

INSTRUCTIONS



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1.- GENERAL

1.1 NORMAL USE

The EM-17 module is an electronic control device that detects unintended car movement with a lift stopped on the floor and the doors open.

The EM-17 module is an integral part of the devices for unintended car movements in compliance with the annexe III of the Lift Directive 2014/33/EU. Any other use has not been assessed and therefore is not foreseen.

1.2 GUARANTEE

LUEZAR-ECO, S.L. guarantees, for the period established by the current legislation, the functioning of its product against any fault in the materials and assembly during its manufacturing.

This guarantee will not be valid in the following cases:

- *Inappropriate use.*
- *Faulty installation.*
- *Superficial impacts.*
- *Faulty electrical wiring.*
- *Inappropriate maintenance.*

And, in general, non-compliance with the instructions described in this handbook.

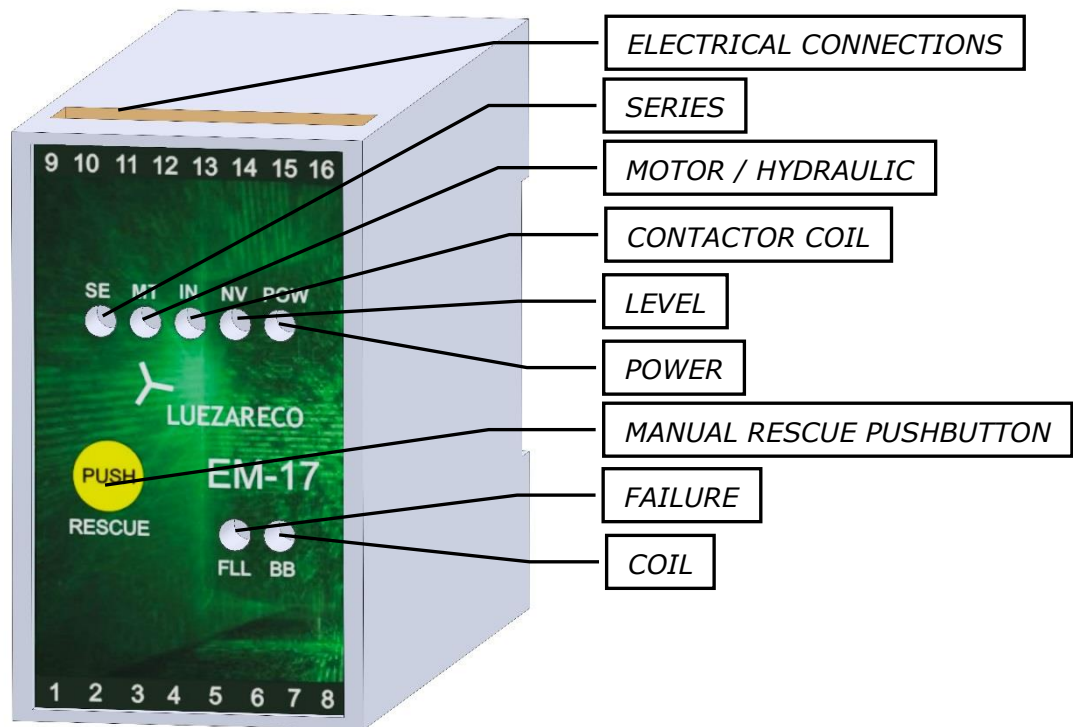
The integral components of the control module cannot be opened, manipulated or modified under any circumstances. Any action on them must be carried out by LUEZAR-ECO, S.L.

LUEZAR-ECO, S.L. reserves all rights to modify the content of this document without prior notice, thus cancelling the validity of previous revisions.

1.3 TRANSPORT AND STORAGE

The EM-17 control module shall be transported in appropriate packaging so that it is protected from bumps, humidity, dirtiness and poor weather conditions at all times.

Control modules do not have a limited shelf life, but they shall be returned to the factory in order to be checked by LUEZAR-ECO S.L., following prior agreement, if any superficial damage caused by bumps or humidity is detected once the product has been unpacked.

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1.4 FUNCTIONING

LED SIGNALS

- **POWER.** *Module ON indicator. The LED indicator on shows the module powered on.*
- **LEVEL.** *Level indicator. The LED indicator on shows that the lift is at the floor level.*
- **CONTACTOR COIL.** *Contactor coil indicator. The LED indicator on shows that the contactor of the governor coil is not activated.*
- **MOTOR / HYDRAULIC** *Motor/hydraulic indicator. The LED indicator on shows that the motor or the hydraulic equipment is in operation.*
- **SERIES.** *Series indicator. The LED indicator on shows that the safety series is closed.*
- **FAILURE.** *Relay failure indicator. The LED indicator on shows that the module has detected a failure.*
- **COIL.** *Coil indicator. The LED indicator on shows that the coil is powered.*

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1.4.1 NORMAL OPERATING MODE

The EM-17 control module works in conjunction with the lift controller and the overspeed governor equipped with a blocking device. The following blocking device has to include a coil and a safety switch so that when the coil is not powered the governor gets blocked and when it is on – the governor is unblocked.

The EM-17 module uses the following input signals from the lift controller:

- Door safety series.
- Floor level.
- Activation indicator of the motor/hydraulic

In the normal operating mode, when the car reaches the floor, it stops the motor and opens the doors the EM-17 control module disconnects the governor coil from the power supply and blocks it. Therefore, if unintended care movement occurs under these conditions since the overspeed governor is blocked it consequently engages the safety gear and stops the car.

By contrast, when the new command sends the lift in motion the module receives the signs of closed doors and motor/hydraulic from the lift controller. It then powers the coil and unblocks the governor to make a regular trip until the lift reaches the floor again.

1.4.2 GOVERNOR UNABLE TO UNBLOCK

If the lift tries to get in motion and due to mechanical or electrical reasons the governor coil remains blocked in the inactive position (governor blocked) and the coil contactor is not activated, the module will not allow the lift to start the movement, the failure LED indicator lights up and blocks the command. The LED indicator of failure remains lit until the doors open and the door series indicator disappears or until the module is disconnected from power supply.

If the problem remains, the failure will recur once the lift tries to get in motion again.

1.4.3 GOVERNOR UNABLE TO BLOCK

If the lift tries to get in motion while the governor coil is blocked in the active mode (governor unblocked) and the coil contactor remains activated, the module will not allow the lift to start the movement, the failure LED indicator lights up and blocks the command. The LED indicator of failure remains lit until the coil contactor stops being activated or until the module is disconnected from power supply.

If the problem remains, the failure will recur once the lift tries to get in motion again.

This one is considered a serious failure since the coil is blocked in the active position the UCM system will not be able to stop any uncontrolled car movement.

1.4.4 SAFETY SERIES OPENING WHILE THE CAR IS IN MOTION

If in normal operating mode a lift executes the safety series opening, the lift controller brings the machine or hydraulic system to a standstill. In these conditions after approximately 3 seconds, the module stops supplying power to the coil and the governor is tripped to avoid any possible movement of the car.

Once the safety series has been closed, the EM – 17 device will go back to its normal operating mode.

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1.4.5 NO VOLTAGE IN THE INSTALLATION DURING THE TRIP

When there is no voltage in the installation the car or the hydraulic system stops. In this case, the module gets its power supply from the batteries or another external source, the coil stays powered for approximately 3 seconds and once they have elapsed, the module stops supplying power to the coil and the governor gets tripped so as to prevent any car movement.

Once the power supply has been restored the EM-17 device goes back to its normal operating mode.

The delay in governor tripping mentioned in this section as well as in the one above is meant to avoid undesired blocking of the lift.

1.4.6 EMERGENCY RESCUE WITHOUT VOLTAGE IN THE INSTALLATION

Using 24V batteries or an external power supply source and by pressing the rescue pushbutton, which can be found on the front panel, the coil can be powered on by disengaging the governor and thus allowing the lift to move during the emergency rescues.

It is essential to use rechargeable batteries or an external power supply source to carry out emergency rescues in the absence of voltage. The control module makes it possible to recharge these batteries without the need to connect them to a special charger.

1.5 GENERAL FEATURES

Power supply.	24 V _{DC}
Battery power.	24 V _{DC} 1,5Ah Ni-Cd
Governor unlocking coil power supply.	24V _{DC}
Trigger delay of the control system.	25 ms
Door signal.	De 24 a 250 V _{DC/AC}
Motor / hydraulic signal	De 24 a 250 V _{DC/AC}
Level signal.	12V _{DC}
Activated coil contactor signal or sensor.	12V _{DC}

1.6 MARKING

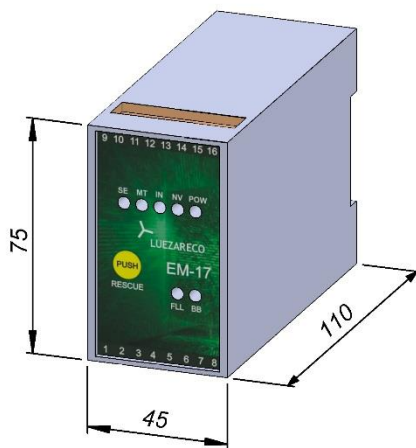
Each unit has an identifying label with the name of the product, the manufacturing number (F.Nr.) and the manufacturer data.



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2.- ASSEMBLY

The control module EM-17 mounts on the 35mm DIN-rail.



3. WIRING

3.1 ELECTRICAL WIRING

When wiring the module it is essential to follow the instructions given below and to check the indicated voltages. Faulty wiring can cause irreparable damages to the unit.

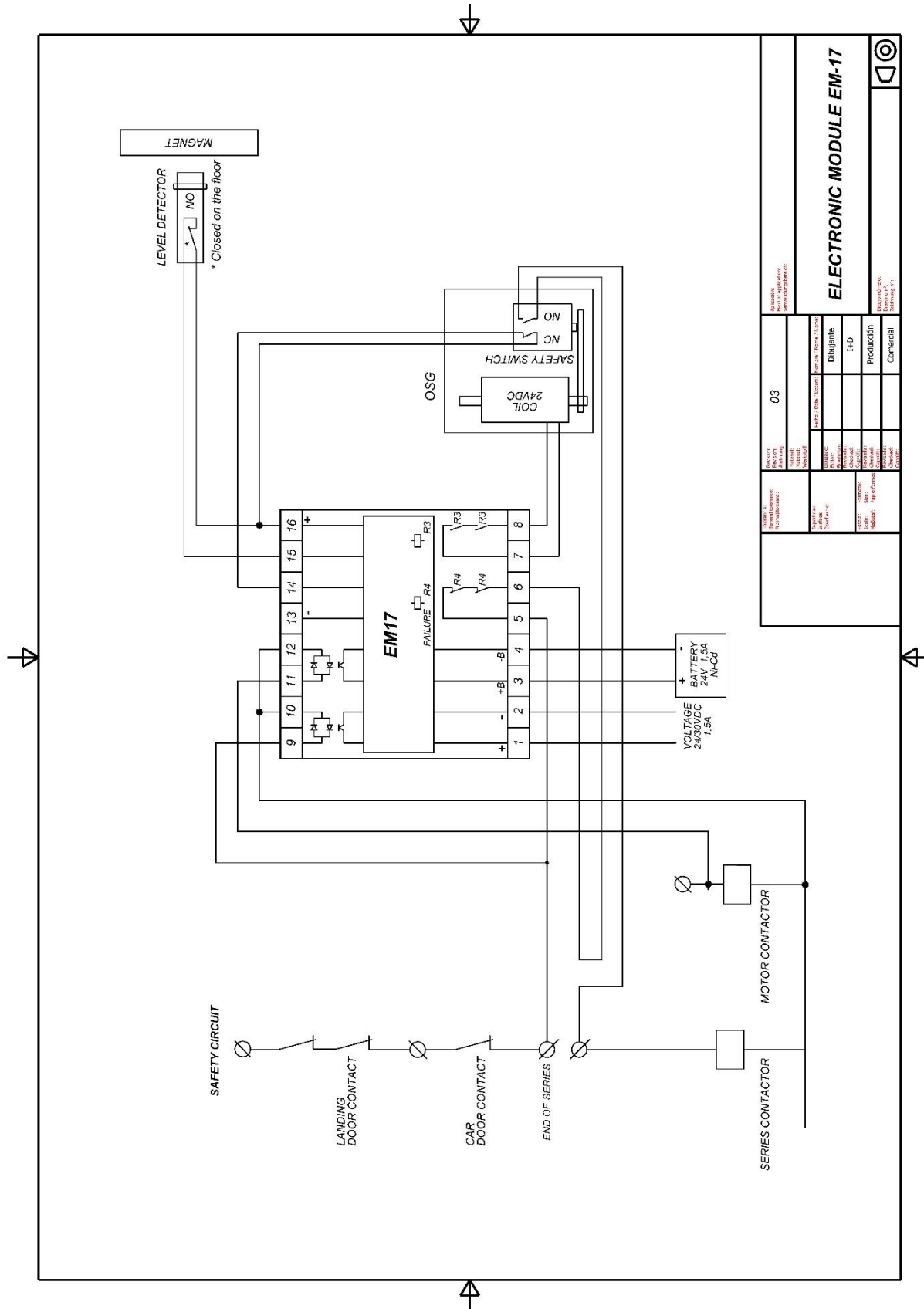
TERMINAL	DESCRIPTION
1	Power supply 24V _{DC} ±10%
2	Power supply 0V.
3	Battery. +. 24V.
4	Battery. -. 0V.
5	Cutoff contact of safety series of the controller.
6	Cutoff contact of safety series of the controller.
7	Coil. 0V _{DC} .
8	Coil. 24V _{DC} .
9	Inlet of the car door series. From 24 to 250V _{DC/AC} .
10	Common inlet of safety series of the controller 0V _{DC/AC} .
11	Motor / hydraulic signal. From 24 to 250V _{DC/AC} .
12	Common inlet of motor / hydraulic 0V _{DC/AC} .
13	Negative. -. 0V _{DC} .
14	Sensor activation or coil contactor.
15	Level signal. 12V _{DC/AC} .
16	Positive. +. 12V _{DC} .



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3.2 WIRING DIAGRAMS

3.2.1 CONTROLLERS WITH FREQUENCY CONVERTER



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4.- TESTS

To verify the correct operation of the control module once it has been installed, the following tests shall be carried out.

4.1 REACHING FLOORS AND OPENING DOORS

The lift will be called. When the lift reaches the floor and opens the doors the module will stop powering the governor coil and it will remain blocked. While the lift remains on the floor the governor will always stay blocked regardless of whether or not there are unintended car movements.

In this case, the signals received by the module are the ones of the power supply and floor level. The status of LED indicators will be as shown in the picture.



4.2 FUNCTIONING DURING A USUAL TRIP

The lift will be called so as to verify that it makes the trip correctly.

The status of the LED indicators on the module during the trip, from the moment it closes its doors on the floor until it reaches the new floor with the doors closed, will be the following:



Lift on the floor with doors closed



Lift on the floor with doors closed starting the trip



Lift during the trip



Lift on the floor with doors closed ending the trip

When it opens its doors again the status will be as described in the previous section.

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4.3 SIMULATION OF THE GOVERNOR COIL BLOCKING IN THE INACTIVE POSITION

To simulate this situation, once the lift is stationed on the floor, the coil will be blocked in its inactive position (governor blocked) and the lift will be called. The correct sequence of the LED indicators of the module should be the one described in the previous section, however if the activation signal from the coil contactor is not received, the lift controller prevents the lift from movement and the LED indicator of Failure is lit and remains in failure until there is a door series opening every time the lift attempts to start moving.



NO CONTACTOR SIGNAL



FAILURE SIGNAL



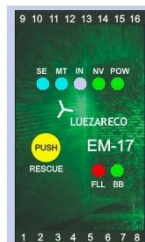
LIFT STOPPED

4.4 SIMULATION OF THE GOVERNOR COIL BLOCKING IN THE ACTIVE POSITION

To simulate this situation, once the lift is stationed on the floor, the coil will be blocked in its active position (governor not blocked) and the lift will be called. The correct sequence of the LED indicators of the module should be the one described in section 4.2, however, if the activation signal from the coil contactor is continuously received, the module prevents the lift from movement and the LED indicator of Failure is lit and remains so until the coil contactor stops being activated.



CONTINUOUS CONTACT SIGNAL



FAILURE SIGNAL



LIFT STOPPED

4.5 SAFETY SERIES OPENING WHEN THE CAR IS MOVING

The lift is called and when it is moving the opening of the safety series will be simulated, the module (using the battery power supply) will keep the coil powered for approximately 3 seconds and consequently after the power supply stops the governor gets tripped. When the safety series is closed the normal operating mode will be triggered automatically.

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4.6 NO VOLTAGE IN THE INSTALLATION DURING THE TRIP

The lift is called and when it is moving the voltage is switched off in the installation. The module will maintain the coil powered for approximately 3 seconds using the power supply from the batteries. Consequently, the power supply will be cut and the governor will get tripped. Once the power supply has been restored it will automatically return to its normal operating mode.

4.7 RESCUE OPERATION WITH NO VOLTAGE IN THE INSTALLATION

Set the lift in a way that governor coil is left visually accessible, cut off the power supply in the installation, repeatedly activate the rescue pushbutton and make sure the governor coil gets activated and deactivated correctly. Restore the power supply, perform a command and make sure the lift moves correctly.

5.- MAINTENANCE

In order to guarantee the correct functioning of the unit in the course of its useful life yearly tests shall be carried out as described in the previous section. In addition, the correct functioning of the governor coil, as well as the state of charge of the batteries, shall be checked every year.

5.1 USEFUL LIFE

You should have the batteries changed every 3 years.