

EvoDrive+

Installation manual

EVODRIVE+ AUTOMATIC GUIDE FOR INTERIOR SLIDING DOOR

ORIGINAL MANUAL

PART 1 - Prologue

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1. INTRODUCTION

Dear client,

We thank for your confidence in Linear Motor Applications SL and for acquiring this innovative EvoDrive+ automatic operator for interior sliding doors.

At Lineal Motor Applications SL we offer products designed and developed following high demanding production standards, to ensure we deliver a product with the best quality, as well as a superb user-friendly experience and easy installation.

This manual includes important and necessary information for the correct and safe installation, use and maintenance of this automatic door operator. Please, read these instructions in full before starting the installation and commissioning.

Yours sincerely,

Mr. Oriol Guilera
General Manager

2. GENERAL NORMS

This manual is applicable to the Installation, Use and Maintenance of the EvoDrive+ automatic operator for sliding door, which is designed for being used indoors.

The section in this manual related to installation and commissioning, is limited only and exclusively for use by qualified skilled technicians.

2.1 Warnings

Before installing, using or performing any maintenance task on the EvoDrive+ operator, it is compulsory to read and understand the content of this manual in full.

This manual is an integral part of the automatic door operator and will have to be kept by the client or user, for future reference or consultation by the installation or after-sales service technician.

The EvoDrive+ automatic door operator is designed only and exclusively for professionals. It is prohibited the use of this operator by DIY individuals.

In order to prevent damages to people, animals or other objects, the transportation, manipulation, assembly, commissioning and maintenance must be carried out only and exclusively by qualified technicians, who must wear the appropriate clothing and use the suitable tools for each one of the described functions.

Once finished the installation of the EvoDrive+ operator with its sliding leaf and related accessories, the complete assembly will form a unique piece of machinery, as described in the Directive 2006/42/CE on Machinery.

The complete risk assessment to determine the health and safety requirements (as established in Annex I of the mentioned Directive on Machinery), shall only be considered valid if:

- The procedures described in the installation manual have been followed and respected in full.
- The type of installation corresponds to that described in the manual.
- Any procedure of installation or measure adopted during the handling, installation, operation, maintenance and disposal of this machine, not described or provided in this manual, will be considered as not included in the mentioned risk assessment, and therefore Linear Motor Applications S.L. declines all responsibility, being the installation or maintenance technician full and unique responsible and liable for the compliance of the essential requirements of safety and health protection.

Due to our policy of continuous development and improvement of the products, Linear Motor Applications SL reserves the right to modify or develop the product described herein, without previous advice. Therefore, the drawings, descriptions and data contained in this manual must not be considered as a contractual obligation, but only indicative.

All data contained in this document has been prepared and controlled rigorously, however, Linear Motor Applications SL declines all responsibility for any eventual impreciseness that may have been caused by errors or omissions during the transcription of the same.

2.2 General norms

The automatic EvoDrive+ operator has been designed and developed:

- Only and exclusively for the automation of sliding internal doors, and therefore it cannot be used for purposes other than those described in this manual, in order to ensure the safety and performance of the product, under all circumstances.
- Following all points described in Directive EN16005 “Automatic pedestrian doors, Safety in use” and Directive EN16361 “Power operated pedestrian doors –Product standard, performance characteristics”, paying special attention to the articles referred to automatic sliding doors for internal use.
- **For a correct performance, respecting a maximum weight of 80 kg per leaf.**

Linear Motor Applications SL declines all civil or criminal liabilities for injuries caused to persons, animals and/or objects as a result of:

- Not proceeding following the indications contained in the installation, user and maintenance manuals.
- A non-authorized manipulation of the product.
- The replacement of parts and/or pieces of the operator, as well as the use of accessories which are not original, or which have not been homologated by the manufacturer.
- Removing, deleting or altering the stickers, labels and/or other indications placed in origin, on the automatic door operator or its accessories.
- Standing within the course of the door leaf of the automatic door, or performing tasks near possible parts in motion.

2.3 Recommendations

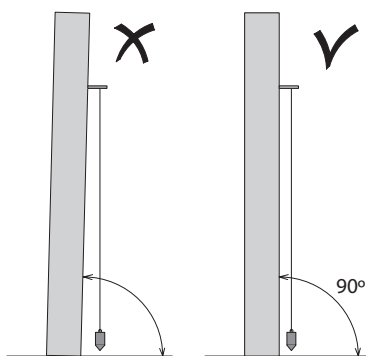
All EvoDrive+ automatic operators are delivered with an identification sticker. For a proper identification of the product in case of claims or inquiries, the data displayed on the sticker must be communicated to the concerned person.

Before the installation starts, please check that the product described on the sticker attached to the packaging corresponds to the material ordered, and with that described in the delivery note. Verify that the product has suffered no damage during transport.

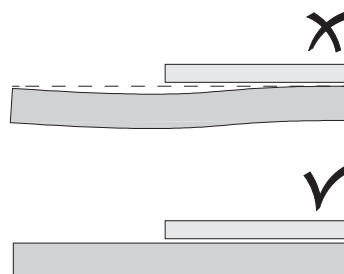
To prevent possible water condensation inside the packaging during the storage period, we recommend to keep the product inside its original packaging, to not expose it outdoors, to keep it away of sunlight, and to always store it in a dry environment.

2.4 Installation requirements

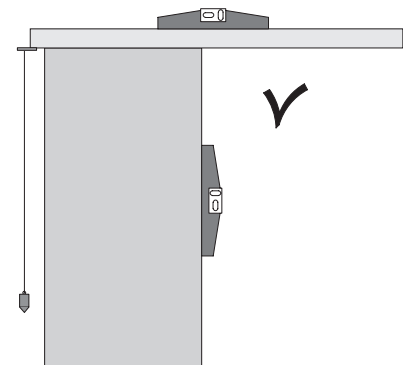
- The power cable that connects with the cable supplied must have a minimum section of 2,5 mm²
- For a good performance, the operator must be levelled in all 3 axis, and be firmly fixed to a solid vertical surface.



Wall side view



Wall top view

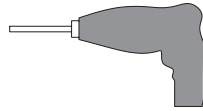


Door well levelled

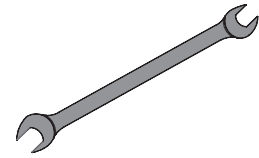
2.5 List of tools required for installation



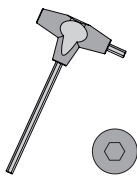
Level



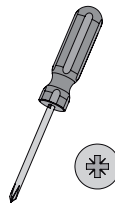
Drill



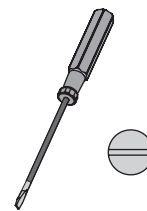
Wrench (n° 10 and 13)



Hex key (n° 4)



Philips screwdriver



Screwdriver

2.6 Warranty

The manufacturer's warranty for the EvoDrive+ automatic operator will be VOID if:

- The installation, use and/or maintenance of the product did not follow the norms, instructions and indications described in this manual.
- Using non-original components, accessories, parts, pieces or electronics systems, being these new or for replacement purpose, when these parts haven't been supplied or homologated by the supplier.

2.7 Disposal and recycling

When disposing the packaging materials, it is recommended to check the specific regulation in force at the installation site, before proceeding to dispose it.

Packaging materials are similar to other urban solid waste materials, and therefore they can be easily disposed after doing a selective classification and recycling.

When the product needs to be disposed, as this is composed of different materials, we recommend:

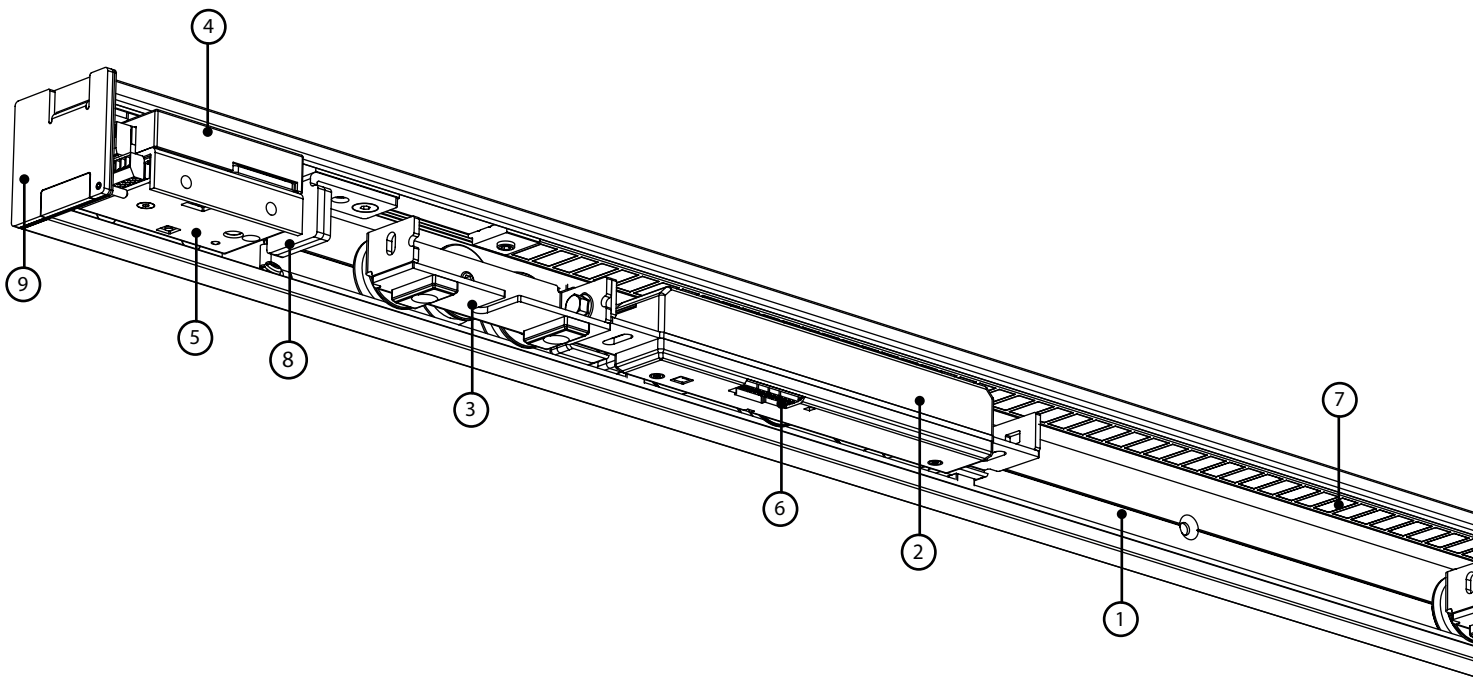
- Materials such as aluminium, plastic, steel, electrical cables, etc... are solid waste materials, which need to be carefully classified for a proper recycling in authorized recycling centres.
- Other components such as the plates of electronic circuits, capacitors, batteries, magnets, etc... may contain contaminating materials, and as such, they must be carefully removed and delivered to companies specialized in their evacuation, classification and disposal.

Do not throw away the packaging or product materials anywhere. Recycle!

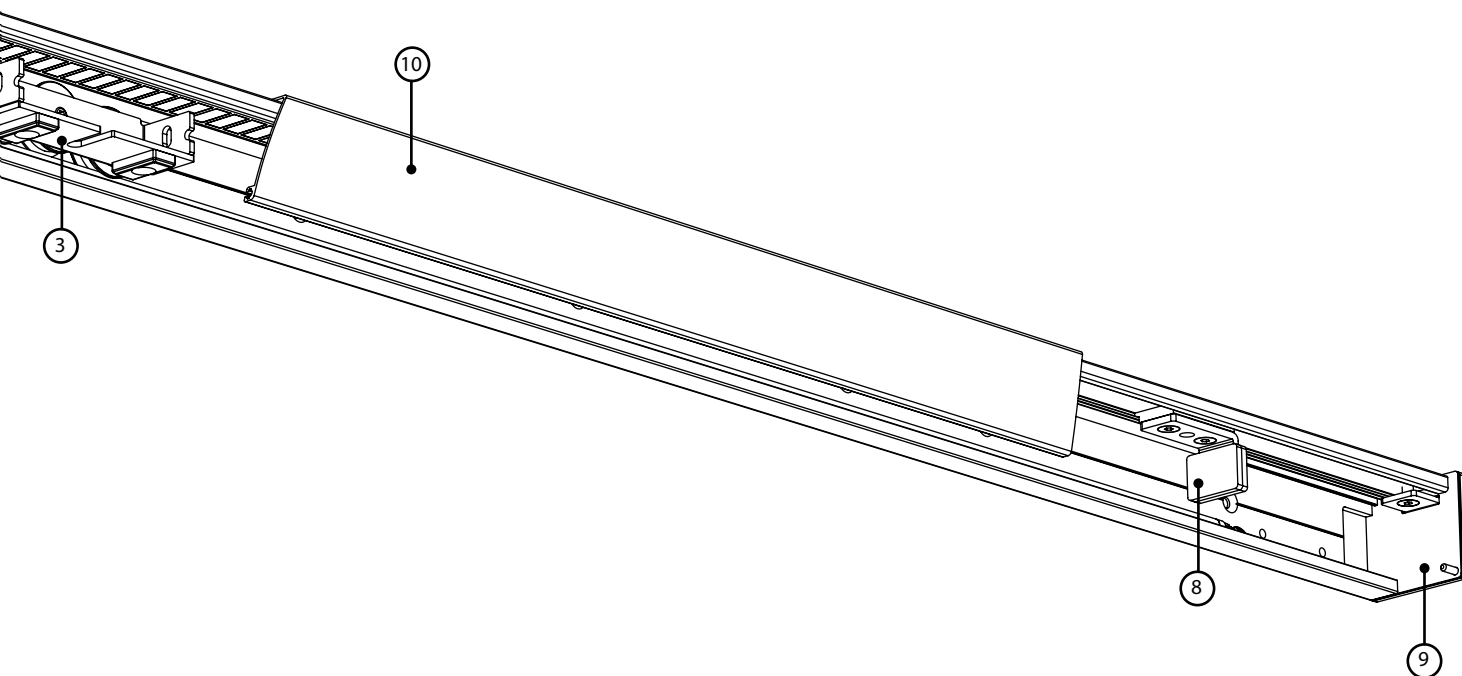
PART 2 - Installation manual**INDEX**

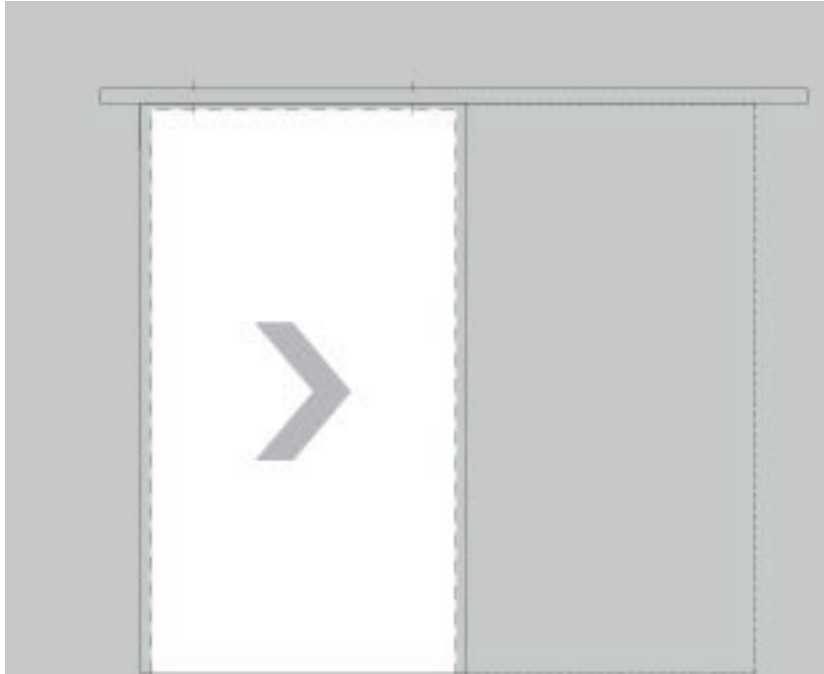
- 1. EvoDrive+ component overview**
 - 2. Verify the opening direction and the operator length**
 - 3. Mounting the operator**
 - 3.1. Measure the opening width and height of single leaf
 - 3.2. Measure the opening width and height of double leaf
 - 3.3. Preparations before mounting
 - 3.4. Types of leaf adapters
 - 3.5. Location of the activators and power supply connections
 - 4. Mounting the door leaves**
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 - 5.1. How to install and connect the automatic lock (optional)
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 - 6.6. Configuration of "Hold open time"
 - 6.7. Self-adjustment
 - 7. Electronic indicators description**
 - 8. EvoDrive+ installation check-list**
 - 9. Installation CE declaration form**
- ANNEX 1**
- 1.1. How to change the opening direction
 - 1.2. How to cut down the drive length

1. EVODRIVE+ COMPONENT OVERVIEW

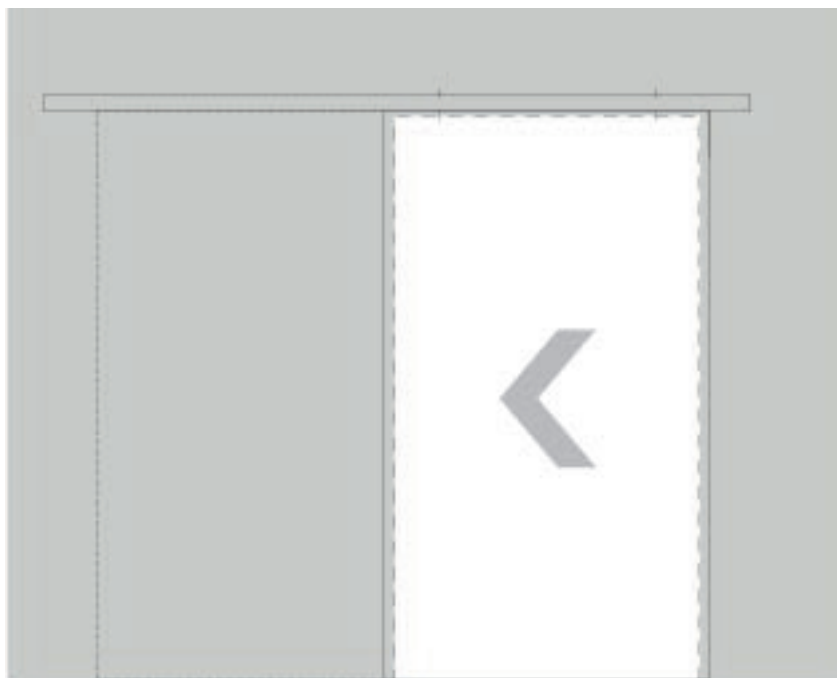


- 1 Main profile
- 2 Linear motor type LSMPM
- 3 Leaf trolleys
- 4 Power supply circuit
- 5 I/O accessories control board
- 6 Motor driver
- 7 Permanent neodymium magnets
- 8 End stops
- 9 Side covers
- 10 Aluminium cover with brush seal



2. VERIFY THE OPENING DIRECTION AND THE OPERATOR LENGTH

*Right side opening
(from the side of the operator)*



*Left side opening
(from the side of the operator)*



NOTE 1 : If you need to change the opening direction, refer to ANNEX 1.1

NOTE 2 : If you need to reduce the length of the operator, refer to ANNEX 1.2

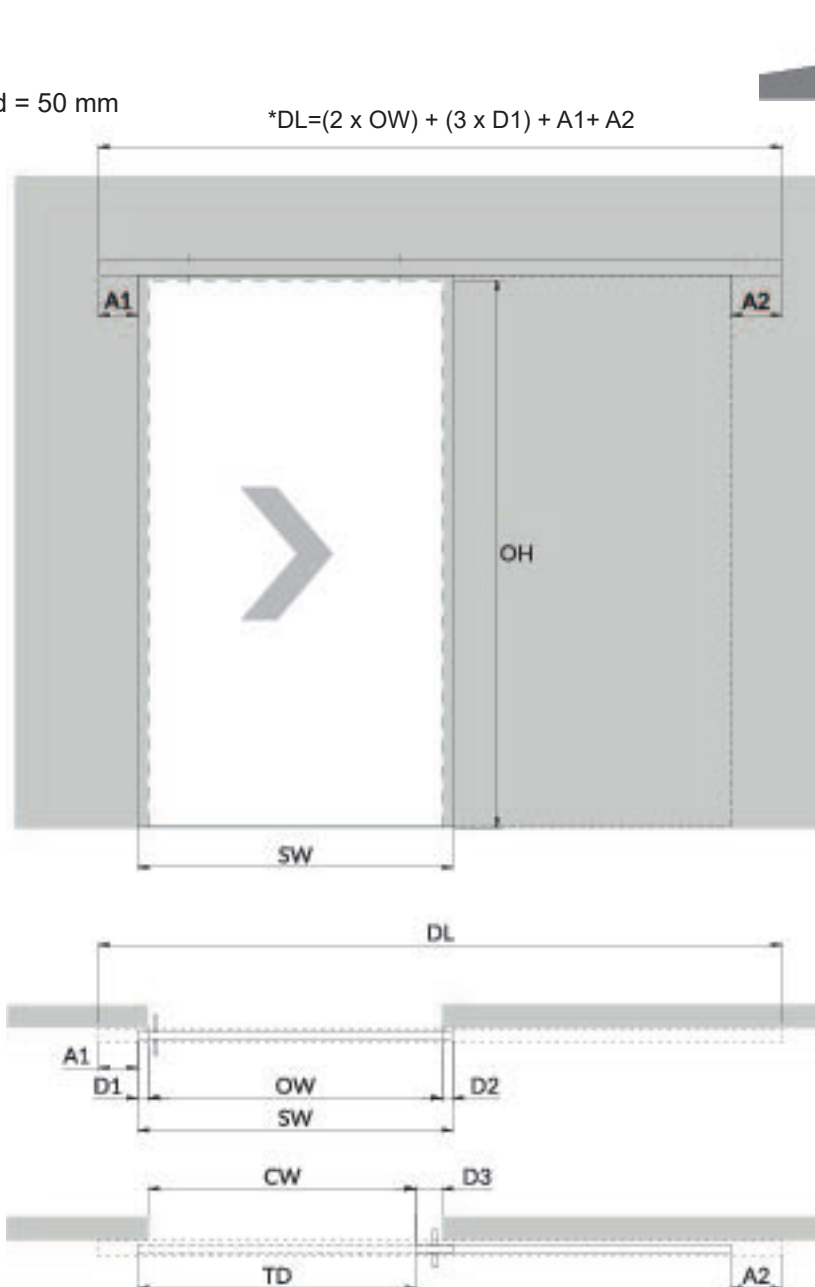
3.MOUNTING THE OPERATOR

3.1. Measure the opening width and height of single leaf

* If D1 = D2

* D1 recommended = 50 mm

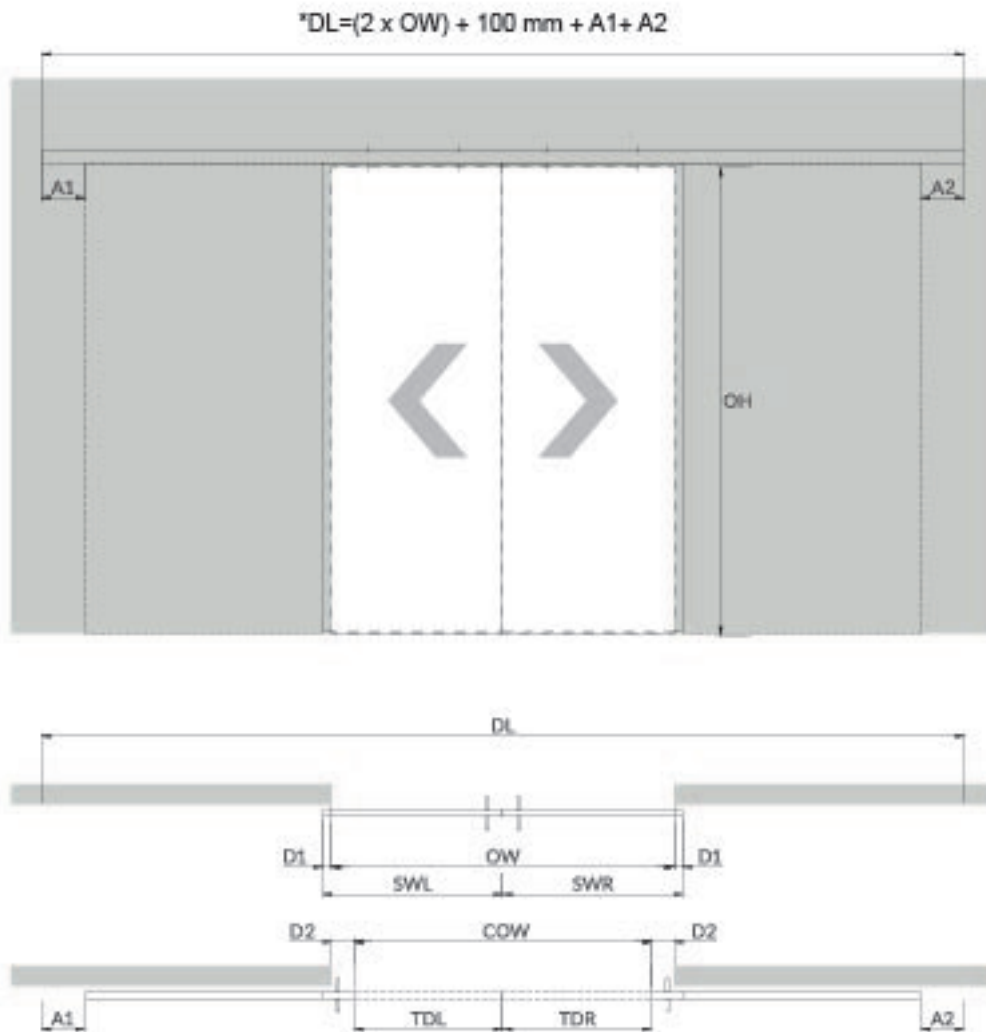
$$*DL=(2 \times OW) + (3 \times D1) + A1+ A2$$



Legend:
 DL = Drive length
 OH = Opening height
 OW = Opening width
 COW = Clear width
 SW = Width of Sliding leaf
 TD = Travelling distance
 D1/D2 = Overlap
 D3 = Door handle distance
 A1/A2 = Header extension

3.2. Measure the opening width and height of double leaf

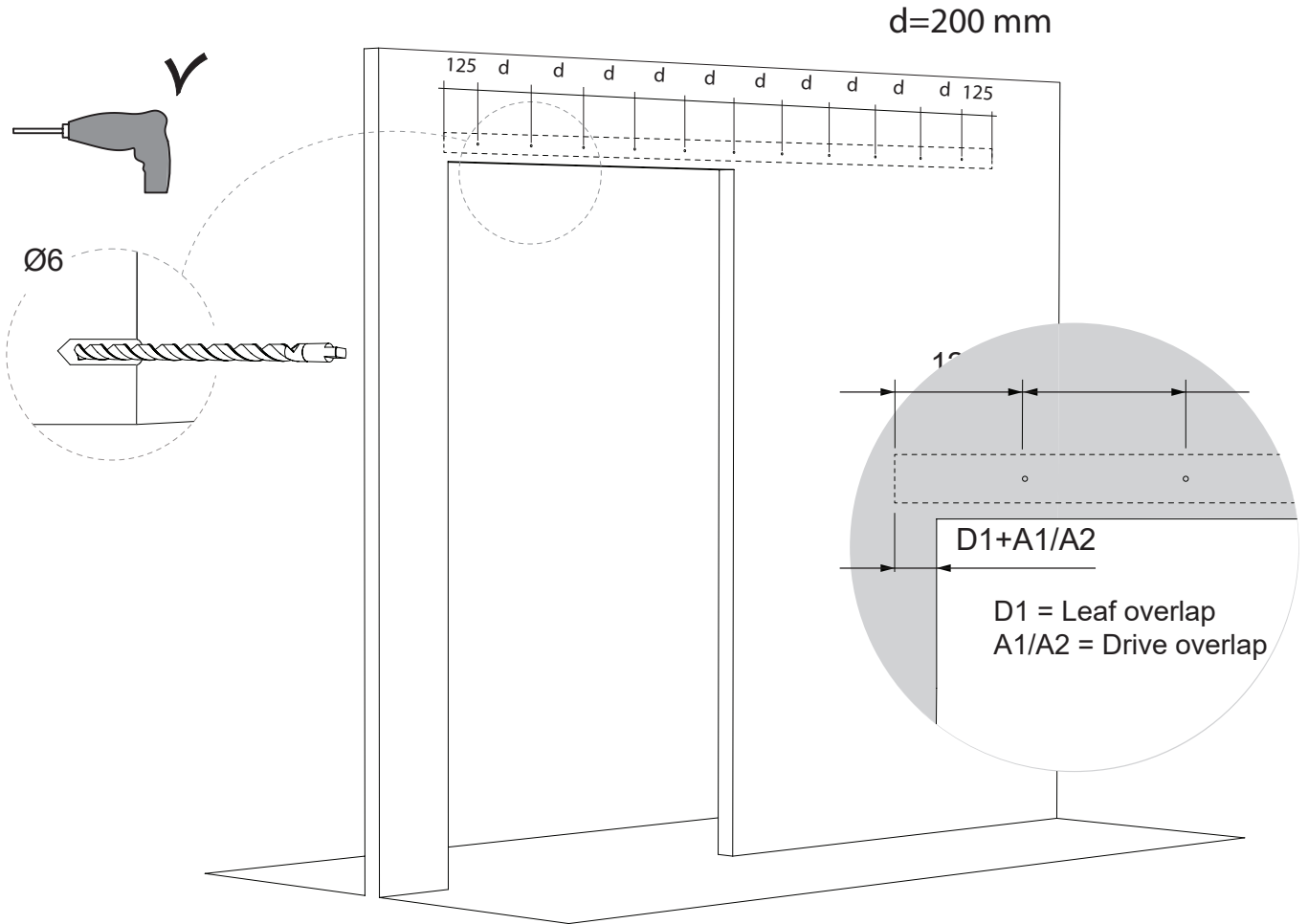
* If D1 = 50 mm



Legend:

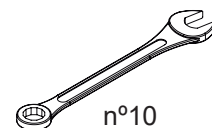
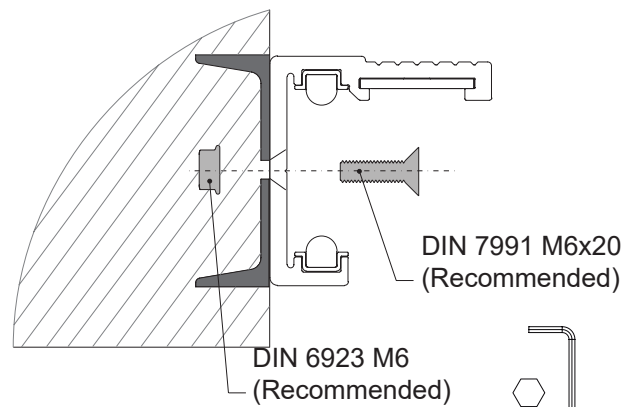
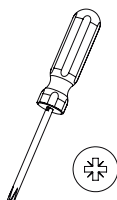
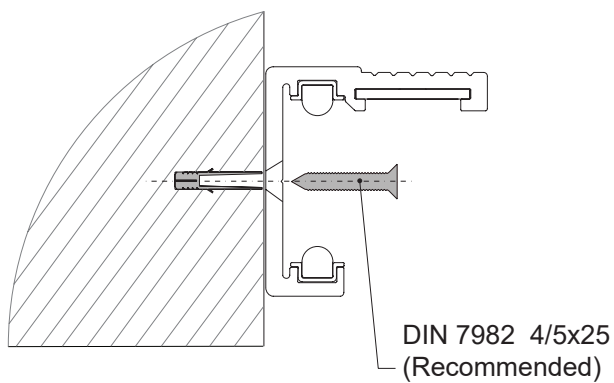
DL = Drive length
 OH = Opening height
 OW = Opening width
 COW = Clear width
 SWL / SWR = Width of left sliding leaf / right sliding leaf
 TDL / TDR = Travelling distance left sliding leaf / right sliding leaf
 D1 = Overlap
 D2 = Door handle distance
 A1/A2 = Header extension

3.3. Preparations before mounting

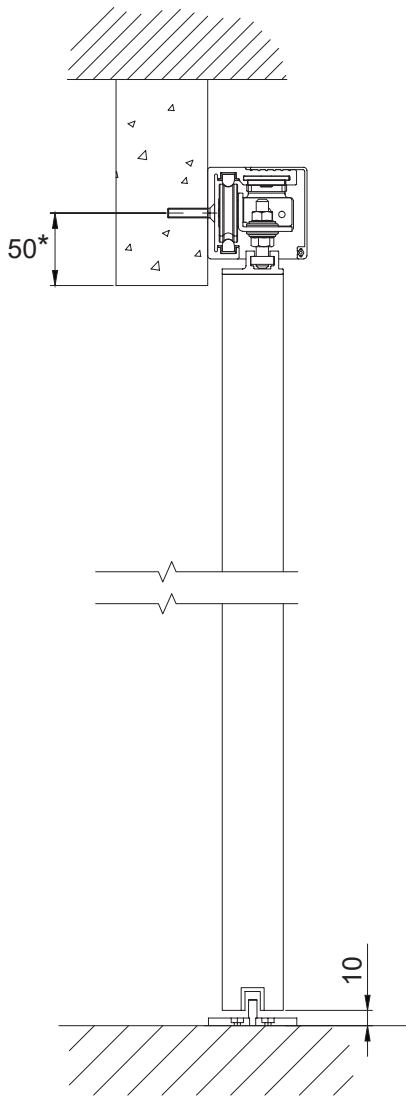


a FIXING TO WALL

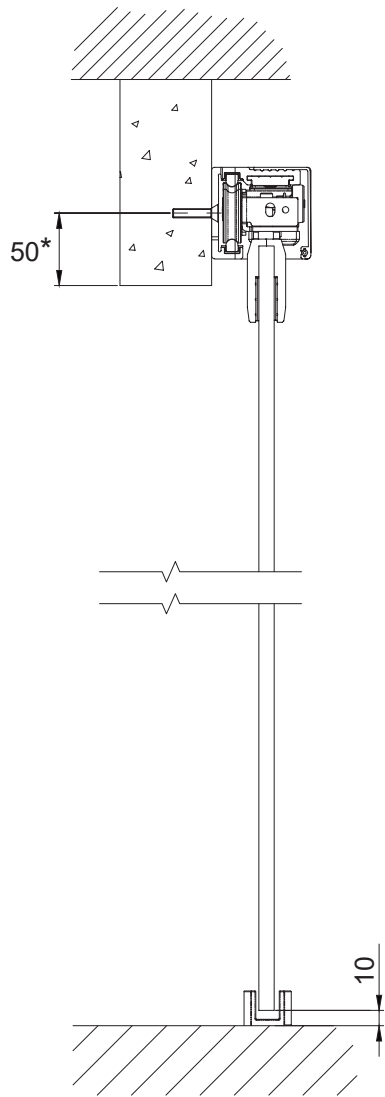
b FIXING TO IRON BEAM



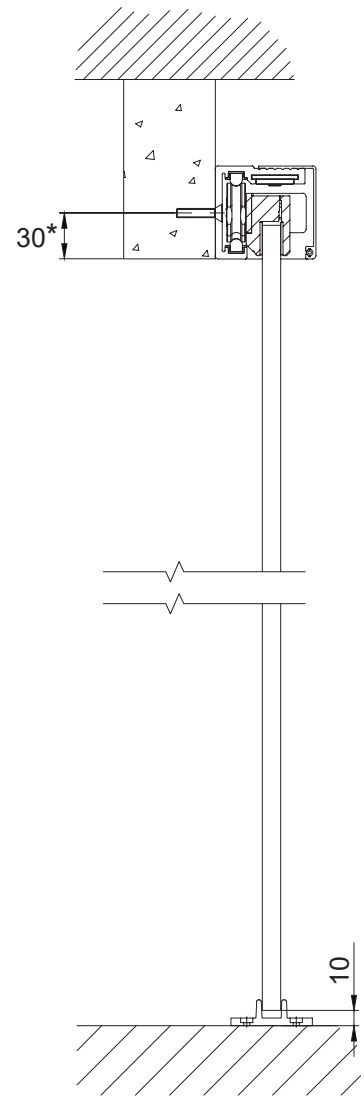
3.4. Types of leaf adapters



Timber leaf (35 - 50 mm)



Glass leaf (8 - 10 mm)

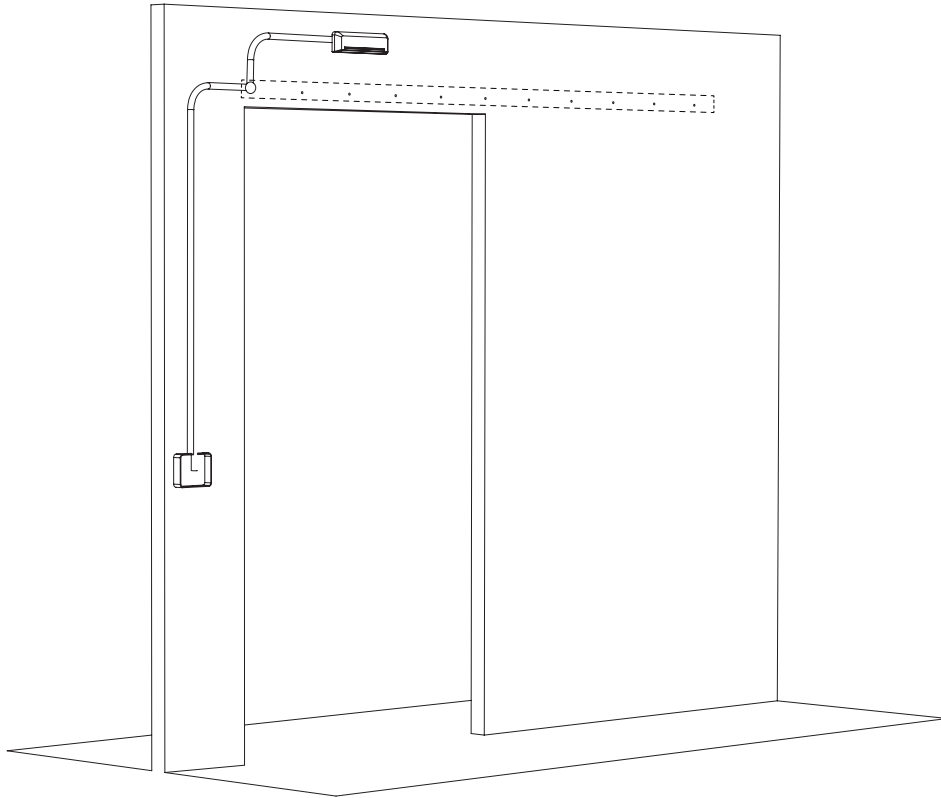


Full glass leaf (8 - 10 mm)

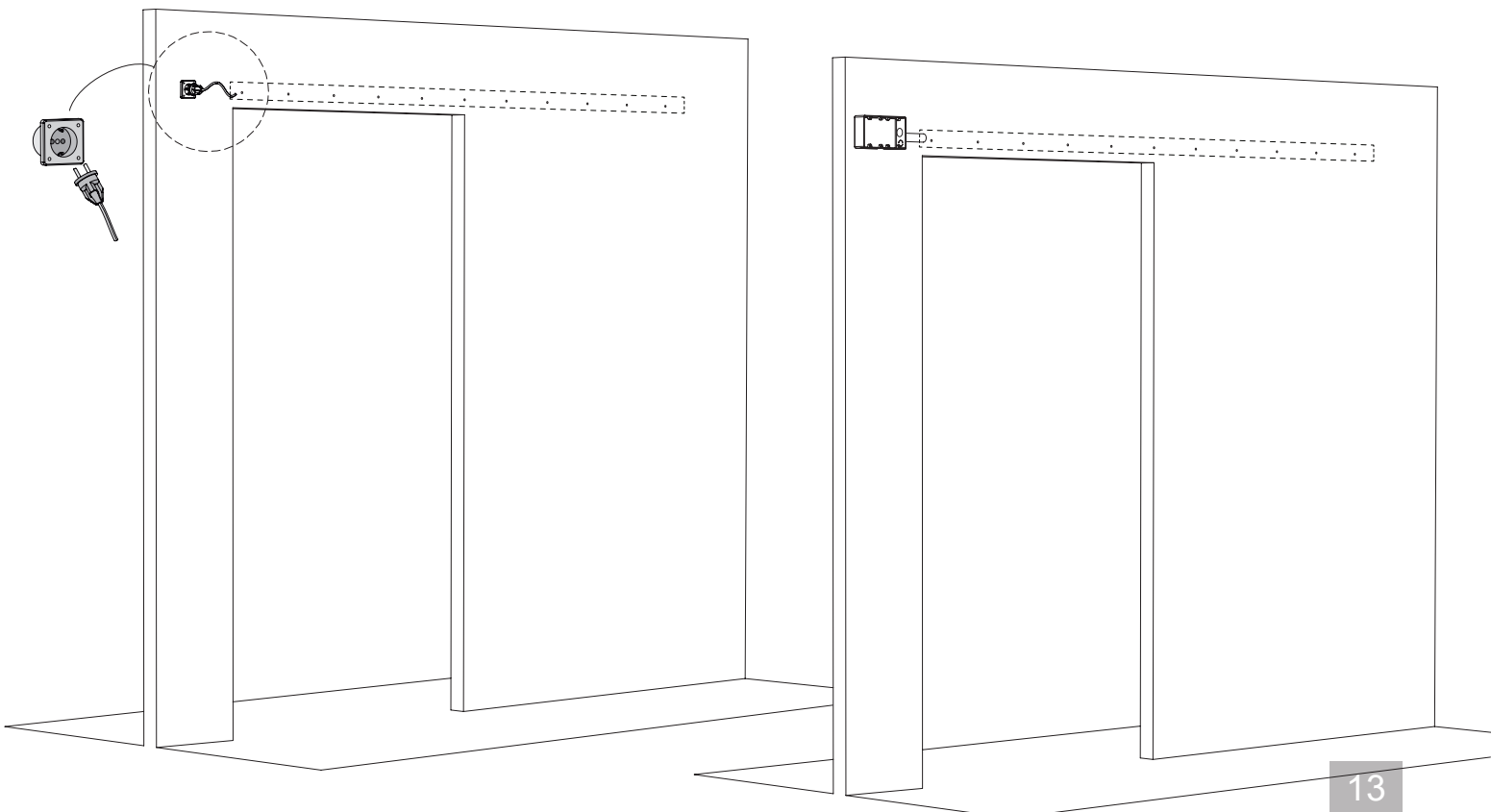
* Recommended height

3.5. Location of the activators and power supply connections

- Activators

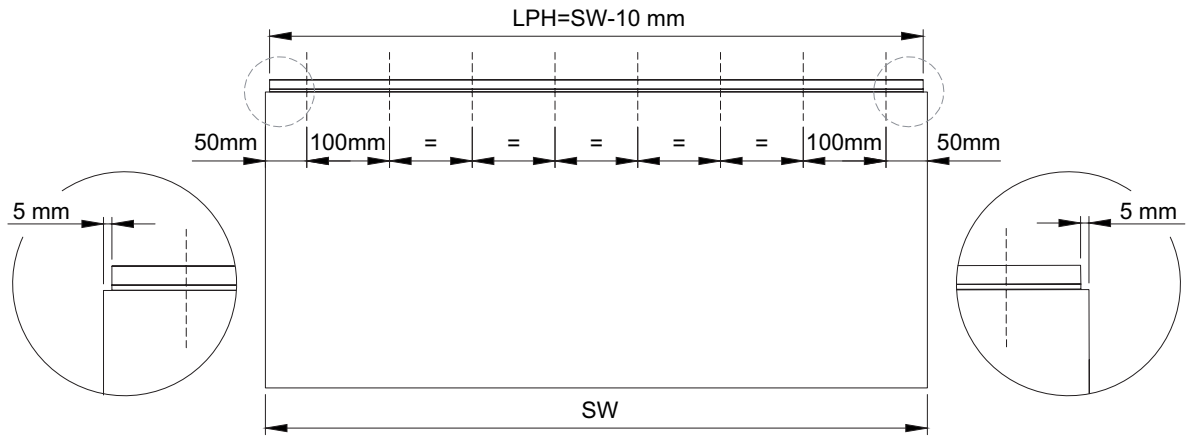


- Power supply connections

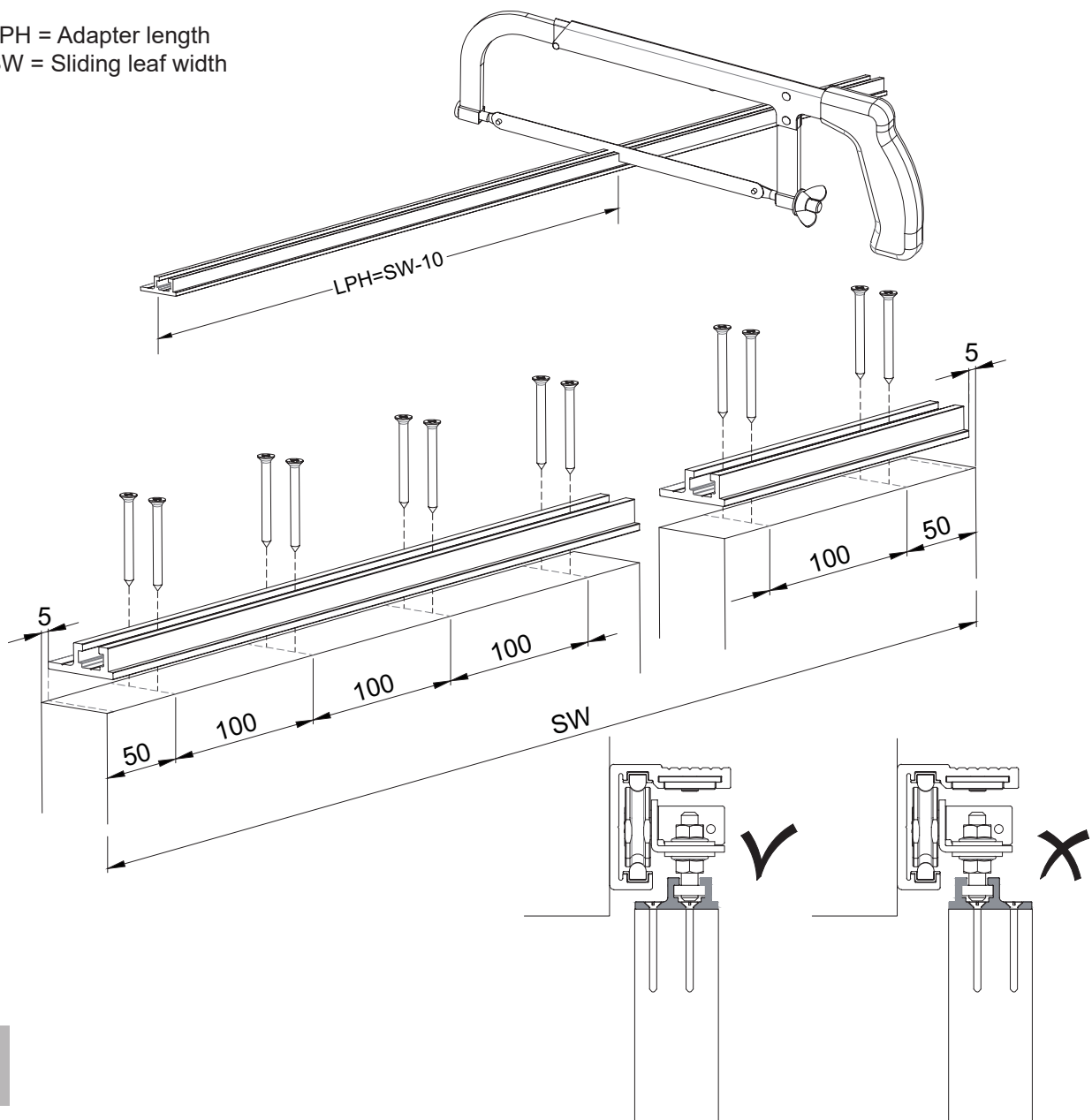


4. MOUNTING THE DOOR LEAVES

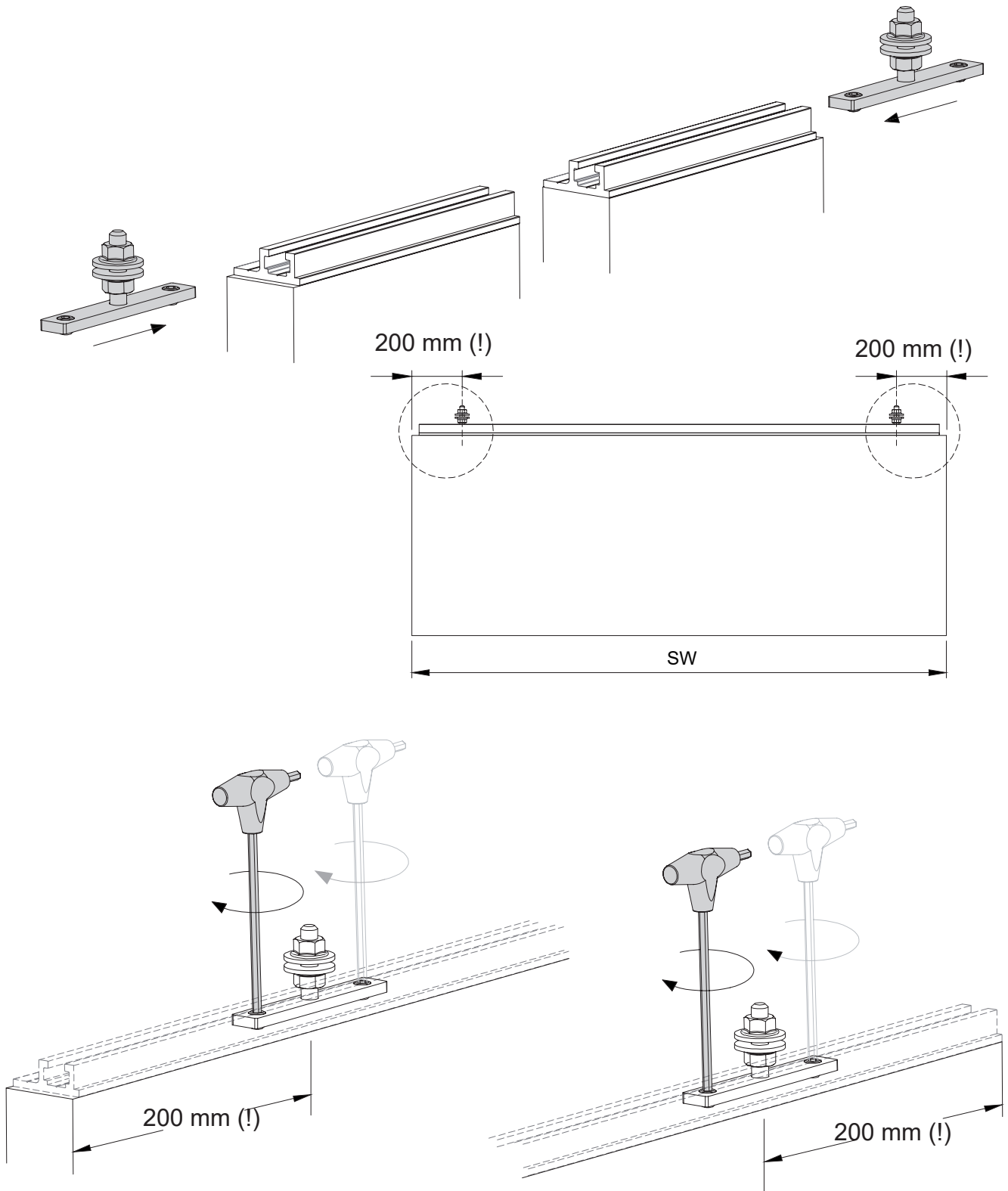
4.1. Mount the door leaf adapter



LPH = Adapter length
SW = Sliding leaf width



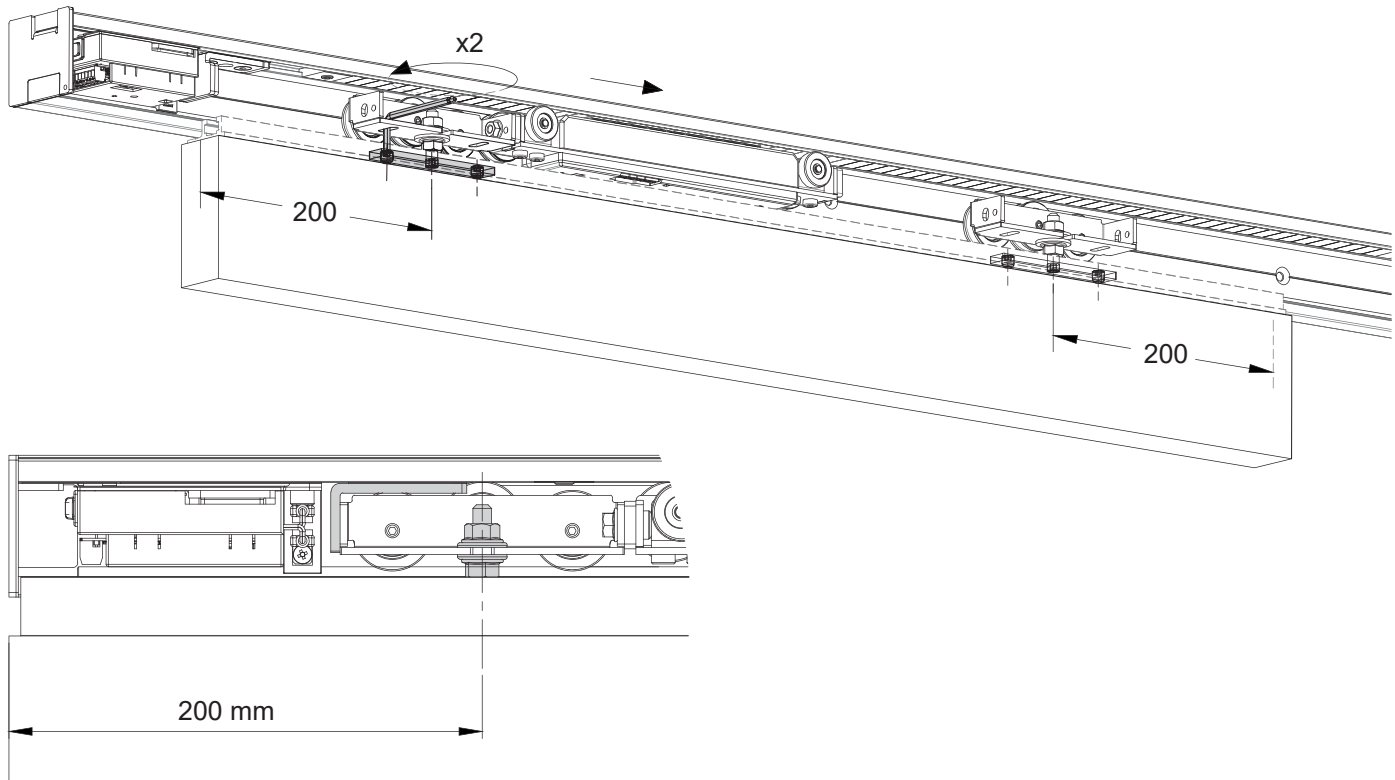
4.2. Mount the adapter rail nuts



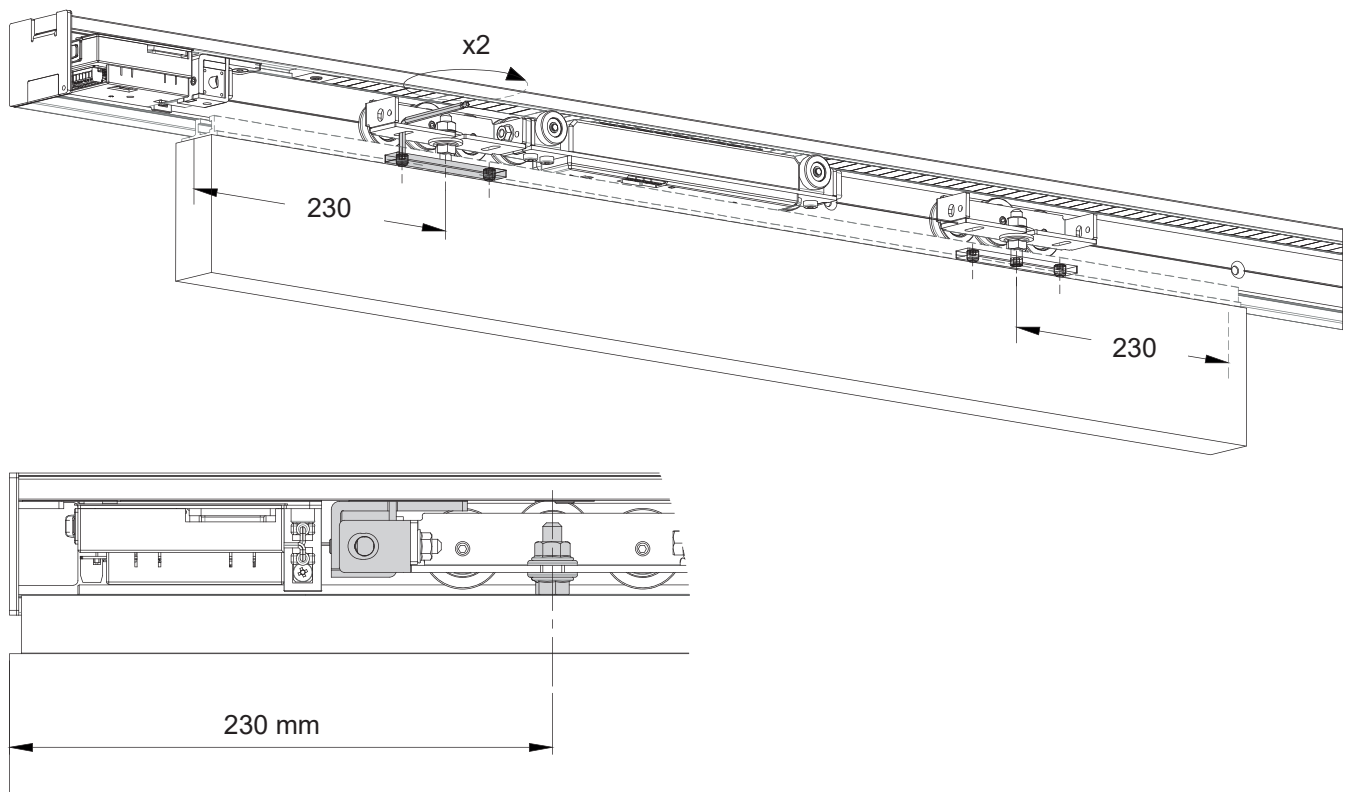
If the operator is equipped with an automatic lock, refer to point 4.3

4.3. Position the leaf trolleys

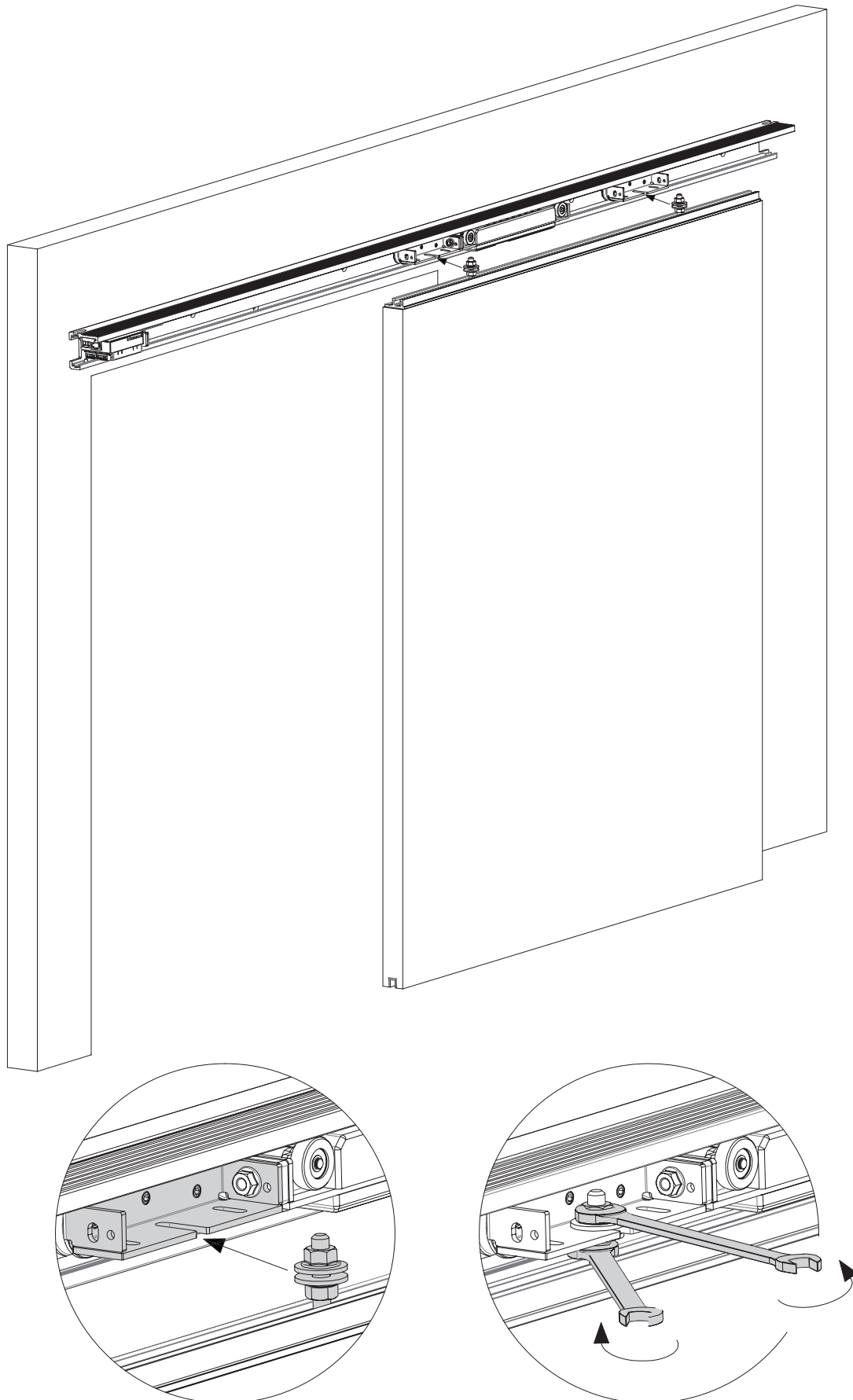
Without automatic lock:



With automatic lock (optional):

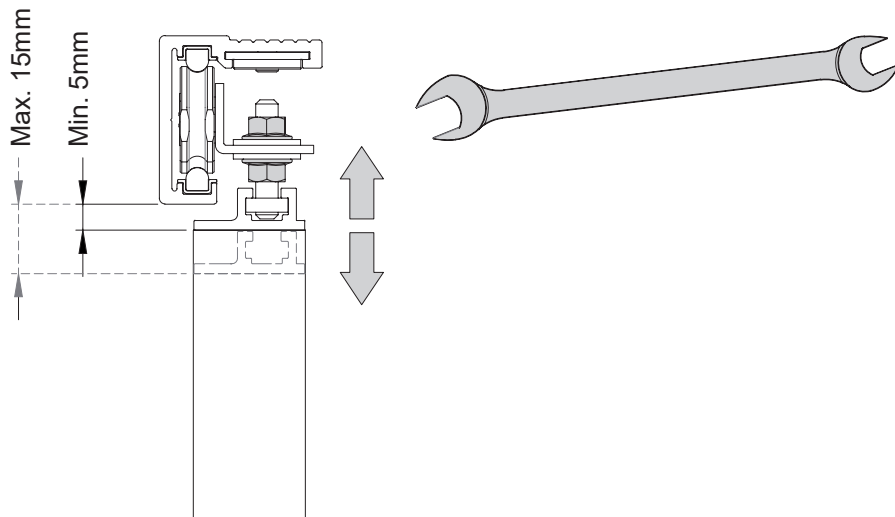


4.4. Mount the door leaf to the drive

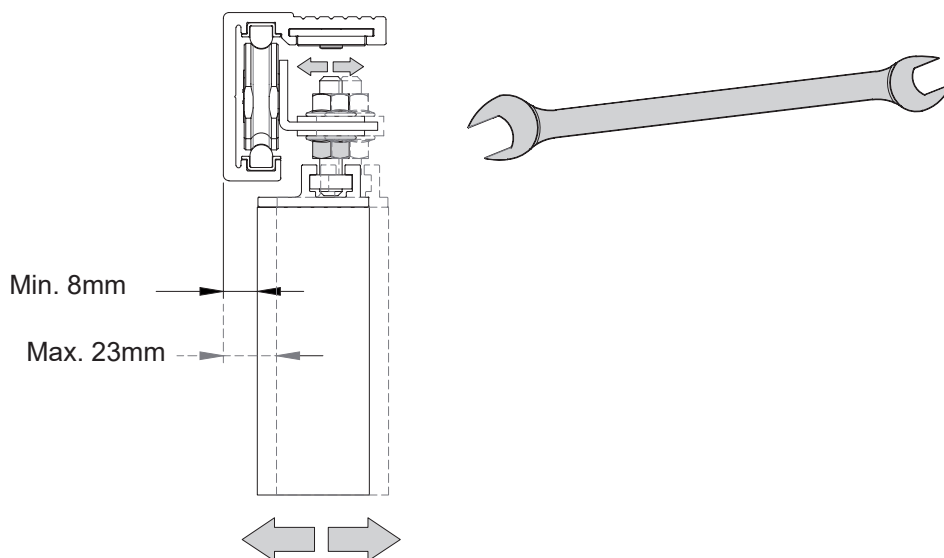


4.5. Adjust the door leaf

Leaf height adjustment



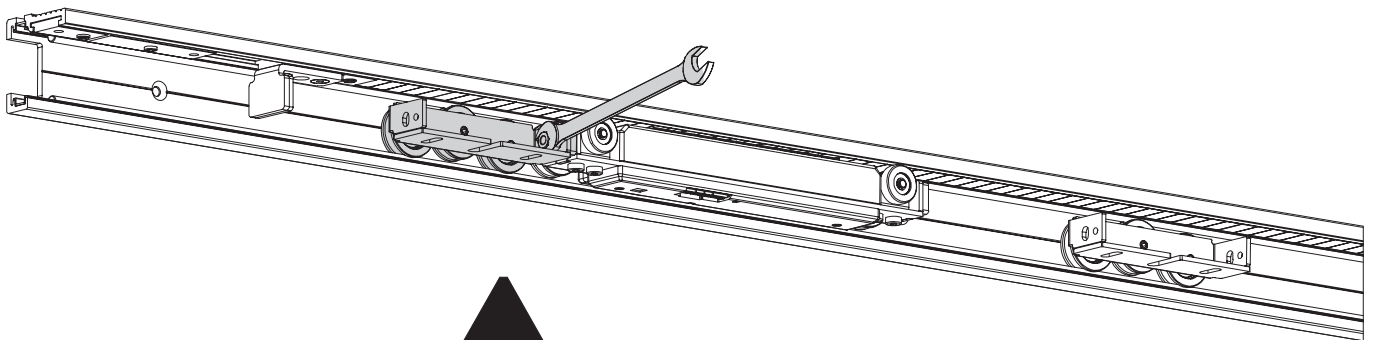
Leaf depth adjustment



4.6. Final adjustment

After the door leaf has been adjusted in height and depth, loose the screw that connects the front trolley with the motor, slide the door to full open and full close positions, and tighten the nut again firmly. Once tighten, make sure that the two front wheels of the motor slide smoothly on the top of the aluminium frame.

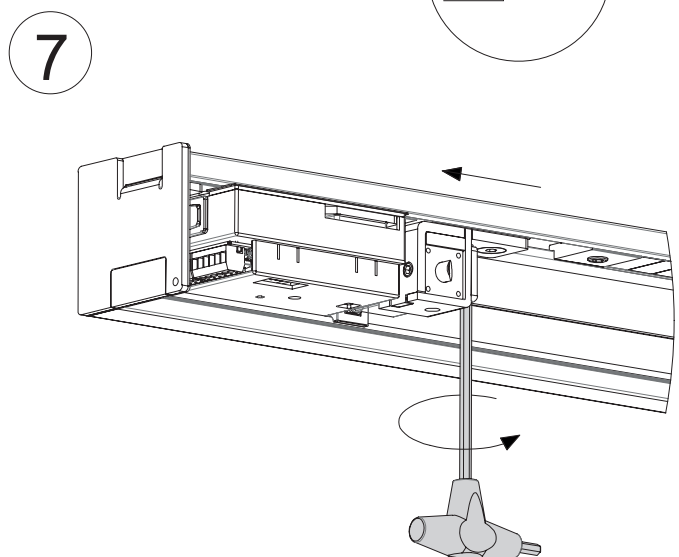
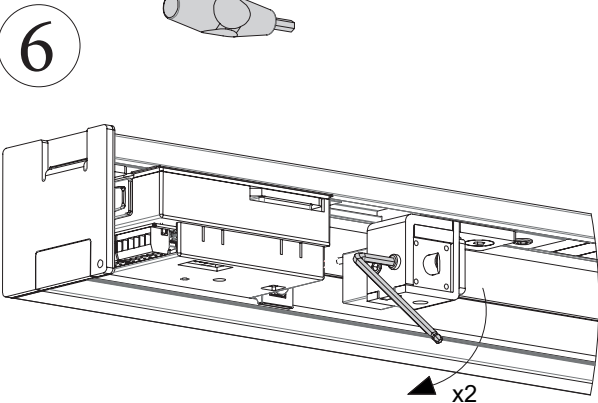
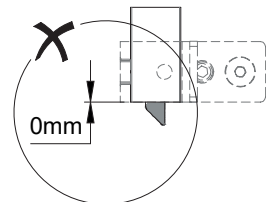
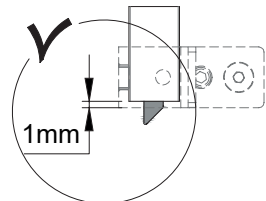
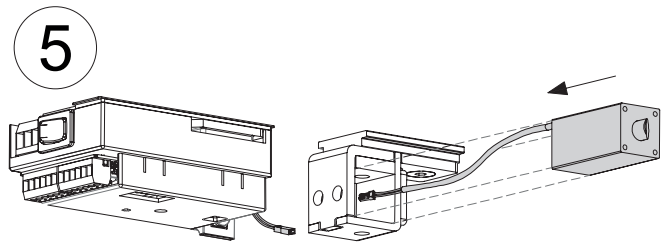
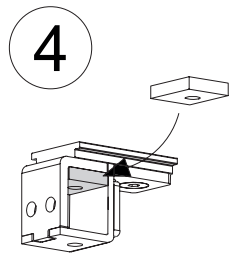
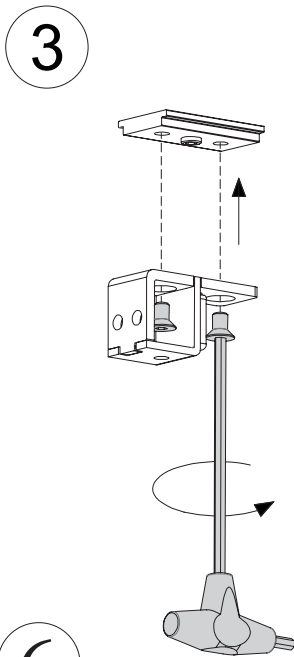
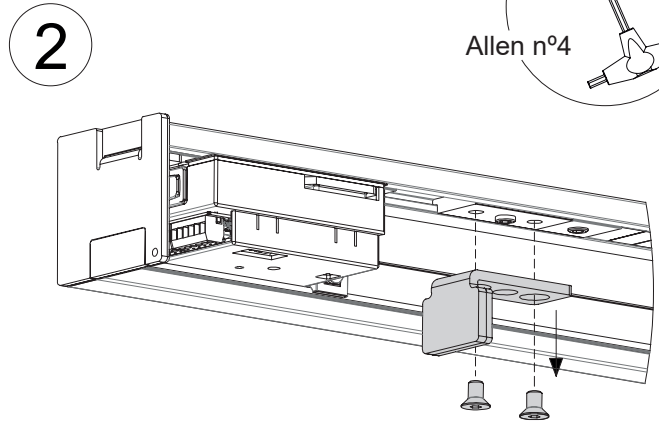
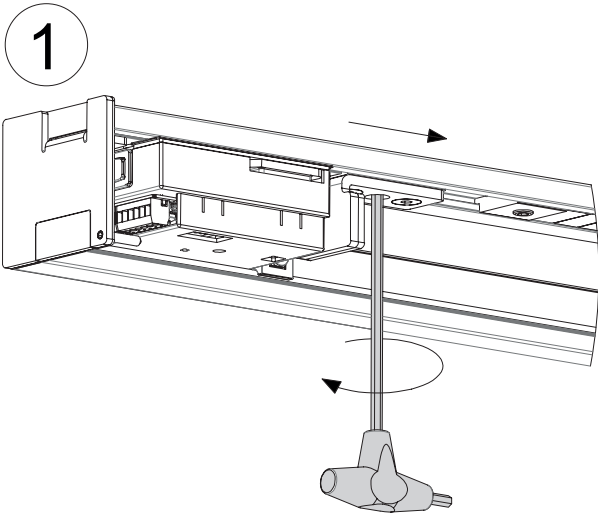
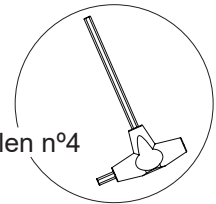
This simple but critical operation will balance the motor and ensure that the separation between the magnets and the motor is correct.



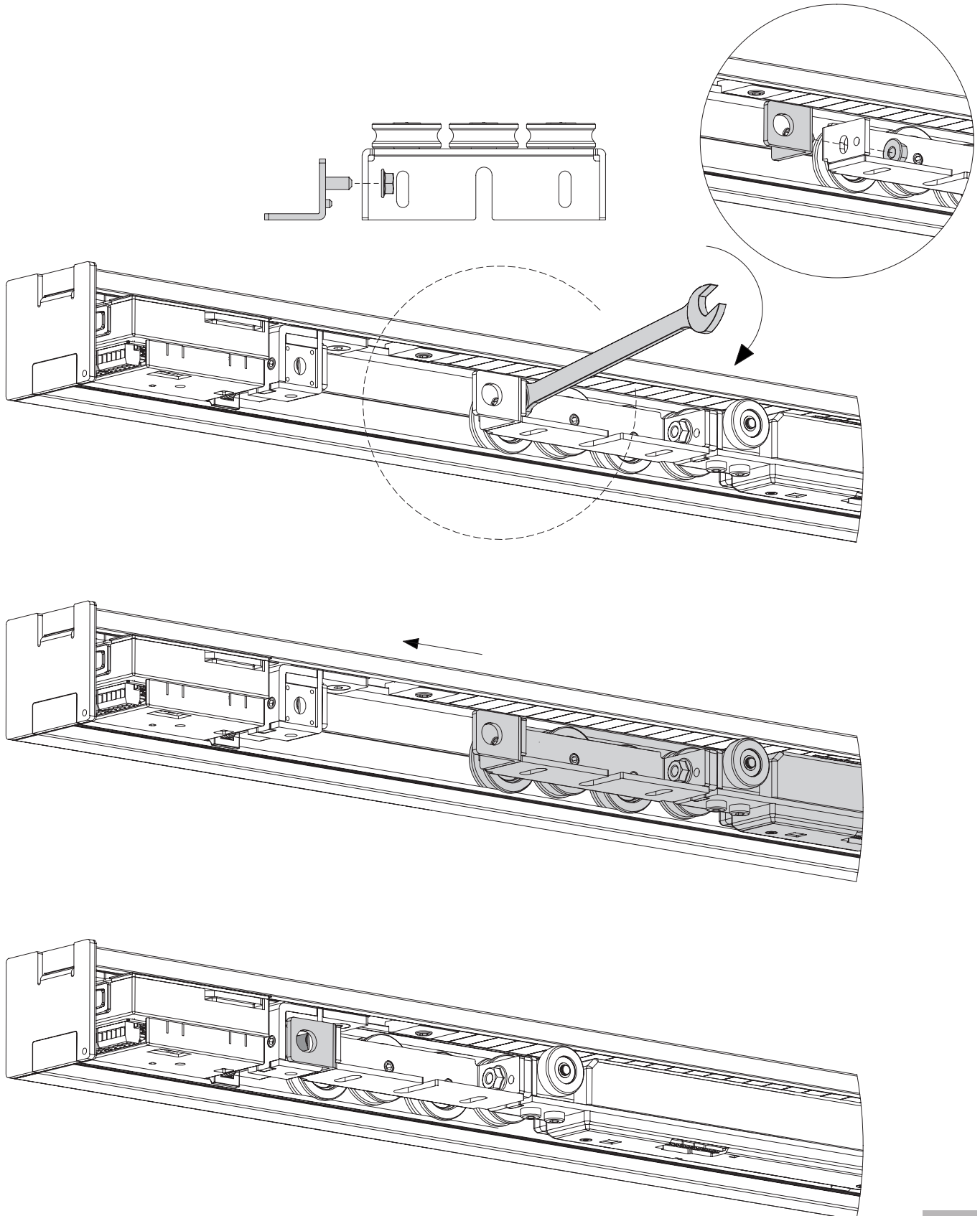
Without this final adjustment, the guide will not work properly

5. CONNECTION OF THE ACCESSORIES

5.1. How to install and connect the automatic lock (optional)

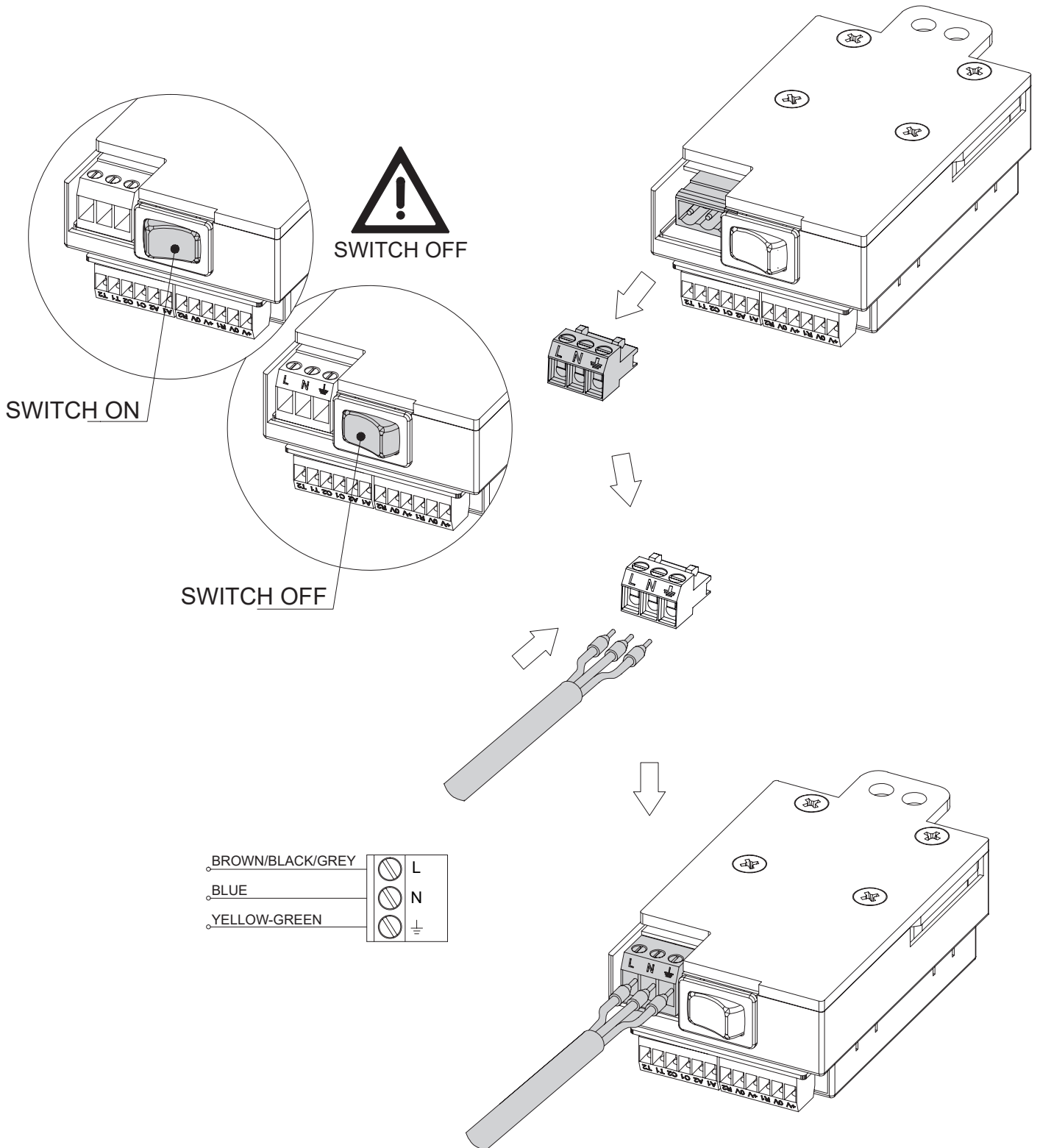


5.2. Mount the lock-keeper bracket

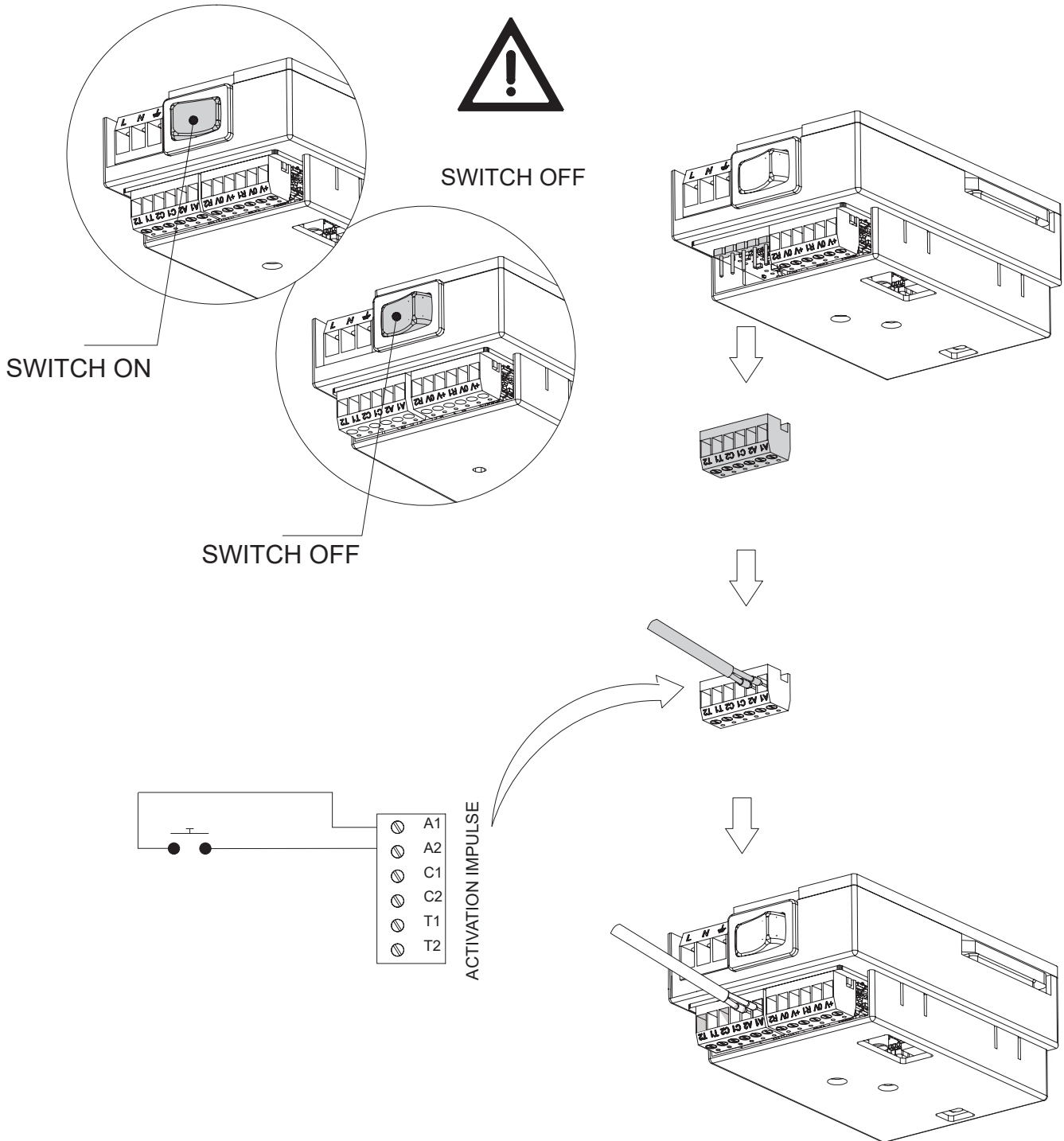


6. WIRING AND COMMISSIONING

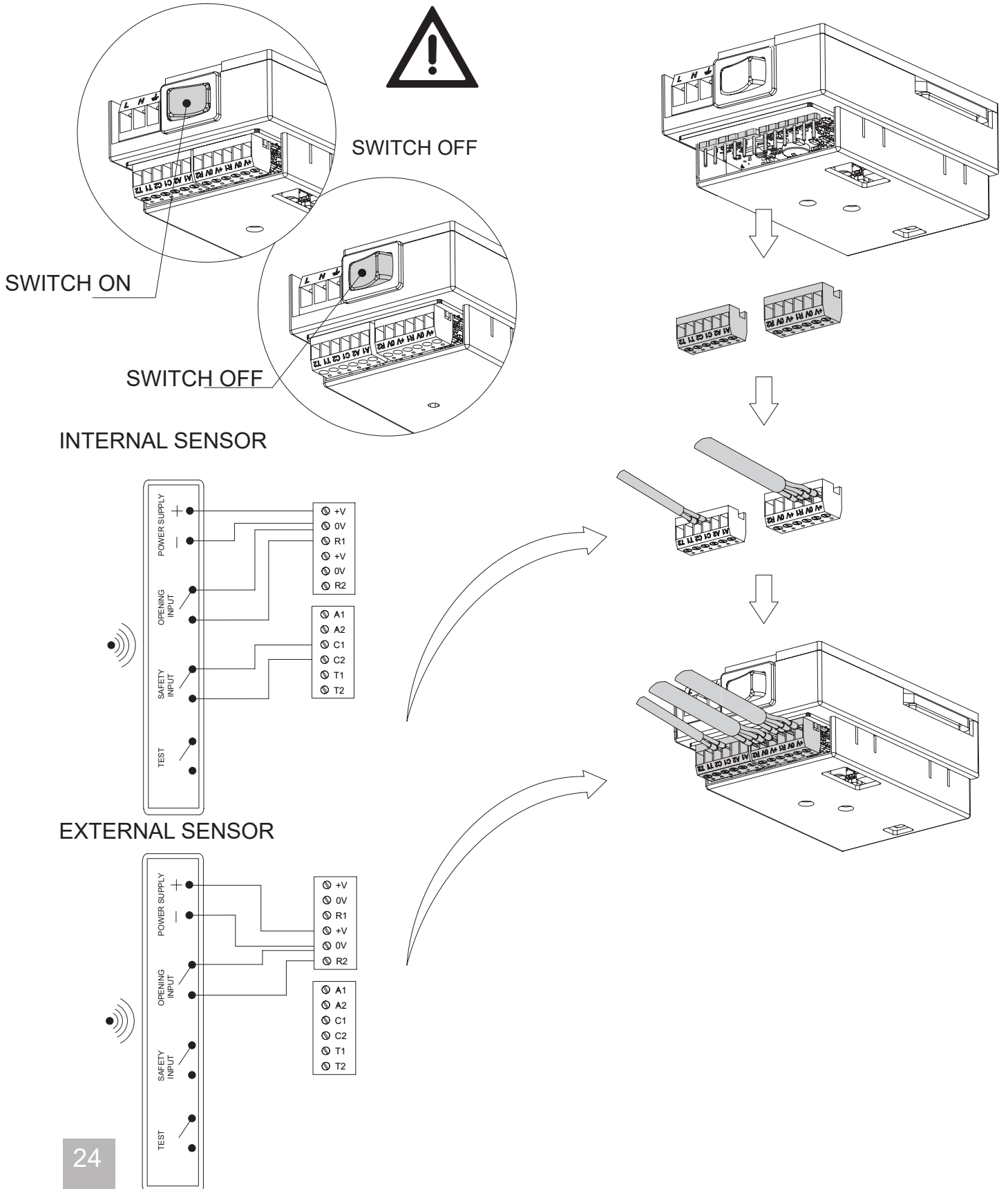
6.1. Connect the power cable



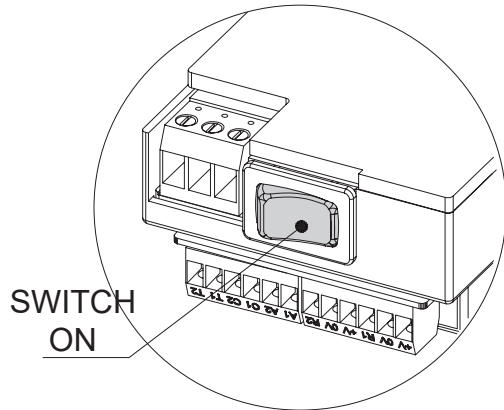
6.2. Push button



6.3. Activation sensor and security



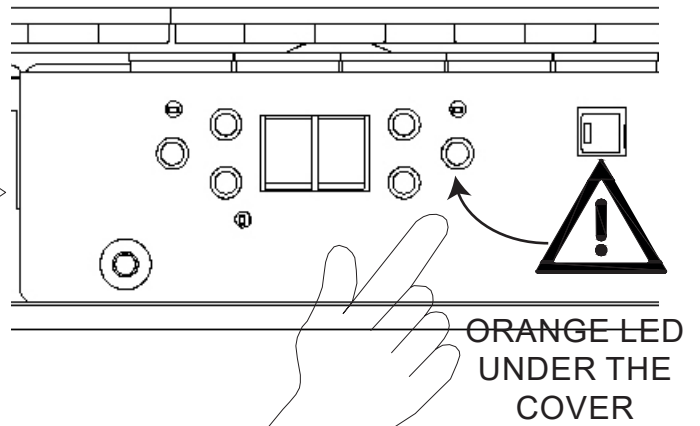
6.4 Remote control (operating mode selector)



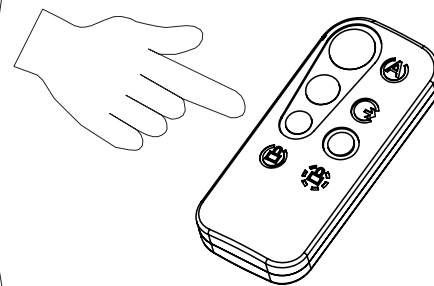
1 Turn on OPERATOR

Connecting remote controls:

1. Turn on the operator by switching ON
2. Press the receiver button until orange LED starts blinking (approx. 10 s)
3. Press the receiver button until orange LED starts blinking
4. Repeat step 2 and 3 to connect more remote controls.



2 Press the receiver button (approx. 10 s)



3 Press any button of the remote control

REMARK:

- One remote control can control several guides.
- One guide can be controlled from multiple remote controls (10 max).

Deleting remote controls:

1. Press the receiver button until orange LED stops blinking (approx. 20 s)

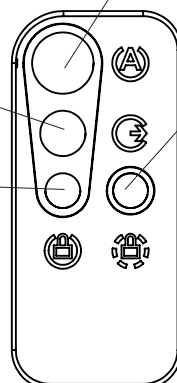
Remote control modes (Motor Driver LEDs):

OPEN mode
Green Orange Red

The door will open and remain free. It will work as a manual sliding door.

CLOSED mode
G O R

The door will close and stay in this position. If the door is equipped with an automatic lock (optional), the door will be blocked in the closed position. If it is not equipped, it will work as a manual sliding door.



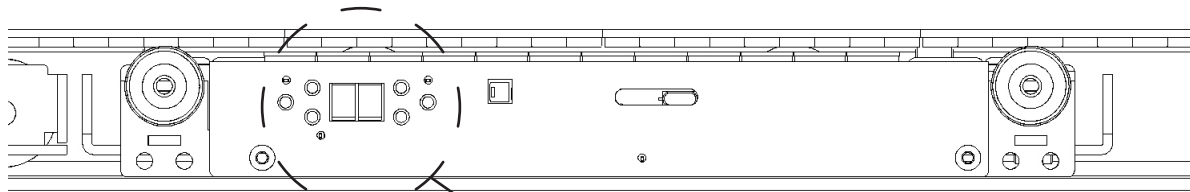
AUTOMATIC mode
G O R

Every time an activation device (push button, touchless switch, radar or sensor) is triggered, the door will open during an adjustable time and close again. With "Push & Go" mode, you may push the door leaf a little in the opening direction and the door will open and close automatically in one cycle.

EXIT only / ACCESS control mode
G O R

The activation devices on the interior side of the door will remain active, while the devices on the exterior side will not. The main application is to prevent people activate the door from the exterior. It is highly recommended to equip the door with an automatic lock to use an access control device such as a card reader, keypad or finger print reader.

6.5. Configuration of the basic parameters



ESC ○ [] ○ +
ENT ○ [] ○ -



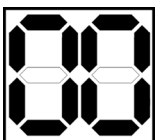
All the parameters that the automatic guide EvoDrive+ allows to adjust are made following the process described below.



To change any parameter, you must enter the parameterized mode. You can enter it by pressing the (+) and (-) buttons at the same time for more than 5 seconds.



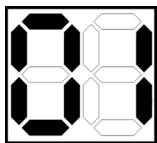
To apply a parameter change, the ENT button must be selected.



Mode change: The menu '0' allows the change of operating mode. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.

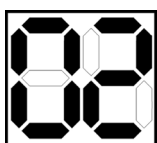
- '0'. Selection to mode automatic.
- '1'. Selection to mode open.
- '2'. Selection to mode only exit.
- '3'. Selection to mode closed.
- '4'. Selection to mode cyclic.
- '5'. Selection to mode bath.

For more information on the operation of each mode, see page 4 of the User Manual.



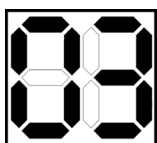
Change the hold open time: Menu '1' allows changing the time the door remains open before closing. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.

- '0'. Hold open time to minimum, around 0 seconds.
- '1'. Hold open time low, around 2,5 seconds.
- '2'. Hold open time high, around 5 seconds.
- '3'. Hold open time maximum, around 10 seconds.



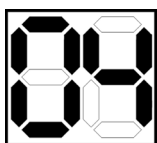
Change opening velocity: The menu '2' allows the change of the opening velocity. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change. (*)

- '0'. Opening velocity to minimum.
- '1'. Opening velocity low.
- '2'. Opening velocity high.
- '3'. Opening velocity to maximum.



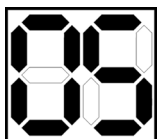
Change closing velocity: The menu '3' allows the change of the closing velocity. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.

- '0'. Closing velocity to minimum.
- '1'. Closing velocity low.
- '2'. Closing velocity high.
- '3'. Closing velocity to maximum.



Change energy mode: The menu '4' allows the change of energy mode to put the door in 'Low Energy' or 'High Energy', see regulation EN16005 for more information on uses according to the energy of the door.

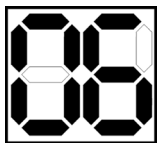
- '0'. Energy level to 'High Energy'.
- '1'. Energy level to 'Low Energy'.



Change Biastable mode: The menu '5' allows the change of bistable/pulse mode. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change..

- '0'. Mode pulse: Each pulse opens the door and close again.
- '1'. Mode biastable: Each pulse changes the state of the door, the first pulse opens and the second pulse closes.

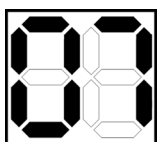
(*) The opening speed can only be adjusted with the operator in "Normal mode", and the speed depends on the leaf weight and the clear opening. In "Low energy" mode, the speed is determined by the operator itself, to adjust the opening/closing force as per EN16005-



Change Biestable Push&Go: The menu '6' allows the door to be biestable in the push&go. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.

'0'. Push&Go Pulse: When the door is manually moved 5 cm, the door opens and automatically closes again.

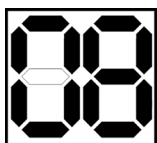
'1'. Push&Go Biestable: When the door is manually moved 5 cm, the door opens and remains open until it moves 5 cm so that it closes again.



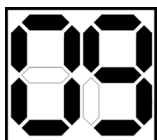
Change Reduced Opening: The menu '7' allows the change of the length in the movement. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.

'0'. Normal opening: The door opens its entire length.

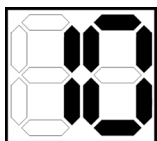
'1'. Reduced opening: The door opens half its length.



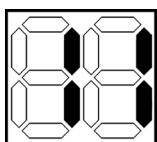
Change closing movement: The menu '8' allows adjust the closing movement from 0-8, if the movement vibrates you must lower the value and if it hits you must raise the value. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.



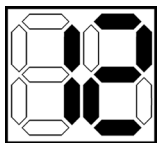
Change closing end movement: The menu '9' allows you to adjust the final closing movement from 0-8, if the movement vibrates you must decrease the value and if it hits you must increase the value. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.



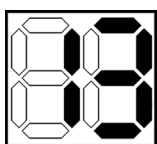
Change opening movement: The menu '10' allows you to make an adjustment of the opening movement from 0-8, if the movement vibrates you must decrease the value and if it hits you must increase the value. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.



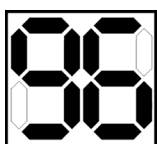
Change opening end movement: The menu '11' allows you to make an adjustment of the final opening movement from 0-8, if the movement vibrates you must decrease the value and if it hits you must increase the value. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.



Change stop movement: The menu '12' allows you to make an adjustment of the breaking movement which is the one that is executed between open and close from 0-8, if the movement vibrates you must decrease the value and if it hits you must increase the value. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.

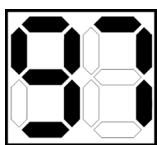


Change close force: The menu '13' allows you to make an adjustment of the final force at 0-3. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.



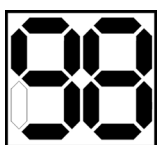
Change opening direction: The '96' menu allows you to set the door opening direction. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.

- '0'. Opening to the left.
- '1'. Opening to the right.

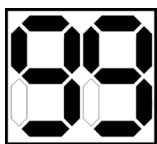


Change Bluetooth mode: The '97' menu allows you to set the Bluetooth pairing mode. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.

- '0'. Working mode.
- '1'. Pairing mode.



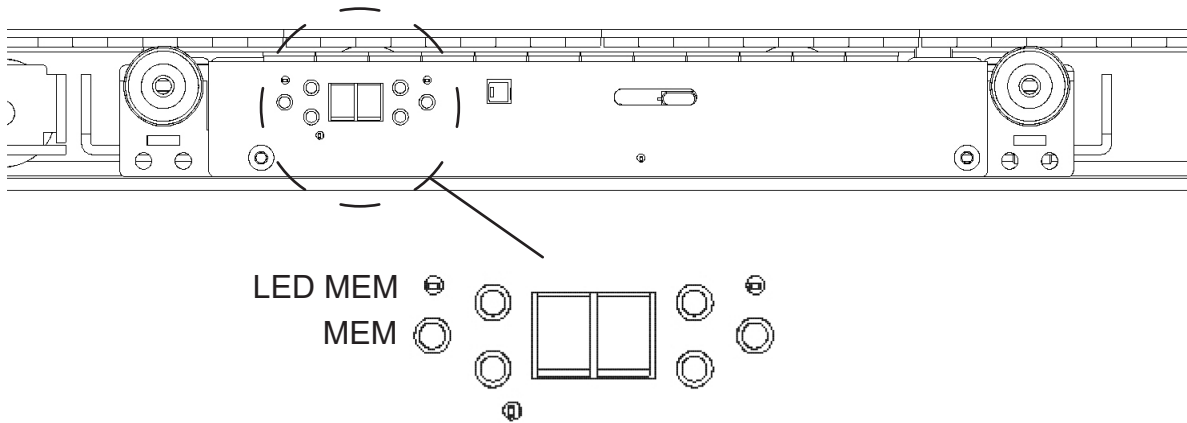
Set Factory Settings: The '98' menu allows you to reset all parameters to factory settings. To make the change you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.



Parameter reading: The menu '99' allows you to read some parameters. To read each parameter you must enter the submenu by pressing the ENT button, you must select the desired code (screen with flashing number) and press ENT to record the change.

- '0'. Read total cycle number.
- '1'. Read actual temperature.
- '2'. Read actual leaf weight.
- '3'. Read software version.

6.7. Self-adjustment (Door programming)



This process must be performed every time the door is installed.

1. Press the MEM button until the MEM LED turns ON and then release the button.
2. Wait until the MEM LED blinks.
3. Once the MEM LED begins to flash, press the MEM button and the process will begin.

DO NOT TOUCH OR INTERFER THE MOVEMENT OF THE LEAF DURING THE PROCESS









4. The self-adjustment is complete when the door stops the movement.
5. At this point, the door can operate normally.

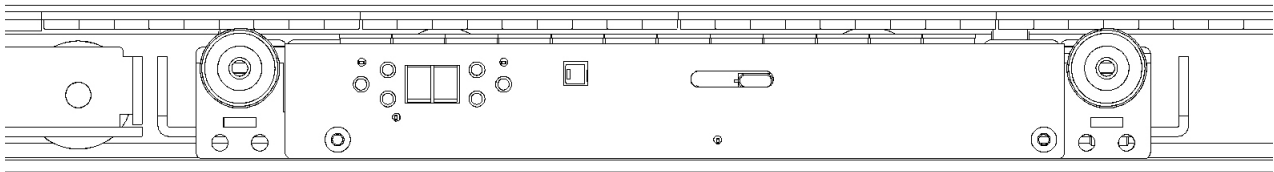
7. ELECTRONIC INDICATORS DESCRIPTION

I/O ACCESSORIES CONTROL BOARD

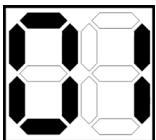
-

Power LED
Indicator Locker I/O Controller LEDs
G - GREEN B - BLUE G - GREEN
R - RED
O - ORANGE

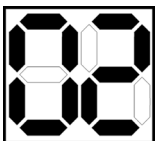
I/O ACCESSORIES CONTROL BOARD		
	LEDs status	Description
 G  R  O	ORANGE LED BLINKING	Trying to connect with motor Driver. If it takes more than 2 min, see EvoDrive maintenance manual.
 G  R  O	GREEN, RED AND ORANGE LEDs BLINKING	Trying to pair with motor Driver. If it takes more than 2 min, see EvoDrive maintenance manual.
 B	BLUE LED OFF	Automatic locker is not activated.
 B	BLUE LED ON	Automatic locker is activated. If automatic locker does not work see EvoDrive maintenance manual.



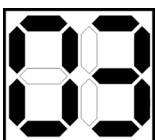
All the errors codes are showed blinking in the motor display



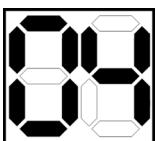
- i. **Error 1 - Code 01 blinking:** The system has detected an overcurrent, restart the automatic guide and if the error persists contact your dealer indicating the error code.



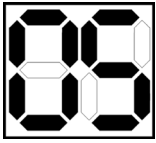
- ii. **Error 2 - Code 02 blinking:** The system has detected an encoder error, verify that the motor has magnets during the entire journey, if not, restart the automatic guide and if the error persists contact your dealer indicating the error code.



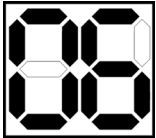
- iii. **Error 3 - Code 03 blinking:** The system has detected a weight error, verify that: the leaf does not exceed **80 kg**; The friction of the floor guide is not excessive and the leaf can be moved manually throughout its travel.



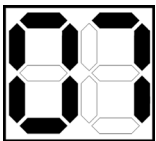
- iv. **Error 4 - Code 04 blinking:** The system has detected an over-temperature error, verify that it is not in an environment with a temperature higher than 40 °C.



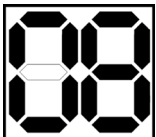
- v. **Error 5 - Code 05 blinking:** The system has detected an overvoltage error.



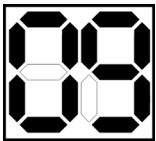
- vi. **Error 6 - Code 06 blinking:** The system has detected one error in the Bluetooth communication between the IO-Acc and the driver.



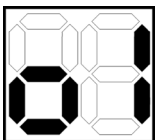
- vii. **Error 7 - Code 07 blinking:** The system has detected an error in the internal electronics clock, restart the automatic guide and if the error persists contact your dealer indicating the error code.



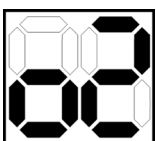
- viii. **Error 8 - Code 08 blinking:** The system has detected an error in the internal non-volatile memory of the electronics, restart the automatic guide and if the error persists contact your dealer indicating the error code.



- ix. **Error 9 - Code 09 blinking:** The system has detected an error in the internal program memory of the electronics, restart the automatic guide and if the error persists contact your dealer indicating the error code.



- x. **Error 10 - Code o1 blinking:** The system has detected an obstacle when the door was opening.



- xi. **Error 11 - Code o2 blinking:** The system has detected an obstacle when the door was closing.

8. EVODRIVE INSTALLATION CHECKLIST

End user: _____ Operator serial number: _____
 Address: _____
 Zip code: _____
 City: _____
 Country: _____

Basic operation	Complies	Doesn't comply	Not applicable	Comments
Self-adjustment				
Push & Go				
Push button				
Remote control				
Operating modes	Complies	Doesn't comply	Not applicable	Comments
Automatic				
Open				
Closed				
Exit Only / Access control				
Mechanical / Electrical elements	Complies	Doesn't comply	Not applicable	Comments
Door leaf fixing and carriers				
Door movement area				
Interference with wall or frames				
Leaf is evenly leveled				
Distance between floor and leaf is 6 - 10 mm				
Frictions				
End stops				
Door leaf status				
Locking device				
Adjustments	Complies	Doesn't comply	Not applicable	Comments
Revercing sensitivity				
Opening speed				
Hold-open time				
On power failure	Complies	Doesn't comply	Not applicable	Comments
The lock opens				
Works in manual mode				
Internal sensor	Complies	Doesn't comply	Not applicable	Comments
Movement area adjustment				
Presence area adjustmen				
Presence timing				
External sensor	Complies	Doesn't comply	Not applicable	Comments
Movement area adjustment				
Presence area adjustmen				
Presence timing				
Other activation and safety devices	Complies	Doesn't comply	Not applicable	Comments
Activation (pushbuttons, touch-less switch, access control etc.)				
Safety / Protective guards				
Hand-over	Complies	Doesn't comply	Not applicable	Comments
Cleaning				
User manual is handed over to the end user				
The end user has been informed about the EvoDrive's functions				
Maintenance manual is handed over to the owner				

Instaled by: _____
 Company: _____ Country: _____
 Address: _____ Contact: _____
 Zip code: _____ Installation technician: _____
 City: _____ Date of installation: _____

9. INSTALLATION CE DECLARATION OF CONFORMITY

(Directive 2006/42/EC - Directive on Machinery)

Installer: _____

Address: _____

Declares that: _____

Door description: _____

(Model, type)

Serial number: _____

Insatalled in (location): _____

*(Serial number of EvoDrive)**(Client, address)*

- The installation is conform to the requirements set in the Directive of Machinery **2006/42/CE**
- The installation is conform to the specifications set in the following EC directives:
 - Directive **2004/108/CE** on "Electromagnetic Compatibility (EMC)" and amendments.
 - Directive **2006/95/CE** on "Low Voltage Directive".
- The installation is conform to the technical specifications set in harmonized standard EN16005 "Powered pedestrian doors-safety in use".
- I declare that the installation has been done following all the procedures set in this manual.
- I declare that the installation has passed the final operation and safety check control of the automatic drive and all the elements associated to it.
- I declare that I have duly informed the end user on the user instructions for the correct and safe use of the product.

The following local and national norms and specifications have been applied.

Date: _____

Signature lisible de l'intallateur: _____

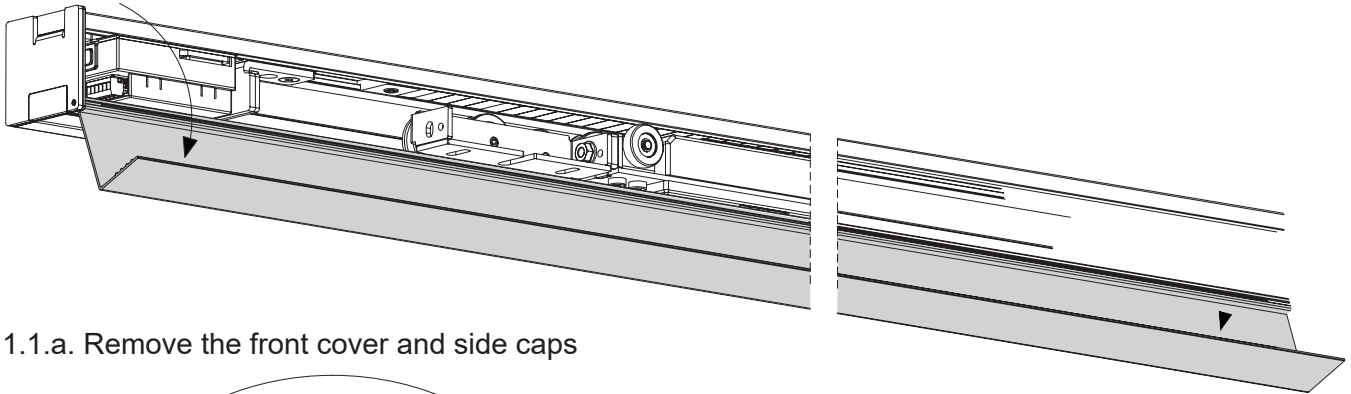
**INSTALLERS STAMP OR
SIGNATURE****LINEAR DRIVE STICKER - CE
MARK**

ANNEX 1

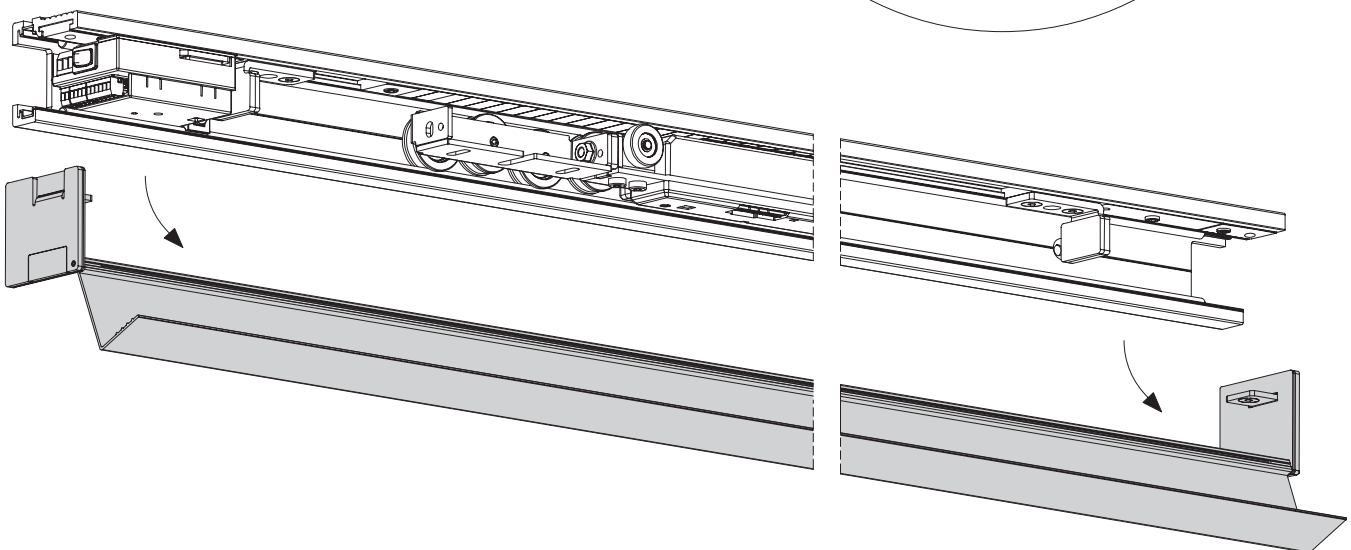
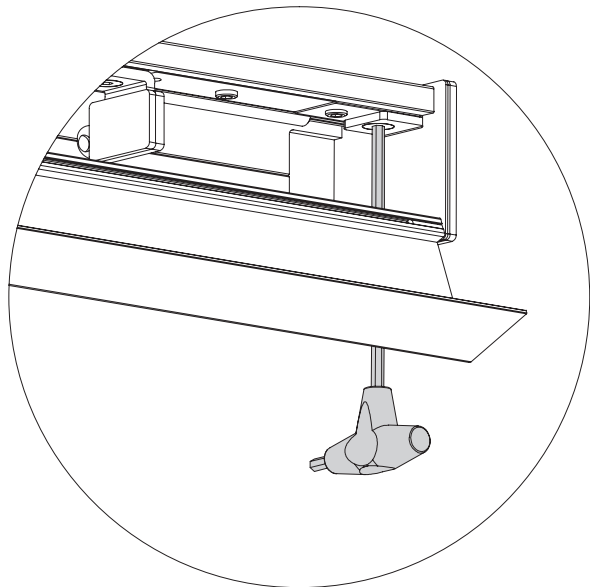
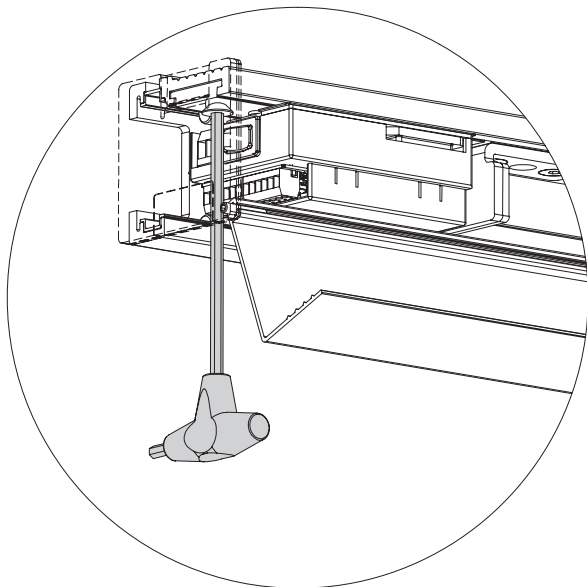
1.1. HOW TO CHANGE THE OPENING DIRECTION

1.2. HOW TO CUT DOWN THE DRIVE LENGTH

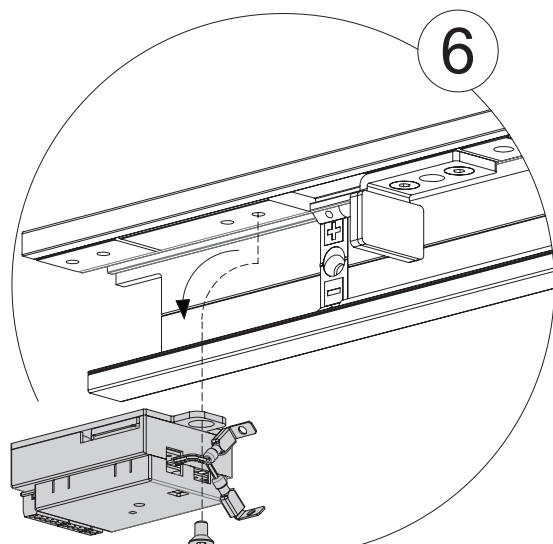
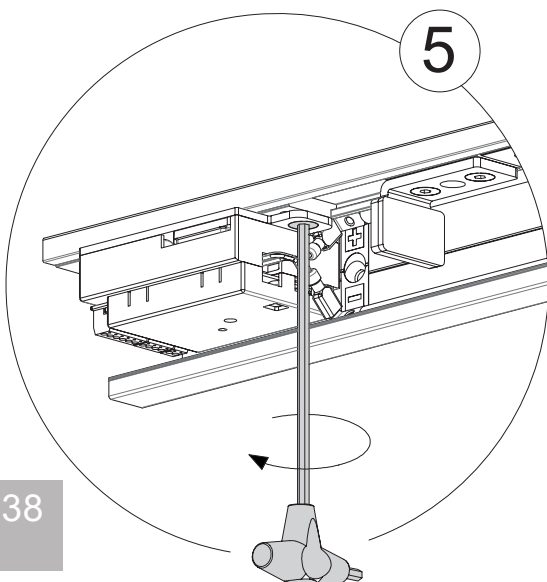
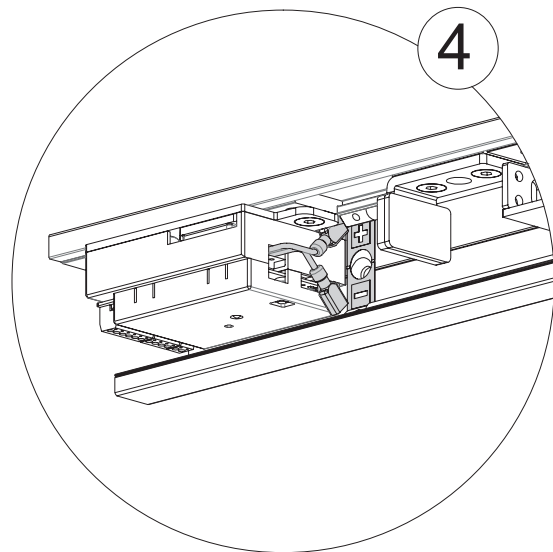
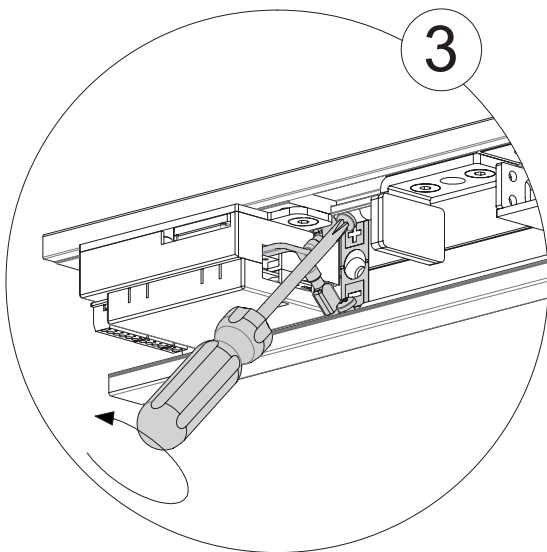
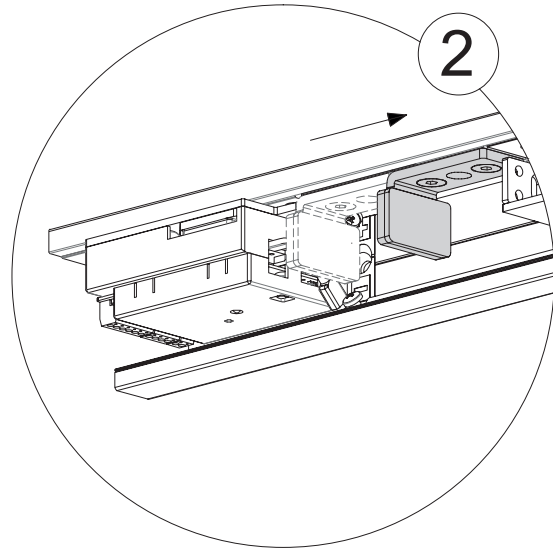
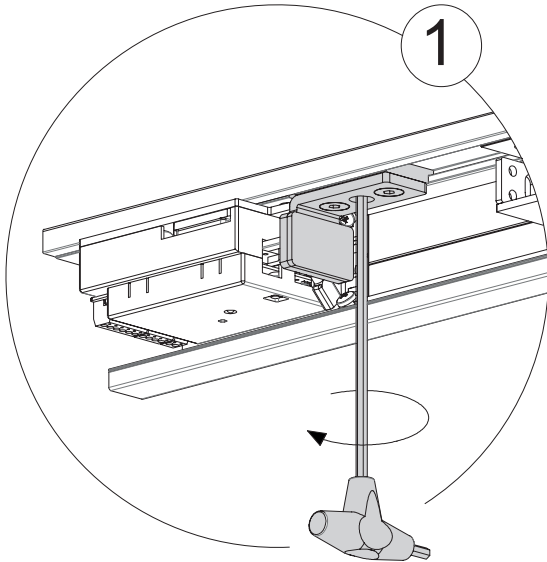
1.1. How to change the opening direction



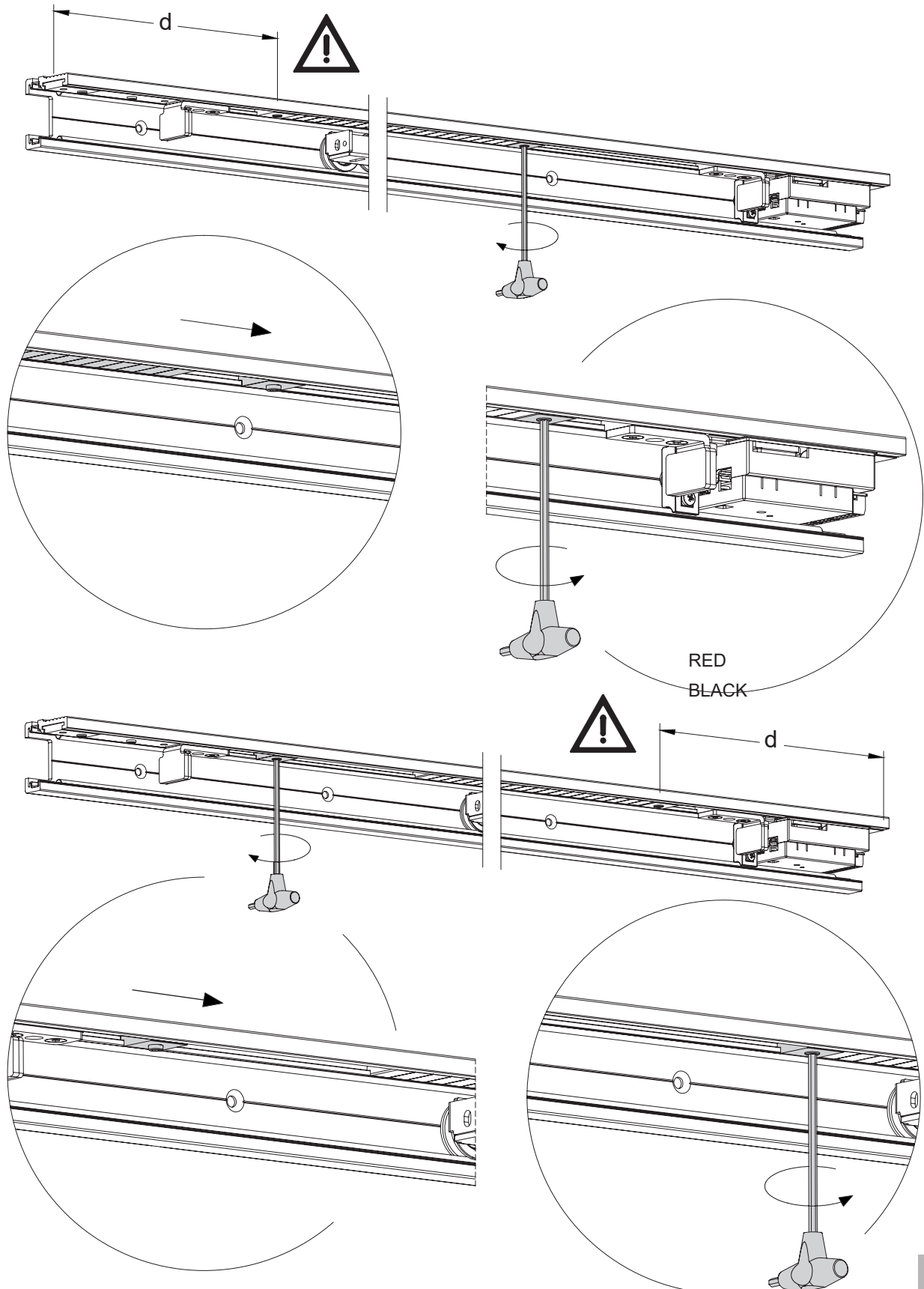
1.1.a. Remove the front cover and side caps



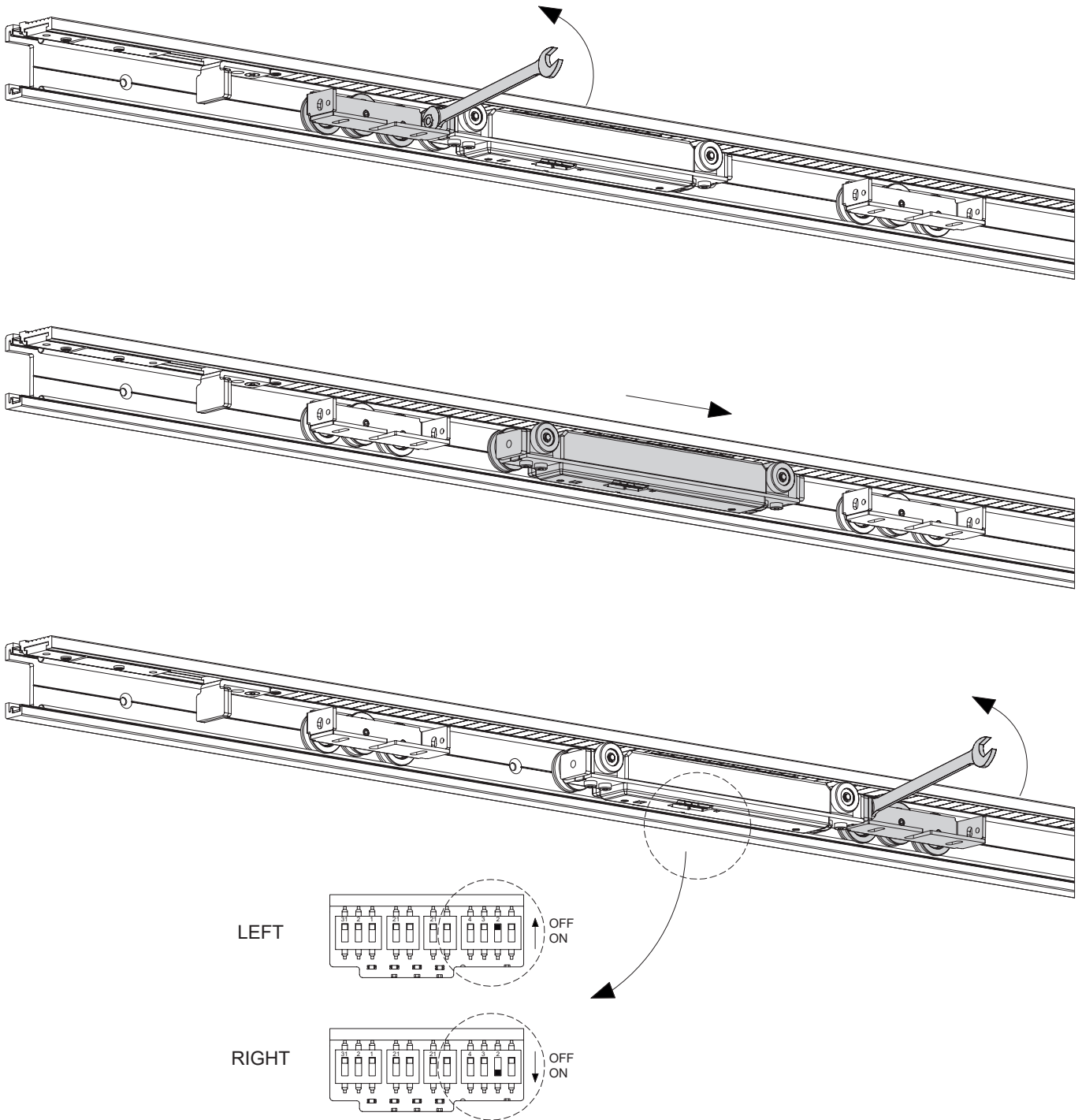
1.1.b. Remove the I/O accessories control board

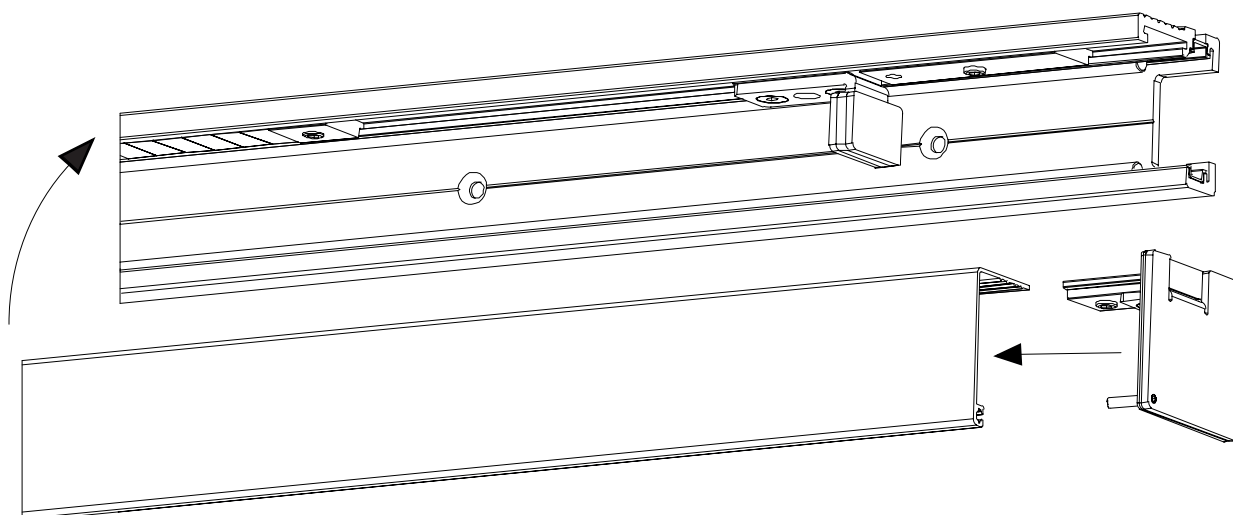
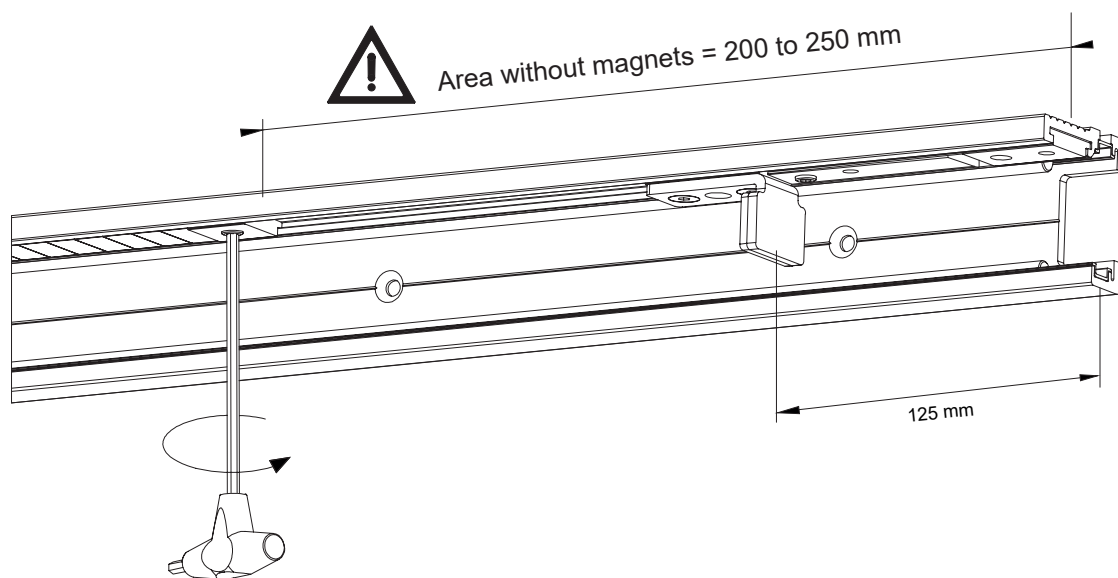
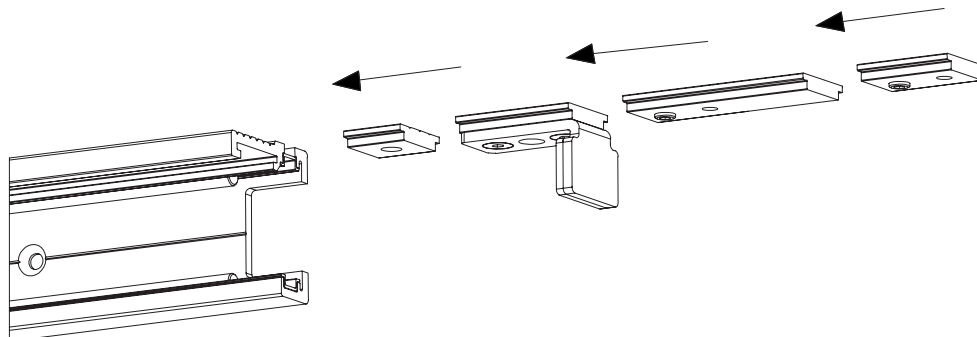


1.1.c. Move and fix the I/O accessories control board to the opposite end (always closing side)



1.1.d. Connect the motor to the opposite leaf trolley (the motor must be always attached to the front trolley, never to the back trolley)







Linear Motor Applications, S.L.
Pol. Ind. Santiga
Pasaje Arrahona 4, Nave 1
08210 Barberà del Vallès
Barcelona - España

Tel.: + 34 935 624 639
Fax: +34 935 737 308
E-mail: info@motion4.eu
www.motion4.eu



EvoDrive+

User manual

EVODRIVE+ AUTOMATIC GUIDE FOR INTERIOR SLIDING DOOR

ORIGINAL MANUAL

PART 3 - User Manual

INDEX

1. Product description

2. Instructions of use

- 2.1 Operating modes
- 2.2 Operation during power failure
- 2.3 Door cleaning
- 2.4 Restrictions of use

3. Restrictions of use

- 3.1 Identification of dangerous areas
- 3.2 Residual risks

4. Troubleshooting

5. Technical specifications

6. Automatic guide CE declaration form

This section of the manual is oriented ONLY to the end user.

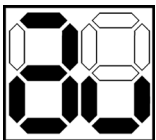
1. PRODUCT DESCRIPTION

This door is equipped with the **EvoDrive** automatic door linear drive, specifically designed for interior doors. Equipped with the latest technology in automatic doors, the leaves are moved by a linear motor that slides with the door leaf by attraction and repulsion of the permanent magnets incorporated along the header frame, making the operator a very compact unit, with a superb, smooth and silent movement. Please, read these instructions in full before using the door for first time.

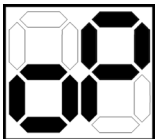
2. INSTRUCTIONS OF USE

2.1 Operating modes

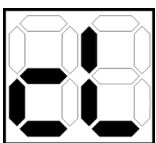
The **EvoDrive** is delivered with a wireless remote control with 4 buttons to let you set the operating mode to any of the following:



- i. **Automatic:** press button “Automatic” on the remote control to set the door to Automatic mode. In this mode the door will open, stay open during an adjustable hold-open time (set by the service technician) and close every time an activation device is triggered. The activation devices can be a push button, a touch-less switch, radar or sensor.
“Push & Go”: while the door is in automatic mode, you may manually push the door leaf or simply pull from the door handle in the direction of opening, and the leaf will open and close one cycle.



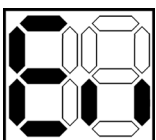
- ii. **Open:** press button “Open” on the remote control to set the door to Open mode. In this mode, the door will slide from any position to open and stay in this position until a new operating mode is selected. While the door is in Open mode, the leaf can be moved manually (very convenient for cleaning purposes) until a new operating mode is selected.



- iii. **Closed:** In this mode the leaf will move to the closed position, while the activation elements will remain inactive to avoid unwanted openings.

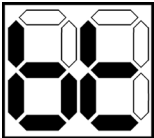
If the operator is equipped with an automatic lock (optional), the door will remain closed and locked in this position until a new mode of operation is selected.

If the door does not have an automatic latch, the leaf will close and remain closed.



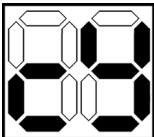
- iv. **Exit Only / Access control:** In this mode, the activation elements (push button, proximity detector, sensors and radars) on one side of the door will remain active to allow activation and opening of the door, while the devices on the opposite side will remain disabled to prevent door opening from that side.
It is recommended to use an automatic lock (optional) to use this function.
If the operator is equipped with an automatic lock (optional), the door will close and remain locked (*) every time the door moves to the closed position. It will not open until it is reactivated from any of the active devices on one side of the door, or until a new mode of operation is selected.

In this mode, an “**Access control device**” such as a card reader, keypad or finger print reader can be used to allow one full open and closing cycle, after which the door will slide back to close position and remain blocked by means of the automatic lock (if supplied).



- v. **Bath mode:** In this mode the automatic guide can be installed in a public bath, in addition you can add an indicator to indicate the status (optional) or a sensor to close automatically (optional).

If the automatic guide is equipped with an automatic lock (optional), the door can be locked when the bathroom is occupied, and this mode also has a security system in the event that someone is locked, which consists of activating the element outside for more than 30 seconds in a leaf and the door will unlock.



- vi. **Ciclic mode:** In this mode the door will continue to open and close continuously, it is recommended not to select this mode as it is a strictly internal use mode to verify the product correctly.

(*) **Warning:** in the event of power failure, for safety reasons the lock is programmed to release and unblock the door leaf so it can be moved manually to open **position**

2.2 Operation during power failure

Thanks to the particular technology of the EvoDrive+ automatic guide (absence of mechanical elements such as gears or belts), in the event of power failure the manual and smooth movement of the door is guaranteed by simply pushing or pulling the door leaf or handle with a minimum effort.

If the automatic guide is equipped with an automatic lock, this will be released in the event of power failure, and the motors will be disconnected to allow a manual movement of the door, performing just like any other manual sliding door.

2.3 Door cleaning

To clean the door, **press button “Open”** on the remote control to set the door to “Open” mode, then move the door leaf manually to any position. In this mode, the activation devices will remain disabled, and the door is safe for cleaning.

When cleaning is finished, please remember to set the door to the next desired operating mode.

2.4 Restrictions of use

In order to reduce unnecessary risks to people all automatic doors equipped with an EvoDrive automatic guide installed in an area where it is expected to be used by children, elderly, frail and disabled users, a risk assessment must be done taking into consideration the necessities of these groups of risk. Should this be the case, it is required to provide the necessary indications, help and advice on the correct use of these doors to those groups of risk.

Don't allow children play within the clear opening and the travelling area of the door leaves, and always keep the remote controls out of their reach.

Linear Motor Applications, S.L. declines all responsibility for any eventual damages to persons, animals or objects as a result of not observing the indications described in this installation, maintenance and user manual.

The manufacturer of the automatic guide declines all responsibility (civil or criminal) for any non-authorized manipulation of the product, or the replacement of parts or components of the automatic guide using of non-original or non-authorized accessories and spare parts, which may result on an increase of risk and danger to people.

It is strictly forbidden to remove or alter the stickers or signs supplied by the manufacturer in the automatic guide and its components and accessories.

It is strictly forbidden to stand within the moving area of the door, and to operate near the mechanical parts in motion.

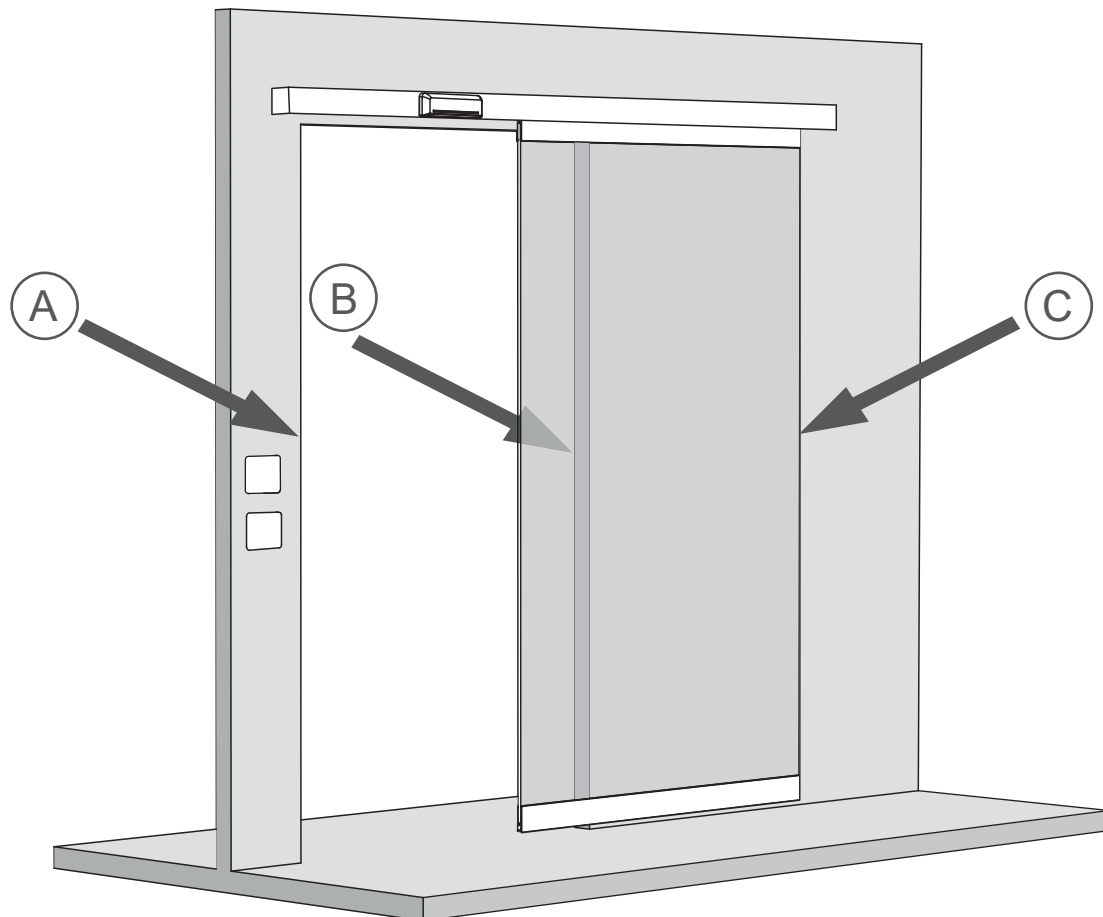
Only authorized technicians are allowed to open the cover of the door guide and manipulate the internal parts, for installation and maintenance purposes. The power switch must be turned off before doing any intervention on the door guide.

Users are strictly not allowed to open the cover and/or manipulate the internal parts of the door guide.

3. RISK ASSESSMENT

3.1 Identification of dangerous areas

The image below shows the zones of risk of the sliding door.



As indicated in the “Directive on Machinery”, it is understood by:

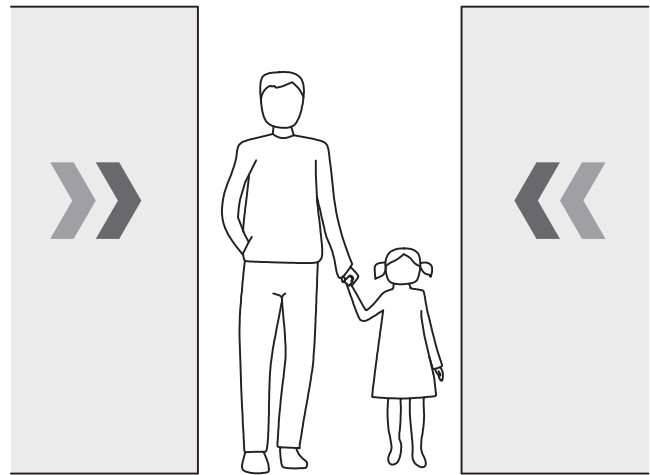
“**Danger zone**”, any area inside and/or near a machine where, the presence or exposure of a person, constitutes a risk for the safety and health of that person.

“**Exposed person**”, any person standing or moving completely or partially, within a danger zone.

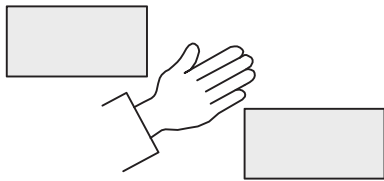
In relation with the usage of this automatic guide, the diagrams below show the typical residual risks in relation with the zones of risk indicated above.



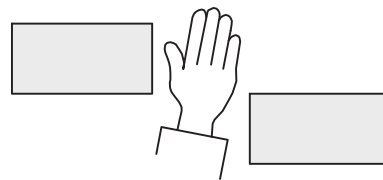
Impact



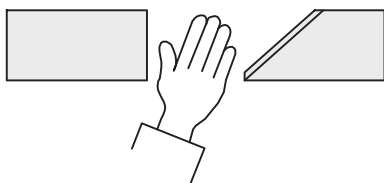
Crush



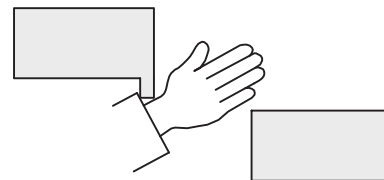
Shearing



Entrapment



Cut



Hooking

3.2 Residual risks

Although the EvoDrive automatic guide has been designed and manufactured to ensure a safe operation, some residual risks may still persist even after adopting complementary measures of protection.

Automatic sliding doors may have some risks of crush, impact, entrapments and other potential hazards. Depending on the structural conditions on site, the door version and the safety equipment, these risks may not disappear completely.

In accordance with the European norm **EN16361**, the travelling area where the leaf of an automatic door is sliding should have some type of protection, to reduce the risk of impact to persons as much as possible. To limit these risks of the EvoDrive guide, the following safety measures should be considered and implemented:

- The possibility of using **safety sensors** to detect the movement and presence of people and/or objects within the travelling area.
- **“Low energy” mode**: subject to the width and mass of the door leaf, its speed is reduced and adjusted to a predefined value during the closing cycle, to ensure that the kinetic energy of the door leaf and the impact force do not exceed those admitted in the said norm.
- To ensure a high level of safety, mainly in those installation sites where the presence of groups of risks recommends the adoption of additional safety measures, the EvoDrive automatic guide allows the **simultaneous** implementation of the two above mentioned safety measures.

A qualified technician should verify the correct installation, commissioning, adjustment and operation of the safety sensors and/or the “low energy” mode, always in accordance, but not limited to the above mentioned norm.

4. TROUBLESHOOTING

If the door remains still in open or closed position, check the following recommendations before calling the after sales service:

- The power must be connected: check if the ON/OFF switch is ON
- The operating mode in the remote control is in the correct position. Check if the door moves in Automatic mode.
- The door is not blocked by any object or dirt under the door leaf or within the doorway. In case there is an obstruction within the door travelling area, remove that obstruction and change the operating mode to Open and Automatic to resume normal operation.

If these points are in order and the door is still not moving when activated, being the door in Automatic mode, please contact a service technician.

5. TECHNICAL SPECIFICATIONS

Mechanical features

Main features	Clear opening width lateral leaf (mm): 750 - 1400 Clear opening width double leaf (mm): 1500 - 2800 Operator length lateral leaf (mm): 1650 - 2850 Operator length double leaf (mm): 3100 - 5700 Opening speed: adjustable between 200 and 800 mm/s Closing speed: 200 mm/s EN16005 "Low Energy" Guide weight: 8-10 kg
Guide dimensions	60 mm height x 70 mm width
Leaf weight	Min. 5 kg - Max. 80 kg
Otros datos	Operating noise: < 50 dB Use - continuous Number of cycles: > 1.000.000
Adjustable parameters	Opening direction: right or left Biastable Mode "Low energy" or normal mode Opening speed Hold open time

Electrical features

Power supply	80-264 VAC/390 VDC & 47-63 Hz (Universal) Maximum Operatin Power: 180 W Protection fuse: 2 A Cable section: 3x1,5 mm ² . Length 2 m
Power consumption	In motion: 60 W Max (0,2 s): 180 W In stand-by < 4 W
Motor	Type: Linear LSMPM (Linear Synchronous Motor with Permanent Magnets) No. of poles: 4 Pitch pole: 50 mm No. of phases: 3 Voltage: 24 V DC Permanent neodymium magnets Force: < 100 N
Control	Motion control by means of a driver with field oriented control (FOC) Self-adjustment of clear opening
Accessories	Voltage: 24 V CC Current: 1 A
Operating temperature	Min: 5 °C - Max: 40 °C

6. AUTOMATIC GUIDE CE DECLARATION FORM**DECLARATION OF CONFORMITY****Directive 2006/42/CE -Directive on Machinery-**

We hereby declare, under our sole responsibility, that the product and model described here in is conform to the essential health and safety requirements as described in the following directives issued by the European Council for the harmonisation of the legal norms in all countries members of the European Union:

Product:	Automatic guide for internal sliding door
Model:	EvoDrive+
Serial number:	All starting with 610
Manufacturer:	Linear Motor Applications, S.L. Pol. Ind. Santiga Pasaje Arrahona nº4, Nave 1 08210 Barberà del Vallés, Barcelona Spain
Directives and standards:	Directive 2006/42/CE on machinery · EN ISO 12100: 2012 · EN ISO 13857: 2008 Directive 2004/108/CE - "Electromagnetic Compatibility (EMC)" · EN 61000-3-2:2006+A1:2009+A2:2009 · EN 61000-3-3:2008 · EN 61000-6-1:2007 · EN 61000-6-3:2007+A1:2011 Directive 2004/95/CE - "Safety of low voltage electrical appliances" · UNE EN 60335-1:2012+A11:2014

The CE mark is attached to each product, indicating its compliance with the above mentioned directives and norms. This declaration of conformity applies only when the installation and commissioning of the machine described herein has been made according to the manufacturer's installation, user and maintenance manual.

Barberà del Vallés, Barcelona, on the 15th of July of 2015

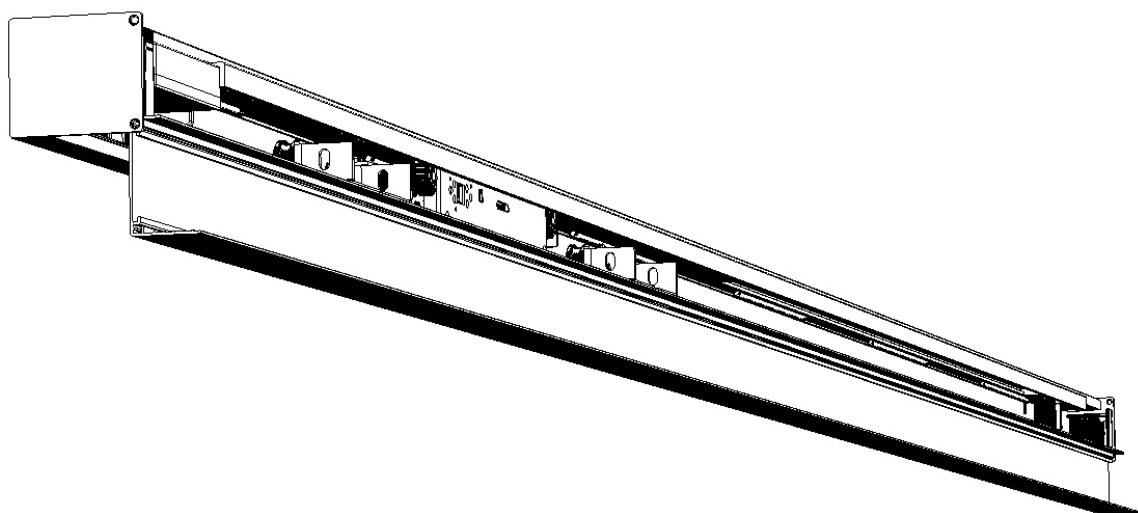
Mr. Oriol Guilera
General Manager - LMA

Linear Motor Applications, S.L.
Pol. Ind. Santiga
Pasaje Arrahona nº 4, Nave 1
08210 Barberà del Vallés, Barcelona
Spain



Linear Motor Applications, S.L.
Pol. Ind. Santiga
Pasaje Arrahona 4, Nave 1
08210 Barberà del Vallès
Barcelona - España

Tel.: + 34 935 624 639
Fax: +34 935 737 308
E-mail: info@motion4.eu
www.motion4.eu



EvoDrive+

Maintenance manual

EVODRIVE AUTOMATIC GUIDE FOR INTERIOR SLIDING DOOR

ORIGINAL MANUAL

PART 4 - Maintenance Manual

INDEX

- 1. Introduction**
- 2. EvoDrive+ component overview**
- 3. Technical specifications**
- 4. Basic Troubleshooting**
- 5. Detailed Troubleshooting**
- 6. Maintenance interval**
- 7. Maintenance record sheet**

1. INTRODUCTION

The maintenance of the EvoDrive automatic guide must be done only and exclusively by qualified and skilled technicians, bearing the necessary technical and professional accreditations, as required by the laws in force in the country of installation, and using only and exclusively the original spare parts and components supplied by Linear Motor Applications, S.L., or otherwise those expressly approved by them.

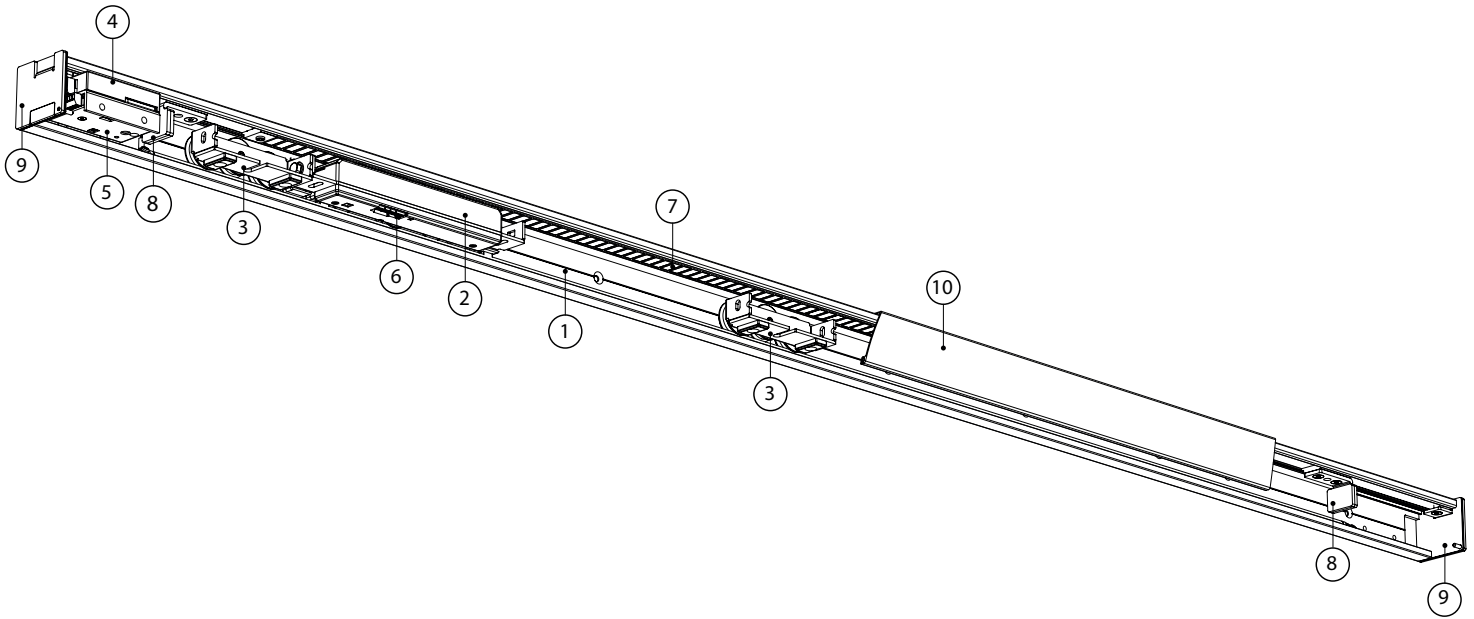
When performing ordinary or extraordinary maintenance tasks that require to stop the operation of the EvoDrive automatic guide, it is compulsory to interrupt or shut down the power supply (230V AC) and proceed with diligence.

The EvoDrive automatic guide does not require any particular maintenance interventions, except cleaning the top and bottom track rails, a general door cleaning and its travelling area, and a revision and adjustment of the mechanical elements at least once a year.

To clean the top and bottom track rails and the wheels, please use only a dry cloth paying special attention that it doesn't leave any waste along the rails. Do not use any liquids such as water or oils, as liquids may interrupt the electrical power supply to the motor.

In accordance with the European Norm EN16005, it is also required to yearly perform a verification of the performance of the activation and safety devices.

2. EVODRIVE COMPONENT OVERVIEW



- 1 Main profile
- 2 Linear motor type LSMPM
- 3 Leaf trolleys
- 4 Power supply circuit
- 5 I/O accessories control board
- 6 Motor driver
- 7 Permanent neodymium magnets
- 8 End stops
- 9 Side covers
- 10 Aluminium cover with brush seal

3. TECHNICAL SPECIFICATIONS

Mechanical features

Main features	Clear opening width lateral leaf (mm): 750 - 1400 Clear opening width double leaf (mm): 1500 - 2800 Operator length lateral leaf (mm): 1650 - 2850 Operator length double leaf (mm): 3100 - 5700 Opening speed: adjustable between 200 and 800 mm/s Closing speed: 200 mm/s EN16005 "Low Energy" Guide weight: 8-10 kg
Guide dimensions	60 mm height x 70 mm width
Leaf weight	Min. 5 kg - Max. 80 kg
Otros datos	Operating noise: < 50 dB Use - continuous Number of cycles: > 1.000.000
Adjustable parameters	Opening direction: right or left Biastable Mode "Low energy" or normal mode Opening speed Hold open time

Electrical features

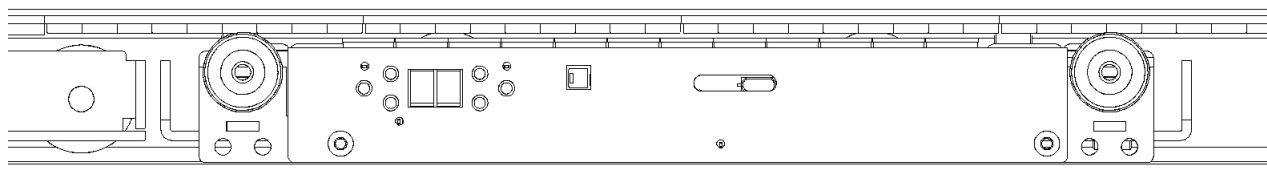
Power supply	80-264 VAC/390 VDC & 47-63 Hz (Universal) Maximum Operatin Power: 180 W Protection fuse: 2 A Cable section: 3x1,5 mm ² . Length 2 m
Power consumption	In motion: 60 W Max (0,2 s): 180 W In stand-by < 4 W
Motor	Type: Linear LSMPM (Linear Synchronous Motor with Permanent Magnets) No. of poles: 4 Pitch pole: 50 mm No. of phases: 3 Voltage: 24 V DC Permanent neodymium magnets Force: < 100 N
Control	Motion control by means of a driver with field oriented control (FOC) Self-adjustment of clear opening
Accessories	Voltage: 24 V CC Current: 1 A
Operating temperature	Min: 5 °C - Max: 40 °C

4. BASIC TROUBLESHOOTING

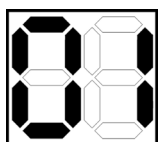
Situation/Problem	Solution
Obstruction detection during the closing cycle	<ul style="list-style-type: none"> - Check and remove obstructions in the opening travelling area. - Check that leaf can be moved manually and smoothly. - Verify that the final adjustment has been made, see p. 19 of EvoDrive+ installation manual. - In the case of having sensors installed, verify that the sensors are adjusted so that the door is not detected by them.
Obstruction detection during the opening cycle	<ul style="list-style-type: none"> - Check and remove obstructions in the opening travelling area. - Check that leaf can be moved manually and smoothly. - Verify that the final adjustment has been made, see p. 19 of EvoDrive+ installation manual.
Leaf is moving too slow	<ul style="list-style-type: none"> - Check if the operator is in Low Energy. - Check that no item is generating excessively friction. - Verify that the final adjustment has been made, see p. 19 of EvoDrive+ installation manual.
Leaf does not move	<ul style="list-style-type: none"> - Verify that I/O Accessories is switched ON. - Verify that the operator is not in open mode. - Verify that the sensors / accessories have been connected correctly. - Verify that the final adjustment has been made, see p. 19 of EvoDrive+ installation manual.
Leaf hits the users	<ul style="list-style-type: none"> - Verify that all the sensor has been correctly adjusted.
Self-adjustment never ends	<ul style="list-style-type: none"> - Check that the weight of the leaf is below 80 kg (max. admitted). - Verify that the motor is fully covered with magnets in all of its length, from closing to opening. - Verify that the final adjustment has been made, see p. 19 of EvoDrive+ installation manual.
Door vibrates at the end of the opening movement	<ul style="list-style-type: none"> - Adjust the parameter 11 and 12 of the display decreasing their value.
Door knocks at the end of the opening movement	<ul style="list-style-type: none"> - Adjust the parameter 11 and 12 of the display increasing their value.
Door vibrates at the end of the closing movement	<ul style="list-style-type: none"> - Adjust the parameter 08 and 09 of the display decreasing their value.
Door knocks at the end of the closing movement	<ul style="list-style-type: none"> - Adjust the parameter 08 and 09 of the display increasing their value.

5. DETAILED TROUBLESHOOTING

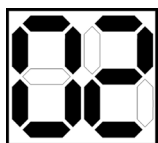
Motor signaling errors



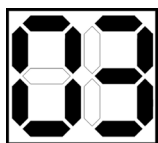
All the errors codes are showed blinking in the motor display



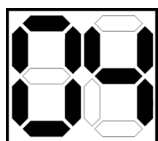
- i. **Error 1 - Code 01 blinking:** The system has detected an overcurrent, restart the automatic guide and if the error persists contact your dealer indicating the error code.



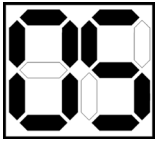
- ii. **Error 2 - Code 02 blinking:** The system has detected an encoder error, verify that the motor has magnets during the entire journey, if not, restart the automatic guide and if the error persists contact your dealer indicating the error code.



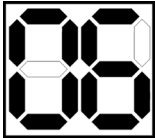
- iii. **Error 3 - Code 03 blinking:** The system has detected a weight error, verify that: the leaf does not exceed **80 kg**; the friction of the floor guide is not excessive and the leaf can be moved manually throughout its travel.



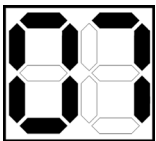
- iv. **Error 4 - Code 04 blinking:** The system has detected an over-temperature error, verify that it is not in an environment with a temperature higher than 40 °C.



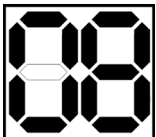
- v. **Error 5 - Code 05 blinking:** The system has detected an overvoltage error.



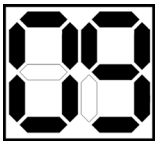
- vi. **Error 6 - Code 06 blinking:** The system has detected one error in the Bluetooth communication between the IO-Acc and the driver.



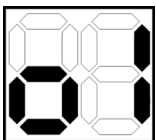
- vii. **Error 7 - Code 07 blinking:** The system has detected an error in the internal electronics clock, restart the automatic guide and if the error persists contact your dealer indicating the error code.



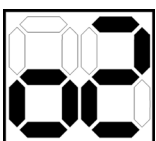
- viii. **Error 8 - Code 08 blinking:** The system has detected an error in the internal non-volatile memory of the electronics, restart the automatic guide and if the error persists contact your dealer indicating the error code.



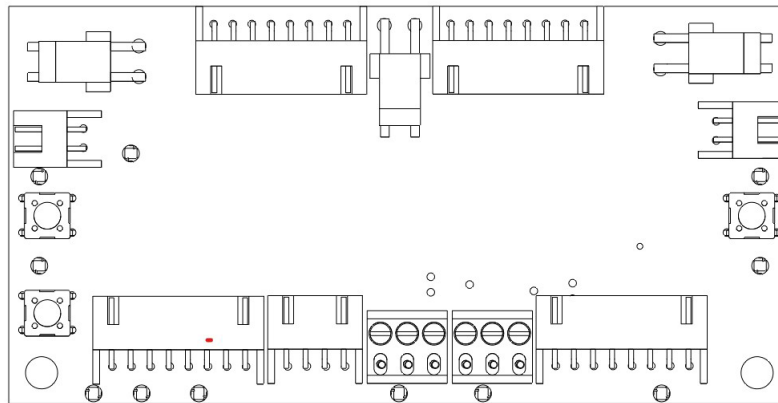
- ix. **Error 9 - Code 09 blinking:** The system has detected an error in the internal program memory of the electronics, restart the automatic guide and if the error persists contact your dealer indicating the error code.



- x. **Error 10 - Code o1 blinking:** The system has detected an obstacle when the door was opening.



- xi. **Error 11 - Code o2 blinking:** The system has detected an obstacle when the door was closing.



I/O ACCESORIES ELECTRONICS

Sen. Exterior

Sen. Interior

But. Exterior

But. Interior

Sen. Exterior

Sen. Interior

But. Exterior

But. Interior

Sen. Exterior

Sen. Interior

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But. Interior

I/O ACCESORIES ELECTRONICS		
LED's State	Situation / Problem	Solution
LEDs OFF	When activating interior sensor, Ext. Sensor or Safety sensor no orange led turn on. The door does not work.	- Check the wiring connections of all sensors.
ORANGE LED COMPLETELY ON	The interior sensor led is still on when there is no detection of movement or presence.	- Check the wiring connection of all sensors. - Check all the settings and the sensivity of the sensor. - Disconnect/Connect the sensor.
ORANGE LED COMPLETELY ON	The exterior sensor led is still on when there is no detection of movement or presence.	- Check the wiring connection of all sensors. - Check all the settings and the sensivity of the sensor. - Disconnect/Connect the sensor.
ORANGE LED COMPLETELY ON	The exterior push-button led is permanently on. The push-button is permanently blocked in push position.	- Disconnect the push button.
ORANGE LED COMPLETELY ON	The interior push-button led is permanently on. The push-button is permanently blocked in push position.	- Disconnect the push button.

6. MAINTENANCE INTERVALS

In the following chart we show the tasks and intervals of the interventions, that are required to periodically execute on the EvoDrive+ automatic guide, which depend on the frequency or the number of cycles:

Task	Frecuency	Number of cycles
Cleaning of the top and bottom track rails	Yearly	50,000
Cleaning the sliding leaf travelling area	Yearly	50,000
Adjustment of the sliding leaf suspension	Yearly	50,000
Adjustment of all screws in general	Yearly	50,000
Adjustment of the automatic lock (if supplied)	Yearly	50,000
Adjustment of the gap between motor and magnets	Yearly	50,000
Test of the safety sensors	Yearly	50,000
Test of the activation devices (radars, sensors, touch-less switch, push buttons, etc.)	Yearly	50,000
Test of the remote control battery	Every 2 years	-
Inspection of the leaf trolleys	Every 5 years	250,000
Inspection of the end stops felts	Every 5 years	250,000
Inspection of the sliding leaf guide	Every 5 years	250,000
Inspection of the motor brushes	Every 5 years	250,000

7. MAINTENANCE RECORD SHEET

Date: / /	
Made by:	(name of the service technician)
Comples: YES <input type="checkbox"/> NO <input type="checkbox"/>	
Remarks:	
.....	
Signed by the service Technician:	Signed by the client:

Date: / /	
Made by:	(name of the service technician)
Comples: YES <input type="checkbox"/> NO <input type="checkbox"/>	
Remarks:	
.....	
Signed by the service Technician:	Signed by the client:

Date: / /	
Made by:	(name of the service technician)
Comples: YES <input type="checkbox"/> NO <input type="checkbox"/>	
Remarks:	
.....	
Signed by the service Technician:	Signed by the client:

Date: / /	
Made by:	(name of the service technician)
Comples: YES <input type="checkbox"/> NO <input type="checkbox"/>	
Remarks:	
.....	
Signed by the service Technician:	Signed by the client:

Date: / /
Made by: (name of the service technician)
Completes: YES NO
Remarks:
.....
.....

Signed by the service
Technician:

Signed by the
client:

Date: / /
Made by: (name of the service technician)
Completes: YES NO
Remarks:
.....
.....

Signed by the service
Technician:

Signed by the
client:

Date: / /
Made by: (name of the service technician)
Completes: YES NO
Remarks:
.....
.....

Signed by the service
Technician:

Signed by the
client:

Date: / /
Made by: (name of the service technician)
Completes: YES NO
Remarks:
.....
.....

Signed by the service
Technician:

Signed by the
client:



Linear Motor Applications, S.L.
Pol. Ind. Santiga
Pasaje Arrahona 4, Nave 1
08210 Barberà del Vallès
Barcelona - España

Tel.: + 34 935 624 639
Fax: +34 935 737 308
E-mail: info@motion4.eu
www.motion4.eu