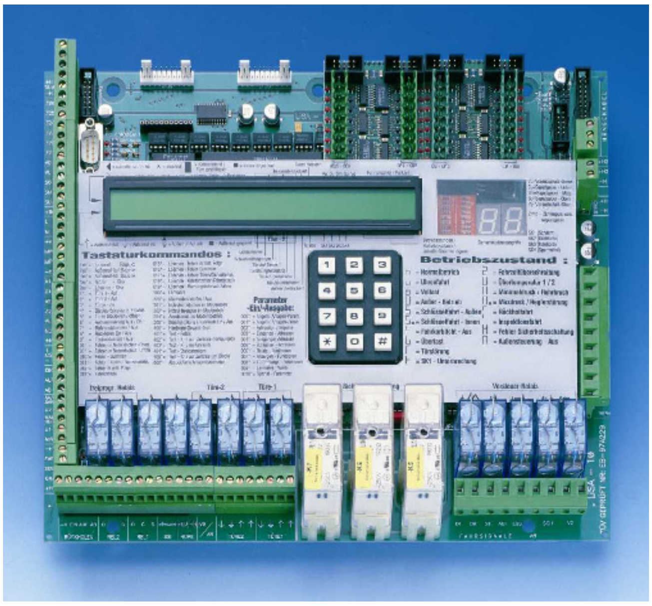
LiSA User Manual

Structure and function (part A)



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Contents

Structure and function of the controller (part A)

1. Structure of the LiSA10 controller

1.1. Technical data

LiSA10, LiSA10-5:

- Supply and switching voltage -> 14.3 VDC, npn
- Safety circuit taps -> 110 - 230 VAC
- 32-bit microcontroller
- 512 KB programme memory (2 x 27C2001 EPROM);
- 64 KB RAM
- 1 KB parameter memory (24C08, 24C09 EEPROM)
- Real-time clock
- 3 serial interfaces (group connection, PC and modem connection, car connection)
- Keyboard for parametrisation, error memory and travel statistics recall, access code and travelling command entry
- LCD display (2 lines with 40 characters each)
- Indication of the operating mode and the car position with 2 seven-segment displays
- Indication of shaft information, safety circuit, photoelectric barrier, closing force limiter, processor activity, door stop, landing control off and call simulation with 2 x 10 bargraphs.
- 4 safety circuit queries via opto-coupler
- 1 light voltage query via opto-coupler
- Safety circuit
- PTC resistor evaluation
- Functions of an emergency power device
- Impulse input for digital shaft selection
- Monitoring electronics (watchdog)
- Integrated emergency call system functions
- Activation relay for travelling contactors,
- relay for 2 door drives,
- emergency call relay
- 2 freely programmable relays on board
- 4 further freely programmable relays on an external relay board
- 64 freely programmable, electronic inputs/outputs on 4 I/O boards

LiSA10-7:

The following extensions have been introduced:

- 2 KB parameter memory (24LC256 EEPROM)
- Supply and switching voltage 14.3 VDC or 24 VDC, npn
- DCP-3 connection
- Additional 230 VAC input for contactor monitoring

LiSA10-8:

The following extensions have been introduced:

- 1024 KB programme memory (2 x 27C4001 EPROM)

LiSA10-8:

The following changes have been introduced:

- 230VAC input for contactor monitoring via opto-coupler

1.2. Electromagnetic compatibility

By complying with the standards

- EN61000-6-1:10.01
- EN61000-6-3:10.01
- EN61000-3-2:2000
- EN61000-3-3:1995 + A1:2001

the compliance of the product with the European Directive 89/336/EEC is achieved.

1.3. Energy efficiency

When the VDI Guideline 4707 - energy efficiency of lifts - was introduced in March 2009, the demand for controllers which provide energy-saving opportunities began to rise. LiSA controllers have always been developed and designed in accordance with environmentally compatible aspects. A low current consumption both in the inactive and the active state are ensured in this way. In order to further reduce the already low current consumption, the LiSA controller provides various energy-saving functions. Using the energy-saving functions can result in an availability loss. We distinguish between:

Energy-saving functions with no effect on the availability:

- Switching off the car light in standstill after an adjustable time
- Switching off the car and landing displays in standstill after an adjustable time
- Switching off the travel continuation indicators in standstill after an adjustable time
- Deletion of the lift call for the opposite direction
- Underload recognition
- Reduced speed (reduces noise at the same time (e.g. night operation), but does not necessarily save energy)

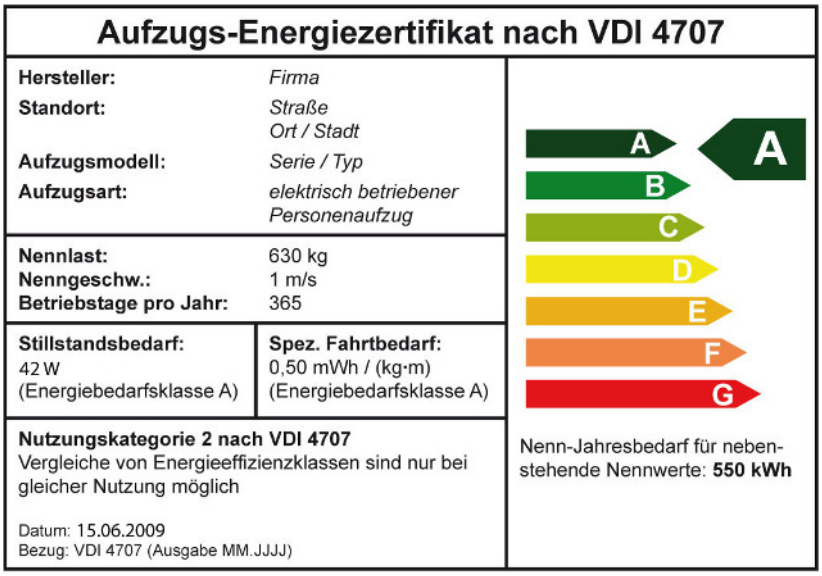
Energy-saving functions with a minor loss of availability:

- Set frequency inverter to standby (subject to function of the frequency inverter)
- Set door control to standby (subject to function of the door control)

Energy-saving functions with a considerable loss of availability:

- Switching off the frequency inverter (switch off and starting time approx. 1 min.)
- Switching off the door control (time-consuming TeachIn runs)

LiSA controllers have a very low power consumption and in conjunction with the mentioned energy-saving functions they have all the attributes to meet the requirements for being assigned to energy efficiency category A.



2. LiSA10 with APO-8B (I²C car bus)

2.1. Components

The complete controller consists of 3 electronic components:

- LiSA10 – Central electronic unit in the control cabinet
- IO16 - Input/output board plugged onto the central electronic unit
- APO8-B - Connection board in the car, either in the inspection box or the panel box

Extensions for large systems:

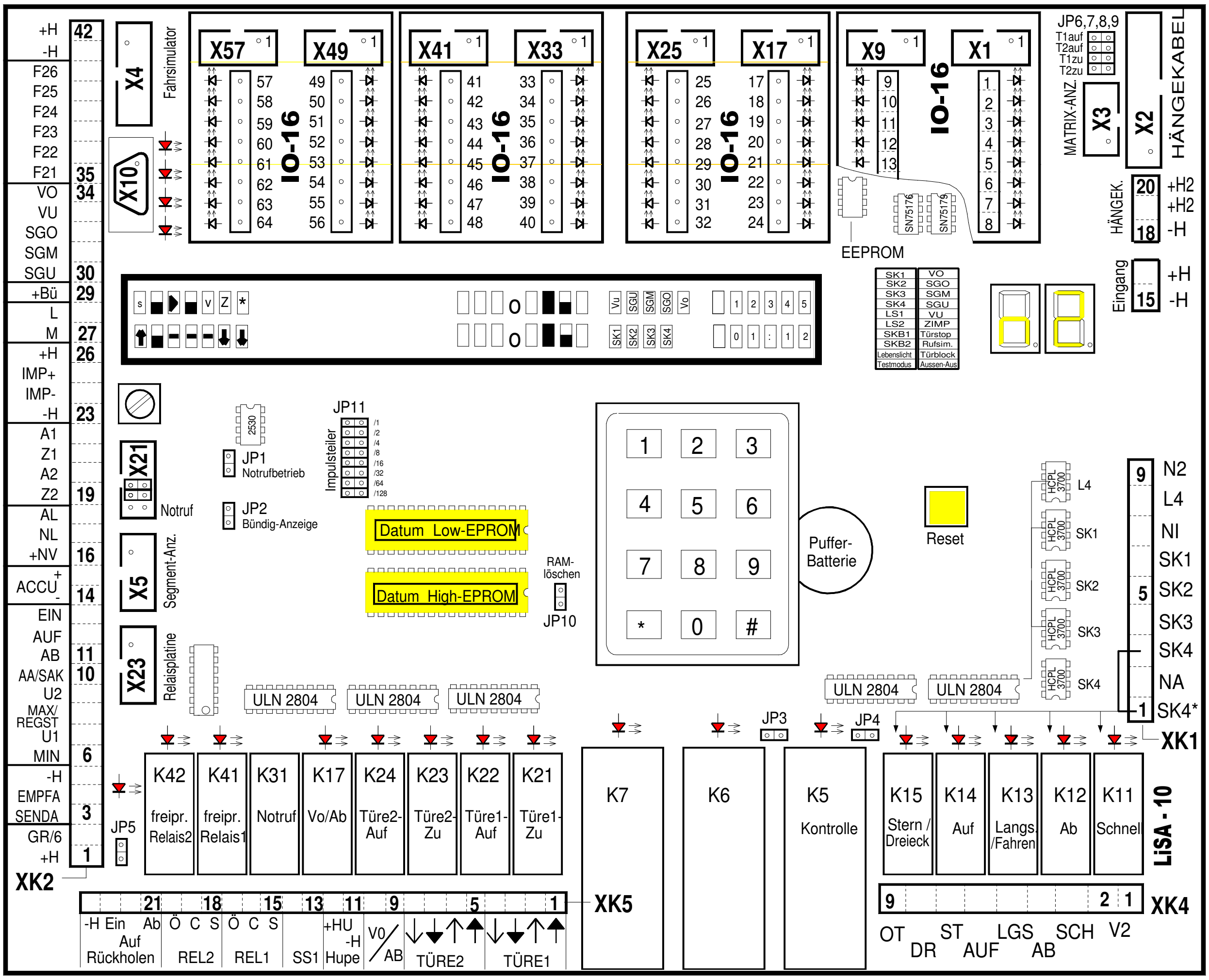
- APE - Extender board for APO8-B
- Rp2 – Extender board for 4 freely programmable relays
- ERW16B – Extender board for the central electronic unit (only outputs)
- 24DRV16 – Extender board and level converter (only outputs)

2.1.1. Central electronic unit

In the following the types originally used for this version (LiSA10 and LiSA10-5) are explained. The subsequent LiSA10 types (LiSA10-8 and LiSA10-10) provide the same possibilities, i.e. an upgrade to main boards of more recent generations is possible.

2.1.1.1. LiSA10 main board

The LiSA10 component contains all the control functions. Depending on the required number of functions, up to 4 I/O boards (IO16) are plugged onto it. Each I/O board contains 16 IOs, i.e. 64 inputs/outputs can be realised on the central board.

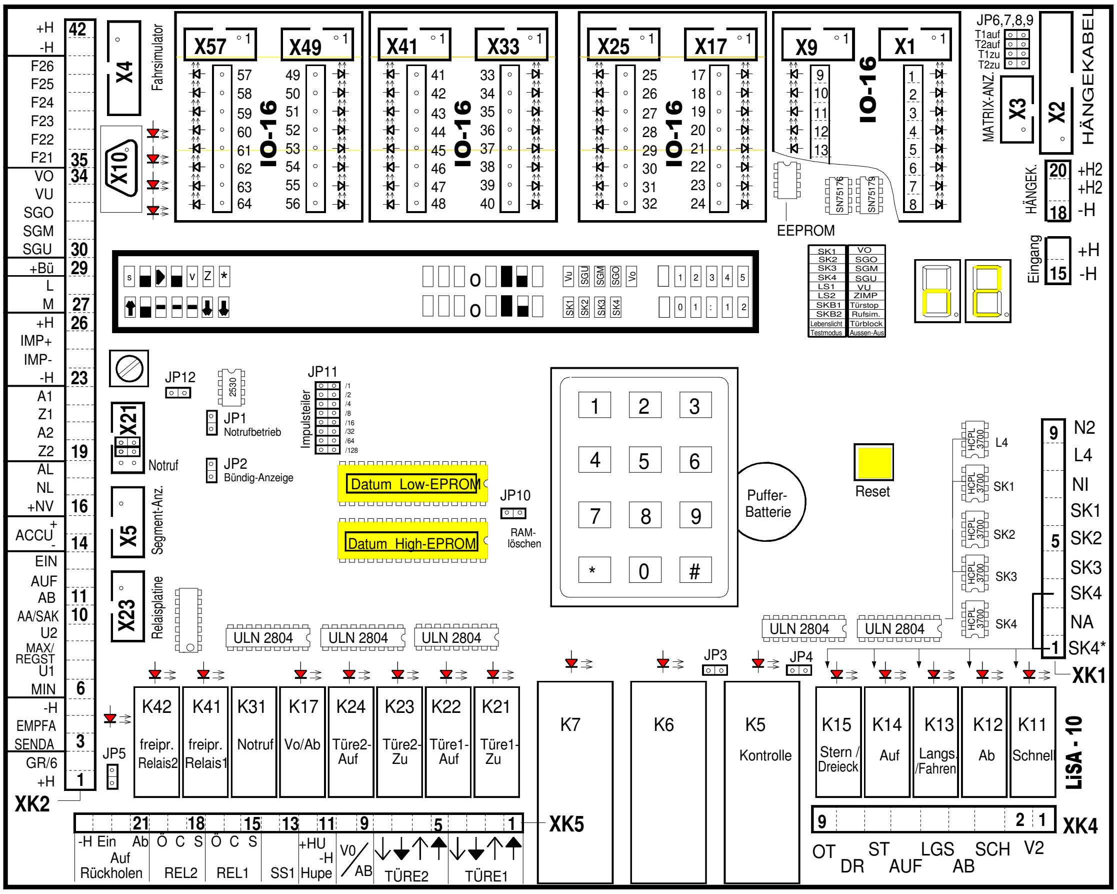


2.1.1.2. LiSA10-5 main board

LiSA10-5 differs from LiSA10 in the jumper JP12 (<5V) which allows for an adaptation to encoders with TTL signals (5V).

The following information applies to both LiSA10 and LiSA10-5

Plug-in connections (ribbon cable plugs)



X1, X9, X17, X25, X33, X41, X49, X57:
10-pin ribbon cable plugs on the I/O boards. 8 IOs can be connected to each plug. The plug designation depends on the slot. Slot 1 contains IO1 - IO16, slot 2 contains IO17 - IO32, slot 3 contains IO33 - IO48 and slot 4 contains IO49 - IO64

X2: 26-pin travelling cable plug: plug for connecting the inner, shielded part of the LiSA travelling cable.

Pin assignment:
1: Door open limit switch - door1
2: Door close limit switch - door1
3: Door open limit switch - door2
4: Door close limit switch - door2
5-10: Data lines RS485
11: Alarm push button
12: emergency light
13: Emergency power supply
14: Inductor switch - centrical
15: Inductor switch - bottom
16: Inductor switch - top
17: Correction switch - top
18: Correction switch - bottom
19: Loudspeaker
20: Microphone
21-26: Free travelling cable wires

X3: 10-pin plug for connecting the LiSA matrix display.
With an additional power supply you can connect up to 16 matrix displays (16 * 8 / 8 * 8) to it.
Alternatively you can also connect the LiSA handheld unit.

X4: 14-pin plug for connecting the LiSA travel simulator.
The LiSA travel simulator allows for a simulation of the shaft signals in an easy and inexpensive way.

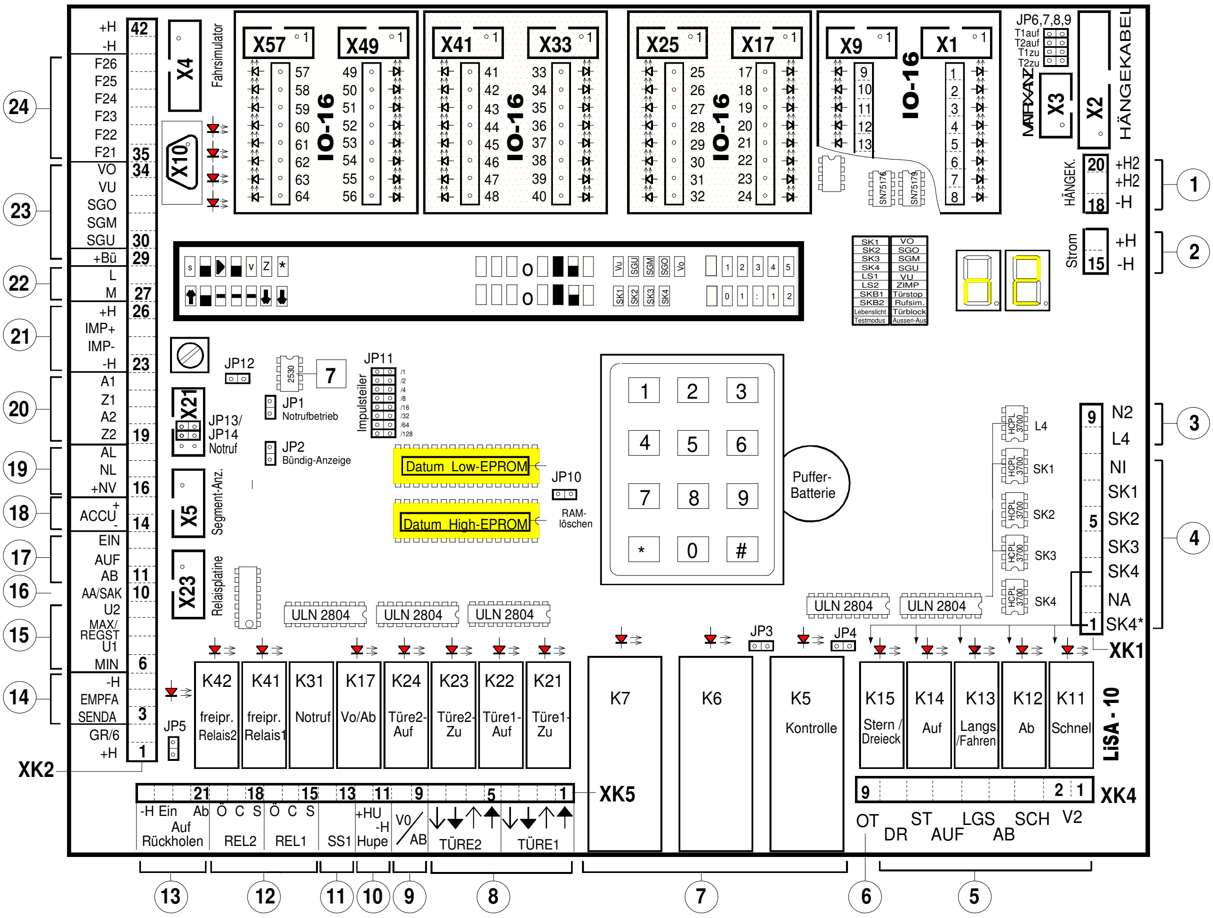
X5: 10-pin plug for connecting the LiSA segment display or the extender board IOW16

X10: 9-pin sub-D connector for connecting a modem or PC.

X21: 10-pin plug for connecting the LiSA emergency call system

X23: 10-pin plug for connecting the LiSA relay board

Plug-in connections (screw terminals)



XK1: (**1**) = supply connection (+H2 / -H) for travelling cable
(**2**) = supply connection for LiSA10 (from 14 VDC power supply)
(**3**) = connection of the light voltage
L4 = 230V light voltage
N2 = light voltage neutral feeder
(**4**) = connection of the safety circuit taps
Ni = neutral feeder - input
SK1 = 1st safety circuit tap
SK2 = 2nd safety circuit tap
SK3 = 3rd safety circuit tap
SK4 = 4th safety circuit tap
Na = neutral feeder - output
SK4*= contactor voltage feed-in (by default connected to SK4 via jumper)

XK4: (**5**) = connection for travel signals:
V2 = potential-free signal tap (terminal 1 – 2) for high speed
SCH = connection for fast contactor
AB = connection for down contactor
LGS = connection for slow contactor or travel contactor
AUF= connection for up contactor
ST = connection for star contactor
DR = connection for delta contactor
(**6**) OT = connection for door override

XK5: (**8**) = activation signals for door drive
1 – 4: door 1 (relay K21, K22)
5 – 8: door 2 (relay K23, K24)
(**9**) = potential-free contact for travel signal V0 (= levelling speed in case of frequency-controlled lifts) or down-signal in case of hydraulic lifts (relay K17)
(**10**) +Hu = connection for alarm horn if installed in the shaft (by default in the inspection box)
(**11**) = potential-free contact for the emergency call forwarding (contact from relay K31)
(**12**) = connections for one changeover contact each of the freely programmable relays R1 and R2 (K41 and K42)

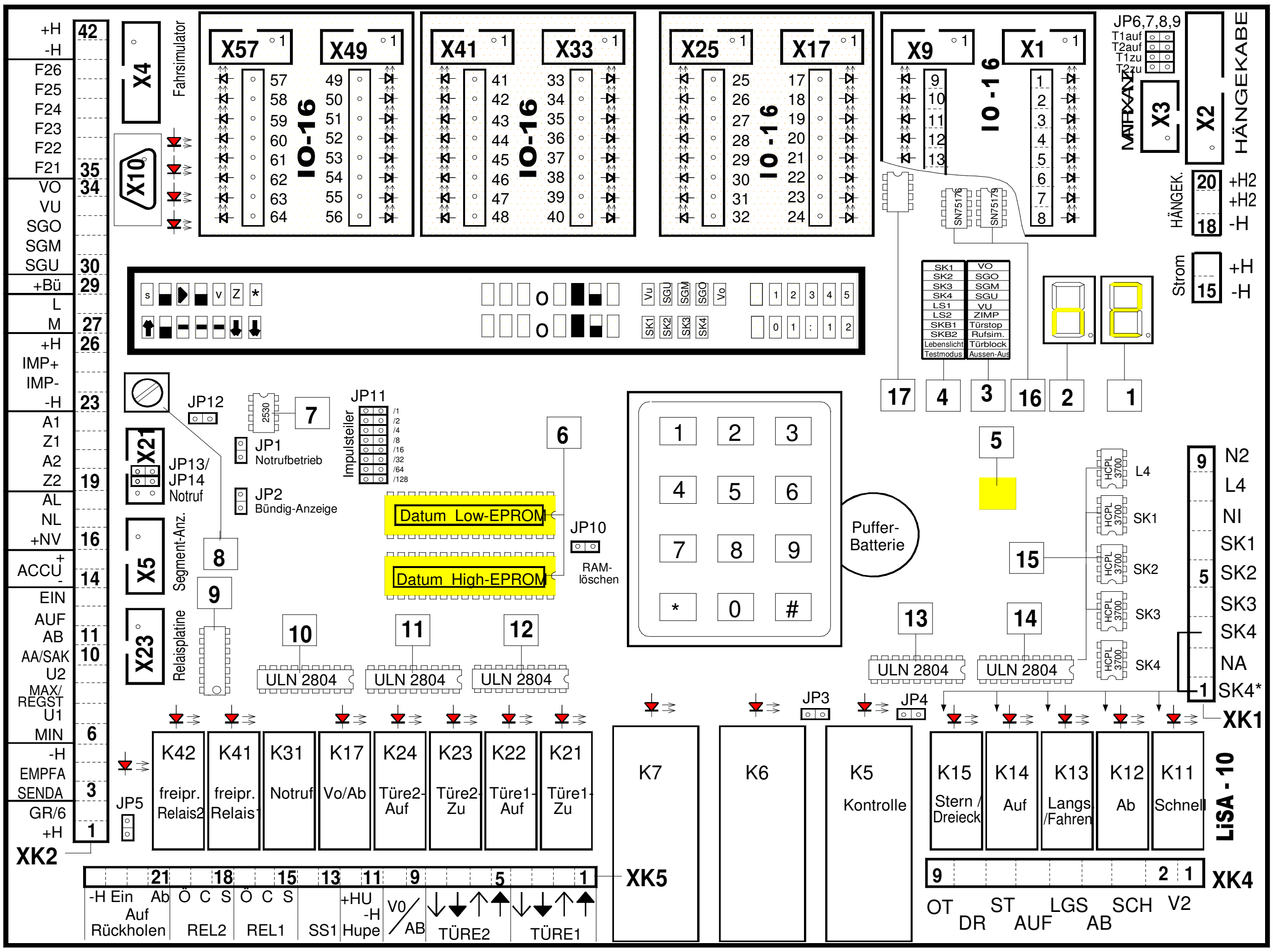
(13) = connection for the emergency recall
XK2: **(14)** = connection of the data lines for group communication
SendA = sending output
EmpfA = receiving input
- H = reference potential
(15) = connections for motor protection
MIN = connections for minimum pressure contact
U1 = connection for PTC resistor (excess temperature 1)
Max/Reg = connection for maximum pressure contact in case of hydraulic lifts or controller failure in case of frequency-controlled rope traction lifts
U2 = connection for PTC resistor (excess temperature 2)
(16) = AA/SAK = connection for landing control off in case of systems according to TRA or connection for the contactor monitoring in case of EN81. Switching is –H.
(17) = connection for inspection trip.

➔ *When using the APO8 connection board, the inspection trip is connected in the car. Only when the APO8 is not used or in case of assembly trips with an individual assembly panel these connections are needed.*

(18) = battery connection
(19) = emergency call connection
AL = connection for emergency call push button in the shaft
NL = emergency light connection (only relevant, if no APO8 is used)
+NV = emergency light connection
(20) = door limit switch signals (only relevant without APO8)
A1 = door open limit switch for door 1 (switching voltage = +H)
Z1 = door close limit switch for door 1 (switching voltage = +H)
A2 = door open limit switch for door 2 (switching voltage = +H)
Z2 = door close limit switch for door 2 (switching voltage = +H)
(21) = connection of the pulse sequence for digital shaft selection
+H = supply voltage +12V for encoder
IMP+ = positive pulse signal from the encoder
IMP- = negative pulse signal from the encoder
-H = GND supply voltage for encoder
(22) = connection for wall-mounted telephone (voice communication with the car)
L = loudspeaker connection
M = microphone connection
(23) = shaft signal tap
V0 = slow-down switch signal - top
SGO = top inductor switch signal
SGM = centrical inductor switch signal
SGU = bottom inductor switch signal
VU = slow-down switch signal - bottom
(24) = F1 – F6 taps for free travelling cable wires

➔ *Usage for the emergency call system or special interphones (shielded wires), for the pulse sequence from the LiSA encoder, etc.*

Jumpers



Jumpers:

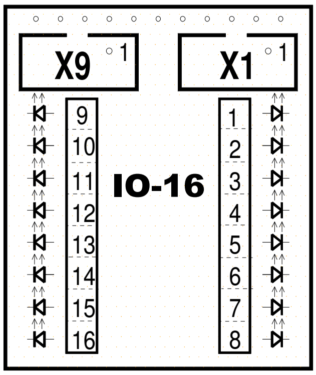
Jumper	Function	Inserted	Not inserted
JP1	In case of no voltage at XK1.15/ .16 LiSA10 is powered by battery	Active (as an emergency call system for LiSA / emergency lowering for hydraulic lifts)	Inactive *)
JP2	Level indicator	Indicator = lamp	Indicator = LED *)
JP3	Fast forced switch-off	Active	Inactive *)
JP4	Muting for safety relay	Active *)	Inactive
JP5	group operation	Duplex operation does not require a group relay	Group operation always requires a group relay
JP6	door limit switch	Door limit switch for door 1 - open bridged	Door limit switch bridged or connected to APO
JP7	door limit switch	Door limit switch for door 1 - close bridged	
JP8	door limit switch	Door limit switch for door 2 - open bridged	
JP9	door limit switch	Door limit switch for door 2 - close bridged	
JP10	Delete RAM	RAM will be deleted	Normal operation *)
JP11	Pulse division /1 /2 /4 /8 /16 /32 /64 /128		
JP12	pulse level	Pulse level < 5 V	Pulse level > 5 V
JP13 / JP14	Jumpers for L (loudspeaker) and M (microphone) connection of the voice communication	L and M are looped through from the plug X2 to the terminals l and M to XK2	L and M are open or are switched via the TAE board of the LiSA emergency call system

Components:

[1] = indication of the car position Positions > 9 and < 20 are displayed with an additional point.
[2] = indication of the operating mode
[3] = inductor switch indication, pulse from the encoder, door stop, call simulation, door blocking and landing control off
[4] = indication of the safety circuit taps, photoelectric barrier and closing force limiter for 2 doors, life light and test mode
[5] = reset push button
[6] = programme EPROMs (2 * 256 KB)
[7] = opto-coupler for encoder pulse
[8] = potentiometer for the contrast adjustment of the LCD display
[9] = group relay (attention to the installation position: PIN1 (point) down)
[10] = driver IC ULN2804: Activation of the freely programmable relays
[11] = driver IC ULN2804: Switching of the emergency light
[12] = driver IC ULN2804: Activation of the door relays and of the segment display
[13] = driver IC ULN2804: Switching of the emergency call relay on the LiSA TAE board and activation of the fast relay
[14] = driver IC ULN2804: Activation of the up, down, slow, delta, Vo/down relays
[15] = 1 opto-coupler for car light tap and 4 opto-couplers for safety circuit taps
[16] = driver ICs for serial data transmission to the car and to the LiSA matrix displays (left IC: SN75176, right IC: SN75179)
[17] = parameter EEPROM (24C09 / 24C08)

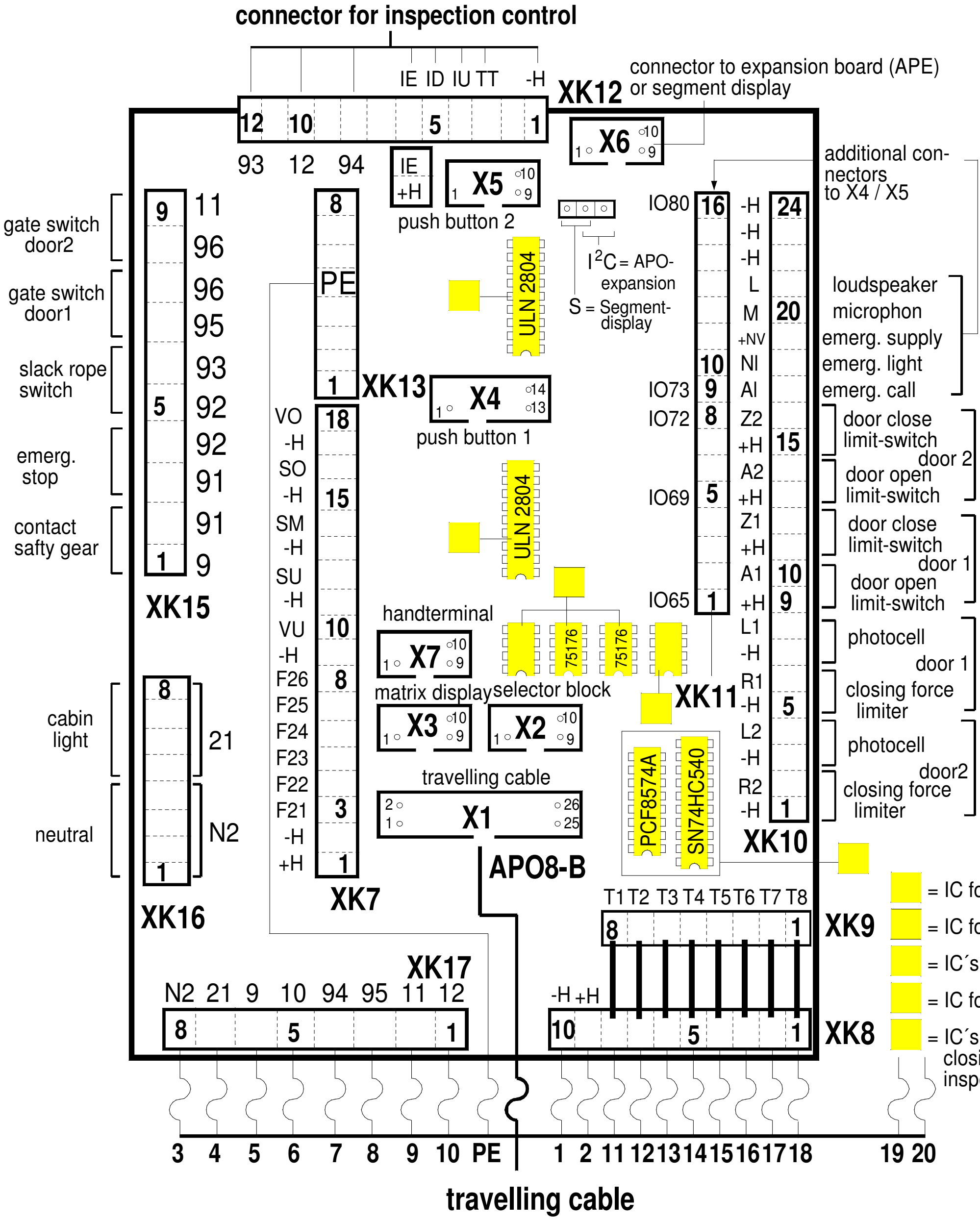
2.1.2. I/O board (IO16)

There are 16 electronic inputs/outputs (IOs) on the I/O board.
8 IOs can be connected via one 10-pin ribbon cable plug each. They are additionally (in parallel) conducted on 8-pin edge connectors. In this way the IOs can also be connected conventionally via screw terminals.
The status is displayed by LEDs.
If the LED is on, it means that -H is applied to the connection or that the output electronics has activated the output.
Each output can be permanently charged with 100 mA (in case of 12V switching voltage), if 8 connected IOs (IO1 – IO8 / IO9 – IO16) are simultaneously activated.
Each single IO can only be charged with a maximum of 500 mA.
Attention: Temporary short circuits can be absorbed. Sustained ones not.



2.1.3. Connection board (APO8-B)

The connection board APO8-B is either located in the inspection box or the panel box and serves as a distributor and amplifier station for the car installation.
In total there are 16 IOs (freely programmable) available on it, each of which can permanently be charged with 100 mA (in case of 12V switching voltage) if 8 connected IOs (IO65 - IO72 / IO73 - IO80) are simultaneously activated.
Each single IO can only be charged with a maximum of 500 mA.
Attention: Temporary short circuits can be absorbed. Sustained ones not.
Additionally there are 8 inputs with preset functions (photoelectric barrier, closing force limiter, inspection trip and emergency stop status).
The alarm push button, IO66 - IO72, voice communication and emergency light are connected via the plug X4.
IO73 - IO80 are available via the plug X5.
All the functions of these plugs are also available via the plug terminal block XK11 or XK10.
IO65 is an exception. This IO is only available on XK11.1.
Depending on the range of function of the system, 2 different components can be connected to the plug X6
if IO78 to IO80 are not yet assigned to other functions (push buttons, keys, displays, etc.), the LiSA segment display (occupies IO78 - IO80) or
the extender board APE-16.
Please observe to insert the jumper in the right position below X6!
The copying block signals are connected to the plug X2. They can also conventionally be connected to the plug X7.
The following signals are directly connected to the travelling cable plug X2 (i.e. without electronic components in between):
selection signals Vo, Vu, So, Sm, Su,
connections for the free travelling cable wires (F21 - F26),
alarm push button, emergency light, emergency power supply, loudspeaker and microphone and door limit switch.



Pins of connector for travelling cable X1:

1: door open -LS door1
2: door close LS-door1
3: door open -LS door2
4: door close LS-door2
5-10: data transmission (RS485)
11: alarm push-button
12: emergency light
13: Emergency supply
14: signal generator middle
15: signal generator-bottom
16: signal generator top
17: pre-limit-switch-top
18: pre-limit-switch-bottom
19: loudspeaker
20: microphon
21-26: F21-F26 = free wires

connector X1: travelling-cable
connector X2: selector-block
connector X3: matrix display

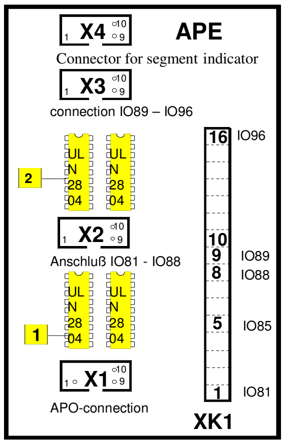
Pins of connector X4:

1: emergency call push button
2 - 8: IO66 - IO72
9: -H
10: +H
11: emergency light
12: emergency supply
13: loudspeaker
14: microphon

Pins of connector X5:

1 - 8: IO73 - IO80
9: -H
10: +H

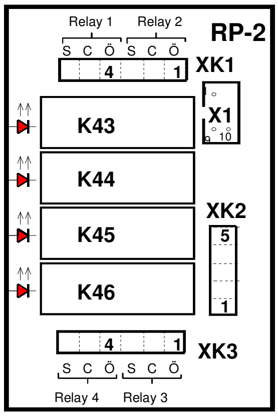
2.1.4. APO extender board (APE)



1 = driver-IC for IO89 - IO96
2 = driver-IC for IO81 - IO88

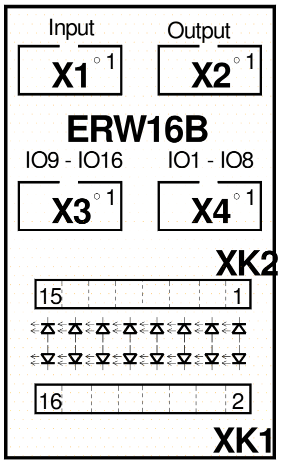
The APE connection board is an extender board for systems where more than 16 freely programmable IOs are required in the car. It is either located in the inspection box or the panel box.
In total there are 16 IOs (freely programmable) available on it, each of which can permanently be charged with 100 mA (in case of 12V switching voltage) if 8 connected IOs (IO65 - IO72 / IO73 - IO80) are simultaneously activated. Each single IO can only be charged with a maximum of 500 mA.
Attention: Temporary short circuits can be absorbed. Sustained ones not.
It is connected to the plug X1 via a 10-pin ribbon cable from the plug X6 on the APO8-B. Via the plugs X2 and X3, 8 functions each are connected to the IOs on the APE.
On the analogy of APO8, these connections are linked with the plug terminals on the block XK1, i.e. each IO can both be connected via a ribbon cable and conventionally via terminals.
The plug X4 can be connected to a segment display which occupies IO94 - IO96.

2.1.5. Relay board (RP2)



The LiSA controller has 6 freely programmable relays available. Relay 1 and 2 (K41 - K42) are located on the LiSA10 board. Relay 3 - relay 6 (K43 - K46) are located on the extender board RP-2. It is connected to the plug X1 via a 10-pin ribbon cable from the plug X23 of the LiSA10 board.
The relays can be activated in a conventional way via the terminal block XK2. Pin5 is the feed-in (+H) for the relay coils and terminals 1-4 are the signal connection for the relays K43 - K46.
A changeover contact comes out of each relay (C = common connection, S = N/O contact, Ö = N/C contact), with relay1 corresponding to relay K43, relay2 to relay K44, etc.

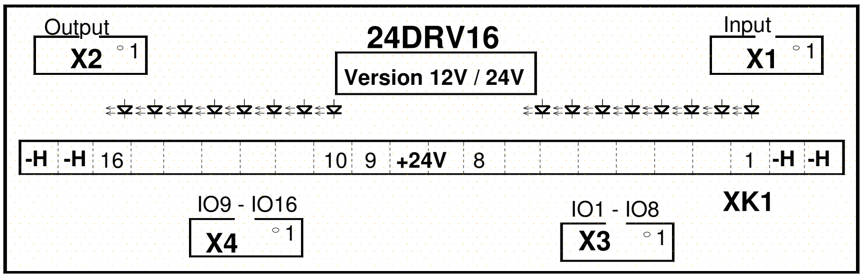
2.1.6. I/O extender board (ERW16B)



In the case of larger lift systems (e.g. 2-button control with 30 landings) there aren't enough free IOs on the central board (LiSA10) to display the travel continuation indicators, arrival gong, linear position indication (one output per landing) or IO status of the car IOs.
By means of the ERW16B it is possible to serially output the mentioned functions.

The ERW16 is connected to the plug X5 (= segment display connection) or X57 (= left plug on the 4th I/O board) of the LiSA central board. In this case the assignment of the plug X1 is analogous to the assignment of the plug for the segment display (pin10 and pin9 +H, pin8 and pin7 -H).
The corresponding parametrisation is done via the parameters "1. Output Travel contin. direct. / 1. Output Arrival gong / 1. Output Car position / 1. Output Car signals".
The output IO1 - IO16 can both be connected via ribbon cables and conventionally via screw terminals. The plugs X3 and X4 supply pin10 with +H and pin9 with -H.
If the LED is on, it means that -H is applied to the connection, i.e. that the output is activated.
Each output can be permanently charged with 100 mA (in case of 12V switching voltage), if 8 connected IOs (IO1 – IO8 / IO9 – IO16) are simultaneously activated. Each single IO can only be charged with a maximum of 500 mA.
Attention: If the connection via X57 (pin10 = +H and pin9 = -H) is used, you must detach the wires 7-10 and wires 9 and 10 must accordingly be fed in.
If more than 16 additional outputs are required you can connect a further ERW16B via the plug X2.
The connection of the plug XK1 are connection to the pins of X4 in parallel. The same applies to XK2 and X3.

2.1.7. Extender board and level converter (24DRV16)



With regard to the range of functions (output of the travel continuation indicators, arrival gong, etc.) and connection to the LiSA10, the same as mentioned for ERW16B applies to the board 24DRV16.
The following is different:
All outputs can simultaneously be charged with 1A.
The output signal is actively positive (= level converter)
The voltage to be switched is fed in on both terminals (referred to as +24V)
There are 2 versions available (see version label 12V / 24V):
Version label 24V: The switching voltage is +24V (input voltage on the terminals +24V = 24V)
Version label 12V: The switching voltage is +H V (input voltage on the terminals +24V = +H).

2.2. LiSA displays

When developing the LiSA controller, special focus has been on flexible and appealing position, direction and travel continuation indicators.

	LiSA segment display (9 segments)	LiSA matrix displays	Freely programmable segment displays (9 segments)	Freely programmable matrix displays
Picture assignment	via parameters (parameter set 007*) and code table	via parameters (parameter set 007*) and code table	PC programme and storage in the display EEPROM	PC programme and storage in the display EEPROM
Connection	10-pin ribbon cable	10-pin ribbon cable	14-pin ribbon cable or terminal screws	10-pin ribbon cable or terminal screws
Activation	LiSA bus (serial)	LiSA bus (I2C)	Gray, binary, linear, pulse	Gray, binary, linear, pulse and LiSA bus (I2C)
Indication of travel continuation direction	Yes	yes	yes (activation input flashing)	yes (activation input flashing)
Special text	No	X and A-B	no	4 horizontal special texts
Displays 15 mm high	1-digit, 2-digit, 1-digit with arrow, 2-digit with arrow	no	no	15*7 dots
Displays 30 mm high	No	8*8 dots / 16*8 dots	no	16*8 dots
Displays 35 mm high	1-digit, 2-digit, 1-digit with arrow, 2-digit with arrow	no	2-digit with arrow	no
Displays 40 mm high	no	8*8 dots / 16*8 dots	no	16*8 dots
Displays 50 mm high	2-digit with arrow (film display and multi-segment display)	no	no	no
Displays 60 mm high	No	8*8 dots / 16*8 dots	no	16*8 dots
Displays 65 mm high	No	no	no	LCD graphic display 192*192 dots
Displays 125 mm high	1-digit, 2-digit, 1-digit with arrow, 2-digit with arrow	no	no	no

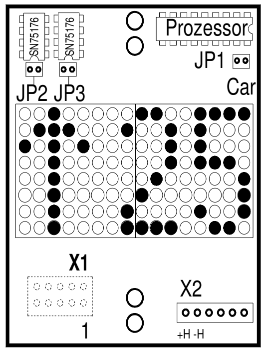
Notes on the table above:
The assignment of the displayed pictures to the single landings for the "normal" LiSA displays (= displays which can only be controlled via the LiSA bus) is different from the so-called freely programmable types.
LiSA displays:
Picture assignment and activation selection are done via parameters (landing codes), i.e. without hardware coding.
Freely programmable LiSA displays:
The pictures are created using a PC programme and stored in an EEPROM which is then plugged onto the display. In the case of matrix displays you can also create special texts with a horizontal direction of movement.

2.2.1. Matrix display

LiSA display:

- This display can only be activated via the LiSA bus (I2C). It is available as an 8*8 matrix and 16*8 matrix with a height of 30, 40 or 60 mm.
- It is connection via a 10-pin ribbon cable.
  Displays on the floors are plugged to the LiSA10 board. If there are more than 7 displays in one ribbon cable, you must provide an additional feed-in (2*1 qmm).
- The car display is connected to the APO8(B) board via its own plug connection.
- The displayed pictures are stored in the memory of the LiSA10 board and are transmitted to the display.
- Different types of displays can be used in the car and on the floors, e.g. in the car 16*8 and 8*8 on the floors.
- In standstill the travel continuation direction can be displayed in the form of a flashing arrow.
- The 16*8 matrix displays the landing picture and the travel continuation arrow at the same time. The 8*8 matrix displays them in turns (parametrisable).
- The displayed picture can scroll in vertical direction (parametrisable)

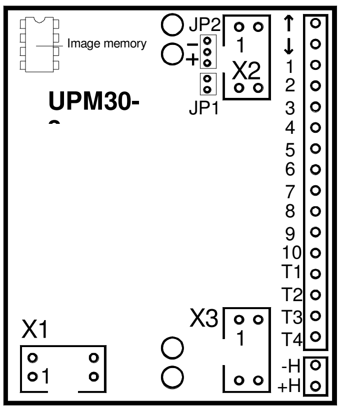
JP1 = plugged if display is installed in the car
JP2 / JP3 = plugged in case of last element



Front view (on matrix-element)

Freely programmable LiSA displays (also suitable for external controls):

- This display can be activated both via the LiSA bus (I2C) and conventionally via terminal screws or ribbon cables. It is only available as a 16*8 matrix with a height of 30, 40 or 60 mm.
- If the display is used in combination with the LiSA controllers, everything mentioned for the LiSA displays with regard to activation and functions applies.
- In addition, 4 horizontal rolling texts (e.g. overload - please deboard, evacuation travel, firemen mode, etc.) can be displayed in both activation types.
  It is either recalled via the LiSA bus or the terminals T1 - T4.
- It is possible to display a horizontal rolling texts on each floor. It is displayed in turns with the floor picture.



View on rear side

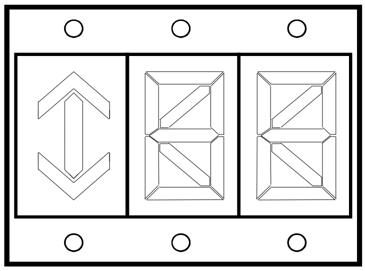
JP1 = plugged if the 1st image shall be shown without activation signal
JP2 = plugged to position +: activation with + plugged to position -: activation with –

X1 = plug LiSA-bus

X2 = 1: UP-direction 2: DOWN-direction
3 – 8: activation signals for landing images
9: -H 10: +H

X3 = 1– 4: signals for landing images
5 – 8: signals for Soner-texts
9: -H 10: +H

2.2.2. Segment display

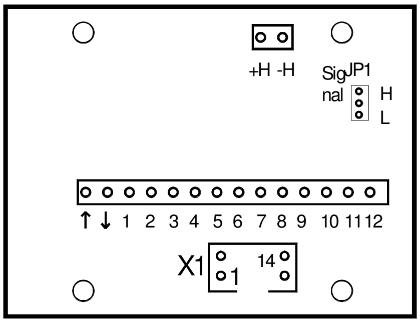


The segment displays, too, are divided in displays which can only be controlled (serially) via the LiSA bus (LiSA displays) and the freely programmable type which is also suitable for external controls.

LiSA segment display:
Everything mentioned for the LiSA matrix displays applies.

Freely programmable segment display:

Like for all freely programmable displays, the picture memory is programmed by writing an EEPROM. Use a programming device linked with the serial connection (com1, com2) of the PC. The pictures themselves and the code used to control the display are also created using the PC programme.



Front view

View on rear side

JP1 = plugged to position H: activated by +
plugged to position L : activated by -

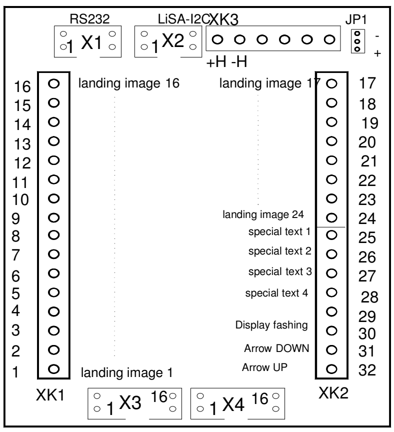
X1 = 1: up 2: down
3 - 8: activation signals for landing code: linear, gray, binary or pulses
9: -H
10: +H
11- 14: activation signals for landing images

2.2.3. LCD graphic display

Frontansicht

Depiction:
The display (192 * 192 dots) with an active back-lit surface of 65 * 65 mm is programmable via a PC programme.
The upper third of the display surface is reserved for floor texts and special texts (fire emergency, firemen mode, overload, ...) by default.
The lower part of the display surface (2/3) is intended for the travel direction and landing indication.
4 special texts are possible.

Activation:
- Conventionally via terminal screws (XK1 / XK2) or ribbon cables (X3 / X4) with linear code or
- via the LiSA bus (I2C) at the matrix display connection (X2)



View on rear side

X1 = programming connection to PC
X2 = plug-connector for activation via LiSA-bus (I2C)
XK3 = 1: +H, 2: -H, 3 –6: I2C-connection via screw type terminals
XK1 / X3 = screw type terminals landing image 1 – 16
XK2 / X4 = screw type terminals landing image 17 – 24 special texts, travel direction, image flashing
JP1: activation level (+ / -)

3. LiSA bus system

The complete system consists of only 2 different electronic components,

- the LiSA10-7 or higher with a plugged driver module (LDM) and the
- LiSA bus module (LBM)

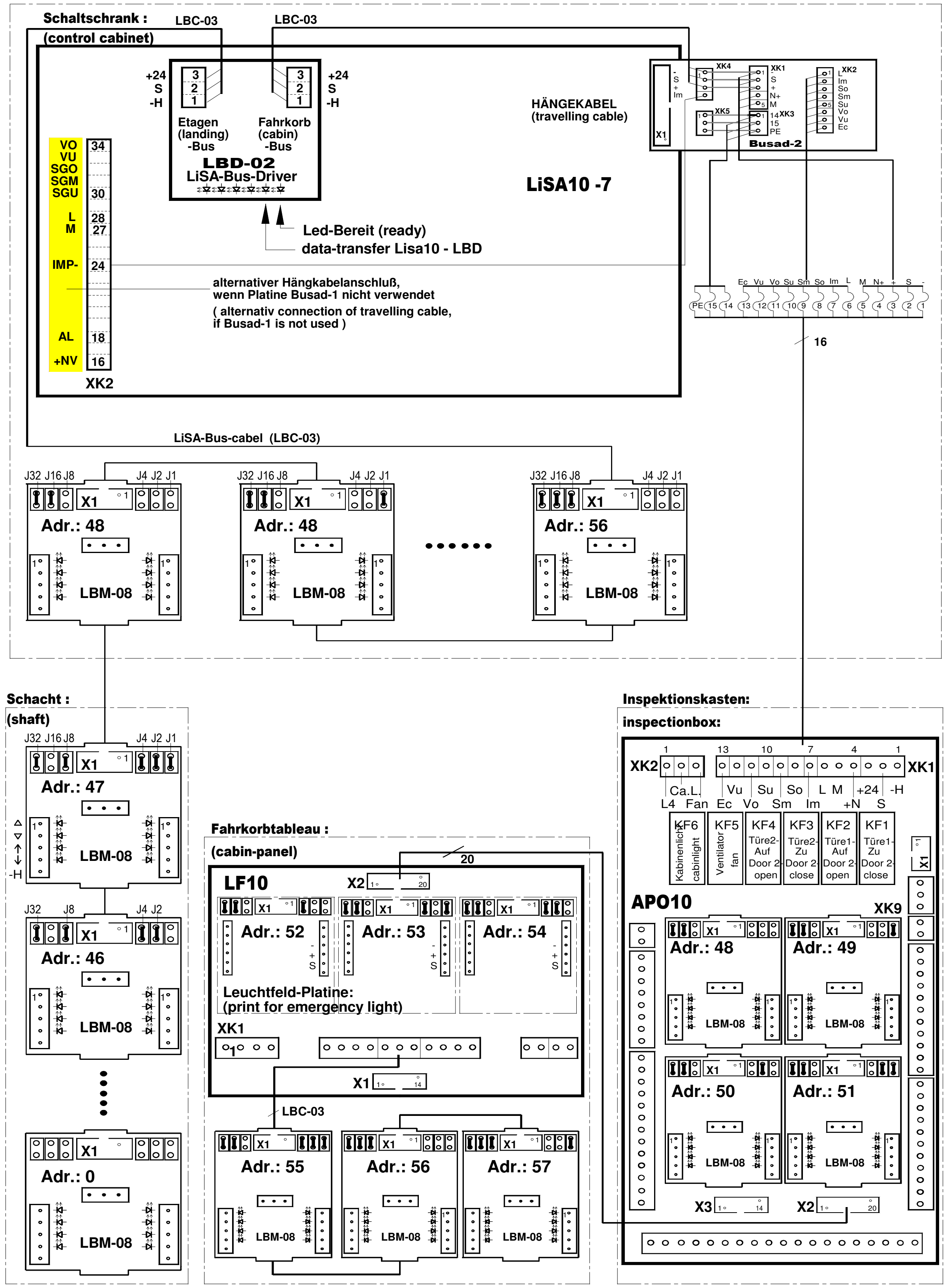
All the control functions which are not permanently predefined on the LiSA10-7 or higher (e.g. overtemperature, controller failure, etc.) are handled via the LBM.
The LBM can be located in the control cabinet, in the shaft or in the car.
It is connection to the controller via the 3-pin LiSA bus. This bus consists of 2 wires for the power supply (24V) of the modules and one signal line.
In the shaft it physically consists of the special 3-pin LiSA bus cable (3 * 1.5 sq.mm) LBC-03.
3 wires of the travelling cable are required for the car.

Schneider Steuerungstechnik uses a correspondingly configured ribbon travelling cable with 19 x 0.75 mm^2 unshielded wires as well as 12 (4x3x0,22 mm^2) shielded wires.
As an alternative or if halogen-free cables are required, two ribbon travelling cables with 16 wires each are used. One for 230V and the other for low voltages.
A novelty in the lift construction is the special connection with which the bus modules are connected to the controller via the LBC-03.
The LBC-03 is based on the ASI bus cable (used in industrial applications), i.e. the connection is established using the penetration technique.
The modules are simply clipped on where they are needed.
A malfunctioning module can easily be located and is immediately displayed in the controller.

Note: Instead of the LBM it is still possible to use the IO16 board in the control cabinet, if required, or even simultaneously with the LBM.

By introducing the LiSA bus at the beginning of 2003, the LiSA10 board version 5 (LiSA10-5) delivered up to that point was replaced by the LiSA10-7 board.
The LiSA10-7 can be recognised at first sight by the position of the reset button. It is located to the left of the EEPROMs.

Attention: The new board is fully compatible with the old version, i.e. a LiSA10-5 can be replaced by a LiSA10-7 at any time. The reverse is not possible.
In addition some important changes or improvements were integrated.
In the following these changes and the LiSA bus system are described in detail.



Block diagram of the LiSA bus system

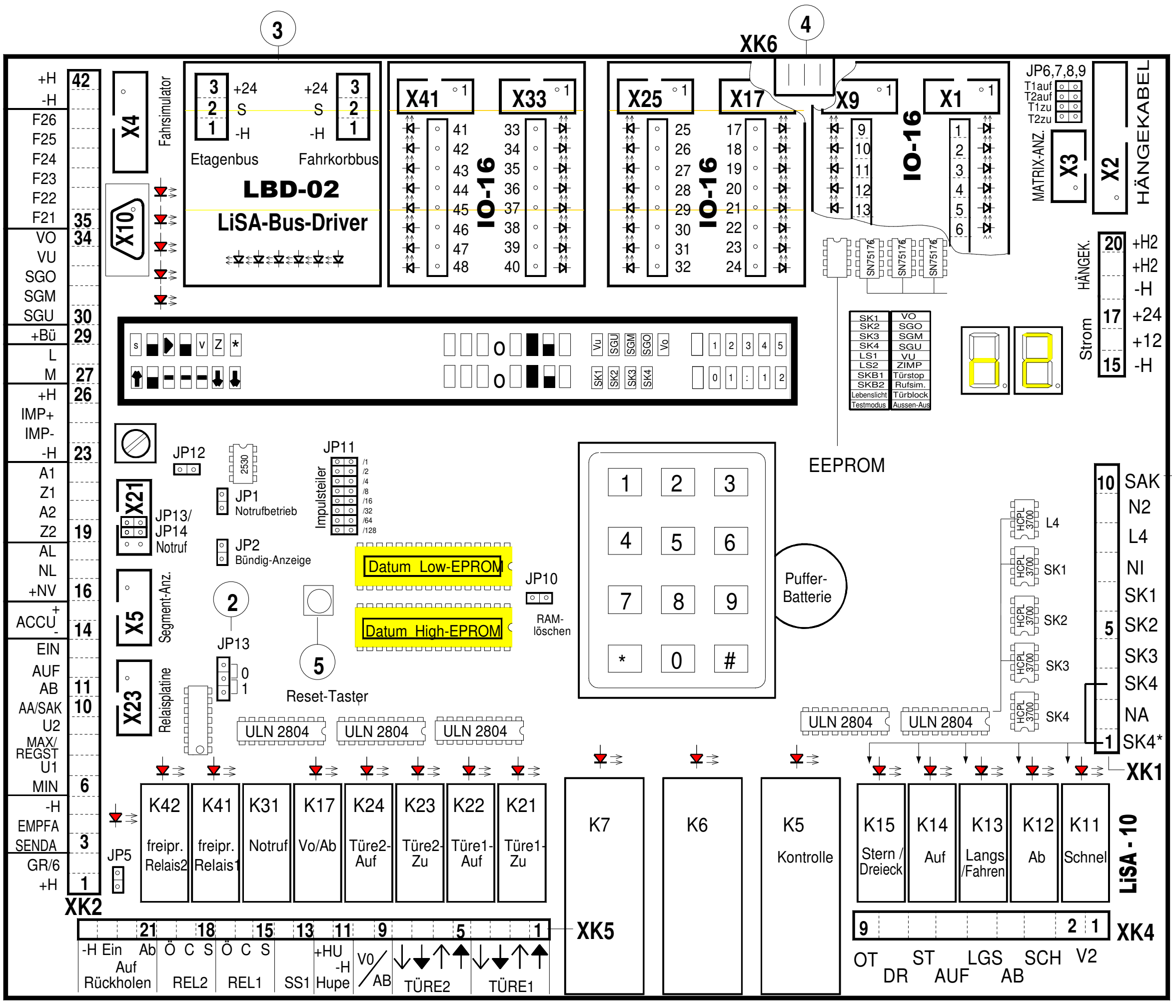
3.1. Components

3.1.1. LiSA10-7

Changes to the LiSA10 board (see the following picture):

- As an alternative to the 15V supply you can now feed in 24V (plug XK5, pin3), i.e. the control voltage for the whole system can now be 24V (mandatory if the bus functions are used).
- Instead of the 4th I/O card (IO49 - IO64) you can now plug a bus connection board (= LiSA bus driver LBD). Principally the use of I/O boards is no longer required.
- The plug XK1 has been extended by a 220V connection for the contactor monitoring (pin10 - SAK). In this way the evaluation of this function has become considerably safer compared to the contactor monitoring with 24V used so far.
- An additional RS485 interface comes out of the plug XK6 for the DCP connection (= serial activation of inverters).

Note:
You need a new power supply unit if you use the 24V control voltage.
This type is designed for the top-hat rail installation (good ventilation), usually it is oversized (24V, 4.2A) so that it will reach the service life guaranteed according to the data sheet (MTBF) of approximately 8.5 years with the utmost probability compared to the type used now.



(1) = connection of the 24V supply (15V supply to XK5, pin2 is still possible)

(2) = 230V connection for the contactor monitoring (SAK)
Preconditions:
- jumper JP13 in position 1 and PE connected to -H.
- New parameter (in the parameter block 000*)
"Lisatyp (LiSA5 / LiSA7without230VCCon / LiSA7with230VCCon)" is parameterised with 2.

Note:

JP13 in position 0: signal at pin10 from XK2 (AA/SAK) is evaluated and has different meanings depending on whether the system is designed according to TRA or EN81.
TRA: landing control off
EN81: contactor monitoring (parameter "Lisatyp" programmed with 1).

(3) = slot for the LiSA bus driver (LBD-02)
(4) = serial connection of XK6 (RS485) for the DCP interface (available for RST/ZiehlAbegg)
(5) = reset button (visually distinguishing mark of LiSA10-7)

The jumpers JP3 (fast forced switch-off) and JP4 (muting for safety relay) have been removed.

For reasons of compatibility to LiSA10-5 there are still

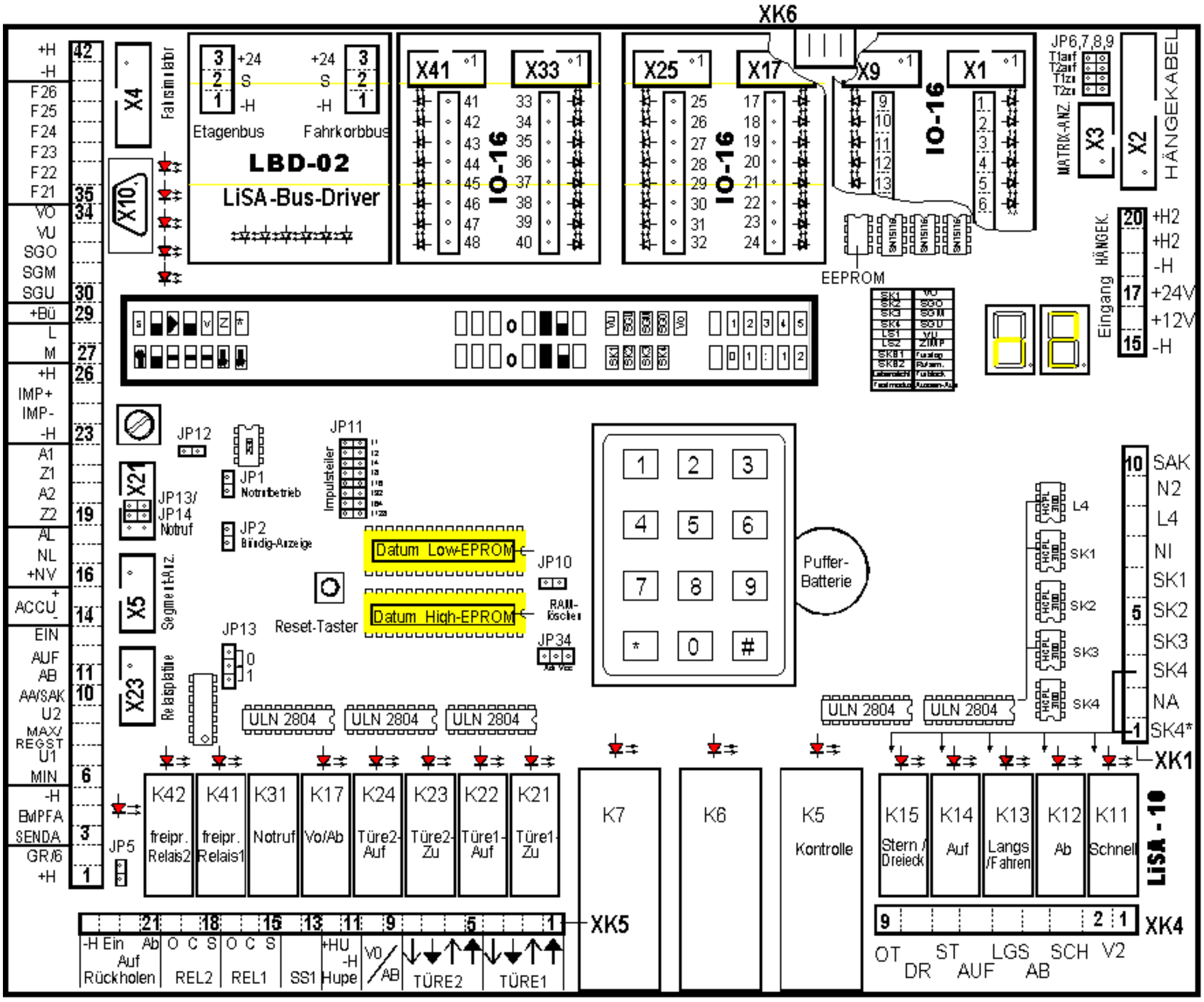
- slots for IO16 boards
- 15V connection
- connection for matrix and segment displays and
- the normal travelling cable connection

.

3.1.2. LiSA10-8

Changes to the LiSA10 board (see the following picture):

- A novelty is the possibility to use EPROMs with 512 KB memory. In order to select the used EPROMs JP34 has been added. If you use EPROMs with a memory of 256 KB (M27C21001), JP34 must be inserted in the "middle-right" position, i.e. Vcc , if you use EPROMs with a memory of 512 KB (M27C4001), JP34 must be inserted in the "middle-left" position, i.e. Adr.



llustration LiSA10-8

Jumper	Function	Inserted	Open
JP1	battery operation	LiSA active via battery	battery operation off
JP2	flash indication	flash indication = lamp	Flash indication = LED
JP5	group operation	group of two	3 or more group cars, group relay required
JP6	door limit switch	T1 open limit switch bridged	limit switch for relays K21 to K24 connectable to APO or LiSA
JP7	door limit switch	T2 open limit switch bridged	
JP8	door limit switch	T1 close limit switch bridged	
JP9	door limit switch	T2 close limit switch bridged	
JP10	delete RAM	RAM will be deleted *)	operation
JP11	pulse distributor	determines the distribution ratio	
JP12	pulse level	for TTL encoders	for HTL encoders
*) Do only bridge when switched off! Remove jumper before switch-on!!			
JP13	SAK/AA	pos. 0: XK5 terminal10 active	pos. I: XK1 terminal10 active
JP34	EPROM selection	right = Vcc = EPROM 2001	left = Adr = EPROM 4001

Table: LiSA10-8 jumper functions

3.1.3. LiSA10-10

Changes to the LiSA10 board (see the following picture):

- A novelty is the evaluation of the contactor monitoring. For this there is the additional terminal N3 (XK1:11) in order to read the contactor monitoring by means of an opto-coupler. When the contactor monitoring with 230VAC is used, it is mandatory to connect the terminal N3 to the corresponding neutral feeder.
- Furthermore the internal 12V supply for loading the emergency power battery and supplying emergency power has been enhanced. Now it can be charged with a maximum of 2000 mA.

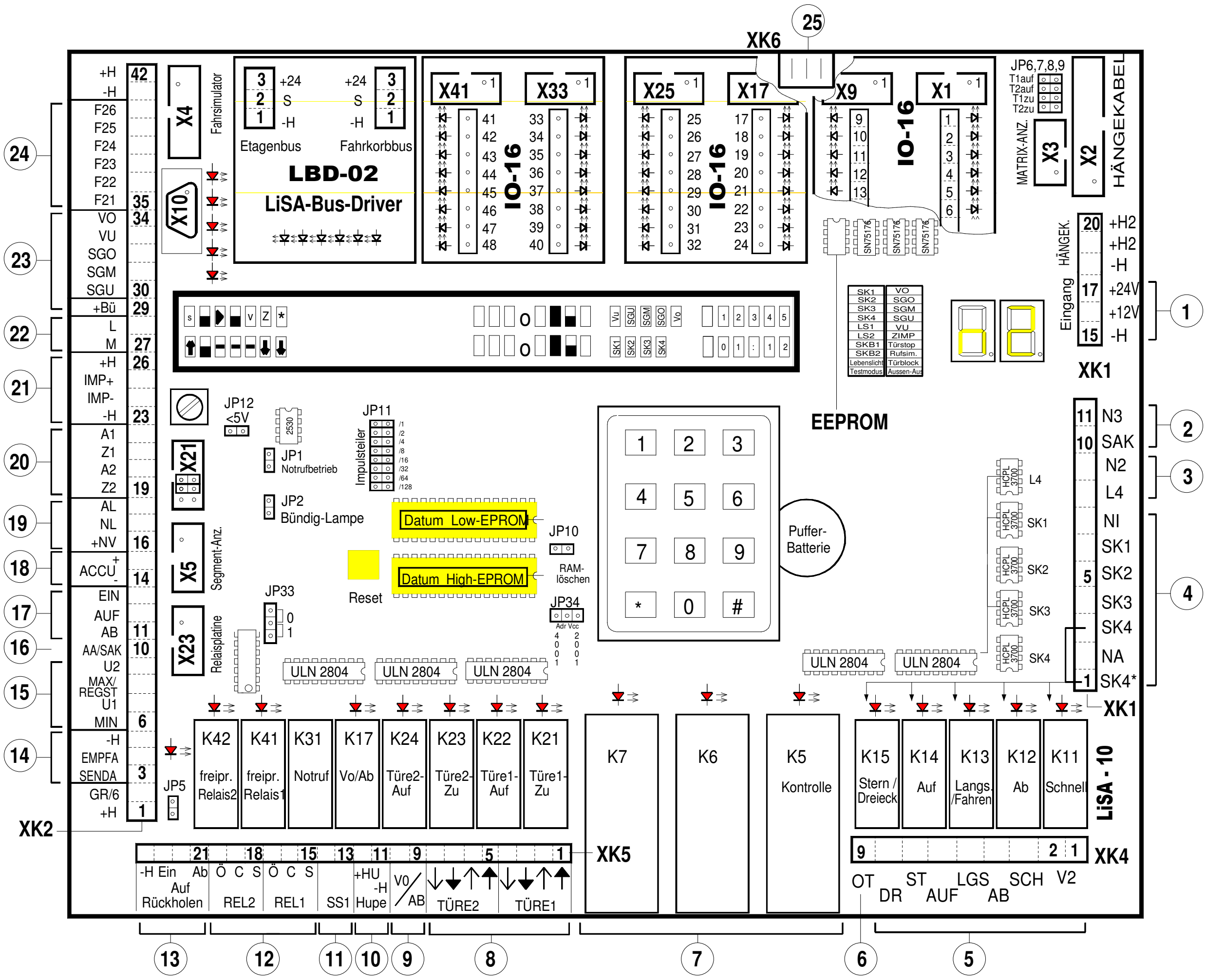


Illustration: LiSA10-10

Terminal assignment LiSA10-10:

Terminals:

(1) = supply connection

Supply of 15V: -H = XK1:15; +12V at XK1:16

Supply of 24V: -H = XK1:15; +24V at XK1:17

(2) = 230V connection for the contactor monitoring (SAK)

Preconditions:

- jumper JP13 in position 1 and PE connected to -H.
- Parameter (in the parameter block 000*)
  "Lisatyp (LiSA5 / LiSA7without230VCCon / LiSA7with230VCCon)" is parameterised with 2.
- The terminal N3 (XK1:11) must be connected to the neutral feeder of the corresponding phase

(3) = light voltage connection

(4) = safety circuit connection

(5) = travel signal connection (contactors/relays)

(6) = jumper circuit connection for pre-opening doors/relevelling

(7) = safety circuit

(8) = door control connection

(9) = potential-free connection for creeping velocity in case of frequency-controlled rope traction lifts or downward travel in case of hydraulic lifts.
(10) = alarm horn connection (battery-backed, K31 required)
(11) = potential-free alarm output (attention: K31 required)
(12) = changeover outputs of the two freely programmable relays
(13) = emergency recall control input
(14) = group connection
(15) = motor protection connection
(16) = landing control off / contactor monitoring connection

JP13 in position 0: signal at pin10 from XK2 (AA/SAK) is evaluated and has different meanings depending on whether the system is designed according to TRA or EN81.
TRA: landing control off
EN81: contactor monitoring (parameter "Lisatyp" programmed with 1)

(17) = additional inspection control connection
(18) = emergency battery connection
(19) = emergency power supply / emergency call / alarm push button (in the shaft) / emergency light connection
(20) = additional door limit switch connection/tap
(21) = encoder connection
(22) = voice communication connection
(23) = selection signal connection/tap
(24) = free travelling cable wire connection/tap
(25) = serial connection of XK6 (RS485) for the DCP interface (RST and Ziehl-Abegg available)

Plug-in connections:
X2: travelling cable connection (26-pin)
X3: matrix display connection (10-pin)
X4: travel simulator connection (14-pin)
X5: segment display connection (10-pin)
X10: modem/PC connection (SUB-D 9-pin)
X21: LiSA emergency call system connection (10-pin)
X23: relay board connection (10-pin)

Jumper functions:

Jumper	**Function**	**Inserted**	**Open**
JP1	battery operation	LiSA active via battery	battery operation off
JP2	flash indication	flash indication = lamp	flash indication = LED
JP5	group operation	group of two	3 or more group cars, group relay required
JP6	door limit switch	T1 open limit switch bridged	limit switch for relays K21 to K24 connectable to APO or LiSA
JP7	door limit switch	T2 open limit switch bridged	
JP8	door limit switch	T1 close limit switch bridged	
JP9	door limit switch	T2 close limit switch bridged	
JP10	delete RAM	RAM will be deleted *)	operation
JP11	pulse distributor	determines the distribution ratio	
JP12	pulse level	for TTL encoders	for HTL encoders

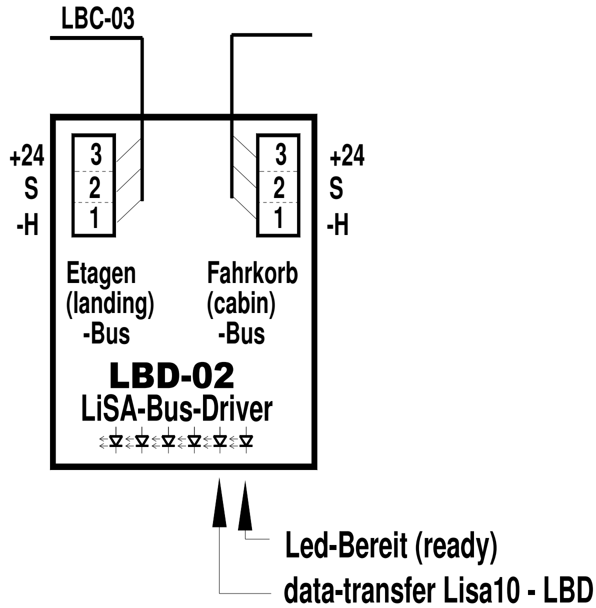
*) Do only bridge when switched off! Remove jumper before switch-on!!

JP33	SAK/AA	pos. 0: XK5 terminal10 active	pos. I: XK1 terminal10 active
JP34	EPROM selection	right = Vcc = EPROM 2001	left = Adr = EPROM 4001

Table: LiSA10-10 jumper functions

3.1.4. LiSA bus driver (LBD-02):

The LiSA bus driver is the interface between LiSA10-7 and the LiSA bus.
Reading the data from the LiSA bus modules at the landing and car bus and transmission to LiSA10-7 as well as
Reading the data from LiSA10-7 and transmission to the LiSA bus modules.



3.1.5. LiSA bus module (LBM)

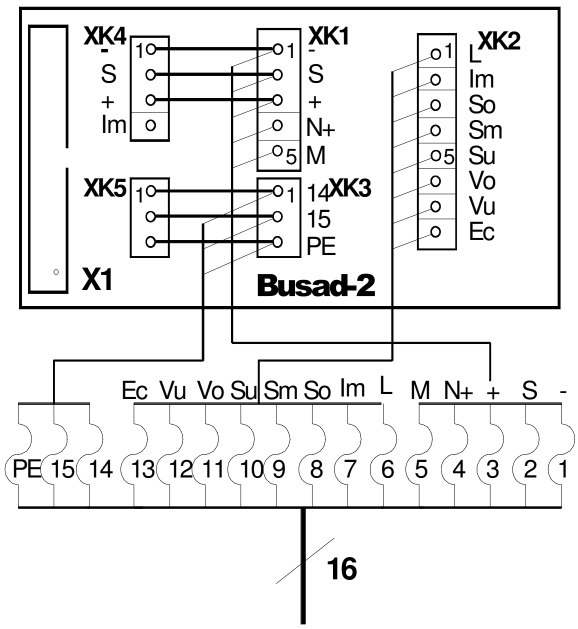
Structure and functions:

- 8 short circuit-proof (not sustained short circuit-proof) inputs/outputs (I/Os) at XK1 and XK2 or X1. If the LBM is used as a floor module, the first 4 IOs (XK1) have dedicated functions. Otherwise they are freely programmable.
  Floor module: pin1: open push button,
  pin2: down push button,
  pin3: direction up,
  pin4: direction down
- 8 IO status LEDs
- 1 LED (L1) for the operating mode indication
  LED on: LBM-08 is OK
  LED flashes: LBM-08 faulty and cut off from the bus by R1
- X1: plug for connecting LiSA components.

- XK3 and XK4: plug for connecting the LBM-08 to the carrier boards APO10 or LF10 in the car
- XK5: bus connection for LiSA bus displays
- R1: miniature relay in order to cut off a defective bus module from the bus.
- The jumpers JP1 - JP32 are used for addressing (0 - max. 63)
  Addresses of the landing bus:
  0 – 47: address range for the landing modules.
  48-56: address range for the modules in the control cabinet.
  Addresses of the car bus:
  0 – 47: address range for landing modules door side 2 (in case of selective external door control)
  48-60: address range for modules in the lift car.

The boards described in the following are also used for the simple design of controllers. These are adapter or carrier boards without electronic components.

3.1.6. LiSA travelling cable adapter (Busad-2):



13 wires of a travelling cable are always assigned in the same way. 3 free wires can be used freely, i.e. also for 230V.
In order to simplify the travelling cable connection, these wires are consecutively linked with the BusAd-2 at XK1 and XK2.
The signals are supplied via X1 and XK4.
X1 is directly plugged to the 26-pin travelling cable connector of the LiSA10-7 board. However, only pin11 - pin20 are used.
The car bus and, if necessary, the signal (Im) of the LiSA encoder on the car is connected to XK4.

XK1: pin 1 - 3: car bus (-, S, +)
pin 4 - 5: voice communication (+N, L)

XK2: pin 6: voice communication (M)
pin 7: encoder (Im)
pin 7 - 12: inductor switch (So, Sm, Su, Vo, Vu)
pin 13: signal of the alarm push button (Ec)

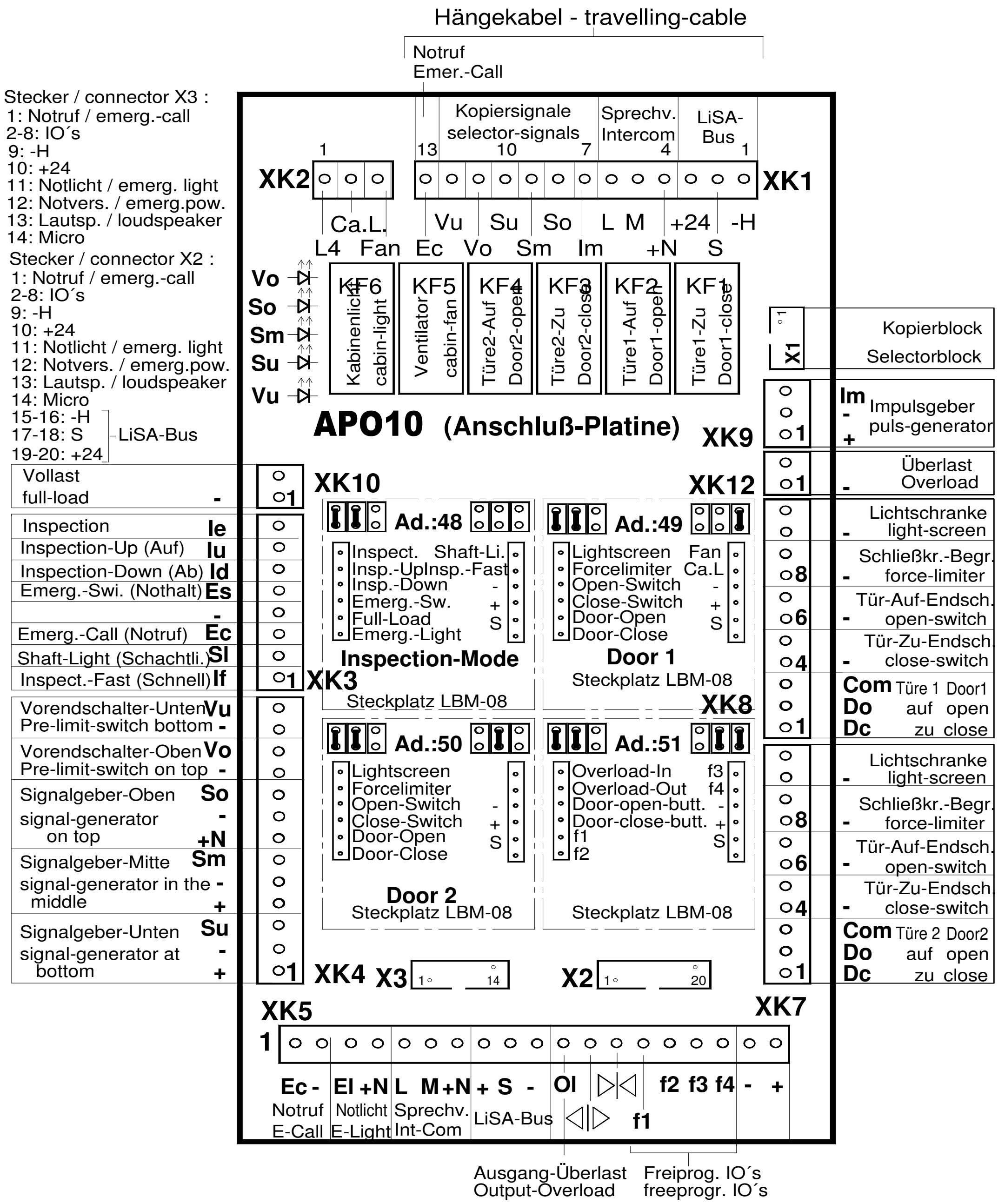
XK4: pin 1 - 2: free travelling cable wires (14, 15)
pin 3: free travelling cable wire (PE)

3.1.7. Connection board in the car (APO):

3.1.7.1. Connection board APO-10

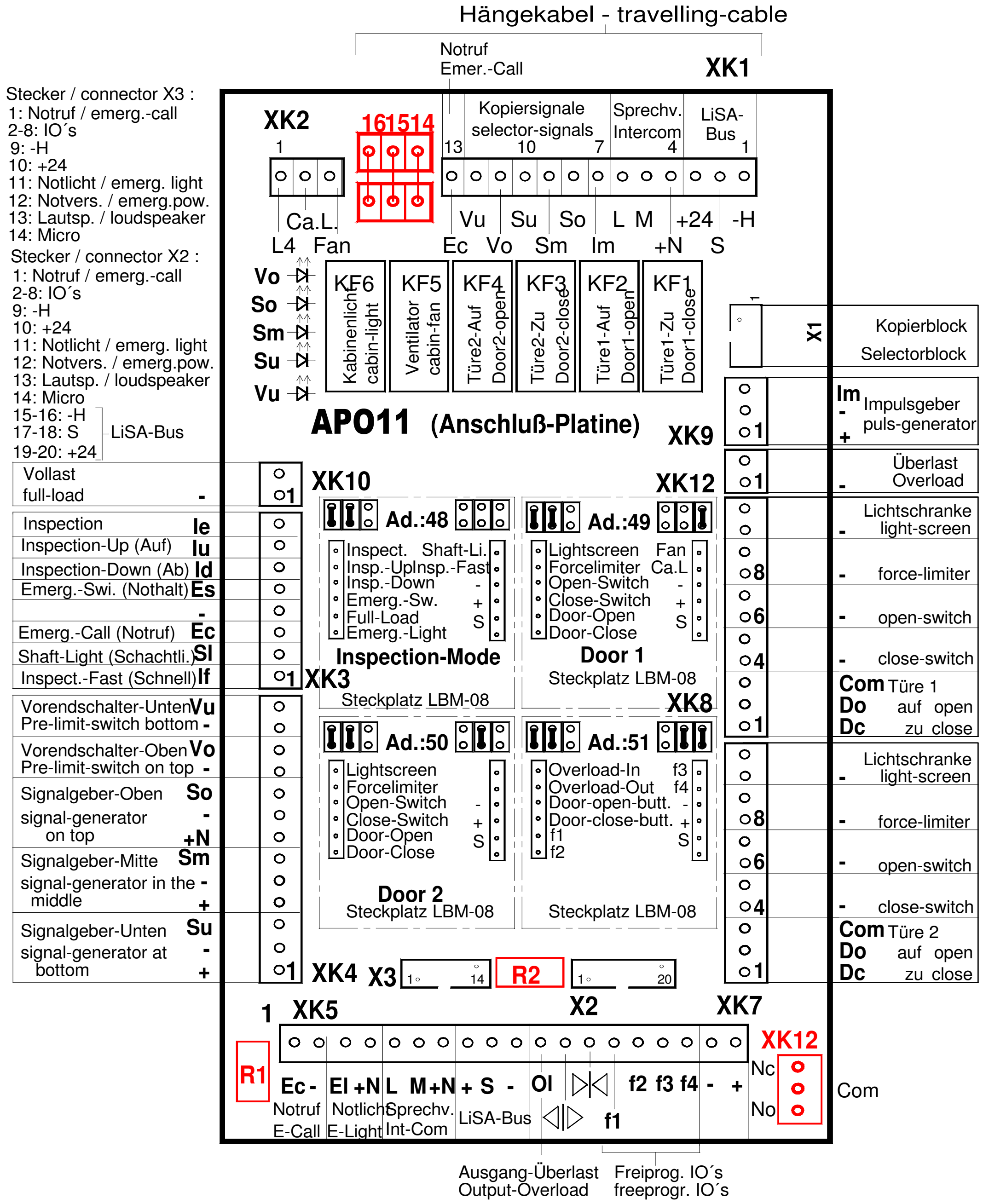
The APO-10 is the central board for all the connections on the car as well as a carrier board for four LBMs, 6 relays ad 5 LEDs.

Relay KF1: door close signal door 1 - connects the com signal (XK8.3) (switching voltage of an electronic door drive) with Dc (XK8.1)
Relay KF2: door open signal door 1 - connects the com signal (XK8.3) (switching voltage of an electronic door drive) with Do (XK8.2)
Relay KF3: door close signal door 2 - connects the com signal (XK7.3) (switching voltage of an electronic door drive) with Dc (XK7.1)
Relay KF4: door open signal door 2 - connects the com signal (XK7.3) (switching voltage of an electronic door drive) with Do (XK7.2)
Relay KF5: car fan - switches the light voltage L4 (XK2.1) to the fan output (XK2.3)
Relay KF6: car light - switches the light voltage L4 (XK2.1) to the Ca.L output (XK2.2)



3.1.7.2. Connection board APO-11/APO-12

The APO-11 / APO-12 is the advancement of the APO-10. The dimensions remain unchanged.

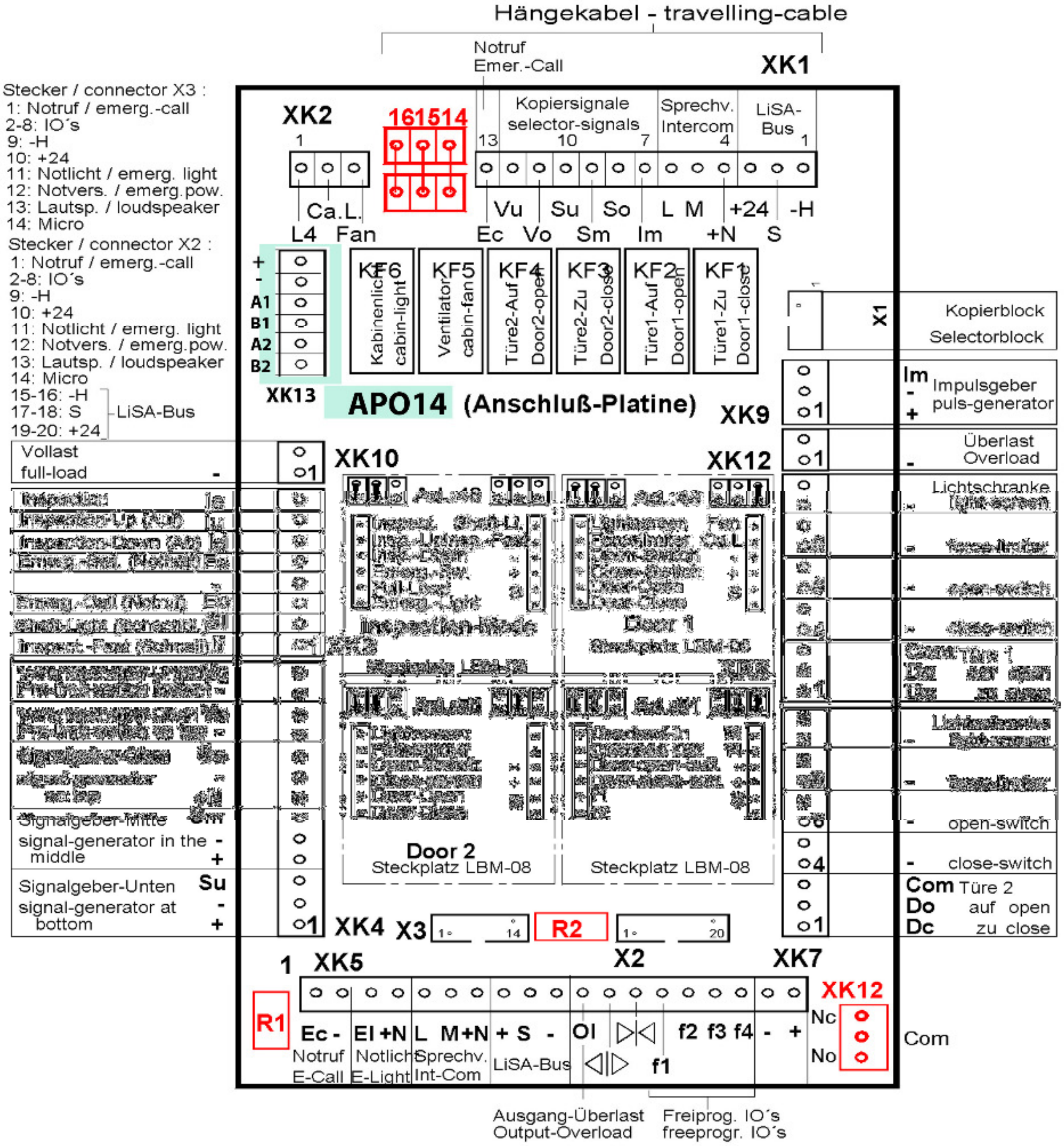


Changes compared to the APO10 (marked in red):

- Three additional travelling cable support clamps
- Emergency light relay R1 firmly installed on the APO11 (before on LF10)
- Optional relay R2 for an additional potential-free emergency message at plug XK12.

3.1.7.3. Connection board APO-14

The APO-14 is the development of the APO-12 introducing the absolute encoder system (AWG). The diodes to display the shaft selection had to make way for the edge connector XK13.
XK13 is the terminal block for the connection of the reading head of the absolute encoder system. The +-terminal has a 12V emergency power supply, in this way it remains functional even in case of power failure. The terminals A1, B1 receive the signals from the RS485 interface of the reading head. The terminals A2, B2 receive the RS485 signals of a second reading head, normally of a pre-reading head.



3.1.8. Connection board in the car panel (LF):

3.1.8.1. Connection board LF10

The LF10 is the light display board for the text field of the car panel.
Three additional slots for LiSA bus modules (LBM-9) are provided for the LiSA bus system.

When using the LiSA push button system, the plug X1 is normally connected to the alarm push button, door open and door close buttons, fan button, door stop button, key functions and possibly the first car push buttons.
All further push buttons can directly be plugged to the LBM-9 via ribbon cables.

X2 is the bridging connector to APO10 and additionally to the functions on the plug X1 it has been extended by the LiSA bus, i.e. APO10, 11, 12, 14 in the inspection box and LF10 in the car panel are always only connected using a 20-pin cable.

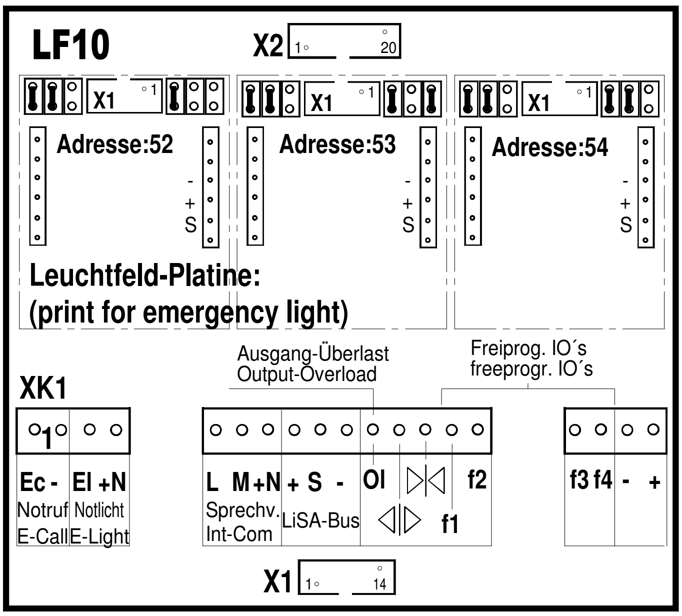
- When using push buttons from different manufacturers, the
- emergency call
- emergency light
- voice communication
- door open button
- door close button
- overload indication
- keys or signals at f1-f4

must conventionally be connected to XK1.

Landing buttons can directly be connected to the terminal screws of the bus modules.

Stecker / connector X1 :
1: Notruf / emerg.-call
2-8: IO´s
9: -H
10: +24
11: Notlicht / emerg. light
12: Notvers. / emerg.pow.
13: Lautsp. / loudspeaker
14: Micro

Stecker / connector X2 :
1: Notruf / emerg.-call
2-8: IO´s
9: -H
10: +24
11: Notlicht / emerg. light
12: Notvers. / emerg.pow.
13: Lautsp. / loudspeaker
14: Micro
15-16: -H
17-18: S — LiSA-Bus
19-20: +24



3.1.8.2. Connection board LF12

Note on the emergency call suppression:

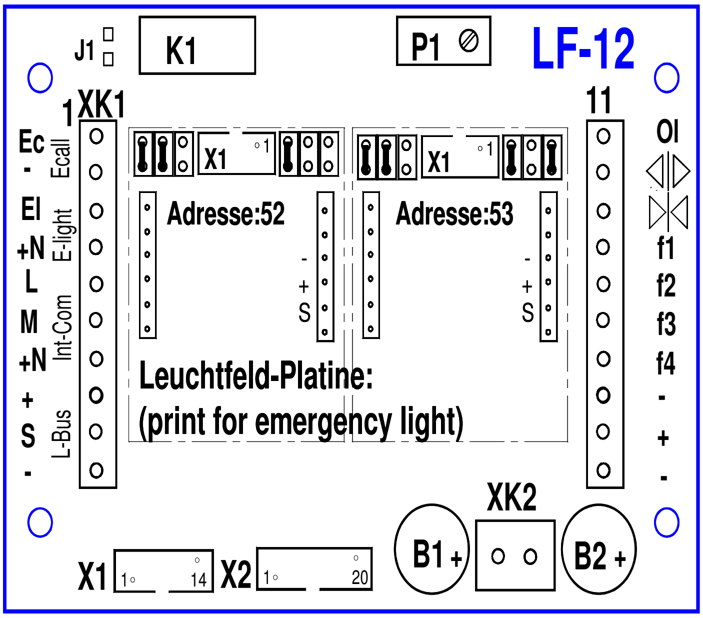
In the event of an unauthorised emergency call the relay K1 interrupts the connection to the alarm push button via the plug X1. If the alarm push button is connected to XK1.1 and XK1.2, the emergency call is not suppressed.
By default, K1 is activated via the freely programmable IO f1, i.e. the parameter "Output Emergency Call Suppression" must be preset to 92.
If the emergency call suppression is not wanted, you must insert the jumper J1.

The overload buzzer B2 is internally connected to the overload output (XK1.11). If B2 is supposed to be used as a general acoustic signal, the parameter "Output Overload" normally set to 89 must be set to 0 and the parameter "Output Acoustic Signal" must be set to 89.

EN81-70 requires an acoustic confirmation of each push button actuation, even if its light is already on.
For this reason, the push button boards have been equipped with a separate output since April 2004. In order to avoid having to install one buzzer for each push button, these outputs can be linked and connected to the buzzer B1 via XK2. The volume can be adjusted via the potentiometer P1.

Stecker / connector X1 :
1: Notruf / emerg.-call
2-8: IO´s
9: -H
10: +24
11: Notlicht / emerg. light
12: Notvers. / emerg.pow.
13: Lautsp. / loudspeaker
14: Micro

Stecker / connector X2 :
1: Notruf / emerg.-call
2-8: IO´s
9: -H
10: +24
11: Notlicht / emerg. light
12: Notvers. / emerg.pow.
13: Lautsp. / loudspeaker
14: Micro
15-16: -H
17-18: S
19-20: +24
(15–20: LiSA-Bus)



Stecker / Connector XK1:

1, 2: Notruf / emerg.-call
3, 4: Notlicht / emerg. light
5: Lautsp. / loudspeaker
6: Micro
7: Notvers. / emerg.pow.
8: +24
9: S
10: -H
(8–10: LiSA-Bus)

11: Überlast-Ausg. / Overload-Outp.
12: Tür-Auf-Drücker / Door open push button
13: Tür-Zu-Drücker / Door close push button
f1: Eingang / Input
f2: Eingang / Input
f3: Eingang / Input
f4: Eingang / Input
(f1–f4: freiprogr. / free progr.)

K1 = Relais Notrufunterdrückung / relay supression emergency call
J1 = Jumper Überbrückung K1 / jumper brideging K1
B1 = Summer für akustische Quittung / sound for acoustic
P1 = Potentiometer für B1 / variable resistor for B1
B2 = Überlastsummer / overload sound
XK2 = Anschluß für akustische Quittung / connector for acoustic sound

3.1.9. Bus displays

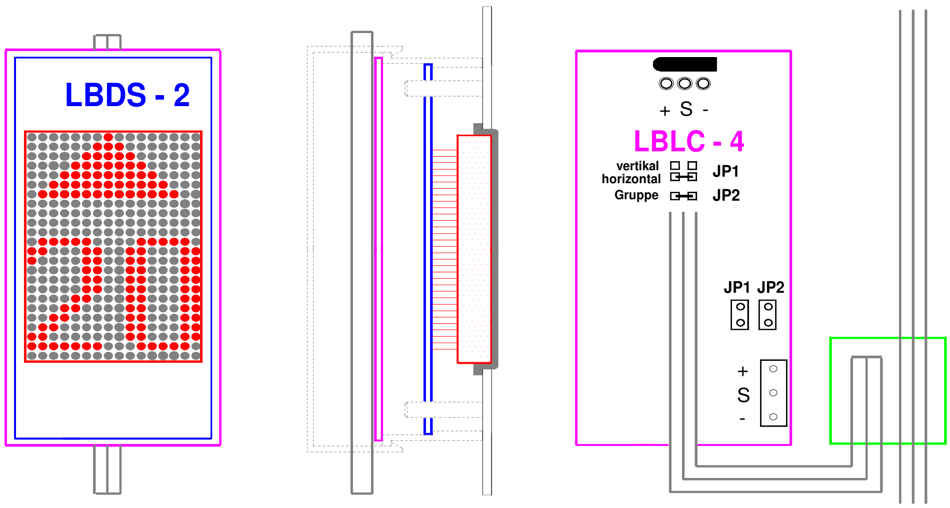
Different displays are available for the bus system. Bus displays are directly connected to the car and/or the landing bus.

3.1.9.1. LiSA bus display small DS1

LiSA display small (DS1) consisting of a sandwich component with
- **display control board (LBLC-4)** and plugged
- **LiSA display board (LBDS-2)**.

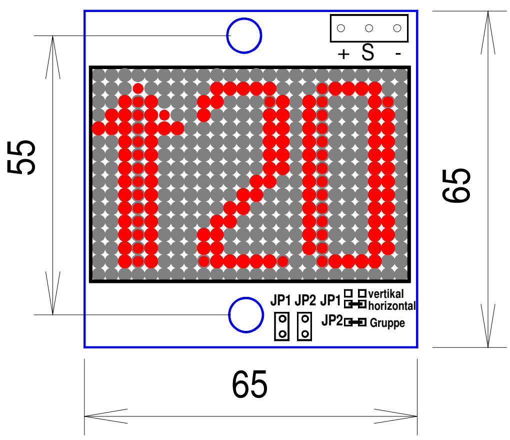
Display control board (LBLC-4):
In contrast to the LBLC-3 which contains the electronics for 8 IOs and for the small display, the LBLC-4 contains only the display electronics.
Contrary to the DS2 described in the following, the connection to the bus can be made using both the penetration technique and a terminal screw. Thanks to its width of only 48 mm (width of DS2 = 65 mm) it is designed to be installed in especially small door frames.
Provided that there is enough space (> 100 mm) it can also be installed in a horizontal position.

The following adjustments can be realised using two jumpers:
JP1: inserted in case of horizontal position
JP2: inserted if the display is intended for lift 2 / 4 / 6 / 8.



3.1.9.2. LiSA bus display small DS2

Contrary to DS1, the **LiSA bus display small 2 (DS2)** consists of only one board (LBC-4).
The required space for a horizontal position is only 65 mm.

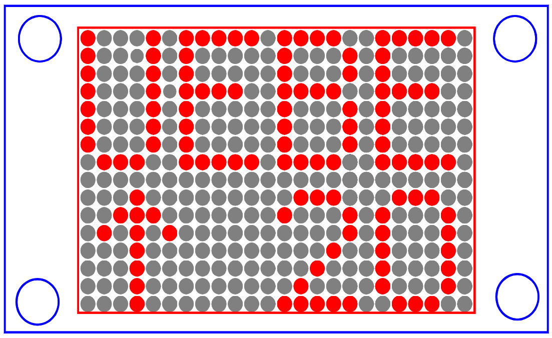


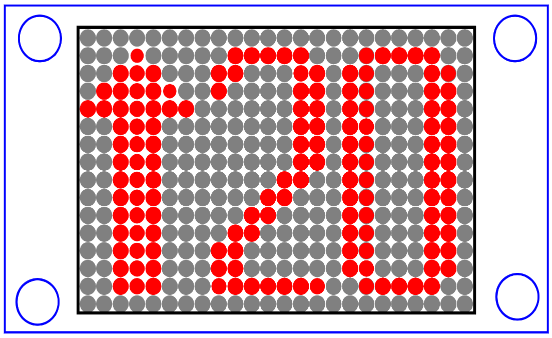
JP1: inserted in case of horizontal position
JP2: inserted if the display is intended for lift 2 / 4 / 6 / 8.

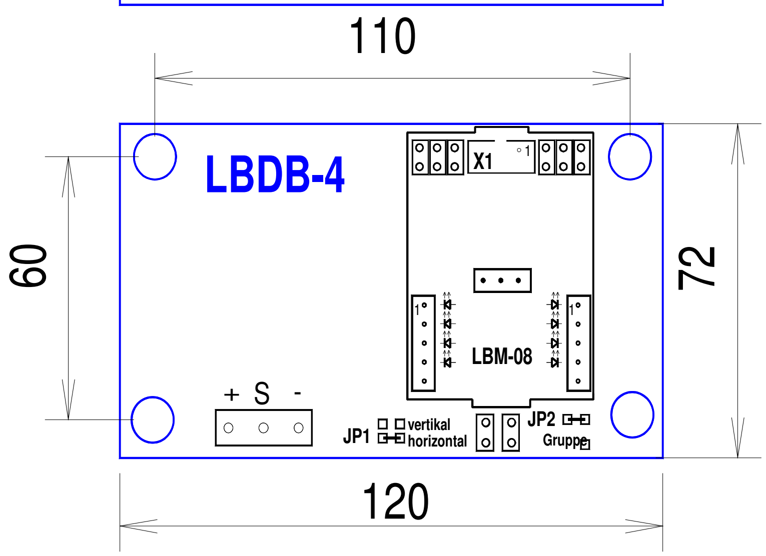
3.1.9.3. LiSA bus display big (LBDB):

The DB1 consists of the display board LBDB-4 or higher and the related plastic parts.

- Display size: 96x64 mm (24x16 dots)
- Component: 120x72x45 (LxWxH)
- 10 horizontal rolling texts
- Displayed pictures and texts can be adjusted directly via the keyboard of the LiSA main board or PC







JP1: inserted in case of horizontal position
JP2: inserted if the display is intended for lift 2 / 4 / 6 / 8.

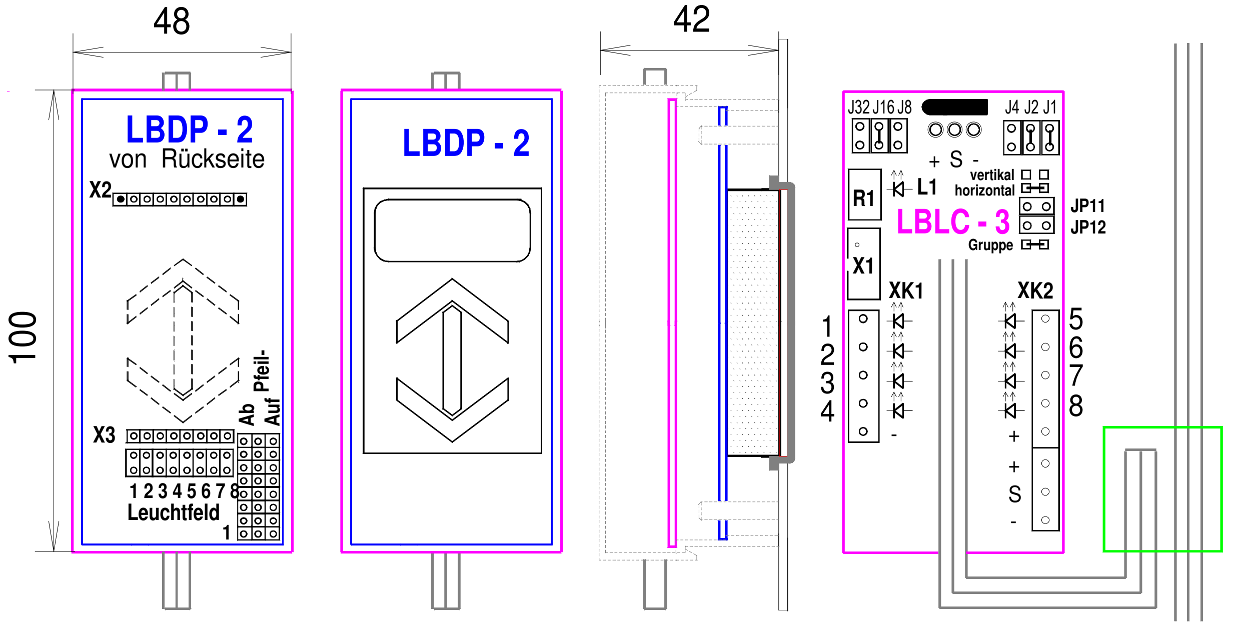
3.1.9.4. LiSA light module (LM2):

The LM2 consists of two electronic components (LBLC-3 and LBDP-2), located in a plastic housing.
However, the electronics on the LBLC-3 are not used for the matrix display.
There are two component versions of LBDP-2:

- LBDP-21: equipped with the plug terminals X2, X3 (connection to LBLC-3) and coding strips, as part of the light module LM2
- LBDP-22: equipped with X1 and XK1 for the conventional connection and coding strips, but used as an individual component - normally in systems without landing bus.

One coding strip each is provided for the text field and the direction arrows.
The light colour can be red, green, blue or white and depends only on the colour of the LEDs.
The text field is intended for the illumination of a random text or the company logo.

LM2 with light display board LBDP-21:

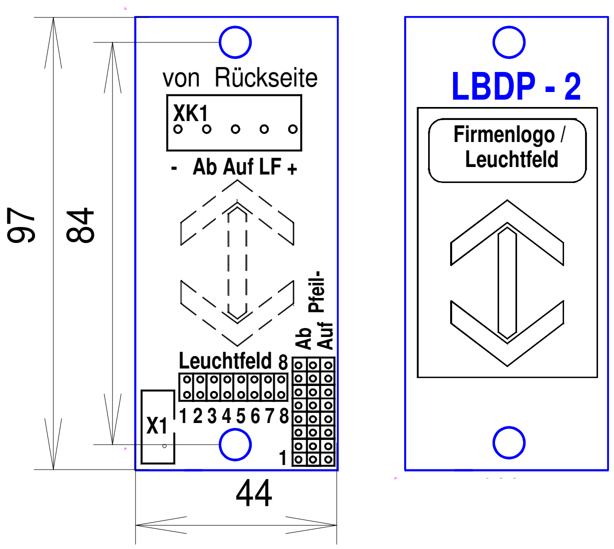


Light display (LF1) with light display board LBDP-22:

The LF1 consists of the board LBDP-22 and the related plastic parts.
There are two connection variants of the LF1:

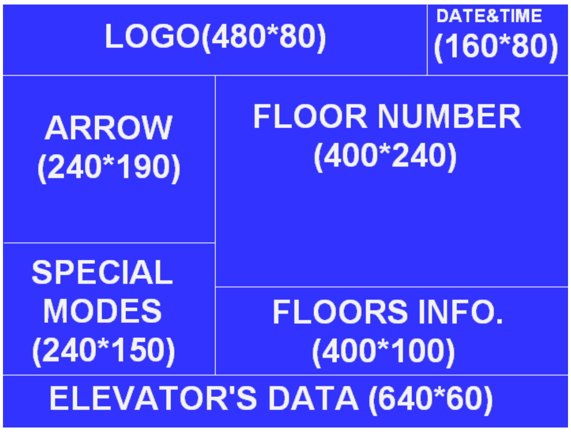
1st connection with plug or screw terminals to XK1 and
2nd connection via the ribbon cable plug X1, connection to the required wire by means of coding strips.

The text field can be used to display a random text, e.g. out of order, occupied, lift here, etc.
As an alternative you can also depict the company logo, if required even with backlighting.

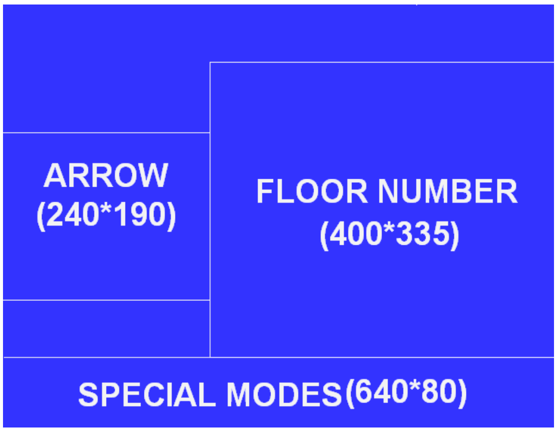


3.1.9.5. LiSA TFT display

The LiSA TFT display is a 5.7" full colour display with touch screen and a resolution of 640 x 480 pixels (VGA). It also contains a voice output and an arrival gong. The division of the screen is predefined. It varies depending on the use (car or landing display).



Car display screen division:



Landing display screen division:

Your own pictures or texts can be transmitted to the display via SD card or USB stick.
The TFT display offers the following display possibilities:

- any background over the entire screen
- date and time
- position indication
- direction indication
- additional texts for each landing
- special indications
- company logo
- indication of the lift nameplate (year of manufacture, loading capacity, factory number, CE marking)

There are the following activation possibilities:

- LiSA bus system
- conventionally (linear up to 10 landings, binary code, Gray code)

The following voltages and control potentials can be used:

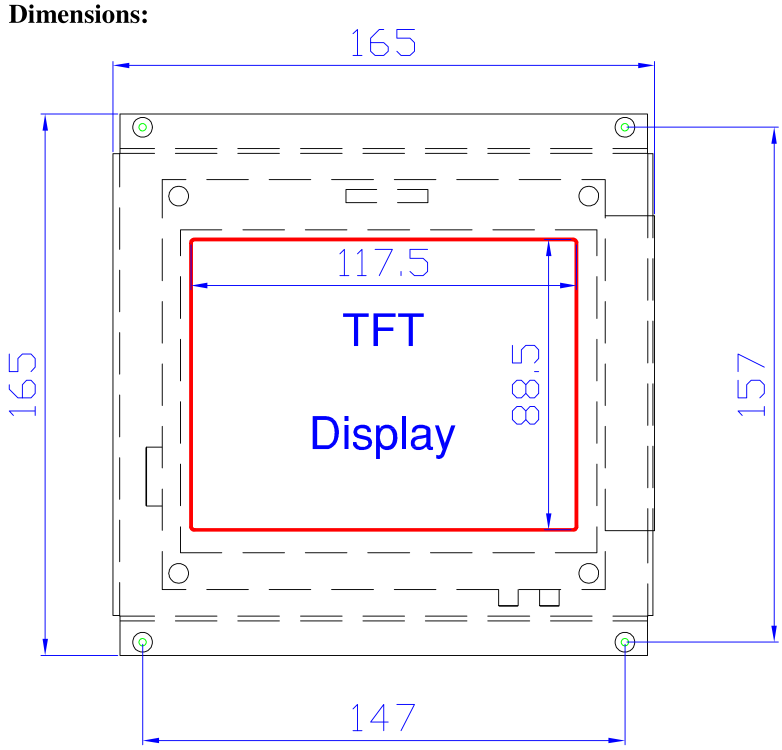
- 12 to 24 VDC
- pnp or npn selectable via jumper

There are the following connections:

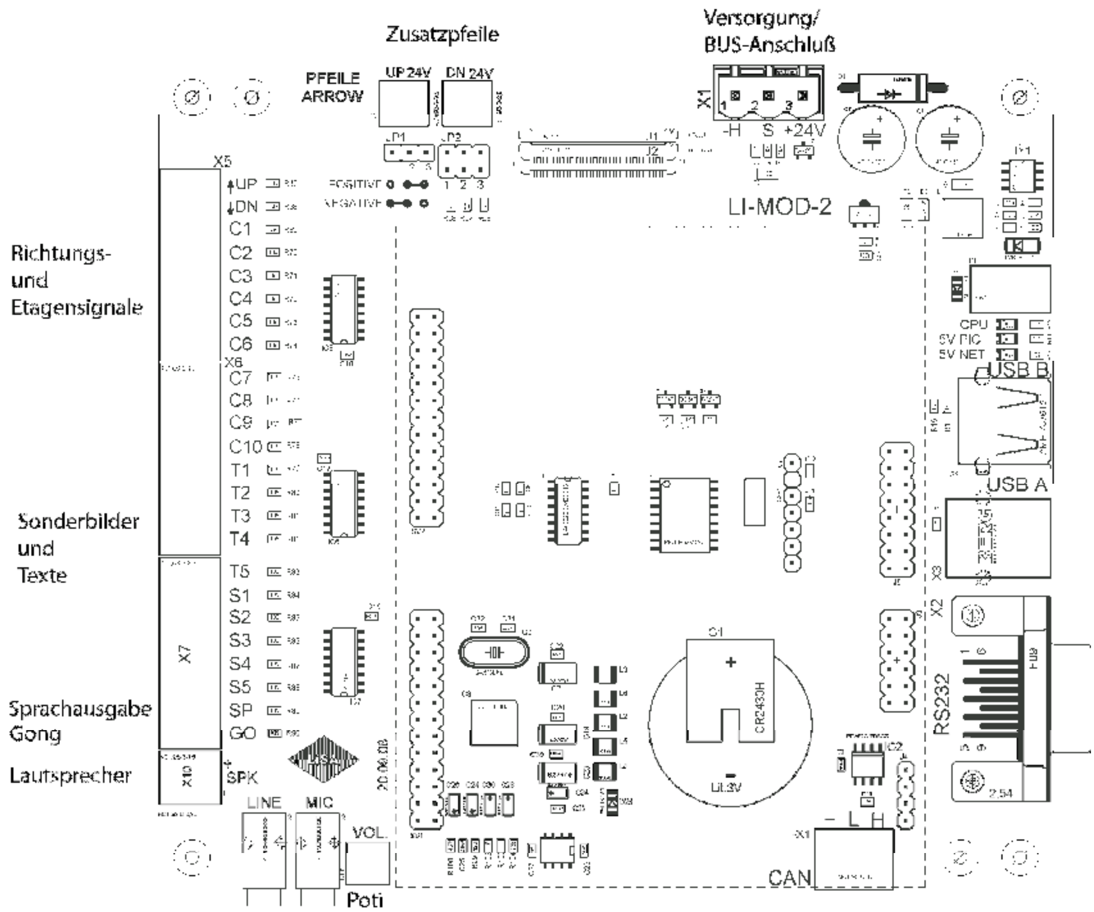
- LiSA bus or power supply
- USB A -> PC connection
- USB B -> memory stick
- RS232 (optional)
- 24 input terminals: UP, DO (down), C1 – C10 (landing selection), T1 – T5 and S1 – S5 (special pictures or special texts), SP (start voice output), GO (start gong)
- 6 output terminals: +SPK, -SPK (loudspeaker), UP/24V and DO/24V (for external direction arrows)
- CAN (only prepared)

A potentiometer for the volume adjustment is provided.

Dimensions:



Connections:



3.1.10. Further bus components

3.1.10.1. Bus voice output LBTG5

The bus voice output LBTG-5 has especially been designed for the installation on the LiSA bus. It can only be operated there. In addition to the landing texts you can also realise an arrival or door open gong.

3.1.10.2. Bus voice output LMP-3

The LiSA voice output LMP3 replaces the bus voice output LBTG used so far as well as the voice outputs Unitext and SPC used for the conventional connection.
The voice output is characterised by a noiseless text output due to the use of MP3 files. A further improvement is the uncomplicated transmission of the MP3 files from a 1 GB microSD card (max. 2 GB).
The voice output features a loudspeaker connection. As an alternative you can connect an external amplifier via the pin terminals AGND, GBUF, L, R.

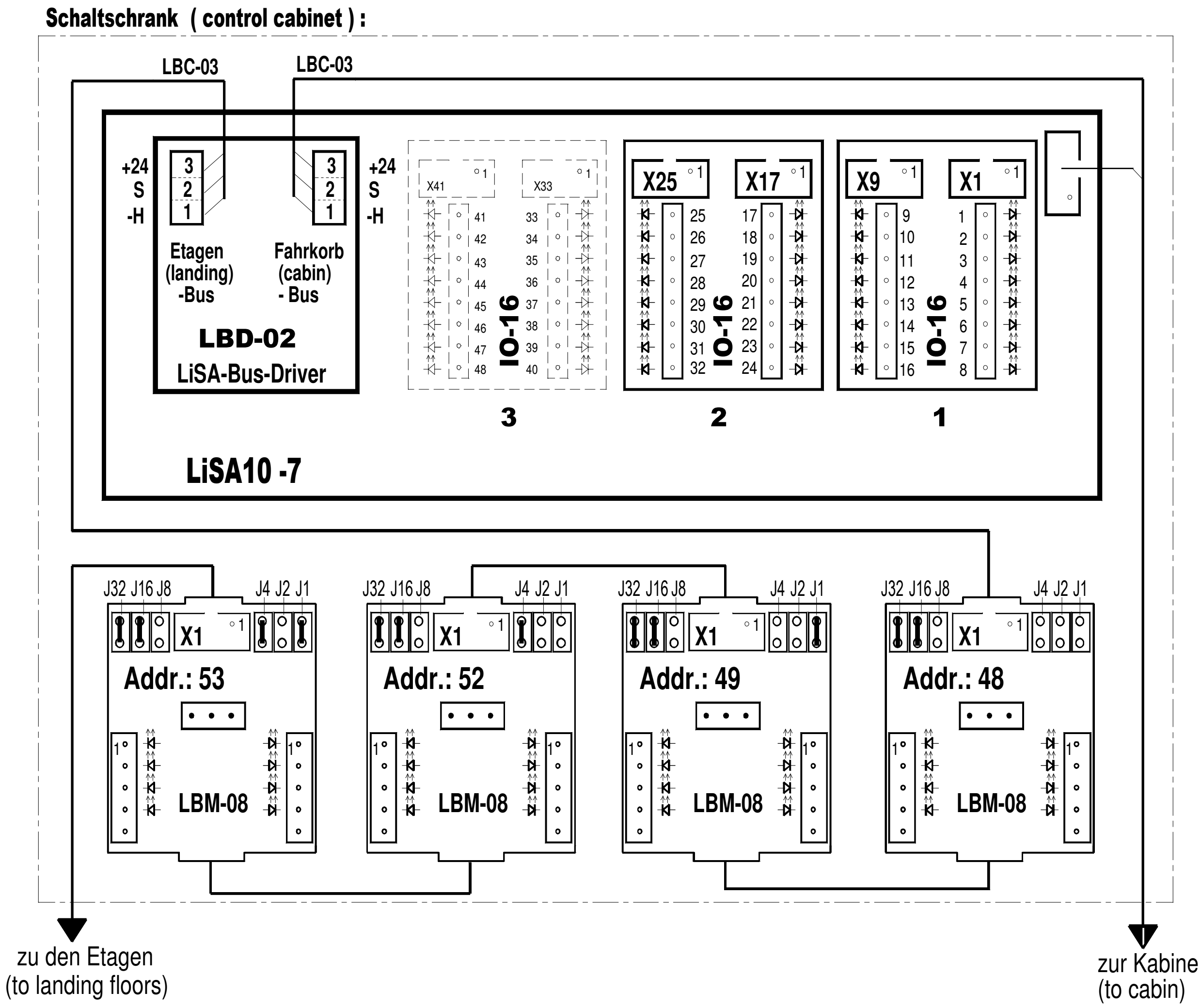
Activation optionally via LiSA bus or by means of conventional terminals using the linear, Gray or binary code. For this there are 24 terminals for the landing signals, 2 for direction-dependent arrival gongs and 6 for special texts.
The maximum number or duration of the texts is limited by the memory capacity of the microSD card. An average text requires approx. 50 KB memory.
The texts are read from the microSD card. The recording is done by saving the MP3 files on the microSD card.
By means of buttons you can change the operating mode and listen to the texts.
A jumper allows for the change of the control logic (npn/pnp).
LEDs for displaying the bus status and the operating mode are provided.

For detailed information please refer to the LiSA user manual "voice output LMP-3" which you can download from our website www.lisa-lift.de under downloads/manuals.

3.2. Bus versions:

No matter which bus version is selected, you can still use IO16 boards. If the LBM-08 and IO16 are "over each other" regarding the addressing, the IOs are operated in parallel.

Connection example in the control cabinet (see the following picture):
IO distribution:
IO1 - IO8 on module (addr. 48) and IO16 - 1
IO9 - IO16 on module (addr. 49) and IO16 - 1
IO17 - IO24 on IO16 - 2
IO25 - IO32 on IO16 - 2
IO33 - IO40 on module (addr. 52)
IO41 - IO48 on module (addr. 53)



The LiSA bus can be configured via a new parameter in the parameter set General Elevator Parameters (000*).

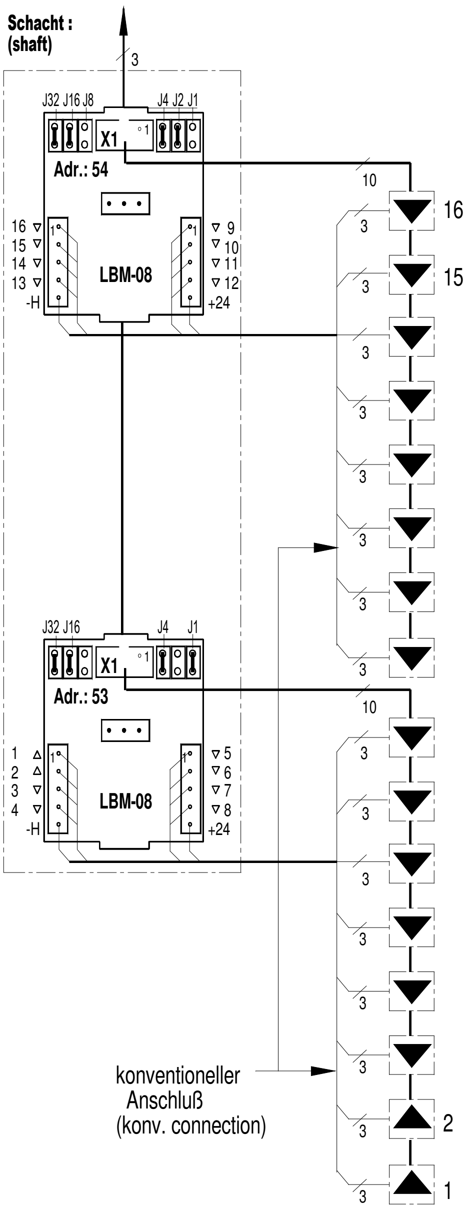
LiSA bus (No/sLBus/LBus/CBus/sL+CBus/L+CBus (0..5)):

- ➔ *(0): without LiSA bus*
- ➔ *(1): sLBus: small LiSA landing bus – max. 64 IOs together like on I/O boards, i.e. max. 8 LiSA bus modules (LBM) connected*
- ➔ *(2): LBus: LiSA landing bus – like sLBus, but additionally on each floor one LiSA bus module*
- ➔ *(3): CBus: LiSA bus to the car - the LiSA bus modules are in the inspection box or car panel (use of the APO10/11/12 or 14)*
- ➔ *(4): sL+CBus: like sLBus, but additional LiSA bus to the car*

(5): L+CBus: like Lbus and cBus together

3.2.1. Small LiSA landing bus: (sLBus)

- ➔ *(1): sLBus: small LiSA landing bus – max. 64 IOs together like on I/O boards, i.e. max. 8 LiSA bus modules (LBM) connected*



In case of the small landing bus the function distribution to the IO addresses is analogous to the one when I/O boards (IO-16) are used.

- The sum of all available IOs is 64, i.e. only 8 LBC can be connected to the landing bus
- The IO address range is 1 - 64.
- The module addresses of the LBC begin with 48 and end with 55.

Address distribution:

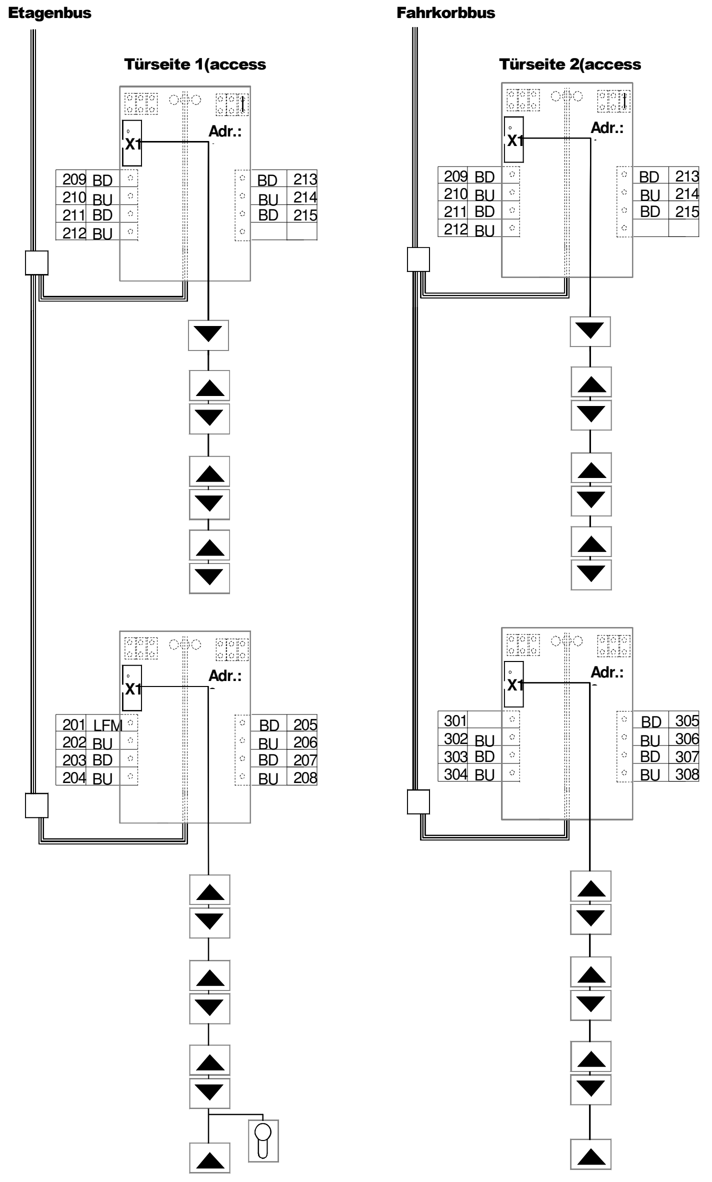
Module 48: IO1 - IO8	Module 49: IO9 - IO16
Module 50: IO17 - IO24	Module 51: IO25 - IO32
Module 52: IO33 - IO40	Module 53: IO41 - IO48
Module 54: IO49 - IO56	Module 55: IO57 - IO64

Application example:
1. output inverter signals = 1 -> output via module 48
fire input = 9 -> connection to module 49, IO1
evacuation travel input = 10 -> connection to module 49, IO2
1. hall button door side 1 = 41 -> connection to module 53

Note: As already mentioned all the IOs in the control cabinet can also be connected to IO16 boards.

Changes to the small LiSA landing bus

- ➔ *(1): sLbus: small LiSA landing bus – max. 100 IOs together like on I/O boards, i.e. max. 12 LiSA bus modules (LBM) or landing modules can be connected*
- ➔ *(4): sLBus+cBus: like sLBus, but additional LiSA bus to the car*



In case of the small landing bus the function distribution to the IO addressesis analogous to the one when I/O boards (IO-16) are used, i.e. they are strung together.

- The sum of all available IOs for the door side 1 is 96, i.e. 12 LBM or 12 landing modules can be connected to the landing bus.
  The IO address range is between 201 - 296.
- The sum of all available IOs for the door side 2 is also 96.
  The IO address range is between 301 - 396.
- The module addresses begin with 0 and end with 11.

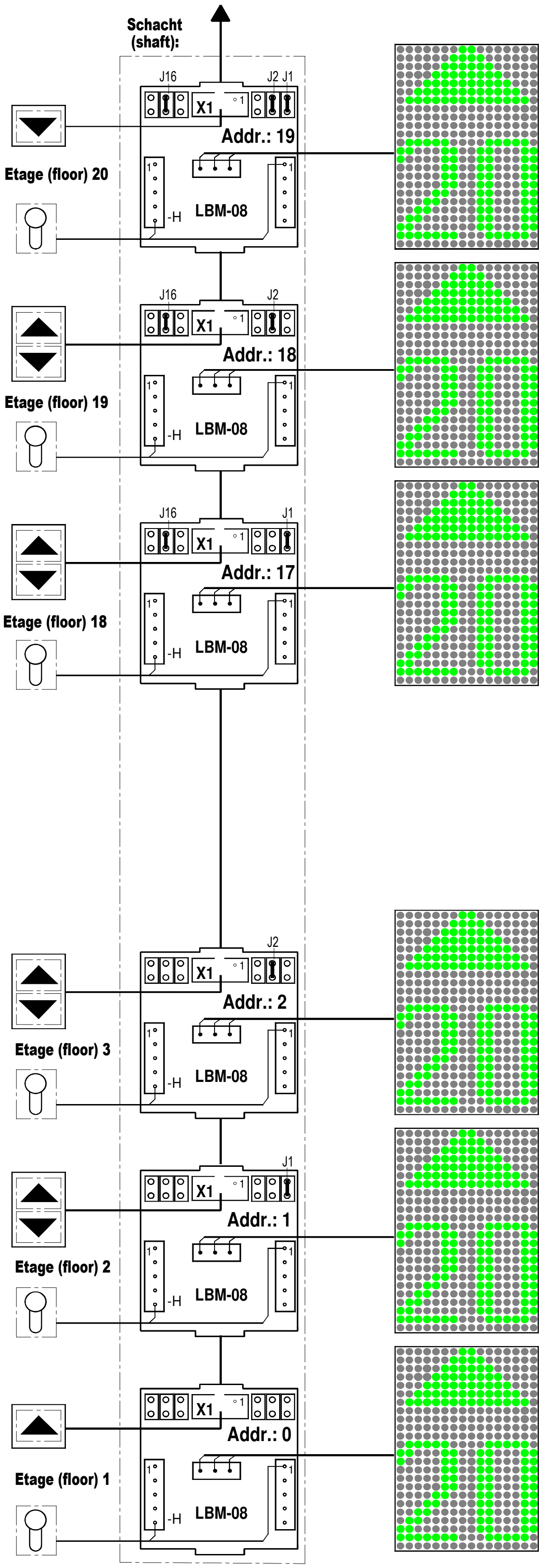
Address distribution on door side 1:
Module 0: IO201 - IO208
Module 1: IO209 - IO216
Module 2: IO217 - IO224
Module 11: IO289 - IO296
Address distribution on door side 2:
Module 0: IO301 - IO308
Module 1: IO309 - IO316
Module 2: IO317 - IO324
Module 11: IO389 - IO396

Application example:
Firemen mode input = 1
-> connection to landing bus module 0
1st hall button door side 1 = 202
-> connection to landing bus module 0.
1st hall button door side 2 = 302
-> connection to landing bus module 0.

Note: IO1 - IO48 are available via IO16 boards in the control cabinet

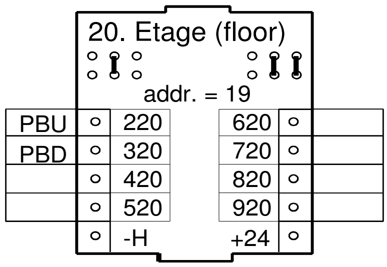
3.2.2. LiSA landing bus: (Lbus)

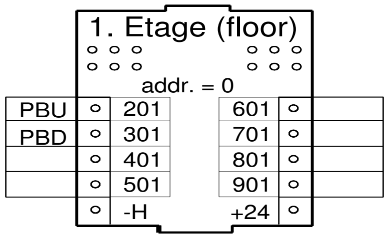
➔ *(2): LBus: LiSA landing bus – like sLBus, but additionally on each floor one LiSA bus module*



Different from the small LiSA landing bus in which the range of functions and realisation in the control cabinet is analogous to the "normal" LiSA landing bus, this version has a bus module (LBM-08) installed on each floor.
The module address range is between 0 and 47, making a maximum of 48 landings possible.
The assignment of the functions to each one of the 8 IOs on the bus module is realised according to the following addressing scheme:

Module on floor 20:
open push button: 220 down push button: 320
1. freely progr. IO: 420 2. freely progr. IO: 520
3. freely progr. IO: 620 4. freely progr. IO: 720
5. freely progr. IO: 820 6. freely progr. IO: 920

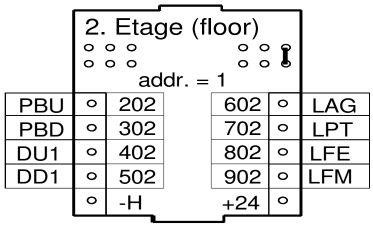




Module on floor 1:
open push button: 201 down push button: 301
1. freely progr. IO: 401 2. freely progr. IO: 501
3. freely progr. IO: 601 4. freely progr. IO: 701
5. freely progr. IO: 801 6. freely progr. IO: 901

Example: In landing 2 there should be the travel (continuation) indicator, the arrival gong, the priority travel key, the fire emergency input and the firemen mode landing key.
Parametrisation:

- *Travel continuation direction for car 1 = 401*
- *Arrival gong for car 1 = 601*
- *Priority travel in all landings = 701*
- *Fire emergency travel to landing 2 = 802. (fire emergency landing = 2)*
- *Firemen mode travel to landing 2 = 902*



PBU = Drücker - Auf
PBD = Drücker - Ab
DU1 = Weiterfahrt - Auf für Lift 1
DD1 = Weiterfahrt - Ab für Lift 1
LAG = Ankunftsgong in Etage
LPT = Vorzugsfahrt in allen Etagen
LFE = Brandfall in Etage 2
LFM = Feuerwehrfahrt - Außen

3.2.3. LiSA car bus: (Cbus)

- ➔ *(3): cBus: LiSA bus to the car - the LiSA bus modules are in the inspection box or car panel (use of the APO10 or higher)*
- ➔ *(4): sLBus+cBus: like sLBus, but additional LiSA bus to the car*
- ➔ *(5): Lbus+cBus: like Lbus and cBus together*

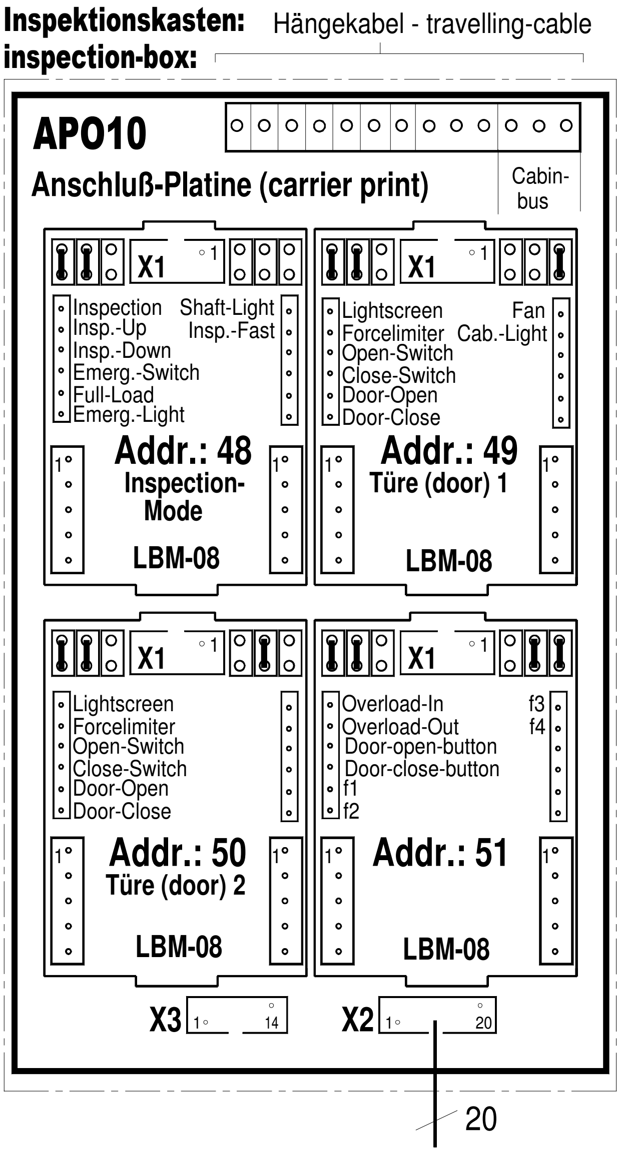
Depending on the number of bus modules, there are 96 IOs available in the car (IO65 - IO160). The total number of bus modules to be connected in the car is 12.
4 bus modules with the addresses 48 to 51 can be plugged to the connection board APO10 in the inspection box and 3 modules (addresses 52 - 54) to the light display board LF10. Whereas the IOs on the light display board are freely programmable, the ones on the APO10, except for the module 51, are dedicated.
Dedicated IOs (not parametrisable):

LBM-08 with addr. 48:
IO65: input - inspection travel
IO66: input - inspection up
IO67: input - inspection down
IO68: input - inspection panel emergency stop
IO69: input - full load
IO70: output - emergency light
IO71: input - shaft light
IO72: input - inspection fast

LBM-08 with addr. 49:
IO73: input - photoelectric barrier door 1
IO74: input - closing force limiter door 1
IO75: input - door open contact door 1
IO76: input - door close contact door 1
IO77: input - door open command door 1
IO78: input - door close command door 2
IO79: output - switch car fan relay
IO80: output - switch car light relay

LBM-08 with addr. 50:
IO81: input - photoelectric barrier door 2
IO82: input - closing force limiter door 2
IO83: input - door open contact door 2
IO84: input - door close contact door 2
IO85: input - door open command door 2
IO86: input - door close command door 2
IO87: not used
IO88: not used

LBM-08 with addr. 51:
IO89: input - overload
IO90: output - overload
IO91: input - door open button door 1 / 2
IO92: input - door close button
IO93: freely programmable IO
IO94: freely programmable IO
IO95: freely programmable IO
IO96: freely programmable IO



Parametrisation example for 16 landings:

Module 51: Fan push button = 93

Firemen mode car key = 94

Priority travel car key = 95

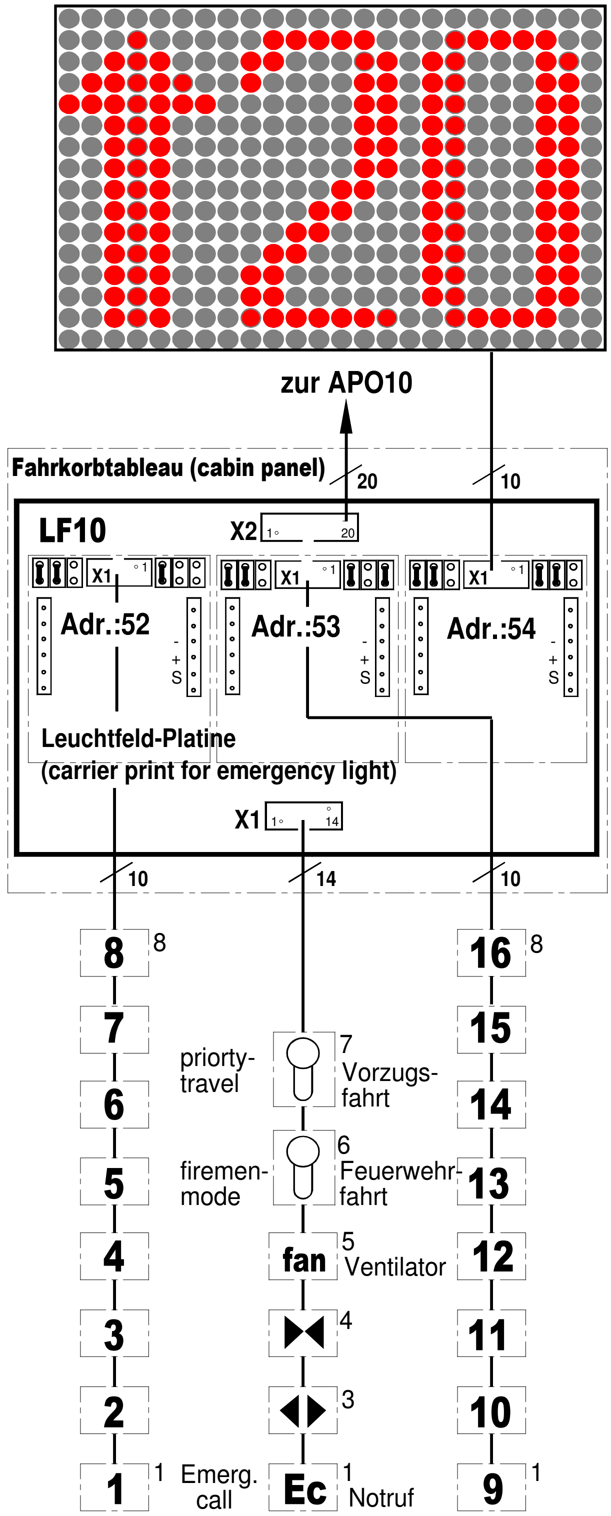
Arrival gong output = 96

Module 52: 1. Car button door side 1 = 97

Module 54: Activation of a display (if no LiSA bus display is used):

Output - travel direction up in car = 113

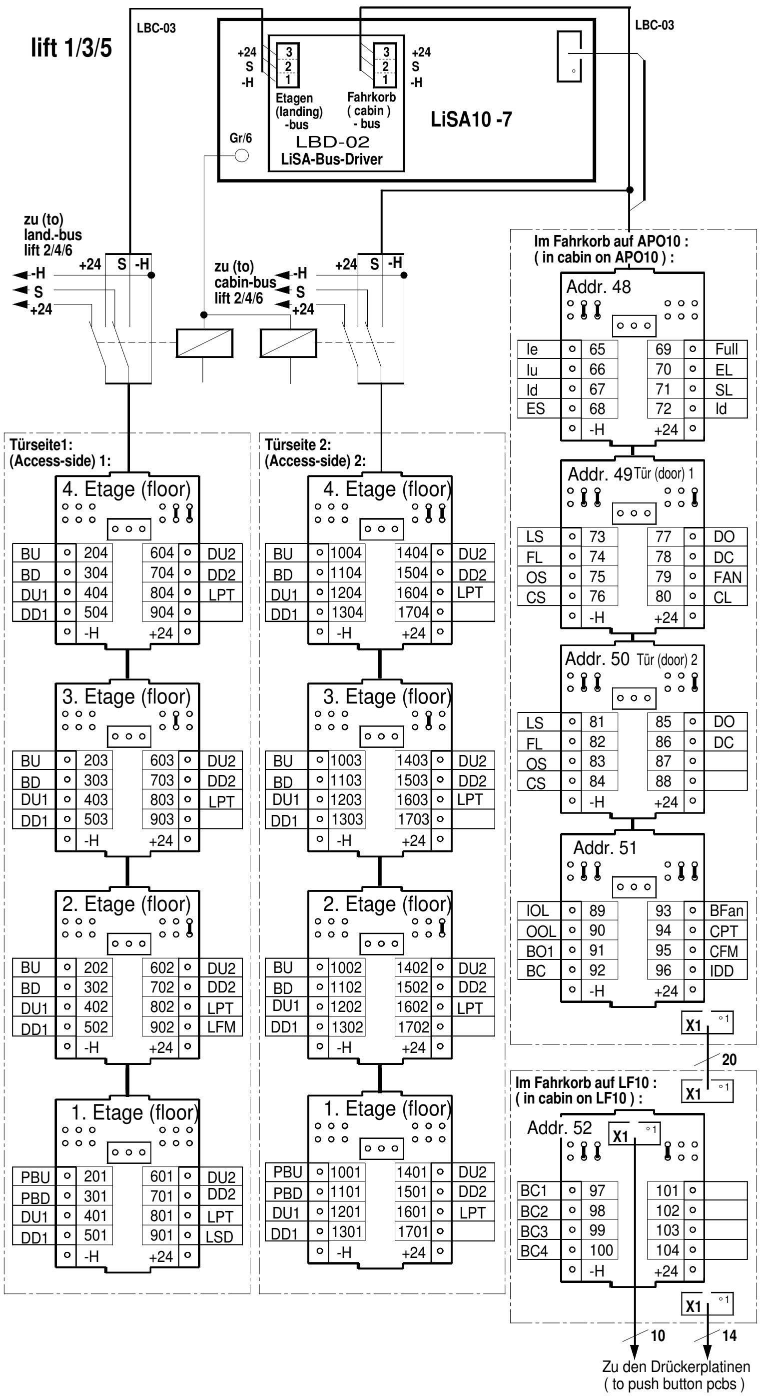
1. Output - Gray code in car = 115



3.2.4. LiSA bus in a group with an example.

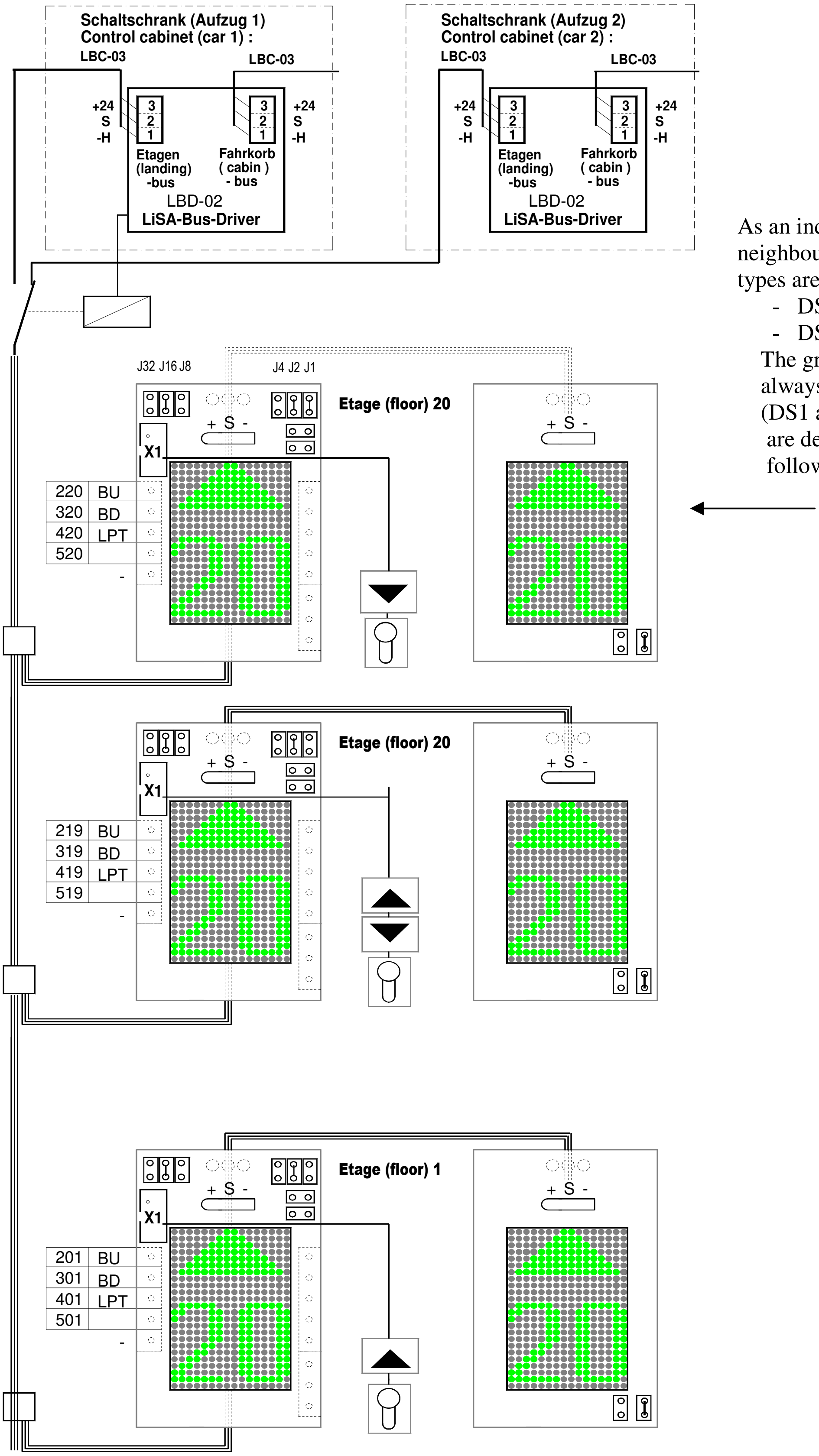
In group systems, the lift with the odd number usually operates the landing bus.
When reading the error memory or when parametrising, no IO (nor the landing or car bus) are read. The same applies when the system is switched off.
In order to read the bus of the neighbouring lift, the system must switch to it.
This is done via the output Gr/6 (bottom left on LiSA10-7). On this output there is one relay for the landing bus and, in the case of a selective landing door control, a second relay for the part of the car bus to which the bus modules for door side 2 are connected.

Example: Lift group with 4 landings, 2 selective door sides, with travel continuation or direction indication for neighbouring lift (= car 2)



BU = landing button up
BD = landing button down
DU1 = car 1 direction up
DD1 = car 1 direction down
DU2 = car 2 direction up
DD2 = car 2 direction down
LPT = landing priority travel
LFM= landing firemen mode
LSD = landing shut down
Ie = Inspection travel
Iu = inspection travel up
Id = inspection travel down
Ie = Inspection travel
Es = input emergency stop
Full = input full load
S1 = input shaft light
If = input inspection fast
Ls = photoelectric barrier
F1 = closing force limiter
OS = door open limit switch
CS = door close limit switch
DO = door open command
DC = door close command
FAN = output fan
CL = output car light
IOL = input overload
OOL = output overload
BO1 = button door 1 open
BC = button door close
BFan = fan button
CPT = car priority travel
CFM = input firemen mode (car)
IDD = input partition door
BC1 = car button landing 1
BC2 = car button landing 2
BC3 = car button landing 3
BC4 = car button landing 4

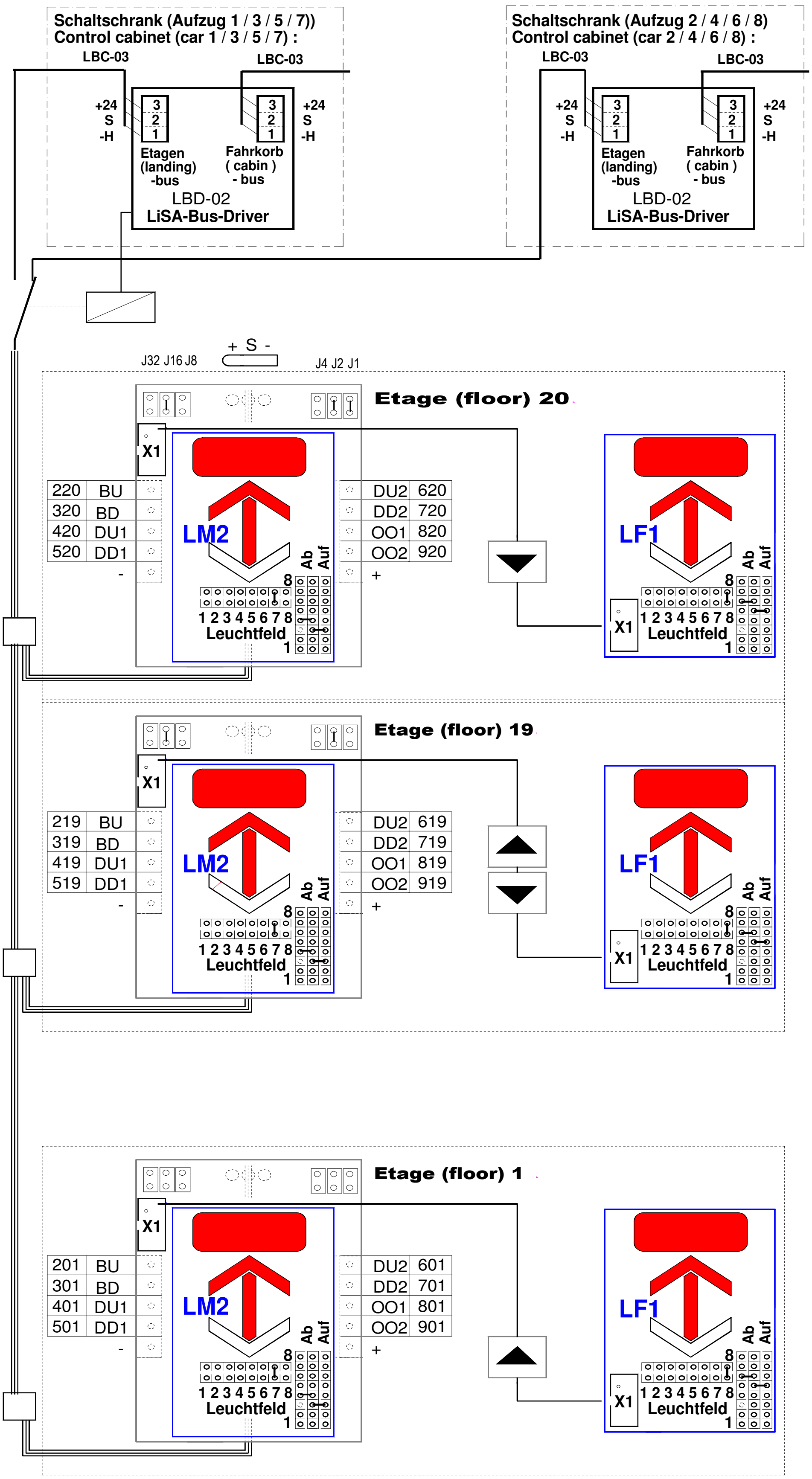
Ansteuerung der Anzeige für den Nachbar-Aufzug in der Gruppe:



As an indication for the neighbouring lift 3 different types are used:
- LM1
- DS1
- DS2

The group jumper must always be inserted. (DS1 and DS2 are described in the following)

Example for light modules in a group:



3.3. Hardware coding

On request it is possible to deliver all LiSA bus components with an individual hardware code (= bus code).
This refers to the following components:

- main board LiSA10-7 or higher
- LiSA bus driver LBD
- LiSA bus module LBM
- LiSA bus controller board LBLC
- LiSA bus controller board LBLC (for display DS1)
- LiSA bus display LBDS
- LiSA bus display LBDB
- LiSA bus gong LBG
- LiSA bus voice output LBTG, LMP

Company Code

Before the delivery the mentioned components are provided with the bus code and labelled with a yellow sticker.

This coding shall provide a substantial protection against loss when servicing the system.

Protection mechanism:

- Only components with the same bus code cooperate.
  If the code in the LiSA10, for instance, is different from the one in the LiSA bus driver LBD, the LiSA display cyclically shows the message "driver code <> bus code" and the data interchange between these components is stopped until you use components with the same code.
  The controller boards LBM, LBLC-3 and LBLC-4 are equipped with an operation LED (L1) which flashes quickly if the code is different from the one in the driver. The cooperation is stopped until you use the right components.
  On the LiSA display the corresponding module is marked with an "x" in the IO assignment indication.
  In the event of an error, the displays DS1, DS2 and DB1 do only display a small "x".
  BG1 and SP1 cease their operation.
- Schneider and Klinkhammer and authorised affiliated companies deliver coded components with the corresponding company hardware code only upon written order indicating the customer ID.

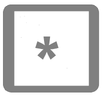
Note: The LiSA10-7 main board has a double protection, as the bus code is additionally stored in the parameter EEPROM.
If the system is bus-coded, the software company code can no longer be changed using the known supervisor code, but only by the mentioned companies.
On request our customers can also receive their own deletion code in order to unlock the system - only referring to the software code. This is important if the system maintenance is outsourced.
The hardware code will remain unaffected. This means that coded spare parts can only be obtained from the installation company of the system or, with their consent, from the controller manufacturer.

4. Description of LiSA functions

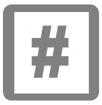
4.1. Functions

All functions are included in one single programme version. As a general rule, all the previous functions remain available when extending the range of functions, i.e. old programme versions may always be replaced by newer ones.
The activation of all functions is possible using the keyboard integrated in the controller, a handheld terminal or, more conveniently, using the PC (laptop/notebook).

LiSA keyboard:



Command entries are confirmed and you can go from parameter to parameter during parametrisation using the *-key.



The #-key serves to cancel any entry. If you shortly press the #-key during parametrisation you scroll back and if you press it for longer you jump to the end of the parameter block.

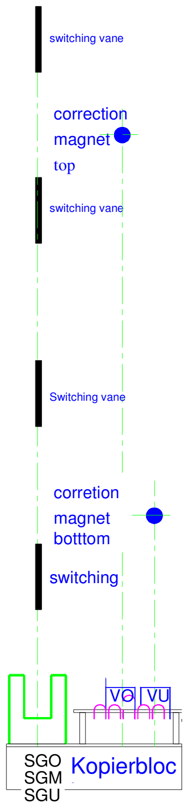
☞ Note: The LiSA display is described in the manual B3.2.

4.1.1. Shaft selection

In the following, "shaft selection" refers to counting the landings, initiating the deceleration and stopping (levelling of the system).
There are 4 alternative methods:

- the timing method
- the fixed-point method
- the pulse method and
- the use of the LiSA absolute encoder.

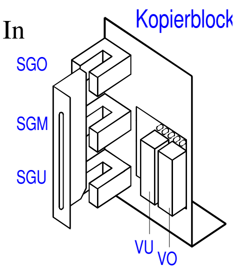
The alternative methods refer to the different way of initiating the deceleration and stopping.
Required installation for the timing method and the pulse method:



In the shaft:

- One metal rail per landing with a length of 10 - 40 cm (standard = 20 cm) or magnets able to generate a zone of the same length.
- In the top and bottom correction position one magnet each. They must be placed at the usual interval depending on the travel speed so that the car always reaches its creeping velocity when it enters the last zone (except for the direct approach).

In



the car:

- One inductive proximity switch / magnetic switch (= centrical inductor switch - SGM) to generate the counting pulses.
- Two bistable magnetic switches for the slow-down switch function (correction).
- In addition 2 inductive proximity switches / magnetic switches (top inductor switch - SGO and bottom inductor switch - SGU) are required when approaching or relevelling with open doors.

The application of the pulse method is based on counting a pulse sequence. The pulses can come from the incremental encoder of the drive or tap on the control / inverter or from a distance measurement system (e.g. LiSA encoder).
The encoder input on the LiSA10 board is able to process pulse sequences with a frequency of up to 100 kHz with levels <= 3.5 V.
e.g.: Encoder with 1024 pulses / revolution, rated motor speed = 1380 RPM:
Pulse number = 23 revolutions per second * 1024 ~ 23 kHz

4.1.1.1. Timing method

The timing method described in the following is only described for the sake of completeness, as it has widely been replaced by the pulse method. The timing method is only used for systems with 2 landings or with a Dynatron controller / inverter where the shaft selection is done via magnets in the shaft.
Whenever the pulse processing does not work for whatever reason (e.g. defective encoder), you can fall back on the timing method.

The deceleration and braking time is determined by a previously calculated or set time.
A TeachIn run serves to determine the distances between the landings and the upward and downward speed. The required deceleration distances, i.e. the upward and downward deceleration distance, must be determined by testing.
Deceleration:

☞ Important note: You must absolutely distinguish between long-distance travels and travels between landings.

- Long-distance travel:
  Calculate the landing at which a time (Tv) is started after the course of which the system switches to slow velocity. Normally it is the landing before the destination landing.
  In case of short landing distances or high speeds this landing can be several landings away from the destination.
  Deviating from this method, the deceleration for the final landing is initiated at the latest when receiving a signal from a slow-down switch.
- Landing-to-landing travel:
  In order to travel between the single landings, you must specify the time for which the car is supposed to go at high speed after leaving the zone. This is done with the parameter "fast landing travel"
  .The final value must be determined by testing, the same value applies to landings with an equal distance.

Braking:
In the case of rope traction lifts, the upwards or downwards deceleration time is started as soon as the centrical inductor switch enters the zone.
In the case of hydraulic lifts, this is done by the lower inductor switch when travelling upwards and by the upper inductor switch when travelling downwards.
The response after the course of this time depends on the lift type.
Rope traction lifts: Switching off the contactors.
Hydraulic lifts:
Travelling downwards: switching off all the contactors.
travelling upwards: without a follow-up function: switching off all the contactors
with valve follow-up: switching off the up-contactor and starting the follow-up time
with motor follow-up: switching off the motor follow-up relay and starting the follow-up time.
When the follow-up time has elapsed, all the contactors are switched off.
Frequency-controlled rope traction lifts:
Switching off the V0 relay and starting the "cut-off delay".

4.1.1.2. Pulse method

During a TeachIn run, the distances between the single landings, the deceleration and braking distances and the pulse contacts are determined.
The deceleration and braking time is determined by a certain number of pulses serving to load a counter. If the counter is at 0, the corresponding action, i.e. deceleration or braking, is effected.
That landing (initialisation landing), in which this counter is loaded with the corresponding value, is determined as with the timing method.
Deceleration:
See description of long-distance travels using the timing method.
Travels between landings are effected like long-distance travels.
Lift systems which can be operated at different speeds have different deceleration distances. They can be parameterised separately. (See parameter set "travel times / pulse").
Braking:
The braking process (loading the counter) is started as soon as the centrical inductor switch enters the zone. Then the procedure is like described for the timing method:

4.1.1.3. Fixed-point method

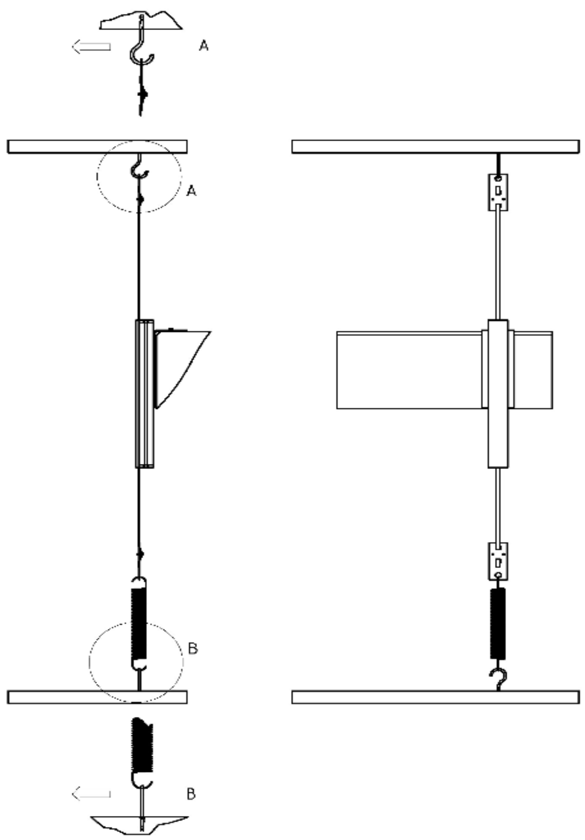
Like the timing method, the fixed-point method is only explained for the sake of completeness, as it is hardly ever used due to the higher installation efforts. Compared to the pulse method which requires an additional encoder (LiSA encoder in the case of hydraulic lifts), the expenses are also higher if the number of landings is > 4.

☞ Note: The fixed-point method cannot be used for overlapping deceleration distances (the distance between the landings is smaller than the sum of the acceleration and deceleration distance).

The selector block must be equipped with an additional bistable magnetic switch (SGZ) connected in parallel to the centrical inductor switch. This switch is switched by the magnets on an additional "magnetic track" at the corresponding deceleration time.
If the braking is also effected using fixed-points, the zone must be marked by 2 magnets. As a general rule, the use of the timing method is normally sufficient for the braking, especially in the case of hydraulic lifts (stopped by an external inductor switch).

4.1.1.4. LiSA absolute encoder

This system consists of a magnetic tape in the shaft and a reading head fixed to the car. Systems, in which the doors are open inside the zone, require a magnetic switch to generate the second zone signal. As an alternative you can also use a double reading head. The magnetic tape contains a type of barcode displaying the position of the car with an accuracy of +- 1 mm.
The magnetic tape is fed through a reading head so that the maximum distance between the hall sensors of the reading head and the magnetic tape is 1 mm.
This technology allows for speeds of up to 10 m/s, with a minimum noise generation.



The magnetic tape is fixed to a holder in the shaft head and stretched in the shaft pit using a tension spring.
The magnetic tape data are permanently read by a reading unit (reading heads) and transmitted to an electronics (see the description of the absolute encoder adapter in the following) in the inspection box or car panel. It generates (emulates) the discrete signals required for the shaft selection. Depending on the number of shaft signals to be emulated by means of the absolute encoder, a single or double reading head is used.
The single reading head (SLK = reading head 1) consists of one reading unit and is connected to the absolute encoder adapter via a serial interface (RS422).
The double reading head (DLK = reading head 1 + 2) contains two independent reading units. Each unit is connected to the absolute encoder adapter via an RS422 connection, like the SLK.
The transfer rate is 19200 bit/s.
The connection to the controller is effected via the LiSA bus and the travelling cable, in which one wire is used for each discrete signal.

The absolute encoder adapter is located in the inspection box or car panel. This electronics consist of 3 independent processor systems emulating the following signals based on the data transmitted from the reading head and the values determined during the TeachIn procedure:

- Processor system 1 (PS1) generates the centrical inductor switch (SGM) signal, the top slow-down switch (VO) signal and the bottom slow-down switch (VU) signal.

Processor system 2 (PS2) generates one pulse per travelled millimetre and
Processor system 3 (PS3) generates the upper (SGO) and lower (SGU) inductor switch signals as well as in parallel to PS1 the top and bottom slow-down switch signals.

SGO and SGU are no longer used as an activation signal for the relevelling, but to generate a second zone signal (Z2).

The relevelling is now activated by the parameter "Levelling if step/entry in fault mem. > X mm". It means that the relevelling no longer depends on the adjustment of the SGO/SGU inductor switches.

In order to enter the zone with pre-opening doors or to relevel with open doors, two independent zone signals (Z1, Z2) are required which are evaluated by the safety circuit on the LiSA main board.
Z1 = zone signal 1: SGM
Z2 = zone signal 2: SGO/SGU. This zone must be longer than zone 1 by several mm, i.e. zone signal 1 must always be received a few ms earlier than zone signal 2.

PS1 and PS2 permanently read the data blocks from the reading head 1 and PS3 reads the ones from the reading head 2. Each data block consists of an absolute value for the position and the current speed.

Note: During the first few months, the absolute encoder was installed in the control cabinet. As the transmission of the travelling signals (SGM, SGO, SGU, Vo, Vu and pulse) via the travelling cable was no longer required, the free wires were used to transmit the reading head data,

RS422 interface.
The data from the reading head 1 were transmitted via the signal wires Vo and So (= twisted and shielded) and those from the reading head 2 via the wires Vu and Su.

The zone switch signals were transmitted to the controller via the wire Sm.

4.1.2. Door opening functions

The parameters of the parameter group 008* serve to set the opening permission for both door sides and the start-up permission for all landings, separated into landing button and car button pressing.
Four different operating modes are available

- Normal travel
- Clock-controlled travel 1
- Clock-controlled travel 2
- Key-controlled travel

Effecting a clock-controlled or key-controlled travel:

- Using the N/O contact connected to an input parameterised with clock-controlled or key-controlled travel. The N/O contact can be actuated with a key, a time-switch, a remote control, a code keyboard, a card reader, etc.
- The clock-controlled travel 1 can also be started and terminated by the real-time clock integrated in the LiSA controller.

By changing to one of the operating modes described above you can achieve a completely different door opening characteristic.
In this way you can e.g. unblock landings for a certain time, which were previously not accessible.

4.1.3. Company code (password)

If requested, each company will receive its own access code (company code). This code can only be changed by means of the supervisor code, i.e. only by companies of the LiSA Group.
If the company code is activated, the parameters cannot be accessed without entering the code.
If you use the LiSA handheld terminal (delivery of the LiSA10 board without display), the handheld terminal also contains the company code, i.e. if you use a handheld terminal with a code different from the LiSA10 board code, the access is also denied.
Reading the error memory and entering travel and testing commands, however, is possible without the code.

If you try to access the parameters without entering the company code, LiSA displays:

Company code?

Enter the four-digit company code:
After entering the correct company code, LiSA displays:

Company code OK

Note: If you enter a wrong company code, there is no message.

4.1.4. TeachIn

Important note:
In the case of systems with 2 landings or if you use the fixed-point method, you must not carry out a TeachIn. The required values must be entered manually in the parameter sets 002 and 009!!

The TeachIn serves to determine the following values:
Timing method:

- All landing distances (mm) for which the TeachIn is carried out fast. I.e. the distance between the lowest and the highest landing is not taught. You must enter them via the keyboard - enter a value larger than the actual distance.
- Rated speed (mm/s)

Pulse method:

- All landing distances (mm)
- Pulse constant in pulses/m (guide value: 500 > p/m < 2000)
- Rated speed (mm/s)
- Upwards and downwards deceleration distance or distance between the slow-down switch magnets and the final landings
- Upwards and downwards braking distance

☞Note: Whereas only minor adjustments of the deceleration and braking distances are required for the pulse method, these values and the distances between the landings must be determined by testing for the timing method.

Follow this procedure:
Stop the car at the lowest landing.

- The centrical inductor switch must be in the zone.
- The car should be unloaded and equipped with the correct counterweight (only for the timing method).

Starting the TeachIn: Enter 100*.

☞Note: If you use the timing method, set the braking time for the TeachIn to **5ms**, ensuring that the car will stop safely.

- Before the TeachIn starts, LiSA displays an "L" on the left seven-segment display (operating mode).
- The car quickly approaches the upper correction position. In doing so, the distance between the landings and the rated speed are determined.
- For checking purposes the travel speed is permanently displayed on the bottom right.
- At the top correction switch the car decelerates and stops at the highest landing.
- Then the car quickly travels to the bottom slow-down switch, decelerates and stops at the lowest landing.

After completing the TeachIn, the following message is displayed:

Parameter to be overwritten ? (0/1)

If you enter 1, the taught values are immediately stored in the EEPROM and the LiSA controller displays:

Wait until paratmeters are memorized

After the successful saving (after approx. 1 minute) this message is displayed:

Parameter memorized

☞Note: Normally the parameters are not saved directly after the TeachIn, as particularly the timing method requires some adjustments.

The determined values can be read and adjusted in the parameter groups "travel times/pulses" (002*) and "teaching operation values" (009*).

4.1.5. Parametrisation

Any parameter and command can be entered both via the LiSA keyboard and the PC/laptop.
The parameters are divided into 11 groups. They are selected by entering a three-digit or four-digit number and confirmed by the *-key. This key also serves to go to the next parameter during the parametrisation.
If you shortly press the #-key you can scroll back.
If you press the #-key for longer, you jump to the end of the parameter set.

☞Note: If you answer the "Parameters to be overwritten?" question with 1, <u>all</u> parameters are stored, not only those of the group edited at the moment.

☞Note: In order to simplify and accelerate scrolling through the parameter sets, you must sometimes confirm whether you want to see a block of parameters or not. If you confirm with "yes" = 1, the related parameters are displayed. If you enter "no" = 0, the block is skipped. You must always enter 0 or 1. Example: Landing to landing travel time / distance (n/y) (0/1)?

☞Note: Address numbers given in brackets refer to the standard assignment usually applied. However it may be changed, if necessary.

Parameter groups:

0 0 0	*	General elevator parameters
0 0 1	*	General elevator times
0 0 2	*	Travel times / pulses
0 0 3	*	Input addresses
0 0 4	*	Output addresses
0 0 5	*	Key-controlled addresses and landings
0 0 6	*	Relay addresses
0 0 7	*	Indication functions
0 0 8	*	Door opening functions
0 0 9	*	Teaching operation values
0 0 1 0	*	Special parameters

4.2. Parameter description

Parameters marked in grey are no longer contained in the programme. They are still mentioned for the sake of completeness.

Parameters marked in yellow are new or have been changed.

4.2.1. General elevator parameters: (selected via LiSA keyboard entering 000*)

From software version February 2010, you can select the language at the beginning of the parametrisation. You can choose between German and English. You recognise this software by the "U" (universal) before the date.

Language ? (Deutsch/English/..) (0/1/..)

- ➔ *(0): menu navigation in German*
- ➔ *(1): menu navigation in English*

Elevator Type (Ropetraction/Hydro/VVVF-control) (0..2)

- ➔ *(0): rope traction lift, no frequency-control, 2 speeds*
- ➔ *(1): hydraulic lift*
- ➔ *(2): frequency-controlled rope traction lift*

Query for hydraulic lifts (1):

Overtravelling (no/Valve/Motor/Algi-AZVR/Ber.+VVVF)

Selection of the activation for different hydraulic systems.

➔ *(0): no overtravelling*

Motor and valves are switched off at the same time

➔ *(1): valve overtravelling*

During the upwards travel, the up-valve is actuated longer than the pump motor by an adjustable time (parameter set 001*). The relay K15 (star/delta) is switched off later than relay K14 (up) by the overtravelling time. This results in a smoother stop e.g. in the case of Oildinamik hydraulic blocks (GMV).

Additionally required parameter:

In the parameter set "General elevator times" (001*) the parameter "Overtravelling valve/pump ms =".

➔ *(2): motor overtravelling*

This function is similar to the valve overtravelling, with the difference that during the upwards travel the activation for the valves is switched off first and the pump runs longer by the overtravelling time. In this way, too, a smoother stopping is achieved for many hydraulic systems (Algi, Leistritz, Beringer, etc.).

Additionally required parameters:

- In the parameter set "General elevator times" (001*): "Overtravelling valve/pump".
- In the parameter set "Relay addresses" (006*): "Rel. overtravelling pump".

➔ *(3): ALGI-ELRV*

In the case of the electronic lift control valve by ALGI, a special activation is required.

travelling upwards: After switching off the up-direction signal, the pump motor is switched off only after the overtravelling time has elapsed.

Travelling downwards: After switching off the down-direction signal, the activation of the down-valve is switched off only after the overtravelling time has elapsed.

Additionally required parameters:

- In the parameter set "General elevator times" (001*): "Overtravelling valve/pump".
- In the parameter set "Relay addresses" (006*): "Rel. overtravelling pump".

➔ *(4): Ber.+VVVF*

Special activation for the frequency-controlled Bucher system "Orion α".

Electron.-hydroblock (No/Bering./Oildyn./ALGI) (0..3)

- ➔ *(0): no control electronics*
- ➔ *(1): Beringer LRV*

In order to minimise the complexity, the down-valve is also activated by the delta contactor.

The inspection trip / landing-to-landing travel can be effected at medium speed.

The motor overtravelling relay acts as valve overtravelling when travelling upwards, i.e. the relay switches the input at the LRV off, but the valve remains open until standstill.

- ➔ *(2): Oildinamic type GEV and NGV*

In order to minimise the complexity, the down-valve is also activated by the delta contactor.

The inspection trip / landing-to-landing travel can be effected at medium speed.

The relevelling starts at the earliest 1000 ms after completing the last travel.

- ➔ *(3): ALGI ELRV*

In order to minimise the complexity, the down-valve is also activated by the delta contactor in case of regulated hydraulic blocks.
The inspection trip / landing-to-landing travel can be effected at medium speed.

Query for frequency-controlled rope traction lifts (2):

VVVF-Control (All/Dyn/Si/Ziehl/FUJI/Die/Yask1/Yask2/Omron):

Selection of the activation for different controllers and inverters.

- ➔ *(0): selection for all controller types with the exception of those mentioned in the following*
- ➔ *(1): Dynatron-S, Dynatron-F, Dynatron-2000, VF30 (Schindler controller with direct approach)*
- ➔ *(2): binary activation for older Siemens inverters*
- ➔ *(3): Ziehl-Abegg or Loher frequency inverters*
- ➔ *(4): binary activation of FUJI inverters*
- ➔ *(5): Dietz inverters (only Vectordrive) - select 0 for Maxidrive!*
- ➔ *(6): binary activation of Yaskawa inverters*
- ➔ *(7): binary activation of Yaskawa inverters*
  Additionally the 7th signal IO is used for the inverter signals for the activation of the brake
- ➔ *(8): binary activation of Omron inverters*

In the case of a binary activation, the travel speeds are selected via a binary code at the first three outputs of the IOs determined by the parameter 1st output inverter signals.

Query for hydraulic lifts (1) and unregulated rope traction lifts (0):

Stopping with the middle signal generator (0/1):

Selection of the inductor switch which starts the deceleration time.

- ➔ *(0): start of the deceleration time with the outer inductor switch which enters the zone the last (SGO / SGU), i.e. when travelling upwards SGU and when travelling downwards SGO.*
- ➔ *(1): start of the deceleration time with the centrical inductor switch (SGM)*

Braking (stopping) using the pulse method:

This method should be used wherever possible, despite the higher costs for an additionally required pulse source. Apart from the adjustment convenience, it helps to avoid the steps appearing at the stop when the timing method is used. In the case of hydraulic lifts the selection "Stopping with the middle signal generator" also allows for an adjustment of the relevelling independent of the stopping. SGO and SGU can be positioned relative to the SGM in such a way that even in the case of a very small step (approx. 10 mm) the relevelling procedure is activated. You can use the simpler selector block (without SGO and SGU) for unregulated rope traction lifts.

Braking (stopping) using the timing method:

(only described for the sake of completeness). When you use the timing method for hydraulic lifts, the braking should generally be effected by the SGO and SGU, as unavoidable load-dependencies would otherwise lead to stopping inaccuracies. The same applies to unregulated rope traction lifts. Although the use of selector blocks with 3 inductor switches is not mandatory, this solution should be preferred for the sake of stopping accuracy.

The parameter "Stopping with the middle signal generator" offers 2 solution possibilities:
1st case: If SGM is used to stop, you can enter an "unrealistically" long braking time, as the travelling signals are switched off in any case as soon as SGO or SGU enter the zone (before the braking time has elapsed) and the car slides into the flush position. This requires a shifting of SGU or SGO towards SGM so that the corresponding sliding distance is available.

2nd case: The method of not stopping with the centrical inductor switch is more favourable in terms of the flushness adjustment, as the adjustment of SGO and SGU is less critical here. They must be positioned slightly closer to the SGM so that the car is stopped after a relatively short braking time. Whereas in the 1st case SGO and SGU must be positioned according to the required sliding distance, the braking time serves to compensate inaccuracies in the 2nd case.

Deceleration method (time/fix/pulse/AbsEnc/AbsEnc1) (0..4):

Selection of the deceleration signalling method (changeover from fast to slow).

➔ *(0): signalling method = timing method*

The changeover is effect after the course a preset time (= time for the deceleration distance up or down in the case of long-distance travels or for the fast landing-to-landing travel)

➔ *(1): signalling method = fixed-point method*

The speed is changed at fixed points (= magnets) in the shaft.

Attention: Not applicable in case of overlapping deceleration distances!

➔ *(2): signalling method = pulse method*

The speed is changed after a preset number of pulses generated by a distance measurement system or a digital speedometer.
As soon as the centrical inductor switch leaves the zone of the landing before the destination - provided that the distance between the landings is sufficient - the value set by means of the parameter "Deceleration path up / down" is reproduced by loading a timer (in the case of the timing method) or by loading a counter (in the case of the pulse method). As soon as the timer or counter has elapsed, the speed is changed from fast to slow.

➔ *(3): signalling method = pulse method with absolute encoder*

The speed is changed after a preset number of pulses generated by the absolute encoder system.

➔ *(4): signalling method = absolute encoder with direct absolute value processing*

The deceleration and braking distances are no longer calculated by means of pulses, but directly by means of the height information from the absolute encoder. The selection "braking" is no longer required for this signalling method.

Braking method (time interval/fix/pulse) (0..2):

Selection of the signalling method for the stopping (switching off the travel signals).

➔ *(0): signalling method = timing method*

The car is stopped after the course of a preset time (= time for the braking distance up / down).

➔ *(1): signalling method = fixed-point method*

The car is stopped at fixed points (= magnet switches the centrical inductor switch) in the shaft.

➔ *(2): signalling method = pulse method*

The car is stopped after a preset number of pulses generated by a distance measurement system or a digital speedometer.

➔ *(3): hidden function - additional stop monitoring for the pulse method*

In addition to the parameter "Emergency stop after entering zone in ? ms" described under parameter set 002*, the stopping with the pulse method is monitored.

No. of landings:

Number of landings.

☞ Note for groups: All lifts of one group always have the same number of landings. It reaches from the lowest landing of the lift which travels the lowest to the highest landing of the lift which travels the highest.

Example: Lift 1 has B, G, 1, 2, 3, 4, 5 - lift 2 has G, 1, 2, 3, 4, 5, 6, 7 -> number of landings = 9

No. of cars:

In case of groups, i.e. in case of a number of cars >1, the following parameters are queried:

Query for group lifts:

Car in group:

All cars of one group must have an individual number in the order in which they are interconnected via the data lines.

Within a group it is possible that one lift cannot reach the lowest or highest landing(s) due to its shorter shaft length. The following parameters take account of this fact.

Bottom landing:

Normally the lowest landing is identical to the 1st landing. If the shaft, however, starts one or several landings above it, the parameter "Bottom landing" must be used to define this.

Top landing:

Normally the lowest landing is identical to the last landing. If the shaft, however, ends one or several landings beneath it, the parameter "Top landing" must be used to define this.

Door opening of cars in the case of landing call in group (all/one) (0/1):

Selection whether only one lift or all lifts in the landing open the doors when the landing button is pressed.

➔ *(0): all lifts open their doors*
➔ *(1): door opening not simultaneously, only the lift with the lowest group number opens its doors*

Query if number of cars >2:

Group adapter (0/1)?

Selection whether a group adapter is used for the telegram distribution.

➔ *(0): no group adapter*
➔ *(1): with group adapter*

No. of accesses 1/2:

Number of door sides. Even if a lift has three door sides, you must enter 2 accesses. The changeover to the 3rd door side is done by using position and changeover relays.

➔ *(1): one access*
➔ *(2): two accesses*

Whenever the door opening masks are set to "0" for all operating modes (normal, clock-controlled, key-controlled) and are only activated via the parameters "1. Inp. Release car commands" and "1. Inp. Release landing", the controller requires the following parameters as additional information. The entry is analogous to the procedure for parameter set 008* for the door opening parameters.

Accesses in building-door side 1:

Determination of the actual number of accesses at door side 1.

➔ *(xxxxxxxxx):*

Query for 2 door sides:

Accesses in building-door side 2:

Determination of the actual number of accesses at door side 2.

➔ *(xxxxxxxxx):*

No. of push button on landing (1/2):

➔ *(1): Single-button control*
➔ *(2): Two-button control*

Selection not available for bus control. Is always designed as a two-button control.

LiSA Bus (No/slbus/lbus/cbus/sl+c-bus/l+c-bus) (0..5):

- ➔ *(0): without LiSA bus*
- ➔ *(1): sLbus: small LiSA landing bus – max. 64 IOs together like on I/O boards, i.e. max. 8 LiSA bus modules connected*
- ➔ *(2): Lbus: LiSA landing bus – like sLBus and additionally on each floor one LiSA bus module*
- ➔ *(3): cBus: LiSA bus to the car - the LiSA bus modules are in the inspection box or car panel (use of the APO10)*
- ➔ *(4): sLBus+cBus: like sLBus and additional LiSA bus to the car*
- ➔ *(5): Lbus+cBus: like Lbus and cBus together*

Main landing:

Defines the main landing and thus influences the parking behaviour and the call processing.
If the parking modes "Varfloor" and "Mainland." (see parameter "Parking mode") is selected, the main landing is preferentially occupied.
In the case of single-button systems with direction-dependent call cancellation (see parameter "Direction-dependent call cancellation") the main landing serves to determine the collective direction. All landing calls in landings below or in the main landing are effected upwards. Correspondingly, the landing call above the main landing are effected downwards.
In the case of two-button groups with different numbers of landings in the lower section, setting the main landing has the effect that all the landing calls below or in the main landing are assigned to the car covering the lower section.

Forced stop:

The forced stop is the landing where the car is stopped

- whenever it passes this landing or
- when it passes this landing while travelling downwards or
- when it passes this landing while travelling upwards.

The function can be activated by setting the corresponding value for the forced stop landing:

- ➔ *Forced stop = 0: no forced stop*
- ➔ *Forced stop > 0 and <= number of landings:*
  car call for forced stop landing
- ➔ *Forced stop > no. of landings and <= no. of landings * 2:*
  Car call for landing = forced stop - no. of landings when travelling upwards
- ➔ *Forced stop > no. of landings * 2:*
  Car call for landing = forced stop - 2*no. of landings when travelling downwards

Parking mode (None/fixfloor/Zone/Varfloor/Mainland.):

Selection of the parking mode. After the parking time has elapsed, the car is parked at a parking landing depending on the parking mode. The door(s) is/are not opened when arriving in the parking landing, if

- the car is parked with closed doors and
- there is no further call for this landing.

Additionally required parameter for all parking modes:

- In the parameter set "General elevator times" (001*): "Parking time".

- ➔ *(0): no parking selected*
- ➔ *(1): selection of a fixed parking landing for normal and clock-controlled travels*
- ➔ *(2): allocation of the lifts to parking zones*

(in case of group lifts), with no car assigned to a certain parking zone, but the nearest one occupies the zone when the parking time has elapsed, provided that no other car has already occupied this zone.
The car always occupies the middle of the zone.
The zones are established depending on the number of cars in the group, e.g.
there are 2 zones for a group of two, three zones for a group of 3, etc.

1. parking zone up to landing =
2nd parking zone up to landing =
3rd parking zone up to landing =

➔ *(3): allocation of the lifts to variable parking landings (in case of lift groups), with no car assigned to a certain parking landing, but the nearest one occupies the parking landing when the parking time has elapsed, provided that it has not yet been in a parking landing.*

It is important that the main landing (see parameter "Main landing") is equal to the lowest parking landing: The lowest parking landing (main landing) is preferentially occupied, i.e. if the main landing is free, a car which has already been parking can leave its parking position and travel to the main landing.

1. parking landing =
2nd parking landing =
3rd parking landing =

➔ *(4): occupation of the main landing*

If the main landing is not occupied, the nearest car will go to the main landing. If the main landing is occupied, the remaining car will effect no parking operation.

- If the car approaches a parking landing, the display shows a "P" instead of a "Z" for the destination.
- The course of the parking time can be made visible on the display (top right) by pressing 4*.

For the synchronisation (position control), there are two magnets in the shaft and two bistable magnetic switches on the car (on the selector block) (top slow-down switch VO and bottom slow-down switch VU). The position of the magnets is transmitted to LiSA using the following two parameters.

Query for a fixed parking landing:

Parking landing with normal travel:

Selection of the parking landing for the normal travel mode

Parking landing with clock-controlled travel:

Selection of the parking landing for the clock-controlled travel mode

Parking landing with clock-controlled travel 2:

Selection of the parking landing for the clock-controlled travel mode 2

Query for variable parking landings

Variable parkingpos. according heavy traffic (0/1):

➔ *(0): no selection of the parking landings according to key areas*

➔ *(1): selection of the parking landings according to key areas*

Corrective position bottom:

Serves to determine the position where the magnet for the bottom correction position is located.
The value to be entered is identical to the landing last passed when travelling downwards. Normally it is 2.
In the case of short landing distance or high speeds it might be necessary to place the magnet one or two landings above (corrective position bottom = 3 or higher).

Corrective position top:

Serves to determine the position where the magnet for the top correction position is located.
You must definitely ensure that the magnet is at a sufficient distance from the final landing so that the car will safely stop at the final landing **in the case of a fast reference travel or TeachIn**.
A fast reference travel is always carried out if the parameter "Correction next stop" is set to 0 **(no correction to the next higher or next lower landing)** and the lift has stopped beyond the zone, e.g.

- after completing the inspection or emergency recall travel,
- after a reset,
- after completing a travel, but not reaching the destination (SGM not in the zone),
- after completing a travel and going beyond the destination (SGM not in the zone),
- after eliminating the reason for a possible out-of-order case or
- after a safety circuit interruption directly before the destination.

The reference travel is not done automatically, but only after a call.

Hinged doors (0/1):

➔ *(0): no hinged shaft doors in place*
➔ *(1): hinged shaft doors in place*

The contact of the hinged shaft doors must be looped in between the terminal 94 and 95 or between SK1 and SK2 into the safety circuit.

Hinged door on access side (1/2/1+2) (0..2)

Parameter which serves to determine on which door side there are hinged doors

➔ *(0): hinged doors only on door side 1*
➔ *(1): hinged doors only on door side 2*
➔ *(2): hinged doors on both access sides*

Direction-dependent call cancellation (0/1):

➔ *(0): no direction-dependent call cancellation*

Single-button operation: Each landing button generates both an upwards and a downwards call. I.e. this call is taken into consideration for both directions.
Two-button operation: Each landing call is effected according to the direction determined by it, but both calls will be deleted.

The result is that

- the negative consequences (the landing will be approached twice, although there is actually one call) of the misuse by deliberately pressing both buttons will be reduced, but
- the landing call in the opposite direction must be repeated, if the call in both directions was correct.

➔ *(1): direction-dependent call cancellation*

Single-button operation: Depending on the position of the main landing, each landing call either generates an upwards or a downwards call and will be processed accordingly, i.e. above the main landing a downwards call and below or in the main landing an upwards call.
See also the parameter "Inp. additional upwards call in the main landing" in parameter set 003*.
Two-button operation: Each landing call is effected according to the direction determined by it. When approaching the stop (at the deceleration point), the call for the current travel direction is deleted (e.g. if the car travels upwards, the upwards call will be deleted).
The landing call in the opposite direction is only deleted, if

- the car than goes in this opposite direction (reversal of direction) or
- there is no call after the idle time has elapsed.

A misuse will have a negative effect if the direction is not reversed.

Example:

The upwards and downwards call were pressed on the 5th floor. A car coming from below deletes the call. If it was a misuse (one person pressed both buttons), the car will unnecessarily stop a second time when going down after having carried out the calls for the landings above floor 5. If it was not a misuse, but the person who pressed the downwards call also entered the car (which often happens), the car will also unnecessarily stop a second time.

A certain compromise between the two mentioned call deletion procedures can be achieved by setting the parameter "Starting delay / Multifunc. parameter 2" to the value 202. In this case, a call for the opposite direction is treated like with the direction-independent call cancellation until the initiation of the delay. If the button is pressed later, it will be treated like with the direction-dependent call cancellation.

Note on "misuse":

By default, the LiSA software is provided with a button misuse suppression. When one button is pressed, the acceptance of a call in the opposite direction is suppressed for one second.
Upon implementation of the parameter "Blocking time for landing call in reverse direction" (October 2006) this time can be adjusted.
You can achieve an effective suppression of button misuse by setting the parameter "Starting delay / Multifunc. parameter 2" to the value 203. Then only one call will be accepted at a time.

Universal control (0/1):

➔ *(0): no push button control - normal universal control*
➔ *(1): push button control*

The push button control is nowadays only found in older lift systems. Only one call is accepted, preferentially a car call.

A landing call (only one) is only accepted if

- the hinged doors are closed,
- there is no car call
- 3 seconds after the course of the idle time - before this time a car call will be preferred

Relevelling (0/1):

➔ *(0): no relevelling*

➔ *(1): relevelling activated*

As the relevelling must also be done with open doors, there must be a safety circuit (K5, K6, K7 plugged on LiSA main board) and a selector block with 3 inductor switches (SGO, SGU, SGM). Systems with a LiSA absolute encoder require an additional zone switch (zone 2) in each landing apart from the centrical inductor switch (SGM) generated by the absolute encoder.

The relevelling starts as soon as the car is no longer in a flush position This happens

- if in the case of systems with a selection block SGU or SGO are no longer within the zone
- if in the case of systems with an absolute encoder the value in the parameter "Levelling if step/entry in fault mem. > X mm" is exceeded.

Query if relevelling is activated:

Pre-start relevelling prevented (0/1):

Suppression of the relevelling directly before starting to move.

➔ *(0): relevelling in any case*

➔ *(1): no relevelling directly before starting to move*

The purpose of this function is to suppress the time-consuming relevelling after entering the car, especially in the case of hydraulic lifts.

Correction (0/next/overnext/nextwithV1/nextwithV3/Dfloor/Ufloor) :

If the car is beyond the zone, whether after

- completing an inspection or emergency recall travel or
- the car has stopped in a position where the centrical inductor switch is beyond the zone, then a correction travel will be carried out after a call.

➔ *(0): correction travel to final landing*

The correction travel is always carried to a final stop.

Whether to the highest or lowest stop depends on the position. If the car is, for instance, less than 3 landings away from the highest landing, it will travel to the lowest landing.

➔ *(1): correction travel to next landing*

The correction travel is slowly carried out to the next higher landing or to the next lower one if the car is within the area of the top slow-down switch.

➔ *(2): correction travel to landing after next*

The correction travel is carried out upwards or downwards at rated speed to the landing after the next, depending on whether the car is already within the area of a slow-down switch.

➔ *(3): correction travel to next landing at V1.*

The correction travel is carried out upwards or downwards to the next landing at medium speed.
This function is sometimes used for firemen lifts with large landing distances in order to achieve that the lift reaches the next landing from a position between the landings without exceeding the travel time or within a reasonable time.

➔ *(4): correction travel to next landing at V3.*

The correction travel is carried out upwards or downwards to the next landing at rated speed.
A prerequisite is that the distance between the car and the next landing is larger than the deceleration distance and that the pulse method is used.

➔ *(5): correction at bottom final landing*

The correction travel is carried out to the lowest landing at rated speed or at low speed if the lift is already within the area of the bottom slow-down switch.

➔ *(6): correction at top final landing*

The correction travel is carried out to the highest landing at rated speed or at low speed if the lift is already within the area of the top slow-down switch.

The correction at the final landing cannot be used in the case of high-precision shutdown and systems with Schindler inverters (direct approach: Dyn-S, Dyn–F, Dyn2000, Dyn2000-W, VF30).

Approach with open door (0/1):

➔ *(0): approach or relevelling with open door deactivated*

➔ *(1): approach or relevelling with open door activated*

Preconditions for the approach or relevelling with open doors are

- the existence of a safety circuit (safety relays K5, K6, K7) on the LiSA central electronic unit,
- the use of a selector block with 3 inductor switches (SGO, SGM and SGU)
- the use of an absolute encoder and an additional zone switch (zone 2) and
- the override of the door zone section (between terminal 12 and 14).

Query if approach with open doors is parameterised:

Max. speed when entering zone (mm/sec):

Override of the door opening until falling below the selected step.
If the speed is below the limit speed when the centrical inductor switch enters the zone, the early opening of doors is suppressed. This procedure can be recognised by a considerable door opening delay (approx. 4s).

Distance for door opening (mm):

Function: Exact selection at which distance to the flush position the door opening is started, provided that the early opening is activated.
Purpose: In this way you can avoid that an early door opening while positioning allows to deboard with the risk to stumble over the step, but without having to accept the delay resulting from fact that the early opening is not programmed.
Previous solution possibilities:
When programming the parameter "Output Addit. interlock. of door 1" together with the parameter "Early opening of door interlock (ms)", the door opening for early opening doors could be influenced. For door not opening early the value "1" served to achieve that the doors opened immediately after switching off the creeping velocity.

Query for lifts with two access sides:

Selective door control landing (0/1):

Assignment of the landing push buttons to the door sides so that only the side is opened for which there is a landing call. If there are call for both sides, both sides will be opened.

➔ *(0): no selective door control*

both doors are always opened for a landing call.

➔ *(1): selective door control*

by assigning different input addresses for the buttons on door side 1 and door side 2. The parameter "1. Inp. Land. call button side 2" (parameter set "input addresses - 003*) serves to make calls coming from door side 2 selectable for the controller.

Please observe that the value for the 1st landing call button side 2

- is larger than the address for the last landing call button on door side 1 and
- no other functions are between this last button and the first button on door side 2.

Query for lifts with two access sides:

Selective door control car (0/1):

Assignment of the car push buttons to the door sides so that only the side is opened for which there is a car call. If there are call for both sides, both sides will be opened.

➔ *(0): no selective door control*

both doors are always opened for a car call.

➔ *(1): selective door control*

by assigning different input addresses for the buttons on door side 1 and door side 2. The parameter "1. Inp. Car com. button side 2" (parameter set "input addresses - 003*) serves to make calls coming from door side 2 selectable for the controller.

Please observe that the value for the 1st car command button side 2 is larger than the address for the last car command button side 1.

If there are also landing calls for the destination, they will also be taken into consideration when opening the doors. The result is that the selectivity is seemingly suppressed in this landing.
If only one door open button is installed, this button will always open the door according to the actual door opening permission. The door opening permission is determined by the last calls made for the landing in which the lift is currently located.

☞Only choose the selective door control landing / car if there is a direct load-through in at least one landing or with bus systems if the installation of the landing bus is easier in this way!

Special elevator (norm./car/webcontr./homelift/transcar):

Selection of special functions which are only to be found in special lift types.

➔ *(0): normal lift*

➔ *(1): car lift*

causes the evaluation of a presence sensor, if the parameter "Inp. Presence indicator in car" (003*) is programmed (> 0). In the case of a system with 2 landings, the lift will automatically be called in the landing where the car is currently not.

For car lifts there is already a special programme (see figure 2).

➔ *(2): web control: special functions for lifts with an internet connection.*

Lifts of the transport association "Verkehrsverbund Rhein Ruhr (VRR)" are now monitored by a command centre via internet.

In this case there is an industrial PC in the control cabinet of the lift controller which is connected to the controller via a serial interface and which has a special software.

If you set the parameter "Special elevator" to 2, some additional functions are activated in the lift controller.

In the following a rough overview:

- From IO33 on (i.e. on the 3rd I/O board) 16 IOs are reserved (not freely programmable) by which a number of additional safety circuit taps can be read in order to make the detailed information required according to the specifications available.
- The parameter "1. Inp. special functions" with 8 consecutive IOs must be used as standard and is assigned with the following functions:
  1st IO: input for maintenance switch
  2nd IO: input for reset button
  3rd IO: Input to put the system into operation
  4th IO: free
  5th - 8th IO: ??
- The function "system in rest position" (corresponding to switch off - landing) or "put into operation" can be activated by the command centre (via internet), directly at the system (using a key) or via the clock system in the station.
- The maintenance function activated by means of the maintenance switch has top priority.

➔ *(3): homelift: special functions for lifts with dead man's control in the car.*

➔ *(4):transcar: special functions for lift with a goods transport system.*

Query for car lifts:

Automatic car command in car elevator (0/1):

➔ *(0): lift must be called by user*

➔ *(1): for car lifts with only 2 landings*

there is always a car call to the other landing, if the presence sensor (located in the centre of the car) and the photoelectric barrier are activated when driving into the car - no matter in which landing the car is.

This function is not available if there is a direct load-through.

Description of the "special car lift programme" using the example of 3 landings and 2 door sides:
The following parameters must be considered:

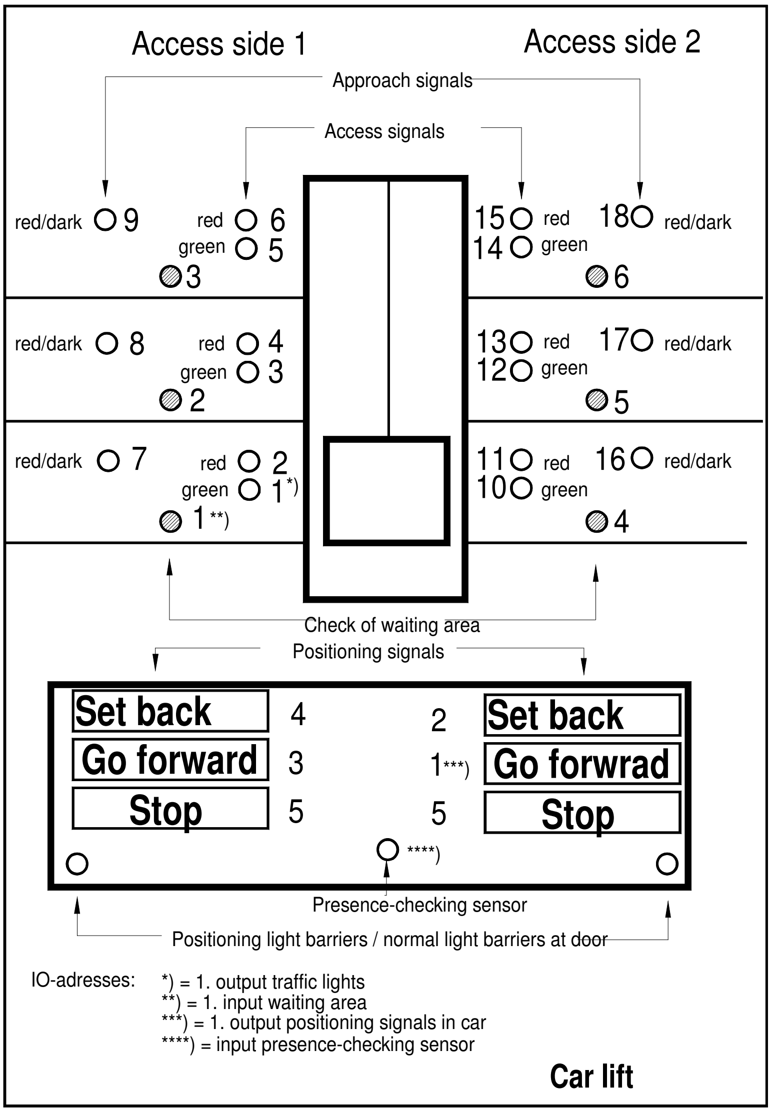
- 1. Output Traffic lights in landing
- 1. Output Posit. signals in car elevator
- Input Presence indicator
- 1. Input Monitoring of waiting area (optional)
- Warning signal prior to door closing (sec.)
- In case of 2 door sides: selective door control landing/car

In addition there must be door open limit switches (AES1 and AES2) installed.
In case of 2 door sides, the IOs for both door sides are reserved. 3 IOs are assigned per door side and landing for the traffic light signals, with the IOs for the access traffic lights behind the IOs for the entry traffic lights.

Every time before a door is closed (all photoelectric barriers free) the corresponding entry traffic light turns red and when the "warning signal prior to door closing" time has elapsed, the door is closed.

Provided that all access and entry traffic lights are red in the inactive state, one example of the functional routine:
The lift is called by means of a landing call in landing 1 (E1) from door side 1 (TS1).

- Lift approaches landing 1 -> access traffic light in landing 1 - door side 1 is turned off
- Lift opens door side 1. Signal from the door open limit switch 1 is received -> entry traffic light in landing 1 - door side 1 turns green
- The car enters the lift. Signal from the presence sensor is received -> "forward" display of door side 1 is on
- Car leaves the photoelectric barrier on door side 1 -> "forward" display of door side 1 is turned off, "stop" display is on
- If the car moves too far, i.e. if the photoelectric barrier on door side 2 is interrupted, the "backward" display will be turned on
- After pressing a button, the entry traffic light turns red and the door is closed (see note mentioned above)
- The lift approaches the selected landing. Door 1 / 2 opens. Signal from door open limit switch 1 / 2 is received -> "forward" / "backward" display is turned on, depending on the exit direction.



Protective area too small (no/top/bottom/top+bottom):

Adaptation to too little overtravelling areas.

➔ *(0): normal protective area (overtravel) above the car*
➔ *(1): protective area above the car too small*
➔ *(2): protective area beneath the car too small*
➔ *(3): protective area above and beneath too small*

The result during an inspection travel is that

- the speed is automatically switched from fast to slow in the second last landing / landing 2 and
- the correction switch (VO or VU) cannot be overrun.

Protective light screen (0/1):

Functions for a protective light screen for cars without sliding doors.

➔ *(0): not available*
➔ *(1): protective light screen installed*

The main difference between a protective light screen and a common light screen is, apart from the special functions required for a light screen interruption, that the function of the light screen must be tested each time before the lift is used. This requires a safety circuit.
Most of the protective light screens on the market are available in 2 versions:
1. A relatively economic "light" version (e.g. Cedes-LI) without its own safety circuit. The safety circuit (4 additional auxiliary contactors) can be obtained from Schneider when ordering a controller. This solution is much cheaper than the second version.
2. The protective light screen has its own safety circuit.
In the electronics of the protective light screen there is a relay with its contact looped in the safety circuit instead of the missing door contact (between terminal 95 and 11).

- If the protective light screen is interrupted during the travel (SK3 and SK4 are interrupted), the lift stops immediately as the contact opens this relay, unless the lift has already been in the zone of the selected landing. All calls are deleted and landing call are no longer accepted.
- The LiSA display shows the text "***light screen interruption***" until the contact is closed again.
- After pressing any car button, the light screen is tested every 10 seconds. This is done via a freely programmable relay (parameter "Rel. Reset safety light screen" in the parameter set 006*).
- If the obstacle is removed, the light screen is closed again and the travel continues.
- First the originally selected landing is approached.
- If the interruption happened more than one landing away from the destination, the travel is continued at high speed.
- After an interruption directly before the destination, the continuation depends on the value of the parameter "correction":

Correction = 0 (correction travel to final landing):

- Select this option if the destination cannot be approached at low speed, i.e. with single-speed systems and Dynatron-S/-F. In the case of these lift types, the destination is approached via a "reverse travel", i.e. if the light screen is interrupted before the selected landing 5 while moving downwards, the car goes back to landing 7, does not open the door and then approaches the originally selected landing 5. If there are only 6 landings, the car first approaches landing 4 and then landing 5.
- Correction > 0 (correction travel to next landing):
  This option can be selected for all other lift types which can continue at low speed.

Hinged door locked when car door (no/no/open/close) (0..3)

Selection when a hinged door must be locked

- ➔ *(0): not used*
- ➔ *(1): not used*
- ➔ *(2): locking the hinged door simultaneously with door close command for the car door*
- ➔ *(3): locking the hinged door after completely closing the car door*

Door parking position - (open/closed/open+locked/closed+locked) (0/3):

Selection whether the car parks in the landing with open or closed doors

- ➔ *(0): parking with open doors*
- ➔ *(1): parking with closed doors*
- ➔ *(2): parking with open doors and locked hinged doors*
- ➔ *(3 : parking with closed doors and locked hinged doors*

The door parking position can be inverted via the freely programmable input (parameter "Inp. Inverting door parked position" in 003*).

The parameter last mentioned has been replaced by the following one:

Door park position access side 1 (closed/open) = xxx..x

Landing-dependent selection of the door parking position of door side 1
Example: 00100-> lift with 5 landings. The lift parks in landing 3 with open doors

Query for 2 door sides:

Door park position access side 2 (closed/open) = xxx..x

Landing-dependent selection of the door parking position of door side 2

Door motor off (no/close/open/close+open/ifLimitSwitch):

Selection whether and in which position the door relays are switched off. This function is especially important if there are no door limit switches installed.

➔ *(0): door motor is not switched off*

➔ *(1): switch off door motor in final position with closed door (approx. 10s after closing the door)*

The door motor is switched on again when a travel command is entered.

➔ *(2): switch off door motor in final position with open door*

➔ *(3): switch off door motor in final position with open or closed door*

➔ *(4): switch off door motor after reaching the door limit switches*

Inspection speed (V0/Vi/V2):

Selection of the speed for an inspection travel.

➔ *(0): inspection travel at creeping velocity (Vo / Ve)*

➔ *(1): inspection travel at inspection speed*

Vi (medium speed). This option only makes sense if the system is able to work at medium speed, i.e. in the case of frequency-controlled rope traction lifts (except Dynatron), Beringer-LRV, etc.

If a push button for the fast inspection travel is installed and connected to an input programmed with the function "Inp. Inspection fast", the inspection travel is not effected using high speed (V2) but Vi for as long as the button is pressed. When you release the button, the lift will reduce its speed to creeping velocity.

Additionally required parameters:

- In the parameter set "Relay addresses" (006*): "Rel. Running with V1 (Vz1)".

➔ *(2): inspection travel at high speed (V2)*

This option is only permissible if the speed does not exceed 0.63 m/s.

Note: The emergency recall travel is always effected at creeping velocity.
If both the inspection travel and the emergency recall travel are switched on, any movement is prevented. There is no priority for the inspection travel.

Length of inductor plate / zone length:

Selection of the metal rail length (zone).
A number of measurements is based on the determination of the metal rail length, which LiSA requires for the shaft selection, e.g.

- speed measurement (bottom right on the display)
- determination of the landing distances and the pulse constant.

As a standard, enter a rail length by 7 mm shorter than the actual rail length for the currently exclusively used electronic proximity switches by Pepperl&Fuchs or Secatec (3 wires). That means that you must enter 193 mm for rails with a length of 200 mm.
The minimum landing distance depends on the rail length, too:

- In case of selector blocks without SGO/SGU: min. landing distance = rail length + 50 mm.
- In case of selector blocks with SGO/SGU: min. landing distance = 2 * rail length + 50 mm.

The minimum possible landing distance also depends on the speed. For a system with 0.3 m/s, for instance, and positioning of the inductor switches SGO, SGM and SGU next to each other, a landing distance of 50 mm was realised. Another system with 1.2 m/s has a landing distance of 90 mm.

Landing-to-landing travel with Ve/V1 = xxx.xx:

Selection between which landings the low / approaching speed should be used.
The numerical sequence to be entered consisting of zeros "0" and ones "1" has one digit less than the number of landings.

Example: In a system with 8 landings, the car should travel at Ve/V1 only between the landings 3 and 4: The result is the following entry: "**0010000**".

If you use the timing method, the same effect is achieved if you set the parameter "Inspection fast 3 <-> 4" to zero.

Max. car commands without light barrier interruption:

Selection of the maximum number of travels caused by car calls in which the photoelectric barrier is not interrupted. When the parameter value is reached, all car calls are deleted.

- ➔ *(0): function deactivated. Please always select 0,*
  if no photoelectric barrier is installed.
- ➔ *(1): deletion of all car calls if after one travel*
  caused by a car call the photoelectric barrier is not interrupted after the course of the idle time.
- ➔ *(2): deletion of all car calls if after two travels*
  caused by car calls the photoelectric barrier is not interrupted.
- ➔ *(3): deletion of all car calls if after three travels*
  caused by car calls the photoelectric barrier is not interrupted.
- ➔ *(n): deletion of all car calls if after n travels*
  caused by car calls the photoelectric barrier is not interrupted.

☞Note: if "Hinged doors" is activated (1), the parameter name is different:

Max. car commands =

Selection of the maximum number of travels caused by car calls in which the hinged doors are not opened. When the parameter value is reached, all car calls are deleted.

- ➔ *(0): function deactivated.*
- ➔ *(1): deletion of all car calls if after one travel*
  caused by a car call the hinged door is not opened after the course of the idle time.
- ➔ *(2): deletion of all car calls if after two travels*
  caused by a car call the hinged door is not opened.
- ➔ *(3): deletion of all car calls if after three travels*
  caused by a car call the hinged door is not opened.
- ➔ *(n): deletion of all car calls if after n travels*
  caused by a car call the hinged door is not opened.

Ignoring of landing calls in case of X car commands: X =

In the case of lifts without a full load function, you can use this parameter to realise a pseudo full load function.

- ➔ *(0): function deactivated.*
  Please always select 0 if the function should be switched off.
- ➔ *(n): number of car calls at which the controller changes to the full load state*
  having the effect that landing calls are saved, but not taken into consideration for the call assignment.

The following parameter is covered by the special functions described in parameter set 008*.

Single-sided access entitlement (0/1):

Selection whether the car must be exited on the door side where it was entered.

- ➔ *(0): no restriction of the access / exit*
- ➔ *(1): single-sided access / exit*

  In the case of lifts with 2 door sides it may be required to ensure that a user who enter the car on side 1 leaves the car on side 1, too. This challenge might be presented if the lift is used by two different groups of users (e.g. on side 1 there is a bank and on side 2 an undertaker).

  A safe operation requires the installation of a zero load contact (presence sensor in the car) and the programming of the corresponding input in parameter set "Input addresses" (003*): "Inp. Zero load".

  If you accept in terms of safety that a user can get from one side to the other, you can omit this selection.

  In order to distinguish from which door side a landing call was made, activate the option "Selective door control landing" in parameter set 000*. Select "closed" as the door parking position.

Functional routine (status: no active calls and doors closed):

- Landing call from door side 1: the car is now reserved for door side 1 until all landing calls and car calls from door side 1 are processed and the doors are closed again. However, landing calls from door side 2 are saved.
- Landing call from door side 2: analogous to the procedure on door side 1.

Light barrier output active (closed/open) (0/1):

Selection whether an interrupted or uninterrupted photoelectric barrier generates the signal (-H).

➔ *(0): light barrier contact closed when light barrier is interrupted*
➔ *(1): light barrier contact open when light barrier is interrupted*

Contact of force limiter active (closed/open) (0/1):

Selection whether an active or inactive closing force limiter generates the signal (-H).

➔ *(0): closing force limiter contact closed when closing force limiter is activated*
➔ *(1): closing force limiter contact open when closing force limiter is activated*

Standard (EN81/TRA/OtherEN81) (0..2):

Selection according to which standard the controller should work.

➔ *(0): EN81: European standard*
➔ *(1): TRA: Technical rules for lifts*
➔ *(2): OtherEN81: EN81 with additional functions*

Differences in the controller functions between EN81 and TRA:

Travel to the upper limit switch in case of hydraulic lifts (entry NotOb? in error memory):

TRA: When the limit switch is closed, the system is put into operation again.

EN81: When the limit switch is closed (the lift has descended), the system will lower the car to the lowest landing and remains out of operation ("O" = out of order displayed on the seven-segment display for the operating mode). The system will be put into operation only after a change of the operating mode or a reset.

Exceeding the travel monitoring time (entry FZUeb / EZUeb / SZUeb / RegZUeb in the error memory):

TRA: The systems tries to travel again 10 seconds after the travel time was exceeded. If the travel time is exceeded again during this attempt, the system will remain out of operation. "2" displayed on the operating mode indicator.

EN81: Already when the travel time is exceeded for the first time, the system remains out of operation and can only be put into operation by means of a change of the operating mode (e.g. emergency recall switched on) or a reset.

Meaning of the input AA at the left edge of the LiSA10 board:

TRA: landing control off **EN81:** contactor monitoring.

➔ *(2) : OtherEN81: EN81 with additional functions:*

Additional functions:

- Extended contactor monitoring regarding whether they pull in when starting.

Query for group lifts:

Opening of doors by landing call even if car command (0/1):

Selection whether a closing door should be opened again when a landing button is pressed, if this call is for the same direction as an already active car call.

➔ *(0): door is not opened. The landing call will be answered by a different car.*
➔ *(1): door is opened and the person who pressed the button can enter the car.*

Query for 2 door sides:

Door interlocked against each other (0/1):

Double door function: Selection whether only one side may be opened in the case of two door sides.

➔ *(0): normal door opening*
➔ *(1): double door function when door is opened*

After arriving in the selected landing, side 1 is always opened first and only when it is closed again, side 2 will be opened.
Deviating from this principle, side 2 is opened first if in the case of the selective door control (car) there was only a car call for door side 2. If there is no car call, the same applies to the selective car control (landing) if there is only a call for door side 2.

Switch off interlock between landings (0/1):

If a lift is stopped between two landings, e.g. during an inspection travel, emergency recall, safety circuit interruption, etc., there is the risk that the interlock magnets without a duty cycle of 100% might overheat.

- ➔ *(0): do not switch off the interlock magnets*
- ➔ *(1): wwitch off the interlock magnets*

Interlock contact switch off (no/always/between land.) (0/2):

If a lift is inoperative and the interlock magnet is attracted, there is the risk that magnets with a duty cycle of < 100% might overheat. The described parameter is mainly important for inspection travels and emergency recalls as well as for stops between the landings.

- ➔ *(0): do not switch off the interlock magnets*
- ➔ *(1): always switch off the interlock magnets*

The result is that a hinged door can be opened from the outside during an inspection trip or when the car is in the zone.

- ➔ *(2): switch off the interlock magnets only between landings*

Query for hinged doors:

Unlock if door open (0/1):

This parameter takes account of the demand that due to the risk of injury the hinged door may only be unlocked, when the car door is completely open.

- ➔ *(0): unblock hinged door directly when opening car door*
- ➔ *(1): unblock hinged door only when car door is completely open*

No. of travels till next maintenance / 100:

Selection of the number of travels after which the end of the maintenance interval is reached.
The parameter value must be multiplied by 100. If you want that the end of the maintenance interval is reached after 100,000 travels, for instance, you must set the parameter to 1000.
If the end is reached, the following actions are caused:

- the operating mode indicator (seven-segment display on LiSA) toggles between the normal indication and 0,
- the relay "Rel. End of maintenance interval" pulls in if such a function is programmed in parameter set 006*,
- the output "Outp. Maintenance/Inspection" is activated if such a function is programmed in parameter set 004*,
- a function which can only be set by Schneider is triggered.

The state described above can be cancelled by deleting the controller-internal counter (with 019*) saving the parameters and a subsequent reset.

Inverter via DCP (no, DCP1, DCP3, ZA-DCP3/Thy):

This is an RS485 interface between the inverter and the controller.

- ➔ *(0): activation via discrete signals*
- ➔ *(1): DCP1. DCP interface to RST inverters*
- ➔ *(2): DCP3. DCP interface to RST inverters with double transmission speed and more effective data transmission telegram compared to DCP1*
- ➔ *(3): ZA-DCP3. DCP interface to Ziehl-Abegg inverters*
- ➔ *(4): Thyssen DCP. DCP interface to Thyssen inverters (MFC20/30)*

LiSA-Typ (Lisa5/Lisa7without230VVCon/Lisa7with230VVCon) (0..2):

Serves to adapt the system to the new LiSA10 version described in chapter 2 (LiSA bus).

- ➔ *(0): LiSA10-5 (also valid for ZU7/ZU8/ZU9/LiSA10)*
- ➔ *(1): LiSA10-7 without using the 230V input for the contactor monitoring. Applied if LiSA main boards up to version LiSA10-5 are replaced by LiSA10-7*
- ➔ *(2): LiSA10-7 or higher with connection of the contactor monitoring to the 230V input*

Reaction on chang. direction (No/Gong+stay-time/2. door open) (0..2):

After approaching the selected landing, the travel direction (displayed by travel continuation indicators) is usually reserved until the door is closed after the course of the idle time. The result is that a user waiting in the landing does not have a chance to be transported.

- ➔ *(0): no reaction*
- ➔ *(1): renewed start of the idle time in the case of a landing call and activation of the car gong or landing gong.*
- ➔ *(2): after closing the door it is opened again.*

  Example: The lift is called by pressing both buttons (misuse) at the main landing and moves downwards. If there is no other call below the main landing or if the call is answered by a different car in the group, the direction is changed after the idle time has elapsed and a possible call above the main landing is answered. If the user did not enter the lift due to the displayed travel continuation direction (downwards), the lift will continue without the user (justifiably).
  If there is no misuse as two persons pressed the buttons or if the main landing was approached due to a car call and a user pressed the upwards call button, one user who gave a right call might be left standing.
  By selection the values 1 or 2 for the parameter described above, this deficiency can be reduced.

Ongoing delay on changing direction (0..10) (sec):

After the course of the idle time and change of the travel continuation direction, closing the door is delayed by this time.
Explanation see following example:

The lift is called by pressing both buttons (misuse) at the main landing and moves downwards. If there is no other call below the main landing or if the call is answered by a different car in the group, the direction is changed after the idle time has elapsed and a possible call above the main landing is answered.
If the user did not enter the lift due to the displayed travel continuation direction (downwards), the lift will continue upwards without the user (justifiably).
If there is no misuse as two persons pressed the buttons or if the main landing was approached due to a car call and a user pressed the upwards call button, one user who gave a right call might be left standing.

Distance from target for landing call cancellation

You can determine the position of the cancellation of landing calls in mm.

Pulse monitoring? (0/1)

- ➔ *(0): no pulse monitoring*
- ➔ *(1): during the travel it is monitored whether valid pulses arrive at the pulse input. The check is only carried out at medium and rated speed. If the counting pulses fail to arrive during an interval of 100 ms, the controllers switches to low speed. At the next zone signal or after 5 seconds an emergency stop is effected and the system is put out of operation while displaying "Imfehl".*

  *If the lift stops in the flush position, the system is not put out of operation, but stores **"imfehl"** in the error memory.*
  *If the system recognises a pulse error during the next travel again, the system will finally be put out of operation and enters the error **"ImFehl"** in the error memory.*
  *As mentioned, a pulse error upon which the system does not stop in a flush position results in the "out of operation" status with the entry **"ImFehl"**.*

☞ Please observe the different spelling of the error entries.

☞ There is no monitoring during an assembly operation.

☞ Switching back to normal operation is only possible by means of a reset.

Position control with Vo + Vu:

In the case of systems without absolute encoder and those where the position of the slow-down switch is between landing 2 and 3 or highest landing -1 and highest landing -2, the position of the lift after a restart of the LiSA programme is not always exactly defined.
If the Vo, for instance, is activated when travelling downwards shortly after passing the second landing (approx. 20 cm after it), the controller is able to determine whether the lift is in landing 1 or 2 after a restart with the aid of this additional information.
The same applies to the highest section.

Energy-saving mode (n/y) (0/1)?

Query whether the parameters related to the energy-saving mode should be displayed.

- ➔ *(0): no display of the energy-saving parameters*
- ➔ *(1): display of the energy-saving parameters*

Car light switch-off time / VVVF control to standby (sec):

After the last travel and when the selected time in seconds has elapsed, the car light is switched off.
The range of functions has been extended to the effect that this parameter also controls the changeover of the inverter (currently only available for Ziehl-Abegg) to the standby mode.

Deactiv. position indic. after ..X (sec):

After the last travel and when the selected time in seconds has elapsed, the LiSA bus displays are turned off.

Ongoing direction arrows switch off after X sec:

This parameter is only important, if the value 2 has been selected for the parameter "Type of ongoing direct.", i.e. the travel continuation indication is landing-selective and shows a double arrow (up+down) if no travel continuation direction is active.

Outp. set VVVF control to standby mode

According to the selected time mentioned above, the signal for switching the inverter to standby is active at the defined output. In this way the energy consumption may be reduced by approx. 12 - 20 W.

Attendant control (n/y) (0/1)?

Query whether the parameters related to the attendant control should be displayed.

- ➔ *(0): No display of the attendant control parameters*
- ➔ *(1): Display of the attendant control parameters*

Inp. Accu. empty =

Input which evaluates the signal from the battery monitoring electronics. If the battery is full, the signal is present. If the LiSA emergency call system is used, the system effects a call to the emergency call service centre when the signal is not present and indicates that the battery is empty.

Inp. Car light sensor:

Input with which the failure of the car light is indicated to the controller.
This function is required for the attendant control. If the LiSA emergency call system is used, the service centre is called as soon as this input is active.

Mess. to serv. cent. in case of frequ. occur. steps > (.. %)

This function serves to cover an attendant function upon which an attendant must check periodically (weekly) whether the lift stops in flush positions.
Function:

Each landing has two counters. One serves to store how often this landing is approached, the second one sums up the number of registered steps (approx. > 15 mm) in this landing.

If the number of steps in one landing based on the number of travels to this landing exceeds the percentage value selected by means of the parameter "Message to service centre in case of frequently occurring steps > (...%)", a message is transmitted to the service centre.

After a successful transmission, all counters are set back to zero.

Test travel with open door (0/1) =

?

Destination control (light) (0/1):

Query whether the call processing should be done by destination calls.

- ➔ *(0): collective call control*
- ➔ *(1): destination call control (light)*

If 1 = destination call control (light) is selected, group lifts display the travel continuation direction of the approaching lift already when passing the landing before the destination. This should give the users enough time to get to the corresponding lift, e.g. in case of groups of 8.

Lift safety module (LiSaMod) (n/y) (0/1)? =

?

UCM release distance (mm) =

?

UCM release speed (mm/sec) =

?

UCM release acceleration (mm/sec2) =

?

Maximum acceleration (mm/sec2) =

?

Minimum deceleration at final landing (mm/sec2) =

?

Emergency braking at v = X (mm/sec) =

?

GB release at v = X (mm/sec) =

?

Distance inspection mode pre-limit switch (mm) =

?

Distance to emergency switch top/bottom (mm) =

?

Distance inspection mode limit switch (mm) =

?

Inp. LiSaMod out of operation =

?

UCM valve (n/y) (0/1) =

?

4.2.2. General elevator times: (selected via LiSA keyboard entering 001*)

The times for controlling the door movement described in the following, i.e. idle time, door opening and door closing monitoring time, can be made visible by entering 4* on the LiSA display: In doing so the currently passing time and the counter reading are displayed:

- Idle time: STZ = ..
- Door opening monitoring time: OKZ = ..
- Door closure monitoring time: SKZ = ..

Stay-time following a car command (sec):

Time for which the doors are kept open in the landing after a car call without an active landing call.

➔ *Start:*

- Door opening monitoring time elapsed.
- Door open limit switch interrupted (door completely open).
- Photoelectric barrier free again after the idle time has elapsed once.
- In the case of values >= 25 seconds, the idle time is set to 2 seconds after pressing a car button.

➔ *End:*

- counter timeout.
- Door close button activated.

Stay-time following a land. call (sec):

Time for which the doors are kept open in the landing after a landing call.

➔ *Start: (see idle time following a car command)*

➔ *End: (see idle time following a car command)*

The idle time for car calls cannot be smaller than the idle time for landing calls.

In the case of idle times > 25 seconds, the idle time is set to 2 seconds after pressing a car button. If there is already an active car call when the idle time is started, the idle time is set to 10 seconds.

Stay-time after entering a car command:

Time for which the doors are kept open after entering a car command.

➔ *Start: entering a car call*

➔ *End: (see idle time following a car command)*

A longer idle time might be desired for various lifts, e.g. car lifts, bed lifts, lifts in retirement homes, etc. As soon as a car button is pressed, the lift should, however, start immediately. This can be realised by selecting a short idle time after entering a car command.

Door opening monitoring time (sec):

Monitoring time for the door opening.

➔ *Start: start of the door open movement (door open command is active)*

➔ *End:*

- counter timeout.
- Signal of the door open limit switch has arrived.

If the safety circuit (in case of a door open limit switch installed at SK4 or SK3) is not interrupted when the door opening monitoring time has elapsed, the system tries to open the door again. A door failure is recognised after 5 unsuccessful attempts.
If the door drive has a door open limit switch, the selection of the value for the door opening monitoring time is uncritical (a good value is 10 sec.) as the idle time is immediately started when the door limit switch signal arrives.
In the case of doors without a door open limit switch, the value should be set to a value similar to the time which the door actually needs in order to open.

Door closure monitoring time (sec):

Monitoring time for the door closing.

➔ *Start: start of the door closing movement (door closing command is active)*

➔ *End:*

- counter timeout.
- Signal of the door close limit switch has arrived.
- Safety circuit closed (at SK3).

If the safety circuit (at SK3) is not closed when the door closure monitoring time has elapsed, the system tries to close the door again. A door failure is recognised after 5 unsuccessful attempts.

- All car calls are deleted.
- In case of single lifts, all landing calls are deleted. In case of group lifts only if no lift in the group can answer landing calls.
- Adoption of the operating mode "door failure". -> "T" is displayed on the operating mode indicator (7-segment LED on main board).
- After a car call - in case of single systems also after a landing call - the door failure is cancelled and the system tries to close the door.
- Now a door failure is recognised after only 2 unsuccessful attempts.
- After a total of 10 consecutive door failures, the operation is ceased.
- Only the first door failure is entered into the error memory.

The value for the door closure monitoring time is uncritical (a good value is 20 sec.). Only in the case of two door sides and large doors it might be useful to select a higher value in order to avoid that the second side is opened again after a correct closing of the first side (SK3 is not recognised when the door closure monitoring time has elapsed).

Travel monitoring time (sec):

Monitoring time for the travel motion.

➔ *Start:*

- The car starts and is located within the zone.
- The car leaves the zone (travel monitoring time = parameter value), i.e. the travel monitoring time is restarted in every landing.
- The car enters the zone of the destination.
- After changing to slow speed (travel monitoring time = parameter value).
- When relevelling (travel monitoring time = 95 if relevelling process out of zone).

➔ *End:*

- Counter timeout -> travel monitoring time exceeded:
- All car calls are deleted.
- In case of single lifts, all landing calls are deleted. In case of group lifts only if no lift in the group can answer landing calls.
- Adoption of the operating mode "Travel time excess" -> "Z" is displayed on the operating mode indicator (7-segment LED on main board).

If the parameter "Standard" is set to TRA (1), the system starts a new attempt to travel 10 seconds after the travel time was exceeded. If the travel time is exceeded again, the operation is finally ceased. If "Standard" is set to EN81 (0), the operation is ceased immediately. In the case of hydraulic lifts, the car is lowered to the lowest landing. The system will be put into operation only after a change of the operating mode or a reset.

Entries in the error memory:

- Travel time exceeded when starting: "SZUEB" (start time exceeded)
- Travel time exceeded between landings: "FZUEB" (travel time exceeded)
- Travel time exceeded when approaching the destination: "EZUEB" (approaching time exceeded)
- Travel time exceeded when relevelling: "RZUEB" (relevelling time exceeded)

Door stop time (sec):

Function which serves to ensure that the car door may remain open for a certain time (when loading the car).

➔ *Start: Pressing the door stop button*

You can recognise an activated door stop function by the flashing door stop button light. If the light is not supposed to flash, but to be continuously on (e.g. as it might make the impression of a dangerous situation), this can be achieved by selecting a door stop time > 600 seconds. Then the actual door stop time is the selected time - 600.

➔ *End:*

- counter timeout.
- The door stop button was pressed while flashing before the door stop time has elapsed.
- When selecting 0 for the door stop time, the function is active until it is deactivated by pressing the door stop button.

Additionally required parameters:

"Inp. Door stop button" in the parameter set "Input addresses" (003*).

Within a group, the lift does no longer take part in the landing call assignment, i.e. it behaves as if the landing control had been switched off.

Car fan running time (sec):

Duration of the car fan overtravel time after pressing the fan button in the car.

➔ *Start:*

- Pressing the fan button -> activating the fan relay. You can recognise an activated fan function by the flashing fan button light.
- At the end of the travel if no input is programmed for the fan push button.

➔ *End:*

- Counter timeout -> switching off the fan relay.
- The fan button was pressed while flashing before the fan overtravel time has elapsed.

Additionally required parameters:

"Inp. Fan button" in the parameter set "Input addresses" (003*).

"Rel. Car fan" in the parameter set "Relay addresses" (006*).

If the car stops between two landings, the car fan is automatically activated.

Parking time normal travel (sec):

Time after which the parking travel is effected.

➔ *Start: start of the door opening.*

➔ *End: counter timeout.*

Additionally required parameter:

"Parking mode (...)" in the parameter set "General elevator parameters" (000*).

A hydraulic lift located in the lowest landing does not start a parking time, unless the parameter "Starting delay / Multifunc parameter 2" is set to the value 206.
The course of the parking time can be made visible on the display by pressing 4*.
If the car is already in the parking landing, the counter is only loaded with 2 seconds.

Parking time time-travel 1 (sec):

Time after which the parking travel is effected in the clock-controlled travel mode 1.

Parking time time-travel 2 (sec):

Time after which the parking travel is effected in the clock-controlled travel mode 2.

The following parameter is to be found under 000* (activated energy-saving mode).

Car light switch-off time (sec):

Selection of the time when the car light is switched off.

➔ *Start:*

- End of the door closing motion (SK3 displayed).

- End of the idle time with open door parking position.

➔ *End: (ca light off)*

- counter timeout.
- Door is opened again.

Additionally required parameter:

"Rel. Car light off" in the parameter set "Relay addresses" (006*).

Query for frequency-controlled rope traction lifts:

Cut-off delay (ms):

Time started when the braking deceleration time has elapsed.

➔ *Start:*

- end of the braking deceleration time.
- Activation signal V0 for the frequency control is switched off (V0 = approaching speed for frequency-controlled systems).
- The control starts with the deceleration to speed 0 (electr. stop).

➔ *End:*

- timeout.

➔ *Response:*

- LiSA switched off the direction contactors (K2 / K4). After a preset time of 300 ms, the travel contactors K3 and K3Z are switched off.

Before the cut-off delay time elapses, the controller must have given the signal to activate the mechanical brakes. This means that the cut-off delay time must at least have a value which ensures that the mechanical brake has been safely applied before the cut-off delay time elapses - no "stopping against the brake". A correct stopping process can well be determined acoustically. Observe the clearly distinguishable switching of the contactors: first the brake contactor (K8), then the direction contactors (K2 / K4) and finally K3 and K3Z.
A good value for the cut-off delay is 1500 ms. The result of the cut-off delay is that systems without early opening doors will open the car doors relatively late (dissatisfied customers, particularly after a modification from an unregulated to a frequency-controlled system). It is advisable to deliver frequency-controlled systems always with early opening doors in order to eliminate the negative consequences of the cut-off delay. The time-saving by means of early opening of doors is then pushed to the background.
If the cut-off delay time is too short, this can infrequently lead to steps when stopping.

Query for frequency-controlled rope traction lifts by Siemens or Yaskawa1

Time between direct. and main contact. off (ms):

Timeframe between switching off the direction signal and switching off the travel contactor.
Inverters which conduct the stopping process from the approaching speed by switching off the V0 signal, the procedure is like for the parameter "cut-off delay" described above.
Some inverters, like Siemens or older Yaskawa versions, start the stopping process as soon as the direction signal is switched off, having the consequence that the preset time of 300 ms between direction off and travel contactor off leads to a sudden stop.
These inverters require the following setting.
- Select a small value (e.g. 5 ms) for the "cut-off delay" -> direction signal is switched off immediately after the V0 signal. Then the travel contactors are switched off according to the time selected for the parameter "Time between direct. and main contact. off (ms)", thus after 1500 ms, analogous to the cut-off delay.

➔ *Start: end of the braking deceleration time.*

- When the cut-off delay time has elapsed.
- The control starts with the deceleration to speed 0 (electr. stop).

➔ *End: timeout.*

- LiSA switches off the travel contactors K3 and K3Z.

Query for frequency-controlled rope traction lifts Yaskawa2

Time between brake off and direction off (ms):

Timeframe between switching off the brake signal and switching off the direction contactors.

The controller generates an individual braking signal for more recent Yaskawa inverters (e.g. L7) via IO7. If this signal is used, the direction signal must be switched off a certain time after switching off the braking signal in order to stop smoothly.

Query for hydraulic lifts:

Hydr. lowering time (sec):

Time after which the lift is lowered to the lowest landing.

➔ *Start: start of the door opening motion or end of parking time*

➔ *End: (lowering) counter timeout*

The lift is lowered even if the landing control is switched off or the key-control is activated (TRA requirement).

Query for hydraulic lifts and overtravel (see parameter "overtravelling" in 000*):

Overtravelling valve/pump (ms):

Overtravel time for valve / pump depending on the overtravel type selected in the parameter "Overtravelling".

➔ *Start:*

- When the braking deceleration time has elapsed.
- In the case of the valve overtravel (e.g. Oildinamic or GMV), the delta contactor is switched off and the open-valve remains activated.
- In the case of the pump overtravel (e.g. Beringer and ALGI), the open-valve is closed while the pump motor keeps running.
- When moving downwards and using Beringer hydraulics (pump overtravel), the down activation signal (generated via a freely programmable pump overtravel relay) at the input of the Beringer electronics component is switched off by the valve overtravel time earlier than the down travel signal.

➔ *End:*

- timeout.
- All activation signals are switched off.

Additionally required parameter for the pump overtravel:

"Rel. Overtravelling pump" in the parameter set "Relay addresses" (006*).

In the event of a safety circuit interruption during the travel, the overtravel function does not work without additional hardware (RC element parallel to the open-valve). Especially if there is the risk that the car ... during a safety circuit interruption or inspection travel, the hardware solution should be used. (Schneider provides the corresponding RC elements.)

Query for hydraulic lifts:

Star-delta time (ms):

Changeover time from star to delta contactor.

➔ *Start: start of the upwards travel (switching of the upwards and star contactor)*

➔ *End: timeout. (switching of the delta contactor)*

Query for rope traction lifts:

Motor fan overtravel (sec):

Duration of the overtravel time for the motor fan after stopping.

➔ *Start: the overtravel time is started when the door is opened, but the fan relay is switched when the travel starts.*

➔ *End: counter timeout.*

Additionally required parameter:

"Rel. Overtravelling motor fan" in the parameter set "Relay addresses" (006*).

Starting delay / Multifunc. parameter 2 (ms):

Originally: Starting delay = duration of the interlock debouncing time.

➔ *Start: after closing the car door (SK3 displayed)*

➔ *End: timeout - system starts*

Now: Multifunctional parameter 2.
By setting different value you can select additional, relatively rare functions which would otherwise have to be realised by means of individual parameters. **The standard value is 200 ms**. When using the values listed below, 200 ms are also set internally.

Multifunctional parameter 2:

- 200: standard value.
- 178: system which remain blocked after an evacuation close the door.
- 193: pictograph "no passage" displayed instead of rolling text "out of service".
- 195: the misuse suppression is not switched off if the door open button and alarm button are pressed at the same time.
- 196: start of the complete reservation time for the priority travel after the 1st travel from the priority landing.
- 197: upwards buffer travel without stopping.
- 198: "out of operation" shown on the matrix displays if the operating mode is inspection or recall.
- 206: hydraulic lift moves to the parking landing even from the lowest landing.
- 210: door stops if the photoelectric barrier is interrupted.
- 225: Automatic travel after using the priority key between landing 1 and landing 5 = sauna travel (works only with this number of landings and assignment!).
- 227: deletion of landing calls always 600 mm before destination.
- 229: automatic lowering after protective light screen interruption to the next lower landing.
- 240: absolute encoder zone test (temporary).

Warning signal prior to door closing (sec):

Time between the door closing command the actual door closing.

Before the actual door closing motion, a signal can be put out, namely

- as a message text that the door will soon be closed or
- e.g. for car lifts in the form of a traffic light turning red.

➔ *Start: door closing command*

➔ *End: timeout - door closes*

Additionally required parameters:

"Outp. EText: door closing" in the parameter set "Output addresses" (004*) in the case of the text output, or "Outp. traffic lights in car" in parameter set 004* in the case of car lifts.

Query in case of hinged doors / group:

Car out of group, if blocked in a land. / / door closed, if undefi. after sec.: :

Time after which a signal is put out that the hinged door is open or, in the case of group system, indicates to the other lifts in the group that the car does no longer participate in the landing call assignment.
If the system is in an undefined state (active calls are not answered), a door closing command using the door closing button is simulated.

➔ *Start:*

- Opening the hinged door (= manually operated shaft door).
- Interruption of the photoelectric barrier.
- Interruption of the safety circuit during the travel.

➔ *End:*

- Timeout -> the system effects the corresponding signalling.
- Hinged door closed again -> activation of a freely programmable relay or output for 6 seconds in order to switch an acoustic signal -> message to the other lifts in the group.

Additionally required parameters:

"Outp. Acoustic signal" in the parameter set "Output addresses" (004*) or

"Rel. Busy siren (signal)" in the parameter set 006*.

The indication that the hinged door is open can either be effected via the "busy"-relay or with the 16*8 matrix displays, if the display type is set to 3 (=16*8withX). The a small square is displayed to the left of the car position. An "X" on the LiSA display indicates the status "lift does no longer participate in the landing call assignment" at the place where the car position is indicated (usually a filled or open rectangle).

Door reversal delay / Multifunct. param. 1 (ms/sec):

Originally: Door reversal delay = time between switching off the door closing signal and application of the door open signal.

➔ *Start:*

- Switching off the door closing command.

➔ *End:*

- Timeout.
- Output door open command.

The purpose of this parameter is to avoid short circuits when switching three-phase door drives. **The standard value is 100 ms.**

Now: Multifunctional parameter 1.
By setting different value you can select additional, relatively rare functions which would otherwise have to be realised by means of individual parameters. The standard value is 100 ms. Value over 200 ms are internally set to 100 ms. When using the values listed below, 100 ms are also set internally.
Multifunctional parameter 1:

- 100: standard value.
- 71: activates position display in car call button -> from G20.02.09 on: special OP travel -> press the OP button and the landing button simultaneously for 2s to effect a priority travel.
- 72: releases the call mask via input clock-controlled travel 2: as soon as the input is active, the previously blocked calls can be made - LiSA does not display "clock-controlled travel 2", but still "normal operation"!
- 74: travel continuation indication with LBDB8.
- 80: to activate the group adapter -> MF was replaced by parameter "Group adapter (0/1)".
- 82: only one landing button, car selection, transfer IO. -> special behaviour at the car selection input in groups of 3 and transfer IO.
- 83: priority travel car does only affect the door side which is released (door 1 > normal, door 2 > clock-controlled travel 1).
- 89: door closing button regardless of the photoelectric barrier.
- 90: no entries "toohigh" and "toodeep" in the error memory.
- 94: indication of the travel direction by flashing landing call buttons.
- 95: flashing landing call button at the destination.
- 96: the users are notified via "1st output arrival gong" to use a different lift.
- 97: new picture added for bus displays: one-way road symbol (-) instead of fire emergency text (the picture of landing 31 is activated).
- 98: door are not closed in switch-off landing after activation of the function landing switch-off.
- 99: inverted output of travel direction, gray and binary code to activate displays with a positive signal.
- 101: dead man's control for doors: hinged doors and door parking position closed - doors are nevertheless open, will only close when door closing button or special service key is activated in the corresponding landing, when released, door will open automatically.
- 106: special priority travel.
- >= 120 and <= 150: the activation of an input determined by the parameter "1. Inp. car selection" generates a car call with an extended idle time (= time for which the doors are kept open). The idle time is variable and is calculated as follows: idle time = door reversal delay - 120 seconds.
- > 150 and <= 200: if the parameter "Output Nudging" is programmed, the output "nudging" is activated after a door reversal delay time - 150 sec. if the photoelectric barrier is interrupted (= nudging signal for electronic door control).

Early opening of door interlock (ms):

Timeframe between unlocking the car door and the actual door open signal or delay of the door opening motion when approaching with early opening doors.

- ➔ *Start: centrical inductor switch enters the zone of the destination*
- ➔ *End: timeout - car door is opened*

In the case of additionally locked automatic car doors, this serves to prevent that the cabin door opens "against the locking".

The parameter originally only intended for this function can only have a positive effect in the case of early opening doors, if you want to achieve that the doors are not yet opened when the centrical inductor switch enters the zone.

Delay time for switching lock contact:

Timeframe between closing the hinged door and activation of the locking (switching the retiring cam).

- ➔ *Start: hinged door closes (SK2 closed)*
- ➔ *End: timeout - retiring cam pulls in*

If the hinged doors have bumpers, this serves to achieve that the doors are only locked when they are safely in the closed end position.

Max. waiting time for land. call (sec):

Time which serves to prevent that landing calls remain unanswered in the event of undefined operating modes or that a landing call is not answered for a disproportionately long time.

- ➔ *Start: landing call is confirmed*
- ➔ *End: timeout - creation of a car call for the corresponding landing*

There is one counter for each landing call.
The duration of the maximum waiting times per landing can be determined by calling the error sums (010*).

Reserv. after land. priority travel (sec):

Serves to determine the duration of the reservation (change to car priority travel).

- ➔ *Start: arrival at the key landing with the key taken out during the travel or the car has already been in the key landing and the key is taken out*
- ➔ *End: timeout*

In this way the user has the possibility to effect a priority travel without requiring the key in the car.

Blocking time for landing call in reverse direction (sec):

Serves to define the time for which, after pressing one button in a landing, a call in the same landing for the opposite direction is ignored.

If relay or output "collective fault (signal)" is programmed:

Delay time for collective failure (signal):

Serves to select when the signal (relay or IO) "collective failure" should be sent to the service centre after a failure. By means of the delay time for collective failure messages you can filter out messages which appear only for a short time.

Warming-up all X hours (1..24):

Serves to define a timeframe after which a travel is effected to the highest landing and back.

Time for door close delay by landing call:

Next cabin call accepted after X (ms):

In order to avoid several car calls at the same time you can select a timeframe in ms.
From software 06.12.09 on, the value is preset to 500 ms.

4.2.3. Travel times / pulses: (selected via LiSA keyboard entering 002*)

The following parameters serve to adjust the travel behaviour of the system, like:

- stopping in a flush position
- deceleration points and
- selection of the travel speeds.

The parameter values for stopping (braking deceleration) and deceleration (deceleration distances) are internally processed as timeframes (using the timing method) or counter values (using the pulse method).

If you use the timing method, the deceleration distances are indicated in mm, but internally converted into times.

The timing method is only described in the following for the sake of completeness, as by now the pulse method (digital shaft selection) or the absolute encoder are widely used.

If you use the fixed-point method, the parameters of the parameter set "travel times / pulses" have no effect.

Decel. Up mm/ms:

Time / distance to adjust the flushness when travelling upwards.

➔ *Start: parameter "stopping with the middle signal generator"*

- = 1: the centrical inductor switch enters the zone.
- = 0: the bottom inductor switch enters the zone.

➔ *End: timeout / distance travelled*

Decel. down mm/ms:

Time / distance to adjust the flushness when travelling downwards.

➔ *Start: parameter "stopping with the middle signal generator"*

- 1 = the centrical inductor switch enters the zone.
- 0 = the top inductor switch enters the zone.

➔ *End: timeout / distance travelled*

The response when the deceleration time has elapsed or the lift approaches the braking distance depends on the type of lift:

- Rope traction lifts: switching off all contactors -> application of the mechanical brake.
- Frequency-controlled rope traction lifts: switching off the speed signal (relay V0) -> controller switches from creeping velocity to standstill -> start of the cut-off delay.
- Hydraulic lifts:

  without overtravel and when moving downwards: switching off all travel signals -> lift stops.

  with valve overtravel: switching off the pump motor and start of the overtravel time for the open-valve.

with motor overtravel: switching off the valve control and start of the overtravel time for the pump.

☞ Controllers with direct approach, like Dynatron-S and –F, the parameters for the braking deceleration have no effect and are therefore not queried.

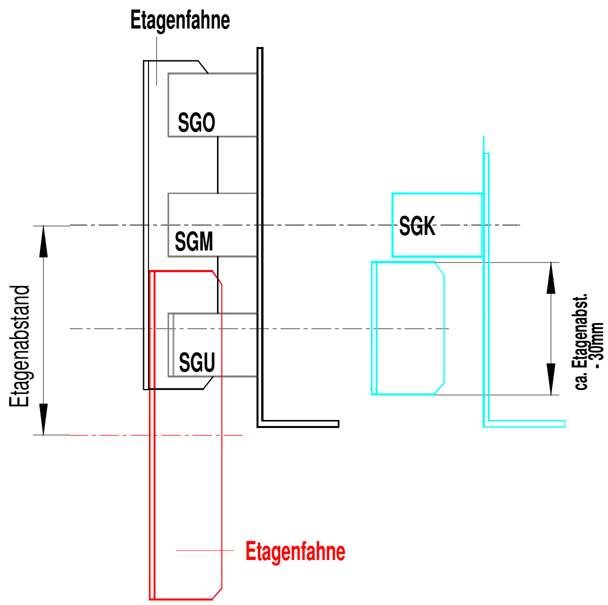
Short travel if floor distance < ? (0..500 mm):

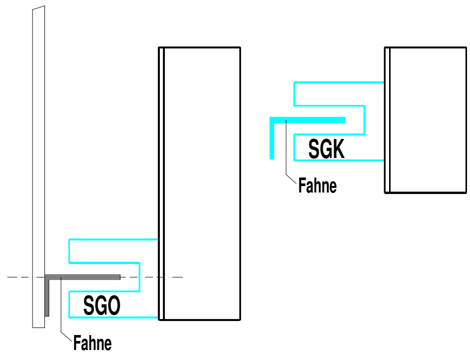
Until end of January 2005, each short travel with landing distances < 400 cm required a special software and additionally the following parameter settings:

- Multifunctional parameter 2 set to 212.
- perhaps parameter "Stop delay 1 <-> 2 mm" if no second selector block was used or
- if relevelling was necessary, a second selector block and the corresponding parameter "Outp. Switch to second selector block" were required.

Now the parameters mentioned above are no longer required and by means of the parameter "short travel if floor distance < ?" it is possible to realise any number of short travel landings (landing distance < 400 mm) without a special software.

Description:
Each landing distance < parameter value is automatically treated like a short travel landing. This means that you do not have to determine explicitly where the short travel landing is. The only requirement is a metal rail with the corresponding length installed for the short travel landing. Length = usual rail length + landing distance, i.e. if the landing distance is 19 cm and the rail length is 20 cm, the length of the zone is 20 + 19 cm = 39cm.
The travel distance at creeping velocity between the short travel landings is landing distance – braking deceleration distance.
If it is necessary to relevel, a new parameter "Input levelling" (see parameter set "Input addresses") is applied. Furthermore, an additional inductor switch (SGK) (proximity switch or magnetic switch) is required. It must be mounted at the same height as the centrical inductor switch and connected to the "levelling" input.
Besides, the creation of a zone (rail or by means of magnets) of approx. landing distance - 3cm is necessary. The middle of this zone is exactly the middle of the short travel landing.
If the car is in a flush position, for instance in the upper short travel distance, then the additional inductor switch is above this zone and not active. If the car descends for approx. 2cm (2cm beyond the flush position), the additional inductor switch activates the "levelling" input and the controller adjusts the position at speed Vn until the additional inductor switch leaves the zone.





Query if parameter "levelling" is set to 1:

Braking deceleration distance / absolute encoder braking distance when levelling mm/ms:

Time / distance to adjust the flushness when levelling.

➔ *Start: travelling upwards: bottom inductor switch enters the zone*

Travelling downwards: top inductor switch enters the zone

➔ *End: timeout / distance travelled*

The relevelling process is started, if the top or bottom inductor switch does not enter the zone when approaching the destination (entry "toohigh" or "toodeep" in the error memory) or goes beyond it (entry "SuZoneW or "SoZone" in the error memory) or in standstill due to the rope elongation or due to system-related conditions in the case of hydraulic lifts.
When using the absolute encoder:
The parameter "Decel. relevelling" serves to take account of the fact that the levelling speed is normally lower than the creeping velocity when approaching the landing.

Decel. path up with Vrated (mm):

Distance to determine the deceleration point when travelling upwards at rated speed.

The deceleration path up defines the point at which the system switches to approaching speed before the destination in order to ensure a safe stop.

Decel. path down with Vrated (mm):

Distance to determine the deceleration point when travelling downwards at rated speed.

Analogous to the upwards travel, but in downwards direction.

Query for absolute encoders:

Signal when speed > X mm/sec:

When using the absolute encoder, the LiSA bus module for absolute encoders (LBM absolute encoder) generates various signals which can be evaluated by the LiSA controller.
The parameter "signal when speed > x mm/sec." defines a limit speed, if this limit speed is exceeded, the output "signal speed > limit speed 2" on the LBM absolute encoder is activated. As soon as the speed falls below the limit speed, it is reset.
This signal may be used for fast systems in order to monitor the deceleration when approaching the final landings.

Query for absolute encoders:

Levelling if step/entry in fault mem. > X mm (10..50) =

Parameter which serves to select the deviation from the flush position beyond which the relevelling or step entry in the error memory is started.

Query for absolute encoders:

Door opening only if step < X mm =

Parameter which serves to define up to which step height the doors may be opened.

Query for absolute encoders:

Distance to emerg. switch on top =

Parameter which serves to select the distance between the upper flush position to the emergency limit switch. Is mainly used for hydraulic lifts in order to determine the emergency limit switch activation. As in the case of absolute encoders the signal for the bottom inductor switch and the top inductor switch is connected in parallel, it will not be switched off when the emergency limit switch is activated and therefore only the actual height serves to recognise an activation of the emergency limit switch when SK1 is interrupted.

Query for absolute encoders:

Distance inspection mode pre-limit switch =

Parameter which serves to define the breakpoint in upwards direction (operating limit switch) during an inspection travel. The distance refers to the flush position of the highest landing. The value must be entered in mm, complying with the regulations of the European standard.

Excerpt of EN81-21:
5 .7 .1 .1 .1 The electric interruption of the upward movement of the car must consists of

a) a direction-dependent emergency limit switch according to EN81-2.1998, 14.1.2.2 which allows only for a movement in downwards direction and
b) an additional limit switch according to EN81-2:1998, 10.5.3.1 a).

.

5 .7 .1 .1 .2 The direction-dependent emergency limit switch according to 5.7.1.1.1 a) must be activated in such a way that a free distance of at least 1.80 m is ensured between the top of the car and the shaft ceiling or a distance of at least 1.50 m to the lowest parts installed under the ceiling.
In addition, the top of the car must at the most be 0.8 m above the level of the highest landing when in this position.

Example: If there is a protective area of 1.2 m in the flush position, the inspection travel must be ended 60 cm before. In this case you enter 600 mm.

Query only for frequency-controlled systems:

Limit dist. from dest. with speed Vz2 (mm):

Selection of a limit value for the distance from the destination below which the lifts travels at the 2nd intermediate speed.

Additionally required parameters:
"Rel. travelling with speed Vz2" in the parameter set 006*, if not activated via 1st output controller/inverter signals.

Limit dist. from dest. with speed Vz1 (mm):

Selection of a limit value for the distance from the destination below which the lifts travels at the 1st intermediate speed.

Additionally required parameters:

"Rel. Running with V1 (Vz1) " in the parameter set 006*, if not activated via 1st output controller/inverter signals.
When starting, LiSA calculates the distance to the destination. If the distance is smaller than the value for the distance limit at speed Vz2, but larger than the distance limit at speed Vz1, LiSA activates the speed V2 at the controller/inverter.
If the distance to the destination is smaller than the distance limit at speed Vz1, LiSA activates the speed V1.
In any other case, speed V3 is used, unless the parameter "Landing-to-landing travel with Ve" (see parameter set 000*) provides for a travel at Ve (= approaching speed).
In this way up to 4 speeds can be selected, provided that the controller is able to effect these speeds.

In the case of frequency-controlled systems Vz2 is often called V2 - in the case of Dynatron 60% Vrated.
The speed Vz1 is often called V1 - in the case of Dynatron it is called "short travel speed".

Query if parameter "Limit dist. from dest. with speed Vz2" is > 0:

Decel. path up at speed Vz2 (mm):

Selection of the deceleration point when travelling upwards at speed Vz2.

Decel. path down at speed Vz2 (mm):

Selection of the deceleration point when travelling downwards at speed Vz2. In the case of Dynatron, the deceleration distance for speed Vz2 is half as long as for Vrated.

Input travelling with Vz2

If the IO is activated, the second intermediate speed is selected instead of the rated speed.
Purpose:
Fast systems might require that the rated speed is reduced to a lower speed at a certain point (e.g. due to the buffer construction).

Query if parameter "Limit dist. from dest. with speed Vz1" is > 0:

Decel. path up up at speed Vz1 (mm):

Selection of the deceleration point when travelling upwards at speed Vz1.

Decel. path down at speed Vz1 (mm):

Selection of the deceleration point when travelling downwards at speed Vz1.

Query if parameter "braking method" is set to 3:

Emergency stop after entering zone in ? ms:

If in the case of the pulse method the pulse sequence fails to arrive when braking, the lift will go beyond the zone.
The parameter "emergency stop after entering zone in ? ms" serves to monitor the stopping as well.
When the centrical inductor switch enters the zone, a time function is initialised in parallel to the braking deceleration after the course of which an emergency stop is effected, unless the lift has already stopped in the regular way.

Query if parameter "relay limit speed" has been programmed:

Switching threshold for relative limit speed mm/sec:

If the speed defined by the parameter is exceeded, the limit speed relay switches. The speed is measured by evaluating the pulses in the LiSA controller.
Note: In the case of a reduced overtravel, 2 independent speed measurements must prove that the speed has fallen below a certain value.

Query for timing method or controller type = Dynatron:

Correction upon landing-to landing (% / mm):

Prolongation of the landing-to-landing travel in downwards direction for the timing method in %.

Query for timing method or controller type = Dynatron:

Correction upon landing-to landing (% / mm):

Prolongation of the landing-to-landing travel in downwards direction for the timing method in %.
In the case of Dynatron-S / -F reduction of the brake application (KBR signal) in mm.
Unregulated rope traction lifts and hydraulic lifts can be very load-dependent. During downwards landing-to-landing travels using the timing method, this is mainly evidenced by a longer creeping distance when approaching (the downwards speed is usually lower than the upwards speed).
A value > 100% prolongs the time for a fast landing-to-landing travel on a percentage basis, a value < 100% reduces it accordingly. Normally the value is > 100.
In the case of Dynatron without fixed KBR points in the shaft (with KBR relay), a programme-related deviation during landing-to-landing travels is corrected. The correction value can be up to 20 mm for fast systems (>= 1.6 m/sec). For all other controller types without a direct approach this leads only to a correspondingly longer creeping distance.

Correcting short normal travel up (% / mm):

Prolongation of the travel time for short normal travels in upwards direction using the timing method in %.
In the case of Dynatron-S / -F reduction of the brake application (KBR signal) in mm.

Correcting short normal travel down (% / mm):

Prolongation of the travel time for short normal travels in downwards direction using the timing method in %.
In the case of Dynatron-S / -F reduction of the brake application (KBR signal) in mm.

"Short normal travel" means that the rated speed is not reached in the landing before the destination.
In the case of landings with short travel landings or high speeds it might be necessary to initiate the deceleration already after leaving the starting point. This means that no landing is passed at high speed before reaching the destination (like using the landing-to-landing travel). As a relatively simple operation is used to calculate the deceleration point (addition of the landing-to-landing travel times between starting point and destination), the practical result is that the creeping distance is too long. This correction value serves to prolong the high speed travel time.
In the case of Dynatron, a problem analogous to the landing-to-landing travel can be solved.

Correction with reduced overtravel - up (mm):

In the case of the reduced overtravel up, the requirement is that the fast speed during travels to the highest landing is switched off by a forcibly activated shaft switch and reduced to a lower intermediate speed. Depending on the speed, this happens already 0.5 - 1.5 m before the slow-down switch with the result that the lift would travel extremely long at creeping velocity, if switching off the medium speed was not delayed.
The correction with reduced overtravel serves to shift this switch-off point by the corresponding value towards the final landing.

Correction with reduced overtravel - down (mm):

Function analogous to the parameter described above, but for the reduced overtravel down.

Landing to landing travel time / distance (n/y) (0/1)?

Query whether the parameter related to landing-to-landing times / distances should be displayed.

- ➔ *(0): landing-to-landing times are skipped*
- ➔ *(1): landing-to-landing times are queried*

Fast landing-to-landing travel (1 <-> 2) ms / mm:

Fast landing-to-landing travel (2 <-> 3) ms / mm:

Fast landing-to-landing travel (last landing - 1 <-> last landing) ms / mm:

Duration of the fast travel between the landings in ms or mm.

➔ *Start: centrical inductor switch leaves the zone*

➔ *End: timeout / distance travelled*

In the case of the timing method, this entry is obligatory, with the value 0 having the effect that the system effects the landing-to-landing travel at a low speed. The correct value must be determined by testing.

In the case of frequency-controlled systems working with the pulse method and not reaching the rated speed, the value must only be <> 0 if the controller / inverter is able to work with ogival cams (e.g. Ziehl-Abegg). In the case of controllers without this feature (e.g. Dietz), you must use a lower speed. If Vrated or the activated intermediate speed is reached, the parameter must be set to 0. In this case LiSA is able to calculate the duration of the fast landing-to-landing travel autonomously, namely from the landing distance and the deceleration distance for the speed at which the landing-to-landing is effected.

Query except for the fixed-point method, Dynatron with KBR signals in the shaft and absolute encoders:

Step correction (n/y) (0/1)?

By selecting 0, the step correction queries are skipped. By selecting 1 they can be edited.

Step correction up in landing 2 ms / mm:

Step correction up in last landing ms / mm:

Step correction down in landing 1 ms / mm:

Step correction down in landing 2 ms / mm:

Step correction down in second last landing:

Correction of inaccurately installed rails.
The braking deceleration distance is corrected for all lifts except for Dynatron with KBR relay.
In the case of Dynatron, the deceleration distance (SKA measure) is corrected.
Standard values not leading to a correction:

Timing method: 500 ms

Pulse method: 30 mm.

Values deviation from the mentioned "neutral points" lead to a correction.

Example: The lift passed the flush position in the 5th landing by 8 mm when travelling upwards (lift is 8 mm too high). Therefore the rail must be shifted downwards by 8 mm or the upwards braking distance must be reduced by 8 mm by means of the step correction (step correction up in landing 5 = 30 - 8 = 22 mm).
A value of 300 ms, for instance, for the step correction up in landing 5 using the timing method effects a reduction of the upwards braking distance by 200 ms (= 500 - 300), i.e. the lift stops earlier.
Whereas the right correction value for the timing method must be determined by testing, it can be entered directly for the pulse method. A value of 10 mm over "zero" (= 30 mm) results in an elongation of the braking distance by 10 mm and vice versa. A value of 20 mm leads to a reduction of the braking distance by 10 mm.

☞ Note: It is theoretically possible to exhaust the step correction to the limits (0 and 60), in practice, however, this may lead to problems. In the case of P&F inductor switches, the levelling distance is approx. 25 mm by default. This means that in the case of a step correction of 30 mm, inductor switch 3 would already be beyond the zone with the consequence that the relevelling leads to an unflush position. The situation is even more critical in the case of hybrid light barriers. Their levelling distance is only 14 mm.
The step correction should therefore not exceed values of +/- 10 mm!

4.2.4. Input addresses: (selected via LiSA keyboard entering 003*)

The parameter set "Input addresses" serves to assign a function from the input addresses function set to the hardware inputs/outputs (IOs). The IOs available on the LiSA10 main board (max. 64) and on the car board APO8 (max. 32) are freely programmable, i.e. non of these IOs has a function after the first switch-on (parameter EEPROM is empty). Only the assignment via the input addresses will give them a function.
All IOs can be connected both via screw terminals and via ribbon cables.
They are short-circuit-proof only for a short time.
Some functions are not freely programmable or have an additional preset connection on the board, e.g. emergency recall or inspection travels.

The following "rules" must be observed when assigning the addresses:

- All functions which occupy several consecutive IOs, i.e. all those starting with "1st input ..." must be connected completely to the IOs. These are for example 1st input car command button, 1st input landing call button side 1, 1st input monitoring of waiting area, etc.
- The buttons for side 2 (selective door control) can directly follow the last button of side 1, but not necessarily. If there is a gap, you must not programme a function for the gap.

1. Inp. car com. button side 1 (105):

Assigned IO area:

Corresponding to the number of landings, starting with 1st input car command button side 1.

Query if there is no selective door control (car).

2. Inp. car com. button:

Assigned IO area:

Corresponding to the number of landings, starting with 1st input car command button side 2.

Normally this value is always by 1 larger than the address of the 1st car command button.

Only if LiSA buttons in two rows on the car panel are used, the address is above the last button of row 1.

Query for selective door control (car).

1. Inp. car com. button side 2:

Assigned IO area:

Corresponding to the number of landings, starting with 1st input car command button side 2.

The address must be larger than the one of the last button on side 1.

1. Inp. land. call button side 1:

Assigned IO area in the case of single-button controllers:

Corresponding to the number of landings, starting with 1st input landing call button side 1.

Assigned IO area in the case of two-button controllers:

Corresponding to the number of landings * 2 - 2, starting with 1st landing call button side 1.

Query for selective door control (landing).

1. Inp. land. call button side 2:

Assigned IO area in the case of single-button controllers (see fig. 3):

Corresponding to the number of landings, starting with 1st input landing call button side 1.

Assigned IO area in the case of two-button controllers (see fig. 4):

Corresponding to the number of landings * 2 - 2, starting with 1st landing call button side 2. The address must be larger than the one of the last landing call button on side 1.

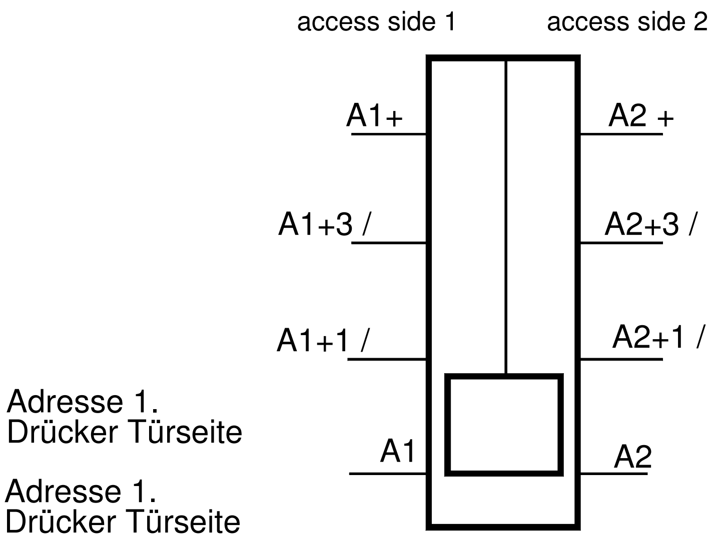


Fig. 4

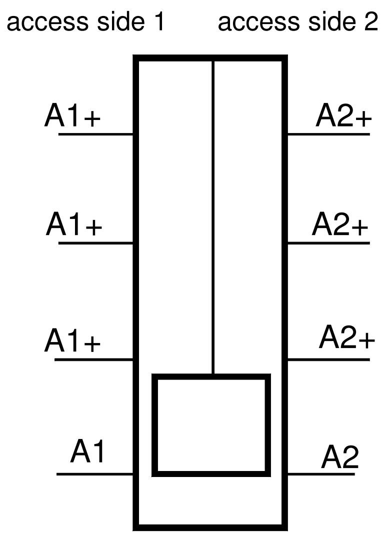


Fig. 3

Controller manufacturers that do not want to use car electronics (APO board in the inspection box) there is the possibility to connect photoelectric barriers and closing force limiters to any IO.

- Photoelectric barrier signals and closing force limiter signals can be adjusted via the parameter "Light barrier output / contact of force limiter active (closed/open)" (use of N/C or N/O contacts).
- If the photoelectric barrier / closing force limiter is activated for more than 10 minutes, "LS1/SB1" is entered in the error memory for side 1 or "LS2/SB2" for side 2.
  In the case of a modem connection, the service centre is called.
- In the case of groups, the lift will no longer participate in the landing call assignment after an interruption of the photoelectric barrier / closing force limiter for more than 10 seconds - landing calls are cancelled in the landing where the car is located.
- In the case of matrix displays (parameter "display type in car / landing" is set to 16*8withX), a small "L" is displayed after 10 seconds.
- In the case of the firemen mode or fire emergency, the photoelectric barrier is ignored.

Inp. door opening button side 1 (91):

Serves to keep the car doors open or to reverse the car door on side 1 during the closing motion.

- Also affects side 2 if there is no individual door open button.
- In the case of the selective door control, only that side is opened for which a door opening permission is available (call was active for this side).
- Restarts the door opening monitoring time.
- Does not have an effect in the case of firemen mode and fire emergency.

Inp. door closure button (92):

Serves to immediately initiate the door closing motion on side 1.

- Also affects side 2 if there is no individual door closing button.
- When the door opening monitoring time has elapsed, the door is closed immediately.
- If the door is in the opening motion, no idle time is started, i.e. the door will immediately be closed when a button is pressed.
- If the door is in the opening motion and the parameter "door reversal delay" is set to the value 98, the door will be closed immediately.
- The photoelectric barrier will be ignored.

Inp. light barrier access side 1:

Normally the photoelectric barrier for side 1 (light screen) is connected to the terminals L1 of the APO.

Inp. closing force limiter side 1:

Normally the closing force limiter is connected to the terminals R1 of the APO.

Inp. door1 open limit switch (75):

Input to capture the door open limit switch signal of door 1.

- The door open limit switches are not connected to the terminals A1 or A2, as usual for APO8B or previous. **That means that the door opening signal is present** even if the door is completely closed and the parameter "door motor off“ is set to 0, 1 or 3.
- In this way you can select a long door opening monitoring time without its negative effects (start of the idle time only when the door opening monitoring time has elapsed, unless the door open limit switch arrives first).
- The consequence: any effected TeachIn runs of the door drive are not disturbed by the controller (LiSA) (long door opening monitoring time).

☞In the case of the LiSA bus to car and evaluation of the door open limit switch for door 1, the IO address is always 75.

Inp. door1 closed limit switch (76):

Input to capture the door closed limit switch signal of door 1.
☞In the case of the LiSA bus to car and evaluation of the door closed limit switch for door 1, the IO address is always 76.

Inp. door stop button:

Serves to achieve that the car door is not closed over a defined time (loading function).

Additionally required parameter: "Door stop time" in parameter set 001*.

Query for 2 door sides:

Inp. door opening button side 2:

Serves to keep the car doors open or to reverse the car door on side 2 during the closing motion.

Inp. door closure button side 2:

Serves to immediately initiate the door closing motion on side 2.
See also parameter "Inp. door closure button side 1".

Inp. light barrier side 2:

Normally the photoelectric barrier for side 1 (light screen) is connected to the terminals L2 of the APO.

Inp. closing force limiter side 2: (no query for LiSA bus to car)

Normally the closing force limiter is connected to the terminals R2 of the APO.

Inp. door2 open limit switch (83):

Input to capture the door open limit switch signal of door 2.
See door1 open limit switch.

- ☞In the case of the LiSA bus to car and evaluation of the door open limit switch for door 2, the IO address is always 83.

Inp. door2 closed limit switch (84):

Input to capture the door closed limit switch signal of door 2.
☞In the case of the LiSA bus to car and evaluation of the door closed limit switch for door 2, the IO address is always 84.

Door op. butt. funct. (alw. / act. cab mask / all cab mask):

Selection which door(s) open when the door open button is pressed.

- ➔ *(0): doors open according to opening permission*
- ➔ *(1): doors open observing the current car calls (depending on the operating mode)*
- ➔ *(2): doors open observing all current car calls (independent of the operating mode)*

Inp. inspection fast (72):

Input to switch to a higher inspection speed.

- In the case of frequency-controlled systems, the inspection speed (Vz1) is activated.
- Otherwise the high speed is selected.

☞ In the case of the LiSA bus to car and evaluation of the inspection fast input, the IO address is 72.

Inp. dividing door:

Message to LiSA that the partition door has been opened.

- As long as the partition door is not open, a signal (-H) must be present at this input, i.e. the partition door contact must be an N/C contact.
- "Trennt" is entered in the error memory.
- "S" is displayed on the seven-segment display for the operating mode.
- "AbIn" is shown on the display, if no "special service" car key is inserted.
- One travel is concluded.
- All calls are deleted and the landing control is switched off.
- Only when the function "special service (car)" is activated, the lift can be used again - car calls are answered.

Additionally required parameter: „"Car key special service" in parameter set 005*.

Inp. car reservation:

Currently not used.

Inp. presence indicator in car:

This input is used for car lifts

- to generate an automatic call to the other landing (only possible if there are only 2 landings")
- and to put out positioning signals in the car.

Inp. fan button:

Input to activate the car fan for a fixed time.
Additionally required parameter: "Rel. car fan" in parameter set 006*.
For the function see parameter "Car fan running time" in 001*.

Inp. clock-controlled travel:

Input to activate the operating mode "clock-controlled travel".
The operating mode "clock-controlled travel" has got to do with the time only to a limited extent.
The name "clock-controlled travel" goes back to the fact that this input was originally to be activated by a time switch. As there is a real-time clock on the LiSA main board by which the clock-controlled travel can be switched on for a certain period (without a special circuit for Saturday, Sunday and holidays), this configuration has been pushed to the background. It is now often activated by some other contact or key.
After changing to the clock-controlled mode

- new door opening tables for car and landing calls are activated (see parameter set "Door opening functions" 008*).
- the parking landing is changed - defined by the parameter "parking landing with clock-controlled travel".
- all active calls are answered according to the parameter "Call cancel. on clock-contr. travel", i.e. there is either no call deletion or at the beginning of the clock-controlled travel or at the end.
  If the active calls are not deleted at the beginning, they are answered according to the door opening table for normal travel.
- at least one travel is effected in clock-controlled mode, even if the clock-controlled travel input has already been deactivated before the travel.
- "u" is shown on the operating mode display.

The clock-controlled travel serves to release landings, for instance, which cannot be approached during normal operation (keyword: card reader).

Query if clock-controlled travel activated

Call cancel. on clock-contr. travel (No/After/Before/Before&After):

Selection when the active landing and car calls are deleted in the case of a clock-controlled travel.

➔ *(0): no call deletion*
➔ *(1): call deletion at the end of the clock-controlled travel*
➔ *(2): call deletion at the beginning of the clock-controlled travel*
➔ *(3): call deletion at the beginning and at the end of the clock-controlled travel*

Inp. clock-controlled travel 2:

Input to activate the operating mode "clock-controlled travel 2".
After changing to the clock-controlled mode 2

- new door opening tables for car and landing calls are activated (see parameter set "Door opening functions" 008*).
- the parking landing is changed - defined by the parameter "parking landing with clock-controlled travel 2".

- The activated function clock-controlled travel 2 has a higher priority than the clock-controlled travel mentioned before.

A small u with a dot (u.) is shown on the operating mode display.

Evacuation (n/y) (0/1)?

By selecting 0, the evacuation queries are skipped. By selecting 1 they can be edited.

Inp. Evacuation/emergency power:

Input to initialise the evacuation process.

If the lift is not in the evacuation landing after applying the evacuation signal but in standstill, the evacuation delay is started.

If the lift is travelling away from the evacuation landing when the signal arrives, the next possible landing is approached, the door is opened and the evacuation delay is started, too.

When this time has elapsed or when the signal "evacuation end" arrives from a lift which comes before the relevant lift in the evacuation order, the evacuation landing is approached.

"**E**" is shown on the operating mode display.

The following parameters are only queried if the evacuation input is programmed:

Inp. Evacuation release:

Input to start the evacuation process.

This signal comes from the "forerunner". It indicates in this way that it is in the evacuation landing.

Evacuation delay (sec):

Selection of the time after the course of which the evacuation is started, even if no signal is present at the input "Evacuation release".

In the case of hydraulic lifts, the lowest landing is approached without delay for evacuation.

Free after emergency power evacuation (0/1):

Selection whether the system should go into operation again after reaching the evacuation landing.

- (0) : Lift remains in the evacuation landing with open doors until the evacuation signal is removed.
- (1) : Lift goes into normal operation after the evacuation.

Landing evacuation/emergency power:

Selection of the evacuation landing.

- (0) : evacuation to the next higher landing if the lift is between two landings. In the case of systems with a frequency inverter and feed-in of the intermediate circuit via batteries, a controller failure may occur. LiSA will then try to evacuation to the next lower landing.
- >0 : evacuation landing.

Rel./Outp. End of evacuation (sign.):

Relay which serves to indicate to the "follower" that it can start the evacuation.

An N/C contact is used, i.e.

- as long as the system is switched on and the operating procedure is not disturbed or the inspection or emergency recall travel is not switched on or
- the evacuation process is not completed, this relay remains closed (no signal to the "follower").

Regarding the sequential control see enclosed circuit diagram (sequential evacuation control).

Outp. End of evacuation (sign.):

Output with a function analogous to the "Relay end of evacuation".

Outp. evacuation/emergency power travel (sign.):

Output to control an illuminated display that the lift is in evacuation / emergency power mode.

Inp. release after evacuation:

Input by which the lift can be switched to normal operation if the lift is in the evacuation landing.
Evacuation example (evacuation using the sequential control):
Several lifts supplied by the same emergency power aggregate should successively approach their evacuation landings in the case of a power failure. One lift (e.g. bed lift) should remain in operation.
The signal "evacuation/emergency power" is usually indicated to the controller from the emergency power aggregate by means of a 220V signal. A corresponding relay (220V) is activated in the control cabinet which indicates the event to the controller via an N/O contact (switching of -H).
The evacuation delay is started for all lifts which are not yet in the evacuation landing.
Lifts which are in the evacuation landing or cannot evacuate (failure / out of operation) switch off the relay "end of evacuation".
The lift with the shortest evacuation delay (normally = 0) starts the evacuation travel.
All other lifts will only evacuate when their evacuation delay time has elapsed or the "free" signal comes from the "forerunners".
After completing the evacuation travel, the lift switches off the relay "end of evacuation" and thus gives the "follower" the permission to evacuate.
The bed lift starts the evacuation travel last and remains in operation.

Speed for evacuation travel (Vn / V0 / V1 / Vz2 / V3):

Selection of the speed at which the evacuation travel is effected.

- ➔ *(0): evacuation speed is the relevelling speed*
- ➔ *(1): evacuation speed is the approaching speed*
- ➔ *(2): evacuation speed is the first intermediate speed*
- ➔ *(3): evacuation speed is the second intermediate speed*
- ➔ *(4): evacuation speed is the rated speed*

Inp. changing evac. direct.:

Input by which the controller is informed that the travel direction adopted for the emergency power travel must be changed.

The function "Input load direction" was replaced by the parameter "Inp. half load / load direction".

Inp. load direction:

Some inverter types are able to determine and store the loads in the car during the acceleration phase of a travel and to indicated them to load direction input of the controller via a potential-free contact.
After the initialisation of the evacuation travel the controller can evacuate with the aid of the mentioned input in the direction of the minor load to the next landing, i.e. emergency evacuation facilities can be much smaller.

Inp. Full load (69):

Input to indicate the operating mode "full load".

- The actuator is normally the full load contact in the car.
- Landing calls are accepted, but not assigned. Only car calls are answered.

- In the case of groups, the lift leaves the group.
- "o" is shown on the operating mode display.

☞ In the case of the LiSA bus to car and evaluation of the full load input, the recommended IO address is 69.

Inp. Overload (89):

Input to indicate the operating mode "overload".
The actuator is normally the overload contact in the car.

- Landing calls are accepted, but not assigned.
- The lift remains in standstill with open doors.
- Activation of an overload indication, if the parameter "Output overload" (parameter set 004*) is programmed.
- Activation of an overload buzzer, if the parameter "Output acoustic signal"
- (parameter set 004*) is programmed.
- In the case of groups, the lift leaves the group.
- "L" is shown on the operating mode display.

During the travel, the signal is not observed.

☞ In the case of the LiSA bus to car and evaluation of the overload input, the recommended IO address is 89.

Inp. Zero load:

Input to indicate that the car is empty or that a load weighing feature does not register a load.
The actuator is normally an N/C contact (contact closed if nobody is in the car) of a pressure mat, the contacts in the movable car floor or a correspondingly adjusted load weighing feature at the car.

- If more than one car call is active, all are deleted, i.e. the maximum number of simultaneously active car calls for the activated zero load input is 1.
- In the case of a single-sided access permission (see parameters in 000*) the signal has the effect that the access permission can change from one side to the other.

Inp. half load / load direction:

Input to indicate that the car is half loaded.
In the event of evacuation and if 0 is set as evacuation landing, a travel to the next higher landing is effect if the input (load < half load) is activated. Accordingly to the next lower landing, if the half load input (contact open) is not active (load > half load).

Inp. Doors remain closed:

Input to indicated that the car doors must not be opened.
In contrast to the entry via keyboard (05*) for the sake of testing, the same function is realised by activating the input "doors remain closed". It was only introduced to realise some relatively complicated functions concerning the door opening.

Inp. Landing control off:

Input to switch off the landing control.
In addition to the keyboard command (6*) and the input on the central electronics unit, this input represents a further possibility to switch off the landing control (in the car).

- The door opening parameters for the normal travel remain valid.
- The lift leaves the group. Landing calls are accepted and assigned to the group, but not answered.
- "A" is shown on the operating mode display.

Query only for controller type = Dynatron.

Inp. Brake:

Input to monitor if the controller / inverter put out the brake signal.
After the brake application LiSA has no influence on the stopping process in the case of systems with Dynatron. If the brake signal is not put out at the right position, for whatever reason, it may happen that the lift stops too early. Without the signal "brake applied", the result would be that the travel monitoring time is exceeded.

If the signal is evaluated, however, a reference travel will immediately be effected in this case.

Inp. Emergency stop:

Immediate stop of the lift.

- Deletion of all car calls.
- No landing calls are accepted.
- Only after the activation of a car call, the normal operation is started again.
-

Inp. Soft stop:

Stop of the lift in the next possible landing.

- Deletion of all car calls.
- If the car is travelling, it will be stopped in the next possible landing.

Inp. Lift blocked by service centre:

Special function for the Hamburg Underground.

- Blocking of a system from the service centre.
- Landing calls are accepted and stored for 60 seconds.

Inp. Start button:

Special function for systems with 2 landings.
The signal for this input is normally generated by the so-called start button. In this way, a car call is always activated for the opposite landing.

Attention: If the start button input is set to 16, a special function for the control of a pallet lift is activated.

1. Inp. Car selection by car command:

Address range to generate car calls (inputs on the central electronics unit or bus modules in the shaft).
This function serves to generate car call directly on the central electronics unit or the landing bus.

☞ In the case of groups it might be necessary to select a car, if only this one can approach a certain landing, e.g. a parking garage.
Selection of a lift with a certain function (emergency, bed lift, partition door, etc.).

1. Inp. Car selection by landing call up:

Address range to generate upwards calls (inputs on the central electronics unit or bus modules in the shaft).

1. Inp. Car selection by landing call down:

Address range to generate downwards calls (inputs on the central electronics unit or bus modules in the shaft).

The following parameter has therefore been omitted.

Call type in case of car selection (car / up / down)

Selection which calls are generated if the car selection input is activated.

➔ *(0) = car: generation of a car call*
➔ *(1) = up: generation of an upwards landing call*
➔ *(2) = down: generation of a downwards landing call*

Generated landing calls are not answered by other lifts in the group.

Query if 1st input car selection in case of landing call > 0

Landing calls for car selection in group =

4 bits are reserved for each car in the group, with the following meaning:
1st bit: Car selection by upwards landing call door side 1:
2. bit: Car selection by downwards landing call door side 1:
3. bit: Car selection by upwards landing call door side 2:
4. bit: Car selection by downwards landing call door side 2:

Example for a group of three:
Car 1: "1010-0111-0000",1. Inp. car selection by landing call up = 401, 1. Inp car selection by landing call down = 501.
-> Car 1 accepts the car selection by upwards landing calls on side 1 and 2,
but due to the parameter "car selection by landing call down" no downwards calls.
Car 2: "1010-0111-0000",1. Inp. car selection by landing call up = 401, 1. Inp car selection by landing call down = 501.
-> Car 2 accepts the car selection by downwards landing calls on side 1 and 2,
i.e. both the upwards and downwards calls.
Car 3: does not participate in the car selection, i.e. the parameters
"1. Inp. car selection by landing call up" and "1. Inp car selection by landing call down" must be set to 0.

1. Inp. of waiting area:

Selection of the address range (subsequent inputs) if a waiting area monitoring is installed in each landing.
Occupied IO range without selective door control:
Corresponding to the number of landings, starting with 1st input of waiting area.
Occupied IO range with selective door control (landing or car):
Corresponding to the number of landings * 2, starting with 1st input of waiting area.
In this way, the selective evaluation of the waiting area monitoring signals is possible. The processing is different from the one for interruptions of the photoelectric barrier. The door will not be opened during the door closing motion.

1. Inp. Deactivation car commands:

Selection of the address range (subsequent inputs) for the selective deactivation of car calls.

Occupied IO range without selective door control (car):

Corresponding to the number of landings, starting with 1st input deactivation car commands.

Occupied IO range with selective door control (car):

Corresponding to the number of landings * 2, starting with 1st input deactivation car commands.

If the input is activated, the car call button for the corresponding door side is put out of operation.

1. Inp. Deactivation landing:

Selection of the address range (subsequent inputs) for the selective deactivation of landing calls.

Occupied IO range without selective door control (landing):

Corresponding to the number of landings, starting with 1st input deactivation landing.

Occupied IO range with selective door control (landing):

Corresponding to the number of landings * 2, starting with 1st input deactivation landing.

If the input is activated, the landing call button for the corresponding door side is put out of operation.

1. Inp. Release car commands:

Selection of the address range (subsequent inputs) for the selective release of car calls.

Occupied IO range without selective door control (car):

Corresponding to the number of landings, starting with 1st input release car commands.

Occupied IO range with selective door control (car):

Corresponding to the number of landings * 2, starting with 1st input release car commands.

If the input is activated, the car call button for the corresponding door side is activated.

1. Inp. Release landing:

Selection of the address range (subsequent inputs) for the selective release of landing calls.

Occupied IO range without selective door control (landing):

Corresponding to the number of landings, starting with 1st input release landing.

Occupied IO range with selective door control (landing):

Corresponding to the number of landings * 2, starting with 1st input release landing.

If the input is activated, the landing call button for the corresponding door side is released.
If a car key for special or priority travels is inserted, all deactivation or release inputs for landing and car calls are ignored, i.e. the acceptance of calls is only determined by the parameter "door opening permission in case of key-controlled travel".

Query only if 1st input release car command / landing > 0.

Autom. car command on releasing car com. / landings (0/1):

At the same time when a normally deactivated car or landing call button is released, a car call is made to the released landing and the original state is restored.
Increases the convenience, as you must not push a button after inserting a key or magnetic card.

Inp. Brake shoes 1:

Input to monitor wether the contact brake shoes 1 closed and opened again.

- If this input is not open 3 seconds after the start (signal is present in standstill), all travel signals are switched off and the system is put into the out-of-operation mode "brake shoe monitoring activated".
- "b" is shown on the operating mode display.
- "Bremse1" is stored in the error memory.
- If no signal is present 3 seconds after the stop (brake not applied), the system is also put in the out-of-operation mode "brake shoe monitoring activated".
- "b" is shown on the operating mode display.

Inp. Brake shoes 2:

- Function analogous to input "brake shoes 1", but for brake shoes 2.

Inp. Brake shoes 3:

- Function analogous to input "brake shoes 1", but for brake shoes 3.

Inp. OP button:

Input to activate a special function.
The name comes from the first use for an operating room lift.
When the OP button is pressed together with a car call button (for approx. 3s), this call is effected in the special service mode.
After completing the travel, the system changes to normal operation.

Inp. Mutual starting lock-out:

Input / output to ensure, that always only one lift starts in a group.

- If this input is not activated, the system starts without delay.
- When starting, this IO is activated by the starting lift for 5 seconds.
- After the course of these 5 seconds, the signal is "removed" -> release for the other lifts.

In the evacuation mode, the starting lock-out is automatically activated without the presence of such an IO.

Query only for deceleration method = timing method or fixed-point method.

Inp. Speed control < 0,3 m/sec:

If LiSA does not evaluate pulses, a signal from the inverter is required to indicate that the approaching speed has fallen below a certain level. Otherwise approaching with early opening doors will be suppressed.

Inp. Inverting door parked position:

Input for a landing-selective change of the door parking position.
The door parking position (open/closed) defined by the parameter "door parking position" is inverted (closed/open), if a signal is present at this input.

Inp. Lowering on power failure:

Input which serves to indicate to the controller, that it should lower the lift to the lowest landing after a power failure. This function uses a LiSA property which was originally only intended for the LiSA emergency call system. In the event of a power failure (voltage of the safety circuit or car light), LiSA will remain in operation by means of the battery.
If in this case a signal is applied to the input "lowering on power failure",

- LiSA will lower the lift to the lowest landing,
- open the doors there and
- will remain "in operation" until the deep discharge protection of the battery is activated or the voltage returns.

The signal "lowering on power failure" may only be applied when the safety circuit for lowering is closed.

Inp. rescue travel:

Input which serves to indicate to the controller that rescue travels are effected.
Rescue travel (alternating travels between the rescue landings and the main landing):

- Deletion of all calls.
- Change to push button control and clock control.
- Travel to the main landing.
- Acceptance of the next landing call to the main landing.
- Travel to the main landing, etc.

Inp. Lowering (Dyna-Hyd):

Input which serves to indicate to the controller that it should move downwards at low speed until the signal is removed.

Inp. Relevelling (Dyna-Hyd):

Input which serves to indicate to the controller that it should move upwards at low speed until the signal is removed.

1. Inp. Special functions:

Occupied IO range = 8 IOs.
8 reserved input by which (normally via push button, card reader or key) special functions can be activated.
The currently activated special function depends on the software version.
Currently (Sept. 2006) the following functions are realised via the special functions inputs:
IO: special function for Tepper Berlin.

1. + 3. IO: special function Hütter Hamburg (Hamburg Underground).
2. IO – 7th IO: special earthquake function for Kleeman Greece:
   4th IO: sensor for horizontal displacements
   5th IO: sensor for vertical displacements
   6th IO: sensor for counterweight
   7th input reset earthquake function
   In addition the input for evacuation travels must be programmed, even if it is not necessary apart from this.
   Furthermore the evacuation landing must be 0 and the evacuation delay approx. 3 seconds.

Description of the earthquake function:
If IO4 or IO5 is activated during a travel, the next possible landing is approached and there the system changes to the evacuation mode. The display shows "EQuake".
If only IO4 was activated, the operation is resumed automatically after 30 seconds, provided that the IO is not permanently active.
After an activation of IO5 the evacuation mode is maintained until the input reset earthquake is activated, regardless of whether there was a voltage failure in the meantime or not.

The activation of IO6 during the travel effects an immediate emergency stop with a subsequent change to the evacuation mode and a slow travel to the next landing. The landing is always selected in such a way that the car moves away from the counterweight, i.e. if the car is above the middle of the shaft after the emergency stop, it will approach the next higher landing. The lift will approach the next lower landing if the car is below the middle of the shaft.
Then the procedure is as described for IO5.
Attention: during the activated earthquake function you can only travel using the inspection travel !

Inp. Test of safety circuit:

Input which serves to monitor the correction performance of a safety circuit (not the safety circuit on LiSA!).
It can, for instance, serve to monitor a safety circuit for monitoring reduced overtravels.
The evaluation and procedure is like in the case of the control of the safety circuit (control of the K5 signal) for approaching with early opening doors on the LiSA board.

Query if input test of safety circuit > 0.

Test of additional safety circuit in landing (all/other):

Selection in which landing the safety circuit is to be tested.

- ➔ *(0): (all) test in all landings*
- ➔ *(1): (other) test in selected landing*

If a safety circuit is tested, the change of the control contactor is always monitored. The result is that e.g. in the case of a docking operation circuit the test may only be effected in the landing where the docking operation is conducted.

Inp. Forced stop:

Serves to activate or deactivate the function "forced stop landing" (see General elevator parameters).

Inp. Monit. max. machine room temp.:

Input which serves to monitor whether the machine room temperate of 45 degrees C permissible according to EN81 is not exceeded.
The temperature is monitored by means of thermostats located outside the control cabinet.
Response of the system to overtemperature:
If the overtemperature occurs during a travel, the lift approaches the destination.

- Rope traction lifts remain in this position with open doors.
- Hydraulic lifts are lowered to the lowest landing.
- In both cases the system is in the out-of-operation mode ("O" shown on the operating mode display (seven-segment display on the LiSA board)).

Inp. Monit. min. machine room temp.:

Input which serves to monitor whether the machine room temperate falls below 5 degrees C permissible according to EN81.
The response corresponds to the one for the maximum machine room temperature.

Inp. Transport of dangerous goods:

Input which is normally activated in the car by means of a key.
In each landing which is to be approached with dangerous goods an additional special service key is required.
After activating the input in the car, the lift is no longer available for normal operation (changes to firemen mode).
Then you can

- load dangerous goods.
- open and close the doors in the landing where the lift is located using the landing key.
- send the lift to the destination by means of a car call.

Inp. Test landing door interlock:

Input which serves to indicate to the controller that the locking of the shaft door is tested.
This function is required for TÜV tests (in Austria) if there is direct access from the lift into some flats. As these entrances are usually locked, the tester cannot check the correct operation of the door locking from the car.
By means of a key switch in the car which activates the signal "test landing door interlock" in the landing to be tested, the lift moves downwards for approx. 20 cm. In this position the tester can open the car door manually and has therefore access to the shaft door lock.

The following parameter is queried since March 2011 under "000 - attendant control".

Inp. Car light sensor:

Input with which the failure of the car light is indicated to the controller.
This function is required for the attendant control. If the LiSA emergency call system is used, the service centre is called as soon as this input is active.

Inp. Zone for fast speed V3:

Input which serves to indicate to the controller that the lift is in the zone in which V3 may be used.

Query if relay "buffer" programmed:

Inp. anti-creep device in:

Input which serves to indicate to the controller that the buffers or folding supports are retracted and after the upwards travel from the buffers the downwards travel can be initiated.

Inp. anti-creep device out:

Input which serves to indicate to the controller that the buffers or folding supports are extended and that the lift can travel onto the buffers.

Query if relay "inspection" programmed:

Inp. Counterweight buffers on

Special function for Tepper.

Inp. Counterweight buffers off

Special function for Tepper.

Inp. Sound button:

Input which serves to indicate to the controller that the car gong is to sound when passing the landing, once when travelling upwards and twice when travelling downwards.
Note: function for the blind.

Inp. Rope brake test:

Input which serves to test the operation of the rope brake (every 24 hours). Only in conjunction with the "Outp. Rope brake test".

1. Inp. Attendant control:

Assignment of 5 consecutive IOs for the attendant control in China.
A German version occupies IOs (on request).
The following two parameters are related to the <u>penthouse control</u>, therefore at first some remarks:
Three criteria are essential for a penthouse control:
1.) The resident must be able to get to the penthouse using the priority travel (by means of a key or transponder, as described in the following).
2.) The resident must be able to call the empty lift to the flat using the priority travel (see VIP function described in the following) and
3.) A function similar to the visitors' control described in the following is required for visitors. It is therefore normally part of the penthouse control.

On 1.)
There are different possibilities for the priority travel to penthouse flats:
only one penthouse flat:
In the car there must be a priority key to effect a direct travel to the penthouse. Landing calls are stored, but only answered after the priority travel.
Two penthouse flats:
In addition to the priority key there should be an emergency key. The emergency key has the same function as the priority key, but a higher priority.
More than two penthouse flats:
Using the parameter "1. Inp. Release car commands" the car call for each landing can be released via a key switch.

If there is no car button but only the mentioned key, a call to the corresponding landing can be made using the parameter "Autom. car command on releasing car command / landings".
Landing calls, however, are still accepted and answered.
If the landing calls must be treated like using the priority travel, i.e. they are only stored but not answered, a programme modification would be necessary.

If you use LiSA panels of the latest generation, the mentioned functions can be realised much easier and more cost-effective by means of the installed electronic keys or transponders.

On 2.)

Inp. Vip function:

Preferred call of the car by evaluating a zero load contact or presence sensor.
After activating the input "Vip function", all car calls are deleted.
At the same time an input connected to the VIP function input and programmed with priority travel (landing) is activated and the system changes to the priority travel (car) mode.
If the zero load contact is closed and the doors are closed, a travel to the landing determined by the priority travel (landing) is effected.

On 3.)

Inp. Visitors control:

Input(s) which serve(s) to realise the visitors' control function.
How many IOs are required?
If the parameter "Visitors landing" is programmed with a value > 0 (described in the following), the car approaches the landing determined in this way. If the parameter "Visitors landing" is programmed with 0, the lift approaches the landing, where the key is inserted. In this case, a consecutive IO range is reserved for the visitors' control. If there the selective door control (landing) is not used, the size of this range corresponds to the number of landings. If the selective door control (landing) is used, twice the number of IOs are reserved for both door sides, i.e. 2 * number of landings. In this way the inputs for the visitors' control are treated in a selective way.
Functional routine:

- In the visitors' landing / penthouse, there is a visitors push button in addition to the landing call or VIP push button, which serves to activate this function. The resident usually activates this function after talking to the visitors via an intercom.
- If the function is accepted, the light of the push button is on.
- Start of the function when the doors are closed in standstill and when no car calls are active. If the input "zero load" is programmed, there must additionally be a zero load signal (zero load contact closed).
- Autom. travel to main landing.
- The corresponding car call to the visitors' landing can be activated by the visitor himself/herself or automatically, depending on whether there is a push button for the corresponding landing or not.
  Car call button available: In this case, the car buttons are released for the visitor for 30 seconds and the visitor can push a button in this time. The time for which the button for the normally block visitors' landing (via the car call mask for normal operation) is released can also be determined by the parameter "Reserv. after land. priority travel".
  If no button is pushed during the reservation, the visitors' function is terminated.
  No car call button available: In this case an automatic call is made for the visitors's landing.

  ☞ By means of the normal operation door mask for the visitors' landing, the controller can recognise whether there is a button or not: **If the mask is open, there is no car button.**
- End of the function.

Query if visitors control is programmed.

Visitors landing:

Landing to which the visitor should be brought.
If 0 is set as the visitors' landing, one visitors control input is required for each landing.

1. Inp. Transfer IO:
Beginning of the address range for the input signals to be transferred.

Last inp. Transfer IO:
End of the address range for the input signals to be transferred.
Attention: the number of signal inputs results from the difference of the two parameters + 1.
In this way you can transfer, for instance, signals from the machine room to the car without using travelling cable wires.

Inp. levelling:
This input is required for short travel landings (< 40 cm) with relevelling function.
Description see new parameter "Short travel if floor distance < X mm".

Inp. cleaning mode:
Special function for cleaning the lift car.
Corresponds to the function switch-off landing, but the car light is not switched off. The switch-off landing corresponds to the current car position.

Inp. foldable protection plate:
Special function for lifts where the pit depth is too low.

Inp. Limit switch on top:
Special function for the USA.
The limit switch on top is positioned approx. 3-4 cm above the flush position in the highest landing and interrupts the travel before the car reaches the top emergency limit switch.

Inp. Limit switch on bottom:
Special function for the USA.
The limit switch on top is positioned approx. 3-4 cm below the flush position in the lowest landing and interrupts the travel before the car reaches the bottom emergency limit switch.

Inp. Pandemia:
Special function for facilities for the epidemics control.
In the case of groups, this parameter serves to determine which areas in a building are released for one lift and are at the same time block for the other lifts in the group.
Example: After activating the pandemia function (e.g. using a key) the lift may only travel between the highest and lowest landing. All other landings are blocked.
In addition, the other lifts in the group must not approach the highest landing.

Inp. Switch off double door system (0/1):
Input which serves to deactivate the single-sided access entitlement (door interlock, see parameter set 000*).

The following parameter is queried since March 2011 under "000 - attendant control".

Inp. Accu. empty:
Input which evaluates the signal from the battery monitoring electronics. If the battery is full, the signal is present. If the LiSA emergency call system is used, the system effects a call to the emergency call service centre when the signal is not present and indicates that the battery is empty.

Inp. Switch off nudging:
Input which serves to deactivate the nudging function.

Inp. Switch off landing gong:
Input which serves to deactivate the output of signals for the landing gongs.

Inp. test inspection limit switch:
Input which serves to monitor the additional inspection limit switch required according to EN81-21, sec. 5.7.1.1.1.

Excerpt of EN81-21:
5 .7 .1 .1 .1 The electric interruption of the upward movement of the car must consists of
- *c) a direction-dependent emergency limit switch according to EN81-2.1998, 14.1.2.2 which allows only for a movement in downwards direction and*
- *d) an additional limit switch according to EN81-2:1998, 10.5.3.1 a).*

.

5 .7 .1 .1 .3 The additional limit switch must become effective in the case of an error of the direction-dependent emergency limit switch and must be activated in such a way that a free space between the top of the car and the shaft ceiling of at least 1.50 m or at least 1.20 m to the lowest part installed under the shaft ceiling is ensured.
5 .7 .1 .1 .4 The correct operation of the additional limit switch must be monitored in such a way during the normal operation that all movements of the lift are prevented in the case of an error after completing the current travel.

When approaching the highest landing, the input is checked regarding whether the N/O signal of the additional limit switch is present or not. If the signal does not change, the controller switches to the out of operation mode displaying the message "**InEsFe**".

☞ The signal must be present up to the flush position of the highest landing.

Inp. door closing only by door close button:

Input which achieves that the door(s) are only closed by pushing the door close button when a car call is active.

Inp. death man control:

Input which achieves that the operation is only started by pressing a push button.

➔ *(0): automatic operation*
➔ *(>0): dead man's operation*

Procedure:
After pushing a car button and activating the input (travel button), the lift moves at low speed to the selected landing and stops in a flush position. If you remove the signal (release button), the lift stops immediately and deletes the travel command. Only by pushing a car button again and then activating the travel button, the travel can be resumed.
☞ The landing control is switched off in this operating mode.

Inp. fast start

Input which serves to reduce the start delay arising from the magnetisation of the drive.
Preconditions:
- Inverter with a zero speed input which generates a holding torque if the signal is present and lifts the brake. If the speed inputs change, the lift travels without deceleration at the selected speed.
- There must be a safety circuit on the LiSA10.
- Therefore there must be a corresponding shaft selection.

Procedure:
- Via an external signal (e.g. 2/3 door closing) the imminent start is indicated to the controller at the fast start input.
- The controller switches the travel relay (K13) and determines the direction and zero speed (fast start relay). The relay K13 then switches the main contactors, the fast start relay separates SK4 from SK4*.
- The inverter then generates the holding torque and lifts the brake.
- When the door is closed, i.e. the safety circuit (SK4) is closed, the zero speed is switched off and the normal travel speed is switched on.

Possible errors:
- If the doors are not closed completely after 10s, all travel signals are switched off. Then the usual door opening and closing procedure is started.
- If the inverter cannot hold the car, it might move away up to the end of the door zone.

Additional safety feature when using Ziehl Abegg inverters:
- If the drive is at zero speed for more than 20s, the inverter will change to the failure mode with the error **ERR780/Quickstart-limit**.
- If the input signal "Hold 0 speed" arrives during the travel, the inverter will change to the failure mode with the error **ERR781/Quick. bei Fahrt**.

- If the motor moves by more than ±7mm when the zero speed signal is present, the inverter will change to the failure mode with the error **ERR529 / Quickstart Alarm**.
- The monitoring time for the encoder (T_GUE) is started when the function "speed0" is switched off.

Inp. switch off city train section =

???

Inp. switch off underground section =

???

Inp. shaft door locking contact is open =

???

Inp. test by notified body =

???

4.2.5. Output addresses: (selected via LiSA keyboard entering 004*)

Via the parameter set "Output addresses", the freely programmable IOs are given an output function. In general these are

- the indication of an operating mode by means of illuminated indicator fields or
- position outputs or
- activation signals for controllers or hydraulic systems.

Attention: the outputs may be charged with a maximum of 200 mA.

Output Special service (sign.) in l./car:

IO address for the indication of the operating mode "special service".
The special service output is activated whenever it should be displayed in the car that an operating mode has been activated by a user with special privileges. However, there must not be an active operating mode with higher priority (e.g. overtemperature).
The precondition for the activation of the special service output is the presence of a signal at one or several of the following inputs:

- car key or landing key "special service"
- car key or landing key "priority travel"
- landing key "switch off landing control"
- landing key "firemen mode"
- landing key "fire emergency / emergency travel"
- input car reservation

Output priority travel (signal):

IO address for the indication of the operating mode "priority travel".

Output emerg. travel (sign.) in land./car:

IO address for the indication of the operating mode "emergency travel".
Initiated by the input "emergency travel".

Output Firemen mode (signal) in car:

IO address for the indication of the operating mode "firemen mode (car)".
The firemen mode output is activated whenever the operating mode "firemen mode (car)" is active, it serves to indicate the operating mode in the car.

1. Outp. firemen mode (sign.) in landing:

IO address for the indication of the operating mode "firemen mode" in each landing.
These outputs are activated whenever the operating mode "firemen mode (car)" or "firemen mode (landing)" is active.

Output Out of operation (signal) in car:

IO address for the indication of the operating mode "out of operation".
The message "out of operation" is put out whenever there is a system failure or the lift is switched off.
In contrast to the contact for failure messages, an N/C contact is used here, i.e. the contact is closed as long as no error occurs or the lift is switched on.

Output Overload (90) in car:

IO address for the indication of the operating mode "overload".
(see parameter "input overload")

☞ In the case of the LiSA bus to car and evaluation of the overload output, the IO address is always 90.

Output Full load:

IO address for the indication of the operating mode "full load".
(see parameter "input full load")

Output Direction up in car:

IO address for the indication of the upwards travel direction.
The output "direction up" is activated whenever the car travel upwards.
The following IO is reserved for the indication of the downwards direction.
Depending on the parameter "Direction indic. combined with ongoing travel direct.", the travel direction indication also serves to indicate the travel continuation direction in standstill (see parameter set 007*).

Output Direction up in landing:

IO address for the indication of the travel direction of the lift.
The following IO serves to indicate the downwards direction.
Size of the IO range: 2 IOs.

From September 2005 on queried in parameter set "Indication functions" (007*).

Output arrival gong in car:

IO address for the activation of the arrival gong in the car.
The arrival gong is activated when the car door is opened after arriving at the destination.

Output Acoustic signal:

IO address for the activation of a buzzer.
This output is activated whenever

- the lift is not in the firemen mode landing when the firemen mode (landing) is initialised and the door is open,
- the lift is in a landing and is overloaded,
- in conjunction with the nudging function during the output of a nudging signal.

Query of the following outputs for text outputs only if no bus voice output is used.

Output EText 1. car position:

IO address range for the activation of a voice announcement with linear (one input per landing) text output of the lift car position.
The occupied IO range starts with the IO address for the activation of the voice announcement for the lowest landing and ends with the address for the last landing.

Output EText Door closing:

IO address for the activation of a voice announcement indicating that the doors are closing.
This function only makes sense in combination with the parameter "Warning signal prior to door closing" in parameter set 001*.

Output EText Door opening:

IO address for the activation of a voice announcement indicating that the doors are opening.

Output EText Overload

IO address for the activation of a voice announcement indication that the lift is overloaded.

Output Car demanded (signal to serv. cent.):

IO address for the output of a message to the service centre indicating that the lift was called while blocked.

Output Car interlocked (signal to serv. cent.):

IO address for the output of a message to the service centre indicating that the lift was blocked (by the service centre) and that it can release the lift on request.

Output Door(s) open (signal):

IO address for the message that one or both doors are open.
If there is a door open limit switch, this message depends on whether the door open limit switch is activated (opened). Otherwise this message is already put out when the safety circuit at SK3 is open.

Output Addit. interlock. of door 1:

IO address for the activation of an additional locking of lift car door 1.
The activation (unlocking) occurs before the actual door opening simultaneously with the start of the "early opening of door interlock" time (see parameter set "General elevator times"). Only when this time has elapsed, the car door will be opened.

Output Door 1 open (signal):

IO address for the indication that lift car door 1 is open.
If there is a door open limit switch for door 1, this message depends on whether this limit switch is activated (opened). Otherwise this message is already put out when the safety circuit at SK3 is open.

Output door1 close limit switch activated (sign.):

IO address for the indication that the door closing limit switch for the lift car door 1 is activated, i.e. opened.

Query for 2 access sides:

Output Addit. interlock. of door 2:

IO address for the activation of an additional locking of lift car door 2.
(see parameter "Output addit. interlock. door 1")

Output Door 2 open (signal):

IO address for the indication that lift car door 2 is open.
If there is a door open limit switch for door 2, this message depends on whether this limit switch is activated (opened). Otherwise this message is already put out when the safety circuit at SK3 is open.

Output door2 close limit switch activated (sign.):

IO address for the indication that the door closing limit switch for the lift car door 2 is activated, i.e. opened.

Output Nudging:

IO address to activate the nudging function for electronic door drives.
If the photoelectric barrier is interrupted, the door closing motion is normally prevented. The nudging function has the effect that the door is closed at reduced speed, although the photoelectric barrier is interrupted. The time for the output of the nudging signal is determined by the parameter "door reversal delay / multifunct. param." and is calculated in the following way: nudging time = time from interruption of the photoelectric barrier to door closing = door reversal delay - 150.
This function is only active is the parameter value is > 150 and < 200.
In the case of 2 door drives, the following output is automatically assigned with the nudging signal for door 2.
In the case of an active nudging signal, the door closing signals are switched off.

Output Land. key control. travel (signal):

IO address for the indication of the operating mode "key-controlled travel (landing)".
Indication of the operating modes "priority travel (landing)" and "special service (landing)", normally in the lift car.

Query only if there is no LiSA bus to car:

Output Switching off car light:

IO address to switch off the lift car light.
Normally a relay is activated via this output which serves to switch off the car light when the time defined by the parameter "car light switch-off time" has elapsed. The preconditions is that no call is active.

☞ In the case of the LiSA bus to car, IO80 and the corresponding relay on the APOs 10-14 are used by default.

Output Arrival access side 1:

IO address to indicate the arrival on side 1 -> when approaching the destination.
Serves to select the travel continuation indication or arrival gong for side 1 in order to avoid that there is an indication for side 2 in the case of the selective door control if there is no active call for side 2.

Output Arrival access side 2:

IO address to indicate the arrival on side 2 -> when approaching the destination.
Serves to select the travel continuation indication or arrival gong for side 2 in order to avoid that there is an indication for side 1 in the case of the selective door control if there is no active call for side 1.

Query only if there is no LiSA bus to car:

1. Output Travel contin. direct.:

IO address for the activation of the travel continuation direction.
Serves to define an IO range for the output of the travel continuation direction, starting with the address for the upwards travel continuation direction of the lowest landing.
Size of the IO range: (number of landings - 1) * 2.
The activation is effected when the deceleration is started.
By defining certain IO addresses, the output of the travel continuation indication can also be realised serially via PL-16ASP12V+ board(s):

- **IO address = 64:** The PL-ASP12V+ board must be connected to the plug for the segment display.
- **IO address = 57:** The PL-16ASP12V+ board is connected to the terminal X57 on the LiSA.

Attention: As the usual connection of this board is intended via the plug for the segment display (-H at pin7 and 8, +H at pin9 and 10), but the terminal X57 is intended for IO boards (-H at pin9, +H at pin10), the wires 7 - 10 of the ribbon cable must be removed from the plug and the voltage must be applied separately.
The signal for the last landing (= down-arrow at the highest landing) is always in the first place, i.e. at the lowest IO or, in the case of the output via the PL-16ASP12V+ board, at the least significant place. This may save an additional ribbon cable in the case of certain numbers of landings (e.g. 5 landings).

Query only if there is no LiSA bus to car:

1. Output Arrival gong in land.:

IO address for the activation of the arrival gong in the landings.
Serves to define an IO range for the output of the arrival gong in the landings, starting with the address for the gong of the lowest landing.
Size of the IO range: number of landings.
The activation is effected when the deceleration is started.
By defining certain IO addresses, the output of the landing gong can also be realised serially via PL-16ASP12V+ board(s):

- **IO address = 64:** The PL-ASP12V+ board must be connected to the plug for the segment display.

Attention: for the connection refer to the notes for the parameter "1. output travel contin. direct.".

- **IO address = 57:** The PL-16ASP12V+ board is connected to the terminal X57 on the LiSA.

Use of the LiSA bus system:
The values 401, 501, 601, 701, 801, and 901 are possible as output addresses.
The addresses 401, 501, or 601 should be preferred as the IOs of the addresses 701, 801, and 901 can be programmed individually, i.e. you can assign various functions to them.
IO address = 401: IO3 is occupied by the gong signal on each bus module of the landing bus.
IO address = 501: IO4 is occupied by the gong signal on each bus module of the landing bus.
IO address = 601: IO5 is occupied by the gong signal on each bus module of the landing bus.

Query for LiSA bus to landings.

1. Output Out of order (sign.) on LBus for car X:

(X stands for the car number in case of groups. The parameter can be queried several times.)
IO address for the output of the out-of-operation mode on the LiSA bus modules in the landings.
In the case of group lifts, one lift can take over the output of the out-of-operation signal for 2 lifts.
Programming example for the individual lifts of a group of 4:
Lift 1 and lift 2:
1. Output Out of order on LBus for car 1 = 601.
1. Output Out of order on LBus for car 2 = 701.
Lift 3 and lift 4:
1. Output Out of order on LBus for car 3 = 601.

1. Output Out of order on LBus for car 4 = 701.

☞ Lift 1 takes over the indication for lift 2.

☞ Lift 3 takes over the indication for lift 4.

☞ In the case of groups of 3, lift 2 takes over the indications for lift 1 (same IO address as lift 3 -> connected in parallel to lift 3) and lift 3, if lift 1 or 3 is switched off. Lift 3 also takes over the indication for lift 2.

1. Output travel contin. direct. for car: X:

(X stands for the car number in case of groups. The parameter can be queried several times.)
IO address for the activation of the travel continuation direction on the LiSA bus modules in the landings.
Serves to define an IO range for the output of the travel continuation direction, starting with the address for the upwards travel continuation direction of the lowest landing.
In the case of group lifts, one lift can take over the output of the travel continuation direction for the neighbouring lift.

☞ Please refer to the address distribution of "1. Output out of order (sign.) for car X".

1. Output arrival gong for car X:

(X stands for the car number in case of groups. The parameter can be queried several times.)
IO address for the activation of the arrival gong on the LiSA bus modules in the landings.
Serves to define an IO range for the output of the travel continuation direction, starting with the address for the upwards travel continuation direction of the lowest landing.
In the case of group lifts, one lift can take over the output of the travel continuation direction for 2 lifts.

☞ Please refer to the address distribution of "1. Output out of order (sign.) for car X".

1. Output priority travel (sign.) on LBus for car X:

IO address for the output of the indication of the operating mode "priority travel (car)" (activated by means of landing or car key) on the LiSA bus modules in the landings.
In the case of group lifts, one lift can take over the output of this signal for 2 lifts.
Programming example for the individual lifts of a group of 3:
Lift 1 and lift 2:
1. Output priority travel on LBus for car 1 = 601.
1. Output priority travel on LBus for car 2 = 701.
Lift 3:
1. Output priority travel on LBus for car 2 = 701.
1. Output priority travel on LBus for car 3 = 601.

1. Output emerg. travel (sign.) on LBus for car X:

IO address for the output of the indication of the operating mode "emergency travel (car)" (activated by means of a landing key) on the LiSA bus modules in the landings.
In the case of group lifts, one lift can take over the output of this signal for 2 lifts.
Programming example for the individual lifts of a group of 2:
Lift 1 and lift 2:
1. Output emerg. travel on LBus for car 1 = 601.
1. Output emerg. travel on LBus for car 2 = 701.

☞ The emergency travel has a higher priority than the priority travel.

Output ongoing direct. for cabin X:

IO address for the output of the travel continuation direction on the LiSA bus modules.
In the case of group lifts, one lift can take over the output of the travel continuation direction for 2 lifts.
Programming example for the individual lifts of a group of 4:
Lift 1 and lift 2:
1. Output ongoing direct. for cabin 1 = 401.
1. Output ongoing direct. for cabin 2 = 601.
Lift 3 and lift 4:
1. Output ongoing direct. for cabin 3 = 401.
1. Output ongoing direct. for cabin 4 = 601.

Output arrival gong for cabin X:

IO address for the output of the travel continuation direction on the LiSA bus modules.
In the case of group lifts, one lift can take over the output of the travel continuation direction for 2 lifts.
Programming example for the individual lifts of a group of 4:
Lift 1 and lift 2:
1. Output arrival gong for car 1 = 401.
1. Output arrival gong for car 2 = 501.
Lift 3 and lift 4:
1. Output ongoing direct. for cabin 3 = 401.

1. Output ongoing direct. for cabin 4 = 501.

1. Output Car position in land.:

IO address for the output of the car position on the LiSA main board.
Determination of an IO range for the output of the car position, starting with the address for the lowest landing.
Serves to activated displays in a linear way (1 of n) or to select landings for special functions.
Size of the IO range: = number of landings.
The activation is effected when the centrical inductor switch enters the zone.
By defining certain IO addresses, the output of the car position can also be realised serially via PL-16ASP12V+ board(s):

- **IO address = 64:** The PL-ASP12V+ board must be connected to the plug for the segment display.

Attention: for the connection refer to the notes for the parameter "1. output travel contin. direct.".

- **IO address = 57:** The PL-16ASP12V+ board is connected to the terminal X57 on the LiSA.

1. Output Car position in the car:

IO address for the output of the lift car position in the car.
Function analogous to the output of the car position in the landings.

1. Output Gray-code in landing:

IO address for the activation of a display with Gray code on the main board.
Determination of an IO range for the output of the Gray code for the car position, starting with the least significant bit.
The size of the IO range depends on the required maximum length for the code of the highest landing.
The changeover is effected when the centrical inductor switch enters the zone or at the deceleration point of the destination.

1. Output Gray-code in the car:

IO address for the activation of a display with Gray code in the car.
Function analogous to the output of the Gray code in the landings.

1. Output Binary code in landing:

IO address for the activation of a display with binary code on the main board.
Determination of an IO range for the output of the binary code for the car position, starting with the least significant bit. The size of the IO range depends on the required maximum length for the code of the highest landing.
The changeover is effected when the centrical inductor switch enters the zone or at the deceleration point of the destination.

1. Output Binary code in the car:

IO address for the activation of a display with binary code in the car.
Function analogous to the output of the binary code in the landings.

Query if one of the outputs for binary / Gray code described above is > 0:

Binary / Gray code starting with one (0/1):

Selection whether the activation code for the display in the lowest landing starts with zero or one.

➔ *(0): binary / Gray code starts with 0 (no activation signal)*
➔ *(1): binary / Gray code starts with 1*

1. Output Attendant operation:

IO address for the indication of active landing calls in the car for the lift attendant.
The function is only active in the case of priority travel (car). The displays are normally placed next to the car buttons.
Size of the IO range: number of landings.

Output Car light bridging:

IO address for the output of the signal "car light bridging".
According to TRA (not required by EN81), the car light must only be switched off when the lift completes its travel. In the case of hydraulic lifts there is the additional requirement that the light is not switched off before the car reaches the lowest landing. In order to meet this requirement, the car light switch must be overridden during the travel, beyond the zone and, in the case of hydraulic lifts, above the lowest landing. This is effected by means of the N/C contact of a relay which is activated by the output "car light bridging".

Output Light barrier failure (sign.):

IO address for the indication of a failure of the photoelectric barrier.
This output is activated when the photoelectric barrier is interrupted for more than 10 minutes.

Output Running time control (sign.):

IO address for the indication of the operating mode "travel time excess".
This output is activated whenever the travel monitoring time is exceeded, i.e. when a travel between 2 landings lasts longer than the time determined by the parameter "Travel monitoring time".

- When the zone is not left within 30 seconds after starting.
- When the levelling process is not completed within 30 seconds.

Output Failure min. pressure (sign.):

IO address for the indication of the operating mode "minimum pressure" for hydraulic lifts.

Output Failure security circuit (sign.):

IO address for the indication that the safety circuit before SK1 is interrupted.

1. Output Controller/inverter signals:

IO address for the output of the activation signals for controllers / inverters.
Determination of an IO range for the output of 8 activation signals for controllers / inverters, in the order up-signal, down-signal, travelling (release), speed V0, speed V1, speed V2, speed V3, speed Vn.
Size of the IO range: 8 IOs.

Query if 1. Output Controller/inverter signals = 0:

Output Fast travel signal (Dietz):

IO address for the output of the fast travel signal to the Dietz inverter (type: 5445).
Serves to generate an additional fast travel signal (used only by Dietz inverters).
The difference is that the fast travel signal for Dietz inverters is present until the end of the travel. At the deceleration point, the slow signal is switched on.
By parameterising Dietz (= 5 under 000*, inverter type) and using 1. Output controller/inverter signals, this activation variant can be realised.

Attention: an additional IO card might be necessary.

Output end of maintenance interval:

IO address for the indication that the end of the maintenance interval is reached.

1. Output 7-segment indicator on ZE:

IO address for the segmental activation of a 2-digit seven-segment display with travel direction on the LiSA10. 16 IOs are occupied, outputs 1 - 14 for the seven segment display and outputs 15 - 16 for the travel direction.

1. Output 1. dig. of 7-segm. displ. in car:

IO address for the segmental activation for the first digit of a seven-segment display in the car. 7 IOs are occupied.

1. Output 2. dig. of 7-segm. displ. in car:

IO address for the segmental activation for the second digit of a seven-segment display in the car. 7 IOs are occupied.

Output QKS9 brake access side 1:

IO address for the activation of the holding brake for QKS9 door drives (Schindler).

Output QKS9 brake access side 2:

IO address for the activation of the holding brake for QKS9 door drives (Schindler).

Output Collective fault (signal):

IO address for the indication of a collective fault.
This output is activated whenever the lift fails, i.e. if it neither accepts landing nor car calls, e.g. in the case of overtemperature, travel time exceeded, door failure, etc.
The output is not active in the case of an inspection or emergency recall travel.

Output Busy:

IO address for the indication than no landing calls are accepted.
The "busy" output is activated when the lift does not answer any landing calls, i.e.

- in the operating modes "full load", "overload", "priority travel", "landing control off", "door failure", "special service", "switch-off", "firemen mode", "evacuation", "emergency recall", "inspection", and all other cases of failure.
- in the case of push button control when the lift is travelling.

Output Elevator in operation (signal):

IO address for the indication of the operating mode "overload".

The output is activated whenever the lift does not fail and is not switched off.

The function is always realised by the N/C contact of a relay.

Output Elevator under way:

IO address for the indication that the lift car is travelling.

The following functions marked in grey are only available via freely programmable relays:

Output Elevator in zone:

IO address for the indication that the lift car is in the zone.
The lift is in the zone whenever the centrical inductor switch is activated.

Output Excess temperature (signal):

IO address for the indication of the operating mode "overtemperature".
The following function is only available via a freely programmable relay:

Output Door failure (signal):

IO address for the indication of the operating mode "door failure".
A door failure is recognised after 5 unsuccessful attempts to close the door.

- All car calls are deleted, in the case of single lifts also the landing calls.
- As soon as a car button or landing button is pressed, the lift is put into operation again, but will resume the "door failure" operating mode already after two unsuccessful attempts to close the door.
- In the case of group lifts, the procedure is repeated up to 5 times, until the lift is permanently put out of operation with the result that landing calls at the landing where the failed lift is located are answered by a different group lift.
- In the case of single lifts, the operation is ceased only after 10 consecutive door failures.

Output Switch to second selector block:

IO address for the changeover to the second selector block.
Use for extreme short travel landings (landing distance of 1 - 25 cm).
Note: only activated if the multifunctional parameter 2 = 212.

Output Car reached fire/evac. landing (sign.):

IO address for the indication "fire / evacuation landing reached".

Query in the case of car lifts:

1. Output Traffic lights in landing:

IO address for the 1st output "traffic lights in landing" (see car lift description in parameter set 000*). 3 IOs are required per landing <u>and</u> door side. That means in the case of 3 landings and 2 access sides 18 consecutive IOs.

1. Output Posit. signals in car elevator:

IO address for the 1st output "positioning signals in car lift" (see car lift description in parameter set 000*).
5 consecutive IOs are occupied.

- Output: display field "forward" when driving in from side 1.
- Output + 1: display field "backward" when driving in from side 1.
- Output + 2: display field "forward" when driving in from side 2.
- Output + 3: display field "backward" when driving in from side 2.
- Output + 4: display field "stop".

1. Output Teleservice:

IO address for the 1st output of the teleservice signals (signals to the Thyssen emergency call system with attendant control function).
16 consecutive IOs are occupied.

- 1st output: indication of travel direction down.
- 1st output + 1: indication of travel direction up.
- 1st output + 2: car travelling and safety circuit closed.
- 1st output + 3: safety circuit failure (SK1 is missing).
- 1st output + 4: collective failure.
- 1st output + 5: door open button pressed.
- 1st output + 6: door(s) is/are open.
- 1st output + 7: car in standstill and in the zone.
- 1st output + 8: door 1 completely open.
- 1st output + 9: door 2 completely open.
- 1st output + 10: lift effects inspection travel.
- 1st output + 13: car command to highest landing.
- 1st output + 14: car command to lowest landing.
- 1st output + 15: door open command.

Output Deceleration to speed V1:

IO address for the output "deceleration to speed V1".
Serves to signal to the inverter that it must decelerate from rated speed to speed V1.

Output Emergency call suppression:

IO address for the output of the emergency call suppression (see description for the relay "Suppression of emergency call" in parameter set 006*).

Output Emergency stop activated (signal):

IO address for the signal that the emergency stop was activated from the car.

Output Brake shoe monitoring tripped (signal):

IO address for the signal that the brake shoes were not lifted after the start.

Output firemen horn:

IO address for the signal that the lift reached the destination in the case of a travel in firemen mode (car).

Output firemen/fire emergency when inspection mode:

???

Output Parking level reached:

IO address for the signal that the lift is located in the parking position.

1. Output Otis-REM:

IO address for the 1st output of the Otis-REM signals (signals to the Otis emergency call system with attendant control function).
12 consecutive IOs are occupied.

The following functions are put out starting with the IO address for the first output:

- 1st output: signal BRK - lift travelling.
- 1st output + 1: signal BUT - travel command present.
- 1st output + 2: signal DO - door opening to leave the car (car in the zone + in standstill + door(s) completely open).
- 1st output + 3: signal SAF - safety circuit (safety circuit before SK1 interrupted).
- 1st output + 4: signal DS - door and locking means switch open (safety circuit before SK4 interrupted).
- 1st output + 5: signal DIR - counting direction (= travel direction).
- 1st output + 6: signal CPR - lift moves to parking position.
- 1st output + 7: signal POW - lift is ready.
- 1st output + 8: signal CLS - car light sensor.
- 1st output + 9: signal LEV - flush signal in standstill.
- 1st output + 10: signal MF - initiation of the flushness measuring (car in standstill + centrical inductor switch in zone).
- 1st output + 11: signal Norm - lift in normal operation.

The signal ALB = emergency call is activated by the emergency call relay.

Output Zone with speed V3:

IO address for the signal that the lift is in the zone in which it may travel at rated speed.

Output Watchdog:

IO address for the signal that the control electronics work.
If the signal is not present, the result may be an emergency lowering.

Output Anti-creep device:

IO address which serves to activate a relay for the folding support operation.

Output Rope brake test:

IO address which serves to activate a relay to test the rope brake (every 24 hours).
Does only make sense in combination with the parameter "Inp. Rope brake test".

1. Output car+landing calls:

Determination of the address range to display active car or landing calls.
The occupied IO range corresponds to the number of landings.

1. Output transferIO:

Beginning of the address range for the output signals transferred from the input range (see 1. Inp. / last input transferIO).
A consecutive IO range corresponding to the length of the input transfer range is occupied.

1. Output elevator in landing:

IO address for the signal that the lift is located in the landing.
The number of occupied IOs corresponds to the number of landings.
The respective IO is activated when the lift is in the landing with completely opened doors.

Output acoust. signal on cabin call:

IO address for the output of an acoustic feedback for car push buttons.
According to EN81-70 an acoustic signal must be audible when a button is pressed in the landing.
If you use LiSA panels, the use of the light display board is provided for the emergency light field. By default, a piezo actuator is provided on this board which serves to generate the acoustic signal when connected to the output "acoust. signal on cabin call".

1. Output acoust. signal on landing call:

IO address for the output of an acoustic feedback for landing push buttons.
According to EN81-70 an acoustic signal must be audible when a button is pressed in the landing.

Output sign use car reader:

IO address to activate a light field which informs the user that he/she must use the card reader in the car in order to reach the landing for which he/she pressed the button.
Function: For each landing of which the car call mask is 0 in the current operating mode, i.e. which is blocked for car calls, the notification field is activated for approx. 5 seconds when a car button is pressed.

Query in the case of car lifts:

1. Output target landing:

IO address for the indication of the target landing.
This function is used in order to inform the user in the case of duplex lifts with shaft doors which are far apart that he/she should use the neighbouring lift of which the door is not directly visible.

Output lift switched off:

IO address to indicate that the lift was switched off using a landing or car key and that it is located in the switch-off landing.

Output Load/door stop =

IO address to indicate that the door stop function is activated.

Output Landing control off =

IO address to indicate that the landing control is switched off.

Output EText fire emergency -1 =

IO address to activate a fire emergency voice announcement.

Output EText fire emergency -2 =

IO address to activate a fire emergency voice announcement.

Output EText fire emergency -3 =

IO address to activate a fire emergency voice announcement.

Outp. release reset safety circuit =

IO address for the output of the reset signal of the safety circuit of the shaft door monitoring.

4.2.6. Key-controlled addresses and landings: (selected via LiSA keyboard entering 005*)

Via the parameter set "Key-controlled addresses", the freely programmable IOs are given a key-control function. In general these are functions which are activated by a privileged user.
All key-controlled travels, except the fire emergency and firemen mode travels, have the following properties:

- The lift parks with open doors.
- Car key functions are displayed on the operating mode display (7-segment display on the LiSA) with an "**S.**".
- Landing key functions are displayed on the operating mode display (7-segment display on the LiSA) with an "**S**".

Car-key priority travel:

IO address for the priority travel (car) (= in the car) function.
If the car is in an operating mode with lower priority, it changes to the operating mode "priority travel (car)" and activates the following functions:

- Indication bottom right of the display: „**VzIn**".
- The priority travel indication is activated (if available).
- Landing calls are still stored, but not answered.
- If the function "attendant operation" is programmed (1. Output attendant operation > 0), incoming landing calls are displayed via these outputs on the car panel.
- Car calls are accepted according to the parameters for the door opening in case of key-controlled travels in the parameter set "Door opening functions" (008*).
- If the key is removed without having effect a travel, the lift remains reserved for 30 seconds in the operating mode "priority travel (car)" but accepts calls according to the door opening permission for normal operation. When the reservation time has elapsed, the lift changes to the original operating mode or possibly to an operating mode activated in the meantime.
- If the key is removed during a travel, the lift remains in the operating mode "priority travel (car)" until the stop but accepts call only according to the normal operating mode.

Car-key special service:

IO address for the special service (car) (= in the car) function.
If the car is in an operating mode with lower priority, it changes to the operating mode "special service (car)" and activates the following functions:

- Indication bottom right of the display: „**SoIn**".
- The special service indication is activated (if available).
- Deletion of all landing and car calls according to the parameter "Call cancel. on key-contr. travel (No/After/Before), i.e. not at all, at the end of the special service or at the beginning.
- Car calls are accepted according to the parameters for the door opening in case of key-controlled travels in the parameter set "Door opening functions" (008*).
- The key "special service (car)" allows for travelling with an open partition door (see parameter "Inp. dividing door").

If the key is removed during a travel, the lift remains in the operating mode "special service (car)" until the stop but does not accept any calls.

Car-key emerg. travel:

IO address for the emergency travel (car) (= in the car) function.
The function of this key is analogous to the previously described car-key priority travel, but with higher priority.
If the car is in an operating mode with lower priority, it changes to the operating mode "priority travel (car)" and activates the following functions/states:

- Indication bottom right of the display: „**Notfa**".
- The priority travel indication is activated (if available).
- Landing calls are still stored, but not answered.

- Car calls are accepted according to the parameters for the door opening in case of key-controlled travels in the parameter set "Door opening functions" (008*).
- If the key is removed without having effect a travel, the lift remains reserved for 30 seconds in the operating mode "priority travel (car)" but accepts calls according to the door opening permission for normal operation. When the reservation time has elapsed, the lift changes to the original operating mode or possibly to an operating mode activated in the meantime.

If the key is removed during a travel, the lift remains in the operating mode "priority travel (car)" until the stop but accepts call only according to the normal operating mode.

Landing-key control priority travel:

IO address (address range) for the priority travel (landing) (= in landing(s)) function.
If the car is in an operating mode with lower priority, it changes to the operating mode "priority travel (landing)" and activates the following functions/states:

- Indication bottom right of the display: „**VzIn**".
- If the car is travelling, it will be stopped in the next possible landing. The deletion of car calls depends on the parameter "Call cancel. on key-contr. travel". Landing calls are not deleted and still accepted, but not taken into consideration for the call selection.
- If the parameter "Landing priority travel" is programmed with a value > 0 (described in the following), the car approaches the landing determined in this way. If the parameter "Landing priority travel" is programmed with 0, the lift approaches the landing where the key is inserted. In this case, a consecutive IO range is reserved for the priority travel (landing). If there the selective door control (landing) is not used, the size of this range corresponds to the number of landings. If the selective door control (landing) is used, IOs are reserved for both door sides, i.e. 2 * number of landings. In this way the landing keys are treated selectively, like the landing calls.
- If the key is removed, the lift changes to the operating mode "priority travel (car)" when the time determined by the parameter "Reserv. after land. priority travel" has elapsed. In this way a priority travel (car) is activated without requiring a car key.

☞ In the case of group lifts, the key IOs of lifts with landing keys for priority travels must **not** be interconnected.

- That lift is selected which is in the most advantageous position regarding the key activation. Active car calls are also taken into consideration and affect the respective lift in such a way as if it was by one landing per car call further away from the landing where the key was inserted.
- The selected lift changes to the operating mode "priority travel (car)", if it is still travelling it will approach the destination and then delete all car calls.
- Then it approaches the landing where the key was inserted and stays there for the time determined by the parameter "Reserv. after land. priority travel" in the priority travel (car) mode.

Query if a landing-key priority travel is programmed:

Landing priority travel:

Determination of the priority travel landing.

➔ *(0): as described above, the lift approaches the landing where the key is inserted*
➔ *(> 0 and <= no. of landings): the lift approaches the landing defined by the parameter*

Door open on reverse level when priority travel (0/1):

Selection whether the door is opened before travelling to the priority landing after changing to "priority travel (car)" during the travel and stopping in the next possible landing (reverse landing).

➔ *(0): door is not opened .*
➔ *(1): door is opened*

Query in the case of group lifts:

Priority travel in group (yes/only1/only2/only me) (0..3):

Determination which lifts in the group are to be taken into consideration after activating the priority travel function.

➔ *(0): all lifts in the group participate*
➔ *(1): only lift 1 is taken into consideration for the priority travel*
➔ *(2): only lift 2 is taken into consideration for the priority travel*

➔ *(3): only the lift to which the priority travel was indicated is taken into consideration*

Special priority travel (0/1):

Serves to indicate the use of a special priority travel and to activate it in conjunction with the door opening masks for special priority travels (see 008*).

Landing-key switch special service:

IO address (address range) for the special service (landing) (= in landing(s)) function.
If the car is in an operating mode with lower priority, it changes to the operating mode "special service (landing)" and activates the following functions:

- Indication bottom right of the display: „**SoAus**".
- If the car is travelling, the current destination is still approached.
- Deletion of the car calls depending on the parameter "Call cancel. on key-contr. travel" and blocking of car calls.
- Deletion and blocking of landing calls.
- If the parameter "Landing special service" is programmed with a value > 0 (described in the following), the car approaches the landing determined in this way. If the parameter "Landing special service" is programmed with 0, the lift approaches the landing where the key is inserted. In this case the IO address is identical to the address for the landing key in the lowest landing and a consecutive IO range is reserved for the special service (landing).

Example: In the case of a system with 16 landings the parameter "landing-key switch special service" is programmed with 27 and a key for special service travels is installed in the landings 3, 6 and 10. The key for landing 3 must be connected to IO29, for landing 6 to IO32 and for landing 10 to IO36. If there the selective door control (landing) is not used, the size of this range corresponds to the number of landings. If the selective door control (landing) is used, IOs are reserved for both door sides, i.e. 2 * number of landings (referring to the previous example IO27 - IO58). In this way the landing keys are treated selectively, like the landing calls.

- When the key is removed, the lift immediately changes to the original operating mode or possibly to an operating mode activated in the meantime.

Query if a landing-key special service is programmed:

Landing special service:

Determination of the special service landing.

➔ *(0): as described above for landing-key special service the lift approaches the landing where the key was inserted*

➔ *(> 0 and <= no. of landings): the lift approaches the landing defined by the parameter*

Landing-key emerg. travel:

IO address for the emergency travel (landing) function.
The function of this/these key(s) is analogous to the previously described landing-key control priority travel, but with higher priority.
If the car is in an operating mode with lower priority, it changes to the operating mode "priority travel (car)" and activates the following functions/states:

- Indication bottom right of the display: „**Notfal**".
- If the car is travelling, it will be stopped in the next possible landing. The deletion of car calls depends on the parameter "Call cancel. on key-contr. travel". Landing calls are not deleted and still accepted, but not taken into consideration for the call selection.
- If the parameter "Landing emergency travel" is programmed with a value > 0 (described in the following), the car approaches the landing determined in this way. If the parameter "Landing emergency travel" is programmed with 0, the lift approaches the landing where the key is inserted. In this case, a consecutive IO range is reserved for the emergency travel (landing). If there the selective door control (landing) is not used, the size of this range corresponds to the number of landings. If the selective door control (landing) is used, twice the number of IOs are reserved for both door sides, i.e. 2 * number of landings. In this way the landing keys are treated selectively, like the landing calls.
- If the key is removed, the lift changes to the operating mode "priority travel (car)" for 30 seconds after the idle time. In this way a priority travel (car) is activated without requiring a car key.

In the case of group lifts, the key IOs of lifts with landing keys for emergency travels must **not** be interconnected.

- That lift is selected which is in the most advantageous position regarding the key activation.
- The selected lift changes to the operating mode "priority travel (car)", if it is travelling it will change in the next possible landing.
- Then the lift approaches the landing where the key is inserted and stays there for 30 seconds in the priority travel (car) mode.

Query if a landing-key emergency travel is programmed:

Landing emergency travel:

Determination of the emergency travel landing.

➔ *(0): as described above, the lift approaches the landing where the key is installed*
➔ *(> 0 and <= no. of landings): the lift approaches the landing defined by the parameter*

Query in the case of group lifts:

Emerg. travel in group? (yes/only1/only2/only me) (0..3):

Determination which lifts in the group are to be taken into consideration after activating the emergency travel function.

➔ *(0): all lifts in the group participate*
➔ *(1): only lift 1 is taken into consideration for the emergency travel*
➔ *(2): only lift 2 is taken into consideration for the emergency travel*

Firemen mode (n/y) (0/1)?

Query whether the parameters related to the firemen mode should be displayed.

➔ *(0): no display of the firemen mode parameters*
➔ *(1): indication of the firemen mode parameters*

Car-key firemen mode:

IO address for the firemen mode (car) (= in the car) function.
If the car is in an operating mode with lower priority, it changes to the operating mode "firemen mode (car)" and activates the following functions:

- Indication bottom right of the display: „**FeuIn**".
- The display "firemen mode" in the car is activated (according to regulations), unless the firemen mode (landing) is active.
- Deletion of all calls, independent of the parameter "Call cancel. on key-contr. travel".
- Car calls are accepted according to the parameters for the door opening in case of key-controlled travels in the parameter set "Door opening functions" (008*).
- The photoelectric barrier and door open buttons are no longer considered.
- When the key is removed, the lift immediately changes to the original operating mode or possibly to an operating mode activated in the meantime.

Landing-key firemen mode:

IO address for the firemen mode (landing) (= in the landing(s)) function.
If the car is in an operating mode with lower priority, it changes to the operating mode "firemen mode (landing)" and activates the following functions/states:

- Display "firemen mode" is activated (attention: programme the parameter "Output display firemen mode").
- Indication on the operating mode display of LiSA: „**F**".
- Indication bottom right of the display: „**FeAus**".
- Signals from the photoelectric barrier and the door open button are ignored.
- If the lift is not yet in the firemen mode landing, you will hear an acoustic signal. (Attention: programme the parameter "Output acoustic signal").
- Deletion of all landing and car calls and blocking of the entire call acceptance.

- If the car moves away from the firemen mode landing when the firemen mode is initiated, it will stop in the next possible landing without opening the doors and approach the firemen mode landing.
- The car will stay in the firemen mode landing with open doors until the car key "firemen mode" is inserted.
- If the key is removed, the lift will remain reserved until the car key "firemen mode" is inserted.

Query if a landing-key firemen mode is programmed:

Landing firemen mode:

Determination of the firemen mode landing.

➔ *(0): no function*

➔ *(> 0 and <= no. of landings): the lift approaches the landing defined by the parameter when the firemen mode (landing) is initiated*

Firemen mode - Door open push butt. deact. -> D-(norm/stop/close/open) (0..3):

Serves to determine the reaction in the case of the firemen mode if the door open button is released before the door is completely open.

➔ *(0): the door will open when pressing the button once*

➔ *(1): the door stops (the door open signal is switched off)*

➔ *(2): the door closes*

➔ *the door opens*

☞ A door open limit switch is mandatory. The door is completely open when the door open limit switch is activated.

Firemen mode - Door close push butt. deact. -> D-(close/stop/open) (0..2):

Serves to determine the reaction in the case of the firemen mode if the door close button is released before the door is completely closed.

➔ *(0): the door stops (the door closing signal is switched off)*

➔ *(1): the door closes*

➔ *(2): the door opens*

☞ The door is completely closed when the door closing limit switch is activated or the safety circuit is closed.

☞The parameters described above serve to completely cover the dead man's function.
If both parameters have the value 0, the dead man's function is deactivated.

Firemen mode - Door close when cabin call (0/1):

➔ *(0): no response to a car call*

➔ *(1): door closes automatically after a car call*

Firemen mode - Special (No/Frankf./N.Y./Austr./Hongk./..) (0..):

Serves to select special firemen mode functions. These are deviations from EN81-72.

➔ *(0): no special function (EN81-72)*

➔ *(1): Frankfurt firemen mode (the door open button must glow and a buzzer must be activated if the lift is in the landing)*

➔ *(2): N.Y.: New York firemen mode*

➔ *(3): Australian firemen mode (additional start input required)*

➔ *(4): Hong Kong firemen mode (function of the door close button is also activated by pressing any car button)*

Firemen mode: open door 1 = xxxxxx

Determines the door opening in the case of the firemen mode.

Firemen mode: open door 2 = xxxxxx

Determines the door opening in the case of the firemen mode.

Door opening on the fire service level (D1/D2/both):

Serves to select a door opening in the firemen mode landing different from the door opening tables.

- ➔ *(0): when arriving in the firemen mode landing, only door 1 is opened*
- ➔ *(1): when arriving in the firemen mode landing, only door 2 is opened*
- ➔ *(2): when arriving in the firemen mode landing, both doors are opened*

Inp. Hold:

IO address for the "hold lift car" function.
Special function for the USA.
Firemen mode key (car) with three positions. In the "hold" position, the key can be removed and the lift remains reserved.

Firemen mode - pass smoky floors (0/1):

- ➔ *(0): landings blocked by the smoke detectors are not passed*
- ➔ *(1): landings blocked by the smoke detectors are passed*

Shut-down function (n/y) (0/1)?

Query whether the parameters related to the shut-down function should be displayed.

- ➔ *(0): shut-down parameters are skipped*
- ➔ *(1): shut-down parameters are queried*

Car-key control shut down:

IO address for the shut-down (car) (= in the car) function.
If the car is in an operating mode with lower priority, it changes to the operating mode "shut-down (car)" and activates the following functions:

- Indication bottom right of the display: „**AbIn**".
- If the car is travelling, the current destination is still approached.
- Deletion of all calls, independent of the parameter "Call cancel. on key-contr. travel".
- The lift car light is switched off if the corresponding parameter "Switch car light" in the parameter set "Relay addresses (006*)" is programmed.
- When the key is removed, the lift immediately changes to the original operating mode or possibly to an operating mode activated in the meantime.

Landing-key switch shut down:

IO address for the shut-down (landing) (= in the landing(s)) function.
If the car is in an operating mode with lower priority, it changes to the operating mode "shut-down (landing)" and activates the following functions:

- Indication bottom right of the display: „**AbAus**".
- Deletion of all landing and car calls and blocking of the entire call acceptance.
- If the car moves away from the shut-down landing when the shut-down function is initiated, it will stop in the next possible landing without opening the doors and approach the shut-down landing.
- In the shut-down landing, the door is opened and closed when the idle time has elapsed.
- The lift car light is switched off if the corresponding parameter "Switch car light" in the parameter set "Relay addresses (006*)" is programmed.
- When the key is removed, the lift immediately changes to the original operating mode or possibly to an operating mode activated in the meantime.

Query in the case of group lifts:

Shut down in group (yes/only1/only2) (0..2):

Determination which lifts in the group are to be taken into consideration after activating the shut-down (landing) function.

- ➔ *(0): both lifts are switched off*
- ➔ *(1): only lift 1 is switched off*
- ➔ *(2): only lift 2 is switched off*

Inp. Shut down in cont. cabinet:

IO address for the shut-down (landing) (= in the control cabinet) function.
Function analogous to the landing key shut down function. Was included when the bus system was introduced.

Query if a shut-down landing key or car reservation input is programmed:

Landing - shut-down/reservation:

Determines the shut-down / reservation landing.

- ➔ *(0): no function*
- ➔ *(> 0 and <= no. of landings): the lift approaches the landing defined by the parameter*

In the case of hydraulic lifts, landing 1 is usually entered as the shut-down landing.

Alternate landing for landing-key shut-down:

Determination of the landing which is to be approached first after the initialisation of the shut-down function.

- ➔ *(0): no function*
- ➔ *(> 0 and <= no. of landings): the lift approaches the landing determined by the parameter, opens and closes the doors and approaches the shut-down landing.*

Fire emergency function (n/y) (0/1)?

Query whether the parameters related to the fire emergency function should be displayed.

- ➔ *(0): fire emergency parameters are skipped*
- ➔ *(1): fire emergency parameters are queried*

1. Inp. Smoke detector / landing blocked:

IO address for the 1st input "smoke detector / landing blocked".
Assigned IO range = number of landings or number of landings * 2 in case of selective door control (landing).
When an input is activated, the corresponding landing or door side of a landing is blocked.

☞ The polarity of the signals can be determined by the parameter "Input fire smoke detector (NO/NC)" described in the following.

Inp. Fire emerg. in land.:

This function is a combination of special service (landing) and firemen mode (landing).
If the car is in an operating mode with lower priority, it changes to the operating mode "fire emergency" and activates the following functions/states:

- Indication bottom right of the display: „**Brandfa**".
- If the signal from the photoelectric barrier is taken into consideration or not depends on the parameter "Light barrier to be consid. with fire emerg. / emerg." described in the following.
- If the car moves away from the fire emergency landing when the fire emergency is initiated, it will stop in the next possible landing without opening the doors and approach the fire emergency landing.
- Deletion of all calls.

☞ The activation of the fire emergency by an external signal must always be done via an N/C contact (see parameter "Fire emerg. activ. (...)" described in the following.

Inp. fire emerg. in contr. cabinet:

Function analogous to the input "fire emerg. in land.".

The following parameters are queried if "1. Inp. smoke detector / landing blocked" and "Inp. fire emerg. in land." / "Inp. fire emerg. in contr. cabinet" are programmed:

Fire emerg. activ. (autom. by smoke det. / by fire emerg. cent.) (0/1):

Determines how the fire emergency mode is activated.

- ➔ *(0): when a smoke detector is activated, the system changes automatically to the fire emergency mode*
- ➔ *(1): the fire emergency mode is always activated by an external signal*
  This signal must be generated by removing the potential present at the fire emergency input via a potential-free contact. An interruption of the signal always results in the activation of the fire emergency mode (safety against wire break).

Inp. Fire smoke detector (NO/NC) (0/1):

Determines whether the fire emergency or smoke detector signal should be activated by an N/O contact or N/C contact.

- ➔ *(0): N/O function*
- ➔ *(1): N/C function*

Note: at the same time the signal level is determined for the following signals:

- Input fire emergency
- Input Evac./Fire emerg. land. full of smoke
- 1. Inp. Smoke detector (see parameter set 003*)

The following parameters are queried if only "inp. fire emerg. in land." / "inp. fire emerg. in contr. cabinet" is programmed:

Landing fire emergency:

Determines the fire emergency landing (main destination).

- ➔ *(0): as no main destination is determined, the car stays in the current landing or, if travelling, approaches the next possible landing*
- ➔ *(> 0 and <= no. of landings): the lift approaches the landing defined by the parameter*

Query if landing fire emergency > 0:

Input Evac./Fire emerg. land. full of smoke:

Serves to evaluate a smoke detector installed in the fire emergency landing.

- ➔ *In case of fire, the fire emergency landing is not approached, but the alternative fire emergency landing (= 2nd safe landing) depending on the fire alarm function (BMF 0 - 5).*

Inp. fire emerg. in landing (NO/NC) (0/1):

Determines whether the fire emergency or smoke detector signal should be activated by an N/O contact or N/C contact.

- ➔ *(0): N/O function*
- ➔ *(1): N/C function*

Query if a large EEPROM (24C256) is installed on the LiSA board:

☞ **Realisation of the dynamic fire emergency travel:**
The following parameters serve to determine which landings are approached after changing to the fire emergency mode if one/several landings are full of smoke.

1. safe landing for dynamic fire emergency =

Determination of the main destination.

2. safe landing for dynamic fire emergency =

Determination of the first alternative landing.

n. safe landing for dynamic fire emergency =

Determination of the n-th alternative landing.

Cabin light off in fire emerg. landing (0/1):

Serves to determine whether the lift car light should be switched off in the fire emergency landing.

Inp. End of fire emerg.:

IO address for the "terminate fire emergency" function.
Special function for Switzerland.
After switching off the fire emergency / firemen mode, the lift will only be put into operation when this input is activated.

Fire emerg. signal send to all lifts in group? (0/1):

- ➔ *(0): each lift receives or generates its own signal to activate the fire emergency mode*
- ➔ *(1): when a lift in the group changes to the fire emergency mode, all other lifts will automatically change to the fire emergency mode, too*
  This means that only one lift in the group must receive the fire emergency activation signal.

Light barrier to be consid. with fire emerg. / emerg. (0/1):

Determines whether the photoelectric barrier is taken into consideration in case of fire.

- ➔ *(0): signal from the photoelectric barrier is not considered*
- ➔ *(1): signal from the photoelectric barrier is considered*

Door close in fire emerg. level after X seconds:

Serves to determine that the door is closed after time X (in seconds) after arriving in the fire emergency landing.

- ➔ *(0): the door remains open in the fire emergency landing*
- ➔ *(1): after arriving in the fire emergency landing, the door closes after X seconds*

Output - fire emergency (signal):

IO address for an output which serves to indicate that the fire emergency travel is activated.

Smoke detector function (0..) :

Selection of different fire emergency functions.

BMF	Fire emergency start	fire emergency end	fire emergency dynamic	passing smoky landings
0	see **)	fire emergency input deactivated	yes, but only if lift is not yet in fire emerg. landing or approaching it when the fire emerg. mode is activated, regardless whether the destination is smoky (EN81-73)	YES
1	see *)	smoke detector input deactivated	yes	YES
2	see **)	fire emergency input deactivated	yes	no
3	see *)	smoke detector input deactivated	fire emergency landing always 2 landings above smoky landing	no
4	see **)	fire emergency input deactivated	no - main landing approached	YES
5	see *)	smoke detector input deactivated, but only if no firemen mode landing key or input "end of fire emerg." is programmed	fire emergency landing always 2 landings above smoky landing	no
6	see *)	smoke detector input deactivated	yes, but only if lift is not yet in fire emerg. landing or approaching it when the fire emerg. mode is activated, regardless whether the destination is smoky (EN81-73)	YES

*) If BMF = 1 or BMF = 3 or BMF = 5, the fire emergency mode is only activated by evaluating the signals from the smoke detectors in the landings. The smoke detector signals can be generated by N/C or N/O contacts (see parameter "Input fire smoke detector (NO/NC)).
If LiSA recognises a smoke detector signal, the software activates the input "fire emergency in control cabinet". Activated means that the fire emergency input is always treated as an N/O contact regardless of the parameter "input fire smoke detector (NO/NC)" (when activated the LED at the input is on). This solution is only used to make the software easier.
BMF = 5 is a special fire emergency function for Leipzig.

**) If BMF = 0 or BMF = 2 or BMF = 4, the fire emergency mode is always explicitly activated by an N/C contact at the fire emergency input in the control cabinet or the landing.
In the case of two sides with selective door control (landing) and use of the fire emergency input in the landings, a fire emergency input is reserved for both sides. Please note that the last input used must be connected to -H.
☞ Fire emergency function = 0 corresponds to the requirements of EN81-73, i.e.

- The fire emergency mode is activated via one of the fire emergency inputs in the control cabinet or in the landing via an external signal (N/C contact) from the fire alarm centre.
- Smoke detector signals must always be transmitted to the controller via N/C contacts (safety against wire break). For reasons of compatibility with older installations, also N/O contacts can be used (see parameter "input fire smoke detector (NO/NC)").
- If the lift moves towards the 1st safe landing and a fire is detected in this landing (landing full of smoke) with a subsequent fire emergency signal, the controller tries to shift the destination of the lift to the next possible safe landing, i.e. it will approach this landing after a possible intermediate stop.
  If the lift is already in the fire emergency mode and on its way to the 1st safe landing and a fire is detected in this landing, this signal will be ignored.
  If the lift is already in the 1st safe landing, it will stay there with open doors. A possible active smoke detector signal will also be ignored.
- The fire emergency mode is terminated by deactivating the signal at the fire emergency input.

Query if a **small** EEPROM (24C08 / 24C09) is installed on the LiSA board:

The following parameters "Alternate landing in case of fire emergency" and "Door opening in fire emergency level" are only contained for the sake of compatibility. They are replaced by the parameters for the dynamic fire emergency described above and the parameters fire emergency / shut down: open door 1 / 2 described below.

Alternate landing in case of fire emergency:

Determination of the alternative landing if the fire emergency landing is full of smoke.

➔ *(0): no alternative landing*

➔ *(> 0 and <= no. of landings):*

If the freely programmable input "Evac./Fire emerg. land. full of smoke" (see following parameter) is activated (probably by a smoke detector installed in the fire emergency landing), the lift will not approach the fire emergency landing, but the alternative landing, even if the lift is already in the fire emergency landing. If the lift is in the fire emergency mode and is located in the alternative landing when the signal "fire emergency landing full of smoke" is deactivated, the lift will leave the alternative landing and approach the fire emergency landing.

Door opening in fire emergency level (D1/D2/both):

Serves to select a door opening in the fire emergency landing different from the door opening tables.

➔ *(0): when arriving in the fire emergency landing, only door 1 is opened*

➔ *(1): when arriving in the fire emergency landing, only door 2 is opened*

➔ *(2): when arriving in the fire emergency landing, both doors are opened*

Query if landing-key fire emergency or 1st input smoke detector is programmed:

Fire emergency / shut down: open door 1 = xxxxxx

Fire emergency / shut down: open door 2 = xxxxxx

Selection of the door opening in fire emergency and shut-down mode.

Inp. End of fire emerg.:

IO address for the "terminate fire emergency" function.
Special function for Switzerland.
After switching off the fire emergency / firemen mode, the lift will only be put into operation when this input is activated.

Call cancel. on key-contr. travel (No/after/before/Before&After):

Selection when the active landing and car calls are deleted in the case of a key-controlled travel.

- ➔ *(0): no call deletion*
- ➔ *(1): call deletion at the end of the key-controlled travel*
- ➔ *(2): call deletion at the beginning of the key-controlled travel*
- ➔ *(3): call deletion at the beginning and at the end of the key-controlled travel*

The following parameter is to be found under "Input addresses (003*)", activation of the clock-controlled travel.

Call cancel. on clock-contr. travel (No/After/Before/Before&After):

Selection when the active landing and car calls are deleted in the case of a clock-controlled travel.

- ➔ *(0): no call deletion*
- ➔ *(1): call deletion at the end of the clock-controlled travel*
- ➔ *(2): call deletion at the beginning of the clock-controlled travel*
- ➔ *(3): call deletion at the beginning and at the end of the clock-controlled travel*

Accept. of car comm. only with funct. active (sec.) (0..29/30):

- ➔ *Time during which call buttons can be pressed after a previously activated function has been deactivated.*

☞ When using magnetic cards it might be important that after removing the card no call buttons can be pressed by other persons not entitled to approach landings previously released by means of the magnetic card.

4.2.7. Relay addresses: (selected via LiSA keyboard entering 006*)

Via the parameter set "Relay addresses", the freely programmable relays are given an output function. In general these are

- the indication of an operating mode by means of illuminated indicator fields or
- position outputs or
- activation signals for controllers or hydraulic systems or
- switching processes where voltages greater than +H must be switched.

In total there are 6 freely programmable relays.
In the case of the LiSA versions LiSA6 - LiSA9, the relays are on the main board.
In the case of LiSA10, 2 relays are on the main board and a 10-pin ribbon cable connection (bottom left on the main board) via which the remaining 4 relays on a relay board (RP-1) are activated.
By indicating the relay address (1-6), the respective function is assigned to the relay. Some relay functions can only be transferred to electronic outputs. In this case select an address > 6.

Example: The function "collective failure" is to be realised. Scroll through the parameter set 006 until you find the parameter "collective failure". If the signal is supposed to be put out by relay 3 (K43), enter the number 3. If the signal is supposed to be put out at IO16 (first check if it is free), enter the number 16.

☞ Each relay address must only be assigned once!!

Rel./Outp. Travel direction up:

Relay address for signalling the upwards travel direction.

➔ *The same function is also available via the parameter "Outp. direction up" (see parameter set "Output addresses").*

The relay output "direction up" is activated whenever the car travel upwards.
The following relay address is reserved for the indication of the downwards direction, i.e. the parameter "Rel. travel direction up" always occupies two relay outputs.
Depending on the parameter "Direction indic. combined with ongoing travel direct.", the travel direction indication also serves to indicate the travel continuation direction in standstill (see parameter set 007*).

Rel. Running with V1 (Vz1):

Relay address to select the speed V1 or Vz1 (= 1st intermediate speed) in the case of controllers / inverters or electronic lift control valves.
V1 is used

- in the case of frequency-controlled systems if the rated speed is not reached during a travel and the controller cannot work with ogival cams (see distance limit at Vz1).
- in the case of an inspection travel (inspection fast, max. 0.63 m/s).

☞ If the electronic activation is used (parameter set 004, inverter signals), the signal V1 (Vz1) is put out via the IO port and must be programmed here.

Rel. Running with Vn (relevelling):

Relay address for the selection of the speed Vn (= relevelling speed).
Vn is used

- in the case of systems with controllers / inverters for the relevelling.
- in the case of hydraulic lifts for the activation of a relevelling aggregate.

☞ If the electronic activation is used (parameter set 004, inverter signals), the signal Vn is put out via the IO port and must not be programmed here.

Rel./Outp. Car fan:

Relay address for the activation of the lift car fan.
The relay operates if

- no fan push button is programmed and the lift is travelling.
- a fan push button is programmed and is pressed, for the overtravel time defined under 001.

Rel./Outp. Car light off:

Relay address for switching the lift car light.
Is required in conjunction with the parameter "Car light switch off after X seconds".

Rel./Outp. Shaft light:

Relay address for switching the shaft light.
LiSA bus to car: if the shaft light button in the car is pressed, the shaft light relay switches the shaft light pulse relay in the control cabinet.

Rel. Interlock magnet - door 1:

Relay address for switching the interlock magnet for door side 1.

Rel. Interlock magnet - door 2:

Relay address for switching the interlock magnet for door side 2.

Rel. Traffic light in the car:

Relay address for switching a traffic light in the car.
The door closing is delayed by the value defined by the parameter "Warning signal prior to door closing" and at the same time a traffic light in the car is switched to "red" via the relay "traffic light in the car".

Rel. Suppression of emergency call:

Relay for the suppression of the horn signal or in order to prevent that an unjustified emergency call is sent to the service centre in the case of emergency call systems without misuse detection.
In both cases the N/C contact of the emergency suppression relay is connected in series with the N/O contact of the alarm relay (terminal SS1 on the main board) with the result that the signal of the alarm relay is interrupted if the emergency call is unjustified (relay "suppression of emergency call" activated).
In the case of the LiSA emergency call system, the emergency call signal is evaluated internally, i.e. a separate relay is not required.
The following criteria are taken as a reference for the misuse detection according to TRA106:

- the car is travelling and the safety circuit is closed (TRA 106 2.1),
- the car is in the zone and the hinged door is open (TRA 106 2.1.2.1.),
- the car is in the zone and the car door is open (TRA 106 2.1.2.2.).

The emergency call suppression can be avoided e.g. for TÜV tests if the alarm button and the door open button are pressed at the same time. This function can be switched off by setting the multifunctional parameter 2 (= starting delay) to the value 195.
Avoiding the suppression function is also possible by pressing the emergency call button directly after closing the door and before the travel starts.

Query for hydraulic lifts:

Rel. overtravelling pump:

Relay address for the pump overtravel function.
The relay "overtravelling pump" serves to switch off the open valve by the overtravel time (see parameter "overtravelling pump" in parameter set 001*) earlier than the pump motor. In the case of some hydraulic systems like Giehl and Leistriz, this leads to a smoother stop when travelling upwards.

Query for rope traction lifts:

Rel. overtravelling motor fan:

Relay address for the motor fan overtravel function.
The relay "overtravelling motor fan" serves to keep the fan for the travel motor activated by the time defined by the parameter "motor fan overtravel" after the stop.
The relay operates

- during a travel and the subsequent overtravel time.
- in the case of rope traction lifts when the temperature input U1 is activated and during the subsequent overtravel time.

Query for rope traction lifts with Schindler controllers/inverters with direct approach (Dynatron S/F, VF30):

Rel. KBR brake application up/down:

Relay address for the brake application function in the case of frequency-controlled systems with Schindler controllers/inverters.

The relay KBR brake application up/down serves to indicate to the Dynatron, that it should start the deceleration. (Attention: the stopping condition in the form of the fast signal must be set previously.)
When the centrical inductor switch enters the zone of the destination, the signal falls back.

Rel. Open door interlocking:

Relay address for the activation of a locking magnet.
It is activated for several seconds when the car door is to be closed.
This function is interesting for some older doors which have an automatic bolt to keep the door in the open position.

Rel. Inspection-2 (signal):

Relay address to indicate (signal) that the inspection operating mode is active.

Rel. Calls registered (signal):

Relay address to indicate (signal) that at least one landing or car call is active.

Rel. Travelling with speed Vz2:

Relay address to activate the second intermediate speed in the case of frequency-controlled lifts.
The relay is activated whenever the destination is closer than defined by the parameter "Limit dist. from dest. with speed Vz2" (see parameter set "Travel times / pulses").

Rel. Bus Reset:

Relay address to disconnect the LiSA bus shortly from the driver and the voltage supply.

Rel. warning signal - close doors:

Relay address to ask the user to close the hinged doors in the case of systems with manually operated hinged doors.
At the input SK2, the open hinged door is recognised.

Rel. Step (SoZone / SuZone):

Relay address to indicate that the lift is not in a flush position.
If the upper or lower inductor switch is not in the zone, this relay is activated.
The size of the step can be between 2 cm and 9 cm.

Rel. End of maintenance interval:

Relay address for the indication that the end of the maintenance interval is reached.
This signal may be used in order to indicated to a service centre that the number of travels defined by the parameter "maintenance interval" (= maintenance interval counter) is reached.
In addition this state is visible by the alternately flashing "n" and "O" on the operating mode display.
The maintenance interval counter is cleared or reset by entering "019*", saving the parameters and activating a reset.

Rel. Reset safety light screen:

Relay address to indicate to the protective light screen that the light screen is no longer interrupted and that the user pressed a car button to continue the travel.
This signal has the effect that the light screen electronics blocked after an interruption of the light screen is put into operation again. The signal is switched on and off every 10 seconds until the protective light screen is released by the light screen electronics. This is recognised by the signal arriving at the input SK3 (safety circuit 3).

Rel. Limit speed:

Relay address to indicate that the limit speed defined by the parameter "Switching threshold for relative limit speed" in parameter set 002 is exceeded.

Rel. Collective failure (signal):

Relay address for the indication of a collective failure.
This relay is activated whenever the lift fails, i.e. if it neither accepts landing nor car calls, e.g. in the case of overtemperature, travel time exceeded, door failure, etc.
The output is not active in the case of an inspection or emergency recall travel.

Rel. Elevator in operation (signal):

Relay address for the indication that the lift is switched on and that there is no fault.
The output is activated whenever the lift does not fail and is not switched off.
If the lift is switched off, the relay contact (N/C) closes.

Rel. Busy:

Relay address for the indication than no landing calls are accepted.
The "busy" relay is activated when the lift does not answer any landing calls, i.e. in the operating modes "full load", "overload", "priority travel", "landing control off", "door failure", "special service", "shut down", "firemen mode", "evacuation", "emergency recall", "inspection" and all other failures. It is activated in the case of the push button control during a travel.

Rel./Outp. Elevator in zone:

Relay address for the indication that the lift car is in the zone.
The signal is put out whenever the centrical inductor switch is in the zone.

Rel./Outp. Elevator in motion:

Relay address for the indication that the lift car is travelling.

Rel./Outp. Door failure (signal):

Relay address for the indication of the operating mode "door failure".
A door failure is recognised after 5 unsuccessful attempts to close the door.

- All car calls are deleted, in the case of single lifts also the landing calls.
- As soon as a car button or landing button is pressed, the lift is put into operation again, but will resume the "door failure" operating mode already after two unsuccessful attempts to close the door.
- In the case of group lifts, the procedure is repeated up to 5 times, until the lift is permanently put out of operation with the result that landing calls at the landing where the failed lift is located are answered by a different group lift.
- In the case of single lifts, the operation is ceased only after 10 consecutive door failures.

Rel./Outp. Overtemperature (signal):

Relay address for the indication of the operating mode "overtemperature".

Rel. Buffer:

Relay address to activate the buffers.
When programming this relay, the buffer travel is activated simultaneously, i.e. the previously required setting of the multifunctional parameter 2 to the value 196 is no longer required or activates a different function.
In the following a short description of the buffer travel function:

Stopping at the destination:

- The destination is generally approached in such a way that the car stops in the flush position.

travelling upwards:

- When the upper inductor switch leaves the zone, the lift keeps travelling upwards according to the value of the upwards braking distance.

travelling downwards:

- Set the downwards braking distance too short so that the lift stops too early (set the upwards braking distance < 50 mm).

stopping/positioning:

- Via the relay "buffer" (relay is switched off), the supports/buffers are extended.
- After activating the input "buffers out" the lift moves downwards until the car touches the buffers, with the controller making the lift move downwards until it receives the stop signal from the buffers (e.g. by means of a pressure sensor).
  Normally the supports/buffers generate this signal when a minimum level for the pressure in the hydraulic system is reached. This signal should be applied to the input "emergency stop" of the controller.

- After reaching the flush position, the doors are opened.

Lifting before starting:

- Before the lift starts the actual travel, it must move upwards in order to be able to retract the supports/buffers. Only then the travel starts.
- This elevation distance before the actual travel is no longer defined by the now deleted parameter "Rising distance for creeping device mm", but also by the centrical inductor switch leaving the zone.
- Then the supports/buffers are retracted (activation of the relay "buffer").
- The travel continues when the input "anti-creep device in" is activated.

In addition the relay for the relevelling speed is activated (if programmed) during the elevation in order to change to a possibly available pump for the elevation of the lift.

Rel. Reset inverter:

Relay address to reset a frequency inverter after a failure.

Rel. fast start

Relay address to indicate the imminent start to an inverter (see input "fast start" in 003*). Via an N/C contact the connection between SK4 and SK4* is interrupted, too, in order to recognise the locking of the shaft door and the subsequent change to the required speed.

4.2.8. Display functions: (selected via LiSA keyboard entering 007*)

Via the parameter set "display functions" the LiSA matrix displays and segment displays are configured. Matrix displays offer the possibility to determine the installation position - whether in the landings or in the car - by means of a jumper on the display. In this way it is possible to activate different matrix displays in the landings and in the car (e.g. 8*8 / 16*8). This also means that a matrix display installed in the car without jumper works like a landing display and must therefore be parametrised as a landing display.

We distinguish between landing displays and car displays.
For technical reasons film displays have no longer been used since 2001.

Car pos. indic. (N/8*8/16*8o/16*8n/S35/S15/nu/LCD/nu/MSeg/PI2C/Busind/PC):

Serves to determine which display is installed in the car.

➔ *(0): no display in the car*

➔ *(1): the display configured as car display (jumper inserted) has 8*8 dots*

➔ *(2): the display configured as car display (jumper inserted) has 16*8 dots*

☞ *16*8o refers to displays delivered until the year 2000. The distinguishing feature of the new 16*8 matrix is the number of the 10-pin plugs on the back of the board. Whereas the old version has only one plug, the new version has 3 plugs. If you have a programme version from 20 May 2003 on, the picture displayed in this landing (max. 3 digits) can directly be entered for this display type.*
Besides the following additional information is displayed:

- X if the lift does not accept any landing calls,
- ☐ if the hinged door is open,
- L if the photoelectric barrier is interrupted for more than 20 seconds.

☞ In the case of LiSA10 boards equipped with a large EEPROM 24C256 (delivered from May 2003 on), the horizontal rolling texts can be parametrised freely. The precondition is, however, that a programme version from 20 May 2003 on is used.

➔ *(3): the display configured as car display (jumper inserted) has 16*8 dots*
The parameter value 3 selects the ***new version*** *of the matrix display (3 plugs at the back). It must be programmed for the operating mode normal I2C (label on the display EEPROM = norm. I2C).*

☞ This display can be programmed for various activation types (using a PC programme):
- normal I2C (connected to the matrix display plug on APO-8)
- programmable I2C (connected to the matrix display plug on APO-8) – see following description under parameter value = 10 (PI2C)
- linear activation
- Gray code with selection of rolling texts via separate inputs

☞ In the case of LiSA10 boards equipped with the new EEPROM 24C256 (delivered from May 2003 on), the horizontal rolling texts can be parametrised freely. The precondition is, however, that a programme version from 20 May 2003 on is used.

➔ *(4): the LiSA segment display (1 digit / 1 digit with arrow / 2 digits / 2 digits with arrow, 35 mm high) is used as car display. In the car 3 IOs are required for the activation of the segment display which are not available for any other functions. If the display is connected to the APO board, these are IO78, IO79 and IO80. If connected to the extender board APE, these are IO94, IO95 and IO96.*

➔ *(5): the older 15 mm LiSA segment display is used as landing display. This parameter value is only interesting for older systems, as this display is no longer used.*

➔ *(6): currently without function*

➔ *(7): LCD display (192*192 dots) to be programmed via PC. It is connected to the matrix display connection (X3 on LiSA or APO).*

➔ *(8): currently without function*

➔ *(9): multi-segment display. Back-lit 2-digit LCD position display with arrow (50 mm high). Each number is represented by 38 segments. With regard to the activation, the display behaves like a normal segment display (see (4)).*

- ➔ *(10): programmable (via PC) 16*8 matrix display, connected to the matrix display plug.*
  In the case of this display type, the pictures are burned onto an EEPROM using a PC programme, i.e. the selection of display pictures on the LiSA doesn't have any effect. By means of the new parameters "Roll. EText 1 - 4" described in the following you can additionally select 4 horizontal rolling texts.
  ☞ *In the future (with programme versions from 20 May 2003 on) this type is no longer delivered, as the entire functional range is covered by the display type "Normal I2C" (see above description under (2) and (3)).*
- ➔ *(11): bus matrix display in horizontal or vertical installation position*
- ➔ *(12): output of the information to the serial interface of LiSA to be transferred to a PC*
  8 bytes with the following information are transferred:

start byte	mode	position	direction	emerg.call	gong	speech	end byte

byte 1 -> start byte	=	FF
byte 2 -> mode (operating mode)	=	64 .. 80
byte 3 -> position (car position)	=	1 .. 48
byte 4 -> direction (travel direction)	=	0 (none), 1 (up), 2 (down), 3 (both)
byte 5 -> emergency call	=	0 (no emerg. call), 1 (emerg. call)
byte 6 -> gong	=	0 (none), 1 (up), 2 (down), 3 (passing)
byte 7 -> speech (voice output)	=	1 .. 48 (= byte 3)
byte 8 -> end byte	=	FE

Car type indicator (fix/changing/rolling/onlyarrow):

Serves to determine which display type is installed in the car.

- ➔ *(0): the car position is always fully visible*
- ➔ *(1): the car position changes with the travel direction arrow. When travelling only the car position is display while in the zone and beyond the zone only the travel direction.*
- ➔ *(2): the pictures change in rolling mode*
- ➔ *(3): only direction arrows are displayed*

The following query does not appear for the segment display (selection 4 and 5):

Direct. arrow in car indic. (no/Dir/ongoingDir/Dir+ongoingDir):

Determination whether and which type of direction arrow should be displayed.

- ➔ *(0): no arrow is displayed*
- ➔ *(1): only the travel direction is displayed. In the case of matrix displays, the corresponding travel direction is displayed during the travel to the left of the car position.*
- ➔ *(2): only the travel continuation direction is displayed. In standstill the corresponding travel continuation direction is displayed to the left of the car position by means of a flashing arrow.*
- ➔ *(3): both the travel direction and the travel continuation direction are displayed. This function includes the two previously described functions.*

The following parameters serve to programme the analogous functional range for LiSA landing displays:

Land. pos. indic. (N/8*8/16*8o/16*8n/S35/S15/nu/LCD/nu/MSeg/PI2C/Busind):

Serves to determine which display is installed in the landings.

- ➔ *(0): no display in the landings*
- ➔ *(1): the display configured as landing display (jumper not inserted) has 8*8 dots*
- ➔ *(2): the display configured as landing display (jumper inserted) has 16*8 dots*
  *16*8o refers to displays delivered until the year 2000.*
- ➔ *(3): the display configured as landing display (jumper inserted) has 16*8 dots The parameter value 3 selects the **new version** of the matrix display (3 plugs at the back). It must be programmed for the operating mode normal I2C (label on the display EEPROM = norm. I2C).*
- ➔ *(4): the LiSA LED segment display (1 digit / 1 digit with arrow / 2 digits / 2 digits with arrow, 35 mm high) is used as landing display*

- *(5): the older 15 mm LiSA segment display is used as landing display. This parameter value is only interesting for older systems, as this display is no longer used.*
- *(6): currently without function*
- *(7): LCD display (192*192 dots) to be programmed via PC. It is connected to the matrix connection.*
- *(8): LCD display (like (7))*
- *(9): multi-segment display. Back-lit 2-digit LCD position display with arrow (50 mm high). Each number is represented by 38 segments. With regard to the activation, the display behaves like a normal segment display (see (4)).*
- *(10): programmable (via PC) 16*8 matrix display, connected to the matrix display plug (I2C). In the case of this display type, the pictures are burned onto an EEPROM using a PC programme, i.e. the selection of display pictures on the LiSA doesn't have any effect. By means of the new parameters "Roll. EText 1 - 4" described in the following you can additionally select 4 horizontal rolling texts.*
- *(11): bus matrix display in horizontal or vertical installation position*

Landing pos. indicator (fix/changing/rolling/onlyarrow):

Serves to determine which display type is installed in the landings.

- *(0): the car position is always fully visible*
- *(1): the car position changes with the travel direction arrow. When travelling only the car position is displayed while in the zone and beyond the zone only the travel direction.*
- *(2): the pictures change in rolling mode*
- *(3): only direction arrows are displayed*

The following query does not appear for the segment display (selection 4 and 5):

Direct. arrow in land. indic. (no/Dir/ongoingDir/Dir+ongoingDir):

Determination whether and which type of direction arrow should be displayed on the matrix display.

- *(0): no arrow is displayed*
- *(1): only the travel direction is displayed. The corresponding travel direction is displayed during the travel to the left of the car position.*
- *(2): only the travel continuation direction is displayed. In standstill the corresponding travel continuation direction is displayed to the left of the car position by means of a flashing arrow.*
- *(3): both the travel direction and the travel continuation direction are displayed. This function includes the two previously described functions.*

Query for matrix display or bus display:

Out of operation (no/X/A-B/EFolG):

Serves to determine what the matrix display indicates in the case of failure, inspection travel or emergency recall. If in the landings and/or the car an EL film (electroluminescence film) display is installed, this parameter serves to parametrise the corresponding film. The out-of-operation mode is not displayed on a possibly also installed matrix displayed.

- *(0): indication of the car position*
- *(1): indication of the letter "X"*
- *(2): indication of the letters "A-B"*
- *(3): film display*

Query if no travel direction display in the car or output or relay is programmed:

Position indicator in car command button (0/1):

Serves to determine whether the car position is indicating by a flashing car button.

- *(0): no indication*
- *(1): the car button of the landing where the car is currently located flashes every second*

Query if the travel direction display in the car or output or relay is programmed:

Direction indic. combined with ongoing travel direct. (0/1):

Serves to determine whether the travel direction display defined via freely programmable outputs / relays should also indicate the travel continuation direction in standstill.

- ➔ *(0): only the travel direction is displayed, no indication in standstill*
- ➔ *(1): the travel continuation is additionally displayed in standstill*

Query if "1.Outp. travel contin. direction" > 0:

Type of ongoing direct. (ongoingDir+Dir/Sel/SelDouble/OnlyDir/Dir+Sel):

Serves to determine the type of travel continuation direction.

- ➔ *(0): display of the travel continuation direction and travel direction in all landings.*
- ➔ *(1): display of the travel continuation direction in the landing where the car is currently located.*
- ➔ *(2): display of the travel continuation direction in the landing where the car is currently located. If no travel continuation direction is active when the idle time has elapsed, a double arrow is displayed for 1 minute. The arrow alternates between up and down on the bus display.*
- ➔ *(3): display of the travel direction in all landings. Only indicated when travelling. Basically this is not a travel continuation display.*
- ➔ *(4): display of the travel direction in all landings when travelling. In standstill or when approaching the landing with an active travel continuation direction, the travel continuation direction is only displayed in the landing where the car is currently located.*

Query if car or landing display is set to PI2C:

The freely programmable 16*8 matrix display serves to select 4 different horizontally rolling texts for the indication of different operating mode.

Roll. EText (No/FuL/OvL/Pr.T./Sp.S./FireEmer./Eva/Fire/Ins/OutOfServ/Emerg.) 1:

- ➔ *(0): no rolling text*
- ➔ *(1): text for full load*
- ➔ *(2): text for overload*
- ➔ *(3): text for priority travel*
- ➔ *(4): text for special service*
- ➔ *(5): text for fire emergency travel*
- ➔ *(6): text for evacuation travel*
- ➔ *(7): text for firemen mode*
- ➔ *(8): text for maintenance / inspection*
- ➔ *(9): text if input "out of operation" is activated*

Roll. EText (No/FuL/OvL/Pr.T./Sp.S./FireEmer./Eva/Fire/Ins/OutOfServ/Emerg.) 2:

- ➔ *Analogous to rolling EText 1.*

Roll. EText (No/FuL/OvL/Pr.T./Sp.S./FireEmer./Eva/Fire/Ins/OutOfServ/Emerg.) 3:

- ➔ *Analogous to rolling EText 1.*

Roll. EText (No/FuL/OvL/Pr.T./Sp.S./FireEmer./Eva/Fire/Ins/OutOfServ/Emerg.) 4:

- ➔ *Analogous to rolling EText 1.*

Display pictures (n/y) (0/1)?

Query whether the display pictures should be displayed in order to be edited.

- ➔ *(0): display pictures are skipped*
- ➔ *(1): display pictures are displayed*

Entering the display pictures is effected according to the following code table:

Picture	Code	Picture	Code	Picture	Code	Picture	Code	Picture	Code
0	00	A	10	K	20	U	30	/	40
1	01	B	11	L	21	V	31	-1 *)	41
2	02	C	12	M	22	W	32		
3	03	D	13	N	23	X	33		
4	04	E	14	O	24	Y	34		
5	05	F	15	P	25	Z	35		
6	06	G	16	Q	26		36		
7	07	H	17	R	27	+	37		
8	08	I	18	S	28	-	38		
9	09	J	19	T	29	.	39		

*) Code 41 only for one-digit segment displays, if –1 is to be displayed.

The following query serves to assign display pictures to the individual landings:

Indic. image on landing 1:

Entry of the code according to the above table for landing 1.
e.g.: "U1" is to be displayed in landing 1. Entry: 3001

Indic. image on landing 2:

Entry of the code according to the above table for landing 1.
e.g.: "1OG" is to be displayed in landing 2. Entry: 012416

Indic. image on last landing:

Entry of the code according to the above table for the last landing.
e.g.: "DG" is to be displayed in the last landing. Entry: 1316

The rolling texts described in the following are only available with the parameter EEPROM 24C256. This EEPROM is installed on all LiSA10-7 boards delivered after 15 May 2003.

Rolling ETexts / special display effects (n/y) (0/1)?

Query whether the rolling texts should be displayed in order to be edited.

- ➔ *(0): rolling texts / special display effects are skipped*
- ➔ *(1): rolling texts / special display effects are displayed*

Query only if a matrix display (but no programmable type) is programmed as a landing or car display:

Rolling text 1 = FULL-LOAD

Rolling text 2 = OVERLOAD

Rolling text 3 = PRIORITY-TRAV.

Rolling text 4 = SPECIAL-SERV.

Rolling text 5 = FIRE-EMERGENCY

Rolling text 6 = EVACUATION

Rolling text 7 = FIREMEN-MODE

Rolling text 8 = MAINTENANCE

Rolling text 9 = OUT OF SERV.

Rolling text 10 = EMERG.-TRAVEL

The above texts are standard texts for 10 different operating modes and can changed randomly (if 24C256 EEPROM is installed).

The entry is effected according to the code table described above.

By setting the multifunctional parameter 2 to 193, the pictograph "no passage" instead of the rolling text "out of service".

If you enter a text shorter than 3 characters, the rolling text is suppressed for the corresponding operating mode.

Example: rolling text 2 should be changed to "Aufzug überlastet" (lift overloaded).
Entry: 103015353016363014111427211128291429.

☞By entering "000000" the standard text can be restored.

☞By entering "601" the display pictures and rolling texts are transferred to the displays. The parameters are not transferred directly when you save them.

In addition to the rolling texts for the different operating modes described above (full load, overload, priority travel, etc.) 2 further rolling texts are available which are used if the LiSA emergency call system is used. After an emergency call the rolling text "EMERG.-CALL"

☞ is displayed and after establishing the voice communication the text "PLEASE SPEAK" is displayed. These texts are stored in the bus displays and cannot be changed.

In order to select one of the 10 available rolling texts independent of the operating mode, the following two (connected) parameters have been introduced:

Rolling EText inp.-1 for active EText on bus indicator:

Input address for the selection of a rolling text. By applying H- to the selected input, the rolling text is displays which was selected by the parameter "Rolling EText inp.-1 for active EText on bus indicator".

Rolling EText inp.-2 for active EText on bus indicator:

Input address for the selection of a rolling text. By applying H- to the selected input, the rolling text is displays which was selected by the parameter "Rolling EText inp.-2 for active EText on bus indicator".

Query if input rolling EText 1 is activated:

Activated EText by rolling EText inp.-1 (1..):

Serves to display on the 12 standard rolling texts after activating the input described above.

Query if input rolling EText 2 is activated:

Activated EText by rolling EText inp.-2 (1..):

Serves to display on the 12 standard rolling texts after activating the input described above.

Emergency rolling EText (No/Ec-active/Ec+speech-active) (0..2):

- ➔ *(0): no rolling text*
- ➔ *(1): rolling text "EMERG.-CALL" in the case of an emergency call*
- ➔ *(2): rolling text "EMERG.-CALL / PLEASE SPEAK" in the case of an emergency call*

Special effects - Matrix bus display (0.. 10):

- ➔ *(0): no special effect*
- ➔ *(1):*
- ➔ *(2):*
- ➔ *(3):*
- ➔ *(4):*
- ➔ *(5):*
- ➔ *(6):*
- ➔ *(7):*
- ➔ *(8):*
- ➔ *(9):*
- ➔ *(10):*

The following query is only for groups and only for car 2 / 4 / 6 / 8 and if a bus display is programmed as landing display:

EBus Display by (neighbor/Adr.1/Adr.2) (0..2):

The parameter last mentioned has been replaced by the following one:

Bus display/gong on EBus of (-C1withGroupJump/-C2withoutGJ/-C2withGJ):

Serves to indicate to the controller by lift 2 / 4 / 6 / 8 where or under which address the display or the arrival gong is connected to the landing bus.

- ➔ *(0): the display is connected to the landing bus of lift 1 / 3 / 5 / 7, i.e. the neighbouring lift controls the displays. Lift 1 controls the displays of lift 2, lift 3 those of lift 4, etc. The jumper "group" must be inserted on the displays of the even-numbered lifts.*

  ☞In the case of the selective door control (landing), the group jumper must also be inserted on the displays in the car.
- ➔ *(1): the lift has its own bus connection for displays which don't have a group jumper (version LBDB-2 from 2004) or where the group jumper is not inserted*
- ➔ *(2): the lift has its own bus connection for displays where the group jumper is inserted. #*

LiSA speech synthesizer (n/y) (0/1)?

Query whether the parameters for the adjustment of the LiSA speech synthesizer should be displayed.

- ➔ *(0): parameters for the speech synthesizer are skipped*
- ➔ *(1): display pictures are displayed*

Position bus EText on position ? = (1):

- ➔ *= 0: no position text*
- ➔ *>0: starting with the parameter value, the position texts for all landings must be recorded (e.g. basement, ground floor, 1st floor, ..., top floor)*

Door close bus EText on position ? = (79):

Output of a text which announces the door closing process.

Door open bus EText on position ? = (78):

Output of a text which announces the door opening process.

Going up bus EText on position ? = (76):

Output of a text which announces the upwards travel continuation direction when closing the door (e.g.: "Lift keeps going up").

Going down bus EText on position ? = (77):

Output of a text which announces the downwards travel continuation direction when closing the door (e.g.: "Lift keeps going down").

Release door bus EText on position ? = (80):

Output of a text which asks to clear the door area (e.g.: "Please clear the door area").

1-tone gong on position ?:

Output of one gong tone when passing a landing in upwards direction.

2-tone gong on position ?:

Output of two gong tones when passing a landing in downwards direction.

Further parameters for the voice announcement of certain operating modes:

FULL LOAD bus EText on position ? = (64):

OVERLOAD bus EText on position ? = (65):

PRIORITY TRAVEL bus EText on position ? = (66):

SPECIAL SERVICE bus EText on position ? = (67):

FIRE EMERGENCY bus EText on position ? = (68):

EVACUATION bus EText on position ? = (69):

FIREMEN MODE bus EText on position ? = (70):

EMERGENCY TRAVEL bus EText on position ? = (73):

OUT OF SERVICE bus EText on position ? = (72):

Gong function (n/y) (0/1)?

Query whether the parameters for the adjustment of the LiSA gong should be displayed.

- ➔ *(0): parameters for the speech synthesizer are skipped*
- ➔ *(1): display pictures are displayed*

Gong Type (No/convCGo/convLGo/Bus-CGo/Bus-LGo/Sp-CGo) (0..5):

Serves to the select the type of gong.

- ➔ *(0): no gong*
- ➔ *(1): conventional car gong, the gong is located in the car. Conventional means the LiSA gong activated via discrete signals (IO ports).*
- ➔ *(2): conventional landing gong, one LiSA gong is located in each landing*
  - ☞ Only important if "1. Outp. arrival gong" > 0.
- ➔ *(3): bus car gong, a LiSA bus gong is located in the car*
- ➔ *(4): bus landing gong, one LiSA bus gong is located in each landing*
- ➔ *(5): the gong on the LiSA bus voice output is used*
  - ☞ Will only work if the output for the position text on the LiSA bus voice output is not used.
- ➔ *(6): the LiSA bus voice output uses a text recorded as gong, i.e. instead of the text a sound is stored as gong*

Query if gong type = conventional car gong:

Output arrival gong in car:

IO address for the activation of the arrival gong in the car.
The arrival gong is activated when the car door is opened after arriving at the destination.

Query if gong type > no gong:

Arrival gong (0/1):

- ➔ *(0): no arrival gong*
- ➔ *(1): arrival gong*

The above parameter was replaced by:

Gong on arrival (no/ongoing dir. dep./not dir. dep.) (0..2):

- ➔ *(0): no arrival gong*
- ➔ *(1): direction-dependent arrival gong*
- ➔ *(2): direction-independent arrival gong*

Gong upon door opening (0/1):

- ➔ *(0): no door opening gong*
- ➔ *(1): gong for every door opening*

The above parameter was replaced by:

Gong when lift not moving (no/open door /change dir./both) (0..3):

- ➔ *(0): no gong in standstill*
- ➔ *(1): gong for every door opening*
- ➔ *(2): gong for change of direction*
- ➔ *(3): gong for door opening and change of direction*

Gong on passing floor (0/1):

- ➔ *(0): no gong when passing a landing*
- ➔ *(1): one gong tone when passing a landing in upwards direction, 2 gong tones when passing a landing in downwards direction*

Distance from target for display/arrival gong (mm):

Serves to determine at which distance from the destination the picture or landing gong should be put out. This applies to all position displays regardless of whether they are bus displays or displays activated by Gray or binary code.

0: output approx. 10 cm before the destination

>0: output according to the defined value

A value greater than the deceleration distance is not possible or the output is possible at the earliest at the changeover point.

Inp. Out of order signal:

IO address for the indication of the operating mode "out of operation".
Normally this function is activated by a switch in the controller in order to activate "out of operation" indicator fields or a corresponding rolling text on the position displays during maintenance.

4.2.9. Door opening functions: (selected via LiSA keyboard entering 008*)

The parameter set "door opening functions" serves to determine the door opening permission and call acceptance for side 1 and side 2, separately for landing and car calls and according to the operating modes "normal operation", "clock-controlled travel" and "key-controlled travel".
Structure of the parameters:

- each parameter consists of a sequence of "0" and "1",
- the length of the numerical sequence corresponds to the number of landings,
- the sequence starts with the lowest landing and ends with the highest one,
- if you want to change the parameter, you must enter the whole sequence.

☞ If you enter too few numbers, the rest is filled with "0".
☞ If you enter too many numbers, the original numerical sequence is conserved.

x = 1 or 0:

1 has the effect that calls are accepted in this landing.

0 has the effect that calls are not accepted in this landing.

Normal operation: open door 1 car comm.:

Determination of the car call acceptance during normal operation for door side 1.

➔ *(xxxxxxxxx):*

Clock-control. 1 trav.: open door 1 car comm.:

Determination of the car call acceptance during clock-controlled operation for door side 1.

➔ *(xxxxxxxxx):*

The name "clock-controlled travel" has got to do with the time only to a limited extent, as the change to the operating mode "clock-controlled travel" cannot only be activated by an internal clock, but also via the function "Inp. clock-controlled travel". The activation device can be of different types (e.g. load weighing device, alarm system, etc.).

Key-controlled trav.: open door 1 car comm.:

Determination of the car call acceptance during key-controlled operation for door side 1.

➔ *(xxxxxxxxx):*

Normal operation: open door 1 land. call:

Determination of the landing call acceptance during normal operation for door side 1.

➔ *(xxxxxxxxx):*

Clock-control. 1 trav.: open door 1 land. call:

Determination of the landing call acceptance during clock-controlled operation for door side 1.

➔ *(xxxxxxxxx):*

Clock-control. 2 trav.: open door 1 car comm.:

Determination of the car call acceptance during clock-controlled operation 2 for door side 1.

➔ *(xxxxxxxxx):*

Clock-control. 2 trav.: open door 1 land. call:

Determination of the landing call acceptance during clock-controlled operation 2 for door side 1.

➔ *(xxxxxxxxx):*

The following parameters are only queried if there are two door sides:

Normal operation: open door 2 car comm.:

Determination of the car call acceptance during normal operation for door side 2.

Clock-control. trav. 1: open door 2 car comm.:

Determination of the car call acceptance during clock-controlled operation for door side 2.

Key-controlled trav.: open door 2 car comm.:

Determination of the car call acceptance during key-controlled operation for door side 2.

Normal operation: open door 2 land. call:

Determination of the landing call acceptance during normal operation for door side 2.

Clock-control. trav. 1: open door 2 land. call:

Determination of the landing call acceptance during clock-controlled operation for door side 2.

Clock-control. 2 trav.: open door 2 car comm.:

Determination of the car call acceptance during clock-controlled operation 2 for door side 2.

Clock-control. 2 trav.: open door 2 land. call:

Determination of the landing call acceptance during clock-controlled operation 2 for door side 2.

Example:
In the case of a system with 8 landings, 2 door sides and selective door control (car), the landings 7 and 8 should not be approached via car calls from 6:00 pm to 6:00 am.
Solution:

- parameter "Begin Clock-controlled travel (0..23)" = 18
- parameter "End Clock-controlled travel (0..23)" = 6
- parameter "Normal operation: open door 1 car comm." = 11111111
- parameter "Clock-control. 1 trav.: open door 1 car comm." = 11111100
- parameter "Normal operation: open door 2 car comm." = 11111111
- parameter "Clock-control. 1 trav.: open door 2 car comm." = 11111100

Determination of the landing call acceptance for five different special functions:
The functions described in the following make it possible to assign up to five different user areas to one lift.
You can, for instance, determine that

- a certain tenant of landing 5 whose flat is on side 1 can only use the lift between the flat and the basement on side 2,
- the employees of a company can only travel between the landings 2, 3, 4 and 5 on side 2
- deliveries of goods can generally only be made from ground floor side 1 to basement side 1.

1. Special function: opening door 1:

➔ *(xxxxxxxxx):*

1. Special function: opening door 2:

➔ *(xxxxxxxxx):*

2. Special function: opening door 1:

2. Special function: opening door 2:

3. Special function: opening door 1:

3. Special function: opening door 2:

4. Special function: opening door 1:

4. Special function: opening door 2:

5. Special function: opening door 1:

5. Special function: opening door 2:

Description of the function:
During normal operation the car calls for landings and door sides for which a special function is provided are usually blocked by the door opening masks.
Landing calls are stored according to the landing call masks.
A precondition for the change to the special function status is that
- the doors of the lift are closed and no car calls are active and
- the zero load contact (if installed) is closed, i.e. the lift is empty and
- at least on landing call is active.

If these preconditions are met, the lift changes to the special function status 1 (indication on LiSA display: "Spezfu1") if a landing call is active for it. If this is not the case, the landing calls for the other special functions are checked successively and the lift changes to the corresponding special function, if necessary.
The LiSA display always displays the number of the activated special function.
The lift remains in this status for as long as there are landing or car calls for this special function.
Then it possibly changes to the next special function.

Note: The parameter "Single-sided access entitlement" under 000* is no longer available.
This function is now realised by correspondingly setting the door masks for two special functions.

Example for 8 landings:
1st special function: opening door 1 = 11111111
1st special function: opening door 2 = 00000000
2nd special function: opening door 1 = 00000000
2nd special function: opening door 2 = 11111111

4.2.10. Teaching operation values: (selected via LiSA keyboard entering 009*)

Via the parameter set "Teaching operation values" you can check the landing distances determined during the TeachIn and the pulse constant when using the pulse method.
This check is particularly important when using the pulse method. In case of doubt and if no oscillograph is at hand it indicates whether the pulses from an encoder received by the controller are faulty and/or whether they are not properly processed by the LiSA hardware.
Checking possibilities for the pulse method:

- When travelling at creeping speed (recall), the "Zimp" light bar on the LiSA must flicker.
- The pulse division rate (divisible by inserting the corresponding jumpers) must be adjusted in such a way that the pulse constant has a value between 1000 and 2000 pulses / m. In the case of an encoder driven by the travel motor with 1024 pulses/revol., the pulses should be divided by 16. In the case of the LiSA encoder, the pulses must not be divided.
- If the TeachIn is cancelled by a reset in the middle of the shaft, the LiSA will not process any pulses.
- The determined landing distances should not deviate from the actual values by more than 3%, in the case of larger deviations check whether the rail length for 200 mm rails is set to 193.
- If the TeachIn values don't seem to be plausible, write them down and conduct another TeachIn. The values from the two TeachIns may only deviate marginally (max. 15 mm larger or smaller, but all + or -).
- Since the use of an absolute encoder, the values determined by the TeachIn procedure are also displayed and can be changed.

If you use the absolute encoder you can also determine or check the landing distances, landing heights and the absolute encoder zero.

The following parameters are only queried if you use the absolute encoder:

Absolute encoder zero:

The absolute encoder zero is the value read from the magnetic tape in the lowest landing.
By changing this value you can adjust the flush position in the lowest landing.

Height - landing 1:

This value is always 0!!

Height - landing 2:

Relative height of the 2nd landing relevant to the lowest landing in mm.

Height - landing n-1:

Relative height of the landing n-1 relevant to the lowest landing in mm.

Height - landing 2:

Relative height of the highest landing relevant to the lowest landing in mm.

By changing these values you can adjust the flush positions (see LiSA manual part B).

Distance between landing 1 <-> 2... mm:

Indication of the distance between landing 1 and 2.

☞ If you use the timing method, this distance cannot be "taught". Therefore please enter a value definitely greater than the actual distance (e.g. 5000 even if the actual distance is only 4000 mm). During a travel to the lowest landing, the deceleration is started in any case by the bottom slow-down switch. During landing-to-landing travels using the timing method, the landing distance doesn't have an effect anyway.

Distance between landing 2 <-> 3... mm:

Indication of the distance between landing 2 and 3.

Distance between second last landing <-> last landing mm:

Indication of the distance between the second last and the last landing.

☞ If you use the timing method, proceed in the same way as for the distance between landing 1 and 2. In the case of a long-distance travel to the highest landing, the deceleration is started in any case by the top slow-down switch.

Output for pulse method and absolute encoder:

Impulse constant (pulses/m):

If you use the pulse method, the pulse constant determined during the TeachIn is displayed.

☞ The pulse constant should have a value between 1000 and 2000 pulses/m.

☞ If you use the absolute encoder, the pulse constant is always 1000 pulses/m.

Data transm. in group (1200/2400/4800/600) (0..3):

Selection of the data transfer rate of the group connection.

➔ *(0): 1200 bit/s (standard value)*

➔ *(1): 2400 bit/s*

➔ *(2): 4800 bit/s*

➔ *(3): 600 bit/s*

Rated speed Vrated (mm/sec):

Indication of the rated speed determined during the TeachIn.

4.2.11. Special parameters: (selected via LiSA keyboard entering 0010*)

The following parameter functions are contained:

- functions connected to the real-time clock integrated in LiSA and
- functions which serve to adjust the LiSA data transmission and the LiSA emergency call system.

The following parameters serve to set the real-time clock:

Date-Year 0 .. 99:

Date-Month 1 .. 12:

Date-Day 1 .. 31:

Time-Hours 0 .. 23:

Time-Minutes 0 .. 59:

The following parameters serve to set the duration of the operating mode "clock-controlled travel":

Begin Clock-controlled travel (0.. 23:

When changing to the operating mode "clock-controlled travel", the following parameters are activated:

- Clock-control. trav. 1: open door 1 car comm.
- Clock-control. trav. 1: open door 2 car comm.
- Clock-control. trav. 1: open door 1 land. call
- Clock-control. trav. 1: open door 2 land. call
- Parking landing with clock-controlled travel

☞ The operating mode "clock-controlled travel" is display on the LiSA operating mode display by means of a "u".

End Clock-controlled travel (0.. 23:

☞ The integrated clock does not allow for a deviating treatment of Saturdays, Sundays and public holidays. If this is required, you must use an external time switch which activates the clock-controlled travel via the input "clock-controlled travel".

The parameters for the LiSA emergency call system queried here are described under 4.5.7.

Query in case of groups:

In the case of groups it is often required to adapt the operation of the lifts to the changing travel volumes during the day.

Especially three periods are to be considered.

- upwards travel peak in office buildings in the morning or downwards travel peak in residential buildings.
- downwards travel peak in office buildings in the afternoon or upwards travel peak in residential buildings.
- travels during the day with the focus on certain landings.

The following parameters are provided in order to meet these requirements.

Begin of Peak up (0..1439):

Time in minutes for the beginning of the upwards travel peak.

End of Peak up (0..1439):

Time in minutes for the end of the upwards travel peak.

Begin of Peak down (0..1439):

Time for the beginning of the downwards travel peak.

End of Peak down (0..1439):

Time for the end of the downwards travel peak.

The above parameters serve to fix the time intervals for the upwards and downwards peaks.

The below parameters allow for an automatic adaptation at 15-minute intervals by evaluating statistically determined travel data, provided that the values for the adjustment of the travel peak times are set to 0.

Peak up, if more than X pers. (within 15 min.) depart from lobby:

If the travel data evaluation reveals within 15 minutes that the sum of all persons leaving the main landing is greater than the parameter value, the system changes to the "peak up" mode. This operating mode is maintained until the number of persons falls below the parameter value.
As most of the lifts do not yet have a sufficiently accurate load weighing feature in order to determine the number of persons in the car, the following is assumed and evaluated when leaving the main landing:

- the number of persons who entered the lift in the main landing is at least as large as the number of active car calls or
- at least as large as the number of light barrier interruptions when filling the car.

The greater of the two values is used for the evaluations and added to the total number.

Peak down, if more than X pers. (within 15 min.) arrive in lobby:

If the travel data evaluation reveals within 15 minutes that the sum of all persons arriving in the main landing is greater than the parameter value, the system changes to the "peak down" mode. This operating mode is maintained until the number of persons falls below the parameter value.
Here, too, the following must be assumed:

- the number of persons arriving in the main landing is at least as large as the number of landing calls in downwards direction on the way to the main landing or
- at least as large as the number of light barrier interruptions when emptying the car.

The greater of the two values is used for the evaluations and added to the total number.

Note: The criterion for the change from emptying to filling is the first car call, i.e. after arriving in the main landing all light barrier interruptions until the activating a car call are interpreted to the effect that they are caused by persons who leave the lift.
Accordingly, light barrier interruptions after activating a car call are regarded as caused by persons who enter the lift.

Operation during downwards travel peak:
Empty lifts approach the highest landing due to a parking call without taking landing calls in upwards direction into consideration on their way.
The doors remain closed (parking call!).
Then only landing calls in downwards direction are accepted.
If there is no other downwards call, the lift will immediately return to the highest landing (parking time fixed at 10 seconds).

Operation during upwards travel peak:
Empty lifts approach the main landing due to a parking call without taking landing calls in downwards direction into consideration on their way.
The doors remain closed (parking call!).
In the case of a landing call in the main landing only one lift will open the door, even if more than one lift is in the main landing. The result is that one lift tends to be filled completely before the next lift opens the door.
When travelling upwards the lift also answers landing calls in upwards direction. If there is no other upwards call, the lift will immediately return to the main landing (parking time fixed at 10 seconds).

☞ Not all lifts in a group must be assigned to the travel peak mode. If one lift not assigned to the travel peak mode is out of operation or does no longer answer any landing calls, one lift assigned to the travel peak mode is automatically put into normal operation.

Note: In order to simplify the adjustment of the parameter "peak up, if …" or "peak down, if ...", the relevant sums for the determination of the travel peaks in 15-minute intervals between 6:00 am and 7:00 pm were stored in a table and should be read on several days in order to adjust the parameters to a useful value.
Of course the corresponding time for the travel peaks can be determined in this way, too, and can be adjusted accordingly.

This table can be read by entering 014*.
Peak up sum in 24th quarter:
Peak up sum in 25th quarter:
…….
Peak up sum in 75th quarter:

Peak down sum in 24th quarter:
Peak down sum in 25th quarter:
…….
Peak down sum in 75th quarter:
The 24th quarter is the time between 6:00 am and 6:15 am.
The 25th quarter is the time between 6:15 am and 6:30 am.
The 75th quarter is the time between 6:45 pm and 7:00 pm.

Key travel during the day:
Beyond the travel peak time, i.e. between the travel peaks, the lifts are distributed according to the frequency of landing calls in the individual landings.
These data are evaluated every 15 minutes and the landings with the largest number of landings calls are set as parking landings.
By entering 013* the frequency of landing calls during this 15-minute interval can be checked.
The output on the LiSA display has the following form:
Number of landing calls during the day in 1:
Number of landing calls during the day in 2:
…….
Number of landing calls during the day in the last landing:
Note: In conjunction with the upwards travel peak mode, the parameter "Ignoring of landing calls in case of X car commands" described under 000* is particularly important as the car is usually full in this period when leaving the main landing. This parameter serves to avoid that the lift answers any landing calls in downwards direction.

4.3. Group function

4.3.1. Structure of a lift group:

The following conditions must be met in order to make several lifts operate in a group:

- Each lift is informed about he number of group lift cars via the parameter "no. of cars".
- Each lift receives a number via the parameter "car in group".
- The single controllers must be interconnected to a ring by means of 2 data lines (sending and receiving line). These lines serve to exchange data telegrams. By connecting -H of all group lifts, the potential connection is ensured.
- Data are transmitted serially via a 20mA interface at a speed of 1200 bit/s. Each telegram features the sender number and ends with a check digit. Lift 1 sends a telegram to lift 2. Lift 2 stores the telegram, analyses it and sends it to lift 3. Lift 3 forwards the telegram to lift 4, etc. The last lift in the group sends the telegram back to lift 1. Lift 1 recognises that this is its own telegram and "dumps" it or sends the telegram again if verification of the check digit is negative.
- In order not to interrupt the data transmission if the controller is switched off or faulty, each controller board (bottom left) is equipped with a relay (looks like an electronics module) which serves to short the sending and receiving input. In the case of LiSA10 boards, the jumper JP5 can be inserted instead of the relay, if it is a group of 2 lifts.
- If there are fewer panels in the landings than the number of cars (= normal case), the landing call IOs of the controllers must be interconnected as otherwise the landing calls may not be answered if one lift fails (switched off).

4.3.2. Information processing in the case of group lifts:

At any time each lift is informed about:

- the current landing call assignment,
- the operating mode of the other lifts,
- the car calls of the other lifts,
- car position, travel continuation direction, destination and
- door status of the other lifts.

Each lift will constantly (every 100 ms) calculate for each active landing call which lift can answer the respective call the fastest, considering the data described above.

If all lifts have the same distance from the destination, the lift with the lowest number is preferred.

4.3.3. Further functions influencing the group behaviour:

- In the case of full load (60 - 100% load of the car) landing calls are no longer taken into consideration, i.e. the lift "is taken out of the group".
- The same happens if the lift leaves the "normal" operating mode, e.g. in the case of an out-of-operation mode (overtemperature, travel time exceeded, etc.), any key-controlled travels or an inspection travel.
- The parameter "Car out of group, if blocked in a land." serves to take account of the fact that a lift can be prevented from travelling over a longer period of time, e.g. if the photoelectric barrier is interrupted several times, the hinged door remain open, the photoelectric barriers remain interrupted or the safety circuit is opened during a travel. When this time has elapsed, the lift is taken out of the group.
- There is one elapsed-time meter for each landing call. If the value of this meter exceeds the value defined by the parameter "Max. waiting time for land. call", an additional car call is made for this landing call.

In detail:
In standstill (after arriving in a landing and starting to the destination) each lift calculates its next possible destination every 100 ms. For each change a position telegram is sent to the other group lifts.

Position telegram: **[# P p z w t a i c]**

[= Telegram start	] = Telegram end
# = car no.	P = position telegram
p = position of the lift	z = target of the lift
w = travel continuation direction	t = door status
a = read landing call IO	i = car calls
c = check digit	

During the travel, too, each change regarding the destination, travel continuation direction, read landing calls and car calls is transferred via a position telegram.

Examples:
[1 P 2 4 ↑ 3 10 00000004 24] :
1 = telegram from lift
P = position telegram
2 = lift is in landing 2 or has just left landing 2
4 = lift recognised landing 4 as the next destination
□ = prospective travel continuation direction in landing 4
3 = lift opened doors
10 = IO-10 (= landing call) activated
00000004 = car call in landing 3 (binary)
24 = check digit

Further telegrams exist for the transmission
- of the operating mode
- of the door opening tables, and
- of the registered landing calls.

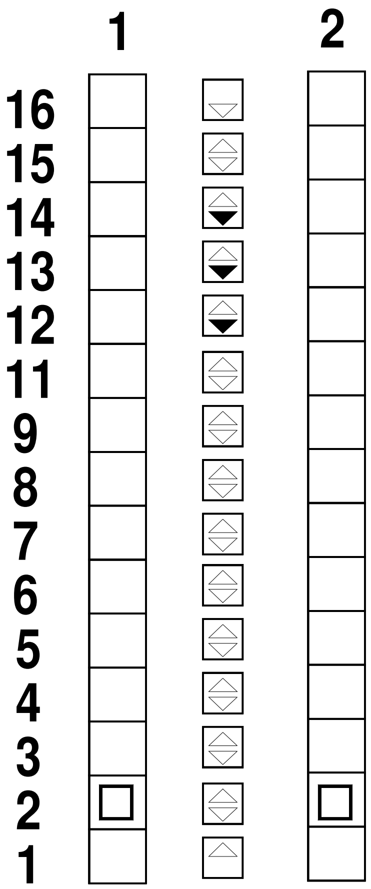
Targets for the processing of the calls:
The group behaviour is primarily geared to answering a call as quickly as possible.
The energy consumption is only considered in the second place.

If two lifts are free, one lift is supposed to answer all calls in its direction - but if one or several of these calls exceed a certain pre-estimated waiting time, the 2nd lift should also participate in processing the calls.

This fact is explained using the following examples:
Lift 1 and lift 2 are both in standstill in landing 2:
In landing 15 and 14 there are active landing calls (A 15, A 14) in downwards direction.
Lift 1 starts and answers A 15 and all other call in downwards direction. Lift 2 remains in standstill.
Only if another call, e.g. A 13, is entered, lift 2 starts and answers this call.

The basis is the pre-estimated waiting time for each call.
This waiting time (WT) is calculated for each car and for each landing: Assumption: time per stop TS = 10 seconds, travel time per landing TT = 2 seconds.

Calculation of the waiting time:
WT(A) = X*TS + Y*TT, X = number of stops to A Y = landing difference to A



Example (see figure):
- both cars are on the ground floor (landing 2),
- landing call to landing 14 (A14),
- car 1 travels to A14,
- during the travel A15 is received: car 1 changes its destination to A15,
- car 2 calculates the waiting time for A14:
  for car 1: WT(A14)= 1*TS + 1*TT = 12 sec.
  for car 2: WT(A14) = 13*TT = 26 sec.
  lift 2 remains in standstill,
- landing call A13 is received:
  car 1: WT(A13) = 2*TS + 2*TT = 26 sec.
  car 2: WT(A13) = 12*TT = 24 sec.
  lift 2 travels to A13.

Additional remarks on the processing of calls with LiSA controllers:

1. The travel direction is maintained for as long as there are calls in this direction.
   Exception: if no call above/below the destination in the travel direction is active when arriving at the destination, the direction is reserved until the idle time (door open time) has elapsed. Then the current call assignment determines the travel direction.
2. If landing buttons are pressed for both directions in one landing (misuse), 2 cars approach this landing.
3. If a landing button is pressed during the door closing motion, the door opens only if the call corresponds to the travel continuation direction of the car.
   The preconditions is, however, that the parameter "Opening of doors by landing call even if car command" is set to 1.
4. If one lift announces that it will open the door, it will automatically be given a handicap time when assigning calls which is reduced every second until the door is closed.
   This means for instance that a lift which is 2 landings further away from a call than a second lift but which has closed its doors will answer this call.
5. For system-related reasons it is possible that one landing call is sporadically answered by two lifts. This happens particularly when several lifts are in standstill with different door statuses (see item 4).
6. By assigning the lifts to different parking zones or variable parking landings it is possible to reduce empty travels.
7. By setting three different time zones, filling and emptying is also possible.

Statistical evaluation of landing call waiting times:

For each landing there are controller-internal waiting time meters, separated into upwards and downwards calls, for the maximum and the average waiting time.
Retrieval by entering 010* on the LiSA board (deletion by entering 016*).
Output on the display:

Max. waiting time for landing call up in landing 1 =
Max. waiting time for landing call up in landing 2 =
....
Max. waiting time for landing call up in landing n-1 =

Min. waiting time for landing call down in landing 2 =
Min. waiting time for landing call down in landing 3 =
....
Min. waiting time for landing call down in landing n =

Average waiting time for landing call up in landing 1 =
Average waiting time for landing call up in landing 2 =
...
Average waiting time for landing call up in landing n-1 =

Average waiting time for landing call down in landing 2 =
Average waiting time for landing call down in landing 3 =
...
Average waiting time for landing call down in landing n =

In the case of normal working groups the average waiting time is less than 12 seconds.

4.4. LiSA data transmission

Please refer to the manual of the data transmission software
.

4.5. LiSA emergency call system

4.5.1. Introduction

The LiSA emergency call system does not only serve to cover the functions required by TRA106 and EN81, but also to allow for a comprehensive monitoring of your lifts.
Marketable products of other manufacturers handle these functions by means of two separate systems. Whereas the emergency call is handled by systems like Telenot, Behnke, ELA, etc., the lift is monitored by the controller, with the consequence that the usual interface problems have to be solved by the lift manufacturer.
In addition the price for two systems is normally much higher than when using the LiSA emergency call system.
Essential elements of the LiSA emergency call system:

- the LiSA board which is supplied by an internal battery in the case of a mains failure and
- the LiSA emergency call station, consisting of an Elsa modem and a connection board with voice output as well as
- the LiSA intercom in the lift car,
- the battery monitoring unit.

All components are delivered in a ready-to-plug state, as is usual with LiSA. If you order the emergency call system together with the controller, no further work is required.
But also a subsequent installation is very easy as the commonly used Siedle intercom unit has the same dimensions and fastening points as the LiSA intercom unit.
If you use the LiSA emergency call system, you can connect up to 4 lifts via one telephone connection to a service centre.
These 4 lifts can be "an actual lift group", 4 independent lifts (data transmission group), 2 groups of two, LiSA lifts mixed with non-LiSA lifts or 4 non-LiSA lifts.

4.5.1.1. Emergency call functions:

In the case of an emergency call, one of **four emergency call numbers** are dialled. This emergency call number serves to contact a permanently contactable post (service centre) which is either in the building or external.
The service centre is usually a PC with modem connection. In the case of the LiSA service centre, the LiSA service centre programme runs on this PC.
Service centres by Siemens Gebäudeleittechnik got a special software adaptation (similar to Telenot) so that emergency calls and failures from the LiSA lifts are treated there, too.
One of the emergency call numbers can also be the phone number of the caretaker, for instance.
If an emergency call is sent to a service centre (PC), the lift-specific data is transmitted first via a data link before the voice communication with the trapped person is established.
In the case of a LiSA service centre, this voice communication is established immediately after the data transmission. In the case of the Siemens service centre, the connection is interrupted after the data transmission and the voice communication is subsequently established from the service centre by means of a separate call to the lift.
Via telephone it is possible at any time to establish a voice communication to one of the max. 4 lifts connected to one phone connection.

4.5.1.2. Monitoring functions - lift attendant functions:

The monitoring functions are the usual data transmission functions for lift controllers:

- indication of lift failures to a service centre or company PC,
- visualisation of the lift on a PC,
- parametrisation of the lift.

Furthermore, the lift attendant functions are covered, too:

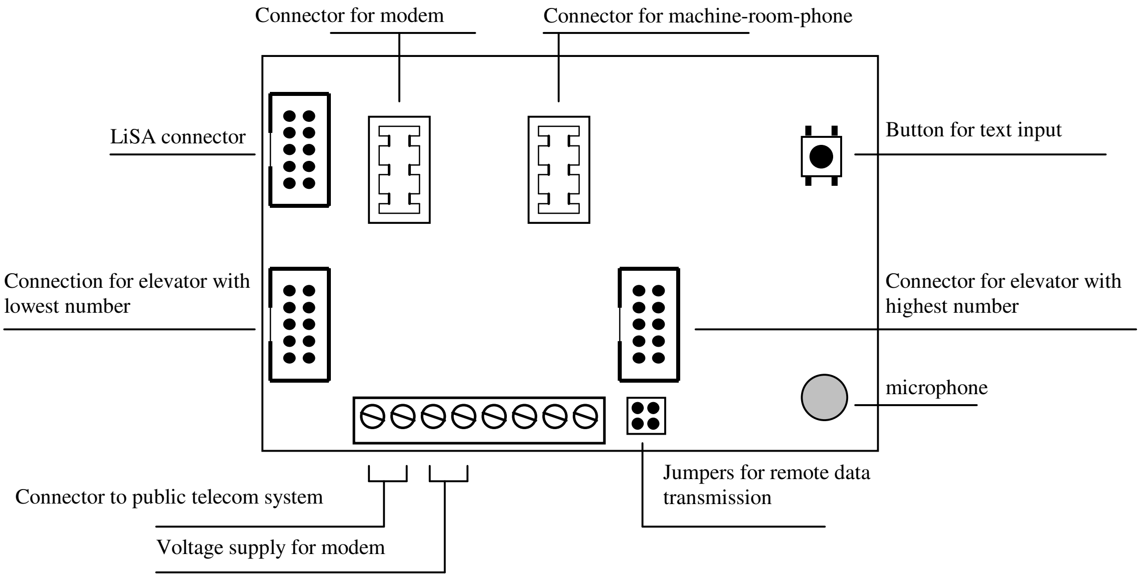
- monitoring of the lift regarding steps,
- monitoring of the alarm button connection to the controller,
- monitoring for the lift car light.

4.5.2. LiSA emergency call system with emergency call function and data transmission

4.5.2.1. Structure and installation (see fig. 1 and 2)

Each system requires a LiSA emergency call station (**LiSA-NS**) consisting of a modem (type: Elsa) and the board **LiSA-TAE**.

LiSA-TAE board:



Note:
The lifts within groups / data transmission groups exchange information via the regular group data link (connections Send, Empf, -H). The data consist of short telegrams which can permanently be displayed on the LiSA display by entering 204* on the keyboard.
Status telegrams: e.g.:

[2T3] = lift 2 indicates that it currently uses the intercom connection.

[1T1] = lift 1 indicates that it wants to use the intercom connection in order to send a failure message to the service centre.

[3T2] = lift 3 indicates that it wants to use the intercom connection due to an emergency call made in the car.

The individual stations are interconnected via 10-pin (ribbon) cables or after interposing an adapter via 5 wires (3 wires for the group connection and 2 wires for the telephone connection La, Lb).
Terminal X3 on the LiSA-TAE of the LiSA-NS is connected to the terminal X2 on the LiSA-TAE of the second lift. Terminal X3 on the LiSA-TAE of the second lift is connected to the terminal X2 on the LiSA-TAE of the third lift, etc.

The LiSA-TAE board serves to realise the following functions:

- changeover of the intercom in the car from voice communication between car and machine room to telephone network,
- supply of the modem power (9V ~),
- voice output for calming or lift identification text.

Connection to LiSA10:
The LiSA10 board the the LiSA emergency call system are connected via 2 cables.

- Connect the LiSA10 board via the 10-pin emergency call terminal X21 to the corresponding terminal X1 on the board of the **LiSA-TAE**.
- Connect the modem via the provided customary cable (9-pin sub-D connector at both ends) to the PC / modem connection on the LiSA10 board.

Connection to the telephone network:
On the **LiSA-TAE** there are 2 terminals (La and Lb) which have to be connected to the telephone network. By default, there is already a cable with a TAE plug connected to the these terminals. Put this plug (N-plug) into the TAE socket (N-slot) of the intercom.
Voice output:
The LiSA-TAE board is equipped with a voice output chip (24-pin IC). By pressing the button T1 (Rec) on the right of the board, a text of up to 16 seconds can be recorded. This text serves to calm the trapped persons and, if the service centre only consists of a telephone, to identify the lift from which the emergency call was made.

- Press the button T1 (Rec) and wait approximately 2 seconds,
- speak loud and clear at a distance of approximately 10 cm to the microphone which is right next to the button on this board, for example the following text:
  "emergency call from city X, street Y, Z".

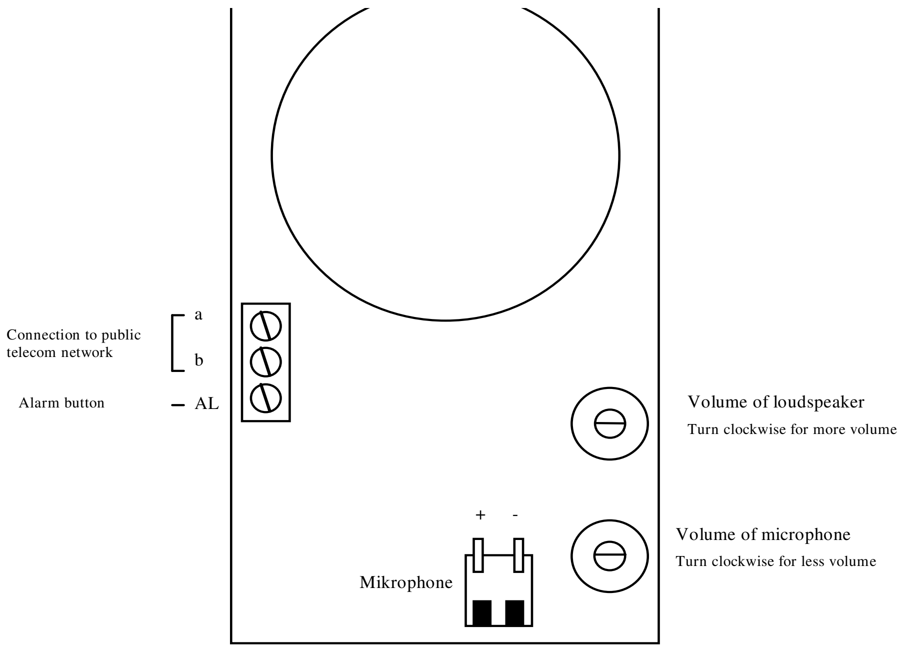
Lift coding:
On the LiSA-TAE board there are several jumpers. Please insert a jumper of the JP3 type in the left position of the first lift (= 1st lift) and in the right position of the last lift (= last lift). The jumpers JP1 must be inserted in the right position if you want to use the LiSA-FST for the voice communication between the machine room and the lift car (= normal case). However, if you want to use a separate voice communication, the two jumpers must be inserted in the left position. The jumpers JP2 and JP4 are only relevant for LiSA emergency call systems for lifts from different manufacturers.

4.5.2.2. Connection of further LiSA emergency call stations

Connection to LiSA10:
see item 2.1.
Voice output:
record the identification or calming text in the same way as for lift 1.
Lift coding:
if it is the last lift in the group, insert a jumper at L. (= last lift).

4.5.2.3. Connection of the intercom in/on the car:

LiSA intercom (LiSA-FSP):



The telephone electronics and the loudspeaker are placed on an electronics board. The microphone is located in a separate small module housing which should be installed by means of adhesive pads directly on the panel, if possible behind a small hole.
In the case of the direct installation in the car panel, it can fixed using the welded studs of the Siedle car intercom. In this way it is easily possible to install it instead of an already installed Siedle intercom.
If you want to keep using the already installed intercom (Siedle, etc.), you can install the **LiSA-FST** on the lift car roof - with a certain loss in the voice transmission quality.
In the case of an acoustic feedback please mount the intercom at a distance of several millimetres to the car panel.
Connection of the intercom:
It must be distinguished if an already installed intercom between the car and the machine room is to be used further or or if this function is to be taken over by the **LiSA-FST**.

- If the intercom is to be used further on, the connection of the intercom telephone must be established via 2 separate travelling cable wires,
- otherwise, i.e. without an individual voice communication, the connection is established depending on the location of the **LiSA-FST** either on the push button board to the connections L and M or directly on the APO to the terminals L and M.

Note:
In the case of versions from 1999 it is important to observe the right polarity of the connection of the intercom telephone.
There are 2 different cases:

1. There is **no** connection to the telephone network (LiSA did not answer the call, i.e. the LED with the designation "telephone" on the **LiSA-TAE** board is not on) :
   the intercom is correctly connected if the LED on the telephone electronics is on, otherwise reverse the connection to the terminals L and M.
2. There is a connection to the telephone network (LiSA did answer the call, i.e. the LED "telephone" on the **LiSA-TAE** board is on):
   the intercom is correctly connected if the LED on the telephone electronics is on, otherwise reverse the connection to the terminals La and Lb.

The voice communication between the intercom in the car and the machine can be handled via a customary (wall) telephone which can be plugged to the LiSA-TAE board.

4.5.3. LiSA emergency call system with emergency call function for non-LiSA controllers

4.5.3.1. Structure (see fig. 3):

There are 2 possibilities to connect non-LiSA controllers:

1. Connection to a LiSA10 board which work exclusively as an emergency call system.

   In this way you can connect up to 4 lifts which are not equipped with a LiSA controller to a service centre using one telephone line.

   These 4 lifts can be 4 independent, spatially divided lifts. In the machine room with the telephone line, there is the control cabinet for the **LiSA-NFS.** In it is a LiSA10 board as it is usually used for LiSA lift controllers. There is one jumper (JP1) on this board which must be inserted. It has the effect that the board is supplied by a battery in the case of a mains failure. Furthermore there is a modem (type: Elsa) in the control cabinet and one **LiSA-TAE** board per lift, with the configuration Elsa modem + **LiSA-TAE** board for the first lift corresponding to an emergency call station (**LiSA-NS**). One **LiSA-TAE** board is required for every further lift.
2. Connection to a regular LiSA lift controller.

   Depending on the number of LiSA controllers connected to the telephone line as a group or data transmission group, it is possible to connect further non-LiSA controllers. The total number of lifts is 4, e.g. 2 non-LiSA controllers in the case of 2 LiSA controllers. One LiSA-TAE board is required per non-LiSA controller, it does not matter in which LiSA controller this board is integrated.

The LiSA-TAE boards must be interconnected using a 10-pin (ribbon) cable.
On each **TAE** board, the jumper (N1 / N2 / N3 / N4) must be inserted according to the respective lift number.
The emergency call systems and possibly the collective failure messages of the single lifts are connected to the building service inputs (Haus1 - Haus8). The first four IOs are for the emergency calls (Haus1 - Haus4), the next four IOs are for the collective failure messages (Haus5 - Haus8).
Emergency call from lift 2:

- A signal is present at IO Haus2 for more than 3 seconds.
- LiSA dials the number of the 1st service centre in the so-called voice mode, if this service centre comprises only a telephone (parameter "Serv. cent. 1 = SpC" in the parameter set 0010*), otherwise in the data mode.
- If the "service centre" is only a telephone, the lift identification text is transmitted by LiSA after establishing a connection.

Collective failure message from lift 2:

- A signal is present at IO Haus6.
- LiSA dials the number of the 1st service centre in the data mode, if this service centre is equipped with a PC and LiSA service centre software (parameter "Serv. cent. 1 = PC-Mf/PC-Mf+Ec" in parameter set 0010*).

Call in lift 2 with telephone:

- After calling the lift, the modem answers the call and sends a long DTMF tone (except for systems with Elsa Internet II modems).
- After pressing button 2 a connection to the intercom in car 2 is immediately established and the lift identification text is audible.

Call in lift 2 via service centre:

- When the connection is established, the parameters and status of lift 1 are transmitted first. These are, however, values which do not inform about the actual (non-LiSA) system.
- After clicking button 2 on the screen, a voice communication to car 2 is established.

4.5.4. LiSA emergency call system with emergency call function via telephone to the telephone service centre and via data transmission to the company service centre

The comprehensive functions of the LiSA data transmission can also be used if the lift is equipped with an emergency call system by a different manufacturer (e.g. Telenot), i.e. no LiSA-specific emergency call system. In this case only a modem is connected to the LiSA.
In the case of such a configuration, emergency calls are handled by the telephone service centre and the use of the data transmission functions either by the LiSA service centre or by a company-specific service centre.
The only problem resulting from this is the joint use of the telephone line by both systems.
The problem is different for single lifts and group configurations ("actual groups" or single systems with one telephone line).
The order of the connection to the TAE socket(s) (post connection) is irrelevant, provided that the connected components connect the A-B line through in idle mode (not answered). If you don't know if the emergency call system has this property, it is recommendable to connect the emergency call system as the last component.

4.5.4.1. Functional routine for single systems

Failure of the system:
LiSA dials the telephone number determined by the parameter "Telephone control station 1", transmits the lift parameters, status and error memory and hangs up again.
Emergency call from the lift:

- The emergency call system (Telenot) installed in the lift calls its service centre.
- When the connection is established, the data for the lift identification are transmitted first.
- Then the Telenot service centre hangs up and calls the lift in turn in order to establish a voice communication with the trapped person.
- As long as the emergency call has not been cancelled in the lift, the Telenot systems in the lift will immediately answer when it is called. As the LiSA in combination with Telenot always answers only after the 4th ringing, a call for an uncancelled emergency call has the effect that a (voice) communication between the Telenot service centre and the lift car is established.
- The cancellation of the emergency call can either be done directly via the Telenot service centre or in the lift itself by the person who frees the trapped person(s).

Call to the lift without call confirmation requirement:
If the emergency call must not be confirmed, each call to the lift has the effect that the LiSA answers the call after the 2nd ringing and establishes a connection to the controller. The Telenot system will only answer the call if the emergency call still has to be confirmed, as described above.

Emergency call from the car during an established connection between LiSA and service centre:
As the emergency call from the car is also registered by LiSA, the established connection is immediately interrupted and Telenot can establish the connection to its service centre.

4.5.4.2. Functional routine for several lifts with one telephone line

(see fig. 6). The connection of up to 4 lifts to one telephone line is analogous to the connection of single systems (see 4.5.4.1). Each lift is connected to the telephone network via its own modem.
Failure of the system:
See single systems.
Emergency call from the lift:
See single systems.
Call to the lift without call confirmation requirement:
If the emergency call must not be confirmed, each call to the lift has the effect that the LiSA answers the call after the 4th ringing and establishes a connection to the controller. In this case the lift answers the call to which the telephone line is currently assigned (upon consultation via the group connection).
After the successful connection, LiSA sends a DTMF tone.
If the call was made by the **service centre**, a data link is established without answering this tone and parameters and the status are transmitted.
If a connection to a different lift is required, you can change it via mouse click.
This is done in the following way:

- The lift connected to the service centre informs the requested lift via the group connection that it must immediately take over the telephone line.
- Then it hangs up.
- The next call from the service centre is immediately answered by the requested lift.

Emergency call from the car during an established connection between LiSA and service centre:
As the emergency call from the car is also registered by LiSA, the established connection is immediately interrupted and Telenot can establish the connection to its service centre.

4.5.5. Functional expansion for lifts with operating data collection:

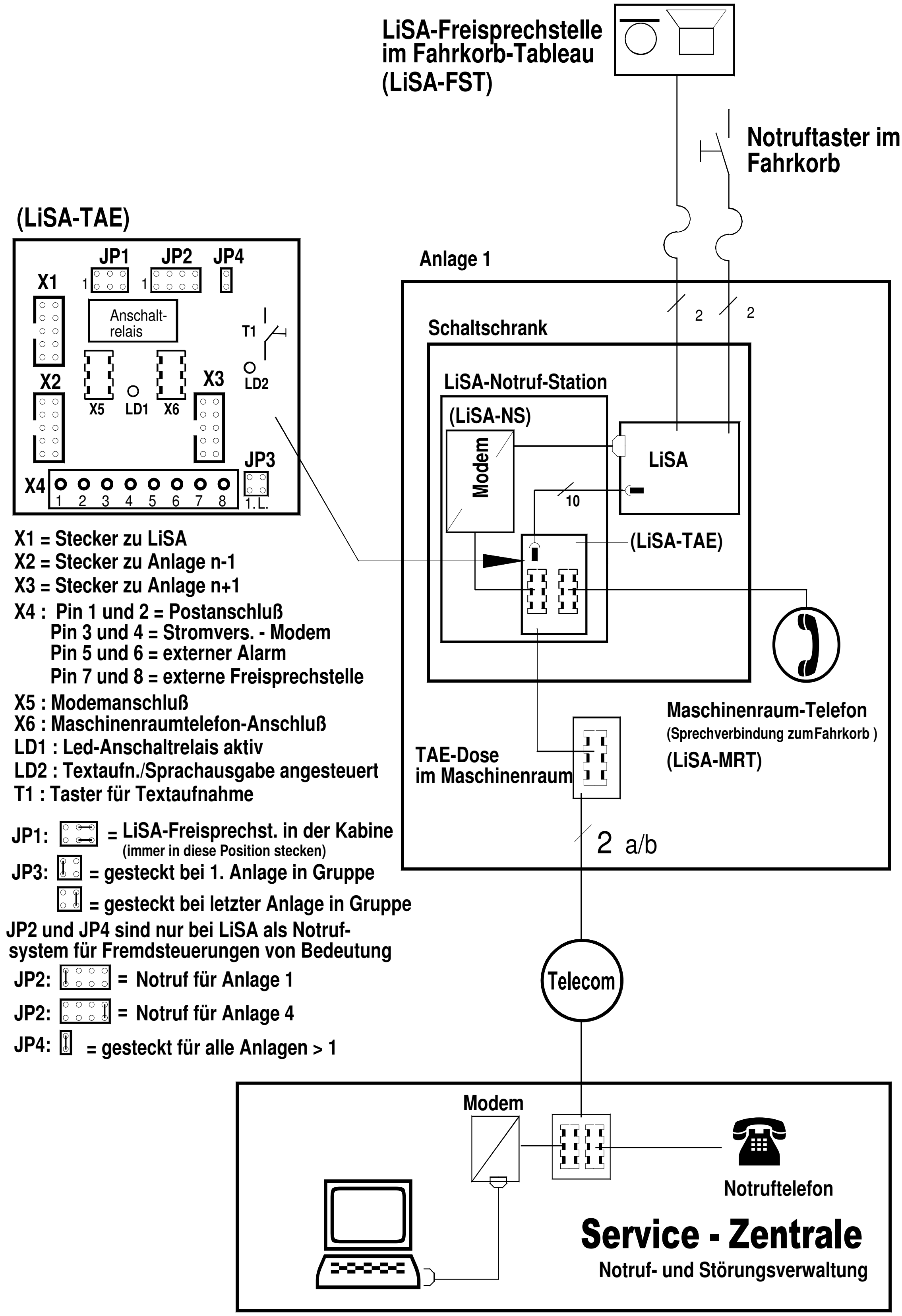
If the LiSA emergency call system shares one telephone line with an operating data collection system (e.g. system Daisy in Erfurt) it must be ensured that the Daisy control centre can retrieve the data.
Solution:

- the Daisy control centre calls its lift,
- LiSA answers immediately and sends a DTMF tone,
- as no DTMF tone for the car selection is sent from the control centre within 10 seconds, LiSA establishes a normal modem connection to the control centre,
- as the Daisy control centre doesn't request any parameters within 25 seconds, LiSA cuts the connection,
- then all incoming calls are ignored by LiSA for the next 3 minutes,
- as the Daisy control centre calls again immediately, it can now untroubledly retrieve its data.

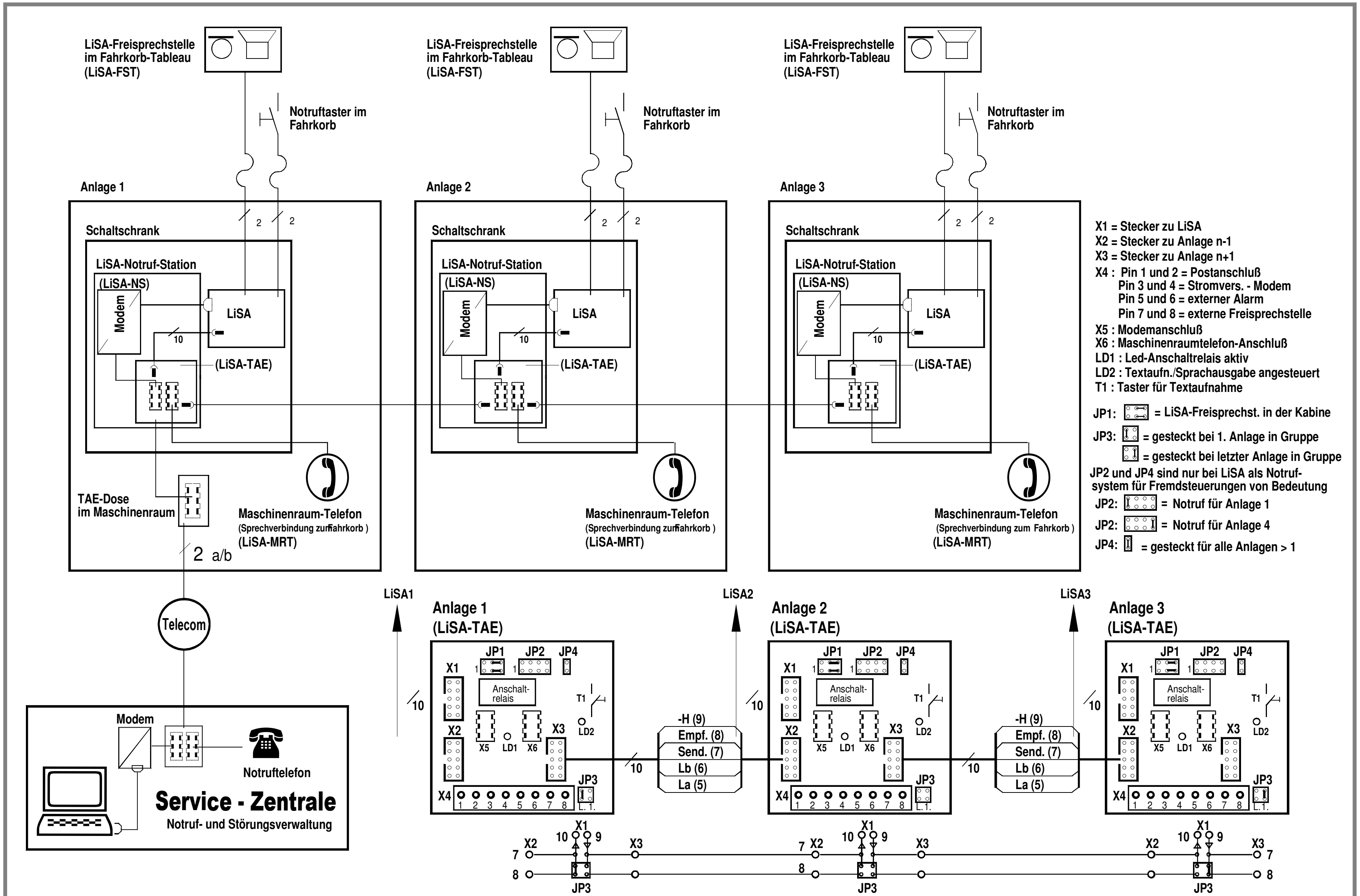
4.5.6. Commissioning (setting LiSA to modem operation):

200* serves to set the controller to modem operation.
The modem operation is visible by the flashing operating mode.
Enter **200*** again in order to switch it off.
In the case of systems without modem, i.e. version 2 for all systems >1, the modem operation must not be initialised!
In order to be able to monitor the interface connection (AT commands) between LiSA and modem in a permanent way, it is recommended to enter **204***.
Enter **204*** again in order to reset it.
Test of the system:

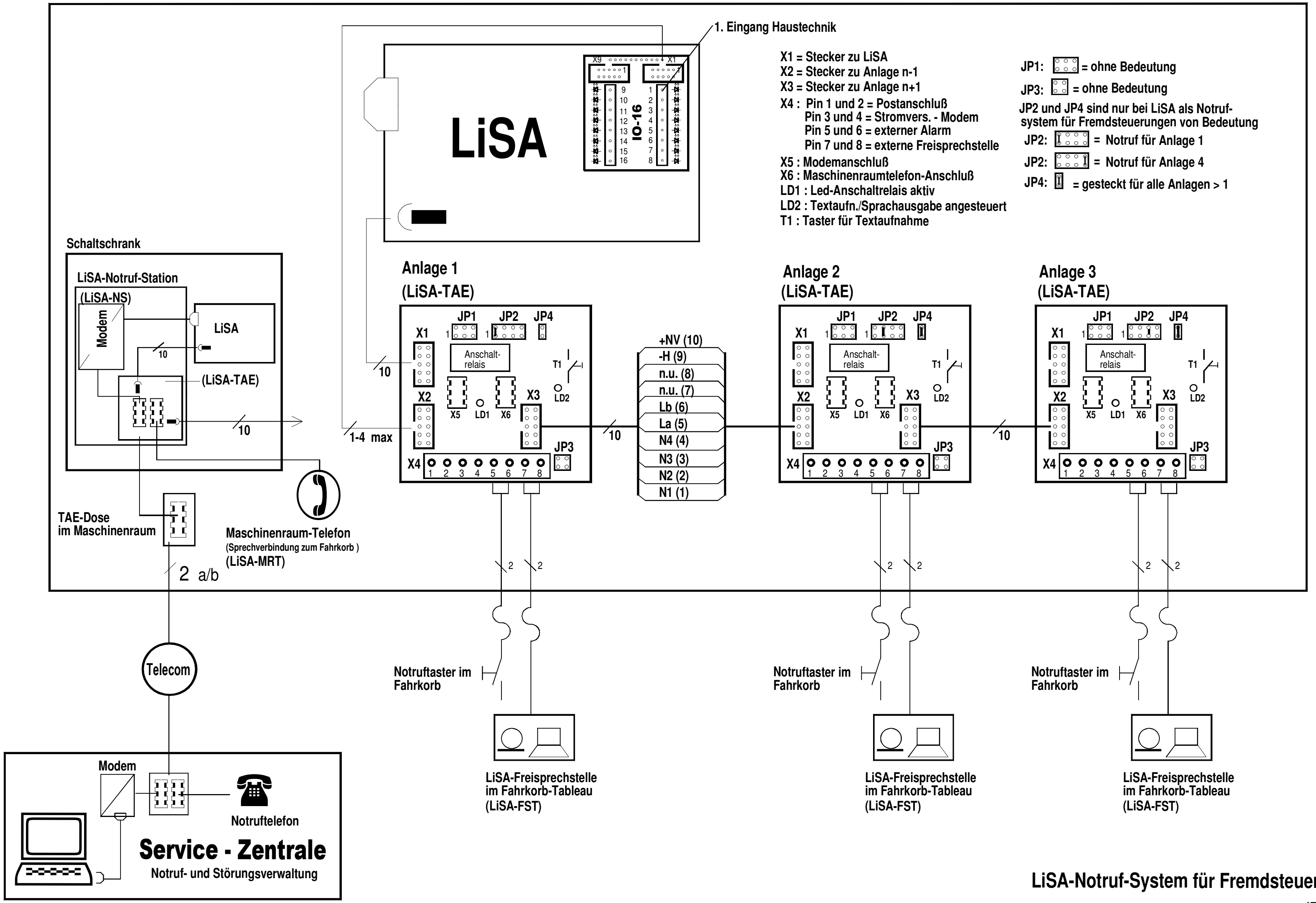
- After dialling the number of the lift using your mobile phone / telephone, you will hear a signal tone (DTMF tone). Now press the button for the lift to which you want to be connected (in the case of single lifts, press 1). In the case of systems with a **Elsa Internet II modem** you won't hear a signal tone. You should therefore prophylactically press the corresponding button, as described above (you won't hear a ring tone). Then a direct connection between mobile phone and car intercom is established for 90 seconds, whereby the lift identification text is audible at first.
- In order to test the emergency call system it is possible to make an emergency call even if the emergency call suppression is switched on and an emergency call would normally be suppressed in this situation, if you simultaneously press the emergency call button and the door open button or **wait until the door is closed**.
- An emergency call is likewise made, if you enter "201*" on the LiSA keyboard. ("202*" effects an immediate termination of the emergency call.)
- That means that an emergency call to the service centre can either be made via the emergency call button in the car or by entering 201* on the LiSA keyboard.
- 203* serves to initiate a normal call to the service centre.
- If there is no test person in the lift, the emergency call test can also be made in the following way:
- dialling the number of the lift by telephone,
- when the controller sends the DTMF tone press the *-button followed by the telephone number which is supposed to be dialled by the controller, the procedure is terminated by pressing the *-button again,
- then the controller hangs up and dials the telephone number determined by you in order to indicate an emergency call.



LiSA-Notruf-System - Einzelanlage
Bild 1



LiSA-Notruf-System - Gruppenanlage (Bild 2)



LiSA-Notruf-System für Fremdsteuerungen

(Bild 3)

4.5.7. Parameters for the LiSA emergency call system

Telephone control station 1 :
Telephone control station 2 :
Telephone control station 3 :
Telephone control station 4 :

Elevator number 100-9999:

4-digit number by which the lift is registered at the service centre(s).

☞ In the case of lifts which are connected to one service centre, this number is assigned by the service centre and must be inquired at the service centre operator before you connect the system to the service centre. For all other systems, this number is meaningless.

☞ If the emergency call signal of a non-LiSA controller is connected to one building service input of the LiSA, you must set up a data set in the service centre for this system with a number defined in the following way:
number of the non-LiSA system = number of the LiSA controller to which it is connected + number of the building service input – 1;
e.g.: LiSA controller no. = 9002; non-LiSA system connected to building service input 2:
number of the non-LiSA system = 9002 + 2 - 1 = 9003

Predial number to contact telecom (no / 0 / 00 / 9 / * / 010 / 02 / 90):

Selection of the public access prefix.

➔ *(0) : no public access*
➔ *(1): public access with "0" (connection to private branch exchange)*
➔ *(2): public access with "00" (connection to private branch exchange)*
➔ *(3): public access with "9" (connection to private branch exchange)*
➔ *(4): public access with "*" (connection to private branch exchange)*
➔ *(5): public access with "010" (connection to private branch exchange)*
➔ *(6): public access with "02" (connection to private branch exchange)*
➔ *(7): public access with "90" (connection to private branch exchange)*

Call accepted by modem (S0 =) after x ring tones (0..4):

Determination after how many ring tones the modem reacts to the incoming call, i.e. answers this call.

Dialling procedure (pulse/sonic frequ.) (0/1):

Selection which dialling method is used to call the service centre.

➔ *(0): pulse dialling method (only for older centres)*
➔ *(1): audio frequency dialling method (for digital centres)*

Group (Single/Gru/Rem-Gru/buildingserv.):

Selection whether the system is a single lift or, if several systems are interconnected (= group), how the group is configured.

➔ *(0): single lift*
➔ *(1): "actual group"*
The lifts work in group operation and are interconnected via data links.
➔ *(2): "data transmission group"*

The lifts don't work in group operation, but are also interconnected via the normal group data links. In this way it is possible to use only one telephone line. The data exchange is limited to status messages regarding the telephone line.

In parameter set 000* (General elevator parameters), the two parameters "No. of cars" and "Car in group" must be set.

If there is a failure, for instance, at lift 3 or somebody pressed the emergency call button in the car of this lift, the controller of this lift will request the telephone connection via the data link of the group / data transmission group. After the release by the controller which is currently connected to the telephone line, lift 3 establishes the connection to the service centre. After establishing the connection, the lift parameters, the status and the error memory are transmitted to the service centre. If an emergency call was made, the service centre establishes a voice communication to the lift car. The voice communication is maintained for 90 seconds.

The following parameter has been renamed from "ForeignGru" to "buildingserv.":

➔ *(3): "building service connection"*

One or several non-LiSA controllers (max. 4) are connected to one system based on a LiSA board which only works as emergency call systems for the non-LiSA controllers. Nonwithstanding, LiSA can also work as a normal lift controller with emergency call function and handle the emergency function for 3 additional non-LiSA controllers.

The following configurations with modem are no longer used and are only described for the sake of completeness:

➔ *(4): "Gru1M"*

The system works a an actual group, but only lift 1 has a modem. In this way only failures occurring at lift 1 can be indicated to the service centre. If there is an emergency call from lifts 2 - 4, lift 1 calls the service centre. After establishing the connection between the service centre and lift 1, parameters, error and status are requested by the service centre as usual. By means of the status block the service centres recognises that an emergency call was made in a lift >1 and initiates the voice communication to the lift from which the emergency call was made.

➔ *(5): "Gru1M"*

The system works a a data transmission group, but only lift 1 has a modem. The function is on the analogy of item (4).

1. Serv. cent. (SpC/PC-Mf/PC-Mf+Ec/PC-Ec/SiBo-Mf+Ec/SiBo-Ec/LiPassiv):

Functional range of service centre 1.
In the case of an emergency call, the system always tries to call service centre 1 first, provided that the function of service centre 1 is parametrised with 2, 3, 4 or 5.
In the case of a failure, the system always tries to call service centre 1 first, provided that the function of service centre 1 is parametrised with 1, 2 or 4.
After an unsuccessful attempt to establish a connection to service centre 1, the system tries to call the next service centre, provided that this service centre is parametrised for the required function (see explanation above for service centre 1).
After 4 cycles, i.e. max. 16 unsuccessful attempts, the emergency call or failure is suppressed. In the case of an emergency call, pressing the emergency call button once more has the effect that the procedure described above is repeated.

➔ *(0): SpC (emergency call to a telephone service centre)*

The service centre 1 comprises only a telephone (possibly a mobile phone). In the case of a failure of one lift, this service centre is not called, but the system immediately tries to call the next service centre. In the case of an emergency call, service centre 1 is called first in the so-called voice mode. In the case of a mobile phone connection (number starts with 017), the emergency call must be confirmed by pressing a button (any random number on the phone). In the case of "normal" telephone lines this is not necessary. If the emergency call is not confirmed on the mobile phone, LiSA regards the call as unsuccessful and repeats the procedure.

Attention: The requirement of TRA106 according to which emergency calls must be recorded (time and date, lift no. and place) is also taken into consideration, as every lift has its own lift identification text.

➔ *(1): PC-Mf (failure message to PC)*

Only a data transmission connection is established between service centre and lift. **Emergency calls are not indicated!** Only a modem with mains connection is installed on the controller (plug-in power supply). LiSA will always call the service centre in the data mode. After the connection, parameters, status and error memory are transmitted, then LiSA hangs up. If there is a LiSA emergency call system installed in the lift, the service centre can establish a voice communication to the car at any time.

➔ *(2): PC-Mf+Ec (emergency call to PC)*

The function is equal to **PC-Mf** described above, but emergency calls are transmitted, too**.** The LiSA emergency call system is installed on the controller (main emergency call station or emergency call sub-station). The power supply comes from the controller which is supplied by battery in the case of a mains failure.

➔ *(3): PC-Ec (Emergency call and routine call to PC)*
- Only emergency calls and routine calls are sent to the PC service centre.

➔ *(4): SiBo-Mf+Ec (emergency calls and routine calls as well as failures to Siemens or Bosch service centre)*

Emergency calls and failures are sent to the service centre of Siemens Gebäudeleittechnik or Bosch-Telecom. In this way, the operator (lift manufacturer or customer) can use the full functional range of this service centre on the basis of the LiSA components.

In contrast to the system configuration described under (3), you can do without the relatively expensive Telenot system.

During the call, the number of the lift and the reason for the call is transmitted to the Siemens or Bosch service centre via a short data telegram, then the connection is terminated. In the case of an emergency call, the service centre then establishes a voice communication to the car.

➔ *(5): SiBo-Ec (emergency calls and routine calls to Siemens or Bosch service centre, no indication of failures)*

Like described for (4), but without the indication of failures.

➔ *(5): LiPassiv*

LiSA does not sent any messages. It can, however, be called from a PC.

2. Serv. cent. (SpC/PC-Mf/PC-Mf+Ec/PC-Ec/SiBo-Mf+Ec/SiBo-Ec/LiPassiv):

Functional range of service centre 2.
The function of this parameter is on the analogy of parameter "1. Serv. cent.".

3. Serv. cent. (SpC/PC-Mf/PC-Mf+Ec/PC-Ec/SiBo-Mf+Ec/SiBo-Ec/LiPassiv):

Functional range of service centre 3.
The function of this parameter is on the analogy of parameter "1. Serv. cent.".

4. Serv. cent. (SpC/PC-Mf/PC-Mf+Ec/PC-Ec/SiBo-Mf+Ec/SiBo-Ec/LiPassiv):

Functional range of service centre 4.
The function of this parameter is on the analogy of parameter "1. Serv. cent.".

Configuration examples:

Example 1: 1. Serv. cent. = SpC,
2. Serv. cent = SiBo-Mf+Ec,
3. Serv. cent. = PC-Mf,
4. Serv. cent. = SpC.
Call sequence in the case of an emergency call: service centre 1 - service centre 2 - service centre 4 - service centre 1
Call sequence in the case of failure: service centre 2 - service centre 3 - service centre 2 - service centre 3

Example 2: 1. Serv. cent. = PC-Mf+Ec,
2. Serv. cent = SiBo-Ec,
3. Serv. cent. = PC-Mf,
4. Serv. cent. = SpC.
Call sequence in the case of an emergency call: service centre 1 - service centre 2 - service centre 4 - service centre 1
Call sequence in the case of failure: service centre 1 - service centre 3 - service centre 1 - service centre 3

Example 3: 1. Serv. cent. = PC-Mf,
2. Serv. cent. = PC-Mf,
3. Serv. cent. = PC-Mf,
4. Serv. cent. = LiPassiv.
Call sequence in the case of an emergency call: no calls
Call sequence in the case of failure: service centre 1 - service centre 2 - service centre 3 - service centre 1

Emergency call misuse disable (0/1):

Selection whether an emergency call is always sent or only if it is justified.

➔ *(0): emergency call is always sent*

➔ *(1): after pressing the emergency call button, no call is sent if*

- the car is in motion and the safety circuit is closed (SK4 displayed) - TRA106 2.1.1.,
- in the case of lifts with hinged doors, the car is in the unlocking zone and the safety circuit after the hinged door contacts is not closed (SK2 is not displayed) - TRA106 2.1.2.,
- in the case of lifts without hinged doors, the car is in the unlocking zone and the safety circuit after the safety gear contact is not closed (SK3 is not displayed) - TRA106 2.1.2.2.

In order to test the emergency call system it is possible to make an emergency call even if the emergency call misuse suppression is switched on and an emergency call would normally be suppressed in this situation, if

- you are in the car and press the emergency call button immediately when the door is completely closed, or
- you press the emergency call button and the door open button at the same time (this function, however, can be suppressed, if the multifunctional parameter 2 is set to 195).
- you make an emergency call via the LiSA keyboard by entering 201*. 202* effects an immediate termination of the emergency call.

1. Inp. building service:

Assigned IO area: 8 IOs starting with "1st input building service".

Input 1 to 4 - building service:

These inputs are generally intended for the connection of emergency call signals (emergency call buttons) from non-LiSA systems:

- **LiSA as emergency call system for non-LiSA systems:**
- Parameter "Group = buildingserv" in parameter set 0010*. The first four IOs are reserved for emergency calls from four systems, i.e. the first building service input is connected to the emergency call signal (emergency call button) of the first lift. The following IO is connected to the signal of the second lift, etc. The following 4 IO are intended for collective failure messages of these four systems, in ascending order again.
- **LiSA as a "normal" lift controller with emergency call function for non-LiSA controllers:**
- Even if the LiSA works as a normal lift controller, emergency calls from non-LiSA controllers can be handled, if they are connected to one of the first four IOs. Please observe that the IO number is greater than one or in the case of groups / data transmission groups greater than the number of lifts in the group.

Example: In the case of one system with 2 lifts which are configured as group / data transmission group, the emergency call of one additional non-LiSA controller must be connected to the building service input 3 of one of the two lifts, but not to both of them. A maximum of one further non-LiSA controller can be connected to building service input 4.

Attention: in total you can always only connect 4 lifts to one telephone connection!

Input 5 to 8:

The inputs 5 - 8 of the building service signals are evaluated as messages (e.g. collective failure message) of one lift. The signal at building service input 8, for instance, is recognised as a message from lift 4.
The meaning of the messages is determined in the service centre.

Type of modem (Elsa32/Elsa-56, -56ki/Elsa-fun/GSM):

The setting of the modem type is important in order to initialise the modem in the correct way.

➔ *(0): modem type = Elsa TQV28.8 / Elsa TQV32.2*

➔ *(1): modem type = Elsa 56K / Elsa 56kI*

➔ *(2): modem type = Elsa-Fun (green housing)*

➔ *(3): GSM modem to mobile phone network*

Attention: The modem Internet II is not suitable for the connection to the Siemens GLT.

Routine call to service centre X days:

Routine call to the service centre.

➔ *(0): no routine call*

➔ *(1): after a time determined by the system number a daily routine call is made to the service centre*

➔ *(2): after a time determined by the system number a routine call is made to the service centre every second day*

If the routine call fails to arrive, the service centre will immediately inform a previously defined post.
Time (t) of the routine call: t = system number Modulo 1440.
Example: system number = 9002. t = 9002 / 1440 = (*1440) + rest.
The rest is 362 -> the call is made at 06:02 am.

Routine call at first to service centre X (1..4):

Determination to which service centre the routine call is first made.

The following 2 parameters are required for the lift attendant function:

Output Test emerg. call:

IO no. of the output which serves to test the connection of the emergency call button in the car to the controller. This function is part of the lift attendant function and works in the following way:

- During an established connection between the service centre and the controller, the command NT (= emergency call test) can be given in the service centre. The service centre terminates the connection and the controller will hang up, too.
- The controller activates the IO with the emergency call test function.
- As this IO is connected to the emergency call button connector on the push button board, this serves to simulate the pressing of the emergency call button.
- The controller recognises an emergency call and dials the number of the service centre.

The following parameter is queried since March 2011 under "000 - attendant control".

Mess. to serv. cent. in case of frequ. occur. steps > (.. %)

This function serves to cover an attendant function upon which an attendant must check periodically (weekly) whether the lift stops in flush positions.
Function:

Each landing has two counters. One serves to store how often this landing is approached, the second one sums up the number of registered steps (approx. > 15 mm) in this landing.

If the number of steps in one landing based on the number of travels to this landing exceeds the percentage value selected by means of the parameter "Message to service centre in case of frequently occurring steps > (...%)", a message is transmitted to the service centre.

After a successful transmission, all counters are set back to zero.

Output Emerg. call:

IO no. of the output serving to switch a relay which connects or disconnects an emergency call system connected to the same telephone line (e.g. Telegärtner or Amphitech).
After making an emergency call, the emergency call system is connected to the telephone line for 1 hour. During the remaining time LiSA is connected to the telephone line, provided that LiSA is switched on. A call to the lift has the effect that LiSA will answer it.

Optimal speech quality (0/1):

This parameter basically corresponds to the previously used parameter "busy signal recognition" and only refers to voice communication.

➔ *(0): the modem remains on line during an established connection, i.e. the car intercom and the modem are connected to the telephone network in parallel. The modem transmits DTMF tones about the status via the telephone line to the controller, e.g. ring tone or busy signal. By means of this signal the controller is able to recognise whether the emergency call was answered by the service centre.*

➔ *(1): the modem is disconnected from the line during an established voice communication, if possible. In the case of adverse voltage conditions on the line it is possible to achieve a better speech quality for the voice communication.*

☞ The restriction "if possible" takes account of the fact that house-internal branches, for instance, might behave in very different ways. It might then be necessary that the modem remains connected during the voice communication, too.

Rel. Modem reset:

Address for a relay which serves to switch off the modem voltage supply and thus effects a reset. Serves to re-establish a data link to the modem after a faulty connection.

Output emergency call active:

IO no. of the output which serves to indicate that an emergency call is currently being processed.
This is a requirement of EN81-28.

Output speech connection active:

IO no. of the output which serves to indicate that the car intercom is connected to the telephone line.
This is a requirement of EN81-28.