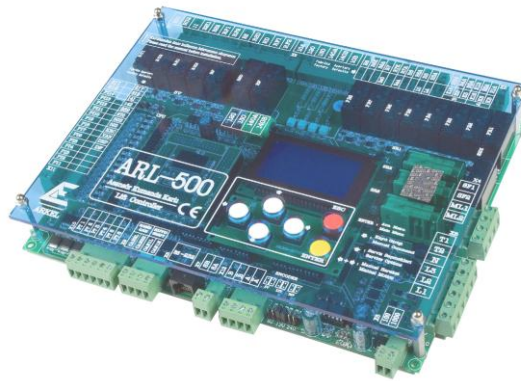




ARL-500

LIFT CONTROL SYSTEM



Programming Manual

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Before the control panel installation, wiring, commissioning and inspection, read this instruction manual carefully.

Keep the manual in a safe place and available to engineering and installation personnel during the control panel functioning period.

ARKEL is not responsible for those mistakes that may be found in this manual and for the damages that they may cause.

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1. GENERAL

1.1. APPLICABLE STANDARDS

The ARL-500 Lift Controller complies with:

Lift Directive 95/16/EC

- European standards EN 81-1, EN 81-2

1.2. ELECTROMAGNETIC COMPATIBILITY (EMC)

The ARL-500 Lift Controller and its components comply with the standards according to

Directives of electro magnetic compatibility 2004/108/EC

- EN 55011 Issue 2007
- EN 61000-6-4 Issue 2007
- EN 61000-6-2 Issue 2005

1.3. MANUAL DESCRIPTION

Please read this manual carefully before installing the ARL-500 Lift Controller System. This manual will help you during installation of the ARL-500 controller and its components.

In case of any problems, users are advised to contact manufacturer without any delay giving details of the problem.

1.3.1. This manual describes


- the user interface of ARL-500
- the screens of the ARL-500
- the menu settings of the ARL-500 controller
- the technical information of ARL-500 controller and its components
- the terminals and plugs of ARL-500 controller and its components
- the display messages of the ARL-500
- the error messages of the ARL-500

1.3.2. Symbols used in this manual

+ Press keys together

▶ The default setting of parameter

 Important points

 Warning messages indicate that failure to take a specified action could result in harm to the system

2. INTRODUCTION

ARL-500 system, that we present you, our valued customers, under the “Advanced Solution” heading, is a completely plug-and-run elevator electronics and control system.

ARL-500 is universal. With just a few parameter changes; it can be used for rope traction or hydraulic elevators, with two-speed or VVVF, up to 48 stops, and for groups of up to 8 elevators.

ARL-500 is customizable. Freely programmable inputs and outputs located on the main board, car boards and landing boards enable you to adjust your settings according to your needs.

With its special plug-in cables and connectors, it facilitates the commissioning process. You’ll get surprised how easily and quickly you will install the complete system.

The ARL-500 main board has most of the functions needed for any elevator system. Mains supply phase protection, motor temperature monitoring, door-bridging safety relays for door pre-opening and hydraulic re-leveling, dual-door support adjustable for each floor are all on board of ARL-500.

Car and shaft connections are made easily with sockets. Also, inside-car and car-top board connections are made with ready-made, socketed cables. Spare terminals add to the flexibility of the system.

One of the most powerful features of ARL-500 is its large graphic LCD display and its user-friendly interface that you will get used to in no time. Instead of using 2 or 4 line text displays that are usually too small and simple, we’ve made use of graphics LCD technology to maximize ease-of-use and legibility of the menu and status screens.

The HS500 hand terminal which can be connected to the system from any point on the CANbus (in the cabin, on the cabin or on landings), in a way, enables you to carry the controller board in your pocket.

We are doing our best to improve the quality of our products. You, our worthy customers, are our biggest support in our studies.

Thank you for purchasing ARL-500.

ARKEL

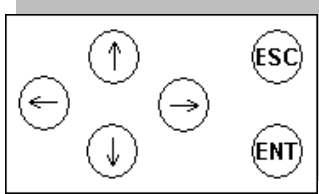
3. PROGRAMMING INTERFACE

The user interface of ARL-500 lift controller system consists of 128x64 pixel resolution graphic LCD, keypads, LEDs, jumpers and trimpots.

GRAPHIC LCD

ARL-500 Controller has 128x64 pixel resolution illuminated blue graphic LC-Display.

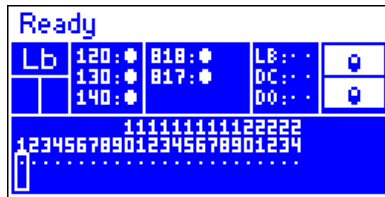
KEYPAD



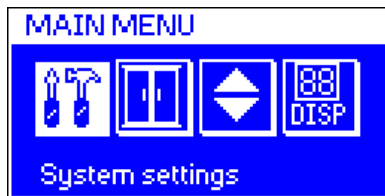
The ARL-500 controller is operated by using 6-key keypad. These keys have different functions in different displays. But in general, ESC is used to exit current menu. Enter is used to enter a menu and confirm any input. UP and DOWN arrows are used to move in menu lists and change value of a parameter. LEFT and RIGHT arrows are used to move left and right while changing the value of parameter.

4. KEYPAD FUNCTIONS ACCORDING TO SCREEN

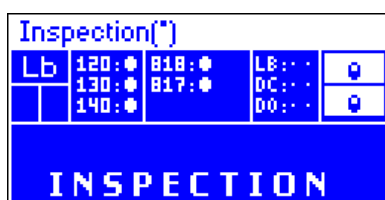
The ARL-500 controller is operated by using 6-key keypad. The functions of keys according to screen are described in the tables below:



Key functions in the main screen	
← or →	To previous/next monitoring screens
↑	Open service options screen
↓	Open manual command screen
ENT	Open main menu
ESC	Back to main screen
← + →	Open manual motion screen



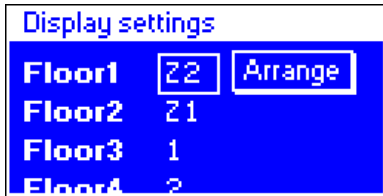
Key functions in the main menu	
← or →	To previous/next submenu
↑	To next menu item Increase value
↓	To previous menu item Decrease value
ENT	Select submenu/menu item
ESC	Exit submenu/menu item



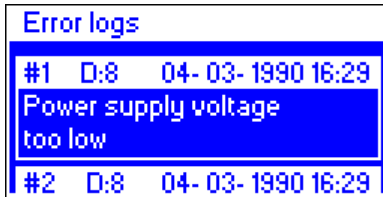
Key functions in the manual motion screen	
↑	Inspection drive Up
↓	Inspection drive Down
ESC	Back to main screen



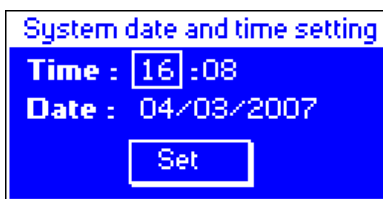
Key functions in the car command entry screen	
← → ↑ ↓	Change car command number
ENT	Set in/reset car command to a number
ESC	Back to main screen



Key functions in the display settings submenu	
← or →	Move cursor left / right
↑ or ↓	To next/previous floor name Increase/decrease value
ENT	Select menu item/arrange
ESC	Exit submenu/menu item



Key functions in the error logs submenu	
↑	To next error log Scroll help message one line up
↓	To previous error log Scroll help message one line down
ESC	Exit submenu



Key functions in the system date and time setting submenu	
← or →	Move cursor left / right
↑ or ↓	To next / previous menu item Increase / decrease value
ENT	Select menu item / set
ESC	Exit submenu / menu item



Key functions in the change password submenu	
← or →	Move cursor left / right
↑ or ↓	Increase / decrease value
ENT	Select menu item / change
ESC	Exit submenu / menu item

Door Type Settings		
Individual settings for floors		
	A	B
Floor1	Auto.	None
Floor2	Auto.	None

Key functions in the door type settings submenu

← or →	Select door A / door B
↑ or ↓	To next/previous floor name Change door type
ENT	Activate door type item / set
ESC	Exit submenu / menu item

Parking settings		
Parking delay: 5 min		
Start	End	Floor
07:00	10:00	1
10:00	13:00	4

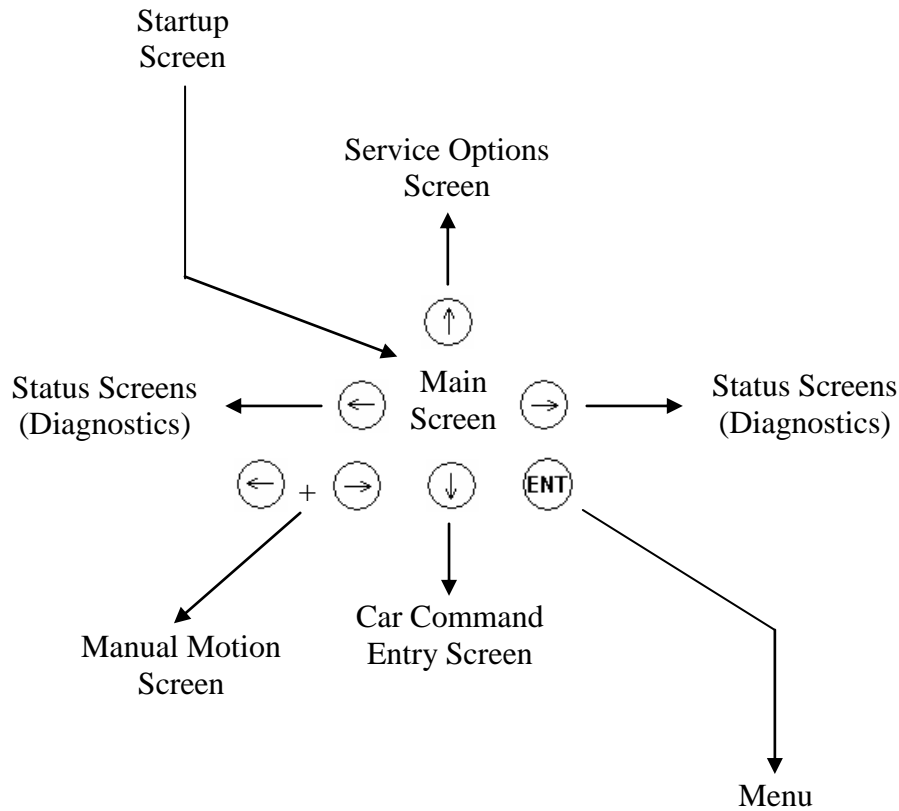
Key functions in the parking settings submenu

← or →	Move cursor left / right
↑ or ↓	To next / previous menu item Increase / decrease value
ENT	Select menu item / set
ESC	Exit submenu / menu item

5. ARL-500 DISPLAY SCREEN

The user interface of the ARL-500 controller is described below. The display of the ARL-500 controller is explained as required for installation and operating.

ARL-500 Controller's display screen consists of:



5.1. STARTUP SCREEN



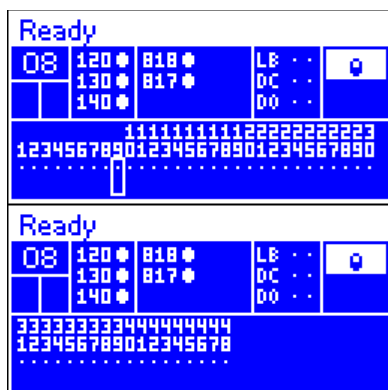
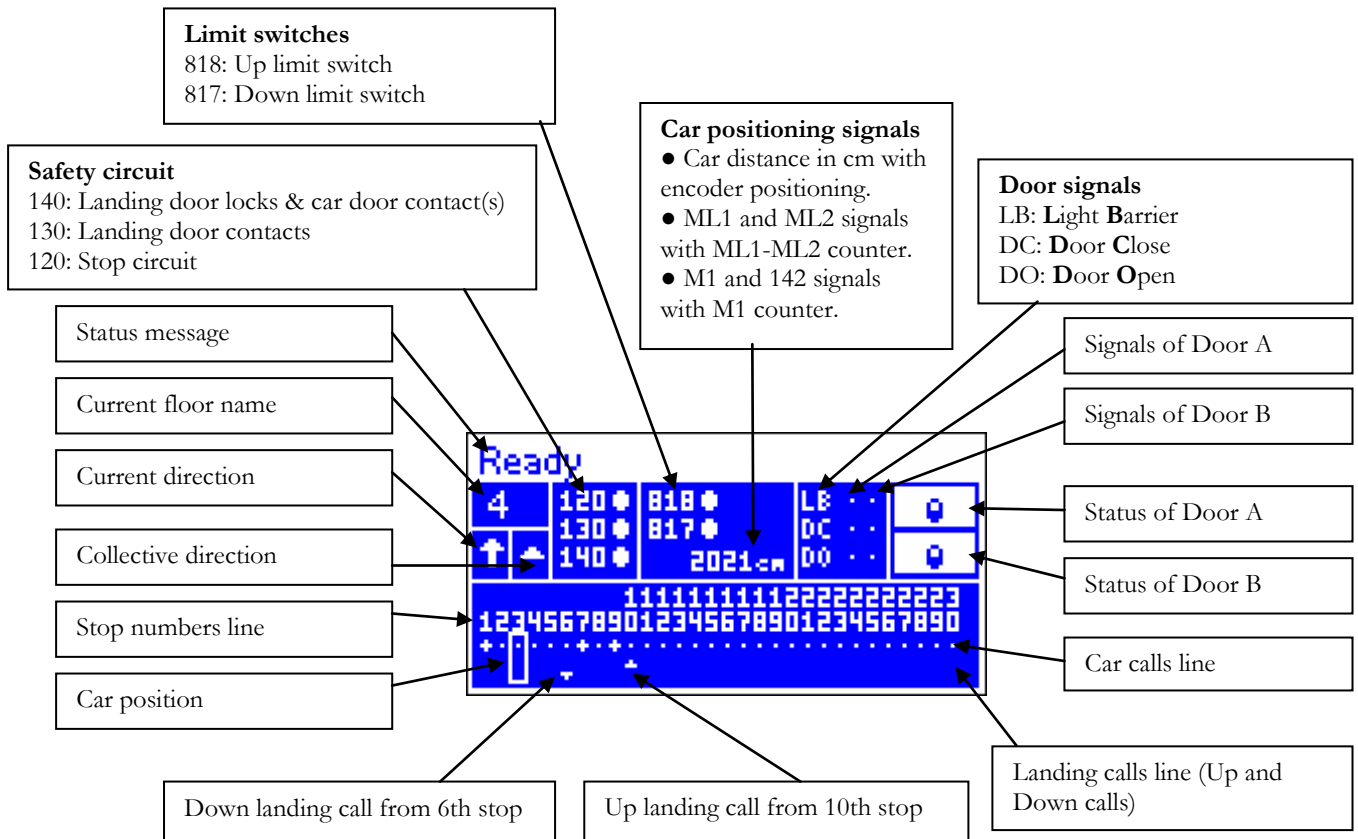
After switching on, ARL-500 displays the startup screen. Meanings of the items in these screens are explained below.

“**VER**”: Software Version for ARL-500 Controller

“**SERI NO**”: The serial number for ARL-500 Controller

5.2. MAIN SCREEN

ARL-500 controller's main screen summarizes the lift operation and the status of the lift system within separated windows. Messages, aliases, symbols and signs used in main menu are described below.



ARL-500 controller's main screen shows max. 30 stop numbers per one screen. 2 main screens are used to show car position, car commands and landing calls for systems more than 30 stops. The second part of main screen shows stop numbers from 31 to 48. These screens are switched automatically according to car position and by pressing LEFT/RIGHT keys.

Status Message	It displays status of the lift system and diagnostic messages.
Sample messages	“Ready”, "Loading-Unloading", "Waiting for lock”

Current Floor Name	It displays the code on car/floor indicator for the current landing that is defined by user.
Sample code	01, b1, #5

Current Direction	It displays the current direction of travel.
↑	Up direction
↓	Down direction






Collection Direction	It displays the direction of collection.
▲	Up direction
▼	Down direction

Signal state	It is using for showing the status of the signal
●	Active
•	Inactive

Safety Circuit	It displays the status of safety circuit.
120	Stop circuit
130	Landing door contacts
140	Landing door locks & car door contact(s)

Limit switches	It displays the status of up/down limit switches.
817	Down limit switch
818	Up limit switch


Door Signals	It displays the status of door operation signals.
LB	Light barrier signal
DC	Door close signal
DO	Door open signal

Door Status	It displays the status of the car door.
	Door is opening and door is open.
	Door is closing.
	Door is closed.
	Door is locked.
	Door is disabled in the “Debug tools” screen.

Stop Numbers Line	It displays the stop numbers that is defined by “Number of Stops” parameter on “System settings” menu.
Values	1–48

Car Commands	This row displays car commands. One character is used for each floor. Leftmost character of row shows the calls for bottom floor. As moving right, stop number increases.
▪	No car command.
+	Car command to this floor.

Up/Down Hall Calls	This row displays landing calls. One character is used for each floor. Leftmost character of row shows the calls for bottom floor. As moving right, stop number increases.
▪	No hall call.
⊥	Up hall call from the floor.
⊥	Down hall call from the floor.

Car Position	The column displays current car position and servicing collective manner. In a floor 1 or 2 of call symbols can appear together means car and hall calls for same floor. Most left position of column shows bottom floor. As moving right, stop number increases. When lift services calls the call symbols for relevant floor is terminated.
Sample view	

Positioning signals	It displays current position signals of the the system according to the counter system: Standart M1 counter: ML1 and 142 signals Special JF counter: ML1 and 142 signals ML1-ML2 counter: ML1 and ML2 signals Encoder counter: It displays current position of the car relative to leveled position of lowest landing in cm.
Sample value	“2588cm” “ML1 ● ML2 •”

5.3. INPUT STATUS SCREENS

5.3.1. ARL-500 FIXED INPUTS SCREEN

1.1.Inputs: ARL500 Fixed	
ML1: -	869: ●
ML2: -	120: ●
B17: ●	130: ●
B18: ●	140A: ●
B70: ●	140B: -
PHASE L1: - L2: - L3: - SEQ: -	

In this screen some fixed inputs are monitored. The inputs which have '●' (Closed) on the right hand side are active at the moment which have '-' (Open) on the right hand side are inactive.

You cannot redefine or change the terminal of the following inputs:
ML1, ML2, 817, 818, 870, 120, 130, 140A, 140B, 869, L1, L2, L3

Fixed Inputs		Max. voltage
ML1	1st door zone magnetic switch input	24VDC
ML2	2nd door zone magnetic switch input	24VDC
817	Down limit switch input (Mechanical or bi-stable magnetic switch)	24VDC
818	Up limit switch input (Mechanical or bi-stable magnetic switch)	24VDC
120	Stop circuit monitoring input	230VAC
130	Landing door contacts monitoring input	230VAC
140A	Landing door locks & car door contact(s) monitoring input (This input works same with the input 130 for full automatic doors)	230VAC
140B	Landing door locks & car door contact(s) monitoring input for hydraulic systems during emergency lowering or AKUS-SD emergency system (This input works same with the input 130 for full automatic doors)	24VDC!!!
L1	L1 phase	380 VAC
L2	L2 phase	380 VAC
L3	L3 phase	380 VAC
869	Car top recall hand terminal	24 VDC
870	Control panel recall hand terminal	24 VDC
PHASE	L1, L2, L3 phase monitoring	
SEQ	Phase sequence	

5.3.2. ARL-500 PROGRAMMABLE INPUTS SCREENS

(4 Screens, PI1 to PI14 programmable inputs)

1.2.Inputs: ARL500 Inputs
PI1: ● <undefined>
PI2: - <undefined>
PI3: - <undefined>
PI4: - <undefined>
1.3.Inputs: ARL500 Inputs
PI5: - <undefined>
PI6: ● (DRDY) Driver ready
PI7: - <undefined>
PI8: ● (KRC) Contactor chec
1.4.Inputs: ARL500 Inputs
PI9: - (503) Recall up
PI10:- (502) Recall down
PI11:● (870) Recall key
PI12:● (869) Inspection key
1.5.Inputs: ARL500 Inputs
PI13:- (142) Positioning signal
PI14:- (141) Positioning signal

In this screen all of the programmable inputs of ARL-500 controller are monitored. The inputs which have ‘●’ (Closed) on the left hand side are active at the moment which have ‘.’ (Open) on the left hand side are inactive. The inputs which are not defined are monitored as “undefined”.

14 programmable inputs of main controller are coded from PI1 to PI14. All of the inputs in the system are summarized in four screens **1.2** to **1.5**. UP and DOWN keys are used to switch to the previous/next screen.

All programmable inputs can be programmed by the user according to the needs of the system. Any input can be selected from the available inputs in the list of “**ARL500 inputs**” menu.

5.3.3. REVKON PROGRAMMABLE INPUTS SCREENS

(2 Screens, PI21 to PI26 programmable inputs)

1.6.Inputs: REVKON
PI21: - (804) Overloaded
PI22: - (805) Fully-loaded
PI23: - (FSL-A) Door-A photo
PI24: - (FSL-B) Door-B photo
1.7.Inputs: REVKON
PI25: - <undefined>
PI26: - <undefined>
Vbat: 12.6 volts (Charging)

In this screen all of the programmable inputs of REVKON (Car top controller) are monitored. The inputs which have ‘●’ (Closed) on the left hand side are active at the moment which have ‘.’ (Open) on the left hand side are inactive. The inputs which are not defined are monitored as “undefined”.

6 programmable inputs of car top controller are coded from PI21 to PI26. All of the inputs in the system are summarized in two screens **1.6** to **1.7**. UP and DOWN keys are used to switch to the previous/next screen.

All programmable inputs can be programmed by the user according to the needs of the system. Any input can be selected from the available inputs in the list of “**REVKON inputs**” menu.

5.3.4. KABKON PROGRAMMABLE INPUTS SCREENS

(4 Screens, PI31-PI33 of each KABKON)

1.8.Inputs: KABKON-A1 PI31-A1:- <undefined> PI32-A1:- <undefined> PI33-A1:- <undefined>
1.9.Inputs: KABKON-B1 PI31-B1:- <undefined> PI32-B1:- <undefined> PI33-B1:- <undefined>
1.10.Inputs: KABKON-A2 PI31-A2:- <undefined> PI32-A2:- <undefined> PI33-A2:- <undefined>
1.11.Inputs: KABKON-B2 PI31-B2:- <undefined> PI32-B2:- <undefined> PI33-B2:- <undefined>

In this screen all of the programmable inputs of KABKON (Car panel module) are monitored. The inputs which have ‘●’ (Closed) on the left hand side are active at the moment which have ‘.’ (Open) on the left hand side are inactive. The inputs which are not defined are monitored as “undefined”.

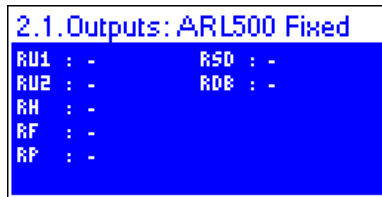
3 programmable inputs of each car panel module are coded from PI31 to PI33. All of the inputs in the system are summarized in 4 screens **1.8** to **1.11**. UP and DOWN keys are used to switch to the previous/next screen.

In these screens, 12 rows of inputs (PI31-PI33 of each KABKON) are listed. The inputs are listed according to the KABKON code (Door side setting and KABKON number). The door side setting can be ‘A’ or ‘B’. ‘B’ is used for the second entrance. In a car operating panel 2nd KABKON is used for systems more than 24 stops to increase the number of stops up to 48. The 1st KABKON’s number is 1 and the 2nd KABKON’s number is 2.

All programmable inputs can be programmed by the user according to the needs of the system. Any input can be selected from the available inputs in the list of “**KABKON inputs**” menu.

5.4. OUTPUT STATUS SCREENS

5.4.1. ARL-500 FIXED RELAY OUTPUTS SCREEN



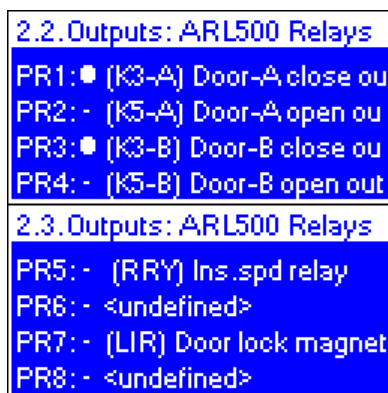
In this screen all of the fixed relays of ARL-500 main board are monitored. The outputs which have ‘●’ (Closed) on the right hand side are active at the moment which have ‘.’ (Open) on the right hand side are not active.

7 relays of ARL-500 controller are constant in the system. You cannot redefine or change the following relay output terminals: RU1, RU2, 11, RH1, RH2, RP, RSD, RF of ARL-500 controller. The functions of these relays are described in the following table.

The functions of ARL-500 fixed relays according to drive type			
Relay	Traction-Rope		Hydraulic
	Two Speed	VVVF	
RU1	Down Direction Contactor	Down Direction Contactor	VC : Slow-Down Valve
RU2	Up Direction Contactor	Up Direction Contactor	VA : Slow-Up Valve
RH1	High Speed Contactor	High Speed Contactor	VD : Fast-Down Valve
RH2	High Speed Contactor	High Speed Contactor	VB : Fast-Up Valve
RP	-	Main Contactors	Up Contactor
RSD	-	-	Star- Delta Contactors
RF	Low Speed Contactor	Low Speed Contactor	Emergency Valve

5.4.2. ARL-500 PROGRAMMABLE RELAYS SCREENS

(2 Screens, PR1 to PR8 programmable relays)



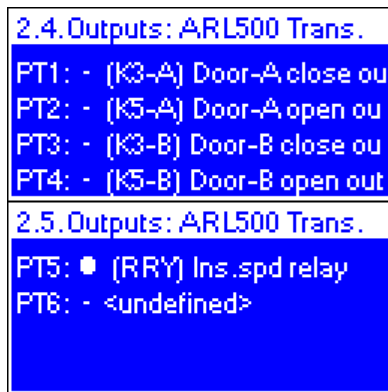
In this screen, all of the programmable relays of ARL-500 controller are monitored. The outputs which have ‘●’ (Closed) on the left hand side are active at the moment which have ‘.’ (Open) on the left hand side are inactive. The inputs which are not defined are monitored as “undefined”.

8 programmable relays are coded from PR1 to PR8. All of the relays in the system are summarized in two screens **2,2** to **2,3**. UP and DOWN keys are used to switch to the previous/next screen.

All programmable relays can be programmed by the user according to the needs of the system. Any output can be selected from the available outputs in the list of “**ARL500 relays**” menu.

5.4.3. ARL-500 PROGRAMMABLE TRANSISTORS SCREENS

(2 Screens, PT1-PT6)



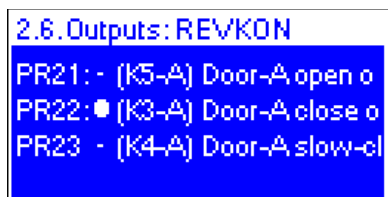
In this screen all of the programmable transistors of ARL-500 controller are monitored.. The outputs which have ‘●’ (Closed) on the left hand side are active at the moment which have ‘.’ (Open) on the left hand side are inactive. The inputs which are not defined are monitored as “undefined”.

6 programmable transistors are coded from PT1 to PT6. All of the transistors in the system are summarized in two screens **2.4** to **2.5**. UP and DOWN keys are used to switch to the previous/next screen.

All programmable transistors can be programmed by the user according to the needs of the system. Any output can be selected from the available outputs in the list of “**ARL500 transistors**” menu.

5.4.4. REVKON PROGRAMMABLE RELAYS SCREEN

(1 Screen, PR21-PR23)



In this screen all of the programmable relays of REVKON car top controller are monitored. The outputs which have ‘●’ (Closed) on the left hand side are active at the moment which have ‘.’ (Open) on the left hand side are inactive. The inputs which are not defined are monitored as “undefined”.

3 programmable relays of REVKON coded from PR21 to PR23 are summarized in this screen.

All programmable relays can be programmed by the user according to the needs of the system. Any output can be selected from the available outputs in the list of “**REVKON relays**” menu.

5.5. CANbus STATUS SCREENS

(3 Screens, KKs & KABKONs & REVKON)

3.1.CANbus status		
KK-1 : A-	KK-8 : A-	KK-15 : --
KK-2 : A-	KK-9 : A-	KK-16 : --
KK-3 : -B	KK-10 : A-	
KK-4 : AB	KK-11 : A-	
KK-5 : A-	KK-12 : A-	KABKON2 : AB
KK-6 : A-	KK-13 : A-	KABKON1 : --
KK-7 : A-	KK-14 : A-	REVKON : +
3.2.CANbus status		
KK-17 : --	KK-24 : --	KK-31 : --
KK-18 : --	KK-25 : --	KK-32 : --
KK-19 : --	KK-26 : --	
KK-20 : --	KK-27 : --	
KK-21 : --	KK-28 : --	KABKON2 : AB
KK-22 : --	KK-29 : --	KABKON1 : --
KK-23 : --	KK-30 : --	REVKON : +
3.3.CANbus status		
KK-33 : --	KK-40 : --	KK-47 : --
KK-34 : --	KK-41 : --	KK-48 : --
KK-35 : --	KK-42 : --	
KK-36 : --	KK-43 : --	
KK-37 : --	KK-44 : --	KABKON2 : AB
KK-38 : --	KK-45 : --	KABKON1 : --
KK-39 : --	KK-46 : --	REVKON : +

In this screen the serial communication of the lift bus wiring (CANbus) using the plug-in cables between the landing call/indicator panels (KK-x), car operating panels (KABKON), inspection box (REVKON) and the main controller (ARL-500) are monitored.

ARL-500 Lift Control System communicates with car and landing units through serial data communication using two separated CANbus line. CAN1 for landing units and CAN2 for car units.

CANbus serial communication status of the system is summarized in three screens **3.1** to **3.3**. UP and DOWN keys are used to switch to the previous/next screen.

The floor/door side settings of the car and landing units are described in the “*INSTALLATION & OPERATION MANUAL*”.

5.5.1. The status of car communication

The communication status of KABKONs (car panel controller) and REVKON (car top controller) are summarized in the bottom right corner of both 3 screens.

The REVKON texts which has ‘+’ sign on the right side shows that there is a communication at the moment which has ‘-’ sign shows that there is no communication.

The car panel module KABKON’s number can be **1** or **2**. 1st module **KABKON1** is used for 1-24 car commands and second one **KABKON2** is used for 25-48 car commands.

The first digit next to KABKON (1/2) shows the communication of car operating panel at door side A and the 2nd digit shows the communication of car operating panel at door side B.

‘A’ means communication with KABKON side A is established

‘B’ means communication with KABKON side B is established

‘-’ means no communication

‘AB’ sign may have two different meanings. First one is, there is one KABKON configured as “AB” and serves to each entrance. Second one is, there are 2 different KABKONs for two door entrances.

5.5.2. The status of landing communication

The communication status of KKs (landing panel controllers, KK-1 to KK-48) up to 48 floors is summarized in 3 screens **3.1** to **3.3**.

The first digit next to KK-x shows the communication of landing panel at door side A and the 2nd digit shows the communication of landing panel at door side B.

'A' means connection of landing panel side A is made

'B' means connection of landing panel side B is made

'-' means no connection

'AB' means there is one LOP and serves to each entrance or there are 2 LOPS and 2 entrances.

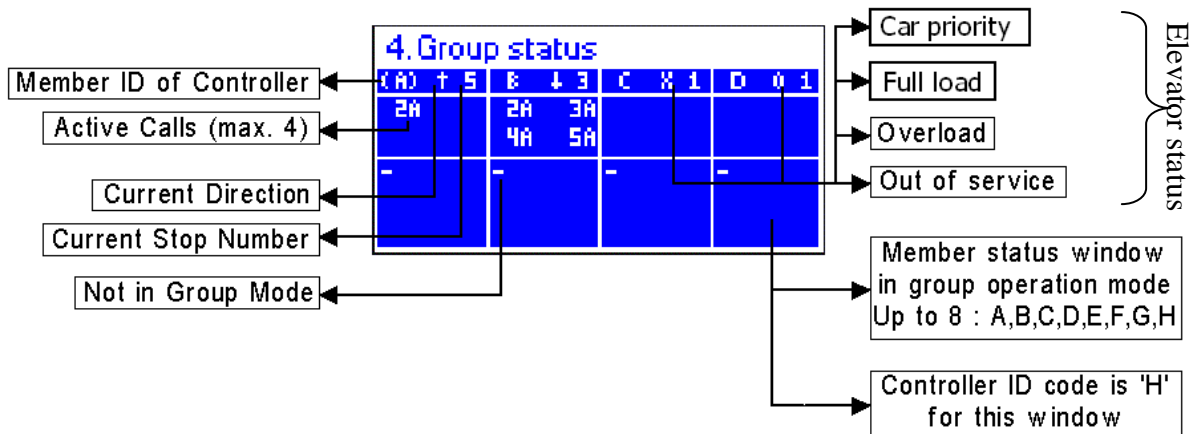
5.6. GROUP STATUS SCREEN

4. Group status							
(A)	↑	S	E	↓	3	C	X
2A	3A	3A	4A				
4A	5A						
-	-	-	-				

Find the “4.Group status” screen on ARL-500 display by pressing LEFT/RIGHT key.

In this screen the status of group operation are monitored. 8 elevators in group are summarized in 8 separated screens which are coded from ‘A’ to ‘H’.

Below the meaning of numbers and signs used in the screen is described.



Member ID of Controller	The own ID of ARL-500 Controller in elevator group. It ID shows inside the parenthesis.
(A), (B), (C), (D), (E), (F), (G) or (H)	

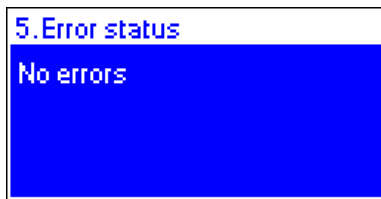
Active Calls	The accepted calls of the elevator. The first part of call shows the floor number of call and the second part shows the door side.
2A: Call from door side A of 2nd floor	
4B: Call from door side B of 4th floor	
3AB: Call from door side A or/and door side B of 3th floor.	

Current Direction	It displays the current direction of travel.
↑	Up direction
↓	Down direction

Current Stop Number	It displays the current stop number of elevator.
Values	1-48

Elevator status	The working status of elevator.
O	Overload
F	Fullload
V	Car priority
X	Out of service

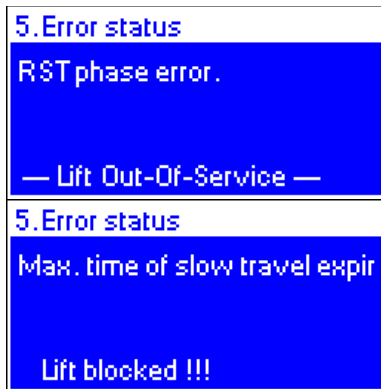
5.7. ERROR STATUS SCREEN



In this screen the active error message of lift system is monitored.

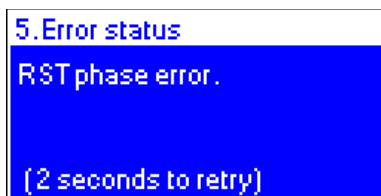
This screen is one of the status screens that give information about lift system and can be switched to the previous/next screen.

Besides, when an error occurs the current screen is left and an error status screen is displayed where the information about the error is given.



If an error is handled lift goes into error mode, the error message and lift status mode message is displayed.

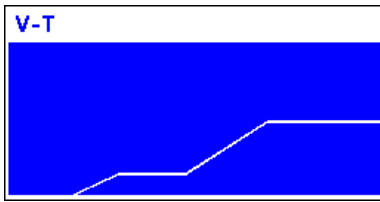
The error mode depends on the error type. The error type designates error events that might still allow the lift controller to continue running, to go out of service or to be blocked.



When case is removed that causes the error while controller is out of service, controller directly attempt to retry with a time delay. If the error status is terminated after the retry delay time has expired, controller goes into normal operation mode and the last screen is restored. Otherwise it stays out of service.

The number of retries and the retry delay time depends on the error level. Controller can be blocked by the error after the maximum number of retries that is allowed. It is the only way to run lift again after it is blocked is controller reset.

5.8. V-T (Velocity-Time) TRAVEL CURVE SCREEN



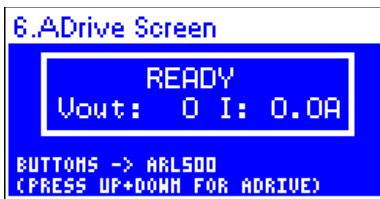
In this screen the active travel curve of lift system is monitored. This screen is available only with incremental positioning and will not appear with other settings of positioning systems.

This screen is one of the status screens that give information about lift system and can be switched to the previous/next screen.

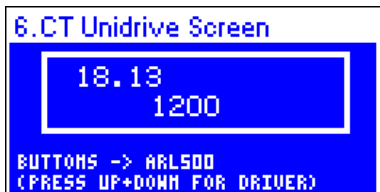
The travel settings adjusted by the parameters of ARL-500 and the frequency inverter are monitored with a V-T (Velocity-Time) travel curve graph. By the help of the travel curve screen you can observe the travelling of elevator system.

The acceleration and deceleration of the elevator and the slowing & stopping distance of the elevator can be adjusted by the help this screen.

5.9. ADrive / Unidrive SP INVERTER SCREEN



In this screen the display of ADrive or Unidrive SP is monitored. These inverters can be operated with this screen by ARL-500 keypad (also HS500 hand terminal).



This screen is available only with ADrive and Unidrive SP with a special connection. This screen will not appear with other systems.

By the help of this screen operating ADrive with HS500 hand terminal is very convenient and user friendly. Not only does it allow you to adjust settings and parameters of the inverter from the control cabinet but also directly from the car and from the landings using the HS500 hand terminal. The only work to do is connecting the cable and no more setting is needed to operate the inverter from the HS500 hand terminal.

5.10. CAR COMMAND ENTRY SCREEN



It is possible to give car command by using keypad when lift is not in inspection/recall mode.

DOWN button is used to enter this screen at status screen (not in menu). 48 buttons represent the stops. The numbers of buttons which are filled with numbers designate the number of stops that is defined by the parameter on "System settings" menu. More than these stops are displayed as empty button.

The functions of the keypad in this screen are shown below:

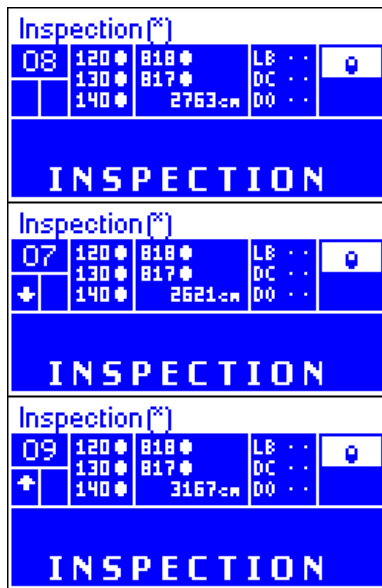
In this screen Pressing ENTER will enable a parameter to change. A blinking cursor will appear. Setting can be made by arrow keys within a range limited by a number of stops. Pressing ENTER will give a call order to the chosen landing or reset the given call.

←, →, ↑, ↓ : selection of call entries

ⓔ : giving/cancelling a call

ⓔ : Returning to status screen

5.11. MANUAL DRIVE SCREEN



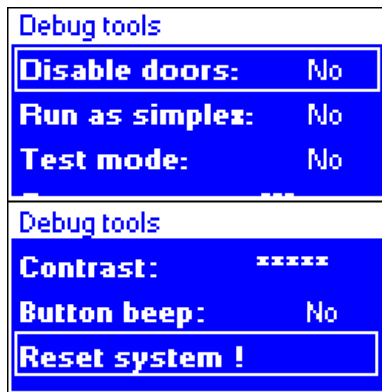
This screen is used to get the lift into a manual motion mode by using keypad. The entire car and the landing calls are canceled. The out of service information is sent to all landing and car indicators.

LEFT + RIGHT (pressing simultaneously) keys together are used to enter this screen on any status screen and ESC button is used to exit.

In this mode lift can only be operated by means of UP/DOWN buttons on the keypad. UP button gives up direction command and DOWN button gives down direction command.

When the inspection mode is activated at car or recall operation is activated at control cabinet this mode will be ineffective.

5.12. SERVICE OPTIONS SCREENS



In this screen the service options of ARL-500 lift control system is monitored. The functions of service options are described below.

Disable doors	This function is used during installation, maintenance or servicing. When this function is activated, car calls are allowed but landing calls are not allowed. Car command entry from controller board is also possible.
Options	Yes: Doors disabled No: Doors enabled
Run as simplex	The lift controller needs to be taken out of the group during installation, maintenance and servicing or repair of lift systems. Lift is no more a member of a group when it is seperated from group and it works alone. Car calls are still serviced. Its landing modules still accepts calls, but they are not assigned to other lifts.
Options	Yes: Seperated from the group No: Within the group
Contrast	A fine-tune adjustment for LCD contrast can be adjusted by using this function. ↑ and ↓ buttons are used to increase/decrease LCD contrast. The value of LCD contrast is shown by a number of lines in a row. Number of these lines will increase/decrease by increasing/decreasing contrast.
Button beep	This function is used to turn on/off the keypad pressing sound.
Options	Yes: Button beep is ON No: Button beep is OFF
Reset system	This function is used to reset the main controller. It is used especially with HS500 hand terminal to reset system during remote operation away from control panel.

Test mode	This is a test mode function for testing the wiring of car operating panel and landing call panels.
Off	The test mode is OFF.
Buttons	<p>COP (Car operating panel) test:</p> <ul style="list-style-type: none"> • When this option is activated, the LEDs in the car panel will blink successively. The order of these blinking LEDs will be the same as the numbering on the KABKON module. Thus, you can check if the buttons are connected correctly. • If you hold down any of the buttons, you can see that button will start to blink faster. Experience this with every car command button and see if there is a mistake in the connections. <p>LOP (Landing Operating Panel) test:</p> <ul style="list-style-type: none"> • When this option is activated, the up/down LEDs of the LOPs will start to blink. Thus, you can check the button connections. • If you hold down any of the buttons, you can see that button will start to blink faster. Thus, you can check if the call button is working properly or not.
Random-10	ARL-500 will give 10 commands consecutively.
Random-100	ARL-500 will give 100 commands consecutively.
Random-500	ARL-500 will give 500 commands consecutively.
Random always	ARL-500 will give random commands continuously.

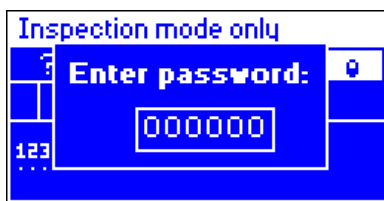
6. MENU SETTINGS

All settings for lift controller are stored in main menu parameters. Menu parameters are classified into several groups to make it easy for users.

6.1. ENTERING MENU

The ARL-500 is password protected to prevent unauthorised manipulation of control parameters and endangerment of persons or impairment of the lift system resulting from unauthorised access.

User password has six digits. The default setting for the password is “000000”. It is highly recommended to change it to an individual one having entered lift parameters first.



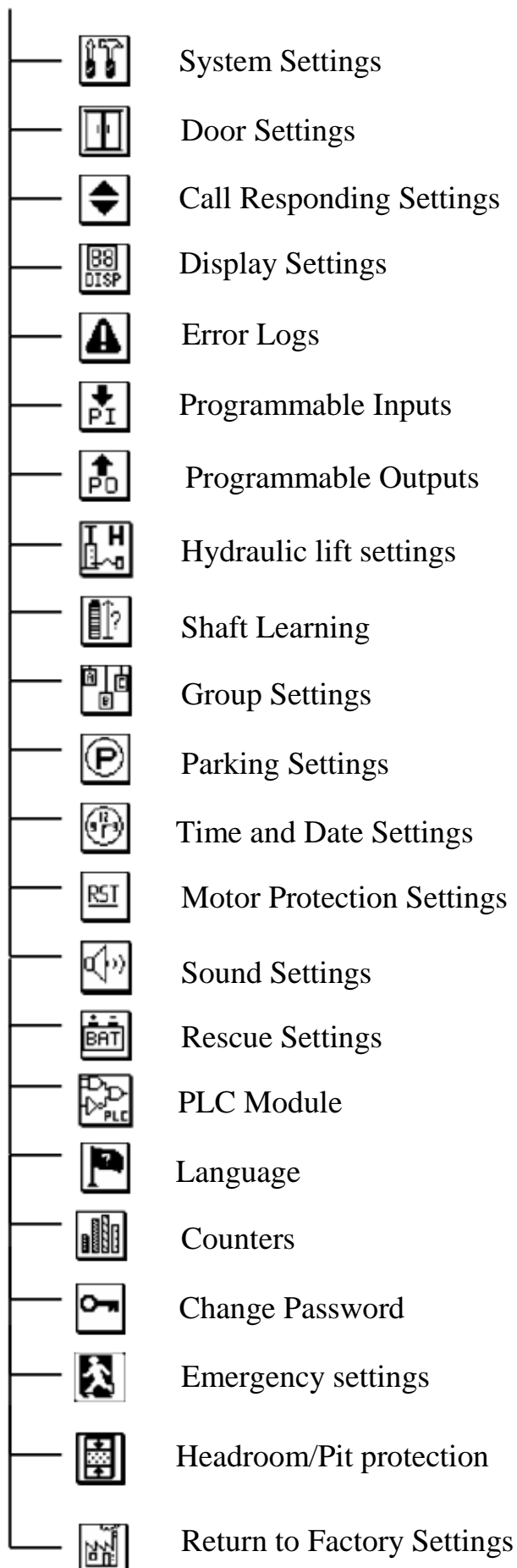
Pressing ENTER on main screen takes user to the password screen. Blinking cursor at the beginning of a numbers means a change mode.

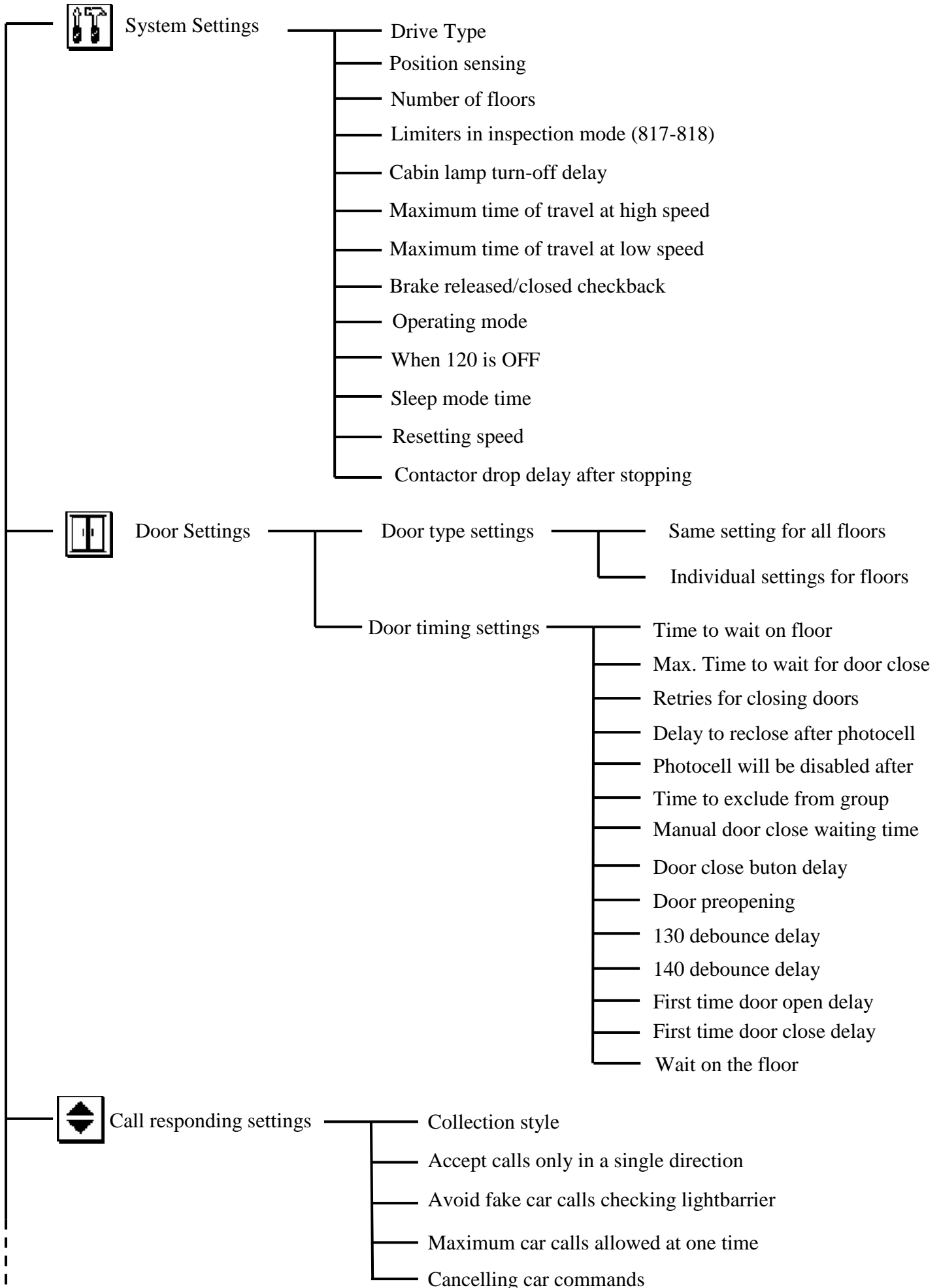
LEFT/RIGHT buttons are used to move cursor left / right and UP/DOWN buttons are used to increase / decrease value. ENTER should be pressed to access into main menu.

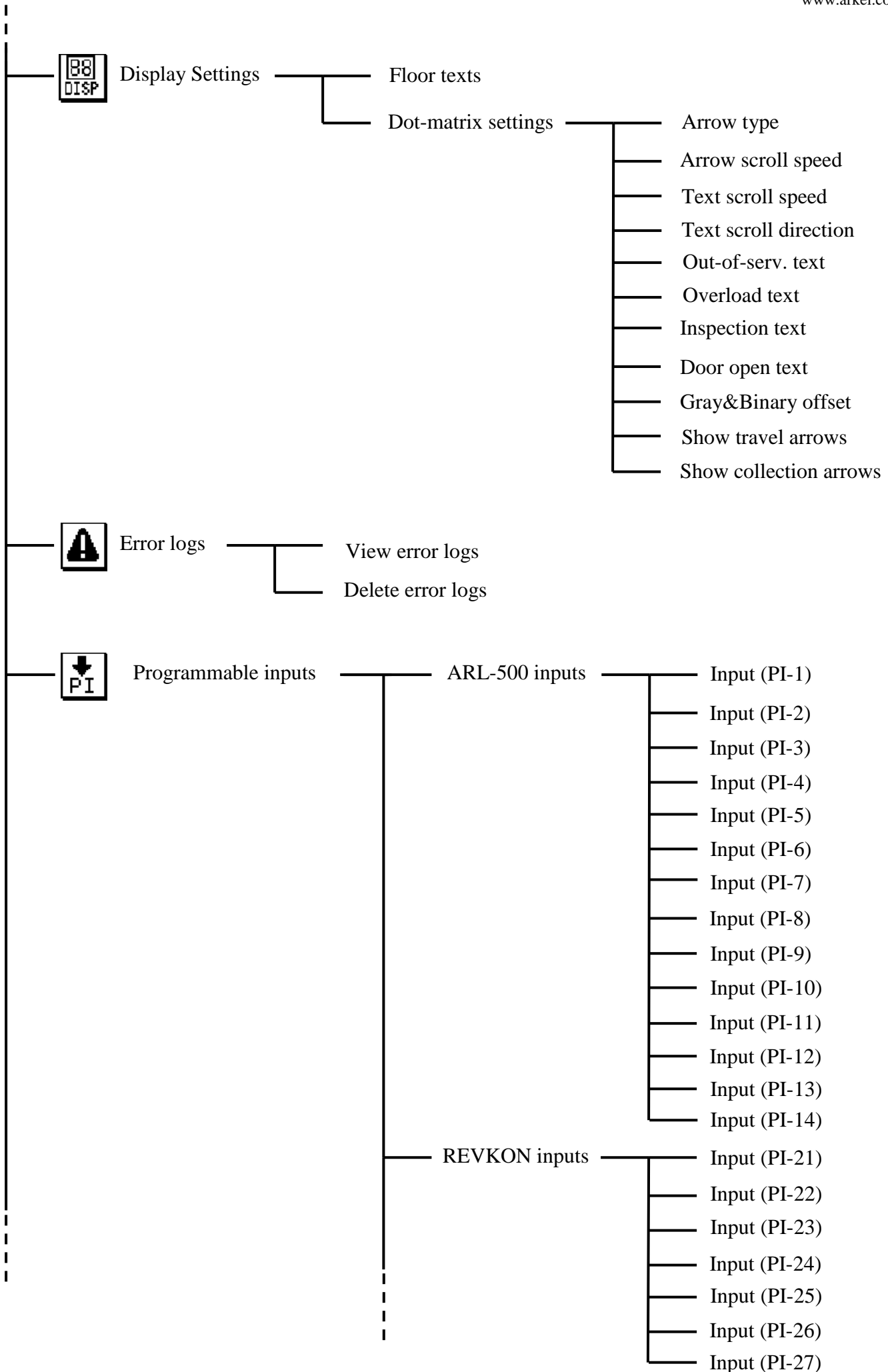
The correct password enables access to the parameters menu. An invalid value or pushing EXIT returns to the main screen.

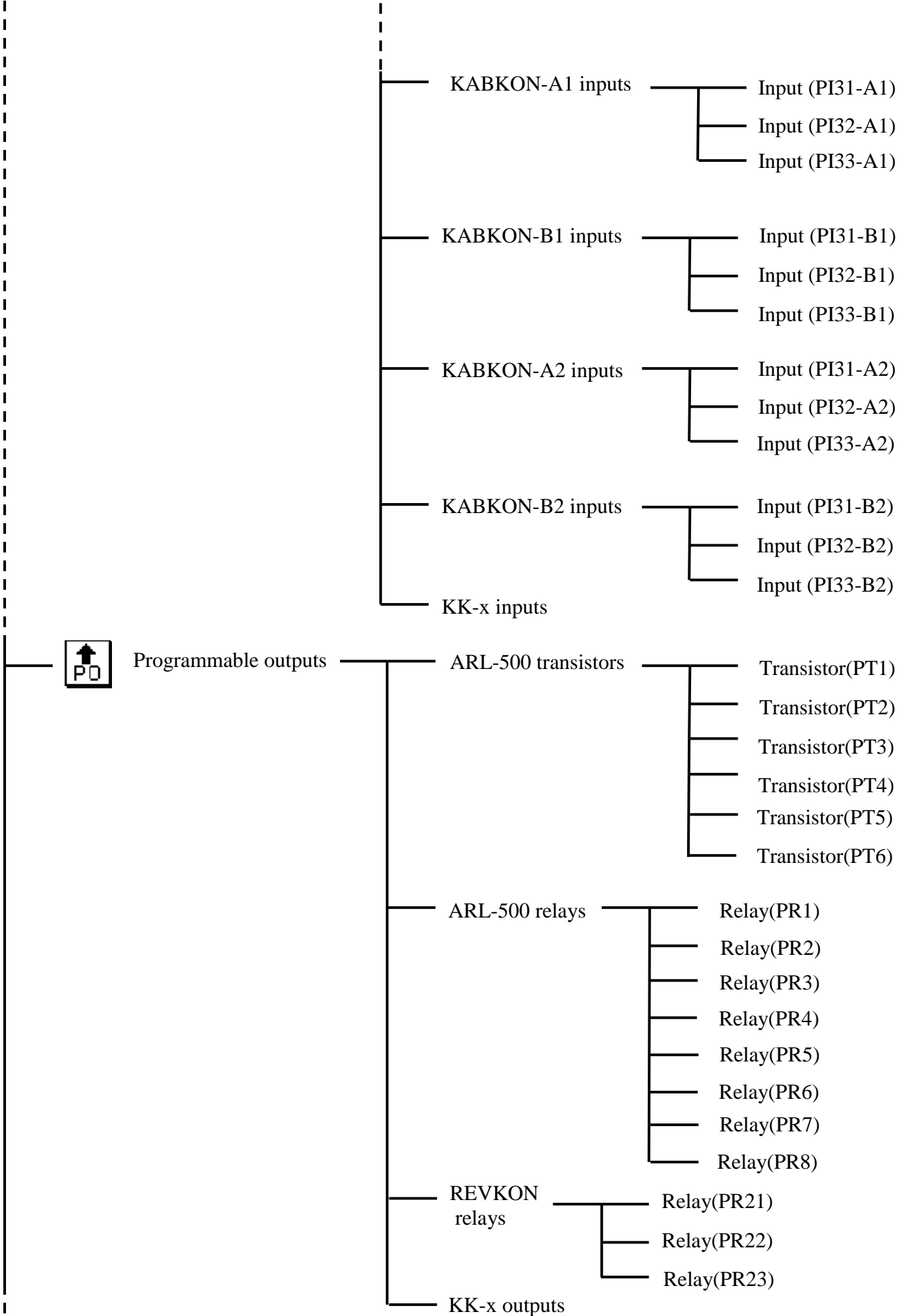
6.2. MENU TREE

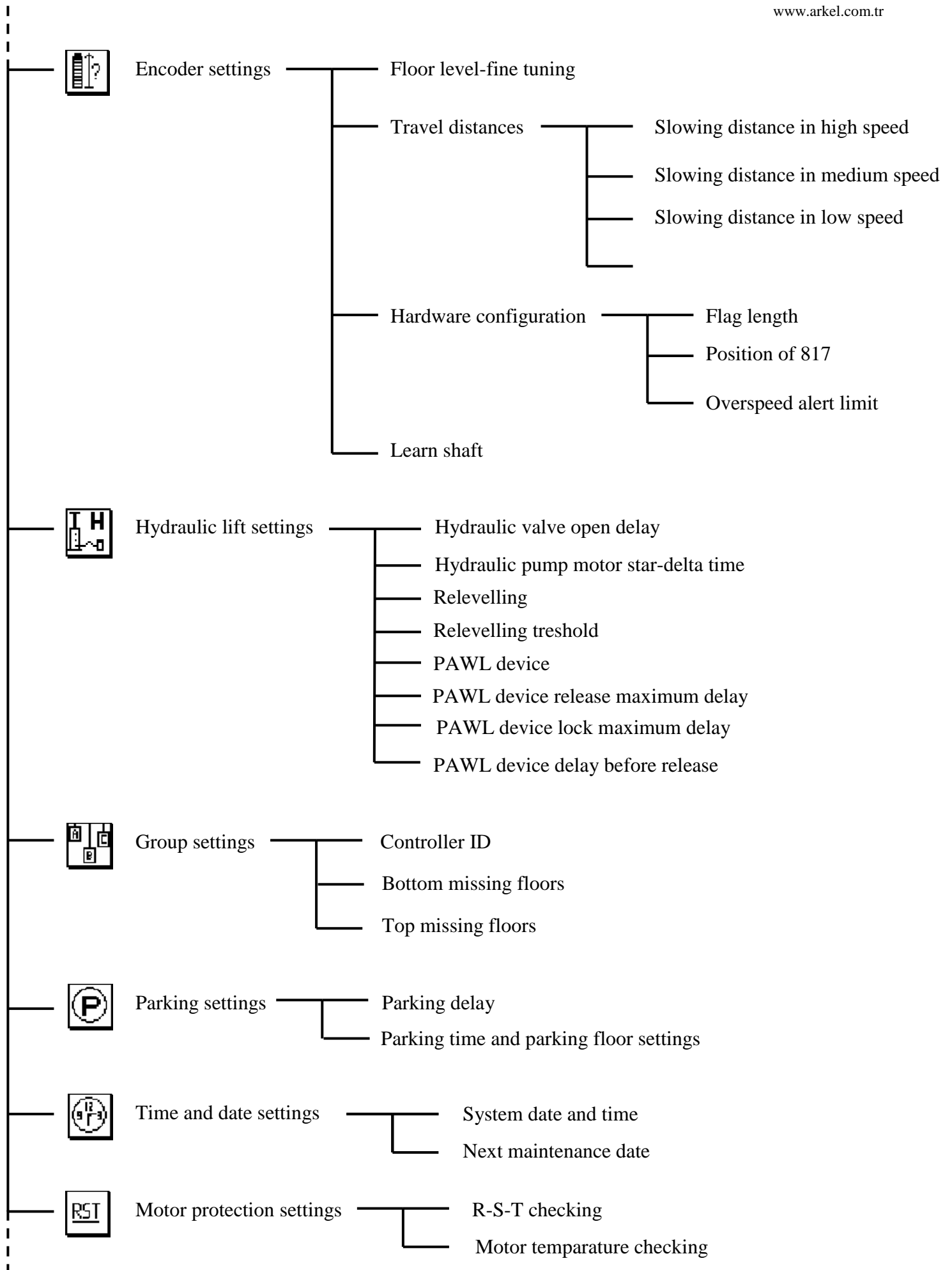
The ARL-500 main menu is displayed as a menu tree divided into submenus and menu items.

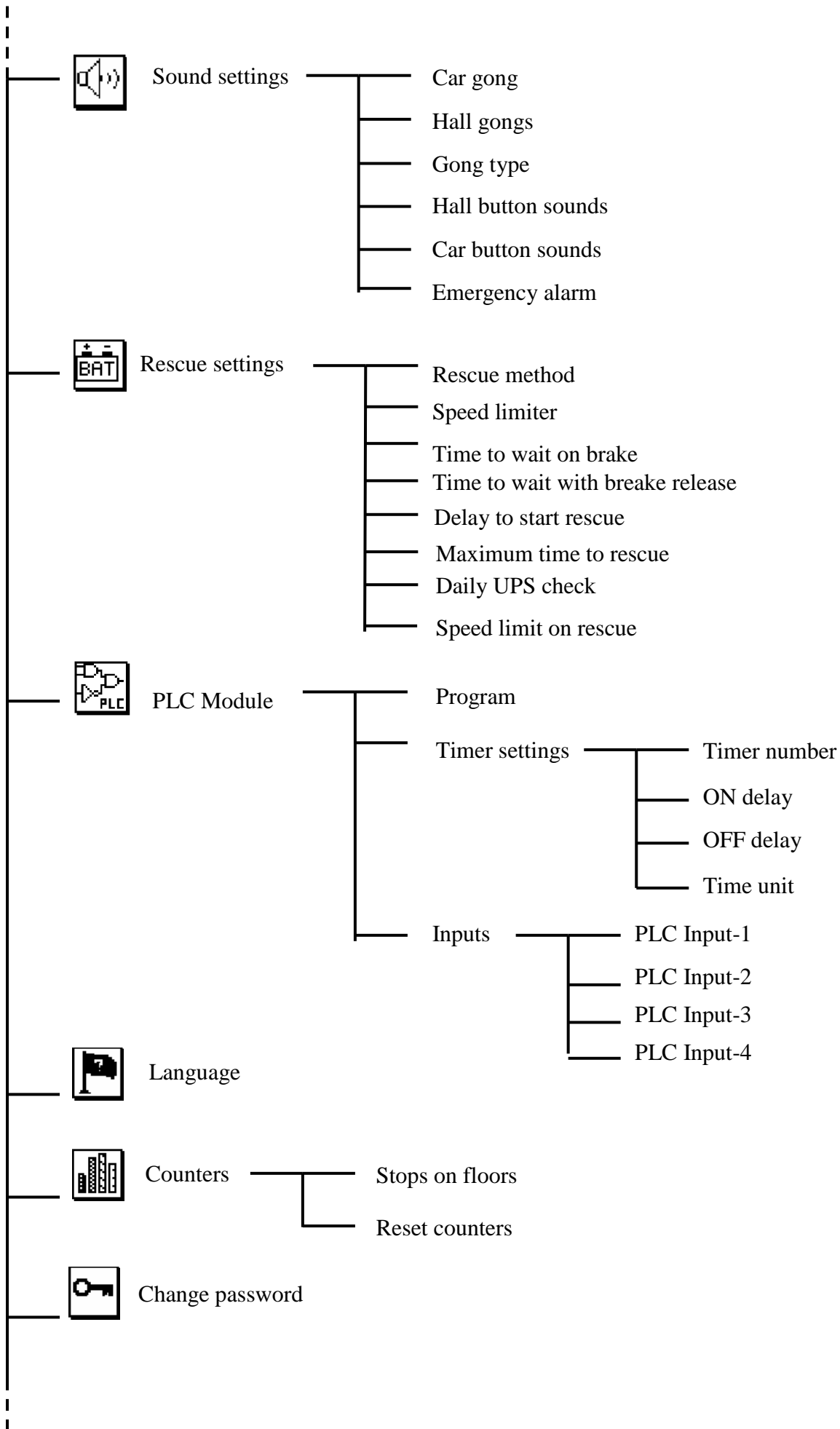


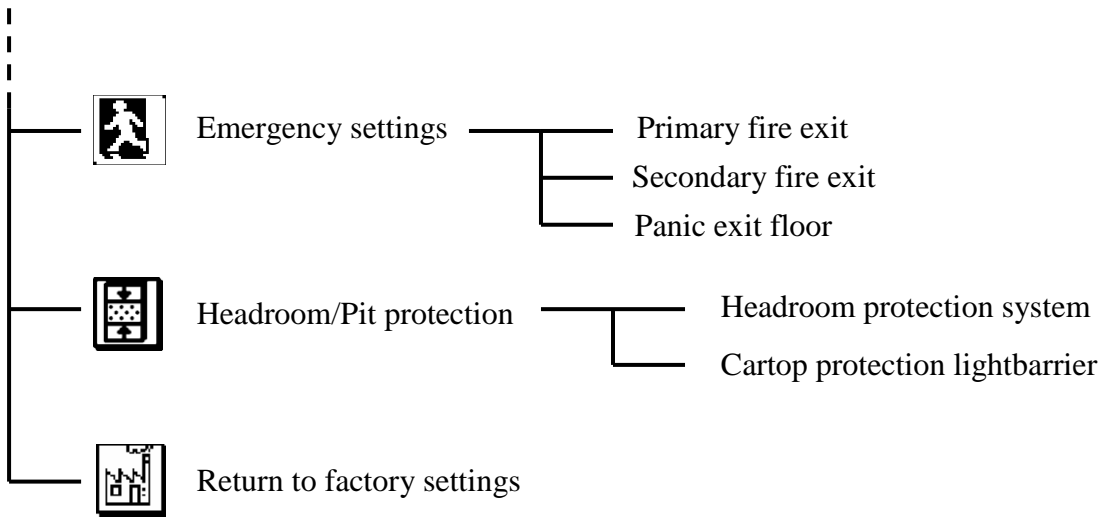












6.3. MENU PARAMETERS

6.3.1. System Settings

These are the most important and necessary parameters for lift to function properly.

Drive Type	Lift Drive type used. Can be selected from a list with all common drive types.
Dual-speed	For 2-speed systems
VVVF Type-A	For ADrive, Unidrive SP and ZetaDYN 3BF frequency inverters. The speed signals are applied together. ADrive VVVF Inveter activates the higher speed in a case of more than one speed inputs applied. If the speed control inputs are driven by relays high speed and low speed signal should be applied together. Otherwise because of the relay delays, wrong speed inputs may be perceived at speed changes. Especially for distance controlled stops it is important that there must be no delays at speed transitions.
VVVF Type-B	Reserved
VVVF Type-C	Reserved
Hydraulic	For Hydraulic systems

Position sensing	Type of car position sensing.
Standard M1 counter	For two speed systems
Special JF counter	For VVVF systems with no door bridging
ML1-ML2 counter	For VVVF and Hydraulic systems with door bridging
Encoder	For systems using incremental encoder car positioning (This must be selected for MRL Systems)

Number of floors	Number of stops in lift system.
2 - 48 floors	

Limiters in inspection mode (817-818)	This parameter defines the limiters working type in inspection or recall operation mode.
► Stop immediately	Car stops immediately after reaching bottom & top limit switches
Stop car at floor level	Continue until to the floor level. Set this parameter to “Stop car at floor level” for systems with AKUS-SD evacuation unit.
Do not stop at limits!	Car do not stop at limits until the bottom or top limit switches interrupts the elevator. This function must only be used for testing the limit switches and must be used carefully!

Car lamp turn-off delay	Automatic deactivation of the car light after each drive at the end of the set time.
0 – 99 seconds	▶ 6 seconds
Maximum time of travel in high speed	Maximum time allowed to travel with high speed without changing the current floor number. When this timer overflows then an error is generated and the system is blocked.
5 – 45 seconds	▶ 20 seconds
Maximum time of travel in low speed	Maximum time allowed to reach the floor level after passing to low speed. When this timer overflows then an error is generated and the system is blocked.
5 – 45 seconds	▶ 15 seconds
Brake released/closed checkback	The checkback signal control of the brake micro-switches for gearless motors. For activating this feature, “ (BRC) Brake checkback ” function must be assigned to a programmable input of ARL-500 controller.
▶ Disabled	Disables brake checkback control (For asynchronous motors)
Enabled	Enables brake checkback control (For synchronous motors)
Operating mode	Lift operation mode.
Normal operation	Normal operation mode.
▶ Inspection only	<p>Controller can only be operated in inspection mode or recall mode and can not be operated in normal mode.</p> <p>The controller is set to “Inspection only” mode in the default factory settings for safety startup installation.</p> <p>When ARL-500 controller is switched on, it checks the bottom limit switch (817) to correct its position counter. If the inspection or recall control is activated before this correction drive, the system can only be operated in “Inspection only”.</p>
When 120 is OFF	Shows the operating status of the elevator when 120 is off
▶ Resume after 120 is ON	Elevator starts to operate normally when 120 switch turns on.
Block the elevator	Immediately blocks the elevator.

Sleep mode time	If no call is received from the floors or from the car, to save electricity the elevator starts to run in sleep mode.
▶ Never	The elevator never runs in sleep mode.
On cabin-light off	The elevator runs in sleep mode when the cabin light turns off.
After X minutes (X: 1, 3, 5, 10, 20, 30, 40, 50, 60)	The elevator runs in sleep mode after X minutes. (X: between 1 and 60 minutes)

Resetting speed	When the system is resetted, the car cabin moves downwards in its high speed until the 817 limiter is cut. Sometimes the heights of the floors are short in some buildings and with high speed the elevator can not stop on the exact floor level. This function is used to prevent these kinds of states.
▶ High speed (V3)	The cabin moves in high speed until the 817 limiter is cut.
Middle speed (V2)	The cabin moves in middle speed until the 817 limiter is cut.

Contactor delay	<p>The timing to keep the main contactor switch-on until the driver finishes running and drops the mechanical brake contactor (for only VVVF systems).</p> <p>The main contactors must drop after the mechanical brake contactor drops when the lift stops at floor level. If these contactors drop at the same time, it means the contactors drop while motor is still running. So this parameter's value must be increased. It is efficient that the main contactors drop 0.5 second after the mechanical brake contactor drops. It is possible to increase this delay time but in this case opening door is delayed too much.</p>
0-3000 ms	<p>With timing</p> <p>After this time is exceeded the main contactors will be dropped.</p>
With feedback	<p>With driver's feedback signal.</p> <p>Assign a programmable input to "25: (DRUN) Driver is during run" as a feedback signal input. The high signal (+24V) means driver is running and when the low signal (0V) is activated then the main contactors will be dropped.</p>

6.3.2 Door Settings

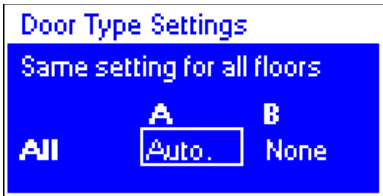
This section is designed for selection of active doors at each floor and the door time setting.

6.3.2.1. Door Type Settings

ARL-500 system can control up to two semi-automatic or full-automatic doors which can be enabled or disabled for each floor independently.

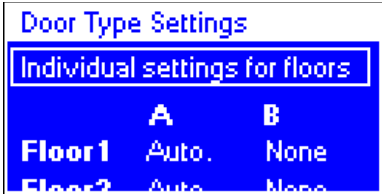
Door Type Settings	Door type settings and number of doors.
Same setting for all floors	Door types and door settings are same for all floors
Individual settings for floors	Door types and door settings can differ for each floor.

Same setting for all floors:

- 

If all of the doors are of the same type, select “**Same setting for all doors**” option.

Individual settings for floors:

- 

If at least the type of one of the doors is different from the others, select “**Individual setting for each door**” option.

When this option is selected, side-A and side-B doors will be listed for each floor. Now you can select which floor has which type of door at which side.

There are 3 options for door type:

- “**None**”: No doors at this side (A or B side).
- “**Semi**”: Semi-automatic door at this side (A or B side).
- “**Auto**”: Full automatic door at this side (A or B side).

6.3.2.2. Set Door Timings

Time to wait on floor	The time period for the car to wait before departing for the next call in collective systems.
5 – 99 seconds	▶ 5 seconds

Max. time to wait for door close	This parameter stores the delay for closing the car door after a forced closing. After the number of consecutive door failures that set in “Retries for closing doors”, an error is generated and the system goes to out of service.
1 – 30 seconds	▶ 5 seconds

Retries for closing doors	Opening time of the car door before closing again after a lock fail.
0 – 10 times	▶ 5 seconds

Delay to reclose after photocell	This parameter stores the delay for closing the car door after a photocell interruption.
2 – 99 seconds	▶ 5 seconds

Photocell will be disabled after	This parameter stores the waiting time period for controller to disable the photocell interruption and try to reclose the door at low speed. If trying to close is not succeeded, controller retries closing that is controlled by the parameters: “Max. time to wait for door close” and “Retries for closing doors”.
10 – 99 seconds	▶ 5 seconds

Time to exclude from group	This parameter stores the waiting time period for controller to exclude from group operation when door is open.
10 – 99 seconds	▶ 20 seconds

Manual door close waiting time	This parameter stores the waiting time period for the manual door to be closed. This parameter is controlled by checking close (terminal 130). When this timer overflows then an error is generated and the system goes to out of service.
10 – 300 seconds	▶ 20 seconds

Door close button delay	This parameter stores the delay time to ignore the door close button function. This timer starts counting when door starts opening and at the end of this delay time controller operates door close button.
0 – 20 seconds	► 2 seconds

Door pre-opening	<p>Enable approaching with car and landing doors open. The safety monitoring is integrated into the ARL-500 main board and enables car movements in the door zone with open car and landing doors.</p> <p>Re-levelling function for hydraulic systems does not depend on this parameter. Re-levelling is standart.</p>
On	Doors are opened when the car entered the door zone of the target floor with a low speed. This operation is allowed only by using the special door bridging circuit ARL-500 control board. ML1 and ML2 additional magnetic switches must be employed to get information about the door zone. The wiring and associated parameters are explained on the electrical diagrams of ARL-500 controller.
► Off	Door pre-opening is inactivated and the magnetic switches ML1 & ML2 are not required. Doors are opened after motor has been stopped and brake has been released.

6.3.3. Call Responding Settings

This section is designed to call responding and anti nuisance settings.

Collection style	Collection type of lift system
Single direction, single button	Landing call is connected to Up socket for up collective systems and to Down socket for down collective systems on landing call modules. Landing calls are collective in a direction according to button connection.
Both directions, single button	Landing up or down calls are connected to Up or Down socket on landing call modules. Landing calls are collective in both directions
Two buttons	Landing up calls are connected to Up socket and landing down calls are connected to Down socket on landing call modules. Up landing calls are collective in up direction and down landing calls are collective in up direction.

Accept calls only in a single direction	Landing calls in both directions (up and down) will be cleared. This parameter helps avoid unnecessary drives caused by “double calls” from one passenger when using a two button control. Only activate when using a two buttons control.
Yes – No	► No

Avoid fake car calls checking lightbarrier	All car calls will be cleared if the photocell does not trigger for the set number of stops. This parameter helps prevent unnecessary drives caused by car calls.
Disabled	Function is disabled.
Cancel all at 2 – 5 fake calls	Controller cancels all car calls after detecting fake calls as this parameter determines.

Maximum car calls allowed at one time	Maximum permitted number of car calls acknowledged at a time. This parameter helps prevent unnecessary drives caused by car calls. A reasonable number is the specified maximum number of passengers.
1 – 32 calls	► 5

Cancelling car commands	Allowing to cancel car command by pressing to the same buton for twice.
Allowed	This function is enabled
Not allowed	This function is disabled

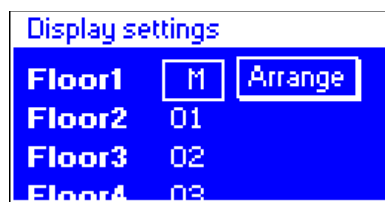
6.3.4. Display Settings

This section is designed to make display settings.

6.3.4.1. Floor Texts

A two-digit floor text can be set in a list of characters for each floor. This name is used by ARL-500 display and by all car/landing position indicators.

List of characters using in ARL-500 for floor name texts	
Digits	0,1,...,9
Small letters	a,b,...,z
Capital letter	A,B,...,Z
Dot	.
Hyphen	-
Plus sign	+
Asterisk	*
Number sign	#
Dollar sign	\$
Space	



User defined floor names can be entered in this screen.

Floor numbers and the equivalent floor names are displayed in a list. The floor name can be set separately for each defined floor.

Arrange Function

The easy way is using “**Arrange**” function during this setting. By the way the floor names can be put in order easily by the controller from the selected floor to the last floor.

For example:

- Set “**Floor1**” to “**B2**”
- Set “**Floor2**” to “**B1**”
- Set “**Floor3**” to “**0**” and then activate the “**Arrange**” function.
- The new settings will be in this order: “**B2**”, “**B1**”, “**0**”, “**1**”, “**2**”...

6.3.4.2. Dot Matrix Settings

This section is used to make dot-matrix display settings.

Arrow type	The arrow type of travel direction on the dot-matrix display indicators
▶ Arrow type 1	↓
Arrow type 2	↓
Arrow type 3	∨
Arrow type 4	▼

Arrow scroll speed	The scroll speed of travel direction arrow (moving vertically) for dot-matrix display indicators.
No scroll	The direction arrow scroll is disabled
Very slow	The speed options of direction arrow scroll
Slow	
▶ Normal	
Fast	
Very fast	

Text scroll speed	The scroll speed of floor text (moving vertically) for dot-matrix display indicators.
No scroll	The floor text scroll is disabled
Very slow	The speed options of floor text scroll
Slow	
▶ Normal	
Fast	
Very fast	

Text scroll direction	The scroll direction of floor text (moving vertically) for dot-matrix display indicators if the “ Text scroll speed ” parameter is not disabled.
▶ Normal	According to travel direction.
Inverse	Inversed of travel direction.

Out of service text	<p>The user defined “Out of service” message.</p> <p>When the system goes out of service this message is displayed at dot-matrix indicators.</p> <p>This message can be changed by using the keypad and selecting the letters one by one.</p>
▶ ”Out of Service”	Only “Out of service” will appear in display
“Out of Service Floor:#1”	When the system is out of service and the car is at floor 1, the message in display will appear like: “Out of service Floor:#1”
“Out of Service Error:#2”	When the system is out of service and it is because of the error no: 2, the message in display will appear like: “Out of service Error:#1”

Overload text	The user defined “Over load” message.
	This message is only available for dot matrix indicator used in car operating panel when the over-load signal is activated.
	This message can be changed by using the keypad and selecting the letters one by one.
▶”Overload”	

Inspection text	The user defined “Inspection text” message.
	This option is designed to give a specific information to passengers instead of “Out of service” message.
	When the Inspection mode is activated from inspection hand terminal or the Recall mode is activated from recall hand terminal or the Manual drive is activated from ARL-500 keypad, this message is displayed at dot matrix indicators.
This message can be changed by using the keypad and selecting the letters one by one.	
▶”Under maintenance”	

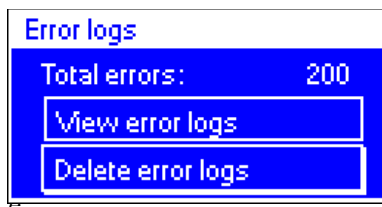
Door open text	The user defined “Door open text” message.
	This option is designed to give a specific information to passengers instead of “Out of service” message in order to give a chance for solving this problem.
	When the elevator goes out of service because of the errors “ Door can not close ” and “ Manual door open error ”, this message is displayed at dot-matrix indicators.
This message can be changed by using the keypad and selecting the letters one by one.	
▶”Door is open”	

Gray&binary offset	When ARL-500 Gray&Binary kod outputs are used, the value which is set in this parameter is added to elevators.
0	If “0” is selected, when the elevator is on the ground floor its gray&binary output becomes “00000”.
1	If “1” is selected, when the elevator is on the ground floor its gray&binary output becomes “00000”. When the elevators display value is 1 lower than its real floor, this parameter must be selected.

Show travel arrows	This function makes 7x10 dot matrix displays show travel arrows.
Yes	Show travel arrows
▶No	Do not show travel arrows

Show collection arrows	This function makes 7x10 dot matrix displays show collection arrows.
Yes	Show collection arrows
▶No	Do not show collection arrows

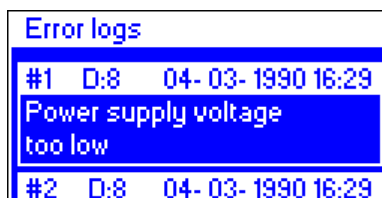
6.3.5. Error Logs



ARL-500 controller saves up to 200 error messages. If required to optimise the configuration of the control, these messages can be retrieved at any time. These messages can be called up on the user interface of the ARL-500 or via HS500 hand terminal.

Total errors: The number of total errors had occurred and stored in the memory.

View error logs: This submenu is used to call up the error logs screen.



In “**Error logs**” screen the number of the error activated, the number of floor at error occurred, date and time of the error as well as the message code and message text are summarized. The last error occurred is shown at first line in the error list.

The sample screen left side is described in detail below.

#1

The number of error is 1. It is the last error occurred.

D:8

The fault has occurred on the 8th floor.

04.03.1990 16:29

Date and time of the error

(112)

Error message code

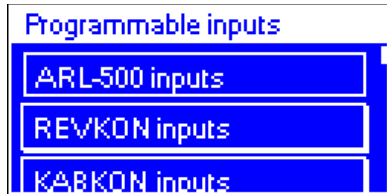
Power supply voltage too low

Error message in text

Delete error logs: This item is used to clear the error list stored.

6.3.6. Programmable Inputs

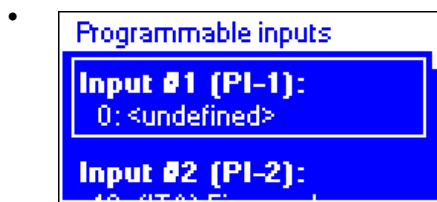
ARL-500 controller is available with 14 programmable inputs whose functions can be selected by the user. Additionally, there are 6 programmable inputs on the REVKON board, 3 programmable inputs on each KABKON board and 1 programmable input on each KK-x board that can be assigned functions by the user.



There are 4 programmable input sections:

- **“ARL-500 inputs”**: for PI1-PI14 inputs on ARL-500 main controller.
- **“REVKON inputs”**: for PI21-PI26 inputs on REVKON car top controller.
- **“KABKON inputs ”**: for PI31-PI33 inputs on each KABKON car panel module.
- **“KK-x inputs”**: for inputs on each KK-X landing call/indicator module.

6.3.6.1. ARL-500 inputs



In this menu, 14 rows of inputs (PI1-PI14) are listed.

Programmable inputs are shown on ARL-500 menu display as described below. “0: <undefined>” means no function is assigned to the input.

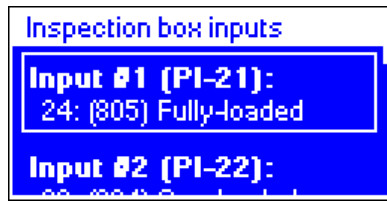
Function number	(Function alias)	Function description
11:	(PI-8)	Contactor check-back

ARL-500 programmable inputs are listed in the table below:

Input		Function number	(Function alias)	Function description
#	Factory setting			
PI1	-	0	-	Undefined
PI2	-	0	-	Undefined
PI3	-	0	-	Undefined
PI4	-	0	-	Undefined
PI5	-	0	-	Undefined
PI6	DEP	17	DEP	Earthquake input
PI7	YAN	18	YAN	Fire sensor input
PI8	KRC	11	KRC	Contactor check-back
PI9	503	16	503	Recall up
PI10	502	15	502	Recall down
PI11	870	14	870	Recall switch
PI12	869	13	869	Inspection switch
PI13	142	27	142	Positioning signal
PI14	141	26	141	Positioning signal

6.3.6.2. REVKON inputs

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In this menu, 6 rows of inputs (PI21-PI26) are listed.

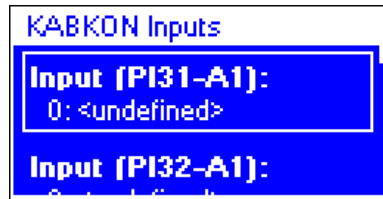
REVKON inputs are shown on ARL-500 menu display as described below. “0: <undefined>” means no function is assigned to the input.

Function number	(Function alias)	Function description
24:	(805)	Full load

REVKON programmable inputs are listed in the table below:

Input	Function number	(Function alias)	Function description
PI21	24	805	Full load
PI22	23	804	Overload
PI23	1	FSL-A	Door-A photocell
PI24	6	FSL-B	Door-B photocell
PI25	0	-	Undefined
PI26	0	-	Undefined

6.3.6.3. KABKON inputs



In this menu, 12 rows of inputs (PI31-PI33 of each KABKON) are listed. The inputs are listed according to the KABKON input code and the door side setting.

The car panel module KABKON's number can be **1** or **2**. The second KABKON is used for systems more than 24 stops to increase the number of stops up to 48. Door side setting can be 'A' or 'B'. 'B' is used for the second entrance.

KABKON programmable input code used in ARL-500 display is described below:

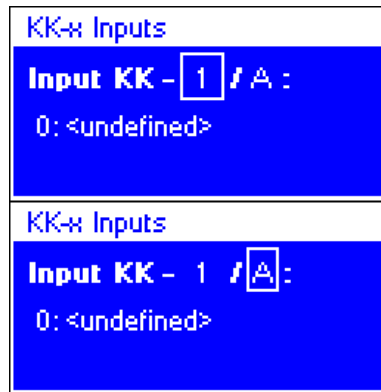
Input	Door side	KABKON number
PI31-	A	1

KABKON programmable inputs are listed in the table below:

Input	Function number	(Function alias)	Function description
PI31-A1	0	-	Undefined
PI32-A1	0	-	Undefined
PI33-A1	0	-	Undefined
PI31-A2	0	-	Undefined
PI32-A2	0	-	Undefined
PI33-A2	0	-	Undefined
PI31-B1	0	-	Undefined
PI32-B1	0	-	Undefined
PI33-B1	0	-	Undefined
PI31-B2	0	-	Undefined
PI32-B2	0	-	Undefined
PI33-B2	0	-	Undefined

6.3.6.4. KK-x inputs

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In this menu, each KK output is shown by two rows. The upper row shows the KK output code and bottom row shows the assigned function.

The KK landing number can be set from 1 to 48. Door side setting can be 'A' or 'B' ('B' is used for the second entrance).

KK-x programmable input code shown in the upper row is described below:

KK module -	Landing number	/ Door side
KK -	1	A

KK-x programmable input function shown in the bottom row is described below:

Function number	(Function alias)	Function description
0	-	Undefined

6.3.6.5. List of Input Functions

The following table contains all functions that can be assigned to the programmable input terminals. The active state of the function depends on the type of function either +24V or GND. The programmable inputs are high active and detect a signal when 100 (+24V DC) is applied.

#	(Short name)	Name	Function	Note
0	-	<undefined>	No function	
1	FSL-A	(FSL-A) Photocell-A	Door side A photocell sensor.	Active high (+24V)
2	DTS-A	Close button-A	Door side A close button.	Active high (+24V)
3	K20-A	Open button-A	Door side A open button.	Active high (+24V)
4	K16-A	Open limit-A	Door side A open limit switch. If limit switches on the cabin are working properly, this function must be assigned to door limit inputs.	Active low (0V)
5	K19-A	Close limit-A	Door side A close limit switch.	Active low (0V)
6	FSL-B	Photocell-B	Door side B photocell sensor.	Active high (+24V)
7	DTS-B	Close button-B	Door side B close button.	Active high (+24V)
8	K20-B	Open button-B	Door side B open button.	Active high (+24V)
9	K16-B	Open limit-B	Door side B open limit switch.	Active low (0Vdc)
10	K19-B	Close limit-B	Door side B close limit switch.	Active low (0V)
11	KRC	Contactora check-back	Check-back signal of main contactors. The contactor pick-up signal is activated when low (0V) signal is detected from the input terminal. Because normally close contacts of main contactors with serial connection are used for this signal and 24V supply voltage is used.	
12	ITA	Fireman key	Fireman key If the elevator is in the fire evacuation mode phase-1, a high signal from this input terminal activates fire evacuation mode phase-2.	Active high (+24V)
13	869	Inspection key	Inspection operating switch Inspection operation is activated when low (0V) signal is detected from the input terminal. In normal operating mode high (24V) signal must be applied to the terminal.	Active low (0V)
14	870	Recall key	Recall operating switch Recall operation is activated when low (0V) signal is detected from the input terminal. In normal operating mode high (24V) signal must be applied to the terminal.	Active low (0V)
15	502	Recall down	Recall operation DOWN	Active high (+24V)

16	503	Recall up	Recall operation UP	Active high (+24V)
17	DEP	Earthquake detector	Earthquake detector When an earthquake occurs, the earthquake sensor in the building activates earthquake detector input. By the activation of this input, lift system cancels all landing calls and make cabin stop at the nearest floor with doors open. Even after the input signal is inactivated, system must be resetted to work properly again.	Active high (+24V)
18	YAN	Fire detector	Fire detector When this input is activated; - All car landing calls are cancelled and no more calls are received - The speaker on the COP starts emitting an alarm - The doors are closed immediately and the car starts to travel towards the designated fire exit floor. - On arrival to the fire exit floor, the doors are opened and they stay open.	Active high (+24V)
19	VAT	Vatman key	Car priority key When this input is activated; - All calls from floors are cancelled. - System allows only the calls from inside the car and from ARL-500 controller. - If the car lands to any floor and if there is no any other call, the doors are opened and they stay open on that floor. Thus the elevator is only controlled by authorized person.	Active high (+24V)
20	PAN	Panic input	Panic input When this input is activated - System cancels all landing calls and starts emitting an alarm. - The car starts to travel towards the designated "panic exit" floor. - After landing to designated floor, system opens the doors and cancels emitting the alarm. - System deactivates the "panic input" signal and starts to operate in normal mode.	Active high (+24V)
21	-	<undefined>	-	
22	FANB	Fan on/off	Switching the fan on/off	Active high (+24V)
23	804	Over-load	Over-load In case of load exceeding the rated capacity, this input becomes active. The door keeps open on the landing floor until the loading is reduced within rated value.	Active high (+24V)

24	805	Full-load	Full-load In case of load is equal to full-load rated capacity, the elevator operates in normal mode but does not accept any calls given from floors, system saves the calls and when the elevator unloads and the signal becomes deactivated, than the calls from floors are accepted successively.	Active high (+24V)
25	DRUN	Driver running	Driver is running feed-back The feed-back signal comes from the driver. This input is used to keep the main contactors switch-on until the driver finishes running and drops the mechanical brake contactor. The high signal (+24V) means driver is running and when the low signal (0V) is detected then the main contactors will be dropped.	for VVVF systems
26	141	Positioning signal	Positioning signal.	Active high (+24V)
27	142	Positioning signal	Positioning signal	Active high (+24V)
28	DRDY	Driver ready	Driver is ready to run The feed-back signal comes from the driver. The high signal (+24V) means driver is ready to run and the low signal (0V) means driver in error mode.	for VVVF systems
29	RESC	Emergency rescue	Emergency rescue operation Emergency rescue operation is activated when a high (24V) signal is applied to the input terminal.	for emergency evacuation unit
30	TDO	Test door open	Door open for door testing	Active high (+24V)
31	TDC	Test door close	Door close for door testing	Active high (+24V)
32	CCC	Cancel car commands	Cancels all car commands	Active high (+24V)
33	CFA	Cancel fire alarm	If the elevator system is in the fire evacuation mode, it returns to normal operation mode when a high (24V) signal is applied to the input terminal.	Active high (+24V)
34	SPR	Shaft protection	The shaft protection contacts input Elevator is blocked when a high (24V) signal is applied to this input terminal.	
35	K16N-A	Open limit (not)-A	Same function with open limit switch (K16A) but this input is high activated.	Active high (+24V)
36	K19N-A	Close limit (not)-A	Same function with close limit switch (K19A) but this input is high activated.	Active high (+24V)
37	K16N-B	Open limit (not)-B	Same function with open limit switch (K16B) but this input is high activated.	Active high (+24V)

38	K19N-B	Close limit (not)-B	Same function with close limit switch (K19B) but this input is high activated.	Active high (+24V)
39	F16-A	Door open signal-A	Open limit switch signal of door side A for fireman service. If the limit switch signal turns off when the door comes to its limit, this function is used.	Low active (0V)
40	F19-A	Door closed signal-A	Close limit switch signal of door side A for fireman service. If the limit switch signal turns off when the door comes to its limit, this function is used.	Low active (0V)
41	F16-B	Door open signal-B	Open limit switch signal of door side B for fireman service. If the limit switch signal turns off when the door comes to its limit, this function is used.	Low active (0V)
42	F19-B	Door closed signal-B	Close limit switch signal of door side B for fireman service. If the limit switch signal turns off when the door comes to its limit, this function is used.	Low active (0V)
43	F16N-A	Door open sgn (inv)-A	The inverted open limit switch signal of door side A for fireman service. If the limit switch signal turns on when the door comes to its limit, this function is used.	Active high (+24V)
44	F19N-A	Door close sgn (inv)-A	The inverted close limit switch signal of door side A for fireman service. If the limit switch signal turns on when the door comes to its limit, this function is used.	Active high (+24V)
45	F16N-B	Door open sgn (inv)-B	The inverted open limit switch signal of door side B for fireman service. If the limit switch signal turns on when the door comes to its limit, this function is used.	Active high (+24V)
46	F19N-B	Door close sgn (inv)-B	The inverted close limit switch signal of door side B for fireman service. If the limit switch signal turns on when the door comes to its limit, this function is used.	Active high (+24V)

47	819	Mid-spд bottom limit	<p>Forced downward deceleration magnetic switch for middle speed.</p> <p>It is used together with the bottom correction switch (817) for high speed VVVF systems where the required deceleration distance is more than the floor to floor distance.</p> <p>The 817 signal forcibly turns off the high speed signal and the 819 signal turns off the middle speed signal.</p> <p>The magnet installation for 819 switch must be made to the bottom floor where the speed signal must be changed from middle speed to low speed.</p>	Low active (0V)
48	820	Mid-spд top limit	<p>Forced upward deceleration magnetic switch for middle speed.</p> <p>It is used together with the top correction switch (818) for high speed VVVF systems where the required deceleration distance is more than the floor to floor distance.</p> <p>The 818 signal forcibly turns off the high speed signal and the 820 signal turns off the middle speed signal.</p> <p>The magnet installation for 820 switch must be made to the top floor where the speed signal must be changed from middle speed to low speed.</p>	Low active (0V)
49	SPZ	SPZ Zero-speed	<p>If the direction signals for the inverter (CT Unidrive SP) must not be interrupted until the elevator stops, this function is used. The zero-speed signal (stop signal) which comes from the inverter is connected to a programmable input to where this function is assigned to.</p> <p>When this signal is not used, the ARL-500 controller turns off the speed signals and the direction signals together.</p> <p>The high signal (+24V) means the driver is running and the low signal (0V) means the driver stops.</p>	

50	JP1	Bridge-1	<p>A virtual input which can be assigned to a programmable output with the same function of a programmable input.</p> <p>The same function must be assigned to the programmable output.</p> <p>So that any programmable input of the elevator system can be bridged to any programmable output virtually by the ARL-500 controller.</p>	
51	JP2	Bridge-2	A virtual input 2	
52	JP3	Bridge-3	A virtual input 3	
53	JP4	Bridge-4	A virtual input 4	
54	JP5	Bridge-5	A virtual input 5	
55	JP6	Bridge-6	A virtual input 6	
56	JP7	Bridge-7	A virtual input 7	
57	JP8	Bridge-8	A virtual input 8	
58	JP9	Bridge-9	A virtual input 9	
59	JP10	Bridge-10	A virtual input 10	
60	JP11	Bridge-11	A virtual input 11	
61	JP12	Bridge-12	A virtual input 12	
62	JP13	Bridge-13	A virtual input 13	
63	JP14	Bridge-14	A virtual input 14	
64	JP15	Bridge-15	A virtual input 15	
65	JP16	Bridge-16	A virtual input 16	
66	BRC	Brake checkback	<p>The checkback control for brakes with synchronous motors.</p> <p>This function is used if the brake checkback signal is connected to ARL-500 mainboard and the brake checkback is control by ARL-500. If the control is made by the inverter this input is not used.</p>	
67	MEM	Manual evac. mode	<p>This function is used with MRL systems for activating a manual operation which is used for emergency evacuation and testing of the elevator system (Encoder car positioning is required).</p> <p>Evacuation operation is activated when a high (24V) signal is applied to the input terminal and ARL-500 controller's display switched to a special evacuation screen.</p> <p>In this screen the following signals are showed:</p> <ul style="list-style-type: none"> - the travel speed - over-speed warning (> 0.63 m/s) - current floor - direction arrow - floor level indicator 	

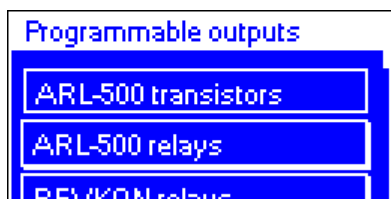
68	XER	External error	<p>This function is used to give an external trip to ARL-500 controller.</p> <p>ARL-500 controller gives an error when a high (+24V) signal is detected from the input terminal. This error makes the elevator goes to out of service. When the high signal turns off, controller returns to normal operation.</p>	
69	XBL	External blocking	<p>This function is used to give an external blocking command to ARL-500 controller.</p> <p>ARL-500 controller blocks the elevator when a high (+24V) signal is detected from the input terminal. Elevator will not operate until the controller is reset.</p>	
70	EVD	Evacuation direction	<p>The evacuation direction information comes from inverter for easy way of car movement.</p> <p>ARL-500 controller uses this easy direction for evacuation.</p>	
71	KKN	Pawl locked checkback	<p>When the pawl device is locked and car is ready to move, this input will be activated.</p>	
72	SKN	Pawl released checkback	<p>When the car lands on the floor and releases the pawl device, this input will be activated.</p>	
73	YAN2	Secondary fire detector	<p>If the fire occurs in designated fire exit floor for YAN input, YAN2 input becomes active and with cancelling all landing calls cabin moves to designated floor for YAN2.</p>	
74	HPD	Headroom protection down switch	<p>If headroom protection system parameter is used, headroom protection down switch must be active to make elevator operate in normal mode. If the switch is not active while a call is received, the elevator will block itself and will not operate until it is resetted.</p>	
75	HPU	Headroom protection up switch	<p>If headroom protection system parameter is used, when headroom protection up switch is activated, the system operates in only inspection mode, if the switch becomes passive after a while, the system resumes operating in normal mode.</p>	
76	CLC	Cartop light barrier checkback	<p>If cartop protection light barrier checkback system is used this input checks if the light barrier on the cabin is working properly. This input must be connected to cartop light barrier test (CLB) output.</p>	
77	RES	Reset system	<p>System resets itself</p>	

78	TTR	Travel timer reset	<p>This signal must be used in situations when the travel time exceeds 45 seconds (the maximum travel time that EN-81 allows). When this input toggles (goes ON or OFF) the travel counter will reset. For example if you set "max time for high speed travel" to 30 seconds and if this signal toggles every 20 seconds, you will never get error messages, because counter will be set to zero in every 20 seconds.</p> <p>where to take the reset signal;</p> <p>1) You can put a single magnet and a magnetic switch on speed regulator. So you will get a reset signal at every revolution of speed governor.</p> <p>2) You can put magnets on shaft and a magnetic switch on car. The distance between each magnet must be enough close (20 – 40 meter can be ok) to reset counter before it trips.</p>	
79	-	<undefined>	-	
80	EC1A	Urgent call-1A	Urgent call to floor 1 door A Either the car is moving or waiting on a floor, if any urgent call input is activated the system erases all landing calls and obeys this call.	
81	EC2A	Urgent call-2A	Urgent call to floor 2 door A	
...
127	EC48A	Urgent call-48A	Urgent call to floor 48 door A	
128	EC1B	Urgent call-1B	Urgent call to floor 1 door B	
129	EC2B	Urgent call-2B	Urgent call to floor 2 door B	
...
175	EC48B	Urgent call-48B	Urgent call to floor 48 door B	
176	-	<undefined>	-	
177	-	<undefined>	-	
178	-	<undefined>	-	
179	-	<undefined>	-	
180	PPS1	Pit protection switch-1	<p>Pit protection switch-1 This function is used in the buildings where elevator pits are short for the purposes of security to access elevator pit. If the car is not in the specified floor while the input is not active, the elevator blocks itself.</p>	Active high
181	PPS2	Pit protection switch-2	Pit protection switch-2	Active high
182	PPS3	Pit protection switch-3	Pit protection switch-3	Active high
183	PPS4	Pit protection switch-4	Pit protection switch-4	Active high
184	PPS5	Pit protection switch-5	Pit protection switch-5	Active high
185	PPS6	Pit protection switch-6	Pit protection switch-6	Active high
186	PLI1	PLC In-1	PLC Input 1	Active high
187	PLI2	PLC In-2	PLC Input 2	Active high
188	PLI3	PLC In-3	PLC Input 3	Active high
189	PLI4	PLC In-4	PLC Input 4	Active high
190	PLI5	PLC In-5	PLC Input 5	Active high

191	PLI6	PLC In-6	PLC Input 6	Active high
192	PLI7	PLC In-7	PLC Input 7	Active high
193	PLI8	PLC In-8	PLC Input 8	Active high
194	PLI9	PLC In-9	PLC Input 9	Active high
195	PLI10	PLC In-10	PLC Input 10	Active high
196	PLI11	PLC In-11	PLC Input 11	Active high
197	PLI12	PLC In-12	PLC Input 12	Active high
198	PLI13	PLC In-13	PLC Input 13	Active high
199	PLI14	PLC In-14	PLC Input 14	Active high
200	PLI15	PLC In-15	PLC Input 15	Active high
201	PLI16	PLC In-16	PLC Input 16	Active high

6.3.7. Programmable Outputs

ARL-500 main controller is available with 8 functionally programmable relay outputs (PR1-PR8) and 6 functionally programmable transistor outputs (PT1-PT6). Additionally, there are 3 functionally programmable relay outputs (PR21-PR26) on the REVKON car top controller and 1 programmable output on each KK-x landing call/indicator module.

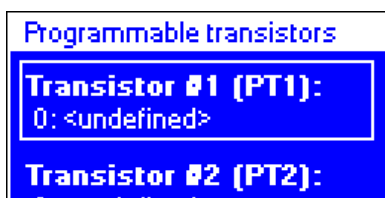


There are 4 sections under this submenu:

- **“ARL-500 relays”**: for PR1-PR8 relay outputs on ARL-500 main controller.
- **“ARL-500 transistors”**: for PT1-PT6 transistor outputs on ARL-500 main controller.
- **“REVKON relays”**: for PR21-PR23 relay outputs on REVKON car top controller.
- **“KK-x outputs”**: for outputs on each KK-x landing call/indicator module.

6.3.7.1. ARL-500 Transistors

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In this menu, 6 rows of outputs (PT1-PT6) are listed.

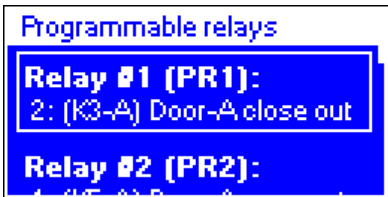
Programmable transistor outputs are shown on ARL-500 menu display as described below. **“0: <undefined>”** means no function is assigned to the output.

Function number	(Function alias)	Function description
2:	(K3-A)	Door-A close output

The factory defaults of ARL-500 programmable transistors are listed in the table below:

Output		Function number	(Function alias)	Function description	Note
#	Factory setting				
PT1	-	0	-	undefined	-
PT2	-	0	-	undefined	-
PT3	-	0	-	undefined	-
PT4	-	0	-	undefined	-
PT5	-	0	-	undefined	-
PT6	-	0	-	undefined	-

6.3.7.2. ARL-500 Relays

- 
 In this menu, 8 rows of outputs (PR1-PR8) are listed.

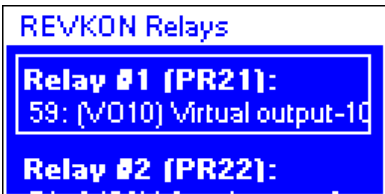
Programmable outputs are shown on ARL-500 menu display as described below. “0: <undefined>” means no function is assigned to the output.

Function number	(Function alias)	Function description
2:	(K3-A)	Door-A close output

ARL-500 programmable relays are listed in the table below:

Output		Function number	(Function alias)	Function description	Note
#	Factory setting				
PR1	A-K3	2	K3-A	Door-A close output	
PR2	A-K5	1	K5-A	Door-A open output	
PR3	B-K3	5	K3-B	Door-B close output	Dual automatic door
PR4	B-K5	4	K5-B	Door-B open output	
PR5	L	7	LIR	Door lock magnet	Semi automatic door
PR6	-	0	-	undefined	
PR7	Re	26	RRY	Inspection speed relay	VVVF systems
PR8	-	0	-	undefined	

6.3.7.3. REVKON Relays

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In this menu, 3 rows of outputs (PR21-PR23) are listed.

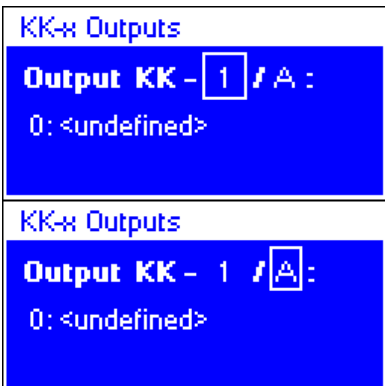
REVKON relay outputs are shown on ARL-500 menu display as described below. “0: <undefined>” means no function is assigned to the output.

Function number	(Function alias)	Function description
2	(K3-A)	Door-A close output

REVKON programmable relays are listed in the table below:

Output		Function number	(Function alias)	Function description
#	Factory setting			
PR1	A-K5	1	K5-A	Door-A close output
PR2	A-K3	2	K3-A	Door-A open output
PR3	A-K4	3	K4-A	Door-A slow close

6.3.7.4. KK-x Outputs

- 

In this menu, each KK-x output is shown by two rows. The upper row shows the KK-x output code and bottom row shows the assigned function.

The KK landing number can be set from 1 to 48. Door side setting can be ‘A’ or ‘B’ (‘B’ is used for the second entrance).

KK-x programmable output code used in the upper row is described below:

Output	Landing number	/ Door side
KK -	1	/A

KK-x programmable inputs are listed in the table below:

Output	Function number	(Function alias)	Function description
KK - x /x	0	-	Undefined

6.3.7.5. List of Output Functions

#	Short name	Name	Function	Note
0	-	<undefined>	-	
1	K5-A	Door-A open output	ON for opening door-A	
2	K3-A	Door-A close output	ON for closing door-A	
3	K4-A	Door-A slow close	ON for closing door-A slowly after photocell timeout	
4	K5-B	Door-B open output	ON for opening door-B	
5	K3-B	Door-B close output	ON for closing door-B	
6	K4-B	Door-B slow close	ON for closing door-B slowly after photocell timeout	
7	LIR	Door lock magnet	ON for unlocking semi-automatic doors.	
8	31	Down arrow	ON when car is travelling down	
9	32	Up arrow	ON when car is travelling up	
10	41	Down collecting	ON when collection direction is "down"	
11	42	Up collecting	ON when collection direction is "up"	
12	02	Out of service	ON when lift is out of service or is in inspection/callback mode	
13	DD	Ding-Dong	ON and OFF briefly when opening doors at floor level	
14	12	Car lamp	ON for turning on the car lamp	
15	RU1	Down relay	Depends on "Drive-Type"	Motion relays
16	RU2	Up relay		
17	RH1	Fast speed relay-1		
18	RH2	Fast speed relay-2		
19	RF	Slow speed relay		
21	RP	Main contactor	ON while car is in motion	
22	RSD	Star / Delta	OFF: hydraulic pump drive star ON: hydraulic pump drive delta	For hydraulic lifts only
24	805	Full load	ON when full load input (805) is on	
25	804	Overload	ON when 804 overload input is on and the lift is on floor level	
26	RRY	Inspection speed relay	ON when car is moving on inspection speed	
27	ED2	Encoder up	ON when encoder is counting upwards	
28	ED1	Encoder down	ON when encoder is counting downwards	
29	ED12	Encoder moving	ON when encoder is counting up or down	
30	BC0	Binary code	Floor number binary code bit-0	
31	BC1	Binary code	Floor number binary code bit-1	

32	BC2	Binary code	Floor number binary code bit-2	
33	BC3	Binary code	Floor number binary code bit-3	
34	BC4	Binary code	Floor number binary code bit-4	
35	GC0	Gray code	Gray code bit-0	
36	GC1	Gray code	Gray code bit-1	
37	GC2	Gray code	Gray code bit-2	
38	GC3	Gray code	Gray code bit-3	
39	GC4	Gray code	Gray code bit-4	
40	KAK	UPS active	ON when the evacuation signal is activated. If the inverter is supplied with dc low voltage (with battery pack), this output is used to enable the evacuation supply from battery.	
41	FLR	Floor level	ON when car is at rest on floor level	
42	RBR	Release brake on rescue	ON when brakes are released during manual evacuation mode.	For MRL systems.
43	SAK	Mains active	Mains active output. ON when mains power is active. Mains power is controller by the inputs on ARL-500 controller (L1, L2, L3, N).	
44	UPT	UPT Test	Supply of UPS phase input is connected over a UPS test relay's contact. This function controls this relay. The input line of UPS is switched off for once in a day and the elevator is operated by UPS supply. The system is blocked if an error occurs during this UPS test drive.	For MRL systems.
45	DRS	Driver reset	When CT Unidrive SP inverter goes into an error mode, an external reset signal must be applied to make the inverter runs in normal operation mode. DRS function is used to reset the inverter during an error.	For CT Unidrive SP Inverter
46	DRZ	Door zone	Door safe zone signal. This signal is ON when the car is in door unlocking zone either the car stops or runs. (ML1 and ML2 signals are both ON) DRZ function is used as floor level indicator not FLR (Floor level) function.	

47	INS	Inspection mode	Signal that shows the lift is in inspection mode	
48	PWD	Pawl device coil	Pawl device coil output	
49	SLP	Sleep mode	Sleep mode activation. This output is used when electricity saving is desired in the building.	
50	JP1	Bridge-1	A virtual input which can be assigned to a programmable output with the same function of a programmable input. The same function must be assigned to the programmable output. So that any programmable input of the elevator system can be bridged to any programmable output virtually by the ARL-500 controller.	
51	JP2	Bridge-2	A virtual output-2	
52	JP3	Bridge-3	A virtual output-3	
53	JP4	Bridge-4	A virtual output-4	
54	JP5	Bridge-5	A virtual output-5	
55	JP6	Bridge-6	A virtual output-6	
56	JP7	Bridge-7	A virtual output-7	
57	JP8	Bridge-8	A virtual output-8	
58	JP9	Bridge-9	A virtual output-9	
59	JP10	Bridge-10	A virtual output-10	
60	JP11	Bridge-11	A virtual output-11	
61	JP12	Bridge-12	A virtual output-12	
62	JP13	Bridge-13	A virtual output-13	
63	JP14	Bridge-14	A virtual output-14	
64	JP15	Bridge-15	A virtual output-15	
65	JP16	Bridge-16	A virtual output-16	
66	CLB	Cartop protection lightbarrier test	If the photocell is cut (for lift systems that have photocells on cartop) for any reason whatsoever, with blocking itself, elevator operates only in inspection mode. This function is used to check if the photocells are working properly whenever the car stops.	
67...70	-	<undefined>		
71	PLO1	PLC Out-1	PLC output 1	
72	PLO2	PLC Out-2	PLC output 2	
73	PLO3	PLC Out-3	PLC output 3	
74	PLO4	PLC Out-4	PLC output 4	
75	O120	120 input state	120 input state signal	
76	O130	130 input state	130 input state signal	
77	O140	140 input state	140 input state signal	
78	OML1	ML1 input state	ML1 input state signal	
79	OML2	ML2 input state	ML2 input state signal	
80	P817	817 input state	817 input state signal	
81	O818	818 input state	818 input state signal	
82	OSA	Overspeed alert	Overspeed alert limit signal	
83	PLO5	PLC Out-5	PLC output 5	

84	PLO6	PLC Out-6	PLC output 6	
85	PLO7	PLC Out-7	PLC output 7	
86	PLO8	PLC Out-8	PLC output 8	
87...99	-	<undefined>	-	
100...147	401...448	Car call – x	ON when a car call from floor-x is waiting	
148	-	<undefined>	-	
149	-	<undefined>	-	
150...197	201...248	Down call – x	ON when a down direction landing call from floor-x is waiting	
198	-	<undefined>		
199	-	<undefined>		
200...246	301...347	Up call - x	ON when an up direction landing call from floor-x is waiting	
247	FL1	Level mod 8-1	The car is on floor 1	Active high
248	FL2	Level mod 8-2	The car is on floor 2	Active high
249	FL3	Level mod 8-3	The car is on floor 3	Active high
250	FL4	Level mod 8-4	The car is on floor 4	Active high
251	FL5	Level mod 8-5	The car is on floor 5	Active high
252	FL6	Level mod 8-6	The car is on floor 6	Active high
253	FL7	Level mod 8-7	The car is on floor 7	Active high
254	FL8	Level mod 8-8	The car is on floor 8	Active high

6.3.8. Encoder Settings

This section is used to make encoder settings when incremental encoder positioning is used. If the parameter “**System settings > Car position sensing**” is not set to “**Encoder counter**”, entering this submenu is not allowed.

If you are using an incremental encoder for car positioning, a shaft-learning run must be performed before going in to normal operation.

6.3.8.1. Floor Level Fine Tuning

This section is used to make the floor level-tuning after the shaft learning process. The elevator must be able to travel between floors with slight levelling errors. By the help of this section all floors are approached with in-car calls and the stopping precision is measured.

Detailed information about shaft learning can be obtained in the section “Floor tuning of floor levels” in the Installation & Operation Manual.

6.3.8.2. Travel distances

This section is used to set travel distance parameters before going on to the floor-level fine tuning process. These parameters must be compatible with the settings of your motor driver.

Slowing distance in high speed	This parameter indicates the position where the slow-down command will be sent to the motor driver. This parameter must be compatible with the settings of your motor driver.
	Set this parameter “ Slowing distance in high speed ” 10-15cm more than the ADrive parameter “ 1.8 Deceleration distance ”. Because of the delay time of slow-down command received by ADrive. For example if ADrive parameter “ 1.8. Deceleration distance ” is set to 170cm, set this parameter to 180cm.
20 – 999 cm	▶ 170 cm

Slowing distance in medium speed	This parameter indicates the position where the slow-down command will be sent to the motor driver while travelling in medium speed. It is used for elevators which are necessary to start running in medium speed. For example if there is a building that has a low floor (alçak kat) the travel distance may not be suitable for high speed. Thus the elevator starts running in medium speed and with the help of this parameter it starts slowing down.
10 – 999 cm	▶ 100 cm

Slowing distance in low speed	This parameter indicates the position where the stop command will be sent to the driver. This parameter must be compatible with the settings of your motor driver.
	Set this parameter “ Slowing distance in low speed ” same as the ADrive parameter “ 1.9 Stopping distance ”. For example if ADrive parameter “ 1.9 Deceleration distance ” is set to 20cm, set this parameter to 20cm.
0 – 200 mm	▶ 60 mm

Min. high-speed start distance	The minimum travel distance required to start running with high speed. This parameter is used for inverters which do not make automatic short floor correction. Controller decides the starting speed if it is high speed or middle speed according to this distance. If the travel distance is less than this value controller starts running with middle speed otherwise starts running with high speed.
1 – 500 cm	▶ 50 cm

6.3.8.3. Hardware configuration

This section is used to set the hardware configuration of encoder positioning.

Flag length	The length of door zonebar magnets mounted for SML1-SML2 door zone magnetic switches. The default value is 40 cm and it can only be changed when the length of bar magnets is changed. If this value is changed after a shaft-learning drive, a new shaft-learning run must be required. Because during the shaft-learning run, ARL-500 will determine the relation between pulse-count and centimeters by using this “flag length” information.
10 – 50 cm	▶ 40 cm

Position of 817	The position of SKSR1 (817 signal) bottom correction switch. The deceleration distance depends on the speed of elevator
▶ Between 1st & 2nd floors	It is used for systems where the required deceleration distance is less than a floor to floor distance. 817 bottom correction switches is installed between 1st and 2nd floors.
Between 2nd & 3rd floors	It is used for high speed systems where the required deceleration distance is more than a floor to floor distance. 817 bottom correction switches is installed between 2nd and 3rd floors. For high speed systems 819-820 deceleration switches of middle speed are used together with 817-818 deceleration switches of high speed.

Overspeed alert limit	For any reason whatsoever, if the elevator starts to run in overspeed, it continues to operate in normal mode but system rings the alarm.
0.5 – 5 m/s	▶ 1 m/s

6.3.8.4. Learn shaft

This section is used to perform the shaft learning drive for incremental encoder positioning.

Detailed information about shaft learning can be obtained in the section “*Shaft Learning with incremental encoder positioning*” in the Installation & Operation Manual.

6.3.9. Hydraulic Lift Settings

This section is used to performe the basic settings only for hydraulic lift systems.

Hydraulic valve open delay	This parameter determines the delay time for main contactor to drop after a stop command.
0,1 – 3 seconds	▶ 0,2 seconds
Feedback controlled	With this function, the hydraulic valves start to run automatically when the motor is ready to operate.
Hydraulic pump motor star-delta time	This parameter determines the switching time of the motor from star connection to delta connection in startup
0,1 – 3 seconds	▶ 0,3 seconds
Relevelling	With this parameter, after the car lands to a floor, system relevells the cars position with referencing that floor.
▶ On: Off:	Relevelling is on. Relevelling is off.
Relevelling threshold	Relevelling threshold parameter is only available with the systems that use encoder. Relevelling occurs according to the position of the encoder. After landing to any floor if the car moves more than the value entered in this parameter, system starts relevelling.
1 – 15 cm	▶ 3 cm
PAWL device	After landing to a floor pawl device is a device that prevents the car slide downwards.
Yes: ▶ No:	PAWL device exists. There is no PAWL device.
PAWL device release maximum delay	This function controls if the pawl device is released or not. If the pawl device is not released it means that it is stuck between the car and the shaft. The system tries to recover the fault by moving the car upwads about 10 cm.
0,1 – 5 seconds	▶ 5 seconds
PAWL device lock maximum delay	Time passed after the pawl is released until the pawl is locked.
0,1 – 5 seconds	▶ 5 seconds
PAWL device delay before release	Time passed after the car lands to a floor until the pawl device is released.
0,1 – 5 saniye	▶ 1 seconds

6.3.10. Group Settings

After connection of control panels in the elevator group only to do is setting each controller as A,B,C,...,H on ARL-500 menu. Each controller must have a different group ID.

Controller ID	The controller ID used by each controller in group operation. Controller ID must be adjusted differently within each controller. Single lifts are always set to lift A.
A-H	► A

Detailed information can be obtained in the Installation & Operation Manual.

Bottom missing floors	This parameter is only used for group operation. When each elevator has different number of stops in group operation this parameter is used to adjust the “Number of floors” to the same value for each elevator in group. For example, there is a duplex system with 10 stops but elevator A does not serve to the bottom floor. The “Number of floors” parameter must be set to 10 at each elevator and “Bottom missing floors” parameter must be set to 1.
0 – 47 floors	

Top missing floors	This parameter is only used for group operation. When each elevator has different number of stops in group operation this parameter is used to adjust the “Number of floors” to the same value for each elevator in group. For example, there is a duplex system with 10 stops but elevator A does not serve to the top floor. The “Number of floors” parameter must be set to 10 at each elevator and “Top missing floors” parameter must be set to 1.
0 – 47 floors	

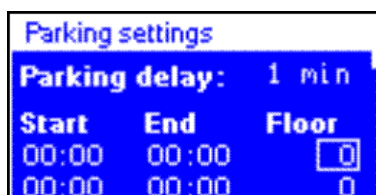
6.3.11. Parking Settings

This section is used to set the parking drive characteristics of the lift system.

Parking delay	Waiting period before starting the park drive. Parking drive can be deactivated by entering the value "0". When the lift has no calls in the time set in this parameter then it moves to the parking floor and waits with open doors.
0 – 60 minutes	▶ 0 min

Parking Stop

Because there is no active call and parking delay is exceeded the controller sends the car to a programmed parking floor.



Start	End	Floor
00:00	00:00	0
00:00	00:00	0

The ARL-500 controller has a scheduler that enables time dependent park drive programs. Each day can be divided in 5 time zones. The time zones are listed in rows. Different park drive programs can be set for each of these time zones by the help of this screen.

The parking scheduler for time zones is described in the table below:

Code	Setting range	Description
Start	00:00 to 23:59	Starting time of the time zone
End	00:00 to 23:59	Ending time of the time zone
Floor	0 to top floor	Parking floor

The maximum waiting period between the starting time and the ending time can not be longer than a day. Below some example timing configurations are described:

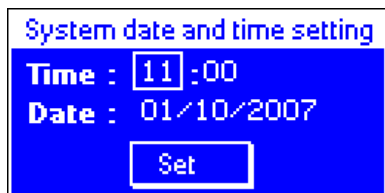
Start	End	Waiting period
08:00	10:00	2 hours (begin at 08:00 and end at 10:00)
17:00	00:00	7 hours (begin at 17:00 and end at 00:00)
14:00	12:00	22 hours (begin at 14:00 and end at 12:00 the next day)

Other time zones	This floor is activated as parking floor for the other times that is not defined in the 5 time zones.
0 – 48	▶ 0

6.3.12. Time and Date Settings

This section is used to adjust time and date setting and the make the maintenance configuration.

6.3.12.1. System date and time



The date and the time of the ARL-500 controller. These settings must be checked during each service and adjusted if necessary. If the time is not set correctly, the time information of the error storage are useless.

LEFT/RIGHT buttons are used to move cursor left/right and UP/DOWN buttons are used to increase/decrease value. "Set" item should be activated to change the current setting.

6.3.12.2. Next maintenance date

This section is used to set the maintenance date and the controller's behaviour after the maintenance date is exceeded.

Next maintenance date	The next maintenance date. At the end of this date elevator behaves as set in the parameter "after maintenance date". This setting must be checked during each maintenance and set to a new maintenance date if necessary .
------------------------------	--

After maintenance date	The controller's behaviour after the maintenance date is exceeded.
► Normal operation	No action, even a warning message. Elevator runs as normal.
Warn only	Only gives a warning message but elevator runs as normal.
Block lift	Lift is blocked and it stops operating.

6.3.13. Motor Protection Settings

This section is used to make the phase and motor protection settings. ARL-500 controller is available with integrated phase and motor protection circuits.

R-S-T checking	Enables the phase loss and phase sequence checking.
▶ Enabled Disabled	When this parameter is set to “enable”, the terminals L1, L2, L3, and N on ARL-500 controller must be connected properly.
Motor temperature checking	Enables the motor temperature checking. When motor temperature is exceeded if the cabin is; - Resting, system blocks itself and goes into out of service mode. - Moving, system cancels all landing calls, stops on the closest floor available and goes into out of service mode.
▶ Enabled Disabled	When this parameter is set to “enable”, the terminals T1, T2 at ARL-500 controller must be connected properly.

6.3.14. Sound Settings

Car gong	Enables the car gong sound when the car reaches to the target floor.
▶ On Off	
Hall gongs	Enables the landing gong sound when the car reaches to that landing floor.
▶ On Off	
Gong Type	The sound type of car and landing gongs after reaching the target floor.
▶ Single sound	Ding sound
Double sound	Ding-dong sound
Up single, down double sound	Ding sound for up direction travel and ding dong sound for down direction travel
Up double, down single sound	Ding dong sound for up direction travel and ding sound for down direction travel.
Hall button sounds	Enables the sound for landing call button when pressed.
▶ On Off	
Car button sounds	Enables the sound for landing call buttons when pressed.
▶ On Off	
Emergency alarm	Enables the sound for car call buttons when pressed.
On ▶ Off	

6.3.15. Rescue settings

In this submenu, the settings for evacuation operation (when mains power off) are adjusted.

Rescue method	The evacuation type of elevator.
No rescue	No rescue device.
External (AKUS)	ARKEL AKUS-SD evacuation unit is used (for only asynchronous drives).
By releasing brake	Evacuation operation with brake releasing method (for only synchronous drives).
Zetadyn	Evacuation operation by ZetaDYN inverter with UPS supply.
Unidrive SP	Evacuation operation by Unidrive SP driver with low voltage dc supply.
Hydraulic	Emergency lowering with two pieces of battery supply with hydraulic systems.
ADrive	Evacuation operation by ADrive inverter with back-up power.

Speed limiter	This parameter is only active when “ By releasing brake ” method is selected for “ Rescue method ”. It determines the type of brake releasing.
Periodic	The time setting for braking and brake releasing is controlled periodically. “ Time to wait on brake ” and “ Time to wait with brake released ” parameters are used for this setting.
On encoder speed	The time setting for releasing-acting of brakes is controlled by speed signals measured by encoder. “ Speed limit on rescue ” parameter is used for this setting.

Time to wait on brake	This parameter is only active when “ By releasing brake ” method is selected for “ Rescue method ”. It determines the period of brake acting.
2 - 9 seconds	

Time to wait with brake released	This parameter is only active when “ By releasing brake ” method is selected for “ Rescue method ”. It determines the period of brake releasing. This parameter also limits the maximum time of releasing brakes. Even if the measured speed by encoder does not exceed the allowed speed when “ On encoder speed ” method is selected for “ Speed limiter ”, brakes will act after this time expires.
1 - 120 seconds	

Delay to start rescue	The waiting time for starting the evacuation operation after mains power off. For example if there is a generator which takes 5 sec to source mains power, set this parameter to 8-10 seconds. So when the mains power fail controller waits for generator for 10 seconds and then if there is still no power or something wrong with generator controller starts after this 10 seconds.
5 - 60 seconds	

Maximum time to rescue	The maximum evacuation time for the evacuation operation if controlled by ARL-500 controller. When no floor level signal is detected in this period during evacuation, controller interrupts the evacuation. This parameter must be set to a maximum time of floor to floor travel.
20 - 300 seconds	
Daily UPS check	The daily UPS control. The input line of UPS is switched off for once in a day and the elevator is operated by UPS supply. The system is blocked if an error occurs during this UPS test drive.
On ▶ Off	
Speed limit on rescue	This parameter is only available when “ By releasing brake ” method is selected for “ Rescue method ” and when “ On encoder speed ” method is selected for “ Speed limiter ”. The time setting for releasing-acting of brakes is controlled by speed signals measured by encoder. The speed of the car is monitored, and when the speed becomes too high (>0.63 m/s) the brakes act automatically.
5 - 40 seconds	

6.3.16. Language

This section is used to set the of graphic LCD and ARL-500 menu language.

Language	The language of graphic LCD and ARL-500 menus. These languages are served in two packs. 5 languages are only available with each pack. - Language Pack 1 (LP1) - Language Pack 2 (LP2)	
► Turkish	Turkish	LP1, LP2
English	English	LP1, LP2
Nederlands	Dutch	LP1
Русский язык	Russian	LP1
Swenska	Swedish	LP1
Français	French	LP2
Polska	Polish	LP2
Italiano	Italian	LP2

6.3.17. Counters

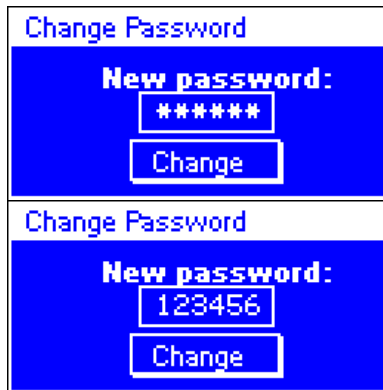
This section is used for monitoring the travel counters of elevator.

<p>Counters</p> <p>Total n. of travels: 19193</p> <p>Stops on floors</p>	<p>Number of stops on floors</p> <p>Since 11-04-2008 11:42:</p> <p>Floor- 1: 1795 times Floor- 2: 3479 times Floor- 3: 3177 times</p>
---	--

Total number of travels	The total number of travels which starts counting with a first run. This counter can not be reset.
Stops on floors	The number of stops for each floor. This counter can be reset. The start of counting date and the time are showed in display. When the counter is reset, also this date and time renewed.
Reset counters	This function is used to reset the “ Stops on floors ” counters.

6.3.18. Change Password

This section is used to set the password asked when entering the ARL-500 menu.



The image shows two sequential screenshots of the 'Change Password' menu. The top screenshot displays the text 'Change Password' at the top, followed by 'New password:' and a field containing six asterisks (*****). Below this is a 'Change' button. The bottom screenshot displays the same text, but the field now contains the digits '123456'.

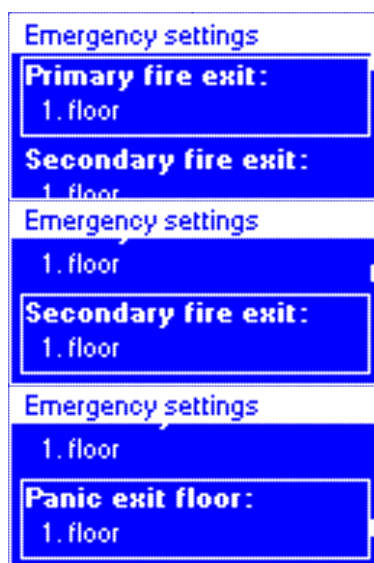
User password has six digits. The default setting for the password is “000000” and you probably used this password to enter the menu. It is highly recommended to change it to an individual one before setting the lift parameters.

LEFT/RIGHT buttons are used to move cursor left / right and UP/DOWN buttons are used to increase / decrease value. “Change” item should be activated to change the current password.

As a last note; when exiting the menu, do not forget the new password.

6.3.19. Emergency Settings

In this submenu, the fire emergency evacuation and panic evacuation settings are adjusted.



Primary fire exit	<p>Elevators primary fire exit floor. When Fire detector (YAN) input is activated;</p> <ul style="list-style-type: none"> - All car landing calls are cancelled and no more calls are received - The speaker on the COP starts emitting an alarm - The doors are closed immediately and the car starts to travel towards the designated primary fire exit floor. <p>On arrival to the primary fire exit floor, the doors are opened and they stay open until the system is reseted</p>
1 – 48	▶ 1. Floor

Secondary fire exit	<p>Elevators secondary fire exit floor.</p> <p>If the fire occurs in designated primary fire exit floor for YAN input, secondary fire detector (YAN2) input becomes active and with cancelling all landing calls cabin moves to designated floor for YAN2;</p> <ul style="list-style-type: none"> - All car landing calls are cancelled and no more calls are received - The speaker on the COP starts emitting an alarm - The doors are closed immediately and the car starts to travel towards the designated secondary fire exit floor. <p>On arrival to the secondary fire exit floor, the doors are opened and they stay open until the system is reseted</p>
1 – 48	▶ 1. Floor

Panic exit floor	<p>Elevators panic exit floor. When panic input (PAN) is activated;</p> <ul style="list-style-type: none"> - System cancels all landing calls and starts emitting an alarm. - The car starts to travel towards the designated “panic exit” floor. - After landing to designated floor, system opens the doors and cancels emitting the alarm. <p>Lastly, system deactivates the “panic input” signal and starts to operate in normal mode.</p>
1 – 48	▶ 1. Floor

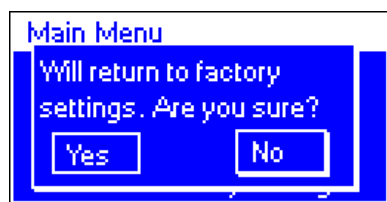
6.3.20. Headroom/Pit protection

In this submenu, headroom/pit protection settings are adjusted.



Headroom protection system	<p>Safety system for lifts with limited or no safety space in the headroom. If the required safety space in the headroom is not available, due to the shaft dimensions, a foldable rod with two limit switches, fitted on the car roof may be used to fulfill the safety requirements.</p> <ul style="list-style-type: none"> - When the foldable rod is in horizontal position, system operates in normal mode. - When the foldable rod is in vertical position, system operates in only inspection mode. <p>Two limit switches indicates the position of the rod. One limit switch indicates the full upright position and the other limit switch indicates the full horizontal position of the rod.</p>
Enabled ► Disabled	
Cartop protection lightbarrier	<p>The purpose of the lightbarrier is to detect Access to the car roof and the lift control system has to disable normal operation, but allow inspection operation If the lightbarrier is broken or if the supervision of the lightbarrier fails. The lightbarrier is fitted on the car roof, in such a manner, that it can detect the area on the car roof that can be used to gain Access to the car roof. The function of the lightbarrier is supervised from ARL-500 after every stop in normal operation. To supervise the lightbarrier the built-in test function is activated/deactivated and the output of the lightbarrier has to activate/deactivate due to this.</p>
Enabled ► Disabled	
Pit protection switches	<p>The purpose of the limit switch(es) is to detect any access to the shaft pit. On six landing doors, that can be used to gain access to the shaft pit, a limit switch is fitted. The switches are connected to ARL-500 to detect if a switch is opened. The switch breaks when the corresponding landing door is opened. If a limit switch is broken and the car in not at that floor ARL-500 makes elevator operate only in inspection mode. The system has to be resetted to operate in normal mode again.</p>
Enabled ► Disabled	

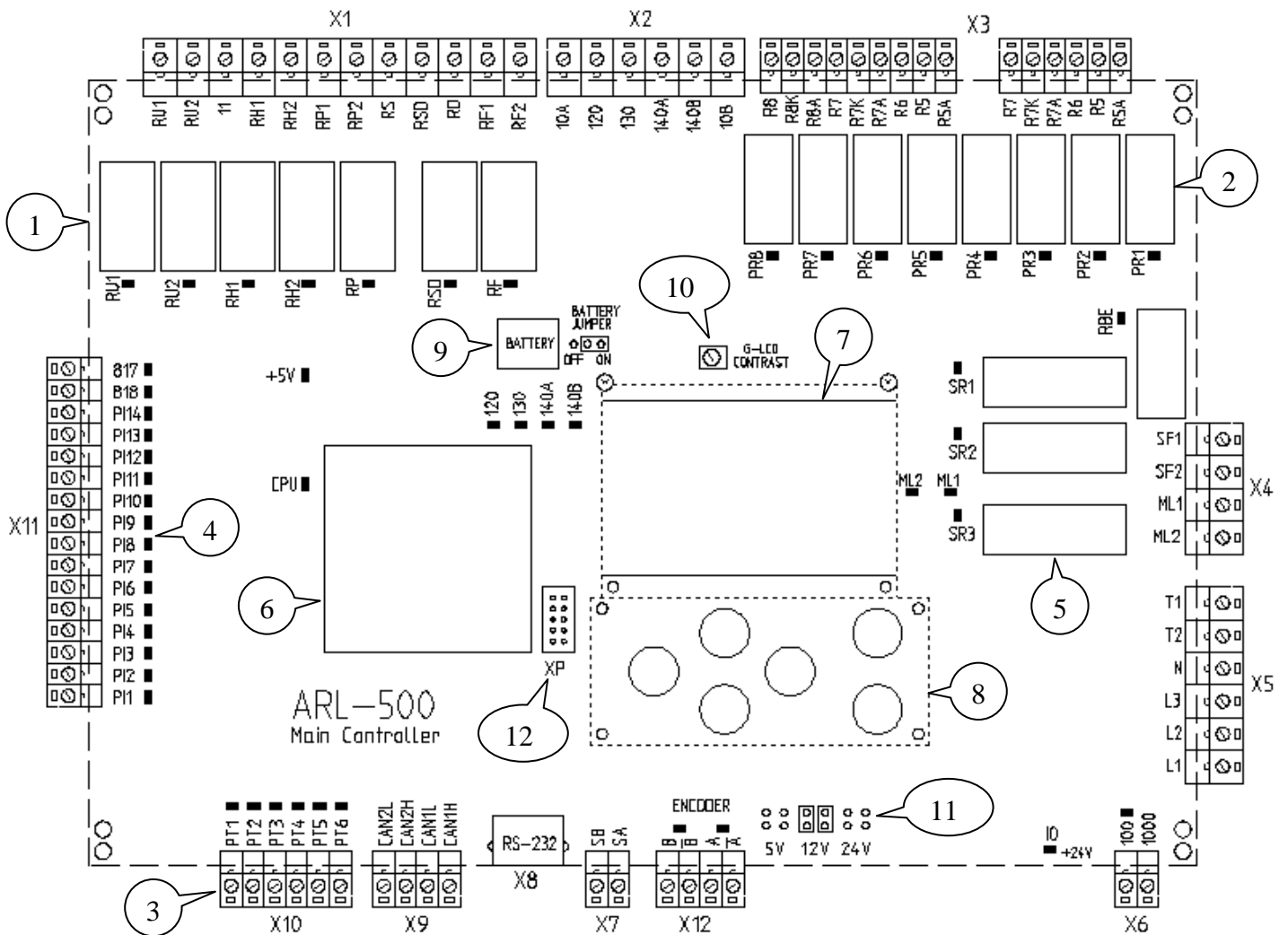
6.3.21. Return to Factory Settings



If you want to set all parameters to the values set just after production then you can use this section. It clears all the parameters entered by the user and set them to factory defaults.

7. TECHNICAL DATA

7.1. ARL-500 MAIN CONTROLLER

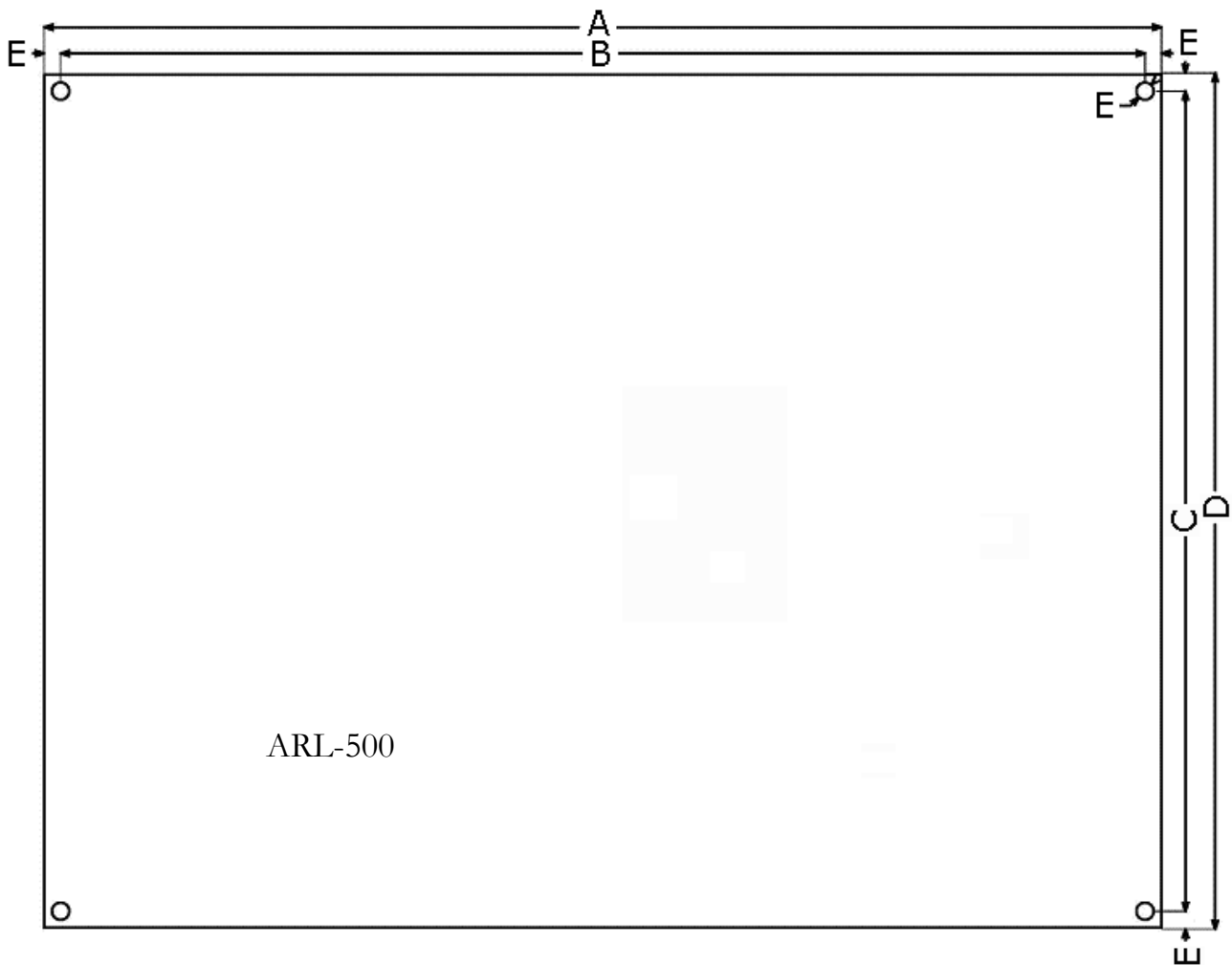


- 1 Drive relays (not programmable)
- 2 Programmable relays (can be programmed from ARL-500 menu)
- 3 Programmable outputs (can be programmed from ARL-500 menu)
- 4 Programmable inputs (can be programmed from ARL-500 menu)
- 5 Door bridging safety circuit
- 6 CPU module
- 7 128x64 Graphic LCD display
- 8 6-key keypad module
- 9 Real time clock circuit, clock battery and jumpers
- 10 LCD contrast adjustment trimpot
- 11 Jumpers for encoder voltage setting
- 12 MCU programming socket

7.1.1. ARL-500 Technical Data

Description	Value
Dimensions Length × width × height (mm)	260 × 200 × 35
Working temperature	±0 - +60 °C
Degree of protection	IP20
Supply voltage	24 VDC ± 5 VDC
Power consumption	400mA
Control inputs	24 VDC
Control outputs	Excess load and short-circuit proof
Safety circuit voltage	Max. 230VAC

ARL-500 Dimensional Drawing



- A = 259mm
- B = 251mm
- C = 191mm
- D = 199mm
- E = 4mm

7.1.2. ARL-500 TERMINALS & PIN ASSIGNMENT

ARL-500 ► X1 : Drive Operation Terminals (Not programmable)			
	Two Speed	VVVF	Hydraulic
RU1	Down Direction Contactor	Down Direction Contactor	VC : Slow-Down Valve
RU2	Up Direction Contactor	Up Direction Contactor	VA : Slow-Up Valve
11	Contactors Supply Common	Contactors Supply Common	Valves Supply Common
RH1	High Speed Contactor	High Speed Contactor	VD : Fast-Down Valve
RH2	High Speed Contactor	High Speed Contactor	VB : Fast-Up Valve
RP1	-	Main Contactors Supply Common	Up Contactor Supply Common
RP2	-	Main Contactors Supply Output	Up Contactor
RS	-	-	Star Contactor
RSD	-	-	Star- Delta Contactors Supply Common
RD	-	-	Delta Contactor
RF1	Low Speed Contactor Supply Common	Low Speed Contactor Supply Common	Emergency Valve Supply Common
RF2	Low Speed Contactor	Low Speed Contactor	Emergency Valve

ARL-500 ► X2 : Safety Chain Monitoring Terminals	
10A	Safety Chain Supply Ground Input
120	Stop Circuit Monitoring Input
130	Landing Door Contacts Monitoring Input
140A	Landing Door Lock Contacts Monitoring Input (Electric Lift: 220Vac)
140B	Landing Door Lock Contacts Monitoring Input (Hydraulic Lift: Evacuation Operation, 12-24Vdc)
10B	Common of Main Contactors Output

ARL-500 ► X3 : Programmable Relay Terminals		Factory Defaults		
R1A	Programmable Relay 1 NO Output	A	K3	Door A Close Signal
R2A	Programmable Relay 2 NO Output		K5	Door A Open Signal
R12	Programmable Relays 1-2 Common		K15	Door A Signals Common
R3A	Programmable Relay 3 NO Output	B	K3	Door B Close Signal
R4A	Programmable Relay 4 NO Output		K5	Door B Open Signal
R34	Programmable Relays 3-4 Common		K15	Door B Signals Common
R5A	Programmable Relay 5 NO Output			
R5	Programmable Relay 5 Common			
R6A	Programmable Relay 6 NO Output			
R6	Programmable Relay 6 Common			
R7A	Programmable Relay 7 NO Output			
R7K	Programmable Relay 7 NC Output			
R7	Programmable Relay 7 Common			
R8A	Programmable Relay 8 NO Output			
R8K	Programmable Relay 8 NC Output			
R8	Programmable Relay 8 Common			

ARL-500 ► X4 : Door Bridging Terminals	
SF1	Door Bridging Relay Contact Common
SF2	Door Bridging Relay Contact Output
ML1	Door Zone Magnetic Switch 1 Input
ML2	Door Zone Magnetic Switch 2 Input

ARL-500 ► X5 : Motor Protection & Phase Failure Terminals	
T1- T2	Panel Thermostat & Motor Thermistor & Brake Resistor Thermostat (VVVF) & Oil Thermostat (Hydraulic)
N	Neutral
L1,L2,L3	Main Phase

ARL-500 ► X6 : Signal Circuit Supply Terminals	
100	Signal Circuit Supply Input (+24VDC)
1000	Signal Circuit Ground (0V)

ARL-500 ► X7 : Encoder & Group Operation Terminals	
SA-SB	Group Operation Communication

ARL-500 ► X8 : RS-232 serial communication interface	
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ARL-500 ► X9 : CANbus Terminals	
CAN1L – CAN1H	Shaft CANbus terminals
CAN2L – CAN2H	Car CANbus terminals

ARL-500 ► X10 : Programmable Transistor Terminals	
PT1 – PT6	Programmable Transistor Outputs

ARL-500 ► X11 : Signal Input Terminals			
Limit Switch Terminals			
817	Down Limit Switch (Mechanical or Bi-Stable Magnetic Switch)		
818	Up Limit Switch (Mechanical or Bi-Stable Magnetic Switch)		
Programmable Input Terminals		Factory Defaults	
PI1	Programmable Input 1	-	-
PI2	Programmable Input 2	-	-
PI3	Programmable Input 3	-	-
PI4	Programmable Input 4	-	-
PI5	Programmable Input 5	-	-
PI6	Programmable Input 6	DEP	Earthquake Sensor Contact
PI7	Programmable Input 7	YAN	Fire Alarm Switch
PI8	Programmable Input 8	KRC	Contactors Feed-back
PI9	Programmable Input 9	503	Recall Up
PI10	Programmable Input 10	502	Recall Down
PI11	Programmable Input 11	870	Recall Operation
PI12	Programmable Input 12	869	Inspection Operation
PI13	Programmable Input 13	142	Down Stop & Deceleration Magnetic Switch Input
PI14	Programmable Input 14	141	Up Stop & Deceleration Magnetic Switch Input

ARL-500 ► X12 : Encoder Terminals	
B-	Encoder B- Phase Pulse
B	Encoder B Phase Pulse
A	Encoder A Phase Pulse
A-	Encoder A- Phase Pulse

ARL-500 ► XP: MCU programming socket	
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7.1.3. LEDs on ARL-500 Main controller

Status & Power LEDs			
LED	Color	Status	Reason
CPU	Green	Flashing slowly	The processor is working correctly.
		Flashing rapidly	One or more errors have been occurred.
		Off	Fault in the processor. The processor is not working correctly.
5V	Green	On	Power on.
		Off	Power off.
			5V power supply of the processor is not working correctly. The hardware of the ARL-500 ontroller is faulty.
100	Green	On	Power on.
		Off	Power off.
			24V power supply of ARL-500 controller is not working correctly.
IO	Green	On	Power on.
		Off	Power off.
			5V power supply of I/O peri-pherals is not working correctly. The hardware of the ARL-500 ontroller is faulty.

LEDs of input terminals			
LED	Color	State	Description
817	Yellow	Off	Bottom limit switch SKSR1 interrupted
818	Yellow	Off	Top limit switch SKSR2 interrupted
PI1	Green	On	Programmable Input 1 activated
PI2	Green	On	Programmable Input 2 activated
PI3	Green	On	Programmable Input 3 activated
PI4	Yellow	On	Programmable Input 4 activated
PI5	Yellow	On	Programmable Input 5 activated
PI6	Yellow	On	Programmable Input 6 activated
PI7	Green	On	Programmable Input 7 activated
PI8	Green	On	Programmable Input 8 activated
PI9	Green	On	Programmable Input 9 activated
PI10	Red	On	Programmable Input 10 activated
PI11	Red	On	Programmable Input 11 activated
PI12	Yellow	On	Programmable Input 12 activated
PI13	Green	On	Programmable Input 13 activated
PI14	Green	On	Programmable Input 14 activated

LEDs of drive relays			
LED	Color	State	Description
RU1	Red	On	Drive relay RU1 activated
RU2	Red	On	Drive relay RU2 activated
RH1	Red	On	Drive relay RH1 activated
RH2	Red	On	Drive relay RH2 activated
RP	Red	On	Drive relay RP activated
RSD	Red	On	Drive relay RSD activated
RF	Red	On	Drive relay RF activated

LEDs of programmable relays			
LED	Color	State	Description
PR1	Red	On	Programmable relay 1 activated
PR2	Red	On	Programmable relay 2 activated
PR3	Red	On	Programmable relay 3 activated
PR4	Red	On	Programmable relay 4 activated
PR5	Red	On	Programmable relay 5 activated
PR6	Red	On	Programmable relay 6 activated
PR7	Red	On	Programmable relay 7 activated
PR8	Red	On	Programmable relay 8 activated

LEDs of programmable transistor outputs			
LED	Color	State	Description
PT1	Green	On	Programmable transistor output 1 activated
PT2	Green	On	Programmable transistor output 2 activated
PT3	Green	On	Programmable transistor output 3 activated
PT4	Green	On	Programmable transistor output 4 activated
PT5	Green	On	Programmable transistor output 5 activated
PT6	Green	On	Programmable transistor output 6 activated

LEDs of safety circuit monitoring			
LED	Color	State	Description
120	Green	On	Stop circuit closed
130	Green	On	Landing door contacts closed
140A	Green	On	Safety circuit closed (220VAC) (Landing door locks and car door contacts closed)
140B	Green	On	Safety circuit closed (12VDC) (for Hydraulic lifts in case of emergency lowering)

LEDs of door bridging circuit			
LED	Color	State	Description
SR1	Red	On	Door bridging safety relay SR1 activated
SR2	Red	On	Door bridging safety relay SR2 activated
SR3	Red	On	Door bridging safety relay SR3 activated
RBE	Red	On	Door bridging enable relay RBE activated
ML1	Green	On	Door zone magnetic switch SML1 closed
ML2	Green	On	Door zone magnetic switch SML2 closed

LEDs of encoder inputs			
LED	Color	State	Description
A	Green	On	Encoder signal phase A activated
B	Green	On	Encoder signal phase B activated

7.1.4. JUMPERS on ARL-500 main controller

7.1.4.1. Assigning the supply voltage of encoder in incremental positioning

With incremental positioning, encoder supply voltages are assigned by using the encoder jumpers on ARL-500 controller. Two jumpers are used for each setting. 12V jumpers are delivered plugged at its rest position. It must be set according to the encoder supply voltage before operating ARL-500 controller.

Setting	Encoder supply voltage	5V jumpers	12V jumpers	24V jumpers
5V	5V DC	Plugged	Open	Open
12V	12V – 15V DC	Open	Plugged	Open
24V	24V – 30V DC	Open	Open	Plugged

7.1.4.2. Activating the battery source of real time clock

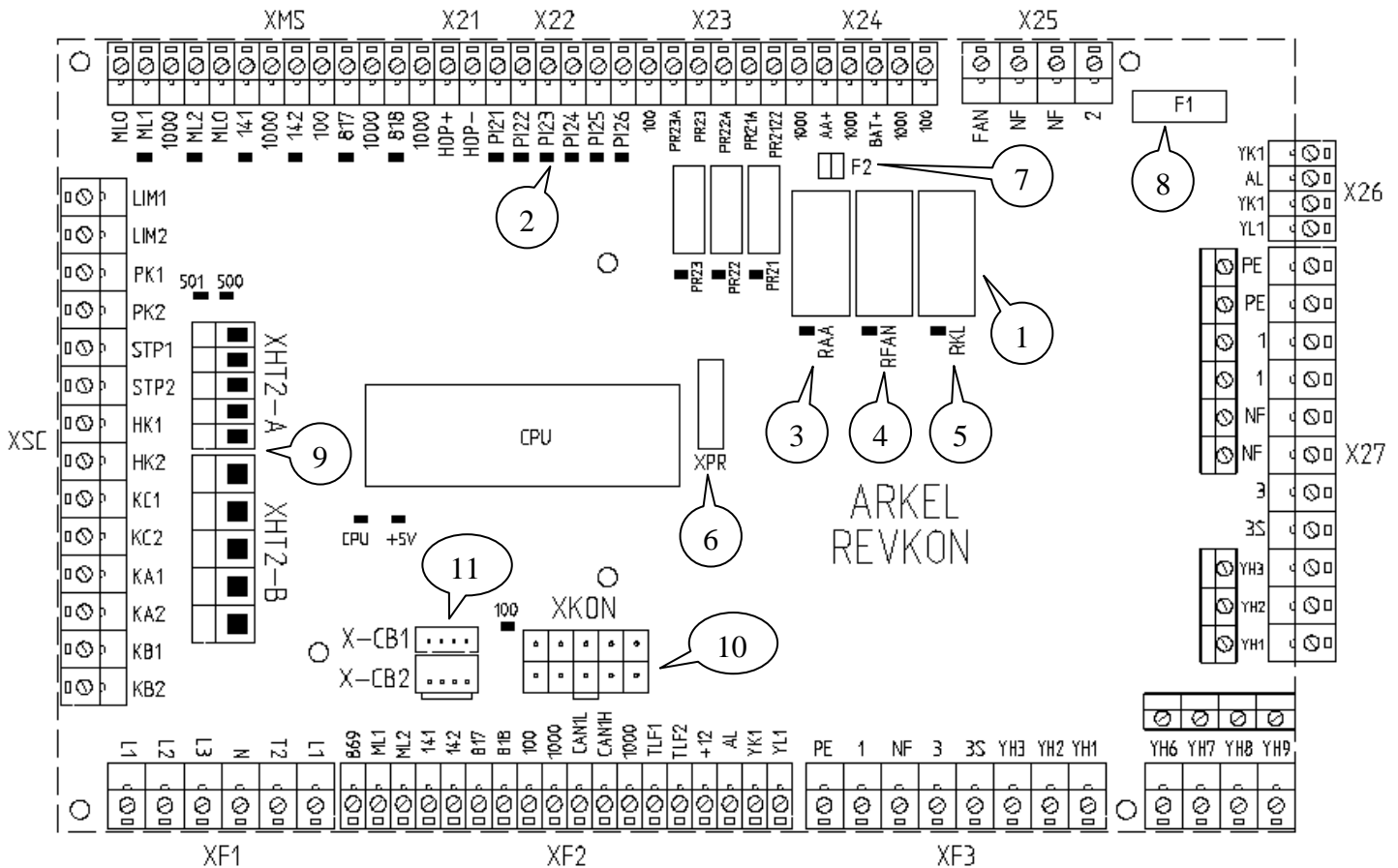
This jumper activates the battery source for the real time clock. This jumper is delivered plugged into OFF pins at its rest position. It must be plugged into ON pins before ARL-500 is operated in order to prevent the battery from discharging.

Setting	Real time clock operation mode	Pins jumper plugged to
Battery OFF	Real time clock is NOT available when ARL-500 has no power.	OFF (pins 1-2)
Battery ON	Real time clock is running when ARL-500 has no power until the battery is fully drained.	ON (pins 2-3)

7.1.5. LCD CONTRAST trimpot on ARL-500 controller

Contrast trimpot is located on center of the board and up side of LCD. LCD contrast is finely increased by turning trimpot anti-clockwise and is decreased by turning trimpot clockwise.

7.2. REVKON Car Top Controller

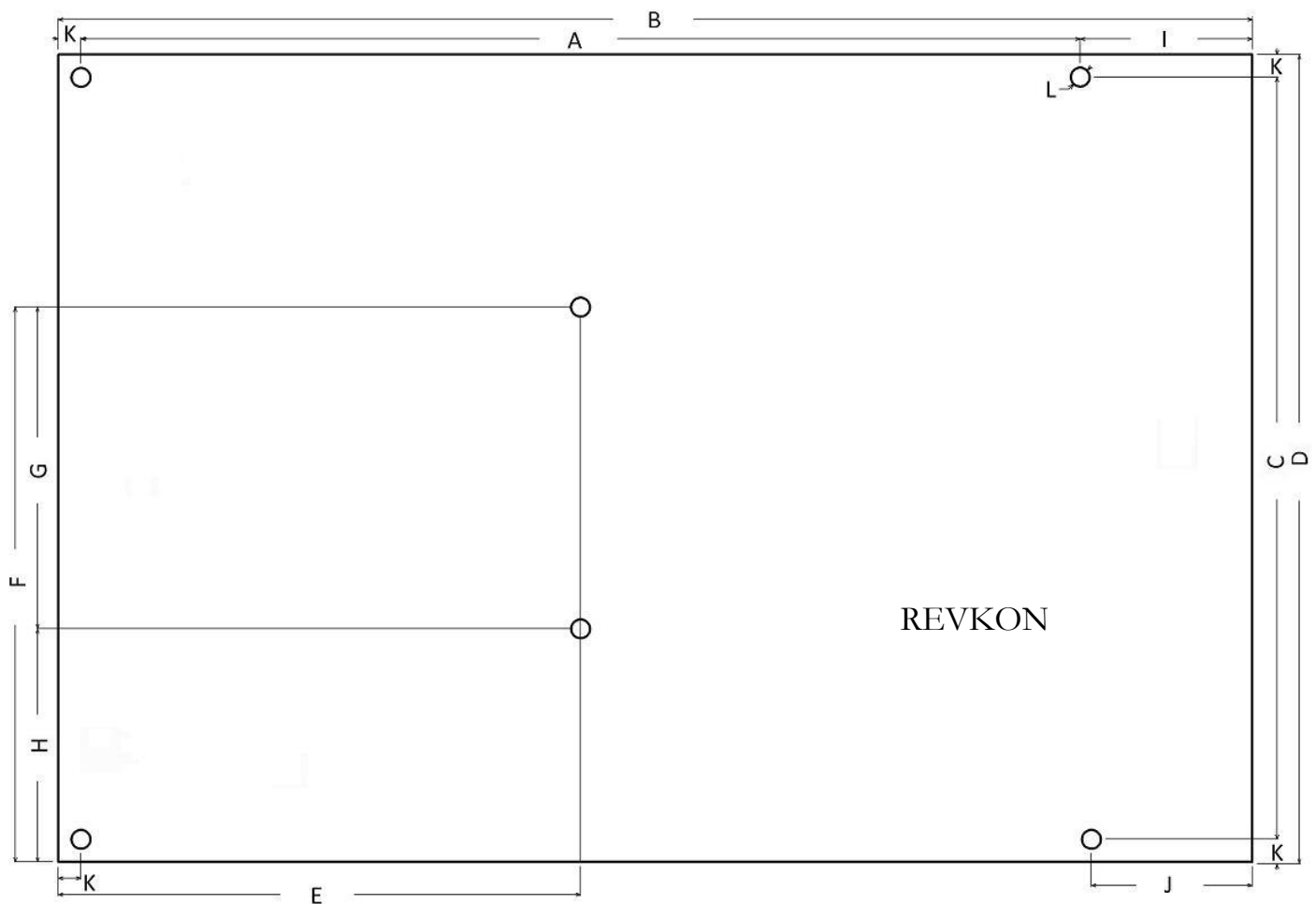


- 1 Programmable relays (can be programmed from ARL-500 menu)
- 2 Programmable inputs (can be programmed from ARL-500 menu)
- 3 Emergency light relay
- 4 Car fan relay
- 5 Car light relay
- 6 Programming socket
- 7 Battery fuse
- 8 Car light fuse
- 9 Inspection hand terminal sockets
- 10 KABKON connection socket
- 11 Car CANbus connection sockets

7.2.1. REVKON Technical Data

Description	Value
Dimensions Length × width × height (mm)	220 × 170 × 27
Working temperature	±0 - +60 °C
Supply voltage	24 VDC ± 5 VDC
Power consumption	300mA, 8W @ 24VDC
Control inputs	24 VDC
Control outputs	Excess load and short-circuit proof
Programmable relay contacts	3A 250V AC / 3A 30VDC
Car lamp power consumption	Max. 2A, 500W @ 220VAC
Car fan power consumption	Max. 2A, 500W @ 220 VAC
Emergency light output	Max. 500 mA @ 12Vdc Approximately 2 hours duration with 1.3 Ah battery
Gong output	0.5W/8 Ohm speaker

REVKON Dimensional Drawing



A = 212mm	G = 68mm
B = 254mm	H = 50mm
C = 162mm	I = 37mm
D = 172mm	J = 34mm
E = 111mm	K = 5mm
F = 118mm	L = 4mm

7.2.2. REVKON TERMINALS & PIN ASSIGNMENT

REVKON ► XF1 : Car Safety Chain Terminals

118	119A	119B	120	135	140
-----	------	------	-----	-----	-----

To KBK-9 ► XF1 plug via trailing cable.

REVKON ► XF2 : Car Low Voltage Terminals

869	ML1	ML2	141	142	817	818	100	1000	CAN1L	CAN1H	1000	TLF1	TLF2	+12	AL	YK1	YL1
-----	-----	-----	-----	-----	-----	-----	-----	------	-------	-------	------	------	------	-----	----	-----	-----

To KBK-7 ► XF2 plug via trailing cable.

REVKON ► XF3 : Car High Voltage Terminals

PE	1	NF	3	3S	YH3	YH2	YH1	YH6	YH7	YH8	YH9
----	---	----	---	----	-----	-----	-----	-----	-----	-----	-----

To KBK-7 ► XF3 plug via trailing cable.

REVKON ► XSC : Car Safety Chain Terminals		Contact No
LIM1-LIM2	Limit Switch Car	SS14
PK1-PK2	Safety Gear	SS15
(Inspection Emergency Stop : SS16)		
STP1- STP2	Emergency Stop Car	SS17
HK1-HK2	Slack Rope Car	SS18
KC1-KC2	Car Hatch	SS19
KA1-KA2	Car Door A	SS20
KB1-KB2	Car Door B	SS21

REVKON ► XHT2-A : Recall Hand Terminal Connector (5-pin)

REVKON ► XHT2-B : Recall Hand Terminal Connector (5-pin)

REVKON ► XKON : KABKON Connector (10-pin)

REVKON ► X-CB1 : Inspection Box CANbus Socket (4-pin)

REVKON ► X-CB2 : Inspection Box CANbus Socket (4-pin)

REVKON ► X21 : Alarm Horn Terminals

HOP+	Alarm Horn + Terminal
HOP-	Alarm Horn – Terminal

REVKON ► X22 : Programmable Input Terminals		Factory Defaults
PI21	Programmable Input 21	Over-load Contact
PI22	Programmable Input 22	Full-load Contact
PI23	Programmable Input 23	Door A Photocell Sensor Contact
PI24	Programmable Input 24	Door B Photocell Sensor Contact
PI25	Programmable Input 25	
PI26	Programmable Input 26	
100	Supply Voltage (+24Vdc)	
1000	Supply Voltage (0Vdc)	

REVKON ► X23 : Programmable Relay Terminals		Factory Defaults
PR23A	Programmable Relay 23 NO Output	Door A Slow-Close Signal Output
PR23	Programmable Relays 23 Common	Door A Slow-Close Signal Common
PR22A	Programmable Relay 22 NO Output	Door A Close Signal Output
PR21A	Programmable Relay 21 NO Output	Door A Open Signal Output
PR2122	Programmable Relays 21-22 Common	Door A Open/Close Signals Common

REVKON ► X24 : Fan & Car Light Terminals	
AA+	Emergency Light Supply
1000	Emergency Light Ground
BAT+	Battery + (+12VDC)
1000	Battery – (0Vdc)
100	Supply Voltage (+24Vdc)

REVKON ► X25 : Fan & Car Light Terminals	
FAN	Fan Supply (220 VAC)
NF	Fan Neutral
NF	Car Light Neutral
2	Car Light Supply (220 VAC)

REVKON ► X26 : Car Low Voltage Terminals	
YL1	Auxiliary Low Voltage Terminals
YL2 (YK1)	Intercom Button
YK1	
YL3 (AL)	Inspection Alarm Button

REVKON ► X27 : Car High Voltage Terminals	
PE	Earth
1	Car Supply
NF	Car Neutral
YH5(3)	Car shaft lighting phase
YH4(3S)	Car shaft lighting contact
YH3	Auxiliary High Voltage Terminals
YH2	
YH1	
YH6	
YH7	
YH8	
YH9	

REVKON ► XMS : Shaft Information Terminals	
ML1	Door Zone Magnetic Switch-1
ML2	Door Zone Magnetic Switch-2
141	Down Stop & Deceleration Magnetic Switch (Not used with encoder positioning)
142	Up Stop & Deceleration Magnetic Switch
817	Down Limit Switch Input
818	Up Limit Switch Input
MLO	The common supply voltage for signals ML1, ML2, 141 and 142. If 100 (+24Vdc) is present MLO puts out 24Vdc. If not MLO puts out 12Vdc from the battery voltage in inspection box.
100	Supply Voltage (+24Vdc)
1000	Supply Voltage (0Vdc)

7.2.3. LEDs on REVKON Car Top Controller

Status & Power LEDs			
LED	Color	Status	Reason
CPU	Green	Flashing slowly	REVKON CANbus communication is faulty.
		Flashing rapidly	REVKON CANbus communication is working correctly.
		Off	Fault in the processor. The processor is not working correctly.
5V	Green	On	Power on.
		Off	Power off.
			5V power supply of the processor is not working correctly. The hardware of the REVKON is faulty.
100	Green	On	Power on.
		Off	Power off.
			+24V power supply of REVKON is not working correctly.

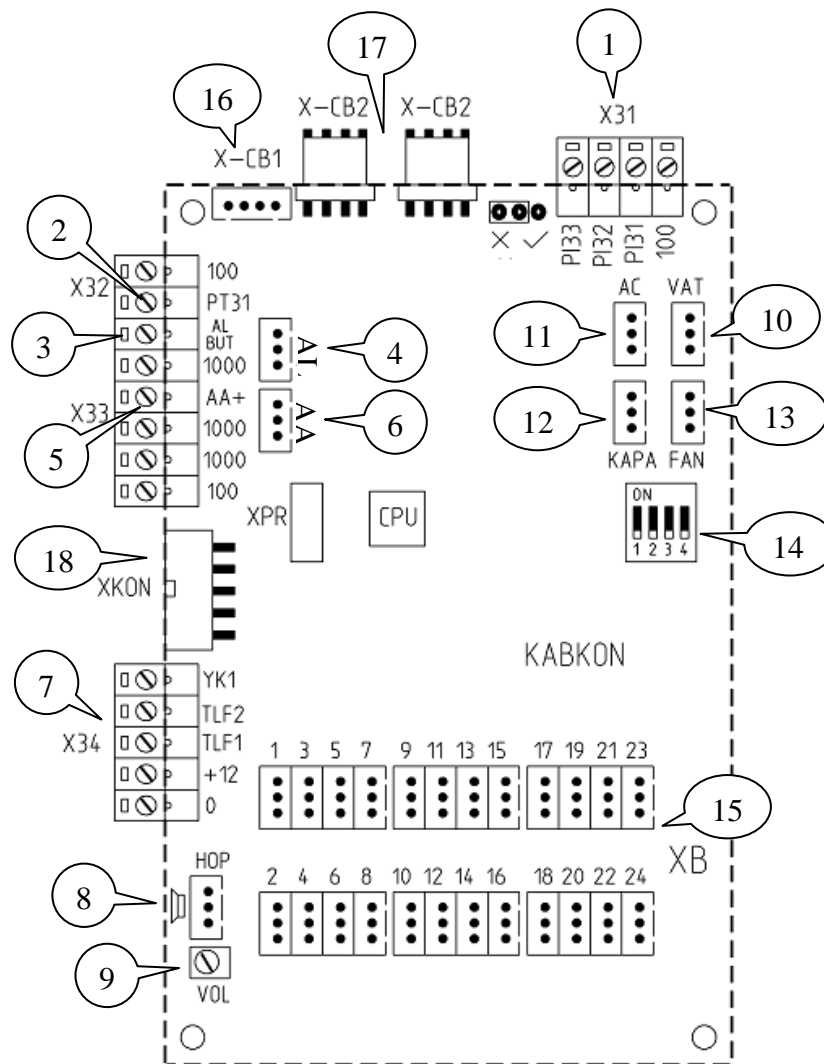
LEDs of magnetic switch terminals			
LED	Color	State	Description
ML1	Yellow	On	Door zone magnetic switch SML1 closed
ML2	Yellow	On	Door zone magnetic switch SML2 closed
141	Yellow	On	Down stop & deceleration magnetic switch S141 closed
142	Yellow	On	Up stop & deceleration magnetic switch S142 closed
817	Yellow	Off	Bottom limit switch SKSR1 interrupted
818	Yellow	Off	Top limit switch SKSR2 interrupted

LEDs of programmable input terminals			
LED	Color	State	Description
PI21	Yellow	On	Programmable Input 21 activated
PI22	Yellow	On	Programmable Input 22 activated
PI23	Yellow	On	Programmable Input 23 activated
PI24	Yellow	On	Programmable Input 24 activated
PI25	Yellow	On	Programmable Input 25 activated
PI26	Yellow	On	Programmable Input 26 activated

LEDs of programmable relays			
LED	Color	State	Description
PR21	Red	On	Programmable relay 1 activated
PR22	Red	On	Programmable relay 2 activated
PR23	Red	On	Programmable relay 3 activated

LEDs of car relays			
LED	Color	State	Description
RAA	Red	On	Car emergency light switched on
RFAN	Red	On	Car fan switched on
RKL	Red	On	Car light switched on

7.3. KABKON Car Panel Module

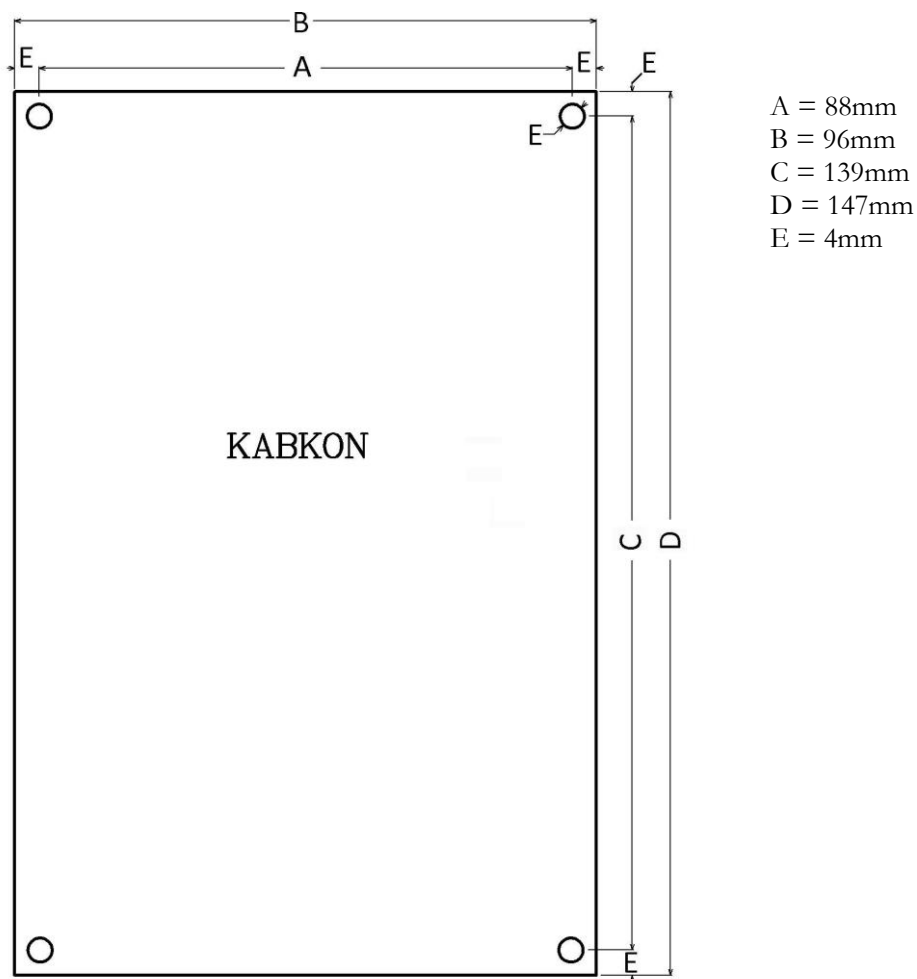


- 1 **PI31...PI33:** Free programmable inputs
- 2 **PT31:** Free programmable transistor output
- 3 **AL BUT:** Extra terminals for Alarm button connection
- 4 **AL:** Connection socket for Alarm button
- 5 **AA+:** Extra terminal for Emergency light connection
- 6 **AA:** Connection socket for Emergency light
- 7 **YK1, TLF2, TLF1, +12, 0:** Intercom connection terminals
- 8 **HOP:** Speaker connection socket
- 9 **VOL:** Trimpot for volume adjustment of speaker
- 10 **VAT:** Car priority (Vatman) socket
- 11 **AC:** Door open button socket
- 12 **KAPA:** Door close button socket
- 13 **FAN:** Car fan button socket
- 14 **Dipswitches:** For floor & door settings
- 15 **1, 2, ..., 24:** Car call buttons connection
- 16 **X-CB1:** Small size CANbus socket for car position indicator (LCD or Dot-matrix display) connection
- 17 **X-CB2:** 2 pcs. big size CANbus socket for 2nd KABKON connection or HS500 hand terminal connection
- 18 **XKON:** REVKON connection socket

7.3.1. KABKON Technical Data

Description	Value	
Dimensions Length × width × height (mm)	97 × 148 × 15	
Working temperature	±0 - +60 °C	
Supply voltage	24 VDC ± 5 Vdc	
Control inputs	24 VDC	
Control outputs	Excess load and short-circuit proof	
Power consumption	Board	40 mA, 1W @ 24VDC (without button power consumption)
	Buttons	15 mA, 0,4W, 24VDC (for each button)
Emergency lighting output	Max. 500 mA load @ 12Vdc Approximately 2 hours duration with 1.3 Ah battery.	
Gong output	0,5W/8Ohm speaker	

KABKON Dimensional Drawing



7.3.2. KABKON TERMINALS & PIN ASSIGNMENT

KABKON ► XCB : Car Command Buttons & Indicators Sockets (3-pin)			
1 - 24	100*	BUT -C & LED+	Call Buttons and Led supply (+24V)
	L-C1	Indicator Output (0VDC)	LED – output (0 VDC)
	S-C1	BUT - NO	Button Input (High active)

KABKON ► XKON : REVKON Connector (10-pin)

KABKON ► X-CB1 : Car Operating Panel CANbus Socket (4-pin)
--

KABKON ► X-CB2 : Car Operating Panel CANbus Socket (4-pin)
--

KABKON ► X-CB2 : Car Operating Panel CANbus Socket (4-pin)
--

KABKON ► X31 : Programmable Input Terminals	
PI31	Programmable Input 31
PI32	Programmable Input 32
PI33	Programmable Input 33
100	Supply Voltage (+24VDC)

KABKON ► X33 : Alarm Button & Emergency Light Terminals	
ALBUT	Alarm Button
1000	Alarm Button Ground
AA+	Emergency Light Supply (+12VDC)
1000	Emergency Light Ground (0VDC)
1000	Supply Voltage Ground (0VDC)
100	Supply Voltage (+24VDC)

KABKON ► XINT : Intercom Terminals	
YK1	Intercom Button (Intercom receiver A terminal)
0	Intercom Supply Voltage Ground (0VDC, Intercom B terminal)
TLF2	Intercom C terminal
TLF1	Intercom D terminal
+12	Intercom Supply (+12VDC, Intercom panel board A terminal)

KABKON ► AC : Door Open Button & Indicator Socket (3-pin)	
100*	Door Open Button & Indicator Supply Voltage (+24VDC)
L-AC	Indicator Output (0VDC)
S-AC	Button Input (High active)

KABKON ► KAPA : Door Close Button & Indicator Socket (3-pin)	
100*	Door Close Button & Indicator Supply Voltage (+24VDC)
L-KAPA	Indicator Output (0VDC)
S-KAPA	Button Input (High active)

KABKON ► VAT : Car Priority Switch Socket (3-pin)	
100*	Car Priority Switch & Indicator Supply Voltage (+24VDC)
L-VAT	Indicator Output (0VDC)
S-VAT	Button Input (High active)

KABKON ► FAN : Car Fan Button & Indicator Socket (3-pin)	
100*	Car Fan Button & Indicator Supply Voltage (+24VDC)
L-FAN	Indicator Output (0VDC)
S-FAN	Button Input (High active)

KABKON ► AL : Alarm Button Socket (3-pin)	
AL*	Alarm Button Input (Low active)
L-AL	Indicator Output (Emergency Light Supply (+12VDC))
S-AL	Button Supply Ground (0VDC)

KABKON ► AA : Emergency Light Socket (3-pin)	
AA*	Emergency Light Supply (+12VDC)
1000	Light Supply Ground
1000	Light Supply Ground

KABKON ► HOP : Gong Output Socket (3-pin)	
100	Supply Voltage (+24VDC)
HOP	Gong Output
100	Supply Voltage (+24VDC)

* : The top pin when the “KABKON” text written on board is read straight.

7.3.3. LEDs on KABKON Car command control module

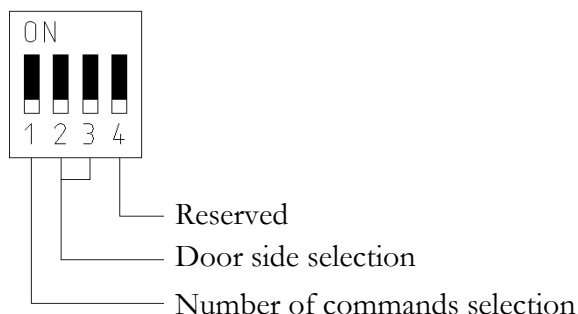
LED	Color	Status	Reason
CPU	Green	Flashing slowly	KABKON CANbus communication is faulty.
		Flashing rapidly	KABKON CANbus communication is working correctly.
		Off	Fault in the processor. The processor is not working correctly.
5V	Green	On	Power on.
		Off	Power off.
			5V power supply of the processor is not working correctly. The hardware of the KABKON is faulty.
100	Green	On	Power on.
		Off	Power off.
			24V power supply of KABKON is not working correctly.

7.3.4. Trimpot on KABKON module



Trimpot on KABKON module is used for adjusting volume of gongs in car operating panel. Gong volume is finely increased by turning trimpot anti-clockwise and is decreased by turning trimpot clockwise.

7.3.5. DIP-SWITCHES on KABKON module





4-switch dipswitches at the backside of the KABKON board are used for door selecting and number of commands selecting. The 1st switch is used for selecting number of commands less/more than 24, the 2nd and 3rd switches are used for door selection and the 4th switch is reserved.



The settings for number of car commands are described below:

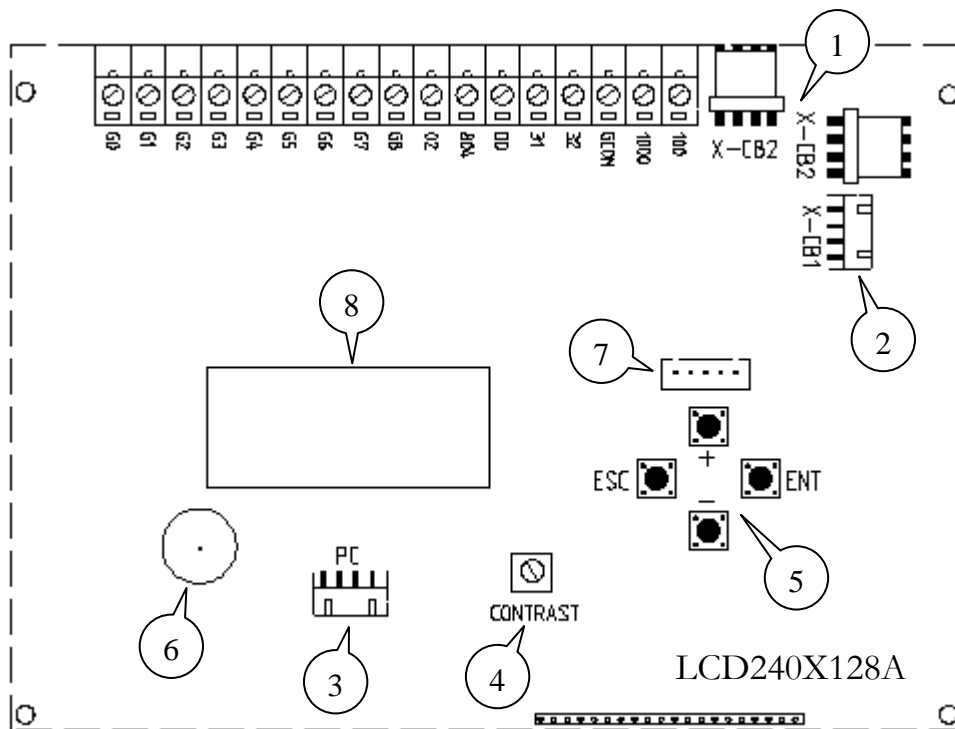
	Set for car commands between 1 and 24 (KABKON board with this setting is showed as “ KABKON1 ” on ARL-500 display)
	Set for car commands between 25 and 48 (KABKON board with this setting is showed as “ KABKON2 ” on ARL-500 display)

The settings for door side selection are described below:

 or 	This panel commands both door-A and door-B.
	This panel commands door-A.
	This panel commands door-B.

7.4. Call/Indicator Modules

7.4.1. LCD240X128A Indicator Module

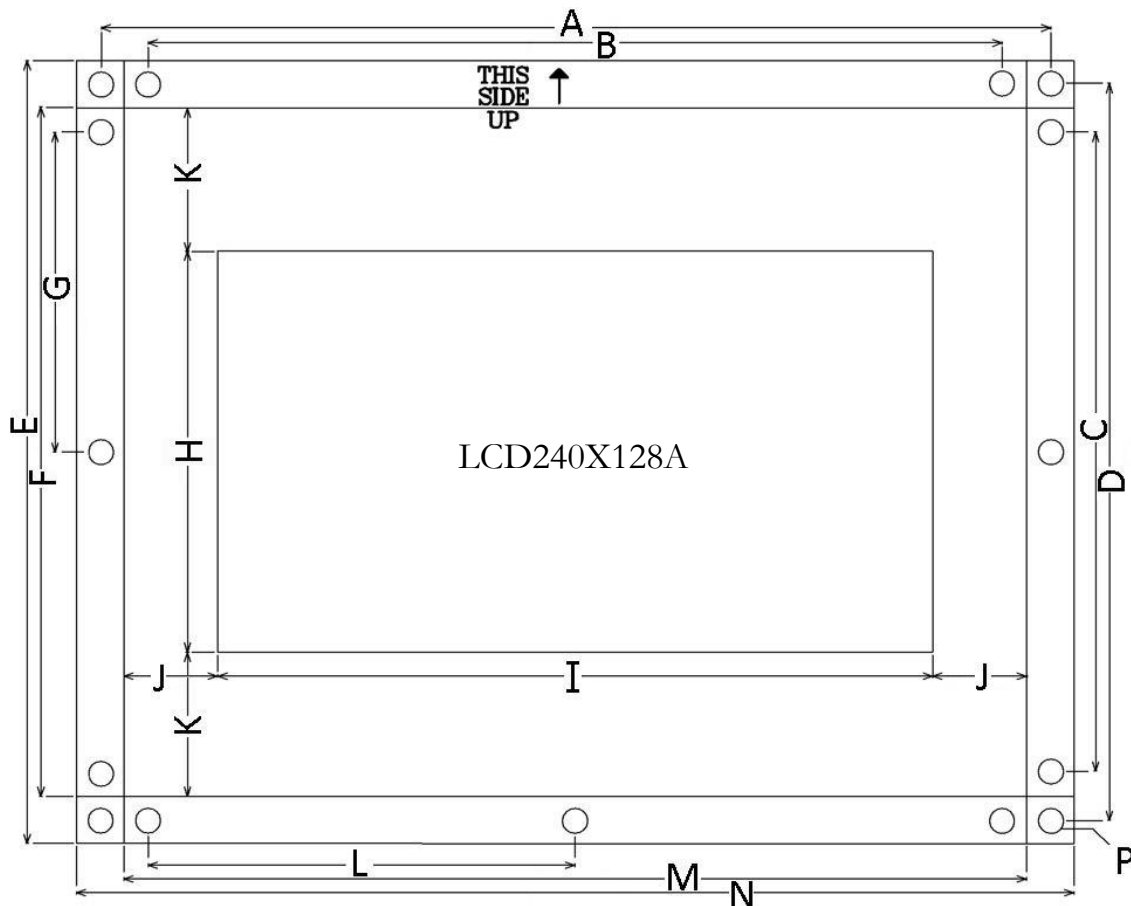


- 1 CANbus connection sockets (big size)
- 2 CANbus connection socket (small size)
- 3 PC connection socket for programming
- 4 LCD contrast adjustment setting
- 5 4-key keypad
- 6 Buzzer for button sounds
- 7 PC programming socket
- 8 Memory chip

7.4.1.1. LCD240X128A Technical Data

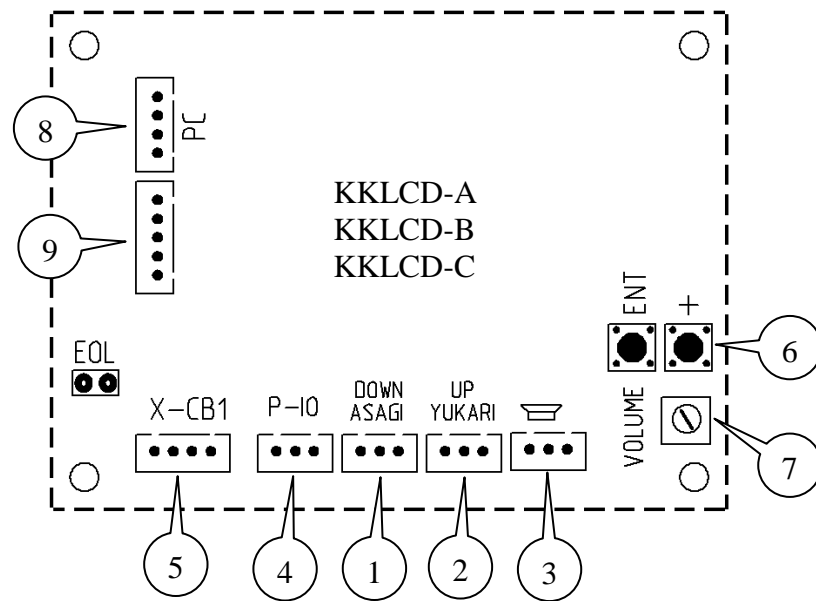
Description	Value
Dimensions Length × width × height (mm)	160 × 125 × 28
Pixel resolution	240 x 128 pixels
Background light	White LED
Working temperature	±0 - +60 °C
Supply Voltage	24 VDC ± 5 VDC
Power consumption	50mA 1.2W @ 24VDC

LCD240X128A Dimensional Drawing



A = 151.5mm	I = 114mm
B = 136.2mm	J = 15mm
C = 102mm	K = 23mm
D = 117.6mm	L = 68.1mm
E = 125mm	M = 144mm
F = 110mm	N = 159.1mm
G = 51mm	P = 4mm
H = 64mm	

7.4.2. KKLCD-A/KKLCD-B/KKLCD-C Call/Indicator modules

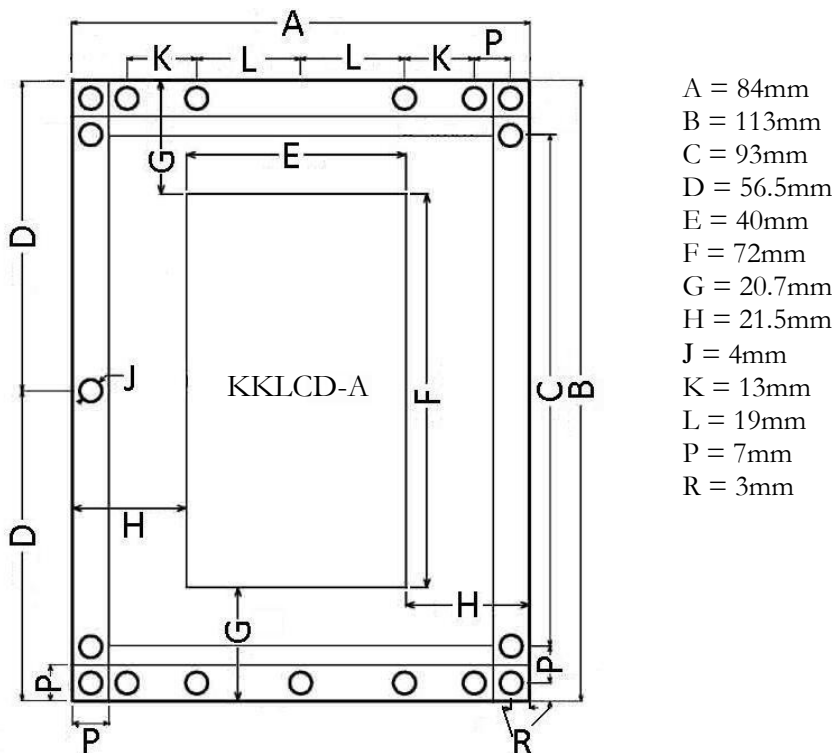


- 1 Down direction led connection socket
- 2 Up direction led connection socket
- 3 Gong connection socket
- 4 Programmable input output connection socket
- 5 CANbus connection socket
- 6 2-key keypad
- 7 Gong volume setting.
- 8 PC programming socket
- 9 MCU programming socket

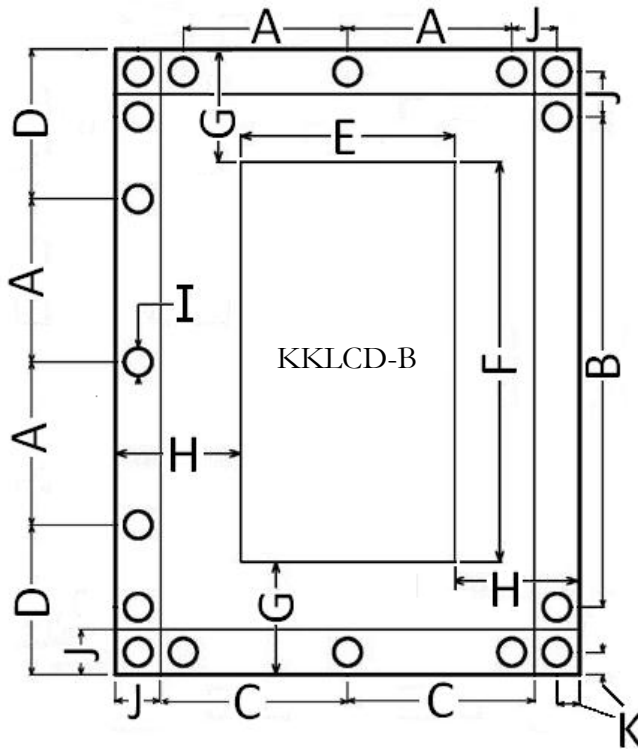
7.4.2.1. KKLCD-A/KKLCD-B/KKLCD-C Technical Data

Description	Value	
Dimensions Length × width × height (mm)	KKLCD-A	113 × 84 × 20
	KKLCD-B	92 × 68 × 24
	KKLCD-C	98 × 84 × 23
Pixel resolution	128 x 64 pixels	
Background light	White LED	
Working temperature	±0 - +60 °C	
Power supply	24 VDC ± 5 VDC	
Power consumption	Board	40mA, 1W @ 24VDC (without gong and buttons)
	Button-led	15mA, 0.4W @ 24VDC (for each button)
	Gong	0.5W/8Ohm speaker
Programmable output	Max. 100mA. 2.5W @ 24VDC	

KKLCD-A Dimensional Drawing

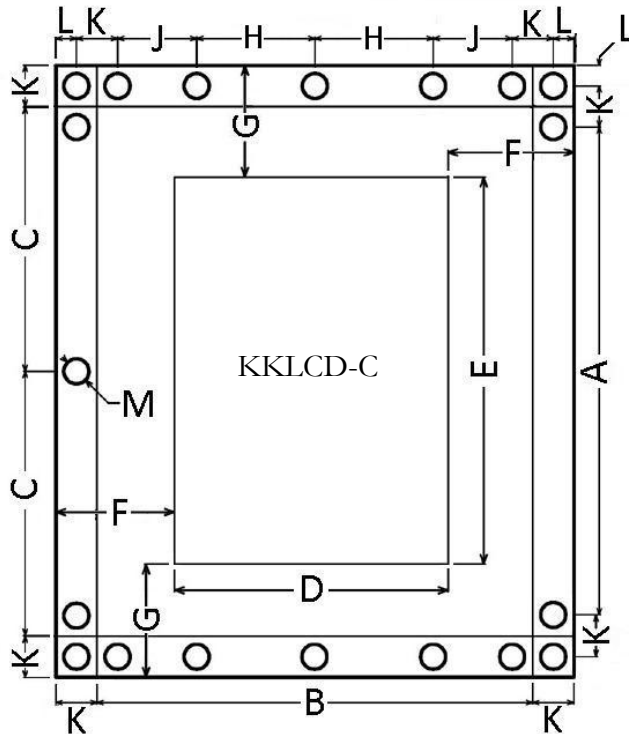


KKLCD-B Dimensional Drawing



- A = 24mm
- B = 72mm
- C = 27mm
- D = 22mm
- E = 31.3mm
- F = 58.5mm
- G = 16.5mm
- H = 18.3mm
- I = 4mm
- J = 7mm
- K = 3mm

KKLCD-C Dimensional Drawing




- A = 78mm
- B = 70mm
- C = 42mm
- D = 44mm
- E = 62mm
- F = 19.5mm
- G = 18mm
- H = 19mm
- J = 13mm
- K = 7mm
- L = 3mm
- M = 4mm

7.4.2.2. KKLCD-A/KKLCD-B/KKLCD-C Pin Assignments

UP Call Button-LED Socket (3-pins)	
BUT-COM * LED+	Call button and LED supply (+24V)
LED-	LED- output (0 VDC)
BUT-NO	Button input (High active)

DOWN Call Button-LED Socket (3-pins)	
BUT-COM * LED+	Call button and LED supply (+24V)
LED-	LED- Output (0 VDC)
BUT-NO	Button Input (High active)

P-IO Programmable input-output socket (3-pins)	
100 *	Call button and LED supply (+24V)
P-O	Programmable Output (0 VDC)
P-I	Programmable Input (High active)

 Gong Socket (3-pins)	
100 *	Gong Supply (+24V)
HOP	Gong Output
100	Gong supply (+24V)



X-CB1 Car CANbus Socket (4-pins)	
100 *	+24VDC Supply
1000	GND (Ground)
CANL	First CANbus terminal
CANH	Second CANbus terminal

* : The leftmost pin behind KKLCD-X (socket writing must be on the top side of the card).

7.4.2.3. KKLCD-A/KKLCD-B/KKLCD-C Floor Adjustment

Two push buttons are used for floor adjustments on KKLCD-x indicator modules.

These buttons are;

 ENT	To enter the menu and set the parameters.
 +	To set the parameter values.

There are three parameters on these modules. These parameters are shown in the indicators.

PARAMETER 1: FLOOR NUMBER SETTING

Durak	When “Durak” is written in the indicator, with “+” button you can set the floor number.
1-48	Floor numbers between 1 and 48.

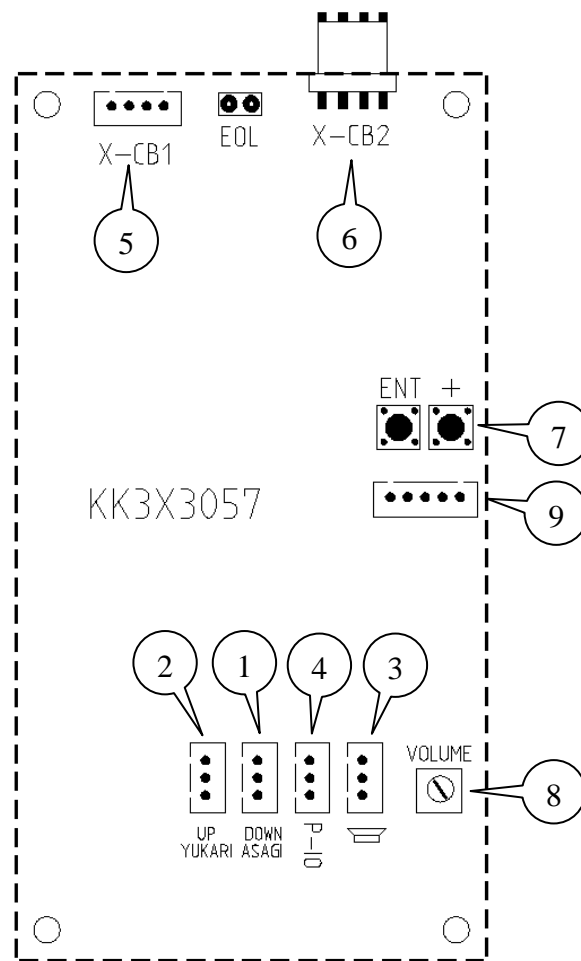
PARAMETER 2: DOOR SETTING

Kapı	When “Kapı” is written in the indicator, with “+” button you can set the door type.
A	Door A
B	Door B
AB	Doors A and B

PARAMETER 3: BUTTON EXISTANCE SETTING

Buton	When “Buton” is written in the indicator, with “+” button you can choose if there is button connected to module or not.
+	There is button
-	There is no button

7.4.3. KK3X3057 Dot-matrix Call/Indicator modules

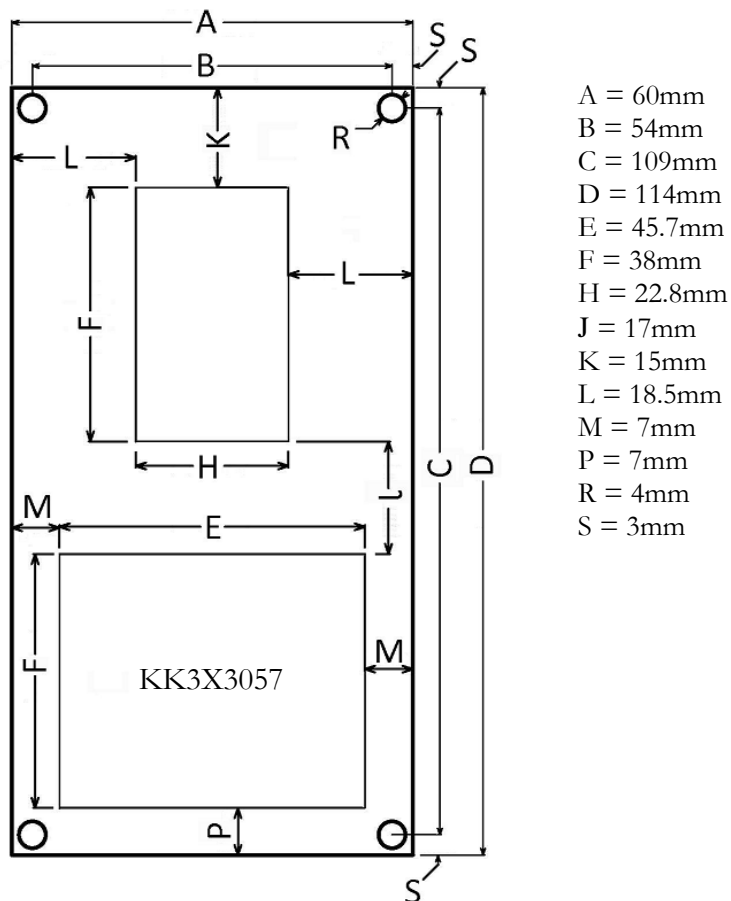


- 1 Down direction button connection socket
- 2 Up direction button connection socket
- 3 Speaker connection socket
- 4 Programmable input-output connection socket
- 5 CANbus connection socket (small size)
- 6 CANbus connection socket (big size)
- 7 2-key keypad
- 8 Gong volume setting
- 9 MCU programming socket

7.4.3.1. KK3X3057 Technical Data

Description	Value	
Dimensions Length × width × height (mm)	114 x 60 x 18	
Number of Dot-matrix	3	
Dot-matrix type	30 mm, 5 x 7 dots	
LED colour	Red	
Working temperature	±0 - +60 °C	
Power supply	24 VDC ± 5 VDC	
Power consumption	Board	40mA, 1W @ 24VDC (without gong and buttons)
	Button-led	15mA, 0.4W @ 24VDC (for each button)
	Gong	0.5W/8Ohm speaker
Programmable output	Max. 100mA, 2.5W @ 24VDC	

KK3X3057 Dimensional Drawing




7.4.3.2. KK3X3057 Pin Assignments

UP Call Button-LED Socket (3-pins)	
BUT-COM * LED+	Call button and LED supply (+24V)
LED-	LED- output (0 VDC)
BUT-NO	Button input (High active)

DOWN Call Button-LED Socket (3-pins)	
BUT-COM * LED+	Call button and LED supply (+24V)
LED-	LED- Output (0 VDC)
BUT-NO	Button Input (High active)

P-IO Programmable input-output socket (3-pins)	
100 *	Call button and LED supply (+24V)
P-O	Programmable Output (0 VDC)
P-I	Programmable Input (High active)

 Gong Socket (3-pins)	
100 *	Gong Supply (+24V)
HOP	Gong Output
100	Gong supply (+24V)

X-CB1 Car CANbus Socket (4-pins)	
100 *	+24VDC Supply
1000	GND (Ground)
CANL	First CANbus terminal
CANH	Second CANbus terminal

* : The leftmost pin behind KK3X3057 (socket writing must be on the top side of the card).

7.4.3.3. KK3X3057 Floor Adjustment

Two push buttons are used for floor adjustments on KK3X3057 indicator modules.

These buttons are;

● ENT	To enter the menu and set the parameters.
● +	To set the parameter values.

There are three parameters on these cards. These parameters are shown in the indicators.

PARAMETER 1: FLOOR NUMBER SETTING

D	When “D” is written in the indicator, with “+” button you can set the floor number.
1-48	Floor numbers between 1 and 48.

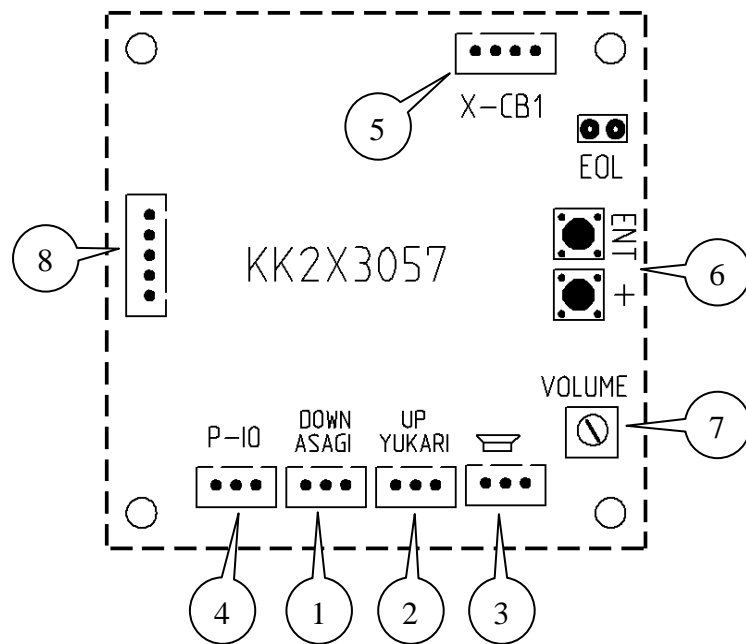
PARAMETER 2: DOOR SETTING

K	When “K” is written in the indicator, with “+” button you can set the door type.
A	Door A
B	Door B
AB	Door A and B

PARAMETER 3: BUTTON EXISTANCE SETTING

B	When “B” is written in the indicator, with “+” button you can choose if there is button connected to module or not.
+	There is button
-	There is no button

7.4.4 KK2X3057 Dot-matrix Call/Indicator modules

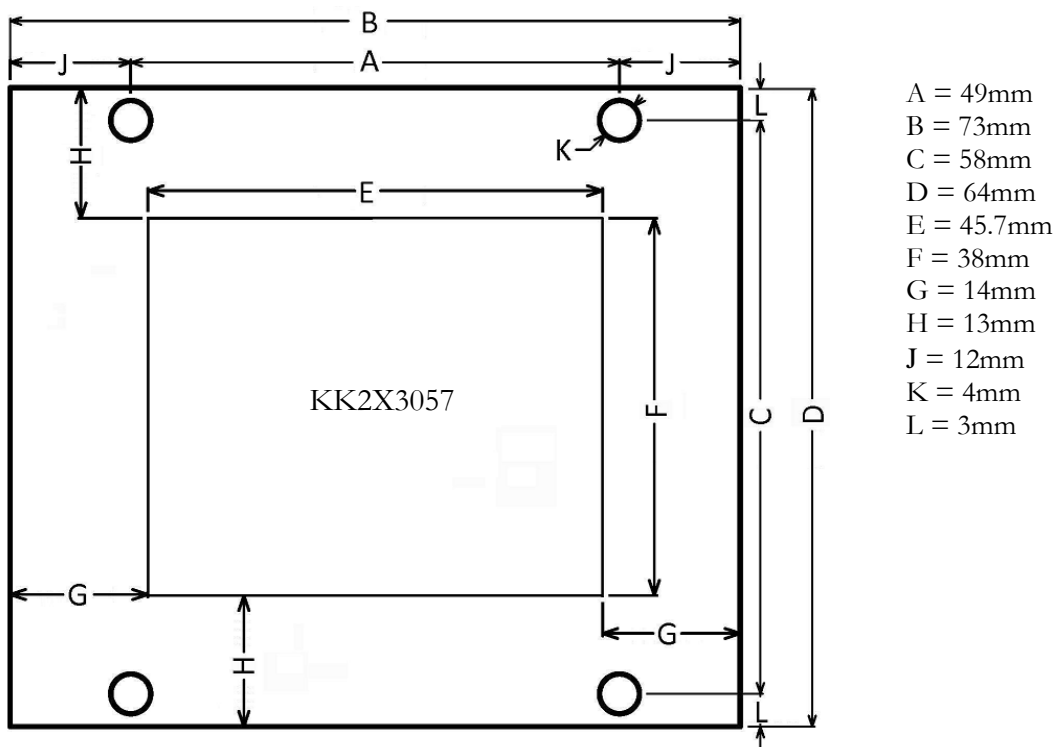


- 1 Down direction button connection socket
- 2 Up direction button connection socket
- 3 Speaker connection socket
- 4 Programmable input-output connection socket
- 5 CANbus connection socket
- 6 2-key keypad
- 7 Gong volume setting
- 8 MCU programming socket

7.4.4.1. KK2X3057 Technical Data

Description	Value	
Dimensions Length × width × height (mm)	64 x 73 x 18	
Number of Dot-matrix	3	
Dot-matrix type	30 mm, 5 x 7 dots	
LED colour	Red	
Working temperature	±0 - +60 °C	
Power supply	24 VDC ± 5 VDC	
Power consumption	Board	30mA, 0.8W @ 24VDC (without gong and buttons)
	Button-led	15mA, 0.4W @ 24VDC (for each button)
	Gong	0.5W/8Ohm speaker
Programmable output	Max. 100mA, 2.5W @ 24VDC	

KK2X3057 Dimensional Drawing




7.4.4.2. KK2X3057 Pin Assignments

UP Call Button-LED Socket (3-pins)	
BUT-COM * LED+	Call button and LED supply (+24V)
LED-	LED- output (0 VDC)
BUT-NO	Button input (High active)

DOWN Call Button-LED Socket (3-pins)	
BUT-COM * LED+	Call button and LED supply (+24V)
LED-	LED- Output (0 VDC)
BUT-NO	Button Input (High active)

P-IO Programmable input-output socket (3-pins)	
100 *	Call button and LED supply (+24V)
P-O	Programmable Output (0 VDC)
P-I	Programmable Input (High active)

 Gong Socket (3-pins)	
100 *	Gong Supply (+24V)
HOP	Gong Output
100	Gong supply (+24V)

X-CB1 Car CANbus Socket (4-pins)	
100 *	+24VDC Supply
1000	GND (Ground)
CANL	First CANbus terminal
CANH	Second CANbus terminal

* : The leftmost pin behind KK2X3057 (socket writing must be on the top side of the card).

7.4.4.3. KK2X3057 Floor Adjustment

Two push buttons are used for floor adjustments on KK2X3057 indicator modules.

These buttons are;

● ENT	To enter the menu and set the parameters.
● +	To set the parameter values.

There are three parameters on these cards. These parameters are shown in the indicators.

PARAMETER 1: FLOOR NUMBER SETTING

D	If “D” is written in the indicator, with “+” button you can set the floor number.
1-48	Floor numbers between 1 and 48.

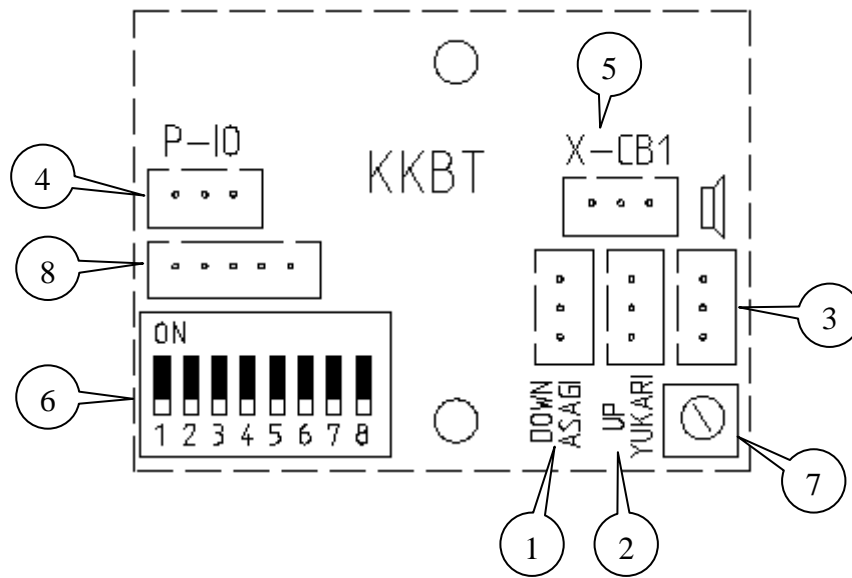
PARAMETER 2: DOOR SETTING

K	If “K” is written in the indicator, with “+” button you can set the door type.
A	Door A
B	Door B
AB	Door A and B

PARAMETER 3: BUTTON EXISTANCE SETTING

B	When “B” is written in the indicator, with “+” button you can choose if there is button connected to module or not.
+	There is button
-	There is no button

7.4.5. KKBT Non-indicator Call Module

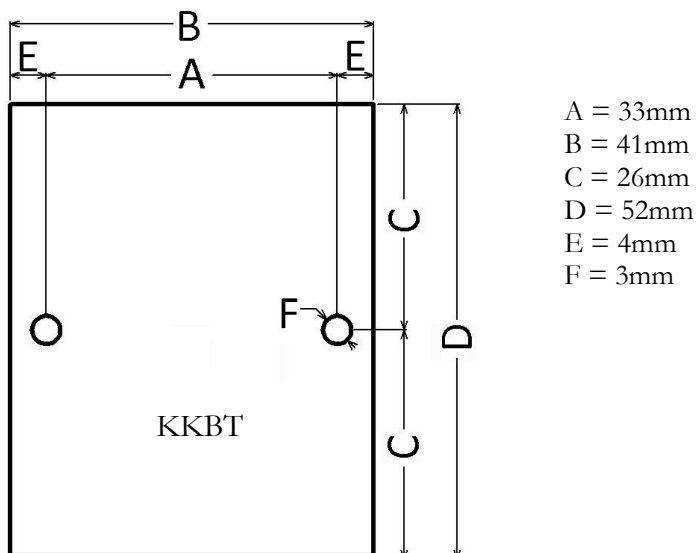


- 1 Down direction button connection socket
- 2 Up direction button connection socket
- 3 Speaker connection socket
- 4 Programmable input-output connection socket
- 5 CANbus connection socket
- 6 Dipswitches for floor number setting
- 7 Gong volume setting
- 8 MCU programming socket

7.4.5.1. KKBT Technical Data

Description	Value	
Dimensions Length × width × height (mm)	52 x 41 x 18	
Working temperature	±0 - +60 °C	
Power supply	24 VDC ± 5 VDC	
Power consumption	Board	15mA, 0.4W @ 24VDC (without gong and buttons)
	Button-led	15mA, 0.4W @ 24VDC (for each button)
	Gong	0.5W/8Ohm speaker
Programmable output	Max. 100mA, 2.5W @ 24VDC	

KKBT Dimensional Drawing




7.4.5.2. KKBT Pin Assignments

UP Call Button-LED Socket (3-pins)	
BUT-COM * LED+	Call button and LED supply (+24V)
LED-	LED- output (0 VDC)
BUT-NO	Button input (High active)

DOWN Call Button-LED Socket (3-pins)	
BUT-COM * LED+	Call button and LED supply (+24V)
LED-	LED- Output (0 VDC)
BUT-NO	Button Input (High active)

P-IO Programmable input-output socket (3-pins)	
100 *	Call button and LED supply (+24V)
P-O	Programmable Output (0 VDC)
P-I	Programmable Input (High active)

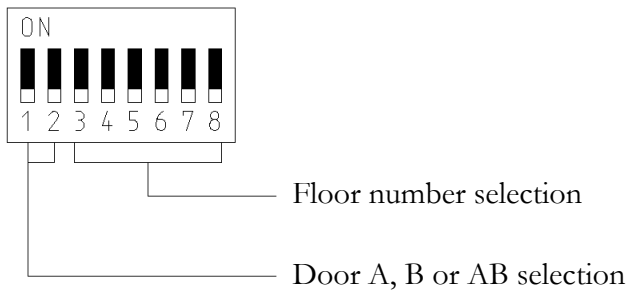
 Gong Socket (3-pins)	
100 *	Gong Supply (+24V)
HOP	Gong Output
100	Gong supply (+24V)

X-CB1 Car CANbus Socket (4-pins)	
100 *	+24VDC Supply
1000	GND (Ground)
CANL	First CANbus terminal
CANH	Second CANbus terminal

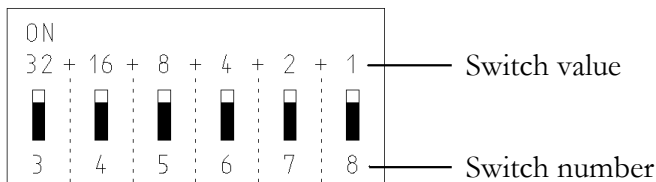
* : The rightmost pin behind KK2X3057 (socket writing must be on the top side of the card).

7.4.5.3 Floor Setting With Dipswitches On KKBT

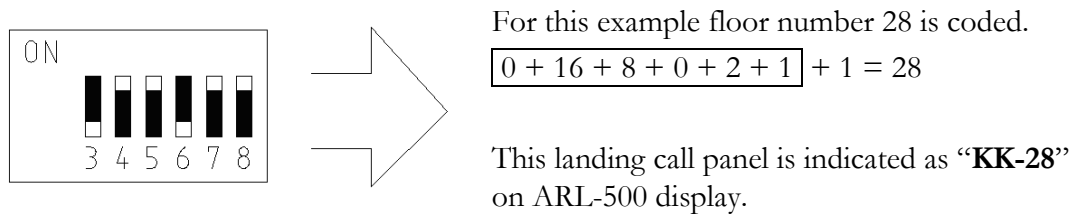
In call-panels; KKBT, 8-switch dipswitches at the backside of the board is used. The first two switches are for door selecting, the other 6 are for floor selection.



The procedure of floor selection switches is explained below:



Floor number is coded in binary code. The most-right switch has the least value. The value of switch which is ON is added to floor number. The value of switch which is OFF is 0 (zero). Floor number is selected by the sum of ON switches value + 1.

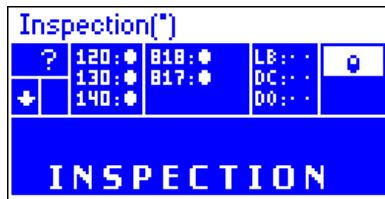


For door selection switches, use the table below:

<p>ON</p> <p>1 2</p> <p>or</p> <p>ON</p> <p>1 2</p>	This panel commands both door-A and door-B
<p>ON</p> <p>1 2</p>	This panel commands door-A
<p>ON</p> <p>1 2</p>	This panel commands door-B

8. ARL-500 DISPLAY MESSAGES

8.1. STATUS MESSAGES



The current status of elevator during the operations of controller is shown on ARL-500 display with the information on the top of display we called status message. The status messages are listed in the following table.

Status Message	Description	Reason
Ready	ARL-500 controller is ready to run	Controller is in normal mode and no active call acknowledged
Loading- Unloading	Elevator is loading or unloading passengers	Car door is opened at the floor and waiting for passengers to load/unload.
Preopening doors	Doors are opening as the car approaches to a landing	This message is given if door pre-opening function is enabled. When the car reaches the door zone while approaching to the target floor, doors are pre-opened.
Waiting for lock	Door lock is waiting	After a call acknowledged, the car door is closed and the door lock is waiting in order to run.
Fast downward travel	Car is running downward at fast speed	The controller activated high speed drive during downward travel.
Fast upward travel	Car is running upward at fast speed	The controller activated high speed drive during upward travel.
Slow downward travel	Car is running downward at slow speed	The controller activated low speed drive during downward travel.
Slow upward travel	Car is running upward at slow speed	The controller activated low speed drive during upward travel.

Status Message	Description	Reason
Out of service	Elevator is out of service	An error was handled and lift gone into out of service mode. Because you have changed the error status screen by using keypad, controller shows this status message on main screen. The error message and the lift status message are showed in error status screen.
Hydraulic leveling (up)	Relevelling up with car and shaft doors open.	This message is given if hydraulic leveling function is enabled. Because of down direction movements of car during loading (or oil leaking) relevelling is required with car and landing doors open.
Hydraulic leveling (down)	Relevelling down with car and shaft doors open.	This message is given if hydraulic leveling function is enabled. Because of up direction movements of car during unloading relevelling is required with car and landing doors open.
Shaft learning is needed	Shaft learning has not yet been carried out	Shaft learning is needed before going in to normal operation mode when incremental encoder positioning is used.
Resetting position sensors...	Car is running to the bottom floor in order to reset position sensors.	When ARL-500 controller is switched on or rebooted, it checks the bottom limit switch (817) to correct its position counter.
Earthquake evac.	Earthquake evacuation mode is activated.	The earthquake sensor input (terminal DEP) on the ARL-500 controller is active.
Fire evacuation	Fire evacuation mode is activated.	The fireman input (terminal YAN) on the ARL-500 controller is active.

Status Message	Description	Reason
Stop circuit off	Stop circuit (terminal between 110 and 120) is interrupted.	<p>Interruption of the stop circuit before terminal 119. The stop circuit contacts between terminal 110 and 120 interrupted the safety circuit. All safety circuit inputs of ARL-500 controller are idle.</p> <ul style="list-style-type: none"> - Emergency stop switch may be operated on the remote control unit in normal mode (not Inspection or Recall). - Unused safety contacts are not bridged on KBK-9 control panel connection boards and REVKON car top controller. - Travelling cable may be damaged.
Parking...	Parking drive is activated.	Because there is no active call and parking delay has exceeded, the controller sends the car to a programmed parking floor.
Inspection mode only	Controller can only be operated in inspection mode or recall mode and can not be operated in normal mode.	<p>The parameter “System Settings > Operating mode” is set to “Inspection only” in ARL-500 menu. The controller is set to “Inspection only” mode in the default factory settings for safety startup installation. This parameter should be set to “Normal operation” during normal operation.</p> <p>When ARL-500 controller is switched on or rebooted, it checks the bottom limit switch (817) to correct its position counter. If the inspection or recall control is activated before this correction drive, the system can be operated only in “Inspection only”.</p>
Door is unlocked	Door is unlocked.	Waiting door lock beginning of startup drive in order to reset position sensors after ARL-500 controller has switched on. If door is locked controller performs this drive or else can not start to driving and waits until door is locked (terminal 140 is activated)

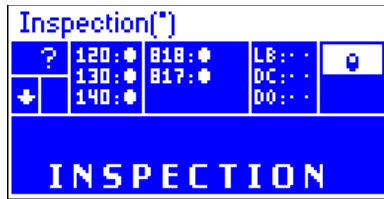
Status Message	Description	Reason
Overload	The overload input is active.	The overload input on the REVKON is activated (on a programmable input assigned as overload 804 function)
Inspection	The inspection control is active.	The inspection switch on the inspection hand terminal is turned to INSPECTION. Terminal
Inspection: 817 off	The bottom limit switch (SKSR1) is activated in inspection mode.	Car is at the bottom floor and the bottom limit switch is activated in inspection mode. The behaviour of controller is determined by the parameter “System settings > Limiters in inspection mode” either "Stop car immediately" or “Stop car at floor level” in the ARL-500 menu.
Inspection: 818 off	The top limit switch (SKSR2) is activated in inspection mode.	Car is at the top floor and the top limit switch is activated in inspection mode.
Inspection: Door unlocked	Door is unlocked in inspection mode.	Waiting door lock beginning of inspection drive. After door lock controller performs this drive or else can not start to driving and waits until door is locked (terminal 140 is activated)
Inspection: Stop pressed	The emergency stop switch at inspection hand terminal is interrupted during inspection operation.	<ul style="list-style-type: none"> - The safety circuit is interrupted by the activation of the emergency stop switch during inspection UP or DOWN driving. - The stop circuit contacts between terminal 110 and 120 interrupted the safety circuit during inspection drive.
Recall Operation	The recall control is active.	The recall switch on the recall hand terminal is turned to INSPECTION.
Recall: 817 off	The bottom limit switch (SKSR1) is activated in recall mode.	Car is at the bottom floor and the bottom limit switch is activated in recall mode.
Recall: 818 off	The top limit switch (SKSR2) is activated in recall mode.	Car is at the top floor and the top limit switch is activated in recall mode.

Status Message	Description	Reason
Recall: Door unlocked	Door is unlocked in inspection mode.	Waiting door lock beginning of recall drive. After door lock, controller performs this drive or else can not start to driving and waits until door is locked (terminal 140 is activated)
Recall: Stop pressed	An emergency stop switch at recall hand terminal is interrupted during recall operation.	-The safety circuit is interrupted by the activation of the emergency stop switch during inspection UP or DOWN driving. - The stop circuit contacts between terminal 110 and 120 interrupted the safety circuit during inspection drive.
Inspection(*)	The manual control by keypad is active.	LEFT + RIGHT keys on the ARL-500 keypad are pressed together are lift goes into manual control mode from keypad.
Inspection(*): 817 off	The bottom limit switch (SKSR1) is activated in manual control mode.	Car is at the bottom floor and the bottom limit switch is activated in manual control mode.
Inspection(*): 818 off	The top limit switch (SKSR2) is activated in manual control mode.	Car is at the top floor and the top limit switch is activated in manual control mode.
Inspection(*): Door unlocked	Door is unlocked in inspection mode.	Waiting door lock beginning of manual control drive. After door lock, controller performs this drive or else can not start to driving and waits until door is locked (terminal 140 is activated)
Inspection(*): Stop pressed	An emergency stop switch at recall hand terminal is interrupted during recall operation.	- The safety circuit is interrupted by the activation of the emergency stop switch during manual control UP or DOWN driving. - The stop circuit contacts between terminal 110 and 120 interrupted the safety circuit during manual control drive.
Downward travel with middle-speed	Car is running downward at middle speed	When there are short floors in the building, the car runs downward in middle speed on the way to the short floor.
Upward travel with middle speed	Car is running upward at middle speed	When there are short floors in the building, the car runs upward in middle speed on the way to the short floor.

Status Message	Description	Reason
Car command entry	Entering call commands to the system.	Any car call can be entered in this window.
X seconds to retry	Time remaining for the system to operate in normal mode.	For some errors, the system tries to re-operate after this time is passed.
Lift blocked!!!	The elevator is blocked.	The elevator is blocked by the reason of the error(s).
Door is open	The door is open	The status message when the car lands to a floor and opens the door(s).
Door is unlocked	The door is unlocked	The status message when the door lock(es) are open.
Fire alert (Phase – 1)	Fire alert signal.	When in normal operation mode, an active signal on the programmable input “18:(YAN)Fire detector” causes the controller to go into Fire Emergency Phase-1 mode.
Firemen operation (Phase – 2)	When in Fire Emergency Phase-1, activation of the programmable input “12: (ITA) Fireman key” causes the controller to go into this mode.	See <i>“ARL500 Fire emergency operations”</i> for detailed information.
Inspection: Door is open	The elevator is in inspection mode and the door is open	
Recall: Door is open	The doors are open during recall operation	
Preparing for evacuation	The elevator is preparing for evacuation	When the electricity is gone in the building, the system prepares elevator to evacuate.
Evacuation	The elevator is evacuating	
Evacuation ended.	The evacuation has ended.	System has ended the evacuation and the car has landed on the floor.
Unjamming PAWL device.	The system is unjamming the PAWL device.	For any reason if the PAWL device is jammed, system runs the car upwards to unjam the PAWL device.
Waiting for PAWL release...	The system is waiting for PAWL device release.	After landing to a floor, the PAWL device must be released to make cabin move.
Inspection(*): Door is open	The system is operating in inspection mode via the buttons on ARL 500, and the door is open.	
Ready (inside door-zone)	The system is ready for any command entry and inside door zone.	Cabin is ready for any command entry.
Ready (outside door-zone)	The system is ready for any command entry and outside door zone.	Cabin is ready for any command entry.
Status Message	Description	Reason

PAWL failed. Stopping...	Because of the PAWL device error, the elevator stops.	The lift stops
Sleeping...	The elevator operates in stand by mode.	The system operates in sleep mode for saving electricity until a call is received.
Waking up...	The system is starting to operate in normal mode.	The system is starting to operate in normal mode after sleeping.
PTC error. Moving to bottom.	Only in hydraulic systems, because of the PTC error, the cabin moves to the bottom floor.	The hydraulic system is overheated and the car moves to the bottom floor.
PTC error.	There is a PTC error	The motor temperature is overheated.
Safety circuit must be complete during shaft learning!	To make the system learn the shaft, safety circuits must be complete.	To operate in normal mode, at very first the system must learn the shaft and to learn the shaft the safet circuit must be complete.

8.2. ERROR MESSAGES



The current error of the elevator system is shown in error status screen on ARL-500 display we called error message.

ARL-500 controller saves these error messages listed in the following table.

Error Message	Description	Reason
Max. time of fast travel expired	The maximum time allowed to travel at high speed without changing the current floor number is exceeded.	<ul style="list-style-type: none"> - Check motor drive - Check the function of floor counters - Increase the parameter Maximum time of travel in high speed
Max. time of slow travel expired	The maximum time allowed to travel at low speed without changing the current floor number is exceeded.	<ul style="list-style-type: none"> - Check motor drive - Check the function of floor counters - Increase the parameter Maximum time of travel in low speed
Door can not close	Error during closing of doors. The car door contact does not close even after attempts set by the parameter "Retries for closing doors"	<ul style="list-style-type: none"> - The car door is blocked mechanically or electrically. - Check operation of door relays on ARL-500 or REVKON. - Check operation of door operator - Check door contacts - Check connection of terminal 140 at ARL-500
Bottom limit(817) sensed while moving up	Bottom limit switch (817) is interrupted while moving up except bottom floor	<ul style="list-style-type: none"> -Check bottom limit switch SKSR1 mechanically or electrically. -Check bottom limit switch input 817 on ARL-500 and REVKON.
Top limit(818) sensed while moving down	Top limit switch (818) is interrupted while moving down except top floor	<ul style="list-style-type: none"> -Check limit switch SKSR2 mechanically or electrically. -Check top limit switch input 817 on ARL-500 and REVKON.
Top and bottom limits sensed at the same time	Bottom limit switch (817) and top limit switch (818) are interrupted simultaneously	<ul style="list-style-type: none"> -Check limit switches SKSR1 and SKSR2 mechanically or electrically. -Check limit switch inputs 817 and 818 on ARL-500 and REVKON.

Error Message	Description	Reason
Contactor could not pick	The contactor pick-up protection has triggered. KRC contactor checkback signal is not OFF. Terminal KRC must not be supplied with 24V when the system is in operation.	<ul style="list-style-type: none"> -Check connection of terminal KRC on ARL-500 -Check connection of contactors supply -Check the NC contacts of contactors used in KRC circuit.
Contactor could not drop	The contactor drop-out protection has triggered. KRC contactor checkback is not ON. Terminal KRC must be supplied with 24V when the system is at rest.	<ul style="list-style-type: none"> -Check connection of terminal KRC on ARL-500 -Check connection of contactors supply -Check the NC contacts of contactors used in KRC circuit.
RST phase error	RST phase turn error	<ul style="list-style-type: none"> -Check the connection of L1, L2, L3,N terminals on ARL-500 - Change any two phase of L1, L2, L3 terminals on ARL-500
Manual door open error	The manual door can not be closed in the time set by manual door close waiting time parameter. Timer is started counting after a call is accepted.	<ul style="list-style-type: none"> -Manual door remains open - Check shaft doors mechanically - Check door contacts. - Check the connection of terminal 130 on ARL-500
Short-circuit on prog.transistors	An overload or short circuit conditions at programmable transistors PT1-PT6. The outputs of PT1-PT6 terminals are short-circuit protected. The load current must not be more than the maximum load current.	<ul style="list-style-type: none"> -Check connections of terminals PT1-PT6 - Check the power consumption of active load
Motor temperature too high or PTC not connected	Temperature monitoring of the drive on T1-T2 terminals of ARL-500 has triggered. The voltage of terminal T1 is 24VDC. Terminal T2 must be supplied with 24V when there is no error in system.	<ul style="list-style-type: none"> -Check the connection of terminals T1-T2 - Motor overheated. Monitoring via input of motor thermistor terminals T1-T2. - The thermostat in the control panel has triggered - The thermostat in the brake resistor has triggered (for VVVF systems) - The oil thermostat has triggered (for hydraulic systems)
Group ID conflict. Change group id	There are lifts in group has an identical group ID.	Change the group ID of lifts set same using "Group settings > Controller ID" parameter. Each lift must have different group ID.

Error Message	Description	Reason
130 or 140 signal was cut off during motion	The safety circuit door contact terminals (from terminals 120 to 140) have been interrupted while the car was moving.	<ul style="list-style-type: none"> - Check doors mechanically - Check door contacts - Check door lock contacts - Check the connection of terminal 130 and 140 on ARL-500
Earthquake detected	Earthquake detected. Terminal DEP of ARL-500 (programmable input) is supplied with 24V when an earthquake detected in system.	<ul style="list-style-type: none"> - An Earthquake occurred - Check the connection of terminal DEP on ARL-500
Fire detected	Fire detected. Terminal YAN of ARL-500 (programmable input) is supplied with 24V when a fire detected in system.	<ul style="list-style-type: none"> - A fire occurred - Check the connection of terminal YAN on ARL-500
Power supply voltage too low	The 24V supply of the ARL-500 board (100-1000) is below the permitted range of 24V - 20%.	Check power supply and wiring
Driver error or DRDY input not connected	A motor driver error occurred or DF driver ready input is not connected properly. DF input is low active. The programmable input terminal assigned to DRDY (driver ready) function must be supplied with 24V when there is no error in system. This input also must be assigned and its terminal must be bridged to 100 (+24V) when no error output of motor driver.	<ul style="list-style-type: none"> -Motor driver has given an error. Check motor driver display and error diagnosis -Check the connection of DF terminal of ARL-500 -Check the function of DF programmable input using the status screens of programmable inputs
Encoder fault	No movement of the car could be determined during the drive.	<p>The encoder position does not change during the drive.</p> <ul style="list-style-type: none"> - Check signals of the encoder by observing encoder LEDs on the ARL-500 controller. - The encoder is faulty. - No electric connection to encoder. - The drive does not move.
ML1-ML2 turned on simultaneously. Short-circuit?	SML1 & SML2 door zone switched turned on simultaneously.	<p>SML1-SML2 magnetic switches are installed in the same bracket and SML2 (door zone-2) magnetic switch must be on top of SML1 (door zone-1). So they can not be switched on simultaneously.</p> <ul style="list-style-type: none"> - Check the connection of terminals ML1 & ML2. - Short-circuit at ML1 & ML2 signals.

Error Message	Description	Reason
Wrong checkback in door bridging	A faulty check-back signal has detected during door bridging and the door bridging process was cancelled.	Internal hardware error
Parameters corrupt. (Flash CRC error)	Error during transferring data from/to processor	This error may also be caused by a firmware update. If the new version of the firmware has some parameters that the old version did not have, this error message will be shown. To clear the error: 1. Enter the parameter menu 2. Change any parameter (for example, increase car-light delay by 1 seconds) 3. Save the parameters when exiting the menu 4. Power off and power on. The error will be cleared.
Parameters unreadable. (Flash CRC error)	Error during reading parameters	Internal hardware error
Maintenance date passed	Maintenance date has been expired set by “Date and Time Settings > Next maintenance date” parameter.	Maintenance date has been expired set by “Date and Time Settings > Next maintenance date” parameter.
Encoder counting in the wrong direction	The elevator is not moving in the desired direction.	The encoder terminals may be connected incorrect. Exchange the terminal inputs and maket he system learn the shaft again.
ML1-ML2 turned on simultaneously. Short-circuit?	ML1 and ML2 switches are activated simultaneously.	Check the connections of ML1 and ML2
Group ID conflict. Change group ID.	Group ID conflict in group operation.	Check the “group settings” in the main menu and change the controller ID parameter if there are any conflicts.

Error Message	Description	Reason
Rescue failed	If Control Techniques or Zetadyn drivers are used when the mains power is gone if “maximum rescue time” has passed, this error message will be displayed.	Accumulator used for rescuing operation or UPS might be discharged.
UPS shut-down during test	When Control Techniques or Zetadyn drivers are used, the system checks if the UPS is working properly by operating the elevator with only UPS supply. This function can be changed from “Rescue settings>Daily UPS check”	-UPS might be discharged -Check UPS connections -Check if your UPS has enough power to rescue the system.
Headroom protection rod\switch faulty	This error is triggered when headroom protection down switch (HPD) and headroom protection up switch (HPU) are activated simultaneously.	Check your HPD and HPU connections. If this function is not used in your system, disable the function from “Headroom/Pit protection>Headroom protection system”.
Headroom protection rod/position unknown	This error is triggered when headroom protection down switch (HPD) and headroom protection up switch (HPU) are passive at the same time.	Check your HPD and HPU connections. If this function is not used in your system, disable this feature from “Headroom/Pit protection>Headroom protection system”.
Cartop protection light-barrier faulty	This error is triggered when “Cartop lightbarrier checkback” (CLC) input is still off after 2 seconds although “Cartop protection lightbarrier test” (CLB) output was activated.	Light barrier might be broken down. If this function is not used in your system, disable this feature from “Headroom/Pit protection>Cartop protection lightbarrier”.
Cartop protection lightbarrier interrupted. Inspection only!	This error is triggered when “Cartop lightbarrier checkback” (CLC) input is active outside the lightbarrier monitoring period. The system operates only in inspection mode.	Check the connections of CLC input and CLB output. If this function is not used in your system, disable this feature from “Headroom/Pit protection>Cartop protection lightbarrier”.
Pit protection switch did not open.	This error is triggered when a door assigned to one of the PPSx inputs was commanded to open but the same input was still active after 4 seconds.	Check assigned PPSx input connections on ARL-500. If this function is not used in your system, change the door parameter to “none” from “Headroom/Pit protection>PPSx: 1. floor/ None ”
Pit protection switch was opened.	This error is triggered when a PPSx input is assigned to a floor and the PPSx input is OFF and the car is not at the assigned floor.	Check assigned PPSx input connections on ARL-500. If this function is not used in your system, change the door parameter to “none” from “Headroom/Pit protection>PPSx: 1. floor/ None ”

ARKEL Elektrik Elektronik Ticaret Ltd. Őti.

Őerifali Mah. Bayraktar Bulvarı Őehit Sok. No:32 Umraniye Istanbul TURKIYE

Tel: (+90 216) 540 03 10 - 11 -12

Fax: (+90 216) 540 03 09

E-mail : info@arkel.com.tr

www.arkel.com.tr