ALC   SERIES   LIFT CONTROL   SYSTEMS

USER MANUAL

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Based on the ALC Software Version 2.08e

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PREFACE

ALC Series Lift Control System is designed to fulfil the requirements of the new EN81-20 / 50 standards for electric and hydraulic lifts. It supports a wide range of lift applications for up to 64 floors. ALC makes use of intelligent electronic units communicating via CAN-BUS in the overall lift system. The system comes with three CAN ports which provide flexibility in connecting CAN-units. The communication hardware between car and controller is designed to be a fault tolerant CAN to increase the robustness to against any electronic disturbances in the connection.

ALC supports parallel and serial communications for landing panels and group operations for up to 8 lifts. There are various function boards in ALC system to support specific functions and increase flexibility. It also has integrated lift access control system and VIP travel facilities in its software to restrict the use of the lift.

ALC series has advanced data communication facilities. There are interfaces for ethernet, USB, and Bluetooth connections in ALC series to enable any user to edit the parameters in the controller or observe the motion of the lift either by a computer or a mobile device locally or via the internet.

In this manual, you will find detailed information about ALC Series Lift Control System. However, since there are continuous developments in software it is possible that the software version you are using may not be fully compatible with this manual. If this is the case, you can download the most recent manual from www.aybey-elektronik.de

You can send a mail to support@aybey-elektronik.de either to get more technical information about ALC or to send any comments. Please feel free to contact us for any problems or suggestions. We are also looking forward to your suggestions which can lead to the improvement of our systems.

AYBEY ELEKTRONIK GmbH

CHAPTER 1 - DESCRIPTION OF THE SYSTEM

1.1) SERIAL COMMUNICATION AND CONFIGURATIONS

The communication between car and controller in ALC series is always serial. However, the landing panels can be connected both in serial and in parallel. The communication system is CAN. When landings are parallel then the configuration is called as "car serial" and when landings are serial then the configuration is called "full serial". The serial interfaces between car and controller are always in low speed and fault tolerant mode where the interface for landings can be selected as low speed fault tolerant or high speed. The terminal board used in the controller depends on the serial configuration. In full serial configuration ALSK terminal boards and in car serial configuration ALPK terminal boards should be used.

1.2) CALL REGISTERS

1.2.1) CAR CALLS:

   i)   **Not prewired systems**: Car calls are collected by the car controller board SCB for up to 16 stops. For more than 16 stops CAN-IO boards must be connected to the car circuit to collect car calls. Each CAN-IO board has a 16-stop capacity.
   ii)   **Prewired systems**: Car calls are collected by the car controller board PWS for up to 16 stops. For more than 16 stops APE boards must be connected to the car circuit to collect car calls. Each APE board has a 16-stop capacity.

1.2.2) LANDING CALLS:

   ii)   **Car Serial Systems:** The terminal board ALPK has 8 call registers onboard. An I/O board can be plugged onto ALPK to increase the number of call registers to 16. For greater numbers, CAN-IO boards must be added to increase number of landing call registers. Each CAN-IO board has 16 call registers.
   iii)   **Full serial systems:** CAN landing units collect and send calls at the landings. No additional board is required for any number of stops.

1.3) DOORS

ALC lift controller system supports two car doors separately. There are separate door open, door close, photocell and door limit inputs for two doors. There are also various timers associated with doors. Adequate door open checking tests in conformity to the lift standard EN81-20/50 have been developed for one and two doors as well as full and semi-automatic doors. The door bridging board SDB is always required to test the doors at arrival. Therefore, it must be plugged always onto ICM mainboard even when no releveling and door pre-opening are requested if EN81-20/50 standard is obeyed.

1.4) CAN PORTS

There are three CAN ports on ALC mainboard. One is built-in on the main board (C0) for low speed fault tolerant mode and is used as default connection for the car. C1 and C2 ports require an add-on CAN interface board (CSI or CCI) to be plugged onto the mainboard to become active. However, any CAN port can be configured for any circuit (landing, car, group, absolute encoder, etc.). Please note that the landing circuit will be low speed fault tolerant if CSI is used and high speed if CCI is used.

1.5) ELECTRONIC BOARDS IN THE SYSTEM

The electronic boards used in ALC system and their descriptions are listed below.
ALC: It is the main controller board of ALC system. It contains a microcontroller, an LCD display and a keypad, to manage the system. This board is common in electric and hydraulic lifts. It has 8 programmable inputs and 9 programmable relay outputs on it.

SCB: This board is used in the inspection box and works as the car controller board. It collects car calls and detector inputs in car circuit. It contains 5 programmable relay outputs and 12 programmable inputs, 16 call registers, a battery charger for emergency power supply, and hardware for other lift functions in car. It also supports announce system when AFM (Announce Board) board is plugged.

SDB: It is the door bridging board plugged onto ALC.

SGD: It controls the activation of the coil on speed governor.

OUT: This board contains 4 programmable output relays.

INPS: This board contains 4 programmable inputs.

CSI: This is the CAN interface board in fault tolerant mode. It can be used for lift group operation to communicate with other lifts or to have a separate CAN bus for landing panels.

CCI: This is the CAN interface board in high speed mode. It can be used to have a separate CAN bus for landing panels when landing panels have high speed CAN interfaces.

ETN: It is the ethernet interface board and is used to connect a PC to the controller either ~~in~~ with a local area network (LAN) or via the internet.

ETW: It is the Wi-Fi ethernet interface board and is used to connect a PC to the controller either with a local area network (LAN) or via the internet.

USN: USB interface board for local PC connection.

BLN: Bluetooth interface board for mobile device.

RS232: RS232 interface board.

IDC: ERS connection interface board.

IO: It has 8 call registers on it. It is used to increase the number of call registers on ALPK.

CAN-IO: This board communicates via CAN-BUS and serves as a call register. One CAN-IO board has 16 call registers. It is used to expand the number of call registers in car circuit above 16 floors or above 16 call registers in systems where landing panels are not serial.

ALSK: This board is used in systems where landing panels are serial and serves as a terminal board for programmable inputs and outputs in controller and PTC. It contains 8 (12) programmable inputs.

ALPK: This board is used in systems where landing panels are parallel and serves as a call register well as a terminal board for programmable inputs and outputs in controller and PTC. It contains 8 (12) programmable inputs.

SPB: This board serves as a pit controller in shaft pit. It communicates via low speed fault tolerant CAN-BUS.

SPT: This board serves as a pit controller in shaft pit. It communicates via high speed CAN-BUS.

PWH: This board is used only in prewired systems in the inspection box. It serves as the terminal connection board of flexible cable in car.

PWL: This board is used only in prewired systems in the inspection box. It serves as the car controller. It collects car calls and detector inputs in the car top circuit. It contains 5 programmable relay outputs and **14** programmable inputs, a battery charger for emergency power supply, and hardware for other lift functions in car.

AFM: This board is a pluggable module and contains only memory for announcement data. It is used together with SCD, PWS and PWSC boards.

PWS (PWF): This board has been designed to drive **only prewired Aybey APQB series car buttons** in prewired systems. It is usually placed into the car operating panel. It collects car calls, drives indicator signals and displays in car panel and carries on in-cabin announcement. Its code is PWF when AFM has been already plugged onto it.

PWSC (PWFC): This board has been designed to drive car buttons in prewired systems. It is usually placed into the car operating panel. It collects car calls, drives indicator signals and displays in car panel and carries on in-cabin announcement. Its code is PWFC when AFM has been already plugged onto it.

APE: This board is used only in prewired systems as an extension to PWS. It has 16 car call registers on it and increases the number of car calls.

1.6) SAFETY LINE

1.6.1) Safety line voltage:

The power supply of the safety circuit is labelled as 110 and 150, where 110 is the starting terminal and 150 is the return terminal. Safety Circuit Voltage can be selected by the customer. The voltages to be selected for safety circuit are 48Vdc, 60Vdc, 110Vac, 230Vac.
The coil voltages of contactors and valves must be equal to the safety line voltage. When this is not possible in the application then the coils of the contactors and /or valves cannot be driven directly by the safety line. They must be driven by two contactors or safety relays which are in conformity to the standard as shown in Figure 1.1 These additional relays or contactors must be driven by the safety line and have the same coil voltages as the safety line. See Figure 1.1 as an example of such an application where the safety line voltage and contactor (or valves) coil voltages are not the same.
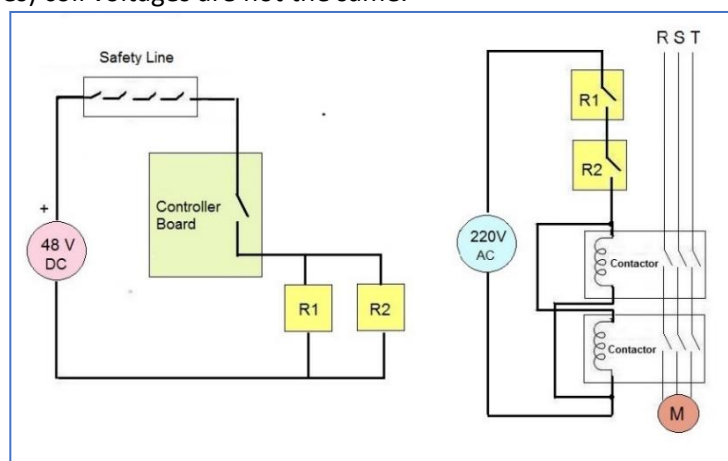
Figure 1.1

1.6.2) Safety line structure:

Safety line starts to flow from the terminal 110 into the shaft devices. All devices, through which the safety line must pass except lift doors, are to be between 110 and 120. 120 is the starting point of the door safety contacts. The door circuit ends at the terminal 140. 140 is the end of the safety line and the power source

for the contactor and valve coils. When any door or any safety contact in the shaft is open then there must be no voltage present at terminal 140. If it is present, then this means a wrong wiring or any fault in the devices.

The connection terminals of the shaft and the door contacts are found in wiring diagrams of the related application. There are various connection diagrams for specific lift applications, door types and number of doors. Please check first if the given electric diagram matches your application exactly. Otherwise consult our support department to get the appropriate wiring diagram before starting.

You can see the status of the safety line on the main screen indicated by letters ranging from A to G, where G means that the safety line is closed. The LEDs labelled from 113 to 140 on the left side of the ALC board show the closed terminals of the safety line directly.

1.7) PANEL VOLTAGE

Except for the safety line, there is only one power supply in the system which is 24V dc. It is the power source in the controller to supply all electronic boards, signals and detectors. The current rating (power) of the supply must be selected by taking into consideration the current consumption of the panels.

1.8) INPUTS

All inputs are 100% galvanically isolated from the microcontroller circuit since they are connected via optocouplers to this circuit. Input functions and input terminal assignment procedure are explained in chapter 3.

1.9) OUTPUTS

All inputs and outputs are 100% galvanically isolated from the microcontroller circuit since they are connected via optocouplers to this circuit. Mainly relays are used as outputs. Some output terminals are assigned to a specific function as default, such as RU, RH, RF whereas the others are programmable. The user can assign any function to these programmable output terminals.
Output functions and output terminal assignment procedure are explained in chapter 4.

1.10) UNINTENTED CAR MOTION (UCM)

ALC controller system supports numerous UCM test and control facilities for geared, gearless and hydraulic lift systems. There are a variety of manual and automatic UCM test routines built in in the software. The UCM tests can be executed at any time manually as well as automatically (periodically according to time (daily) or starting of the lift). This option can be selected in parameter B37. UCM facilities are explained in detail in chapter 12.

1.11) CAR POSITION INFORMATION

In ALC car position information can be collected with magnetic switches or encoders.

1.11.1) MAGNETIC SWITCHES

In this mode counter method is used and a reset is required after each powering up. If the lift is not at the top or base floor during any power up, then it travels immediately to the base floor to reset itself. Normally open magnetic switches (KPM206) are used in ALC. You can only get two types of information in this method. One is current floor number and the other is whether the lift is at the door zone. These are all. This method is recommended only for low speed simple lift applications. To select this method, adjust parameter A05 to 0.

1.11.2) INCREMENTAL ENCODER

An incremental encoder can be used to get car position information. To implement this Pulse A and Pulse B outputs of the encoder should be connected to the ENC terminals on ALC mainboard. When incremental encoder method is used then the position of the car can be obtained by the controller in mm accuracy. This information helps the controller in managing speed paths, especially in slowing down and stopping. The Incremental encoder method also needs to be reset after each start-up. Therefore, the lift always travels to the base or top floor after start-up in order to calibrate itself. To select this method, adjust parameter A05 to 2. You should also define several path lengths in section 6.6.

1.11.3) ABSOLUTE ENCODER

The best way to receive the car position information is to use an absolute encoder. An absolute encoder always returns the exact car position information to the controller. Resetting the positioning system after a start-up is not necessary. An absolute encoder in ALC system is connected via CAN bus. It gives information about car position in mm accuracy. This information helps the controller in managing speed paths, especially in slowing down and stopping. To select absolute encoder, adjust parameter A05 to 3. You should also define several path lengths in section 6.6.

1.12) DISTANCE BASED OPERATION

When an incremental encoder or an absolute encoder has been selected as the car position collecting system then ALC offers a distance-based operation system. In distance-based operation the distance to the target floor in mm is used in motion rather than floor. Distance based operation has significant advantages in high speed lifts. There are no intermediate speeds for high speed lifts. The lift can slow down directly from any speed to the target floor. A very important point to know is that this process is totally managed by the ALC software and any inverter can be used to drive the lift motor. The detailed explanation of this system is in section 8.4.3.

1.13) GROUP OPERATION

ALC controller can work in lift groups up to eight lifts. The communication between controllers is implemented via CAN-BUS. The system is very flexible. There is no dedicated master. When a lift in the group is switched off or cannot function properly then a new lift starts working as master, and the group operation goes on without any interruption. The group connections and operation are explained in detail in section 8.1.

1.14) FIRE FUNCTIONS

ALC supports the lift standards EN81-72 and EN81-73, which are related to fire conditions. The standard which will be used in lift operation should be defined in parameter B46. In case where **EN81-73** has been selected then there are two fire floors which are defined in parameters B05 and B40. Depending on the activation of the fire inputs functions FR1 and FR2, one of the floors defined in parameter B05 and B40 will be selected as the target floor (fire floor) for the lift. If FR1 and FR2 are both active, then fire floor 1 will be selected as the target floor.

1.15) VIP TRAVEL

ALC has a VIP Travel function. When any of the VIP related input functions VP1 (62), VP2 (63) or VP3 (64) is activated then the lift immediately moves to the floor defined in related parameters B33, B34 and B35, respectively. If the lift is in motion in the same direction with the new target, then it continues its travel until reaching the VIP floor. If the motion and the new target directions are opposite, then the lift stops at the first floor and reverses its direction towards to the VIP floor and starts its travel again. VP1 has the highest priority, VP2 medium and VP3 the lowest. That means when there are more than one active VIP terminals then the one with the highest priority is selected (VP1 >VP2 > VP3).

1.16) PRIORITY FUNCTION

ALC software has a priority function. This function is very useful in buildings where public lifts are working. In case of emergency these lifts can be called and used as a private lift by inhibiting normal usage. This system works only in full serial systems where landings are serial and requires access control readers (RFID or i-Button) in all landings and cars.
Priority function is explained in section 8.2.

1.17) ACCESS CONTROL SYSTEM

Access control utility permits only the users with appropriate permission to use the lift, in other words, it restricts any person who is not allowed to use the lift for a specific floor or time interval. For this purpose, each lift user should have a RFID card or i-Button key with a unique user ID. This utility is present in ALC software. You do not need any access control system to implement it. You only need access control readers in landing and car panels.
Access control system is explained in section 8.3.

1.18) KEYPAD AND SCREEN TRANSFER

1.18.1) HAND TERMINAL

The screen and the keypad on ALC mainboard can be accessed with a hand terminal **HTC**. It can be used anywhere in the shaft, at floors or in machine room by connecting its terminals to CAN bus. When hand terminal is active then the keypad on the mainboard becomes inactive.

1.18.2) BLUETOOTH

The screen and the keypad on ALC mainboard can be accessed with a mobile device via Bluetooth. To implement this function, it is necessary to have BLN add-on board plugged onto the ALC mainboard. Please be aware that Bluetooth has a certain range. Therefore, it can be used only in areas close to the controller board.

1.19) DATA TRANSFER

ALC series controller supports a computer connection via USB or Ethernet by the remote-control software Aybeynet. By using Aybeynet a computer can be connected directly, via a local network (LAN) or via the Internet. The Aybeynet computer interface program supports everything that you can do with the keypad on the mainboard. Using Aybeynet in adjusting and monitoring the controller improves the man-machine interface to a very high level when compared to a two-lines screen and 6 keys in the keypad.

Aybeynet has the following features:
- Lift motion and calls can be observed in real time
- All timings and the status of the inputs and the outputs can be observed in real time
- Error log can be obtained as digital data
- All parameters can be checked and modified.
- All input and output settings can be checked and modified.
- All Parameters can be saved, loaded, transferred and printed.

You can download Aybeynet software and related drivers from the https://aybey-elektronik.de/en/support/lift-control-system-application-software/. You can find detailed information to install and use the software in "Aybeynet Installation Manual".

1.19.1) USB

To connect a PC to a lift controller with Aybeynet via USB it is necessary to have a USN add-on board plugged onto the ALC mainboard. So, the controller can be monitored by a PC in the machine room to adjust the parameters and timers or to detect an error.

1.19.2) Ethernet

To connect a PC to a local network (LAN) or to the internet it is necessary to plug the ETN add-on board onto the ALC board. ETN board is the ethernet interface. This way the controller can be monitored by a PC anywhere in the world where internet connection is present to adjust the parameters and timers or to detect an error.

1.20) MAINTENANCE CONTROL

There are two independent control systems for maintenance mode activation. The first maintenance mode can be activated by setting a certain maintenance time in the future. The second maintenance mode can be activated by specifying a maximum number of starts for the lift. If the adjusted maintenance time or number of starts is exceeded, the lift switches to maintenance mode and does not accept any further calls. Maintenance control is explained in section 8.5.

1.21) TEST MENU

There is a special utility in the ALC system to test the lift in normal operation. The doors or calls can be easily cancelled. A call to the top or bottom floor can be created and any number of random lift travels can be executed automatically. Test menu is explained in section 2.4.

1.22) ELECTRONIC RESCUE SYSTEM

There is an automatic electronic rescue system that detects a power failure directly and provides uninterrupted power to the controller. A detailed description can be found in chapter 13.

CHAPTER 2 - LCD SCREEN AND KEYPAD

ALC Series have an LCD screen with two lines and sixteen characters per line and a keypad with six buttons. Buttons are located as below:

LEFT	UP	RIGHT
ESC	DOWN	ENT

Figure 2.1 Keypad layout

There are arrows in four directions as **UP, DOWN, LEFT** and **RIGHT** on the glass of the ALC mainboard. However, we will denote them with as **UP, DOWN, LEFT** and **RIGHT** rather than indicating with arrows with the same directions throughout this document.

The arrow buttons have various functions depending on the screen or menu they are used. However, **ESC** and **ENT** buttons usually have the same functions where pressing **ESC** button exits from current menu or application and **ENT** button usually confirms anything asked or selects the indicated line. **UP** and **DOWN** arrow buttons are used in list type screens to move up and down on the screen, respectively. Please be aware that there are some screens where a special button is asked to be pressed to continue or to do a specific task.

One important use of the key panel is entering certain numbers as input. This is done mainly as in the following example where you are asked to enter number of stops in parameter A01.

```
FLR: 6
A01 ?000006
```
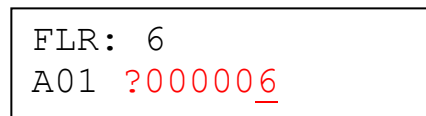
You can see the value of the parameter as 6 on the screen. When you are asked to enter a number, the cursor is always located under the left most digit at the beginning. You can increase or decrease value of the digit under which cursor is located by using UP and DOWN buttons respectively. To change the digit in other positions you can move cursor to left and right by using LEFT and RIGHT buttons.

On the screen above the value of the parameter is 6 and the cursor is located under the digit 6. Now let us see how this number changes after the indicated button is pressed.

?000006
pressing DOWN
?000005
pressing DOWN
?000004
pressing LEFT
?000004
pressing UP
?000014

After setting the parameter, if you press ENT the new value on the screen is saved. However, if you press ESC, changes are cancelled. In both cases, you return to the previous screen and will see value of the parameter.

Here we press ENT and see the following screen.

2.1) STARTUP SCREENS

In start-up you see the following screens one by one:

a) The number in the first line on this screen shows the software version number (**bold**) and the second line indicates that the parameters have been loaded from EPROM.

```
AYBEY ALC 1.08c
starting
```

b) This screen shows the current date and time. It is called "**info screen**".

```
AYBEY ALC 1.08c
12/08/2017 13:04
```

c) This screen shows the serial number of the controller board.

```
AYBEY ALC 1.08c
SNO: 14024
```

d) At the end of the start-up period you will see system ready message

```
AYBEY ALC 1.08c
System Ready
```

e) Then the **main screen** is displayed. Now the system is ready to start to serve as a lift controller.

2.2) MAIN SCREEN

```
G 01=t--→←STOP 1
.......
```

After start-up period is completed main screen is displayed on LCD screen. Main screen displays the most important state variables of the lift with some letters and symbols. Understanding this screen will help you in operation significantly. Moreover, access to all menus and applications starts through the main menu which is activated when ENT button is pressed on the main screen.

The meaning of the characters on the main screen is explained in the following screens. Please note that the background of the explained positions is in grey and characters are in red.

a) The first character indicates the safety line status. The characters and their corresponding safety line status are as follows:

terminal	character
113	A
114	B
120	C
125	D
130	E
135	F
140	G

If G is displayed, the safety line is closed, and the lift can move. C represents STOP circuit.

b) The second character shows the direction of motion. There can be an up or down arrow depending on the direction. This position will be blank when there is no direction signal.

```
G↑01=INS→←SLOW 1
.......
```

c) The 3rd and 4th Characters indicate together the car position (floor number).

```
G 01=t--→←STOP 1
.......
```

d) The fifth position shows if the car is within the door zone. When an equal sign (=) is displayed here, it means that the car is at floor level namely at door zone. When there is no character displayed here, then the car is between two floors. Thus, the doors cannot be opened.

```
G 01=t--→←STOP 1
.......
```

e) The character group at positions 6 to 8 shows the target floor. In normal mode the 't' character is placed in front.

```
G 01=t--→←STOP 1
.......
```

```
G↑01=t04→←FAST 1
.......
```

f) In inspection mode the "INS" string will be displayed there.

```
G 01=INS→←STOP 1
.......
```

g) The positions 9 and 10 show the status of the doors.
If there is **only one car door** then there are two arrows in these positions. When the arrows point toward each other it means the doors are closing or closed otherwise opening or open.

```
G 01=t--←→STOP 1
.......
```

```
G 01=t--→←STOP 1
.......
```

Doors are closed or closing.   Doors are open or opening.

If there are **two car doors,** then there are two characters "ab" in these positions. "a" represents the door A and "b" the door B.
When "a" is present then it means that the door A is closed or closing. When "a" is not present then it means that the door A is open or opening. Similarly, when "b" is not present then it means that the door B is open or opening.

```
G  03=t-- a b STOP
1 .......
```
Doors A and B are closed or closing.

```
G 03=t--  STOP 1
.......
```
Doors A and B are open or opening.

```
G  03=t--  b STOP
1 .......
```
Door A is open or opening where door B is closed or closing

```
G  03=t-- a  STOP
1 .......
```
Door B is open or opening where door A is closed or closing

h) The positions 11,12,13,14 and 15 shows as a group the motion status.

```
G 01=t--→←STOP 1
.......
```

The speed words at these positions and their meanings are shown below.

STOP	Lift is at rest
START	Lift is executing a start command, but motion has not started yet.
LEVEL	Lift is releveling
SLOW	Lift is in slow motion
FAST	Lift is in fast motion.
HIGH	Lift is in higher fast motion.
ULTRA	Lift is in highest fast motion.

i) The last character in first line gives two pieces of information in time division.

```
G 01=t--→←STOP 1
.......
```

```
G 01=t--→←STOP –
.......
```

The number that we see gives information about the door tests completed. The meaning of this number is shown below:

0	No doors have been checked.
1	Door A has been checked.
2	Door B has been checked.
3	Both, door A and B have been checked.

The "-" or "+" signs at this position gives information about the group connections.

-	No group communication
+	Group communication has been established.

j) The second line of the main screen shows the calls. When there is an error or message then this second line is used as a message screen, too.

k)

```
G 01=t--→←STOP -
. . . . . . .
```
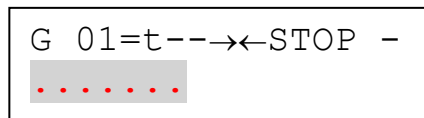
There are as many characters there as the number of floors. If there are more than 16 floors, then only the calls of the first sixteen floors are shown here. The meanings of the characters used here are listed in the table below.

.	No call
▼	Down call
▲	Up call
-	Car call

When there is more than one call at one floor then the combination of the symbols is displayed at this floor.

2.3) BUTTON FUNCTIONS IN MAIN SCREEN

```
113*114*120*125*
130*135 140 141
```
monitoring inputs

```
I1: - (2) 870
MR INSPECTION
```
custom menu

```
Cabin Button
Floor No ?000002
```
giving car calls

LEFT   UP   RIGHT

```
F 01=t--→←STOP 1
. . . . . . .
```
main screen

ESC   DOWN   ENT

```
AYBEY ALC 1.08c
12/08/2017 13:04
```
info screen

```
. . . . . .
```
calls screen

```
>M2-PARAMETERS
 M3-ERROR LOG
```
main menu
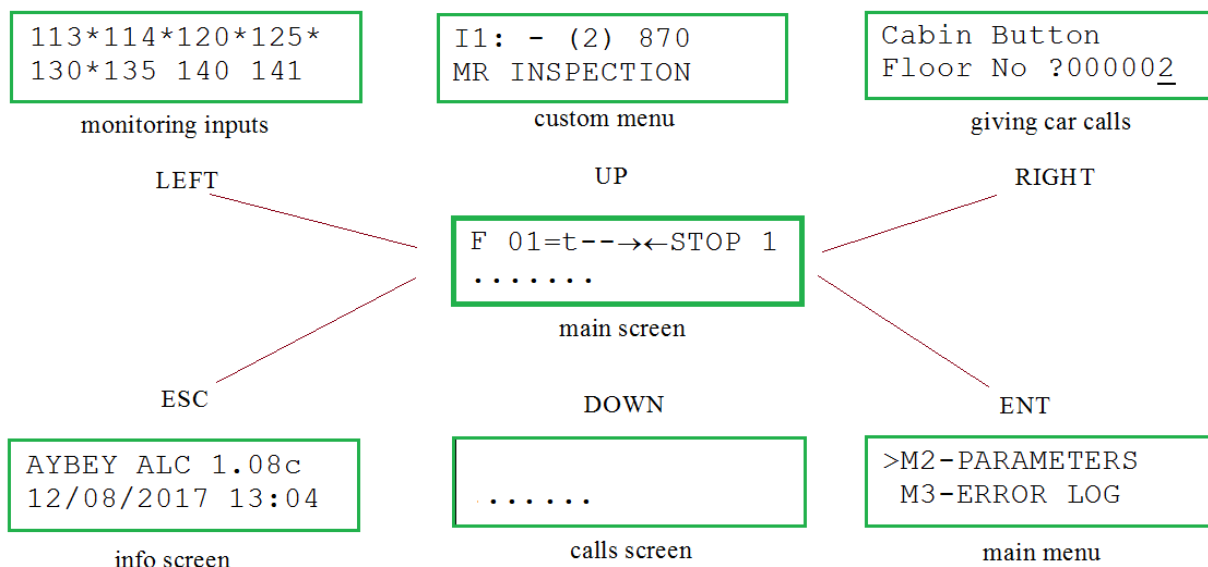
Shortcut Buttons in Main Screen

The functions of the buttons when pressed while main screen is being displayed are as follows:

2.3.1) Pressing ENT Button -> MAIN MENU

When the ENT button is pressed, the main menu system is activated. The main menu appearance is shown below:

```
>M2-PARAMETERS
 M3-ERROR LOG
```
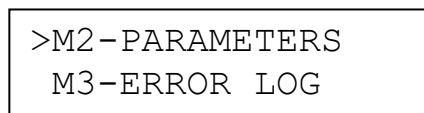
This is the starting point of the menu tree. From this menu you can navigate to the submenus for all parameters, variables and application menus in the system. You can use UP and DOWN buttons to scroll up and down the lines and by pressing the ENT button the function marked by '>' arrow is selected.

2.3.2) Pressing ESC Button -> INFO SCREEN

If the ESC button is pressed while the main screen is displayed, the **info screen** is displayed for a certain amount of time.

```
AYBEY ALC 1.08c
12/08/2017 13:04
```

If no button is pressed the system will return to the main screen after a certain amount of time. If the **ENT** button is pressed in this submenu, the controller enters the *info menu*.

```
SERIAL NO
2- 1314
```

```
12/08/2017 13:04
  1-DATE   TIME
```

```
NUMBER OF STARTS
3- 1128
```

This menu displays several system variables like *number of starts, temperature, pulse per mm,* etc. The navigation through this menu is done by pressing the UP and DOWN buttons.

When you are finished with the menu, you can exit by pressing ESC button.

2.3.3) Pressing RIGHT Button -> GIVING CAR CALLS

When RIGHT button is pressed then you will be asked for a floor number. When you enter a number and press ENT then a car call for this floor is registered.

```
Cabin Button
Floor No ?000002
```

This is the facility of giving car call from keypad.

2.3.4) Pressing UP Button -> USER DEFINED MENU

When the *UP* button is pressed while the main screen is displayed the system switches to the **user-defined menu**.

```
I1: - (2) 870
MR INSPECTION
```

User defined menu is explained in section 2.5.

2.3.5) Pressing LEFT Button -> MONITORING OF THE STATES OF THE INPUTS

If the LEFT button is pressed while the main screen is displayed, the system switches to the **monitoring inputs menu**.

```
113*114*120*125*
130*135 140 141
```

There are certain numbers and '*' signs on this screen output. When an input is active it is tagged with a '*' character on the right side and if an input is inactive the character next to the input is blank. To see the states of more inputs, press DOWN button. The next screen is as below.

```
MKD MKU ML1 ML2
M0  FKK*PTC CNT
```

If the (ENT) button is pressed while a certain input screen is displayed, the display output switches to an overview which input terminal is used for a certain input function.

```
I7  I6  fix fix
--- fix fix fix
```

This allows a good overview which terminal has been assigned to an input function. For instance, in the screen output above, the MKD function has been assigned to the *input terminal I7, MKU* is assigned to *the terminal I6* and *M0* does not have an assigned input terminal. The inputs *ML1, ML2, PTC, FKK and CNT* are predefined by the system in hardware and cannot be changed by user. Thus, they are shown as "fix".

2.4) TEST MENU

There is a special utility in ALC system for testing the lift during normal operation. When this function has been activated then the lift travels normally, however one or more items can be switched of. These are:
-   Doors can be forced to stay closed all the time or kept operating normally.
-   Car and landing cars can be allowed or inhibited.
-   A direct call to the top or bottom floor can be created by using the keypad.
-   Desired number of random lift travels can be executed automatically.

Test menu can be accessed from the main menu in M6 selection.

DOOR +	↑	CALLS x
ESC		↓

LEFT	UP	RIGHT
ESC	DOWN	ENT
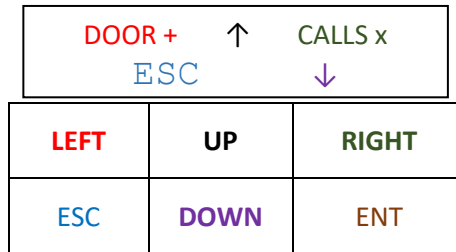
Figure 2.1 Keypad layout

This test menu can only be accessed in normal operation and not in inspection mode. There are six items on the screen in two lines like the keypad. The three functions are controlled by the buttons corresponding to their orientations. The left button controls the doors, up button up calls, etc. If there is a '+' sign in after doors and calls it means that they are working normally. But when there is a 'x' sign after the label it means that they have been inhibited.
The functions of the keys are as follows:

LEFT: Pressing the LEFT button enables ('+') or disables ('x') the doors. When the doors are disabled then the lift works normally but it will not accept any door open command at arrival or in return to the destination floor.
RIGHT: By Pressing the RIGHT button enables ('+') or disables ('x') the calls. When the calls are disabled then the lift works normally but it will not accept calls from lift cabin or landing buttons. However, calls can be registered from controller by using the test menu or by issuing lift cabin calls on the screen.
UP: By Pressing the UP button registers a lift cabin call to the top floor.
DOWN: By Pressing the DOWN button registers a lift cabin call to the bottom floor.
ESC: By Pressing the ESC button you can exit from the test menu.
ENT: When you press ENT button you will be asked to enter a number.

```
NUMBER OF STARTS
?000000
```

By entering a value, the system creates random calls and the lift will travel as many times as the entered value to a random floor. During this random operation the doors can be opened at floor arrivals depending if the door functions are enabled or disabled. You can see the number of remaining calls when you enter this screen again.

2.5) USER DEFINABLE MENU

The users can create their own menu from custom menu and this menu can be accessed from the main screen by pressing UP button.

2.6) MENU TREE

While the main screen is displayed, the main menu can be displayed, by pressing the ENT button. In this menu the items are labelled with the prefix 'M', for instance M1, M2 etc. Some items directly lead to a service menu, while some open a new sub-menu with certain new selections. Figure 2.2 describes the menu structure of the ALC control system.

Menu level 1		Menu level 2		Menu level 3		Menu level 4
M1-VARIABLES	»	N1-INFO SCREEN				
		N2-BOARD VERSION.				
		N3-MAIN VARIABLES				
		N4-TIMERS				
		N5-SYSTEM TIMER				
M2-PARAMETERS	»	P1-MAIN PARAMETERS				
		P2-AUXILIARY PARAMETERS.				
		P3-TIMINGS.				
		P4-FLOOR PARAMETERS	»	K1-SET DISPLAYS		
				K2-SET DOOR 1		
				K3-SET DOOR 2		
				K4-CABIN CALLS		
				K5-HALL CALLS		
				K6-FLOOR CALLS		
				K7-GENERAL PULSE		
				K8-CALL PERIODS		
		P5-MAINTENANCE				
		P6-OUTPUT DEFINITION				
		P7-INPUT DEFINITIONS				
		P8-DATE & TIME				
		P9-UTILITIES	»	R1-DISPLAY UTILITIES		
				R2-FACTORY SETTINGS	»	F1-GET BACKUP
						F2-VVVF ASYNCHRON.
						F3-VVVF SYNCHRON.
						F4-HYDRAULIC
						F5-TWO SPEED
						F6-TWO SPEED
						F7-DUMBWAITER

Menu level 1		Menu level 2		Menu level 3		Menu level 4
						F8-CUSTOM SETTING
				R3-SET INPUTS	»	G1-VVVF ASYNCHRON.
						G2-VVVF SYNCHRON.
						G3-HYDRAULIC
						G4-TWO SPEED
						G5-FREE ALL
				R4-MODEM SETTINGS		
				R5-RESET PULSES		
				R6-OTHER UTILITIES.		
				R7-SET PASSWORD		
				R8-RESET START		
				R9-SECURITY ID	»	Y1-ID LIST
						Y2-ADD NEW ID
						Y3-CLEAR ID
						Y4-CLEAR ALL ID
						Y5-FORMATS
						Y6-FREE FLOORS
						Y7-ACTIVE FORM.
				RA-ENCODER SETUP		
				RB-ENCODER DIRECTION		
				RC-SET FLOOR PULSE		
				RD-CUSTOM MENU		
		P0-MAXIMUM START				
		PA-LIFT NUMBER				
M3-ERROR LOG						
M4-SERVICES						
M5-LANGUAGE						
M6-TEST MENU						
M7-UCM SERVICE	»	U1-CLEAR ERROR				
		U2-UCM TEST				
		U3-TEST TIME				
		U4-TEST START				
		U5-TEST COUNTER				
		U6-VALVE TEST				
		U7-SAFE.GEAR TEST				
		U8-SHAFT LIMIT				
M8-ENC.SERVICE	»	E1-LEARN SHAFT				
		E2-ADJUST IN CAR				
		E3-GENERAL PULSES				
		E4-FLOOR PULSES				
		E5-PULSE RESET				
		E6-ENKODER YONU				
		E7-PULSE SAVE				

2.2 Menu Tree of ALC Control System

CHAPTER 3 - INPUTS

3.1) HARDWARE

All inputs except ML1-ML2 and safety circuit are active low. This means that an active state (or high level) is detected, if the input is switched to ground reference (0V DC see Figure 3.1). All inputs of the ALC-System (ALC-System) are galvanically isolated via optocouplers from the microcontroller circuit.
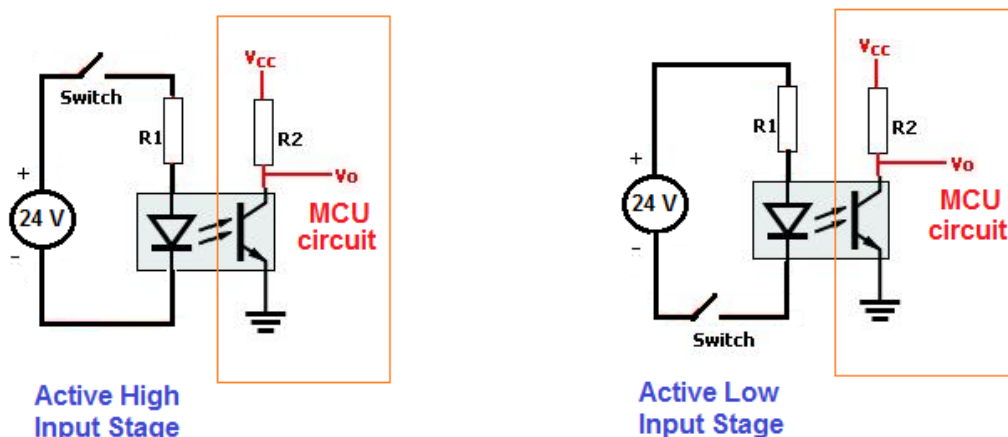
Figure 3.1

The input terminals are distributed over different interface boards, due to the flexible design of the ALC system. Table 3.1 describes where the input terminals are located.

INPUT NO	PLACE / SOCKET	BOARD NAME	TERMINAL NAME
I1…I8	PANEL / TERMINAL	ALC	I1…I8
I9…I20	PANEL / TERMINAL	ALSK / ALPK	I9…I20
I21…I24	PANEL / TERMINAL	ALSK (INPS) ALPK (INPS)	I21…I24
N1…N12	CAR / TERMINAL	SCB / PWL	N1…N12
N13…N16	CAR / TERMINAL	SCB (INPS) PWL (INPS)	I1…I4
N17	CAR / TERMINAL	PWS	N17
N18…N21	CAR / TERMINAL	PWS (INPS)	I1…I4
Y1…Y7	PIT CONTROLLER	SPB	Y1…Y7

Table 3.1 The locations of input terminals in ALC

3.2) INPUT FUNCTIONS

There are several defined input functions in ALC software. Each input function has a uniquely assigned function number. Some input terminals are by default assigned to a specific function of the system, such as ML1, ML2 and safety line whereas other inputs are programmable. The user can assign any function to these programmable input terminals.

INPUT NO	INPUT CODE	EXPLANATION	DEFINITION	ACTIVE STATE
1	869	Car Top Inspection Switch	USER	OFF
2	870	Recall Operation Switch	USER	ON
3	871	Pit Inspection Switch	USER	OFF
4	817	High Speed Limit at bottom	USER	OFF

INPUT NO	INPUT CODE	EXPLANATION	DEFINITION	ACTIVE STATE
5	818	High Speed Limit at top	USER	OFF
6	500	Car Inspection Motion Button Down	USER	ON
7	501	Car Inspection Motion Button Up	USER	ON
8	550	Recall Motion Button Down	USER	ON
9	551	Recall Motion Button Up	USER	ON
10	BYP	Bypass Switch	USER	OFF
11	510	Pit Inspection Motion Button Down	USER	ON
12	511	Pit Inspection Motion Button Up	USER	ON
13	KRR	Pit Inspection Reset Switch	USER	TOGGLE
14	MKD	Stopper in down direction	USER	ON
15	MKU	Stopper in up direction	USER	ON
16	804	Overload contact	USER	ON
17	805	Full Load Contact	USER	ON
18	K20	Door Open Button for Door 1	USER	ON
19	DTS	Door Close Button for Door 1	USER	ON
20	FOT	Photocell Contact for Door 1	USER	ON
21	AL1	Door Open Limit for Door 1	USER	ON
22	KL1	Door Close Limit for Door 1	USER	ON
23	K1C	Obstruction Contact for Door 1	USER	OFF
24	DER	Driver Device Failure This input is used to get information about any error state of a driving device such as an electronic valve or inverter. As soon as this input switched into the active state the lift motion is stopped as fast as possible.	USER	ON
25	BAT	ERS Low Battery The voltage of the batteries is low in rescue mode	USER	OFF
26	ERU	ERS Motion Direction If the input terminal is active, then the motion direction in rescue operation is downwards otherwise upwards.	USER	ON
27	EMA	Current Level Detection (for electric lifts) This input function is used to detect the current level in test phase of the rescue operation. The input terminal of this function is driven by the inverter and any ON state means that the current level is above the set level. In test phase of the rescue operation this input is monitored. If this input is OFF during the test period, then the controller continues the rescue operation in the current direction. Otherwise the motion is stopped, and the rescue operation will continue in the opposite direction.	USER	info
28	FR1	Fire detector 1. When an active signal is present at this input, the system activates to fire mode and moves to the fire floor stored in the parameter [B05] FIRE FLOOR 1	USER	OFF
29	FR2	Fire detector 2.	USER	OFF

INPUT NO	INPUT CODE	EXPLANATION	DEFINITION	ACTIVE STATE
		When an active signal is present at this input, the system activates to the fire mode and moves to the fire floor stored in the parameter [B40] FIRE FLOOR 2 When FR1 and FR2 are both active then fire floor is selected as B05 FIRE FLOOR 1.		
30	FRM	Fireman Switch at the ground floor	USER	ON
31	FRC	Fireman Switch in car	USER	ON
32	EKS	RESCUE switch If this input is active and FKK input is inactive at start-up, then the system starts in Rescue mode.	USER	ON
33	DIK	Door inspection key input This input function is used to detect whether the automatic landing door is opened manually with a key. If the state of this input is active (usually inactive, Normally Open), the system switches to inspection mode automatically. The system will return to normal mode only after a manual reset.	USER	OFF
34	BR1	Brake Contact of the traction machine (Brake 1)	USER	info
35	BR2	Brake Contact of the traction machine (Brake 2)	USER	info
36	SGC	Overspeed Governor Contact (Normally Closed)	USER	
37	SGO	Overspeed Governor Contact (Normally Open)	USER	
38	RUN	RUN feedback The RUN input function is used as a feedback from the motor driver. The system waits the time interval defined in [C21]-WAIT FOR MOTION directly after the motion command has been send. If no active signal is received at this input until the end of this interval [C21] the error code 38 will be issued and the system is stopped. If [C21] is zero, no error will be issued, and movement will continue.	USER	ON
39	RDY	System is Ready Input (For NGV A3)	USER	info
40	HD	High speed limit in down direction This input is used in lift applications with velocities above 1,2 m/s	USER	OFF
41	HU	High speed limit in up direction This input is used in lift applications with velocities above 1,2 m/s	USER	OFF
42	K22	Door Open Button for Door 2	USER	ON
43	DT2	Door Close Button for Door 2	USER	ON
44	FT2	Photocell / light barrier for Door 2	USER	ON
45	AL2	Door Open Limit for Door 2	USER	ON
46	KL2	Door Close Limit for Door 2	USER	ON
47	K2C	Obstruction Contact for Door 2	USER	OFF
48	LDB	Loading Button This input function is used to keep the automatic door open for a long period of time during loading. Holding time is defined by the parameter [C31]: LOADING	USER	ON

INPUT NO	INPUT CODE	EXPLANATION	DEFINITION	ACTIVE STATE
		PERIOD. Any door close request except DTS/DT2 will be ignored during this period.		
49	FKI	External Phase Control Input In active state the system enters rescue mode.	USER	ON
50	DPM	Earthquake Alarm Input When this input function is active then the controller enters earthquake mode. The lift will go to the nearest floor when it is in motion. When the lift is in rest then any motion request is prohibited.	USER	OFF
51		reserved	USER	
52	WTM	Liftman Switch 1 When activated hall calls are inhibited.	USER	ON
53	WM2	Liftman Switch 2. Any new hall call makes the corresponding car call button blink. If the liftman presses this blinking button, then it is accepted as a car call.	USER	ON
54	DSB	Disable Switch When this input is active, any lift movement is inhibited. However, releveling will be carried out, if necessary.	USER	ON
55	M0	Floor counter switch when the floor selector has been selected as BI-STABLE. (A05=1).	USER	ON
56	DOA	Door Selection Switch for Door 1 This input function can be used when [B18]-TWO DOORS SELECTION = 1 (TERMINAL INPUT). If there are two car doors, which can be opened at the same floor and only door 1 is intended to be opened there then this function can activate. In this case any door open command at this floor will open only door 1. Door 2 will always stay closed even after door open commands.	USER	ON
57	DOB	Door Selection Switch for Door 2 This input function can be used when [B18]-TWO DOORS SELECTION = 1 (TERMINAL INPUT). If there are two car doors, which can be opened at the same floor and only door 2 is intended to be opened there then this function is activated. In this case any door open command at this floor will open only door 2. Door 1 will always stay closed even after door open commands.	USER	ON
58 59	SIF SIS	Simulator Switches These inputs are used to operate the ALC system in the simulator mode, not in lift mode. The Simulator mode is useful for demonstration, education or testing purposes. Contact technical support department to receive a related wiring diagram to run the controller in simulator mode without a connected lift system.	USER	ON
60	THR	Machine Room temperature control input.	USER	OFF

INPUT NO	INPUT CODE	EXPLANATION	DEFINITION	ACTIVE STATE
		This input is used to get information about the machine room temperature. When the machine room temperature is outside of its defined temperature limits this input must be activated (ON) by an external temperature measuring device.		
61	UCM	External UCM Device Error Input If this input function is activated an UCM error is issued by the controller and any movement is prevented.	USER	ON
62	VP1	VIP input 1 When an active signal is detected at this input then the lift moves to the floor specified in parameter [B33] FIRST VIP FLOOR	USER	ON
63	VP2	VIP input 2 When an active signal is detected at this input then the lift moves to the floor specified in parameter [B34] SECOND VIP FLOOR	USER	ON
64	VP3	VIP input 3 When an active signal is detected at this input then the lift moves to the floor specified in parameter [B35] THIRD VIP FLOOR	USER	ON
65	917	Bottom Level Limit Switch This input operates only when the value of the parameter [A05] is 3 or 4 and the value of the parameter [A10] is 1. If there are more floors after 817 than one, then the controller uses the 917 input terminal as a bottom limit switch.	USER	OFF
66	918	Top Level Limit Switch This input function operates only when [A05] = 3 or 4 and [A10] = 1. If there are more floors after 818 than one, then the controller uses the 918 input terminal as a bottom limit switch.	USER	OFF
67	802	Minimum Load Contact If there is no load or person inside the cabin, this input should be ON when used.	USER	ON
68	FDT	Speed Detection Switch This input function is used to receive information about the speed level from the inverter to start pre-opening doors. If the lift speed is below 0.3 m/s then the inverter activates the FDT input and then the controller can start the pre-opening process of the doors.	USER	ON
69	DTP	Door Motor Temperature If the door motor overheats this input function is activated and the controller prevents any motion.	USER	OFF
70	PNB	Panic Button When this input is ON then the lift travels immediately to the panic floor defined in parameter B53.	USER	OFF

INPUT NO	INPUT CODE	EXPLANATION	DEFINITION	ACTIVE STATE
71	PAS	Car Call Password input This input allows restricted floor calls on access control	USER	OFF
72	FI1	Free input 1. When activated output 106 will be ON.	USER	OFF
73	FI2	Free input 2. When activated output 107 will be ON.	USER	OFF
74	FI3	Free input 3. When activated output 108 will be ON.	USER	OFF
75	CDC	Clear Car Calls When this input has been activated all car calls will be cleared.	USER	OFF
76	CDH	Clear Hall Calls When this input has been activated all hall calls will be cleared.	USER	OFF
77	CDA	Clear All calls When this input has been activated all car and hall calls will be cleared.	USER	OFF
78	PER	Emergency Phone Error This input should be connected to the error output signal of the emergency phone.	USER	OFF
79	DRB	Door Reset This input is only used for AMI-100 devices to reset the doors contact.	USER	OFF
80	AMA	Shaft Pulled In This input is only used for AMI-100 devices to control the contact A	USER	OFF
81	AMR	Shaft Out This input is only used for AMI-100 devices to control the contact R	USER	OFF
82	FE1	Photocell Error- door 1 This input should be connected to the error output of the photocell unit employed for the door 1.	USER	OFF
83	FE2	Photocell Error- door 2 This input should be connected to the error output of the photocell unit employed for the door 2.	USER	OFF
101	113	Safety Circuit Terminals	STANDARD	
102	114	Safety Circuit Terminals	STANDARD	
103	120	Safety Circuit Terminals	STANDARD	
104	125	Safety Circuit Terminals	STANDARD	
105	130	Safety Circuit Terminals	STANDARD	
106	135	Safety Circuit Terminals	STANDARD	
107	140	Safety Circuit Terminals	STANDARD	
108	141	Safety Circuit Monitoring for SDB Board	STANDARD	
109	ML1	Door Zone determining switch 1	STANDARD	
110	ML2	Door Zone determining switch 2	STANDARD	
111	CNT	Contactor state input	STANDARD	
112	FKK	Phase Protection Relay Input	USER	
113	PTC	Motor Thermistor Input	STANDARD	

3.3) MONITORING OF THE STATES OF THE INPUTS

The states of the digital inputs (programmable and fixed) can be observed when the "LEFT" button is pressed while the main screen is displayed. This procedure is explained in section 3.4.

```
113*114*120*125*
130*135 140 141
```

3.4) DEFINITION OF INPUTS

To monitor and modify the settings of an input terminal you should go to the INPUT MENU. This menu can be reached through the following path:

main menu [press ENT] -> M2-PARAMETERS -> P7- INPUT DEF.

This menu displays the input terminal of the ALC and its defined input functions.

```
I1: - (2) 870
MR INSPECTION
```

This screen shows that the input I1 has been assigned to the "MR INSPECTION" input function whose function code is 2. The label for this function is 870. Namely input terminal I1 has been programmed with the code 2.

The sign (+/-) right after the terminal number shows the active state of this input. If there is no signal (open circuit) at this terminal a "-"sign is displayed. Similarly, a "+" sign here will be displayed when there is a signal (closed circuit) at the terminal I1 as shown below.

```
I1: + (2) 870 *
MR INSPECTION
```

The terminal "I1" which is configured as the input function 870 is activated by an applied electrical signal, a star character "*" will be displayed to the right of the function label "870". However, an applied signal which leads to the character "+" being displayed, doesn't always indicate an active input function. This is additionally illustrated by the "*" character at the end of the first display line. Some input functions are inactive when there is a signal at the terminal and are active when the signal voltage is not applied. The following figures illustrate this kind of function.

```
N2: - (1) 869*
CAR INSPECTION
```

```
N2: + (1) 869
CAR INSPECTION
```

The display outputs above visualise the definition of the input function "CAR INSPECTION". If there is no connection or communication between the lift cabin and the main controller, the lift system is switched to the inspection mode. When there is an active signal from the lift cabin controller, the lift cabin INSPECTION function is inactive. In summary the (+/-) character visualise the state of the electric signal and a "*" character is displayed at the end of the first display line when this input function is activated.

By pressing the UP and DOWN keys it is possible to display the other input functions.

```
N4: - (6) 500
INSP.DOWN
```

```
N3: - (7) 501
INSP.UP
```

The inputs of the main-, lift cabin- and pit controller have uniquely assigned identifiers:

- I   – Input identifier of the main controller.
- N   – Input identifier of the lift cabin controller.
- Y   – Input identifier of the pit controller.

3.5) SETTING OF INPUT TERMINALS

To change the function assigned to an input which is displayed on the screen the ENT button must be pressed.

```
CAR INSPECTION
N2 ?000001 (869)
```

This executes a routine which enables the user to assign an input to a certain input function. For instance, if the input N2 must be configured as an input for the function "MR INSPECTION" the value after the question mark must be set to two. The menu navigation is done by the buttons of the keypad UP, DOWN, RIGHT and LEFT. As soon as the assignment of an input to a certain function is changed, it will be displayed.

```
MR INSPECTION
N2 ?000002 (870)
```

An input function can always be assigned to only one input terminal. If an input function is assigned to an additional input terminal, the following warning will be displayed.

```
I9: (2)
DEFINED PREV.
```

The message on this screen means that the function code 870 has been previously defined at the terminal I9. Therefore, you cannot assign it to any further terminal.

All input functions are listed and explained in section 3.2.

3.6) SETTING ALL INPUTS BY A COMMAND

All programmable input terminals can be defined consecutively. However, there is another feature which enables the user to program all input terminals in one step. This is usually needed when the inputs are programmed for the first time or when the type of the lift needs to be changed. To execute this command, the following sequence must be followed.

main menu [press ENT] -> M2-PARAMETERS --> P9-UTILITIES -> R3-SET INPUTS

```
>G1-VVVF ASYNCR.
G2-VVVF SYNCR.
```

This submenu contains the following items:

G1-VVVF ASYNCHRONOUS: Input definitions appropriate for a system where asynchronous motor will be used are automatically assigned and saved.

G2- VVVF SYNCHRONOUS: Input definitions appropriate for a system where synchronous motor will be used are automatically assigned and saved.

**G3-HYDRAULIC:** Input definitions appropriate for a hydraulic lift will be assigned and saved.

G4-TWO SPEED: Input definitions appropriate for a two-speed lift system will be assigned and saved.

G5-FREE ALL: All programmable input terminals are cleared and set as free inputs.

CHAPTER 4 - OUTPUTS

4.1) HARDWARE

All contactors and programmable outputs are 100% galvanically isolated from the microcontroller circuit by means of optocouplers as in Figure 4.1.
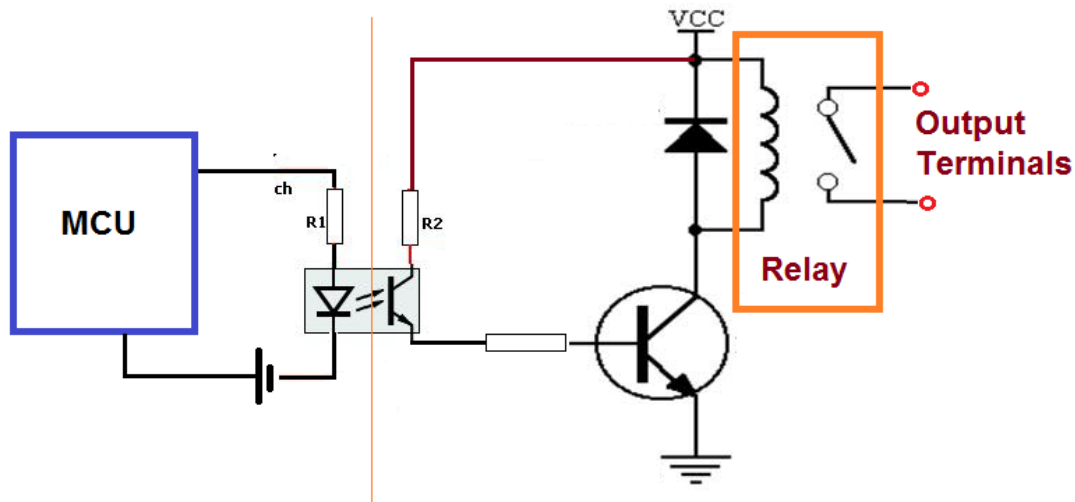
Output Circuit

Figure 4.1

4.2) LOCATION AND SPECIFICATION OF OUTPUTS

ALC Series has 33 programmable outputs. The positions, types and electrical specifications of the outputs are given below.

NO	CODE	BOARD	CONTACT V/I	CONTACT TYPE	DESCRIPTION
1	S1	ALC	220V/10A	Normally Open	Freely programmable for all lift types.
2	S2	ALC	220V/10A	Normally Open	Freely programmable for all lift types.
3	S3	ALC	220V/10A	Normally Open	Freely programmable for all lift types.
4	S4	ALC	220V/5A	Normally Open	Freely programmable for all lift types.
5	S5	ALC	220V/5A	Normally Open	Freely programmable for all lift types.
6	S6	ALC	220V/5A	Normally Open	Freely programmable for all lift types.
7	S7	ALC	220V/10A	Normally Open	Freely programmable for all lift types.
8	S8	ALC	220V/10A	Normally Open	Freely programmable for all lift types.
9	S9	ALC	220V/10A	Normally Open	Freely programmable for all lift types.
10	S10	ALC (OUT)	220V/5A	Normally Open	The O1, O2, O3 relays share the same common with the terminal COM, and the relay O4 is connected to common C4 on the OUT board.
11	S11	ALC (OUT)	220V/5A	Normally Open	
12	S12	ALC (OUT)	220V/5A	Normally Open	
13	S13	ALC (OUT)	220V/5A	Normally Open	
14	R1	SCB / PWL	220V/5A	Normally Open	Freely programmable for all lift types.
15	R2	SCB / PWL	220V/5A	Normally Open	Freely programmable for all lift types.
16	R3	SCB / PWL	220V/5A	Normally Open	Freely programmable for all lift types.
17	R4	SCB	220V/5A	Normally Open	Freely programmable for all lift types.
18	R5	SCB	220V/5A	Normally Open	Freely programmable for all lift types.
19	R6	PWL (OUT)	220V/5A	Normally Open	Freely programmable for all lift types.
20	R7	PWL (OUT)	220V/5A	Normally Open	Freely programmable for all lift types.

21	R8	PWS	220V/5A	Normally Open	Freely programmable for all lift types.
22	E1	SCB	220V/5A	Normally Open	O1, O2, O3, O4, O5 relays share the same common C1 and O6, O7, O8 are connected to common C2 on the SDE or EOR board.
23	E2	SCB	220V/5A	Normally Open	
24	E3	SCB	220V/5A	Normally Open	
25	E4	SCB	220V/5A	Normally Open	
26	E5	SCB	220V/5A	Normally Open	
27	E6	SCB	220V/5A	Normally Open	
28	E7	SCB	220V/5A	Normally Open	
29	E8	SCB	220V/5A	Normally Open	

Table 4.1 The Location of the output terminals

4.3) OUTPUT FUNCTIONS

- There are more than a hundred built-in output functions in software.
- Each output function can be assigned to any output terminal.
- One output function can be assigned to more than one output terminal
- When the condition of the output function is realized then this output is set, namely its contact will be closed.

The available output function codes in the ALC control system are listed and explained in table 4.2.

CODE	OUTPUT FUNCTION	EXPLANATION
1	HYDRAULIC MOTOR	Hydraulic motor output
2	DELTA CONTACTOR	Hydraulic delta contactor output
3	STAR CONTACTOR	Hydraulic star contactor output
4	NORMAL OPERATION	The system operates in normal mode
5	FAULT OCCURANCE	There is an error
6	INSPECTION	System is in inspection mode
7	SLOW MOTION	The car is moving at slow speed
8	NO SLOW MOTION	The car is not moving at slow speed
9	NO MOTION	The car is not moving
10	MOTION	The car is moving
11	FAST MOTION	The car is moving at fast speed
12	FAST / HIGH MOTION	The car is moving at fast or high speed
13	SAFETY LINE CLOSED	The safety circuit is closed. (Terminal 140 is active)
14	SAFETY LINE OPEN	The safety circuit is open. (Terminal 140 is inactive)
15	AT FLOOR LEVEL	The lift cabin is at floor level
16	AT FLOOR LEVEL NO MOTION	The lift cabin is in rest position and on a floor.
17	DIRECTION UP	Direction is up
18	DIRECTION DOWN	Direction is down
19	BUSY ON	The System is busy (cabin light is on)
20	DEFINED ID	The ID of the access control key is accepted.
21	GMV 2CH/S	GMV 3010 2CH/S type hydraulic valve coil output
22	LEVEL UP MOTOR	The lift is in leveling motion upwards
23	LEVELING MOTION	The lift is in leveling motion.
24	PARK TIME	The controller waits for the configured parking time.
25	MOTOR CONTACTOR 1	Motor contactor output 1
26	RETIRING CAM	Retiring cam output
27	MOTION+BRAKE(INS)	The system is in motion or brake delay C12 is counting. This output is used to delay (for C12) the mechanical brake after the lift has been stopped.
28	HIGH SPEED	The car is moving at 3rd Speed (High)

CODE	OUTPUT FUNCTION	EXPLANATION
29	PAWL DEVICE	The pawl device output
30	EMERGENCY VALVE	When the system is in ERS (Emergency Rescue System) mode, the emergency landing valve activates.
31	NO CALLS	There are no registered calls
32	*RESERVED*	*Not used*
33	JOG SPEED	The system is in inspection mode and in motion
34	M0 SIMULATOR	Simulator outputs
35	MK SIMULATOR	Zero speed output for VVVF drives. (Jog)
36	817 SIMULATOR	The system is in inspection mode and in motion
37	HYDRAULIC UP	Up motion in a hydraulic lift
38	HYDRAULIC DOWN	Down motion in a hydraulic lift
39	DEVICE RESET	Device reset signal on device error
40…44	M0…M4	Gray code outputs
45	CLOSE 2nd DOOR	Close door signal for door 2
46	OPEN 2nd DOOR	Open door signal for door 2
47	GONG	Gong
48	LEVELING	Leveling
49	FIRE - NO ENTRY	Fire signal is active. (FR1or FR2)
50	DOOR BRIDGING	Door pre-opening
51	MOTOR CONTACTOR 2	Motor contactor output 2 for Fuji closed loop
52	*reserved*	Not used
53	120 ON	Down service arrow - 120 Terminal is ON
54	120 OFF	Up service arrow - 120 Terminal is OFF.
55	MAX. START COUNTER	The number of journeys the lift can travel without maintenance, has exceeded the configured value of the parameter "P0- Maximum number of starts".
56	ML OUTPUT	ML output (Lift is in slow speed and ML output is active) ML1 and ML2 outputs are active at the same time.
57	HYDRAULIC MOTION	Hydraulic motion (37+38)
58	ALARM FILTER	Emergency phone alarm filter
59	DOWN SAFETY VALVE	Down Safety Valve
60	FIRE DOOR ALARM	Door closing command output in case of fire
61	NO FLOOR LEVEL 140-	The lift cabin is not in the door zone and the safety line is open
62	PRIORITY CALL	Priority call service is active
63	OUT OF SERVICE	Out of service signal
64	OVERLOAD	Overload (804 input is active)
65	OVERLOAD LAMP	Overload signal (Output Signal 35 is active)
66	SLOW OR REST	Slow speed or stop
67	POWER LINE OK	Power line is OK
68	POWER LINE FAILURE	Failure on power line
69	NOT IN RESCUE MODE	ERS is not active
70	IN RESCUE MODE	ERS is active
71	CONTACTOR IN RESCUE MODE	This output is used as contactor output in rescue mode. Contactor goes ON in RESCUE mode after a power down with a delay defined in C39 timer parameter.
72	LINE CONTACTOR	The Contactor output for the LINE contactor. The Contactor is ON while LINE is OK. While the lift is in rescue mode, the contactor is always ON regardless of the state of the LINE.
73	FIRE	Fire signal

CODE	OUTPUT FUNCTION	EXPLANATION
74	DOOR SIDE A	Door A is active
75	DOOR SIDE B	Door B is active
76	M0	M0 counter output
77	NEXT DIRECTION DOWN	Next direction / Hall Lantern output for down arrow
78	NEXT DIRECTION UP	Next direction / Hall Lantern output for up arrow
79	NOT BUSY	System is not busy
80	FAN	Fan is active
81	SHORT FLOOR BOTTOM	If the bottom floor is shorter than the other floors and when the target is the bottom floor, this output is activated (1 sec) one floor before the bottom floor is reached. (Set 81 to [B07])
82	SHORT FLOOR TOP	If the top floor is shorter than the other floors and when the target is the top floor, this output is activated (1 sec) one floor before the top floor is reached. (Set 82 to [B07])
83	SPEED GOVERNOR COIL	Output for speed governor coil.
84	HALL CALL SIGNAL	There are one or more hall calls registered. (Only when WM2 is active (Parallel))
85	DOWN IN FIRE	Lift is moving in downwards direction in fire
86	UP IN FIRE	Lift is moving in upwards direction in fire
87	HIGH TEMPERATURE	This output is activated if temperature is higher than [B46]
88	DOORS CANNOT BE CLOSED	This output is activated if the door is not closed along [C40]
89	BLOCKED	System is blocked due to an error.
90	ULTRA SPEED	Ultra-speed is active
91…95	B0…B4 BINARY CODES	Binary code outputs
96	LOADING BUTTON	Loading period (C32) is activated by LDB input.
97	SWITCH OFF UPS	Switch UPS off after completing rescue operation.
98	M5 GRAY CODE	Gray Code M5 Out
99	B5 BINARY CODE	Binary Code B5 Out
100 101	SLOW CLOSE 1 SLOW CLOSE 2	When the photocell is blocked for a long time, the door will receive the slow closing command.
102	BYPASS WARNING	The lift is in inspection mode and movement in bypass mode has been detected.
103	CLOSE 1st DOOR	Close first door output
104	OPEN 1st DOOR	Open first door output
105	870 JOG	870 jog output, active when a motion command is there in recall mode.
106	Free Output-1	When the FI1 input is activated, this output is ON, otherwise OFF.
107	Free Output-2	When the FI2 input is activated, this output is ON, otherwise OFF.
108	Free Output-3	When the FI3 input is activated, this output is ON, otherwise OFF.
109	ML Simulator	ML switch simulation mode output. It simulates the ML1 and ML2 inputs.
110	Omar EVS Soft Sp	Omar hydraulic soft stop valve output. This output is controlled by C24 timer in stopping upwards.
111	Omar EVD-HI	Omar hydraulic lift VVVF driver HI valve output
112	Omar EVD-HDU	Omar hydraulic lift VVVF driver HDU valve output
113	Coil of AMI-100	This output controls directly the coil of the AMI-100 device.
114	Red Light-AMI	This output controls the red light of AMI-100 device
115	Green Light-AMI	This output controls the green light of AMI-100 device
116	Door Reset Coil	This output is used for AMI-100 device to reset the door contact coil.

4.4) DEFINING OUTPUTS

The output terminals are configured in the "output definition menu", which can be reached through the following path:

MAIN MENU→ [press ENT] → M2-PARAMETERS → P6-OUTPUT DEF.

The following screen output will be displayed:

```
NORMAL OPERATION
S1:    (4)
```

This screen output displays the output terminal S1, which has been assigned to the output function "4" (normal operation). The first line of the display shows the name of the output function. In this case the output name "NORMAL OPERATION" of the output function 4. The second display line display the output "S1" to left side of the screen and four characters to the right the assigned output function "4".

To configure an output for a certain output function, the required output is selected via the UP and DOWN keys of the keypad.

DOWN

```
AT FLOOR LEVEL
S2:    (15)
```

DOWN

```
MOTOR CONTACTOR 1
S3:    (25)
```

When the output terminal is displayed on the screen, the ENT key can be pressed to modify.

```
MOTOR CONTACTOR 1
S2  ?000025
```

By pressing the ENT-key the controller enters the output function editing mode. This enables the user to assign the output a different output function. The chosen output function is assigned to the output by pressing the ENT key again. If it is not desired to save the changes, press the ESC key to exit the edit mode.

CHAPTER 5- PARAMETERS

All information about lift and control system settings and timings are stored in system parameters. These parameters are classified into several groups to make it easy for users. These groups are:

P1-MAIN PARAMETERS: These parameters are denoted with a prefix letter 'A' as Axx. Main parameters define the type and basic functions of the lift. They can be modified only when the lift is resting.

P2-AUXILIARY PARAMETERS: These parameters are denoted with a prefix letter 'B' as Bxx. Auxiliary parameters define most of the functions of the lift. They can be modified at any time.

P3-TIMER PARAMETERS: These parameters are denoted with a prefix letter 'C' as Cxx. Timer parameters store all user definable timer settings. They can be modified at any time.

P4-FLOOR PARAMETERS: Floor parameters hold the settings related to every floor, such as displays, door opening sides, etc.

P5-MAINTENANCE: The date for the next maintenance time is stored.

P6-OUTPUT DEFINITIONS: These parameters store the settings for the programmable outputs.

P7-INPUT DEFINITIONS: These parameters store the settings for the programmable inputs.

P8-DATE / TIME: Settings for time and date are stored in these parameters.

P9-UTILITIES: Utilities for setting parameters easily.

P0-MAX-START: This parameter stores the maximum number of starts of the lift until the next maintenance schedule.

PA-LIFT NO: Lift number, which is used in remote accessing of the lift, is stored here.

5.1) P1-MAIN PARAMETERS

The lift must be stationary (in REST mode) mode to carry on any modification on main parameters.

[A01] NUMBER OF STOPS

2…64	This parameter stores the number of stops of the lift.

[A02] COMMAND SYSTEM

0	Simple Push Button Car and hall calls are processed together. The lift executes only one call. No collective operation is allowed. No group operation is allowed. This system is used mainly in freight lifts.
1	Simple Collective Car and hall calls are processed together. Collective operation is allowed but there is no difference between hall and car calls. No group operation is allowed.
2	Down Collective Car and hall call buttons are processed separately. Car calls are collective in both directions where hall calls are collective only in downwards motion. This configuration is useful in residential buildings where the main entrance is in the base floor. Group operation is allowed.
3	Up Collective Car and hall call buttons are processed separately. Car calls are collective in both directions where hall calls are collective only in upwards motion. This configuration is useful in residential buildings where the main entrance is in top floor. Group operation is allowed.
4	Full Collective Car, up and down hall buttons are processed separately. This is the most advanced command system and the best selection for group operations.

[A03] LIFT TYPE

1	One Speed Rope Lift
2	Two Speed Rope Lift
3	Hydraulic Lift
4	AE-LIFT
5	VVVF2
6	FUJILIFT

[A04] DOOR TYPE

1	Wing Door The lift has semi-automatic landing doors.
2	Automatic Door The lift has full-automatic landing doors.

[A05] FLOOR SELECTOR

0	Counter Mono-stable Switch Monostable magnetic switches are used for car position detection.
1	Counter Bi-Stable Switch Bi-stable magnetic switches are used for car position detection.
2	Incremental Encoder Incremental encoder is used for car position detection.
3	Absolute Encoder Absolute encoder is used for car position detection.

[A06] BRIDGING

0	Not Active Both releveling, and early door opening are inactive.
1	Releveling Releveling is active. Early door opening is inactive.
2	Early Door Open Releveling is inactive. Early door opening is active.
3	Relevel + Early Both releveling, and early door opening are active.

[A07] GROUP NUMBER

0	Simplex The lift works as simplex.
1...8	Group Number The lift works in a group of lifts. A07 specifies its group number.

[A08] NUMBER OF DOORS IN CABIN

1	1 Door There is one car door.
2	2 Doors There are two car doors. Make your selections of opening door sides for each floor in the following menu: main menu [press ENT] -> M2-PARAMETERS --> P4-FLOOR PRMs. -> K2-SET DOOR 1 main menu [press ENT] -> M2-PARAMETERS --> P4-FLOOR PRMs. -> K3-SET DOOR 2

[A09] COMMUNICATION

0	Car Serial The communication between car and controller is serial. The landing calls and signals are driven as parallel by ALPK board.
1	Full Serial The communication between car, landing panels and controller is full serial.

[A10] TARGET DISTANCE

0	Floor Number Floor numbers are taken as reference to calculate the distance to the target. Therefore, there is only one position reference for each floor.
1	Distance The encoder pulses are used as reference to calculate the distance to the target. Therefore, there are lots of position references for a floor in mm accuracy. Refer to the section 8.4.3 for a more detailed explanation.

[A11] HIGH SPEED

0	No There are only two speeds operating. These are FAST and SLOW.
1	Use 3rd Speed HIGH This option is used in variable speed lifts (A03 > 3), where the car speed exceeds 1m/s. In this case, the lift travels with the velocities fast and high (3th speed). When this option is selected the HU and HD inputs must be defined. The HU switch must be placed one floor below the top floor and the HD switch must be placed one floor above the base floor. The purpose of these switches is to slow down the car from high speed (3th. speed) to intermediate speed (fast speed) in order to prevent the car from entering the last floors of the shaft with a velocity over 1 m/s. If this option is selected without connecting HU and HD, an error message (21) will be indicated.
2	Use 4th Speed ULTRA This option is used in variable speed lifts (A03 > 3), where the car speed exceeds 1,6 m/s. In this case, the lift travels with the velocities slow, fast, high (3rd speed) and high (4th speed). When this option is selected the HU and HD inputs must be defined. The HU switch must be placed one floor below the top floor and the HD switch must be placed one floor above the base floor. The purpose of these switches is to slow down the car from high speed (3rd speed) to intermediate speed (fast speed) in order to prevent the car to enter the last floors of the shaft with a velocity over 1 m/s. If this option is selected without connecting HU and HD, an error message (21) will be indicated.

[A12] ENTRANCE FLOOR

0...8	This parameter stores the number of floor(s) below entrance floor if they exist.

[A13] HOMELIFT

0	Normal Lift The lift serves as a normal lift in conformity to the standard EN81-20/50i
1	Homelift The lift performs as a **homelift**. In this selection the traffic system is a simple push button. When any travel is started, by using car buttons then the motion continues only if the car call button is kept pressed along the travel. If the car call button is released during travel, then the motion is stopped immediately. However, there is no such restriction for hall calls. The lift travels to any hall call like a normal lift.

[A14] MISSING DOWN (GROUP LIFT)

0…5	This parameter is used only for group operations. If there are one or more floors of the other lifts in the group below the base floor of this lift, then the number of missing floors downwards must be defined in this parameter. This information is used in adapting the floor levels in group communication. Refer to section 8.1 for a more detailed discussion.

[A15] MISSING UP (GROUP LIFT)

0…5	This parameter is used only for group operations. If there are one or more floors of the other lifts in the group above the top floor of this lift, then the number of missing floors upwards must be defined in this parameter. This information is used in adapting the floor levels in group communication. Refer to section 8.1 for a more detailed discussion.

[A16] UCM CONTROLLER

0	Not Present There is no UCM device.
1	Gearless The motor of the lift has a synchronous motor with two brakes. Brake monitoring will be carried out. You should define BR1 and BR2 inputs and connect them to the motor brakes.
2	Speed Governor The motor of the lift has an asynchronous motor. The contacts (SGO and SGC) of the UCM device will be monitored.

[A17] LEVEL DETECTOR

0	MKU and MKD MKU and MKD switches are used to detect floor level. Releveling will be initiated by using the information coming MKU and MKD switches.
1	ENCODER Encoder pulses are used to detect floor level. Releveling will be initiated by using the information coming from encoder pulses.

[A18] CAR CAN CHANNEL

0	CAN0 CAN0 is used for car (SCB) and ALSK / ALPK communication.
1	CAN1 CAN1 is used for car (SCB) and ALSK / ALPK communication.
2	CAN2 CAN2 is used for car (SCB) and ALSK / ALPK communication.

[A19] FLOOR CAN CHANNEL

0	CAN0 CAN0 is used for the hall panel communication.
1	CAN1 CAN1 is used for the hall panel communication.
2	CAN2 CAN2 is used for the hall panel communication.

[A20] GROUP CAN CHANNEL

You can have only lift group connections via the CAN-port you have selected for group communication. You are not allowed to define any other device communications via the selected interface, which is already defined for group communication. This restriction only applies for group operation. Therefore, keep A20=3 when the lift is simplex where no group communication is used.

0	CAN0 CAN0 is used for group communication.
1	CAN1 CAN1 is used for group communication.
2	CAN2 CAN2 is used for group communication.
3	NOT ACTIVE No group operation.

[A21] ENCODER CAN CHANNEL

A21 defines the interface which should be connected with the absolute encoder.

0	CAN0 CAN0 is used for absolute encoder communication.
1	CAN1 CAN1 is used for absolute encoder communication.
2	CAN2 CAN2 is used for absolute encoder communication.
3	NOT ACTIVE No encoder communication is used.

[A22] DCP-CHANNEL

This facility has not been implemented yet in current version.

0	NOT USED
1	SP1 Serial Channel 1
2	SP2 Serial Channel 2

[A23] PIT CONTROLLER BOARD SPB

0	NOT USED There is no SPB board in shaft-pit.
1	PRESENT SPB boards is used in shaft-pit.

5.2) P2-AUXILIARY PARAMETERS

[B01] AFTER LOCK FAULT

0	Continue The system continues its operation after any lock fault.
1	Block at repetition The system will be blocked after a certain number of repeated lock faults. This number is the value defined in parameter [B12].
2	Clear Registers All call registers are cleared after any lock fault.
3	Block + Try Again

	The system will be blocked after <u>a certain number</u> of repeated lock faults. <u>This number</u> is the value set in parameter [B12]. However, the system returns normal operation automatically after 5 minutes.

[B02] CONTINUE ON ERROR

0	<u>No</u> The system stops after all errors.
1	<u>Yes</u> The system continues its operation after some simple errors, which are not related to the safety circuit or car motion.

[B03] PARK DEFINITION

0	<u>No Park Floor</u> No park floor is defined.
1	<u>Park Floor Door Close</u> The car will go to the parking floor set in parameter [B04] when no calls have been received in a specified time period [C25] after the car light goes off. The car will wait at parking floor [B04] with **closed** doors.
2	<u>Park Floor Door Open</u> The car will go to the parking floor set in parameter [B04] when no calls have been received in a specified time period [C25] after the car light goes off. The car will wait at parking floor [B04] floor with **open** doors. **Warning: This option is not in conformity with EN81-20/50.**

[B04] PARK FLOOR

0…63	This parameter specifies the floor number where the car will wait at parking position.

[B05] FIRE FLOOR 1

0…63	When the fire input 1 is activated the car immediately moves to the floor set in this parameter.

[B06] MAXIMUM CABIN CALLS

1…64	This parameter sets the maximum number of accepted car calls at any time. Any new call requests beyond the number set in [B06] coming from the car call buttons will not be executed.

[B07] BREAKPOINT CODE

0	This parameter is used only for service purposes. Leave it always as 0.

[B08] DOOR BUTTONS

0	<u>Separately</u> Door open and door close buttons of two car doors function separately. In order to do this there must be two car panels in the cabin.
1	<u>Together</u> Door open and door close buttons of two car doors function together. There is only one car operating panel in the cabin for the two car doors.

[B09] WAIT DOOR OPEN

0	<u>Wait Closed Door</u> Car waits with **closed** doors at floor level.
1	<u>Wait Open Door</u>

	Car waits with **open** doors at floor level. **Warning: This option is not in conformity with EN81-20/50.**

[B10] REMOTE REPORTING

0	Not Activated
1	PC COMMUNICATION
2	GSM SMS After an error, system sends a SMS to the defined phone number.
3	GSM CALL After an error, system calls defined phone number and after 5 second hangs up the line.
4	ERR > CALL ALR > SMS System calls defined phone number in case of an error and sends an SMS on Alarm.
5	ALR > CALL ERR > SMS System sends SMS to defined phone number in case of an error and calls on Alarm.

[B11] LANGUAGE

This parameter defines the language used in menus in LCD screen.

0	Turkish / Turkce
1	English / İngilizce
2	German / Deutsch
3	Greek /Ellhnika
4	Russian / Россия
5	French / Francais
6	Spanish / Espanol

[B12] MAXIMUM ERROR REPEAT

1…100	When any error with the error codes: 6, 12, 13, 27, 61, 62, 70, 28, 44, 38, 88, 89, 91, 41, 65, 82, 66,67, 50, 73, 74 and 75 occurs and is repeated as many times as the number defined in this parameter then the system will be blocked.

[B13] SERIAL PORT 1

This parameter determines for which purpose serial port 1 SP1 is going to be used.

0	FREE Not used.
1	PC COMMUNICATION It is used to transfer data to a PC via ethernet or USB interface.
2	DCP-INVERTER Not implemented yet.
3	GSM MODEM A GSM modem is connected to SP1.
4	Bluetooth It is used for Bluetooth interface.

[B14] SERIAL PORT 2

This parameter determines for which purpose serial port 2 SP2 is going to be used.

0	FREE Not used.
1	PC COMMUNICATION It is used to transfer data to a PC via ethernet or USB interface.

2	DCP-INVERTER Not implemented yet.
3	GSM MODEM A GSM modem is connected to SP2.
4	Bluetooth It is used for Bluetooth interface.

[B15] RECALL SPEED SELECTION

0	REV-JOG OFF
1	REV-JOG ON Recall speed is selected as the jog speed for inspection.

[B16] BUTTON FAULT CONTROL

0	NOT ACTIVATED This function is not active.
1	ACTIVATED When any hall call button **in parallel connection** system is pressed and held for more than 5 minutes, the system cancels the corresponding button input and does not read it anymore. When the lift is switched to inspection mode or switched on again then the cancelation is omitted, and the system reads this button again.

[B17] HALL CALLS INHIBIT

0	Hall Calls Allowed Hall calls are allowed.
1	Hall Calls Inhibited Hall calls are inhibited.

[B18] TWO DOORS SELECTION

0	NOT USED When there are two car doors then the opening floors for each door is specified in Floor Parameters section (K1 and K2). Each door opens according to the settings in floor parameters.
1	TERMINAL INPUT The door to be opened at each floor is determined not by the settings in floor parameters but according to the states of the programmable inputs, DOA and DOB. Car door A can open if DOA input is active. Similarly, Car door B is active if DOB input is active. DOA and DOB cannot be active (ON) at any time simultaneously.

[B19] UCM ERROR BLOCK

0	CAN BE BLOCKED UCM Errors (Errors with the error number 64, 68, 69 and 72) will block the lift.
1	NO BLOCKING UCM Errors (Errors with the error number 64, 68, 69 and 72) will not block the lift. **Warning: This option can be used only for installation, repair and maintenance purposes. This parameter cannot be set to 0 for normal operation according to the current lift standards.**

[B20] INSPECTION SPEED

0	Fast (Hydraulic) This option can be set only in hydraulic lifts. The speed in inspection mode is selected as the fast speed.

1	Slow The speed in inspection mode is selected as the slow speed.
2	Only Direction When there is a motion command in inspection mode then only the output related to the direction command is set, neither slow nor high speed is activated.

[B21] THERMOMETER

This parameter determines how the machine room temperature information is collected.

0	No Temp. Control Machine room temperature will not be carried out.
1	On-board Detector The temperature detector on ALC mainboard is used in to get the data for machine room temperature. The allowed machine room temperature range has been defined in parameters B42 and B43 where parameter B42 defines the minimum temperature and parameter B4 the maximum temperature. When the measured temperature is out of the allowed range then any motion request is prohibited.
2	THR Input An external temperature detector is used in processing machine room temperature. Any active state (ON) in the input terminal assigned to the function THR indicates that the temperature is out of the allowed temperature limits for machine room and therefore any motion is prohibited.

[B22] DIRECTION ARROWS

0	DIRECTION The arrow outputs for hall (lantern) panels refer to the direction of the lift.
1	NEXT DIRECTION The arrow outputs for hall (lantern) panels refer to the next direction of the lift.

[B23] PTC CONTROL

0	PTC Control Off Motor thermistor control is not active.
1	PTC Control On Motor thermistor control is active.

[B24] PHASE CONTROL

This parameter determines how the state of 3-phase line inputs must be processed.

0	PHASE CONTROL OFF No control for 3-phase line inputs are carried out.
1	On-board L1/R, L2/S and L3/T inputs on ALC mainboard are used to process 3-phase control.
2	FKI Input An external phase detector connected to the input terminal assigned to FKI input function is used to process 3-phase control.
3	Mono-phase When the voltage between two of the following three terminals L1/R, L2/S and L3/T is 220-240V AC then the system works otherwise it creates a phase error and stops motion.
4	No Sequence Check L1/R, L2/S and L3/T inputs on ALC mainboard are used to process 3-phase control. No phase sequence is checked. This option can be selected only if the lift type (A03) has been selected greater than 3.

[B25] HYDRAULIC STOP STYLE

0	Valve-Motor Delay	In hydraulic lift operation, when a stop command is processed then valves are deactivated immediately. Motor is stopped after a delay specified in parameter [C15].
1	Motor-Valve Delay	In hydraulic lift operation, when a stop command is processed then motor is deactivated immediately. Valves are stopped after a delay specified in parameter [C15].

[B26] DOORS IN STOP

0	Doors Passive
	Door signal is passive. Both door open and close signals are not communicated.
1	Doors Are Open
	Door signal is active.

[B27] BACKLIGHT

0	Auto Off
	Energy saving mode. The backlight illumination of the LCD screen on the ALC mainboard is switched off when it is not used.
1	Always On
	The backlight illumination of the LCD screen on the ALC mainboard is always ON.
2	Always Off
	The backlight illumination of the LCD screen on the ALC mainboard is always OFF.

[B28] RESCUE SPEED

This parameter defines the states of speed outputs for motor driver in rescue mode when a motion command is executed.

0	Fast + Inspection
	Both fast and inspection speed outputs are active.
1	Fast
	Only fast speed output is active.
2	Slow
	Only slow speed output is active.
3	Slow + Inspection
	Both slow and inspection speed outputs are active

[B29] LANDING ANNOUNCEMENT

If system has the AFM board this parameter can be use.

0	On
	Landing announcement is active
1	Not Used
	Landing announcement is passive

[B30] GO TO RESETTING

0	Not Activated
	The lift will not start to travel to reset the counting system after any start-up.
1	Activated
	When the lift is switched on then the lift travels the base (or top) floor to reset floor counting system where the floor selector is not absolute encoder, namely A05<3.

[B31] ID CONTROL

This parameter defines how the ID control system will function. In order to activate ID control system this parameter should be nonzero. ID control system is explained in detail in section 8.3.

This parameter must be 0 during operation of priority control. However, before starting priority operation control define B31=2 to introduce the keys to the system. Once all keys have been introduced then define B31=0 to start priority control operation.

0	Not Used ID control system is inactive. No ID cards can be read by the system.
1	Cabin ID control system is inactive. ID keys can be read only in cabin.
2	Cabin + Controller ID control system is inactive. ID keys can be read in cabin and in controller.
3	Cabin+Controller+RS232 ID control system is inactive. ID keys can be read in cabin, in the controller.
4	PWS Input When PAS input is active, limited floor from car access is open.

[B32] GONG SELECTION

This parameter defines how the arrival gong is executed.

0	Gong at Stop Gong signal is activated when the lift stops.
1	Gong at Slow Speed Gong signal is activated when the lift starts to slow down.
2	No Car Gong There is no arrival gong.

[B33] 1st VIP FLOOR

0…63	When the input terminal assigned to VP1 input function is activated then the lift immediately moves to the floor set in this parameter. VP1 has highest priority and VP2 is the next one in VIP system. If VP2 or VP3 is active while VP1 too is active, then VP1 is selected and VP2 and VP2 are ignored.

[B34] 2nd VIP FLOOR

0…63	When the input terminal assigned to the VP2 input function is activated then the lift immediately moves to the floor set in this parameter. VP1 has highest priority and VP3 the lowest. If VP2 and VP3 are both active, then VP2 is selected and VP3 is ignored. And when VP1 is active V2P is ignored.

[B35] 3th VIP FLOOR

0…63	When the input terminal assigned to the VP3 input function is activated then the lift immediately moves to the floor set in this parameter. VP3 has the lowest priority. Therefore, if VP2 or VP1 are active then VP3 is ignored.

[B36] VVVF LEVEL SPEED

This parameter defines the speed used in LEVELING motion for lift types greater 3.

0	Slow Speed Level speed is slow speed.
1	Special Only direction outputs (RU / RD) are driven in case of a leveling motion. In parallel to this **output function 23** is activated throughout the motion period. Any output terminal can be set to 23 in order to enable a special speed selection in inverter for leveling motion.

[B37] UCM CHECK TYPE

This parameter determines how the control of the UCM device will be tested periodically.

1	Starting Count
	The UCM device will be checked after a specified number of starts.
2	Daily Control
	The UCM device will be checked daily at a specified time point.

[B38] CAR DISPLAY OUTPUT

This parameter defines how the digital outputs in car controller SCB board are driven.

0	7 Segment Display
	Digital outputs are 7 segment display data.
1	Gray Code Output
	Digital display outputs on SCB board give Gray Code output where the digit G represents G0, digit F represents G1, digit E represents G2 and digit D represents G3.
2	Binary Code Output
	Digital display outputs on SCB board give Binary Code output where digit G represents B0, digit F represents B1, digit E represents B2 and digit D represents B3.
3	7 Segment + Arrow
	Digital outputs are 7 segment display data and direction arrows.

[B39] HALL DISPLAY OUTPUT

0	7 Segment Display
	Digital outputs are 7 segment display data.
1	Gray Code Output
	Digital display outputs ALPK board give Gray Code output where digit G represents G0, digit F represents G1, digit E represents G2 and digit D represents G3.
2	Binary Code Output
	Digital display outputs on ALPK board give Binary Code output where digit G represents B0, digit F represents B1, digit E represents B2 and digit D represents B3.
3	Floor Signal
	Digital display outputs on ALPK board give floor number outputs such as A-701, B-702...G-707, 2G-708, 2BC-709. For example, if the car is at floor 2 then only B segment (702) will give an output where all other segments will be inactive.

[B40] FIRE FLOOR 2

0…63	When the input terminal assigned to the input function Fire 2 is activated then the car immediately moves to the floor set in this parameter.

[B41] PRIORITY SYSTEM

0	Not Activated
	Priority system is inactive.
1	Activated
	Priority system is active. Refer to the section 8.2 for a detailed discussion.

[B42] MACHINE ROOM MINIMUM TEMPERATURE

0…9	The value in this parameter defines the minimum temperature for the machine room where the lift continues to work.

[B43] MACHINE ROOM MAXIMUM TEMPERATURE

30…60	The value in this parameter defines the maximum temperature for the machine room where the lift continues to work.

[B44] MK DELAY

0…90	This parameter defines the delay in stopping after the stop magnet switch has been read by the system **in normal operation**. One unit in this parameter corresponds to a time delay of 30 msec. Parameter unit is 30 msec. When this parameter is set as 0 then this function is disabled. Maximum value of 90 results in a 2.7 seconds delay.

[B45] ERS MK DELAY

0…120	This parameter defines the delay in stopping after the stop magnet switch has been read by the system **in rescue mode**. One unit in this parameter corresponds to a time delay of 30 msec. Parameter unit is 30 msec. When this parameter is set as 0 then this function is disabled.

[B46] FIRE STANDARD

0	EN81-73 The system functions in conformity to EN81-73 Fire Standard when a fire signal is received.
1	EN81-72 The system functions in conformity to EN81-72 Fire Standard when a fire signal is received. No key operation in car panel is included.
2	EN81-72 Car Key The system functions in conformity to EN81-72 Fire Standard when a fire signal is received. Key operation in car panel is included.
3	EN81-72 Russian Standard The system performs operations in conformity to EN81-72 including Russian Standard modifications when a fire signal is received. Key operation in car panel is included.
4	EN81-73 Block The system functions in conformity to EN81-73 Fire Standard when a fire signal is received. When fire input is inactive (no fire) then the lift is blocked and does not enter the normal mode until a manual reset is carried out. A manual reset can be entering inspection mode or a power down.

[B47] RESETTING SWITCH

This parameter defines the presence of resetting switches in place of 871 and 872 if there is more than one floor in the compulsory slow down region.

0	Not Activated 817 and 818 are used as resetting switches for all floor selector types, where A05 is less than 3.
1	Activated If there are more than one floor below 817/KSR1 or above 818/KSR2, then the system uses the input functions 917 for bottom resetting switch and 918 for top resetting switch. 817 and 818 continue to serve as speed limit switches.

[B48] LCD 2nd.CHAR SET

0	Latin Char. Set (Standard) LCD screen has Latin Characters.
1	Russian Char. Set (Cyrillic) LCD screen has Cyrillic Characters.

[B49] RELEVELING MOTOR

This parameter is used only for hydraulic lifts to define the presence of an extra leveling motor.

0	No There is no leveling motor.
1	Yes There is a leveling motor. It will be activated only in case of level motion.

[B50] CNT CHECKING

This parameter defines the way contactors are checked.

0	Checking Off No contactor checking is carried out. **Warning: This option can be used only for installation, repair and maintenance purposes. This parameter is not allowed to be set 0 for normal operation according to the current lift standards.**
1	Checking On Contactor checking is always carried out.
2	Down İnactive Contactor checking is carried out only in upwards motion. This option can be selected only for hydraulic lifts.

[B51] PHOTOCELL BYPASS

0	İnactive No photocell bypass operation is carried out.
1	ACTIVE-1/CLOSE- Photocell bypass operation is carried out. Only SLOW CLOSE output function is available for door operator to close the door in photocell bypass operation. See also timer parameters C07 and C37.
2	ACTIVE-2/CLOSE+ Photocell bypass operation is carried out. Door close command is sent together with SLOW CLOSE output function to door operator to close the door in photocell bypass operation. See also timer parameters C07 and C37.

[B52] SLOW MOTOR PERIOD

0	Can Be Blocked If system is not reaching the target floor in a specified parameter on C16, this parameter blocks the system.
1	No Blocking This parameter doesn't block the system after finished the specified timer C16.

[B53] PANIC FLOOR

0…64	When PNB input is active, then the lift travels to the floor defined in this parameter.

[B54] INSTALATION MODE

This parameter has been implemented to facilitate the first installation of the system. System must be inspection mode due to inspection box or RECALL switches to activate this function. Some of the inputs are inhibited while the install mode is activated. When the controller returns to the normal mode or the system is restarted, then this parameter is returned to passive (B54=0) automatically and the installation mode is cleared.

0	Not Activated System work in normal mode.

1	Activated
	If the system is in the inspection mode due to RECALL or car top switch, then the controller does not respond 871, DIK, BYP, KRR, DPM, SGO, KL1, KL2, K1C and K2C inputs. Pit inspection, UCM errors and bypass procedures are skipped.

[B55] MOTION IN INSPECTION
This parameter determines the limits of the inspection travel in the shaft limits.

0	Stop At 817 / 818
	The motion in inspection stops upwards when 818 becomes off (818=0) and downwards when 817 becomes off (817=0). Beyond these limit switches no inspection motion is allowed.
1	To the Last Floor
	Inspection motion can continue until last floor levels upwards and downwards.

[B56] DOOR OPEN CHECK
This parameter determines the method of the door open check test.

0	Check Always
	Door open test is always carried out whenever a door open command has been executed.
1	At First Opening
	The door open check is carried out only at the first opening when the car comes to the floor. If this check is passed, then no further check is carried out at this floor. If the test fails, then the system will be blocked.
2	No Open Check
	Door open check is not carried out at all. **This option is not in CONFORMITY to the lift standard EN81-20/50!**

[B57] ERS EXIT FLOOR
This parameter determines the exit floor in case of emergency rescue operation.

0	Suitable Floor
	The car moves to the next upper or lower floor depending on the weight condition in emergency rescue operation.
1	Base Floor
	The car moves directly to the base floor in case of emergency rescue operation. **Please note that an emergency power supply which can drive the lift with an empty cabin from the top floor to the base floor is required to select this option.**

[B58] AMI-100 DEVICE
This parameter is used for the AMI-100 device to implement the EN81-21 requirements.

0	Not Used
	The AMI-100 device is not used.
1	Present
	The AMI-100 device is employed in the system.

[B59] BRIDGING BLOCK

This parameter determines if the system will be blocked after the occurrence of the error 45.

0	Can Be Blocked
	The system will be blocked after the error 45 (bridging error) has occurred.
1	No Blocking
	The system will not **be blocked** after the error 45 (bridging error) has occurred.
	Please note that this selection is not in conformity with EN81-1 as well as with EN81-20/50.

[B60] SDE OUTPUT

This parameter defines the operation of the O1-O7 terminals on the SDE board

0	Programmable Outputs
	In this case the O1-O7 terminals can be used as programmable outputs.
	You can define these outputs in the menu P6 as E1 ... E7 outputs.
1	7 Segment Display
	The SDE board outputs 7 segment display data. The segments are located as follows:
	O1:A, O2:B, O3:C, O4:D, O5:E, O6:F, O7:G, O8:2G (-)
2	Gray Code Output
	The SDE board outputs Gray Code, where the bits are located as follows:
	O1: bit 0, O2 bit1, O3: bit2 and O4 bit3.
3	Binary Code Output
	The SDE board outputs Binary Code, where the bits are located as follows:
	O1: bit 0, O2 bit1, O3: bit2 and O4 bit3.
4	Floor Signal
	The SDE board outputs floating signal related to the current floor number.
	O1 represents floor 0, O7 floor 7. Only first eight floors can be indicated.

5.3) P3-TIMER PARAMETERS

In all C type parameters (timings), one unit corresponds to 0.1 sec.

[C01] BUSY PERIOD

30...3000	Busy period during which cabin light and Busy output (12) are activated.

[C02] OPEN WAIT PERIOD-1

30...1000	After a door-1 open command the door will wait for the period defined in this parameter to close back.

[C03] CLOSING PERIOD-1

30...1000	After a door-1 close command has been executed then the controller waits for a time period defined in this parameter for door-1 to be closed. If door-1 is not closed within this time period, then an error (8) will be created.

[C04] DOOR OPEN PERIOD-1

5...100	This parameter defines the time period for door-1 to open. The controller checks if the door-1 has opened (or more accurately, is not closed anymore) within this period after a door-1 open command.

[C05] K20 PERIOD

10...200	When K20 input function is activated then door-1 will open. Then it will wait for the time period specified in this parameter before closing back.

[C06] PHOTOCELL PERIOD-1

10...200	When FOT input function is activated then door-1 will open. Then it will wait for the time period specified in this parameter before closing back.

[C07] PHOTOCELL BYPASS PERIOD-1

50...3000	When FOT input function is activated continuously for the time period defined in this parameter then door-1 switches to slow close-1 mode and activates slow closing-1 for the door-1 provided that the parameter B51 is selected other than 0.

[C08] DTS BUTTON DELAY 1

0	Disabled
20...500	DTS (Door close button) is inhibited during the period defined in this parameter after arrival at the floor.

[C09] WAIT IN FLOOR PERIOD

20...1000	This parameter defines the time period for the car to wait before departing for the next call in collective systems.

[C10] STARTUP DELAY

1...100	It defines the time delay to start the motion after safety circuit is closed.

[C11] DOOR OPEN DELAY

0...100	This parameter defines the time delay to start opening doors after arrival at a new floor.

[C12] BRAKE DELAY

10...50	This time parameter defines brake delay in stopping in VVVF systems. When the lift motion has been stopped at the end of a travel, the mechanical brake is switched off after the time delay defined in this parameter. C12 delay affects the programmable output functions 25, 27 and 51.

[C13] LOCK WAIT PERIOD

0...500	This parameter stores the door close period. If door is not closed within this parameter error signal (40) is created.

[C14] MAXIMUM BUSY PERIOD

0	Inactive
1...3000	If the doors are left open or cannot close for a period of C16 then the busy signal and cabin lights are switched off until a new call is received.

[C15] FLOOR PASS PERIOD

50...3000	This parameter defines the maximum time interval in which the lift travels from one floor to the next one. If this interval is exceeded an error signal (6) is created.

[C16] SLOW SPEED MAXIMUM PERIOD

50...1000	This parameter stores the maximum travel time allowed to pass when the car is in slow speed. When this time is passed, an error (6) is generated and the system is blocked.

[C17] ARCH TRAVEL

0...60	Designed for the system where the distance between two stops is very short. During this period lift does not switch from high speed to slow speed.

[C18] MOTOR VALVE DELAY TIME

1…50	This parameter determines the time delay between when the motor starts to run, and the time valves are activated in hydraulic lifts in start-up. This parameter is used only for hydraulic lifts.

[C19] STAR DELTA SWITCHING PERIOD

0…50	This parameter determines the working time of the motor in star connection before switching to delta connection in hydraulic lifts in start-up. This parameter is used only for hydraulic lifts.

[C20] VALVE MOTOR DELAY TIME

0…50	This parameter is used only in hydraulic lifts and determines the time delay between valves and the motor (or vice versa) after a stop command. See parameter B25 for timings.

[C21] WAIT FOR MOTION

0…10	If there is no active signal in the input terminal, which is assigned to the input function RUN (10) within the time period defined in this parameter after a motion command is executed, then the system will be stopped. If RUN input function has not been defined in any input terminals, then this timer is not active.

[C22] SAFETY VALVE START

0…30	This parameter controls the delay between the down safety valve and down valve at start. Down safety valve opens first when the hydraulic lift starts. Once it is open, C22 timer starts to count down. At the end of this timer, down valve opens.

[C23] SAFETY VALVE STOP

3…30	This parameter controls the delay between the down valve and down safety valve at stop. Down valve opens first when the hydraulic lift stops at floor. Once it is open, C23 timer starts to count down. At the end of this timer, down safety valve opens.

[C24] 2CH/S VALVE DELAY

0…30	This parameter defines the delay period for GMV 3010 2CH/S valves after a stop command. Motor stops first when the hydraulic lift stops at floor. Once the motor is off, C24 timer starts to count down. At the end of this timer, the 2CH/S valve opens.

[C25] PARK WAIT TIME

50…10000	If the parking function has been defined in parameter B03 (1 or 2) then the lift starts to travel to the parking floor specified in parameter B04 when no calls have been received after the last travel for the time period specified in this parameter.

[C26] Iv START SMA-OFF

1,2…70	The turning OFF period at start of SMA Signal for Bucher i-Valve hydraulic unit. The controller checks the RDY input. RDY input must be OFF within this time period, otherwise error 75 is generated.

[C27] Iv STOP SMA-ON

1,2…70	The activation period at stop of SMA Signal for the Bucher i-Valve hydraulic unit. The controller checks the RDY input. RDY input must be ON within this time period, otherwise error 75 is generated.

[C28] DIRECTION DELAY

| 20…300 | When the lift arrives at a new floor then its last direction before stopping is kept unchanged within the time interval defined in this parameter. |

[C29] ENCODER CONTROL

| 20…100 | When an incremental encoder is used to get car position (A05=2) it is checked by using this timer parameter. If no encoder pulses have been received for a time interval defined in this parameter, then an error signal is created (13) and the motion will be stopped. |

[C30] GROUP DOOR WAIT PERIOD

| 100…1000 | When the lift works in group, then this parameter specifies the maximum time period in which a lift can hold a hall call as its target while its doors are being forced to stay open. After timeout of this period, the hall call will be free where any other member of the group can take it as a target. |

[C31] LOADING PERIOD

| 100…5000 | When LDB input function (loading button) has been assigned to an input terminal then pressing LDB button holds the doors open within the time period defined in this parameter. The door will not be closed due to a new call. Only DTS and DT2 buttons (door close) can terminate this function. |

[C32] OPEN WAIT PERIOD-2

| 30…1000 | After a door-2 open command the door will wait for the period defined in this parameter before closing back. |

[C33] CLOSING PERIOD-2

| 30…1000 | After a door-2 close command has been executed then the controller waits for a time period defined in this parameter for door-2 to close. If door-2 is not closed within this time period, then an error 8 signal will be created. |

[C34] DOOR OPEN PERIOD 2

| 5…100 | This parameter defines the time period for door-2 to open. The controller checks if the door-2 is open (or more accurately, not closed anymore) within this period after a door-2 open command. |

[C35] K22 PERIOD

| 10…200 | When K22 input function is activated then door-2 will open. Then it will wait for the time period specified in this parameter before closing back. |

[C36] PHOTOCELL PERIOD 2

| 10…200 | When FT2 input function is activated continuously for the time period defined in this parameter then door-2 switches to slow close-2 mode and activates slow closing-2 for the door-2 provided that other than 0 is selected in parameter B51. |

[C37] PHOTOCELL BYPASS PERIOD 2

| 50…3000 | When FT2 input function is activated continuously for the time period defined in this parameter then door-2 switches to slow close-2 mode and activates slow closing-2 for the door-2 provided that other than 0 is selected in parameter B51. |

[C38] DTS BUTTON DELAY 2

| 0 | Disabled |

20…500	DT2 (Door close button) is inhibited during the period defined in this parameter after arrival at the floor.

[C39] RESCUE START DELAY

30…500	The starting delay of rescue operation after a power failure or phase failure.

[C40] ERS MOTION DELAY

0…100	This parameter is used in rescue mode and delays first motion command in rescue mode in order to wait for the inverter to settle up.

[C41] MAXIMUM RESCUE PERIOD

300…5000	This parameter defines the maximum time period allowed for emergency rescue operation. If the rescue operation is not completed within this period, then it will be terminated by the controller.

[C42] INSPECTION EXIT DELAY

10…200	After inspection mode turn off wait period to start motion.

[C43] PRIORITY PERIOD

200…3000	Priority waiting period. After the lift is called by a priority key and no further call is received for a time period defined in this parameter then the priority operation is cancelled.

[C44] MAXIMUM OPEN STATE

150…3000	This parameter defines a maximum door open period for output activation. If the doors stay open after a door close command for as long as the time period defined in this parameter, then output function 88 will be set.

[C45] DELAY AFTER DOOR

2…30	This parameter is used for semi-automatic doors and defines the activation delay period of retiring cam after the landing door has been closed.

[C46] PAWL MOTION UP

0…50	This period specifies the period of special pawl up motion when the lift starts for any direction.

[C47] PAWL LOCK WAIT

0…50	The maximum waiting period after energizing the PAWL device until SKN is read ON.

[C48] PAWL PRESSURE WAIT

0…50	The maximum period for KNB to be read as ON after starting special PAWL motion in starting phase of the lift.

CHAPTER 6 – FLOOR PARAMETERS

In this section, the parameter related to the floor numbers will be explained. These parameters are called "Floor Parameters". The path to the floor parameters is as follows:
main menu [press ENT] -> M2-PARAMETERS -> P4-FLOOR PARAM.

```
>K1-SET DISPLAYS
 K2-SET DOOR 1
```

The menu M24 consists of the following sections:

K1-SET DISPLAYS
K2-SET DOOR 1
K3-SET DOOR 2
K4-CABIN CALLS
K5-HALL CALLS
K6-FLOOR PULSE
K7-GENERAL PULSE
K8-CALL PERIODS

6.1) K1-SET DISPLAYS

In this section we can define the characters which will be displayed at floors. In this section you will see the following screen:

```
 00.FLR DISP:   0
>01.FLR DISP:   1
```

You can use UP and DOWN buttons to move up and down in this menu to select the floor you want to change. When you press ENT, the floor indicated by '>' sign will be selected.

```
01.FLR DISPLAY:
LEFT:     RIGHT: 1
```

This screen has been designed to set left and right digital characters. When you enter here first, the cursor will blink near the word "LEFT:".

```
01.FLR DISPLAY:
LEFT:A    RIGHT: 1
```

Here you can select the character for the left display for this floor by using the UP and DOWN buttons. As you press the UP and DOWN buttons the characters will be displayed on the screen.
At this point you can either skip this field by pressing the ENT button and accepting the displayed character, or you can select the character by using the UP and DOWN buttons. As you scroll through characters, all ASCII characters will be displayed one by one. You can select any character which should be displayed in the lift cabin and the landing panels. However, the display you are using can limit the characters that can be displayed. For example, if you are using 7-segment digital displays on your panels, then you can see the characters of all digits from 0 to 9 and other characters like -, A, b, C, d, E, F, H, I, J, L, n, P, r, U, y. If you have

these displays in your system, then you cannot see any characters like M or X on the panels if you select them. However, if you are using dot matrix displays and its driving hardware is connected in your system then you can display all characters you select in this section.

After you have chosen the character you want on the left display, press the ENT button to go to the input field of the right display. You can select the right display by using the LEFT or RIGHT buttons in the same way as the previous field. After you have chosen the character on the right display, press the ENT button to save and return to the previous menu.

By following the same procedure, you can specify all floor displays for the lift system.

This section is to change display data for any floor. However, if you want to reorganize all displays in consequent numbers then see display utility section 6.1.

6.2) K2-SET DOOR A and K3-SET DOOR B

This section is designed to select active automatic door(s) at each floor. If the system has only one door, you cannot enter this section. The first menu in this section is as follows:

```
 00.FLR DOOR A:1
>01.FLR DOOR A:0
```

If the system has two doors, then they are named A and B. If your system has two doors in cabin, you can freely select which doors will open in each floor. When '1' is displayed, it means that this door will open at the specific floor. When '0' is displayed, it means that this door will not open at the specific floor. In order to change the condition of the door for a specific floor, press ENT button in the line of this floor. In the following screen you can change the data by using UP and DOWN buttons between 0 (NO) and 1 (YES).

```
01.FLR DOOR A
     ?000000 NO
```

In this screen, the data for 1st floor is displayed as NO. It means that door A will not open at 1st floor. Here 0 is for OFF and 1 is for ON.

For door B, the same procedure applies for item K3.

6.3) K4-CAR CALLS

You can set cabin call permissions for any floor by using this section. If you switch off cabin call of any floor, then any call coming from car operating panel will be discarded. When you enter this section by pressing (ENT) button in menu M24, you will see the following screen.

```
 00.CABIN CALL:1
>01.CABIN CALL:1
```

In order to select a floor and change its data, move to its line and press ENT button. Then you will see the following edit screen. You can change the data by using UP and DOWN buttons between 0 and 3.

```
03.CABIN CALL
     ?000000 OFF
```

The parameters used in this screen are as follows:

0	OFF
	A cabin call for this floor is not allowed
1	ON
	A cabin call for this floor is always allowed.
2	PE1
	If the clock time is within the time interval PERIOD1 which is specified in section K8, then the cabin call is allowed, otherwise not allowed.
3	PE2
	If the clock time is within the time interval PERIOD2 which is specified in section K8, then the cabin call is allowed, otherwise not allowed.

6.4) HALL CALLS

You can set hall call permissions for any floor by using this section. If you switch off hall call for any floor, then any call coming from landing operating panel will be discarded. When you enter this section by pressing (ENT) button in menu M24, you will see the following screen.

```
>00.HALL CALL:1
 01.HALL CALL:1
```

In order to select a floor and change its data, move to its line and press ENT button. Then you will see the following editing screen. You can change the data by using UP and DOWN buttons between 0 and 3.

```
00.HALL CALL:
      ?000001 ON
```

The parameters used in this screen are as follows

0	OFF
	Hall calls for this floor are not allowed
1	ON
	Hall calls for this floor are always allowed.
2	PE1
	If the clock time is within the time interval PERIOD1 that is specified in section K8, then the hall calls are allowed, otherwise not allowed.
3	PE2
	If the clock time is within the time interval PERIOD2 that is specified in section K8, then the hall calls are allowed, otherwise not allowed.

6.5) K6-ENCODER PULSE OF FLOORS

If you select as floor selector 3 (incremental encoder) or 4 (absolute encoder) in [A05], then you can enter this section and edit position data for any floor.

```
>00.FLR: 1000
 01.FLR: 4000
```

You can go to the floor you want to edit by pressing UP and DOWN buttons. In order to select a floor and

change its data, press ENT button when ">" sign is in front of its number. Then you will see the following editing screen.

```
02.FLR PULSE:
      ?002468
```

Now you can change the data by using UP and DOWN buttons. In order to move between columns, use LEFT and RIGHT buttons. When you want to save the value you have entered, press ENT button. Otherwise press ESC button to exit from this menu without changing any data.

6.6) K7-GENERAL PULSE

This parameter is used only if [A05] is 3 (incremental encoder) or 4 (absolute encoder). The parameters given in this section correspond to the distances that are used for all floors. When you change any pulse number, then the distance for the related path is changed in all floors. All data given in this section are the distances in encoder pulses for the floor level specified in the previous section.

```
 MKD STOP :12
>MKU STOP :12
```

MKD STOPPER: The distance in mm between the exact floor level and the point of stop command while moving downwards.

MKU STOPPER: The distance in mm between the exact floor level and the point of stop command while moving upwards.

DOOR ZONE: The distance in mm from the exact floor level to the level in which the automatic door can be opened. The distance given in this parameter applies from the floor level up and down.

LEVELING START: The distance in mm from the exact floor level to starting point of releveling motion. The controller initiates releveling motion when the lift exceeds the distance from the floor level specified in this parameter.

LEVELING STOP: The controller terminates releveling motion when the distance from the floor level is shorter than the distance defined in this parameter.

DECELERATION 2th SPEED The distance in mm from the target floor level where the controller switches to slow speed (creeping speed) while approaching its target floor in FAST speed.

DECELERATION 3th SPEED: The distance in mm from the target floor level where the controller switches to slow speed (creeping speed) while approaching its target floor in in HIGH speed.

DECELERATION 4th SPEED: The distance in mm from the target floor level where the controller switches to slow speed (creeping speed) while approaching its target floor in in ULTRA speed.

MINIMUM WAY 3th SPEED: The minimum distance in mm for the controller to start its motion in HIGH speed.

MINIMUM WAY 4th SPEED: The minimum distance in mm for the controller to start its motion in ULTRA speed.

6.7) K8-CALL REGISTER PERIODS

```
 P1 08:30-12:30
 P2 13:30-18:30
```

You can specify two periods in this section. The first one is used as the period PE1 and the second is PE2 in sections K5 and K6 where call register permission is specified. Here the data is displayed in 24 hours' time system. For example, in the screen shown above any hall or cabin call register can be active from 8:30 to 12:30 if it is selected as PE1.

CHAPTER 7 – SYSTEM SETTINGS

7.1) SETTING DATE & TIME

System time and date can be set in this section. You can enter this service routine through the following path

main menu [press ENT] -> M2-PARAMETERS -> P8-DATE & TIME

The time and date of the system can be set in this section.

```
 YEAR....:2017
>MONTH...:04
```

You can edit any item in this screen after selecting the line by using UP and DOWN buttons and then pressing ENT button.

```
MONTH...
?000004
```

You can change the data by using UP and DOWN buttons. In order to navigate through columns, use LEFT and RIGHT buttons. When you want to save the value you have entered, press ENT button. Otherwise press ESC button to exit from this menu without changing any data.

In the same manner, you can edit year, month, day, hour and minute.

7.2) R4-MODEM SETTINGS

```
>X1-TEL #1-ERROR
 X2-TEL #2-ALARM
```

X1) Phone number will be used by the GSM modem in case of an error

X2) Phone number will be used by the GSM modem in case of an alarm

X3) Modem initialization string 1

X4) Modem initialization string 2

X5) Schedule

7.3) SETTING PASSWORD

You can change your password from this utility. Upon entering this menu, system asks for the current password.

```
CUR.PASS  ?000000
```

ENT

```
PASSWORD ?002345
NEW PASS ?003200
```

ENT

```
Confirm New Pass
ENTER-SAVE
```

If you enter the password correctly, system permits you to change system password to a number between 0 and 32000. When you press ENT button the new password will be saved. However, you can cancel all changes by pressing the ESC button.

CHAPTER 8 – LIFT FUNCTIONS

8.1) GROUP OPERATIONS

ALC lift controller can work is a group of 8 lifts. In order to connect a lift to a group you should carry on the following steps:

Lift Group
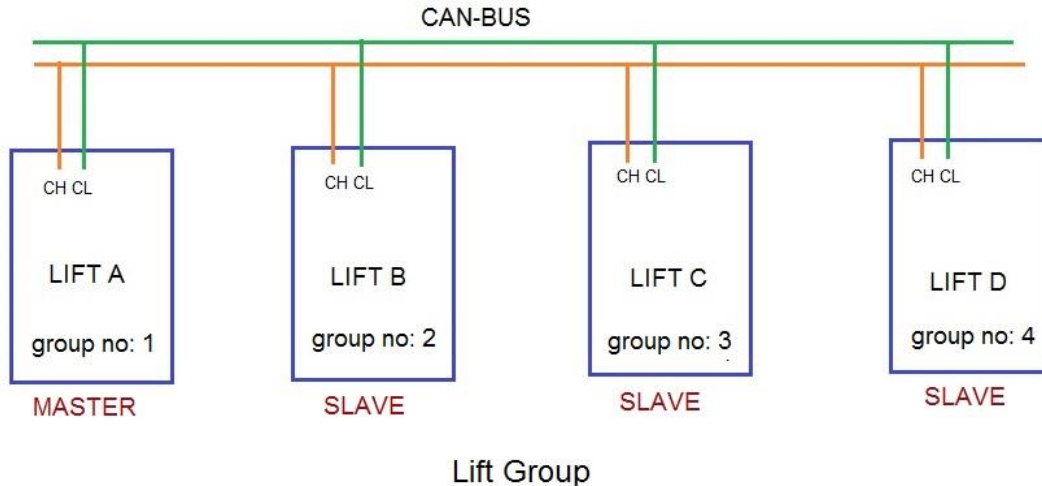
a) Select the CAN port you are going to use for group connection in parameter A20. The CAN port you have assigned to group communication must be used only for group and cannot be selected for other purposes in parameters A18, A19 and A21.

b) Connect the CAN network cables to all lifts in the group.

c) Adjust parameter A07 for group number. This parameter must be in the range of 1 to 8. A value 0 in A07 corresponds to a simplex lift and group communication will be inhibited.

d) There can be two to eight lifts in a lift group. The lift with the lowest group number will be master. Each lift must be a unique group number. If there is more than one lift with the same number in the group, then you will get an error with the number 39. The master processes the hall calls and distributes them to the other lifts (slaves).

e) If some lifts in the group have more or fewer floors than the others, then you must set the parameters A14 and A15 for these unmatched floors in the group. Please assign a lift which has all landing floors as the master. The lift which has been employed as master is not allowed to have missing floors.

f) When the master is switched off or cannot travel for any purpose then the lift with the lowest group number among the remaining lifts will be assigned as the new master and group operation will be carried out without interruption.

g) When a lift is not in normal mode or is blocked then it will be excluded from the group. If it is a master lift, then a new member will become master. In case of duplex operation two lifts continue to work as simplex in such cases.
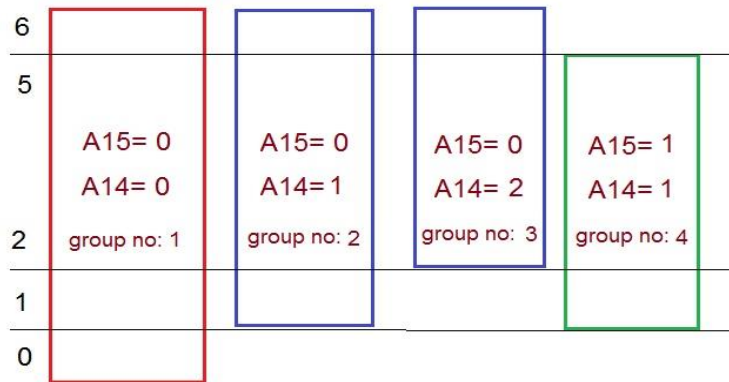
The use of A14 and A15 parameters for missing floors

8.2) PRIORITY FUNCTION

ALC software has a priority function. This function is very useful in buildings where public lifts are used. In case of emergency, these lifts can be called and used as a private lift by inhibiting normal usage. This system works only in full serial systems where landings are serial and requires access control readers (RFID or i-Button) in all landings and car.

In order to start priority operation first thing is to set ID Control parameter B31 to 1 or 2. So you can register the ID cards or i-Buttons into the system. The procedure of registering any ID card or i-Button into the system is explained in section 8.3. ACCESS CONTROL SYSTEM. You must follow same way as is explained in section 8.3. to add a new ID key to the system. The only difference in registering the keys for priority operation is that you should select 4 in EDIT ALLOWANCE. In this way the ID keys are registered for priority control. Once you have completed registering the ID keys, modify the value of parameter B31 to 0. This makes the ID Control system inactive. Then set the parameter controlling priority operation B41 to 1 to enable priority travel operation.

When B41 is 1 then the lift operates normally while there is no priority request. A priority request can come from car or from any landing when their access control readers are activated with a registered ID key. When an ID key is read from any of the landing access control readers while the lift is moving then it changes its target to the floor where the priority call is given. If the current motion direction and the direction towards to the floor of the priority call are opposite, then the lift stops at the first floor in its travel direction. It immediately changes its direction and moves directly to the floor where the priority call is activated.

When the lift arrives at the floor of priority call, it stops and waits with open doors. The person with the priority key enters the car and then he or she shows his or her key to the access control reader in the cabin. Now the lift is ready for a priority travel. The person can bring the lift to any floor by means of pressing a button on the car panel.

The lift does not accept any landing calls throughout the priority service time. Only car buttons can be used to move the lift during this period.

The priority operation will be terminated when the access control reader inside the car is activated by the priority key for the second time. There is also a timeout to exit from priority system. If there are no calls in car panel for a time period defined in parameter C43 while the lift is stationary, then priority service routine is terminated.

8.3) ACCESS CONTROL SYSTEM

Access control utility permits only the users with appropriate permission to use the lift, in other words, it restricts any person who is not allowed to use the lift for a specific floor or time interval. For this purpose, each lift user should have a RFID card or i-Button key with a unique user ID.

In this section, how to register a new ID to the system as well as how to change its permission details will be explained. Access control system is active only when the parameter [B31] has a value greater than '0'. As you enter this section, you will see the following menu.
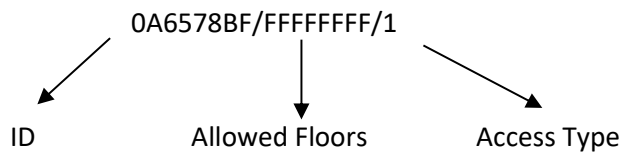
```
>Y1-ID LIST
 Y2-ADD NEW ID
```

8.3.1) ID LIST

For editing registered ID settings, you can use "Y1-ID LIST". When this section has been selected then registered ID list will be displayed on the screen.

```
>0A6578BF/FFFF/1
 0A632B16/0008/2
```

As you can see above each line shows one ID-code which contains three parts.

0A6578BF/FFFFFFFF/1

ID   Allowed Floors   Access Type

The left part "0A6578BF" stores the unique ID-code for the users. The middle part "FFFFFFFF" holds the information of the floors which the users are permitted to travel. Each floor is represented by a bit in this information, where '1' means permission and '0' means restriction. The information on the right side specifies the status of the permission. The detailed explanations are given below.

You can move the arrow at the left side of the ID LIST by UP and DOWN buttons. Select the line you want to edit then press ENT.

```
>0A6578BF/FFFF/1
 0A632B16/0008/2
```

The table below shows the operations you can select and their explanation and operation codes.

1	**All Floors Allowed**	To allow all floors, choose 1 with UP and DOWN buttons and press ENT. (Floors = FFFFFFFF)	
2	**No Floors Allowed**	To restrict all floors, choose 2 UP and DOWN buttons and press ENT. (Floors = 00000000)	
3	**Edit Allowance**	**0 – No Access**	No access to call register
		1 – Full Access	Full access to permitted floors' call registers
		2 – Accessible in PE1	Access to permitted floors' call register only for PE1 period (K8-Call Register Periods)
		3 – Accessible in PE2	Access to permitted floors' call register only for PE2 period (K8-Call Register Periods)
		4 – Priority Key	Key is a priority key.
4	**Allow One Floor**	Choose the floor number you want to allow with UP and DOWN buttons and press ENT (It is a 32-bit binary number shown in hexadecimal format. Each bit represents one floor). For the stops 3, 5, 10, 16, 23, 30: Floors: 40810428 (01000000100000010000010000101000b)	

| 5 | Restrict One Floor | Select the floor number you want to restrict using the UP and DOWN buttons and press the ENT button to confirm. (It is 32-bit binary number shown in hexadecimal format. Each bit represents one floor) For the stops 0, 7, 12, 19, 25, 29: Floors: 22081081 (00100010000010000001000010000001b) |

Table 8.1 Allowance for ID keys

8.3.2) FORMATS

When you want to add a new card or key to the system, you must assign it to a format. A format holds the information besides ID-code, namely allowed floors and status. There are 15 formats in the system. Therefore, we recommend you evaluate your formats before starting to add keys or cards. The idea behind formats is to group users with similar permission criteria. When you first save the permission details in a format, then you can add a number keys or card with this format and lots of details will be saved automatically. You do not need to edit the specifications for each new user separately. To edit formats, proceed to the "Y5-FORMATS" line in R9 menu and press ENT button. You will see the following screen:

```
>01:00000000/1
 02:00000000/1
```

There are 15 formats in the system. You can see all formats with the number 0 to 14 by moving the UP and DOWN buttons on the screen. Select the one you want to edit and then press ENT. You can edit a format similarly to the editing of an ID explained in the previous section. The only difference is that the edited information belongs to a format and not to an ID-code. Therefore, you will select a format number rather than an ID-code to start.

All formats have the information "all floors are restricted" as default. You can add the floors you want to allow by using operation '4', namely "ALLOW ONE FLOOR", one by one to evaluate your format. Similarly, you can edit the status in the format.

The reason for saving more than one format is that you can split the users with similar access rights into groups and assign a different format to each group. So, in adding new cards or keys to the system, first select format and then register all the cars in this group.

8.3.3) ACTIVE FORMAT

In this section you can select the default format which will be active when you enter the "ADD NEW ID" operation.

8.3.4) ADD NEW ID

To add a new ID, select Y2-ADD NEW ID line with UP and DOWN buttons and press (ENT) button. On the new screen, system will wait for you to show a key or card to any station to read.

```
>ANY STATION
 1:00000000/1
```

You can see on the screen the active format. It is '1' on the screen above. You can change the active format by UP and DOWN buttons in 0-14 range. The system will wait from you to insert a key or card to the reader. When you insert the card or the key then its ID-code will be shown on the screen.

```
0A6578BF
 REGISTERED
```

The new registered ID will be saved with the permission and status specifications of the current format. However, you can change its specifications as explained above in "ID LIST" section anytime you want. When registering several new keys or cards to the system with the same permission and status specifications, you can go on adding them without changing the current active format.

8.3.5) CLEAR ID

You can use this section in order to clear any ID-code from the system. In order to do this, select the ID-code by UP and DOWN buttons. Then press ENT button when the arrow on the screen shows the ID-code you want to clear. Then you will be prompted to press DOWN button to continue. Press UP button to clear the ID-code and complete the job.

8.3.6) CLEAR ALL ID-codes

In this section you can clear all keys registered in the system in one operation. You will be prompted with the following screen after selecting this section. Press UP button to clear all ID-codes in the system and complete the job. Please take utmost care while carrying on this operation!

8.3.7) FREE FLOORS

While using an access control system there may be a request to leave some floors freely accessible, for example the entrance floor. In this section you can program free floor(s).
When you select this section an operation code will be requested from you. The operations you can carry on and codes to set free floor(s) are listed below:

1	All Floors Allowed	In order to allow all floors, select '1' as operation code by UP and DOWN buttons and press ENT key.
2	No Floors Allowed	In order to restrict all floors, select '2' as operation code by UP and DOWN buttons and press ENT key.
3	Edit Allowance	Press ENT button to set or modify the allowance data.
4	Allow One Floor	Choose the floor number you want to assign as free floor by UP and DOWN buttons and press ENT button.
5	Restrict One Floor	Choose the floor number you want to stop being free floor by UP and DOWN buttons and press ENT button.

8.4) MAINTENANCE CONTROL

There are two independent control systems for maintenance mode activation. The first one is by setting a maintenance time in the future and the second is specifying a maximum number of starts for the lift. If the adjusted maintenance time or number of starts is exceeded, then the lift switches to maintenance mode and does not accept any calls. In order to use the lift in normal operation the surpassed parameter must be modified or cleared.

8.4.1) MAINTENANCE TIME

In order to see or modify the maintenance time you should use selection P5 in main menu.
In this section, you see the current settings of the next maintenance date.

```
NEXT MAINTENANCE
 31/12/2019
```

You can enter the editing mode by pressing any button in this menu. You can change the next maintenance date in this screen. When the real date exceeds the maintenance date, the lift switches to the out of service

mode. When this is the case you will see the "MAINT" text in the main screen.

8.4.2) MAXIMUM START

In order to see or modify the number for maximum starts of the lift you should use P0 selection in main menu.
When you come to this section you will see the current settings of the next maintenance date as follows:

```
MAX.START COUNT
?000190
```

You are in the editing mode. You can press ENT or ESC buttons to exit from this screen or first change the data and press ENT to save the new value.

The lift will stop accepting new calls when the number of starts exceeds the number saved here. If a zero is entered here, then there will be no maximum start control.

CHAPTER 9 - UTILITIES

9.1) FACTORY DEFAULTS

You can reset the controller to the factory defaults at the time of initial operation or when the set parameters are to be cleared. In this operation all parameters are first cleared and then set according to the lift type you have specified.
You can access this section from the main menu through the following path:

main menu [press ENT] -> M2-PARAMETERS -> P9-UTILITIES -> R2-FACTORY SETTINGS

In factory defaults menu first, you should select the type of the lift you are going to use by moving with UP and DOWN buttons between items F2 to F7.

```
  F1-GET BACKUP
>F2-VVVF ASYNCRO
```

Here you will see the following items:
F2-VVVF ASYNCRONOUS
F3-VVVF SYNCRONOUS
F4-HYDRAULIC
F5-TWO SPEED
F6-CUSTOM SET

When you have selected one of the lines you are going to be asked for confirmation as shown on the screen below.

```
Factory settings
(↑)-CONFIRM
```

Please be careful at this stage. When you press the UP button then all parameters in your controller board will be cleared and factory defaults for the lift type you have selected will be saved instead. You cannot recover it after.

9.2) BACKUP OF PARAMETERS

9.2.1) CREATING A BACKUP

After you have completed everything related to installation and adjusting the lift parameters it is very useful to save a copy of the full set of the parameters in a different memory location in the controller. This backup set of parameters are not open to any modification. They can only be saved as an entire backup or restored all completely from backup.

To save a backup of the current parameter set go to menu M4-SERVICES in main menu. When you have entered this section, you will be asked to enter an operation code.

```
OP.CODE
?000000
```

You should enter 536 to run backup routine.

```
OP.CODE
?000536
```

When you enter to confirm this code then you will be asked again to confirm executing backup operation.

```
TEST VALUES SAVE
(↑)-CONFIRM
```

Press UP button to save a backup of all parameters.

9.2.2) RESTORING BACKUP PARAMETERS

To restore the parameter set from the backup, you should first go from the main menu through the following path:
main menu [press ENT] -> M2-PARAMETERS -> P9-UTILITIES -> R2-FACTORY SETTINGS
Select F1 in the menu to start restoring routine.

```
>F1-GET BACKUP
 F2-VVVF ASYNCRO
```

When you confirm the operation by pressing the UP button, all the current parameters will be replaced by the ones in backup.

```
Factory settings
(↑)-CONFIRM
```

9.3) DISPLAY UTILITIES

You can reorganize all displays in consequent numbers starting from base floor by using this section. The path from main menu to DISPLAY UTILITIES is as follows:
main menu [press ENT] -> M2-PARAMETERS -> P9-UTILITIES -> R1-DISPLAY UTIL.

In this section the following screen can be seen.

```
BASE FLOOR NO:
?000000
```

You can change the data by using UP and DOWN buttons between 0 and the maximum floor number. If you specify which floor is the entrance floor of the building, then this utility sets the digital display of the entrance floor (base floor) as 0. All floors above this floor are numbered starting 1 and incremented by 1 at every floor; all floors below 0 (base floor) are numbered starting -1 and decremented by 1 at every floor. If you have a regular display order in your system with a few exceptions, then first use the utility explained above and then change the data for exceptional floors one by one.

9.4) R5-RESET PULSES

You can set all encoder pulses to factory default values by using this routine. You will see a message screen. Skip it by pressing ENT button. Then you will be asked to confirm resetting operation. If you press UP button the operation will start to reset encoder pulses.

```
PULSE RESETTING
(↑)-START
```

9.5) RB-ENCODER DIRECTION (Absolute Encoder)

You can change direction of the absolute encoder using this section.

9.6) PA-LIFT NUMBER

You can set a lift number for the lifts used in Aybeynet software when an internet or LAN connection has been established to access the lift from a PC.

CHAPTER 10 - ENCODER OPERATIONS

ALC controller can use incremental and absolute encoders in determining car position.

10.1) INCREMENTAL ENCODER

When an incremental encoder is used as car floor selector, first set the parameter for **FLOOR SELECTOR A05=2**. The controller counts the encoder pulses to calculate the car position. This method is a relative method and the lift must enter resetting after any power on, in order to reset its position. There are mainly three different systems for encoder implementation in ALC controller.

These are:
  a) **Standalone shaft encoder system:** The encoder has been implemented in the lift shaft with its mechanical system without any use of the other lift components. It has its own rope or wire attached to the car to follow the car position. The encoder input terminals of ALC are connected directly to the encoder. In this system releveling motion can be managed by using encoder pulses. Therefore, set the parameter for **LEVEL DETECTOR A17=1.**
  b) **Shaft encoder on the speed governor:** The encoder is mounted on the speed governor. The encoder input terminals of ALC are connected directly to the encoder. In this system releveling motion can be managed by using encoder pulses. Therefore, set the parameter for **LEVEL DETECTOR A17=1.**
  c) **Encoder simulation outputs of the inverter:** The encoder input terminals of ALC are connected to the simulation output of the inverter. The inverter outputs the encoder signal received from the motor encoder to the controller. However, in this situation, the controller cannot detect any car position change when there is no motion while the car rests at the floor. The reason is that when the motion of the lift stops after arriving at a floor, the mechanical brakes are closed and so the shaft of the motor cannot rotate. When there is car position change after the mechanical brakes are closed then there will be no encoder pulses coming to the controller since the brakes prevent any rotation of the motor shaft. Therefore, the controller will not be aware of the position change of the car in resting and will not initiate any releveling motion. For this reason, magnetic switches are employed for releveling. Set the parameter for **LEVEL DETECTOR A17=0**. This means in normal travel encoder pulses are used to detect car position but MKU and MKD magnetic switches are used when the car is resting at floor. Set the parameter for **LEVEL DETECTOR A17=0.**

10.1.1) INCREMENTAL ENCODER SETUP

After completing installation of the encoder and shaft switches, go to encoder setup service routine through the following path:
main menu [press ENT] -> M2-PARAMETERS -> P9-UTILITIES -> RA-ENCODER SETUP

or

main menu [press ENT] -> M8-ENCODER SERVICE -> E1-LEARN SHAFT

*All the parameters related with encoder setup also can be find on M8-Encoder Services menu.

In this section you can execute the service routine for encoder auto learning process.
The controller learns the position of the floors and shaft limits through executing this process.
At the end of the learning process the floor positions and the encoder ratio (pulse / mm ratio) will be saved and used in further travels.
 Before starting the shaft learning, travel complete the following task list:
  1) Set the parameter for **FLOOR SELECTOR A05=2.**
  2) Set the parameter for **LEVEL DETECTOR:**
     A17=0 when motor encoder is used
     A17=1 when motor encoder is not used.

3) Place strip magnets at all floors to specify door zones. Make sure to place them at the centre of each floor. The length of the strip magnet determines the length of the door opening zone.
4) Install magnetic shaft switches **ML1** and **ML2** and connect to the circuit as shown in ALC electrical wiring diagrams. In this system only monostable (NO) magnetic switches are used. ML1 and ML2 are placed together in one holder and they use the same strip magnet.
5) If motor encoder is used, then install magnetic shaft switches **MKD** and **MKU** and connect to the circuit as shown in ALC electrical wiring diagrams. In this system only monostable (NO) magnetic switches are used.
6) Place 817 (bottom forced slow down) and 818 (top forced slow down) switches. These switches will be used as shaft limit references in travel.

To start the operation, press UP button when you see the following screen.

```
SHAFT LEARNING
(↑)-START
```

When the learning operation starts you will be asked certain questions. The first one is the length of the slow down path. All lengths in encoder operation are in mm. You can change the data with UP and DOWN buttons and confirm by pressing ENT button. ESC button will terminate the operation at any stage.

```
DOOR ZONE
?001400      [mm]
```

Then the length of the strip magnet used for the ML1 and ML2 switches is asked.

```
ML LENGTH
?000300      [mm]
```

After you press ENT button in this screen the learning motion starts, and you will see the screen below. All stages of the learning travel will be managed by the controller. The controller will move the car up and down along the shaft to measure the distances and floor positions. You should only look at the screen to follow the questions and the comments.

```
3 ↑Pu:       10000
LF:0      2000 mm
```

To start the learning operation the lift should be at the base floor. If it is not there then it first travels to the base floor. At the beginning, the lift moves upwards to the second floor and meanwhile measures the length of the strip magnet used for ML1 and ML2. Then it returns to the base floor and stops. Afterwards it starts a second travel upwards and goes up to the top floor. It stops at the floor level of the top floor. Then it moves downwards and stops at the base floor level. Along this travel the controller reads and saves the positions of the ML strip magnets at all floors. It calculates the length of encoder pulses and saves this data to convert everything in encoder operation to the metric system. This conversion factor will be displayed on the screen during calculations. You will be informed of the end of the learning travel on the screen. If the process has been completed without any errors, then you can start using the lift in normal operation.

10.1.2) FLOOR LEVELS

After learning process, the estimated floor levels are saved. These levels can be observed in section:

main menu [press ENT] -> M2-PARAMETERS -> P4-FLOOR PARAM. -> K6-ENCODER PULSE OF FLOORS
or
main menu [press ENT] -> M8-ENCODER SERVICE -> E4-FLOOR PULSES

floor pulses can be edited by using the menu given above to adjust exact levels.
However, there is another facility to adjust levels by moving the car. This procedure is explained below.

10.1.3) ADJUSTING FLOOR LEVELS INSIDE THE CAR

Floor levels can be adjusted by using car operating panel inside the cabin. There is special utility for this purpose. The car must stay at any floor level to start this procedure. You can go to this section by following the path below:

main menu [press ENT] -> M2-PARAMETERS-> P9-UTILITIES -> RC—SET FLOOR PUL.
or
main menu [press ENT] -> M8-ENCODER SERVICE-> E2-ADJUST IN CABIN

When you enter this menu, you will see the following screen:

```
FLR:00[1234]adj
(↑)-START
```

Pressing Up arrow button (↑) will start floor adjustment procedure. After this point you should go into the cabin and use car operating panel to give all further commands. This will help you to see level differences at floors directly and correct the saved floor level data based on the difference. It is strongly recommended to use a hand terminal via CAN-bus. It will show you all details during operation.

When the operation starts, the controller will open the doors completely and cancel landing calls where car calls will remain active. In this procedure first two call buttons and door close button on COP are going to be used as command panel.

The door is always open during level adjustment motion as in releveling. Releveling speed is used for level adjusting. After starting the procedure, you can travel to a floor you can re-adjust simply by pressing related car call button. The lift travels to the desired floor and opens its doors. So, you see the saved and real floor levels. If the car is below or above the floor level, then you can move the car as explained below by pressing two buttons together. When the car stays exactly at the same level then you should save the floor position by pressing related car call button for 2 seconds. So, you can travel to any floor and tune it. After that you have finished with all floors then then pressing ENT key on the keypad will save all the data you have changed and exits from this section.

To move car downwards:
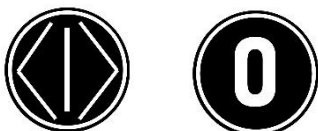
- o Press and hold both, "**0**" and **door close** buttons together to move the car downwards.
- o The car will move downwards, while you hold them pressed provided that ML1 and ML2 see the magnet.
- o If you press only 0-button, then the controller considers it as a car call to ground floor.

To move car upwards:
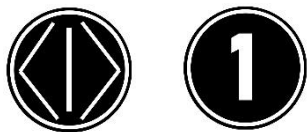
- o Press and hold both, "**1**" and **door close** buttons together to move the car upwards.
- o The car will move upwards, while you hold them pressed provided that ML1 and ML2 see the magnet.
- o If you press only 1-button, then the controller considers it as a car call to the first floor.

To go to another floor:

Simply press the related car call button

To save the floor position:

```
FLR:00[4567]adj
SAVED
```

- o Press the car call button related to the floor whose level data is going to be saved and hold for two second pressed.
- o After two seconds you will see its led flashing. This means that your data has been successfully saved.

To exit from this procedure:

```
FLR:00[4567]adj
ENTER-SAVE
```

After all the floors has been set correctly, press ENT key on the keypad of the controller to exit.

10.2) ABSOLUTE ENCODER

When an absolute encoder is used as car position detector then set the parameter **FLOOR SELECTOR A05=3.** In ALC controller absolute encoder is connected via CAN_BUS. Although there is no necessity to have any switch in the shaft to give any position information, ML1 and ML2 switches must be used with the strip magnet to approve the door zones. There is no resetting travel when an absolute encoder is used. The encoder always sends the controller the exact car position regardless of any power failure.

10.3) DISTANCE BASED OPERATION

When the parameter A10 is 1 then the controller switches to distance-based operation system. In distance-based operation the distance to the target floor in mm is used in motion rather than floor number as is the case where A10=0. Distance based operation has significant advantages in high speed lifts. There are no intermediate speeds for high speed lifts. The lift can slow down directly from any speed to the target floor. A very important point to know is that this process is entirely managed by the ALC software and any inverter can be used to drive the lift motor.

The system allows four speeds for the lift. They are named SLOW, FAST, HIGH and ULTRA. The deceleration path lengths for all speeds and the minimum path lengths for high speeds (3. and 4. speeds) must be defined in the "K7-GENERAL PULSES" section.

There are different decision mechanisms in starting and slowing down in distance-based operations.

Before starting further discussion, the following definitions are made based on the values defined in K7-GENERAL PULSES section:

TD: the distance from the car position to the target floor level.

MIN3: minimum path length to select HIGH (3. speed) to start with.

MIN4: minimum path length to select ULTRA (4. speed) to start with.
SDP2: slow down path length from FAST (2. Speed)
SDP3: slow down path length from HIGH (3. Speed)
SDP4: slow down path length from ULTRA (4. Speed)

a) The speed selection at starting is carried out by using the following comparisons:

If **TD** < **MIN3** ➔   the starting speed of the lift is **FAST** (2. speed)
If **TD** > **MIN3** ➔   if **TD** < **MIN4** ➔ the starting speed of the lift is **HIGH** (3. speed)
                          if **TD** > **MIN4** ➔ the starting speed of the lift is **ULTRA** (4. speed)

b) When the lift is travelling at a constant speed towards its target then the point of slowing down is selected by the controller by using the following comparisons:

If the lift speed is **FAST** and **TD** <= **SDP2** ➔ the controller switches to **SLOW** (1. speed)
If the lift speed is **HIGH** and **TD** <= **SDP3** ➔   the controller switches to **SLOW** (1. speed)
If the lift speed is **ULTRA** and **TD** <= **SDP4** ➔ the controller switches to **SLOW** (1. speed)

CHAPTER 11 - ERROR LOG AND ERROR CODES

In ALC Series Control Systems, all determined errors are reported at runtime on main screen and stored in permanent memory. Error storing capacity of system is limited to 250. If an error occurs when there are 250 errors stored in memory, then oldest error is cleared and the new one is stored. You can see last 250 stored errors anytime by using LCD screen or from your computer connection. Here we will see how to monitor error list reports by using keypad and LCD.

On main menu, enter M3-ERROR LOG sub-menu.

```
>M3-ERROR LOG
 M4-SERVICES
```

And then you see the list of stored error logs.

```
 011)06-FLR:7
>012)02-FLR:3
```

Error logs are sorted by date & time. In this screen, you can only see floor, error date, time and error code. If you want to see a more detailed report, select an error by using arrow buttons and press (ENT) button.

```
HIGH LIMITS OPEN
02-FLR:3 STOP
```

```
HIGH LIMITS OPEN
13.03.2017-17:53
```

In this screen, you see error date & time, floor, speed and direction of car (when error occurred) and explanation of error. Enter Code:399 (M5-SERVICES) to clear all error list.

Until the board records a new error and the lift is moving you cannot enter the menu M3>Error Log and Codes.

11.1) ALC SERIES ERROR CODES

CODE	ERROR	EXPLANATION
1	**Stop Circuit Open**	Stop circuit-120 (Speed regulator, parachute contact, stop buttons…) is open.
2	**125-135 Is Open**	The Door Contact circuit 125-130 is open during motion.
3	**140 Is Off**	The Door Lock circuit-140 is open during motion.
4	*reserved*	*reserved*
5	*reserved*	*reserved*
6	**Pass Time Overflow**	1-At fast speed, the system cannot get the new floor data within the time period defined at [C08]. 2-At slow speed, the system could not reach the floor level within the time period defined at [C09].
7	**Door Cannot Open**	After any door open command, the door contacts are not opened within the period defined at [C04] for door A or [C34] for door B.

CODE	ERROR	EXPLANATION
8	**Door Not Closed**	After transmitting any door close command, the door is not closed (KL1=0 for door A, KL2=0 for door B) within the time period defined in [C03] for door A or [C33] for door B.
9	**817 - 818 Are Open**	Up and down limit inputs (817=0 and 818=0) are both open simultaneously.
11	**Counter Error**	Inconsistency in floor number on displays and car position. This error occurs if the floor number is not 0 when the car is at the bottom floor (817=0 and 818=1) or the floor number is not the top floor number when the car is at the top floor (817=1 and 818=0).
12	**Encoder Direction Error**	Encoder rotation direction is not the same as the car travel direction. Incremental encoder inputs A and B (ENA and ENB) should be interchanged.
13	**No Encoder Signal**	No encoder signal is received from encoder while the car is moving within the time period defined [C29]. Check the electrical connections of the encoder circuit as well as the mechanical coupling of the encoder.
14	**Bypass Error**	If the bypass input is open [BYP=0] and the lift is in normal mode, this error occurs. The Bypass switch must be normally closed.
15	**Park Floor Definition**	The defined park floor parameter in [B04] is above the maximum number of stops defined in [A01]. The Parameter [B04] can be maximum ([A01]-1).
16	**Fire Floor Definition**	The Defined fire floor parameter in [B05] is above the maximum number of stops defined in [A01]. [B05] can be maximum ([A01]-1).
17	*reserved*	*reserved*
18	**No Car Communication**	The System cannot communicate with the car units. Please check the serial communication states of the mainboard and the car controller. If the CAN drivers LEDs BE or LE are ON, then there is something wrong either in the electrical wiring of the CAN units or in the values of the termination resistors. Please also check the parameter [A18] for proper configuration. It defines the CAN-channel used for the car circuit. You should connect the car communication cables to the CAN-port defined in [A18].
19	**Landing Control Communication**	The System cannot communicate with the hall units in serial mode. Please check the serial communication states of the mainboard and the hall units. If the CAN drivers LEDs BE or LE are ON, then there is something wrong either in the electrical wiring of the CAN units or in the values of the termination resistors. Please also check the parameter [A19] for proper configuration. It defines the CAN-channel used for hall circuit. You should connect hall communication cables to the CAN-port defined in [A19].
20	**PTC/Thermistor**	The motor is overheated, or the PTC circuit is not connected [PTC=0].
21	**HU - HD Are Open**	When the system uses 3rd speed, [A11>0], mainly for speeds above 1 m/s, then the HU and HD inputs must be used. If HU and HD are defined and both are open simultaneously this error occurs. Please check HU and HD switches, terminals, definitions and related wiring.
22	**Door Motor Hot**	The automatic door motor is overheated, or DTP input is open [DTP=0].
23	**Reset is Passive**	This is an information message. It is displayed if the resetting travel is prohibited by the parameter B30 [B30=0].
24	**No shaft Learn**	If the incremental encoder is used as the floor selector [A05=2] and no shaft learning has been completed successfully, this message is

CODE	ERROR	EXPLANATION
		displayed. You should carry out the shaft learning process to enter the normal operation mode. This is only an information message.
25	**Encoder Data Error**	Floor Pulse data stored in M8->E4>FLOOR PULSES menu is missing or faulty. Shaft learning should be carried out.
26	**Machine Room Temperature**	This error message occurs, if the machine room temperature is not within the adjusted limits. Any new start of the lift is prohibited. If [B21=0] the monitoring of the machine room temperature is disabled. If [B21=1] the monitoring of the machine room temperature is enabled with the detector on the ALC mainboard. If the temperature around the main board is lower than the value defined in the parameter [B42] or greater than the value defined in the parameter [B43] the error 26 is displayed. Please check the temperature around the mainboard and the defined limits. If [B21=2] the monitoring of the machine room temperature is done via an external measuring device. The controller reads its output through the terminal input [THR]. Please check if the THR input is connected to the external device and the adjustment of the external device.
27	**Driver Error**	Error signal is received from hydraulic unit or motor driver (inverter) through DER input. Check the error state of the driver and DER input.
29	**Contactor Failure**	Although there are no contactors activated, there is no signal in CNT terminal. Check CNT wiring and definition. Check also the wiring of the CNT circuit through normally closed aux-contacts of the contactors.
30	**GSM Modem Failure**	GSM modem cannot be accessed. Check modem connections and settings.
31	**Phase Order Error**	Error in phase sequence. Interchange two-line phases.
32	**External FKK Failure**	Signal received from external FKK input.
33	**ML2 Open at Floor**	If ML2 switch becomes passive [ML2=0] while the car is staying at floor level this error is created. If the doors are open, then it is an UCM error and the system is blocked. Check the magnet and switch locations of ML1 and ML2.
34	**ML2 Short Circuit**	This error is reported if ML2 switch is still on [ML2=1] when the car has left the door zone. Check the switches, magnets, inputs and wiring related to ML1 and ML2.
35	**Phase L1/R Missing**	L1/R phase is not present. Check line phase.
36	**Phase L2/S Missing**	L2/S phase is not present. Check line phases.
37	**Phase L3/T Missing**	L3/T phase is not present. Check line phases.
38	**Photocell Error 1**	An external photocell error is detected through FE1 input.
39	**Group No Failure**	There is more than one member in the group with the same group number specified in [A13]. Check [A13] parameters of all lifts in the group.
40	**Door Contact Failure**	Although the doors are physically closed, the door contact is not closed. The physical state of the door is controlled by the inputs KL1 and KL2.
41	**Leveling Period**	Leveling travel lasts longer than the period specified in parameter [C23]. Increase C23. If the lift is moving in releveling then check [C16] period and releveling speed, if not then try to find why the lift is not moving.
42-43	*reserved*	*reserved*

CODE	ERROR	EXPLANATION
44	KL1 – KL2 Are Open	Car doors are not physically closed in bypass mode. Check KL1 and KL2 inputs and related door contacts.
45	SDB Bridging Error	SDB board cannot bridge safety line. Check 140, ML1, ML2 inputs, ML1 and ML2 switches and related magnets.
49	ERS Door Not Open	In emergency rescue operation the door cannot be opened within the time period stored in timer parameter [C29]. Check door supply voltage and door control signals
50	ERS Door Not Closed	In emergency rescue operation the door cannot be closed within the time period determined by the controller. Check door supply voltage and door control signals
52	ERS Maximum Period	Emergency rescue operation period exceeded the period stored in timer parameter [C41].
53	ML1 Open at Floor	If ML1 switch becomes passive [ML1=0] while the car is staying at floor level this error is created. If the doors are open, then it is an UCM error and the system is blocked. Check the magnet and switch locations of ML1 and ML2.
54	ML1 Short Circuit	This error is reported if ML1 switch is still on [ML1=1] when the car has left the door zone. Check the switches, magnets, inputs and wiring related to ML1 and ML2.
55	Hydraulic Upper Stop	This error is reported in hydraulic lifts, If the car goes beyond the upper shaft limit level. This is a stationary error and must be cleared manually.
56	Fire Reset	When the fire inputs FR1 and FR2 return to normal positions, [FR1=1] and [FR2=1], after a fire state then the system will not return to normal, if the parameter B46 was set to 4 [B46=4]. The system will be blocked in this case. Returning to normal operation is possible after a re-start or through inspection mode, entering and exiting from inspection. An error message will be displayed on the screen while the system stays in blockage.
57	Call Button Error	When the hall calls are collected in parallel communication and the parameter [B16=1] is defined as 1, if a hall button stays more than 300 seconds pressed then the system reads it no more and set as faulty. This error message is displayed. Entering the inspection mode clears this error.
58	Earthquake	Earthquake signal is received [EQK=0] due to a low signal at EQK input. The system will switch into earthquake mode.
59	Start Prohibited - 1	This is error occurs in hydraulic lifts with GMV NGV-A3 valve [A16=6]. This error is reported if RDY and RUN inputs are both simultaneously OFF, [RDY=0], [RUN=0].
60	Start Prohibited - 2	This is error occurs in hydraulic lifts with GMV NGV-A3 valve [A16=6]. This error is reported if RDY and RUN inputs are both simultaneously ON, [RDY=1], [RUN=1].
61	NGV Signal Error-1	This is error occurs in hydraulic lifts with GMV NGV-A3 valve [A16=6]. Error occurs if RDY and RUN inputs states are not changed on START. [RDY=0], [RUN=1].
62	NGV Signal Error-2	This is error occurs in hydraulic lifts with GMV NGV-A3 valve [A16=6]. Error occurs if RDY and RUN inputs states are not changed on STOP. [RDY=1], [RUN=0].
63	External UCM Error	Error signal is received from external UCM input [UCM=1].
64	Brake Not Closed	Although the brake coil is not energized, no signal is received from brake feedback contact. Check BR1, BR2 terminals, contacts, definitions

CODE	ERROR	EXPLANATION
		and related wiring. This error is reported only if the parameter A16 was set to 1 [A16=1].
65	Brake Not Opened	Although brake coil is energized, signal is received from brake feedback contact. Check BR1, BR2 terminals, contacts, definitions and related wiring. This error is reported only if the parameter A16 was set to 1 [A16=1].
66	SGC Error 1	Although SGD board is not energized trough RSG output, SGC input signal is passive [SGC=0]. This error is created only if the parameter A16 was set 2, [A16=2]. Check RSG output and SGC input, related wiring and definitions.
67	SGC Error 2	Although SGD board has been already energized trough RSG output, SGC input signal is active [SGC=1]. This error is created only if the parameter A16 was set 2, [A16=2]. Check RSG output and SGC input, related wiring and definitions.
68	Safety Valve Fault	This error is reported in hydraulic lifts during valve test if the safety valve failed and the system is blocked. The electrical connections of the valve as well as the mechanical functions must be checked.
69	Down Valve Fault	This error is reported in hydraulic lifts during valve test if the down valve failed and the system is blocked. The electrical connections of the valve as well as the mechanical functions must be checked.
70	Governor Contact Error-3	When the motion has been started and coil on the overspeed governor has already been energized, if SGO input signal is still high [SGO=1], then this error is reported. Check the coil on the speed governor, its wiring and SGO input terminal.
71	Photocell Error 2	An external photocell error is detected through FE2 input.
72	UCM Fault	Unintended Car Movement UCM is detected. This error is created if the car leaves the door zone with open doors. This error is stationary and must be cleared manually. Check ML1 and ML2 switches and related magnet positions. Check also the UCM device connections and settings.
73	Governor Contact Error-1	If SGO input signal is still OFF [SGO=0] although OSG A3 coil has not been energized, then this error is created. Check SGO definition, contact and wiring. Check the coil on the speed governor.
74	Governor Contact Error-2	Although OSG A3 coil has already been energized, SGO input signal is still active [SGO=1]. Check SGO definition, contact and wiring. Check the coil on the speed governor.
75	i-Valve Failure	An error signal is received through RDY input, when i-Valve unit is used as hydraulic unit [A16=4]. Check related wiring and RDY definition.
76	End Switch Failed	When special last floor switches (917, 918) are used [B47=1] and if 917 and 918 inputs are open simultaneously, [917=0], [918=0], then this error is created. Check 917 and 918 inputs, definitions and B47 parameter.
77	HD/HU Failure	When high speed limit switches (HU, HD) are employed, where [A11=1], and… If HD is on [HD=1] where [817=0] or If HU is on [HU=1] where [818=0] Then this error is reported. Check HD and HU terminals, magnets, switches, definitions and related wiring. HD must be installed above 817 and HU below 818. Check their positions in the shaft.

CODE	ERROR	EXPLANATION
		Check parameter A11.
78	**Encoder Communication Failure**	When a CAN absolute encoder is used as floor selector, [A05=3], this error is created if the system cannot communicate with the encoder. Check encoder wiring and parameter A05.
79	**Encoder Learning Failure**	When incremental encoder is used as floor selector [A05=3] and the encoder cannot complete learning process, this error is reported. Check encoder wiring and parameter A05. Check also ML1, ML2, 817 and 818 switches.
80-81	*reserved*	*reserved*
82	**CNT Short Circuit**	This error is reported if the contactor feedback input is still on [CNT=1] while the lift is in motion. Check CNT terminal, contactor aux. contacts and their wiring.
83	*reserved*	*reserved*
84	**ALSK Not Present**	If ALSK or ALPK board is not present or not connected to the car CAN-bus or there is a communication fault in this bus, then this error is reported. Check terminal board, CAN bus wiring and 24V power supply (100-1000).
85	**SDB 141 Fault**	When the car is at door zone and bridging is activated by the controller then 141 must be active. If not, then this error is created. Check SDB board.
86	**Door Test Error**	If the lift starts for a target floor without completing door open test at that floor successfully then this error is created.
87	**Shaft Insp. Reset**	To return to the normal mode from shaft inspection it is not enough to switch from the inspection to normal mode. KRR must be trigged once to clear shaft inspection. This message will be displayed after the shaft inspection switch has been returned to normal until KRR is switched once while the doors are closed.
88	**KL1 Shorted**	Door closed contact of the first door is still closed [KL1=1] though the first door is open. Check "contact, wiring and input definition of KL1.
89	**KL2 Shorted**	Door closed contact of the second door is still closed [KL2=1] though the second door is open. Check contact, wiring and input definition of KL2.
90	**Group Can Port**	Any other CAN-user has been defined at the CAN-port where group has been already defined. Check CAN-port definition A18.A22.
91	**Retiring Cam Period**	Car contacts are not closed (125-130) within the defined time period after the retiring cam has been energized. Check door contacts, the activation process and definition of the retiring cam.
92	**Shaft Communication Error**	There is no communication with SPB box in shaft pit. Check CAN shaft connections and A19 and A23 parameters.

CHAPTER 12 - UCM MENU

You can access all UCM services through the following path:

main menu [press ENT] -> M7-UCM SERVICE

12.1) UCM

12.1.1) DEFINITIONS

DOOR ZONE: This is the region where the car can open the doors. It is determined by switches ML1 and ML2 in the ALC system. Both ML1 and ML2 must be 1 (active - closed contact) to acknowledge that the lift is at the door zone.

UCM: Independent of the drive system, if the car moves at the door zone while staying at the floor level and the doors are open, this will be considered as an UCM error, by the controller.

UCM BLOCK: Any occurring UCM error blocks the system. This is a permanent error. A permanent error continues to block the system even if the error condition disappears. Switching the system to inspection mode or switching it off will not clear the UCM block. The UCM Block can only be removed by an *authorized person* by using the UCM-CLEAR ERROR menu.

UCM TEST: This is the procedure to test if the lift is responding correctly within norms when an UCM error occurs.

12.1.2) RELATED PARAMETERS

The parameters related to the activation or error behaviour or the UCM error are listed below:

A16-UCM CONTROLLER: If this parameter is "0" then no UCM errors will be raised, no UCM drivers are activated and no checks for UCM conditions are carried out.
You should select the appropriate device that is installed in your system to check the UCM conditions.

B19-UCM ERROR BLOCK: This parameter determines the blocking of the system after any UCM error. You can allow or inhibit blocking after any UCM error. The second case does not conform to the EN81-20/50.

B37-UCM CHECK TYPE: In hydraulic systems, the period of the valve test is determined with this parameter. Period can be set as time or number of starts.

12.1.3) UCM Detection (Unintended Car Movement)

> **a. While the Car is Resting at Floor Level**
> Independent of the drive system, if the car moves at the door zone while staying at the floor level and the doors are open, this will be considered as an UCM error, by the controller. (ML1 or ML2 is 0). *Error No:72* "UCM ERROR" will be displayed on the screen.
>
> **b. During Pre-Opening Doors or Releveling**
> If the lift moves out of the door zone due to any reason during the releveling motion, the ALC control board considers this situation as unintended car movement and switches the system to BLOCK mode. *Error No: 72* "UCM Error" will be displayed on the screen.
> If any bridging fault is detected in SDB board during the early door opening or leveling motion, then the controller switches to BLOCK mode and the "Error No. 45 SDB Bridge Error" message will be displayed on the screen.

12.1.4) UCM Error Clear

Any system block due to a UCM error should be cleared manually as explained below. You can access this menu from the following path,

main menu [ENT] -> M7-UCM MENU -> U1-CLEAR ERROR

When you enter this section, you can clear a UCM error by pressing the ENT button when asked by the message "UCM ERROR ENTER-CLEAR" on the screen. The UCM error clearing should only be carried out by authorized personnel.

12.2) UCM in Electric Lifts with Asynchronous Motor

In lift systems where an asynchronous traction machine is used, the value of the parameter [A16] should be selected as 2 (Speed Governor). **[A16=2].**
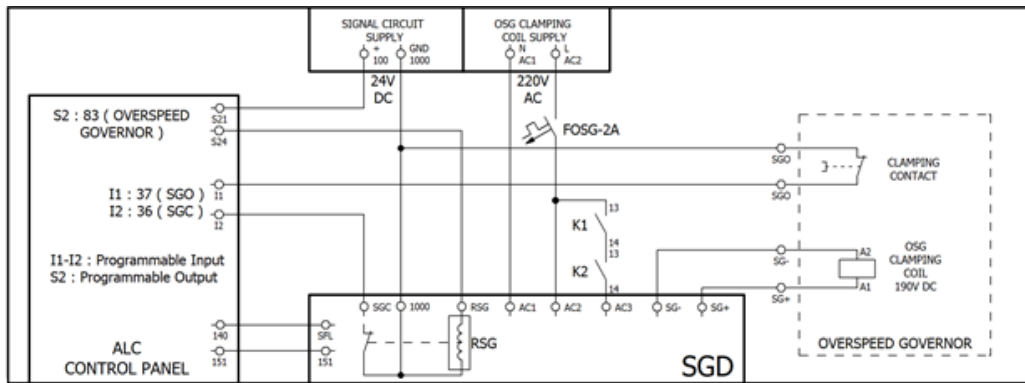
In geared machines, UCM protection is ensured by controlling the speed governor together with the SGD board. Therefore, the SGD board must be used for UCM control for asynchronous motors (geared traction machine).

When there is a motion command in the system, then the controller activates SGD board through the programable output, 83-Speed Governor Coil. This activates the relay on the SGD board, which activates the coil on the speed governor and the control pin on the speed governor will be pulled back. Thus, the speed governor can rotate freely while the car is moving. Any attempt to move the car while the pin is not pulled back causes the activation of safety gears.

- When the coil is energized, the pin inserted into the wheel of the governor will be pulled back. The controller monitors the status of the pin and coil activation relay on SGD through the SGO and SGC inputs, respectively.
- If the SGC input will not be off within 3 seconds after the SGD board has been energized, the E*rror No: 67* "SGC ERROR-2" will be generated.
- The SGO input must be off (0) within 3 seconds after the SGC input is off within 3s. If SGO is still on (1) at the end of this period, the error 74 will be generated by the controller. It will display "*Error No:74* Governor Contact Error-2" on the screen.
- When the controller terminates motion then output 83 is switched off. If the SGC input is not switched to 1 within 3 seconds, then the controller generates error 66 with a message on the screen as "*Error No. 66* "SGC Error 1".
- SGO input is checked after motor contactors are off. It should be high (1). if SGO input is not so "*Error No:73* "Governor Contact Error-1" is generated which causes the system to enter BLOCK mode.

If SGO and SGC inputs are in the correct state, then the ALC controller starts motion. If any changes in these inputs are detected during motion, then the lift will be stopped immediately and error 70 will be generated with the message "*Error No:70* Governor Contact Error-3".

The system will be blocked after the errors 66, 67, 74 related to SGO and SGC input states.
However, this blocking is not permanent and will be terminated when the system is switched to the inspection mode or switched off.

Nevertheless, if the errors 66, 67, 74 are repeated by the number specified in parameter B12, then the system will be blocked permanently.

12.3) UCM in Electric Lifts with Synchronous Motor (Gearless Machine)

The parameter A16 must be set as 1 (Gearless Machine) to activate the UCM control in gearless machines. **[A16=1]**
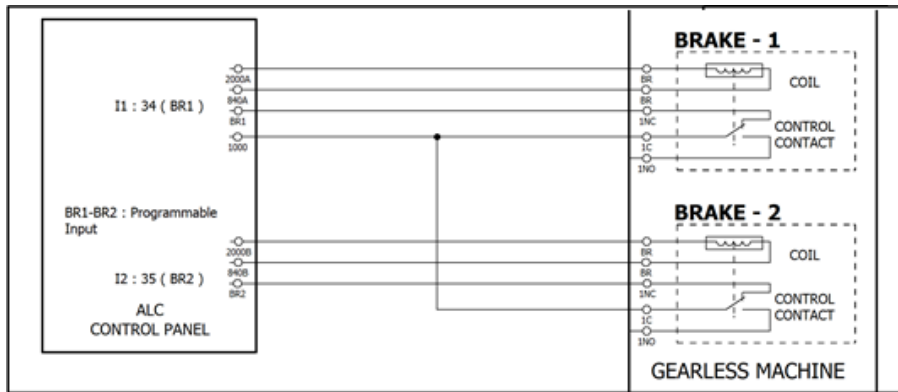
All gearless machines have brake monitoring contacts. The ALC board reads these contacts via the inputs BR1 and BR2. These contacts are normally closed. Therefore, the inputs BR1 and BR2 are always high (1) when the brake coils are not activated, in case of resting. If one or both inputs are off (0), the controller switches the system to BLOCK mode and "*Error No:64* Brake Not Closed" is displayed on the screen.

The brakes are opened, when the controller starts motion. This deactivates both contacts (0). In this case, if one or both inputs, BR1 and BR2, keep being high (1) after 3 seconds, the controller switches the system to BLOCK mode and the message "*Error No:65* Brake Not Opened" will be displayed on the screen.

12.4) UCM in Hydraulic Lifts

The value of the parameter A16 must be set between 3 to 6 according to the model of the hydraulic valve system.
[**A16=3**] … [**A16=6**]
In hydraulic lift systems, it is assumed that UCM can occur only in down direction. Therefore, some hydraulic lift systems use an additional safety valve for downward travels, while others implement it inside the valve block.
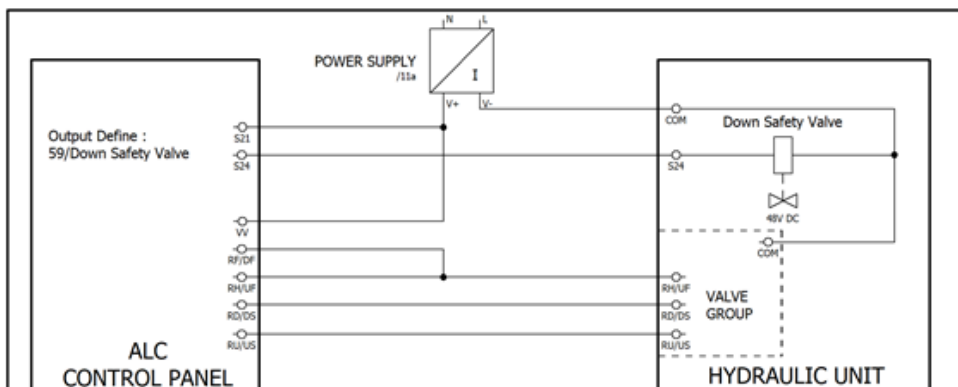
12.4.1) Hydraulic Lifts with Additional Safety Valve

This method uses an additional safety valve, which is connected in series with the down valve in the oil flow path. When there is a down motion this additional safety valve and the down direction valve are both opened by the controller. In this type of hydraulic systems, the functionality of the down valve and

additional safety valve must be checked periodically. This test should be carried out automatically either depending on the time (daily) or the number of starts.

12.4.1.1) Automatic Additional Safety Valve Test

The following parameters should be adjusted to perform an automatic valve test

B37-UCM Test Type
Set the parameter [B37] in the Auxiliary Parameters menu;
[**B37=1**] The hydraulic valve test is carried out depending on number of starts
[**B37=2**] The hydraulic valve test is carried out every day.

a.   Number of Start for Test
If you set [**B37 =1**], you need to follow the path below to set the number of starts to initiate the valve test.

main menu [ENT] -> M7-UCM SERVICE -> U4-TEST START

The system will allow you to set this parameter between 2 and 1500. When the number of starts reaches the value set in [B37] then the control board starts the valve test automatically and resets the start counter for the next test.

b.   Daily Test Time
If you set [**B37=2**], then the system will carry out the valve test regularly every day at the time set in the menu entry U3. To set the starting time of the test use the menu U3 shown in the following path.

main menu [ENT] -> M7-UCM SERVİCE -> U3-TEST TIME

```
>U3)TEST TIME
 U4)TEST START
```

12.4.1.2) Test of Down Safety Valve

The manual test for down motion valve and the down safety valve is described below. You can reach this menu in the following path:

main menu [ENT] -> M7-UCM SERVİCE -> U6-VALVE TEST

Test Procedure:
a.   In the first stage the down safety valve is tested. The controller opens the down motion valve for 5 seconds. The message "SAFETY VALVE TEST" is displayed on the screen in this stage.
b.   If the controller does not detect any motion in this test, the message "TEST 1+" is displayed on the screen and the test is terminated. This means that the down safety valve is working in properly. If a downward motion is detected during the test, the control panel switches the system to a permanent error (BLOCK) mode and the "*Error No: 68* "SAFETY VALVE FAULT" message is displayed.
c.   Second stage is testing the down motion valve. The system activates the down safety valve for 5 seconds and the "SAFETY VALVE TEST" message is displayed on the screen meanwhile.
d.   If the controller does not detect any motion in this test, the "TEST 2+" message is displayed on the screen and the test is terminated. This means that the down motion valve is working in properly. If a downward motion is detected during the test, the control panel switches the system to a permanent error (BLOCK) mode and the "*Error No: 69* "DOWN VALVE FAULT" message is displayed.
e.   If both tests are successful, the message "TEST OK" is displayed on the screen and the system returns to the normal operation mode.

Any fault during the valve tests switches the system to the permanent error (BLOCK) mode. After fixing the problem in the system, the error should be cleared in the following menu:

main menu [ENT] -> M7-UCM SERVICE -> U1-CLEAR ERROR

12.5) Manual UCM Test

This menu is to simulate an unintended car motion that may occur. It used to test the real behaviour of the lift in case of an UCM event.

You can access this menu via the following path:

main menu [ENT] -> M7-UCM SERVICE -> U2-UCM TEST

12.5.1) Warning

Before starting this test process, be ensured that there is no person or load in the cabin. The usage of the lift during this process must be prevented. In order to be able to perform the test, the system must be in normal mode and the cabin light (Busy signal is off) must be turned off, to ensure that the lift is not in use. The test operation cannot be performed in inspection mode.

12.5.2) Test Procedure

a. SELECTING TEST SPEED: "TEST SPEED: SLOW" is displayed on the screen. You can switch between HIGH and SLOW speeds by pressing the RIGHT (>) and LEFT (<) buttons. Confirm the selected test speed.

b. SELECTING TEST DIRECTION: You can switch between UP and DOWN direction by pressing the (↑) or (↓) buttons. Confirm the selected test direction. (This selection is not available in hydraulic systems).

c. In the next step, the message "UCM TEST START" is displayed on the screen. Press the (↑) button to start the manual test procedure.

d. The manual test has been started by the controller by opening the door. When the door starts to open, which switches the safety line state to open circuit (140=0).

e. Then the controller activates the door bridging process through the SDB board, which switches the safety line state to closed circuit (ON; 140=1).

f. When the safety line is open, and the door circuit has been bridged. The motor contactors (K1- K2) are activated.

g. If the machine is geared, then the overspeed governor coil is energized. When the signal at the SGO input is off, the controller initiates motion with the selected speed and direction.

h. If the machine is gearless (synchronous motor) the controller initiates motion with the selected speed and direction.

i. When the car leaves the door zone (ML1=0 or ML2=0) with the door open, the controller considers this as UCM and stops the car immediately. The Contactors and the door bridging are switched off. All adjusted delays of the switching elements in stopping are disregarded.

j. The car position, namely the distance from the car sill to the floor level should be measured. It should be within the limits specified in clause 5.6.7.5 of EN 81-20 (200mm).

k. The controller enters the BLOCK mode. It does not respond to calls. "*Error No: 72* '' UCM ERROR '' is displayed on the screen. This is an UCM error and it is permanent. The lift can only return to the normal mode after clearing this error in the menu: M7-UCM SERVICE > U1-CLEAR ERROR.

l. If no error has been generated by the controller while the car is travelling outside of door zone with open doors, then we can decide that UCM detection or activation of the system is not responding properly. A careful check of parameters, input and output settings and wire connection must be carried out. After fixing the problem this test must be repeated before giving the lift to the service.

CHAPTER 13 - ELECTRONIC RESCUE SYSTEM

In the ALC control system, there is an automatic rescue system (ERS) to rescue passengers in case of a power failure. The Electronic Rescue System automatically switches on, when the controller detects an error in one of the mains phases. The motor drivers require several input voltages related to their brands as a power source in rescue operation. Thus, the ALC control system supports more than one connection system for rescue operation.

13.1) Rescue Systems

13.1.1) J Type Rescue System (For Electric Lift)

In this system, the motor is supplied by the batteries and other devices are powered by an UPS. The sample system is shown in Figure-13.1.
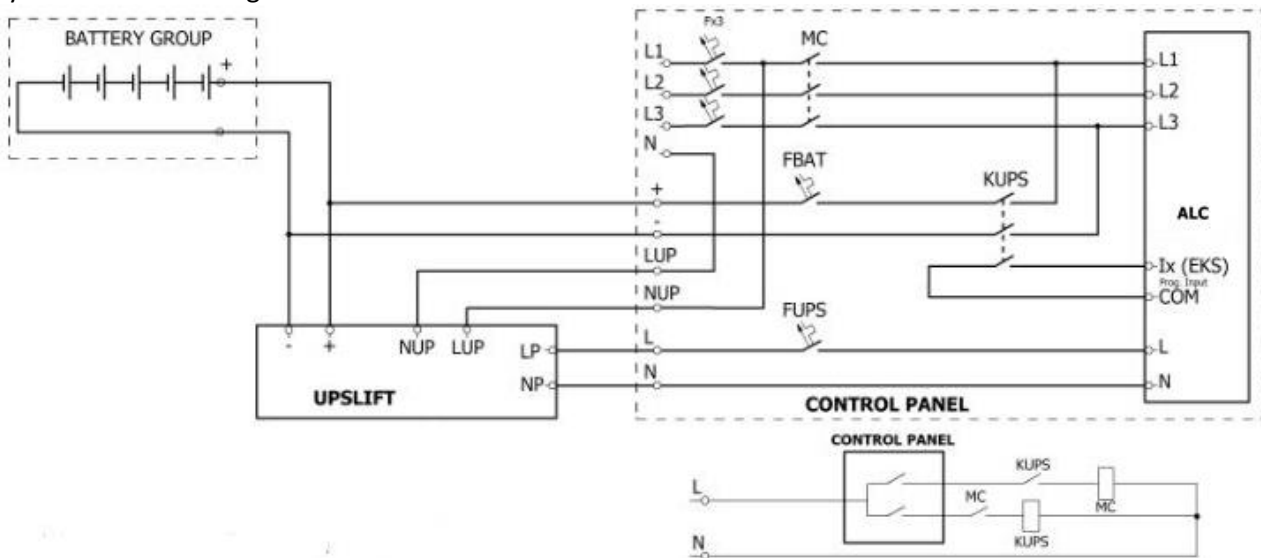

Figure 13.1: J Type Rescue Connection Diagram

13.1.2) N Type Rescue System (For Electric Lift)

In the N-type rescue system only an UPS is used as a power source for the lift. It is shown in Figure-13.2.
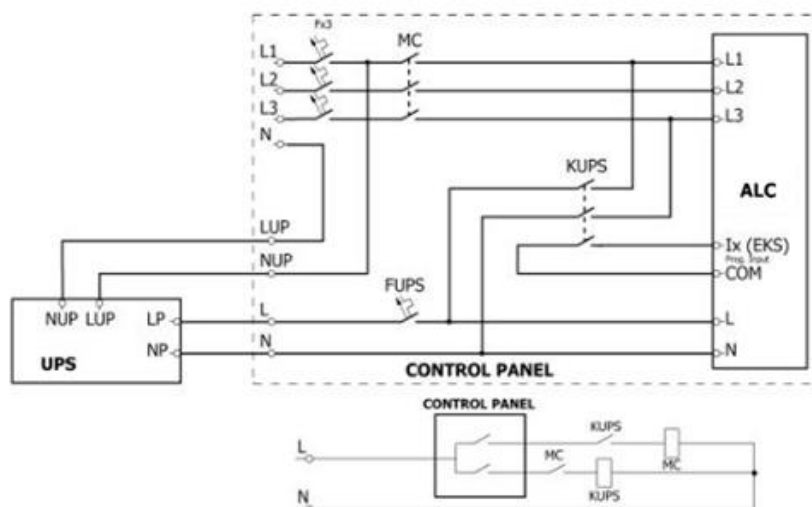

Figure 13.2: N Type Rescue System Connection Diagram

13.1.3) C Type Rescue System (For Traction Lift)

The C-type rescue system is only used in hydraulic lifts. In this system, only the UPS is used as a power source for the lift. It is shown in Figure-13.3.
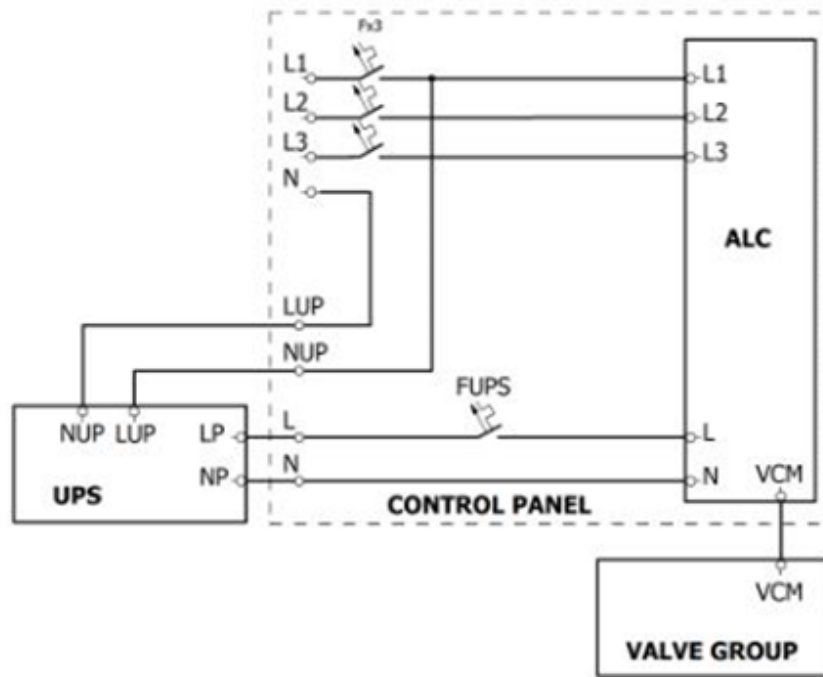

Figure 13.3: C Type Rescue System Connection Diagram

13.2) Definitions and Parameters used with Rescue Application

13.2.1) Input Definitions:

ERS (32): This input is used to check the KUPS contactor.
FKI (49): This input only used, if there is an external main phase detector (parameter B24 = 2). The system enters the rescue mode if this input switches to OFF (0).
EMA (27): It is used to determine the rescue motion direction. The controller receives the information about the motor current level by using this input.
ERU (26): If the rescue motion direction is determined by the motor driver then this input is used to transfer this information to the controller.
DER (24): If the motor driver enters the error mode it activates this input to send a message to the controller.

13.2.2) Output Definitions:

IN RESCUE MODE (70): When the lift is in ERS operation, this output is ON.
CONTACTOR IN RESCUE MODE (71): This contactor is active during the rescue operation and connects the power source to the control panel.
LINE CONTACTOR (72): The main power contactor. It isolates the main power and control panel power input during the rescue operation.

13.2.3) Parameters:

[C39] RESCUE START DELAY: When a fault is detected in mains phases, the controller starts the rescue procedure after waiting for the time specified in this parameter.
[C41] MAXIMUM RESCUE PERIOD: If the rescue operation cannot be completed within the time period specified in this parameter, the controller terminates the rescue operation.
[B45] ERS MK DELAY: It defines the delay required to stop the lift at the exact floor level in rescue mode. Since the lift rescue speed is much lower than the travel speed, the car may not reach the floor level when

the stop command is activated. To reach to the floor level the car motion can be extended (stopping delayed) related to this time period.

13.3) Rescue Procedure

13.3.1) Rescue Procedure in Electric Lift

The ALC board has a phase detection system that monitors the status of the power line. An external phase control detector device can be also used for this purpose by setting the B24-Phase Control parameter to 2. In this case, the output of this device should be connected to one input of the ALC board and configured as the input function FKI (49). While the line is stable, the phase information FKK observed from the input screen in active (FKK*).

After a power failure in the line phases is detected (internal or external in FKI input) by the controller it enters the rescue mode. The first operation in rescue mode is the isolation of the panel from the mains supply by deactivating the line contactor (MC). The Controller starts to count the C39-ERS START PERIOD timer. If the mains power is normal again within this time period, then the controller switches to the normal mode. Otherwise the controller activates the KUPS contactor (output 71) and the rescue operation will be started.

The KUPS is controlled via the ERS input (32), which pulls and energizes the power circuit. When the ERS input is active, the controller starts to rescue. The direction of the rescue motion can be determined either by the controller or by the motor driver.

Direction Determined by the Motor Driver

If the motor driver determines the rescue motion direction, then the ERU (26) input is used to transmit this information to the controller. ERU=0 is for up direction, ERU=1 is for down direction.

Direction Control in Other Motor Controller

If the direction will be determined by the controller regarding to the motor current, then the input EMA (27) is used for this purpose. The controller receives the information via this input if the motor current is above or below the nominal current.

The rescue process starts with a test travel upwards. If none of the inputs EMA or DER (Driver Failure) are off (0) during this test run, the controller selects up direction as the rescue motion direction and continues its travel in this direction until the end of the operation. If one of the EMA or DER inputs is ON (1) during the upward direction test, then the motion is stopped, and the direction of rescue is selected as downwards.

Rescue Process:

After the rescue direction is selected, the motion continues until a floor level is reached. If the rescue operation is not completed within the time period [C41], the controller will terminate the operation by generating "52-ERS Period Exceeds" error. When the lift reaches the floor level, the doors are opened to allow the passengers to leave the cabin. The doors are closed again after waiting four times of the time period defined in the [C01]-DOOR ON WAITING parameter.

At the end of the rescue operation the system is stopped. Contactors are disabled, and no further action is taken until the mains power returns to normal.

13.3.2) Rescue Procedure in Hydraulic Lift

A UPS is always used as the power source in hydraulic lifts for the rescue process. The direction of rescue motion is always downwards. No input information is required to switch to the ERS mode in hydraulic systems. The controller automatically switches to the ERS mode when any fault in mains phases is detected. If the controller detects a fault in mains phases while the lift is moving upwards, then the motion is stopped without delay and the control system automatically switches to the ERS mode. The system activates the required valves for down travel at slow speed. After the rescue direction is selected, the motion continues until the lift is at a floor level. If the rescue operation is not completed within the time period [C41], the controller will terminate the operation by generating the "52-ERS Period Exceeds" error. When the lift

reaches the floor level, the doors are opened to allow the passengers leave the cabin. The doors are closed again after waiting four times of the time period defined in the C01-DOOR ON WAITING parameter.
At the end of the rescue operation the system is stopped. Contactors are disabled, and no further action is taken until the mains power returns to normal.

CHAPTER 14 - VARIABLES AND LANGUAGE

On main menu you see M1-VARIABLES at the first line.

```
>M1-VARIABLES
 M2-PARAMETERS
```

This menu is designed to observe all system variables, timers and inputs. This is an observation tool for technical persons to investigate the system in detail. There is no danger for users to enter this menu and observe variables. However, details of this menu will not be explained in this manual.

Another item in main menu is M5-LANGUAGE.

```
 M3-ERROR LOG
>M4-SERVICES
```

This is a shortcut to menu [B11] which is explained above. You can change the language from this menu. The currently supported languages are Turkish, English, German, French, Russian, Spanish and Greek. New languages will be supported in the near future.

The last item in the main menu is M4-SERVICES. This menu is the shortcut of the R6 menu explained before.

Code	Information
399	All errors can be cleared
101	Parameters of the board can be set to default settings.

```
 M4-SERVICES
>M5-LANGUAGE
```

This is also a shortcut to R6-OTHER UTILITIES menu. As explained above, this menu is only for authorized technical personnel. It has no functions for users. It may cause undesired results to enter anything in this menu. If you enter this menu by mistake, press ESC to exit.