

# EvoDrive+

## MAINTENANCE MANUAL



Part 4 of the Installation, User and Maintenance Manual

This section must be given to the Owner of the automatic door, and be always available for the Maintenance technician

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## EvoDrive+ AUTOMATIC DOOR OPERATOR FOR INTERIOR SLIDING DOOR

# PART 4

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## Maintenance Manual

This part of the manual explains the considerations for the correct maintenance of the operator.



It is very important to read this manual in full, and to observe and follow all instructions as described herein.

## 1. INTRODUCTION

The maintenance of the **EvoDrive+** automatic sliding door operator 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.

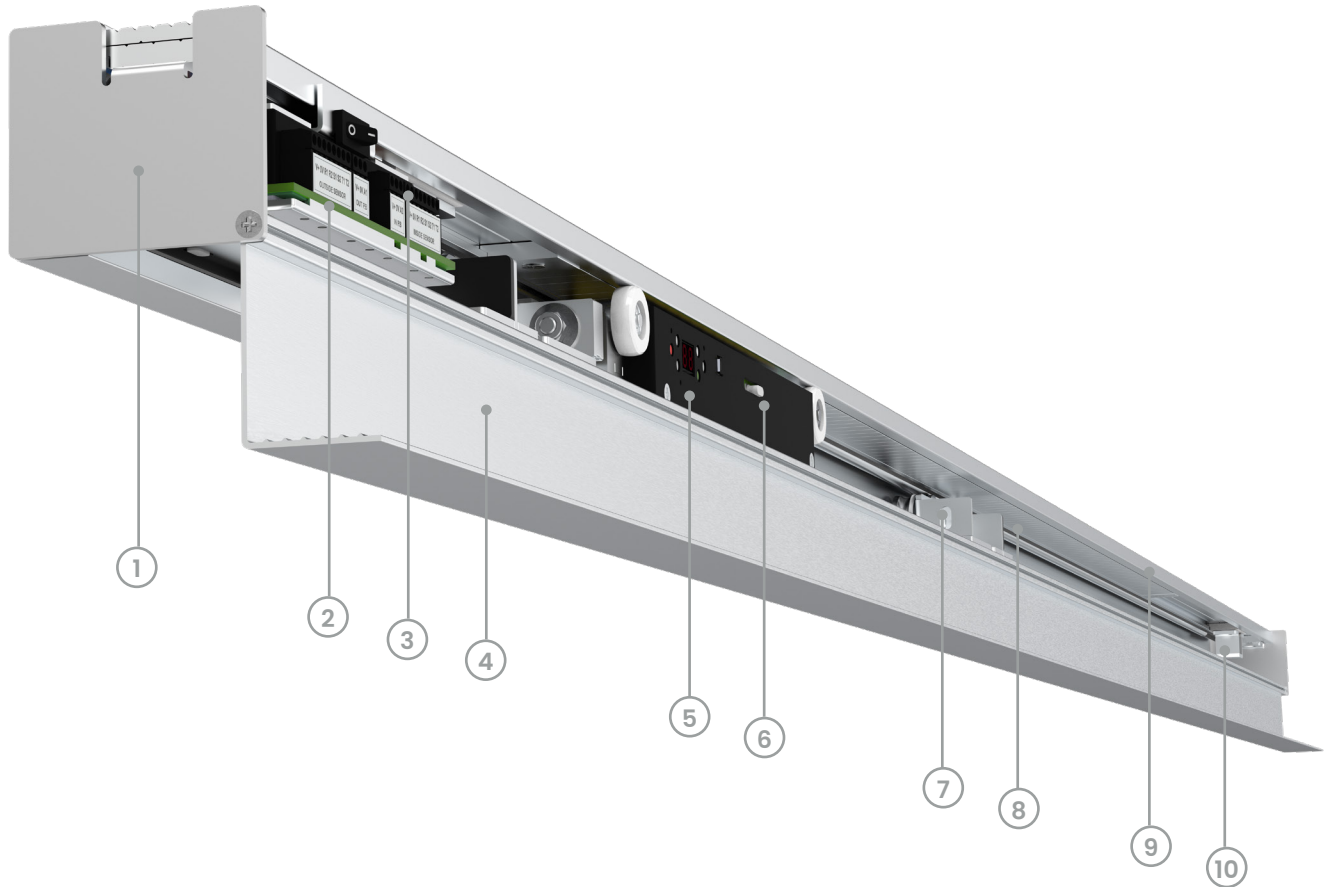
When performing ordinary or extraordinary maintenance tasks that require to stop the operation of the **EvoDrive+** automatic door operator, it is compulsory to interrupt or shut down the power supply and proceed with diligence.

The **EvoDrive+** automatic door operator 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



- 01. Side Covers
- 02. Power Supply Circuit
- 03. I/O Module - Master
- 04. Aluminium Cover
- 05. Linear Motor Type LSMPM
- 06. Motor Driver
- 07. Leaf Trolleys
- 08. Permanent Neodymium Magnets
- 09. Main Profile
- 10. End Stops

### 3. TECHNICAL SPECIFICATIONS

#### MECHANICAL FEATURES

<b>MAIN FEATURES</b>	Clear Opening Width, single leaf (mm): 750 - 1400 Clear Opening Width double leaf (mm): 1500 - 2800 Operator Length, single leaf (mm): 1650 - 2850 Operator Length double leaf (mm): 3100 - 5700 Opening Speed: adjustable between 200 and 600 mm/s Closing speed: 200 mm/s EN16005 "Low Energy" Weight of the Operator: 8-10 kg
<b>GUIDE DIMENSIONS</b>	60 x 70 mm
<b>LEAF WEIGHT</b>	Min. 5 kg - Max. 80 kg
<b>OTHER DATA</b>	Operating Noise: < 50 dB Use - Continuous Number of Cycles: > 1.000.000
<b>ADJUSTABLE PARAMETERS</b>	Opening Direction: right or left Bistable Mode "Low energy" or Normal mode Opening Speed Hold Open Time

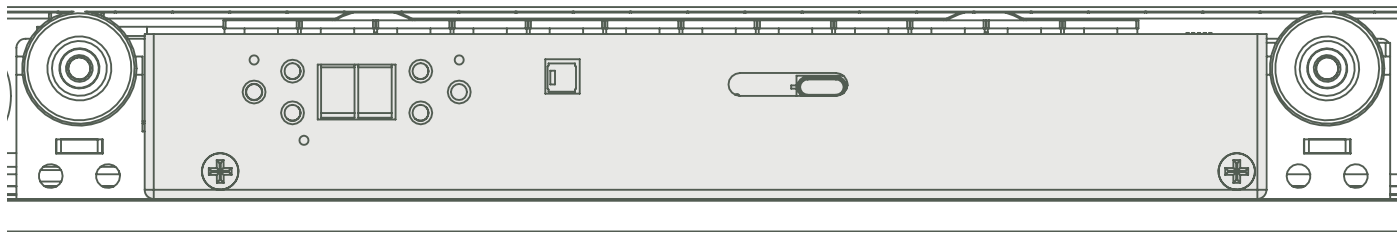
#### ELECTRICAL FEATURES

<b>POWER SUPPLY</b>	80-264 VAC/390 VDC & 47-63 Hz (Universal) Maximum Operation Power: 180 W Protection Fuse: 2 A Cable Section: 3x1,5 mm <sup>2</sup> . Length 2 m
<b>POWER CONSUMPTION</b>	In Motion: 80 W Max (0,5 sec): 180 W In Stand-by < 4 W
<b>MOTOR</b>	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
<b>CONTROL</b>	Motion control by means of a driver with field-oriented control (FOC) Self-adjustment of Clear Opening
<b>ACCESSORIES</b>	Voltage: 24 V CC Current: 1 A
<b>OPERATING TEMPERATURE</b>	Min: 5 °C - Max: 40 °C

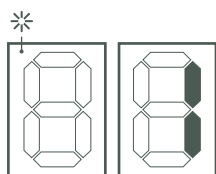
## 4. BASIC TROUBLESHOOTING

SITUATION / PROBLEM	SOLUTION
Obstruction detection during the closing cycle	Check and remove obstructions in the closing travelling area.
	Check that leaf can be moved manually and smoothly.
	In the event 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	Check and remove obstructions in the opening travelling area.
	Check that leaf can be moved manually and smoothly.
Leaf is moving too slow	Check if the operator is in Low Energy.
	Check that no item is generating excessively friction.
Leaf does not move	Verify that I/O Accessories is switch ON, and the Bluetooth led is OFF
	Verify that the operator is not in open mode.
	Verify that the sensors / accessories have been connected correctly.
Leaf hits the users	Verify that all the sensors have been correctly adjusted.
Self-adjustment never ends	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.
Door vibrates at the end of the opening movement	Adjust the parameter 08 of the display decreasing their value.
Door knocks at the end of the closing movement	Adjust the parameter 09 of the display decreasing their value.

## 5. MALFUNCTION CODES

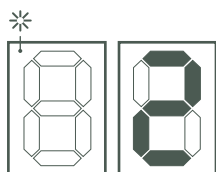


In case of malfunction, a numeric code will BLINK on the motor two-digit display.



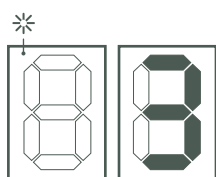
### Description: Motor Overcurrent

Action: Switch the operator off and on again. If the error persists, call an official service technician.



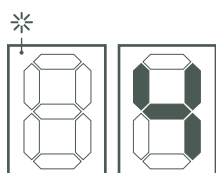
### Description: Encoder Malfunction

Action: Verify the presence of magnets above the full length of the motor, along the entire travelling movement; that the stoppers on both sides of the array of magnets are firmly fixed and not moving; and there is no gap between magnets (the array of magnets is composed of several modules of 16 magnets, measuring 20 cm each module).



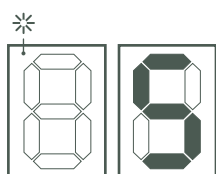
### Description: Leaf Weight is above limits

Action: Check that the door leaf weights under 80 Kg; check that the friction of the floor guide is not excessive; check that the door leaf is totally vertical (not tilted) and well balanced; check that the leaf slides smoothly along the entire travelling distance.



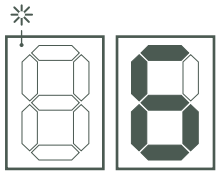
### Description: Motor Temperature is above limits

Action: Verify that the environment temperature is under 40°C.



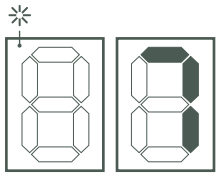
### Description: Overvoltage

Action: Call an official service technician.



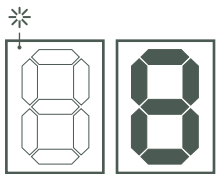
**Description: Bluetooth communication is missing between the motor and I/O module**

Action: Pair the motor and I/O module back together.



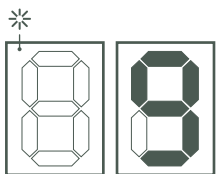
**Description: Problem on the electronic board clock**

Action: Switch the operator off and on again. If the error persists, call an official service technician.



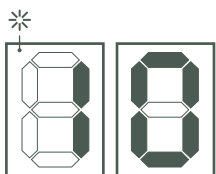
**Description: Problem on the internal non-volatile memory in the electronic board**

Action: Switch the operator off and on again. If the error persists, call an official service technician.



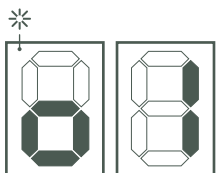
**Description: Problem on the internal program memory in the electronic board**

Action: Switch the operator off and on again. If the error persists, call an official service technician.



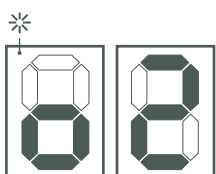
**Description: Hardware Overcurrent**

Action: Switch the operator off and on again. If the error persists, call an official service technician.



**Description: Obstruction found during the opening cycle**

Action: Remove the obstruction; check that the floor guide is not causing too much friction; check that the door leaf is totally vertical (not tilted) and well balanced; check that the leaf slides smoothly along the entire travelling distance.

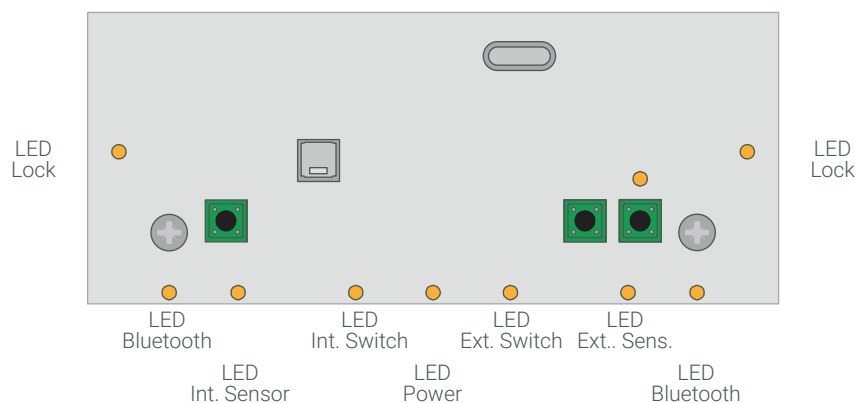


**Description: Obstruction found during the closing cycle**

Action: Remove the obstruction; check that the floor guide is not causing too much friction; check that the door leaf is totally vertical (not tilted) and well balanced; check that the leaf slides smoothly along the entire travelling distance.

## 6. DESCRIPTION OF THE LED INDICATORS ON THE I/O MODULE

### I/O MODULE



### LED INDICATORS

LEDs	DESCRIPTION
POWER	ON when the operator is energized
BLUETOOTH	ON after switching the power on OFF in normal working mode Fast BLINK in discovery mode Slow BLINK pairing connection process
INTERIOR SENSOR	ON when activated, otherwise OFF
EXTERIOR SENSOR	ON when activated, otherwise OFF
INTERIOR SWITCH	ON when activated, otherwise OFF
EXTERIOR SWITCH	ON when activated, otherwise OFF
LOCK	ON when the lock is in blocked position, in Close or Exit Only Mode

## 7. 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 door operator, which depends on the frequency or the number of cycles:

TASK	FREQUENCY	NUMBER OF CYCLES
Cleaning of the top and bottom track rails	Yearly	50000
Cleaning the sliding leaf travelling area	Yearly	50000
Adjustment of the sliding leaf suspension	Yearly	50000
Adjustment of all screws in general	Yearly	50000
Adjustment of the automatic lock (if supplied)	Yearly	50000
Adjustment of the gap between motor and magnets	Yearly	50000
Test of the safety sensors	Yearly	50000
Test of the activation devices (radars, sensors, touch-less switch, push buttons, etc.)	Yearly	50000
Test of the remote control battery	Every 2 years	-
Inspection of the leaf trolleys	Every 5 years	250000
Inspection of the end stops felts	Every 5 years	250000
Inspection of the sliding leaf guide	Every 5 years	250000
Inspection of the motor brushes	Every 5 years	250000

## 8. MAINTENANCE RECORD SHEET

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

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

**MOTION4**

**ADDRESS**

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