



DMG

JUNIOR 4.0
VVVF

Quick installation guide

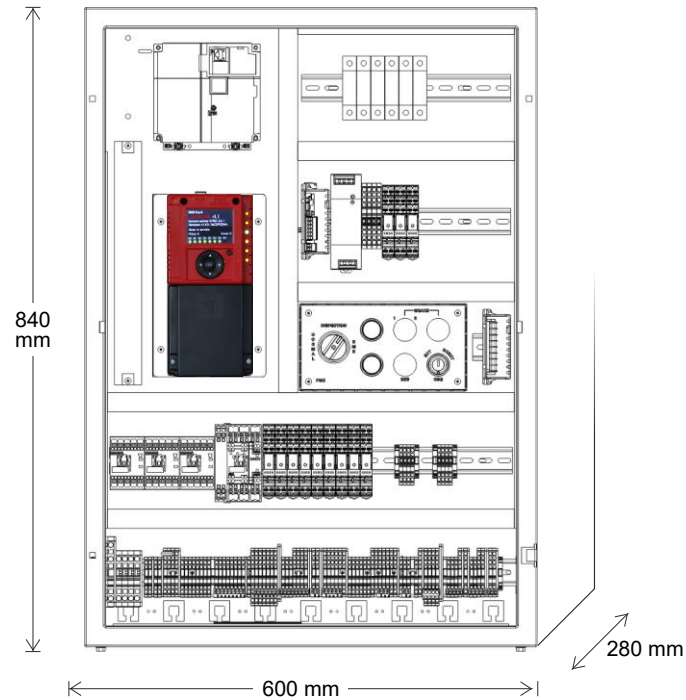
English

V 1.4

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JUNIOR 4.0 - ELECTRIC SYSTEM FOR HOMELIFTS



M Geared: 1,5kW / 2,2kW - Gearless: 2,2kW

600x840x280 mm

~ 30 kg

✓ Single Phase

✓ 7 stops max.

EN
81-41

pr EN
81-42



SAFETY NOTES

Installation

The control panel must be installed internally with a degree of pollution of not more than 2.

The cabinet has an IP2X degree of protection.

The controller setup and maintenance has to be made by qualified technicians after having carefully read the documentations and electrical schemes provided with the controller.

Protection toward indirect contacts has to be realized through magnetothermic and differential switches and a grounding system. Unless otherwise specified, the customer is requested to provide these protections.

Please refer to the wiring diagram supplied with the control panel for the following protection circuits:

- magnetotermic protection of the motor circuit
- magnetotermic protection of the safety circuit
- protection fuses of all other circuits

Protection measures against electric shock:

- The control panel case of the is metallic and must be grounded as indicated in the circuit diagram supplied with the control panel.
- The command and control circuits (24V) are galvanically separated from the main power supply as indicated in the wiring diagram supplied with the control panel.

Maintenance

For control panel's maintenance, please refer to the manual supplied with the control panel. During periodic inspections of the system, check the alarm circuits' battery status of the and the floor return circuit (if present).

Refer to the packaging instructions to handle and move the control panel.

7-SEC SAFETY MODULE

Description

SECU.24 module is an electronic device installed in DMG lift control panel that allows to check the status of 7 point of the safety chain of the lift.

The main function of this module is to guarantee galvanic isolation between the safety circuit and the electronic circuits of the control panel.

There is only one version of this module available:

- SECU.24 for control panel with safety circuit powered at 24 V DC [-15 / + 10%]

Installation

The SECU.24 module is supplied by DMG already installed and connected in the control panel. No intervention by the installer is required during commissioning of the control panel.

The common of the connections to the electric safety chain is traced on the printed circuit board in such way, that the common to the contactors or relay-contactors will switch off at interruption of the common (CBC(1) / CBC(9)).

Working conditions

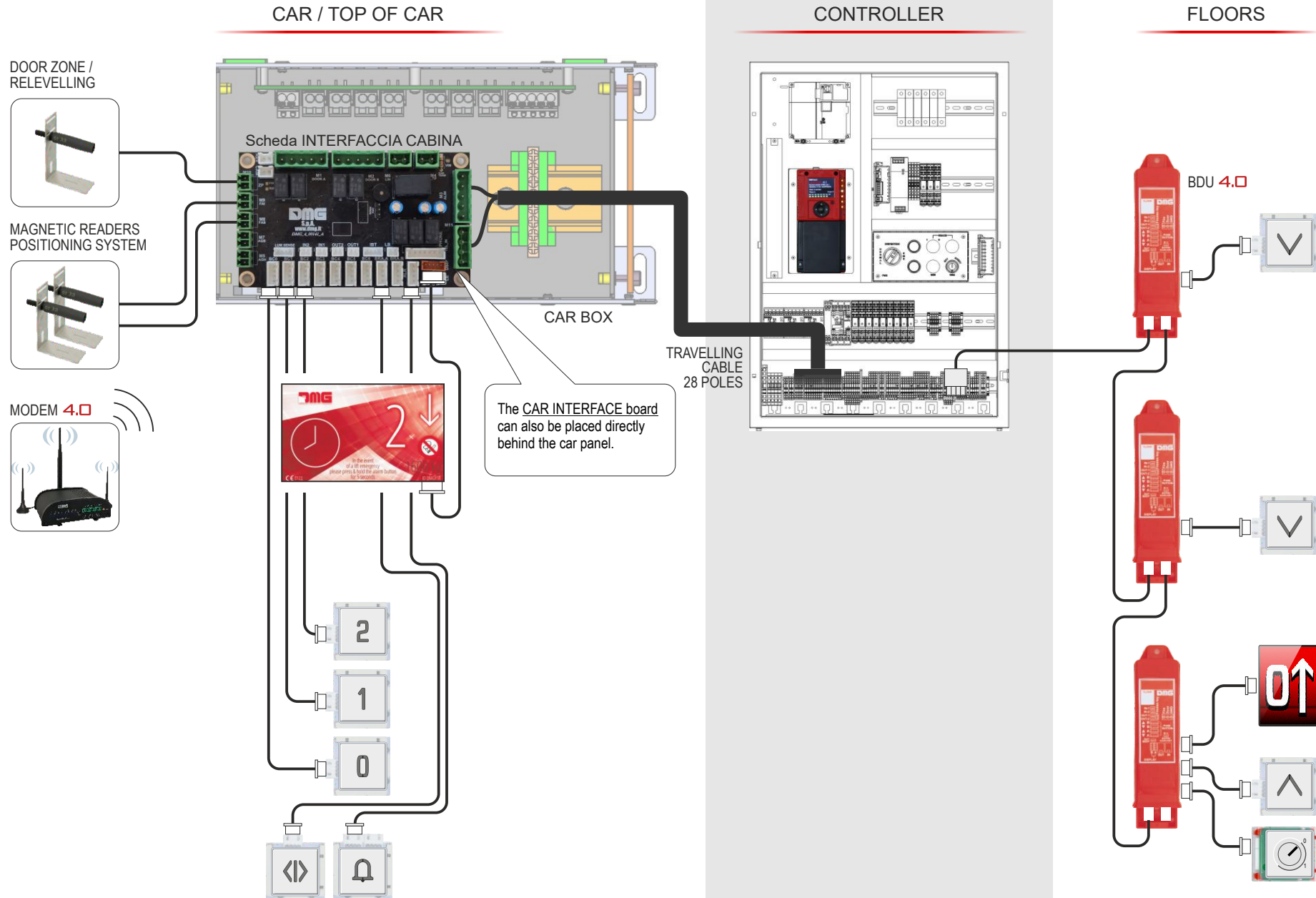
The SECU.24 module is installed in a metal earthed cabinet with minimum IP20 protection and fixed on a DIN rail at following service condition:

- Indoor Use.
- Temperature: -5°C / +40°C
- Relative Humidity: must not exceed 50% at a max temperature of +40°C; may increase at lower temperatures, for example, can be 90% at 20°C.

Maintenance

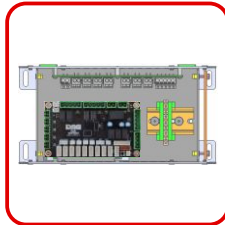
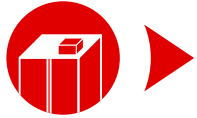
In the event of a fault, the device must be replaced, it must not be opened or repaired.

SYSTEM LAYOUT



COMPONENTI DEL SISTEMA

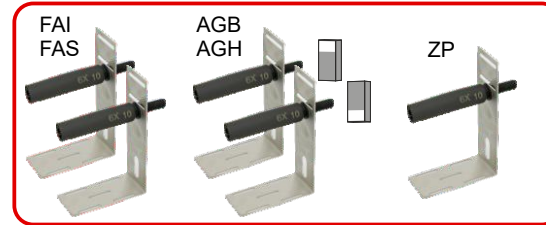
TOP OF CAR



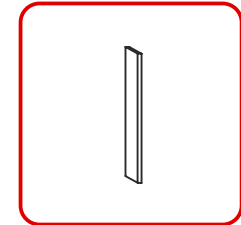
||||| QJ4.CTBOXS
CAR box



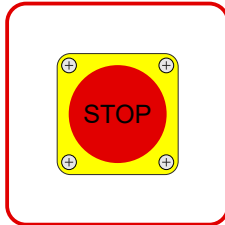
||||| QJ4.C28CS
Travelling cable kit (x m)



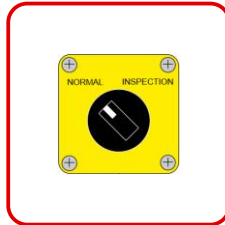
||||| QJ4.CTKIMP.H5 / QJ4.CTKIMP.H4 (without AGH)
Magnetic readers positioning system + door zone/relevelling
+ top/bottom reset proximity switches and reset magnets



||||| QJ4.SHCAL
1 magnet



||||| QJ4.CTPS
Top of cabin stop

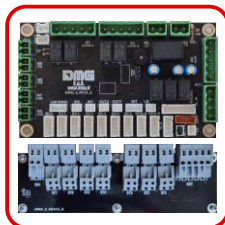
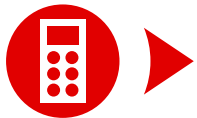


||||| QJ4.CTPM
Inspection box



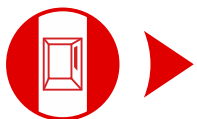
||||| QJ4.CTPSTISP
Inspection box + Stop

CAR



||||| QJ0.CTSTI
Car INTERFACE board
+ 7-SEC board

SHAFT



||||| QJ4.SHEX1/2
Final limit switch kit



||||| QJ4.SHP_ / QJ4.SHC_
Safety chain (doors / pit)



||||| QJ4.SHPSH
Pit stop

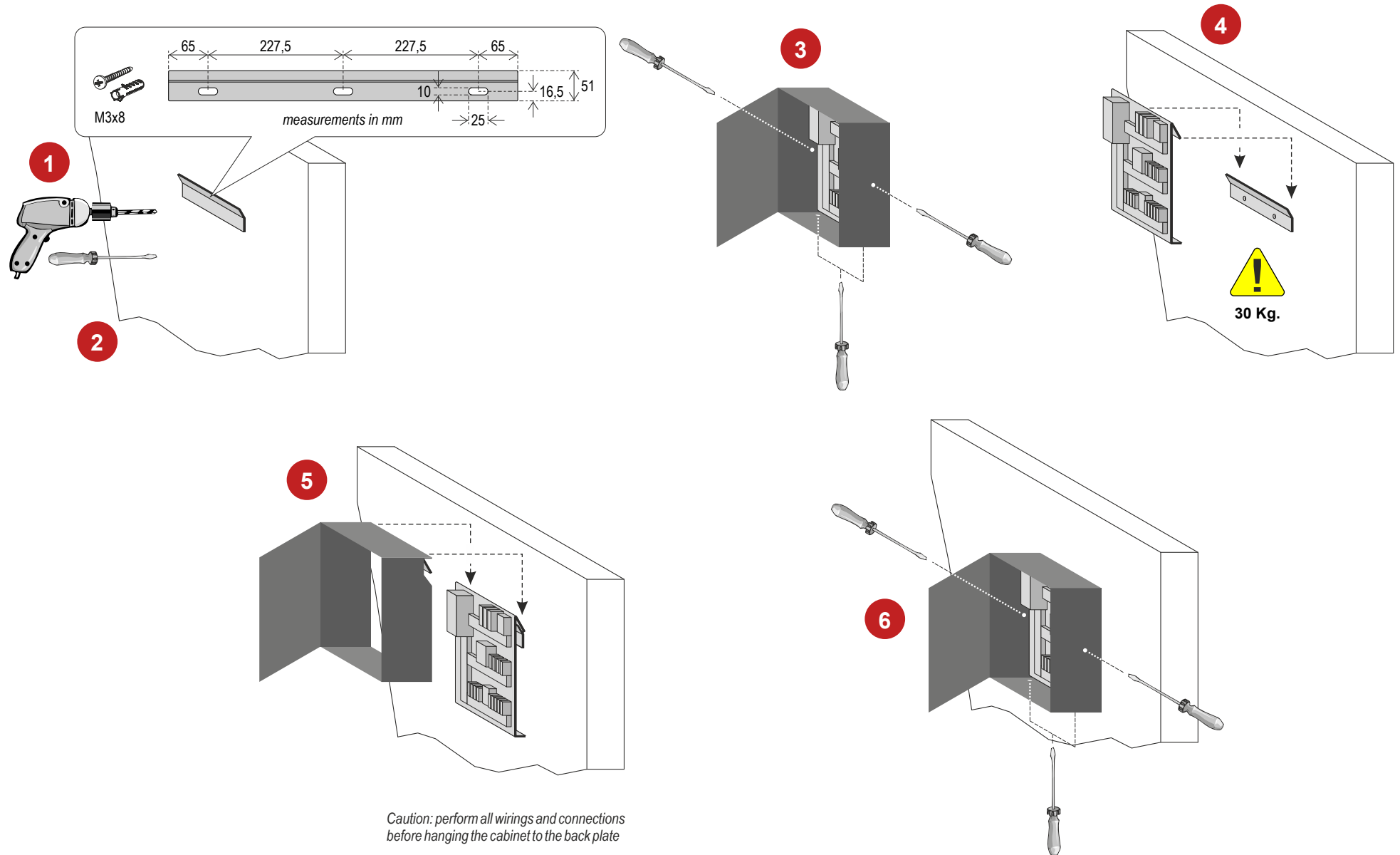


||||| C40.BDU
Floor interface (BDU)

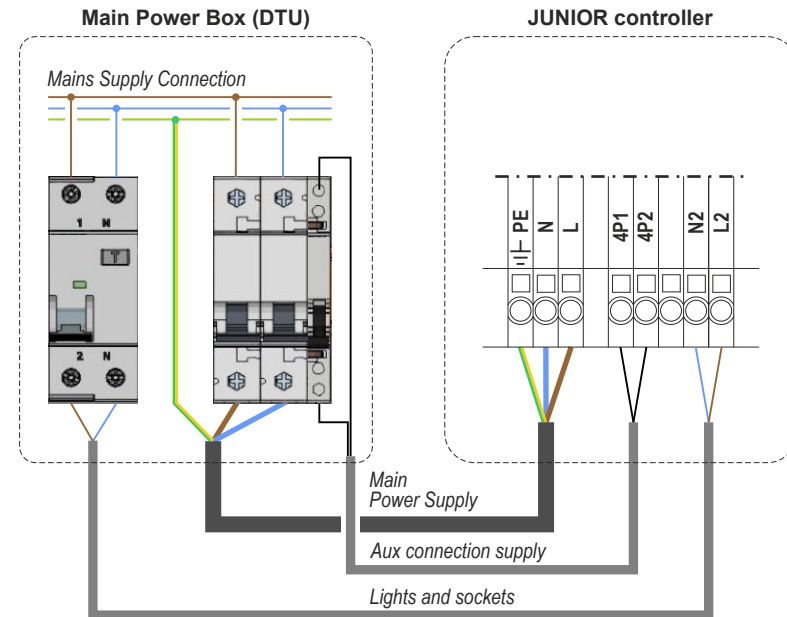
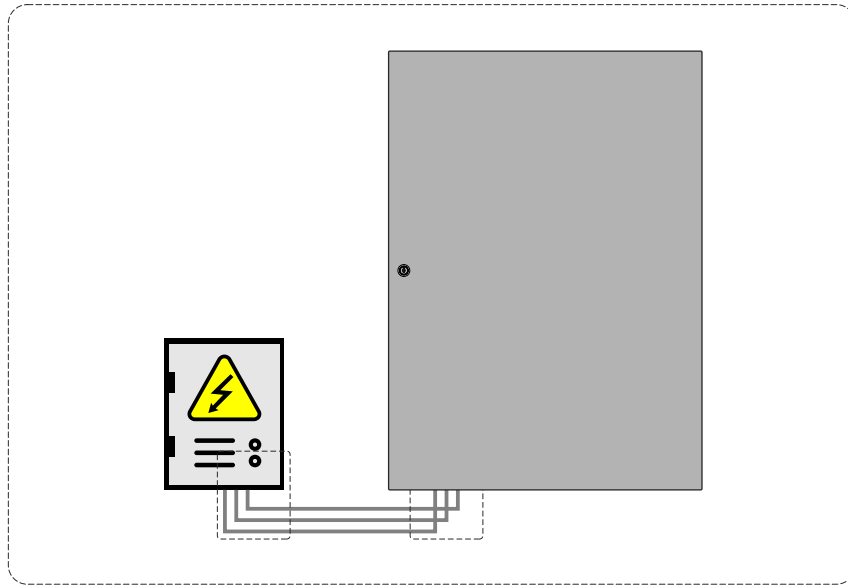


||||| QJ4.SKLED_F10 / F20
+ QJ4.SKLED_V
Shaft illumination kit (10 / 20 m)

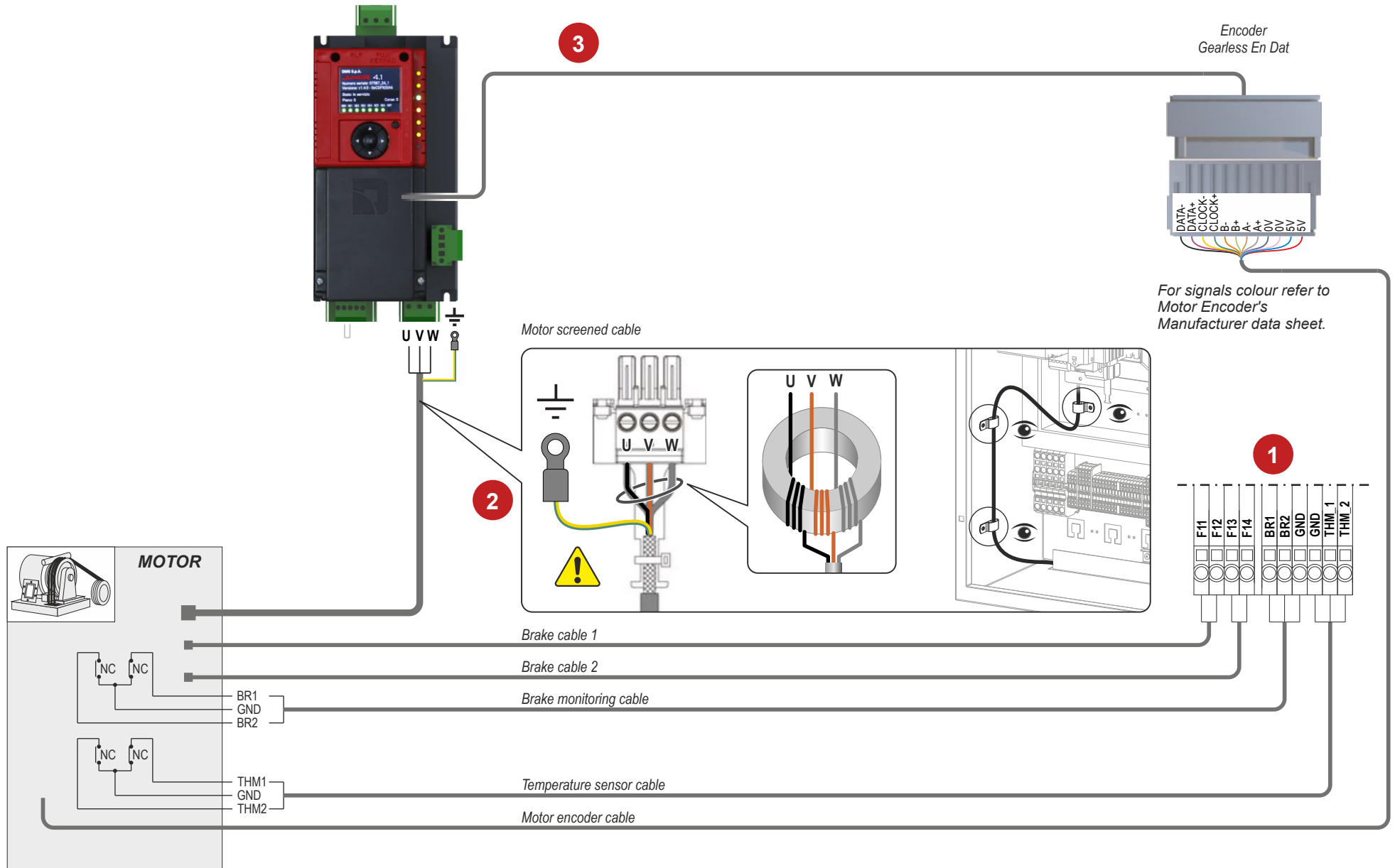
PHASE 0 - INSTALLATION OF BASE ELEMENTS
INSTALLING THE CONTROLLER



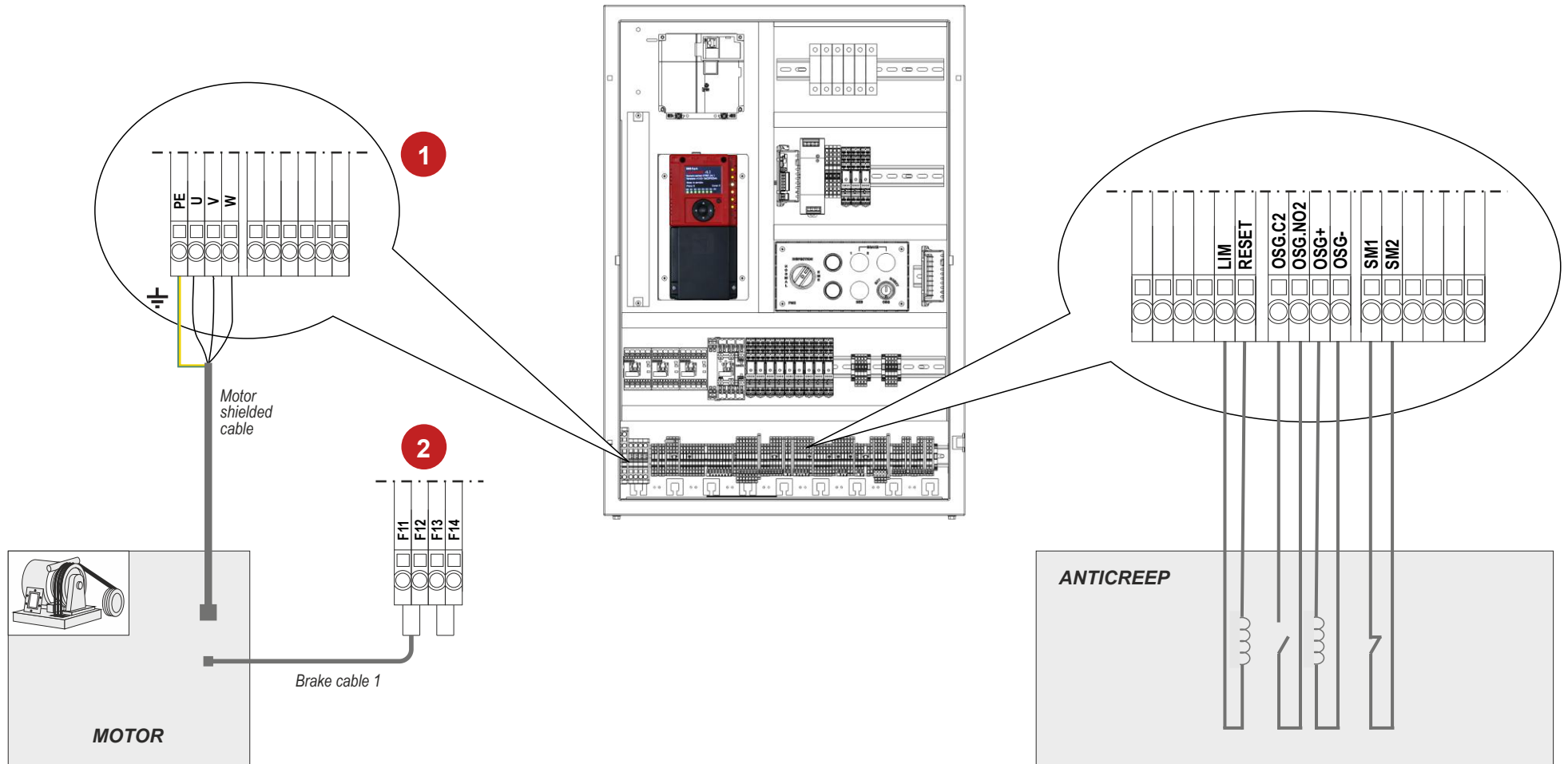
CONNECTING THE MAIN POWER SUPPLY



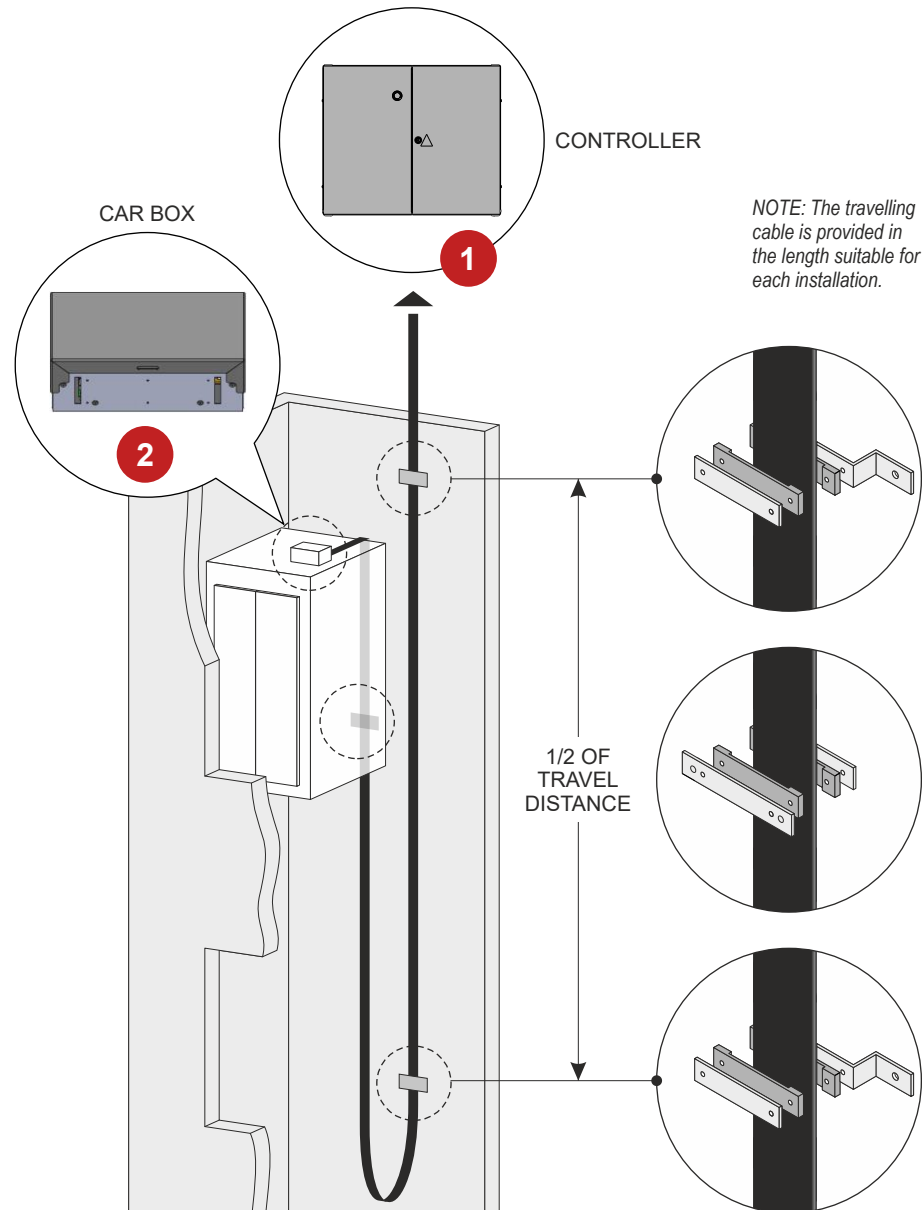
CONNECTING MOTOR OUTPUTS (GEARLESS)



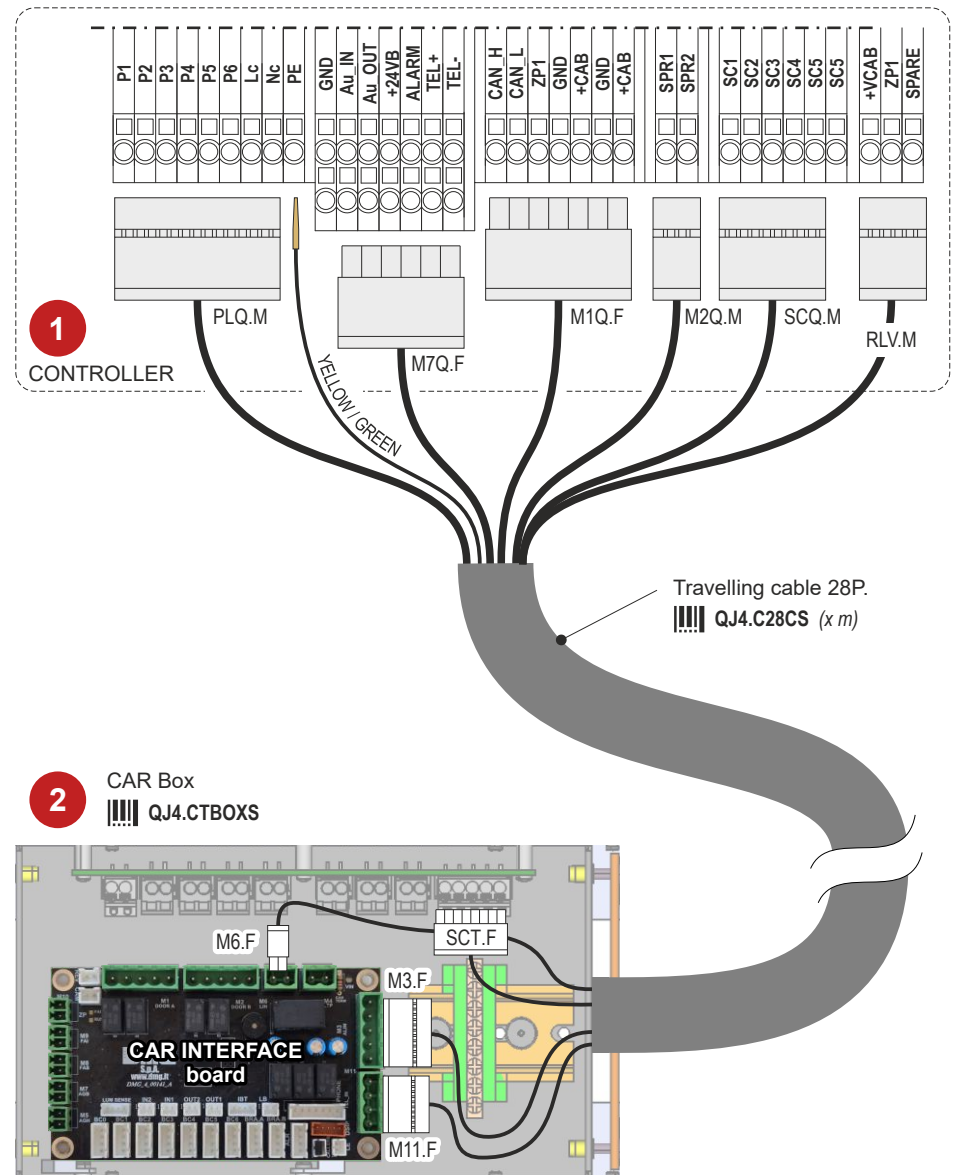
CONNECTING MOTOR OUTPUTS (GEARED)



FIXING THE TRAVELLING CABLE



CONNECTING THE TRAVELLING CABLE TO THE CAR BOARD

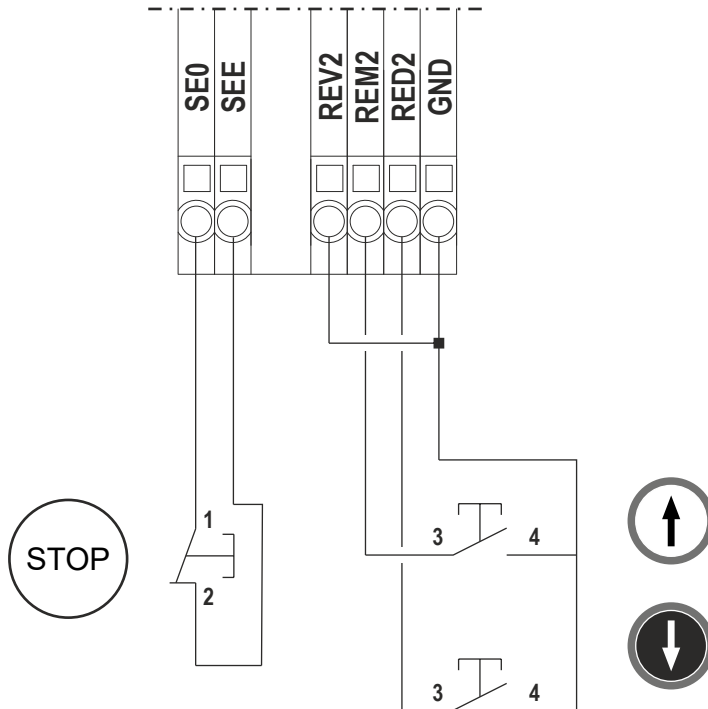


PHASE 1 - TEMPORARY MODE & ELECTRICAL CONNECTIONS

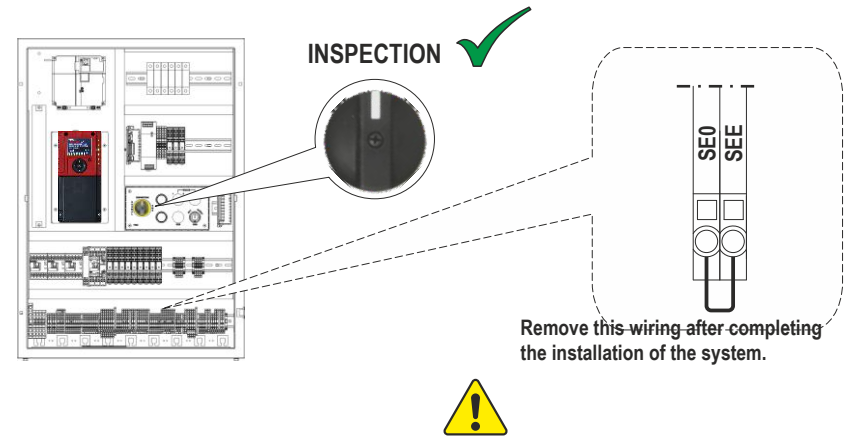
TEMPORARY OPERATIONS

Temporary operations can be managed directly from the PME button panel integrated into the controller. Just connect the contacts on the controller terminal block together as shown in the figure.

1a



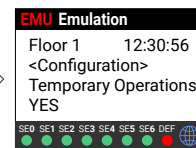
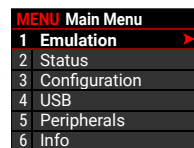
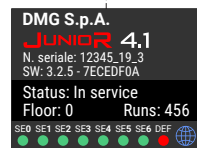
1b



2



3

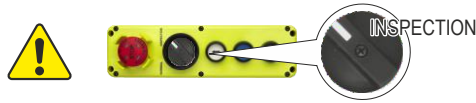


You may need to press (or hold) ESC several times to start from the menu's home screen.

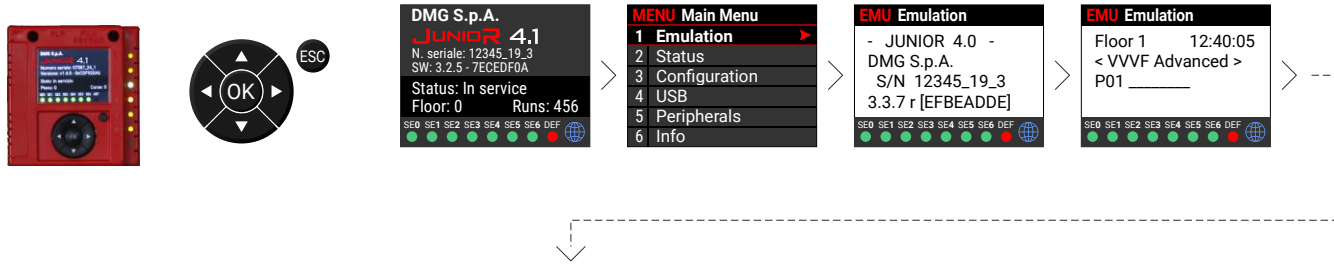
MOTOR DATA SELF-LEARNING PROCEDURE

- MRL GEARED motors -

1



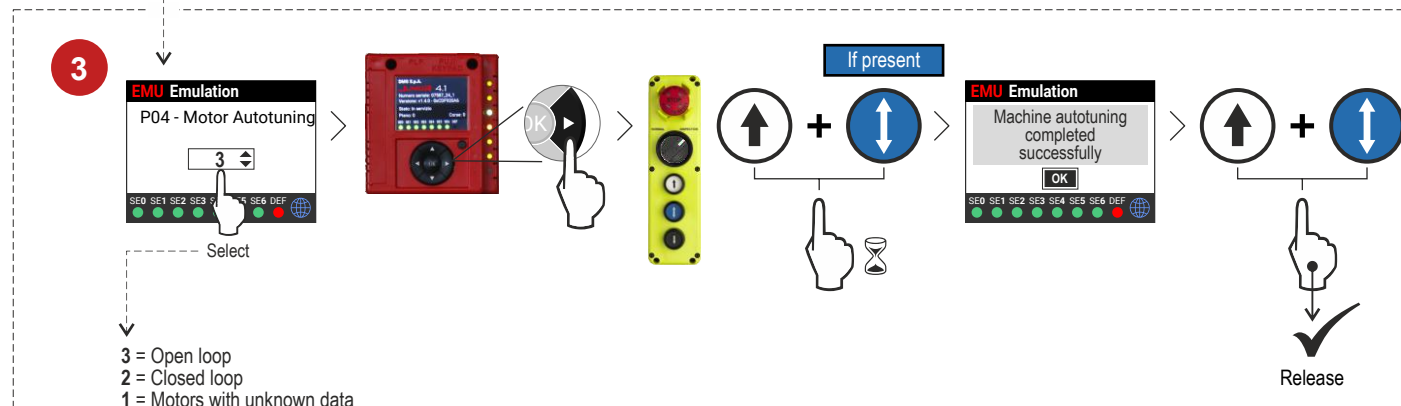
2



VVVF Fuji	
P01 - Motor poles	---->> Enter the number of motor poles
F03 - Maximum speed	---->> Enter the maximum motor speed (RPM)
F04 - Rated Speed	---->> Enter the rated motor speed (Hz)
F05 - Rated Voltage	---->> Enter the rated motor Voltage
P03 - Motor Rated Cur	---->> Enter the rated current intensity of the machine
P02 - Motor Rated Cap	---->> Enter the rated power of the machine
ACE INVERTER	
C05 - High speed	---->> Set high speed C05 (value specified on the motor nameplate)
C10 - Middle speed	---->> Set inspection/intermediate speed C10
C08 - Creep speed	---->> Set low speed C08 (typically 10% of C05)
P04 - Motor Autotuning	

These parameters are programmed in factory, if values are provided with the order..

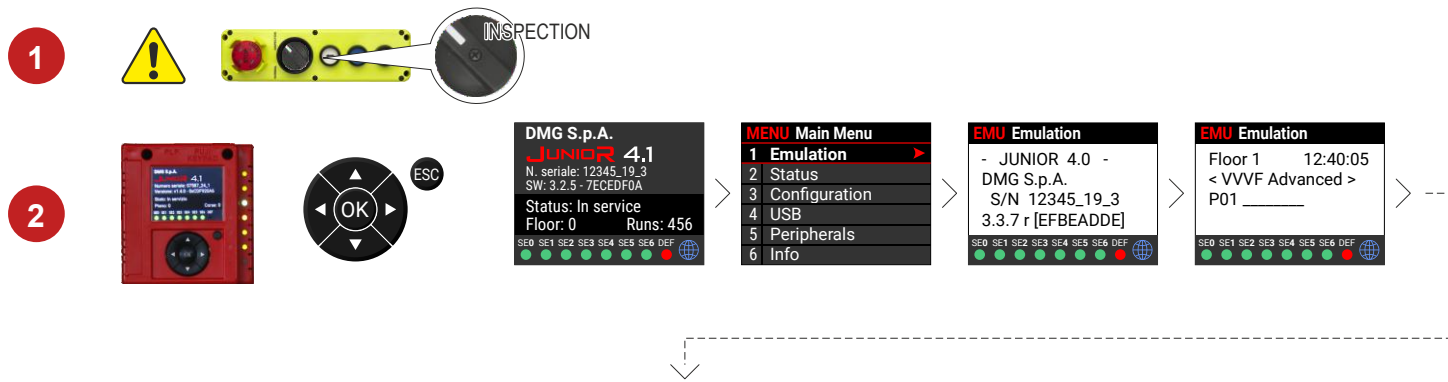
3



- 3 = Open loop
- 2 = Closed loop
- 1 = Motors with unknown data

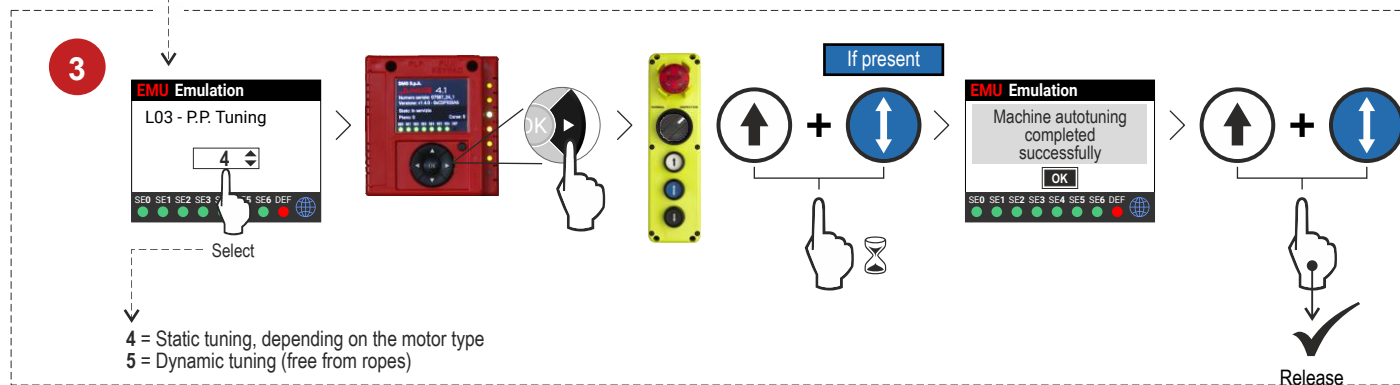
- In case something is wrong during the procedure, the error is registered in the menu "ERRORS" (52=er7 - Error VVVF - Sub xxx). If so, refer to the troubleshooting to resolve the issue, then clear the error and repeat the procedure.
- At the end of the procedure, press the UP/DOWN button and check the correct movement direction of the car; if not correct, invert values of parameters E98 and E99.

- MRL GEARLESS motors -



VVVF Fuji	
P01 - Motor poles	---->> Enter the number of motor poles
F03 - Maximum speed	---->> Enter the maximum motor speed (RPM)
F04 - Rated Speed	---->> Enter the rated motor speed (Hz)
F05 - Rated Voltage	---->> Enter the rated motor Voltage
P03 - Motor Rated Cur	---->> Enter the rated current intensity of the machine
P02 - Motor Rated Cap	---->> Enter the rated power of the machine
LM2 INVERTER	
C11 - High speed	---->> Set high speed C11 (value specified on the motor nameplate)
C10 - Middle speed	---->> Set inspection/intermediate speed C10
C07 - Creep speed	---->> Set low speed C07 (typically 10% of C11)
L01 - PG select	---->> Set the motor encoder type (ENDAT=4 ; SIN-COS=5)
L02 - PG resolution	---->> Set the motor encoder resolution (typically 2048)
L03 - P.P. Tuning	

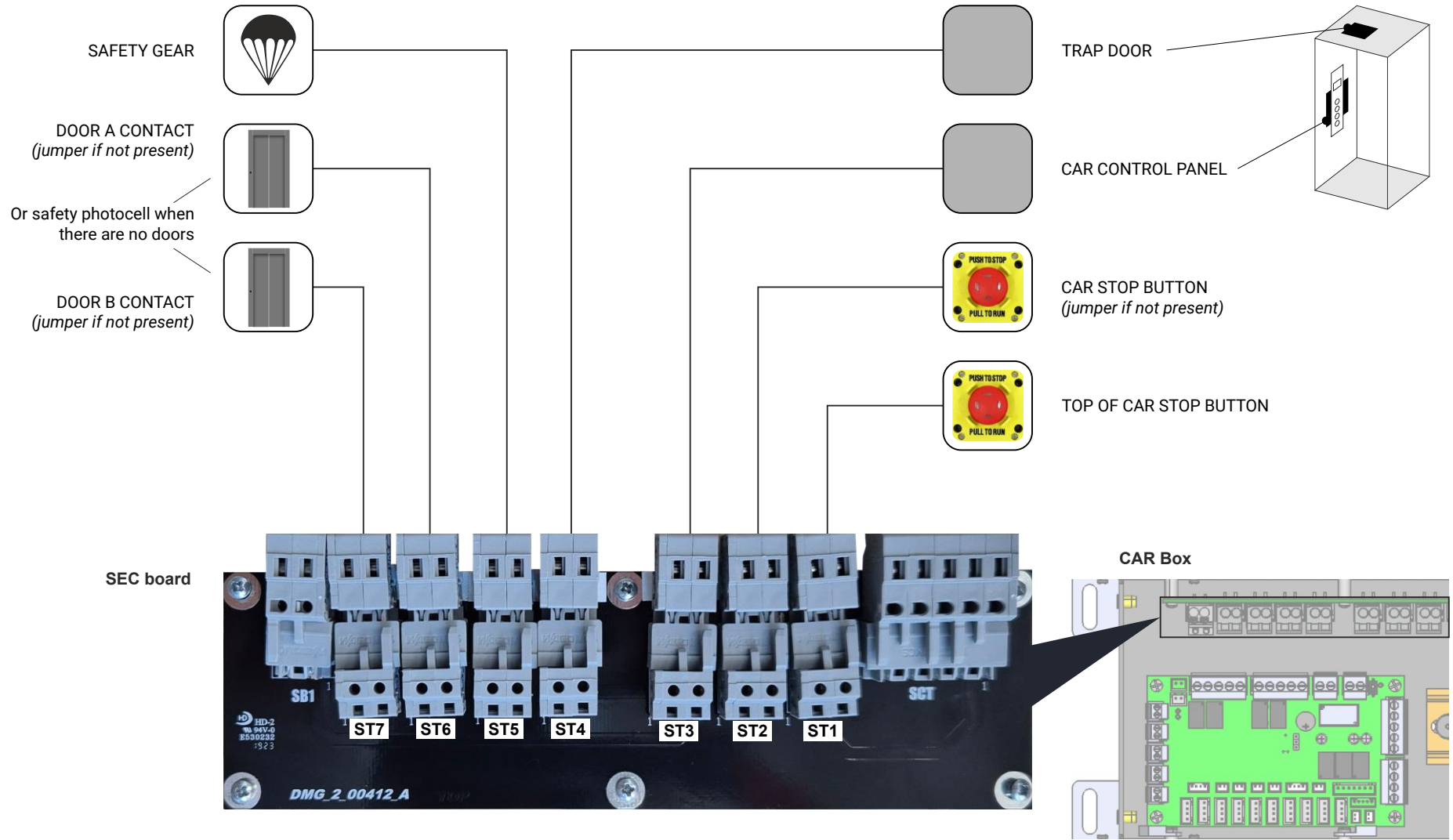
These parameters are programmed in factory, if values are provided with the order..



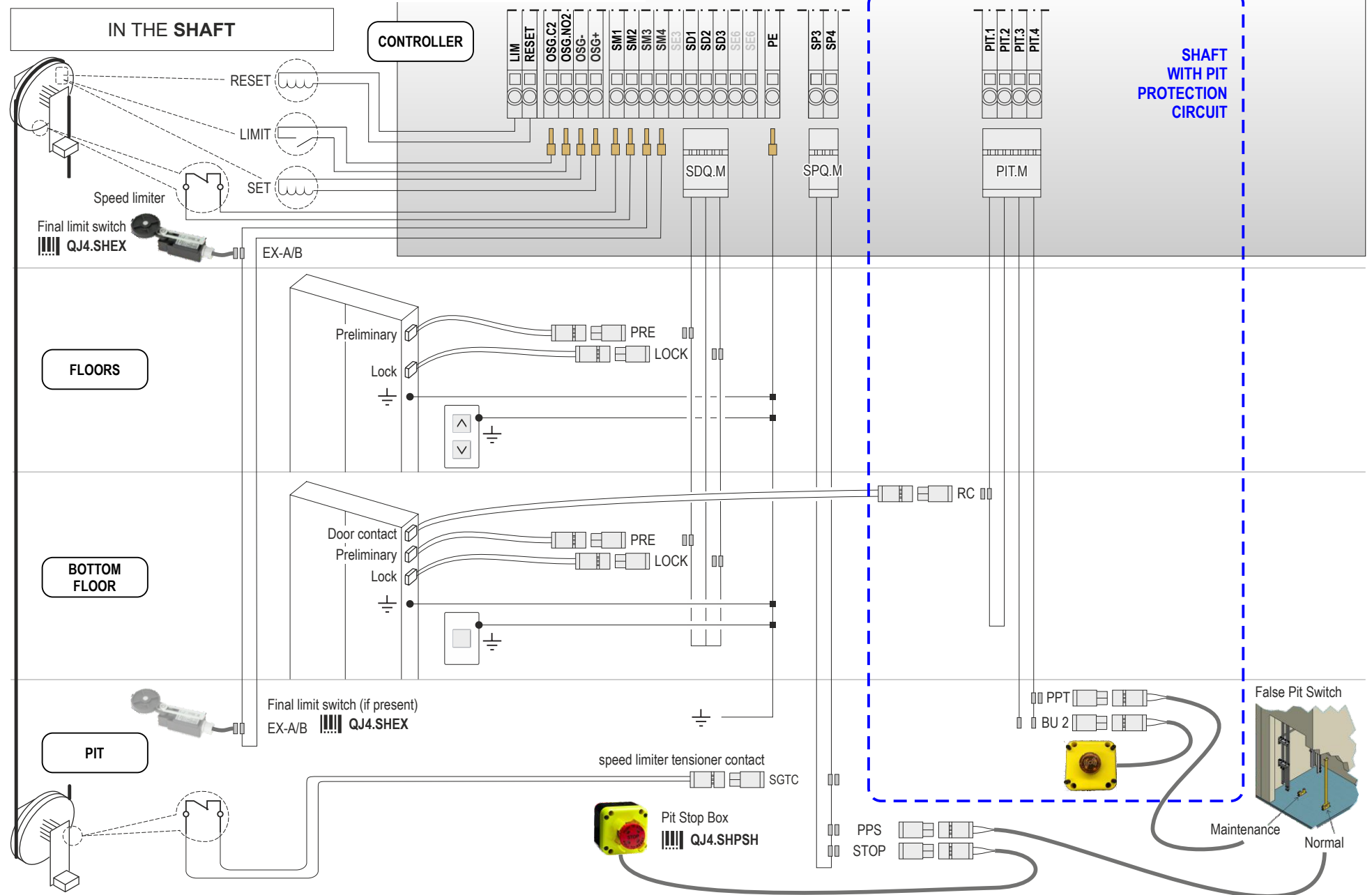
- In case something is wrong during the procedure, the error is registered in the menu "ERRORS" (52=er7 - Error VVVF - Sub xxx). If so, refer to the troubleshooting to resolve the issue, then clear the error and repeat the procedure.
- At the end of the procedure, press the UP/DOWN button and check the correct movement direction of the car; if not correct, invert values of parameters E98 and E99.

INSTALLING THE SAFETY CHAIN

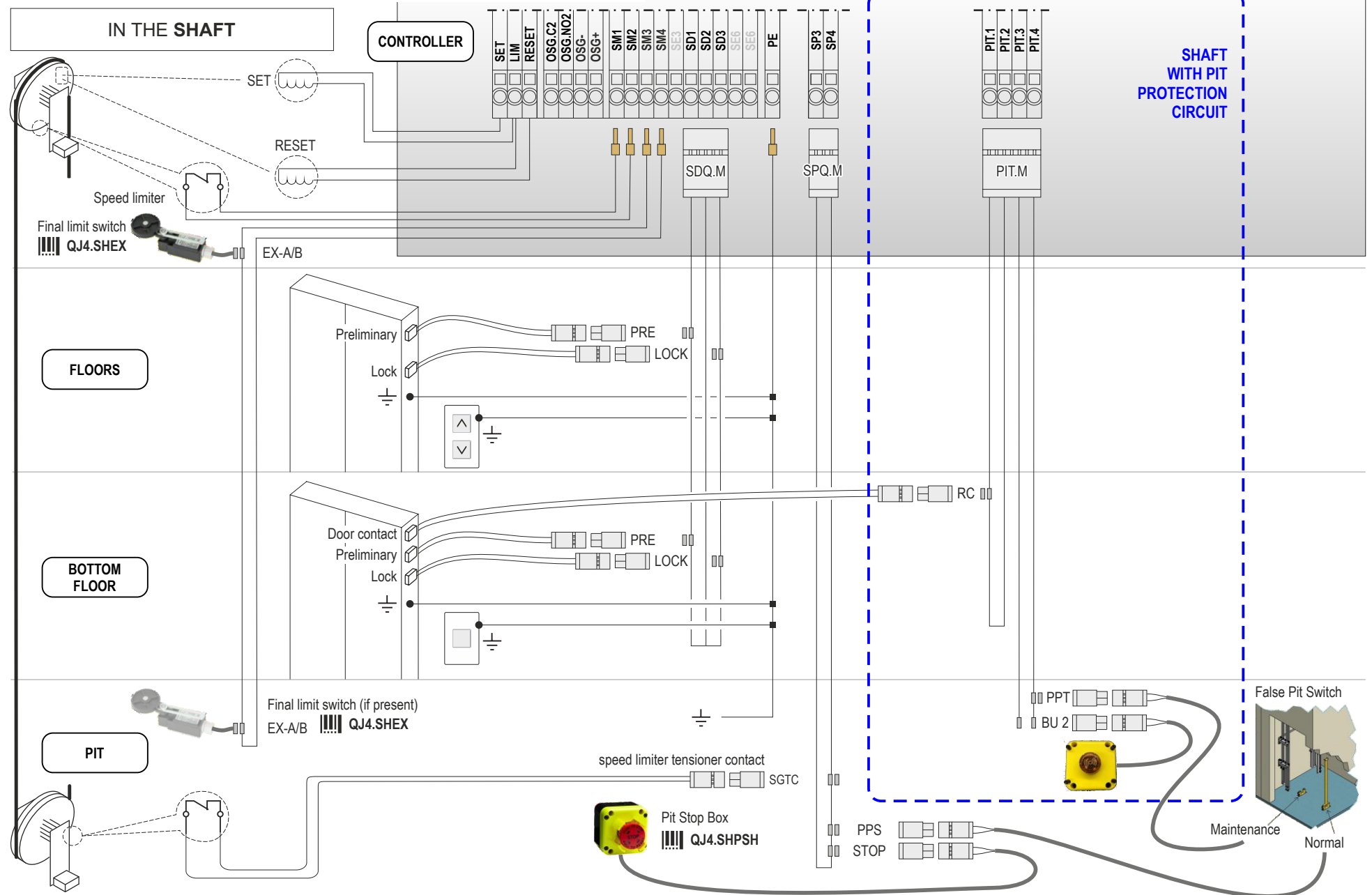
IN THE CAR



INSTALLING THE SAFETY CHAIN (GEARED)

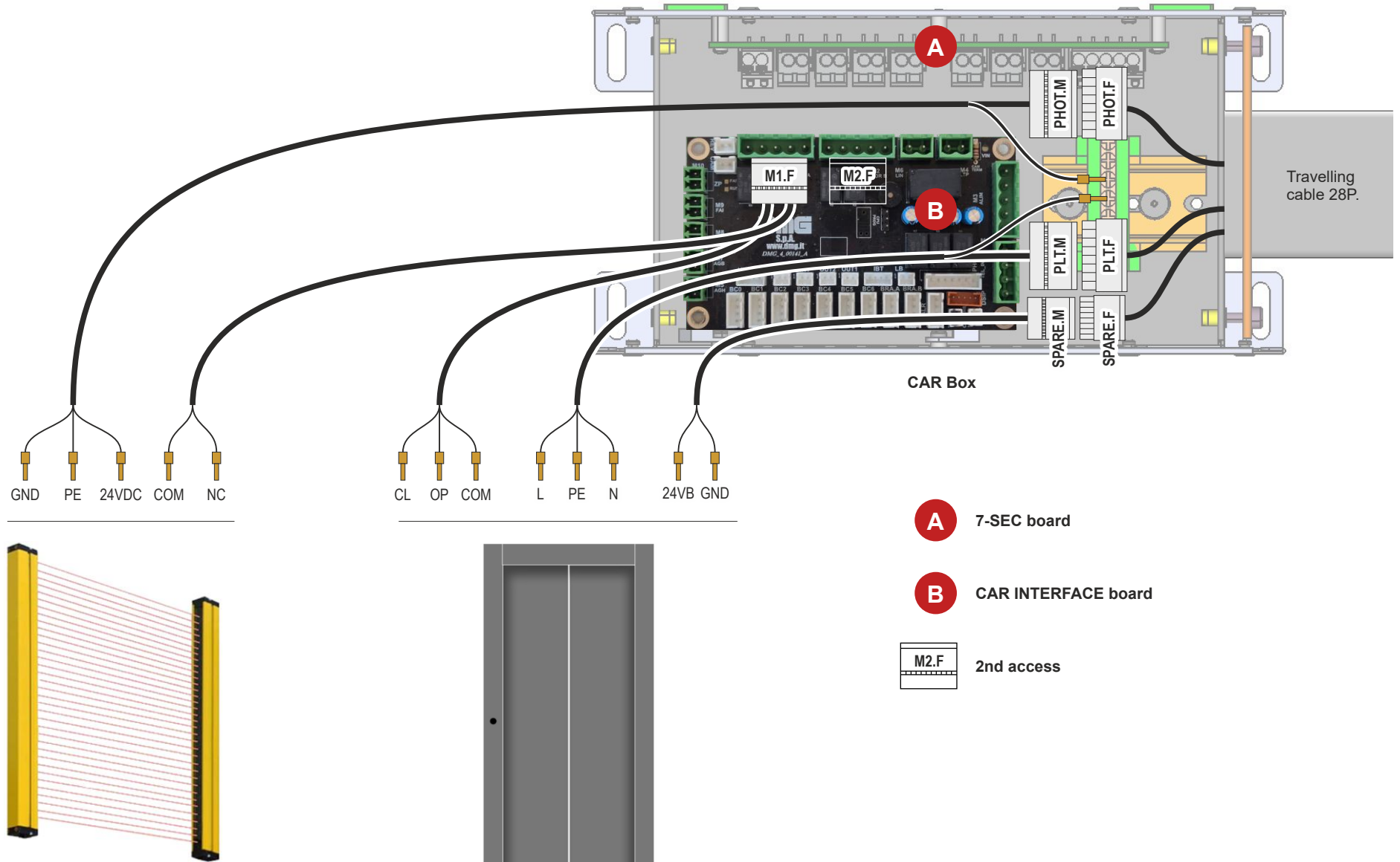


INSTALLING THE SAFETY CHAIN (GEARLESS)



CONNECTING CAR DOORS OPERATOR

AUTOMATIC

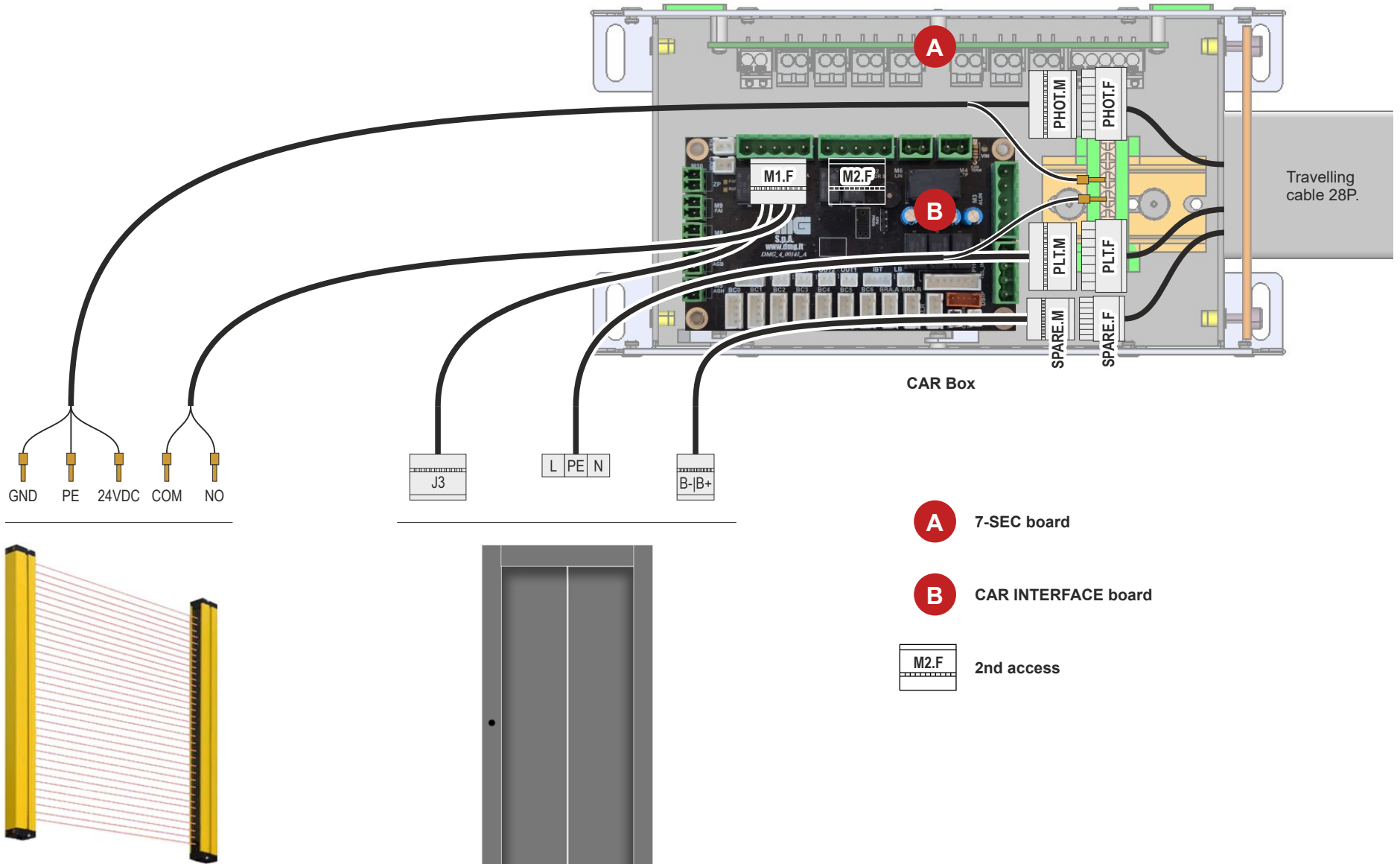


A 7-SEC board

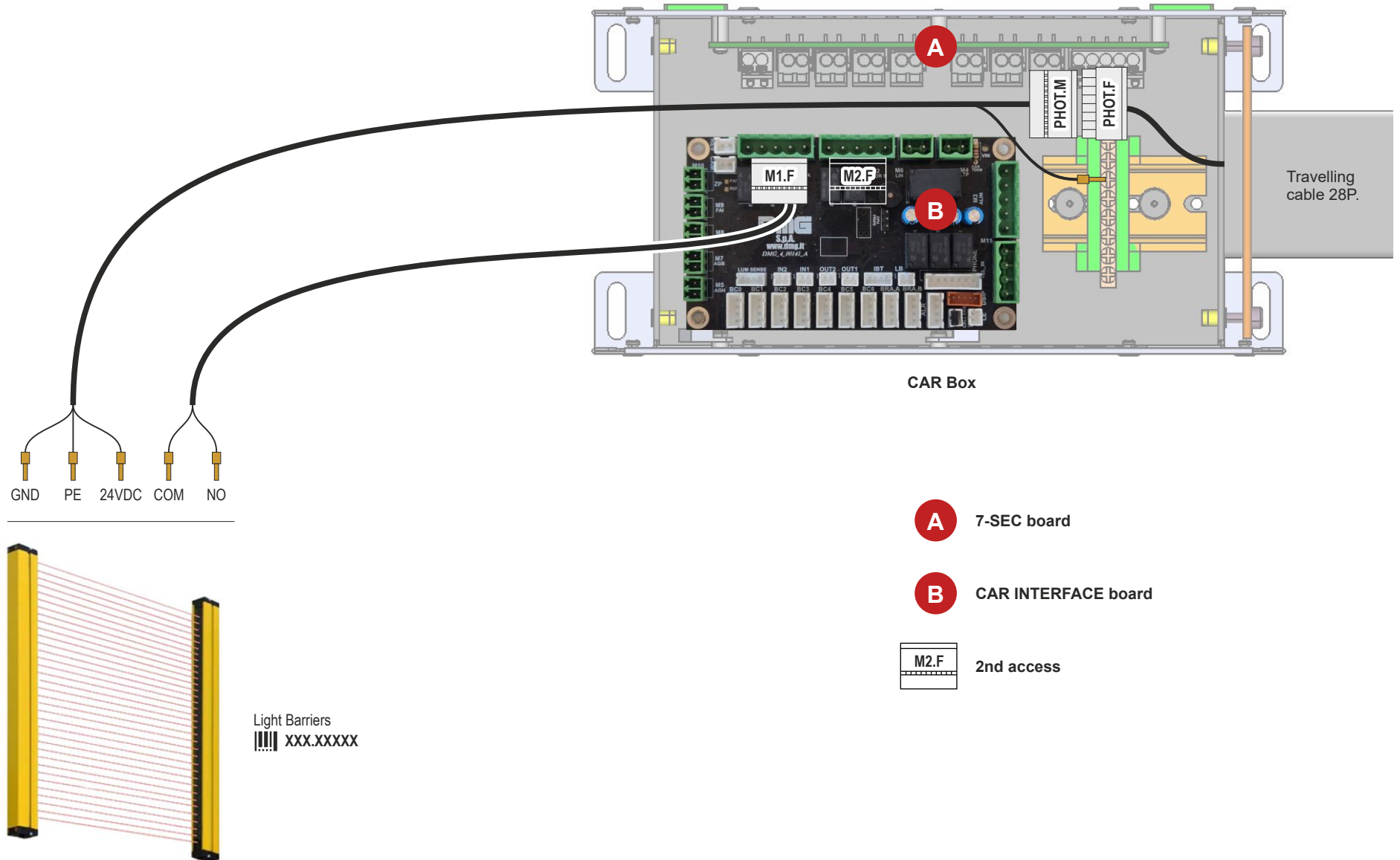
B CAR INTERFACE board

M2.F 2nd access

PRISMA AUTOMATIC

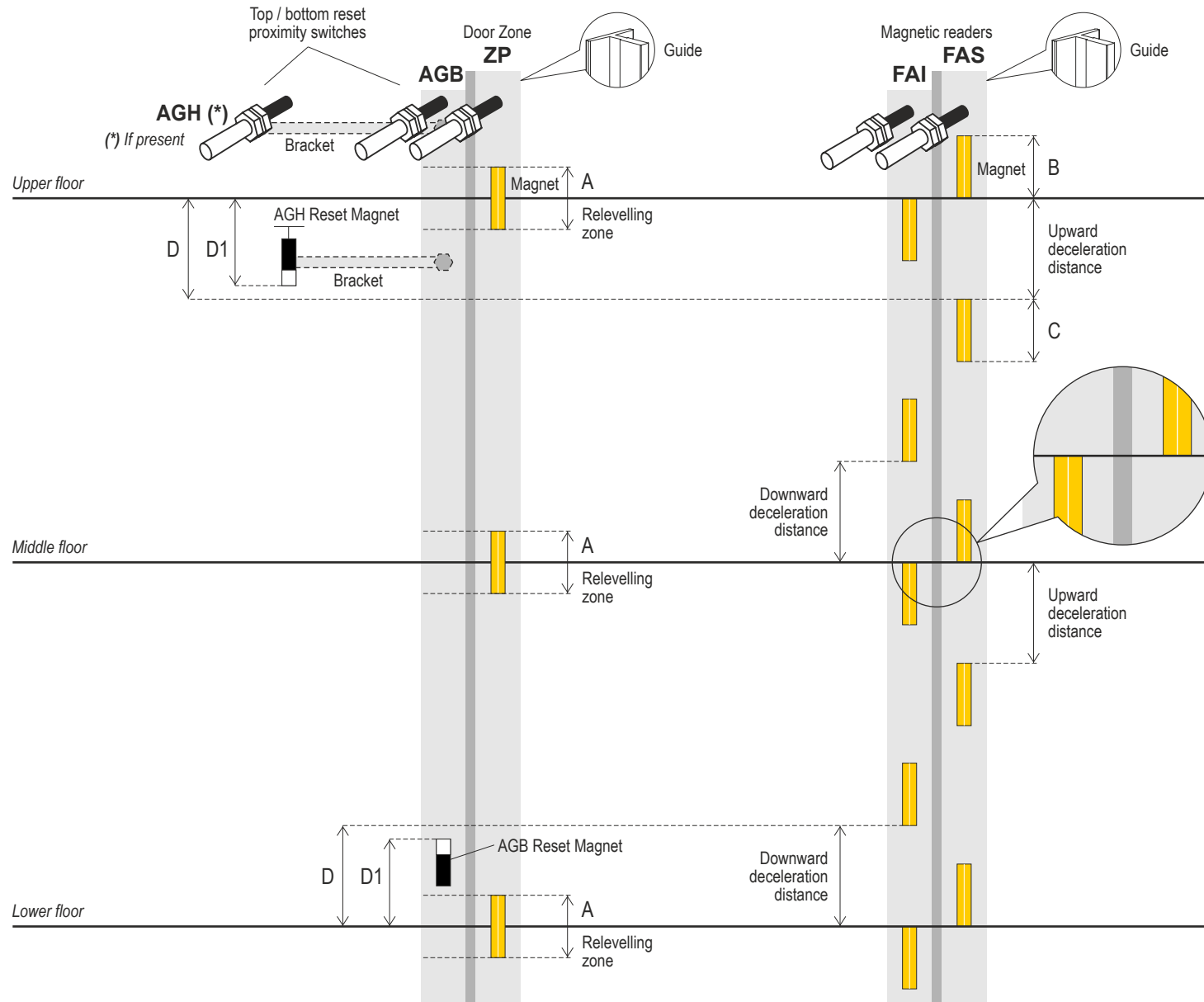


CONNECTING LIGHT BARRIERS (NO CAR DOORS)



CAR POSITION READING SYSTEM

1 REFERENCE LAYOUT FOR MAGNETS AND MAGNETIC READERS



The deceleration magnets (C) can be shortened if necessary.

Lengths (mm)

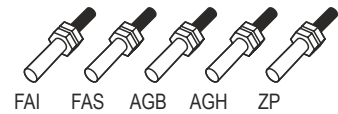
- A = 100
- B = 100
- C = 50 / 100

Speed (m/s)	D (mm)	D1 (mm)
0,15	250	D-20
0,30	400	D-20

Installation KIT

QJ4.CTKIMP.H5

Magnetic Readers

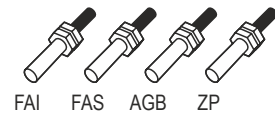


Reset Magnets



QJ4.CTKIMP.H4

Magnetic Readers



Reset Magnets



QJ4.SHCAL100

1 Magnet



QJ4.SHSAFCR

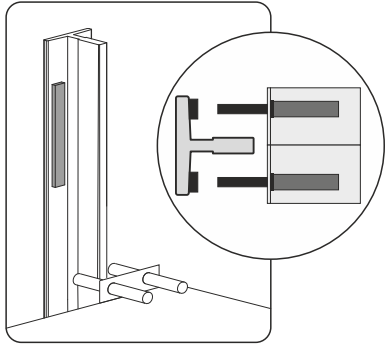
1 Bracket (optional)



2 INSTALLING MAGNETS AND MAGNETIC READERS

MAGNETIC READERS POSITIONING SYSTEM

FAI / FAS



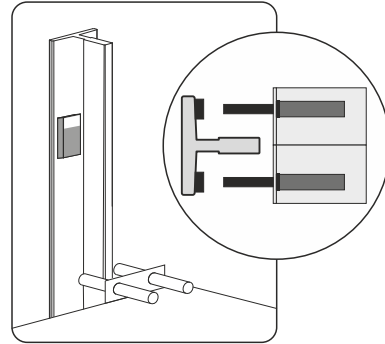
||||| QJ4.CTKIMP.H5 or ||||| QJ4.CTKIMP.H4

+

||||| QJ4.SHCAL100
 4 magnets for the middle floors
 2 magnets for the upper floor
 2 magnets for the lower floor

TOP / BOTTOM RESET PROXIMITY SWITCHES

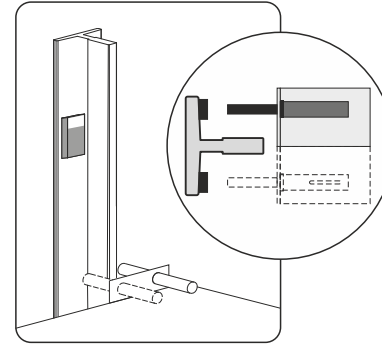
AGB / AGH



||||| QJ4.CTKIMP.H5

BOTTOM RESET PROXIMITY SWITCH

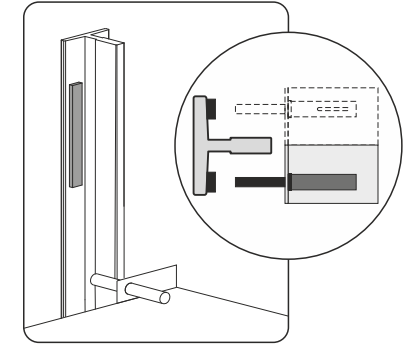
AGB



||||| QJ4.CTKIMP.H4

DOOR ZONE / RELEVELLING

ZP

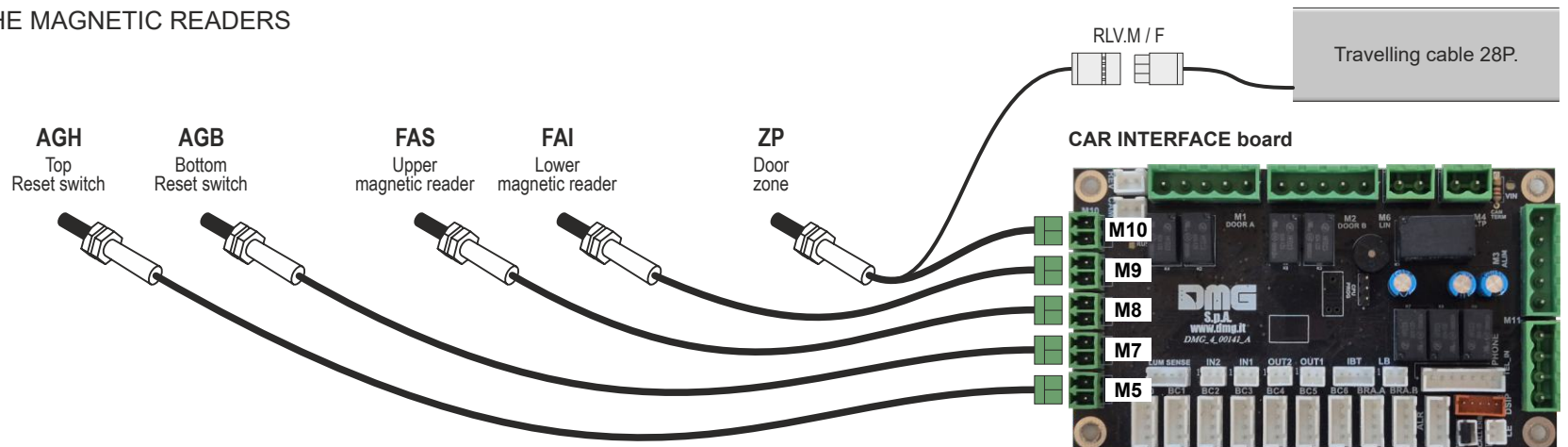


||||| QJ4.CTKIMP.H5 or ||||| QJ4.CTKIMP.H4

+

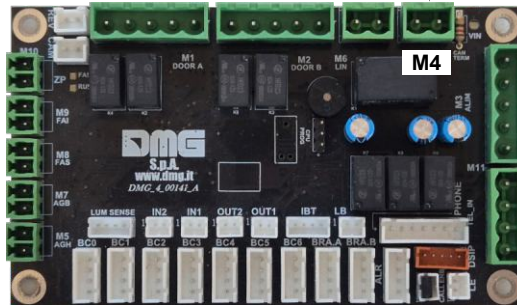
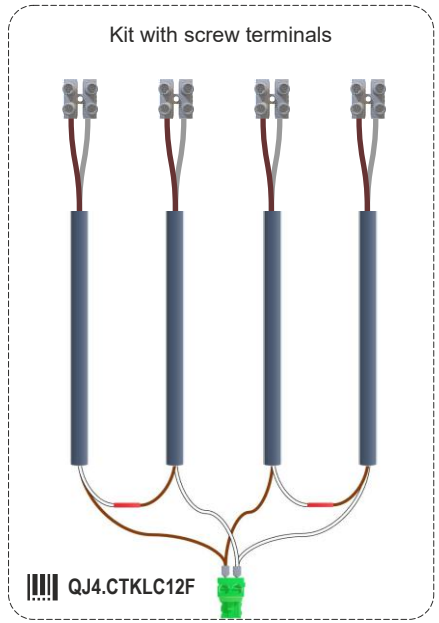
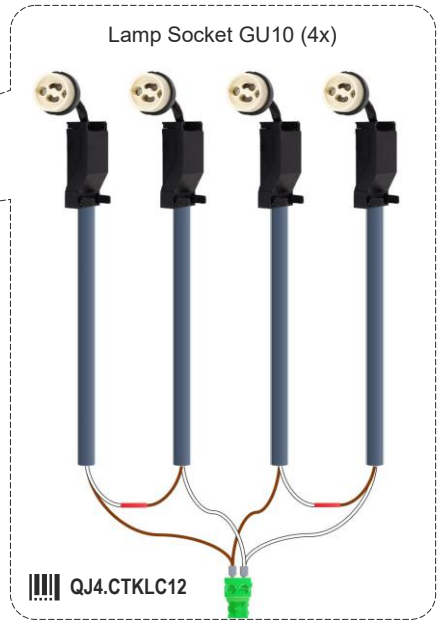
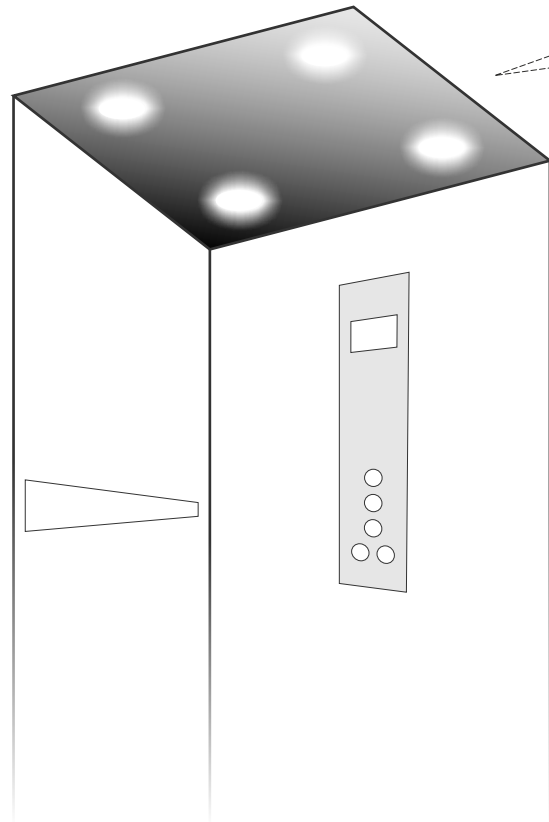
||||| QJ4.SHCAL100
 1 magnet for each floors

3 CONNECTING THE MAGNETIC READERS



CONNECTING THE CAR ILLUMINATION

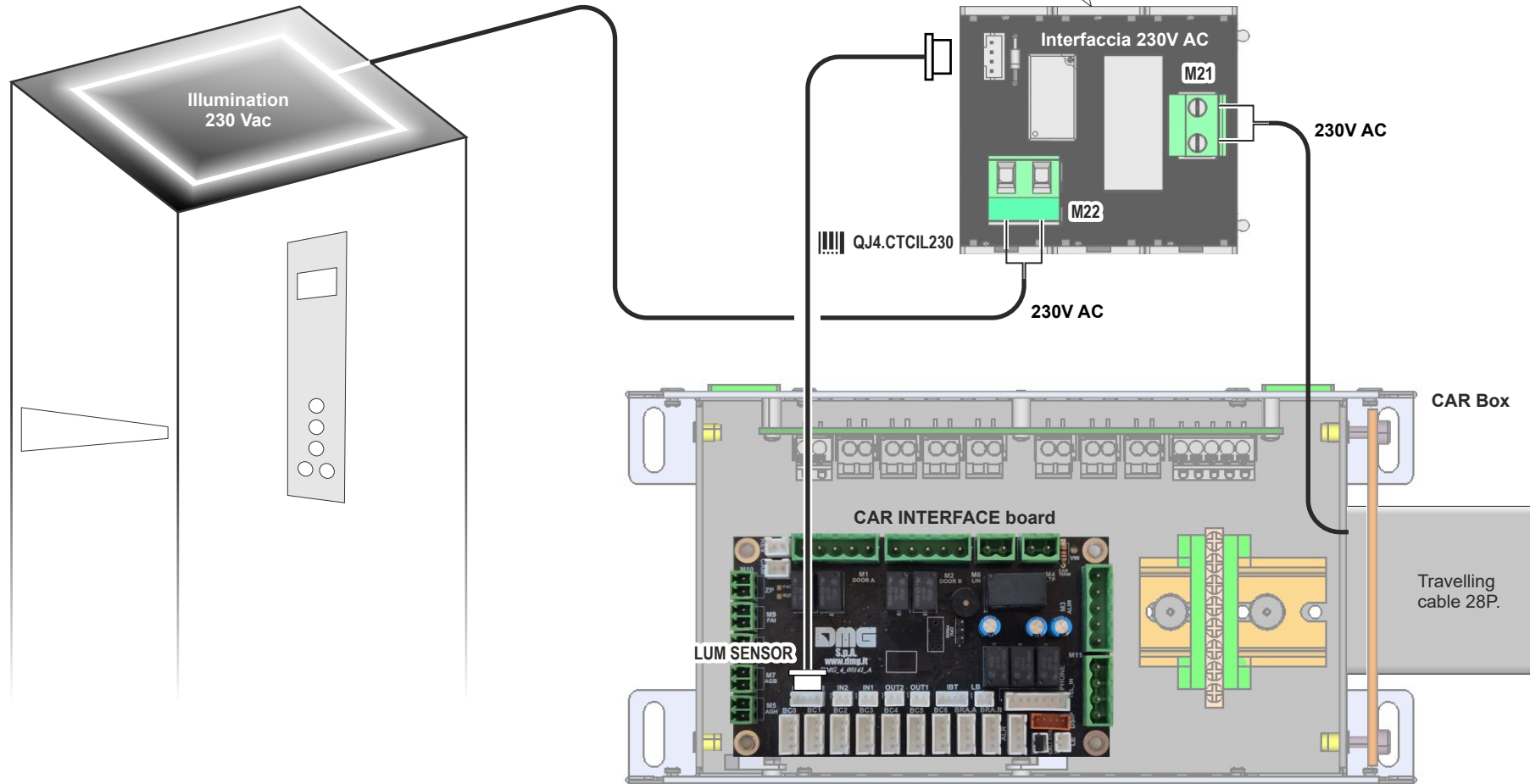
12V DC



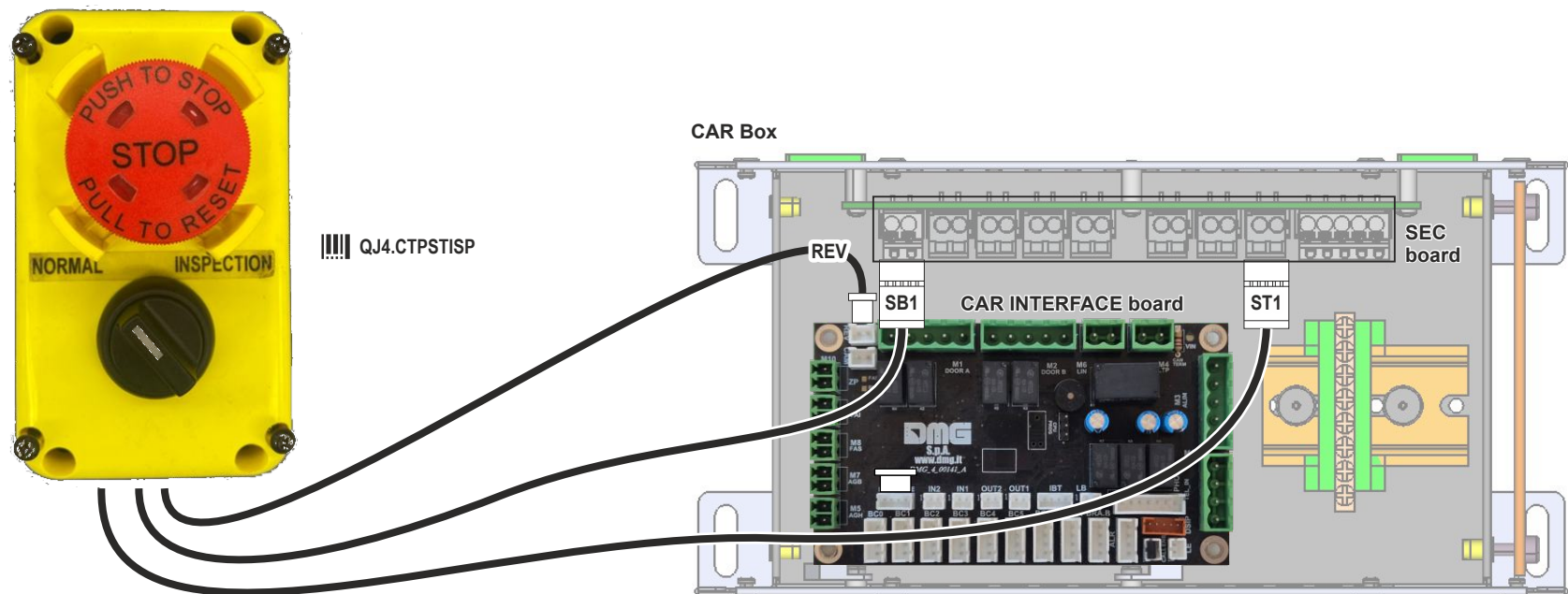
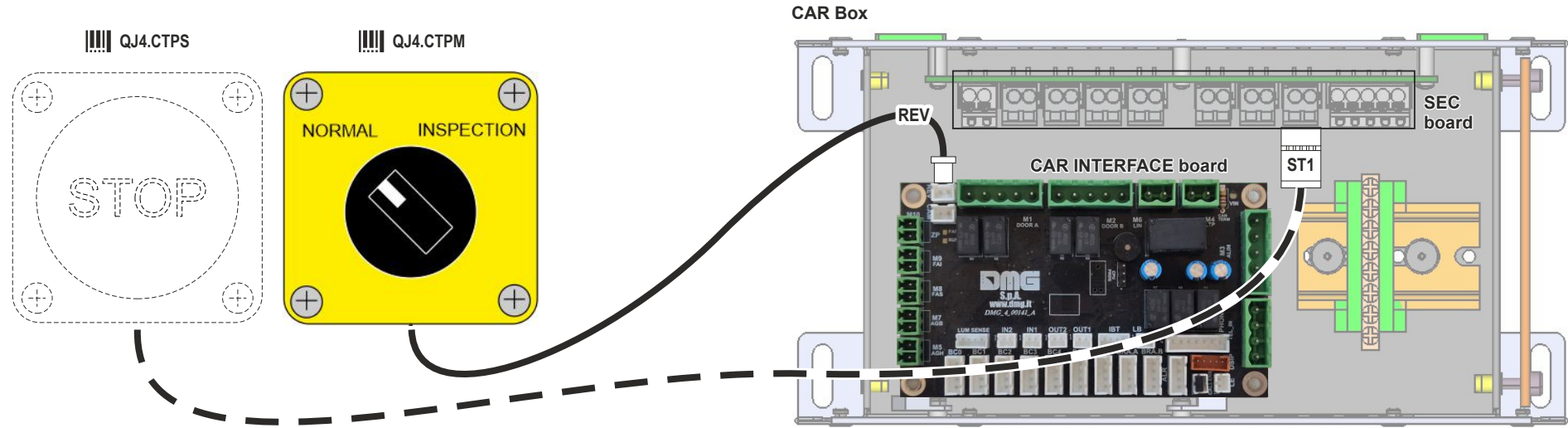
CAR INTERFACE board

230V AC

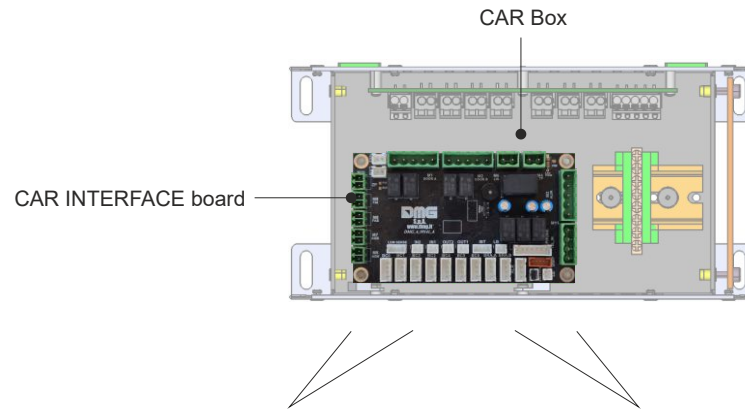
The positioning of this module is at installer's discretion



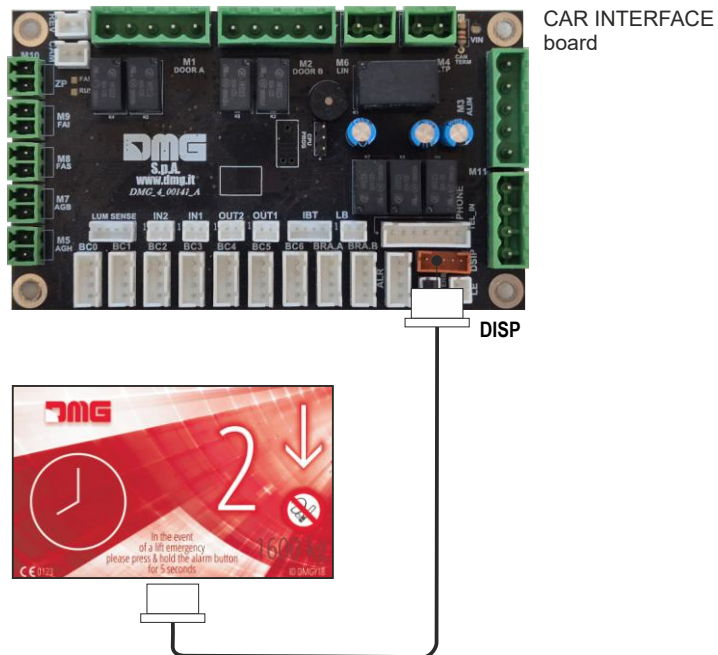
CONNECTING THE INSPECTION BOX



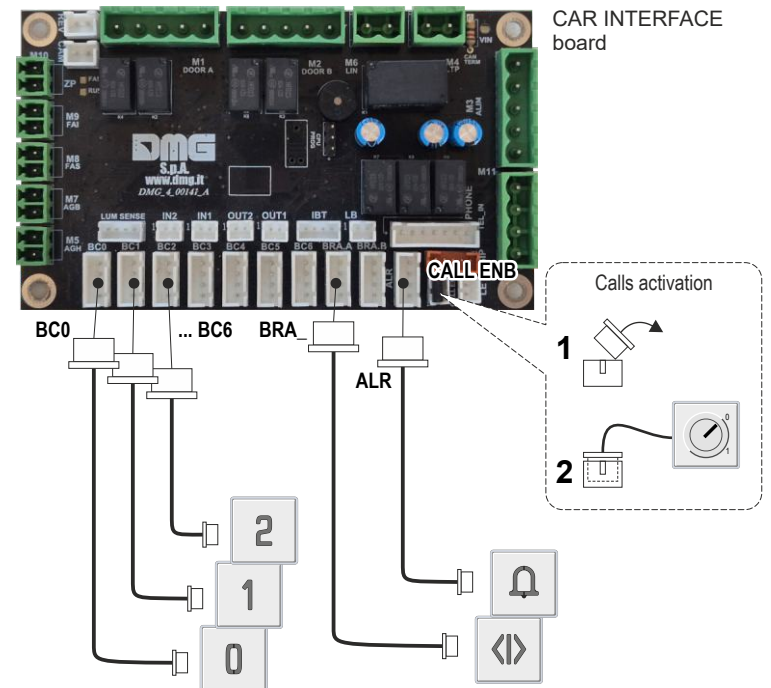
INSTALLING THE CAR PANEL



DISPLAY & INDICATORS

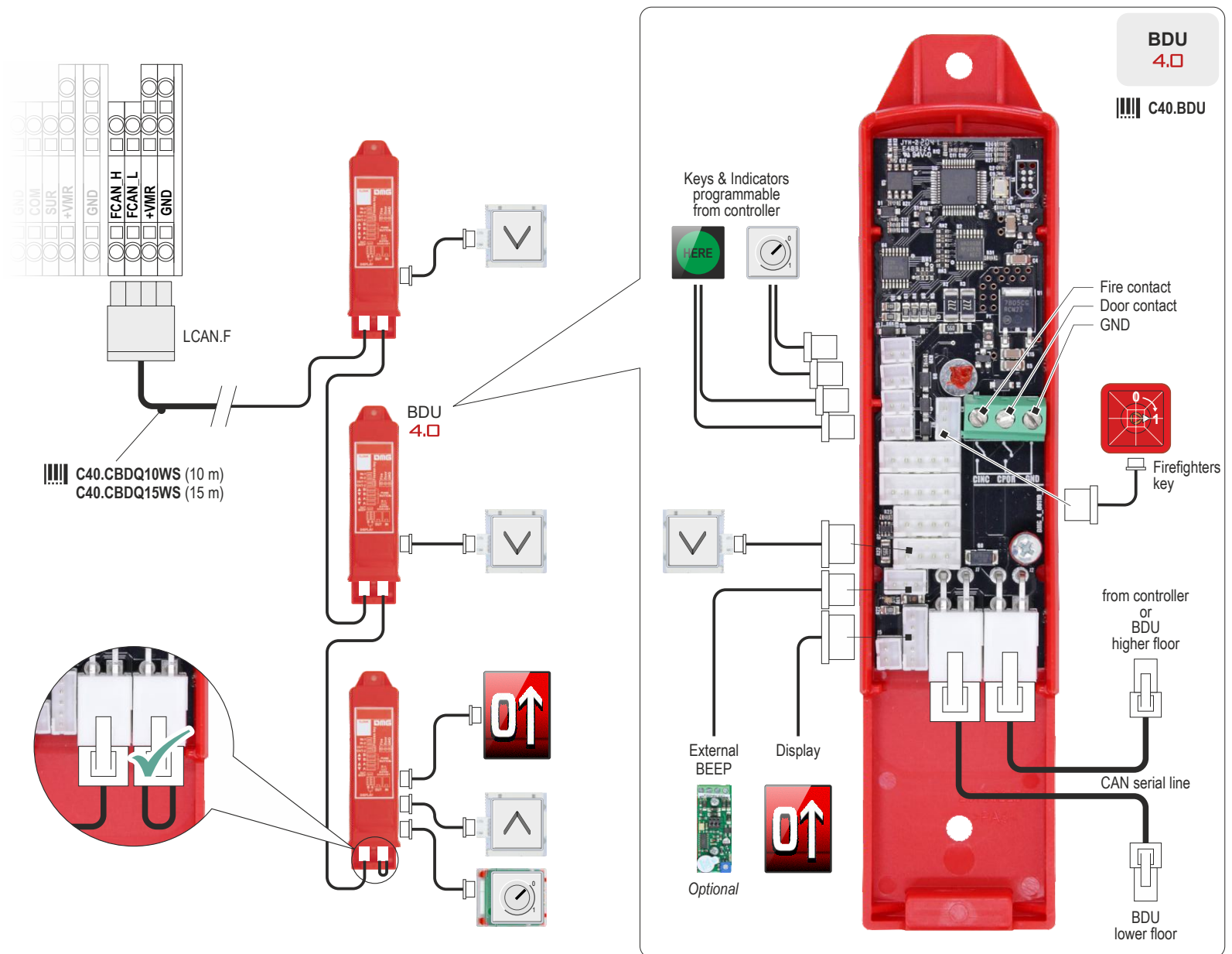


CALL / SERVICE BUTTONS

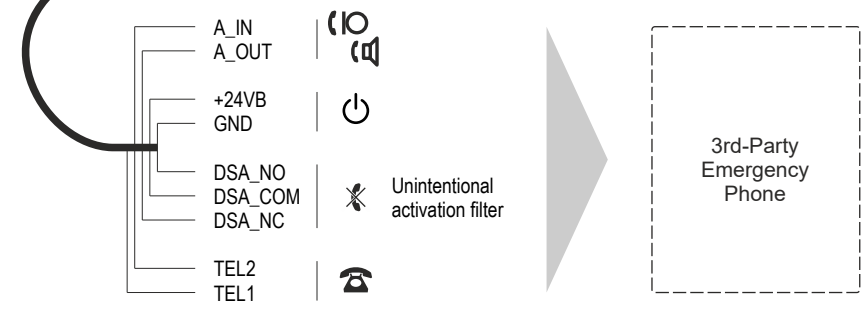
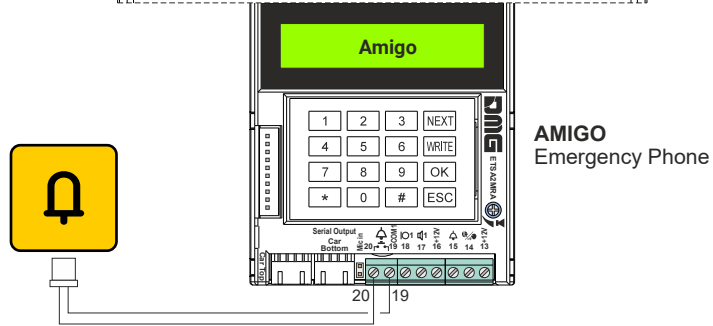
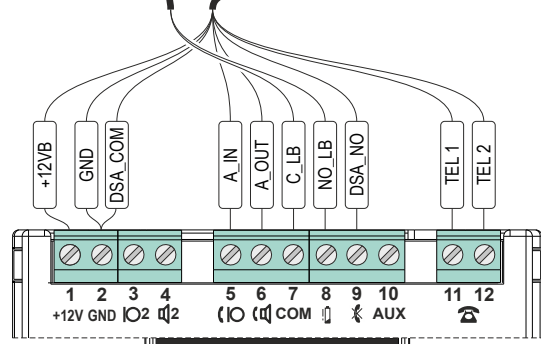
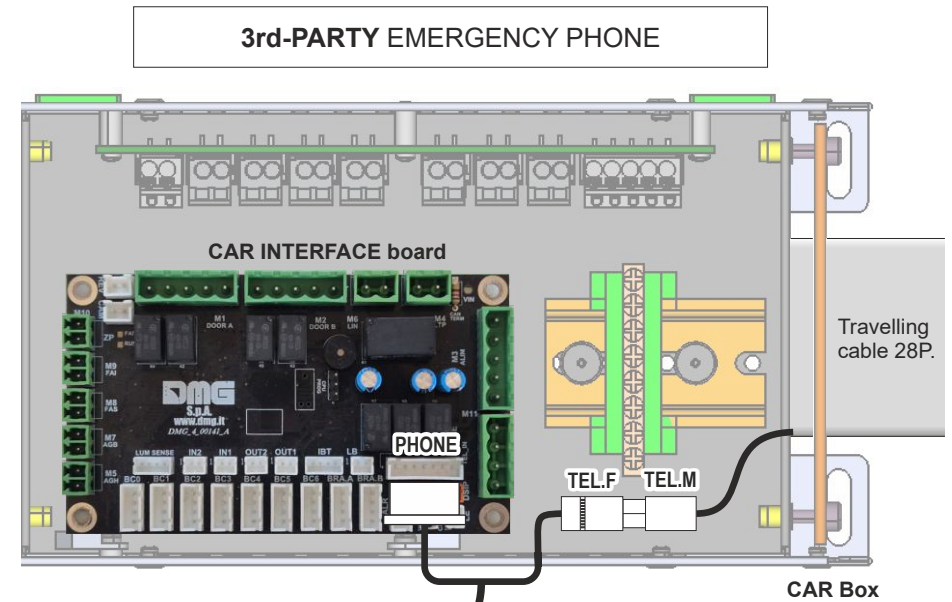
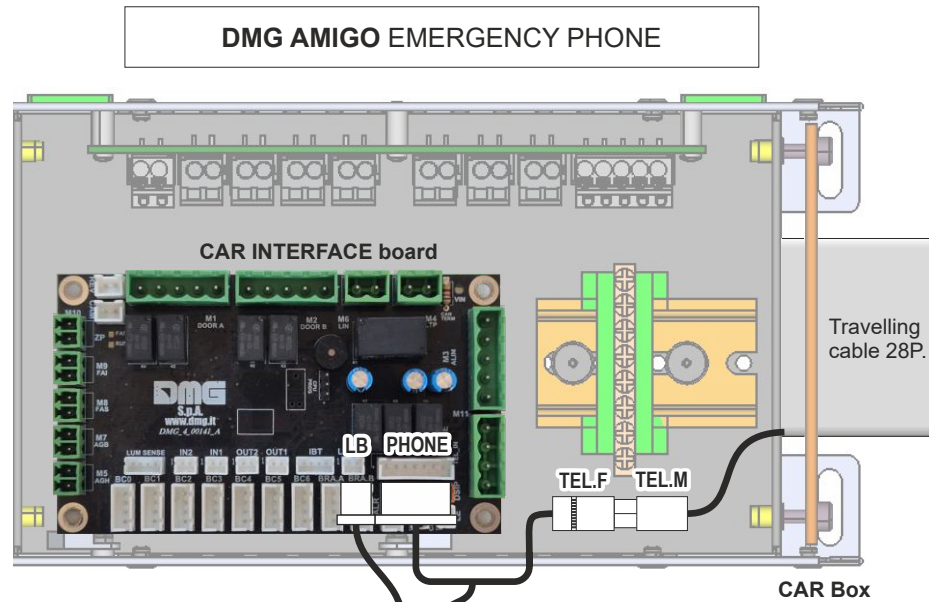


INSTALLING THE FLOOR PANELS

Floor serial interface (BDU)

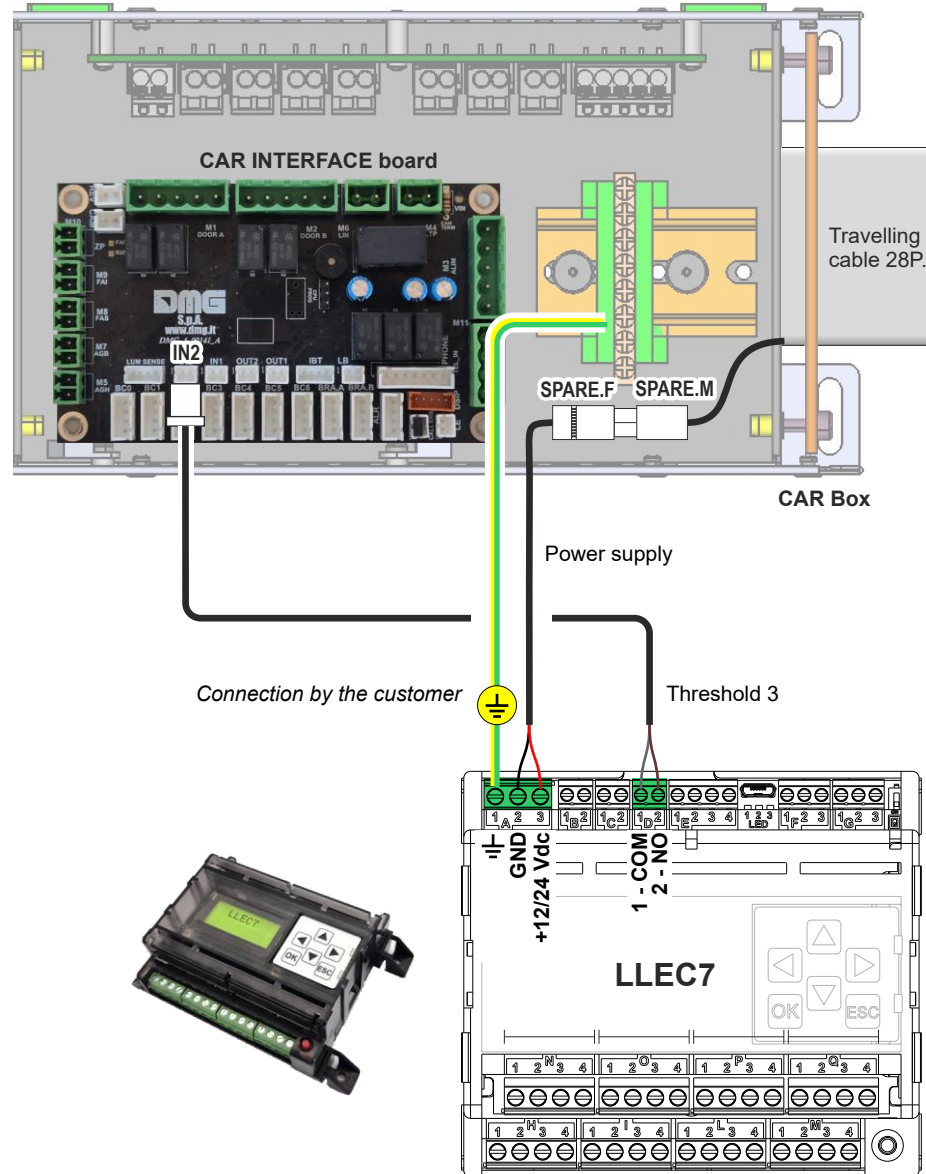


INSTALLING THE EMERGENCY PHONE

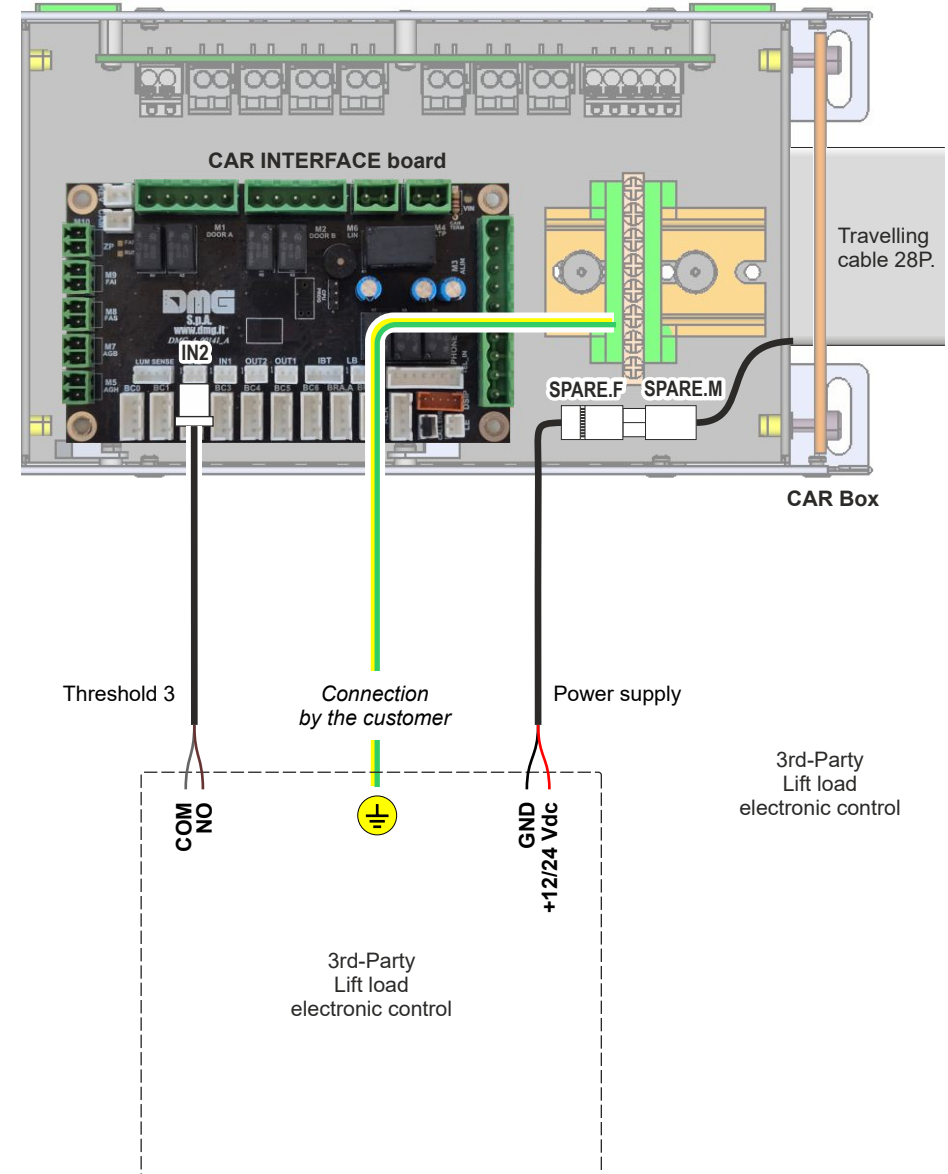


INSTALLING THE LLEC7 LIFT LOAD ELECTRONIC CONTROL DEVICE

DMG LLEC7 LIFT LOAD ELECTRONIC CONTROL

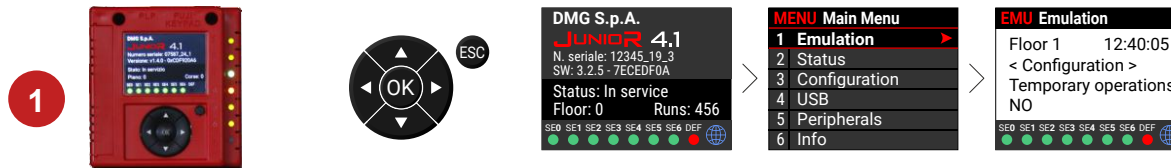


3rd-PARTY LIFT LOAD ELECTRONIC CONTROL

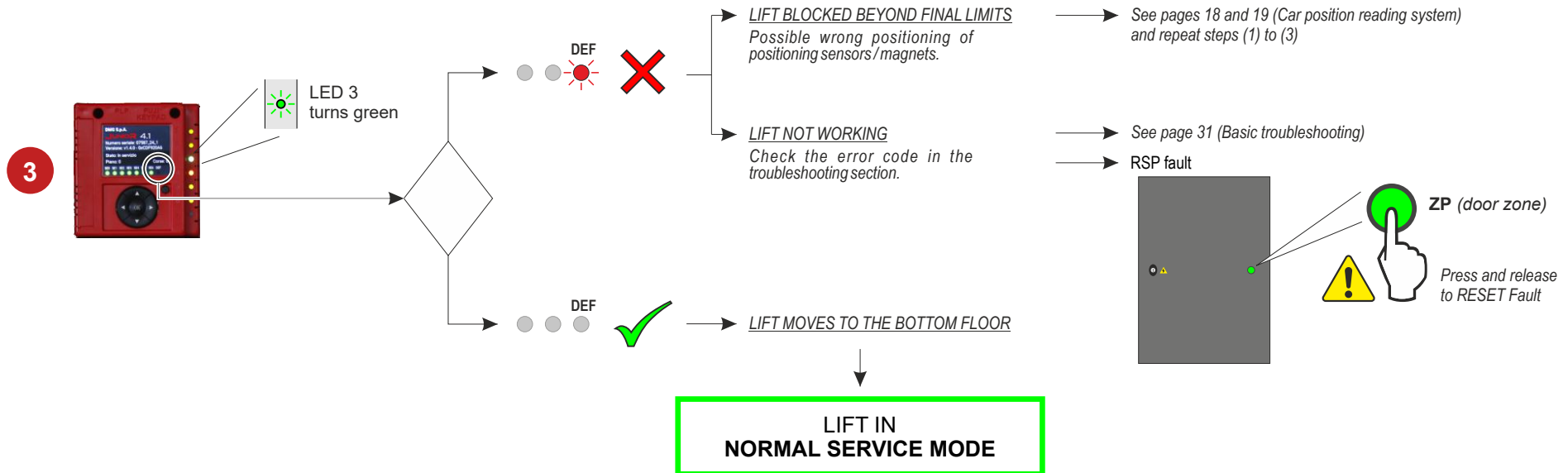


PHASE 2 - NORMAL MODE & SYSTEM ADJUSTMENTS

SWITCH TO NORMAL SERVICE MODE



2 Disconnect the temporary operations box

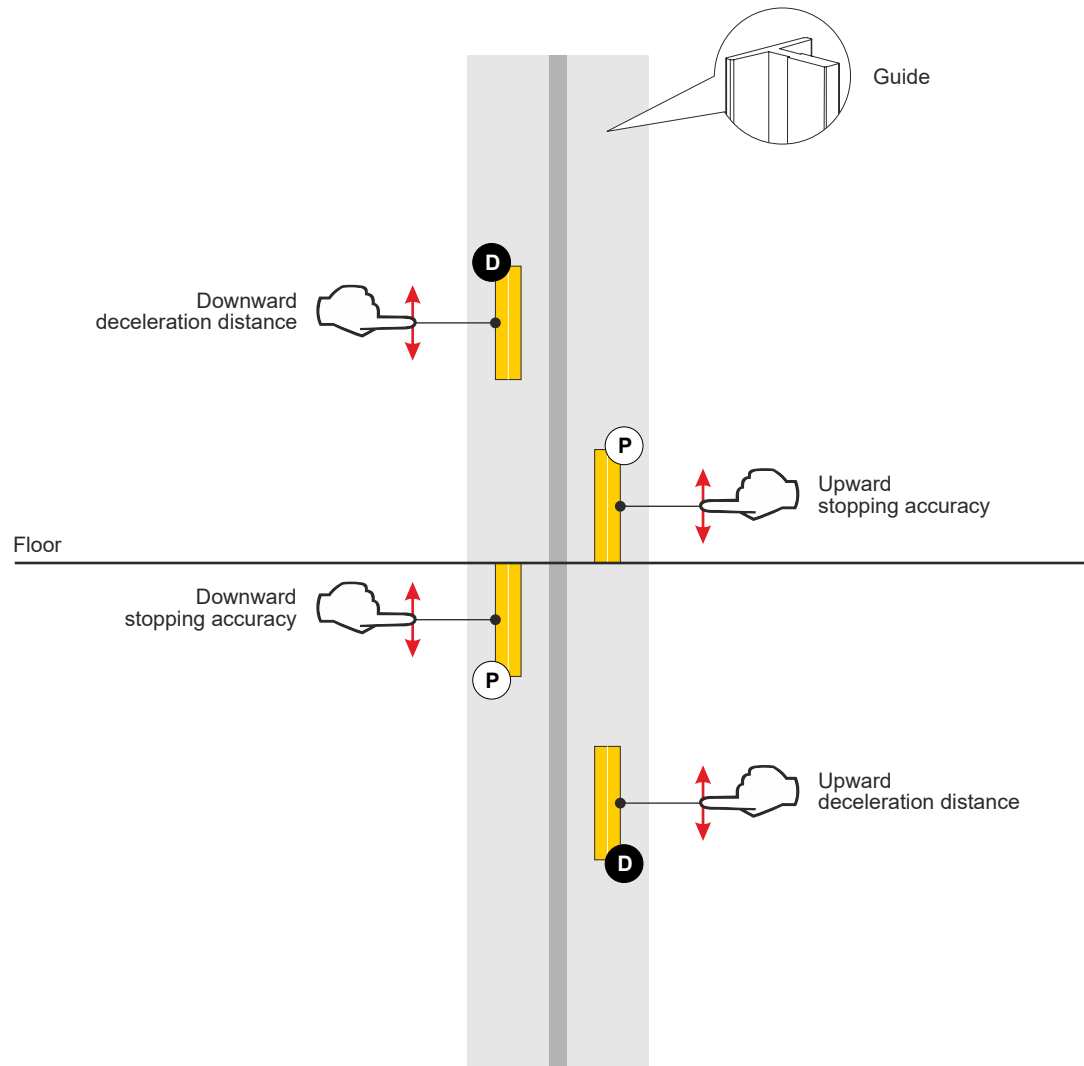


4 Set the stopping accuracy (Fine tuning) at each floor
See next page

5 Perform final system test
(check all lift functions)

ADJUSTING FLOOR STOPPING ACCURACY

- 1 Read the gap between floor level and car floor edge.
- 2 Move **P** magnets in the shaft to adjust the stopping position.
- 3 Move **D** magnets to adjust the deceleration distance.



CONNECTIVITY (FUSION APP)



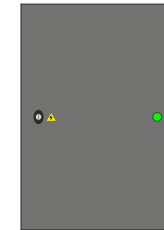
Before even seeing how to connect and interact with the installed device, you need to access the Fusion Dashboard cloud software.
<https://fusiondashboard.azurewebsites.net/>



On the Fusion Dashboard cloud, register the company, buildings, devices and operational technicians, as indicated in the video tutorials on the DMG DIDO site on the "Connectivity and Fusion app" page.
<https://dido.dmg.it/knowledge-base/connectivity-fusion-app/>

Connection mode

W-Fi connectivity to smartphones comes as a standard for all Junior 4.0 controllers, at no extra costs. To enable connectivity and benefits from the advantage of real-time monitoring of the lift, two solutions are available:



LOCAL connections

The local connection carry out on the installation site of the Pitagora system, via Wi-Fi HotSpot located in the TOC board and in the Junior 4.0.
 Before connecting locally to the TOC and Playpad 4.0 devices via the Fusion app (described below), it is necessary to check that the Wi-Fi signal is enabled on these 2 devices.



MENU Main Menu	
1	Emulation
2	Status
3	Configuration
4	USB
5	Peripherals
6	Info

NET Network configuration	
1	WiFi Access Point
2	WiFi Remote

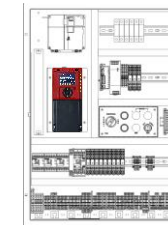


REMOTE connections

The remote connection allows you to access the devices connected via Telemaco II 4G modem.
 Telemaco II 4G is supplied without a SIM; the choice of the SIM is at discretion of the customer.
 Instructions for installing the Telemaco II 4G modem:
<https://dido.dmg.it/knowledge-base/telemaco-modem-4g-new/>



Telemaco II 4G modem



Junior 4.0

Lift controller management via the Fusion app



Fusion is the application (IOS / Android) created by DMG for the direct management of compatible installed devices.

Download the Fusion app using the QR code on the side.



1



Start the FUSION app and login when the smartphone is still connected to internet.

You can reach devices locally without logging in (Select "Local Connection").

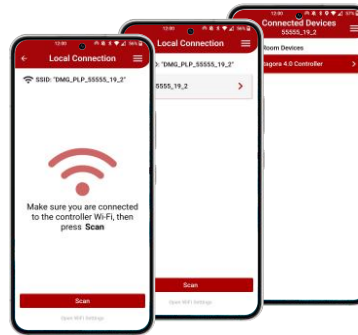
2



Select the type of device to manage.

3

Local connection



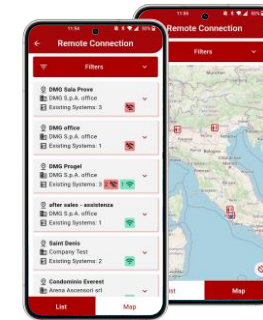
Make sure you are connected to the controller's Wi-Fi network:

- In the network settings of the smartphone, search and select the Wi-Fi network of the device to connect to (Playpad / TOC):
- DMG_PLP_xxx > PLAYPAD
- DMG_TOC_xxx > TOC

The login credentials are provided by DMG together with the documentation supplied with the product. Finally search for devices (press "Scan") and select the device to manage.

WiFi PLAYPAD	
	WiFi SSID DMG_PLP_11776_22_1
	WiFi Key xjyn\$VzRoe
WiFi TOC	
	WiFi SSID DMG_TOC_11776_22_1
	WiFi Key gh:p2e&_1

Remote connection



You can now choose the device to manage from either a device list or a device map.

4



TEST AND MEASUREMENTS

! MAIN PROTECTION SWITCH OFF ON

The main switch of the controller must be switched off at every maintenance and at least 365 days after the last switch off and on.

To access the TESTS AND MEASUREMENTS section on the Playpad, set the display as indicated.



- MENU Main Menu
- 1 Emulation
- 2 Status
- 3 Configuration
- 4 USB
- 5 Peripherals
- 6 Info

EMU Emulation

- PLAYBOARD 4.0 -
DMG S.p.A.
S/N 12345_19_3
3.3.7 r [EFBEADDE]



FINAL LIMIT SWITCH TEST



This test is only used to check the functionality and position of the final limit switch; this test does not check the behaviour of the car after leaving the final limit switch.

- 1 TOP floor
- 2 **Final limit switch (IN)**
- 3 **Final limit switch (OUT)**
- 4
- 5 **OK (Reset Fault)**
- 6 Repeat 1 ÷ 5 but at the BOTTOM floor

RE-LEVELLING TEST

- 1
- 2
- 3
- 4 Repeat 1 ÷ 3 at every floor

BALANCING SYSTEM MEASUREMENT

1 BOTTOM floor

2 **EMU Emulation**
Floor 0 12:30:56
<Configuration>
test
TEST 9

3 **EMU Emulation**
Floor 0 12:30:56
<Configuration>
test
^ 8,50A v 8,20A

Value of the current absorption of the motor, measured at half travel distance

BALANCED CAR
Typically 50% capacity
See the installation booklet

DYNAMIC BRAKE TEST

1 TOP floor
 125% CAPACITY

2 **EMU Emulation**
Floor 2 12:30:56
<Configuration>
test
TEST 4

3 STOP

4 **EMU Emulation**
Floor 2 12:30:56
<Configuration>
test
-123 mm 0,50 s

MOTOR RUN TIME TEST

1 BOTTOM floor

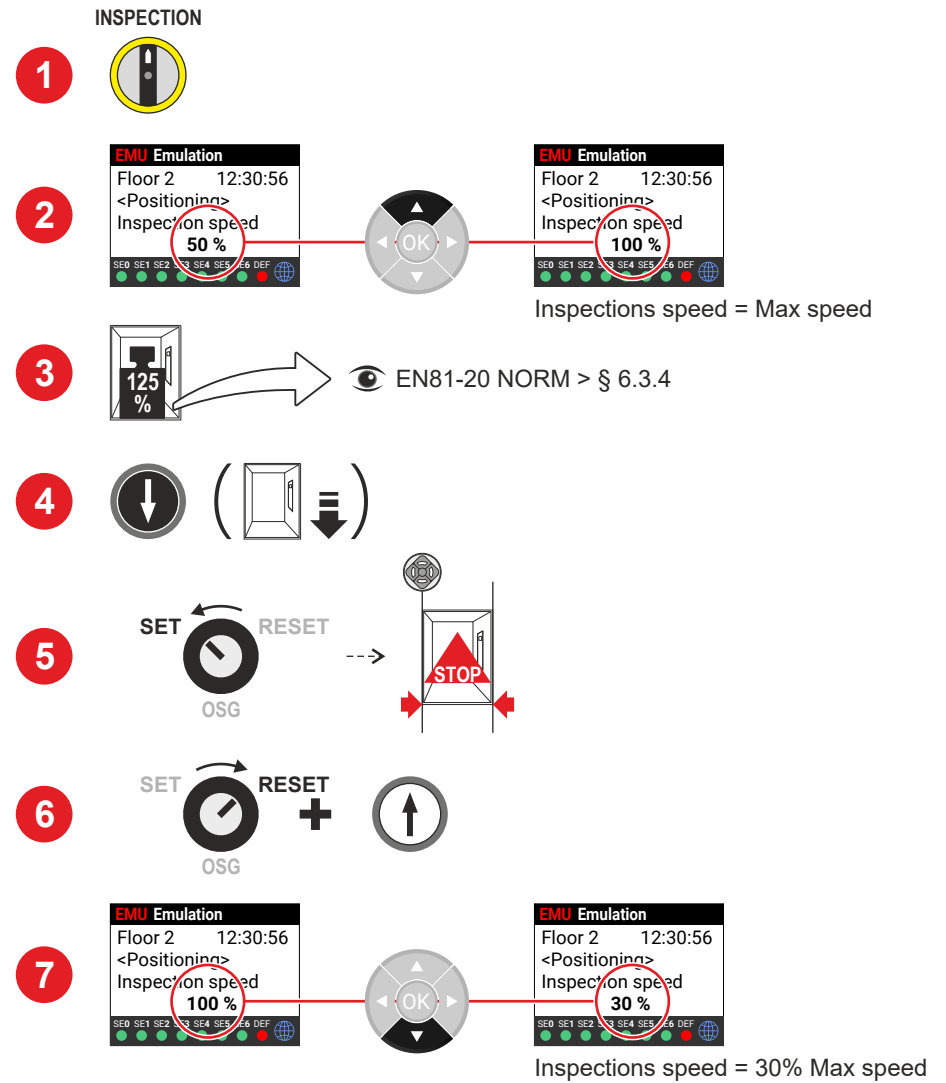
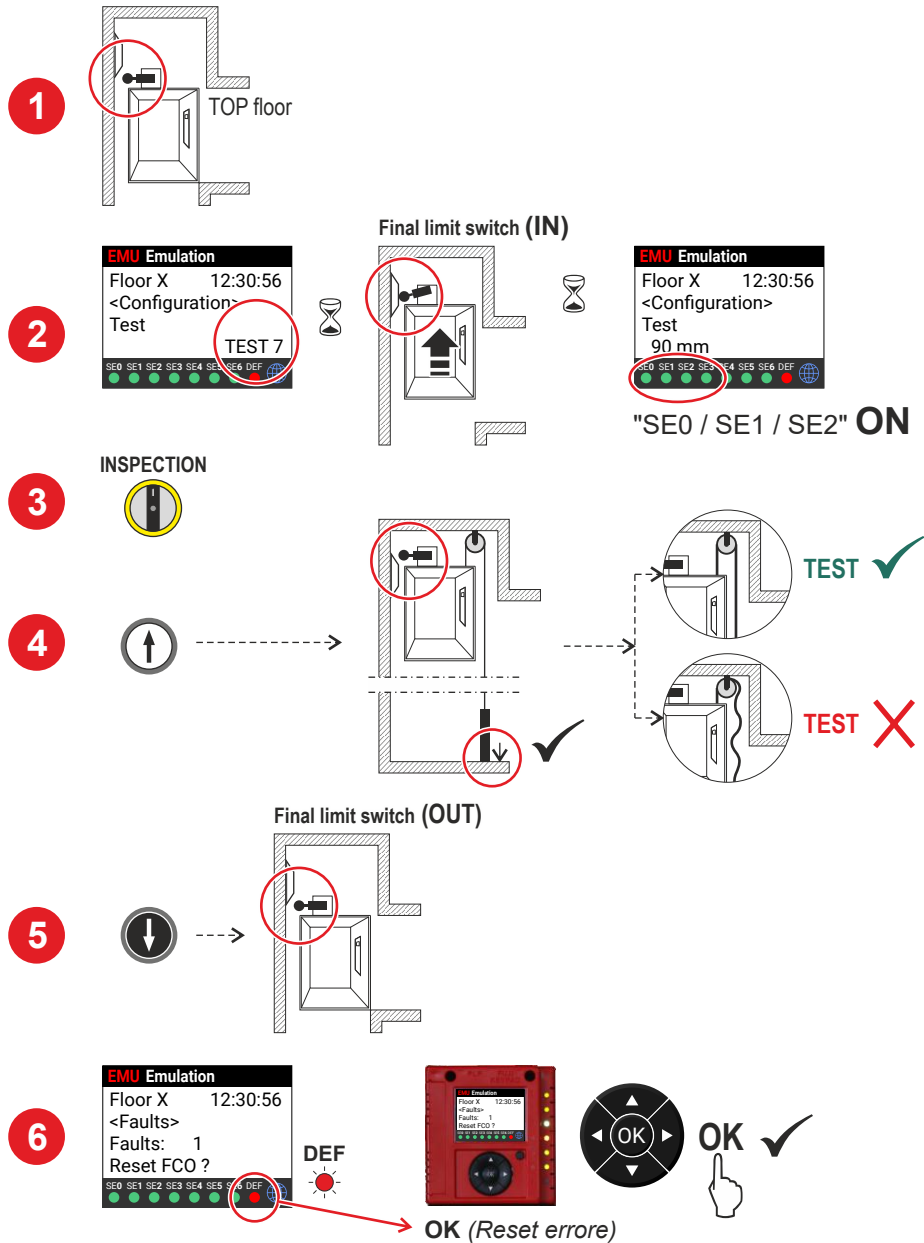
2 **EMU Emulation**
Floor 0 12:30:56
<Configuration>
Test
TEST 8
V = 0 m/s

3 **EMU Emulation**
Floor 0 12:30:56
<Faults>
Faults: 1
Running UP time
DEF ON

DEF OK (Reset fault)

ROPES CREEP TEST

OVERSPEED GOVERNOR TEST



BASIC TROUBLESHOOTING

Follow this first-level procedure to detect and remove the most common faults:

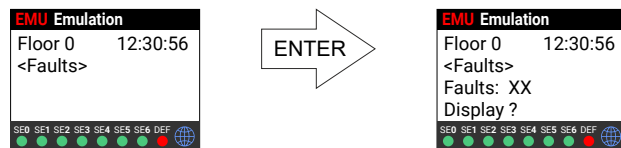
1 Check Diagnostic LEDs (VVVF unit)



LED 1	LED1 (Green led):	NOT used
LED 2	LED2 (Green led):	CAN Cabin termination active: led switch off when an optional board (PIT8 / 16IO / 16RL) is connected to the controller (termination automatically moves on last optional board).
LED 3	LED3 (RGB led):	System status Led (see table):
	<u>Led Color</u>	<u>Status</u>
	Led Off	The system is performing the reset procedure
	Green	The system is in normal operation mode
	Yellow	The system is in inspection mode
	Pink	The system is in temporary operations mode
	Purple	The system is out of service (parking of cabin)
	Cyan	The system is running in priority mode (LOP / CAR)
	Red	The system is operating in Fire-fighters mode
	White	The system is performing the emergency procedure
	Blue	The system is performing the elevator car drift control procedure
LED 4	LED4 (Yellow led):	Led blinks when board is running.
LED 5	LED5 (Green led):	Led on gives the status of SE5 safety chain
LED 6	LED6 (Green led):	Led on indicates the presence of the lift car in the door zone area.
LED 7	LED7 (Red led):	

Led Off	No fault active
Led Flashing	One (or more) fault active
Led On	Locking fault active

2 Read error messages on the PlayPad error menu / Fusion error page



- Error X of XX total.
- **Code/description error.**
- Car position when the fault was detected.
- Number of repetitions of the same error.
- Additional code.
- Date and time of last detection.
- (*) If the error is still active.

This Menu lists the last faults stored into the internal memory of the controller. All faults are described in the **Troubleshooting guide**. See leaflet on the back of this guide.

WARNING: In case of black out, the internal memory is saved only if the battery is connected.

3 If the car is blocked with people inside

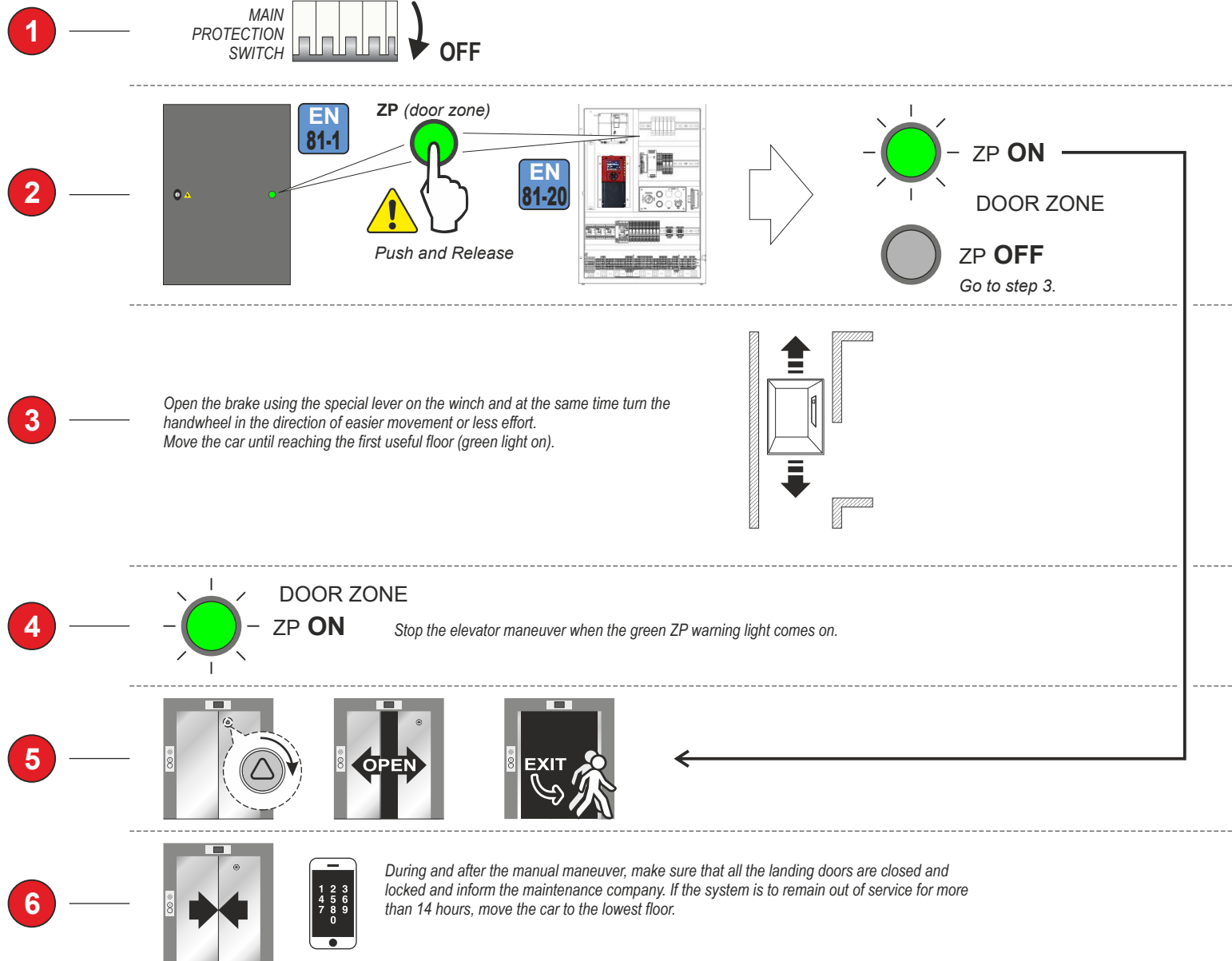
Perform the RESCUE OPERATION as shown on the following page ----- >>>

RESCUE OPERATION FOR TRACTION LIFTS

IF THE CAR IS BLOCKED ----->



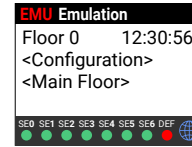
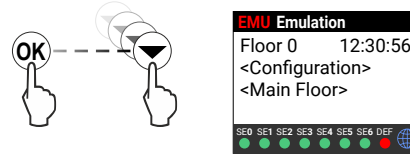
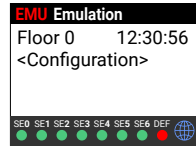
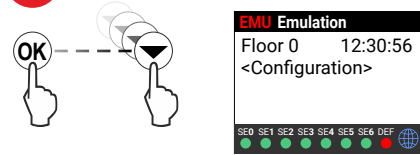
After pressing the ZP button (door zone) you have 1 hour (default) to carry out the maneuver. If the procedure takes longer, press it again.



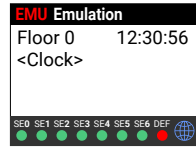
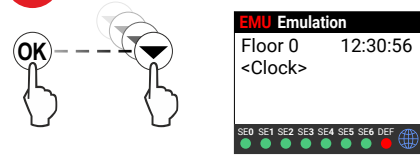
ADVANCED SETTINGS



1 Defining the position of the main floor

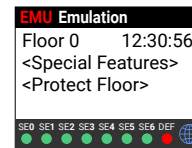
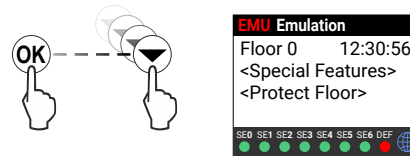
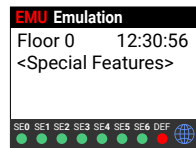
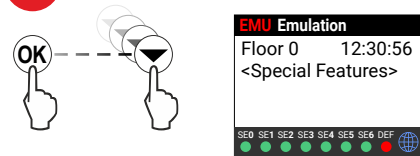


2 Setting date / time

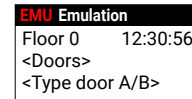
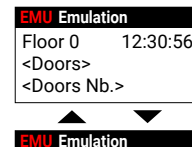
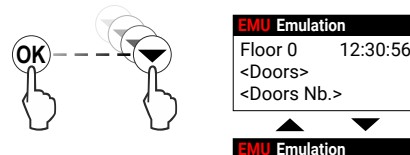
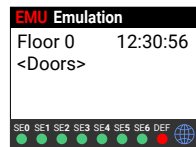
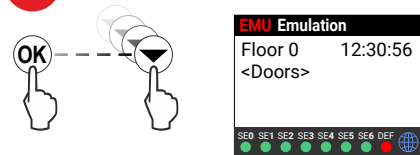


Da = Day
Mo = Month
Yr = Year
D = Weekday (1=Mon)
Hr = Hours
Mn = Minutes

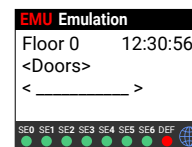
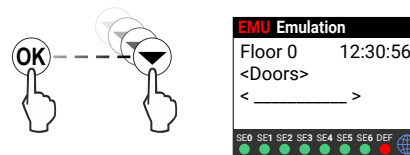
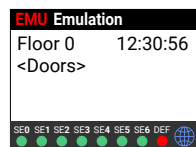
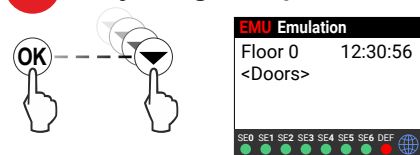
3 Defining a protected floor



4 Changing door assignment / layout

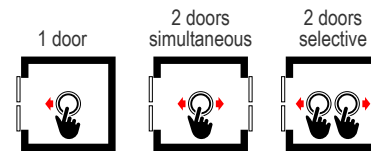


5 Adjusting door parameters



- All calls below this floor are served only upwards (only down collective).
- Lift not in use goes to Main Floor after xx seconds (this parameter can be set in the menu "Special features > Automatic return")

If a protected floor is programmed, when the elevator car reaches the floor, the door does not open, instead the monitor will show images coming from the camera corresponding to that floor. Doors can be opened only by pressing the OPEN DOOR button; if this does not happen, the lift moves to the previous floor and then stops the protected floor mode (this operating mode is only possible with DMG's monitoring system).



- Manual doors at floors / car doors manual or not present.
- Manual doors at floors / car doors independent.
- Manual doors at floors / car doors automatic.
- Automatic doors at floors and in the car.

In the "Doors" menu it is possible to manage other parameters such as:

- Time before activation of the retiring ramp and the lock fault
- Time before door opening
- Life car parking time with open doors
- Time before door closes in case of registered calls
- Many other settings



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