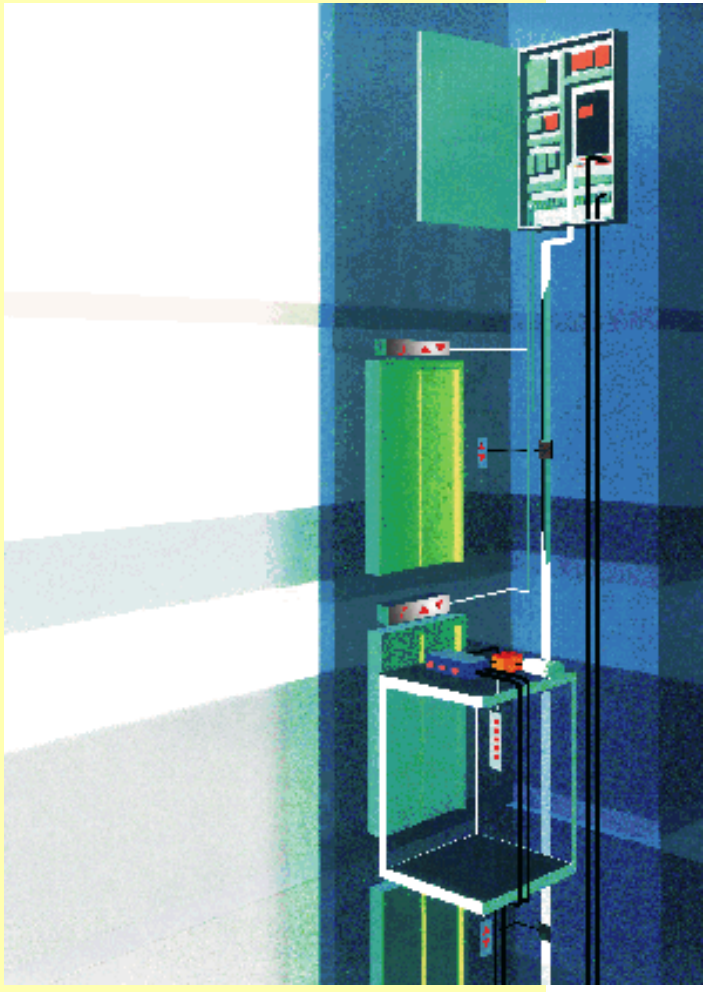
NEW LIFT

NEUE ELEKTRONISCHE WEGE



KST Online Manual

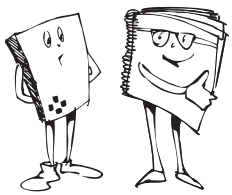
NEW LIFT Know how

We lift you up where you belong.

About this manual

Welcome to NEW LIFT, the innovative lift controller manufacturer. Your decision to purchase one of our quality products opens up completely new electronic horizons.

Our product documentation provides an introduction to your new controller and detailed information on the facilities available to you.



Conventions employed

The manual is structured to enable you to familiarize yourself with the controller step by step in the sequence of the chapters, and to find answers to specific questions with the help of the index.

Points of particular importance are marked as follows:

CAUTION

Information marked "CAUTION" relates to a risk of accident which could cause physical injury or damage to property.

THIS INFORMATION MUST BE READ.

NOTE

Information marked "NOTE" relates to working procedures and product characteristics. These points include comments on factual information, explanations of terminology, and tips on making procedures more straightforward.

This Online Manual supports hypertext references to other locations in the book. You can easily select an link by

double-clicking the blue styled text.

Return again with keys „CTRL“ + „–“. Test it now:

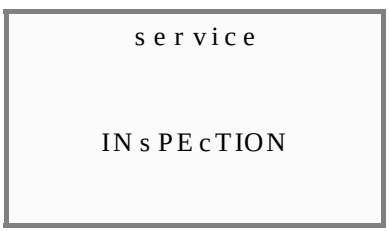
1 Overview of the KST

Operation of the menu is also described in the sequence in which the levels are encountered. The individual intermediate menu items are not displayed, e.g.:

MAIN MENU > INFORMATION >
ORIENTATION DRIVE

Menu items can be recognized by the use of CAPITAL LETTERSandthe>menuarrow(see“1 OverviewoftheKST”) .

The status of the controller can be read in the operator display, which appears for example as follows:



Program versions

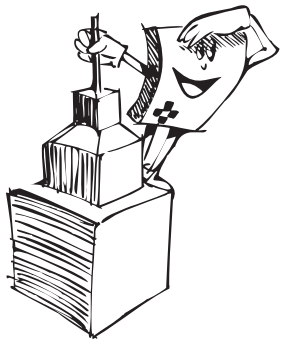
Our products are subject to continual improvement and further development; specifications may therefore differ slightly from those described in the manual. The version of the program loaded can be displayed by the controller (see „4.4 The INFORMATION menu > INFO“), an important item of information which enables you to familiarize yourself with the possible settings.

New functions are described in the manual with the program version from which they are implemented (e.g. "Version 3.5 upwards"). Unless otherwise indicated, the technical specification of controllers corresponds to that applicable on the date of delivery. We reserve the right to make technical modifications without express notice.

We would be glad to hear constructive suggestions with regard to our controllers and the documentation.

NEW LIFT wishes you the best of success with your new controller.

Content



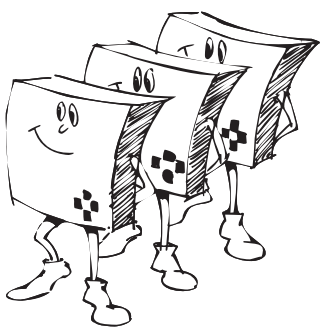
1 Overview of the KST

1.1 An innovative decision

Switchgear in today´s elevator systems is inconceivable without the use of intelligent hardware and software. This teamwork between switchgear and the lift controller is decisive for the time required for installation and maintenance of lift systems.

NEW LIFT provides innovative control technology which can be adapted to the widely varying requirements of different customers and countries. All controllers can be operated from the local display, a laptop computer, or by remote diagnostics via a modem. We place great emphasis on the ease of installation and reliability of our products.

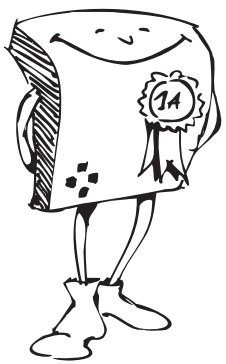
The technical concept of the controller is based on a combination of hardware and software components with clear advantages for long-term use.



- Fully integrated preselection and drive programs means that no additional circuit boards are required.
- RS 232 interface enables the controller to be fully configured and accessed both locally and by remote data communications; can be used as a group connection.
- Ergonomic operator keypad ensures precise operation; operator guidance, status texts and information provided in plain text in the local language.
- All labour-intensive connections, such as the shaft bus, EWG and trailing cable, can simply be plugged in.

1.2 KST Product characteristics

The KST controller is designed for use with traction lifts, and with hydraulic lifts utilizing the adjustable fine levelling facility.



The KST controller is suitable for speeds up to 2 m/s.

The landing accuracy of the drives can also be increased considerably by means of the LIK linear positiong system.

1.2.1 Compact, safe, compatible

The preselection function, which conforms to EN-TRA-SIA-ÖNORM standards and which drives the drive motor contactors and two door drives, is integrated into the motherboard. The control cabinet is therefore compact and clearly arranged.

The controller is supplied with 10 V/ 1 A electronics voltage and 24 V/3 A signal voltage from an external power supply unit. The KST connections are identical in layout to those of the SST - an advantage for logistics and compatibility.

1.2.2 Easy operation

The Man-machine interface comprises the LCD screen and five control buttons. All controller states and messages are displayed in plain text: the safety circuit, the controller status, copy signals, drive counter and drive direction, floor status, the next destination floor and the time.

System settings and inputs can be configured flexibly onsite. Help programs and help texts make commissioning and maintenance straightforward.

1.2.3 Prefabricated shaft equipment

Plug-in connections to the shaft and to the car are provided for applications with up to 24 landings or up to 75 m cable

length. The shaft equipment is prefabricated thus guaranteeing a fault-free assembly.

All 24 V signal lines are integrated in the cables. The landing position indicators are connected by means of tap-off connectors; the car connections are made through the inspection cabinet. Adapters with modular terminals are available for conventional wiring.

1.2.4 The inspection cabinet

The car is wired from the inspection cabinet. The terminals for the signal voltages are provided on an adapter board, and the connections for the safety circuits, the door motors and the car light are provided on modular terminals. The inspection and emergency-stop facilities and the socket are already wired.

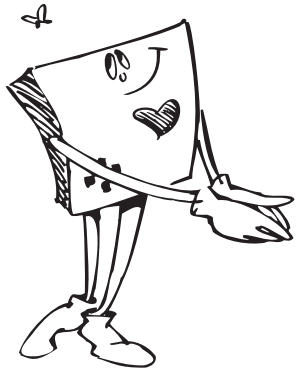
1.2.5 Drive programs

The drive programs are set via the keyboard according to the drive type. An additional drive program board is only required for special drives (regulated drive installations). All available drives can be controlled by means of this technology.

1.2.6 The heart of the controller

The central processing unit of the KST has a clock frequency of 12 MHz and 2 Mbit of memory. To protect them against power failure, an EEPROM is also provided in which all system parameters are written.

The controller is designed for two door drives and 16 landings with two-button control, or 32 landings with direction-sensitive one-button collective control. The extension board permits two-button control of up to three door drives and 40 landings. Twenty-four inputs/ outputs are available for special programming features in each case (PLC).



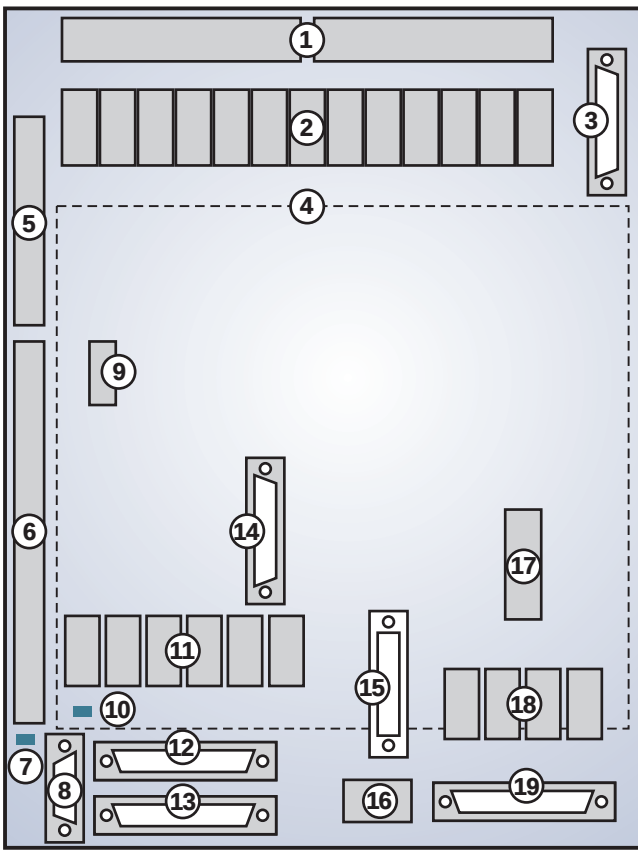
1.2.7 Data exchange made easy

A laptop computer, a PC or a modem can be connected to the serial interface. Up to 4 KST controllers can be networked through a group processor. The group processor has 5 interfaces through which the connected KST controllers and a monitor or modem are accessed.

The full range of configuration and remote diagnostics facilities is then available to the user.

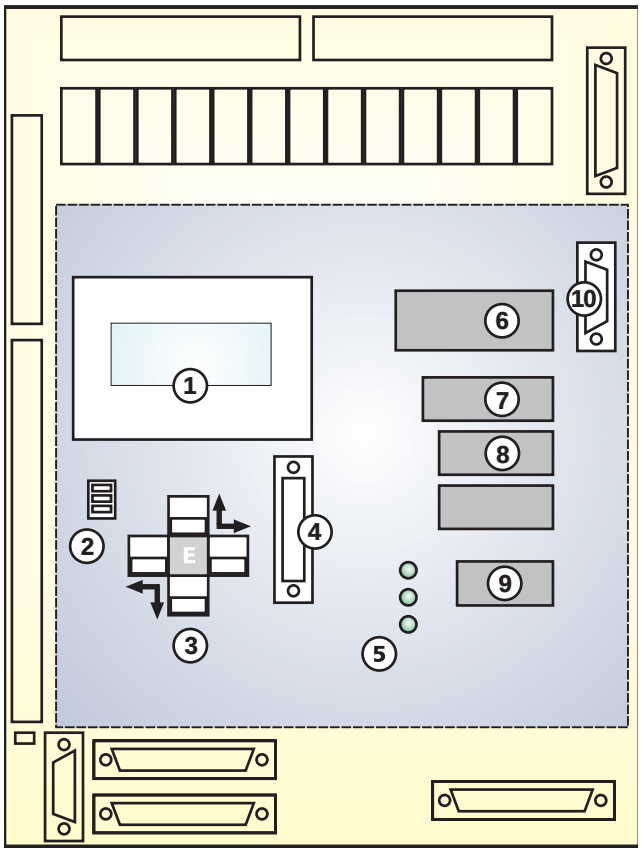
1.3 Technical components

1.3.1 The motherboard



No.	Description
1	Terminal groups X101 – X123
2	Preselection relay for motor and door contactors
3	Socket X210 for drive programs
4	Processor board (see “1.3.2 The processor board”)
5	Terminal groups X370, X371, X201 – X215
6	Terminal groups X216 – X240 for individual configurations
7	KST car in use light, Jumper J1
8	EWG connector X401
9	Spare IC chip (24 V driver)
10	D16 diode for decoupling in group mode
11	EWG driver, I/O, calls IC 32 – IC 36
12	Shaft bus connector X400
13	Shaft bus connector X408
14	Connection to X1 processor board
15	Floor extensions, X2 connector
16	Car supply X390
17	Input/output extension connector X220
18	Car driver IC 27 – IC 31
19	Terminal connector X300 for driving cable

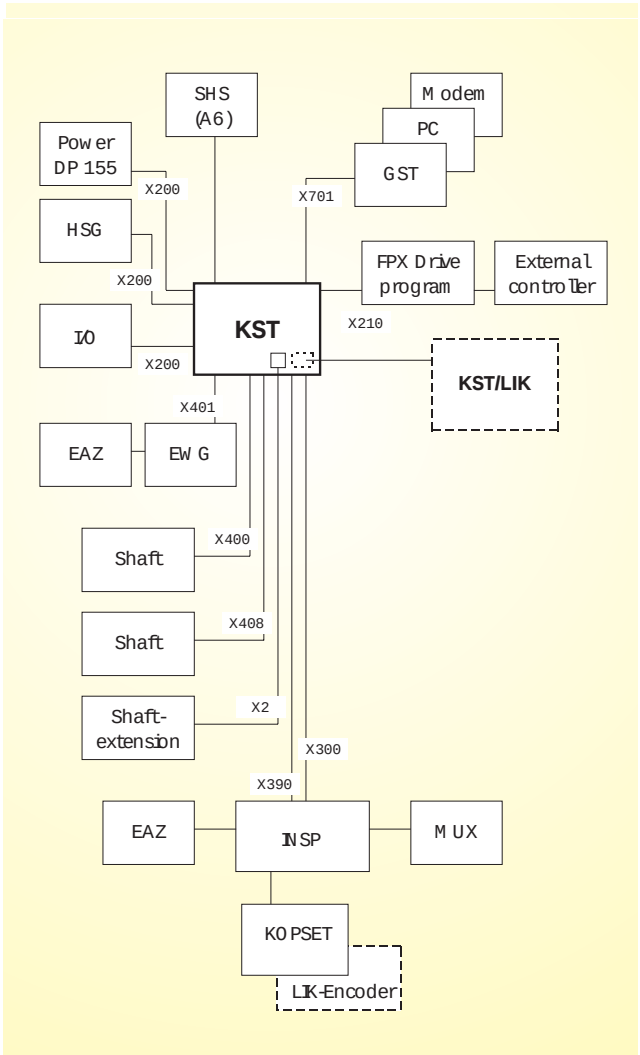
1.3.2 The processor board

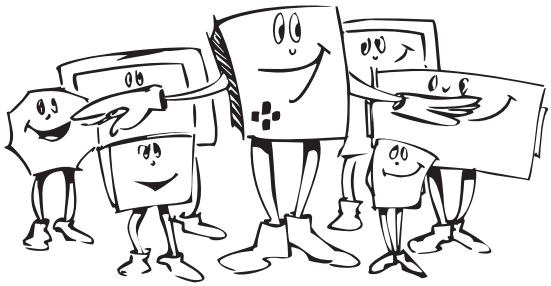


No.	Description
1	LCD operator display
2	Keypad extension J6
3	Operator keypad with five control buttons
4	Verbindung zur Mutterplatine X1
5	LED displays, 5 V, 24 V (LIK status)
6	CPU
7	Program control EPROM EPROM IC2
8	Configuration EEPROM
9	Optional: real-time clock
10	RS 232 serial connector for connection to PC, modem or GST group processor

The controller permits customized extensions by storing program functions in the EEPROM.

1.3.3 All the components at a glance





Together with the KST controller, NEW LIFT offers a proven peripheral program by means of which the controller can be extended to form a tailor-made system if required:

- The EWG module supports floor display, gong and departure arrows for the shaft, and provides dry-contact outputs; the EWG board supports the X401 connector included in the KST.
- MUX multiplex extension for car calls (up to 48 floors in conjunction with INSP inspection cabinet).
- FPX drive program board adapts various motor control drives.
- EAZ floor display for straightforward integration of decimal and binary inputs; with ASCII character set.
- INSP pre-wired inspection cabinet. In conjunction with the NEW LIFT driving cable, this cabinet turns the controller into a plug-and-go system: inspection drives can be performed and doors activated immediately by the fully integrated preselection function.
- DP 155.501, the snap-on power supply designed for the KST controller.

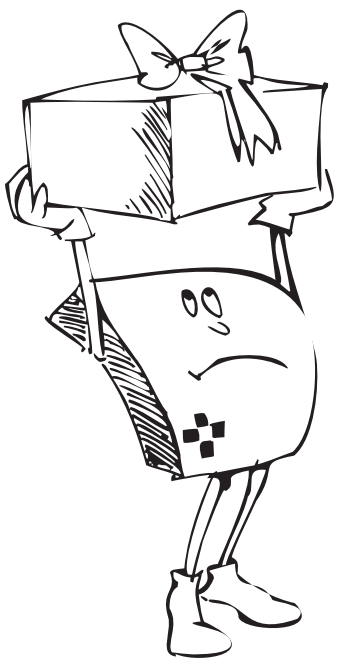
- HSG auxiliary power supply units with battery management (charging and discharging) monitored by regulators for all standard capacities and 6, 12 and 24 volts.
- SHS safety circuit according to EN 81/TRA 200, which meets the requirements for advance-operation doors and relevelling.
- KOP-SET, the pre-assembled magnet sensor console, which simplifies shaft installation.
- GST, the autonomous group processor, which combines up to 4 KSTs to form a quattro group. GST includes an additional port for external monitoring or modem.

2 Fitting and installation

2.1 Scope of delivery

The technical specification of the customer's order forms the basis of the scope of delivery. The electrical data of the equipment to be connected must conform to the controller.

Before faults are assumed in the controller, ensure that suitable electrical equipment has been selected.



NOTE

The scope of delivery includes:

- Circuit diagrams describing the controller
- Delivery report
- Brief instructions

Notes on the circuit diagrams

Basic knowledge of electrical engineering and knowledge of the operation of lifts are required in order to understand the circuit diagrams supplied. The diagrams conform to DIN standards.

Circuit boards are depicted as locks with the appropriate input and output terminals.

The safety switches to be fitted within the safety circuit are dependent upon the type of lift and the applicable national regulations; it is assumed that the customer is aware of the requisite provision of safety switches. Safety switches shown in the circuit diagram but not required for the installation in question must be bridged at the terminals in the control cabinet as appropriate.

Notes on circuit diagram Sheet No. 4

This sheet shows various versions. Terminals which are not required remain free. Door drives with final limit switches which are connected directly to the door controller are an exception: the terminals provided in the inspection cabinet for this purpose must be bridged in this case (see "Note to Sheet 4" on the circuit diagram).

2.2 Shaft requirements Magnet copying

This section provides an overview of the necessary shaft switches and shaft copies, the positions of the magnets in relation to the drive speed, and the distance between the shaft magnets and the landings.

2.2.1 Mechanical shaft switches

Mechanical shaft switches are positive-action roller switches operated by a switching cam. The switches themselves are always installed in a fixed position in the shaft following adjustment, whereas the actuators (switching cams) must be fitted to the mobile part of the lift system, specifically the lift car in the case of traction lifts and the yoke of the hydraulic piston in the case of hydraulic lifts.

Shaft switches include emergency limit switches, inspection drive limit switches, and pre-limit switches. Emergency limit switches are used in all cases in traction lifts; inspection and pre-limit switches are used in certain coun-tries only, according to the applicable regulations governing lifts.

At speeds upwards of 1.2 m/s, mechanical pre-limit switches are fitted together with closed-loop speed control as an additional safety feature. The system thereby monitors at the terminal landings whether deceleration is actually initiated (see circuit diagram for each installation).

2.2.2 Commissioning

Operation of the deceleration control must be checked during commissioning, and the sensitivity adjusted. Emergency limit switches, pre-limit switches and inspection drive limit switches must remain actuated during the complete drive from the start of actuation by the switching cam until the buffer is reached, where appropriate.

2.2.3 Shaft copying, general

Lift control systems always require signals to decelerate and align the car. Type KST controllers use bistable proximity switches for this purpose, i.e. one actuating magnet is required to energize and one to de-energize the switch.

FOR FAULT-FREE OPERATION

The distance between the switch and the magnet must not be less than 8 mm or greater than 12 mm as the car passes.

Recommended distance 10 mm.

Offset switches (S33 and S34) are employed at the bottom and top in order to correct the direction and detect the terminal landings.

These switches also serve to initiate deceleration at the terminal landings. Upwards and downwards switches are not therefore required for the terminal landings.

When the magnet has been passed in the drive direction to the terminal landing in question, the associated offset switch remains switched on, and may be switched off again only once the terminal landing has been left again. (Exception: short floor at one of the terminal landings. In this case, the offset switch must be interrupted once during levelling. Note the pulse plan of the controller supplied.)

Magnets for offset and door zones (for levelling or or fine levelling with the door open) must be bolted in place. At 1.2 m/s and above, additional mechanical roller switches are employed for offset in order to ensure automatic deceleration at the terminal landings in the event of a magnet failing to switch.

The OFF/ON control state of each proximity switch is displayed on the display, and enables faults to be traced easily (see “9 Faults and troubleshooting”). Proximity switch checks can be read clearly only during inspection drive at up to 0.8 m/s. At higher speeds, the LCD display is too slow to provide accurate information.

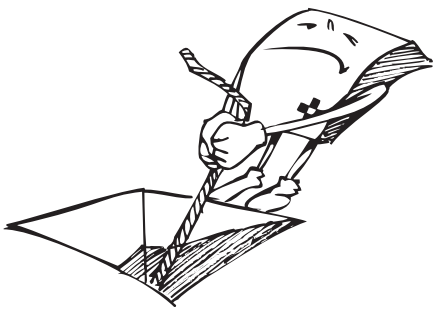
2.2.4 Deceleration distances

The deceleration distances are dependent upon several factors, including the speed and load. The values given below can therefore serve only as **guide values** for the distance from the actuating magnets to the landing..

Speed [m/sec]	Traction lift [m]	Traction lift with closed-loop controll [m]	Hydraulic lift [m]
0,35	0.40	-	0.40
0,45	0.50	-	0.50
0,60	0.60	0.70	0.60
0,80	0.85	0.90	1.10
1,00	1.25	1.20	1.40
1,20	-	1.50	-
1,40	-	2.00	-
1,50	-	2.40	-
1,60	-	2.60	-
1,70	-	3.00	-
1,80	-	3.20	-
2,00	-	4.10	-

REQUISITE ACCURACY

The deceleration distances must be the same at each landing. In installations with closed-loop control, in particular, an accuracy of ±10 mm must be ensured..



2.2.5 Lifts with closed-loop control

For lifts employing closed-loop control, it must be ensured that the magnet actuates the level switch at least 50 mm before the landing. This applies to the level switches in both directions of drive, i.e. for the upwards proximity switch in the UP direction and the downwards proximity switch in the DOWN direction.

Before the closed-loop control is commissioned, the proximity switches must be fitted precisely in position in order to avoid faults during commissioning. The magnets must be corrected again once the control has been adjusted.

Lifts with closed-loop control:
Phase controls (thyristor controllers) are employed here for closed-loop control of lifts. A description of adjustment of the controller is provided separately with each supplied controller.

The following information must be available before the controller can be commissioned and adjusted:

- Intended drive speed
- 4- or 6-pole motor, i.e. synchronous 1000 or 1500 rpm
- Pulse generator or tacho-generator on the motor
- If pulse generator is supplied: number of pulses

The procedures necessary for setting these parameters can be found in the drive controller documentation.

2.2.6 Shaft positioning (selection)

5 (6) tracks are required in the lift shaft for positioning:

- **UP, DOWN**
  Up/down pulses trigger start of initial deceleration for the next landing and provide position monitoring in conjunction with LEVELLING A/B
- **A, B LEVELLING**
  Levelling A/B positions (B only with installations with fine levelling)
- **KO, KU**
  Top correction, bottom correction: initiation of deceleration at the terminal landings

The correction tracks must be bistable, i.e. the signal becomes active when correction is entered and remains active up to LEVEL, and becomes inactive when the correction track is left.

The copy program counts the flanks from the position sensors on each track. The signals are evaluated on the UP, DOWN and ALIGNED tracks. The KO track is evaluated at the same time during upward drive, and the KU track during downward drive.

The counters are initialized during orientation drive, synchronized (see “5.3 Orientation drives”), and stored when the system is switched off. The count is loaded automatically when the system is switched on. The position in the shaft at any time can be calculated exactly by means of the position counter in conjunction with the instantaneous direction count.

Whereas the KO/KU/UP/DOWN track in the shaft may overlap, the aligned positions must be unambiguous (no UP or DOWN parallel to LEVELLING).

KO levelled and KU levelled are an exception. Unambiguous positions can be calculated from the counts, including with changes in direction in the shaft (e.g. during inspection). Calculation in advance is also possible, and any requisite short floor can therefore be achieved.

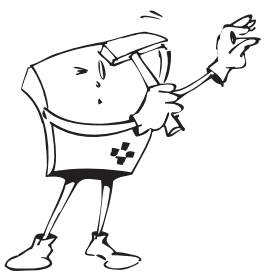
N O T E

The majority of copying faults can be attributed to magnet or sensor bounce, or failure to switch. In order to simplify troubleshooting, a troubleshooting line can be called up in the operator display from program Version 3.5 onward (see “9.6 Systematic troubleshooting”).

2.3 The linear positioning system

With the new generation of NEW LIFT linear positioning systems, positioning of the car in the shaft is accurate to the millimetre. An absolute rotary encoder is mounted on the car. A toothed belt running the length of the shaft runs around a wheel mounted on the encoder axle. The encoder signals the instantaneous absolute position of the car to the KST controller.

- Exact monitoring of distances, speeds and acceleration by non-slipping toothed belt system
- The car position is recovered immediately and exactly in the event of a power failure
- Perfected logic for levelling and fine levelling
- Generates the second sensor for zone switching - only one proximity switch required in the shaft
- The system is designed for high operational reliability and ease of service



2.3.1 LIK scope of delivery

The system comprises the following individual components:

- Toothed belt equal in length to the shaft (quote shaft length when ordering)
- Encoder mounting bracket fitted with opto-electronic absolute encoder and guide pulleys
- Cable to inspection cabinet, with 9-pole connector
- Ground plate fitted with tensioning facility for the toothed belt
- Ceiling plate

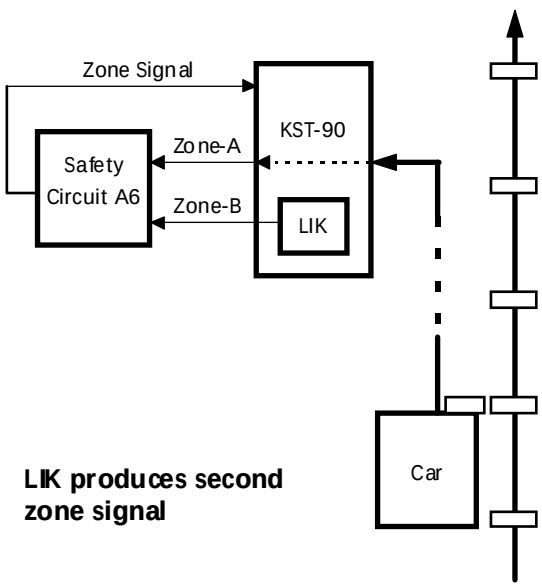
2.3.2 LIK shaft requirements

No additional zone signals are required in the shaft when drive speeds are kept below 1.2 m/s.

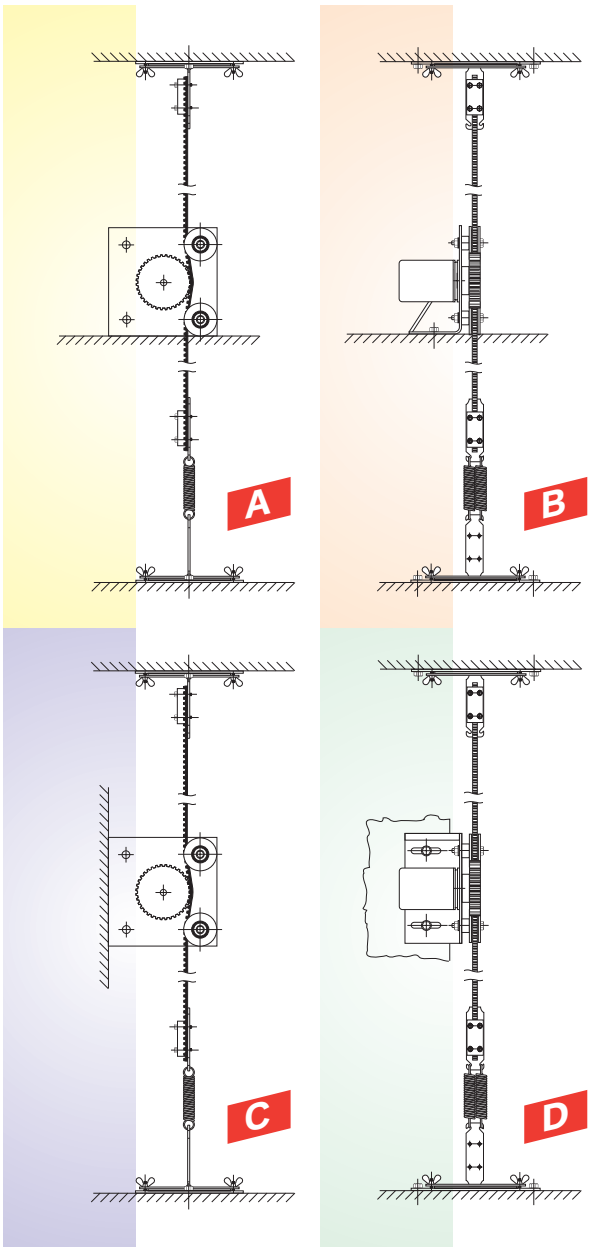
For drive speeds of 1.2 m/s and upwards, additional mechanical roller switches are employed to ensure automatic deceleration to the terminal landings in the event of system failure.

Additional shaft requirements for lifts with zone signals

The LIK generates the second sensor for zone switching, with the advantage the shaft needs only one hardware zone switch.



LIK produces second zone signal



2.3.3 LIK installation - Mechanical

Mechanical installation comprises the installation of the encoder, toothed belt and fixing brackets in the shaft followed by fine adjustment of the belt positioning to ensure vertical alignment.

Fitting the encoder mounting bracket

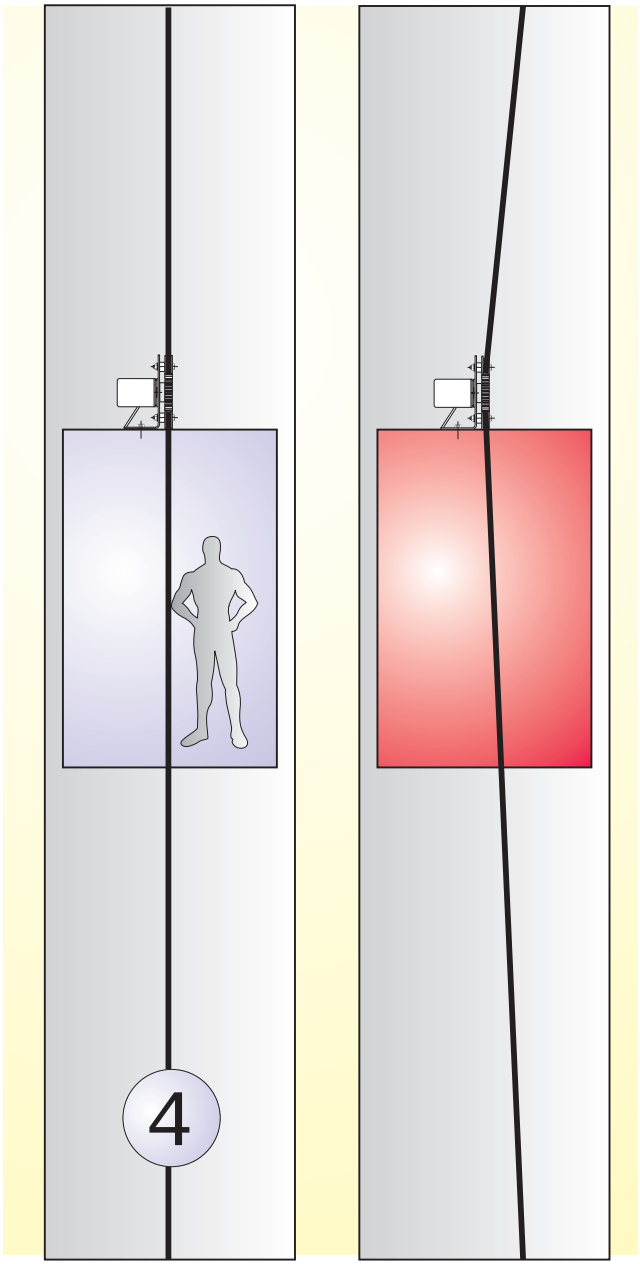
Position the encoder mounting bracket on the car such that the car-body, counter-weight or other shaft fittings do not disturb the toothed belt during car travel.

Diagrams A-D show the two possible mounting directions. Position the guide pulleys as the installation requires.

- Check that the rotary encoder gear wheel and guide pulleys are flush. If necessary, slacken the grub screws on the rotary encoder shaft, adjust the rotary encoder gear wheel, and lock using the second grub screw.
- Bolt the encoder mounting bracket firmly to a suitable car beam using two M8 nuts and bolts.

Fitting the ceiling plate

- Move the car to the top floor.
- Determine the position of the ceiling plate over the rotary encoder gear wheel. Mark the positions of the ceiling screws.
- Drill holes for size 8 rawlplugs, insert the rawlplugs, and bolt the ceiling plate in place with two size eight screws.
- Slacken the four screws on the toothed belt retaining plate and thread in the belt. Ensure that the belt engages with all of the plates' teeth before re-tightening.



Fitting the ground plate

- Move the car to the bottom terminal landing. During the drive, ensure that the toothed belt does not twist.
- Affix the ground plate to the toothed belt 2 cm clear of the ground.
- Determine the position of the ground plate: position the ground plate such that it can hang freely and ensure the belt is not twisted. Correct the distance to the ground if necessary by displacing the toothed belt. Mark the positions of the ground screws.
- Drill holes for size 8 rawlplugs, insert the rawlplugs, and bolt the ground plate in place with two size eight screws ensuring that the toothed belt is not twisted.

Fine adjustment

The objective of fine adjustment is to ensure that the toothed belt aligns correctly vertically. Achieve this following assembly of the LIK by slackening the wing nuts on the ground or ceiling plates. Move the loosened plates to the correct position before re-tightening the wing nuts.

2.3.4 LIK installation - Electrical

Connect the LIK to the car by plugging the encoder cable 9-pole plug into the corresponding X395 socket of the inspection cabinet.

Determine the direction of rotation of the rotary encoder gear wheel for upward travel when looking at the gear wheel.

Plug in the direction of rotation jumper J33 in the inspection cabinet as follows:
A Gear wheel turns clockwise
B Gear wheel turns anti-clockwise

No further connections are required.

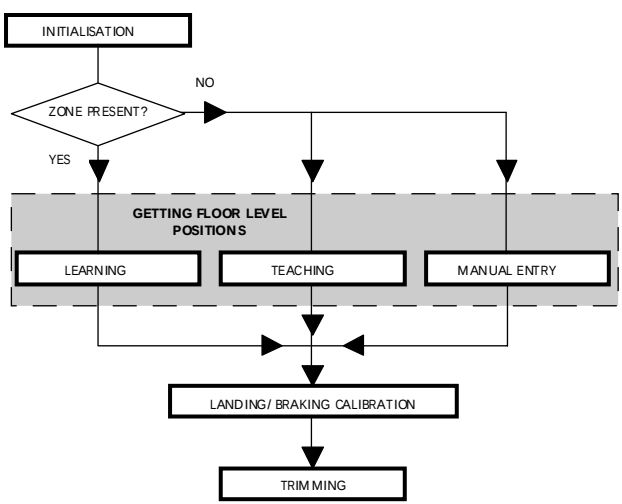
2.3.5 LIK installation - Commissioning

Commissioning of the LIK comprises four basic steps:

- INITIALISATION
- GETTING THE FLOOR LEVEL POSITIONS
- SETTING THE LANDING/BRAKING DISTANCES
- TRIMMING

Programming the LIK is a quick and straightforward matter if you keep to the correct commissioning procedure. It is recommended that you keep closely to the prescribed programming steps, at least until you become familiar with the LIK.

Above all, the order of the operations carried out is most important. When carried out correctly, you can complete commissioning of the LIK in as little as one hour for an averaged sized system.



The following diagram illustrates how the commissioning steps effect the various LIK parameters:

PARAMETER	NEW SHAFT	LEARN / TEACH	ORIENTATION DRIVE	TRIM DRIVE	SET FLR-0 REF
LEVEL POSITION		4			4
LANDING-UP	4		4		
LANDING-DOWN	4		4		
ZONE-UP	4	4			
ZONE-DOWN	4	4			
LEVELLING-UP ON	4		4	4	
LEVELLING-DN ON	4		4	4	

Initialisation

First, check that the Encoder Resolution is correct for the toothed wheel size fitted.

- Call up the following functions in turn from the main menu: CONFIGURATION > LINEAR POSITIONG > BASIS CONFIG > RESOLUTION

(for more information see > BASIS CONFIG > RESOLUTION).

Generate a standard shaft using the NEW SHAFT function. This will overwrite the LANDING, ZONE and LEVELLING values with default settings.

- Call up the following functions in turn from the main menu: CONFIGURATION > LINEAR POSITIONG > INSTALLATION > NEW SHAFT?

Answer the prompt with the YES key.

(For more information see > INSTALLATION, NEW SHAFT)

Check that the rotary encoder is operating correctly and the encoder output matches the car's direction. Use the KST troubleshooting display to verify this.

- Set the SYS LIK1 variable to the value 2 (see BASIS CONFIG, SYS LIK1).
- Initiate the KST troubleshooting display with the LIK information channel (see 2.3.8 Monitoring the LIK in real-time). The 2nd line on the KST will now display the absolute encoder position (Pxxxxxxx) and the encoder read error count (G=xxxxxx).
- Drive the car upwards or downwards using the auxiliary control a few millimetres and check the position display increments or decrements accordingly. If the position moves contrary to the car's actual movement, re-check the jumper setting in the inspection cabinet (see 2.3.4 LIK installation).
- Check that the encoder error count is static. The LIK's software will tolerate the occasional error. If the count is continuously incrementing when the system is stationary, it would indicate a fault either in the cabling to the encoder or in the encoder itself.
- LIK Ethe KST troubleshooting display (see 2.3.8 Monitoring the LIK in real-time).

Getting the floor level positions

This is the most important of the commissioning steps. If the resulting level positions for each floor are not accurate, you cannot make effectively use of all the LIK's automatic installation features.

The LIK offers three different methods to determine the requisite level positions.

1: LEARNING

The LIK uses the hardware zone signal measured during a special LEARN-DRIVE to interpolate the level positions. This will only produce reliable results when the zone signal actuators are precisely equidistant from each floor level position. Zone signalling employing magnets generally introduces measurement tolerances of up to 1cm causing levelling offsets. You must remove these offsets subsequently using the techniques described. Learning is the quickest of the 3 methods and can be performed alone, if necessary.

2: TEACHING

This involves manually bringing the car to each floor (using auxiliary or inspection control followed by hand winching if necessary) and notifying the LIK via a special menu upon reaching accurate alignment. Teaching is a relatively quick process and will always bring optimal results.

3: MANUAL

Using an architects plan enter the shaft dimensions directly into the LIK menus. Afterwards using the TEACH technique for the bottom floor only, the shaft is 'translated' to the encoder's real position. You can expect to find discrepancies between the building and the plans and these errors must be removed afterwards using the recommended correction techniques.

Deciding on the best installation method

Most often the type of system will dictate which is the most suitable method.

If using zone switching, always use the LEARN method to ensure that the LIK's zone-B signal output will accurately follow the hardware zone. If the resulting levelling positions prove to be inaccurate (magnet-type zone signalling or inaccurately mounted switches), you can correct the errors afterwards using the procedures described.

If you are installing a LIK for the first time, take the time to read and understand the various installation options before commencing.

Method 1: LEARNING the level positions

Proceed as follows:

- **Move the car to within the zone area in the bottom floor (need not be accurately levelled).**
  If you wish to drive using inspection control the KST/LIK safety features may prevent this due to the unprogrammed state of the LIK.

  (Refer to 2.3.9 > LIK operating modes > Driving whilst unprogrammed)

- **Prepare the LIK to read zone-A signal**
  Bridge zone-A to Zone-B on the KST motherboard (terminals 236, 237). Insert a jumper on J17 on the KST CPU board.

- **Start learn drive**
  Call up the following functions in turn in the main menu:

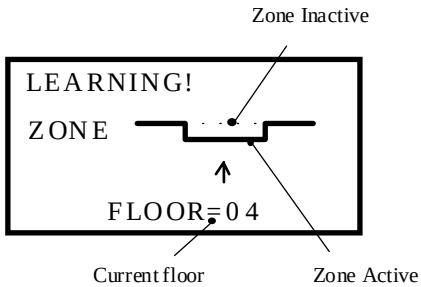
  CONFIGURATION > LINEAR POSITIONG > (WILL STOP-NO) > INSTALLATION >

  START LEARN?

  Start the procedure by pressing the YES and ENTER keys. The KST display will warn if the hardware zone is not active (input to KST terminal 237 should be 0V) and prevent the learn procedure from starting.

  (see 2.3.10 Common problems > Difficulty starting LEARN-DRIVE)

- **Drive car up to top floor**
  Move the car upwards using the inspection or auxiliary control to within the zone area of the top floor (need not be level). It is permissible to stop the car during the learn drive, but avoid changing direction. You may abort the procedure at any time by pressing the ENTER key and repeating the process from the bottom floor if required. During travel, you can follow the progress on the KST display:



  When the car reaches the top floor zone area, the KST display shows ‘OK’; the LEARN drive is complete.

- **Exit Learn Mode**
  Press the ENTER key to exit the learn-menu.

  Set the LIK to its operational mode READY using the main menu: CONFIGURATION > LINEAR POSITIONG > INSTALLATION > SET READY > YES.

  The LED should now light without blinking.

- **Remove zone-A link**
  Remove the wire bridge and jumper J17 enabling the correct functioning of the downstream safety circuit.

- **Start the automatic calibration drive.**
  Call the following functions in turn from the main menu:

  INFORMATION > ORIENTATION > YES

  (for full details of this procedure refer to Calibrating the Landing and Braking distances)

- **Proceed now to the section titled..**
  Checking and Correcting the Levelling Positions

Method 2: TEACHING the level positions

The procedure for teaching the LIK depends on the type of system you are installing. For small and medium size rope lifts it may be possible to move the car up and down a few millimetres using hand-winching. For larger or hydraulic lifts this is probably not practical. If hand-winching is possible, use the PRECISE teaching procedure detailed below, otherwise follow the QUICK teach methods.

Proceed as follows:

- **Move the car to floor 0**

  For PRECISE teach:

  Use auxiliary or inspection control to get approximate positioning and then hand-winching to achieve accurate levelling. The accuracy of this positioning is decisive for the precision of all following drives.

  For QUICK teach

  Use auxiliary or inspection control to achieve approximate positioning.

  If you wish to use inspection control for either of these methods, the KST/LIK safety features may prevent driving due to the unprogrammed state of the LIK (refer to 2.3.9 > LIK operating modes > Driving whilst unprogrammed).

- **Start teach mode**

  Call up the following functions in turn from the main menu:

  CONFIGURATION > LINEAR POSITIONG > (WILL STOP-NO) > INSTALLATION > START TEACH-IN?

  Start the procedure with the YES key.

- **Teach the floor**

  Set floor 0 using the and keys (default starting floor). Press the key to instruct the LIK to accept the current position. Press the key as often as needed if you need to re-positioning the car; the new position will overwrite each time.

- **Move car to next floor level and 'teach'**

For PRECISE teach:

Level car precisely at the next floor.

For QUICK teach:

Use auxiliary or inspection controls to achieve approximate levelling at the next floor.

Proceed in the same way with all other floors by placing both the car and the displayed floor in the new floor before pressing the key.

It is not essential to proceed floor by floor, but being methodical will help avoid programming the wrong floor! If required, you may return later to any selected floor and re-teach it if necessary.

- **Exit Teach Mode**

  After teaching all the floors, press the ENTER key to exit the teach-menu.

  Set the LIK to its operational mode READY using the main menu: CONFIGURATION > LINEAR POSITIONG > INSTALLATION > SET READY > YES.

  The LED should now light without blinking.

- **PRECISE teach: Proceed now to the section titled.. Calibrating the Landing and Braking distances**

- **QUICK teach: Proceed now to the section titled.. Checking and Correcting the Levelling Positions**

Method 3: MANUAL entry of level positions

Proceed as follows:

- **Enter the relative floor separation distances manually**

  Call up the following functions in turn in the main menu:

  CONFIGURATION > LINEAR POSITIONG > SHAFT-FLOOR > LEVEL POSITION

  Enter the positions of each floor in mm relative to the bottom floor 0 (for example floor one 2330, floor two 4670, etc.) If all the floors share a common spacing, press the Þ key until the floor value shows 0-nn (where nn is the top floor). By entering the common floor separation in line 2 and pressing ENTER the LIK inserts the value automatically in all floors.

- **Move car to floor-0 and map the new shaft to the real encoder position**

  Position the car at floor-0. If precise positioning is possible (use hand-winching if necessary), then this will save having to correct floor-0 later.

  If you wish to use inspection control, the KST/LIK safety features may prevent driving due to the unprogrammed state of the LIK (refer to 2.3.9 > LIK operating modes > Driving whilst unprogrammed).

  Call up the following functions in turn from the main menu: CONFIGURATION > LINEAR POSITIONG > INSTALLATION > SET FLR-0 REF > YES

  The LIK automatically translates the entire shaft to match the encoder's position at floor 0.

- **Start the automatic calibration drive**

  If the LED is blinking, set the LIK to its operational mode READY using the main menu: CONFIGURATION > LINEAR POSITIONG > INSTALLATION > SET READY > YES.

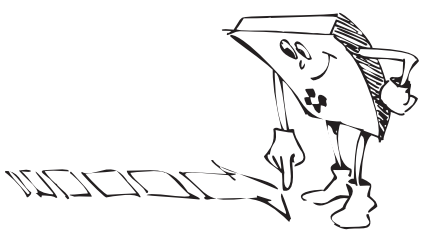
  Start the calibration drive as follows from the main menu: INFORMATION > ORIENTATION > YES

  (for full details of this procedure refer to Calibrating the Landing and Braking distances)

- **Proceed now to the section titled..Checking and Correcting the Levelling Positions**

Calibrating the Landing and Braking distances

With the level positions now programmed in the LIK, the car could be driven using the standard landing and braking distances entered automatically as the NEW SHAFT command was actioned. These are unlikely to be optimal values, however, and now the exact distances required for the installed motor drive system require calibration to ensure accurate landing. The LIK offers an automatic calibration facility that eases this remaining workload considerably.



The KST and LIK together control a sequence of automatic drives enabling the exact landing and braking distance requirements of the system to be measured entered into the LIKs shaft memory. The LIK measures the real characteristics of the motor and drive systems. The motor controller should, therefore, by now be programmed with the desired driving parameters (speeds, accel/deceleration rates, etc.). The LIK will automatically detect short-floor(s) if they exist. If this is likely, the motor controller must be capable of providing an intermediate speed (V1).

If at a later time you change any of the speed or speed-rate parameters, you must then repeat the following calibration procedure.

For extremely short shafts (2 floors or less than 6 m rise) the auto-calibration facility is unsuitable.

(see 2.3.10 Common problems > Short shafts)

Proceed as follows:

- **Preparation**
  The LIK must be operational, e.g. the LED lights continuously (call up the following functions in turn from the main menu if necessary: CONFIGURATION > LINEAR POSITIONG > INSTALLATION > SET READY > YES)

- **Start the automatic calibration drive**
  Start the automatic calibration drive by calling up the following functions in turn from the main menu: INFORMATION > ORIENTATION > YES

The KST and LIK now perform an automatic sequence of 2 - 4 drives as follows:

- Drive to the nearest terminal floor (if necessary)
- Drive halfway along shaft with speed V2
- Landing and braking test (not floor aligned)
- Short drive with speed V1
- Landing and braking test (not floor aligned) (direction reversal)
- Drive with speed V2
- Landing and braking test (not floor aligned)
- Short drive with speed V1
- Landing and braking test (not floor aligned)
- Correction drive back to starting terminal floor

The LIK may itself decide not to perform the V1 drive(s) if it detects insufficient shaft head room to proceed (this would normally only occur in an extremely short shaft).

After a pause lasting a few seconds, the KST will display an error KB-192 and initiate a system-reset. This error is the normal consequence of a correction drive. If the KST has recorded a different error (check the KST-FAULT DISPLAY) this would indicate a problem with the calibration drive.

You can inspect the measured results of the calibration drive in the LINEAR POSITIONG > STATUS > CALIB. RESULTS menu. (see •Sub menu: STATUS > CALIB. RESULTS)

Checking and Correcting the Levelling Positions

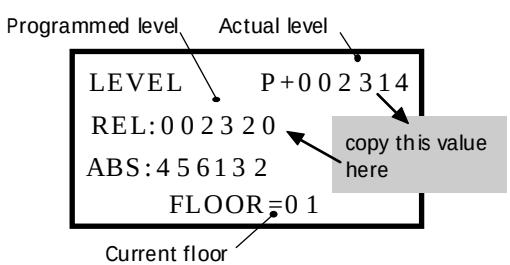
After a LEARN drive, TEACH (QUICK method) or MANUAL shaft entry the levelling positions are probably not yet accurate enough. If you have successfully performed an automatic calibration drive, travel now in the car using car calls to stop in all floors. At each floor check the levelling and correct as required.

There are two recommended methods for levelling correction. Study both and decide which is the most suitable for your installation. Always start from the bottom floor since this is the reference position from which all other floor levels are measured.

Method 1:

- **Level the car accurately**
  Person-1 (car) drives with car call to floor and then directs person-2 (control room) to move the car accurately to its ‘correct’ levelled position. Hand-winching may be necessary if the auxiliary control responds slowly.

- **Use the current car position to overwrite the programmed position for this floor**
  Person-2 accesses the LEVEL-POSITION menu: (CONFIGURATION > LINEAR POSITIONG > (WILL STOP-NO) > SHAFT-FLOOR > LEVEL POSITION)



Example: To correct this floor, replace the programmed level 2320, by the actual level 2314. Stop at each floor repeating this procedure.

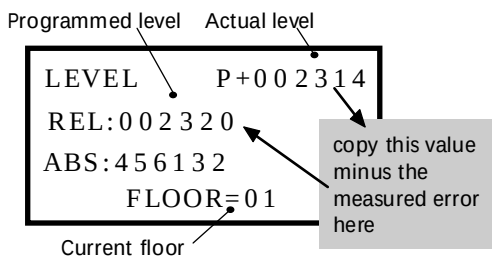
Method 2:

- **Drive to floor and measure error**

  Person-1 (car) uses car call to reach floor and measures the car-floor to door-floor levelling error with a ruler.

- **Use the current car position and the measured levelling error to overwrite the programmed position for this floor**

  Person-2 accesses the LEVEL-POSITION menu: (CONFIGURATION > LINEAR POSITIONG > (WILL STOP- NO) > SHAFT-FLOOR > LEVEL POSITION)



  Example: Measured car levelling error = car stands 5mm above correct position. To correct this floor, replace the programmed level 2320, by the actual level 2314 - 5 (2309).

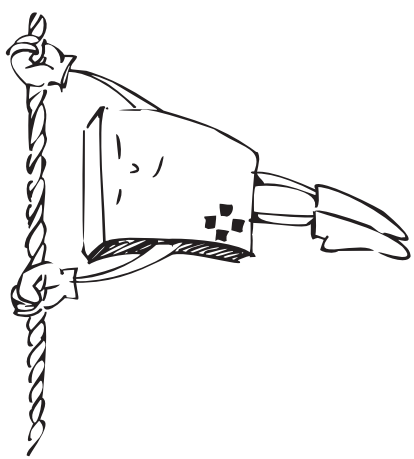
- **Stop at each floor repeating this procedure.**

If you decide to edit the corrections after having first driven into all the floors, person-2 must write down the displayed actual level at each floor. Correct later in conjunction with person-1's written error list. Remember to correct floor-0 first as this is the reference position.

Use these methods for correcting small errors (up to a few centimetres). If you find a much larger levelling error, then adjust the landing distance before continuing.

The object of these correction procedures is to correct the levelling positions and not to correct errors due to incorrect landing or braking distances. The braking distances are handled automatically during the TRIM DRIVE.

Proceed now to...TRIMMING



TRIMMING

The automatic calibration procedure measures the braking distance at one shaft location (in both directions) and enters this in all floors. It is possible that these distances do not provide optimal levelling in all floors. The automatic TRIM DRIVE is a special KST automatic test drive that ensures that over a period of time, the car drives into all the floors in both directions.

At each floor, the LIK automatically corrects the LEVELLING-UP/DN ON parameter to compensate for any measured levelling error. Remember, this can only work as accurately as the original LEVEL POSITIONS.

N O T E

Trimming is only necessary when the car does not stop level in one or more floors. It may not be necessary to perform a trim drive; some installations will already be levelling accurately at this stage in all floors based on the results from the calibration procedure.Gehen Sie wie folgt vor:

Proceed as follows:

- Call up the following functions in turn in the main menu: SERVICE > AUTOTEST > TRIM RUN
- Continue the trim runs until the car landed in both directions at every floor.
- Then switch off the trim run from the main menu: SERVICE > AUTOTEST > TEST RUN OFF

This completes the LIK commissioning!

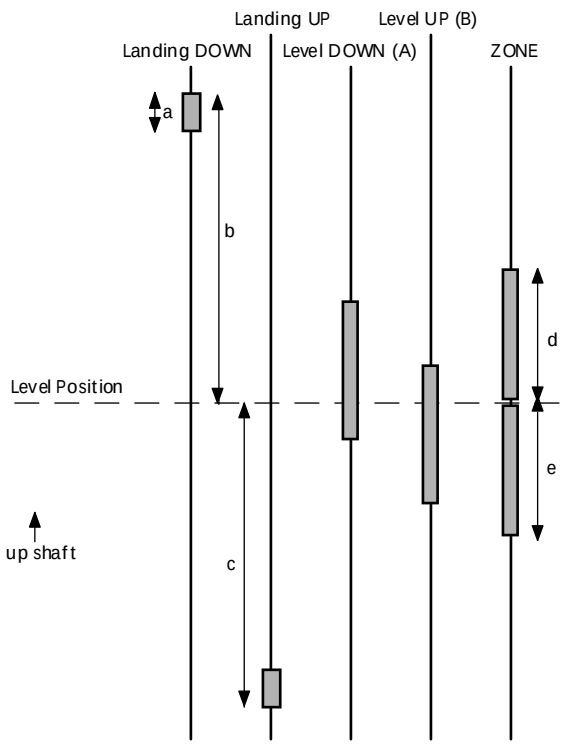
2.3.6 Shaft Signal Reference

This section explains the significance of the signal's output by the LIK and their respective menu parameters.

There are two groups of signal parameters in the menus:

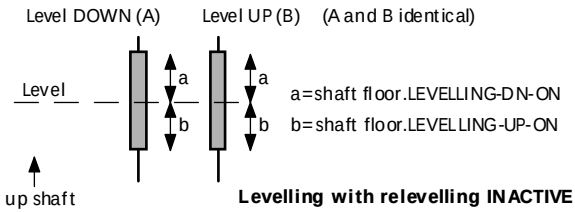
- SHAFT-GLOBAL; set once for all floors
- SHAFT-FLOOR; set individually for each floor.

Shaft signal overview

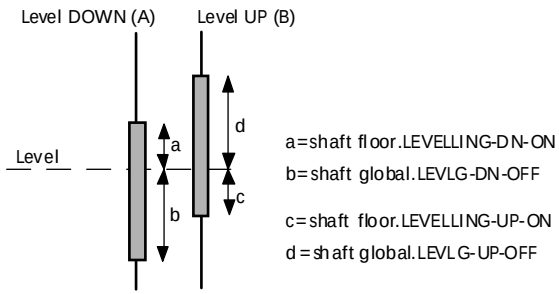


a=shaft global.LANDG PULSE
b=shaft floor.LANDING-DOWN
c=shaft floor.LANDING-UP
d=shaft floor.ZONE-DOWN
e=shaft floor.ZONE-UP

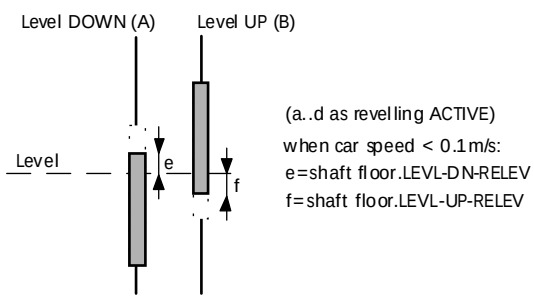
Signal overview during levelling



Levelling with relevelling INACTIVE



Levelling with relevelling ACTIVE



Levelling with relevelling ACTIVE and OPTIMISED RELEVELLING

2.3.7 LIK menus

Here follows an explanation of all the LIK menu items. Fold out the back cover for an overview of the LIK menus and their access paths. Always access the main menu of the KST controller with ENTER (middle key).

To access the LIK menus, press the following keys in turn:

1x ENTER MAIN MENU
1x CONFIGURATION
1x BASIS CONFIG
3x LINEAR POSITIONG
1x WILL STOP? (Stop drive?)
1x YES or NO

1x ENTER Confirm input

The LIK sub-menus are displayed using the ➲ key: BASIS CONFIG ➲ SHAFT-GLOBAL ➲ SHAFT-FLOOR ➲ STATUS ➲ INSTALLATION

Sub-menu: BASIS CONFIG

> **SYS LIK 1**
Binary coded control value with various functions:

Value	Key
0-3	Selection of the LIK information channel appearing in the KST troubleshooting display (see 2.3.8 Monitoring the LIK in real-time).0=P+xxxxxxx V=xxxxx1=Pxxxxxxxx V=xxxxx2=Pxxxxxxxx G=xxxxx3=aaaa=dd dd dd dd
4	LIK MENU DISABLE.Bit set=prevent changes being made through the LIK menu. Bit clear=enable programming.
8	Not used
16	SAFETY OVERRIDE.bit set=KST drive enabled if LIK NOT_READYbit clear=KST drive disabled if LIK NOT-READY
32	Not used
64	Not used
128	DATA ACQUISITION ENABLE (manufactures use only)

> **HIGHEST-FLOOR**
The top terminal floor.
The KST-90/LIK supplies the LIK directly with this value; it cannot be changed.

> **HOST TYPE**
Indicates with which lift-controller the LIK is operating.
The KST-90/LIK supplies the LIK directly with this value; it cannot be changed.

> **RELEVELLING**
A binary coded control value controlling the LIK relevelling operations. The lowest bit, LIK-RELEVELLING-ACTIVE, is automatically set if relevelling is active within the KST. The remaining 2 bits are only relevant if KST relevelling is active.

Value	Key
1	LLIK-RELEVELLING-ACTIVE
2	OPTIMISED-FINE-LEVELLING, primarily for hydraulic lifts. The secondary levelling points LVL-UP-RELEV and LVL-DN-RELEV are used if the measured speed drops below 0.1 m/sec within the zone area.
4	HYDRAULIC PARKING. When set, inhibits optimised re-levelling at floor 0.

Example: set optimised relevelling:

= LIK-RELEVELLING-ACTIVE +OPTIMISED FINE-RELEVELLING
= 1 + 2
= 3

> **SHORT FLOOR**
Binary coded control value derived automatically from the shaft parameters and updated after each parameter change. This value cannot be changed in the KST-90/LIK.

Value	Key
1	shaft floor (s) elsewhere in shaft
2	bottom floor is short floor
4	top floor is short floor

> **ZONE-B PEGEL**
Active setting of the zone B signal at the floor:

AKTIVE-LOW	0 V
AKTIVE-HIGH	24 V

> **RESOLUTION**
Encoder resolution in bits/mm.

Setting example:
- Encoder setting is 4096 bits/revolution
- Encoder toothed belt gear wheel with 48 teeth
- Toothed belt with 5 mm pitch

Derived values:
- Value to be set = 4096 / (48 x 5)
- Value to be set = 17.0666

> **DEBUG**
For manufactures use only
Sets the address used by the RAM memory monitor in the KST troubleshooting display when SYS LIK1=3 .

Sub menu : SHAFT-GLOBAL

The following parameters are relevant at all floors throughout the shaft:

> **LANDG PULSE (mm)**
Effective width of the landing signal.
Default setting: 15 mm

This setting can normally remain unchanged.

> **LEVLG DN OFF (mm)**
The distance of the DOWN levelling signal beyond the level position.

Relevant only if LIK-RELEVELLING-ACTIVE is set.

> **LVELG UP OFF (mm)**
The distance of the UP levelling signal beyond the level position.

Relevant only if LIK-RELEVELLING-ACTIVE is set.

> **LVL-UP-RELEV (mm)**
The distance from the UP levelling signal to the level position used when the car speed has fallen below 0.1m/s during relevelling.

Relevant only when both LIK-RELEVELLING-ACTIVE and OPTIMISED RELEVELLING are set.

> **LVL-DN-RELEV (mm)**
The distance from the DOWN levelling signal to the level position used when the car speed has fallen below 0.1m/s during relevelling.

Relevant only when both LIK-RELEVELLING-ACTIVE and OPTIMISED RELEVELLING are set.

Sub menu : SHAFT-FLOOR

The following parameters are programmable for each floor individually. All parameters are in mm units.

> **LEVEL POSITION**
The level position for the display floor relative to level - floor 0.

```
LEVEL p+274351
rel:001345mm
abs:027123mm
      FLOOR=01
```

Line	Key
1	Current car position relative to Floor-0
2	Level Position for indicated floor relative to Floor-0
3	Absolute level position for indicated floor
4	Floor indicator

To change a LEVEL POSITION:

Press the ➲ key until the cursor reaches the floor value. Then set the desired floor using the ⇧/⇩ keys. Place the cursor in the corresponding REL relative position using the ➲ key, and set the correct position using the ⇧/⇩ keys.

If you wish to enter a constant value for all floors, set the cursor on the floor value using the ➲ key. Press the ⇩ key until the floor value shows 0-nn (where nn is the top floor). The REL position entered in line 2, will then be automatically written to all floors when the **ENTER** key is pressed. You can apply the same technique for all SHAFT FLOOR parameters.

Set the remaining floor parameters in the SHAFT FLOOR menu in the same way:

> LANDING-UP
The distance between the UP landing signal and the level position.

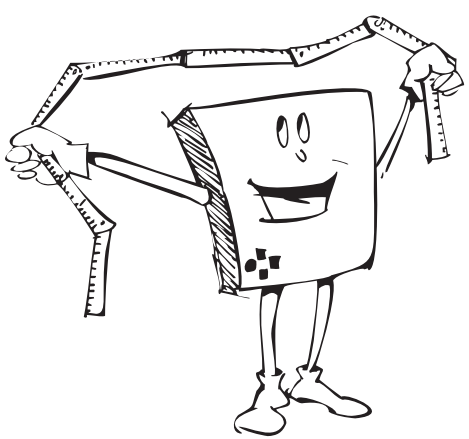
> LANDING-DOWN
The distance between the DOWN landing signal and the level position.

> ZONE-UP
The distance between the start of the ZONE signal and the level position in the UP direction.

> ZONE-DOWN
The distance between the start of the ZONE signal and the level position in the DOWN direction.

> LEVELLING UP ON
The distance between the start of the levelling signal and the level position in the UP direction.

> LEVELLING DN ON
The distance between the start of the levelling signal and the level position in the DOWN direction.



Sub menu: STATUS

> STATUS DISPLAY
Displays the current LIK status in the operator display:

EXAMPLE:

```
V.1.05 12/01/94
ERR= 14 gf= 18
status=OK
vmax=-1234mm/s
```

Line	Key
1	Software version and date
2	Error counter, encoder read error counter.Encoder read error: the LIK has received an implausible position from the encoder. The counter provides an indication of the quality of serial transmission. Occasional read errors are normal; the LIK will ignore them.
3	Current status. If the LIK is NOT READY, this field will flash. In the event of a fault, FAIL is displayed together with the corresponding error message.
4	Maximum measured speed. The value is cleared automatically at start-up. It can be cleared at any time by:STATUS > CLEAR MAX-VEL

> **CALIB. RESULTS**

During orientation drive the LIK measures all dynamic values of the car in all characteristic drive situations. Read the results in the UP and DOWN directions from this display.

EXAMPLE:

```
(AB)          t1=  123
V0-123        d1=  234
V1-562        t3=  876
V2-1805   d3= 1329
```

* only relevant in shafts with short floors.

Value	Key
(UP), (DOWN)	Select the values in the UP direction using the ↑ key and in the DOWN direction using the ↓ key
V0	Measured speed V0 (mm/sec)
V1	Measured speed V1 (mm/sec)
V2	Measured speed V2 (mm/sec)
t1*	Acceleration time (msec) from V0 to V1 measured during short floor travel
d1*	Distance (mm) travelled during short floor travel in acceleration phase
t3*	Deceleration time (msec) from V1 to V0 measured during short floor travel
d3*	Distance (mm) travelled during short floor travel in deceleration phase

> **FAILURE LIST**

Fault in display range 0-255. The last 16 faults are retained in memory after switch-off or in the event of a power failure.

EXAMPLE:

```
LIK FAILURE LIST
ERROr=  3   (  5)
 POWER FAILURE
```

Display the faults using the ↑ / ↓ key. Possible faults include:

Fault	Key
1	Encoder value outside shaft limits
2	NMI reset
4	CRC error in Config EEPROM area
8	CRC error in Global EEPROM area
16	CRC error in Floor EEPROM area

> **CLEAR ERRORS?**

Clears the internal fault memory. Answer the clear prompt by pressing the YES ↑ or NO ↓ key and confirm with ENTER.

> **CLEAR MAX-VEL?**

Clears the internal VMAX memory (see LINEAR POSITIONG > STATUS > STATUS DISPLAY).

Answer the clear prompt by pressing the YES ↑ or the NO ↓ key and confirm with **ENTER**.

At each power-on, VMAX is cleared automatically.

Sub menu: INSTALLATION

> START TEACH?
Special installation program for level position programming (see2.3.5 LIK installation - Commissioning Method 2: TEACHING the level positions). Answer the start prompt by pressing the YES or NO key.

Once started, you can exit the TEACH menu by pressing the ENTER key. The LIK is however not yet ready for travel, and the LED flashes. Enable the LIK in the LINEAR POSITIONG > INSTALLATION > SET READY menu.

> START LEARN?
Special installation program for automatic level position programming (see 2.3.5 LIK installation - Commissioning Method 2: TEACHING the level positions). Answer the start prompt by pressing the YES or NO key.

Once started, you can exit the LEARN menu by pressing the ENTER key. The LIK is however not yet ready for travel, and the LED flashes. Enable the LIK in the LINEAR POSITIONG > INSTALLATION > SET READY menu.

> SET FLR-0 REF.?
This has the effect of shifting the absolute level positions of all floors relative to the current encoder position.

Example: Use this when fitting a new encoder into a previously commissioned shaft. The new encoder is delivered with a position somewhere in the middle of its 1000 m working range.

Bring the car to an accurate level position on the bottom floor and the new encoder installed. SET FLR-0 REF is actioned and the old shaft configuration shifts automatically relative to the cars current position.

Answer the prompt by pressing the YES or NO key.

> SET READY?
Sets the LIK's operating state READY or NOT-READY. When NOT-READY, the LIK will prevent the KST from driving in all but auxiliary control modes (see 2.3.9 LIK operating modes).

Answer the prompt by pressing the YES or NO key and press the ENTER key.

> NEW SHAFT?
Generation of a standard shaft during initial installation.

N O T E

Be careful not to activate this command unintentionally, as you will lose all settings achieved during calibration and trimming!

NEW SHAFT presets the following values:

Global settings	Value
LANDG PULSE	15 mm
LEVLG DN OFF	100 mm
LEVLG UP OFF	100 mm
LVL-UP-RELEV	10 mm
LVL-DN-RELEV	10 mm

For all floors	Value
LEVEL POSITION	Unchanged
LANDING-UP	2000 mm
LANDING-DOWN	2000 mm
ZONE-UP	200 mm
ZONE-DOWN	200 mm
LEVELLING UP ON	90 mm
LEVELLING DN ON	90 mm

Answer the prompt by pressing the YES or NO key and press the ENTER key.

2.3.8 Monitoring the LIK in real-time

Utilising the KST troubleshooting display, you can view one of 4 LIK real-time information channels while the system is operating.

Select the active information channel using the LIK SYS LIK1 parameter. (see 2.3.7 Sub-menu: BASIS CONFIG > SYS LIK1)

- Call up the following functions in turn in the main menu: SERVICE > DEBUG DISPLAY > YES
- Select the LIK display with the 🎧 key.

Display example:

```
P XXxxxxxx V = xxxxx
```

LIK real-time information channels:

SYS LIK1 bits 0 and 1	Real-time information channel
0	P+xxxxxxx V=xxxxx Position relative to floor-0 (mm) and car velocity (mm/s)
1	Pxxxxxxx V=xxxxx Absolute position (mm) and car velocity (mm/s)
2	Pxxxxxxx G=xxxxx Position relative to floor-0 (mm) and encoder read error count
3	aaaa=dd dd dd dd RAM data monitor (manufactures use)

2.3.9 LIK operating modes

The LIK has can principally either be:

- READY or
- NOT-READY

The LIK can only be READY when:

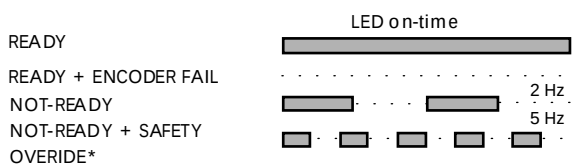
- The programmed shaft map is plausible (tested automatically by the LIK during every exit from the menu)
- The LIK must be SET READY
- No special installation procedure is active (LEARN / TEACH / KST-ORIENTATION)

You can recognise this state if the LED lights continuously. The LIK generates correct shaft signals needed for driving only when READY.

When set NOT-READY, the LIK prevents driving by the KST by setting all shaft signals active. You can see this condition on the KST display in the positioning signal area-line 3, chars 1-4.

LED signalling

You can identify the LIK's operating state and condition directly from the LED as follows:



* See Driving whilst unprogrammed

Fault Handling
The LIK utilises a continuous fault monitor to recognise critical failures from the following categories:

- Repairable failures: Faults associated with the LIK's memory will normally repair automatically using backup data in EEPROM. Memory failure occurrences are entered into the failure list. Providing that the repair is successful, the system should recover immediately.
- Irreparable failures: an encoder, cabling or belt failure recognised by sensing encoder positions outside the valid shaft area. An incorrect or incompletely programmed LIK (factory delivery condition) could also cause this condition.

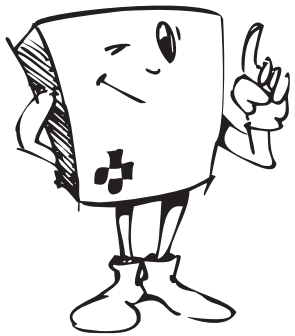
The LIK reacts to this situation by setting all shaft signals active preventing the KST from driving (the same effect as when NOT READY).

Driving whilst unprogrammed
The safety feature built in to the LIK that ensures that when unprogrammed, the KST cannot drive, can be an obstruction during the initial commissioning phase if you need to use inspection control.

When NOT-READY, the LIK normally sets all shaft signals active preventing the KST from moving. Set the SAFETY-OVERRIDE bit in the SYS-LIK1 parameter to suppress this feature. The LIK outputs no shaft signals if the LIK is NOT-READY and SAFETY-OVERRIDE is set (see 2.3.7 > SYS LIK 1).

This override clears automatically when:
- the LEARN drive is completed
- the TEACH mode is exited
- the transition NOT-READY > READY is made

The LED flashes at a fast 5Hz rate to signal the safety-override condition (see LED signalling).



2.3.10 Common problems

The LIK is designed to facilitate easy installation. If you do, however, encounter a problem during commissioning, check if the condition is explained below:

Difficulty starting LEARN-DRIVE
Problem: the LIK displays "CABIN NOT POSITIONED OVER ZONE SIGNAL".

Solution: check for the jumper J17 on the KST CPU board and the bridge over KST terminals 236/237. If the zone signal level on terminal 237 measures more than 1V, check that the car is within the zone area.

Problem: the LIK display indicates a correct zone signal state but the car does not move with inspection control.

Solution: when entering the LINEAR POSITIONG menu, answer the option "WILL STOP" with NO otherwise the KST will inhibit all but auxiliary control driving.

Solution: the LIK's fault monitor is preventing the KST from driving ("∧∨" is seen in the KST main menu positioning signal display). Set SYS LIK1 to the value 16 and restart the LEARN drive (see 2.3.9 Fault Handling > Driving whilst unprogrammed).

Short shafts

Problem: the ORIENTATION drive ends prematurely with a KST failure other than KB-192.

Solution: the automatic calibration procedure may encounter difficulty with shafts having only 3 floors if the rise is less than 6-7 m. In this case instruct the KST to override the automatic orientation drive: set CONFIGURATION > BASIS CONFIG > SYS5 to the value 4. Re-activate the orientation drive (which will now result in internal activity only), INFORMATION > ORIENTATION > YES

You must now enter the LIK landing and braking parameters manually!

N O T E

Use the TRIM-DRIVE on short shafts for eventual levelling optimisation.

KST will not drive

Problem: the LIK is commissioned, but the KST will not drive (no response to car and landing calls or inspection control) and a "?" character is displayed in the bottom left corner of the KST main menu.

Solution: the KST requires an orientation drive, INFORMATION > ORIENTATION >YES.

This will overwrite current landing and braking parameters. It may be necessary to TRIM the LIK following this drive.

"SHAFT IS INVALID".. displayed

Problem: The display shows "shaft is invalid" after leaving the LIK menu or after attempting to set the LIK READY.

Solution: the LIK fault monitor has detected an illegal shaft configuration (for example: illogical signal overlapping or absolute floor positions not in ascending order).

If you have not yet programmed the level positions and you wish to perform a LEARN or TEACH drive, the simplest Solution is to program a dummy shaft. Set a constant interfloor rise (for example, 2000mm) throughout the shaft using the SHAFT FLOOR menu (see 2.3.7 LIK menus > Sub menu : SHAFT-FLOOR >LEVEL POSITION) and perform NEW SHAFT.

If you have commissioned the LIK then it is possible that one of your last programming changes was to blame: follow the hint included in the display as to where the problem lies.

N O T E

You must program the ZONE signal correctly even if it not used. Enter 200mm for ZONE-UP and ZONE-DOWN in all floors. The NEW SHAFT command sets these values automatically.

LIK LED blinks or does not light

Problem: LED blinks.

Solution: the LIK is NOT READY condition and prevents the KST from driving. If you have already commissioned the LIK, then action SET READY in the INSTALLATION menu to enable the LIK (see 2.3.9 LIK operating modes).

Problem: LED does not light.

Solution: the LIK is READY, but has detected a critical failure and is now preventing the KST from driving. The most likely cause is an encoder position outside of the valid shaft area. This could be due to various reasons (see 2.3.9 LIK operating modes > Fault Handling).

Landing is too hard (throughout the shaft)

Problem: the general feeling is the landing is too fast in all floors.

Solution: if you have previously correctly set the deceleration parameter on the motor controller (before performing the orientation drive) then the landing distance is probably too short. Rectify this before attempting to achieve accurate levelling. The SHAFT FLOOR menu allows a quick method for globally adjusting the LANDING-UP and DOWN values throughout the shaft. Try adding 50-100 mm to the landing distance before re-testing

N O T E

After measuring the required landing distance during an ORIENTATION drive, the LIK adds an additional reserve distance before storing the LANDING-UP and DOWN values. This KST-Editor PC program selects this distance during the initial KST programming based on the type of motor controller used. The Editor gives a VVVF-type controller a short additional distance that results in a direct-landing approach. Older analogue controllers receive a longer reserve distance to allow for working tolerances.

When using the KST-Editor, you can overwrite this value (LIK_CONSTANT (cm) in the drive menu) with a different value before sending the configuration to the KST.

■ **Crawl phase too long during landing**

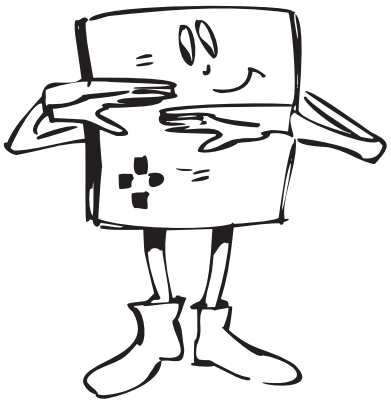
Problem: after decelerating, the car crawls too far before braking.

Solution: the landing distance is too long. (See also the problem description; Landing is too hard (throughout the shaft))

■ **Difficulty getting consistently accurate levelling**

Problem: after calibrating and trimming, the alignment in some floors is still not accurate, there is a tendency to overshoot slightly during landing.

Solution: the landing distance is too short. A residue of drive speed remains at the onset of braking leading to unreliable alignment. Lengthen the landing distance slightly before continuing with trimming. (see the problem description; Landing is too hard (throughout the shaft)).



Problem: after calibrating and trimming, the alignment in some floors is still not accurate. You obtained the floor positions using the LEARN drive method.

Solution: the level positions obtained from the LEARN drive are not accurate enough. You can expect unacceptably large tolerances if a magnet-type switch provided the original zone signal used for LEARNING. The shaft must be re-taught using the TEACH method. Afterwards re-calibrate with an ORIENTATION DRIVE followed by a TRIM drive to re-align the new level positions.

■ **You wish to change the encoder or toothed-belt**

Problem: how do I replace the belt or encoder components?

Solution: The easiest approach is to change the component(s) with the car aligned from a previous landing in the bottom floor (0). With the system complete again, activate the menu item SET FLR-0 REF and the LIK is re-programmed. If you cannot drive the car to floor-0 using a regular car or landing call, you must position it manually with inspection or auxiliary control (see 2.3.7 LIK menus > •Sub menu: INSTALLATION> SET FLR-0 REF.?).

■ **Frequent zone failures during normal driving**

Problem: you have commissioned the LIK but emergency stops occur during normal driving due to zone failures.

Solution: The LIK provides the zone-B signal that must switch synchronously with the shaft's hardware zone-A signal. If you did not perform a LEARN drive to program the levelling positions, the LIK has not "read" the real zone-A signal; the two zones are not synchronous.

It is not recommended that you correct the LIK zone switching manually to match zone-A using the SHAFT-FLOOR menu. You should re-Learn the LIK.

■ **Preventing unauthorised programming**

Problem: how can I protect my LIK from being accidentally re-programmed, or from unauthorised access?

Solution: You can prevent access to the LIK menus by locking the KST CONFIGURATION menu level using a KST password. If you only want to secure the LIK configuration, set the MENU-DISABLE bit in SYS LIK1 (SYS LIK1=4). This will prevent starting of all LIK installation modes and prevent editing values in the parameter menus.

2.3.11 LIK technical data

- Rise up to 1000 m
- Up to 56 floors
- Measuring accuracy: 0.1 mm
- Speed: up to 4 m/s

Dimensions:

Encoder bracket
- 150 x 150 x 130 mm

Tensioning plate
- 170 x 130 mm

2.4 Mechanical installation of the controller

Observe the installation guidelines specified by the operator and the accident prevention regulations which must be met at the site of operation.

KST controllers are intended for vertical mounting in control cabinets proof against ingress of sprayed water. They must be fitted with the terminal locks and terminals facing downwards.

2.5 Electrical installation of the controller

CAUTION

General familiarity with electrical engineering is re-quired for installation. Before loads and cables are connected, they, and the controller, must be switched off. Before switching the controller back on or plug-ging in connectors, ensure that no exposed wires are live.

Parts of the controller are under hazardous high voltage during operation. Live parts in the control cabinet must be suitably shrouded in order to avoid hazards.

NOTE

Non-conforming circuit symbols and terminal markings of different manufacturers (of motors, for example) cannot be taken into account, i.e. the terminal markings on the circuit diagrams do not conform with the terminal markings on the equipment supplied by various manufacturers. No guarantee of operation of the con-troller and the display can be provided for display units which have not been expressly approved by NEW LIFT.

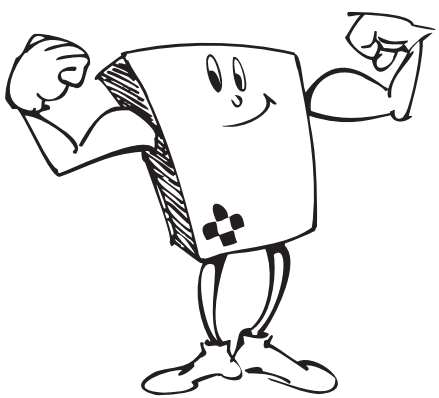
2.5.1 Prefabricated wiring

The following information is required for the prefabricated wiring service available from NEW LIFT for shaft and driving cables:

- Rise
- Shaft height
- Interval between floors
- Location of the machine room (top or bottom)

The tap-off connectors for landing calls are 1.5 mm in length, or 5.0 m in the case of secondary doors.

2.5.2 Retrofitting of existing lifts



Lift cables are often still installed when controllers are retrofitted. Great care should however be exercised when existing cables are used, however, as experience has shown that short-circuits with mains voltages are easily achieved!

CAUTION

The same cable must not be used to carry 230 V and 24 V signals.

2.5.3 Connecting the shaft and driving cable

The 56-pole driving cable supplied is fitted with connectors at the control cabinet and car ends (designation X300), and can simply be plugged in. This cable carries 24 V signals only.

CAUTION

Modifications to the connector are strictly prohibited.

All voltages exceeding 24 V and cores for intercom systems and special functions are carried in separate cables. One cable is normally sufficient for this purpose, but with a variable number of cores depending on the type of lift.

2.5.4 Controller supply voltage

The tolerances of the 230 V and 400 V supply voltages (formerly 220 and 380 V) must not exceed ±5%.

2.5.5 Signal lamp displays

Only 24-30 V loads (signal lamp displays) with a total consumption of 2 W per control output may be used.

2.5.6 Position indicators

Only displays with a switched **NEGATIVE** (common anode) may be used.

Voltage and power 24 V, 2 W per output.
If a number of displays are used, e.g. externally on several landings, the increased output is taken through an addi-tional relay board (EWG), provided this was specified in the order.

2.5.7 Pushbutton panel terminals

The ribbon cable supplied has a connector for connection to the controller (marking X 400). The ribbon cable must be installed in the shaft close to the pushbutton panels, preferably in the cable duct.

A socket is pressed onto the flat cable for each door approximately level with the pushbutton panel. The round cable, supplied with the connector already fitted, is plugged into this socket. The panels are wired according to the colour coding of the individual cores of the round cable as indicated in the circuit diagram.

NOTE

The connectors are marked for the corresponding landings, and must not be used for other landings.

Maximum connections possible in the ribbon cable:

Call button	Single or twin button, depending on design
Call acknowledgement	Maximal 2 Watt insgesamt je Quittierung
Lift in use light	Maximal 24 Watt insgesamt
Key-operated pushbutton	Landing (priority)
Key-operated switch	▮ Fire (evacuation) ▮ System Off ▮ Lock landing calls
Departure arrows	Max. 24 W in total

Wiring alternatives

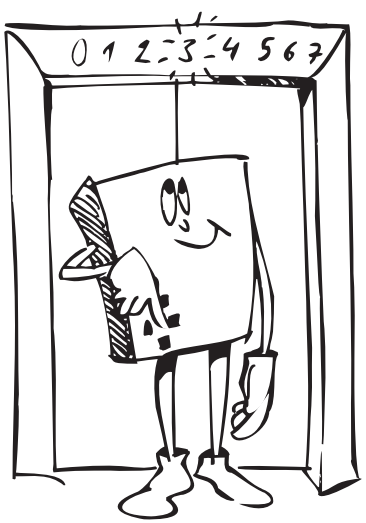
A shaft adapter can be supplied in place of the shaft ribbon cable. Terminal locks are provided in the control cabinet for conventional wiring of the landing display board in this instance.

The cable itself is not included in the scope of delivery.

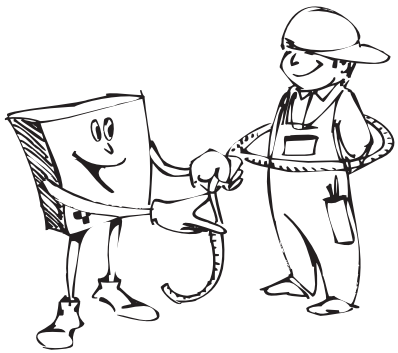
A wire cross-section of 0.5 mm² is adequate.

2.5.8 Other landing displays

All displays not listed above are wired conventionally. The cables for such displays are not included in the scope of delivery. If cables for landing position indicators (e.g. on each landing) are supplied, the displays are wired in parallel, i.e. only one cable is laid in the shaft from display to display.



3 Operation



3.1 Operating personnel requirements

The manual is intended for skilled personnel specially trained in the installation, repair, maintenance, and in particular commissioning of lift systems installed in accordance with TRA or EN81.

CAUTION

Safe installation and commissioning requires that personnel be familiar with the safety instructions contained in this documentation and with the acci-dent prevention regulations applicable at the site of installation of the lift system, and that they be able apply these instructions and regulations.

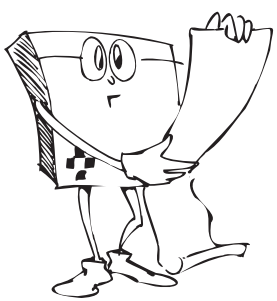
3.2 Basic concepts

The KST program system comprises:

- The read-only program code in the EPROM;
- A configuration in the EEPROM.

Whereas changes to the program necessitate replacement of the EPROM, the system can be adapted to different environments (new door times, for example) on-site from the operator keypad, or from a PC by means of remote data transmission. Settings can be changed as often as necessary and stored in the EEPROM.

They remain stored, even in the event of a power failure, until they are overwritten as required.



In addition to the settings, the controller can be used for a range of functions and measures such as test functions which support maintenance and service, or operational functions which may be required periodically, such as ORIENTATION DRIVE.

All settings and functions are called up from the main menu, and can be protected against accidental or unauthorized access (see “4.7 Protection against unauthorised access”).

3.3 Switching the controller on and off

CAUTION

Before switching on, ensure that the controller is connected properly **(see "2.5 Electrical installation of the controller").**

When it is switched on, the controller performs a self-test. Check the two LED operating voltage displays during this test:

- 5 V: General operating display. Indicates that the computer is operating.
- 24 V: Computer is operating and has enabled 24 V to the power supply.

The operating status is signalled in the display, e.g.:

```
lock cont.close
      tcm
          131245
00          09:50
```

3.4 Operator keypad and operator display

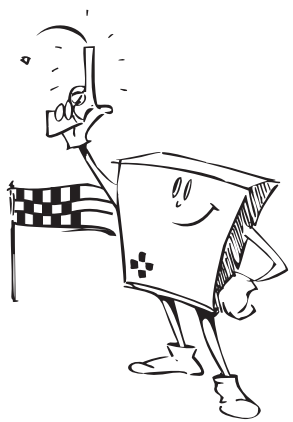
Open the front cover of this manual and refer to the information on the control menu, which provides an overview of the control button functions.

When the controller has been switched on, the main menu is always accessed by

ENTER (middle key).

A help text can be called up for each menu item as follows: Press the ↑ and ↓ keys simultaneously.

Open the back cover and refer to the information on the operator display, which will enable you to recognize the lift and controller states.



3.5 Use of the control menu

All settings of the KST controller are performed using the five control buttons described on the fold-out page.

Perform a setting as follows

- Select the setting
- Set the new value
- Save the new value as appropriate in the permanent EEPROM, so that it is retained in the event of a power failure.

Use of the menu using time and date as an example

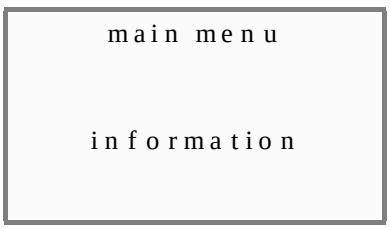
Use of the control menu is described below in stages, using TIME and DATE as an example. This setting procedure is suitable for this purpose as it can easily be ascertained whether all steps produce the desired result.

The time is displayed in the bottom left-hand corner of the operator display. It serves as a basis for a number of internal, time-related functions, such as logging of malfunctions. The display is accurate to one minute. The date is not displayed.

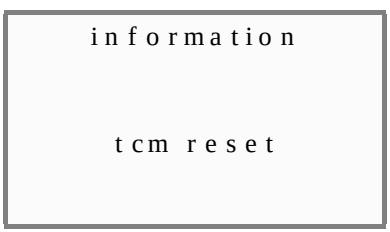
Proceed as follows:

1. Locate the desired function in the menu overview of the fold-out page, and ascertain its menu path.

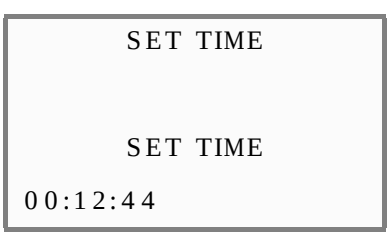
2. Access to the main menu: Press the **ENTER** key. The main menu appears::



3. Switch to the INFORMATION menu level using the ➲ key. The first item of the INFORMATION MENU (TCM RESET) appears:

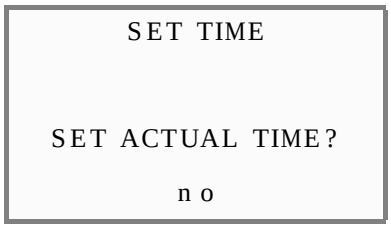


4. Press the ➲ key several times to reach the SET TIME function; press then the YES ❨ key for configuration.



5. Position the cursor using the ➲/➲ keys, and set the time by means of the ➲/➲ keys.

6. Complete the setting procedure using the **ENTER** key. The following prompt appears:



7. Select YES or NO using the ➲/➲ keys.

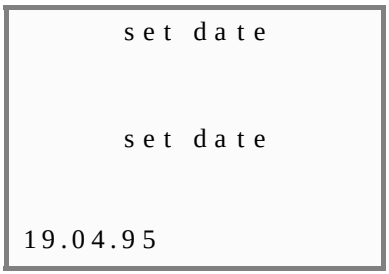
8. Terminate the setting procedure by means of the ENTER key:

- The setting is stored permanently by means of YES ➲;
- The setting procedure is aborted without saving by means of NO ➲.

Setting the DATE

To set the date, proceed in the same way as steps 1 to 4, but use the ➲ key to switch on to the SET DATE function.

This use of the menu is indicated in abbreviated form in each case in the manual:
MAIN MENU > INFORMATION > SET DATE



To set and save the date, proceed in a similar way to steps **5** to **8**, “Setting the time”.

When you have completed these steps, you will be familiar with basic operation of your controller. The procedure for configuring the controller is similar to the above procedure and is described in the next chapter.

4 Configuration and control commands

4.1 Factory settings

The basic configuration is factory-set in accordance with the technical specification of the order. Changes are not normally required in this menu.

Certain settings in this menu cannot be made from the operator keypad, such as “Situation of the doors”. These settings can however be made on-site from a laptop computer by means of the KST Editor program (see “4.8 Configuration by means of the KST EDIT PC configuration program”).

4.2 Configuration requirements

The basic controller settings are stored in the basic configuration. The controller automatically disables the car drive at the beginning of the configuration dialog before these settings are changed.

A condition is however that the car has no drive jobs. If an attempt is made to access the configuration during a drive or with a drive job active, the drive is first allowed to complete.

CAUTION

You are strongly advised to take the controller out of drive mode when the lift is stationary; this can be achieved, for example, by locking landing calls manually. The BASIS CONFIG dialog must not be started until all passengers have left the car.

The status of the installation is always safe when the controller has been taken out of normal drive mode, i.e. when it is in AUXILIARY or INSPECTION mode.

NOTE

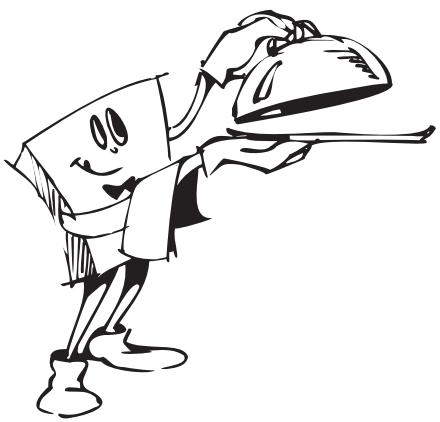
The configuration menu cannot be reached with the controller in EMERGENCY STOP PRIO rity (FIRE) mode.

4.3 Notes on the Reference Section

All items in all controller menus are described sequentially in this chapter in the order in which they are encountered when the menus are paged through. In order to use the references effectively, the user must be familiar with operation of the KST controller (see “3 Operation”).

The Reference Section contains information specific to the menu item stated previously: the start of each description is marked in bold together with the menu marker >, e.g.:

SERVICE > ADJUSTMENTS > START MONITOR



The Reference Section contains information specific to the menu item stated previously: the start of each description is marked in bold together with the menu marker >, e.g.:

> START MONITOR
An explanation of the term is provided in capital letters, e.g.

MONITORING OF CAR MOVEMENT FOLLOWING THE START COMMAND

A comprehensive explanation or particular instruction may then follow. “Setting range” and “Step interval” refer to the range of values which may be entered, e.g.:

- Setting range: 5-10 sec
- Step interval: 1 sec

If the setting range is numeric, the ↑ key increases the value by the step interval, and the ↓ key reduces it by the same interval.

The setting range is indicated together with its units, e.g. sec, m/s, etc. If no unit is given, the value refers to incidences, e.g. frequency of occurrence before a function is triggered.

The references refer to one or more related subjects, e.g.:

- Reference 1: > TCM RESET (referring to a related menu item, as in this case)
- Reference 2: Fault TA-136 Set starting time expired (see “Section”, “Description”)

4.4 The INFORMATION menu

> TCM RESET
RESET OF THE ACTIVATED DRIVE TIME MONITOR

The same effect is achieved by switching the main switch off and back on. TCM RESET is also possible in the TEST menu, for example following a TCM TEST.

The function is executed when any key is pressed.

Reference 1: "7.7 Drive time control monitoring (TCM)"
Reference 2: > TCM TIME

> FAULT DISPLAY
OUTPUT STORED FAULTS

The stored faults are listed in the operator display together with the time, date and floor.

Page through the list using the ⮌/⮎ keys. Return to the standard operator display using the **ENTER** key.

Reference: "9.3 Displayed fault information"

> STORE FAULTS
SAVE THE FAULTS PREMATURELY IN THE EEPROM

The fault log is normally stored in the EEPROM at midnight. This function should be used to secure the fault log immediately before the installation is switched off.

Press the YES 🡅 or NO 🡇 key.

Reference: "9.2.2 Saving faults prior to switching off"

> ORIENTATION
START ORIENTATION DRIVE

Orientation drive compares switching points (signals) installed in the shaft with the controller configuration, and generates shaft information.

YES 🡅 starts orientation drive;
NO 🡇 returns to the standard operator without effect.

Reference 1: "5.3 Orientation drives"
Reference 2: "9 Faults and troubleshooting"
Reference 3:> SHAFT TABLE

> LANDING CALL OFF
DISABLE LANDING BUTTONS

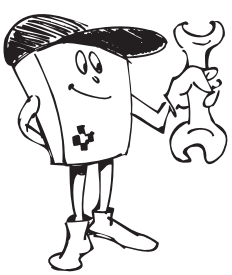
This is one of several means of disabling the landing buttons. When this function is active, the corresponding "Landing call enable" terminal is inactive (see circuit diagram).

The disabled status is indicated by an "x" in line 4, column 10 of the operator display. Switching the main switch OFF/ON re-enables the landing calls.

If the controller is part of a group, this function removes the car from the group.

YES 🡅 disables landing calls
NO 🡇 enables landing calls

Reference: "6.1 Principles of group mode"



> DOOR LOCK
LOCK DOORS

This function is used, for example, during INFORMATION or adjustment work to prevent passengers from entering the car. The controller remains fully operational with the exception of the doors.

CAUTION

Before activating this function, ensure that there are no passengers in the car.

If the doors are locked, the complete operator text is written in small characters as an indication. Switching OFF/ON cancels the door lock.

YES 🡅 locks the doors;
NO 🡇 enables the doors again.

> SET TIME
RESET SYSTEM CLOCK

The time which can be set in the controller has two functions:
a) Indication that the computer is operational
b) Forming the basis of time-dependent functions

The controller has a software-driven clock with date. The seconds count is generated in the controller processor. The clock cannot therefore continue to run when the controller is switched off. The instantaneous time is stored when the controller is switched off, and the clock begins to run again with this time when the controller is switched back on.

NOTE

Without real-time clock the controller must be reset again following a power failure or deactivation.

Perform settings using the 🡅/🡆/🡇/🡄 keys; return to the normal operator display using the **ENTER** key.

Option: In order to avoid the loss of the seconds count when the controller is switched off, a programmable battery-backed real-time clock can be installed in the system. In this case, the actual time and date are guaranteed (recommended solution when time-programmed parking is selected).

Reference: “3.5 Use of the control menu”

> SET DATE
RESET DATEThe day of the week can be added to the date setting (required with parking programmed according to time). This option is switched on when the partial value 4 is active in the menu: > BASIS CONFAB > SYS1. This setting is carried out in the factory when the real-time clock is installed.

The day of the week appears in coded form in the first column of the operator display:

Key:
1: So, 2: Mo, 3: Tu, 4: We, 5: Th, 6: Fr, 7: SaUse the 🡅 key to increase and the 🡇 key to reduce the values. Leave the menu using the **ENTER** key.

Reference: “3.5 Use of the control menu”

> STATISTICS
DISPLAY INTERNAL DRIVE STATISTICS

The controller keeps a statistical record of the drive frequency in relation to the floors and the origin of the calls (car buttons, landing buttons and park drive). These statistics form the basis of "statistical park drive".

The statistical record is output in the form of a list showing each floor and the associated journeys.

The ⇦/⇨ keys can be used to page through the list. Return to the standard operator using the **ENTER** key.

Reference: "5.7 Parking"

> SHAFT TABLE
DISPLAY POSITIONING INFORMATION

The shaft signals read in during orientation drive are stored and output in list form. This function is useful for troubleshooting during initial installation, for example for checking whether all shaft signals have been read in (switched) in the correct sequence.

Use the ⇦/⇨ keys to page through the list. Return to the standard operator using the **ENTER** key.

Reference 1: "2.2.3 Shaft copying, general"
Reference 2: "9.7 Systematic troubleshooting of shaft selector faults"

> INFO
DISPLAYS INTERNAL PROGRAM INFORMATION

This display provides information on the current program version and the EEPROM of the specific system.

NEW LIFT therefore reserves the right to modify and not to document the content of this screen in future.

Press any key to return to the standard operator display.

4.5 The CUSTOMER SERVICE menu

■ **ADJUSTMENT**
(see "4.5.1 The SETTING sub-menu")

> AUTOTEST
CALL UP AUTO TEST DRIVE MENU

Places the controller in a mode in which automatic car calls are generated. These calls can be generated according to different criteria.

The calls are generated continually until CALLS OFF is called up in the test drive menu. The controller has normal operating status during the test calls, i.e. "normal" calls are still possible from the car or landings.

> SERVICE INTERVAL
SET SERVICE INTERVAL

The service interval can be specified both in operating hours and in drives. Select the desired interval type in line 3 of the operator display using the ⇨ RIGHT key.

Setting range:0 ... 1000 operating hours
Step interval:1 hour

Setting range:0 ... 65000 drives
Step interval:1000 drives

Use the ⇧ key to increase and the ⇩ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: "7.9 Maintenance intervals"

> COUNTER RESET
CLEAR THE INTERNAL DRIVE COUNTER

Press the YES ⇧ or NO ⇩ key.

> FAULT RESET
CLEAR THE INTERNAL FAULT MEMORY

NOTE
All stored faults that may be required for troubleshooting will be lost.

Press the YES ↑ or NO ↓ key.

> STATISTICS RESET
CLEAR THE INTERNAL STATISTICS MEMORY

Press the YES ↑ or NO ↓ key.

Reference: "> STATISTICS"

> DEBUG DISPLAY
LINE 2 OF THE OPERATOR DISPLAY BECOMES INFORMATION CHANNEL

The desired information channel can be selected using the ↑/↓ keys.

Use the ↑/↵/↓/↩ keys to perform settings. Use the **ENTER** key to return to the standard operator display.

Reference: "9.6 Systematic troubleshooting"

NOTE
The following special functions are not available during troubleshooting:
- Call to top floor (↑ key)
- Call to bottom floor (↓ key)

4.5.1 The SETTING sub-menu

> SAFETY DEBOUNCE
DELAYS STARTING WHEN THE SAFETY CIRCUIT IS CLOSED FOR THE FIRST TIME

This function prevents a bouncing lock from initiating a motor stop shortly after starting.

Setting range: 0,0 ... 2,5 sec
Step interval: 0,1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: Fault TA-140, "Stopping fault caused by door contact/lock"

> DOOR LOCK DELAY
MAXIMUM DELAY FOR DOOR LOCK

If the car door contact is closed and the door lock fails to close within the set time, the door is opened again and a further closing cycle is started. The process is repeated until the door has closed properly, or until the cam/lock fault count has expired.

Setting range: 2,0 ... 4,0 sec
Step interval: 0,1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference 1: > DOOR LOCK MAX
Reference 2: Fault TA-134, "Lock wait time expired"
Reference 3: Fault TA-135, "Cam/lock fault count expired"

> TCM TIME

DRIVE TIME MONITORING

If the controller fails to receive a positioning signal during a drive within the time set here, drive-time monitoring is activated and the car is stopped, i.e. the next floor must be reached within the time set here.

This status can be cancelled manually only by switching OFF/ON, or from the controller keyboard.

Setting range: 1 ... 45 sec
Step interval: 1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference 1: > TCM RESET
Reference 2: "7.7 Drive time control monitoring (TCM)"
Reference 3: Fault TA-137, "Set time expired"

> START MONITOR

CAR MOVEMENT MONITORING FOLLOWING THE START COMMAND

Monitoring begins when the safety circuit is closed. If the car fails to leave the level position within the set time, the car is stopped (level switch switched off within the shaft range).

The shutdown is cancelled by means of the TCM RESET function or by switching OFF/ON.

Setting range: 5 ... 10 sec
Step interval:1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference 1: > TCM RESET
Reference 2: Fault TA-136, "Set starting time expired"

> CONTACTOR MON

MONITORS THE CLOSED CIRCUIT OF THE DRIVE CONTACTORS (CONTACTORS STATIONARY)

If a failure occures, TCM releases. Only for export or when constructed according to EN81 (Plan group X100, terminal 122).

Switch the function ACTIVE using the ↑ key, and OFF using the ↓ key.

Reference 1: > TCM RESET
Reference 2: Fault TA-129, "Contactor monitoring fault in rest state"

> STAR/DELTA

STAR/DELTA STARTING (VALVE PILOT CONTROL WITH SOFT STARTING)

☑ Can be set with hydraulic drives only.

Setting range: 0,02 ... 5,0 sec
Step interval: 0,02 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

> MOTOR OFF DELAY

MOTOR SWITCH OFF POINT DELAYED FOR HYDRAULIC LIFTS

☑ Can be set with hydraulic drives only.

Setting range: 0,02 ... 5,0 sec
Step interval: 0,02 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

> SPEED CHANGE DLY
DRIVE CONTACTORS CHANGEOVER TIME

Delays the changeover from FAST to SLOW and back on traction lifts without closed-loop control.

Setting range: 0,02 ... 5,0 sec
Step interval: 0,02 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

> CAM DELAY
DELAYS DROP-OUT OF THE DOOR LOCK CAM BY THE SET TIME WHEN THE LEVEL OR DOOR ZONE SWITCH IS REACHED

☑ Is active and can be set with manual doors only.

Setting range: 0,0 ... 4,0 sec
Step interval: 0,1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: > MANUAL DOORS

> DOOR OPEN DELAY
DELAYS OPENING OF THE CAR DOOR BY THE SET TIME WHEN THE LEVEL OR ZONE SWITCH IS REACHED

Setting range: 0,0 ... 4,0 sec
Step interval: 0,1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: "7.1.1 Door times diagrams"

> MIN WAIT CAR
MINIMUM WAIT TIME AT THE FLOOR

This time is evaluated as the starting delay when the car lands following a car call. Starting is thereby delayed by at least this duration, even if a command is present.

When this time has elapsed, the car door begins to close if a landing call is present.

Setting range: 0 ... 60 sec
Step interval: 1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

> MIN WAIT LANDING
MINIMUM WAIT TIME AT THE FLOOR

This time is evaluated as the starting delay when the car lands following a landing call. Starting is thereby delayed by at least this duration, even if a command is present.

When this time has elapsed, the car door begins to close if a landing call is present.

Setting range: 0 ... 60 sec
Step interval: 1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

> LAND CALL ENABLE
LANDING BUTTON ENABLE DELAY FOLLOWING INSP, PRIO

Setting range: 0 ... 30 sec
Step interval: 1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

> CAR CALL PRIO

DIRECTION PRIORITY WITH LANDING CALLS

Should the car loose its direction during landing, the drive direction of the calling push-button is assumed for the duration set here. Callers can therefore issue their desired destinations on the car push-button losing the direction to another landing call.

This is an important time for group optimisation. It is measured from the level time.

Recommended setting: one door OPEN/CLOSED cycle.
Setting range: 0 ... 30 sec
Step interval: 1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

> FAULT SEND DELAY

SHOULD THE CAR FAIL TO START WITHIN THIS TIME FOLLOWING A COMMAND, A START FAULT IS SIGNALLED TO THE FAULT SIGNALLING OUTPUT

This fault is typically triggered by the failure of a door to close. The car is not shut down, i.e. the car is available again as soon as the fault is cleared.

The time begins running as soon as the command is issued, i.e. possibly with the door open. The function is therefore independent of the START MONITOR setting.

With group configurations, the car is removed from the group at this point at the latest.

Setting range:1 ... 20 min
Step interval:1 min

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

> CALL HANDOVER

CALL HANDOVER IN GROUP CONFIGURATIONS

☑ Active only when group mode is set.

This time is started as soon as a call is issued by the group processor. If the time expires without the car starting, the car is taken out of the group and the group call passed on to one of the other lifts by the group processor. An error message is not generated.

Setting range: 0 ... 180 sec (40 sec recommended)
Step interval: 1 sec

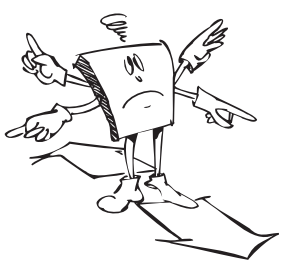
Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference 1: > FAULT SEND DELAY
Reference 2: > GROUP MODE

> ANTI NUISANCE

PREVENTS UNNECESSARY DRIVE IN THE EVENT OF ABUSE OF THE CAR BUTTONS

☑ Possible only on installations with photocell or manual door.



Recognition is achieved by comparison of the photocell breaks or manual door operations with the number of car calls.

Setting range: Bottom landing to top landing:
- Number of floors until the car command is cleared
- Switches the function off

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: “7.8 Anti-nuisance”

> PARKING
ACTIVATION OF THE PARKING/HOMING FACILITY

Press the YES ⇧ or NO ⇩ key.

Reference: “5.7 Parking”

> PARK TIME
TIME UNTIL PARKING (HOMING) IS ACTIVATED

☑ Adjustment is possible only with PARKING activated.

Setting range: 1...15 min
Step interval: 1 min

Use the ⇧ key to increase and the ⇩ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: “5.7 Parking”

> PARKING FLOOR
SETS DESTINATION LANDING FOR PARKING

Setting range:0 ... top landing

Use the ⇧ key to increase and the ⇩ key to reduce the values. Leave the menu using the **ENTER** key.

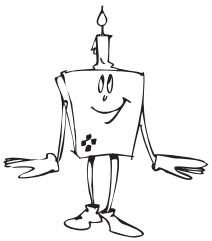
Reference: “5.7 Parking”

> LIFT-OFF FLOOR
DETERMINES DRIVE DESTINATION OF LIFT OFF DRIVE

The lift OFF function can be initiated by means of the key-operated switch over shaft cable X400 through terminal X238 (active = 24 V GND). The function can also be activated via the serial interface; the NEW LIFT KSTMON program is required in this instance.

Setting range: 0 ... terminal floor

Use the ⇧ key to increase and the ⇩ key to reduce the number of floors. Leave the menu using the **ENTER** key.



> CAR LIGHT OFF
DEACTIVATION OF THE AUTOMATIC CAR LIGHT RELAY IN THE IN-SPECTION CABINET/ON TERMINAL X228

When the car doors have closed, the time here begins to run. When the time has expired, the relay drops out and the car light circuit is interrupted.

The car light is switched back on:
- When the door or manual door is opened
- When a command is issued from the floor

Setting range: 0 ... 60 sec
Step interval:1 sec

Use the ⇧ key to increase and the ⇩ key to reduce the values. Leave the menu using the **ENTER** key.

> PHOTOCELL EXTEND
STEADYING OF DOOR REVERSING BEHAVIOUR DURING PASSENGER ENTRY

With photocell extend set, the photocell remains effectively constantly active when interrupted by several people. The door is not reversed during this time.

Setting range: 0,0 ... 10 sec
Step interval: 0,1 sec

Use the ⇧ key to increase and the ⇩ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: “7.1.3 Photocell extension”

> DOOR TIME
CONTROLS CALL HANDOVER TO THE GROUP

☑ Active only with the group configuration switched on.

If photocells, manual doors or door open buttons are active for longer than the time set here, landing calls are not transmitted to the KST controller.

Setting range:0 ... 300 sec (15 sec recommended)
Step interval:1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

> DOORREVERSE MAX
NUMBER OF PHOTOCELL INTERRUPTION BEFORE NUDGING COMMENCE

Setting range: 0 ... 20
Step interval: 1

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: "7.1.3 Photocell extension"

> DOOR NUDGE.TIME
POSITIVE DOOR CLOSING TIME

When this time has expired, the photocell function is deactivated, thereby initiating positive closing of the door

Setting range: 0 ... 300 sec
Step interval:1 sec
0: De-activates the positive closing function

> DOOR APPROACH
PERMITS LANDING WITH THE DOOR OPEN BY ACTUATION OF THE SAFETY CIRCUIT BYPASS RELAY K113

☑ This function is executed only within valid door zones in the shaft.

Press the YES ↑ or NO ↓ key.

Reference: Fault TA-141, "Relevelling fault time-out"

> DOOR PARK STATE
DOORS OPEN OR CLOSED AT END OF DRIVE

Press the UP ↑ or DOWN ↓ key.

(Also applies to park landing.)

> DOOR CHANGE DELAY
DELAYED DOOR CONTACTOR CHANGEOVER BETWEEN OPEN AND CLOSED, E.G. WITH INTERRUPTION OF PHOTOCELL DURING CLOSIN

Prevents a short-circuit with three-phase door drive, e.g. resulting from arcing.

Setting range: 0,0 ... 1,0 sec
Step interval: 0,1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

> REVERS TIME
DOOR OPEN HOLDING TIME FOLLOWING RE-OPENING OWING TO INTERRUPTION OF PHOTOCELL

Setting range: 1 ... 20 sec
Step interval: 1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: > PHOTOCELL EXTEND

> DOOR OPEN TIME
A DOOR LIMIT SWITCH OPERATION IS SIMULATED WHEN THIS TIME HAS EXPIRED, AND THE MOTOR DE-ENERGISED.

Set values only on doors without limit switches; otherwise set to 99 sec.

Setting range: 1,0 ... 99,0 sec
Step interval: 0,1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

> OPEN HOLD TIME
WHEN THIS TIME HAS EXPIRED, THE DOOR BEGINS TO CLOSE IF THE BASIC SETTING IS CLOSED

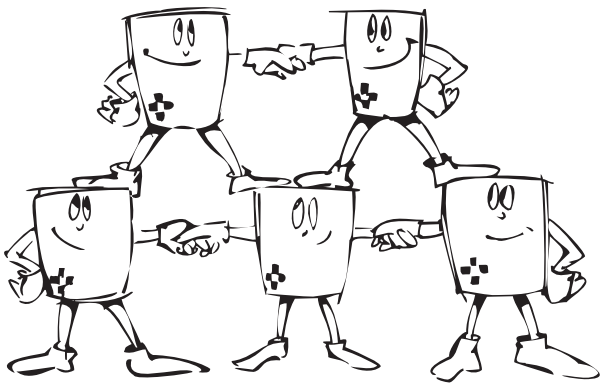
Applies only when a drive command is present. If a command is present, the door is closed as soon as the starting delay has elapsed.

Setting range: 2 ... 99 sec
Step interval: 1 sec

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: > MIN WAIT CAR

4.6 The CONFIGURATION menu



■ BASIS CONFIG
(see “4.6.1 The BASIS CONFIG sub-menu”)

■ LINEAR POSITIONG
(see “2.3 The linear positioning system”)

> PASSWORD
PROTECTION OF CONTROLLER AGAINST UNAUTHORISED ACCESS

Press the YES ↑ or NO ↓ key.

Reference 1: > MENU LOCK
Reference 2: “4.7 Protection against unauthorised access”

> CALLS
ON/OFF SWITCHING OF PRE-PROGRAMMED CALLS

> MENU LOCK
PROTECTION OF CONTROLLER AGAINST UNAUTHORISED ACCESS

Press the YES ↑ or NO ↓ key.

Reference: “4.7.4 MENU LOCK”

4.6.1 The BASIS CONFIG sub-menu

> DRIVE SYSTEM

CONFIGURATION OF MOTOR TYPE

The following types are available:

NO DRIVE
2-SPEED TRACTION
LOHER DCL
ASC
RST
GIEHL
LEISTRITZ
OILDYNAMIC
1-SPEED TRACTION
BERINGER ELRV
LRV FEINNACHST.
F.UMRICHT..LM.FSV
GIEL-FEINNACHST.
ZETADYN-1DV / 1DF
MICOTROL-330 / 320 / 340
DYNAVERT-L
DYNATRON-S

Select the desired type using the ↑/↓ keys. Leave the menu using the **ENTER** key.

> DOOR TYPE

DOOR TYPE CONFIGURATION

The following types are available:

PROGRAMMABLE, e.g. for special doors
MEILLER SPINDEL
KIEKERT
WITTUR 3201
WITTUR RC24
SEMATIC LMDC2010
SIEMENS AT10
RIEDL RTK
I.G.V.
RATHGEBER PUFFER
AS8081

Select the desired type using the ↑/↓ keys. Leave the menu using the **ENTER** key.

> MANUAL DOORS

DOOR CONFIGURATION WHEN MANUAL SHAFT DOORS ARE FITTED

Press the YES ↑ or NO ↓ key.

Reference: > CAM DELAY

> DOOR DECOUPLING

NUMBER OF FAILED COUPLING CYCLES OF A SPINDLE DOOR BEFORE THE INSTALLATION IS RESET; ALL CALLS ARE CLEARED, BUT THE CAR IS NOT SHUT DOWN

☑ Setting possible only when door type = PROGRAMMABLE. Value 3 is set automatically with other door types.

Setting range: 1 ... 10
0: Deactivate function

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference:Fault TA-133, “Decoupling counter expired”

> DOOR LIMIT SW

DOOR CONFIGURATION: DOOR WITH LIMIT SWITCH

☑ Setting possible only with PROGRAMMABLE door type.

Press the YES ↑ or NO ↓ key.

> DOOR DEENERGIZED

DOOR CONFIGURATION: DOOR MOTOR DE-ENERGIZED IN REST STATE

☑ Setting possible only with PROGRAMMABLE door type.

Press the YES ↑ or NO ↓ key.

> CAR DOOR BUFFER

ON OLDER DOOR DESIGNS WITH MECHANICAL BUFFER

☑ Setting possible only with PROGRAMMABLE door type.

Press the YES ↑ or NO ↓ key.

> DEPARTURE ARROW

DEPARTURE ARROWS ACTIVE (ILLUMINATED) WITH DOOR CLOSED

Press the YES ↑ or NO ↓ key.

> EMERG STOP FN

CAR CALLS CLEARED FOLLOWING EMERGENCY STOP; AN EMERGENCY STOP IS GENERATED BY ALL SWITCHES IN THE SAFETY CIRCUIT UPSTREAM OF THE DOOR AND LOCK CONTACTS

Press the YES ↑ or NO ↓ key.

> EMERG STOP MAX

NUMBER OF EMERGENCY STOPS BEFORE THE INSTALLATION IS SHUT DOWN; AN EMERGENCY STOP IS GENERATED BY ALL SWITCHES IN THE SAFETY CIRCUIT UPSTREAM OF THE DOOR AND LOCK CONTACTS

The emergency stops must be generated during one drive. Shutdown is cleared by means of the TCM RESET function.

Setting range: 1 ... 10
0: Function off

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference 1: > TCM RESET
Reference 2: Fault TA-142, “Emergency stop fault count expired”

> DOOR INTERR MAX

NUMBER OF DRIVE INTERRUPTIONS CAUSED BY LOCK/INTERLOCK FAULTS DURING A DRIVE BEFORE THE INSTALLATION IS SHUT DOWN

The shutdown is cancelled by means of the TCM RESET function, or by switching the power supply OFF/ON.

Setting range: 1... 10
0: Function off

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference 1: > TCM RESET
Reference 2: Fault TA-143, "Stopping fault count expired"

> DOOR LOCK MAX

NUMBER OF DOOR LOCK FAULTS BEFORE CAR AND LANDING CALLS ARE CLEARED

All calls are cancelled, but the car is not shut down. Reasons for the car not being started are for example failure of lock or car door contact to close.

Setting range: 1 ... 10
0: Function off

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: Fault TA-135, "Max. number of door lock faults exceeded"

> GROUP MODE

GROUP CONFIGURATION OF LIFTS

Setting range: 1 ... 255
0: No group

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: "6 Group mode"

> FIREMAN SERVICE

CONFIGURATION OF FIREMAN SERVICE (FIRE MODE/FIREMAN MODE)

Setting range: 0 ... 255

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: "7.4 Fireman service control, fire mode and evacuation"

> FIREMAN FLOOR

DESTINATION OF FIRE MODE DRIVE

The fireman function can read in the destination floor by means of hardware or software. If the software function is used, the destination floor is taken from the setting in this menu item.

The door information is coded in the floor by the addition of the following values to the floor:

+64	For door A
+128	For door B
+192	For doors A+B

In this example, the value 136 has been set for door B for destination floor 8.

Setting range: 0 ... 255

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: > FIREMAN SERVICE

> SHORT FLOOR

SPECIFICATION OF SHORT FLOOR MODE

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: "5.6 Short floors"

> FLY TIME
LANDING TIME WITH SHORT FLOOR

☑ Adjustment possible only with SHORT FLOOR

Setting range: 0,02 ... 10,0 sec
Step interval: 0,02 sec

Use the ⇧ key to increase and the ⇩ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: "2.2 Shaft requirements Magnet copying"

> ZONE TIME
DOOR ZONE DELAY ON, AFTER STARTING

Setting range: 0,0 ... 10,0 sec
Step interval: 0,1 sec

Use the ⇧ key to increase and the ⇩ key to reduce the values. Leave the menu using the **ENTER** key.

> RELEVELLING
FINE LEVELLING OF THE CAR (INCLUDING WITH DOOR OPEN)

☑ Can be set with hydraulic drives with active RELEVELLING only.

Enables exact levelling during relevelling of the exact aligned position.

Setting range: 0,02 ... 2,0 sec
Step interval: 0,02 sec

Use the ⇧ key to increase and the ⇩ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: "2.2 Shaft requirements Magnet copying"

> RELEVEL STOP
STOP MOTOR AND VALVE OVERRUN TIME WITH DELAY FOLLOWING LEVELLING

☑ Can be set only if RELEVELLING is active.

Permits more accurate levelling when the level position has been reached.

Setting range: 0.02 ... 2.0 sec
Step interval: 0.02 sec

Use the ⇧ key to increase and the ⇩ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: > RELEVELLING

> DOOR ZONE OFF
DROP-OUT DELAY OF SAFETY CIRCUIT BYPASS RELAY FOLLOWING RELEVELLING

☑ Can be set only if RELEVELLING is active.

Permits more accurate levelling when the level position has been reached.

Setting range: 0,02 ... 2,0 sec
Step interval: 0,02 sec

Use the ⇧ key to increase and the ⇩ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: > RELEVELLING

> I/O-PORT
SETTING OF SPECIAL FUNCTIONS ON CONTROL TERMINALS X216-X223

This adjustment is used for the special configuration and is pre-set as standard

Setting range:0 ... 255

Use the ⇧ key to increase and the ⇩ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: "10.12 Menu CONFIGURATION > BASIS

CONFIG > I/O PORT”

> PRIORITY FLOOR
DESTINATION FLOOR FOR "LANDING PRIORITY", ACTIVATED BY TER-MINAL X220

☑ Appears in the menu only when the I/O PORT value contains the partial value 32..

Setting range: 0 ... Oberste Haltestelle

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference 1: “10.12 Menu CONFIGURATION > BASIS CONFIG > I/O PORT”
Reference 2: > PRIO ATTRIBUTE

> PRIO ATTRIBUTE
DOOR SELECTION ON PRIO (PRIORITY) FLOOR

☑ Appears in the menu only when the I/O PORT value contains the partial value 32.

Setting range:Summe aus
- 1= DOOR A opens
- 2= DOOR B opens
- 4= TERMINAL acknowledged

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference 1: > PRIORITY FLOOR
Reference 2: “10.12 Menu CONFIGURATION > BASIS CONFIG > I/O PORT”

> LANGUAGE
OPERATOR DISPLAY SETTING

Setting range:GERMAN, ENGLISH
(other languages on demand)

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

> SERIAL
SETTING SERIAL INTERFACE

This setting is used for the special configuration, and is preset as standard

Setting range: 0 ... 255

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

Reference: “10.10 Menu CONFIGURATION > BASIS CONFIG > SERIAL”

> SYS1 > ... SYS3 ... > SYS7
FACTORY-STANDARD SETTINGS

These settings are special configurations preset in the factory.

Setting range: 0 ... 255

Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

References: “10.4 Menu CONFIGURATION > BASIS CONFIG > SYS1” up to “10.9 Menu CONFIGURATION > BASIS CONFIG > SYS4, SYS6, SYS7”

4.7 Protection against unauthorised access

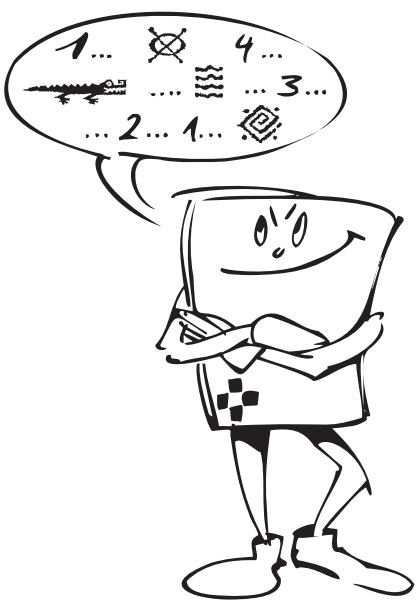
4.7.1 Principles

Access to the menu or the main menu levels can be protected against unintentional or unauthorised access by entry of a four-digit numeric password.

When a password has been set, it is requested when the protected main menu level is opened. This level cannot be accessed if no password or an incorrect password is entered.

Once the protected level has been opened, it remains open until 00.00 (midnight) or until it is closed again by entry of the password.

The controller is supplied set to “0000”. Protection is not active in this case.



4.7.2 Possible passwords

The password always consists of the **first three** digits, which can be selected freely, and **the final** digit, which specifies the level(s) to be protected:

0	No protection
1	Protects CONFIGURATION
2	Protects SERVICE
3	Protects CONFIGURATION and SERVICE
4	Protects INFORMATION
5	Protects CONFIGURATION and INFORMATION
6	Protects INFORMATION and SERVICE
7	Protects CONFIGURATION, SERVICE and INFORMATION
8	No protection
9	Protects CONFIGURATION

Examples of passwords:

- 123**7** consisting of password 123 and protection of all levels;
- 836**6** consisting of password 836 and protection of INFORMATION and SERVICE.

4.7.3 Setting the PASSWORD

KEEP THE PASSWORD IN A SAFE PLACE

Once the password has been set, it may not be possible to access the CONFIGURATION level without entry of the password. The password cannot thereafter be changed or reset.

▶ Call up the following in turn in the main menu:
CONFIGURATION > PASSWORD

The current password appears, e.g.:

0000 means: No password

▶ Write the desired password down.

▶ Using the ➲/➳ keys, position the password over the required digit. Then use the ➚ key to increase and the ➘ key to reduce the values.

▶ Repeat this procedure for all digits until the desired password has been entered.

▶ Leave the menu using the **ENTER** key.

If the subsequent prompt, **"RESET YES/NO"** is acknowledged with the YES ➚ key, the password is saved. Provided the password is not equal to **0000**, it becomes active immediately, and protects the selected level(s).

Keep the password in a safe place, but ensure that it is available to the authorized maintenance personnel.

4.7.4 MENU LOCK

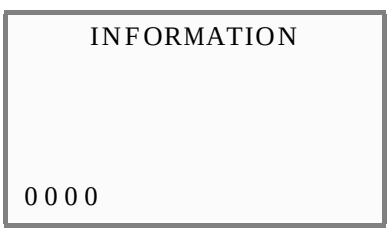
A password must be set before this function can be used. Levels accessed by means of the password remain accessible until 00.00. Protection can be restored in advance by means of the MENU LOCK function.

▶ Call up the following in turn in the main menu:
CONFIGURATION > MENU LOCK

▶ Press the YES ➚ or NO ➘ key. Then use the **ENTER** key to save the setting and leave the menu.

4.7.5 Access with the password activated

If a level is protected by a password, the following information is displayed when the level is selected::



The figure "0000" must now be overwritten with the previously set password. The cursor is initially located on the first digit.

▶ Use the ➚ key to increase and the ➘ key to reduce the values. Confirm the password and leave the menu using the **ENTER** key.

4.8 Configuration by means of the KST EDIT PC configuration program

4.8.1 New functions

The KST EDIT configuration program was written to enable you to configure your KST controller on a PC.

This has the following advantages:

- Data files can be processed more clearly directly on the PC screen.
- Configurations already present in the KST can be transferred, processed and saved again.
- Identical data files need only be generated once. They can then be used repeatedly.
- Data files can be stored safely.

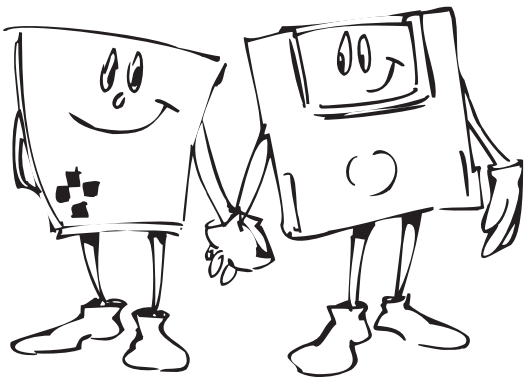
The editor is a DOS program which an be used on virtually any PC or laptop computer.

It is available directly from NEW LIFT on diskette, and may be copied freely by our customers as shareware. A serial data transmission cable is also required; customers may order this cable from NEW LIFT or fabricate it at any time themselves (see “10.10 Menu CONFIGURATION > BASIS CONFIG > SERIAL”).

4.8.2 Installing KST EDIT

The KST Editor can either be started from the diskette or copied onto the hard disk:

- Switch to the DOS operating system level on the PC.
- Insert the KST Editor diskette.
- Change to the disk drive: C:>A:
- Start installation: A:>install A C



Starting the program from the hard disk

- Start the editor from the hard disk by entering KST EDIT and pressing the Return key.

The editor does not initially require an ONLINE connection to the controller. If you wish to transmit or receive data to or from the KST, however, a serial link must be set up through the COM1 or COM2 interface.

The start help program uses COM2, the standard interface for most PCs.

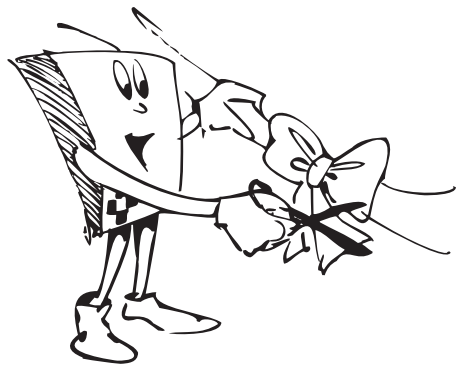
4.8.3 Operation

The KST Editor operation is broadly similar to the MS-DOS shell (refer to the Microsoft MS-DOS user manual and reference) or an SAA operator interface:

- Issue commands using the Alt key, the alphabetic keys A to Z, the cursor keys and the function keys
- Leave menus using the Esc key; call up important information with F1

The program can also be operated by means of a mouse, provided the mouse is installed under DOS.

5 Commissioning and drives



5.1 Preconditions for commissioning

FOR YOUR OWN SAFETY

and in order to avoid unnecessary troubleshooting during commissioning, the following conditions must be met before the first drive is performed:

- **Emergency limit switches fitted, adjusted, and operation tested**
- **Impact buffer fitted**
- **Operational test of inspection drive performed**
- **Operational test performed of all safety circuit switches**
- **Actuating magnets fitted in shaft in accordance with pulse plan**
- **Counterweight balancing performed with 50% load**
- **Ensure that the cabin door blade passes through with sufficient clearance to the interlock defeat mechanism**
- **The car door must be closed**
- **In the case of lifts driving at 1.2 m/s and faster and with closed-loop control, the additional mechanical final limit switches must also be fitted at the terminal landings in order to ensure monitoring of deceleration at the terminal landings.**

5.2 Installation drives

The following points must be checked prior to first drive:

- Rope lengths, undershoot and overshoot
- Stipulated switchgear room height in the shafthead
- Operational test of the safety switches on the car roof
- Adequate deceleration force of the brake
- Shaft access points closed and locked
- Safety catch and speed limiter
- Operational test of the inspection drive pushbutton

CAUTION

- **Operation of the deceleration monitor must be checked and tripping of the monitor set during commissioning. Emergency limit switches, pre-limit switches and inspection limit switches must remain actuated for the complete drive from the beginning of actuation by the cam up to possible impact with the buffer.**
- **An increased risk of accident is always entailed during an installation drive. The local accident prevention regulations must be observed.**
- **Installation drives may be performed only with the inspection drive facilities fitted for the purpose on the car roof.**

NOTE

After an inspection drive, normal operation is only possible following the opening and closing of the safety circuit (fitter steps down from car). If the car is levelled, normal operation is available immedeately.

5.3 Orientation drives

The orientation drive compares the fitted switching points (signals) in the shaft with the configuration of the controller, and generates the internal information table for positioning. The car also measures and records the drive times between all floors.

Should a discrepancy be detected during orientation drive, a fault message is output. Discrepancies include missing or superfluous pulses. In the event of a fault, a question mark appears in column 1, line 4 of the operator display.

An orientation drive is normally required only once, when the controller is started for the very first time. A drive command without a valid orientation drive automatically results in an orientation drive being started.

Proceed as follows to initiate orientation drive:

► In the main menu, call up the following functions in turn: INFORMATION > ORIENTATION DRIVE

”ORIENTATION DRIVE” flashes on the operator display during orientation drive. If the controller subsequently switches automatically to normal mode, orientation drive has been completed successfully.

Malfunctions arising during orientation drive are shown flashing.

NOTE

Orientation drive must be differentiated from correction drive, which always has the next terminal floor as its destination, e.g. following fatal positioning errors.

If short floor is configured according to the shaft, a measuring drive is performed when the orientation drive has been completed (see “5.6.5 Measuring drive with short floor”).

Reference:“5.6.6 The shaft table”

5.4 Normal drives

An orientation drive must always be initiated by the controller as the first drive. Only when orientation drive has been completed properly and without malfunctions may further normal and test drives be initiated from the machine room or the pushbuttons on the car and landing panels.

NOTE TO FIRST DRIVE

The door should be prevented from opening during the first drive by switching off the door drive.

Reference 1: “5.5.3 Lock doors”
Reference 2: 4.4 The INFORMATION menu > DOOR LOCK

5.5 Test drives

Test drives are used for the performance of inspections by the licensing authorities, or for commissioning the lift.

In contrast to normal drives, for which call commands are issued from the landing or car panels, test drives are always initiated from the controller. Calls are issued from a test drive menu which is called up on the operator display.

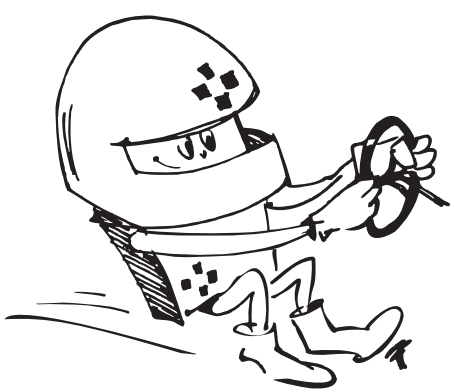
The menu operates parallel to normal operation of the controller. When the menu is activated, test drives can also be performed concurrent with normal drives.

The following test drive types are possible:

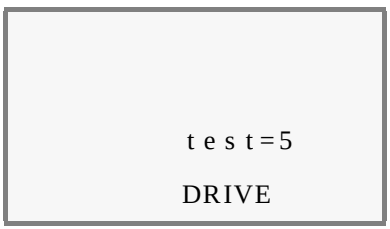
- DRIVE: Standard test drive sets car call in the target floor
- TCM: Test drive with activation of test time monitoring (TCM) after approx. 3 seconds
- FINAL LIMIT SWITCH: Test drive to final limit switches

In addition, the door(s) can be locked with all test drive types. Locking is cancelled automatically when the test drive menu is left.

The menu display encompasses columns 10 to 16 and lines 3 and 4. All other information on the operator display remains displayed.



The test drive menu appears directly in the operator display and is started by means of the ➲ key:



test=5	Signals destination floor 5
DRIVE	Signals “DRIVE” test type

The test drive menu flashes during the display to signal test mode.

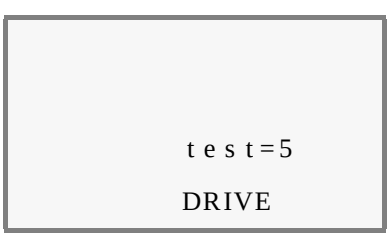
5.5.1 Initiating test drives

The following inputs can be made whilst the test drive menu is flashing:

- ▶ Select the test drive type using the ➲/➲ keys: DRIVE; TCM; LIMIT SW; DOOR; OFF
- ▶ Enter the destination floor using the ⓿/⓿ keys
- ▶ Initiate test drive using the **ENTER** key

The different test drive types are then displayed.

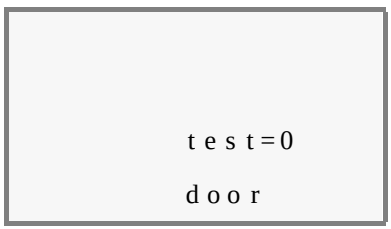
5.5.2 Standard test drive



Drives can be initiated from the machine room with this drive type. The drive is initiated as a car call and is identical to a normal drive.

Further test drives can be initiated whilst the drive is in progress. These are stored, acknowledged and executed as car calls.

5.5.3 Lock doors



To lock out undesired passengers, the doors can be locked prior to execution of the test drive:

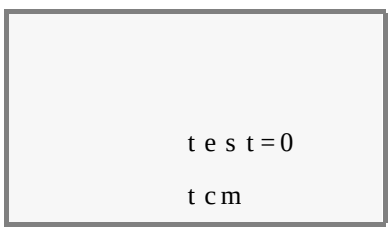
- Press the ↑ key: lock doors
- Press the ↓ key: enable doors

Line 1 is then displayed **small** during the test drive to signal that the doors are locked.

Any test drive type desired can be selected concurrent with this function; the “LOCK DOORS” function remains active.

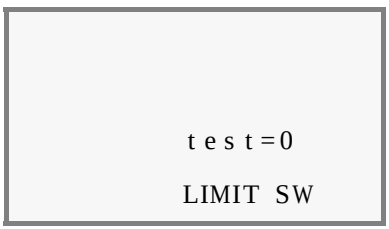
The doors are enabled again automatically when the test drive menu is left.

5.5.4 Testing TCM drive time monitoring



For this function, a drive destination is selected and initiated as for a standard test drive. The internal TCM time is overwritten with approx. 3 secs for this test. This results in a TCM monitoring error being triggered and the car being shut down when the time has expired. When drive time monitoring has been initiated (TCM flashes), resetting is possible immediately by pressing the **ENTER** key.

5.5.5 Testing the shaft final limit switches



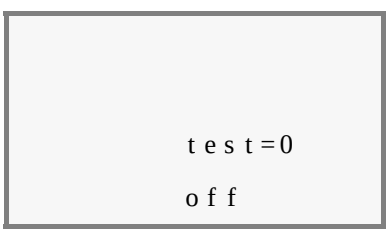
The destination of this drive is the topmost or bottommost floor. The controller executes a normal drive until the car is in the level position, at which point it ignores the level position and moves the car at slow speed to the final limit switch.

During final limit switch test drive:

- The ↑ key sets the KO floor (topmost floor)
- The ↓ key sets the KU floor (bottommost floor)

During the final limit switch test drive, the **ENTER** key must be pressed **as soon as the function is initiated** and held down until the car has reached the final limit switch position (dead man function)!

5.5.6 Leaving the test drive menu



The test drive menu can be left in test drive type OFF by pressing the **ENTER** key.

5.6 Short floors

If the interval between two floors is too small to bring the car to a halt owing to the speed V2 and the required deceleration distance, the landing magnet for the destination floor must be set back by the requisite distance.

This means for example that the DOWN landing magnet for floor 1 is located between floors 2 and 3, and that there is no longer a DOWN magnet between floors 2 and 1. In this case, the interval between 1 and 2 is a short floor.

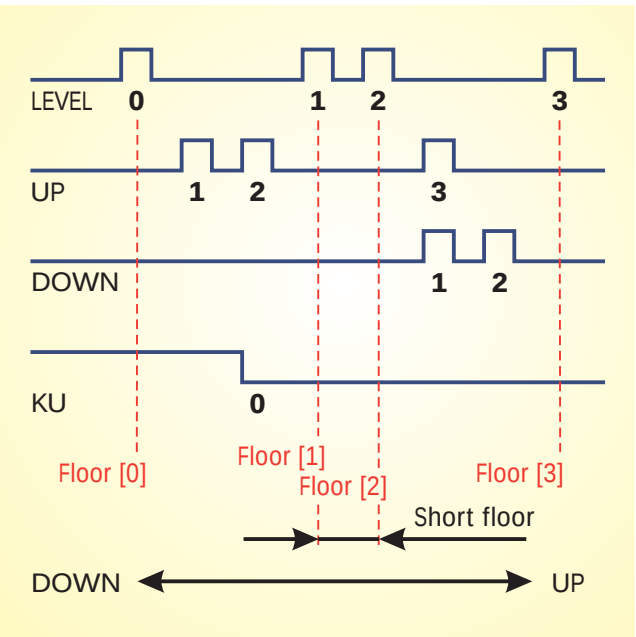


FIG: SHORT FLOOR IN THE SHAFT

5.6.1 Short floors at terminal landings KO/KU

For a short floor at the KU terminal landing, the landing magnet for floor 1 would have to be placed below the LEVEL position of floor 0. This is of course impossible; a short floor drive must therefore be performed from floor 0 to floor 1 and vice-versa.

► In this case, the landing position for floor 0 (KU track) must be placed before floor 1.

The requirements for:

- BISTABLE KU track and
- Unambiguity of the LEVEL position

mean that the KU track for the LEVEL [1] position must be broken.

► In this case, three magnets, from the top downwards: NORTH - SOUTH - NORTH required for correction at the bottom:

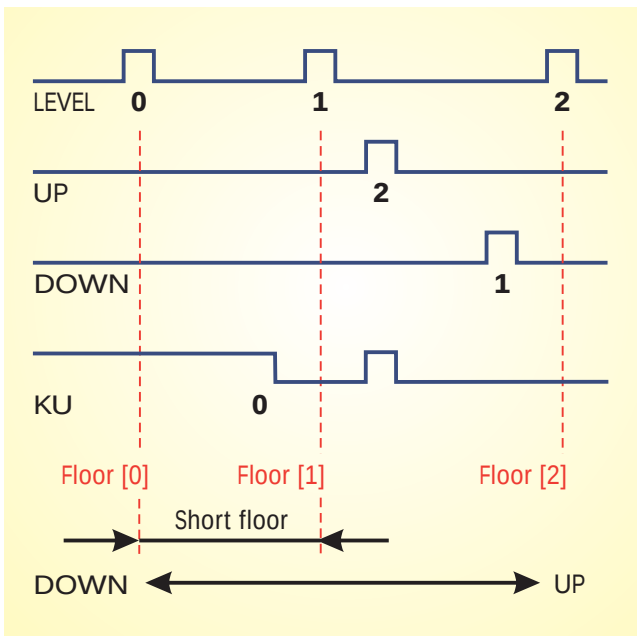


FIG.: SHORT FLOOR AT KU

BISTABLE EXPLANATION

The proximity switch is switched on in the UP direction by the south pole of a magnet and switched off on the same track in the DOWN direction by the north pole of a second magnet.

This principle also applies to the top floor (KO short floor).

5.6.2 Short floor at any floor

During short floor drives, the car starts with speed V1 and switches to speed V0 at the deceleration point V0 (applies only to installations with closed-loop control). In this case, the first UP position is assigned to floor 2.

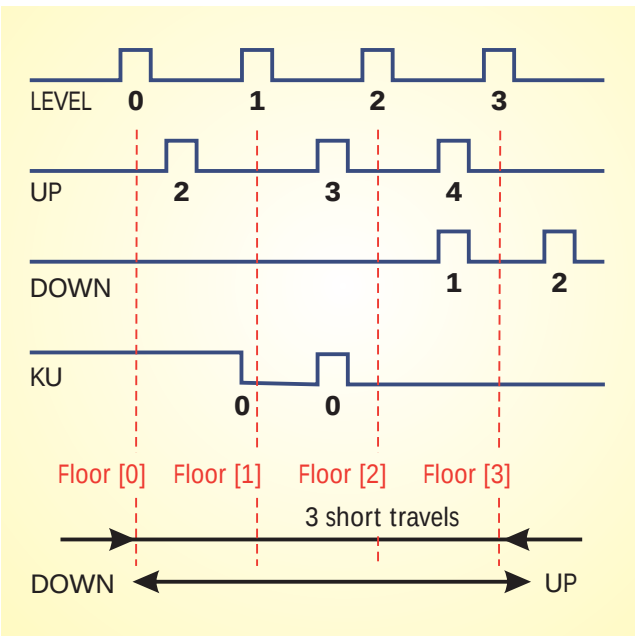


FIG.: SHORT FLOOR AT ALL FLOORS

The deceleration point is determined by the time interval to the LEVEL stop and will be stored as FLY TIME. Proceed as follows:

► Call up the following in turn from the main menu: CONFIGURATION > BASIS CONFIG > FLY TIME

► Use the ↑ key to increase and the ↓ key to decrease the time values [msec]. Leave the menu using the **ENTER** key.

NOTE

No additional magnet track is required for switching off the intermediate speed V1.

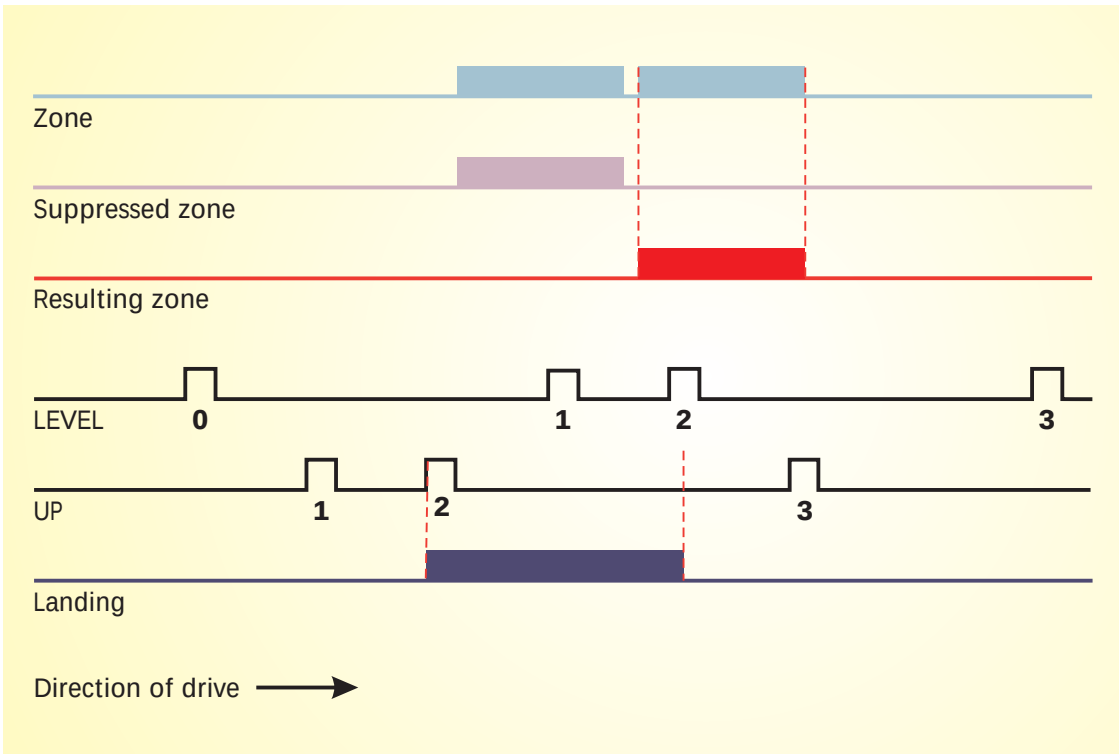
5.6.3 Automatic zone suppression

☑ Version 3.55 upwards

This function is available only if the function “PRE-OPENING DOORS” has been selected (see “> DOOR APPROACH”). This function is illustrated by the following example:

A short floor drive is performed from floor 1 to floor 2. The UP landing magnets for floor 1 and 2 are therefore both ahead of floor 1.

FIG.: SUPPRESSED ZONE



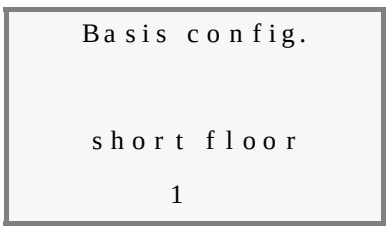
During a drive from 0 to 2, floor 1 is therefore crossed during landing, in the process of which the door zone of floor 1 is detected.

The zone up to floor 1 must be suppressed automatically in this instance in order to prevent the door from opening at floor 1.
A prerequisite for this is a zone gap between floor 1 and floor 2, as shown in the diagram.

5.6.4 Configuring short floors

To configure short floors, proceed as follows:

► Call up the following in turn from the main menu:
CONFIGURATION > BASIS CONFIG > SHORT FLOOR



► Select one of the following settings::

0	No short floor
1	Short floor(s) in the shaft
2	Short floor in KU
3	Short floor in the shaft + KU
4	Short floor in KO
5	Short floors in the shaft + KO
6	Short floors KU + KO
7	Short floors only

“Shaft” is synonymous with “somewhere in the shaft, at least once”;
KU = Bottom correction (bottommost floor)
KO = Top correction (topmost floor)

► Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

5.6.5 Measuring drive with short floor

If a short floor is configured, the time behaviour of the car at speed V1 is automatically measured following the orientation drive. The car drives at speed V1 between the next two floors for this purpose (the car is accelerated after LEVEL and landed on the next possible floor).

Since the measured V2 times are available from the orientation drive, the time interval from starting at V1 to changeover to V0 can be calculated at a later stage for a short floor.

This applies to any floor with the exception of KU and KO. If short floors are set for these floors, additional measurement drives are performed automatically.

If the drive system settings are re-adjusted, a new orientation drive must also be performed.

“MEASURING DRIVE” flashes on the operator display during the measuring drive(s).

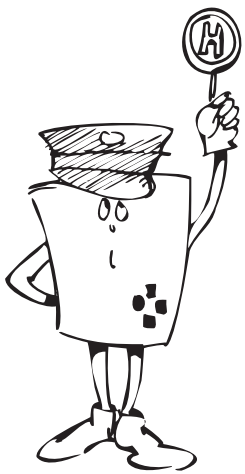
The measuring drives are performed at V2 on installations without closed-loop control (without V1).

5.6.6 The shaft table

The shaft table shows the information stored during orientation drive, namely the UP/DOWN magnets and whether they are present between the LEVELLING magnets.

The exact positions are not saved, nor are the relationships between the UP/DOWN magnets to each other, which are essential for the positioning program.

To display the shaft table, proceed as follows:



▶ Call up the following points in turn from the main menu:: INFORMATION > SHAFT TABLE

Line 2 of the operator display indicates the shaft section.

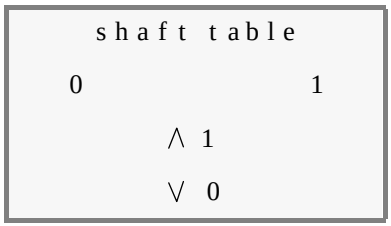
Line 3 indicates the UP and KO magnets in this shaft section.

Line 4 indicates the DOWN and KU magnets in this shaft section.

▶ Press the ⮌/⮊ keys to move the shaft portion by one floor in each case. An overview is displayed of the mag-nets present in the shaft and the resulting conclusions.

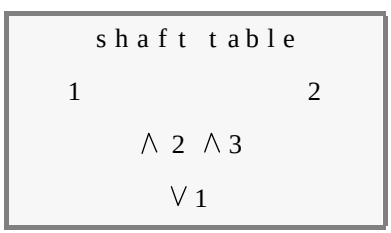
Examples

1)



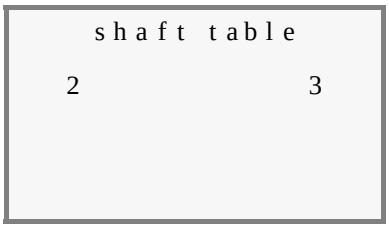
Line 2: Between floors 0 and 1
Line 3: UP magnet for floor 1
Line 4: KU magnet for floor 0

2)



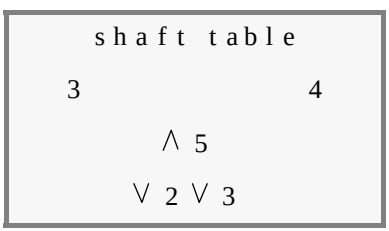
Line 2: Between floors 1 and 2
Line 3: UP magnet for floors 2 and 3
Line 4: DOWN magnet for floor 1

3)



Line 2: Between floors 2 and 3
Line 3: No UP magnet, Short floor
Line 4: No DOWN magnet, Short floor

4)



Line 2: Between floors 3 and 4
Line 3: UP magnet for floor 5
Line 4: DOWN magnets for floors 2 and 3

Conclusion:

Short floor between floors 2 and 3. Two UP magnets and one DOWN magnet between floors 1 and 2; no magnets between floors 2 and 3 (short floor), and two DOWN magnets and one UP magnet between floors 3 and 4.

5.7 Parking

The controller supports automatically activated parking to a parking floor (normally downwards) in accordance with TRA 265.51.

The PARKING FLOOR and the PARK TIME to activation of parking can be set in steps of 1 to 15 minutes.

If the parking floor is a landing which actually exists in the system and the settings described above are employed, this is described as standard parking.

If the parking floor setting is greater than the topmost system floor, statistical parking is activated.

Time-driven parking can only be programmed in the factory. In this instance, the car drives to different preset parking floors during preset times.

If the controller is configured in a group and statistical parking is preselectedt (see “5.7.4 Statistical parking floor”), the car drives to a parking floor determined by the group controller on an hourly basis (☑ from Version 3.5 upwards).

5.7.1 During parking

The operator display indicates “PARK/HOMING” during parking. The door is actuated according to the set door park state when the car lands on the parking floor.

Parking operations can be aborted at any time by new drive commands. The car drives to the new destination floor by the shortest route, and the direction display is switched in.

REVERSING STOP

If the new command is in the opposite direction to the parking direction, the car lands on the next possible floor. The door remains closed and the car drives to the floor from which the call originated.

5.7.2 Activating parking

A number of settings must be performed:

■ Switch on PARKING
▶ Call up the following in turn from the main menu:
SERVICE > ADJUSTMENTS > PARKING

▶ Set PARKING to ACTIVE using the ↑ key. Leave the menu using the **ENTER** key.

and

■ PARKING FLOOR
▶ Call up the following functions in turn from the main menu:
SERVICE > ADJUSTMENTS > PARKING FLOOR

▶ Increase the floor value to floor “n” using the ↑ key; reduce the floor value using the ↓ key. Leave the menu using the **ENTER** key.

and

■ PARK TIME

☑ from Version 3.2 upwards
▶ Call up the following in turn from the main menu:
SERVICE > ADJUSTMENTS > PARK TIME

▶ Using the ↑/↓ keys, set the time to parking in minutes. Leave the menu using the **ENTER** key.

5.7.3 Restarting the internal Park timer

Follow the procedure below to reset the park timer to zero:

- Terminate drive
- Switch the controller OFF/ON
- Switch the priority controller OFF (auxiliary mode, inspection mode, fireman service mode, fire mode, priority car, priority landing)

Car relevelling movements do not restart the park timer. The park timer is held when the priority controller (auxiliary mode, inspection mode, fireman service mode, fire mode, priority car, priority landing) is switched on.

5.7.4 Statistical parking floor

The controller records landing data in a statistics memory with each landing. The parking floor can be established from these statistics. The car then selects as the parking floor the floor from which landing calls are most frequently received.

The function becomes active when

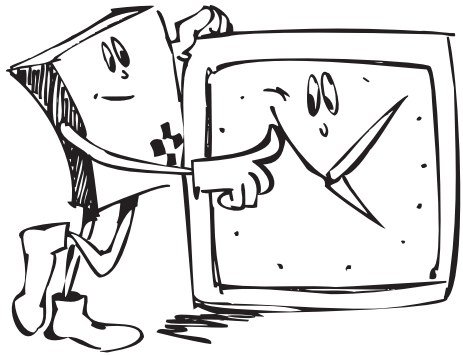
- the set PARKING FLOOR is greater than the highest floor in the system; floor 255 is a suitable value in this instance.
- PARK/HOMING is active and the time, PARK TIME has expired.

The statistical selection of the parking floor can be switched to parking on a specific programmed floor by selecting an existing floor.

5.7.5 Time-triggered parking floor

This menu setting can only be configured in the KST Editor. The function is of use only in conjunction with the real-time clock.

If parking/homing is ACTIVE and the PARK TIME has expired, the car drives to the set parking floor.



The parking floor driveled to is either

a) The parking floor determined by statistical evaluation
b) The parking floor assigned for a specific time
c) The single parking floor previously implemented

Parking/homing according to condition b) or c) is not performed if statistical parking floor is set.

For condition b), Time-triggered parking floor" to be effective, it must be:

1. Programmed in the KST Editor
2. Switched on (> CONFIGURATION > BASIS CONFIG > SYS1 + 8)

(performed automatically in the KST Editor V2.90 and upwards)

If the time condition set for a specific parking floor is not fulfilled, the car drives to the “basic” parking floor (condition c). A specific time is defined for a specific parking floor as follows:

“Parking floor: Day(s), Hour(s)”

One or more days, for example the entire week, may selected for the day. Any interval or several intervals, in steps of one hour, may selected for the hour; the limit is 24 hours.

Examples:

08-10 hours, 12-14 hours, 17-22 hours

Up to five parking floors can be determined simultaneously. The KST Editor is used for programming.

6 Group mode

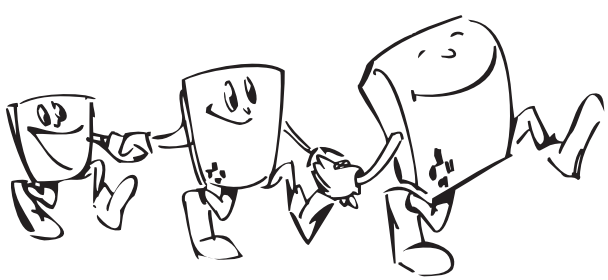
6.1 Principles of group mode

☑ Version 3.0 upwards supports functions for duplex groups.

☑ Version 3.5 upwards further supports functions for triplex and quattro groups.

Group control is undertakten by the GST group processor. Each GST has a serial connection to the KST (interface X701). Calls from landing buttons are presented to all KST controllers in parallel, but are only transmitted from one KST to the GST. This KST has the designation MASTER (MST), all other KSTs are SLAVES (SLV). The promotion to master is selected by the GST on a random basis and can change depending on a situation, e.g. when the master KST is switched to inspection mode.

Each controller processes its car calls normally, but transmits its status continuously to the GST and receives selected landing calls from the GST.



The status of a KST comprises its car calls, its position in the shaft, its direction, and its status (inspection etc.). The GST compares the landing calls from all KST controllers, and decides at the last possible moment which car is to receive the call.

The group supports the parking floor of the car with the aid of a simultaneous statistics function:

If PARK DRIVE is active in the main menu
SERVICE > ADJUSTMENTS > PARK DRIVE

the PARKING FLOOR is set to 255, and the set PARK TIME (1 to 15 minutes) has expired, the group signals to the car the floor from which landing calls are most frequently received. This function is performed independently for all cars.

Should a KST fail (fault, external event, etc.), the remaining KSTs receive all calls, a new master will be assigned automatically – no calls are lost. If group communication is lost permanently, each KST independently receives a proportion of the landing calls after a brief interval, according to the preset group mode.

6.2 Group mode adjustment

The group programs always become active when the set GROUP MODE is greater than 0. The group mode is a number between 0 and 255, in which three functions are encoded:

A Response to landing call enable in the event of a group fault (e.g. communication), (fault: Rd-150)

B Issuing of landing call priority to the KSTs

C LON mode (KSTs have no landing call hardware)

The numbers of the selected functions A and B must be added together to produce the setting.

Function A

Response to landing buttons in the event of a group fault:

Number	Key	Type
1	Landing call enable for (0, 2, 4,...)	duplex
2	Landing call enable for (1, 3, 5,...)	duplex
3	Always without enable	duplex
4	Always with enable	duplex
5	Landing call enable for (0, 3, 6,...)	triplex
6	Landing call enable for (1, 4, 7,...)	triplex
7	Landing call enable for (2, 5, 8,...)	triplex
8	Reserved	-
9	Landing call enable for (0, 4, 8,...)	quattro
10	Landing call enable for (1, 5, 9,...)	quattro
11	Landing call enable for (2, 6, 10,...)	quattro
12	Landing call enable for (3, 7, 11,...)	quattro

Function B

Specification for assignment of priority landing call to the KST:

Number	Key
16	1st priority landing call receiver
32	2nd priority landing call receiver

Note: The “2nd priority landing call receiver” receives the priority call when the 1st landing call receiver is inactive (e.g. inspection etc.).

Function C

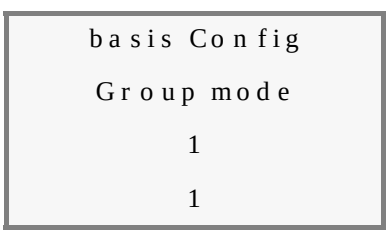
LON mode

The landing buttons are read in and acknowledged by the group processor only. The KST receive no hardware calls for processing (the calls are also supplied by the group with single master)..

Number	Key
128	LON Mode

In the LON mode, the A+B function serves only to switch on the group function. Landing call enable is not con-trolled by the KSTs.

► Call up the following in turn from the main menu:
CONFIGURATION > BASIS CONFIG > GROUP MODE



The numbers of the selected functions **A** and **B** must be added together to produce the setting.

► Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

6.2.1 Setting the call handover time

Should problems be encountered on a KSTwhich prevent further drives (e.g. door lock fault), the call is retrieved from this KST at the latest after “CALL HANDOVER” seconds, and handed over to the next KST.

The time to re-issuing can be set:
▶ Call up the following in turn from the main menu:
SERVICE > ADJUSTMENTS > CALL HANDOVER

The setting is between 10 and 180 seconds (recommended: 40 seconds).

▶ Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

6.2.2 Setting the door time

Observed are:
- Interrupted photocell,
- the active door OPEN button and
- the open manual door

If these times are longer than the set DOOR TIME, the call is retrieved by this KST after “DOOR TIME” seconds, and issued to the next KST.

The time to re-issuing can be set:
▶ Call up the following in turn from the main menu:
SERVICE > ADJUSTMENTS > DOOR TIME

The setting is between 0 and 300 seconds (recommended: 15 seconds).

▶ Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

6.2.3 Floor offset

☑ Version 3.54 upwards

☑ This setting can be configured with the KST Editor only.

Shafts of different lengths can be combined to form a group configuration. The offset is the distance between the shorter shaft and floor [0] of the longer shaft.

Conditions

1. All shorter shafts must be **complete sub-set** of the longest shaft.
2. The offset of the shorter shaft to the longer shaft must **not exceed 7** floors.
3. The shorter shaft must always be SLAVE in the group; this must be taken into account with the setting “1st priority landing call receiver” (Group No. +16).

Normalization

The distance to the shorter shaft can be displayed in normalized form in the operator display of the affected KST.

KST begins counting with the offset instead of “0”.

Valid configuration example:

Display	Not normalized	Normalized	Offset	SLV
KST-A	0123456789	0123456789	0	
KST-B	01234567	12345678	1	X

Unvalid configuration example:

Display	Not normalized
KST-A	012345678
KST-B	012345678

6.3 The group operator display

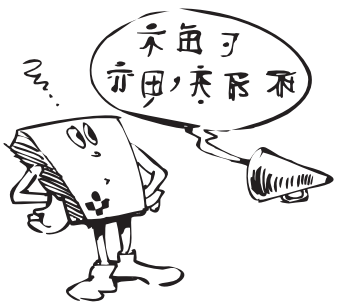
The KST displays its group status by means of a code letter in line 4, column 1 of the operator display.

Value	Key
w	Waiting: KST waits for group connection (switch on)
M	Master: KST with landing call acknowledgement
m	Single master drives without group controller, other KSTs are out of the group (inspection etc.)
S	Slave: KST without landing call acknowledgement
p	Pending: KST wishes to leave group (inspection etc.)
X	Exit: KST has left the group
#	KST / GROUP link broken
@	Brief intermediate status

6.4 Group faults

The following three faults indicate a problem in the link between the KST and group processor:

RD-130 Unknown group command
RD-150 Group communication interruption
RD-151 Unanticipated master -> slave exchange



In the event of a permanent group fault, the landing calls without group processor are issued according to the set group mode.

6.4.1 The group processor

The link to each KST comprises a serial line.

The status of each line is displayed by an LED on the group processor:

- LED lit continuously: connection to KST present
- LED flashing: fault or disconnection on corresponding line

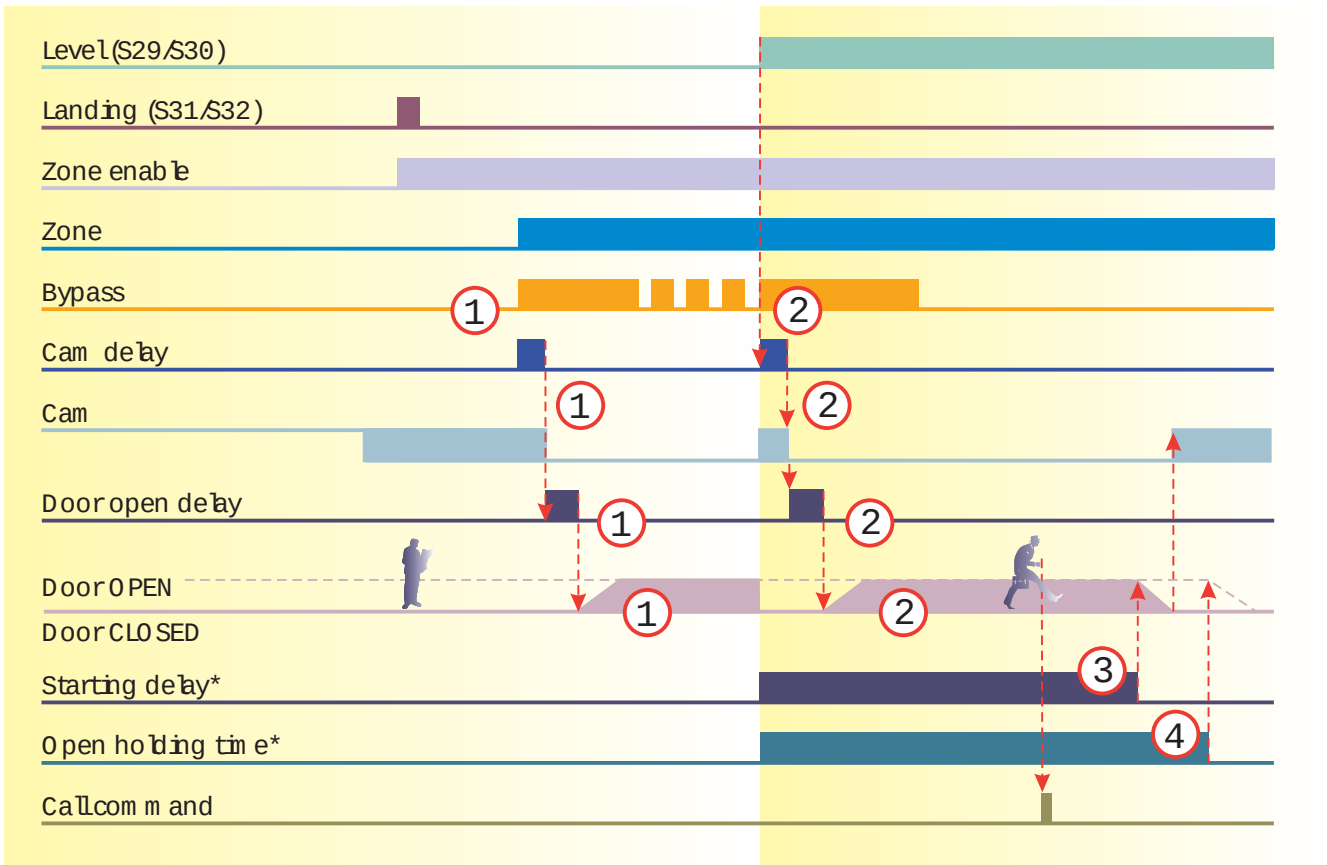
If a durable fault occurs, the group prozessor should be restarted with the RESET key; landing calls may be lost.

A PC program can display the group processes schematically via the integral serial interface (group monitor GS MON).

7 Further functions

7.1 Adjusting the doors

7.1.1 Door times diagrams



1 Opens during approach
2 Opens when level
3 Car starts when command is issued and starting delay time has expired
4 Doors close when open holding time has expired

* Configurable Menu point in ADJUSTMENTS submenu

FIG.: GENERAL DOOR TIMES

7.1.2 Reversing time

On doors without limit switch, the door moves to the OPEN position only if the reversing time is sufficiently long.

On doors with limit switches, the door always moves as far as the limit switch, but does not close until the reversing time has expired.

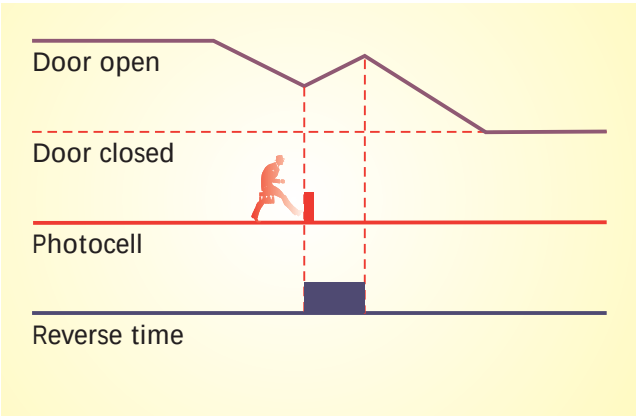
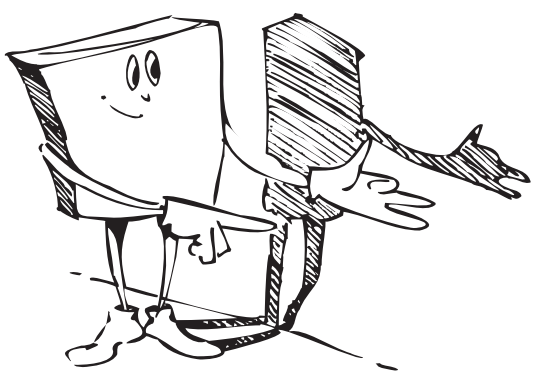


FIG: DOOR REVERSING TIME

- Call up the following in turn from the main menu: SERVICE > ADJUSTMENTS > REVERS TIME
- Set the reversing time in seconds using the ↑/↓ keys.
- Save the setting by pressing the **ENTER** key.



7.1.3 Photocell extension

☑ Version 3.52 upwards

In order to hold the door in reversing mode as passengers are entering the car, a photocell extension time is set. Activation of the photocell is extended artificially for this time so that it remains active when passed through by several passengers, and the doors do not reverse.

This time does not extend the REVERSE TIME, i.e. the door is not kept open for an excessive time. Accordingly, the REVERSE TIME can be set shorter. We recommend that the magnitude of the REVERSE TIME be selected equal to the DOOR OPEN DELAY (up to 4 seconds).

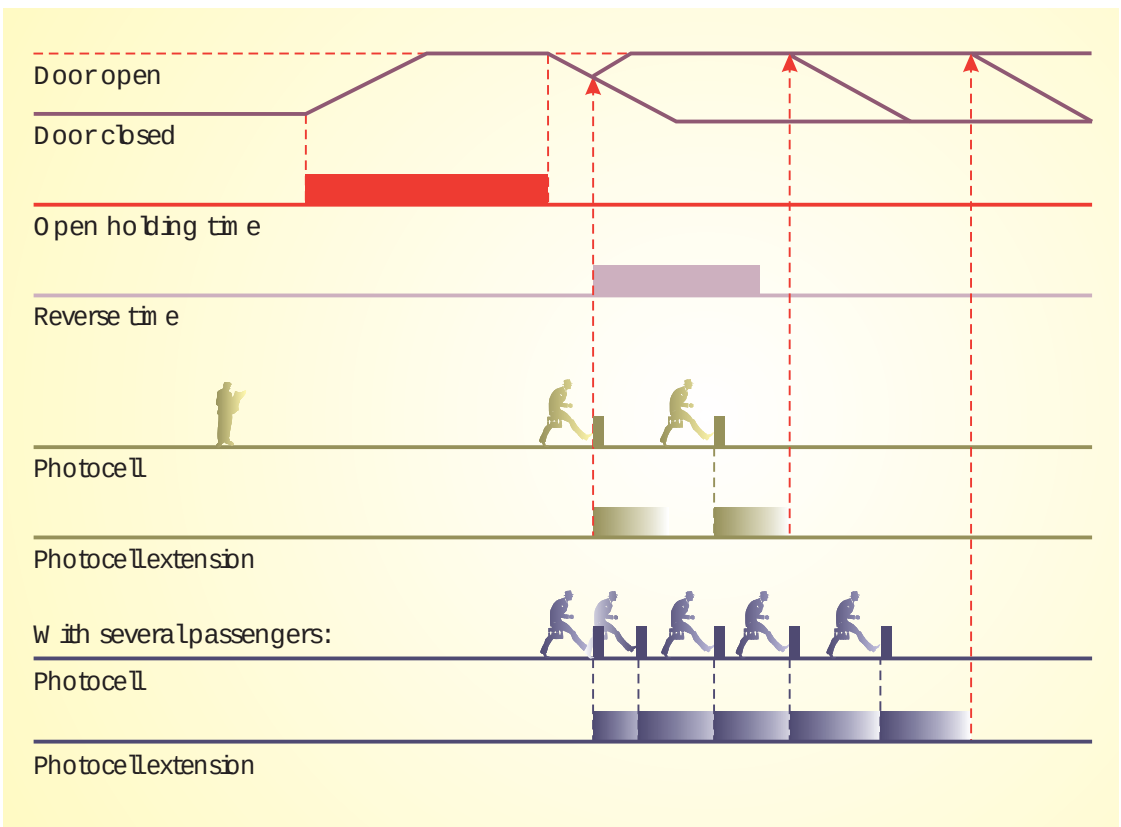
There is only one time for all doors. To set the photocell extension, proceed as follows:

► Call up the following in turn from the main menu: SERVICE > ADJUSTMENTS > PHOTOCELL EXTEND

► Using the ⇧/⇩ keys, extend the extension time in seconds. We recommend that this time be set to approx. 3 seconds, or a little longer if the lift is used by older or disabled persons (the value 0 cancels this time).

► Save the setting by pressing the **ENTER** key.

FIG.: PHOTOCELLS



Only interruptions which last longer than the time set here cause a closing/reversing operation and initiate the reversing time.

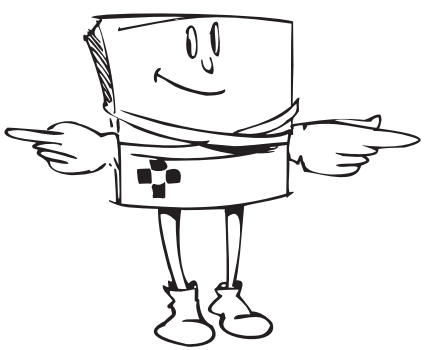
7.2 Direction reservation

Extension of the car direction by the CAR CALL PRIO time. During this time, a passenger can enter the car and issue a car call without another potential passenger on another floor calling the car.

The direction reservation is noted as the car lands. The direction reservation time begins from the level point.

NOTE

In groups, the CAR CALL PRIO should always be greater than the STARTING DELAY.



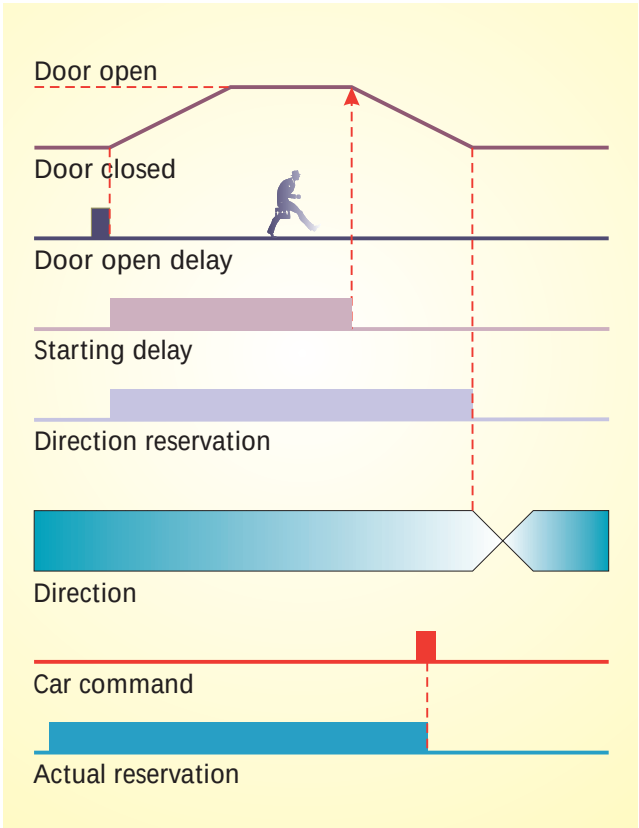


FIG.: DIRECTION RESERVATION FOR CAR COMMANDS

- Call up the following in turn from the main menu: SERVICE > ADJUSTMENTS > CAR CALL PRIO
- Set the direction priority in seconds using the ↑/↓ keys.
- Confirm the setting by pressing the **ENTER** key.

7.3 Door test during inspection

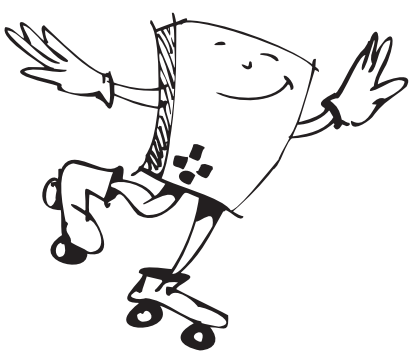
☑ Version 3.55 upwards

According to the mode selected, the door(s) can be moved to OPEN or CLOSED for test purposes. The OPEN and CLOSE door buttons must be used for this purpose.

The test cannot be performed if an inspection drive command has been issued. An inspection drive command has priority, and automatically closes the door(s). During the test mode the reversation is switched off (☑ Version 3.55 upwards).

▶ Setting:

SYS 2	+4



7.4 Fireman service control, fire mode and evacuation

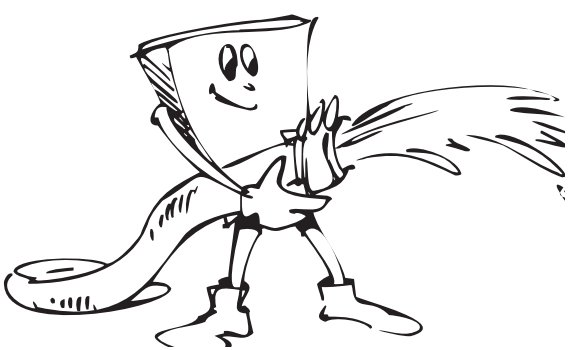
The system supports an evacuation drive to the main floor, and a fireman service control. Whereas the sole task of evacuation drive is to bring the car to a preset main floor and park it there with the doors open, the fireman service control permits operation of the car using the car buttons. A fireman service key-operated switch must be operated in the car for this purpose.

All characteristics described below are transmitted to the controller via the menu. The main floor can be determined in two ways:

A In the landing button shaft cable (this method enables an evacuation switch to be connected in theory on each floor)

B By KST Editor

Which of the two methods is used is determined by the FIREMAN MODE described below.



7.4.1 Setting in the menu

All evacuation/fireman settings can be set by combination of the following parameters:

Value	Function
0	Main floor is identical to FIREMAN FLOOR
1	Main floor is coded in shaft cable
2	Nicht belegt
4	Evacuation from X220 + MAIN FLOOR
8	Reserved
16	Evacuation automatically becomes fireman drive
32	Fireman standard = Hong Kong (otherwise Switzerland, TRA200)
64	Door in main floor OPEN (otherwise CLOSED)
128	Fireman service drive can be switched off on main floor only

Setting example: The number 97 is composed of the following partial values:

1	Fireman standard = Hong Kong
32	Main floor is coded in shaft cable
64	Door on main floor OPEN (otherwise CLOSED)

To carry out the setting, proceed as follows:

▶ Call up the following in turn from the main menu: CONFIGURATION > BASIS CONFIG > FIREMAN SERVICE

▶ Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

7.4.2 Fire mode control (evacuation)

When the fire mode is activated by shaft signal X400255 / Pin 28 (fire mode key-operated switch), the “fire mode drive” operating mode is set in the controller. All other priority controls with the exception of inspection control and auxiliary control are overridden.

The operator display of the controller signals this condition by flashing “FIRE MODE”. Photocells are deactivated; the controller no longer acknowledges calls, and calls which have already been acknowledged are cancelled.

Affected functions

- Landing and car buttons are locked
- Overload and full load recognition is deactivated
- Any photocells, sensor strips, etc. are deactivated

Drive to the main access point

The car drives by the shortest route to the main access point and remains there with the doors open.

If the car is at that point driving away from the main access point, it lands on the next possible floor with the doors closed, then drives to the main access point by the shortest route.

If the car is at that point driving in the direction of the main access point, the drive is extended or shortened so that the car lands at the main access point.

The controller reverts to normal mode when fire mode priority is switched off.

7.4.3 Fireman service mode: Swiss standard (TRA200, SIA 370/10)

When the fireman key-operated switch at the main floor is operated, the car drives directly to the main floor and remains there with the doors unlocked and open (TRA266.52). The car and landing buttons are locked (see also “Fire mode control”).

When the fireman key-operated switch in the car is operated, the controller is set to FIREMAN MODE. All other priority controls, with the exception of inspection and auxiliary, are rendered ineffective (TRA 266.55). At the same time, further drive commands can be issued from the car.

If fireman mode is switched on without prior evacuation to the main access point, the instantaneous floor is entered as the main access point.

The operator display of the controller flashes “FIREMAN MODE” in this status.

Affected functions

- Landing and car buttons are locked
- Overload and full load recognition is overridden
- Any photocells, sensor strips, etc. are deactivated
- Priority controls with the exception of inspection and auxiliary control become inactive

Türmodus

- The “CLOSE DOOR” pushbutton is inactive
- The “OPEN DOOR” pushbutton is inactive

Car buttons

The car buttons are enabled for commands; the first car button pressed activates a drive command.

If the fireman switch is switched ON/OFF, the car command is cleared (TRA 266.52(2)). If the switch is switched ON/OFF during drive, the car command is cleared and the car lands on the next possible floor. A safety circuit interruption during drive does not clear the car command.

Eine Sicherheitskreis-Unterbrechung während der Fahrt löscht das Innen-Kommando nicht!

N O T E

Car commands can only be issued if the fireman key-operated switch is switched on.

Switching off fireman mode

If partial value 128 is active in the “FIREMAN MODE” setting, the “FIREMAN MODE” can only be switched off at the main floor. Operation of the fireman key-operated switch in all other positions only has the effect of clearing any car commands; the operating mode is retained.

7.4.4 Fireman service mode, Hong Kong standard mode

When the fireman key-operated switch in the car is operated (terminal X346, inspection cabinet), FIREMAN MODE is set.

When the fireman switch is operated for the FIRST TIME at a point other than the main floor, an evacuation drive is performed to the main floor (as described for “7.4.2 Fire mode control (evacuation)”).

The operator display of the controller flashes “FIREMAN MODE” in this status.

Affected functions

- Landing and car buttons are locked
- Overload and full load recognition is overridden
- Any photocells, sensor strips, etc. are deactivated

On the main floor:

- Door basic setting during landing: as programmed

On other floors:

- Door basic setting during landing CLOSED

Door control

The car buttons and the CLOSE DOOR and OPEN DOOR buttons are active as described below:

- In the car status DOOR OPEN
  The CLOSE DOOR pushbutton closes the door, provided it remains pressed. The door opens when the button is released. The door remains closed if the CLOSE limit switch is active.

  All car buttons have the same function as the CLOSE DOOR button. No drive commands are accepted from the car buttons.

- In the car status DOOR CLOSED
  The car buttons are enabled for commands: the first car button pressed initiates a drive command.

  The OPEN DOOR button opens the door, provided it remains pressed. The door closes when the button is released. The door remains open if the OPEN limit switch is active, or if the DOOR OPEN TIME has expired on doors without limit switch.

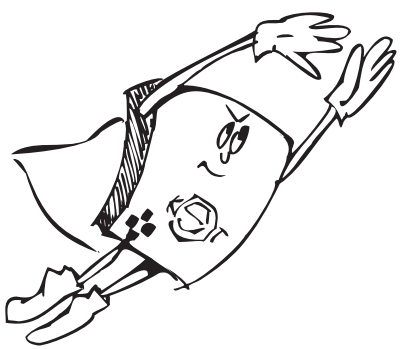
- In the cars status DRIVE
  Further car commands can be issued to shorten the drive. All acknowledgements and commands are cleared upon landing.

  If the fireman switch is pressed again, all car commands are cleared and the car lands on the next possible floor.

Switching off the fireman drive

The “Fireman mode” can be configured such that it can be switched off only on the main floor. In all other positions, operation of the fireman key-operated switch only has the effect of clearing any car commands: the operating mode remains unaffected.

A drive can however be performed only with the signal active (key).



7.5 Combined evacuation drive

☑ Version 3.55 upwards

This drive is initiated from input X220 (I/O port).

A fire mode drive is performed to the set fire mode floor. The door(s) are then held open for the evacuation time.

When this time has expired, a system Off drive is per-formed to the Lift Off floor. The door behaviour on this floor then corresponds to normal system Off behaviour.

Settings:

BASIS CONFIG > SYS2 :+2 (switch on function)

BASIS CONFIG > I/O PORT:+16 (fire mode=X220)

BASIS CONFIG > FIRE MAN SERVICE: +4 (X220 + fi-reman floor)

BASIS CONFIG > FIRE MAN FLOOR:<floor> + <door>

SERVICE > LIFT-OFF FLOOR<floor>

☑ The EVACUATION TIME can now be set only from the KST Editor (presetting: 10 sec).

<door> : The door information is coded in the floor by ad-ding one of the following values to the floor:

+64 for door A

+128 for door B

+192 for doors A+B

7.6 Emergency evacuation

☑ Version 3.57a upwards

An emergency evacuation drive is initiated by an external event. The connection to the controller is made on terminal X217. Drive command readiness is a condition for execu-tion.

If the car is not level, the car is conveyed to the next low-est floor upon activation of the terminal. The motor is driven at the landing speed (Ve).

If the terminal is activated during drive, the motor speed is reduced to the Ve speed immediately and the car is landed level on the next floor. An artificial overload is generated on this floor, thereby ensuring that the door is held open.

The event is recorded by generation of a KB-154 “EMER-GENCY EVACUATION ON” fault.

When terminal X217 has been deactivated, the system is re-set and the software restarted. This event is also docu-men-ted by means of a KB-198 fault “EMERGENCY EVACUATION OFF” and stored.

Settings: None

☑ Emergency evacuation can be programmed on terminal X217 only from the KST Editor.

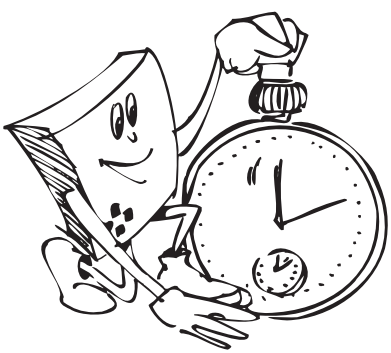
7.7 Drive time control monitoring (TCM)

The controller supports drive time control monitoring according to TRA 262.621(1). When the motor is started, the presence of the positioning signals is monitored. Each new positioning signal restarts the drive time control monitoring with the full monitoring time.

When the car is started, the next positioning signal must reach it within the set drive time. If this time elapses, the motor triggers an emergency stop, and the controller is locked for normal drives. This status is displayed by “TCM” flashing on the operator display of the controller.

N O T E

A TCM is activated when the START MONITOR monitoring time expires (to EN 81).



7.7.1 Configuring the TCM

The time required for activation of the TCM can be adjusted. Any time setting greater than 0 seconds switches the function on. The presetting is 45 seconds.

► Call up the following in turn from the main menu:
SERVICE > ADJUSTMENTS > TCM TIME

► Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

7.7.2 Resetting the TCM

When shut down by the TCM, the installation can be reactivated by one of the following procedures:

► Call up the following in turn from the main menu:
MAINTENANCE > TCM RESET

► Press the YES ↑ key.

- or switch the controller OFF/ON
- or switch the auxiliary switch ON/OFF
- or switch the inspection switch ON/OFF

7.7.3Anti-nuisance

☑ Version 3.55 upwards

The setting SYS2: +1

generates a “Suppress anti-nuisance” signal on terminal X221. This prevents an emergency call unit locking necessary emergency calls to the KST.

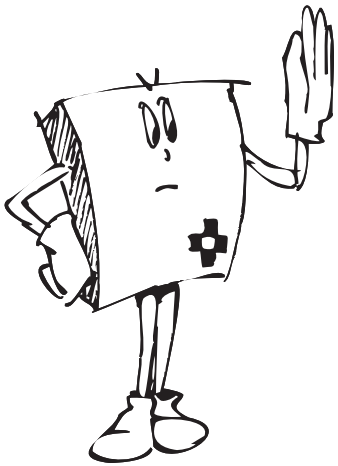
Output:

X221: Active (0 V) under the following conditions:

Drive in progress	No emergency stop, no TCM
Level or in zone	Door OPEN
Door + manual door	Door OPEN and manual door OPEN
Manual door only	Manual door OPEN

On doors with limit switches, limit switch OPEN must be active. On doors without limit switches, expiry of the door open time is the deciding factor.

7.8 Anti-nuisance



The car can be protected against use of the car buttons for nuisance drives. The active photocell and manual doors are taken into account for this function.

If the car has received a drive command from an internal pushbutton and the photocell or manual doors are not activated following the “nth” stop at the latest, the remaining car commands are cleared when the car starts, and the start is aborted. The function does not appear on the operator display.

Switching anti-nuisance On/Off

The number of drives “n” without activation of the photocells which causes tripping of the TCM can be adjusted. The function is active when “n” is greater than 0.

▶ Call up the following in turn from the main menu:
SERVICE > ADJUSTMENTS > ANTI NUISANCE

▶ Use the ↑ key to increase and the ↓ key to reduce the values. Leave the menu using the **ENTER** key.

The function is inactive when “n” is set as 0.

7.9 Maintenance intervals

The system supports monitoring of maintenance intervals based on the motor's drive counter and operating hours counter.

When the interval limit (drive operations/hours) is reached, the operator display flashes. The display continues to flash until it is reset by entry of a new interval.

If the system is equipped with a modem, the event can be signalled automatically (planned from Version 3.6 upwards).

Other control functions are not affected by this setting.

7.9.1 Activation of maintenance intervals

The function is activated when the intervals are set.

► Call up the following in turn from the main menu:
SERVICE > SERVICE INTERVAL >
OPERATING HOURS

or
SERVICE > SERVICE INTERVAL >
DRIVE COUNTER

The service interval can be specified both in operating hours and in drives.
► Select the desired interval type in line 3 of the operator display using the ➲ RIGHT key.

Setting range: 0 ... 1000 operation hours
Step interval: 1 hour

Setting range: 0 ... 65000 drives
Step interval: 1000 drives

Use the ➚ key to increase and the ➘ key to reduce the values. Leave the menu using the **ENTER** key.

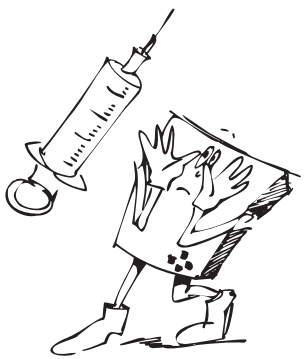
The interval begins with the current count of the drive or operating hours.

7.9.2 Deactivation of maintenance intervals

The function is deactivated when the intervals are reset (interval = 0). Both intervals must be set to 0.

► Call up the following in turn from the main menu:
SERVICE >
SERVICE INTERVAL >
OPERATING HOURS

► and
SERVICE >
SERVICE INTERVAL >
DRIVE COUNTER

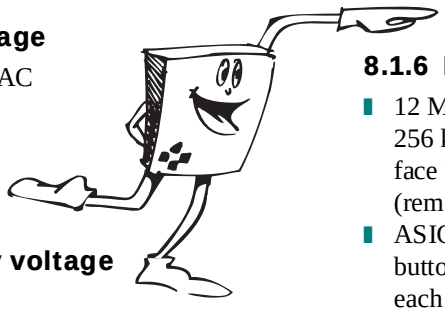


7.9.3 Resetting flashing indicator, starting new interval

Monitoring is restarted (and flashing reset) when a new interval is entered.

8 Technical Data

8.1 COMFORT CONTROLLER KST



8.1.1 Safety circuit voltage

230 V AC - 115 V AC - 48 V AC

8.1.2 Signal voltage

24 V DC

8.1.3 Electronics supply voltage

10 or 24 V DC

- Modular construction, all modules conform to B.S.
- LED displays for preselection relays and 5 V and 24 V power supply

8.1.4 Man-machine interface

The safety circuit, states and messages, selection signals, drive direction, landing status and destination floor, drive counter and time are displayed on a super-twisted four-line LCD display with 16 characters per line. User-guidance is provided in plain text in German or English through five control buttons.

Further languages are available upon request. Help texts are displayable on-screen. Help programs are provided for rapid commissioning and diagnostics. All settings can be configured on-site.

8.1.5 Basic design

All functions for operation in accordance with EN/TRA/SIA/ÖNORM standards are provided as standard for rope and hydraulic control.

8.1.6 Features

- 12 MHz CMOS microprocessor, up to 256 kbyte RAM, 256 kbyte EEPROM and 2 MB EPROM RS 232 interface for laptop computer, PC or modem (remote data communications)
- ASICS for I/O- und CPU Connection16 floors with two-button control or 32 floors with single-button control; each call can be programmed individually as Stop, Up or Down
- Outputs for floor display (HEX, GRAY or discreate up to eight floors)
- 2 door drives; parameters can be programmed individually for each door (alternate sides, through-loading, three selective modes)
- 14 drive types, selectable by software
- Short drive as desired
- Overlapping stopping distances as desired
- Car/landing priority on all floors
- Short-circuit-proof outputs
- Fire service and fire mode control
- System Off, floors as desired
- Overload, full load and minimum load settings
- Freely programmable homing drive
- Automatic car light
- Fault memory with up to 100 entries in chronological order, with floor status
- Fault signalling via RS 232 interface or freely programmable output
- Drive operating hours counter with maintenance reminder via RS 232 interface or freely programmable output
- All inputs/outputs electronically fused and designed for fault diagnostics
- Statistical park drive according to landing call frequency
- Engaged/Out of operation display

- No orientation drive necessary upon restoration of power supply

8.1.7 Options

- Real-time clock with date (for time-dependent control operations)
- Extension module for up to 40 floors with two-button control
- 24 inputs/outputs for non-standard programming (traffic-light controller etc.)

- Module EWG for floor position indication, landing display, departure arrows, landing gong
- Group controller GST for duplex, triplex or quattro
- Commissioning and diagnostics programs
- Modem interfacing and remote diagnostics

8.1.7 Dimensions KST

310 x 233 x 40 mm

8.1.9 Drive programs

KST

- FP-REGE for rope drives with three-phase control
- FP-FU for rope drives with frequency control
- FP-BERI for Beringer hydraulic ELRV
- FP-FSV for frequency control for LM-FSV

8.2 DP 155.501 power supply unit

8.2.1 Input voltage

230 V/AC +15% 47...63 Hz

8.2.2 Signal voltage

24 V/4 A, can be connected in parallel

8.2.3 Electronics voltage

- 10 V/1.5 A, primary switched-mode, no-load overvoltage and short-circuit proof
- IEC 801-VDE O160-VDE 0551 Snap-on fitting on DIN TS 35 mounting rail

8.2.4 DP 155.501 dimensions

130 x 75 x 115 mm

8.3 INSP inspection box

- 180 terminals for signal voltages (car calls, floor displays, etc.)
- 39 230/400 V modular terminals (safety circuit, door motors, etc.)
- 11 cable entries
- Pre-wired emergency-stop button
- Inspection On/Off, Up/Down, Slow/Fast pre-wired
- Socket pre-wired

Extension modules are fitted in the inspection cabinet for installations with more than 8 calls.

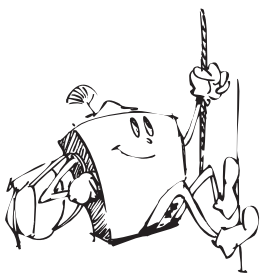
8.3.1 INSP dimensions

40 x 300 x 100 mm

8.4 Shaft equipment

Pre-fabricated to customer's requirements.

- 56-pole hanging cable, can be plugged in to all 24 V signals
- Flat cable with connector for the controller landing indicators; cable ends are prepared for buttons
- Switching console contains six proximity switches for detection of the car position
- Sensor for linear positioning in conjunction with LIK



9 Faults and troubleshooting

9.1 Basic concepts

Any events deviating from the anticipated events are considered below as faults. A fault may be recognized easily, for example when a door fails to close within the specified time.

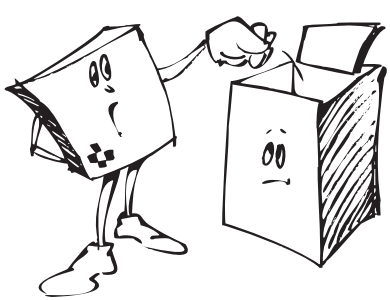
Troubleshooting is considerably more difficult when an event involving an unexpected floor arises, which could point to a major mains supply interference.

Faults are displayed flashing in line 2 of the operator display for approximately three seconds, and are then transferred to a fault memory. The last 100 faults are always retained in this memory. When the memory is full, the earliest fault entered is cleared from the memory and overwritten by the latest fault.

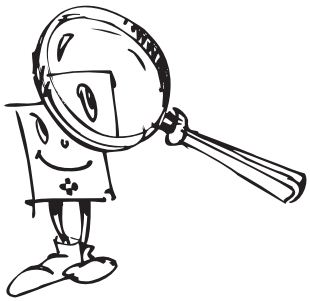
9.2 The fault memory

The fault memory is a volatile memory (RAM), the content of which is lost when the power supply is switched off. In order for faults to be stored over longer periods (up to 100 faults), the entire contents of this memory are written to a non-volatile memory each day at midnight.

When the system is switched on, the fault memory is loaded from the non-volatile memory and restored to the condition which it was in when it was switched off.



9.2.1 Displaying the fault memory



The recorded faults can be paged through in the operator display.

Each fault is displayed with its own characteristics.

▶ Call up the following in turn from the main menu: INFORMATION > FAULT DISPLAY

▶ Use the ➲ key to display the next fault and the ➲ key to display the previous fault. Return to the normal operator display using the **ENTER** key.

Example:

```
nr=3      (6)
ID=mon    er=129  4
08:12:36  02.01.95
POWER FAILURE
```

Content

Fault 3	(of 6 recorded faults)
Cause of fault	MON (see Section B3)
Fault number	129 on floor 4
Time of occurrence	08:12:36
Day of occurrence	02.01.1995
Short description	POWER FAILURE

9.2.2 Saving faults prior to switching off

☑ Version 3.56 upwards

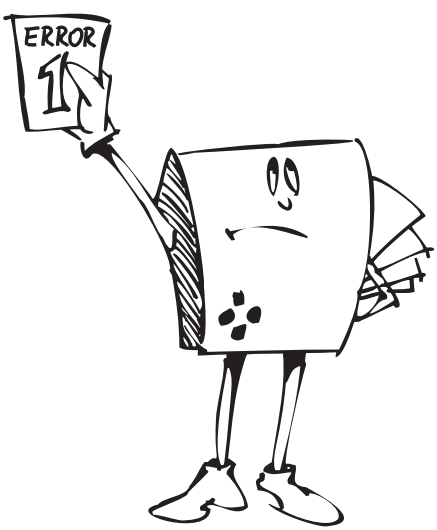
In order to save fault information which would be lost if the installation were to be switched off, the contents of the fault memory can be written manually to the non-volatile background memory.

▶ Call up the following in turn from the main menu:
INFORMATION > STORE FAULTS
▶ Press the YES 🎧 key.
▶ Activate storing by pressing the **ENTER** key.

9.2.3 Clearing the fault memory

The fault memory can be cleared at any time.

▶ Call up the following functions in the main menu:
SERVICE > FAULT RESET
▶ Press the YES 🎧 key.
▶ Activate resetting by pressing the **ENTER** key.



9.3 Displayed fault information

Each fault is stored and displayed with four items of information:

- Fault number
- Program module
- Date and time
- Additional info

9.3.1 Fault numbers

Fault numbers have values between 128 and 255. The values 0 to 127 are reserved for internal events. From Version 3.56 upwards, these internal events, which are for information purposes only (e.g. change of priorities), can be written to the fault memory. These events can be recognized by having fault numbers lower than 128.

The numbers 128 to 191 fall into the category of “non-fatal” faults and 182 to 255 into that of “fatal” faults. The latter are always caused by major faults in the system. They are identified as faults when the program status and the data are considered suspect. A program restart is performed in this case.

Faults of this kind are entered in the fault memory, but are not included in its normal display. As part of long-term statistics, however, they may provide the manufacturer (or the operator performing troubleshooting) with an indication of the source of electrical faults. These faults are displayed when > SYS1 contains the partial value “1”.

A system restart may cause calls to be lost, and in ex-treme cases the car to be stopped. The software stops the car however only when LEVEL.

9.3.2 Program module

The program module indicates the location of the detected fault:

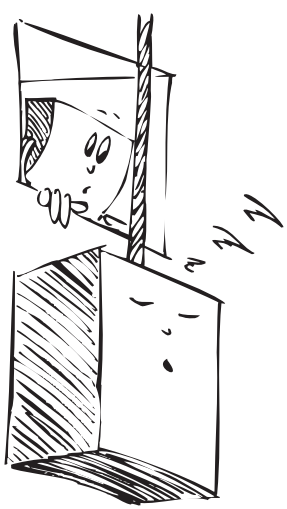
MON	Operating system
IP	Call acquisition
RD	Call processing
KB	Car
TA	Door and drive

9.3.2 Date and time

The date and time functions enable the point in time at which events occur to be determined.

9.3.3 Additional info

This information indicates the floor on which the fault occurred. Other information is also provided, such as the internal number of the pushbutton in the case of an overload or short-circuit on the landing pushbuttons..



9.4 Detailed fault information

9.4.1 Operating system faults

MON-ERROR, key

128	Warm start of computer (NMI) following fault
129	Power failure or power supply fault: OFF/ON
130	Fault in save function of EEPROM
131	24 V failure
132	24 V measured (following MON ERROR 131)
141	Checksum fault on external program
142	Checksum-Fehler von externem Programm
143	Run-time fault on external program
150	Ring buffer overflow
151	Data transfer initialization fault

N O T E

All remaining MON-ERRORs are internal faults which only occur in the event of a major malfunction. Please contact the manufacturer if these errors often occur..

192-255	Internal failure

9.4.2 Faults in call acquisition

IP-ERROR, key

160	Short circuit on call acknowledge lamp. The additional info indicates the internal number of the landing pushbutton bit.
161	No response to short-circuit test on landing call acknowledge lamp. Possible overload on landing call accept lamp. The additional info indicates the location of the car during the short-circuit test.

NOTE

The IP-ERROR faults shown below are internal faults which only occur in the event of a major malfunction. Please contact the manufacturer if these errors often occur.

192-255	Internal failure

With fault IP 160: Conversion of the additional info to landing pushbutton number

xx	Coded landing pushbutton number
ZWS	Twin button mode
ESR	Single button collection mode

xx	ZWS	ESR	xx	ZWS	ESR
0	[0-DOWN]	0	**32**	16-DOWN	40
1	1-DOWN	1	**33**	17-DOWN	41
2	2-DOWN	2	**34**	18-DOWN	42
3	3-DOWN	3	**35**	19-DOWN	43
4	4-DOWN	4	**36**	20-DOWN	44
5	5-DOWN	5	**37**	21-DOWN	45
6	6-DOWN	6	**38**	22-DOWN	46
7	7-DOWN	7	**39**	23-DOWN	47
8	0-UP	8	**40**	16-UP	48
9	1-UP	9	**41**	17-UP	49
10	2-UP	10	**42**	18-UP	50
11	3-UP	11	**43**	19-UP	51
12	4-UP	12	**44**	20-UP	52
13	5-UP	13	**45**	21-UP	53
14	6-UP	14	**46**	22-UP	54
15	7-UP	15	**47**	23-UP	55
16	8-DOWN	16	**48**	24-DOWN	
17	9-DOWN	17	**49**	25-DOWN	
18	10-DOWN	18	**50**	26-DOWN	
19	11-DOWN	19	**51**	27-DOWN	
20	12-DOWN	20	**52**	28-DOWN	
21	13-DOWN	21	**53**	29-DOWN	
22	14-DOWN	22	**54**	30-DOWN	
23	15-DOWN	23	**55**	31-DOWN	
24	8-UP	24	**56**	24-UP	
25	9-UP	25	**57**	25-UP	
26	10-UP	26	**58**	26-UP	
27	11-UP	27	**59**	27-UP	
28	12-UP	28	**60**	28-UP	
29	13-UP	29	**61**	29-UP	
30	14-UP	30	**62**	30-UP	
31	15-UP	31	**63**	31-UP	

9.4.3 Faults in call processing

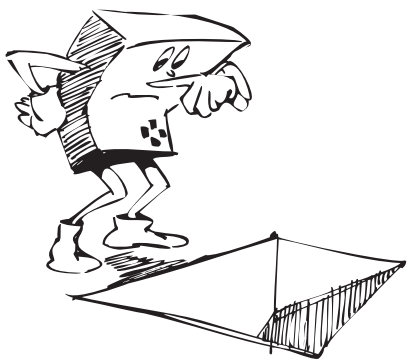
RD-ERROR, key

128	Door fault while landing (may be a problem following an emergency stop)
129	Hardware fireman address not readable (may be incorrectly configured)
130	Group transfer unknown (fault on the line, or incorrect group version)
131	Group: no send buffer available
134	Destination floor greater than KO (top) floor
135*	Car does not accept message (may be a problem following an emergency stop in the landing zone)
136	Emergency stop ON in limit switch mode
137	Emergency L.S. mode
138	Emergency stop OFF
150	Group communication break
151	Group: unexpected change of mst/slv
152	Get ring buffer (group)
153	Put ring buffer (group)
154	Group: illogical door command

NOTE

All subsequent RD-ERRORs are internal faults which only occur in the event of a major malfunction. Please contact the manufacturer if these errors often occur.

192-255	Internal failure



9.4.4 Shaft selector and relevelling faults

KB-ERROR, key

130	Irreparable positioning fault
131	KST/LIK: no answer to CAL start
132	KST/LIK: no answer to drive message
133	KST/LIK: unknown CAL end code
134	KST/LIK: not configured
135	KST/LIK: table transfer, time out
140	Start: drive
141	Shaft initialization suspect
144	Door lock fault
148	Evacuation switched on

The orientation drive faults 150 to 158 are evaluated according to the set KO floor and the short floor setting.

150	Orientation drive: too many LEVEL signals
151	Orientation drive: too few LEVEL signals
152	Orientation drive: too many UP signals
153	Orientation drive: too few UP signals
154	Orientation drive: too many DOWN signals
155	Orientation drive: too few DOWN signals
158	Orientation drive: unknown fault

160	Invalid car destination
161	Initialization error (orientation)
167	Orientation order during orientation drive
168	Unexpected motor movement
169	No measuring drive possible if KO < 4
170	Unexpected movement out of LEVEL or ZONE
171	Short floor fault
172	Short floor fault
173	Zone fault (ON)
174	Zone fault (OFF)
175	LEVEL COUNTER not odd (can be corrected)
176	LEVEL COUNTER not odd (can be corrected)
177	Counter not found, CORRECTION requested
178	Counter contradiction
179	No UP/DOWN change (slipped?), CORRECTION requested
180	Counter bounce, positioning operation negated
181	KO safety violation (possible only with short floor drive to KO)
182	Between floors: UP counter out of valid range
183	KU safety violation (possible only with short floor drive to KU)
184	Between floors: DOWN counter out of valid range
185	LEVEL counter out of valid range, sets EMERG. STOP, stops on next floor
192	CORRECTION performed, system restarted
199	KST/LIK calibration error

NOTE

The KB-ERRORs below are internal faults which only occur in the event of a major malfunction. Please contact the manufacturer if these errors often occur.

193 - 255	Internal failure

9.4.5 Door and drive faults

TA-ERROR, key

129	Contactor monitoring fault in rest state
130	Door monitoring time - door A not closed
131	Door monitoring time - door B not closed
133	Door decoupling counter expired
134	Retiring cam timeout
135	Retiring cam failer counter expired
136	Starting problem - lubu timeout TCM
137	Drive run-time monitoring: TCM timeout without movement of motor
138	Unexpected landing in KO/KU (shaft selection problem)
139	Unexpected landing (shaft selector problem)
140	Stop during motion (open door contact/lock contact)
141	Lift out of level or zone; relevelling fault timeout; : motor stopped
142	Emergency stop counter expired
143	Stop during motion counter expired
144	Decoupling fault - door A
145	Decoupling fault - door B
149	Relevelling fault (bypass time) timeout
150	Unexpected levelling interrupt (shaft selection problem)
151	Unexpected landing interrupt (shaft selection problem)
154	Drive abort due to door contact/lock contact
160	Photocell reversing counter timeout expired
170	Motor problem: brake not opened (LM-FSV)
171	Motor problem: brake not closed (LM-FSV)
172	FORCED STOP ON via terminal X219
173	FORCED STOP OFF via terminal X219

N O T E

All TA-ERRORs below are internal faults which only occur in the event of a major malfunction. Please contact the manufacturer if these errors often occur.

147, 148	Internal failure
152, 153	Internal failure
192 - 255	Internal failure

9.5 Events

☑ Version 1.56 upwards

An event logging can be switched on in addition to the fault logging.

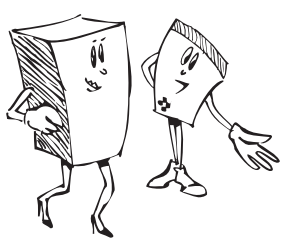
This is achieved by setting bit 6 in the menu CONFIGURATION > BASIS CONFIG. > SYS2 (adding value 64).

Events are thus also written into the fault memory. They are distinguished from faults by having numbers smaller than 128.

9.5.1 Car priority events

KB-ERROR, key

0	Priority OFF
1	Landing priority ON
2	Car priority ON
3	Lift off priority ON
4	Fire mode priority ON
5	Run-time monitoring ON
6	Auxiliary mode priority ON
7	Inspection mode priority ON



9.6 Systematic troubleshooting

NEW LIFT controller provide a special troubleshooting line which appears in line 2 of the operator display and which is continually refreshed. This line is displayed when the following functions are called up in turn from the main menu:

- SERVICE > DEBUG DISPLAY
- Press the YES ↑ key.
- Start troubleshooting by pressing the **ENTER** key.

You can now switch between troubleshooting lines: use the ↑ key to switch to the next line and the ↓ key to switch back to the previous line.

A restart or a panic error leading to a restart clears the troubleshooting line.

NOTE

In normal mode, the ↑/↓ keys are assigned to test drive to the top or bottom floor; these functions are not available again until troubleshooting has been switched off.

9.6.1 Filling the troubleshooting line

The troubleshooting line is filled by a selectable information channel. The display format used for these line depends on the information channel selected.

There are two main groups:

1. Data channels external to the KST (ports)
2. Data channels within the KST (variables, buffers)

9.6.2 Internal data

Internal data channels provide information only to users with special training. At present, approximately 25 internal information channels are programmed.

The list will be extended and adapted as required, and is shown below.

Internal Information	Format (Line 2)
Debug RAM monitor	xxxx: xx xxxx
Linear Positioning	LINEAR POSITIONING SYSTEM
rd shift status	RD=xxxxxxxx---->
kb shift status	KB=xxxxxxxx---->
ta shift status	TA=xxxxxxxx---->
status	RD KB TA
Doors	A: B:
Door status (A B C)	TZUST xx xx xx
Group command	GRP= cmd-floor-rqst
Group	R_K_O xx xx xx
Group, last illegal.code	ERDAT xx xx xx xx xx
dd_register	DD_RE xx xx xx xx xx
moc, mocx	MOC=xx xx
BGN load	20/100 xxxx xxxx
Drive program signals	FP= 0 1 L S DOWN UP
Positioning signals	KOP= xxxxxxxx<----
Positioning counters	CNT=LEV-UP-DOWN
Door message	rtur:xxxxxxxxxx
Car V0 n Level	KBV0= counter
MiBrEtage	MB=counter
drive-command	ANTR=xxxxxxxx
start-blocked	STBL=xxxtxxxxx
Car call enable	KBFR=01
LM-FSV drive state	SA4Status=xx

9.6.3 External data (ports)

Each port has eight separate information bits and is uniquely identifiable by an address.

Formatting: D2=XXXXXXXX

The left-hand X represents bit 7, the right-hand X bit 0.

The assignments of the ports and bits and the status (0 active/1 active) can be ascertained by trained personnel with the aid of the port assignment list.

Bit 7 on port D2 for example is the lock contact in the safety circuit.

External Datachannel	Format (Line 2)
Port	0072=00000000
Port 73 ... E5	.....
Port	00F6=00000000

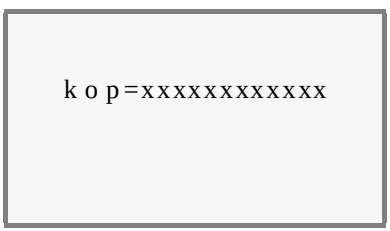
9.7 Systematic troubleshooting of shaft selector faults

A shaft selector fault can be detected as such as soon as magnet is overshot. The controller supports troubleshooting on the positioning signals and internal counters.

Call up the following in turn in the main menu:
▶ Im Hauptmenü nacheinander aufrufen:
SERVICE > DEBUG DISPLAY
▶ Press the YES key.
▶ Start troubleshooting by pressing the **ENTER** key.

The following information appears in the operator display:

9.7.1 Positioning signals



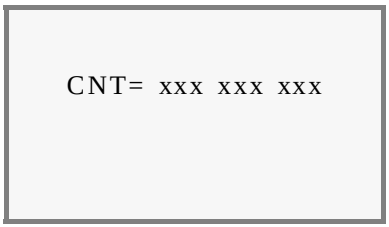
The last six positioning signals are stored in the controller, which enables an initial check to be made for bouncing or missing signals. Each signal comprises two digits: the most recent signal appears at the right-hand end of the line:
KOP = xxxxxxxxxxXX,

The oldest signal appears at the left-hand end of the line:
KOP = XXxxxxxxxxxx

9.7.2 Displayed copy signals:

00	No signal
01	KU
02	KO
04	UP
08	LEVEL A
10	DOWN
14	UP+DOWN
20	LEVEL B
28	LEVEL A+B in the shaft
29	LEVEL on bottom floor (KU)
2A	LEVEL on top floor (KO)

9.7.3 Internal positioning counter



The positioning counters display the flank numbers on each track. This forms the basis of internal slection. Three counters are provided, i.e. LEVEL, UP, DOWN; the counters are also displayed in this sequence.

The KO counter is mixed with the UP counter and the KU counter with the DOWN counter. Should a magnet be overshot, the count behaviour can be read off:

- A properly read magnet increases or decreases the count by two (flanks).
- If no magnet is active, the count must be even (0, 2, 4, 6, ...)
- If a magnet is active, the count must be odd (1, 3, 5, 7,....)

The signal value contains the associated floor:

- Odd level signal: (n-1) / 2
  Even level signal: n / 2
- Odd up signal: (n+1) / 2
  Even up signal: n / 2
- Odd down signal: (n-1) / 2
  Even down signal: n / 2

9.8 I/O PORT fault signals

The KST codes seven different faults through three ter-minals according to the arrangement below. The fault can be output to two different triple terminals:

1. As a fault signal:

The fault signal is taken to terminals
X221, X222 and X223t.

2. As a collective fault signal::

The fault signal is taken to terminals X285, X286 and X287. A collective fault signal is then present in addition on X223.

Each terminal is of open collector design, and can switch a lamp or relay directly to 24 V-GND.

9.8.1 Collective fault signalling

On the output terminals X221, X222 and X223, the system signals internal program states which can be included in the fault signal.

The three-bit output is coded, and represents the following information:

Description	Terminal		
	X223	X222	X221
Terminal	24 V	24 V	24 V
Lift Off	24 V	24 V	0 V
TCM active	24 V	0 V	24 V
Starting time	24 V	0 V	0 V
Emergency stop (shaft)	0 V	24 V	24 V
Lock (shaft)	0 V	24 V	0 V
Forced stop	0 V	0 V	24 V
Zone fault	0 V	0 V	0 V

Lift off	Car stationary in lift off
Starting time	Car fails to start after “n” seconds. “n” is equal to the CALL HANDOVER time (see “4.5 The CUSTOMER SERVICE menu, > CALL HANDOVER”)
Safety circuit 1	Safety circuit opened by EMER-GENCY STOP contact
Safety circuit 2	Safety circuit is open downst-ream of EMERGENCY STOP con-tact, i.e. door and lock contact
System off	Lift off active
TCM	Run-time monitoring activated
Zone fault	Zone loss during levelling or when level

9.8.2 Collective fault signalling

☑ Version 3.55 upwards

Terminals X285-X287 are not provided as standard in the system. They must be fitted and connected to I/O port 1.

Should one of the seven defined faults occur, a single-bit collective fault signal can be output on I/O port X223; at the same time, the coded 3-bit fault output is diverted to I/O port 2 (X285-X287).

Setting:

SYS2 +1

Output

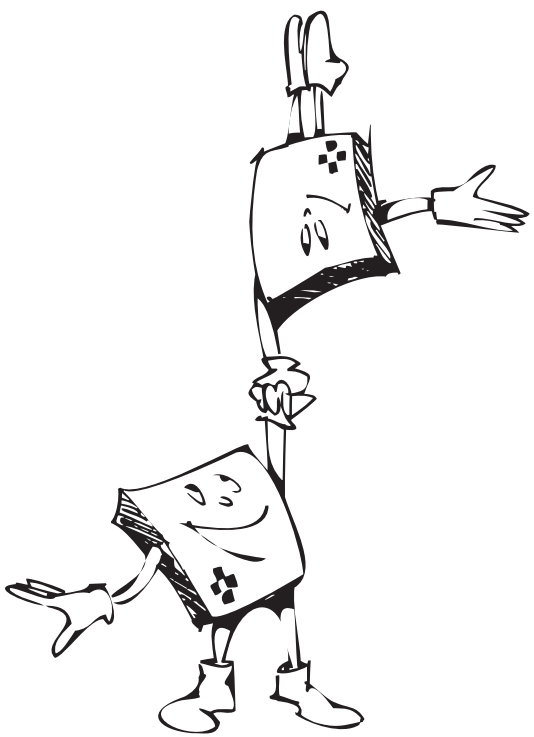
X223	Active in the event of a fault (collective fault)
X222	See “7.7.3Anti-nuisance”
X221	See „4.6 The CONFIGURATION menu > SYS1 > ... SYS3 ... > SYS7“

Description	**Terminal**		
	X287	**X286**	**X285**
No fault	24 V	24 V	24 V
Lift off	24 V	24 V	0 V
TCM active	24 V	0 V	24 V
Starting time	24 V	0 V	0 V
Emergency stop (shaft)	0 V	24 V	24 V
Lock (shaft)	0 V	24 V	0 V
Forced stop	0 V	0 V	24 V
Zone fault	0 V	0 V	0 V

10 Extended configuration for advanced users

CAUTION

This menu is intended for trained personnel only.



10.1 Debug mode

A hidden debug menu (for advanced troubleshooting) is implemented in the controller. The debug menu contains functions for monitoring internal procedures. The menu is started when the keys ⇦/⇨/ **ENTER** are pressed simultaneously.

10.1.1 Cold start

Restarts the system (as following fatal error).

10.1.2 RES EVENTS

Reset internal logging.

10.1.3 STOP EVENTS

Stop internal logging.

10.1.4 EVENTS

Display internal logging in coded form.

10.1.5 Debug RAM display

Any desired RAM address can be set here (four-digit HEX). The contents of the following five bytes are displayed in the debug/ports display.

10.1.6 Debug task info

Status 1-Status 2-Status 3 of the tasks RD/KB/TA/IP/ED can be selected here. The status is displayed in line 3, column 6 et seq, and continually updated.

TA AND DOOR MESSAGES ARE CODED

RD	Status: special status - emergency stop status
KB	Status: zone status - KMode
TA	Status: message (TA) message (door 1) message (door 2)
ED	- - - -

10.1.7 EEPROM directory

Internal system function with information function; displays the EEPROM ADDRESS assignment.

Index, date, length, content

00 01.04.92	0008	eedDIR
01 xx.xx.xx	0030	eedSYSPERM
02 xx.xx.xx	1040	eedSYSMOD1
03 xx.xx.xx	1040	eedSYSMOD2
04 xx.xx.xx	0230	eedSHAFT
05 xx.xx.xx	0706	eedPANIC
06 xx.xx.xx	2000	eedMODEM (in preparation)
07 xx.xx.xx	0688	eedSTAT statistik (in preparation)
08 xx.xx.xx	0000	KST-ID
09 xx.xx.xx	0000	KST-TEL-NUM
10	3428	
11	0001	

10.1.8 EEPROM clear

Used to initialize a new EEPROM device after insertion into the KST.

Places part of the EEPROM's SysMod memory in a defined status (SERIAL, ...).

NOTE

This function has to be activated with brandnew EEPROMs. After activating EEPROM clear the KST Editor will be required to complete the KST configuration.

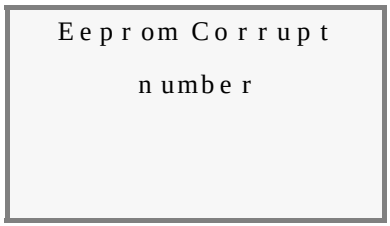
10.1.9 Park drive

Sets the parking/homing timer immediately to 0; parking is thereby initiated immediately.

No other activities.

10.2 System start messages

A)

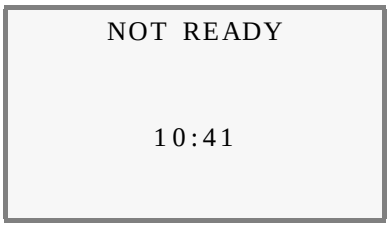


beSYSTEM	1
beEEWRITE	2
beEESYSMOD1	4
beEESYSMOD2	8
beEESYSPERM	16
beEPROM	32
beVERSION	64

New EEPROMs generally display “76”.

- Displays damaged areas in the EEPROM
- The number displayed is the sum number [i]

B)



Clock ticks only (serial interface must be in order), debug is available:

- Probably defective EEPROM (but valid checksum)

▶ Replace EEPROM.

10.3 Extended keyboard (S5, S6, S7)

CONFIGURATION > BASIS CONFIG > SYS3

Hardware S6 No function

Hardware S7 No function

10.4 Menu CONFIGURATION > BASIS CONFIG > SYS1

The SYS mode comprises eight different settings. A number between 0 and 255 is determined as the result. If different settings are selected, the individual values must be added together.

1 = Bit 0	☑ Version 3.304 upwards Display all faults
2 = Bit 1	☑ Version 3.304 upwards Operator display can be switched to CALLS by means of the ↻ key; CALLS are displayed in lines 2, 3, 4 right-justified together with the UP/DOWN/car symbols
4 = Bit 2	☑ Version 3.304 upwards If TIME-TRIGGERED PARKING is set: > INFORMATION > DATE extended to WEEKDAY (1=So, 2=Mo, 3=Tu, 4=We, 5=Th, 6=Fr, 7=Sa)
8 = Bit 3	☑ Version 3.56e upwards > Switch on TIME-TRIGGERED PARKING
16 = Bit 4	☑ Version 3.56e upwards Abort drive following door contact/lock contact fault in level (fault TA-154)
32 = Bit 5	☑ Version 3.5 upwards Power on: Evaluation of the direction saved at “Power off” permitted
64 = Bit 6	☑ Version 3.52 upwards Car light OFF only with lift Off (otherwise always)
128 = Bit 7	☑ Version 3.52 upwards Manual door does not switch on car light (lift Off active)

10.5 Menu CONFIGURATION > BASIS CONFIG > SYS2

1 = Bit 0	☑ Version 3.54 upwards I/O port fault signal to port 2 (X285-X287)
2 = Bit 1	☑ Version 3.54 upwards Swiss standard evacuation (X220: Fir mode, Lift Off)
4 = Bit 2	☑ Version 3.54 upwards Door test permitted during inspection; Open door/ close door buttons activate dead man’s door
8 = Bit 3	☑ Version 3.55 upwards Lock car call + landing call enable in the event of zone fault
16 = Bit 4	☑ Version 3.60c upwards Switch on Swiss standard fine levelling (relay drive)
32 = Bit 5	☑ Version 3.60b upwards Copying II-b (UP/DOWN permitted in LEVEL A or LEVEL B)
64 = Bit 6	☑ Version 3.56aupwards Priority events into fault memory
128 = Bit 7	☑ Version 3.56a upwards Activation of group time out with Manual door / Photo cell/ Door close button relates to > ADJUSTMENTS > DOOR TIME

NOTE

Bit 6 Save Priority events:
01 = Moc-1 Priority landing call
02 = Moc-2 Priority car call
....
07 = Moc-7 INSPECTION
00 = Moc-x reset PRIORITY OFF

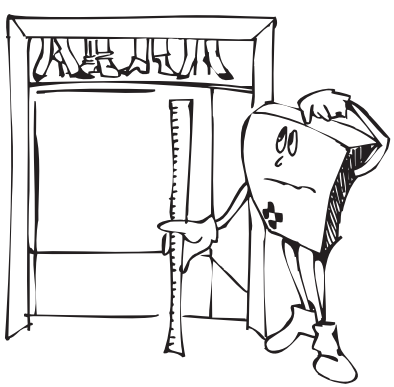
10.6 Menu CONFIGURATION > BASIS CONFIG > SYS3

☑ Trim facility with Version 3.1/1.8 upwards

1 = Bit 0	Call input quicker
2 = Bit 1	Reserved
4 = Bit 2	Latch shaft signals (display)
8 = Bit 3	Editing of short floor time allowed
16 = Bit 4	Correction drive permitted after fault

System test with selection emulation without pushbuttons when S5 = ON is valid:

32 = Bit 5	Suppress pmain/ mx_in() (car)
64 = Bit 6	Suppress ipmain/ x-in() (landing)
128 = Bit 7	rdzstnd/ Switch off short-circuit test at start. Srmain/ Generate zone from LEVEL.



10.7 Menu CONFIGURATION > BASIS CONFIG > SYS4

☑ Version 3.61 upwards

This setting defines the calling up of external programs in the EEPROM.

0 = no Bit	00000000	No external program
1 = Bit 0	00000001	Call up every 100 msec
2 = Bit 1	00000010	Call up every 200 msec
4 = Bit 2	00000100	Call up every 500 msec
8 = Bit 3	00001000	Call up every 1000 msec
16 = Bit 4	00010000	Setting for external programs
32 = Bit 5	00100000	Setting for external programs
64 = Bit 6	01000000	Setting for external programs
128 = Bit 7	10000000	Setting for external programs

10.8 Menu CONFIGURATION > BASIS CONFIG > SYS5

1 = Bit 0	☑ Version 3.60d upwards Park drive not dependent upon landing push-button enable
2 = Bit 1	Lock EAZ correction during selection interrupt
4 = Bit 2	☑ Version 3.61c upwards LIK: Suppress calibration drive
8 = Bit 3	☑ Version 3.61e upwards In/out calls: Programming enable
16 = Bit 4	☑ Version 3.61e upwards In/out calls: existing calls will be canceled
32 = Bit 5	☑ Version 3.62 upwards AWE function not available
64 = Bit 6	☑ Version 3.62 upwards Permanent zone without zone gap
128 = Bit 7	☑ Version 3.62 upwards Do SysMod not check!

10.9 Menu CONFIGURATION > BASIS CONFIG > SYS4, SYS6, SYS7

These settings are reserved.

10.10 Menu CONFIGURATION > BASIS CONFIG > SERIAL

☑ Version 3.60a upwards

The serial ports X701 and X702 of the KST are set here. The setting partial values can be found in the first column. Summation of all partial values produces the SERIAL setting value.

The settings are bit-oriented according to the following pattern:

Bit 1, 0 Protocol on serial interface X701

0 = No bit	00	NLF (normal)
1 = Bit 0	01	NLF (fast)
2 = Bit 1	10	NEWCOM
3 = Bit 1+0	11	No protocol

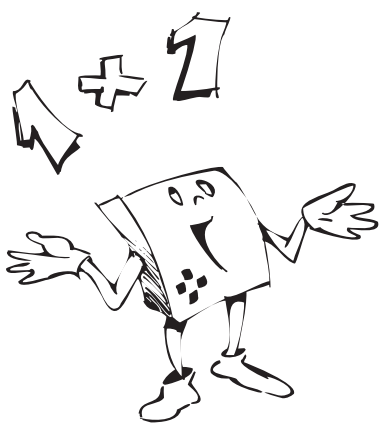
Bit 3, 2 Protocol on serial interface X702

0 = No bit	00	No protocol
4 = Bit 2	01	NLF (normal)
8 = Bit 3	10	NLF (fast)
12 = Bit 3+2	11	NEWCOM

Bit 7 - 4 NEWCOM Baudrate

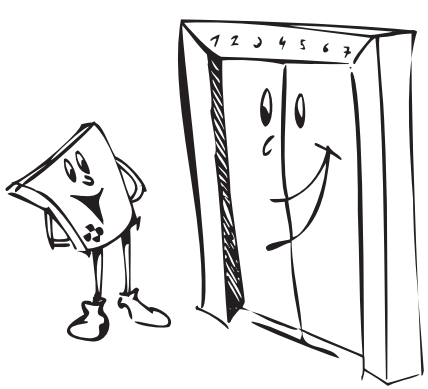
0 = no Bit	0000	Reserved
16 = Bit 4	0001	9600
32 = Bit 5	0010	4800
48 = Bit 5+4	0011	2400

The setting for a KST/LIK must be “45” (set automatically by the KST Editor).



10.11 Menu CONFIGURATION > BASIS CONFIG > DOOR TYPE

Door type	Features	Reverse actuation delay
PROGRAMMABLE	ADJUSTABLE	Adjustable
MEILLER SPINDEL	LIMIT SWITCH + DECOUPLING FACILITY	0,2 sec
KIEKERT FALTTÜRE	DE-ENERGIZED	0,2 sec
WITTUR	LIMIT SWITCH + DECOUPLING FACILITY	0,2 sec
SEMATIC LMDC2010	LIMIT SWITCH	0 sec
SIEMENS AT10		0 sec
RIEDL RTK	BUFFER	0,2 sec
I.G.V.	LIMIT SWITCH	0,2 sec
RATHGEBER PUFFER	BUFFER	0,2 sec
AS8081	BUFFER	0,2 sec



10.12 Menu CONFIGURATION > BASIS CONFIG > I/O PORT

The KST has three I/O ports with partial user programmability. The settings described below assign input or output models to I/O port 1 (terminals X216 – X220).

The models can be set in some case locally from the user keypad, and in all cases by means of the KST Editor.

A terminal coded as an input is activated by 24 V GND; a terminal coded as an output switches 24 V GND by open collector.

Setting:	Input/ Output	Effect (command)
1	E X216	Car call to bottom floor
	E X217	Car call to top floor
2	E X218	Activation of lift off
4	E X219	Drive must be stopped on the next floor
8	A X216	Output: activated by software-selectable function, see below.
16	E X220	☑ Version 3.311 upwards: Trigger fire mode, see "7.4 Fireman service control, fire mode and evacuation"
32	E X220	Activate landing priority
64	E X217	Overload input (parallel to normal overload; accepted on INSP/363)
128		Reserved

N O T E

Settings may be “mixed” (added together). The following settings are however mutually contradictory:
1 and 8; 16 and 32; 1 and 64.

Factory pre-set: setting 2

If the value 32 is set (landing priority), the following points are interrogated in CONFIGURATION > BASIS CONFIG and assigned to terminal 220:

- PRIOATTR (attribute)
- PRIORITY FLOOR

PRIOATTR setting

☑ Version 3.5 upwards

1 Selective opening of door A

2 Selective opening of door B
(1+2 must be added with through-loader)

4 Terminal 220 accepted

PRIORITY FLOOR setting

☑ Version 3.52 upwards

Any floor between 0 and KO.

Various output functions can be applied to terminal 216. These settings can only be configured by means of the KST Editor:

- Lift Off active
- Priority active (any priority may be selected)
- Car on specific floor (floor may be selected)
- Message: OVERLOAD
- Message: Drive to fireman service main floor
- Message: lift Off, maintenance byte active

One of the following programs can also be applied to each of the terminals X216-X220 by means of the KST Editor::

Pro-gram	Car button	Doors	Floor	Effect
1	locked	progr.	progr.	PRIO LANDING
2	x	x	x	EMERGENCY EVACUATION
3	reserved	progr.	progr.	CAR CALL
4	x	x	x	DRIVE STOP FUNCT
5	locked	x	progr.	LIFT OFF

N O T E

Should this KST Editor setting collide with the terminal setting from the I/O port, the I/O port setting applies.

10.13 I/O PORT 2

I/O port 2 is provided through plug X220 if required. Pin 10 is occupied (BRON=brake ON) when the LM-FSV drive program (frequency controller) is in use.

Fault signalling can currently be applied to pins 4, 6, 8.

The fault signal (3 bit) is applied to this terminal when:

CONFIGURATION > BASIS CONFIG > SYS2: +1

X220-pin	Source	Key
18	I/O 8	Reserved
16	I/O 9	Reserved
14	I/O 10	Reserved
12	I/O 11	Reserved
10	I/O 12	BRON
8	I/O 13	Fault signal
6	I/O 14	Fault signal
4	I/O 15	Fault signal

Reference: “9.8 I/O PORT fault signals”

10.14 I/O PORT 3

I/O port 3 is provided through plug X220 if required.

☑ A car call model can be assigned to these terminals with Version 3.54 upwards.

When a terminal is activated, an artificial car call is generated and accepted, resulting in generation of a soft landing priority.

This may not affect a configured group, as the calls are not distributed through the group but the car is still controlled from the landings.

☑ Can also be assigned with ADR-PRIO (LANDING CALL PRIO) from Version 3.60 upwards.

X220-pin	Source	Key
17	I/O 16	Reserved
15	I/O 17	Reserved
13	I/O 18	Reserved
11	I/O 19	Reserved
9	I/O 20	Reserved
7	I/O 21	Reserved
5	I/O 22	Reserved
3	I/O 23	Reserved

☑ The terminals assignment (floor, door) can be configured only using the KST Editor.

10.15 Menu CONFIGURATION > BASIS CONFIG > SHORT FLOOR

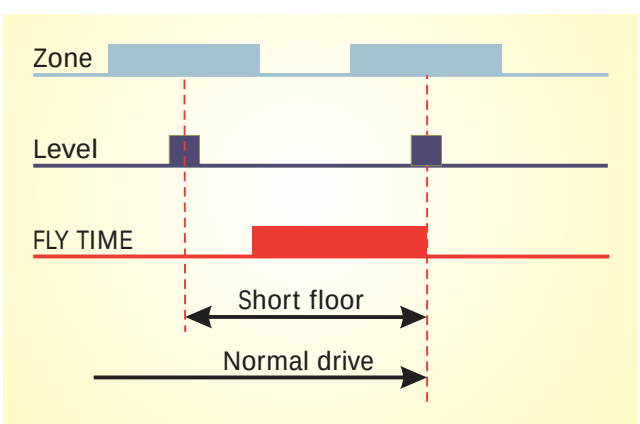
Shaft type setting for short floors.
“NONE” is “no short floor”.

SHORT FLOOR	Setting
NONE	0
SHAFT	1
BOTTOM FLOOR	2
SHAFT + BOTTOM FLOOR	3
TOP FLOOR	4
SHAFT + TOP FLOOR	5
BOTTOM + TOP FLOOR	6
ALL FLOORS	7

NOTE WITH VERSION 3.56 UPWARDS

Zone problems during landing on a short floor with a normal drive:

- The zone of the first floor must be overshot.
- The zone of the second floor is recognized by the requisite zone gap.



NOTE

Always perform the following setting in the main menu: CONFIGURATION > BASIS CONFIG > FLY TIME (V0 to level stop)

10.16 Menu CONFIGURATION > BASIS CONFIG > FIREMAN SERVICE

The fireman service mode comprises eight different settings, producing a number between 0 and 255. If different settings are selected, the individual values must be added together.

CAUTION

Settings 1 and 4 are contradictory and are not therefore permitted together.

Value	Key
0	Main landing is identical to fireman floor (*) 0: No diode required in shaft cable
1	Main landing is coded in shaft cable (normal case: diode in shaft cable)
2	Reserved
4	☑ Version 3.311 upwards Fire mode from I/O PORT (X220), see “10.12 Menu CONFIGURATION > BASIS CONFIG > I/O PORT”
8	Reserved
16	Fire mode automatically becomes fireman service mode. An additional fireman switch is not required in this case.
32	Door mode is HONG KONG (otherwise Switzerland)

Value	Key
64	Door on main landing OPEN (otherwise CLOSED)
128	Fireman service mode: can be switched off on main landing only

NOTE(*) TO VALUE 0

☑ The LIFT OFF floor must be selected in place of the FIREMAN FLOOR up to Version 3.53.

With fire mode in a group, the fireman floor should preferably be taken from the software (value 1, do not fit diode).

Hong Kong standard: 128+64+32+16+1 = 241

(240 without DIODE).

10.17 Menu CONFIGURATION > BASIS CONFIG > FIREMAN FLOOR

If bit 0 (value=1) has not been set in FIREMAN SERVICE mode, the fireman floor is not determined by the hardware by means of the landing button bus and fitting of a diode, but from the FIREMAN FLOOR variables described below:

Principle: Fireman floor + code for the door which is to be used in the event of a fire.

Code key: Bits 7, 6 are evaluated for the door setting on the fireman floor:

0 = No bit	00	All doors are opened unconditionally
64 = Bit 6	01	Door A is opened
128 = Bit 7	10	Door B is opened
192 = Bit 7+6	11	Doors A+B are opened

The remaining bits 0 ... 5 indicate the floor.

The FIREMAN FLOOR setting is also evaluated if fire mode is activated by a hardware line (X400) and no diode is fitted.

Two inputs can therefore be processed as fire mode activators (X400+X220).

10.18 Extended fault signals

New displays and fault signals of II-a positioning.

10.18.1 Terminology

1. COUNTER PROBLEM

Locks the UP/DOWN counters between the floors; is reset when the counters are re-loaded in LEVEL.

2. FREEZE

Copy counters are frozen when SYS3 [4] is set
(SYS3 += 16)

Starts correction drive
--> after approx. 20 secs. or with -->next call

If SYS1[5] is set (SYS1 += 32), FREEZE is set after power on if a direction was active at power off.

3. EMERGENCY STOP

Stop at next LEVEL (see KB-185 on the right side)

New position displays: “INSTANTANEOUS FLOOR”

[?O]FREEZE following fault, correction drive required

[??]FREEZE + COUNTER PROBLEM

[xx]COUNTER PROBLEM

[EE]Absolute stop at next LEVEL

[WS]Reverse stop (fire mode, prio, ...)

10.18.2 Additional Error Messages for II-a Positioning

KB-No.	Cause	Action
175	Levelling counter not ODD when level	Levelling counter reconstructed using last direction
176	Counter problem while levelling	Levelling counter reconstructed using UP/DOWN counters
177	Corrective action following KB-No. 176 not possible	FREEZE cond.
178	Counter descrepancy	FREEZE cond.
179	Slipped beyond LEVEL without motor	FREEZE cond.
180	Levelling counter bouncing detected.	Counters corrected
181	KO-safety error (slipped above KO)	COUNTER PROBLEM cond.
182	Up counter outside limit	COUNTER PROBLEM cond.
183	KU-safety error (slipped below KU)	COUNTER PROBLEM cond.
184	Down counter outside limit	COUNTER PROBLEM cond.
185	Counter outside KO or KU limit	EMERGENCY STOP COUNTER PROBLEM cond.
192	Correction drive executed (after FREEZE)	SYSTEM-INIT

10.19 Terminal Connections

10.19.1 Terminal Connections 230 V-signals X100

101	n.c.
102	K105 Contactor
103	K104 Contactor
104	K103 Contactor(Fast)
105	K102 Contactor (Up)
106	K101 Contactor(Down)
107	K100 Contactor
108	Drive Contactor-Input
109	Mains Neutral-Input
110	Door Bypass-Input
111	SHSP Lock Contact Input
112	SHNH Emergergency Stop-Input
113	K106 Retiring cam
114	SHTK Door Contactor-Input
115	Door Pre-selection-Input
116	TKB Door-B Contactor-Input
117	K109 Door-A Open Pre-selection
118	K108 Door-A Closed Pre-selection
119	TKA Door Contactor A Input
120	K111 Door-B Open Pre-selection
121	K110 Door-B Closed Pre-selection
122	SUE Contactor-monitoring Input
123	Mains Neutral - Output

10.19.2 Terminal Connections 24 V-Signals X200

370	KAKU* Pre-Limit/Orientation switch BOTTOM	
371	Pre-Limit/Orientation switch TOP	
201	+9 V Input Electronics Supply	
202	5 V GND Input	
203	24 V Enable	
204	+24 V Input	
205	24 V GND Input	
206	24 V GND	
207	+24 V GND	
208	+24 V Inspection/Aux.-Output	
209	+24 V Inspection-Input	
210	Inspection Limit Switch DOWN	
211	Inspections-Endschalter AB	[306]
212	Auxiliary Control UP	[308]
213	Auxiliary Control	
214	24 V Auxiliary-Input	
215	24 V Pre-selection relays	
216	I/O-00* 24 V	
217	I/O-01* 24 V	
218	I/O-02* 24 V	
219	I/O-03* 24 V	
220	I/O-04* 24 V	
221	I/O-05* 24 V	
222	I/O-06* 24 V	
223	I/O-07* 24 V	
224	Reserve 1 / X300 (31)	[313]
225	Reserve 2 / X300 (32)	[312]
226	24 V GND	
227	+24 V	
228	KALI* Cabin Light	
229	ADAU* Landing Calls OFF	
230	ZONE* Input	
231	ZOFR Zone Enable	

232	HSG GND	[324]
233	HSG Alarm*	[321]
234	HSG Emergency Light	[322]
235	HSG +	[323]
236	ZOSB* Zone Switch B	[320]
237	ZOSA* Zone Switch A	[319]
238	Engaged Light* [J1]	
239	Engaged Light +	
240	ADFR* Landing Call-Enable	

* Zero active

10.19.3 Terminal Connections NEW Power-Supply 24 V / 40 W

251	18 V AC
252	18 V AC
253	PE
254	24 V Enable
255	+24 V DC
256	+24 V DC
257	24 V GND
258	24 V GND
259	+8 V DC
260	8 V GND

The * character following the terminal connector discription refers to a 24 V open-collector output.

10.20 Connector Pin Assignment (Motherboard+CPU)

10.20.1 Cabin Connector X300 50-way D-SUB

01	MVU1* Min/ Overload	[315]
02	PAF1* Fire/ Car-Priority	[346]
03	KAKU* Pre-Limit/ Orientation switch BOTTOM	[370]
04	ETA0* Position Indicator	[342]
05	ETA2* Position Indicator	[340]
06	ETA4* Position Indicator	[338]
07	ETA6* Position Indicator	[336]
08	TZWA* Nudging	[363]
09	TDR2-A CLOSED/OPEN Door-A switch	[358]
10	LSKT-B Photocell B	[353]
11	TEZU-B Door-B Limit Switch CLOSED	[350]
12	IDR0* Car Call	[333]
13	IDR3* Car Call	[330]
14	IDR6* Car Call	[327]
15	ZOSB* Zone switch B	[320]
16	INEU Inspection Limit switch DOWN	[306]
17	INAB Inspection DOWN	[301]
18	MVU2* Max/Overload	[316]
19	PAF2* Landing-call enable/ Car-priority	[347]
20	KAKO* Pre-Limit/Orientation switch TOP	[371]
21	ETA1* Position Indicator	[341]
22	ETA3* Position Indicator	[339]
23	ETA5* Position Indicator	[337]
24	ETA7* Position Indicator	[335]
25	TDR1-A STOP/OPEN-Door-A switch	[362]
26	TEAU-A Door-A limit switch OPEN	[356]
27	TDR2-B CLOSED/OPEN Door-B	[351]
28	IDRF* Car-call enable	[334]

29	IDR2* Car Call	[331]
30	IDR5* Car Call	[328]
31	Reserve 1 (224)	[313]
29	IDR2* Car Call	[331]
30	IDR5* Car Call	[328]
31	Reserve 1 (224)	[313]
32	Reserve 2 (225)	[312]
33	INSC Inspection FAST	[310]
34	KAAA* Levelling-A	[366]
35	KABB* Levelling-B	[367]
36	KAAB* Landing switch / Slow-Down DOWN	[368]
37	Landing switch / Slow-Down UP	[369]
38	AURI* Direction Arrow UP	[343]
39	ABRI* Direction Arrow DOWN	[344]
40	KALI* Cabin Light OFF	
41	LSKT-A Photocell A	[360]
42	TEZU-A Door-A limit switch CLOSED	[357]
43	TDR1-B STOP/OPEN Door-B	[355]
44	TEAU-B Door-B limit switch CLOSED	[349]
45	IDR1* Car Call	[332]
46	IDR4* Car Call	[329]
47	IDR7* Car Call	[326]
48	ZOSA* Zone switch A	[319]
49	INEO Inspection limit switch UP	[308]
50	INAU Inspection UP	[302]

10.20.2 Changed connector assignment with LIK

34	+ CLK	[366]
35	– CLK	[367]
36	– DATA	[368]
37	+ DATA	[369]

10.20.3 Powersupply X390 NMAD

1	24 V GND Car	
2	– HSG	[232]
3	+HSG (Res)	[235]
4	+24 V Car	
5	HSG Alarm*	[233]
6	HSG Emergency Light	[234]

10.20.4 Shaft Connector X400 37-way D-SUB

Landing-Calls, (xx) = Floor in single-button collective configuration

01	ADR07* Landing DOWN (07)
02	ADR05* Landing DOWN (05)
03	ADR03* Landing DOWN (03)
04	ADR01* Landing DOWN (01)
05	ADR07* Landing UP (15)
06	ADR05* Landing UP (13)
07	ADR03* Landing UP (11)
08	ADR01* Landing UP (09)
09	ADFR* Landing-call Enable
10	RAU* Landing-call Priority
11	24 V GND
12	+24 V
13	+24 V
14	+24 V
15	AURI* Direction UP
16	ABRI* Direction DOWN
17	Engaged Light*
18	Engaged Light*
19	Engaged Light +
20	ADR06* Landing DOWN (06)
21	ADR04* Landing DOWN (04)
22	ADR02* Landing DOWN (02)
23	ADR00* AB Landing DOWN (00)
24	ADR06* UP Landing UP (14)
25	ADR04* UP Landing UP (12)
26	ADR02* UP Landing UP (10)
27	ADR00* UP Landing UP (08)
28	BRAF* Fire
29	ANAU* Lift OFF
30	+24 V
31	+24 V
32	+24 V
33	AURI* Direction UP
34	ABRI* Direction DOWN
35	Engaged Light*
36	Engaged Light*
37	Engaged Light +

10.20.5 Shaft connector X408 37-way D-SUB

Landing-Calls, (xx)=Floor in single-button collective configuration

01	ADR15* Landing DOWN (23)
02	ADR13* Landing DOWN (21)
03	ADR11* Landing DOWN (19)
04	ADR09* Landing DOWN (17)
05	ADR15* Landing UP (31)
06	ADR13* Landing UP (29)
07	ADR11* Landing UP (27)
08	ADR09* Landing UP (25)
09	ADFR* Landing-call Enable
10	PRAU* Landing-call Priority
11	24 V GND
12 - 14	+24 V
15	AURI* Direction UP
16	ABRI* Direction DOWN
17	Engaged Light *
18	Engaged Light *
19	Engaged Light +
20	ADR14* Landing DOWN (22)
21	ADR12* Landing DOWN (20)
22	ADR10* Landing DOWN (18)
23	ADR08* Landing DOWN (16)
24	ADR14* Landing UP (30)
25	ADR12* Landing UP (28)
26	ADR10* Landing UP (26)
27	ADR08* Landing UP (24)
28	BRAF* Fire
29	ANAU* Lift OFF
30 - 32	+24 V
33	AURI* Direction UP
34	ABRI* Direction DOWN
35	Engaged Light *
36	Engaged Light *
37	Engaged Light +

10.20.6 Connector EWG X401 15-way D-SUB

01	24 V GND
02	+24 V
03	AURI
04	GOTR
05	WRAU
06	ETH4
07	ETH2
08	ETH0
09	24 V GND
10	+24 V
11	ABRI
12	WRAB
13	ETH5
14	ETH3
15	ETH1

10.20.7 Pin Assignment Drive Program Connector X210 25-way D-SUB

01	+24 V Pre-selection
02	24 V GND
03	Reserved
04	KOUP
05	UMFP
06	TUFP
07	INRU
08	V0
09	V1
10	V2
11	AB FP 5 V
12	UP FP 5 V
13	+5 V
14	+24 V
15	24 V GND
16	5 V GND
17	5 V GND
18	5 V GND
19	5 V GND
20	5 V GND
21	5 V GND
22	5 V GND
23	5 V GND
24	5 V GND
25	+5 V

10.20.8 Pin Assignment CPU X1 48-way VG

	a	b	c
1	+5 V CPU	+5 V CPU	+5 V CPU
2	RD* Read CPU	A7	D7
3	IOE* IOE CPU	A6	D6
4	I/O* E 80..87	A5	D5
5	OUTA* 80 WADG	A4	D4
6	REST* Reset CPU	A3	D3
7	NMIM* NMI CPU	A2	D2
8	INT0* INT0 CPU	A1	D1
9	RESM desel Memory	A0	D0
10		KO5, KO 5 V	KU5, KU 5 V
11	5 V GND	5 V GND	5 V GND
12		24 V GND	KAKU*
13		24 V GND	KAAU*
14		KAKO*	KAAB*
15	ZOSB* Imp.-Sensor B	+24 V	KABB*
16	ZONE* Imp. from SHS	+24 V	KAAA*

10.20.9 Changed connector assignment with LIK

13	+ DATA
14	– DATA
15	– CLK
16	+ CLK

10.20.10 Landing-Call Expansion X2 48-way VG

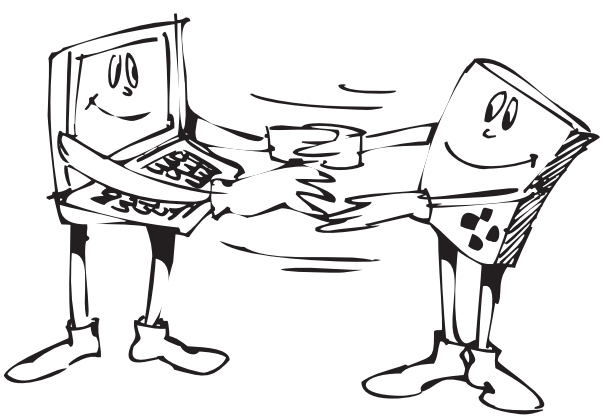
	a	b	c
1	+5 V	+5 V	+5 V
2	RD* Read CPU	A7	D7
3	IOE* IOE CPU	A6	D6
4	I/O* E 90	A5	D5
5	(IHI* V3.2)	A4	D4
6		A3	D3
7		A2	D2
8	24 EN	A1	D1
9	ADFR 5 V-Enable	A0	D0
10	5 V GND	5 V GND	5 V GND
11	24 V GND	24 V GND	24 V GND
12	+24 V	+24 V	+24 V
13	Engaged Light +	Engaged Light +	BRAF* Fire
14	Engaged Light *	Engaged Light *	PRAU* Prio Landing
15	AURI*	AURI*	ANAU*
	Direction UP	Direction UP	Lift OFF
16	ABRI*	ABRI*	
	Direction DOWN		

10.20.11 Expansion Connector X220 20-way Headen

01	+24 V
02	+24 V
03	I/O-23* 24 V
04	I/O-15* 24 V
05	I/O-22* 24 V
06	I/O-14* 24 V
07	I/O-21* 24 V
08	I/O-13* 24 V
09	I/O-20* 24 V
10	I/O-12* 24 V
11	I/O-19* 24 V
12	I/O-11* 24 V
13	I/O-18* 24 V
14	I/O-10* 24 V
15	I/O-17* 24 V
16	I/O-09* 24 V
17	I/O-16* 24 V
18	I/O-08* 24 V
19	24 V GND
20	24 V GND

10.20.12 Connector RS-232 serial X701 9-way D-SUB

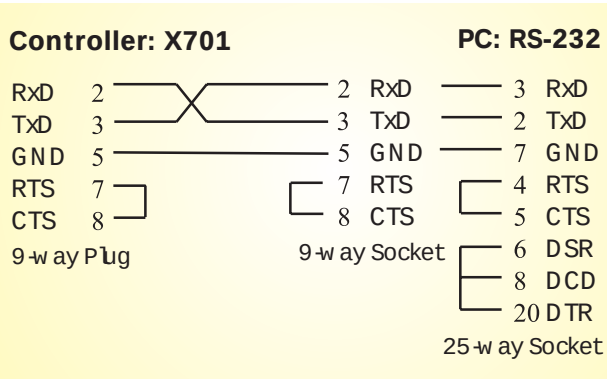
01	DCD (NC)
02	RxD RS-232 Rx-Input
03	TxD RS-232 Tx-Output
04	DTR (NC)
05	GND RS-232
06	DSR (-12 V)
07	RTS RS-232 Output
08	CTS RS-232 Input
09	RI (NC)



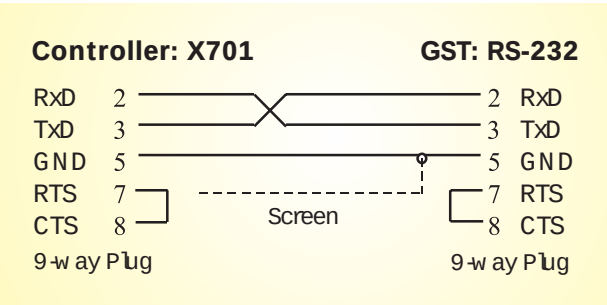
10.21 Serial Cabels

10.21.1 Cabel KST <--> PC

GST <--> PC ☑ Version 2.0 upward



10.21.2 Cabel KST<--> KST Group (GST)



10.22 Expansions

10.22.1 Expansion Connector INSPMX X391 48-way VG

Car Call

a		b	c
01	IDR07* [326]	IDR15* [373]	IDR0* (Data 0)
02	IDR06* [327]	IDR14* [374]	IDR1* (Data 1)
03	IDR05* [328]	IDR13* [375]	IDR2* (Data 2)
04	IDR04* [329]	IDR12* [376]	IDR3* (Data 3)
05	IDR03* [330]	IDR11* [377]	IDR4* (Data 4)
06	IDR02* [331]	IDR10* [378]	IDR5* (Data 5)
07	IDR01* [332]	IDR09* [379]	IDR6* (Data 6)
08	IDR00* [333]	IDR08* [380]	IDR7* (Data 7)

Position Indicator

	a	b	c
09	ETA07* [335]	ETA15* [381]	ETA4* (Addr 4)
10	ETA06* [336]	ETA14* [382]	ETA3* (Addr 3)
11	ETA05* [337]	ETA13* [383]	ETA2* (Addr 2)
12	ETA04* [338]	ETA12* [384]	ETA1* (Addr 1)
13	ETA03* [339]	ETA11* [385]	ETA0* (Addr 0)
14	ETA02* [340]	ETA10* [386]	24 V GND
15	ETA01* [341]	ETA09* [387]	24 V GND
16	ETA00* [342]	ETA08* [388]	+24 V

10.22.1 Pin Assignment Expansion Connector INSPMX X392 20-way Header

01	+24 V
02	+24 V
03	IDR39*
04	IDR31*
05	IDR38*
06	IDR30*
07	IDR37*
08	IDR29*
09	IDR36*
10	IDR28*
11	IDR35*
12	IDR27*
13	IDR34*
14	IDR26*
15	IDR33*
16	IDR25*
17	IDR32*
18	IDR24*
19	24 V GND
20	24 V GND

10.22.3 Pin Assignment Expansion Connector EWG X401 16-way D-SUB

01	24 V GND
02	+24 V
03	AURI*
04	GOTR
05	WRAU
06	ETH4*
07	ETH2*
08	ETH0*
09	24 V GND
10	+24 V
11	ABRI*
12	WRAB
13	ETH5*
14	ETH3*
15	ETH1*
16	ETH2* (cross-keying protection)

10.23 Pin Assignment Drive Program X710 (VVVF) 25-way D-SUB

01	Motor Overheat (X219-STOP)
02	V > 0.3 (X514-SHS)
03	Reserved
04	Reserved
05	Reserved
06	Reserved
07	20 -COM (FSV)
08	Direction UP (RUP)
09	Motor Temperature (FSV)
10	V > 0.3 (FSV)
11	V Landing
12	V3
13	+COM (FSV)
14	Motor Overheat (24 V GND)
15	Zone Enable (X231-ZOFR)
16	Reserved
17	Reserved
18	Reserved
19	24 V GND KST
20	Reserved
21	Controller Enable (REFR)
22	Brakes ON (I/O 12)(BRON) (FSV)
23	V Auxiliary
24	V Inspection
25	V2 Intermediate Speed

NEW LIFT
NEUE ELEKTRONISCHE WEGE

KST Operator Menu

E Menu-Entry, Menu-Selection/Exit, accept setting, store selected values

Move into Sub-Menu, Status Entry eg., YES Selection, increase values

Next Menu-Entry Selection/ Return

Status-Entry eg., NO Selection, decrease values

Info +

Special Functions

All Functions that can be performed immediatly without Menu entering

Car call to Top Floor

Enter Test-Menu

Car call to Bottom floor

Switch between Travel-Counter and Operating-Hour Counter Displays

Main-Menu Display

1 Main-menU
2
3 sub-menu
4

Sub-Menu Display

1 sub-menu
2
3 menu item
4 yes/NO/value

Menu Item Selection in both directions in all Menu Levels

> SAFETY DEBOUNCE > DOOR LOCK DELAY > TCM TIME
> START MONITOR > CONTACTOR MON > STAR/DELTA
> MOTOR OFF DELAY > SPEED CHANGE DLY > CAM DELAY
> DOOR OPEN DELAY > MAN.DOOR DEBOUNCE
> MIN WAIT CAR > MIN WAIT LANDING > LAND CALL ENABLE
> CAR CALL PRIO > FAULT SEND DELAY > CALL HANDOVER
> ANTI NUISANCE > PARKING > PARK TIME > PARKING FLOOR
> LIFT-OFF FLOOR > CAR LIGHT OFF > PHOTOCELL EXTEND
> DOOR TIME > DOOR REVERSE MAX > DOOR NUDGE.TIME
> DOOR APPROACH > DOOR PARK STATE
> DOOR CHANGE DELAY > REVERS TIME > DOOR OPEN TIME
> OPEN HOLD TIME >

> DRIVE SYSTEM > DOOR TYPE > MANUAL DOORS
> DOOR DECOUPLING > DOOR LIMIT SW
> DOOR DEENERGIZED > CAR DOOR BUFFER
> DEPARTURE ARROW > EMERG STOP FN > EMERG STOP MAX
> DOOR INTERR MAX > DOOR LOCK MAX > GROUP MODE
> FIREMAN SERVICE > KFM > MOTOR-T1 > MOTOR-T2> FIRE-MAN FLOOR > SHORT FLOOR
> FLY-TIME > ZONE TIME > RELEVELLING > RELEVEL STOP
> NACHHOLUNGS-VORL.
> DOOR ZONE OFF > I/O-PORT > PRIO-ETAGE
> PRIO-ATTRIBUTE > LANGUAGE > SERIAL > GONG > GONG-VERZOEGERUNG > SYS1 > SYS2 > SYS3 > SYS4 > SYS5 > SYS6 > SYS7 >

Grey Menu Items appear only, when the equipment is so configured.

TCM RESET | FAULT DISPLAY | STORE FAULTS | ORIENTATION | LANDING CALL OFF | DOOR LOCK
SET TIME | SET DATE | STATISTICS | SHAFT TABLE | INFO
ADJUSTMENTS | AUTOTEST | SERVICE INTERVALL | COUNTER RESET | FAULT RESET
STATISTICS RESET | DEBUG DISPLAY
BASIS CONFIG | PASSWORD | MENU LOCK | CALLS

> Menu Items
Sub-Menus
Main-Menus

INFORMATION | **SERVICE** | **CONFIGURATION**

Start: E **Press Button E to enter Main-Menu**

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Return again with keys „CTRL“ + „–“.

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