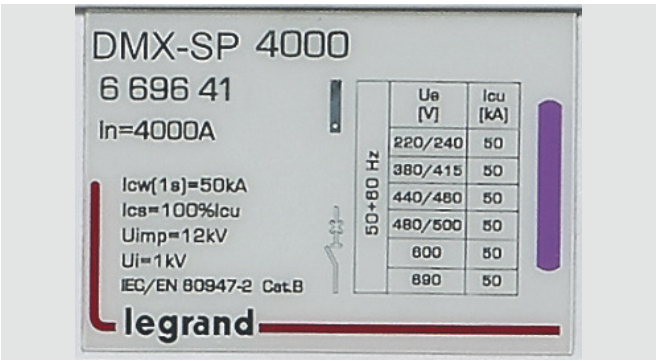
DMX-SP air circuit breakers are available in 3 breaking capacities (42 kA, 50 kA for the 2500 size and 50 kA, 65 kA for the 4000 size), 9 rated currents (from 630 A to 2500 A for the 2500 size and from 3200 A to 4000 A for the 4000 size), and in fixed and drawn-out versions.

- DMX-SP 42 kA
- DMX-SP 50 kA
- DMX-SP 65 kA

In	Rated current
Icw(1s)	Short time withstand current
Ics	Rated short-circuit service breaking capacity
Uimp	Rated impulse withstand voltage
Ui	Rated insultation voltage
IEC/EN 60947-2	Normative compliance
Cat.B	Category of use

■ **Example of a label with a breaking capacity of 50 kA**





BREAKING CAPACITIES & RATED CURRENTS									
	630 A	**800 A**	**1000 A**	**1250 A**	**1600 A**	**2000 A**	**2500 A**	**3200 A**	**4000 A**
DMX-SP	42 kA fixed and drawn-out								
	50 kA fixed and drawn-out								
								65 kA fixed and drawn-out	
DMX-SP-I	fixed and drawn-out								

PRECISE AND USER-FRIENDLY PROTECTION UNITS

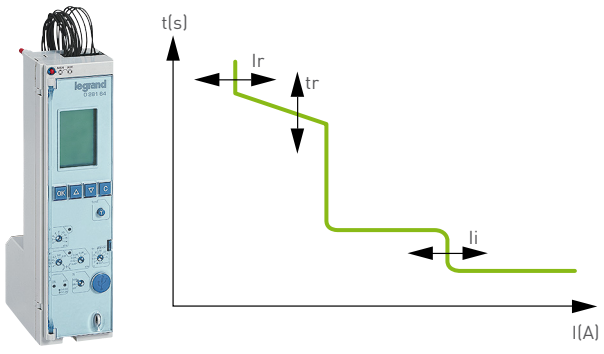
DMX-SP electronic units allow precise adjustment of different limits for current values and time delay.

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

The LCD displays (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).

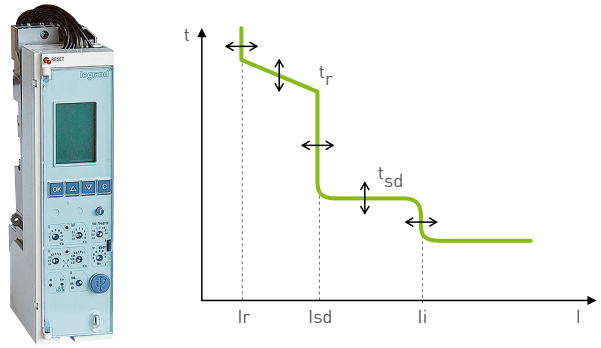
■ MP4 LI electronic protection unit Cat.No 0 281 64 for DMX-SP 2500

The following settings are adjusted using rotary selector swtiches:
- Long time delay protection against overloads: Ir
- Long delay protection operation time: tr
- Instataneous protection against very high short circuits: Ii
- Neutral protection: I_N



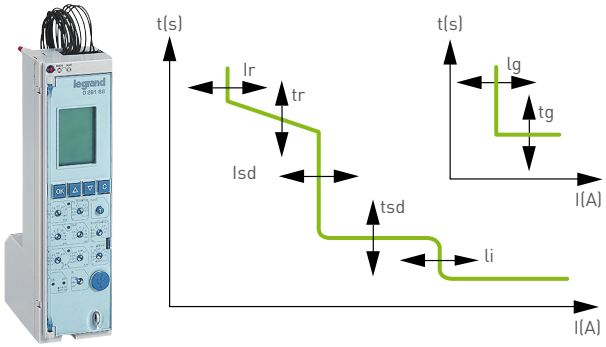
■ MP4 LSI electronic protection unit Cat.No 0 281 65 for DMX-SP 2500

The following settings are adjusted using rotary selector swtiches:
- Long time delay protection against overloads: Ir
- Long delay protection operation time: tr
- Short time delay protection against short circuits: Isd
- Short time delay protection operation time: tsd
- Instantaneous protection against very high short circuits: Ii
- Neutral protection: I_N



■ MP4 LSIg electronic protection unit Cat.No 0 281 66 for DMX-SP 2500

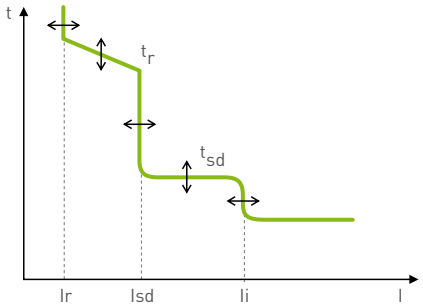
The following settings are adjusted using rotary selector switches:
- Long time delay protection against overloads: Ir
- Long delay protection operation time: tr
- Short time delay protection against short circuits: Isd
- Short time delay protection operation time: tsd
- Instantaneous protection against very high short circuits: Ii
- Earth fault current: Ig
- Time delay on earth fault tripping: tg
- Neutral protection: I_N



■ **MP2 LSIg electronic protectionCat.No 0 281 67 for DMX-SP 2500**

The following settings are adjusted using rotary selector switches:

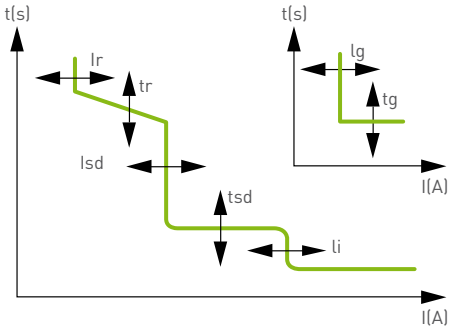
- Long time delay protection against overloads: Ir
- Long delay protection operation time: tr
- Short time delay protection against short circuits: Isd
- Short time delay protection operation time: tsd
- Instantaneous protection against very high short circuits: Ii
- Neutral protection: IN



■ **MP2 LSIg electronic protection unit Cat.No 0 281 68 for DMX-SP 2500**

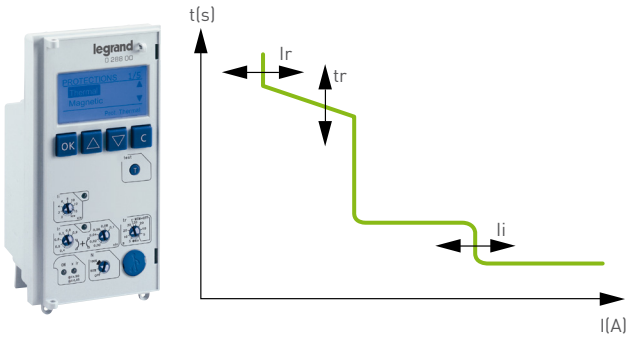
The following settings are adjusted using rotary selector switches:

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



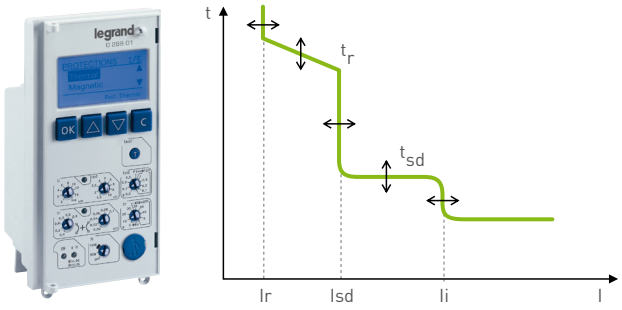
■ **MP4 LI electronic protection unit Cat.No 0 288 00 for DMX-SP 4000**

The following settings are adjusted using rotary selector swtiches:
- Long time delay protection against overloads: Ir
- Long delay protection operation time: tr
- Instataneous protection against very high short circuits: Ii
- Neutral protection : I_N



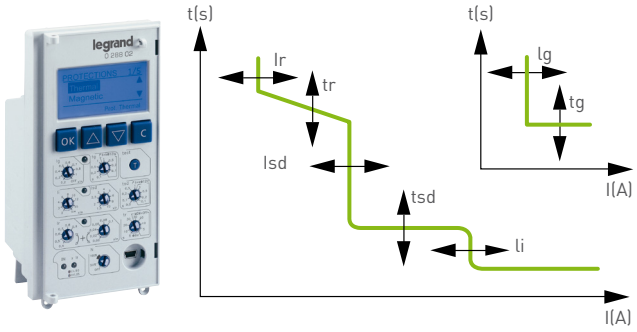
■ **MP4 LSI electronic protection unit Cat.No 0 288 01 for DMX-SP 4000**

The following settings are adjusted using rotary selector switches:
- Long time delay protection against overloads: Ir
- Long delay protection operation time: tr
- Short time delay protection against short circuits: Isd
- Short time delay protection operation time: tsd
- Instantaneous protection against very high short circuits: Ii
- Neutral protection: I_N



■ **MP4 LSIg electronic protection unit Cat.No 0 288 02 for DMX-SP 4000**

The following settings are adjusted using rotary selector switches:
- Long time delay protection against overloads: Ir
- Long delay protection operation time: tr
- Short time delay protection against short circuits: Isd
- Short time delay protection operation time: tsd
- Instantaneous protection against very high short circuits: Ii
- Earth fault current: Ig
- Time delay on earth fault tripping: tg
- Neutral protection: I_N



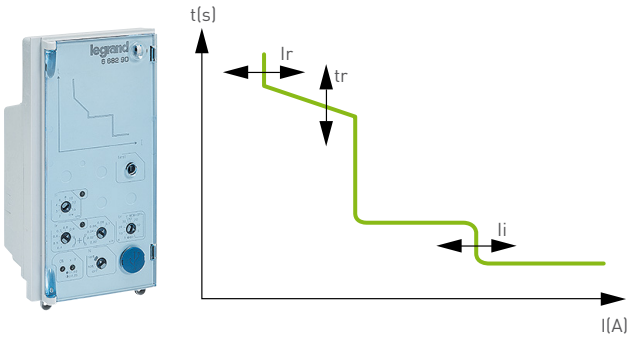
These protection units are equipped with batteries that allow them to remain autonomous for setting parameters and viewing data, even in case of power failure, circuit breaker in «OFF» position or not connected.

TABLE OF CONTENTS

■ **MP2 without LCD display LI protection unit Cat.No 6 682 90 for DMX-SP 4000**

The following settings are adjusted using rotary selector switches:

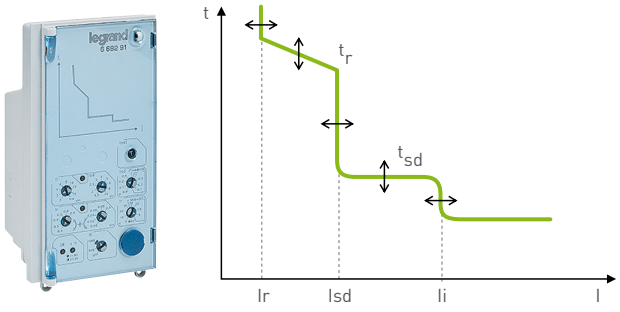
- Long time delay protection against overloads: Ir
- Long delay protection operation time: tr
- Instantaneous protection against very high short circuits: Ii
- Neutral protection: I_N



■ **MP2 without LCD display LSI protection unit Cat.No 6 682 91 for DMX-SP 4000**

The following settings are adjusted using rotary selector switches:

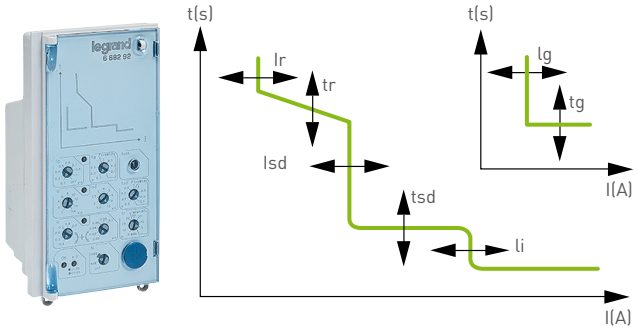
- Long time delay protection against overloads: Ir
- Long delay protection operation time: tr
- Short time delay protection against short circuits: Isd
- Short time delay protection operation time: tsd
- Instantaneous protection against very high short circuits: Ii
- Neutral protection: I_N



■ **MP2 without LCD display LSIg protection unit Cat.No 6 682 92 for DMX-SP 4000**

he following settings are adjusted using rotary selector switches:

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



DMX-SP 2500

FRONT VIEW

Padlocks for buttons

Reset button for tripping

Protection unit

Indicator for main contacts position

Mechanical counter

Extractor handles

Location of the extraction handle (for drawn-out version)

Key locking in drawn-out position

Position indicator: inserted/test/drawn-out

Insertion of the extractor handle

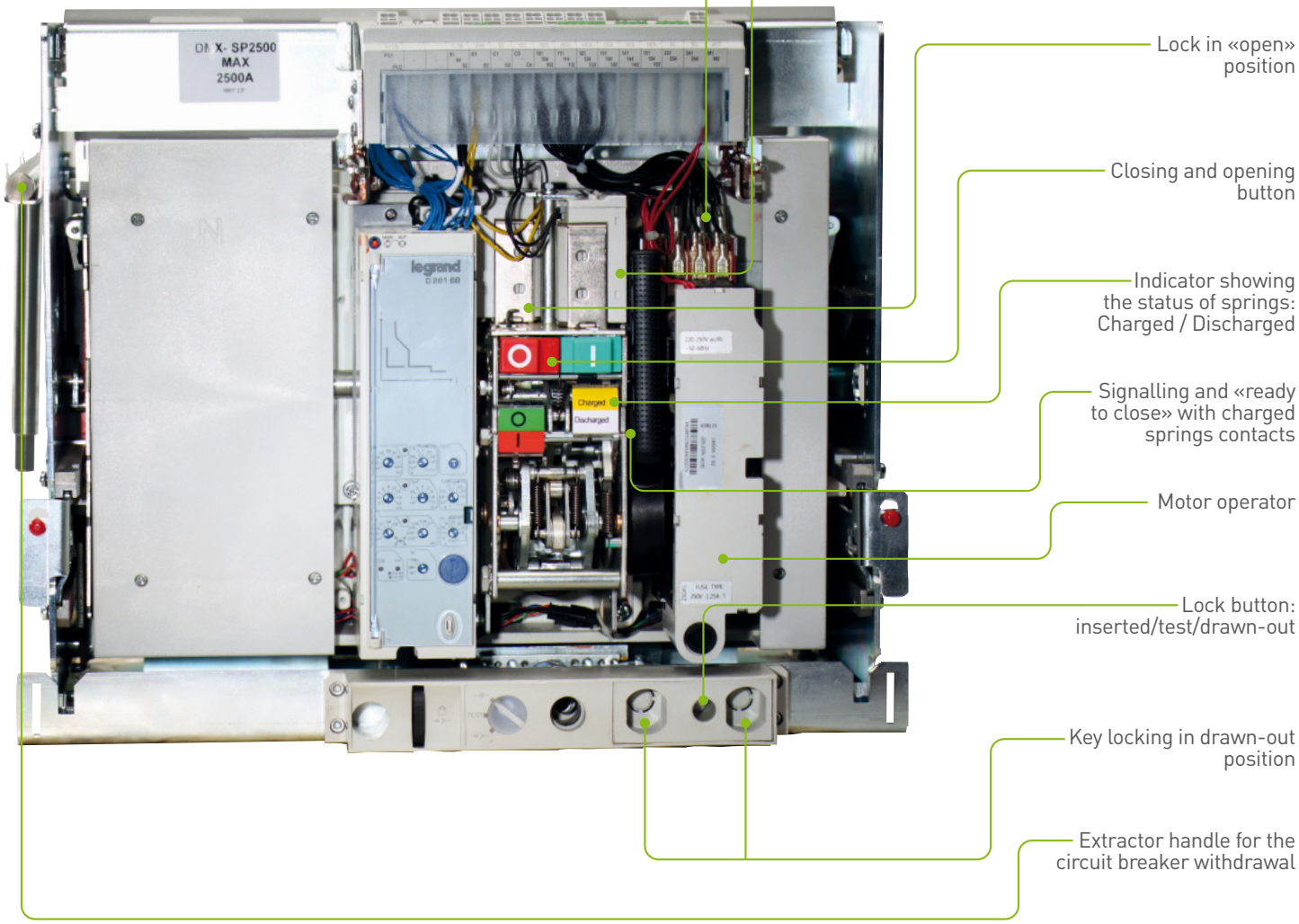
Aperture for key locking in drawn-out position

Lock button: inserted/test/drawn-out

Front face fixing screws (nb: 4)

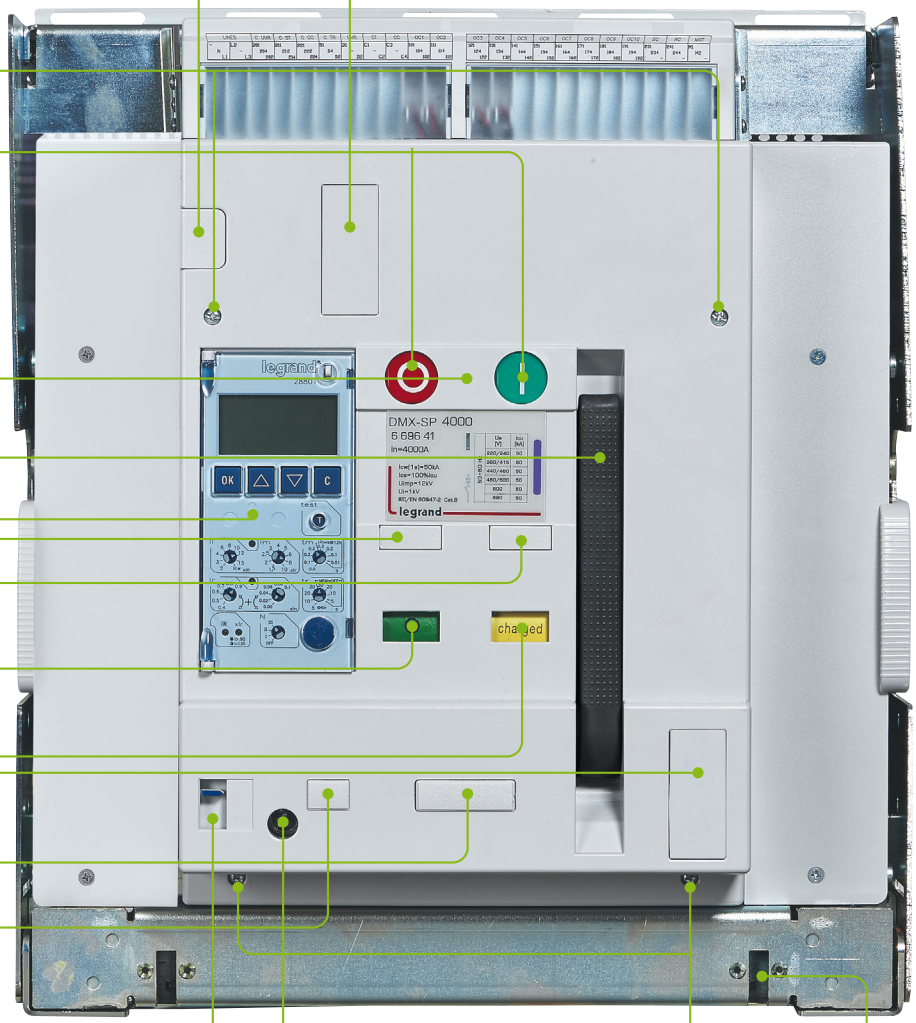
2nd aperture for key locking in drawn-out position

TABLE OF CONTENTS


Auxiliary contacts position
Releases and coils
Lock in «open» position
Closing and opening button
Indicator showing the status of springs: Charged / Discharged
Signalling and «ready to close» with charged springs contacts
Motor operator
Lock button: inserted/test/drawn-out
Key locking in drawn-out position
Extractor handle for the circuit breaker withdrawal
DMX- SP2500
MAX
2500A
legrand
Charged
Discharged

DMX-SP 4000

FRONT VIEW



Key locking in «open» position

Selector switch for the dielectric test

Front face fixing screws (nb: 4)

Opening and closing buttons

Closing padlock I/O

Spring charging handle

Protection unit

Reset button

Mechanical counter

Indicator for main contacts position

Indicator showing the status of springs: Charged / Discharged

Key locking in drawn-out position (for drawn-out version)

Padlocking location in drawn-out position

Hatch opening handle

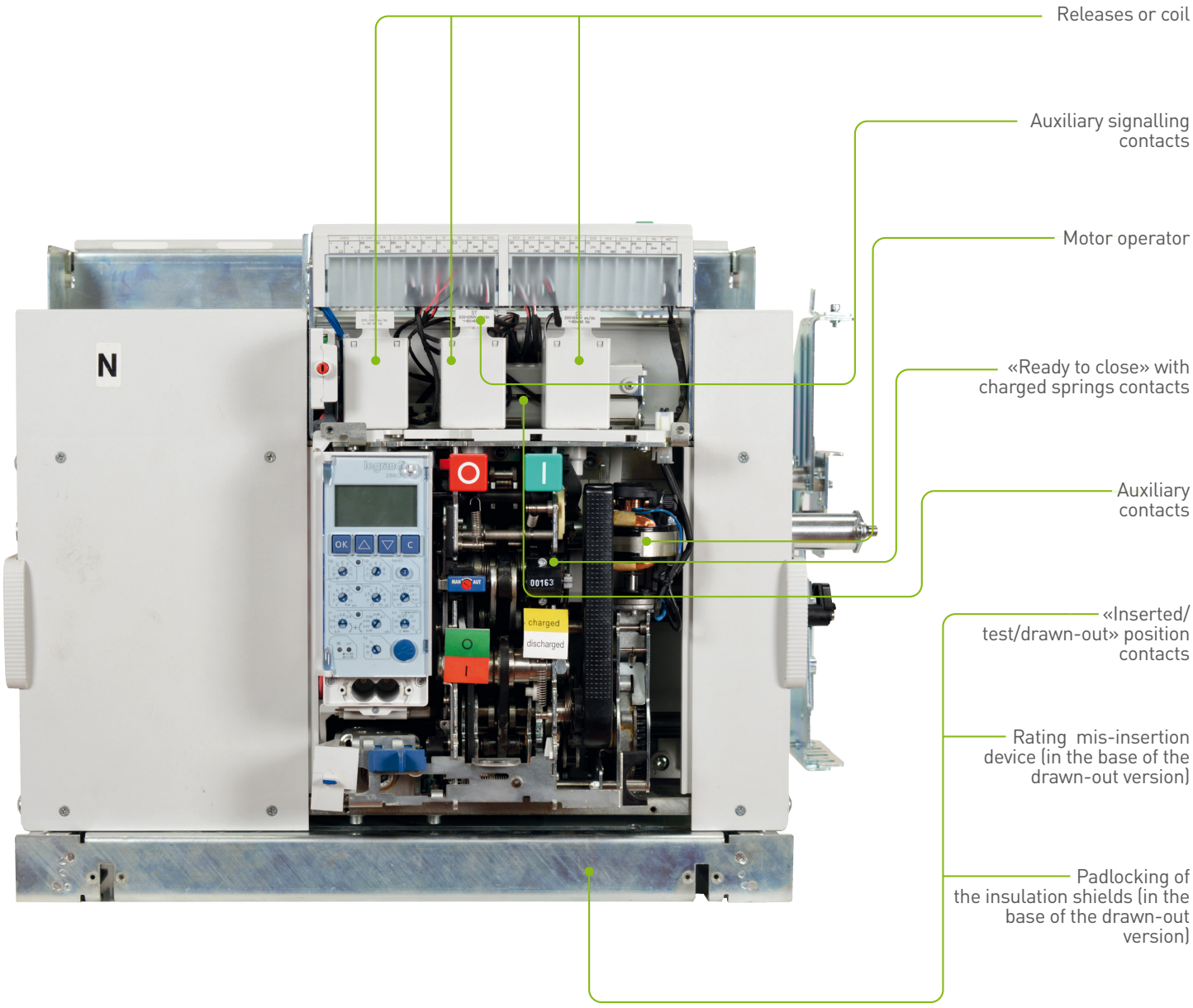
Plug-in status indicator

Handle access hatch

Front face fixing screws (nb: 4)

Locking for door or faceplate

TABLE OF CONTENTS


Releases or coil
Auxiliary signalling contacts
Motor operator
«Ready to close» with charged springs contacts
Auxiliary contacts
«Inserted/ test/drawn-out» position contacts
Rating mis-insertion device (in the base of the drawn-out version)
Padlocking of the insulation shields (in the base of the drawn-out version)
N
charged
discharged

DMX-SP 2500
ELECTRICAL ACCESSORIES

1- Shunt trip (Cat.No 0 281 31/32/33/34/35)
2- Undervoltage release (Cat.No 0 281 36/37/38/39/40)
3- Closing coil (Cat.No 0 281 26/27/28/29/30)
4- Time-lag module for undervoltage release (Cat.No 0 288 62/63)
5- Motor operator (Cat.No 0 281 20/21/22/23/24)
6- Signalling contact for inserted/test/drawn-out position (Cat.No 0 281 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 6 696 05)
12- Programmable output option (Cat.No 0 281 99)
13- Terminal block layout and accessory location
14- Wiring diagrams

1- Shunt trip (Cat.Nos 0 281 31/32/33/34/35)

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

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

The electrical signal 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 DMX-SP terminal block.

The shunt trip can be permanently energised.

The DMX-SP can be equipped 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 ~/⎓
0 281 32	48 V ~/⎓
0 281 33	110-130 V ~/⎓
0 281 34	220-250 V ~/⎓
0 281 35	415-440 V ~

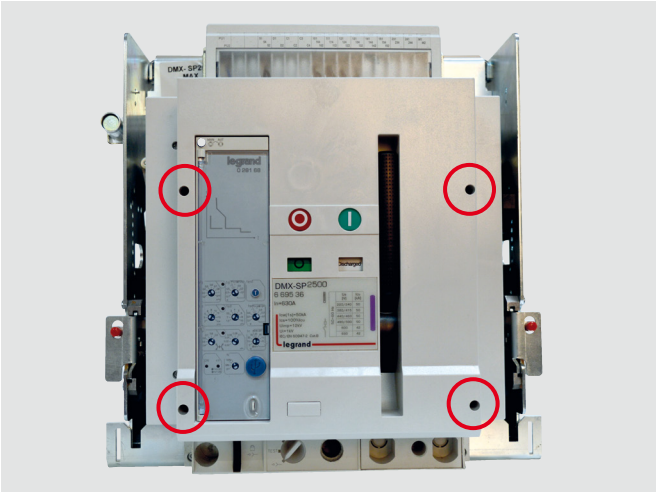
TECHNICAL CHARACTERISTICS

Rated voltage (Uc)	AC: 24 V; 48 V; 110 V à 130 V; 220 V to 250 V; 415 V to 440 V DC: 24 V; 48 V; 110 V to 130 V; 220 V to 250 V
Operating voltage range (%Uc)	70 to 110
Pick-up consumption (W/VA)	400/400
Response time (ms)	300
Hold consumption (W/VA)	5 / 5
Opening time (ms)	50
Insulation voltage (kV)	2.5

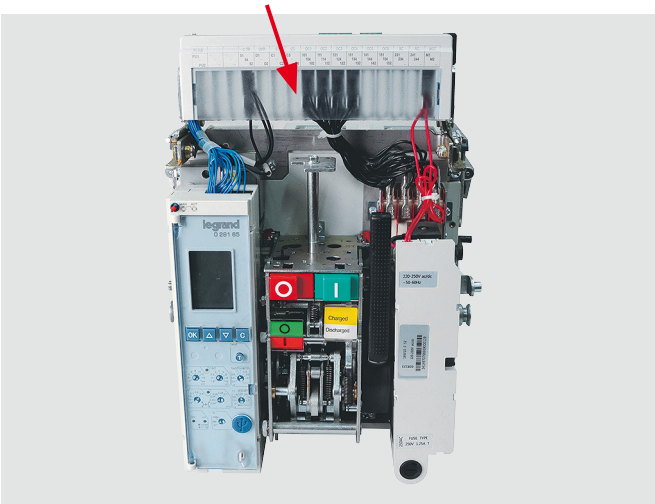
MOUNTING

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

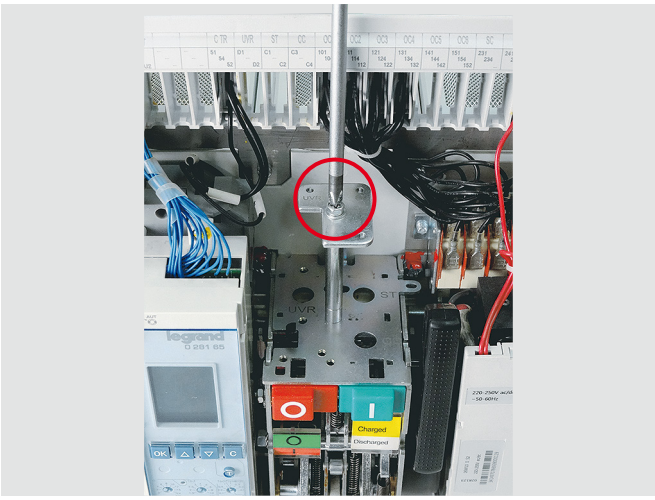
Remove the 4 screws (Phillips head n°1) and the front panel.



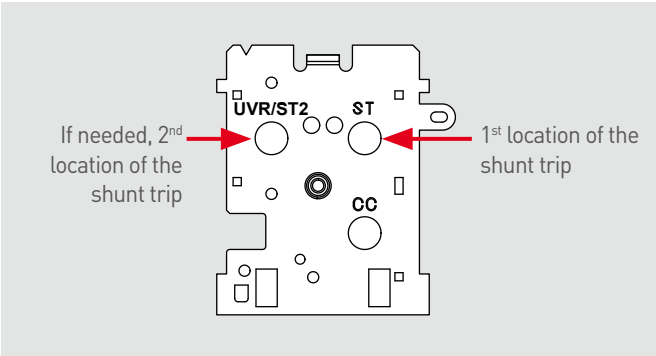
Remove the plastic cover from the terminal block.



Remove the screw (Phillips head n°2) from the shunt trip support plate and remove the plate.



Top view of the coil support plate.



Insert the metal pins of the shunt trip correctly into the holes of the DMX-SP.

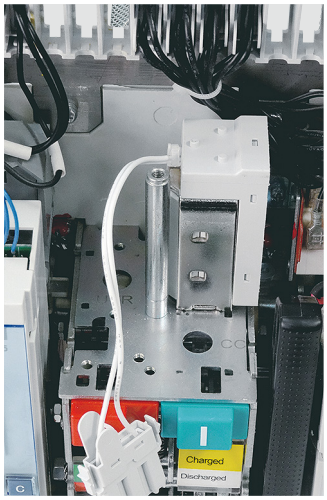
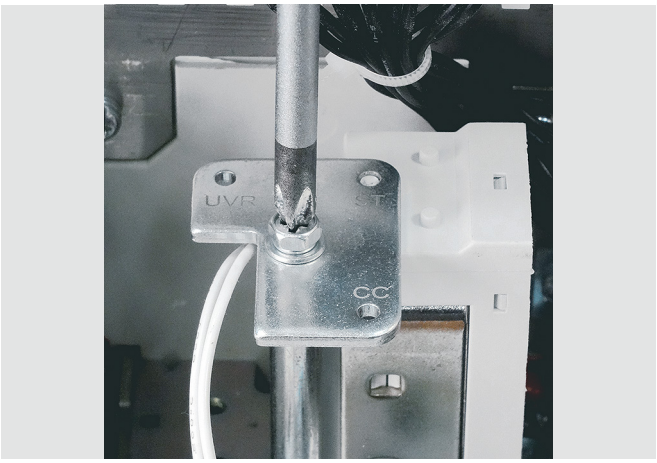
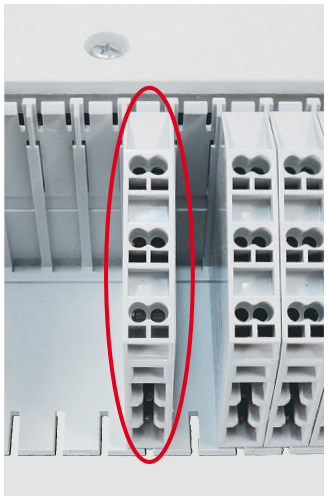


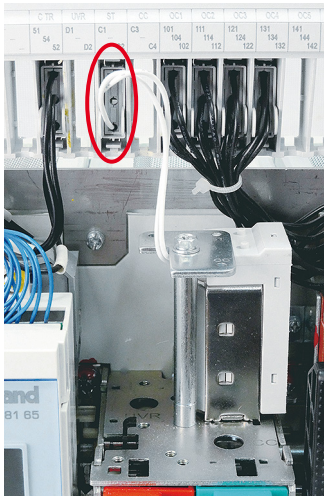
TABLE OF CONTENTS

Replace and screw the support plate (Phillips head n°2, tightening torque 3 Nm).

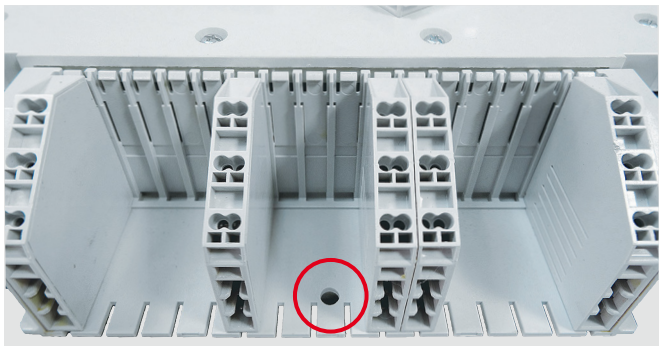


Clip the connector and terminal block into the dedicated slots: here ST (Shunt Trip).





For a fixed version, it is necessary to remove the OC1 and OC2 terminal blocks in order to access the hole provided for the screwdriver passage (in order to fix the support plate).

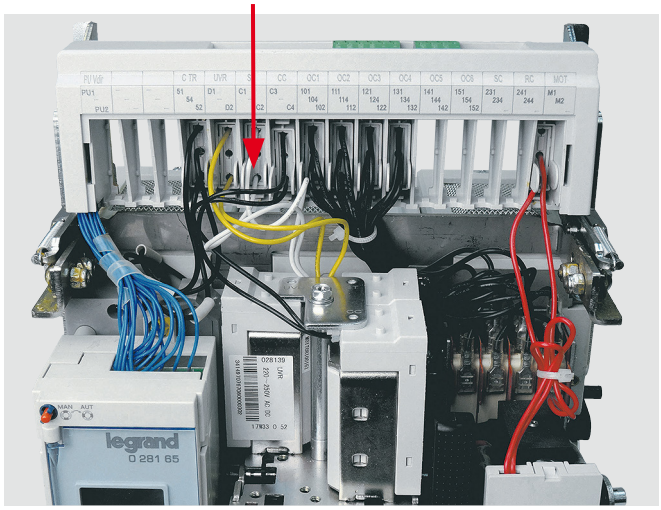


Replace the plastic cover of the terminal block, then the front panel using the 4 screws (Phillips head n°1, tightening torque 1 Nm), then the screw caps.

Re-insert the DMX-SP if necessary.

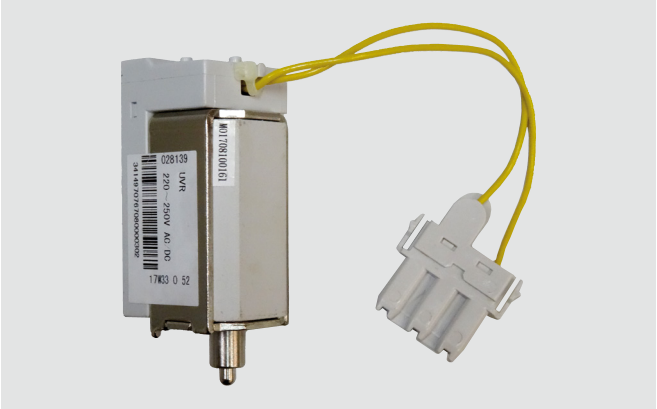
Cables are visually marked according to the type of tripping unit:
- White: Shunt Trip (ST):

White



2- Undervoltage release (Cat.Nos 0 281 36/ 37/38/39/40)

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



The undervoltage release allows instantaneous opening of the DMX-SP by powering off the coil (positive safety).

The electrical signal 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 DMX-SP terminal block.

The DMX-SP can take only one undervoltage release.

The latter must be in the slot marked «UVR».

Cat.Nos	Operating voltage
0 281 36	24 V ~/⎓
0 281 37	48 V ~/⎓
0 281 38	110-130 V ~/⎓
0 281 39	220-250 V ~/⎓
0 281 40	415-440 V ~

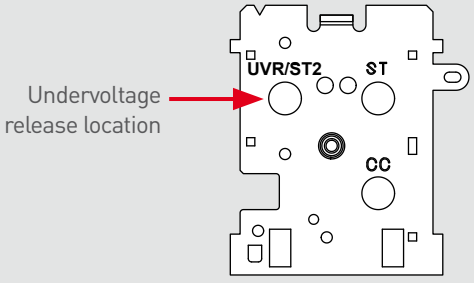
TECHNICAL CHARACTERISTICS

Rated voltage (Uc)	AC : 24 V; 48 V; 110 V à 130 V; 220 V to 250 V; 415 V to 440 V DC : 24 V; 48 V; 110 V to 130 V; 220 V to 250 V
Operating voltage range (%Uc)	85 to 110
Pick-up consumption (W/VA)	400/400
Response time (ms)	300
Hold consumption (W/VA)	5 / 5
Opening time (ms)	60
Insulation voltage (kV)	2.5

MOUTING

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

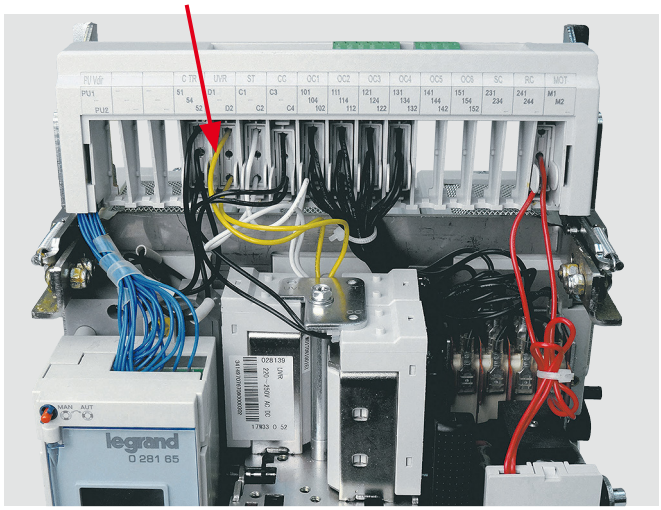
Top view of the coil support plate



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

Cables are visually marked according to the type of trip unit:
- Yellow: Undervoltage Release (UVR)

Yellow



3- Closing coil (Cat.Nos 0 281 26/ 27/ 28/29/30)

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

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

The electrical signal 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 DMX-SP 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~/⎓
0 281 27	48 V ~/⎓
0 281 28	110-130 V ~/⎓
0 281 29	220-250 V ~/⎓
0 281 30	415-440 V ~

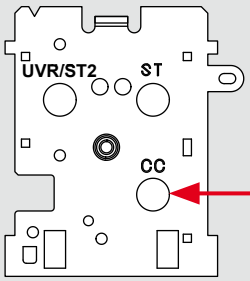
TECHNICAL CHARACTERISTICS

Rated voltage (Uc)	AC : 24 V; 48 V; 110 V à 130 V; 220 V to 250 V; 415 V to 440 V DC : 24 V; 48 V; 110 V to 130 V; 220 V to 250 V
Operating voltage range (%Uc)	85 to 110
Pick-up consumption (W/VA)	400/400
Response time (ms)	300
Hold consumption (W/VA)	50 / 50
Opening time (ms)	50
Insulation voltage (kV)	2.5

MOUNTING

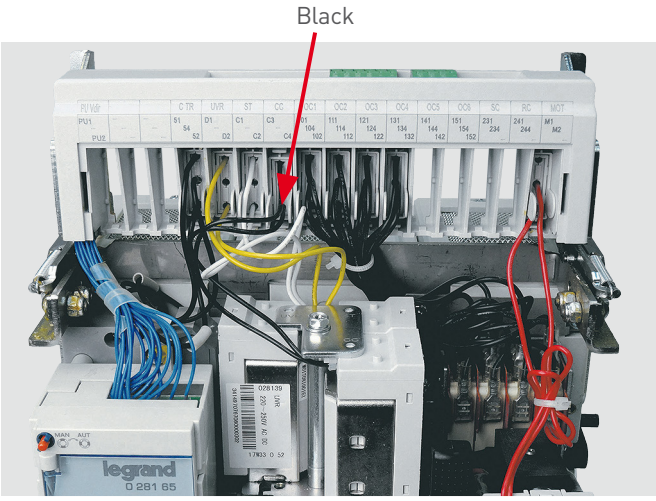
Before any intervention, check that the DMX-SP is in the «OFF» position (contacts open), drawn-out position (if necessary) and the discharged spring.

Top view of the coil support plate

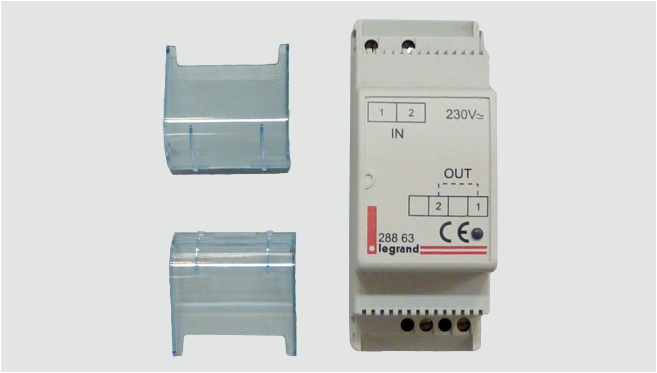


The assembly operations are identical for both shunt trip and undervoltage release as well as for the closing coil. However, be sure to respect the dedicated slots and the specific installation requirements depending on the version (drawn-out or fixed).

Cables are visually marked according to the type of trip unit:
- Black: Closing Coil (CC)



4- Time-lag module for undervoltage release (Cat.Nos 0 288 62/63)



These modules are used to delay the intervention of an undervoltage release installed in a DMX-SP by up to three seconds during a micro-break.These delay modules work 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 NC type, and it should be placed between the output of the last time-lag module and the undervoltage release.
Before turning on the time-lag 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 downstream the wiring of the time-lag module, wait a minute after switching off the power supply to avoid any electric shocks.

Cat.Nos	Operating voltage
0 288 62	110 V ~/⎓
0 288 63	230 V ~/⎓

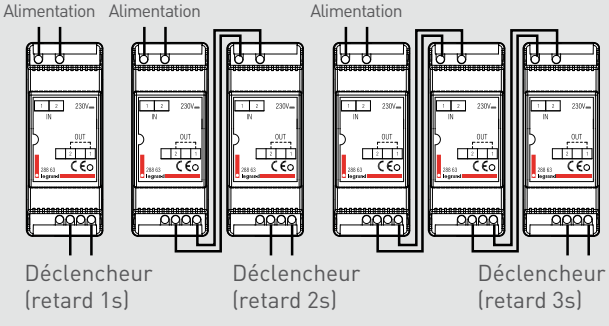
TECHNICAL CHARACTERISTICS

Rated voltage (Uc)	AC: 110 V / 230V DC: 110 V / 230V
Operating voltage range(%Uc)	85 to 110
Pick-up consumption (W/VA)	16.5 (to 110 V) / 34.5 (to 230V)
Dealy (s) to Uc	1[1]
Hold consumption (W/VA)	5 (to 110 V) / 10 (to 230V)
Opening operating threshold	0.35 to 0.7 Un
Closing operating threshold	0.85 Un
Operating temperature (°C)	-10 to +55

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

MOUNTING

Example with Cat.No 0 288 63 (identical mounting for Cat.No 0 288 62):



5- Motor operator (Cat.Nos 0 281 20/21/22/23/24)

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 DMX-SP can operate quickly.

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

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

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

Cat.Nos	Operating voltage
0 281 20	24 V ~/⎓
0 281 21	48 V ~/⎓
0 281 22	110-130 V ~/⎓
0 281 23	220-250 V ~/⎓
0 281 24	415-440 V ~

TECHNICAL CHARACTERISTICS

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

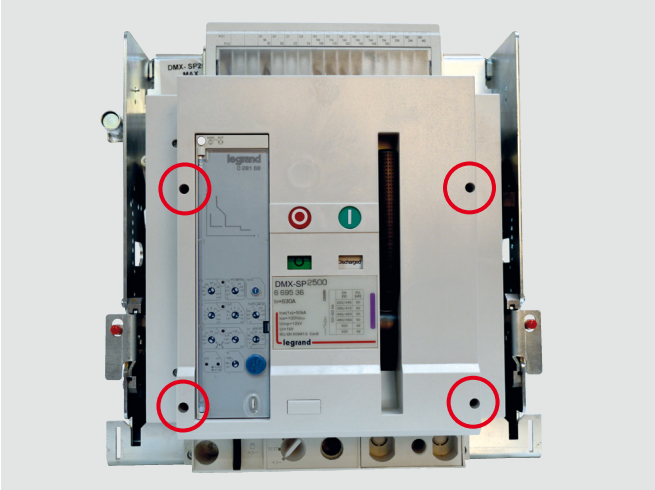
■ **Fuse type integrated in the motor operator**

Motor operator	Fuse type
0 281 20	250 V - 10A T- 5 x 20 mm
0 281 21	250 V - 5A T- 5 x 20 mm
0 281 22	250 V - 2.5A T- 5 x 20 mm
0 281 23	250 V - 1.25A T- 5 x 20 mm
0 281 24	250 V - 0.8A T- 6.3 x 20 mm

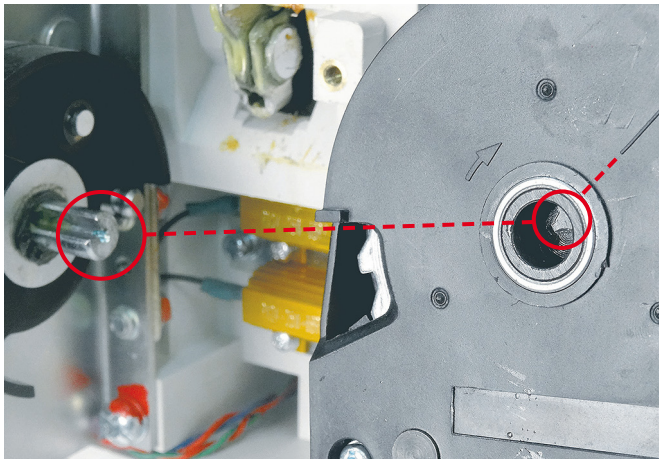
MOUNTING

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

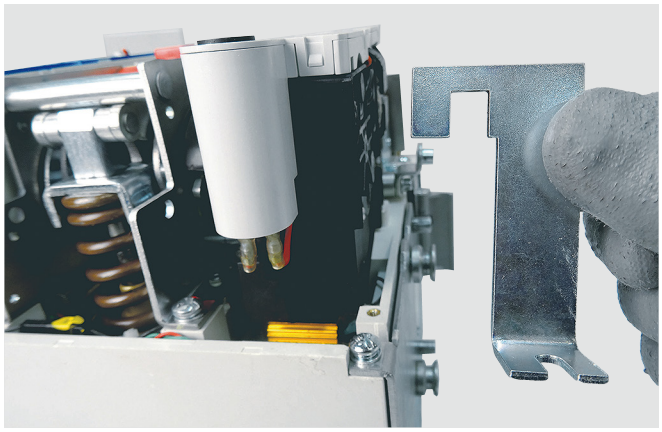
Remove the 4 screws (Phillips head n°1) and the front panel.



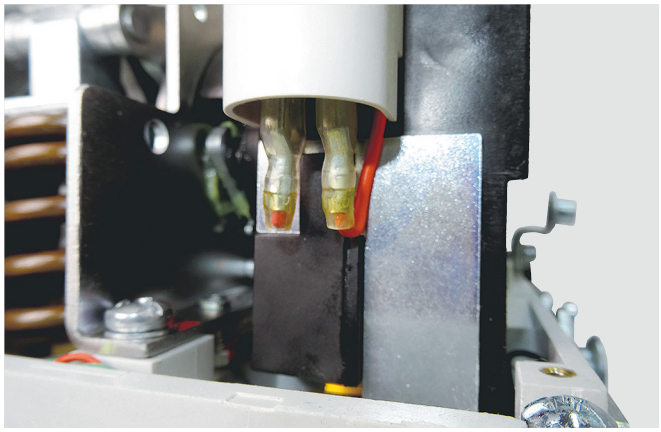
Insert the motor operator by aligning the spline of the axis with the keyway of the motor operator.



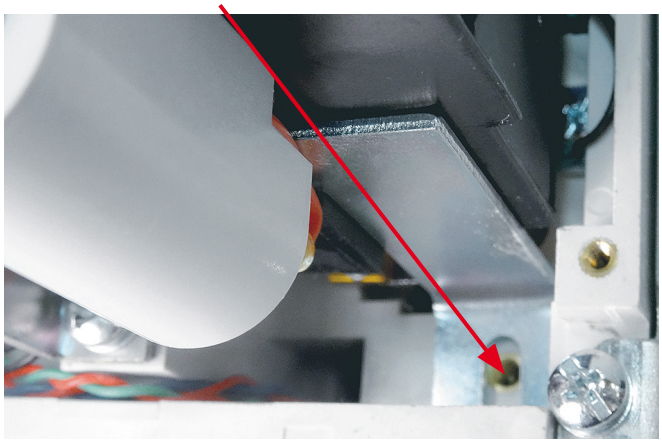
Insert the metal plate correctly and secure it with the screw and washer provided (Phillips head n°2, tightening torque 3 Nm).



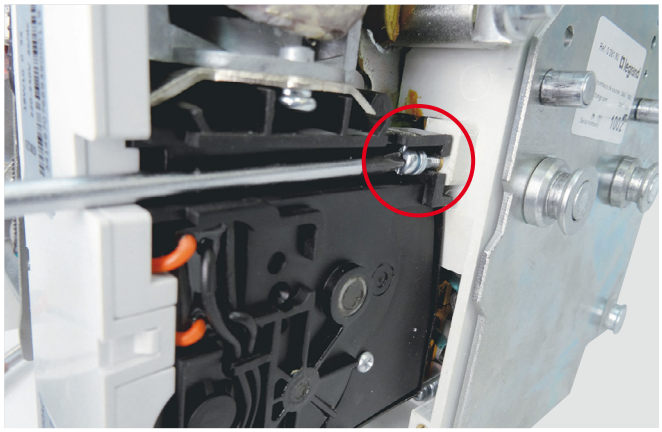
Bottom view



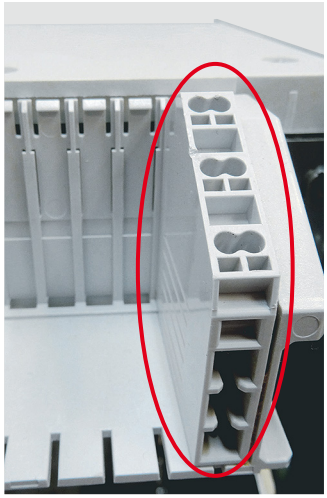
Screw location

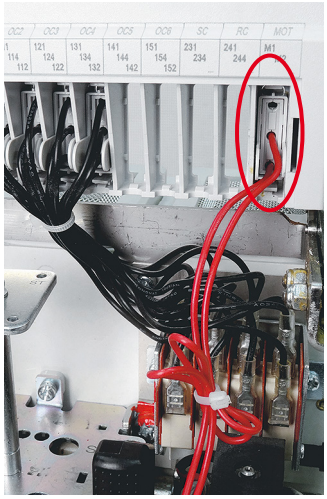


Fix the 2nd motor operator holding screw (Phillips head n°2, tightening torque 3 Nm).



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

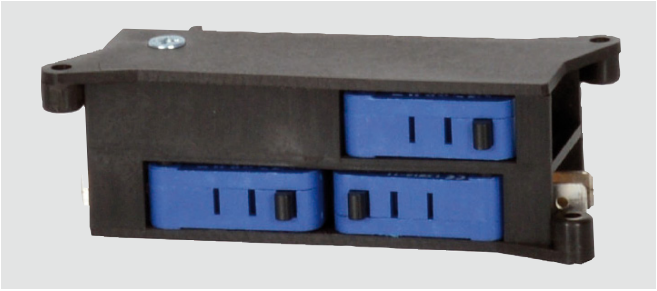




Replace the plastic cover of the terminal block, then the front panel using the 4 screws (Phillips head n°1, tightening torque 1 Nm), then the screw caps.

Re-insert the DMX-SP if necessary and carry out 2 operating tests.

6- Signalling contact for inserted/test/ drawn-out position (Cat.No 0 281 73)



These contacts allow you to remotely report the position of a drawn-out version DMX-SP in its base: «inserted», «test» or «drawn-out».

Each contact has a specific function that cannot be modified.

The block has 3 contacts: 1 for the presence of DMX-SP in the base («inserted»), 1 for the «test» position and 1 for the «drawn-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 DMX-SP (drawn-out version): therefore 2 contacts maximum per position.

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

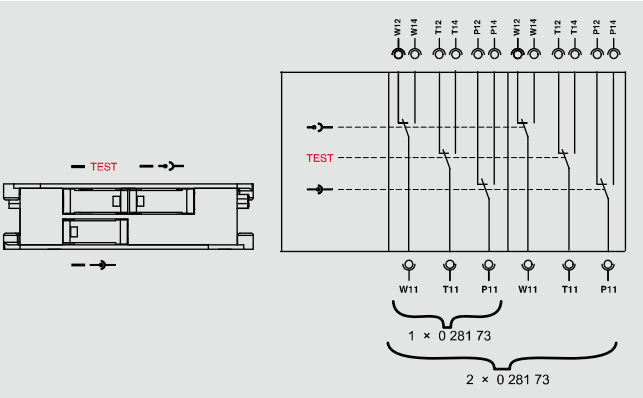
The length of the cables coming out of the base is 1400 mm. Their cross-section is 0.5 mm².

If the base is equipped with a locking button Cat.No 0 281 87, it is not possible to install a 2nd contact Cat.No 0 281 73 on the right side of the base (front view).

TECHNICAL CHARACTERISTICS

Rated voltage (Uc)	**DC**	125 V 0.6A 250 V 0.3A
	AC	125 V 5A 250 V 5A

■ **Layout and wiring principle**



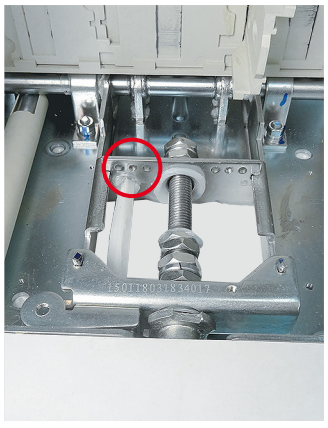
MOUNTING

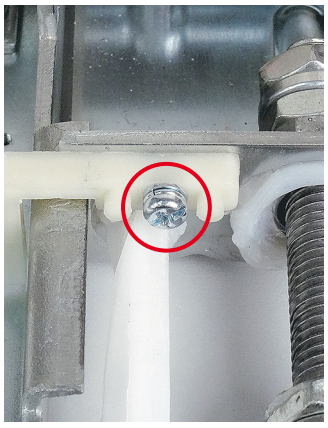
Before any intervention, check that the DMX-SP is in the «OFF» position (contacts open), drawn-out position (if necessary) and the discharged spring.

Mounting is identical on the right or on the left side, respecting the mounting direction described in the installation instructions.

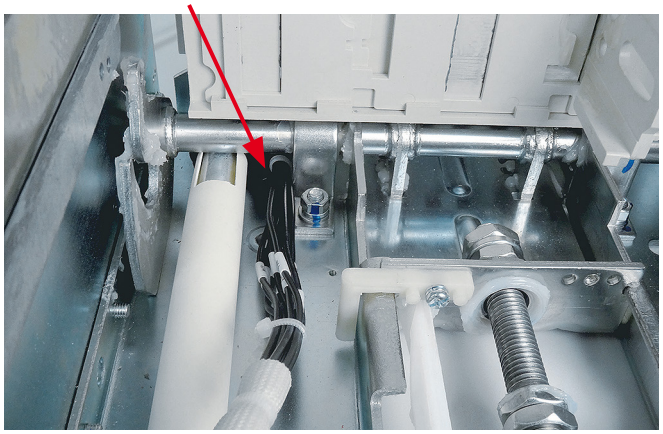
Mounting example on the left

Install the plastic bracket in the position shown below and secure it with the screw provided (Phillips head n°2, tightening torque 3 Nm).

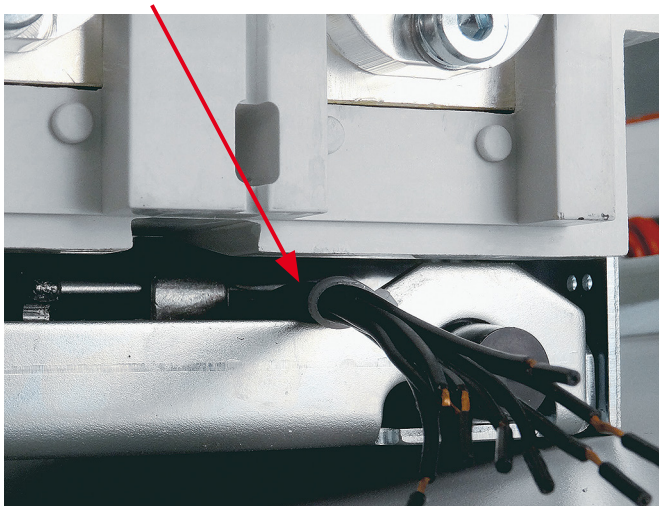




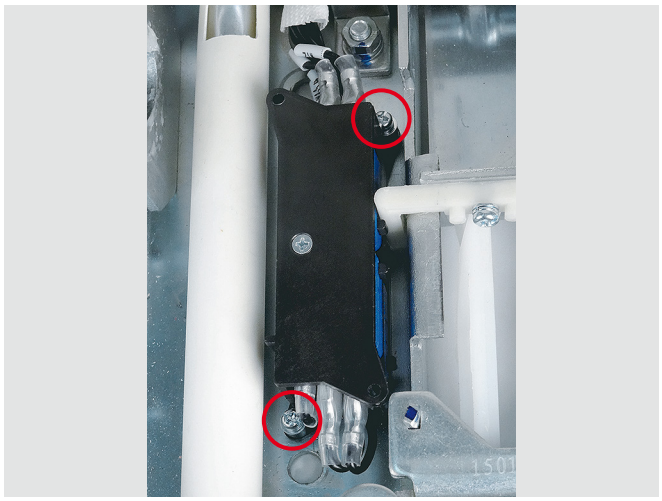
Run the contact wires through the back of the base:



Back of the base



Fix the contact block with the 2 screws provided (Phillips head n°1, tightening torque 1 Nm).



Re-insert the DMX-SP and perform a mechanical and electrical operating test by trying all positions (inserted/test/drawn-out).

TABLE OF CONTENTS

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 DMX-SP 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**	125 V/3 A 250 V/0.5 A
	DC	30 V/3 A

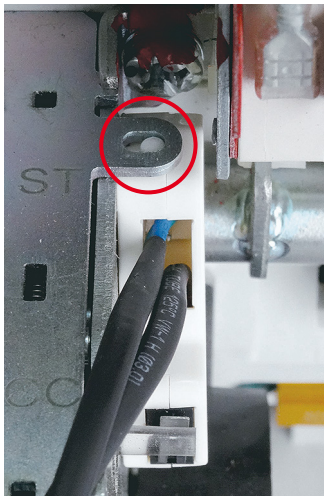
MOUNTING

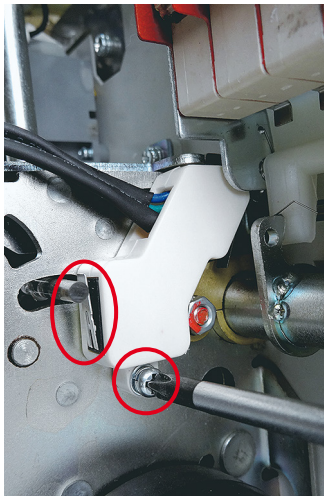
Before any intervention, check that the DMX-SP is in the «OFF» position (contacts open), drawn-out position (if necessary) and the discharged spring.

Remove the 4 screws from the front panel (Phillips head n°1) and the front panel.

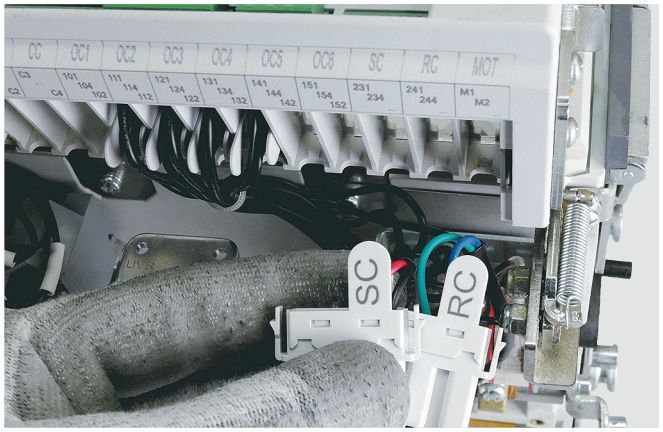
If there is a motor operator, dismantle it beforehand.

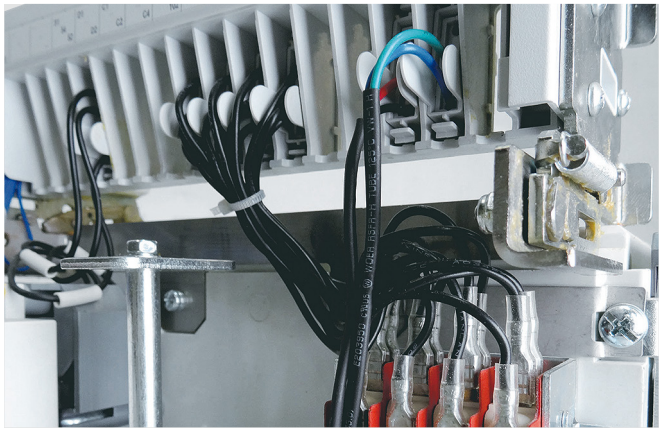
Position the contact, insert and tighten the fixing screw (Phillips head n°1, tightening torque 1 Nm).





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

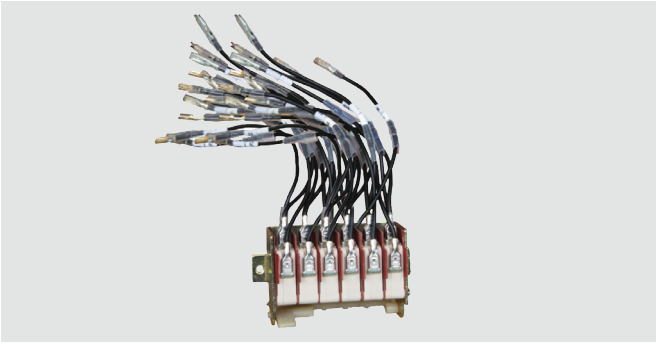




Replace the plastic cover of the terminal block, then the front panel using the 4 screws (Phillips head n°1, tightening torque 1 Nm), then the screw caps.

Re-insert the DMX-SP if necessary and carry out 2 operating tests.

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



The auxiliary contacts are used to remotely signal the position of the main DMX-SP contacts.

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

When the DMX-SP terminals are open, the contact is made between terminals 1x1 and 1x2.

All DMX-SP and DMX-SP-I are delivered with a block of 4 auxiliary contacts already installed. This must be dismantled when installing the new block of 6 contacts (2 more than the original).

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

See wiring layout paragraph 13 (page 30).

TECHNICAL CHARACTERISTICS

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

9- External aux. power supply (Cat.No 0 281 72)

The external power supply provides continuous power to the DMX-SP 2500 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, and would invalidate the DMX-SP warranty.

The module requires a 230 Vac power supply.

The connection of this external auxiliary power supply, on the terminal block of the DMX-SP 2500, must be scrupulously respected. Reverse wiring may damage the protection unit.

– Terminal H1 of DMX-SP connected to terminal «-» of power supply Cat.No 0 281 72.
– Terminal H2 of DMX-SP connected to «+» terminal of power supply Cat.No 0 281 72.

See the installation of the protection unit terminal blocks paragraph 13 (page 31).

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

It is necessary to connect the external auxiliary power supply (Cat.No 0 281 72) or the stable direct power supply permanently to ensure the specific electronic functions.

TECHNICAL CHARACTERISTICS

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

The power supply has four independent outputs, designed to supply 400 mA each, and to power 4 DMX-SP 2500 simultaneously (outputs 1-2-3-4 downstream).

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

- On a standard 35 mm 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)

This factory-assembled option allows the circuit breaker to be connected to a Modbus RS485 supervision system. It is only compatible with the MP4 protection unit.

See the installation of the protection unit terminal blocks in paragraph 13 (page 31).

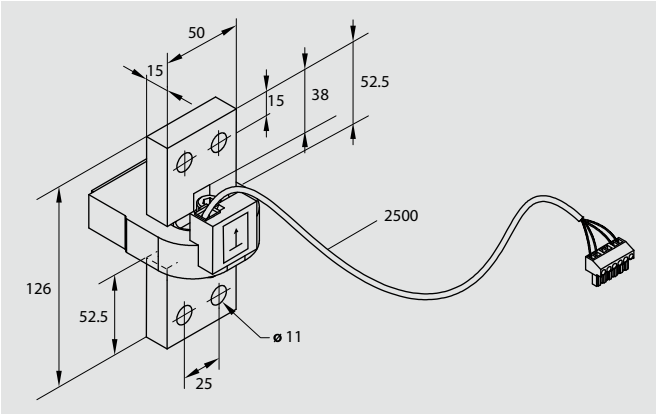
11- External neutral (Cat.No 6 696 05)

The current sensor is factory-assembled only on the 126 mm bar. The external neutral can only be used with 3-pole circuit breakers (fixed or drawn-out version) and is installed in the following cases:

- Neutral protection (with all protection unit versions)
- Earth fault protection (only with version Cat.No 0 281 66 and 0 281 68).

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

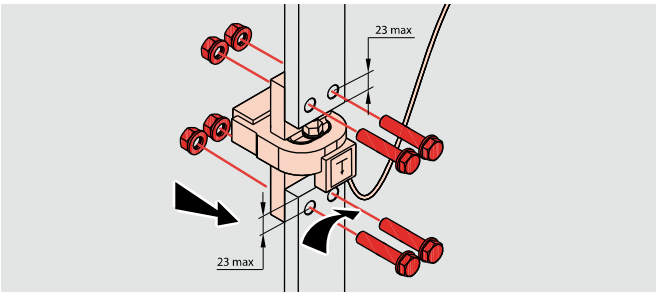
DIMENSIONS



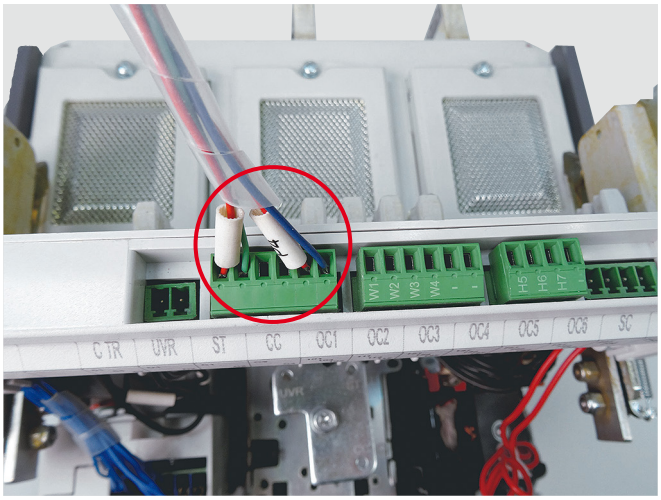
The arrow indicates the direction of the current (to be respected).

MOUNTING

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



- 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 sets of screws/nuts: the type of screws, nuts and the tightening torque are to be defined by the installer.
- Then insert the connector in the dedicated slot on the terminal block provided. See the installation of the protection unit terminal blocks in paragraph 13 (page 31).



- Stick the information label on the front panel.

Do not close the DMX-SP without first inserting the connector into the terminal block.
Do not remove the connector without first opening the DMX-SP.

12- Programmable output option (Cat.No 0 281 99)

Factory-assembled, this option allows other external signal/ control devices to be managed. This module must be connected to the protection unit that allows its adjustment and must be connected to the terminals on the upper part of the circuit breaker.

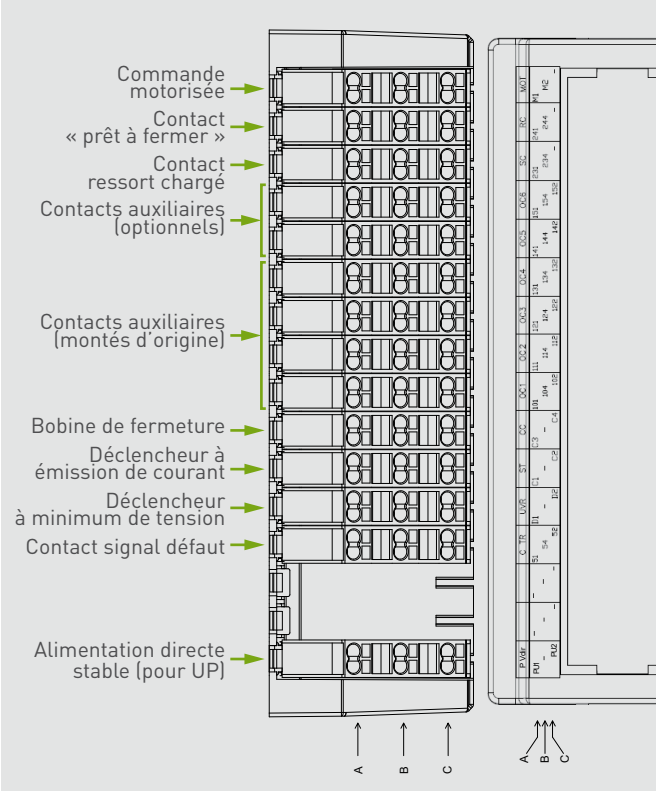
See the installation of the protection unit terminal blocks in paragraph 13 (page 31).

TECHNICAL CHARACTERISTICS

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

For the correct operation of this option, it is mandatory to have a permanent external power supply.
This option is only compatible with the MP4 protection unit.

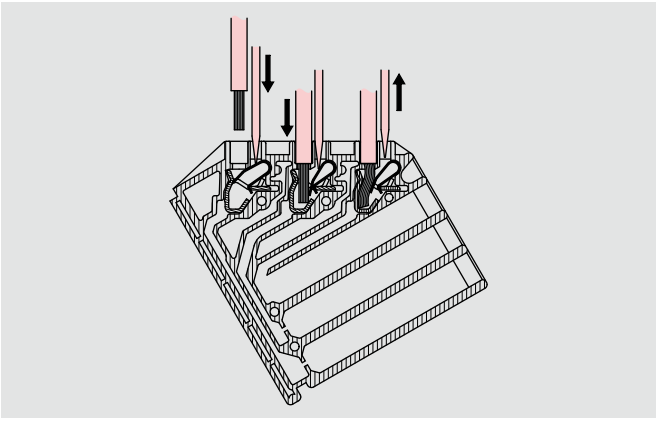
13- Terminal block layout and accessory location

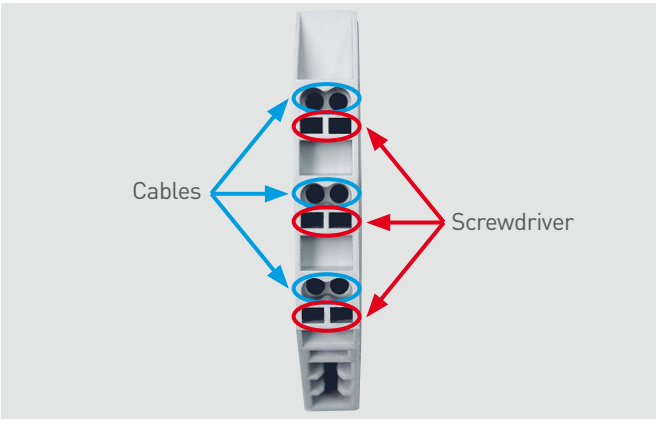


WIRING

■ **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.





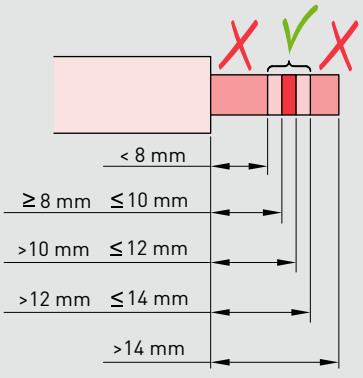
A spring-cage terminal accepts a maximum cross-section of 2.5 mm²/cable and a maximum number of 2 cables.

It is also possible to insert 2 cables of different sections while respecting the tolerances detailed below.

■ Recommended cross-sections and length

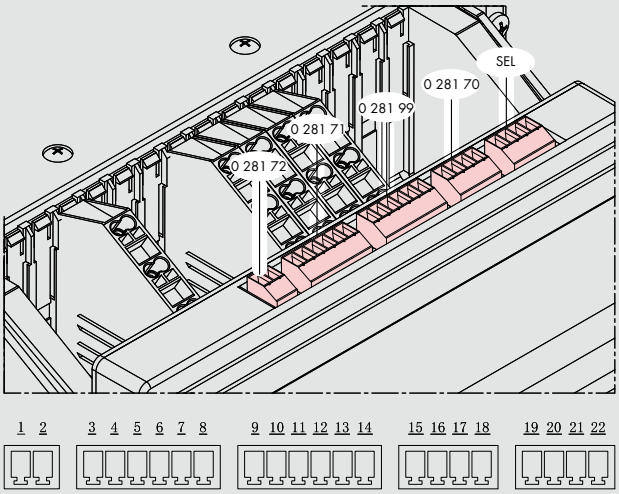
Rigid cable	1 à 2,5 mm²
Flexible cable without ferrule	1 à 2,5 mm²
Flexible cable with flanged end cap	1 à 1,5 mm²
Flexible cable with collarless endcap	2,5 mm²

Optimum stripping length: 11 mm



■ Terminals concerning the protection unit

Drawn-out version: wire the circuit breaker in the fully withdrawable position.



1/2 : External auxiliary power supply (H1-H2) Cat.No 0 281 72

3/4/5/6/7/8 : External neutral (6-way terminal connector) Cat.No 0 281 71

9/10 : Relay 1 programmable contact (W1-W2) Max. 230 V~/5 A;110 V⎓ /0.5A Cat.No 0 281 99

11/12 : Relay 2 programmable contact (W3-W4) Max. 230 V~/5 A;110 V⎓/0.5A Cat.No 0 281 99

13/14 : Not available Cat.No 0 281 99

15/16/17 : RS485 supervision serial port (H5-H6-H7) Cat.No 0 281 70

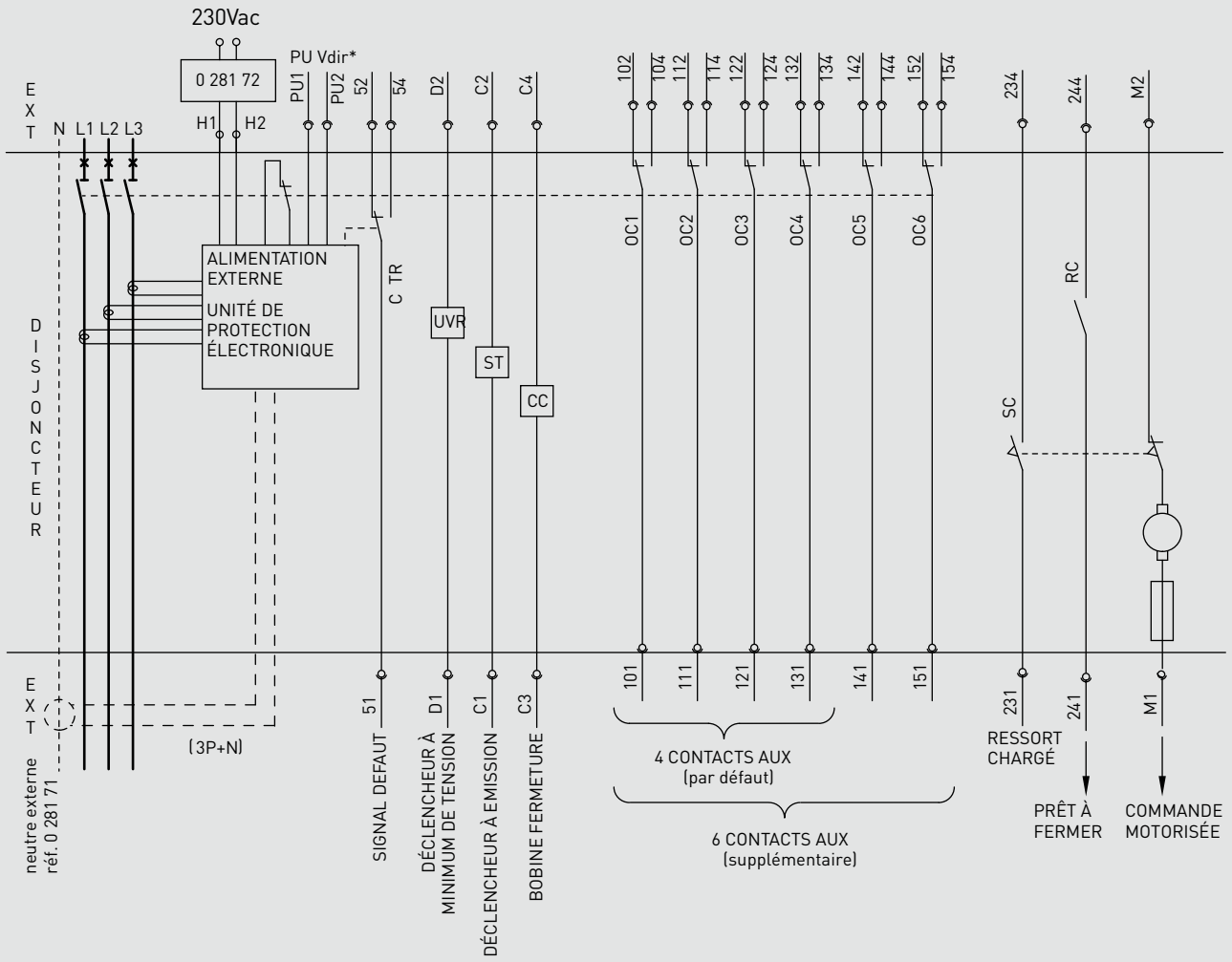
18 : Not available Cat.No 0 281 70

19/20 : SEL-IN (H11-H12)

21/22 : SEL-OUT (H15-H16)

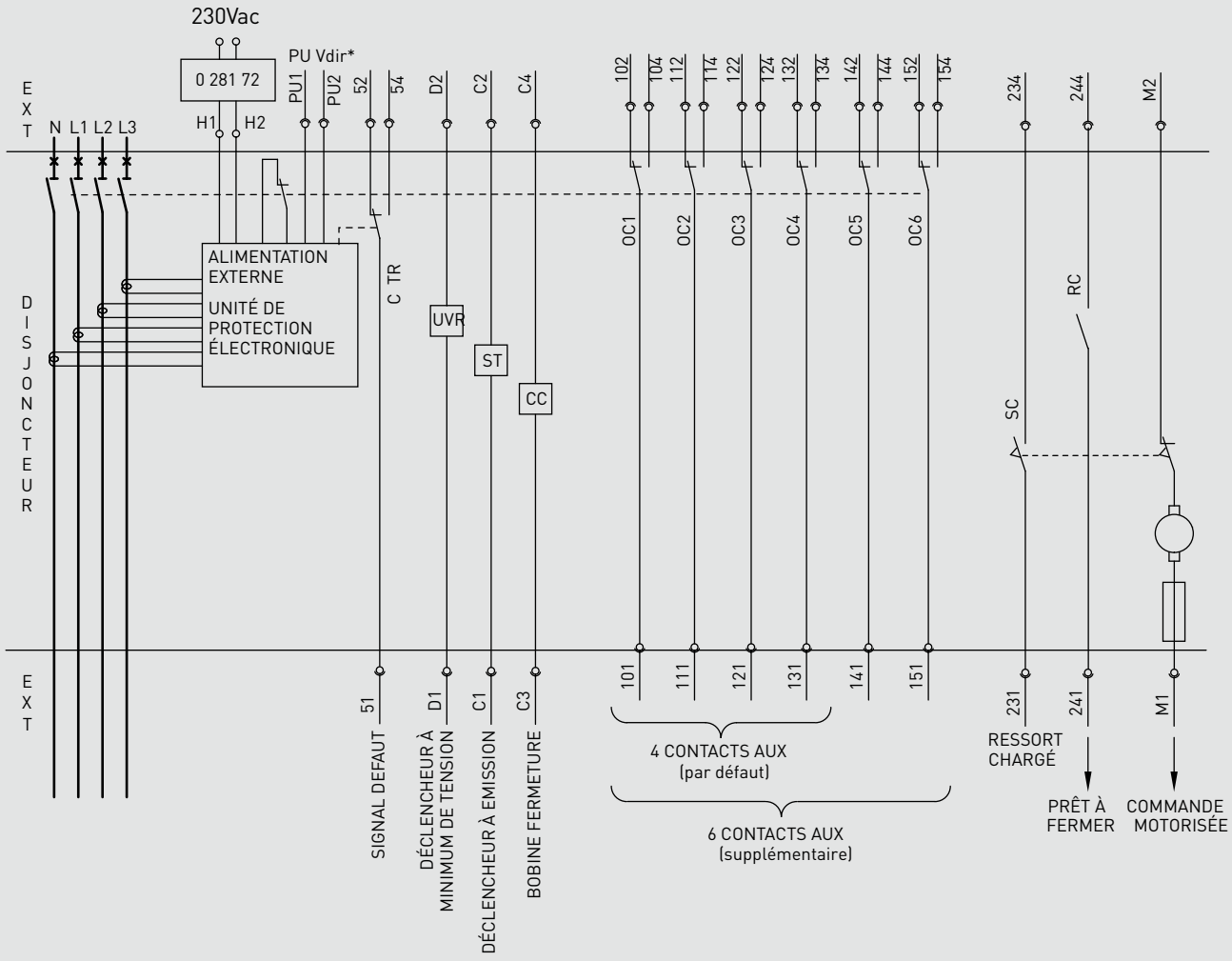
14- Wiring diagrams

3P CIRCUIT BREAKERS



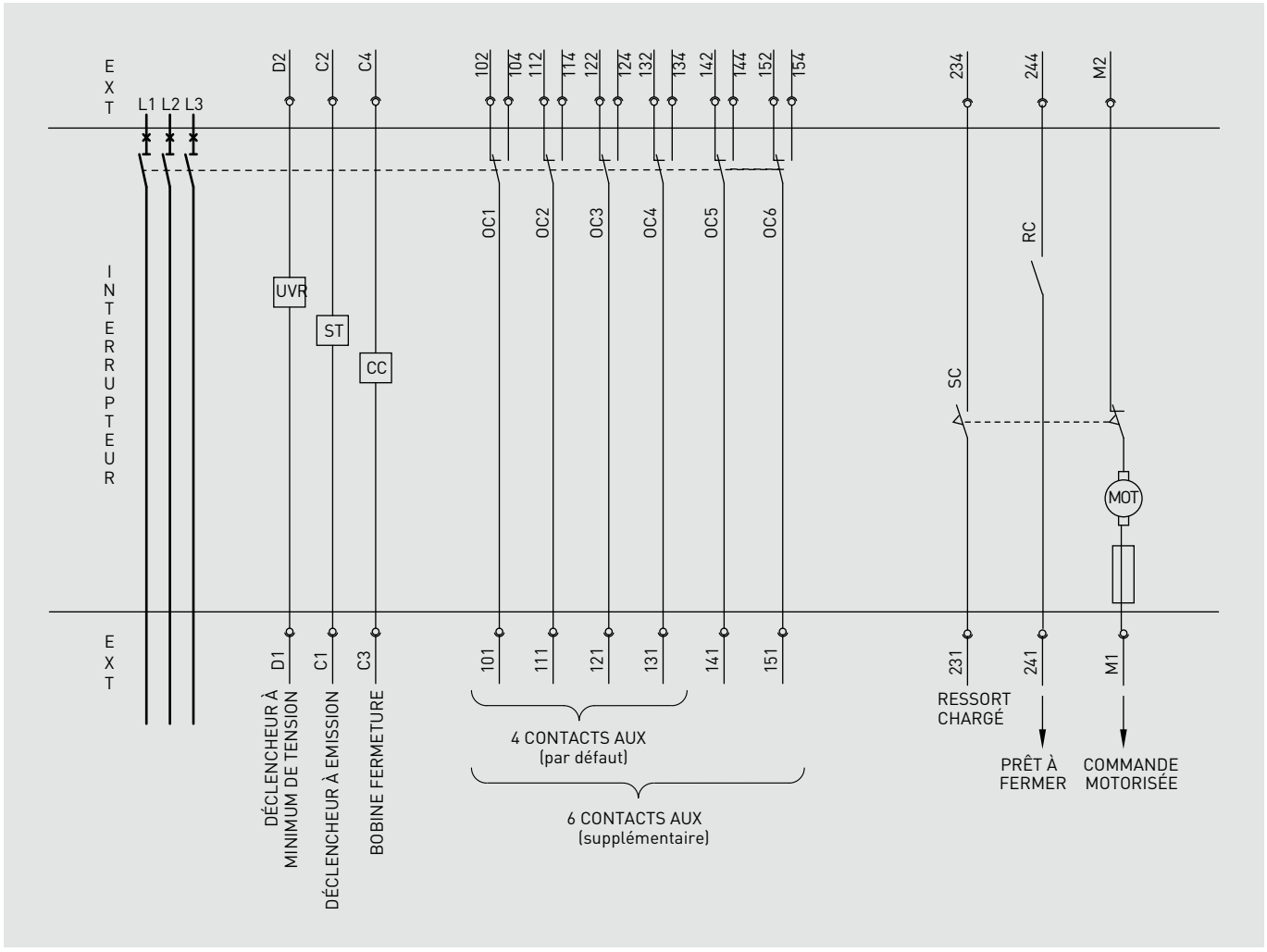
* Pour alimentation directe ("PU Vdir"), prévoir une protection à fusible (50mA type F) et fournir 110 V ou 230 V~ 50-60Hz

4 P CIRCUIT BREAKERS

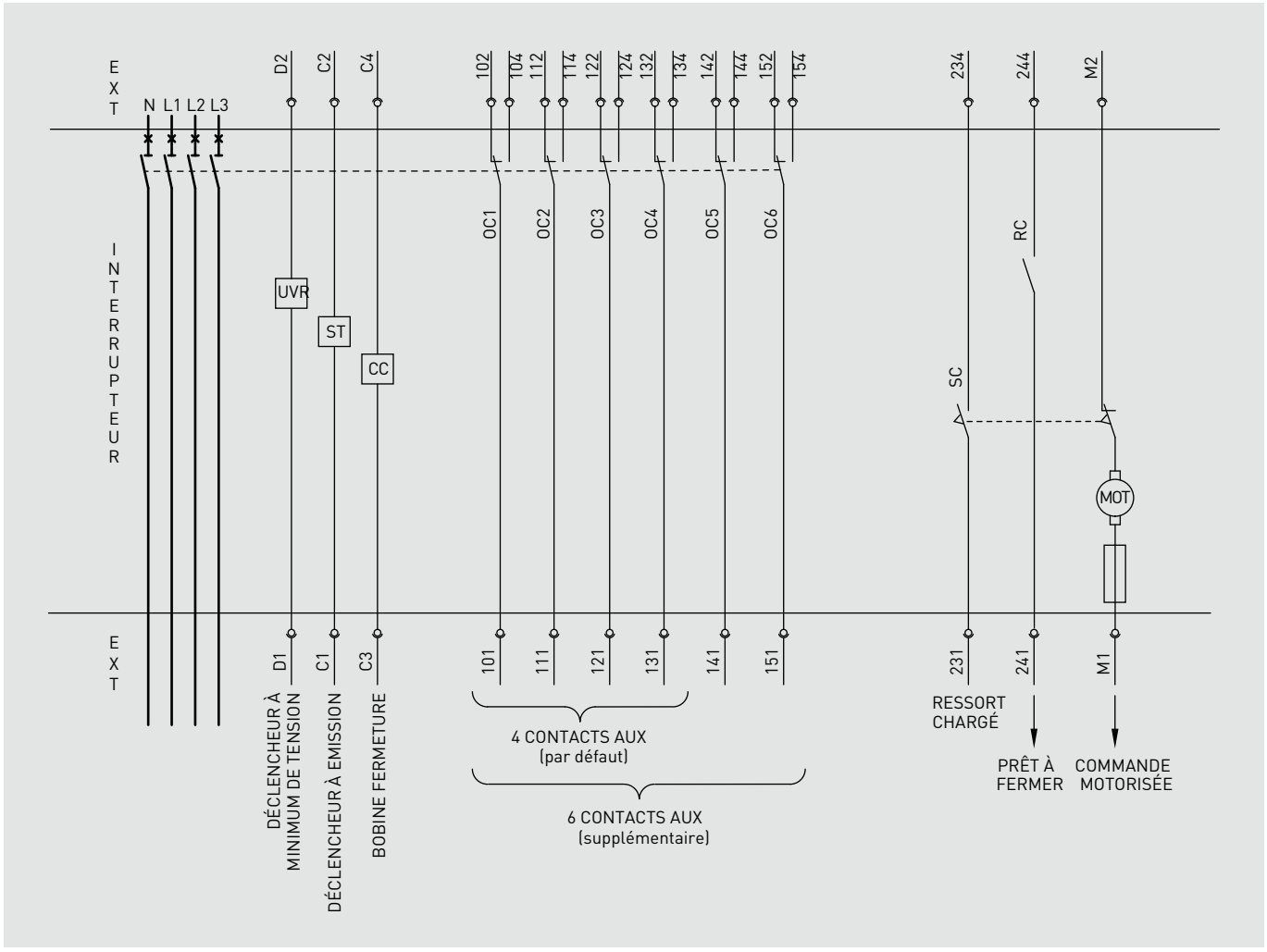


* Pour alimentation directe ("PU Vdir"), prévoir une protection à fusible (50mA type F) et fournir 110 V ou 230 V~ 50-60Hz

3 P TRIP FREE SWITCHES



4 P TRIP FREE SWITCHES



DMX-SP 4000
ELECTRICAL ACCESSORIES

1- Shunt trip (Cat.Nos 0 288 48/49/50/51/52)

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

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

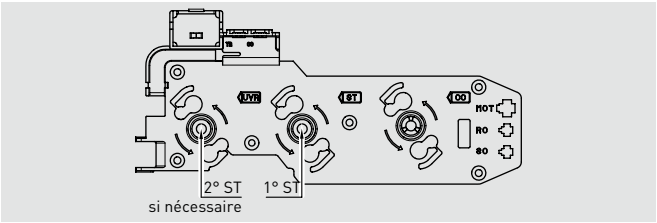
The electrical signal is given by a NO external contact (for example an emergency stop) and not by the protection unit.

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

The shunt trip can support being energised permanently.

TABLE OF CONTENTS

It is possible to equip a DMX-SP with two shunt trips: the first is placed in the slot identified as «ST», the second is placed in the slot of the undervoltage release identified as «UVR». In this case, this second shunt trip will be connected to terminals D1 and D2.



After an opening order, it is necessary to leave at least 50 ms before giving a closing order.

Cat.Nos	Operating voltage (Uc)
0 288 48	24 V ~/⎓
0 288 49	48 V ~/⎓
0 288 50	110-130 V ~/⎓
0 288 51	220-250 V ~/⎓
0 288 52	415-440 V ~

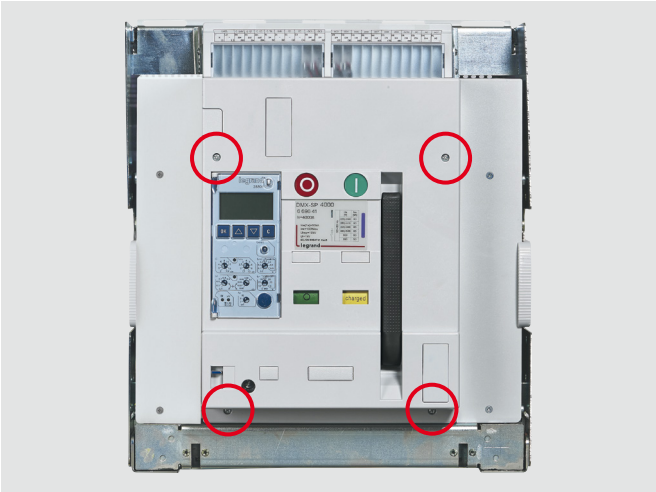
TECHNICAL CHARACTERISTICS

Rated voltage (Uc)	AC : 24 V; 48 V; 110 V to 130 V; 220 V to 250 V; 415 V to 440 V DC : 24 V; 48 V; 110 V to 130 V; 220 V to 250 V
Operating voltage range (%Uc)	70 to 110
Pick-up consumption (W/VA)	500/500
Response time (ms)	180
Hold consumption (W/VA)	5 / 5
Opening time (ms)	30
Insulation voltage (kV)	2.5

MOUNTING

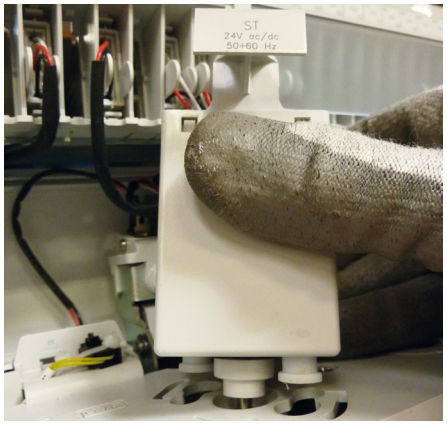
Before any intervention, check that the DMX-SP is in the «OFF» position (contacts open), drawn-out position (if necessary) and the discharged spring.

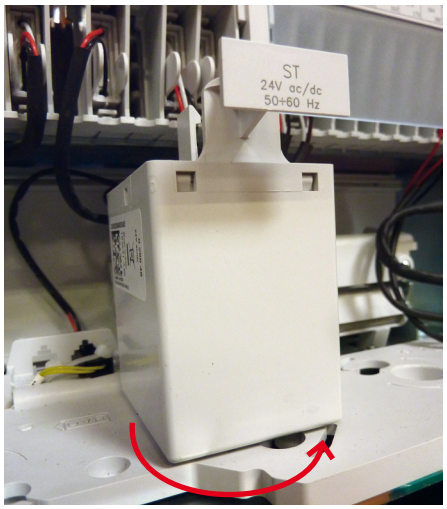
Remove the 4 screws (Phillips head n°1) and the front panel.



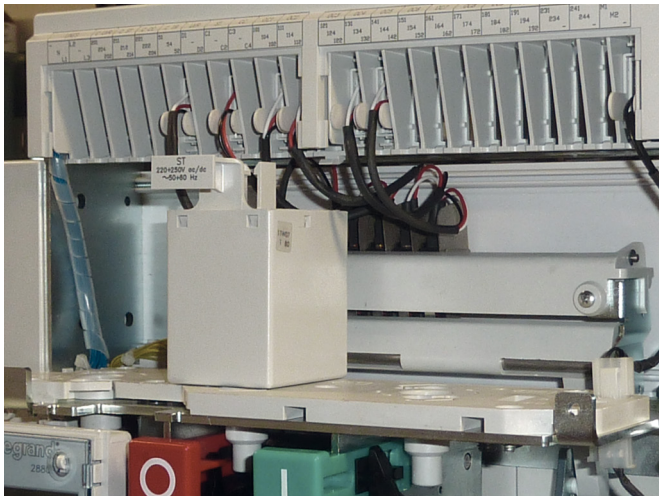
The mounting operations are identical for the 2 control auxiliaries (shunt trip and undervoltage release) as well as for the closing coil. However, be sure to respect the specific slots as well as the mounting specifications according to the version (drawn-out or fixed).

Insert the 2 lugs into the slots and turn:





Clip the terminal block and the connector to the specific slots:



2- Undervoltage release (Cat.Nos 0 288 55/56/57/58/59)

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

The undervoltage release allows instantaneous opening of the DMX-SP by powering off the coil (positive safety).

The electrical signal 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 DMX-SP terminal block.

The DMX-SP can take only one undervoltage release.

The latter must be in the slot marked «UVR».

Cat.Nos	Operating voltage (Uc)
0 288 55	24 V ~/⎓
0 288 56	48 V ~/⎓
0 288 57	110-130 V ~/⎓
0 288 58	220-250 V ~/⎓
0 288 59	415-440 V ~

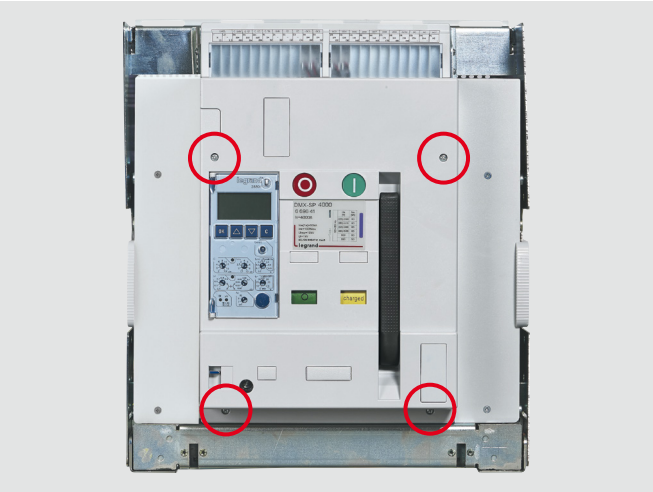
TECHNICAL CHARACTERISTICS

Rated voltage (Uc)	AC : 24 V; 48 V; 110 V to 130 V; 220 V to 250 V; 415 V to 440 V DC : 24 V; 48 V; 110 V to 130 V; 220 V to 250 V
Operating voltage range (%Uc)	85 to 110
Pick-up consumption (W/VA)	500/500
Response time (ms)	180
Hold consumption (W/VA)	5 / 5
Opening time (ms)	60
Insulation voltage (kV)	2.5

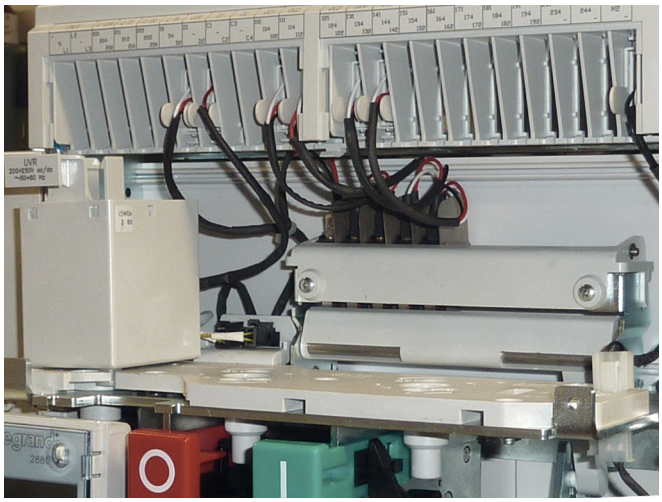
MOUNTING

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

Remove the 4 screws (Phillips head n°1) and the front panel.



The mounting operations are identical for the 2 control auxiliaries (shunt trip and undervoltage release) as well as for the closing coil (see page 38). However, be sure to respect the specific slots as well as the mounting specifications according to the version (drawn-out or fixed).



3- Closing coil (Cat.Nos 0 288 41/42/43/44/45)

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

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

The electrical signal 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 DMX-SP 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 (Uc)
0 288 41	24 V ~/⎓
0 288 42	48 V ~/⎓
0 288 43	110-130 V ~/⎓
0 288 44	220-250 V ~/⎓
0 288 45	415-440 V ~

TECHNICAL CHARACTERISTICS

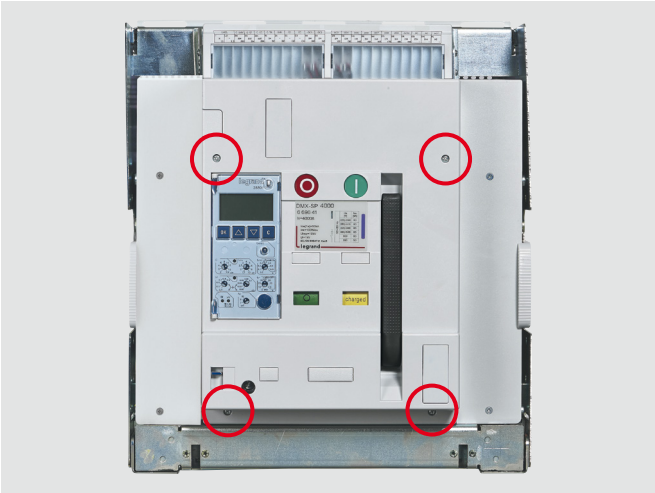
Rated voltage (Uc)	AC : 24 V; 48 V; 110 V to 130 V; 220 V to 250 V; 415 V to 440 V DC : 24 V; 48 V; 110 V to 130 V; 220 V to 250 V
Operating voltage range (%Uc)	85 to 110
Pick-up consumption (W/VA)	500/500
Response time (ms)	180
Hold consumption (W/VA)	5 / 5
Opening time (ms)	30
Insulation voltage (kV)	2.5

The closing coil is permanently under nominal voltage.

MOUNTING

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

Remove the 4 screws (Phillips head n°1) and the front panel.



The mounting operations are identical for the 2 control auxiliaries (shunt trip and undervoltage release) as well as for the closing coil (see page 38). However, be sure to respect the specific slots as well as the mounting specifications according to the version (drawn-out or fixed).

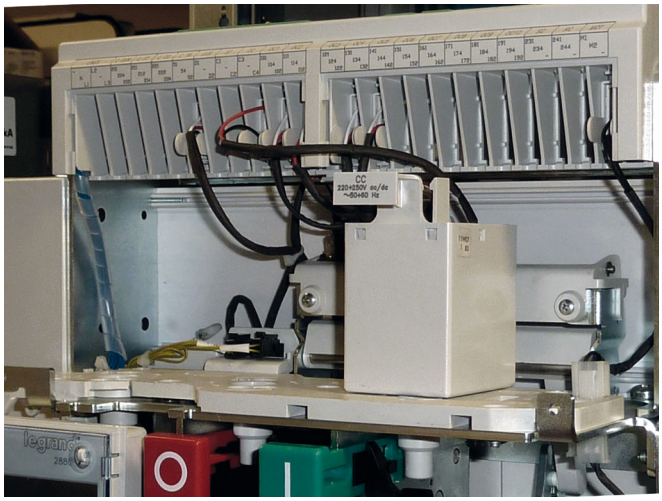
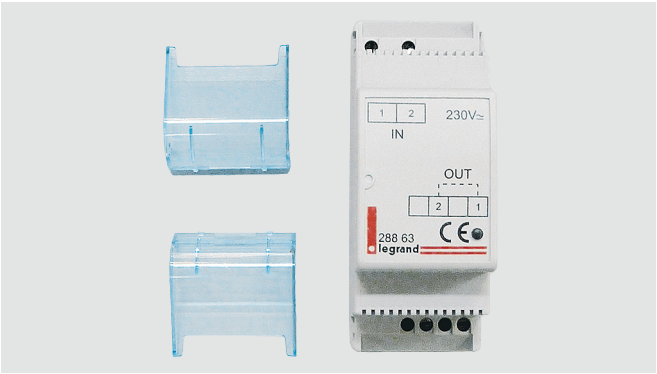


TABLE OF CONTENTS

4- Time-lag module for undervoltage release (Cat.Nos 0 288 62/63)



These modules are used to delay the intervention of an undervoltage release installed in a DMX-SP by up to three seconds during a micro-break.These delay modules work 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 enables a maximum delay of three seconds.

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

Before turning on the time-lag 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 time-lag module, wait a minute after switching off the power supply to avoid any electric shocks.

The protection of this time-lag module must be placed upstream of the DMX-SP where the undervoltage release will be installed.

Cat.Nos	Operating voltage (Uc)
0 288 62	110 V~/⎓
0 288 63	230 V~/⎓

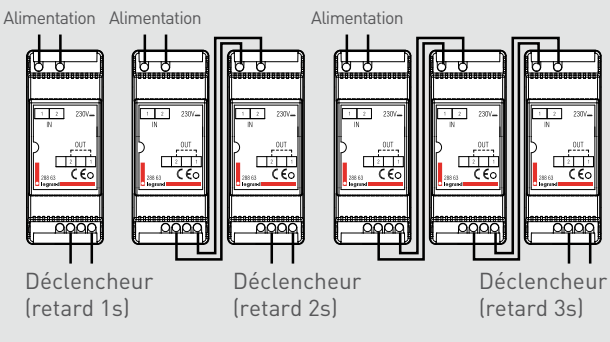
TECHNICAL CHARACTERISTICS

Rated voltage (Uc)	AC: 110 V / 230V DC: 110 V / 230V
Operating voltage range (%Uc)	85 to 110
Pick-up consumption (W/VA)	16.5 (to 110 V) / 34.5 (to 230V)
Delay(s) Uc	1 (1)
Hold consumption (W/VA)	5 (to 110 V) / 10 (under 230V)
Opening operating threshold	0.35 to 0.7 Un
Closing operating threshold	0.85 Un
Operating temperature (°C)	-10 to +55

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

MOUNTING

Example with Cat.No 0 288 63 (identical mounting for Cat.No 0 288 62):



5- Motor operator (Cat.Nos 0 288 34/35/36/37/38/40)

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 DMX-SP can operate quickly.

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

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

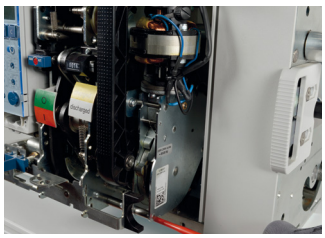
If there is no longer any voltage at the terminals of the motor operator, it is always possible to recharge the spring manually.

Mounting the motor in the circuit breaker:

Cat.Nos	Operating voltage	Fuse type
0 288 34	24 V ~/⎓	250 V - 10A T - 5 x 20 mm
0 288 35	48 V ~/⎓	250 V - 8A T - 5 x 20 mm
0 288 36	110-130 V ~/⎓	250 V - 4A T - 5 x 20 mm
0 288 37	220-250 V ~/⎓	250 V - 2A T - 5 x 20 mm
0 288 38	415-440 V ~	500 V - 1A T - 6.3 x 32 mm
0 288 40	480 V ~/⎓	500 V - 0.63A T - 6.3 x 32 mm

TECHNICAL CHARACTERISTICS

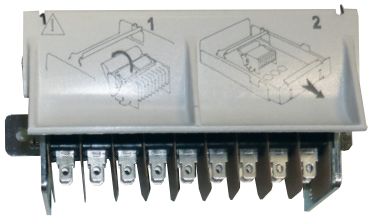
Rated voltage (Uc)	AC : 24 V; 48 V; 110 V to 130 V; 220 V to 250 V; 415 V to 440 V DC : 24 V; 48 V; 110 V to 130 V; 220 V to 250 V
Operating voltage range (%Uc)	85 to 110
Max. dissipated power (W/VA)	240 / 240
Max. current for 80ms	(2 ÷ 3) x In
Charging time (s)	7
Maximum operating frequency (cycles/min)	1



6- Signalling contact for «inserted/test/drawn-out» position (Cat.No 0 288 13)

These contacts allow you to remotely report the position of a draw-out version DMX-SP in its base: «inserted», «test» or «drawn-out».



Each contact has a specific function that cannot be modified.

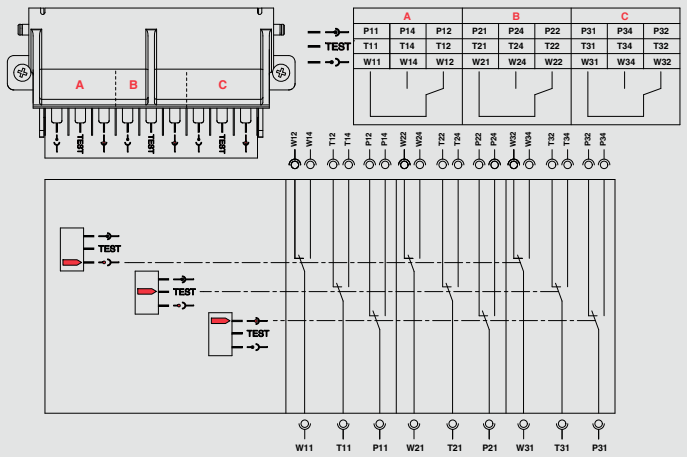
The block has 3 contacts: 1 for the presence of DMX-SP in the base («inserted»), 1 for the «test» position and 1 for the «drawn-out» position.

These contacts are of the changeover type (NO-NF) with dry contact (potential-free).

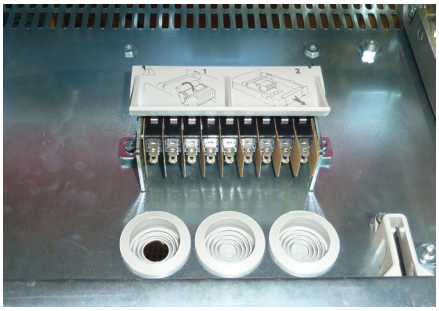
Only one contact block can be installed per DMX-SP draw-out version.

The electrical connection is made with insulated 6.3 mm Faston lugs (the contact block is delivered with 27 insulated lugs).

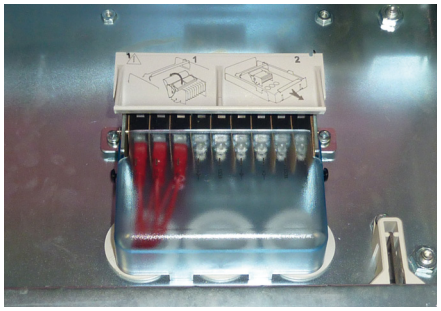
TECHNICAL CHARACTERISTICS



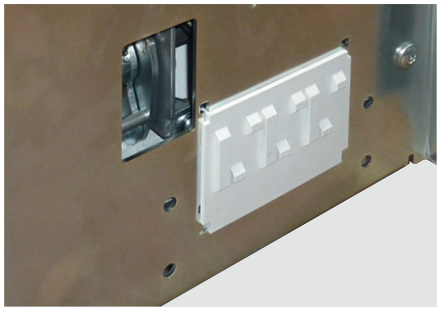
- Max. voltage: 250 Vac/dc
- Rated current:
  - 16 A from 125 Vac to 250 Vac
  - 0.6 A under 125 Vdc
  - 0.3 A under 250 Vdc



The contact block is mounted on the base



The insulation cover ensures the protection of the terminals

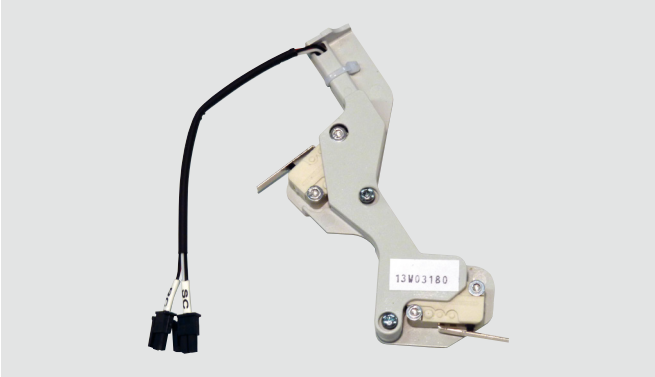


The plate mounted under the DMX-SP activates the contacts during the inserting and drawing-out operations

When handling without the DMX-SP, it is necessary to tilt the cover of the contact block before any extraction.

When replacing a drawn-out version, do not forget to collect the plastic plate located under the DMX-SP.

7- «Ready to close» with charged spring (Cat.No 0 288 14)



This contact block provides 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.

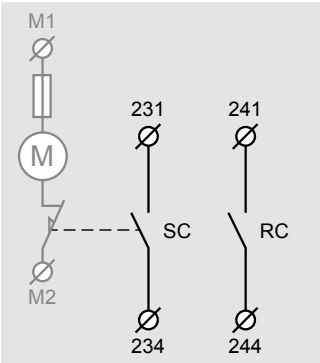
– Spring charged: (SC): the contact is closed when the spring is fully charged (electrically or manually).

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

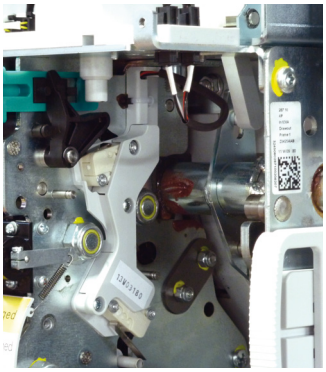
On the DMX-SP terminal block, the «ready to close» contact is connected to slot «RC» at terminals 241/244 and the «spring charged» contact to slot «SC» at terminals 231/234.

TECHNICAL CHARACTERISTICS

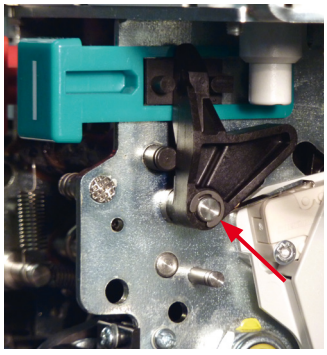
- Max. voltage: 250 Vac/dc
- Rated current:
  - 16 A from 125 Vac to 250 Vac
  - 0.6 A under 125 Vdc
  - 0.3 A under 250 Vdc



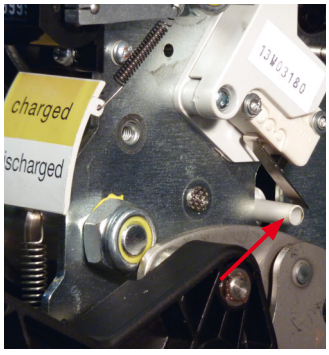
RC = « Ready to Close »
SC = « Springs Charged ».



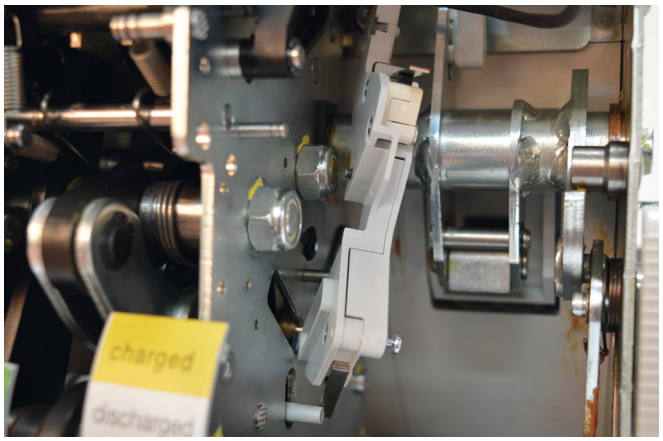
Contact block mounted inside the DMX-SP

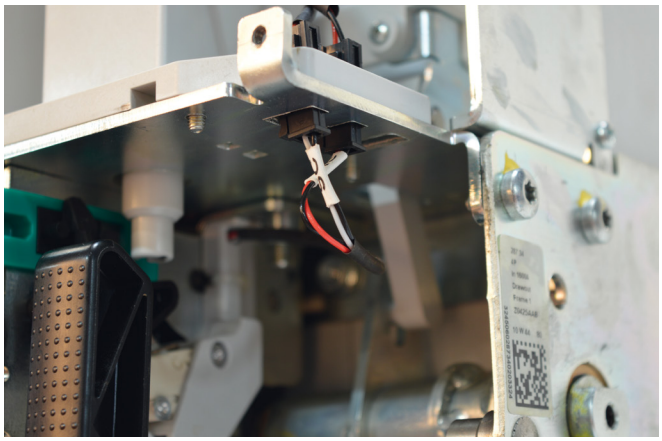


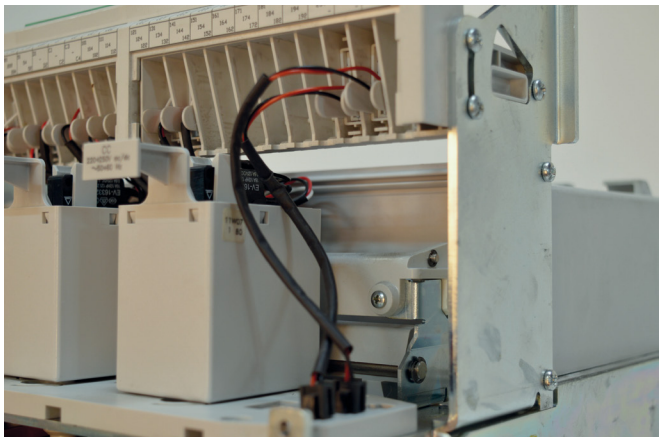
RC contact lug



S C contact lug


charged
discharged





8- Additional signalling contact (Cat.No 0 288 15)

The auxiliary contacts are used to signal the position of the main DMX-SP contacts.

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

When the DMX-SP terminals are open, the contact is made between terminals 1x1 and 1x2..

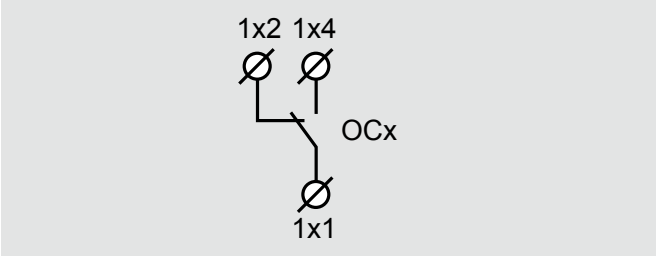
All DMX-SP and DMX-SP-I are delivered with four pre-installed auxiliary contacts. It is possible to add six addtional contacts for a total of ten auxiliary contacts. These contacts are delivered with their connector (male + female) and a lateral shield for better insulation.

These auxiliary contacts are mounted on the contact block supplied with the circuit breakers. It is located behind the coils. Before dismantling the contact block, it is necessary to disconnect the OC contact located on the left side of the block as well as the 4 other contacts. After unscrewing the block and removing the Truarc ring, the additional contact is inserted by sliding it onto the 2 axis.

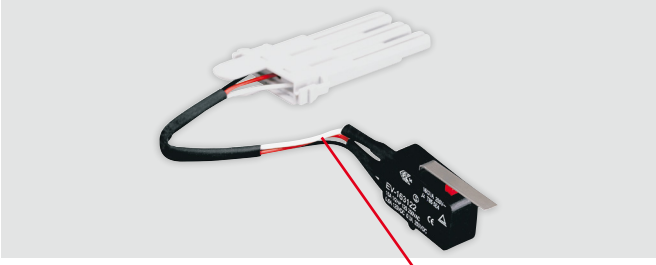
CONTACTS		ON THE DMX-SP TERMINAL BLOCK	TERMINALS
pre-installed	1	OC1	101/102/104
optional	2	OC2	111/112/114
	3	OC3	121/122/124
	4	OC4	131/132/134
	5	OC5	141/142/144
	6	OC6	151/152/154
	7	OC7	161/162/164
	8	OC8	171/172/174
	9	OC9	181/182/184
	10	OC10	191/192/194

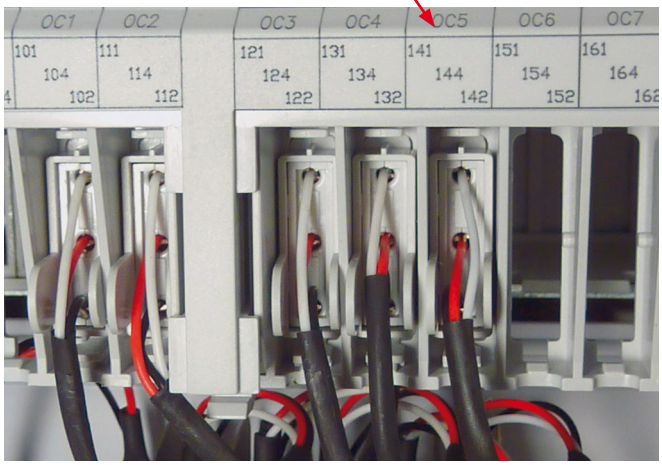
TECHNICAL CHARACTERISTICS

- Max. voltage: 250 Vac/dc
- Rated current:
  - 16 A from 125 Vac to 250 Vac
  - 0.6 A under 125 Vdc
  - 0.3 A under 250 Vdc

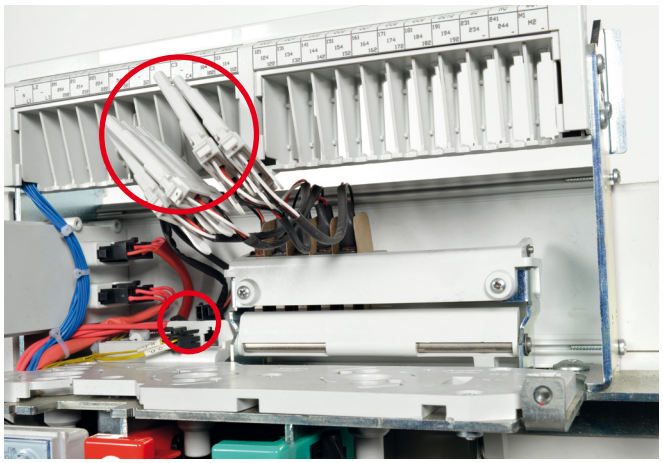


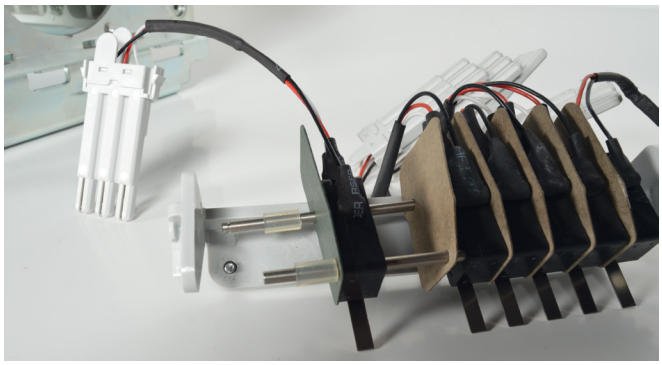
OC: Open Close --> (auxiliary contact state)

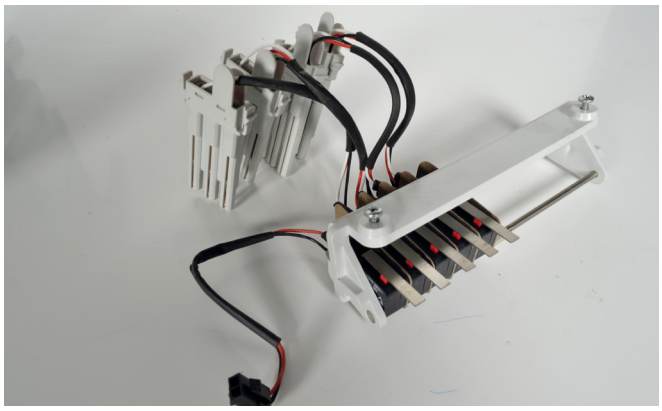


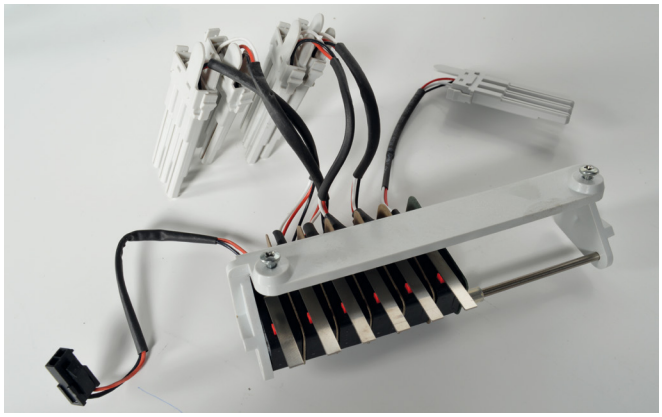


Four pre-installed auxiliary contacts and one optional auxiliary contact.



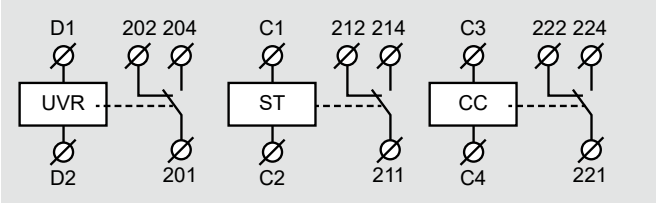


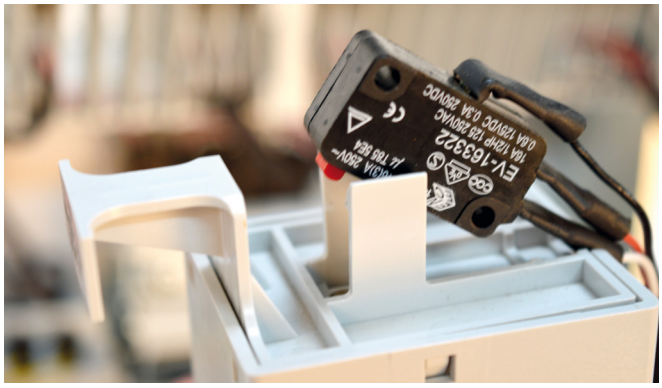


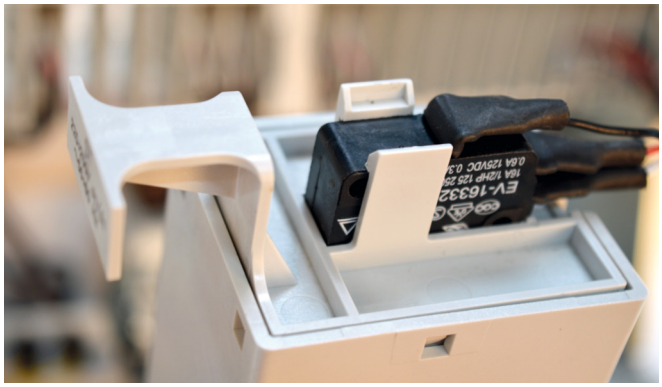


Before and after the installation of a contact

9- Signalling contact for auxiliaries (Cat.No 0 288 16)







This contact is used to signal the status of the various control auxiliaries and coils (shunt trip, undervoltage release and closing coil) installed in the DMX-SP.

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

Only one contact can be installed per trip unit or coil.

This contact is delivered with its connector (male + female).

Connector on the DMX-SP terminal block:

– C UVR: 201/202/204 for the undervoltage release.

– C ST: 211/212/214 for the shunt trip.

– C CC: 221/222/224 for the closing coil.

TECHNICAL CHARACTERISTICS

- Max. voltage: 250 Vac/dc
- Rated current:
  – 16 A from 125 Vac to 250 Vac
  – 0.6 A under 125 Vdc
  – 0.3 A under 250 Vdc

10- Fault contact (pre-installed on the circuit breaker)

The fault contact allows remote opening of the circuit breaker following an order given by the protection unit (fault or test).

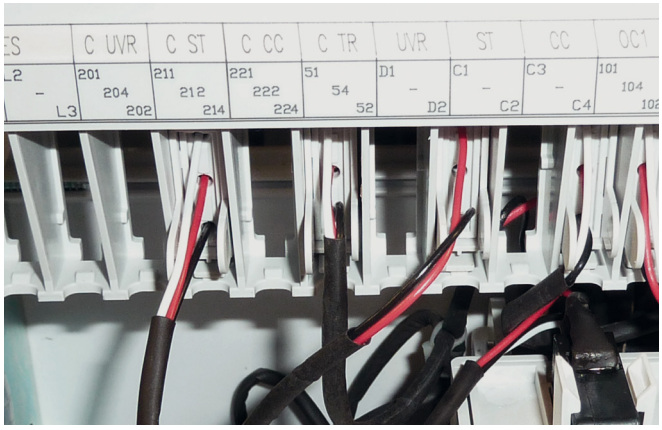
All DMX-SP circuit breakers are equipped with a fault contact. It is not physically accessible. On the terminal block this contact is connected to the slot indentified as «CTR» on terminals 51/52/54.

There is only one fault contact per DMX-SP circuit breaker.

The fault contact can be rendered non-maintained if the reset button is set to AUTO. If this is the case, the fault contact will switch for a time between 15 and 20 ms.

This contact is of the changeover type (NO/NC) with dry contact (potential free).

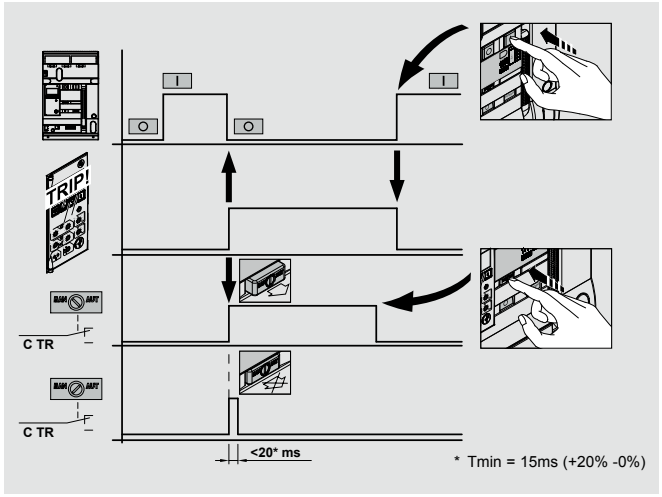
In a normal, non-tripped state, terminals 51 and 52 are conductive.

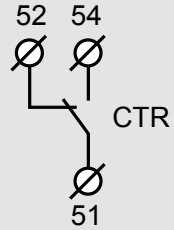


TECHNICAL CHARACTERISTICS

- Max. voltage: 250 Vac/dc
- Rated current:
  - 16 A from 125 Vac to 250 Vac
  - 0.6 A under 125 Vdc
  - 0.3 A under 250 Vdc

DMX-SP-I trip free switches cannot be equipped with a CTR fault contact.





CTR: Contact Trip --> fault contact

11- External power supply (Cat.No 0 288 06)

This external power supply provides a continuous power supply to the DMX-SP protection unit. Any other source that would be used instead of this external power supply may interfere with the correct operation of the protection unit, or even make it inoperative, and would invalidate the DMX-SP warranty.

This external power supply is necessary if the sum of the currents on the three phases is less than 100 A, or if there is less than 130 A on one phase and 0 A on the other two phases, or in the following cases of use: if the protection unit uses the MODBUS communication option (Cat. No. 0 288 05), if the thermal memory is used, or if the programmable contacts or logical selectivity are used. It is also necessary with the MP4 protection units (beyond five tests).

This power supply module must itself be supplied with 24 Vdc or 24 Vac by installing one of the following products upstream:

– Cat.No 4 130 96: Safety transformer 230 Vac/24 Vac

– Cat.No 1 467 22: Single-phase switching modules power supply 115-230 Vac/24 Vdc

– Cat.No 4 131 08: Filtered rectified power supply 230 Vac/24 Vdc.

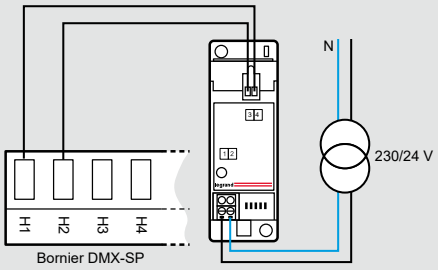
The connection of this external power supply to the DMX-SP terminal block must be strictly respected. Reversing the wiring may damage the protection unit.

- DMX-SP terminal H1 : terminal 4 (-) of the power supply Cat.No 0 288 06
- DMX-SP terminal H2 : terminal 3 (+) of the power supply Cat.No 0 288 06

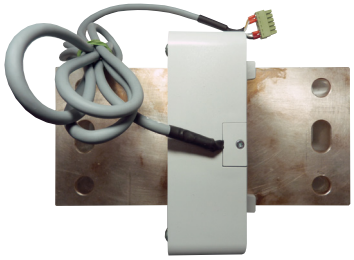
TECHNICAL CHARACTERISTICS

- Supply voltage: 24 Vac/dc ±10%
- Constant input power: 5 W/VA
- Output current: 250 mA

The batteries located under the protection unit allow to display the information saved into the memory of the protection units.



12- Rogowski coil for external neutral & earth leakage protection (Cat.No 0 288 11)



The use of the Rogowski coil requires a special adaptation of the circuit breaker. The circuit breaker and the Rogowski coil must be ordered together for factory assembly.
This coil allows the following functions:
- Protection against neutral overload when the neutral is not cut by the DMX-SP
- Protection of the earth exclusively with LSIg protection units.

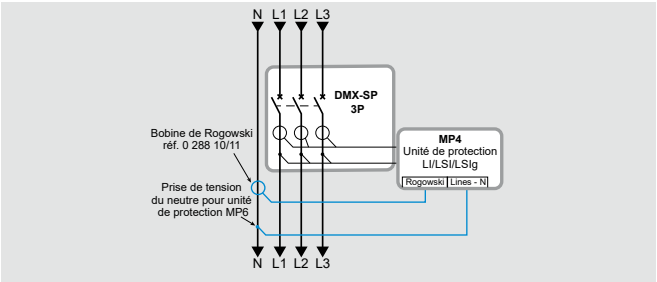
THE USE OF THE ROGOWSKI COIL IS DEPENDING ON THE PROTECTION UNIT

	MP2 AND MP4					
	LI		LSI		LSIg	
	3P	4P	3P	4P	3P	4P
External neutral protection	✓	✗	✓	✗	✓	✗
External neutral (deactivatable) and earth leakage protection	✗	✗	✗	✗	✓	✗
Earth leakage protection - if neutral is not available	✗	✗	✗	✗	✗	✗

✓: Possible mounting ✗: Impossible to mount

EXTERNAL NEUTRAL PROTECTION

This option is only available with 3-pole devices equipped with MP4 protection units.
The coil will be connected to the neutral, at the same level as the DMX-SP.



The direction of current flow in the Rogowski coil must be respected (see the installation instructions). The terminal block supplied with the coil must be connected to the terminal block on the circuit board of the protection unit. The coil cable should be as far away as possible from electromagnetic interference sources (transformers, etc.) and power conductors.
Check that the protection unit is correctly set.

EXTERNAL NEUTRAL AND EARTH LEAKAGE PROTECTION

The «earth leakage protection» function is different from a «residual current protection».

As a reminder, the minimum setting of the earth leakage protection is Ig = 0.2 x In

The principle of this protection is RS (Residual Sensing). The earth fault current is calculated using the vector sum of the currents of the three phases. The SGR (Source Ground Return) and ZS (Zero Sequence) protections are not usable.

This option is available for 3-pole DMX-SP with uncut neutral, equipped with MP4 protection units.

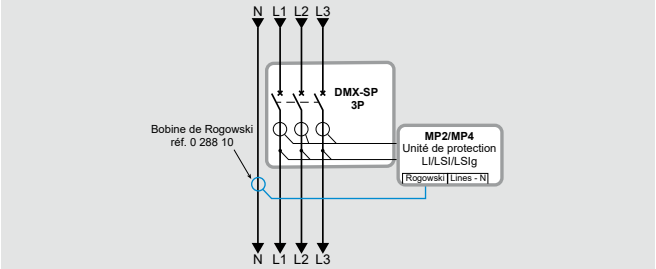
The Rogowski coil will be connected to the neutral, at the same level as the DMX-SP.

The external neutral overload protection is activated by default, but can be deactivated later.

The direction of flow in the Rogowski coil must be respected (see the installation instructions).

The terminal block supplied with the coil must be connected to the terminal block on the circuit board of the protection unit. The coil cable should be kept as far away as possible from electromagnetic interference sources (transformers, etc.) and power conductors.

Check that the protection unit is correctly set.



13- Programmable output option (Cat.No 0 288 12)

This is a local programmable relay and is a standard function for all circuit breakers equipped with an MP4 protection unit.

The outputs are programmed via the menu of the protection unit.

The use of the external power supply module Cat. no 0 288 06 is still required for powering the protection unit (see diagram on the right).

The programmable functions are identical to the programmable relay. It allows several information or faults from the protection unit to be reported remotely:

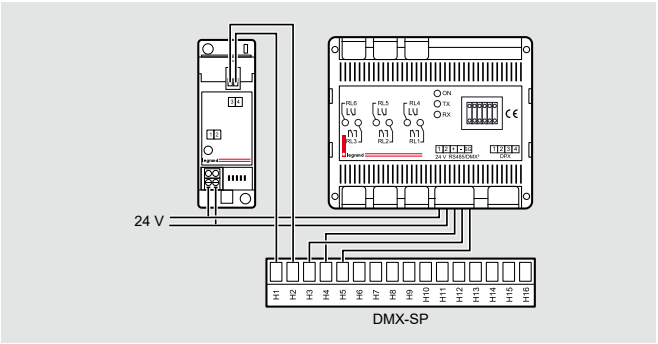
- device open
- device closed
- device tripped
- overload I > 0,9 Ir
- overload I >1.05 Ir
- temperature of the protection unit T > 75 °C
- electrical fault (generic)
- thermal fault (Ir)
- magnetic fault (Isd)
- instantaneous fault (Ii)
- fixed protection fault (Icw)
- earth fault (Ig)
- overheating fault (T > 95 °C)
- test fault (button/test function).

They can be steady or flashing as shown below:
- None : instantaneous and fixed change, changes state at the same time as the selected parameter
- 1 s, 2 s, 3 s, 5 s, 10 s, 20 s, 30 s
- 1 min, 2 min, 5 min, 10 min, 20 min, 30 min
- Permanent: Instantaneous and fixed change, the return to the normal state of the contact must be done by a reset in the menu of the protection unit.

The programmable contacts are dry contact changeover type (potential free) (8 A/230 Vac)

TECHNICAL CHARACTERISTICS

- 24 Vac/dc ±10 %
- 8 W per module



14- Modbus communication option for electronic PU (Cat.No 0 288 05)

Factory-assembled, this Modbus RS45 option makes the DMX-SP 4000 circuit breaker ready for supervision.

TABLE OF CONTENTS

15- Installation of the terminal block and location of the accessories

Terminal block
(see the next page)

Power supply

Signalling contacts of the tripping units / coil

Fault contact

Tripping units / coil

Auxiliary contacts

Spring charged contact (SC)

Ready to close contact (RC)

Motor operator

Local programmable relay
(see the next page)

Local programmable relay

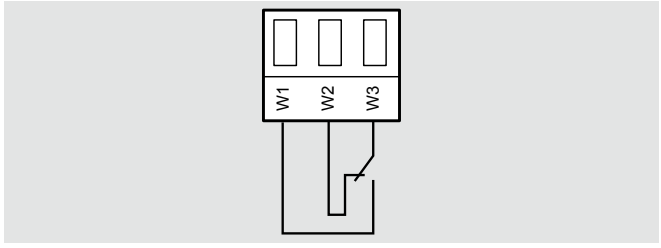
This is a local programmable relay and is a standard function for all circuit breakers equipped with an MP4 protection unit.

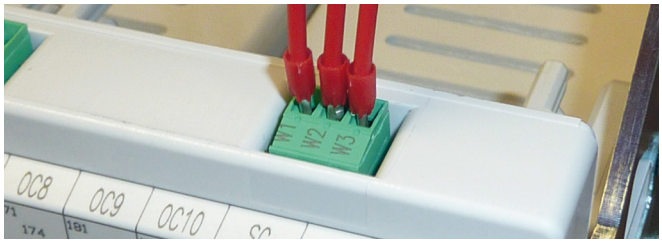
The outputs are programmed via the menu of the protection unit.

The use of the external power supply module Cat. no 0 288 06 is still required for powering the protection unit.

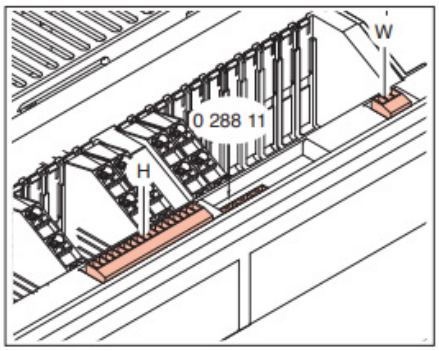
The programmable functions are identical to the programmable relay. It allows several information or faults from the protection unit to be reported remotely:
- device open
- device closed
- device tripped
- overload I > 0,9 Ir
- overload I >1.05 Ir
- temperature of the protection unit T > 75 °C
- electrical fault (generic)
- thermal fault (Ir)
- magnetic fault (Isd)
- instantaneous fault (Ii)
- fixed protection fault (Icw)
- earth fault (Ig)
- overheating fault (T > 95 °C)
- test fault (button/test function).

This programmable contact is a dry contact changeover type (potential free) (4 A/230 Vac).





Only for drawn-out version:
wire the electronic terminal block with the circuit breaker fully withdrawn from its base.



W) Local programmable output (4A-230V a.c. max)

W1: Normally Open
W2: Normally Close
W3: Common

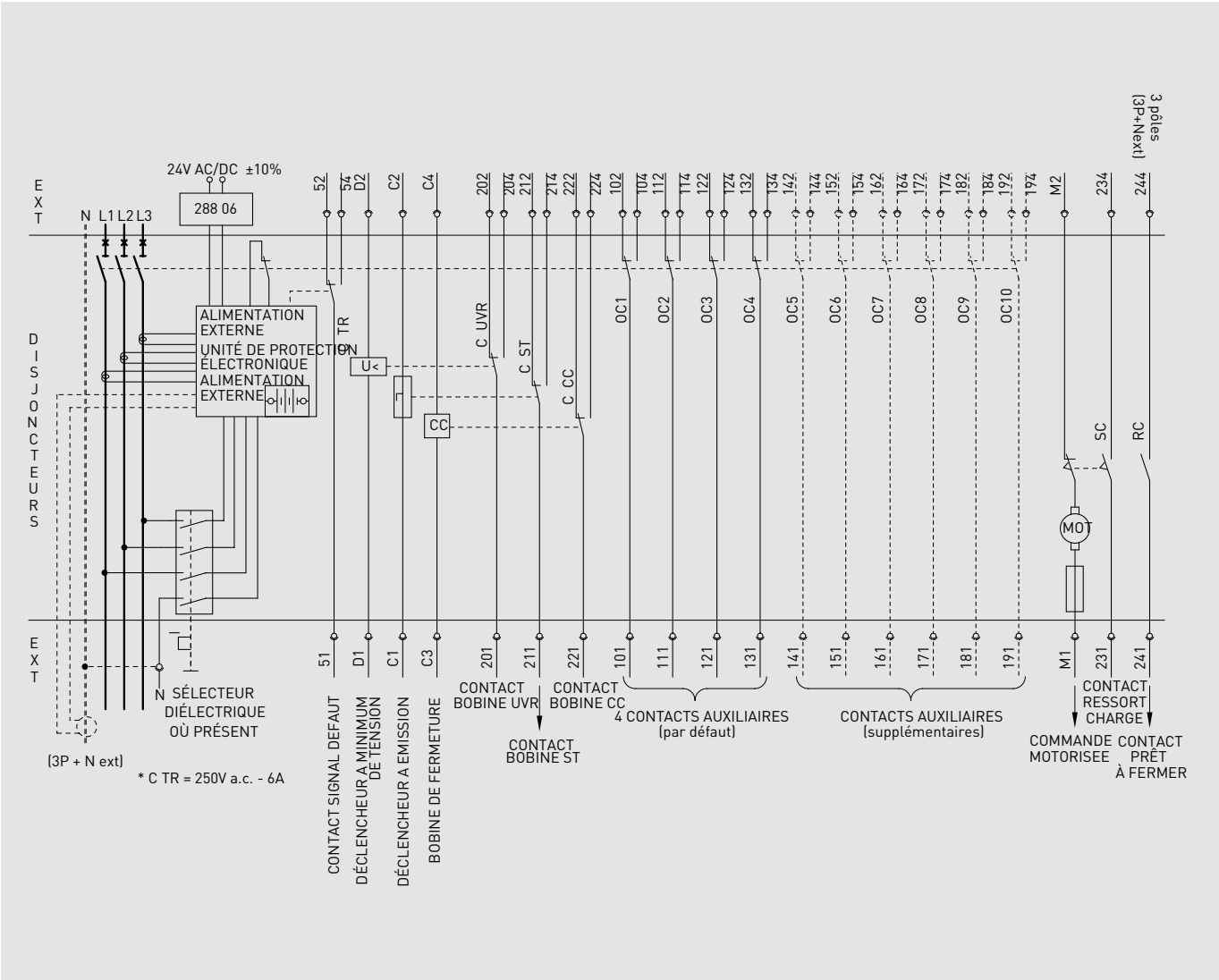
0 288 11) External neutral 6-way terminal

H)

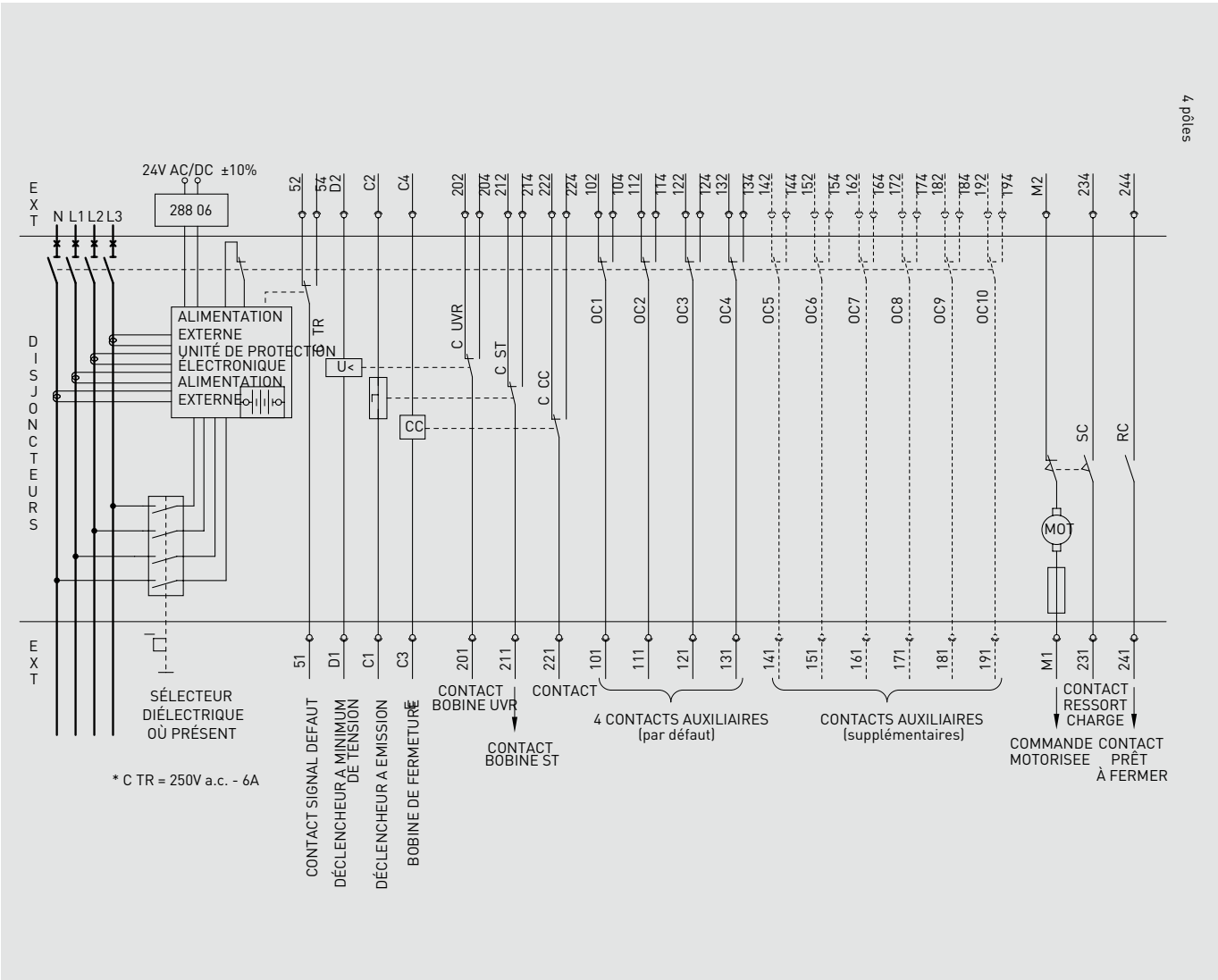
H1: } External auxiliary supply 0 288 06
H2: }
H3: "Programmable output module" Serial Port - RS485 (-)
H4: "Programmable output module" Serial Port - RS485 (+)
H5: GND RS485
H6: Supervision Serial port - RS485 (–)
H7: Supervision Serial port - RS485 (+)
H8: -
H9: -
H10: -
H11: Logic Selectivity Input
H12: Logic Selectivity Input
H13: -
H14: -
H15: Logic Selectivity Output
H16: Logic Selectivity Output

16- Electrical drawings

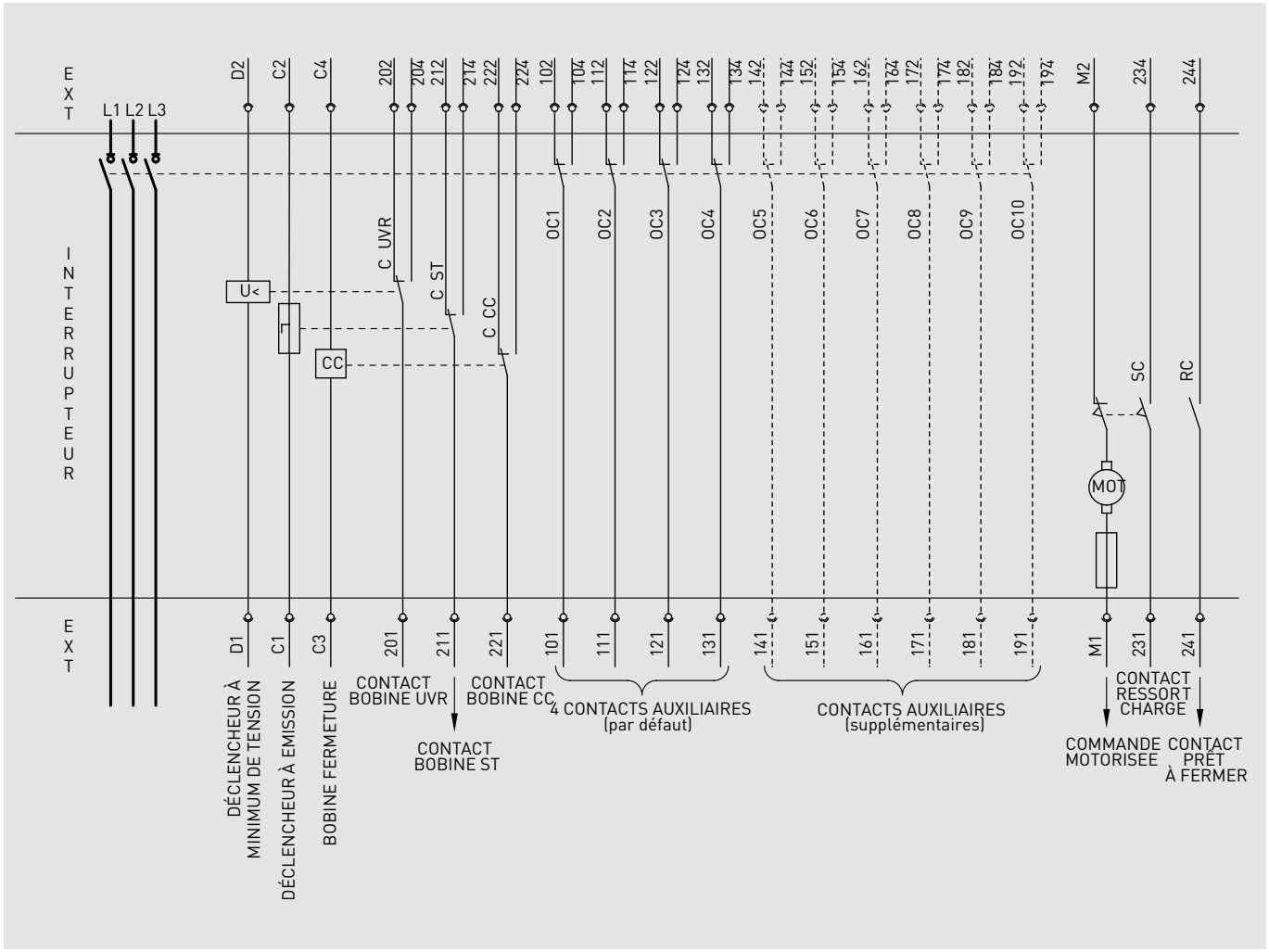
3 P CIRCUIT BREAKERS (3P + EXTERNAL NEUTRAL)



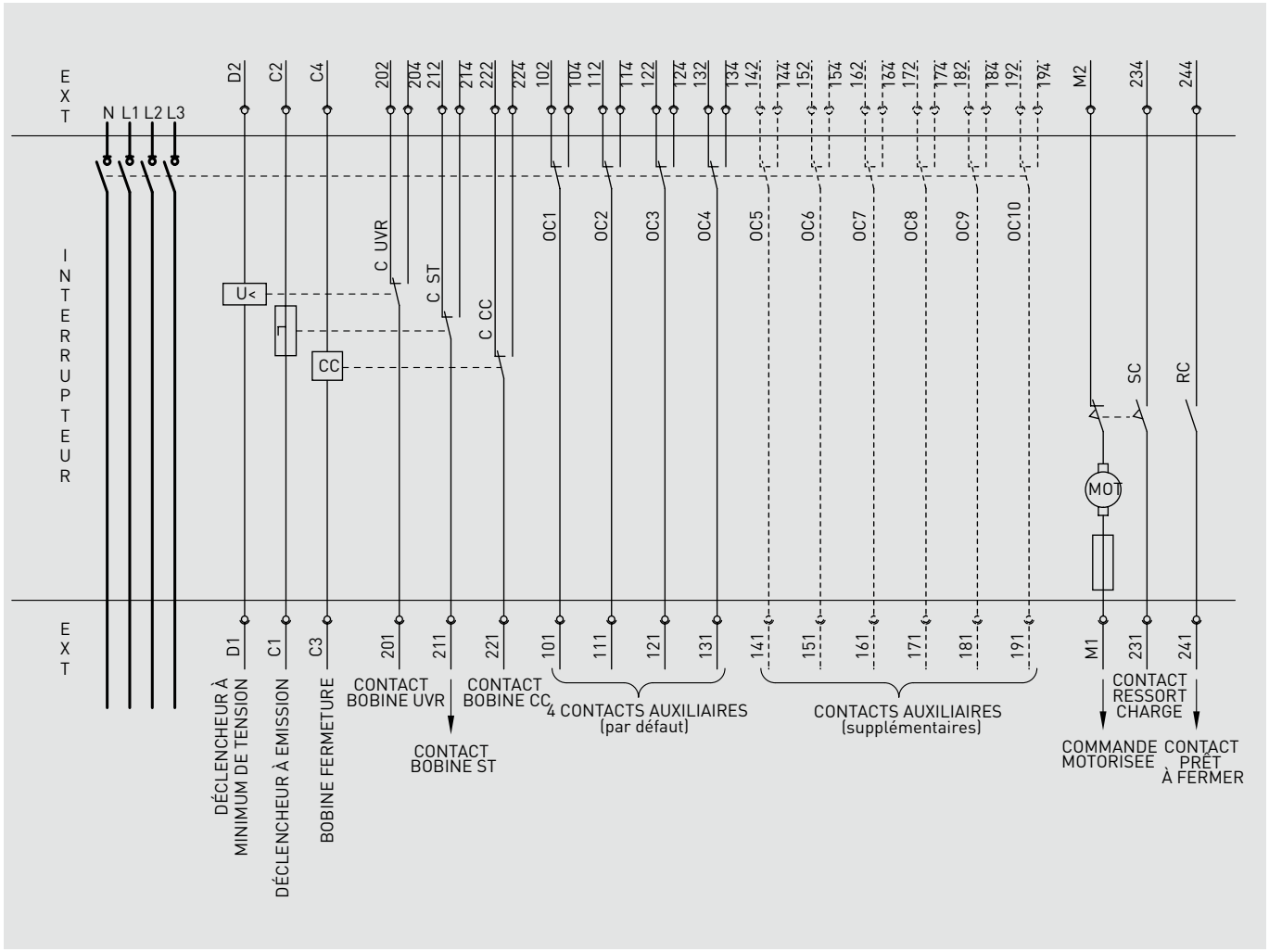
4 P CIRCUIT BREAKER



3 P TRIP FREE SWITCH



4 P TRIP FREE SWITCH



DMX-SP 2500
MECHANICAL ACCESSORIES

1- Key locking in « open » position (Cat.No 0 281 78/79/80/81)

2- Key locking in « drawn-out » position (Cat.No 0 281 82/83)

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

4- Mechanical counter (Cat.No 0 281 88)

5- Inserted/test/drawn-out lock button (Cat.No 6 696 08)

6- Rating mis-insertion device (Cat.No 0 281 89)

7- Base for drawn-out version -3P and 4P- (Cat.No 6 696 10/11)

8- Mechanical interlock (Cat.No 0 281 90)

9- Interlocking cables

10- Insulation shields (Cat.No 6 696 00/01/02/03)

1- Key locking in « open » position (Cat.Nos 0 281 78/79/80/81)

Example Cat.No 0 281 78

A key locking in the «open» position prevents the DMX-SP from closing. It can be installed on fixed or drawn-out devices, circuit breakers or trip-free switches.

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

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

To unlock the DMX-SP, simply turn the key 1/4 turn counterclockwise and the OFF button will return to its position.

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

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.servtrayvou.com/web/contact) specifying the barrel number:

- Flat key: ABA90GEL6149

- Star key: HBA90GPS6149.

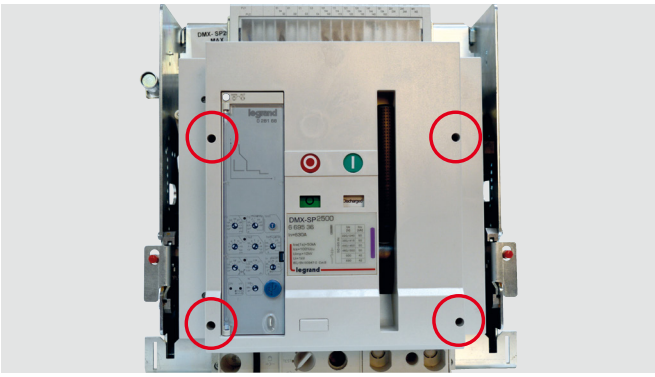
However, it is necessary to order a locking kit in order to have the different fixing accessories.

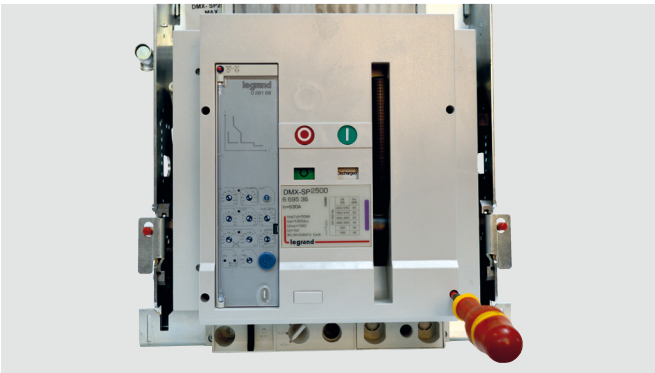
Lock + 1 Ronis type flat key (n° ABA90GEL6149)	0 281 78
Lock + 1 Ronis type flat key (n° ABA90GEL6149) fixed (cod. EL43525)	0 281 79
Lock + 1 Ronis type flat key (n° ABA90GEL6149) fixed (cod. EL43363)	0 281 80
Lock + 1 Profalux type star key (n° HBA90GPS6149)	0 281 81

MOUNTING

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

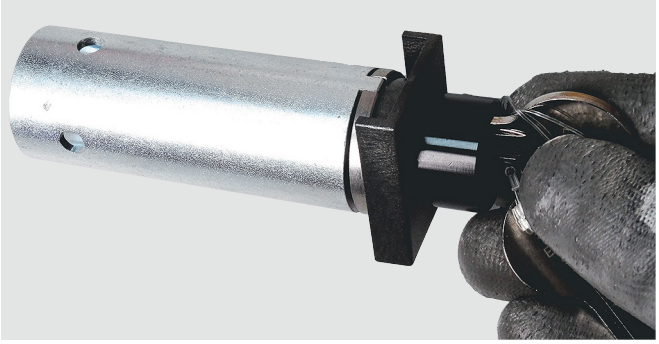
Remove the 4 screws (Phillips head n°1) and the front panel.



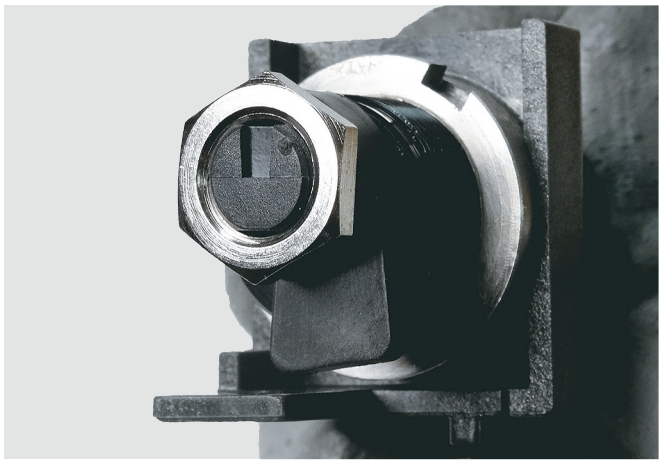


Remove the lock location on the back of the front panel using a 23 mm drill bit (or other tool).

Position the key vertically during this process.

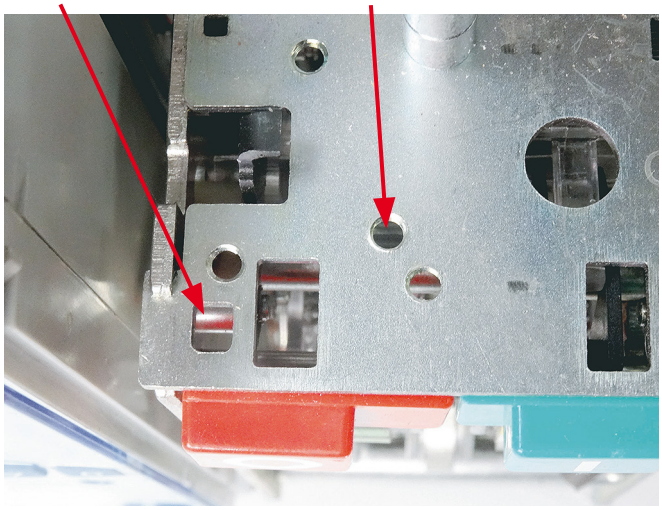


Insert the supplied plastic cam and secure it with the metal nut using a 16 mm flat key (tightening torque 4 Nm).



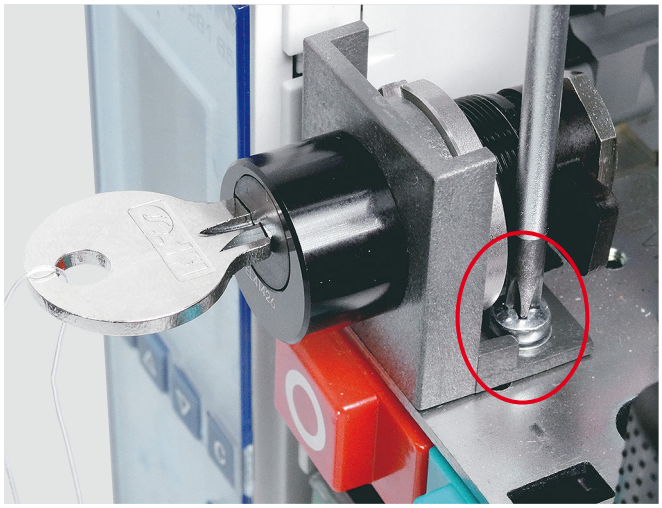
Position the lock over the «OFF» button of the DMX-SP in the dedicated slot.

Slot Fixing hole



Position the key horizontally during this process.

Secure the lock with the supplied screw using a tool with Philipps head n°1 (tightening torque 3 Nm).



Perform two operating 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 pressed position.
- After recharging the spring, check the correct operation of the accessory by trying to close the circuit breaker (press button I) --> impossible

Normal operation (not locked): I cannot remove the key, it is in the horizontal position.
Locked operation: I can remove the key, it is in the vertical position.

Put back in place the plastic cover of the terminal block, then the front panel using the 4 screws (Phillips head n°1, tightening torque 1 Nm).

Re-insert the DMX-SP if necessary.

2- Key locking in « drawn-out » position (Cat.Nos 0 281 82/83)

Example Cat.No 0 281 83

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

To lock the DMX-SP in the «drawn-out» position, turn the key 1/4 turn to the right after making sure that the handle is removed from the plug-in system and that the slot is closed.

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

To unlock the DMX-SP, so that it can be inserted, simply turn the key 1/4 turn to the left, releasing the locking system for the handle.

There are two types of locks:

- Flat key (RONIS type)
- Star key (type PROFALUX)

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

- Flat key: ABA90GEL6149
- Star key: HBA90GPS6149

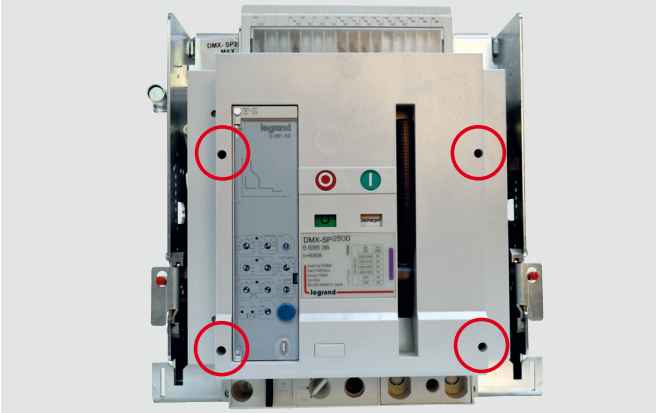
However, it is necessary to order a locking kit in order to have the different fixing accessories.

Lock with star type key (n° HBA90GPS6149)	**0 281 82**
Lock with flat type key (n° ABA90GEL6149)	**0 281 83**

MOUNTING

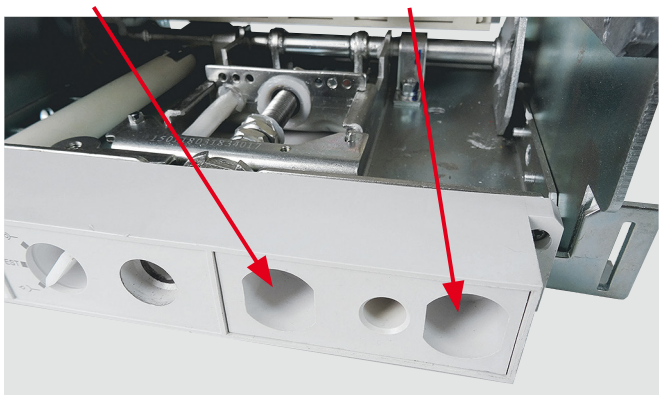
Before any intervention, check that the DMX-SP is in the «OFF» position (contacts open), drawn-out position (if necessary) and the discharged spring.

Remove the 4 screws (Phillips head n°1) and the front panel.



Two positions are possible: on the left side and on the right side of the frame. Two locks can be installed simultaneously for multiple lockouts.

1er position 2ème position

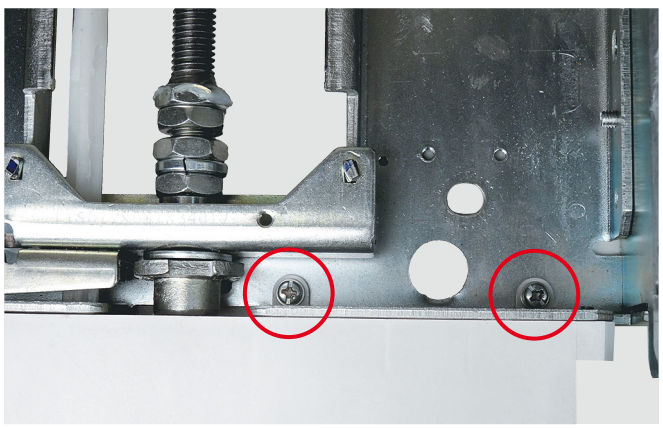


■ **Example of installation on the left side of the frame**

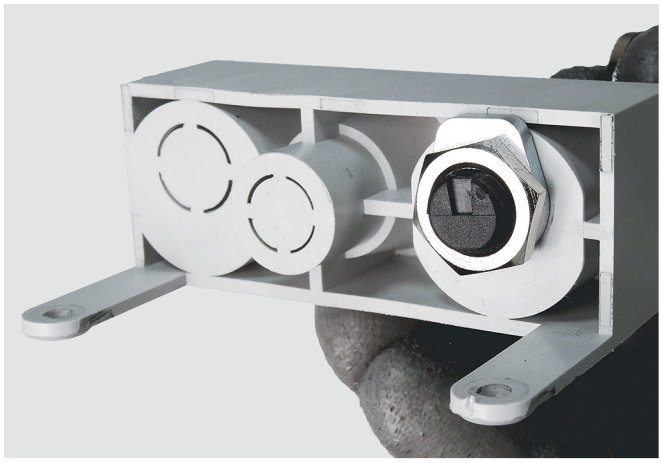
Remove the 2 screws holding the plastic frame with a Phillips head n°2 tool.

Remove the frame from the front.

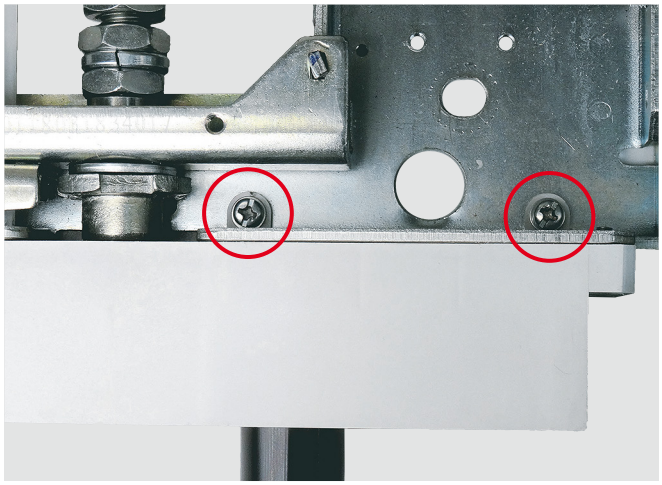
■ **Top view**



Remove the pre-cut cover with a suitable tool. Insert the barrel into the plastic frame and position the cam correctly at the back. Fix the accessory with the nut supplied using a 16 mm flat key (tightening torque 4 Nm). Then position the key horizontally.



Reinsert the accessory into the base then fix it with the 2 fixing screws using a Phillips screwdriver n°2 (tightening torque 3 Nm).



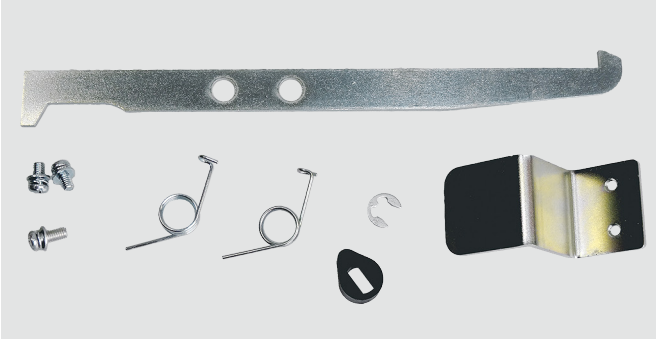
Put the DMX-SP back in its base and perform an operating test:

« Inserted » position:
1 I cannot remove the key (horizontal position).
2 I can insert the drawn-out handle.

« Test » position:
1 I cannot remove the key (horizontal position).
2 I can insert the drawn-out handle.

« Drawn-out » position:
1 I can remove the key (vertical position).
2 I cannot insert the drawn-out handle if the key is removed or is in the vertical position.

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



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

This door locking prevents the faceplate from opening/closing when the DMX-SP is in the «inserted» position. The faceplate can be opened/closed in the «test» or «drawn-out» position only.

The door locking 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 the necessary accessories for mounting on the DMX-SP as well as on the faceplate.

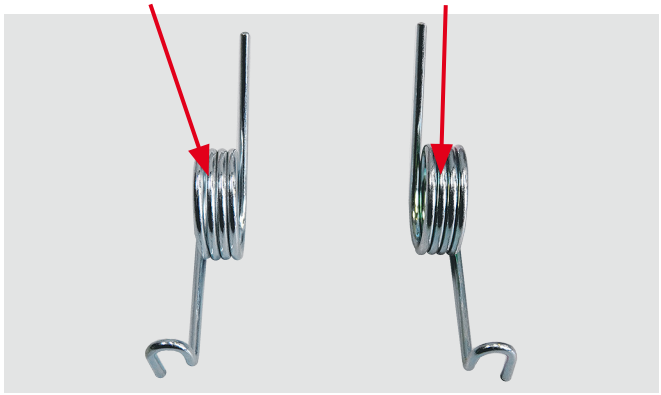
MOUNTING

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

■ **Example of a door locking on the left of the base**

Use one of the two springs:

Left side mounting Right side mounting

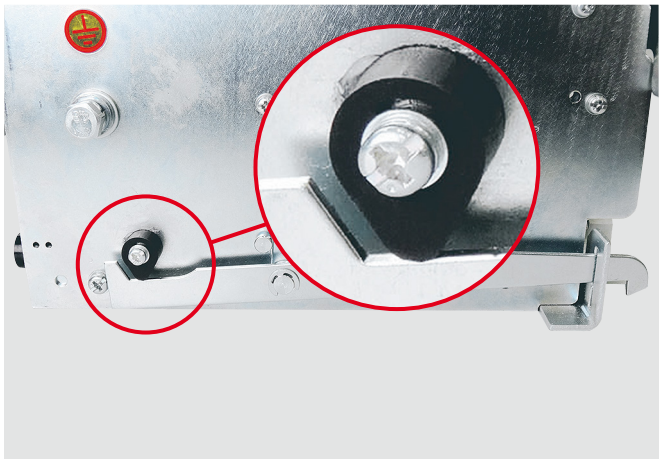


Position the spring on the metal lever

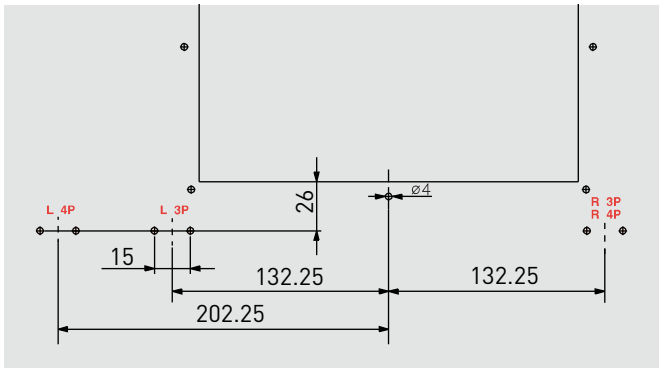
Insert the end of the lever into the slot of the DMX-SP and position the accessory correctly on the axis.

TABLE OF CONTENTS

Insert the retaining clip then the cam with its screw (Phillips head n°2, tightening torque 3 Nm).

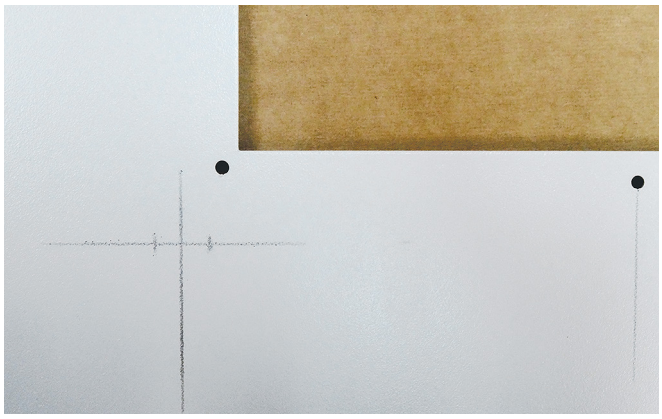


For the installation of the bracket on the faceplate, please see the installation instructions:



For the installation of the bracket on the faceplate side, please refer to the dimensional drawing in the installation instructions :

Front view



Rear view

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

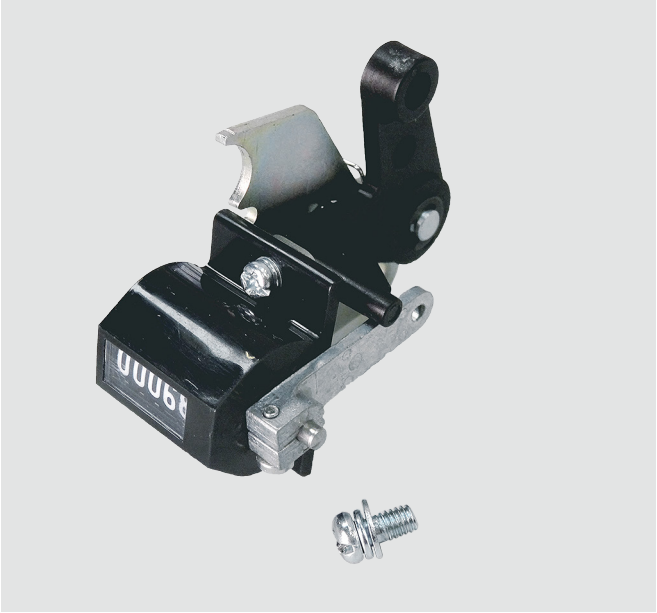
Head and tightening torque of the 2 fixing screws:
Phillips head n°2 - 3 Nm

■ **Position configuration**

Inserted → impossible to open or close the faceplate

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

4- Mechanical counter (Cat.No 0 281 88)



The mechanical counter allows to display on the front panel of the DMX-SP the number of «closing/opening/recharged spring» cycles performed by the product.

This counter can be installed on all circuit breakers and trip-free switches of the DMX-SP 2500 range.

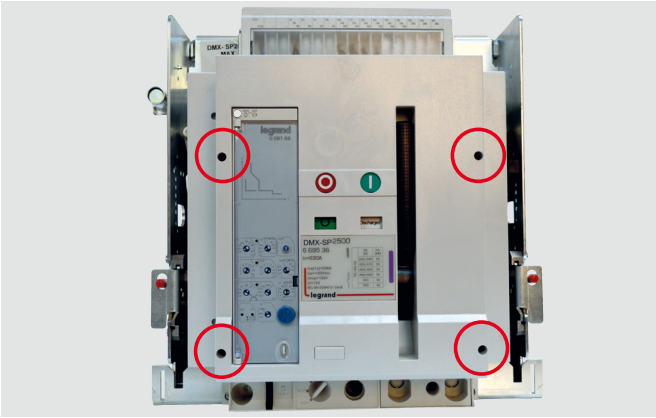
It is delivered with the display « 99990 ».

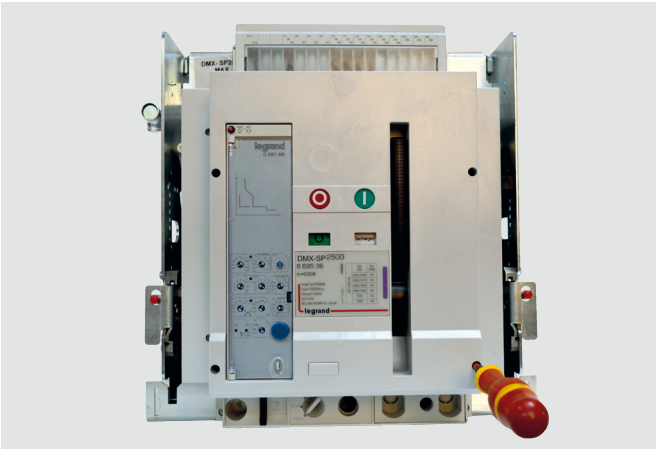
Its manual reset is impossible.

MOUNTING

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

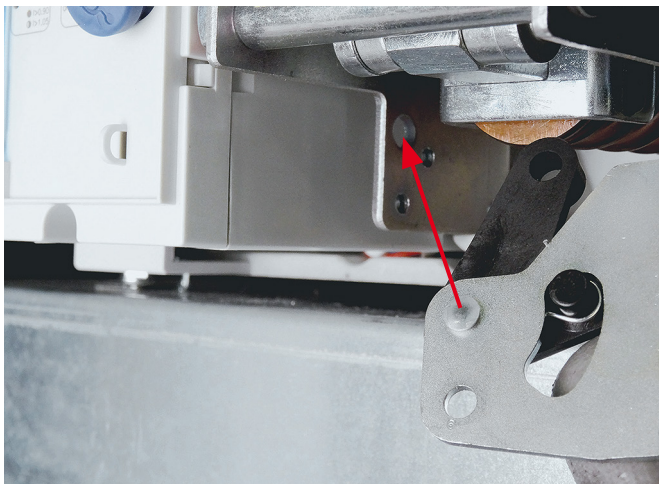
Remove the 4 screws (Phillips head n°1) and the front panel.

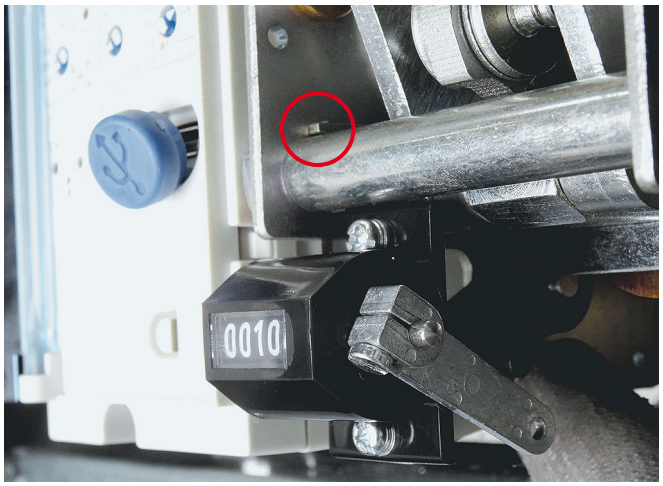


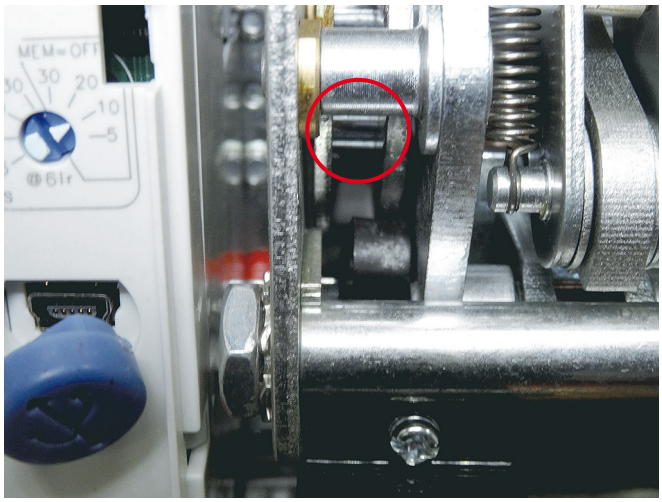


Position the counter correctly by engaging the pin in the hole, the metal tab on the axis and the plastic cam on the mechanism.

Pin in the hole:

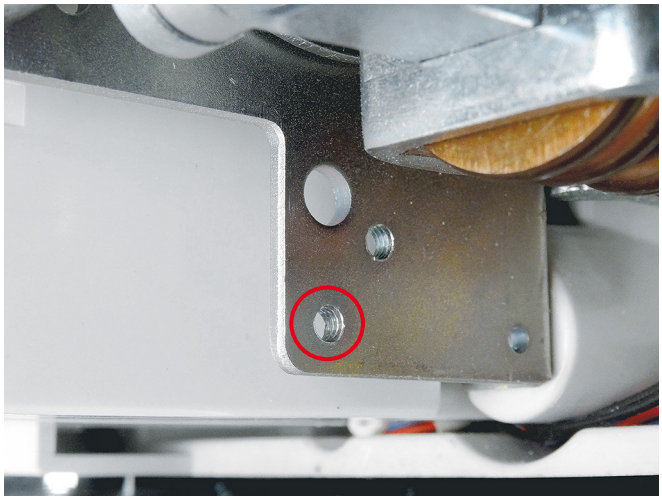




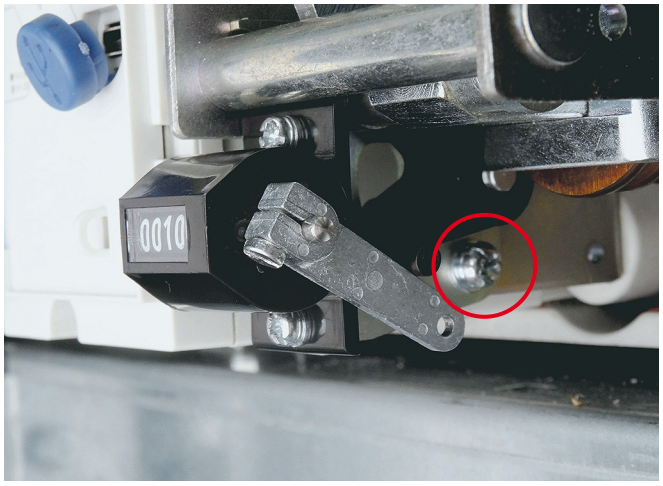


Then fix the counter with the supplied screw (Phillips head n°2, tightening torque 3 Nm).

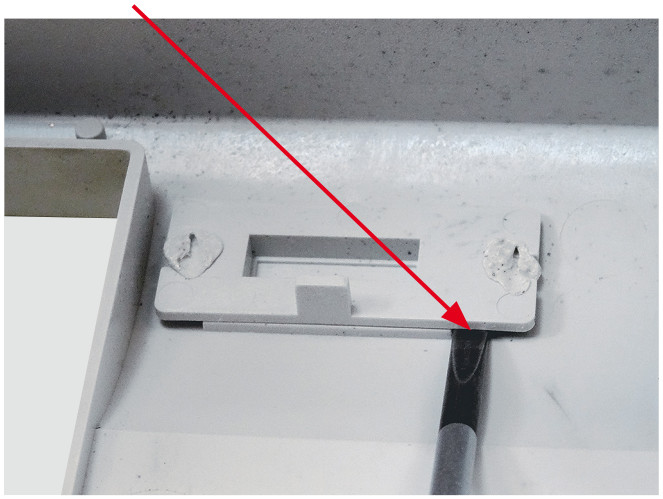
Mounting hole on the DMX-SP



Fixing screws



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



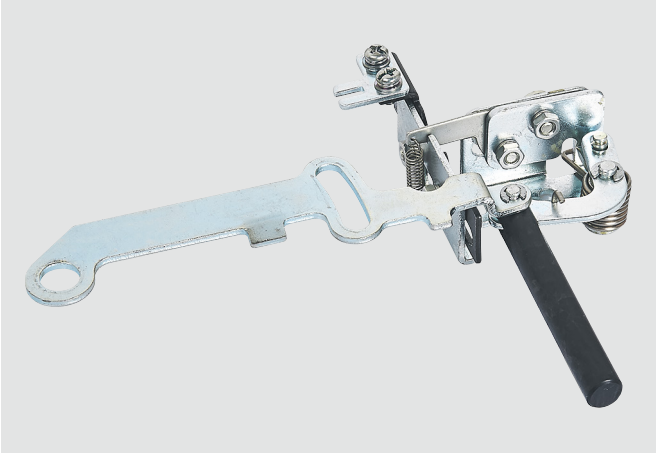
Put back in place the front panel with the 4 screws (Phillips head n°1, tightening torque 1 Nm), then the screw caps.

Re-insert the DMX-SP if necessary.

Carry out 10 complete opening/closing cycles to check that the counter is correctly working.

The number of units changes as soon as the spring is fully charged. The counter is delivered with the number « 99990 » displayed. At the 10th complete cycle, it will change to « 00000 ».

5- Inserted/test/drawn-out lock button (Cat.No 6 696 08)

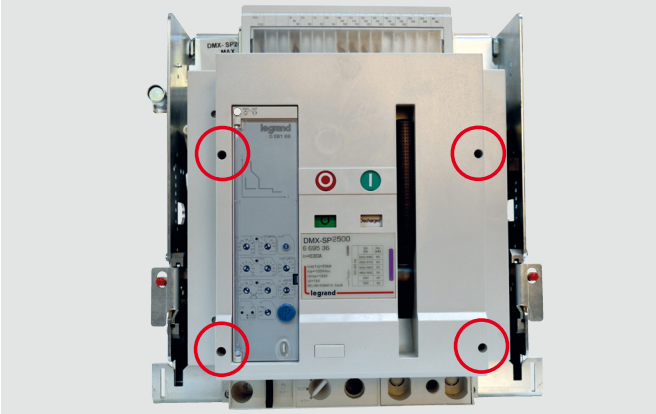


This accessory allows to ensure the correct position of a DMX-SP 2500 drawn-out version. It also avoids potential damages of the components when one is at the end of the inserting or drawing-out stroke.

MOUNTING

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

Remove the 4 screws (Phillips head n°1) and the front panel.

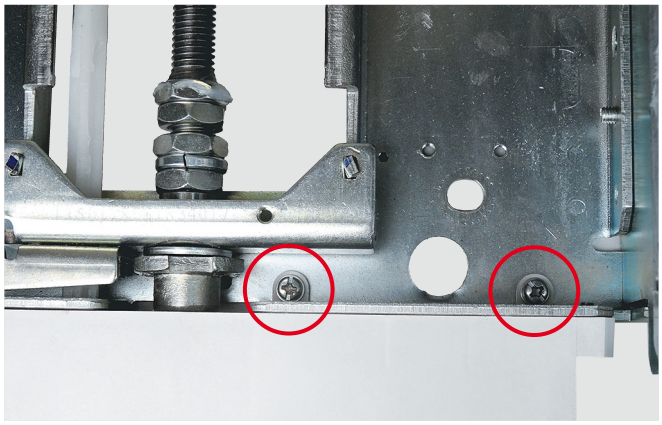


Remove the 2 screws holding the plastic frame with a Phillips

head n°2 screwdriver.

Remove the frame from the front.

■ **Top view**

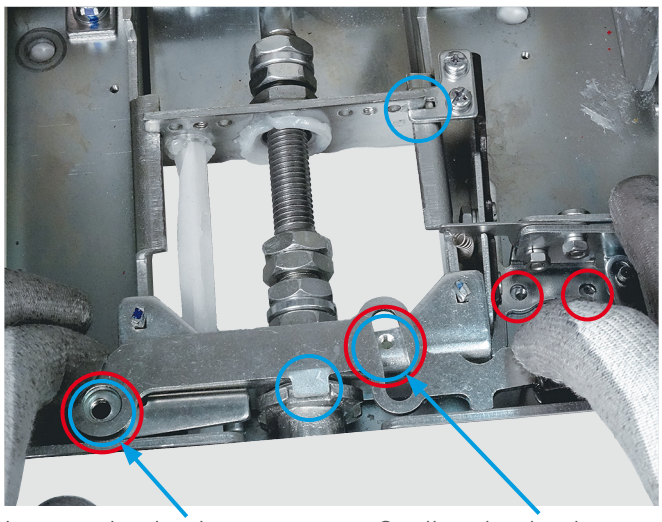


Remove the pre-cut cover with a suitable tool and deburr the contours of the hole with an electrician's knife.

Put the mechanism in place by checking its correct position then insert the 2 fixing screws supplied. Tighten these 2 screws in the base (Phillips head n°2, tightening torque 3 Nm).

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

Position of the mechanism's fixing screws in **red**.



Large washer-head screw position

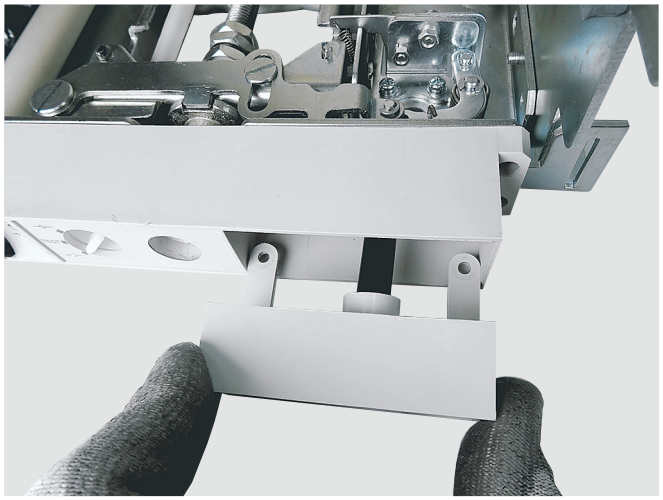
Small washer-head screw location

Insert the washer-head screw (the larger one) on the left side of the mechanism and tighten it (8 mm flat head, tightening torque 10 Nm).

Insert the washer-head screw (the smallest one) on the central part of the mechanism and tighten it (6.5 mm flat head, tightening torque 3 Nm).

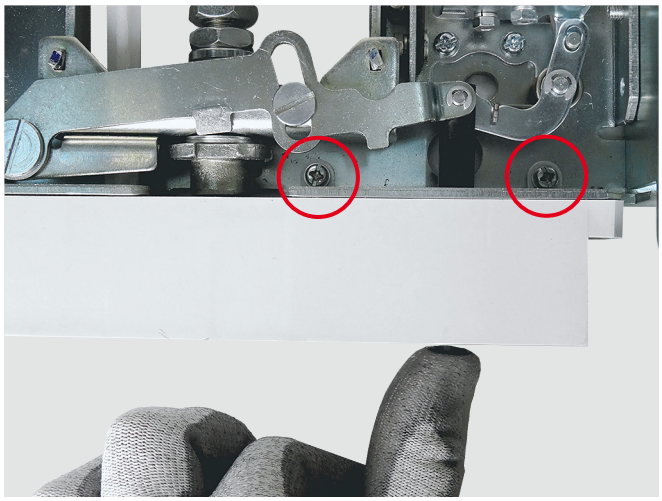
Make sure that the 2 washer-head screws are correctly positioned on the mechanism (see photo below).

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



Put the 2 fixing screws back in place and tighten them (Phillips head n° 2, tightening torque 3 Nm).

For better ease of screwing, push back the button before tightening the 2 screws in order to clear the access.



Replace the front panel using the 4 screws (Phillips head n°1, tightening torque 1 Nm), then the screw caps.

Re-insert the DMX-SP and carry out 2 complete operating tests (inserted/test/drawn-out).

OPERATION:

When the DMX-SP is in one of the three positions (inserted/test/drawn-out), the locking button is out, we can insert the inserting/drawing-out handle but not turning it.

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

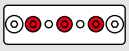
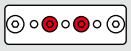
The same principle of operation applies to the DMX-SP for inserting and drawing-out.

6- Rating mis-insertion device (Cat.No 0 281 89)

The rating mis-insertion device allows, when several DMX-SP are present in the same enclosure, to avoid putting the wrong DMX-SP in a base. If the size and the number of poles can be identical, the settings, the wear, the identification, the accessorization can be different.

There is one combination per rated current, i.e. 7 combinations. If there are several DMX-SP with the same rated current, several other combinations are possible. However, be careful not to put an identical one in place at another amperage.

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

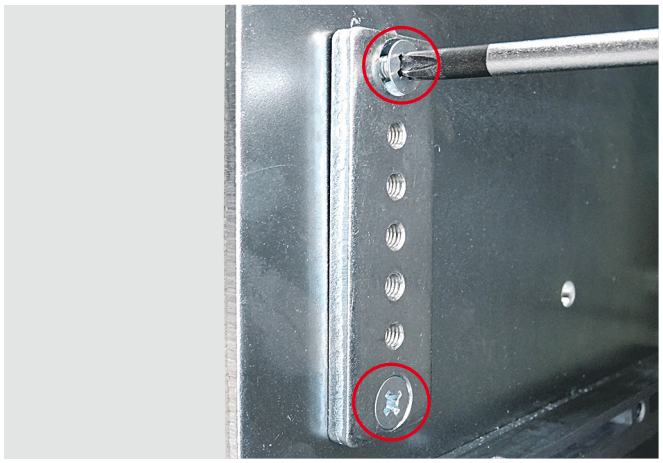
In		
630 A		
800 A		
1000 A		
1250 A		
1600 A		
2000 A		
2500 A		

MOUNTING

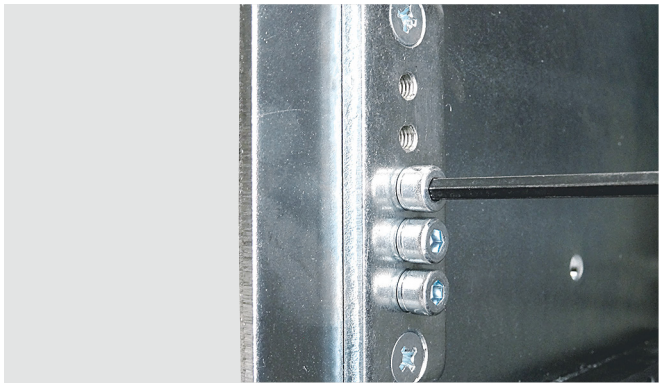
Before any intervention, check that the DMX-SP is in the «OFF» position (contacts open), drawn-out position (if necessary) and the discharged spring.

■ Example on a DMX-SP 2500 In=1250A

Fix one of the 2 plates on the left side of the base with 2 countersunk screws (Phillips head n°1, tightening torque 3 Nm). The chamfered holes of the plate must be positioned on the inside of the base:



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



In the same way, fix the remaining plate on the left side of the DMX-SP with the 2 remaining countersunk screws (Phillips head n°1, tightening torque 3 Nm). The chamfered holes in the plate must be positioned on the outside of the DMX-SP. Place the screws/washers in the plate (2 on the top in our example) and tighten.

→ Allen head type 3 mm, tightening torque 3 Nm.

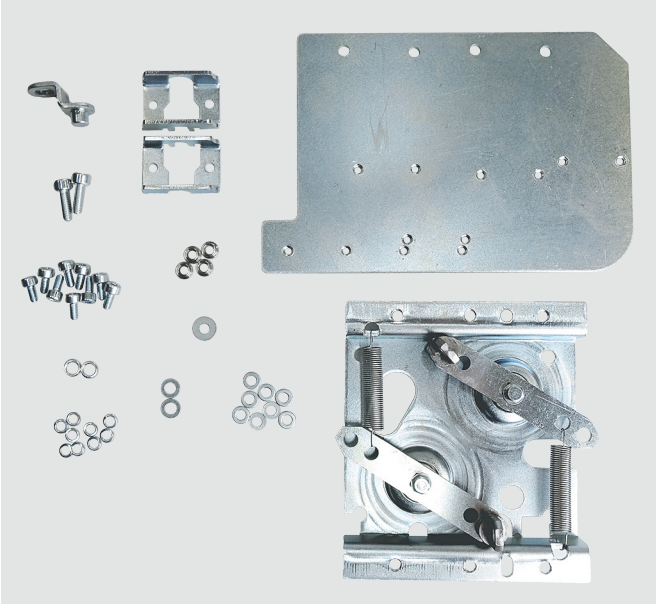
Check the correct operation by verifying that the DMX-SP can be re-inserted without any constraints.

7- Base for drawn-out version

The empty bases are delivered without accessories and without the auxiliary terminal block support.

Cat.Nos	Type
6 696 10	3P
6 696 11	4P

8- Mechanical interlock (Cat.No 0 281 90)



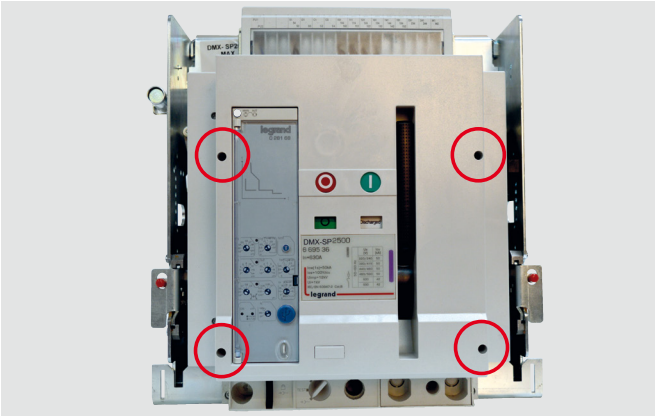
The mechanical interlock of the devices is carried out by using cables and allows to obtain a 2-device supply inverter, in vertical or horizontal configuration. It is mounted on the right side of the devices or bases.

Only Legrand interlocking cables, dedicated to DMX-SP 2500 (see page 80) must be mounted on the mechanical interlocks.

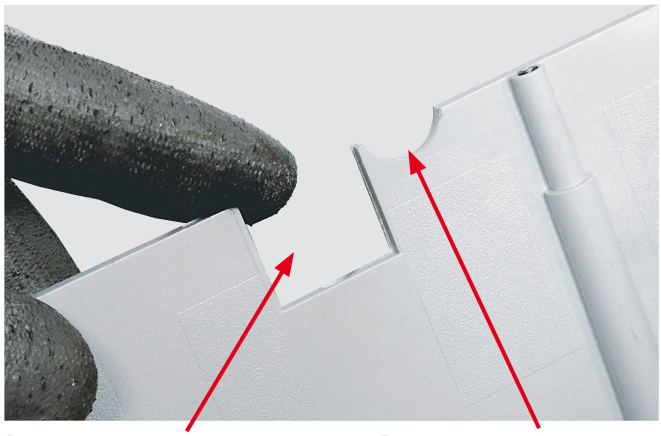
MOUNTING FOR A DRAWN-OUT VERSION

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

Remove the 4 screws (Phillips head n°1) and the front panel.



Remove one part (drawn-out version) or 2 parts (fixed version) of the right side of the front panel using pliers.

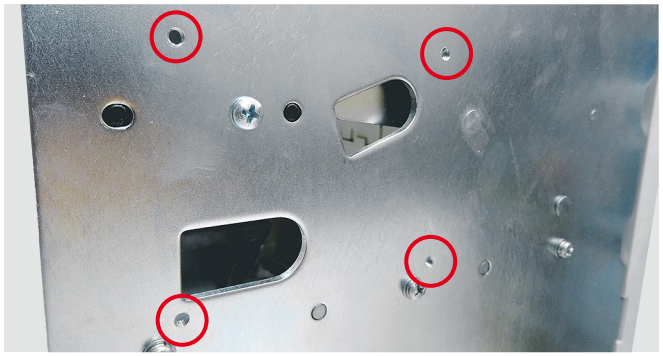


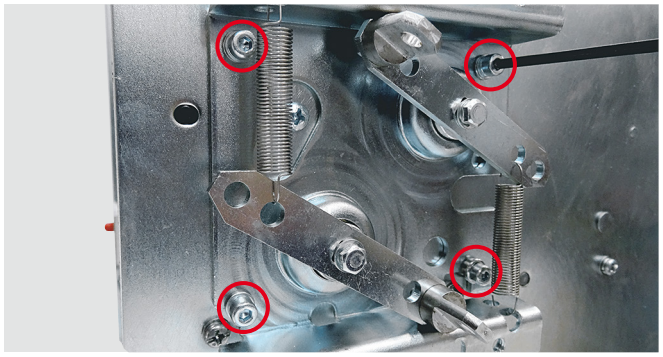
Part to remove in both versions

Part to remove for the fixed version

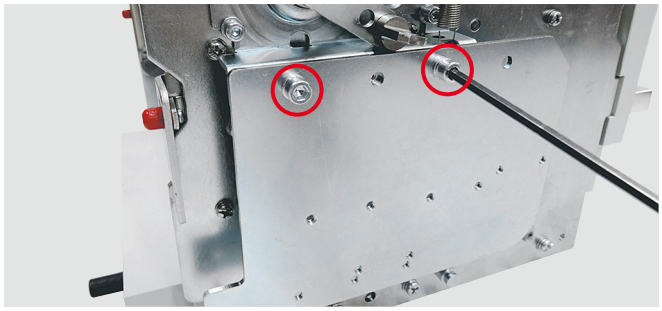
Install the metal bracket using the screw and washers supplied: 3 mm Allen head type, tightening torque 2 Nm.

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





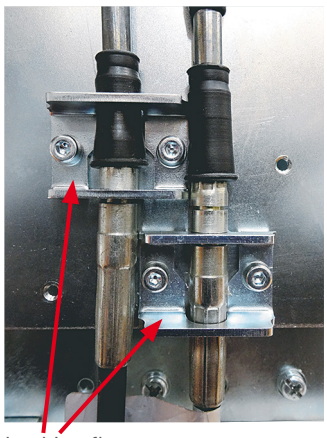
Fix the metal support on the plate with the 2 levers using the 2 screws and washers supplied: 4 mm Allen head type, tightening torque 3 Nm.



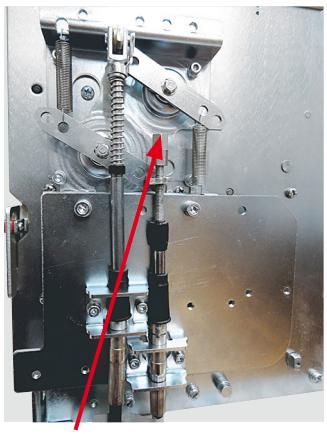
Fix the interlocking cables in the direction described in the installation instructions, then fix the locking flanges using the 4 screws and washers supplied: 3 mm Allen head type, tightening torque 2 Nm.

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

Please respect the mounting direction of the cable flanges. Ensure that the thread length poking out from the nuts is between 0 mm and 1 mm.



Locking flanges



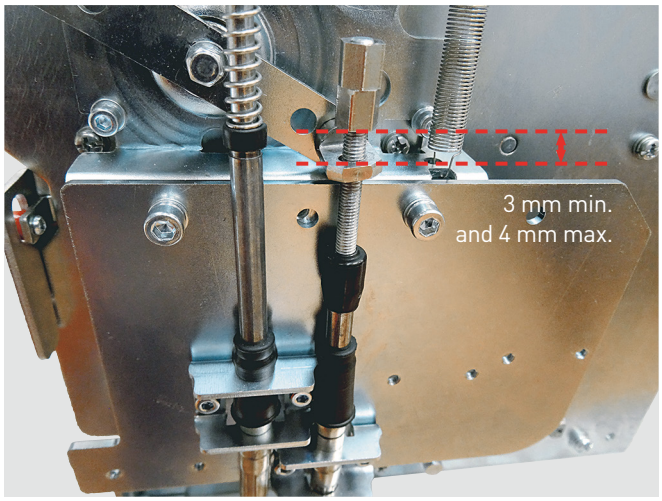
Gap between 0 mm and 1 mm

Perform the same operations described above on the 2nd product.

Re-insert the 2 DMX-SP back into their base and charge the 2 springs.

Close 1 of the 2 products.

Adjust the distance between the lever and the 1st nut on the closed DMX-SP. It must be between 3 mm and 4 mm. Also check that the 2nd cable is not flanged.



Then tighten the locknut with a 10 mm connector (tightening torque 3 Nm).

Open this DMX-SP and recharge its spring.

Close the 2nd product (not set) and make the same adjustment of the distance of the nut (between 3 mm and 4 mm). Check that the other cable is not flanged.

Then tighten the locknut using a 10 mm connector (tightening torque 3 Nm).

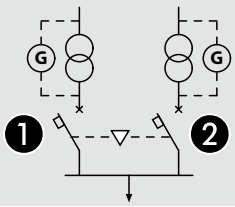
Check that each DMX-SP are correctly operating as well as the truth table.

In the event of a malfunction, repeat the adjustment steps after checking that the cables are not damaged, that their length is appropriate for the configuration and that the minimum bending radius of 100 mm is respected.

Truth table:

TYPE A

ACB 1	ACB 2
0	0
1	0
0	1

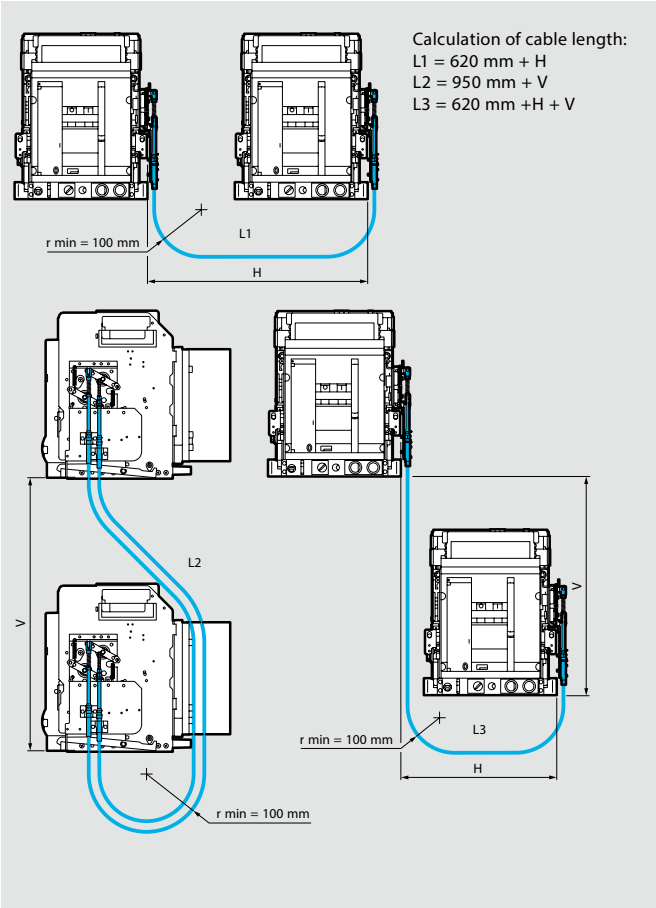


9- Interlocking cables

The interlocking cables allow 2 DMX-SP to be mechanically connected via the mechanical interlock (see above).

The length must be chosen according to the position of the DMX-SP in the enclosure. It is important to respect the minimum bending radius of 100 mm, and to make sure that it is fixed to the enclosure structure after the mechanical system setup.

For installation, see previous pages.



For more details on cable management and diagrams, please refer to the installation instructions of the mechanical interlock.

10- Insulation shields

CABLE SELECTION

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

Cat.Nos	Type
6 696 00	Fixed version 3P
6 696 01	Fixed version 4P
6 696 02	Drawn-out version 3P
6 696 03	Drawn-out version 4P

DMX-SP 4000

MECHANICAL ACCESSORIES

1- Lifting plate (Cat.No 0 288 79)

2- Key locking in « open » position (Cat.No 0 288 28)

3- Padlocks in « open » position (Cat.No 0 288 21)

4- Key locking in the inserted/test/drawn-out position (Cat.No 0 288 32/33)

5- Rating mis-insertion device (Cat.No 0 288 25)

6- Mechanical counter (Cat.No 0 288 23)

7- Padlocks in « drawn-out » position (Cat.No 0 288 26)

8- Door locking (faceplate) (Cat.No 0 288 20)

9- Mechanical interlock and cables (Cat.No 0 288 65)

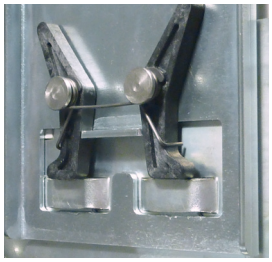
10- Insulation shields (Cat.No 0 288 18/19/98/99)

1- Lifting plate (Cat.No 0 288 79)

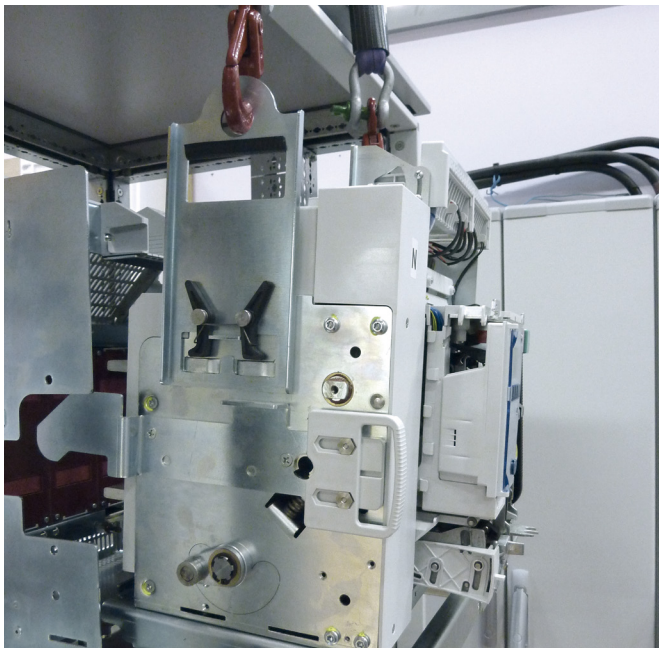
The handles are sold in pairs. They are used to lift the devices to extract a DMX-SP from its base or to install a fixed DMX-SP in an enclosure.

For safe use, it is necessary to ensure that both lifting plates are correctly positioned, and to use the correct lifting equipment. These plates are used exclusively for handling DMX-SP.

INSTALLATION OF THE LIFTING PLATES



NOT CORRECT **CORRECT**



Installation of a DMX-SP drawn-out version in its base

Installation of a fixed DMX-SP in its base

2- Key locking in « open » position (Cat.No 0 288 28)

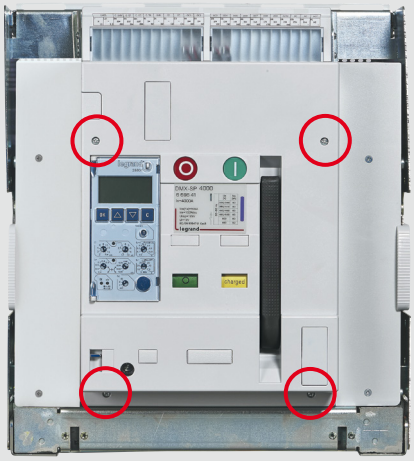
This key locking in the «open» position prevents the DMX-SP from closing. It can be installed on fixed or drawn-out version devices.

It can be equipped with four types of barrel:

- 1 barrel Cat.No 0 288 30 (flat key type RONIS ABA90GEL6149)
- 1 barrel Cat.No 0 288 31 (star key type PROFALUX HBA90GPS6149)
- 1 barrel Cat.No 0 288 71 (flat key type RONIS ABA90GEL6149, cod. EL43525)
- 1 barrel Cat.No 0 289 06 (flat key type RONIS ABA90GEL6149, cod. 43363)

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

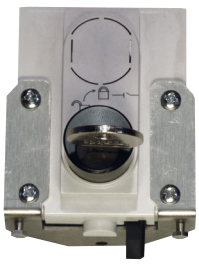
Remove the 4 screws (Phillips head n°1) and the front panel.



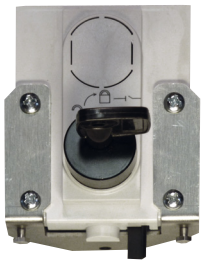
The locking accessory has two locations. It is possible to install either a single barrel (with a flat or star key) in either of the two locations, or two identical or mixed barrels.
In the latter case, only one of the two keys is needed to lock the DMX-SP.
It is possible to order specific barrels or additional keys from the company STI* by specifying the barrel number:
- flat key : ABA90GEL6149
- star key : HBA90GPS6149.

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

There is a kit for key locking in the «open» position, consisting of five identical barrels with five corresponding flat keys, as well as the accessories (fixing rings and cams), as well as a kit consisting of five different barrels and three different keys for the realization of several different combinations.



Locking accessory Cat.No 0 288 28 equipped with a barrel with flat key Cat.No 0 288 31



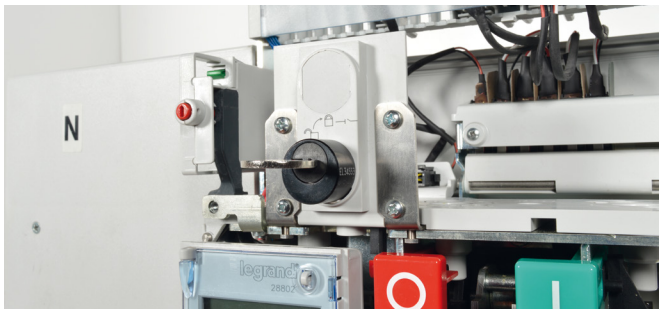
Locking accessory Cat.No 0 288 28 equipped with a barrel with star key Cat.No 0 288 30

The two locations available for the key lockings provide the same locking.

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

To unlock the DMX-SP, simply turn the key 1/4 turn counterclockwise and the OFF button will return to its position.

In the locked position, the key is free, so it is possible to lock the device by removing it.



3- Padlocks in « open » position (Cat.No 0 288 21)

The padlock in the «open» position prevents the DMX-SP from closing.

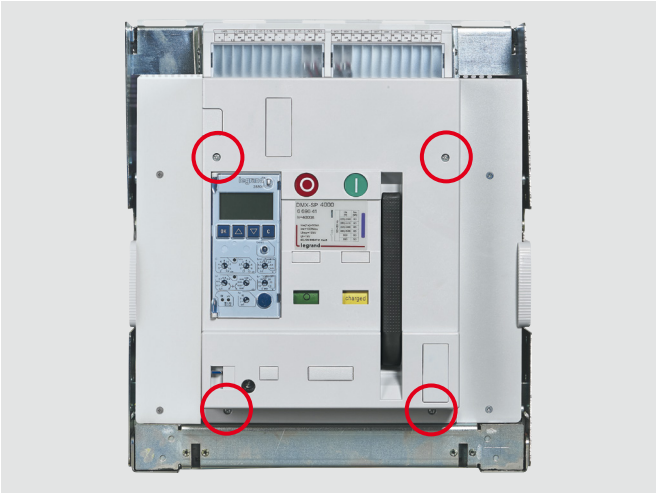
It can be installed on fixed or drawn-out devices.

This accessory is installed in the position of the key locking in open position, so it is impossible to have a key locking in open position and a padlock in open position on the same device.

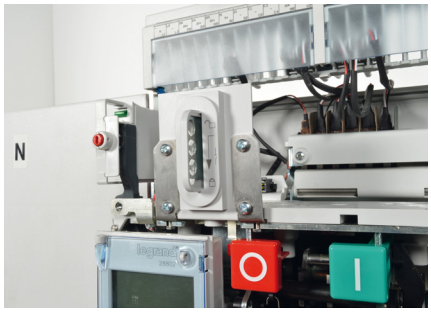
Up to three padlocks with a diameter between 6 and 8 mm can be installed. However, only one padlock can be installed to ensure locking.

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

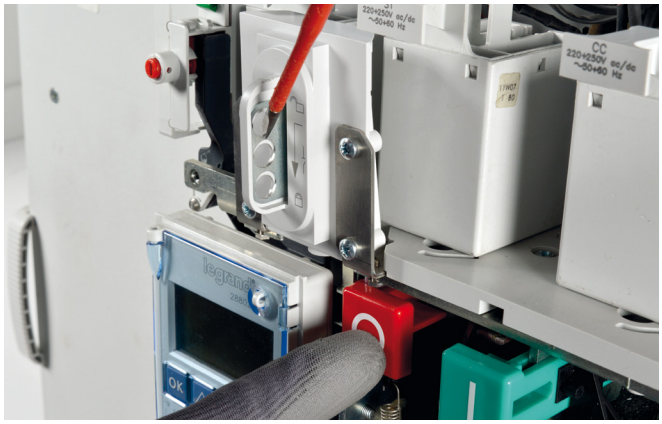
Remove the 4 screws (Phillips head n°1) and the front panel.



To padlock the DMX-SP, it is necessary to press and hold the OFF button and push down the metal part as shown in the illustration below.



The Legrand offer includes a security padlock: Cat.No 0 227 97 (6 mm diameter).



- After recharging the spring, check the correct operation of the accessory by trying to close the circuit breaker (button I)

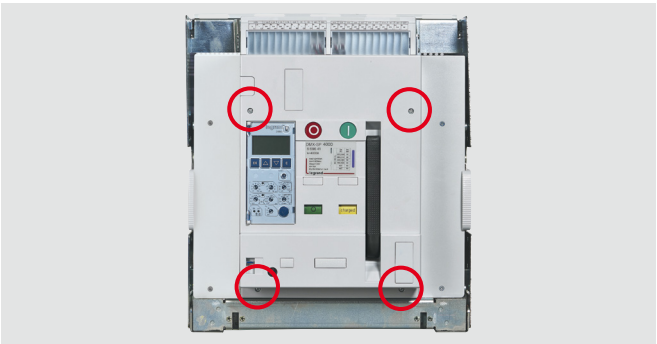
--> impossible

4- Key locking in the « inserted/test/ drawn-out » position (Cat.Nos 0 288 32/33)

This accessory allows the locking in the « inserted, test and drawn-out » positions. A part supplied with the kit allows to disable the locking in the «inserted» position. It is recommended to always install this part, and therefore to disable the locking in the «inserted» position, and eventually to remove it afterwards.

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

Remove the 4 screws (Phillips head n°1) and the front panel.



To lock the DMX-SP drawn-out version in the «test» position and/ or in the «drawn-out» position, turn the key 1/4 turn to the right after making sure that the handle is removed from the drawn-out system and that its slot is closed.

In the «locked» position, the key is free. It is then possible to lock the device by removing it.

To unlock the DMX-SP, so that it can be inserted, simply turn the key 1/4 turn to the left, thus freeing the locking system for the handle. The two available positions ensure the same lock.

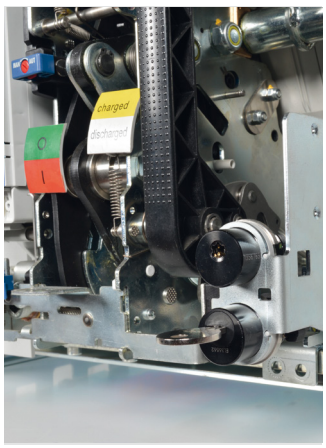
There are two types of locks:

- with flat key (type RONIS)
- with star key (type PROFALUX)

It is possible to order specific barrels or additional keys from the company STI* by 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.



5- Rating mis-insertion device (Cat.No 0 288 25)

The rating mis-insertion device allows, when several DMX-SP drawn-out version are installed in the same enclosure, not to change the circuit breaker in relation to its base. If the size and the number of poles can be identical, the settings, the wear, the identification, the accessories can be different.

There are nine possible coding combinations.

To install, first fix the plate supplied, under the circuit breaker, then fix one plate in the fixed base and the other on the plate, under the circuit breaker.

Then, depending on the size of the circuit breaker, insert the rating mis-insertion pins according to the attached table.

In		
3200 A		
4000 A		

6- Mechanical counter (Cat.No 0 288 23)

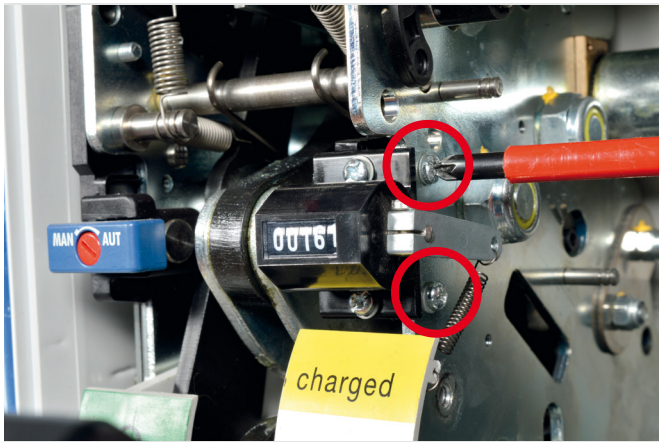
The mechanical counter allows to display on the front panel of the DMX-SP, the number of «closing/opening/recharged spring» cycles performed by the product.

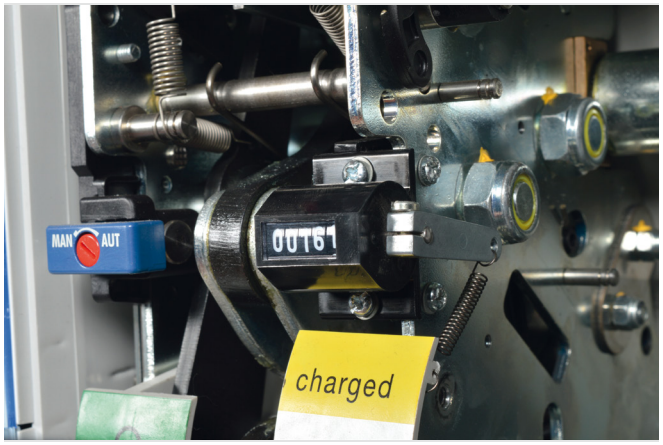
This counter can be installed on all the circuit breakers of the DMX-SP range.

Its manual reset is impossible.

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

Remove the 4 screws (Phillips head n°1) and the front panel.





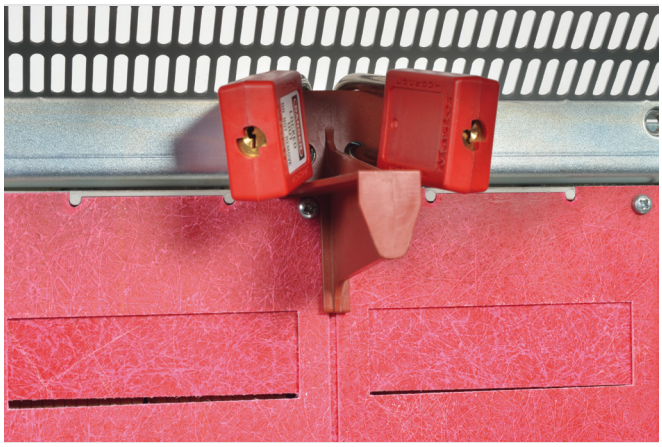
Perform 10 complete opening cycles to verify correct operation of the counter.

The number of units changes as soon as the spring is fully charged. The counter is delivered with the number « 99990 » displayed. At the 10th complete cycle, it will change to « 00000 ».

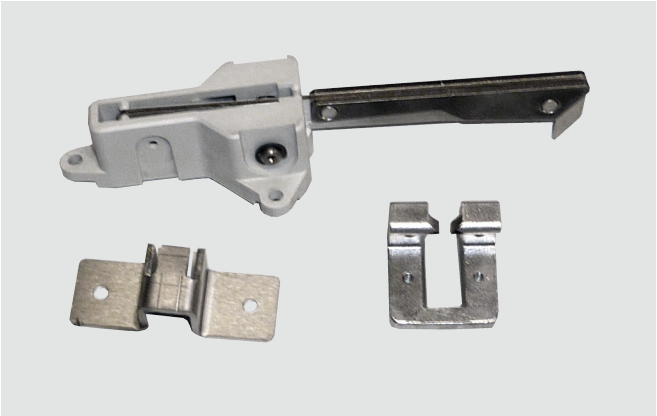
TABLE OF CONTENTS

7- Padlocks in « drawn-out » position (Cat.No 0 288 26)

This safety accessory can be equipped with two padlocks with a diameter between 5 and 8 mm. When at least one of the padlocks is installed, it stops the insulation shields from opening and, when a device is inserted, it blocks it in the «drawn-out» position by a physical stop. It is positioned at the bottom of the fixed base by simply clipping it onto the base. Once it is in the base, the DMX-SP cannot be put in «test» position.



8- Door locking (faceplate) (Cat.No 0 288 20)



This door locking prevents the hinged faceplate or door from being opened when the DMX-SP is in the «inserted» position. The faceplate can be opened in the «drawn-out» position only.

Closing the faceplate remains possible in all three positions, with the DMX-SP closed or open.

The door locking can be installed on the left or right side, respectively for a faceplate with right or left hinges. The catalogue number includes all the necessary accessories for mounting the fixed part on the DMX-SP, and the removable part on the door or faceplate.

9- Mechanical interlock and cables (Cat.No 0 288 65)

The mechanical interlock allows several DMX-SP devices to be mechanically interlocked. It is used to create a supply inverter with two or three devices (type A, B, C or D - see the next pages). There is a catalogue numer for the DMX-SP 4000 (0 288 65).

Only Legrand interlocking cables, dedicated for DMX-SP (see next page) must be mounted on the mechanical interlocks.

The interlocking cables allow DMX-SP to be connected mechanically via the mechanical interlocks.

They are available in 8 standard lengths.

The length must be chosen according to the position of the DMX-SP in the enclosure. It is important to respect the minimum bending radius of 65 mm, and to make sure that over its entire length, it is fixed to the enclosure structure after the mechanical adjustment of the system.

CABLE SELECTION

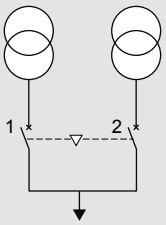
Cat.Nos	Length
0 289 17	1000 mm
0 289 18	1500 mm
0 289 20	2600 mm
0 289 21	3000 mm
0 289 22	3600 mm
0 289 23	4000 mm
0 289 24	4600 mm
0 289 25	5600 mm

All DMX-SP devices can be equipped with an interlocking kit that guarantees a «mechanical safety» in case of use as a transfer switch. The connections between DMX-SP are ensured by a cable system and mechanisms fixed on each device. This system is compatible with the entire DMX-SP range (3 and 4 pole circuit breaker, in fixed or drawn-out version, 50 kA and 65 kA) with a possible combination of the products in the range. The mechanical interlock allows to obtain transfer switches up to three devices.

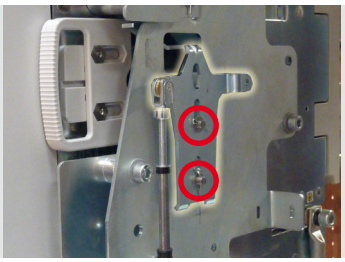
There are four types of possible interlocking.

■ A type

Possibility of locking only one of the two devices. Two interlocking cables needed.



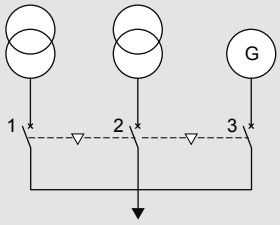
DMX-SP N° 1	DMX-SP N° 2
0	0
0	1
1	0



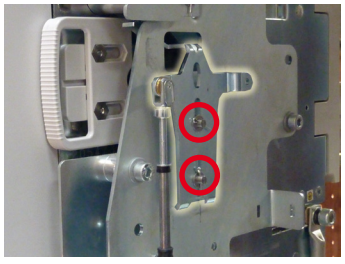
The Z parts of both devices must be installed in transverse direction, as shown in the picture.

■ B type

Possibility of closing only one of the three devices. Six interlocking cables needed.



DMX-SP N° 1	DMX-SP N° 2	DMX-SP N° 3
0	0	0
1	0	0
0	1	0
0	0	1



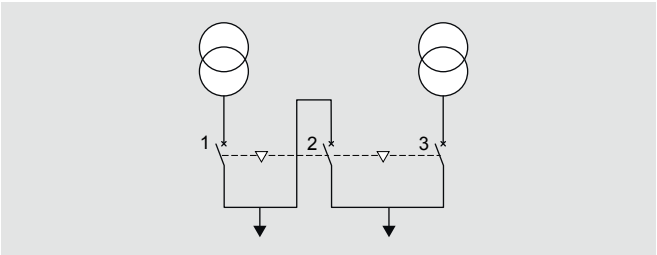
The Z parts of the three devices must be installed in transverse direction, as shown in the picture.

■ C type

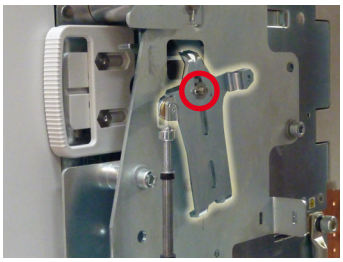
Possibility of closing one of the three devices.

Possibility of closing two of the three devices, without the possibility of closing the third device.

Six interlocking cables needed.



DMX-SP N° 1	DMX-SP N° 2	DMX-SP N° 3
0	0	0
1	0	0
0	1	0
0	0	1
0	1	1
1	0	1
1	1	0



The Z parts, of the three devices, should be installed in rotation, as shown in the picture.

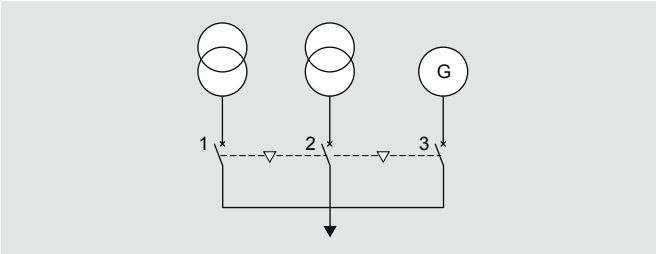
■ D type

Possibility of closing only one of the three devices available.

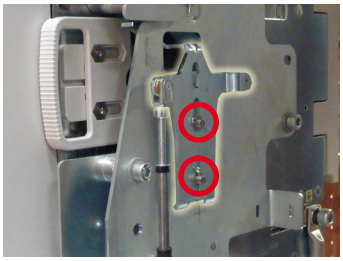
Possibility of closing two pre-determined devices (e.g. n°1 and n°2) without the possibility of closing the third (e.g. n°3)

Possibility of closing only one specific device (e.g. n°3) without the possibility of closing the other two (e.g. n°1 and n°2)

Four interlocking cables needed.



DMX-SP N° 1	DMX-SP N° 2	DMX-SP N° 3
0	0	0
1	0	0
0	1	0
0	0	1
1	1	0



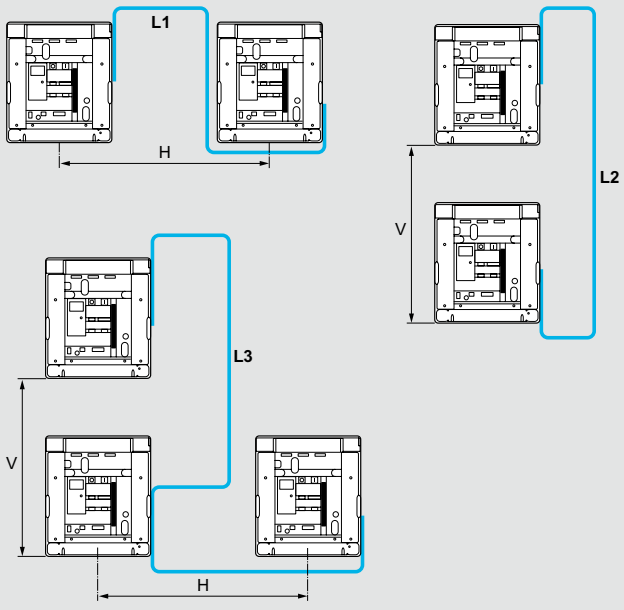
The Z parts, of the three devices, must be installed in a transverse direction, as shown in the picture.

INSTALLATION OF THE TRANSFER SWITCHES

Due to the use of flexible connections for mechanical interlocking, a transfer switch made with DMX-SP devices must be installed in the same enclosure, or in a set of adjacent enclosures.

It is possible to install up to 2 DMX-SP vertically in the same rack of an XL³S 4000 enclosure in 36 modules.

On the same horizontal level, two DMX-SP, equipped with a transfer switch, can be spaced at a maximum of 4 meters.



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

For more details on cable management and diagrams, please refer to the installation instructions of the mechanical interlock.

A AND C TYPE TRANSFER SWITCHES WITH DMX-SP

The management automation of a two DMX-SP transfer switch can be provided by the Automatic transfer switch control units Cat.Nos 4 226 80/82/83 for the A type and Cat.No 4 226 83 for the C type, as long as both devices are equipped with at least one opening coil, one closing coil and a motor operator.

MOUNTING OF THE TRANSFER SWITCHES ON THE CIRCUIT BREAKER

Be sure to choose the right type of interlock according to the truth tables detailed in the previous pages. The number of cables will depend on the type chosen.

The weight of the circuit breakers must also be taken into account when choosing the support plate if it is not part of the Legrand offer. These weights are indicated on the installation instructions of the mechanical interlock.

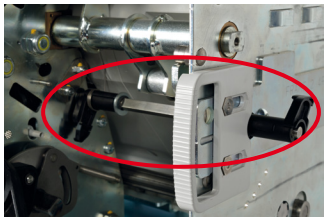
To start the mounting, you must first remove the other accessories present in the circuit breaker (the RC/SC contact, the locking in the «drawn-out» position, the motor). For a fixed circuit breaker, all the parts of the interlock are mounted on it. For a drawn-out version circuit breaker, some of the parts are mounted on the fixed base and some on the circuit breaker.

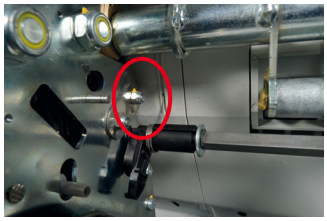
Below is the mounting of an interlock on a drawn-out version circuit breaker:

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

Remove the 4 screws (Phillips head n°1) and the front panel.

■ **Install the operating axis and the part that locks the closing operation of the circuit breaker**

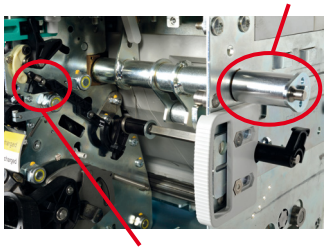


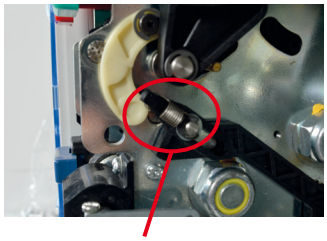


When putting the axis in position, take care to insert the spring in its location.

■ **Then the part that seals the closing operation of the circuit breaker and the trip pin**

Installation of the trip pin (8 Nm)

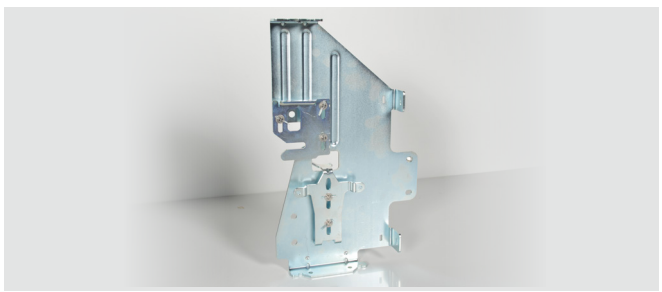


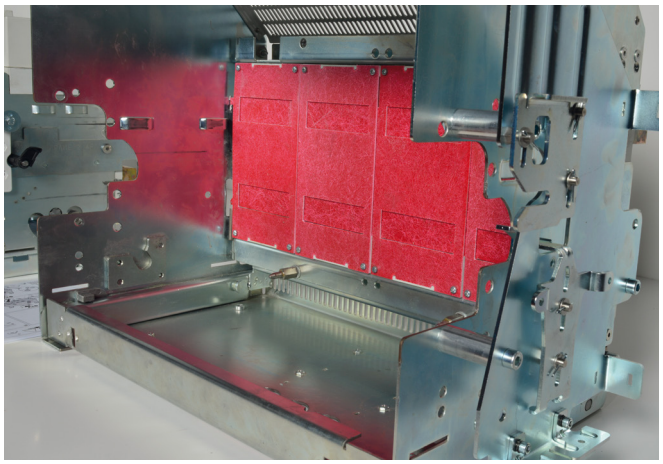


Installation of the part and its spring

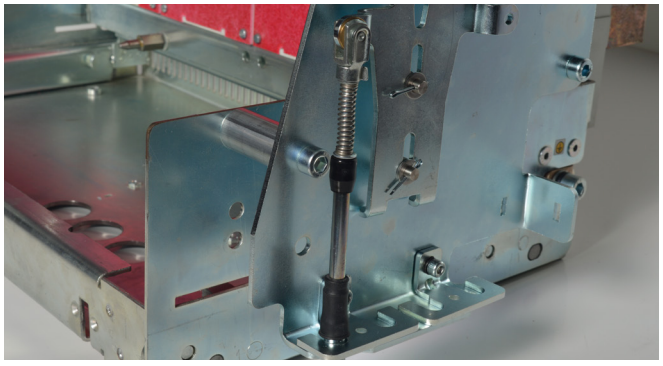
■ **Mounting on the fixed base of the circuit breaker**

The cable supports must be fixed to the plate (tighten the pins to a torque of 5 Nm to avoid any deformation). Then install the plate on the base with the appropriate wedges, fixing holes and screws.

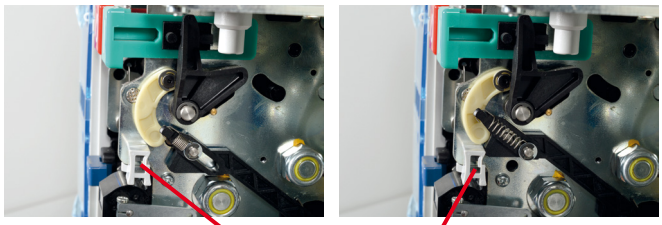




■ **Cable installation**



After installing the interlocks on the 2 or 3 circuit-breakers, an adjustment must be made on each of them following the instructions in the installation instructions according to the type chosen (A, B, C or D) by inserting a wedge stop. After each adjustment, perform 3 operations of opening / charging the spring / closing the circuit breaker.



10- Insulation shields

Cat.Nos	Type
0 288 98	Fixed version 3P
0 288 99	Fixed version 4P
0 288 18	Drawn-out version 3P
0 288 19	Drawn-out version 4P

The mounting of the insulation shields on a fixed version circuit breaker is done by simply clipping them between the terminals of the circuit breaker.

They are high enough to isolate the upstream and downstream terminals.

POWER AND EARTH CONNECTION ACCESSORIES

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

The screws necessary for the mounting of the different connection accessories are supplied with each product. The tightening torques to be applied are indicated in the instructions provided with the products.

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

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

Because of the wide variety of shapes and construction conditions that can affect the behavior of the device, the solution chosen must always be checked. If the distance between the poles is less than 20 mm, it is recommended to use phase insulators or insulated bars.

CATALOGUE NUMBERS TABLE FOR DMX-SP 2500:

Cat.Nos	Type	Version	Tightening torque on DMX-SP
0 288 82	Rear terminals 3P vertical connection	Fixed	25 Nm
0 288 83	Rear terminals 4P vertical connection	Fixed	25 Nm
0 288 84	Rear terminals 3P flat connection	Fixed	36 Nm
0 288 85	Rear terminals 4P flat connection	Fixed	36 Nm
0 288 86	Spreaders 3P flat connection	Fixed	36 Nm*
0 288 87	Spreaders 4P flat connection	Fixed	36 Nm*
0 288 88	Spreaders 3P vertical connection	Fixed	36 Nm*
0 288 89	Spreaders 3P vertical connection	Fixed	36 Nm*
0 288 90	Spreaders 3P horizontal connection	Fixed	36 Nm*
0 288 91	Spreaders 4P horizontal connection	Fixed	36 Nm*
0 288 96	Rear terminals 3P	Drawn-out	25 Nm*
0 288 97	Rear terminals 4P	Drawn-out	25 Nm*

*Spreaders are fixed on the rear terminals with the screws, washers and nuts provided.

CATALOGUE NUMBERS TABLE FOR DMX-SP 4000:

Cat.Nos	Type	Version	Tightening torque on DMX-SP
0 288 94	Rear terminals 3P vertical & horizontal connection	Fixed and drawn-out	36 Nm
0 288 95	Rear terminals 4P vertical & horizontal connection	Fixed and drawn-out	36 Nm
6 696 14	Rear terminals 3P flat connection	Fixed	36 Nm
6 696 15	Rear terminals 4P flat connection	Fixed	36 Nm

TABLE OF CONTENTS

DMX-SP FIXED VERSION

- Size 2500: six possible configurations of rear terminals, horizontal, vertical, flat, horizontal spreaders, vertical spreaders and flat spreaders.

- Size 4000: three possible configurations of rear terminals, horizontal, vertical and flat.

The 3P and 4P insulation shields for fixed and drawn-out versions are for the DMX-SP 4000 sizes.

■ Horizontal connection

The fixed DMX-SP are equipped with rear terminals with horizontal connection with bars. It is possible to directly connect copper or aluminum bars.

■ Flat connection

The flat connection accessories are directly fixed on the horizontal connection terminals integrated to the DMX³ fixed version.

Copper or aluminum bars are directly bolted to the flat connection ranges, e.g. vertical bar ends upstream. The flat connection kit is required for the use of DMX-SP/ SCP/XCP connection kits.

It is possible to install insulation shields between the poles. The shileds are high enough to insulate both the upstream and downstream terminals equipped with the flat connection accessories.

■ Vertical connection

For DMX-SP 2500 and 4000, the vertical connection kit is fixed. It is mounted on the flat connection kit.

The copper or aluminum bars are directly bolted to the vertical ranges, e.g. connections to a transfer busbar.

It is possible to install insulation shields between the poles. The shields are high enough to insulate both the upstream and downstream terminals equipped with the vertical connection kits.

■ Connection with flat, vertical and horizontal spreaders

Only the fixed DMX-SP 2500 can be equipped with spreaders. The new center distance is then increased from 85 mm to 116.5 mm (3P) or 106 mm (4P).

It is not possible to install insulation shields when the DMX-SP is equipped with spreaders.

The copper or aluminum bars are directly connected to the spreaders.

DMX-SP DRAWN-OUT VERSION

The rear terminals and connection accessories of the DMX-SP drawn-out versions allow 3 connection configurations: flat, horizontal and vertical. Insulation shields (Cat.No 0 288 18/19) can be installed between each pole on all drawn-out devices. The shields are high enough to insulate both the upstream and downstream terminals.

■ Flat connection

The drawn-out DMX-SP is equipped with flat connection terminals (see next page). It is possible to directly connect copper or aluminum bars.

■ Horizontal connection

For DMX-SP 2500 and 4000 the rear terminals can be oriented horizontally or vertically.

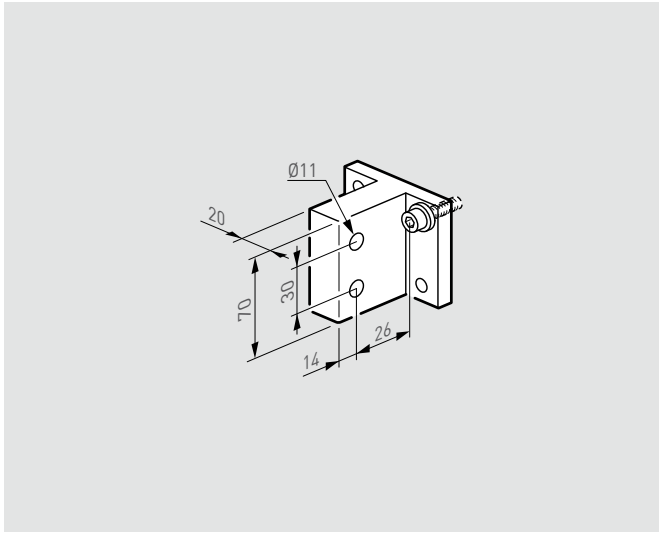
Copper or aluminum busbars can be directly fixed to the rear terminals, e.g. for connections to a transfer busbar.

■ Vertical connection

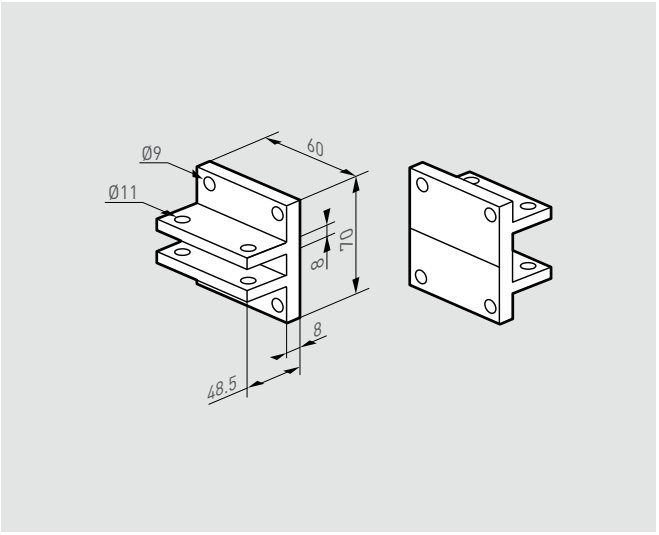
For the DMX-SP 2500 and 4000, the same reversible rear terminals are used as for the horizontal connection. Copper or aluminum busbars can be directly fixed to the rear terminals, e.g. for connections to a transfer busbar.

Drawings of the connection accessories for DMX-SP 2500

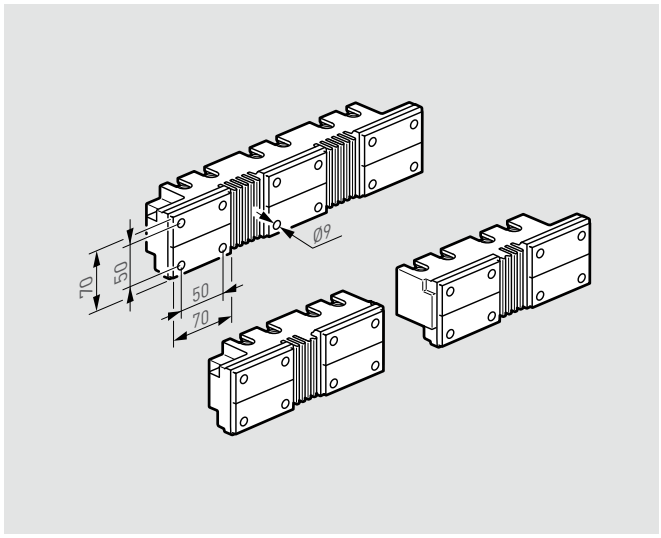
■ **Drawings Cat.Nos 0 288 82/83**



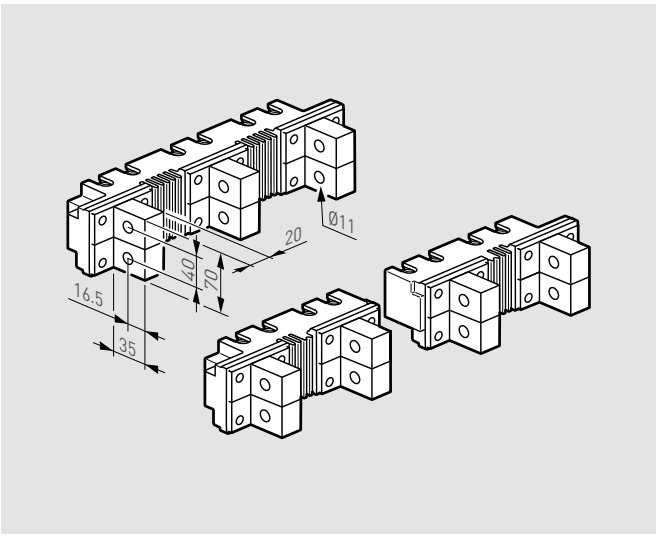
■ **Drawings Cat.Nos 0 288 84/85**



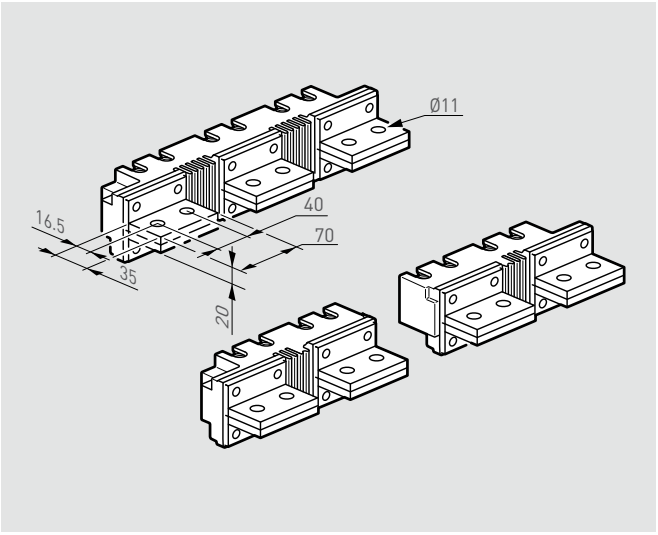
■ **Drawings Cat.Nos 0 288 86/87**



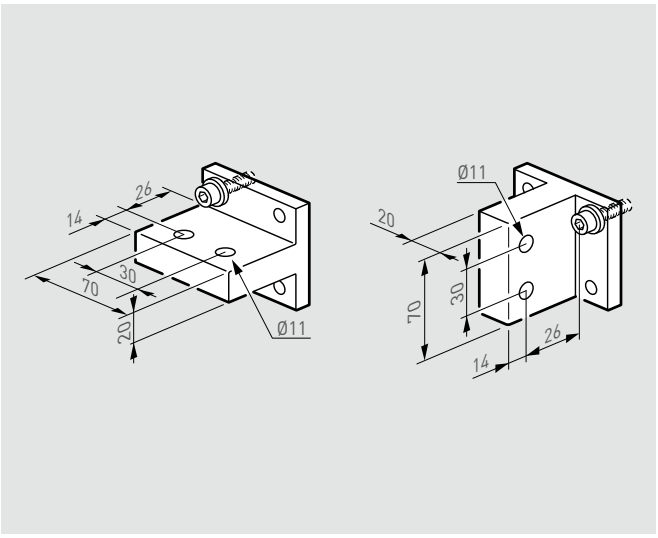
■ **Drawings Cat.Nos 0 288 88/89**



■ **Drawings Cat.Nos 0 288 90/91**

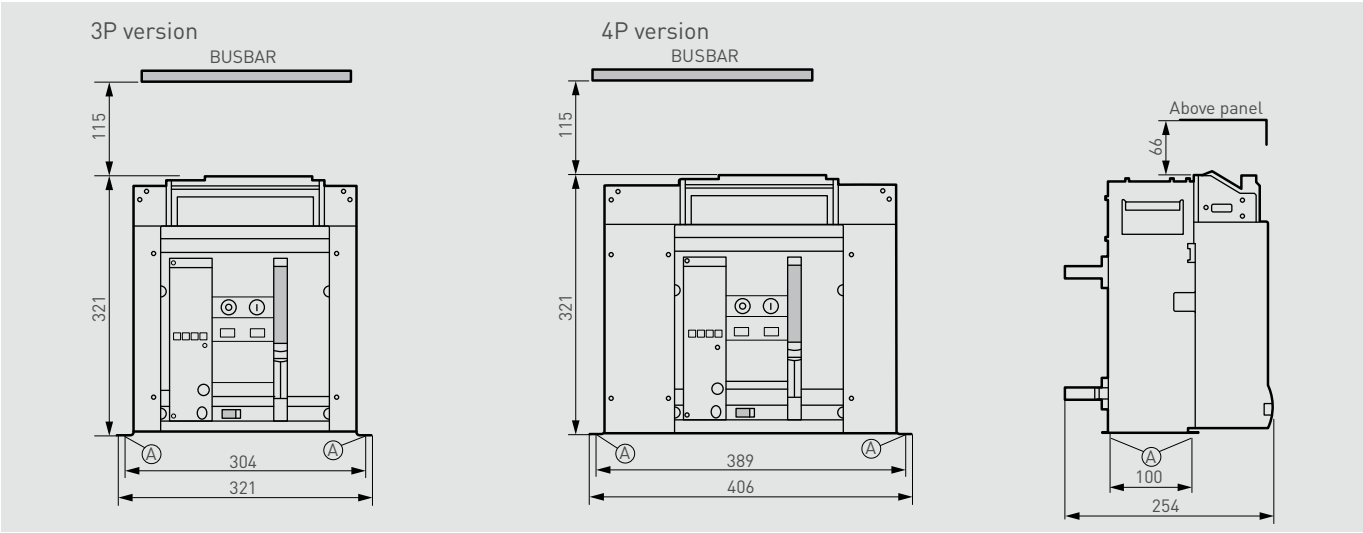


■ **Drawings Cat.Nos 0 288 96/97**

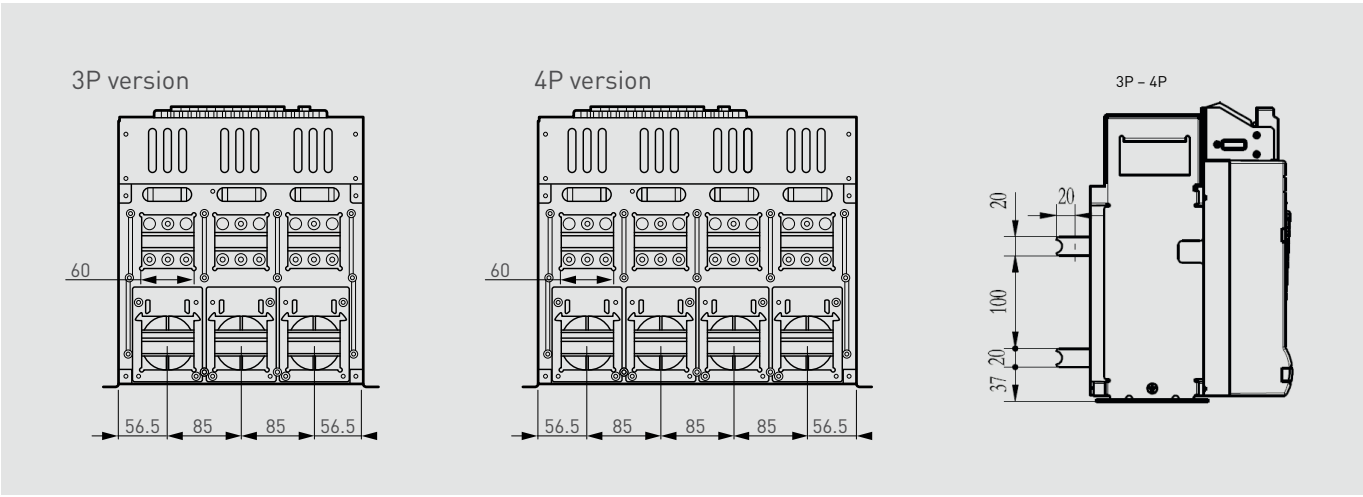


FIXED VERSION

Overall depth of a fixed DMX-SP 2500 3P-4P with rear terminals.

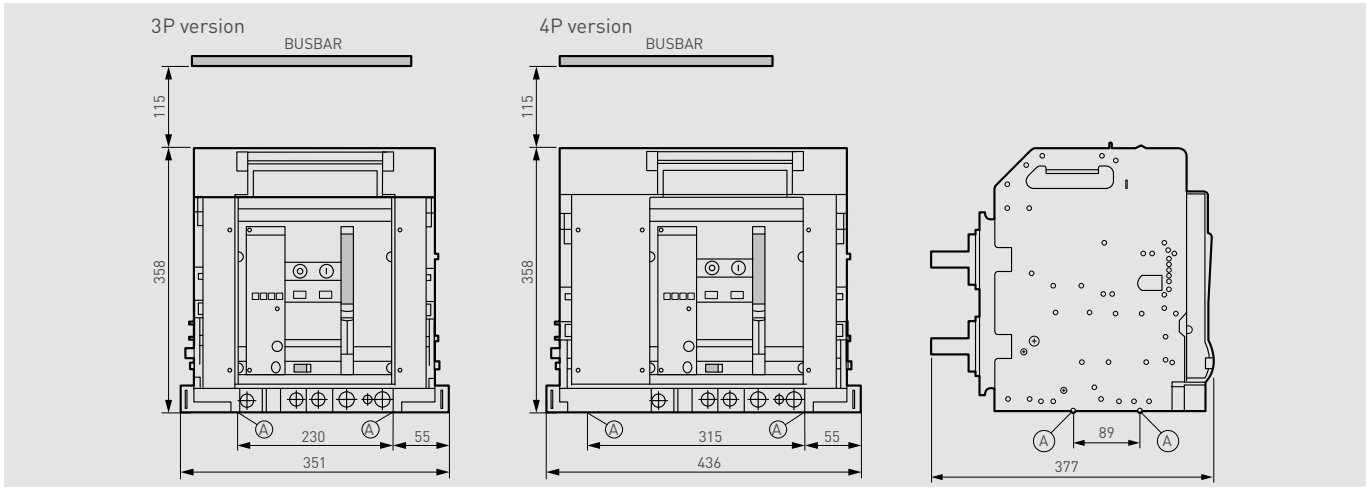


A: Fixing points on the plate

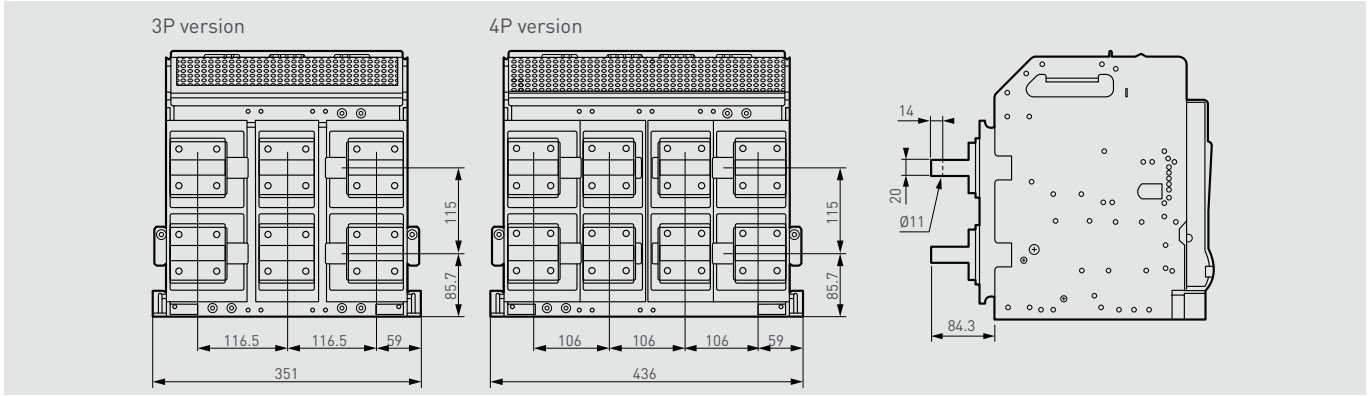


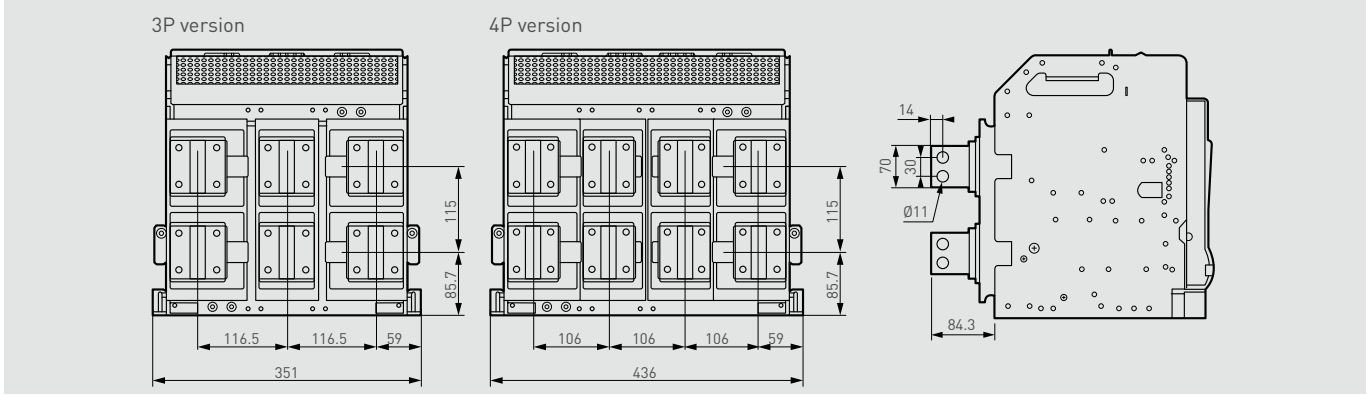
DRAWN-OUT VERSION

Overall depth of a 3P-4P drawn-out DMX-SP 2500 with rear terminals:



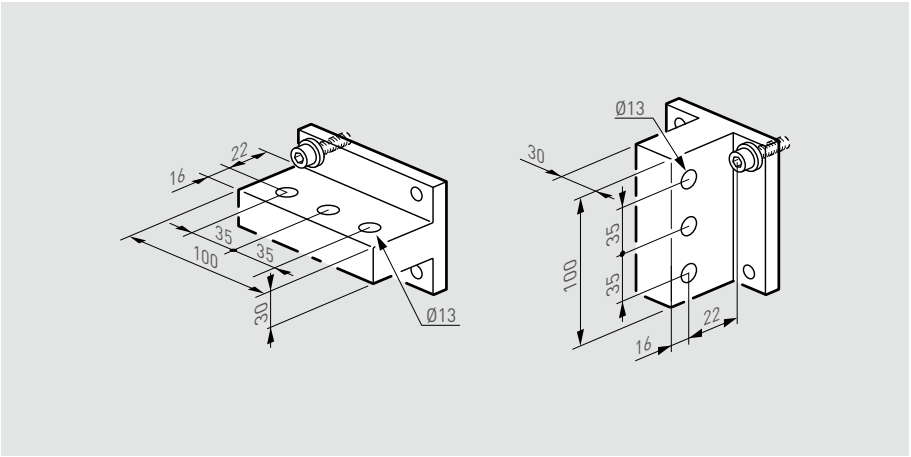
A: Fixing points on the plate



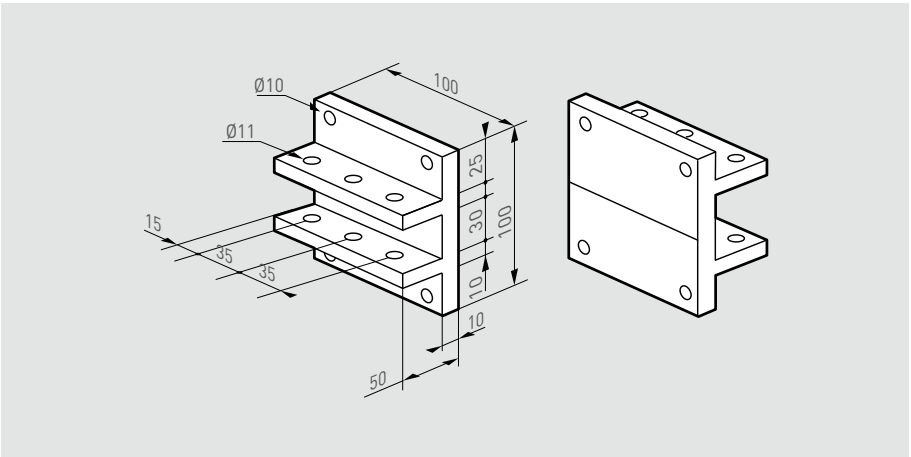


Drawings of the connection accessories for DMX-SP 4000

■ **Drawings Cat.Nos 0 288 94/95**

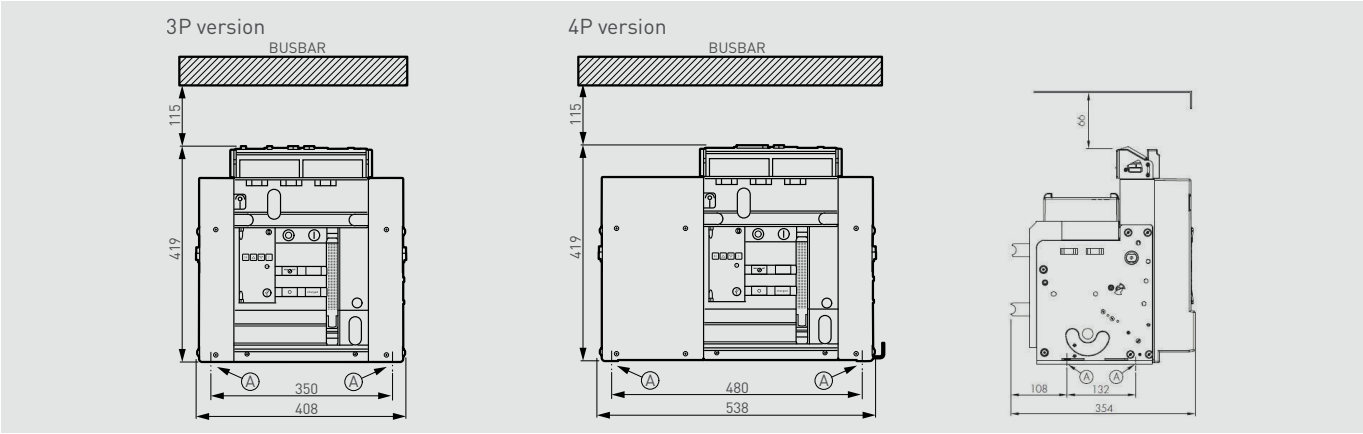


■ **Drawings Cat.Nos 6 696 14/15**



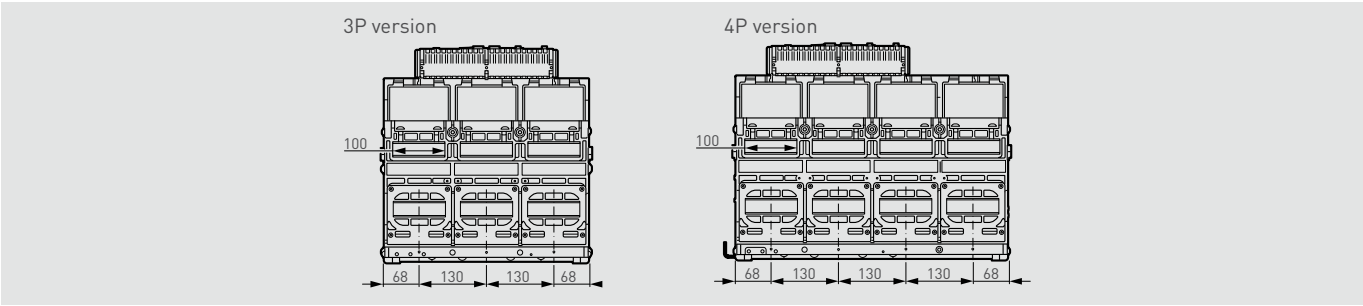
FIXED VERSION:

Overall depth of a 3P-4P fixed DMX-SP 4000 with rear terminals

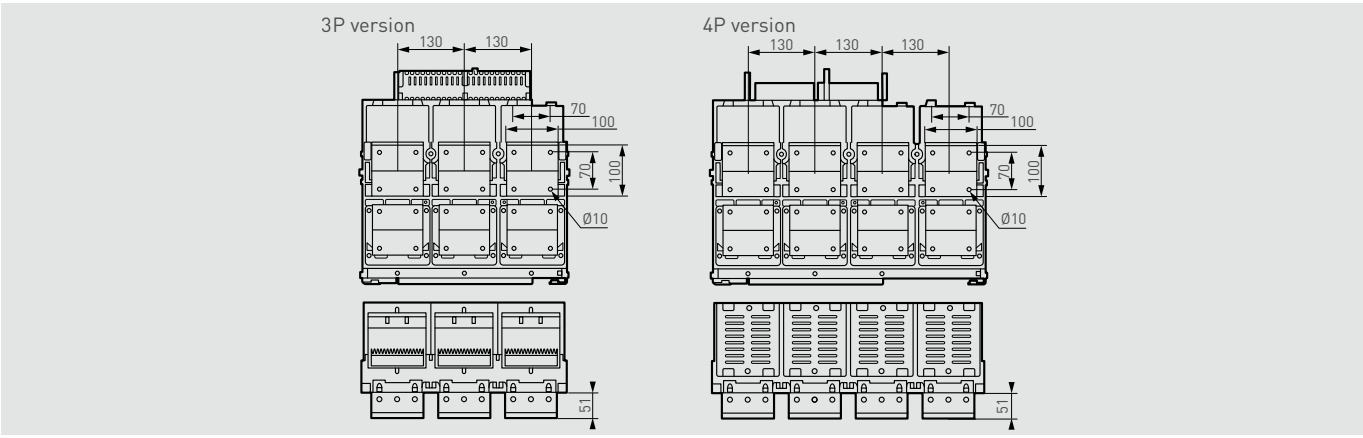


A: Fixing points on the plate

Rear terminals for horizontal connections with busbar

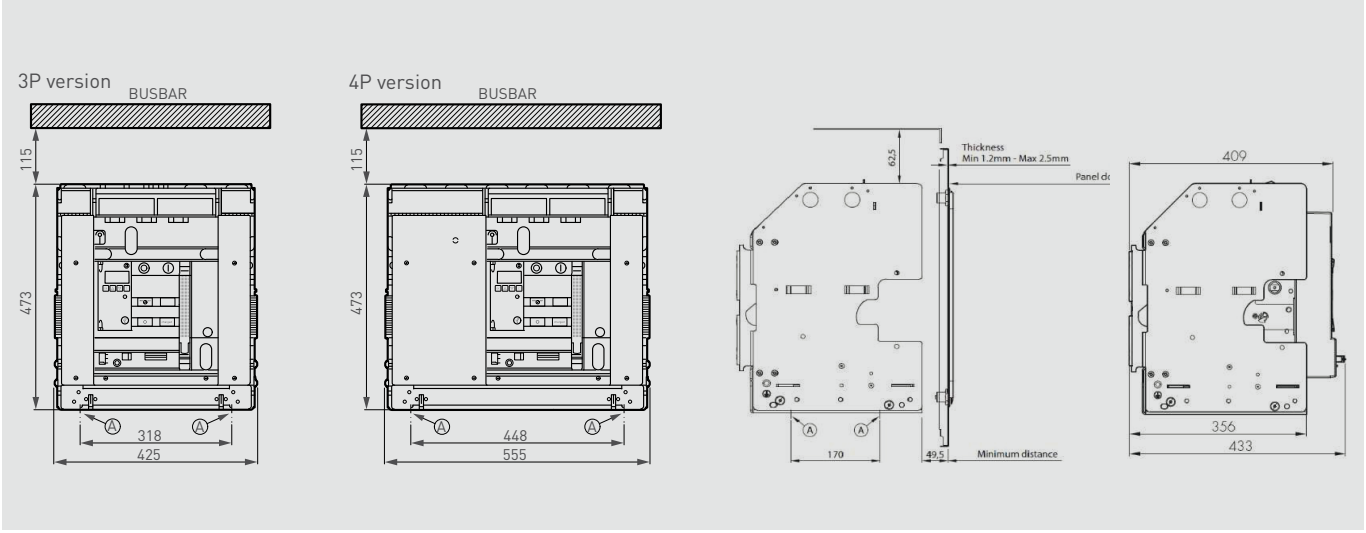


Rear terminals for flat connections with busbar



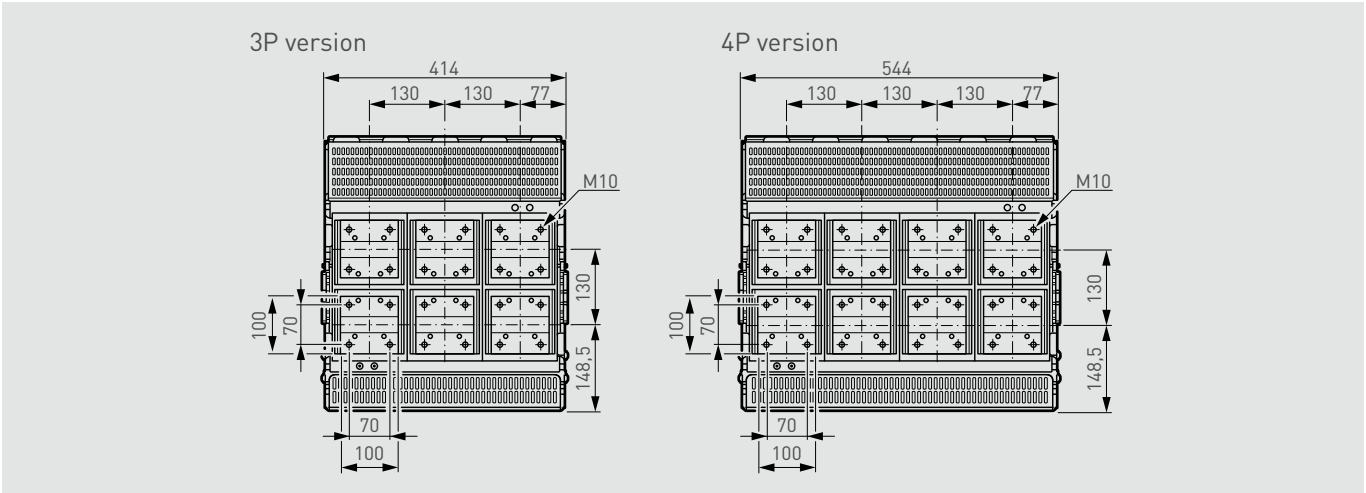
DRAWN-OUT VERSION

Overall depth of a 3P-4P drawn-out DMX-SP 4000 with rear terminals

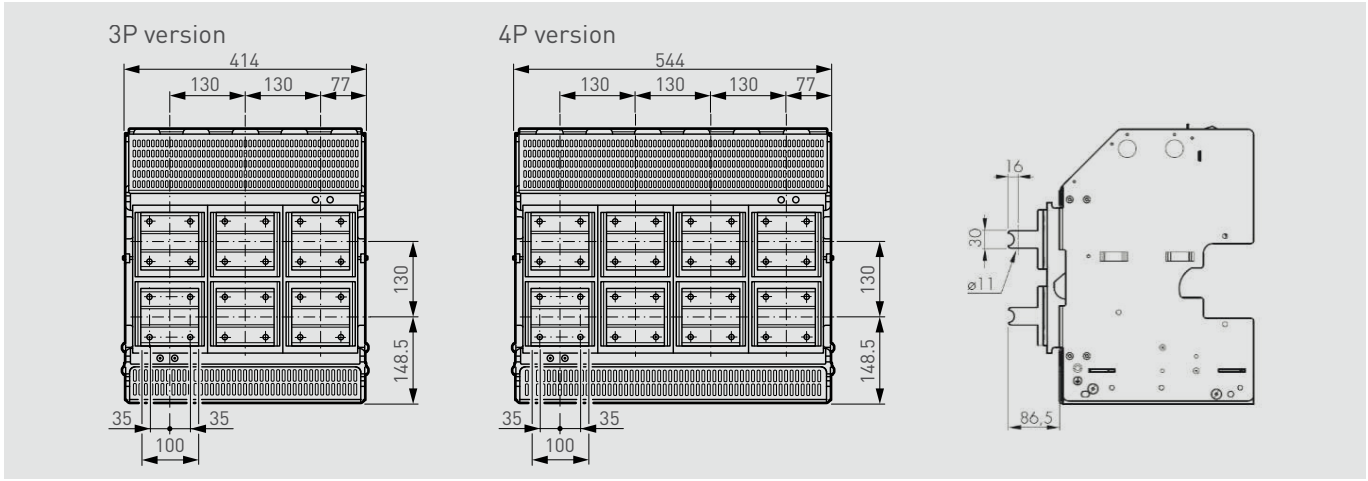


A: Fixing points on the plate

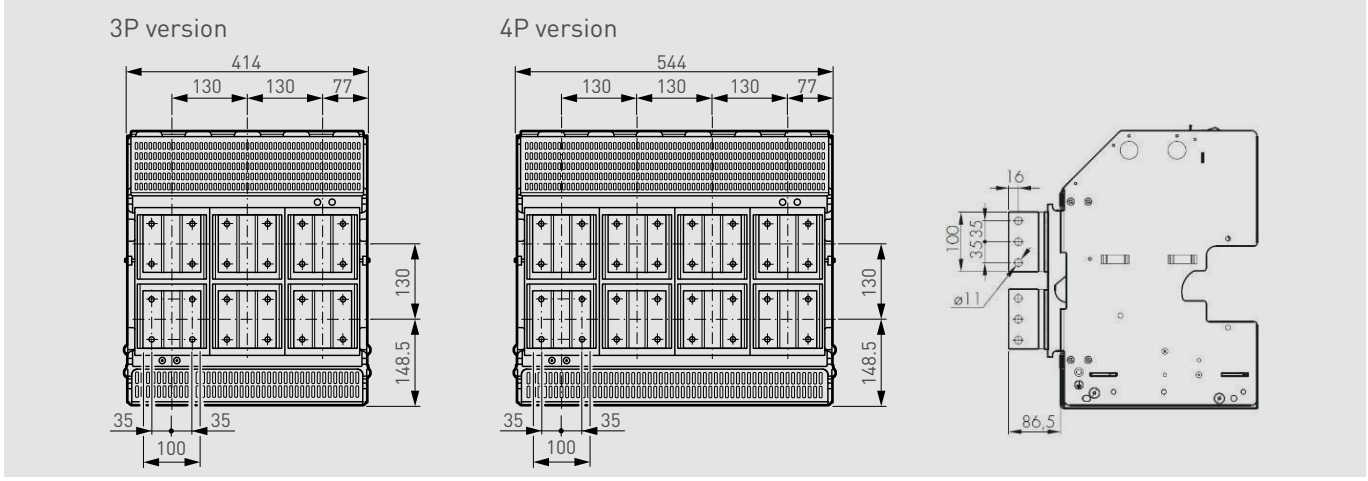
Rear terminals for flat connections with busbar



Rear terminals for horizontal connections with busbar



Rear terminals for vertical connections with busbar



ELECTRICAL CONNECTIONS FOR DMX-SP 2500 CIRCUIT BREAKERS

■ **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	1 bar 60 x 10 / 2 bars 60 x 5
1250	1 bar 80 x 10 / 2 bars 80 x 5	1 bar 80 x 10 / 2 bars 80 x 5
1600	2 bars 50 x 10	2 bars 50 x 10
2000	3 bars 50 x 10	3 bars 50 x 10
2500	3 bars 80 x 10	4 bars 80 x 10 / 5 bars 60 x 10

Drawn-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 10	2 bars 30 x 10
1250	2 bars 80 x 10	2 bars 40 x 10
1600	2 bars 50 x 10	2 bars 50 x 10
2000	3 bars 50 x 10	3 bars 50 x 10
2500	3 bars 80 x 10	4 bars 80 x 10

■ **Minimum cross-section of ALUMINUM 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
2000	4 bars 60 x 10	4 bars 80 x 10
2500	4 bars 100 x 10	5 bars 100 x 10

Drawn-out version

In (A)	Vertical bars (mm)	Horizontal bars (mm)
630	2 bars 50 x8	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
2000	4 bars 60 x 10	4 bars 80 x 10
2500	4 bars 100 x 10	5 bars 100 x 10

ELECTRICAL CONNECTIONS FOR DMX-SP 4000 CIRCUIT BREAKERS

■ **Minimum cross-section of COPPER bars per pole**

Fixed and drawn-out version

In (A)	Vertical bars (mm)	Horizontal bars (mm)
3200	3 bars 100 x 10	4 bars 80 x 10
4000	4 bars 100 x 10	5 bars 100 x 10

■ **Minimum cross-section of ALUMINUM bars per pole**

Fixed and drawn-out version

In (A)	Vertical bars (mm)	Horizontal bars (mm)
3200	4 bars 150 x 10	5 bars 150 x 10
4000	5 bars 150 x 10	6 bars 150 x 10

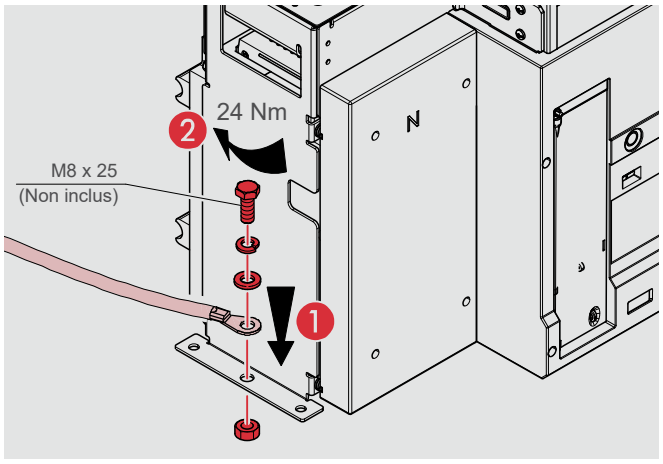
TABLE OF CONTENTS

EARTH CONNECTION:

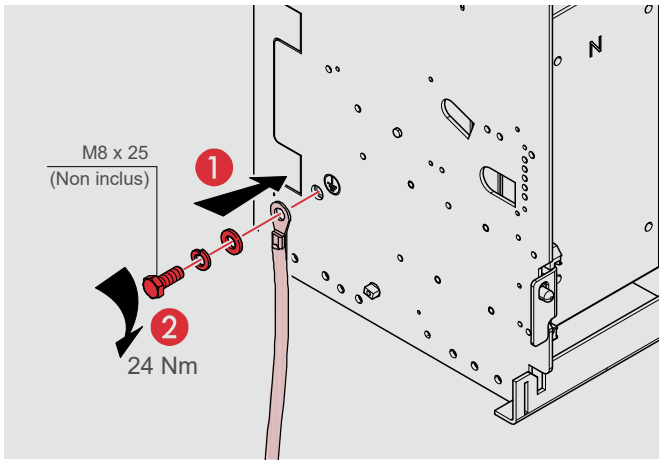
■ **For DMX-SP 2500**

To make the earth connection, use the hole provided and fix the cable lug (fixing kit included in the drawn-out version, not included in the fixed version) with an M8 bolt.

Fixed version



Drawn-out version

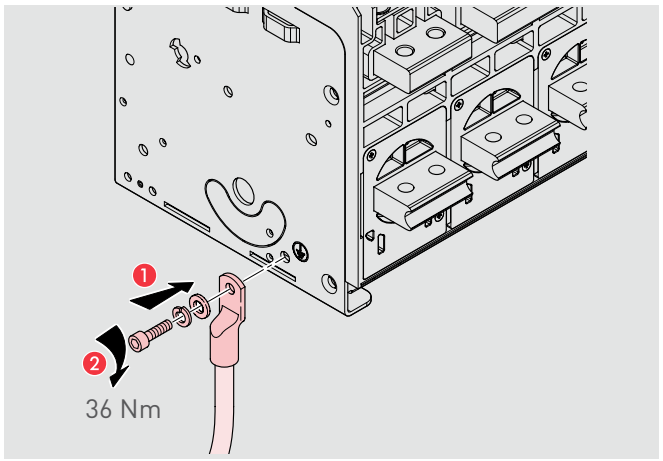


Do not use the DMX-SP fixing points as connection points.

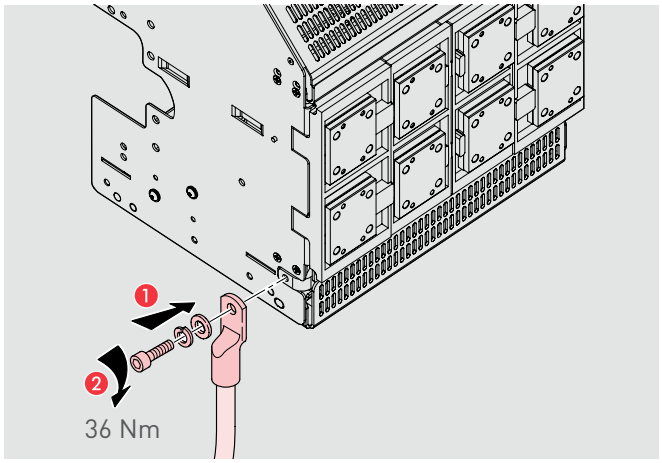
■ **For DMX-SP 4000 :**

To make the earth connection, use the dedicated hole and fix the cable lug (fixing kit included in the drawn-out version, not included in the fixed version) with an M10 bolt.

Fixed version



Drawn-out version



DMX-SP INSTALLATION IN ENCLOSURE

XL³ S enclosure

XL³ S 4000 enclosures have special equipment for mounting DMX-SP (see table below). The product selection is simplified by the use of XL Pro³ software.

DMX-SP 4000 can only be mounted in 36 module width.

XL³ S 4000 enclosure faceplates are pre-drilled for mounting IP40 frames.

FIXING OF DMX-SP OR DMX-SP-I 2500		
24 mod.	36 mod.	Devices for fixed and drawn-out version
3 392 22		For 1 DMX-SP or DMX-SP-I 2500
	3 392 25	For 1 DMX-SP or DMX-SP-I 2500
METAL FACEPLATE FOR DMX-SP OR DMX-SP-I 2500		
24 mod.	36 mod.	Faceplates for fixed version
3 392 33	3 392 35	For 1 DMX-SP or DMX-SP-I 2500
		Faceplates for drawn-out version
3 392 43	3 392 45	For 1 DMX-SP or DMX-SP-I 2500
FIXING THE DMX-SP OR DMX-SP-I 4000		
24 mod.	36 mod.	Devices for fixed and drawn-out version
	3 391 85	For 1 DMX-SP or DMX-SP-I 4000
METAL FACEPLATES FOR DMX-SP OR DMX-SP-I 4000		
24 mod.	36 mod.	Faceplates for fixed version
	3 392 05	For 1 DMX-SP or DMX-SP-I 4000

It is not possible to install 2 DMX-SP side by side on the 24 and 36 module enclosures.

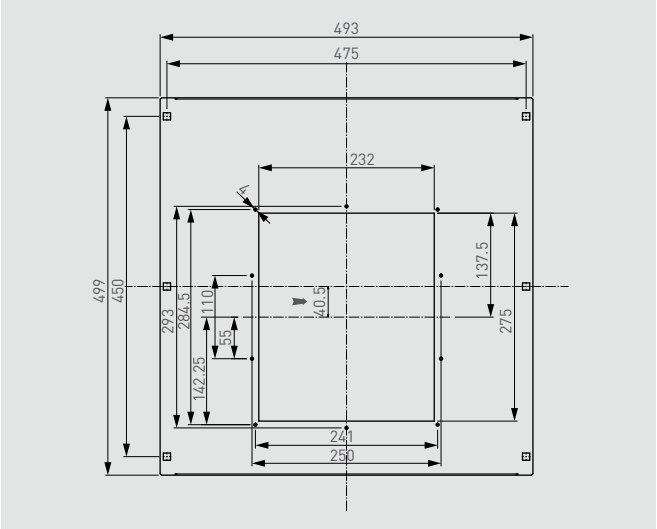
Enclosure other than XL³ S

It is also possible to install DMX-SP in «manufacturer's» or locally manufactured enclosures. In this case, it is the panel builder's responsibility to adapt accessories for the correct installation of DMX-SP, taking into account the significant weight of these products.

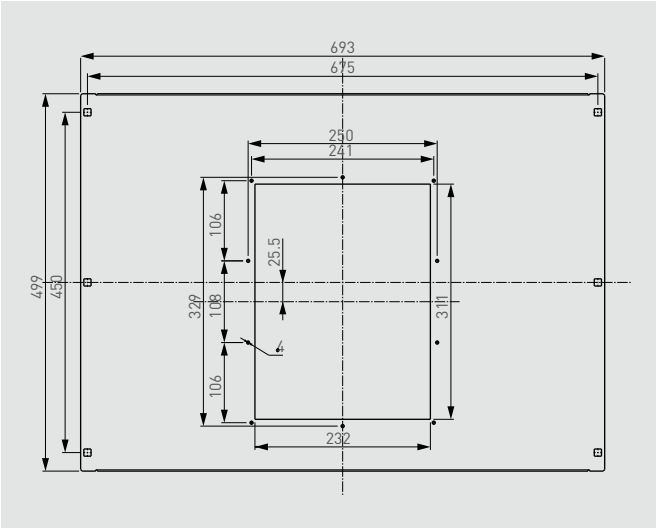
For enclosures other than XL³ S, it is necessary to respect the installation position of the DMX-SP in depth in relation to its faceplate. Make sure that there is enough space between the DMX-SP and the faceplate, and that the front of the DMX-SP slightly pokes out so that the IP40 frame can be installed (see the drilling drawings for the faceplates (page 100) depending on the type of device).

The metal structure of the DMX-SP 2500 must be connected to the earth of the enclosure. The fixing points must not be considered as connection points.

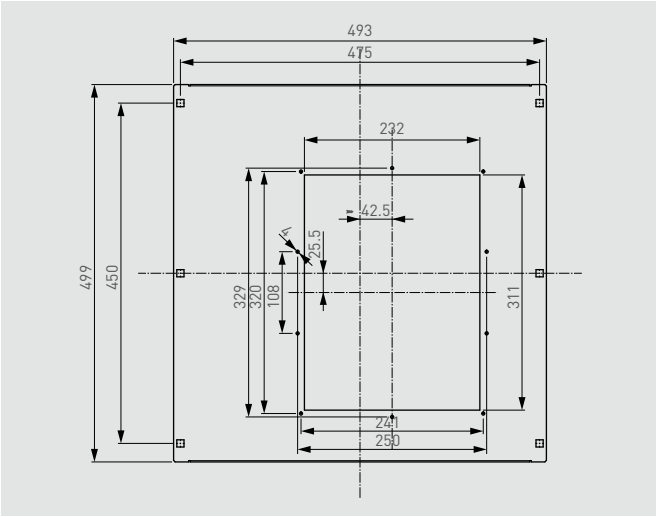
■ **Cutting and drilling of the XL³ S 24 module faceplate for DMX SP 2500 fixed version (for the 36 module faceplate, take into account the same position in relation to the center for cutting and drilling)**



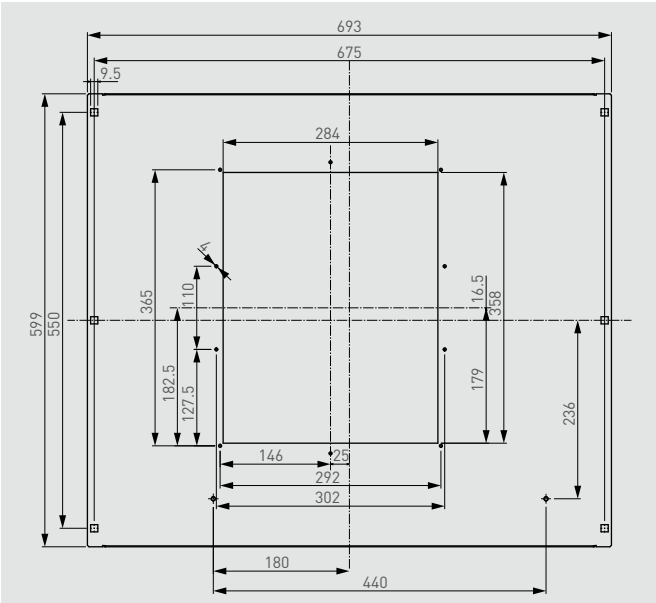
■ **Cutting and drilling of the XL³ S 36 modules faceplate for DMX SP 2500 drawn-out version**



■ **Cutting and drilling of the XL³ S 24 modules faceplate for DMX SP 2500 drawn-out version**



■ **Cutting and drilling of the XL³ S 36 modules faceplate for DMX SP 4000 fixed or drawn-out version**



ORDERING AND DELIVERY STATUS OF THE DMX-SP

A DMX-SP circuit breaker cannot be ordered without a protection unit. This is because it must be programmed according to the circuit breaker and the required options.

With the help of the XL Pro³ software, it is possible to generate an order form in Word® format. For more details about ordering DMX-SP, please contact your Legrand office. All electrical and mechanical accessories can be ordered and installed after delivery of the product. For factory installed accessories and options, please refer to the table on the next page.

TABLE OF CONTENTS

Here is an example of an order form for a DMX-SP 2500 with some accessories:

Order ACB DMX³

Rate for : 2021-01

Order n° :

Customer code :

Please send this form to your usual commercial/sales contact

Construction site informations :

Price offer n° :
Site: test
Panel : Nouveau tableau 1
Sales representative:

Date :
Building name :
Buiding type :
Buiding address :

Manager :

Name :
Phone number/Email :

Address :

Wholesaler

Name :

Address :

Delivery (if different address)

Company name :
Name :
Address :

Tel. n° / Email :

900185 : ACB DMX³ factory assembled

Manufacturer	Description	Reference	Quantity
Legrand	ACB DMX³ 2500-N 4P 2500A 50kA Draw-out	028736	1
Legrand	DMX³ protection unit MP4 LSI	028801	1
Legrand	Communication option for DMX³ protection unit	028805	1
Legrand	External auxiliary supply 12V dc, primary 24V	028806	1
Legrand	Motor operator 230V ac/dc	028837	1
Legrand	Closing coil 220-240V ac/dc	028844	1
Legrand	Shunt trip 220-240V A.C./D.C.	028851	1

Select 1 language package for the protection unit:

English / Italian / Français ☑ English / French ☐ English / Russian ☐ English / Spanish / Portuguese ☐ English / Chinese ☐

Quantity of ACB DMX³ identical : 1

Total value :

ORDERING AND DELIVERY STATUS OF THE DMX-SP

DMX-SP 2500

Depending on the ordered accessories, the table below will indicate whether they will be delivered factory assembled or not. Depending on the assembly center and/or markets, the factory configuration of the DMX-SP 2500 may vary.

ACCESSORIES		ASSEMBLY STATE	
Cat.Nos	DESCRIPTION	FACTORY ASSEMBLED	DETAILS
0 288 82/83/ 84/85/86/87/ 88/89/90 et 96/97	Rear terminals	NO	They are delivered with the DMX-SP 2500
0 288 20/21/ 22/23/24	Motor operator	YES	This accessory is mounted inside the DMX-SP 2500 and is connected to the MOT terminal block
0 281 26 à 0 281 40	Tripping unit and coil	YES	This accessory is fixed inside the DMX-SP 2500 and is connected to the UVR/ST/CC terminal block
6 696 00/ 01/02/03	Insulation shields	NO	They are delivered with the DMX-SP 2500
0 281 64/ 65/66/67/68	Protection unit	YES	It is factory assembled and configured with the factory settings (see the protection unit guide)
0 281 70	MODBUS (RS485) communication option	YES	The circuit breaker must be configured at the factory in order to integrate the communication option
6 696 05	External neutral	Partially	The circuit breaker must be configured at the factory to protect an external neutral. A Rogowski coil is supplied 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 into the circuit breaker. It is fixed on a modular rail
0 281 73	Inserted/test/drawn-out position signalling contact	NO	It is delivered with the DMX-SP 2500. It is not delivered «assembled» because its connection requires the dismantling of the circuit breaker (or trip-free switch)
0 281 74	Ready to close and spring charged signalling contact	YES	It is fixed inside the DMX-SP 2500 and is connected to the SC and RC terminals
0 281 75	Auxiliary contact (additional)	YES	It is fixed inside the DMX-SP 2500 and is connected to terminals OC1/2/3/4/5/6
0 281 78/ 79/80/81	Key locking in «open» position	YES	It is fixed inside the DMX-SP 2500
0 281 84	Door locking	NO	It is delivered with the DMX-SP 2500
0 281 87	Inserted/test/drawn-out position lock button	NO	It is delivered with the DMX-SP 2500. Its installation requires the dismantling of the circuit breaker (or trip free switch)
0 281 88	Mechanical counter	YES	It is fixed inside the DMX-SP 2500
0 281 89	Rating mis-insertion device	YES	It is fixed outside the DMX-SP 2500 but inside the base
0 281 90	Mechanical interlock	NO	It is fixed inside the DMX-SP 2500 and outside the base
0 281 99	Programmable output option	YES	Option integrated in the protection unit when ordering
0 288 62/63	Time-lag module	NO	It is not integrated into the circuit breaker (or trip free switch). It is fixed on a modular rail
0 289 17/18 et 0 289 20 à 0 289 25	Interlocking cables	NO	They are delivered with the DMX-SP 2500

TABLE OF CONTENTS

DMX-SP 4000

Depending on the ordered accessories, the table below will indicate whether they will be delivered factory assembled or not. Depending on the assembly center and/or markets, the factory configuration of the DMX-SP 4000 may vary.

ACCESSORIES		ASSEMBLY STATE	
Cat.Nos	DESCRIPTION	FACTORY ASSEMBLED	DETAILS
0 288 00/01/02 6 682 90/91/92	Protection unit	YES	The protection units are factory assembled and configured with the factory settings (see the guides for the respective protection unit). The batteries and the sealing kit are delivered but not assembled in a separate box
0 288 05	MODBUS (RS485) communication option	YES	The circuit breaker must be configured at the factory to integrate the communication option. The Y4262 guide, specific to communication, is delivered with the circuit breaker
0 288 06	External power supply	NO	This accessory is not integrated into the circuit breaker. It is fixed on a modular rail
0 288 11	External neutral	Partially	The circuit breaker must be factory configured to protect an external neutral. A Rogowski coil is supplied with the circuit breaker and must be connected to the terminal block of the protection unit
0 288 12	Porgammable outputs module	NO	This accessory is not integrated into the circuit breaker. It is fixed on a modular rail
0 288 13	Inserted/test/drawn-out position signalling contact	NO	It is delivered with the DMX-SP 4000. It is not delivered «assembled» because its connection requires the dismantling of the circuit breaker (or trip free switch)
0 288 14	Ready to close and spring charged signalling contact	YES	It is fixed inside the DMX-SP 4000 and is connected to the SC and RC terminals
0 288 15	Auxiliary contact (additional)	YES	It is fixed inside the DMX-SP 4000 and is connected to the terminals OC5/6/7/8/9/10
0 288 16	Signalling contact for auxiliaries	YES	This accessory is fixed inside the DMX-SP 4000, on the corresponding coils and is connected to the terminal block C UVR/ C CC/C ST
0 288 20	Door locking	NO	After ordering, this accessory is delivered « not assembled « with the DMX-SP 4000
0 288 21	Padlocks in the «open» position	YES	This accessory is fixed inside the DMX-SP 4000
0 288 23	Mechanical counter	YES	This accessory is fixed inside the DMX-SP 4000
0 288 25	Rating mis-insertion device	YES	This accessory is fixed under the DMX-SP 4000 and in its base
0 288 26	Padlocks in the «drawn-out» position	NO	After ordering, this accessory is delivered « not assembled « with the DMX-SP 4000
0 288 28 0 288 30/31 0 288 71	Key locking in the «open» position	YES	This accessory is fixed on the outside of the DMX-SP 4000
0 288 29	Set of 5 key barrels with flat key	NO	After ordering, this accessory is delivered « not assembled « with the DMX-SP 4000
0 288 32/33	Key locking in the «inserted/test/drawn-out» position	Partially	These accessories are mounted on the bracket. This set is delivered not assembled inside the DMX-SP 4000
0 288 34/35/ 36/37/38/40	Motor operator	YES	This accessory is fixed inside the DMX-SP 4000, and is connected to the MOT terminal block
0 288 41/42/ 43/44/45/48/ 49/50/51/52/ 55/56/57/ 58/59	Coils	YES	These accessories are mounted inside the DMX-SP 4000, and are connected to the UVR/CC/ST terminal block
0 288 62/63	Time-lag module	NO	This accessory is not integrated into the circuit breaker. It is fixed on a modular rail
0 288 65	Mechanical interlock	Partially	All accessories are mounted on the DMX-SP. Only one part, used to determine the type of reverser (A/B/C/D) is delivered not « assembled»
0 288 79	Lifting plate	NO	After ordering, this accessory is delivered « not assembled « with the DMX-SP 4000
0 288 94/95 6 696 14/15	Rear terminals	NO	After ordering, this accessory is delivered « not assembled « with the DMX-SP 4000
0 288 18/19 0 288 98/99	Insulation shields	Partially	The insulation shields brackets are supplied fixed to the DMX-SP 4000. The shields are delivered with the DMX-SP 4000.
0 289 17/18/20 /21/22/23/24 /25	Interlocking cables	NO	After ordering, this accessory is delivered « not assembled « with the DMX-SP 4000

COMMISSIONING

Before proceeding with the first mechanical tests and the first powering up of the DMX-SP, for the safety of people and equipment, it is necessary to make sure that the rules and the recommended installation conditions are respected, and that only trained and authorized 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 according to the applicable standards.

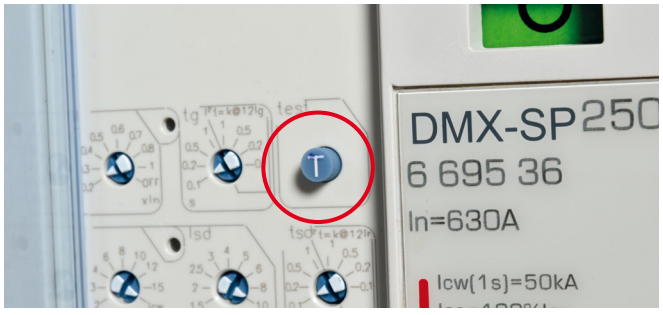
There are two types of commissioning checks:

- Power-off checks
- Power-on checks

POWER-OFF CHECKS

- Check the physical integrity of the device. If a part is missing or damaged, it must be replaced. For a drawn-out device, check that it is possible to drawn-out and re-insert the product without difficulty, with particular care for the inserting terminals of the electrical auxiliaries.
- Make sure that there are no metal parts, tools or work waste near the device.
- Check that the electrical accessories (coils, motors and protection unit) installed correspond to the electrical diagram of the assembly and to the instructions for the products installed.
- Check that the terminal tightening torque is respected (see tables on page 98).

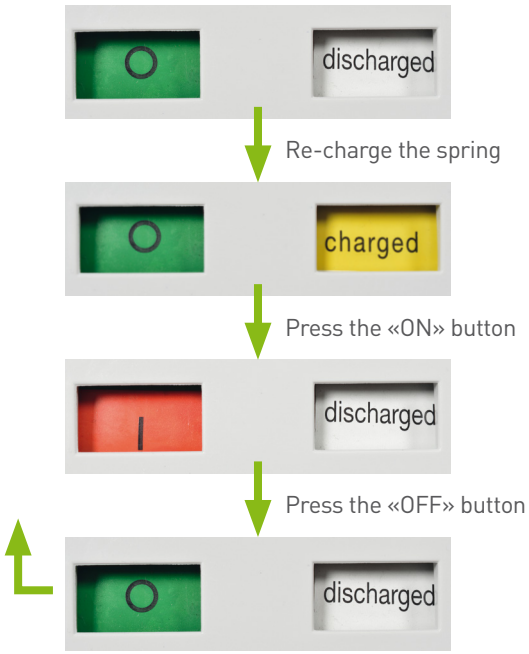
- For circuit breakers, check the correct operation of the protection unit: it is necessary to install the batteries in their slots, if present.
- Power up the protection unit via an external auxiliary power supply (Cat.No 0 281 72 for DMX-SP 2500 and Cat.No 0 288 06 for DMX-SP 4000) or a protected direct power supply.
- Set the Reset selector (on the PU for DMX-SP 2500 and on the circuit breaker for DMX-SP 4000) to the «MAN» position.
- Close the circuit breaker and press the test button «T» on the protection unit for at least two seconds.
- The circuit breaker should open.
- Check that all the indicators light up for about 1 second (orange «ON» indicator and the other indicators in red), and that the Reset selector comes out of its slot.
- The circuit breaker should trip and the lights go out.
- The «ON» light changes from orange to green.
- Remember to acknowledge the fault by pressing the Reset selector.



Protection unit of a DMX-SP 2500

Protection unit of a DMX-SP 4000

- Make two opening/closing cycles of the DMX-SP, always with the power off, specifically checking the indications on the front of the DMX-SP.



- When using DMX-SP as a transfer switch, it is necessary to check that the operating logic (truth table) complies with the requirements of the interlocking scheme.
- If locking accessories are installed on the DMX-SP (open position, drawn-out position, etc ...), it must be ensured that the function of each is assured.

POWER-ON CHECKS

■ **Dielectric test**

Before testing under rated current, it is necessary to perform the dielectric test. This standard test must be carried out under certain conditions in order not to damage the DMX-SP protection unit. First of all, isolate all the electronic components of the line to be tested and then disconnect the 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, lockout, blocking, marking, etc.) during the test operations in order to avoid possible material and/or physical accidents.

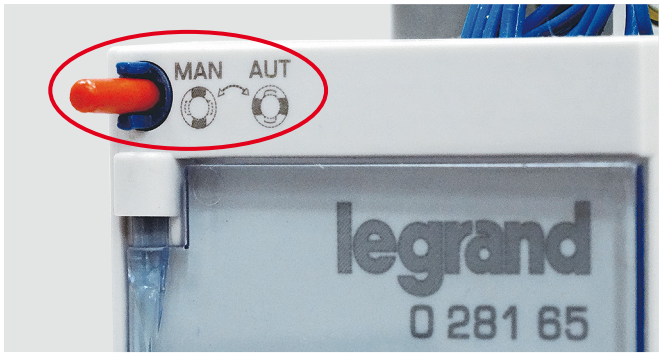
DMX-SP 2500 RESET BUTTON

The circuit breaker can be closed locally or remotely after ensuring that the system and device conditions comply with safety procedures.

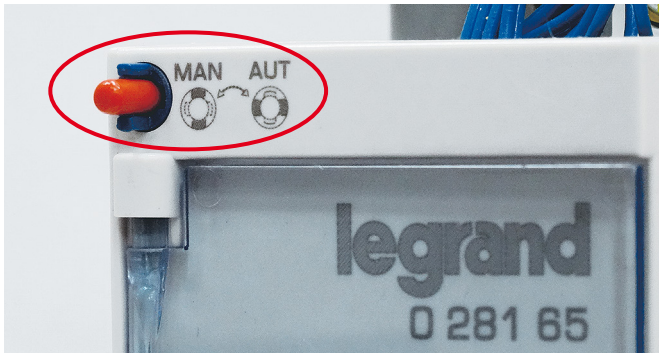
■ **« MAN » position (manual)**

The DMX-SP is delivered with the button in this position. When the product is tripped by the protection unit, it is necessary to press the red RESET button before the closing operation can be carried out.

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



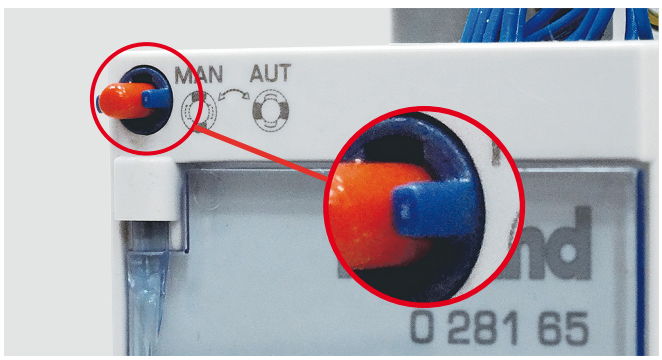
« MAN » position (blue selector in vertical position) and red RESET button pushed in:



To change from the « MAN » position to the « AUT » position, it is necessary to perform the following operations:
1-Press the red RESET button until the end of the stroke.
2-Keep it pressed and turn the blue selector 90° to the right to place it in the «AUT» position.
AUT» position (automatic)

This position is usually used in supervision 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 pushed in). Before performing this operation, it is necessary to have analyzed (and corrected) the fault that caused the product opening.

Position « AUT » (blue selector switch in horizontal position) and red RESET button pushed in:



DMX-SP 4000 RESET BUTTON

■ « MAN » position (manual)

The DMX-SP is delivered with the selector in this position. In this configuration it is possible to prevent the circuit breaker from closing after a trip ordered by the protection unit (the button is out). Before the circuit breaker can be closed again, the operator must press the reset button until it is held.

For the use of automatic changeover systems (with feedback function), it is necessary to set the reset button to « MAN ».

■ « AUT » position (automatic)

This position is mainly used in monitoring systems. In this configuration, the circuit breaker can always be closed after a trip ordered by the protection unit (the button remains pushed in).

The circuit breaker will always be ready to close when the following conditions are applied:

- Power contacts open, position «OFF» (0)
- Reset spring charged

In order to put the button in the « AUT « position, you must :

1- Press the button to the maximum with a flat screwdriver

2- Turn the selector of 90° towards « AUT « while maintaining the button pushed in.

MAINTENANCE

During all maintenance operations, it is imperative to open the DMX-SP (position «OFF») and discharged the spring.

■ **Routine maintenance, performed at the scheduled frequency, is important for:**

- checking and maintaining the correct operation of the product
- identifying damaged parts/accessories
- preventing emergencies

■ **Periodic inspection and maintenance of the following parts is recommended:**

- mechanism
- charging/discharging spring
- arcing chambers
- main contacts
- drawn-out system assembly (if present)
- auxiliaries
- mechanical accessories (if present)
- electrical accessories (if present)
- protection unit

For details on maintenance procedures and their frequency, see the DMX-SP 4000 Maintenance Guide.

SPARE PARTS & ACCESSORIES

Cat.No	DESIGNATION	CONTENT	
Contacter Legrand	Mechanical grease		0.5 kg container: allows to grease 10 DMX-SP
0 290 50	Auxiliary terminal caps		x 10
0 290 52	Fixed terminal block for connection		x 10
4 210 95	Sealing kit		x 4

Notes

Notes

FOLLOW US ALSO ON

- legrand.com
- youtube.com/user/legrand
- facebook.com/Legrand
- twitter.com/Legrand
- pinterest.com/legrandgroup
- instagram.com/legrandnews

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

EXB21018 - October 2022