

Fermator

AUTOMATIC DOORS FOR LIFTS

ENG

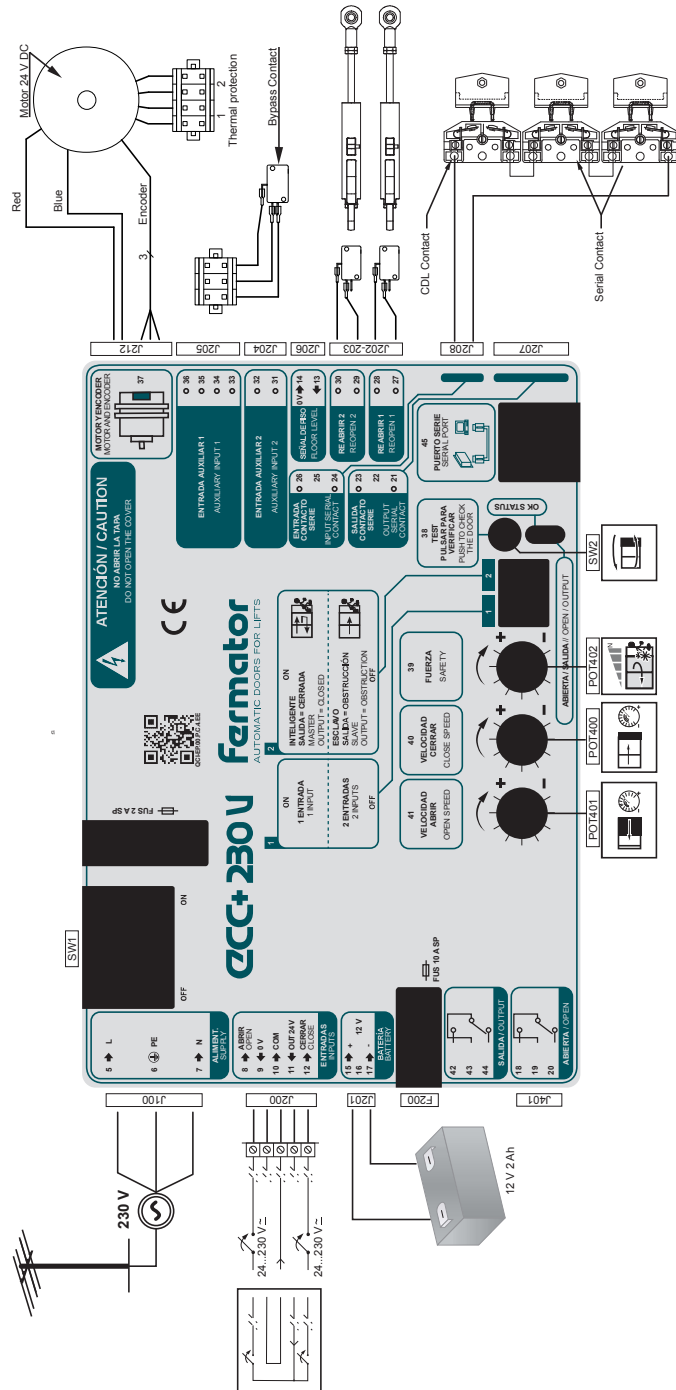
User manual.

Automatic horizontal sliding car door.

Component: ECC+ 230 V Electronic Module.

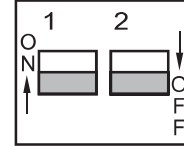


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The unit has to be programmed using the DIP switches on the front of the unit. If any change is made to any of the above switch selections, the unit must be switched OFF and ON again to read the new programming.

The switches functions are:



SW1 ON: 1 Input.

The door control unit will be controlled by a single input. Any voltage between 24 V DC to 60 V DC or 100 V AC to 230 V AC applied between terminals 10 & 12 will close the doors.

Without input active the door remains opened. Open input is not used.

OFF: 2 Input

The door control unit will be controlled by two independent inputs. Any voltage between 24 V DC to 60 V DC or 100 V AC to 230 V AC applied between terminals 10 & 12 will close the doors. And between terminals 8 & 10 will open the doors. In the absence of a signal, the doors will remain static. If both inputs are applied then the open signal has priority.

NOTE: From software versions BUS60-03 onwards, it is not necessary to configure the internal jumper J209 according to SW1.

SW2 ON: Master.

If a physical obstruction is produced during the opening or closing process, the unit will automatically start moving in the opposite direction, without any intervention of the lift controller.

OFF: Slave.

If a physical obstruction is produced during the opening or closing process, the output pins 42, 43, 44 will be activated. Then the lift controller must start the correct movement depending in which direction were produced the obstruction. If the lift controller does not act, the electronic module will stop working for few seconds and an alarm will appear (orange led).

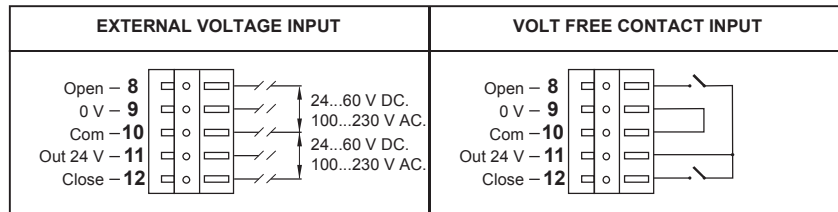
INPUTS / OUTPUTS

5 / 6 / 7 POWER INPUTS 230 VOLTS SINGLE PHASE AC.

The circuit has been designed to operate on a mains supply of 230 V AC (+10%,-15%, 50 or 60 Hz).

8 - 12 Control inputs

The circuit can work with external voltage input or internal voltage input.



8 Open signal.

This signal orders the door to open. The tension to apply could be from 24 V DC to 60 V DC or 100 V AC to 230 V AC, with an external supply between this input and common (10).

9 0 Volts.

Opposite pole to Out 24 V (11). In the case of using internal voltage, it should be connected to the common input (10).

10 Common.

This input is the reference used for the open and close inputs.

11 Out 24 V.

Isolated 24 V output available to control the door via a voltage free contact. Features are:

- a) This supply must only be used for this purpose.
- b) This contact must be isolated from any other power supply.

12 Close signal.

This signal is used for ordering to close the door.

13 / 14 Floor level.

This input activates the open movement in emergency rescue mode in case of power failure. A 12 V battery is used to rescue the passengers from the lift. The door only will open if this signal is bridged (Normally Open).

15 - 17 Battery.

This input is for connecting a 12 V battery 2,2 Ah to act as external emergency power supply and allows the opening movement of the door in case of power failure.

18 - 20 / 42 - 44 Output relay

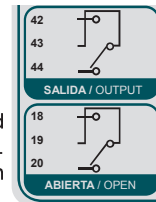
Output relay have been provided to give continuous information to the main lift controller concerning the status of the doors:

Open

Relay activated when the doors are fully open.

Output

Relay activated depending on the SW2 configuration. If it is configured as master, this relay will be activated when the doors are fully closed. If it is configured as slave, this relay will be activated when an obstruction is detected.



LED INDICATORS:

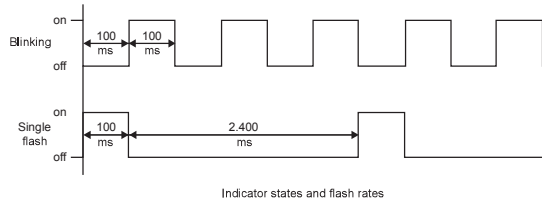
Ok status.

Red LED indicates proper working conditions.

Depending on how the ECC+ 230 V is powered, red LED lights up in different ways:

Ok Status LED	230 V power supply	12 V battery
Lighting	✓	✗
Blinking	✓	✓
Single flash	✗	✓

- LED lit: constantly on.
- LED blinking: iso-phase on and off with a frequency of approximately 5 Hz: on for approximately 100 ms followed by off for approximately 100 ms.
- LED single flash: one short flash (approximately 100 ms) followed by a long off phase (approximately 2.400 ms).



Open / Output.

LED indicates the status of the door.

Open / Closed LED colour	Door Status
Lighting green	Door fully open
Lighting red	Door fully closed or obstruction detected. Depending on SW2 configuration.
Lighting orange	Alarm activated

24 / 25 / 26 Input serial contact

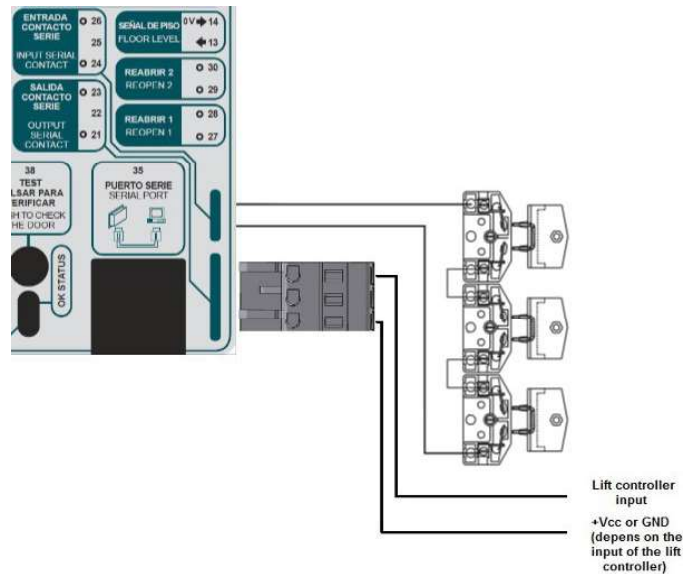
The input serial contact pins are connected to several external electrical contacts, like the picture in Section 3. This contacts are inside the operator and there can be used to detect if the door and the Car Door Lock are closed.

21 / 22 / 23 Output serial contact

The output serial contact is internally connected with the input serial contact to allow the lift controller to read the contacts status.

The pin 26 of input serial contact is connected with the pin 23 of output serial contact, and pin 24 of input serial contact is connected with the pin 21 of output serial contact.

The way to read the contacts status is shown in the following image:



27 - 30

Reopen 1 and 2.

Both connections are in serial and should be closed in normal operation. If one of them is opened during the closing process, the door will reopen.

These inputs are used to connect a light curtain, the cabin push-button or any other device that initiates the reopening process when the door starts to close.

If the door is closed, these signals will not open the door.

If these inputs are not used, it is necessary to bridge them.

- **Reopen 1 (27, 28)**

This input is internally bridged and internal jumper must be removed to enable this reopening contact

- **Reopen 2 (29, 30)**

This input is not internally bridged, and if it is not used, it is necessary to bridge them externally with the supplied connector.

31 / 32

Auxiliary input 2

This input is reserved for future module expansions. It must not be connected.

33 - 36

Auxiliary input 1

This input is reserved for future module expansions. It must not be connected.

37

Motor and encoder.

Output to control the speed and torque of the 24 V DC motor.

The ECC+ 230 V motor controller is formed by a power stage with a current limiting protections.

The 24 V DC motor incorporates a thermal protection in order to inform the lift controller in case of motor overheating. Once the thermal protection is activated, the lift control has to remove immediately the open / close input to stop the motor and cool it down.

38

Test push-button.

A short push in the test push-button will cause a door open or close cycle.

A 5 seconds push in the test push-button will cause a complete open and close cycle and an automatic motor recognition.

39

Safety.

This potentiometer is used to set the closing force over an obstacle in the clear opening.

40

Close speed.

The door closing speed can be independently adjusted.

41

Open speed.

The door opening speed can be independently adjusted.

42

On / Off switch.

Disconnects the unit from the 230 Volts AC mains supply.

45

Serial port.

The serial port is used to connect with external devices, interfaces and future expansion devices. Operating speed 1.200 Baud per second, current loop.



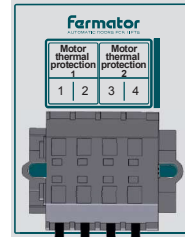
In this section the modifications are listed to provide customer awareness in order to comply with the new lift standard EN 81-20/50.

LIGHT CURTAIN

- The light curtain is mandatory and has to be connected to the lift controller.

OVERHEATING PROTECTION

- Two clixon sensors are added in the motor winding to measure the temperature and protect the motor against overheating. These sensors are normally closed and the signals are connected in a conductor terminal strip:
- The motor thermal protection 1 is the clixon sensor that indicates the motor is near to reach the critical temperature. In this case the lift controller must stop the car at a landing for the passengers can leave.
- The motor thermal protection 2 is the clixon sensor that indicates the motor has reached the critical temperature. Then the lift controller has to remove the ECC+ 230 V supply voltage.
- The maximum contact rating is 3 A 250 Vac.



DOOR CONTACT

- A separate monitoring signal is necessary to check that the car door(s) is / are in the closed position. To comply this point an additional door contact is added, and the signal has to be connected to the lift controller.

The maximum contact rating is 2 A 230 Vac.

REFERENCE DATA

Power supply		Motor thermal protection	
AC Voltage range	230 V AC +10%, -15%	Opening temperature	80° C
Stand-by	100 mA 2 W	Maximum voltage	250 V AC
		Maximum current	2 A
PWM regulation		Inputs	
PWM frequency	15 KHz	Impedance	33kΩ
Voltage range	0 ~24 V DC	Voltage	24 ~60 V DC 100 ~230 V AC
Maximum output current	2 A		
Positional control	Encoder		
Motor		Outputs	
Type	Brushed DC motor	Contacts	Switched
Voltage supply	24 V DC	R. contact	50 mW
Power	7 W	Switch time	5 ms
Enclosure class	IP 20	Maximum output current	5 A
Nominal speed	17 rpm	Voltage	250 V

ATTENTION: Any proposed modification not shown in this manual should be clarified with our Technical Department before actioning.

TECNOLAMA accepts no responsibility for any resultant damage produced in the equipment described in this manual and associated installation if the instructions given have not been followed.

TECNOLAMA reserves the right to modify the product or specifications in this technical brochure without prior notification.

CE DECLARATION OF CONFORMITY

Tecnolama, S.A.
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43204 REUS (Spain)

We hereby declare that the products described in this document
conform with the following E.U. council directive:



Norm EN 81-1/2, EN 81-20/50.
DIRECTIVE 2006/42/EC (Machinery directive), DIRECTIVE 2014/30/EU
(Electromagnetic compatibility), of the European Parliament and of the Council.
ECC+ 230 V Electronic Module

Reus, 06-11-2019

A handwritten signature in black ink, appearing to be 'Jaume Vicheto', written over a horizontal line.

Jaume Vicheto
General Manager

(tecnolama

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