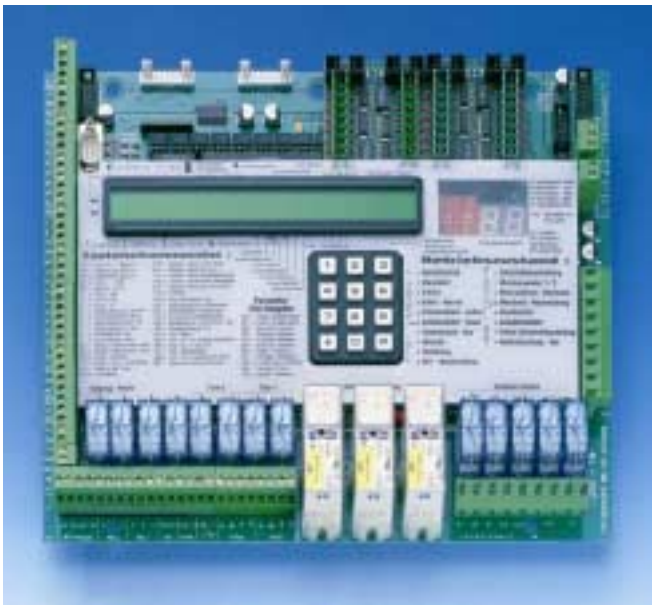
LiSA-Benutzerhandbuch

Aufbau und Funktion (Teil A)



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Contents

Aufbau und Funktion (Teil A)

1. Set-up of the LiSA-control

1.1. Configuration

The complete control consists of 3 electronic modules:

- LiSA10 – central electronic unit in the control cabinet
- IO16 – input/output-card, plugged on the central electronic unit
- APO8B – connector card in the car, either in the inspection control box or in the COP-box

Expansion cards for large-scale installations:

- APE – expansion card for APO8B
- IOW – expansion card for the central electronic unit
- Rep4 – expansion card for 4 free-programmable relais

1.2. Technical Data

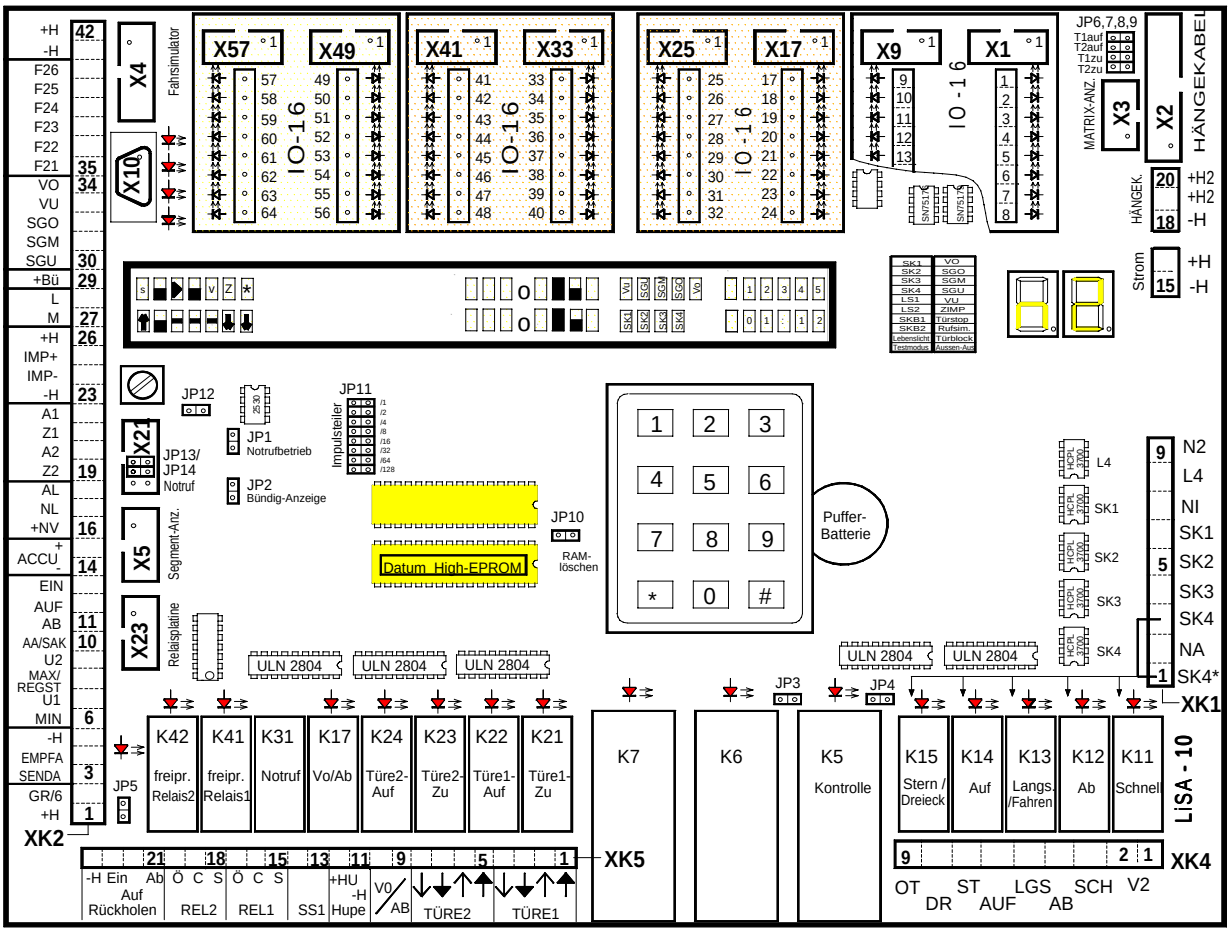
LiSA10:

- 32 bit micro-controller
- 512 kByte programme-memory (EPROM)
- 64 kByte RAM-memory
- 1 kByte parameter-memory (EEPROM)
- real-time clock
- 3 serial interfaces (group connection, PC and modem connection, connection to the car)
- keypad and display for parameter-processing, call-up of fault memory and travel statistics, input of the access code and of travel commands
- display of operational condition and of car position
- safety circuit
- evaluation of the PTC-thermistors
- functions of an emergency power unit
- pulse input for digital shaft information
- electronic monitoring feature (Watchdog)
- functions for emergency call system integrated
- LON-bus connection (in preparation)
- activating relay for the travel contactors, relays for 2 door operators, emergency call and 2 free programmable relays

1.3. Central electronic unit – (LiSA10)

On the LiSA10-module all control functions are available. Depending on the number of functions needed, up to max. 4 I/O-cards (IO16) are plugged onto the unit. Each I/O-card has got more than 16 I/O´s, i.e. 64 inputs/outputs can be performed on the central unit.

1.3.1. Plug-connections (flat cable plugs)



X1, X9, X17, X25, X33, X41, X49, X57: 10-pole flat cable plug connector on the I/O-cards. To any plug connector 8 I/O´s can be connected. The designations of the plug connectors depend on the position of the card slot. At slot 1 are I/O1 – I/O16, at slot 2 I/O17 – I/O32, at slot 3 I/O33 – I/O48 and at slot 4 I/O48 – I/O64.

X2: 26-pole travelling cable plug: plug connector for the internal part of the LiSA – travelling cable.

Pin assignment:
1: door-open limit switch-door1
2: door-closed-limit switch-door1
3: door-open –limit switch-door2
4: door-closed-limit switch-door2
5-10: data lines RS485
10: alarm key
12: emergency light
13: emergency power source
14: signal switch – centre
15: signal switch – bottom
16: signal switch – top
17: correction switch-top
18: correction switch –bottom
19: loudspeaker
20: microphone

21-26: free wires in the travelling cable

X3: 10-pole plug connector for the LiSA – matrix-display.
With an additional power source up to 16 matrix-displays (16 * 8 / 8 * 8) can be connected to this connector. Alternatively also the LiSA – hand terminal can be connected.

X4: 14-pole plug connector for the connection of the LiSA travel simulator.
The LiSA travel simulator enables in a simple and reasonable way a simulation of the shaft signals. The simulator will be made available upon request.

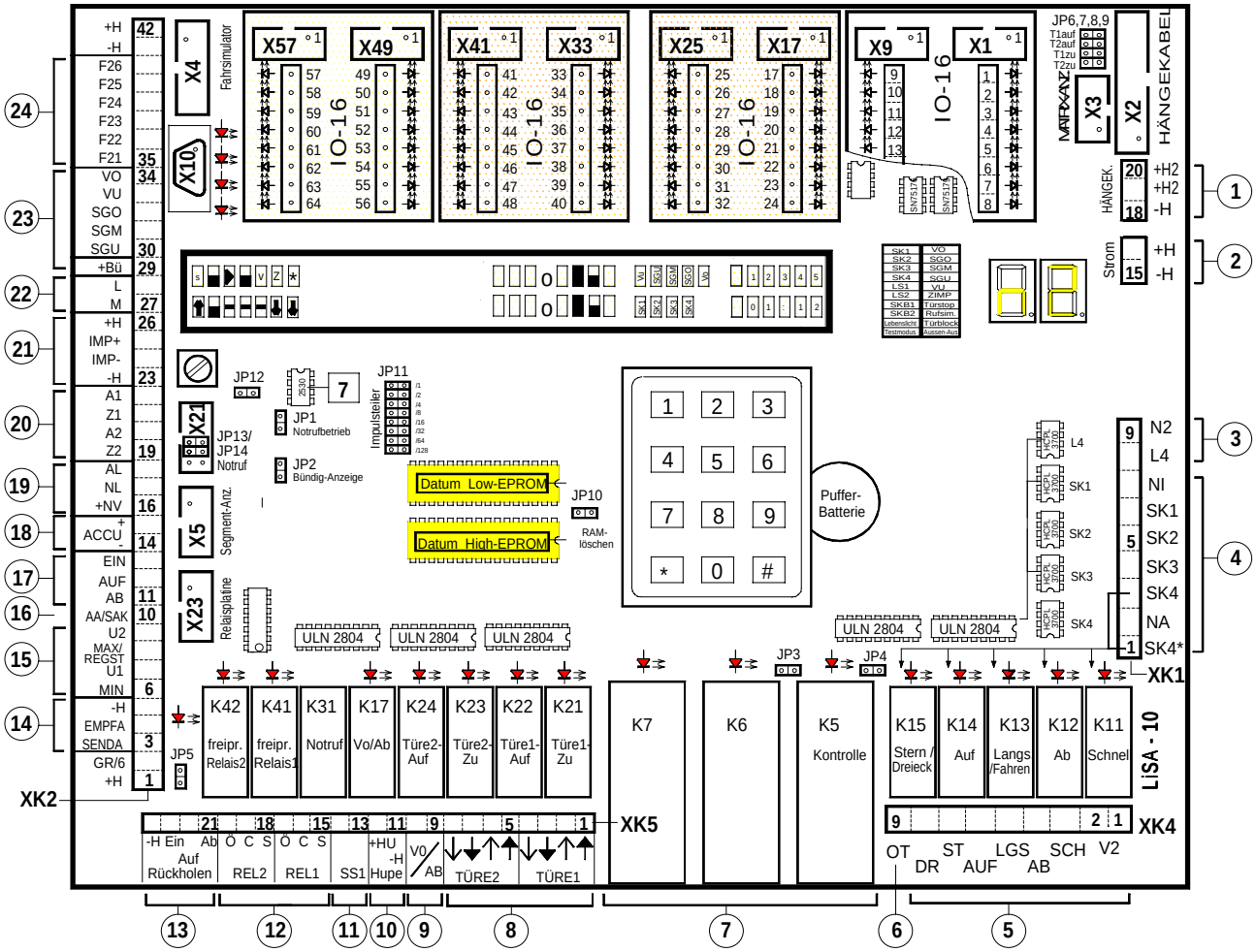
X5: 10-pole plug connector for the connection of the LiSA – segment indicator or of the expansion card IOW16

X10: 9-pole D-Sub-plug for the connection of a modem resp. of a PC.

X21: 10-pole plug connector for the connection of the LiSA-emergency call system

X23: 10-pole plug connector for the connection of the LiSA – relay card

1.3.2. Plug-connections (screw-type terminals)



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

XK4: **(5)** = connection for travelling signals:
V2 = tap for potentialfree signal (terminal 1 – 2) for the high speed
SCH = connection for high speed contactor
AB = connection for down contactor
LGS = connection for slow speed contactor resp. travelling contactor
AUF = connection for up contactor
ST = connection for star contactor
DR = connection for delta contactor
(6) OT = connection for door bypass

XK5: (8) = activation signals for the door operator
1 – 4: door 1 (relay K21)
5 – 8: door 2 (relay K22)

(9) = polential-free contact for the travel signal V0 (= levelling speed with closed-loop controlled lifts) or DOWN – signal in case of Hydro-Elevators (relay K17)

(10) + Hu = connection for alarm hooter, if installed in the shaft (basically in the inspection box)

(11) = potential-free contact for emergency call – forwarding (contact of relay K31)

(12) = connections for one change-over contact each of the free programmable relays R1 and R2 (K41 and
K42)

(13) = connection for recall operation

XK2: (14) = connection of data lines for group communication
SendA = output transmission
EmpfA = input reception
- H = reference potential

(15) = connections of motor protection
MIN = connection for minimum-pressure contact
U1 = connection for PTC-thermistor (excess temperature 1)
MAX/ REGST = connection for maximum pressure contact with hydro-elevators resp. for controller-fault with closed-loop controlled traction elevators
U2 = connection for PTC-thermistor (excess temperature 2)

(16) = connection for contact of external control – off, in case of installations acc. to TRA resp. connection for contactor-drop monitoring with EN81. Switching signal is –H.

(17) = connection for inspection mode.

➔ *If the connection card APO8 is available the inspection mode is connected in the car. Only if APO8 is not used or in case that installer`s travel is carried out with a separate hand terminal these connections will not be needed.*

(18) = connection of storage battery

(19) = connection of emergency call
AL = connection of emergency call button in the shaft
NL = connection of emergency light (only relevant if no APO8 is used)
+NV = connection of emergency light

(20) = door limit switch-signals (only relevant without APO8)
A1 = door-open limit switch door 1 (switching voltage = +H)
Z1 = door-closed limit switch door 1 (switching voltage = +H)
A2 = door-open limit switch door 2 (switching voltage = +H)
Z2 = door-closed limit switch door 2 (switching voltage = +H)

(21) = connection of pulse sequence for the digital shaft information
+H = supply voltage for pulse generator
IMP+ = positive pulse signal from pulse generator
IMP- = negative pulse signal from pulse generator
-H = supply voltage for pulse generator

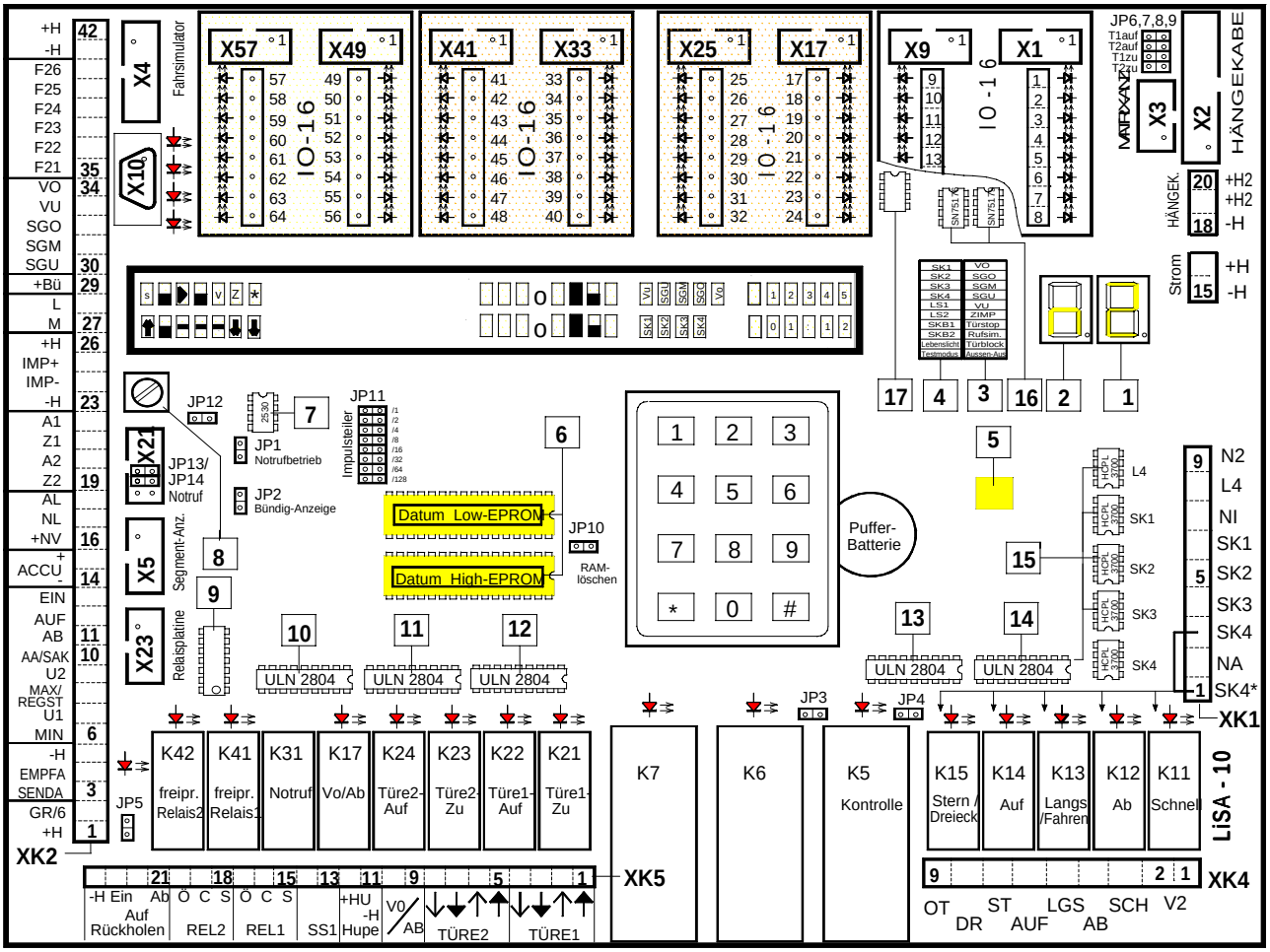
(22) = connection for wall mounted telephone (voice connection to the car)
L = loudspeaker connection
M = microphone connection

(23) = tapping of shaft signals
V0 = signal from prelimit switch – top
SGO = signal from signal switch – top
SGM = signal from signal switch – centre
SGU = signal from signal switch – bottom
VU = signal prelimit switch – bottom

(24) = F1 – F6 taps for free available cores of the travelling cable

➔ *Usage for emergency call system resp for special voice stations (screened wires), for pulse sequence from the LiSA-pulse generator etc.*

1.3.3. Coding jumpers and functional elements



Coding jumpers:

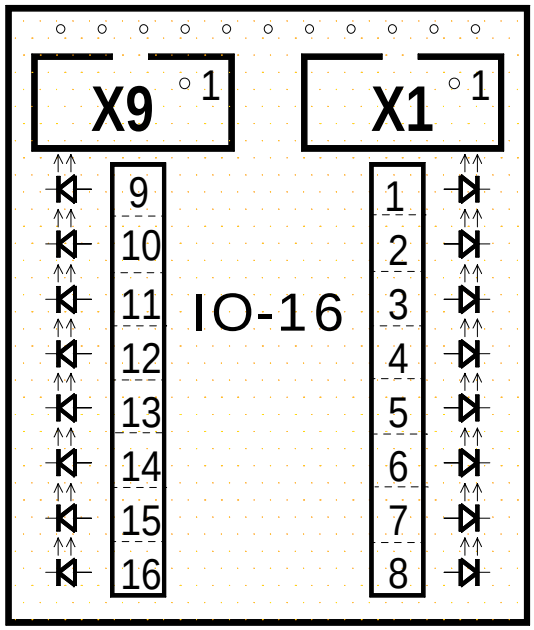
Jumper	Function	Plugged	Not plugged
JP1	if no voltage at XK1.15 / .16 V, Lisa10 is fed by storage battery	active (with LiSA as an emergency call system / emergency lowering in case of hydro-elevators)	inactive *)
JP2	levelled-indication	indicator = lamp	indicator = LED *)
JP3	quick-action forced outage	active	inactive *)
JP4	muting for safety relay	active *)	inactive
JP5	group operation	for duplex no group relay required	for groups always group relay required
JP6	door limit switch	door limit switch „door 1-open“ bridged	door limit switch on APO bridged or connected
JP7	door limit switch	door limit switch „door 1-closed“ bridged	
JP8	door limit switch	door limit switch „door 2-open“ bridged	
JP9	door limit switch	door limit switch „door 2 –closed 2 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 and M connection	LiSA not working as an emergency call system	plug X21 = connection for LiSA-emerg. call system

Functional elements:

[1] = indication of the car position. Positions > 9 and < 20 are indicated with an additional dot.
[2] = indication of the operational status
[3] = indication of signal switch, pulse from pulse generator, door stop, call simulation, door blocking and external control off
[4] = indication of safety circuit tapping, light barrier and closing force limiter for 2 doors, Lebenslicht and test mode
[5] = reset key
[6] = programme-Eproms (2 * 256 kByte)
[7] = opto-coupler for pulse from pulse generator
[8] = potentiometer for contrast-setting on LCD-display
[9] = group relay (Attention to mounting position: Dot to be below)
[10] = driver –IC ULN2804: activation of the free programmable relay
[11] = driver –IC ULN2804: switching of the emergency light
[12] = driver –IC ULN2804: activation of door relay and segment indicator
[13] = driver –IC ULN2804: activation of the emergency call relay on the LiSA-TAE-card and activation of the high speed relay
[14] = driver –IC ULN2804: activation of relays up, down, slow, delta, Vo/down
[15] = 1 opto-coupler for tapping of car light and 4 opto-couplers for tapping of safety circuits
[16] = driver-ICs for serial data transmission to the car and to the LiSA-matrix displays (lefthand IC: SN75176, righthand IC: SN75179)
[17] = parameter-EEprom (24C09 / 24C08)

1.4. I/O – card - (IO16)

16 inputs/outputs (I/Os) are arranged on the I/O-card IO16.
8 I/Os each can be connected via a 10-pole flat cable plug. Additionally, these are conducted (in parallel) to 8-pole plug-connectors. Thus, the I/Os can also be connected the conventional way by screw-type terminals.
The status is indicated by LEDs.
An illuminated LED shows that at the connection -H is applied or that the output-electronic has activated the output.
Each single output can be permanently loaded with 100 mA (with 12V switching voltage), if 8 I/Os of one set (IO1 – IO8 / IO9 – IO16) are activated at the same time. Individually, the I/Os can be charged with max. 500 mA.
Attention: short-term short circuits can be coped with. Permanent ones not.



1.5. Connection card – (APO8-B)

Connection card APO8-B is located either in the inspection control box or in the COP-box, and serves as a distributor and amplifier station for the electric system in the car.
In total, 16 I/Os (free programmable) are available, each one of them may be durably charged with 100 mA (with 12V switching voltage) if 8 I/Os of one set (IO65 – IO72/ IO73 – IO80) are activated at the same time. Individually, the I/Os can be charged with max. 500 mA.
Attention: short-time short circuits can be coped with. Permanent ones not.
8 additional inputs with fix assigned functions (light barrier, closing force limiter, inspection mode and emergency stop status) are included.
Via plug X4 the alarm button, the IO66 – IO72, the voice communication and the emergency light are connected.
Via plug X5, IO73 – IO80 can be reached .
All functions on these plugs are available also via plug-connectors XK11 resp. XK10.
IO65 is an exception. This I/O is available on XK11.1 only.

To plug X6 two different elements can be connected, depending on the extent of functions of the elevator.

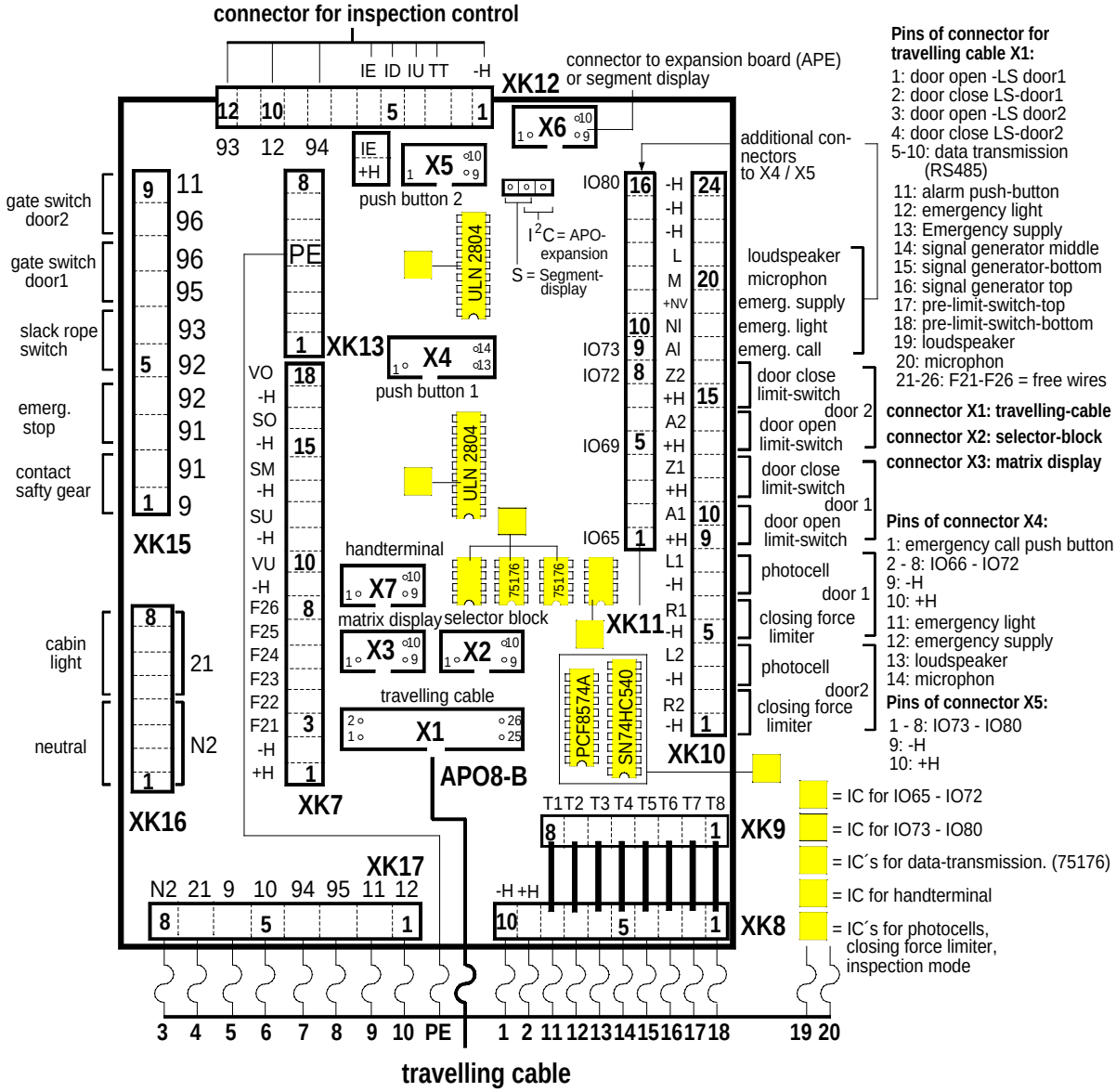
- the LiSA-segment indicator (needs IO78 – IO80), if IO78 to IO80 are not already occupied by other functions (buttons, key switches, indicators etc.), or
- the expansion card APE-16

Please take care to put the jumper into the correct place below X6!

Via plug X2 the signals of the shaft information module are connected. These too can be connected the conventional way to plug X7.

The following signals are directly connected through (no electronic elements connected in between) to travelling cable plug X1:

- shaft information signals Vo, Vu, So, Sm, Su,
- connections for the free cores of the travelling cable (F21 – F26)
- alarm button, emergency light, emergency power supply, loudspeaker and microphone, and
- door limit switches.



1.6. APO-expansion card – (APE)

The connection card APE is an expansion card for elevators which need more than 16 free programmable I/Os in the car. It is either located in the inspection control box or in the COP-box.

In total it offers 16 I/Os (free programmable), each of them can be permanently loaded with 100 mA (with 12V switching voltage), if 8 I/Os of one set (IO65 – IO72 / IO73 – IO80) are activated at the same time. Individually, the I/Os can be loaded with max. 500 mA.

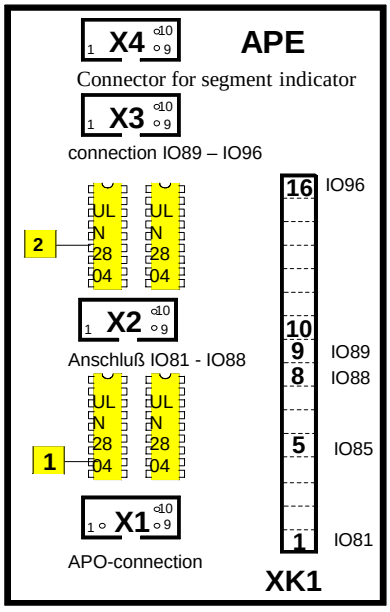
Attention: short-term short circuits can be coped with. Permanent ones not.

Connection is made at plug X1, which is connected via a 10-pole flat cable to plug X6 on the APO8-B.

Via plugs X2 and X3, 8 functions each are connected with the I/Os on the APE.

Similar to APO8, these connections too are connected with the plug-terminals of the terminal strip XK1, i.e. each I/O can be connected via a flat cable as well as conventionally via the terminals.

By plug-connector X4 a segment indicator can be connected which will engage IO94 – IO96.



1 = driver-IC for IO89 - IO96

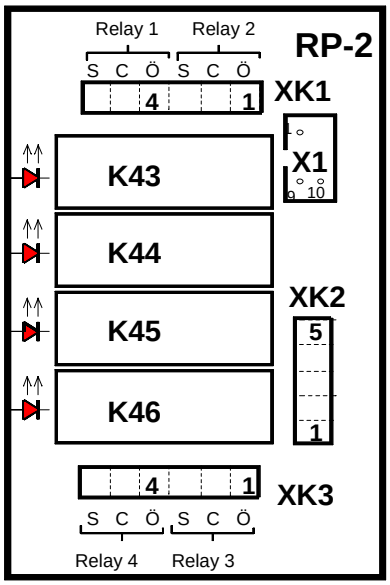
2 = driver-IC for IO81 - IO88

1.7. Relay-card - (RP-2)

In the LiSA - control 6 free programmable relays are available. Relay 1 and 2 (K41 - K42) are located on the LiSA10-card. Relay 3 - Relay 6 (K43 - K46) are on the expansion card RP-2. Connection is made at plug-connector X1 by means of a 10-pole flat cable that is connected to plug-connector X23 of the LiSA10-card.

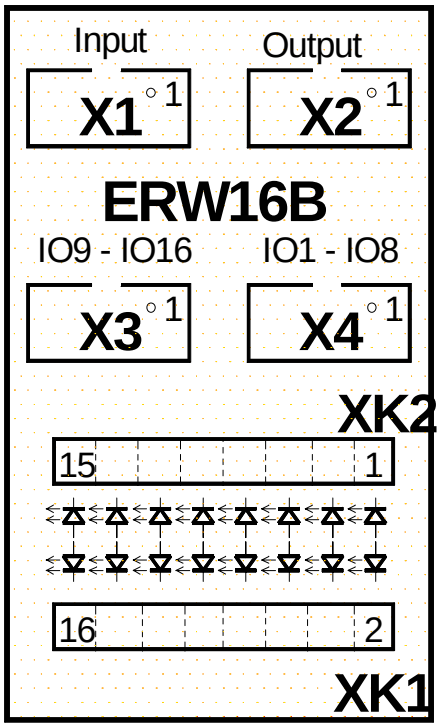
Via terminal strip XK2 the engagement of the relay can be made the conventional way. That way, Pin5 is the supply (+H) for the relay coils and the terminals 1-4 are the signal connections for the relays K43 – K46.

From each relay a change-over contact is brought out (C = common connection, S = make contact, Ö = break contact). Here, relay 1 corresponds to relay K43, relay 2 to relay K44, and so on.



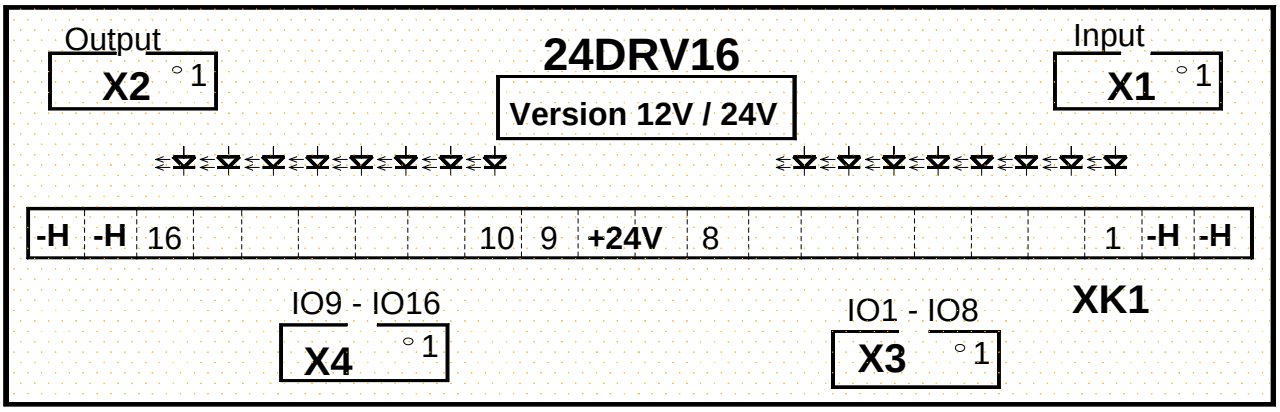
1.8. I/O-expansion card - (ERW16B)

In case of large-size elevator installations (e.g. 2-button-control for 30 landings) there are not enough free I/Os available for the output of ongoing travel indicating arrows, arrival gongs, linear position output (per each landing one output) or the I/O-status of the car-I/Os on the central electronic unit (LiSA10).
With ERW16B serial output of the functions mentioned above is possible.



Via plug-connector X1 the ERW16 is connected to X5 (= segment indicator connection) or to X57 (= lefth. plug on the 4th I/O-card) of the LiSA-central electronic unit. Here, the assignments of plug connector X1 are analog to those of the connector for the segment indicator (Pin 10 and Pin 9 +H, Pin 8 and Pin 7 –H).
The analogous parameterizing is made through the parameters
"1st output ongoing travel / 1st output arrival gong / 1st output position read-out / 1st output car signals. | to control centre
The outputs I/O1-I/O16 can be connected via flat cable and screw-type terminal as well. At plug-connectors X3 and X4, Pin 10 is fed with +H and Pin 9 with –H.
An illuminated LED shows that -H is found at the output, i.e. it is active.
Each single output can be permanently loaded with 100 mA (with 12V switching voltage), if 8 I/Os of one set (IO1 – IO8 / IO9 – IO16) are activated at the same time. Individually, the I/Os can be charged with max. 500 mA.
Attention: Thus, with connection via X57 (Pin 10 = +H and Pin 9 = -H) the cores 7-10 must be cut and cores 9 and 10 fed-in accordingly.
If more than 16 additional outputs are required another ERW16B (cascade) can be connected via X2.
The connections of XK1 are connected in parallel to the Pins of X4. Same applies to XK2 and X3.

1.9. Expansion card and level converter - (24DRV16)



Regarding the scope of functions (output of ongoing travel indication, arrival gong, etc.) and connection to LiSA10 applies the same to card 24DRV16 as mentioned before for card ERW16B,

except:

- all outputs can be loaded simultaneously with 1A.
- in active status the output signal is positive (= level converter)
- the voltage to be switched is fed in to the two terminals (designated as +24V).

There are 2 versions available (see version sticker 12V / 24V):

1. Version sticker 24V: switching voltage is +24V (supply voltage at terminals +24V = 24V)
2. Version sticker 12V: switching voltage is +H V (supply voltage at terminals +24V = +H)

1.10. LiSA - indicators

On development of the LiSA-control we have turned special attention to the design of flexible and pleasing devices for the indication of car position and travelling direction.

	LiSA segment indicator (9-segments)	LiSA matrix -display	Free programmable segment indicators (9-segments)	Free programmable matrix -display
Assignment of image to be displayed	by parameter (parameter set 007*) and code table	by parameter (parameter set 007*) and code table	PC-programme and memorizing in the indicator-EEPROM	PC- programme and memorizing in the indicator -EEPROM
Connection	10-pole flat cable	10-pole flat cable	14-pole flat cable or screw-type terminal	14-pole flat cable or screw-type terminal
Activation	LiSA-bus (serial)	LiSA-bus (I2C)	Gray, binary, linear, pulse	Gray, binary, linear, pulse and LiSA-bus (I2C)
Indication of ongoing travel direction	yes	yes	yes (input activation for flashing)	yes (input activation for flashing)
Special texts	no	X and A-B	no	4 horizontally moving special texts and additionally per each floor one moving text
Indicator elements 15 mm	1-digit, 2- digits, 1- digit with arrow, 2- digits with arrow	no	no	15*7 dots
Indicator elements 30 mm	nein	8*8 dots / 16*8 dots	no	16*8 dots
Indicator elements 35 mm	1- digit, 2- digits, 1- digit with arrow, 2- digits with arrow	no	2- digits with arrow	no
Indicator elements 40 mm	no	8*8 dots / 16*8 dots	no	16*8 dots
Indicator elements 50 mm	2- digits with arrow (foil display and multi-segment indic.)	no	no	no
Indicator elements 60 mm	no	8*8 dots / 16*8 dots	no	16*8 dots
Indicator elements 65 mm	no	no	no	LCD graphic-display 192*192 dots
Indicator elements 125 mm	1- digit, 2- digits, 1- digit with arrow, 2- digits with arrow	no	no	no

Remarks on the table above:
The assignment of the display images to the individual landings is made in case of "sheer " LiSA-indicators (= indicators that can be activated only via LiSA-bus), different from that of the so-called free programmable types.
LiSA-indicators:
Assignment of display image and selection of the mode of activation is made by parameters (landing codes), i.e. without hardware-based coding.
Free programmable LiSA-indicators:

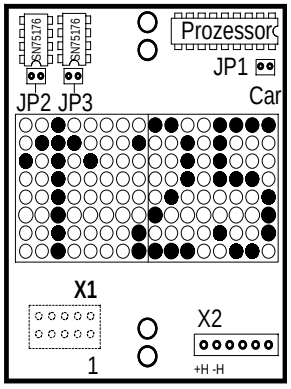
The display images are generated by a PC-programme and than burnt-in in an EE-Prom which finally is plugged to the indicator. With matrix displays also special moving texts with horizontal movement can be generated.

1.10.1. Matrix - display

LiSA-display:

- This display can be activated only via LiSA-bus (I2C). It is available as a 8*8-matrix and as a 16 * 8-matrix, 30, 40 and 60 mm high.
- Connection by 10-pole flat cable.
  Indicator elements at the landings are plugged to the LiSA10-card. If there are more than 7 displays laying on one cable, an additional feed-in is required (2 * 1mm²).
- The display in the car is connected to the APO8-card through a separate plug-connector.
- The display-images are stored in the memory of the LiSA10-card and therefore are transmitted to the display.
- It is possible to use different types of displays in the car and in the landings, e.g. 16*8 in car and 8*8 in landings.
- In standstill, the indication of ongoing travel direction can be shown by a flashing arrow.
- The 16*8-matrix shows simultaneously the image of the landing and the directional arrow. With 8*8-matrix the indication is alternating (can be parameterized)
- The image of the display can scroll vertically (can be parameterized)

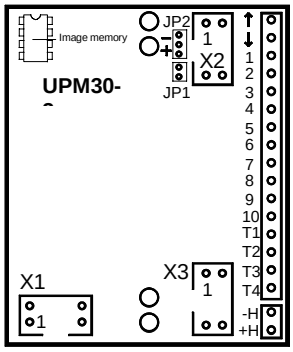
JP1 = plugged if display is



Front view (on matrix-element)

Free programmable LiSA-display (suitable also for controls of other origin):

- This display can be activated via LiSA-Bus (I2C) and also the conventional way via screw-type terminals or flat cable. It is available only as a 16 * 8-matrix of size 30, 40 und 60 mm.
- If the display is used in combination with LiSA-controls, regarding activation and functions applies the same as said above about the LiSA-displays.
- Additionally, with both modes of activation 4 types of horizontal moving texts can be displayed (e.g. overloaded – please leave the elevator, evacuation travel, firemen operation,etc.).
  The desired text is called in either via the LiSA-bus or at the terminals T1 – T4.
- In each landing the indication of a horizontal moving text is possible. It is displayed alternating with the landing image.



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

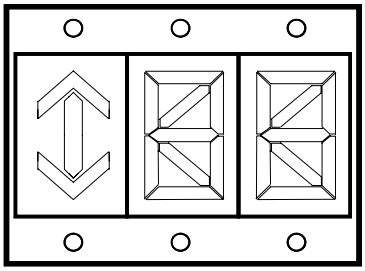
X3 = 1– 4: signals for landing images
5 – 8: signals for Soner-texts
9: -H 10: +H

1.10.2. Segment - indicator

Among the segment indicators there are also (1) devices (LiSA-indicators) that can be activated only via the LiSA-bus (serial) and (2) the free programmable type that is suitable for controls of other origin also.

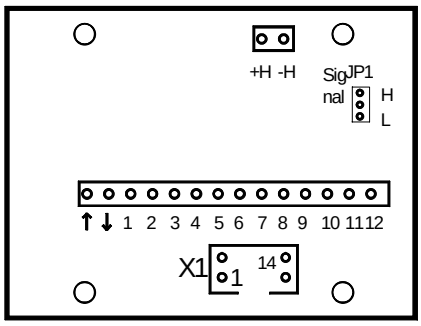
LiSA segment - indicator:

Here applies the same that has been said in connection with LiSA matrix-displays.



Free programmable segment-indicator:

As usual with all free programmable indicators, the programming of the image memory is performed by writing into an EEPROM. This is made by means of a programming device which is connected to the serial port (Com1, Com2) of the PC. The images and the definition of the code for the activation of the indicator also is made by means of 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

1.10.3. LCD – graphic display

Presentation:

The display (192 * 192 dots) with an active backlighted area of 65 * 65 mm is programmable by a PC-programm.

The upper 1/3 of the display area is basically reserved for landing texts and special indications (fire emergency, firemen mode, overload, ...).

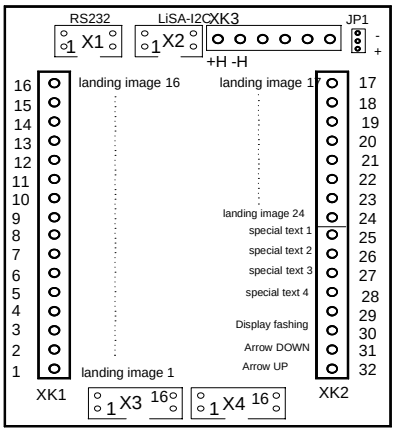
The lower part of the display area (2/3) is intended for travel direction and landing indication.

4 special texts are possible.

Frontansicht

Activation:

- conventional way by means of screw-type terminals (XK1 / XK2) resp. flat cable (X3 / X4) with linear code or
- via LiSA-bus (I2C) at 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 (+ / -)

2. LiSA Bus System

This bus system is our own design and indeed innovative. It was our aim to get a feedback from you on our pin-wall, possibly reading like this: “Great, did not know up to now, that this is possible!”
The complete system comprises two different electronic components, only:

- LiSA10-7 with plugged driver module (LBM-02) and
- LiSA-Bus Module (LBM-08)

All functions that are not laid on the LiSA10-7 (overtemperature, governor malfunction, etc.) are executed via LBM-08.
The LBM-08 can be installed either in the control cabinet, in the elevator well or in the cabin. It is connected to the control unit by the 3-pole LiSA-bus. This bus consists of two lines for the power supply to the modules and one line for signals.
Physically in the elevator well, it consists of the special 3-pole LiSA-bus-cable (3 * 1,5 mm²) LBC-03. 3 lines of the travelling cable are required for connection to the cabin.

No special travelling cable is required anymore.

As also in future we will favour solutions with „one travelling cable“, we recommend to use a flat cable resp. a multiple-chambered cable (minimum 2), leading low voltage signals separately from 230V signals. Of course, it will also be possible to take 2 cables.

A novelty in the elevator industry is the special connection technique, connecting the bus modules via LBC-03 to the control unit.
The LBC-03 follows the conception of ASI-bus cables (used in industrial applications), i.e. connection is done by penetration.

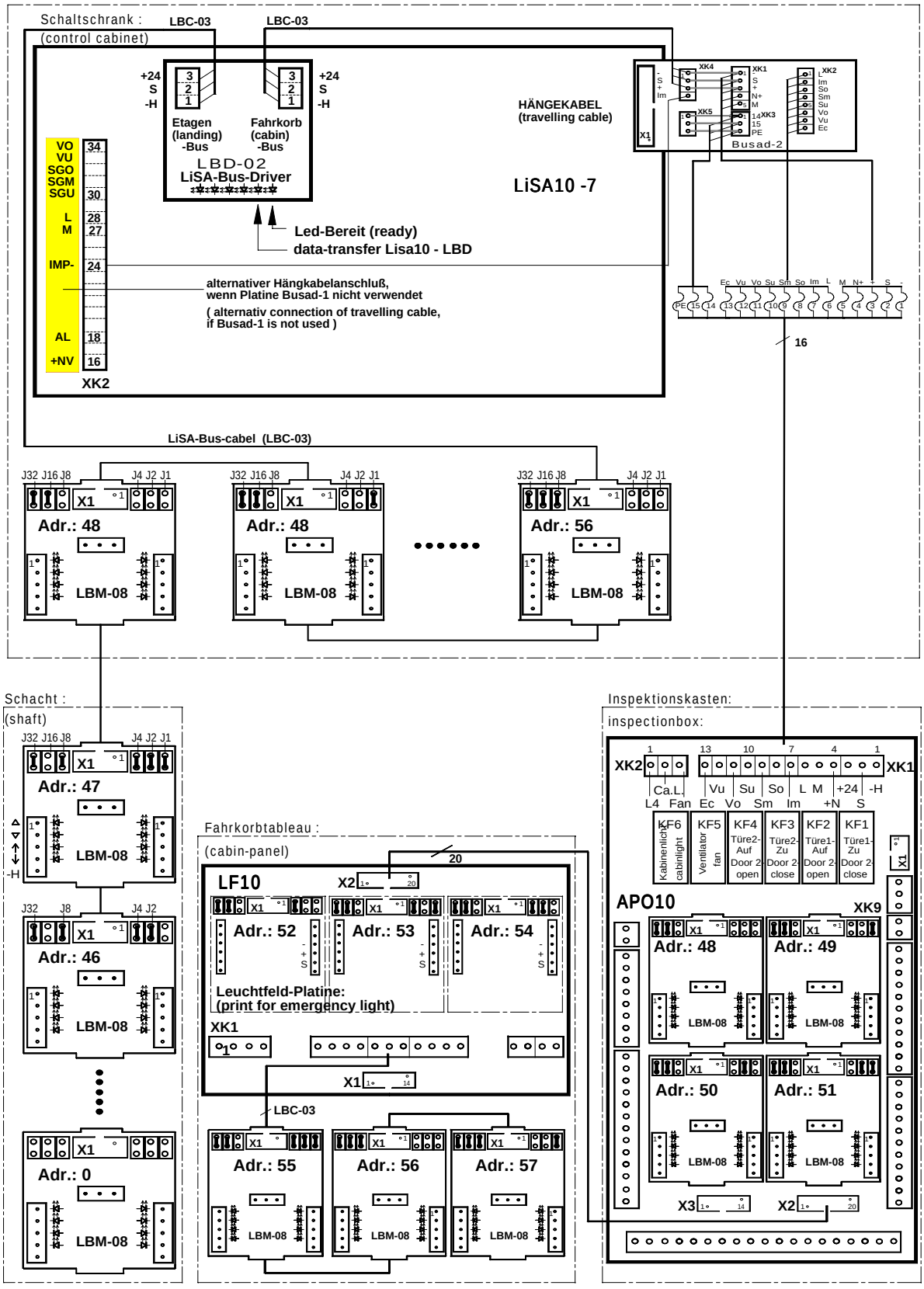
No unsafe plug connectors, no pre-labelled cables anymore.

The modules are simply clipped to the places, where they are needed.
I am sure you also feel uncomfortable thinking of traditional bus systems (LON, CAN, ..), which require your bus modules of 30 elevator landings to be connected to each other by 60 plug connectors. And this all the more as, if one bus-module were defective, it could paralyse your complete bus system und would furthermore be only hardly locatable.
The LiSA bus avoids these disadvantages:

- Defective modules can easily be localized, as they are promptly signalized in the control unit.
- The defective module is disconnected from the bus by a mini-relay.

Remark: It will also in future be possible to apply the IO16-pcboard in the control cabinet, either instead of LBM-08 or even simultaneously with LBM-08.

A positive secondary effect::
As the relatively expensive LiSA-travelling cable is not required anymore, the price per landing raises by 12,00 € only.
Problems with the supply of sufficient lengths of the electronic flat cable and number of plugs will be past matters. Installation time will be reduced. Regarding the field personnel, however, we would nevertheless be pleased, if the installation manager does not by return reduce the planned installation times.



Block diagram LiSA-Bus-System :

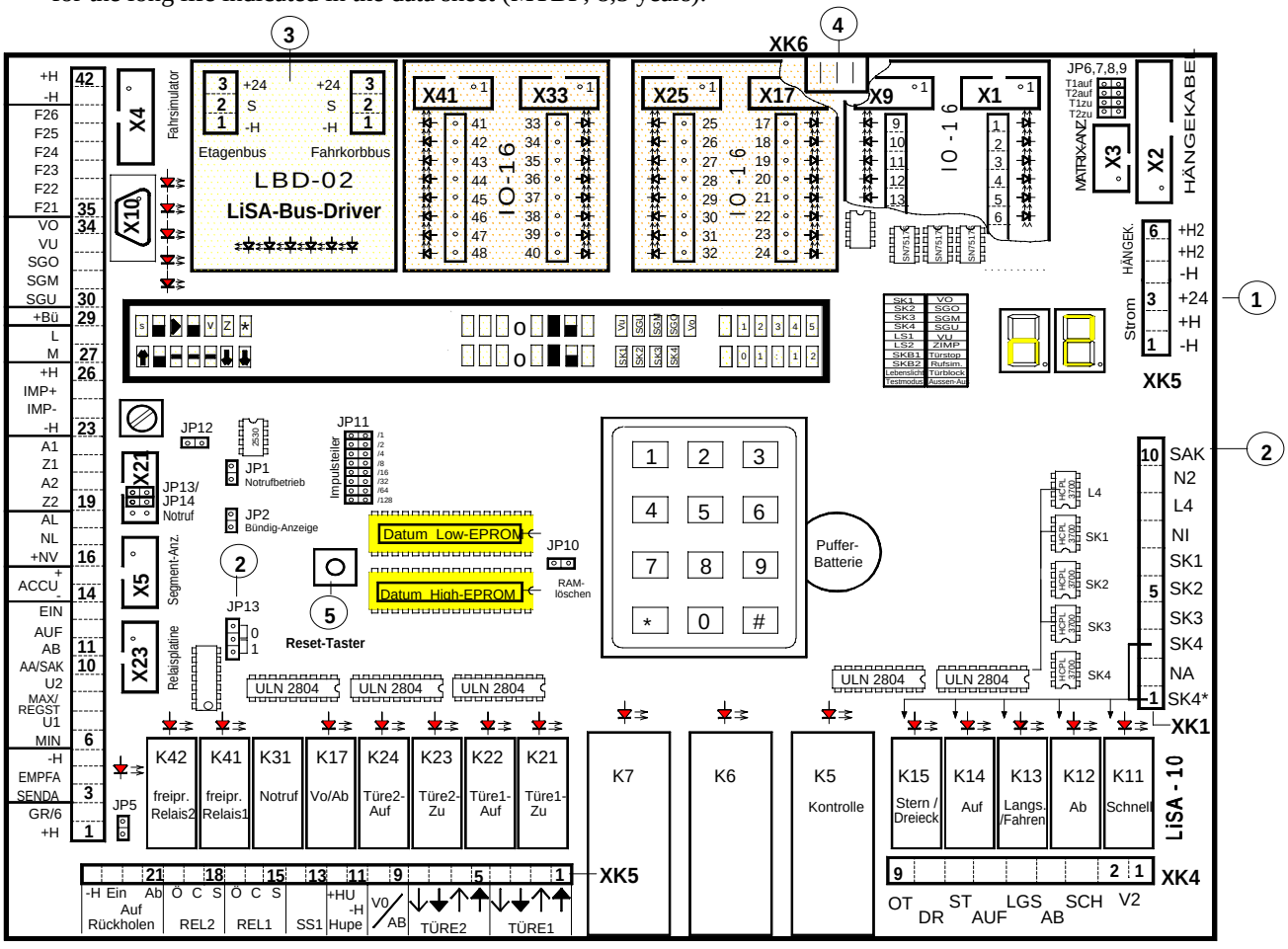
By introduction of the LiSA Bus in the beginning of 2003, the LiSA 10 pcboard version 5 (LiSA10-5) is superseded by the pcboard LiSA10-7.
The LiSA10-7 can easily be recognized by the first glance: the reset button is situated leflthand to the EPROMs.
Note: The new pcboard is fully compatible with the elder version, i.e. you can at any time replace a LiSA10-5 by a LiSA10-7. This is, however, not possible vice versa.
In addition some important modifications resp. improvements have been integrated.
Below you will read more details about these modifications and the LiSA bus system.

2.1. LiSA10-7

Modifications of the LiSA10-pcboard (see the following picture):

- As an alternative to the 15V supply, now 24V can be supplied (plug XK5, pin3), i.e.control voltage of the entire elevator plant can now be executed in 24V (this is forcing, if the bus functions are used).
- Instead of the fourth IO-board (IO49 – IO64) now a bus connector board (= LiSA bus driver LBD-02) can be plugged. Principally, IO-boards need not be used anymore.
- Plug XK1 has been extended by a 220V-connection for the contactor-opening monitor (pin10 – SAK). Evaluation of this function is thus significantly safer than the 24V contactor monitoring used up to now.
- For DCP-connection (= serial selection of inverters), an additional RS485-interface will be made available at plug XK6. This interface is being prepared at present.

Remark:
Consequently to the future control voltage of 24V, a new power unit will have to be applied. It is a unit to be installed on a top hat rail (good aeration).For normal cases, it can always be regarded at as overdimensioned (24V, 5A) and will therefore, in comparison with the presently used unit, have a great chance for the long life indicated in the data sheet (MTBF; 8,5 years).



(2) = Connection 230 V for contactor-opening monitor (SAK)
Conditions:
- Jumper JP13 in position 1 and –H connected with PE.
- New parameter (in parameter block 000*)
„LiSA-Typ (LiSA10-5 / LiSA10-7ohne220VSAK/ LiSA10-7mit220VSAK)“ is parameterized with 2. (ohne = without; mit = with)

Remark:

JP13 in position 0: Signal at pin 10 of XK2 (AA/SAK) is being evaluated with different meanings, depending of whether the elevator plant has been executed according to German elevator standard TRA or European elevator standard EN81.

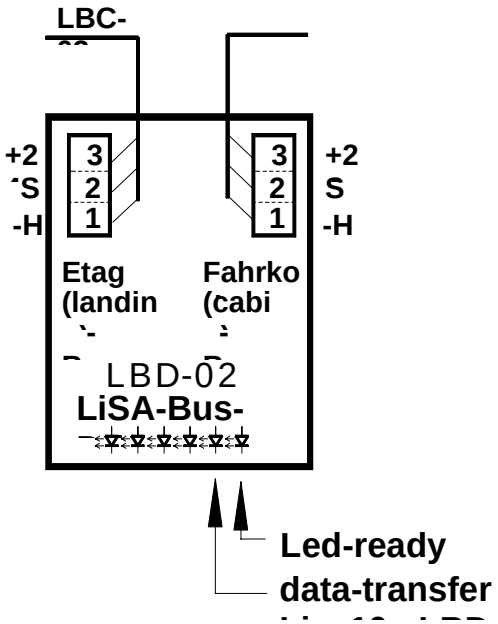
TRA: landing controls off
EN81: contactor-opening monitor (parameter LiSA-type with 1 programme.)

(3) = Connector for LiSA-Bus-Driver (LBD-02)
(4) = Serial interface XK6 (RS485) for DCP (software still being prepared)
(5) = Reset-button (distinction mark on the surface of LiSA10-7)

The jumpers JP3 (rapid forced cutout) and JP4 (muting of safety relay) have been removed.
For compatibility reasons with LiSA10-5, there are still connectors available for:
- IO16-boards
- 15V feed
- connection of matrix- und segment indicators as well as
- regular travelling cable.

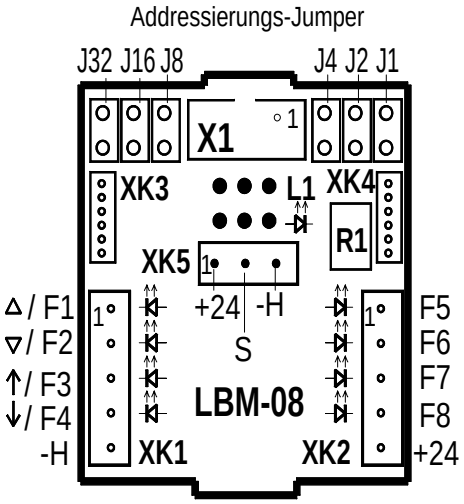
LiSA-Bus-Driver (LBD-02):

The LiSA-Bus-Driver is the interface between LiSA10-7 and LiSA-Bus
- Reading out data from the LiSA-bus-modules of landings and cabin and transfering them to Lisa10-7 as well as vice versa:
- Reading out data from LiSA10-7 and transfering them to the LiSA bus modules.



2.2. LiSA-Bus-Modul (LBM-08)

Layout and functions:



- 8 short-circuit proof (except continued short circuit) in-/outputs (IO´s) at XK1 and XK2 resp. X1. If LBM-08 is used as a landing bus module, the first 4 IO´s (XK1) have got defined functions. Otherwise, the IOs are freely programmable.
  Landing Module: Pin1: up-button,
  Pin2: down-button,
  Pin3: direction up,
  Pin4: direction down
- 8 IO-Status-LEDs
- 1 LED (L1) for operation mode indicator
  LED is shining: LBM-08 is OK
  LED is flashing: LBM-08 is defective and cut from the bus by R1
- X1: connector for LiSA-components.
- XK3 and XK4: connectors for LBM-08 to the mother boards APO10 resp. LF10 in the cabin.
- XK5: connector for LiSA-Bus-Displays
- R1: mini-relay cutting a defective bus module from the bus.
- By the jumpers JP1 – JP32 the addresses are to be set (0 – max. 63)
  Addresses on the landing bus:
  0 – 47: address range for landing modules.
  48-56: address range for modules in the control cabinet.
  Addresses on the cabin bus:
  0 – 47: address range for landing modules, door side 2 (selective door control as from the landing)
  48-60: address range for modules in the cabin.

For easy configuration of the controls, furthermore the following boards are used.

They are adapter-boards resp. mother-boards without electronic components:

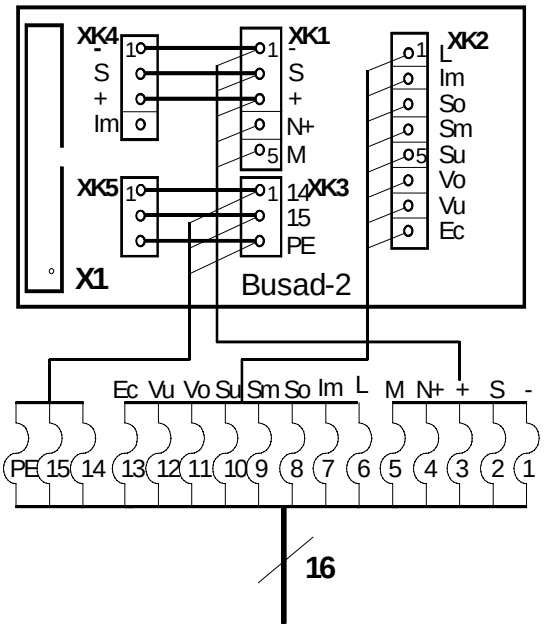
2.3.1. LiSA-Travelling Cable Adapter (Busad-2):

13 lines of one of the the travelling cables are reserved for low voltages(<= 24 V). 3 free lines can be used just as one likes. To facilitate connection of the travelling cable, these lines are connected to Busad-2 connectors XK1 and XK2. The signals are laid to by connectors X1 and XK4.
X1 is plugged directly to the 26-pol. travelling cable connector of the LiSA10 board. But only pin 11 – pin20 is used.
To XK4 the cabin bus laid and if nessesary signal (Im) of pulse generator is connected.

XK1: Pin 1 - 3: Cabin-Bus (-, S, +)
Pin 4 – 5: Intercom (+N, L)

XK2: Pin 6: Intercom (M)
Pin 7: Pulsgenerator (Im)
Pin 7 – 12: Signalgenerators (So, Sm, Su, Vo, Vu)
Pin 13: signal of emergency alarm button (Ec)

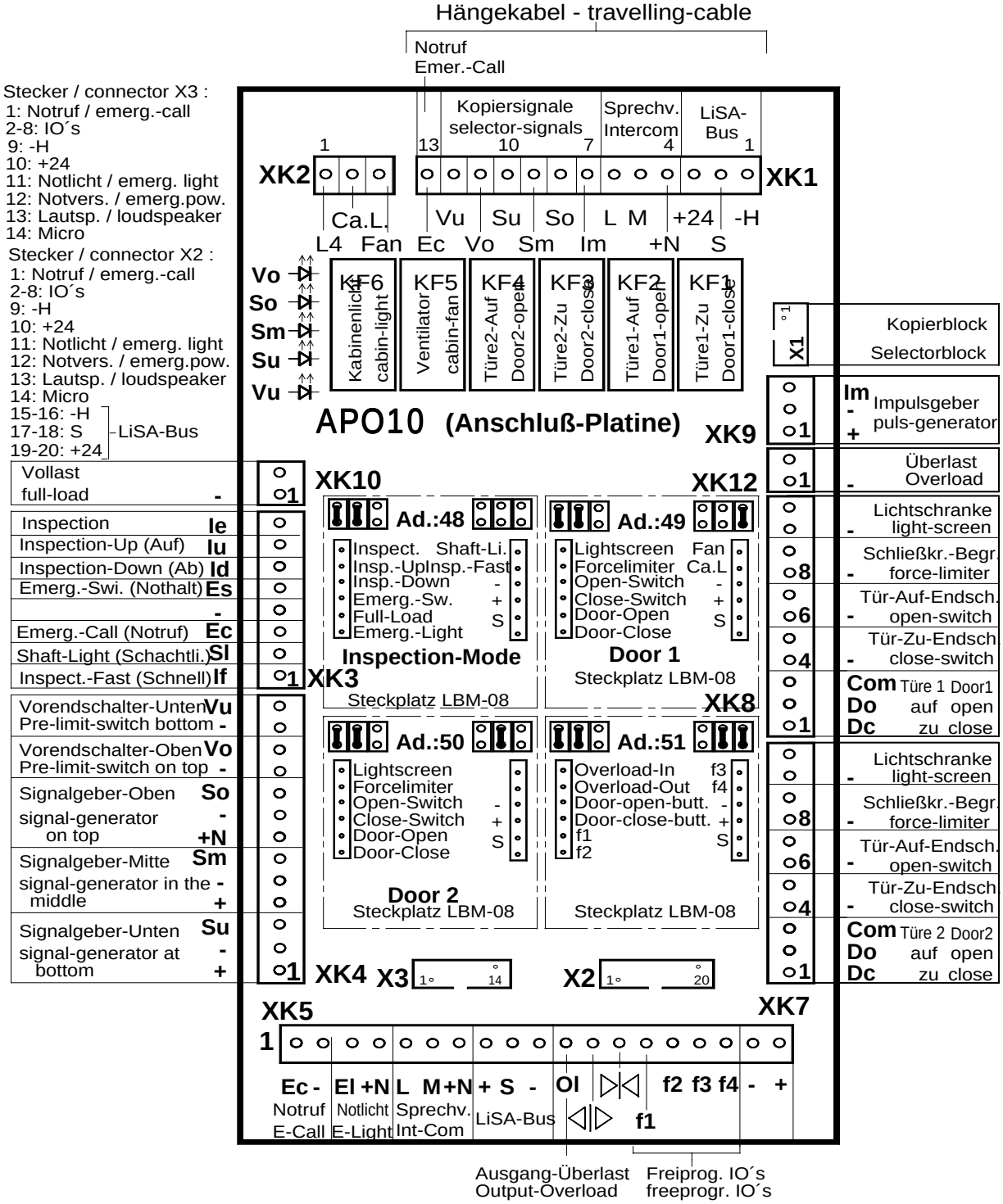
XK4: Pin 1 - 2: free lines (14, 15)
Pin 3: free line (PE)



2.3.2. Connection Board in the Cabin (APO10):

APO10 is the central board for all connections in the cabin, as well as the mother board for four LBM-08, 6 relays and 5 LEDs.

Relay KF1: Door-close signal for door 1 – Connects signal Com (XK8.3) of an electronic door operator with Dc (XK8.1)
Relay KF2: Door-open signal for door 1 – Connects signal Com (XK8.3) of an electronic door operator with Do (XK8.2)
Relay KF3: Door-close signal for door 2 – Connects signal Com (XK7.3) of an electronic door operator with Dc (XK7.1)
Relay KF4: Door-open signal for door 2 – Connects signal Com (XK7.3) of an electronic door operator with Do (XK7.2)
Relay KF5: cabin fan – switches lighting voltage L4 (XK2.1) to the fan-output (XK2.3)
Relay KF6: cabin light – switches lighting voltage L4 (XK2.1) to the cabin light-output (XK2.2)



2.3.3 Connection Board in the Cabin Operation Panel (LF10):

F10 is the connection board for emergency light in the cabin operation panel.

With respect to the LiSA-bus-system, three additional slots have been foreseen for LiSA bus modules (LBM-08).

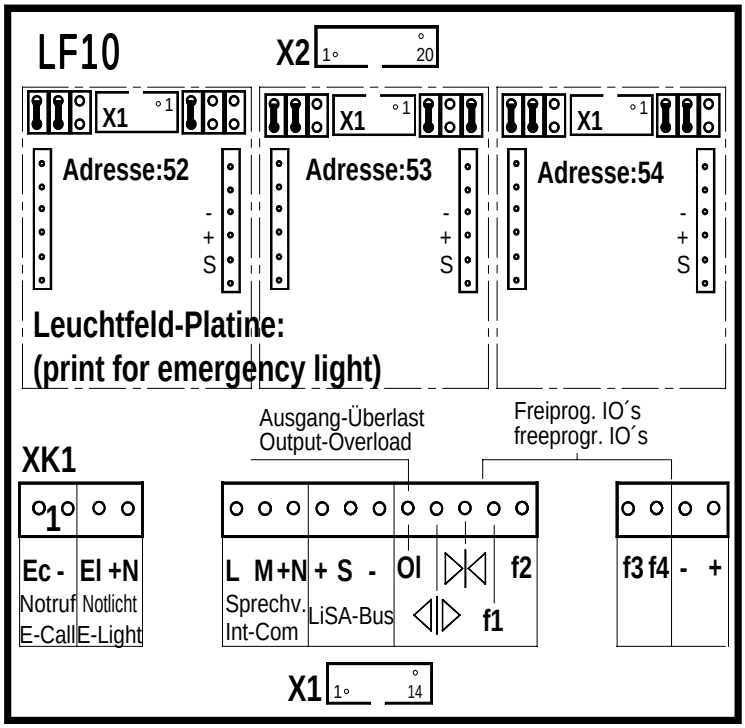
If the LiSA pushbutton system is applied, to connector X1 normally the following pushbuttons are connected: emergency alarm button, door open and door close buttons, fan button, door-stop button, key-operated functions and eventually the first cabin operation buttons.

All other buttons can be plugged directly to the LBM-08 via flat cables.

X2 is the connector to APO10. In addition to the functions on connector X1, it has been extended by the LiSA-bus, i.e, APO10 in the inspection control box and LF10 in the cabin operation panel are always connected to each other by a 20-pole cable only.

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
LiSA-Bus



If other pushbuttons than make Schneider are used,

- emergency call
- emergency light
- intercom
- door open and door close buttons
- overload indicator and eventually
- key-operated functions at f1 – f4

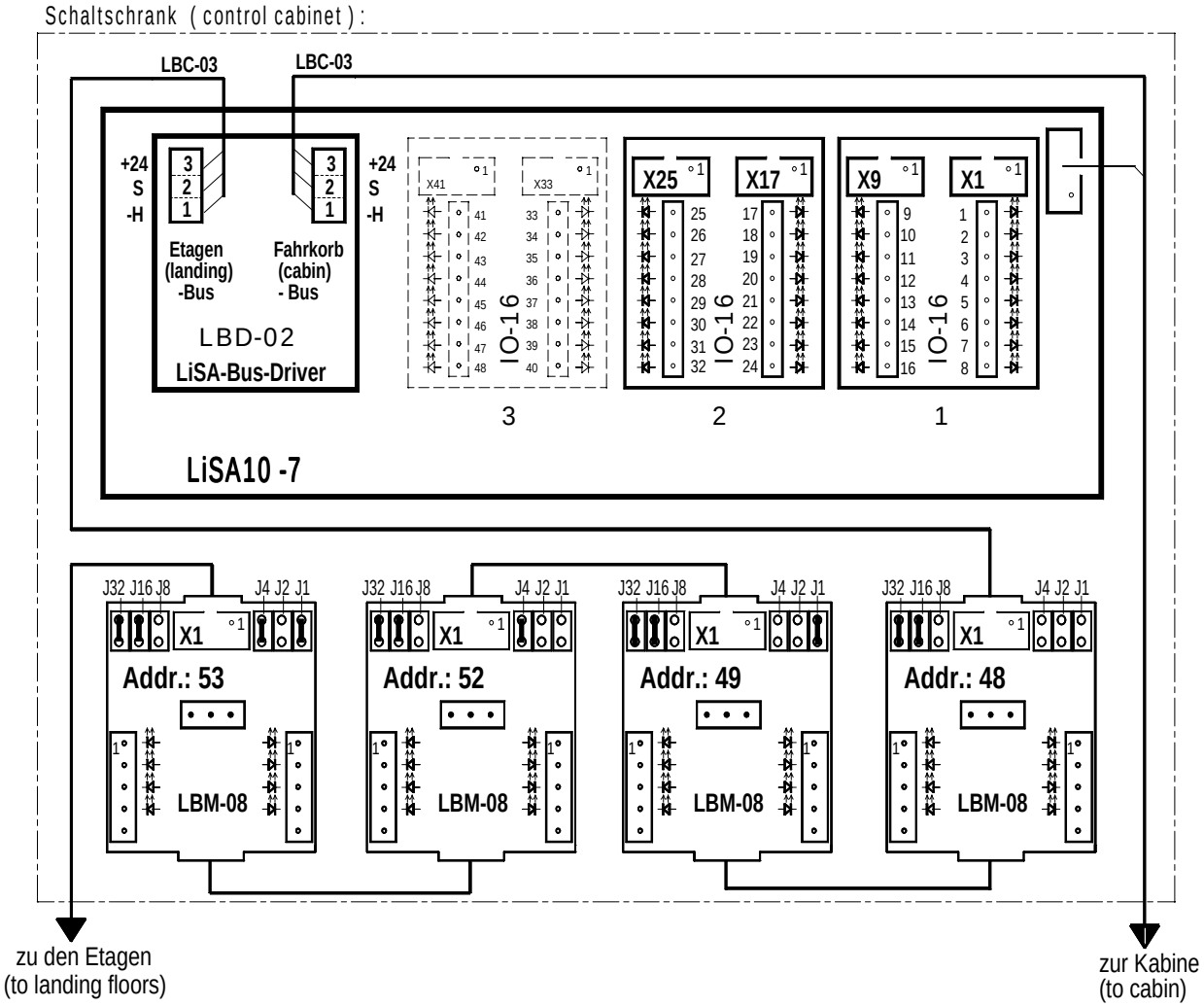
have to be conventionally connected to XK1.

Landing call buttons can directly be connected to the screw terminals of the bus modules.

2.4. Different Bus-Executions:

Regardless of the bus-execution choosen, IO16-boards can still be used.
If LBM-08 and IO16 are superimposed with respect to the address, the IOs are operated in parallel.

Example of connections in the control cabinet (see following picture):
IO-assessment:
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)



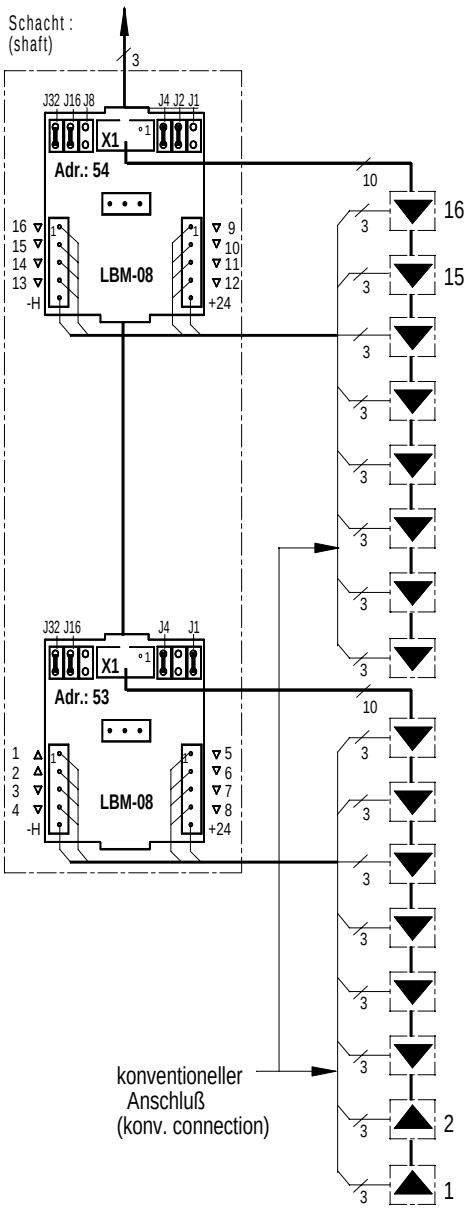
By a new parameter in the parameter
-set „Allgemeine Anlagenparameter (000*)" (general parameters of the elevator plant), configuration of the LiSA-bus can be defined.

LiSA-Bus (No/sLbus/Lbus/cbus/sLbus+cbus/Lbus+cbus (0..5):

- ➔ *(0): without LiSA-Bus*
- ➔ *(1): sLbus: small LiSA-landing-bus – max 64 IO´s ganged as on IO-boards, i.e. max 8 LiSA-bus-modules (LBM-08) connected.*
- ➔ *(2): Lbus: LiSA-landing-bus – like sLBus, however, one additional LiSA-bus-module on each landing*
- ➔ *(3): cBus: LiSA-bus on cabin – in the inspection control box resp. cabin operation panel there are LiSA-bus-modules (use of APO10)*
- ➔ *(4): sLBus+cBus: like sLBus, however, in addition a LiSA-bus on the cabin*
- ➔ *(5): Lbus+cBus: like Lbus and cBus together.*

2.4.1. Small LiSA-Landing Bus:

- ➔ *(1): sLbus: small LiSA-landing bus – max 64 IO´s ganged as on IO-boards, i.e. max 8 LiSA-bus-modules (LBM-08) connected.*



On the small LiSA landing bus, the functions are assessed to the IO-addresses in the same way as those on the IO-boards (IO-16).

- there are 64 IOs available in total, i.e., 8 LBC-08 can be connected to the landing bus only.
- The range of IO-adresses is 1 – 64.
- Module addresses for the LBC-08 are in between 48 and 55.

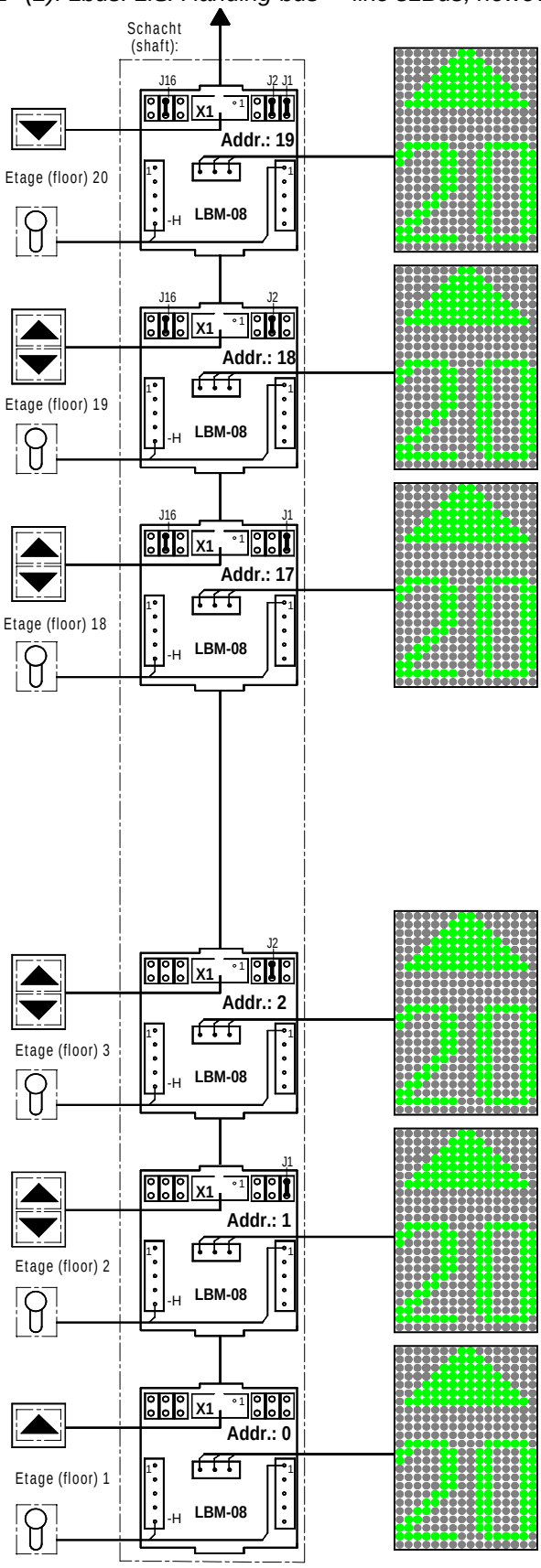
Address assessment:
module 48: IO1 – IO8 module 49: IO9 – IO16
module 50: IO17 – IO24 module 51: IO25 – IO32
module 52: IO33 – IO40 module 53: IO41 – IO48
module 54: IO49 – IO56 module 55: IO57 – IO64

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

Remark: as already mentioned, all IOs in the control cabinet can also be laid to IO-16 boards.

2.4.2. LiSA-Landing-Bus:

➔ *(2): Lbus: LiSA-landing-bus – like sLBus, however in addition at each landing a LiSA-bus module*

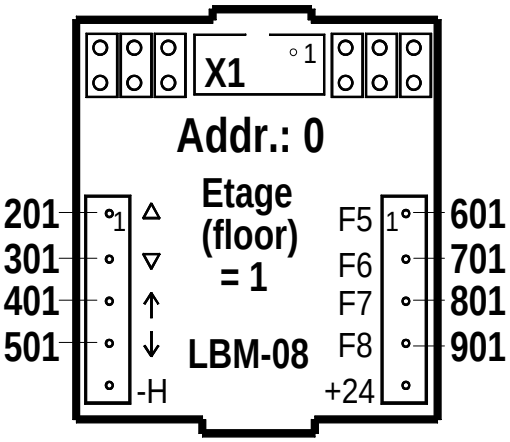


Other than with the small LiSA-landing-bus, the range of functions and execution of which in the control cabinet correspond to the „normal“ LiSA-landing-bus, at this execution at each landing a bus-module (LBM-08) is installed..

Module-address range is in between 0 – 47, thus enabling elevator plants of a maximum of 48 landings.

The functions are assessed to each of the 8 IOs on the bus modules according to the following scheme:

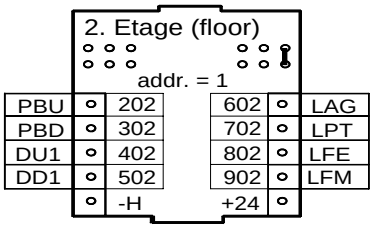
Module in landing 1:
up button: 201 down button: 301
output up-direction: 401 output down-direction: 501
1. freely progr. IO: 401 2. freely progr. IO: 501
3. freely progr. IO: 601 4. freely progr. IO: 701
5. freely progr. IO: 801 6. freely progr. IO: 901



Module in landing 20:
up button: 221 down button: 321
1. freely progr. IO: 421 2. freely progr. IO: 521
3. freely progr. IO: 621 4. freely progr. IO: 721
5. freely progr. IO: 821 6. freely progr. IO:

Example: Parameter setting for 20 landings::

1. landing call button door side 1: 201
   1. landing preference key: 601
      (landing of pref. = 0)



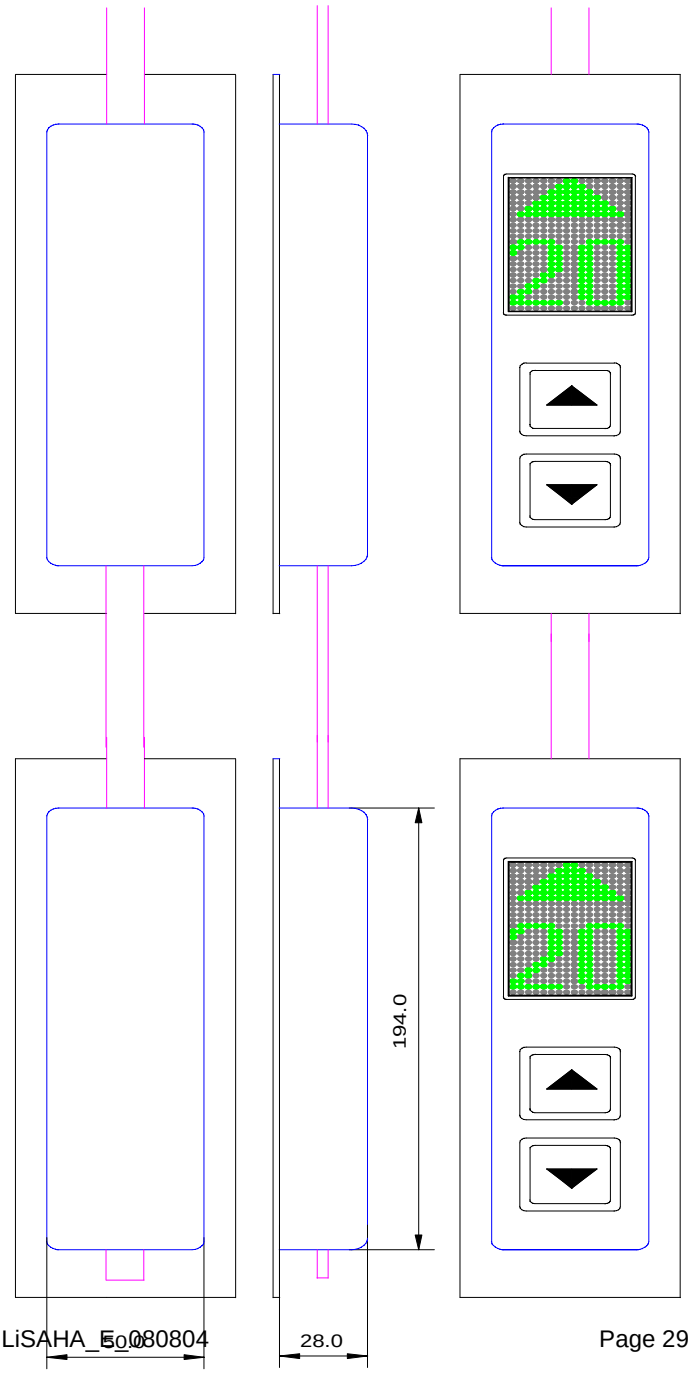
PBU = Drücker - Auf
PBD = Drücker - Ab
DU1 = Weiterfahrt - Auf für Lift 1
DD1 = Weiterfahrt - Ab für Lift 1
LAG = Ankunftsgong in Etage
LPT = Vorzugsfahrt in allen Etagen
LFE = Brandfall in Etage 2
LFM = Feuerwehrfahrt - Außen

Example: In landing 2 the ongoing direction, the arrival gong, the fire-brigade landing key, the fire emergency input and the landing preference key shall be assessed.

Possible parameters:
- 1. ongoing direction for car 1 = 401
- 1. arrival gong for car 1 = 601
- pref.travel key = 701
- emergency input = 802 (landing for emergency = 2)
- fire brigade key in landing 2 = 902,

2.4.3. LiSA-Landing-Bus based on landing-moduls:

The LiSA-Landing-module (LLM-03). The **all in one** solution.



The LLM-03 offers the advantage that those normaly separated units, i.e. LiSA-Bus-Modul (LBM-08), LiSA-Bus-Display(LBD-16) and LiSA-Call-Buttons are comprised in one Modul.

Like the LBM-08 this landing-module is snap-plugged to the LiSA-Bus-Cable.
The casing covering the landing modul has got the dimensions 194x50x28 mm and protection class IP54. So it can be build in narrow landing door frames.

Two new types of push buttons are used, witch correspond from outside to DR3 (32 mm diam., circular) and DR) (32x32 mm). The difference is that they produce an easily distinctive “click”, when activated.

Each landing module disposes of 6 freely programmable IO´s for key –functions and other signals.

The following variants in function and range of supply are available

- with one or two push buttons
- with or without position indicator
- with direction arrows
- with a large variety of horizontally moving written bands.

2.4.4. LiSA-cabin bus:

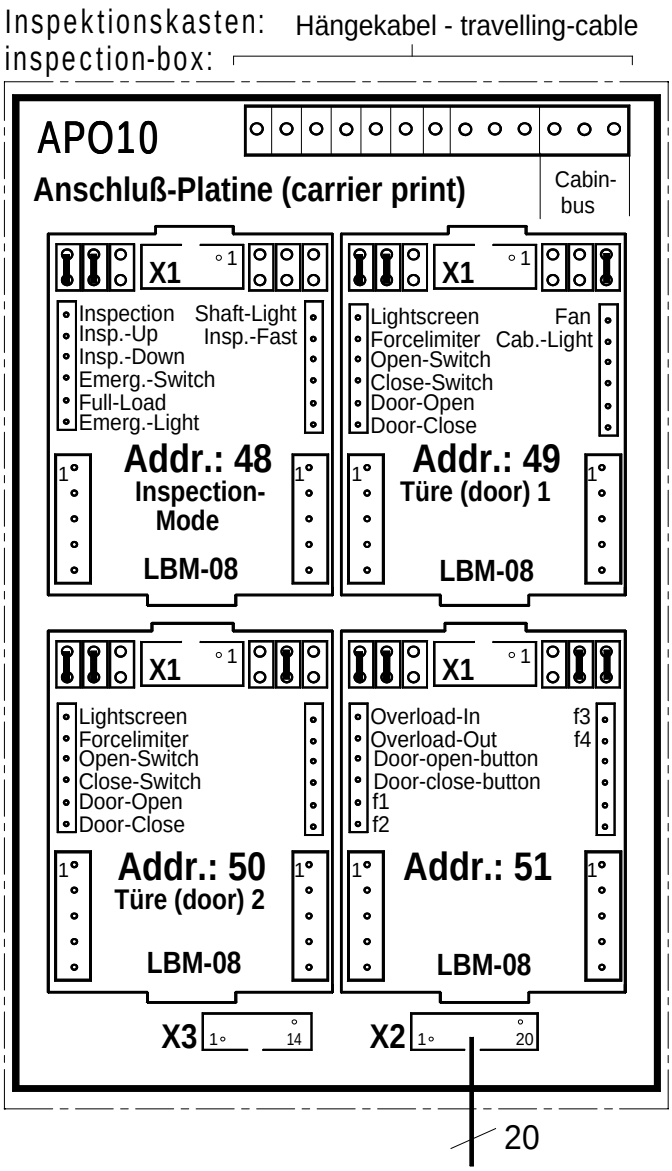
➔ *(3): cBus: LiSA-bus of cabin – in the inspection control box resp. cabin operation panel there are LiSA bus modules (use of APO10)*

➔ *(4): sLBus+cBus: like sLBus, however,with an additional LiSA-bus for the cabin*

➔ *(5): Lbus+cBus: like Lbus and cBus together*

Depending on the number of bus modules, there are 96 IOs available in the cabin (IO65 – IO160). In total 12 bus modules can be connected in the cabin.

4 bus modules with addresses 48-51 can be plugged to the motherboard APO10 in the inspection control box and 3 modules (addresses 52-54) to the emergency light board LF10. The IOs of the emergency light board are freely programmable, whereas those of the APO10 are assessed to functions, except f1-f4.



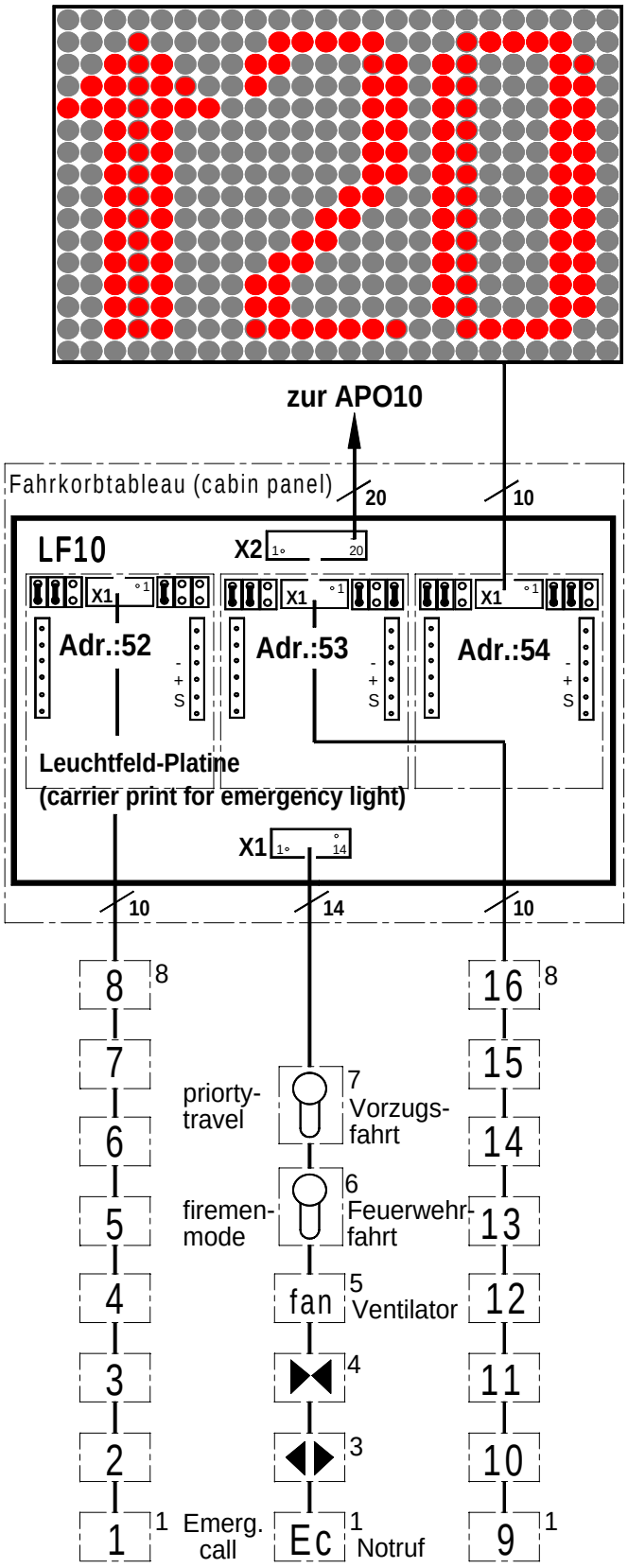
Assessed IOs, (setting impossible):

LBM-08 with Addr. 48:
IO65: input-Inspection operation
IO66: input-Inspection-up
IO67: input-Inspection-down
IO68: input-emergency stop by hand-held switch
IO69: input-fulload
IO70: output emergency light
IO71: input-well illumination
IO72: input-Inspection-high speed

LBM-08 with Addr. 49:
IO73: input-light screen door 1
IO74: input-force limiter door 1
IO75: input-door-open-contact door 1
IO76: input-door-close-contact door 1
IO77: output-door-open-command door 1
IO78: output-door-close-command door 2
IO79: output-activate relay cabin fan
IO80: output-activate relay cabin light

LBM-08 with Addr. 50:
IO81: input-light screen door 2
IO82: input-force limiter door 2
IO83: input-door-open-contact door 2
IO84: input-door-close-contact door 2
IO85: output-door-open-command door 2
IO86: output-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 door1 / 2
IO92: input-door-close-button
IO93: freely programmable IO
IO94: freely programmable IO
IO95: freely programmable IO
IO96: freely programmable IO



Example: Parameter setting for 16 landings

module 51: fan button = 93
cab preference fire brigade = 94
cabin preference operation = 95
output arrival sound = 96

module 52: 1. cabin operat.button door side 1 = 97

module 54:

Selection of a indicator (if no LiSA bus indication is used) :

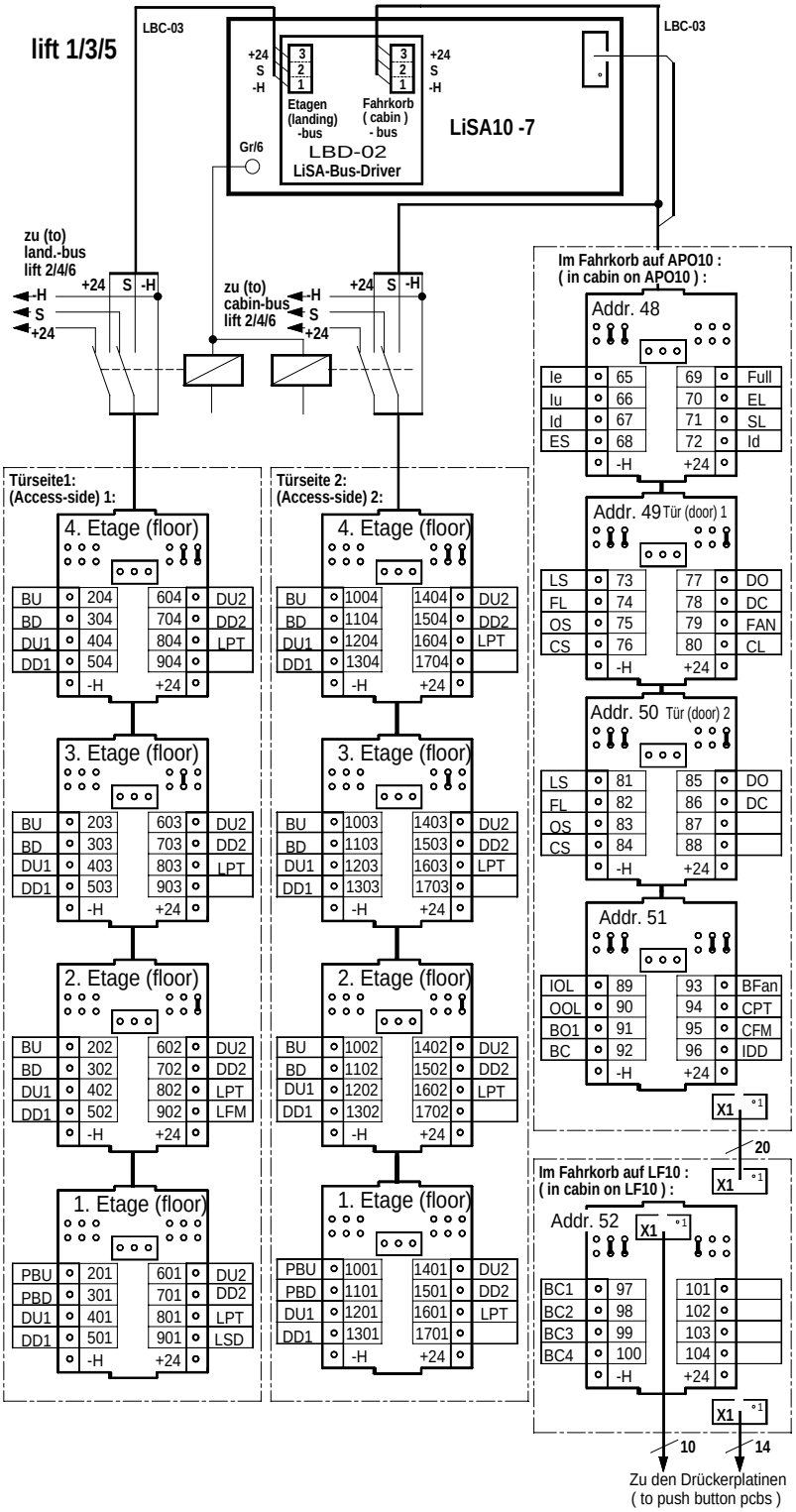
cabin output direction up = 113

1. cabin output Gray code = 115

2.4.5. LiSA-Bus within an elevator group.

In elevator groups normally the odd-number-lift operates the landing bus. While the fault memory is read out or while the parameters are set, reading in of any IO is being suspended. This refers also to landing bus and cabin bus, and of course to shut-down elevators.
In order that the bus can be read in by the neighbouring elevator, it is necessary to switch over to it. This is done via output Gr/6 (bottom left of LiSA 10-7). Connected to this ouput there is a relay for the landing bus and – in case of selection door control by the landing call button unit – also a second relay for the cabin bus to which the second door is connected.

Exampel: Elevatorgroup with 4 floors, 2 access sides selectiv, with ongoing respective direction indicating for next elevator in group (= Elevator 2)



BU = Push button up
BD = Push button down
DU1 = Lift 1 direction up
DD1 = Lift 1 direction down
DU2 = Lift 2 direction up
DD2 = Lift 2 direction down
LPT = Priority travel in land.
LFM= Firemen mode in landing
LSD = Shut down in landing
Ie = Inspection travel
Iu = Inspection travel - up
Id = Inspection travel down
Es = Input – Emergency - stop
Full = Input – full - load
Sl = Input – Shaft light
If = Input – Inspection travel fast
Ls = Input – light screen
Fl = Input 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 – cabin light
IOL = Input - Overload
OOL = Output - Overload
BO1 = Push button door1 or doors open
BC = Push button doors close
BFan = Push button fan
CPT = Priority travel in cabin
CCFM = Firemens mode in cabin
IDD = Input – Dividing door
BC1 = Push button cabin command floor 1
BC2 = Push button cabin command floor 2
BC3 = Push button cabin command floor 3
BC4 = Push button cabin command floor 4

2.5. LiSA-Bus since Juni 2004.

Introduction of the LiSA-Bus-System resulted in the expected modifications regarding easier installation and even more flexibility than before.
Use of the bus-modules also on the landings, which had still been with conventionally wired push-buttons, keys and luminous indicators and direction arrows, has led to an upgrading of the landing call units (according to the requirements with position indicators, keys, luminous indicators and direction arrows). They are now completely pre-wired and simply to be connected via individual bus-cables to a bus-cable vertically laid in the well. The individual bus cables are connected to the vertical bus cable by penetrating adapters as usual with bus-modules.
This enables wiring of all landing modules – in case of elevator banks of those of neighbouring elevators as well – via one single bus-cable without a tool apart from the tongue for cutting the individual bus-cables.
For this purpose the following new components have been developed:

- **Landing module (LM0)** comprising
  - **Landing control card (LBLC-3)** with electronics for 8 IO´s and an electronic components for the LiSA-Bus-Display (in this case however not required) and a plastic casing

- **Landing module with position indicator (LM1)** comprising a sandwich-module with
  - **Landing control card (LBLC-3)** with electronics for 8 IO´s and for the pluggable small version (40*60 mm) of the
  - **LiSA-Displays (LBDS-2)**

- **Luminous module (LM2)** comprising the sandwich-module of LM-1 composed of
  - **Landing control card (LBLC-3)** and plugged
  - **Lisa-luminous module (LBDP-2)** , providing the direction arrows and a text window for free texts or a logo with background illumination.
    (LBDP-2 can be used for conventionally wired landings as well, in this case it is denominated LF-1)

For cost saving purposes two supplementary smaller versions of the LiSA bus-display have been developed:
- **LiSA-Display-Small (DS1**) comprising a sandwich module with
  - **Display control card (LBLC– 4)** containing the selecting electronics for the plugged
  - **LiSA-Display (LBDS-2)** only.

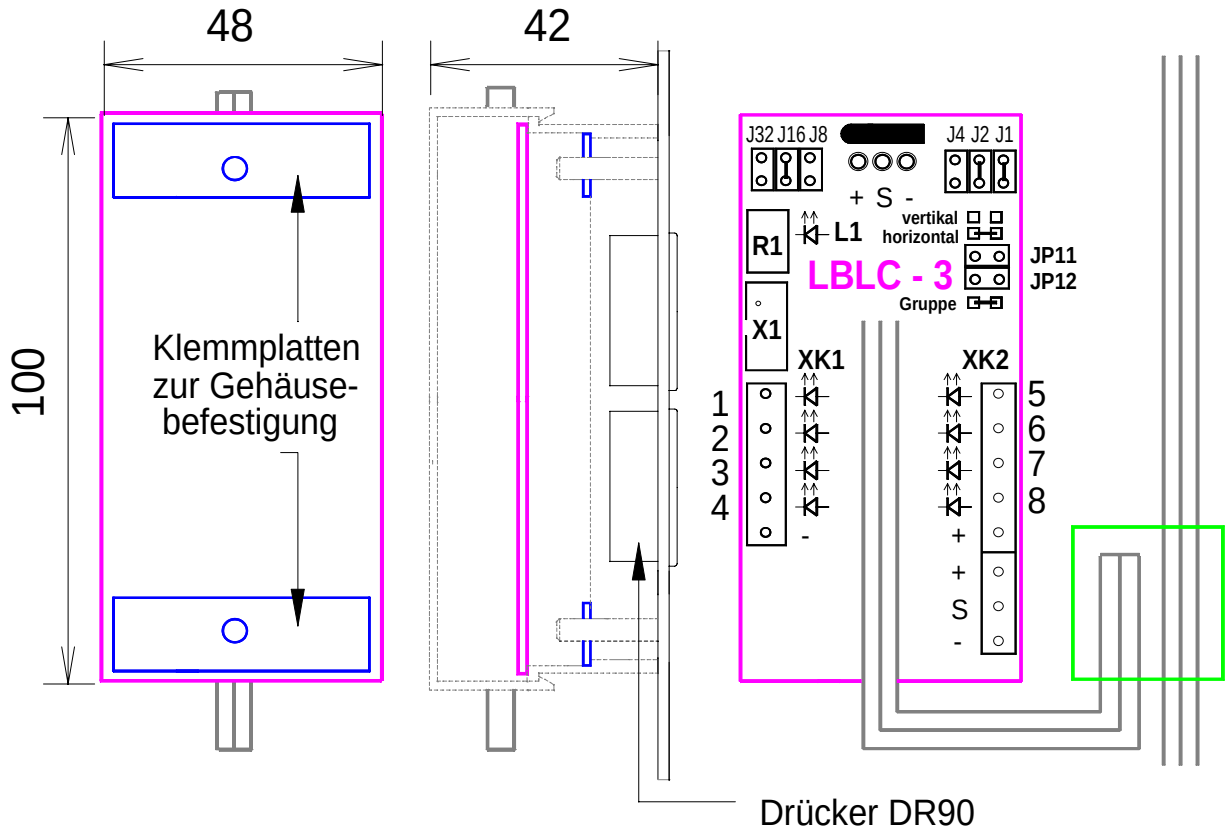
- **LiSA-Display-Small (DS2**) comprising one single card only, which can be inserted in a landing module either horizontally or vertically.

For design and standardization reasons the display window in the cabin and the LiSA-Display-Big, LBDB-1 have been given a plexiglass front cover fitting either of the units. This, however, required new versions of the luminous display card and of the display. The new luminous display is denominated **LF-12** and the big display **DB1**.

Functions of the connecting card APO-10 (in the inspection control box) have been enhanced. This new version is denominated **APO-11.**

From now on new bus components are available:
- **Arrival gong with bus adapter (LGI)**
- **Voice output with bus adapter (LSI)** (corresponds to the old Unitext, however with additional bus adapter)

2.5.1. Landing module (LM0) :



As mentioned above, the LM0 comprises one electronic component (LBLC-3) only, which is located in a plastic casing:

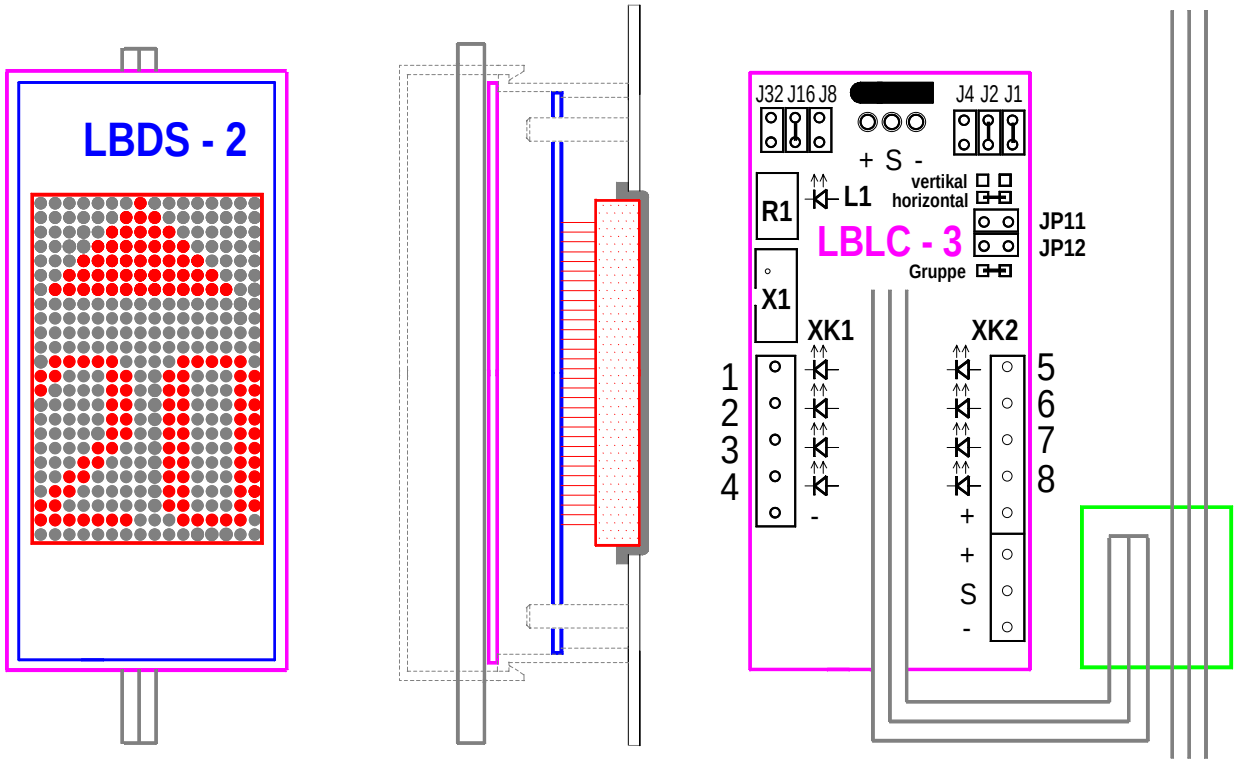
Controller-card LBL –3:

This component corresponds to the LiSA-Bus-Module (LBM-08) enhanced by the functions of the pluggable display card LBDS-2, which is not used in this case.

Layout and function:

- 8 short-circuit-proof (no continuous short-circuit) IOs at XK1 and XK2 resp. X1. If LM-1 is used as a landing module, the first two Ios (XK1) will have fixed functions. All the other ones are freely programmable.
  Pin 1: up-button, Pin2: down-button.
- 8 IO-Status-Leds
- 1 Led (L1) indicates the operation mode
  LED is glowing: LM1 ist OK
  LED is flickering: LM1 defective and cut off the bus by R1
  LED is flickering at short intervals: LM1 has got a wrong bus-code
- X1: plug-connection of LiSA-components.
- R1: Mini-relay cutting defective landing modules off the bus.
- Jumper JP11: set for horizontal position of the display, not set for vertical installation.
- Jumper JP21: set, if display is meant for elevators 2 / 4 / 6 / 8.
  In case of elevator groups, display for elevator 2 can be connected to the landing bus resp. in case of selective landing door control to the cabin bus of elevator 1. By that elevator 1 will adopt selection of the display of elevator 2. The related data will be communicated to elevator 1 via the group interface.
  In case of a group of four elevators, elevator 3 will adopt the same function for elevator 4.
- By jumpers JP1 – JP32 the addresses are to be set (0 – 63 maximum)
  Landing bus addresses:
  0 – 47: address-range for landing busses
  48-56: address-range for modules in the control cabinet.
  Car bus addresses:
  0 – 47: address-range for landing modules door side 2 (for selective landing door control on side 2)
  48-60: address-range for modules in the car.

2.5.2. Landing module with display (LM1) :



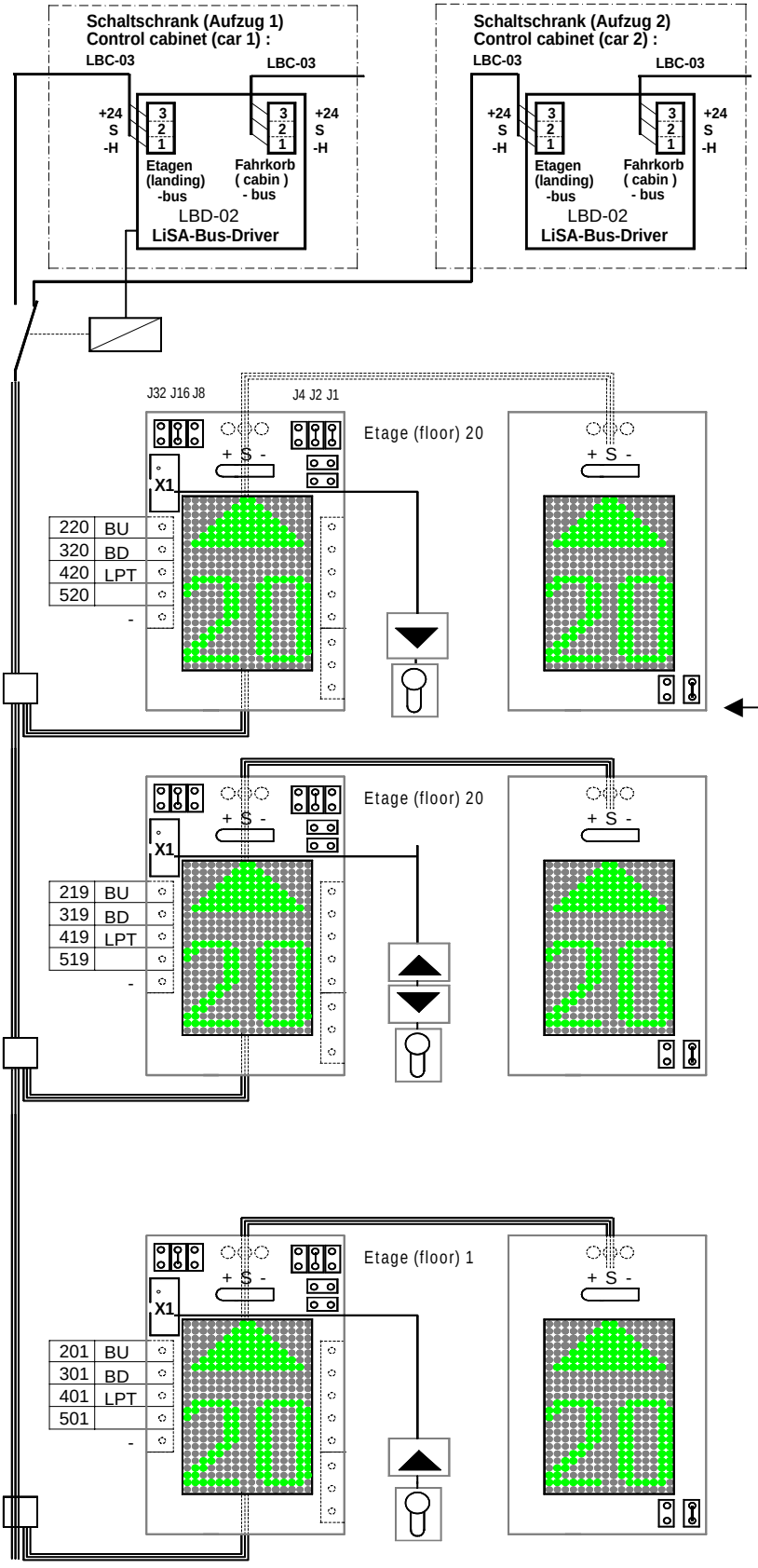
As already mentioned above, the card LM1 is composed of two electronic parts (LBLC-3 and LBDS-2) and arranged in a plastic casing.

As regards LBLC-3, please refer to the above-mentioned description (2.5.1).

Indicator-card LBDS –2:

This card is plugged onto LBLC-3 and is composed of the selecting electronics and the indicator cube for a matrix-display of 16x24 dots.

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



Selection of the display of the neighbouring elevator within a group

As a display for the neighbouring elevator 3 different types can be used.:

- LM1
- DS1
- DS2

The jumper of the group is to be set at any time. (DS1 and DS2: please read the following description)

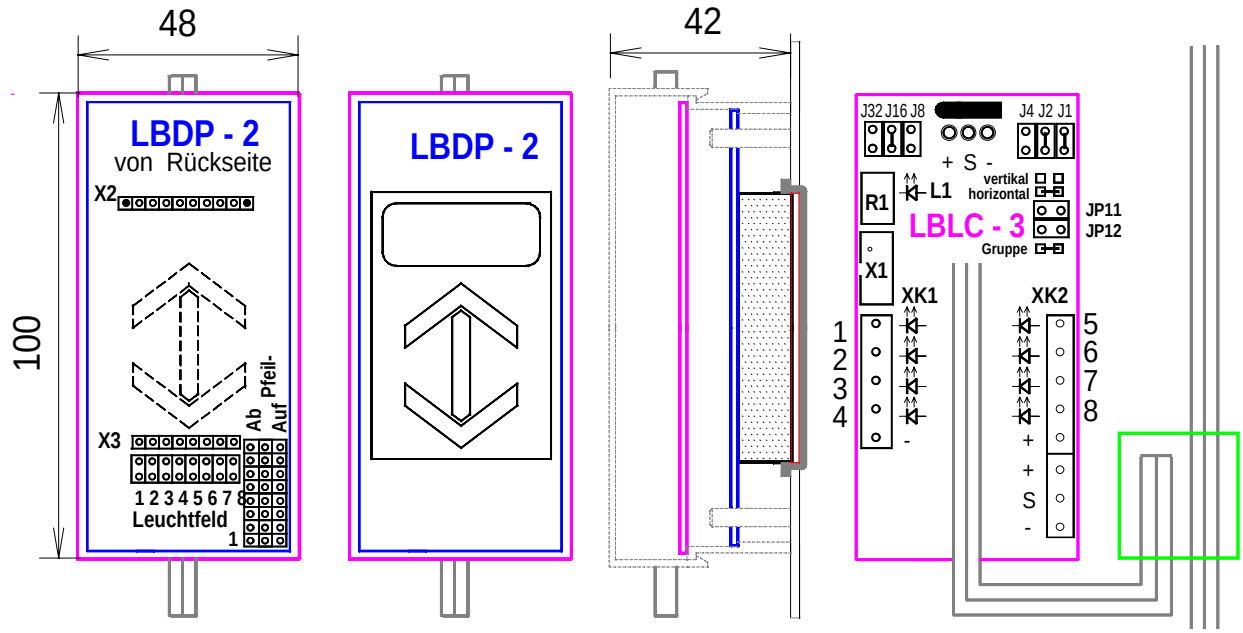
2.5.3. Landing module (LM2) :

In line with the above-mentioned LM1, LM2 also consists of two electronic components (LBLC-3 and LBDP-2) and is arranged in a plastic casing as well.
The electronics for matrix-indicator on the LBLC-3 card is however not used.
LBDP-2 offers two different configurations:

- LBDP –21 components: plug connectors X2, X3 (connecting with LBLC-3) and coding strips as a component of the luminous module LM2
- LBDP –22 components: X1 and XK1 for conventional connections, and coding strips, however used as an independent component, normally in elevators without landing bus.

Each a separate coding strip has been foreseen for the text output and the direction arrows.
Luminous colours can be red, green, blue or white and only depend on the colour of the luminous diodes.
The text window provides background illumination for free texts or for a logo.

LM2 with luminous indicator card LBDP–21:

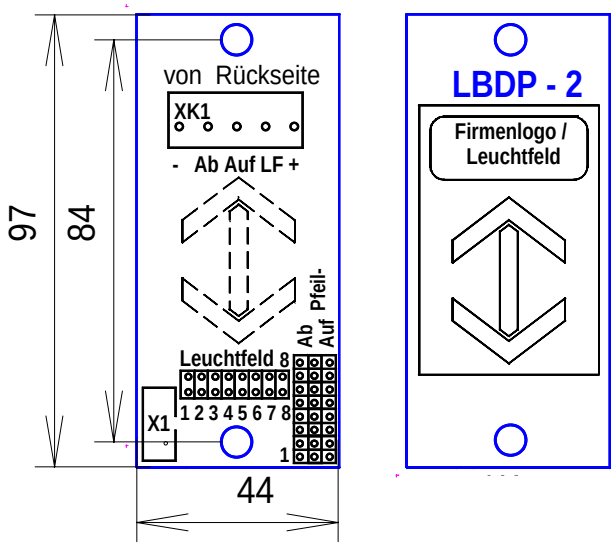


Luminous window (LF1) with luminous indicator card LBDP–22:

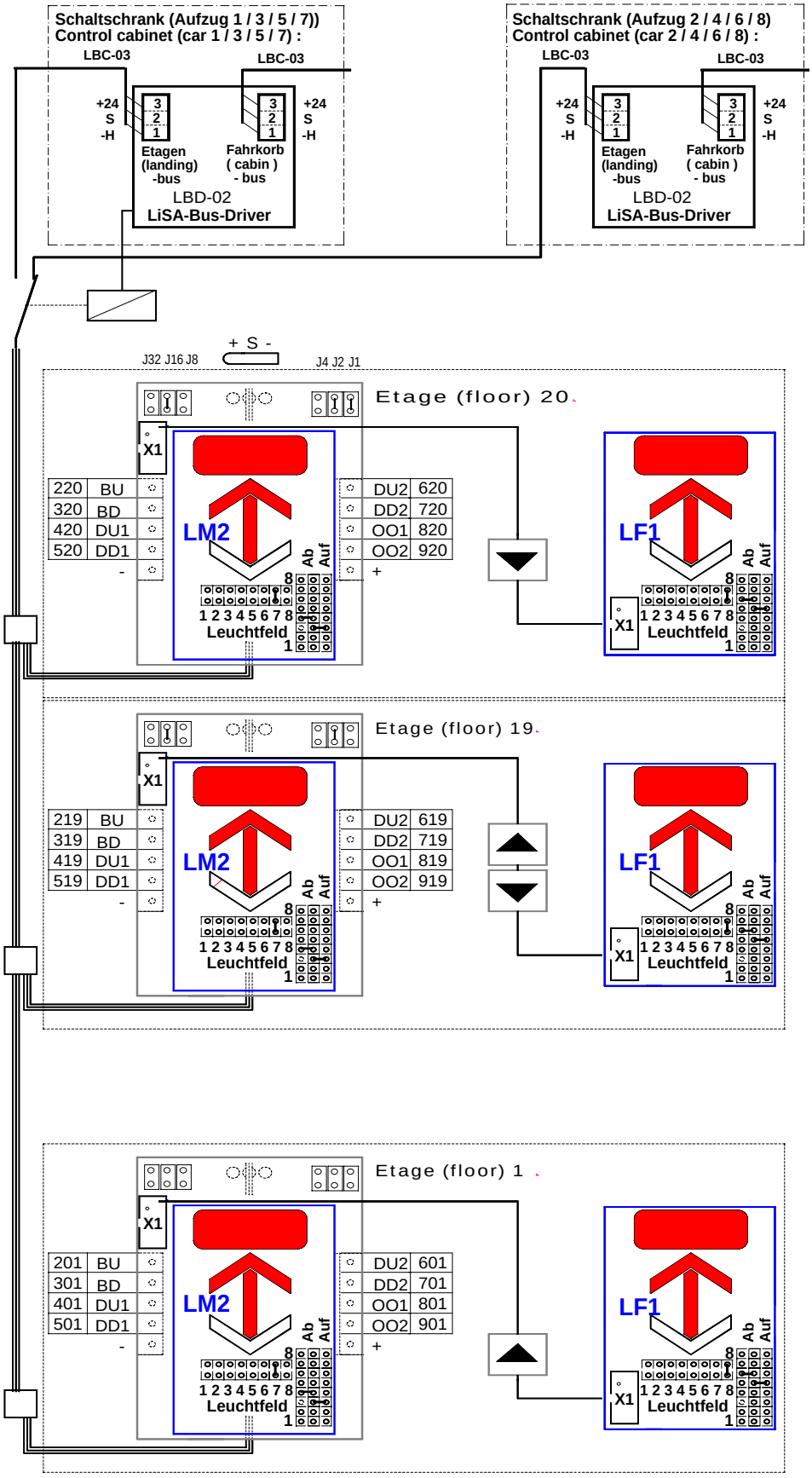
The luminous window comprises the luminous indicator card LBDP-22 and the appropriate plastic components.
There are two different ways of connecting LF1:

1. by plug resp. screw terminals to XK1 and
2. by flat cable plug X1, the desired line is to be set by a coding strip.

The text window can display any text such as for example “out of operation”, “occupied” “car at landing” and so can. As an alternative it can also display your logo, if desired with background illumination.



Examples of luminous modules within an elevator group:



2.5.4. New versions of small LiSA-Bus-Displays.

For cost saving purposes two supplementary smaller versions of the LiSA bus-display have been developed:

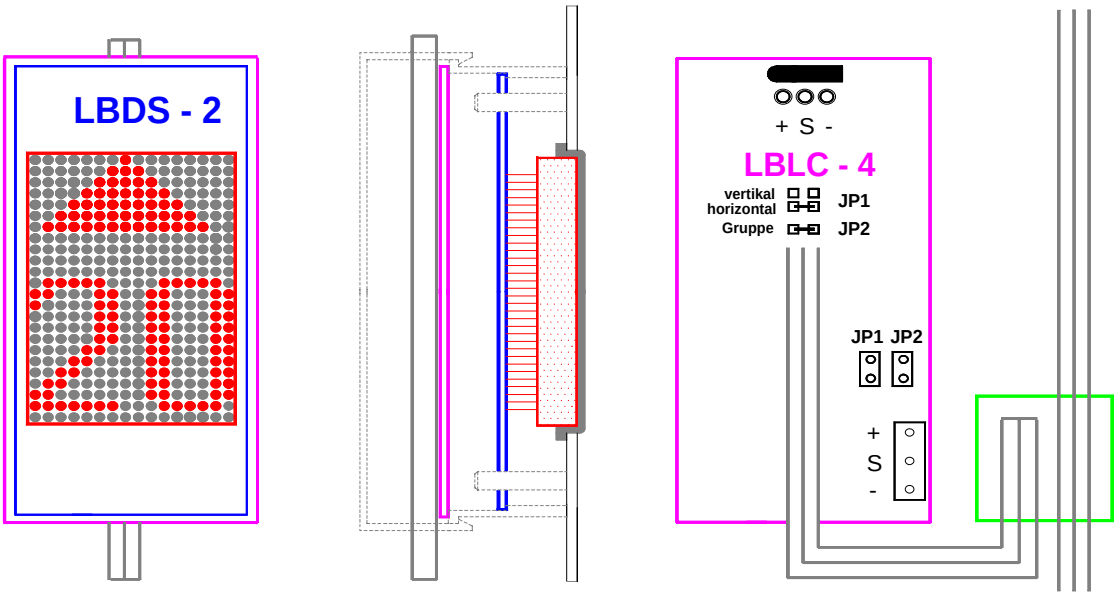
- **LiSA-Display-Small (DS1**) comprising a sandwich module with
  - **Display control card (LBLC– 4)** containing the selecting electronics for the plugged
  - **LiSA-Display (LBDS-2)** only.

- **LiSA-Display-Small (DS2**) comprising one single card only, which can be inserted in a landing module either horizontally or vertically.

2.5.4.1. LiSA-Bus-Display-Small DS1.

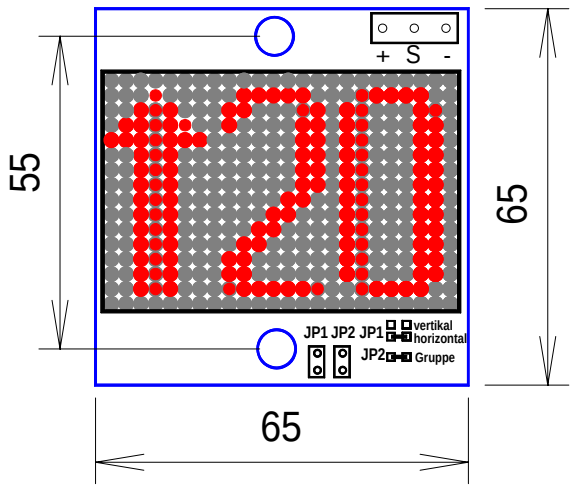
- **LiSA-Display-Small (DS1**) comprising a sandwich module with
  - **Display control card (LBLC– 4)** containing the selecting electronics for the plugged
  - **LiSA-Display (LBDS-2)** only.

Display control card (LBLC – 4):
In contrary to LBLC-3 containing the electronics for 8 IOs and for the small display, LBLC-4 contains the electronics for the display only.
In contrary to DS2 (described in the following) it can be connected to the bus by penetrating connectors as well as by screw-connectors. Moreover it suits in extra narrow door frames thanks to 48 mm width only (DS2 is 65 mm wide).
Provided that there is sufficient space (>100 mm), it can also be installed in a horizontal position. This requires however the following adaptions:
Jumper JP1 is to be set for horizontal position
Jumper JP2 is to be set, if elevators 2 / 4 / 6 / 8 are to be displayed.

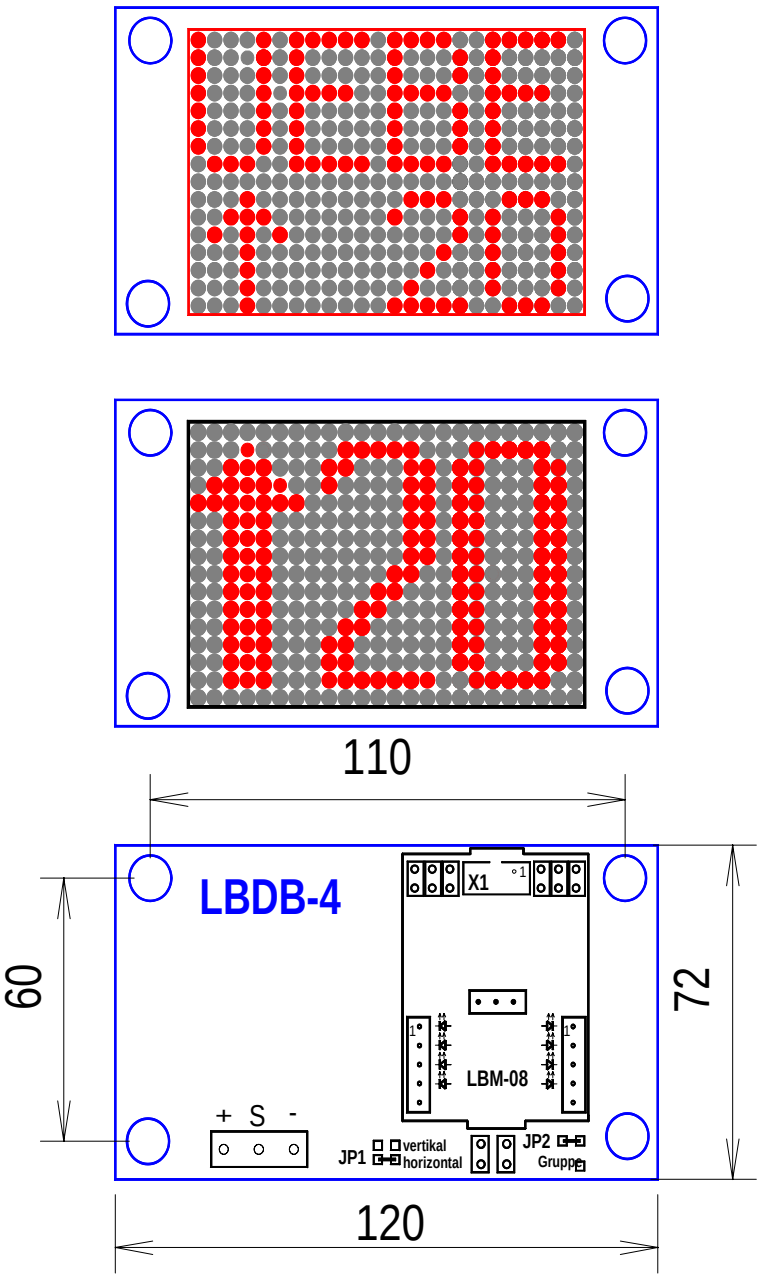


2.5.4.2. LiSA-Bus-Displays-Small DS2

In contrary to DS1 the **LiSA-Bus-Display-Small 2 (DS2**) consists of one single card (LBC-4).
For horizontal installtion it requires a width of 65 mm only.
JP1: set for horizontal installaltion
JP2: set for display of elevators 2 / 4 / 6 / 8
bestimmt ist.



2.5.5. New version of the big LiSA-Bus-Displays (DB1):



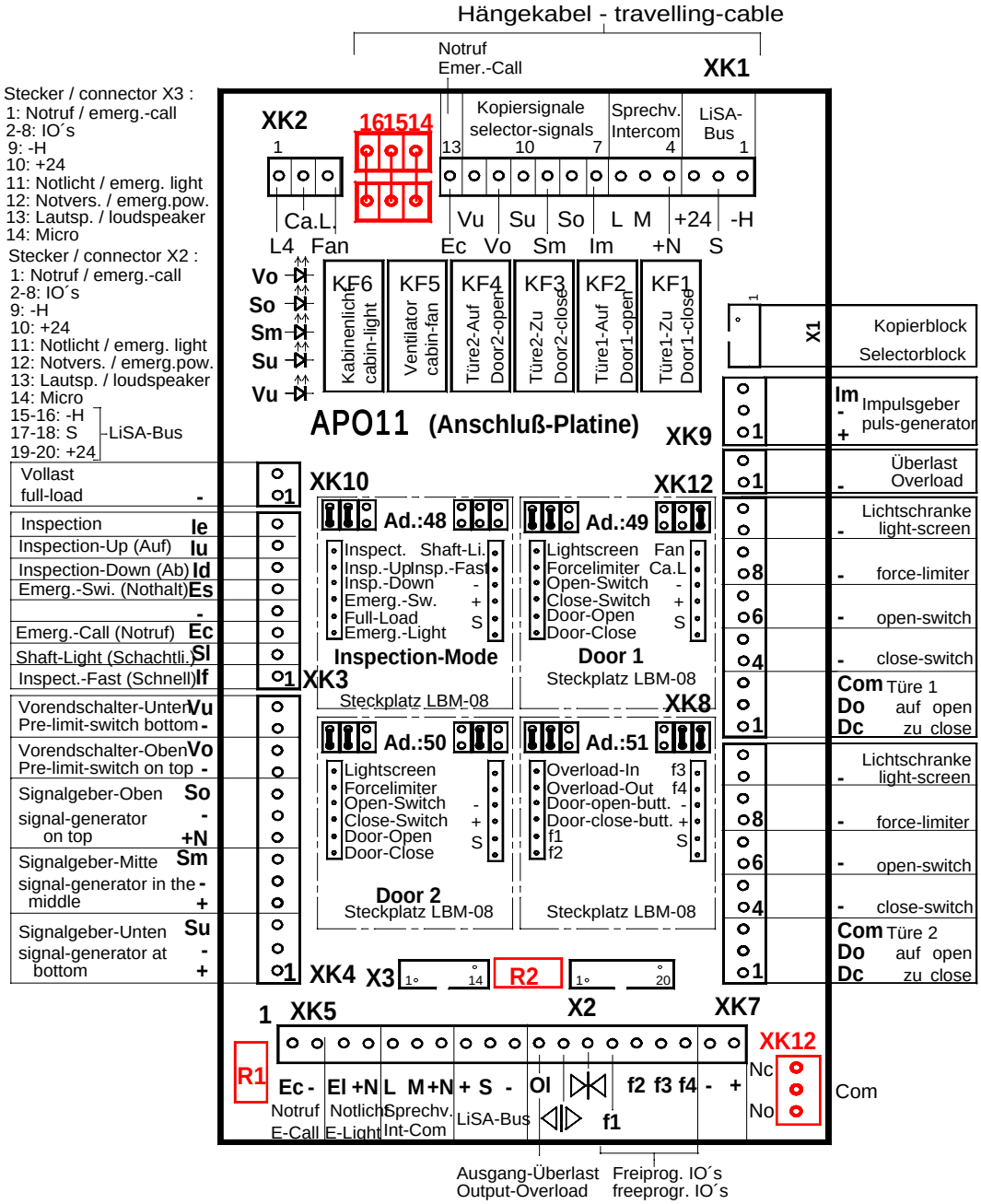
Layout and function:

DB1 comprises the display-card LBDB-4 and the appropriate plastic parts.

- Display dimensions: 96x64 mm (24x16 Punkte)
- Dimensions of the component: 120x72x45 (LxBxH)
- 10 horizontally running texts
- Displays and texts to be set directly by the keys of LiSA CPU or PC
- Interface for LiSA-Bus-Modul LBM-08

JP1: set for horizontal position
JP2: set for display of elevators 2 / 4 / 6 / 8.

2.5.6. New version of the connection board in the car (APO11):



Modifications in comparison with APO10 (marked in red):

- three additional power-hold terminals for travelling cable.
- Relay R1 for emergency light fix installed on APO11 (previously on LF10).
- Optional relay R2 for additional potential-free emergency messages on plug XK12.

2.5.7. New version of Connection Board in the Cabin Operation Panel (LF-12):

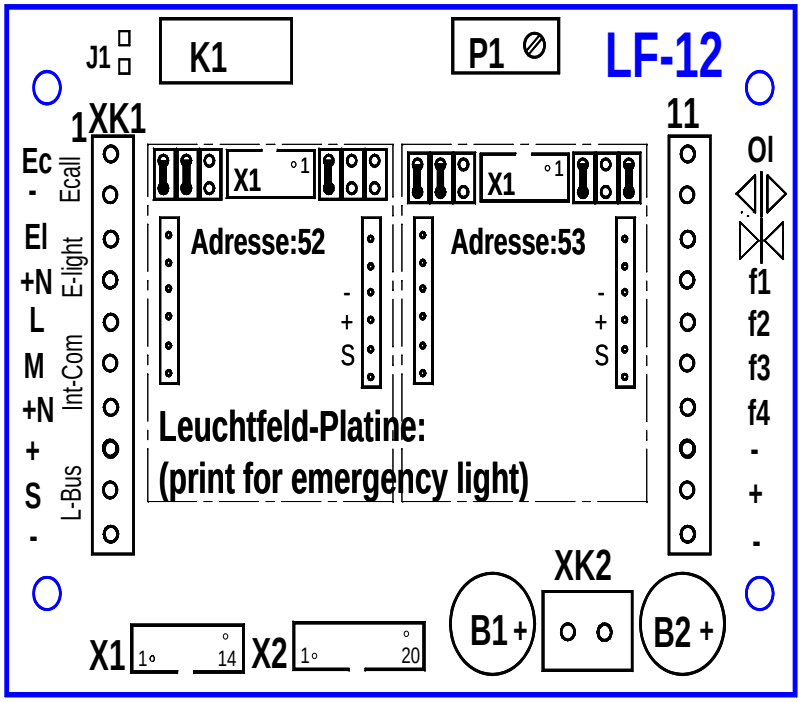
Anmerkung zur Notrufunterdrückung:
Im Falle eines nicht berechtigten Notrufes unterbricht das Relais K1 den Anschluß zum Alarmdrücker über Stecker X1. Bei Anschluß des Alarmdrückers an XK1.1 und XK1.2 erfolgt keine Notrufunterdrückung.
Die Ansteuerung von K1 erfolgt standardmäßig über den freiprogrammierbaren IO f1, d.h. der Parameter "Ausgang Notrufunterdrückung" muß mit 92 vorgegeben werden.
Bei nicht gewünschter Notrufunterdrückung muß der Jumper J1 gesteckt sein.

Der Überlastsummer B2 ist intern mit dem Überlast-Ausgang (XK1.11) verbunden. Soll B2 auch als allgemeines akustisches Signal verwendet werden, so ist der normalerweise auf 89 programmierte Parameter „Ausgang-Überlast" auf 0 und der Parameter „Ausgang Akustisches Signal" auf 89 zu programmieren.

Die EN81-70 fordert eine akustische Quittierung bei jeder Betätigung eines Drückers, auch wenn dieser bereits aufleuchtet.
Aus diesem Grund sind die Drückerplatinen seit ca. April 2004 mit einem separaten Ausgang versehen.
Um nicht auf jedem Drücker einen eigenen Summer installieren zu müssen, können diese Ausgänge miteinander verbunden und über XK2 mit dem Summer B1 verbunden werden. Die Lautstärke kann mit dem Potentiometer P1 eingestellt werden.

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
– 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
– LiSA-Bus

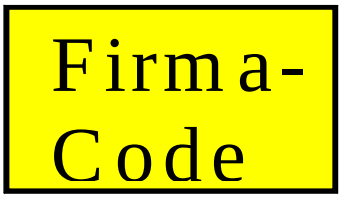
11: Überlast-Ausg. / Overload-Outp.
12: Tür-Auf-Drücker / Door open push button
13: Tür-Zu-Drücker / Door close push button
f1: Eingang / Input
f2: Eingang / Input
f3: Eingang / Input
f4: Eingang / Input
– freiprogr. / free progr.

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

2.6. Hardware-Codierung.

Auf Kundenwunsch ist es möglich sämtliche LiSA-Bus-Komponenten mit einem individuellen Hardware-Code auszuliefern (= Bus-Code).
Dies betrifft folgende Komponenten:

- LiSA10-7 Hauptplatine
- LiSA-Bus-Driver LBD-02
- LiSA-Bus-Modul LBM-08
- LiSA-Bus-Controller-Platine LBLC-3
- LiSA-Bus-Controller-Platine LBLC-4 (für Anzeige DS1)
- LiSA-Bus-Display DS2
- LiSA-Bus-Display DB1
- LiSA-Bus-Gong BG1
- LiSA-Bus-Sprachausgabe SP1



Vor Auslieferung werden genannte Komponenten mit dem Buscode versehen und entsprechend mit einem gelben Aufkleber gekennzeichnet.

Diese Codierung soll unseren Kunden einen weitgehenden Schutz vor Verlust der Anlagenwartung geben.

Schutzmechanismus:

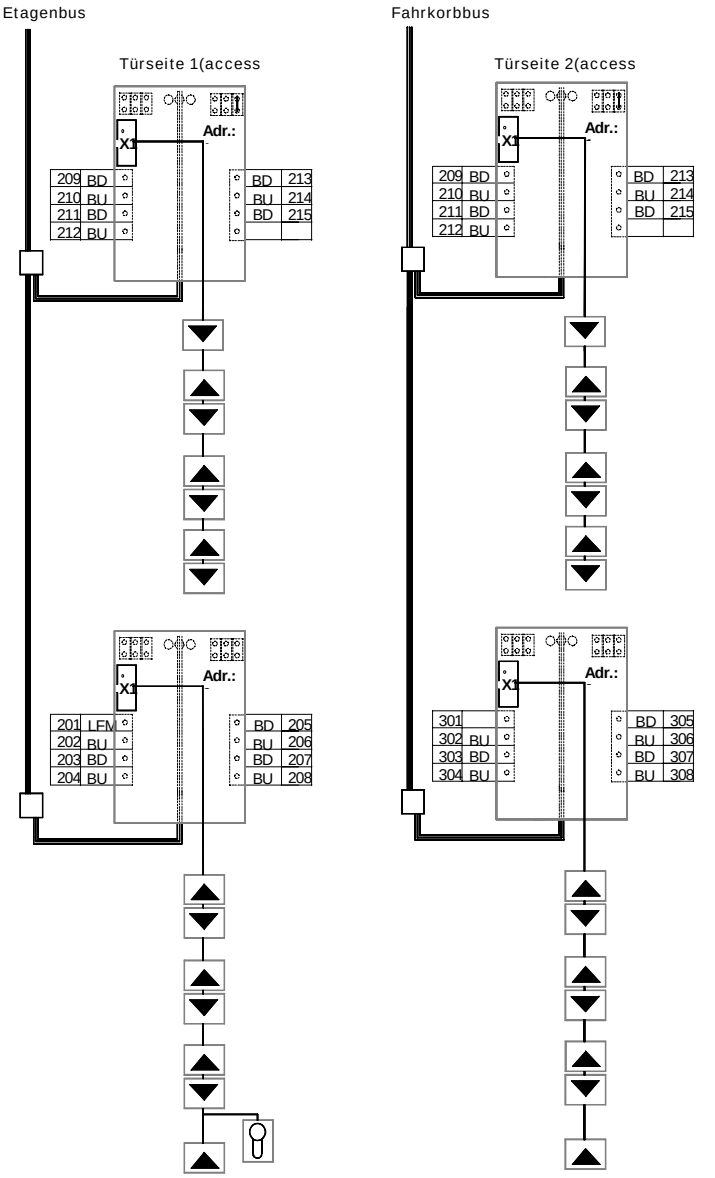
- Nur Komponenten mit dem gleichen Buscode arbeiten untereinander.
  Ist z.B. der Code auf der LiSA10-7 unterschiedlich zu demjenigen im LiSA-Bus-Driver LBD-02 so wird auf dem LiSA-Display zyklisch die Meldung „Drivercode <> Buscode“ und der Datenaustausch zwischen diesen Komponenten solange eingestellt, bis Komponenten mit dem gleichen Code verwendet werden.
  Die Controller-Platinen LBM-08, LBLC-3 und LBLC-4 sind mit einer Betriebs-Led (L1) versehen, die bei einem vom Driver unterschiedlichen Code schnell blinkt. Der Betrieb untereinander wird bis zur Verwendung der richtigen Komponenten eingestellt.
  Auf dem LiSA-Display wird bei der Anzeige der IO-Belegung vor dem jeweiligen Modul ein „x“ angrezeigt.
  Die Displays DS1, DS2 und DB1zeigen im Fehlerfall nur noch ein kleines „x“ an.
  BG1 und SP1 stellen ihren Betrieb ein
- Die Fa. Schneider bzw. Fa. Klinkhammer und autorisierte Tochterunternehmen liefern codierte Komponenten mit dem entsprechenden Firmen-Hardware-Code, nur nach schriftlicher Bestellung mit Angabe der Kundennummer aus.

Anmerkung: Die LiSA10-7 Hauptplatine ist doppelt geschützt, da der Buscode zusätzlich im Parameter-EEPROM hinterlegt ist.
Ist die Anlage buscodiert, so kann künftig der Software Firmen-Code nicht mehr mit dem inzwischen schon hinlänglich bekannten Supervisor-Code verändert werden, sondern nur noch durch die o.a. Firmen.
Auf Wunsch können unsere Kunden zum Freischalten der Anlage – betrifft nur den Software-Code – einen eigenen Löschcode erhalten. Dies ist wichtig, wenn die Wartung für die Anlage abgegeben wird.
Der Hardware-Code bleibt davon unberührt. Das heißt codierte Ersatzteile können nur vom Errichter der Anlage oder mit dessen Einverständnis vom Steuerungsbauer bezogen werden.

2.7. Änderungen beim kleinen LiSA-Etagen-Bus.

➔ *(1): sLbus: small LiSA-Etagen-Bus – max 100 IO´s aneinandergereiht wie bei IO-Platinen, d.h. es können max 12 LiSA-Bus-Module (LBM-08) bzw. Etagenmodule angeschlossen werden*

➔ *(4): sLBus+cBus: wie sLBus jedoch zusätzlich LiSA-Bus zum Fahrkorb*



Beim kleinen Etagenbus ist die Funktionverteilung auf die IO-Adressen analog zu derjenigen bei Verwendung von IO-Platinen (IO-16), d.h. sie sind aneinandergereiht.

- die Summe aller verfügbaren IO´s für die Türseite1 ist 96, d.h. es sind 12 LBM-08 oder 12 Etagenmodule am Etagenbus anschließbar
  Der IO-Adress-Bereich erstreckt sich von 201 - 296
- die Summe aller verfügbaren IO´s für die Türseite 2 ist ebenfalls 96.
  Der IO-Adress-Bereich erstreckt sich von 301 - 396
- Die Moduladressen beginnen bei 0 und enden bei 11

Adressverteilung auf Türseite 1:
Modul 0: IO201 – IO208
Modul 1: IO209 – IO216
Modul 2: IO217 – IO224
Modul 11: IO289 – IO296

Adressverteilung auf Türseite 2:
Modul 0: IO301 – IO308
Modul 1: IO309 – IO316
Modul 2: IO317 – IO324
Modul 11: IO389 – IO396

Anwendungsbeispiel:
Eingang Feuerwehrfahrt = 1
-> Anschluß am Etagenbus Modul 0
1. Außenruf-Drücker Türseite 1 = 202
-> Anschluß am Etagenbus Modul 0.
1. Außenruf-Drücker Türseite 2 = 302
-> Anschluß am Fahrkorbbus Modul 0.

Hinweis: IO 1 – IO48 sind über IO-16 – Platinen im Schaltschrank verfügbar

3. 1. Functions:

All functions are contained in one single programme version. Basically, the previous functions remain still available when the scope of functions is going to be extended, i.e.old programme versions can always be replaced by new ones.
The activation of all functions is possible by means of the control-integrated keypad, by a hand terminal or, even more conveniently, by a PC (Laptop/Notebook).

LiSA - keypad:

Input of commands and switching-on from parameter to parameter upon parameter processing is always closed with the * - key

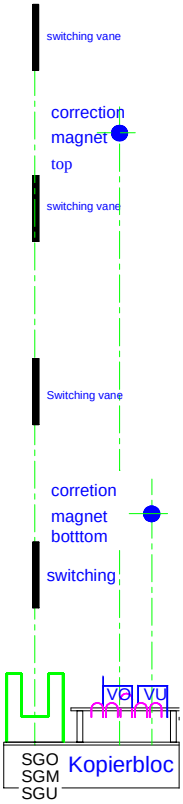
All inputs can be aborted by means of the # - key. Upon parameter-setting a short push on the # - key causes paging down and a longer pressing causes a jump to the end of the parameter block.

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

3. 1. 1. Shaft information

The counting of landings, the initiation of the deceleration and the stopping process (elevator levelling process) comes under the definition of shaft information.
There is the choice of 3 different methods:
- the lapse of time - method
- the point of reference - method, and
- the pulse method

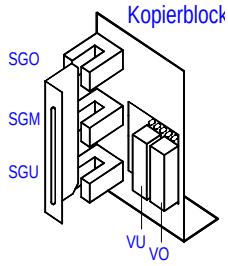
The different methods refer to the different ways to initiate deceleration and stopping.



Installations required for the lapse of time - method and the pulse method:

In the shaft:

- per each landing a metal vane of 10 – 40 cm length (standard = 20 cm) or magnets, by means of which a zone of same length can be established.
- in correction positions TOP and BOTTOM one magnet each. These are to be placed at the usual distance and in accordance with the rated speed in such a way, that the elevator has always reached its levelling speed when it enters the last zone (except direct approach).



In the car:
- an inductive proximity switch / magnet switch (= signal switch – centre –SGM) for the generation of the counting pulses.
- two bi-stable magnet switches for the pre-limit switch function (correction)
- additionally, upon approach resp. relevelling with doors open, 2 inductive proximity switches / magnet switches (signal switch-top SGO and signal switch -bottom – SGU) are required.

Shaft information module

The application of the pulse method is based on the counting of a pulse sequence. Here, the pulse the encoder of the motor controller / converter, or from any position measurement device (e.g. Li tor).
The pulse generator input on the LiSA10-card is able to process pulse sequences with a frequency of up to 100 kHZ with pulse levels <= 3,5 V.
e.g.: pulse generator with 1024 pulses / rot., rated motor speed = 1380 rpm:
No. of pulses = 23 rot./sec * 1024 ~ 23 kHZ

3. 1. 1. 1. Laps of time - method

The herebelow described lapse of time-method is mentioned only for the sake of completeness as ithas been displaced widely by the pulse method. The lapse of time-method, however, is still applied for Installations of 2 elevators with 2 landings or elevators with Dynatron controller / converter, where the shaft information is provided by magnets in the shaft,.
Also in cases where, for any reasons, pulse-processing does not work (e.g. pulse generator defective), mainly the lapse of time-method is applied temporarily (for acceptance tests by authorities).
The moment of initiation of deceleration and braking is defined by a time calculated resp. determined before.
The distances between the individual landings and the speeds in up and down direction are determined by means of a learning-run. The required deceleration paths, i.e. deceleration path-up and deceleration path-down are to be established by trial.

Deceleration:

Important note: It is imperative to destinguish between long-range and floor-to-floor travel.

- Long-range travel:
  Here, that landing is calculated in advance, where a period of time (Tv) is started, after which the change-over to slow speed will be effected. This is normally the landing next to the estination landing.
  In case of short-distance landings or of a higher travelling speed another landing more distant from the destination can be defined.
  Deviating from this method, the deceleration in the extreme landings is initiated latest by arrival of a prelimit switch signal.
- Floor-to-floor travel:
  For a travel between individual landings the time must be defined, how long the elevator shall run in high speed after leaving the landing zone. This happens by parameter "high speed floor-to-floor travel".
  The most suitable value is to be established by trial, with same value to be applied for all landings with identical distance.

Braking:

In case of traction elevators the braking retardation time up or down is started when the vane enters into the **centre** signal switch.
In case of hydro-elevators this is effected for upward travel by the **bottom** signal switch and for downward travel by the **top** signal switch.
The reaction after elapse of this time is irrespective of the type of elevator.
Traction elevators: cut-off of the contactors.
Hydro-elevators:
Travel downward: cut-off of all contactors.
Travel upward: Without coasting function: cut-off of all contactors
With valve coasting: cut-off of up-contactor and start of coasting time
With motor coasting: cut-off of relay for motor coasting and start of coasting time
After elapse of the coasting time all contactors are shut down.
Closed-loop controlled traction elevators:
Cut-off of V0-relay and start of cut-off delay

3. 1.1.2. Pulse - method

The distances between individual landings, the deceleration and braking paths, and the pulse constant are defined during a learning-run.
The point of time for the initiation of deceleration and braking is defined by a determined number of pulses loaded into a counter. If the status of the counter is 0, the respective event, i.e. decelerating or braking, will be initiated. The definition of that landing (landing of initialization) where the counter is getting loaded with the respective value is effected the same way as with the lapse of time-method.

Decelerating:

See description of long-range travel in case of lapse of time-method. Floor-to-floor travel is carried out the same way as long-range travel. Elevators which can be run with various speed are provided with different deceleration paths. These can be parameterized individually. (see parameter set ”travelling times / pulses”)

Braking:
The braking process (loading of counter) is started with the vane entering the zone (centre signal switch). The further process is the same as described for the lapse of time-method.

3. 1.1.3. Point of reference - method

The point of reference-method is mentioned only, like the lapse of time-method, for the sake of completeness as nowadays it is applied scarcely owing to the higher installation efforts. Compared with the pulse method, which requires an additional pulse generator (LiSA- pulse generator with hydro-elevators), the cost are higher even already in case of more than 4 landings.

☞ Note: the point of reference-methode cannot be applied with overlapping deceleration paths (the landing distance is less than the paths of acceleration and deceleration together).

The shaft information module must be provided with an additional bi-stable magnet switch (SGZ), connected in parallel to the centre signal switch. This switch will be actuated at the respective deceleration point by magnets on an additional "magnet path".
If braking also is carried out with reference points, the zone must be performed by 2 magnets. Normally however, for braking - mainly with hydro-lifts (stopping with outer signal switch) - application of the lapse of time-method will suffice.

3. 1.2. Door opening functions

With the parameters of parameter group 008* the release of door opening resp. approach for all landings can be preset for both entrance sides, distinguished between internal and external calls.
Four different operational statuses are available:

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

Release of a clock-controlled or key switch-controlled travel:

- with a make-contact that is connected to an input parameterized with clock-controlled or key switch-controlled travel
- the clock-controlled travel 1 can also be started and terminated by means of the real-time clock integrated in the LiSA-control.

Here, the make-contact can be actuated by a key, a timer, a radio control, a code-keypad, a card reader etc.

By change of one of the afore described operational conditions, a total change of the door opening characteristic can be achieved.
So, e.g., landings that were not accessible before can be released for a defined period of time.

3.1.3. Company code (password)

Each client company will get, if desired, her own access code (company code). This code can be changed only by means of the supervisor code, i.e. only by companies of the LiSA-group.
With company code activated no access to the parameters is possible without prior input of the code.
If the LiSA-hand terminal is used (supply of LiSA10-card without display), the company code is memorized in the hand terminal also, i.e. for a hand terminal with a code not identical with that of the LiSA10-card, the access is inhibited.
Read-out of fault memory and input of travelling commands and inspection commands however will be possible also without code.

If someone tries to get access to the parameters without setting the company code before, LiSA will display:

Set the 4-digit company code:

After setting of the correct company code LiSA will display:

☞ Note: if a wrong company code has been set, no notice will appear

3.1.4. Learning-run

During the learning-run the following values are established:
Point of reference-method: No learning-run to be carried out !
Lapse of time-method:

- all landing distances for which the learning-run is carried out quickly.
  The distances between the lowest resp. the highest landings will not be learnt. These are to be set on the keypad – set a value higher than the actual distance.
- speed up and down

Pulse method:

- all landing distances
- pulse constant in pulses / m
- rated speed
- deceleration paths up and down resp. distance of prelimit switch magnets from limit switches.
- braking retardation up and down.

☞ Note: While with pulse method – after carrying out the learning-run – only slight corrections at the paths of deceleration and braking retardation are required, the lapse of time-method needs these values and the running time between landings to be determined by trial.

Proceed as follows:
Put the elevator to the bottom landing

- the centre signal switch must be within the zone
- the car should be unloaded and the counterweight already be provided with the correct weights (with lapse of time-method only)

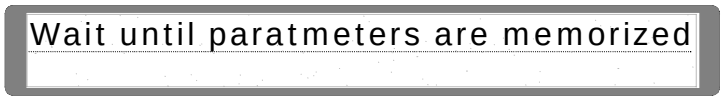
Start of learning-run: Set 100*

☞ Note: With lapse of time-method the periods for brake retardation for the learning-run are set to 5ms, to ensure that the elevator will stop.

- Prior to the start of the learning-run the LiSA shows "L" in the lefthand element of the 7-segment indicator (operational condition). .
- Now the elevator runs with high speed to the top correction position. On this occassion the landing distances and the rated speed are established.
- As a control, the travelling speed is permanently indicated righthand-below on the display
- At top correction switch the elevator decelerates and stops in the top landing
- After that, the elevator runs again with high speed to the bottom prelimit switch, decelerates and stops at the bottom landing.

After termination of the learning-run the following message appears on the display:

If the question is answered with "1", the learnt values are immediately memorized in the EEPROM and the LiSA-control shows the message:



After successful memorizing (about 1 minute) the message appears:

☞Note: Normally, the parameters are not memorized immediately after completion of the learning-run, as, particularly in case of the lapse of time-method, corrections are still required.

In parameter group learning-run values (009*), the values established upon learning-run are registered.

3.1.5. Parameter processing

All parameters and commands can be set either on the LiSA-keypad and on the PC/Laptop as well.
The parameters are subdivided into 11 groups. Selection is made by setting a 3 or 4 digit number and is closed by the *-key. During parameter processing, switching from one parameter to the other is also done by this key.

Paging down is effected by a short push on the # - key. A long pressure on the #-key causes a jump to the end of the parameter set.

☞Note: If the question "Parameter to be overwritten" is answered with "1", all parameters will be memorized, not only those of the group that just has been processed.

Parameter groups :

0 0 0 *	General parameters of the installation
0 0 1 *	General times of the installation
0 0 2 *	Travel times / pulses
0 0 3 *	Input adresses
0 0 4 *	Output adresses
0 0 5 *	Key adresses and landings
0 0 6 *	Relay adresses
0 0 7 *	Indicator functions
0 0 8 *	Door opening functions
0 0 9 *	Learning-run values
0 0 1 0 *	Special parameters

3.2. Description of Parameters

3.2.0. General Elevator Parameters:

Elevator Type (Ropetratction/Hydro/VV/VF-control) :

➔ ***(0)*** *: Traction elevator, uncontrolled, 1-speed, 2-speed*

➔ ***(1)*** *: Hydraulic elevator*

➔ ***(2****) : VV/VF-controlled traction elevator*

Interrogation in case of hydro-elevators:

Beringer Elevator Control Valve (0/1)

➔ ***(0)*** *: no Beringer LRV*

➔ ***(1)*** *: Beringer LRV*

- to minimize the cost, the delta-contactor is used jointly for the downward travel.
- inspection travel can be carried out with half the rated speed.

Interrogation in case of VV/VF-controlled traction elevators:

VV/VF- control (All/Dyn/Si/LiFU/LM/Die/Yask) :

Selection of driver for various controllers and inverters

➔ ***(0)*** *: Selection of all types of controllers except those following below*

➔ ***(1)*** *: Dynatron-S, Dynatron-F, Dynatron-2000, VF30 (Schindler-Controller)*

➔ ***(2)*** *: binary control of Siemens-inverter (only applicable for elder inverters make KEB/Siemens with binary speed selection**).***

➔ ***(3)*** *: Loher-frequency inverter*

➔ ***(4)*** *: Elevator Material (Struckmeier) – inverter*

➔ *(4) : binary selection of FUJI-inverter*

➔ ***(5)*** *: Dietz-inverter (only for Vektordrive) – to be set to "0" with Maxidrive!*

➔ ***(5)*** *: Dietz-inverter (only for Vektordrive) – to be set to "0" with Maxidrive!*

➔ ***(6)*** *: binary selection of Yaskawa (KONE) inverter*

Binary selection: travel speeds are selected by means of the binary code at the first three outputs defined by parameter "1st output inverter signals"

Interrogation in case of hydro-elevators:

Overtravelling (no/valve/Motor/ALGI-ELRV):

Selection of type of engagement for different hydraulic systems

➔ ***(0) no overtravelling***

➔ ***(1) Valve overtravelling:***

In upward travel the up-valve is for a preset period longer engaged than the pump motor. This

leads to a softer stopping with e.g. the Oildynamik hydraulic block (GMV).

In parameter-set general elevator times (001*) "overtravel vale/pump".

➔ ***(2) Motor coasting:***

The function is similar to the valve overtravel. The difference is, that in upward travel first the control for the UP-valve is switched off and the pump runs longer for the overtravel time. With many hydro-systems (Algi, Beringer ..) stopping will also be softer with this function.

Additionally required parameters:

- In parameter-set **General elevator times** (001*): "Overtravel valve / pump".
- In parameter-set **Relais adresses** (006*) : "Rel.- Overtravel – pump"

➔ ***(3)AlGI-ELRV:***

For the new electronic elevator regulating valve of ALGI a special control method is required.

Upward travel:

After disengagement of the UP direction signal the pump motor is switched off only after elapse of the overtravel time.

Downward travel:

After disengagement of the DOWN direction signal the activation of the DOWN valve is switched off only when the the overtravel time has expired.

Additionally required parameters:

- In parameter-set "General elevator times"(001*): "Overravel valve / pump".
- In parameter-set "Relay addresses" (006*) : "Rel.- Overtravel – pump"

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

Selection of the signal switch for starting the deceleration

➔ ***(0)** : Starting of deceleration by that outer signal switch which has entered the zone at last (SGO / SGU), i.e. in upward travel SGU and in downward travel SGO.*

➔ ***(1)** : Start of deceleration by the middle signal generator (SGM)*

- Braking(stopping) by the pulse-method:

  This method should be used wherever possible, despite the somewhat higher cost for an additionally required pulse source. Besides of the convenience in adjustment, the steps occuring upon stopping when the the time-method is applied will be prevented. For hydro-elevators, the choice of stopping with the middle signal generator allows, beyond that, an adjustment of the relevelling independently from the stoppage. Then, positioning of SGO and SGU can be related to SGM so, that even in case of a very low step (appr. 10 mm) the relevelling process will be started. For uncontrolled traction elevators, the less sophisticated selector block (without SGO and SGU) can be used.

- **Braking (stoppage) by time-method:**

  (described only for reason of completeness). With hydro-elevators, when the time-method is applied, stopping should basically be carried out with SGO resp. SGU, as otherwise the unavoidable load-dependence will result in stopping inaccuracies. The same goes for uncontrolled traction elevators. Although here the use of selector blocks with 3 detectors is not mandatory required, for reasons of stopping accuracy this solution should be favourized.

  Parameter"stop with middle singnal generator" allows 2 solutions:

  If the stop is made with SGM, an "utopic" long deceleration can be set, as with the entering of SGO resp. SGU (i.e. prior to the end of the deceleration process) the travelling signals are switched off anyway and the car will slip into its levelled position. Naturally, this will work only, when SGO / SGU are "shifted together" so, that the respective slip is available.

  2. The case of not stopping with SGM is a bit more favourable with regard to the adjusting of the levelling accuracy, as here the adjustment of SGO and SGU is less critical. In this case, they are to be positioned still closer to the SGM so that the stoppage is made after elapse of a relatively short deceleration. While in case 1 SGO and SGU are to be placed in accordance with the required slipping path, inaccuracies can be corrected in case 2 by the deceleration.

Deceleration (time/fix/puls) :

Selects the signalizing method for initiating of deceleration (switch-over from high speed to low speed)

➔ ***(0)** : Signalizing method = time method. Switch-over comes after elapse of a set time (= time for the deceleration path UP resp. DOWN, with long-distance travels and with high-speed travel in case of landing-to-landing travels)*

➔ ***(1)** : Signalizing method = fixed point. Switch-over is effected on invariably defined points (= magnets) in the well.*
Attention: not applicable in case of overlapping deceleration paths !

➔ ***(2)** : Signalizing method = pulse method. Switch-over is effected following a preset number of pulses, generated by a path-measuring system or a digital tacho.*

In the landing next to the destination landing, provided that there is a sufficient interlanding distance, if SGM goes off the inductor plate, the value preset by parameter "deceleration paths UP resp. DOWN", will be mapped by the loading of a timer (with time method) or by the loading of a counter (with pulse method). After timer resp. counter have run down, switch-over from high speed to low speed is effected.

Braking (Time/fix/puls) :

Selection of signalizing method for stopping (switching off the travelling signals)

➔ ***(0)** : Signalizing method = time method. Stopping comes after elapse of a set time (= time for the deceleration path UP resp. DOWN)*

➔ ***(1)** : Signalizing method = fixed point. Stopping is effected on invariably defined points in the well (= magnet will switch the middle signal generator SGM).*

➔ ***(2)** : Signalizing method = pulse method. Stopping is initiated following a preset number of pulses, generated by a path-measuring system or a digital tacho.*

➔ ***(3):** hidden function – stopping is monitored in additon by the pulse method.*
In connection with parameter "emergency stop after entering the landing zone after ? ms" (parameter set 002), stopping is monitored in addition by the pulse method.*

No. of landings:

In case of group elevators, here always the maximum number of landings served by one group is to be entered, irrespective of the real number of landings of that elevator for which the parameterizing is made.

No. of cars:

In case of groups, i.e. no. of cars > 1, the following parameters will be interrogated after that:

Car in group:

All cars in a group must get their own number, in the sequential order in which they are interconnected via the data lines.

Among one group it might happen that an elevator, owing to insufficient well length, can not run into the top or bottom landing. The following parameters are considering such circumstances.

Bottom landing:

In the normal case, the bottom landing is also the 1st one. If the well starts one or more landings higher, this landing has to be defined by the parameter "bottom landing".

Top landing:

In the normal case, the top landing is also the last one. If the well ends one or more landings lower, this landing has to be defined by the parameter "top landing".

Interrogation in case of group elevators:

Door opening in group not simanoulsly (0/1):

Presetting, whether upon pressing the landing call button only one elevator shall open or all elevators standing on the respective landing.

➔ *(0) : opening of doors of all elevators*

➔ *(1) : opening of door not simultaneously, i.e. only with that elevator on the landing that has the lowest number in the group*

No of accesses(1/2):

Even with elevators having three accesses only 2 accesses can be set. For the switch-over to the 3rd access side, position-relays are used.

➔ *(1) : one access side*

➔ *(2) : two access sides*

No of push buttons on landing (1/2):

➔ *(1) : one-button control*

➔ *(2) : two-button control*

The following parameter is available after introduction of LiSA 10-7 (approx. Jan. 2003) Starting with this version, it is possible to select the LiSA-bus.

LiSA-Bus (No/sLbus/Lbus/cbus/sLbus+cbus/Lbus+cbus (0..5):

➔ *(0): without LiSA-Bus*

➔ *(1): sLbus: small LiSAlanding-bus – max. 64 Ios in line like on the IO-boards. Consequently a maximum of 8 bus-modules is connected.*

➔ *(2): Lbus: LiSA-landing-bus – like sLBus and additionally one LiSA-bus-module at each landing.*

➔ *(3): cBus: LiSA-bus for the cabin – in the inspection control terminal resp. cabin control panel there are LiSA bus-modules (APO10 is used).*

➔ *(4): sLBus+cbus: like sLBus and additionally a LiSA-bus for the cabin.*

➔ *(5): Lbus+cbus: a combination of Lbus together with cBus*

Der LiSA-bus has been newly developed. Connection of the bus-modules to the elevator control and among each other is done by means of 3 parallel running lines. Two lines are for voltage supply and one for data transmission.

Main landing)

- In case of parking mode VarEt and Hhalt (see parameter "parking mode“) the main landing will be assigned with priority.
- In case of one-button control with direction-dependent call cancellation (see parameter “Direction depending car call cancelling“) the collecting direction is defined by the main landing. All landing calls from the main landing and the landings below are executed in upward direction. Consequently, landing calls from above main landing are executed in downward direction.
- In two-button groups with varying no. of landings in the lower part, the definition of the main landing makes, that all landing calls from below main landing, incl. the down call in main landing itself, are assigned to that car which will run to the lower part.

Forced stop

The forced stop is for that landing, in which

- at any travel when this landing is passed-by a stop is made, or
- only when passing-by in downward direction, or
- only when passing-by in upward direction.

The respective function can be set by default of the respective value for the forced-stoppage landing:

➔ *forced stoppage = 0 : no forced stoppage*

➔ *forced stoppage > 0 and <= no. of landings: car command for the forced-stoppage landing*

➔ *forced stoppage > no. of landings and <= no. of landings * 2: landing call DOWN in forced-stoppage landing - no. of landings*

➔ *forced stoppage > no. of landings * 2 : landing call UP in forced-stoppage landing – no. of landings * 2*

Parking mode (none/FixEt/Zone/VarEt/Hstop):

Selection of parking mode.
After expiring of parking time a parking landing is approached according to parking mode. The door(s) will not open on parking level, if

- parking is made with doors closed, and
- no further call is registered for that landing.

Additionally required parameters for all parking modes:

In parameter-set General elevator times (001*): "parking time“:

➔ *(0) : Parking not set*

➔ *(1) : Selection of a fix parking landing for normal and clock-controlled travel.*

The following parameters have to be set :

Parking landing with normal travel:

Parking landing with clock-controlled travel:

Parking landing with clock-controlled travel 2:

➔ *(2) : Distribution of the elevators in parking zones (with elevator groups), with no elevator being assigned to a specific parking zone. Always that elevator will run to the parking zone after elapse of the stay-time, which stands closest to it, provided it is in a zone that is already occupied.*
Always the landing in the middle of the zone will be occupied.
The no.of zones corresponds to the number of cars in the group, e.g.
2 zones for duplex groups, 3 zones for triplex groups, etc.

The following parameters have to be set :

1st Parking zone up to landing =

2nd Parking zone up to landing =

3rd Parking zone up to landing =

➔ *(3) : Distribution of the elevators in varying parking landings **(in case of elevator groups)**, with no elevator being assigned to a specific parking landing. Always the elevator standing closest to it will run to the parking landing after elapse of the stay-time, unless it is already parking on a parking landing.*

The following parameters have to be set :

1st Parking zone =

2nd Parking zone =

3rd Parking zone =

Important:the main landing (see parameter "Main landing") is identical with the lowest parking landing:

The lowest parking landing ("Main landing") has the priority to being occupied, i.e. when the main landing is unoccupied, an elevator that has already taken its parking position can leave this and run to the main landing.

➔ *(4) : Occupation of the main landing.*

If the main landing is not occupied, that elevator that is situated nearest runs to the main landing.
In case of the main landing being occupied the other elevators don't perform parking runs.

- in case of a parking-run the display shows for the destination landing a "P“ instead of "Z“
- the elapse of the parking-time can be shown on the display (righthand on top) by setting 4*

For synchronizing (position monitoring) two magnets are mounted in the well and two bi-stable magnet switches on the car (more exactly: on the selector block) (top pre-limit switch VO and bottom pre-limit switch VU). The position of the magnets is communicated to LiSA by the two parameters below:

Corrective position bottom:

Indication of the position where the magnet for the corrective position below is.
The value to be set is identical with the last landing that has been passed-by in downward travel. This is normally the 2nd .

With short distance landings or high speed elevators it might be necessary to place the magnet one or two landings higher (corrective position below = 3 or higher).

Corrective position top:

Indication of the position where the magnet for the corrective position on top is.

It is absolutely necessary to take care that the magnet is mounted with sufficient distance from the terminal landing, so that the elevator - in case of a search-run with high speed or of a learning run - comes to stop reliably in the terminal landing.
A search-run with high speed will be carried out always when the parameter "correction next stop“ is set to 0 (no correction in next-above or next-below landing) and the elevator has to come to stop off-zone, for example

- after termination of the inspektion resp. recall travel,
- after a reset,
- after termination of a travel without having reached the destination (SGM not in zone),
- after termination of a travel, having overtravelled the destination (SGM not in zone)
- after the reason for a probable out-of-service situation has been eliminated, or
- after an interruption of the safety circuit immediately before arrival at the destination.

- The search-run is not performed automatically, only after a call has been set.

Hinged doors (0/1):

➔ *(0) : no hinged landing doors*
➔ *(1) : hinged landing doors*

The contacts of the hinged landing doors must be looped-in into the safety circuit between terminals 94 and 95. Upon start of the closing motion of the car door, the hinged door will be interlocked.

Direction-dependent call cancellation (0/1):

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

One-button service: for each landing call an upward and downward call will be generated, i.e., this call will be answered in both travelling directions.

Two-button service: each landing call is answered in the set direction, however always both calls will be cancelled. Consequently,
– the negative effects of the wrong operation by pressing both buttons (landing being approached 2 times although actually only one call is set) will be reduced, but
– if the calls actually had been set correctly, the landing call for the opposite direction must be given once more.

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

One-button service: for each landing call, depending on the position of the main landing, either an upward or downward call will be generated and processed accordingly, i.e. downward call from landings above main landing, upward calls from landings below main landing and from main landing.

See also parameter "inp. Additional upward call in main landing“ in parameter-set 003*.

Two-button service: each landing call is answered in correspondence with the set direction. Upon approach on the landing (at its deceleration point) the call in the actual travelling direction always will be cancelled (if the elevator approaches upward to the landing, the upward call is cancelled).
The landing call in opposite direction will be cancelled only, when
– the next travel goes to the opposite (reversing of direction), or
– after elapse of the stay-time no further call was set.

Therefore, faulty operation ("double-call“) will have a negative effect if the travelling direction is going to be reversed.

Example:

In the 5th landing the up and down buttons were operated. A car coming from below will cancel the upward call. In case of a faulty operation (somebody has set calls for both directions) the elevator - after answering to the calls from landings higher than the 5th - will unnecessarily stop again in downward direction. If there was no faulty operation, however the person that has set the downward call had also entered the car before (which happens frequently), the elevator will also stop again without necessity.

Note: "Double-call“:

In the LiSA-software a double-call suppressing device is include. While one button is getting pressed, acceptance of a call for the opposite direction is suppressed for a period of one second.

Additionally, double-call can be "punished“ by activating the free-programmable input "cancelling double-call”. This can be made by putting a permanent wire-bridge (to –H) or by a switch. In this case, the first call will be cancelled.

Opposite direction call cancelling with car command(0/1):

Avoiding unnecessary stops in case of double setting

➔ *(0) : no opposite direction call cancellation*

➔ *(1) : opposite direction call cancellation*

In case of double-call in a landing, very often that user will enter, who actually wanted to go to the opposite direction. So, after entering the elevator, he will normally set an car command in the direction desired by him.

The opposite direction call cancellation will cause, that the landing call for the opposite direction is cancelled upon start of travel, with the result that afterwards the elevator will not stop unnecessarily on this landing.

Universal control (0/1):

➔ *(0) : no universal control – normal collective control*

➔ *(1) : universal control*

Nowadays universal controls are found only in older elevator installations.
Here, only one command is accepted at a time – preferably an car command.

A landing call (only one) will be accepted, if

- the hinged door is closed,
- No car command is registered.
- 3 seconds have gone since elapse of stay-time – before that an car command will have priority

Relevelling (0/1):

➔ *(0) : no relevelling*

➔ *(1) : relevelling activated*

As the relevelling process normally runs with door open, a safety circuit (K5, K6, K7 plugged on the LiSA-main card) must be available and a selector block with 3 signal generators (SGO, SGM, SGU) must be installed.

Relevelling is active upon

- approach to destination landing, if the elevator does not come to stop on level (SGU / SGO off - inductor plate). Here it might happen that it comes to a stop too soon (fault message "too high“ resp. "too low“ in the fault memory) or too late (fault message "SoZone“ / "Su-Zone“ in fault memory)
- creeping-down of the car when at rest or owing to rope stretch.

Interrogation in case that relevelling is set:

Pre-start relevelling prevented (0/1)

Suppression of relevelling function immediately before a travel.

➔ *(0) : relevelling always*

➔ *(1) : no relevelling immediately before commencing a travel*

Purpose of this function is – particularly with Hydro-elevators – to prevent the time-consuming relevelling after entering the car.

Correction next stop (Endhalt/Next/overnext/Nextwithv1) :

If the car is outside the zone, if it is

- after finishing an inspection or rescue travel or
- after a regular travel (central signal transmitter not in the zone)
  then first a correction travel will be executed as soon as a new travel command has been entered.

➔ *(0): Correction travel to the terminal landing.*

Destination of the correction travel always is the terminal landing

Whether it is the top or bottom landing depends on the car position. If it is for example less than 3 landings to the top landig, it will travel to the bottom landing.

➔ *(1): Correction travel to the next landing.*

The correction travel will be done at low speed to the next landing up (resp. down, if the car is within the reach of the next pre-limit switch in up-direction).

➔ *(2): Correction travel to the landing above resp. below the next landing up resp. down.*

The correction travel will be done at nominal speed to the landing above the next landing up provided that the car is not within the reach of the next pre-limit switch in up direction. In this case it would be a correction travel to the landing below the next landing down.

➔ *(3): Correction travel to the next landing at v1.*

The correction travel is done at medium speed to the next landing up or down. This function is sometimes used for fire-brigade elevators with big landing distances in order that the elevator will reach the next landing without exceeding the travel time resp. within a reasonable time, if it has to start from a position between the landings.

Approach with open door (NO/YES/EswithTest)

➔ *(0) : Approach or relevelling with open door switched off*

➔ *(1) : Approach or relevelling with open door switched on*

- Prerequisit for approach or relevelling with open door are
  - the existence of a safety circuit (safety relay K5, K6, K7) on the LiSA-main card,
  - usage of a selector block with 3 signal generators (SGO, SGM and SGU) and
  - bridging of the door zone area (between terminal 12 and 14)

➔ *(2) : Approach or relevelling with open door switched on, with additional test of the approaching speed by LiSA. (possible only if LiSA is running with digital well information). By means of the following parameters "max. speed on opening of door in mm/sec", the threshold for the speed can be fixed.*
If the approaching speed is not lower than the threshold when the switch in the centre is reached, opening of door during approach will be suppressed.
This can be recognized by a considerably longer door opening delay (appr. 4 sec.).

Interrogation if approach with open door and test of approaching speed is parameterized:

Max. speed on opening of door in mm/sec.

Suppression of door opening function in case that the speed is not lower than the defined threshold.

Interrogation with elevators having two access sides:

Selective door control – landing (0/1)

Assignment of the landing buttons to the access sides, so that only the door on that side will open, where the landing call has been set.

➔ ***(0)** : no selective door control – upon landing call always both doors will be opened.*

➔ ***(1)** : selective door control – by assignment of different entry adresses for the buttons of access side 1 and access side 2.*
By parameter "1st landing button – door side 2" (Parameter-set "input addresses"–003) calls coming from door side 2 can be selected by the control.*
Please observe that the value for the 1st landing button – door side 2
- is higher than the adress for the last landing button on door side 1, and
- between this last button and the first button on door side 2 no other functions are set.

- if for the destination landing also an car command is set, this too will be considered upon opening of the door. With the result, that the selectivity in this landing are cancelled seemingly.

Interrogation with elevators having two access sides:

Selective door control – car (0/1)

Assignment of car command buttons to the access sides, so that only the door on that side can be opened for which the car command has been set.

➔ ***(0) : no selective door control** – upon an car command always both doors will be opened.*

➔ ***(1) : selective door control** – by assignment of different input addresses for the buttons of access*

side 1 and access side 2.
With parameter "1st car command button – access side 2" (parameter-set "input addresses – 003") calls from access side 2 become selectable for the control.*

☞ *Please see to it that the value for the 1st car command button – access side 2 is higher than the adress for the last car command button on access side 1*

- if for the destination landing landing calls are registered too, these will be considered also upon opening of the doors, with the result that the selectivity in this landing are cancelled seemingly.
- if only one door-open button is installed, this one will open the doors always in accordance with the relevant release for the door opening. The release for opening the door will be defined by the calls executed last that have been set for the landing in which the elevator actually is.

☞ **Selective door control – landing / car to be selected only if there are in at least one landing two opposite access sides in at least one landing! Or in elevators with bus installation, if this facilitates the installation of the landing bus.**

Special elevator (norm/Aut/US/inclined):

Selection of special functions found in special types of elevators only.

➔ *(0) : Normal elevator*

➔ *(1) : Car elevator – causes the evaluation of a presence-checking sensor, in case that parameter "input – presence – checking sensor in elevator car (003*) has been programmed (> 0). In case of an elevator with 2 landings, for that landing where the car is not an car command will be generated automatically.*

- Meanwhile, a special program for car elevators is available (see fig. 2)

➔ *(2) : Special functions for the "U- and S-Bahn" of Berlin*

➔ *(3) : Special functions for the "Hochbahn" of Hamburg*

Interrogation in case of car elevators:

Automatic car command in car elevator

➔ *(0) : car command to be set by the user*

➔ *(1) : in case of car elevators with 2 landings only, an car command will be generated towards the landing other than that where the elevator car is, if the attendance sensor (arranged in centre of the elevator car) and the normal light barrier were operated on entry.*

Description "special program - car elevator". Example: 3 landings and 2 access sides.
Following parameters are to be considered:

- *1st input for traffic lights for the car elevator*
- *1st output for positioning signals for the car elevator*
- *input presence-checking sensor*
- *1st input for check of the waiting area (optional)*
- *warning signal prior to door-closing order (sec)*
- *with 2 access sides, selective door control landing and car*

Additionally, door-open limit switches (AES1 and AES2) must be installed.
With 2 access sides the I/O´s for both sides will be assigned.
Per each access side and landing, three I/O´s will be assigned for the traffic lights, the I/O´s for the approach signals being arranged after the I/O´s for the access signals.

- Prior to each door-closing (all light barriers free) the respective access signal is switched to red, and after elapse of the time "warning signal prior to door-closing order“ the door will close.

Basing on the fact that in state of rest all approach and access signals are switched to red, there is an example of the functional process:

Elevator is ordered by landing call in landing 1 (E1) from access side 1 (TS1).

- *Elevator moves to landing 1 -> approach signal in E1-TS1 becomes dark*
- *Elevator opens TS1. Signal from AES1 arrives -> access signal in E1-TS1 becomes green*
- *automobile enters elevator car. Signal from presence-checking sensor arrives -> transparent signal-"go forward" of access side 1 is lit (if the car goes forward too far, e.g. when the light barrier on access side 2 gets interrupted, the transparent signal "set back“ will appear).*
- *automobile leaves light barrier of access side1 -> transparent signal-"go forward" of access side 1 extinguishes, transparent signal "Stop" is lit*
- *after setting of the destination the access signal becomes red and the door closes (see afore mentioned remark)*
- *approach to destination. Door 1 / 2 opens. Signal AES1 / AES2 arrives -> transp.signal "go forward / set back" is lit, depending on the direction of movement*

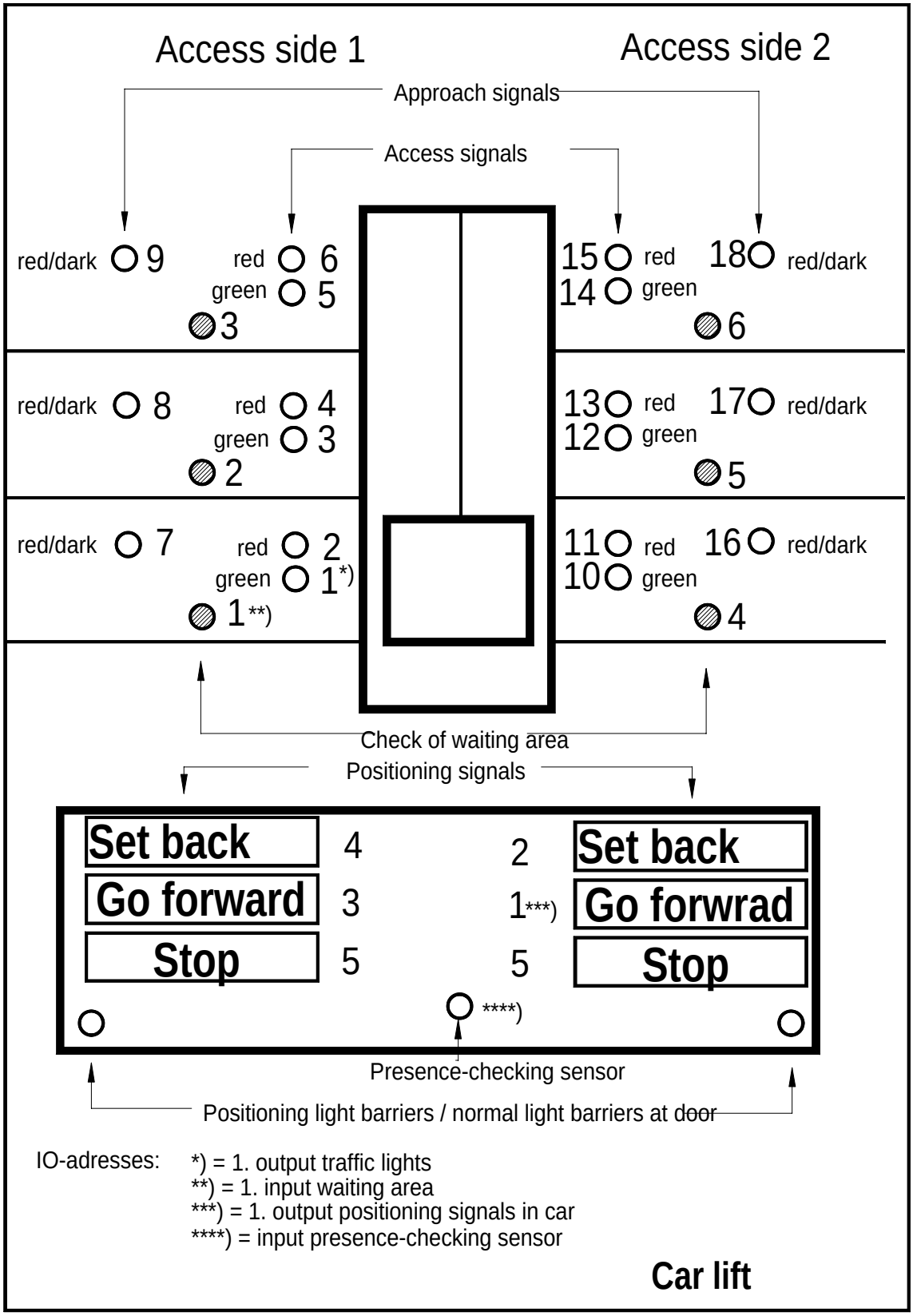

Access side 1
Access side 2
Approach signals
Access signals
red/dark 9
red 6
green 5
3
15 red
14 green
18 red/dark
6
red/dark 8
red 4
green 3
2
13 red
12 green
17 red/dark
5
red/dark 7
red 2
green 1*)
1**)
11 red
10 green
16 red/dark
4
Check of waiting area
Positioning signals
Set back 4
Go forward 3
Stop 5
2 Set back
1*** Go forwrad
5 Stop
****)
Presence-checking sensor
Positioning light barriers / normal light barriers at door
IO-adresses: *) = 1. output traffic lights
**) = 1. input waiting area
***) = 1. output positioning signals in car
****) = input presence-checking sensor
Car lift

Fig. 2

Protective Area to small (no/top/bottom/top+bottom):

Adapation to insufficient overtravelling clearance.

➔ *(0) : normal protective clearance (overtravelling) above car*

➔ *(1) : insufficient protective clearance (overtravel) above car.*

➔ *(2) : insufficient protective clearance (undertravel) below car*

➔ *(3) : insufficient protective clearance on top and below*

In case of inspection mode it is achieved

- that in the landing next to the last resp. in the 2nd landing speed will switch-over automatically from high to slow and
- that the correction switch (VO resp. VU) can not be overshot.

Protective light screen (0/1):

Funktions of a protective light screen for cars without car doors.

➔ *(0) : not provided*

➔ *(1) : protective light screen installed.*

The difference between a protective light screen and a conventional light screen consists - apart from the special functions required in case of an interruption of the light screen – mainly in the fact that its functioning must be tested prior to each travel. For that, a safety circuit is required.

Most light screens available in the market are offered in 2 versions:

1. One relatively cheap "light“ – version (e.g. Cedes-Light), without an inherent safety circuit. This safety circuit (4 additional auxiliarx contactors) can be order with M/s Schneider / M/s Klinkhammer / M/S Haider together with the order for the control. This solution is considerably cheaper than the 2nd version
2. The protective light screen has an inherent safety circuit.

In the electronic system of the protective light screen there is a relay, contact of which is looped into the safety circuit in place of the absent door contacts (between terminal 95 and 11).

- if the protective light screen gets interrupted during travel (SK3 and SK4 are disconnected), proveded that the elevator is not already within the zone of the destination landing, the elevator stops immediately as the contact of this relay will open. All calls are cancelled and landing calls will no longer be accepted.
- on the LiSA-display the text light screen interruption so long, until the contact will be closed again.
- after setting of any car command a test signal will be applied at the light screen in 10 seconds repetition rate. This is done via a free-programmable relay (parameter "Relais Reset light screen“ in parameter-set 006*).
- after the obstacle has been eliminated the light screen will close again and the travel continued.
- at first, the originally set destination landing will be approached.
- if the interruption was distant from the destination more than one landing, ongoing travel will be with the high speed.
- in case of interruption next to the destination, the further process depends on the value of parameter "correction next stop”:
  - Correction next stop = 0 (correction in terminal landing):

    This value is to be selected if the destination cannot be approached with slow speed, i.e for one-speed elevators and elevators with Dynatron-S or –F.
    With these elevator types, the destination is reached by a "reversing travel“, e.g. if in downward travel an interruption of the light screen occurs prior to reaching the destination landing 5, the elevator will run to landing 7, the doors remain closed and only then the original destination landing 5 will be approached. If the elevator has only 6 landings, landing 4 will be approached first, and then landing 5.

- Correction next stop > 0 (correction in next landing):
  This setting can be selected with all other elevator types, that can continue to run with slow speed.

Door position in parking mode (open/closed/open+blocked/close+blocked) (0..3):

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

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

- via the free-programmable input – (parameter "input – door position in parking mode" in "003*") the door position in parking mode can be inverted.

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

Selection, if and in which position the door motor shall be shut down.

This function is important particularly if there are no door limit switches installed.

- ➔ *(0) : door motor will not be shut down*
- ➔ *(1) : shut-down of door motor in end position with door closed.*
  By setting a travel order the door motor will be engaged again.
- ➔ *(2) : shut-down of door motor in end position with door open*
- ➔ *(3) : shut-down of door motor in end position with both, door open and closed*

Inspection speed (V0/Vi/V2):

Selection of the speed for elevator running in inspection mode.

- ➔ *(0) : inspection travel with creeping speed (Vo / Ve)*
- ➔ *(1) : inspection travel with inspection speed – Vi (medium speed) . Naturally, this setting makes*
  sense only, if the elevator can be run with medium speed, i.e. in case of VV/VF-controlled
  traction elevators (except: Dynatron), Beringer-LRV etc..

  If a key is installed for inspection speed-high, and applied to an input programmed with the function "inp.-inspection-high", Vi (medium speed) will be activated by the depressed button and not the high one (V2). When the button is released, the elevator will run again with creeping speed.

  Additionally required parameter:

  in parameter-set "relay addresses" (006*): "Rel.-running with V1 (VZ1)"

- ➔ *(2) : Inspection travel with high speed (V2)*
  This setting is admissible only when the speed 1,2 m/sec is not exceeded.

- the recall travel is always performed with creeping speed.
- in case of inspection and recall travel being engaged simultaneously, all travelling motions are prevented. There is no priority of inspection travel.

Length of inductor plate:

Default length of inductor plate (zone).

On the default length of the inductor plates a couple of measurements are basing, which die LiSA carries out for the well information, as e.g.

- measurement of speed (indicated on the display righthand below)
- definition of the landing distances and the pulse-constant

- In case of the presently exclusively used electronic signal generators of Pepperl&Fuchs or Secatec

(3 connection wires) a length of inductor plate is indicated, that falls short by 7 mm compared with the actual lenght of inductor plate. That is 193 mm in case of 200 mm long inductor plates.

- On the length of the inductor plate depends also the minimum landing distance:

Selector blocks without SGO or SGU: min. landing distance = inductor plate length + 50 mm.

Selector blocks with SGO or SGU: min. landing distance = 2*inductor plate length + 50 mm.

The minimum achievable landing distance depends also on the speed.
So, for example, in case of an elevator with 0,3 m/sec and arrangement of the signal switches SGO, SGM and SGU beside each other, a landing distance of 50 mm can be realized. Another elevator with 1,2 m/sec is run with a landing distance of 90 mm.

Landing-to-landing travel with VE/V1:

Default, between which landings the elevator shall be run in slow resp. in approaching speed.

The length of the sequence of numbers to be set, consisting of zeros "0“ and units "1“ is lower by one digit than the number of landings.

Example: In case of an elevator with 8 landings, between landings 3 and 4 only with VE / V1 shall be run:

Out of this results the following input "**0010000“**

- if the elevator is run with the time-method, the same effect is achieved with parameter "high interlanding travelling speed 3 <-> 4“ is set to 0.

Max. car commands without light barrier interruption:

Default of max. no. of travels initiated by car command without interruption of light barrier. Upon reaching the set parameter value, all car commands will be cancelled.

- ➔ *(0) : function switched off. Please set always to 0, if there is no light barrier installed.*
- ➔ *(1) : cancelling of all car commands if after completion of a travel initiated by an car command after elapse of the stay-time, no interruption of the light barrier was following*
- ➔ *(2) : cancelling of all car commands if after completion of two travels initiated by car commands after elapse of the stay-time, no interruption of the light barrier was following*
- ➔ *(3) : cancelling of all car commands if after completion of two travels initiated by car commands after elapse of the stay-time, no interruption of the light barrier was following*
- ➔ *(n) : cancelling of all car commands if after completion of three travels initiated by car commands after elapse of the stay-time, no interruption of the light barrier was following*

Ignoring of landing calls in case of x car commands:

With elevators having no full-load device a pseudo full-load function can be realized herewith.

- ➔ *(0): function switched off. (Please set always to "0" if the function should be switched off).*
- ➔ *(n): no. of car commands at which the control changes into full-load condition, with the result, that landing calls actually will be stored but will not be considered upon call assignment.*

Single-side access entitlement (0/1):

Selection whether the car must be left at that access side from which it has been entered.

- ➔ *(0) : no restriction of access entitlement*
- ➔ *(1) : single-sided access entitlement*

With elevators having 2 access sides it is sometimes necessary to ensure that a user entering from e.g. access side 1 will leave the car on access side 1, too. This requirement is found mainly, when the elevator is used by 2 different user-groups, (e.g.: on access side 1 is a bank and on access side 2 are funeral directors).
For a safe functioning the installation of a zero-load contact (presence-checking sensor in the car) and the programming of the respective input in parameter-set input adresses (003*): "Inp.-zero-load“ is required.
If the risk can be accepted that occassionally a visitor might enter from one access side and leave to the other one, this feature can be dropped.

In order to distinguish from which access side a call has been set, another additional parameter "selective door control - landing“ out of the parameter-set 000* is required.
When the elevator is in parking position the door-status must be "closed".

Functional process (Status: no calls registered and doors closed):

- landing call from access side 1: the car gets reserved at once for access side 1 until all car and landing calls for this side are processed and the doors have closed again. Landing calls from access side 2, however, will be stored.
- landing call from access side 2: analoguous to the process for access side 1

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

Selection of when the light barrier signal is active (-H applied on the light barrier input).

- ➔ ***(0) :*** *normal case: light barrier contact is closed (active) in dead condition and with light barrier interrupted.*
- ➔ ***(1) :*** *light barrier contact is closed with light barrier not active.*

Contact of closing fordelimiter active (closed/open) (0/1):

Selection of when the closing force limiter signal is active.

- ➔ ***(0) :*** *normal case: closing force limiter contact is closed (active) with closing force limiter operated.*
- ➔ ***(1) :*** *closing force limiter contact is closed with closing force limiter not active.*

Standard (EN81/TRA/otherEn81):

Selection of the standard the control has to comply with

- ➔ ***(0) :*** *EN81: European Standard*
- ➔ ***(1) :*** *TRA : German technical directives for elevators*
- ➔ ***(2) :*** *Others: Same as with EN81, but monitoring the contactors additionaly if they open.*

Differences in control functions between EN81 and TRA:

- Travel to top limit switch with hydro-elevators (entry "ESTop?" in the fault memory)

  TRA: after reclosing of the limit switch (elevator having lowered) the elevator will be operative again.

  - **EN81:** after reclosing of the limit switch (elevator having lowered) the elevator will lower to the bottom landing and remains inoperative (indication O = out of operation on the 7-segment-display for the operational status). The elevator goes back into operation only after a change of the operational status or after a reset.
- exceeding of the running time monitoring period (entry "TTElap / ATElap / STElap / RTElap" in the fault memory)

  TRA: 10 seconds after exceeding the running time another attempt to travelling will be made. If this attempt again leads to an exceeding of the running time, the elevator will remain inoperative). Indication Z on the operational status indicator.

EN81: already after the 1st exceeding of the running time the elevator becomes inoperative and can be put in operation again only after a change in the operational status (e.g. activation of recall function) or after a reset.

- significance of input AA at the lefthand rim of the LiSA10-card:

  TRA: landing control-off

  EN81: monitoring of contactor drop-out.

Interrogation in case of group elevators:

Landing calls not to group (0/1):

Selection whether that elevator which reads-in the landing calls shall pass-on these to the other group elevators.

➔ ***(0)** : normal case: landing calls shall be passed-on.*

➔ ***(1)** : landing calls shall not be passed-on to the group.*

Sometimes this function is desired in a group if a clearly defined elevator shall be called (e.g. a goods elevator), without activation of a special or priority travel.
Prerequisit: each elevator serves its own landing call input and the landing calls are not interconnected among each other.

Interrogation in case of two access sides:

Doors interlocked against each other (0/1):

Channelling function: Selection whether in case of two access sides only one shall be opened at a time.

➔ ***(0)** : normal opening of doors*

➔ ***(1)** : channelling function upon opening of doors.*

After arrival in the destination landing always access side 1 is opening first and only after reclosing access side 2 will open.
Deviating herefrom, after approach to the destination landing access side 2 is opening first, if with car selective door control an car command has been registered for the access side 2. If no car command was registered, the same applies also to the landing selective door control, if for access side 2 a landing call was registered.

No. of travels till next maintenance / 100:

Default of the no. of travels marking the end of the maintenance interval.
The parameter-value must be multiplied with 100. If you want, e.g., that the end of the maintenance interval shall be reached after 100.000 travels, you have to set the parameter to 1000.
If the end has been reached, the following actions are initiated:
the indication of the operational status (7-segment-display on the LiSA) will be flashing between the normal indication and 0,
relay "rel.-maintenance interval-end“picks up, provided that such function has been programmed in parameter-set 006*,
output "output maintance / inspection“ will be activated, provided that such function has been programmed in parameter-set,
a function that can be set only by M/s Schneider / Klinkhammer will be released.

Afore described condition can be de-activated by cancelling of a control-internal counter (with 019*) with parameter-storage and hereupon following reset.

Inverter via DCP (No/DCP01/DCP03) :

It is an interface RS485 between inverter and control unit.

➔ *(0) : do not disconnect*

➔ *(1) : DCP01. Interface DCP between inverter RST and control unit*

➔ *(2) : DCP02. Interface DCP between inverter Ziehl-Abegg and control unit (actual version).*

LiSA-Typ (LiSA10-5/LiSA10-7without230VSAK/LiSA10-7with230VSAK):

Adapts the installation to the new version of LiSA 10-7 (see chapter 2 – LiSA-bus)

➔ *(0) : LiSA10-5*

➔ *(1) : LiSA10-7 without using the 230-V-input for contactor drop-out control to be used if LiSA 10-5 is replaced by LiSA 10-7.*

➔ *(2) : LiSA10-7 with possiblility to connect contactor drop-out control to the 230-V-input.*

3.2.1. General Elevator Times:

The herebelow following times for the monitoring of the door motion, i.e. stay-time, door-opening and door-closure monitoring time can be called in the LiSA-display by typing 4*:

The actually expiring time and the counter content will be displayed:

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

Stay-time following a car command (sec):

Door keep-open time after approach to the landing with car command, without a landing call having been set

➔ ***Start:*** *- Door-opening monitoring time expired*

- Door-open limit switch interrupted (door completely open**)**
- Light barrier released after stay-time has expired already once
- With values >= 25 sec. after setting an car command, the stay-time is set to 2 sec.

➔ ***End:*** *- Counter expired.*

- Door-closure button operated.

Stay-time following a landing call (sec):

Door keep-open time after approach to landing with landing call.

➔ ***Start:*** *(see stay-time following an car command)*

➔ ***End :*** *(see stay-time following an car command)*

- The value of stay-time following an car command cannot be lower than that for the stay-time following a landing call.
- In case of values > 25 sec., following an car command the stay-time will be set to 2 sec. If at the moment of stay-time starting another car command is registered already, the stay-time will be set to 10 sec.

Door-opening monitoring time (sec):

Time to monitor the opening of the door.

➔ ***Start :*** *Start of door opening motion (door-opening command applied)*

➔ ***End :*** ***-*** *Counter expired.*

- Signal of door-open limit switch received.

If after elapse of the door-opening monitoring time the safety circuit (at SK4 or SK3 with door-open limit switch installed) is not cut, another attempt will be made to open the door.
After 5 fruitless attempts the door-failure will be recognized.

- If the door operator has got a door-open limit switch, the default-value for the door-opening monitoring time is not critical (10 sec will be a good value), as upon receipt of the door limit switch signal the stay-time is started at once.
  If no door-open limit switch is installed, the value for the door-opening monitoring time should be set about as high as the door would really need to open.

Door-closure monitoring time (sec):

Time to monitor the closing of the door.

➔ ***Start :*** *Start of door closing motion (door-closing order applied)*

➔ ***Ende :*** *- Counter expired.*

- Signal of door-closed limit switch received.

- Safety circuit closed (at SK3)

If after elapse of the door-closure monitoring time the safety circuit (at SK3) is not closed, another attempt will be made to close the door.
After 5 fruitless attempts the door-failure will be recognized.

- All car commands are cancelled.
- In case of a single elevator all landing calls are cancelled. To groups it refers only then, if no group elevator is in a position to accept landing calls.
- Adoption of the operational status "door failure“ . -> on the display for the operational status (7-segment-LED on the main card) "T“ is indicated.
- Following an car command – in case of a single elevator also in case of an landing one – the door failure is cancelled and an attempt is made to close the door.

  Now, already after 2 fruitless attempts only, the door failure will be recognized,
- After totally 10 door failures in sequence the operation of the elevator will be suspended.
- In the fault memory only the first failure is entered.

- The default-value for the door-closure monitoring time is not critical (20 sec will be a good value). Only if there are two access sides with large doors, a higher value should possibly be set in order to
- avoid that in case of a basically correct door-closure on one access side the 2nd access side is opened again (if SK3 has not been recognized after elapse of the door-closure monitoring time).

Travel monitoring time (sec):

Time for monitoring of the elevator motion .

➔ ***Start :***

- The elevator starts running while being within the reach of the inductor plate
- The car runs off the inductor plate (travel monitoring time = parameter value), i.e. the travel monitoring time is started again in every landing.
- The car runs into the reach of the inductor plate on the destination landing.
- After switching-over to slow speed (travel monitoring time = parameter value)
- Upon relevelling (travel monitoring time = 95, if relevelling is made from outside the zone)

➔ ***End :***

- Counter expired -> travel monitoring time exceeded:
- All car commands will be cancelled.
- In case of a single elevator all landing calls are cancelled. To groups it refers only then, if no group elevator is in a position to accept landing calls.
- Adoption of the operational status "exceeding of running time“
  -> on the display for the operational status (7-segment-LED on the main card) "Z“ is indicated.

10 sec. after exceeding the running time – upon setting of parameter "Norm“ to TRA (= 1) – another attempt will be made. If again the running time is exceeded, the elevator operation will be suspended definitely.
If "Norm" is set to EN81 (= 0) the elevator operation will be suspended. With hydro-elevators the lowering to the bottom landing will be still carried out. The elevator goes back into operation only after a change of the operational status or after a reset.

Entries in the fault memory:

- Exceeding of travelling time upon starting: "StElap“ (starting time elapsed)
- Exceeding of travelling time between landings: "TTElap“ (travel time elapsed)
- Exceeding of travelling time on approach to destination: "ATElap“ (approach time elapsed)
- Exceeding of travelling time on relevelling: "RTElap“ (relevel time elapsed)

Door stop time (sec):

Function to keep the car door open during a defined time interval (time for loading of the car)

➔ ***Start :*** *Operation of the door stop button.*

The activated door stopping function is indicated by the flashing of the door stop button registered light. If the registered light shall not flash, i.e. if it shall be permanently lit (maybe because the impression of a

hazardous situation should be avoided) this can be achieved by presetting the door stop time at > 600 sec. The actual door stop time will then be door stop time – 600.

➔ ***End :***

- Counter expired.
- The door stop button has been operated while flashing within a dark phase prior to the elapse of the door stop time.
- When 0 has been set for the door stop time, the function remains active until it gets deactivated by pressing the door stop button.

Additionally required parameters:

"input-door stop button“ in parameter-set "input addresses (003*)"

Being member of a group, the elevator will no longer participate in the distribution of the landing calls, i.e., it will behave as if the landing control was switched off.

Car fan running time (sec):

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

➔ ***Start:***

- *Operation of fan button -> activation of fan relay. The activated function can be identified by the flashing of the fan button registered light.*
- *Upon completion of a travel, if there is no input for the fan button programmed.*

➔ ***End:***

- Counter expired -> fan relay switched off
- The flashing fan button was operated during a dark phase; before elapse of the car fan running time.

Additionally required parameters:

"input fan button“ in parameter-set "input addresses" (003*) "rel.-car fan“ in parameter-set "relay addresses" (006*)

- *If the elevator comes to stop between the landings, the car fan will be activated automatically*

Parking time (sec):

Time interval after which the parking travel will be carried out.

➔ ***Start :*** *Start of door opening.*

➔ ***End :*** *Counter expired.*

Additionally expired parameters:

"Parking mode (....)“ in parameter-set "general elevator parameters" (000*)

- In case of a hydro-elevator that is positioned in the lowering landing, no parking time will be started unless parameter "delay of starting /multifunctional paramter 2" has been set to "206" .
- Expiring of the parking time can be made available by pressing 4* on the display.
  If the elevator is already in the parking landing, the counter will be loaded with 2 seconds only.

Car light switch-off time (sec):

Fixing of time for switching-off the car light

➔ ***Start :***

- End of door-closing motion (SK3 indicated).
- End of stay-time with door-open position in parking mode.

➔ ***End:*** *(car light – off)*

- Counter expired.
- Door will be opened again

Additionally required parameters:
"Rel. car light off" in parameter-set "Relayadresses" (006*)

Interrogation in case of Hydro-elevators:

Hydro lowering time (sec):

Time after which the elevator shall lower to the bottom landing

➔ ***Start :***

- Start of the door opening motion or end of parking time

➔ ***End:*** *(lowering)*

- Counter expired.

The elevator will lower even with landing control switched off, or in case of a key-switch operated travel (TRA-requirement).

Interrogation in case of hydro-elevator and overtravelling (see parameter "overtravelling" in 000*):

Overtravelling valve/pump (ms):

Overtravelling time for valve / pump, depending on the kind of overtravel selected in parameter "over-travelling“

➔ ***Start*** *:*

- After elapse of deceleration.
- In case of valve overtravelling (e.g. with Oildinamic and GMV) the delta-contactor is switched off and the upward-valve remains still engaged.
- In case of pump overtravelling (e.g. with Beringer and ALGI) the upward valve will be closed while the pump motor continues to run.

➔ ***End****:*

- Time expired.
- All operating signals will be switched off.

Additionally required parameters in case of pump overtravel:
"Rel.-pump overtravel“ in parameter-set "relay adresses"(006*)

- In case of an interruption of the safety circuit during a travel, the overtravelling function does not work without an additional hardware (RC-module in parallel to the upward valve).
  Above all, if there is the risk of the safety gear becoming active in case of a disconnection of the safety circuit or while the elevator is in inspection mode, the "hardware solution" should be adopted. (M/s. Schneider puts suitable RC-modules at disposal)

Interrogation in case of hydro-elevators:

Star-delta time (ms):

Time for reversing from von star to delta contactor

➔ ***Start :*** *Begin of upward travel (activation of the upward und the star contactor)*

➔ ***End :*** *Time expired(activation of the delta contactor).*

Interrogation in case of VV/VF controlled traction elevators:

Cut-off delay (ms):

Time that will be started after deceleration has expired.

➔ ***Start :*** *End of deceleration.*

- Engagement signal V0 for the will be switched off
  (V0 = approach-speed with VV/VF-controlled elevators).
- The starts working with deceleration to speed 0 (electr. stop).

➔ ***End :*** *Time expired.*

- LiSA disables the directional contactors (K2 / K4) and starts a fixed period of 300 ms (after expiration, also the travel contactors K3 and K3Z will be switched off).

- Prior to the elapse of the cut-off delay, the VV/VF control must have delivered the signal for the engagement of the mechanical brake. That means, the cut-off delay must at least be long enough to apply the mechanical brake reliably prior to the elapse of the cut-off delay period - no "stopping against the brake".
  A correct stopping action can be very well followed-up acoustically.
  Pay attention to the switching of contactors in clearly graded sequence: first brake contactor (K8), then directional contactor (K2 / K4) and finally K3 and K3Z.
- A very good value for the cut-off delay will be 1500 ms.
  The cut-off delay will cause – with elevators having no door-opening upon approach – that the car door can be opened rather late (customer-dissatisfaction particularly after conversion of an unregulated elevator into a regulated one).
  Therefore, it would be advisable to equip cloosed-loop controlled elevators always with doors opening upon approach, in order to eliminate the negative consequences of the cut-off delay arising in this case. Here, the time-gain caused by the early opening of the doors will be secondary.
- Too short cut-off delay periods may result in sporadic steps upon stopping.

Query in speed-controlled rope-traction elevators make Siemens or Yaskawa

Interval between direction off and travel contactor off (ms):

Interval that elapses between switching off the direction signal and switching off the travel contactor.

Frequency inverters executing a stop at levelling speed by switching off the v0-signal, have the said procedure under parameter “Abschaltverzögerung” (retarded switching off).

Some frequency inverters, such as Siemens or Yaskawa, start the stopping procedure as soon as the direction signal is switched off. As a consequence, the preset time of 300 ms between “direction off” and “travel contactor off” leads to a jerky stop.

For these inverters therefore the following settings have to be done.

- set the switch-off retardation to a very low value (e.g. 5 ms) -> direction signal will be switched off immediately after v0-signal. After that the travel contactors are switched off as soon as the time has elapsed that is set by this parameter “interval between direction off and travel contactor off” (approx. 1500 ms).

➔ *Start : End of braking retardation*

- As soon as retarded switching off has elapsed.
- Speed control starts slowing down to speed 0 (electric stop).

➔ *Ende: time elapsed.*

LiSA switches travel contactors K3 and K3Z off).

Interrogation in case of traction elevators:

Motor fan overtravel (sec):

Lenght of the overtravelling period for the motor fan after elevator stop.

➔ ***Start :*** *The motor fan overtravel period is stated with the opening of the door, the fan relay however is started at the begin of the travel.*

➔ ***End :*** *Counter expired.*

Additionally required parameters:

"Rel.-motor fan“ in parameter-set "relay adresses" (006*)

Starting-delay / multifunctional parameter 2 (ms):

Duration of door lock debouncing time.

➔ ***Start :*** *After closing of car door (SK3 indicated)*

➔ ***End :*** *Time expired – elevator starts running*

By a couple of default values, such rare functions can be selected additionally. Otherwise they would need specific parameters for their realization.

Multi-functional parameter:

Time for start-up delay:

195: **No disconnection of the misuse-suppression** if door-opening button and alarm button are pressed simultaneously

196: **Unlocking travel** (in case of hydro-elevators: travelling with anti-creep device)

Stop in the destination landing:

Upon approach to the destination landing the elevator stops generally above landing level.

This is achieved by an appropriate adjustment of the deceleration:

For upward travel: Deceleration-UP to be set as long as to be sure that the elevator will run too far. When the top signal switch goes off the zone, an emergency stop will be initiated (deceleration-UP to be set to > 120 mm).

For downward travel: Deceleration-DOWN to be set so short that the elevator will stop too early (deceleration-DOWN to be set to < 50 mm).

After the stop, the supporting bars of the anti-creep device will be protracting (engagement by door look relay1).

The lowering travel to the level position is made either immediately after that or after an adjustable period (Tvabsenk). This period will be activated when the value of switching interval / mulitunctional parameter1 is between 50 and 60.

Calculation as follows: TvAbsenk = switch interval – 50, i.e. value 55 would result in a lowering delay of 55 – 50 = 5 seconds.

After arrival at flush position the door will open.

Raising prior to begin of travel:

Prior to the start of the actual travel, the car has to be raised a bit, so that the bar of the anti-creep device can retract. Then, the actual travel will be carried out.

Irrespective of whether the intended destination is below or above, the elevator will be run upward until the top signal switch is off-zone (emergency stop). After that, it will stop and the anti-creep device will retract (by door-lock relay 1).

A subsequently following continuation travel upward is carried out without delay. A downward travel, however, might possibly start with a delay, depending on the setting of the afore described parameter switching interval / mulitunctional parameter1. Calculation of delay period same as above.

Upon retracting run, the relay for the relevelling speed (if programmed) will be engaged additionally, to switch over to a possibly available pump unit for the retracting run.

198: Activation of check for missing pulses

201: In case of **double-call** the 2nd call is passed on to another group elevator

206: Hydro-elevator runs from lowering landing to parking landing also.

210: In case of an interruption of the light barrier the door will stop moving.

211: Special function for M/s. Weymann (not available now)

212: Special function for extremly short distance travels (possible landing distance not more than 1cm)

213: Special fire emergency mode for the Leipzig fire department.

214: Special fire emergency mode for the Leipzig fire department. Elevator goes back into operation after deactivation of the fire detector signals (contrary to the setting with 213, where the elevator remains disabled).

216: Special dynamic fire emergency mode (released by fire detector) with the following functions:

- After receipt of a fire signal (e.g. fire detector in landing X engaged) the elevator will carry out a travel to the landing where the fire was detected.
- If the landing is full of smoke (fire detector in the fire-affected landing was engaged) the elevator will go to the alternate landing
- If this is also full of smoke, attempts will be made to approach to a not smoke-filled landing, starting from the top.

- If all landings are smoke-filled the fire emergency landing will be approached.

☞ The actual fire emergency or firemen travel (released by key switch) has the priority, i.e. in this case the elevator approaches even to a smoke-filled fire-service landing.

Warning signal prior to door-closing command (sec)

Time between door-closed command and actual door closing.*)*

Prior to the actual door closing motion a signal can be released
as an indicating text that the door is going to be closed very soon, or
e.g. with car elevators, traffic light being switched to red.

➔ ***Start :*** *Door-closure command.*

➔ ***End :*** *Time expired –door will close*

Additionally required parameters:

"output-text door closing“ in parameter-set output adresses (004*) with text output, or
"output-traffic light in car“ in parameter-set 004* in case of car elevators.

Interrogation, in case of hinged doors

Car out of group / if blocked in a landing;after .. (sec):

Time interval, after expiring of which a signal will be delivered that (1) the hinged door is open resp.(2) in case of groups the other group elevators will be informed that the car does no longer participate in the landing call distribution.

➔ ***Start :*** *- Opening of hinged door (= hand-operated landing door)*
- *Interruption of the light barrier*
- *Interruption of the safety circuit during travel*

➔ ***End :*** *- Time expired – elevator sends out the relevant signals*
- Hinged door closed again
- Aktivation of a free-programmable relay or output for a period of 6 seconds to engage a accoustic signal
– Information to the other group elevators

Additionally required parameters:

"output-accoustic signal“ in parameter-set "output addresses" (004*), or

„Rel.-busy signal“ in parameter-set 006*.

- A signal indicating that the hinged door is open can be given either via the busy-relay or also by 16*8 matrix-indicators if the indicator type has been preset with 3 (= 16*8mitX). After that a small square is shown at the lefthand side of the car position.
- On the LiSA-display the status "elevator no longer participating in landing call distrubtion“ is shown by a dark square in the 2nd line, 14th position from the righthand side (left of the safety circuit indications).

Door reversal delay / Multi-Functional Parameter 1 (m/sec)

Time between disconnection of the door-closing signal and engagement of the door-open signal.
Additionally, further functions are "hidden", independently from the parameter value.

➔ ***Start :*** *Disconnection door-closure command.*

➔ ***Ende :*** *Time expired – engagement of door-open command.*

It is the purpose of this parameter to prevent shorts on switching-over of 220 / 380V door operators. The standard value is 100 ms. On engagement of electronic door operators is this value not critical, i.e. it can be set very low (10 ms).

Values above 200 ms are set to 100 ms program-internal.

By a couple of default values, additional relatively rare functions can be selected, that otherwise would need specific parameters for their realization.

Multi-functional parameter 1:

Door revervs. Del.

= 86ms: In case of selective internal door: door opening with door open button, even for a door without door-opening permission.

= 89ms: Door-closure button without consideration of the light barrier

= 90ms: No entries "too high“ and "too low“ in fault memory

= 91ms: Doors de-energized in inspection mode.

= 92ms: If after elapse of the stay-time no car command is set, the first car command received has the priority, i.e., it will be answered first.

= 93ms: Landing gong to be deactivated after expiration of stay-time

= 94ms: Showing travelling direction by blinking of activatet landing call lamps

= 95ms: Blinking of activatet landing call lamp in the landing where elevator is going next.

= 96ms: Car light will not be switched off in the switch-off landing after activation of the function "landing switch-off".

= 98ms: Doors are not closed in the switch-off landing after activation of the function "landing switch-off"

= 99ms: Output of gray code signals are inverted

= 101ms: Additional try on fault in security switches.

= 102ms: The door closure button functions already during door-opening motion.

= 103ms: Function "doors remain closed" only on access side 2 active.

>= 120ms and <= 150ms: The activation of an input defined by parameter "1ST input car selection generates an car command with an extended stay-time (=keeping door open time). The stay-time is variable and is calculated: stay-time = door reversal delay – 120 seconds.

> 150ms and <= 200ms: If parameter "output-nudging“ has been programmed, the output "nudging" is activated after door reversal delay – 150 sec. in case of an interrupted light barrier (= nudging signal for electronic door control).

Early opening of door interlock (ms)

Time interval between unlocking of the car door and the actual door-open signal, or delay of door-opening motion in case of approach with early opening doors.

➔ ***Start :*** *Middle signal generator enters the domain of inductor plate of destination landing*

➔ ***End :*** *Time expired – car door will open*

In case of automatic car doors being additionally interlocked, opening "against the interlocking“ can be prevented hereby.

The parameter intended for this function, however, can be also used advantageously for early opening doors if the doors shall not open already with the engagement of the SGM.

Door-lock contact delay

Time interval between closing of hinged door and engagement of interlock (energizing of retiring cam)

➔ ***Start :*** *Hinged door closes (Sk2 closed)*

➔ ***End :*** *Time expired – retiring cam energized*

In case of hinged doors with dampening devices hereby can be achieved, that the doors will be bolted only if it is ensured that they are in closed position.

Max. waiting time for landing call (sec)

Period by which is prevented that landing calls are not executed when operational conditions are undefined, or that a landing call remains unanswered for an excessively long time.

➔ ***Start :*** *Landing call is acknowledged*

➔ ***End :*** *Time expired – generation of an car command for the respective landing.*

- Each landing call gets a separate counter.
- The lenght of the maximum waiting time / landing can be identified by call-up of error amounts (010*).

Reservation after landing priority travel (sec)

Fixing of reservation- period (change to car priority travel).

➔ ***Start :*** *Arrival at the landing where the key-switch is installed, with key already removed while elevator was travelling, or elevator being already in key-switch landing when key will be removed.*

➔ ***End :*** *Expiring of time.*

- Offers the opportunity for the user to carry out an car priority travel without key.

Door-lock contact delay

Time interval between closing of hinged door and engagement of interlock (energizing of retiring cam)

➔ ***Start :*** *Hinged door closes (Sk2 closed)*

➔ ***End :*** *Time expired – retiring cam energized*

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- Each landing call gets a separate counter.
- The lenght of the maximum waiting time / landing can be identified by call-up of error amounts (010*).

Reservation after landing priority travel (sec)

Fixing of reservation- period (change to car priority travel).

➔ ***Start :*** *Arrival at the landing where the key-switch is installed, with key already removed while elevator was travelling, or elevator being already in key-switch landing when key will be removed.*

➔ ***End :*** *Expiring of time.*

- Offers the opportunity for the user to carry out an car priority travel without key.

Retardation of collective fault message:

Presets the interval after that the signal (relay or IO) reporting a collective fault message will be sent to the porter's lodge, if a fault has occurred.

By this retardation collective fault messages can be filtered out, that have occurred for a few moments only.

3.2.2. Travel Times / Pulses:

(Call in on LiSA-key board by typing 002*)
The travelling behaviour of the elevator is defined by the here-described parameters, namely:

- Flush stopping
- Deceleration points and
- Selection of the travelling speed

The parameter values for stopping (deceleration) and deceleration (deceleration paths) will be processed program-internal as periods of time (with time-method) or as counting-values (with pulse method).

In case of the time-method the deceleration paths are quoted in mm, however are internally converted into periods of time.

- **Herebelow, the time-method will be described only for completeness' sake as meanwhile, almost generally, the pulse method (digital well encoding) is applied.**
- **If the fixed-point method is used, the parameters of the parameter-set "travel times / pulses" are without effect.**

Deceleration up (mm / ms):

Time / way for setting the flush position in upward travel.

➔ ***Start :*** *Depending on parameter "stop with middle signal generator"*

1 = Middle signal generator enters the inductor plate.

0 = Bottom signal generator enters the inductor plate.

➔ ***End :*** *Time expired / distance covered*

Deceleration down (mm / ms):

Time / way for setting the level position in downward travel.

➔ ***Start : Depending on*** *Parameter "stop with middle signal generator"*

1 = Middle signal generator enters the inductor plate.

0 = Bottom signal generator enters the inductor plate.

➔ ***End :*** *Time expired / distance covered*

The reaction upon expiring of deceleration depends on the elevator type:

Traction elevators: De-energizing of all contactors -> engagement of mechanical brake.

VV/VF-controlled traction elevators:

- Deactivation of the speed-signal (relay V0) -> down-regulation from creeping speed to stop
- Start of cut-out delay period

Hydro-elevators:

Without overtravel and with downward travel: Deactivation of all travel signals -> elevator stops

With valve-overtravel: Shut-down of pump motor and start of overtravel period for UP-valve.

With motor-coasting: Shut-down of valve control and start of overtravel period for pump.

In case of controllers with direct approach like Dynaton-S and –F the parameters for the deceleration are meaningless and therefore will not be interrogated,.

Interrogation, if multifunctional parameter 2 was set to 212 (extremely short landing distance):

Deceleration distance 1 <-> 2 mm :

Presetting the travel distance to the landing at short distance.

Interrogation, if multifunctional parameter 2 was set to 196 (buffer):

Travel up from buffer:

Presetting the travel up from the buffer.

If controls are used, which enable direct flush stopping, such as for example Dynaton-S and –F, the parameters for the deceleration distance are of no meaning and will therefore not be interrogated.

Interrogation if parameter "relevelling“ is set to 1:

Decelerating while relevelling (mm / ms):

Time / way for setting the level position upon relevelling.

➔ ***Start :*** *Travel UP: Bottom signal generator enters inductor plate.*

Travel DOWN : Upper signal switch enters inductor plate.

➔ ***End :*** *Time expired / distance covered.*

The relevelling process will be started when SGO (top signal generator) resp. SGU (bottom signal generator) do not enter the inductor plate on approach to the destination (entry "too high“ resp. "too low“in fault memory), or have travelled too far (entry "SuZone“ resp. "SoZone“ in fault memory), or at standstill owing to rope stretch resp. system-caused occurences with hydro-elevators.

- With parameter "deceleration upon relevelling" it is considered that normally the relevelling speed is slower than the creeping speed on approach to the destination.

Deceleration-path up with Vnenn (mm):

Path for default of deceleration point on travelling UP with rated speed.

The deceleration-path UP defines that point at which prior to reaching the destination the levelling speed will be activated, in order to bring the elevator to a safe stop in upward travel.

Deceleration-path down Vnenn (mm):

Path for default of deceleration point on travelling DOWN with rated speed.

Similar to travelling UP, however for direction DOWN.

Interrogation only with VV/VF-controlled elevators.

Limit distance from destination with Vz2 (mm):

Default of a distance limit from destination, below which the 2nd intermediate speed shall apply.

Additionally required parameters:

"Rel.- travel with speed Vz2“ in parameter-set 006*.

Limit distance from destination with Vz1 (mm):

Default of a distance limit from destination, below which the 1st intermediate speed shall apply.

Additionally required parameters:

„Rel.- travel with V1 (Vz1)“ in parameter-set 006*.

Upon starting, LiSA calculates the distance to the destination. If the distance there is shorter than the limit distance from destination with VZ2, but longer than the limit distance from destination with Vz1, LiSA will activate speed V2 at the controller / inverter.

If the distance from the destination is less than the limit distance from destination with Vz1, LiSA will run with speed V1.

In all other cases speed V3 will be applied, except if in parameter "landing-to-landing with Ve" , *(*see parameter-set 000*) a travel with Ve (= approaching speed) is foreseen.

This way, up to 4 speeds can be selected, provided the controller is in a position to run these speeds.

- Speed Vz2 is often named V2 with VV/VF-controlled elevators– in case of Dynatron with 60% Vrated.

- Speed Vz1 is mainly named V1– in case of Dynatron with speed for short distance landings.

Interrogation, if parameter "limit distance from destination with Vz2“ > 0 was set:

Deceleration path up at speed Vz2 (mm):

Default of deceleration point in travel UP with speed Vz2.

Deceleration path down at speed bei Vz2 (mm):

Default of deceleration point in travel DOWN with speed Vz2.

☞ with Dynatron the deceleration path for Vz2 is half the distance than that for Vrated.

Interrogation, if parameter " limit distance from destination with Vz1“ > 0 was set:

Deceleration path up at speed Vz1 (mm):

Default of deceleration point in travel UP with speed Vz1.

Deceleration path down at speed Vz1 (mm):

Default of deceleration point in travel DOWN with speed Vz1.

Interrogation if parameter “braking” was set to 3:

Emergency stop within ? ms after car has entered the landing zone:

If in case of pulse-controlled braking the pulse-service fails, the car passes by the landing. By this parameter “emergency stop within ? ms after car has entered the landing zone”, braking is additionally monitored. As soon as the middle pulse-generator enters the landing zone, the time function is initialized in addition to the deceleration function. There will be an emergency stop, if it elapses, unless there has already been a regular stop.

Interrogation if parameter “relay limit velocity” was set:

Switching threshold for relative limit velocity mm/sec. :

If the speed value preset by the parameter is exceded, the relay for limit velocity is actuated.

Remark: In case of reduced overtravel distance, two separate speed measurements shall prive, that the speed has fallen below a certain value.

Interrogation in case of time method or controller type = Dynatron:

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

Extension of landing-to-landing travel time in down-direction in case of time-method in %.

With Dynatron-S / -F reduction of brake application (KBR-signal) in mm.

Unregulated traction elevators and hydro-elevators behave sometimes very load-dependent. In case of landing-to-landing travels downwards with the time-method, the problem arises mainly in an extended creeping path upon approach (mostly, the down-speed is slower than the up-speed).

With a value > 100% the time for the fast landing-to-landing travel will be extended by percentage resp. with a value < 100 reduced correspondingly. Normally, the value is > 100.

With Dynatron without fix KBR-points in the well (with KBR-relay), a program-dependent deviation in case of landing-to-landing travels will be corrected. the corrective value can be up to 20 mm in case of fast elevators (>= 1,6 m/sek). With all other types of controllers, without direct approach, this will lead only to a proportionate longer creeping path.

Correction short normal travel up (%/mm):

Extension of short-normal-travel time in upward direction in case of time-method in %.

With Dynatron-S / -F reduction of brake application (KBR-signal) in mm.

Correction short normal travel down (%/mm):

Extension of short-normal-travel time in downward direction in case of time-method in %.

With Dynatron-S / -F reduction of brake application (KBR-signal) in mm.

Short normal travel means a travel where up to the landing next to the destination the rated speed cannot be reached.

For elevators with short distance landings resp. high speed it might be required to initiate the deceleration already after leaving the landing of start. That means, prior to arrival at the destination no landing is passed-by with normal speed (same as with landing-to-landing travel). As for calculation of deceleration point a relatively simple procedure is used (addition of the landing-to-landing times between start and destination), a too long creeping distance will occur in reality. Therefore, by means of the correction value, the period of travelling with higher speed can be prolonged.

With Dynatron a problem similar to that with landing-to-landing travel can be resolved.

Limit for relative limit speed:

If the limit speed adjusted by this parameter is reached the “relay limit speed” is switched on.

Correction with reduced overtravel – up (mm) :

In case of a reduced overtravelling distance it is required that on travels toward the terminal landing the high speed is deactivated by a positive acting well switch, with switched-over to a slower intermediate speed. This already happens, depending on the speed, 0.5 – 1.5 m before the pre-limit switch is reached. As a result, the elevator would run an extremly long distance with creeping speed unless the disconnection of the medium speed is retarded.

By correction of the reduced overtravel this switching point is shifted toward the terminal landing by the respective value.

Correction with reduced overtravel – down (mm) :

Same function as above describt, but for overtravel down.

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

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

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

Duration of high speed between individual landings in ms or in mm.

➔ ***Start :*** *middle signal generator runs off the inductor plate.*

➔ ***End :*** *Time expired / way covered.*

If the time-method is applied this entry is a must, value "0" however causes, that the elevator absolves the landing-to-landing travel with slow speed. The correct value must be established by trial.

With regulated elevators that run by pulse method and do not achieve the rated speed, the value <> 0 shall be set only, when the controller / inverter is prepared for running along speed-adapter curve (e.g.

Ziehl Abegg) . In case of controllers that do not have this ability (e.g. Dietz) a slower speed must be used. 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 length of the normal speed landing-to-landing travelling distance autonomously, out of the landing distance and the deceleration path for that speed by which the landing-to-landing travel is carried out.

Interrogation in case of <dynatron without KRB-points in the well:

Step correction has an effect on KBR- / KS-signal (0/1):

➔ *(0): step correction has an effect on KBR-signal*

➔ *(1): step correction has an effect on KS-Signal*

Normally Dynatron with step correction shifts the switching point of the KBR-signal.

If the KS-signal is used, however, the step correction should shift the switching point of the KS-signal.

Function: The KS-signal is recognized by the inverter at a fix point ahead of the landing level after cut-off of the KBR-signal. This fixed point is situated aprox. 100 mm ahead of the flush landing level (middle signal-generator enters the landing zone).

Consequently, the inverter is enabled to change the speed curve, if the speed at this point deviates from the present value. This function, however, cannot correct inaccurately aligned inductor plates. By means of the parameter described it is possible.

Interrogation excluding the fixed-point method and the Dynatron with KBR-points in the well.:

Correction of inaccurately aligned inductor plates in upward direction.

Step-correction up in 2nd landing ms / mm:

Step-correction up in last landing ms / mm:

Correction of inaccurately aligned inductor plates in downward direction.

Step-correction down in 1st landing ms / mm:

Step-correction down in 2nd landing ms / mm

Step–correction down in landing next last one:

The deceleration will be corrected in all elevators, except those with Dynatron and KBR-relay.

In case of Dynatron a correction of the deceleration path is carried out (SKA-distance)

Standard settings that will not cause a correction:

With time-method: 500 ms

With pulse-method: 30 mm

Values deviating from the above mentioned "zero-points“ will cause a correction.

Example: Elevator in upward travel has overtravelled the flush position in the 5th landing by 8 mm (elevator by 8 mm too high). Therefore, in this landing the inductor plate must be shifted 8 mm lower or the deceleration-UP must be reduced by 8 mm by means of step-correction (step-correction UP in the 5th landing = 30 – 8 = 22 mm).

So, for example, with the time-method a value of 300 causes a reduction of the deceleration-UP for the step-correction-UP in the 5th landing by 200 ms (=500 – 300), i.e., the elevator stops earlier.

While for the time-method the accurate value for the correction must be established by trial, it can be set directly in case of the pulse-method. A value of 10 mm above "zero“ (=30mm) leads to a prolongation of the deceleration by 10 mm and a value of 20 mm results in a reduction of the deceleration by 10 mm.

3.2.3. Input addresses:

(Call in on LiSA-key board by typing 003*)

In parameter-set "input addresses" a function out of the stock of functions "input addresses" is assigned to the available hardware-based in/outputs (I/O´s). The available I/O´s on the LiSA10-main card (max. 64) and on the car card APO8 (max. 32) are freely programmable, i.e. none of these I/O´s has a function when being switched-on for the first time (parameter-EEprom is empty). These functions will come to a life only by means of assignment via input addresses.

All I/O´s are accessible by screw-type terminals or flat ribbon cable.

They are short-circuit-proof only for a short period.

Some functions are not freely programmable or have already got additionally a defined connector on the card, like recall and inspection mode.

- Following "rules“ are to be observed upon assignment of the adresses:
  - All functions occupying several I/O´s in sequence, i.e. all those that start with 1st input ..., must be connected to the I/O´s in an unbroken sequence. These are e.g.
    1st input car command buttons, 1st input landing call buttons access side 1, 1st input waiting area a.s.o.
  - The buttons for access side 2 (selective door control) can be connected immediately to the last button on access side 1, but this is not a must. In case of a possibly existing vacancy, no function shall be programmed there.

1. car command button access side 1:

I/O-area seized:

Depending on the no. of landings, starting with the 1st car command button, access side 1

Interrogation without car selective door control.

2. car command button:

I/O-area seized:

Depending on the no. of landings, starting with the 1st car command button, access side 2

Normally, this value always exceeds the adress of the 1st car command button by 1.

Only with LiSA-buttons arranged in the car operating panel in two rows lies the adress above the last button in row 1.

Interrogation with car selective door control.

1. car command button access side 2:

I/O-area seized:

Depending on the no. of landings, starting with the 1st car command button, access side 2.

The adress must be higher than that of the last button on access side 1.

1. landing call button access side 1:

I/O-area seized on One-button controll:

Depending on the no. of landings, starting with 1st landing call button, access side 1

I/O-area seized bei Zweiknopf-Steuerungen :

Depending on the no.of landings *2 - 2, starting with 1st landing call button, access side 1

Interrogation with landing selective door control.

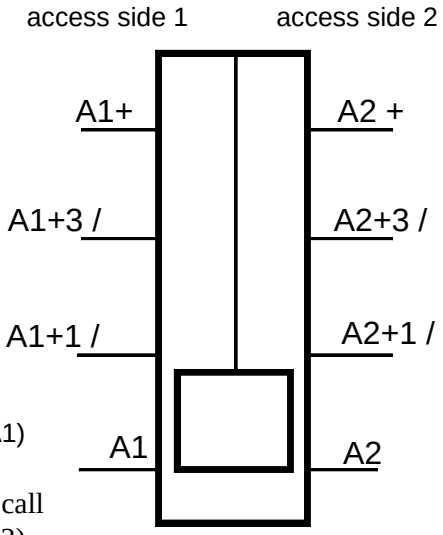
1. landing call button side 2:

I/O-area seized bei One-button controll: (ref. to fig 3)

Depending on the no. of landings, starting with the 1st landing call button, access side 2

I/O-area seized bei Two-button controll:(ref. To fig 4

Depending on the no. of landings *2 - 2, starting with the 1st landing call button, access side 2. The adress must be higher than that of the last button on access side 1.



Address 1st landing call button access side 1(=A1)

Address 1st landing call button access side 2(=A2)

Fig. 4

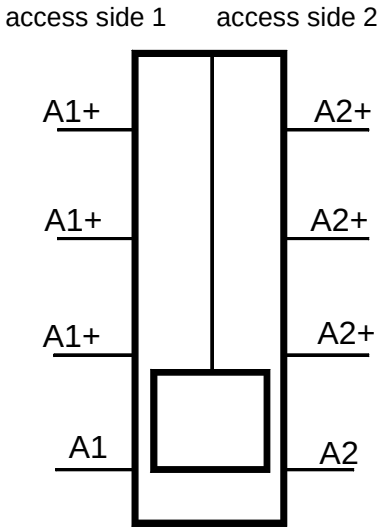


Fig. 3

For control manufacturers that do not want to use the electronic system of the car (APO-card in the inspection box) there is the possibility to connect light barriers and closing-force limiter to any I/O´s:

Signals of light barrier and closing-force limiter can be adapted in parameter "light barrier / closin-force limiter activ open/closed“ (usage of breaking or making contacts).

If the light barrier / closing-force limiter is activated for more than 10 minutes, the entry LS1/SB1 for access side 1 resp. LS2/SB2 for access side 2 is registered in the fault memory. If a modem is connected the control-station will be dialled.

If it is a group, the elevator will stop participation in the distribution of landing calls already after a 10 seconds-interuption of the light barrier / closing-force limiter– landing calls will again be acknowledged in the landing where the car is.

With matrix-displays (parameter "type of indicator in car/landing” set to 16*8withX), a tiny L will be indicated after 10 seconds.

In case of firemen service and fire emergency control the light barrier will be ignored.

Acces side 1 – door opening button:

Function to keep the car door open / reversing of car door on access side 1 while closing.

Acts also on access side 2 if no separate door opening button has been provided for it.

With selective door control only that access side will open for which a door-opening release is available (call for this access side was set).

Starts the door-opening monitoring time anew.

Does not work with firemen service and fire emergency control.

Acces side 1 – door closure button:

Function for the immediate initiation of door closing motion on access side 1.

Acts also on access side 2 if no seperate door closure button has been provided for it.

If door-opening monitoring time is expired the door will close immediately.

If the doors are in door opening motion, no stay-time will be started after that, i.e. if a call has been set the door will close immediately.

If the door is in opening motion and if parameter "door reversal delay" has been programmed with value 98, the door will close at once.

The light barrier will no longer be regarded.

Input – Light barrier TS1:

Normally, the light barrier on access side 1 (TS1) (light screen) is connected to terminals L1 of the APO.

Input – closing force limiter TS1:

Normally, the closing-force limiter will be connected to terminals R1 of the APO.

Input-door-open limit switch door 1

Input for the detection of the door-open signal of door 1.

This function has been introduced especially for electronic door operators (particularly Siemens AT25).

The door-open limit switches are not, as usual, connected to the terminals A1 or A2 on the APO, i.e. the door-open signal is continuously applied if the door is not going to close.

That way, a long door-opening control period can be set, without its negative consequences coming into effect (start of stay-time only after expiring of the door-opening monitoring time, unless the signal door-open limit switch arrives before)

Consequence: possibly performed learn-travels of the door operator will not be disturbed by the (LiSA-) control (long door-opening monitoring time)

Input door-close limit switch door 1

Input for the detection of the door-open signal of door 1.

Input – door stop button (see parameter “door stopping time” in 001*)

Function by which is achieved that the car door cannot be closed during an adjustable period (loading function).

Additionally required parameter: "door stop period“ in parameter-set 001*.

Interrogation in case of 2 access sides.

Access side 2 – door opening button:

Function to keep the car open / reversing of car door on access side 2 during the closing process

Access side 2 – door closing button:

Function for the immediate initiation of door closing motion on access side 2.

Input – light barrier TS2:

Normally, the light barrier on access side 1 (TS1) (light screen) is connected to terminals L2 of the APO

Input – closing force limiter TS2:

Normally, the closing-force limiter is connected to terminals R2 of the APO.

Input-door-open limit switch door 2

Input for the detection of the door-open signal of door 2.

Input door-close limit switch door

Input for the detection of the door-open signal of door 2.

Input – inspection fast

Input for the switch-over to a higher inspection speed.

- With controlled elevators and Beringer hydraulic system the inspection speed will be activated.
- Otherwise, the high speed will be selected.

Input dividing door:

Information to LiSA that the separating door has been opened.

- As long as the seperating door is not yet open, a signal (-H) must be available at this input, i.e. the seperating door contact must be a break-contact.
- In the fault memory the information "diconnecting“ will be stored.
- On the 7-segment-display for the operational condition is S. indicated.
- On the display "AbIn“ is indicated, if no car key "car special call“ has been set.
- One travel will still be completed.
- All calls will be cancelled and the landing control cut off.
- Only after activation of the function “car special call” the elevator can be operated again – car commands will be accepted.

Additionally required parameter: "car key – special call “in parameter-set 005*.

Input – presence indicator in car

This input is used for car elevators for

- automatic generation of a call to the other landing
- and for the output of positioning signals in the car

Input – fan button: (function s. parameter “car fan overtravel” in 001*)

Input for the activation of the car fan for a pre-definable period.

Additionally required parameter: "relay car fan overtravel” in parameter-set 006*.

Input – clock-controlled travel:

Input for activation of operation mode "clock-controlled travel".

The operation mode "clock-controlled travel" has only little to do with the "clock-time". The name "clock-controlled travel" only tells that originally this input was to be activated by a time switch. As, however, on the LiSA-central card a real-time clock (RTC) is available, by which the clock-

controlled travel can be switched-on for a defined time interval (without special program for saturdays, sundays and holydays) this configuration has been somewhat pushed into the backseat. Now, it is frequently released by any other contact or by a key switch.

After change into the clock-controlled travelling mode, will

- new door opening tables for car and landing calls be activated (see parameter-set "door oening release" 008*)
- the parking level be changed – defined by parameter "parking level with clock-controlled travel“
- all registered calls be treated depending on the parameter "call call cancellation clock-controlled travel“ i.e. either not at all, or upon start of the clock-controlled travel, or at the end. If the registered calls are not cancelled at the begin, they will be processed in correspondence with the door opening table for normal travels.
- at least one travel be carried out in the clock-controlled travelling mode, even if the input was already deactivated before the travel started,
- be indicated a "u“ on the operation mode indicator.

- With clock-controlled travel it is possible to e.g. release landings that are not released for approach with normal travel mode (catch-word: card reader).

Input–clock-controlled travel 2:

Input by which another door table (see parameter-set door-opening release) will be activated.

The hereby released function "clock-controlled travel2" has priority over the normal clock-controlled travel.

On the operational status display a small "u" with a dot is indicated (.u).

Input – evacuation / emergency power

Input for the initialisation of the evacuation procedure.

If after activation of the evacuation signal the elevator is not in the evacuation landing but in rest position, the evacuation-delay period will be started.

If after arrival of the evacuation signal the elevator is running away from the evacuation landing, it will be stopping in the next possible landing, the doors will open and the evacuation delay-period will also be started.

After expiring of this period or after arrival of the signal "end of evacuation” from an elevator that ranges over the considered one in the evacuation sequence, the evacuation landing will be approached.

- On the operational status display an "**E**“ is shown.

The folllowing parameters are interrogated only, when "input – evacuation" has been programmed:

Input – evacuation - release

Input for starting of evacuation process.

This signal comes from the "predecessor“. It signals herewith, that it is in the evacuation landing.

Evacuation-delay sec:

Definition of the period for the latest start of evacuation, even if no signal will be received at the "input evacuation-release".

➔ *With hydro-elevators evacuation will be made to the bottom landing without delay.*

Free after emergency-power evacuation

Definition of whether the elevator shall go back into operation after arrival at the evacuation landing.

➔ *(0) : Elevator remains in the evacuation landing with doors open, until the evacuation signal is cancelled.*

➔ *(1) : After evacuation the elevator returns to normal operation.*

Landing for emergency-power evacuation:

Definition of the evacuation landing.

➔ *(0) : Evacuation to the nearest landing above, if the elevator is between landings.*

- In case of elevators with frequency inverter and supply of the intermediate circuit by storage batteries, a controller-failure may occur. Then, LiSA tries to evacuate to the landing below.

➔ *>0 : Evacuation landing.*

Relay – end of evacuation

Relay for signalizing to the "predecessor" that it can start to evacuate.

A break-contact will be used, that means

- as long as the elevator is switched on and the operation is not troubled resp. if inspection or recall mode are not activated, or
- as long as the evacuation process is not completed the relay will be energized (no signal to the "predecessor")

➔ *reg. sequential control see enclosed circuit diagram*

Output – end of evacuation

➔ *evacuation-sequential control*

Output with similar function as with "relay – end of evacuation".

Output – evacuation-travel with emergency power:

Output for the activation of an illuminated signal, saying that the elevator is in evacuation / emergency power-mode.

Input – release after evacuation

Input by which the elevator can be returned to normal operation if it is in the evacuation landing.

Example of evacuation (evacuation with sequential control) :

A couple of elevators, all of them fed by the same emergency power unit, shall - in case of a mains failure - approach their evacuation landing in succession. One elevator (e.g. a bed elevator) shall remain operative.

The signal "evacuation/emergency power"is normally delivered by the emergency power unit to the control (220 V – signal). In the control cabinet an appropriate relay (220V) is hereby activated, which signals the result via a make-contact (switching of –H) to the control.

For all elevators that are not yet in the evacuation landing, the evacuation delay period will be startet.

Elevators that are already in the evacuation landing or that are not in a position to evacuate (failure / not in operation) will switch off the "end of evacuation"- relay.

The elevator having the shortest evacuation delay period (normally = 0) starts with evacuation travel.

All the others will start evacuating only after expiring of their evacuation delay or when the release signal from the "predecessors" is available.

After completion of the trip the elevator will switch off the relay "end of evacuation" and hereby transfers the evacuation-release to the next elevator in the sequence.

The bed elevator will evacuate last and remains in operation.

Input – Load direction

Some kinds of inverters are able to determine during the acceleration phase of a travel the load-balancing in the car, memorize it and transmit it to the control unit via a potential-free contact at the "input load direction".

After initialisation of the evacuation travel, the control unit can consequently evacuate the car to the next landing in direction of the lower load. As a further consequence, emergency evacuation units can be dimensioned considerably smaller.

Input – full - load

Input to signalize the operation mode "full-load".

- Normally, the mode is released by the full-load contact in the car.
- Landing calls are still registered but not assigned. Only car commands will be processed.
- In case of a group the elevator will switch-over to individual operation.
- On the operation mode display an "0“ is shown.

Input - overload

Input to signalize the operation mode "overload".

- Normally, the mode is released by the overload contact in the car.
- Landing calls are still registered but not assigned.
- Elevator remains stationary with doors open.
- Aktivation of an overload indication, if parameter "output - overload“ (Parameter-set 004*) has been programmed.
- Aktivation of an overload buzzer, if parameter "output – accoustic signal“ (Parameter-set 004*) has been programmed.
- In case of a group the elevator will switch-over to individual operation.
- On the operation mode display an "L“ is shown.

➔ *The signal is disregarded during a travel.*

Input – zero-load

Input to signalize that the car is empty or has only little load, with regard to the load-weighing device installaed.

Normally, the function is activated by the break-contact (contact closed if nobody is in the car) of a landing mat, by the contacts in the movable car landing, or by an appropriately adjusted load-weighing device on top of the car.

- If more than one car command is registered, all of them will be cancelled, i.e. the maximum no. of simultaneous car commands with activated input of zero-load is 1.
- With access limitation on one side (see parameter in 000*) the signal brings about, that the access-release can change from one side to the other.

Input – half-load:

Input to signalize that the car is half loaded

Input – doors remain closed

Input to signalize that the car doors are no longer allowed to be open.

Contrary to the input by keyboard (with 05*) to test operation, the same function is realized with activation via the "input – doors remain closed". It has been introduced in order to be able to realize complicated door opening functions.

Input – landing control off

Input for the deactivation of the landing control.

This input provides an additional possibility to switch off the landing control (in the car), besides of the keyboard command (6*) and the input from the main card.

- The door opening parameters for normal travel remain valid furtheron.
- The elevator goes off-group. Landing calls will be read in and put at the disposal of the group, but will not be executed.
- On the operation mode display an "A“ will be shown.

Interrogation only with controller type = Dynatron.

Input - brake

Input for monitoring whether the controller / inverter has delivered the brake signal.

In case of elevators with Dynatron, LiSA has no more influence on the stopping process after the brake action. If the brake action, for any reason, is not initiated in the right position, it might happen that the elevator stops too early. Without signal "brake applied“ as a result, the travel monitoring time would be exceeded.

Upon evaluation of the signal, in this case a searching travel would be carried out at once.

Input – emergency stop:

Immediate stopping of the elevator

- Cancelling of all car commands.
- No registering of landing calls.
- Only after setting an car command normal operation will be resumed.

Input – soft stop

Stopping of the elevator in the next possible landing.

- Cancelling of all car commands.
- If the car is just travelling, stopping in the next possible landing

Interrogation only in case of special elevator = U/S.

Input – interlocking:

Special function for "Hamburger Hochbahn".

- Interlocking of the elevator from a control-centre.
- Set landing calls are accepted and remain stored for 60 seconds.

Input - start:

Special function for elevators with 2 landings.

Normally, the signal for this input is generated by the so-called start button. Here, an car command will be generated for the relevant opposite landing.

1. Input – car selection:

- **Generation of car commands on the central electronic unit.**
- **With groups, generation of landing calls without passing on to the other group elevators.**

This function compensates a certain disadvantage with LiSA. All data transmission between car (APO) and central electronic unit (LiSA9 / 10), including the car commands, is serial. There is no possibility outside the car to generate an car command, except by additional wires in the travelling cable that are connected in parallel to the car commands on the APO in the inspection box.
With this function, car commands can be generated now directly in the central electronic system.

Purpose:

- In groups it is sometimes necessary to select a specific car, when only this one can approach to a specific landing, e.g. a car park.
- Selection of an elevator with a specific function (emergency, bed elevator, seperating door a.s.o.)

☞ The kind of call generated depends on the following parameter .

Type of call upon car selection (car/up/down):

Definition what type of call is generated upon signalising one input of car selection.

➔ *(0) = car: car command is generated*
➔ *(1) = landing call up*

➔ *(2) = landing call down*

1st Input – monitoring of waiting area

Definition of the adress area (consecutive inputs) if in each landing the monitoring of the waiting area is installed.
Seized I/O-area without selective door control:
Depending on the no. of landings, starting with 1st input "monitoring of waiting area".

Seized I/O-area with landing or car selective door control :
Depending on the no. of landings * 2, starting with 1st input "monitoring of waiting area".

Here, the selective evaluation of the waiting-area signals is possible. The way of functioning is different from that with light barrier interruptions. During the door closing motion the door will not reverse.

1st input deactivation car command

Definition of the adress area (consecutive inputs) for the selective deactivation of car commands.

Seized I/O-area without selective door control - car:
Depending on the no. of landings, starting with 1st input "deactivation car command".

Seized I/O-area with selective door control - car:
Depending on the no. of landings * 2, starting with 1st input "deactivation car command".
With input activated, the car command button for the respective access side will be deactivated.

1st input – deactivation landing

Seized I/O-area without selective door control - landing:
Depending on the no. of landings, starting with 1st input "deactivation landing".

Seized I/O-area with selective door control - landing:
Depending on the no. of landings * 2, starting with 1st input "deactivation landing".
With input activated, the car and landing call buttons for the respective access side will be deactivated.

1st input – fire detector

Definition of the adress area for fire detector (smoke-filled landings)

Seized I/O-area without selective door control - landing:
Depending on the no. of landings, starting with 1st input "fire detector".

Seized I/O-area with selective door control - landing:
Depending on the no. of landings * 2, starting with 1st input "fire detector".

- With input activated, the car and landing call buttons for the respective access side will be deactivated.
- The elevator changes into operation mode "fire emergency travel" and runs to the fire emergency landing, when it has been programmed. (a fire emergency landing can be programmed only, when the "input fire emergency/emergency" has been programmed).
- If the fire emergency landing is full of smoke, the elevator will run to the landing defined by parameter "alternate landing in case of fire emergency"
- Approach to that landing for which the fire signal was given, will be prevented.

1st input – release car command

Definition of the adress area (consecutive inputs) for the selective release of car commands.

Seized I/O-area without selective door control - car:
Depending on the no. of landings, starting with 1st input "release car commands".
Seized I/O-area with selective door control - car:
Depending on the no. of landings * 2, starting with 1st input "release car commands".

With input activated, the car command button for the respective access side will be activated.

1st input – release landing

Seized I/O-area without selective door control - landing:
Depending on the no. of landings, starting with 1st input "release landing".

Seized I/O-area with selective door control - landing:
Depending on the no. of landings * 2, starting with 1st input "release landing".

With input activated, the car and landing call buttons for the respective access side will be released.

☞ With engaged car key switch for special and priority travels, all deactivating and releasing inputs for landings and car commands will be ignored, i.e. the acceptance of calls is defined only by the parameter " release of door-opening with key operated travel".

Interrogation only if 1st input car command / landing released > 0.

Automatic car command with release of car command / landing

Simultaneously with the release of a normally disabled car command or a disabled landing, an car command to the released landing will be generated and the original status re-established.

Contributes to an increase of the riding comfort, as after engagement of a key or putting a magnet card no additional button must be pressed.

Input – brake shoes – brake1:

Input for monitoring of disengagement of brake1-shoes.

- If 3 seconds after the start this input has not opened (signal applied at standstill), all travel signals will be switched off and the elevator goes into out-of-operation status "brake shoes monitoring responded"
- If within 3 seconds after stopping no signal is applied (brake not engaged), the elevator also goes into out-of-operation status“ brake jaw monitoring responded“.
- On the operational status display "b“ is indicated.
- In the fault memory "brake1“ will be registered

Input – brake shoes – brake2:

Input for monitoring of disengagement of brake1-shoes.

Analog function to brake1 – but for brake2.

Input – brake shoes – brake3:

Input for monitoring of disengagement of brake1-shoes.

Analog function to brake1 – but for brake3.

Input – OP - button

Input for initiation of a special function.
The designation derives from its first application in the operating theatre of a hospital.
Upon engagement of the OP-button with simultaneous pressing of the car command button, this call will be performed in the special service mode.
After completion of the trip, operation will return to normal.

Input – mutual starting lock-out:

Input / output to ensure that in case of groups only one elevator at a time will start.

- If this input is not activated the elevator will start without delay
- Upon starting, the starting elevator will activate this I/O for 5 seconds
- After elapse of these 5 seconds the signal will be "taken away“ -> release for the other elevators.

➔ *In the evacuation mode, the starting lock-out will be carried out without provision of such I/O.*

Input – inverting door parked position:

Input for the landing-selective switch-over of the door parking-position.
The door parking-position defined by parameter "Türparkstellung“ (open/closed) will be inverted at this input (closed/open) if a signal has been given.

Interrogation with hydro-elevators only.

Input – lowering on power failure

Input through which the control gets signalled that after a power failure the elevator shall lower to the bottom landing.
Here, a characteristic of the LiSA will be utilized, that has been provided originally for the LiSA-emergency call system only. Upon power failure (voltage of the safety circuit or of the car light) LiSA remains in operation by means of a storage battery.
If in this case at the input "lowering on power failure“a signal has been applied, then

- LiSA will lower to the bottom landing
- opens the door, and
- remains "in operation“ until the drain protection of the storage battery reacts or the power comes back again.

➔ *The signal "lowering" upon power failure will be applied when the safety circuit for lowering is closed.*

Input – rescue-travel

Input by which the control gets signalized that rescue travels will be carried out.

- **Rescue travel (alternating travel beetween rescue-landings and main landing) :**
  - Cancelling of all calls
  - Change to pushbutton controlled and clock-controlled operation
  - Travelling to the main landing
  - Registering of the next landing call and travel to it
  - Travel to main landing, a.s.o.

Interrogation with hydro-elevators only.

Input – lowering (for Schindler-Dynahyd):

Input by which the control gets signalized to lower slowly until the signal is again taken away.

Input - relevelling (for Schindler-Dynahyd):

Input by which the control gets signalized to ascend slowly until the signal is again taken away.

1. Input – Special function:

Input by which special customer designed functions are geenerated.
Assigned IO-area: 8 IO´s.

Input – test of a safety circuit

Input by which the correct functioning of a safety circuit can be checked.
By which, for example, a safety circuit for the monitoring of a reduced overtravelling distance can be checked.
Evaluation and process is the same as for the monitoring of the safety circuit (check of the K5-signal) for approach with early opening doors on the LiSA-card.

Test of a additional safty curcuit in landing (all/other)

Selecting in witch landing the additional safty curcuit is to be tested.

- ➔ *(0) = Test in all landings*
- ➔ *(1) = Test in assigned landing*

Input – forced stop:

Herewith the function" forced stoppage landing" (see General Elevator Parameters) can be switched on and off.

Input – monitoring of max. machine room temp.:

Input for monitoring whether the machine room temperature of 45 centigrade – required by EN81 – has been exceeded.
The temperature is monitored by a thermostat mounted outside the control cabinet.

Reaction of the installation in case of excess temperature:

- If the case arises during an upward travel, the elevator will still go on to the destination.
- Traction elevators remain in this position with doors open
- Hydro-elevators will lower to the bottom landing
- In both cases the elevator will be in the out-of-operation mode (indication "O“ on the operational status display (7-segment-indicator on the LiSA-card).

Input – monitoring of min. machine room temp.:

Input for monitoring whether the min. machine room temperature has been fallen below 5 centigrade – required by EN81 .

Input – transport of dangerous goods

Input that is normally activated by a key switch in the car.

In each landing to which dangerous goods shall be transported, an additional landing key switch for special service is mandatory.

After activation of the input is the elevator no longer available for normal operation.

After that

- the dangerous goods can be loaded
- the door can be closed by means of the landing key switch in the landing where the elevator is positioned
- the car will be fetched to the destination by means of the landing key switch installed there, and the door will be opened

Input – test landing door interlock

Input by which the control gets signalled that the interlock of the landing door shall be tested.

This function is required for TÜV-inspections (in Austria) in such cases, where in a building direct access from the elevator into appartements is possible.

These accesses are normally closed and locked, it is not possible for the inspecting technician to check the correct functioning of the door interlock from inside the car.

By means of a key switch in the car that releases the signal "Test Schachttür – Verriegelung“ *(TEST LANDING DOOR - INTERLOCK)* in the relevant landing it is achieved that the elevator runs downward by about 20 cm. In this position the technician can open the car door by hand, getting hereby access to the interlocking system of the landing door.

Input – car light-sensor

Input by which the failure of the car light will be signalled to the control

If a landing was preset to serve as a back-up fire emergency landing, the elevator first tries to travel to this landing.

Input – V3-zone:

Via this input it is reported to the control unit that the car is in the zone where travel at speed V3 is admitted.

Input – direction of evacuation is to be changed:

Via this input is reported to the control unit that the direction of the evacuation travel powered by emergency current is to be changed.

Input – fire detector:

This signal indicates smoke in the evacuation / fire emergency landing.

Evacuation resp. fire emergency travel is executed to the landing above the evacuation landing, or – if this is impossible – the landing below the evacuation landing.

If a back-up fire emergency landing was programmed, the elevator first tries to approach this landing.

Input – touch-down appliance retracted:

Via this input it is reported to the control unit that the touch-down buffers resp. collapsible pillars have been retracted, and that after travel up from the touch-down buffers a travel down may be introduced.

Input – touch-down appliance extended:

Via this input it is reported to the control unit that the touch-down buffers resp. collapsible pillars have been extended, and that after car may touch-down on the buffers.

Input – sound button:

Input by which it is reported to the control unit that the gong shall sound when the car passes by the landing. Two strokes when it travels up and one when ist travels down.

Remark: This is a function for blind passengers.

Input – test of rope brake:

By this input, function of the rope brake is tested (in intervals of 24 hours).

1st input – attendant control:

Seizes a series of 5 inputs.

Remark: special function for China (attendant control).

Input – control functions in favour of visitors:

By this input the control functions in favour of visitors are activated.

This is the operational sequence:

- acknowledgement of the input, if the control functions are initiated
- starting the sequence at standstill, with closed doors and in absence of cabin commands.
- automatic travel to the main landing
- automatic travel to the visitors' landing
- end of operational sequense

Interrogation if parameter „control functions in favour of visitors“ was set.

Visitors' landing:

To this landing the visitors shall be brought

Input – push-button control:

This input has got the explicit function of switching the push-button control on/off.

Input – terminal landing:

By this input the control unit is signalized that the car is indeed in the top resp. in the bottom terminal landing.

This function will be useful, if after an irregularity in the travel procedure and with a pre-limit switch position > 2 resp. < number of landings less 1 it is not known in which position the car is.

By the two following parameters and the one „1st output – transferIO (described in item 3.2.4) input-signals at certain IOs can be transferred to outputs of other IOs.

1. INPUT – Transfer-IO:

Here starts the address-range for the input signals to be transferred

Last input – Transfer-IO:

Here ends the address-range for the input signals to be transferred.

☞ The number of signal inputs results from the difference between the two parameters + 1.

3.2.4. Output addresses: (Call in on LiSA-key board by typing 004*)

By parameter-set "output addresses" an output function is assigned to the free-programmable I/O´s. This will be generally

- the indication of an operational status by means of luminous panels or
- position outputs, or
- enabling signals for lers or hydro-systems.

Attention: The outputs may be loaded with max. 200 mA.

Output – spezial service (signal)

I/O-adress for the indication of the operational status "special service".

The output "special service" will be activated whenever a signal inside the car shall indicate that an operational status is active which has been released by a privileged user, however no operational status with a higher priority may be activated (e.g. excess temperature).

Prerequisit for the activation of the output "special service" is the application of a signal at one or more of the following inputs:

- Input key switch for special service - landing or car
- Input key switch for priority travel - landing or car
- Input key switch for shut-down – landing
- Input key switch for firemen service – landing
- Input key switch for fire emergency / emergency travel – landing
- Input car reservation

Output – priority travel (signal):

I/O-adress for the indication of the operational status "priority travel".

Output – firemen mode / fire emergency (signal):

I/O-adress for the indication of the operational status "firemen service-car / fire emergency".

The output firemen mode / fire emergency will be activated whenever the operational status firemen mode, fire emergency, or emergency travel is active.

Output – out-of-operation (signal):

I/O-adress for the indication of the "out-of-operation" -status.

The signal "out-of-operation" will be emited whenever the elevator is malfunctioning or shut down.

Unlike with "fault messages", the break-contact is used, i.e. the contact is always closed when the elevator is functioning correctly and is not shut down.

output – overload:

I/O-adress for the indication of the operational status "overload".

(see parameter "input – overload“)

output – full-load:

I/O-adress for the indication of the operational status "full-load".

(see parameter "input – full-load“)

Output – direction-up in the car:

I/O-adress for the indication of the "travel direction upward".

The output for the travel direction upward will be activated whenever the car runs upward.

The here-upon following I/O is reserved for the indication of thedown-direction.

Dependent from the parameter "direction indicator with ongoing direction" the ongoing travel direction is indicated also at standstill by the travel direction indicator (see parameter-set 007*)

output – arrival gong in car:

I/O-adress for the activation of the arrival gong in the car.

The arrival gong will be activated when

- the car has been opened after arrival in the destination landing,
- in case of group elevators – the door will be opened and parameter "gong upon openening of door" was programmed,
- in case of group elevators – the door is opened, a landing call button has been pressed at that landing where the car is and parameter "gong upon opening of door" was programmed.

output – acoustic signal:

I/O-adress for the activation of a buzzer.

This output will always be activated

- if upon initialization of the landing firemen service the elevator is not in the fireman landing and the door is open.
- whenever the elevator is stationary in a landing under overload condition.
- in connection with the nudging function, while the nudging signal is active.

output – Text: 1st car position:

I/O-adress for the activation of a voice announcement of the car position.

The assigned I/O-area starts with the I/O-adress for the activation of the text for the bottom landing and ends with the adress of the last landing.

output – Text: door-closing:

I/O-adress for the activation of the voice announcement that the door will close.

This function is useful only in combination with parameter "warning singal prior to door-closing command in parameter-set 001* (see there).

Ausgang – Text: door-opening:

I/O-adress for the activation of the voice announcement that the door will open.

Interrogation for US-traffic system / inclined elevator

output – car demanded:

I/O-adress for the indication in the control station that the elevator has been ordered in the interlocked status.

output – car interlocked:

I/O-adress for the indication that the control centre has taken the elevator out of operation and can realease it again upon demand.

output – door(s) open (signal):

I/O-adress for the signal that one or both door(s) have opened.

If a door open limit switch was installed this signal will depend on whether the switch has been activated (opened). Otherwise, this signal will be delivered already when the safety circuit is opened at SK3.

Output – additional interlocking door 1:

I/O-adress for the activation of an additional interlocking of car door 1

The activation (unlocking) is made prior to the actual door opening with simultaneous starting of the time "pre-mature opening of door interlock" (see parameter-set "Anlagenzeiten"). Only after elapse of this period the car door will be opened.

output – door 1 open (signal):

I/O-adress for the signal that car door 1 has opened.

If for door 1 a door open limit switch has been installed this signal will depend on the switch has been activated (opened). Otherwise, this signal will be delivered already when the safety circuit is opened at SK3.

Interrogation with 2 accesses:

output – additional interlocking door 2:

I/O-adress for the activation of an additional interlocking of car door 2.

(see parameter "output – additional interlocking door 1")

output – door 2 open (signal):

I/O-adress for the signal that car door 1 has opened.

If for door 1 a door open limit switch has been installed this signal will depend on whether the switch has been activated (opened). Otherwise, this signal will be delivered already when the safety circuit is opened at SK3

Output – nudging:

I/O-adress for the activation of the nudging function in case of some electronic door operators.

If the light barrier is interrupted, door closing motion will normally be prevented.

The nudging function however brings about that the door will be closing with reduced speed when the light barrier has been interrupted.

The time for the emission of the nudging signal is fixed by parameter "door reversal delay" and is to be calculated as follows:

Nudging time = Period from interruption of light barrier to door closing
= Door reversal delay – 150.

- The function is only active at a parameter value > 150 and < 200.
- With 2 door operators the nudging signal for door 2 will be automatically assigned to the next output in sequence.

☞ With activated nudging signal the door-closed signals are switched off.

output – landing-key controlled travel (signal):

I/O-adress for the indication of the operational status "key-operated travel landing".

- Indication of the operational statuses "priority travel" and "special service-landing"

output – switching of car light:

I/O-adress for the switching of the car light.

By this output a relay is activated normally, by means of which the car light will be switched off after elapse of the period defined by parameter "light cut-out time“ , provided that no call is registered.

output – arrival access side 1:

I/O-adress for the selection of access side 1, upon travel to the destination landing.

Hereby the ongoing-travel indicator or the arrival gong for the access side 1 can be selected in order to prevent, that with selective door control on access side 2 signalization is made with no call being registered there.

output – arrival access side 2:

I/O-adress for the selection of access side 2, upon travel to the destination landing.

Hereby the ongoing-travel indicator or the arrival gong for the access side 1 can be selected in order to prevent that with selective door control on access side 2 signalization is made with no call being registered there.

1st output – output travel continuing direction:

I/O-adress for the activation of the direction of travel continuation.

Hereby an I/O-area will be installed for the read-out of the direction of ongoing travel, starting with the adress for the ongoing-travel indicator in the bottom landing.

Size of the I/O-area: (no. of landing – 1) * 2.

The activation follows with the initiation of the deceleration.

- With the definition of certain I/O-adresses, the output of the ongoing-travel indication can be effected serially via the card(s) **PL-16ASP12V+**:

  I/O-adress = 64: The card PL-ASP12V+ must be connected at the plugging connector for the segment-indicator.

  I/O-adress = 57: The card PL-16ASP12V+ will be connected to X57 on the LiSA.

  Attention: As the normal connection of this card is provided by the plug- connector for the segment-indicator (-H to Pin7 and 8, +H to Pin 10 and 9), the plug- connector X57 however for I/O-cards (-H to Pin 9, +H to Pin 10), the cores 7-10 of the flat ribbon cable must be separated from the plug and the voltage be fed-in seperately.

- The signal for the top landing (= down-arrow in top of the building) comes always in the first place, i.e at the lowest I/O, resp. in case of output via card PL-16ASP12V+ at the place with the lowest value. This possibly helps to save an additional flat ribbon cable in case of certain numbers of landings (e.g. 5 landings).

Use of the LiSA-bus system:

It is possible to use the output addresses 401, 501, 601, 701 or 801. It is normal to use address 401.

IO-Adresse = 401: in the landing-bus on each bus-module, for the signal „upward“ IO3 is reserved and for the signal „down-direction“ IO4.

Interrogation if number of cars > 1 in case of LiSA Bus:

1st output – direction of continued travel of car X:

IO-address for output of the directions of continued travels on the LiSA bus-moduls.

In case of elevator banks, each one lift can take over the output of the directions of continued travel of 2 elevators. Example of the programming for the elevators one by one in a bank of 4 elevators:

Elevator 1 and elevator 2:

1st output – direction of continued travel of car 1 = 401.

1st output – direction of continued travel of car 2 = 601

Elevator 3 and elevator 4:

1st output – direction of continued travel of car 3 = 401.

1st output – direction of continued travel of car 4 = 601.

1st output – arrival gong in landing:

I/O-adress for the activation of the arrival gongs in the landings.

Hereby an I/O-area for the output of the arrival gong in the landings will be reserved, starting with the adress for the gong in the bottom landing.

Size of the I/O-area: no. of landings.

The activation comes with the initiation of the deceleration.

- By definition of certain I/O-adresses to output of the landing gong can also be made serially via the card(s) **PL-16ASP12V+**:

  I/O-adress = 64: Card PL-ASP12V+ must be connected at the plug-connector for the segment-indicator.
  Attention: regarding the connection see remark at parameter "1st output travel continuation indicator" .

  I/O-adress = 57: Card PL-16ASP12V+ will be plugged to connector X57 on the LiSA.

Use of the LiSA-bus system:

It is possible to use the output addresses 401, 501, 601, 701, 801 or 901. You should however prefer addresses 401, 501 or 601, as the outputs of addresses 701, 801 and 901 can be programmed separately i.e. can be reserved for many different functions.

IO-address = 401: for the stroke of the gong on each bus-module of the landing bus IO3 is reserved.

IO-address = 501: for the stroke of the gong on each bus-module of the landing bus IO4 is reserved.

IO-address = 601: for the stroke of the gong on each bus-module of the landing bus IO5 is reserved..

Interrogation, if number of cars > 1 in case of LiSABus:

1st output – arrival gong for car X:

IO-address for output of the arrival gong on the LiSA-bus modules.

In case of elevator banks, each one lift takes over the output of the arrival gongs of 2 elevators.

Example of the programming for the elevators one by one of a bank of 4 elevators.

Elevator 1 and elevator 2:

1st output – arrival gong of car 1= 401

1st output – arrival gong of car 2= 601

Elevator 3 and elevator 4:

1st output – arrival gong of car 3= 401

1st output – arrival gong of car 4= 601

Interrogation of 1st output “arrival gong” in landing > 0:

Arrival gong in landing (always/beiARuf/beiARufinWRi):

Presets, when the arrival gong shall sound.

➔ *(0): gong sounds always at landing approach, i.e. at start of deceleration*

➔ *(1): gong sounds only, if at destination landing a landing call is on hand.*

➔ *(2): gong sounds only, if direction of landing call corresponds to direction of continued travel.*

1st output – car position in landing:

I/O-adress for the read-out of the car position on the LiSA-main card.

Definition of an I/O-area for the read-out of the car position, beginning with the adress of the bottom landing. Hereby, indicators can be engaged linear (1 out of n), or landings can be selected for special functions.

Size of the I/O-area: no. of landings.

The activation happens with the middle signal generator entering into the domain of inductor plate.

- By definition of certain I/O-adresses the output of the car position can also be made serially via the card(s) **PL-16ASP12V+**:

  I/O-adress = 64: Card PL-ASP12V+ must be connected at the plug-connector for the segment-indicator.
  Attention: regarding the connection see remark at parameter "1st output travel continuation indicator".

  I/O-adress = 57: Card PL-16ASP12V+ will be plugged to connector X57 on the LiSA.

1st output – car position in the car:

I/O-adress for the read-out of the car position in the car via APO- or extension card.

Analog function for the output of the car position in the landings.

1st output – Gray-code in landing:

I/O-adress for driving an indication with Gray-code on the main card.

Definition of an I/O-area to read-out the Gray-code for the car position, starting with the bit having the lowest value.

The size of the I/O-area depends on the required max. length for the code of the top landing.

Changeover is effected by the entry of the middle signal generator into the domain of the inductor plate resp. next to the destination landing at the deceleration point.

1st output – Gray-code in the car:

I/O-adress for driving an indication with Gray-code in the car.

Analog function to read-out the Gray-code in the landings.

1st output – Binary-code in landing:

I/O-adress for driving an indication with binary code on the main card.

Definition of an I/O-area for the read-out of the binary code for the car position, starting with the bit having the lowest value .

The size of the I/O-area depends on the required max. length for the code of the top landing.

The changeover is effected by the entry of the middle signal generator into the domain of the inductor plate resp. next to the destination landing at the deceleration point.

1st output – Binary-code in the car:

I/O-adress for driving an indication with binary code in the car.

Analog function to read-out the binary code in the landings.

Interrogation, if one of the afore described outputs is for binary / Gray-code > 0:

start – Binary- / Gray-code with one (0/1):

Definition whether in the bottom landing the driving code for the indicator shall start by ZERO or ONE.*)*

- ➔ *(0) : Binary / Gray-code starting by 0 (no driver signal).*
- ➔ *(1) : Binary / Gray-code starting by 1*

1st output – attendant operation:

I/O-adress for the signalization of registered landing calls to the elevator attendant in the car.

The function is active only in case of car priority travels. Normally, the signals are placed beside the car command buttons.

Size of the I/O-area: no. of landings.

output – car light bridging

I/O-adress for the read-out of the signal "car light bridging".

According to TRA (by EN81 not required) the car light may be switched off only when the elevator has completed the trip. For hydro-elevators there exists the additional requirement of switching off the light only when the lowering home landing is reached.

In order to comply with this requirement the car light switch is to be bridged during a travel, outside the zone and – with hydro-elevators – outside the lowering home landing. This is effected by the break-contact of a relay that is engaged via the output "car light bridging"

.

output – light barrier failure (signal):

I/O-adress for the indication of a malfunction of the light barrier.

This output is activated if a light barrier is interrupted for more than 10 minutes.

output running time control (signal):

I/O-adress for the indication of the operational status "exceeding of running time".

This output is activated always when the running time is exceeded, that means if

- for a trip between 2 landings a longer time was needed than the time defined by parameter "running time control"
- upon starting the zone has not been left within 30 seconds.
- the relevel process was not completed within 30 seconds.

output – failure min.pressure (signal):

I/O- for the indication of the operational status" minimum pressure" in case of hydro-elevators

output – failure safetycircuit (signal):

I/O-adress for the indication that the safety circuit has been interrupted before the SK1.

1st output – controller/inverters Signals:

I/O-adress for the indication that the safety circuit has been interrupted before the SK1.
I/O-adress for the read-out of the engaging signals for controller / inverter.

Definition of an I/O-area for the read-out of 8 engaging signals for the controller / inverter, in the sequence UP-signal, DOWN-signal, travelling (release), speed V0, speed V1, speed V2, speed V3, speed Vn.

Size of the I/O-area: 8 I/O´s.

output – fast-travel signal (Dietz-Inv.):

I/O-adress for the read-out of the fast- travel signal for the Dietz-inverter (Type: 5445).

Hereby, an additional fast-travel signal is generated (used only for Dietz-inverter).

output – maintenance/inspection:

I/O-adress for indication that the end of the maintenance interval is reached.

1st output – 7-segment indicator

I/O-adress for the segment-by-segment activation of the 1st digit of a 7-segment display mit travelling direction on the LiSA10. Assignments: 16 I/O´s, output 1 – 14 for the 7-segment display and output 15 – 16 for the travelling direction.

1st – 1st digit of 7-segment display in the car:

I/O-adress for the segment-by-segment activation of the 1st digit of a 7-segment display in the car.
Assignments: 7 I/O´s.

1st output – 2nd digit of 7-segment display in the car:

I/O-adress for the segment-by-segment activation of the 2nd digit of a 7-segment display in the car.
Assignments: 7 I/O´s.

Output – doirection-up in landing:

I/O-adress for indication of the travelling directions of the elevator.

Over the subsequent I/O the DOWN-direction will be indicated

Size of the I/O-area: 2 I/O´s.

output – QKS9-brake access side 1:

I/O-adress for the activation of the retaining brake with QKS9-door operators (Schindler)

output – QKS9-Brake access side 2:

I/O-adress for the activation of the retaining brake with QKS9-door operators (Schindler)

The below-described functions are available via free-programmable outputs as well as via free-programmable relays:

output – collective fault (signal):

I/O-adress for the signalization of a collective fault message.

This output will be activated whenever the elevator is malfunctioning, i.e., it accepts neither landing nor car commands, in case of excess temperature, excess of travelling time, door failures, etc..

In case of inspection or recall travels the output is **not** active.

output – busy:

I/O-adress for the indication that landing calls are no longer accepted.

The "output – busy" will be activated when the elevator does not respond to landing calls, i.e.

- in case of the operational statuses full-load, overload, priority travel, landing control-off, door failure, special service, shut-down, firemen mode, evacuation, recall, inspection and malfunctions.
- in case of universal control when the elevator is busy with a normal travel

output – elevator in operation (signal):

I/O-adress for the indication of the operational status "overload".

The output is always getting activated when the elevator has no failure and has not been shut-down.

The function will always be realized by the break-contact (NC) of a relay.

output – elevator in zone:

I/O-adress for the indication that the car is within the door-zone.

☞ The elevator is in the door-zone whenever the middle signal generator is activated.

output – elevator under way:

I/O-adress for the indication that the elevator is carrying out a travel.

output – excess temperature (signal):

I/O-adress for the indication of the operational status "excess temperature".

output – door failure (signal):

I/O-adress for the indication of the operational status "door failure".

After 5 fruitless attempts to close the door, a door failure will be assumed.

- All car commands will be cancelled, in case of single elevators also the landing calls
- Upon a subsequent car or landing call the elevator goes back into operation, however door failure will be assumed again after two more fruitless attempts.
- In case of group elevators, this procedure is repeated up to 5 times before the elevator goes permanently out of operation; with the result that landing calls from that landing where the faulty elevator is standing, furtheron will be answered by another group elevator.
- In case of single elevators, operation will be stopped only after 10 door failures in sequence.

output – switch-over to 2nd selector block:

I/O-adress for switch-over to the 2nd selector block.*)*
Used in case of extreme short landing distances (1-25 cm landing distance)

output – fire emergency/evacuation landing reached (signal):

I/O-adress for the signal fire emergency / evacuation landing reached.

Interrogation in case of a car elevator:

1st output – traffic lights in landing:

I/O-adress for the 1st output "traffic lights" (see description of car elevator in parameter-set 000*) .
Per each landing and access side are 3 I/O´s required. I.e. in case of 3 landings and 2 accesses 18 contiguous I/O´ .

1st output – positioning signals in the car elecvator:

I/O-adress for the 1st output "positioning signals" in the car elevator (see description of car elevator in parameter-set 000*) .
Assignment of 5 contigious I/O´s
1. Output : Display "elevator – go forward" on approach from access side 1
2. Output + 1: Display "elevator - go back" on approach from access side 1
3. Output + 2: Display "elevator – go forward" on approach from access side 2
4. Output + 3: Display "elevator – go back" on approach from access side 2
5. Output + 4: Display "elevator stop"

1st output - Teleservice:

I/O-adress for the 1st output Teleservice (Thyssen emergency call system) .
Assignment: 16 contiguous I/O´s

- **1st Output: Indication travelling direction - DOWN**
- **1st Output + 1: Indication travelling direction - UP**
- **1st Output + 2: Elevator in motion and safety circuit closed**
- **1st Output + 3: Failure safety circuit (SK1 missing)**
- **1st Output + 4: Collective fault signal**
- **1st Output + 5: Door-open button operated**
- **1st Output + 6: Door(s) are open**
- **1st Output + 7: Car at standstill and within the zone**
- **1st Output + 8: Door 1 completely opened**
- **1st Output + 9: Door 2 completely opened**
- **1st Output + 10: Elevator carries out inspection travel**
- **1st Output + 13: Travel command to top landing**
- **1st Output + 14: Travel command to bottom landing**
- **1st Output + 15: Door-open command**

output – emergency call suppression:

I/O-adress for the output "emergency call suppression" (see description for relay "emergency call suppression" in parameter-set 006*) .

Output – emergency stop activated (signal) :

I/O-adress for the signal that emergenecy stop has been activated in the car)

Output – Brake-shoe monitoring tripped (signal):

I/O-adress for the signal that the brake-shoes did not open after starting.

Output – alarm horn for fireman mode:

I/O-adress for the signal that on firemen service-car the elevator has reached the destination.

Output - parking level reached:

I/O-adress for the signal that the elevator is in parking position.

1st output – Otis-REM

I/O-adress for the signals refering to the Otis-emergency call system.
Assignment: 12 contiguous I/O´s.

Starting with the I/O-adress for the 1st output, the following functions will be read-out:

1st Output:	Signal BRK	– Elevator in motion
1st Output + 1:	Signal BUT	– Travel command has been set
1st Output + 2:	Signal DO	– Door opens for leaving the car (car in zone & at standstill & door(s) completely opened)
1st Output + 3:	Signal SAF	– Safety switch (safety circuit interrupted before SK1)
1st Output + 4:	Signal DS	– Door switch and door interlock switch open (safety circuit interrupted before SK4)
1st Output + 5:	Signal DIR	– Counting direction (= travelling direction)
1st Output + 6:	Signal CPR	– Elevator runs to parking level
1st Output + 7:	Signal POW	– Elevator ready for operation
1st Output + 8:	Signal CLS	– Car light sensor
1st Output + 9:	Signal LEV	– Level signal at standstill

1st Output + 10:	Signal MF	– Initiation of level position measuring (car at standstill & middle signal generator within the zone)
1st Output + 11:	Signal Norm	– Elevator in normal operation
	Signal ALB	– Emergency call triggered by emergency call relay

Output V3-Zone:

IO-address for the message that the eleator is in the zone where travelling at nominal speed is admitted.

Output - Watchdog:

IO-address for the message that the control electronics are working.

If there is no signal, the car may move down due to a probable emergency.

Output – hinged support:

IO-address activating the relay for hinged support erection.

Output – rope brake test:

IO-address via which a relay for the rope-brake test is activated (in regular intervals of 24 hours)

1st output – call available:

Defines the address-range for the indication of cabin commands and landing calls at hand.

The IO-range occupied corresponds to the number of landings.

1st output – TransferIO:

Here starts the address-range for output signals transferred from the input area (see 3.2.3).
An uninterrupted IO-range is occupied, the length of which corresponds to the length of the input-transfer range.

1st output – car at the landing:

IO-address for messages saying that an elevator is available at the landing. Uninterrupted IOs are occupied according to the number of landings. An IO will be activitated if an elevator is at the landing with completely opened doors.

3.2.5. Key-controlled adresses and landings:

By parameter-set key-controlled adresses a key-control function is assigned to the free-programmable I/O´s. Generally, these are functions that will be activated by a privileged user :

- indication of an operational status by means of illiminated panels or
- read-out of positions or
- control signal for controllers resp. hydro-systems.

To all key-controlled travels, except fire emergency and firemen service travels, the following functions are common:

- the elevator will park with door open
- indication of "**S**“ on the display for the operational status (7-segment-indicator on the LiSA) in case of car key functions
- with landing key functions indication of "**S**“ on the operational status indicator LiSA

Car key – priority travel:

I/O-adress for the function "priority travel - car".

If the car was in an operational status with lower priority, it will change to the operational status "priority travel – car" and the following functions will be activated:

- indication righthand below on the display : "**PtIn**“.
- indication "special service" will be activated (if provided).
- landing calls will be furtheron stored but not executed.
- if the function "attendant control“ has been programmed (1st output attendant control > 0), arriving landing calls are indicated via these outputs in the car operating panel (COP).
- car commands will be accepted according to the parameters for door-opening in case of key operated travel in the parameter-set "release of door opening" (Call-up 008*).
- if the key is removed without one single travel carried out, the elevator remains reserved in operational status "priority travel car" for 30 seconds, however will accept calls according to "release of door opening" (Call-up 008*) in normal travel. After expiring of the reservation period it returns to the original operational status or possibly goes to an operational status that has been activated meanwhile.
- if the key is removed during a travel, the elevator remains in the status "priority travel car" till stopping, but will register calls only in the normal operation mode.
-

Car key – special service:

I/O-adress for the function "special service-car".

If the car was in an operational status with lower priority it will change into the operational status "special service – car" and the following functions will be activated:

- indication righthand below on the display: "**SsIn**“
- indication "special service" will be activated (if provided).
- cancelling of all landing and car commands according parameter "call cancelling on key-contr. Travel” (No/Afterward/before) , i.e. either not at all, or by end of special service, or by begin of special service.
- car commands are accepted according to the parameters for the opening of door with key-operated travel in parameter-set "door opening release" (call-up 008*)
- the key-operated special service-car allows travelling with separating door open (see parameter "input separating door“)
- if the key is removed during a travel, the elevator remains in the status "special service car" till stopping, but will not register any calls.

Car key – firemen mode:

I/O-adress for the function "firemen service - car".

If the car was in an operational status with lower priority it will change into the operational status "firemen mode – car" and the following functions will be activated:

- indication righthand below on the display: „**FeuIn**“
- the indication "firemen mode" in the car will be activated (acc. to regulations), unless firemen mode - landing was already set
- cancelling of all calls, irrespective of the parameter "call cancelling on key-contr. Travel”
- car commands are accepted according to the parameters for the opening of door with key-operated travel in parameter-set "door opening release " (call-up 008*) light barrier and door-opening button are inoperative
- if the key is removed, changes immediately into the original operational status or possibly into a status that was activated meanwhile.

Car key-control – shut-down:

I/O-adress for the function "shut-down of elevator by car key-control".

If the car was in an operational status with lower priority it will change into the operational status "shut-down – car" and the following functions will be activated:

- indication righthand below on the display: „**AbIn**“
- if the car is in motion the actual destination will still be approached.
- cancelling of all calls, irrespective of the parameter "call cancelling on key-control travel"
- the car light will be switched off, if the respective parameter "car light control“ in parameter-set "relay addresses" (006*) has been programmed.
- if the key is removed, changes immediately into the original operational status or possibly into a status that was activated meanwhile.

Landing key-control – priority travel:

I/O-adress for the function "priority travel-landing".

If the car was in an operational status with lower priority it will change into the operational status "priority travel – landing" and the following functions or statuses will be activated:

- Indication righthand below on the display: „**VzAus**“
- If the car is in motion the actual destination will still be approached.
- Cancelling of car commands is made depending on the parameter "call cancelling on key-control travel“. Landing calls will not be cancelled and furtheron registered, however will remain unconsidered upon call selection.
- If parameter "landing – priority travel“has been programmed with a value > 0 (described below), the car will run to the hereby defined landing. If parameter "Etage – Vorzugsfahrt“ has been programmed with "0", the elevator will run to that landing where the key is applied.
  In this case a contiguous I/O-area will be reserved for the priority travel – landing.
  If there is no selective landing control, the size of this area corresponds to the no. of landings.
  With selective door control – landing for both access sides twice the no. of I/O´s will be reserved, i.e. 2 * no. of landings. Thus, the landing key-control as well as the landing calls will be processed selectively.
- If the key in the key-control landing will be removed, the elevator will change into the operational status "priority travel-car" for 30 seconds after expiring of the stay-time. Thus, a priority travel - car will become possible without an car key-control being needed.

☞ In case of groups, the key-control I/O´s of all elevators with priority travel - landing must be interconnected.

- That elevator will be selected which – related to the location of the key-controlled call – is in the best position. Registered car commands will be considered additionally and will affect the respective elevator as if it were distant from the calling landing by one landing per each car command.
- The selected elevator will change into the operational status "priority-car", if it is in motion it will still approach the destination landing and cancel all car commands.
- Aftterwards it will run to the key-control landing and remains there in priority-car status for 30 seconds.

Interrogation if an landing key-operated priotity travel has been programmed:

landing – priority-travel:

Definition of the priority-travel landing.

➔ *(0) : As described before, the elevator will go to that level where the key switch is installed.*

➔ *(>0 and <= no. of landings) : The elevator will run to the landing defined by the parameter.*

Landing key-control-emergency travel:

IO-address for the function emergency travel, landing-key controlled.

☞ These key-switches have analoguous functions with the above-mentiond landing key –controlled priority travel; their priority, however, is ranking higher.

Should the car be in an operational mode that is ranking lower, it is changed over to the operational mode „priority travel car“, thus activating the following functions resp. conditions:

- Indication buttom righthand on the display: „**Notfal**“
- If the car is runngin, it will stop at the next possible landing. Car commands are cancelled depending on the parameter “command-cancelling in case of key-controlled travel”. Landing calls are not cancelled and still accepted, however, not considered in the processing of landing calls.
- If the parameter „landing-emergency travel“ was set to a value > 0 (as described below), the car travels to the landing preset by this parameter. If this parameter, however, was preset to 0, the car travels to the landing where the key-switch is. In this case, for the landing-key-controlled emergency travel a contiguous IO-area is reserved. Provided that the landing control is not selective, the number of the Ios reserved corresponds to the number of landings. In Case of selective door control in the landings, double Ios are reserved, i.e. 2* number of landings. Consequently the landing key-switches and the landing calls are processed selectively.
- As soon as at the landing with key-switch the key is drawn off and time for standstill has elapsed, the operation mode “car priority” is adopted for 30 seconds, in order to enable a car priority travel without needing any key.

In elevator banks, the key-Ios of all elevators with landing key-controlled emergency travel functions have not to be connected with each other:

- The elevator is choosen, which is in the most favourable position when activating the landing key-switch.
- Once selected, the elevator adopts the operational mode „car priority travel“, if it is executing a travel, approaches the destination landing of this travel and cancels all car commands.
- After that it travels to the landing with the activated key-switch, staying there in the operational mode „car priority“ for 30 seconds.

Interrogation, if landing-key controlled emergency travel was programmed:

Landing – emergency travel:

Definition of the priority landing

➔ *(0) : elevator travels to the landing with the activated key-switch, as described above.*

➔ *(>0 und <= number of landings) : elevator travels to the landing defined by the parameter*

Shall door open in return-landing? (0/1)

This parameter determines, whether the door shall be opened in the return-landing, before the elevator returns to the priority landing. The elevator had during its actual travel changed in the operational mode "car priority", stopped at the next possible landing in order to return to the priority landing.

➔ *(0) : door remains closed*

➔ *(1) : door opens*

Landing key switch – special service:

I/O-adress for the function "special service-landing".

If the car was in an operational status with lower priority it will change into the status "special service - landing" and the following functions or statuses will be activated:

- Indication righthand below on the display: „**SoAus**"
- In case that the elevator is still in motion, the set destination will still be approached.
- Cancelling of the car commands depending on parameter "call cencelling upon key-control travel" and disabling of the registration of car commands.
- Cancelling of the landing calls and disabling of the registration of landing calls.
- In case that parameter "landing – special service" has been programmed with a value > 0 (described below), the elevator will run to the hereby defined landing.
  If however parameter "landing – priority travel" has been programmed with 0, the elevator will run to that landing where the key switch is installed. In this case is the I/O-adress identical to the adress for the landing key switch in the lowest landing and for "special service – landing" a contiguous I/O-area will be reserved.

Example: In case of a 16-landing elevator the parameter "landing key-switch-special service" is assumed to be programmed with 27, and in landings 3, 6 and 10 key switches for special service be installed. The key switch for landing 3 must be connected to IO29, that one for landing 6 to IO32, and that for landing 10 to IO36.

If no selective landing control has been programmed, the size of this area corresponds with the no. of landings. With selective door control-landing, double the no. of I/O´s will be reserved for both access sides, i.e. 2 * no. of landings (related to the example before i.e. IO27 – IO58). Thus, the landing key switches are treated as selective, in the same way as the landing calls.

- If the key is removed, the elevator will change at once back into the original operational status or possibly into another that has been activated in the meantime.

Interrogation in case that an landing-key switch controlled special service has been programmed-

Landing – special service:

Definition of the special service landing.

➔ *(0) : As described in the case of "landing key switch-special service", the elevator will run to that level where the key switch is installed.*

➔ *(>0 and <= no. of landings) : The elevator will run to the landing defined by the parameter.*

Landing key switch – firemen mode:

I/O-adress for the function "firemen mode-landing".

If the car was in an operational status with lower priority it will change into the status "firemen mode - landing" and the following functions or statuses will be activated:

- Indication "firemen mode" will be activated (Attention: parameter "output indication – firemen mode" to be programmed)
- Indication on the operational status-display of the LiSA: „**F**" .
- Indication righthand below on the display: „**FeAus**"
- Light barrier signals and door-open button will be ignored.

- If the elevator is not yet on the firemen service level an accoustic signal will sound. (Attention: parameter "output accoustic signal“ to be programmed)
- Cancelling of all landing and car commands and complete disabling of the call registration.
- If, during the initializing, the elevator moves away from the firemen service level it will stop in the next available landing and then continue to the firemen service level without opening the door.
- On the firemen service level it remains in standstill with door open until the car firemen service key will be applied.
- If the key is removed, the elevator remains reserved anyway until the car firemen service key will be applied.

Interrogation if an landing firemen mode has been programmed:

Landing – firemen mode:

Definition of the firemen service level.

➔ *(0) : No function.*

➔ *(>0 and <= no. of landings) : Upon initialization of the landing firemen mode the elevator will run to the landing defined by the parameter.*

Door opening on the fire service level (T1/T2/T1+T2):

Hereby, opening of doors deviating from the table of door opening on fire service level can be defined .

➔ *(0) : Upon arrival on firemen service level only door 1 will be opened*

➔ *(1) : Upon arrival on firemen service level only door 2 will be opened.*

➔ *(2) : Upon arrival on firemen service level door 1 and door 2 will be opened*

Dead man’s control for the doors in firemen service mode (No/normal/spez1/spez2/spez3/spez43):

Control of doors (opening and closing) only by door-opening and door-closing button .

➔ *(0) : normal door control.*

➔ *(1) : dead man's control.*

In operational status "car firemen mode" the doors will not open upon approach to a landing.

Only by pressing the door-open button it will start to run open. When the button is released, the door-open signal is switched off at once (dead man's control).

The same applies to the door-closing motion, however with door-closing button.

➔ *(2) : first special version of dead man’s control*

Like described in (1), however, releasing the door-opening button makes that the door closes again.

If it is required that the door runs completely open, the door-opening button shal be pressed until the signal of the door-open limit-switch is given.

To close the door again, the door-closing button is to be pressed once for a short moment only.

➔ *(3) : second special version of dead man’s control:*

Like described in (2), however, in order to close the door, the door-closing button is to be pressed as long as the door needs to close completely. If it is released earlier, the door will run open again.

➔ *(4) : third special version of dead man’s control:*

Like described in (2), however, in order to close the door, the door-closing button is to be pressed as long as the door needs to close completely, otherwise the door stoops.
The door will also be closed, if there is a car command.

➔ *(5) : fourth special version of dead man’s control.*

Like described under (4), however, the door will not closed if there is a car command.

The topmost landing is blocked (Switzerland)

Landing key switch – shut-down:

I/O-adress for the function "shut-down elevator by landing key switch".

If the car was in an operational status with lower priority it will change into the status "shut-down - landing" and the following functions or statuses will be activated:

- Indication righthand below on the display: „**AbAus**“
- Cancelling of all landing and car commands and complete disabling of the call registration.
- If, during the initializing, the elevator moves away from the shut-down level it will stop in the next available landing and then continue to the shut-down level without opening the door.
- On shut-down level the door will open and after elapse of the stay-time be closed again.
- The car light is switched off in case that the respective parameter "switching car light“ in parameter-set relay addresses (006*) has been programmed.
- If the key will be removed, the elevator will change at once into the original operational status or possibly into a status that has been activated in the meantime.

Interrogation in case that an landing shut-down key switch or car reservation input has been programmed:

Landing – shut-down / reservation:

Definition of the shut-down / reservation level.

➔ *(0) : No function.*

➔ *(>0 and <= no. of landings) : The elevator will run to the landing defined by the parameter.*

- For hydro-elevators landing 1 is to be set as the shut-down level.

Alternate landing for landing-key shut down:

Definition of landing, where car goes at first on activating landing key shut down.

Input – fire emergency:

I/O-adress for the function fire emergency.

These function represents a combination of special service-landing and firemen mode-landing.

If the car was in an operational status with lower priority it will change into the status "shut-down - landing" and the following functions or statuses will be activated:

- Indication righthand below on the display: „**Brandfa**“
- Light barrier signals and door-open button will be ignored.
- If during the initializing the elevator moves away from the shut-down level it will stop in the next available landing and then continue to the shut-down level without opening the door.
- Cancelling of all calls, depending on parameter "call cancelling upon key control travel" and disabling of the call reservation.
- If the parameter "landing – fire emergency“ has been programmed with a value > 0 (described below), the elevator will run into the hereby defined landing.
  If, however, the parameter "landing – fire emergency“has been programmed with "0", the elevator will run to that landing where the key switch is installed.
  In this case the I/O-adress is identical to that of the landing key switch in the bottom landing. For the function "fire emergency - emergency" a contiguous I/O-area will be reserved.
- If the key on the key switch level is removed, the elevator will change the operational status into the status of car priority-mode for 90 seconds after elapse of the stay-time. Hereby, car priority-mode will be enabled without need for an car key.

1. Input – smoke detector:

Seized I/O-area: Depending on the no. of landings, starting with 1st input – smoke detector.

By these inputs all landings are signalised, where smoke has been detected.
Depending to, a dynamic fire emergency function is executed.

landing – fire emergency:

Definition of the fire emergency / emergency landing.

➔ *(0) : As described before for input "fire emergency / emergency", the elevator will run into that landing where the input / key switch is installed.*
➔ *(>0 and <= no. of landings) : The elevator will run into the landing defined by the parameter.*

Alternative landing in case of fire emergency:

Definition of the alternate landing in case of smoke-filled fire emergency landing.

➔ *(0) : No alternate landing.*
➔ *(>0 and <= Etagenzahl) : If the free-programmable input "fire emergency level smoke-filled" (see subsequently described parameter) has been activated (perhaps by a fire detector installed on the fire emergency landing), the elevator will not run by "fire emergency - emergency" to the fire emergency landing, however to the alternate level, even if the elevator is already on the fire emergency landing.*

If with fire emergency mode the elevator is already in the alternate landing and the signal "fire emergency level smoke-filled" is deactivated, it will run from the alternate landing to the fire emergency level.

Door opening on fire emergency level (T1/T2/beide):

Hereby, opening of doors deviating from the table of door opening on fire service level can be defined.

➔ *0) : Upon arrival on fire emergency level only door 1 will be opened*
➔ *(1) : Upon arrival on fire emergency level only door 2 will be opened.*
➔ *(2) : Upon arrival on fire emergency level both doors will be opened.*

Input – evacuation/fire emergency landing smoke-filled (0/1):

Hereby, a smoke detector installed in the fire emergency landing can be evaluated.

➔ *(1) : In case of fire emergency (input fire emergency activated) the fire emergency alternate landing will be approached instead of the fire emergency landing.*

Fire emergency/fire detector-input (Make/Break-contact):

Definition whether the fire emergency signal or the fire detector signal will be activated by a make-contact (NO) or by a break-contact (NC).

➔ *(0) : Make-function.*
➔ *(1) : Break-function.*

Remark: Hereby, the common signal level for the following signals will be ruled:

1. *Input fire emergency/emergency*
2. *Input fire emergency landing smoke-filled*
3. *1st Input fire detector (see parameter-set 003*)*

Light barrier to be considered with fire emergency / emergency (0/1):

There are no different parameters for the fire emergency or the emergency mode. If the respective key switches or inputs shall initiate an emergency travel, the signal from the light barrier should be considered.

Door closed on fire emercency level after x seconds:

Hereby can be defined that upon arrival on the fire emergency level the door will be closed after a defined period X.

➔ *(0) : The door on fire emergency level remains open*

➔ *(1) : After arrival on fire emergency level the door closes after X seconds.*

Call cancelling on key controlled travel (No/afterwards/before):

Selection, when the key-controlled landing and car commands shall be cancelled.

➔ *(0) : No call cancelling*

➔ *(1) : Call cancelling at the end of a key-controlled travel*

➔ *(2) : Call cancelling at the start of a key-controlled travel*

Call cancelling on clock-controlled travel (No/afterwards/before):

Selection, when the clock-controlled landing and car commands shall be cancelled.

➔ *(0) : No call cancelling*

➔ *(1) : Call cancelling at the end of a clock-controlled travel*

➔ *(2) : Call cancelling at the start of a clock-controlled travel*

Interrogation in case that an landing key-controlled special mode with a special mode landing > 0 and with selective landing door control is programmed:

Landing key switch-special travel access side 2:

Causes - in case of selective processing of the landing calls of access side 2 - an equally selective treatment of the key switch for the landing special service.

➔ *(0) : No function*

➔ *(1) : If the landing special service is foreseen for a certain landing only (=special service landing), it can be achieved by inputting the I/O-adress of function "landing key switch – special travel acces side 2", that upon activation of this I/O-adress an landing special travel will be initiated for the special service landing, where after arrival only access side 2 will be opened.*

▪ With landing selective door control and landing special service key switch in each landing (special service landing = 0), an adress area for access side 2 for the key switch on access side 2 is automatically reserved.

Acceptance of car commands only with function activted (0/1):

Selection whether after deactivation of the clock-controlled travel in the car (e.g. code-card removed) or after removing the car key for priority or special service, car commands shall be accepted furtheron.

➔ *(0) : Car commands are accepted until the function is terminated, that means for example, if prior to the termination of the special function (clock- resp. key-controlled travel) the key or the code-card are removed, car commands will anyway furtheron be accepted, according to the door opening mask for the special function.*

➔ *(1) : After removal of the car key, car commands will be no longer accepted as per door opening table for the car key-controlled service (priority or special mode), but already in the normal operation mode.*

If magnet-cards are used, it might be important that after the card is removed it should not be possible that calls can be set by persons which have no authorization to approach to landings that were enabled before by a magnet-card.

Smoke detector functions (0..):

Selecting of different fire mode functions (customers specifically).

3.2.6. Relay functions: (Call in on LiSA-keyboard by typing 006*)

Via parameter-set relay functions an output function will be assigned to the free-programmable relay. Basically this can be

- The indication of an operational status by means of luninous panels or
- Position outputs or
- Enabling signal for controllers or Hydro-systems or
- switching actions where voltages higher than +H are to be switched.

Totally 6 free-programmable relays are available.
With Lisa-versions LiSA6 - Lisa9 the relay mounting plug is on the main card.

On the LiSA10-main card are 2 relay mounting plugs and a 10-pole flat ribbon cable plug-connector (on main card lefthand below) by which the remaining 4 relays, mounted on a relay-card (RP-1 oder RP-2) can be activated.

Relay travel direction - up:

Relay-address for the signalization of travel direction - up.

⇨ The same function is available via parameter "output – travel direction -up“ (see parameter-set "output addresses").

The relay-output for travelling direction - up will always be activated when the elevator runs upward.

The subsequent relay-address is reserved for the indication of the down-direction, i.e. parameter "Relay - travel direction – up " will always seize 2 relay outputs.

Dependent from parameter "direction indicator with ongoing direction“ on the travel direction indicator the ongoing direction will be indicated at standstill (see parameter-set 007*).

Relay running with V1 (Vz1):

Relay-address for the selection of speed V1 resp. Vz1 (= 1st intermediate speed) in case of elevator with controllers / inverters or elektronic elevator regulating valve (LRV).

Running with speed V1 is required always when

- In case of VV/VF-controlled elevators the rated speed cannot be reached during a travel and the controller cannot carry out a travel by speed adapter curve, or
- On inspection travel.

Relay running with Vn (relevelling):

Relay-address for the selection of speed Vn (= relevelling speed in case of elevator with controllers / inverters or engagement of a relevelling pump unit.

Relay car - fan:

Relay-address for the activation of the car fan.

Relay car – car light-off:

Relais-address for switching cabin light

Relay Inspection – 1 (signal):

Relay-address for signalization that the operational status "inspection mode" is active.

In operational status "inspection" sometimes many functions must be carried out, but owing to the system there is no inspection contactor. Another possibility is provided to engage a relay for the inspection mode (see subsequent parameter "Relay InspeCtion 2“)

Relay interlock magnet – door 1:

Relay-address to engage the interlock magnet for the access side 1.

Relay interlock magnet – door 2:

Relay-address to engage the interlock magnet for the access side 2.

Interrogation if parameter “warning signal prior to door-closing command“ > 0(Parameter-set 001*)

Relay traffic light in the car:

Relay-address for the engagement of a traffic light in the car.

Door closing will be delayed by a value defined by parameter "warning signal prior to door-closing command“ and simultaneously a traffic light arranged in the car will be switched to "red“ by means of the relay "traffic light".

Relay suppression of emergency call:

Relay to suppress the horn signal resp. to prevent sending of an unauthorized emergency call to the control station in case of emergency call systems not having an internal misuse-identification system.

In both cases is the break-contact of the relay for the suppression of the emergency call connected in line with the make-contact of the alarm relay (connector SS1 on the main card), with the result that in case of an unauthorized emergency call (relay – emergency call suppression activated) the signal of the alarm relay is interrupted.

- In the LiSA-emergency call system the emergency call signal is evaluated internally, i.e. no separate relay required.

The following criteria are utilized for the misuse-identification, according to TRA106:

- The car is in motion and the safety circuit is closed (TRA 106 2.1)
- The car is within the zone and the hinged door is open, (TRA 106 2.1.2.1.)
- The car is within the zone and the car door is open (TRA 106 2.1.2.2.)

- The emergency call suppression can be bypassed, e.g. for an inspection by the authorities, when the alarm button and the door-open button are pressed simultaneously. This function can be deactivated by setting the multifunction parameters 2 (=starting delay) to 195.
- Bypassing is possible also, if at once after door closing and still before starting the alarm button will be pressed.

Interrogation with hydro-elevators:

Relay overtravelling - pump:

Relay-address for function "pump overtravelling".

With relay – overtravelling – pump the upward valve will be switched off earlier than the pump motor by the overtravelling time (see parameter "overtravelling time-pump“ in parameter-set 001*)).

With some hydro-systems like Giehl and Leistritz this will result in a softer stopping in upward travel.

Interrogation in case of traction elevators:

Relay overtravelling – motor fan:

Relay-address for function "motor-fan overtravelling".

With relay – overtravelling – motor fan the fan of the driving motor will remain engaged after stopping for a period defined by parameter "overtravelling time-fan“.

Interrogation in case of traction elevators with Dynatron S/F – controller/inverter:

Relay KBR-brake application up/down (KBR-Relais):

Relay-address for function "brake application" of VV/VF-controlled elevators with Schindler controller / inverter.

By "relay – KBR-brake application up/down" the Dynatron gets signalized to decelerate. (Attention: the stopping condition in form of the fast-signal must have been set before).

With the entry of the middle signal generator into the destination, the signal is switched-back again.

Hereby, in case of Dynatron2000, the below-described relay "correction - stopping" can be abandoned.

Relay correction - stopping:

Relay-address for function "correction upon stopping" of controlled elevators with Schindler

controller / inverter.

The relay "correction-stopping" is activated by LiSA always upon entry of the middle signal generator into the domain of inductor plate of the destination. Thus, in case of elevators with Schindler-inverter Dynatron 2000, a correction signal will be provided to the inverter about 10 cm before the landing, by which the inverter can adjust inaccuracies upon stopping within ± 10 mm (see description Dynatron 2000).

Relay direction ongoing travel - up:

Relay-address for the signalization of the ongoing travel in UP-direction.

The next relay-address is reserved for the indication of the direction of ongoing travel downward, i.e. by parameter "Relais Richtung Weiterfahrt – Auf" always 2 relay outputs will be assigned.

The direction of the ongoing travel is signalized at the deceleration point and remains active until the end of the stay-time.

Signalization of direction of ongoing travel upward, if

- the car approaches in upward direction and there is another call from a higher landing, or
- the car approaches to the bottom landing, or
- the stay-time has expired and the next due call is from above.

The main purpose of the relay function however is, that the number of required I/O´s for the direction indicator can be nearly halved by linking the function "arrival gong in landings“ with the two relays for ongoing travelling direction. Hereby, the selection of the landing in which the ongoing direction will be indicated is made by the arrival gong and the selection of direction by the relays "relay direction ongoing travel".

Relay busy – siren (signal):

Relay-address for the activation of a horn / siren if a landing door of the hinged or swing type is open for longer than the preset time interval.

After opening of the hinged door the time defined by parameter "elevator off-group if hinged door open after sec.“ will be started. After elapse, for 6 seconds the "Relay busy – siren (signal)" will be engaged.

Relay open door-interlocking:

Relay-address for the activation of an interlocking magnet.

Active for a couple of seconds when the car door shall close.

This function is interesting for some older types of doors, where in the "end position – open" an interlocking bolt is automatically applied in order to keep the doors open.

Relay Inspection – 2 (signal):

Relay-address to signalize that the operational status "inspection mode" is active.

In operational status "inspection" sometimes many functions must be carried out, but owing to the system there is no inspection contactor. Another possibility is provided to engage a relay for the inspection mode (see parameter "Relay InspeCtion 1“ described before)

Relay – calls registered (signal):

Relay-address to signalize that at least one landing or car command is registered.

Relay travelling with speed Vz2:

Relay-address for activation of the 2nd intermediate speed (V2) with VV/VF-controlled elevators

The relay is activated always when the destination actually is closer than defined by parameter "Zielabstands-grenze für Vz2“ (see parameter-set "travelling times-pulses").

Relay - Step (SoZone / SuZone):

Relay-address for signalling that the elevator is off-level.

If in the zone-area the centre or the bottom signal switch not within the domain of the inductor plate, this relay will be activated.

The height of step can be between about 2 cm and 9 cm.

Relay – End of maintenance interval:

Relay-address for the indication that the end of the maintenance interval is reached.

This signal may be used to inform any control station that the number of travels defined by parameter "maintenance interval“ (= maintenance interval counter) has been completed.

This status will additionally be made obvious by the blinking of the operational status indicator between „n“ and „O“.

The maintenance interval counter will be cancelled or reset by keying of "019*, with subsequent storing of the parameter and performing a reset.

Relay – Reset safety light screen:

Relay-address for signalling that the light screen is no longer interrupted and that the passenger has generated an car command to continue the travel .

The signal causes that the blocked light-screen electronic system can return into operation after an interruption of the light-screen. The signal is switched off and on in a 10-seconds-cycle until the light-screen is again made operable by release from its electronic system.

Relay – collective fault (signal):

Relay – adress for the signalization of a collective fault.

This relay will be activated whenever the elevator has a failure, i.e. neither landing nor car commands are accepted, e.g. in case of excess temperature, exceeding of travelling time, door failure etc.

In case of inspection or recall mode the output is not active.

Relay – elevator in operartion (signal):

Relay-address to indicate that the elevator is engaged and without a failure.

The output will be activated always when the elevator is without a failure and is not shut-down.

With elevator shut-down the relay contact will close (NC).

Relay – busy (signal):

Relay - adress to indicate that no landing calls will be accepted.

The "relay – busy" will be activated when the elevator does not respond to landing calls, i.e. with

- The operational statuses full-load, overload, priority, landing control-off, door failure, special service, shut-down, firemen mode, evacuation, recall, inspection and all other interferences.
- With universal control during travel

Relay - elevator in zone:

Relay-address for the indication that the elevator is within the zone.
The signal is always delivered when the middle signal generator is in the zone.

Relay – elevator in motion:

Relay-address for the indication that the elevator is in motion.

Relay – door failure (signal):

Relay-address for the indication of the operational status "door failure".
See also input – door failure.

Relay – exceeds temperature (signal):

Relay-address for the indication of the operational status "excess temperature".

3.2.7. Indicator functions: (Call in on LiSA-keyboard by typing 007*)

The LiSA matrix and segment-indicators are to be configured by means of parameter-set "indicator functions".

- An landing position indicator is installed on the landing.
- A car position indicator is "normally“ installed in the car. The restriction refers to matrix-indicators. These are provided with the possibility to define the place of installation by a plugging-jumper on the indicator (whether on the landing or in the car). This way it is possible to drive different types of matrix-indicators on landings and in the car (8*8 / 16*8). This means however, that a matrix-indicator without plugging-jumper that is installed in the car will function like an landing position indicator and therefore must be parameterized as an landing position indicator.

Car poition indicator (None / 8*8 / 16*8old / 16*8new / S35 / S15 / S7 / LCD / LCD/ Mseg / FPMat/hBu/vBu/hvBu):

Definition which indicator is installed in the car.

➔ *(0) : No indicator in the car.*

➔ *(1) : The indicator configured as a car position indicator (jumper plugged on indicator) has 8*8 dots.*

➔ *(2) : The indicator configured as a car position indicator (jumper plugged on indicator) has 16*8 dots.*

➔ *(3) : The indicator configured as a car position indicator (jumper plugged on indicator) has 16*8 dots.*
Additionally – in that area of the indicator where normally the travelling direction appears – useful information will be displayed, like:

- x, if the elevator does not accept landing calls,
- , when the hinged door is open,
- L , when the light barrier is interrupted for more than 10 seconds

➔ *(4) : As car position indicator either the LiSA-LED-segment display (1-digit / 1-digit with arrow / 2-digit / 2-digit with arrow, 35 mm high) or the LiSA-foil-segment display (2-digit with arrow, 50 mm high) will be used.*

In the car are 3 I/O´s required to drive the segment-indicator which, naturally, are no longer available for other functions. If the indicator is operated on the APO-card, these are the I/O´s 78, 79 and 80. In case of connection on the extension card, IO94, IO95 und IO96 are assigned.

➔ *(5) : As landing position indicator the older type of the 15 mm LiSA-segment display is used.*

This value is of interest only for older elevators as this indicator is no longer installed.

➔ *(6) : No meaning*

➔ *(7) : LCD-display (192*192 dots) with programming on a PC. Connection at the matrix-plug connector.*

➔ *(8) : LCD-display as under (7)*

➔ *(9) : Multi-segment display. Illuminated 2-digit LCD-position indicator with arrow (50 mm high). Each digit is performed by 38 segments. Regarding the control the indicator behaves like a normal segment-display (see under (4))*

➔ *(10) : PC-programmable matrix-display plugged in the matrix-display connector (I2C).*
The pictures of this display are burned in an EEPROM by means of a PC-programme, which means that the display pictures preset on the LiSA are not effective. By the following new parameters “horizontally scrolling tex 1-4” in addition 4 horizontally scrolling texts can be read.

➔ *(11) : Bus-Matrix-Display in horizontal position*

➔ *(12) : Bus-Matrix-Display in vertical position*

➔ *(13) : Bus-Matrix-Display in horizontal und vertical position*

Interrogation in case of matrix-display in the car:

car – type of indication (fix / changing / scrolling):

Definition which type of display is installed in the car.

➔ *(0) : The car position is permanently visible.*

➔ *(1) : The car position alternates with the travelling direction.*

During travelling the car position is displayed within the zone only, and off-zone only the travelling direction.

➔ *(2) : The change to the next display image comes scrolling.*

Interrogation if there is a matrix-display in the car:

Directional arrow in car-indicator (none / dir only / dir contin only / dir+dir con):

Definition if resp. how the directional arrows shall appear in the position indicator.

➔ *(0) : No arrow will be displayed.*

➔ *(1) : Only travelling direction shall be displayed.*

During a travel - with matrix-displays – the respective travelling direction shall be indicated left from the car position.

➔ *(2) : Only the direction of the ongoing travel shall be displayed.*

At standstill a blinking arrow for the respective direction of ongoing travel is displayed at the left from the car position.

➔ *(3) : The travelling direction and the direction of ongoing travel is displayed.*

This function includes both afore described functions.

By herebelow following parameters the analog scope of functions for LiSA-displays is programmed, however for indicators installed on the landing:

Landing position-indicator (No / 8*8 / 16*8old / 16*8new / S35 / S15 / S7 / LCD / LCD/ Mseg / FPMat/hBu/vBu/hvBu):

Definition which kind of indicators are installed on landings.

➔ *(0) : No indicators on landings.*

➔ *(1) : The display configured as a landing indicator (Jumper not plugged on indicator) has 8*8 dots.*

➔ *(2) : The display configured as a landing indicator (Jumper not plugged on indicator) has 16*8 dots*

➔ *(3) : The display configured as a landing indicator (Jumper not plugged on indicator) has 16*8 dots.*
Additionally – in that area of the indicator where normally the travelling direction appears – useful information will be displayed, like:

- x, if the elevator does not accept landing calls,
- , when the hinged door is open,
- L , when the light barrier is interrupted for more than 10 seconds

➔ *(4) : As landing position indicator either the LiSA-LED-segment display (1-digit / 1-digit with arrow / 2-digit / 2-digit with arrow, 35 mm high) or the LiSA-foil-segment display (2-digit with arrow, 50 mm high) will be used. For activation are no additional I/O´s required.*

➔ *(5) : As landing position indicator the older type of the 15 mm LiSA-segment display is used.*

The parameter value is of interest only for older elevators as this indicator is no longer installed.

➔ *(6) : 7-segment indicator.*

➔ *(7) : LCD-display (192*192 dots) with programming on a PC.*

➔ *(8) : LCD-display as under (7), with additional functions as under (3).*

➔ *(9) : Multi-segment display. Illuminated 2-digit LCD-position indicator with arrow (50 mm high). Each digit is performed by 38 segments. Activation similar to the normal segment-display.*

- ➔ *(10) : PC-programmable matrix-display plugged in the matrix-display connector (I2C).*
- ➔ *(11) : Bus-Matrix-Display in horizontal position*
- ➔ *(12) : Bus-Matrix-Display in vertical position*
- ➔ *(13) : Bus-Matrix-Display in horizontal and vertical position*

Interrogation in case of matrix-indicators on landings:

Type of Landing position- (fix / chancing / scrolling):

Definition which kind of indicators are installed on landings.)

➔ *(0) : Car position permanently fully visible.*

➔ *(1) : Car position alternating with the directional arrow.*

During travelling within the zone the car position is displayed and off-zone only the travelling direction.

➔ *(2) : The change to the next display image comes scrolling.*

Interrogation in case of matrix-indicators on landings:

Directional arrow in Landing indicator (none / dir only / dir contin only / dir+dir con):

Definition if resp. how the directional arrows shall appear in the position indicator.

➔ *(0) : No arrow will be displayed.*

➔ *(1) : Only travelling direction shall be displayed.*

During a travel the respective travelling direction shall be indicated left from the car position.

➔ *(2) : Only the direction of the ongoing travel shall be displayed.*

At standstill a blinking arrow for the respective direction of ongoing travel is displayed at the left from the car position.

➔ *(3) : The travelling direction and the direction of ongoing travel is displayed.*

This function includes both above described functions.

Interrogation when the type of car or landing indicator is parameterized as scrolling display:

Display – scrolling (rev. dir / in dir / rev. dir with arrow/ in dir with arrow):

Definition to which direction and what shall be scrolled.

- ➔ *(0) : The car position scrolls against the travelling direction. The directional arrow does not scroll.*

  This is the normally applied function.
- ➔ *(1) : The car position scrolls in travelling direction.*
- ➔ *(2) : The complete image scrolls, i.e. car position and directional arrow. The scrolling direction is against travelling direction.*
- ➔ *(3) : The complete image scrolls, i.e. car position and directional arrow. The scrolling direction is in travelling direction.*

Out–of-operation (without / X / A-B):

Definition of what shall be displayed on the matrix-indicator in case of malfunction, of inspection mode or of recall. If, however, a EL-foil (electro-luminescent-foil) is installed on landings and/or in the car, this parameter is used for the parameterizing of the respective foil. In this case no out-of-operatus status is indicated on a possibly additionally installed matrix-indicator.

- ➔ *(0) : Indication of car position*
- ➔ *(1) : Indication of sign "X"*
- ➔ *(2) : Indication of signs A-B.*

Position indicator in car command button (0 / 1):

Definition, if the car position should shown by flashing a signal of the car command button.

➔ *(0) : no indication*
➔ *(1) : car command button of that landing where the car is blinks in a seconds-cycle.*

Ongoing-travel direction indicator (0 / 1):

Definition whether the indication of travelling direction, set by way of the free-programmable outputs resp. relays, shall additionally indicate the ongoing travel during standstill.
➔ *(0) : Signalization of travelling direction only. No indication at standstill.*
➔ *(1) : Additional signalization of direction of ongoing travel at standstill.*

Interrogation, if car and landing indicators were preset by PI2C:

By the free programmable 16*8 matrix display, 4 different horizontally scrolling texts can be choosen, in order to indicate different operational modes.

Horizontally scrolling text 1 (No/VoL/UeL/Vorz/Sofa/Not+Brand/Eva/Feu/Aus/Ins/AusB) :

➔ *(0) : No scrolling text*
➔ *(1) : text in case of full load*
➔ *(2) : text in case of overload*
➔ *(3) : text in case of priority travel*
➔ *(4) : text in case if special travel*
➔ *(5) : text in case of emergency resp. fire emergency travel*
➔ *(6) : text in case of evacuation travel*
➔ *(7) : text in case of fire brigade operation*
➔ *(8) : text if landing control is switched off*
➔ *(9) : text in case of maintenance / inspection*
➔ *(10) : text, if input for „out-of-operation“-indication is activated*

Horizontally scrolling text 2 (No/VoL/UeL/Vorz/Sofa/Not+Brand/Eva/Feu/Aus/Ins/AusB) :

Analogue with scrolling text 1.

Horizontally scrolling text 3 (No/VoL/UeL/Vorz/Sofa/Not+Brand/Eva/Feu/Aus/Ins/AusB) :

Analogue with scrolling text 1.

Horizontallly scrolling text 4 (No/VoL/UeL/Vorz/Sofa/Not+Brand/Eva/Feu/Aus/Ins/AusB) :

Analogue to scrolling text 1.

The following interrogation is for the assignment of indicator images to the individual landings:

Indicator image on landing 1:

Input of the number- code (1 – 300) for landing 1.

deactivation position indicator after ... X Sec:

Definition of when the position indicator shall be switched off if no calls are registered.
➔ *(0) : The position indicator will not be switched off.*
➔ *(X) : The position indicator will be switched off after X seconds.*

Since 20.05.2003. indicator images (max. 2 figures) and horizontally scrolling texts can be allocated directly by means of LiSA-keyboard Tastatur.

The allocation has to be done on the basis of the following code table.

Image	Code	Image	Code	Image	Code	Image	Code	Image	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 segment displays, if –1 has to be shown by one figure.

The following interrogation is for the assignment of indicator images to the individual landings:

Indicator image on landing 1:

Input of the code corresponding to the table above for landing1.

For exampel: In landing 1 there should be shown U1. Input: 3001

Indicator image on landing 2:

Input of the code corresponding to the table above for landing2.

For exampel: In landing 2 should be shown 1OG. Input: 012416

Indicator image on top landing:

Input of the code corresponding to the table above for landing2.

For exampel: In top landing should be shown DG. Input: 1316

By herebelow following description of horizontally scrolling texts are only available with the new parameter-EEPROM 24C256. This EEPROM is installed on all LiSA10-7 boards delivered after 15.05.20003.

Interrogation, if car or landing indicators are matrix indicators (but not preset to PI2C):

Rolling text 1 = FULLOAD
Rolling text 2 = OVERLOAD
Rolling text 3 = PRIORITY TRAVEL
Rolling text 4 = SPECIAL SERVICE
Rolling text 5 = FIRE-EMERGENCY TRAVEL
Rolling text 6 = EVACUATION TRAVEL
Rolling text 7 = FIREMEN MODE
Rolling text 8 = MAINTANANCE - INSPECTION
Rolling text 9 = OUT OF SERVICE
Rolling text 10 = EMERGENCY TRAVEL

Above texts are standard texts for 10 different operational states and can be modified just as you like (only if 24C256 EEPROM is installed).

The input procedure is likewise to that one above describt for allocating indicator images, this means it is based on the image-code table.

Text with less than 3 figures are not shown. In this way texts for distinct operational states can be suppressed, if one does not want to show a text for this state.
For exampel: Scrolling text 2 (OVERLOAD) should be changed to „CAR OVERLOADED“.
Input: 12102736243114272124101313 13

☞ By entering „000000“ the standard text can be restored.

3.2.8. Door opening functions: (Call in on LiSA-keyboard by typing 008*)

By parameter-set "door opening functions" the release to open the door resp. the acceptance of calls for access sides 1 and 2 can be defined separately for car and landing buttons and according to the operational conditions normal, clock-controlled and key-controlled operation.
Set-up of the parameters:

- Each parameter consists of a sequence of "0“ and "1“.
- The length of the sequence corresponds to the no. of landings.
- The sequence starts with the lowest landing and and ends with the highest.

Normal Operation: opening – door 1 car command

Definition of acceptance of car commands with normal operation for access side1..
➔ *(xxxxxxxxx):*

clock-controlled travel 1: opening – door 1 car command

Definition of acceptance of car commands with clock-controlled travel for access side1..
➔ *(xxxxxxxxx):*
The designation "clock-controlled" travel has only limited relation to clock-time, asa the change to the operational status clock-controlled travel can be released not only by the internal clock but also by the function "Input – clock-controlled travel“

Key-controlled travel: opening – door 1 car command:

Definition of acceptance of car commands with key-controlled travel for access side1..
➔ *(xxxxxxxxx):*

Normal operation: opening – door 1 landing call

Definition of acceptance of landing calls with normal operation for access side1..
➔ *(xxxxxxxxx):*

Clock-controlled travel 1: opening – door 1 landing call

Definition of acceptance of landing calls with clock-controlled operation for access side 1..
➔ *(xxxxxxxxx):*

Clock-controlled tavel 2: opening – door 1 car command

Definition of acceptance of car commands with clock-controlled operation 2 for access side 1..
➔ *(xxxxxxxxx):*

Clock-controlled travel 2: opening door 1 landing call

Definition of acceptance of landing calls with clock-controlled operation 2 for access side 1..
➔ *(xxxxxxxxx):*

x = 1 or 0:

1 makes, that the call will be accepted in this landing.

0 makes, that the call will not be accepted in this landing.

Following parameters will be interrogated only, if two access sides are installed:

Normal operation: opening – door2 car command

Definition of acceptance of car commands with normal operation for access side2..

Clock-controlled travel: opening – door2 car command

Definition of acceptance of car commands with clock-controlled travel for access side2..

Key-controlled travel: opening – door2 car command

Definition of acceptance of car commands with key-controlled travel for access side2..

Normal operation: opening – door2 landing call

Definition of acceptance with normal operation for access side2.

Clock-controlled travel: opening – door2 landing call:

Definition of landing call acceptance with clock-controlled operation for access side2..

Example: In an elevator installation with 8 landings, 2 access sides and selective door control-car, between 18.00 – 6 Uhr the landings 7 and 8 cannot be approached by car commands.

Solution:
- Parameter "clock-controlled travel – start“ = 18
- Parameter "clock-controlled travel – end“ = 6
- Parameter "normal travel: opening – door1 – car command" = 11111111
- Parameter "clock-controlled travel: opening – door1 – car command"= 11111100
- Parameter "normal travel: opening – door2 – car command" = 11111111
- Parameter "clock-controlled travel: opening – door2 – car command"= 11111100

Clock-controlled travel 2: opening – door2 car command

Definition of acceptance of car commands with clock-controlled travel 2 for access side2..

➔ *(xxxxxxxxx):*

Clock-controlled travel 2: opening – door2 landing call

Definition of acceptance of landing calls with clock-controlled travel 2 for access side2..

➔ *(xxxxxxxxx):*

3.2.9. Teaching operation values: (Call in on LiSA-keyboard by typing 009*)

By parameter-set "teaching operation values" the landing distances established on the teaching operation and – if the pulse-method is applied - the pulse-constant can be checked.

This check is important mainly with the pulse method. In case of doubt, when no oscilloscope is at hand, it will inform whether the pulse-generator pulses received from the control are faulty and / or cannot reliably be processed by the LiSA-hardware.

Possibilities of checking in case of the pulse-method:

- While the elevator runs with creeping speed (recall) the light-bar "Zimp“ in the LiSA must flicker,
- The pulse-splitting ratio (splittable by plugging of the respective plug-jumpers) must be adjusted so, that the pulse-constant has a value of between 1000 and 2000 pulses / m. In case of a pulse generator driven by the main motor with 1024 pulses / rev. the pulses should be split by 16. With LiSA pulse-generator however no splitting is required.
- If the teaching operation is stopped in the middle of the well with a reset, no processing at all of pulses is carried out by LiSA .
- The established landing distances should not deviate from the actual ones by more than 3 % – check in case of major deviations whether the inductor plate-length of the 200 mm-long inductor plates has been adjusted to 193.
- If the teaching operation values do not seem plausible to you, write them down and carry out another teaching operation. The values of both teaching operations shall differ only insignificantly (max. 15 mm larger or smaller, but all of them either to + or to -).

Distance between 1 <-> 2 mm:

Indication of the distance measured on teaching operation between level 1 and 2.

If the time-method is applied this distance cannot be "learnt“.

Therefore, enter a value of which you can be sure that it is higher than the actual one (e.g. 10.000, even if the actual distance is only 4000 mm). In case of a long travel to the bottom landing the deceleration will be initiated at any rate by the bottom pre-limit switch. In case of landing-to-landing travels the landing distance will not matter anyway.

Distance between 2 <-> 3 mm:

Indication of the distance measured on teaching operation between level 2 and 3.

Distance between level next to last <-> last

Indication of the distance measured on teaching operation between level next to the last and the last one.

When applying the time-method proceed in the same way as between levels 1 and 2.

In case of a long-distance travel to the top level, the deceleration will anyway be initiated by the pre-limit switch on top of the well.

Output with pulse method:

Pulse-constant (pulses / m)

Indication of the pulse-constant established upon teaching operation

The pulse-constant should have a value of 1000 and 2000 pulses / m

.

Rated speed Vnenn mm/sec:

Indication of the rated speed established upon teaching operation

3.2.10. Special-parameters : (Call in on LiSA-keyboard by typing 0010*)

The following parameter-functions are included:

- Functions in connection with the real-time clock intergrated on the LiSA, and
- Functions for the adjustment of the LiSA-DFÜ (LiSA-data transmission system) and of the LiSA-emergency call system.

The real-time clock will be set by the following parameters;

Date - Year:

Date - Month:

Date - day:

Time - Hours:

Time - Minutes:

The duration of the operational status"clock-controlled travel" will be set by the following parameters;

Begin – clock-controlled travel:

Upon change into operational status "clock-controlled travel" following parameters are activated:

- clock-controlled travel: Opening – door 1 car command.
- clock-controlled travel: Opening – door 2 car command.
- clock-controlled travel: Opening – door 1 landing cal
- lclock-controlled travel: Opening – door 2 landing call
- Parking landing for clock-controlled travel

The operational status "clock-controlled travel" is shown on the LiSA- op.stat.display by „u“.

End – clock controlled travel:

With the integrated clock a treatment of saturdays, sundays and holidays deviating from the that of the weekdays is not possible. If this should be required, an external time-clock must be used to operate the clock-controlled travel through an "input – clock-controlled travel".

3.3. Group-Function

1. Layout of an elevator-group:

Under the following conditions, single elevators will work as a group:

- Each elevator is given a number within the group by the parameter „car in group“.
- The single elevator controls shall be connected with each other as a ring by 2 data lines (sending and receiving line). Via these lines they exchange data messages with each other.
- Data transmission is done serially via a 20 mA-interface, at a speed of 1200 bits/second. Each data message bears the number of the sender and ens with a check-character. Elevator 1 sends its data message first to elevator 2. It memorizes and analyses the message received and send it to elevator 3. Elevator 3 sends it to elevator 4 and so on. The last elvator in the group sends the data message again to elevator 1. Elevator 1 recognizes it as its own and deletes it resp. sends it again, if check of the check-character turns out to be negative.
- In order that the data transmission is not interrupted, while the contor unit is out of operation resp. malfunctioning, each basic control card (bottom left) is provided with a relay (looks like an electronic component), which short-circuits the sending input with the receiving input.
- If at a landing the number of push-button units falls below the number of cars (this is the normal case), the IO’s of the landing call units have to be connected with each other, as otherwise some landing calls might not be read in anymore, if an elevator fails is switched off.

2. Information processing in an elevator group control:

Each elevator disposes at any time of full information about:

- The actual distribution of landing calls
- The operational modes of the other elevators
- The car commands of the other elevators
- Position, ongoing travel directions, destinations and
- Door situations of the other elevators.

For every landing call to be processed each elevator permanently computes (in sysles of 100 ms), which elevator under consideration of the above-mentioned information ca quickest respond.
If all elevators have the same distance to the destination, always the elevator with the lowest number is given priority.

3. Further functions with influence on the behavior within the group:

- In case of fulload (60 – 100% load on the car), landing calls are not considered anymore, which means that the elevator is taken out from the group processing.
- The same occurs, if the elevator does not work in the normal operational mode, for example if it is out of peration due to overtemperature, exceded trvel time etc., any key-controlled priority operation or inspection operation.
- By the parameter “elevator taken out from the group, as stopped in the landing for more than x seconds” an elevator is taken out from the group after elapse of the preset interval. This might be due to repeated interruption of the light barrier, not closing of hinged landing doors, interruption of the safety ciruit during the preceding travel.
- Every landing call is monitored by a time-recorder. If it exceeds the value preset by parameter “maximum waiting time for landing call”, the system generates a supplemantary car command.

Details:

In the idle state (after having arrived at a landing and before starting to the next destination), each elevator computes in 100-ms-sysles its next possible destination. Each change in position is transmitted to the other erlevators in the group by a position-message.

Position-message: **[# P p z w t a i c]**

[= start of message	] = end of message
# = elevator #	P = position message
p = car position	z = destination landing
w = ongoing travel direct.	t = status of the door
a = landing call IO read in	i = Icar commands
c = check-character	

Also during the travel every change concerning destination, ongoing travel direction, landing calls received and car commands is communicated by a position-message.

Example
[1 P 2 4 ↑ 3 10 00000004 24] :
1 = message from elevator 1
P = positions-message
2 = Aufzcar is at landing 2 or has just started from landing 2
4 = Auelevator control has recognized landing 4 as ist next destination
= prospective ongoing travel direction at landing 4
3 = Aufdoors are open
10 = IO-10 (= landing call) activated
00000004 = car command at landing 3 (binary)
24 = check-character

There are furhter kinds of message

- Mode of operation
- Door opening tables, as well as
- Landing calls registered.

Objectives for the command processing:

Behaviour of the elevator group manly aims at quickest possible processing of calls.

The expenditure of energy is only secondly considered.

In a group of 2 elevators, one elevator shall process all calls at hand in one direction. Only in cases where for one or more calls a preset limit of the precalculatable waiting time would be exceded, also the second lift will be called in the processing of the calls.

This condition ex explained by the following example:

Elevator 1 and elevator 2 are both idle in landing 2:

In landings 15 and 14 (A15, A14) there are downward landing calls at hand

Elevator 1 starts and processes A15 and all other downward clls at hand. Elevator 2 remains idle.

Only if a furhter call (e.g. A13) is entered, also elevator 2 starts and processes this call.

Basic is the calculated waiting time for every call .

Calculation of this waiting time (WZ) is executed for each elevator and each landing:

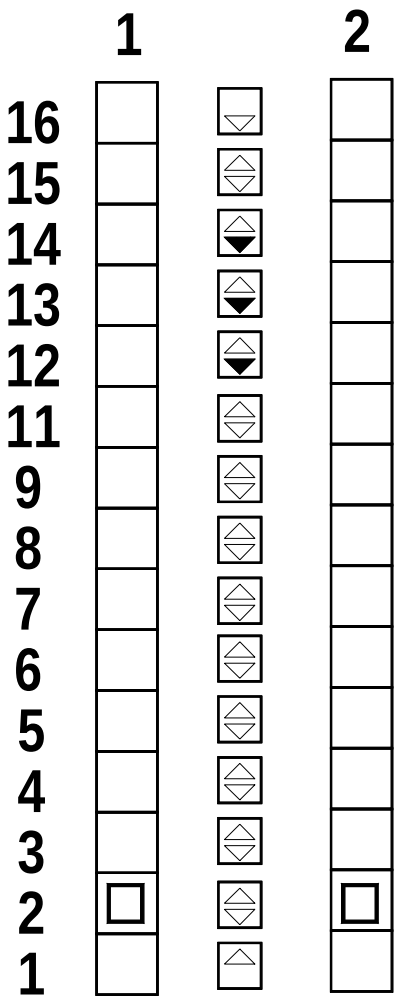
presumption: time per stop HZ = 10 seconds, travel time per landing EZ = 2 Sekunden.

Calculation of the waiting time:

WZ(A) = X*HZ + Y*EZ,

X = number of stops until A is reached

Y = number of landings up to A



Example (see picture)

- Both elevators are in the basement (landing 2)
- Call in landing 14 (A14)
- Elevator 1 travels to A14
- Meanwhile call A15 has been received: new destination of elevator 1 is A15.
- Elevator 2 computes wainting time for A14:
  elevator1: WZ(A14)= 1*HZ + 1*EZ = 12 sec
  elevator 2: WZ(A14) = 13* EZ = 26 sec
  elevator 2 remains idle.
- Landing call A13 is received:
  elevator1: WZ(A13) = 2*HZ + 2*EZ = 26 sec
  elevator 2: WZ(A13) = 12*EZ = 24 sec
  elevator 2 travels to A13.

Additional remarks regarding the processing of calls by LiSA-control units:

1. Direction of travel remains unchanged as long as there are calls at hand for this direction.

   Exception: If after arrival at destination there is no call above/below the destination landing (in the direction of arrival), the direction of travel will be memorized until the time of sandstill (door-open time) has elapsed. After that the actual call distribution in the group determines the ongoing travel direction.

2. If at a landing calls are entered for both directions, both elevators start for this landing.

3. If at a landing a call is entered, while the door is closing, the door will run open again, but only, if the direction of the call entered correspond with th ongoing travel direction of the elevator. Condition is,however, that the parameter “door opening caused by landing call also possible by car command” is set to 1.
4. If an elevator communicates that it starts opening the door, it is automatically granted a handicap time with respect to the call distribution, which elapses in 1-sencond-steps until the door closes. By consequence it might occur that an elevator responds to the call, although it is by 2 landings more distant than another elevator – but: its door is already closed.
5. Induced by the system it might occur that two elevators respond simultaneously to a call. This is possible, if some of the elevators are idle with different states of their doors (see item 4).

6. By spreading the elevators over different parking zones resp. variable parking landings it is possible to reduce empty runs.
7. By the possiblility of setting three different zones of time, also filling and emptying functions are possible.

Statistical evaluation of the landing call waiting times:

In the control unit per landing each a waiting-time-counter is available for up-calls and for down-calls, counting the maximum and the average waiting times.
This values can be read out by typing 010* on LiSA-keyboard (deleting by 016*).
Indication on the display:
maximum witing time landing call up from landing 1 =
maximum witing time landing call up from landing 2 =
.....
maximum witing time landing call up from landing n-1 =

maximum witing time landing call up from landing 2 =
maximum witing time landing call up from landing 3 =
.....
maximum witing time landing call up from landing n =

average waiting time landing call up from landing 1 =
average waiting time landing call up from landing 2 =
...
average waiting time landing call up from landing n-1 =

average waiting time landing call up from landing 2 =
average waiting time landing call up from landing 3 =
...
average waiting time landing call up from landing n =

In groups used to normal capacity, the average waiting time falls below 12 seconds.

3.4. LiSA-DFÜ

in preparation

3.5. LiSA-emergency call system

3.5.1. Introduction

The LiSA emergency call system covers not only the functions stipulated by <tra106 and <en81, but also enables a full-scale monitoring of your elevator plants.

Commercially available systems of other makes offer these functions in two separate systems. While emergency call functions are realized by systems like Telenot, Behnke, ELA etc., monitoring tasks are committed to the elevator control unit. By consequence, interface problems normally arising in such a constellation are solved by the elevator manufacturer.

Furthermore, the purchasing price for both systems in general is considerbly higher than the one for the LiSA emergency call system.

Main components of the LiSA emergency call system:

- LiSA pcboard, in case of power failure powered by the built-in rechargeable battery, and
- LiSA emergency all station, consisting of an Elsa-modem and an adapter board with voice output unit, and
- LiSa hand-free call station in the car.

As usual with LiSA, these components are supplied as plug-in units. If the components are ordered together with the elvator control unit, no additional wiring-work is necessary.

But also retrofitting is easy, as the Siedle-call station generally used in LiSA control units has got the same dimensions and fixing points as the LiSA call station. The LiSA emergency call system can connect up to 4 elevators to a monitoring center via one telephone extension.

These 4 elevators can be: a veritable elevator group, 4 independent elevators (data transmission-group), two groups of each 2 elevators, LiSA-controlled elevators mixed up with alien elevators, or 4 alien elevators.

3.5.1.1. Emergency call functions:

An emergency call is first directed to one of **four emergency numbers.** Via this emergency number the monitoring center is selected, which is either in your companny (24 hours attendance), or possibly the LiSA-monitoring center in Berlin resp. the monitoring center group of Siemens Gebäudeleittechnik, etc.

The monitoring centre normally consists of a PC with modem connection. If LiSA monitoring centre is used, on this PC is installed the LiSA monitoring programme.

For the monitoring centre Siemens Gebäudeleittechnik the software was particularly adapted (similar to Telenot), in order that emergency calls and fault messages from LiSA-installations can be received.

However, it is also possible that the janitos's extension serves as an emergency number.

When an emergency call arrives at the monitoring centre (PC), first the features of the elevator are transmitted and then the voice intercom with the trapped passengers is established.

The voice intercom in case of a LiSA-monitoring centre is established immediatley after the data transmission. In case of the Siemens-monitoring centre, the data are transmitted and then the connection cut. After that a new connection to the elevator in emergency is established by the monitoring centre.

At any time by telephone a voice connection can be established to either of the maximum 4 elevators connected to this extension.

3.5.1.2. Monitoring functions – attendance functions:

Monitoring functions are the remote data transmission functions, which are usual in elevator control units.

- Reporting of faults and malfunctions to the monitoring-centre resp. to the inhouse PC.
- Visualisation of the elevator on a PC
- Parameter setting

Furthermore, the emergency call system exercises attendant functions:

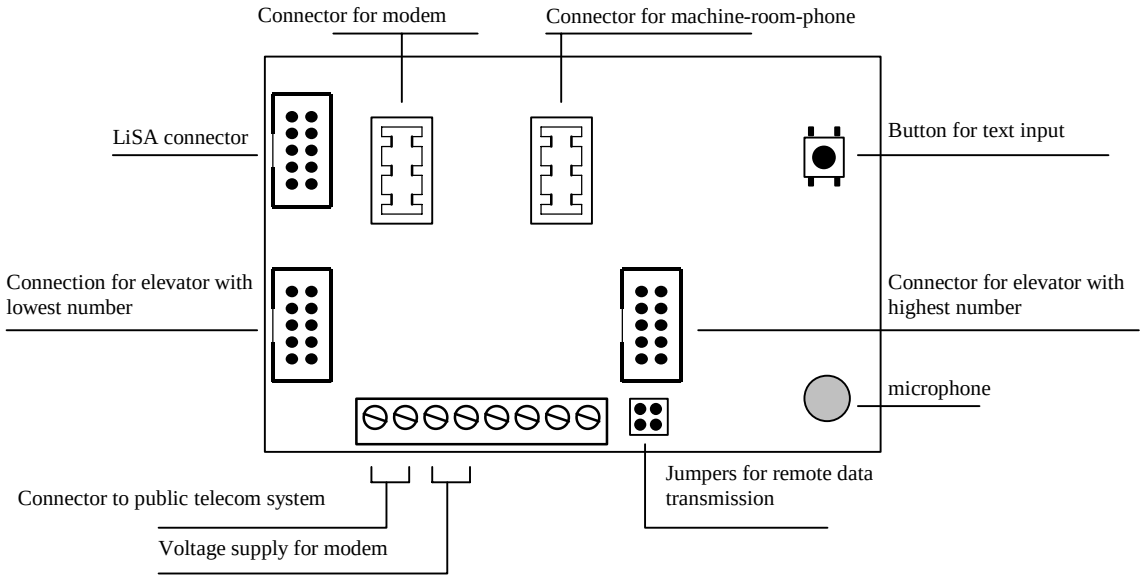
- monitoring of the elevator regarding flush levelling,
- monitoring of the alarm button connection to the control
- monitoring of the car illumination.

3.5.2 LiSA-emergency call system comprising emergency call + remote data transmission

3.5.2.1. Layout and Installation (see picturs 1 and 2)

Each elevator is equipped with a LiSA emergency call station (**LiSA-NS**), consisting of a modem (type Elsa) and the pcboard **LiSA-TAE**.

Platine LiSA-TAE:



Remarks:

Data exchange between the elevators of a group / data-transmission-group is done via the regular group data line (connections Send, Empf, -H).

The data are expressed in short messages, which are continuously read out on the LiSA-display after typing 204* on the keyboard.

Examples of messages about the status:

[2T3] = elevator 2 communicates that it actually disposes of the telecom-connection

[1T1] = elevator 1 communicates that it wants to take over the telecom-connection in order to communicate a malfunction to the monitoring centre.

[3T2] = elevator 3 communicates that it wants to take over the telecom-connection to transmit an emergency call.

The stations are connected with each other by a 10-pole-flat cable, resp. via an adapter of 5 lines (3 lines for group connection and 2 lines for phone-connection La, Lb).

Plug –X3 of LiSA-TAE in LiSA-NS connected with plug –X2 of LiSA-TAE in elevator 2.

Plug –X3 of LiSA-TAE in elevator 2 connected with plug –X2 of LiSA-TAE in elevator 3 …and so on.

By LiSA-TAE the following functions are realized:

switchover of the car call station from voice intercom between car and machine room to telecom-network.

- voltage supply to the modem (9V~)
- voice output of calming announcements resp. elevator feature announcements

Connection to LiSA10:

LiSA10-board and LiSA-NS are conntected with each other by 2 cables.

10-pole emergency call plug –X21 on the LiSA10-board is connected to the corresponding plug –X1 on the LiSA-TAE board.

the LiSA-NS modem is connected to the PC/Modem plug connector on the LiSA 10 board by the included cable with 9-pole D-Sub plugs at both ends (industry-standard).

Connection to the public telecom network:

On the LiSA-TAE are two terminals (La and Lb), which have to be connected to the public telecom network. This pcboard is supplied with a cable already connected to these terminals. It has got a TAE-plug (N-plug)at the other end. Plug it in the TAE-socket of the telecom network.

Voice output:

The LiSA-TAE board is equipped with a voice output component (24-pole-IC). By pressing the button T1 top right on the pcboard, you can record a 16-second-announcement. It serves for calming trapped passengers and – if the monitoring centre consists of a phone-set only, it also serves for identification of the elevator, which has sent the emergency call.

- Press button T1 and wait approx. 2 seconds.
- Speak loud and precise words and keep about 10 cm distant from the microphone, which is installed on the pcboard directly by the side of the button.
  Example: “emergency call from (city), XY-street Nr. Z”

Coding of the elevators:

On the LiSA-TAE board there are several jumpers. Each a jumper JP3 shall be plugged in elevator 1 in the left position (=elevator 1) and in the last elevator in the right position (= last elevator in group). If the LiSA-FST is used additionally as a voice intercom between machine room and car (this is the normal case), plug the jumpers JP1in the righthand positions. If a separate voice connection shall be used, however, the two jumpers have to be plugged in the lefthand positions. The jumpers JP2 and JP4 are only relevant, if LiSA emergency call systems are to be used in alient elevator plants.

3.5.2.2 Connection of further LiSA emergency call stations

Connection to LiSA10

Refer to item 2.1.

Voice-output:

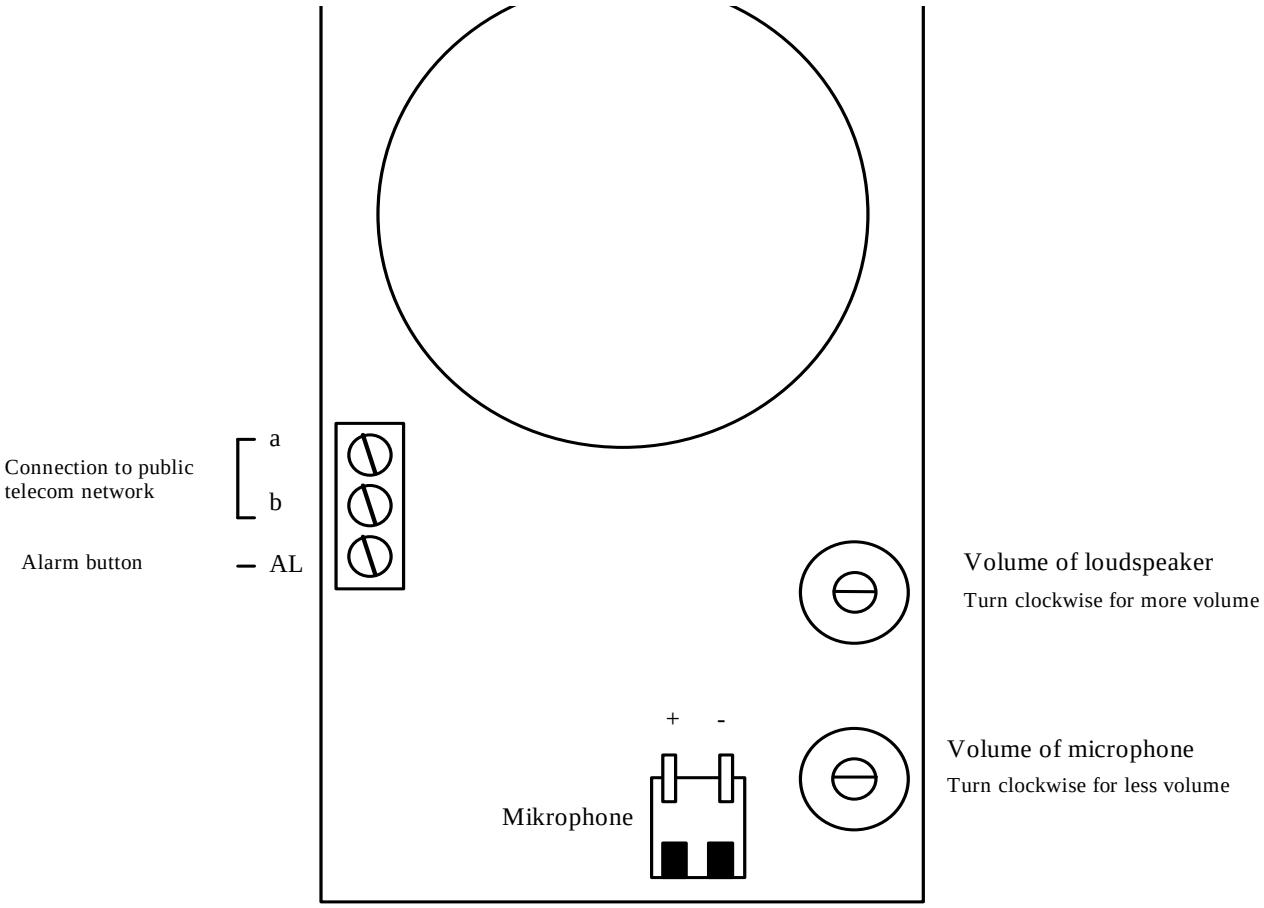
Have the identification/calming text recorded in the same way as for elevator 1.

Elevator coding:

For the last elevator in the group, plug a jumper in position L. (=last elelavator).

3.5.2.3. Connection of the hands-free call station on/on the car:

LiSA-free call station (LiSA-FSP):



The telephone electronics are arranged on a board together with the loudspeaker. The microphone is in a small module-casing, which should be fixed to the board by self-adhesive pads, if possible behind a “sound-hole”.

If it is installed directly in the car operation panel, it can be fixed by the welded bolts of the Siedle unit, which it replaces.

If the Siedle-call station is not replaced and used furtheron (or other make), the LiSA FST can also be installed on top of the car (slightly reduced quality of the voice transmission).

If reactance whistling occurs, install the call station some millimeter distant from the car operation panel!

Connection of the hands-free call station:

First decide, whether an already existing voice intercom connection between car and machine room shall be used furtheron or whether LiSA-FST shall adopt this function.

- Further use of existing voice intercom: the hands-free call station is to be connected by 2 separate lines of the travelling cable.
- No separate voice intercom: the hands-free call station LiSA-FST is to be connected either to terminals l and M of the push-button pcboard or terminals L and M directly on APO.

Attention:

In case of LiSA-systems of 1999 pay special attention to the polarity, when connecting the hands-free call station.

There are two different situations:

Not connected to the public phone network (LiSA has not responded, i.e. the luminous diode designated "telephone" on **the LiSA-TAE** does not light):

The hands-free call station is correctly connected, if the luminous diode of the telephone electronics lights, otherwise exchange the lines connected to terminals L and M.

Connected to the public telephone network (LiSA has responded, i.e. the luminous diode designated 'telephone' on the **LiSA-TAE** board lights):

The hands-free call station is correctly connected, if the luminous diode of the telephone electronics lights, otherwise exchange the lines connected to terminals La and Lb.

Voice intercom between hands-free call station in the car and machine room can be realized by a wall-mounted phone set to be plugged to the LiSA-TAE board.

3.5.3. LiSA-emergency call functions for alien elevator control units

(siehe picutre 3)

3.5.3.1. Layout:

There are two possibilities to connect alien elevator controls:

1. Connection to a LiSA10-board, which exclusively acts as an emergency call system.

   Up to 4 elevators with other control units than LiSA can be connected to a monitoring station by a telephone extension.

   It can be 4 physically separate elevators. In the machine-room with telephone socket the cabinet for **LiSA-NFS** is installed. It contains a LiSA10-board, which normally is used for LiSA elevator controls. On this board is a jumper (J1), it must be plugged, in order that the board will be emergency-powered in case of mains-failure. Furthermore, this cabinet contains a modem (type Elsa) and each one **LiSA-TAE** per elevator. This configuration Elsa-modem + **LiSA-TAE** has the effect of an emergency call station (**LiSA-NS**) for the 1st elevator.

2. Connection to a veritable LiSA elevator control unit:

   Depending on the number of LiSA-control units connected to the telephone extension (either a veritable group or a remote data-transmission-group), additional alien control units can be connected. Total number of elevators: 4 (e.g. 2 LiSA-control units and 2 alien control units). For each alien control unit again a LiSA-TAE board is required. It is unimportant in which one of the LiSA-controls they are integrated.

The LiSA-TAE boards are connected to each other by a 10-pole-flat cable.

On each LiSA-**TAE** board the jumper (N1 / N2 /N3 / Ne4) is to be plugged according to the elevator number.

Emergency call signals and possibly collective fault messages of each elevator are laid to the inputs for inhouse technical systems (house1 – house8). Emergency calls are laid to first four IOs (house1 – house4) and colletive fault messages to the following four IOs (house5 – house8).

Emergency call from elevator 2:

- There has been a signal at IO – house2 for more than 3 seconds.
- LiSA selects the 1st monitoring centre in the so-called voice-mode, if this monitoring centre consists of a telephone only (parameter "Leitwarte1 = NurSpv" in parameter set 0010*), otherwise in the data-mode.

- If the monitoring station is a telephone set, LiSA transmits the elevator identification text after having established the connection.

Collective fault message from elevator 2:

- There has been a signal at IO – house 6.
- LiSA selects the 1st monitoring centre in the data-mode, provided that this monitoring centre is equipped with PC and LiSA-monitoring software
  (parameter "Leitwarte1 = DFUE/DFUE+Spv"/parameter set 0010*)

phone-call at elevator 2:

- The modem receives the call and sends a long DTMF-sound (exception: elevators with Elsa Internet II modems).
- After pressing button 2, immediately a connection to the hands-free call station in car 2 is established and the identification-text becomes audible.

call at elevator2 via monitoring centre:

- After establishing the connection, first the parameters and the state of elevator1 are transmitted. These are irrelevant values regarding the substantial (alien) elevator.
- Immediately after a mouse-click on button 2, a voice intercom connection is established.

3.5.4 LiSA emergency call system via Telenot unit to Telenot monitoring centre and remote data transmission to the inhouse monitoring centre

The comprehensive functions of the LiSA remote data transmission can also be used, if the elevator is equipped with an emergency call system other than LiSA (e.g. Telenot). In this case only a modem is connected to LiSA.

In such a configuration, processing of emergency calls is done by the Telenot-monitoring centre and the remote data transmission functions realized either by the LiSA emergency call system or the inhouse monitoring system. The only problem in this configuration arises from the telephone extension mutually used by both systems.

The problem differs between separate elevators and elevator groups ("veritable groups" resp. separate elevators connected to one telephone extension).

The connecting sequence of the phone extension to the TAE-socket(s) (for public telecom system) is not relevant, provided that the components connected do through-connect the A-B-line in their idle state (not busy). If it is not clear that the emergency call system disposes of this feature, it is recommended to connect the emergency call system as the last component.

3.5.4.1. Sequence of functions in case of a single elevator

Fault-message:

LiSA dials the phone-extension of monitoring centre 1 preset by parameter "Telefon+-Leitwarte1", transmits elevator-ID, state and fault memory and hangs up.

Emergency call from the elevator:

- The emergency call system installed in the elevator (Telenot) calls its monitoring centre.
- As soon as the connection is established, first the elevator-ID is transmitted.

- After that the Telenot-monitoring centre hangs up and calls the elevator again in its turn, in order to establish voice intercom with the trapped passenger(s).
- Unless the emergency call from the elevator has been acknowledged, the Telenot-system responds to the elevator immediately when called. As in combination with Telenot the LiSA responds after the 4th sound only, a phone-call in case of a not acknowled emergency call will result in a voice intercom connection between Telenot monitoring centre and elevator car.
- An emergency call can be acknowledged either directly by the Telenot monitoring centre or on site by the field personnel in charge of evacuating the trapped passengers.

Calling the elevator, if no emergency call is to be acknowledged:

If no emergency call is to be acknowledged, any call for the elevator will have the result, that LiSA responds after the 2nd sound and establishes a connection to the elevator control. As already mentioned, the Telenot-system responds only, if an emergency call is to be acknowledged.

Emergency call from the elevator while LiSA is being connected with the monitoring centre:

As emergency calls from the elevator are also registered by LiSA, it immediately hangs up in order that Telenot can establish a connection to its monitoring centre.

3.5.4.2. Functional sequence, if more than 1 elevator is connected to the phone extension:

(see picture 6). Connection of up to 4 elevators to the phone extension is equal to the one of a single elevator. Each elevator is connected with the public telephone network via its own modem.

Fault message:

see single elevator.

Emergency call:

see single elevator.

Calling one of the elevators, if no emergency call is to be acknowledged:

If no emergency call is to be acknowledged, any call for the elevator will have the result, that LiSA responds after the 4th sound and establish es a connection to the elevator control. Response will be given by the elevator, which at this moment disposes of the connection to the public telephone network (according to the group interconnection).

As soon as the connection is established, LiSA sends a DTMF-sound.

If **the monitoring centre calls** the elevator, the data line is established immediately without response to this sound in order to submit parameters and state.

If connection to another elevator is desired, it is possible to change to it by a mouse-click.

It is done as follows:

- The elevator connected to the monitoring centre communicates to the desired elevator via the group interconnection that it shall take over the connection to the public telephone network.
- Then the elevator hangs up.
- To the next call from the monitoring centre, the desired elevator responds directly.

Emergency call from the elevator while LiSA is being connected with the monitoring centre:

As emergency calls from the elevator are also registered by LiSA, it immediately hangs up in order that Telenot can establish a connection to its monitoring centre.

3.5.5 Expanded functions for Premises with an Industrial Data Capture System

If the LiSA emergency call system has to share a telephone extension with an industrial data capture system (e.g. System Daisy in Erfurt), it is to be granted that the Daisy-Centre can collect its data.

Solution:

- Daisy calls its installation.
- LiSA responds immediately and sends a DTMF-sound.
- As no DTMF-sound is sent back within 10 seconds (selection of an elevator), LiSA establishes a normal modem-connection to Daisy.
- As Daisy for 25 seconds does not call in any parameter, LiSA hangs up.
- After that LiSA ignores incoming calls for a period of 3 minutes.
- As Daisy immediately calls a 2nd time, it can now collect data without interference.

3.5.6 Commissioning (adaption of LiSA to modem-operation):

By entering **200*** the control unit is adapted to modem-operation.

Active modem-operation can be recognized by its flashing.

It is deactivated by again entering **200***.

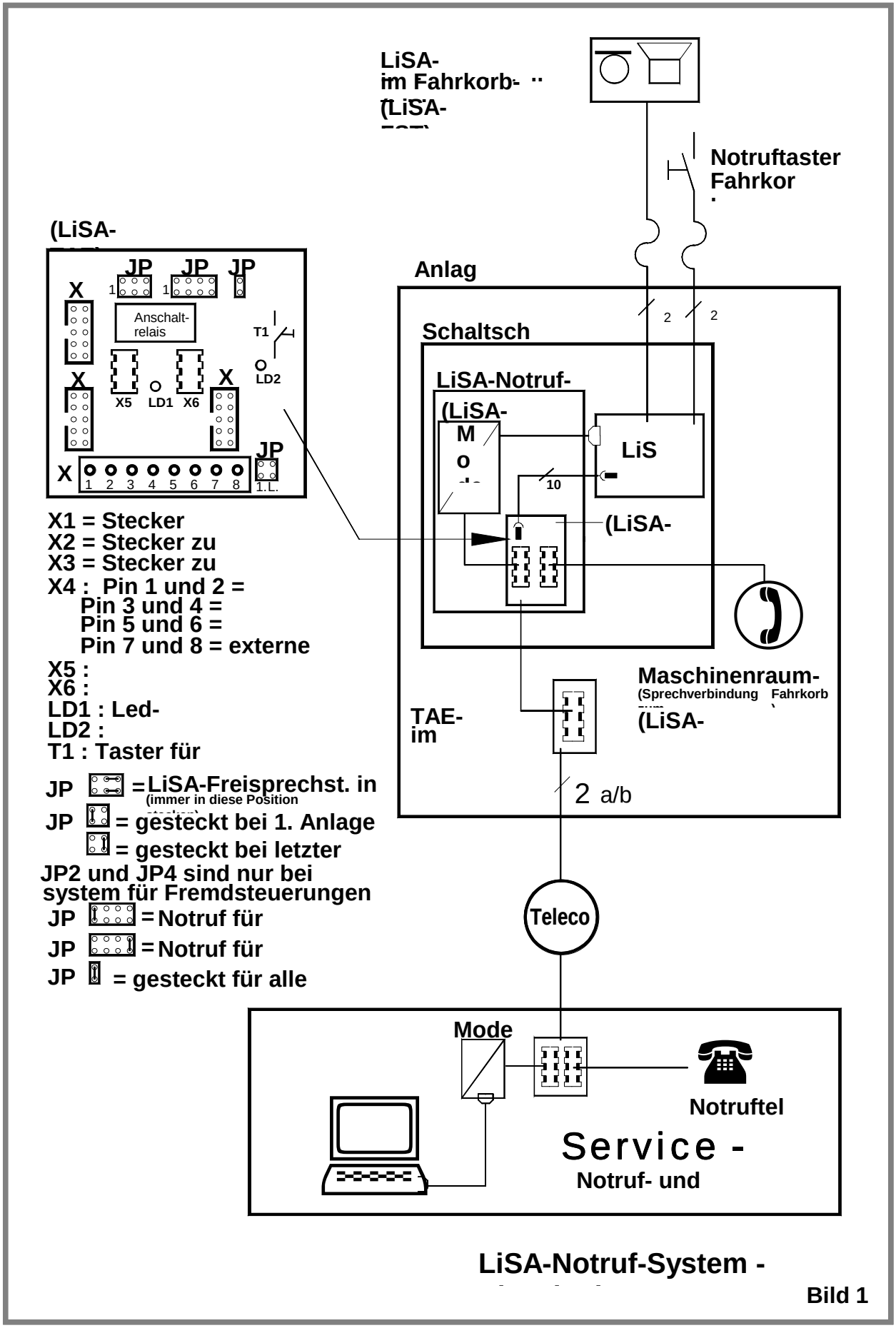
Elevators without modem (i.e. version 2 of all elevators >1) must not be adapted to modem operation!

In order to better, i.e. continuously, monitor the interface traffic (AT-commands) between LiSA and modem, it is recommended to enter **204*.**

Reset this function by again entering **204*.**

Test of the installation:

- After selection of the installation by mobile/fixed network phone you hear a DTMF-signal. Immediately after that you push the button of the elevator you want to be connected with (single elevators: 1). Installations equipped with **Modem Elsa Internet II** do not send any sound-signal. You should therefore prophylactically press the elevator-button as soon as the installation responds (you hear no sound-signal). After that a 90-second-voice intercom connection is established between your mobile phone and the call station in the car. At the beginning you hear the elevator identification text.
- To check the emergency call system you can send an emergency call, although the emergency call suppression is switched on and the situation does not allow it: in addition to the alarm button press the door-opening button resp. wait until the door is closed.
- You can also automatically send an emergency call by entering 201* on the LiSA-keyboard (cancel the emergency call by entering 202*).
- Accordingly an arbitrary emergency call can be sent to the monitoring centre either by pressing the alarm button in the car or by typing 201* on the LiSA keyboard.
- Enter 203* in order to initiate a normal call to the monitoring centre.
- If no tester is in the installation, emergency calls can also be tested as follows:
- Select the installatlion by phone.
- As soon as the control has sent the DTMF-signal, press the *-key and enter the phone-number to be dialed by the control afterwards. End this function by entering *.
- After that the control unit hangs off and dials the phone number you have preset, in order to report an emergency call.



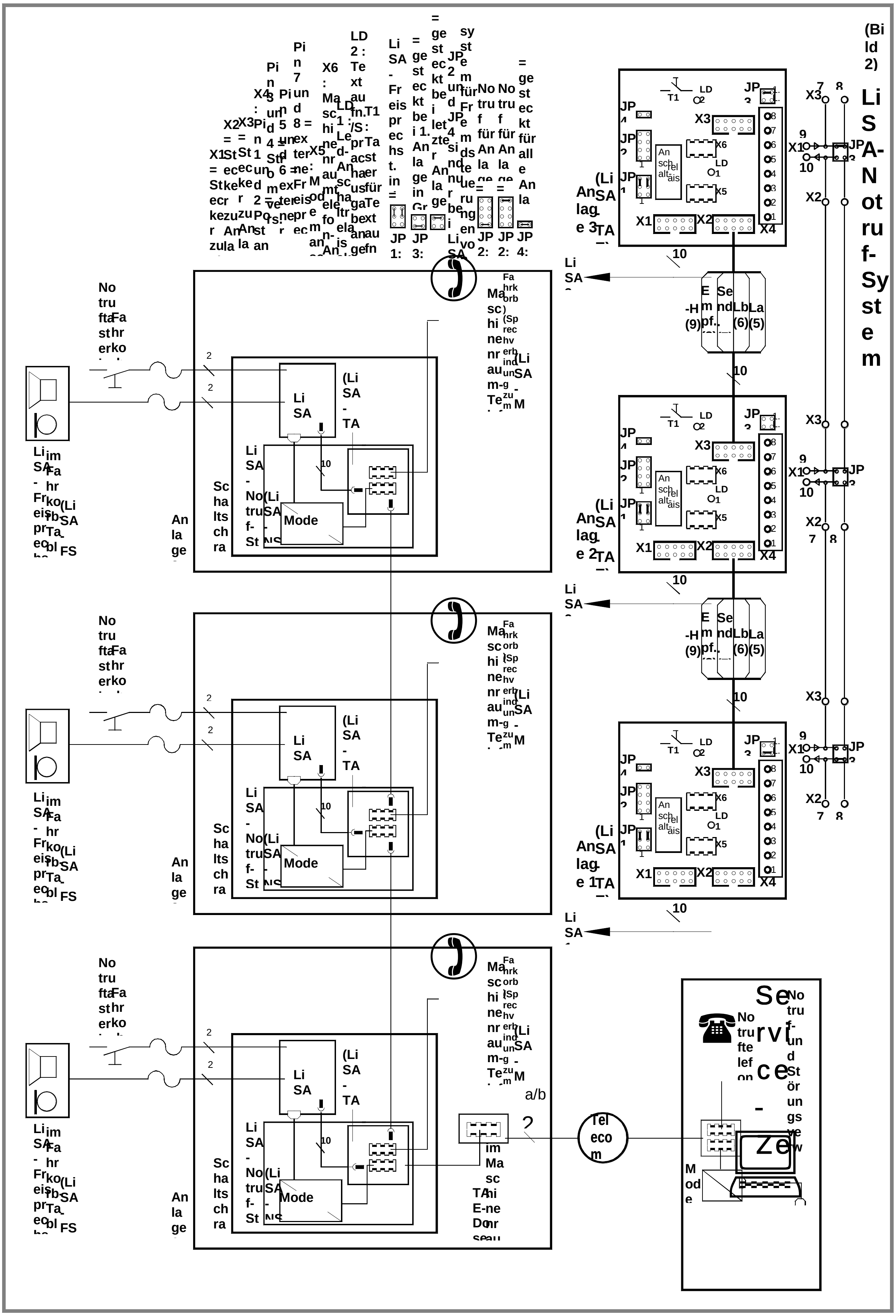
X1 = Stecker
X2 = Stecker zu
X3 = Stecker zu
X4 : Pin 1 und 2 =
Pin 3 und 4 =
Pin 5 und 6 =
Pin 7 und 8 = externe
X5 :
X6 :
LD1 : Led-
LD2 :
T1 : Taster für

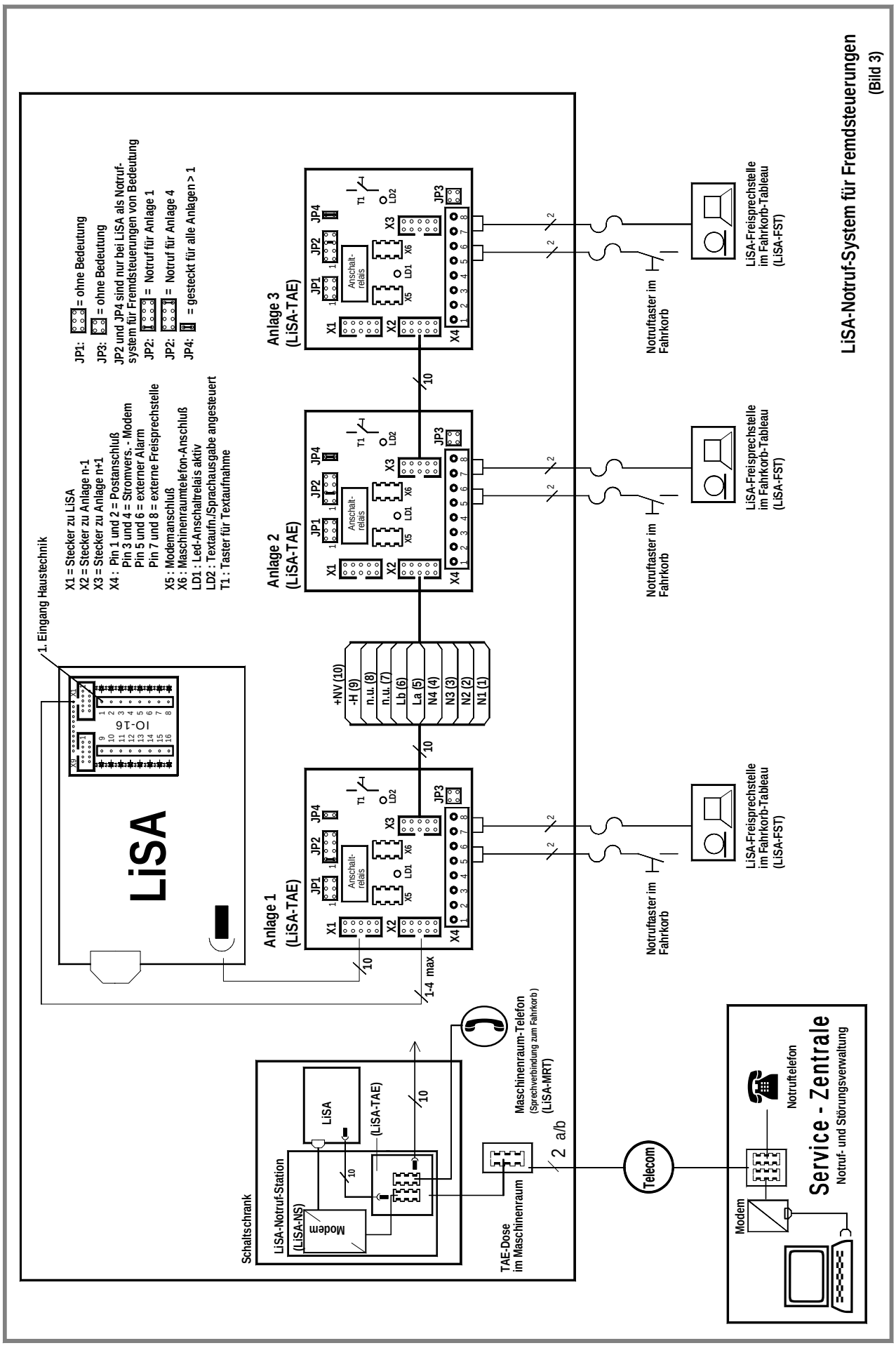
JP = LiSA-Freisprechst. in
(immer in diese Position
JP = gesteckt bei 1. Anlage
= gesteckt bei letzter

JP2 und JP4 sind nur bei
system für Fremdsteuerungen
JP = Notruf für
JP = Notruf für
JP = gesteckt für alle

LiSA-Notruf-System -

Bild 1


X1
X2
X3
X4
X5
X6
Mode
a/b
10


LiSA-Notruf-System für Fremdsteuerungen
(Bild 3)
1. Eingang Haustechnik
X1 = Stecker zu LiSA
X2 = Stecker zu Anlage n-1
X3 = Stecker zu Anlage n+1
X4 : Pin 1 und 2 = Postanschluß
Pin 3 und 4 = Stromvers. - Modem
Pin 5 und 6 = externer Alarm
Pin 7 und 8 = externe Freisprechstelle
X5 : Modemanschluß
X6 : Maschinenraumtelefon-Anschluß
LD1 : Led-Anschaltrelais aktiv
LD2 : Textaufn./Sprachausgabe angesteuert
T1 : Taster für Textaufnahme
JP1: = ohne Bedeutung
JP3: = ohne Bedeutung
JP2 und JP4 sind nur bei LiSA als Notrufsystem für Fremdsteuerungen von Bedeutung
JP2: = Notruf für Anlage 1
JP2: = Notruf für Anlage 4
JP4: = gesteckt für alle Anlagen > 1
LiSA
IO-16
Anlage 1 (LiSA-TAE)
Anlage 2 (LiSA-TAE)
Anlage 3 (LiSA-TAE)
+NV (10)
-H (9)
n.u. (8)
n.u. (7)
Lb (6)
La (5)
N4 (4)
N3 (3)
N2 (2)
N1 (1)
10
1-4 max
Notruftaster im Fahrkorb
LiSA-Freisprechstelle im Fahrkorb-Tableau (LiSA-FST)
Schaltschrank
LiSA-Notruf-Station (LiSA-NS)
Modem
LiSA
(LiSA-TAE)
TAE-Dose im Maschinenraum
Maschinenraum-Telefon (Sprechverbindung zum Fahrkorb) (LiSA-MRT)
2 a/b
Telecom
Modem
Notruftelefon
Service - Zentrale
Notruf- und Störungsverwaltung

3.5.7 Parameter for LiSA-Emergency call system:

The following parameters are required for the LiSA-DFÜ (LiSA-data transmission system) and LiSA-emergency call system:

Telephone# - control station1 :

Telephone# - control station2 :

Telephone# - control station3 :

Telephone# - control station4 :

Elevator-no.# :

4-digit no. under which the elevator has been registered in the control station(s).

➔ *For elevators that are connected to a control-station, this no. will be assigned by the control-station and therefore must be asked for from the operator of the control-station, prior to the connection of the elevator to the control-station. For all other elevators is this no. without any meaning.*

Contact to telecom (non/0/00/sonst) (0..3):

Selection of contact to Telecom.

➔ *(0) : no contact to Telecom.*
➔ *(1) : Contact to Telecom with "0" (LiSA is connected to an extension)*
➔ *(2) : Contact to Telecom with "00"*
➔ *(3) : Contact to Telecom with "9"*

Dialing procedure (pulse/sonic frequency) (0/1):

Selection, by which dialling procedure the dialling of the control-station shall be carried out.

➔ *(0) : Pulse-method dialling (only in case of older exchanges)*
➔ *(1) : Sonic-frequency dialling (in case of digital exchanges)*

Group(Single/ Gru/DFUE-Gru / Fremd.-Gru / Gru1M / DFUE-Gru1M):

Selection whether it is a single elevator or, if several elevators are combined (=group), which group-configuration it is.

➔ *(0) : Single elevator*
➔ *(1) : "genuine group" – the elevators are operating as a group and are, therefore, interconnected via data lines.*
➔ *(2) : „DFUE-group" – the elevators are not operating as a group, however are also interconnected via the normal group-data lines. This way it is possible to have one telephone-connection only.*

The data-exchange however is restricted to status reports regarding the telephone connection.

- In parameter-set 000* (General Elevator-Parameters) the two parameters "number of cars" and "car no. in the group" must be set.
- If, e.g. by elevator 3 a failure has been signalled, or somebody has set an emergency call in the car of this elevator, the control of this elevator demands the telecom connection via data line of the group / DFUE-group. After release by that control which is actually connected to the tele-com, elevator 3 will establish the connection to the control-station. After successful connection the elevator parameters, the elevator status and the fault memory are transmitted to the control-station.

  After that, in case of an emergency call, the voice-connection from the control-station to the car will be established. The speech-connection will be maintained for 90 seconds.

➔ *(3) : „Fremd-Gru“ – one or more controls of other origin (max. 4) are connected to a system basing on a LiSA-card that serves only as a emergency call system for the controls of other origin.*

- deviating therefrom, the LiSA can operate also as a normal elevator control with emergency call function and can additionally handle the emergency call functions for 3 controls of other origin.

The below described configurations with a modem are no longer used. They are mentioned only for completeness' sake.

➔ *(4) : „Gru1M“ – The installation acts as a genuine group, however only elevator 1 has a modem. Therefore only malfunctions arising in elevator 1 can be signalized to the service centre. In case of emergency calls from elevators 2 – 4, elevator 1 will call the service centre. After successful connection between service centre and elevator 1, parameters, faults and status are demanded by the service centre. By means of the status block however, the service centre will regognize the emergency call from an elevator <> 1 and will initiate the establishment of a voice connection to that elevator from which the emergency call has been sent.*

➔ *(5) : „DFUE-Gru1M“ – The installation works as a DFUE-group, however only elevator 1 has a modem. The procedure is the same as described before under (4).*

Service centre 1 (onlySPV/onlyDFUE/SPV+DFUE/ Telenot/Siemens-GLT):

Scope of functions of service centre 1.

If an emergency call has been set it is always attempted to call service centre 1 at first, provided that the function of service centre 1 is limited to DFUE, i.e. parameter = 1.

In case of a malfunction it is also attempted to call service centre 1 at first, except service centre 1 is equipped with only a telephone (parameter = 0).

- after an unsuccessful attempt to establish a connection to the service centre called first, the next service centre will be called, again provided that the service centre has been laid out for the required function (see above remark to service centre 1).
- after 4 cycles i.e. max. 16 unsuccessful calls the signalizing of the emergency call resp. of the malfunction will be suppressed. However in case of an emergency call, another depressing of the alarm button will cause the repetition of the afore described procedure.

➔ *(0) : nurSpV – Service centre 1 consists of a (mobile) telephone only.*

If there exists an operational malfunction of the elevator, this service centre will not be called, it will be attempted at once to get the next one.

In case, however, of an emergency call service centre 1 will be called first in the so-called voice-operation. Immediately after unhooking of the thelephone in the service centre, a DTMF signal will be heared. With a mobile telephone (number starting by typing 017) this signal must be acknowledged by an answering signal (pressing any key on the telephone). With a "normal" telephone is this not required. Then, the text for comforting passengers resp. for the identification of the elevator can is and after that switched over to the talk station in the car. The speech connection will be held for 120 seconds.

If in case of a mobile telephone no acknowledgement is received, LiSA considers the call as unsuccessful and repeats the procedure.

Attention: the requirement of TRA106 of protocollizing the emergency calls (time and date, Elevator# and place) is observed also in this case, as each elevator has its own elevator identification text available.

➔ *(1) : nurDFUE – between service centre and elevator, only one data transmission connection is established.*
Emergency calls are not signalized !

At the control side only one modem is installed, with power supply from the mains (plugged power supply unit).

Calling of the service centre by LiSA is always made in the data mode.
After the so-called "connect", parameters, status and fault memory are transmitted and the connection cut.
If in the elevator installation a LiSA emergency call system is installed, the service centre

➔ *(2) : SpV+DFUE – Regarding the functions there is no difference with the setting to nurDFUE.*
At the control-end however, the LiSA emergency call system is installed (emergency call main station or emergency call sub-station). The power supply comes from the control, which in turn will be fed by the storage battery of the control in case of a main power failure.

➔ *(3) : Telenot – The parameterizing of service centre 1 with Telenot considers the fact that the emergency call is handled by an emergency call system (Telenot standing in for any emergency call system behaving as described below) and by data transmission via modem to LiSA, both systems being connected to telecom. Related to LiSA, there is no difference in the functions for the setting to nurDFUE, except that LiSA unhooks only after the 3rd ringing.*

- malfunctions are always signalized directly to the LiSA service centre.
- upon calls to the elevator, LiSA unhooks only after the 3rd ringing.
  The "Telenot-System“ switched at the TAE-socket with priority will unhook only then, when during the recent period of about one hour an emergency call has been signalized to the Telenot service centre and has not been acknowledged neither by the service centre nor by a fitter being predelivered at the site.

(4) : Siemens-GLT – emergency calls and malfunctions are sent to a service centre of Siemens Gebäudeleittechnik. That way, the user (elevator company or their customer) can, on basis of the LiSA components, make use of the full scope of functions of this service centre.
In contrast with the elevator configurations described under (3), the relatively expensive Telenot system can be dropped, here.
In case of emergency calls or malfunctions the Siemens service centre receives the number of the elevator and the reason for the call by a short data telegram and the connection is cut again. After that, in case of an emergency call, communication from the service centre to the car will be established.

Service centre 2 (onlySPV/onlyDFUE/ SPV+DFUE/Telenot/Siemens-GLT):

Scope of functions of service centre 2.

The function of this parameter is analogous the function of parameter "Leitwarte 1“

Service centre 3 (onlySPV/onlyDFUE /SPV+DFUE/Telenot/Siemens-GLT):

Scope of functions of service centre 3.

The function of this parameter is analogous the function of parameter "Leitwarte 1“

Service centre 4 (onlySPV/onlyDFUE /SPV+DFUE/Telenot/Siemens-GLT):

Scope of functions of service centre 4.

The function of this parameter is analogous the function of parameter "Leitwarte1“

Examples of configuration:

1st Example: service centre 1 = only SPV,
service centre 2 = Siemens-GLT,
service centre 3 = only DFUE,
service centre 4 = only SPV.
Dialling sequence with emergency call:
service centre1 – service centre2 – service centre4 – service centre1
Dialling sequence with malfunction:
Sercice centre2 – service centre 3 – service centre 2 – service centre3

2nd Example: service centre1 = SPV+DFUE,
service centre2 = Siemens-GLT,
service centre3 = nurDFUE,
service centre4 = nurSPV.

Dialling sequence with emerg.call:
service centre1 – service centre2 – service centre4 – service centre1
Dialling sequence with malfunction:
service centre1 – service centre2 – service centre3– service centre1

3rd Example: service centre1 = Telenot,
service centre2 = nurDFUE,
service centre3 = nurDFUE,
service centre4 = nurDFUE.
Dialling sequence with emerg.call: no dialling
Dialling sequence with malfunction:
service centre2 – service centre3 – service centre4 – service centre2

No signalizing of malfunctions to the service centre (0/1)

Selection whether malfunctions of the elevator shall be signalized or not.

➔ *(0) : Signalling of malfunctions to service centre.*

➔ *(1) : No signalizing of malfunctions to service centre.*

Time for speech connection:

Selection how long (in sec.) the speech connection between cabin and service center is holded.

Emergency call misuse prevention (0/1)

Selection whether the emergency call shall be sent in every case or only when it is legitimate.

➔ *(0) : Emergency call to be sent in every case*

➔ *(1) : After the alarm button being depressed, no emergency call will be sent if*

- the car is travelling with safety circuit closed (SK4 indicated) - TRA106 2.1.1., or
- in case of elevators with hinged doors the car is in the unlocking zone and the safety circuit behind the door contacts is not closed (SK2 not indicated) – TRA106 2.1.2.1., or
- in case of elevators without hinged doors the car is in the unlocking zone and the safety circuit behind the safety gear contact is not closed (SK3 not indicated) – TRA106 2.1.2.2.

To check the emergency call system it is possible to send an emergency call even with the misuse prevention active and an illegitimate situation existing

- somebody is in the car and depresses the alarm button in just that moment when the door has closed completely, or
- the door open button will be depressed in addition to the alarm button
  - this function, however, can be suppressed again if the multi-function parameter 2 is set to value 195.

Also, an emergency call will be sent automatically if on the LiSA-keyboard the sequence "201*“ is set. ("202*“ causes an immediate termination of the emergency call).

1st input – building services:

Assigned I/O-region: eight I/Os beginning with the 1st input for building services

The meanings of these inputs are different:

LiSA as an emergency call system for installations of other origin: (parameter "group = Fremd-Gru“ in parameter set 0010*).

Die 1st four I/Os are reserved for emrg.calls from 4 elevators, i.e. to the 1st input for building service the alarm signal (alarm button) of the 1st elevator is assigned. To the following I/O that of the 2nd elevator, etc.

The following 4 I/Os are reserved for collective fault signals of these four elevators, again beginning in ascending order.

LiSA as „normal“ elevator control: Even when LiSA works as a normal elevator control, emergency calls of installations from other sources can be taken over if these are assigned to one of the first four

I/Os. There is to be observed only that the I/O-number is >1 resp. with groups / DFUE-groups it is higher than the number of elevators in the group.

Example: In case of an installation with 2 elevators being combined as a group/DFUE-group, the emrg.call of one additional elevator from another source must be connected to building ser-

vices input 3 of one of the two installations, but not to both. At the maximum, one further elevator from another source could be assigned to building services input 4.

Attention: In total only 4 elevators can be assigned to one telecom connection !

The inputs 5 – 8 for the building service messages are evaluated as a message, e.g. collective fault message, of one of the elevators. So, for example, a signal on building service input 8 means a message from elevator 4. The signification of the messages will be specified in the service centre.

Modemtyp:

➔ *(0) : Modemtyp: Elsa TQV28.8 / Elsa TQV32.2*

➔ *(1) : Modemtyp: Elsa 56k / Elsa 56 ki*

➔ *(2) : Modemtyp: Elsa Internet II*

Routine call to the service centre every X Days:

Daily call to the service centre.

➔ *(0) : no routine call*

➔ *(1) : After a period preset by the respective elevator no. each day a routine call to that telephone no. will be carried out that is connected to a Siemens-GLT-service centre.*

Upon failing of the routine call the service centre will immediately inform a party defined previously. Time of the routine call: ZP = installation no. Modulo 1440.

Example: installation no. = 9002. ZP = 9002 / 1440 = (*1440) + remainder.

The remainder is 362 -> Call to be made at 6:02 hrs.

➔ *(2) : Same as (1) but only each 2. day a routine call is executed.*

The following 2 parameters are needed for the elevator attendant function:

Output emergency test- call:

I/O-no. of the output by which the connection from the alarm button in the car to the control can be tested.

This function is part of the elevator attendant function, with the following functional sequence:

If a connection between service centre and control is established, the command NT (= emergency call test) can be sent to the service centre. The service centre will cur the connection, and the control will also hang up.

the control activates the I/O with function "emergency test-call".

as this I/O is connected to the alarm button connector on the push button board, depressing of the alarm button is thereby simulated.

the control identifies an emergency call and dials the service centre.

Message to the service centre in case of frequently occuring steps > (.... %)

By this function a requirement of the elevator attendant function will be covered, saying that an elevator attendant has to check in regular intervals (weekly) whether the elevator is levelling correctly.

Function:

Two counters are defined for each landing. While in the first one the frequency of approaches in the landing is collected, in the second one the no. of steps registered on this landing (ca. > 15 mm) is counted.

If the frequency of steps in one landing – related to the no. of travels to this landing – exceeds the percentage predefined by parameter "message to the service centre in case of frequently occuring steps > (...%)“, a signal will be given to the service centre.

After successful connection all counters will be reset to zero.

Output – taking over from telecom connection:

I/O-no. of the output by which a relay can be engaged that cuts a system linked to the same telecom connection
(e.g. building services systems like Daisy), if – in case of an emergency call - this system seizes the telecom line .

Dailling into the System only via Telefone or mobile

➔ *(0) : Dailling into the system also via modem*
If someone dials into the system, the modem lifts off in voice mode. If the modem does not register a multi-frequency dialling tone within 10 seconds (triggered by pressing a key on the telephone), it changes into data mode and tries to build up a data connection.

➔ *(1) : Dialling into the system only via telephone/mobile*
If someone dials into the system, the LiSA emergency call system switches the voice connection on at once at the first ringing tone (the modem does not lift off), and the system text can be heard. There is no audible multi-frequency dialling tone, and no need to press a key.

However, there is no possiblility to dial into the system via the LiSA control centre any more

No Acknowledgment Tone after Dialling into the Control Centre (0/1):

If the LiSA control sends an emergency call to a control centre which only consists of a telephone extension, the control sends a multi-frequency dialling tone after the telephone of the control centre has been lifted off (modem message -> LiSA = „VCON“).

This multi-frequency dialling tone is normally acknowledged by pressing any key of the control centre telephone, otherwise the LiSA control assumes that no valid voice connection was estblished and dials the next number.

This procedure is mandatory when dialling into a mobile telephone (mailbox), and often also when the LiSA modem is connected to a private branch exchange. (VCON Voice Connect is recognized by the modem even if no connection exists).

In those cases where no mobile telephone is dialled and the LiSA modem is connected to a main exchange line, it is not necessary to have an acknowledgment.

➔ *(0) : Connection with acknowledgement procedure*
➔ *(1) : Connection without acknowledgement procedure. No multi-frequency dialling tone is transmitted and it is not necessary to press a key on the control centre telephone.*

No calming text before selecting the porter’s lodge (0/1):

This avoids the delay in selecting the porter’s lodge, which would have been caused by the calming text.

Occupied signal is recognized (0/1):

After switching the car intercom station onto the telephone-net, the modem does not leave the line. So it is in a position the recognize, whether the porter’s lodge intercom is free.
By that the time foreseen for intercom, set by parameter „Disconnection of intercom after X sec”, is shortened and the unit gets ready for new intercom connections.