

PROGRAMMABLE LCD DISPLAY

Car position indicator

Programming
manual



MONOCOLOR

TRICOLOR_03

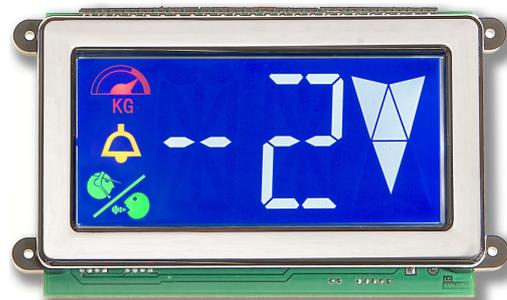


Table of content

ENGLISH

Technical characteristics	pag. 2
Connection diagram.....	pag 3
Display pinout.....	pag. 3
Example of application.....	pag. 4
Mechanical mounting	pag. 5
Characters	pag. 6
Programming	pag. 7
Summary of programming.....	pag. 10
MONOCOLOR.....	pag. 11
TRICOLOR.....	pag. 11

Programmable *Small* display manual

Rev. n. 05 firmware ver. 1.5

Data: 29/09/09

Included in the packaging:

- LCD display;
- Mounting kit;
- Instructions for use.

You will find useful information and advice for correct assembly and maintenance:

1. Check the packaging integrity
2. During opening do not damage the board with sharp objects (scissors...)
3. To avoid damages use the board only with appropriate bracelet to lead electrostatic charges to ground.

MONOCOLOR



TRICOLOR



TECHNICAL CHARACTERISTICS.

VISIBLE AREA	121x58
DISPLAY ENCUMBRANCE	163x107x19.5 mm
SHEET THICKNESS	Max. 3 mm.
WEIGHT	219g
FONT TYPE	White on blue background; capital letters, decimal figures, symbol + and -
CODING	1 wire for floor(14 stops), Binary code or inverted Binay code(32 stops), Bcd, 7 segments
PROGRAMMING	Act the P1 and P2 push buttons on the board
SPECIFICS INPUT	For the up/down arrow indications, overload, out of order, sent and acknowledged alarm
MOUNTING	Thanks to the aesthetics and the compact design, this display allows an easy and elegant installation on the car button panel
POWER SUPPLY FOR COMMON ANODE DISPLAY (POSITIVE COMMON)	12/24 VDC \pm 10% 12*/24 VAC \pm 10%
POWER SUPPLY FOR COMMON CATHODE DISPLAY (NEGATIVE COMMON)	12*/24 VAC/DC \pm 10%
MAXIMUM POWER	1,5W
TEMPERATURE WORKING RANGE	from -15°C to +60°C
TEMPERATURE STOCKING RANGE	from -25°C to +60°C
INPUT C_AA/AA PWR SUPPLY	12/24Vdc \pm 10%
INPUT C_AR/AR PWR SUPPLY	12/24Vdc \pm 10%
INPUT +LE/GND PWR SUPPLY	BATTERY 12/24Vdc \pm 10%

***It's possible to supply the display with 12 Vac but with the degradation of the buzzer signal.**

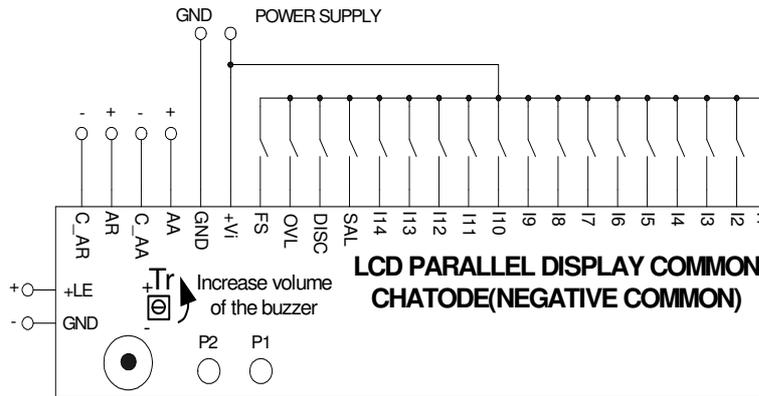
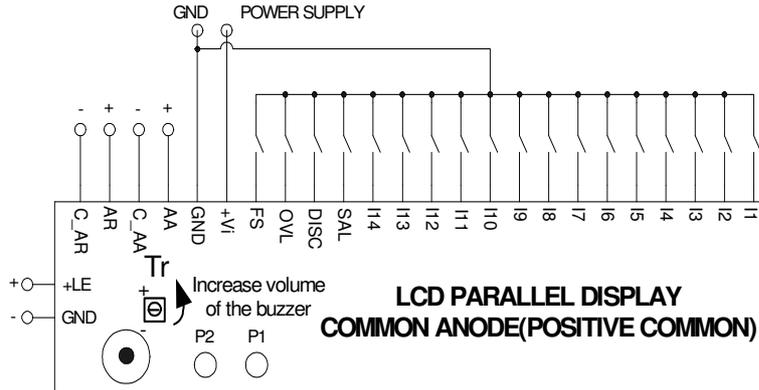
CONNECTION DIAGRAM

INPUTS AVAILABLE FOR MONOCOLOR:

- FS OUT OF SERVICE)

INPUTS AVAILABLE FOR TRICOLOR:

- AA (SET ALARM)
- AR (RECEIVED ALARM)

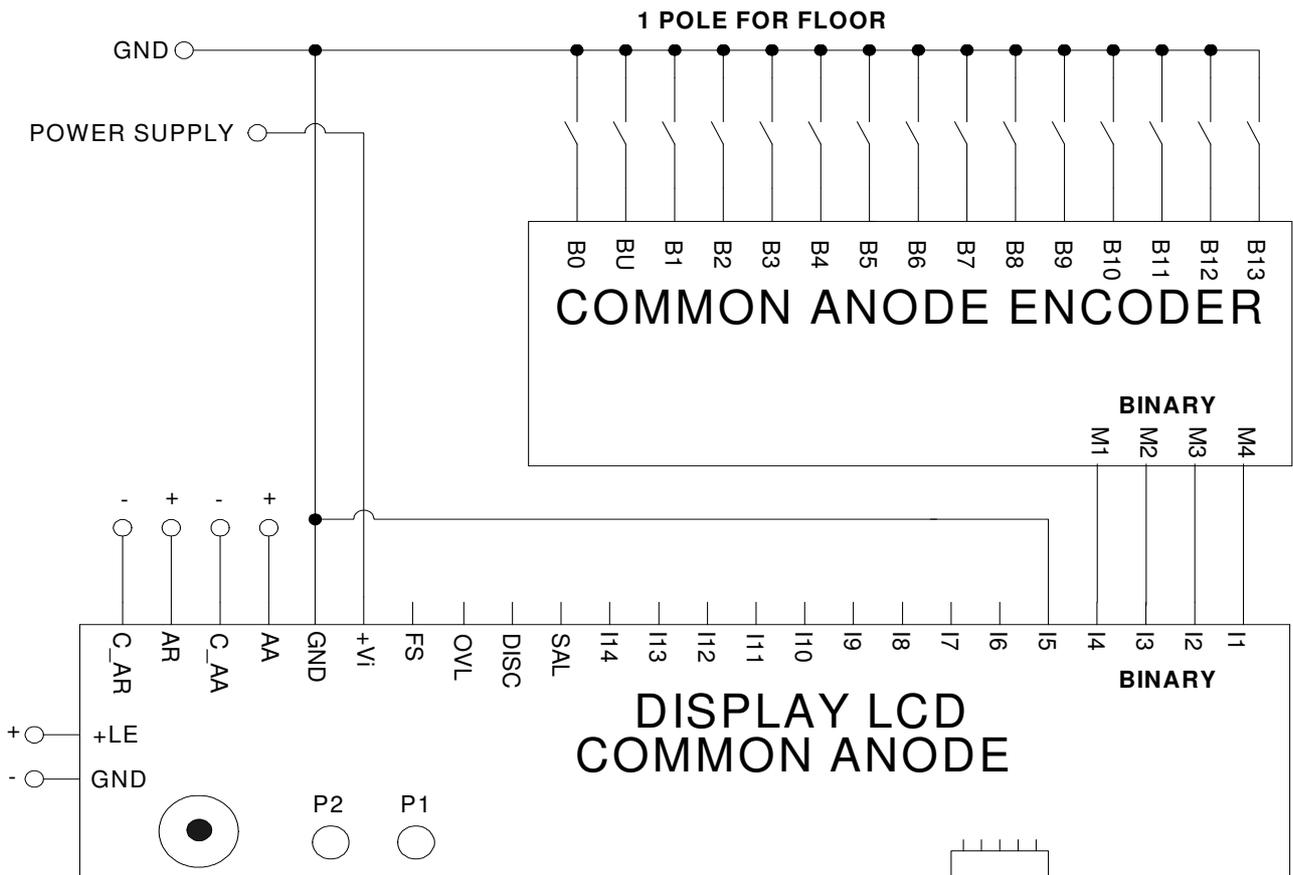


Display pinout:

PIN	DESCRIPTION	DEFAULT
I1	INPUT 1	-2
I2	INPUT 2	-1
I3	INPUT 3	0
I4	INPUT 4	1
I5	INPUT 5	2
I6	INPUT 6	3
I7	INPUT 7	4
I8	INPUT 8	5
I9	INPUT 9	6
I10	INPUT 10	7
I11	INPUT 11	8
I12	INPUT 12	9
I13	INPUT 13	10
I14	INPUT 14	11
SAL	UP ARROW	up arrow
DISC	DOWN ARROW	down arrow
OVL	OVERLOAD	overload
FS	OFF DUTY	off duty
+Vi	PIN (+) POWER	+Vi
GND	PIN (-) POWER	GND
AA	PIN (+) ALARM IN ACTION	AA
C_AA	PIN (-) ALARM IN ACTION	C_AA
AR	PIN (+) ALARM RECEIVED	AR
C_AR	PIN (-) ALARM RECEIVED	C_AR
+LE	PIN (+) EMERGENCY LAMP (*)	+LE
GND	PIN (-) EMERGENCY LAMP (*)	GND
P1	SELECT BUTTON	P1
P2	ENTER BUTTON	P2

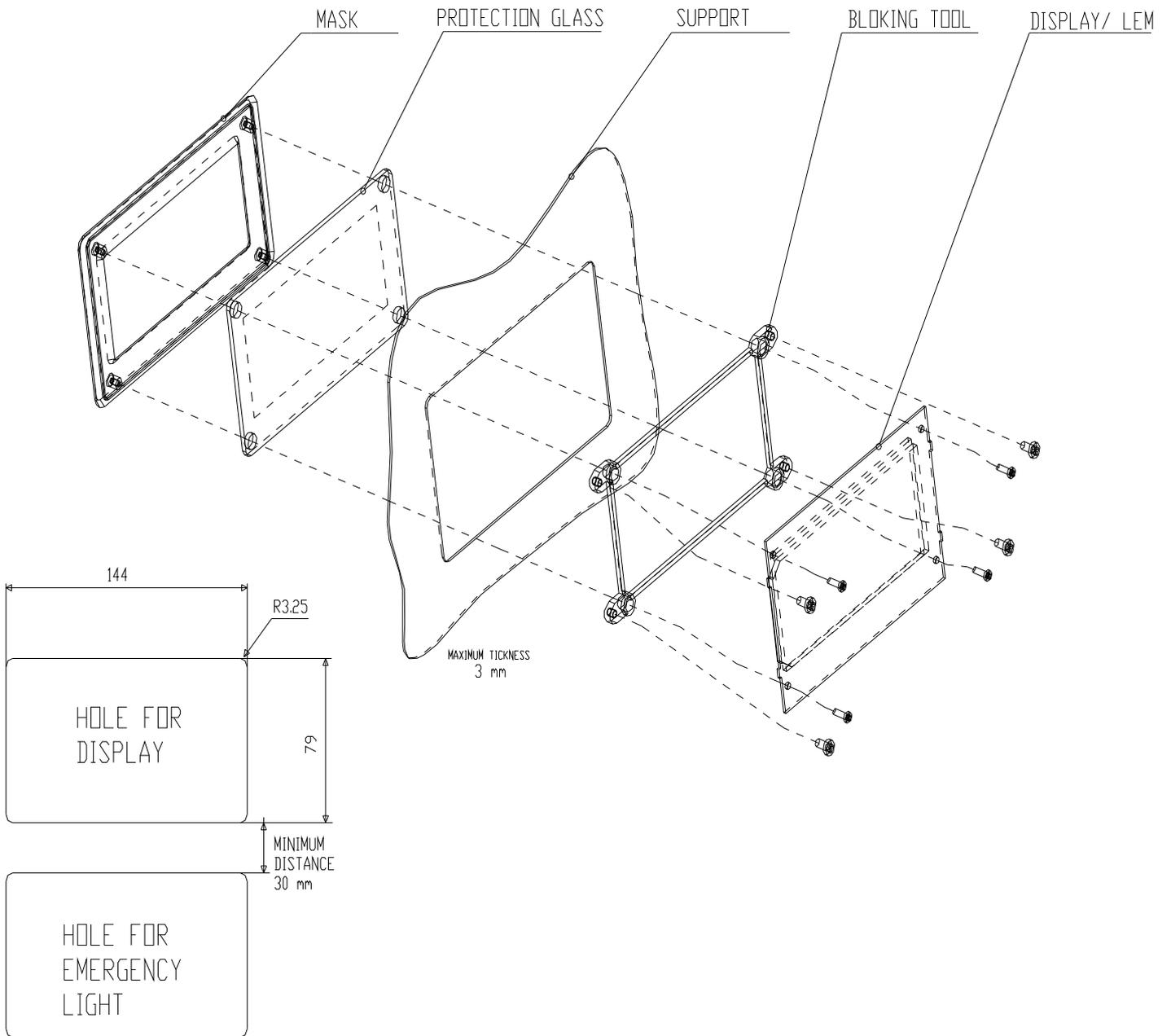
COMMON ANODE ENCODER-16 WITH COMMON ANODE PARALLEL DISPLAY.

COMMON ANODE														1	2	4	8	DISP	
B0	BU	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	M4	M3	M2		M1
															OFF	OFF	OFF	OFF	15
ON															ON	OFF	OFF	OFF	14
	ON														OFF	ON	OFF	OFF	13
		ON													ON	ON	OFF	OFF	12
			ON												OFF	OFF	ON	OFF	11
				ON											ON	OFF	ON	OFF	10
					ON										OFF	ON	ON	OFF	9
						ON									ON	ON	ON	OFF	8
							ON								OFF	OFF	OFF	ON	7
								ON							ON	OFF	OFF	ON	6
									ON						OFF	ON	OFF	ON	5
										ON					ON	ON	OFF	ON	4
											ON				OFF	OFF	ON	ON	3
												ON			ON	OFF	ON	ON	2
													ON		OFF	ON	ON	ON	1
														ON	ON	ON	ON	ON	0

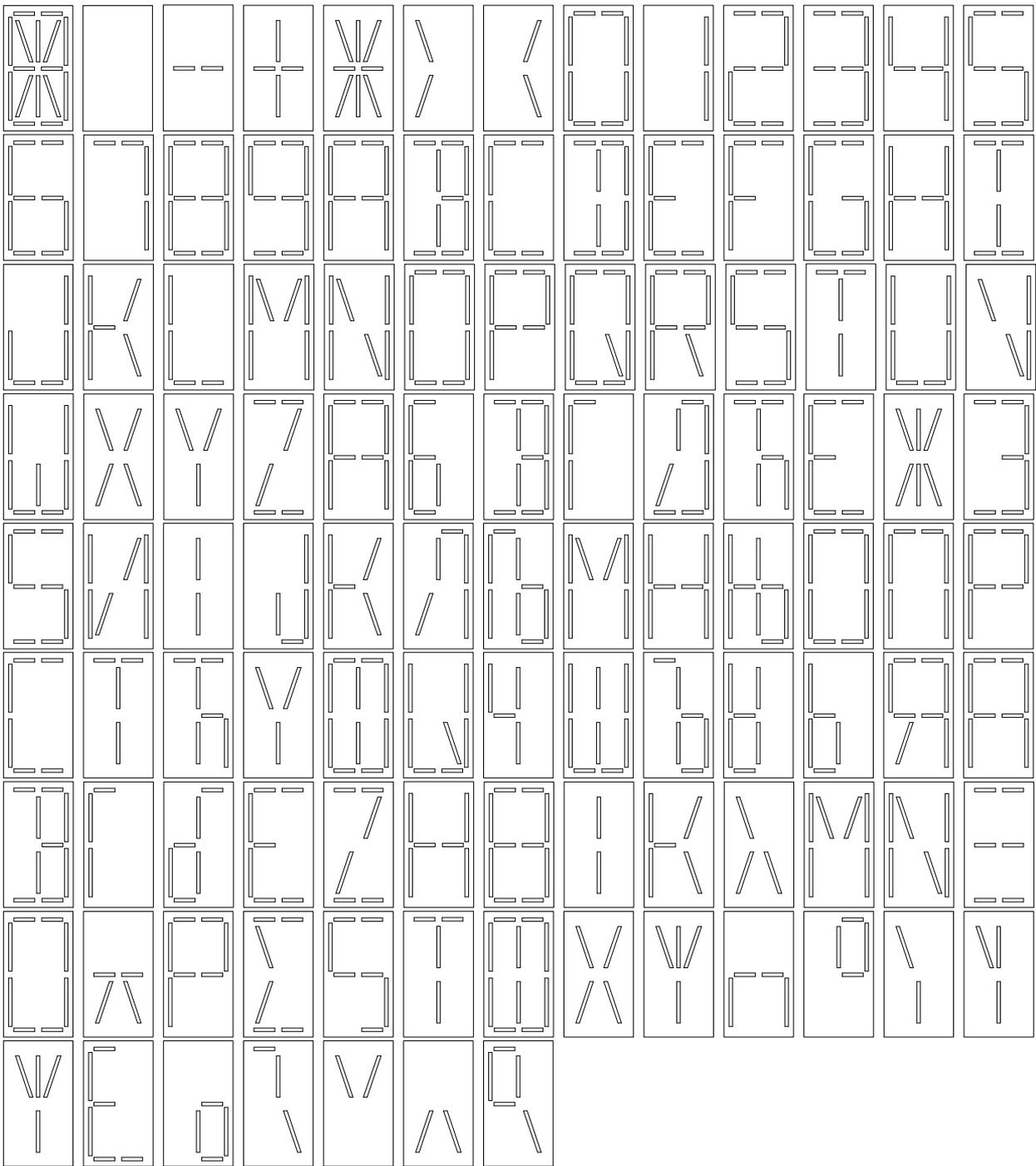


BINARY LOGIC PROGRAMMING (point M2 in the programming menu)

MECHANICAL BOARD MOUNTING.



Characters:



PROGRAMMING MODE

In the Parallel Car Position Indicator's board are available 2 programming buttons called **SELECT (P1 button)** and **ENTER (P2 button)**.

SELECT button is used to choose a menu or change a parameter, while **ENTER** button allow to confirm the choice.

Press the **SELECT** button to enter into modality of programming, while wait the timeout of 30 seconds to exit programming mode without modify any parameter.

Menu 1

It allows to choose what characters to display for each selected floor.

NOTE: a floor must be selected to allow this function, otherwise board displays an error!

- Enable and keep active the floor that you want to modify the visualization.
- Press one time the **SELECT** button. Display will visualize the string "M1".
- Press the **ENTER** button access on the programming menu.
The first digit will be on and blinking, the second digit will be off.
With the **SELECT** button is possible to choose the character that will be visualized on the first digit,
keeping the button permanently pressed down, the characters change quickly.
- Press the **ENTER** button to confirm the character.
The first digit stop to blink and the second digit is on and blinking.
- Press the **ENTER** button to confirm the character.
The programming procedure is completed and the data are stored.

Menu 2

It allows to choose the floors coding mode (look at the table below).

- Press two time the SELECT button. Display will visualize the string "M2";
- Press the ENTER button to access the programming menu.
The digits blink and visualize actually selected coding mode.
With the SELECT button is possible to select the desired coding mode.
- Press the ENTER button to confirm the modality.
The programming procedure is completed and the data are stored.

Modality	Display	Description
1 wire for floor	1P	Each input matches a floor
Binary	B	Use only the first 5 inputs to calculate the floor number in binary code (Range from 0 to 31 - 32 = display off).
Binary denied	BN	Use only the first 5 inputs to calculate the floor number in binary code (Range from 0 to 31 - 32 = display off).
Bcd	BCD	Use the first 4 inputs to calculate the unity in binary code, the input "5" to calculate the dozen and the input "6" to calculate the sign. If both I5 and I6 are activated, I6 has priority.
7 segments	7S	Each input matches a segment of one of the 2 digits, managed as if it were a display to 7 segments.

BINARY CODING TRUTH TABLE

VISUALIZED NUMBERS	I1 =LSB	I2	I3	I4	I5 = MSB
0	OFF	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF
5	ON	OFF	ON	OFF	OFF
6	OFF	ON	ON	OFF	OFF
7	ON	ON	ON	OFF	OFF
8	OFF	OFF	OFF	ON	OFF
9	ON	OFF	OFF	ON	OFF
10	OFF	ON	OFF	ON	OFF
11	ON	ON	OFF	ON	OFF
12	OFF	OFF	ON	ON	OFF
13	ON	OFF	ON	ON	OFF
14	OFF	ON	ON	ON	OFF
15	ON	ON	ON	ON	OFF
16	OFF	OFF	OFF	OFF	ON
17	ON	OFF	OFF	OFF	ON
18	OFF	ON	OFF	OFF	ON
19	ON	ON	OFF	OFF	ON
20	OFF	OFF	ON	OFF	ON
21	ON	OFF	ON	OFF	ON
22	OFF	ON	ON	OFF	ON
23	ON	ON	ON	OFF	ON
24	OFF	OFF	OFF	ON	ON
25	ON	OFF	OFF	ON	ON
26	OFF	ON	OFF	ON	ON
27	ON	ON	OFF	ON	ON
28	OFF	OFF	ON	ON	ON
29	ON	OFF	ON	ON	ON
30	OFF	ON	ON	ON	ON
31	ON	ON	ON	ON	ON

OFF: input disabled (switch open)
ON: input enabled (switch close)

BCD TRUTH TABLE

VISUALIZED NUMBERS	I1= LSB	I2	I3	I4 = MSB	I5 = TEN
0	ON	ON	ON	ON	ON
1	OFF	ON	ON	ON	ON
2	ON	OFF	ON	ON	ON
3	OFF	OFF	ON	ON	ON
4	ON	ON	OFF	ON	ON
5	OFF	ON	OFF	ON	ON
6	ON	OFF	OFF	ON	ON
7	OFF	OFF	OFF	ON	ON
8	ON	ON	ON	OFF	ON
9	OFF	ON	ON	OFF	ON
10	ON	ON	ON	ON	OFF
11	OFF	ON	ON	ON	OFF
12	ON	OFF	ON	ON	OFF
13	OFF	OFF	ON	ON	OFF
14	ON	ON	OFF	ON	OFF
15	OFF	ON	OFF	ON	OFF
16	ON	OFF	OFF	ON	OFF
17	OFF	OFF	OFF	ON	OFF
18	ON	ON	ON	OFF	OFF
19	OFF	ON	ON	OFF	OFF

NOTE: The tables are compiled with zero offset setted in the MENU 4.

BINARY INVERTED CODING TRUTH TABLE

VISUALIZED NUMBERS	I1 =LSB	I2	I3	I4	I5 = MSB
0	ON	ON	ON	ON	ON
1	OFF	ON	ON	ON	ON
2	ON	OFF	ON	ON	ON
3	OFF	OFF	ON	ON	ON
4	ON	ON	OFF	ON	ON
5	OFF	ON	OFF	ON	ON
6	ON	OFF	OFF	ON	ON
7	OFF	OFF	OFF	ON	ON
8	ON	ON	ON	OFF	ON
9	OFF	ON	ON	OFF	ON
10	ON	OFF	ON	OFF	ON
11	OFF	OFF	ON	OFF	ON
12	ON	ON	OFF	OFF	ON
13	OFF	ON	OFF	OFF	ON
14	ON	OFF	OFF	OFF	ON
15	OFF	OFF	OFF	OFF	ON
16	ON	ON	ON	ON	OFF
17	OFF	ON	ON	ON	OFF
18	ON	OFF	ON	ON	OFF
19	OFF	OFF	ON	ON	OFF
20	ON	ON	OFF	ON	OFF
21	OFF	ON	OFF	ON	OFF
22	ON	OFF	OFF	ON	OFF
23	OFF	OFF	OFF	ON	OFF
24	ON	ON	ON	OFF	OFF
25	OFF	ON	ON	OFF	OFF
26	ON	OFF	ON	OFF	OFF
27	OFF	OFF	ON	OFF	OFF
28	ON	ON	OFF	OFF	OFF
29	OFF	ON	OFF	OFF	OFF
30	ON	OFF	OFF	OFF	OFF
31	OFF	OFF	OFF	OFF	OFF

OFF: input disabled (switch open)
ON: input enabled (switch close)

NOTE:

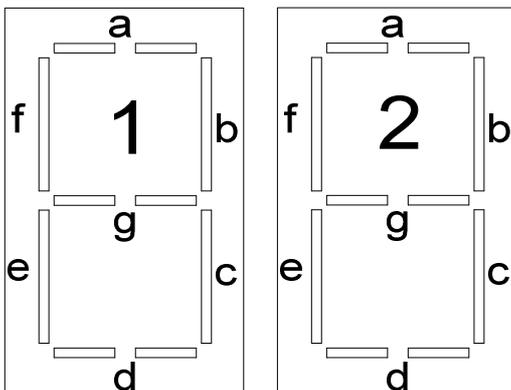
The activation of input I6 command the activation of “-“ symbol.

OFF: input disabled (switch open)
ON: input enabled (switch close)

7 SEGMENTS CODING TRUE TABLE

(If you enable an input, one of the seven segment turn on).

SEGMENTS PART 1							SEGMENTS PART 2						
I1	I2	I3	I4	I5	I6	I7	I8	I9	I10	I11	I12	I13	I14
a1	b1	c1	d1	e1	f1	g1	a2	b2	c2	d2	e2	f2	g2



NOTE: The schematic drawing is referred to english flag display that in this case is used as seven segment display.

Menu 3

It allows to choose the time for the display's backlight shutdown (minutes).

- Press three times the **SELECT** button. Display will visualize the string "M3".
- Press the **ENTER** button to access the menu of programming.
- The digits blink and visualize the actually selected shutdown's time.
- With the **SELECT** button is possible to change the timeout in a range from 0 to 99 minutes.
Note: if it is selected "0" the backlight will be always off.
- Press the **ENTER** button to confirm the desired timeout.

The programming procedure is completed and the data are stored.

Menu 4

It allows to choose the value that must be visualized at the first floor, the value for the other floors will be automatically shifted.

- Press four times the **SELECT** button. Display will visualize string "M4".
- Press the **ENTER** button to access the menu of programming.
The digits blink and visualize the actually selected value for the first floor.
With the **SELECT** button is possible to choose the value for the first floor in a range from -9 to +9 (N.B: characters memorized for floor by "menu1" are cancelled).
- Press the **ENTER** button to confirm the choice.

The programming procedure is completed and the data are stored.

Menu 5

It allows to choose the type of gong.

- Press five times the **SELECT** button. Display will visualize string "M5".
- Press the **ENTER** button to access the menu of programming.
The digits blink and visualize the actually selected type of gong

With the **SELECT** button is possible to change the type of gong in a range from 1 to 3 listening to it every time it is made scrolling.

- Press the **ENTER** button to confirm the selected type of gong.
The programming procedure is completed and the data are stored.

NOTE: Behind the board there is a trimmer(TR) that allows you to adjust the volume of the buzzer(view connection diagram page 3)

Menu 6

It allows to choose the input type for out of order.

- Press six times the **SELECT** button. Display will visualize string "M6".
- Press the **ENTER** button to access the menu of programming.
The digits blink and visualize the actually selected management:
0= the input enable the signal of out of order;
1= the input commands the gong activation.
2 = the input commands the activation of the flashing writing "**FS**" and active icon(FS)
3 = the input commands the activation of the sliding writing "**OUT OF SERVICE**"and active icon(FS)
Use the **SELECT** button to change the management type.
- Press the **ENTER** button to confirm the chose.
The programming procedure is completed and the data are stored.

Menu 7

It allows to activate the simulation mode.

- Press seven times the **SELECT** button. Display will visualize string "M7".
- Press the **ENTER** button to access the menu of programming.
The digits visualize the type of present management:
0= display works normally;
1= activation of the simulation mode.
Use the **SELECT** button to change the management type.
- Press the **ENTER** button to confirm the chose.
The programming procedure is completed and the data are stored.

Menu	Range	Default	Description
1	whichever	-2...11	Assign a characters combination for each selected floor
2	1P – B – BN – Bcd – 7S	1P	Modify the coding mode used by the board.
3	0...99 minutes	30	Modify the time for the display's backlight shutdown
4	-9...+9	-2	Assign the value visualized at the first floor. The values visualized at the other floors will be automatically work out by the board
5	1...3	1	Modify the type of gong
6	0 – 1 – 2 – 3	0	Modify the input type of out of order
7	0 - 1	0	It allows to activate the simulation mode

Summary of programming menu

NOTE: To restore the default values, keep pushed enter button for at least 5 seconds

If there is a blackout and a passenger is inside, the emergency light begins working thanks to a backup power circuit. This circuit supplies energy to the card so keeping the display lighted during the blackout through the +LE connector (positive pole) and GND connector (negative pole).

This anode common display is available on application also cathode common.

PROGRAMMABLE LCD DISPLAY OPTION: MONOCOLOR

This display has 2 icon for 2 different types of messages:

- *OVERLOAD*
- *OUT OF SERVICE*

The first message is activated when the elevator acquires more weight than it would be able in reality of it to bear. In this case the icon that signals the anomaly is on. The icon turn on giving an impulse to OVL input.

The second message is activated during OUT OF SERVICE phase: OUT OF SERVICE signal turns on and supplies an input to FS.

PROGRAMMABLE LCD DISPLAY OPTION: TRICOLOR

This display has 3 icon for 3 different types of messages:

- OVERLOAD
- SET ALARM
- ACKNOWLEDGED ALARM

The first message is activated when the elevator acquires more weight than it would be able in reality of it to bear. In this case the icon that signals the anomaly is on. The icon turn on giving an impulse to OVL input.

The second message is activated when the consumer decides to declare an alarm. Also in this case the icon (a bell) turn on and notify (by an acoustic signal) the alarm sending. The icon turn on giving power supply to another circuit, the optocoupled circuit. Supplying a tension of 12V [pole (+) on the connector AA and pole (-) on the connector C_AA], to activate the icon.

The third and last message is activated when the alarm sent from consumer is received.

The icon is represented by two person that talks the one to the other hand, from the electric view, it is also supported from the optocoupled circuit. Apply a tension of 12V to the positive pole on the AR connector and the negative pole (-) on the C_AR connector to activate the icon.

In this version the menu 6 for the activation of the OUT OF ORDER will not be present.

This menu allow to choose the activation of the gong.



Design and development of electronic systems for lifts

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