



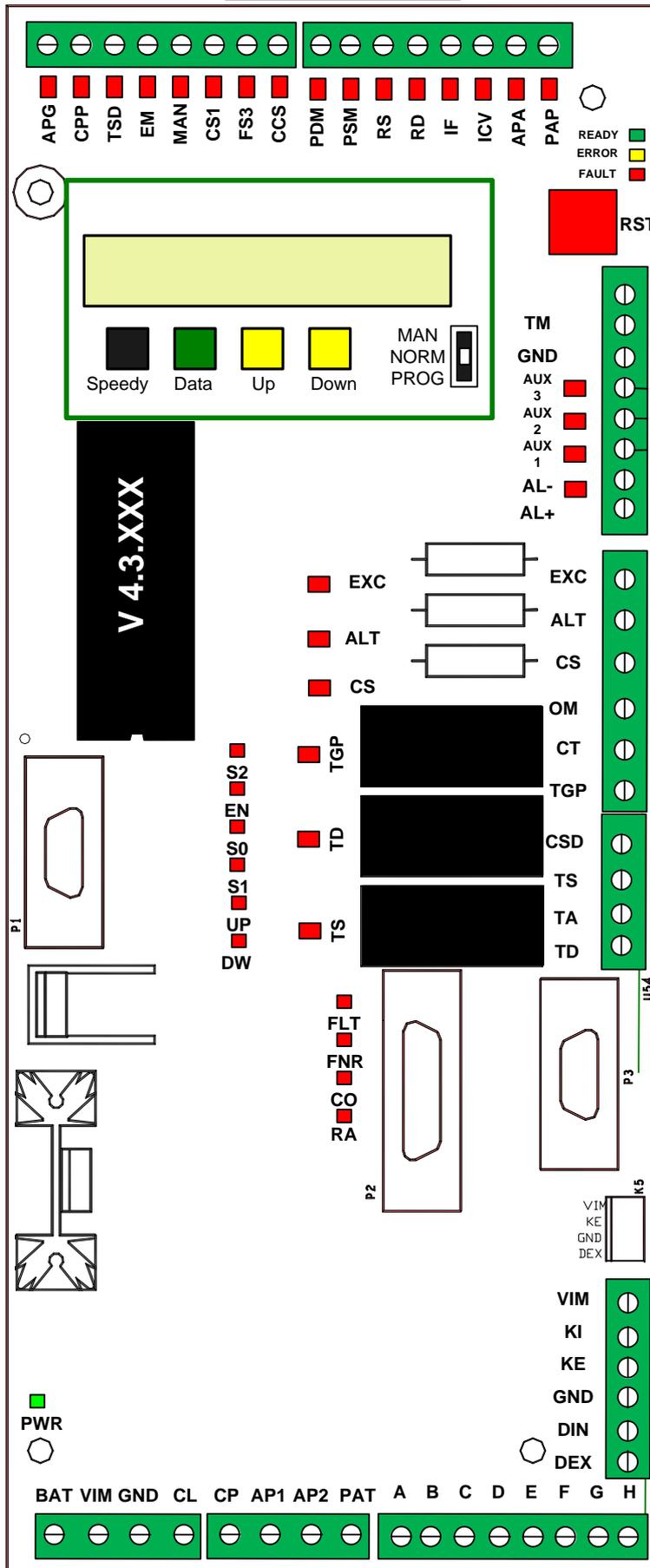
USER MANUAL  
LIFT CONTROL BOARD  
SIRIA

Version 4.3.125GE

Encoder

Rev. 7  
07/03/2016

# LAYOUT



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# **1. FAULT MESSAGES**

## **1.1 DESCRIPTION**

System fault will be shown with its own blinking code on the board display and if it persists for more than two seconds it will be stored in memory.

Board can store in memory up to 32 faults, then it continues overwriting the older ones.

In case of wrong insertion of microcontroller on the socket, board display is off and leds on the external display are on.

In case of shortcut on transistor outputs, leds on the external display will blink.

## **1.2 FAULT CLASSIFICATION**

Faults are grouped in three categories (A, B, C) on the basis of their effect on the system.

Here it follows the description of each category:

<b>FAULT CATEGORY</b>	<b>DESCRIPTION</b>
<b>A</b>	Permanent system halt with its own blinking code. With blinking code each call is denied. If the system is hydraulic, cabin is moved to floor 0 (if previously programmed). Fault will remain even if power line is deactivated. Keep SPEEDY button pressed for 2 seconds to reactivate the system, or activate program mode and set the value '0' at the address 41, or put the system in maintenance mode.
<b>B</b>	Interlocking plant until fault is present. Calls are accepted even with blinking code. Code keeps blinking until next call is done or power line is deactivated or manual cancel is performed or SPEEDY button is pressed.
<b>C</b>	Programming errors. They are not stored in faults history. Wrong values set during programming. Programming halt for 2 seconds with a fixed programming error code. Previously stored value is kept, wrong value is not stored.

Faults of types A and B block the normal service and car cannot move until faults persist.

## **1.3 FAULT READING**

To read the last 32 faults stored in memory you must press simultaneously SPEEDY and DATO push buttons.

To display the fault you must press these keys for at least 1 second. Once the code is shown, releasing the keys the fault is cancelled (to cancel the fault, after you release the keys you must wait one second without any pressing).

Reading is completed when '99' value is shown.

Faults are shown starting from the most recent.

## **1.4 FAULT LIST TOTAL CLEARING**

To cancel all the faults from the list with a single operation, you must keep pressed SPEEDY button and hit 3 times DATO. You must wait at least half of a second between each DATO hit and, at the 3rd hit, SPEEDY and DATO must be kept pressed until '99' is shown.

## 1.5 FAULT LIST

FAULT CODE	FAULT CATEGORY	FAULT DESCRIPTION	Ref. paragraph
0 – 31	B	Missed start due to malfunction of the safety contact or safety contact has been opened during the run and operator couldn't close the doors.	CS
37	B	IF , ICV sensor doesn't match doors zone sensor (APA), IF or ICV fault, or APA fault.	APA ICV/IF
38	B	Failed floors count ascending. IF/DB or ICV/DA sensors don't switch properly or wrong floors number (address '32' value greater than effective floors number). Stop at top or bottom floor.	ICV/IF
39	B	Failed floors count descending. IF/DB or ICV/DA sensors don't switch properly or wrong floors number (address '32' value greater than effective floors number). Stop at top or bottom floor.	ICV/IF
40	B	Stop zone not found: wrong placement sensors or IF fault if IF/ICV.	ICV/IF
41	B	DRS or DRD sensors always opened or wiring fault.	RD/RS
42	B	Stop zone too short or stop delay too long (address '26' ).	Delayed Stopping
43	B	ICV slowing down sensor fault (IF/ICV configuration only). Stop on the floor on IF.	. ICV/IF
44	B	'High speed' contactor's solenoid or doors opening relays jammed	APG
45	B	Missed start during phasing procedure.	. CS
46	B	'Low speed' contactor or closing doors relays jammed.	CPP
47	B	Ascent or Descent contactors jammed. (TSD/FRN open in stop)	TSD
48	B	Faulty operator during opening. Doors partially opened or still closed. (APG contact open, CS closed)	Doors
49	B	Opening doors contactor fault or wiring fault with doors still closed or safety contact fault with opened doors. (APG closed, CS closed)	APG, Doors
50	B	Closing doors contactor fault or wiring fault with doors still opened or safety contact fault with closed doors. (CPP/CO closed, CS opened)	CPP CS Doors
51	B	Descent contactor coil fault or wiring fault. ( TSD/FRN closed in down)	CT TSD
52	B	Ascent contactor coil fault or wiring fault. (TSD/FRN closed in up)	CT TSD
53	B	'low speed' contactor coil fault or wiring fault	CPP
54	B/A	DRS always closed or RS input always to ground or wrong floors number (address 32 is less than effective floors number ). (at the second fault in a row the halt is permanent)	RD/RS
55	B/A	DRD always closed or RD input always to ground or wrong floors number (address 32 is less than effective floors number ). (at the second fault in a row the halt is permanent)	RD/RS
56	B/A	Motor thermal protection	Engine Temperature
57	A	FS3 input doesn't switch from lower floor (RD) to the upper one (RS).	FS3
58	C	Value programmed not valid. Value stored is maintained.	Programming Mode
59	C	Lift stops' number faulty (> 32 or < 2). Value stored is maintained.	Programming Mode
61	B	Operator faulty in closing doors and doors partially opened or completely opened or safety contact fault with closed doors. (CPP/CO open, CS open)	Doors
62	B	Internal cabin serial fault or wiring fault.	...
63	B	External cabin serial fault or wiring fault.	...
64	B	Speed change not done, 'high speed' contactor jammed.	APG
65	B	'high speed' contactor coil fault or wiring fault	CPP
67		Re-opening devices (CM or PAP) active over maximum time	Re-opening Devices
68	B	Short circuits on the outputs (A,B,C,D,E,F,G,H,CP,AP1,AP2,PAT,BAT)	BAT
69	B	Failure to slow down on excessive speed or rephasing (V>800incr/sec)	RA
72	B	Error Fault inverter. Check that the inverter is not in a state of fault. Check that the input 9-FLT (DB-15) is closed.	
76	B	Maximum travel time for floor approaching in up direction expired It occurs when the maximum travel time (TMC) expires for the first time The lift is not blocked and you can try again.	Maximum Travel Time
77	B	Maximum travel time for floor approaching in down direction expired. It occurs when the maximum travel time (TMC) expires for the first time. The lift is not blocked and you can try again.	Maximum Travel Time
78	B	Maximum travel time for high speed in up direction expired. It occurs when the maximum travel time (TMC) expires for the first time .	Maximum Travel Time

		The lift is not blocked and you can try again.	
79	B	Maximum travel time for high speed in down direction expired. It occurs when the maximum travel time (TMC) expires for the first time . The lift is not blocked and you can try again.	Maximum Travel Time
80	A	Maximum travel run time expired. It occurs after two consecutive times that the maximum travel time expires. The first time the maximum travel time expires one of the fault 76, 77, 78 or 79 occurs, according to the state the lift was, when the time TMC has expired.	Maximum Travel Time
81	A	System overrun.	BAT EM EXC RD/RS
82	A	Re-levelling fault. (re-levelling timeout)	Relevelling
83	A	Safety circuit fault. (control on CS1)	CS1
84	A	Run direction opposite to set run direction. (opening RD in ascent, opening RS in descent)	RD/RS Run Direction
	C	Memory faulty (only during programming). Cannot store new settings.	A3
85	A	uncontrolled movement of car	A3
86	A	Brake fault 1 (aux 1) or faulty valve VDA3	A3
87	A	Brake fault 2 (aux 2) or faulty valve VD	A3
88	A	Shaft access attempt (Valid for systems without heading).	...
90 (*)	B	System Reset – WDT Timeout	
91 (*)	B	System Reset – Brownout	
92 (*)	B	System Reset – MCLR from run	
93 (*)	B	System Reset – MCLR from sleep	
94 (*)	B	System Reset – WDT from sleep	
95 (*)	B	System Reset – RST Instruction	
98 (*)	B	System Reset	

(\*)The alarms 90, 91, 92, 93, 94, 95 and 98 are referred to the diagnostics of the board. If any of this alarms occurs you must immediately report the problem.

## 1.6 IMMEDIATE INFORMATION

When the system is in Running mode you can display the active state of some system signals, pressing DATA push button, by the following codes:

CODE	DESCRIPTION
0-31	No serial expansion to the plane XX, if the code is equal to the number of floors (ind.32) no missing serial expansion
41	ALT pressed.
42	Photoelectric sensor obscured (CM).
43	Opening door push button pressed (PAP).
44	Closing door push button pressed (PCP).
45	Overload (CCS).
46	Full load (CCC).
47	Car busy (CCO).
48	Alarm push button (AA)
49	Emergency (EM)
50	Ascent inspection button pressed (PSM).
51	Descent inspection button pressed (PDM).
52	Inspection (MAN).
53	Fire service mode
54	Internal mode
55	Duplex mode
60	Countdown of the hours, completed (add.47, 48,49 = 00)
62	Lift moving high speed down
63	Lift moving high speed up
64	Lift moving low speed down
65	Lift moving low speed up
66	Door closing side 1
67	Door opening side 1
68	Door closing side 2
69	Door opening side 2
70	Lift busy
99	Normal work, no immediate information

# 2. BOARD PROGRAMMING

## 2.1 "PROGRAMMABLE FUNCTION" TABLE

ADDRESS	DATA	DESCRIPTION		REF.
0	0	No beep on car push button	AP2 = second entrance door opening activation	SNR, AP2 Multi-Entrances
	1	No beep on car push button	AP2 Exchange second side opening	
	2	Beep on car push button	AP2 = second entrance door opening activation	
	3	Beep on car push button	AP2 Exchange second side opening	
1	0	OPEN DOORS parking	Plant with 2 speeds	Parking Speed
	4	OPEN DOORS parking	Plant with 1 speed	
	8	CLOSE DOORS parking	Plant with 2 speeds	
	12	CLOSE DOORS parking	Plant with 1 speed	
2	0	Normal selector (ICV)	Manual doors / Electronic / mixed (CP= Closing door command /Sliding block activation) (AP= Opening first door activation /Gong activation)	Near Landing and Slowing Down Doors
	16	Normal selector (ICV)	Automatic doors (CP= Closing door command) (AP= Opening first door activation)	
	32	Long selector (ICV)	Manual doors (CP= Closing door command /Sliding block activation) (AP= Opening first door activation /Gong activation)	
	48	Long selector (ICV)	Automatic doors (CP= Closing door command) (AP= Opening first door activation)	
3	0	Internal mode AUX3 (INT) = Internal mode activation		INT SCP Multi Entrances Inverter Management Fire Service Mode
	64	Three entrances AUX 3 (INT) = Door photodetector for third entrance) E (AP3) = Open signal for the third entrance		
4	0	Stopping on the synchronizing sensors during inspection service mode	Inspection operation in high speed	Inspection Mode
	1	Stopping on the synchronizing sensors during inspection service mode	Inspection operation in low speed	
	2	Stopping at extreme landing during inspection service mode	Inspection operation in high speed, low speed on synchronizing sensors	
	3	Stopping at extreme landing during inspection service mode	Inspection operation in low speed	
5	0	Arriving with fixed light	Plant in halt after return at P0	Arrival Signalling, 'Reserved' Signal
	4	Arriving with fixed light	Plant immediately in Halt (look at the Note)	
	8	Arriving with blinking light	Plant in halt after return at P0	
	12	Arriving with blinking light	Plant immediately in Halt (look at the Note)	
6	0	No full load sensor (CCC)	Traction plant	Movable platform
	16	No full load sensor (CCC)	Hydraulic plant	
	32	With full load sensor (CCC)	Traction plant	
	48	With full load sensor (CCC)	Hydraulic plant	
7	0	Normal slowdown magnetic sensors placement	Inverted slowdown magnetic sensors placement	Landing and Slowing Down Zone's Magnetic Sensor Layout
	64			
8	0	1 GONG in up and 1 in down direction	Arrival + Position (serial outputs type A) (ref. Serial board User Manual)	Gong
	1	1 GONG in up and 1 in down direction	Arrival and Position separated (serial outputs type B) (ref. Serial board User Manual)	
	2	1 GONG in up and 2 in down direction	Arrival + Position (serial outputs type A) (ref. Serial board User Manual)	
	3	1 GONG in up and 2 in down direction	Arrival and Position separated (serial outputs type B) (ref. Serial board User Manual)	
9	0	Gong on speed change	Synchronizing/phasing at landing 0	Gong Synchronizing
	4	Gong on speed change	Synchronizing/phasing at the upper landing	
	8	Gong on car stopping	Synchronizing/phasing at landing 0	
	12	Gong on car stopping	Synchronizing/phasing at the upper landing	

10	0	Signalling "present" on the serial floor	Door's control disabled (control panel without doors contactors AP and CP, board doors operator)	Doors Controls
	16	Signalling "present" on the serial floor	Door's control enabled (control panel with doors contactors AP and CP, direct command door motor)	
	32	NO Signalling "present" on the serial floor	Door's control disabled (control panel without doors contactors AP and CP, board doors operator)	
	48	NO Signalling "present" on the serial floor	Door's control enabled (control panel with doors contactors AP and CP, direct command door motor)	
11	0	Serial wiring disabled		Serial and Parallel Wiring
	64	Serial wiring enabled		
12	0	Operator OFF during run	return at floor 0 after 14 minutes ENABLED (hydraulic plants only)	Doors Parking Operation
	1	Operator OFF during run	return at floor 0 after 14 minutes DISABLED (hydraulic plants only)	
	2	Operator ON during run	return at floor 0 after 14 minutes ENABLED (hydraulic plants only)	
	3	Operator ON during run	return at floor 0 after 14 minutes DISABLED (hydraulic plants only)	
13	0	Automatic synchronizing	SINGLE CALL PLANT	Programmable input/output Synchronizing
	4	Automatic synchronizing	COLLECTIVE PLANT	
	8	Synchronizing after call	SINGLE CALL PLANT	
	12	Synchronizing after call	COLLECTIVE PLANT	
14	0	DA-DB (ref. Picture No.1)	Collective plant Standard management	ICV/IF Landing and Slowing Down Zone's Magnetic Sensor Layout Plant type Direction
	16	DA-DB (ref. Picture No.1)	Collective plant Easy management	
	32	ICV-IF (ref. Picture No.1)	Collective plant Standard management	
	48	ICV-IF (ref. Picture No.1)	Collective plant Easy management	
15	0	IF e ICV open at landing		ICV/IF, Landing and Slowing Down Zone's Magnetic Sensor Layout
	64	IF e ICV close at landing		

**NOTE:** if immediate halt is programmed with '4' or '12' at address 5, board performs the following functions :

- enable re-levelling with elevator halted;
- on rope elevators, **fault '81'** generates plant jam
- enable check on run direction (**fault '84'**)
- enable phasing with stop or maintenance out of floor in high speed plants

**Halt after return to floor 0 (programming '0' or '8' at the address 5) happens only in the following conditions:**

- elevator is hydraulic
- elevator is halted but without code **fault '44' and '62'**
- not in inspection operation
- not in 'PRESET mode'

## 2.2"PROGRAMMABLE TIMES" TABLE

ADDRESS	LIMIT VALUES	LABEL	DESCRIPTION	REF.
16	2 – 45 sec.	TAP	Opening doors waiting time. Waiting to start (without reservation).	PCP Immediate Starting Doors
17	2 – 45 sec.	TOP	Maximum time door opening command is active.	Doors
18	2 – 45 sec.	THC	Maximum time door closing command is active.	Doors
19	2 – 99 tenths of sec.	TRA	Door opening delay after stop at floor and delay on door opening (pre-opening) earlier then the detection of APA signal with safety circuit (TRA>=70, delay=TRA-70).	Doors
20	0 – 99 tenths of sec	TIG	Gong pulse duration (0 → disabled)	Goong
21	10 – 99 sec.	TMP	Maximum time between door closure and 'no car start' fault is signalled.	CS Re-opening Devices
22	10 – 99 sec	TMC	Maximum travel run time. Maximum timeout during which drive commands are activated between floors (they are reset next to the stopping zone and to the slowing down zone) (If <10 → TMC=typical; If >=80 time = 80 + (tmc-80)*10). If = 99 control disable.	Maximum Travel
23	1 – 99 tenths of sec	RCPV	Slowing down delay	Enlarged Slowing Down Zone and Non- Regular Floor Distances Speed
24	0 – 99 tenths of sec	TOC	Time during which the "Busy" signal is ON after start closing doors. "Busy" board:: 0-99=TOC [Then. of sec.] OUTPUT "Busy": F, OCC: 0-90: TOC [Sec] 91≈10 min 92≈ 20 min. ... 99≈90 min	doors Reserved Signal
25	0 – 99 tenths of sec	TST	OLEODINAMIC plant: - 1-69 →TP Y/Delta; - 70-99 →TP always ON and TG delayed of TST-70 * If TST <70 and it is an odd value, the board check the activation of the CPP input before activating the TS signal. ROPE plant: 71= Inverter Fuji/Omron 72 Inverter Ziehl -abegg	CPP TG TP Delta/Star Starting
26	0 – 99 tenths of sec.	TRIF	Stop delay after magnetic sensors stop area detection	CS
27	1 – 99 x 10 sec.	TSN	<b>00-98:</b> Waiting time since quenching 'busy' signal before moving the car to the programmed floor at address '34'. -Enable stand-by (F output) <b>99=F</b> Output work a "busy"	Parking
28	1 – 99 min.	SBA	Battery detachment time after Emergency procedure activation (EM input). 0-97; time (from 1 to 97 min.) and automatic (15Vdc>Vbat <10Vdc); 98=Only automatic (15Vdc>Vbat <10Vdc); 99 → No detachment	Battery
29	0 – 99 tenths of sec	CHF	0-93=TMR2 between FS3 input and CPF output 94= TMR2 between FS3 and H [value in minutes of address 27] 95=H output is used for the signal of out of service, FS3 input is used for enable the "LIFT MAN" 96= H output is used to enable forced closing and ringing '98-99',H output is used for the High	CPF FS3 Timers Fire Service Mode
30	0 – 99 sec.	RIP	Re-levelling timeout ( 0→ control disabled) SAP function activation on PCP input programming an even value	Re-levelling PCP Door Opening Exclusion During Testing Operation
31	0 99 tenths of sec.	L13	TMR1 between CS1 and G (RU)	CS1 RU timers

## 2.3 "PROGRAMMABLE PARAMETERS" TABLE

ADDRESS	LIMIT VALUES	LABEL	DESCRIPTION	REF.
32	2 – 32	NF	Total number of landings	Multi-entrances
33	0 – 78	NS	Underground floors	Underground Floors
34	0 – 32	NST	Standing floor (Return after the time programmed at address 27 )	Parking
35	0 – 99	PB1	First irregular floor (lower interfloor distance than normal) or landing next to enlarged slowing down zone, adding 50 to the corresponding landing. ( Non - regular distance from the floor above ).	Enlarged Slowing Down Zone and Non-Regular Floor Distances
36	0 - 32	SPA1	First landing with reversed parking state of the door.	Parking With Open or Close Doors
37	0 - 32	SPA2	Second landing with reversed parking state of the door	Parking With Open or Close Doors
38	0 – 31	EIS	Sensors unlinked up with the car serial board (Ref. Serial boards user manual) ( 0 = none, 1 = RS, 2 = RD, 4 = ICV, 8 = IF, 16 = CCC, Sum = more sensors at the same time).	Movable Platform Wiring to the VEG0400 Car Serial Board
39	0 – 32	NPM	Landing fireman (ref. 'Fire service mode')	Fire Service
40	0 – 99	PB2	Second irregular floor (lower interfloor distance than normal) or landing next to enlarged slowing down zone, adding 50 to the corresponding landing. ( Irregular distance from the floor above ).	Enlarged Slowing Down Zone and Non-Regular Floor Distances
41	0	SBL	Unlock code ( If ≠ 0 blocked plant )	
42	0 – 99	PB3	Third irregular floor (lower interfloor distance than normal) or landing next to enlarged slowing down zone, adding 50 to the corresponding landing. ( Irregular distance from the floor above ).	Enlarged Slowing Down Zone and Non-Regular Floor Distances
43	0 – 32	PPE	Emergency landing called (automatic call) but only in down direction	Emergency
44	0 - 99	RITUSC	Tenths of sec. – Delay time on switching contactors' control TS, TD, TGP, RCP, RAP	Doors Safety Circuit
45	0 - 99	RITING	Tenths of sec. – Delay time on control inputs EXC, ALT, CS, RD, RS, TS, TD APG, CPP, EM, CS1. delay reverse direction driving	doors controls Inspection Mode
46	0 - 99	LETT	centes of sec – Rebound time on calls	PAP
47	0 - 99	DU	Decades/Units of the max number of working hours/runs or of time elapsed for six-monthly check ;	
48	0 – 99	MC	Thousands/Hundreds of max number of working hours/runs or of time elapsed for six-monthly check;	
49	0 – 99	CDM	Hundreds/Decades of thousands of max number of working hours. If CDM < 90 it is enabled the countdown of max number of working hours/runs: If CDM = 90 it is enabled the runs counter or hours of working. If CDM > 90 it is enabled the hours counter for the six-monthly check with the activation of the SAR output to signal that the time (4300hours/runs) has expired.	
50	1 – 127	POR0-10	Car entrances at landing 0-10	<p><b>FLOOR 0-9</b> +1 = First car entrance +2 = Second car entrance +4 = Third car entrance +8 = Call disable.</p> <p><b>FLOOR 10-19</b> +16 = First car entrance +32 = Second car entrance +64 = Third car entrance</p> <p><b>Sum = more entrances at the same landing</b></p>
51	1 – 127	POR1-11	Car entrances at landing 1-11	
52	1 – 127	POR2-12	Car entrances at landing 2-12	
53	1 – 127	POR3-13	Car entrances at landing 3-13	
54	1 – 127	POR4-14	Car entrances at landing 4-14	
55	1 – 127	POR5-15	Car entrances at landing 5-15	
56	1 – 127	POR6-16	Car entrances at landing 6-16	
57	1 – 127	POR7-17	Car entrances at landing 7-17	
58	1 – 127	POR8-18	Car entrances at landing 8-18	
59	1 – 127	POR9-19	Car entrances at landing 9-19	
			For the simultaneous opening of the first and second car entrances disable the third car entrance at address 3 and program the value (add. 50-59): '4' for floors from 0-9 '64' for floors from 10-19	Multi-Entrance
60	1 - 127	NUMCH	Serial mapping + Number of closing attempts with security contact faulty '+16' = fixed mapping of serial output	Doors'Control Serial Expansion

61	0-127	CESER	Serial boards calls management (ref. Serial boards user manual) 1 = external serial enabling (VEG0400) and exclusion of landing serial boards (VEG0600, VEG0700, FLOORDIS...) 2 = Car serial board exclusion (VEG400, SERCAR...) 16= output A,b,c,d,e,f,g, (one pole for floor). 32 = reversed A,B,C,D decoding (ref. Table). 64 = Multiplexing on call's inputs. <b>Programming '16' = position and '32' = decoded binary encoding is activated gray code on ABCD</b> sum = more options at the same time	Programmable Inputs/Outputs A/B/C/D Position /Arrival/ Reservation Serial or Parallel Wiring Landing Calls Management Platform Management
62	0 – 127	NSEC	1 = Local input MAN n.c. 2 = ptc probe exclusion (TM n.o.) 4 = CS1 safety circuit control enabling 8 = Input APA→ re-levelling zone and door pre-opening 16 = close doors re-levelling 32 = local input CCS n.c. 64 = Delay increased at the starting (10 sec instead of 4) Sum = More options at the same time.	Safety Circuit, Door's Pre Opening, Engine Temperature Relevelling Platform Management
63	0 - 127	MISC	1 = Movable platform disabled 2 = MAN PRESENT mode 4 = duplex plant 8 = low speed mode between not regular floors 16 = Master duplex mode 32 = hoistway without head and pit 64=A3 emendament Sum = More options at the same time.	Enlarged Slowing Down Zone and Non-Regular Floor Distances Duplex Movable Platform
64	0-127	...	2=Arrows run floor serial 4= Arrows run cab serial 8=Enable run counter add. 47/48/49 (otherwise work as counting hours) 16= Function increased waiting for loading and unloading goods (delay waiting with open doors)	...
65	0-32		Limitation of car calls 0 = No limit; 1 = 1 call limit; 2 = 2 calls limit....6=6 calls limit ...	
80*	0 – 99	ABL	0 ≤ ABL ≤ 8 management through encoder enable 0 = number of impulse 1 = number of impulse / 2 2 = number of impulse / 4 3 = number of impulse / 8 4 = number of impulse / 16 5 = number of impulse / 32 6 = number of impulse / 64 7 = number of impulse / 128 8 = number of impulse / 256 ABL >8 management through encoder disabled	
81*	0 – 99	DFR	(encoder increment)	
...	...	...	...	
84*	0 – 99	D1P	(x 50 encoder increments) deceleration distance V1P	
85*	0 – 99	D2P	(x 50 encoder increments) deceleration distance V2P	
86*	0 – 99	D3P	(x 50 encoder increments) deceleration distance V3P	
87*	0 – 99	D4P	(x 50 encoder increments) deceleration distance V4P	
88*	0 – 99	LMG	(x 4 encoder increments) dimension of door area magnets	
89*	0 – 99	DCP	(x 50 encoder increments) low speed deceleration distance (rephasing and maintenance)	
90	0-3	MUX	Simplex address on serial RS232	See multiplex user manual manual
91	0-9		Number of floor missing (for multiplex system)	
92	0-99		Closing up speed	
93	0-99	VMN	Maintenance and re-phasing speed ( % with reference to the analog output from 0 to 10 V)	
94	0-99	V1P	Speed V1P	
95	0-99	V2P	Speed V2P	
96	0-99	V3P	Speed V3P	
97	0-99		Input /oputup monitoring	
98	0-99		Language: 0=Italian; 1=English; 5=Cest. +16=Automatics calls. +32= disable the opening (for test)	
99	0-99		0=normal operation; 1=simulation mode (only with power supply); 2=test mode; 99=Reset EEPROM (restore all defaults values);	

**\* Verify that the version of the control board supports the management with ENCODER. At the end of the version there must be an E, for example, the version V4.3.102E manages the encoder.**

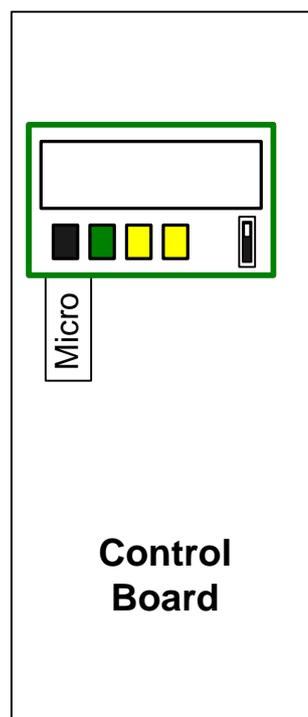
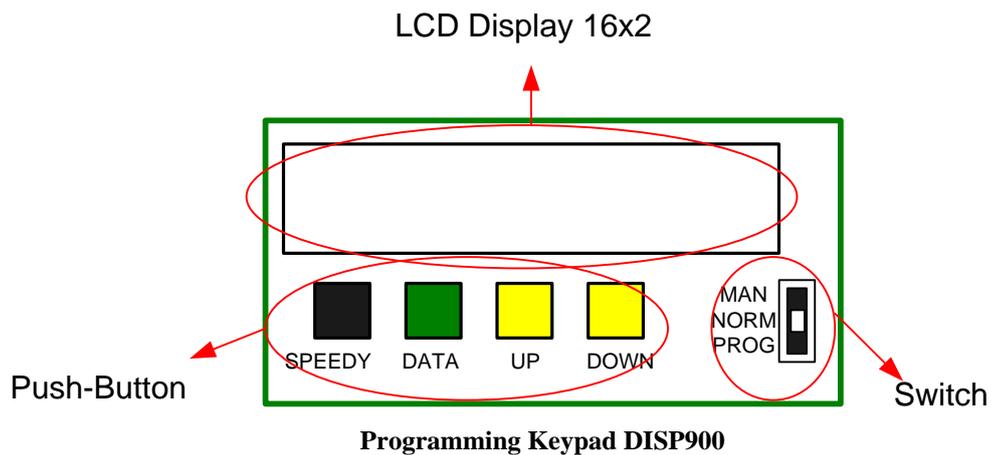
## 2.4 DEFAULTS TABLES

The control board is provided with the following default configuration.

0	01	No Bip on car call - (reserved)
1	08	CLOSED DOORS standing - 2 running speed plant
2	16	Normal slowing zone(ICV) - Automatic doors
3	00	Internal mode
4	02	Stop at furthestmost floors in maintenance - Maintenance in high speed
5	04	Arriving with steady light - Plant immediately jammed
6	16	No full load car gestion - Hydraulic lift
7	00	Slowing down magnets normal disposition
8	01	1 Gong in up direction and 1 in down - Serial output type B (arrive-position separated)
9	08	Gong on floor stopping - Phasing at floor 0
10	32	No Signal alarm on external serial boards - No checking on door motion
11	64	Serial expansion boards link enabled
12	03	Door closure ON during cabin motion - No autom. car return to floor 0 after 14 minutes
13	04	Automatic phasing - Collective plan
14	16	DA - DB - DIF = Disable alarm button
15	64	IF/DB e ICV/DA closed at floor
16	04	Time door opening while occupied signal is active (OCC signal)
17	08	Max time door opening command is done before time out and fault.
18	08	Max time door closing command is done before time out and fault.
19	03	Door opening delay after stop at floor or pre-opening (>70)
20	20	Gong pulse duration. ( 0 -> disabled )
21	30	Max time after door closure, after which 'no car start' fault is signaled.
22	80	Max car run time. Max time drive commands active beetwen floors
23	01	Slowing down delay
24	50	Time during the 'Busy' signal is ON after start closing doors.
25	70	<70 TP Y/Delta (Odd val CPP control);>70 TP alw.on,TG Delayed
26	00	Stop delay time after landing detection.
27	99	Wait time since quenching 'busy' before automatic call programmed
28	60	Batt.detachment after EM input and no further A(alarm) butt.press
29	98	TMR3 between FS3 and CPF
30	12	Maximum releveling time
31	99	TMR1 between CS1 and RU
32	08	Total number of landings
33	10	Underground utilities
34	32	Standing floor
35	32	First irregular floor or enlarged slowing down zone
36	32	First landing where car stands with opened door
37	32	Second landing where car stands with opened door
38	31	Sensors unlinked up with the cabin serial board: RS RD ICV IF CCC
39	00	Landing fireman
40	32	Second irregular floor or enlarged slowing down zone
41	00	Unlock code
42	32	Third irregular floor or enlarged slowing down zone
43	32	Emergency landing called (automatic call) but only in down direction
44	15	Rebound time on output relais.
45	06	Rebound time on input relais
46	05	Rebound time on calls
47	00	Decades/Units of max number of runs.
48	00	Thousands/Hundreds of max number of runs
49	90	Hundreds/Decades of thousands of num. of runs
50-59	01	Car entrances at landing 0-20
60	20	Maximum closure retry number when safety contact on doors is faulty.
61	22	CESER: Int Cab Ser Ex - Pres Without Ser Cab - Rev Decod Pos on A,B,C,D,E,....
62	26	NSEC: PTC sensor exclusion - En APA input - Relevel cl doors
63	09	MISC: Pres Car Excl - Low vel not reg floors
64	00	Hours countdown
65	00	No limit of car.
66-79	00	Reserved
80	99	Set to 0 to handle activation by encoder
81-96	00	(Encoder Increments) Stop distance
		(x 50 Encoder Increments) Slowing distance VMN
84	00	(x 50 Encoder Increments) Slowing distance V1P
85	00	(x 50 Encoder Increments) Slowing distance V2P
86	00	(x 50 Encoder Increments) Slowing distance V3P
87	00	(x 50 Encoder Increments) Slowing distance V4P
88	00	(x 4 Encoder Increments) Port zone magnets size
89	00	(x 50 Enc. incr.) Slowing dist. At low speed
90	00	Simplex address on RS232
91	00	Reserved
92	00	Reserved
93	00	Maint. And Reph. speed (percent. Compared to an. out. 0-10 V)
94	00	Halfway speed (V1P)
95	00	Halfway speed (V2P)
96	00	Halfway speed (V3P)
97	99	Local input/output supervising
98	01	Language
99	00	0=normal mode; 1=Simulation; 2=test mode; 99=Reset EEPROM

# 3. MULTIFUNCTION KEYPAD DISP900

The multifunction keypad DISP900 allows to configure all the parameters and function of the control board, allows to display and to manage the alarm information, allows to monitor the state (active or inactive) of some I/O signals. At address 98 it is possible to select the language for the programming Keypad DISP900: program value '0' for Italian or value '1' for English, 5 for Czechoslovakian.



## 3.1 MULTIFUNCTION KEYPAD COMPONENTS

The multifunction keypad DISP900 is composed of:

- a 16x2 LCD display for the visualization of the informations;
- a three positions switch that allows to select operative mode of the control board;
- four multifunction push-buttons (SPEEDY, DATA, UP e DOWN) which allow the management of programming operations and control board's informations;

### 3.1.1 PRESET Switch

It allows to change the operational mode of the control board between "Running mode" (if placed in NORM position), in "Programming mode" (if placet in PROG position) and in "Inspection mode" (if placed in MAN position).

[Ref paragraph 3.2.4](#)

### 3.1.2 DATA Push-Button

This push button performs the following functions:

- If it is pressed **during standard system working**, it is possible to display **IMMEDIATE INFORMATIONS**, (display the state of several signals). [Ref paragraph 1.6](#)
- Pressed **together with SPEEDY push button**, allows the board last stored faults consultation. [Ref. paragraph 1.3](#)
- In **PRESET** mode, that is during memory programming (Programming mode), displays the current data stored in memory at a specific address. [Ref. paragraph 3.2.3](#)

### 3.1.3 SPEEDY Push-Button

This push button performs the following functions:

- During permanent halt, allows **the system manual unblocking** (after solving the fault reason). [Ref. paragraph 1.2](#)
- Pressed **together with DATA push button**, allows the board last stored faults consultation. [Ref. paragraph 1.3](#)
- During **PRESET** mode, that is during memory programming (programming mode), if pressed together with UP or DOWN push button, allows to speed up the flow of the parameter list to reach faster the desired parameter (speeding up the flowing of displayed numbers). [Ref. paragraph 3.2.3](#)

### 3.1.4 UP Push-Button

This push button performs the following functions:

- During PRESET mode, that is during memory programming (programming mode), increases the value on the display. [Ref paragraph 3.2.3.](#)
- In Inspection mode, this push button moves the car in UP direction.
- If pressed in Running Mode it activates an automatic call to the top floor if the board is programmed for single call mode or for collective mode. If the board is programmed for "Man-Present" operation it moves the car in up direction until the car reaches the top floor or until the push button is released.
- In maintenance by keypad, exclude the control of the photocell.

### 3.1.5 DOWN Push-Button

This push button performs the following functions:

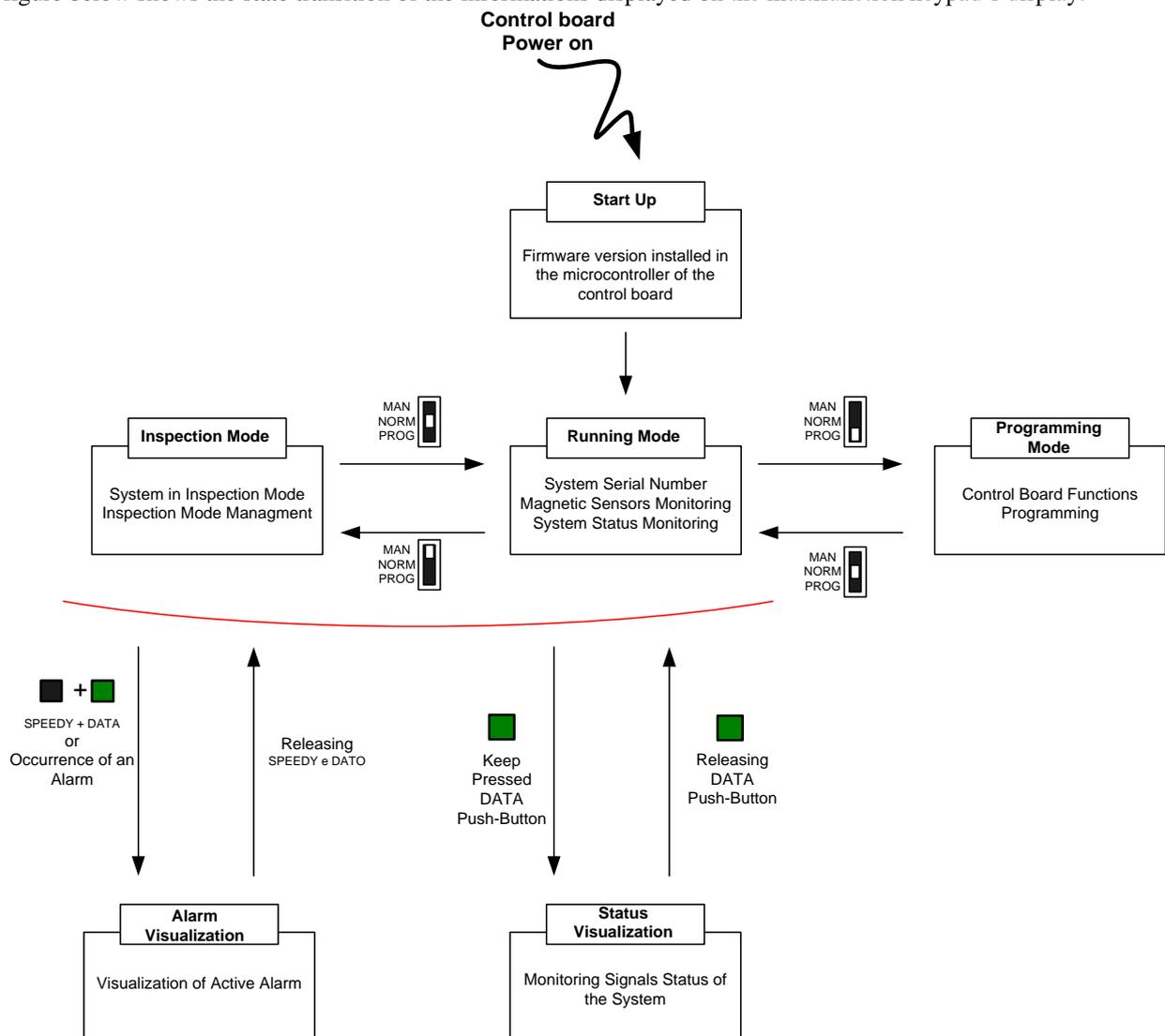
- During PRESET mode, that is during memory programming (programming mode), decreases the value on the display. [Ref paragraph 3.2.3](#)
- In Inspection mode, this push button moves the car in DOWN direction.
- If pressed in Running Mode it activates an automatic call to the lowest floor if the board is programmed for single call mode or for collective mode. If the board is programmed for "Man-Present" operation it moves the car in up direction until the car reaches the lowest floor or until the push button is released.

## 3.2 SYSTEM'S OPERATIVE MODES OVERVIEW

The multifunction Keypad DISP900 permits to manage the operative mode of the control board and to display useful informations:

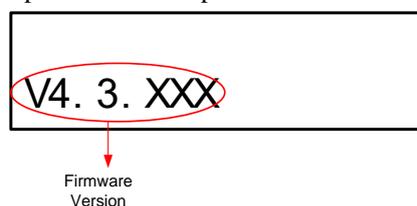
- **Start-up:** in this working mode you can check the firmware version installed in the microcontroller.
- **Running Mode:** you can monitor in real time the state (active or inactive) of inputs RS, RD, IF and ICV, you can have informations on working time of the systems, on system code number (if one had been assigned with the supervision software), on current position and next destination of the car.
- **Programming Mode:** in this working mode you can program the various parameters and functions of the control board.
- **Inspection Mode:** you can enter inspection mode and move the car using the the switch and the push-buttons on the multifunction keypad DISP900.
- **Alarm Check Mode:** you can check the alarm archive stored in the control board memory.
- **Input Status Check:** you can monitor the state of some input signals of the control board.

The figure below shows the state transition of the informations displayed on the multifunction keypad's display.



### 3.2.1 Start-Up

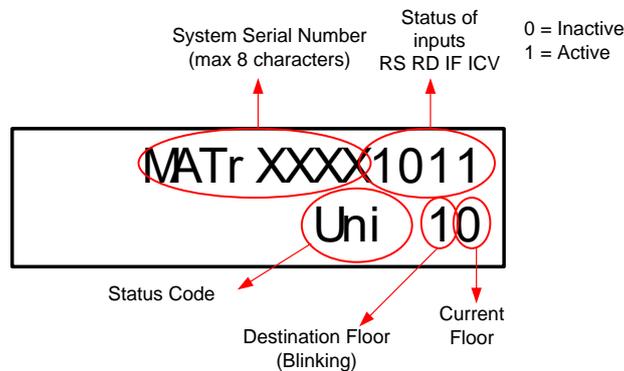
When the control board is powered, the display on the multifunction keypad visualize the firmware version installed on the control board microcontroller. An example of the start-up screen is shown in figure below.



### 3.2.2 Running Mode

In running mode, you can monitor in real time on the display the state of inputs RS, RD, IF e ICV (0 = inactive and 1 = active), you can have informations on working time of the systems and on system code number (if one had been assigned with the supervision software).

Also you can check the current position and next destination of the car (blinking signalling). If the car is idle and there aren't other calls to serve, the field of the display reserved to the next destination signalling remains off and only the current position is visualized.



In the table below are listed the inputs' active state codes that are displayed during the normal working of the system.

CODE	DESCRIPTION
ALT	ALT input signal interrupted.
FCM	CM input signal interrupted. Photodetector interrupted.
PAP	PAP input signal active. Door Opening Push-Button pushed.
PCP	PCP input signal active. Door Closing Push-Button pushed.
CCS	CCS input signal active. Overload active.
CCC	CCC input signal active. Full Load sensor active. Note: this code is displayed only if the Full Load check function is enabled programming at address 6 the value '32' or '48'.
CCO	CCO input signal active. Movable Platform active. Note: this code is displayed only if the Movable Platform check function is enabled not programming at address 63 the value '+1'
SOS	Alarm Push-button pressed.
EMP	EM input signal active. System in Emergency mode.
PSM	PSM input signal active. Up direction movement (in inspection mode) push-button pressed.
PDM	PDM input signal active. Down direction movement (in inspection mode) push-button pressed.
MAN	MAN input signal active. System in Inspection mode.
CEP	CEP (FS3) signal active. Displayed only if the fire service mode or the firefighters service mode are active
INT	INT input signal active.
DUP	Duplex System. Note: this code is displayed only if Duplex function is enabled (programming at address 63 the value '+4') and if the system is really communicating with the other system connected with the apposite duplex cable.
SBY	Stand-By active, after the time (add. 27= 00-98) of inactivity of the board will activate the F output.
LIF	LIFT MAN management active. FS3 input Active (Add 29=95)
BVS	Low Speed in Up direction
AVS	High Speed in Up direction
BVD	Low Speed in Down direction
AVD	High Speed in Down direction
COL	Collective Calls system.
UNI	Automatic Single Calls system
UOM	'Man Present' Operation
TES	Test in inspection mode (Open door disable).

The priority of the code visualization follow the same order of the table above. The codes that fill the highest position of the table have a priority higher than the ones that fill the lowest position in the same table. For example if both the CM input signal and the PCP input signal are active, the code FCM will be displayed.

### 3.2.3 Programming Mode

In Programming Mode is possible to set up the control board with all the function needed from the system.

To enter in Programming Mode, the system must be stopped and the push-button of the keypad DISP900 (SPEEDY, DATA, UP and DOWN) must be inactive.

The programming mode is activated moving the switch on the keypad in PROG position. In programming mode the system remains blocked with the “reserved” signal on.

In programming mode, in the field of the display reserved to the input state code, will be visualized the string PAR (PARAMETER) followed by the last address’ number checked in the last board programming. If, in the meantime, a power outage had occurred will be displayed the number of the first address (00).

Now it is possible to reach the parameter that has to be visualized and setted using the UP and DOWN Push-buttons. Pushing together UP or DOWN push-button and SPEEDY, the scrolling of the parameter list can be speeded up.

When the desired address is reached, it is possible to display the setted value pushing the DATA push-button: in the field of the display reserved to the state code is visualized the string VAL (VALUE) and in the next numeric field is visualized the value currently setted in the selected parameter. Thi value can be modified keeping pushed the DATA button and pressing the UP or DOWN push button to select the new value. When the desired value had been reached, it is necessary to release the DATA button, the selected value will blink three times and the new value will be memorized in memory.

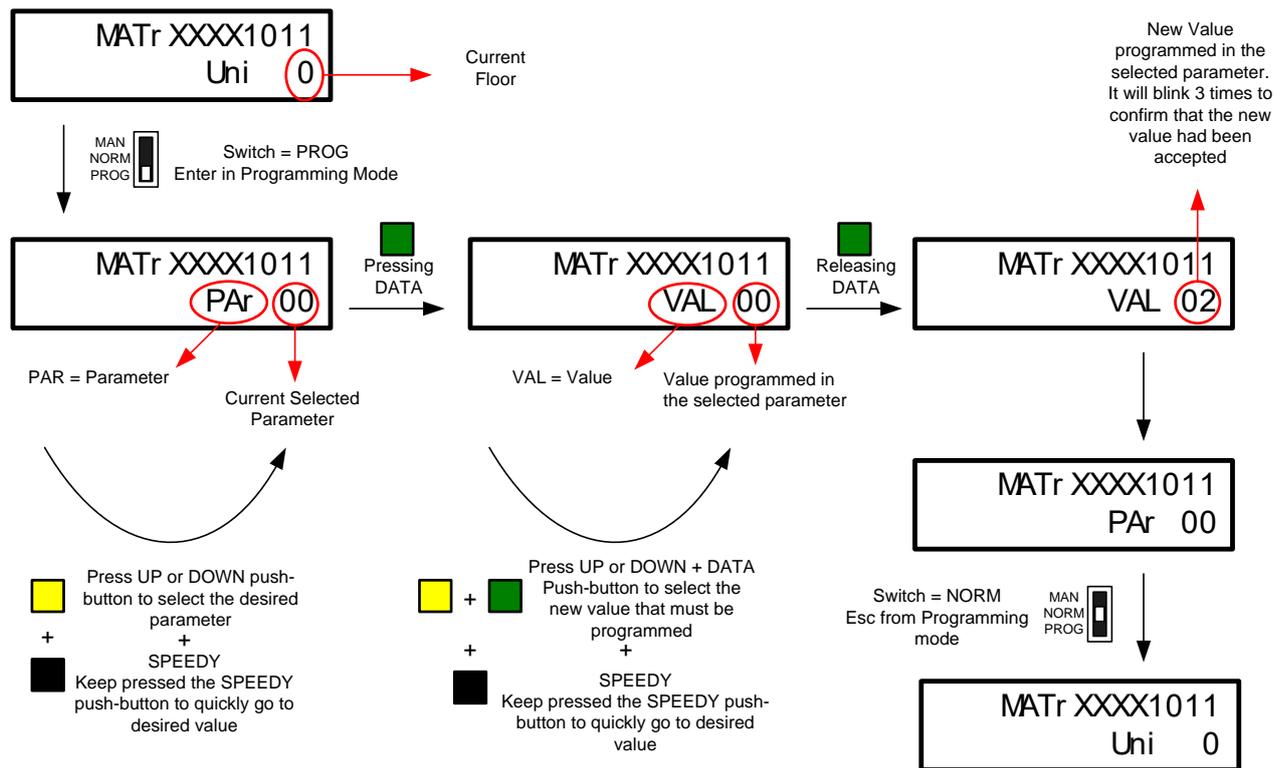
Keep one finger’s on DATO button to modify the value and press UP or DOWN button to select the new setting. When the desired value is reached release the DATO button, if the memorization is correct the display will blink 3 times with the correct value.

Whenever the new value is wrong, the last value stored will remain and it will be displayed the fault code ‘58’ (for functions) and code ‘59’ (for stops number < 2 or > 16).When modifying “Programmable Times”, if a value is out of range, the default value (shown in the previous table) is set automatically.

At the end, exit from program mode, moving the switch on DISP900 in NORM position, the plant is operative with the new settings (no power supply off is needed).

Each control board is pre-programmed with default values (default configuration), shown on previous tables.

In the figure below is represented the state diagram of the programming procedure and some example display’s screens in the differ programming phases.



### 3.2.4 Inspection Mode

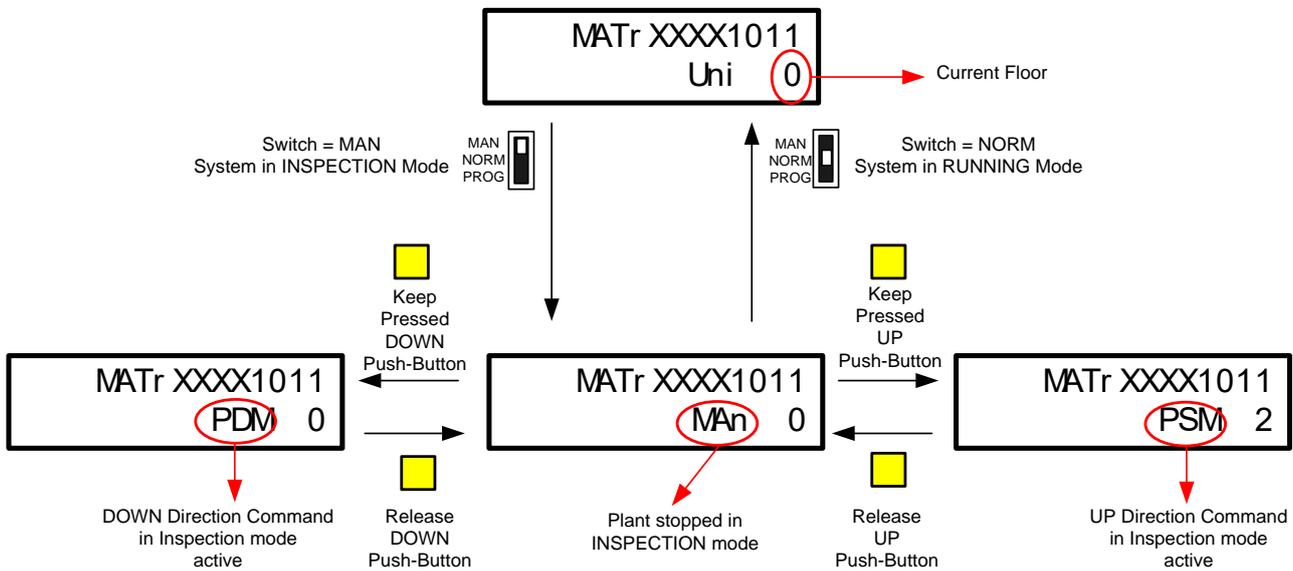
With the multifunction keypad DISP900 is possibile to manage the Inspection Mode.

To enter in Inspection Mode it is necessary to move the switch on DISP900 in MAN position. In Inspection Mode, in the field of the display reserved to the state code is visualized the code ‘MAN’. Now using UP and DOWN push buttons is possible to move the car respectively in up and in down direction.

Pushing the UP push button the car will move in up direction and in the field of the display reserved to the state code will be visualized the code PSM (Up Direction in Inspection Mode active).

Pushing the DOWN push button the car will move in up direction and in the field of the display reserved to the state code will be visualized the code PDM (Down Direction in Inspection Mode active).

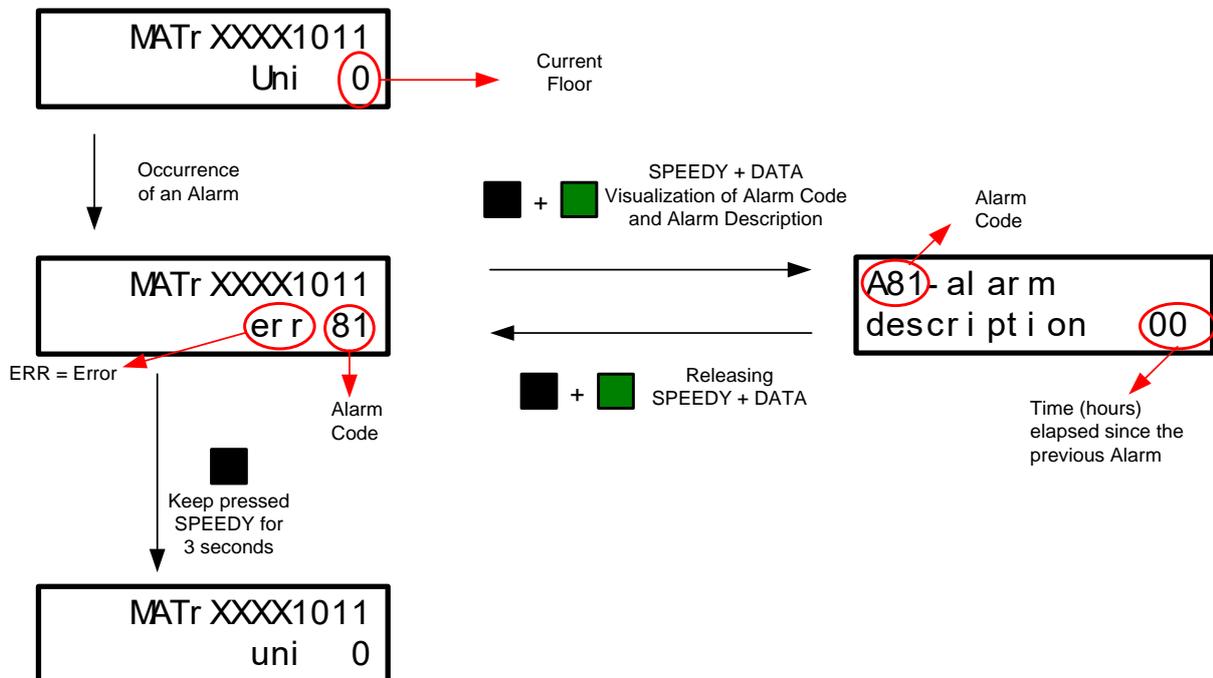
In the figure below is resumed the Inspection Mode management made through the DISP900 keypad and some example display's screens in the differ Inspection Mode's phases.



### 3.2.5 Alarm Mode

When a fault occurs, in the field of the display reserved to the state code will be visualized the string 'ERR' (ERROR) and in the next number is show the error code. For a complete description of the Alarm Mode management and of alarm codes' meaning refer to chapter 1.

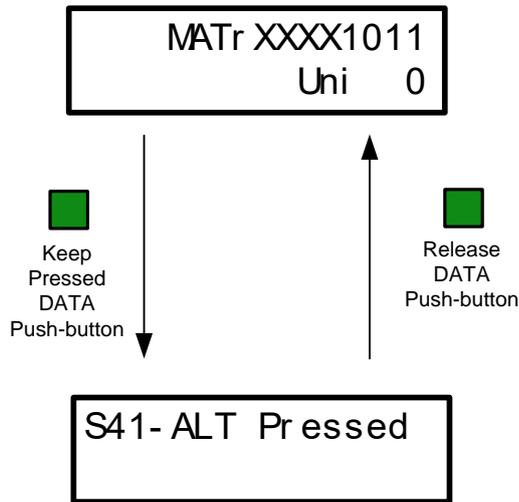
In the figure below are shows some example display's screen when an alarm occurs.



### 3.2.6 Input State Check

It is possible to visualize on the display a state code with a short description of its meaning. This code shows if a particular signal or function is active. [Ref Paragraph 1.6.](#)

To visualize the state code it is necessary to push, in Running Mode or in Inspection Mode, the DATA push button.



### 3.2.7 Led Fault

It is a RED LED that signals the presence of a fault condition that blocks the system. It remains on until there is a fault condition.

### 3.2.8 Led Err

It is a YELLOW LED that indicates if there are faults memorized in the fault record. In normal conditions the led is off and it lights up when there are faults in memory. The yellow LED flashing indicates the presence of a fault stored in the memory that has not been read yet.

### 3.2.9 Led Ready

It is a GREEN LED that indicates the state of the control board's microprocessor. It lights up when the microprocessor has finished the start-up phase and is ready. The start-up phase is four seconds long but this time can be extended to ten seconds adding the value '+64' at address 62.

## 3.3 PROGRAMMING WRITING PROTECTION THROUGH PASSWORD

It's possible to set up a password through a supervision software, which enables to protect programming parameters from writing. In order to be input through a push-button of the keypad DISP900, the password must only have numbers, otherwise it is possible to unlock it by supervision software.

In order to block all programming parameters, you must set a password made up of 5 figures (ex.0123) through the supervision software.

Once the password is set, it is possible to input it through push-button of the keypad DISP900 in the proper parameters (ind. 47-48-49).

For instance, if the previous password corresponds to 0123, you must program address 49 to "01" and address 48 to "23".

<b>Block of all parameters (4 digits)</b>		
Address	49	48
Value	01	23

Everytime you go back to programming, the password will be required.

By setting a password made up of 6 figures it is possible to protect only those parameters related to the counting of the hours for six-monthly check (address 47-48-49).

If you want blocking only Address 47,48 and 49, you must set a password by supervision software (ex 012345).

To unlock these Address by push-button of the keypad DISP900 you must set up the access code in the proper parameters.

For instance if the previous password corresponds to 012345, you must program Address 49 to "01", address 48 to "23" and address 47 to "45".

<b>Block only the parameter 47-48-49 (6 digits)</b>			
Indirizzo	49	48	47
Valore	01	23	45

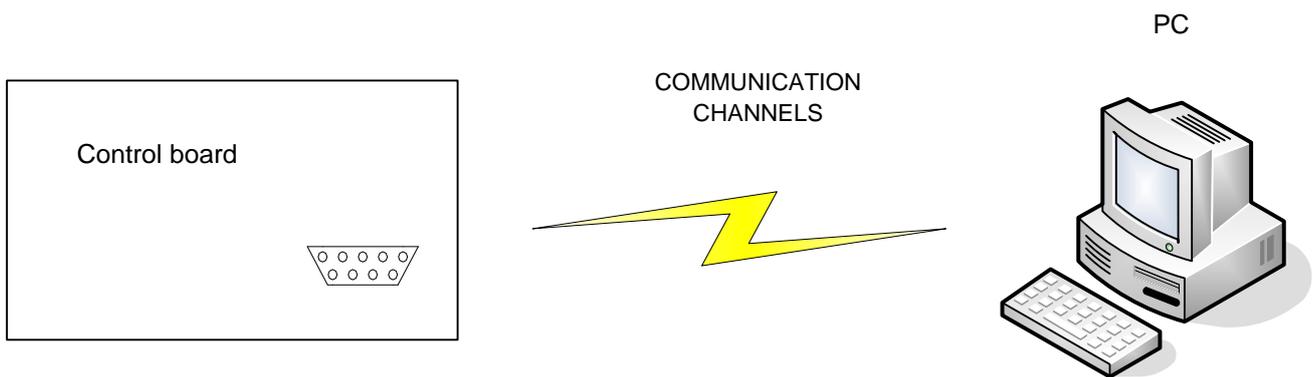
Fault 57 means that the password is wrong.

Setting a blank space " " as a new password by supervision software, the password is deactivated.

PASSWORD	DESCRIPTION
" " BLANK SPACE	PASSWORD DEACTIVATED
Numeric (4 figures)	Block all parameters, it is possible to unlock from the push button of the keypad DISP900.
Numeric (6 figures)	Block some parameters, it is possible to unlock from the push button of the keypad DISP900.
"0000" or "000000"	Block only the supervision, it is possible to unlock from the control board.
Alphanumeric	Block only the supervision.

## 3.4 PROGRAMMING BY PC

For programming the memory, in alternative to procedure described at the paragraph 3.2.3, it's possible use a Personal Computer, with the proper supervision software. It's can also monitoring all Inputs and outputs of the control board.

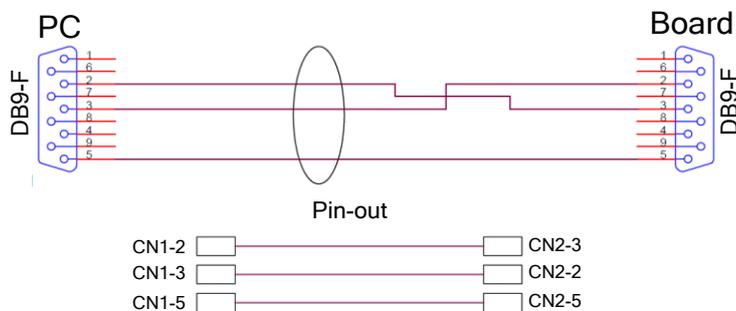


**This system is capable of performing the following steps:**

- Reading and programming the memory of the control panel (Times, Functions and Parameters);
- Reading and programming the memory of the control panel (Times, Functions and Parameters);
- Consultation of the last 32 faults reported by the control board;
- Removal of the faults reported in the control board;
- Real-time visualization of the state of all inputs and outputs;
- Real-time graphical representation of the car and the elevator shaft
- Making calls remotely
- Implementation of the 'manual release' plant in case of permanent damage (after resolving the cause of the blockage)

The control board is able to handle different types of connection to the PC and then different types of communication channels:

- Local connection: in this case you will not need to use any modem but the connection between the control board and the PC can be done with a special 3-wire cable that connects to a PC COM port with 9-pin connector on the card control. Code: CB\_VG0056\_01 (2mt.)



- Connection via GSM modem: if the remote connection, if you do not have access to a telephone line you can use a GSM modem connected to the 9-pin connector on the control card via cable. (See brochure supervision)

For more information you can see the user manual of supervision software.

**Note:**

If you use the monitoring software for the PC to the previous version V.4.3.0, set +16 at address 90 of the control board.

# 4. CONTROL BOARD CHARACTERISTICS

## 4.1 GENERAL CHARACTERISTICS

- **Dimensions:** 105 x 255 mm
- **Weigh:** 250 g.
- **Control board's software:** SW is contained into a removable and reprogrammable microprocessor with FLASH technology.
- **Setting plant's parameters and faults list:** board totally programmable by a removable display (DISP900) or via Computer both in local or remote mode (with a modem board). Parameters are stored thanks to EEPROM and so the control board doesn't lose its programming even when there is a power off.
- **Compliance with safety's circuits rules:** the board is compliance with UNI EN 81-1/2 Standard currently in force.

## 4.2 ELECTRIC CHARACTERISTICS

### 4.2.1 Power Supplies

- **Power supply:** Provide a continuous voltage at connectors **GND** and **CL** obtained rectifying an alternate voltage in the range that goes from 13Vac  $\pm$  10% to 25Vac  $\pm$  10%.
- **Power supply with battery:** at the connector **BAT** has to be connected at the battery of 12V to keep enable the alarm and emergency's functions even if power supply turn off.
- **Output power supply for subordinate boards and emergency devices:** from connector **VIM** which supplies a voltage of 13.5 Vdc stabilized and backed up with battery and a maximum current of 1.5 A.
- **Voltage reference point:**
  - **GND** is the zero reference for the board and the other external devices (lights, relais, subordinate boards...Except safety circuits).
  - **OM** is the zero reference for the working voltage and safety circuits;
  - **AL-** is the zero reference for circuit AL+, AL-. After insulation tests, these connectors are to be connected together and placed at ground.
- **Temperature range:** from 0°C to +50°C
- **Safety's Voltage:** 24Vdc to 110 Vac.

### 4.2.2 Inputs

All **inputs**, except that's for checking on safety's chains (optoisolated), must be connected towards the GND. They are not damaged by voltages less than 24V. All inputs have LED signalling.

### 4.2.3 Outputs

All transistor outputs close towards GND devices connected at 12 or 24 Vdc. The outputs take a maximum current of 0.5A and are protected from short-circuit.

The outputs for run contactors, for doors relais, for the OCC and the CE signals are relais contact which can take 5A max.

# 4.3 ELECTRICAL DRAWING

