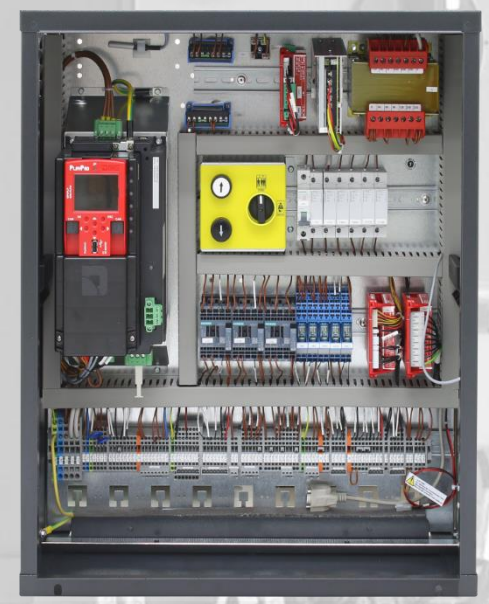

PITAGORA 4.0

User Manual

English

v 2.1

Visit the new DMG technical support site

DMG INTERACTIVE DESK
https://dido.dmg.it

https://dido.dmg.it/knowledge-base/pitagora-4-0/

SAFETY WARNINGS

INSTALLATION

The control panel must be installed indoors with a pollution degree of no more than 2.

The enclosure of the control panel has an IP2X degree of protection.

The installation and maintenance of the control panel must be done by qualified and experienced personnel after careful reading of the manuals and electrical diagrams supplied with the control panel.

Electrical protection must be carried out by means of Automatic circuit breaker and earth-leakage protection coordinated with the earthing system which are the responsibility of the customer unless otherwise specifically requested.

Refer to the electrical diagram supplied with the control panel for the following protection circuits:

- magnetothermic protection of the motor circuit
- magnetothermic protection of the safety circuit
- protection by fuses of all the other circuits

Measures for protection against electric shock:

- The control panel casing is metallic and must be connected to EARTH as indicated in the wiring diagram supplied with the control panel.
- The command and control circuits (24V) are galvanically separated from the electrical network as indicated in the electrical diagram supplied with the control panel.
- The safety circuit is galvanically separated from the electrical network as indicated in the electrical diagram supplied with the control panel.

MAINTENANCE

For the maintenance of the control panel, refer to the manuals provided with the control panel and check the status of the batteries of the alarm circuits and of the return to floor circuit (if present) during the periodic inspections of the system.

For the transport and handling of the control panel, refer to the instructions on the packaging.

Document References

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Changes to the document

Changes description	References
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Fault Reset codes added (§ 6)	Rev. 1.2
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Integrated Load Weighing added (§1.12) UCM Solution description (§ 1.6.11) Fault Out of Service switch codes added (§ 6) Fault UCM codes added (§ 6) Added Playpad versions (Annex III) Monitor UCM table updated (Annex VIII)	Rev 1.6
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Changes description	References
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1. Description of PB 4.0 elevator control board

The elevator control board 4.0 is based on 32-bit electronic technology and operates all types of electric and hydraulic lifts. Serial and/or parallel connections to floor and car panels may be added. It is particularly suitable for VVVF electrical installations, also those equipped with the car uncontrolled movement system (Amendment A3 or EN81-20 / 50).

1.1. Main functions

- Control of any kind of electrical and hydraulic system
- Up to 28 floors with serial control and up to 12 floors with parallel control
- CAN Bus serial line to connect display and serial Landing Operating Panels
- CAN Bus serial line for the serial car communication
- APB; Down Collective, Full Collective
- Multiplex (max 6) systems control
- Alternative or selective door control on through or adjacent access systems
- Lift position control by magnetic contacts, incremental DMG shaft encoder, motor encoder or ELGO LIMAX 33 CP Absolute Positioning System
- Programming/diagnostic Interface, on board and/or remote.
- Status diagnostic, errors, failures and I/O status
- VVVF parameters and diagnostics handling (only FUJI FRENIC LIFT LM2)
- Advanced control of VVVF with speed, comfort and precision stop control
- Software upgrading via USB Device
- RS232 serial line for PC and GPRS modem connection
- Compatibility with all DMG products
- Compatibility with all the +A3 solutions for electrical and hydraulic systems
- Shaft access protection (Unauthorized Shaft Access)

1.2. Specifications and descriptions of inputs and outputs

The 4.0 Mother Board contains hardware and software that allows control of the elevator and all its peripherals. Through the integrated and/or remote programming modules it allows access to all available features. Inputs and outputs are connected to all electronic and electromechanical devices in the controller and in the lift.

1.3. Integrated Programming Module

The Mother Board has a removable programming module that allows viewing and editing of all the basic parameters for the management and configuration of the control panel. In VVVF's version of the controller, also FUJI's parameters of the basic (menu VVVF BASE) and advanced (VVVF ADVANCED menu) configuration may be viewed and edited.

For details of the programming module operation and an extensive management system menu, see paragraph 4 below (Changing Parameters).

1.4. Remote programming module

An alternative way to access the configuration menu of the controller, in the view/modification mode, is by connecting the removable keypad of the DMG V3 Playboard (PlayPad), to the connector PLP V3, mounted on the Lift Control Board (see page 7).

This module can be connected in various ways:

- Connected directly
- Connected by a dedicated extension cable directly on the board (in the engine room)
- Connected to the board on the car roof (TOC) in the case of lifts with DMG pre-wired serial devices.

1.5. Fusion App

An alternative way to access the controller is based on Fusion App.

iOS

Android

1.6. Mother Board 4.0

LED 1

LED 2

LED 3

LED 4

LED 5

LED 6

M1 Power Supply

J16 Encoder Position

J9 Relevelling Circuit

J26 Optional Boards
J21 Emergency Circuit

J19 PME Panel

J6 Parallel Signals

J18 Env. Temperature
J12 Multiplex CAN
J10 Light Curtain / >|<

J8 UCM Circuit
J25 Batteries Test

J20 Out Spare
J11 Safety Chain

J4 FUJI Analog / Serial
J15 81-21 Circuit

J13 Car at floor
J14 Hydro command

J22 Motor Relay
J23 Brake Relay

FJ1 FUJI Interface

On mother board are present 6 leds for a easy diagnostic:

LED1: (Green led) CAN Multiplex termination active: led switch off when MULX board is connected (termination automatically moves on MULX board of first and last multiplex controller).

LED2: (Green led) CAN Cabine termination active: led switch off when an optional board (PIT8 / 16IO / 16RL) is connected inside controller (termination automatically moves on last optional board).

LED3: (RGB led) color of this led gives info on the internal status of lift according following table:

COLOR	Status
MAGENTA	The system is in temporary operations mode
WHITE	The system is performing an emergency procedure: • Black out Automatic evacuation or • Black out Manual evacuation or • RNO operation
YELLOW	The system is in maintenance mode: • Inspection from TOC or • Inspection from PIT or • PME rom Machine room
Led off	The system is performing the reset procedure
BLUE	The system is out of service cause dby: • the car drift control procedure or • Water in Pit procedure
RED	The system is operating an evacuation: • Fire-fighters mode or • Fire Evacuation or • Tilt Evacuation (only for Ship)
CYAN	The system is in priority mode: • Priority call from LOP or • Key Priority / VIP mode in the CAR
PURPLE	The system is parked from a key • Lift Off Mode or • Baggage Mode (Ship) or • Shuttle mode (Ship)
GREEN	The system is in normal operation mode

LED4: (Yellow led) led blinks when board is running.

LED5: (Green led) led on gives the status of SE5 safety chain

LED6: (Red led):

- Led OFF means no fault active.
- Led flashing means one (or more) fault active.
- Led ON means a locking fault active.

1.6.1. Controller power supply

Power supply from a commercial stabilized power supplier.

The negative terminal of the power circuits and the battery charger must be connected to the ground.
Internal Clock power supply: Super Capacitor (autonomy of 5 days without power supply).

1.6.2. Encoder Position

Positioning system based on an incremental encoder:

- DMG Shaft Encoder or
- Motor Encoder (only for VVVF Gearless Motor Lift)

In case of Absolute Encoder Positioning system this connector is not used,

1.6.3. Relevelling Circuit

Circuit to make Door Safety Contact Bypass for:

- Pre opening and/or
- Relevelling

In case of Absolute Encoder Positioning system this connector is not used,
The circuit management of the re-leveling operation consists of a Safety Module and a Safety Relay.
This circuit allows by-pass of the safety contacts of doors, thereby permitting movement of the cab with doors open at reduced speed in the permitted area (unlocking doors area) in the case of lowering the level of the car, not precise car stopping, or doors pre-opening. The ISO output closes to GND.

- **ISO output (safety relay contact by-pass doors) open collector Max 24V 100mA**
- **Input CCISO (Monitor ISO safety relay) closure to GND (NC) I = 5mA**
- **Input TISO (Monitor Safty module) closure to GND (NC) I = 5mA**
- **S11-S12 (free contact) close when ISO1 is closed**

The Second enable signal for the Safety module comes directly from a second sensor (ISO2) and it must close to GND.

1.6.4. Optional Board

DMG Optional board for:

- Parallel Prewired Pushbuttons (PIT8)
- 16 relays output Board (16RL): The expansion card is necessary in particular to drive parallel displays (1 Wire / Floor, 1 Wire / Segment, Gray Code, binary) as the direct outputs available
- 16 Input/Output Board (16IO)

1.6.5. Emergency Circuit

Circuit for complete Emergency or Evacuation with Brake opening.

1.6.6. PME Panel

Connection to the Control Panel inside the cabinet.

1.6.7. Parallel Signal

Connection to the APPO Board. It includes all parallel signals available on the Cabinet's screw terminal.

1.6.8. Enviromental Temperature

Connection to the Environmental Temperature Sensor.

To use the Environment Temperature Control function the DMG temperature sensor module (Cod. Q40.SND). This function stops the system when the temperature of the engine room drops below the minimum or increases above the maximum set threshold.

1.6.9. Multiplex CAN

Connection to the MULX Board. It includes the CAN line for Multiplex installations.
For further information on connections and parameters see ANNEX I.

1.6.10. Light Curtain and Close door button

Use only in completely parallel Configuration. Connection to the Cabinet's screw terminal .

1.6.11. UCM Circuit

Connection to the circuit for UCM solution. Pitagora 4.0 has own certified solutions for managing of UCM solution in lift installations.
The UCM system consists of three parts:

- **Detector** who detects an Unintended Cabine Movement.
- **Actuator** how the braking action is implemented
- **Stopping Device** what stops the cabin.

The Stopping Device must be a certified safety device and it is the installer's responsibility to ensure the compatibility of the different elements of the UCM system.
For the functional verification of the entire system and the measurement of the spaces and intervention times, specific tests are provided to be carried out at the end of the assembly (see Appendix II).

For further information on connections and parameters see ANNEX VIII
A non-exhaustive list of the types of UCM systems and solutions most used are shown in the following table, where different applicable solutions are highlighted, each of which has its own dedicated interface and programming circuit. The interfacing with the listed devices is carried out according to the specifications indicated in the manuals of the relevant manufacturers.
When the absolute positioning system ELGO LIMAX 33CP is provided (§7), its certified UCM function is used.

	UCM system		
System type	**Detector**	**Actuator**	**Stopping Device**
Electric lift. No maneuvers with open doors.	Not required. (only brakes' monitor)		
Electric lift. Maneuvers with open doors.	Pitagora 4.0	Brake controls interruption (safety chain open)	Brakes (*)
Electric lift. Maneuvers with open doors with ELGO LIMAX 33CP	ELGO LIMAX 33CP	Brake controls interruption (safety chain open)	Brakes (*)
Ascensore a fune. Over Speed Governor with anti drift device (**)	Pitagora 4.0	Power interruption of the pin.	Safety Gear

Ascensore a fune. Over Speed Governor with anti drift device (**) with ELGO LIMAX 33CP	ELGO LIMAX 33CP	Power interruption of the pin.	Safety Gear
Hydraulic lift with double descent valve	Pitagora 4.0	Valve controls interruption (safety chain open)	Valves (***)
Hydraulic lift with double descent valve with ELGO LIMAX 33CP	ELGO LIMAX 33CP	Valve controls interruption (safety chain open)	Valves (***)
Hydraulic lift with electronic valve management (certified control unit)	Pitagora 4.0	Valve controls interruption (safety chain open)	Valves (***)
Hydraulic lift with electronic valve management (certified control unit) with ELGO LIMAX 33CP	ELGO LIMAX 33CP	Valve controls interruption (safety chain open)	Valves (***)

(*) solution applicable exclusively for double brakes certified as UCM stop element according to EN 81-20 5.6.7.3 and 5.6.7.4 (Geraless motors or motors with gearbox and slow shaft brake).

(**) UCM certified limiters with anti-drift pin (for example Montanari RQxxx-A, PFB LKxxx with LSP coil, or similar devices).

(***) Valves in series certified as stop element UCM according to EN 81-20 5.6.7.3 and 5.6.7.4

1.6.12. Batteries Test

Connection to the CHAR Board. It includes the signals for

- Low Batteries;
- Phase sequence (only Hydro)
- Backup mode.

1.6.13. Output Spare

Generic Output used for special functions.

1.6.14. Safety Chain

Connection to the SECU Board. It includes the 7 points reading from the safety chain. The system is based on an opto insulated circuit connected to earth (Inside SEC Board):

- **Input SE0 ⇔ SE6 opto insulated 48 Vdc**

Above the safety circuit, a suitably sized magnetic circuit breaker(Imax = 0,5 A) must be provided.

SE0 is the start point of Safety chain (after DIS Protection inside the controller)
SE1 controls SHAFT STOP zone and PIT Inspection Box
SE2 controls Top of car STOP and TOC Inspection Box
SE3 controls Limit Switches, Safety Gear, Overspeed Governor
SE4 controls FLOOR PRELIMINARY LOCKS
SE5 controls FLOOR LOCKS
SE6 controls CAR DOORS and Pre Triggered's contact systems

If the limit switch, or Overspeed governor or Safety Gear is activated (safety chain point SE3 opens), the system is set out of service.
To set it back in service you must reset the SE3 error via the programming module. Obviously the safety contact of the over run final limit switch must first be reset.

1.6.15. FUJI Analog and serial line

Connection to the FUJI used in case of remote Inverter.

1.6.16. 81-21 Circuit

Connection to the Circuit to manage the Protection in case of Installation with Reduced Space in the PIT. It includes management of Bistable circuit on doors and Protection devices (Pre Triggered system or Manual Protection in the Pit). For further information on connections and parameters see ANNEX IX.

1.6.17. Car at floor

Signal output from Door zone sensor for luminous signal on cabinet.

1.6.18. Hydro Command

Connection to the COIL Board. It includes the moving commands for hydro installations. It can be used also in case of Remote Inverter installations.

1.6.19. Motor relay

Connection to the relay for Motor Contactors (or enable signals in case of Contactorless installation). It includes also the Main Contactors' monitor input.

1.6.20. Brake relay

Connection to the relay for Brake Contactors (or valves in case of Hydro installation). It includes also the Brake Contactors' monitor input.

1.6.21. FUJI Interface

Connection to the FUJI interface inside the inverter.

1.7. Firefighters maneuvers

The system has the following inputs for firefighters maneuvers:

- Input POM (floor key): closure to GND (NC / NO) I = 5mA
- Input CPOM (car key): closure to GND (NC / NO) I = 5mA

For further information on connections and parameters see ANNEX XI

1.8. Oil / Motor Temperature Control

In the event of the motor overheating, the contact opens and the lift is put out of service.
Blocking of the lift can be immediate or when the call ends, depending on the setting.

1.9. Weight Load Control

When COM input is active, floor reservation calls are neither recorded nor managed.
When SUR input is active the car does not start and the acoustic signal in the car is activated. The SUR signal is ignored while driving.

1.10. Position/Speed Control with DMG Encoder

If floor counting is carried out by DMG incremental encoder, position, deceleration and stop are controlled by counting the pulses coming from the DMG encoder. The counting of the pulses is suitably corrected (reset) by the signals at the top and bottom (AGB / AGH) and from the signal of the door zone (ISO1).

1.11. Car Position / Speed Control With Motor Encoder

This control system can only be used on systems with inverter VVVF with a Gearless Motor.
Location, stop and deceleration are controlled by counting the pulses coming from the encoder of the motor. The counting of the pulses is suitably corrected (reset) by the reset signals at the top and bottom (AGB / AGH) and from the signal of door zone (ISO1).

The same J16 input connector is used to connect, with the appropriate cable, the encoder interface card, which is inside the FUJI inverter.

Parameter "Count System" should be set as "engine encoder". In menu choose 2048 number of pulses. Subsequently the dimensional parameters of the motor pulley and the type of pulling system should be inserted. Next the system asks to set the shaft length in order to set the correct sensitivity. Only after these steps are completed, Will it be possible to run the automatic floor levelling procedure.

1.12. Integrated Load weighing

In some application controller is able to detect the weight in the cabin without the need for installed load weighing devices. Available for implants only:

- Maximum load 630 Kg.
- Electric lift with VVVF Fuji LM2
- Gearless motor
- Direct or 2:1

The solution does not comply with the regulations (81.20 point 5.12.1.2.2) and therefore a risk analysis was carried out.
The function needs a Calibration procedure (§ Annex II - Test 22)

The calibration must be repeated if weight is added or removed on the counterweight or in the cabin, for example:

- adding panels, push buttons or flooring
- addition of the compensation chain

1.13. Door Command

The door command board can command either one or two doors with alternative, selective or passage through opening. Output and inputs are available on the jst connectors on the TOC board and on APPO board (in the controller)

The doors can be automatic, semi-automatic or manual:

DOOR A

- **ROA output (relay open door A) open collector max 24V 100mA**
- **RFA output (relay closing door A) open collector max 24V 100mA**
- **Input BRA (A oor opening button relay) closed to GND (NA) I = 5mA**
- **Input CEA (A door photocell) closed to GND (NA) I = 5mA**
- **Input FOA (A door opening limit) closed to GND (NA) I = 5mA**
- **Input FFA (A door closing limit) closed to GND (NA) I = 5mA**

DOOR B

- **ROB output (relay opening door B) open collector max 24V 100mA**
- **RFB output (relay closure door B) open collector max 24V 100mA**
- **Input BRB (B door opening button relay) closing to GND (NA) I = 5mA**
- **Input CEB (B door photocell) closing to GND (NA) I = 5mA**
- **Input FOB (B door opening limit) closing to GND (NA) I = 5mA**
- **Input FFB (B door closing limit) closing to GND (NA) I = 5mA**

1.14. Protection Against Electrical Interference

The boards has been designed to be protected against various types of interferences, following standard/normal requirements according to the requirements of the norm, against accidental mistakes and localization. Never the less we advise that the following rules are respected:

- Connect all metal masses to ground;
- Connect all unused conductors to ground (on the side of the cabinet);
- Connect the anti-noise filters delivered with the controller (inserted in the spare parts kit) in parallel to the brake coil (max 230VDC) and as close as possible to it;
- When a retiring ramp is present, connect the anti-noise diode delivered with the controller (spare parts kit) in parallel to the retiring ramp coil and as close as possible to it; make sure to connect the cathode (diode side marked with a white strip) to the power supply positive common “CAME+” and the anode to the negative “CAME-“;
- For the wiring towards the car, if signals and 24V power supply wires are present in the same travelling cable, make sure these are kept apart (safety chain circuit, doors or retiring ramp power supply, 230V etc.).
- For installations with VVVF all the instructions provided by the manufacturer must be fulfilled, regarding both the filters and the wiring. For a proper operation of the system, it is essential to use a shielded cable for connections to the motor and to the braking resistor;
- Always avoid placing signal cables in the vicinity of the power cables and / or power supply.

2. Main Connections and Temporary Operations

According to the ”Temporary Operations” page of the electrical wiring diagrams schematic page:

1) Connect the main power supply
2) Connect the traction motor and Brake Resistor or the hydraulic pump motor
3) Connect the brake or valves
4) Connect the Motor temperature sensor or Oil temperature sensor
5) Connect the inspection box for temporary operations (Using the Temporary Cable) connecting them to the Screw terminals
6) Switch on main power
7) Carry out the Motor Tuning procedure (traction only) (Annex IV)
8) Install the Electrical System (Quick Installation Guide)

2.1. Floors Learning Procedure

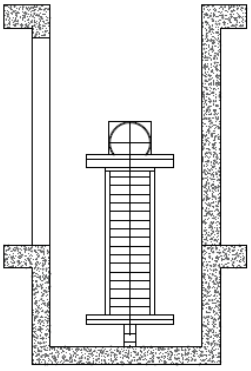
If the Controller is equipped with Absolute Encoder or DMG Encoder or Motor Encoder it is possible to take advantage of the floor position learning feature, which allows for a faster system configuration and fine tuning. The procedure is different according to the type of encoder, as described in following sections:

2.1.1. ELGO LIMAX 33CP : Manual Teach Procedure

If in the installation there are not enough clearance (Reduced Head) it is recommended to make the Manual Teach from outside the lift shaft (at least the first 3 steps): In this case you can use the Inspection BOX inside controller and after the Top of ar Inspection BOX.

The procedure must be done before putting the system in Normal mode.

To start the procedure the Lift must be in Temporary operation. Until the end of the Manual Teach Procedure the Safety contacts are connected on the safety chain but are not yet operative (Final limit switch, Inspection limit switch, OSG, eSGC) because the ELGO doesn’t know the real position of the Shaft limit points. The only control based on ELGO Device is Teach over speed (0,4 m/s), so if cabin speed is higher than 0.4 m/s, the ELGO opens OC contact (and closes the OC contact after the Cabin is stationary).

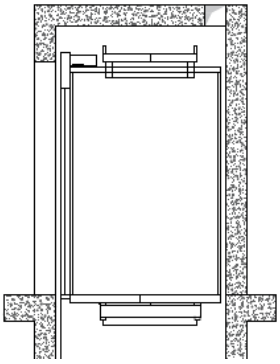


1. Put the car in the highest position (counterweight on buffers).

2. Press simultaneously the UP and DOWN button of the Inspection BOX 3 times to put the ELGO device in Teach Mode. On the playpad is showing a WAIT blinking message (in case of problem procedure quits with a Fault ELGO, § 6 -Troubleshooting).

   ELGO device switch on led MODE and starts to give acoustic feedback (one beep every 2 seconds). This acoustic signal will be present throughout the Manual Teach Procedure. On the playpad is showing a “TOP” blinking message.

3. Press again simultaneously the UP and DOWN button of the Inspection BOX 3 times to record inside ELGO the highest point of the Shaft (this point will be the reference point for Top limits (Top limit switch, Top inspection limit, TOP ETSL control, etc.)

   The ELGO device gives a long acoustic feedback to confirm the Top limit data has been recorded.

   On the playpad is showing a “Floor n” blinking message (n is the floor you are going to record).

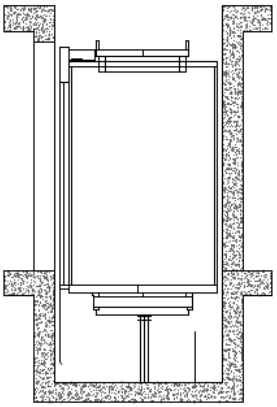
4. Move the Cabin up to the highest floor.

   Press simultaneously the UP and DOWN buttons of the Inspection BOX 3 times to record inside the ELGO the floor position.

   The ELGO device gives a short acoustic feedback to confirm the floor data has been recorded.

   On the playpad is showing a “Floor n-1” blinking message (n-1 is the next floor you are going to record).

5. Move the Cabin Downward until the next floor.

   Press simultaneously the UP and DOWN button of the Inspection BOX 3 times to record inside the ELGO the floor position.

   The ELGO device gives a short acoustic feedback to confirm the floor data has been recorded.

6. Repeat the previous point until the lowest floor is reached.
7. After recording of the Bottom floor position on the playpad is showing a “BOTTOM” blinking message, move the Cabin to the lowest point of the shaft (cabin on the buffers).

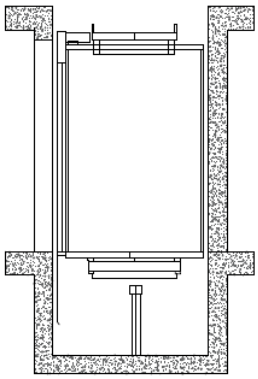
   Press simultaneously the UP and DOWN button of the Inspection BOX 3 times to record inside ELGO the lowest position. This point is the origin of Magnetic band (0 mm showed) and will be the reference point for Bottom limits (Bottom limit switch, Bottom inspection limit, Bottom ETSL control, etc.)

   ELGO device gives a long acoustic feedback to confirm the record of data.

   In this moment controller automatically records:

   - Floors table position;
   - Door zone position (used by the controller to enable door contacts bypass (pre opening / re levelling).
   - Deceleration distance, according to the lift speed.

8. On the playpad is showing a "/\" blinking message: Move the lift up to the bottom floor position. The Controller will put the ELGO in Normal Mode. (not possible before because the ELGO would be on the limits opening OC and locking the cabin).



   On the playpad is showing a "WAIT" blinking message for 10 seconds, wait until will be showed Floor 0.

   The ELGO device stops the acoustic beep and led MODE starts blinking (1 blink per second).

   Now the ELGO Device is operative for safety contacts:

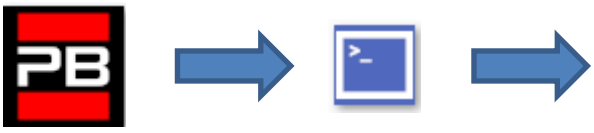
- Electronic Safety Gear (if present)
- Electronic OSG.
- Final limit switches.
- Inspection limit switches are not yet managed because the lift is in Temporary mode.

   Before the normal operation mode, it is mandatory to execute an automatic Shaft learning to set the correct Stopping distances in Upward and Downward direction for each floor.

Automatic Learning Procedure (ELGO LIMAX33-CP)

9. The Lift must be in Temporary operation. Put the lift on the bottom floor with half of maximum Load.

.




```
Floor 0        12:30:56
<Positioning>
```

10. Go into <Positioning> and set the Autosetting parameter to "Yes".

```
Piano   0              12:30:56
<Positioning>
Autosetting
SI
```

    Turn the Inspection Selector to Normal

    The lift starts to move automatically:

    - Upward trips with deceleration and stop at each floor.
    - Downward trips with deceleration and stops at each floor.

    When the Cabin comes back to the lowest floor the system is ready to pass in to Normal service.

After automatic learning procedure in <Positioning>, *Monitor Encoder* you can to set:

- Deceleration distances in Normal service for deceleration confort
  - R1S (Pag. 3) upward deceleration distance
  - R1D (Pag. 2) downward deceleration distance

  These values are automatically set after automatic learning according the lift's speed (§ 7.3).

- Stop distances in Shaft's Inpsection (Pag. 6)
  - I_LIM_S upward stop distance before top floor position
  - I_LIM_D downward stop distance before bottom floor position

  In Reduced Head/Pit these values must be considered according the Pre-Triggered safety system.

- Stop distances in Normal service (Pag. 7)
    - N_LIM_S upward stop distance after top floor position
    - N_LIM_D downward stop distance after bottom floor position

  These values are automatically set after automatic learning at a distance equal to 30 mm from extreme floors (in case of less distance from reference points it is considered the middle point between extreme floor and extreme reference positions).

- ELGO+eSGC pre-Trigger position (Pag. 8)
    - TRIPS distance from top Reference position where eSGC electric command force the cabin to stop (only for Reduced Head lift).
    - TRIPD distance from bottom Reference position where eSGC electric command force the cabin to stop (only for Reduced Pit installation)

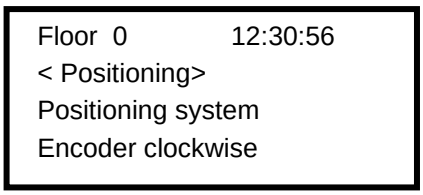
  These values are Read Only values and are greater than 0 mm only if ELGO is part of the Safety pre.-Triggered system (togheter with electric Safety Gear / Overspeed Governor).

2.1.2. DMG Encoder or Motor Encoder: Automatic Floors Learning Procedure

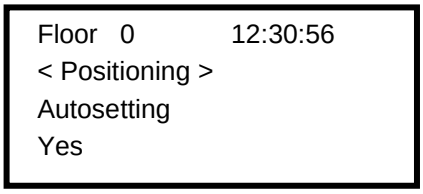
After the installation and during the TEMPORARY OPERATION mode, the controller performs a number of upward/downward test runs (high speed first, then low speed with stops at floors) with the purpose of learning the exact floor positioning.

Self Learning Procedure:

1. Make sure the installation is in the “Temporary operation” mode
2. Make sure that the encoder traces the correct direction of run, (increasing distance when upward, decreasing distance when downward); if necessary, in the “positioning” menu set parameter Positioning system from clockwise to counterclockwise (or vice versa) and save the new setting.



3. Check the correct reading of ZP (door zone) input (ZP LED on the PLAYPAD module must be lit up when in door zone)
4. Check the correct reading of AGB/AGH (deceleration limit switches) inputs (AGB/AGH must be open when in deceleration limit positions)
5. Make sure the cabin is at the bottom floor (AGB open, ZP LED on)
6. Enter the “Positioning” menu, select the Auto setting parameter and enter:
   - On the DMG encoder: the encoder resolution (64 or 100 pulse number according to the encoder model), then the length of floor magnets. (Door Zone length). Confirm the total floor number, then press “Yes” to start the procedure.
   - On the motor encoder: the encoder resolution, the motor ratio, the traction pulley, and the roping. Confirm the total floor number, then press “Yes” to start the procedure.



7. Set the inspection panel selector on NORMAL (if present), otherwise make sure that the safety chain is closed.

The system performs the following automatic procedure:

- Moving up, until the signal ZP of the bottom floor is deactivated
- Moving down, until the signal ZP of the bottom floor is activated
- Moving up at high speed and position detection for each floor (bottom edge of door zone magnets); the exact position of the bottom edge of the magnet is stored in the controller memory.
- When reaching the top deceleration point (AGH) the system switches to low speed and when reaching the top floor door zone (ZP) it stops.
- Moving down at high speed and position detection for each floor (top edge of door zone magnets); the exact position of the top edge of the magnet is stored into the controller memory.
- When reaching the bottom deceleration point (AGB) the system swithes to low speed and when reaching the bottom floor door zone (ZP) it stops.
- Moving up slowing down and stoping at each floor (at ZP magnet level)
- Moving down slowing down and stoping at each floor (at ZP magnet level)

After the second set of runs (which ends at the lowest floor), the installation is ready to go into SERVICE mode.

At the end of the procedure, go to menu <Positioning> Monitor Encoder and check that the distances of AGB and AGH (4/5) are fine for your installation (compare distances shown on diagrams provided). It is always possible to set R1D (2/5) and R1S (3/5) slow down distances to improve deceleration comfort without changing the limit switches position and without repeating the self learning procedure.

NOTE: the self learning procedure must be performed every time either AGB/AGH limit switches and/or door zone magnets are moved from their original position.

After automatic learning procedure in <Positioning>, *Monitor Encoder* check if AGB/AGH (Pag. 4) distances are enough for the lift speed. Is it possible to increase/decrease deceleration distances in Normal service R1S (Pag. 3) and R1D (Pag. 2) without needed to repeat Automatic learning Procedure.

For AGB/AGH positions and Deceleration distances use table according the lift's speed (§7.3).

In systems where the minimum required dimensions in the top and bottom of the shaft are guaranteed according to the requirements of the regulation EN 81, it is possible use two parameters to stop the lift in Inspection.

In <Positioning>, *Monitor Encoder* (Pag. 6)

- I_LIM_S upward stop distance before top floor position
- I_LIM_D downward stop distance before bottom floor position

These stopping distances are valid for Inspection from the Shaft (are not active in case of Inspection from Machine Room) and can be used to avoid the risk of the technician being trapped inside the elevator shaft.

Mind that these stop positions are not safety contacts.

3. Normal Service Mode

Once all above procedures are completed, it is possible to put the system into Normal Service mode.

For ride comfort improvements check ANNEX V.

The system performs a reset run and stops at the lowest floor. If no error occurred, it is possible to manually fine tune the precision of stop at each floor as indicated in § 6.3.1 (rope and pulley Encoder positioning system) or § 6.2.1 (Optical/Magnetic positioning system).

To facilitate checks and installation start-up, please refer to the menu "Configuration" > "Test" and the Appendix II.

3.1.1. Fine tuning of floor stopping accuracy

Once the self learning procedure is completed, it is possible to manually fine tune the stopping accuracy at each floor by using the PLAYPAD programming module, without having to access the shaft.

Regulation of stopping accuracy:

1. Make sure the installation is in the "NORMAL SERVICE" mode
2. Use the *PLAYPAD* module directly with the controller or remove it and connect it to the TOC board on the top of the cabin by using the cable (optional).
3. Enter the <Positioning> menu, select "Floor Position" parameter for the floor to be adjusted (use Left / Right keys to select the desired floor). The value displayed at the bottom of the Playpad screen indicates the current floor position (in mm) for the selected floor; press [ENTER] to modify.
4. Increase or decrease the indicated position by using UP/DOWN keys on the PLAYPAD module.
5. Press [ENTER] to save the updated value.
6. Check actual stopping accuracy by calling the lift to the selected floor. If needed, repeat steps 3, 4 and 5.
7. Repeat the procedure for every floor.

4. Shaft Access

Hint: For systems with encoder counting it is possible to activate the access procedure in the shaft without the system being stopped due to the interruption of the safety chain (opening of the landing doors). It is also helpful in EN81-1 installation.

With the lift in normal operation:

- Keep the doors open by keeping the door BRA or BRB button pressed
- On the car control panel press the current floor button 3 times.
- The panel will emit a continuous sound to warn of the activation of the procedure which temporarily excludes all calls. (procedure can be deleted by pressing the door open button again)
- Exit from the Cabin;
- The Controller closes the doors and moves lift 2 meters down with slowdown and standard stop. The technician can open the doors and easily access the cab roof. If the cabin does not have enough space to descend, it moves upwards by 2.5 meters (pit access and / or control of the cabin bottom).
- If you do not enter the well, the Cabin remains stationary in this condition for a maximum time of 10 seconds before returning to normal service (new calls are not available in this time).

Access to the shaft for systems compliant with the EN81-20 / EN81-21 standard requires that, after an access and subsequent exit from the llift shaft by an authorized person, there is a reset procedure that excludes the return to automatic operation of the lift. Below are the instructions for entering and exiting the shaft in the case of 81-20 or 81-21 systems.

4.1. 81-20 Configuration

Parameter: See Annex X.

Access to the pit is detected by operating the pit stop switch or by switching the pit control panel on to 'inspection'. (both conditions open the safety chain on point SE1).

This condition activates the Fault RSP (code 20) and prevents the movement of the car in normal operation (Movement is now possible only in Inspection mode).

After the end of the Inspection manoeuvre the personnel must:

- Return the selector switch and any STOP buttons to 'Normal' and exit the lift shaft.
- Close the landing doors (check the safety chain) and carry out the reset using one of the following methods:
    - From lowest floor with three quick opening / closing of the release key or.
    - From the PME(*) panel with three quick presses of button 
    - From the PlayPad with specific reset (RSP reset).

Characteristics of the auxiliary contact on the door (s) at the lowest floor:

- Monostable NC contact (does not open during normal door operation).

The auxiliary contact is electrically connected to the BDU's Door input or to the controller's screw terminal on the E511 input (NC contacts in series when there are multiple shaft access doors eg. Pit Access Hatch).

Access on the Car roof No control required for access to the cabin roof.

4.2. 81-21 Installation with door's Bistable contacts

Headroom and reduced pit (Compliance with Article 2.2 of Annex 1 of Directive 95/16 / EC of the European Community)

In systems where the minimum required dimensions in the top and bottom of the shaft cannot be guaranteed, according to the requirements of the regulation EN 81, special alterations must be made to the system and the controller in order to avert the risk of injury to workers carrying out maintainance work in the shaft.

The following is a relevant section from the regulation:

"The lift must be designed and manufactured in order to prevent the risk of crushing when the car is in an extreme position. In order to achieve this, a free space or refuge beyond the extreme positions must be

provided. However, in exceptional cases, allowing the Member States the possibility of giving prior approval, particularly in existing buildings, the competent authorities may provide other appropriate means to avoid this risk, if the previous solution is impossible to achieve".

The Lift Controller is able to automatically manage the floor doors opening control in systems with limited space in the extreme points of the shaft. As indicated schematically in the illustration below, the controller must be equipped with a control circuit at the top/bottom of the shaft so that, when the maintenance worker opens the landing door to access the shaft, a contact connected to the dedicated input which provides monitoring of shaft access to the lift controller

The specific procedure is according to the type of Installation as described in following sections.
The reset procedure is possible only if bistable contacts are open, otherwise the controller checks an automatic reset of bistable contacts (without any reset procedure): so the controller gives a RSP Fault (Cod 121) and it is necessary to open the Bistable circuit and after make a reset procedure.

4.2.1. Reduced Head Configuration

Parameter: See Annex X.
Access to the pit is detected by operating the pit stop switch or by switching the pit control panel on to 'inspection'.
(both conditions open the safety chain on point SE1).

This condition activates the Fault RSP (code 20) and prevents the movement of the car in normal operation.
After the end of the Inspection manoeuvre the personnel must:

- Remove the protections (in case of manual protections in the PIT), Return the selector switch and any STOP buttons to 'Normal' and exit the lift shaft.
- Close the landing doors (check the safety chain) and carry out the reset using one of the following methods:
  - From lowest floor with three quick opening / closing of the release key.
  - From the PME(*) panel with three quick presses of button 
  - From the PlayPad with specific reset (RSP reset).

(*) PME's KNOB could be used also in Inspection position if any Safety device between SE2 and SE3 is active (eg ELGO's OC1 contact, limit switches, Safety Gear etc…)

Characteristics of the auxiliary contact on the door (s) of the lowest floor:

- Monostable NC contact (does not open during normal door operation).

The auxiliary contact is electrically connected to the DOOR Contact input of lowest floor's BDU.

Access on the Car roof
Access to the shaft is detected by opening a contact using the release key which activates the RSP fault (code 21), preventing the car from moving in normal operation (a run is only possible in 'Inspection' mode).
Before entering the lift shaft, wait for the traffic light to indicate the safe condition (green light).
After the end of the Inspection manoeuvre the personnel must:

- Remove the protections (in case of manual protections), Return the selector switch and any STOP buttons to 'Normal' and exit from the lift well.
- Close the landing doors (check the safety chain) and carry out the reset using one of the following methods:
  - From floor with three quick opening / closing of the reset key (optional).
  - From the PME(*) panel with three quick presses of button 
  - From the PlayPad with specific reset (RSP reset).

(*) PME's KNOB could be used also in Inspection position if any Safety device between SE2 and SE3 is active (eg ELGO's OC1 contact, limit switches, Safety Gear etc…)

Reset fault RSP on the Lift Controller and make coil's reset on the bistable contacts on the Landings
If the controller detects an automatic contact reset (contact close before reset procedure) it gives again a Fault RSP (Cod 121) as a fault on coil's reset circuit.

Characteristics of the auxiliary contact (BERNSTEIN type) on all doors except those on the lowest floor:

- Bistable NC contact (does not open during normal door operation) connected to a dedicated input.
- 230 Vac reset coil

Optional reset key switches are electrically connected to the BDU's DOOR Contact input.

4.2.2. Reduced Pit Configuration

Parameter: See Annex X.

Access in the pit
Access to the shaft is detected by opening a contact using the release key which activates the RSP fault (code 21), preventing the car from moving in normal operation (a run is only possible in 'Inspection' mode). Before entering the shaft, wait for the traffic light to indicate the safe condition (green light).
After the end of the Inspection maneuver the personnel must:

- Remove the protections (in case of manual protections), Return the selector switch and any STOP buttons to 'Normal' and exit from the lift well.
- Close the landing doors (check the safety chain) and carry out the reset using one of the following methods:
  - From the floor with three quick opening / closing of the reset key (optional).
  - From the PME(*) panel with three quick presses of button 
  - From the PlayPad with specific reset (RSP reset).

(*) PME's KNOB could be used also in Inspection position if any Safety device between SE2 and SE3 is active (eg ELGO's OC1 contact, limit switches, Safety Gear etc…)

If controller detects an automatic contact reset (contact close before reset procedure) it gives again a Fault RSP (Cod 121) as a fault on coil's reset circuit.

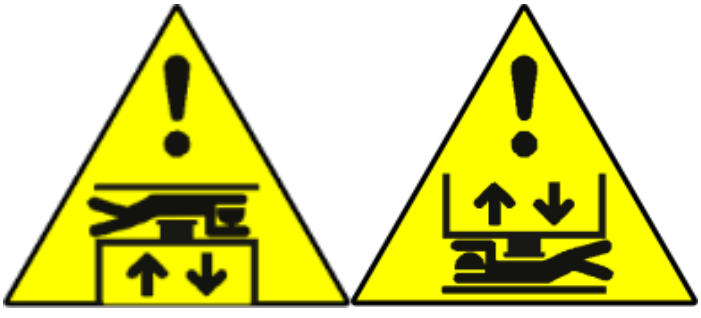
Characteristics of the auxiliary contact (BERNSTEIN type) only on the lowest floor:

- Bistable NC contact (does not open during normal door operation). connected to a dedicated input.
- 230 Vac reset coil

Optional reset key switches are electrically connected to BDU's DOOR Contact input.

Access on the Car roof No control required for access to the cabin roof.

4.2.3. Reduced Head and Pit Configuration



Parameter: See Annex X.

Access in the pit or Access on the Car roof
Access to the shaft is detected by opening a contact using the release key which activates the RSP fault (code 21), preventing the car

from moving in normal operation (a run is only possible in 'Inspection' mode). Before entering the lift shaft, wait for the traffic light to indicate the safe condition (green light).
After the end of the Inspection manoeuvre the personnel must:

- Remove the protections (in case of manual protections), Return the selector switch and any STOP buttons to 'Normal' and exit from the lift well.
- Close the landing doors (check the safety chain) and carry out the reset using one of the following methods:
    - From floor with three quick opening / closing of the reset key (optional).
    - From the PME(*) panel with three quick presses of button 
    - From the PlayPad with specific reset (RSP reset).

(*) PME's KNOB could be used also in Inspection position if any Safety device between SE2 and SE3 is active (eg ELGO's OC1 contact, limit switches, Safety Gear etc…)

If controller detects an automatic contact reset (contact close before reset procedure) it gives again a Fault RSP (Cod 121) as a fault on coil's reset circuit.

Characteristics of the auxiliary contact (BERNSTEIN type) on all doors:

- Bistable NC contact (does not open during normal door operation). connected to dedicated input.
- 230 Vac reset coil

Optional reset key switches are electrically connected to BDU's DOOR Contact input.

4.3. 81-21 Installation with door's Monostable contacts

Headroom and reduced pit (Compliance with Article 2.2 of Annex 1 of Directive 95/16 / EC of the European Community)

With the same consideration of previous chapter (§ 4.2) it is possible to manage installation with monostable contacts on the landing doors to monitor the shaft access.
In a case where monostable door contacts are used, present in the controller is a bistable circuit. The reset procedure is possible only if the bistable circuit is open, otherwise the controller gives a specific Fault RSP (§ 6): it is necessary to open the Bistable circuit and after carry out the reset procedure.

The specific procedure is according type of Installation as described in following sections.

4.3.1. Reduced Head Configuration

Parameter: See Annex X.

Access in the pit
Access to the pit is detected by operating the pit stop switch or by switching the pit control panel on to 'Inspection'. (both conditions open the safety chain on point SE1). This condition sets the Fault RSP (code 20) by preventing the movement of the car in normal operation.
After the end of the Inspection manoeuvre the personnel must:

- Remove the protections (in case of manual protections in the PIT), Return the selector switch and any STOP buttons to 'Normal' and exit the lift shaft.
- Close the landing doors (check the safety chain) and carry out the reset using one of the following methods:
    - From lowest floor with three quick opening / closing of the release key.
    - From the PME(*) panel with three quick presses of button 
    - From the PlayPad with specific reset (RSP reset).

(*) PME's KNOB could be used also in Inspection position if any Safety device between SE2 and SE3 is active (eg ELGO's OC1 contact, limit switches, Safety Gear etc…)

Characteristics of the auxiliary contact on the door (s) of the lowest floor:

- Monostable NC contact (does not open during normal door operation).

The auxiliary contact is electrically connected to the DOOR Contact input of the lowest floor's BDU.

Access on the Car roof

Access to the shaft is detected by opening a contact using the release key which activates the RSP fault (code 21), preventing the car from moving in normal operation (a run is only possible in 'Inspection' mode). Before entering the lift shaft, wait for the traffic light to indicate the safe condition (green light).
After the end of the manoeuvre the personnel must:

- Remove the protections (in case of manual protections), Return the selector switch and any STOP buttons to 'Normal' and exit from the lift well.
- Close the landing doors (check the safety chain) and carry out the reset using one of the following methods:
  - From floor with three quick opening / closing of the the release key.
  - From the PME(*) panel with three quick presses of button 
  - From the PlayPad with specific reset (RSP reset).

(*) PME's KNOB could be used also in Inspection position if any Safety device between SE2 and SE3 is active (eg ELGO's OC1 contact, limit switches, Safety Gear etc…)

Characteristics of the auxiliary contact on all doors except those on the lowest floor:

- Monostable NC contact (does not open during normal door operation).

Keys are electrically connected in series to the screw terminal of the controller.

4.3.2. Reduced Pit Configuration

Parameter: See Annex X.

Access in the pit

Access to the shaft is detected by opening a contact using the release key which activates the RSP fault (code 21), preventing the car from moving in normal operation (a run is only possible in 'Inspection' mode) Before entering the shaft, wait for the traffic light to indicate the safe condition (green light).

After the end of the Inspection manoeuvre the personnel must:

- Remove the protections (in case of manual protections), Return the selector switch and any STOP buttons to 'Normal' and exit from the lift well.
- Close the landing doors (check the safety chain) and carry out the reset using one of the following methods:
  - From floor with three quick opening / closing of the release key.
  - From the PME(*) panel with three quick presses of button 
  - From the PlayPad with specific reset (RSP reset).

(*) PME's KNOB could be used also in Inspection position if any Safety device between SE2 and SE3 is active (eg ELGO's OC1 contact, limit switches, Safety Gear etc…)

Characteristics of the auxiliary contact on all doors except those on the lowest floor:

- Monostable NC contact (does not open during normal door operation).

Key are electrically connected in series to the screw terminal of the controller.

Access on the Car roof No control required for access to the cabin roof.

4.3.3. Reduced Head and Pit Configuration

Parameter: See Annex X.

Access in the pit or Access on the Car roof

Access to the shaft is detected by opening a contact using the release key which activates the RSP fault (code 21), preventing the car from moving in normal operation (a run is only possible in 'Inspection' mode). Before entering the lift shaft, wait for the traffic light to indicate the safe condition (green light).

After the end of the Inspection manoeuvre the personnel must:

- Remove the protections (in case of manual protections), Return the selector switch and any STOP buttons to 'Normal' and exit from the lift well.
- Close the landing doors (check the safety chain) and carry out the reset using one of the following methods:
  - From floor with three quick opening / closing of the release key.
  - From the PME(*) panel with three quick presses of button 
  - From the PlayPad with specific reset (RSP reset).

(*) PME's KNOB could be used also in Inspection position if any Safety device between SE2 and SE3 is active (eg ELGO's OC1 contact, limit switches, Safety Gear etc…)

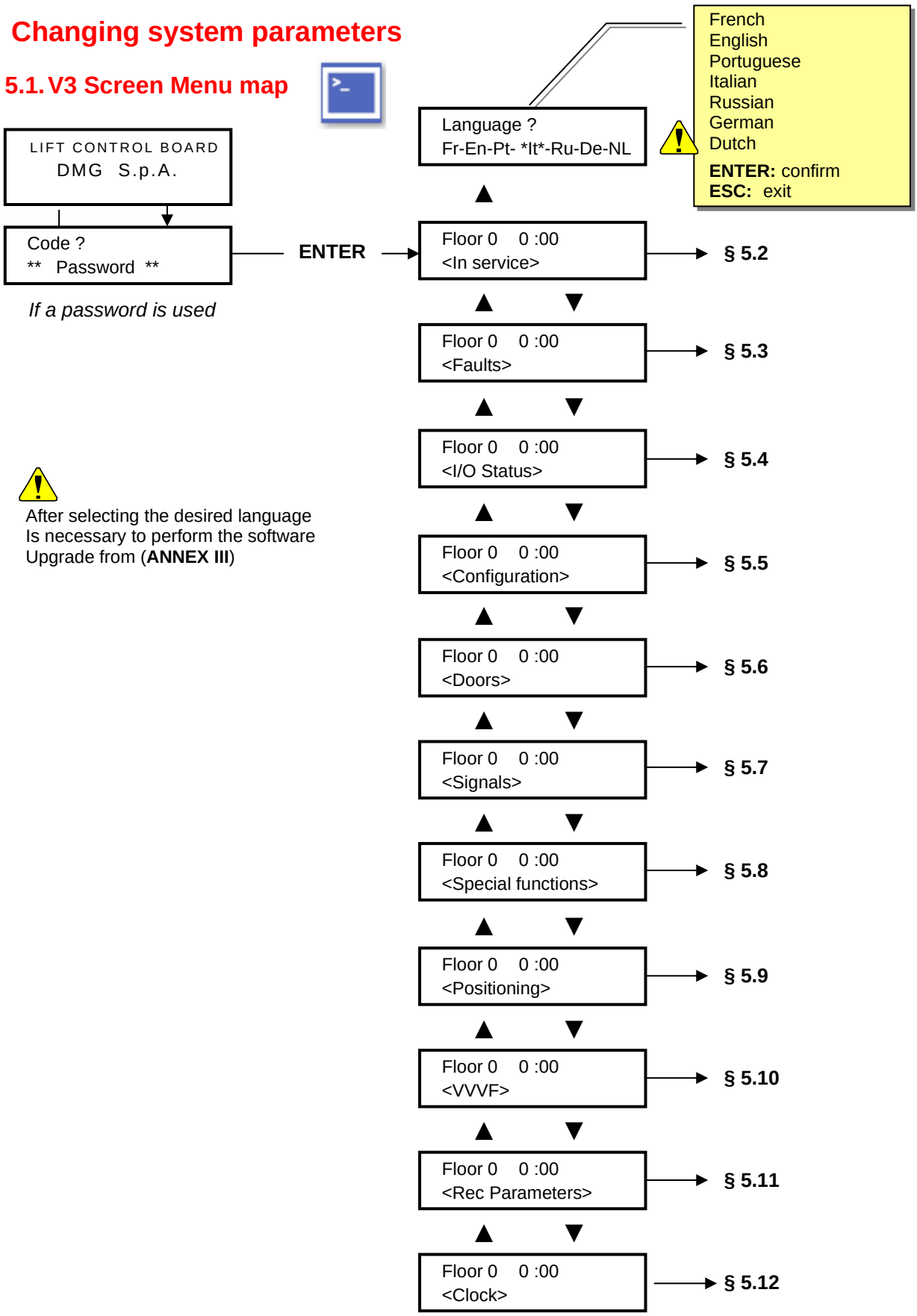
Characteristics of the auxiliary contact on all doors:

- Monostable NC contact (does not open during normal door operation).

Key are electrically connected in series to the screw terminal of the controller.

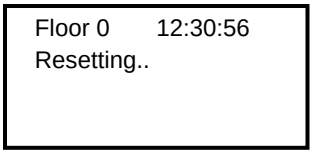
5. Changing system parameters

5.1. V3 Screen Menu map



5.2. "System status" Menu

It is easily accessed from the main window of the PlayPad, by pressing once the ENTER key.

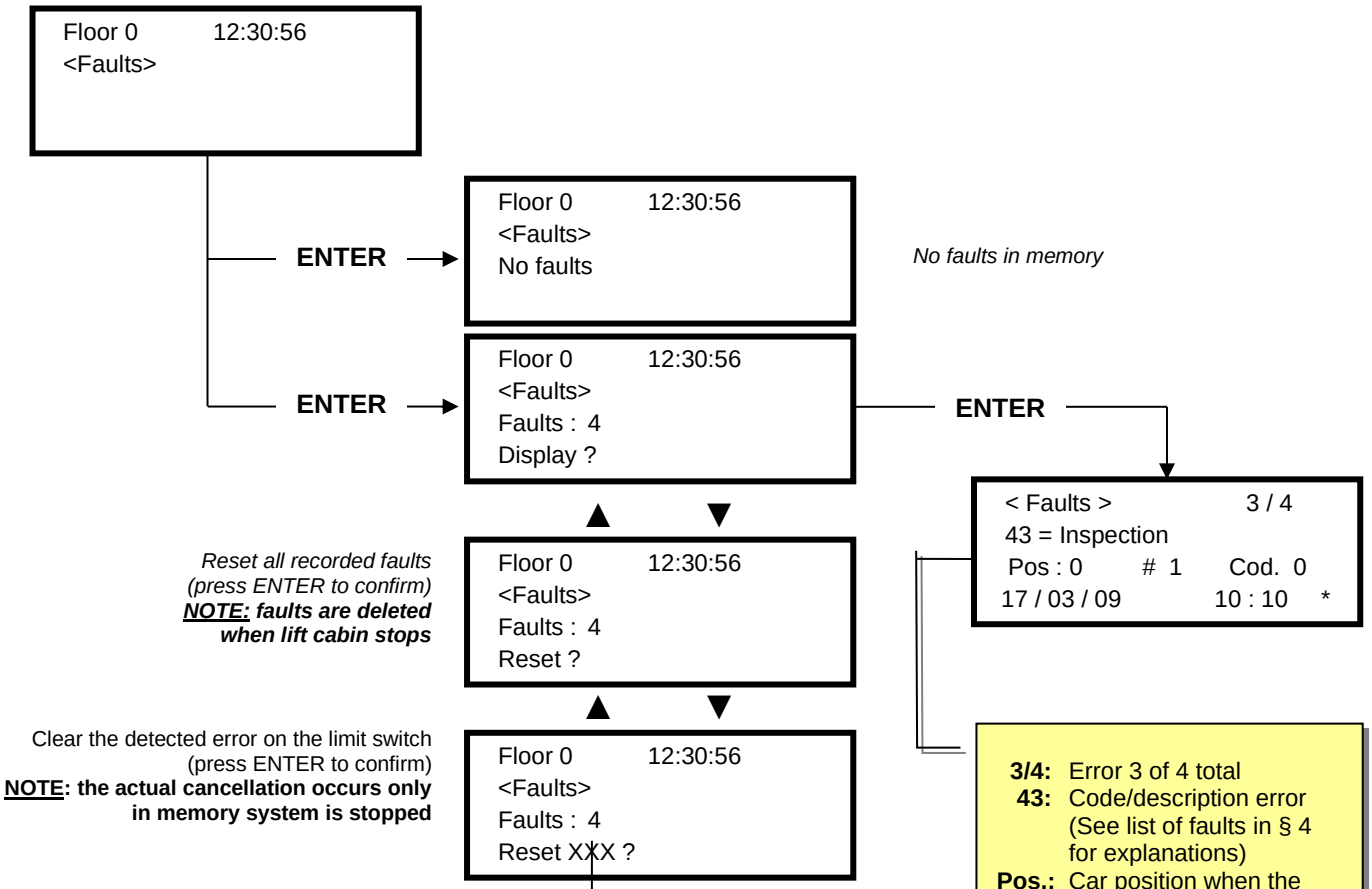


System Status	***Description***	***Visualization on Serial display***
Resetting	The system is performing the reset procedure	O -
In service	The system is in normal operation mode	
Inspection	The system is in inspection mode	OR
Temp. Operat.	The system is in temporary operations mode	P
Out of service	The system is out of service	
Car Priority	The system is running in car priority mode (COP key switch activated)	
Fire-fighters	The system is operating in Fire-fighters mode (various operations)	
Emergency	The system is performing the emergency procedure	E
Drfit control	The system is performing the car drift control procedure	
Fire Evacuation	The system is performing the fire evacuation	
Water in the Pit	The system is performing the Water in pit evacuation	
TILT Evacuation	The system is performing the Tilt evacuation	
LOP Priority	The system is running in lop priority mode (LOP key switch activated)	
BAGGAGE	The system is performing the BAGGAGE operation	
SHUTTLE	The system is performing the SHUTTLE operation	
RNO	The system is performing the RNO procedure	
Upward oper.	The system is running upwards	
Downward oper.	The system is running downwards	
Re-levelling	The car is at floor level and is re-levelling	
Still at floor	The car is at floor level, with no registered calls	
High speed	The system is running in high speed mode	
Low speed	The system is running in low speed mode	
Door close	The door is completely closed	
Door open	The door is opened (or opening/closing)	
Car full load	The car has been fully loaded	
Photocell A	The input relevant to the photocell entrance A is active	
Photocell B	The input relevant to the photocell entrance B is active	
BRA button	The input relevant to the open door button of entrance A is active	
BRB button	The input relevant to the open door button of entrance B is active	
Active fault	There is some active faults	

5.3. "Faults" Menu

This Menu lists the last 60 faults stored into the internal memory of the controller. All faults are described in the Troubleshooting section **(§ 6).**

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



Fault	*Description*
Reset **SE3**	Limit switch fault; you can clear it only after closing Safety chain.
Reset **82212**	Drift control
Reset **RSP**	RSP fault; for reduced pit and headroom.
Reset **UCM**	UCM fault; for A3 amendment
Reset **ISO**	ISO fault; problem detection in the operation monitoring of safety module for advanced door opening / re-leveling.
Reset **SCS**	SCS Fault; installation 81-20.
Reset **UAS**	UAS Fault; Special function.

5.4. Menu “I/O Status”

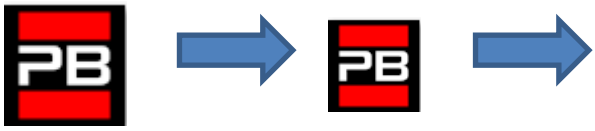


Table of Parameters

Field	Description	Navigation	Values (group of 12)
Car call	Simulation of a car call	▲▼ Select floor **ENTER** Confirm **ESC** Exit	
Playboard IN-OUT	**System Inputs/Output** □ = Open contact ■ = Closed Contact	▲▼ Change group **ENTER** Exit **ESC** Exit	GROUPS 1/9: REM VHS LTMP | RED TH1 LE | REV TH2 SUR | REV1 REV2 COM 2/9: RMO BRK RDE | RGV RMV RPV | MTR YBRK CCF | CCO CCOB 3/9: BRA FOA ROA | CEA FFA RFA | BRB FOB ROB | CEB FFB RFB 4/9: HS BFR OTM | PCA | POM RPH J20 | CPOM IEME OEME 5/9: FLM FLD | BIP GNGM GNGD | 511B 511L | DSA 212B E511 6/9: PWR ENAB | IN_A IN_D | BR1 BYPL | BR2 BYPC 7/9: FAI ZP | FAS TISO | CAM ISO | AGH AGB CISO 8/9: REM REM1 REM2 | RED RED1 RED2 | PME OVS | REV REV1 REV2 9/9: L-RED L-GREEN BUZZER | GPIO1 GPIO2 GPIO3
VVVF IN-OUT	**VVVF Inputs/Output** □ = Open contact ■ = Closed Contact	▲▼ Change group **ENTER** Exit **ESC** Exit	GROUPS 1/8: EN FWD REV | X1 X2 X3 | X4 X5 X6 | X7 X8 0,0 V 2/8: Y1 Y5A/C | Y2 RST | Y3 30 A/B/C | Y4 3/8: BUSY ACC DEC | ALM INT BRK | EXT NUV RL | TL VL IL 4/8: Fout = 0,00 Hz; Iout = 0,00 A; Vout = 0,00 V 5/8: Fref = 0,00 Hz; EDC ---V TRQ --%; NST --- TIME --- h 6/8: Imax = 0,00 A; Encoder 0 P/s; --- kW MAIN = 7/8: Fault VVVF; 0= --- 1= ---; 2= --- 3= --- 8/8: I-bal 0,00 A; I-com 0,00 A; I-sur 0,00 A
Push buttons	**Status of call buttons** □ = button not activated ■ = button activated	▲▼ ◄► Change group cab/down/up **ENTER** Exit **ESC** Exit	GROUPS Cabin side A: 7 6 5 4 / 3 2 1 0 Cabin side B: 7 6 5 4 / 3 2 1 0 Pushb. Down side A: 7 6 5 4 / 3 2 1 0

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>Pushb. Down side B</td><td>7
3</td><td>6
2</td><td>5
1</td><td>4
0</td></tr>
<tr><td>Upward side A</td><td>7
3</td><td>6
2</td><td>5
1</td><td>4
0</td></tr>
<tr><td>Upward side B</td><td>7
3</td><td>6
2</td><td>5
1</td><td>4
0</td></tr>
</table>
</td></tr>
<tr><td>Cards AUX</td><td>Cards AUX Inputs/Output
□ = Open contact
■ = Closed Contact

(x.yz
x=card, yz=contact on board)</td><td>▲▼ Change page
ENTER Exit
ESC Exit</td><td>
<table>
<tr><td colspan="5">CARDS 16 IO IN</td></tr>
<tr><td rowspan="2">1/12</td><td>1.08</td><td>1.07</td><td>1.06</td><td>1.05</td></tr>
<tr><td>1.04</td><td>1.03</td><td>1.02</td><td>1.01</td></tr>
<tr><td rowspan="2">2/12</td><td>1.16</td><td>1.15</td><td>1.14</td><td>1.13</td></tr>
<tr><td>1.12</td><td>1.11</td><td>1.10</td><td>1.09</td></tr>
<tr><td rowspan="2">3/12</td><td>2.08</td><td>2.07</td><td>2.06</td><td>2.05</td></tr>
<tr><td>2.04</td><td>2.03</td><td>2.02</td><td>2.01</td></tr>
<tr><td rowspan="2">4/12</td><td>2.16</td><td>2.15</td><td>2.14</td><td>2.13</td></tr>
<tr><td>2.12</td><td>2.11</td><td>2.10</td><td>2.09</td></tr>
<tr><td colspan="5">CARDS 16 IO OUT</td></tr>
<tr><td rowspan="2">5/12</td><td>1.08</td><td>1.07</td><td>1.06</td><td>1.05</td></tr>
<tr><td>1.04</td><td>1.03</td><td>1.02</td><td>1.01</td></tr>
<tr><td rowspan="2">6/12</td><td>1.16</td><td>1.15</td><td>1.14</td><td>1.13</td></tr>
<tr><td>1.12</td><td>1.11</td><td>1.10</td><td>1.09</td></tr>
<tr><td rowspan="2">7/12</td><td>2.08</td><td>2.07</td><td>2.06</td><td>2.05</td></tr>
<tr><td>2.04</td><td>2.03</td><td>2.02</td><td>2.01</td></tr>
<tr><td rowspan="2">8/12</td><td>2.16</td><td>2.15</td><td>2.14</td><td>2.13</td></tr>
<tr><td>2.12</td><td>2.11</td><td>2.10</td><td>2.09</td></tr>
<tr><td colspan="5">CARDS 16 RL</td></tr>
<tr><td rowspan="2">9/12</td><td>1.08</td><td>1.07</td><td>1.06</td><td>1.05</td></tr>
<tr><td>1.04</td><td>1.03</td><td>1.02</td><td>1.01</td></tr>
<tr><td rowspan="2">10/12</td><td>1.16</td><td>1.15</td><td>1.14</td><td>1.13</td></tr>
<tr><td>1.12</td><td>1.11</td><td>1.10</td><td>1.09</td></tr>
<tr><td rowspan="2">11/12</td><td>2.08</td><td>2.07</td><td>2.06</td><td>2.05</td></tr>
<tr><td>2.04</td><td>2.03</td><td>2.02</td><td>2.01</td></tr>
<tr><td rowspan="2">12/12</td><td>2.16</td><td>2.15</td><td>2.14</td><td>2.13</td></tr>
<tr><td>2.12</td><td>2.11</td><td>2.10</td><td>2.09</td></tr>
</table>
</td></tr>
<tr><td>BDU Inputs</td><td>BDU Inputs
□ = Open contact
■ = Closed Contact</td><td>▲▼ Change page
◄► Change group
ENTER Exit
ESC Exit</td><td>Group: Door, Fire, Key 1, Key 2, Key 3, Key 4.
For each group, the status of the contact is displayed for each plan</td></tr>
<tr><td> 
Call registration list</td><td>Call registration list
□ = call not registered
■ = call registered</td><td>▲▼ ◄► Change group cab/down/up
ENT/ESC Exit</td><td>Same Groups as PUSHBUTTONS</td></tr>
<tr><td>[0] Start = …
[1] Start = …
[2] Start = …</td><td>Run Counters
[0] partial (resettable)
[1] Total
[2] Future use</td><td>◄► Change

ENTER Reset and exit
ESC Exit</td><td>Date showed is referred to the last reset of partial counter [0]</td></tr>
<tr><td>Analogic</td><td>Analogic measures</td><td>◄► Change page

ESC Exit</td><td>24 V = Power Supply
VCAB = Cabinet anc Cabine absorptions
VMR = BDU absorptions
24VB = Batteries Voltage
+5.0 V = Board Internal power supply
TAMB = Ambient temperature sensor
PWM = Analogic speed output</td></tr>
<tr><td>TOC Measures</td><td>Analogic measures</td><td>◄► Change page

ESC Exit</td><td>T_SHA = Shaft temperature
MAIN = TOC Power Supply
COP_A = COP side A absorptions
COP_B = COP side B absorptions</td></tr>
</table>

COP Measures	Analogic measures	◄► Change page **ESC** Exit	MAIN_A = COP A power supply MAIN_B = COP B power supply T_CAR = Cabine temperature
FLOORS Line	BDU Communication Line	**ENTER** Reset **ESC** Exit	Error: Communications error number FER: Frame Error Rate Date and hour of last reset
CAR Line	TOC / COP Communication Line	**ENTER** Reset **ESC** Exit	Error: Communications error number FER: Frame Error Rate Date and hour of last reset
MTPX Line	MULTIPLEX Communication Line	▲▼ Change page **ENTER** Reset **ESC** Exit	Error: Communications error number FER: Frame Error Rate Date and hour of last reset
ELGO model:	ELGO's Diagnostic		

PLAYBOARD IN-OUT table description parameters

Input	***Description***	***Input***	***Description***
SE0	Safety chain Start	REV REV1 REV2	Inspection function (machine room) Inspection function (Top of Car) Inspection function (PIT)
SE1	Safety chain pit safety contacts	REM REM1 REM2	Inspection up (machine room) Inspection up (Top of Car) Inspection up (PIT)
SE2	Safety chain top of car inspection Box/Stop	RED RED1 RED2	Inspection down (machine room) Inspection down (Top of Car) Inspection down (PIT)
SE3	Safety chain final limit switch, safety gear, speed governor	TH1 TH2	Motor (Oil) temperature sensor control
SE4	Safety chain hall doors preliminary contacts	IEME	Emergency (power supply failure)
SE5	Safety chain hall doors inerlocks	PME	PME selector (emergency evacuation)
SE6	Safety chain car doors contacts and pre trigger device (81-21)	AGH AGB	Top deceleration switch Bottom deceleration switch
CCO CCOB	power contactors control	FAS FAI	Position Sensors (no encoder positioning system)
CISO	Monitor ISO relay	E511	Optional input for *Shaft Access*
TISO	Safety Module SM1 control	BYPL BYPC	Door's safety Bypass selector
LE	Emergency Light (car light power supply)	BRA	Door open button (entrance A)
BFR	door close button	CEA	Photocell entrance A
PCA	car priority function	FOA	Door open limit switch entrance A
POM	Fire-fighters operations (Hall key switch)	FFA	Door close limit switch entrance A
CPOM	Fire-fighters operations (Car key switch)	BRB	Door open button (entrance B)
SUR*	Overload control	CEB	Photocell entrance B
COM	Full load control	FOB	Door open limit switch entrance B
HS	out of service function	FFB	Fine corsa chiusura (Porta B)
ZP	door zone signal	BR1	Brake 1 monitor switch
RPH	Phase sequence control	BR2	Brake 2 monitor switch
		IN_A	Monitor UCM circuit
		IN_D	Monitor UCM circuit

* In case of two signals showed the first one is the TOC's input, the second one is the controller's screw terminal.

Output	Description		Output	Description
VHS	Output - out of order illumination		DSA	Output - alarms de-activation
RMV	Output – intermediate speed command		511B	Output - Norm 511 Buzzer
BRK	Output - Brake command		511L	Output - Norm 511 Light
MTR	Output - Motor command		212B	Output - Norm 212 Buzzer
YBRK	Output - Brake command (VVVF)		FLD	Output - down arrows command
ISO	Output - Re-levelling command		FLM	Output - up arrows command
RGV	Output - high speed command		GNGD	Output - upward gong command
RPV	Output - low speed command		GNGM	Output - downward gong command
RMO	Output - up travel command		BIP	Output – BIP signalization in the cabin
RDE	Output - down travel command		PWR	UCM module power command
LTMP	Output - time limited car light command		ENAB	UCM module enabling command
CAM	Output - retiring ramp command		ROA	Output - door open command (entrance A)
OEM	Output - emergency command		RFA	Output - door close command (entrance A)
CCF	Output - Motor phase short Circuit		ROB	Output - door open command (entrance B)
			RFB	Output - door close command (entrance B)
			L-RED	Traffic Light signal 81-20/21
J20	Output - programmable (connector J20)		L-GREEN	Traffic Light signal 81-20/21
			BUZZER	Buzzer signal for bypass 81-20

VVVF IN-OUT table description parameters

Signal	Description		Signal	Description
EN	enable digital input (screw terminal EN)		Y1	Digital output (terminal Y1)
FWD	Upward digital input (screw terminal FWD)		Y2	Digital output (terminal Y2)
REV	Downward digital input (screw terminal REV)		Y3	Digital output (terminal Y3)
X1	High speed digital input (screw terminal X1)		Y4	Digital output (terminal Y4)
X2	REV speed digital input (screw terminal X2)		Y5A/C	Brake command relays (terminal Y5)
X3	Low speed digital input (screw terminal X3)		30 A/B/C	Relè (terminal 30 A/B/C)
X4	Ingresso digitale (morsetto X4)		ALM	Alarm VVVF signalisation
X5	digital input (screw terminal X4)		RST	Reset VVVF
X6	Ingresso digitale (morsetto X6)		ACC	Acceleration
X7	Ingresso digitale (morsetto X7)		DEC	Deceleration
X8	Emergency digital input (screw terminal X8)		Fout	Output Frequency
0,0 V	VVVF analog input (terminals 11-12)		Vout	Output Voltage
Encoder	Encoder VVVF input (closed loop)		Iout	Output current
MAIN	VVVF firmware version		Imax	Maximum output current

5.5. "Configuration" Menu

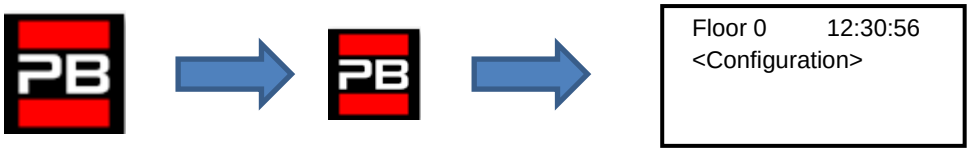
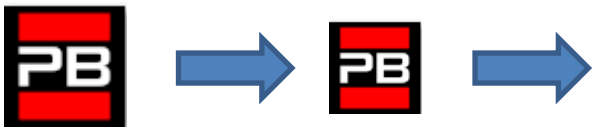


Table of Parameters

	Parameter	Description	Navigation		Values	Default value
	Temporary operations	Temporary operations mode of the system	◄►	Choice	No; Yes	No
	Test	To ease checks and installation start-up. For description, refer to Annex II.	▲▼			
	Code ?	Password protection to access programming	◄► ▲▼	Change charact. Select charact.	8 characters (0 - 9; A - Z; a - z)	no password
	Configuration	Type of wiring configuration: -) Standard wire terminals (Car and floors); -) Serial comm. in the car, 1 line/floor connectors at floors; -) Wire terminals in the car, Serial communication at floors (BDU modules); -) Serial communication for car and floors	◄►	Choice	Car & Fl. STD; Car SER. / Fl. RJ45; Car STD. / Fl. BDU; Car SER. / Fl. BDU	Car SER / Fl. RJ45
	Type of control	Type of control for the lift	◄►	Choice	-SAPB constant pressure; - Constant pressure Car; -SAPB; -SAPB record; -Down collective; -Full Collective;	SAPB;
	Drive	Traction type: -) Traction VVVF -) Hydraulic – Motor Direct (Dir): can be used also in case of VVF activated only in UP direction. -) Hydraulic – Motor Soft Starter (S-S): -) Hydraulic – Motor Star Delta (Y-D): -) Hydraulic – Motor with Inverter (VVF): Motor contactors activated in UP and DOWN direction.	◄►	Choice	Traction Hydraulic Dir Hydraulic S-S Hydraulic Y-D Hydraulic VVF	Traction
	No. of floors	Number of floors of the installation	▲ ▼	Increase Decrease	2 <-> 16 (std.) 2 <-> 32 (BDU only)	2
	Re-levelling	**Not present**: No Re-levelling **Type 1:** (open or close door). This setting is indicated for traction installations for good stopping accuracy. Re-levelling is triggered when the car leaves its position "perfectally at floor" that's to say when one of the two beams interrupted. Re-levelling ends when both beams are free. WARNING: this setting is not suitable for hydraulic installations due to the risk of "pumping" effect (car drifts down after stopping) **Type 2:** (open or close door). This setting is indicated for hydraulic installations and operates as in Type 1, except that the two beams must be interrupted before the re-levelling starts. Re-levelling ends when the two beams are free. WARNING: the use of sensors with reduced distance between beams (TMS03 = 20 mm) is suggested. **Type 3:** Levelling 1 beam open door 2 beams closed door. This setting allows the levelling 1 beam, floor door open (car light on) and levelling 2 beams, floor door closed (car light off). WARNING: to operate the levelling door open, no matter which option you have chosen, it is necessary to shunt the door safety, using an approved system. ***Note:*** *with the Encoder positioning system, distance of activation of the re-levelling is displayed*	◄►	Choice	Not present Type 1 Type 2 Type 3	Not present
	Main floor	Position of the main floor (all calls below this floor are served only upwards (only down collective)	▲ ▼	Increase Decrease	0 <-> Floor No.	0
	Low Speed fault time	Time before activation of the Low Speed fault (low speed too long)	▲ ▼	Increase Decrease	7 s <-> 40 s	7 s

	Parameter	Description	Navigation		Values	Default value
	Running time	Time before activation of running time fault	▲ ▼	Increase Decrease	20 s <-> 45 s	20 s
	Calls from 16IO	Special Features to use screw terminal interface by 16IO board instead of Prewired COP board (DMCPIT) when you have partial modernization. The Interface can be used - on single board on the first (16IO I option) or on the second (16IO II option) interface board managing up to 12 floors - on two interfaces (16IO I+II option) managing up to 28 floors. **NOTE**: This option could be not compatible if 16IO board is used for other functions .	◄►	Choice	Disabled; 16IO I; 16IO II; 16IO I+II;	Disabled
	Type of Installation	Type of installation (Simplex / Multiplex / Multiplex LIGHT) Multiplex LIGHT has a shared single BDU line for two lifts with a dedicated sinalization's wiring.	◄►	Choice	Simplex; Multiplex; Multiplex LIGHT	Simplex
	Multiplex configuration	Multiplex configuration: Lift No.(LN); Push-Buttons Line (PBL); Floors in multiplex; Offset. For description, refer to Appendix I.	◄► ▲▼	Select param. Change value	- Lift No (LN).: 1<->4 - PushButtons Line (PBL): 0(1 Line)<->3(4 Lines)	(LN).(PBL): 1.0
					- Floors: 2 <-> 16 [32] - Ofst 0 <-> N° floors	Flrs. : 2 Ofst : 0
	Multiplex Call	In multiplex installations a floor call can be differentiated with a long push-button pressure (more than 3 seconds) calling: a) The installation with lower "Lift No (LN)" parameter (for example if there is a duplex installation with a big cabin for disabled passengers and a smaller one, the greater must be set as "1" and the other as "2"; b) In an "asymmetric floor distribution" system, the installation that can reach the lowest/highest level.	◄►	Choice	No (0, 1, 2, 3); Yes (0, 1, 2, 3)	No

5.6. "Doors" Menu



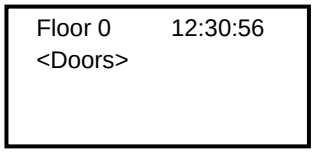


Table of Parameters

Cod.	Parameter	Description	Navigation	Values	Default value
	Ret. ramp on	Time before activation of the retiring ramp	▲ Increase ▼ Decrease	0,1 s <-> 9,9 s	0,1 s
	Ret. ramp off	Time before deactivation of the retiring ramp	▲ Increase ▼ Decrease	0,1 s <-> 9,9 s	0,1 s
	Lock fault time	Time before the activation of the lock fault	▲ Increase ▼ Decrease	2 s <-> 60 s	15 s
	Door open delay	Time before door opening – for automatic door	▲ Increase ▼ Decrease	0,1 s <-> 9,9 s	0,5 s
	Parking time with open door	Lift car parking time with open door (in sec.)	▲ Increase ▼ Decrease	1 s <-> 30 s	7 s
	Closing time with calls	Time (in sec.) before door closes in case of registered calls	▲ Increase ▼ Decrease	1 s <-> 60 s	2 s
	Doors Nb.	Number and type of doors	◄► Selection	-1 door -2 doors simult. -2 doors sel. -2 doors sel+through	1 access
	Type Door A	Selection of door type for entrance A: 1) *Manual / Not present:* manual doors at floors, car doors manual or not present; 2) *Car independent:* manual doors at floors, car doors independent; 3) *Car automatic:* manual doors at floors, car doors automatic; 4) *Combined auto:* automatic doors in the car and at floors	◄► Selection	Manual / not present; Car Independent; Car automatic; Combined Auto	Combined Auto
	Door A with limit switch	Presence of a limit switch for door A (not present for manual and independent doors)	◄► Selection	No; Yes NO Yes NC	No
	Select door A at floor	Configuration of door A for each floor: set access to each floor and open or close door parking at floor (for automatic doors)	◄► Selection ▲▼ Change floor	No; Not enable Pkg. Door close; Pkg. Door open	Pkg. Door close;
	Door A Open/Close time	Door A without limit switch: door opening/closing time	▲ Increase ▼ Decrease	1 s <-> 60 s	10 s
	Door A start delay	Door A manual: time before start	▲ Increase ▼ Decrease	0,1 s <-> 9,9 s	2,0 s
	Slipping Door A	Door A with limit switch: time before slipping fault	▲ Increase ▼ Decrease	1 s <-> 60 s	10 s
	Door A powered	Door A powered during the run. Not considered for manual or independent doors	◄► Selection	No Yes Yes AT40	No
	Type Door B	Selection of door type for entrance B (see Type Door A):	◄► Selection	Manual / not present; Car Independent; Car automatic; Combined Auto	Combined Auto
	Door B with limit switch	Presence of a limit switch for door A (not present for manual and independent doors)	◄► Selection	No; Yes	No
	Select door B at floor	Configuration of door A for each floor: set access to each floor and open or close door parking at floor (for automatic doors)	◄► Selection ▲▼ Change floor	No; Pkg. Door close; Pkg. Door open	Pkg. Door close
	Door B Open/Close time	Door B without limit switch: door opening/closing time	▲ Increase ▼ Decrease	1 s <-> 60 s	10 s

Cod.	Parameter	Description	Navigation	Values	Default value
	Door B start delay	Door B manual: time before start	▲ Increase ▼ Decrease	0,1 s <-> 9,9 s	2,0 s
	Slipping Door B	Door B with limit switch: time before slipping fault	▲ Increase ▼ Decrease	1 s <-> 60 s	10 s
	Door B powered	Door B powered during the run. Not considered for manual or independent doors	◄► Selection	No Yes Yes AT40	No
	Advanced opening	Parameter for door advanced opening (opening starts before car stop).	◄► Selection	No; Yes	No
	Photocell Type	Parameter to select the type of photocell: **NO photocell:** contact opens if the beam is free. The contact closes if the beam is interrupted. The shock, photocell and open door contacts must be wired in parallel. **NC photocell:** opposite of the NO photocell. The shock, photocell and open door contacts must be wired in series. *NOTE: The shock, photocell and open door contacts must all be of the same kind (NO or NC)*	◄► Selection	NO; NC	NO
	Doors Contact time	Waiting Time before start a trip (for old door's safety contact)	▲ Increase ▼ Decrease	0,0 s <-> 3,0 s	0,1 s

5.7. "Signals" Menu

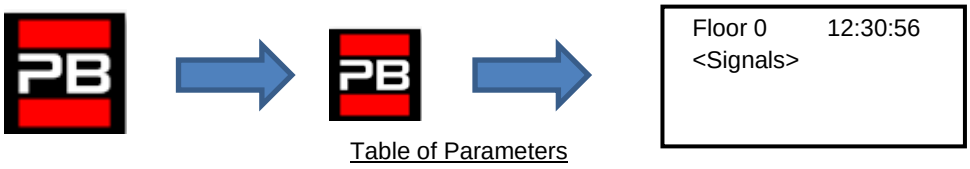


Table of Parameters

Cod.	Parameter	Description	Navigation	Values	Default value
	Car priority	Time of car at floor without direction before taking landing calls. In case of combined automatic doors, timing starts when doors have closed and the shock, photocell and re-opening contacts are not activated	▲ ▼ Increase Decrease	2 s <-> 30 s	10 s
	Floor call registration	Set the blinking for floor buttons upon registration	◀ ▶ Selection	Permanent; Flashing at floor	Permanent
	AUX output	Selection of the output type on the 16 relays boards. **NOTE**: 1 wire/floor and 1 wire/floor HYD configurations are available only on first 16RL board. After the two AUX board configuration can be set the outputs on BDUs (OUT-1 and OUT-2).	◀ ▶ Selection	1 wire per floor; Car at floor; Floor light; Gray indicator; 9 segm. indicator; Lift is coming 1 wire per floor HYD;	1 wire per floor
		BDU Inputs Type 0 = Car at floor and Out of Service Type 1 = Arrows Type 2 = Car at floor and Car is coming Type 3 = 3 Wire Display The first setting s for all floors, the second setting can be used for specific configuration floor by floor. The BDU dynamic output is used also in case of PIT8 boards (parallel pre wired LOPs).	◀ ▶ Tasti su e giù	Type 0 Type 1 Type 2 Type 3	Type 0
	Automatic floor designation	Automatic setting of numeric characters for serial position indicators. The value increases/decreases automatically at each floor starting from Lowest floor	▲ ▼ Increase Decrease	-9 <-> 30	Lowest fl.: 0
	Manual floor designation	Manual setting of alphanumeric characters for serial position indicators. Setting must be done for each floor	◀ ▶ Field Selection ▲ ▼ Change value	- ; 0 <-> 9 ; A <-> Z	
	Trigger on PV	It is possible to start trigger (speech synthesiser / next direction arrows) on deceleration point (Yes) or to floor arrival (No).	◀ ▶ Selection	No yes	No
	Next direction arrows	In case of parameter activation, arrow outputs are activated only when lift stops at floor (or on slowing down if trigger parameter on PV is active).	◀ ▶ Choice	No; Yes	No
	LTMP Delay	This function handle the delay between a floor/car call and the light turning on. The output is deactivated XX seconds after the call has been served. 0 sec means no timer active (light ON)	▲ ▼ Increase Decrease	0 s <-> 240 s	1 sec.
	EME Delay	This function handles the -) Type of automatic emergency operation (only VVVF): • Type A = Nearest Floor in favourite direction (depends by the load inside cabine) • Type B = Only brake modulation (only for Gearless 81-20 installations). • Type C = On the main floor of the lift (External UPS must be calculated on basis of Installation characteristics) • Type D = RNO for ship, evacuation on the fire evacuation floor (No UPS). For Multiplex the lifts will move once a time. -) delay between the black out signal (IEME) and output command (OEME) before system switch in automatic emergency procedure.	▲ ▼ Increase Decrease	Type A Type B Type C Type D ---------- 0 s <-> 30 s	Type A ---------- 0 sec.

Cod.	Parameter	Description	Navigation	Values	Default value
		NOTE: for Hydro Emergency floor is the lowest floor			
	Buzzer 81-21	For 81-21 installation: use the 81-20's acoustic buzzer (bypass door) on the top of car as acoustic alarm when protections are not in active position.	◀ ▶ Choice	No; yes	No
	Ship Functions	Enable special operation for lift on ships	◀ ▶ Choice	No; yes	No
	Sound when stop	Enable sounds on COP's bip when lift stops at level.	◀ ▶ Choice	No; yes	No

5.8. "Special Features" Menu

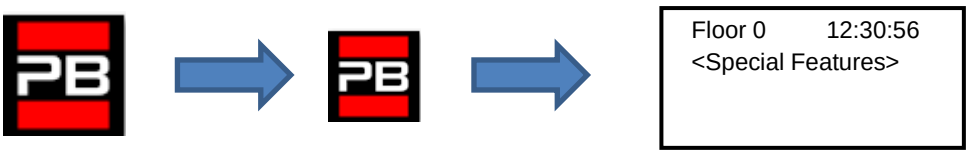


Table of Parameters

Parameter	Description	Navigation	Values	Default value
Reset in	Direction of travel during reset procedure	◀ ▶ Selection	Down; Up	Down
Travelling limits in inspection	Valid only for FAI/FAS positioning system. Settings for the travelling limits during inspection mode. If travelling is programmed beyond the limits, the controller does not allow any movement beyond top/bottom floors.	◀ ▶ Selection	Up to AGB/AGH; Beyond AGB/AGH	Up to AGB/AGH
Fire-fighters	(Refer to Annex XI - Fire operation programming procedure) Type of fire-fighter operations (if present) and relevant parameters (fire service access level and side, POM and CPOM key contact type); choice of relevant applicable norm: -) Norm NF P82-207 (France); -) EN 81-72 (a): no car FF key switch; -) EN 81-72 (b): with car FF key switch;	◀ ▶ Select field ▲ ▼ Change value	Not present; NF P82-207; EN 81-72 (a); EN 81-72 (b); EN 81-73 DM 15/09/2005 (IT)	Not present
Fire detection	Parameter for fire detection at floors. - if the lift is at a different floor than the one where fire was detected, all registered calls from/to this floor are cancelled; - if the lift is at the floor where fire was detected, the controller blocks door opening, closes doors (if open upon fire detection) and sends the car to a safe floor	◀ ▶ Selection	No; Yes NO Yes NC	No
Stop button registration	The system registers the out of service mode (pressure of STOP button). It is also possible to set the delay to avoid simultaneous movement in installations powered with a generator.	◀ ▶ Selection	No; Yes	No
EN 81-20	System setting according to EN 81-20	◀ ▶ Selection	No; Yes	No
Anti-nuisance fault	Parameter for the detection of the anti-nuisance fault (number of stops without photocell activation after which all car calls are cancelled)	◀ ▶ Selection ▲ ▼ No. calls	No; Yes 2 <-> 10	No 3
Out of service floor	Floor for out of service. Parking floor when HS input is enabled.	▲ ▼ Increase Decrease	0 <-> Floor No.:	0
Automatic return	Parameters for car automatic return at floor: Return floor and Minimum waiting time before automatic return	◀ ▶ Select parameter ▲ ▼ Change value	No 0 <-> Floor No.: 1 min <-> 60 min	No 0 15 min.
Return zones	Advanced settings for return at floor at planned hours / days: -) Day (0 = everyday, 1 = monday … 7 = sunday); -) Selected time interval (4 interval each day); -) Return floor; -) Start time; -) End time (max time: 7h 45 min);	◀ ▶ Select parameter ▲ ▼ Change value		
R. zone timing	Timing for selected return zones	◀ ▶ Selection ▲ ▼ Change Value	No; Yes 1 s <-> 120 s	No 60 s
Call erasing at floor	Erasing all calls at floor where the car stops, with no control of the direction (only for full collective installations)	◀ ▶ Selection	No; Yes	No
Drift control (FR)	Drift control (France)	◀ ▶ Selection	None; Traction drive; Drum machine Sul PlayPAd vengono riportati Not present,	None

Parameter	Description	Navigation	Values	Default value
			Traz.Tamburo e Traz.Argano	
Push-button code	It allows you to program a 4-digit code for Car calls. A 4-digit code may be assigned to each BCx car button input, corresponding to the car pushbutton inputs. Example: if the BC0 pushbutton is associated with the 0123 code, to reserv floor 0 from Cabin you can: a) keep pressed the floor 0 pushbutton for 3 seconds. b) All COP pushbutton will blink c) Press in sequence the pushbuttons corresponding to the BC0, BC1, BC2, BC3; *Note:* Enter a code between 0 and 9 corresponding to the inputs BC0 ÷ BC9 Programming Code "0 _ _ _" will enable the special function Pent House	◀ ▶ Select field ▲ ▼ Change value		
Controle Temperature ambient	Check the temperature in the engine room through the sensor (if present). If the temperature surpass the set thresholds for more than 30 seconds, the system stops at the floor and the error is recorded. The control is only active during normal operation or Cabin priority. After having set the two thresholds, pressing Enter you can perform the sensor calibration (immediately press Enter to retain the current calibration, otherwise set the room temperature value and then press Enter). The first threshold can be set between -10 ° C and +5 ° C while the second threshold can be set between +40 ° C and +75 ° C.	◀ ▶ Select field ▲ ▼ Change value	Without; +5°C <=> +40°C	Without
Automatic Calls	When lift is in normal mode, "Automatic calls" can be activated to perform a specific calls number (up to 120 calls or unlimited) in steps of one minute. However is possible to enable or not the doors functionality (the system will also continue to accept floor calls simulating programmed calls, if enabled). The function ends automatically when the machineries are turned off or if the system is put in inspection mode.	▲ ▼ Increase Decrease ◀ ▶ Select Doors	0 <-> 120 ∞ 10 <-> 60 s Yes - No	0 60 s Yes
Monitor UCM	A3 amendment. Configure type of monitor. For description, refer to Annex VIII.	▲ Increase ▼ Decrease ◀ ▶ Choice		
UCM	Installation type 81-1 / 81-20 / 81-21 Shaft access procedure and Protections. For description, refer to Annex IX.	▲ Increase ▼ Decrease ◀ ▶ Choice		
Forced Stop	If programmed, the installation will stop at a specific floor at each crossing (some hotels use this function).	▲ Increase ▼ Decrease ◀ ▶ Choice		
Protect floor	If a protected floor is programmed, when the 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).	▲ Increase ▼ Decrease ◀ ▶ Choice		
Lop priority	Enabling the floor priority call function. pairing with 16 IN card (or key inputs from BDU)	◀ ▶ Choice	No; Yes	No
Enable Floor	Enabling the call enabling function (e.g. CARD Reader). In combination with 16 IN card. Type 1: LOP enable: to enable calls, the corresponding input of the 16 IN card must be closed.	▲ Increase ▼ Decrease ◀ ▶ Choice	No Type 1 Type 2 Type 3	No

	Parameter	Description	Navigation	Values	Default value
		Type 2: COP enabling To enable calls, the corresponding input of the 16 IN card must be closed Type 3: Enable COP + LOP: to enable calls, the corresponding input of the 16 IN card must be closed (disabling the floor)			
	Shaft Protection	Protection of compartment and doors. For description, refer to Annex X.	▲ ▼ Increase Decrease	No Type 1 Type 2 Type 3 Type 4	No
	Integrated Load Weighing	Enable function for Integrated load Weighing. It is mandatory a calibration procedure (§ test 22)	◄ ► Selection	No; Yes	No

5.9. "System Positioning" Menu

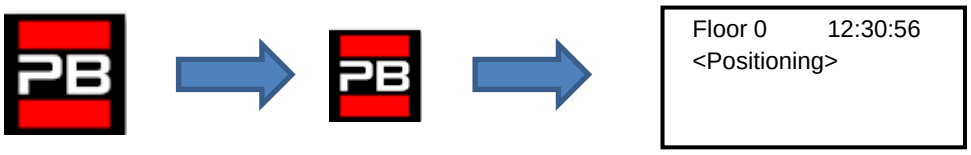


Table of Parameters (FAI / FAS positioning system)

Cod.	Parameter	Description	Navigation	Values	Default values
	Positioning system	Type of positioning system: with Encoder or traditional. Can only be modified in Temporary Oper. Mode ***Note:*** in case of absolute Encoder and shaft lengths longer than 65 meters change the resolution of Encoder = 2 in autosetting menu before starts the Manual teach procedure.	◀ ▶ Selection	FAI/FAS **; FAI/FAS ** no AGH; Encoder Clockwise; Encoder Counter clockwise Encoder ELGO	FAI/FAS **
	Top PV	Position of the deceleration (passage in Low Speed) and number of entrances	▲ ▼ Increase Decrease	2 <-> 6	5
	PV at floors	Position of the specific deceleration for each floor	◀ ▶ ▲ ▼ Top PV Floor choice	Short floor or 2<->6 0 <-> No. Floor	5 all floors
	Short level delay	Time before short level deceleration (only if a short level is programmed)	▲ ▼ Increase Decrease	0,00 s <-> 2,50 s	0,00s
	Top PV 2 Delay	Delay before passage to Intermediate speed	▲ ▼ Increase Decrease	0,00 s <-> 2,50 s	0,00 s
	Delay Dir.-BRK	VVVF: Delay between activation of travel direction and run command (BRK)	▲ ▼ Increase Decrease	0,0 s <-> 3,0 s	0,5 s - VVVF 0,0 s - Others
		OLEO: Star / Delta delay	▲ ▼ Increase Decrease	0,0 s <-> 3,0 s	0,5 s – VVVF 0,5 s – Star/Delta 0,0 s - Others
	Delay BRK-S	Delay between activation of BRK command and speed command	▲ ▼ increase decrease	0,0 s <-> 3,0 s	0,00 s
	Delay BRK-Dir.	Delay between deactivation of run command and deactivation of travel direction (arrive al piano)	▲ ▼ Increase Decrease	0,0 s <-> 3,0 s	1,5 s - VVVF 0,0 s - Others
	Inspection speed	Sets the speed of travel in inspection	◀ ▶ Selection	Low speed; High speed	Low speed
	Emergency BRK On	Emergency break modulation parameter (modify only if EME board is not present)	▲ ▼ increase decrease	0,0 s <-> 5,0 s	0,0s
	Emergency BRK Off	Emergency break modulation parameter (modify only if EME board is not present)	▲ ▼ increase decrease	0,0 s <-> 5,0 s	0,0s

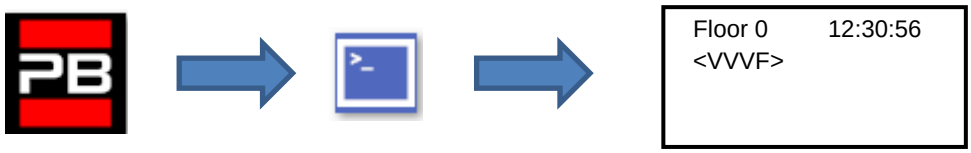
Table of Parameters (Encoder positioning system)

Cod.	Parameter	Description	Navigation	Values	Default values
	Positioning system	Type of positioning system: with Encoder or traditional. ***Note:*** Can only be modified in Temporary Oper. mode	◄► Selection	Encoder Clockwise; Encoder Counter clockwise Encoder ELGO	Encoder Clockwise
	Autosetting	Start of floor position self-learning procedure. Can only be modified in Temporary Operation mode. See § 2.1 for details	◄► Selection	No; Yes	No
	Floor Position	Position value for each floor	▲ increase ▼ decrease ◄► Floor pos. selection		
	Accel. Time	Acceleration time. Time required to switch from start speed to travelling speed.	▲ increase ▼ decrease	1,0 s <-> 5,0 s	3,0 s
	Starting Boost	Starting speed	▲ increase ▼ decrease	0 % <-> 10 %	3 %
	Stopping Boost	Final (stopping) speed	▲ increase ▼ decrease	0 % <-> 10 %	4 %
	Max speed	Maximum speed during the travel	▲ increase ▼ decrease	5 % <-> 100 %	100 %
	Inspection speed	Travelling speed in inspection mode	▲ increase ▼ decrease	5 % <-> 100 %	50 %
	AGB/AGH speed	Travelling speed on AGB/AGH limit points. Same speed adopted during emergency operations	▲ increase ▼ decrease	1 % <-> 15 %	10 %
	Delay Dir.-BRK	VVVF: Delay between activation of travel direction and BRK command (start)	▲ increase ▼ decrease	0,0 s <-> 3,0 s	0,5 s - VVVF 0,0 s - Others
		OLEO: Star / Delta delay	▲ Increase ▼ Decrease	0,0 s <-> 3,0 s	0,5 s – VVVF 0,5 s – Star/Delta 0,0 s - Others
	Delay BRK-S	Delay between activation of BRK command and beginning of the analogic speed ramp	▲ increase ▼ decrease	0,0 s <-> 3,0 s	0,3 s - VVVF 0,0 s - Others
	Delay BRK-Dir.	Delay between deactivation of run command and deactivation of travelling direction (stop at floor)	▲ increase ▼ decrease	0,0 s <-> 3,0 s	1,5 s - VVVF 0,0 s - Others
	Emergency BRK On	Emergency break modulation parameter	▲ increase ▼ decrease	0,0 s <-> 5,0 s	0,0s
	Emergency BRK Off	Emergency break modulation parameter	▲ increase ▼ decrease	0,0 s <-> 5,0 s	0,0s
	Monitor Encoder	Contains information on: Encoder features, reading of slowdown heights (R1D / R1S), re-levelling (RRIPD / RRIPS) and stop of the cabin (RLD / RLS) where D indicates down while S means up; finally it contains info on reading AGB / AGH and ZP heights. Note: R1D and R1S heights can be modified pushing Enter without repeating self learning procedure (to let the slowing down distance be equal in rise and descent).			

NOTE: Please consult the time diagram at the end of this manual, to better understand some parameter meanings.

5.10. "VVVF" Menu

This menu is available only when a FUJI FRENIC LIFT VVVF is connected to a Control Lift Board



VVVF Basic menu list Parameters

Cod.	Parameter	Description	Navigation	Values	Default values
F03	Maximum speed	Max speed of the motor	◀ ▶ Selection ▲ ▼ Change Value	150-3600 RPM	1500 RPM
F05	Rated Voltage	Rated voltage of the motor driven by the inverter	◀ ▶ Selection ▲ ▼ Change Value	80-240 V (for 200V class series)	230 V
				160-500 V (for 400V class series)	380 V
F07	Acc T1	Acceleration ramp (Only with FAI/FAS positioning system)	◀ ▶ Selection ▲ ▼ Change value	0,00-99,9 s	1,8 s
F08	Dec T2	Acceleration ramp (Only with FAI/FAS positioning system)	◀ ▶ Selection ▲ ▼ Change value	0,00-99,9 s	1,8 s
F42	Control Mode	Control Mode	◀ ▶ Selection ▲ ▼ Change Value	0-1-2	0 (Geared drives, closed loop)
					1 (Gearless drives, closed loop)
					2 (Geared drives, open loop)
E12	Acc/dec T5		◀ ▶ Selection ▲ ▼ Change value		1,8 s
E13	Acc/dec T6		◀ ▶ Selection ▲ ▼ Change value		1,8 s
E15	Acc/dec T8		◀ ▶ Selection ▲ ▼ Change value		1,8 s
E16	Acc/dec T9		◀ ▶ Selection ▲ ▼ Change value	0.00 – 99.9 s	1,8 s
C07	Creep Speed	Creeping speed (Only with FAI/FAS positioning system)	◀ ▶ Selection ▲ ▼ Change value		4,0 Hz (Geared drives, open loop)
					2,5 Hz (Geared drives, closed loop)
					1,5 Hz (Gearless drives, closed loop)
C10	Middle Speed	System speed under inspection mode (Only with FAI/FAS positioning system)	◀ ▶ Selection ▲ ▼ Change value		25 Hz (Geared drives)
					10 Hz (Gearless drives)
C11	High Speed	High speed for multistep speed change (Only with FAI/FAS positioning system)	◀ ▶ Selection ▲ ▼ Change value		50 Hz (Geared drives)
					20 Hz (Gearless drives)
P01	Motor Poles	Number of poles of the motor	◀ ▶ Selection ▲ ▼ Change value	(see motor plate)	4 (Geared drives)
					20 (Gearless drives)
P02	Motor Rated Cap	Rated power of the motor	◀ ▶ Selection ▲ ▼ Change value	(see motor plate)	Function of Inverter size
P03	Motor Rated Cur	Rated current intensity of the motor	◀ ▶ Selection ▲ ▼ Change value	(see motor plate)	Function of Inverter size
P04	Motor Autotuning	Auto tuning of motor parameters (geared drives only)	◀ ▶ Selection ▲ ▼ Change value		0 (2 to trigger the auto tuning procedure for geared drives)
P06	M-No-Load Curr.	Motor no-load current	◀ ▶ Selection ▲ ▼ Change value		Set by Motor Autotuning (Geared drives)
					0 A (Gearless drives)
P12	M-Rated Slip	Rated slip frequency of the motor	◀ ▶ Selection ▲ ▼ Change value	0-15Hz	Set by Motor Autotuning

Cod.	Parameter	Description	Navigation	Values	Default values
L01(*)	PG select	See Annex IV	◀ ▶ Selection ▲ ▼ Change value	0-5	0 (Geared drives) 4 (Gearless drives with EnDat Encoder) 5 (Gearless drives with sin-cos Encoder)
L02(*)	PG resolution	Resolution of the pulse encoder (Pulse/ Turn)	◀ ▶ Selection ▲ ▼ Change Value	360-60000 P/R	1024 (Geared drives) 2048 (Gearless drives)
L19	S-Curve 1	S-Curve – 1	◀ ▶ Selection ▲ ▼ Change Value		20 % (Geared drives) 25 % (Gearless drives)
L24	S-Curve 6	S-Curve – 6	◀ ▶ Selection ▲ ▼ Change Value		20 % (Geared drives) 25 % (Gearless drives)
L25	S-Curve 7	S-Curve – 7	◀ ▶ Selection ▲ ▼ Change Value		20 % (Geared drives) 25 % (Gearless drives)
L26	S-Curve 8	S-Curve – 8	◀ ▶ Selection ▲ ▼ Change Value		20 % (Geared drives) 25 % (Gearless drives)
L27	S-Curve 9	S-Curve – 9	◀ ▶ Selection ▲ ▼ Change Value		20 % (Geared drives) 25 % (Gearless drives)
L82	Brake On Delay	Delay from activation of BRKS output	◀ ▶ Selection ▲ ▼ Change Value	0,00-10,00 s	0,20 s
L83	Brake Off delay	Delay from deactivation of BRKS output	◀ ▶ Selection ▲ ▼ Change Value	0,00-10,00 s	0,10 s

VVVF Advanced menu list Parameters

Cod.	Parameter	Description	Navigation	Values	Default values
F01	Speed command	Command selection for speed variation	◀ ▶ Selection ▲ ▼ Change Value	0=MULTISPEED 1=NR Analogic (no polarized) no available	0 (with FAI/FAS positioning system) 1 (with Encoder positioning systems)
F03	Maximum speed	Max speed of the motor	◀ ▶ Selection ▲ ▼ Change Value	150-3600 RPM	1500 RPM
F04	Rated speed	Rated speed of the motor (Frequency)	◀ ▶ Selection ▲ ▼ Change Value		50 Hz
F05	Rated Voltage	Rated voltage of the motor driven by the inverter	◀ ▶ Selection ▲ ▼ Change Value	80-240 V (for 200V class series) 160-500 V (for 400V class series)	230 V 380 V
F07	Acc T1	Acceleration ramp (only with FAI/FAS positioning system)	◀ ▶ Selection ▲ ▼ Change Value	0,00-99,9 s	1,8 s
F08	Dec T2	Deceleration ramp (only with FAI/FAS positioning system)	◀ ▶ Selection ▲ ▼ Change Value	0,00-99,9 s	1,8 s
F09	TRQ Boost	Torque increase	◀ ▶ Selection ▲ ▼ Change Value	0,0-5,0	0,0 (up to 7,5 kW and from 30 kW) 0,3 (from 11 kW to 22 kW)
F10	Electronic OL	Overload electrical protection	◀ ▶ Selection ▲ ▼ Change Value	1 - 2	2
F11	Overload Level	Electronic Thermal Overload Protection for Motor (Value in Ampere equal to the inverter size)	◀ ▶ Selection ▲ ▼ Change Value	1 to 200% (of the rated current)	100 %
F12	Overload time	Thermic time constant	◀ ▶ Selection ▲ ▼ Change Value	0.5 – 75.0 min.	0,5
F20	DCBrake speed	Frequency threshold for DC INJECTION			0,2 Hz (Open loop)

Cod.	Parameter	Description	Navigation	Values	Default values
			◀ ▶ Selection ▲ ▼ Change Value		0,0 Hz (Closed loop)
F21	DC Brake level	Intensity threshold for DC INJECTION	◀ ▶ Selection ▲ ▼ Change Value		50 % (Open loop) 0 % (Closed loop)
F22	DC Brake T	DC INJECTION time	◀ ▶ Selection ▲ ▼ Change Value		1,0 s (Open loop) 0,0 s (Closed loop)
F23	Starting Speed	Starting speed (in Hz) for the inverter	◀ ▶ Selection ▲ ▼ Change Value	0,00-150	0,50 Hz (Open loop) 0,00 Hz (Closed loop)
F24	Holding Time	Holding time of running at starting speed for the inverter	◀ ▶ Selection ▲ ▼ Change Value	0,00-10 s	0,8 s (FAI/FAS) 0,2 s (Encoder)
F25	Stopping Speed	Stopping speed (in Hz) for the inverter	◀ ▶ Selection ▲ ▼ Change Value		0,1 Hz
F26	Motor Sound	Carrier frequency)	◀ ▶ Selection ▲ ▼ Change Value		15 kHz
F42	Control Mode	Control Mode	◀ ▶ Selection ▲ ▼ Change Value	0-1-2	0 (Geared drives, closed loop) 1 (Gearless drives, closed loop) 2 (Geared drives, open loop)
F44	Current Limiter	Activation level of the current limiter. % to the rated current of the inverter. If “Auto”, value means no current limitation	◀ ▶ Selection ▲ ▼ Change Value	100% ⇔230% or Auto	200 %
E04	Command X4	Input X4 not used	◀ ▶ Selection ▲ ▼ Change Value		25
E05	Command X5	Input X5 not used	◀ ▶ Selection ▲ ▼ Change Value		25
E06	Command X6	Input X6 not used	◀ ▶ Selection ▲ ▼ Change Value		25
E07	Command X7	Input X7 not used	◀ ▶ Selection ▲ ▼ Change Value		25
E08	Command X8	Input X8 not used	◀ ▶ Selection ▲ ▼ Change Value		63
E10	Acc/dec T3		◀ ▶ Selection ▲ ▼ Change Value		1,8 s
E11	Acc/dec T4		◀ ▶ Selection ▲ ▼ Change Value		1,8 s
E12	Acc/dec T5		◀ ▶ Selection ▲ ▼ Change Value		1,8 s
E13	Acc/dec T6		◀ ▶ Selection ▲ ▼ Change Value		1,8 s
E14	Acc/dec T7		◀ ▶ Selection ▲ ▼ Change Value		1,8 s
E15	Acc/dec T8		◀ ▶ Selection ▲ ▼ Change Value		1,8 s
E16	Acc/dec T9		◀ ▶ Selection ▲ ▼ Change Value	0.00 – 99.9 s	1,8 s
E20	Signal Y1	Output Y1 (transistor) not used	◀ ▶ Selection ▲ ▼ Change Value		27
E21	Signal Y2	Output Y2 (transistor) not used	◀ ▶ Selection ▲ ▼ Change Value		27
E22	Signal Y3	Output Y3 (transistor) not used	◀ ▶ Selection ▲ ▼ Change Value		27
E23	Signal Y4	Output Y4 (transistor) not used	◀ ▶ Selection ▲ ▼ Change Value		25

Cod.	Parameter	Description	Navigation	Values	Default values
E30	Speed Arr. Hyst	Not used	◀▶ Selection ▲▼ Change Value		0,48 Hz (Geared motor) 0,1 Hz (Gearless motor)
E31	Speed Det.Lev	Not used	◀▶ Selection ▲▼ Change Value		48,33 Hz
E32	Speed Det Hyst	Not used	◀▶ Selection ▲▼ Change Value		0,48 Hz (Geared motor) 0,1 Hz (Gearless motor)
E39	RRD Level	Recommended direction in emergency (Not used)	◀▶ Selection ▲▼ Change Value		0 %
E61	Analog Input 12	Function of analog input 12	◀▶ Selection ▲▼ Change Value	0-2	1
E98	Command FWD	Function for screw terminal FWD	◀▶ Selection ▲▼ Change Value		98
E99	Command REV	Function for screw terminal REV	◀▶ Selection ▲▼ Change Value		99
C01	BATRY TL I	Torque limitation in emergency. If “OFF”, value means no current limitation	◀▶ Selection ▲▼ Change Value	0% ⇔100% or OFF	0
C02	BATRY TL T		◀▶ Selection ▲▼ Change Value		0,0 s
C03	Battery Speed	Speed during emergency run	◀▶ Selection ▲▼ Change Value		1,50 Hz
C07	Creep Speed	Creeping speed (only with FAI/FAS positioning system)	◀▶ Selection ▲▼ Change Value		4,0 Hz (Geared drives, open loop) 2,5 Hz (Geared drives, closed loop) 1,5 Hz (Gearless drives, closed loop)
C10	Middle Speed	System speed under inspection mode (only with FAI/FAS positioning system)	◀▶ Selection ▲▼ Change Value		25 Hz (Geared drives) 10 Hz (Gearless drives)
C11	High Speed	High speed for multistep speed change (FAI/FAS positioning system)	◀▶ Selection ▲▼ Change Value		50 Hz (Geared drives) 20 Hz (Gearless drives)
P01	Motor Poles	Number of poles of the motor	◀▶ Selection ▲▼ Change Value	(see motor plate)	4 (Geared drives) 20 (Gearless drives)
P02	Motor Rated Cap	Rated power of the motor	◀▶ Selection ▲▼ Change Value	(see motor plate)	Function of Inverter size
P03	Motor Rated Cur	Rated current intensity of the motor	◀▶ Selection ▲▼ Change Value	(see motor plate)	Function of Inverter size
P04	Motor Autotuning	Auto tuning of motor parameters (geared drives only)	◀▶ Selection ▲▼ Change Value		0 (2 to trigger the auto tuning procedure for geared drives)
P06	M-No-Load Curr.	Motor no-load current	◀▶ Selection ▲▼ Change Value		Set by Motor Autotuning (Geared drives) 0 A (Gearless drives)
P07	M-%R1	Motor (%R1)	◀▶ Selection ▲▼ Change Value		Set by Motor Autotuning (Geared drives) 5 % (Gearless drives)
P08	M-%X	Motor (%X)	◀▶ Selection ▲▼ Change Value		Set by Motor Autotuning (Geared drives) 10 % (Gearless drives)
P09	M-Slip driving	Slip compensation gain in percentage to the rated slip (P12) at the driving sides	◀▶ Selection ▲▼ Change Value	0,0-200%	Set by Motor Autotuning
P10	M-Slip braking	Slip compensation gain in percentage to the rated slip (P12) at the braking sides	◀▶ Selection ▲▼ Change Value	0,0-200%	Set by Motor Autotuning

Cod.	Parameter	Description	Navigation	Values	Default values
P11	M-Slip T	Slip compensation time value (fixed)	◀ ▶ Selection ▲ ▼ Change Value		0,2 s
P12	M-Rated Slip	Rated slip frequency of the motor	◀ ▶ Selection ▲ ▼ Change Value	0-15Hz	Set by Motor Autotuning
P60	Armature Resistance - Rs		◀ ▶ Selection ▲ ▼ Change Value	Ohm	According Motor MX*** table
P62	Armature q-axis reactance - Xs		◀ ▶ Selection ▲ ▼ Change Value	Ohm	According Motor MX*** table
P63	Interphase Inductive Voltage - E		◀ ▶ Selection ▲ ▼ Change Value	V	According Motor MX*** table
P65	q-axis inductance magnetic saturation correction		◀ ▶ Selection ▲ ▼ Change Value	%	According Motor MX*** table
H04	Auto reset Times	Auto-resetting (Number of times)	◀ ▶ Selection ▲ ▼ Change Value		10
H05	Auto reset int	Auto-resetting (Reset interval)	◀ ▶ Selection ▲ ▼ Change Value		5 s
H06	Cooling Fan CTRL	Delay on Cooling Fan turning off (Auto value means that there is no limit on fan control; fan is always turned on)	◀ ▶ Selection ▲ ▼ Change Value	0 min ⇔100 min or Auto	5 min
H57	S-Curve 11	Curve to S-11	◀ ▶ Selection ▲ ▼ Change Value	0 – 50 %	20 %
H58	S-Curve 12	Curve to S-12	◀ ▶ Selection ▲ ▼ Change Value	0 – 50 %	20 %
H64	Zero Hold Time		◀ ▶ Selection ▲ ▼ Change Value		0,0 s (with FAI/FAS positioning system) 0,8 s (with Encoder positioning systems)
H65	Soft Start Time		◀ ▶ Selection ▲ ▼ Change Value		0,0 s (with FAI/FAS positioning system) 0,0 s (with Encoder positioning systems)
H67	Stop Hold Time		◀ ▶ Selection ▲ ▼ Change Value		0,00 s (Open loop) 1,00 s (Closed loop)
H96	Brake Monitor	Enable Brake monitor	◀ ▶ Selection ▲ ▼ Change Value	0-1	0
H190	Motor UVW order	Sequenza fasi uscita motore	◀ ▶ Selection ▲ ▼ Change Value	0-1	1
L01(*)	PG select	See annex IV	◀ ▶ Selection ▲ ▼ Change Value	0-5	0 (Geared drives) 4 (Gearless drives with EnDat Encoder) 5 (Gearless drives with sin-cos Encoder)
L02(*)	PG resolution	Resolution of the pulse encoder (Pulse/ Turn)	◀ ▶ Selection ▲ ▼ Change Value	360-60000 P/R	1024 (Geared drives) 2048 (Gearless drives)
L03(*)	P.P.Tuning	See annex IV	◀ ▶ Selection ▲ ▼ Change Value		
L04(*)	P.P.Offset	Magnetic Pole Position Offset (Offset angle) for gearless drives	◀ ▶ Selection ▲ ▼ Change Value		Automatically set during Pole Position Tuning (L03)
L05(*)	ACR P gain		◀ ▶ Selection ▲ ▼ Change Value		1,5
L07(*)	Automatic pole tuning selection		◀ ▶ Selection ▲ ▼ Change Value		According Motor MX*** table

Cod.	Parameter	Description	Navigation	Values	Default values
L19	S-Curve 1	L19 to L28 specify S-curve zones to be applied to operations driven by multistep speed commands with S-curve acceleration/deceleration.	◀▶ Selection ▲▼ Change Value		20 % (Geared drives) 25 % (Gearless drives)
L20	S-Curve 2				20 % (Geared drives) 25 % (Gearless drives)
L21	S-Curve 3				20 % (Geared drives) 25 % (Gearless drives)
L22	S-Curve 4				20 % (Geared drives) 25 % (Gearless drives)
L23	S-Curve 5				20 % (Geared drives) 25 % (Gearless drives)
L24	S-Curve 6				20 % (Geared drives) 25 % (Gearless drives)
L25	S-Curve 7				20 % (Geared drives) 25 % (Gearless drives)
L26	S-Curve 8				20 % (Geared drives) 25 % (Gearless drives)
L27	S-Curve 9				20 % (Geared drives) 25 % (Gearless drives)
L28	S-Curve 10				20 % (Geared drives) 25 % (Gearless drives)
L29	SFO Hold T	Short Floor Operation (Holding time) Only used for FAI-FAS positioning mode	◀▶ Selection ▲▼ Change Value	0,00 s ⇔10,00s or OFF	OFF
L30	SFO Speed	Short Floor Operation (Allowable speed) – NOT USED	◀▶ Selection ▲▼ Change Value		0,00 s
L33	Over Speed Time	Elevator Parameter	◀▶ Selection ▲▼ Change Value	0,000 s ⇔0,500 s	0,000 s
L36(*)	ASR P Gain High	See annex V	◀▶ Selection ▲▼ Change Value		10,00 (Geared drives) 2,50 (Gearless drives)
L37(*)	ASR I Gain High	See annex V	◀▶ Selection ▲▼ Change Value		0,100
L38(*)	ASR P Gain Low	See annex V	◀▶ Selection ▲▼ Change Value		10,00 (Geared drives) 2,50 (Gearless drives)
L39(*)	ASR I Gain Low	See annex V	◀▶ Selection ▲▼ Change Value		0,100
L40(*)	Switch Speed 1	Not used	◀▶ Selection ▲▼ Change Value		5,00 (Geared drives) 1,00 (Gearless drives)
L41(*)	Switch Speed 2	Not used	◀▶ Selection ▲▼ Change Value		10,00 (Geared drives) 2,00 (Gearless drives)
L42(*)	ASR-FF Gain		◀▶ Selection ▲▼ Change Value	0.000 – 10.000 s	0.000 s
L55(*)	TB Start time		◀▶ Selection ▲▼ Change Value	0.00 – 1.00 s	0.20 s

Cod.	Parameter	Description	Navigation	Values	Default values
L56(*)	TB End time		◀ ▶ Selection ▲ ▼ Change Value	0.00 – 20.00 s	0.20 s
L64(*)	TB Digital 3		◀ ▶ Selection ▲ ▼ Change Value	-200 - +200 %	0 %
L65(*)	ULC operation	Unbalanced load Compensation	◀ ▶ Selection ▲ ▼ Change Value	0-1	1
L66(*)	ULC activation	Unbalanced load compensation (Activation time)	◀ ▶ Selection ▲ ▼ Change Value	0,01-2,00 s	2,00 s
L68(*)	ULC ASR P gain	See annex V	◀ ▶ Selection ▲ ▼ Change Value		10,00 (Geared drives) 2,50 (Gearless drives)
L69(*)	ULC ASR I gain	See annex V	◀ ▶ Selection ▲ ▼ Change Value		0,100 (Geared drives) 0,005 (Gearless drives)
L73(*)	APR P gain zero	See annex V	◀ ▶ Selection ▲ ▼ Change Value		0
L74(*)	APR D Gain		◀ ▶ Selection ▲ ▼ Change Value		0,0
L75(*)	Filter Time		◀ ▶ Selection ▲ ▼ Change Value		0,000 s
L76(*)	ACR P constant		◀ ▶ Selection ▲ ▼ Change Value		0,00
L80	Brake mode	Brake Control (BRKS) output mode	◀ ▶ Selection ▲ ▼ Change Value	1-2	1
L81	Brake On Level	Output current that turns the BRKS signal ON when L80 = 2.	◀ ▶ Selection ▲ ▼ Change Value	0,-200% of motor no-load current	100 %
L82	Brake On Delay	Delay from activation of BRKS output	◀ ▶ Selection ▲ ▼ Change Value	0,00-10,00 s	0,20 s
L83	Brake Off delay	Delay from deactivation of BRKS output	◀ ▶ Selection ▲ ▼ Change Value	0,00-100 s	0,10 s
L84	BRKS check t	Allowable time between BRKS output and BRKE input (Er6)	◀ ▶ Selection ▲ ▼ Change Value	0,00-10 s	0,00 s
L99	ACTION SEL	Not used	◀ ▶ Selection ▲ ▼ Change Value		
L122	Del. Op. Input Power Det. Level		◀ ▶ Selection ▲ ▼ Change Value	%	
L124	Del. Op. Dir. Calc. Delay Timer		◀ ▶ Selection ▲ ▼ Change Value	s	
L130	Sheave diameter (Ds)		◀ ▶ Selection ▲ ▼ Change Value	mm	According Motor MX*** table
L131	Encoder diameter (De)		◀ ▶ Selection ▲ ▼ Change Value	mm	According Motor MX*** table
L132	Theta compensation band		◀ ▶ Selection ▲ ▼ Change Value	deg	According Motor MX*** table
L133	Theta compensation gain lower limiter		◀ ▶ Selection ▲ ▼ Change Value		According Motor MX*** table
L134(*)	Backlash Time	Backlash Time (When L65 = 2)	◀ ▶ Selection ▲ ▼ Change Value	0,00-10,00 Sec	0
L198	Op. set switch 1	BIT0 = It is possible to fix the carrier frequency to 16 kHz for the whole speed range in order to reduce driving noise.	◀ ▶ Selection ▲ ▼ Change Value		0
L199	Op. set switch 2	Reserved.	◀ ▶ Selection ▲ ▼ Change Value		0
L209(*)	Number of ST bits	Only for BiSS, SSI or Hyperface encoder (see Annex IV).	◀ ▶ Selection ▲ ▼ Change Value	0-25	13
L212(*)	Alarm/Warning bit (SSI)	Only for BiSS, SSI or Hyperface encoder (see Annex IV).	◀ ▶ Selection ▲ ▼ Change Value		0

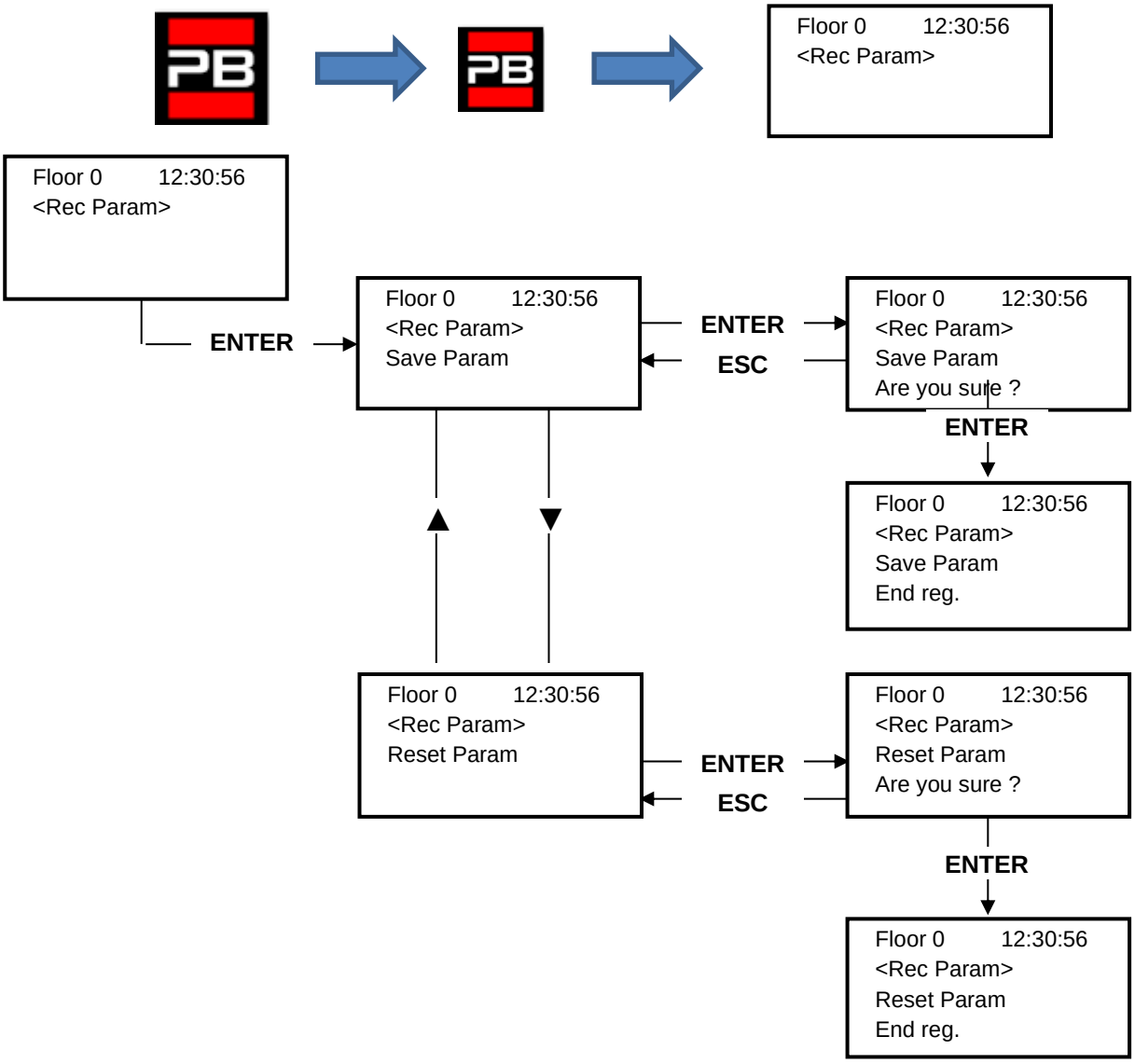
Cod.	Parameter	Description	Navigation	Values	Default values
L213(*)	Number of AL1 bits	Only for BiSS, SSI or Hyperface encoder (see Annex IV).	◄► Selection ▲▼ Change Value		0
L214(*)	Number of AL2 bits	Only for BiSS, SSI or Hyperface encoder (see Annex IV).	◄► Selection ▲▼ Change Value		0
L215(*)	Number of CRC bits	Only for BiSS, SSI or Hyperface encoder (see Annex IV).	◄► Selection ▲▼ Change Value		0
L216(*)	CRC polynomial	Only for BiSS, SSI or Hyperface encoder (see Annex IV).	◄► Selection ▲▼ Change Value		0

(*) not available on LM2C Inverters model.

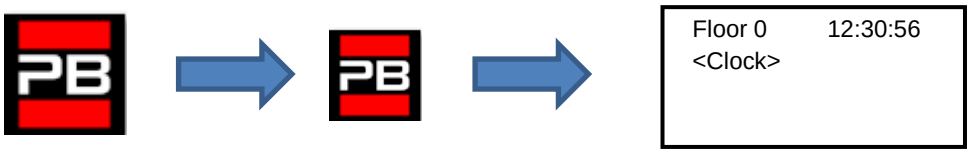
NOTE: Please consult the time diagram at the end of this manual, to better understand some meaning parameters.

5.11. "Rec Parameters" Menu

Note: *data saving is not required only for emulation of PBV3 controllers.*



5.12. “Clock” Menu



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

WARNING: In case of system shutdown, the time is saved by means of a Super Capacitor (for up to 5 days without power supply).

6. Troubleshooting

N.	Fault	Type	Description	Remedy
1	Reset		Power supply: the controller was restarted. For informational purpose only. Furthermore, if there are devices that require a restart, it can present itself with the following specific codes: Cod 9: 9 months without power cycle reset, lift continues to operate. Cod 12: 12 months without power cycle reset, lift is out of service. Must be executed a POWER restart Cod 255: remote fault reset executed.	Cod 9 / 12 are present only in case of LM2 inverter or LIMAX3CP. Power restart is requested from these devices. Cod 255: only for information.
2	Contactors blocked		One or more contacts associated to the power contactors and connected in series on the input CCO and CCOB or YBRK remain open after the car stop. ---------- **VVVF** Cod 0: CCO open Cod 1: CCOB open Cod 2: CCO+CCOB open ---------- **HYDRO** Cod 11: YBRK open (CM1) Cod 12: CCO open (CM2) Cod 13: CCO open (CM1 or CM2) Cod 14: YBRK open (CM2 or Soft Starter) Cod 15: CCO open (CM1 or CM2) Cod 200: CCOB open (Valves contactors)	VVVF - Check: 1- the series of auxiliary contacts (NC) of the power contactors and other cables in series on the circuits 2- the signals circuit wiring 3- the connection of the CCO and CCOB on the board ---------- HYDRO - Check: 1- the series of auxiliary contacts (NC) of the motor contactors 2- wiring of signal input indicated in the wiring schematic. 3- the connection of the CCO, CCOB and YBRK on the boards
3	Low speed too long		Car moving at low speed for too long. In case of VVVF may be too low engine torque in the approaching floor phase.	Check: 1- Check parameter “Low Speed fault time” (§ 5.5) and increase time if necessary 2- the elevator speed to a low speed (in the case of VVVF); increase it if necessary 3a- the decelarating distance to the plane indicated (magnets FAI / FAS) 3B- value of the distance R1D / R1S if Encoder is used (§ 5.9)
4	Overload		Overload input (SUR) activated (NO contact)	Check 1- the SUR input (if locked) and wiring 2- the setting of the load weighing device

N.	Fault	Type	Description	Remedy
5	Positioning fault		This error shows a difference between the performed theoretical counting and the real position detected: Cod 0: at the activation of the AGB/AGH limit contacts; Cod 100: at the activation of ZP magnet floor Cod 200:at the activation of stop level's ZP magnet floor	Check: 1- the correct positioning of the magnets (or flags) 2- operation of magnetic reeds or encoder; verify the arrival of 24V current 3- the distance between extreme contact and magnet
6	Direction fault		The controller detects the wrong direction of travel	Check: 1- the direction of travel of the engine (control UP vs. Car movement direction) 2- the installation and connection of FAI / FAS sensors 3- CW / CCW Encoder configuration (§ 5.9) 4- AGH and AGB inputs
7	Safety 3 open at stop		Safety chain interrupted with elevator not running. Calls are deleted. On the PlayPad Led SE3 is off.	Check all contacts between the terminals SC2 and SE3 (Safety Gear, Limit switch, Overspeed Governor).
9	Door lock fault		Safety chain open at point SE6 when a call is registered *With automatic door:* door re-opens and then closes (3 times, after which all calls are cancelled). *Other door types:* after a few seconds all calls are cancelled Cod 5: floor locks Cod 6: car door	Check all contacts between the terminals SD2 and SD3 (floor locks) or SC4 and SC5 (car doors) according cod info, their connection and if an object obstructs the closing of the door to the indicated floor (POS). In case of 81-21 devices check its contacts in Normal mode operations.
10	Door A opening slippage		Only doors with limit switch: door does not open within the planned time. In case of slippage during door opening, the door is considered open	Check: 1- Door open limit switch (FOA) and its wiring; 2- door operator power supply and fuses; 3- door open contactors (ROA)
11	Door B opening slippage		Same as door A, for second entrance	Same as A, but signals (FOB) and (ROB).
12	Safety 3 open during travel		Safety chain open before Input SE3 while car travelling. Car stops and car calls are cancelled. On the PlayPad Led SE3 is off.	Check all contacts between the terminals S35-S36 (Top of Car) SC3-SM4 (controller) Safety devices: Safety Gear, Limit switch, Overspeed Governor.

N.	Fault	Type	Description	Remedy
13	Motor temperature sensor		Inputs TH1 or TH2 of motor temperature is activated (NC contact) Cod 1: TH1 open Cod 2: TH2 open Cod 3: TH1 and TH2 open Cod 10: Door's thermic input (TOC board)	Check inputs (TH1, TH2), sensor connections and the state of the motor's temperature sensor. Cod 1 Check TH1 input Cod 2 Check TH2 input Cod 3 Check TH1 and TH2 inputs Cod 10 Check door's thermic input on TOC board's M16 Connector.
14	Parameters memory	STOP	Fault in the Eprom parameters memory	Reset, re-enter and record all parameters
15	Final limit switch	STOP	When it is reached the final limit switch (or Safety Gear or Overspeed Governor limiter trip), the input SE3 is active (NC contact). After delay of 1,5 s the error remains in memory, even after deactivation of the signal, and inhibits the landing calls and the car movements, until special reset Menu "Errors" is made (Reset SE3).	1- Release the final limit switch (or Safety Gear or OSG) closing the safety chain (SE3) and cancel fault in the "Error" Menu (§ 5.3). 2- Check the connection of the NC contact between SC2 and SE3 terminals
16	Fire detection.		In case of fire sensors installed, this fault indicates that one or more sensors are active	Check fire sensor input(s)
17	Safety 4 open during travel		Safety chain open before input SE4 while car travelling. Landing calls and the car movements are cancelled On the PlayPad Led SE4 is off.	Check all contacts between the terminals SD1 and SD2 (Preliminaries floor doors).
18	Safety 6 open during travel		Safety chain open before Input SE6 while car travelling. landing calls and the car movements are cancelled On the PlayPad Led SE6 is off. Cod 5: floor locks Cod 6: car door	Check all contacts between the terminals SD2 and SD3 (floor locks). Check all contacts between the terminals SC4 and SC5 (car door). Check all contacts between the terminals SC5 and SE6 (Protection device 81-21).
19	Low tension during movement		Motherboard power below 17V (this fault disappears when the 24V is restored) Cod 0: Main power Input Cod 1: Overcurrent on VCAB Cod 2: Overcurrent on VMR Cod 3: Short Circuit on VCAB Cod 4: Short Circuit on VMR Cod 230: Missing 230 V, controller is powered with batteries	Check the network, the supply voltage to the transformer primary, the presence of 24V and the consumption of the circuit. Cod 230 check backup circuit (R230) if present or shunt on J8 of CHAR board.

N.	Fault	Type	Description	Remedy
20	Travel interrupted		During upward (or downward) movements contactors open while RMO (or RDE) commands are active. Possible short interruption of the safety circuit while moving. Cod 100: CCO signal falling during travel Cod 200: CCOB signal falling during tavel	Check: 1- Preliminary contacts and door lockers at the indicated floor 2- car door contacts 3- the supply voltage of the safety circuit
21	CCO input blocked	STOP	The contactors control circuit (Input CCO) remains closed after travel command is given Cod 100: CCO Cod 200: CCOB Cod 250: CTB not activated	check: 1- wiring and state of the auxiliary contacts (NC) of the power contactors and other NC contacts wired in series on the CCO / CCOB circuit 2- CCO / CCOB Motherboard input
22	Low tension at stop		Same as Fault N.19 Cod 0: Main power Input Cod 1: Overcurrent on VCAB Cod 2: Overcurrent on VMR Cod 3: Short Circuit on VCAB Cod 4: Short Circuit on VMR Cod 230: Missing 230 V, controller is powered with batteries	Check the network, the supply voltage to the transformer primary, the presence of 24V and the consumption of the circuit. Cod 230 check backup circuit (R230) if present or shunt on J8 of CHAR board.
23	AGB blocked		The expected operation of AGB (NC) contact is not checked. Cod 100: contact is not closed at floor different from bottom floor (downward calls erased). Cod 200: contact is not open at lowest floor (lift locked)	Check the condition of the contact AGB (mechanical switch or magnetic sensor) and the AGB circuit wiring
24	AGH blocked		The expected operation of AGH (NC) contact is not checked. Cod 100: contact is not closed at floor different from top floor (upward calls erased). Cod 200: contact is not open at top floor (lift locked)	As for the error 23, regarding the AGH input
25	AGH and AGB simultaneously		Inputs AGB / AGH opened simultaneously. The system shuts down.	Check the condition of AGH and AGB contacts (mechanical or magnetic) and their wiring. When one of the two contacts is closed, the system performs a reset manoeuvre.

N.	Fault	Type	Description	Remedy
26	Running time UP	STOP	No change in the beam status for motion sensors (or floor) for more than planned during car travel. In case of encodeur the threshold is 1 sec. over AGB/AGH limit point Cod 0: problem on FAI FAS input (no changing of inputs for time longer than “Running time” parameter Cod 100: problem on encoder channel Cod 200: no changing of ZP input for time longer than “Running time” parameter	Check contactors, brake, motor power supply, FAI/FAS sensors (or ENCODER). Check “X1” and “12” inputs of the VVVF. Anti-slippage test:**See Annex II – Test and measures**
27	Running time DOWN	STOP	See above but in downward movement	See above but in downward movement
28	Door A closing slippage		Only doors with limit switch: Door A does not close within programmed time. 3 complete opening/closing cycles are performed, then all registered calls are cancelled	Check: 1- door close limit switch FFA (NC contact) and wiring 2- door motor power supply and fuses 3- door close contactors (RFA)
29	Door B closing slippage		Same as door A, for second entrance	Same as door A, but signals (FFB) and (RFB)
30	Out of service switch		If the relevant parameter has been programmed, it indicates that the system has been put out of service through the activation of input HS Cod 0: Key HS activation Cod 100: BDU’s key activation. Cod 200: cabine key activation.	Check input out of service input (NO contact) Cod 0: input HS on screw temrinal Cod 100: inut IN 2 on BDU Cod 200: input SPARE on DMCPIT
31	FAI-FAS error		Simultaneous variation of FAI/FAS positioning sensors. POS [n] indicates that the error occurred at floor [n]. POS 100 indicates a wrong sequence of beams	Check power supply to sensors; Check sensors and magnets position.
32	Temporary op. without insp.		During temporary operations the input REV or REV1 or REV2 must be active or the lift will not move.	Check input REV, REV1 or REV2 (NC contact)
33	Stopping accuracy		When the lift stops at floor, the two FAI/FAS LEDs are on. If within 2 seconds from the stop one of the beams is interrupted, this fault occurs. If the system is equipped with ENCODER the uncertainty of the stop is more than 2 cm.	Check: 1- position of the magnets; 2- deceleration distances; 3- motor brake
34	Anti-nuisance		It appears after a call cancellation and if the parameter “Anti-nuisance” has been programmed. The reason is too many calls from the car without the cell being cut (in case of combined doors) or without landing doors opening (other door types)	Change number of unwanted calls in the Anti-nuisance parameter

N.	Fault	Type	Description	Remedy
35	Lift not avalaible		The lift cannot take calls and is not considered for call dispatching (in multiplex). After 3 closing door cycles, the lift is considered unavailable for 1 minute. Cod 10: No power on Car light Only in multiplex: Cod 100: light curtain / door open button Cod 200: no SE4 signal (eg manual door not closed)	
36	Phase sequence		Wrong sequence in input phases. Could be detected even during system shutdown	Check the right sequence of phases or swap two phases on power input terminals L1-L2-L3
37	Low battery		Low charge on 24V battery	Test battery charge or change battery
38	SE2 open		Safety chain open. Landing calls and the car movements are cancelled. Playpad SE2 led is off. Cod 0: DIS switch open (SE0 led off) Cod 1: PIT safety circuit open (SE1 led off) Cod 2: TOC safety circuit open (SE2 led off).	Check DIS Switch Check all contacts between the terminals SP3 and SP4 (STOP in the pit, pit ladder, Inspection box, etc.). Check all contacts between the terminals SC1 and SC2 (STOP on the Toc, Toc protection, Inspection box, etc).
39	Ambient temperature		This error indicates that the ambient temperature detected by the sensor is outside the set limits. Cod 100: Temperature below the lower threshold; Cod 200: temperatures above the higher threshold.	1 - Check the presence and connection of the temperature sensor. 2- Control activation, the threshold adjustment and sensor calibration can be made in the Special Features menu.
40	Fault RSP	STOP	For reduced pit and headroom. Cod 11: shaft access according NF 511 Cod 20: pit access according EN81.20 Cod 21 shaft access according EN81.21 Cod 41: Fake pit access according EN81.41 Cod 111: Monitor Relay RSDC fail (contact doesn't open) Cod 121: reset circuit bi stable contact EN81.21 (automatic reset) Cod 131: Bistabile circuit (relay RSR1) Cod 132: Bistabile circuit (relay RSR2)	Clear RSP parameter in the menu Faults **(§ 5.3)** Cod 41 (Junior): the fault reset itself automatically after restoring the fake pit circuit (input E511 closed) Cod 111 check right working of relay RSDC Cod. 121: check reset circuit. It could be possible automatic reset of bi stable contacts caused by problem on reset circuit. The contact series must be open and then make a standard reset. Cod 131 (132) check right working of relsy RSR1 (RSR2) and after make the Reset procedure.

N.	Fault	Type	Description	Remedy
41	Fault ISO	STOP	Problem detected in the operation monitoring of safety module for advanced door opening / re-leveling. If activated, the installation goes into “out of service” mode at the top floor (electric) or bottom floor (hydro). Cod. 10: Monitor Relay RISO fail Cod 100: fail on Safety module monitor during travel Cod 200: fail on Safety module monitor at level	Check the alignment of ISO1 and ISO2. Reset ISO in the menu Faults **(§ 5.3).**
42	TOC Communication		No serial link between controller and car (in case of car serial link system configuration)	Check CAN link between controller and top of car board
43	Inspection		The system is in Inspection mode (NORM/ISP switch set to Inspection) **EN 81.1/2** Cod 1: REV input open (STD Version) Cod 2: TOC’s REV1 input open Cod 3: REV + TOC’s REV1 input open Cod 5: REV input open (Pitagora version) Cod 6: REV1 input open Cod 7: REV + TOC’s REV1 input open **EN 81.20** Cod 11: PME inspection (REV) Cod 12: TOC inspection (REV1) Cod 13: PME + TOC inspection (REV + REV1) Cod 14: PIT Inspection (REV2) Cod 15: PME + PIT Inspection (REV + REV2) Cod 16: TOC + PIT Inspection (REV1 + REV2) Cod 17: PME + TOC + PIT Inspection (REV + REV1 + REV2)	To exit the inspection mode move the NORM/ISP switch to Normal and close the safety chain to trigger the reset procedure

N.	Fault	Type	Description	Remedy
44	Re-levelling not completed		Hydraulic lifts: the re-levelling procedure was not completed within 10 seconds. All subsequent re-levelling requests at the same floor are inhibited	Check: 1- the correct operation of the Safety module and of its sensors ZP1 and ZP2; 2- Check the FAI/FAS or ENCODER sensors and the ZP sensor; 3- position of the magnets in the re-levelling zone; 4- RISO relay.
45	Fault ZP		Door zone contact stays open when the sensor is in door zone position	Check the correct operation of the door zone sensor (if present); See Fault # 33
46	Multiplex link interrupted		In multiplex systems, this fault indicates that the link between two or more controllers in the multiplex loop is missing. Every controller switch to SIMPLEX-like functioning. Cod 0: cable wiring between controller Cod 255: firmware problem	Check the connection between the controllers (MULX board); Check all multiplex settings.
47	Faults memory		Errors in the faults memory	Erase all faults
48	BDU link unavailable		In case of serial communication with floors, indicates the loss of link between the controller and all BDU modules at floors On BDUs Green LED fast blinking (0,5 sec): OK Green LED slow blinking (1 sec): OK BDU is not addressed Red LED ON: BDU defective Red LED slow blinking (1 sec): communication not established. Red +Green LED slow blinking (1 sec): sync.	Check: 1- BDU connector on screw terminals; 2- connection between the controller and the closest BDU; 3- the system configuration (§ 5.5)

N.	Fault	Type	Description	Remedy
49	BDU fault		In case of serial communication with floors, indicates the loss of link between the controller and one or more BDU at floors. On the BDU GREEN LED fast blinking (0,5 sec): OK GREEN LED slow blinking (1 sec): OK BDU not addressed RED LED ON: Faulty BDU RED LED slow blinking (1 sec): no communication. GREEN and RED LEDs slow blinking (1 sec): communication sync in progress.	Check BDU functions and its connections; Change defective BDUs; Repeat addressing procedure
50	Drift control		Drift control (if provided) activation: the system is put out of service at an extreme floor	Reset 82212 in the menu Faults **(§ 5.3)**
51	Wrong Password		If the system has a password, this fault appears after entering the wrong password for three times.	
52	Fault VVVF		A fault occurred in the inverter Cod value is the subcode info of VVVF's fault	Only in case of VVVF FUJI FRENIC LIFT. **See annex IV.**

N.	Fault	Type	Description	Remedy
53	Fault UCM	STOP	UCM Circuit Fault: Cod 1: 81.20 lift with open door maneuvers without UCM solution Cod 2: Brakes open Cod 3: Brakes closed in travel Cod 4: Monitor error GMV NGV A3 RDY = RUN = OFF Cod 5: Monitor error GMV NGV A3 RDY = RUN = ON Cod 6: error Test two valves Cod 8: error Test two valves (START ELEVATOR) Cod. 10: Monitor SMA i-Valve fail (SMA not at 0V) Cod. 11: Monitor SMA i-Valve fail (SMA not at 24V) Cod 12: Monitor Y2 lift in travel Cod 13: Monitor Y2 lift standstill Cod 14: Monitor Y3 lift in travel Cod 15: Monitor Y3 lift standstill Cod 100: UCM Detection Cod 200: Monitor error on RUCM1/RUCM2 Cod 201: RUCM1 Stucked Open Cod 202: RUCM2 Stucked Open Cod 203: RUCM3 Stucked Open Cod 204: Monitor OSG A3 (stud stucked in extended position) Cod 210: RUCM1 Stucked Close Cod 220: RUCM2 Stucked Close Cod 230: RUCM3 Stucked Close Cod 240: Monitor OSG A3 (stud stucked in retracted position)	Reset UCM in the menu Faults **(§ 5.3).** Cod 1: exclude maneuvers with open doors (re-leveling / early opening). Cod 12/13: check wiring and valve Y2 and its monitor signal Cod 14/15: check wiring and valve Y3 and its monitor signal Cod 100: means Unintended Cabine Movement (UCM) detection. If it happens togheter with Fault 41 (Fault ISO) check the sensors ZP1 and ZP2.
54	Safety zone		Only for lift with no car door and safety light curtains. Cod 0: Light curtain active during travel (lift wait for a new Car call to restart) Cod 1: Fail test CEDES door side A Cod 2: Fail test CEDES door side B Cod 10: Fail test on safety relay KSA Cod 20: Fail test on safety relay KSB	Check circuit according cod's info.

N.	Fault	Type	Description	Remedy
55	Fault SCS	STOP	Safety Circuit Shunt. Function enabled by “Shaft Monitor” parameter. See annex X Cod 2: Second contact door A shunted. Cod 4: Floor door contacts door A Shunted (SE4 input) Cod 6: Car door contacts door A Shunted (SE6 input) Cod 12: Second contact door B shunted. Cod 14: Floor door contacts door B Shunted (SE4 input) Cod 16: Car door contacts door B Shunted (SE6 input) Cod 100: No SE6 input during bypass (ISO Circuit)	Check circuit according cod’s info. Reset SCS parameter in the menu Faults **(§ 5.3).** Cod 2: Check second contact door A (FFA input for door operator, CEA input for manual cabine door). Cod 4: Check Floor door’s safety contacts door A (SE4 input) Cod 6: Check Car door’s safety contacts door A (SE6 input) Cod 12: Check second contact door B (FFB input for door operator, CEB input for manual cabine door). Cod 14: Check Floor door’s safety contacts door B (SE4 input) Cod 16: Check Car door’s safety contacts door B (SE6 input) Cod 100: Check doors bypass Circuit (SE3-SC5).
56	Fault UAS	STOP	Unintended Shaft Access Function enabled by “Shaft Monitor” parameter. Must be used BDU with additional door input (could be NO or NC). System detect a manually floor door opening monitoring the auxiliary door input. Cod 1: One Floor door manually open (with no open door command). Cod 2: More than one Floor door manually open (at different floors)	Reset UAS in the menu Faults **(§ 5.3).**
57	Bypass door		Only for EN 81-20. Bypass active on door safety contacts. (Moving enabled only in inspection) Check also SM1 module monitor Cod 1: Bypass Car active Cod 2: Bypass Pre-Locks active Cod 3: Bypass Locks active Cod 100: Module SM1 locked	Cod 100: Module SM1 is checked if only PME selector is active and no STOPS nor direction button pressed: in that condition module SM1 must be not enabled and SE3 input should be open.
58	Overspeed		Only for Encoder positioning system. In inspection or Temporary mode Lift’s speed is more than 0,63 m/s	Check encoder parameters or inspection speed in positioning menu.
59	Fault SHI		Only for 81-21 Pre-triggered device Cod 0: Wrong feedback when pre-triggered device is not energized Cod 255: Wrong feedback when pre-triggered device is energized Manual protection: Cod 101: Monitor Relay RMPP (contact doesn’t open) Cod 102: Monitor Relay RMPP (contact doesn’t close)	Check Pre-Triggered Device (or relay RMPP)

60	Fault ELGO		ELGO Fault. Cod 0: Upper Limit switch Cod 1: Lower Limit switch Cod 4: Pre-triggered Stopping system Top Cod 5: Pre-triggered Stopping system Bottom Cod 8: Normal mode overspeed (pre tripping) Cod 9: Normal mode overspeed (final tripping) Cod 11: Inspection mode overspeed (final tripping) Cod 13: Teach mode overspeed (final tripping) Cod 14: Normal mode overspeed (leveling) Cod 15: Normal mode overspeed (re-leveling) Cod 16: Deceleration control (ETSL) Cod 24: Unintended car movement Cod 100: ELGO not in operative mode Cod 102: ELGO's Input EN81-21 in Manual Teach mode Cod 103: ELGO's eSGC_POW missing in Manual Teach mode Cod 104: Restarting error in Manual Teach mode Cod 121: Input ELGO 81.21 not matching (all time OFF) Cod 122: Inputs ELGO UP/DOWN (not active) Cod 123: Input ELGO UP not matching Cod 124: Input ELGO DOWN not matching Cod 125: Inputs ELGO UP/DOWN not matching (all time ON) Cod 200: Communication time out Cod 254: Self test ELGO Error Level 4 Cod 255: Magnetic Band missing	Check ELGO configuration data. Check ELGO wiring Make a Fault reset to remove the fault. Cod 0: Move car down (under the limit switch position) and make a specific Reset SE3 fault (§5.3). Cod 1: Move car up (over the limit switch position) and make a specific Reset SE3 fault (§5.3). Cod 4: only information, Inspection upper limit switch. Cod 5: only information, Inspection lower limit switch. Cod 8/9: Make a Fault reset. Check Lift speed and ELGO's Configuration. Cod 11: Make a Fault reset. Check Lift speed and ELGO's Configuration. Cod 13: Make a Fault reset. Reduce the lift speed in Teach mode (max 0,6 m/s). Cod 14: Make a Fault reset. Reduce the lift speed during the stop at floor (max 0,8 m/s). Cod 15: Fault is removed by controller when lift is standstill (it takes 10 seconds). Reduce the lift speed in re-levelling (max 0,3 m/s). Cod 16: Fault is automatically removed when lift is standstill. Increase Deceleration distances (R1D/R1S). Cod 20: In Inspection, on the lower limit switch a down movement checked with a UP command. Check rollback effect. Cod 21: In Inspection, on the higer limit switch an up movement checked with a DOWN command. Check rollback effect. Cod 100: Need a Manual Teach procedure Cod 102: Check wiring of ZP2 signal in the controller Cod 103: Check wiring of cable eSGC (power missing) Cod 104: Need Chenge device Cod 121: Check wiring of ELGO and TOC's signal output. Error means a mismatch between command from controller and ELGO's diagnostic. Cod 121⇔125: Check wiring of ELGO and TOC's signals output. Errors means

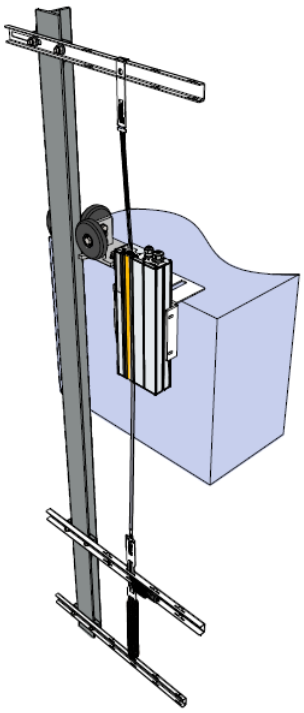
N.	Fault	Type	Description	Remedy
				a mismatch between commands from controller and ELGO's diagnostic. Cod 200: Check wiring TOC- ELGO (Can signals) Cod 254: Noise on eSGC signal's cable. Put a relay on TOC box to open the load line when eSGC output is not active. Cod 255: Check mounting of the magnetic band and mounting direction as well.

This symbol means a blocking fault: switch off main power and then switch it on again to put the lift back in service.

7. Car Positioning System and Stopping Accuracy

7.1. ELGO LIMAX 33 CP Absolute Encoder Counting System

The absolute encoder allows you to replace all the safety contacts inside the lift shaft. The position of the cabin is detected thanks to a magnetic strip.



Features:

- absolute position detection and safety functions:
  - o Extra limit switches
  - o Inspection limit switches
  - o Overspeed Governor (combined with an electronic safety gear
  - o Door bypass circuit (movement with doors open)
  - o UCM (in case of certified double brake).
- EU approved, SIL3 (TÜV)

7.1.1. Magnetic Tape

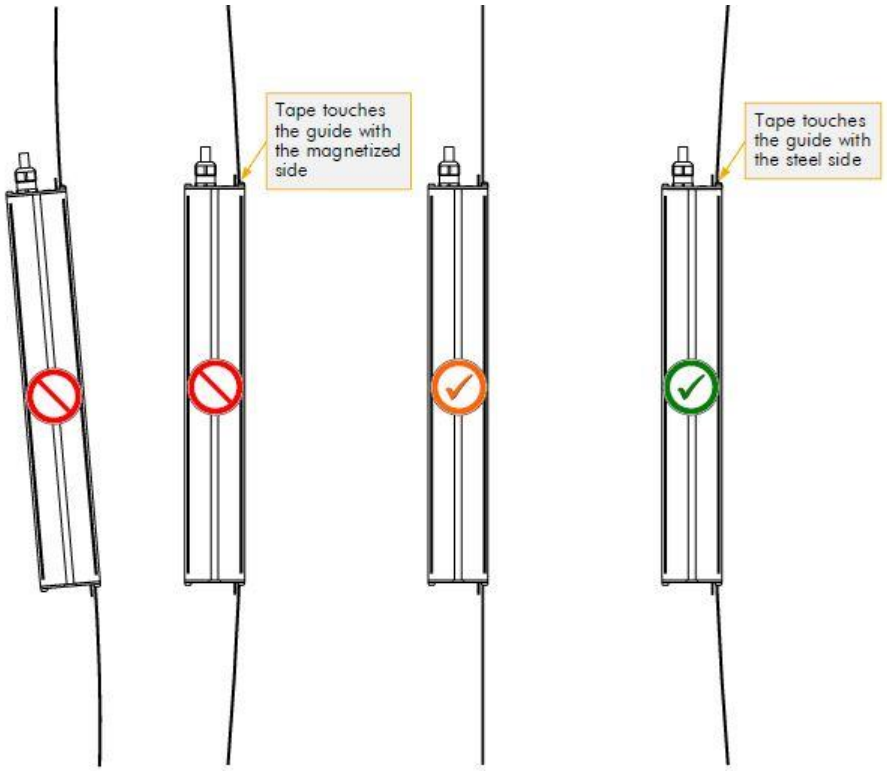
Remove all the magnets in the compartment before installing the magnetic tape.

Do not install the magnetic tape near permanent magnet motors.

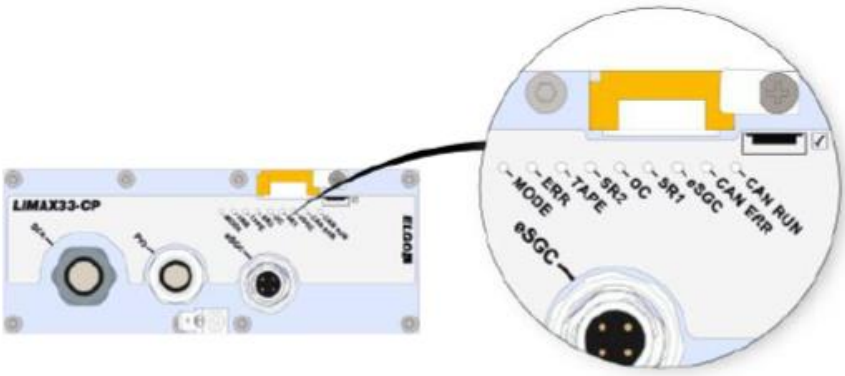
Do not use magnetized tools near the Magnetic tape.

Do not use welding equipment near the magnetic tape.

Respect the fitting shown on the tape and make sure it is in the correct position shown in the following figure:



7.1.2. Led signal

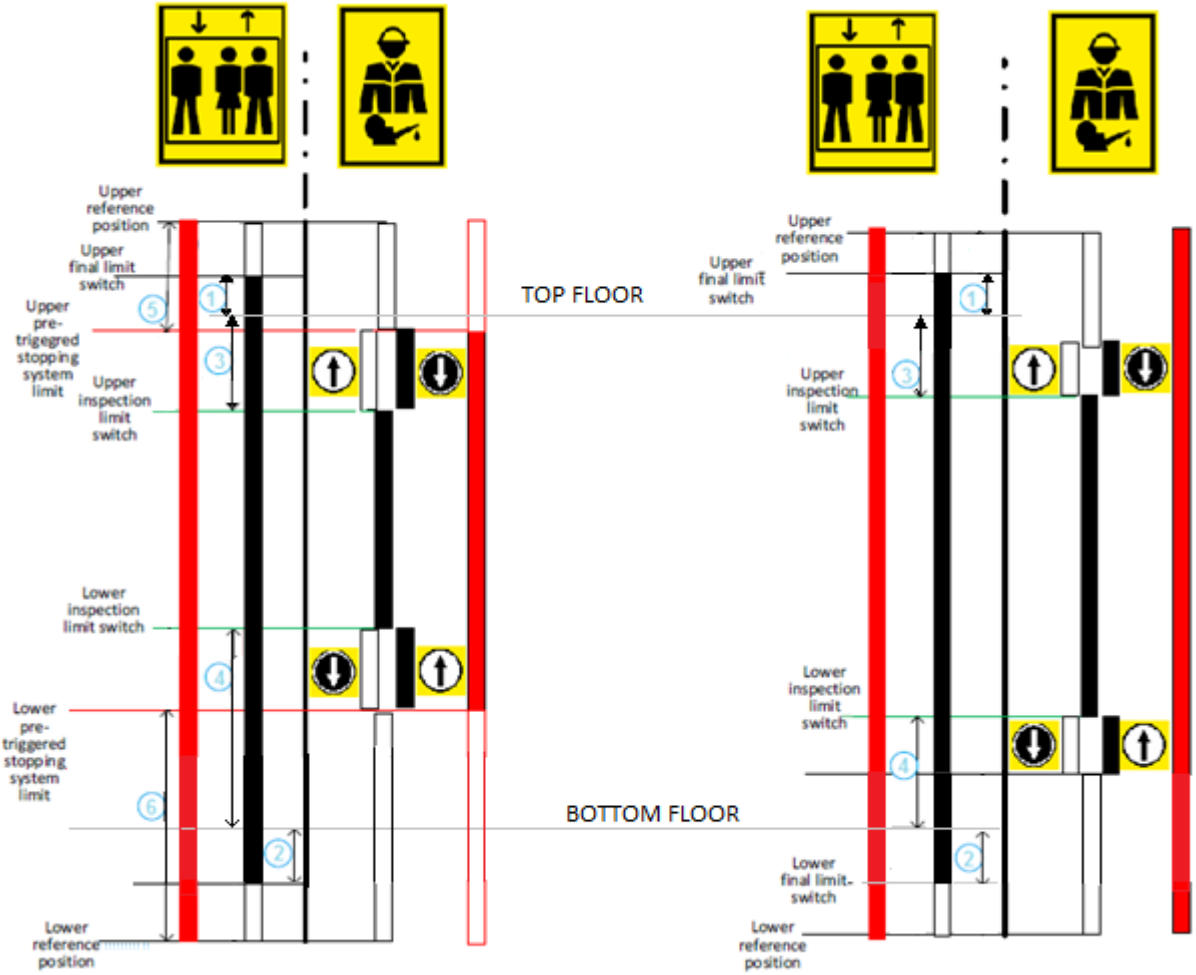


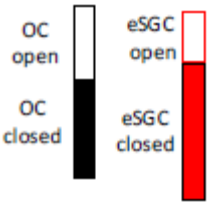
LED	Description	
MODE	Normal Mode	Slow Flashing (1 s)
	Pre-Commissioning Mode	Fast Flashing (0,1 s)
	Teach Mode	Lights permanently
ERROR	No Error	Led OFF
	Generic Error	Led ON
	Emergency Error	Flashing
TAPE	Magnetic Tape not detected	Led ON
eSGC	eSGC Contact close	Led ON
	eSGC Contact Open	Led OFF
OC	OC Contact close	Led ON
	OC Contact Open	Led OFF
SR1	SR1 Contact close	Led ON
	SR1 Contact Open	Led OFF
SR2	SR2 Contact close	Led ON
	SR2 Contact Open	Led OFF
CAN-ERR	Status CAN Open	
CAN-RUN	Status Can Open	

7.1.3. Explanation of safety contacts

Reduced Head and/or Reduced PIT Installation

Sufficient Head and Pit clearance
according EN81-20 §5.2.5.7 / § 5.2.5.8





Safety contacts status

Inspection Mode

Inspection UP button

Inspection DOWN button

Normal Mode

Final limit switches Offset Up / Down ① / ②

Inspection llimit switches Offset Up / Down ③ / ④

Pre-Triggered Stopping System Offset Up / Down ⑤/⑥

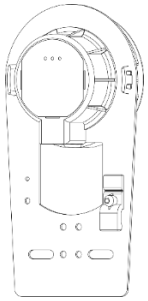
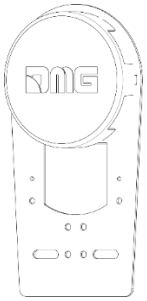
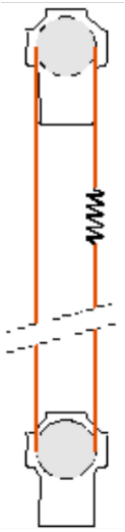
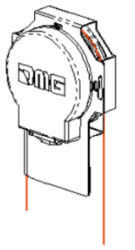
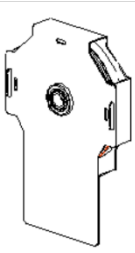
For manual adjustment of the positions of the indicated is possible from menu <Positioning> *Monitor Encoer* (see table 7.1 for pag. reference).

	Label	Pag.	Description
①	N_LIM_S	7	Upper final limit switch offset (offset over top floor)
②	N_LIM_D	7	Lower final limit switch offset (offset under bottom floor)
③	I_LIM_S	6	Upper inspection limit switch (offset under top floor)
④	I_LIM_D	6	Lower inspection limit switch (offset over bottom floor)
⑤	TRIPS	8	Upper Pre-Triggered Stopping System limit (from Upper Reference Position)
⑥	TRIPD	8	Lower Pre-Triggered Stopping System limit (from Lower Reference Position)

Table 7.1 – Safety contact position

TRIPS and TRIPD values are used only if ELGO is part of Safety System for Reduced Head and/or Pit (ELGO + eSGC).

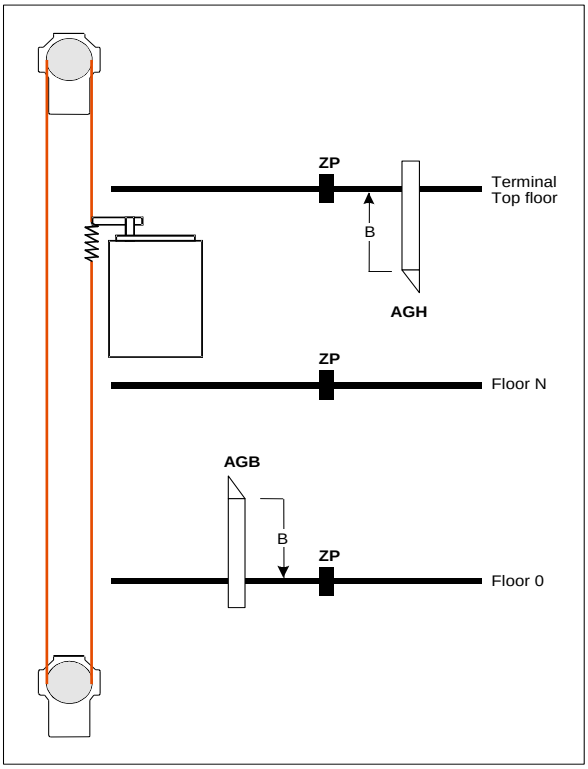
7.2. DMG ENCODER based Counting System

Encoder	Pulley	Symbols
New model = 100 pulse number 	New model 	
Old model = 64 pulse number 	Old model 	

DMG's rope and pulley Encoder provides the Playboard controller with a reliable, accurate and easy to install car position detection system. The encoder calculates car position by detecting the movement of the rope fixed to the cabin and checks this information with reference positions (detected during the initial self learning procedure). If present, discrepancies in the reading are detected and compensated at every passage on AGB/AGH limit switches and door zone (ZP) positions. Actual deceleration distance is set by the position of AGB/AGH limit switches. System accuracy is 1,2 mm.

The activation of ZP door zone sensors also enables the door open command.

More over it is possible to set Inpsection limit point (no safety contacts). For point regulation § 7.2.1.



Name	Description
AGH	Limit switch for top deceleration or reset
AGB	Limit switch for bottom deceleration or reset
B	Deceleration distance
ZP	Door Zone

7.2.1. Inspection limit position

Moving Enable

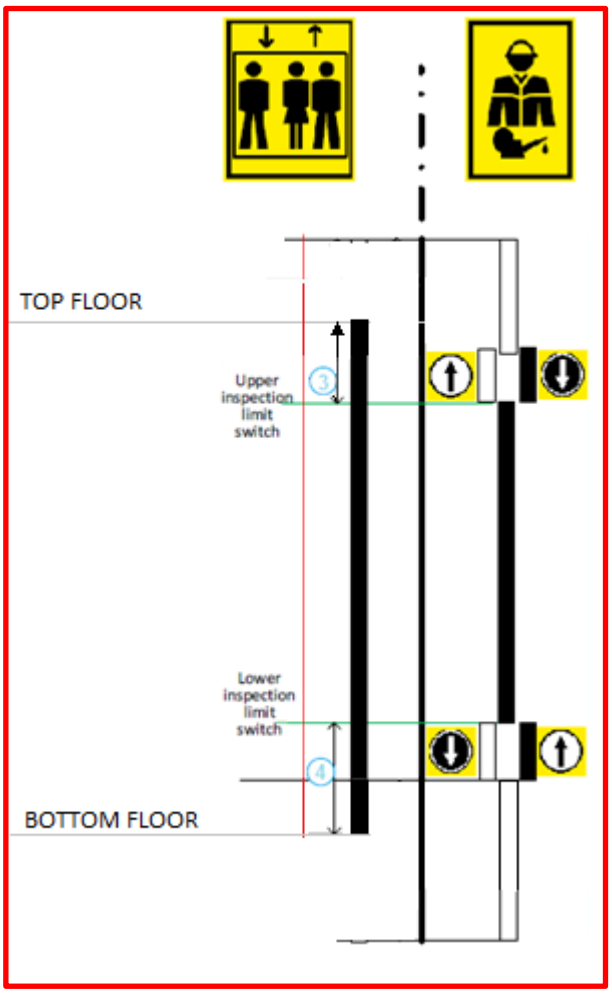
Moving not enabled

Lift in Normal service

Lift in Inspection

Inspection UP button

Inspection DOWN button



Inspection limit position UP/DOWN ③/④

For manual adjustment of the positions of the indicated is possible from menu <Positioning> *Monitor Encoer* (see table 7.2 for pag. reference).

	Label	Pag.	Description
③	I_LIM_S	6	Upper inspection limit (offset under top floor)
④	I_LIM_D	6	Lower inspection limit (offset over bottom floor)

Table 7.2 – Inspection limit position

7.3. Lift speed and Deceleration distance

In table is showed recommended values for deceleration distance and acceleration time according the lift's speed.

Speed [m/s]	Deceleration [mm]	Acceleration time [s]
0,6	900	3,0
0,7	1050	3,0
0,8	1200	3,0
0,9	1350	3,0
1,0	1500	3,0
1,1	1750	3,2
1,2	2000	3,3
1,3	2250	3,5
1,4	2500	3,6
1,5	2750	3,7
1,6	3000	3,8
1,7	3250	3,8
1,8	3500	3,9
1,9	3800	4,0
2,0	4100	4,1
2,1	4200	4,2
2,2	4700	4,3
2,3	5000	4,3
2,4	5300	4,4
2,5	5600	4,5
2,6	5950	4,6
2,7	6300	4,7
2,8	6650	4,8
2,9	7000	4,8
3,0	7350	4,9
3,1	7700	5,0
3,2	8050	5,1
3,3	8500	5,2
3,4	9000	5,3
3,5	9500	5,4
3,6	10000	5,6
3,7	10500	5,7
3,8	11000	5,8
3,9	11500	5,9
4,0	12000	6,0

ANNEX I: Multiplex Parameters Setting

EXAMPLE 1

Duplex elevator

Floors in MULTIPLEX	Controller A floors	Controller B floors
7	7	7
6	6	6
5	5	5
4	4	4
3	3	3
2	2	2
1	1	1
0	0	0

<Configuration>	Controller A	Controller B
No. of floors	8	8
…		
MULTIPLEX CONFIG.		
Lift number	1.X	2.X
Floors in Multiplex	8	8
OFFSET	0	0

NOTE : please refer to examples 5 and 6 for the configuration of the button wiring indicated with X

EXAMPLE 2

Duplex 'Dog Leg' elevator

Floors in MULTIPLEX	Controller A floors	Controller B floors
7	7	5
6	6	4
5	5	3
4	4	2
3	3	1
2	2	0
1	1	
0	0	

<Configuration>	Controller A	Controller B
No. of floors	8	6
…		
MULTIPLEX CONFIG.		
Lift number	1.X	2.X
Floors in Multiplex	8	8
OFFSET	0	2

NOTE : please refer to examples 5 and 6 for the configuration of the button wiring indicated with X

EXAMPLE 3

Duplex 'Dog Leg' elevator

Floors in MULTIPLEX	Controller A floors	Controller B floors
7	7	
6	6	
5	5	
4	4	4
3	3	3
2	2	2
1	1	1
0	0	0

<Configuration>	Controller A	Controller B
No. of floors	8	5
…		
MULTIPLEX CONFIG.		
Lift number	1.X	2.X
Floors in Multiplex	8	8
OFFSET	0	0

NOTE : please refer to examples 5 and 6 for the configuration of the button wiring indicated with X

EXAMPLE 4

Duplex 'Dog Leg' elevator

Floors in MULTIPLEX	Controller A floors	Controller B floors
7		5
6		4
5	5	3
4	4	2
3	3	1
2	2	0
1	1	
0	0	

< Configuration >	Controller A	Controller B
No. of floors	6	6
…		
MULTIPLEX CONFIG.		
Lift number	1.X	2.X
Floors in Multiplex	8	8
OFFSET	0	2

NOTE : please refer to examples 5 and 6 for the configuration of the button wiring indicated with X

EXAMPLE 5

Shared button wiring

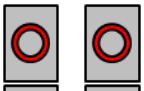
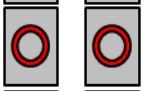
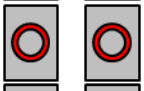
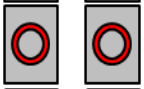
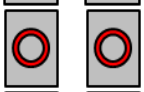
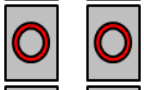
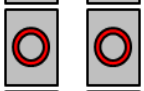
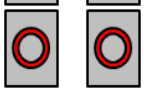
Controller A floors		Controller B floors
7		7
6		6
5		5
4		4
3		3
2		2
1		1
0		0

<Configuration>	Controller A	Controller B
No. of floors	8	8
…		
MULTIPLEX CONFIG.		
Lift number	1.0	2.0
Floors in Multiplex	8	8
OFFSET	0	0

NOTE : each button must be connected to all controllers

EXAMPLE 6

Independent button wiring

Controller A floors		Controller B floors
7		7
6		6
5		5
4		4
3		3
2		2
1		1
0		0

< Configuration >	Controller A	Controller B
No. of floors	8	6
…		
MULTIPLEX CONFIG.		
Lift number	1.0	2.1
Floors in Multiplex	8	8
OFFSET	0	0

NOTE : each button is only connected to its controller and must NOT be connected in parallel

EXAMPLE 7

Multiplex Call

Controller A floors	Controller B floors
7	7
6	6
5	5
4	4
3	3
2	2
1	1
0	0

If this function is activated, two types of call are possible:

a) standard pressure call (the call is assigned to the nearest elevator);

b) long pressure call (more than 3 seconds of pressure); this call is assigned to the elevator with lower "Lift Number" (MASTER); use this function if you have two elevator cars of different sizes (i.e. one for disabled passengers and one standard) and the call must go to the bigger elevator car.

EXAMPLE 8

Multiplex Call

Controller A floors	Controller B floors
5	5
4	4
3	3
2	2
1	1
0	0

If this function is activated, two types of call are possible:

a) standard pressure call (the call is assigned to the nearest elevator);

b) long pressure call (more than 3 seconds of pressure); this call is assigned to the elevator which can reach the highest floor (UP call) or the lowest (DOWN call). The example shows a long pressure call always being assigned to controller A, whereas a long pressure UP call will always be assigned to controller B.

ANNEX II: Test and measures

The following tests and measures may facilitate controls and tests to be performed before putting the installation in service (EN81-X D) and during the periodic maintenance interventions (EN81-X E). Some measures can be performed only through the encoder counting system.
Tests can be performed only if the installation is in normal operation mode; select parameter “test” to perform the test and press ENTER to start it. The test procedure can be stopped by switching the installation to inspection mode.

Test 1: Measure of the stopping space and time in UP direction, DMG UCM module in acceleration out of the door zone

Before starting the test, move the empty car to the floor where you want to take the measure.
During the test, the car will move upwards until the end of that floor door zone; now the forced intervention of the UCM module is activated and the car will thus stop. After the car has stopped, the distance covered from the floor level is shown (to be compared to point 5.6.7.5 of EN81-20) and the stopping time since the UCM activation. Important: the stopping distance must be calculated before, considering the sum of intervention times (controller + stopping unit). After the test, the UCM module must be reset (menu <Faults> reset UCM).

Test 2: Measure of the stopping space and time in DOWN direction, DMG UCM module

Before starting the test, move the empty car to the floor where you want to take the measure.
During the test, the car will move downwards until the end of that floor door zone; now the forced intervention of the UCM module is activated and the car will thus stop. After the car has stopped, the distance covered from the floor level is shown (to be compared to point 5.6.7.5 of EN81-20) and the stopping time since the UCM activation. Important: the stopping distance must be calculated before, considering the sum of intervention times (controller + stopping unit). After the test, the UCM module must be reset (menu <Faults> reset UCM).

Test 3: Measure of the stopping space and time in UP direction at rated speed

Before starting the test, move the empty car to the ground floor.
During the test, the car will move upwards up to the second last floor (AGH for two stops installations); now the car stops. After the car has been stopped, the distance covered from the second last floor and the stopping level and the stopping time are shown.

Test 4: Measure of the stopping space and time in DOWN direction at rated speed

Before starting the test, move the full loaded car to the top floor.
During the test, the car will move downwards up to the first floor (AGB for two stops installations); now the car stops. After the car has been stopped, the distance covered from the first floor and the stopping level and the stopping time are shown.

Test 5: Re-leveling test with too high car (EN 81 point 14.2.1.2)

Before starting the test, move the car to the floor where you want to take the measure.
During the test, the car will move upwards until the re-leveling function is activated; now the car is re-leveled. After the car has stopped, the distance at which the re-leveling starts and the intervention time are shown. We recommend to perform the test at each floor to check the correct installation of the re-leveling sensors.

Test 6: Re-leveling test with too low car (EN 81 point 14.2.1.2)

Before starting the test, move the car to the floor where you want to take the measure.
During the test the car will move downwards until the re-leveling function is activated; now the car is re-leveled. After the car has stopped, the distance at which the re-leveling starts and the intervention time are shown. We recommend to perform the test at each floor to check the correct installation of the re-leveling sensors.

Test 7: Final limit switch test (EN 81 point 10.5)

Before starting the test, move the car to the ground or top floor.
During the test the car will move towards the shaft end until the safety chain opens (or until the FCO input is detected). After the car has stopped, the distance between the intervention floor and the limit switch intervention and the status of FCO input (NO contact for registering the limit switch intervention) are shown. The car can be moved beyond the limit switch through the inspection

control panel in the machine room (in inspection mode the movement beyond the top and bottom floor is disabled) to put the car or the counterweight on the shock absorbers and perform the rope slipping test. Move the car out of the limit switch area and put the installation in normal operation mode (if the second NO contact of the FCO input is connected, you must reset FCO in the menu <Faults>).

Test 8: Motor run time test (EN 81 point 12.10)

Before starting the test, move the car to the ground or top floor.
During the test the car will move towards the opposite extreme floor at null speed. After 5 seconds, the up/down run time error will be detected (check in the menu <Faults>). Clear all errors to put the installation in normal operation mode again.

Test 9: System balancing test

Before starting the test, place the cab on the ground floor with the weight suited to balance the system itself (typically 50% of the maximum load). During the test the cabin will start in the direction of the highest floor and the absorbed current at the middle of the shaft will be displayed. The cabin will then move to the lowest floor, once again displaying the absorbed current at the middle of the shaft. The values will also be preserved after the end of the test for evaluation purposes.

Test 10: ELGO UCM in UP direction (ELGO-CP)

Before starting put the empty car to the floor where you want to make the test (excluded top floor).
During the test the lift starts in UP direction up to the end of door zone; at this point ELGO will give a fault (Fault ELGO Cod. 24) and stop the car (OC contact open) and on the display is showed space and time of system intervention (to be compared with EN81 point 9.11.5).
IMPORTANT: spaces must pbe calculated before as a sum of intervention times (controller, Stopping device)
After test it is necessary a fault reset (Menu Fault, Reset) to put the ELGO LIMAX33-CP in normal operating mode.

Test 11: ELGO UCM in DOWN direction (ELGO-CP)

Before starting put the empty car to the floor where you want to make the test (excluded bottom floor).
During the test the lift starts in DOWN direction up to the end of door zone; at this point ELGO will give a fault (Fault ELGO Cod. 24) and stop the car (OC contact open) and on the display is showed space and time of system intervention (to be compared with EN81 point 9.11.5).
IMPORTANT: spaces must pbe calculated before as a sum of intervention times (controller, Stopping device)
After test it is necessary a fault reset (Menu Fault, Reset) to put the ELGO LIMAX33-CP in normal operating mode.

Test 12: OSG and Safety Gear test (ELGO-CP + eSGC)

Before starting put the car to the top or bottom floor.
During the test the lift starts in high speed and the OSG+eSGC will open at nominal speed (Fault ELGO Cod. 9) stopping the car.
After test it is necessary a fault reset (Menu Fault, Reset) to put the ELGO LIMAX33-CP in normal operating mode.

Test 13: ETSL system intervention in UP direction (ELGO-CP)

Optional function. In normal condition protection open OC contact if the cabine's speed is too high during the UP direction trip (risk for counterweight on the buffers).
During the test ELGO consider the middle of the Shaft as if it were the Upper Reference point.
Before starting the test, place the empty cabin on the ground floor (lowest floor) without load to simulate the worst conditions. During the test the cabin will start towards the highest floor. Before the mid-point of the lift shaft the ELGO will open the OC safety contact (Fault ELGO Cod. 16) and the car will stop for brake intervention before reaching the half compartment position (assumed as the simulated buffer position).
The intervention time (from the opening of the OC contact) and distance from the mid-point of the lift shaft (safety margin with the buffers) are displayed.

Test 14: ETSL system intervention in DOWN direction (ELGO-CP)

Optional function. In normal condition protection open OC contact if the cabine's speed is too high during the UP direction trip (risk for cabine on the buffers).
During the test ELGO consider the middle of the Shaft as if it were the Lower Reference point.
Before starting the test, place the cabin on the top floor with a fully loaded lift cabin to simulate the worst conditions. During the test the cabin will start towards the bottom floor. Before the mid-point of the lift shaft the ELGO will open the OC safety contact (Fault ELGO Cod. 16) and the car will stop for brake intervention before reaching the half compartment position (assumed as the simulated buffer position).
The intervention time (from the opening of the OC contact) and distance from the mid-point of the lift shaft (safety margin with the buffers) are displayed.

Test 15: Reduced Head Safety test (EN 81-21 – ELGO-CP+eSGC)

Test for Reduced Head and Protection system based on ELGO+eSGC.
Protection intervention is after a shaft access, in the point given by distance TRIPS (Monitor Encoder, pag 8) from the Upper Reference position (counterweight on the buffer).
During the test ELGO intervention is given also with lift in normal mode, without any shaft access simulation. Before starts the test put the lift under the intervention point.
During the test car will start in UP direction (to the top floor). When car reaches the intervention point, ELGO will open OC contact and switch off the eSGC output stopping the car (Fault ELGO Cod. 4).
After test it is necessary a fault reset (Menu Fault, Reset) to put the ELGO LIMAX33-CP in normal operating mode.

Test 16: Reduced Pit Safety test (EN 81-21 – ELGO-CP+eSGC)

Test for Reduced Pit and Protection system based on ELGO+eSGC.
Protection intervention is after a shaft access, in the point given by distance TRIPD (Monitor Encoder, pag 8) from the Lower Reference position (Cabine on the buffer).
During the test ELGO intervention is given also with lift in normal mode, without any shaft access simulation.
Before starts the test put the lift over the intervention point.
During the test car will start in DOWN direction (to the bottom floor). When car reaches the intervention point, ELGO will open OC contact and switch off the eSGC output stopping the car (Fault ELGO Cod. 5).
After test it is necessary a fault reset (Menu Fault, Reset) to put the ELGO LIMAX33-CP in normal operating mode.

Test 17: OC Safety contact test (ELGO-CP)

Only for installation with ELGO-CP.
Test checks if the safety contact OC inside the ELGO works porperly: contact opens for 0,5 sec. (you can check the safety chain open from SE3 point).
Test is automatically executed one time a day.
It is no further operation needed after the test (lift is in normal Service).

Test 18: Door Disable

Test for temporarly disabling door operators.
Test is useful if technician needs to make some test with lift in normal mode but without the risk some user can enter in the car.
It is possible to program a time of 1/5/10/30/60 minutes.
Time is valid also if Lift will be put in inspection / Normal again.
At the end of timer, lift comes back in normal mode.

Test 19: Black out Simulation

Only for installation with full emergency option. Lift behaviour is the same you have when power supply goes off, so it make an automatic emergency moving the car to the floor and opens the door.

Test 20: Telephon call for low batteries level simulation

Controller send command to DMCPIT (output ALARM Enable) as if the battery level was wrong for an emergency call. This signal has to be connected to the telephone's input for emergency call.

Test 21: Simulation of system shutdown need (ELGO or VVVF system only)

The system simulate a long time without any shutdown.

-) at first executiion, system simulate a switch-on beyond 9 months (270 days), as an effect only the information defect “1 = Reset Cod 9”. In the Errors menu DAY COUNTER = 270 is displayed. Lift continues to operate regularly.

-) at second executiion, system simulate a switch-on over 12 months (365 days), as an effect the blocking fault “1 = Reset Cod 12”. The lift stops at the floor without being able to take further calls. In the Errors menu DAY COUNTER = 365 is displayed. To return in normal operation, the main power switch must be turned off and then on again.

Test 22: Integrated Weighing Calibration Procedure (VVVF system only)

The Test must be repeat twice, the first for the full load (100%), the second time (110%) for the overload measurement.

Before starting the test, place the cabin on the ground floor or on the top floor.

Select in order:

-) Test 22 - 100%: Put into the car the FULL LOAD. When you confirm the test lift automaticaly will make a start from each floor in both direction. During the test doors will not be enabled to keep constant load into the cabin. Test finish when the cabin come back to the starting floor and door opens. On the Playpad is showed “End reg.”.

-) Test 22 - 110%: Add into the car 10% of the load with a minumum of 75 Kg. When you confirm the cabin close the door (without moving from the floor) and the overload will be activated (and so the door will be open. On the Playpad is showed “End reg.”.

After the Calibration procedure check the status of parameter “Integrated Load Weighing” in menu <Special Features>.

Calibration Procedure Must be repeated in case of any changing into the cabin (panels, flooring, COP changing etc.) or on the counterweight (lift balancing).

Test 23: Measure of the stopping space and time in UP direction at rated speed with Safety Gear (only OSG A3)

Before starting the test, move the empty car to the ground floor.

During the test, the car will move upwards and after reaching the nominal speed, as soon the car reach the first floor (AGH for two stops installations) the controller removes the OSG’s A3 pin causing the stop of the lift. After the car has been stopped, the distance covered from the second last floor and the stopping level and the stopping time are shown. To control only the safety gear as a locking system, when starting the lift keep the brakes energized by manually operating the contactors.

Test 24: Measure of the stopping space and time in DOWN direction at rated speed with Safety Gear (only OSG A3)

Before starting the test, move the full loaded car to the top floor.

During the test, the car will move downwards and after reaching the nominal speed, as soon the car reach the first floor (AGB for two stops installations) the controller removes the OSG’s A3 pin causing the stop of the lift. After the car has been stopped, the distance covered from the second last floor and the stopping level and the stopping time are shown. To control only the safety gear as a locking system, when starting the lift keep the brakes energized by manually operating the contactors.

Test 25: Measure of the stopping space and time of Safety Gear (ELGO-CP + eSGC + OSG-A3)

Test can be executed in both directions. Test will stop the cabine at next floor (inside the door zone) in order to help the car's load/unload operations to release the safety gear.

In case of two stop lift (or in case of cabine near the end of the shaft) cabine will be stopped on the AGB/AGH activation.

- **Upward Test (bidirectional Safety Gear):** Before starting put the empty car to the floor where you want to make the test (must be present at least two floors over the cabine otherwise cabine will stop on AGH). After selecting test it is necessary to set the test speed (10 % ⇔ 100 % of nominal speed) based on the characteristics of the system to avoid damage to the cabin structure.

  Turn the PME's knob on INSPECTION.

  Keep the OSG's key on "SET" position for the entire duration of the test.

  Press the button  for the entire duration of the test.

  Lift moves in up direction up to the next door zone, where power of A3 pin will be removed causing the mechanical Safety Gear stop.

  After the car has stopped, the distance covered from the floor level is shown with the stopping time.

  After the test release the button  , release the OSG's key and move the lift in down direction to release the safety Gear (it may be necessary to add some load into the cabin to facilitate the release).

- **Downward Test:** Before starting put the car to the floor where you want to make the test (must be present at least two floors under the cabine otherwise cabine will stop on AGB). Put full load inside the cabine (or more than full load if test requires). After selecting test it is necessary to set the test speed (10 % ⇔ 100 % of nominal speed) based on the characteristics of the system to avoid damage to the cabin structure.
  Turn the PME's knob on INSPECTION.
  Keep the OSG's key on "SET" position for the entire duration of the test.

  Press the button  for the entire duration of the test.
  Lift moves in down direction up to the next door zone, where power of A3 pin will be removed causing the mechanical Safety Gear stop.
  After the car has stopped, the distance covered from the floor level is shown with the stopping time.

  After the test release the button  , release the OSG's key and move the lift in up direction to release the safety Gear (it may be necessary to remove some of the load from the cabin to facilitate the release).

Test 26: UCM Measure of the stopping space and time (ELGO-CP + eSGC + OSG-A3)

Test can be executed in both directions. Test will stop the cabine as soon the cabine will exit from the door zone.

- **Upward Test:** Before starting put the empty car to the floor where you want to make the test (don't execute test at top floor).

  After selecting test it is enabled the door's safety bypass for the entire duration of the test.
  Turn the PME's knob on INSPECTION.

  Keep the OSG's key on "SET" position for the entire duration of the test.

  Press the button  for the entire duration of the test.

  Lift moves in up direction up to the end of door zone, where LIMAX33-CP's UCM circuit remove power of A3 pin causing the mechanical Safety Gear stop.

  After the car has stopped, the distance covered from the floor level is shown (to be compared to point 5.6.7.5 of EN81-20) and the stopping time since the UCM activation.

  After the test release the button  , release the OSG's key and move the lift in down direction to release the safety Gear (it may be necessary to add some load into the cabin to facilitate the release). After test it is necessary a fault reset (Menu Fault, Reset) to put the ELGO LIMAX33-CP in normal operating mode.

- **Downward Test:** Before starting put the car to the floor where you want to make the test (don't execute test at bottom floor). Put full load inside the car (or more than full load if test requires). After selecting test it is enabled the door's safety bypass for the entire duration of the test.
  Turn the PME's knob on INSPECTION.
  Keep the OSG's key on "SET" position for the entire duration of the test.

  Press the button  for the entire duration of the test.

  Lift moves in down direction up to the end of door zone, where LIMAX33-CP's UCM circuit remove power of A3 pin causing the mechanical Safety Gear stop.

  After the car has stopped, the distance covered from the floor level is shown (to be compared to point 5.6.7.5 of EN81-20) and the stopping time since the UCM activation.

  After the test release the button  , release the OSG's key and move the lift in up direction to release the safety Gear (it may be necessary to remove some load from the cabin to facilitate the release). After test it is necessary a fault reset (Menu Fault, Reset) to put the ELGO LIMAX33-CP in normal operating mode.

Test 27: Check of landing doors locked from the cabine

It is useful in order to check that landing doors are locked. It is executed with a special key in the car to check landing doors at penthouse floor. Test will move the cabine 300 mm over the floor level (under floor level at the top floor) and opens the cabine's door. During the test an intermittent acoustic signal sounds in the cabine.

Test finish after a maximum of 60 seconds or when a second activation on the special key is given. Technician can moves the lift by a COP call.

Test can be also executed by the Playpad at each floor.

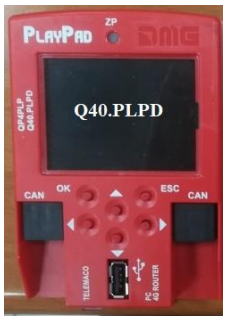
After the test lift come back in service.

ANNEX III: Instructions for Software update

Open safety chain during SW update procedures. (DIS switch = OFF)

PlayPad (PLP) SW update procedure

SW update file for PLP depends on which Playpad is installed:



PLAYPAD: FileName.PP2

PLAYPAD WiFi: FileName.PP4

Insert the USB device into the slot, waiting for the message as in the Figure 1.

Select “Put a file into PlayPad” (default), press OK button. Window changes into Figure 2.

Figure 1

Figure 2

Follow the instruction on screen and select the .PP2 file (in the example PLP2_2.PP2) and press OK. Window changes into Figure 3.

Press OK to confirm the update process. Window changes into Figure 4.

Figure 3

Figure 4

At the end of Procedure you have to remove the USB (Figure 5 or Figure 6 will be appear)

Figure 5

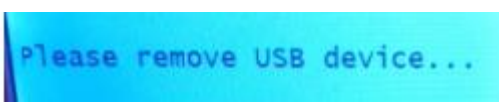


Figure 6

Devices SW update procedure

Insert the USB device into the slot, waiting for the message as in the Figure 7 and Select “Put a file into PlayPad” (default) and press OK button. Window changes into Figure 8.

Figure 7

Figure 8

Follow the instruction on screen and select the *.bin file and press OK. Window changes into Figure 9. Press OK to confirm the update process. Window changes into Figure 10, wait for a while.

Figure 9

Figure 10

Select the Device (or device group) to update and press OK (Figure 11). Window changes into Figure 12: wait until the process is completed. If you need to press any arrow button to switch on the backlight.

Figure 11

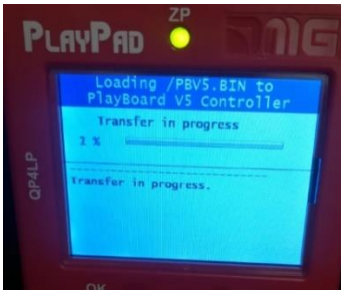


Figure 12

When ^the^ process ends (Figure 13) press Esc button until the window shows “Please remove USB Device” (Figure 14).

Figure 13

Figure 14

Device	Time needed for updating SW
Mother board (Playboard Controller)	3 minutes
PlayPad 4.0	1 minute
TOC Board (Car TOP Interface)	1 minute
DMCPIT Board (Car COP Interface)	1 minute
Serial Pushbuttons Interfaces (BDU Devices)	30 seconds
Expansion boards (PIT8 / 16RL / 16IO)	30 seconds

Table III.1 – Timing for SW update

ANNEX IV: VVVF Frenic Lift Setting

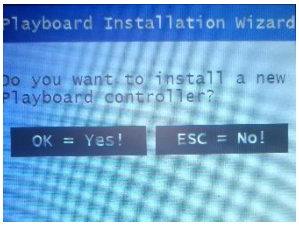
Motor Tuning (VVVF Controller)

In the case of a Controller equipped with electric inverter Fuji FRENIC Lift, the self-learning procedure of motor data ("Tuning") must be performed. This must be carried out in order to align the functioning of the drive to the electrical characteristics of the motor on site. The tuning procedure must be done in temporary operation. The procedure is different according to the type of Motor.

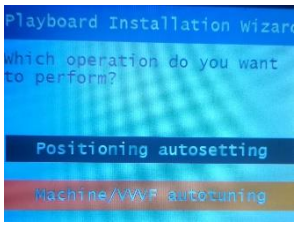
Tuning procedure

Select Installation Menu (see icon);

In the Screen will appear:



Confirm by pressing OK and select “Machine / VVVF Autotuning:



Insert the requested parameter and move on to the next one by pressing the Right Arrow.

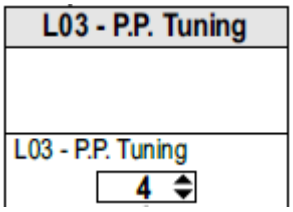
The list of VVVF Parameter is:

Parameter	Description	Gearless Motor	Geared Motor
P01 – Motor Poles	Insert Motor Pole’s number	X	X
F03 – Maximum Speed	Insert max motor Speed [RPM] (Motor Plate)	X	X
F04 – Rated Current	Insert Rated motor speed [Hz] (Motor Plate)	X	X
F05 – Rated Voltage	Insert Rated motor voltage [V] (Motor Plate)	X	X
P08 – M-%X	Insert value 10 %	X	
P07 – M-%R1	Insert value 5 %	X	
P06 – M-No Load Curr.	Insert value 0 [A]	X	
P03 – Motor Rated Current	Insert rated current [A] (Motor Plate)	X	
P02 – Motor Rated Cap	Insert rated power [kW] (Motor Plate)	X	
C11 – High Speed	Insert high speed [Hz] (Motor Plate)	X	
C10 – Middle Speed	Insert middle speed [Hz] (Inspection speed)	X	
C07 – Creep Speed	Insert low speed [Hz] (10% of C11)	X	
L01 – PG select	Set motor Encoder type: (§VVVF Optional Boards)	X	X (*)
L02 – PG resolution	Insert Motor Encoder Resolution	X	X (*)

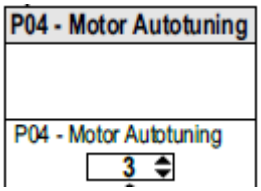
(*) only closed loop

Last parameter is different according Motor Type:

Gearless Motor **Geared Motor**



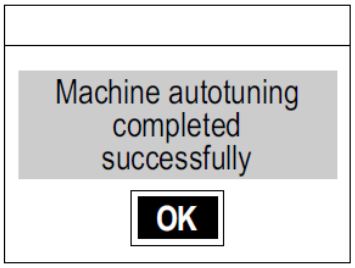
Select:
4 = Static Tuning
5 = Dynamic tuning
(only if free from ropes)



Select:
3

After setting the last parameter, press Right and follow the instructions shown: keep pressed the requested button on the PME for the time indicated.

In case of positive Tuning playpad will show:



and the procedure is finished.

In case of any problem go to the Fault menu to identify the Problem (§ Motor Tuning Errors)

At the end of the procedure, press the up/down button and check the correct car movement direction; if not correct, invert values of parameters E98 and E99.

For closed loop installations, in the <I/O Status>, VVVF IN/OUT menu, check that the VVVF motor encoder value (4/7) is positive (+) during upward movement and negative (-) during downward movement when the FWD (1/7) command is activated. If not, invert a channel in the motor encoder of the VVVF.

VVVF Optional Boards

L01	Encoder specifications		Encoder board	Motor
	Incremental signals	Absolute signals		
0	Open collector / Push-Pull	-	OPC-PG3	IM
	Line Driver	-	OPC-PMPG	
1	Open collector / Push-Pull	Z	OPC-PG3	IM & PMSM
4	Sine differential (1Vpp)	EnDat2.1 (ECN1313)	OPC-PS or OPC-PSH	PMSM
5	Sine differential (1Vpp)	ERN1387	OPC-LM1-PR	PMSM
6	Sine differential (1Vpp)	BISS-C (Sendix 5873)	OPC-PS or OPC-PSH	PMSM
7	Sine differential (1Vpp)	SSI (ECN1313)	OPC-PS or OPC-PSH	PMSM
8	Sine differential (1Vpp)	Hiperface (SRS50)	OPC-PSH	PMSM

Special Encoders setting Table

Parameter	Description	BiSS*1	SSI*2	Hyperface*1
L209	Encoder serial communication (number of ST bits)	13	13	15
L212	Alarm/Warning bit enable and position (SSI) Bit 0: Alarm bit enable (0 = disabled) Bit 1: Warning bit enable (0 = disabled) Bit 2: Alarm bit position (0 = before AL1, 1 = after AL2) Bit 3: Warning bit position (0 = before AL1, 1 = after AL2)	0	0	-
L213	Number of AL1 bits	0	0	-
L214	Number of AL2 bits	2	0	-
L215	Number of CRC bits	6	0	-
L216	CRC polynomial	67	0	

Values validated/tested on:

*1:

SMRS64 (Hohner)

5873 (Kübler)

WDGF 58M (Wachendorf)

*2:

5873 ThyssenKrupp specification (Kübler)

SMRS64 (Hohner)

*3:

SRM50 (Sick)

SRS50 (Sick)

VVVF Fault Table

Code	***Description***	
OC1	Overcurrent during acceleration	The inverter momentary output current exceeded the overcurrent level.
OC2	Overcurrent during deceleration	
OC3	Overcurrent during running at a constant speed	
EF	Ground fault	Zero-phase current caused by ground fault in the output circuit has exceeded the allowable limit. (30kW or above)
OV1	Overvoltage during acceleration	The DC link bus voltage exceeded the overvoltage detection level.
OV2	Overvoltage during deceleration	
OV3	Overvoltage during running at a constant speed	
LV	Undervoltage	The DC link bus voltage dropped below the undervolt detection level. age
Lin *	Input phase loss	An input phase loss occurred or the Interphase voltage unbalance rate was large.
OH1	Heat sink overheat	The temperature around the heat sink has risen abnormally.
OH2	External alarm	The external alarm ***THR*** was entered. (when the ***THR*** "Enable external alarm trip" has been assigned to any digital input terminal)
OH3	Inverter internal overheat	The temperature inside the inverter has exceeded the allowable limit.

Code	Description	
OH4	Motor protection (PTC/NTC thermistor)	The temperature of the motor has risen abnormally.
DBH	Braking register overheat	The temperature of the Braking resistor has exceede allowable limit. d the
OL1	Overload of motor 1	The electronic thermal protection for motor overload detection was activated.
OLU	Inverter overload	The temperature inside the IGBT has risen abnormally.
OS	Over speed prevention	The motor speed is higher than maximum speed * L32.
PG	Broken wiring in the PG	The inverter detects a broken wiring connection in encoder. the pulse
nrb	NTC wire break error	Detected a wire break in the NTC thermistor detection circuit.
Er1	Memory error	An error has occurred when writing data to the inverter memory.
Er2	Keypad communications error	A communications error has occurred between the key and the inverter. pad
Er3	CPU error	A CPU error or LSI error has occurred.
Er4	Option communications error	A communications error has occurred between the connected option card and the inverter.
Er5	Option error	An error was detected by the connected option card (not by the inverter).
Er6	Operation protection	An incorrect operation was attempted.
Er7	Tuning error	Auto-tuning or Magnetic Pole Position Offset tuning has failed, resulting in abnormal tuning results.
Er8	RS-485 communications error (port 1)	A communications error has occurred during RS-485 communication.
ErP	RS-485 communications error (port 2)	
OPL	Output phase loss	An output phase loss occurred.
ErE	Speed mismatching	The reference speed and the detection speed are different.
ErF	Data saving error during undervoltage	When the undervoltage protection was activated, the inverter failed to save data, showing this error.
ErH	Hardware error	The LSI on the power printed circuit board has malfunctioned due to noise, etc.
Ert	CANopen communication error	A communications error has occurred during CANopen communication.
ECF	EN1, EN2 terminals circuit error	An abnormality was diagnosed in EN1, EN2 terminals circuit.
Ot	Over torque current	Reference torque current became excessive.
DBA	Braking transistor broken	Detection of an abnormality in the brake transistor
bbE	Brake confirmation	The inverter detects mismatch between the brake control signal and brake detection (feedback) signal.
Eo	EN1, EN2 terminals chattering	Detected collision between ENOFF output and EN1/EN2 terminals. input
ECL	Customizable logic error	A customizable logic configuration error has caused an alarm.
OH6	Charging resistor overheat	The temperature of the charging resistor inside the has exceeded the allowable limit. inverter
rbA	Rescue by brake alarm	No movement detected during rescue operation by bra control. ke
tCA	Reaching maximum numbers of trip counter	The number of trip direction changes has reached the preset level.
SCA	Short-circuit control error	The inverter detects mismatch between the short-circuit control signal and short-circuit detection (feedback) signal.
LCO	Load-cell overload	Load-cell function has detected overload situation by means of preset level.

VVVF Alarm Sub code Table

Code	Alarm Name	Sub Code	Description
OC1	Overcurrent during acceleration	1	Overcurrent protection (OCT interruption)
		2	Overcurrent protection (OCL interruption)
		3	Short circuit protection
OC2	Overcurrent during deceleration	4	Ground fault protection
		5	Detection signal failure (FAULT signal)
OC3	Overcurrent during constant speed	11	Detection signal failure (OCT signal)
		12	Detection signal failure (OCL signal)
OV1	Overvoltage during acceleration	**1**	Overvoltage Protection (OVT signal)
OV2	Overvoltage during deceleration		
OV3	Overvoltage during constant speed	11	Detection signal failure (OVT signal)
Lin	Input phase loss	1	Rectifier diode protection level detection
		2	Continuous operation tolerance level detection
OPL	Output phase loss	1	
OH1	Cooling fin overheat	1	Cooling fin overheat (NTC2)
		3	Converter overheat (NTC4)
		11	Thermistor disconnection (NTC2)
OH2	External fault	0	Protection through THR
OH3	Overheat inside inverter	0	Internal air overheat (NTC1)
OH4	Motor Protection (PTC thermistor)	1	PTC thermistor
		2	NTS thermistor
OH6	Charging resistor overheat	1	Charging resistor overheat Except for FRN0039LM2A-4 / FRN0045LM2A-4
		11	Thermistor disconnection (NTC3)
OL1	Motor overload	0	Current detection electronic thermal
LV	Undervoltage	1	Undervoltage is occurred during gate ON
		11	Minimum level of battery operation
dbH	DB resistor overheat	0	DB resistor overheat
		1	DB transistor 2sec_ON continuously
dbA	DB transistor failure detection	0	DB transistor failure detection
Er1	Memory Error	0x0001	Alarm history destruction
		0x0002	Standard function code
		0x0004	User function code
		0x0008	Hidden function code
		0x0010	Program area error
		0x0040	Reading mismatch (retry over)
		0x0080	Writing mismatch (retry over)

"NORMAL" overcurrent

Overcurrent at start

Gate circuit

Detection circuit (PPCB)

F50 ⇔ F52

Wrong R (too high)

Code	Alarm Name	Sub Code	Description
		0x0100	Extended area
		0x1000	Adjustment value area
Er2	Keypad panel communication error	1	Disconnection detection
Er3	CPU error	1	CPU re-start processing
		1000	Function code checksum error (RAM error)
		0x0001	Standard function code error
		0x0002	Hidden function code (u code) error
		0x0004	Hidden function code (n code) error
		0x0008	Adjustment valve function code error
		0x0010	Extended area
		2000	Fixed-cycle error
		0x0001	L1 cycle error
		0x0004	L3 cycle error
		0x0008	L4 cycle error
		0x0020	L6 cycle error
		0x0080	LP cycle error
		3000	Unjust cut in
		5001	Outside RST input
		7001	Stack area destruction
		9000	Software failure detection
		0x0200	Alarm QUE over
Er4	Option communication error	1	Port A communication error There is no option
		3	Port C communication error
		10	An excess of installed option There is no option
Er5	Option error	0	Option in-match
		1	Completion signal ON (There is no option)
		10	AIO PT EEPROM error (There is no option)
		26	PR-PP position information error (only OPC-PMPG+L01=2)
		27	PP position information starting error
		50	No save area
		51	Communication command error
		52	Distinction code error
		53	Check-sum error
		54	Writing error
Er6	Operation procedure error	2	Start check
		7	Multi speed assigned error
		8	Brake check (waiting time timeout)

Code	Alarm Name	Sub Code	Description
		9	
		10	No try magnetic pole position tuning
		11	Output side contactor confirmation error
		12	Lack of rating speed
		14	Brake chack (assigned error)
		15	Short circuit (SCC assigned error)
		16	Rescue error
Er7	At induction motor tuning	1	R1 phase (between phase) unbalance
		2	R1 phase error
		3	%X error
		6	Output current error
		7	Drive command OFF
		9	BX terminal ON
		11	Undervoltage (LV) detection
		15	Alarm occur
		16	Change of drive command
		19	Others
		21	I0 error
		24	EN terminal
		25	DRS terminal
Er7	At current detection gain tuning	32	EEPROM writing error
		37	STOP key_ON
Er7	At magnetic pole position offset tuning	51	Tuning without motor
		52	Magnetic pole position tuning result error
		53	F42 setting miss
		54	L04 mismatch
Er7	At current detection offset tuning	61	EEPROM writing error
		62	STOP key_ON
Er7	Synchronous motor tuning error	5058	Amature resistance error (lower limit)
		5059	Amature resistance error (upper limit)
		5060	Ld error (lower limit)
		5061	Ld error (upper limit)
		5062	Lq error (lower limit)
		5063	Lq error (upper limit)
		5080	ACR gain error (upper limit)
		5081	ACR gain error (lower limit)
Er8	RS485 communication error	0	CH1 RS485 communication error
nrb	NTC thermistor disconnection detection	0	NTC thermistor disconnection detection
OS	Overspeed	0	Overspeed protection

Code	Alarm Name	Sub Code	Description
Pg	PG error	1	
		2	
		50	Option – A/B phase (Sin) disconnection detection
		51	Option – C/D phase (Sin) disconnection detection
		52	Option – R phase (Sin) disconnection detection
		53	Option – A/B phase (pulse) disconnection detection
		54	Option – Z phase (pulse) disconnection detection
		55	Option – U/V/W phase (pulse) disconnection detection
		60	Option – watchdog time out
		61	Option – serial encoder response time out
		62	Option – CPU communication CRC error
		63	Option – CPU out of communciation error
		70	Option – ABZ output error
		71	Option – serial encoder each alarm
		72	Option - memory access error
		73	Option – culcuration error
		80	Option – PG card setting error
ErE	Speed mismatch (speed deviation excess)	1	The marks of speed command and speed detection differ
		3	Speed deviation exces (speed detection > speed command)
		5	Speed detection continues being 0
		7	Speed deviation exces (speed detection < speed command)
ErF	Undervoltage data save error	0	Undervoltage data save error
ErP	RS485 2ch communication error	0	CH2 RS485 communication error
Ert	CAN communication error	1	Bus-off
		2	Guarding timeout detection
OLU	Inverter overload	1	IGBT protection
		2	Inverter thermal Only FRN0060LM2A-4 ⇔ FRN0091LM2A-4
		10	ΔTj-c ≥ 60 °C
ECF	EN circuit error	10	EN input error (_EN1A=L, EN2A=L)
		11	EN input error (_EN1A=H, EN2A=H)
		5000	Diagnosis circuit error
		5010	P5S power supply failure
		5020	CPU diagnosis: Port setting diagnosis
		5030	CPU diagnosis: ROM diagnosis
		5040	CPU diagnosis: RAM diagnosis
		5050	CPU diagnosis: sequence monitor
ECL	Customization logic malfunction	0	Customization logic error
Err	Simulated failure	9998	Simulated failure
Ot	Torque excessive error	0	Torque excessive error
bbE	Mechanical brake error	11	BRAKE1 error

Code	Alarm Name	Sub Code	Description
		12	BRAKE2 error
Eo	EN terminal error	0	EN terminal error
rbA	Rescue speed detection error	0	Rescue speed detection error
tCA	Direction switch limit arrival	0	Direction switch limit arrival
SCA	Short circuit error	0	Short circuit error
Lco	Load cell error	0	Load cell error
EF	Ground protection	0	Three phase current Only FRN0060LM2A-4 ⇔ FRN0091LM2A-4

Motor Tuning Errors

GEARED MOTOR

In old motors the auto-tuning may fail: in these cases the auto-tuning type 1 (at point 10 select P04 = 1) can be executed but in this case the values P06 and P12 must be manually entered.

$$`P06 = \sqrt{(P03)^2 - \left(\frac{P02*1000}{1.47*F05}\right)^2}$$

Typical values of P06 are between 30% and 70% of P03.

$$P12 = Frequency_{RATED} * \left(\frac{Speed_{SYNCHRONOUS} - Speed_{RATED}}{Speed_{SYNCHRONOUS}}\right) * 0{,}7$$

Acceptable values of P12 are between 0.5 and 5 Hz.

For instance, for a 4-pole motor, the Rated Frequency is 50 Hz, the synchronous speed is 1500 rpm and the Rated Speed is on the motor nameplate (always in revolutions per minute).

GEARLESS MOTOR

In case of a problem "Error 52 = er7 Error VVVF" will show in the MENU ERRORS. In this case please check the connections of the motor encoder, clear the errors in the "Errors" menu and repeat the poletuning procedure from point 14.

After the poletuning procedure try to move the elevator in maintenance in up and down for some motor revolutions. If it moves correctly the procedure is over, otherwise, in the event of an error of the VVVF (ere or Ocx or Os), reverse the two motor phases changing the VVVF's H190 parameter, clear the errors in the "Fault" menu and repeat the poletuning procedure.

ANNEX V: Rollback control and ride comfort

When the Playboard controller is applied to installations equipped with closed loop gearless machines, comfort and precision can be optimized thus avoiding undesired effects such as rollback (typical of lifts with unbalanced load).

The following parameters can be adjusted to achieve optimal setting for your installation. It is suggested to follow the procedure from start to end in the proposed sequence.

Starting phase adjustments

Adjust the following Parameters to compensate for other undesired effects

PAR.	DESCRIPTION	DEFAULT		SUGGESTED ADJUSTMENTS
		Gearless	Geared	
H64	Zero speed control time	0,8	0,8	Set value between 0,7 and 0,8 then increase to soften start phase ramp ***Important:*** In "Positioning" Menu : **Delay DIR-BRK** <= 0,2 s **Delay BRK-S** > H64
L68	RBC Proportional Gain (P constant) *(specifies the P constant of the Automatic Speed Regulator to be used during RBC calculation time)*	1,8	10	**Motor overshoots:** increase value by **0,25** **Vibrations:** decrease value by **0,25**
L69	RBC Integral Time (I constant) *(specifies the I constant of the Automatic Speed Regulator to be used during RBC calculation time)*	0,003 s	0,010 s	**Motor overshoots:** decrease value by **0,001** **Vibrations:** increase value by **0,001**
L73	Unbalanced load compensation *(specifies the I constant of the Automatic Position Regulator to be used during RBC calculation time)*	0,5	0	**Motor overshoots:** increase value by **0,50** **Vibrations:** decrease value by **0,50**
L82	ON delay time *(specifies the delay time during which the inverter main circuit is kept activated)*	0,2 s	0,2 s	**Larger Brakes:** decrease value by **0,1** **Smaller brakes:** increase value by **0,1**

Notes: *L65 specifies whether to enable or disable the unbalanced load compensation (Rollback control). By default, it is set to 1 (Rollback control active). Speed is kept at zero when brakes are released to avoid rollback effect.*

High speed phase adjustments

High speed “P” gains and “I” time constants are used by the Auto Speed Regulator (ASR) of the inverter during high speed lift travel. These constants can be adjusted as follows:

PAR.	DESCRIPTION	DEFAULT		SUGGESTED ADJUSTMENTS
		Gearless	Geared	
L24	“S” Curve setting 6	25%	25%	**Speed fluctuations:** increase value by **5**
L36	“P” Gain constant at high speed	2	10	**Speed fluctuations** increase value by 0,25 **Vibrations:** decrease value by 0,25
L37	“I” Time I constant at high speed	0,100 s	0,100 s	**Speed fluctuations** decrease 0,01 **Vibrations:** increase value by **0,01**

Notes:

Increasing the P constant makes response from machinery faster but may cause overshooting or hunting in motor. Furthermore, due to resonance of machinery or overamplified noise, machinery or motor may produce vibration noise.

On the contrary, decreasing the P constant excessively delays response and may cause speed fluctuation in a long cycle, taking time to stabilize the speed.

“I” times values (L37 and L39) normally do not need to be changed, unless “P” gains are not enough to achieve optimal comfort. Setting a small “I” Time constant shortens the integration interval, providing a faster response. On the contrary, setting a large “I” Time constant lengthens it, having less effect on the ASR. This may help in case of resonance of machinery generating abnormal mechanical noise from the motor or gears

Stopping phase adjustments

Use the constants of the gains "P" and the times "I", at low speed, to make the final adjustment for the stop phase:

PAR.	DESCRIPTION	DEFAULT		SUGGESTED ADJUSTMENTS
		Gearless	Geared	
E16	Deceleration time # 9 (Last deceleration ramp)	1,80 s	1,80 s	Increase value by **0,5** to soften last ramp (max suggested value: 3 sec)
H67	Stop Hold Time	1,5 s	1,5 s	**Car unable to stay at floor:** increase 0,25 ***Important:*** In “Positioning” Menu : **Delay BRK-DIR** <= 2,0 s **Stopping Boost** = 1% or 2%
L38	“P” Gain constant at low speed	2	10	**Car unable to stay at floor:** increase **0,25** **Vibrations:** decrease value by **0,25**
L39	I” Time I constant at low speed	0,100 s	0,100 s	**Car unable to stay at floor:** decrease value by **0,01** **Vibrations:** increase value by **0,01**
L83	Brake Control (OFF delay time) *(specifies the delay time between stop speed and deactivation of the brake signal)*	0,3 s	0,1 s	**Larger Brakes:** decrease value by **0,1** **Smaller brakes:** increase value by **0,1**

Notes: *In order to let the inverter perform the stopping phase correctly, make sure that operating contactors open at least 2 sec after brake contactor. If operating contactors open in advance, a shock on the machine may be heard.*

Case VVVF controllers with non-encoder based positioning systems

If a digital position system is used in the installation (i.e.: digital signal from magnetic detectors), some additional parameters must be used:

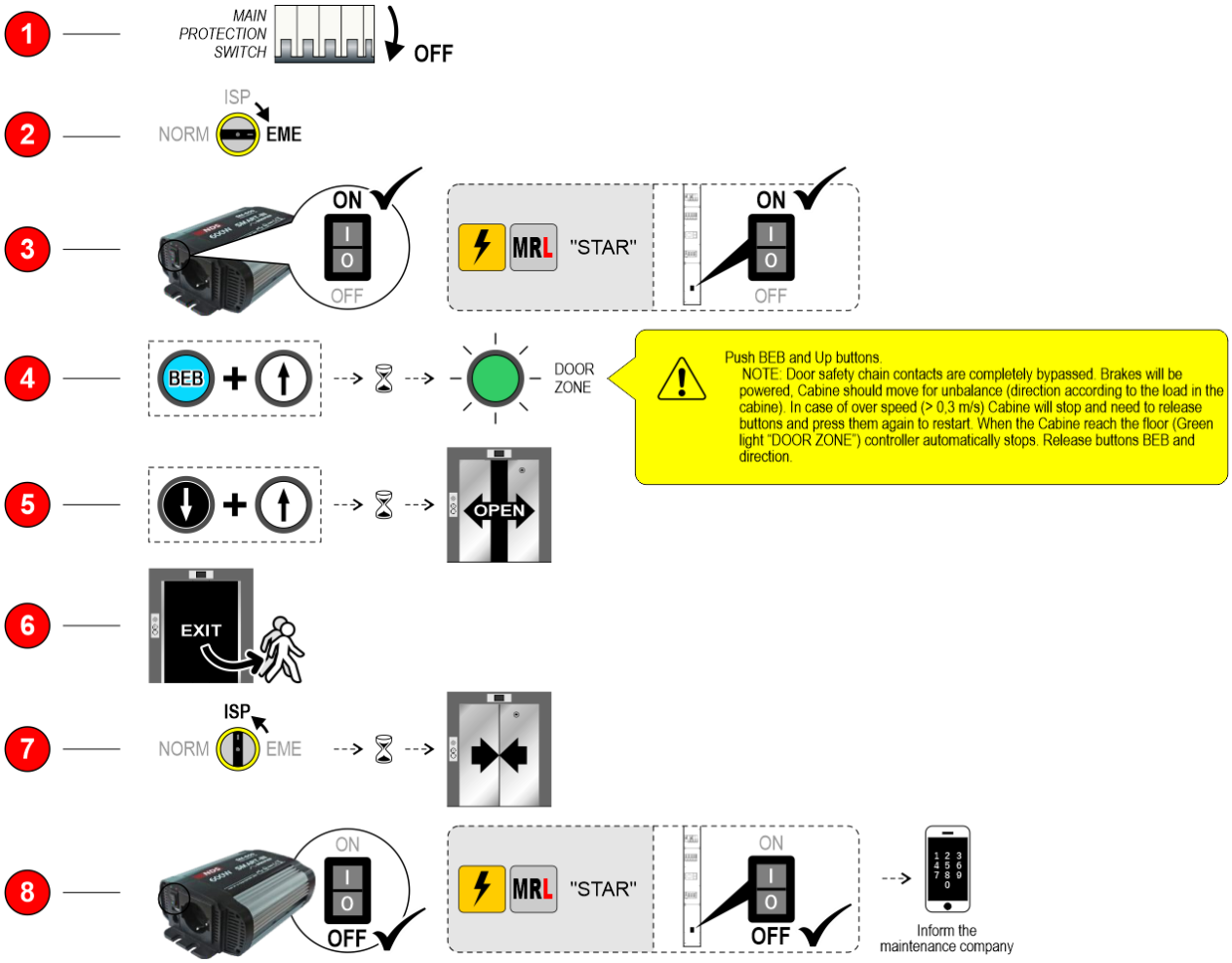
PAR.	DESCRIPTION	DEFAULT	SUGGESTED ADJUSTMENTS
F24	Starting speed holding time	0,7	Set value between 0,7 and 0,8
H64	Zero speed control time	0	Set value to 0
E12	Acceleration at high speed	2	**Speed fluctuations:** increase value by **0,25**
E13	Acceleration at low speed	2	**Motor stops:** increase value by **0,25**
C07	Creep Speed (5-10% of high speed)		**Motor stops:** increase value by **0,1** **Vibrations:** increase/decrease value by **0,1**
C11	High Speed	See Nominal Value on the motor plate	*If the car is unable to keep floor level, make sure the low speed phase is performed correctly by reducing high speed C11 to half of its value to check that low speed is kept for few seconds, then slowly increase C11*

ANNEX VI: Emergency/Rescue Manoeuvres

Unbalancing Rescue Operation's

The operation must be performed by qualified personnel.

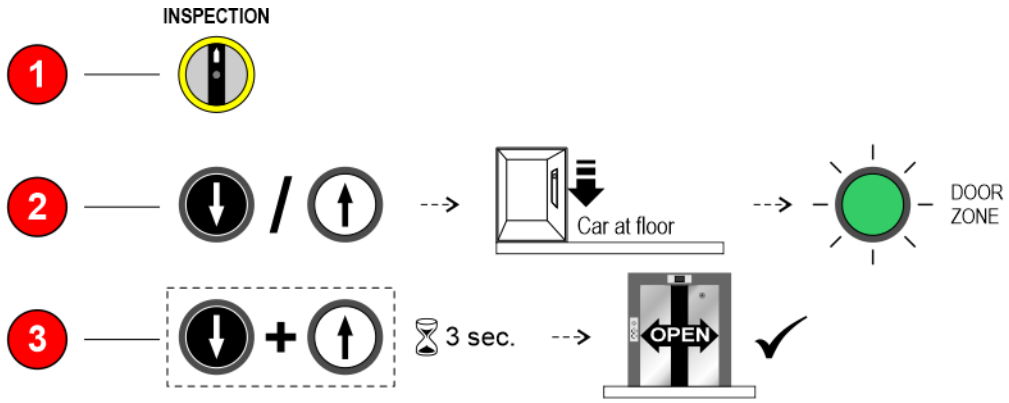
1. Open the Main Switch MDP
2. Turn Selector PME on EME position
3. Switch ON UPS module
4. Push BEB and Up buttons. NOTE: Door safety chain contacts are completely bypassed
   Brakes will be powered, the Cabin should move for unbalance (direction according the load in the cabin). In case of over speed (> 0,3 m/s) the Cabin will stop and require you to release the buttons and press them again to restart.
   When the Cabin reaches the floor (Green light "DOOR ZONE") the controller automatically stops. Release buttons BEB and direction
5. Press UP and DOWN buttons to open the doors
6. Bring people out of the Cabin
7. Turn the PME Selector to INSPECTION position and wait until the controller close the doors
8. Switch off the UPS module



Electrical emergency operation

The operation must be performed by qualified personnel.

1. Turn Selector PME on INSPECTION position;
2. Constantly press the "Up" or "Down" buttons. The car moves in the desired direction;
3. Press the "Up" or "Down" buttons simultaneously for 3 seconds to open the car doors.

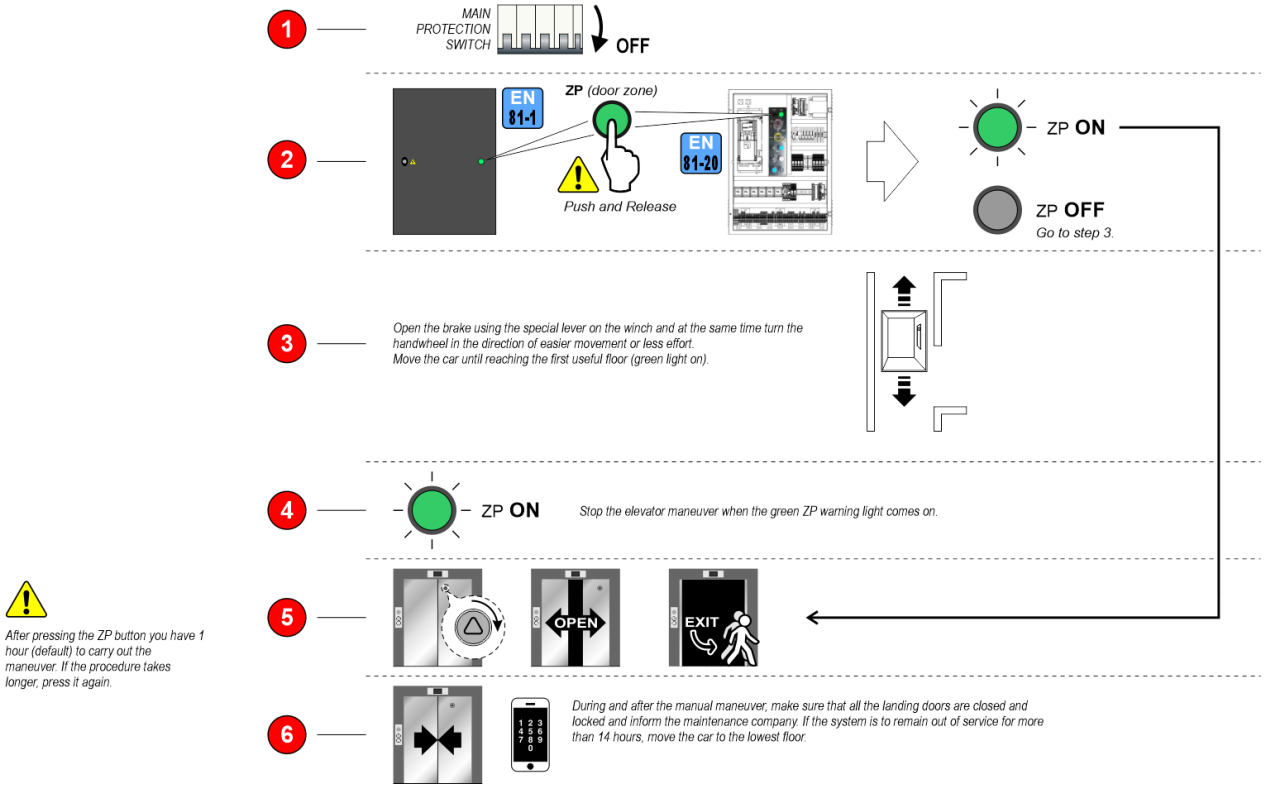


To reset the system, position the PME selector on "NORMAL".
After activating the switch in "INSPECTION" mode, all car movements except those controlled by this manoeuvre, and all floor calls, including remote devices, are excluded.
If you are in Electrical Emergency Maneuver mode, and a car roof or pit bottom switch is activated in "INSPECTION" mode, the Maneuver is inhibited, and priority is given to the inspection push-button panels in the Shaft

Rescue operation for traction lifts

The operation must be performed by qualified personnel.

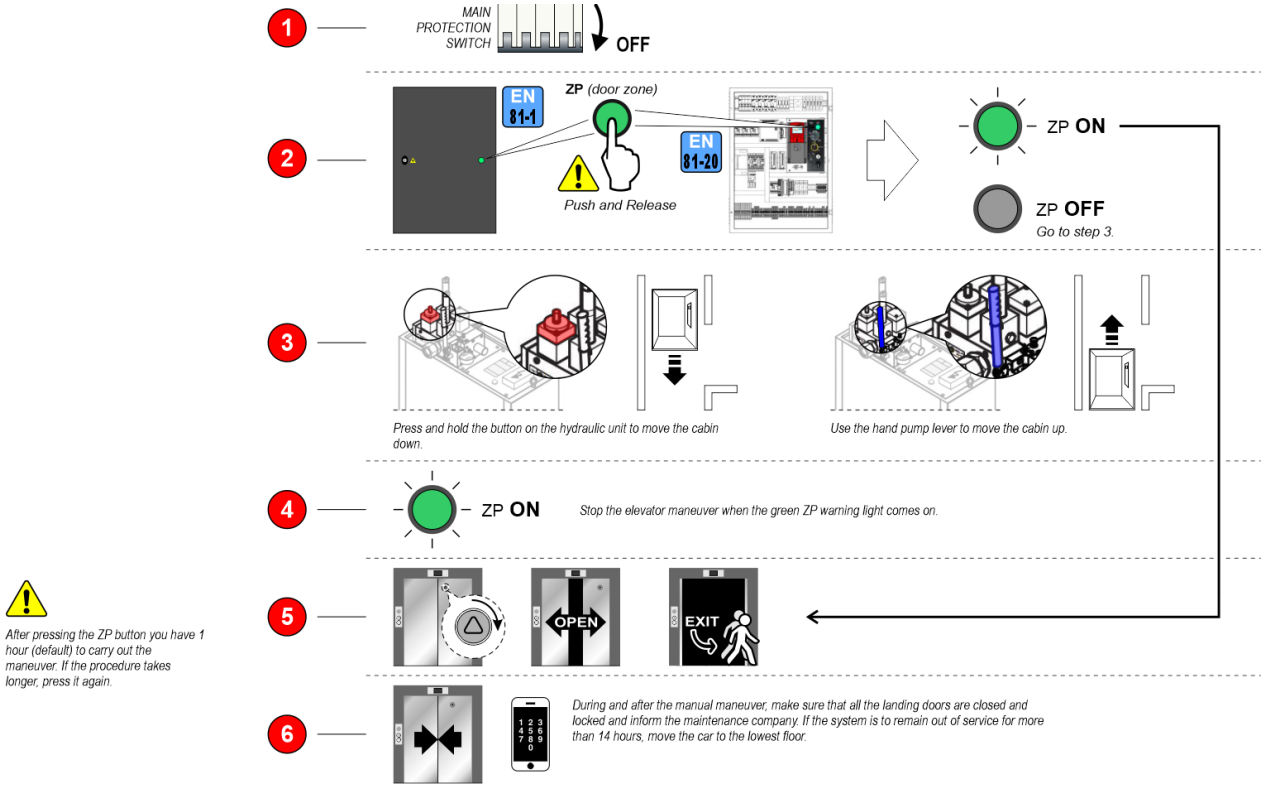
1. Open the Main Switch MDP;
2. See the status of the signal (on the external door for EN81-1 systems and on the push-button panel for EN81-20 systems). If is on (i.e. the car is already at the floor), go to step 5. If is off, go to step 3;
3. Open the brake using the appropriate lever on the winch and at the same time turn the handwheel in the direction of easiest movement or least effort. Move the car up to the first useful floor (green light on);
4. Stop the maneuver when the green light comes on;
5. Unlock the car doors.



Rescue operation for hydraulic lifts

The operation must be performed by qualified personnel.

1. Open the Main Switch MDP;
2. See the status of the signal (on the external door for EN81-1 systems and on the push-button panel for EN81-20 systems). If is on (i.e. the car is already at the floor), go to step 5. If is off, go to step 3;
3. Press and hold the button on the hydraulic unit to lower the car. Use the hand pump lever to move the car up;
4. Unlock the car doors.



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

ANNEX VII: Control Panel

Bypass door's Safety contacts

The operation must be performed by qualified personnel.

Turn BYPASS Selector to the required position:

a) With any BYPASS the RED light will switch ON.
b) Controller gives the Bypass fault.
c) Movement of lift will be possible only in Inspection or from PME.

PRE-LOCK = Preliminary contacts (Manual floor doors)

LOCK = Floor door Locks

CAR = Car door contacts

Single Brake Test

The operation must be performed by qualified personnel.

1. Press BRAKE button
2. Turn BRAKE key on position 1 to open First Brake or on 2 to open second Brake.

Test can be made only:

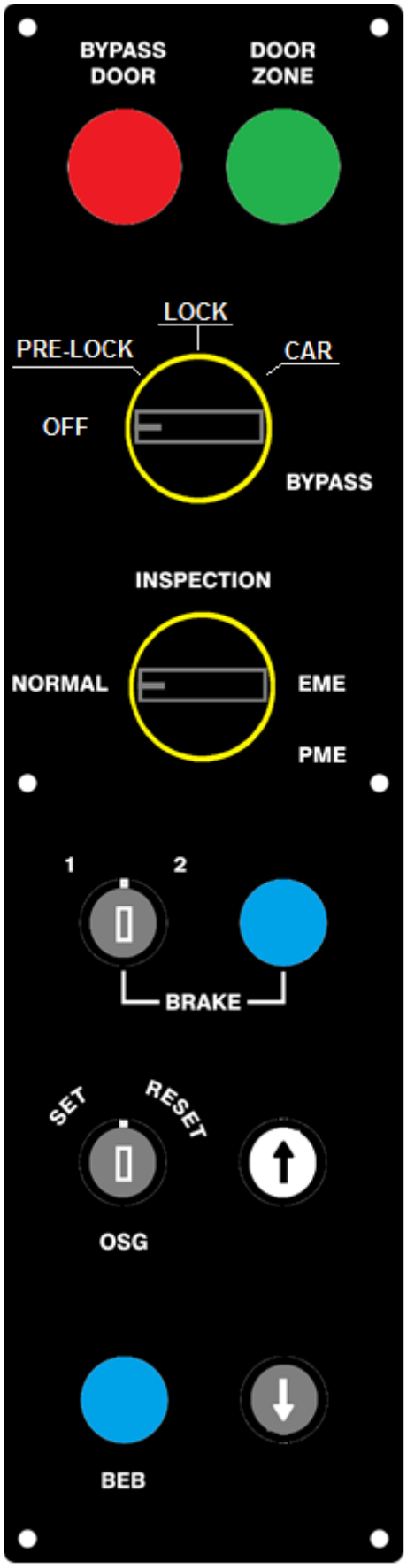
a) With cabin stationary and doors closed;
b) During test 3 and test 4 (measurement of stopping distance at nominal speed)
c) During deceleration and standard stop (to check Contactor locked fault)

Over Speed Governor Test

The operation must be performed by qualified personnel.

Operate on OSG Key:

- Activating of the OSG: turn to SET;
- Reset: Turn PME Selector to INSPECTION and turn OSG key to RESET.



ANNEX VIII: UCM Circuit

The following table shows how to set the UCM Monitor parameter according to the device or circuit for detecting uncontrolled movements.
For Hydraulic installations the parameter is used for:
-) Central unit / valves configuration (see table VIII.2)
-) UCM solution managed by controller

Monitor UCM		Device / Hydraulic Control Unit	UCM Solution	Actuator
Tipo	Tempo			
No		Not present	No	-
1	1,5 s	Overspeed Governor OSG A3 Montanari RQ-AXXX	Yes	Safety Gear
2	1,5 s	Controller = Brake monitor Movement with door open available only with Encoder ELGO LIMAX 33CP	Yes	A3 Certified Brakes
3 ⇔ 17		Do not use		
18	1,5 s	Brake monitor for Door opening enable (door opens only if brake is fall)	No	
19	1,5 s	DMG UCM Circuit 4.0 (no brake monitor) Only for temporarly disabling of Brake switches monitor	No	
20	1,5 s	DMG UCM Circuit 4.0 and Brake monitor	Yes	A3 Certified Brakes
21	1,5 s	Overspeed Governor OSG A3 Montanari RQ-AXXX Controller = Brake monitor	Yes	Safety Gear
22	1,5 s	Overspeed Governor OSG A3 Montanari RQ-AXXX Pin deactivation delay equal to the time for automatic return to the floor	Yes	Safety Gear
23	1,5 s	Overspeed Governor OSG A3 Montanari RQ-AXXX Pin deactivation delay equal to the time for automatic return to the floor Controller = Brake monitor	Yes	Safety Gear
24	1,5 s	Overspeed Governor OSG A3 Montanari RQ-AXXX Pin activation ED 100%	Yes	Safety Gear
25	1,5 s	Overspeed Governor OSG A3 Montanari RQ-AXXX Pin activation ED 100% Controller = Brake monitor	Yes	Safety Gear
26 ⇔ 29		Do not use		
30	1,5	Hydro Central Unit with Electromechanical valves (A3 second down valve is optional, no test performed)	Without UCM / ELGO	-
31	1,5	Hydro Central Unit with Electromechanical valves (A3 second down valve is optional, no test performed)	Yes = OSG A3	Safety Gear
32	1,5	Hydro Central Unit with Electromechanical valves (A3 second down valve is optional, no test performed)	Yes = UCM 4.0	Two valves
33	1,5	Hydro Central Unit with Electromechanical valves (A3 second down valve is optional, no test performed)	Without UCM / ELGO	Pawl Device
34	1,5	Hydro Central Unit with Electromechanical valves (A3 second down valve is optional, no test performed)	-	-
35	1,5	Hydro Central Unit with Electromechanical valves + A3 valve (test)	Without UCM / ELGO	-

Monitor UCM		Device / Hydraulic Control Unit	UCM Solution	Actuator
Tipo	Tempo			
36	1,5	Hydro Central Unit with Electromechanical valves + A3 valve (test)	Yes = OSG A3	Safety Gear
37	1,5	Hydro Central Unit with Electromechanical valves + A3 valve (test)	Yes = UCM 4.0	Two valves
38	1,5	Hydro Central Unit with Electromechanical valves + A3 valve (test)	Without UCM / ELGO	Pawl Device
39	1,5	Hydro Central Unit with Electromechanical valves + A3 valve (test)	-	-
40	1,5	GMV model NGV Central Unit	Without UCM / ELGO	-
41	1,5	GMV model NGV Central Unit	Yes = OSG A3	Safety Gear
42	1,5	GMV model NGV Central Unit	Yes = UCM 4.0	Two valves
43	1,5	GMV model NGV Central Unit	-	-
44	1,5	GMV model NGV Central Unit	-	-
45	1,5	GMV model NGV A3 Central Unit (RDY – RUN signals monitor)	Without UCM / ELGO	-
46	1,5	GMV model NGV A3 Central Unit (RDY – RUN signals monitor)	Yes = OSG A3	Safety Gear
47	1,5	GMV model NGV A3 Central Unit (RDY – RUN signals monitor)	Yes = UCM 4.0	Two valves
48	1,5	GMV model NGV A3 Central Unit (RDY – RUN signals monitor)	-	-
49	1,5	GMV model NGV A3 Central Unit (RDY – RUN signals monitor)	-	-
50	1,5	Bucher Electronic unit LRV + NTA-2 (A3 second down valve is optional, no test performed)	Without UCM / ELGO	-
51	1,5	Bucher Electronic unit LRV + NTA-2 (A3 second down valve is optional, no test performed)	Yes = OSG A3	Safety Gear
52	1,5	Bucher Electronic unit LRV + NTA-2 (A3 second down valve is optional, no test performed)	Yes = UCM 4.0	Two valves
53	1,5	Bucher Electronic unit LRV + NTA-2 (A3 second down valve is optional, no test performed)	Without UCM / ELGO	Pawl Device
54	1,5	Bucher Electronic unit LRV + NTA-2 (A3 second down valve is optional, no test performed)	-	-
55	1,5	Bucher Electronic unit LRV + NTA-2 + DSV A3 (test)	Without UCM / ELGO	-
56	1,5	Bucher Electronic unit LRV + NTA-2 + DSV A3 (test)	Yes = OSG A3	Safety Gear
57	1,5	Bucher Electronic unit LRV + NTA-2 + DSV A3 (test)	Yes = UCM 4.0	Two valves
58	1,5	Bucher Electronic unit LRV + NTA-2 + DSV A3 (test)	Without UCM / ELGO	Pawl Device
59	1,5	Bucher Electronic unit LRV + NTA-2 + DSV A3 (test)	-	-
60	1,5	Bucher Electronic unit i-Valve / iCON-2 (SMA monitor signal)	Without UCM / ELGO	-
61	1,5	Bucher Electronic unit i-Valve / iCON-2 (SMA monitor signal)	Yes = OSG A3	Safety Gear
62	1,5	Bucher Electronic unit i-Valve / iCON-2 (SMA monitor signal)	Yes = UCM 4.0	Two valves
63	1,5	Bucher Electronic unit i-Valve / iCON-2 (SMA monitor signal)	-	-
64	1,5	Bucher Electronic unit i-Valve / iCON-2 (SMA monitor signal)	-	-
65	1,5	Start Elevator unit 93/E-2DS (no test performed)	Without UCM / ELGO	-
66	1,5	Start Elevator unit 93/E-2DS (no test performed)	Yes = OSG A3	Safety Gear
67	1,5	Start Elevator unit 93/E-2DS (no test performed)	Yes = UCM 4.0	Two valves

Monitor UCM		Device / Hydraulic Control Unit	UCM Solution	Actuator
Tipo	Tempo			
68	1,5	Start Elevator unit 93/E-2DS (no test performed)	-	-
69	1,5	Start Elevator unit 93/E-2DS (no test performed)	-	-
70	1,5	Start Elevator unit 93/E-2DS (test)	Without UCM / ELGO	-
71	1,5	Start Elevator unit 93/E-2DS (test)	Yes = OSG A3	Safety Gear
72	1,5	Start Elevator unit 93/E-2DS (test)	Yes = UCM 4.0	Two valves
73	1,5	Start Elevator unit 93/E-2DS (test)	-	-
74	1,5	Start Elevator unit 93/E-2DS (test)	-	-
75	1,5	ALGI Electronic Unit AZRS 2.0	Without UCM / ELGO	-
76	1,5	ALGI Electronic Unit AZRS 2.0	Yes = OSG A3	Safety Gear
77	1,5	ALGI Electronic Unit AZRS 2.0	Yes = UCM 4.0	Two valves
78	1,5	ALGI Electronic Unit AZRS 2.0	-	-
79	1,5	ALGI Electronic Unit AZRS 2.0	-	-
80	1,5	GMV 3010 2CH (DSV A3 valve is optional, no test performed)	Without UCM / ELGO	-
81	1,5	GMV 3010 2CH (DSV A3 valve is optional, no test performed)	Yes = OSG A3	Safety Gear
82	1,5	GMV 3010 2CH (DSV A3 valve is optional, no test performed)	Yes = UCM 4.0	Two valves
83	1,5	GMV 3010 2CH (DSV A3 valve is optional, no test performed)	Without UCM / ELGO	Pawl Device
84	1,5	GMV 3010 2CH (DSV A3 valve is optional, no test performed)	-	-
85	1,5	GMV 3010 2CH + DSV A3 (test performed)	Without UCM / ELGO	-
86	1,5	GMV 3010 2CH + DSV A3 (test performed)	Yes = OSG A3	Safety Gear
87	1,5	GMV 3010 2CH + DSV A3 (test performed)	Yes = UCM 4.0	Two valves
88	1,5	GMV 3010 2CH + DSV A3 (test performed)	Without UCM / ELGO	Pawl Device
89	1,5	GMV 3010 2CH + DSV A3 (test performed)	-	-

Table VIII.1 – Monitor UCM

Control Unit	A3 valve	Valves command	Monitor UCM	Note
Generic 2 or 3 valves BLAIN EV100 GMV T3010 MORIS CM 320	No	CV1 = UP CV2 = DOWN CV3 = HIGH SPEED	30 ⇔ 34	CV4 can be used instead of CV1 as UP valve in order to exclude Soft Stop (valve energized also after motor stops)
Generic 2 or 3 valves BLAIN EV100 GMV T3010 MORIS CM 320 OMARLift	Yes	CV1 = UP (with Soft Stop) CV2 = DOWN CV3 = HIGH SPEED CV4 = UP (no Soft Stop) CV5 = A3 VALVE	30 ⇔ 34 (*) 35 ⇔ 39 (**)	CV4 can be used instead of CV1 as UP valve in order to exclude Soft Stop (valve energized also after motor stops)
GMV NGV	No	CV1 = UP CV2 = DOWN CV3 = HIGH SPEED CV4 = MIDDLE SPEED CV5 = INSPECTION	40 ⇔ 44	
GMV NGV A3	No	CV1 = UP CV2 = DOWN CV3 = HIGH SPEED CV4 = MIDDLE SPEED CV5 = INSPECTION	45 ⇔ 49	Monitor signals RDY / RUN
Bucher LRV Bucher NTA-2	No	CV1 = UP CV2 = DOWN	50 ⇔ 54	Need one 16RL board configured as 1 wire per floor HYD
Bucher LRV Bucher NTA-2 Bucher NTA-2 + DSV A3	Yes	CV1 = UP CV2 = DOWN CV5 = A3 VALVE	50 ⇔ 54 (*) 55 ⇔ 59 (**)	Need one 16RL board configured as 1 wire per floor HYD
Bucher iCON-2 Bucher i-Valve		CV1 = UP CV2 = DOWN	60 ⇔ 64	Need one 16RL board configured as 1 wire per floor HYD
Start Elevator 93/E-2DS		CV1 = UP (not used) CV2 = DOWN CV3 = HIGH SPEED CV4 = SOFT STOP CV5 = A3 VALVE + UP START	60 ⇔ 69 (*)	SOFT STOP Option
Start Elevator 93/E-2DS	Yes	CV1 = UP (not used) CV2 = DOWN CV3 = HIGH SPEED CV4 = SOFT STOP CV5 = A3 VALVE + UP START	70 ⇔ 74 (**)	SOFT STOP Option

Control Unit	A3 valve	Valves command	Monitor UCM	Note
ALGI AZRS 2.0	Yes	CV1 = UP CV2 = DOWN CV5 = DOWN 2	75 ⇔ 79	Need one 16RL board configured as 1 wire per floor HYD
GMV 3010 2CH GMV 3010 2CH/S	No	CV1 = VMP/2CH/S CV2 = VMD CV3 = VML CV4 = VMP/2CH CV5 = DSV A3	80 ⇔ 84	CV4 can be used instead of CV1 as UP valve in order to exclude Soft Stop (valve energized also after motor stops)
GMV 3010 2CH + DLV A3 GMV 3010 2CH/S+DLV A3	Yes	CV1 = VMP/2CH/S CV2 = VMD CV3 = VML CV4 = VMP/2CH CV5 = DSV A3	80 ⇔ 84 (*) 85 ⇔ 89 (**)	CV4 can be used instead of CV1 as UP valve in order to exclude Soft Stop (valve energized also after motor stops)

Table VIII.2 – Hydraulic Central unit managed

(*) = No test 2 valves – (**) = with 2 valves test

ANNEX IX: Installation Type

The following table indicates how to set the UCM parameter according to the type of system, including the solutions adopted for protection in systems with reduced headroom and / or pit spaces.
The use of monostable contacts involves the presence of a bistable circuit in the switchboard.

UCM		Installation type	Reduced		Door contacts	
Type	Time		PIT	HEAD	Monostable	Bistable
No		EN 81.1 / EN 81.2				
1	1,5 s	EN 81.1 / EN 81.2 with Door Bypass Circuit With SM1 Safety module (Bypass' knob opens safety chain)				
2	1,5 s	EN 81.1 / EN 81.2 with Door Bypass Circuit Without SM1 Safety module (Bypass' knob opens REV input)				
3	1,5 s	EN 81.1 / EN 81.2 With management of Norme 511 (Light and Buzzer)			X	
4	1,5 s	EN 81.1 / EN 81.2 with Door Bypass Circuit With SM1 Safety module (Bypass' knob opens safety chain) With management of Norme 511 (Light and Buzzer)			X	
5	1,5 s	EN 81.1 / EN 81.2 with Door Bypass Circuit Without SM1 Safety module (Bypass' knob opens REV input) With management of Norme 511 (Light and Buzzer)			X	
6	1,5 s	EN 81.20 with monostable contacts Pit Access control With management of Norme 511 (Light and Buzzer)			X	
7 ⇔ 13		Reserved – Do not use				
14	1,5 s	EN 81.20 with monostable contacts No protection in head. Custom solution with risk analisys		X	X(*)	
15	1,5	EN 81.20 with monostable contacts Manual Protection Device in PIT	X		X(*)	
16	1,5 s	EN 81.20 with monostable contacts Manual Protection Device in PIT (under the cabine) and No protection in head. Custom solution with risk analisys	X	X		
17	1,5 s	EN 81.20 / 21 with bistable contacts No protection in head. Custom solution with risk analisys		X	X(*)	X
18	1,5 s	EN 81.20 / 21 with bistable contacts Manual Protection Device in PIT	X			X(*)
19	1,5 s	EN 81.20 / 21 with bistable contacts Manual Protection Device in PIT (under the cabine) and No protection in head. Custom solution with risk analisys	X	X		X
20	1,5 s	EN 81.20 with monostable contacts Pit Access control			X(*)	
21	1,5	EN 81.20 / 21 with bistable contacts Protection Device ELGO + OSG A3 (type 1)		X	X(*)	X
22	1,5 s	EN 81.20 / 21 with bistable contacts Manual Protection Device in PIT		X	X(*)	X
23	1,5 s	EN 81.20 / 21 with bistable contacts Manual Protection Device in PIT	X			X(*)
24	1,5 s	EN 81.20 / 21 with bistable contacts Manual Protection Device in PIT	X	X		X
25	1,5 s	EN 81.20 / 21 with bistable contacts Protection Device SHI Technolift		X	X(*)	X
26	1,5 s	EN 81.20 / 21 with bistable contacts Protection Device SHI Technolift	X			X(*)
27	1,5 s	EN 81.20 / 21 with bistable contacts Protection Device SHI Technolift	X	X		X
28	1,5 s	EN 81.20 / 21 with bistable contacts Protection Device OSG A3 Montanari		X	X(*)	X
29	1,5 s	EN 81.20 / 21 with bistable contacts Protection Device OSG A3 Montanari	X			X(*)
30	1,5 s	EN 81.20 / 21 with bistable contacts Protection Device OSG A3 Montanari	X	X		X
31	1,5	EN 81.20 / 21 with bistable contacts Protection Device ELGO + OSG A3 (type 2)	X	X		X
32	1,5 s	EN 81.20 / 21 with bistable contacts Protection Device AMI 100 CMF		X	X(*)	X
33	1,5 s	EN 81.20 / 21 with bistable contacts Protection Device AMI 100 CMF	X			X(*)
34	1,5 s	EN 81.20 / 21 with bistable contacts Protection Device AMI 100 CMF	X	X		X

35	1,5 s	EN 81.20 / 21 with monostable contacts Manual Protection Device in PIT		X	X	
36	1,5 s	EN 81.20 / 21 with monostable contacts Manual Protection Device in PIT	X		X(*)	
37	1,5 s	EN 81.20 / 21 with monostable contacts Manual Protection Device in PIT	X	X	X	
38	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device SHI Technolift		X	X	
39	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device SHI Technolift	X		X(*)	
40	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device SHI Technolift	X	X	X	
41	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device OSG A3 Montanari		X	X	
42	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device OSG A3 Montanari	X		X(*)	
43	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device OSG A3 Montanari	X	X	X	
44	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device AMI 100 CMF		X	X	
45	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device AMI 100 CMF	X		X(*)	
46	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device AMI 100 CMF	X	X	X	
47	1,5 s	EN 81.20 / 21 with bistable contacts Protection Device SDH Technolift		X	X(*)	X
48	1,5 s	EN 81.20 / 21 with bistable contacts Protection Device SDP Technolift	X			X(*)
49	1,5 s	EN 81.20 / 21 with bistable contacts Protection Device SDH + SDP Technolift	X	X		X
50	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device SDH Technolift		X	X	
51	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device SDP Technolift	X		X(*)	
52	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device SDH + SDP Technolift	X	X	X	
53	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device ESG WITTUR		X	X(*)	X
54	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device ESG WITTUR	X			X(*)
55	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device ESG WITTUR	X	X		X
56	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device ESG WITTUR		X	X	
57	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device ESG WITTUR	X		X(*)	
58	1,5 s	EN 81.20 / 21 with monostable contacts Protection Device ESG WITTUR	X	X	X	

Table IX.1 –UCM

X(*) = means that contact is needed only at the lowest floor door.

ANNEX X: Shaft Protection

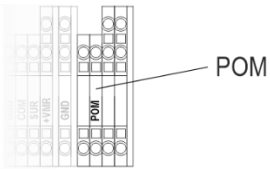
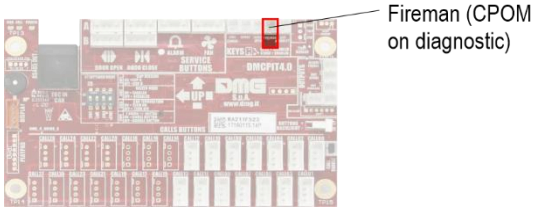
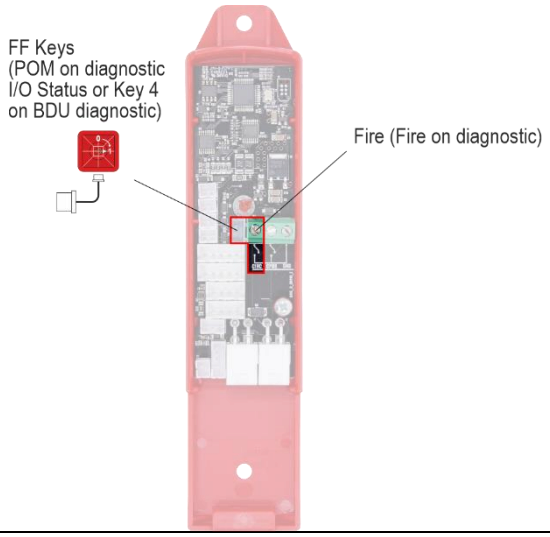
The following table indicates how to set the Shaft Protection parameter according to the system. The parameter activates two different functions:

- Checking jumpers on door contacts (SCS error)
- Unauthorized access control in the compartment (UAS error): function required on the Russian market.

Shaft Protection	SCS Fault	UAS Fault	
Tipo		Door contacts	Hatch contacts
No	Disabled	Disabled	
1 ⇔ 5	Do not use		
6	Yes	Disabled	
7	Yes	Door contact N.O.	Disabled
8	Yes	Door contact N.C.	Disabled
9	Disabled	Disabled	Door contact N.O.
10	Disabled	Disabled	Door contact N.C.
11	Disabled	Door contact N.O.	Door contact N.O.
12	Disabled	Door contact N.C.	Door contact N.C.
13 ⇔ 16	Do not use		
17	Yes	Disabled	Door contact N.O.
18	Yes	Disabled	Door contact N.C.
19	Yes	Door contact N.O.	Door contact N.O.
20	Yes	Door contact N.C.	Door contact N.C.

Table X.1 – Shaft Protection

ANNEX XI: Fire operation programming procedure

Wirings	
Input POM Input located on the screw terminal	
Input FIREMAN Input located on DMCPIT board in the car	
Input Fire and input FF keys Input located on BDU	

Firefighter maneuvers

a. **SITUATION 1:** ONE FIRE-FIGHTERS KEY (AT EVACUATION FLOOR)

Enter the menu "SPECIAL FUNCTIONS" submenu "FIREFIGHTERS" and set:

- The floor where the fire-fighters key is located
- The Access (if there are multiple doors)
- The stand-by state of the key switch contact (NO or NC); in case of NC contact the FIREMAN input of DMCPIT must be shunted.
- The operation EN 81-72 (a)

Using these settings, when the fire-fighters key at fire-fighters floor has been activated (input FF Keys), the elevator will go to the programmed floor, open the doors and turn off the Landing Operation Panels (PHASE 1); the Car Operating Panel remains in operation. The operation ends when the elevator arrives at the programmed floor and the fire-fighters key is turned to 'off' condition.

b. **SITUATION 2**: TWO FIRE-FIGHTERS KEY SWITCHES (AT FLOOR AND IN THE CAR)

Enter the menu "SPECIAL FUNCTIONS" submenu "FIREFIGHTERS" and set:

- The floor where the fire-fighters key is located
- The Access (if there are multiple doors)
- The stand-by state of the key switches (NO or NC)
- The operation EN 81-72 (b)

Using these settings and once the fire-fighters key at the fire-fighter floor has been activated, the elevator will go to the programmed floor (PHASE 1), open the doors and turn off the Landing Operation Panels. The Car Operating Panel remains in operation but only after the fire-fighter key in the CAR (input FIREMAN) has been turned on. The operation ends when the elevator arrives at the programmed floor and the fire-fighters keys are turned to 'off' condition.

c. **SITUATION 3**: EXTERNAL FIRE CONTACT WITH ONE CONTACT AND ONE FIREFIGHTERS KEY ONLY (AT FLOOR)

Enter the menu "SPECIAL FUNCTIONS" submenu "FIREFIGHTERS" and set:

- The floor where the fire-fighters key is located
- The Access (if there are multiple doors)
- The stand-by state of the key switch and of the external fire contact (NO or NC)
- The operation EN 81-72 (a)
- Connect the wiring as indicated in the electric diagram: the contact from the external fire contact must be connected to the input FIREMAN of the DMCPIT.

The activation of this input will start PHASE 1 of the operation (also called evacuation) and will not allow car calls without the activation of the fire-fighters key-switch. Using these settings and once the contact has been activated by the external fire contact, the elevator will go to the programmed floor, open the doors and remain stopped (PHASE 1). The Landing Operation Panels are disabled and the Car operating Panel remains in operation but only after turning on the fire-fighters key at the floor (input FF Keys). The reactivation of the elevator will take place, (bringing the elevator to the programmed floor), by turning off the key and deactivating the contact from the external fire contact.

d. **SITUATION 4**: EXTERNAL FIRE CONTACT WITH ONE CONTACT AND TWO FIREFIGHTERS KEYS (AT FLOOR AND IN THE CAR)

Enter the menu "SPECIAL FUNCTIONS" submenu "FIREFIGHTERS" and set:

- The floor where the fire-fighters key is located
- The Access (if there are multiple doors)
- The stand-by state of the key switches and the external fire contact (NO or NC)
- The operation EN 81-72 (b)
- Connect the wiring as indicated in the electric diagram:
    - the contact of the external unit must be connected on screw terminal (POM)
    - the floor's firemen key must be wired on BDU's input with

NOTE: in case of no BDUs inputs must be wired on screw terminal input POM (in series for NC contacts, in parallel for NO contacts).

The activation of this input will start PHASE1 of the operation (also called evacuation) and will not allow car calls without the activation of the fire-fighters key-switch in the car.

Using these settings and once the contact by the external fire contact OR the key at floor has been activated, the elevator will go to the programmed floor, open the door and remain stopped (PHASE 1). The Landing Operation Panels are disabled and the Car Operating Panel remains in operation but only after the fire-fighter key in the CAR (input FIREMAN) has been turned on. The reactivation of the elevator

will take place bringing the elevator to the programmed floor, by turning off the fire-fighter keys at the floor and in the car and deactivating the contact from the external fire contact.

e. **SITUATION 5**: DM 15/09/2005 EMERGENCY LIFT: EXTERNAL FIRE DETECTION UNIT WITH A SINGLE CONTACT, FIRE KEYS ON EACH FLOOR AND IN THE CABIN

The customer must enter the "SPECIAL FUNCTIONS" menu, submenu "FIREFIGHTERS", and set:
- the access floor of the fire fighters
- access (if there are multiple ports)
- The stand-by state of the key switches (keys are optional) (NO or NC)
- the maneuver DM 15/09/2005 (IT)

With these settings, once the entrance dedicated to fire detection (POM input) has been activated, any calls will be canceled, the floor and car push-button panels will be deactivated and the elevator will go to the scheduled floor (PHASE 1). Later it will be possible

- with the floor fire key: make a call to any floor by turning the key in position 1 (this only if the key in the car is not active), or
- with the key in the car: use the car by the Fire Department (or authorized personnel) only after turning the key in position 1 (FIREMAN input).

The calls from the floor can be repeated even after using the car and having "freed" it (car key in position 0). The maneuver will end when the lift will be returned to the access level of the fire fighters, and all the signs reported in the stand-by condition (open or closed as needed).

PHASE 1 can also be started by activating any of the floor keys (the car will behave in the same way as the evacuation PHASE but heading to the floor where the key was turned).

If the key is operated directly in the car, the evacuation PHASE is excluded (lift in Firefighters maneuver under the control of the fire fighters).

f. **SITUATION 6**: EMERGENCY ELEVATOR

This situation repeats situation 5, with the addition of recall keys.
The recall keys must recall the lift to the floor when the maneuver is activated.
An automatic recall device to the fire-fighters floor must be provided if the lift stops for more than two minutes on a different floor from the access floor of the fire-fighters and the lift must not be under the control of the fire fighters.
Automatic activation is not necessarily expected.

Evacuation according to EN 81-73

a. **SITUATION 1**: ONLY ONE EXTERNAL FIRE CONTACT FOR FIRE DETECTION (EVACUATION)

Enter the menu "SPECIAL FUNCTIONS" submenu "FIREFIGHTERS" and set:
- The floor where the elevator must go in case of direct activation of the contact from the external fire contact
- The Access (if there are multiple doors)
- The stand-by state of the contact of the external fire contact (NO or NC). If there are programmed contacts of NC type the input FIREMAN of DMCPIT must be shunted
- The operation EN 81-73

Connect the contact to the POM input of the controller.

Using these settings and once the contact is activated by the external fire contact, the elevator will go to the programmed floor, open the doors and remain stopped (PHASE 1). The Landing Operation Panels and the Car operating Panel are disabled. The reactivation of the elevator will take place at the deactivation of the contact from the external fire contact.

b. **SITUATION 2**: EXTERNAL FIRE CONTACT AND LIFT WITH ALTERNATIVE EVACUATION FLOORS

Enter the menu "SPECIAL FUNCTIONS" submenu "FIREFIGHTERS" and set:

The first evacuation floor
- The Access (if there are multiple doors)
- The stand-by state of the key switches (keys are optional) (NO or NC)
- The operation EN 81-73
- Additional evacuation floors (up to three different) in priority order
- Connect the wiring as indicated in the electric diagram: the contacts of sensor must be connected to the BDU's input FIRE-GND. (In case of LOP's parallel wiring must be used an 16IO expansion board in the controller). In case of floors not managed by the control unit, the corresponding inputs must be shunted (if the fire sensors are programmed with NC contact).

The activation of one of signals:
- POM Key (optional contact)
- FIRE (of any of the BDUs)

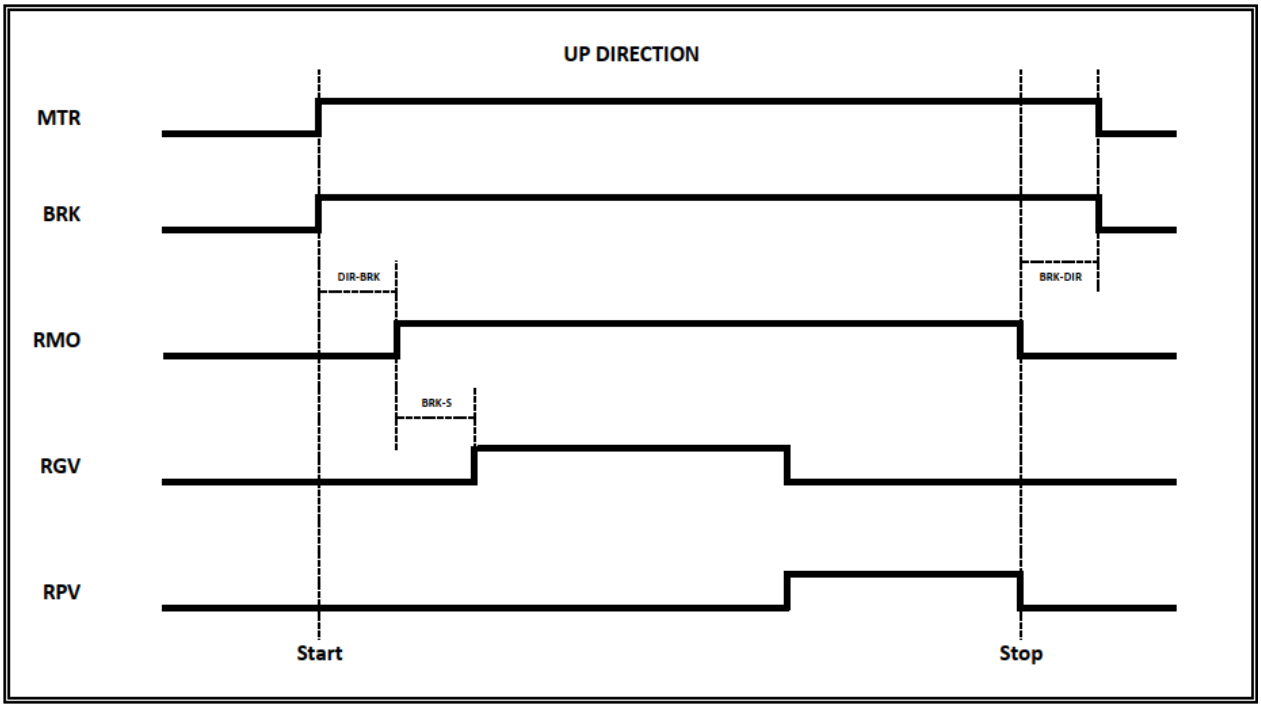
will start PHASE1 of the operation (also called evacuation) and will not allow car calls without the activation of the fire-fighters key-switch in the car. The evacuation floor could be different according the rule:
- If FIRE of main floor is not active => evacuation to main floor
- Else, If FIRE of main floor is active => evacuation to alternative floor (the first with FIRE not active)

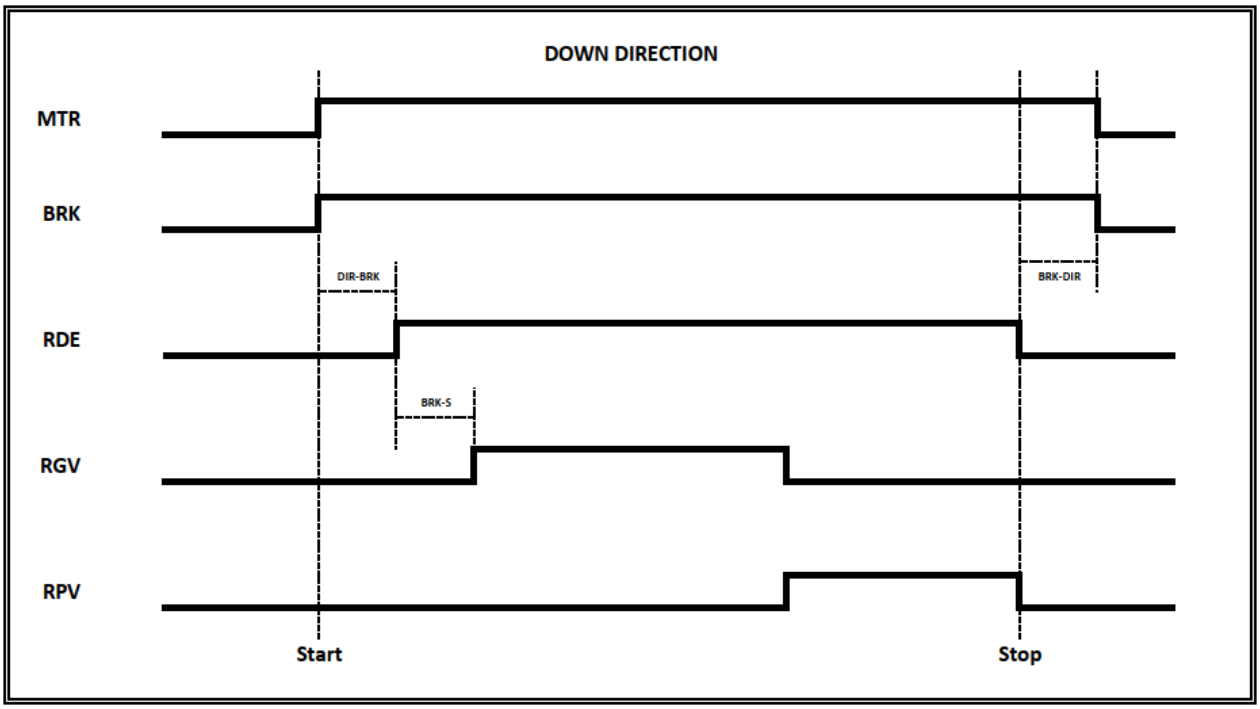
In case of multiple FIRE inputs active on all of alternative floors, it will be used the main evacuation floor. During the evacuation to a floor (when car is moving), if the corresponding input has the FIRE active, destination floor will be changed according the same rules.

Lift stops at evacuation floors, with door open (could be possible to set closed parking). Lift comes back in normal mode when the external signals (FIRE and optional POM/FIREMAN) comes back in the inactive status.

Annex XII: Timing Diagrams

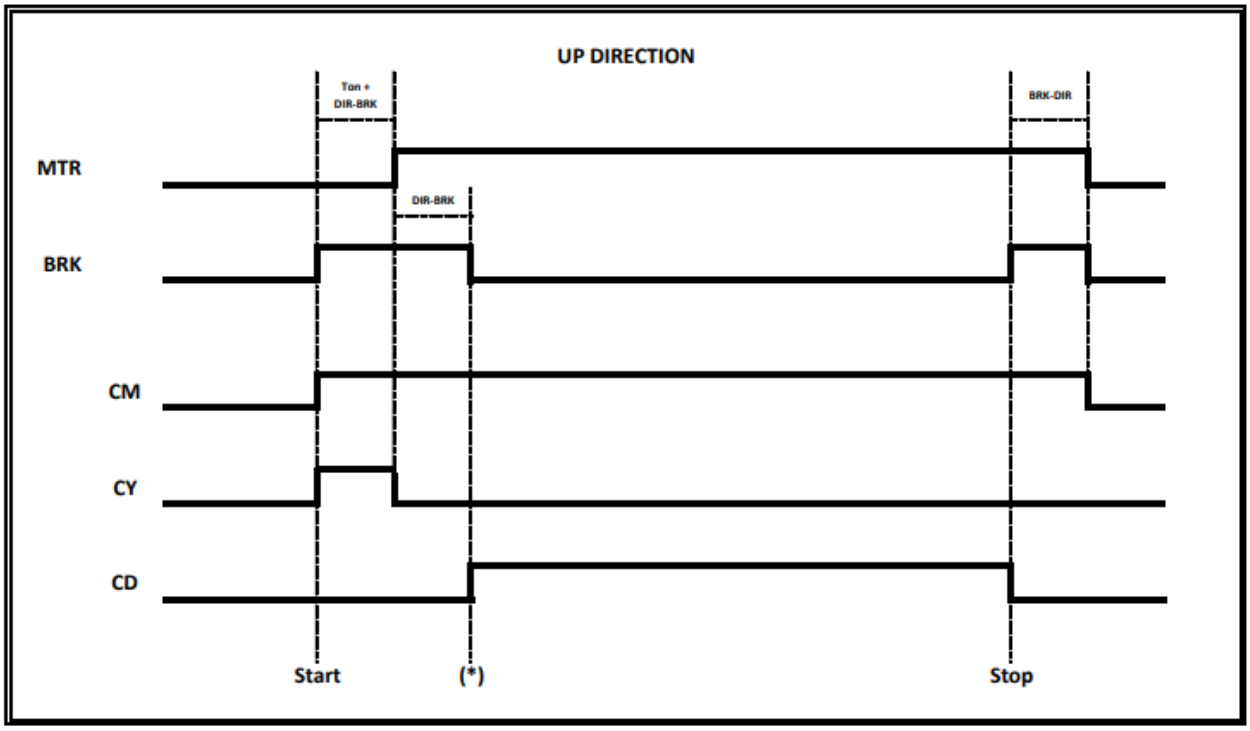
Installation with Inverter FUJI LM2





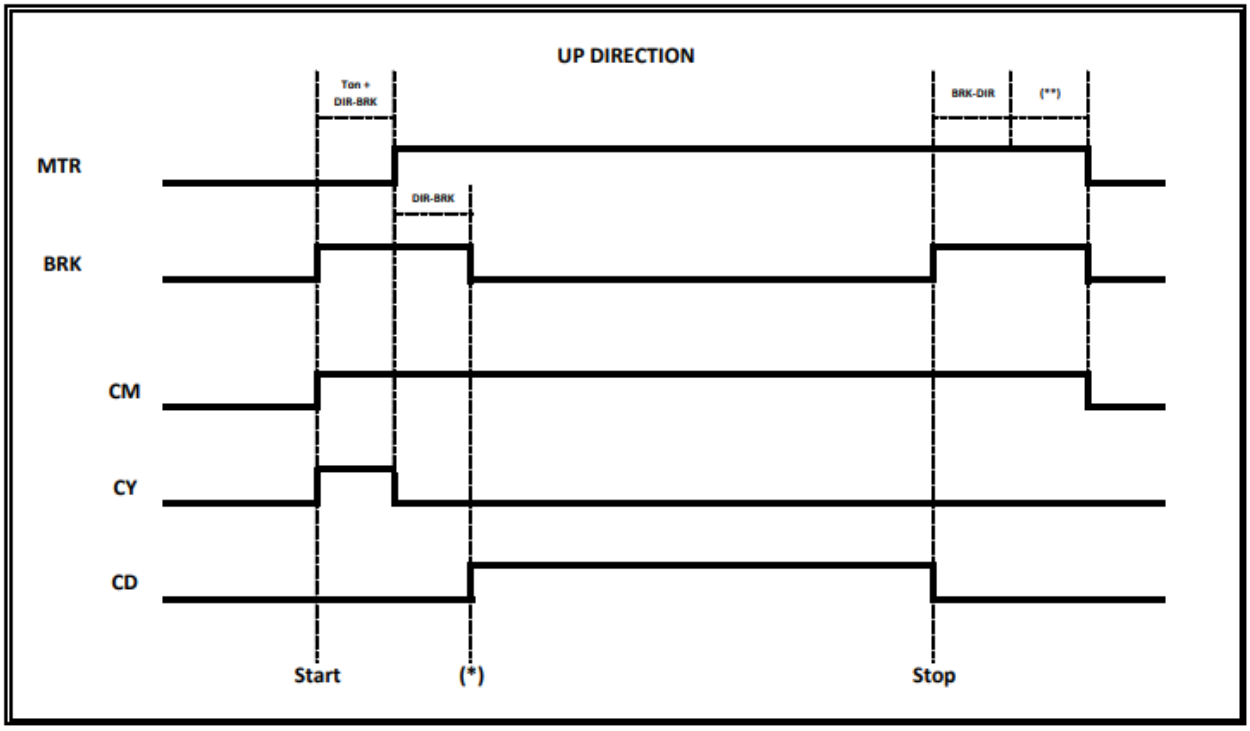
Hydraulic Lifts – Motor contactors

Direct



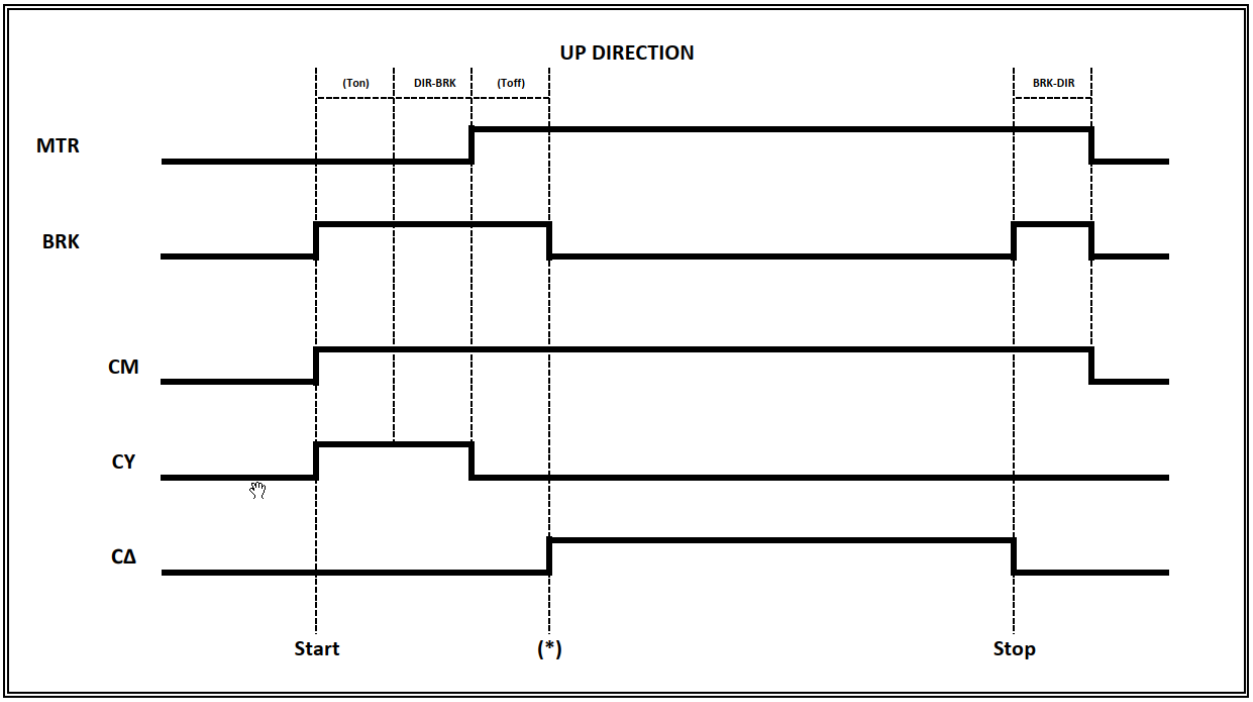
(T on) = Contactor's Time Activation, check on cco feedbacks
(*) Signal feedback for start Valve UP command

Soft Starter



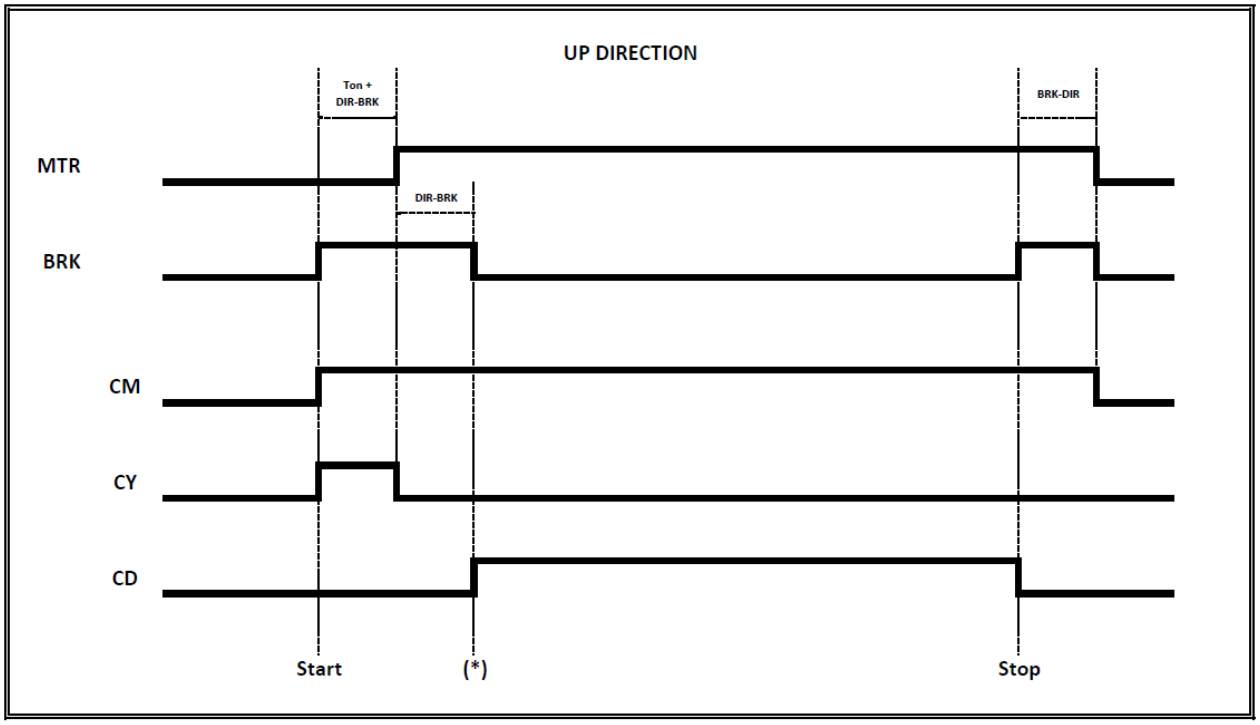
(T on) = Contactor's Time Activation, check on cco feedbacks
(*) Signal feedback for start Valve UP command
(**) Signal feedback from Soft Starter Deceleration (Soft Stop)

Star Delta



(T on) = Contactor's Time Activation, check on cco feedbacks
(T off) = Contactor's Time Disactivation, check on cco feedbacks
(*) Signal feedback for start Valve UP command

Hydro and VVF

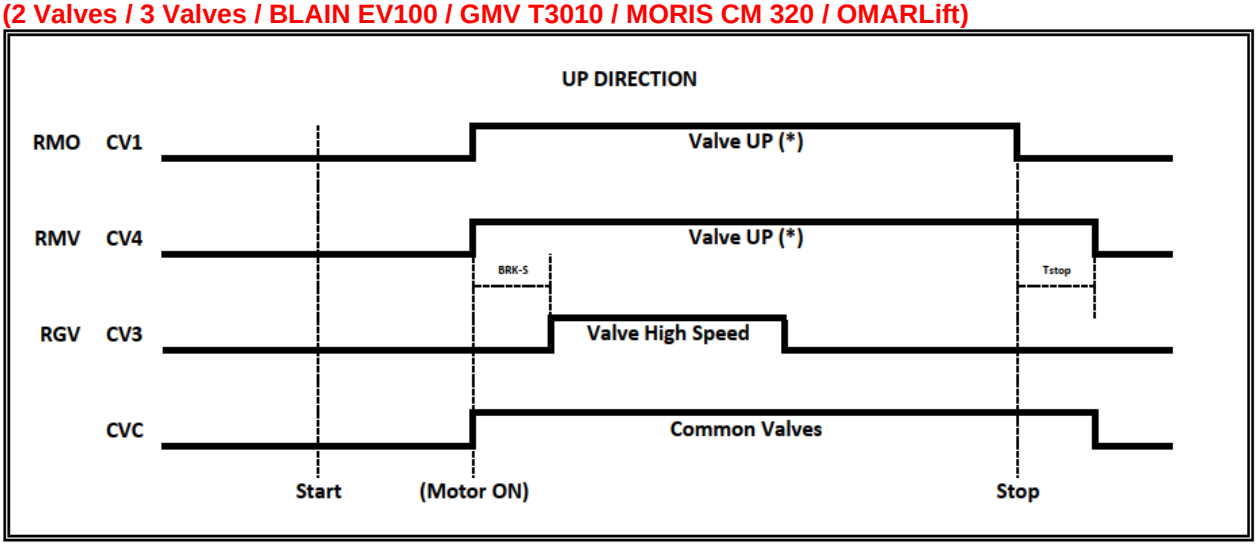


(T on) = Contactor's Time Activation, check on cco feedbacks
(*) Signal feedback for start Valve UP command

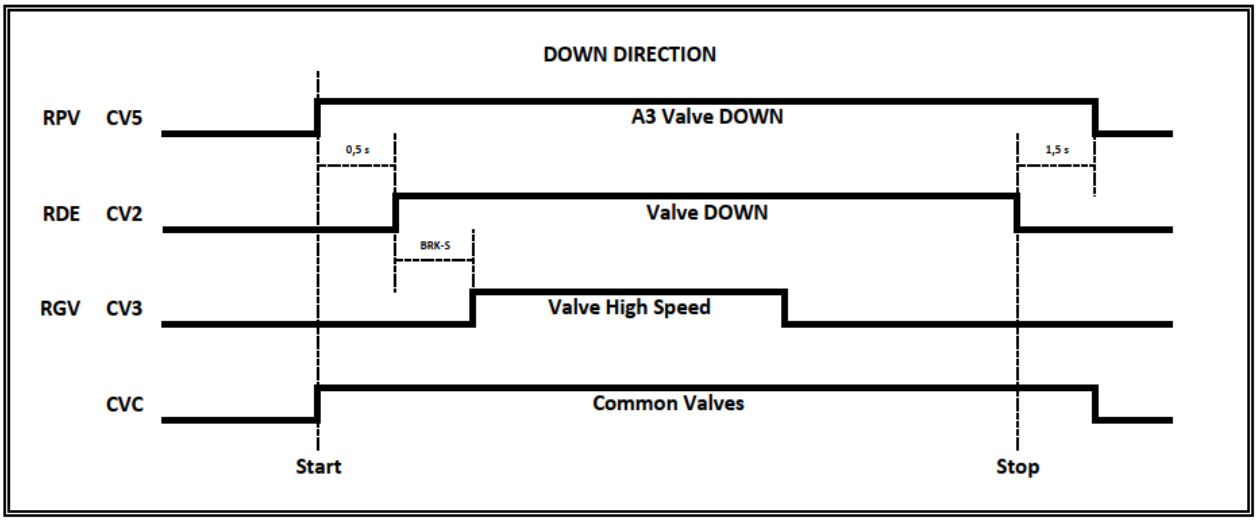
Hydraulic Lift – Valves Contactors / Valve commands

Monitor UCM = 30 ⇔ 39

(2 Valves / 3 Valves / BLAIN EV100 / GMV T3010 / MORIS CM 320 / OMARLift)

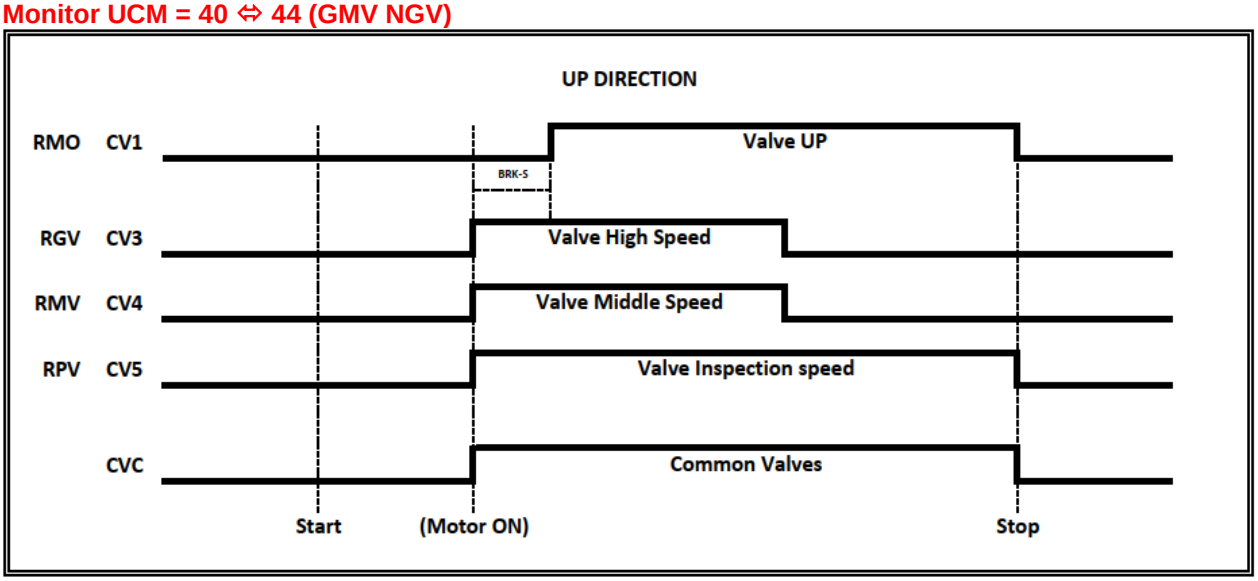


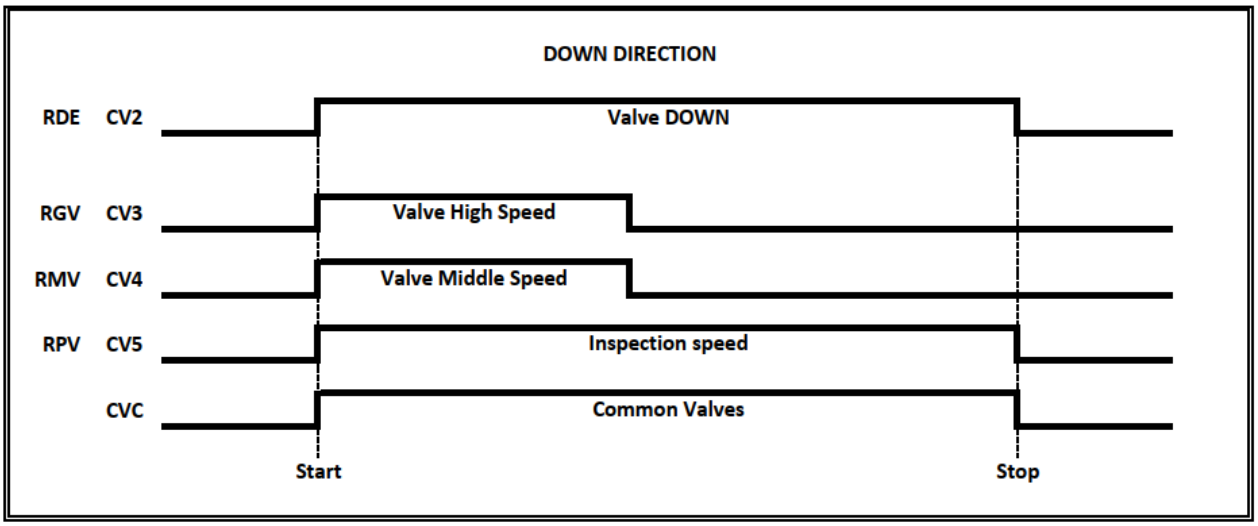
(*) In case of Soft Stop use CV1 for UP Valve's CONTACTOR
(*)In case of no Soft Stop use CV4 for UP Valve's CONTACTOR - Tstop = BRK-DIR + 1,5 s



3 Valve => NO Double Valve DOWN test (A3 Valve Down couldn't be present)
3 Valves + A3 => Double Valve DOWN test

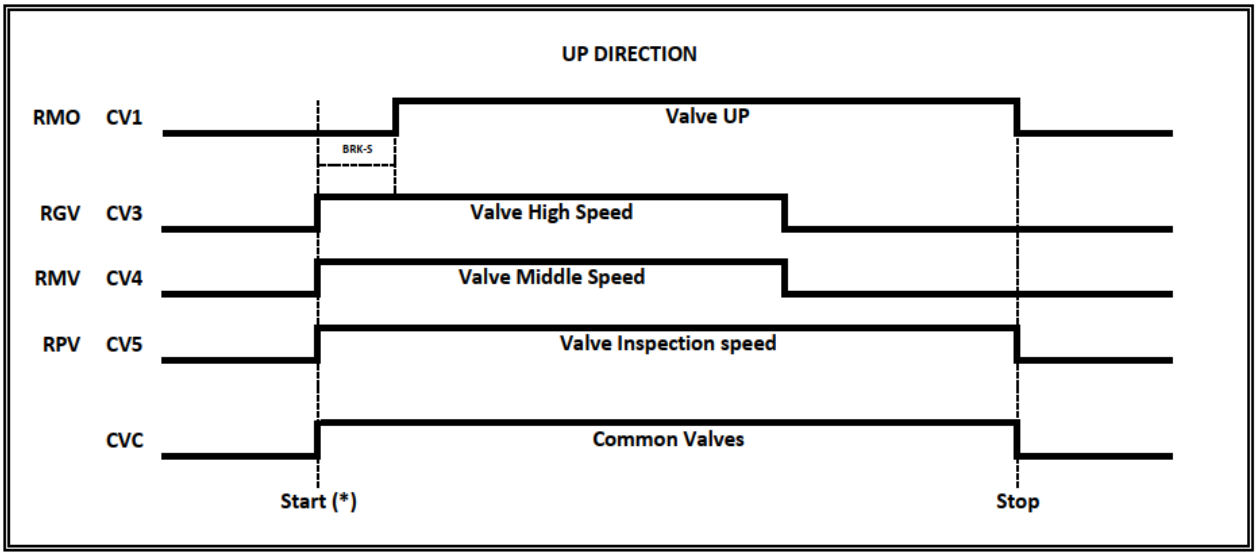
Monitor UCM = 40 ⇔ 44 (GMV NGV)



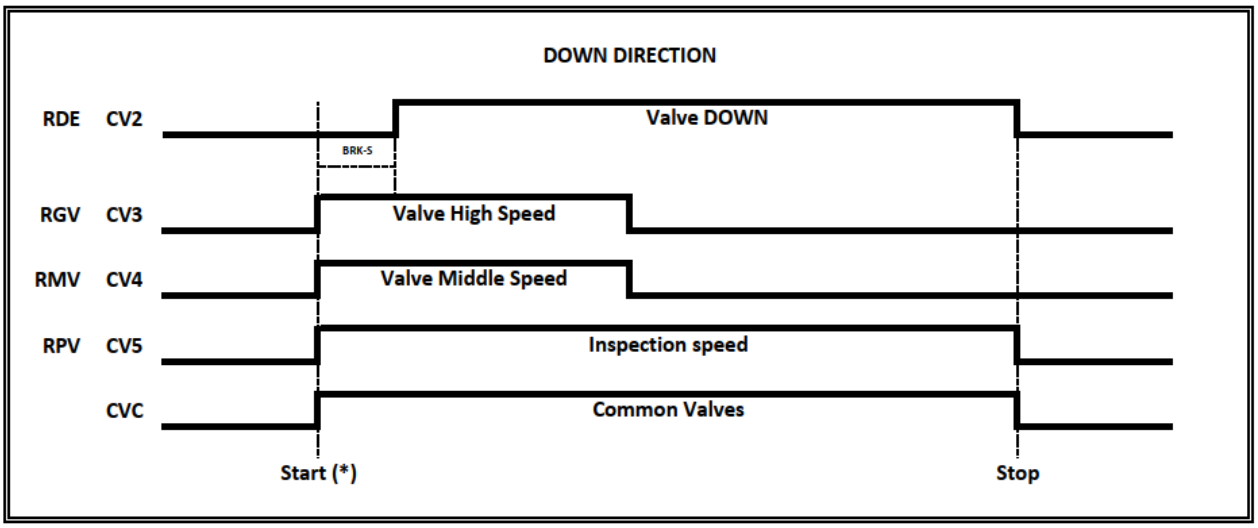


NO Double Valve DOWN test

Monitor UCM = 45 ⇔ 49 (GMV NGV A3)

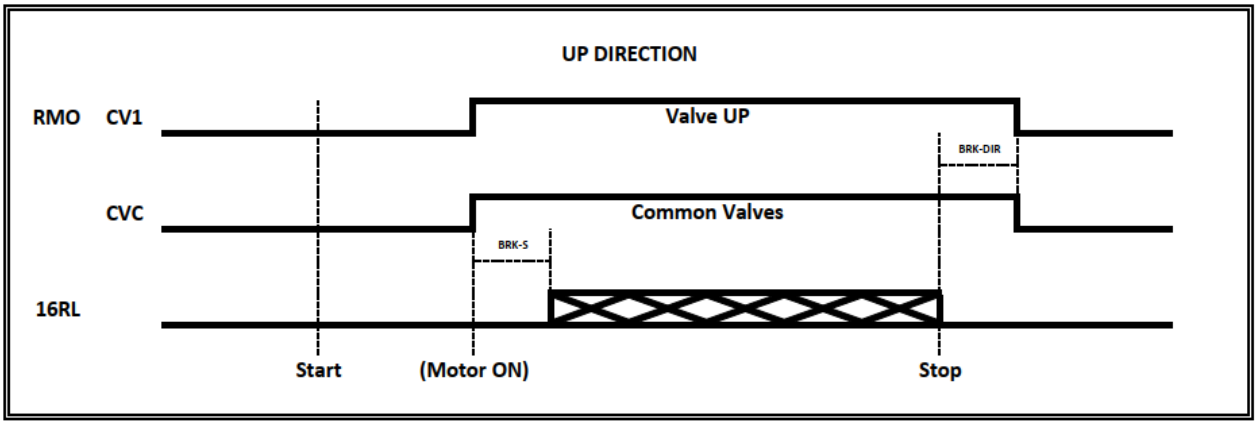


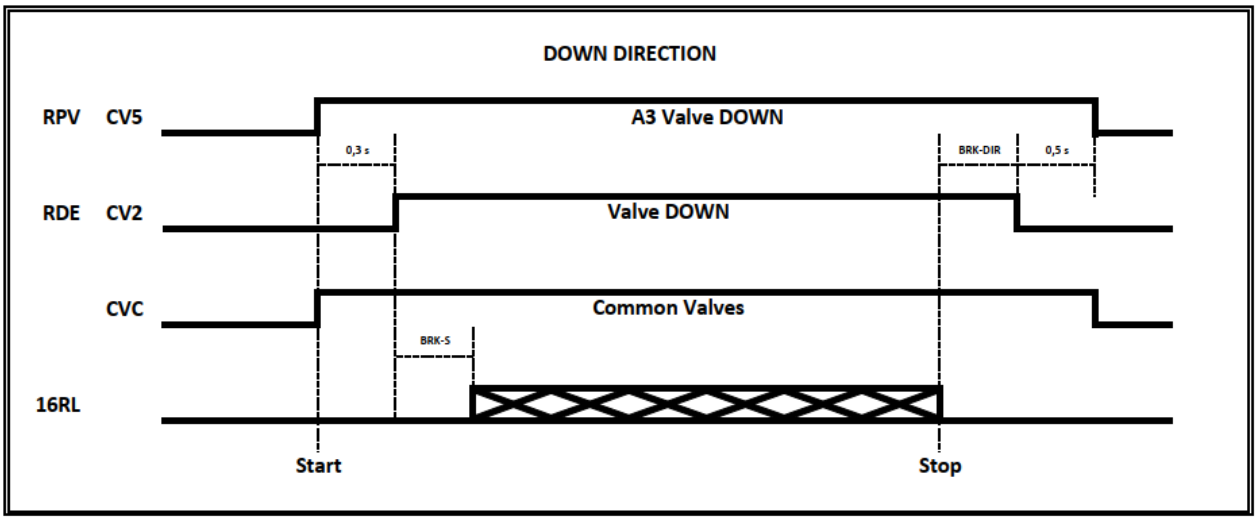
(*) Valve commands starts only if RDY signal is active
NOTE: Motor CONTACTORS Starts Only Whit RUN Feedback Signal



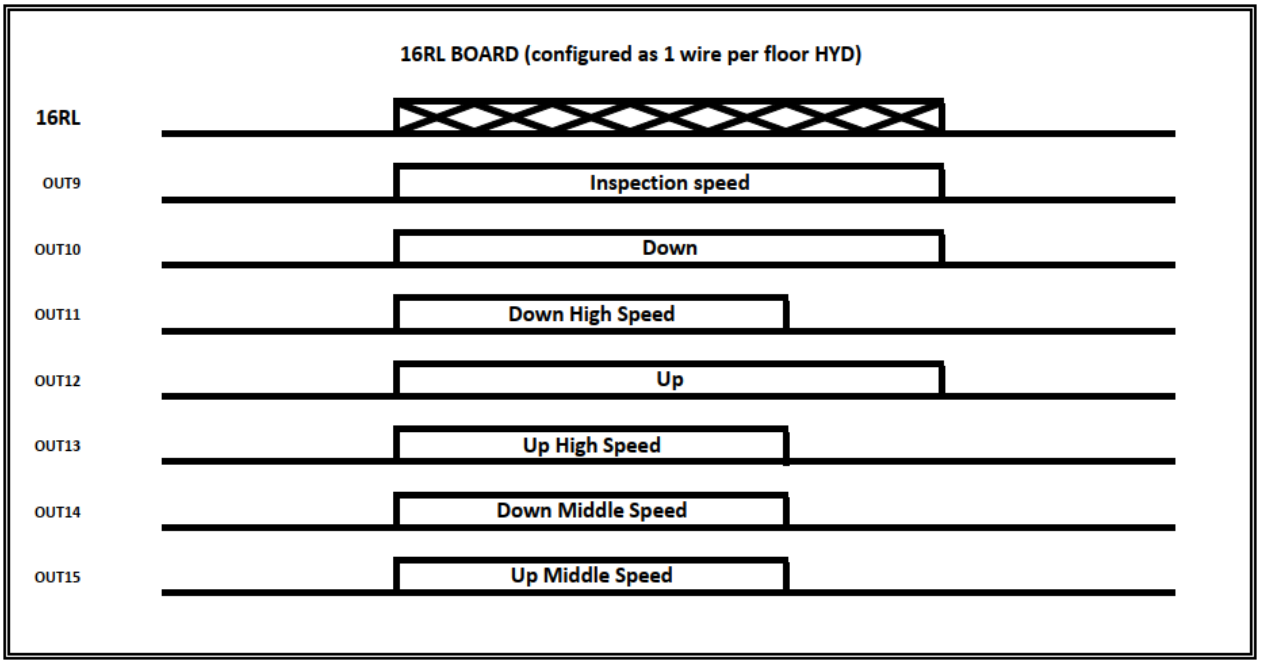
(*) Valve commands starts only if RDY signal is active

Monitor UCM = 50 ⇔ 59 (BUCHER LRV / BUCHER NTA-2 / BUCHER NTA-2 + DSV A3)

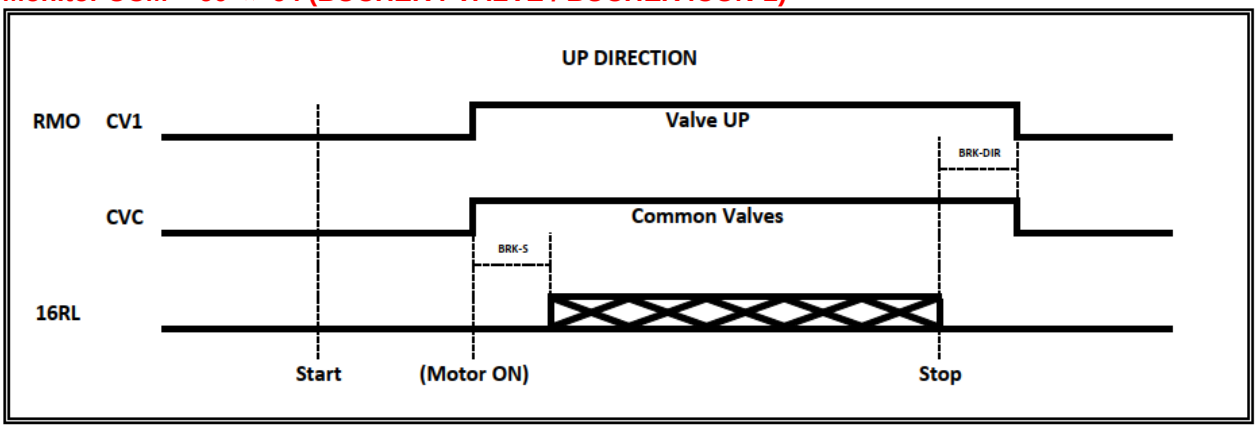




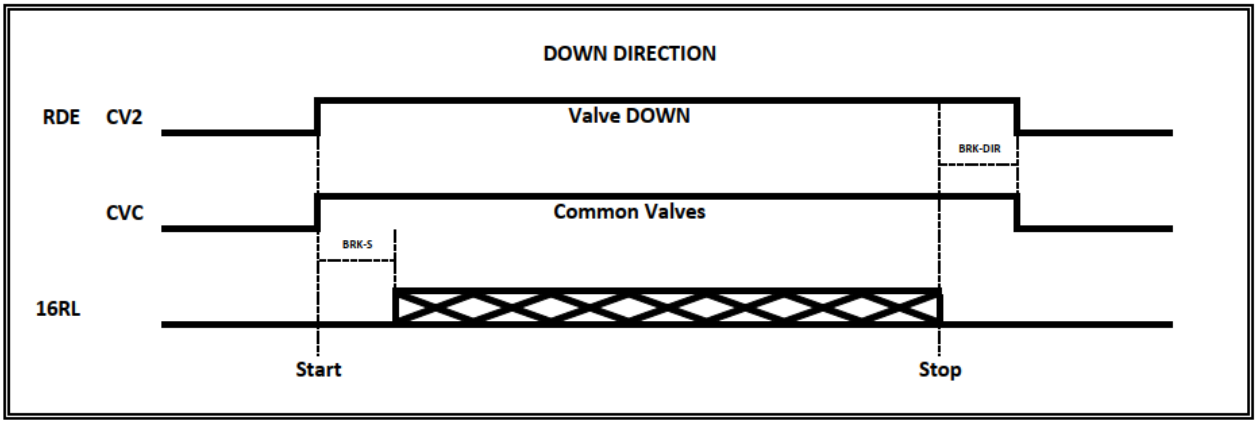
LRV1 + NTA-2 => NO Double Valve DOWN test (A3 Valve Down couldn't be present)
LRV1 + NTA-2 + A3 => Double Valve DOWN test



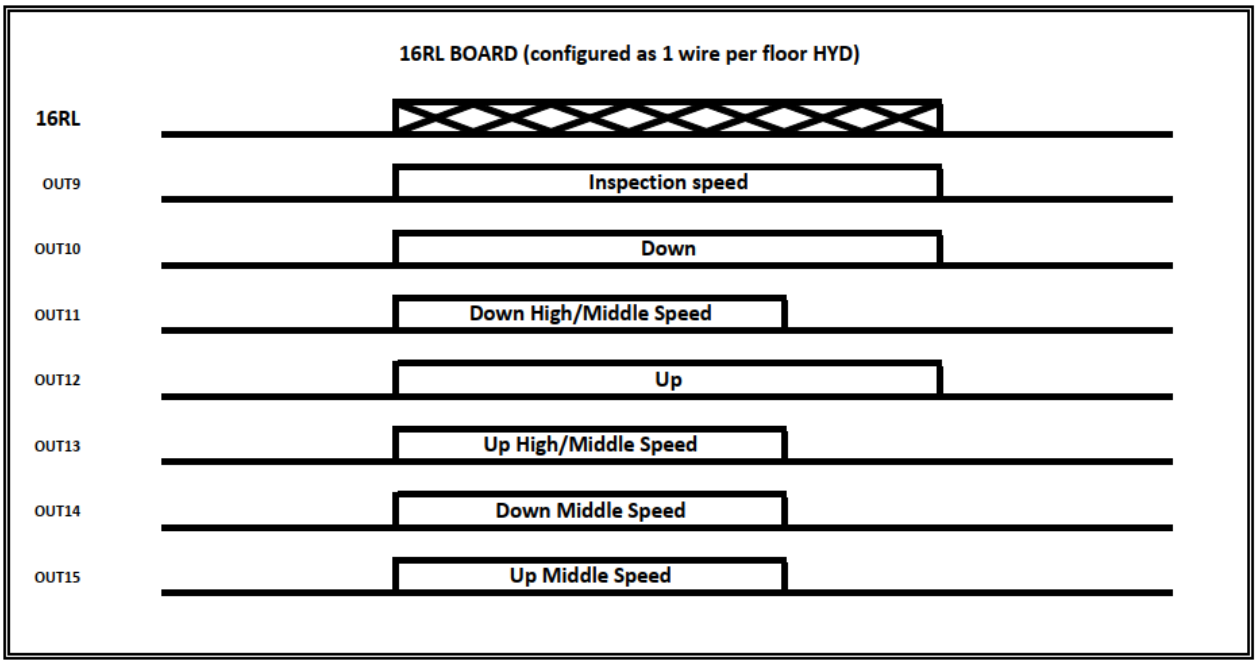
Monitor UCM = 60 ⇔ 64 (BUCHER i-VALVE / BUCHER iCON-2)



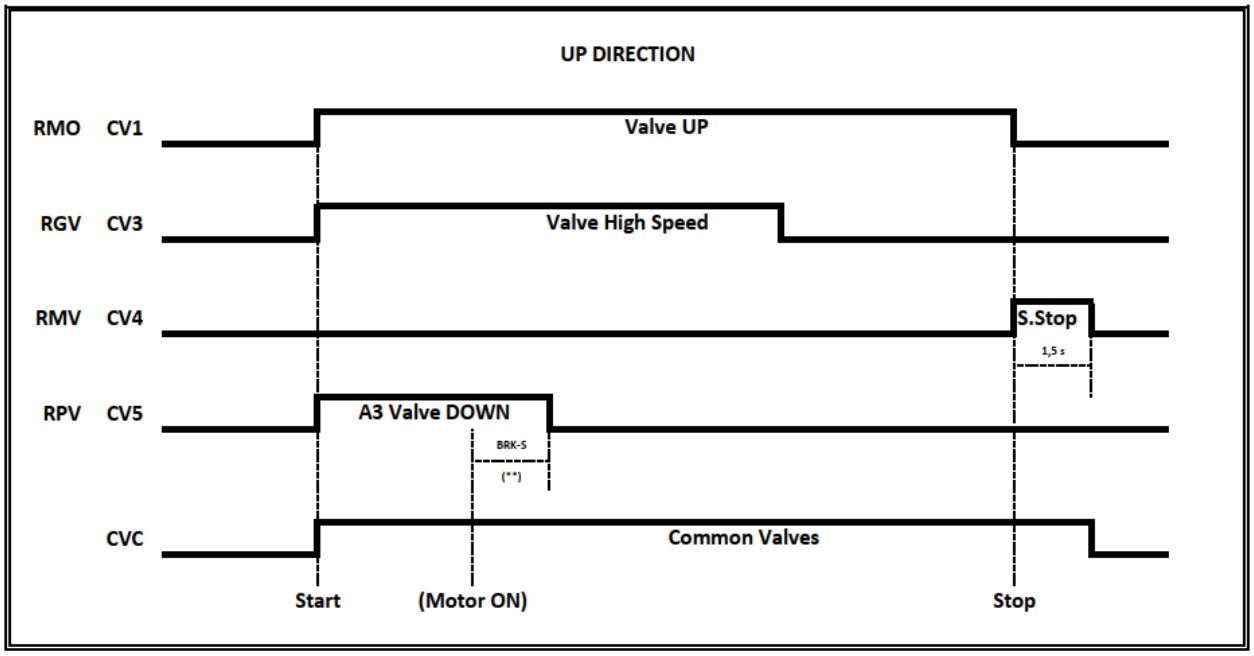
Monitor of SIGNAL +SMA



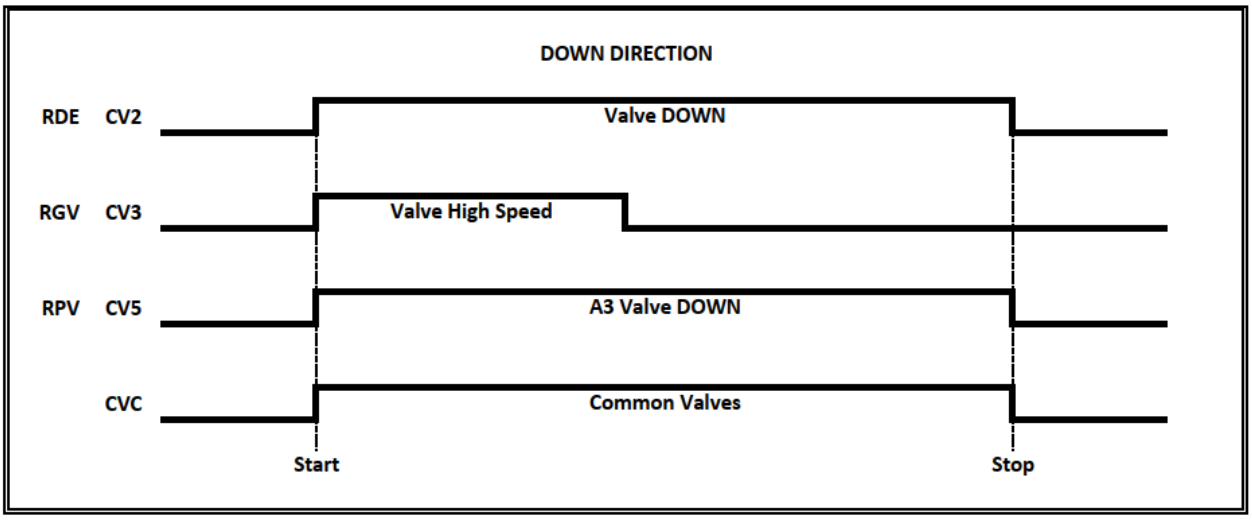
Monitor of SIGNAL +SMA



Monitor UCM = 65 ⇔ 74 (START ELEVATOR 93/E-2DS)

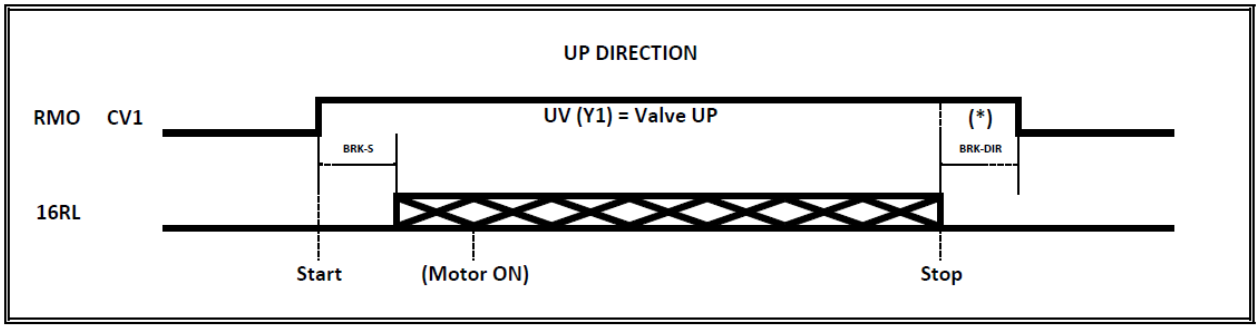


(**) Signal feedback from Soft Starter Acceleration (Y-BRKS)
CV1 = used only with 93/E-SL valves (Soft Stop with delay BRK-DIR)
CV4 = used only with 93/E-2DS valves (Soft Stop)

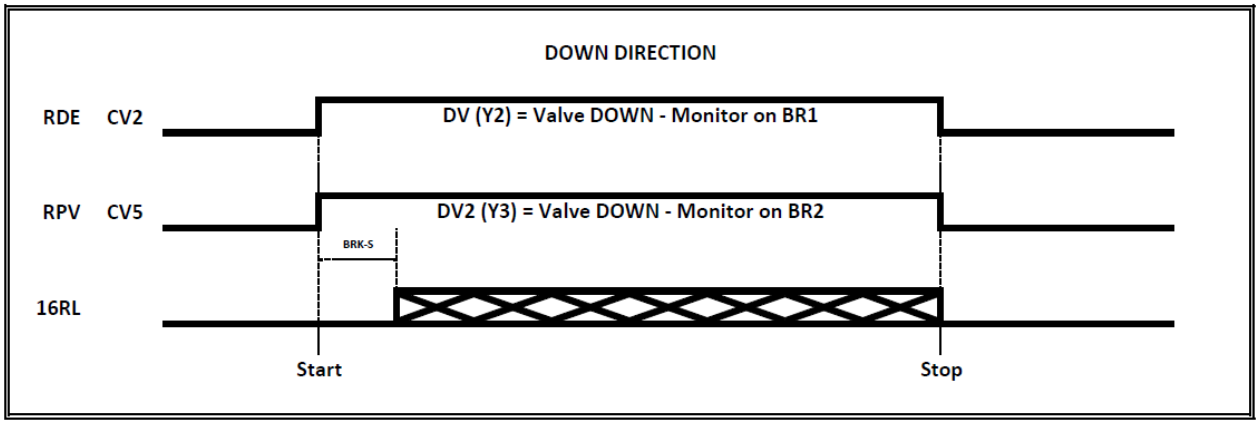


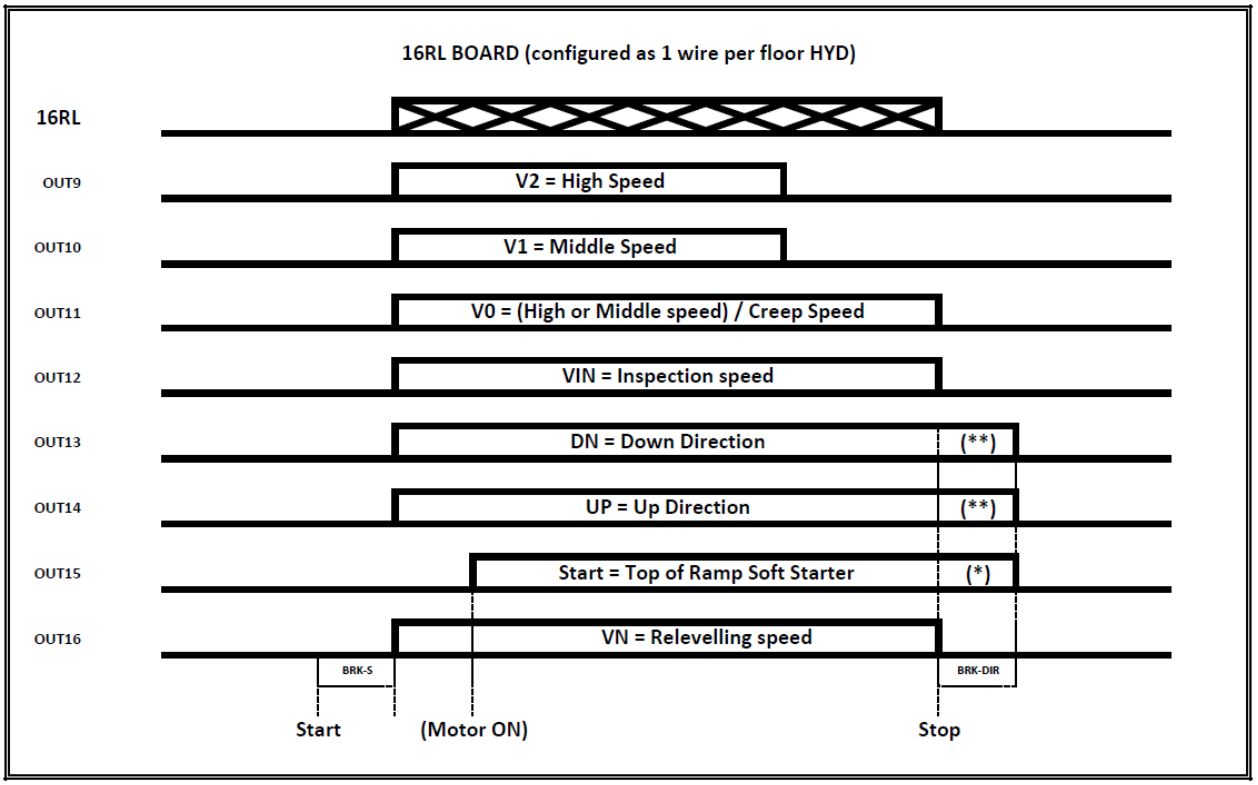
3 Valve => NO Double Valve DOWN test (A3 Valve Down couldn't be present)
3 Valves + A3 => Double Valve DOWN test

Monitor UCM = 75 ⇔ 79 (ALGI AZRS 2.0)



(*) BRK-DIR = 0,0 s when "soft STOP" is not requested / BRK-DIR = 0,7 s for "Soft STOP"

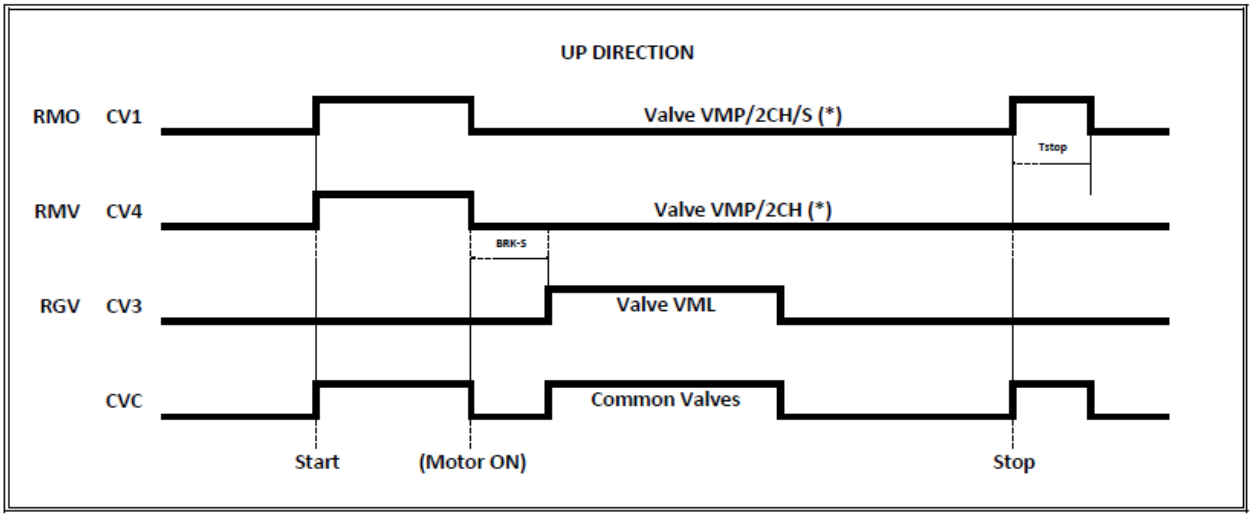




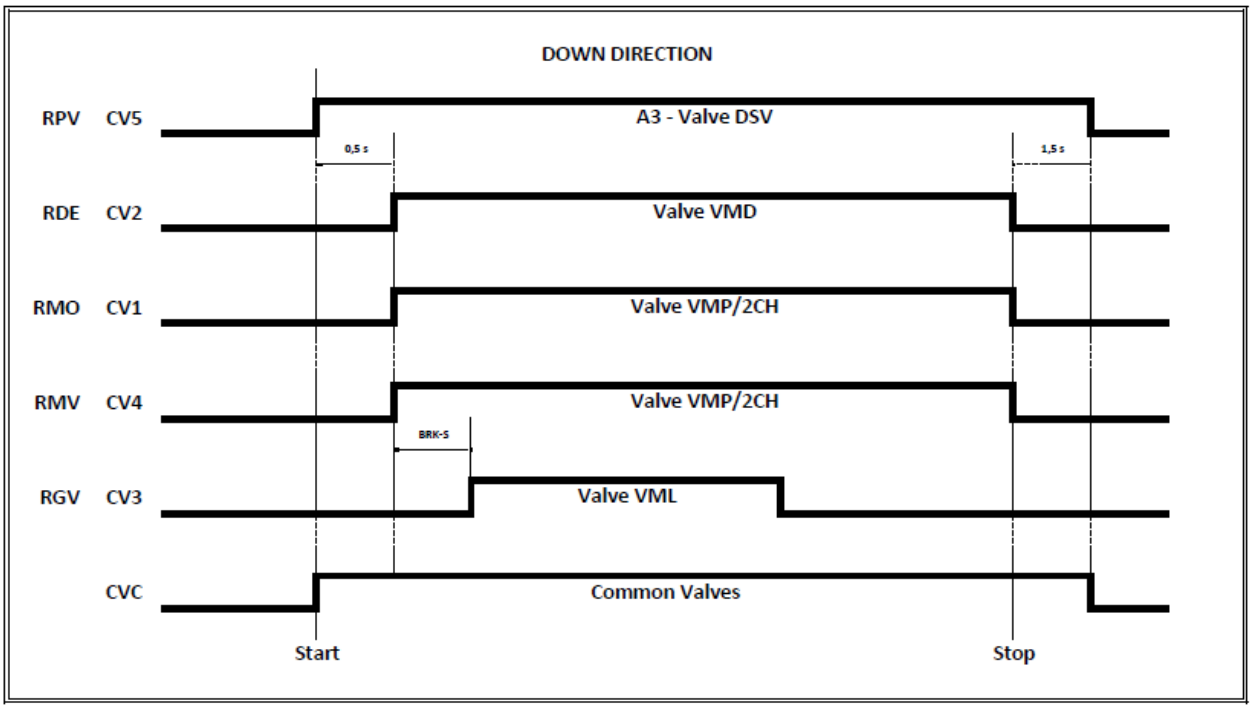
(**) for relevelling these commands ends on the Stop point because Soft Stop is not required in relevelling

Monitor UCM = 80 ⇔ 89

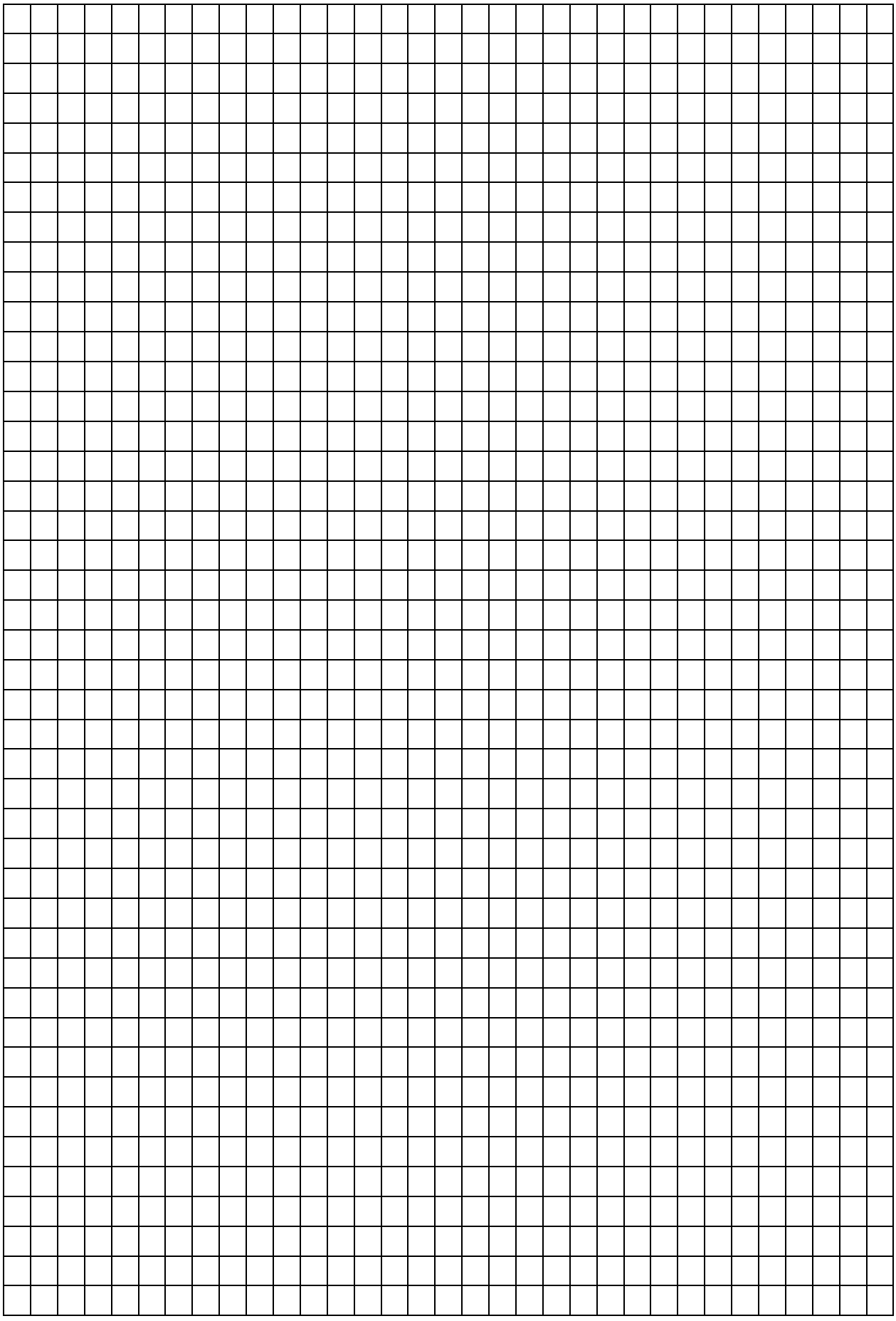
(GMV 3010 2CH – GMV 3010 2CH/S – GMV 3010 2CH + DLV – GMV 3010 2CH/S + DLV)

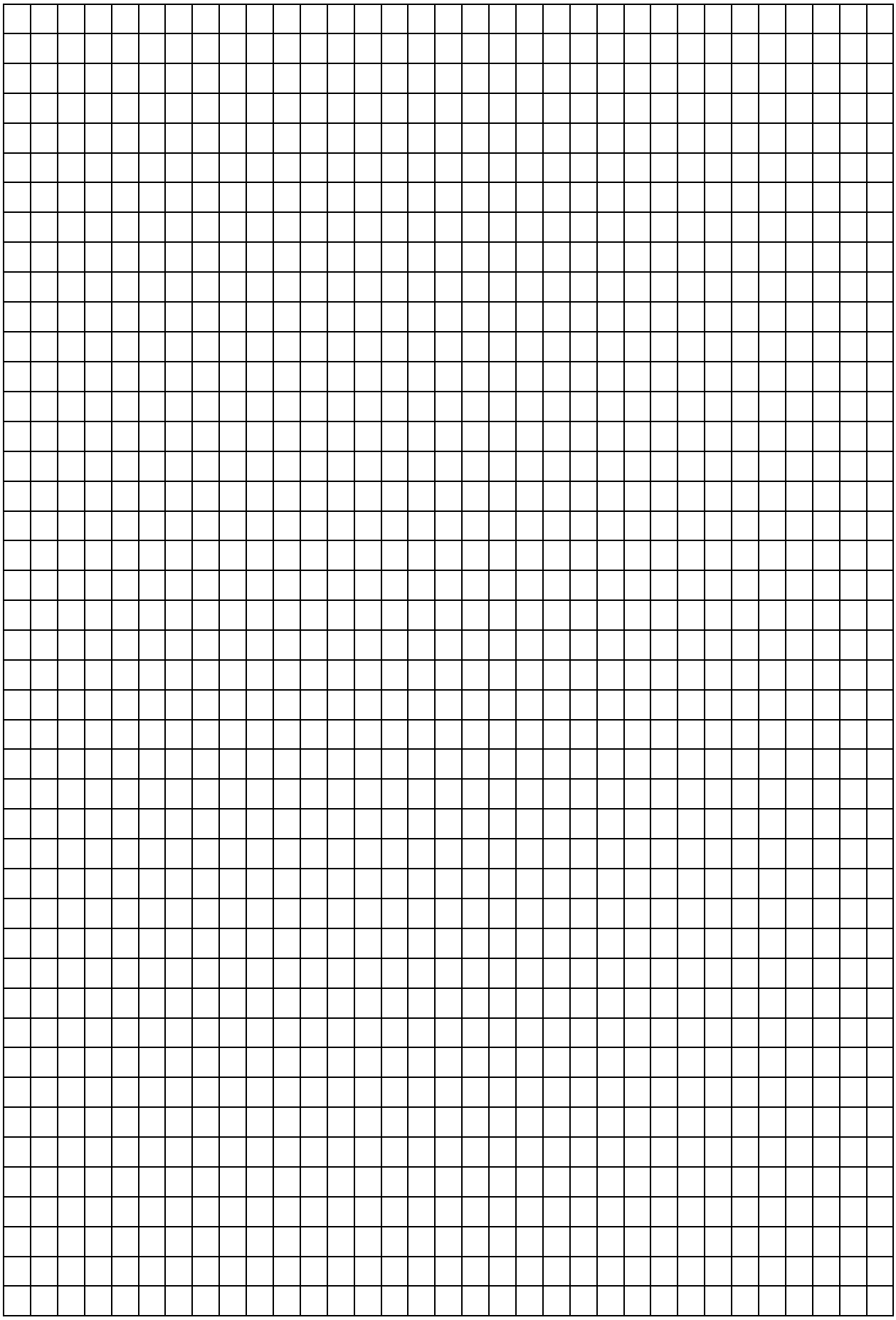


(*) In case of Soft Stop use CV1 for UP Valve's CONTACTOR
(*) In case of no Soft Stop use CV4 for UP Valve's CONTACTOR - Tstop = BRK-DIR + 1,5 s



3 Valve => NO Double Valve DOWN test (A3 Valve Down couldn't be present)
3 Valves + A3 => Double Valve DOWN test





PITAGORA 4.0

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