



Tucker

AUTO-MATION

—DRIVEN—

EM

INC
ENTRA-MATIC

A TUCKER AUTO-MATION HOLDINGS COMPANY

ELEKTRA SLIDE

AUTOMATIC INTERIOR SLIDING DOOR



IMPORTANT

READ THIS SECTION BEFORE PROCEEDING WITH INSTALLATION

INSTALLATION PRECAUTIONS

Tucker Auto-Mation, LLC (hereafter referred to as “Tucker”) recommends that all of its automated pedestrian door products be installed by a trained automatic door technician and that the resulting performance of the product be in full compliance with the most current version of the American National Standards Institute document A156.10 or A156.19 (whichever is applicable) as well as any applicable building codes and/or fire codes. Tucker further recommends that a full inspection of the operating system be performed in accordance with the guidelines of the American Association of Automatic Door manufacturers (AAADM). **This inspection must be performed by a certified AAADM trained inspector.** Tucker recommends this documented inspection be performed upon completion of the installation as well as, following the completion of every service call thereafter. If service is not performed within one year of the previous service action, a routine AAADM inspection should be performed and documented. Under no circumstance should the product operate for more than one year without an AAADM inspection. Tucker does NOT recommend installation or service, on any of their automated pedestrian door products, by any individual who is not certified as an AAADM inspector. Following the installation or service of any Tucker automated pedestrian door product, if it is deemed unsafe, or is operating in an unsatisfactory manner according to national performance standards or recommended performance guidelines as defined by Tucker, repairs should be made immediately. If an immediate repair cannot be made, the product should be disabled, and appropriate measures should be taken to secure the door in a safe position or to enable the door to safely be used manually. During this situation, every effort should be made to notify the owner (or person responsible) of the condition and to advise on corrective actions that must be taken to return the product to safe operation.

PART 1 - INDEX

1. Introduction
2. Overview
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1. INTRODUCTION

We thank for your confidence in Linear Motor Applications SL and for acquiring this innovative ELEKTRA SLIDE automatic operator for interior sliding doors. At Linear 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 installation guide 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.

2. OVERVIEW

This manual is applicable to the Installation, use and maintenance of the **ELEKTRA SLIDE** automatic operator for single 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 **ELEKTRA SLIDE** 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 **ELEKTRA SLIDE** 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 **ELEKTRA SLIDE** 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 **ELEKTRA SLIDE** operator has been designed and developed:

- Only and exclusively for the automation of single 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

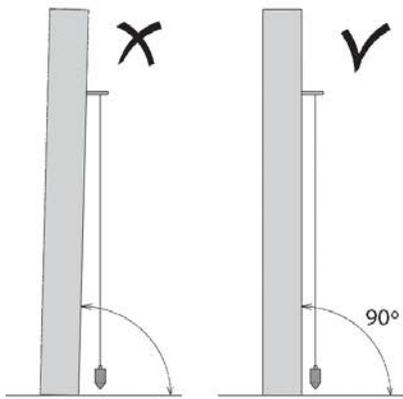
All **ELEKTRA SLIDE** automatic operators are delivered with an identification sticker. For a proper identification, of the product in case of claims or inquiries, the data displayed on the sticker must be communicated to the concerned person.

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.

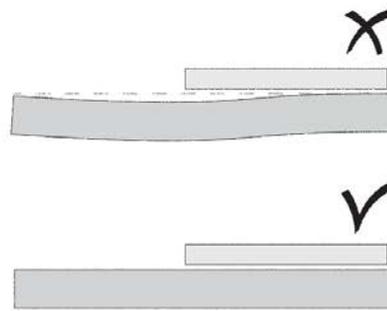
To prevent possible condensation of water inside the packaging during the storage period, we recommend to keep the product inside its original packaging, to not expose it outdoors, to keep it away of sunlight, and to always store it in a dry environment.

2.4 INSTALLATION REQUIREMENTS

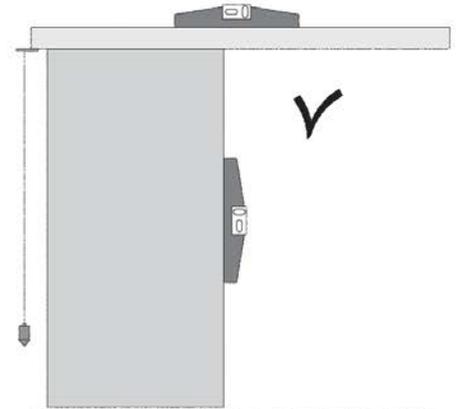
- The power cable that connects with the cable supplied must have a minimum section of 2,5 mm²
- For a good performance, the operator must be levelled in all 3 axes, and be firmly fixed to a solid vertical surface.



Wall side view



Wall top view

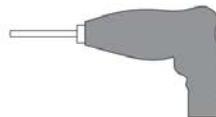


Door well levelled

2.5 LIST OF TOOLS REQUIRED FOR INSTALLATION



Level



Drill



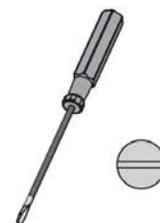
Wrench (n° 10 and 13)



Allen key (n° 4 and 5)



Screw driver



Electrical screw driver

2.6 WARRANTY

The manufacturer's warranty for the **ELEKTRA** SLIDE 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.

2.6 DISPOSAL & 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 aluminum, plastic, steel, electrical cables, etc... are solid waste materials, which need to be carefully classified for a proper recycling in authorized recycling centers.
- 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 - INDEX

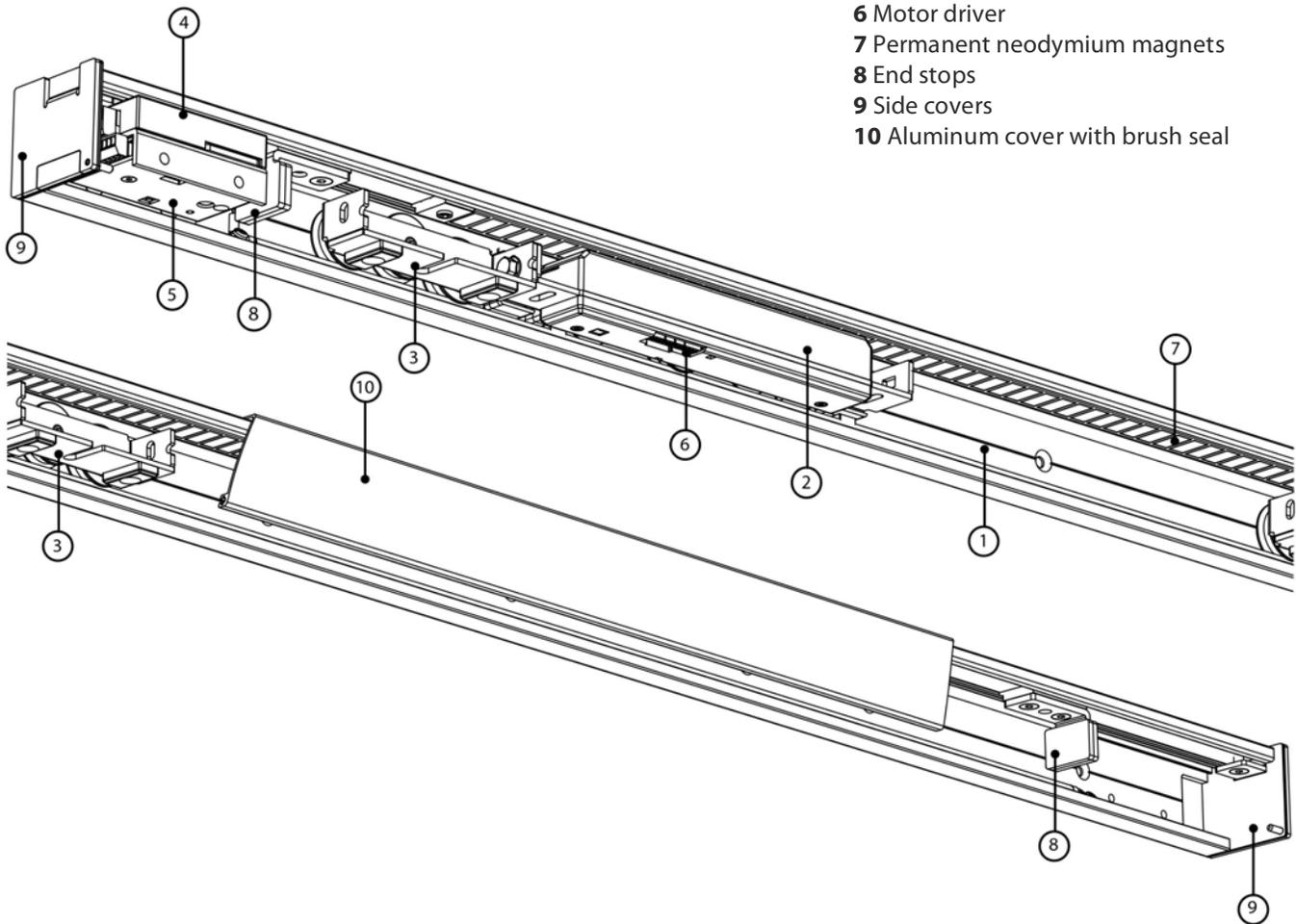
1. **ELEKTRA SLIDE** component overview
2. Verify the opening direction and the operator length
3. Mounting the operator
 - 3.1. Measure the opening width and height
 - 3.2. Preparations before mounting
 - 3.3. Types of leaf adapters
 - 3.4. Location of the activators and power supply connections
4. Mounting the door leaves
 - 4.1. Mount the door leaf adapter
 - 4.2. Mount the adapter rail nuts
 - 4.3. Position the leaf trolleys
 - 4.4. Mount the door leaf to the drive
 - 4.5. Adjust the door leaf
 - 4.6. Final adjustment
5. Connection of the accessories
 - 5.1. 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
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 - 6.5. Photocells
 - 6.6. Remote control (operating mode selector)
 - 6.7. Configuration of the DIP Switches
 - 6.8. Hold open time
 - 6.9. Self-adjustment
7. **ELEKTRA SLIDE** installation check-list
8. Installation CE declaration form

ANNEX 1

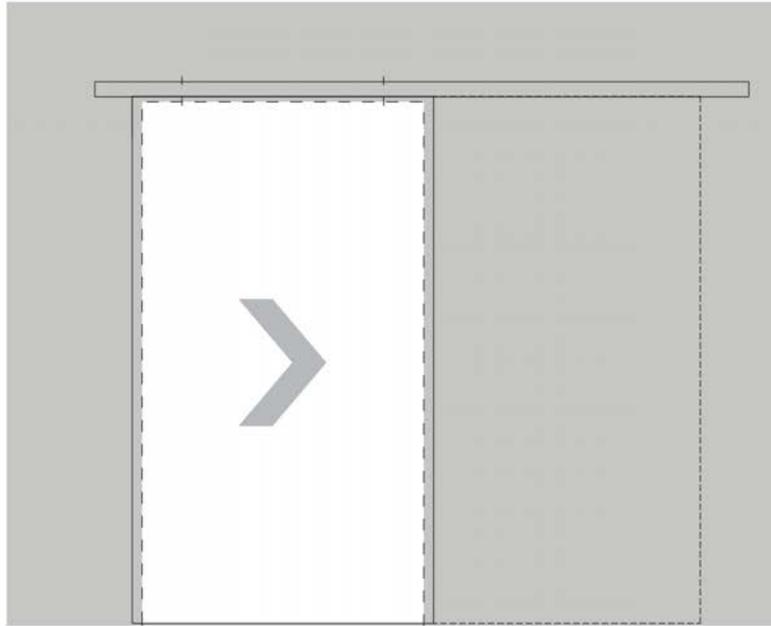
- 1.1. How to change the opening direction
- 1.2. How to cut down the drive length

1. ELEKTRA SLIDE COMPONENT OVERVIEW

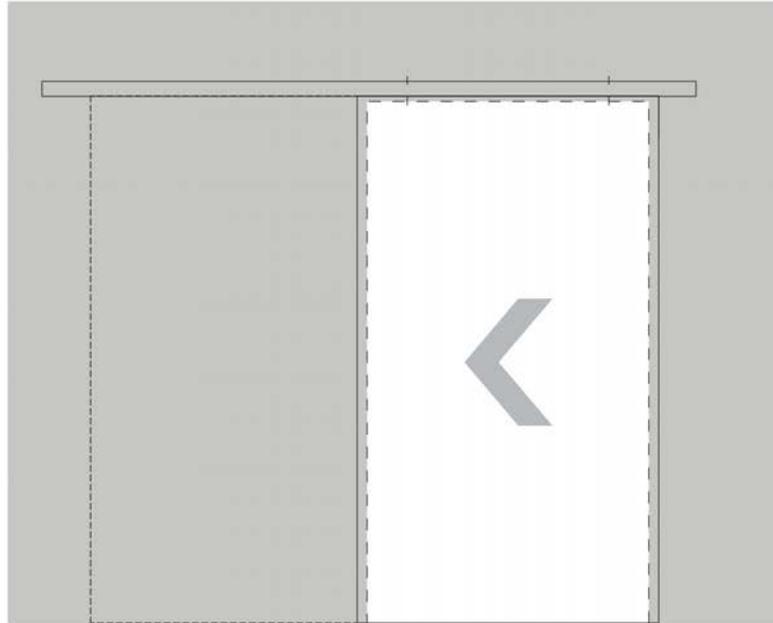
- 1 Main profile
- 2 Linear motor type LSMPM
- 3 Leaf trolleys
- 4 Power supply circuit
- 5 I/O accessories control board
- 6 Motor driver
- 7 Permanent neodymium magnets
- 8 End stops
- 9 Side covers
- 10 Aluminum cover with brush seal



2. VERIFY THE OPENING DIRECTION & THE OPERATOR LENGTH



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



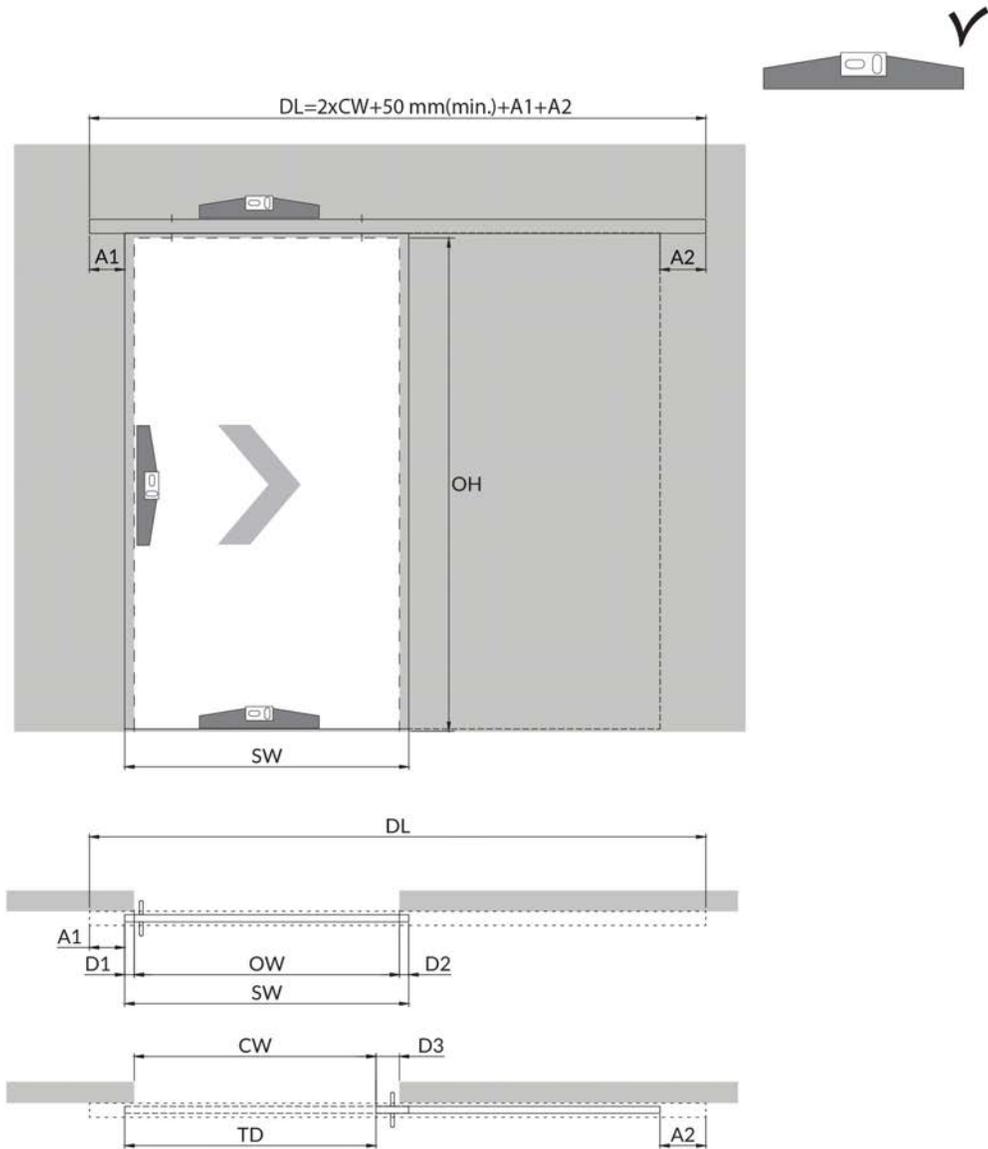
*Left side opening
(from the side of the operator)*



If you need to change the opening direction, refer to ANNEX 1.1
 If you need to reduce the length of the operator, refer to ANNEX 1.2

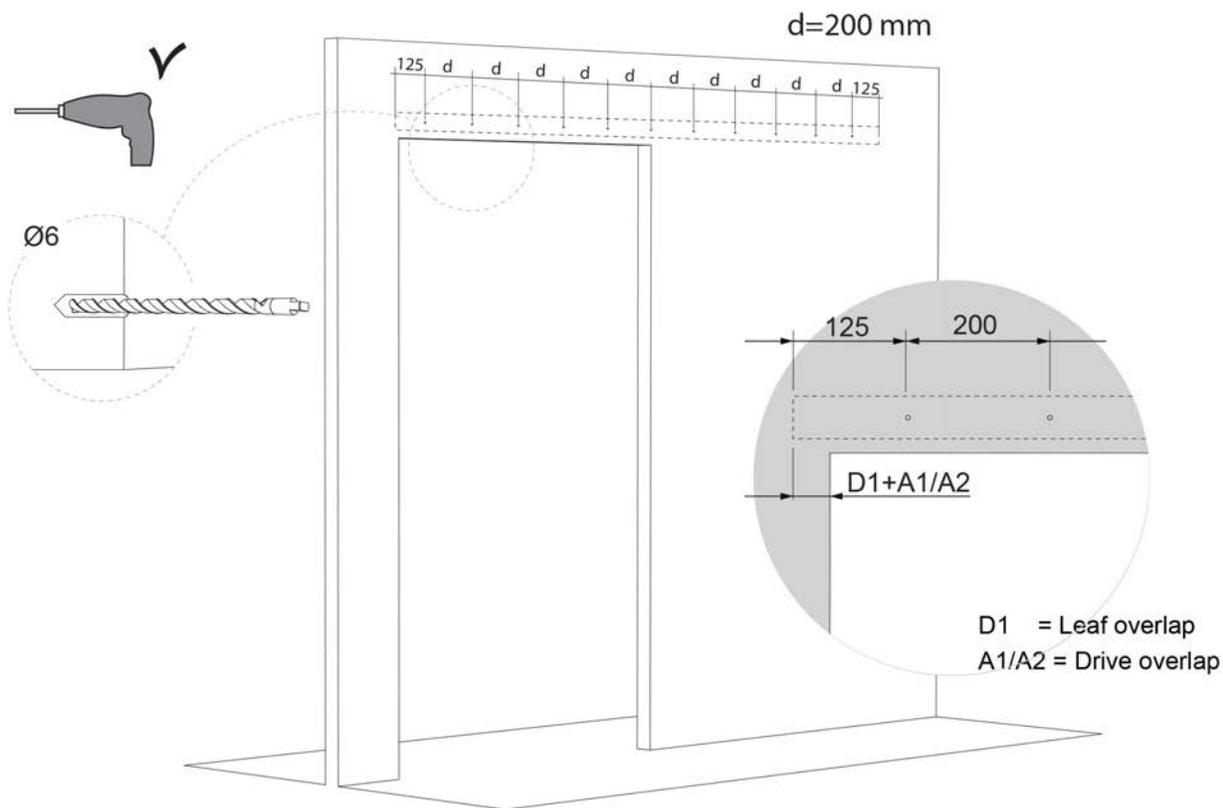
3. MOUNTING THE OPERATOR

3.1. Measure the opening width and height

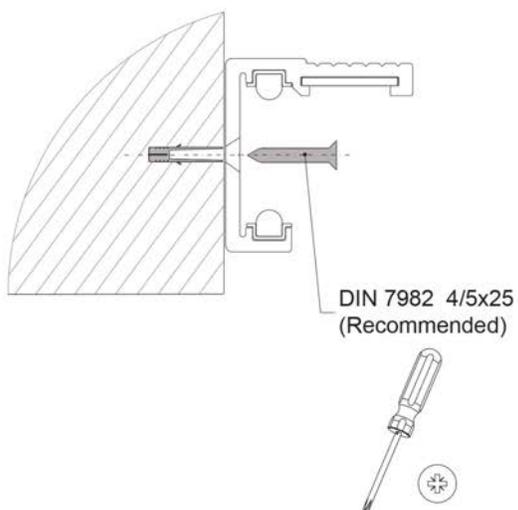


Legend:
 DL = Drive length
 OH = Opening height
 OW = Opening width
 CW = Clear width
 SW = Width of Sliding leaf
 TD = Travelling distance
 D1/D2 = Overlap
 D3 = Finger protection
 Ax = Header extension

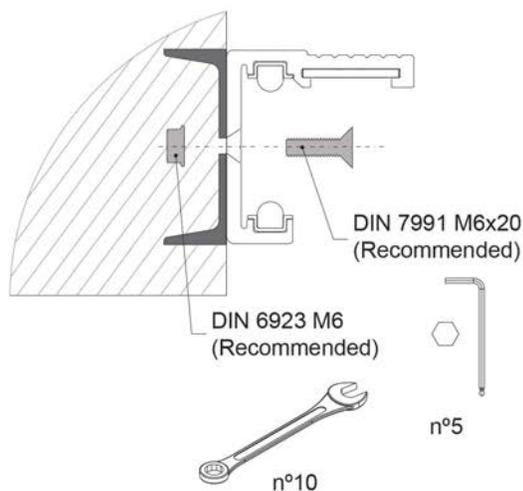
3.2. Preparations before mounting



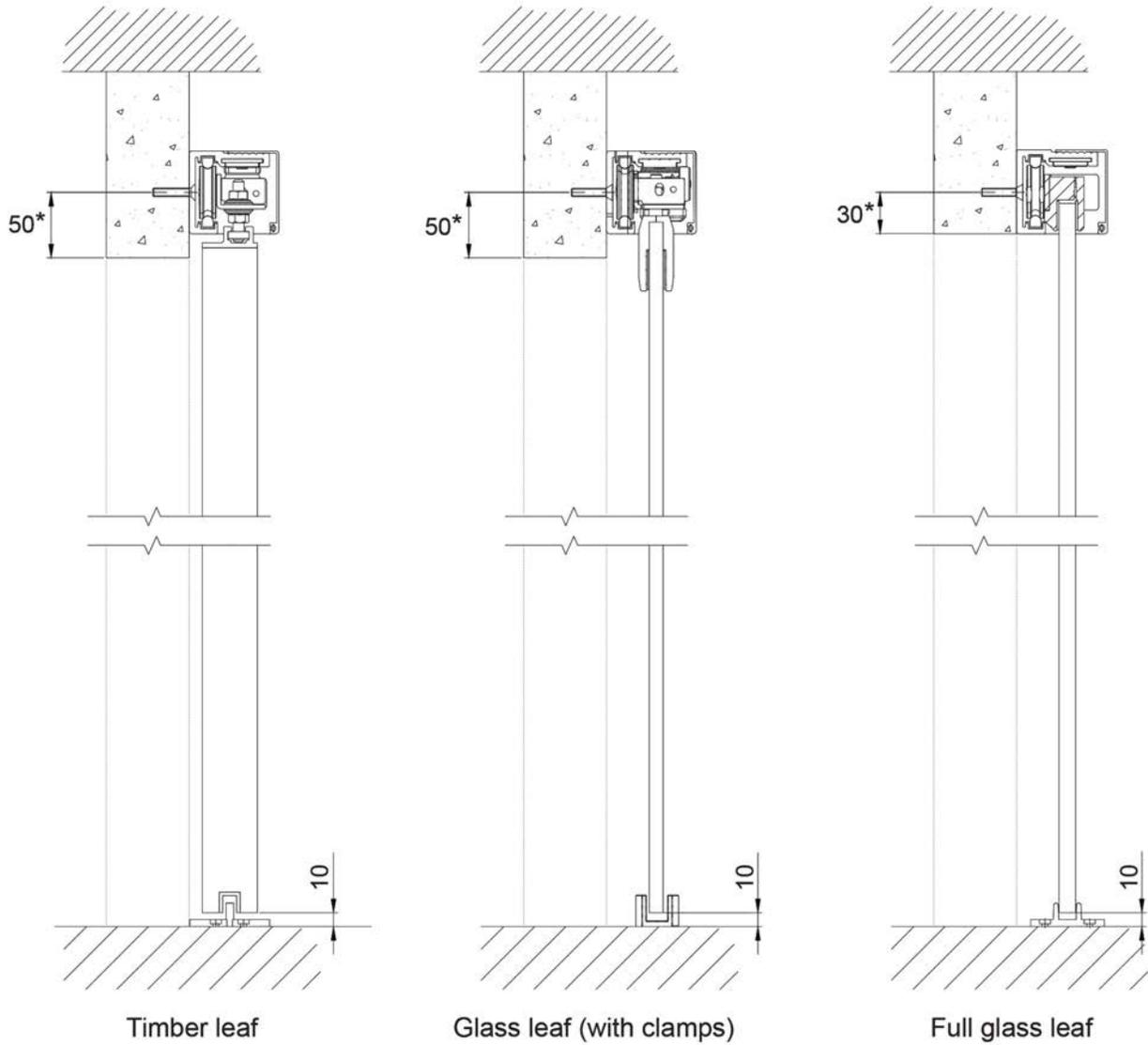
a Fixing to wall



b Fixing to iron beam



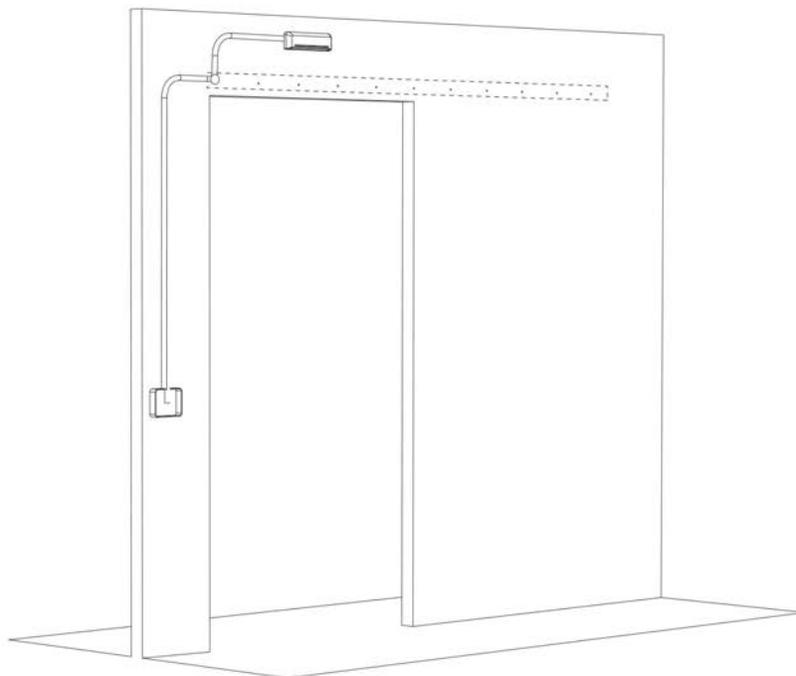
3.3. Types of leaf adapters



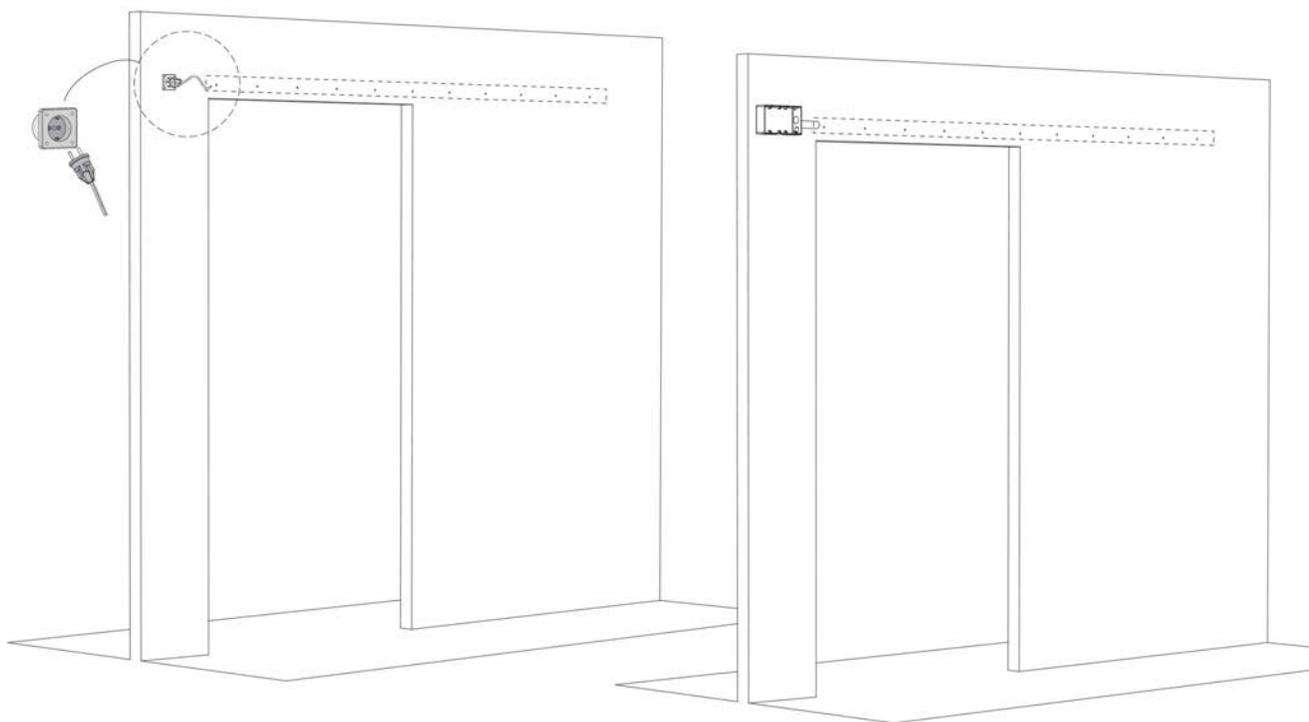
* Recommended.

3.4. Location of the activators and power supply connections

- Activators

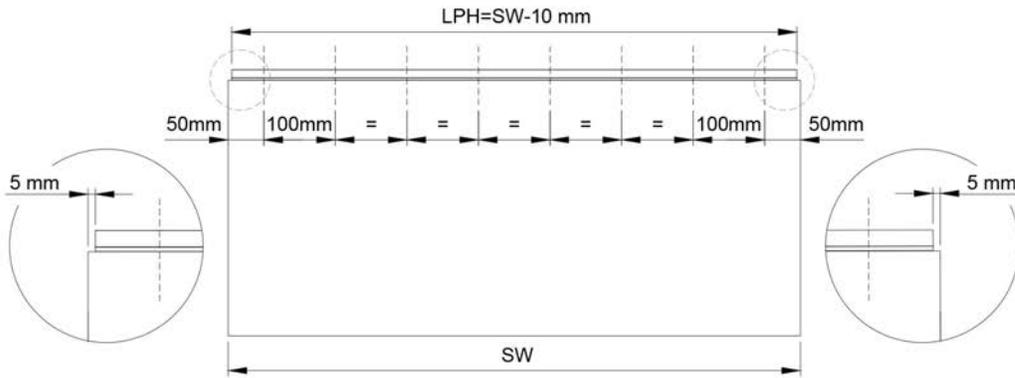


- Power supply connections

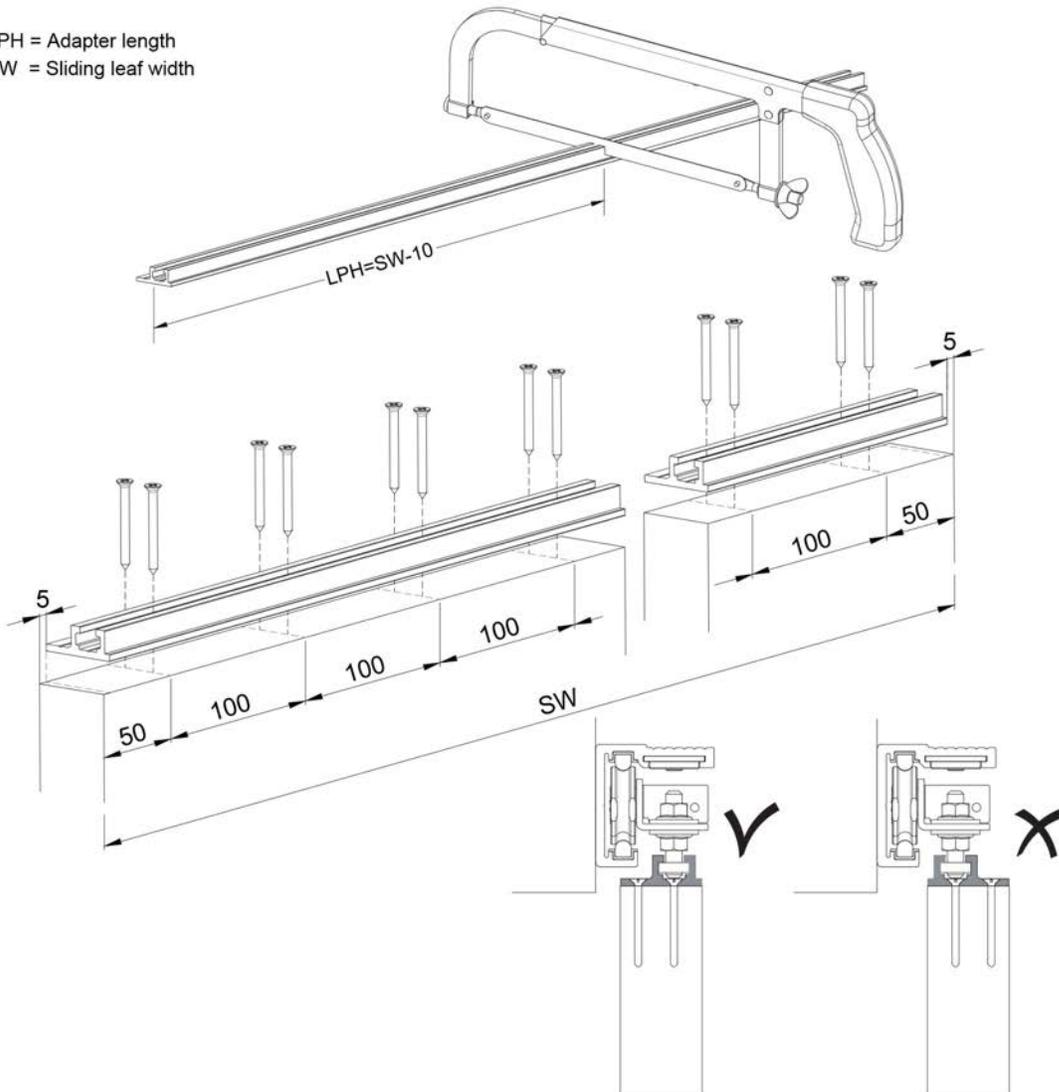


4. MOUNTING THE DOOR LEAVES

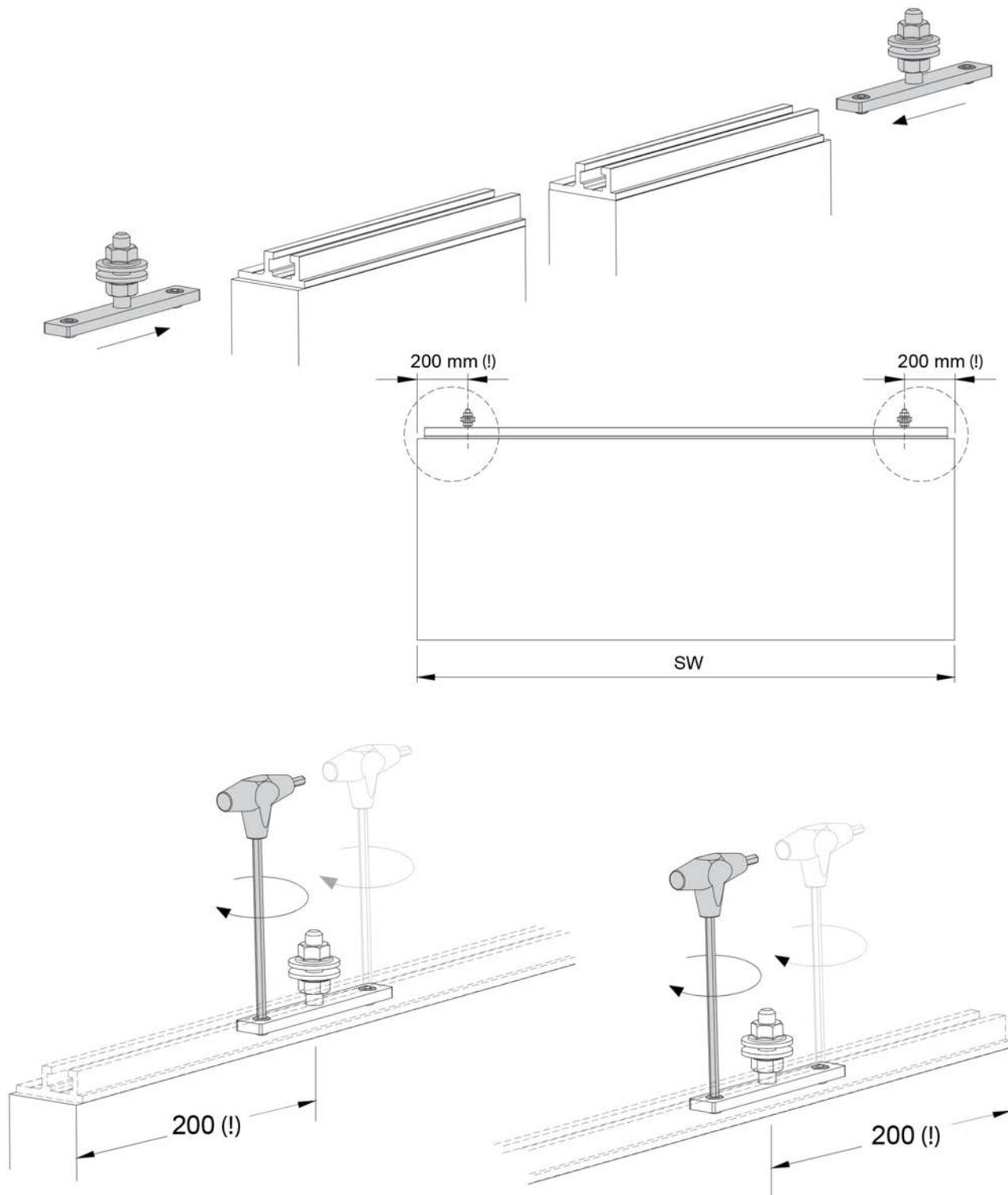
4.1. Mount the door leaf adapter



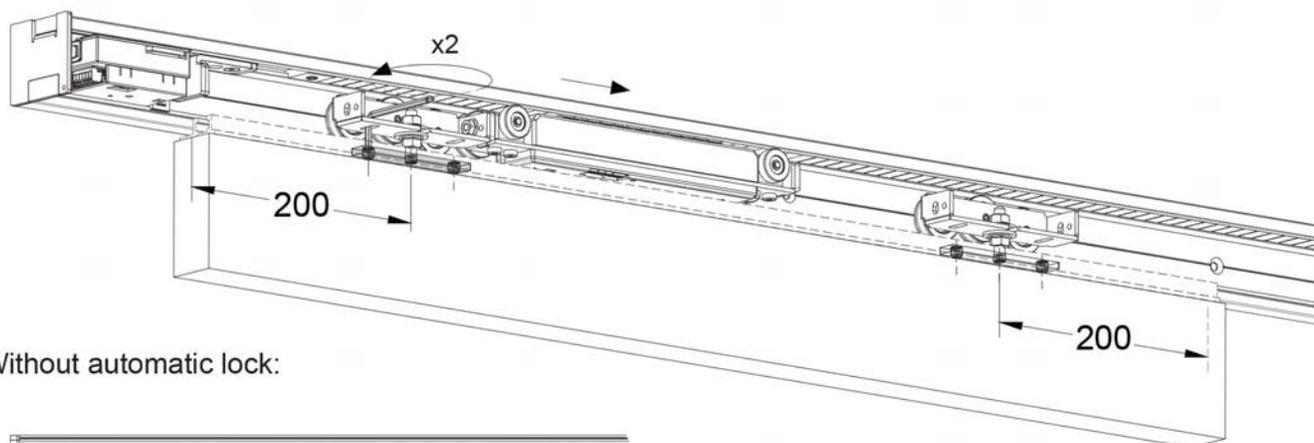
LPH = Adapter length
SW = Sliding leaf width



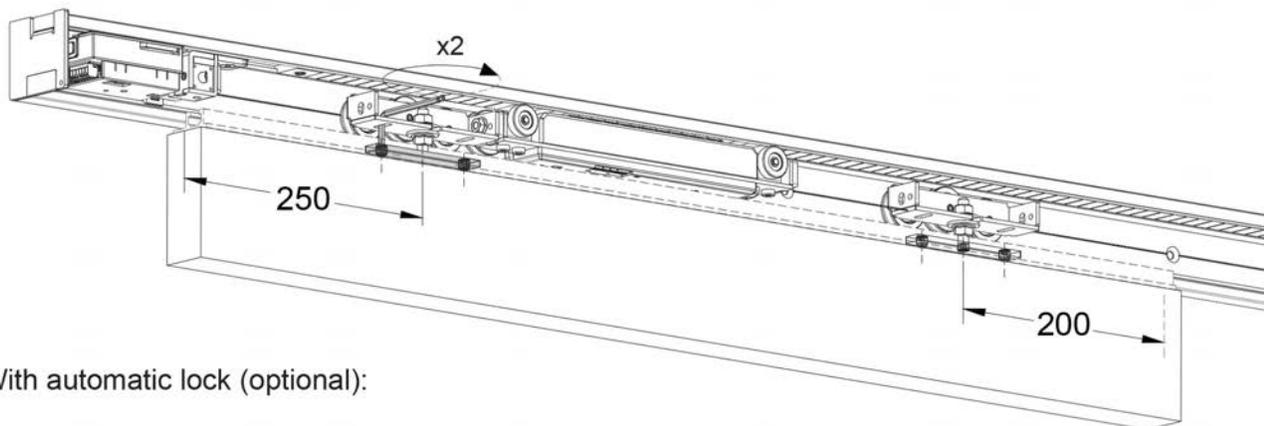
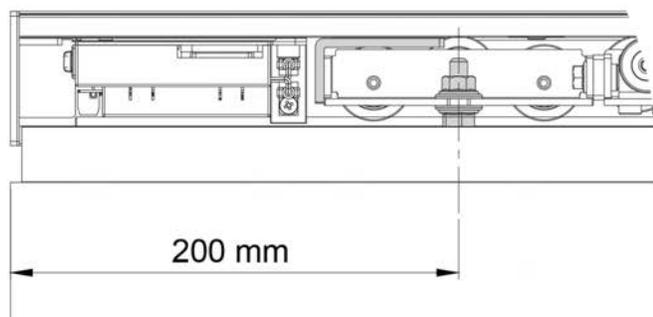
4.2. Mount the adapter rail nuts



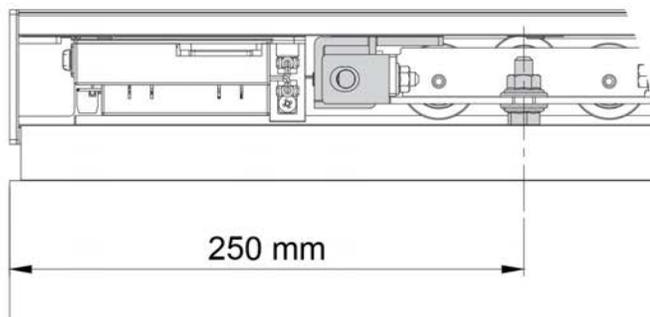
4.3. Position the leaf trolleys



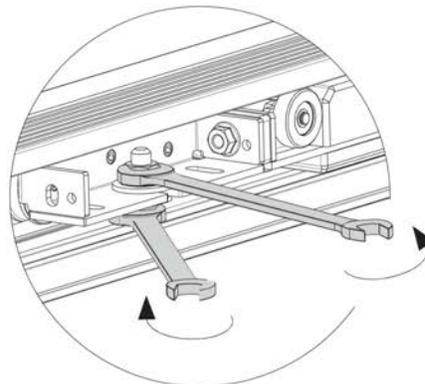
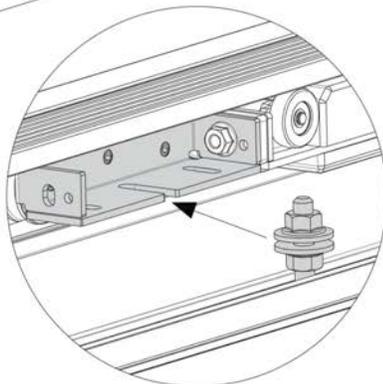
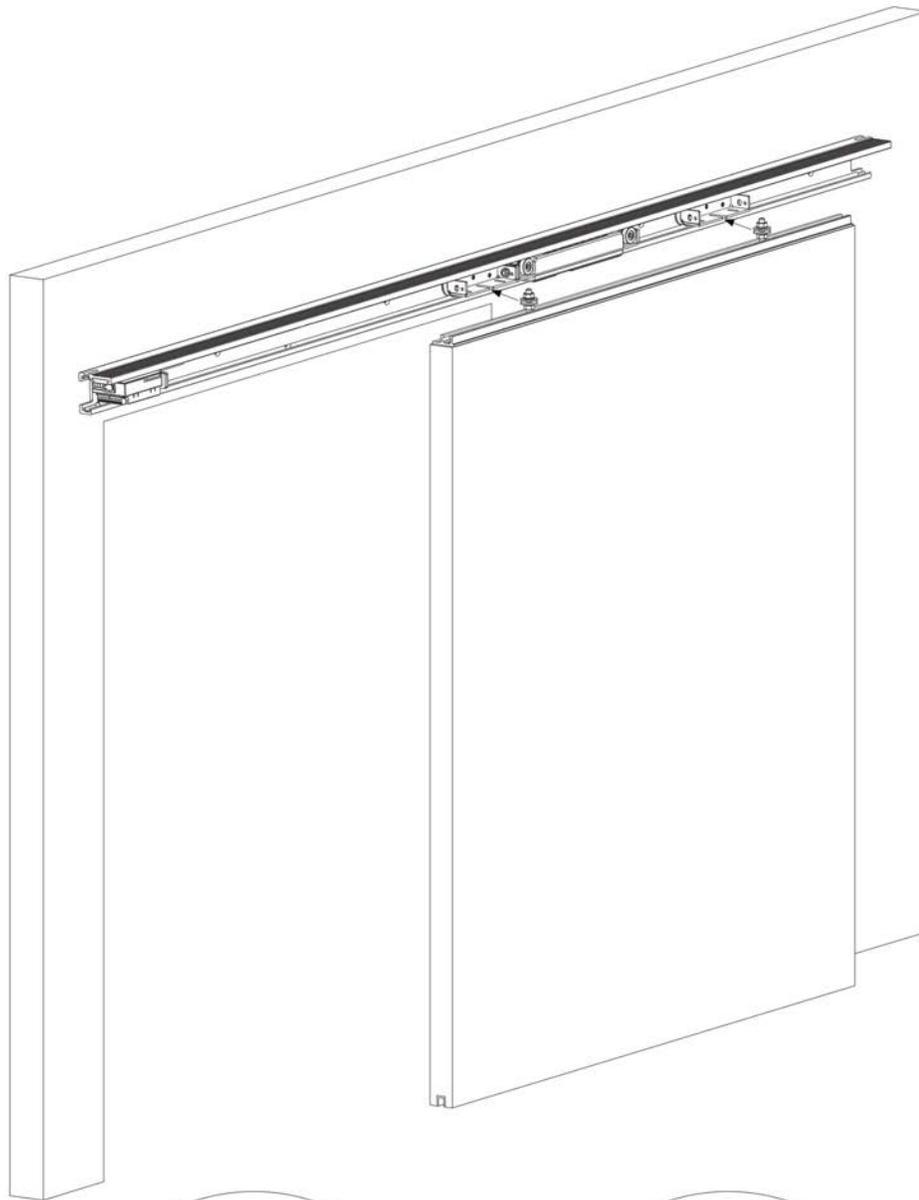
Without automatic lock:



With automatic lock (optional):

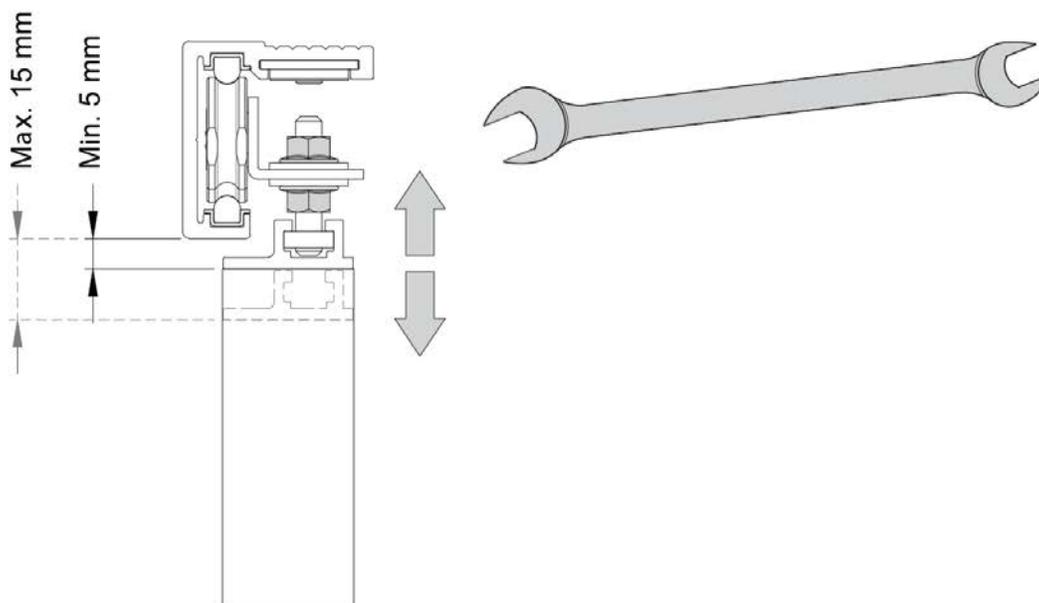


4.4. Mount the door leaf to the drive

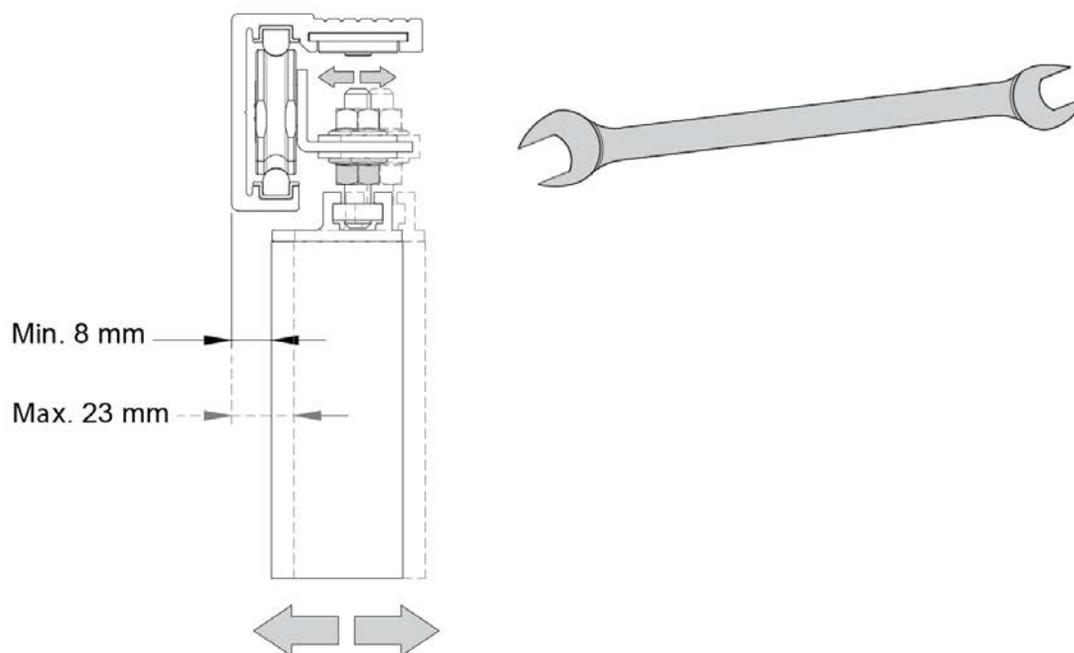


4.5. Adjust the door leaf

Leaf height adjustment

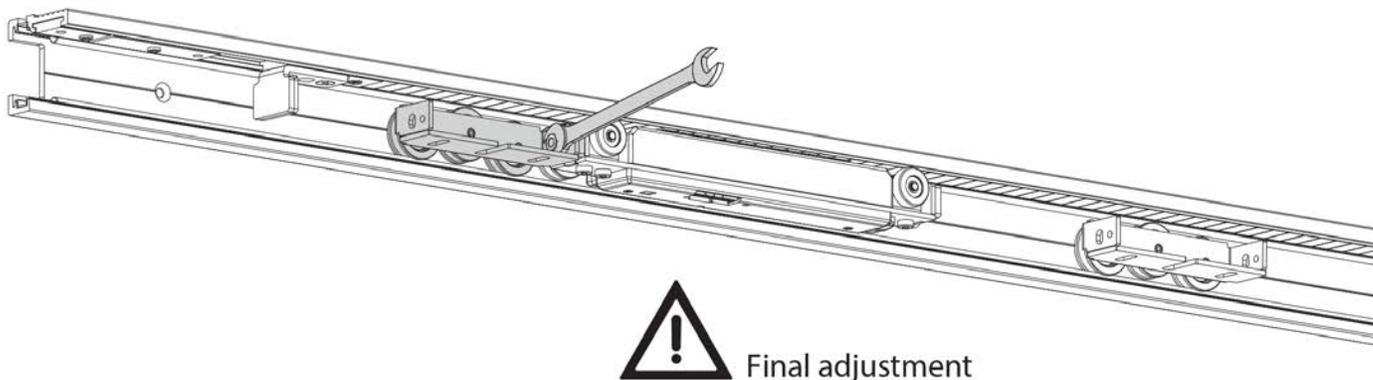


Leaf depth adjustment



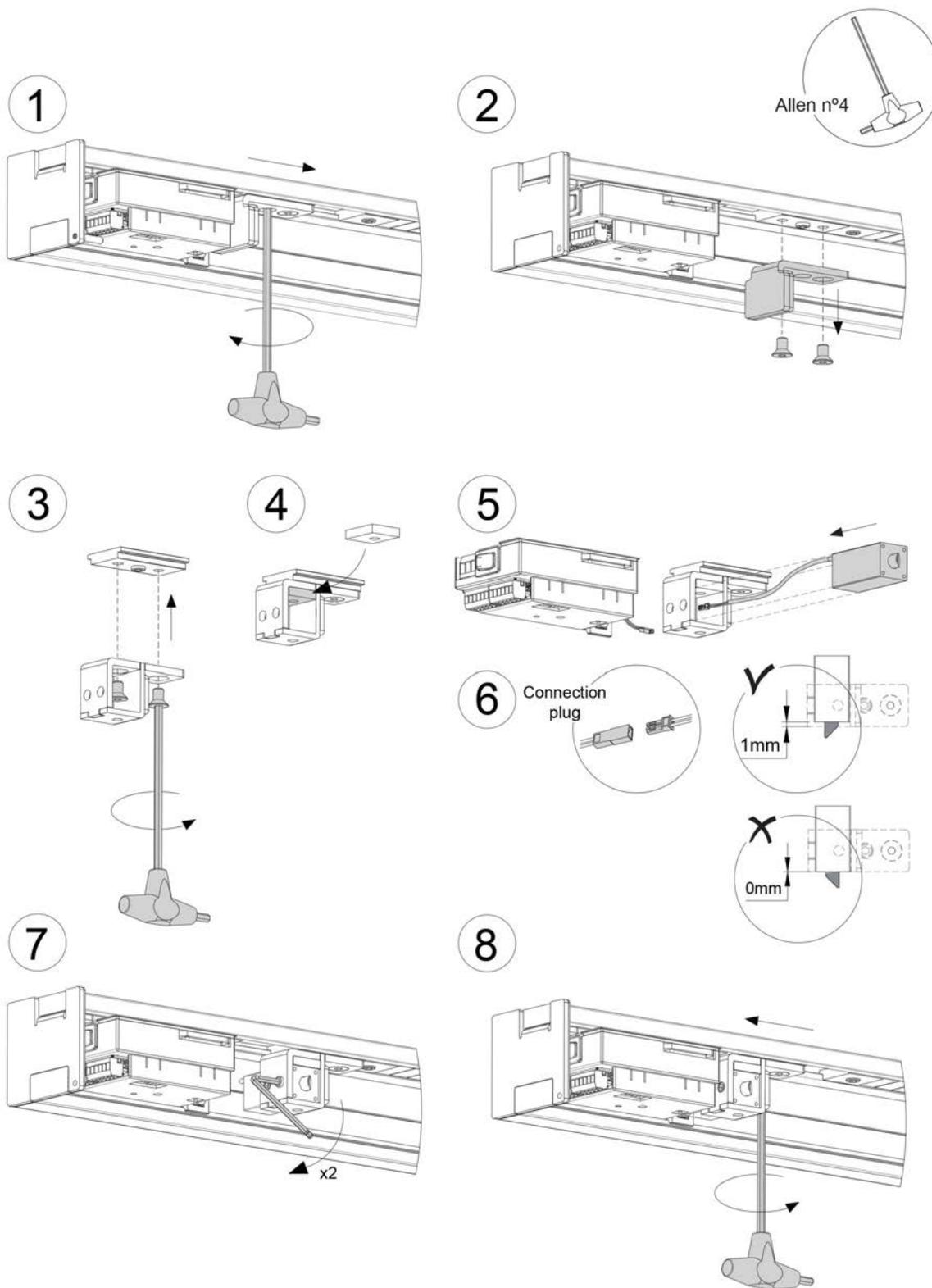
4.6. Final adjustment

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

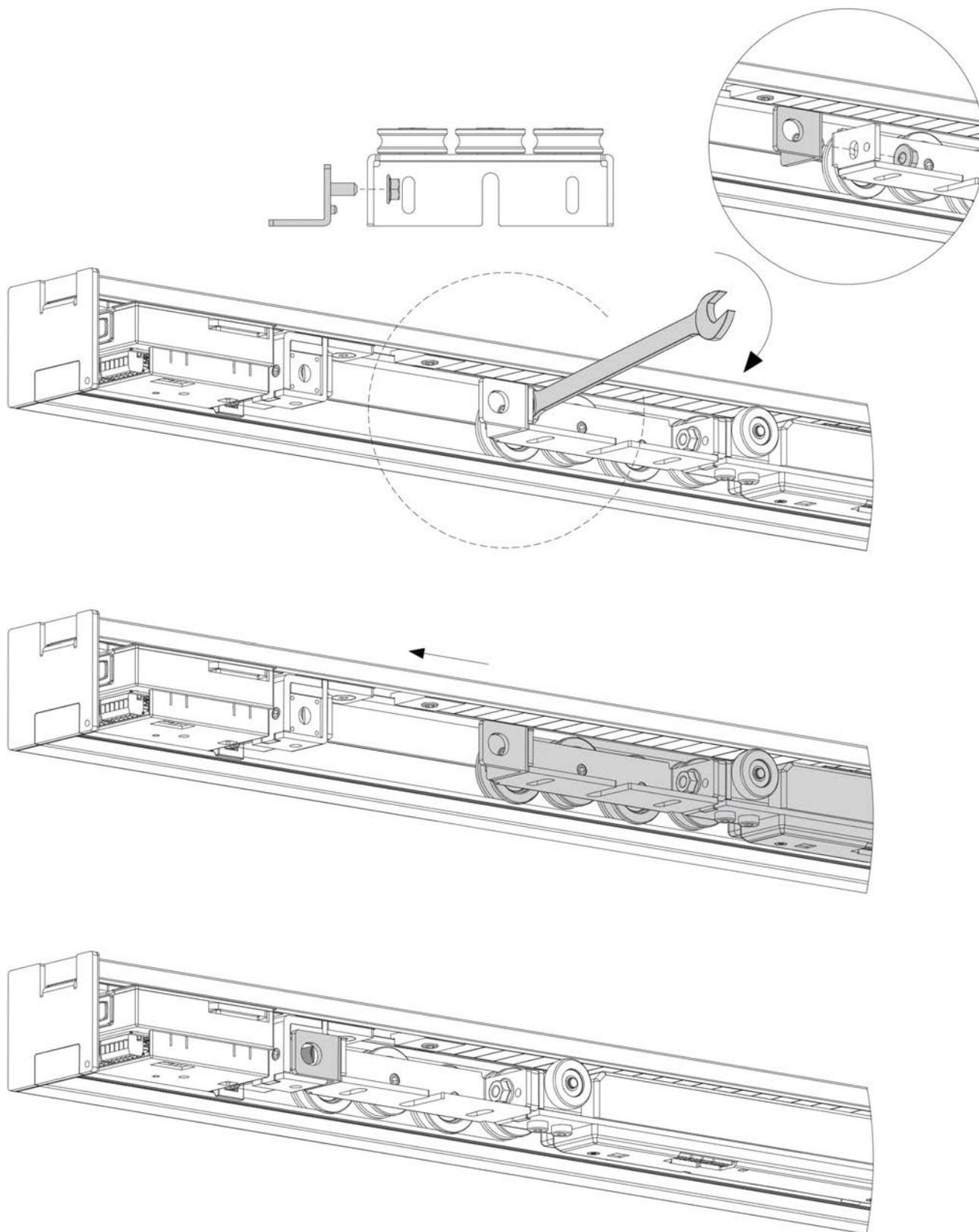


5. CONNECTION OF THE ACCESSORIES

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

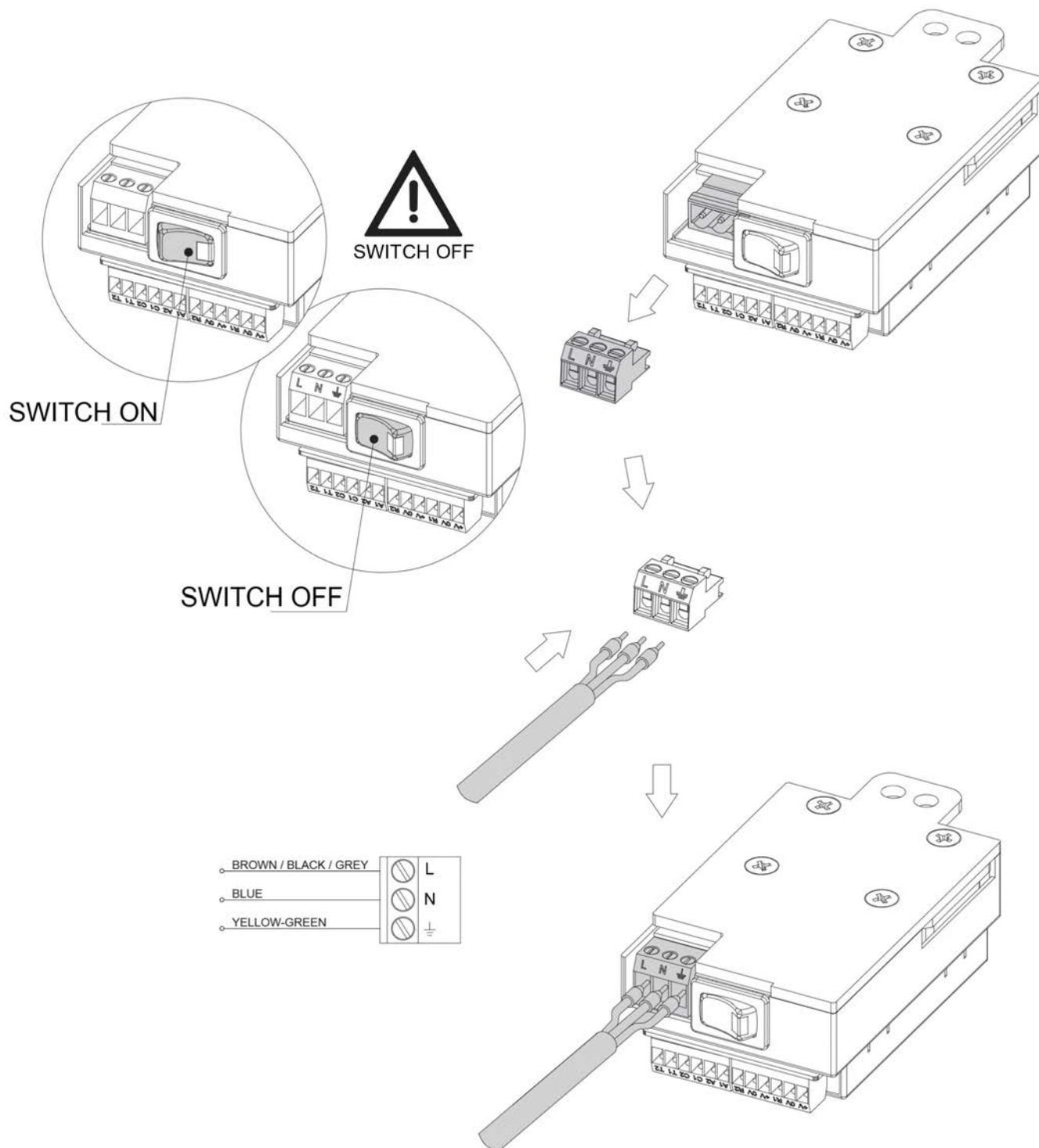


5.2. Mount the lock-keeper bracket

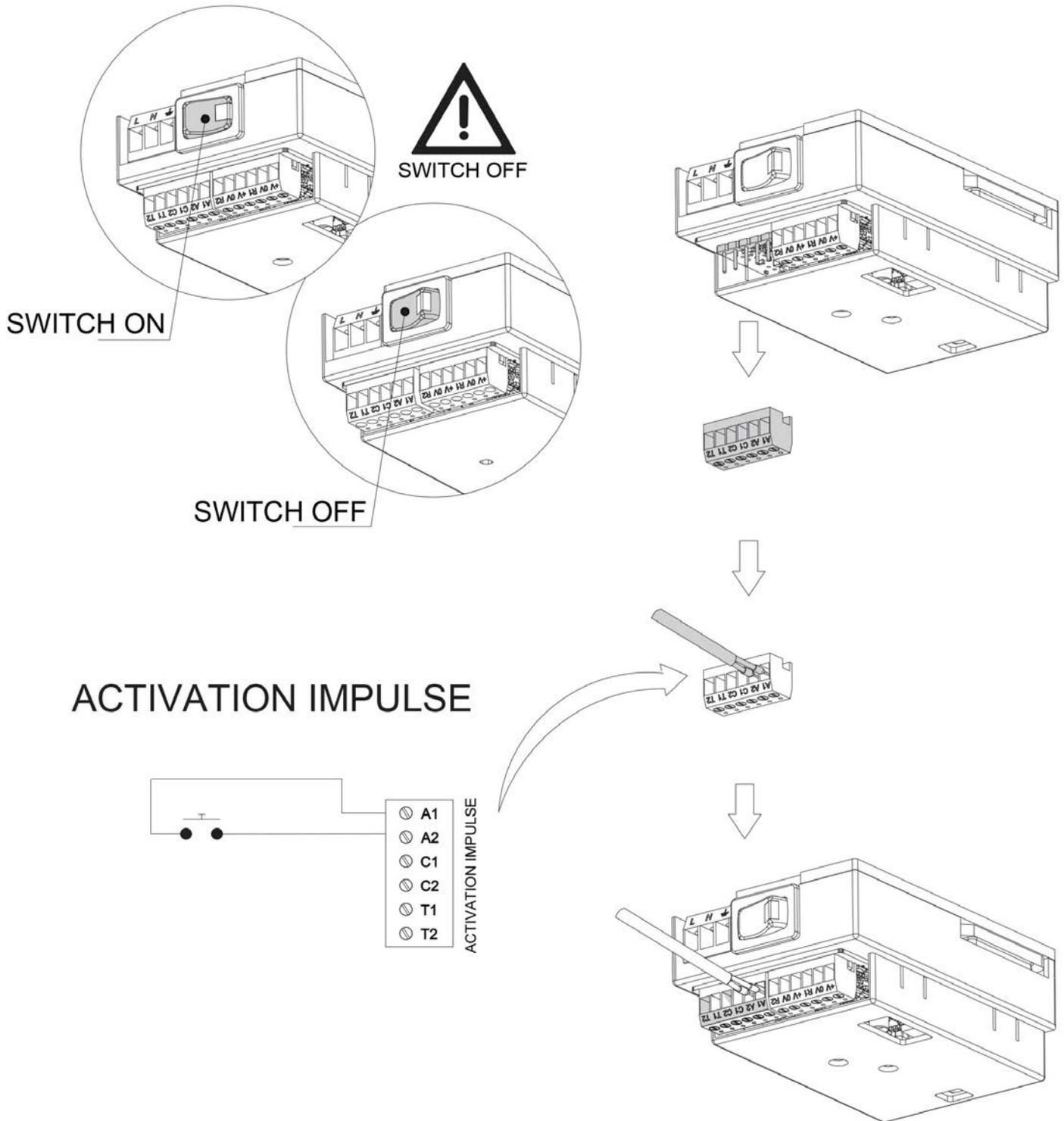


6. WIRING AND COMMISSIONING

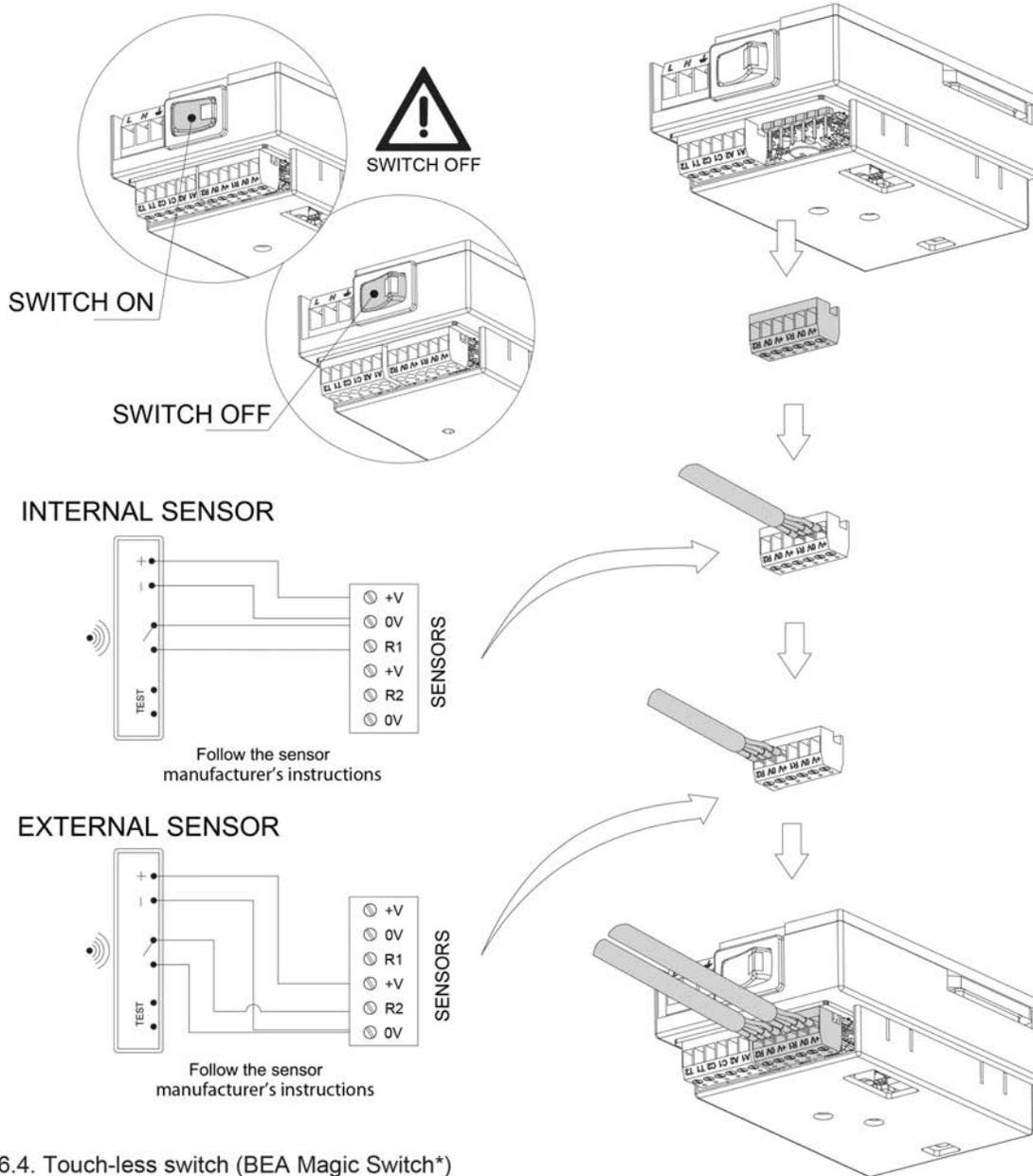
6.1. Connect the power cable



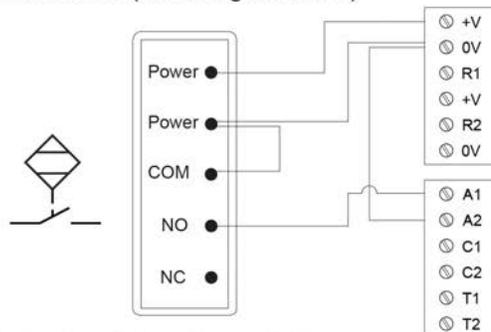
6.2. Push button



6.3. Activation sensor

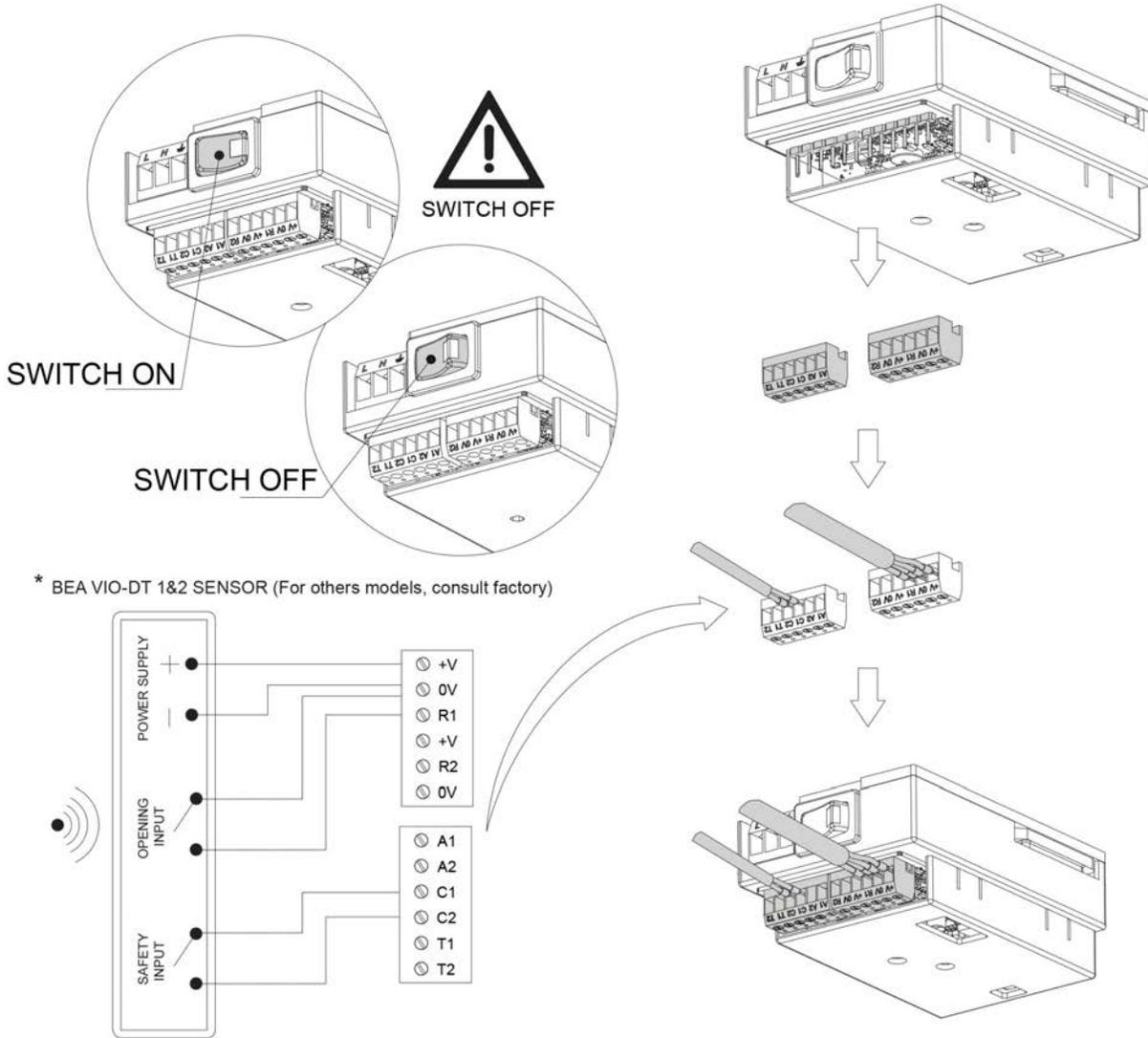


6.4. Touch-less switch (BEA Magic Switch*)

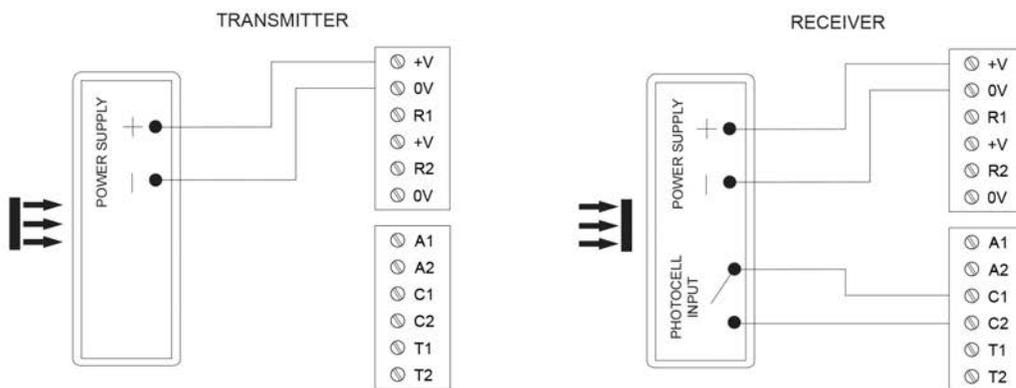


(*) Consult factory for photocells from other manufacturers.

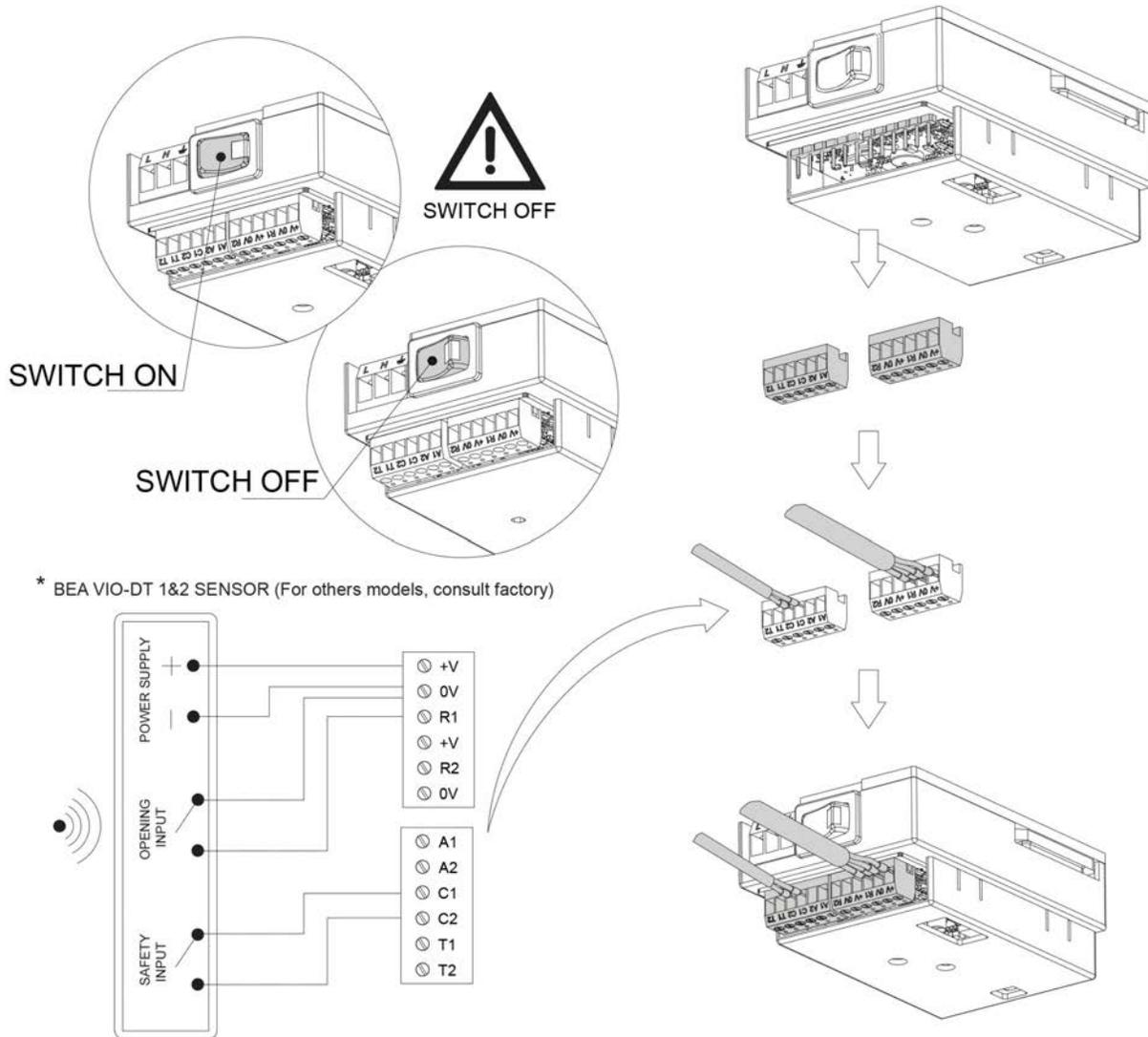
6.4. Safety devices*



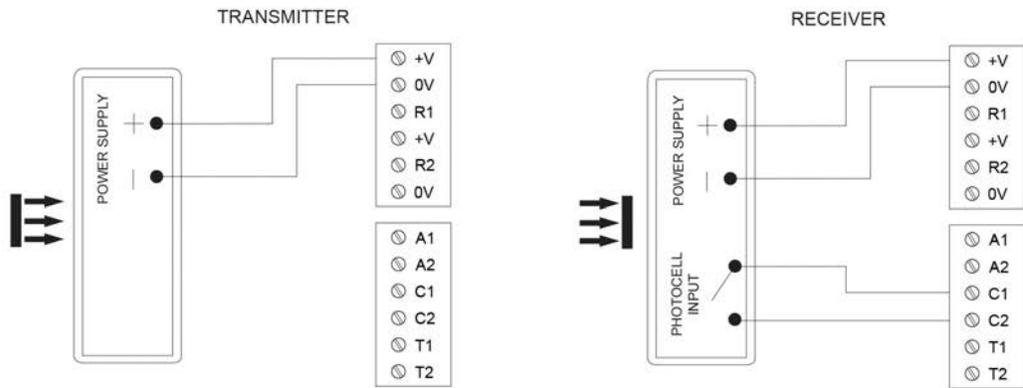
6.5. Photocells



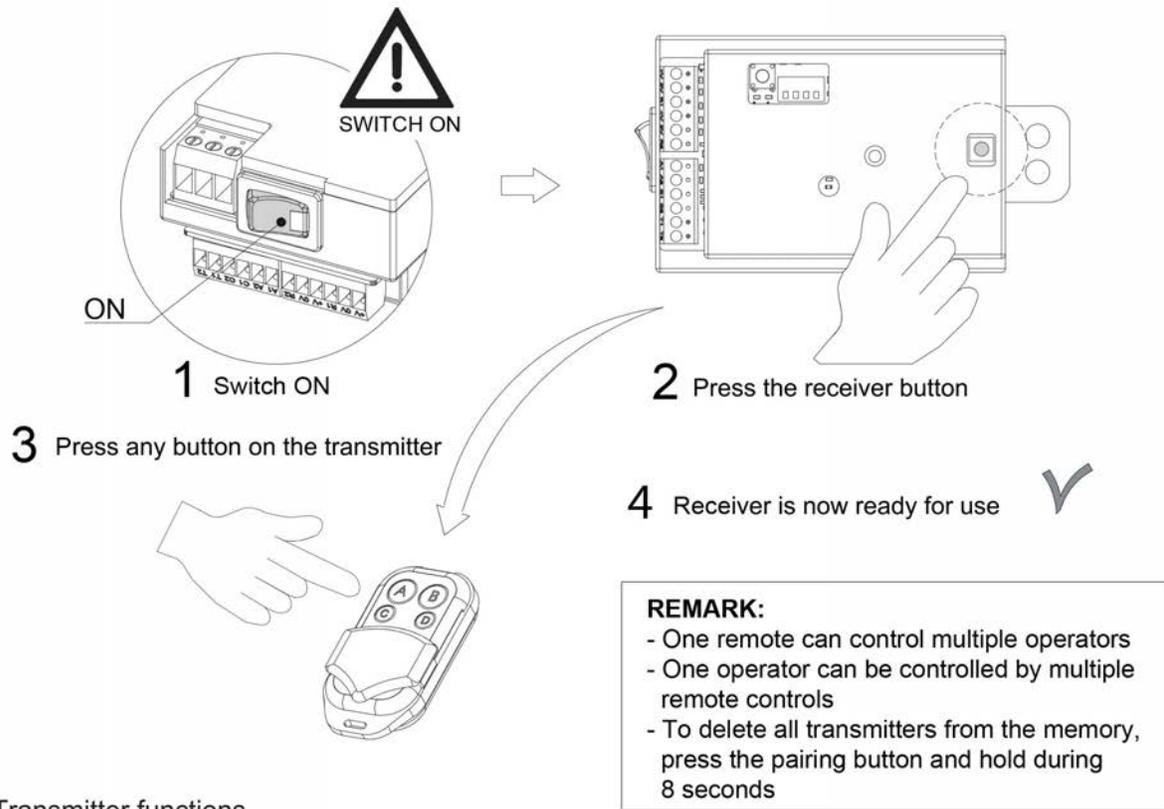
6.4. Safety devices*



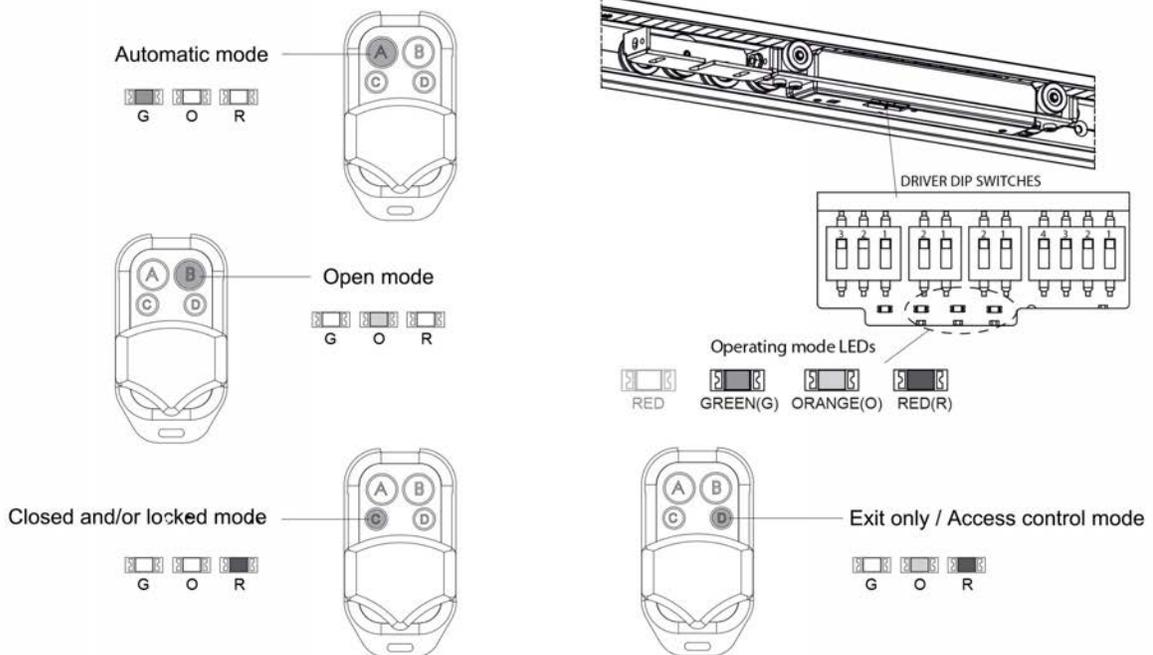
6.5. Photocells



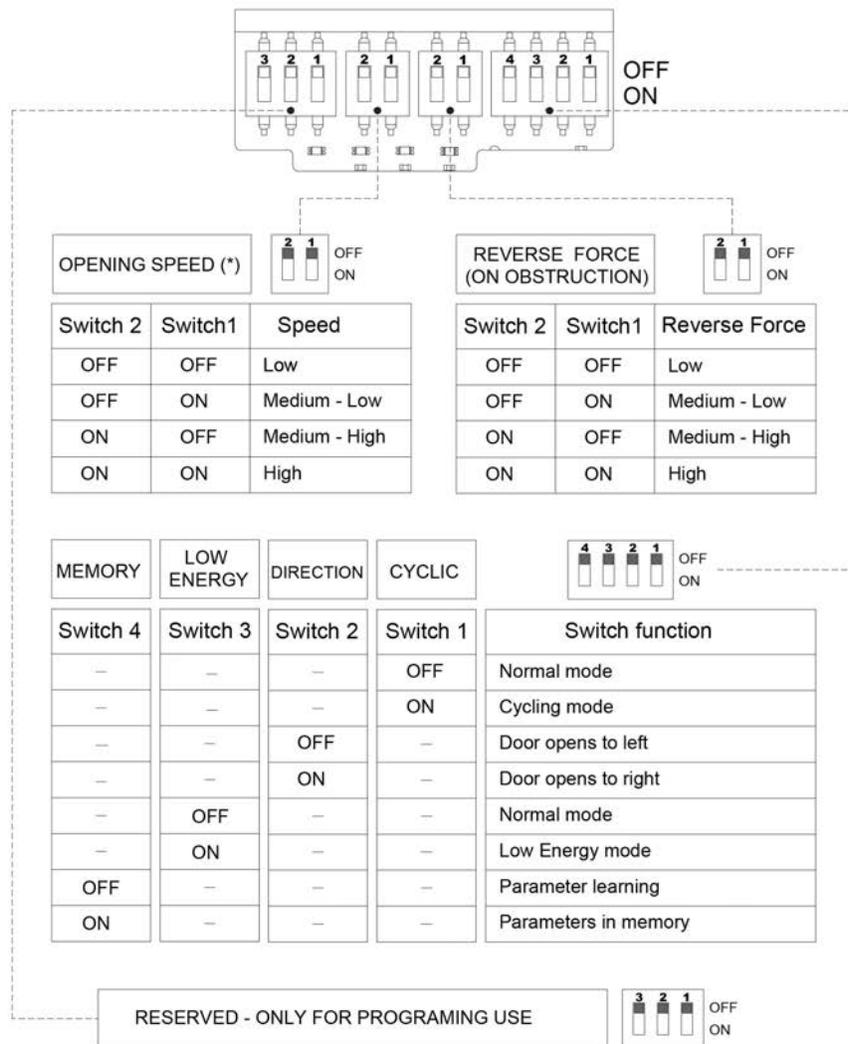
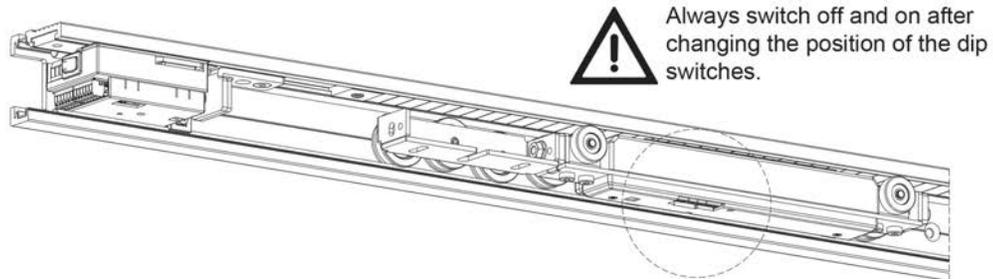
6.6. Remote control (operating mode selector)



Transmitter functions



6.7. Configuration of the basic parameters Firmware I/O 3.1.X / DR 20.1.X

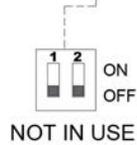
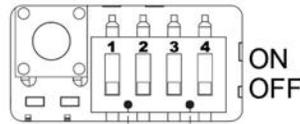
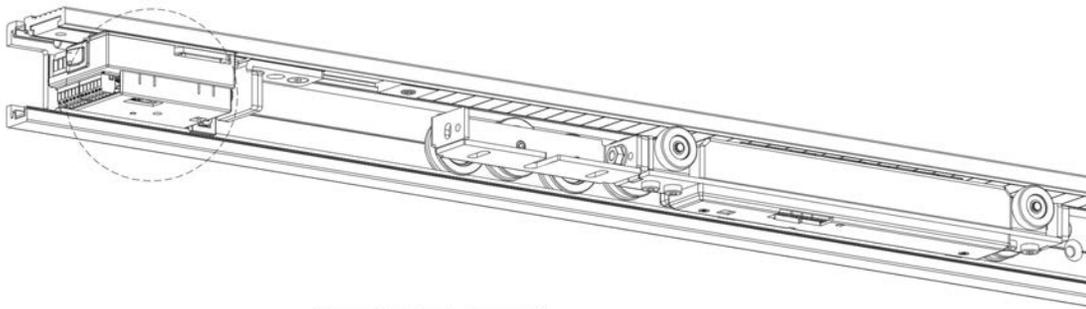


(*) The opening speed can only be adjusted with the operator in "Normal mode", and the speed depends on the leaf weight and the clear opening. In "Low energy" mode, the speed is determined by the operator itself, to adjust the opening/closing force as per EN16005

6.8. Configuration of "Hold open time" Firmware I/O 3.1.X / DR 20.1.X

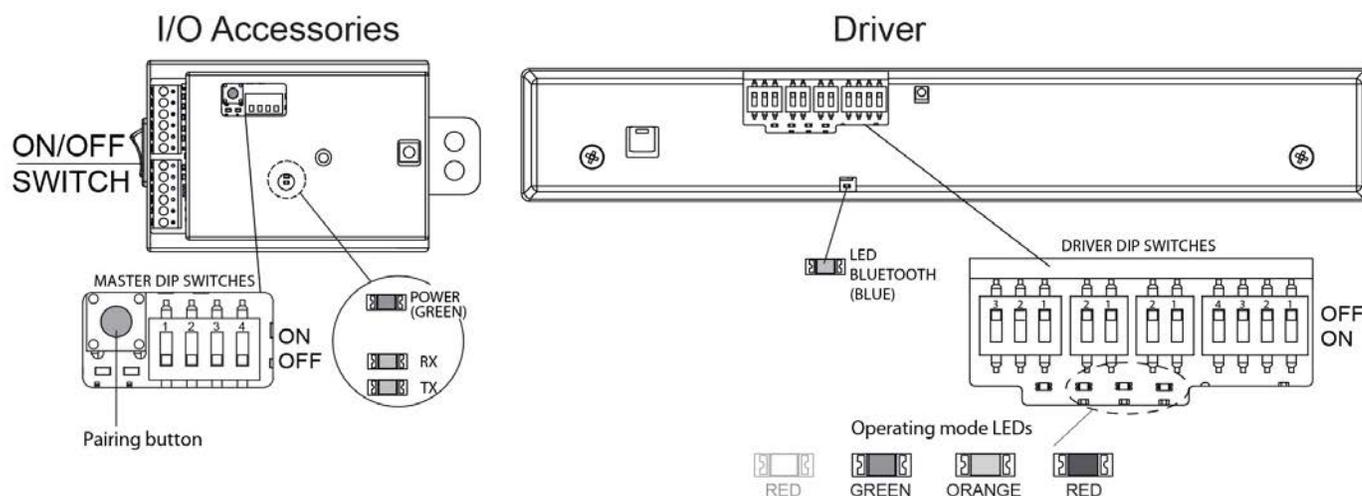


Changing the position of any of the dip switches.



HOLD OPEN TIME		
Switch 3	Switch 4	Hold open time
OFF	OFF	2,5 s.
ON	OFF	5 s.
OFF	ON	10 s.
ON	ON	15 s.

6.9. Self-adjustment Firmware I/O 3.1.X / DR 20.1.X



Before running the self-adjustment, set the dip switches (opening direction, speed, etc) in the desired position on I/O Acces. and Driver. Please refer to the installation manual

1. SWITCH OFF the operator (the ON/OFF switch is located on one side of the I/O Accessories board)
2. Set Dip switch no. 4 on the motor Driver to OFF position (Parameter learning)
3. Wait 10 seconds, and SWITCH ON the operator
4. The Bluetooth led (blue) will turn on indicating that the two control panels are in the process of being paired, and the motor will start moving to run a self-adjustment. At a point, the door will stop for a few seconds, and then start moving at low speed. Do not touch or interfere, as this stop & go is part of the process to calculate the leaf weight. Wait until the door stops fully. The full process may take 1 to 3 cycles (30 to 120 sec), depending on the door position at start

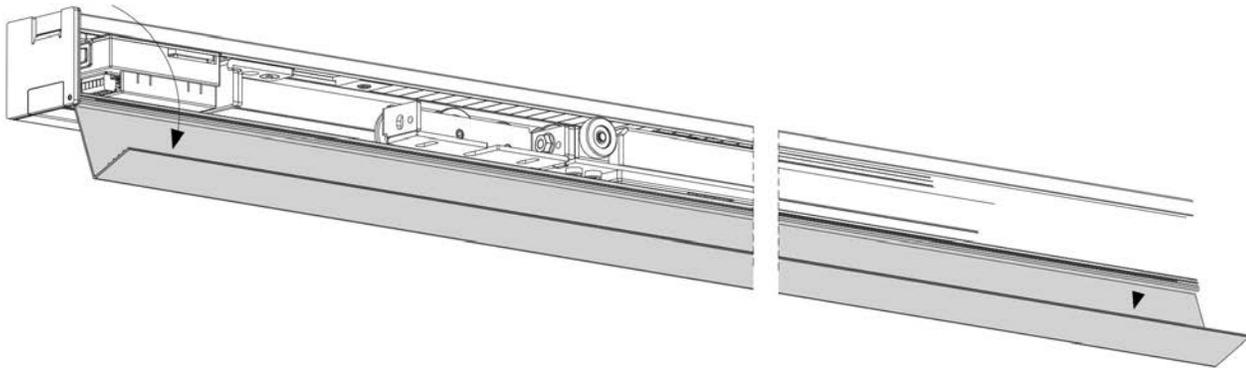
DO NOT INTERFERE OR TOUCH THE DOOR LEAVES DURING SELF-ADJUSTMENT

5. The self-adjustment is finished when the the Bluetooth led is OFF (control panels are paired) and the door stops moving.
6. Set Dip switch no. 4 on the motor Driver to ON position to save the parameters in memory
7. SWITCH OFF, wait until all leds on driver are off and then SWITCH ON again

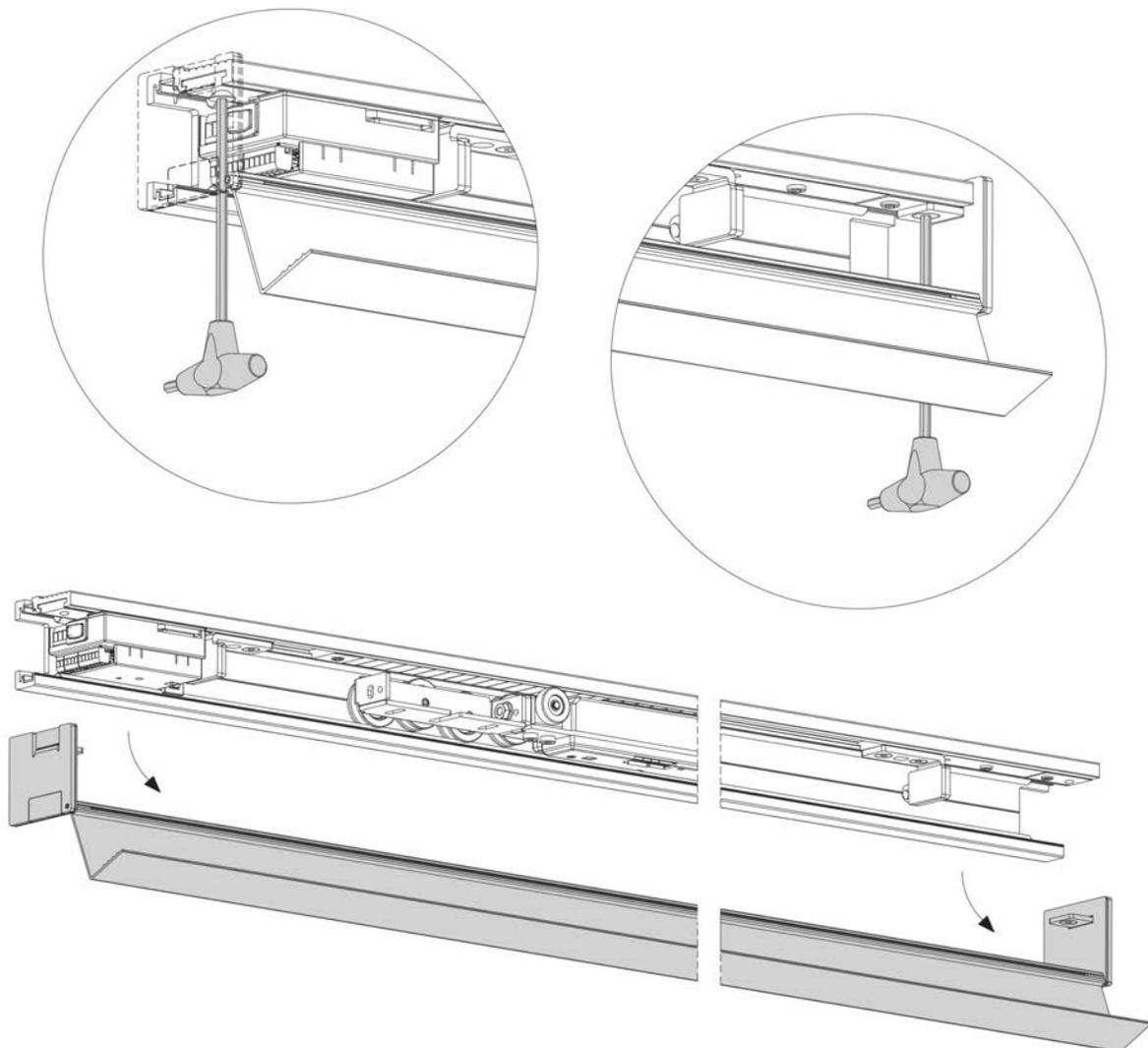
ANNEX1 - INDEX

- 1.1. HOW TO CHANGE THE OPENING DIRECTION**
- 1.2. HOW TO CUT DOWN THE DRIVE LENGTH**

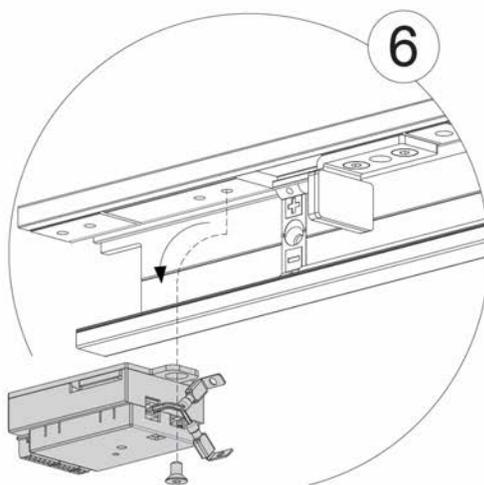
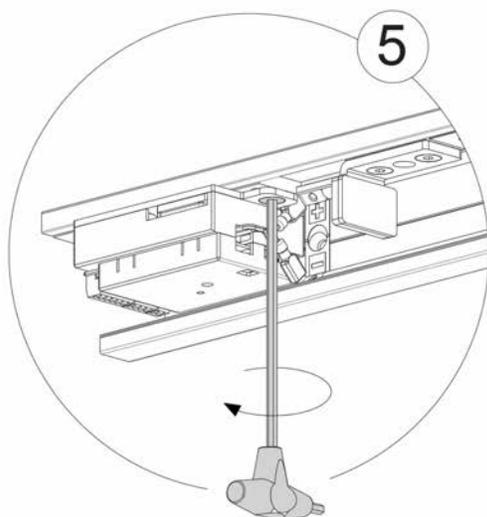
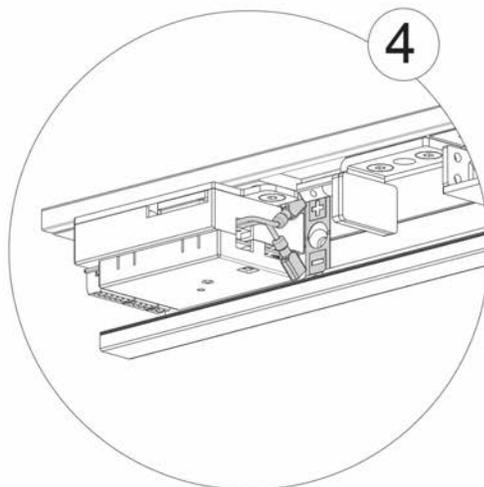
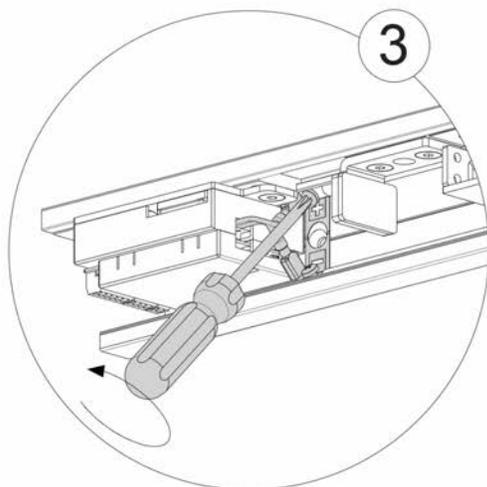
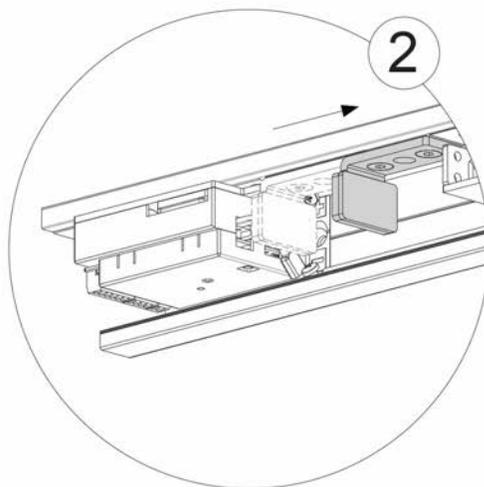
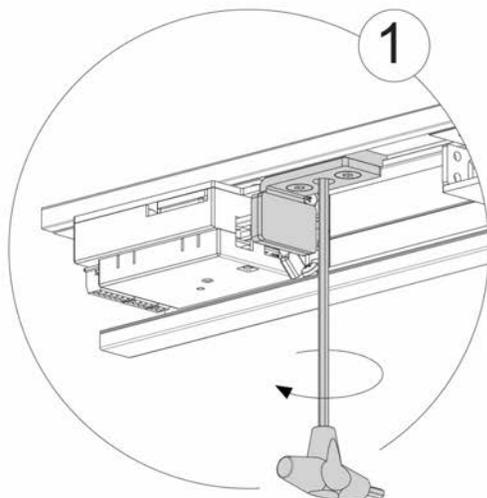
1.1. HOW TO CHANGE THE OPENING DIRECTION



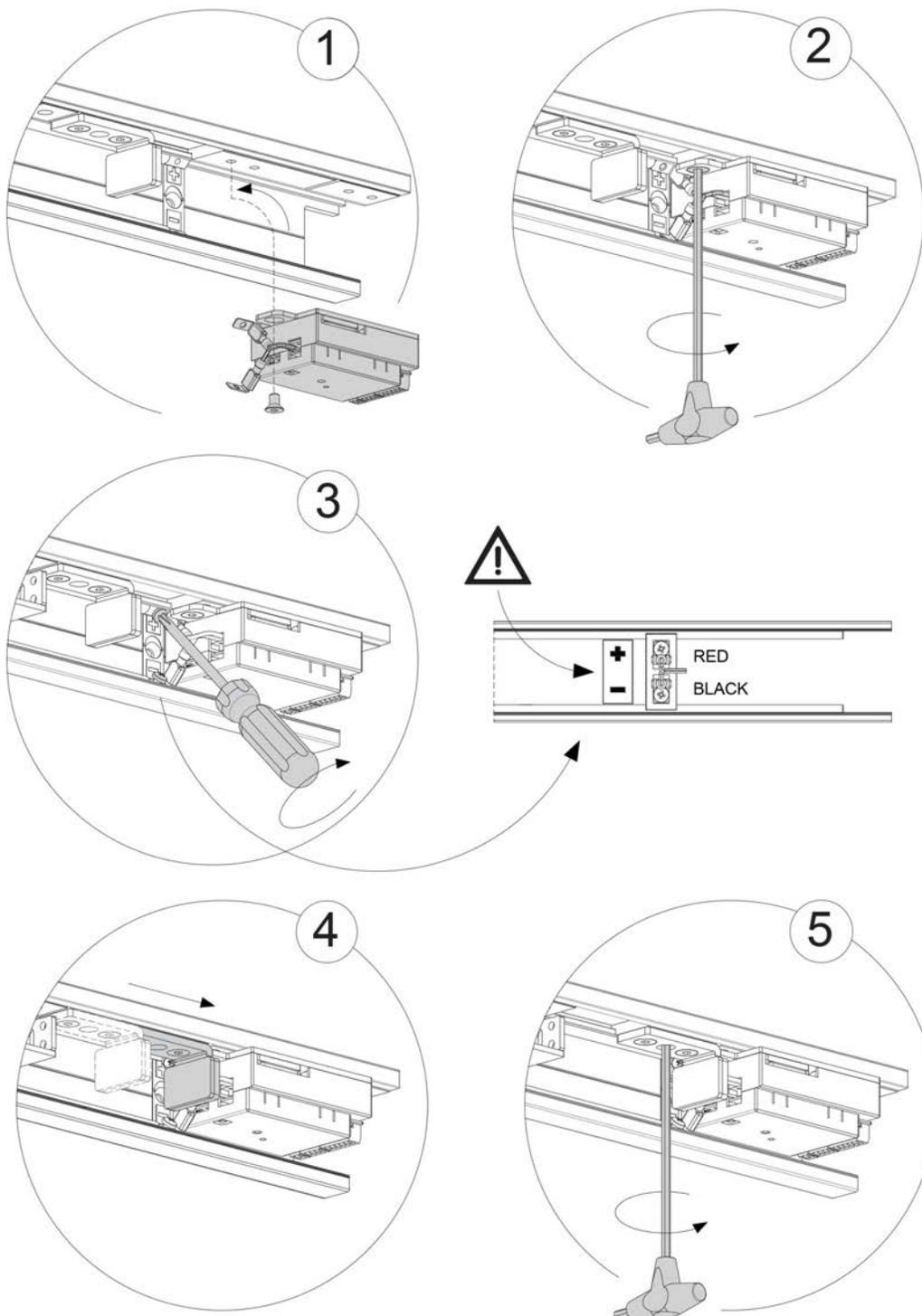
1.1.a. Remove the front cover and side caps



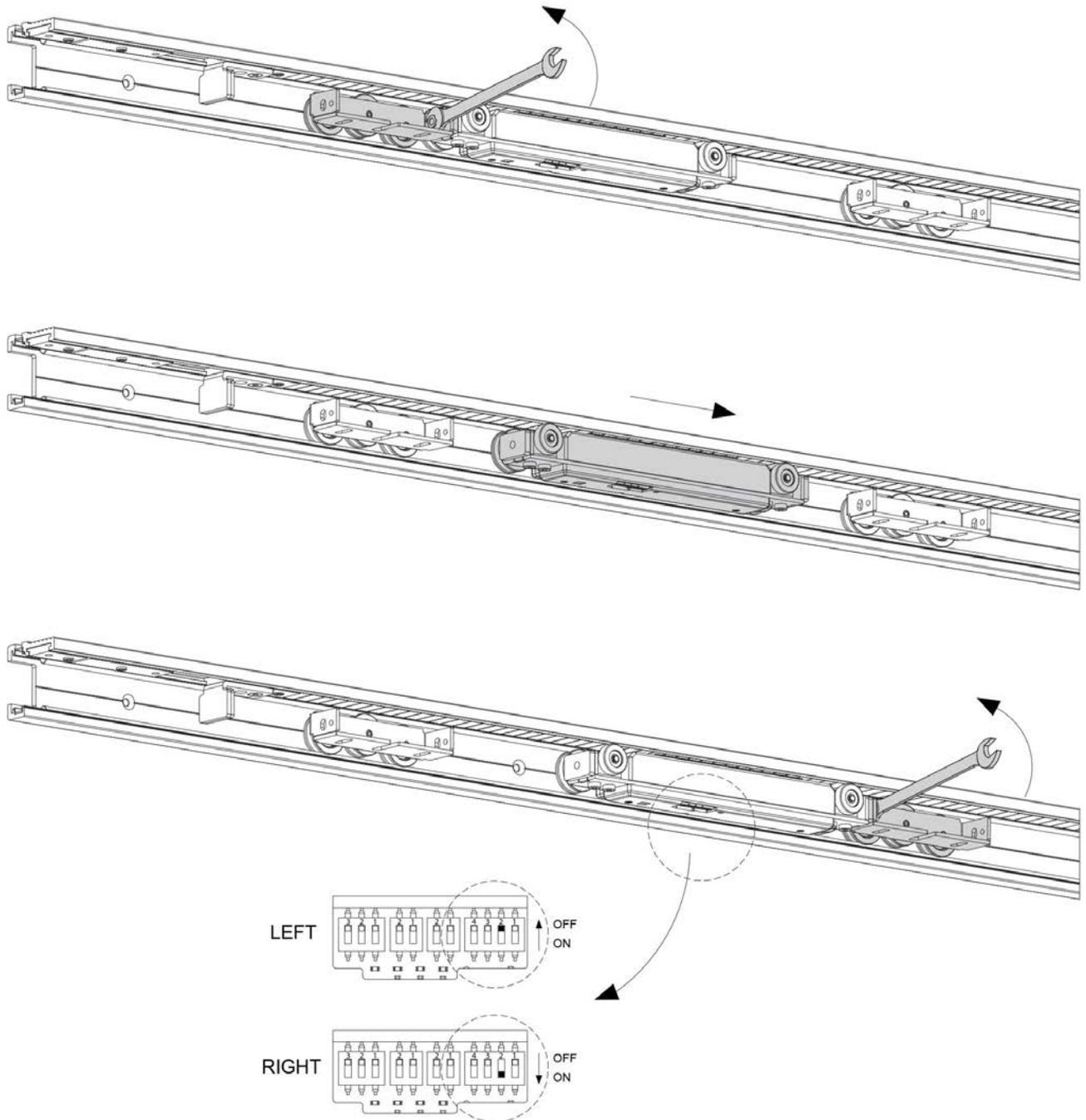
1.1.b. Remove the I/O accessories control board



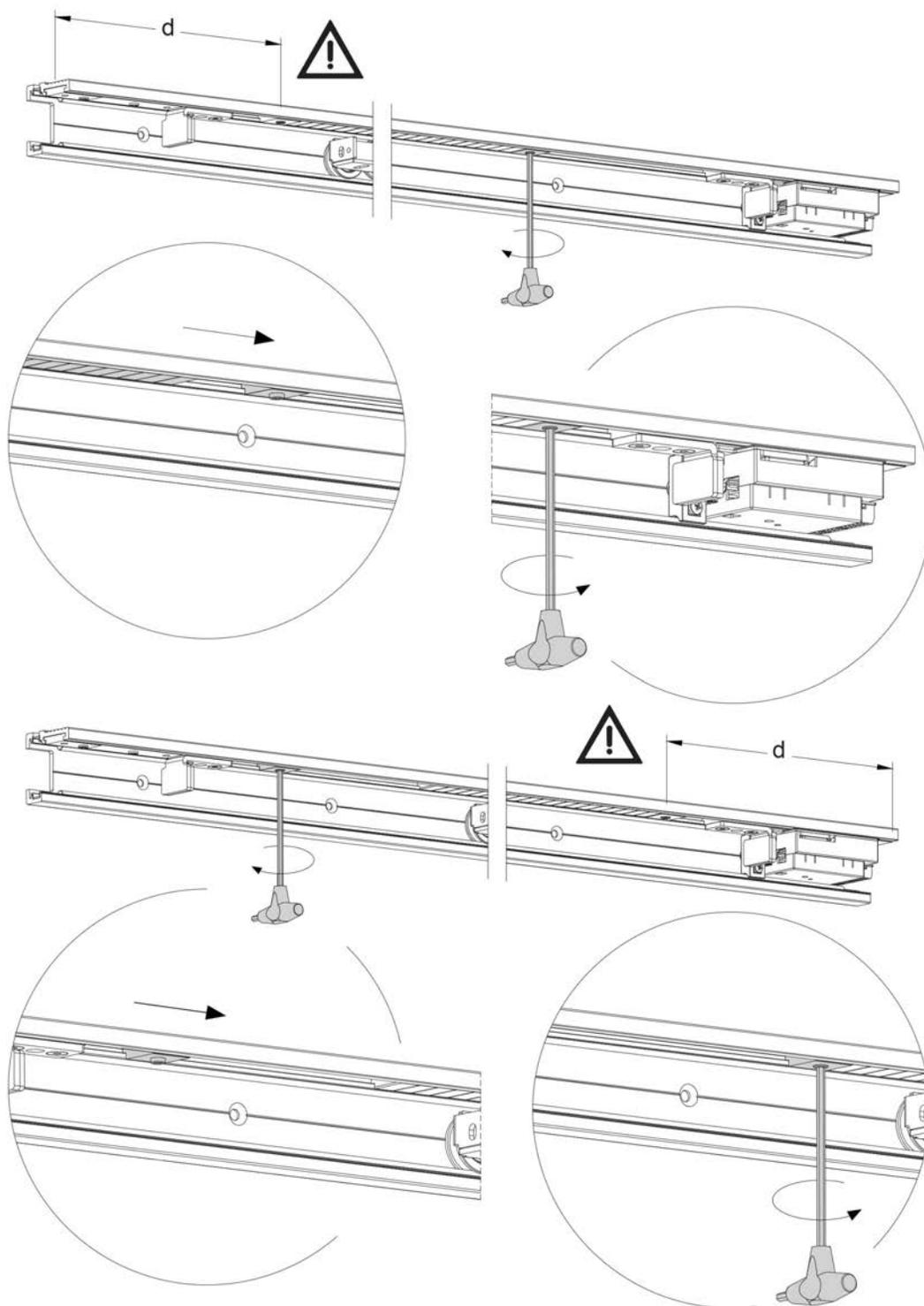
1.1.c. Move and fix the I/O accessories control board to the opposite end (same side of the clear opening)



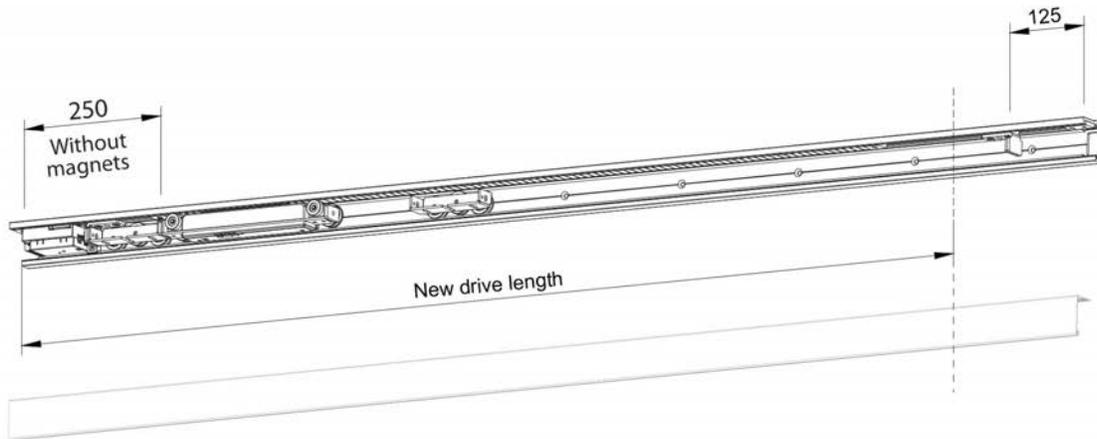
1.1.d. Connect the motor to the opposite leaf trolley (the motor must be always attached to the front trolley, never to the back trolley)



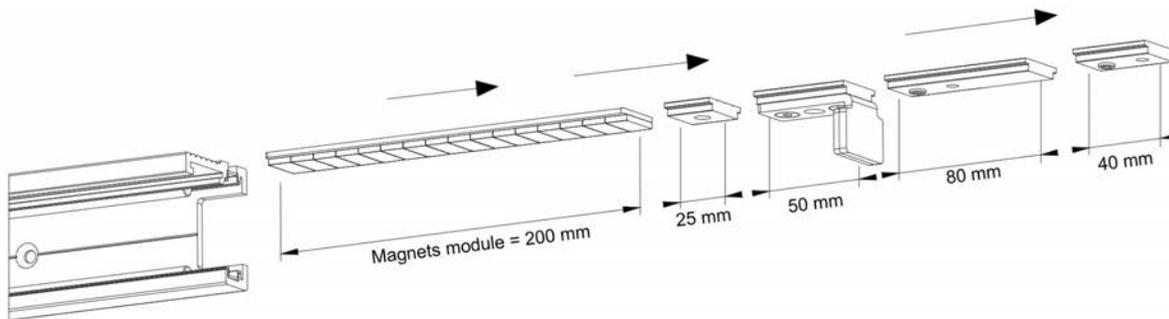
1.1.e. Slide all the magnets to the opposite end, and fix again the stoppers on both sides



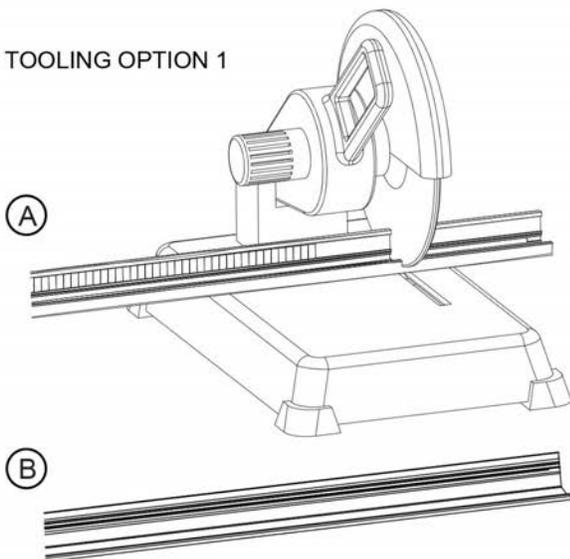
1.2. HOW TO CUT DOWN THE DRIVE LENGTH



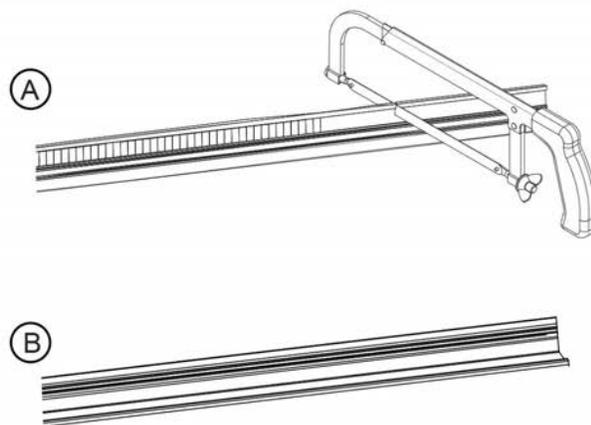
To calculate the length of the drive unit, please refer to the Autocad drawing of the corresponding version

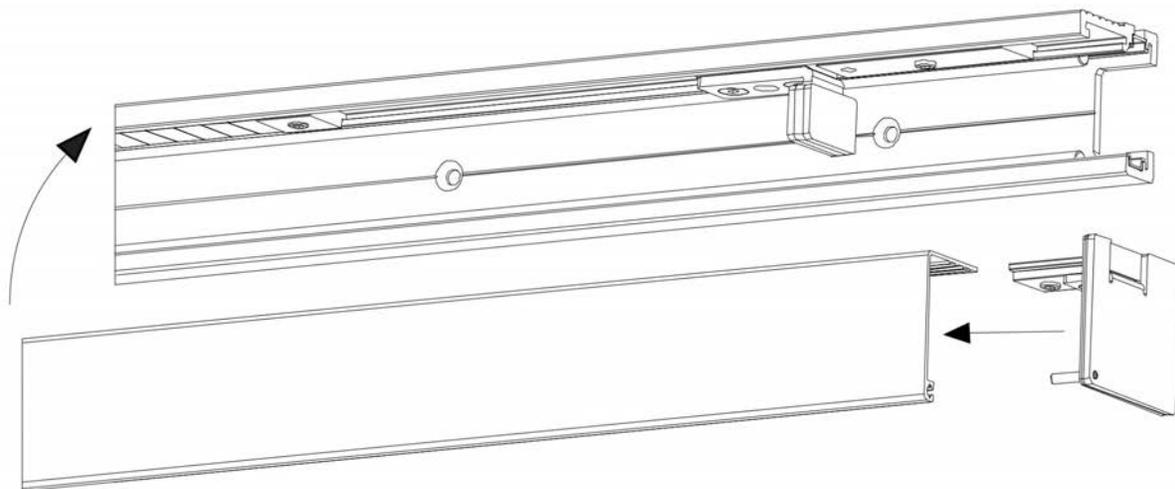
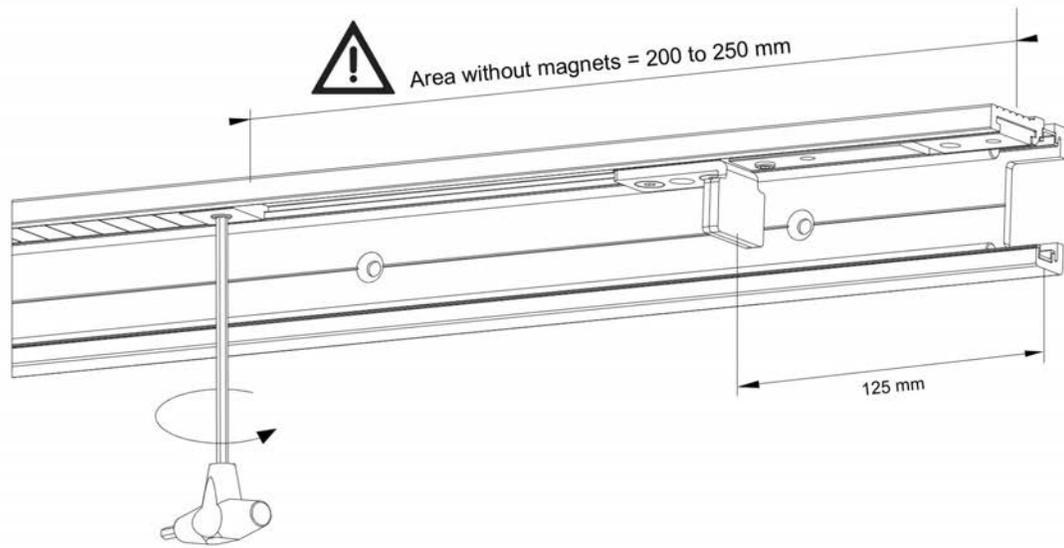
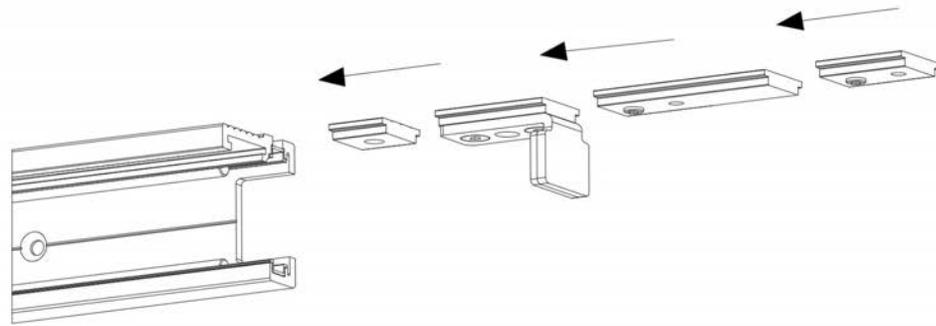


TOOLING OPTION 1



TOOLING OPTION 2





REMOTE CONTROL

PART 3 - 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

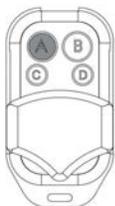
1. PRODUCT DESCRIPTION

This door is equipped with the **ELEKTRA SLIDE** 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

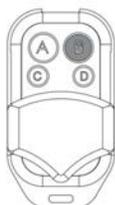
2.1. Opening modes:

The **ELEKTRA SLIDE** 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 "A" on the remote control to set the door to Automatic. 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.



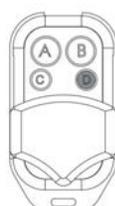
- II. **Open:** press button "B" on the remote control to set the door to Open. In this mode, the door will slide from any position to open and stay in this position until a new operating mode is selected. While the door is in Open mode, the leaf can be moved, open or closed manually (very convenient for cleaning purposes), until a new operating mode is selected, while the sensors will remain inactive to prevent unwanted openings.



- III. **Closed:** press button "C" on the remote control to set the door to Closed mode. In this mode the leaf will slide from any position to fully close, while the sensors will remain inactive to prevent unwanted openings, until a new operating mode is selected.

If the operator is equipped with an automatic lock (optional), the door will remain closed and blocked (*) in that position until a new operating mode is selected.

If the operator has no lock, the door will slide to close position and stay loose in manual mode (just like in Open mode), so it can be moved to any position by hand.



- IV. **Exit Only / Access control** press button "D" on the remote control to set the door to Exit Only mode. It is recommended to equip the door with an automatic lock (optional) to use this function.

In this mode, the activation devices (push button, touch-less switch, sensors and radars) on one side of the door will remain active to allow the activation and opening of the door, while the devices on the opposite side will remain inactive to prevent people activating the door from that opposite side.

If the door is equipped with an automatic lock, the door will lock and stay blocked (*) every time the door slides to close position, until the door is activated from the activation devices which are enabled on one side of the door, or a new operating mode 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).

(*) 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 technology of the **ELEKTRA SLIDE** 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 “B”** 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 **ELEKTRA SLIDE** 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.

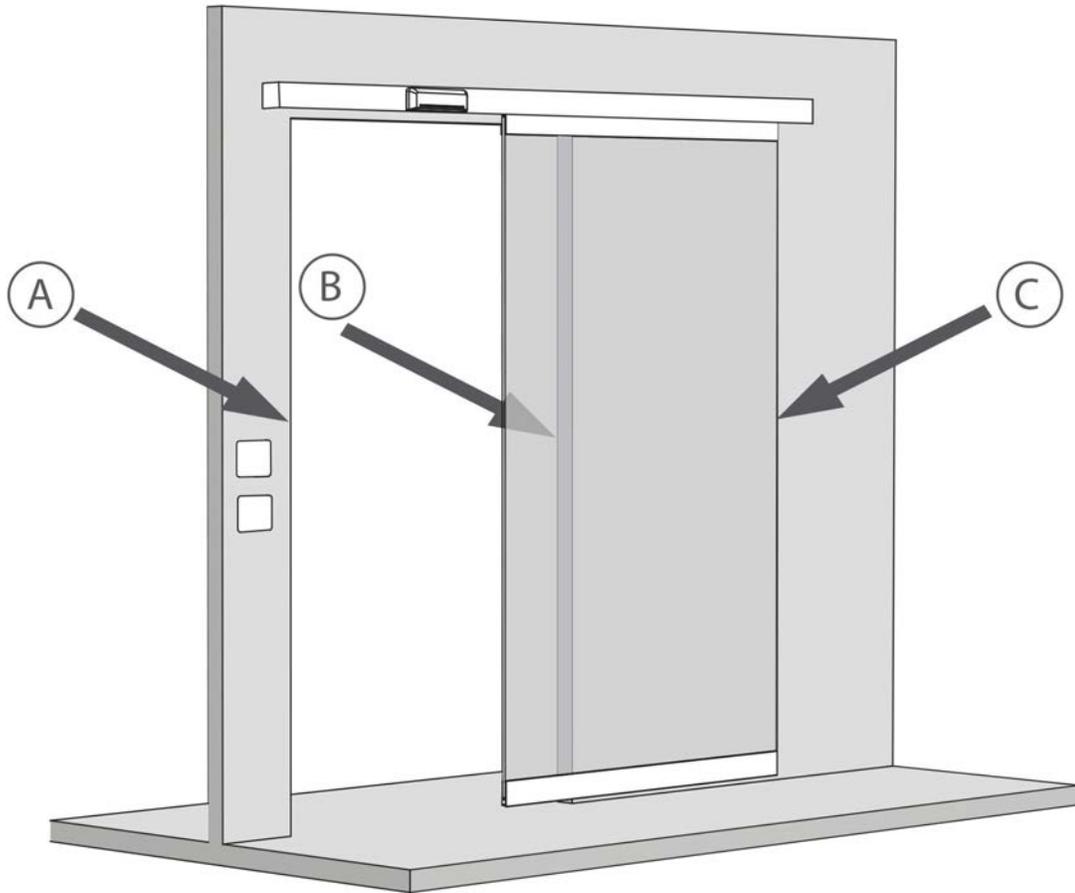
Only authorized technicians are allowed to open the cover of the door guide and manipulate the internal parts, for installation and maintenance purposes. The power switch must be turned off before doing any intervention on the door guide.

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:

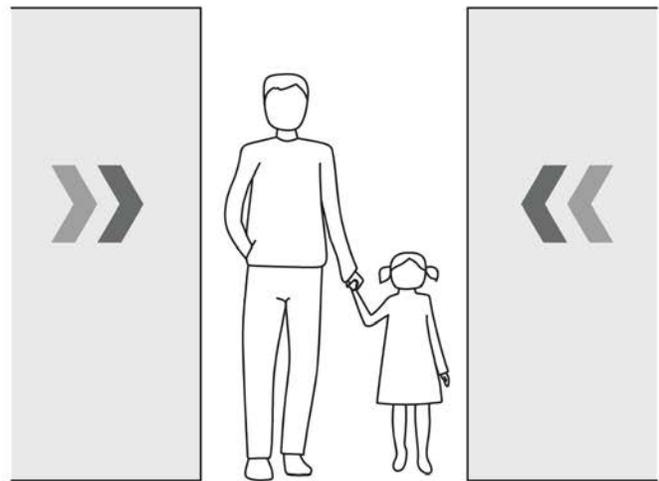
"Danger zone", any area inside and/or near a machine where, the presence or exposure of a person, constitutes a risk for the safety and health of that person.

"Exposed person", any person standing or moving completely or partially, within a danger zone.

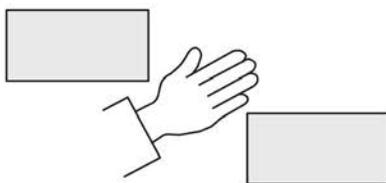
In relation with the usage of this automatic guide, the diagrams below show the typical residual risks in relation with the zones of risk indicated above.



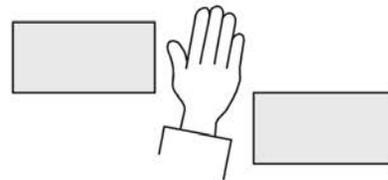
Impact



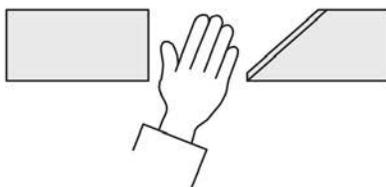
Crush



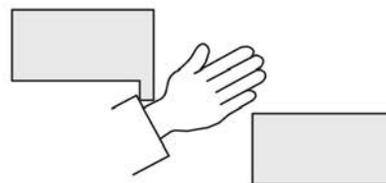
Shearing



Entrapment



Cut



Hooking

3.2. Residual risks

Although the **ELEKTRA SLIDE** 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 or protection, to reduce the risk of impact to persons as much as possible. To limit these risks of the **ELEKTRA SLIDE** 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 **ELEKTRA SLIDE** 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. TROUBLE SHOOTING

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 (mm): 700 - 1400 Operator length (mm): 1250 - 2850 Opening speed: adjustable between 200 and 800 mm/sec. Closing speed: 200 mm/sec EN16005 "Low Energy" Guide weight: 8-10 Kg.
Guide dimensions	60 mm height x 65/70mm width (depending on version)
Leaf weight	Min. 5kg - Max. 80 kg.
Other features	Operating noise < 50dB Use - continuous Number of cycles > 1.000.000
Adjustable parameters	Opening direction: right or left "Low energy" or normal mode Opening speed Closing force Reopening sensitivity Hold open time

Electrical features

Power supply	230 V CA - 50/60 Hz Current (operating / peak): 3A / 5A Protection fuse: 2A Cable section: 3x1,0 mm ² . Length 2m
Power consumption	In motion: 80W Max (0,2 sec): 150W In stand-by: 5W
Motor	Type: Linear LSMPM (Linear Synchronous Motor with Permanent Magnets) No. of poles: 3 Pitch pole : 50 mm No. of phases: 3 Voltage: 24V 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 Wireless communication via Bluetooth
Accessories	Voltage: 24V CC Current: 1A
Operating temperature	Min: 5°C - Max: 40°C

MAINTENANCE MANUAL

Part 4 of the Installation, and Maintenance Manual. This section must be given to the Owner of the automatic door, and be always available for the Maintenance technician

PART 4 - INDEX

1. Introduction
2. **ELEKTRA SLIDE** component overview
3. Technical specifications
4. Trouble shooting
5. Maintenance intervals
6. Maintenance record sheet

1. INTRODUCTION

The maintenance of the **ELEKTRA SLIDE** 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 **ELEKTRA SLIDE** automatic guide, it is compulsory to interrupt or shut down the power supply (230V AC) and proceed with diligence.

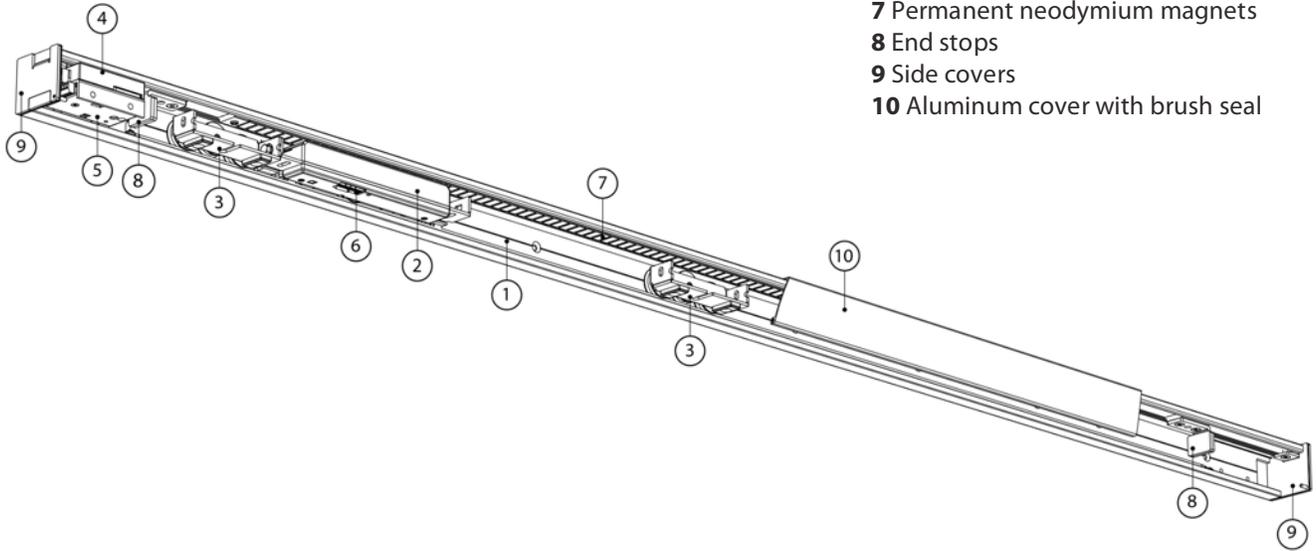
The **ELEKTRA SLIDE** automatic guide does not require any particular maintenance interventions, except cleaning the top and bottom track rails, a general door cleaning and its travelling area, and a revision and adjustment of the mechanical elements at least once a year.

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. ELEKTRA SLIDE 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 Aluminum cover with brush seal



3. TECHNICAL SPECIFICATIONS

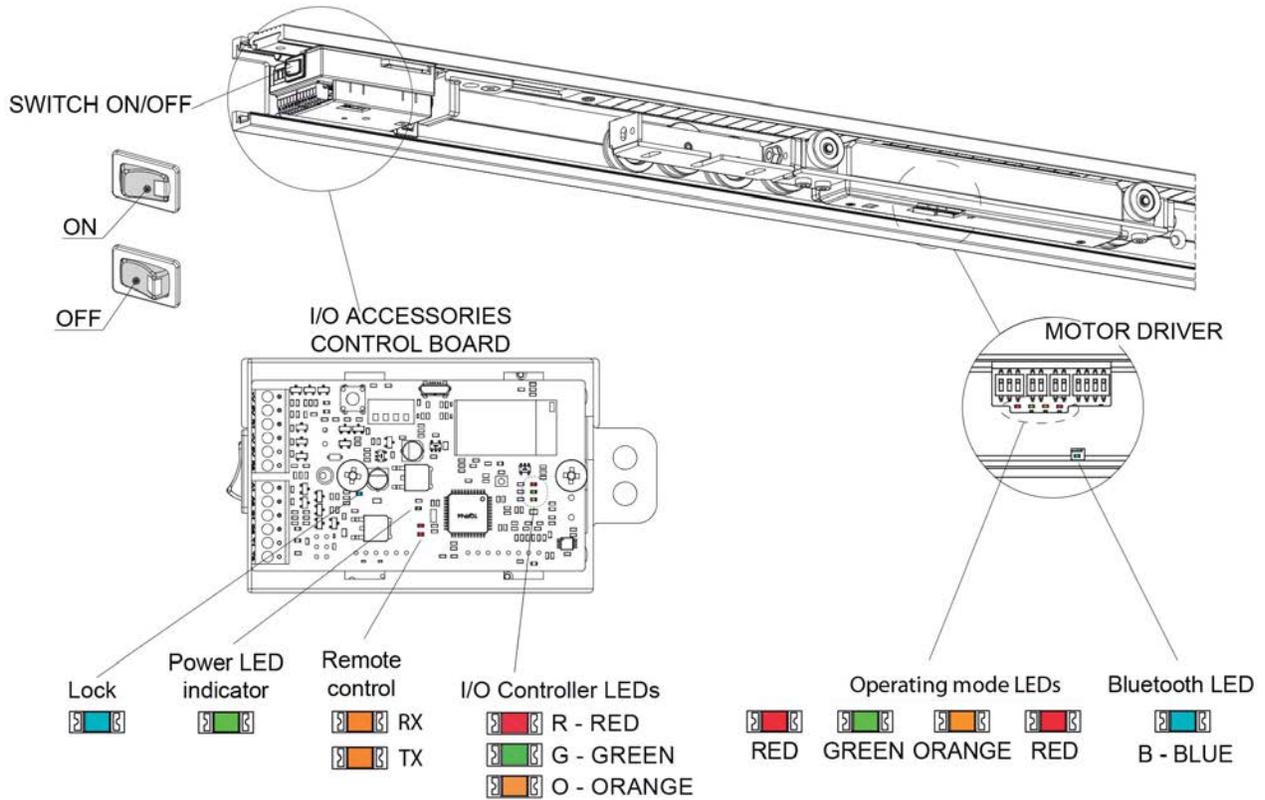
Mechanical features

Main features	Clear opening width (mm): 600 - 1400 Operator length (mm): 1250 - 2850 Opening speed: adjustable between 200 and 800 mm/sec. Closing speed: 200 mm/s EN16005 "Low Energy" Guide weight: 8-10 Kg.
Guide dimensions	60 mm height x 65/70mm width (depending on version)
Leaf weight	Min. 5kg - Max. 80 kg.
Other features	Operating noise < 50dB Use - continuous Number of cycles > 1.000.000
Adjustable parameters	Opening direction: right or left "Low energy" or normal mode Opening speed Closing force Reopening sensitivity Hold open time

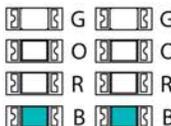
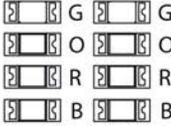
Electrical features

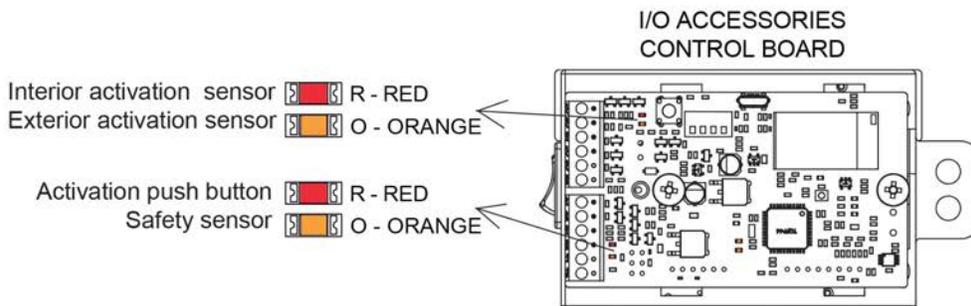
Power supply	230 V CA - 50/60 Hz Current (operating / peak): 3A / 5A Protection fuse: 2A Cable section: 3x1,0 mm ² . Length 2m
Power consumption	In motion: 80W Max (0,2 s.): 150W In stand-by: 5W
Motor	Type: Linear LSMPM (Linear Synchronous Motor with Permanent Magnets) No. of poles: 3 Pitch pole : 50 mm No. of phases: 3 Voltage: 24V 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 Wireless communication via Bluetooth
Accessories	Voltage: 24V CC Current: 1A
Operating temperature	Min: 5°C - Max: 40°C

4. TROUBLE SHOOTING



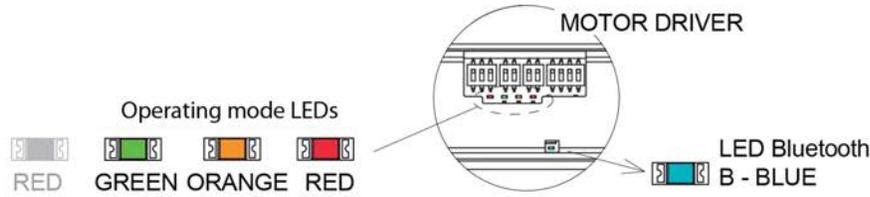
POWER SUPPLY CIRCUIT		
ON/OFF Switch	Situation / Problem	Solution
ON	Switch is in ON position with red light on Door is ON and connected	
OFF	Switch is in OFF position	- Turn the switch to ON position
OFF	Switch is in ON position with red light off Connection is not correct	- Check connections in the junction box, circuit-breaker, fuse box and/or the contact breaker - Check the wiring connections in the terminal plug: phase, neutral, earth
OFF	Correct operation of the power supply circuit and the I/O accessories control board	- Check the wiring connections in the terminal plug: phase, neutral, earth - Test the continuity of the fuse. Replace the 2A fuse if necessary

I/O ACCESSORIES CONTROL BOARD		
LED status	Situation / Problem	Remarks
 Power LED indicator	<p>Correct operation of the power supply circuit and the I/O accessories control board.</p>	
 Power LED indicator	<p>The I/O accessories control panel is not powered. Possible failure or excess of temperature of the Power supply circuit.</p>	<ul style="list-style-type: none"> - Check the 24V DC power supply. If there is no voltage, replace the Power supply circuit. - Check if the top surface I/O accessories control panel is in contact with the main profile of the header frame, to allow a correct heat dissipation.
	<p>Red, Green and Orange LEDs blinking</p>	<p>The I/O accessories control panel is trying to establish Bluetooth communication with the motor Driver</p> <ul style="list-style-type: none"> - Verify the power supply on the driver - Loss of communication caused by a temporary power failure or power drop on the Power supply board. - The Bluetooth pairing of the two control panels did not succeed. - The Bluetooth pairing took more than 2 min. Disconnect other BT devices near the guide and try again. - Repeat the self-adjustment (switch OFF > wait 10s > switch ON).
	<p>Blue led ON Door in Closed or Exit Only modes Lock does not work</p>	<p>No power on the Automatic lock</p> <ul style="list-style-type: none"> - Check the polarity on the automatic lock cable connections - Use a Tester to check if the power tension is 24V CC
	<p>Blue led ON Door in Closed or Exit Only modes Lock does not work</p>	<p>The I/O Accessories control board does not activate the automatic lock</p> <ul style="list-style-type: none"> - Replace the I/O accessories control board
	<p>ORANGE LED BLINKING</p>	<p>Bluetooth communication problem between the I/O accessories control board and the motor Driver</p> <ul style="list-style-type: none"> - Check power supply on motor Driver - Loss of communication due to a temporary voltage drop on the power supply circuit - The pairing process between the I/O accessories control board and motor driver could not be completed - The pairing process between the I/O accessories control board and motor driver takes more than 2 min - Run a new self-adjustment (OFF / 10 s. / ON)



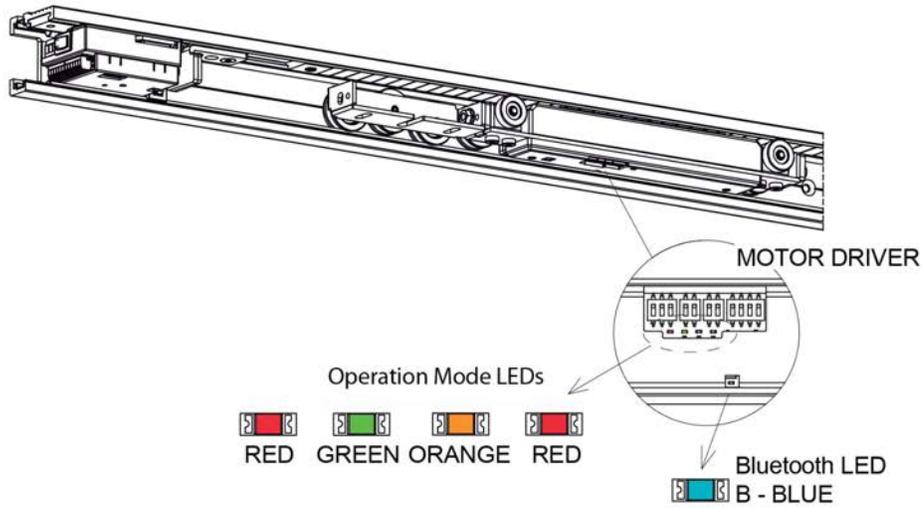
ACCESSORIES - WIRING

LED status	Situation / Problem	Remarks
Int. Sen. R Ext. Sen. O Push btn. R Safety sen. O	All LEDs OFF All devices are working well, and there is no external signal of sensors or push buttons. The automatic guide is in Automatic or Open mode.	
Int. Sen. R Ext. Sen. O Push btn. R Safety sen. O	All LEDs OFF When activating sensors or push buttons, no leds turn on. Connection problem	- Check the wiring connections of all the accessories
Int. Sen. R Ext. Sen. O	Red LED (sensor) blinking (interior sensor is detecting) The led turns on only when there is detection of movement or presence by the interior sensor	- The led turns off when detection ends
Int. Sen. R Ext. Sen. O	Red LED (sensor) ON & still Malfunction on the radar or sensor if the led is permanently on	- Check the sensor wiring connections - Check the adjustment and sensitivity of the sensors connected - Disconnect / connect the sensor
Int. Sen. R Ext. Sen. O	Red LED (sensor) OFF The sensor detects movement or presence, but the led does not turn on, and the guide does not open the door	- Check the wiring connections of all the sensors
Push btn. R Safety sen. O	Red LED (p.button) blinking The push-button may be defective (continuity)	- The led turns off when push button is released. Otherwise, replace the push button
Push btn. R Safety sen. O	Red LED (p.button) ON & still The push-button is permanently blocked in push position	- Disconnect the push button
Push btn. R Safety sen. O	Red LED (p.button) OFF When activating the push buttons, the led does not turn on. The guide does not open the door The guide does not respond to the commands received from the remote control	- Check the wiring connections of the push-buttons - Check that the antenna on the receiver is not touching any element of the automatic guide (cables, aluminium tracks, control board).



MOTOR DRIVER		
LED status	Situation	Remarks
	LEDs OFF	Motor driver performing correctly
	LED BLUETOOTH ON	No communication between the I/O Accessories control board and the motor driver - Wait 30 seconds for pairing, otherwise start a new pairing process between both boards
	LED BLUETOOTH OFF	Communication established between the I/O Accessories control board and the motor drive - Bluetooth performing correctly
	ALL LEDs BLINK IN A SEQUENCE	Self-adjustment is running - DO NOT INTERFERE the process
	GREEN LED ON	The guide is in AUTOMATIC mode. CCC Push & Go is enabled.
	ORANGE LED ON	The guide is in OPEN mode. LED is ON only 10 seconds after selecting the operating mode, then the led will turn OFF Door can be moved manually.
	RED LED ON	The guide is in CLOSED mode. LED is ON only 10 seconds after selecting the operating mode, then the led will turn OFF The automatic lock (if supplied) blocks the door leaf in closed position. All activation devices (inside & outside) are disabled.
	ORANGE and RED LEDs ON	The guide is in EXIT ONLY mode. LEDs are ON only 10 seconds after selecting the operating mode, then the leds will turn OFF The auto lock blocks the door leaf in closed position. Inside activation devices are enabled, outside disabled.
	GREEN and ORANGE LEDs ON	The guide is in CYCLING mode LEDs are ON only 10 seconds after selecting the operating mode, then the leds will turn OFF The door is continuously doing opening and closing cycles (normally used for quality control tests)

MOTOR DRIVER		
LED status	Situation / Problem	Remarks
 G O R	GREEN LED BLINKING and ORANGE LED ON	Detection of obstruction during the closing cycle.
 G O R	GREEN LED BLINKING and RED LED ON	Detection of obstruction during the opening cycle.
 G O R	ORANGE LED ON and RED BLINKING	Overcurrent problem
 G O R	GREEN LED ON and ORANGE BLINKING	Overvoltage problem
 G O R	GREEN LED ON and RED BLINKING	Encoder problem
 G O R	ORANGE and RED LEDs BLINKING	Overweight problem
 G O R	ORANGE LED BLINKING and RED ON	Excess of temperature on motor



MOTOR DRIVER		
LED status	Situation / Problem	Remarks
 G O R	ORANGE LED BLINKING Bluetooth communication problem between the I/O accessories control panel and the motor driver	<ul style="list-style-type: none"> - Check the power supply to the driver - Loss of communication caused by a temporary power failure or power drop on the Power supply board - The Bluetooth pairing of the two control panels did not succeed - The Bluetooth pairing took more than 2 min. Disconnect other BT devices near the guide and try again. - Repeat the self-adjustment (switch OFF > wait 10 s > switch ON)
 R G O R B	ALL LEDS ARE OFF Power supply problem on the motor After replacing any of the two control boards (I/O accessories or motor Driver), there is no communication between them. Pairing process fails	<ul style="list-style-type: none"> - Check motor power supply - Check that all brushes are in direct contact with the top and bottom rails - Check the status of the top and bottom rails. Remove any particles of dust using a dry cloth. Do not use liquids <ul style="list-style-type: none"> - Check if Dip switch #2 on the motor driver, used for Bluetooth pairing is in the correct position. When setting the dip switch to ON, you must listen a "click" sound indicating that the dip switch is firmly placed in position. Then run a new pairing process

5. MAINTENANCE INTERVALS

In the following chart, we show the task and intervals of the interventions, that are required to periodically execute on the **ELEKTRA SLIDE** automatic guide, which depend on the frequency or the number of cycles:

Task	Frequency	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



CONTACT INFORMATION

TUCKER AUTO-MATION – USA

11075 Parker Drive
Irwin, PA 15642

Toll Free: 1-855-8 TUCKER

Tel: 412-823-2537 | **Fax:** 412-816-1862

Email: sales@tuckerauto-mation.com

WEB: www.tuckerauto-mation.com

ENTRA-MATIC – CANADA

810 Bombardier,
Mascouche, Québec (Canada) J7K 1X9

Toll Free: 1-800-567-9970

Tel: (450)966-9970 - **Fax:** (450) 966-0138

Email: info@entra-matic.ca

WEB: www.entra-matic.ca