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

EVODRIVE AUTOMATIC GUIDE FOR INTERIOR SLIDING DOOR

ORIGINAL MANUAL

PART 4 - Maintenance Manual

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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.

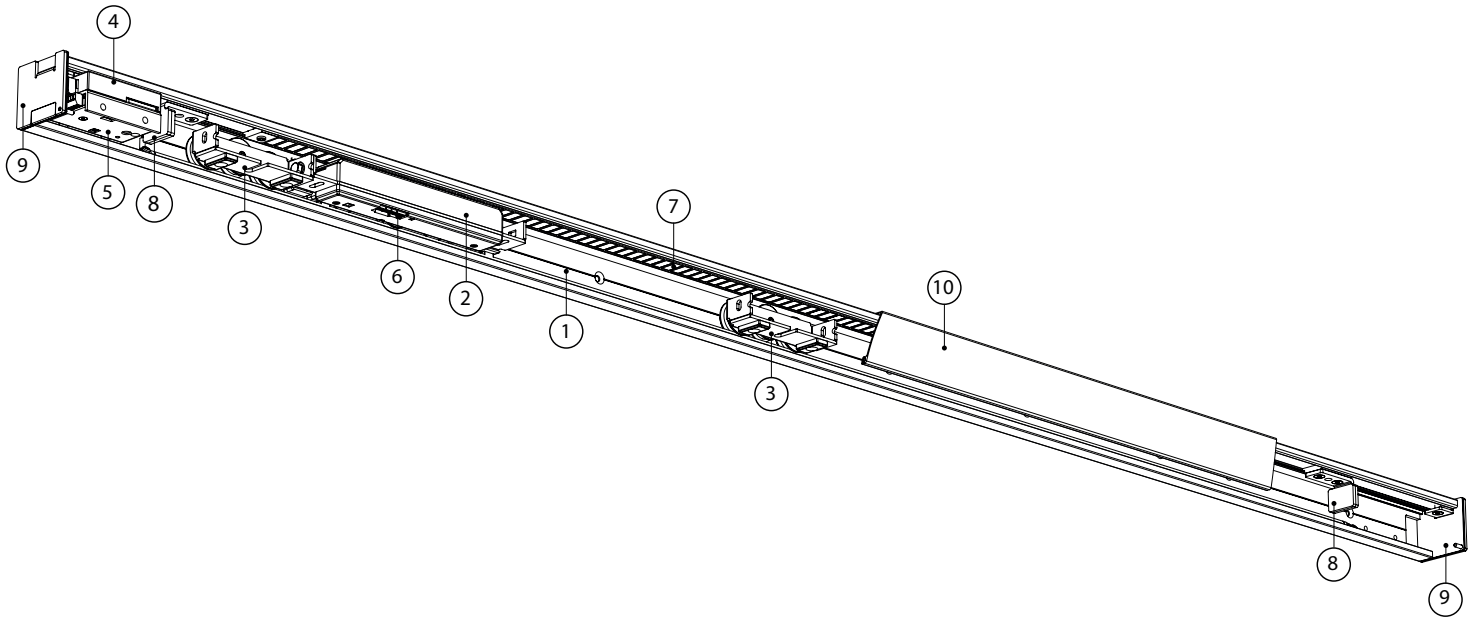
When performing ordinary or extraordinary maintenance tasks that require to stop the operation of the EvoDrive automatic guide, it is compulsory to interrupt or shut down the power supply (230V AC) and proceed with diligence.

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 (mm): 700 - 1400 Operator length (mm): 1250 - 2850 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 65 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 “Low energy” or normal mode Opening speed Closing force Reopening sensitivity Hold open time

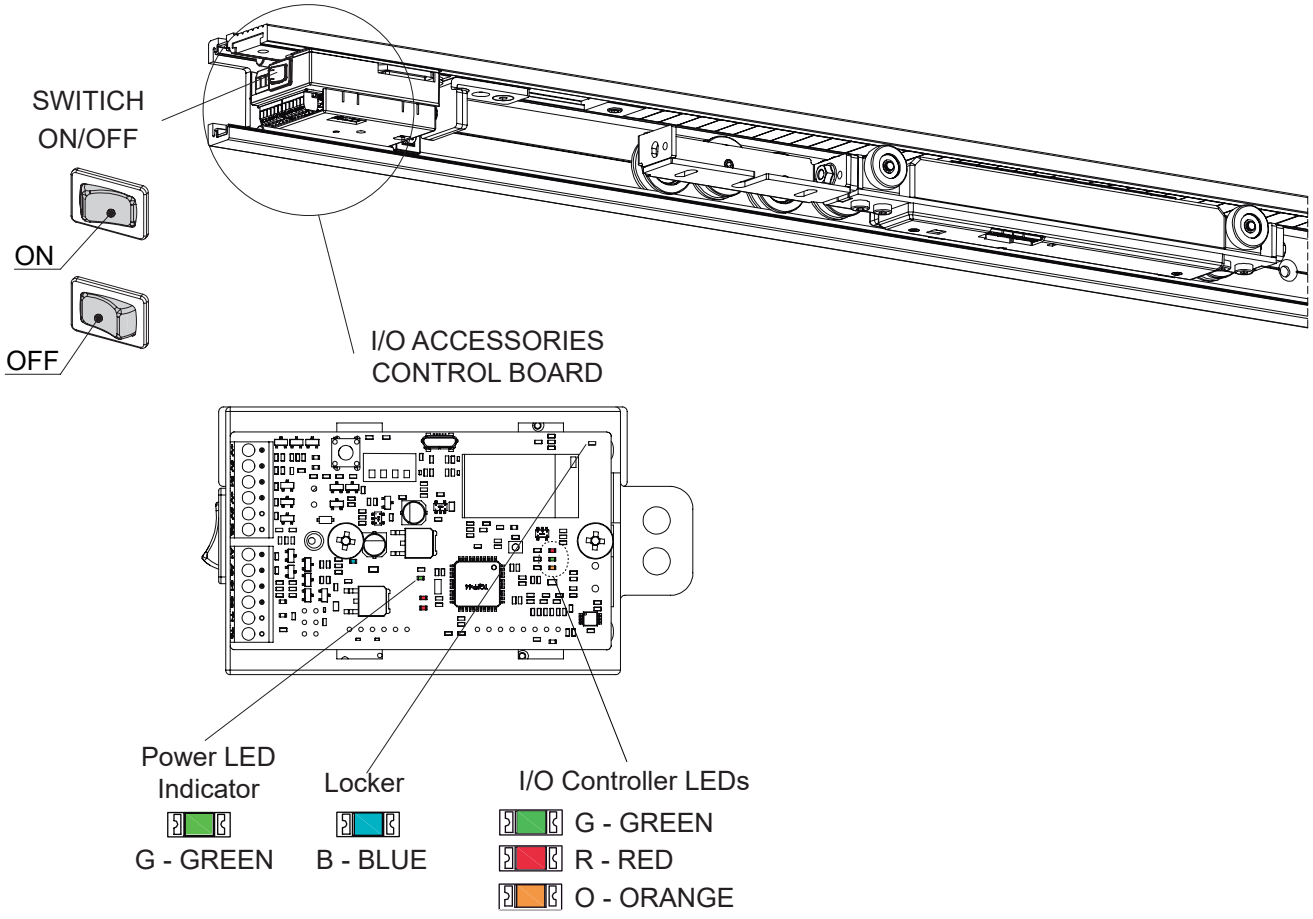
Electrical features

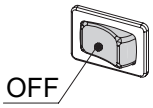
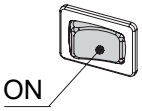
Power supply	230 V CA - 50/60 Hz / 110 V CA (under request) Current (operating / peak): 3 A / 5 A Protection fuse: 2 A Cable section: 3x1,5 mm^2. Length 2 m
Power consumption	In motion: 80 W Max (0,2 s): 150 W In stand-by: 5 W
Motor	Type: Linear LSMPM (Linear Synchronous Motor with Permanent Magnets) No. of poles: 3 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 DC Current: 1 A
Operating temperature	Min: 5 ºC - Max: 40 ºC

4. BASIC TROUBLESHOOTING

Situation/Problem	Solution
Obstruction detection during the closing cycle.	- Check and remove obstructions in the opening travelling area. - Check that leaf can be moved manually and smothly. - Verify that the final adjustment has been made, see p. 20 of EvoDrive installation manual.
Obstruction detection during the opening cycle.	- Check and remove obstructions in the opening travelling area. - Check that leaf can be moved manually and smothly. - Verify that the final adjustment has been made, see p. 20 of EvoDrive installation manual.
Leaf is moving too slow	- Check if Dip switch 3 on the motor driver (Low Energy) is in OFF position. - Check that no item is generating excessively friction. - Verify that the final adjustment has been made, see p. 20 of EvoDrive installation manual.
Leaf does not move	- Verify that I/O Accessories is switch ON. - Verify that the final adjustment has been made, see p. 20 of EvoDrive installation manual.
Self-adjustment never ends	- Check that the weight of the leaf is below 80 kg (max. admitted). - Verify that the final adjustment has been made, see p. 20 of EvoDrive installation manual.

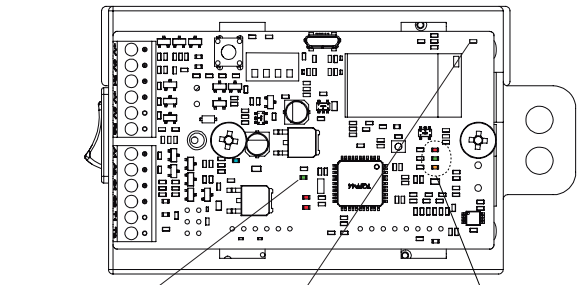
5. SPECIFIC TROUBLESHOOTING



I/O ACCESSORIES CONTROL BOARD		
ON/OFF Switch	**Situation/Problem**	**Solution**
 OFF	Switch is in OFF position and the door is not working	- Turn the switch to ON position.
 ON	Switch is in ON position but the door is not working	- 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. - Check the wiring connections in the terminal plug: phase, neutral, earth Test the continuity of the fuse. Replace the 2 A fuse if necessary.

I/O ACCESSORIES CONTROL BOARD		
LED status	**Situation / Problem**	**Solution**
G R O ORANGE LED BLINKING	Connection problem between the I/O accessories control board and the motor Driver if it takes more than 2 min	- Check if it takes more than 2 min. - 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. - Run a new pairing process.
G R O RED, GREEN AND ORANGE LEDs BLINKING	Pairing problem between the I/O accessories control board and the motor Drvier if it takes more than 2 min	- Check if it takes more than 2 min. - 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.
B BLUE LED ON	Automatic locker does not work	- Check the polarity on the automatic lock cable connections. - Check if the power tension is 24 V DC. If that is the case, contact the manufacturer.

I/O ACCESSORIES CONTROL BOARD



Power LED Indicator
G - GREEN

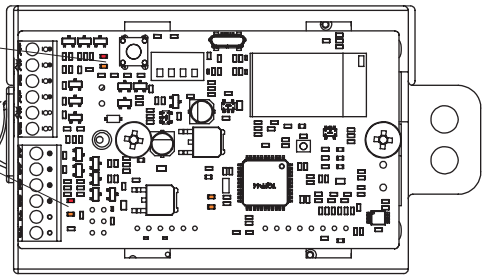
Locker
B - BLUE

I/O Controller LEDs
G - GREEN
R - RED
O - ORANGE

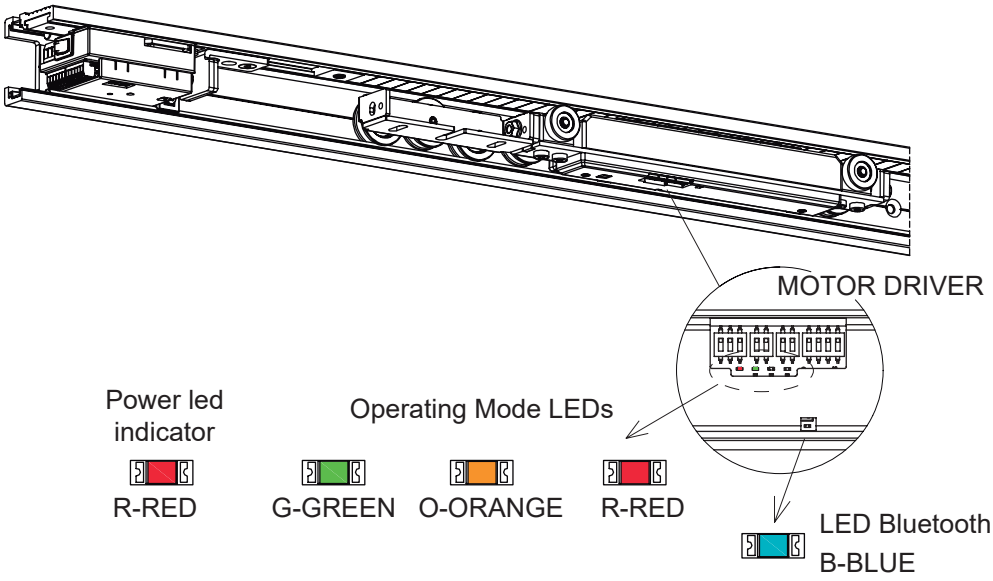
I/O ACCESSORIES CONTROL BOARD

Interior activation sensor O - ORANGE
Exterior activation sensor O - ORANGE

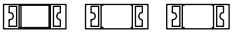
Activation push button O - ORANGE
Safety sensor O - ORANGE



I/O ACCESSORIES CONTROL BOARD		
LED status	**Situation / Problem**	**Solution**
Int. Sens. O Ext. Sens. O Push-button O Safety. Sens O	When activating Int.sensor, Ext.Sensor or Safety sensor no orange led turn on. The door does not work	- Check the wiring connections of all sensors.
Int. Sens. O Ext. Sens. O Push-button O Safety. Sens O	The Interior sensor led is still on when there is no detection of movement or presence.	- Check the sensor wiring connections. - Check the adjustment and sensitivity of the sensors connected. - Disconnect / connect the sensor.
Int. Sens. O Ext. Sens. O Push-button O Safety. Sens O	The Exterior sensor led is still on when there is no detection of movement or presence.	- Check the sensor wiring connections. - Check the adjustment and sensitivity of the sensors connected. - Disconnect / connect the sensor.
Int. Sens. O Ext. Sens. O Push-button O Safety. Sens O	The Safety sensor led is still on when there is no detection of movement or presence.	- Check the sensor wiring connections. - Check the adjustment and sensitivity of the sensors connected. - Disconnect / connect the sensor.
Int. Sens. O Ext. Sens. O Push-button O Safety. Sens O	The push-button led is permanently on. The push-button is permanently blocked in push position.	- Disconnect the push button.
Push-button O	When activating the push buttons, the led does not turn on.	- Check the wiring connections of the push-buttons.



	MOTOR DRIVER		
	LED status	**SItuation / Problem**	**Solution**
G O R	GREEN LED BLINKING AND ORANGE LED ON	Obstruction detection during the closing cycle	- Check and remove obstructions in the opening travelling area. -Check that leaf weight is below 80 kg (max. admitted). -Repeat the self-adjustment (switch OFF / wait 10 s. / switch ON).
G O R	GREEN LED BLINKING AND RED LED ON	Obstruction detection during the closing cycle	
G O R	ORANGE LED ON AND RED LED BLINKING	Overcurrent problem	- Check 24 V DC power supply on the top and bottom track rails. - Check if motor brushes are in contact with the track rails. - Check if the top and bottom track rails are clean and free of dust. Clean thoroughlly if not. Do not use water or other liquids.
G O R	GREEN LED ON AND ORANGE LED BLINKING	Overvoltatge problem	- Check the temperature on the Power supply board. Make sure the top side is fixed flat and in direct contact with the frame. - Repeat the self-adjustment (switch OFF / wait 10 s. / switch ON)

	MOTOR DRIVER		
	LEDs status	**Situation / Problem**	**Solution**
 G O R	GREEN LED ON AND RED LED BLINKING	Encoder problem	- Check that the motor Driver pins are correctly connected into the motor. - If the problem persists, contact the manufacturer.
 G O R	ORANGE LED BLINKING AND RED LED ON	Excess of temperature on motor	- Check that leaf weight is below 80 kg. (max. weight admitted) - Check if there are frictions during the movements of the door leaf. - Reduce the opening speed (Installation manual p. 26) - Check that operating temperature does not exceed 50 ºC. - Repeat the self-adjustment (switch OFF / wait 10 s. / switch ON)
 G O R	ORANGE LED BLINKING	Bluetooth comunication problem between the I/O accessories control panel and the motor driver	- 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 Bluetooth devices near the guide and try again. - Repeat the self-adjustment (switch OFF / wait 10 s. / switch ON)
 G O R	ALL LEDs OFF	Power supply problem on the motor	- 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 particle of dust using a dry cloth. Do not use liquids.
		After replacing any of the two control boards (I/O accessories or motor Driver), there is no communication between them.	- 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. Then run a new pairing process.

6. MAINTENANCE INTERVALS

In the following chart we show the taks 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 slinding leaf guide	Every 5 years	250,000
Inspection of the motor brushes	Every 5 years	250,000

7. MAINTENANCE RECOD SHEET

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

.....

.....

Signed by the service Technician:

Signed by the client:

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

.....

.....

Signed by the service Technician:

Signed by the client:

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

.....

.....

Signed by the service Technician:

Signed by the client:

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

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Signed by the service Technician:

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7. MAINTENANCE RECOD SHEET

Date: / /
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Comples: YES ☐ NO ☐
Remarks: .....

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Signed by the service Technician:

Signed by the client:

MOTION4
DOORS

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