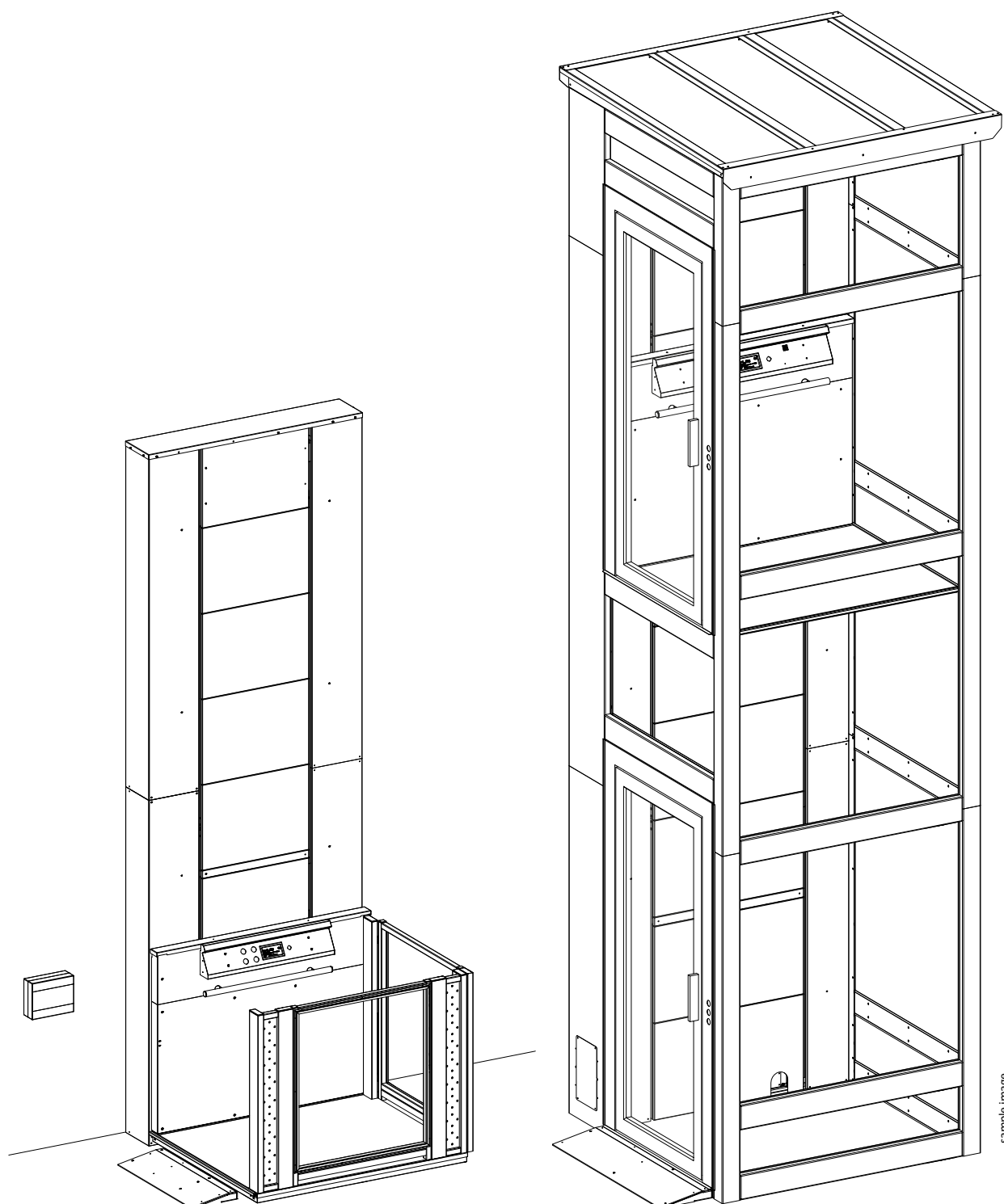


domoFLEX

Screw-driven lifting platform



MM13 CONTROL CABINET INSTALLATION AND DIAGNOSTICS



As far as the following items are concerned : general instructions, safety instructions, responsibility and warranty, material receiving and storage on site, packing, waste disposal, cleaning and maintenance, please consult the manual "**SAFETY AND MATERIAL HANDLING ON SITE**".









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1	General modifications for on-board panel insertion	18.09.2017
Rev.	Descrizione	Data

0 MANUAL READING GUIDE










0.1 CHAPTER SYMBOLS

	General information		Positioning
	Box content		Installation
	Preliminary advice		Commissioning
	Read carefully		Electrical Wiring

0.2 IMPORTANT ITEMS

	General safety warning		Important notice		Read carefully
	Risk of electric shock		Risk of bodily injury (e.g. due to sharp angles or protruding parts)		Risk of damage to mechanical parts (e.g. during incorrect installation)
	Fire hazard		Hanging load		Risk of skin injury
	Risk of falling		No entry		Materials to be protected against bad weather conditions

0.3 INDIVIDUAL SAFETY DEVICES

	Hard hat		Ear protection		Safety harness and other accessories
	Overalls		Safety steel-toe boots with ankle protection		Safety glasses
	Dust masks		Work gloves Rubber gloves		First aid kit

The words **WARNING** and **CAUTION** are used to highlight the following risks of injury and damage:

WARNING	Serious danger to safety
CAUTION	Risk of damage to materials which may lead to safety risks



1

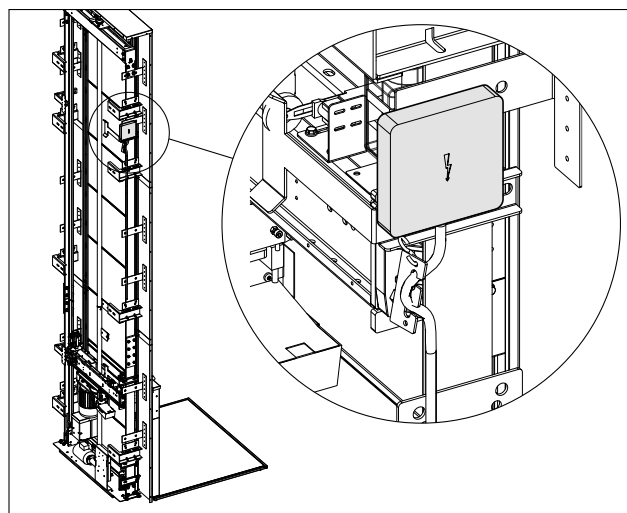
SYSTEM DESCRIPTION AND MAIN FEATURES

The electrical equipment of the domoFLEX lift is designed on the purpose to obtain the best possible integration between the electrical and mechanical parts. The main electrical components are as follows:

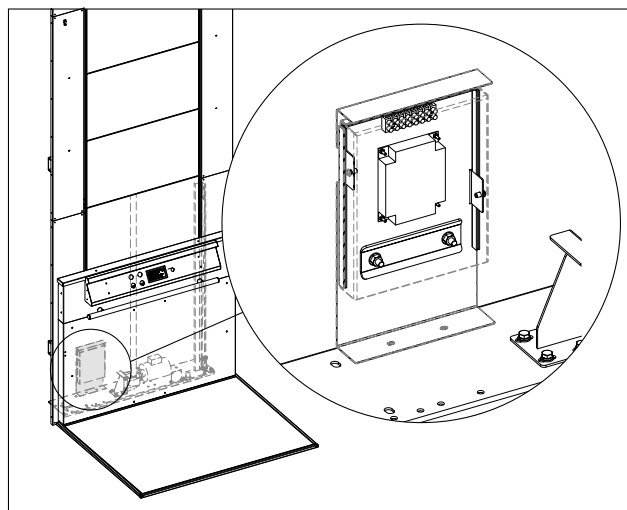
- a) microprocessor card capable of communicating, through the serial interface card, directly with the buttons and signals in use;



- b) pre-wired compartment electric lines: made with double sheath cable and shunt boxes; quick installation system that does not require the laying of a conduit;



- c) car pre-wired electric lines: composed of flexible flat cables already connected to the edge of the machine; only the connection with the box in the pit is required.

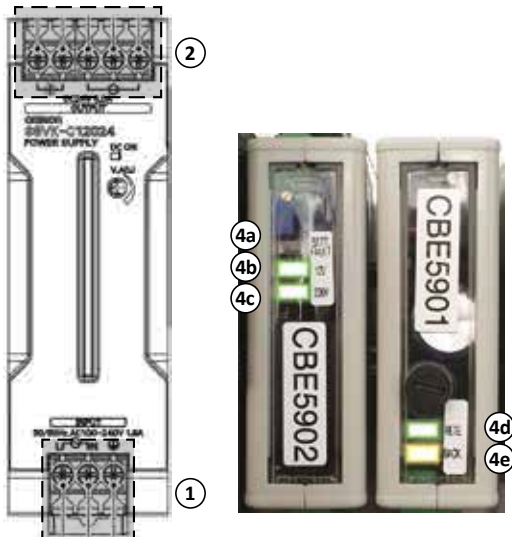




2 PRINCIPAL COMPONENTS

This paragraph is meant to describe the functions of the principal devices of the electrical cabinet, the attention being focused on the problem solving aspects.

2.1 SWITCHING POWER SUPPLY, CBE5901 and CBE5902



- ① Receives mains voltage in input.
- ② Generates a 24VDC voltage for auxiliary utilities.

Diagnostic Led:

- ④a) a) Unplugged or flat battery
- ④b) b) 12V voltage present
- ④c) c) Mains voltage present
- ④d) d) Mains voltage present
- ④e) e) Emergency power supply active

2.2 Electromotive force panel with maintenance and emergency controls



- ① The MAINTENANCE / NORMAL MODE switch allows to shift from normal mode to maintenance and vice versa; every time you shift from maintenance to normal mode it is necessary to perform a reset by pressing both up and down buttons for more than 3 seconds.

- ② Ascending button UP: in maintenance and normal mode it commands the ascent when kept pressed.

- ③ Central button DOWN EMERGENCY (red): it forces a manual emergency manoeuvre. When activated, the safety devices are opened and the card is locked (RESET NECESSARY to restore normal operation).

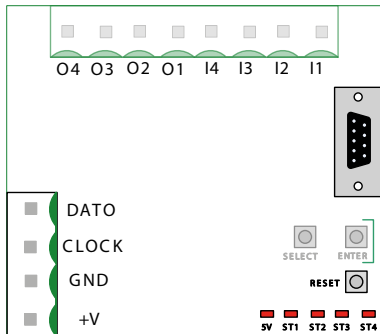


WARNING: no safety device is active while the button is pressed!

- ④ Descending button DOWN: in maintenance and normal mode it commands the descent when kept pressed.

- ⑤ The DOOR ZONE warning light indicates the presence of the platform on the floor and flashes in the event of a failure.

2.3 ITF232 : Serial interface card

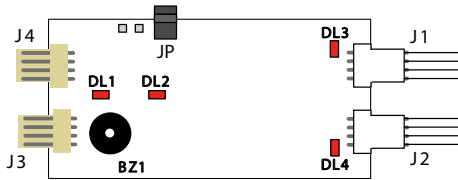


It manages the compartment and car serial communication bus allowing the card to communicate directly with the serial components in use (connections on wiring diagrams).

Diagnostic Led:

- 5V: power supply presence;
- ST1, ST2: not used;
- ST3: PLC connected if 1 second on and 1 second off;
- ST4: card connected if 1 second on and 1 second off.

2.4 ITF800 : Floor and car serial card



It manages the floor and car buttons and signals (connections on wiring diagram).

Diagnostic Led:

- DL1: correct operation if 1 sec on and 1 sec off; fast flashing if jumper inserted, interrupted or incorrect serial connections;
- DL2: if it flashes slowly, the card is programmed; the number of flashes between two long pauses indicates the code;
- DL3: on if J1 connector contact is closed;
- DL4: on if J1 connector contact is closed.

Programming procedure:

- insert the jumper (JP); DL1 flashes quickly;
- to enter the address press the button the same number of times as the floor: once for the lowest floor, twice for the next, etc.
- remove the jumper to store the address;
- to check the address, count the number of flashes of the DL2 LED.



3

FIRST RUN CONNECTION

- The card is supplied with electrical bridges on the XQ1, XQ14 and XQ17 terminals for the first movement in maintenance mode using the 0 and 1 buttons present on the platform pushbutton panel.
- Connect a temporary 230Vac single phase power cable to the L, N, PE terminals present on the machine panel.
- Make all earthing connections.



To activate the movement of the machine, press button 1 for an ascent and button 0 for a descent.

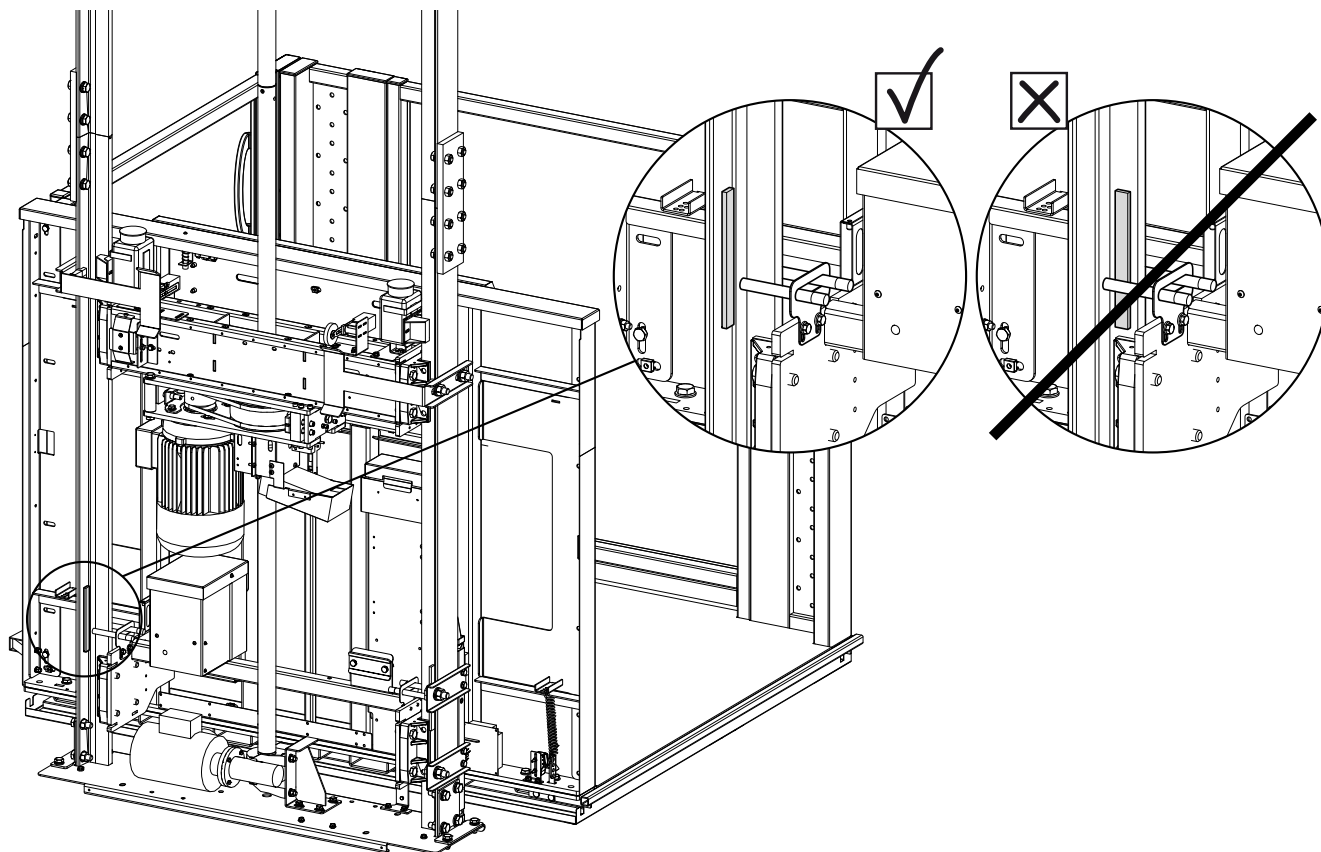


WARNING: the ascent command in maintenance mode has no electrical or mechanical limit, so the machine will stop only when the button is released or when the STOP button on the platform pushbutton panel is pressed.
The descent-run is limited by the stop magnets P0 that are placed in the test phase.



4

MAGNETS LAYOUT

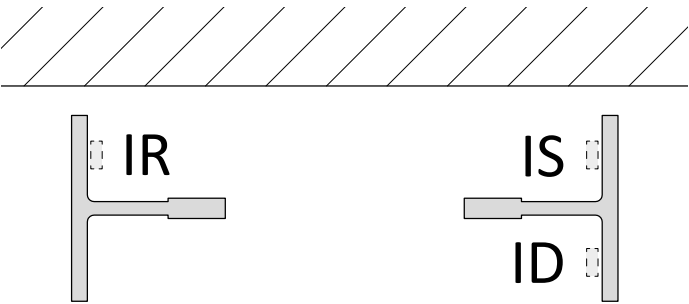


4.1 STOP AND SLOW-DOWN MAGNETS

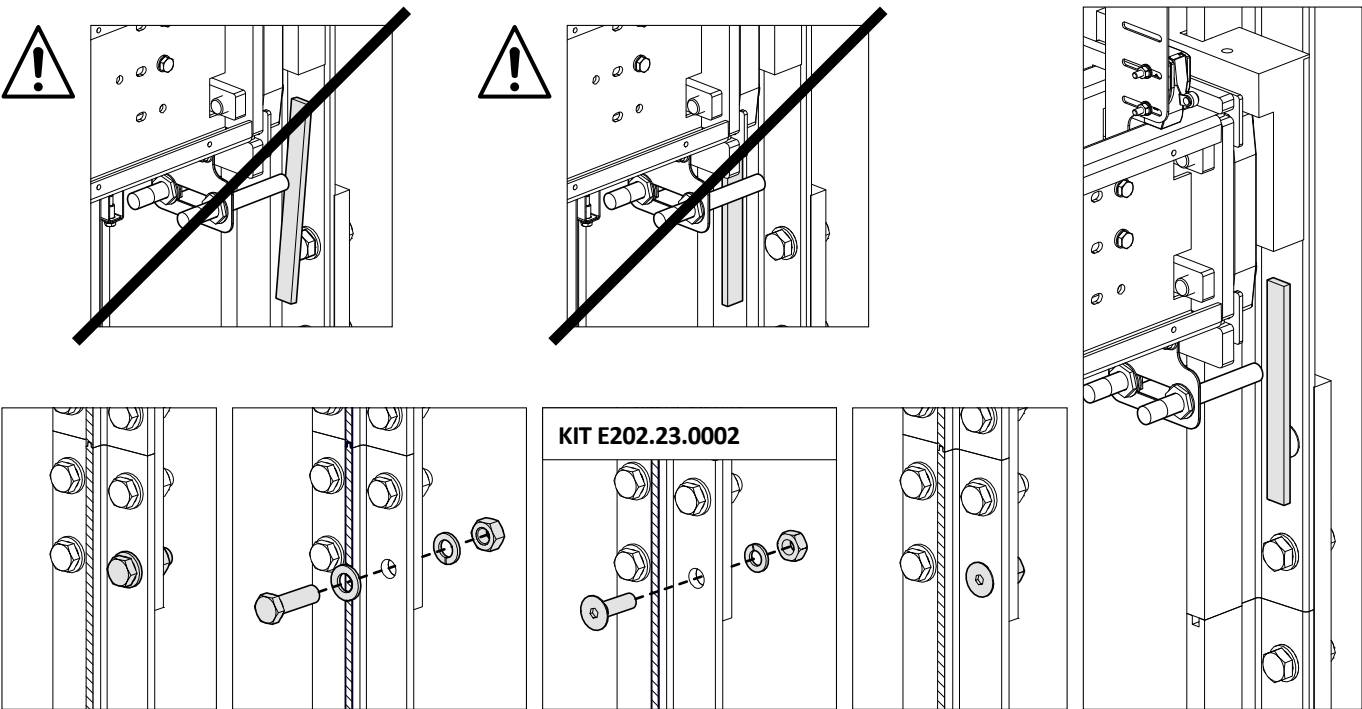
Two assemblers are needed: one in the machine room in front of the control panel and the other near the sensors.

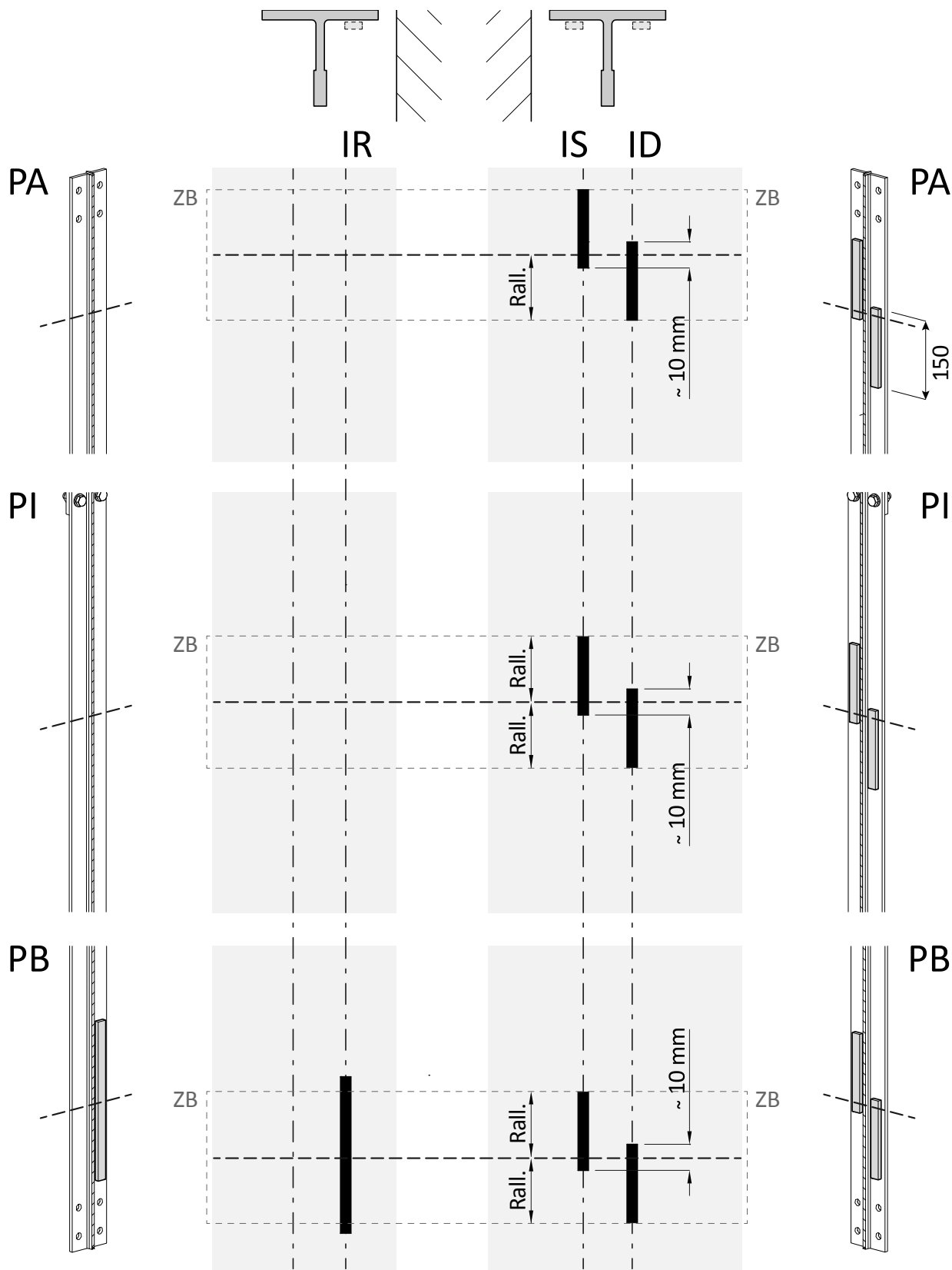
1. With the system under maintenance, bring the car to the exact floor level (floor and car levels aligned);
2. IS ascent sensor: gradually move from the top the 150 mm magnet towards the sensor, stopping just as the corresponding I13 LED on the card turns on;
3. ID descent sensor: gradually move from the bottom the 150 mm magnet to the sensor, stopping just as the corresponding I11 LED on the card turns on.

Hereunder, the recommended sensor location.



LEGEND	
IR	Re-phasing sensor
ID	Descent sensor (stop and slowdown)
IS	Ascent sensor (stop and slowdown)
PB	Lowest floor
PI	Intermediate floors
PA	Upper floor
ZB	Bypass zone
Rall.	Slowdown distance







5 INSULATION TESTS

- Position the car between two floors and check if the safety chain is closed.
- Disconnect the electrical cabinet from the mains supply by opening all the switches of the power supply board.
- Disconnect all the battery terminals
- Disconnect all the users connecting the PE conductor by means of power supply clamps.
- Measure the resistance values between the terminals indicated in the below table. The table shows the test power (V) and the minimum resistance of the insulation between the circuits (MΩ).

-	L1 (L2, L3)	LC-L	LV-L	+ 24 V	+ 12 V
PE	500 V > 1 MΩ	500 V > 1 MΩ	500 V > 1 MΩ	250 V > 0,5 MΩ	250 V > 0,5 MΩ
L1 (L2, L3)	-	500 V > 1 MΩ	500 V > 1 MΩ	500 V > 1 MΩ	500 V > 1 MΩ
LC-L	-	-	500 V > 1 MΩ	500 V > 1 MΩ	500 V > 1 MΩ

- On test completion restore the initial state of the connections.



6 PLC INPUT / OUTPUT DIAGNOSTICS

To check the status of the logic signals on the card, refer to the LEDs located in the respective terminals.

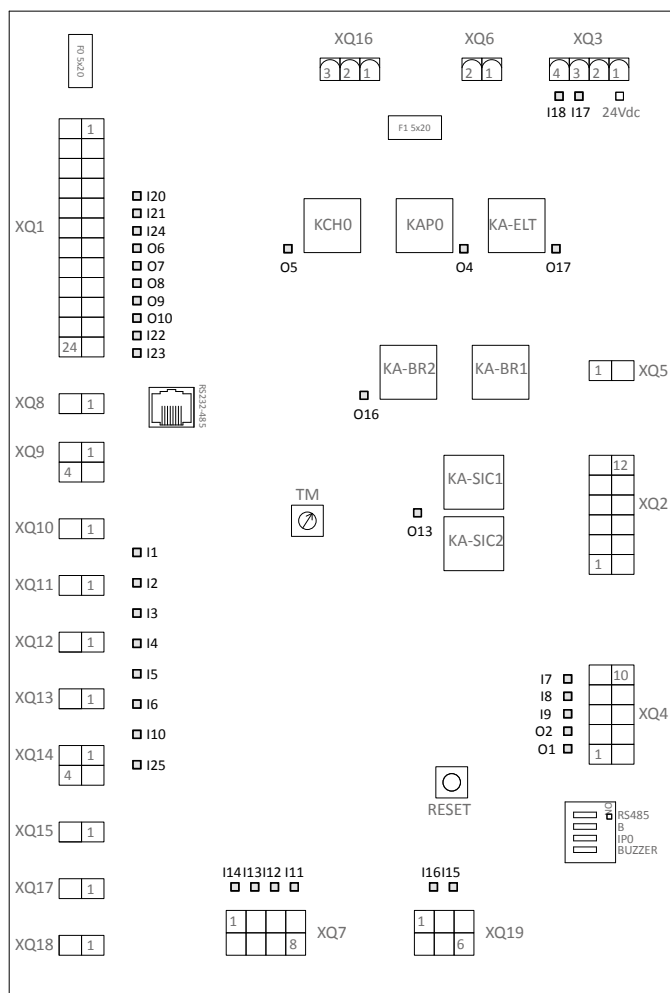
Each led is identified by a name to make reading easier:

- I = INPUT;
- O = OUTPUT;

are accompanied by a plate that has a short acronym to help identify the function.

CONTROL PROCEDURE ON FIRST START-UP

- Bring the car to the bottom floor;
- Close all doors and all safety devices, so that the system is ready to be called (system on Standby);
- Move the MAINTENANCE / NORMAL MODE switch to the NORMAL MODE position and reset by pressing UP and DOWN for more than 3 seconds;
- The status of the card must be as shown in the INPUT table.
- Below is an example diagram to help recognise inputs and outputs.



- Check all card inputs using the indications in the following table; if the input status does not match, follow the indications given in the row "IF STATUS NOT CORRECT".

LED KEY

INPUT (LED)	SIGNAL	ELETTRICAL DIAGRAM
I1	PIT SAFETY AND EMERGENCY BUTTON	SB_PEF; SQ_FF; SB_MEM
I2	OVERTRAVEL SAFETY DEVICE	SQ_EXC
I3	CAR SAFETY DEVICES	SB_PEC; SQ_BOR; SQ_COL; SQ_MAD; SQ_PER
I4	CAR GATE SAFETY DEVICE	SQ_APC; SQ_ABC
I5	FLOOR PRELIMINARY CONTACTS SAFETY DEVICES	SQ_APP
I6	LOCKS SAFETY	SQ_ABP
I7	NOT_USED	
I8	CAR CALL DISABLING	SA_CAB
I9	RESERVED FUNCTION	XQ4.8
I10	OVERLOAD SENSOR	SQ_OVL
I11	DESCENT MAGNETIC SENSOR	ID
I12	CORRECTION MAGNETIC SENSOR	IR
I13	ASCENT MAGNETIC SENSOR	IS
I14	NOT_USED	
I15	NOT_USED	
I16	NOT_USED	
I17	MAINS VOLTAGE FAILURE	EM
I18	BATTERY CHARGED	BAT
I20	FLOOR CALLS DISABLING	XQ1.9
I21	PIT DOOR ACCESS UNLOCKED	SQ_SPF
I22	MANUAL DESCENT COMMAND	SB_DN
I23	MANUAL ASCENT COMMAND	SB_UP
I24	NORMAL MODE SWITCH	SA_AUT
I25	SCREW LIFTING AND BOTTOM SENSOR	SQ_FON/ SQ_VIT
I26	INVERTER FAULT	INV FAULT
I27	INVERTER SECURITY	INV SEC
I28	INVERTER BRAKE	INV BRAKE

OUTPUT (LED)	SIGNAL	ELETTRICAL DIAGRAM
O1	OVERLOAD FAULT SIGNAL	HL_OVL
O2	OCCUPIED LIGHT	HL_CAB
O3	NOT_USED	
O4	PLATFORM DOOR OPENING	KAP0
O5	PLATFORM DOOR CLOSURE	KCH0
O6	EMERGENCY BUTTON	SB_MEM
O7	FLOOR LED (FLOOR ZONE)	HL_PIA
O8	PIT ACCESS SIGNAL	HL_SPF
O9	FLOOR DOORS OPENING	KAP1
O10	FLOOR DOORS CLOSURE	KCH1
O13	SAFETY CHAIN MOVEMENT CONSENT	KASIC1 - KASIC2
O16	BRAKE COMMAND	KABR1 - KABR2
O17	ELECTRIC LOCK COMMAND	KAELT

INPUTS

I1	<i>Label</i>	PIT SAFETY AND EMERGENCY BUTTON
	<i>Description</i>	It deactivates if one of the pit safety devices or the manual emergency descent button are triggered.
	<i>STANDBY only</i>	ON SQ_PER closed and SQ_FF closed and SB_MEM closed
	<i>INCORRECT STATUS</i>	a. check that the pit stop safety device has not triggered, SB_PEF terminal XF7; b. check that the safety feature given by the pit safety device has not triggered, SQ_FF terminal XF6; c. check that the safety feature provided by the emergency button on the FEM panel has not triggered, SB_MEM terminal XF9.
I2	<i>Label</i>	OVERTRAVEL SAFETY DEVICE
	<i>Description</i>	It deactivates if the overtravel contact is triggered.
	<i>STANDBY only</i>	ON SQ_EXC closed
	<i>INCORRECT STATUS</i>	a. check the car position and that SQ_EXC is not activated; b. check the wiring on the XQ8 terminal.
I3	<i>Label</i>	CAR SAFETY DEVICES
	<i>Description</i>	The car deactivates if one of its safety devices is triggered
	<i>STANDBY only</i>	ON SQ_PER closed and SQ_BOR closed and SQ_MAD closed and SB_PEC closed and SQ_COL closed
	<i>INCORRECT STATUS</i>	a. check that perimeter safety device has not triggered, SQ_PER terminal XQ12; b. check that the edge safety device (above the platform pushbutton panel) has not triggered, SQ_BOR terminal XQ9; c. check that the safety device on the wear of the lead screw (near the screw oiler) has not triggered, SQ_MAD terminal XQ11; d. check that the safety feature provided by the stop button has not triggered, SQ_PEC terminal XQ4; e. check that the safety feature provided by the cover panel (under the platform pushbutton panel) has not triggered, SQ_COL terminal XQ10.
I4	<i>Label</i>	CAR GATE SAFETY DEVICE
	<i>Description</i>	It deactivates if the gate stays open
	<i>STANDBY only</i>	ON SQ_APC closed and SQ_ABC closed
	<i>INCORRECT STATUS</i>	Check that safety contacts of the gate are closed.
I5	<i>Label</i>	FLOOR PRELIMINARY CONTACTS SAFETY DEVICES
	<i>Description</i>	It deactivates if one of the floor doors is open.
	<i>STANDBY only</i>	ON SQ_APP closed
	<i>INCORRECT STATUS</i>	Check that all floor doors are closed and that all preliminary contacts are closed SQ_APP terminal XF2.5 and XF2.6.

I6	<i>Label</i>	LOCKS SAFETY
	<i>Description</i>	It deactivates if one of the floor doors is unlocked.
	<i>STANDBY only</i>	ON SQ_ABP closed
	<i>INCORRECT STATUS</i>	Check that all floor doors are closed and that all preliminary contacts are closed SQ_APP terminal XF2.7 and XF2.8.
I8	<i>Label</i>	CAR CALL DISABLING
	<i>Description</i>	Active if connected to +24V
	<i>STANDBY only</i>	ON if car calls are disabled; OFF if car calls are enabled.
I10	<i>Label</i>	OVERLOAD SENSOR
	<i>Description</i>	It activates if the overload sensor is triggered.
	<i>STANDBY only</i>	OFF SQ-OVL open
	<i>INCORRECT STATUS</i>	a. check the load on the platform; b. check the setting of the platform overload sensor; c. check the wiring on the XQ18 terminal.
I11	<i>Label</i>	DESCENT MAGNETIC SENSOR
	<i>Description</i>	It activates if ID has a magnet in front
	<i>STANDBY only</i>	ON ID closed (with platform at stop level)
	<i>INCORRECT STATUS</i>	Check the position of the magnets: with the car at the floor the ID sensor must have the magnet in front, terminal XQ7.4 and XQ7.8.
I12	<i>Label</i>	CORRECTION MAGNETIC SENSOR
	<i>Description</i>	It activates if IR has a magnet in front
	<i>STANDBY only</i>	ON IR closed (with platform at 0 stop level)
	<i>INCORRECT STATUS</i>	Check the position of the magnets; with car on the lowest floor the IR sensor must have the magnet in front, terminal XQ7.3 and XQ7.7.
I13	<i>Label</i>	ASCENT MAGNETIC SENSOR
	<i>Description</i>	It activates if IS has a magnet in front
	<i>STANDBY only</i>	ON IS closed (with platform at stop level)
	<i>INCORRECT STATUS</i>	Check the position of the magnets: with the car at the floor the IS sensor must have the magnet in front, terminal XQ7.2 and XQ7.6.
I17	<i>Label</i>	MAINS VOLTAGE FAILURE
	<i>Description</i>	It activates if there is a lack of mains voltage
	<i>STANDBY only</i>	OFF Mains voltage is present
	<i>INCORRECT STATUS</i>	Check if 230 V AC voltages reaches terminals L and N.

I18	<i>Label</i>	BATTERY CHARGED
	<i>Description</i>	It deactivates if the battery is flat
	<i>STANDBY only</i>	ON The battery is charged
	<i>INCORRECT STATUS</i>	a. check the battery charge voltage and that the batteries are connected; b. check terminal XQ3.4.
I20	<i>Label</i>	FLOOR CALLS DISABLING
	<i>Description</i>	Active if connected to +24V
	<i>STANDBY only</i>	ON if floor calls are disabled; OFF if floor calls are enabled.
I21	<i>Label</i>	PIT DOOR ACCESS UNLOCKED
	<i>Description</i>	It activates if pit door (s) access is unlocked
	<i>STANDBY only</i>	OFF SQ_SPF open
	<i>INCORRECT STATUS</i>	a. check that the door (s) that allow access to the pit are locked; b. check the wiring on terminal XF2.1 and XF2.3.
I22	<i>Label</i>	MANUAL DESCENT COMMAND
	<i>Description</i>	Active if the manual descent button is pressed
	<i>STANDBY only</i>	OFF The descent button is not pressed
	<i>INCORRECT STATUS</i>	a. check that the manual descent button is not pressed; b. check that terminal XQ1.20 is not powered.
I23	<i>Label</i>	MANUAL ASCENT COMMAND
	<i>Description</i>	Active if the manual ascent button is pressed
	<i>STANDBY only</i>	OFF The ascent button is not pressed
	<i>INCORRECT STATUS</i>	a. check that the manual ascent button is not pressed; b. check that terminal XQ1.21 is not powered.
I24	<i>Label</i>	NORMAL MODE SWITCH
	<i>Description</i>	If active, the system is in maintenance mode, otherwise it is in normal mode
	<i>STANDBY only</i>	OFF The manual switch is in normal mode (NORMAL MODE)
	<i>INCORRECT STATUS</i>	a. check that the switch is set to NORMAL MODE; b. check the wiring on terminal XQ1.3.

I25	<i>Label</i>	SCREW LIFTING AND BOTTOM SENSOR
	<i>Description</i>	It deactivates if the screw lifting sensor is activated, or if one or more contacts on the bottom sensor are triggered.
	<i>STANDBY only</i>	ON SQ-VIT and SQ_FON closed
	<i>INCORRECT STATUS</i>	a. check the screw position and the settings of the SQ-VIT sensor; b. check that the bottom sensor is not crushed; c. check the wiring on terminals XF5 (SQ_VIT) and XQ17 (SQ_FON).

- Effect a reset procedure by holding UP and DOWN pressed for more than 3 seconds
- As soon as the Input status has been checked, the Output status will be displayed as "CORRECT STATUS" of the following table. Should they mismatch, check the inputs once again and repeat the reset procedure .
- Use the table below to find out the causes that could prevent the microprocessor card from properly controlling devices in use and those in the control panel. **If the command arrives correctly to the device, then CHECK THE CORRECT FUNCTIONING OF THE DEVICE, using the related manual.**

OUTPUTS

O1	<i>Label</i>	OVERLOAD FAULT SIGNAL
	<i>Description</i>	It activates if an overload is detected or flashes if a fault occurs.
	<i>STANDBY only</i>	OFF
	<i>IF LED is ON</i>	An overload or fault occurs.
O2	<i>Label</i>	OCCUPIED LIGHT
	<i>Description</i>	It lights up if the system is occupied.
	<i>STANDBY only</i>	OFF
	<i>IF LED is ON</i>	It lights up when the system is occupied.
O4	<i>Label</i>	PLATFORM DOOR OPENING
	<i>Description</i>	It activates if the opening command is given to the automatic platform door. It is triggered by the operator on the platform.
	<i>STANDBY only</i>	OFF
	<i>IF LED is ON</i>	Door opening command is given.
O5	<i>Label</i>	PLATFORM DOOR CLOSURE
	<i>Description</i>	It activates if the automatic platform door closure command is given. It is triggered by the operator on the platform.
	<i>STANDBY only</i>	OFF
	<i>IF LED is ON</i>	Door closure command is given.
O6	<i>Label</i>	EMERGENCY BUTTON
	<i>Description</i>	It activates if the EMERGENCY button on the FEM panel is pressed.
	<i>STANDBY only</i>	OFF
	<i>IF LED is ON</i>	If the EMERGENCY button on the FEM panel is pressed.
O7	<i>Label</i>	FLOOR LED (FLOOR ZONE)
	<i>Description</i>	Active if the car is positioned at a stop (IS + ID). It commands the car at the floor signal. It flashes when a fault is detected.
	<i>STANDBY only</i>	ON
	<i>IF LED is ON</i>	The platform is at the floor.
O8	<i>Label</i>	PIT ACCESS SIGNAL
	<i>Description</i>	It activates if the pit is accessed with the platform away from the bottom floor
	<i>STANDBY only</i>	OFF
	<i>IF LED is ON</i>	-
	<i>INCORRECT STATUS</i>	Check that the bottom floor door has not been opened or the door is unlocked without IR closure.

O09	<i>Label</i>	FLOOR DOORS OPENING
	<i>Description</i>	Active at each stop for a certain time, adjustable by the TM potentiometer present on the card.
	<i>STANDBY only</i>	OFF
	<i>IF LED is ON</i>	Door opening command is given.
O10	<i>Label</i>	FLOOR DOORS CLOSURE
	<i>Description</i>	Active at each stop for a certain time, can NOT be set.
	<i>STANDBY only</i>	OFF
	<i>IF LED is ON</i>	Door closure command is given.
O16	<i>Label</i>	BRAKE COMMAND
	<i>Description</i>	Active during each run
	<i>STANDBY only</i>	OFF
	<i>IF LED is ON</i>	-
	<i>INCORRECT STATUS</i>	Check that the conditions are in place to be able to give the run command.
O17	<i>Label</i>	ELECTRIC LOCK COMMAND
	<i>Description</i>	Active if the unlock command is given to the electric lock.
	<i>STANDBY only</i>	OFF
	<i>IF LED is ON</i>	The electric lock activates on the floor where the platform is

**7****DIAGNOSTICS BY MEANS OF BLINKING CODE**

The errors/aberrations are pointed out by means of a blinking code received by the overload signal in the car and the HL_PTA (FLOOR ZONE) warning light on the FEM panel, according to the following table.



Each single error is signaled by means of the related number of blinkings followed by a approximately 5 sec pause; in case of several errors, these are signaled "in cascade", arranged according the number of blinkings (increasing). This cycle is repeated **THREE** times; to display the messages again, turn the selector switch to normal mode and bring it back to maintenance.



The error warning is always completed, so sometimes continuous blinking may occurred, even if the error has already been reset.



If necessary, after the error recognition and solution, it is necessary to effect a RESET procedure from the board. To do this, press the UP and DOWN buttons simultaneously, for more than 3 seconds.

N	Signal: Description	Check / Solution
1	Safety chain, input I1 disabled	Check the stop button in the pit, the pit protection device and the descent emergency button on the FEM panel
2	Bottom sensor or overtravel screw, input I25 disabled	Check the contacts beneath the platform and the overtravel contact of the screw (located on the screw head).
3	Run time	Make sure there are no mechanical obstructions.
4	Descent magnets wrong sequence	Make sure the IS sensor activates first and then the ID sensor during a descent run
5	Ascent magnets wrong sequence	Make sure the ID sensor activates first and then the IS sensor during an ascent run
6	Flat battery	Check the battery charge level
7	No mains power supply	Check there is mains voltage
8	Floor door open	Check the floor door closure contact
9	Car door open	Check the car door closure contact
10	Brake command error	Check that the inverter correctly gives the command to the brake motor
11	Inverter error	Refer to the inverter manual
12	Access to the pit	Check the bottom floor door contact