E – TYPE

lift control system

SPECIFICATION AND INSTALLATION MANUAL

Manual ver. 2.0
Program ver. 2.06

SEC ELECTRONICS
tel: ++ 386 5 753 2006
fax: ++ 386 5 753 2007

Neverke 30 6256 Košana, SLOVENIA
email: sec.electronics@siol.net
web: http://www.secelectro.com

ISO 9001
Q-446

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No part of this manual can be reproduced, for any reason, in any form or by any means (including recording and photocopying) without the written consent of SEC electronics.

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.

SEC electronics 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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CONTENTS

SAFETY SYMBOL LEGEND

WARNING: Commands attention to an operating procedure, practice, condition, or statement, which, if not strictly observed, could result in personal injury or death.

CAUTION: Commands attention to an operation procedure, practice, condition, or statement, which, if not strictly observed, could result in damage or destruction of equipment.

NOTE: Commands attention to an operating procedure, practice, condition, or statement that must be highlighted.

0. SAFETY PRECAUTIONS

WARNING – ATTENTION

Drive systems cause mechanical motion. It is the responsibility of the user to ensure that any such motion does not result in an unsafe condition. Factory provided interlocks and operating limits should not be bypassed or modified.

WARNING – ELECTRICAL SHOCK AND BURN HAZARD

When using instruments such as oscilloscopes to work on live equipment, the oscilloscope's chassis should be grounded and a differential amplifier input should be used. Care should be used in the selection of probes and leads and in the adjustment of the oscilloscope so that accurate readings may be made. See instrument manufacturer's instruction book for proper operation and adjustment to the instrument.

WARNING – FIRE AND EXPLOSION HAZARD

Fires or explosions might result from mounting control panels in hazardous areas such as locations where flammable or combustible vapors or dusts are present. Control panels should be installed away from hazardous areas, even if used with motors suitable for use in these locations.

WARNING – STRAIN HAZARD

Improper lifting practices can cause serious or fatal injury. Lift only with adequate equipment and trained personnel. When carrying equipment without packaging the boards or metal panels can cause damage to the equipment and injury to you.

WARNING – CRUSHING HAZARD

Risk of crushing and damage to the control panel if it does not have a firm stand. Be sure to place the control panel on a flat surface witch can support it's weight before installation! Do not stand the control panel on end as it could fall over.

WARNING – HIGH TEMPERATURE

After prolonged use, the parts in control panel will reach a maximum temperature of 90 ^{o}C. Touching them with bare hands can be painful. Allow the unit to cool before you get near the hot parts. When braking resistors are used (they are normally installed at the top or in the side of the box) this resistors can reach a maximum temperature of 200 ^{o}C. Touching them with bare hands can cause serious or fatal injury.

ATTENTION – ELECTRIC SHOCK

Control panel, motors and all other equipment must be ground connected according to the NEC (Code Electrique National).

WARNING / ATTENTION

Replace all covers before applying power to the control panel. Failure to do so may result in death or serious injury.

WARNING / ATTENTION

Control panels are electrical apparatus for use in industrial installations. Parts of the control panels are energized during operation. The electrical installation and the opening of the device should therefore only be carried out by qualified personnel. Improper installation of motors, control panel or other equipment may therefore cause the failure of the device as well as serious injury to persons or material damage.
Control panels are not equipped with motor overspeed protection logic.
Follow the instructions given in this manual and observe the local and national safety regulations applicable.

CAUTION / PRECAUTION

Do not connect power supply voltage that exceeds the standard specification voltage fluctuation permissible. If excessive voltage is applied to the control panel, damage to the internal components will result.

CAUTION / PRECAUTION

Do not operate the control panel without the ground wire connected. The motor chassis should be grounded to earth through a ground lead separate from all other equipment ground leads to prevent noise coupling.
The grounding wires shall be sized in accordance with the NEC or Canadian Electrical Code. The connection shall be made by a UL listed or CSA certified closed-loop terminal connector sized for the wire gauge involved. The connector is to be fixed using the crimp tool specified by the connector manufacturer.

CAUTION / PRECAUTION

Do not perform a megger test between the control panel terminals or on the control circuit terminals.

CAUTION / PRECAUTION

Because the ambient temperature greatly affects control panel life and reliability, do not install the control panel in any location that exceeds the allowable temperature. Leave the ventilation cover attached for temperatures of 40 ^{o}C or below.

CAUTION / PRECAUTION

The control panel must be mounted on a wall that is constructed of heat resistant material. While the control panel is operating, the temperature of the control panel parts can rise to a temperature of 90 ^{o}C. In case when braking resistors are used, the temperature of this resistor can rise up to 200 ^{o}C.

NOTE

The terms ‘‘controller’’, ‘‘lift controller’’ and ‘‘control box’’ are sometimes used interchangeably throughout the industry. We will use the term ‘‘control panel’’ in this document

1 Never remove the covers while the AC Input power supply is switched on. Minimum time to wait before working on the terminals or inside the device is 1 minute after disconnecting for control panels without electronic regulators for motors and 5 minutes for control panels with electronic regulators (VVVF, ACVV, soft start)

2 Do not touch or damage any components when handling the device. The changing of the isolation gaps or the removing of the isolation and covers is not permissible. If the doors have to be removed (or opened) because the room temperature is higher than 40 degrees, the user has to ensure that no occasional contact with live parts may occur.

3 Protect the control panel from impermissible environmental conditions (temperature, humidity, shock etc.)

4 No voltage should be connected to the output terminals for the motors, magnets, valves, lights and switches (terminals 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25, 25a, 26, 26a, 27, 31, 40, 45, 46, 47, 48, 56, 57, 58, 59, 121, 122, 123, 130, 131,132, 222, 351, 352, 358, 360, 371, 372)

5 A capacitative load (e.g. Var compensation capacitors) should not be connected to the outputs for the motors (terminals 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20)

6 Always connect the control panel to the protective ground (PE) via the marked connection terminals (0 or GND) and the housing (0 or GND). Control panels have ground discharge currents greater than 3,5 mA. EN 50178 specifies that with discharge currents greater than 3,5 mA the protective conductor ground connection (0 or GND) must be fixed type and doubled for redundancy.

7 The electrical commissioning should only be carried out by qualified personnel, who are also responsible for the provision of a suitable ground connection and a protected power supply feeder in accordance with the local and national regulations.

8 No dielectric tests should be carried out on parts of the control panel. A suitable measuring instrument (internal resistance of at least 10 kohm/V) should be used for measuring the signal voltages.

9 If the control panel has been stored for longer than three years, the operation of the capacitors may be impaired. Before commissioning devices that have been stored for long periods, connect them to a power supply for two hours with no load connected in order to regenerate the capacitors, (the input voltage has to be applied without enabling the functionality).

10 The control panel may start accidentally in the event of a failure, even if it is disabled, unless it has been disconnected from the AC input feeder.

1. PRODUCT LIABILITY AND WARRANTY

We guarantee the faultless condition of our product as described in our advertising, the product documentation we have published, and this manual. Product characteristics over and above this are not guaranteed.
Claims for damages are generally excluded, except in the case of proven premeditation, gross negligence by SEC electronics, or the absence of any promised features. In particular we do not accept any liability if the control panels are used with other systems, encoders, switches, power supply systems and drive motors for which the control panels are unsuitable as stated in this manual or which fail to conform with the customary state of technology by virtue of their individual design.
We also disclaim responsibility for any damage to lift facilities and building facilities due to malfunction of the product or due to errors in this manual.
We are not responsible for violation of the patents and other rights of third parties.
We shall not be liable for any damage resulting from improper handling as defined in this manual. We expressly exclude liability for lost profit and especially for consequential damage due to the non-observance of safety regulations and warnings and/or resulting from accessories not supplied by SEC electronics.
SEC electronics products are designed for a long service life. They confirm with the current state of science and technology and were individually tested in all their promised functions prior to shipment. SEC electronics is continuously engaged in product and market analysis in the interest of further development and constant improvement. However, if any malfunctions or breakdowns occur in spite of all the preventive measures, you should notify the customer service department in Neverke, Slovenia. We assure you that suitable action to rectify the damage will be taken without delay.

1.1. TERMS OF WARRANTY

We guarantee the product's proper working order as defined in this operating manual for a period of 24 months after shipment as per delivery note.
Repairs will only be carried out free of charge if this manual was observed for storage, transportation, installation, commissioning and operation.
Interventions in a unit by the customer or third parties are only allowed after special consultation with SEC electronics. If this condition is not observed, SEC electronics will accept no responsibility for any damage to the unit, injury to persons or consequential damage; in this case the warranty shall expire.
SEC electronics also disclaims all responsibility for unit faults resulting from damaged or functionally defective equipment in the control panel's environment or following the use of accessories which were not supplied by SEC electronics.
The General Terms of Business of SEC electronics shall apply.

2. INSPECTION PROCEDURE

2.1. UPON DELIVERY INSPECTION PROCEDURES

A high degree of care is taken in packing our control panels and preparing them for delivery. They should only be transported with suitable transport equipment (see weight data). Observe the instructions printed on the packaging. This also applies when the device is unpacked and installed.

Upon delivery, check the following:

- the packaging for any external damage
- whether the delivery note matches your order

Open the packaging with suitable tools. Check whether:

- any parts were damaged during transport
- the device type corresponds to your order

In the event of any damage or of an incomplete or incorrect delivery please notify the responsible sales offices immediately.

The devices should only be stored in dry rooms within the specified temperature ranges.

NOTE: A certain degree of moisture condensation is permissible if this arises from changes in temperature (see ''Permissible Environmental Conditions''). This does not however, apply when the devices are in operation. Always ensure that there is no moisture condensation in devices that are connected to the power supply

2.2 CONTROL PANEL TYPE DESIGNATION

The technical specification of the control panel is stated in the type code. Example

E 078/01

where letter E corresponds to E-type lift control panel

This code is also the same as is the code in the confirmation of order and other related papers.
A Label with the type code is located at the bottom right corner of the control panel.

2.3. NAMEPLATE

Check that all the data stated in the nameplate enclosed with the control panel corresponds to what has been ordered.

CE

SEC ELECTRONICS

Type _____ **S/N** _____

Input voltage _____ **Input frequency** _____

Rated current _____ **Brake** _____

Retiring cam _____ **Valves** _____

Dimensions _____

Type	- control panel model
S/N	- serial number (type code)
Input voltage	- power supply voltage
Input frequency	- power supply frequency
Rated current	- output rated current
Brake	- rated voltage of brake (in electric lift)
Retiring cam	- rated voltage of retiring cam
Valves	- rated voltage of valves (in hydraulic lift)
Dimensions	- dimensions of control panel H x W x D

Nameplate is located in the left side of the box door.

2.4. STANDARD SPECIFICATIONS

ENVIRONMENT	Ta Ambient temperature	0 … +40°C; 40 … +50°C with current derated to 0.8 rated output current
	Installation location	Pollution degree 2 or better (free from direct sunlight, vibration, dust, corrosive or inflammable gases, fog, vapor oil and dripped water, avoid saline environment)
	Degree of protection	IP 44
	Installation altitude	Up to 1000 m above the sea level; for higher altitudes a current reduction of 1,2% for every 100 m of additional height applies
	Temperature operation	0… +50°C
	storage	-20 … +55°C
	transport	-20 … +70°C
	Air humidity operation	5% to 85% 1 g/m3 to 25 g/m3 without moisture condensation or icing Class 3K3 as per
	storage	5% to 95% 1 g/m3 to 29 g/m3 Class 1K3 as per
	transport	95% 60 g/m3 greatest absolute air humidity if the device is brought suddenly from 70 to 15°C A light condensation of moisture may occur for a short time occasionally if the device is not in operation (Class 2K3 as per EN50178)
STANDARD	Climatic conditions	IEC 68-2 Part 2 and 3
	EMC compatibility	EN12015 and EN12016 (see chapter ''EMC Guidelines '')
	Approvals	CE

2.5. DISPOSAL OF THE DEVICE

SEC electronics will take back old units free of charge provided they are delivered carriage paid to the SEC electronic factory in Neverke, Slovenia

Applicable local waste treatment and disposal regulations must be observed if you dispose of a unit yourself or replace any components. SEC electronics shall accept no liability for any parts and components that are not disposed of properly!
The following details are useful for disposal purposes:

the control panel box is made of steel, usually painted

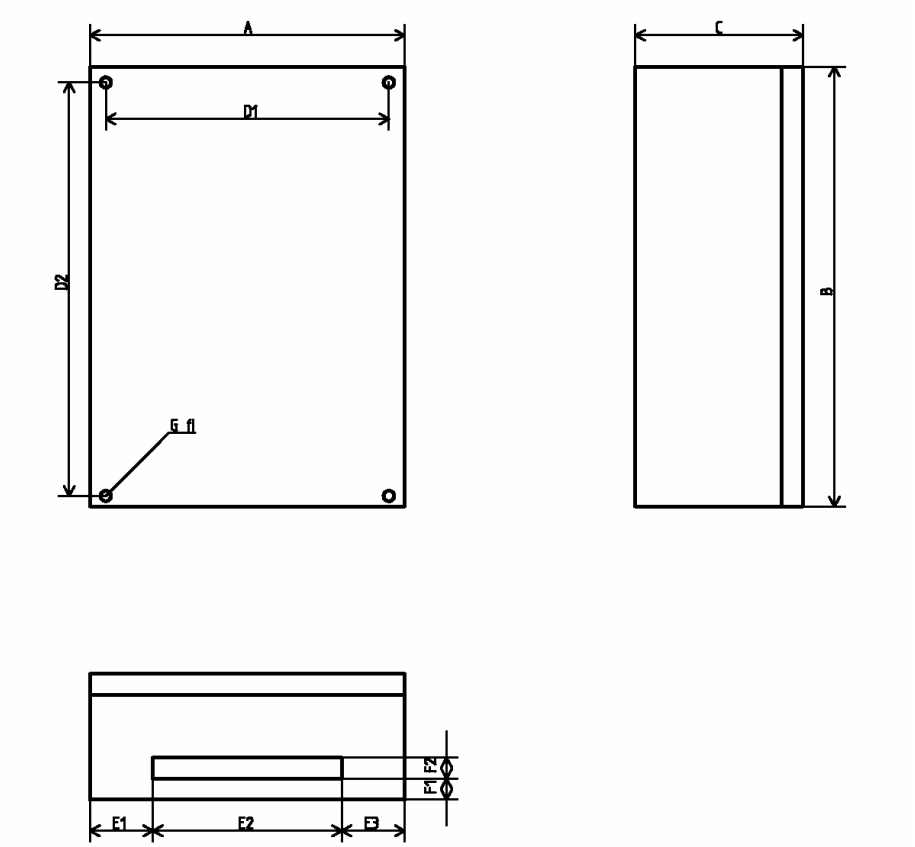
the back panel is made of steel or aluminum, usually without lacquering or surface treatment

regulations on the disposal of electronic parts and components apply for disposal of p.c. boards, LCD units and other electric parts

backup battery is Lithium battery wich must be disposed properly

3. INSTALLATION GUIDELINES

3.1. MECHANICAL SPECIFICATION



Control panel dimensions and fixing holes dimensions
Doors can be left or right side opening.

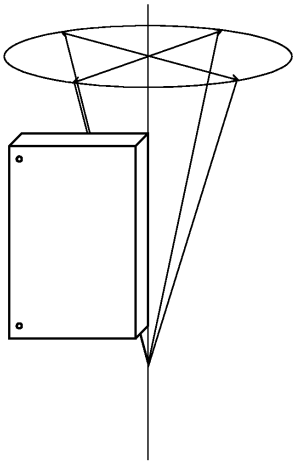
CONTROL PANEL DIMENSIONS (information on nameplate)

	700 x 500 x 200	700 x 500 x 250	800 x 600 x 200	800 x 600 x 250	800 x 600 x 300	1000 x 600 x 250	1000 x 600 x 300	1000 x 600 x 350	900 x 800 x 350
A mm	500	500	600	600	600	600	600	600	800
B mm	700	700	800	800	800	1000	1000	1000	900
C mm	200	250	200	250	300	250	300	350	350
D1 mm	450	450	550	550	550	550	550	550	700
D2 mm	650	650	750	750	750	950	950	950	870
E1 mm	107,5	107,5	157,5	157,5	157,5	157,5	157,5	157,5	150
E2 mm	285	285	285	285	285	285	285	285	500
E3 mm	107,5	107,5	157,5	157,5	157,5	157,5	157,5	157,5	150
F1 mm	40	40	40	40	40	40	40	40	40
F2 mm	30	30	30	30	30	30	30	30	40
G fi mm	10	10	10	10	10	10	10	10	8

NOTE: In case when VVVF control panel is used, the braking resistor is mounted on the control panel. Dimensions of braking resistor depends on model, power and manufacturer. Braking resistor can be fixed at the side or at the top of the box.

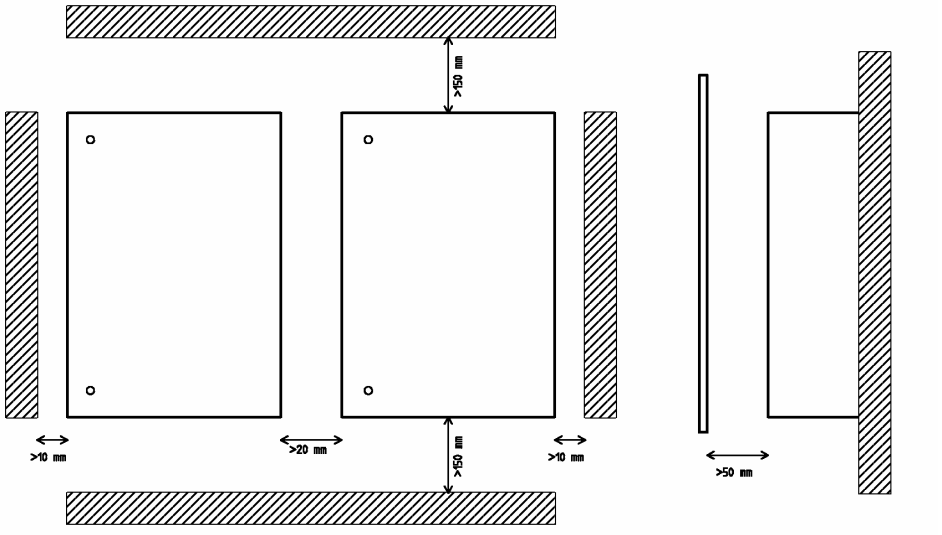
3.2. INSTALLATION MOUNTING CLEARANCE

NOTE: The dimensions specified in this manual and weights should be taken into consideration when the device is mounted. The technical equipment required (carriage or crane for large weights) should be used. Improper handling and the use of unsuitable tools may cause damage.



NOTE: The maximum angle of inclination is 30°

NOTE: The control panels must be mounted in such a way that the free flow of air is ensured. The clearance to the device must be at least 150 mm. A space of at lease 50 mm must be ensured at the front. Devices that generate a large amount of heat must not be mounted in the direct vicinity of the control panel.



4. WIRING PROCEDURE

4.1. AC INPUT CONNECTION

The device must be connected to a protective grounding which will be the first to be connected and the last one to be disconnected. Flexible copper cables, class 5, type O5V-K must be used for mains connection of the device. These copper cables must be short circuit protected with external fuses. Thermomagnetic differential switches for protection can be used.

NOTE: Residual–current (FI-type) circuit–breakers can be tripped inadvertently when power is switched on if a noise filter is being used (VVVF and ACVV control panels). In these cases only use residual–current circuit–breakers with a drop-out delay.

Cable diameters and dimensions of protective switches must be consistent with table 4.4.4 for input voltage 400 V AC (415 V AC) or table 4.4.5 for input voltage 230 V AC (240 V AC).

INPUT VOLTAGE 400 VAC

P	kW	3	4	5,5	7,5	10	11	15	18,5	22	25	30	37	45
In	A	8,6	10,5	13,5	17,5	20,5	24	32	39	46	54	62	72	87
Ci	mm2	2,5	2,5	4	6	6	10	16	16	25	25	35	50	50
Cl	mm2	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
S1	A	16	16	20	25	32	32	40	50	63	80	80	100	125
S2	A	25	25	25	40	40	40	63	63	80	100	100	125	160
S3	A	16	16	16	16	16	16	16	16	16	16	16	16	16
S4	A	25	25	25	25	25	25	25	25	25	25	25	25	25

INPUT VOLTAGE 230 VAC

P	kW	3	4	5,5	7,5	10	11	15	18,5	22	25
In	A	13,5	16,5	22	29	37	41	54	66	77	87
Ci	mm2	4	4	6	10	16	25	25	35	50	50
Cl	mm2	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
S1	A	20	20	32	40	63	63	80	100	100	125
S2	A	25	25	40	63	63	80	100	125	125	160
S3	A	16	16	16	16	16	16	16	16	16	16
S4	A	25	25	25	25	25	25	25	25	25	25

P - rated power
In - rated current
Ci - diameter of wires for main supply (mm2)
Cl - diameter of wires for lighting connection (mm2)
S1 - thermomagnetic main switch – curve type C (value is equivalent to short circuit current)
S2 - differential main switch – sensitivity 300 mA
S3 - thermomagnetic switch – lighting – curve C
S4 - differential switch – lighting – sensitivity 30 mA

4.2. MAIN MOTOR CONNECTION

Cable diameters must be consistent with table below for input voltage 400 V AC (415 V AC) or table below for input voltage 230 V AC (240 V AC).

INPUT VOLTAGE 400 VAC

P	kW	3	4	5,5	7,5	10	11	15	18,5	22	25	30	37	45
In	A	8,6	10,5	13,5	17,5	20,5	24	32	39	46	54	62	72	87
Isd	A				10	12	14	19	23	27	31	36	42	50
Cm	mm2	2,5	2,5	4	4	6	6	10	16	25	25	35	35	50
Csd	mm2				2,5	2,5	4	6	10	10	16	16	25	25

INPUT VOLTAGE 230 VAC

P	kW	3	4	5,5	7,5	10	11	15	18,5	22	25
In	A	13,5	16,5	22	29	37	41	54	66	77	87
Isd	A	7,8	10	13	17	22	24	28	33	45	50
Cm	mm2	4	4	6	10	16	16	25	35	50	50
Csd	mm2	2,5	2,5	4	4	6	10	16	16	25	25

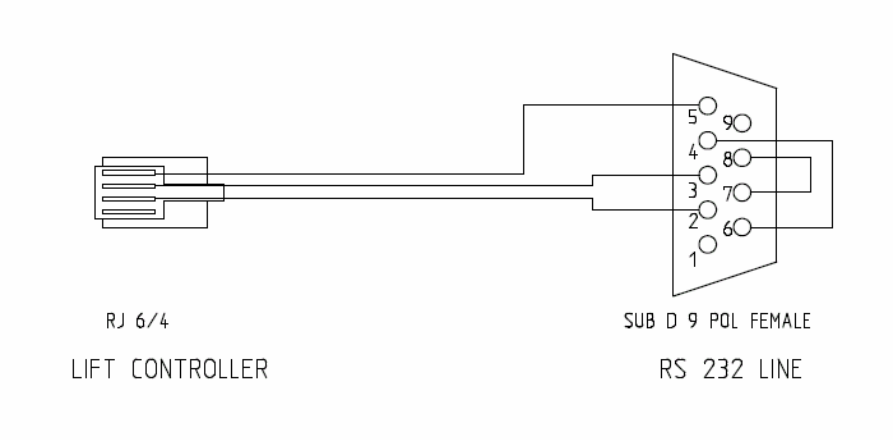
P - rated power
In - rated current
Isd - star / delta current
Cm - diameter of wires for motor (mm2)
Csd - diameter of wires for star delta connection (mm2)

5. CONNECTION TO PC OR PDA

5.1. CONNECTION TO PC

Programming with PC is possible through RS 232 line. The drawing of cable is:

Necessary program for programming is one of VT100 emulators. Suitable is program

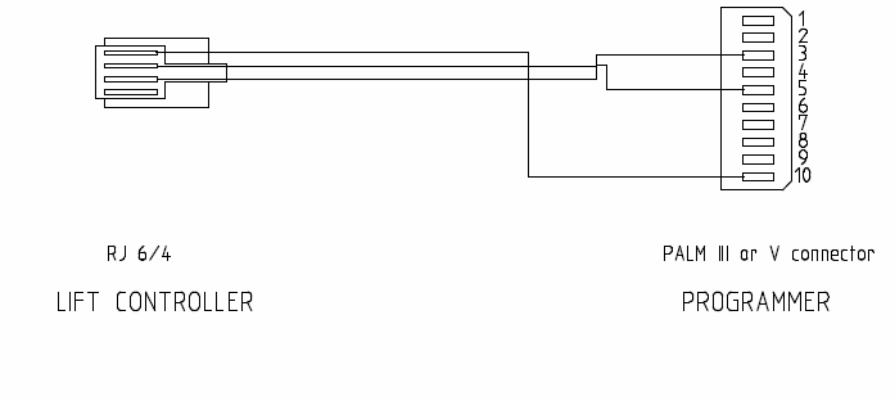


Hyper Terminal wich is part of Windows operational system. Settings of Hyper Terminal for using it for programming is next:

- emulation ANSI
- baud rate 9600 8 N 1

5.2. CONNECTION TO PDA

Programming with PDA is possible through RS232 line. The drawing of connection cable for PALM device series III or V is:



Necessary program for programming is one of VT100 emulators. Suitable is program PTELNET.

Settings of Ptelnet program for using it for programming is next:

- Serial	Port	RS232
	Baud	9600
	Parity	N
	Word	8
	StopBits	1
	Xon/Xoff	0
	RTS/CTS	0
- Terminal	Mode	Serial
	Return	CR
	Font	large
	Width	32
	Charset	ISO-Latin 1
	Lochal echo	1

- the connection icon in the main window must be ON

WARNING:

Do not connect fourth wire from lift controller connector RJ 6/4.

This wire is internal +5 VDC for special programmers only.

NOTE:

Windows	is Microsoft trademark
Hyper Terminal	is Hilgraeve Inc. trademark
Palm	is 3com tradmark

6. PROGRAMMING

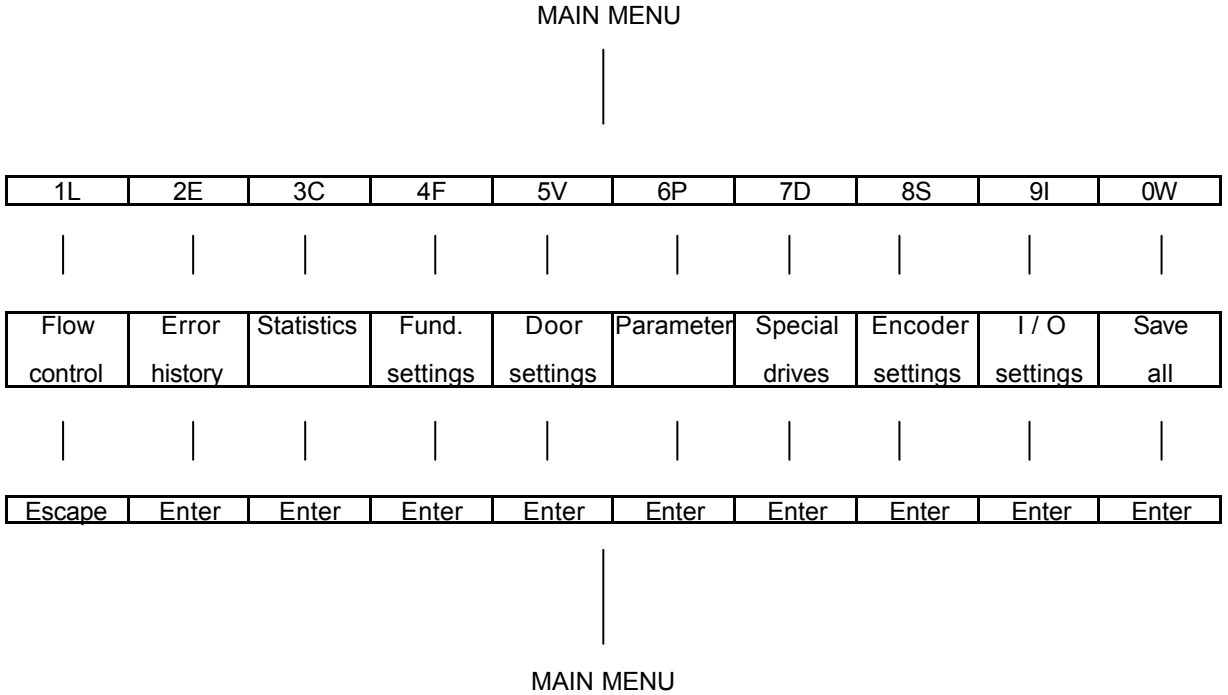
6.1. MAIN MENU

After connection is establish between programmer or E-Type console and controller, main menu appear in the display. If not press ENTER or # two or three times.
The numbers in front of word for entering in menus are present in eprom version E1.10 or higher.
They are made for programming with console where **# is ENTER** and *** is ESCAPE.**

SEC Electronics E - Type Lift
Controller V0.0

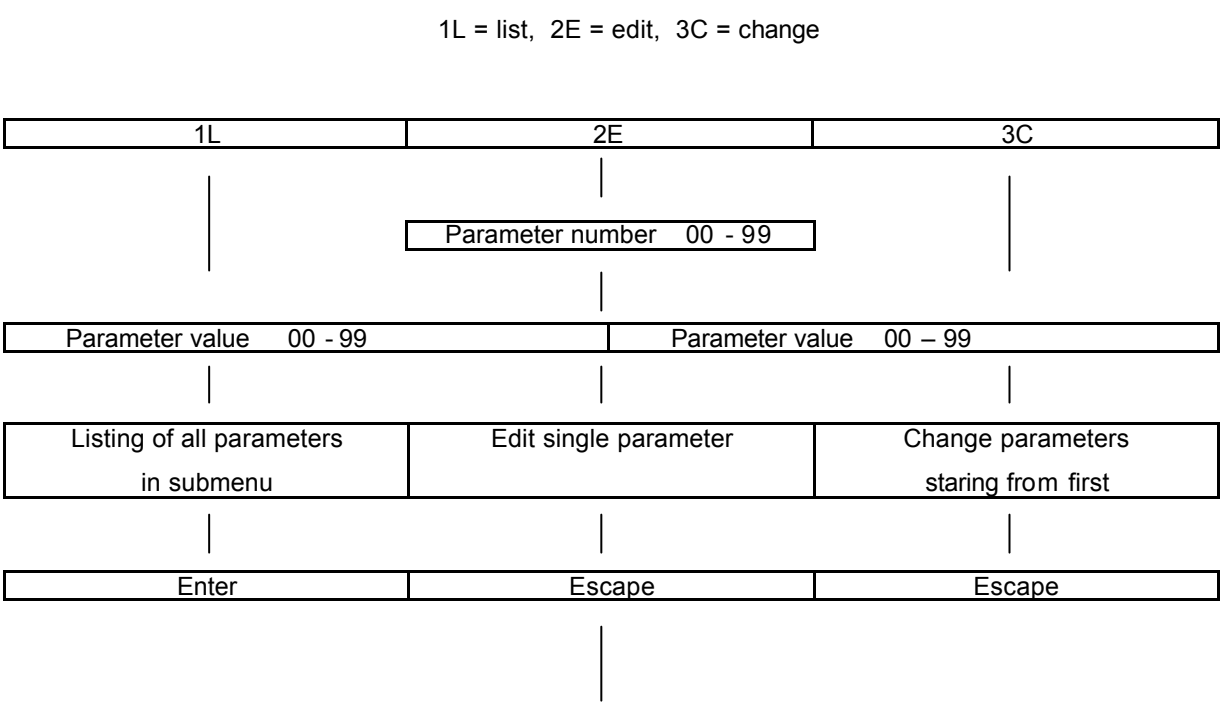
1L Flow control
2E Show error history
3C Statistics
4F Fundamental settings
5V Door settings
6P Parameters
7D Sprecial drives
8S Encoder settings
9I Input / Output settings
0W Save settings to EEPROM

To select submenu press or write first letter of submenu. The submenu must appear.



6.2. SUBMENU ORGANISATION

The submenus F-Fundamental settings, V-Doors settings, P-Parameters, D-Special drives, S-Encoder settings and I-Input/Output settings are organized in next way. After submenu is selected the next display appear:



6.3. 1L FLOW CONTROL

Display show actual informations, activities, problems or errors of controll panel
Sample of one display with explanations is next:

Flow control

21 / 01 / 03 13:45:06

Station: 03 Status: 61

Maintenace drive on

Press Esc for main menue...

Explanation:

First row: Date (21 / 01 / 03) Hour (13:45:06)

Second row: Position of lift (Station: 03) Message number as in seven segment
lowest floor is 01 display in the main board (Status: 61)

Third row: Message definition (Maintenance drive on)

Message numbers 0 0 - 49 are ERRORS, numbers 50 - 99 are EVENTS.
List of messages:

EVENTS		ERRORS	
50	Doors open	1	Second slip correction
51	Doors preopen	2	First slip correction
52	Doors close	3	Error counting
53	Doors lock	4	Error preopening
54	Error on doors closing	5	Error car door A
55	Fast speed up	6	Error car door B
56	Slow speed up	7	Error door lock A
57	Stabilisation time	8	Error door lock B
58	Fast speed down	9	Error switch stop up
59	Slow speed down	10	Error switch slow up
60	Fire alarm drive	11	Error switch stop down
61	Maintenance drive on	12	Error switch slow down
62	Parking drive	13	Error battery low
63	Waiting for call	14	Error elements check
65	Safety line 36	15	Error limit timer fast speed
66	Doors are not lock	16	Error limit timer slow speed
68	Obstruction door A	17	Error limit timer maintenance speed
69	Obstruction door B	18	Error communication CPU B
70	Cabin oveload	19	Error in parameters
72	Relevelling up	20	Error prelimit switches
73	Relevelling down	21	Error communication CAR module
75	Lift in hold after maintenance function	22	Error relevelling
76	Priority drive	23	Error photocell door A
77	Photocell door A	24	Error photocell door B
78	Photocell door B	25	Error first drive
79	Maintenance drive down	26	Error group
80	Maintenance drive up	27	Error SSL 2
81	Pump star sequence	28	Error SSL 3
82	Error doors	29	Error security 36
83	Corrigation up	30	Start on pre-limit switch out of station
84	Corrigation down	31	Re-leveling out of limits
85	Firefighters drive	32	Learn floor positions first!
86	Cabin doors are not close		
87	Landing doors are not close		

6.4. 2E SHOW ERROR HISTORY

Display show errors in the error table. Up to 200 errors can be stored in the memory. When memory is full, errors are not stored in the memory any more. The errors are displayed as first error first. The memory for errors is supplied by lithium battery in case of power down. If battery is not in the system or battery voltage is low, error table will be destroyed when controller will be switched off. Sample of one display with explanations is next:

Error limit switches

21 / 01 / 03 13:45:06

Station: 03

C cleans history

others main menue

Explanation:

First row:	Error message (Error limit switches)	
Second row:	Date of error (21 / 01 / 03)	Hour of error (13:45:06)
Third row:	Position of lift when in error (Station: 03) lowest floor is 01	

By pressing any key, errors are displayed. At the end message (C cleans history others main menue) appear. For clean the error table press C, for leave the error table press any other key.

ERROR EXPLANATIONS

01 Second slip correction

Lift has tried to correct slip from floor after stopping two times unsuccessfully
- error in mechanical brake in electric lift
- brake in electric lift or valves in hydraulic switched off too late
- zone for stop magnet in station is too short
- slow speed is too fast (hydraulic or VVVF)
- error on elements for slow speed (lift attempts to stop in fast speed)

02 First slip correction

Lift has tried to correct slip from floor after stopping. First correction fails, second one passes
- error in mechanical brake in electric lift
- brake in electric lift or valves in hydraulic switched off too late
- zone for switch stop in station is too short
- slow speed is too fast (hydraulic or VVVF)
- error on elements for slow speed (lift attempts to stop in fast speed)

03 Error in counting

Lift approaches bottom or top floor with wrong position number
- error in limit switch for fast speed at bottom (input 6) switch must be off when in zone for slow speed at bottom floor
- error in limit switch for fast speed at top (input 7) switch must be off when in zone for slow speed at top floor
- error on supply voltage for limit switches for fast speed
- magnet to activate bi-stable limit switch for fast speed is too close to switch or wrong polarity (this can cause two pulses)
- number of floors defined in parameter P 04 is not correct.

04 Error on pre-opening

Error in Lift pre-opening cycle
- one of three conditional inputs failed during pre-opening- or opening
  in drive up inputs: 16 relevelling down, 12 zone A, 13 zone B
  in drive down inputs: 15 relevelling up, 12 zone A, 13 zone B
- wrong position of switches or magnets
- error on safety circuit 185 for pre-opening-opening and relevelling with open door
- error on elements for slow speed - pre-opening-opening in fast speed

05 Error on car door A

Error while closing car door
- error on car door contact - when door is closed input 9 and 10 must be activated
- error on motor or elements for drive motor for car door
- time in parameter V02 (closing door time) is too short timer comes to zero before door is closed
- error in power supply for car door contact

06 Error on car door B

Error while closing car door
- error on car door contact - when door is closed input 9 and 10 must be activated
- error on motor or elements for drive motor for car door
- time in parameter V02 (closing door time) is too short timer comes to zero before door is closed
- error in power supply for car door contact

07 Error on door locks A

Error while locking landing doors (after closing car door)
- error in switches on landing doors when doors are locked inputs 9, 10, and 11 must be activated
- time in parameter F01 (security lock time) is too short timer comes to zero before doors are locked
- error in power supply for locks switches

08 Error on door locks B

Error while locking landing doors (after closing car door)
- error in switches on landing doors when doors are locked inputs 9, 10, and 11 must be activated
- time in parameter F01 (security lock time) is too short timer comes to zero before doors are locked
- error in power supply for locks switches

09 Error on switch for stop up

Error on input 12 - stop up
- error on switch or on magnet
- error on other switches for stop or slow speed
- when using bi-stable magnetic switch - magnet is too close to switch (two pulses)
- error on power supply for switches

10 Error on switch for slow speed up

Error on input 14 - slow speed
- error on switch or on magnet
- error on other switches for stop or slow speed
- when using bi-stable magnetic switch - magnet is too close to switch (two pulses)
- error on power supply for switches

11 Error on switch for stop down

Error on input 13 - stop down
- error on switch or on magnet
- error on other switches for stop or slow speed
- when using bi-stable magnetic switch - magnet is too close to switch (two pulses)
- error on power supply for switches.

12 Error on switch for slow speed down

Error on input 14 - slow speed
- error on switch or on magnet
- error on other switches for stop or slow speed
- when using bi-stable magnetic switch - magnet is too close to switch (two pulses)
- error on power supply for switches

13 Error battery low

Battery BT1 in main board is low. This battery keep only statistics and errors information and real time clock during power down periods. All other parameters and values are stored in nonvolatiole memory. In case of low battery also LED LD4 in main board is lit.
For replacement use same battery type CR 2032 lithium 3V

NOTE: Dispose old batteries properly

14 Error on input 21 - elements check

Input 21 was off more than 5 seconds when lift was waiting at floor
- one of contractor or relays was not released after end of drive K1, K2, K3, K4, K6, K7, K9, K31, K32, K33, R11, R12, R13, R17
- error on security circuit 185 when elevator stopped at floor
- error on external element for temperature check connected to inputs 381, 382
- motor overheating - controller for thermistors TH1 detected overheat
- error on controller for thermistors TH1 or phase sequence controller
- error on control voltage on controller

15 Error travel timer fast speed

Error on security timer for fast speed
- timer reaches zero before lift changes speed or stops at floor
- error with ropes or oil pressure
- error on elements for drive (contractor, relays, valves)
- timer setting is to short

16 Error travel timer slow speed

Error on security timer for slow speed
- timer reaches zero before lift changes speed or stops at floor
- error with ropes or oil pressure
- error on elements for drive (contractor, relays, valves)
- timer setting is to short

17 Error travel timer maintenance speed

Error with security timer for maintenance speed
- timer reaches zero before lift changes speed or stops at floor
- error with ropes or oil pressure
- error on elements for drive (contractor, relays, valves)
- timer setting is to short

18 Error communication CPU B

Internal error in main board. There is no communication between microprocesor A and B
- error in microprocesor B
- error in main board

19 Error in parameters

Error in parameters in memory circuit on PCB
- error because parameters in memory circuit changed incorrectly check all parameters
- value in one or more parameters is not within the limits
- error with memory circuit on PCB

NOTE In this case all fundamental settings, door settings, parameters, encoder settings and input/output settings must be read , check if they are good, and write to the control panel again. After this switch the power of control panel off and on again

20 Error on limit switches for fast speed

Limit switches for fast speed both off at the same time
- error on bottom limit switch for fast speed (input 6) switch must be off when in zone for slow speed at bottom floor
- error on top limit switch for fast speed (input 7) switch must be off when in zone of slow speed for top floor
- error with power supply for limit switches

21 Error communication car module

There is no communication between main and car board
- error in connection between boards
- error in main board
- error in car board

22 Error while relevelling

- while relevelling one of the inputs 12 or 13 (zone A o r zone B) goes off
- error on switches or magnets
- error on elements for drive (contractor, relays, valves)
- elevator has relevelled more than 10 times in a period of 2 minutes
- error on safety circuit 185 for relevelling and pre-opening-opening

23 Error on door photocell input A

Input 63 car module door photocell was activated more than 1 minute
Lift runs on without checking input 63 door photocell
- error on photocell connected to input 63
- error on definition of input (NO / NC) with parameter V08
- error on power supply for photocell connected to input 63

24 Error on door photocell input B

Input 65 car module door photocell was activated more than 1 minute
Lift runs on without checking input 65 door photocell
- error on photocell connected to input 65
- error on definition of input (NO / NC) with parameter V10
- error on power supply for photocell connected to input 65

25 Error first drive

Lift was unable to made first drive after power on sequence.
- error on prelimit switches
- error on stop switches
- error on power supply

26 Error group

Lift is parametrized to work in group but no serial line of group is detected
- error in serial cable between group
- error in other lifts parameters

27 Error SSL2

There is an error in serial line link 2
- error in serial cable between nodes from 1 to 24
- error in other lifts parameters

28 Error SSL3

There is an error in serial line link 3
- error in serial cable between nodes from 25 to 48
- error in other lifts parameters

29 Error security 36

Continuous errors (more than 5 in one minute) on security 36
(terminal 303)
- bad connection or interrupted safety line
- continuous disconnections of high pressure safety on hydraulic

30 Start on pre-limit switch out of station

Elevator stopped and started again on pre-limit switch out of station.
This can happen due to safety line break (inputs safety line 36-39) or some other reason.
Lift goes to first drive after this error.

31 Re-leveling out of limits

Elevator moved out of allowed area during re-leveling.

32 Learn floor positions first!

Counting system 2 requires learning of floor positions before normal operation.
See explanation of parameter P3 setting 2.

6.5. 3C STATISTICS

Statistics menu is menu with some statistical information regarding elevator drives. In this menue the counters for drives to all floors and for every 30 minutes display how many drives was made.

Sample of display is next:

C0 Number of drives 12

C1 Total drives 123

C2-50 Number of drives in period

00:00 - 00:30 : 1

00:30 - 01:00 : 2

01:00 - 01:30 : 2

01:30 - 02:00 : 4

Press any key to continue

Last display is:

C51-99 Number of drives to floors

floor 01: 6

floor 02: 3

floor 03: 3

C clears counters,

others main menue

At the end message (C clears counters others main menue) appear. For clear the counters press C, for leave the values in the counters and just go out from menue press any other key.
Explanation of the counters is next:

C1 COUNTER OF DRIVES - resetable

This counter, goes to zero when error table is reset.

C2 COUNTER OF DRIVES - life counter

Counter can not be reset.

C3 – C50 COUNTER OF DRIVES FROM STATION 1 TO STATION 48 - resetable

This counter, goes to zero when error table is reset.

C51 – C98 COUNTER OF DRIVES IN HALF HOUR TIME PERIOD - resetable

This counter, goes to zero when error table is reset.

6.6. 4F FUNDAMENTAL SETTINGS

List of parameters in fundamental settings menue is next:

F1 DOORS LOCK TIMER 1 - 20 sec.
Time in which locks must be made after closing doors. Input 11-main must be active. If the input is not active when the timer comes to zero, the doors will open again. After three attempts without a result the timer V5 (door error) will activate, and after this time there will be one attempt to close and lock the doors. Also the error will be logged in the error table.

F2 PARKING TIMER 1 - 1250 s.
Time after which the lift will go to the parking floor if there is no landing or car calls. Parking floor is defined in parameter P13. Value on terminal is multiplied by 5 (if the number is 10 then the value is 50s)

F3 PARKING TIMER FILLING AND EMPTYING 1 - 1250 s.
Time after which the lift will go to the parking floor if theere is no landing or car calls in filling or emptying sequece. Parking floors are defined in parameters P14 and P15. Value on terminal is multiplied by 5 (if the number is 10 then the value is 50s)

F4 DIRECTION HOLD TIMER 1 - 20 sec.
Time in which the output for the direction is still present after arrival at the floor.
(outputs 47 and 48 - car). Also the lift will continue to travel in this direction if a call is active in the same direction when time comes to zero..

F5 CALL DELAY TIMER 1 - 20 sec.
In case using up and down selective system when one input will be accepted another will be refused in period on duration of this timer. Unit of setting is second. We can program from 1 to 20 seconds

F6 START FILLING hour 0 - 23
Setting of hour for start filling

F7 START FILLING minute 0 - 59
Setting of minute for start filling

F8 END FILLING hour 0 - 23
Setting of hour for end filling

F9 END FILLING minute 0 - 59
Setting of minute for end filling

F10 START EMPTYING hour 0 - 23
Setting of hour for start emptying

F11 START EMPTYING minute 0 - 59
Setting of minute for start emptying

F12 END EMPTYING hour 0 - 23
Setting of hour for end emptying

F13 END EMPTYING minute 0 - 59
Setting of minute for end emptying

F14 GROUP TIMER 1 - 99

Timer is valid in group operaton (multi elevator). If first elevator not execute the command in this time, second one will also start to this command. Unit of setting is second. We can program from 1 to 99 seconds

F15 ARRIVAL GONG TIMER 1 - 20 sec.

Timer for output arrival at floor - gong (output 49 - car)

F16 CAR EXTRACTION FAN TIME 1 - 90 sec.

Timer to define how long the output for the car extraction fan (relay RE11 outputs 30, 31 - main) and (output 52 car) remains on after the end of travel.

F17 BUTTON BACKLIGHT 0 - 50%

Inactive call button backlight setting. Call buttons are illuminated all the time so we can see them in the darkness.

0 – button backlight is off

F18 BEEP TIME 0.0 – 0.7s

Beep time when some call pushbutton is pressed.

Beeper output on car module is terminal 51 »occupied / beeper«. Combined display / floor modules have beeper already on board.

F18 = 0 – no beep, function of car module terminal 51 is occupied

F18 = 0.1 ... 0.7 – beep, function of car module terminal 51 is beeper

NOTE: Function works only with system types P0=5 and 6 with combined display / node (floor) modules.

F19 GONG DELAY TIME 1 - 20s

Gong delay after switching to slow speed or coming to the station (depends on parameter P5).

6.7. 5V DOOR SETTINGS

List of parameters in door settings menue is next:

V1 OPEN DOOR TIMER 1 - 60 sec.

Time in which doors will remain open at a floor

V2 CLOSING DOOR TIMER 1 - 60 sec.

Time in which the doors must close - input 10-main must be active. If input is not active when timer comes to zero, the doors will open again. After three attempts without a result the timer V5 (door error) will activate, then after this time there will be one attempt to close the doors. Also the error will be logged in the error table

V3 HOLD DOOR TIMER 1 - 90 sec.

Timer is active when we use door type 5 or 8 (parameter V61). In this case after the timed period the outputs for doors will cancel as long as the lift stays at the floor. If timer is set on value 60 then antivandal is not in function.

V4 EXCHANGE CLOSE OPEN TIMER 0.1 - 9.0 sec.

Time delay between close relay de-energizing and open relay energizing.

V5 DOOR ERROR TIMER 1 - 10 min.

Time which will start after 3 errors in doors closing or locking. Also all commands will be cleared when this is active.

V6 EXTEND OPEN DOOR TIMER 1 - 60 sec.

Additional time which will add to open door time (V1) when input Photocell (input 63-car for photocell door A and input 65-car for photocell door B) is activated

V7 SPECIAL OPEN DOOR TIMER 1 - 90 sec.

Special open door timer will add time to open door time (V1) when input (Additional doors open terminal 67-car) is activated

V8 INPUT PHOTOCELL DOOR A NO / NC (0 - 1)

Definition for terminal 63 - car module

V9 INPUT OBSTRUCTION DOOR A NO / NC (0 - 1)

Definition for terminal 64 - car module

V10 INPUT PHOTOCELL DOOR B NO / NC (0 - 1)

Definition for terminal 65 - car module

V11 INPUT OBSTRUCTION DOOR B NO / NC (0 - 1)

Definition for terminal 66 - car module

V12 PRE-OPENING OF DOORS 0 - 3

0 - disabled

1 - reserved

2 - when relevelling switches + zone A and zone B are on pre-opening is activated when the lift approaches in slow speed to floor and the three inputs below are activated:

when traveling up
input 16 main module relevelling down
input 12 main module zone A
input 13 main module zone B

when traveling down
input 15 main module relevelling up
input 12 main module zone A
input 13 main module zone B

V13 DOOR TYPE 1 - 8

1 - photocell / semiautomatic NOTE: NOT FOR USE IN THE EU
photocell is connected between inputs 9 and 10 main module. Doors locks are connected in series between inputs 10 and 11 main module. The output relay RE7 drives the retiring cam

2 - manual / semi-automatic - input priority drive is on when the car is empty NOT FOR USE IN THE EU
Semi-automatic landing doors are connected between inputs 8 and 9 main module. Manual car doors are connected between inputs 9 and 10 main module. Doors locks are connected in series between inputs 10 and 11 main module. The output relay RE7 drives retiring cam. Input 07-car - priority drive becomes on, with car empty. If the car is empty the lift will respond to a floor call even if the car door is not closed

3 - folding (bus) / semi-automatic
Semi-automatic landing doors are connected between inputs 8 and 9 main module. Car door contact is connected between inputs 9 and 10 main module. Series connected switches of landing doors are connected between inputs 10 and 11 main module. Outputs RE8 and RE7 drives opening and closing of car door. Car door will remain open when the lift is waiting at floors

4 - automatic / semi-automatic
Semi-automatic landing doors are connected between inputs 8 and 9 main module. Car door contact is connected between inputs 9 and 10 main module. Series connected switches of landing doors are connected between inputs 10 and 11 main module. Outputs RE8 and RE7 drive opening and closing of car door. Car door remains open when lift is waiting at a floor

5 - automatic doors without limit switches / semi-automatic
Semi-automatic landing doors are connected between inputs 8 and 9 main module. Car door contact is connected between inputs 9 and 10 main module. Series connected switches of landing doors are connected between inputs 10 and 11 main module. Outputs RE8 and RE7 drive opening and closing of car door. Car door remains open when lift is waiting at floor. When lift is waiting at floor after time defined with parameter V3, output RE8 for open door goes off

6 - automatic / automatic
Inputs 8 and 9 main module are short connected. Car door contact is connected between inputs 9 and 10 main module. Series connected switches of landing doors are connected between inputs 10 and 11 main module. Outputs RE8 and RE7 drives opening and closing of car door. Car door parks closed when lift is waiting at floor..

7 - automatic / automatic - waiting with open door NOTE: NOT FOR USE IN THE EU
Inputs 8 and 9 main module are short connected. Car door contact is connected between inputs 9 and 10 main module. Series connected switches of landing doors are connected between inputs 10 and 11 main module. Outputs RE8 and RE7 drives opening and closing of car door. Car door parks opened when lift is waiting at floor..

8 - automatic doors without limit switches / automatic
Inputs 8 and 9 main module are short connected. Car door contact is connected between inputs 9 and 10 main module. Series connected switches of landing doors are connected between inputs 10 and 11 main module. Outputs RE8 and RE7 drives opening and closing of car door. Car door parks closed when lift is waiting at floor. Park time defined with parameter V3 output RE7 for close door goes off

V14 – V61 OPENING DOORS FLOOR 1 - 48 0 - 3

Possible setting is 0 do 3

0	car doors are closed
1	opening of doors A
2	opening of doors B
3	opening of doors A and B

6.8. 6P PARAMETERS

P0 SYSTEM TYPE 1 - 6

1	E - type classic 8 stops	UP and DOWN collective (main and car modules)
2	E - type classic 12 stops	DOWN collective (main and car modules)
3	E - type classic 16 stops	UP and DOWN collective (main, car and ext modules)
4	E - type classic 24 stops	DOWN collective (main, car and ext modules)
5	E - type serial 24 stops	UP and DOWN collective (main, car modules and nodes)
6	E - type serial 48 stops	UP and DOWN collective (main, car, ext modules and nodes)

P1 ELEVATOR TYPE 0 - 4

0 - electric two speed - or one speed
1 - electric VVVF
2 - hydraulic type 1 - delay of pump on travel UP time of delay is defined in parameter P11 (delay time)
3 - hydraulic type 2 - no delays
4 - hydraulic type 3 - delay of valves on travel UP time of delay is defined in parameter P11 (delay time)

P2 OPERATION SYSTEM 1 - 7

1 - up and down collective two buttons
2 – down collective only single button
3 – down collective all floors + 2 floors up and down, single button
4 – down collective all floors + 2 and 3 floor up and down
5 – down collective all floors + 2 +3 and 4 floor up and down
6 – not in use
7 - APB - only 1 call at any one time

P3 COUNTING SYSTEM 1 - 8

1 - 4 switches	stop up	input	12 main module
	stop down	input	13 main module
	slow speed up	input	15 main module
	slow speed down	input	16 main module
2 – incremental pulses (in preparation)			
3 - 1 switch	stop and slow speed	input	12 and 13 main module
4 - 3 switches (2 switches)	stop up	input	12 main module
	stop down	input	13 main module
	slow speed	input	14 main module
5 - 3 switches (2 switches)	stop up	input	12 main module
	stop down	input	13 main module
	slow speed	input	14 main module
6 - 6 switches - tip 1 + zone A and B	slow speed up	input	12 main module
	slow speed down	input	13 main module
	zone A and B	input	14 main module
	relevelling up	input	15 main module
	relevelling down	input	16 main module

7 - 5 switches - tip 4 + zone A and B	zone A	input	12 main module
	zone B	input	13 main module
	relevelling up	input	15 main module
	relevelling down	input	16 main module
	slow speed	input	14 main module
8 - 5 switches - tip 5 + zone A and B	zone A	input	12 main module
	zone B	input	13 main module
	relevelling up	input	15 main module
	relevelling down	input	16 main module
	slow speed	input	14 main module

P4 NUMBER OF FLOORS 2 - 48

Defines the number of floors for the lift. Change of value will be valid only after restart of CPU (power off and on)

P5 ARRIVAL (GONG) OUTPUT TYPE 1 - 8

1 and 5 – starts on change down to slow speed.
Output is activated when the lift changes speed from fast to slow. Length of time is defined in parameter F14.

2 and 6 - starts when lift stops at floor level.
Output is activated when lift has stopped at floor level. Length of time is defined in parameter F14.

3 and 7 - starts in slow speed but only active if floor call present.
Output is activated when lift changes speed from fast to slow but only if the landing call is active at the current floor. Length of time is defined in parameter F14.

4 and 8 - starts when lift has stopped at floor and has active floor call.
Output is activated when lift arrives at floor level but only if the landing call is active at that floor. Length of time is defined with parameter F14.

5, 6, 7 and 8 – two outputs for gong.
When lift is traveling down gong output (49 car), and when is traveling up »out of work« output (50 car) is switched on. Output »out of work« doesn't have its basic function in this case.

P6 DIRECTION INDICATOR OUTPUT TYPE 1 - 4

Setting is valid for direction outputs on CAR module and NODE modules!
1 – when lift running + direction hold time.
Outputs for direction (47 and 48 car) are active during all drive time (fast and slow speed) and during direction hold time (parameter F4).

2 – when lift running only.
Outputs for direction (47 and 48 car) are active during all drive time (fast and slow speed).

3 – when lift is in slow speed and waiting at floor.
Outputs for direction (47 and 48 car) are active when lift is in slow speed and when waiting at a floor. When the lift is waiting at a floor without calls both outputs (47 and 48 car) are activated.

4 – when lift is waiting at a floor.
Outputs for direction (47 and 48 car) are active when lift is waiting at a floor. When lift is waiting at a floor without calls both outputs (47 and 48 car) are activated.

P7 OUTPUT FROM FIRE ALARM 0 - 2

0 – Lift works normally after end of fire alarm
After input (20 main - fire alarm) goes off the lift resumes work normally

1 - Power off and on after end of fire alarm
After input (20 main - fire alarm) goes off, restart of CPU is necessary for normal working (power off and power on again)

2 - maintenance on and maintenance off after fire alarm
After input (20 main - fire alarm) goes off it is necessary for maintenance input (09 car) to be switched on and off for normal working to be resumed

P8 DOORS IN FIRE ALARM 0 - 5

Definition for doors when fire alarm input (input 20 main) is activated. Input for fire alarm is defined as on when the remote alarm contact is closed. Conversion to a normally closed contact is not possible.
With these parameter we also select European or Australian norm:
0 – doors in fire alarm closed – fire drive in AS 1735.2 norm,
1 - doors in fire alarm opened – fire drive in AS 1735.2 norm,
2 - doors in fire alarm closed - fire drive in EN81-72 norm,
3 - doors in fire alarm opened - fire drive in EN81-72 norm,
4 - doors in fire alarm closed - fire drive in EN81-72 norm, when fire drive is on doors are closing with reduced power regardless to door obstruction,
5 - doors in fire alarm opened - fire drive in EN81-72 norm, when fire drive is on doors are closing with reduced power regardless to door obstruction.

Doors are opened when lift comes to the fire alarm floor and then closed or not regarding to parameter P8. It is possible to open doors later with car and landing call buttons or with opening door button.

ATTENTION

When doors are closing and obstruction is present door slow speed must be made with relay logic. (EN81-72 norm chapter 5.8.6)

P9 CORRECTION AT SLIP 0 - 1

0 - if the lift drops the input for the stop signal after it has stopped at a floor before the time of stabilization (parameter P23) The lift will continue to the next floor in the same direction in fast speed.

1 - if the lift drops the input for the stop signal after it has stopped at a floor before the time of stabilization (parameter P23) The lift is reversed back to previous floor in slow speed in the opposite direction

P10 STAR DELTA TIMER 0 - 20 sec.

Timer for the pump change-over in star delta connection. On starting, outputs (relay RE1 terminals 44,45 main) and (relay RE3 terminals 38,39 main) are activated. After the star delta timer output (relay RE3) goes off and output (relay RE2 terminals 41,42 main) goes on.

P11 PUMP OR VALVES DELAY TIME 0.0 - 9.9 sec.

Timer defining the delay of outputs for the pump or valves after the end of travel in up direction on hydraulic lifts. Selection between pump or valves is made with parameter P1 (settings 2 or 4).

P12 SPEED AT TEST slow / fast 1 - 2

1 - maintenance (test) speed is low speed
2 - maintenance (test) speed is high speed

P13 PARKING STATION 0 - 48

Definition of parking station . If input value is 0 parking is disabled.
Time without calls needed before parking is defined with parameter F2.
If value is set to 99, the AUTOPARK system is in use. Lift define most usable station for each 30 minutes as parking station.

P14 PARKING STATION FOR FILLING 0 - 48

Definition of parking station for filling . If input value is 0 filling is disabled.
Time without calls needed before parking is defined with parameter F3.
Real time for filling function is define with parameters F6, F7, F8 and F9

P15 PARKING STATION FOR EMPTYING 0 - 48

Definition of parking station for emptying . If input value is 0 emptying is disabled.
Time without calls needed before parking is defined with parameter F3.
Real time for emptying function is define with parameters F10, F11, F12 and F13

P16 FIRE ALARM STATION 1 - 48

Defines fire alarm floor. Setting 0 is not possible. Lift goes to fire alarm floor when input for fire alarm (input 20 main) becomes active.

P17 SHORT DRIVE 0 - 5

Possible setting is from 0 to 5 stations. This function is used with VVVF regulation. If call is in area of this stations, elevator will start with middle speed and calculate delay for change speed from middle to slow

P18 DELAY SHORT DRIVE 0,0 - 9,9 sec.

Possible setting is from 0 to 99 miliseconds
This is delay for slow speed when elevator work with middle speed in short drive function.

P19 TRAVEL TIME - FAST SPEED 0 - 450 sec.

Security timer. Timer runs when the lift is in fast speed**. When the lift reaches switch for stop in station the timer runs again.** The lift must reach next station or stop before this timer reaches zero. If the timer reaches zero during fast speed all outputs are disabled. Reset is only possible by switching the power off and back on after a few seconds
Timer is disabled when it is set to 0.

P20 TRAVEL TIME - SLOW SPEED 0 - 450 sec.

Security timer. Timer runs when the lift is in slow speed. The lift must stop before this timer reaches zero. If the timer reaches zero during slow speed all outputs are disabled . Reset is only possible by switching the power off and back on after a few seconds
Timer is disabled when it is set to 00.

P21 TRAVEL TIME – TEST SPEED 0 - 450 sec.

Security timer. Timer runs when the lift is driven on maintenance (test). The lift must stop before this timer reaches zero. If the timer reaches zero during maintenance drive all outputs are disabled. Reset is only possible by switching the power off and back on after a few seconds
Timer is disabled when it is set to 00..

P22 SWITCH DE-BOUNCE TIME 0.0 - 9.0 sec.

Timer to eliminate double counting because of bad contacts on the switches for counting and positioning. This timer is active on inputs 12, 13, 14, 15 and 16 in main module. After changing the state of these inputs the input is enabled for the period of this timer. The timer runs for each input independently.

P23 STABILIZATION TIME 0.0 - 9.0 sec.

Timer starts after the end of travel. In the period of this timer all activities are disabled. After this time expires the next stage starts (opening doors, drive with fast or slow speed etc.)

P24 YEAR

Setting of year in date for real time clock

P25 MONTH

Setting of year in date for real time clock

P26 DAY

Setting of year in date for real time clock

P27 HOUR

Setting of year in date for real time clock

P28 MINUTE

Setting of year in date for real time clock

P29 GROUP 1 - 4

Possible setting is 1 to 4
1 one elevator – simplex
2 up to 8 equal elevators
3 reserved (do not use)
4 reserved (do not use)

P30 NUMBER OF ELEVATORS IN GROUP 1 - 8

P31 ELEVATOR NUMBER 1 - 8

Each elevator in group operation must have different number.
Numbers starts from number one.

P32 FLOOR SHIFT IN GROUP 0 - 8

This setting allows group operation with shifted floors. If the 1st station of the lift is in the level of 2nd or 3rd station of other lift in group, difference can be written in this parameter.
Setting of display PK96 is the same for all elevators in group. It should be set according to the lift with the lowest first station.
Example for two elevators connected in duplex:
Elevator 1 with stations C2, C1, G, 1, 2; setting of P32=0, P4=5; setting of PK96 is C2, C1, G, 1, 2.
Elevator 2 with stations G, 1, 2; setting of P32=2, P4=3; setting of PK96 is C2, C1, G, 1, 2.

P33 MAX. FLOORS FOR SINGLE DRIVE 0 - 48

Maximal number of floors for single drive. It should be set in case when traveling time between first and last station is longer than maximal allowed traveling time.
When lift reaches preset number of floors it stops in station and then continues to desired station.
Function is disabled when this parameter is set to 0.

P34 DIRECTION INDICATOR ON DISPLAY 1 - 4

Setting is valid for direction display on PK96 dot-matrix display!
1 – when lift running + direction hold time.
Outputs for direction (47 and 48 car) are active during all drive time (fast and slow speed) and during direction hold time (parameter F4).

2 – when lift running only.
Outputs for direction (47 and 48 car) are active during all drive time (fast and slow speed).

3 – when lift is in slow speed and waiting at floor.
Outputs for direction (47 and 48 car) are active when lift is in slow speed and when waiting at a floor. When the lift is waiting at a floor without calls both outputs (47 and 48 car) are activated.

4 – when lift is waiting at a floor.
Outputs for direction (47 and 48 car) are active when lift is waiting at a floor. When lift is waiting at a floor without calls both outputs (47 and 48 car) are activated.

6.9. 7D SPECIAL DRIVES

D1 RESERVED (TEST DRIVE) **0 - 1**
DISABLED (ACCORDING EU RULES)

D2 RESERVED (EXTRACTING) **0 - 1**
DISABLED (ACCORDING EU RULES)

D3 RESERVED (MOVE FOR ONE FLOOR) **+ / - 1**
Elevator can drive one floor up od down by this command
8 = UP, 2 = DOWN

D4 RESERVED (MOVE TO FLOOR) **1 - 48**
Elevator can drive to desire floor by this comand

D5 DEMO SYSTEM minute 0 - 99
Demonstration system is system wich generates random commands for elevator. Also all commands wich are present by passangers are valid. Time for duration of this mode is entering in minutes. After this time is running out elevator continues with normal operation.

D6 HOLD AFTER TEST 0 - 1
We can select between setting 0 or 1. If we input 0, this function is deactivated. When 1 is set function is in operation. In normal mode this function have no influence to work. Also start of maintenance mode and all maintenance mode is normal. When we put elevator from maintenace mode to normal mode again, it will not start but hold until we put 0 to this parameter again. Also turn main switch off and on again will made that elevator will
start working.

D7 LANDING CALLS OFF 0 - 1
Put 1 to this function will made that all landing calls will not be valid and not accepted

D8 OPENING DOORS OFF 0 - 1
Put 1 to this function will made that doors will not be opened in stations.

6.10. 8S ENCODER SETTINGS – in preparation

S1 ENCODER CODE **2602**
Code to avoid unwanted acces to encoder menu

S2 LEARNING **0N / 0FF (1 - 0)**
CPU will read distances between stations. Lift will go down to bottom, than up to top and down to bottom again.
Lift must not be stopped during this function.

S3 DISTANCE OF SWITCH SLOW DOWN **increments**
Distance between slow down point and stop point in increments of encoder

S4 DISTANCE OF SWITCH SLOW UP **increments**
Distance between slow up point and stop point in increments of encoder

S5 – S51 LEVEL OF STATION 2 - 48 **increments**
Position of station in increments of encoder. Value is automaticaly calculated in Learning function and can be manually adjust

6.11. 9I INPUT / OUTPUT SETTINGS

I1 SLOW SPEED **NO / NC (0 - 1)**
Definition for terminal 14 - main module

I2 RELEVELLING UP **NO / NC (0 - 1)**
Definition for terminal 15 - main module

I3 RELEVELLING DOWN **NO / NC (0 - 1)**
Definition for terminal 16 - main module

I4 MAINTENANCE ON **NO / NC (0 - 1)**
Definition for terminal 17 - main module and terminal 09 - car module

I5 MAINTENANCE UP **NO / NC (0 - 1)**
Definition for terminal 18 - main module and terminal 10 - car module

I6 MAINTENANCE DOWN **NO / NC (0 - 1)**
Definition for terminal 19 - main module and terminal 11 - car module

I7 FIRE DRIVE **NO / NC (0 - 1)**
Definition for terminal 20 - main module

I8 ELEMENTS CHECK **NO / NC (0 - 1)**
Definition for terminal 21 - main module

I9 STOP IN STATION DOWN (ZONE B) **NO / NC (0 - 1)**
Definition for terminal 13 - main module

I10 STOP IN STATION UP (ZONE A) NO / NC (0 - 1)

Definition for terminal 12 - main module

I11 reserved

I12 POSITION INDICATOR TYPE 0 - 1

Definition for type of digital position outputs

0 - decimal (wire per floor)
1 - binary

I13 BINARY INDICATOR TYPE 0 - 1

Definition for binary position output

0 - position for first floor is 0 0 0 0 0 0
position for second floor is 0 0 0 0 0 1
position for thirth floor is 0 0 0 0 1 0
position for fourth floor is 0 0 0 0 1 1 .....

1 - position for first floor is 0 0 0 0 0 1
position for second floor is 0 0 0 0 1 0
position for thirth floor is 0 0 0 0 1 1
position for fourth floor is 0 0 0 1 0 0 .....

I14 DOOR OPEN A NO / NC (0 - 1)

Definition for terminal 68 - car module

I15 DOOR OPEN B NO / NC (0 - 1)

Definition for terminal 69 - car module

I16 DOOR CLOSE NO / NC (0 - 1)

Definition for terminal 70 - car module

I17 DOORS OPEN OUT OF STATION NO / YES (0 - 1)

If there is no “stop in station” signal and value is 0 doors can not open in any case

I18 CAR FULL LOAD NO / NC (0 - 1)

Definition for terminal 05 - car module

I19 CAR OVERLOAD NO / NC (0 - 1)

Definition for terminal 06 - car module

I20 PRIORITY DRIVE NO / NC (0 - 1)

Definition for terminal 07 - car module

I21 FIREFIGHTERS DRIVE NO / NC (0 - 1)

Definition for terminal 08 - car module

6.12. 0W SAVE SETTINGS TO EEPROM

After changes parameters are stored only in working memory. To save parameters to permanent memory, function W (Save settings to EEPROM) must be executed. To save the parameters elevator must be in maintenance mode. This is made to avoid change in parameters by other people than officially maintenance personal.

WARNING

Elevator parameters must be saved to permanent memory in 10 minutes after change. Otherwise elevator stops and previous parameter set is restored. After that elevator goes to first drive and works normal with previous parameter set.

6.13. PRESETING AND FACTORY RESET

Parameter preseting is made in production process and it depens on customer order. With that parameters is also made complete testing.

Preset parameters are placed in the last page of instructions. There is also place made where installer can write parameters which he will change during the instalation.

WARNING

SEC ELECTRONICS is not responsible for all additional parameter changing, which would be made from non authorizated person and could bring to controller or person damage,.

FACTORY RESET can be made when the power is ON, controller is in maintenance mode (terminal 17 on main module). We must activate for 1 second, fire drive (terminal 20 on main module) maintenance up and maintenance down (terminals 18 and 19 on main module) at the same time. These function is possible only 10 seconds after the controller is powered ON (LED display is ON).

WARNING

When factory reset is made parameters are diferent as preset values. Is essential to made parameter correction. Look to the list of preset parameters or contact SEC ELECTRONICS!

WARNING

Between factory reset procedure it could came to uncontrollable controller activity so all controller outputs must be disconected.

Parameters after factory reset:

Parameter F	Value
01 Lock door time [1 - 20s]	10
02 Parking time [5 - 1250s]*	120
03 Parking time filling/emptying [5 - 1250s]*	15
04 Direction hold time [1 - 20s]	2
05 Call delay timer [s]	2
06 Start filling [hh]	0
07 Start filling [mm]	0
08 Stop filling [hh]	0
09 Stop filling [mm]	0
10 Start emptying [hh]	0
11 Start emptying [mm]	0
12 End emptying [hh]	0
13 End emptying [mm]	0
14 Group time [1 - 99s]	20
15 Arrival gong time [1 - 20s]	5
16 Cabine blower time [1 - 90s]	20
17 Button backlight [0 - 50%]	0
18 Beep time [0,0 - 0,7s]	0
19 Gong delay time [1 - 20s]	1

Parameter V	Value
01 Open door time [1 - 60s]	3
02 Closing door time [1 - 60s]	10
03 Hold door time [1 - 60s]	1
04 Exchange close/open [0,1 - 9,9s]*	0,5
05 Door error time [1 - 10min]	1
06 Extend open door time [1 - 60s]	1
07 Special open door time [1 - 60s]	1
08 Input photocell door A	0
09 Input obstruction door A	0
10 Input photocell door B	0
11 Input obstruction door B	0
12 Preopening doors [0,1,2]	0
13 Door type [1 - 8]	6
14 Opening doors floor 1 - 48	1

Parameter P	Value
00 System type [1-6]	1
01 Elevator type [0-4]	0
02 Operation system [1-7]	1
03 Counting system [1-8]	4
04 Number of stations [2-48]	8
05 Arrival output type [1-4]	1
06 Direction indicator outputs type [1-5]	1
07 Ouput from fire alarm [0-2]	0
08 Doors in fire alarm, EU/AUS [0-5]	0
09 Correction at slip [0-1]	1
10 Star delta time [0 - 20s]	1
11 Pump or valves delay time [0,1 - 9,9s]*	1
12 Speed on maintenance [1-2]	1
13 Parking station [0-n, 99]	0
14 Parking station filling [0-n]	0
15 Parking station emptying [0-n]	0
16 Fire alarm station [1-n]	1
17 Short drive [0-10]	0
18 Switch delay short drive [0,1-9,9s]*	0
19 Flight time - fast speed [0 - 450s]	300
20 Flight time - slow speed [0 - 450s]	300
21 Flight time - maint. speed [0 - 450s]	0
22 Switch debounce time [0,0s - 9,9s]*	1
23 Stabilisation time [0,0 - 9,9s]*	1
29 Group [1-2]	1
30 Number of lifts in group [1-8]	1
31 Lift number in group [1-8]	1
32 Floor shift in group [0-8]	0
33 Max. floors for single drive [0-48]	0
34 Direction indicator on display [1-4]	2

NOTE * - The value on console is different, this is the value on computer editor
- Input logic: I04 and I08 have value 1, other 0
- Parameters D – all values are 0

7. ABBREVIATIONS

7.1. TERMINALS ON CONTROL PANEL

0	ground	
1	L1 input	3F 400V (415V) AC 50 Hz (60 Hz)
2	L2 input	
3	L3 input	
4	N input	
N	N input	
Nc	N input - neutral for cabin light	
5	motor U1	main motor on electric elevator or pump motor on hydraulic elevator
6	motor V1	
7	motor W1	
8	motor U2	
9	motor W2	
10	motor V2	
11	L input phase for cabin light	
Lc	L input phase for cabin light	
12	door motor U1	DOOR A
13	door motor V1	
14	door motor W1	
15	door motor U1	DOOR B
16	door motor V1	
17	door motor W1	
18	blower motor U1	(only on electric elevator)
19	blower motor V1	
20	blower motor W1	
21	blower in cabin 230V AC	
22	oil heater	
23	thermal switch for blower motor	(only on electric elevator)
24	thermal switch for blower motor	
25	brake	(only on electric elevator)
25a	brake	second terminal (if brake voltage is not insulated with transformer)
26	retiring cam	(only on semiautomatic door)
26a	retiring cam	second terminal (if retiring cam voltage is not insulated with transformer)
27	+48V	
28	fast speed limit switch down	
29	fast speed limit switch up	
30		
30A	final limit switch in hydraulic systems	
31	safety circuit start	
31a	safety circuit after stop in cabin	
31b	safety circuit after stop maintenance	
31c	safety circuit after maintenance switches	
31d	safery circuit after slack rope switch	

32 safety circuit after final limit switch
33 safety circuit after safety gear switch
33a safety circuit after oil buffer switch
33b safety circuit after final limit switch - bottom
33c safety circuit after final limit switch - top
34 safety circuit after overspeed brake switch
34a safety circuit afer overspeed slack rope switch
35 safety circuit after stop in shaft switch
36 safety circuit after internal protections (phase failure, VVVF status etc)
37 safety circuit after landing doors switches
38 safety circuit after cabin door switch
39 safety circuit after landing doors lock switches

40 +48V
41 open contact for door - common
42 open contact for door - opening
43 open contact for door - closing
44 door close input

45
46 end switch door opening
47
48 end switch door closing
45B
46B end switch door B opening
47B
48B end switch door B closing

49 door A open input
50 door B open input
54 photocell input door B
55 obstruction input door B

56 solenoid valve down
57 solenoid valve up
58 solenoid valve fast speed down
59 solenoid valve fast speed up

61 stop up switch or zone A switch
62 stop down switch or zone B switch
63 relevelling up switch
64 relevelling down switch
65 slow speed up switch
66 slow speed down switch
67 cabin full load switch
68 cabin overload
69 maintenance drive on switch
70 maintenance drive up switch
71 maintenance drive down switch
72 button force door closing
73 priority drive switch
74 door photocell switch
75 button force door opening
76 door obstruction switch

121 output cabin overload
122 output arrival to station - gong
123 output out of work
124 output occupied / beeper
131 output direction down
132 output direction up

222 serial indicator - data

276 solenoid valve down - hydraulic BERINGER with module ELRV
276a

277 solenoid valve up - hydraulic BERINGER with module ELRV
277a

351 switch for emergency lowering
352 switch for emergency lowering

538 output for emergency door opening

360 solenoid valve for emergency lowering (12V DC)
371 output emergency alarm (12V DC)
372 output emergency light (12V DC)
373 emergency alarm button input (connection to the ground)

383 thermistors in main motor or pump motor
384

A, B intercom connection

C1 - C48 cabin inputs 1 to 48 floor
U1 - U48 upward calls 1 to 48 floor
D1 - D48 downward calls 1 to 48 floor
P1 - P48 position output 1 to 48 floor
PA - PF position output - binary

7.2. ELEMENTS ON CONTROL PANEL

K1 contactor UP
K2 contactor DOWN
K3 contactor FAST SPEED
K4 contactor SLOW SPEED
K6 contactor motor (VVVF lift)
K6A contactor motor (VVVF lift)
K18 contactor RETIRING CAM
K31 contactor PUMP STAR
K32 contactor PUMP ON
K33 contactor PUMP DELTA

K20 contactor motor BLOWER
K21 contactor door A open
K22 contactor door A close
K23 contactor door B open
K24 contactor door B close

R1 safety relay on safety circuit 185
R2 safety relay on safety circuit 185
R3 safety relay on safety circuit 185
R4 safety relay on safety circuit 185

R10 relay light in car
R11 relay down
R12 relay up
R13 relay up and down
R14 relay safety after cabin door
R15 relay safety after doors locks
R17 relay fast speed
R18 relay retiring cam
R30 relay emergency lowering
R31 relay emergency lowering
R32 relay emergency opening door
R91 relay down – hydraulic BERINGER module ELRV
R92 relay up - hydraulic BERINGER module ELRV
R93 relay maintenance - hydraulic BERINGER module ELRV

RL relay emergency light
RB relay blower in the cabin

F1 fuse for electronic board main
F2 3F fuse for door motor
F4 fuse transformer
F5 fuse transformer
F6 fuse 24V
F7 fuse 48V
F8 fuse 230V AC for contactors
F31 3F fuse for motor

V1 solenoid valve down
V2 solenoid valve up
V3 solenoid valve slow speed
V4 solenoid valve fast speed
V9 solenoid valve emergency lowering

RE1 relay pump on
RE2 relay pump delta
RE3 relay pump star
RE4 relay up
RE5 relay down
RE6 relay high speed
RE7 relay door A close
RE8 relay door A open
RE9 relay door B close
RE10 relay door B open

8. COUNTING SENSORS CONNECTION AND POSITION

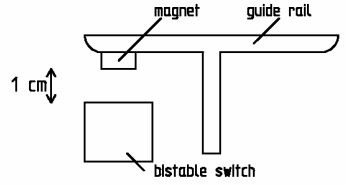
E– type control panels can work with 7 different counting sensor installations. Correct counting system is selected through programming with parameter P3

All inputs for counting (input 61, 62, 63, 64, 65 and 66) can be programmed as normally open or normally close inputs depending on switches used.

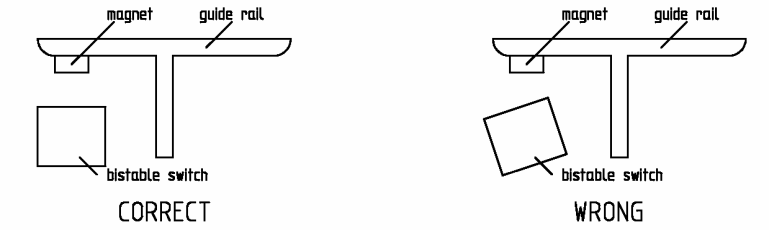
Some notes for installation:

NOTE bistable switches must be mounted correctly – cable is on bottom side of switch

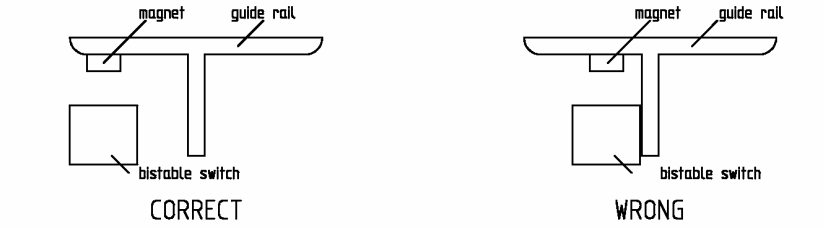
NOTE There must be 10 mm space between magnet and switch for proper operation



NOTE magnet must be mounted at 90 degree angle according to switch



NOTE switches and magnets must not be mounted near to other metal parts (bolts, brackets)

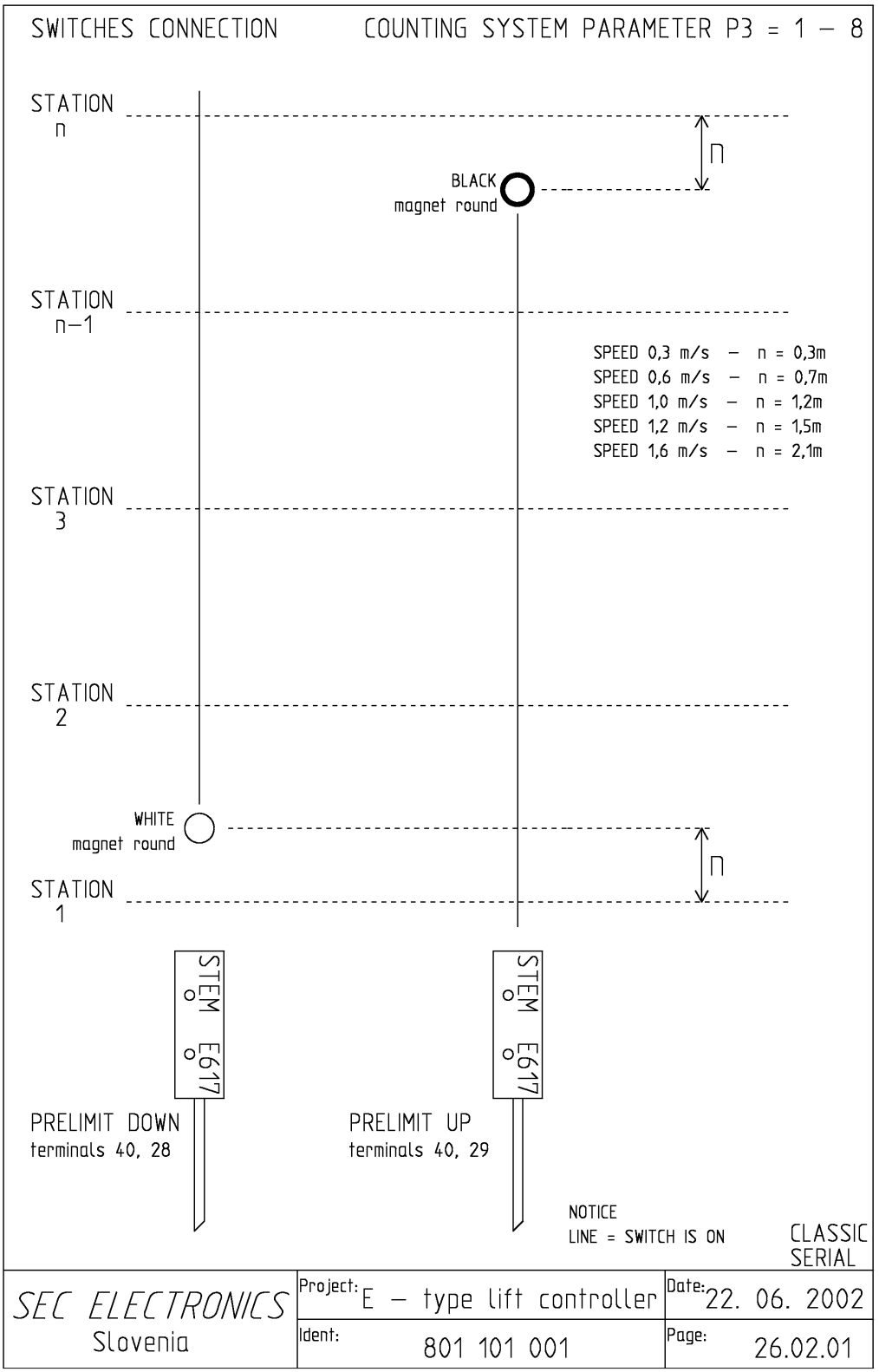


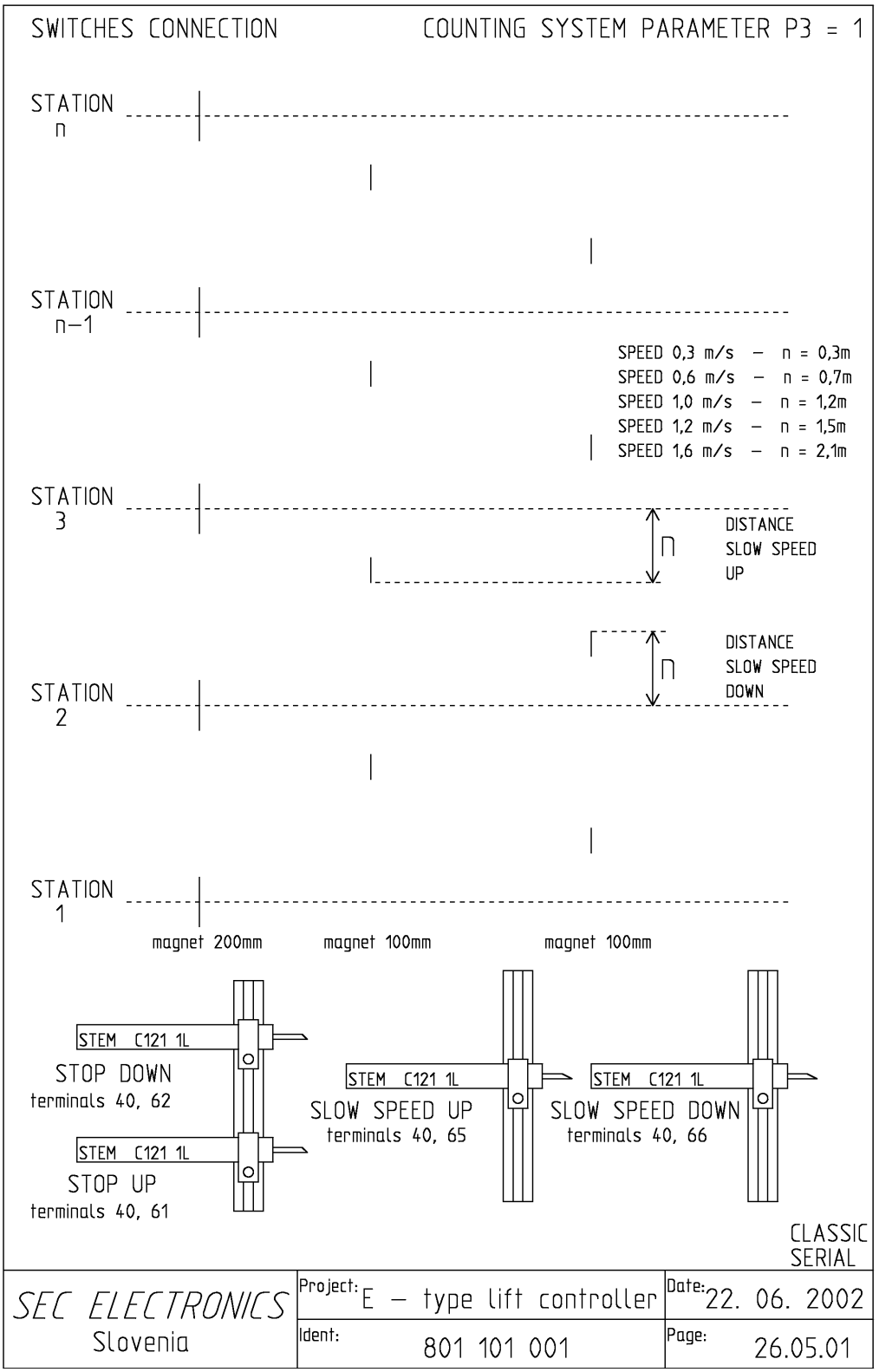
NOTE magnets for bistable switches must be correctly oriented (black – white)

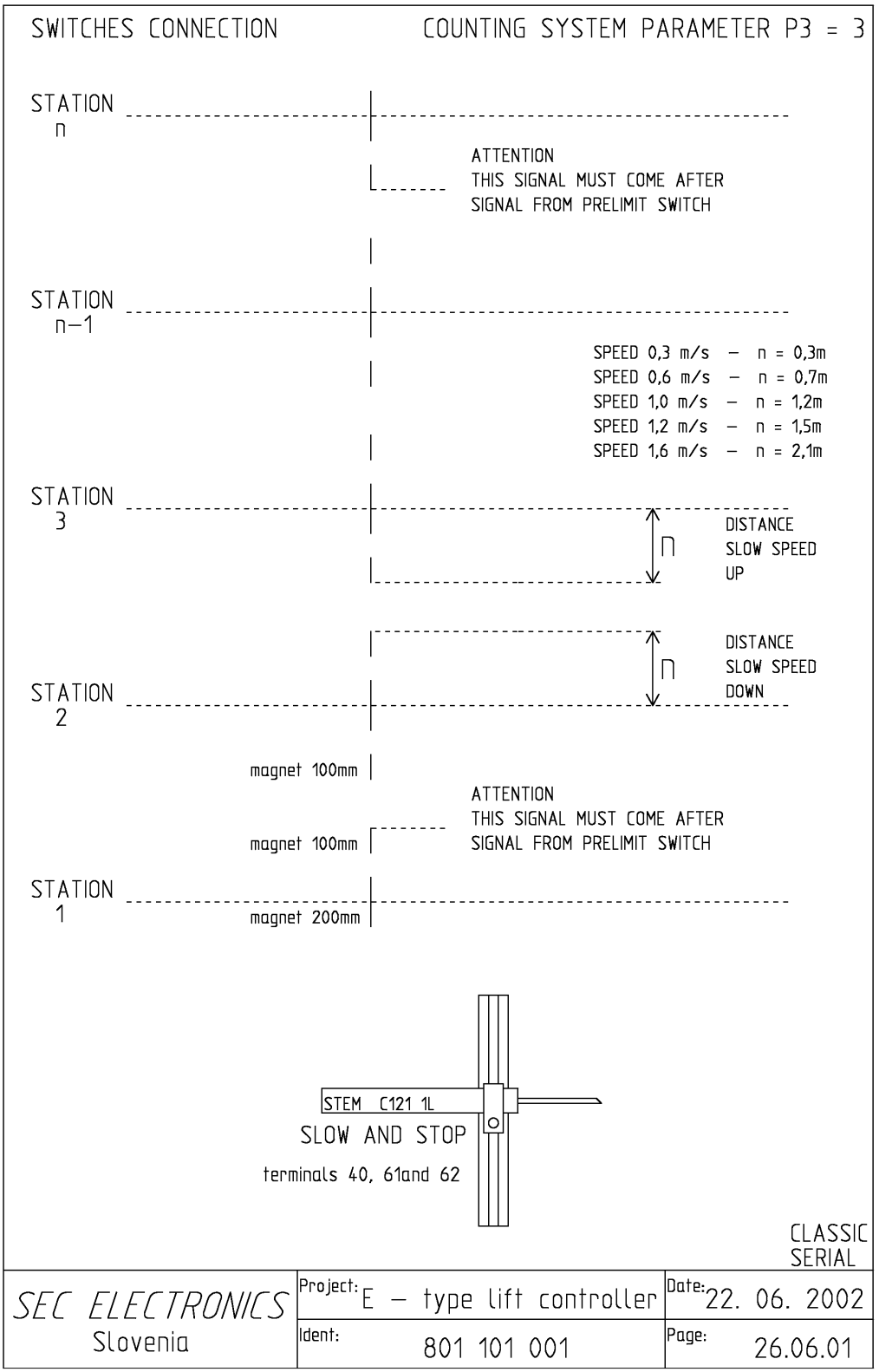
NOTE first time bistable switches must be triggered manually (by magnet)

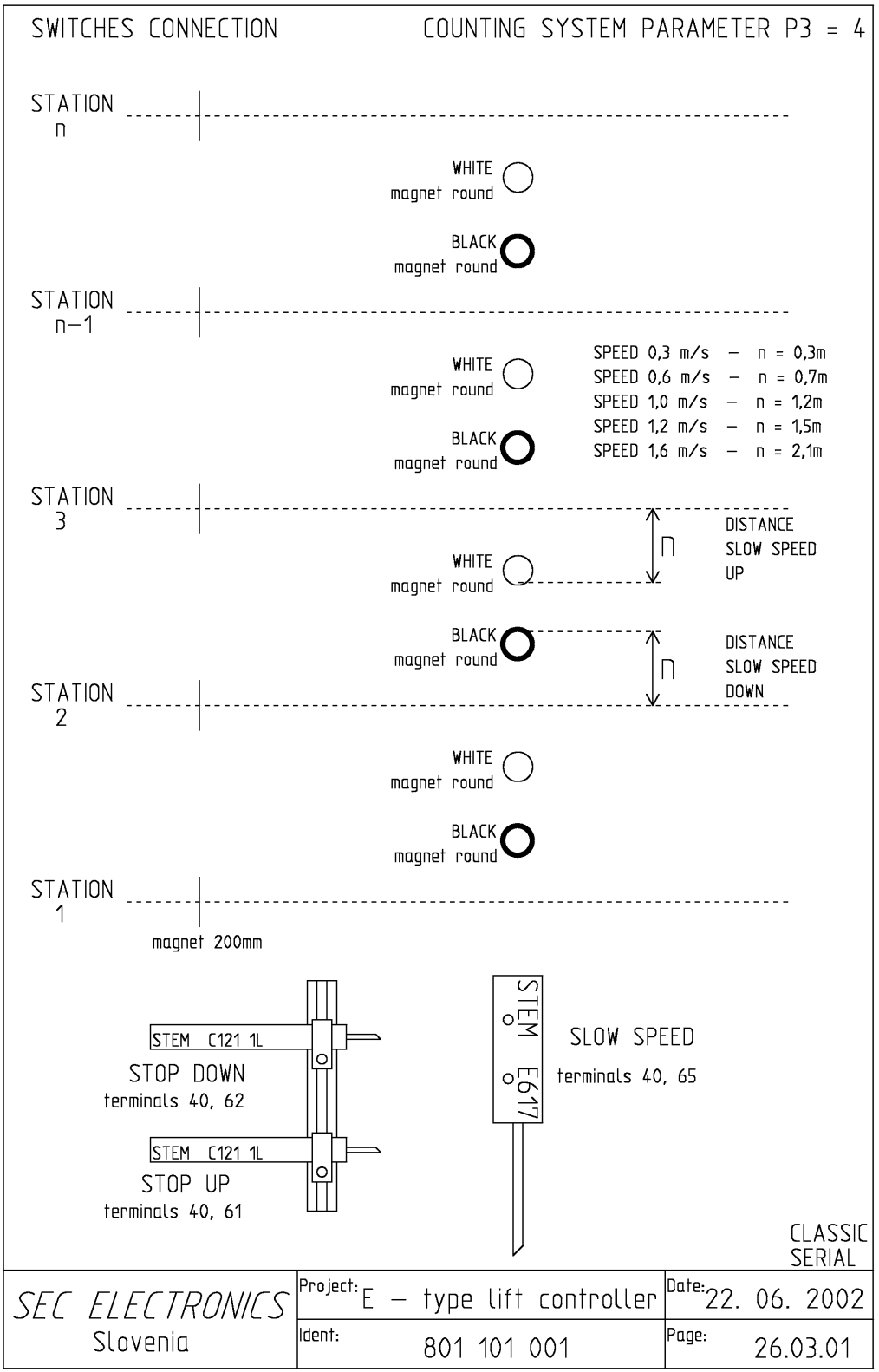
NOTE prelimit switches described in this manual are bistable magnetic type which is not always acceptable – especially for speeds up to 1,6 m/s where prelimit switches must be mechanical type
(as final limit switch)

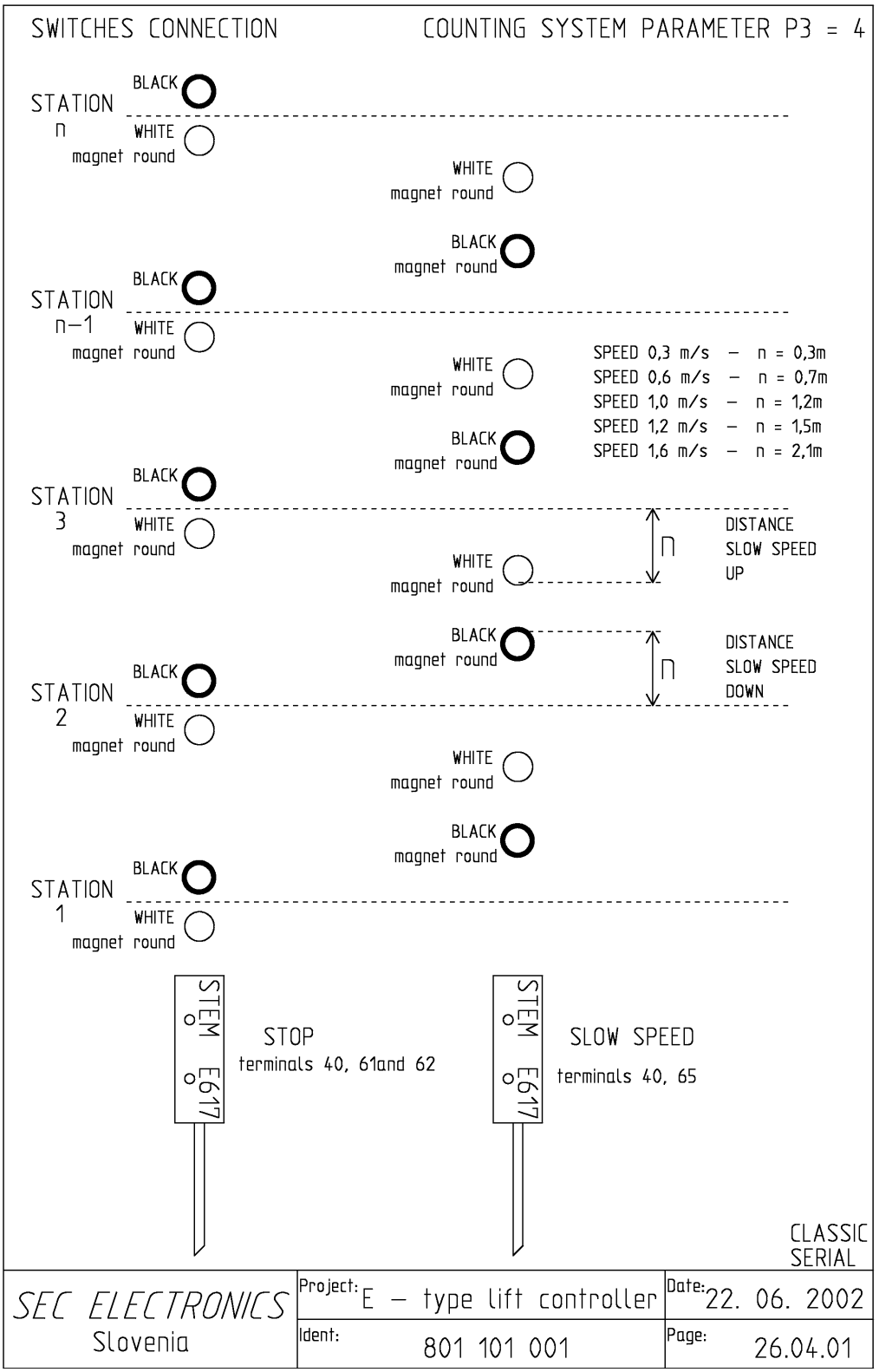
NOTE final limit switch is not described in this manual – but it is obligatory

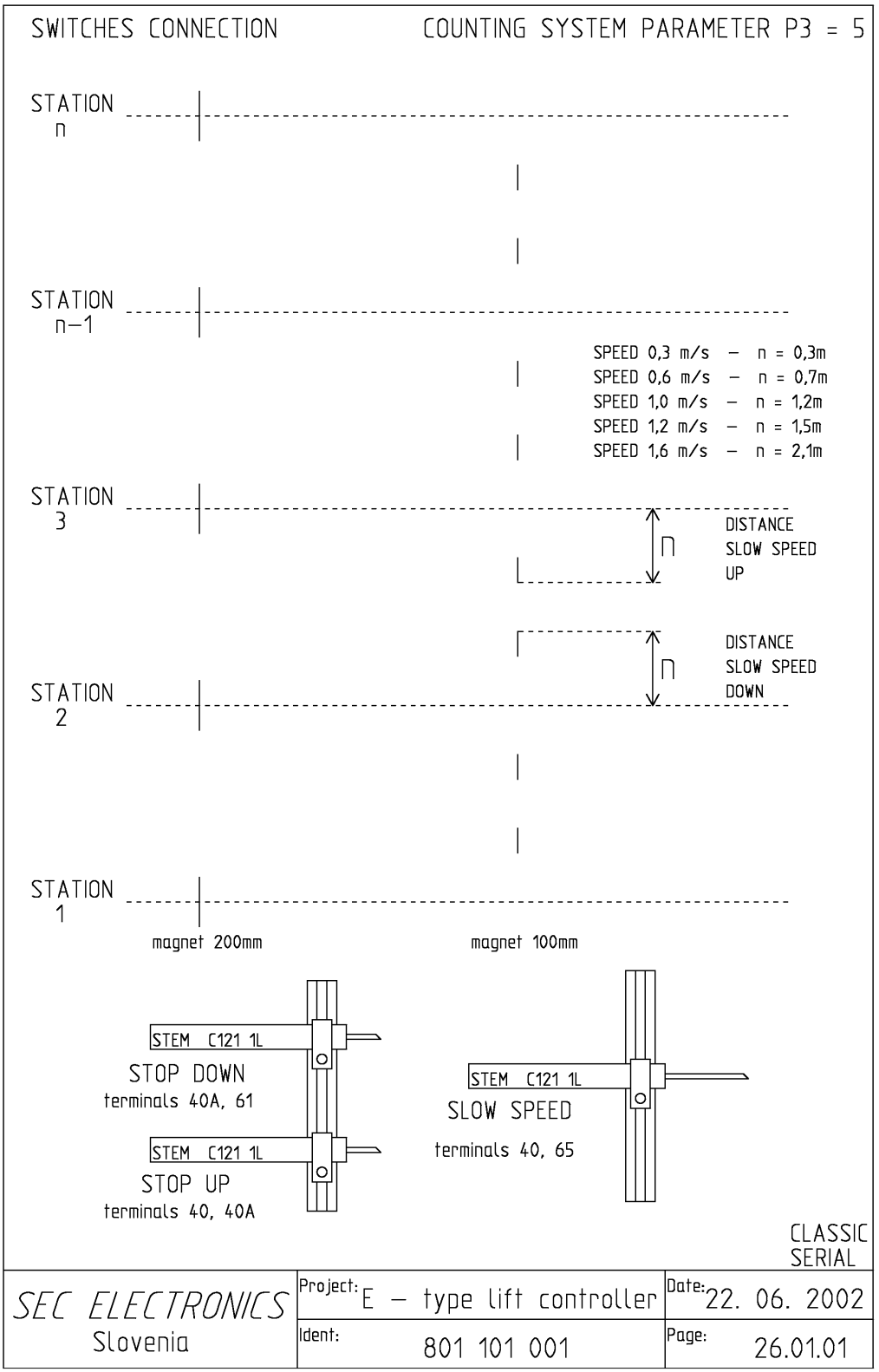

SWITCHES CONNECTION
COUNTING SYSTEM PARAMETER P3 = 1 – 8
STATION n
n
BLACK magnet round
STATION n–1
SPEED 0,3 m/s – n = 0,3m
SPEED 0,6 m/s – n = 0,7m
SPEED 1,0 m/s – n = 1,2m
SPEED 1,2 m/s – n = 1,5m
SPEED 1,6 m/s – n = 2,1m
STATION 3
STATION 2
WHITE magnet round
n
STATION 1
STEM E617
STEM E617
PRELIMIT DOWN terminals 40, 28
PRELIMIT UP terminals 40, 29
NOTICE
LINE = SWITCH IS ON
CLASSIC SERIAL
SEC ELECTRONICS
Slovenia
Project: E – type lift controller
Date: 22. 06. 2002
Ident: 801 101 001
Page: 26.02.01

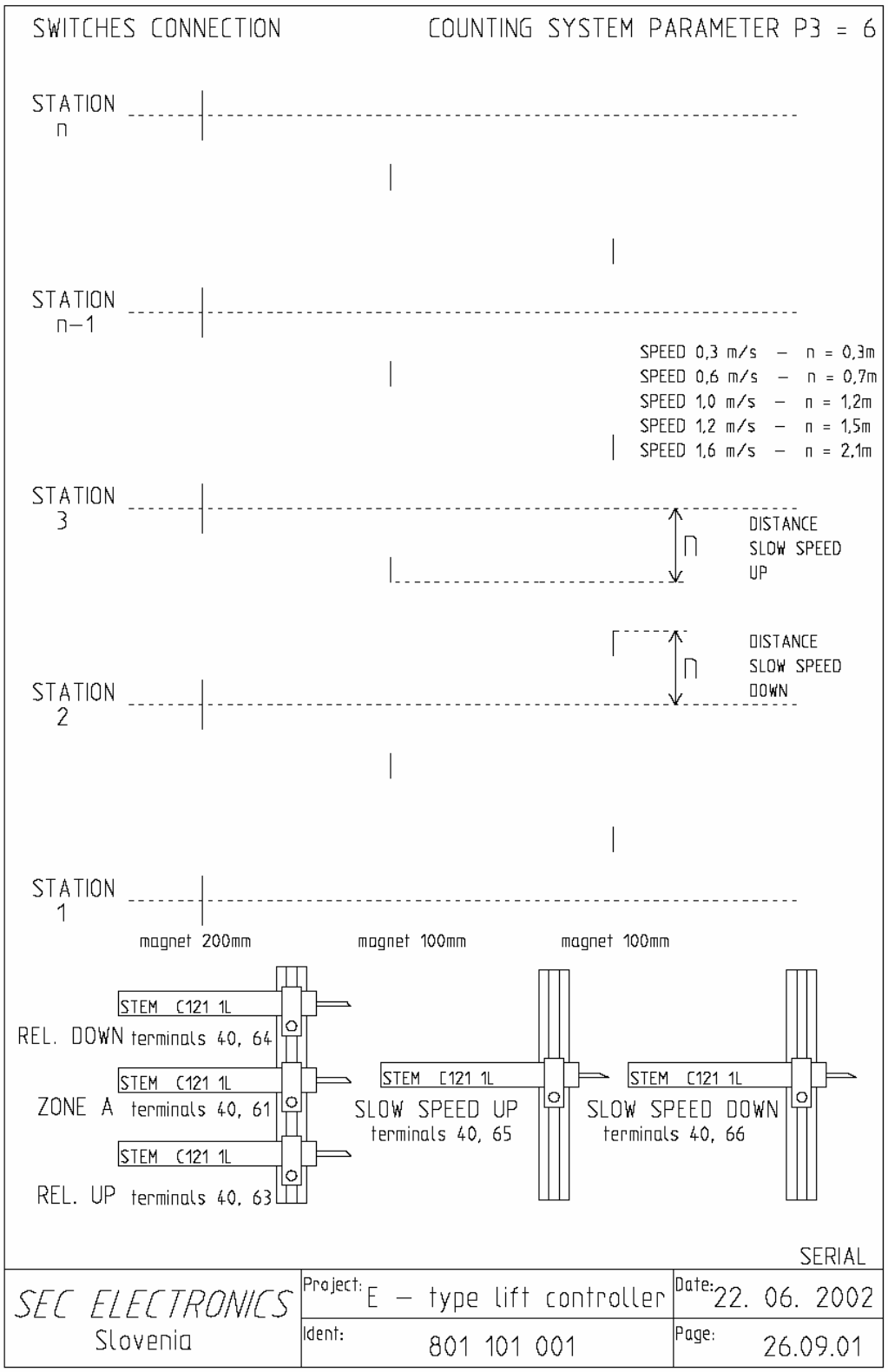

SWITCHES CONNECTION
COUNTING SYSTEM PARAMETER P3 = 1
STATION n
STATION n−1
SPEED 0,3 m/s – n = 0,3m
SPEED 0,6 m/s – n = 0,7m
SPEED 1,0 m/s – n = 1,2m
SPEED 1,2 m/s – n = 1,5m
SPEED 1,6 m/s – n = 2,1m
STATION 3
DISTANCE SLOW SPEED UP
DISTANCE SLOW SPEED DOWN
STATION 2
STATION 1
magnet 200mm
magnet 100mm
magnet 100mm
STEM C121 1L
STOP DOWN
terminals 40, 62
STEM C121 1L
STOP UP
terminals 40, 61
STEM C121 1L
SLOW SPEED UP
terminals 40, 65
STEM C121 1L
SLOW SPEED DOWN
terminals 40, 66
CLASSIC SERIAL
SEC ELECTRONICS
Slovenia
Project: E – type lift controller
Date: 22. 06. 2002
Ident: 801 101 001
Page: 26.05.01

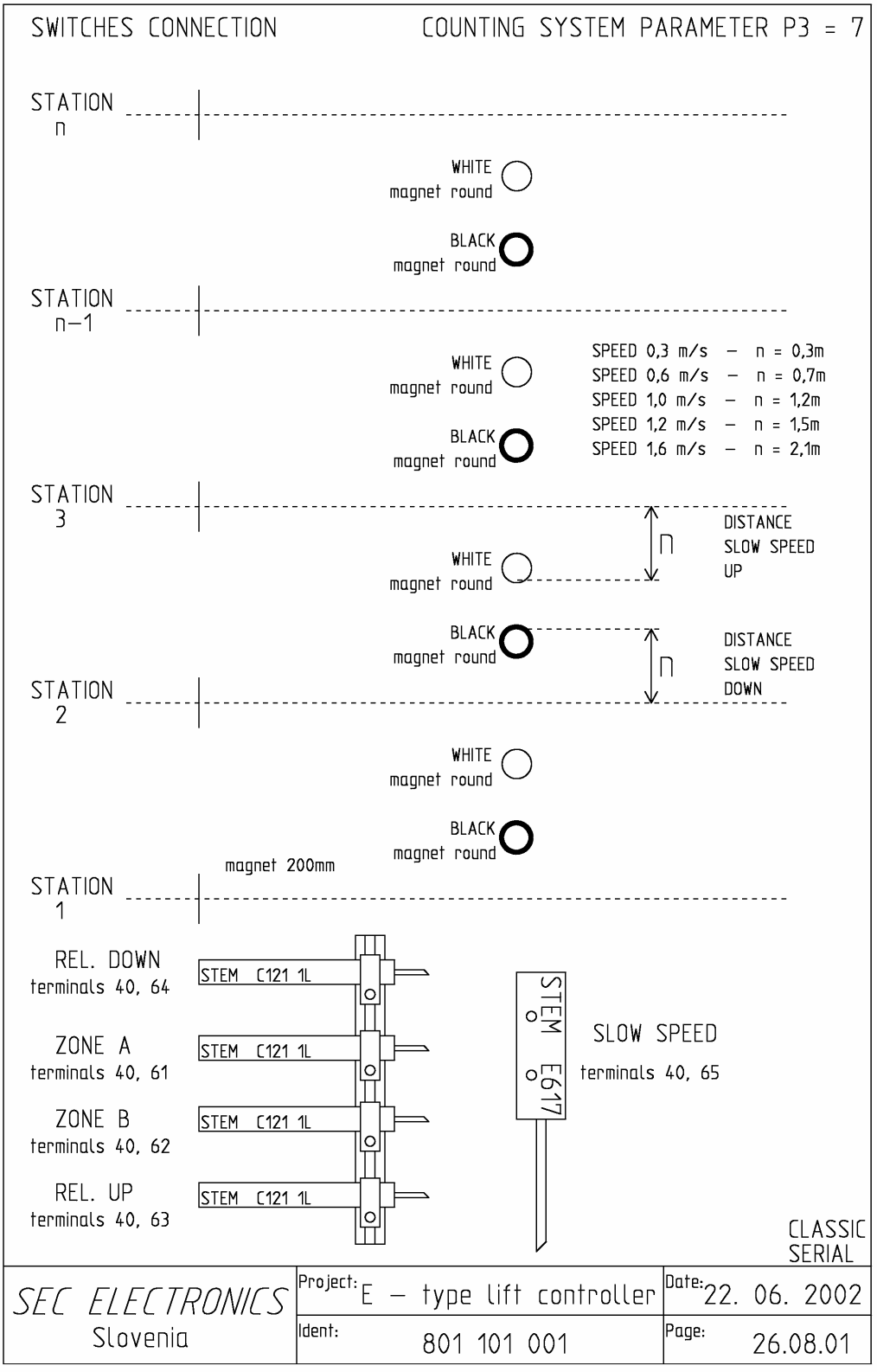

SWITCHES CONNECTION
COUNTING SYSTEM PARAMETER P3 = 3
STATION n
ATTENTION
THIS SIGNAL MUST COME AFTER
SIGNAL FROM PRELIMIT SWITCH
STATION n-1
SPEED 0,3 m/s – n = 0,3m
SPEED 0,6 m/s – n = 0,7m
SPEED 1,0 m/s – n = 1,2m
SPEED 1,2 m/s – n = 1,5m
SPEED 1,6 m/s – n = 2,1m
STATION 3
DISTANCE
SLOW SPEED
UP
DISTANCE
SLOW SPEED
DOWN
STATION 2
magnet 100mm
ATTENTION
THIS SIGNAL MUST COME AFTER
SIGNAL FROM PRELIMIT SWITCH
magnet 100mm
STATION 1
magnet 200mm
STEM C121 1L
SLOW AND STOP
terminals 40, 61and 62
CLASSIC
SERIAL
SEC ELECTRONICS
Slovenia
Project: E – type lift controller
Date: 22. 06. 2002
Ident: 801 101 001
Page: 26.06.01

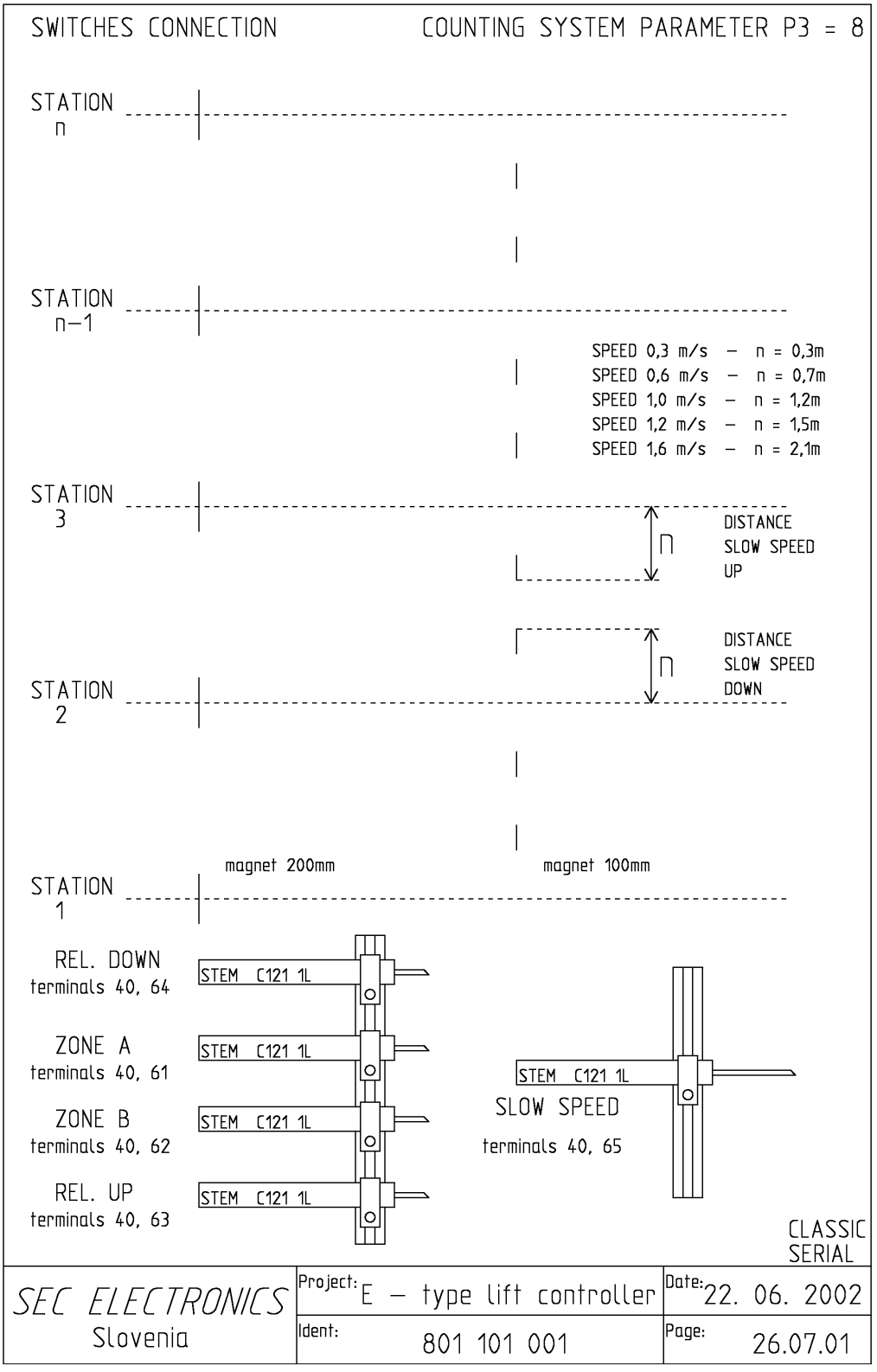

SWITCHES CONNECTION
COUNTING SYSTEM PARAMETER P3 = 4
STATION n
WHITE magnet round
BLACK magnet round
STATION n−1
WHITE magnet round
BLACK magnet round
SPEED 0,3 m/s − n = 0,3m
SPEED 0,6 m/s − n = 0,7m
SPEED 1,0 m/s − n = 1,2m
SPEED 1,2 m/s − n = 1,5m
SPEED 1,6 m/s − n = 2,1m
STATION 3
WHITE magnet round
DISTANCE SLOW SPEED UP
BLACK magnet round
DISTANCE SLOW SPEED DOWN
STATION 2
WHITE magnet round
BLACK magnet round
STATION 1
magnet 200mm
STEM C121 1L
STOP DOWN
terminals 40, 62
STEM C121 1L
STOP UP
terminals 40, 61
STEM E617
SLOW SPEED
terminals 40, 65
CLASSIC SERIAL
SEC ELECTRONICS
Slovenia
Project: E − type lift controller
Date: 22. 06. 2002
Ident: 801 101 001
Page: 26.03.01


SWITCHES CONNECTION
COUNTING SYSTEM PARAMETER P3 = 4
STATION n
BLACK
WHITE magnet round
STATION n−1
STATION 3
STATION 2
STATION 1
WHITE magnet round
BLACK magnet round
SPEED 0,3 m/s – n = 0,3m
SPEED 0,6 m/s – n = 0,7m
SPEED 1,0 m/s – n = 1,2m
SPEED 1,2 m/s – n = 1,5m
SPEED 1,6 m/s – n = 2,1m
n
DISTANCE SLOW SPEED UP
DISTANCE SLOW SPEED DOWN
STEM E617
STOP
terminals 40, 61and 62
SLOW SPEED
terminals 40, 65
CLASSIC SERIAL
SEC ELECTRONICS
Slovenia
Project: E – type lift controller
Date: 22. 06. 2002
Ident: 801 101 001
Page: 26.04.01


SWITCHES CONNECTION
COUNTING SYSTEM PARAMETER P3 = 5
STATION n
STATION n–1
SPEED 0,3 m/s – n = 0,3m
SPEED 0,6 m/s – n = 0,7m
SPEED 1,0 m/s – n = 1,2m
SPEED 1,2 m/s – n = 1,5m
SPEED 1,6 m/s – n = 2,1m
STATION 3
DISTANCE SLOW SPEED UP
DISTANCE SLOW SPEED DOWN
STATION 2
STATION 1
magnet 200mm
magnet 100mm
STEM C121 1L
STOP DOWN
terminals 40A, 61
STEM C121 1L
STOP UP
terminals 40, 40A
STEM C121 1L
SLOW SPEED
terminals 40, 65
CLASSIC SERIAL
SEC ELECTRONICS
Slovenia
Project: E – type lift controller
Date: 22. 06. 2002
Ident: 801 101 001
Page: 26.01.01


SWITCHES CONNECTION
COUNTING SYSTEM PARAMETER P3 = 6
STATION n
STATION n-1
SPEED 0,3 m/s – n = 0,3m
SPEED 0,6 m/s – n = 0,7m
SPEED 1,0 m/s – n = 1,2m
SPEED 1,2 m/s – n = 1,5m
SPEED 1,6 m/s – n = 2,1m
STATION 3
DISTANCE SLOW SPEED UP
DISTANCE SLOW SPEED DOWN
STATION 2
STATION 1
magnet 200mm
magnet 100mm
magnet 100mm
STEM C121 1L
REL. DOWN terminals 40, 64
STEM C121 1L
ZONE A terminals 40, 61
STEM C121 1L
REL. UP terminals 40, 63
STEM C121 1L
SLOW SPEED UP
terminals 40, 65
STEM C121 1L
SLOW SPEED DOWN
terminals 40, 66
SERIAL
SEC ELECTRONICS
Slovenia
Project: E – type lift controller
Date: 22. 06. 2002
Ident: 801 101 001
Page: 26.09.01


SWITCHES CONNECTION
COUNTING SYSTEM PARAMETER P3 = 7
STATION n
WHITE magnet round
BLACK magnet round
STATION n−1
WHITE magnet round
BLACK magnet round
SPEED 0,3 m/s − n = 0,3m
SPEED 0,6 m/s − n = 0,7m
SPEED 1,0 m/s − n = 1,2m
SPEED 1,2 m/s − n = 1,5m
SPEED 1,6 m/s − n = 2,1m
STATION 3
WHITE magnet round
DISTANCE SLOW SPEED UP
BLACK magnet round
DISTANCE SLOW SPEED DOWN
STATION 2
WHITE magnet round
BLACK magnet round
magnet 200mm
STATION 1
REL. DOWN terminals 40, 64
ZONE A terminals 40, 61
ZONE B terminals 40, 62
REL. UP terminals 40, 63
STEM C121 1L
STEM C121 1L
STEM C121 1L
STEM C121 1L
STEM E617
SLOW SPEED terminals 40, 65
CLASSIC SERIAL
SEC ELECTRONICS Slovenia
Project: E − type lift controller
Date: 22. 06. 2002
Ident: 801 101 001
Page: 26.08.01


SWITCHES CONNECTION
COUNTING SYSTEM PARAMETER P3 = 8
STATION n
STATION n−1
SPEED 0,3 m/s – n = 0,3m
SPEED 0,6 m/s – n = 0,7m
SPEED 1,0 m/s – n = 1,2m
SPEED 1,2 m/s – n = 1,5m
SPEED 1,6 m/s – n = 2,1m
STATION 3
DISTANCE SLOW SPEED UP
DISTANCE SLOW SPEED DOWN
STATION 2
magnet 200mm
magnet 100mm
STATION 1
REL. DOWN
terminals 40, 64
ZONE A
terminals 40, 61
ZONE B
terminals 40, 62
REL. UP
terminals 40, 63
STEM C121 1L
STEM C121 1L
STEM C121 1L
STEM C121 1L
STEM C121 1L
SLOW SPEED
terminals 40, 65
CLASSIC SERIAL
SEC ELECTRONICS
Slovenia
Project: E – type lift controller
Date: 22. 06. 2002
Ident: 801 101 001
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9. CONNECTION DURING INSTALLATION PHASE

WARNING – ATTENTION This wiring is temporary wiring acceptable only during installation phase. Wiring and use of lift systems under these conditions is permitted only for qualified personnel. Only qualified personnel may undertake the moving of the lift. After end of work, lift must be switched OFF. After installation phase, this temporary wiring must be removed, and replaced with normal and valid wiring system

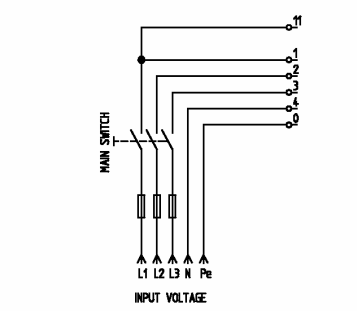
WARNING – ATTENTION Involved personnel must be made fully aware that when using this wiring during installation phase, the only safety element for stopping lift is the stop button. No other device is connected to the system during this period.

WARNING – ATTENTION All wire bridges for terminal's short circuit connection must be removed after the installation period and replaced with the valid wiring system.

WARNING – ATTENTION This method for installation is not valid in all countries. In this case local and national safety regulation must be considered.

9.1. POWER SUPPLY

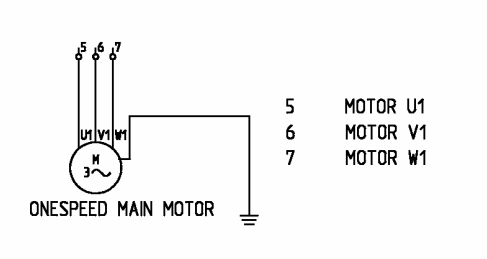
Power supply must be applied to the control panel. In some version terminal Lc is used instead 11.



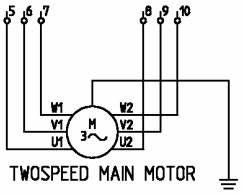
NOTE After switch ON check phase sequence device. BOTH LED DIODES MUST LIT. If not, switch supply OFF and change wires between terminals 2 and 3 (correct phase sequence)

9.2. MOTOR CONNECTION

Terminals for one speed motor (hydraulic direct start, hydraulic soft start, electric one speed
electric VVVF, electric ACVV)

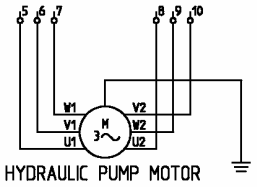


Terminals for two speed motor (electric two speed)



5	MOTOR U1 – FAST SPEED
6	MOTOR V1 – FAST SPEED
7	MOTOR W1 – FAST SPEED
8	MOTOR U2 – SLOW SPEED
9	MOTOR V2 – SLOW SPEED
10	MOTOR W2 – SLOW SPEED

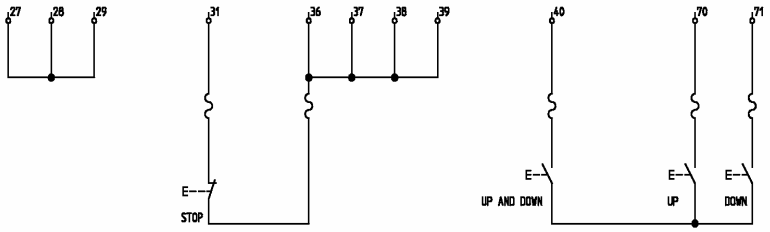
Terminals for one speed motor with 6 wires (hydraulic star delta start)



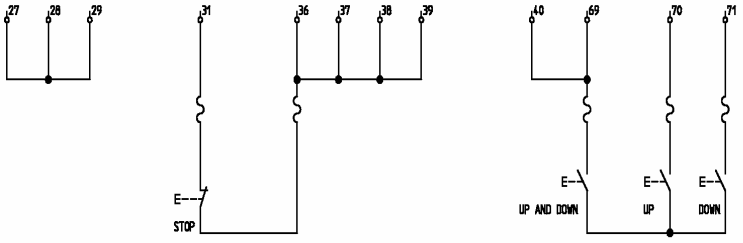
5	MOTOR U1
6	MOTOR V1
7	MOTOR W1
8	MOTOR U2
9	MOTOR W2
10	MOTOR V2

9.3. MAINTENANCE AND SAFETY CONNECTION

If switch for maintenance drive is normally close (parameter I4 is 1) connection is:



If switch for maintenance drive is normally open (parameter I4 is 0) connection is:



NOTE In some systems terminal 27 is not in use. In this case terminal 40 is the same as terminal 27
At hidraulic lift instalation we must also bridge terminals 30 and 30A (final limit switch).

WARNING – ATTENTION Prelimit and final limit switches are not connected in this case and therefore offer no protection from over travel of the lift car

10. START UP

10.1. PREPOWER CHECKS

The following should be checked before switching ON the control panel:

Grounds / Grounding

Verify ground connections control panel to main motor and control panel to car
Verify ground connections input to control panel
Verify AC Input, AC Output and control wiring aren't grounded

Connections

Verify AC Input connections	(0, 1, 2, 3, 4, 11)
Verify main motor connections	(5, 6, 7, 8, 9, 10)
Verify prelimit switches connections	(27, 28, 29)
Verify safety line connections	(30,30A,31,31A,31C,31D,32,33,33A,33B,33C,34,34A, 35,36,37,38,39)
Verify stop in station switches connections	(61, 62, 63, 64)
Switch maintenance drive ON	(69)

WARNING On first switching on, the control panel must be in maintenance mode

10.2. VOLTAGE AND CONTROL ELEMENTS CHECK

After first switching on the control voltages in system:

Measure 48V DC on terminal 40. Measured voltage must be in range between 60 and 70 V DC

NOTE This voltage have smoothing capacitor

Measure 24V DC on terminal 80. Measured voltage must be in range between 24 and 30 V DC

NOTE This voltage have smoothing capacitor

Measure 12V DC from accumulator charger on faston connectors by removing accumulator. Red faston connector is +12V DC and black one is ground. Measured voltage must be in range between 13 and 15 V DC

NOTE When accumulator is applied this voltage goes down to 13 V DC

Check phase sequence device. BOTH LED DIODES MUST LIT. If not, switch supply OFF and change wires between terminals 2 and 3 (correct phase sequence)

Check PTC module (thermistor control). LED PTC OK must lit. If not, check thermistors and switches connected on terminals 383, 384.

10.3. MAINTENANCE MODE

Move the car upward by pressing maintenance up button (terminal 70). Lift must stop on upper prelimit switch
(terminal 29) which means that this switch function normally. Check of upper prelimit switch is possible with LED “FAST SPEED LIMIT SWITCH UP”. This LED is ON when switch is ON.

Move the car downward by pressing maintenance down button (terminal 71). Lift must stop on lower prelimit switch
(terminal 28) which means that this switch function normally. Check of lower prelimit switch is possible with LED “FAST SPEED LIMIT SWITCH DOWN”. This LED is ON when switch is ON.

Check the function of final limit switch (bottom and top).

On maintenance mode door tests are possible:

By pressing car call 1 (terminal C1), doors will open
By pressing car call 2 (terminal C2). doors will close

WARNING Maintenance up button must move lift up. If lift goes down, change wires in main motor connections. If a two speed motor is applied, the fast speed wires must be changed also

WARNING In hydraulic lift check correct pump rotation. If pump runs in reverse change wires in pump motor connections

10.4. NORMAL MODE

If lift works normally in maintenance mode, switch from maintenance mode to normal mode.

If lower prelimit switch is ON:
Lift will start down with fast speed. Lift will switch to slow speed when lower prelimit switch goes off.
Lift will stop in station when stop down signal goes on.

If lower prelimit switch is OFF:
Lift will start up with fast speed. Lift will switch to slow speed when slow speed up signal will come.
Lift will stop in station when stop up signal goes on.

After lift comes to the station all functions work normally. Doors will open and lift is ready for operation.

NOTE When lift is in station LED “ELEMENTS CHECK” must light. This LED checks the operation of relays, contactors, thermo switches and thermistors

10.5. TROUBLESHOOTING

LIFT WILL NOT OPERATE IN MAINTENANCE MODE

check AC input voltage on terminals 1, 2 and 3, check AC input neutral on terminal 4, check AC input voltage on terminal 11 (if exist)

check proper operation of "phase sequence and failure device". In normal operation both LED's lit.

check fuses and motor protection devices

check low voltage in system: 48V DC on terminal 40 (60 – 70 VDC)
24V DC on terminal 80 (24 – 30 VDC)
5V DC LED in PCB "5V DC"

check safety line on terminals 31, 36, 37, 38, 39 (use first LED's in PCB "safety circuit 36, 37, 38 and 39). Measure also voltage in terminals 31, 36, 37, 38 and 39. Voltage range must be between 60 and 70 VDC. LED's are only indicators for voltage presence but voltage can be too low.

check prelimit switches on terminals 28 and 29 (use first LED's in PCB " fast speed limit switch up and down"). Measure also voltage in terminals 28 and 29. Voltage range must be between 60 and 70 VDC. LED's are only indicators for voltage presence but voltage can be too low.

check parameters and input definitions. (see section PROGRAMMING). Specially check parameters and definitions related to maintenance mode:

- parameter P12 speed at test
- definition I4 input maintenance ON definition
- definition I5 input maintenance UP definition
- definition I6 input maintenance DOWN definition

check action with programmer in the flow control menue

LIFT WILL NOT OPERATE IN MAINTENANCE DOWN DRIVE

check action with programmer in the flow control menue
if there is message maintenance down, computer works normally and problem is in power section:
check motor, valves or brake connection
check contactors and relays

if there is no action in programmer check prelimit switch down (terminal 28) – LED " fast speed limit switch down". Measure also voltage in terminal 28. Voltage range must be between 60 and 70 VDC. LED's are only indicators for voltage presence but voltage can be too low.

LIFT WILL NOT OPERATE IN MAINTENANCE UP DRIVE

- check action with programmer in the flow control menue
  if there is message maintenance up, computer works normally and problem is in power section:
  check motor, valves or brake connection
  check contactors and relays

  if there is no action in programmer check prelimit switch up (terminal 29) – LED " fast speed limit switch up". Measure also voltage in terminal 29. Voltage range must be between 60 and 70 VDC. LED's are only indicators for voltage presence but voltage can be too low.

LIFT WILL NOT START IN NORMAL MODE

check if lift operates normally in maintenance mode. Lift must operate normally in both directions in maintenance mode

- check with programmer in the flow control menue if there is any error

check door operation. Doors must close (safety line 39). Check conditions which will prevent door closing:

- input 76 door obstruction signal
- input 74 door photocell signal
- input 75 button door opening

check also related input definitions (definitions 74, 75 and 76)

- check conditions which prevent normal mode:
  - input 68 car overload
  - input 73 key priority drive
  - input 307 fire drive input

  check also related input definitions (definitions 68 and 73)

- check action with programmer on flow control menue
  if there is message lift goes down or up ,computer works normally and problem is in power section:
  check motor, valves or brake connection
  check contactors and relays (especially for fast speed)

- check parameters and definitions
  table for help to find out reason for abnormal work.
  SUGGESTION: - clear the error table
  switch control panel off and after 30 seconds on again
  if lift does not start in normal operation look to the error table
  there must be at least one error which caused this situation
  if error table is still empty use flow control to find out the
  reason by looking at last event in lift

LIFT WILL NOT STOP IN STATION FIRST TIME AFTER POWER ON

- check stop in station signals (terminals 61, 62, 63, 64) Measure also voltage in these terminals. Voltage range must be between 60 and 70 VDC. LED's are only indicators for voltage presence but voltage can be too low.

  check appropriate input definitions for these inputs (definitions 61, 62, 63, 64)

LIFT STOPPED IN STATION AFTER FIRST TIME BUTWILL NOT ACCEPT CALLS

check "ELEMENTS CHECK" input . LED for this input must lit when lift is in station

check "FIRE DRIVE" input (terminal 307). LED for this input must NOT be lit when lift is in station

check safety circuit 185, LED safety OK must lit, if not the device or zone switches are not working properly, see section "SAFETY CIRCUIT 185"

LIFT COUNTS TWO FLOORS INSTEAD ONE

check operation of magnetic switches (switches for prelimit signals, slow speed signals, stop signals and zone signals)

check bistable magnetic switches, distance between switches and magnets must be 1 cm

check if there is some bolts or nuts near to the magnets (they can work like magnets if they are too close to the magnets

if magnets are mounted on the guide rails they must be on the outside of the guide, because on the other hand magnetic switches will not work properly

LIFT SOMETIMES STOPS IMMEDIATELY AFTER STARTING

check stop is not station switches (terminals 61 and 62 or LED's " STOP UP and STOP DOWN") both LED's must be LIT when lift stops in station.

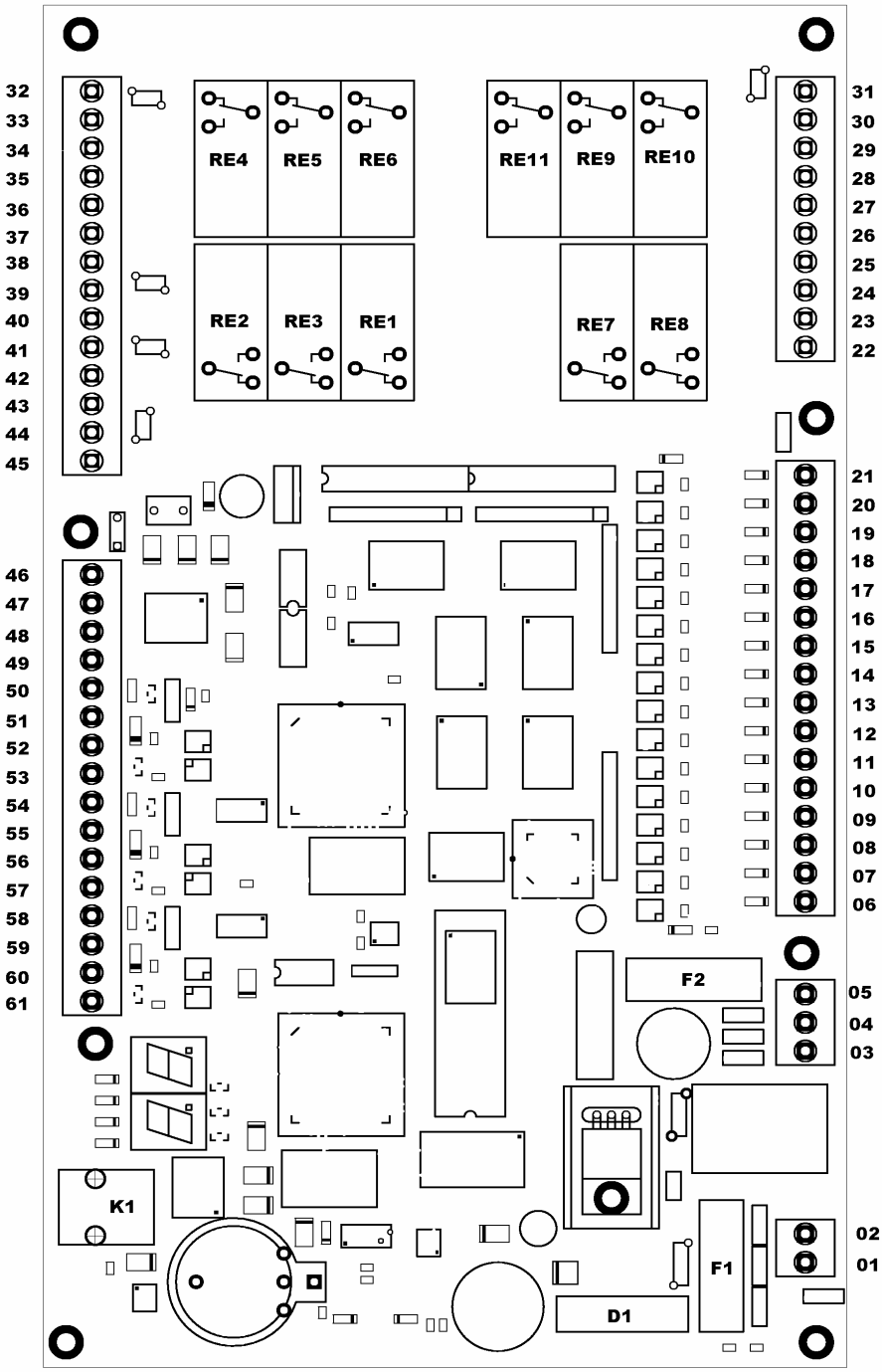
11. E-type LIFT CONTROLLER TECHNICAL INFORMATION

11.1. TECHNICAL CHARACTERISTICS

	terminals on PCB	voltage	current	other
Power supply				
main module		12 VAC (10 - 14 VAC)	max 1200 mA	fuse F2 in main module
car module		24 VDC (17 - 28 VDC)	max 2000 mA	
ext module		through car module	through car module	
node module		through SSL link	through SSL link	optional through K7 24VDC (17 - 28 VDC)
Signalization		18 VAC (14 - 22 VAC)	max. 2000 mA	fuse F1 and rectifier D1 in main module
Input voltage				
main module inputs	06 - 21	48VDC stabilised (35 - 58 VDC)	typical 5 mA	common 47, 53, 57, 61
car module inputs	04 - 11	24VDC stabilised (17 - 28 VDC)	typical 5 mA	common 12
car module inputs	63 - 70	24VDC stabilised (17 - 28 VDC)	typical 5 mA	common 62
I/O modules for push buttons				
car module I/O	14 - 21	input to 24VDC stabilised(17 - 28 VDC)	output to 0VDC max. 250 mA	
car module I/O	32 - 39	input to 24VDC stabilised (17 - 28 VDC)	output to 0VDC max. 250 mA	
car module I/O	53 - 60	input to 24VDC stabilised (17 - 28 VDC)	output to 0VDC max. 250 mA	
ext module I/O	80 - 87	input to 24VDC stabilised (17 - 28 VDC)	output to 0VDC max. 250 mA	
ext module I/O	89 - 96	input to 24VDC stabilised (17 - 28 VDC)	output to 0VDC max. 250 mA	
ext module I/O	110 - 117	input to 24VDC stabilised (17 - 28 VDC)	output to 0VDC max. 250 mA	
node module I/O	K3, K4	input to 24VDC stabilised (17 - 28 VDC)	output to 0VDC max. 250 mA	
Outputs				
car module	22 - 29	24VDC	max. 250 mA	common 30
car module	45 - 52	24VDC	max. 250 mA	common 44
ext module	101 - 108	24VDC	max. 250 mA	common 109
node module	K5, K6	24VDC	max. 250 mA	
main module	22 - 45	24VDC	max. 1000 mA NO INDUCTIVE LOAD	

Serial lines				
	47 0V 48 RX 49 TX	12 VDC		opto insulated 9600 B
main module programming	plug K1	12 VDC		RS 232 9600 B
main module serial link 1	50 +24V 51 TX 52 RX 53 0V	24 VDC	max. 500 mA	SSL opto insulated 1000 B
main module serial link 2	54 +24V 55 TX 56 RX 57 0V	24 VDC	max. 500 mA	SSL opto insulated 1000 B
main module serial link 3	58 +24V 59 TX 60 RX 61 0V	24 VDC		SSL opto insulated 1000 B
node module serial link	K1 output K2 input	24 VDC	max. 500 mA	opto insulated 1000 B

11.2. E - type MAIN MODULE

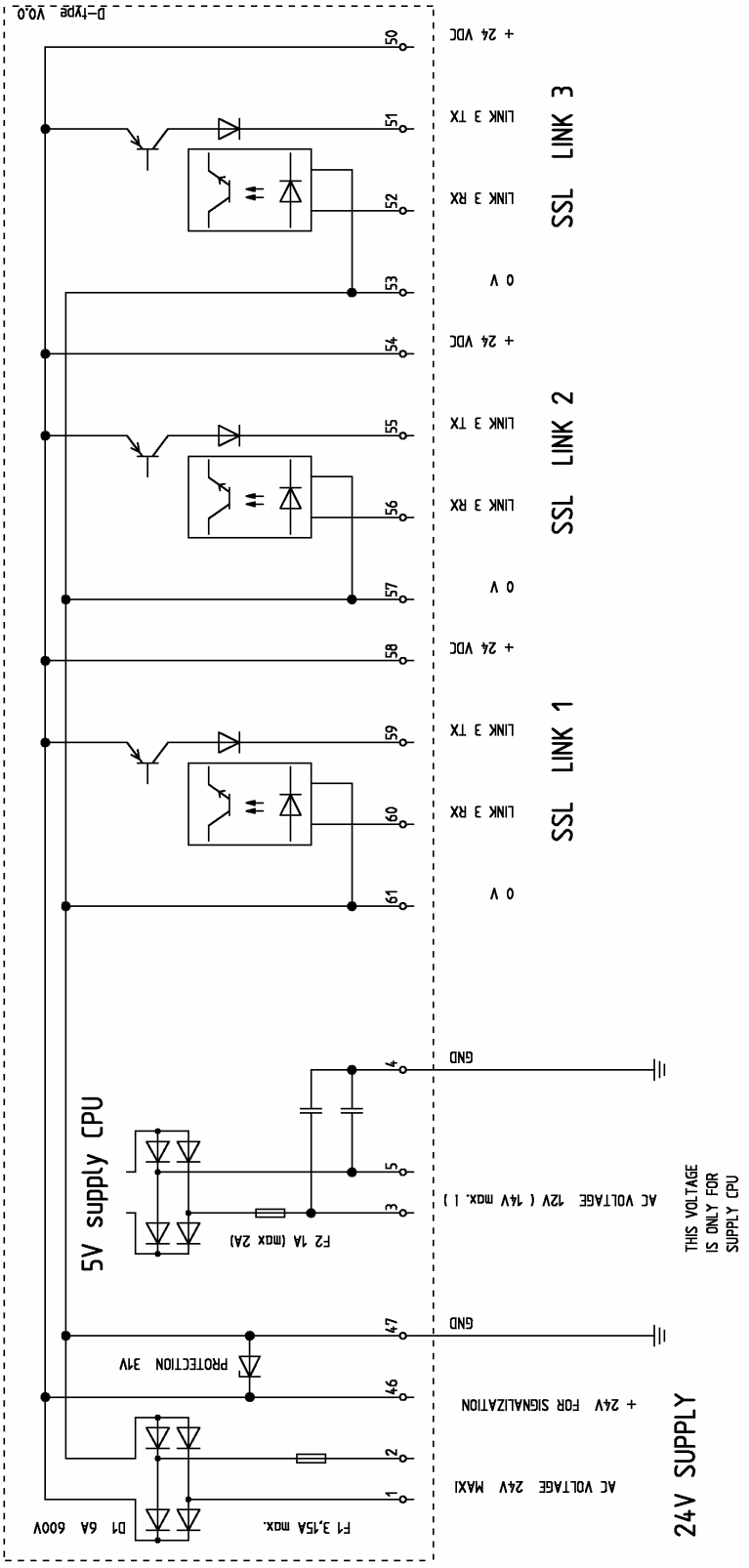


E - type MAIN MODULE TERMINALS

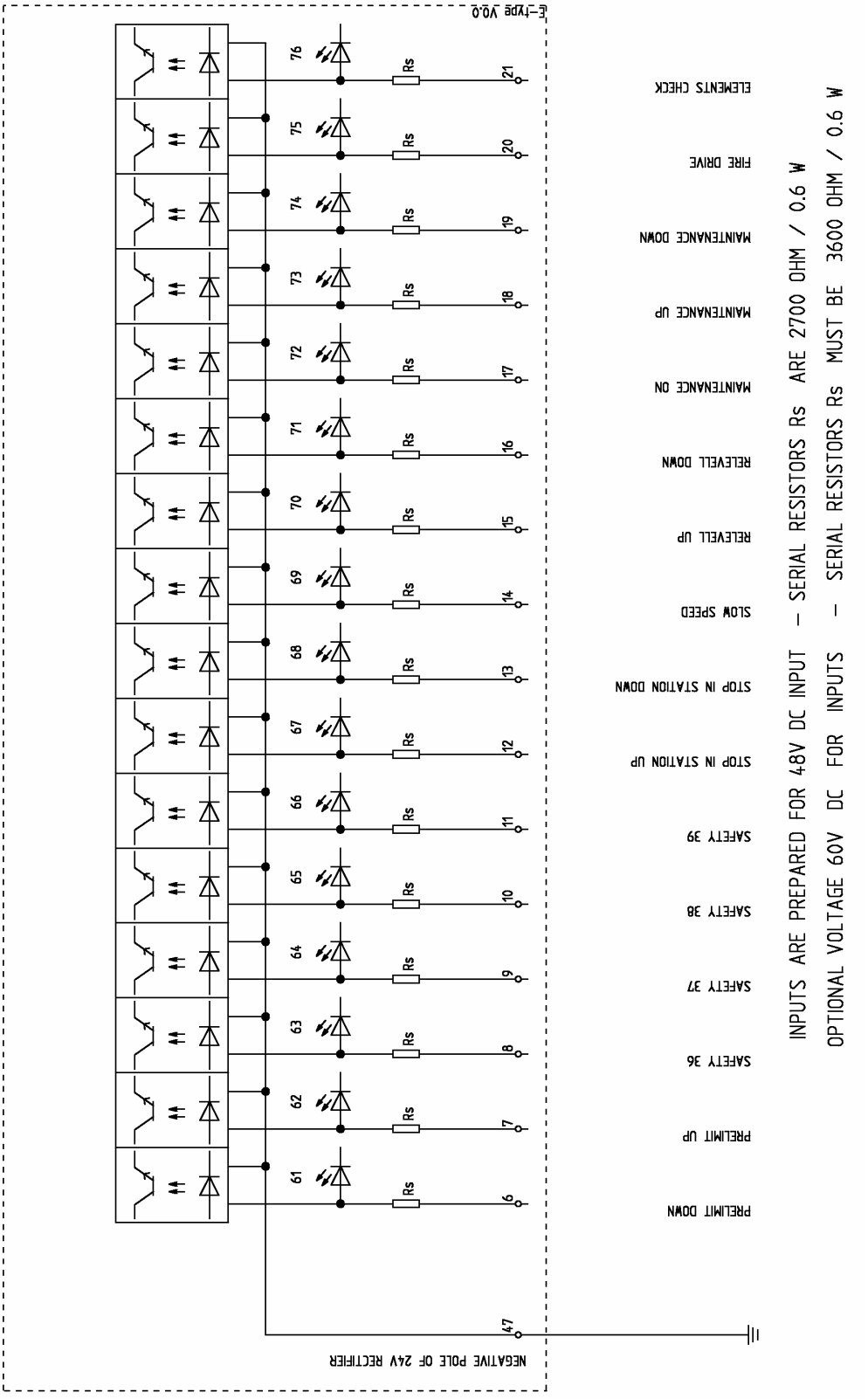
1	18V AC		
2	18V AC (AC votage for 24 VDC)		
3	12V AC		
4	GND		
5	12V AC (supply voltage for CPU)		
6	input prelimit switch in lower station - bottom		
7	input prelimit switch in upper station - top		
8	input safety line 36		
9	input safety line 37		
10	input safety line 38		
11	input safety line 39		
12	input stop in station up		
13	input stop in station down		
14	input slow speed		
15	input relevell up		
16	input relevell down		
17	input maintenance on	(maintenance on teminal 09 car module have priority)	
18	input maintenance up	(when maintenance on from car module in active, this input not work)	
19	input maintenance down	(when maintenance on from car module in active, this input not work)	
20	input fire drive		
21	input elements check		
22	output door A open		relay RE8
23	output door A close		relay RE7
24	output common door A		
25	output		
26	output door B open		relay RE10
27	output common door B		
28	output		
29	output door B close		relay RE9
30	output car blower		relay RE11
31	output car blower		
32	output high speed		relay RE6
33	output high speed		
34	output direction down		relay RE5
35	output direction up and down		
36	output direction up		relay RE4
37	output common for direction		
38	output pump star	NO	relay RE3
39	output pump star	COM	
40	output pump star	NC	

41	output pump delta	NO	relay RE2
42	output pump delta	COM	
43	output pump delta	NC	
44	output pump on		relay RE1
45	output pump on		
46	+24V DC		
47	0V		
48	group line	RX	
49	group line	TX	
50	+24V DC		
51	line LINK3	TX	
52	line LINK3	RX	
53	0V		
54	+24V DC		
55	line LINK2	TX	
56	line LINK2	RX	
57	0V		
58	+24V DC		
59	line LINK1	TX	
60	line LINK1	RX	
61	0V		

E - type MAIN MODULE SCHEME



E - type MAIN MODULE SCHEME



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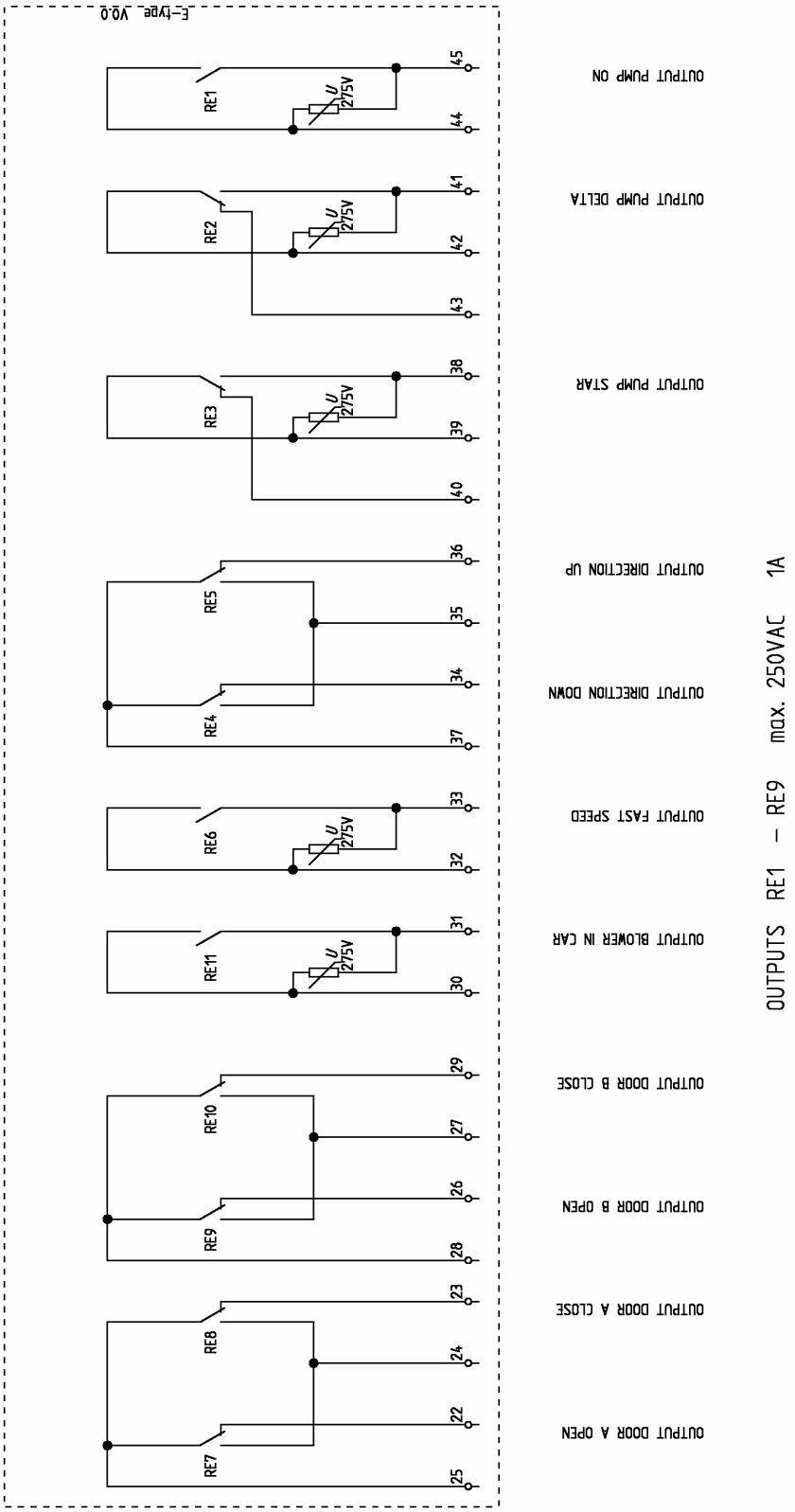
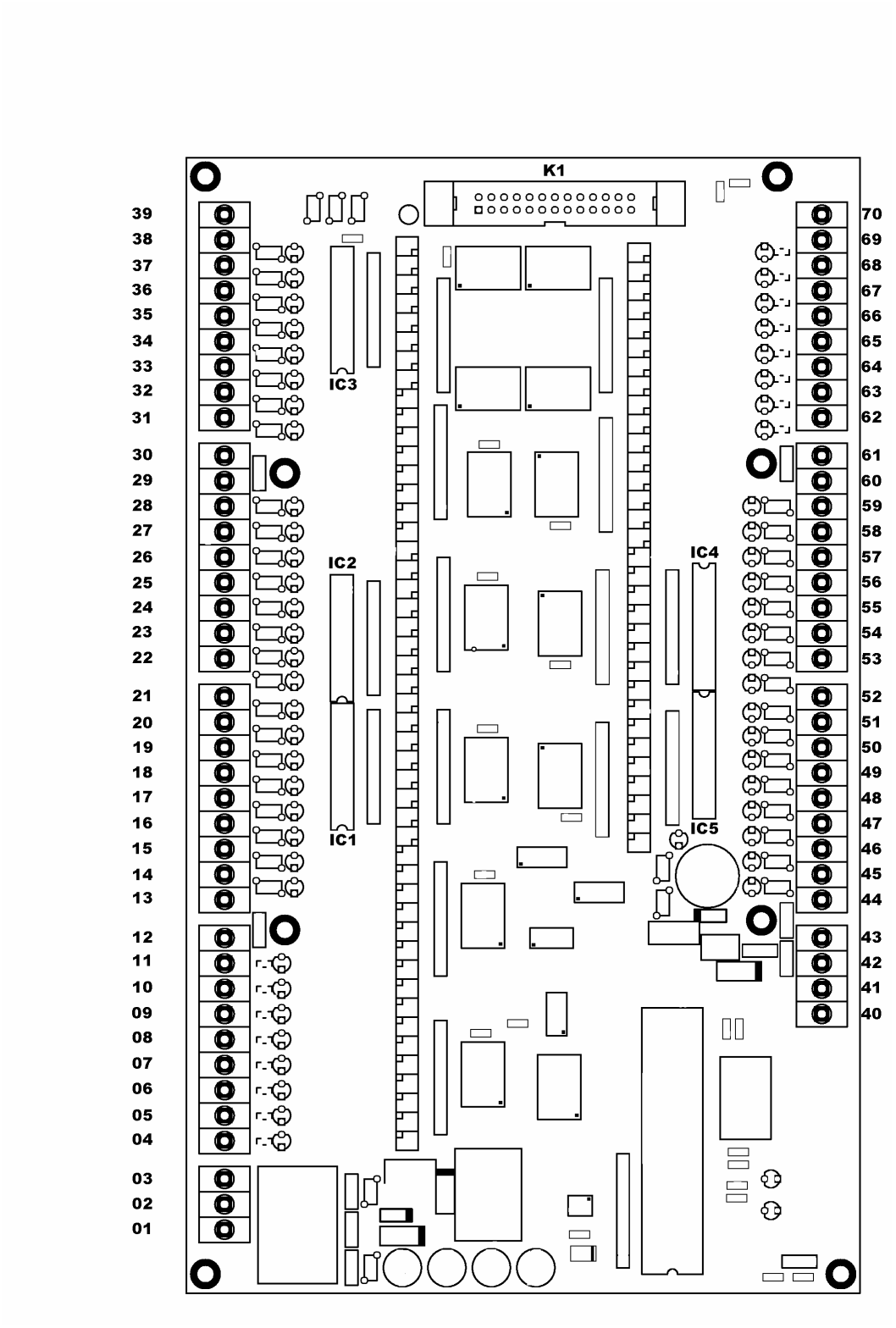


11.3. E - type CAR MODULE

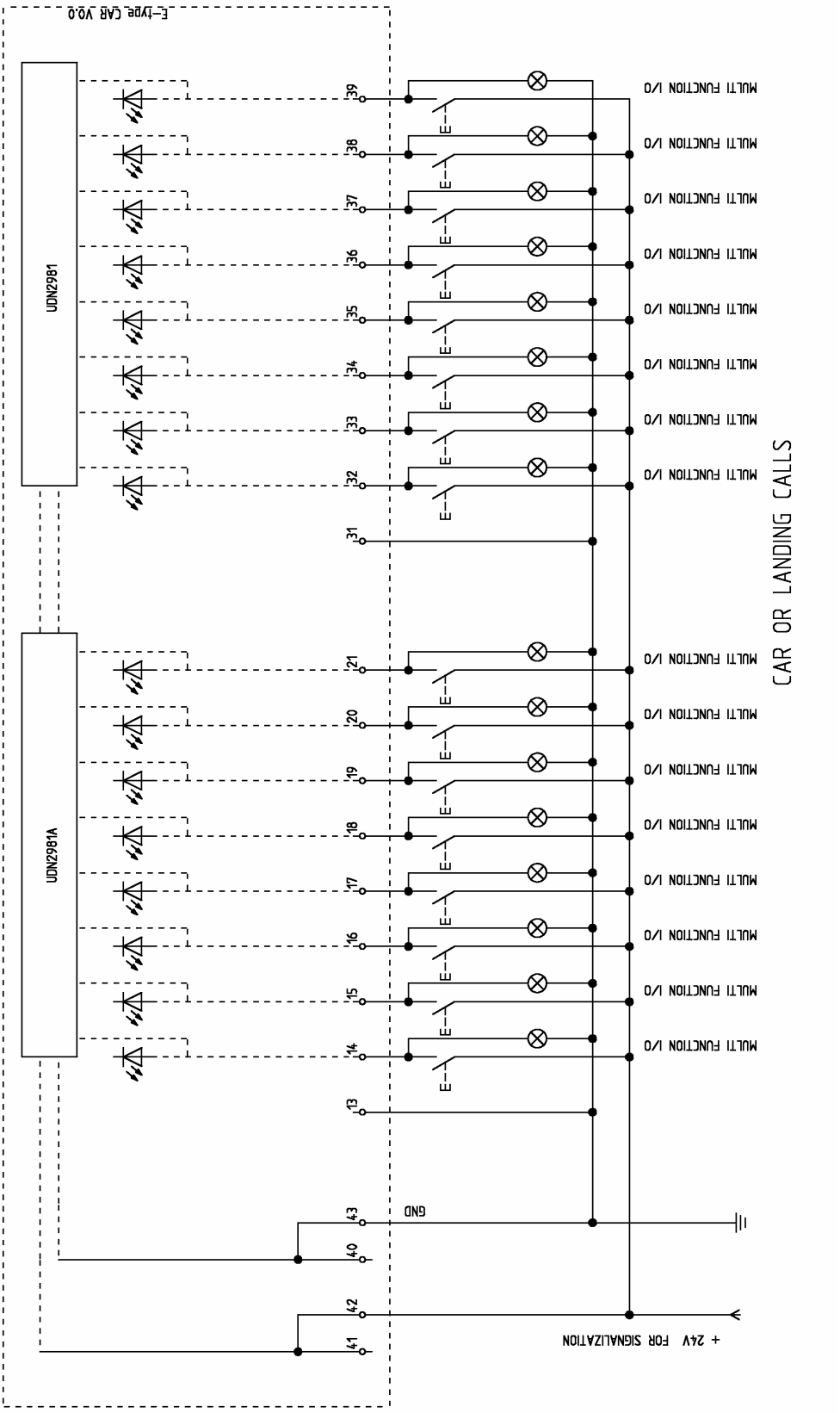


E - type CAR MODULE TERMINALS

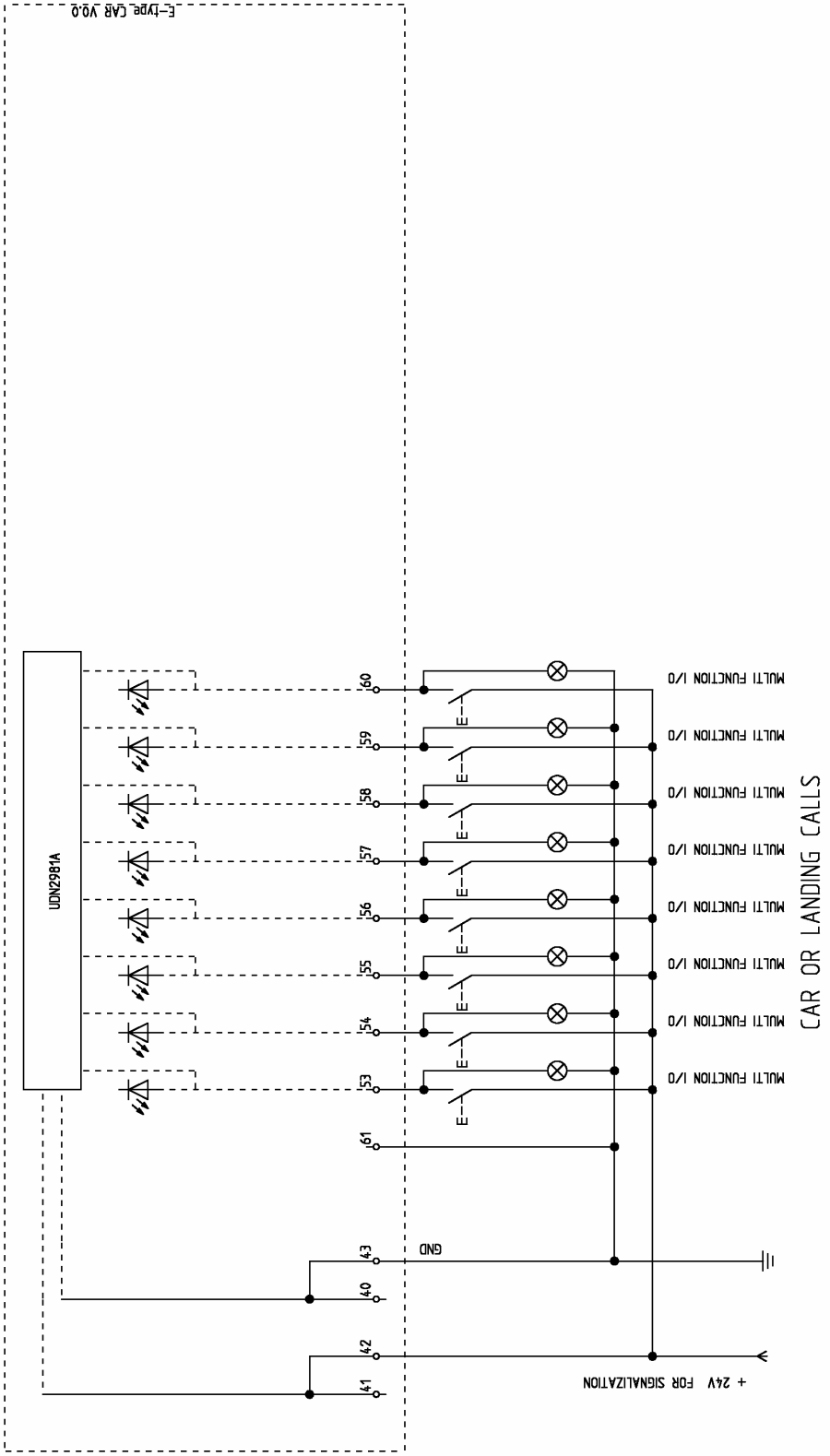
01	0V DC (supply voltage)	
02	GND	
03	24V DC (supply voltage)	
04	input SSL link (to terminal 59 main module)	
05	input full load car	
06	input overload car	
07	input priority drive	
08	input fireman drive	
09	input maintenance ON	
10	input maintenance UP	
11	input maintenance DOWN	
12	GND	
13	GND	
14	I/O	multi function
15	I/O	multi function
16	I/O	multi function
17	I/O	multi function
18	I/O	multi function
19	I/O	multi function
20	I/O	multi function
21	I/O	multi function
22	output	multi function
23	output	multi function
24	output	multi function
25	output	multi function
26	output	multi function
27	output	multi function
28	output	multi function
29	output	multi function
30	GND	
31	GND	
32	I/O	multi function
33	I/O	multi function
34	I/O	multi function
35	I/O	multi function
36	I/O	multi function
37	I/O	multi function
38	I/O	multi function
39	I/O	multi function
40	GND	
41	+24V DC	(voltage for outputs)
42	+24V DC	(voltage for outputs)
43	GND	

44	GND
45	output SSL link (to terminal 60 main module)
46	output car overload
47	output direction down
48	output direction up
49	output gong - arrival
50	output out of work
51	output occupied / beeper
52	output car blower
53	I/O multi function
54	I/O multi function
55	I/O multi function
56	I/O multi function
57	I/O multi function
58	I/O multi function
59	I/O multi function
60	I/O multi function
61	GND
62	GND
63	input photocell door A
64	input door obstruction A
65	input photocell door B
66	input door obstruction B
67	input additional doors open
68	input open door A
69	input open door B
70	input door close

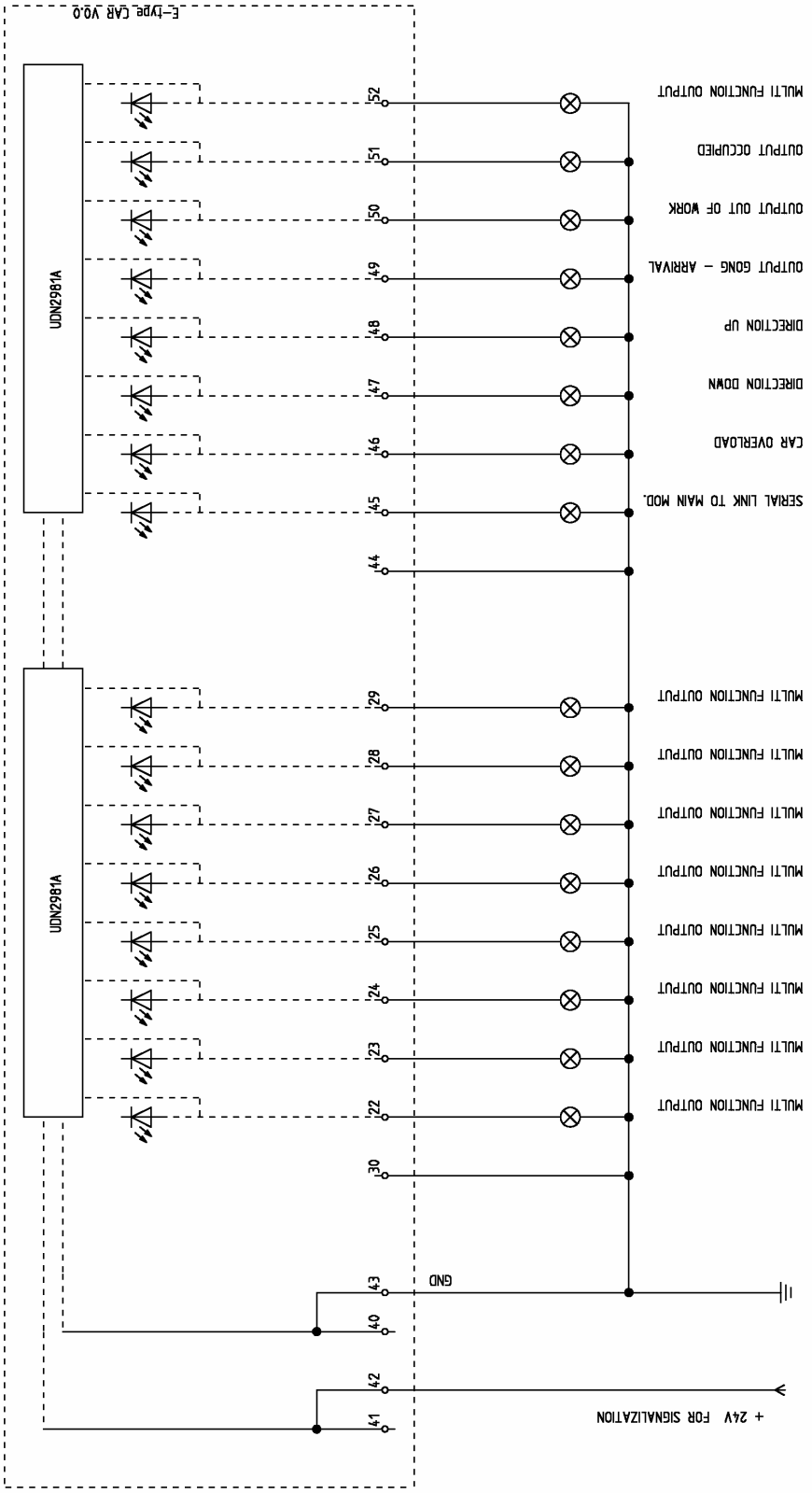
E - type CAR MODULE SCHEME



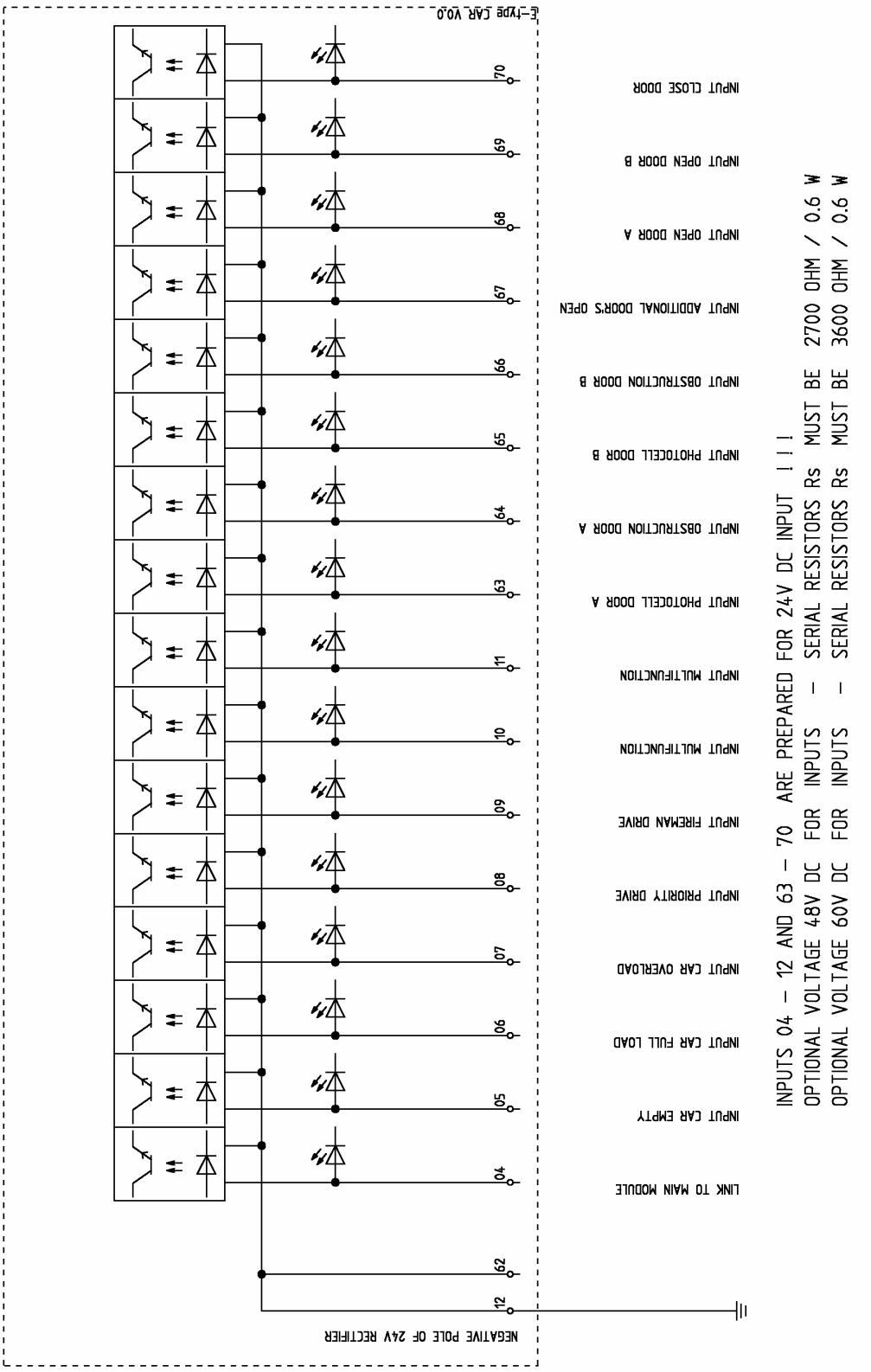
E - type CAR MODULE SCHEME



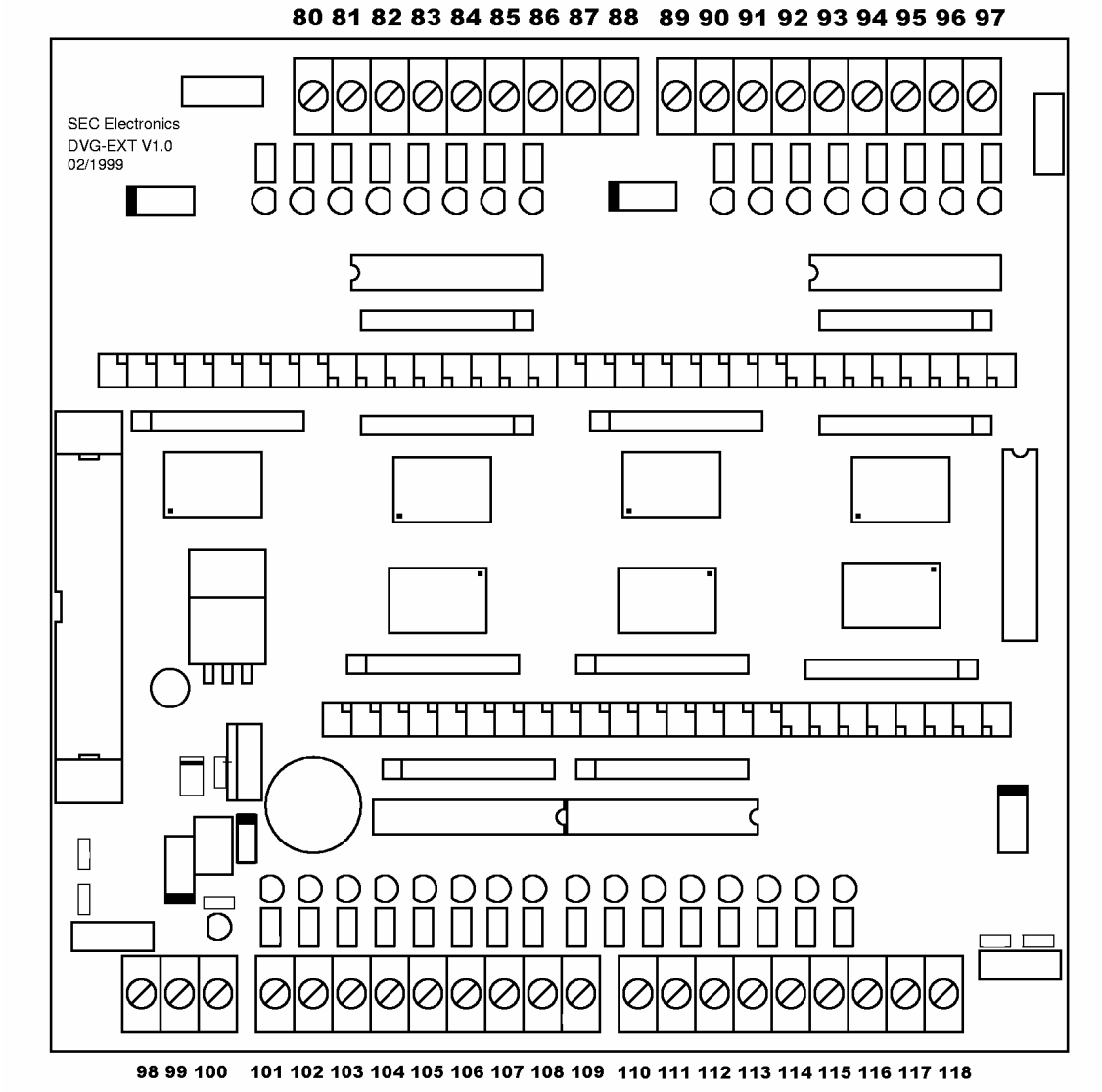
E - type CAR MODULE SCHEME



E - type CAR MODULE SCHEME



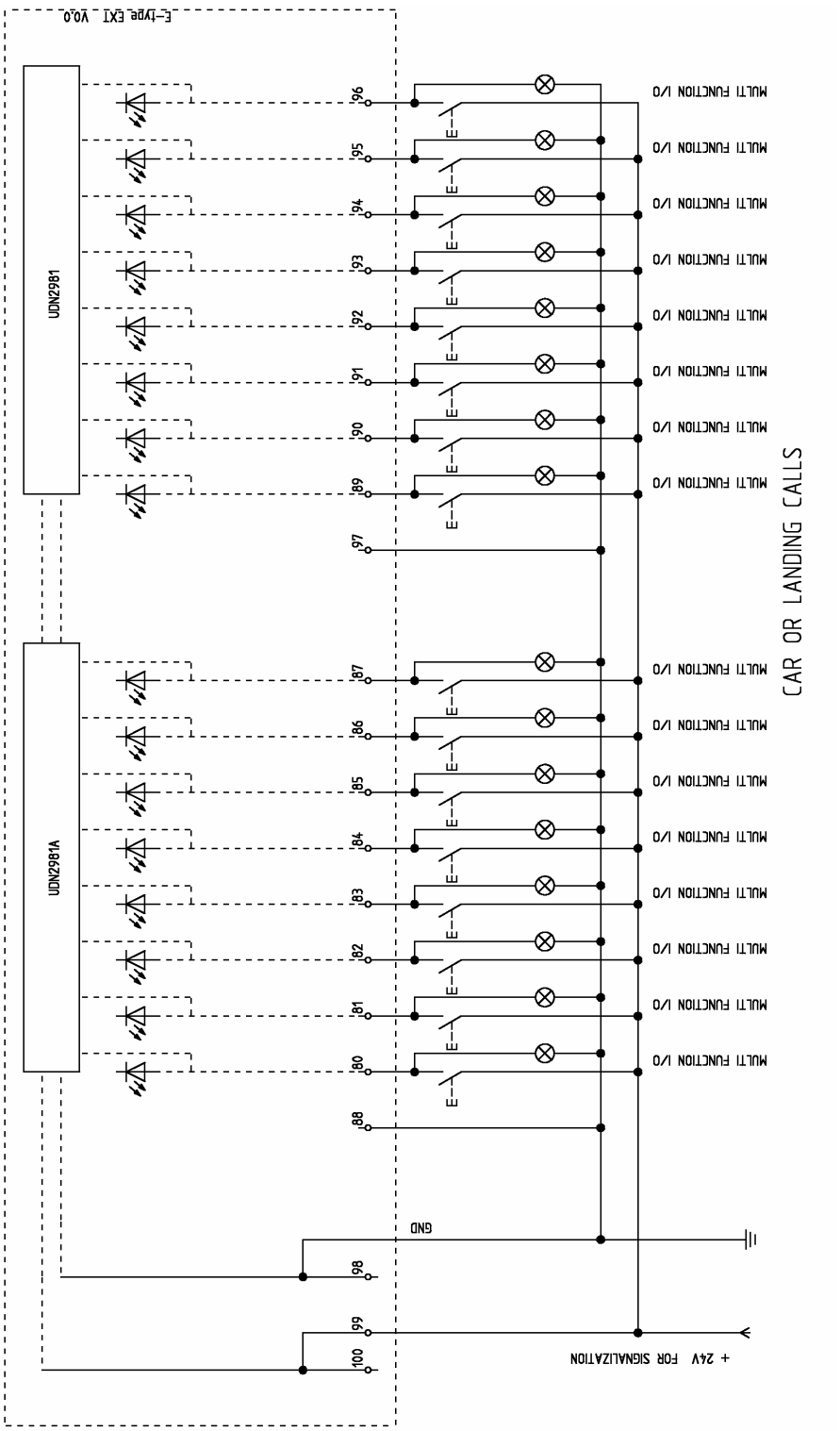
11.4. E - type EXT MODULE



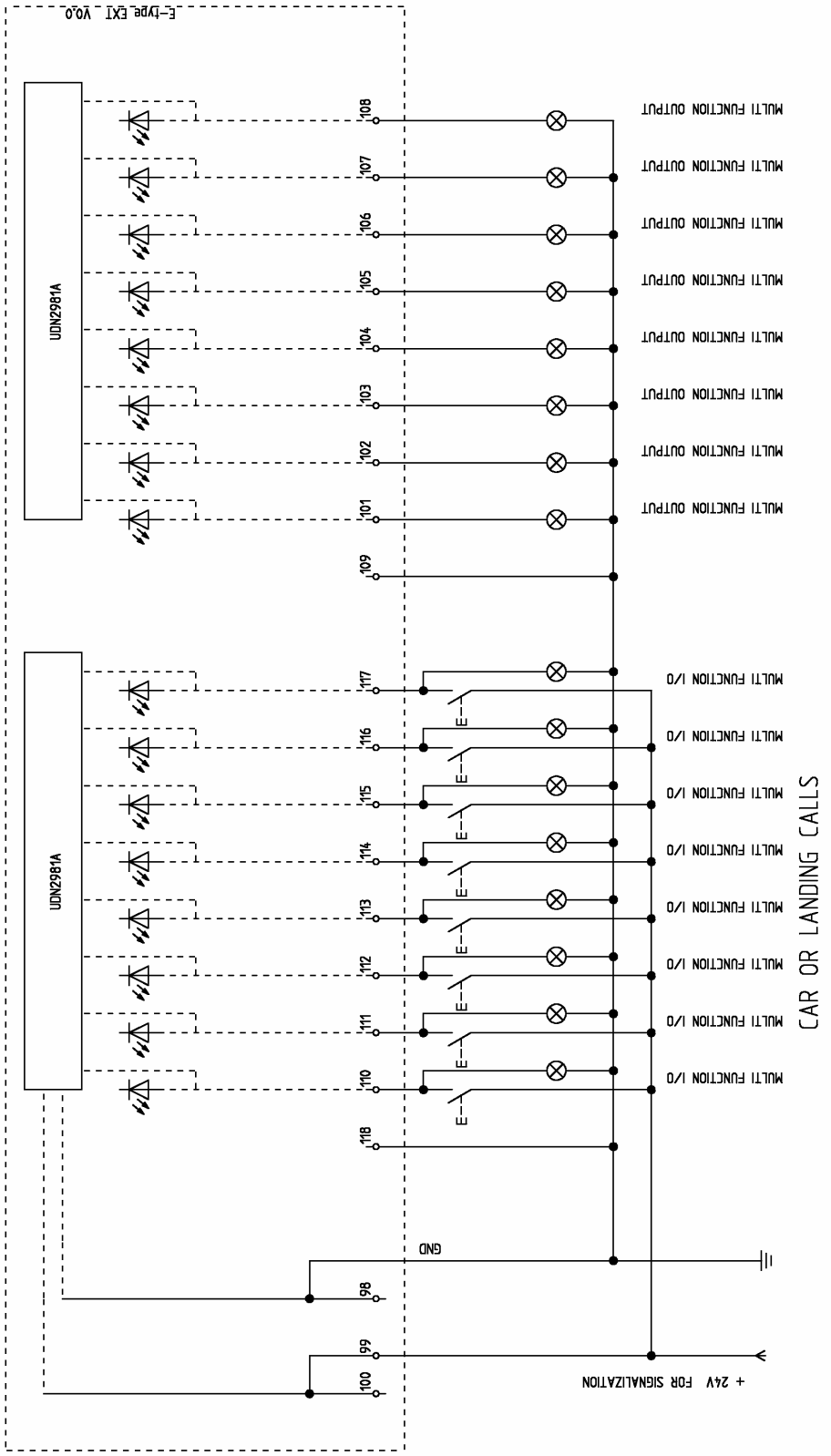
E - type EXT MODULE TERMINALS

80	I/O	multi function
81	I/O	multi function
82	I/O	multi function
83	I/O	multi function
84	I/O	multi function
85	I/O	multi function
86	I/O	multi function
87	I/O	multi function
88	GND	
89	I/O	multi function
90	I/O	multi function
91	I/O	multi function
92	I/O	multi function
93	I/O	multi function
94	I/O	multi function
95	I/O	multi function
96	I/O	multi function
97	GND	
98	GND	
99	+24V DC	(voltage for outputs)
100	+24V DC	(voltage for outputs)
101	output	multi function
102	output	multi function
103	output	multi function
104	output	multi function
105	output	multi function
106	output	multi function
107	output	multi function
108	output	multi function
109	GND	
110	I/O	multi function
111	I/O	multi function
112	I/O	multi function
113	I/O	multi function
114	I/O	multi function
115	I/O	multi function
116	I/O	multi function
117	I/O	multi function
118	GND	

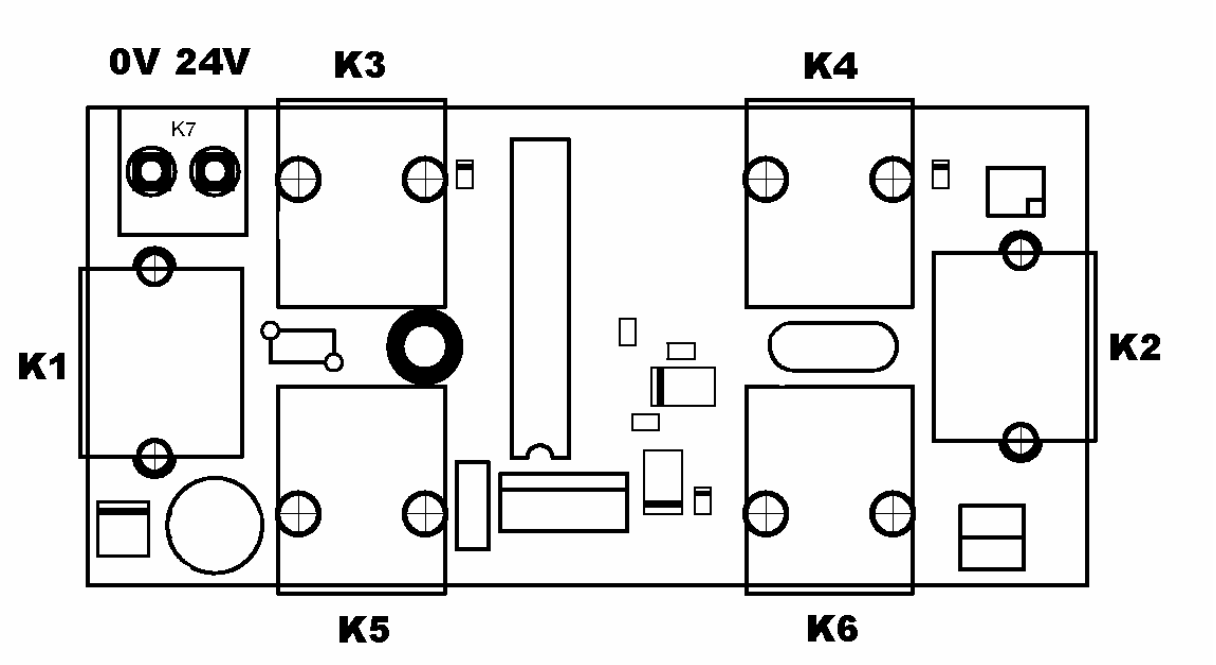
E - type EXT MODULE SCHEME



E - type EXT MODULE SCHEME



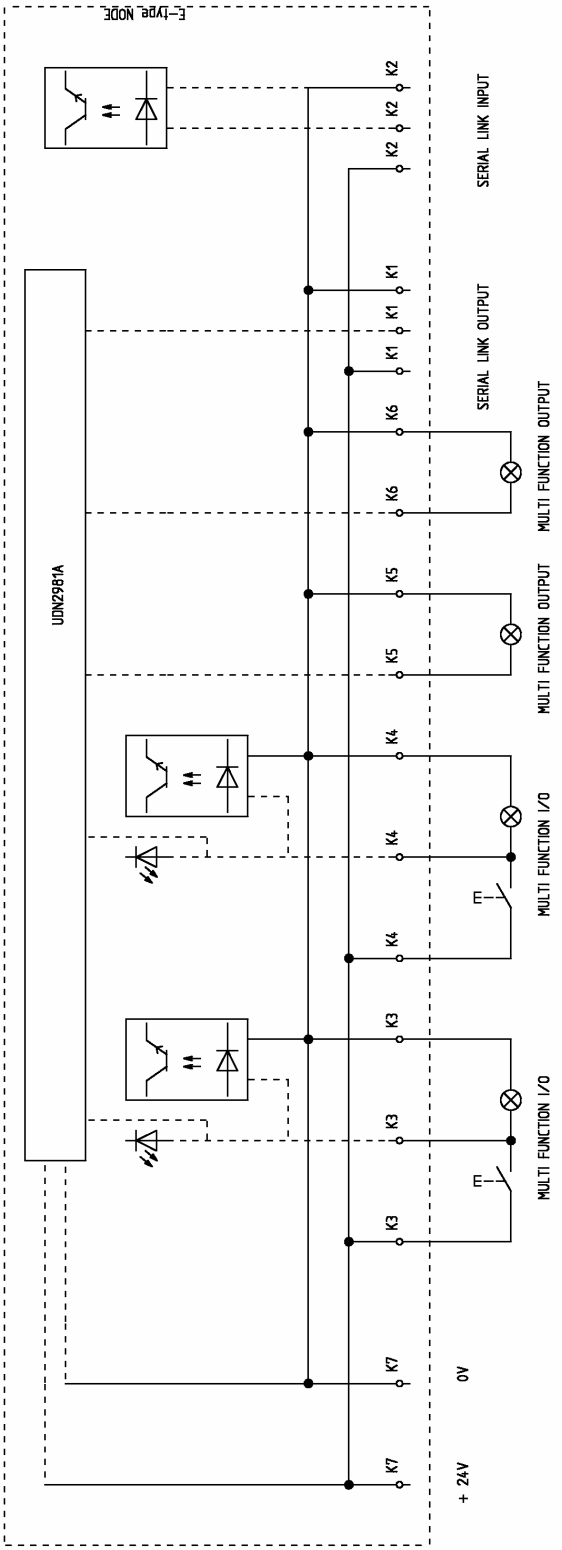
11.5. E - type FLOOR MODULE - NODE



E - type FLOOR MODULE TERMINALS - PLUGS

K1	8 pol connector	SSL link output
K2	8 pol connector	SSL link input
K3	4 pol connector	multifunction I/O
K4	4 pol connector	multifunction I/O
K5	4 pol connector	multifunction output
K6	4 pol connector	multifunction output
K7	optional power supply	24VDC

E - type FLOOR MODULE – NODE SCHEME



11.6. MULTIFUNCTION INPUTS / OUTPUTS

1. 8 STOPS UP and DOWN collective (main and car modules)
E - type C (classic) P0 = 1

14	car module	CAR CALL 1	53	car module	DOWN CALL 1
15	car module	CAR CALL 2	54	car module	DOWN CALL 2
16	car module	CAR CALL 3	55	car module	DOWN CALL 3
17	car module	CAR CALL 4	56	car module	DOWN CALL 4
18	car module	CAR CALL 5	57	car module	DOWN CALL 5
19	car module	CAR CALL 6	58	car module	DOWN CALL 6
20	car module	CAR CALL 7	59	car module	DOWN CALL 7
21	car module	CAR CALL 8	60	car module	DOWN CALL 8
32	car module	UP CALL 1	22	car module	output position 1 or A
33	car module	UP CALL 1	23	car module	output position 2 or B
34	car module	UP CALL 1	24	car module	output position 3 or C
35	car module	UP CALL 1	25	car module	output position 4 or D
36	car module	UP CALL 1	26	car module	output position 5
37	car module	UP CALL 1	27	car module	output position 6
38	car module	UP CALL 1	28	car module	output position 7
39	car module	UP CALL 1	29	car module	output position 8

2. 12 STOPS DOWN collective (main and car modules)
E - type C (classic) P0 = 2

14	car module	CAR CALL 1	53	car module	DOWN CALL 1
15	car module	CAR CALL 2	54	car module	DOWN CALL 2
16	car module	CAR CALL 3	55	car module	DOWN CALL 3
17	car module	CAR CALL 4	56	car module	DOWN CALL 4
18	car module	CAR CALL 5	57	car module	DOWN CALL 5
19	car module	CAR CALL 6	58	car module	DOWN CALL 6
20	car module	CAR CALL 7	59	car module	DOWN CALL 7
21	car module	CAR CALL 8	60	car module	DOWN CALL 8
32	car module	CAR CALL 9	36	car module	DOWN CALL 9
33	car module	CAR CALL 10	37	car module	DOWN CALL 10
34	car module	CAR CALL 11	38	car module	DOWN CALL 11
35	car module	CAR CALL 12	39	car module	DOWN CALL 12

22	car module	output position 1 or A
23	car module	output position 2 or B
24	car module	output position 3 or C
25	car module	output position 4 or D

3. 16 STOPS UP and DOWN collective (main, car and ext modules)
E - type C (classic) P0 = 3

14	car module	CAR CALL 1	53	car module	DOWN CALL 1
15	car module	CAR CALL 2	54	car module	DOWN CALL 2
16	car module	CAR CALL 3	55	car module	DOWN CALL 3
17	car module	CAR CALL 4	56	car module	DOWN CALL 4
18	car module	CAR CALL 5	57	car module	DOWN CALL 5
19	car module	CAR CALL 6	58	car module	DOWN CALL 6
20	car module	CAR CALL 7	59	car module	DOWN CALL 7
21	car module	CAR CALL 8	60	car module	DOWN CALL 8
80	ext module	CAR CALL 9	110	ext module	DOWN CALL 9
81	ext module	CAR CALL 10	111	ext module	DOWN CALL 10
82	ext module	CAR CALL 11	112	ext module	DOWN CALL 11
83	ext module	CAR CALL 12	113	ext module	DOWN CALL 12
84	ext module	CAR CALL 13	114	ext module	DOWN CALL 13
85	ext module	CAR CALL 14	115	ext module	DOWN CALL 14
86	ext module	CAR CALL 15	116	ext module	DOWN CALL 15
87	ext module	CAR CALL 16	117	ext module	DOWN CALL 16
32	car module	UP CALL 1	22	car module	output position 1 or A
33	car module	UP CALL 1	23	car module	output position 2 or B
34	car module	UP CALL 1	24	car module	output position 3 or C
35	car module	UP CALL 1	25	car module	output position 4 or D
36	car module	UP CALL 1	26	car module	output position 5 or E
37	car module	UP CALL 1	27	car module	output position 6
38	car module	UP CALL 1	28	car module	output position 7
39	car module	UP CALL 1	29	car module	output position 8
89	ext module	UP CALL 9	101	ext module	output position 9
90	ext module	UP CALL 10	102	ext module	output position 10
91	ext module	UP CALL 11	103	ext module	output position 11
92	ext module	UP CALL 12	104	ext module	output position 12
93	ext module	UP CALL 13	105	ext module	output position 13
94	ext module	UP CALL 14	106	ext module	output position 14
95	ext module	UP CALL 15	107	ext module	output position 15
96	ext module	UP CALL 16	108	ext module	output position 16

4. 24 STOPS DOWN collective (main, car and ext modules)
E - type C (classic) P0 = 4

14	car module	CAR CALL 1	53	car module	DOWN CALL 1
15	car module	CAR CALL 2	54	car module	DOWN CALL 2
16	car module	CAR CALL 3	55	car module	DOWN CALL 3
17	car module	CAR CALL 4	56	car module	DOWN CALL 4
18	car module	CAR CALL 5	57	car module	DOWN CALL 5
19	car module	CAR CALL 6	58	car module	DOWN CALL 6
20	car module	CAR CALL 7	59	car module	DOWN CALL 7
21	car module	CAR CALL 8	60	car module	DOWN CALL 8
32	car module	CAR CALL 9	36	car module	DOWN CALL 9
33	car module	CAR CALL 10	37	car module	DOWN CALL 10
34	car module	CAR CALL 11	38	car module	DOWN CALL 11
35	car module	CAR CALL 12	39	car module	DOWN CALL 12
89	ext module	CAR CALL 13	93	ext module	DOWN CALL 13
90	ext module	CAR CALL 14	94	ext module	DOWN CALL 14
91	ext module	CAR CALL 15	95	ext module	DOWN CALL 15
92	ext module	CAR CALL 16	96	ext module	DOWN CALL 16
80	ext module	CAR CALL 17	110	ext module	DOWN CALL 17
81	ext module	CAR CALL 18	111	ext module	DOWN CALL 18
82	ext module	CAR CALL 19	112	ext module	DOWN CALL 19
83	ext module	CAR CALL 20	113	ext module	DOWN CALL 20
84	ext module	CAR CALL 21	114	ext module	DOWN CALL 21
85	ext module	CAR CALL 22	115	ext module	DOWN CALL 22
86	ext module	CAR CALL 23	116	ext module	DOWN CALL 23
87	ext module	CAR CALL 24	117	ext module	DOWN CALL 24

22	car module	output position 1 or A
23	car module	output position 2 or B
24	car module	output position 3 or C
25	car module	output position 4 or D
26	car module	output position 5 or E

5. 24 STOPS UP and DOWN collective
(main, car modules and nodes in floors)
E - type S (serial) P0 = 5

14	car module	CAR CALL 1	53	car module	CAR CALL 17
15	car module	CAR CALL 2	54	car module	CAR CALL 18
16	car module	CAR CALL 3	55	car module	CAR CALL 19
17	car module	CAR CALL 4	56	car module	CAR CALL 20
18	car module	CAR CALL 5	57	car module	CAR CALL 21
19	car module	CAR CALL 6	58	car module	CAR CALL 22
20	car module	CAR CALL 7	59	car module	CAR CALL 23
21	car module	CAR CALL 8	60	car module	CAR CALL 24
32	car module	CAR CALL 9	22	car module	output position 1 or A
33	car module	CAR CALL 10	23	car module	output position 2 or B
34	car module	CAR CALL 11	24	car module	output position 3 or C
35	car module	CAR CALL 12	25	car module	output position 4 or D
36	car module	CAR CALL 13	26	car module	output position 5 or E
37	car module	CAR CALL 14	27	car module	output position 6 or F
38	car module	CAR CALL 15	28	car module	door open A
39	car module	CAR CALL 16	29	car module	door open B

UP and DOWN calls are connect to the nodes

Nodes for 1 - 24 floor are connect to SSL LINK 2

6. 48 STOPS UP and DOWN collective
(main, car, ext modules and nodes in floors)
E - type S (serial) P0 = 6

14	car module	CAR CALL 1	53	car module	CAR CALL 17
15	car module	CAR CALL 2	54	car module	CAR CALL 18
16	car module	CAR CALL 3	55	car module	CAR CALL 19
17	car module	CAR CALL 4	56	car module	CAR CALL 20
18	car module	CAR CALL 5	57	car module	CAR CALL 21
19	car module	CAR CALL 6	58	car module	CAR CALL 22
20	car module	CAR CALL 7	59	car module	CAR CALL 23
21	car module	CAR CALL 8	60	car module	CAR CALL 24
32	car module	CAR CALL 9	22	car module	output position 1 or A
33	car module	CAR CALL 10	23	car module	output position 2 or B
34	car module	CAR CALL 11	24	car module	output position 3 or C
35	car module	CAR CALL 12	25	car module	output position 4 or D
36	car module	CAR CALL 13	26	car module	output position 5 or E
37	car module	CAR CALL 14	27	car module	output position 6 or F
38	car module	CAR CALL 15	28	car module	door open A
39	car module	CAR CALL 16	29	car module	door open B
80	ext module	CAR CALL 25	110	ext module	CAR CALL 41
81	ext module	CAR CALL 26	111	ext module	CAR CALL 42
82	ext module	CAR CALL 27	112	ext module	CAR CALL 43
83	ext module	CAR CALL 28	113	ext module	CAR CALL 44
84	ext module	CAR CALL 29	114	ext module	CAR CALL 45
85	ext module	CAR CALL 30	115	ext module	CAR CALL 46
86	ext module	CAR CALL 31	116	ext module	CAR CALL 47
87	ext module	CAR CALL 32	117	ext module	CAR CALL 48
89	ext module	CAR CALL 33	101	ext module	
90	ext module	CAR CALL 34	102	ext module	
91	ext module	CAR CALL 35	103	ext module	
92	ext module	CAR CALL 36	104	ext module	
93	ext module	CAR CALL 37	105	ext module	
94	ext module	CAR CALL 38	106	ext module	
95	ext module	CAR CALL 39	107	ext module	
96	ext module	CAR CALL 40	108	ext module	

UP and DOWN calls are connect to the nodes

Nodes for 1 - 24 floor are connect to SSL LINK 2
Nodes for 25 - 48 floor are connect to SSL LINK 3

12. SAFETY CIR CUIT 186

12.1. GENERAL FEATURES

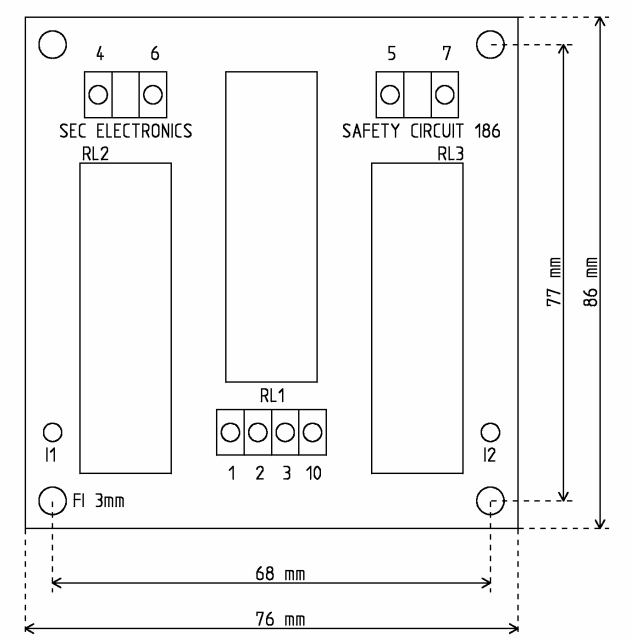
This circuit is specially developed to make it possible to move the car while the doors are open.

Circuit board 76 x 86 mm with heigh of 35 mm for installation in control unit
4 x 3mm hole for mounting

The following manouvres are possible:

- advanced door opening
- relevelling upwards or downwards with the doors open

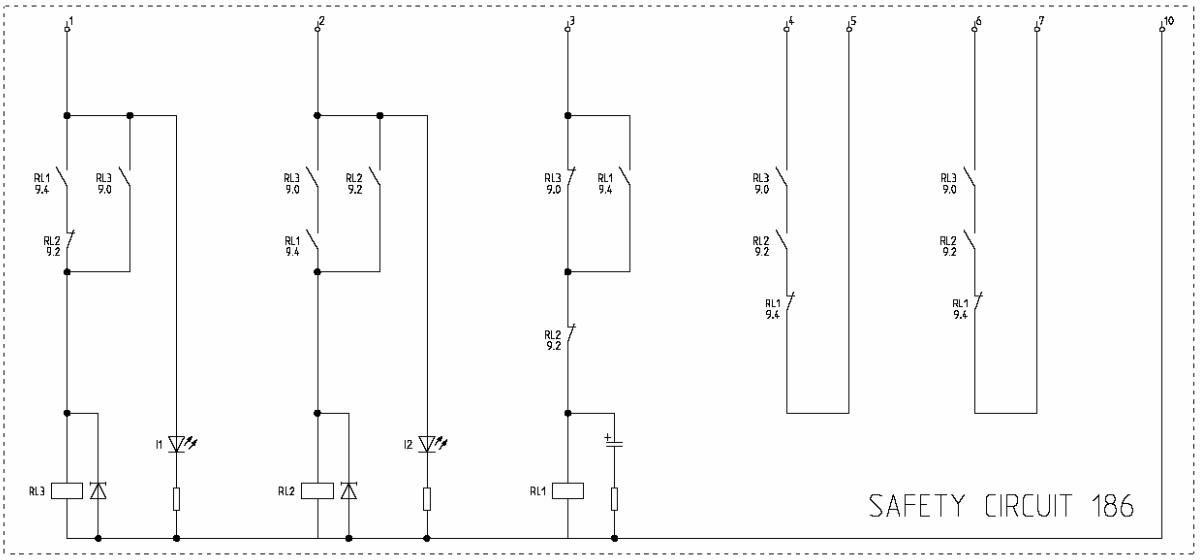
Circuit content:
- 3 x safety relay with six guided contacts
- 2 x LED diode for status display
- 7 x terminal for connection



Supply voltage	+ 48 VDC
Supply current	Max. 200 mA
Ambient temperature	Max. 45 °C
Degree of protection	IP00
EMC compatibility	EN12015 and EN12016
Approvals	CE

12.2. DETAILS AND CONNECTIONS

Schematic plan of safety circuit 186



The circuit does not need any additional power supply. All relays are made for 48 V DC supply.

Explanation of work:
- elevator control unit give 48 VDC to terminal 3 when elevator start slow speed in arriving to station. This voltage must stay all the time to the next start
- then magnetic switch ZONE A give 48 VDC to terminal 2
- and magnetic switch ZONE B give 48 VDC to terminal 1
- in this case connection is closed between terminals 4 - 5 and 6 - 7
- when elevator stopped in station elevator control unit should check one of link (4 – 5 or 6 –7)
- in the case that there is no connection elevator must not proceed to drive

Explanation of LED:
- LED I1 parallel to input 1
- LED I2 parallel to input 2

12.3. REQUIREMENTS FOR INSTALLATION

-This product should be installed into a controller with minimum protection level of IP2X
-The maximum voltage permissible for the series connection is 230 VAC or VDC
-The safety series connection which are connected to terminals 4-5 and 6-7 should be protected with maximum 4 Amp fuse
-Applied voltage for relays (+48V DC) should be fused with a maximum of 4 Amp fuse
-The ambient temperature at which the unit ideally functions is between 0 C and 55 C
-Once the equipment has been installed a test run should be carried out in both upward and downward directions stopping at every landing, so the control unit can check the perfect operation of the module

13. GUIDE TO ELECTROMAGNETIC COMPATIBILITY

13.1. THE EMC DIRECTIVE AND APPLICABLE STANDARD

The EMC Directive 89/336/EEC, and as amended by Directives 91/263/EEC, 92/31/EEC, 93/68/EEC and 93/97/EEC requires that in order to guarantee the free movement of electrical and electronic apparatus, and to create an acceptable electromagnetic environment, all such apparatus shall ensure that the electromagnetic disturbances produced by the apparatus do not affect the correct functioning of other apparatus or radio and telecommunications networks as well as related equipment and electricity distribution networks. The apparatus is also required to have an adequate level of intrinsic immunity to electromagnetic disturbances to enable it to work as intended.

SEC lift control panels are according to the " Guidelines on the application of Directive 89/336/EEC " Clause 6.2.3.2 " Components performing a direct function not intended to be placed on the market for distribution and final use "

The SEC position

It is responsibility of the user to determinate the category under which the product is obtained however. SEC, in common with most other manufacturers, has prepared this document on the following basis:

- The sales are of the restricted distribution class
- Neither a "CE" mark nor a Declaration of Conformity are permitted under the EMC Directive

This product is intended only for professional assemblers.

The responsibility for the maintenance of EMC compliance of an installation shall be with the installer and not the manufacturer.

The manufacturer is required to provide recommendations and guidelines for maintaining EMC compliance after installation and this is given in this guide.

The "CE" mark and Manufacturer's Declaration of Conformity on SEC control panels relate to compliance with the Low Voltage directive only.

The product standard for lift control panel is EN 12015 for emission and EN12016 for immunity and all SEC control panels have been tested for conformity with the various levels applicable under the standard.

Next normative references are used:

Emission:	EN 55011
	EN 55014
Immunity:	EN 61000 - 4 - 2
	EN 61000 - 4 - 3
	EN 61000 - 4 - 4
	EN 61000 - 4 - 11

13.2. EMC COMPLIANT ELECTRICAL CABINET WIRING RULES

PANELS AND CABINETS
Mounting panel and cabinet (including the doors) have to be grounded, with a direct connection to the ground bus.

REMOVAL OF THE PAINT FROM THE SUPPORT AREAS
The paint should be removed from the mounting panel and chassis support areas.

WARNING Rheanodized aluminum does not conduct

GROUND TERMINALS OF THE CONTROL PANEL
SEC control panels are provided with two ground terminals (green-yellow terminal with mark 0 and ground terminal with multi screws) one must be connected to the ground bus

MINIMAL DISTANCE BETWEEN SIGNAL AND POWER CABLES
The minimum distance between parallel signals and power cables is 30 cm. Possible crossings have to be made at 90^{o}.

SHIELDING OF THE SUPPLY FOR AN AC MOTOR
The AC motors have to be supplied through a four pole shielded cable (three phases plus a green/yellow ground wire), or though four unshielded cables, which are inserted inside a metal channel. It is important that a direct connection (four cables) between the panel grounding and the motor ground has been made and that the fourth cable had been inserted in a shield.

GROUND CONNECTION TO BOTH SIDES OF THE CABLE SHIELD (AC MOTOR)
The shield of the supply cable of the AC motors must be grounded on both sides in order to obtain 360^{o} contact, that means the whole shield. This can be accomplished using suitable metallic EMC cables press grounded at full 360^{o} at the input of the cabinet and of the motor's terminal strip. If this connection is not possible, the shielded cables should be brought inside the cabinet and connected with an omega connector to the mounting panel- The same must be done on the motor side. In case a 360^{o} connection on the motor's terminal strip is not possible, the shield must be grounded before entering into the terminal strip. This should be done on the metal support of the motor, using an omega connector. In case a metal duct has to be used, it should be grounded at full 360^{o} where possible.

PIGTAIL AVOIDANCE
While grounding the shields of the cables, one has to use a 360o connection (E.g. omega bus) with a pigtail connection to be absolutely avoided. By pigtail is meant the connection to earth ground of the cable shield by means of an additional wire.

SUPPLY CABLES TO THE DC MOTORS
The supply cables of DC motor do not need to be shielded.

DIRECT CONNECTION BETWEEN THE GROUND BUS AND MOTOR CHASSIS
Independently from ground-connection of the motor's chassis, it must always be connected to the ground wire (green/yellow) coming from the panel ground bus.

MAXIMAL LENGTH OF THE AC MOTOR'S CABLES INSIDE THE CABINET
From the grounding of the screen side cabinet of the panel terminal strip, the supply's cables have to measure 30 cm maximum.

ENCODER CABLES
The encoder cable must be shielded and grounded at the panel at a full 360^{o}. The female connector on the inverter has been foreseen for that connection, therefore it is enough to have the cable shield connected at 360^{o} in the conductive case of the male connector. In order to check that the shield is not connected on the motor side remove the encoder connector from the inverter and verify with a tester the presence of a high impedance between the shield and the metal case of the encoder or of the motor.

SEC ELECTRONICS
tel: ++ 386 5 753 2006
fax: ++ 386 5 753 2007
Neverke 30 6256 Košana, SLOVENIA
email: sec.electronics@siol.net
web: http://www.secelectro.com

ISO 9001
Q-446

Declaration of Conformity

Manufacturer:	SEC ELECTRONICS Neverke 30 6256 KOSANA SLOVENIA
Details of electrical equipment Model number:	**E - TYPE** **LIFT CONTROLLER PCB**
Harmonised Standard applied:	**EN 12016** **EN 12015**

and complies with the previsions of the following EC – Directive(s):

- **73/23/EEC** modified by **93/68/EEC** and named **Low Voltage Directive**

CE marking from: 2002

Authorised Signatory:

SEC ELECTRONICS
NEVERKE 30
6256 KOŠANA

Name:	Milan Samsa
Position:	Managing director
Date of Issue:	01. 12. 2002
Place of Issue:	Neverke